

Current Situation Analysis and Future Outlook of Boeing Co.

Hengkang Tu

Lanzhou University of Finance and Economics, Lanzhou, China

Corresponding author: htu2@gmu.edu

Abstract. Boeing Company is the leading aerospace company in contemporary times. As a result of pandemics recently, the global aviation industry has been severely impacted, and the operational risks faced by Boeing have also expanded. Based on the business strategy and profit model of Boeing Company in recent years, this paper analyzes the dangers that the Boeing Company has experienced in its operations and growth from the standpoint of the interaction between its resources, operations, and financial data over the last three years, in order to forecast its future growth.

Keywords: Financial analysis; Financial ratio; SWOT analysis.

1. Introduction

1.1 Company Background

Boeing has a long tradition in the aerospace field, relying on its leadership and innovation ability. With the regular changes in customer demand, the company is also expanding its products and services to meet customer demand. Boeing has a number of capabilities, including innovative design, construction, defense systems and military platforms to meet customer needs, thereby creating efficient aircraft. Boeing has a big customer base and more than 140000 employees spread across the United States and 65 other countries. Because of its scale, Boeing employs a lot of intelligent, diverse, and creative people.

Boeing is the largest defense contractor in the United States and one of the world's two leading manufacturers of commercial aviation aircraft. In terms of human space travel, satellites, commercial jet aircraft and military aircraft, it leads the world market in terms of design, development, manufacture, sales, services, and after-sales support. Boeing's primary market is the United States, but as globalization has accelerated, it has developed relationships with large non-American suppliers and subcontractors as well as partners on a worldwide scale.

In the development process of a hundred years, Boeing's products and services have formed its own unique development strategy. Its commercial aircraft is committed to becoming a leader in the field of commercial aviation, providing customers around the world with excellent design, products and valuable services [1]. Boeing's resources in military, intelligence, communications, security, and space are combined in the defense, space, and security sector to offer customers capability-driven solutions at a reduced price. While increasing its influence in adjacent nations and global markets, Boeing will concentrate on the growth and productivity of its core businesses, particularly in the research and development of new projects. Through cutting-edge and reasonably priced products and services, the global services industry supports commerce and military. For customers of Boeing, Boeing Capital offers accessible and customized financing options.

1.2 Research Purpose and Significance

The Federal Aviation Administration (FAA) ordered on March 13, 2019, despite Boeing having a system for product quality assurance and an apparently thorough risk assessment and control system, all 737 Max aircraft operations in the United States have been suspended. This was in reaction to two disasters involving passenger planes from the Boeing 737 Max series in recent years. In its annual report, Boeing stated that it will reduce the production of 737 aircraft from 42 to 52 each month starting in the second quarter of 2019 [2]. Boeing formally declared in the fourth quarter of 2019 that it would halt the 737 production plan as of January 2020. Only 380 airplanes were delivered by

Boeing in 2019; this number fell to 157 in 2020. In comparison, Airbus delivered 863 aircraft in 2019 and 566 in 2020, both of which were significantly more than what Boeing delivered [3]. Due to this crisis, Boeing saw a decline in operation for its plane industry, large revisions to reckoning projections, an expansion in fixed expenditures specifically tied to aircraft travel, and other problems.

This paper evaluates Boeing's performance using information that the company has made public. It also examines the risks that Boeing faces in terms of the market environment, governmental regulations, and external changes, and it suggests some countermeasures and solutions to help other companies in the aviation sector learn from Boeing's experiences in the post-COVID-19 era.

1.3 Research Content

This paper is organized as four main parts. The first section is introduction, which focusing on introducing the background of research object, research purpose and significance, basic content as well. The second part involves deeper analysis to Boeing company. It is consisted of three models to provide conclusion for this research work. Firstly the company strategy will be discussed to take a view on how strategy arrangement support the operation of Boeing. Then using SWOT analytical method to find various environmental factors of Boeing company affecting group development strategy. The next model is the financial analysis of Boeing, including the analysis and review of Boeing's profitability, cash flow, and solvency. Moving to the discussion section, risks from external and internal circumstances will be referred and analyze how they may cause adverse effect on the company. Last part is the conclusion of research, which combined with the conclusion of previous content and future outlook for Boeing company.

2. Business Analysis

2.1 Assess the Strategy of Boeing

2.1.1 Achieve an industry leader

The company's goal of dominating its industry is one of its top priorities. It makes excellent-quality products in an effort to achieve this. To do this, the business has created a highly competitive technical team, which was possible through the hiring of international engineers. This method guarantees that the business has the greatest expertise in the sector, which can put it ahead of rival businesses.

2.1.2 Explore new technologies

The creation of new technologies is one of Boeing's most significant opportunities. It involves materials that can be used to create new eco-friendly products. To develop alternative fuels for its airplanes, Boeing has expended a lot of resources. Finding "green alternatives" is an extremely competitive field. who will lead the way internationally and who will have a significant competitive advantage.

2.1.3 Get close to customers

Delivering value to customers, setting the pace for innovation, and promoting productivity are all parts of Boeing's business strategy. Before creating any model, Boeing's management will adhere to and fully respect the marketing department's recommendations. They will also place a high value on the sales department's market research and informational input. The marketing team at Boeing, including sales and after-sales support, is aware that customers are its closest allies and that they are the ones who are most familiar with the market's needs and the challenges that consumers face.

2.1.4 Product differentiation strategy

Boeing also pursues a strategy of product diversification. Boeing differentiates its products by enhancing seat and engine capacity, developing novel new winglet designs, and producing a wide range of goods in response to market shifts. Boeing is able to develop distinctive skills and acquire an advantage over its rivals because to its business-level strategy. For instance, to significantly lower

the weight of the aircraft itself, Boeing developed a lighter and stronger carbon fiber reinforced adhesive when designing the Boeing 787. The fuel and maintenance costs for this type of aircraft can be reduced by up to 20% and 30%, respectively, as compared to current medium-range aircraft [1].

2.2 SWOT Analysis

2.2.1 Strengths

Research and development efforts are very important to Boeing. Its subsidiary business divisions concentrate on developing new goods, streamlining processes, and innovating technology. R & D expenditure covers the experiment, design, development and necessary testing activities of weapon systems, new type of planes, including product development financed by commercial and military, advanced space and other enterprises. Furthermore, Boeing places a high priority on product quality. Boeing places a high priority on potential airplane accidents, and they have revised their production processes to remove any potential hazards. Engineers carefully review each employee's work in the workshop, the business keeps an eye on every step of the manufacturing process, and the F.A.A. inspectors appointed to the job inspect each aircraft more than 800 times [4].

2.2.2 Weakness

Boeing has long been caught up in the problems of declining operating profits and poor performance of its business units. Since the fiscal year 2018, Boeing's operating profit and net profit have continued to decline. The company's operating profit decreased from \$101.127 billion in fiscal 2018 to \$58.161 billion in fiscal 2020. Although it increased slightly to the US \$62.286 billion last year, the overall income is not as high as before. When its commercial aircraft business is affected, Boeing's revenue structure is also quietly changing. In 2019, commercial aircraft is still Boeing's largest business, accounting for 42.13%, followed by defense business, accounting for 34.08%; In 2020, commercial aircraft shrank to 27.79%, while defense and other businesses rose to 45.15% [5]. In 2020, although the commercial aircraft business increased, it still did not exceed the defense business.

2.2.3 Opportunities

Boeing forecasts that China's civil aviation industry will require 8700 new aircraft worth \$1.47 trillion over the next 20 years to meet rising demand for air travel, reflecting the Chinese market's recovery and the ongoing evolution of its civil aviation business model. As China's economic recovery has laid the foundation for healthy air traffic growth, by 2030, China's domestic passenger market will surpass the European internal market [6]. China's domestic passenger flow is anticipated to surpass the domestic air transport industry in North America by 2040. More than 400000 new aviation professionals, including pilots, maintenance technicians, and flight attendants, will be needed in China's civil aviation industry by 2040 [7]. Boeing's commitments to China include investing in supporting the future talent development of the aviation industry, such as training nearly 100000 Chinese aviation professionals and employing more than 2500 Boeing employees, as well as conducting a variety of businesses, training programs, supply chain and other activities.

2.2.4 Threats

Boeing still maintains fierce competition and pricing pressure in the aviation industry. As the main competitor, Airbus is committed to improving its market share. In 2020, after acquiring Bombardier's c-series aircraft, Airbus changed its name to A220 and began to try to enter the "regional aviation market" with 100 to 150 seats in the traditional market classification. Additionally, General Dynamics, Raytheon, Northrop Grumman, and Lockheed Martin are among the fierce competitors Boeing has in the defense industry.

2.3 Financial analysis

Boeing's financial analysis includes reviewing and analyzing Boeing's projects, operations, budgets, and other financial-related transactions. The main purpose of Boeing's financial analysis is to analyze the company's situation. This paper begins with three perspectives: solvency, cash flow,

and profitability, which are combined with the DuPont analysis method. The required data are all based on data from Boeing's annual and quarterly reports collected on the website of the United States Securities and Exchange Commission.

2.3.1 Profitability Analysis

Table 1. Boeing Co., profitability analysis

	Dec 31, 2021	Dec 31, 2020	Dec 31, 2019
Gross profit margin	4.84%	-9.78%	5.83%
Operating profit margin	-4.66%	-21.95%	-2.58%
Net profit margin	-6.75%	-20.42%	-0.83%
Return on assets (ROA)	-3.03%	-7.80%	-0.48%

The percentage of income that can be used to pay for operations and other expenses is determined by the gross profit margin. The proportion of operating profit from operations in net sales or invested capital is called operating profit margin, and it can be used to fully depict the operating effectiveness of a business or an industry. When the operating profit margin is bigger, it indicates that the business earnings are generated by the amount of goods sold by the company and that the company is more profitable [8]. A measure of profitability known as net profit margin is determined by dividing net income by revenue, which displays net profit created by each value of sales revenue and illustrates the income revenue. The profitability of all of the company's assets is referred to as return on assets. This ratio aids company in assessing the effectiveness of the business in terms of total asset investment [9]. When the ROA is high, it denotes that the operation of the company has high productivity and efficiency in creating sales through effective use of the company's resources. From research, Boeing's mentioned ratios declined between 2019 and 2020 before improving between 2020 and 2021 without regaining their prior levels and never failing to obtain the profit of all assets.

2.3.2 Cash Flow Analysis

This paper evaluates the cash flow of the company from the cash flow generated from three major activities: financing activities, investment activities and operating activities. The specific index values are shown in Table 2.

Table 2. Boeing Co., cash flow (US\$ in millions)

	Dec 31, 2021	Dec 31, 2020	Dec 31, 2019
Net cash provided (used) by operating activities	(3,416)	(18,410)	(2,446)
Net cash (used) provided by investing activities	9,324	(18,366)	(1,530)
Net cash provided (used) by financing activities	(5,600)	34,955	5,739

According to table 2, the net cash flow created by the Boeing 's operating activities from 2019 to 2021 has been on a downward trend, indicating that Boeing has been difficult to improve its loss situation in the past three years. The cash flow from investment activities has been negative in the first two years, and the net cash flow outflow from investment activities in 2020 increased by 1.6836 billion yuan compared with the same period in 2019 These indicate that the cash flow generated by Boeing's investment activities is negative and the absolute value is increasing. However, the cash flow invested in 2021 returns to a positive value, which may be regarded as a sign of Boeing's business recovery. The net cash flow from financing activities has been positive in the previous two years. In 2021, the net cash flow from financing activities decreased by nearly \$40 billion compared with the same period of the previous year. In general, the cash flow of Boeing under the epidemic fluctuates greatly, and the situation is adjusted every year to meet the needs of funds in different forms.

2.3.3 Solvency Analysis

The ratio used to assess the security of corporate debt and the solvency of short-term debt is called the "solvency ratio." Solvency, which primarily includes the debt to capital ratio and the assets ratio, substantially indicates the risk profile of an enterprise's operation [10].

Table 3. Boeing Co., solvency ratios

	Dec 31, 2021	Dec 31, 2020	Dec 31, 2019
Debt to capital ratio	1.35	1.40	1.46
Debt to capital ratio (including operating lease liability)	1.34	1.39	1.43
Debt to assets ratio	0.42	0.42	0.20
Debt to assets ratio (including operating lease liability)	0.43	0.43	0.21

Table 3 shows an improvement in Boeing's debt to capital ratio from 2019 to 2020 and from 2020 to 2021, which includes operating lease liabilities. However, from 2019 to 2020 and from 2020 to 2021, the debt to assets ratio, which includes operational lease liabilities, continued to worsen. According to the company's annual report in 2020, due to the crash of two 737 Max -8 aircraft within six months, the Global Airlines grounded the aircraft, and the repeated delays in the go around of 737 Max -8 that Boeing has been trying to promote, resulting in a decrease of \$2446 million in operating cash flow in 2019, forcing the company to seek US \$12 billion in loans for operation and debt repayment at the beginning of 2020, resulting in a decrease in the above ratio. Generally speaking, after experiencing the difficulties of grounding and the interference of the pandemic, the company's solvency has been threatened to a certain extent.

2.3.4 DuPont Analysis

DuPont analysis is an evaluation method that decomposes the return on assets, total asset turnover rate and equity multiplier, and comprehensively reflects the financial performance of the company [11]. The specific ratio values are shown in Table 4.

Table 4. Boeing Co., ratios related to DuPont

	2022 Q1	2021 Q1	2020 Q1
Return on assets (ROA)	-0.45%	-0.37%	0.02%
Total Asset Turnover	0.103	0.101	0.118
Equity multiplier	-8.93	-8.40	-15.83
Return on Equity(ROE)	4.0%	3.13%	-0.33%

It can be seen from Table 6 that the ROE in 2022 is the highest, followed by 2021 and the lowest in 2020. It can be seen that after the outbreak in 2020, Boeing's ROE in 2020 was less than 0%, indicating that the pandemic brought operating losses to Boeing Company. Secondly, compared with the return on assets in 2020, the reason why Boeing's return on net assets in 2021 and 2022 is negative shows that Boeing cannot maintain stable profits in the recent two years. The total asset turnover in 2020 is slightly higher than that in the next two years, indicating that the total asset turnover in 2020 is slightly higher than that in 2021 and 2022, and the asset utilization rate is slightly higher than that in the next two years. The equity multiplier in 2020 is higher than that in 2021 and 2022, indicating that the financial situation in the next two years is more stable than that in 2020, but the very low equity multiplier in three years still reflects the serious debt problem of the company.

3. Discussion

3.1 Potential risks

3.1.1 Risks related to coronavirus

The pandemic's developments may keep maintaining a major impact on Boeing's whole business and operating performance, cash flow as well. Boeing confronts considerable risks connected to the pervasiveness of the COVID-19. Boeing also faces considerable risks as a result of the sharp decline in commercial aviation traffic brought on by the pandemic and global economic downturn. These dangers include a sharp decline in the demand for Boeing's goods and services, a rise in operational and supply-chain instability, and difficulties with the long-term viability of some Boeing clients. Future vaccine laws or other legal restrictions could also interfere with how Boeing does business with its clients and suppliers. Boeing's company, operations, financial performance, cash flow, and financial condition have all been exposed to numerous risks. For instance, the COVID-19 pandemic is posing an increasing number of operational issues for Boeing, and it is imperative that it safeguard the health and safety of its staff. Production site closures, workplace interruptions, mobility limits for staff, social alienation guidelines, an increase in employee absence from illness or isolation, tracking requirements, and decreased availability are some of the difficulties that may arise in the future. Gather products and raw materials at Boeing's own facilities as well as those of its clients and suppliers [12].

The COVID-19 caused a significant decline in commercial air traffic. The majority of airlines have drastically cut their capacity and are even getting ready to decrease client traffic even further. Significant layoffs are also being implemented by many airlines. The industry runs the danger of putting into place long-term measures that involve capacity reduction, route mode change, and mitigation methods related to the impact of the pandemic and the possibility of subsequent global health crises. Additionally, due to travel and social distance constraints, the public is reluctant to choose aircraft as a means of transportation, which could lower demand for airlines. These capacity adjustments have had and are anticipated to have a detrimental impact on the revenue, profitability, and cash flow of Boeing customers. In some situations, this could put some Boeing customers' financial viability in jeopardy, which could result in a default portfolio for customer financing for Boeing. Boeing may see a significant decline in revenue if it is unable to sell additional aircraft until the market stabilizes or if it is compelled to further reduce productivity. For instance, Boeing acknowledged in the fourth quarter of 2020 that the influence of the pandemic was a factor in the 777x program's projected loss. Additionally, new orders for all Boeing Commercial aircraft programs may decline, and cancellations may rise.

3.1.2 Risks related to business

Concerned about the two fatal 737 Max crashes, the US Federal Aviation Administration issued an order on March 13, 2019 to stop all 737 Max aircraft and local aircraft operators from operating in the United States. The civil aviation authorities of other countries soon issued the same directive. A series of announcements led Boeing to announce plans to reduce and eventually suspend 737 production [13]. On March 22, 2022, after the accident of a 737 airliner belonging to China Eastern Airlines, Boeing's share price directly fell by 3.6%, and once again affected the 737 series airliners to be grounded for inspection. At present, Boeing has more than 4000 737 series airliners waiting for production and delivery. If Boeing cannot perfectly solve the litigation investigation on these planes, it is bound to be a pressure on the company's future business.

4. Conclusions

To conclude the comprehensive discussion on Boeing, including the services provided by the company, brief background details, value, strategic analysis and company ratio analysis. Boeing is still the world's top producer of civil aircraft and military, space, and security systems, as well as the

supplier of after-sales support services, according to the results of using SWOT method of Boeing's advantages and weaknesses based on the current business climate. The main categories of the company's operations include commercial jet aircraft, BDS (defense, aerospace and security), global services and Capital Corporation. However, in recent years, the company has incurred losses [1]. The losses suffered by the company are mainly due to impact of COVID-19. Because of worrying coronavirus, people stop long-distance travel and commercial flights are prohibited. Therefore, the aviation industry and related commercial aircraft companies are forced to stop most of their business, which ultimately leads to the loss of Boeing, because commercial aircraft companies are its main customers. Meanwhile, Boeing has been deeply troubled by Boeing 737 Max related flight accidents in the past three years, resulting in a large number of Boeing 737 series aircraft not being delivered.

It looks as if the business of Boeing has fallen to the bottom, however, one of the good news is that may with the recovery of global aviation in the next two years. Boeing issued a press release on May 2 this year, predicting that the global aviation industry will have a demand for 43500 new aircraft worth \$7.2 trillion by 2040. In the face of a shortage of \$64 billion funds last year, export credit and institutional investors provided the necessary financing to support airlines. Boeing Capital is optimistic about this and predicts that there will continue to be sufficient liquidity to support the delivery of new aircraft. Boeing delivered a Boeing 787 Dreamliner to American Airlines on August 10, which is the first time that the delivery of this model has been resumed since the suspension of delivery in May 2021 [14]. It seems that Boeing is working hard to get rid of the difficulties in recent years.

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