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The impact of COVID-19 pandemic on air transport: the case of Virgin Australia airlines

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ABSTRACT

This research study scrutinized the financial signs that were overlooked or were failed to be controlled by Virgin Australia from 2012 through 2019. Empirical research was done based on secondary data retrieved from the annual reports of the company. The annual reports of the company were analyzed in a multi-dimensional manner using financial analysis tools and instruments. The finds of this research demonstrate that it was not merely the Covid-19 pandemic, which pushed the world's oldest airlines into bankruptcy but there existed numerous critical issues within the company. Virgin Australia's financial statements revealed fifteen alarming indicators which were overlooked by the company. Right from operating revenue, operating expenses, profit margins, to current and liquid ratio all eleven indicators were hugely adverse since last eight years continuously. The outbreak of the Covid-19 pandemic forced lockdown across nations and the aviation industry was the worst hit amid the global turmoil. This proved fatal for Australia's second-largest carrier which was already ailing from financial distress for the last several years and thus the company had to file bankruptcy.

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1. Introduction

Air transportation provides 65.5 million jobs across the world, generates economic activities worth USD 2.7 trillion and air travel constitutes 35% of global trade by value (IATA, 2018). In 2019 approximately 4.5 billion people were carried across the globe by airline companies, connecting cities and businesses across the world (Air Transport Action Group, 2020).Thus, the global aviation industry plays a central role in the global economy. The Outbreak of COVID-19 pandemic (WHO, 2020) forced countries across the world to impose lockdowns, the travels were banned and the

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aircraft across the world were grounded (Bureau of Labor Statistics, 2020).By mid-March 2020, air travel dropped drastically all over the globe (Suau-Sanchez et al., 2020; Iacus et al., 2020). International air travel saw the sharpest drop, with year-on-year availability of seat kilometers declining by about 90% during April 2020 (Suau-Sanchez et al., 2020). The transportation industry was hit hardest as air travels shrunk (Dunford et al., 2020). Josephs (2020a,b) stated that the airline industry experienced a drop in capacity of about 60–80% at major carriers. The International Air Transport Association (IATA, 2020) projected a decrease in passenger revenues by 55% and a decrease in Revenue-Passenger-Kilometers (RPKs) by 48% during 2020. The International Civil Aviation Organization (ICAO, 2020) anticipated a drop of 47% to 58% in the seating offered by airlines during the first half of 2020, resulting in a loss of 503 to 607 million travelers, and airlines likely to lose gross operating revenues of USD 112 to USD 135 billion. According to Airports Council International (ACI, 2020), the Covid-19 pandemic wiped out half of the airport revenues and two-fifths of passenger traffic in 2020. Airlines informed a net loss of USD 5.2 billion in the first quarter of 2020 (Bureau of Transportation Statistics, 2020).

As the COVID-19 pandemic brought the transportation sector to halt with demand dipping for both national and intercontinental travel (Nian et al. 2020). Slotnick (2020) found that several airline companies collapsed, suspended operations, or declared bankruptcy, as the heavy fixed costs that remain, even when the planes are not flying, thus resulting in huge losses each month. Rashmi Rupesh et al. (2021) investigated the impact of financial distress and argued that business failure prediction models are very useful considering the fact that companies can benefit from warning signals and implicitly to avoid bankruptcy. Moreover, Bhavani et al. (2021) provided a new perspective on how financially distressed firms have an opportunity to try of reorganizing the business before filing for bankruptcy.

According to Leggett (2020) Easy Jet laid off its 4,000 cabin crew for two months, Air Canada has sent 15,200 employees and Qantas had put 20,000 employees on leave and British Airways decided to restructure and reduce staff by 12,000. The government of the United States of America sanctioned a large stimulus bill to prove financial aid to the crippled industry (Gilbertson, 2020). Caswell (2020), estimated that the Coronavirus (COVID-19) pandemic costs around USD 250 billion in the airline industry. The Boston Consulting Group forecasted that recovery may take between 3 to 18 months (BCG, 2020). Fauvelle (2020) and Molenaar et al. (2020) stated that it might take years, maybe a decade for the aviation industry to bounce back to the pre-pandemic levels.

Virgin Australia Airlines became Australia's first big corporate casualty of the Covid-19 pandemic, when it confirmed it had initiated voluntary administration in April 2020 (BBC, 2020; The Guardian, 2020; The Star, 2020). This happened soon after the Australian government rejected Virgin Australia's initial plea for an AUD1.4 billion (SID 1.3 billion) loan to debt loaded company (BBC, 2020; The Strait Times, 2020). The nation's second-largest transporter cut nearly all flights due to widespread travel bans. It was already struggling with huge long-term AUD 5bn (GBP 2.55bn; USD 3.17bn) debt (BBC, 2020). Virgin Australia had earlier held about 1% of inland flights, while Qantas controlled about 58% of the aviation sector (BBC, 2020). Virgin

Australia had around 12,000 creditors, comprising banks, aircraft financiers, landlords and, 9,000 employees (The Guardian, 2020). The creditors of the grounded airlines had poured almost USD 2bn into high-risk debt issued by the company face steep losses (The Guardian, 2020).When this company filed for bankruptcy on April 21, 2020, it took everyone by surprise.

Thus, the current study is taken up an in-depth analysis of the performance of Virgin Australia from 2012 to 2019. The present study is expected to look for answers to the following research questions:

- Was Covid-19 the main reason behind the bankruptcy of Virgin Australia?
- Were there other reasons as well that led to the bankruptcy of Virgin Australia?
- If yes, what were the major causes of the bankruptcy of Virgin Australia?
- Did Virgin Australia have significant indicators of bankruptcy in the previous years or was there a recent development that led to bankruptcy?

2. Significance of the study

The basic aim of this study was to get a deep understanding of the failure of businesses and the core reasons which forced an organization to file bankruptcy. This study intends to investigate factors that lead to bankruptcy, and which need to be monitored very closely to project and avoid future risk. The prime aim of this study was to discover the financial indicators or signals that were overlooked or were left unchecked by Virgin Australia from 2012 through 2019. This will also give insights for strategy formulation and implementation for future security and to ensure survival and growth. The finding of the study will be extremely beneficial to all businesses and all the major stakeholders at large, who are directly impacted by the failure of the business.

Previous literature has presented non-financial as well financial factors that lead a company towards bankruptcy (Ropega, 2011). In this paper, we have mined all the financial data available in Virgin Australia from 2012 through 2019 and tried to investigate the indicators that were ignored by Virgin Australia, which eventually resulted in the company's financial distress and bankruptcy. Our finds will contribute to the existing literature in numerous ways and our results will be of extreme interest to all forms of business enterprises especially aviation companies, investors, market analysts, government, and the public at large. We have examined the large spectrum of financial indicators and their implication on Virgin Australia's future standing. This study offers proof to investors' info set on the events of this company from 2012 till 2019.

The design of this paper is as follows, introduction carrying research questions, implications of the study, review of the literature followed by research methodology. Then comes the finding of the study and discussion on the results, after which is conclusion and references.

3. Literature review

Financial distress is a situation in which the winding-up of the value of a company's assets is far less than the total claims of the creditor (Chen, Weston, & Altman, 1995). The word bankruptcy was coined from two Latin words 'bancusis' and 'ruptus', which meant a place of business that is unfortunate or shattered (Beraho, 2010). During the 16th century, bankruptcy was regarded as a criminal offense, but today bankruptcy is regarded as the basis of prevention and corporate re-structuring (Beraho, 2010). Jones and Hensher (2005) said that bankruptcy could perpetuate economic and social costs on the economy. Ward (2007) said bankruptcy is a legal event rather than an economic event. Bankruptcy occurs when a company's total liabilities exceed the value of its total assets (Altman & Hotchkiss, 2006); thus, the company's total net worth is negative and it leads to either re-organizing of the company under court's supervision or total selling out of the remaining assets (Altman & Hotchkiss, 2006).

There are numerous causes why a company may fail. One of the major reasons can be management failure, though there are many other contributing causes (Altman & Hotchkiss, 2006; Hofer et al., 2009). Altman and Hotchkiss listed reasons for the failure of the aviation sector: (a) the sector operates at very low margins and thus suffer the constant threat of failure (Hofer et al., 2009; Guzhva, 2008; Vasigh et al., 2008); (b) the deregulation of the aviation sector removed the protective cover of government guidelines and its artificial price control mechanism (Chung & Szenberg, 1996; Altman & Hotchkiss, 2006; Vasigh et al., 2008); (c) the next reason is overcapacity. During the 1990s, the rise in demand for air transport due to the growing economy resulted in aviation companies adding on to their existing capacities (Hellermann, 2006); however, events such as September 11, 2001, attack at world trade towers, and the economic downturn has forced aviation companies to reduce capacity (Hofer et al., 2009; Becker & Dill, 2007; Guzhva, 2008; Bisignani, 2006; Hellermann, 2006; Vasigh et al., 2008). Capacities though are difficult to alter as they must be adjusted in relatively large increments (Hellermann, 2006); (d) another prominent reason for the failure of aviation companies is because the companies are highly leveraged and have huge fixed and labor costs (Vasigh et al., 2008; Bisignani, 2006). According to Pourmansouri et al. (2022) high mortality rates and other complications generated by COVID-19 pandemic determined a severe decrease in labor supply, with a negative impact on production.

Laitinen & Gin Chong, 1999 found that incessant corrosion of sales revenue resulted in bankruptcy. This showed a lack of finance due to poor management. Walters (1957) stated one reason for bankruptcy is that company has no cash balances to meet its short-term obligations. Svirina (2010) and Giannopoulos & Sigbjornsen (2019) concluded that cash and cash equivalents are one of the strong factors that trigger bankruptcy. Dance and Made (2019), said that return on investments directly helps to measure overall profitability, and thus negative Return on Investments indicates that the company is financially distressed. Philosophov et al. (2006) stated that a very strong cause for companies to declare bankruptcy is their inability to pay off their debt on time.

Research on financial distress has resulted in the development of numerous models since the 1960s (McKee, 2007), but there is no consensus on which is the best method (Ribbink et al., 2009; Ward, 2007). Some models tend to work better in certain industries, and most of the models need to be adjusted to a specific industry (Kroeze, 2005). One financial bankruptcy model discoursed in literature is the Altman Z-score model developed by Altman in a dissertation in 1967 and published in the Journal of Finance in 1968. This ground-breaking work has been reformed over the last 40 years by Altman himself (Altman & Hotchkiss, 2006) and several others (Kroeze, 2005; Chung & Szenberg, 1996; Scaggs & Crawford, 1986; Ribbink et al., 2009) and tested on numerous companies.

4. Research methodology

An extensive study of research articles was explored from 2000 to 2021 on the four databases which included—Scopus, Web of Science, Google Scholar, and EBSCO. The keywords used for the search were: insolvency, financial distress, the bankruptcy of businesses, and insolvency in the aviation industry. The criteria used for inclusion were papers published in English; Papers published since 2000; on topics such as insolvency, financial distress, the bankruptcy of businesses, and insolvency in the aviation industry. The studies which were excluded included the following: non-English language papers; papers published before 2000; editorials; letters; and news articles.

The secondary data of Virgin Australia Financial Statements from the year 2012 to 2019 was analyzed. The prime aim of this research is to identify the alarming indicators from a financial view point that financially distressed companies can manage and control for restructuring the business beforehand filing for bankruptcy. The annual reports of Virgin Australia Airlines available on the company's official website where downloaded. Using the data available in the annual reports of Virgin Australia an analysis was done of its Consolidated Statement of Comprehensive Income from 2012 to 2019 and Consolidated Statement of Financial Position from 2012 to 2019 using advanced excel.

We conducted Horizontal Analysis of the Consolidated Statement of Comprehensive Income, Horizontal Analysis of the Consolidated Statement of Financial Position, Vertical Analysis of the Consolidated Statement of Comprehensive Income, Vertical Analysis of the Consolidated Statement of Financial Position, Trend Analysis of Crucial Items in the Consolidated Statement of Comprehensive Income and the Consolidated Statement of Financial Position. We have also conducted the Ratio Analysis including profitability analysis, efficiency analysis, liquidity analysis, and solvency analysis of Virgin Australia from 2012 to 2019. After offering a thorough analysis of the company's financial statements, we identified the key financial indicators that trigger financial distress and that pushed Virgin Australia to file for bankruptcy.

5. Data analysis & results

5.1. Horizontal analysis of consolidated income statement of Virgin Australia from 2012–2019

Horizontal Analysis of Consolidated Income Statement is a comparative analysis of items mentioned in the income statement over from financial year 2012 to 2019. The aim is to assess the increase and decrease in the value of each item in the previous financial year.

Major observations:

- Virgin Australia's Passenger Revenue grew by a very insignificant rate during 2012–2013 1.90%. The company's revenue then dropped by 9.65% during 2013–2014, increased by 10.99% during 2013–2014, grew by a small 4.90% during 2015–2016, rose by 1.92% during 2016–2017, 16.52% during 2017–2018, grew by a meager 6.74% during 2018–2019 (Table 1).
- Virgin Australia's Freight Revenue dropped by 3.24% during 2016–2017 then the company recorded a major drop of 86.25% in the freight revenue during 2017–2018 (Table 1).
- Virgin Australia's Loyalty Program Revenue dropped by 79.12% during 2016–2017.
- Virgin Australia's Other Incomes dropped by 79.76% during 2013–2014 again dropped by 33.72% during 2015–2016, reduced by 83.04% during 2016–2017, and again dropped by 100% during 2017–2018 (Table 1).
- Virgin Australia's Net Income After Tax reduced by 530.26% during 2012–2013, dropped by 73.49% during 2014–2015, reduced by 17.31% during 2016–2017, and dropped by 51.72% during 2018–2019 (Table 1).
- The downfall of the Virgin Australia's Passenger Revenue, Freight Revenue, Loyalty Program Revenue, Net Income and Other Incomes are the major responsible factors for the downfall of the Virgin Australia.

5.2. *Horizontal* analysis of consolidated statement of financial position of Virgin Australia from 2012–2019

Horizontal Analysis of Consolidated Statement of Financial Position is a comparative analysis of items mentioned in the consolidated statement of financial position from financial year 2012 to 2019. The aim is to assess the increase and decrease in the value of each item in the previous financial year.

Major observations:

- Virgin Australia's Other Financial Current Assets dropped by 58.02% during 2012–2013, reduced by 52.44% during 2015–2016, dropped by 21.74% during 2016–2017, reduced by 51.98% during 2017–2018 and further decreased by 157.85% during 2018–2019 (Table 2).
- Virgin Australia's Other Financial Non-Current Assets dropped by 10.69% during 2012–2013, reduced by 9.03% during 2015–2016, dropped by 2.84% during 2017–2018, reduced by 10.03% during 2018–2019 (Table 2).
- Virgin Australia's Property, Plant and Equipment dropped by 10.08% during 2013–2014, reduced by 14.04% during 2014–2015, dropped by 6.78% during 2015–2016, marginally increased by 1.52%, 3.92%, and 5.65% during 2016–2017, 2017–2018 and 2018–2019 respectively (Table 2).

Table 1. Horizontal analysis of consolidated income statement of Virgin Australia from (2012–2019).

Particulars	% Change between 2012–2013	% Change between 2013–2014	% Change between 2014–2015	% Change between 2015–2016	% Change between 2016–2017	% Change between 2017–2018	% Change between 2018–2019
Revenue and income:							
Airline passenger revenue	1.90	−9.65	10.99	4.90	1.92	16.52	6.74
Freight revenue	233.33	227.85	3.39	11.87	−3.24	−86.25	19.39
Loyalty program revenue			6.10	4.60	−79.12	92.11	16.20
Other income	211.11	−79.76	658.82	−33.72	−83.04	−100.00	
Revenue and income	2.57	7.12	10.28	5.72	0.52	7.40	7.50
Operating expenditure:							
Aircraft operating lease expenses	18.64	11.33	5.76	24.34	16.56	−7.45	−1.52
Airport charges, navigation and station operations	6.13	11.59	15.74	7.32	4.03	3.60	4.41
Contract and other maintenance expenses	19.33	−14.94	−17.88	17.27	31.04	3.31	−0.16
Commissions & marketing & reservations expenses	−6.96	28.89	9.83	12.42	5.34	8.70	14.12
Fuel and oil	7.87	7.35	−1.41	−14.50	−14.93	13.71	19.58
Labour and staff related expenses	16.01	6.69	7.43	3.49	5.30	2.26	7.97
Impairment losses on cash-generating units					−92.73	1448.72	26.32
Impairment losses on other assets				−307.56	−44.20	−27.47	−100.00
Onerous contract expenses					−70.46	97.64	−18.97
Other expenses from ordinary activities	14.00	10.70	7.06	14.52	−2.77	−0.77	15.60
Depreciation and amortization	−0.77	9.31	2.84	2.47	9.74	8.91	10.70
Ineffectiveness on cash flow hedges	27.86	−21.59	−28.83	1.46	53.96	−100.00	
Net operating expenditure	7.06	12.33	3.66	9.91	−2.04	5.84	8.93
Share of net profit of equity-accounted investee			−65.91	−104.22	200.00	66.67	−100.00
Loss before net finance costs and tax	−255.75	259.98	−81.31	266.62	−52.61	−59.93	175.82
Finance income	−45.21	−33.50	198.50	−71.28	48.25	13.61	48.44
Finance costs	−14.04	82.75	11.03	36.19	2.04	−6.98	10.13
Net finance costs	14.61	133.85	−12.41	81.97	−1.06	−9.06	5.31
Loss before tax	−650.37	221.64	−66.09	161.24	−32.11	−30.46	46.62
Income tax expense	−1272.73	147.48	−45.58	190.50	−48.59	−535.36	−95.55
Income/loss	−530.26	260.65	−73.49	139.55	−17.31	251.61	−51.72

Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

Table 2. Horizontal analysis of consolidated statement of financial position of Virgin Australia from 2012–2019.

	% Change between 2012–2013	% Change between 2013–2014	% Change between 2014–2015	% Change between 2015–2016	% Change between 2016–2017	% Change between 2017–2018	% Change between 2018–2019
Current assets:							
Cash and cash equivalents	−27.67	35.02	31.22	9.27	24.23	1.39	22.92
Receivables	26.92	17.68	0.63	2.76	−1.37	−8.84	−4.58
Inventories	100.00	21.14	13.85	2.92	9.46	2.81	7.77
Derivative financial instruments	160.33	−82.13	152.02	−39.68	−90.87	66.67	−67.50
Other financial assets	−58.02	752.94	133.45	−52.44	−21.74	−51.98	−157.85
Other current assets	15.38	−100.00		205.00	0.00	−37.21	−3.70
Assets classified as held for sale			56.14	79.87	−97.49	−100.00	
Current tax assets	−100.00						
Total current assets	−5.92	27.19	28.43	8.05	4.31	10.74	9.39
Non-current assets:							
Receivables	−77.50	1211.11	−100.00		25.89	17.98	−4.70
Derivative financial instruments	16700.00	−88.10	245.00	236.23	−71.55	869.70	−78.75
Other financial assets	−10.69	302.35	69.95	−9.03	10.38	−2.84	−10.03
Investment accounted for using the equity method	1.30	−33.33	26.92	−39.39	15.00	78.26	−100.00
Deferred tax assets	199.08	350.61	47.45	95.52	30.86	−100.00	
Property, plant, and equipment	8.53	−10.08	14.04	−6.78	1.52	3.92	5.65
Intangible assets	226.34	9.92	55.75	4.68	4.49	−0.03	−5.88
Other non-current assets	−0.53	63.64	−15.03	−27.31	−24.87	−9.15	−19.38
Total non-current assets	16.60	−99.11	−15.03	142.69	5.57	−7.87	2.23
Total assets	10.78	5.72	23.51	4.52	5.21	−2.63	4.52
Current liabilities:							
Payables	14.82	6.87	13.09	1.05	−4.09	18.77	15.06
Interest-bearing liabilities	47.05	−3.56	22.24	98.91	−67.93	5.06	161.57
Derivative financial instruments	−100.00		289.74	−26.75	70.96	−88.44	124.24
Provisions	−2.02	18.04	43.52	−1.10	37.04	14.86	−5.02
Unearned revenue	6.39	9.73	16.29	5.44	8.46	6.32	10.56
Other current liabilities		−72.73	0.00	33.33	5400.00	−83.64	−19.44
Total current liabilities	12.66	7.11	19.74	20.87	−15.52	7.48	28.25
Non-current liabilities:							
Payables	135.71	12.12	−14.86	47.62	−32.26	−11.11	−51.79
Interest-bearing liabilities	6.78	4.89	45.99	−8.51	1.33	5.60	−0.71
Derivative financial instruments	−43.29	−60.22	−100.00		−20.00	−96.88	1300.00
Provisions	106.95	91.23	19.41	75.33	22.79	5.35	22.41
Unearned revenue		−100.00		−100.00			
Other non-current liabilities	−100.00		−1.54	−4.69	−16.39	156.86	−22.14
Total non-current liabilities	8.07	7.40	43.75	−3.94	3.03	5.58	1.67
Total liabilities	10.45	7.24	31.05	8.05	−7.00	6.51	14.84
Equity:							
Share capital	25.49	44.37	0.49	13.54	71.41	−0.21	−0.02
Reserves	88.20	−56.62	306.65	−33.90	−49.83	356.29	−56.17
Retained earnings	−40.37	−198.55	77.59	102.88	42.82	92.68	24.76
Equity attributable to the owners of the company			2.72	−15.32	71.95	−30.38	−45.97
Non-controlling interests				−123.12	−147.29	−40.98	711.11
Total equity	11.87	0.76	−2.60	−11.95	75.10	−30.42	−43.48
Total liability + equity	10.78	5.72	23.52	4.52	5.21	−2.63	4.52

Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

- Virgin Australia's Other Non-Current Assets dropped by 15.03% during 2014–2015, reduced by 27.31% during 2015–2016, dropped by 24.87% during 2016–2017, reduced by 9.15% during 2017–2018 and dropped by 19.38% during 2018–2019 (Table 2).
- Virgin Australia's Reserves reduced by 33.90% during 2015–2016, dropped by 49.83% during 2016–2017, reduced by 56.17% during 2018–2019 (Table 2).
- Virgin Australia's Equity Attributable to the Owners of the Company dropped by 158.32% during 2015–2016, reduced by 30.38% during 2017–2018, dropped by 45.97% during 2018–2019 (Table 2).
- Virgin Australia's Total Equity was reduced by 2.60% during 2014–2015, dropped by 11.95% during 2015–2016, reduced by 30.42% during 2017–2018, and dropped by 44.48% during 2018–2019 (Table 2).
- The Virgin Australia's Financial Current and non-current Assets downfall ear after year, reduction in the reserve, fall of equity, Property, Plant and Equipment dropped are the bad signs for the decline of the company.

5.3. *Vertical* analysis of consolidated income statement of Virgin Australia from 2012–2019

Vertical analysis of consolidated income statement helps in assessing the proportion of each item to the total income earned to be able to monitor and control those items. Here vertical analysis is done for consolidated income statement of Virgin Australia from financial year 2012 to 2019.

Major observations:

- Virgin Australia's Freight Revenue was huge insignificant. It amounted to 2 cents in total revenue of USD 100 during FYE 2012, 39 cents during FYE 2013, it improved from 2015–2017 when it became USD 15.88, 14.89 and 15.75 and 15.16 respectively in FYE 2014, FYE2015, FYE2016, and FYE 2017. But the company's Freight Revenue again drastically came down from 2017 to 2019 when it became USD1.94 during FYE 2018 and USD 2.16 during FYE 2019 (Table 3).
- Virgin Australia's Net Operating Expenditure exceeded its total revenue from 2013 onwards. The company's Net Operating Expenditure was USD 102.59 on the total revenue of USD 100 during FYE 2013, it was USD 107.58 during FYE 2014, USD 101.13 during FYE 2015, it was USD 105.13 during FYE 2016, it was USD 102.45 during FYE 2017, it was USD 100.96 during FYE 2018, it was USD 102.31 during FYE 2019 (Table 3).
- Virgin Australia's Net Income After Tax was consistently negative ever since FYE 2013. The company's Net Income After Tax was negligible at 58 cents in total revenue of USD 100 during FYE 2012. Thereafter it became negative, as the company incurred a loss of 2.44 USD during FYE 2013, loss of 8.22 USD during FYE 2014, loss of 1.98 USD during FYE 2015, loss of 4.48 USD during FYE 2016, loss of 3.68 USD during FYE 2017, loss of 12.05 USD during FYE 2018 and loss of 5.41 USD during FYE 2019 (Table 3).

Table 3. Vertical analysis of consolidated income statement of Virgin Australia from 2012 to 2019.

	FYE Jun 30, 2012	FYE Jun 30, 2013	FYE Jun 30, 2014	FYE Jun 30, 2015	FYE Jun 30, 2016	FYE Jun 30, 2017	FYE Jun 30, 2018	FYE Jun 30, 2019
Revenue and income:								
Airline passenger revenue	99.85	99.19	83.66	84.20	83.55	84.70	91.90	91.26
Freight revenue	0.02	0.39	15.88	14.89	15.75	15.16	1.94	2.16
Loyalty program revenue	0.00	0.00	0.38	0.37	0.36	0.08	6.09	6.59
Other income	0.14	0.42	0.08	0.54	0.34	0.06	0.00	0.06
Revenue and income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Operating expenditure:								
Aircraft operating lease expenses	−5.30	−6.13	−6.37	−6.11	−7.18	−8.33	−7.18	−6.57
Airport charges, navigation and station operations	−17.07	−17.66	−18.40	−19.31	−19.60	−20.28	−19.57	−19.01
Contract and other maintenance expenses	−4.75	−5.53	−4.39	−3.27	−3.62	−4.73	−4.55	−4.22
Commissions & marketing & reservations expenses	−7.03	−6.38	−7.68	−7.65	−8.13	−8.52	−8.62	−9.15
Fuel and oil	−26.63	−28.00	−28.07	−25.09	−20.29	−17.17	−18.18	−20.22
Labour and staff related expenses	−21.47	−24.28	−24.18	−23.56	−23.06	−24.16	−23.00	−23.10
Impairment losses on cash-generating units	0.00	0.00	0.00	0.00	−2.14	−0.15	−2.23	−2.62
Impairment losses on other assets	0.00	0.00	0.00	1.20	−2.35	−1.31	−0.88	0.00
Onerous contract expenses	0.00	0.00	0.00	0.00	−2.00	−0.59	−1.08	−0.81
Other expenses from ordinary activities	−8.77	−9.74	−10.07	−9.77	−10.59	−10.24	−9.46	−10.17
Depreciation and amortization	−6.30	−6.09	−6.22	−5.80	−5.62	−6.14	−6.22	−6.41
Ineffectiveness on cash flow hedges	−0.98	−1.22	−0.89	−0.58	−0.55	−0.85	0.00	−0.02
Net operating expenditure	−98.29	−102.59	−107.58	−101.13	−105.13	−102.45	−100.96	−102.31
Share of net profit of equity-accounted investee	0.00	0.00	−1.13	−0.35	0.01	0.04	0.06	0.00
Loss before net finance costs and tax	1.71	−2.59	−8.71	−1.48	−5.12	−2.41	−0.90	−2.31
Finance income	0.93	0.50	0.31	0.84	0.23	0.33	0.35	0.49
Finance costs	−1.94	−1.63	−2.78	−2.80	−3.60	−3.66	−3.17	−3.25
Net finance costs	−1.01	−1.13	−2.47	−1.96	−3.38	−3.32	−2.82	−2.76
Loss before tax	0.69	−3.72	−11.18	−3.44	−8.50	−5.74	−3.72	−5.07
Income tax expense	−0.11	1.28	2.97	1.46	4.02	2.06	−8.34	−0.34
Income/loss	0.58	−2.44	−8.22	−1.98	−4.48	−3.68	−12.05	−5.41

Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

- Insignificance freight revenue, exceeded Net Operating Expenditure in comparison with total revenue, negative movement of Net Income are majorly effected company and led to the bankruptcy.

5. 4. *Vertical* analysis of consolidated statement of financial position of Virgin Australia from 2012–2019

Vertical analysis of consolidated statement of financial position helps in assessing the proportion of each item to the total assets to be able to monitor and control those items. Here vertical analysis is done for consolidated statement of financial position of Virgin Australia from financial year 2012 to 2019.

Major observations:

- Virgin Australia's Other Current Assets were negligible throughout. It was 7 cents in total assets of USD 100 during FYE 2012 and FYE 2013, 0 cents during FYE 2014 and FYE 2015, 7 cents during FYE 2016 and FYE 2017, and 7 cents during FYE 2018 and FYE 2019 (Table 4).
- Virgin Australia's Other Non-Current Assets were negligible throughout. It was 47 cents in total assets of USD 100 during FYE 2012, 42 cents during FYE 2013, 65 cents during FYE 2014, 45 cents during FYE 2015, 31 cents during FYE 2016, 22 cents during FYE 2017, 21 cents during FYE 2018, and 16 cents during FYE 2019 (Table 4).
- Virgin Australia's Retained Earnings were negative since FYE 2014. It was −3.05 USD in total liability and equity of USD 100 during FYE 2014, −4.39 USD during FYE 2015, −8.52 USD during FYE 2016, −11.56 USD during FYE 2017, −22.88 USD during FYE 2018, and −27.31 USD during FYE 2019 (Table 4).
- Virgin Australia's Total Equity was unusually low at USD 9.57 during FYE 2019 (Table 4).
- Negligibility of current and non-current asset, negative slope of retained earnings, and low trend of total equity are also led to the downfall of company.

5.5. Trend analysis of selected indicators of Virgin Australia of Virgin Australia from 2012–2019

Trend analysis is an extended version of horizontal analysis so in trend analysis a change in specific item over a number of years is measured. Here trend analysis was done of vital items such as revenue, and operating expense of Virgin Australia from the financial year 2012 to 2019.

Major observations: *(FYE Jun 30, 2012, taken as Base Year)*

- Virgin Australia's Passenger Revenue increased insignificantly by 2% during FYE 2013, it dropped by 8% during FYE 2014, increased by 2%, 7%, and 9% during FYE 2015, FYE 2016, and FYE 2017. The company's passenger revenue then increased by 27% during FYE 2018 and 36% during FYE 2019 (Table 5, Figure 1).

Table 4. Vertical analysis of consolidated statement of financial position of Virgin Australia from 2012 to 2019.

	FYE Jun 30, 2012	FYE Jun 30, 2013	FYE Jun 30, 2014	FYE Jun 30, 2015	FYE Jun 30, 2016	FYE Jun 30, 2017	FYE Jun 30, 2018	FYE Jun 30, 2019
Current assets:								
Cash and cash equivalents	20.09	13.12	16.75	17.80	18.60	21.97	22.87	26.90
Receivables	5.08	5.82	6.47	5.27	5.18	4.86	4.55	4.15
Inventories	0.37	0.67	0.77	0.71	0.70	0.73	0.77	0.79
Derivative financial instruments	0.02	2.19	0.37	0.75	0.44	0.04	3.56	1.11
Other financial assets	0.20	0.08	0.62	1.17	0.53	0.40	0.20	0.48
Other current assets	0.07	0.07	0.00	0.00	0.07	0.07	0.04	0.04
Assets classified as held for sale	0.00	0.00	1.31	1.65	2.84	0.07	0.00	0.00
Current tax assets	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total current assets	25.83	21.94	26.39	27.44	28.37	28.12	31.99	33.48
Non-current assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Receivables	0.20	0.04	0.50	0.00	2.14	2.56	3.10	2.82
Derivative financial instruments	0.00	0.38	0.04	0.12	0.38	0.10	1.03	0.21
Other financial assets	1.19	0.96	3.66	5.04	4.39	4.60	4.59	3.95
Investment accounted for using the equity method	0.19	0.18	0.11	0.11	0.07	0.07	0.13	0.00
Deferred tax assets	0.27	0.74	3.14	3.75	7.01	8.72	0.00	0.89
Property, plant, and equipment	69.31	67.90	57.75	53.32	47.56	45.89	48.98	49.51
Intangible assets	2.53	7.45	7.74	9.76	9.78	9.71	9.97	8.98
Other non-current assets	0.47	0.42	0.65	0.45	0.31	0.22	0.21	0.16
Total non-current assets	74.17	78.06	0.65	0.45	71.63	71.88	68.01	66.52
Total assets	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Current liabilities:								
Payables	12.65	13.11	13.26	12.14	11.74	10.70	13.05	14.36
Interest-bearing liabilities	6.36	8.44	7.70	7.62	14.50	4.42	4.77	11.93
Derivative financial instruments	0.90	0.00	0.25	0.79	0.55	0.90	0.11	0.23
Provisions	2.61	2.30	2.57	2.99	2.83	3.68	4.35	3.95
Unearned revenue	17.32	16.63	17.26	16.25	16.40	16.90	18.46	19.52
Other current liabilities	0.00	0.02	0.01	0.01	0.01	0.35	0.06	0.04
Total current liabilities	39.84	40.51	41.05	39.79	46.02	36.95	40.78	50.04
Non-current liabilities:								
Payables	0.07	0.15	0.16	0.11	0.15	0.10	0.09	0.04
Interest-bearing liabilities	35.55	34.26	33.99	40.17	35.16	33.87	36.73	34.89
Derivative financial instruments	0.41	0.21	0.08	0.00	0.13	0.10	0.00	0.04
Provisions	0.65	1.21	2.19	2.12	3.55	4.15	4.49	5.25
Unearned revenue	0.00	0.16	0.00	0.03	0.00	0.00	0.00	0.00
Other non-current liabilities	0.22	0.00	0.14	0.11	0.10	0.08	0.21	0.16

(*continued*)

Table 4. Continued.

	FYE Jun 30, 2012	FYE Jun 30, 2013	FYE Jun 30, 2014	FYE Jun 30, 2015	FYE Jun 30, 2016	FYE Jun 30, 2017	FYE Jun 30, 2018	FYE Jun 30, 2019
Total non-current liabilities	36.89	35.99	36.56	42.55	39.10	38.29	41.52	40.39
Total liabilities	76.73	76.50	77.60	82.34	85.12	75.24	82.31	90.43
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Equity:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Share capital	15.85	17.96	24.52	19.95	21.67	35.30	36.18	34.61
Reserves	1.34	2.27	0.93	3.07	1.94	0.93	4.34	1.82
Retained earnings	6.08	3.27	−3.05	−4.39	−8.52	−11.56	−22.88	−27.31
Equity attributable to the owners of the company	0.00	0.00	22.40	18.63	15.09	24.67	17.64	9.12
Non-controlling interests	0.00	0.00	0.00	0.97	−0.21	0.10	0.06	0.45
Total equity	23.27	23.50	22.40	17.66	14.88	24.76	17.69	9.57
Total liability + equity	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

Table 5. Trend analysis of selected indicators of Virgin Australia from 2012 to 2019 FYE Jun 30, 2012, taken as Base Year.

	FYE Jun 30, 2012	FYE Jun 30, 2013	FYE Jun 30, 2014	FYE Jun 30, 2015	FYE Jun 30, 2016	FYE Jun 30, 2017	FYE Jun 30, 2018	FYE Jun 30, 2019
Airline passenger revenue	100	102	92	102	107	109	127	136
Airport charges, navigation, and station operations	100	106	118	137	147	153	159	166
Labour and staff-related expenses	100	116	124	133	138	145	148	160
Other expenses from ordinary activities	100	114	126	135	155	150	149	173

Source: Author Creation, Using Table 5 and Figure 1 made from Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

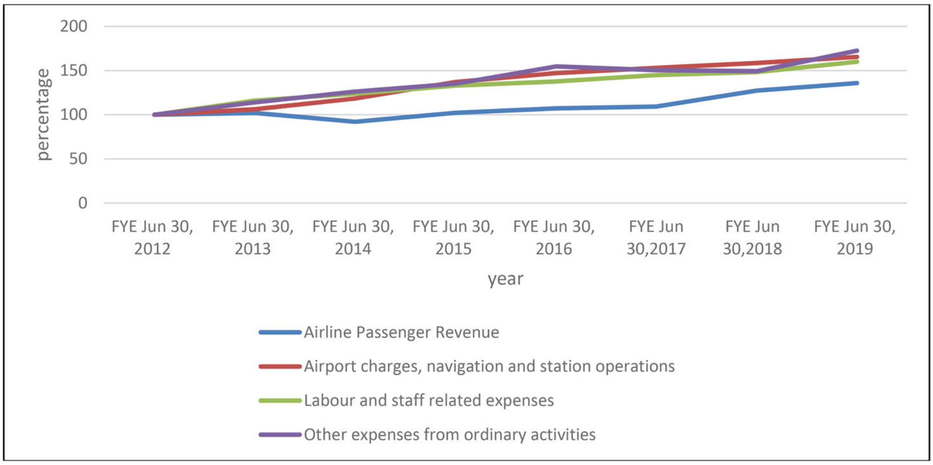

Figure 1. Trend Analysis of Virgin Australia from 2012 to 2019. Source: Author Creation, Using Table 5 and Figure 1 made from Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

- Virgin Australia's Airport charges, navigation, and station operations grew by 6% during FYE 2013, it by 18% during FYE 2014, increased by 37%, 47%, and 53% during FYE 2015, FYE 2016, and FYE 2017. The company's charges, navigation, and station operations then increased by 59% during FYE 2018 and 66% during FYE 2019 (Table 5, Figure 1).
- Virgin Australia's Labour and staff-related expenses increased by 16% during FYE 2013, by 24% during FYE 2014, increased by 33%, 38%, and 45% during FYE 2015, FYE 2016, and FYE 2017. The company's Labour and staff-related expenses then increased by 48% during FYE 2018 and 60% during FYE 2019 (Table 5, Figure 1).
- Virgin Australia's other expenses from ordinary activities grew by 14% during FYE 2013, 26% during FYE 2014, increased by 35%, 55%, and 50% during FYE 2015, FYE 2016, and FYE 2017. The company's other expenses then increased by 49% during FYE 2018 and 73% during FYE 2019 (Table 5, Figure 1).

Table 6. Profitability analysis of Virgin Australia from 2012 to 2019.

	FYE Jun 30, 2012	FYE Jun 30, 2013	FYE Jun 30, 2014	FYE Jun 30, 2015	FYE Jun 30, 2016	FYE Jun 30, 2017	FYE Jun 30, 2018	FYE Jun 30, 2019
Profit margin ratio	0.58	−2.44	−8.22	−1.98	−4.48	−3.68	−12.05	−5.41
Return on assets	0.57	−2.33	−7.77	−1.79	−3.80	−3.00	−10.42	−4.98
Return on equity	2.45	−9.96	−33.89	−9.07	−23.41	−15.03	−48.96	−36.80

Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

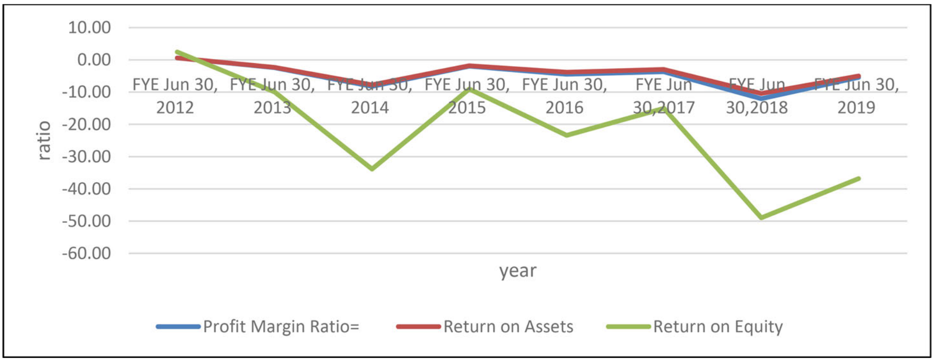

Figure 2. Profitability Ratio of Virgin Australia from 2012 to 2019. Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

- Late 2014 downfall of Passenger Revenue, increase in the Airport charges, navigation, and station and Labour and staff-related expenses are also one of the factors led to the collapse of the company.

Ratio analysis of Virgin Australia from 2012–2019

Ratio analysis is a quantitative method of gaining insight into a company's profitability, liquidity, operational efficiency, and solvency by investigation its financial statements such as the balance sheet and income statement.

5.6. Profitability analysis of Virgin Australia from 2012–2019

Profitability analysis helps to assess the net profits in relation to net sales, net assets and total equity. It helps companies to further optimize these returns in future years. Here profit margin ratio, return on assets and return on equity were calculated for Virgin Australia from financial year 2012 to 2019.

Major observations:

- Virgin Australia's Profit Margin Ratio were extremely poor ever since 2012. The company's profit margin ratio was 0.58% during FYE 2012, −2.44% during FYE 2013, −8.22% during FYE 2014, −1.98% during FYE 2015, −4.48% during FYE 2016, −3.68% during FYE 2017, −12.05% during FYE 2018, −5.41% during FYE 2019 (Table 6, Figure 2).

Table 7. Efficiency analysis of Virgin Australia from 2012 to 2019.

	FYE Jun 30, 2012	FYE Jun 30, 2013	FYE Jun 30, 2014	FYE Jun 30, 2015	FYE Jun 30, 2016	FYE Jun 30, 2017	FYE Jun 30, 2018	FYE Jun 30, 2019
Assets turnover ratio	0.98	0.95	0.95	0.91	0.85	0.81	0.86	0.92

Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

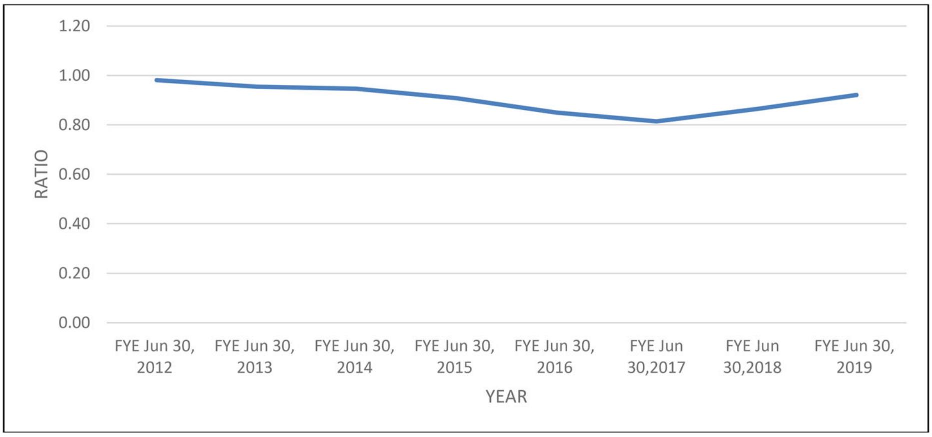

Figure 3. Efficiency Ratios of Virgin Australia from 2012 to 2019. Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

- Virgin Australia's Return on Assets were extremely poor ever since 2012. The company's return on assets was 0.57% during FYE 2012, −2.33% during FYE 2013, −7.77% during FYE 2014, −1.79% during FYE 2015, −3.80% during FYE 2016, −3% during FYE 2017, −10.42% during FYE 2018, −4.98% during FYE 2019 (Table 6, Figure 2).
- Virgin Australia's Return on Equity were extremely poor ever since 2012. The company's return on equity was 2.45% during FYE 2012, −9.96% during FYE 2013, −33.89% during FYE 2014, −9.07% during FYE 2015, −23.41% during FYE 2016, −15.03% during FYE 2017, −48.96% during FYE 2018, −36.80% during FYE 2019 (Table 6, Figure 2).
- Profit Margin Ratio, Return on Assets and equity were extremely poor led to the failure of the company.

5.7. *Efficiency* analysis of Virgin Australia from 2012–2019

Efficiency ratio helps in assessing how efficiently the company's total assets were used during the given financial year. Here Assets Turnover Ratio of Virgin Australia was calculated from the financial year 2012 to 2019.

Major observations:

- Virgin Australia's Assets Turnover Ratio was dangerously low ever since 2012. The company's Assets Turnover Ratio was 0.98 times during FYE 2012, 0.95 times

Table 8. Liquidity analysis of Virgin Australia from 2012 to 2019.

	FYE Jun 30, 2012	FYE Jun 30, 2013	FYE Jun 30, 2014	FYE Jun 30, 2015	FYE Jun 30, 2016	FYE Jun 30, 2017	FYE Jun 30, 2018	FYE Jun 30, 2019
Current ratio	0.65	0.54	0.64	0.69	0.62	0.76	0.78	0.67
Quick ratio	0.64	0.52	0.62	0.67	0.60	0.74	0.76	0.65

Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

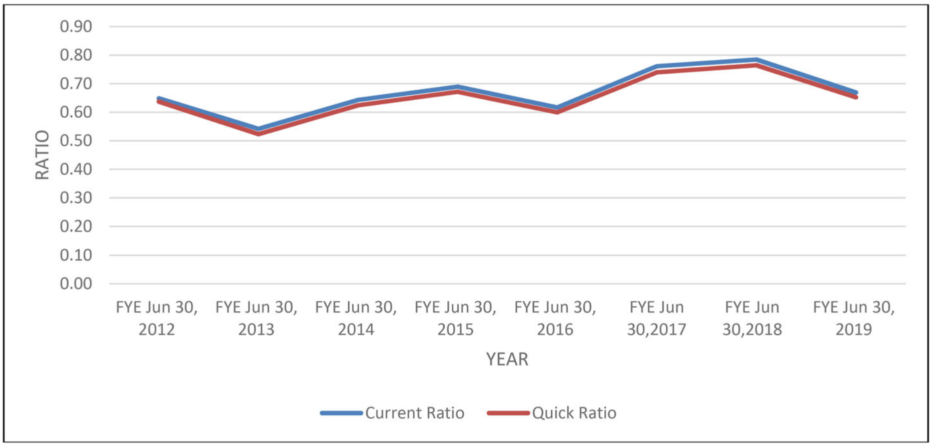

Figure 4. Liquidity Analysis of Virgin Australia from 2012 to 2019. Source: Author Creation, Using Virgin Australia's Annual Reports from (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

during FYE 2013 and during FYE 2014, 0.91 times during FYE 2015, 0.85 times during FYE 2016, 0.81 times during FYE 2017, 0.86 times during FYE 2018, 0.92 times during FYE 2019 (Table 7, Figure 3).

5.8. *Liquidity* analysis of Virgin Australia from 2012–2019

Liquidity analysis helps in measuring a company's ability to meet its short-term obligations. Here the current ratio and quick ratio was calculated for Virgin Australia from the financial year 2012 to 2019 to assess its short term liquidity.

Major observations:

- Virgin Australia's Current Ratio was extremely poor from 2012 to 2019. The company's current ratio was 0.65: 1 during FYE 2012, 0.54: 1 during FYE 2013, 0.64: 1 during FYE 2014, 0.69: 1 during FYE 2015, 0.62: 1 during FYE 2016, 0.76: 1 during FYE 2017, 0.78: 1 during FYE 2018, 0.67: 1 during FYE 2019 (Table 8, Figure 5).
- Virgin Australia's Quick Ratio was extremely poor from 2012 to 2019.The company's current ratio was 0.64: 1 during FYE 2012, 0.52: 1 during FYE 2013, 0.62: 1 during FYE 2014, 0.67: 1 during FYE 2015, 0.60: 1 during FYE 2016, 0.74: 1 during FYE 2017, 0.76: 1 during FYE 2018, 0.65: 1 during FYE 2019 (Table 8, Figure 4).

Table 9. Solvency analysis of Virgin Australia from 2012 to 2019.

	FYE Jun 30, 2012	FYE Jun 30, 2013	FYE Jun 30, 2014	FYE Jun 30, 2015	FYE Jun 30, 2016	FYE Jun 30, 2017	FYE Jun 30, 2018	FYE Jun 30, 2019
Interest coverage ratio	0.88	−1.59	−3.13	−0.53	−1.42	−0.66	−0.28	−0.71
Debt equity ratio	1.80	1.82	1.86	2.71	3.34	1.55	2.35	4.89

Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

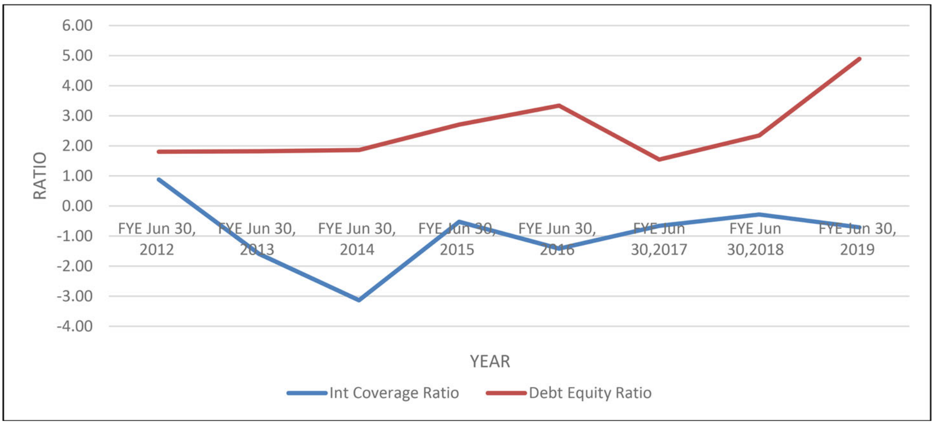

Figure 5. Solvency Analysis of Virgin Australia from 2012 to 2019. Source: Author Creation, Using Virgin Australia's Annual Reports (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

5.9. Solvency analysis of Virgin Australia from 2012–2019

Solvency analysis helps to assess the financial health over long term. Precisely its tries to assess the capacity for debt servicing and also analyses the debt to equity ratio. We calculated the interest coverage ratio and debt equity ratio for Virgin Australia from the financial year 2012 to 2019.

Major observations:

- Virgin Australia's Interest Coverage Ratio has been significantly poor ever since FYE 2012. The company's current ratio was 0.88 times during FYE 2012, −1.59 times during FYE 2013, −3.13 times during FYE 2014, −0.53 times during FYE 2015, −1.42 times during FYE 2016, −0.66 times during FYE 2017, −0.28 times during FYE 2018, −0.71 times during FYE 2019 (Table 9, Figure 5).
- Virgin Australia's Debt Equity Ratio were as follows: 1.80: 1 during FYE 2012, 1.82: 1 during FYE 2013, 1.86: 1 during FYE 2014, 2.71: 1 during FYE 2015, 3.34: 1 during FYE 2016, 1.55: 1 during FYE 2017, 02.35: 1 during FYE 2018, 4.89: 1 during FYE 2019 (Table 9, Figure 5).
- Assets Turnover Ratio, Interest Coverage Ratio, Debt Equity Ratio, Current Ratio and quick ratio were gone extremely poor is also responsible for the bankruptcy of the company.

6. Discussion

It is apparent that from the above analysis of Virgin Australia that the company suffered from serious drop in its operating revenues, while the company's net operating expenses continuously went on rising hence the company's net income after taxes were in negative. It is also evident that that company's profitability ratios were negative, the company was not able to make efficient use of its assets and the company's liquidity ratio was extremely poor.

The warning signs from horizontal, vertical, and trend analysis of Virgin Australia from 2012 to 2019 are as follows. Horizontal Analysis of Consolidated Statement of Income Statement of Virgin Australia that the company's freight revenue dropped by 86.25% during 2017–2018 and the company's Loyalty Program Revenue decreased by 79.12% during 2016–2017 (Table 1). The Vertical analysis of the Consolidated Statement of Income Statement of Virgin Australia disclosed that the company's Freight Revenue was ranged between 0.02 cents. USD 0.39, USD 1.94, and USD 2.16 in total revenue of USD 100 during 2012, 2013, 2018, and 2019 respectively (Table 3). It is thus evident that the company was unable to increase its operating revenue, especially freight revenue which was the main cause for the company's financial distress. This finding agrees with previous research by Laitinen and Gin Chong (1999) who found that continuous decline of sales revenue can lead to bankruptcy. Virgin Australia's net operating expenditure was USD 102.59, USD107.58, USD 101.13, USD 105.13, USD102.45, USD 100.96, USD 102.31, USD 100.96 and USD 102.32 in 2013 through 2019 when the company's total revenue was 100 that resulted in negative returns from 2013 through 2019 (Table 3). The company's navigation and station operations went on increased by 18%, 37%, 47%, 53%, 59% and 66% from 2014 through 2019 (Table 5, Figure 1). Also, it was noticed that the company's Labour and staff-related expenses increased by 16%, 24%, 33%, 38%, 45%, 48%, and 60% from 2013 through 2019 (Table 5, Figure 1).So the company had enough alarms which went unnoticed and it eventually left no choice for the company but to call it a day. Virgin Australia's net income after tax was reduced by 530.26% during 2012–2013, dropped by 73.49% during 2014–2015, reduced by 17.31% during 2016–2017, and dropped by 51.72% during 2018–2019 (Table 2). The net income after tax was – USD 0.58, −USD 2.44, −USD8.22, −USD 1.98, −USD 4.48, −USD 3.68, −USD 12.05, −USD5.41 on the total revenue of USD 100 for all the year from 2012 through 2019 (Table 3). Virgin Australia's Other Financial Current Assets dropped by 58.02% during 2012–2013, reduced by 52.44% during 2015–2016, dropped by 21.74% during 2016–2017, reduced by 51.98% during 2017–2018. This raised serious questions on the declining liquidity position of the company over the past five years (Table 2). Virgin Australia's Reserves reduced by 33.90% during 2015–2016, dropped by 49.83% during 2016–2017, reduced by 56.17% during 2018–2019 (Table 2). Virgin Australia's retained earnings were – USD 3.05, −USD4.39, −USD 8.52, −USD11.56, −USD 22.88, −27.31 in the total liabilities of USD 100 from 2014 through 2019 (Table 2).

While the warning sign from ratio analysis of Virgin Australia from 2012 to 2019 are as follows. Virgin Australia's Profit Margin Ratio was one of the prime reasons for bankruptcy. The company's profit margin ratio was 0.58%, −2.44%, −8.22%, −1.98%, −4.48%, −3.68%, −12.05%, −5.41% from 2012 through 2019 (Table 6,

Figure 2). These were not only meager but also negative. This was in congruence with the findings of Dance and Made (2019), which said that negative financial returns indicate that the company will be facing bankruptcy. Virgin Australia's Return on Assets moved between 0.57%, −2.33% −7.77%, −1.79%, −3.80%, −3%, −10.42%, −4.98% from 2012 through 2019 (Table 6, Figure 2). The company's negligible and negative returns on assets were found to be one major reason for financial distress and this agreed with the findings of Dance and Made (2019), which said that negative financial returns indicate that the company will be facing bankruptcy. Virgin Australia's Return can be major cause for bankruptcy. The company's return on equity was 2.45%, −9.96%, −33.89%, −9.07%, −23.41%, −15.03%, −48.96%, −36.80% from 2012 through 2019 (Table 6, Figure 2). These finding resonated with the findings of Dance and Made (2019). Virgin Australia's Assets Turnover Ratio was another cause for financial distress. The company's Assets Turnover Ratio was 0.98 times, 0.95 times, 0.91 times, 0.85 times, 0.81 times, 0.86 times, 0.92 from 2012 through 2019 (Table 7, Figure 3). Norita (2016) said if the company is overcapitalized and failed to utilize its existing assets efficiently it would gradually result in bankruptcy. The same was found in the case of Virgin Australia. Virgin Australia's current ratio and quick ratios never touched the standard of 2:1 and 1:1 respectively. The company's current ratio was 0.65, 0.54, 0.64, 0.69, 0.62, 0.76, 0.78, 0.67 was 2012 through 2019 (Table 8, Figure 4). Virgin Australia's Quick Ratio was extremely poor from 2012 to 2019.The company's quick ratio was 0.64, 0.52, 0.62, 0.67, 0.60, 0.74, 0.76, 0.65 from 2012 through 2019. Sharma and Mahajan (1980) said that a company's lack of liquidity leads to bankruptcy. And the same was found in the case of Virgin Australia. Virgin Australia's Interest Coverage Ratio was 0.88, −1.59, −3.13, −0.53, −1.42, −0.66, −0.28, −0.71 from 2012 through 2019 (Table 9, Figure 5). One of the prime causes of bankruptcy is the inability to pay the debt and repay service debt on time (Philosophov et al., 2006).

7. Conclusion, limitations, and future research direction

Though it apparently seemed that Virgin Australia called off due to the Covid-19 pandemic, but the quantitative analysis done for the financial statements of the Virgin Australia discloses that the reality is that the company had been experiencing adverse conditions way back since 2012 and the pandemic only further aggravated the that resulted in untimely closure. The empirical research clearly reveals several crucial warning signals which should be the cause of concern for all the companies and which need to be monitored incessantly by top management of all companies to avoid financial distress and insolvency. Like in any other paper, this paper also has some limitations which are as follows this paper is a detailed case analysis of a single company, a comparative analysis with other similar companies would give an improved understanding of the crucial issues that need to be kept under regular check to avoid financial distress and insolvency. Inter sector, intra sector as well as inter-country analysis can also be very insightful for researchers. This paper has not made use of any statistical tools or analytics software in the current research however use of python and machine learning in predicting insolvency can be taken up by scholars in their research.

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