Study on the Financial Risks of Listed Airlines-Based on Air China Case Study

Yufan Chang

School of Hebei University, Baoding, Hebei, China

15060340211@xs.hnit.edu.cn

Abstract. With the development of the scientific economy, air transport has become an important mode of transport in people's daily travel, and after the financial crisis in 2008, China's aviation industry has shown rapid development and good development opportunities - the average annual growth rate of passenger turnover exceeds 8%. However, there are still many problems in the development of China's aviation industry. All this is reflected behind the fact that China's aviation industry is facing great financial risks, and financial risks, as a common problem for listed companies, can have an impact on the operation and sustainable development of the company. In particular, the airline industry has been severely impacted by the global outbreak of the COVID-19 and the business environment has further deteriorated. It has therefore become particularly important for airlines to effectively identify and prevent financial risks in the complex macro environment and market context. This paper looks at the financial risks that listed airlines will face. Based on the annual reports of airlines, it explores the potential financial risks in the daily operations of airlines from real data, and makes suggestions on how to identify financial risks and make effective early warning and solution measures. Finally, using Air China as a case study, this paper explores the company's financial risks through financial statement analysis and DuPont analysis, and conclude and outlook on the above analysis.

Keywords: Airlines, financial risk, financial statements, Air China.

1. Introduction

1.1. Background and Significance of the Study

The aviation industry has long been known as a barometer reflecting the economic situation and is most responsive to market changes and macroeconomic conditions. Over the past few decades, the world aviation industry has been subject to frequent external shocks. 9/11, the SARS and H1N1 outbreaks, earthquakes and tsunamis in South and East Asia and economic-based turmoil, including the onset of the Asian financial crisis in 1997, the bursting of the dot-com bubble in the early 2000s, the sub-prime mortgage crisis in 2008 and the recent European sovereign debt crisis [1]. By 2019, the outbreak of the new crown pneumonia epidemic will be another huge test for an already battered aviation industry, even if its immediate impact far exceeds that of the financial crisis. According to statistics released by the IATA in 2021, the number of passengers carried worldwide will be 1.8 billion in 2020, compared to a total of 4.5 billion in 2019, a decrease of 60.2%, and the airline industry will incur a net loss of US$126.4 billion, or an average loss of US$71.7 per passenger [2]. The number of international flights has plummeted, airlines have essentially zero external business and mass flight cancellations have become commonplace. A number of leading airlines around the world have been overwhelmed and have announced bankruptcies or redundancies: FLYBE, the UK's low-cost regional airline, recently announced its second grounding in three years, with all flights canceled and 276 staff laid off. Virgin Australia entered into receivership in April 2020 after the Australian government and shareholders refused to provide a bailout; domestic airlines' share prices have always been negative, and net profit figures are even more dismal, once becoming the industry with the most losses in the A-share market. Even Warren Buffett liquidated his position after a failed plunge, and at an online shareholder meeting in May 2020, Buffett said he had cleared his position in airline stocks and admitted he had made a mistake in valuing the airline's shares, but the mistake was understandable [3]. Such examples have long been commonplace in the three years of COVID-19, with major airlines

seeking access to finance and requiring massive capital injections to revive cash flow, suggesting that they are under enormous financial pressure and will face an even more serious financial crisis if their capital chains break.

At present, China's aviation industry is in a stage of rapid development, but there are still many problems in the development of China's aviation industry, such as a high gearing ratio, unreasonable capital structure, insufficient profitability and high jet fuel costs [4]. Thanks to the correct leadership of the Chinese government, the impact on the domestic aviation industry during the three years of the epidemic was not irreparable. The State Council announced on 5 February that the Civil Aviation Development Fund would be waived and a package of "16+8" policies were subsequently introduced to provide relief to airlines. Several factors can affect the level and volatility of market risk, including but not limited to: instability or catastrophic events across financial markets in a global financial or economic crisis can lead to market risk, or interest rate fluctuations and volatility, exchange rates or share prices [5]. Because of their special dependence as well as their comprehensive nature, airlines are exposed to a variety of risks, which makes their management of finances particularly important. Based on company annual reports and theories from relevant literature, this paper discusses how airlines should better handle financial risks and promote sustainable and healthy development by analysing airline financial indicators.

2. Financial Risk Analysis of Listed Airlines

A macro overview cannot tell the details of the financial risks and the comparisons and changes, and a more detailed study of the company's financial and operational data is needed to propose effective solutions to the company's financial risks. This paper have selected the financial data of five representative listed airlines for the past five years, analysed the problems in their daily operations in terms of solvency and profitability, and examined the financial risks faced by the airlines through a side-by-side comparison of the five airlines and the trends in their movements.

2.1. Solvency Analysis

As a capital-intensive enterprise, airlines need a lot of capital for their daily operations, so many airlines will use debt leverage to finance their operations to solve their capital problems. But it is well known that too much debt will lead to high operating pressure, reduced debt servicing capacity and, in some cases, insolvency. Therefore, where there is debt, there is risk. The following will examine the solvency of five airlines through the analysis of three financial indicators.

2.1.1 Short-term debt servicing capacity

Table 1. Current ratios for listed airlines in China, 2017-2021

Year	Air China	CSA	CEA	HNA	Spring Airlines
2017	0.29	0.26	0.23	0.63	1.21
2018	0.33	0.29	0.22	0.44	1.31
2019	0.32	0.18	0.25	0.49	1.12
2020	0.25	0.41	0.23	0.37	0.95
2021	0.33	0.34	0.32	1.29	0.91

Data source: Airline annual reports

The current ratio can be used to measure a company's short-term solvency. When short-term debt needs to be paid, a company can sell its current assets to pay off its current liabilities, so the higher the current ratio, the lower the risk of debt servicing. If the current ratio is less than 1, it means that current assets are less than current liabilities and the company's short-term solvency is poor; if the current ratio is greater than 1, the opposite is true. When the relationship between debt level and financial risk is evaluated in the context of capital structure theories, the company risk is expected to increase with the increase in debt levels according to both the Pecking Order Theory and the Trade-Off Theory [6].

Looking at the table 1 as a whole, only HNA has a current ratio greater than 1 in 2021, while the others are all less than 1. This is due to the nature of the airline industry, which, as mentioned above, as a capital-intensive industry, requires a large amount of capital, which is mostly financed by debt. Other reasons for the low current ratio could be that the main business was hit during the epidemic, leaving the airline with a high level of inventory. This, coupled with the fact that the airline had a large amount of accounts receivable with agencies such as travel agencies, which could not be collected in a timely manner ultimately resulted in, poor asset realisation. Of the five airlines, Spring Airlines has the better short-term solvency among them, with little difference among the remaining airlines, but despite this, the five companies generally have higher short-term debt service risk.

2.1.2 Long-term solvency

Table 2. Listed airlines' gearing ratios, 2017-2021

Year	Air China	CSA	CEA	HNA	Spring Airlines
2017	0.6	0.73	0.75	0.63	0.59
2018	0.59	0.72	0.75	0.66	0.49
2019	0.66	0.68	0.75	0.68	0.48
2020	0.71	0.74	0.87	1.13	0.56
2021	0.78	0.74	0.91	0.92	0.64

Data source: Airline annual reports

The higher the gearing ratio, the more important external funding is to the company's production and operation activities, the heavier the interest burden the company bears and the greater the risk of debt servicing. However, the appropriate level of gearing should be determined by the characteristics of the industry in which the company operates.

According to the table 2, the gearing ratios of the airlines are generally higher than 0.6, indicating that high debt ratios have become a common phenomenon for airlines due to operational difficulties and a sharp drop in revenue. For example, HNA Holdings' gearing ratio is generally on an upward trend, increasing from 0.63 in 2017 to 0.92 in 2021 and even reaching 1.13 in 2020, which shows that HNA Holdings' debt servicing risk is gradually increasing. In contrast, Spring Airlines' gearing ratio has always remained low among the five major airlines and its debt servicing capacity is strong.

2.2. Profitability Analysis

2.2.1 Net asset profitability

Table 3. Return on net assets of listed airlines, 2017-2019

Year	Air China	CSA	CEA	HNA	Spring Airlines
2017	0.09	0.13	0.13	0.06	0.16
2018	0.08	0.06	0.05	-0.08	0.13
2019	0.07	0.04	0.05	0.00	0.13
2020	-0.17	-0.16	-0.19	-6.47	-0.04
2021	-0.24	-0.18	-0.22	-0.17	0.00

Data source: Airline annual reports

Return on net assets (ROE) is the ratio of net profit to net assets of an enterprise, which reflects the profitability of shareholders. It is the most comprehensive indicator to analyse and evaluate the profitability of an enterprise [7]. It is good financial indicator information, reflecting both the company's operation and the efficiency of the use of capital.

From the table 2, the NPAs of the five airlines remained at a relatively stable level until 2019, although they did not show strong profitability, with only HNA Holdings at -0.08 in 2018, resulting from a decline in profits due to setbacks in HNA's non-main business in 2018, including the transfer of HNA's holding in Azul Air Limited equity stake of 20%, resulting in damage to its investment; coupled with the decline in many of the funds held by the HNA Group and the ensuing difficulties in repaying loans to some extent, resulting in a hit to its profitability, which recovered in 2019, but to a small extent. By looking at the data in the table 3, it is easy to see that the return on assets of almost

all five airlines will be negative in the two years after 2019, and to a very serious extent, with only Spring Airlines maintaining a level of 0.0029 in 2021, but this is only because it is a low-cost airline and can pursue maximum benefits in the crisis through cost control, and does not apply to other airlines. The causes of the massive losses of the airline we can imagine, from the outbreak of COVID-19 at the end of 2019, which has had a huge impact on the airline industry, the impact of the epidemic on the airline industry is not indirect, but directly on its main business, namely the two core industries of air passenger transport and air cargo, causing unavoidable risks. This is why the return on net assets (RONA) provides more visual evidence of the serious impact of the epidemic on the airline industry as mentioned above. Profitability is the lifeblood of a company and a guarantee of longevity, and now that the epidemic era has largely passed, how airlines can salvage their losses, curb the downward trend in profitability in a timely manner and deal with profitability risks in a reasonable manner is a major issue that all airlines should consider carefully.

2.2.2 Net profit generating capacity from sales

Table 4. Net sales margin for listed airlines, 2017-2019

Year	Air China	CSA	CEA	HNA	Spring Airlines
2017	0.07	0.05	0.07	0.07	0.12
2018	0.06	0.02	0.03	-0.05	0.12
2019	0.05	0.02	0.03	0.01	0.12
2020	-0.02	-0.13	-0.21	-2.33	-0.66
2021	-0.25	-0.11	-0.20	0.12	0.00

Data source: Airline annual reports

Net sales margin indicates how much net profit a company can make per unit of sales revenue, and is an indicator of the quality of a company's stable access to revenue and income. Simply put, the measure of whether a company is making money is not just how many products it sells, but how much profit it makes from its sales. If it sells more products and loses more money instead, the company will sooner or later face bankruptcy and liquidation, so the higher the net sales margin, the better.

As can be seen from the table 4, net sales margin and return on net assets have followed similar trends, with the exception of Spring Airlines, which has maintained a relatively stable level over the past five years, with only a negative year in 2020, while the other four have all varied considerably. The reasons for this are not all the same all due to the sharp decline in sales of their main business caused by the epidemic over the three years from 2019 to 2021, which in turn led to a significant loss in profits. But it is easy to see that Hainan Holdings' net sales margin fell to -2.33 in 2020, which is a "small drop" compared to the other four carriers. Against the backdrop of the epidemic, all airlines are facing the same dilemma, so Hainan Airlines' significant losses are not entirely due to the epidemic, but rather the main sources of HNA's losses are operating losses, investment losses, gains on fair value changes and credit impairment losses, which are worthy of consideration and attention by the company's operators.

2.3. Growth capacity analysis

Table 5. Listed Airlines Revenue Growth Rate 2017-2021

Year	Air China	CSA	CEA	HNA	Spring Airlines
2017	7.71	11.05	3.21	47.26	30.15
2018	12.70	12.66	12.99	13.12	19.54
2019	-0.43	7.45	5.16	6.83	12.88
2020	-48.96	-40.02	-51.46	-59.38	-36.68
2021	7.23	9.81	14.30	15.65	15.85

Data source: Airline annual reports

Table 6. Listed Airlines Net Profit Growth Rate (%), 2017-2021, net of fees

Year	Air China	CSA	CEA	HNA	Spring Airlines
2017	17.10	18.18	32.15	11.44	433.81
2018	-8.40	-51.43	-56.96	-259.09	11.44
2019	-6.74	-8.81	32.73	41.45	30.42
2020	-338.76	-510.87	-593.88	-2228.91	-150.37
2021	-15.71	-11.61	-6.81	80.79	86.27

Data source: Airline annual reports

Table 5 shows airlines revenue growth rate 2017-2021. The operating income growth rate, as the name implies, represents the revenue of the company's main business. Although the ability to convert capital varies from industry to industry and from company to company, the fundamental principle or most common method is to keep costs within a reasonable range, if costs are not properly controlled, there will be an increase in revenue but little change in profit.

From the overall perspective of the industry, due to the development of China's civil aviation market, the overall operating income of the aviation industry is in a situation of development and growth, except for the "black swan" event in 2020 - the impact of the epidemic, the rest of the years have remained at a positive level, and there is a stable growth.

The airline industry is known to be a capital-intensive industry, and only with the injection of capital and a certain level of cash flow can airlines operate smoothly. However, there are many factors that affect airline revenues, and cost control is particularly critical. As can be seen from the table 6, all five airlines achieved a large increase in revenue in 2018, but the opposite was true in terms of net profit growth, with the exception of Spring Airlines, the other four airlines all recording negative net profit growth in 2018, with China Southern Airlines, China CEA and Hainan Airlines even recording growth rates of -50%. It is undeniable that the rising cost of crude oil and exchange rate risks contributed to this phenomenon, but the lack of reasonable cost control remains the main factor.

3. Air China Case Study

3.1. Company Overview

Air China was established in 1988 and is the only airline in China to fly the national flag. It not only provides international and domestic passenger and cargo transportation services, but also undertakes special flights for national leaders [8], so its importance in China's aviation industry can be imagined. In September 2004, Air China Limited was established and in December 2004 Air China made its first overseas IPO. In August 2006, Air China became the first Chinese airline to be listed in Hong Kong (Air China), London and the Chinese mainland (Shanghai Stock Exchange) [9]. In 2007, Air China joined the Star Alliance, marking a major step forward in the international market. Currently, through cooperation with Star Alliance members and other airlines, Air China has expanded its services to 1,328 destinations in 195 countries, placing it in the top tier of air carriers in the world.3.1.2 Analysis of financial statements and identification of financial risks

3.2. Analysis of Financial Statements and Identification of Financial Risks

Table 7. Key financial data for Air China 2019-2020

Year	2019	2020
Total operating income	136,200,000,000	69,500,000,000
Total operating costs	131,300,000,000	85,830,000,000
Operating profit	9,178,000,000	-18,500,000,000
Total profit	9,105,000,000	-18,470,000,000
Net profit	7,252,000,000	-15,820,000,000
Total assets	284,100,000,000	294,300,000,000
Total liabilities	200,300,000,000	192,900,000,000

The table 7 shows that in terms of assets, Air China's assets have increased in size and its total liabilities have decreased, which is a good trend. However, in 2020 Air China achieves total operating revenue of RMB 69.5 billion, a decrease of RMB 66.7 billion year-on-year. Starting in 2020, the COVID-19 outbreak gradually spread and rapidly expanded globally, affected by this, the airline's flight volume has decreased significantly, and the company's operation has been seriously affected. Air China's net profit for 2020 was -15.82 billion yuan, the company's full-year operations instead of causing a profit, but instead caused a huge loss, the company is facing huge operational risks.

After the analysis in the table 7, we already have a certain level of understanding of Air China's financial position before and after the outbreak, so the following will further analyse Air China's specific financial position. By comparing the pre-2019 annual report with the 2020 annual report financial, this paper will understand what financial risks the company faced before the outbreak and whether these risks increased further after the outbreak, or what remaining risks were added.

3.2.1 Debt service risk

Liquidity is a reflection of a company's ability to realize its assets; if a company has liquid assets, it has a better ability to repay its debts. As can be seen through the 2019 Annual Report, Air China's current assets are $24.8 billion, accounting for 8.43% of total assets; current liabilities are $77.6 billion, accounting for 40.25% of total liabilities. It can be seen that the company's current assets are relatively low and the company's assets are weak in terms of liquidity, but the current liabilities are high in proportion. We can conclude from this phenomenon that the company prefers to use current liabilities to meet its funding needs because the lower interest rate of current liabilities can effectively reduce the cost of financing, but if there is not enough liquidity to repay the debt, the company is easily exposed to liquidity risk under the feature of the short maturity of current liabilities.

It is a well-known fact that airlines have huge capital requirements for operating fixed assets and construction in progress, mainly for the purchase and lease of aircraft and the construction of ancillary facilities. Air China has $88.9 billion in fixed assets and $35.3 billion in construction in progress in 2019, accounting for 46.09% of total non-current assets. And in terms of ratio indicators, Air China has a current ratio of 0.32 and a shareholders' equity ratio of 0,34 in 2019, both down from last year.

Overall, Air China has weak short-term solvency, relatively poor asset liquidity and assets that are not easily realized, and is exposed to certain liquidity risk and debt servicing risk. However, according to the annual report disclosure, Air China has obtained credit lines with many banks and the credit lines are much higher than the total current liabilities, so this risk is still manageable.

3.2.2 Growth risks

According to the enterprise life cycle theory, the development of an enterprise is divided into several stages, including the input period, the growth period, the maturity period and the decline period. During the input and growth phases, companies need a lot of capital to expand their production capacity and capture the market, at this time, companies and investors look at the growth rate of performance and market share; in the maturity phase, the competition pattern is basically stable, the company's growth rate slows down, companies and investors will pay more attention to the company's profitability, i.e. whether it can create profits steadily and continuously; in the decline phase, companies will gradually lose market share due to various reasons The company will gradually lose market share and thus be replaced by competitors.

In short, only companies that are constantly growing will have longevity. After decades of development, China's aviation industry has basically stabilised both in terms of system and scale, and the competitive landscape is relatively clear. Air China, as the leading enterprise in China's aviation industry, is in the lead in terms of industry status, market share and scale of the airline, and is a typical mature enterprise, so it also shows a correspondingly weaker ability to grow. It can be compared to Spring Airlines, which is in the growth phase of the industry. According to the annual report disclosure, Air China's total revenue growth for 2019 and 2020 is -0.43% and -48.96% year-on-year respectively, while the compound annual growth rate of net profit after deduction is -6.74% and -338.76% respectively, which can be said to be an unprecedented decline since the financial crisis in

2008 range. In comparison, Spring Airlines, which is in its growth phase, has a year-on-year revenue growth of 12.88% and -36.68%, and a year-on-year net profit growth of 30.42% and -150.37% in 2019 and 2020. It can be said that almost no airline can survive the epidemic alone, but being able to minimise losses in a crisis is the real test of a company's ability to operate. Putting aside Spring Airlines' low cost and other characteristics, Spring Airlines' ability to grow is higher than Air China's, at least in terms of figures.

3.2.3 Profitability risks

Stronger profitability is essential for Air China as a mature company, but the company's net profit after deduction has been sliding from 7,227 million to 6,174 million during 2017-2019, indicating that the company's profitability is weakening. Coupled with the impact of COVID-19 in 2020, the company's deducted net profit in 2020 fell directly to -14.74 billion, showing a complete loss. According to the 2019 annual report disclosure, Air China's operating income in 2019 was 136.181 billion, a decrease of -0, 43% from the previous year, while selling expenses were 6.637 billion, an increase of 4.55%, which shows that the increase in selling expenses did not lead to an increase in revenue, coupled with the increase in the company's interest expense, further aggravating the burden on the company's profitability. 2020's figures are even the figures for 2020 are even more dismal and will not be presented here. The profitability measured by the return on equity (ROE) indicator, which reflects a company's ability to generate income through capital, can be disassembled using the DuPont analysis.

3.2.4 DuPont Analysis

The DuPont analysis is a comprehensive analysis of a company's financial position, breaking down return on net assets into return on total assets and equity multiplier, where return on total assets can be broken down into net sales margin and total asset turnover, which reflect the company's profitability, operating capacity and leverage levels respectively.

Table 8. Air China 2017-2020 DuPont Analysis Financial Indicators

Indicators	2020	2019	2018	2017
Return on net assets	-16.88%	7.09%	8.17%	8.96%
Return on total assets	-5.47%	2.70%	3.42%	3.76%
Net sales margin	-22.76%	5.33%	6.00%	7.12%
Total asset turnover ratio	0.24	0.51	0.57	0.52
Equity multiplier	3.39	2.9	2.42	2.93

Data source: Airline annual reports

Looking at the data in the table 8, Air China's return on net assets declines year on year, falling below -16% by 2020, implying that the company's ability to generate earnings through its own capital before the epidemic continues to diminish, and after the epidemic, there is no longer any earnings from capital to create a full loss. The return on total assets follows the same trend as it did, taking a big dive straight to a negative ratio in 2020 after experiencing more of a decline in 2019. Total return on assets can be further broken down into net sales margin and total asset turnover, which can be seen to change little from 2017-2019, reaching its highest in 2018. However, on the contrary, the return on total assets fell instead of rising, indicating that the problem lies in the segment of net sales margin, which fell by 1.12 percentage points in 2018 compared to 2017, and then the reason for this is simply the significant appreciation of the US dollar in 2018, which put pressure on the RMB, coupled with the high price of crude oil, which forced the airline's operating costs to rise. Turning to the equity multiplier, which reflects the extent of a company's debt, it picked up in 2019, but its impact on NAV was offset and therefore not significant. Throughout 2020, the indicators analysed by Dupont take a big dive and can no longer be equated with a normal year prior to the crisis, the root cause of which is still the impact of the epidemic.

4. Conclusion

4.1. Research Findings

This paper uses the financial risk issues and the current operating situation of the five listed airlines as the background of the study, thereby examining the financial situation of the airlines, and incorporates the impact of the 2020 New Crown epidemic on the airlines as an innovative point, using Air China as a case study to further analyse the actual situation of the airlines, resulting in the following findings.

(i) As a capital-intensive enterprise, adequate capital is crucial to the development of airlines [10]. During the years prior to the outbreak, China's airline industry developed rapidly, with both transport turnover and company size rising year on year, but its financial risk was not controlled accordingly. According to the conclusion of the analysis of the Z-score model, the Z-value of many airlines was well below 1.81, indicating that they had a large financial risk. Coupled with the outbreak of COVID-19 in 2020, the civil aviation industry has been hit hard, both domestically and abroad, with airline bankruptcies, dismal share prices and mass layoffs becoming the norm, which is a huge test of airlines' operational management and ability to cope with unexpected events.

(ii) The next three aspects of the airline's financial risk are analysed in terms of solvency, profitability and growth. By combing through the company's annual reports and using specific financial data ratios, the reader has a more intuitive understanding of the airline's financial situation. From the viewpoint of solvency, except for Spring Airlines, which has a strong short-term debt service, the current ratio is small, below 1, and the gearing ratio is close to 80%, which is not very reasonable for the use of leverage, making the company's financing a huge risk, among which HNA Holdings has a large debt service risk. In terms of profitability, the airline's profitability has declined to varying degrees over the past five years, and with the impact of the epidemic, the profitability figures after 2020 are no longer analyzable and have fallen below their lowest value. However, Spring Airlines' profitability is generally better than that of other airlines due to its low-cost strategy, among other features. Finally, in terms of growth capacity, before the outbreak, the airlines' operating revenues were at a whole growth level, indicating an increase in revenue year on year, but despite this, net profit growth rates generally declined, with the phenomenon of "revenue growth without profit growth", and even in 2018, despite significant growth in operating revenues, the airlines' This was mainly due to the increase in jet fuel costs and changes in exchange rates. During the epidemic, HNA Holdings was the hardest hit in terms of revenue and net profit growth, with net profit growth falling to -2228.91%.

(iii) A case study of Air China follows. The analysis of the data shows that and many of the financial risks are related to characteristics such as the cyclical nature of the civil aviation industry and the general market environment. In terms of solvency, the company's use of debt leverage is problematic and its short-term and long-term solvency is not high. Coupled with a large number of fixed assets and construction in progress, asset liquidity issues require attention. However, as Air China has sufficient bank credit lines to support it, the short-term debt servicing problem can be mitigated to a certain extent, but the fundamental problem requires optimisation of the capital structure and effective cost control. In terms of growth and profitability, after reviewing the financial indicators and applying DuPont analysis, it was concluded that although Air China, as a mature company, is not growing as fast as emerging airlines in all capacities, it must maintain sufficient cash flow, control costs reasonably and establish an effective financial risk control mechanism for the company's sustainable and healthy development, and must not rest on its laurels.

4.2. Shortcomings and Outlook

The research topic of this paper is airline financial risk, and the data selected for the study are the annual reports of five listed airlines from 2017-2021, with Air China as the case study. Although the five major airlines already occupy more than 90% of the airline market in terms of scale, Air China is also typical as the industry leader. However, through the study of the selected airlines as well as

the information, the selected indicators do not cover all the financial data and all the conclusions drawn on the overall financial risk are still inadequate. It should also be closely integrated with the business development strategies of the companies and the general market environment of the industry in order to obtain a sound conclusion.

With the rapid development of the national economy, the aviation industry has become an increasingly important part of our lives Three years of the epidemic has been a fatal blow to the global aviation industry, but it will also advance the research on financial risks in the aviation industry will also become more and more in-depth and mature, in the future airlines will be able to more accurately identify financial risks and can implement more effective measures to control the risks, the financial risks on the aviation industry The theory of financial risk in the airline industry will become more and more abundant.

References

[1] Lee C H, Hooy C W. Determinants of systematic financial risk exposures of airlines in North America, Europe and Asia [J]. Journal of Air Transport Management, 2012, 24: 31-35.

[2] Peng Yang, Fu Open, Zhou Guolin. Analysis of the impact of the new crown epidemic on Chinese airlines and countermeasures--Taking the three major airlines as an example [J]. Logistics Technology, 2022, 41(12): 15-18+57.

[3] Qu Yue. Research on financial risks of listed airlines in China [D]. Research Institute of International Trade and Economic Cooperation, Ministry of Commerce, 2021.

[4] Luo Hong. Study on the factors influencing the financial risk of Oriental Airlines [D]. Inner Mongolia University of Finance and Economics, 2020.

[5] Hang T, Nhung D, Nhung D H , et al. Where Beta is going – case of Viet Nam hotel, airlines and tourism company groups after the low inflation period [J]. Journal of Entrepreneurship and Sustainability Issues, 2020, 7(3): 2282-2298.

[6] Kirac K.Determinants of Financial Risk: An Empirical Application on Low-Cost Carriers [J]. Scientific Annals of Economics and Business, 2019.

[7] Tang LJ. Research report on the development of modern retail industry in the capital [M]. China Fortune Press, 2014.

[8] Yang Lime. Research on the development strategy of Qingdao air logistics [D]. Ocean University of China, 2010.

[9] Ma Baolong. Research on the operation management of retail loyalty program [M]. Economic Science Press, 2015.

[10] Zhao Ya. Analysis of airline financing strategies in the context of the epidemic [D]. Southwest University of Finance and Economics, 2022.