

## **Industrial Research Based on COVID-19 from the perspective of the economy: Taking Traditional and New Enterprises as an example**

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**Abstract:** The hottest topic in 2020 should be the influenza pandemic, COVID-19 -19. The impact of COVID-19 -19 on society, people, and the economy has caused a significant blow to people's physical and mental health. The research contribution of this paper is to analyze the stock price trend by data graph analysis and explore the impact of COVID-19 on the global traditional and emerging market. Traditional markets have a more significant effect on traditional and emerging markets, while emerging markets have a more negligible impact. Some emerging industries have even been positively affected.

### **1. Introduction**

The world economic situation will change for various reasons, some of which are artificial, such as the great recession in 2008. Some are natural disasters, such as covid-19 in 2020. The epidemic situation in 2020 is unpredictable and unavoidable. The impact of this infectious disease is multifaceted, such as traditional industries, mainly aviation and film and television, or emerging industries, particularly new energy and biotechnology. This effect may be harmful.

Scholars at home and abroad have conducted rich research on the impact of significant health events on various industries. For example, due to the state's implementation of travel restriction measures, such as blocking the border, suspending some flights, taking isolation measures, etc., the number of tourists has decreased significantly, which has a fatal impact on the tourism industry [1]. According to the report released by the United Nations World Tourism Organization, the number of international tourists in 2020 will be reduced by 20% ~ 30% compared with 2019. The impact of the sharp decline in the number of tourists on the civil aviation industry is also unprecedented. The most affected countries are Britain, Germany, Spain, and France. Their average airline revenue fell by about \$2 billion. At the same time, as COVID-19 is a cluster of infectious diseases, so for the exhibition industry, film and television industry, which needs people to gather together to carry out activities, also has a significant impact. This essay will focus on two old cinema companies, American Cinema Line AMC and Cinemark CNK, and analyze the effects of COVID-19 on the whole film and television industry, especially cinema companies, according to the changes in their stock prices.

However, COVID-19 has some positive changes in human life. Forbes wrote in the quarterly article that the enormous economic impact caused by COVID-19 pushed the fossil fuel market to the brink of collapse. Therefore, this is the best time to prioritize the development of clean and zero-carbon energy. The potential of green energy is that it can create jobs and provide investors with low-cost and high return opportunities. As mentioned above, COVID-19 has thrown the global order into chaos, including the blockade of cities by various countries, which has led to a sharp drop in people's travel demand and thus the need for oil, which has led to a rapid decline in oil prices. In this case, the giants of oil companies and some investors have focused on developing new energy, such as natural gas, wind energy, or solar energy. This crisis may bring some hope for long-term sustainable investment and development for renewable resources and the transformation of global clean energy.

Similarly, this positive effect also appears in biotechnology. Just like the article "*Under the COVID-19 Pandemic: The Rise of Virtual Experiments and the Record Number of IPOs of Biotechnology Companies*" [3] showed, in less than a year, the biopharmaceutical and academic circles knew nothing about the SARS-CoV-2 virus and developed to the point that they could use new technologies to launch

a variety of new vaccines to the world. The global epidemic of this infectious disease is making the life science industry the focus. In 2020, biotechnology companies will be booming. Those biotechnology companies developing COVID-19 vaccine drugs favored capital and countries, but people also paid more attention to cancer and rare diseases. These are the hot spots of investment in 2020. In addition, COVID-19 changed the clinical trials, and the virtual mode began to rise. This is because the state blocked cities and towns during the epidemic, so these trials will not make any progress if they are carried out traditionally. Therefore, people began to transform, such as telemedicine, the emergence of remote consultation, and so on. The emergence of COVID-19, an infectious disease, makes people more enthusiastic about R & D to deal with contagious diseases. More and more large companies and investors are looking at this field with new eyes. Governments, including some countries, have also begun to pay attention to the area of infectious diseases. Not surprisingly, more and more investors will focus on how to develop gene vaccines for mRNA infectious diseases or some other infectious diseases in the future. This cooperation has promoted economic exchanges between countries and the development of some companies themselves.

It can be said that covid-19 has an unprecedented impact on the global economy. Although it has caused an unprecedented blow to the worldwide economy as a whole, some new industries have been allowed to develop and flourish. For some traditional sectors, it still takes longer to recover.

## **2. Data and Method**

### **2.1 Data**

The data in this paper are from the Nasdaq.com, Futunn.com and Google Finance. The stock data comes from the 5-year table, 10-year table, and total price trend change table in the network data. Some examples come from SINA News Articles, the collection of papers on the professional website of biological Valley, articles published by the financial Associated Press, and official articles of the civil aviation think tank. This paper selects the aviation industry, film and television industry, the new energy industry, and biotechnology industry as the research object.

### **2.2 Method**

The research method of this paper is to analyze the impact of the epidemic on its economy by studying the examples and data in the reference examples, combined with the 5-year and total stock price and change trend of 6 companies as examples.

## **3. Results & Discussion**

Taking Economic depression in 2008 and COVID-19 in 2020 as examples, this paper analyzes and discusses the positive and negative impact that those situations caused on the global trade market and social problems. Are those effects short-term or long-term? Will this influence continue to penetrate every corner of people's daily lives in the future worldwide, or will it be solved as soon as possible?

We conclude the stock analysis of traditional industries such as aviation, film, and television and emerging industries such as energy and biotechnology during SARS and COVID-19. The five-year stock price trend chart is used to analyze the impact of the covid-19 epidemic in 2020 on current stocks. This paper examines the effects of the 2004 SARS epidemic situation or the 2008 economic recession on the stock price of the 2004 and 2008 periods through the changing trend of the total stock price. It analyzes whether the impact is long-term or short-term by comparing the changes and price ranges of the stock prices before and after these two time periods.

### 3.1 The negative impact of the 2020 pandemic—Aviation Industry, Boeing



Figure 1. Boeing MAX stock price

From the max share price chart (Figure 1) of Boeing, it can be seen that from 2012 to September 30, 2021, the stock price of Boeing showed an upward trend from 2012 to 2020, especially in 2016, which began to rise rapidly. On the whole, it showed a positive direction and quickly grew. But in 2020, the time after COVID-19 started to. Boeing's stock price directly fell from \$300 to about \$100, which is the same as the stock price in 2016. Although the stock price has risen slowly and rebounded as a whole since the sharp decline in early 2020, it has not yet reached the stock price of more than \$400 in 2019.



Figure 2. Boeing 5-Year stock price

The line chart of Boeing's five-year stock price (Figure 2) is more transparent and detailed, showing the sharp decline in the stock price caused by the influence of COVID-19 in early 2020, from about \$350 dropped to \$120. It rebounded in the spring of 2020, but the fluctuation was minimal. By the end of 2020, it rose to about \$200, but it gradually fell back to \$150 because of the recurrence of the epidemic. At the beginning of 2021, it grew back to \$225. Overall, Boeing stocks are on a rising trend in 2021.



Figure 3. Boeing stock volume histogram

It can also be seen from the stock volume histogram (Figure 3) that it was red and fell sharply between 2020 and 2021. At the same time, it was red and the stock price fell during the economic depression in 2008.

### 3.2 The negative impact of the 2020 pandemic—Aviation Industry, United Airlines



Figure 4. United Airlines' stock volume histogram

Similar results can be seen from the stock volume histogram of United Airlines. Similarly, in 2020, the volume column chart (Figure 4) turns red and drops sharply. The economic depression in 2008 has a great impact on United Airlines and other aviation and service industries. The brightness chart is red and shows a downward trend.

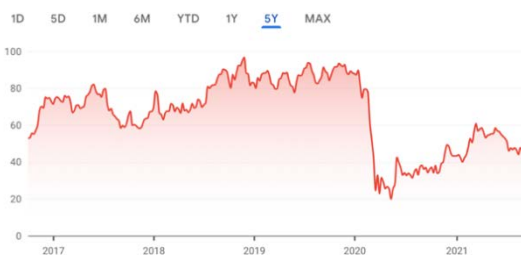


Figure 5 United Airlines' 5-Year stock price

From the five-year stock line chart (Figure 5), the spring of early 2020 is also a watershed. The stock fell directly from about \$80 to \$20. Although it is still on the rise trend, the highest stock price since the decline is \$60, which has not yet reached the trading level of about \$100 in 2019.

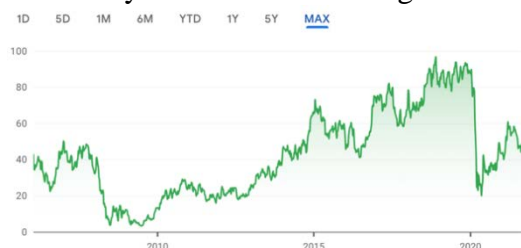


Figure 6. United Airlines' MAX stock price

Similar results can be seen from the MAX stock price chart (Figure 6). In 2008 and 2020, two parts of the sharp decline in stock prices, one was affected by the economic recession and the other by the pandemic. In comparison, it fell by about \$40 in 2008 and \$70 in 2020. It can be seen that infectious diseases have a great impact on tourism, aviation and other service industries.

From the stock price line chart of Boeing and United Airlines, the impact of the economic recession in 2008 is long-term. They did not reach the peak within a few years after the economic recession, but gradually increased slowly, showing an upward trend until the end of 2019. However, when this long-term impact has not been solved, the pandemic in 2020 has had a strong impact on it, causing its share price to fall sharply and the whole industry to enter a cold winter state.

### 3.3 The negative impact of the 2020 pandemic—Film and Television Industry, Cinemark Theater

Infectious pandemics such as COVID-19 has not only affected the development of tourism, but also because of the particularity of its dissemination, some clustered industries will be restricted. This will have a significant negative impact on aggregation industries and have a strong impact. For example, cinema industry, theater, amusement park and so on, which requires a large number of people to gather and enjoyed.



Figure 7. Cinemark Theater' MAX stock price

Such as Cinemark Theater. As can be seen from the trend chart of CNK's max share price (Figure 7), CNK stocks have been on a positive upward trend since the great recession in 2008. From \$8 in 2008 to the highest price of \$45 around 2016, the overall situation is positive. But early 2020. The stock price fell directly from \$31 to the same \$8 as in 2008.

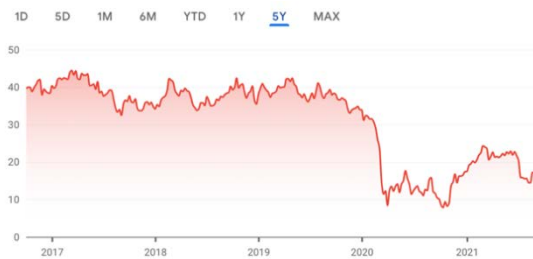


Figure 8 Cinemark Theater' 5-Year stock price

From a more detailed five-year line chart (Figure 8), after falling to about \$8 in the spring of 2020, it slowly rebounded to about \$18 as the epidemic was controlled. However, it fell back to \$11 in the autumn of 2020 and back to \$8 in the winter of 2020. Since 2021, CNK's stock price has risen slowly.



Figure 9 Cinemark Theater' stock volume histogram

The same is true for the stock volume histogram of CNK. They all have some same characteristics. For example, the volume histogram in 2020 is red and has fallen sharply. Although the area of the volume histogram in 2008 is less than that in 2020, it is also red and has a downward trend.

### 3.4 The negative impact of the 2020 pandemic—Film and Television Industry, American Multi-cinema

Unlike CNK, AMC is also an old stock in the film and television industry.



Figure 10 American Multi-cinema’ MAX stock price

Its share price has not fluctuated much. Even the economic recession in 2008 or the pandemic in 2020 did not make its stock price show a very obvious downward trend. Its share price has been maintained at about \$30 (Figure 10). Since 2018, it has remained at about \$18. Although the pandemic in 2020 caused its stock price to fall, it did not show a cliff like downward trend, but maintained a stable low trading amount. Since 2021, AMC's stock has risen rapidly, from about \$5 to about \$55. On the other hand, this explains that the epidemic has been effectively controlled after the vaccine research and development in 2021, AMC stocks can rise during the epidemic, and people begin to have some gathering activities, such as going to the cinema or watching some performances in the theater. This also explains why AMC stocks show a rapid upward trend around the spring of 2021.



Figure 11 American Multi-cinema’ stock volume histogram

It can be seen from its stock price volume chart that AMC's stock bright chart in 2021 is green and rises sharply.

The above is the negative impact of the pandemic and economic recession on some service industries or fields that need people's gathering activities. Since the great recession in 2008, while the financial market is globalizing, it is also gradually getting out of the long-term impact of the great recession on the global market. It can be seen from the stock prices of the above four companies that their stocks showed a stable or upward trend from 2008 to 2020, which is a very positive stock price trend, representing that the overall economy is recovering and showing an upward trend.

However, the pandemic in 2020 has brought all these industries into a cold winter. Those good companies stagnated or fell, but those, unfortunately, companies disappeared directly in this invisible battle. Thousands of companies declared bankruptcy in 2020. The hidden dangers brought about by the pandemic may make the international situation, which has entered the mitigation stage, tense. Both the service industry and the import and export trade have caused some problems due to the influence of COVID-19, which has led to an insufficient supply of goods in some countries. Relations between countries became tense. This tense international situation may slow down the development of globalized trade and the overall social economy. The process of globalization is slow or even stagnant. But in addition, some industries have opened up a new path in COVID-19, such as energy and biotechnology.

### 3.5 The positive impact of the 2020 pandemic—New Energy, ARK Genomic Revolution ETF (ARKG)

Since the epidemic in 2020 is a respiratory infectious disease, some companies in biomedicine, energy and technology have made some positive development in this war. For example, genetic evolution company ARKG. They are a relatively new gene company.



Figure 12 ARKG's MAX stock price

We can see from their Max stock price chart (Figure 12) that before the start of the COVID-19 pandemic in 2020, the stock price remained at about \$20, without much fluctuation, at a stable level. However, after the beginning of the pandemic in 2020, their stock prices soared from about \$20 to about \$110. Although it decreased at the end of 2020, it was still flat at about \$80 ~ 90. It can be seen that due to the impact of the pandemic, people pay more attention to the industries related to bioenergy and biogenic development engineering. While developing vaccines, people strive to promote the development of the biomedical industry and prepare for the epidemic diseases that may occur again in the future.



Figure 13 ARKG's stock volume histogram

It can also be seen from the stock volume histogram chart of ARKG's stock volume that their total trading volume reached 690 million shares, and the trading volume soared after 2020. This industry is emerging from the pandemic and worthy of investment. With the promotion of the epidemic situation, there may be very positive development in the future.

### 3.6 The positive impact of the 2020 pandemic—Biotechnology, SolarEdge Technologies (SEDG)

In addition to biomedicine, energy is also a problem that people are more concerned about at present. Due to global warming, the hole in the ozone layer is gradually increasing, the greenhouse effect is rising year by year, and the melting speed of Arctic glaciers is gradually accelerating. All these reasons make people gradually realize that energy is an important direction next. Therefore, people focus on how to obtain natural energy and how to find new energy industries, such as solar energy, electric energy, wind energy, marine energy, biomass energy and nuclear fusion energy.

SEDG, which as known as the SolarEdge Technology Company, is one of the companies that were not greatly affected during the epidemic, but the trading volume gradually increased after the epidemic. This is a technology company that generates electricity by electricity and solar energy. Although the pandemic also reduced its stock price from US \$284 to about US \$200, SEDG's stock price gradually rose to about US \$330 and remained at about US \$284 without much fluctuation.





Figure 14 SEDG’s MAX stock price

From the trend chart of its max share price (Figure 14), like the genetic engineering company, it does not fluctuate much before 2020 and remains at a level of about \$50. However, after 2020, its stock price rises rapidly, reaching a maximum of \$360.

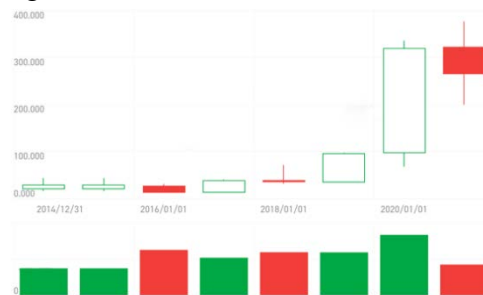


Figure 15 SEDG’s stock volume histogram

It can be seen from its stock volume histogram (Figure 15) that in January 2020, that is, the initial stage of pandemic outbreak, the volume bar chart is green and shows an upward trend.

The rise in the stock price of new energy companies confirms people's awareness that some human-made energy manufacturing methods will stagnate and be limited during the global epidemic like the pandemic, which requires people to isolate. The use of non-stop solar, wind or hydropower to produce energy is an emerging way that will not be too limited. This is also one of the industries in which people will increase investment in the future.

From these four companies, we can see that the COVID-19 pandemic has indeed had a very serious impact on some traditional industries. And these industries have not completely come out of the long-term impact of the economic recession in 2008, but also suffered a strong negative impact, making their stock prices stagnant. Although it has picked up, it still takes some time to reach a stable level. However, for some biomedical or energy technology companies, every epidemic is a wonderful time for them to develop and produce new techniques or new energies. They can get rapid development, their technology will also be rapidly improved, and their stock prices will also show an obvious upward trend, with fluctuate that at a very high price.

#### 4. Conclusions

Overall, the global epidemic harms long-term developing economies. This negative long-term impact may even change the traditional life trajectory of society. This negative impact will seriously hit some conventional industries, and even some established companies will gradually die out under this blow. But other new sectors can be reborn in this destructive blow and move towards a new road. For the world economy after COVID-19, how to quickly recover to the economic level before an epidemic under such long-term negative economic impact is a topic that needs in-depth study by various governments.

It is suggested that governments should pay attention to the emerging industries that emerged and developed rapidly during the epidemic because this rapid development can promote the overall economic recovery—for example, the emergence of new energy mentioned in the article. New energy can be used in many industries in today's world, and the closest to public life is new energy vehicles. China launched shared electric cars around 2020 and shared electric vehicles gradually appeared in some cities in the United States. In addition, solar energy, natural energy, is also more used in people's



lives, such as solar water heaters or solar lamps. With the rapid development of new energy, these industries based on unique power are also recovering.

In addition, because COVID-19 -19 is different from the ordinary recession, it has a dual impact on health and the economy. More than 100 million people are infected, and more than 3.12 million people die in the world population. Therefore, the government needs to consider the economy and population while carrying out its economic recovery plan. The government should carefully consider the policy of reopening public places and establishing a safe distance. China's economic recovery plan can be used as a partial reference for governments to promote economic recovery. China's novel coronavirus pneumonia, China's economy, has been introduced in the context of economic observation: "*Economic observation: how does China drive the economy under the influence of COVID-19*" [4]. To solve the problem of economic recovery, the Chinese government has launched a series of macroeconomic policy measures, including increasing fiscal expenditure, reducing taxes, lowering lending rates and deposit reserve ratio, stabilizing industrial chains and employment. To maintain stable liquidity and avoid market flooding, the Central Bank of China pays more attention to making structural policy tools (including refinancing and rediscount projects) play a more effective role in stabilizing enterprises and employment. Other countries capable of rapidly recovering their economies should also formulate post epidemic life policies as soon as possible and do their best to help their economies recover. Since all countries globally have the same goals, the global economy will recover faster and create new and more closely connected global trade markets.

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