Opportunities and Challenges in Singapore under the COVID-19 Pandemic

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Abstract. Singapore Airlines is a typical state-owned enterprise and the only airline on Fortune magazine's list of the world's 50 most admired companies. This paper first summarizes and analyzes the basic situation and background information of Singapore Airlines; Then, based on the profit and loss data of the annual report, it pointed out the main impact of the epidemic on airlines, and analyses the impact of policy, economic, social and technological factors based on PEST analysis. Finally, based on the observation and practice of the development trend of Singapore Airlines, the author puts forward countermeasures and suggestions for the future development of airlines in the post-epidemic era, including continuous innovation, careful listening to customers' opinions, standardized corporate governance, and so on. Collect existing research literature on Singapore Airlines, consolidate relevant theoretical knowledge, and conduct empirical analysis based on annual report data to further enrich the study of enterprise value Singapore Airline's PEST analyzer Operational Capability Analysis Liability Analysis

Keywords: Singapore Airlines; PEST analysis; operational capability analysis; liability analysis.

1. Introduction

1.1 Background

It is well known that the relationship between the airline economy and the global economy is reciprocal, with changes in the airline economy reflecting changes in the global economy and driving economic growth, and economic growth driving airline growth. Analysis of airline revenue and airline passenger throughput, etc. The development of the aviation industry has created a large number of economic benefits. For example, in recent years, the average annual passenger traffic has reached 2.5 billion, and the cargo volume is about 50 million tons; the aviation industry directly provides more than 5.5 million jobs and generates a large amount of national income in terms of employment [1].

However, the impact of the outbreak on air travel has hit the airline economy hard. The airline controls brought about by the epidemic have a lot to do with it. China, for example, is a country with strict airline controls, and before the epidemic, there were relatively few flight options available to Chinese airlines. During the epidemic, travel was affected by the issuance of local regulations (e.g., quarantine and nucleic acid testing policies, etc.), and according to airline data provider VariFlight, China now has few international air travel options, with only about 100 flights per day.

Therefore, the development of the airline industry can be indirectly inferred from the development of the global economy, which means that it is necessary to study the airlines.

1.2 Related research

The current status of the airline has received the attention of some scholars. Based on the current situation of air logistics development in Jilin Province, Feng Miao analyzed the development strategy of air logistics in Jilin Province and summarized the proposed measures to expand the opening and cooperation with the outside world and increase policy support [2]. Zhu Dan and Chen Hong analyzed the current situation of Xiamen industry and the advantages and disadvantages of developing the air logistics industry based on the new situation of the development environment of Xiamen air logistics industry and summarized the strategies for the development of Xiamen air logistics industry [3]. Based on the brand strategy of Southern Airlines, Zhao Jianling and Du Xiaolei analyzed the problems of implementing brand strategy in the civil aviation transportation industry of Southern Airlines, and summarized the defects and successful aspects of the brand strategy of Southern Airlines [4].

In addition, some scholars have analyzed various industries using the PEST analysis method. Based on PEST analysis, Wang Yiwen, Song Xiaoxiao and Zhao Yitong, et al. analyzed the current development environment facing the development of seed logistics based on the development strategy of modern plantation logistics, summarized the positive factors favoring the development of seed logistics, and also provided better strategies for the current problems facing the seed logistics [5]. Based on the PEST analysis, Chen Junlan, Lv Ruyin and Ren Fan, et al. analyzed the current political and economic elements of the development of Chongqing automotive industry based on the development environment of Chongqing automotive industry and summarized the policy recommendations for the transformation and upgrading of Chongqing automotive industry [6]. Based on the PEST analysis method, Ran Guocheng and Chen Qiang took Changsha New Port development strategy as the research object, analyzed the development environment of Changsha New Port port, and summarized the better development strategy of Changsha New Port itself [7].

1.3 Objection

This paper is based on profitability analysis, operational capacity analysis, debt capacity analysis, development capacity analysis, and PEST analysis methods. The strengths and weaknesses of the research subject in terms of political, economic, social and technological aspects are systematically analyzed. Strengths and weaknesses in economic, social and technological aspects. as well as the opportunities and risks faced, to identify the key influencing factors, to formulate a strategic development plan for Singapore Airlines, to systematically analyze and study the strategic development of Singapore Airlines under the epidemic, and to propose targeted development strategies.

2. Introduction of Singapore Airlines

Singapore Airline, established in 1972, mainly operate international routes based on Changi Airport. The number of Singaporean employees will reach the top of 16.772 thousand in 2020-2021, which will keep an overall upward trend from 2012. However, after the epidemic impact, the company was forced to downsize due to reduced income, leading to an increase in the turnover rate. Between 2021 and 2022, the number of employees sharply descend to 14.534. Table 1 shows how many employees in Singapore airlines each year.

Table 1. How many employees in Singapore airlines each year(Data source: Satista)

Year	Number	Year	Number
2012-2013	14,156	2017-2018	15,620
2013-2014	14,240	2018-2019	15,943
2014-2015	14,040	2019-2020	16,760
2015-2016	13,983	2020-2021	16,772
2016-2017	14,423	2021-2022	14,534

Singapore Airlines in a 2019 survey on customer satisfaction with international airlines, the satisfaction rate was as high as 87%, higher than that of other airlines, such as Emirates, and Qatar Airways [8]. The reason is that Singapore Airlines is a model of service in the civil aviation industry because its service philosophy is to provide customers with an excellent service experience, whether professional flight attendants or provide high-quality services or meals. Singapore Airlines (SIA) was gained the world's best international airline by Travel & Leisure magazine for the 24th consecutive year and was named the top 50 most respected companies in the world in 2019 by Fortune magazine [9].

Singapore Airlines has an aircraft fleet including Airbus and Boeing series, and the Airbus A380 is the largest passenger aircraft in the world. From 2021-2022, Singapore Airlines' passenger aircraft fleet reached 123, 10 more than the previous year. Table 2 shows How many planes Singapore Airlines owned or leased from 2011-2022. Singapore wants to give customers a good flying experience, the aircraft will be disposed of several years after purchase. Although the disposal cost is high, 70% new of the fleet's aircraft will still be guaranteed. In addition, because the operation and maintenance costs of new aircraft are relatively low, compared with older aircraft, which always need to spend a lot of money to repair and maintain parts and new aircraft generally have fewer problems and are safer.

Table 2. How many planes does Singapore Airlines own or leased by 2011-2022? (Data source: Satista)

Year	Number	2016	106
2011	100	2017	107
2012	101	2018	121
2013	103	2019	122
2014	105	2020	113
2015	102	2021	123

3. Problem analysis of Singapore Airlines

3.1 Analysis of the business status

3.1.1 Operational Capability Analysis

The operational capacity of enterprise funds is essentially the embodiment of its effective adjustment and turnover of various assets, and the operational ability system of enterprises is an important system in the process of carrying out operation and management and improving the core competitiveness of enterprises, and since the first half of 2020, under the impact of the new crown epidemic, it has ended a boom cycle of more than ten years and entered the shock. In 2022, IATA forecast that global aviation industry losses will narrow to the US $9.7 billion, an improvement from the US $11.6 billion loss forecast in October 2021, with a net loss ratio of 1.2 percent [10]. At a time when airlines around the world are suffering revenue losses, Singapore Airlines is no exception, as can be seen in Table 3, Singapore Airlines' total profit has created a new six-year low due to the impact of the epidemic, The values in the previous five years were all in the range of [15,16], but in the year of the worst epidemic in 2020, it was obvious that Singapore airlines was not prepared and fell to 3.82 in 2020/2021 because the impact of the epidemic affected the company's operating model. but in 2021/2022, after strategic adjustments and capital turnover, profits have doubled, and the root cause is this the high turnover rate of total assets indicates that the use efficiency of all assets of the enterprise is relatively high.

Table 3. Total revenue of the Singapore Airlines group from the fiscal year 2015 to 2022(in billion Singapore dollars)(Data source: Satista)

Year	Number	year	Number
2015/2016	15.23	2019/2020	15.98
2016/2017	14.87	2020/2021	3.82
2017/2018	15.81	2021/2022	7.62
2018/2019	16.32		

3.1.2 Liability Analysis

Due to the nature of the industry, it is determined that civil aviation enterprises generally use debt financing as a way of expanding the scale, that is, debt management and debt management will increase financial risks, how to reasonably prevent and control the financial risks brought about by debt operations, is a problem that civil aviation enterprises need to solve, as shown in Fig. 1, Above the axis is surplus, below the axis is a deficit, the losses of commercial airlines in the world are very serious, the total losses reached 14 billion us dollars, almost reached the sum of the profits of the previous five years, and the losses in the Asia Pacific region are the worst, in the range of [40,60], losses were also large in North America and Europe, at nearly 40, while losses were small in Latin America and the Middle East and only modest in Africa. Asia Earth's huge loss, Singapore Airlines as a giant, the loss is also very serious, the same Singapore Airlines asset-liability ratio also increased significantly in this year, for Singapore Airlines, the asset-liability ratio is higher, the financial risk is larger, the company's managers need to establish the correct awareness of risk prevention, In particular, it is necessary to establish a scientific and reasonable financial early warning mechanism to effectively prevent risks, such as strengthening financial management and real-time monitoring of liabilities.

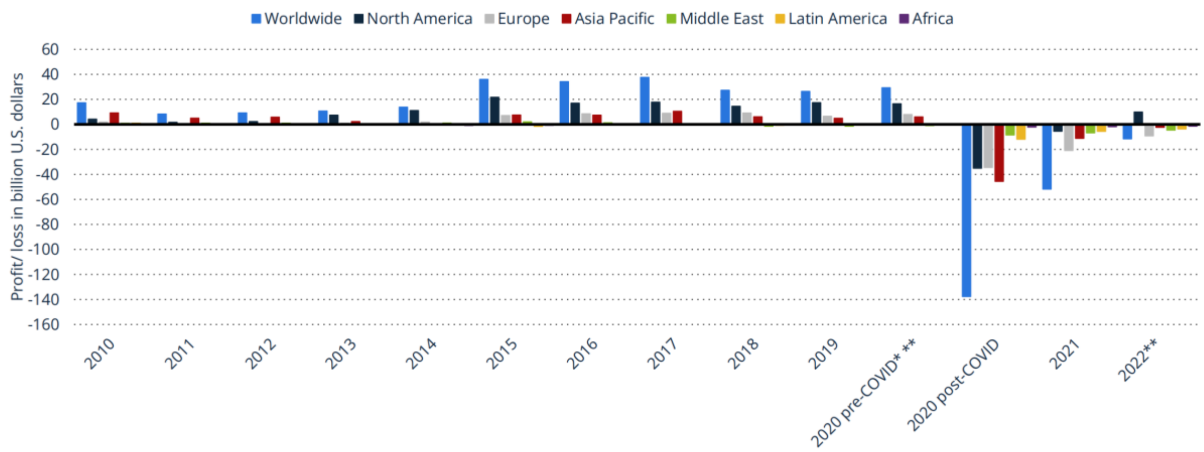

Fig. 1 Profit and loss of commercial airlines worldwide from 2010 to 2022, by region (in billion U.S. dollars)(Data source: Satista)

3.2 Development capacity analysis

The development capability of an enterprise, also called the growth of an enterprise, is the development potential of an enterprise formed by its own production and management activities and continuous expansion and accumulation. Therefore, this section analyzes the airlines Changi Airport in terms of the number of commercial aircraft landings and takeoffs, airline connectivity scores, the number of passengers on Singapore Airlines, and the number of passengers at Changi Airport.

3.2.1 Number of commercial aircraft movements at Changi airport analysis

Table 4. Commercial aircraft movements at Singapore Changi Airport, 2014 - 2021 (in thousands) (Data source: Satista)

Year	Number	year	Number
2014	341	2018	386
2015	346	2019	382
2016	360	2020	125
2017	373	2021	109

Only 723 global commercial aircraft will be delivered in 2020, down nearly 42% from 2019. On the order side, new orders for large commercial aircraft worldwide totaled 567 last year, but 770 were canceled, resulting in negative net order growth [11]. As the epidemic spreads around the world, global aircraft deliveries have fallen sharply.

As shown in Table 5, the number of commercial aircraft takeoffs and landings at Singapore Airlines Changi Airport, an industry giant in the global aviation industry, also dropped from 382,000 (2019) before the outbreak to 125,000 (2020). Combined with the number of commercial aircraft movements in the global aviation industry, the majority of commercial aircraft movements likewise show a significant reduction in 2020. If people take a broader perspective, Singapore Airlines then the number of commercial aircraft takeoffs and landings can not only drive the company's economic development construction, but also increase the company's growth potential, so this new crown epidemic does have a non-negligible negative impact on the airline's ability to grow.

3.2.2 Air connectivity score of Singapore analysis

Table 5. Singapore Airline Connectivity Scores, 2020 to H1 2021
(Data source: Satista)

Year	Score
2020pre-pandemic	122.1
During the Pandemic	5.4
H1 2021	23.4

The COVID-19 pandemic has decimated over a decade of gains in air connectivity globally. Pre-pandemic, the number of city pairs connected by direct air service had more than doubled over the past two decades, whilst passengers and cargo shippers continued to benefit from the reduced cost of air transport.

As shown in Table 5, The air connectivity score for Singapore's Changi airport also dropped from 122.1 before the outbreak (in 2020) to 5.4 (during the 2020 outbreak). Although even. The air connectivity score depends to some extent on the size of a country's economy and population. Larger economies with larger populations are naturally connected to more destinations and are able to offer more available seats compared to smaller countries, but combined with the global trend of decreasing The air connectivity score, it can be analyzed that the outbreak has a certain influence factor on The air connectivity score. Further, the airline's ability to grow is directly related to the global economy and the migration of the population, and then the decrease in The air connectivity score will inhibit the airline's ability to grow.

3.2.3 Number of passengers carried by the Singapore Airlines analysis

Table 6. Singapore Airlines Group Passengers Carried FY2014 - FY2022 (in millions)
(Data source: Satista)

Year	Number	year	Number
2014/2015	29.31	2018/2019	36.1
2015/2016	30.41	2019/2020	35.8
2016/2017	31.6	2020/2021	0.6
2017/2018	33.66	2021/2022	3.89

ICAO reported a 60% drop in total passenger numbers due to a 50% drop in passenger capacity last year, with only 1.8 billion passengers flying in the first year of the pandemic, compared to 4.5 billion in 2019 [12].

As shown in Table 7 Singapore Changi Airport, the number of passengers carried fell from 35.8 million in 2019 to 0.6 million in 2020, experiencing a significant decline, although the number of passengers carried in 2021 rebounded slightly, the epidemic hit Singapore Airlines particularly hard. the number of passengers carried has important implications for the construction and management of airports, which not only affects the scale of airport construction but also has a direct relationship with the local economy epidemic. Therefore, the impact of the epidemic on the economy will lead to a decline in the number of passengers carried, so the airline has a certain impact on the construction scale of the airport and the scale of the forecast, which is not conducive to the company's ability to develop.

3.2.4 Number of passengers at Changi airport analysis

Table 7. Singapore Changi Airport Passenger Arrivals 2014 - 2021 (in millions)
(Data source: Satista)

Year	Number	year	Number
2014	54.1	2018	65.63
2015	55.45	2019	68.3
2016	58.7	2020	11.8
2017	62.22	2021	3.05

With a 50% drop in passenger capacity last year and a 60% drop in total passenger traffic, only 1.8 billion passengers flew in the first year of the pandemic, compared to 4.5 billion in 2019. Airlines suffered financial losses of US$370 billion due to COVID-19, with airports and air navigation service providers (ANSPs) losing a further US$115 billion and US$13 billion, respectively. Changi Airport saw an 80% decline [13].

As shown in Table 7, the number of passengers carried at Changi Airport declined by nearly 56.5 million during the outbreak period (2019-2020). Changi Airport, as the largest airport in Singapore, was most significantly affected by the changes in The number of passengers carried The change affects the airline's ability to grow in terms of whether it needs to improve airport services, whether to increase its carrying capacity and whether to build moderately ahead of schedule. Therefore, with the rapid decline in the number of passengers carried, the airline's forecast of the market has an uncertainty factor, which has a huge impact on the airline's development capacity.

3.3 Based on the PEST analysis

3.3.1 Political Factors

Covid-19 pandemic swept all over the world in 2020, causing a huge impact in many countries. Singapore discovered the first confirmed case imported from abroad on January 23, 2020. Until the local epidemic spread in February and March, Singapore found a large increase in new cases in late March and early April (Our World Data) [14]. Due to the severe epidemic in Wuhan and many countries, Singapore Airlines was deeply affected by the lockdown policies of other countries, not only its cargo freight but also its international flights. Singapore Airlines and Scott fly to over 130 destinations from all over the world so it is the biggest international airline company in the world (Singapore Airlines) [15].

Since the discovery of the first confirmed case, the Singapore government has paid close attention to the development of the global epidemic. The Singapore government has still not enforced a national lockdown or isolation policy. In early April, the uncontrolled outbreak of COVID-19 in migrant workers' dormitories rapidly increased until April 7, Singapore implemented lockdown measures and quarantined migrant workers to contain the epidemic. Only then did the Singapore government order the implementation of a nationwide blockade policy. The lockdown measures were relaxed in three phases after June to gradually restore normal social life [16]. Singapore Airlines also requires nucleic acid certification and PCT results 48 hours before boarding. Many people feel this policy is very troublesome if it is not for studying abroad and business trips.

3.3.2 Economic Factors

Affected by the epidemic, tourists' demand for the tourism market is weak, so many international flights of Singapore Airlines were canceled due to the blockade policy of various countries. Singapore's annual revenue fell by 76.1% to S$ 3.82 billion as of March 31, 2021, and the increased freight revenue was not enough to offset the nearly 98% drop in passenger numbers [17]. The epidemic has had a huge impact on Singapore Airlines' capital chain. SIA claims to have received up to S$19 billion (US$13 billion) to help it overcome Covid-19. The largest bank in Singapore is DBS

Bank Group, which will provide the airline with a bridge loan of S $ 4 billion unit it obtains funds from the rights issue [18].

Many airlines were forced to lay off staff because their profits were significantly reduced and could not pay the salary of their staff. The salary reduction measures of different employees and management within Singapore Airlines have led to about 4300 jobs in the three airlines of Singapore Airlines, of which 2400 were laid off due to layoffs and 1900 were laid off due to other measures [19]. The salary cut of senior employees of Singapore Airlines will also be reduced to a certain extent. For example, the salary of senior vice presidents will still be cut by 15%, executive vice presidents will be cut by 20%, CEP Wu Chunfan will be cut by 25%, and board members will be cut by 30% to support the management [19]. It can be seen that the impact of the epidemic has directly reduced the salary level of the internal management.

3.3.3 Social Factors

In March 2020, 67% of Singapore respondents almost agreed and fully agreed with the way Singapore Airlines handled the coronavirus epidemic in Table 8. (Statista Research Department 2022). Table 9 refers to the share of people who approve of how their airline handled the coronavirus outbreak in Singapore as of March 2020. Out of people's fear and fear that going out will easily increase the chance of infection rate, about one-third of people still support a series of measures taken by Singapore airlines. In addition, the epidemic has affected the income of some people. Some people are worried about the instability of the epidemic, which may reduce their willingness to travel by air. If there is an epidemic in the city where the travel destination is located, the trip planning will be disrupted and an additional cost-effective isolation fee will be paid.

Table 8. Share of people who approve of how their airline handled the coronavirus (COVID-19) outbreak in Singapore as of March 2020(Data source: Satista)

Attitude	Percentage
Strongly Approve	20%
Somewhat Approve	47%
Neither Approve or Disapprove	22%
Somewhat Approve	8%
Strong Disapprove	4%

Moreover, due to the policy restrictions of various countries, the reduction of flights has led to an increase in air ticket prices for overseas students returning home and abroad, and many overseas students have been forced to delay their return home planning or postpone their plans to study and go abroad. In 2020, the flight price increased due to the limited seating rate percentage.

3.3.4 Technology Factor

In response to the potential effect of the epidemic, many airlines have launched many differentiated marketing methods to attract customers. Singapore Airlines can introduce a certain amount of free ‘flying blind boxes’ to other airlines, which means that the price and departure place are specified and the travel destination is unknown until one day before going, so as to attract customers’ interest through this unique marketing method. For example, United Airlines of China and JD.com launched a blind box promotion of 398 yuan. Similarly, China Southern Airlines also held its own blind box promotion, which included round-trip air tickets for two to six people and a hotel voucher [20]. This method increases customers’ purchase opportunities through the bundled sale of air tickets and accommodation discounts. It attracts and satisfies young tourists’ adventurous psychology. Blind box products are mostly sold at low prices. The purpose of airlines is to attract a number of customers rather than earn profits. If the blind box is opened when the customers do not want to travel or the time is early morning or a red-eye flight, the customers can choose to cancel the schedule and ask the airline to refund.

At present, although Singapore Airlines has not made a specific response, for the time being, it can carry out similar marketing activities in the relatively stable phase of the epidemic in combination with the actual route conditions to increase passenger flow and generate revenue. However, this special low-price marketing method is not sustainable, which is just a self-rescue measure taken by airlines to deal with the impact of the epidemic in the short term.

4. Recommended

To sum up, based on the above PEST analysis, development capability analysis, and profitability analysis, the following suggestions are put forward to improve the profit model of Singapore Airlines.

1. Listen to the opinions of customers and frontline employees regarding the attitude towards customers. Customer opinion is the most direct, through sampling surveys, questionnaire collection, and other ways to widely absorb the opinions of passengers, obtain the most valuable first-hand information, and understand the lifestyle of customers, customer groups can be subdivided, understand the living habits and needs of different groups, combined with the existing situation to provide corresponding services. It is also important to strike a balance between standardized service and personalized service. Standardized service emphasizes the consistency of service -- not changing the quality of service because of differences in customers, and not affecting the effectiveness of service because of differences in employees. This requires that the classification and criteria of services be refined so that they can be quantitatively assessed and thus a uniform service level can be established

2. Continuous innovation is an important driving force for Singapore Airlines' success. Since its inception, Singapore Airlines has faced competition in an open global market

The severe external environment makes it very early to establish the "world-class Asian airlines to provide quality customer service" goal, and then through the "Singapore Girl" brand image, improve service quality, first class, and business class fleet average time of flight control, and reached strategic alliance cooperation, resolve the contradiction between the high-quality service and low-cost operation. In contrast, some state-owned enterprises in China, which have received much higher government support and subsidies than Singapore Airlines during their development, have lost the courage to face market competition. Blindly relying on innate monopoly advantages to maintain a low level of profit model, unwilling to invest in business innovation

3. In terms of profitability and development ability, Singapore Airlines needs to maintain its own excellent characteristics, and a standardized corporate governance structure is conducive to the success of the company. The wave of privatization in the mid-1980s, while allowing the Singapore government to transfer some of its stakes in state-owned enterprises to private and foreign companies, it also helped the company establish a standardized corporate governance structure. [21]The board is independent of management and provides effective oversight of management. A board structure with a majority of independent directors facilitates scientific decision-making and thus avoids conflicts of interest.

5. Conclusion

This report discusses the impact of the epidemic on Singapore Airlines. The number of passengers carried by Singapore Airlines is restricted due to the adjustment of the epidemic prevention and control in various countries, and the projected number of passengers and the operational development of the airport expansion is affected, which eventually leads to the limitation of the company's development capacity. Both cargo flights and regular flights have decreased significantly. At a time when the revenue of global airlines fell sharply, Singapore Airlines also suffered a great loss. However, through capital turnover operation and risk control, and effective debt management, the revenue situation has been greatly improved in 2021. This paper also use the PEST model (technical, economic, social, political) to analyze the impact of the macro environment on Singapore Airlines.

In addition, the report discusses putting forward the following suggestions to improve the current situation of Singapore Airlines, including continuing to maintain innovation ability, listening to the opinions of customers and front-line employees on customer attitudes, etc. This article makes up for the impact of the epidemic on Singapore Airlines by studying a large number of data and analysis methods from the Statista website, but this article lacks relevant data charts on the impact on Singapore's freight transport.

References

[1] International Finance. Aviation has a profound impact on the world economy. October 10, 2009.view 17 September 2022. http://paper.ce.cn/jjrb/html/2009-10/10/content_83064.htm

[2] Feng Miao. Research on the development strategy of Jilin air logistics based on SWOT and AHP analysis. Journal of Changchun Normal University, 2020, (10):189-192

[3] Zhu Dan, Chen Hong. SWOT analysis of the development of Xiamen air logistics industry[J]. Journal of Liaoning University of Engineering and Technology: Social Science Edition, 2009, (5): 459-462.

[4] Zhao Jianling, Du Xiaolei. Analysis of brand strategy of China Southern Airlines[J]. Journal of China Civil Aviation Academy, 2004, (1): 20-23.

[5] Wang Yiwen, Song Xiaoxiao, Zhao Yitong, et al. The development strategy of modern seed industry logistics based on PEST analysis. China Seed Industry, 2022, (6): 5-8.

[6] Chen Junlan, Lv Ruyin, Ren Fan, et al. Analysis of the development environment of Chongqing automobile industry based on PEST method. Contemporary Economy, 2022, (3): 38-43.

[7] Ran Guocheng, Chen Qiang. Analysis of the development strategy of Changsha New Port based on PEST model[J]. China's collective economy, 2022, (5): 5-7.

[8] Christopher Hughes, Customer satisfaction with international airlines in Australia as of August 2019, April 2, 2022, view 13th September 2022, https://www.statista.com/statistics/953124/international-airline-customer-satisfaction-australia/.

[9] Holden Madison, Taking Off: Service Excellence at Singapore Airlines, https://hospitalityinsights.ehl.edu/service-excellence-singapore-airlines.

[10] Min Huiwu, Changling Liao.The impact of debt management on company Value and the Analysis of Problems. Journal of Langfang Teachers University,2017(7):105-109

[11] Yang Min. Global large commercial aircraft market "war" briefing in 2020[J]. Aviation Maintenance and Engineering, 2021, (2):11-13.

[12] China News. UN agency: New crown epidemic continues to hit international travel. January16,2021.view 13 September 2022. https://baijiahao.baidu.com/s?id=1689013732102881084&wfr=spider&for=pc&searchword= International Civil Aviation Organization (ICAO) reported that as passenger traffic fell by 50 percent last year and total passengers dropped by 60 percent, pandemic No.% 20.

[13] Aviation PLUS. Epidemic Costs Airlines $37 Billion; Brazilian Plane to Carry 2 Million Doses of New Crown Vaccine to India Called Off Before Take Off. January 17, 2021. view 14 September 2022. https://view.inews.qq.com/a/20210117A01EMF00.

[14] Hannah Ritchie, Edouard Mathieu, Lucas Rodés-Guirao, Cameron Appel, Charlie Giattino, Esteban Ortiz-Ospina, Joe Hasell, Bobbie Macdonald, Diana Beltekian and Max Roser (2020). "Coronavirus Pandemic (COVID-19)". Published online at OurWorldInData.org. Retrieved from: https://ourworldindata.org/coronavirus

[15] Singapore airlines. “Where we fly”, Retrieved from: https://www.singaporeair.com/en_UK/sg/plan-travel/destinations/where-we-fly/

[16] Haiqian Chen, Leiyu Shi, Yuyao Zhang, Xiaohan Wang and Gang Sun, A cross-country core strategy comparison in China, Japan, Singapore and South Korea during the early COVID-19 pandemic, Globalization and Health, (2021) 17-22.

[17] CNBC, Singapore Airlines posts record $3.2 billion annual loss, to issue convertible bonds, 19 May 2019, view 14 September 2022, https://www.cnbc.com/2021/05/20/singapore-airlines-posts-record-annual-loss.html

[18] Dexter Tilo, Singapore Airlines ceases wage cuts for staff, 17 August 2021 view 14 September 2022, https://www.hcamag.com/asia/news/general/singapore-airlines-ceases-wage-cuts-for-staff/302414

[19] Anshuman Daga, Jamie Freed,Singapore Airlines latest to get massive rescue amid coronavirus crisis, view 17 September 2022, https://www.reuters.com/article/us-health-coronavirus-airlines-idUSKBN21D3UW

[20] Yiran Huang, Flying Blind: Domestic Travel App to Release RMB 98 One-Way Tickets, but There's a Catch, 22 April 2021, view 18 September 2022, https://www.thebeijinger.com/blog/2021/04/16/98-kuai-random-place-airline-ticket-joins-game-blind-box-finally

[21] Feng Miao. Research on the development strategy of Jilin air logistics based on SWOT and AHP analysis. Journal of Changchun Normal University, 2020(10):189-192.