

The Impacts of Different Phrases of COVID-19 on the U.S. Stock Market and How Investors Reacted

Mengfei Yan^{1,*}

¹ Western Michigan Institute, Guizhou University of Finance & Economics, Guiyang 550000, China

* Corresponding author. Email: mcm0216@wmich.edu

ABSTRACT

This study explores the initial impact of the COVID-19 on the U.S. stock market. According to the daily data of S&P 500, Nasdaq and DJI, this paper investigates the reactions of the U.S. stock market when Omicron was found. In addition, to predict the future movement of the U.S. stock market, this paper compared and analyzed the previous outbreaks on March 2020 and June 2021 respectively. Especially, it finds that there was a short-term decline after the outbreak but the market will return in a longer period. Moreover, as epidemics become more normalized and people become more experienced in dealing with them, the impact of new outbreaks on the stock market will be less serious. Overall, the analysis of the volatility of the stock market can help investors find a strategy for investments that can contribute to reducing the risk during the event of a continuously pandemic crisis.

Keywords: Omicron, Stock market, Investors

1. INTRODUCTION

1.1. Background

Coronavirus is a large family of viruses that can cause a wide range of diseases from the common cold to acute severe syndromes. Today, it has become a global disease, and coronavirus outbreaks have reverberated through economic and financial markets around the world. In the United States, the government has adopted several policies to respond to this emergency to save lives and financial markets. However, new types of pandemics, such as Delta and Omicron, continue to break out. Their impact on global financial markets has remained largely unexplored. This article aims at filling this gap, at least partially, by focusing on the volatility of the U.S. stock markets.

1.2. Related research

The coronavirus outbreak in January 2020 triggered an emergency of international concern and triggered a downward pattern in the stock market. To find solutions to face the recession, many teams tried to analyze the stock market and study the exact impact of the coronavirus. Firstly, to investigate the reactions of the U.S. stock market, Ashraf conducted a statistical analysis of the market's response to COVID-19 by using daily

data on the number of confirmed COVID-19 cases and deaths, as well as stock market returns. Ashraf found that the stock market reacted more positively to the increase in confirmed cases than to the increase in the number of deaths. Also, Ashraf noted that the speeds the stock market reacted to the pandemic were depending on the severity of the outbreaks.[1] By exploring the preliminary impact of the sentiment on the U.S. stock market, Lee investigated the correlation between the sentiment and 11 selected sector indices in the U.S. stock market by estimating a time series regression model. The results provide a comprehensive view of the initial impact of COVID-19 sentiment on each sector of the U.S. stock market.[2] The outcomes highlight that the persistence of the COVID-19 crisis, and its related uncertainty, amplifies the US financial markets' volatility, affecting thus the global financial cycle.

After the initial research, researchers started to analyze the impact divided by industries. For the first time, Ramelli et al. examined stock price reactions during the main three periods of the COVID-19 outbreaks by reviewing stock data for U.S. companies and compared stock returns by industry. As a result, the team revealed how markets adapt to the rapid emergence of previously ignored risks, which can help inform policymakers, investors and companies responding to emergencies.[3] To obtain further results, Mieszko et al. also conducted a comprehensive retrospective analysis of the U.S. stock

market by matching stock prices and trading volume data from Thomson Reuters (TR) Eikon.[4] In the meanwhile, Ahmad et al. used a quantitative research method to investigate the impact of coronavirus outbreaks at the industry level on the USA market.[5] The results of the studies proved that stocks in the healthcare, food, natural gas and software sectors performed exceptionally well by generating high returns during the March 2020 crash.

In the first moments of the outbreak, the governments had taken certain emergency measures against the outbreaks. As a consequence, researchers also studied if the government's response to the pandemic can mitigate the depression and ease people's fears about the virus. By comparing the S&P 500 realized volatility and the data reported at the global level and in the US, Albulescu tested the impact of COVID-19 official announcements on financial volatility.[6] Kizys et al. studied investors' herding behaviors before and after the government responses.[7] Zhang et al. mapped the potential consequence of policy interventions, such as the US decision to implement a zero-percent interest rate and unlimited quantitative easing (QE), and to what extent these policies may introduce further uncertainties into global financial markets.[8] As a result, short-selling restrictions, temporarily imposed by the national and supranational regulatory authorities, appear to exert a mitigating effect on herding. Furthermore, Zaremba et al. investigate the impact of government interventions designed to curb the spread of COVID-19.[9] The group investigated the relationship between the stringency of

government policy responses and stock market volatility. By estimating robust Lasso prediction regressions with Cauchy errors, Ciner strongly supported the Fed's unprecedented decision to purchase investment-grade and high-yield corporate bonds and their ETFs in addition to Treasury securities.[10]

To conclude, they demonstrated that government interventions significantly and strongly increased the volatility of international stock markets.

1.3. Objective

In this study, I analyzed the U.S. stock market during the three major outbreaks based on the resources in the related research. By comparing the significant indices in the U.S. stock market in different periods, this paper investigates the trends of the U.S. stock market under Omicron. Furthermore, this paper also focuses on how investors reacted when there was a new type of pandemic.

2. THE WAY OMICRON IS INFLUENCING THE U.S. STOCK MARKET AND MEDICAL INDUSTRY

This paper utilizes the U.S stock daily data to draw the sectoral inferences. To do this, the essay first obtains stock prices of the constituents of S&P-500, the Dow Jones Industrial Average (DJIA) and Nasdaq of representative indices.

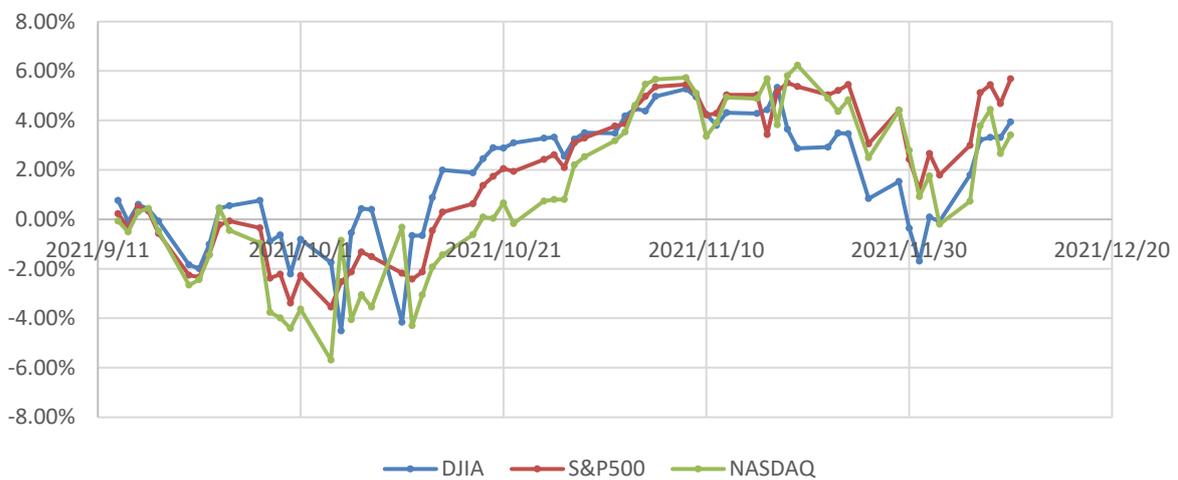


Figure 1 The US stock index from Nov. 11th 2021 to Dec. 20th 2021

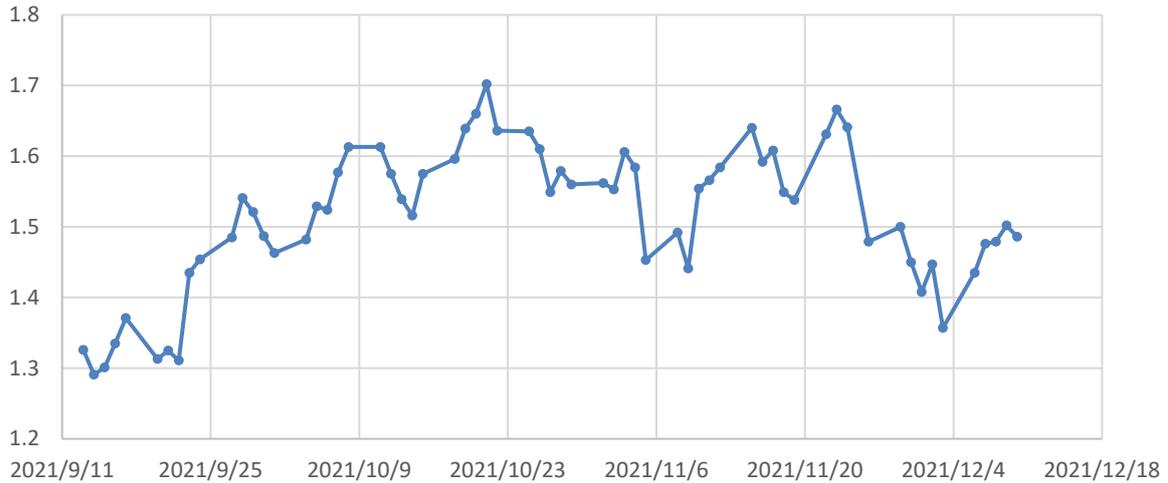


Figure 2 10-year US Treasury

The Omicron variant of COVID-19 took investors back to the early 2020s when the pandemic first began to spread globally. World Trade Organization (WTO) held an emergency meeting and issued a statement which named a new coronavirus variant B.1.1.529 reported in South Africa as Omicron. Omicron, a new variant of coronavirus reported for the first time, has also touched a nerve among investors.

On November 26th, global stock markets fell across the board with the U.S. stock market posting its biggest decline since 2021. The Dow Jones Industrial Average (DJIA) ended the day down 2.5%, accompanied by the Nasdaq falling 2.23% and the S&P 500 falling 2.27%. The sell-off coincided with an influx of investors into bonds markets, pushing the absurdly low yield on the 10-year Treasury to below 1.5%. However, vaccine stocks saw big gains with Pfizer shares rising 6.15% to another record high and BioNTech up to 14.19%.

To ease people's fears, Pfizer and BioNTech announced that they have initiated studies related to Omicron and will have lab test results in as soon as two weeks. Johnson & Johnson and Astra Zeneca also said that they were studying the impact of the new variant on their vaccines. The companies said if Omicron is confirmed as an immune escape variant, they will make an adaptation to their vaccine within six weeks and the new vaccine could start shipping within 100 days.

On December 10th, the Center for Disease Control and Prevention (CDC) published the results of the first Omicron survey, in which most of the patients suffered mild symptoms such as cough. However, Omicron remains relatively contagious and there is a risk of reinfection. So far, the results published are relatively positive. From the experimental results disclosed recently, the Omicron variant may be characterized by high infectivity and high immune escape, but with mild symptoms. Although two doses of vaccine were less protective against Omicron infection, they still prevented severe disease and a booster shot could improve protection. Moreover, the symptoms were milder and significantly better than previously expected, and both severe disease and ventilator use were significantly lower than that during the Delta outbreak.

This positive result above explained the recovery of major U.S. stocks. Furthermore, it eased the market concerns about the virus itself, especially a new round of severe outbreaks which could prolong the supply chain and inflationary conflicts caused by the summer delta outbreak.

3. PREVIOUS OUTBREAKS

To compare the reactions of the U.S. stock market among three major outbreaks, this paper uses the S&P 500, DJIA and Nasdaq realized volatility index as a proxy for the US financial markets' volatility.

3.1. The influence to U.S. stock during the first outbreak in 2020

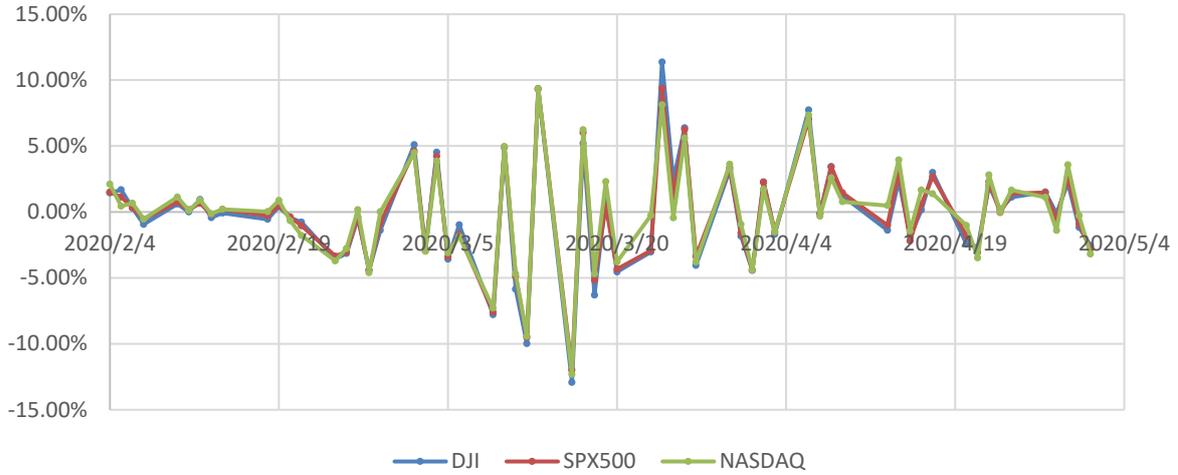


Figure 3 The U.S. stock during the first outbreak from Mar. 1st 2020 to May 1st 2020

On February 25th 2020, the CDC claimed that not all of the 14,000 deaths which were already counted in the 2019 winter flu outbreak in the United States were influenza, and the tests for neo-coronavirus pneumonia will be conducted in phases. At the same time, the CDC announced that it was preparing for the neo-coronavirus to become a global pandemic. A shock to the COVID-19 induced uncertainty is forecast to exert a negative and prolonged effect on economic output.

From that point on, global capital markets went into a frozen downward mode. The coronavirus crisis was descended into a business cycle recession and a global financial crisis. As a result, stock market investors had succumbed to the growing uncertainty surrounding the economy and the financial system and had instigated massive sales of risky assets. With four consecutive downward meltdowns in U.S. stocks within a month, investors continued to witness the history. As the coronavirus continued to worsen, 23 states and Washington, D.C. declared a state of emergency on March 11th and the U.S. government announced a 30-day travel ban on Europe. On March 6th, the negotiations of cutting oil production between Saudi Arabia and Russia failed. As a consequence, Saudi Arabia decided to cut prices to sell oil and the international oil prices plunged. Overwhelmed by the double blow of plummeting oil prices and the spread of the epidemic, U.S. stocks dropped across the board after the opening bell on March

9th, triggering the first meltdown of the year. Unfortunately, the U.S. stock market crashed for the second time in 2020 at the opening bell on March 12th since concerns about the outbreak were passed on to the markets.

After the meltdowns occurred, on March 12th and 13th, the Fed put a combined \$1.5 trillion of liquidity into the market to ease the serve situation. On March 15th, the Fed announced an emergency rate cut, with a basis point cut in the federal funds rate to 0-0.25%. This was the first time in the history of the Federal Reserve to cut interest rates by 100 basis points in a single day. In addition to cutting interest rates, the Fed also launched a \$700 billion scale quantitative easing program. However, the market was scared by the aforementioned "gift". On March 16th, the U.S. stock market meltdown, the third intraday meltdown of the year. Furthermore, the policy issued by the U.S. government did not win the confidence of the market. The U.S. stocks turned down after a brief recovery, the meltdown happened again after the opening bell on March 18th. Generally, the stock market had suffered four meltdowns in two weeks.

As of March 23th, the S&P 500 had fallen a cumulative 30% from its highs at the beginning of the year, with the P/E ratio falling to 16.64 times its original figures and the P/E ratio which drop below the historical average and median were less than 2.48 times the original figures.

3.2. The influence on the US stock during the second outbreak in 2021

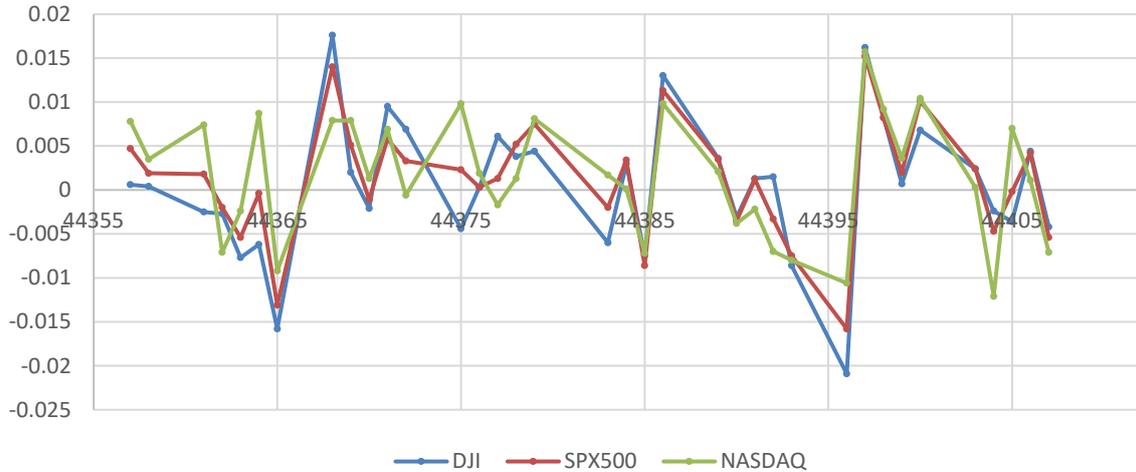


Figure 4 The US stock during the second outbreak from May 1st 2021 to Aug 1st 2021

The world's first sample of the Delta variant was found in India in October 2020, and the outbreak showed signs of an outbreak in the spring following a policy of relaxed vigilance. The Delta variant spread widely in India and had already spread to more than 40 countries worldwide. Since June 2021, a new round of global outbreaks has been heating up again, with the U.S. stock markets also hit by the outbreak.

As the outbreak of the Delta strain, the U.S. stock market was influenced negatively once again. According to the CDC, in the past seven days ending July 18th, the U.S. had averaged nearly 26,000 new cases per day, up from an average of about 11,000 cases per day a month ago. There was a consensus in the emerging body of research that the Delta triggered a dramatic increase in global uncertainty. On July 19th, the Dow Jones Industrial Average was down 2.09% at 33,962.04 points, the S&P 500 Index was down 1.59% and the Nasdaq Composite Index was down 1.06% at 14,274.98 points. Recording its fifth consecutive session of losses, this became the largest single-day decline since October 2020. However, despite the decline in the stock market on July 19, the overall damage to the market remained relatively mild.

From an overall perspective, though there were still problems in epidemic prevention and control in the United States, the influences were relatively moderate compared to COVID-19 during 2020. On the one hand, vaccines still protect against the Delta strain and the government was promoting the process of vaccination. On the other hand, the new round of epidemic had not brought a significant increase in deaths. Therefore, although the rise of the epidemic caused by the Delta strain was somewhat disruptive to the economic recovery process, the extent is relatively manageable and did not

interrupt the trend of economic recovery in the U.S. stock market.

3.3 Comparisons

By comparing the U.S. stock market reactions to the major outbreaks, this paper finds that stock markets responded negatively to the new round of outbreaks. That is, stock market returns declined as the new types of strains were discovered and the number of confirmed cases increased. Furthermore, the analysis also suggests negative market reaction was strong during the early days of new strains spreading and then between 40 and 60 days after the initial confirmed cases.

The current U.S. stock market reaction stems from the rebound in the outbreak. Investors are concerned that if the global economic recovery would halt as the new variant has increased the number of new confirmed cases, coupled with rising global inflation risks. From the analysis above, the March 2020 outbreak of the new epidemic had the worst impact on the U.S. stock market with four meltdowns within two weeks. This was due to the relative suddenness of the outbreak and the lack of relative treatments, which caused investors to panic. By contrast, although the delta virus was more rapidly widespread, there was a previous experience on how to react to the epidemic and the vaccine still worked effectively on the delta virus. As a consequence, this outbreak had caused short-term volatility, but so far that had not created a disproportionate impact.

4. SUGGESTIONS ON HOW TO REACT AND INVEST UNDER THE OMICRON

To summarize the information so far, Omicron is not as terrible as people imagined. The key to whether the

new strain would impact widespread is the rate of severe illness and lethality. From the discussions above, it can be concluded that, with the technological trend of rapid detection of new variants and mass production of effective drugs and vaccines, the impact of mutated viruses will become increasingly short-term.

If Omicron is similar to an enhanced version of Delta, the specific impact on the U.S. stock market can be referred to as Delta. The first impact is that countries strengthen the intensity of control. If more countries continuously lockdown, the exports, imports and tourism will be further negatively impacted. Second, disturbances to the global supply chain. The epidemics caused the closure of numerous industries, which increased unemployment and reduced the availability of essential goods. Furthermore, it has severely hampered the recovery of the U.S. economy since investors are concerned about the increasing risks in U.S. stock markets. However, after the three major U.S. stock indices fell significantly in July due to Delta, they reached new highs again in early November. Thus, as long as the epidemic was effectively controlled over the long term by the support of technological advances, the panic among investors can be soothed and the risks in the U.S. stock market would be manageable.

For investors, the sustained panic-like decline due to Omicron on the U.S. stock market can be a sign of a post-correction investment opportunity. Investors could catch the opportunity during the period of recovery on U.S. stock after the short-term decline. Moreover, by analyzing the volatility of the U.S. stock market, although the three major indexes moved in roughly the same general direction, the Nasdaq is relatively stable. As a consequence, it can be reasonably presumed that the investment risks to the technology sector of stocks would be lower than other stocks. Medical stocks are also a sector in which investors can invest. To be specific, vaccine stocks such as Pfizer and BioNTech saw big gains during the decline of U.S. stock markets in December 2021. Furthermore, investors should choose a prudent investment strategy by trying to avoid high-risk stocks and diversify their capital across sectors to reduce risk.

5. CONCLUSION

This paper analyzed the volatility of the U.S. stock market under three major outbreaks of COVID-19. Besides, the study adopted the S&P 500, DJI and Nasdaq as proxies and compared the impact of data reported in the US. The paper supports that as the epidemic normalizes, the impact of a new outbreak on the U.S. stock market will gradually decrease as long as the new strain does not produce significant mutations. Moreover, it can be concluded that although there would be a short-term decline in the U.S. stock market at the beginning of the outbreak of the new strain, this would recover in the

longer term and the panic among investors would be calmed by that. This study also contributes to how investors can react under the COVID-19 and some suggestions on their investments if there is a new strain. In the future, it should consider examining whether the medical stocks and technology sector will keep stable under the pandemic crisis.

For small tables, please place them within a column and a bigger table is placed in a text frame spanning to both columns. Use the Table facility available within the MSWord. The font in the row header should be bold and you can use the style available from the style palette.

REFERENCES

- [1] B. N. Ashraf. Stock markets' reaction to COVID-19: Cases or fatalities?. *Research in International Business and Finance*, 2020, 54, 101249.
- [2] H. S. Lee. Exploring the initial impact of COVID-19 sentiment on US stock market using big data. *Sustainability*, 2020, 12(16), 6648.
- [3] S. Ramelli & A. Wagner. What the stock market tells us about the consequences of COVID-19. *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever*, 2020, 63.
- [4] M. Mazur, M. Dang, & M. Vega. COVID-19 and the march 2020 stock market crash. Evidence from S&P1500. *Finance Research Letters*, 2021, 38, 101690.
- [5] W. Ahmad, A. M. Kutan, & S. Gupta. Black swan events and COVID-19 outbreak: Sector level evidence from the US, UK, and European stock markets. *International Review of Economics & Finance*, 2021, 75, 546-557.
- [6] C. T. Albuлесcu. COVID-19 and the United States financial markets' volatility. *Finance Research Letters*, 2021, 38, 101699.
- [7] R. Kizys, P. Tzouvanas, & M. Donadelli. From COVID-19 herd immunity to investor herding in international stock markets: The role of government and regulatory restrictions. *International Review of Financial Analysis*, 2021, 74, 101663.
- [8] D. Zhang, M. Hu, & Q. Ji. Financial markets under the global pandemic of COVID-19. *Finance Research Letters*, 2020, 36, 101528.
- [9] A. Zaremba, R. Kizys, D. Y. Aharon, & E. Demir. Infected markets: Novel coronavirus, government interventions, and stock return volatility around the globe. *Finance Research Letters*, 2020, 35, 101597.
- [10] C. Ciner. Stock Return Predictability in the time of COVID-19. *Finance Research Letters*, 2021, 38, 101705.