

The Economic Environment and Black Swan Events: Taking COVID-19 as an example

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Abstract. The global repercussions of COVID-19, originating in Wuhan, China, have been likened to a black swan event due to their unprecedented and unforeseen nature. This crisis has profoundly impacted individuals, societies, and economies, reshaping the global landscape. Notably, the aviation industry, tourism sector, and international trade have suffered severe disruptions. Beyond health concerns, the pandemic's reach has extended to various industries, resulting in widespread job losses due to lockdowns, restrictions, and reduced demand. This has led to a significant surge in global unemployment rates. This paper explores the pandemic's impact on key sectors—aviation, tourism, and international trade. An analysis of factors contributing to their decline highlights intricate dynamics. Through examples and data, the extent of these declines becomes evident. In the aviation industry, travel restrictions and public reluctance to fly have crippled airlines, causing substantial financial losses. Similarly, sealed borders halted global tourism, causing revenue loss for travel and hospitality. International trade, a global economic cornerstone, faced disruption as supply chains faltered, shipping halted, and demand fluctuations destabilized markets. This exposed vulnerabilities in intricate global networks, impacting industries reliant on the flow of goods. In conclusion, COVID-19's far-reaching ramifications have left no sector untouched. Aviation, tourism, and international trade have collectively borne their impact. This paper underscores the negative influence through sector-specific analyses and data. These industries will likely continue to grapple with these consequences, fostering adaptation and resilience amid ongoing uncertainty.

Keywords: Black swan events, aviation industry, tourism, international trade.

1. Introduction

The term 'Black Swan' first appeared in the book [1] written by Taleb in 2007. It is used to describe events that occur in people's daily lives. The Black Swan Events have three characteristics: cannot be predicted before it happens; brings a huge and widespread impact; explanations are made to make it seem predictable. There are numerous things that happened in the world that were referred to as "black swan events," but everyone has a different idea of what a black swan is. In most people's views right now, the COVID-19 pandemic is without a doubt the most influential black swan event. In December 2019, the Chinese city of Wuhan experienced the onset and spread of the COVID-19 pandemic. Due to the strong contrasts of the pandemic, the virus soon moved from Wuhan to other regions of China. Within a few months, the COVID-19 pandemic was widespread throughout the entire world. According to the information obtained from the World Health Organization, when an infected person coughs, sneezes, speaks, sings, or breathes, the virus can be disseminated through their mouth or nose in tiny liquid droplets. The World Health Organization has also stated that serious illness is more likely to strike older persons and those with underlying medical illnesses including cancer, diabetes, cardiovascular disease, or chronic respiratory disease. COVID-19 can cause anybody to become very ill or pass away at any age. At the time of this paper, the World Health Organization updated that there were over 769 million confirmed cases and over 6.9 million deaths globally.

Covid-19 is not an ordinary infectious disease. It had been having a direct effect on people's daily lives throughout the globe for almost four years at the time of this paper, which was more fatal and serious than SARS (one type of Atypical pneumonia) in 2003. Besides the method of spreading the virus from infected people, the speed and quantity of its infection are also affected by some other different factors. Infection rates are highest in industrialized nations with dense populations. [2]

Additionally, the key factors for enhanced viral propagation are air pollution (percentage of carbon dioxide in the air) and population density. [2] COVID-19 is spreading with so many uncontrollable factors. Consequently, children cannot go to school normally, adults were sometimes forced to stay away from work and people's lives were off track. The COVID-19 pandemic has a huge impact on the global population and economy, without a doubt. To stop the virus from spreading, the governments implemented a range of anti-pandemic measures, which limited or suspended the running of some facilities, enterprises, or services. This has had a major effect on unemployment, especially among young people. [3] All walks of life have been affected, but the hospitality, accommodation and food service activities; real estate activities and some other sectors have been hit most severely. [4] Many people in society have lost their jobs, not just young people. People have lost their income and cannot have a high quality of life, and even have food and clothing problems. For instance, at the beginning of the epidemic, the unemployment rate in the Czech Republic was high. The unemployment rate increased to 2.19 times the level it was at the end of 2019 by the end of 2020. [3] Unemployment in Germany was 3.133 before the pandemic and rose to 4.223 after the pandemic, which indicates Germany was also influenced significantly by Covid-19 by 1.090%. [5] The pandemic has greatly affected people's lives and we should pay more attention to the impact of Covid-19. People have reduced going out in order to prevent the pandemic, so many industries cannot develop as usual. In this paper, the author will find out how the COVID-19 pandemic affected the economic environment and especially focused on three aspects: the aviation industry, tourism and international trade. In the vast majority of nations, these three industries are prominent. The number of persons working in these fields will be familiar to everyone. With the use of examples from various nations or towns, we will carefully examine how COVID-19 has an impact on the three businesses indicated above.

2. The Aviation Industry

The aviation industry is crucial to the worldwide economy as a whole. It is related to many industries, such as logistics and tourism. Aircraft manufacturing companies, airport managing companies and catering and service-providing companies were also affected, as they are closely related to the aviation industry. [6] When the COVID-19 pandemic broke out, numerous nations implemented additional travel regulations in an effort to lessen the severity of Covid-19. As a result, many travel arrangements were forced to be canceled and a large number of flights were canceled in 2020 as the virus spread more quickly. This dealt a blow to the aviation industry. Based on the results from the two-stage SDM's estimation, a 1% decrease in flight number contributes to a 0.431% decrease in confirmed COVID-19 cases. [7] Depending on the projections, no airline will be able to plan as many flights as normal. In order to prevent more people from being infected, 795,000 flights were canceled by the European airline industry from the beginning of the first shutdown in March until the end of May 2020. [7] According to the Airports Council International World, there would be a global decline in airline passengers of about 2 billion in the second quarter of 2020 and about 4.6 billion for the entire 2020 year in general. [6] There is an example of the aviation industry from those European countries, which is Turkey, affected seriously by the pandemic. Before the COVID-19 pandemic, a total of 209 million passengers were transported in 2019 on domestic flights, international flights, and transit flights, for a total of 100 million, 108 million, and 537 thousand passengers, respectively. [8] The airlines in Turkey had a good passenger flow volume before the pandemic. Similarly, the requirements for flights decreased after 2019. Numerous travel arrangements and some business trips were forced to be canceled. Therefore, from 5.9 million passengers during the same time in 2019 to 2.8 million passengers during the month of March 2020, there was a 53% drop in passengers transported. [9] Both the number of passengers carried on domestic and international lines declined significantly, by a combined 44.9% and 59.1%. [9] In addition to European countries, the aviation industry in Asia has also suffered a lot. China was the first country affected by the COVID-19 pandemic. The governments carried out measures to prevent

the spread of the pandemic. As a result, a large number of flights were canceled between January 2020 and February 2020. [10] The number of domestic flights was originally around 12000 but dropped to around 2000 within one month. [10] There were about 10,000 canceled domestic flights, with the average cancellation rate being 83%. [10] It is obvious that the global aviation industry has been widely impacted. The aviation industry can be divided into three main lines: commercial aviation, general aviation and military aviation. In addition to pilots, flight stewardesses, and flight attendants, there are innumerable other individuals employed in the aviation sector. Around 0.9 million individuals in the Middle East, 11.2 million people in Asia-Pacific, and 5.6 million people in Europe who work in the aviation industry are unemployed due to the Covid-19 pandemic. [6] Approximately 25 million individuals who work in the aviation sector might lose their employment as a result of a decline in demand for travel during the COVID-19 pandemic, according to figures from the International Air Transport Association (IATA). [6] The fact that there are so many unemployed individuals working in the aviation business is detrimental to society as well as the economy. A spike in gun violence may have been influenced by rises in unemployment. [11] It is undeniable that the Covid-19 outbreak has had a significant impact on the world's aviation business.

3. Tourism

Tourism has been popular all the time. During the holidays, a lot of individuals will travel since doing so helps them grasp the traditional cultures of various countries while also allowing their bodies and minds to rest. Many countries and cities rely on tourism to provide jobs for the local population. It also plays an important role in global economic activity. Due to the impact of Covid-19, many countries have introduced different pandemic prevention policies. Most regions required quarantine for 14 days to ensure that tourists did not carry any virus. As a consequence, individuals aren't traveling as much because of their health or the quarantine, which has reduced the prosperity of the tourist business in most zones. There has been a substantial decline in activity at hotels, restaurants, tour companies, airlines, and cruise ships during this period. [6] A large number of employees in the hospitality and restaurant industries may experience unemployment since 51 million enterprises in these industries are struggling with the economy. [12] According to the United Nations World Tourism Organization, the number of tourists globally decreased by 72% in 2020 compared to 2019, which is one billion tourists. The number of international visitors in 2022 was 102% higher than in 2021, but still 37% lower than in 2019. Obviously, the Covid-19 pandemic seriously affected the tourism industry all around the world. Tourism is also a significant factor in the GDP of several nations. For instance, 12.3% of the GDP in Spanish was contributed by tourism. [13] Half of the anticipated decline in the country's yearly GDP is attributable to the tourist industry. In addition to Spain, a large number of other nations rely on tourism. They obviously suffered a great deal as a result of the outbreak of the COVID-19 pandemic. Hong Kong has always regarded itself as serving largely as a "gateway to China" and an "Asian travel hub." [14] Shenzhen residents love to take weekend shopping trips to Hong Kong. Hong Kong is undoubtedly a well-liked travel destination. Given its considerable contribution to the local economy, tourism has been a vital pillar industry in Hong Kong. [15] Based on the information of the Hong Kong Tourism Board, in 2017 and 2018, which was before the pandemic, there were 58.47 million and 65.15 million foreign visitors, respectively. At the start of the pandemic, which was January 2020, there were still 3,207,802 visitors traveling to Hong Kong. [16] Nevertheless, the number of visitors to Hong Kong has dropped sharply since February 2020. In April 2020, the number of visitors is the lowest in a year, which is only 4,125 travelers. The quarantine policy enacted by the Hong Kong government made it impossible for people from many other provinces inconvenient to visit. The Covid-19 pandemic has had a negative impact on the tourism industry of Hong Kong. Numerous hotels, shopping malls and airlines were also affected. This has also dealt a further blow to Hong Kong's economic development.

Japan is another popular country that attracts lots of tourists to visit. It is a preferred tourist destination in many Asian countries. In the three years between 2013 and 2018, the total number of

visitors that arrived tripled to a record 31 million, growing at an average annual rate of 25.1% throughout this time. Visitors to Japan were expected to increase in a large flow until the outbreak of COVID-19. The number of tourists visiting Japan as a whole fell by 93 percent in March 2020 after falling by 58.3 percent in February 2020, and then practically ceased. The decline has not stopped after one year. Compared to January of the previous year, the number of foreign visitors declined by 87% in January 2021. The effects of COVID-19 on Japan's tourism need to take some time to make the number of tourists back to its peak.

4. International Trade

International trade, which consists of import and export, refers to the exchange of goods across national borders. It is an important part of GDP for many countries. International trade is another aspect affected by the COVID-19 pandemic. People require medical products, masks, disinfectants and protective suits which are effective against the pandemic. In industries producing durable items, the negative demand shock could be more severe. These sectors include those that produce rubber and plastics, wood, textiles, footwear, leather, precious and base metals, plastics and glass products, machinery, and transport equipment. So although people need a lot of anti-pandemic items, the export and import of international trade has dropped a lot. Asia is anticipated to contribute the most to the overall reduction in world output, by a percentage of 38%. In a long containment scenario during the pandemic (6 to 12 months), Asia would have a 5.8 percent decline in GDP growth and the rest of the globe would experience a 5.4 percent decline. This shows that international trade is dominated by Asia. Due to the fact that China accounts for 60% of worldwide supply and demand, a drop in Chinese commerce inevitably results in a decline in global trade. Unfortunately, both the export and import of China were influenced by the COVID-19 pandemic, the whole world.

International trade has long played an indispensable role in propelling China's economic growth, with a substantial portion of its exports comprising manufactured goods. However, the emergence of the COVID-19 pandemic introduced unprecedented disruptions to this economic engine. As evidenced by the Covid-19 Trade Watch Series from The World Bank, the impact on Chinese exports was profound, particularly during the initial months of 2020. Comparing the periods of January-February 2020 and January-February 2019, the data reveals a significant decline in Chinese exports by a staggering 17 percent. This downturn was especially pronounced in the realm of manufactured goods, which experienced an alarming drop of 18 percent. This contraction reverberated through crucial export sectors such as machinery, electronics, textiles, and clothing, all of which registered substantial declines. Notably, the United States, one of China's major trading partners, bore witness to a substantial decrease of 19.9 percent in Chinese exports according to the Covid-19 Trade Watch Series data from January 2020. This significant decrease in exports to the USA highlighted the widespread reach of the pandemic's impact on global trade flows. Interestingly, even amidst these challenging circumstances, China's imports from the USA took a somewhat unexpected turn. While the majority of these imports comprised animals and vegetables, the data indicates a slight increase of 1.1 percent during the same period. This unexpected trend underscores the complexity and unpredictability that characterized trade dynamics in the wake of the pandemic. In summation, the seismic jolt of the COVID-19 pandemic echoed through China's robust trade landscape, leaving no sector unscathed. The pronounced downturn in Chinese exports, notably in manufactured goods and key sectors like machinery, electronics, textiles, and clothing, underscores the magnitude of the challenge faced. As global economies strive to recover and adapt, these trade fluctuations serve as a testament to the pandemic's enduring impact on international commerce.

5. Conclusion

Overall, Covid-19 has undoubtedly had an impact on most countries and industries. Almost everyone has been infected with COVID-19, and quite a few people have died from it. In addition to

having an impact on people's health, global economic activities have also slumped. Governments carried out several anti-pandemic measures such as home quarantine and nucleic acid detection in order to prevent the spread of COVID-19. These actions have negatively impacted all three of the aforementioned industries, which are international trade, aviation industry and tourism, in a number of ways. Moreover, every industry is closely related, so these three industries are not the only ones affected by the pandemic. Since the COVID-19 pandemic is mostly spread in the air, airlines have to reduce the number of flights in order to cooperate with pandemic prevention works to reduce the number of infections. The aviation industry provides lots of working opportunities for people. The decline in the aviation industry also indicates an increase in unemployment. Apart from this, tourism also shows a downtrend during the COVID-19 pandemic. The number of tourists decreased in most regions as there are risks of being infected during traveling. With the reduction of flights, traveling becomes more inconvenient. The number of tourists at popular tourist attractions, for example, Hong Kong and Japan, has dropped a lot. This is not good news for a country where tourism is very important. International trade has been affected seriously too. The requirement for many products has decreased as medical products, masks, disinfectants and protective suits were very insufficient. During the pandemic, transportation, including ships and planes, was not convenient. As a result, the number of exports and imports in every nation decreased a lot. There also have been numerous fatalities in these fields of work. The COVID-19 pandemic has indeed had a negative impact on many industries. Fortunately, the negative effects of Covid-19 are slowly diminishing over time. With the help of governments and the efforts of all citizens, all economic activity is hoped to return to its pre-epidemic levels.

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