

# **Influence of COVID-19 Pandemic on the Stock Market Performance: Comparison of UK and USA**

by

**Charlotte Charlie Smith**

## **Abstract**

**Aim:** COVID-19 had substantially led to financial volatility across the globe. Economies throughout the world have been jolted due to the pandemic crisis which subsequently led to economic instability. This study's objective, in light of the recent COVID-19 epidemic, was to evaluate the disease's effects on stock performance, specifically by contrasting the UK with the USA.

**Method:** The secondary quantitative method has been deployed in order to assess the stock performance in UK and USA under the prevailing pandemic crisis. The data for the study was derived from Yahoo finance and Investing.com, covering the period of 2017 to 2022. For data analysis, descriptive statistics, ANOVA and paired sample t-test were used through using SPSS software.

**Findings:** The analysis' conclusions showed that the COVID-19 epidemic adversely affected both the UK's and the USA's stock performance.

**Future Implications:** The outcome of the current study would be helpful for researchers, and policy makers to consider effect of pandemic crisis on the stock performance and to plan out remedial measures to counter the economic downturn.

**Keywords:** COVID-19, stock performance, stock price, UK, USA, FTSE100, S&P500.

## **Introduction**

There have been several plagues and outbreaks throughout the world. The COVID-19 virus was responsible for the most recent deadly infection that has been spreading throughout society. This virus has been deemed unique due to its wide range of health effects and high infection rate. The current economic slump differs from prior ones such as Great Depression of the 1930s and the Great Recession of 2007-2009 due to the various ambiguous financial linkages it entails (Wallace, Li and Hyde, 2022). Concerns about the 2019 Coronavirus Disease (COVID-19) and government rules meant to limit face to face interaction were the main causes behind it. The stay-at-home and contact-restricting orders, along with public health anxieties, reduced firms' working capital and increased unemployment. The COVID-19 pandemic-induced global recession forced the OECD, IMF and World Bank to adjust their estimates, which showed a considerable decline in the extrapolated growth rate for late 2019 and mid-2020 (Choi, Kim and Lee, 2022). With projections of global GDP growth dropping from +3.4% to 4.4% in October 2019 and October 2020, the IMF data showed this deterioration. The OECD also amended their prediction, which decreased the growth rate from favourable 2.9% in November to 4.5% in September 2020. (Hatmanu and Cautisanu, 2021).

The financial markets are the backbone of any state's economy, and the stock market is regarded as its macroeconomic component (He et al., 2020). The majority of stock markets throughout the world have maintained substantial liabilities (Lyócsa et al., 2020), which forced global economic institutions to limit their prospective growth for 2020 and the years after that (Boone et al., 2020). Comparable to the SARS virus, which was discovered in 2003, the current virus outbreak has had a greater impact on global stock prices due to China's rapid economic growth over the past 17 years, which has made it the world's greatest economy and a hub for the development of highly sought-after advanced technologies (Alameer et al., 2019). The main cause of this sharp downfall is the economic susceptibility to various risks, such as the potential threat by the global financial catastrophe of 2008, which had put these markets in a precarious situation (Dang and Nguyen, 2020). The stock prices globally have experienced an overwhelming

meltdown. America and the United Kingdom are known for having robust economies. However, the economic downturn brought on by the pandemic did not spare these two developed financial markets. The COVID-19 epidemic has negatively impacted the financial condition of the affected nations and emerged as a potential halt to the world economy and their capital market networks (Barro et al., 2020).

Given the precarious impact of COVID pandemic on the global capital markets, it is important to gauge the economic crises ensued by the contagion. In view of this, the following study is aims to undermine the effects brought on by the prevailing pandemic scenario. In the context of this research paper, two major economies, USA and UK are considered to draw a comparison of the economic downturn incurred by the COVID pandemic.

The current study looked at how the COVID-19 pandemic affected stock market performance in the US and the UK. The research is built around the following goals in order to achieve this goal:

- To determine how the COVID-19 pandemic has affected US companies' stock performance (S&P500 Index).
- To assess how the COVID-19 epidemic has affected the stock performance of UK companies (FTSE100 Index).
- To compare the stock performance of US and UK companies (FTSE100 and S&P500 Index) throughout the COVID-19 epidemic.

### **Literature Review and Hypotheses Development**

The spread of the COVID-19 outbreak greatly upset stock markets throughout the world (Fernandes, 2020; Vasiu, 2020). Every industry has seen losses as a result, and the majority of

global stock market index have had their largest one-day drops ever. There is empirical evidence, according to Contessi and De Pace (2021) that the turmoil on the Chinese stock market spread to all other businesses, particularly between the month of February and the commencement of April 2020. It has been emphasized that the 10 top American corporations lost huge amounts of money from their capital during the week of February 24th, 2020. (Ozili and Arun, 2020). The US stock exchange's market data also revealed that it had dropped less than 30% since its highpoint in March 2020. After studying the US stock market, Fernanades (2020) looked at the growth of other important economies. He found that the stock market growth in the UK, Germany, Brazil, and Columbia had depreciated more than the results seen in the US stock exchange.

According to numerous studies, the emergence of new coronavirus cases and the casualties that result from it significantly affect the stock market. For example, Alber (2020) used panel data analysis to demonstrate that, between March and April 2020, incidences of COVID-19 had a greater impact on stocks in China, France, Germany, and Spain than deaths did. In other nations, the capital systems are negatively impacted by the coronavirus infection, according to other studies (Al-Awadhi, 2020; Gherghina, Armeanu and Joldeş, 2020). Kartal et al. (2021) examined how the COVID-19 pandemic affected crucial stock market indices in East Asian nations with a focus on that region. Based on the time that the earliest COVID-19 case was initially reported, which happened during the outbreak in January 2020 and February 2020, the tracking timeframe for the research was divided into two parts. The panel regression methodologies' findings showed how the pandemic negatively impacted the scantily researched financial markets.

An earlier study looked at the relationship between American and Chinese stock prices before and after the COVID-19 scenario, as well as the dynamic panel correlation and the disproportionate consequences of crises. Researchers also evaluated and examined the connections between the COVID-19 outbreak, US returns, and the outbreak's unpredictable initial and second stages. The dynamic association methodology was found to be compatible with the existence of instability impacts or pandemic consequences between the two financial markets, particularly

during the COVID-19's rapid spread period in the US. The disruptions to the US and Chinese economies have lopsided impacts on the link between the two economies, according to the study of the news impact relationship plots. Finally, throughout the first and second waves of the pandemic, the investigation discovered a consistent relationship between US yields, unpredictability, and the COVID-19 outbreak. The findings showed that the epidemic had negative implications for economic markets generally and the US industry specifically (Yousfi et al., 2021). Another study looked quantitatively at how official information about the COVID-19 new infections reported and mortality ratio affected the instability of the US stock markets. The study took into account COVID-19 worldwide and US data, and the results demonstrate that the health crisis increases S&P 500 realised volatility. The research findings are consistent with many model suppositions and show that the coronavirus pandemic's persistence is a major cause of financial instability, making risk strategic planning difficult (Albulescu, 2021).

According to Goodell (2020), who recently made this argument in the Finance Research Letters, "the COVID-19 epidemic is creating a direct global detrimental financial impact that is apparent in every region of the world. Moreover, the impact of this contagion on the financial system is patently clear considering the recent state of turmoil without a clear plan in the marketplace. In response to numerous requests, a study was carried out to determine how the COVID-19 outbreak affected the revenues and volatility of UK companies' stock market. The study compiled quantitative data showing a statistically significant link between stock market performance and the COVID-19 infection. The analysis also discovered that the COVID-19 pandemic has had a significant impact on industry stock return. An exception to this generalisation is the medical and basic resources areas, where stock returns have responded favourably. Additionally, it was discovered that price stability had decreased as a result of the COVID-19 outbreak. Intriguingly, it was discovered that stock returns and cash flow had, to some degree, a considerably positive correlation, implying that investors should either sell or hold on. The results

of this study had policy ramifications for investors and decision-makers, showing that outbreaks can seriously harm company finances (Tahat and Ahmed, 2020).

According to a study, the influence of the coronavirus pandemic to the degree of black swan incidents was obvious in March, and shareholders had few possibilities to invest until the end of March 2020, with the exception of a few domains in the US, UK, and Europe, due to black swan occurrences. It was discovered, notably, that some shares in the general commodities, medical, telecom, utility companies, and finances were the focus and that various industries in the countries in the study responded to the pandemic in various ways. The investigation, taken as a whole, gave the causes of crisis purchasing and selling (Ahmad, Kutan and Gupta, 2021).

### **Hypothesis Development**

The Following hypothesis have been developed to investigate the research topic:

- H0a: The stock performance of UK companies is unaffected by the COVID-19 epidemic (FTSE100 Index).
- H1a: The stock performance of UK companies is affected by the COVID-19 epidemic (FTSE100 Index).
- H0b: The COVID-19 epidemic has no discernible impact on the stock performance of US companies (S&P500 Index).
- H1b: The COVID-19 epidemic has a discernible impact on the stock performance of US companies (S&P500 Index).
- H0c: The FTSE100 and S&P500 Index stock performance of UK and US companies during the COVID-19 epidemic differed significantly.
- H1c: The FTSE100 and S&P500 Index stock performance of UK and US companies during the COVID-19 epidemic did not differ significantly.

### **Conceptual Framework**

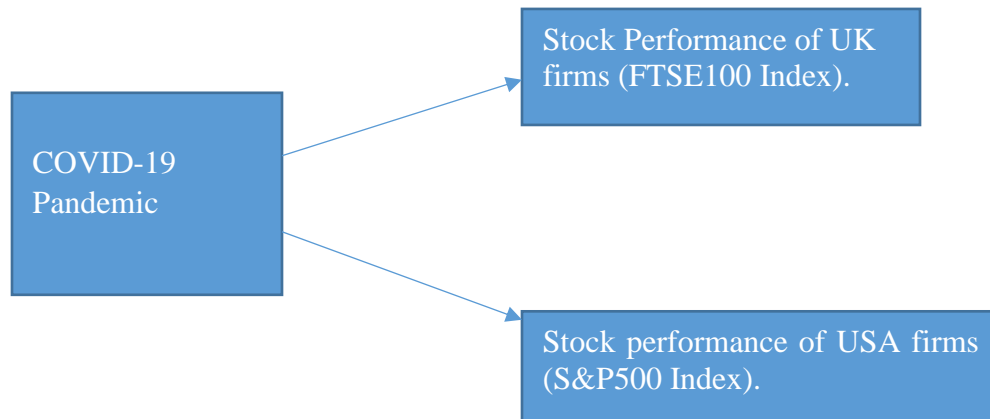


Figure 1 -Conceptual Framework

## Methodology

### Research Philosophy

Positivism and interpretivism are the two main categories of research philosophy (Saunders et al., 2015). Due to the subjectivity of the current study's focus on factual information, the positivist philosophy has been given priority by the researcher. This study is focused on investigating the impact of COVID-19 pandemic on the stock market prices in the context of UK and USA firms, using FTSE100 Index and S&P500 Index. Therefore, positivist research philosophy is best suited to undermine the empirical evidence drawn from the stock market indexes. Another argument in favour of positivism is that it makes it easier for researchers to acquire relevant data while taking each issue's subjective opinions into account (Turyahikayo, 2021). By concentrating on empirical facts and addressing the essential variables, it also helps the researcher remove biases from the information gathered.

### Research Approach

The method or premise a researcher uses for gathering, analysing, and interpreting data is known as their research strategy. The deductive technique and the inductive approach are the two basic approaches used by the researchers. In this particular study, the researcher aims to investigate

how the COVID-19 epidemic has affected stock market performance by contrasting the UK with the USA. A researcher has therefore used a deductive technique based on the defined topic and the essence of the investigation. The rationale behind utilising this strategy is that it makes it easier for the researcher to achieve the research goals. Additionally, the deductive technique helps the researcher develop new concepts using the literature and data accessible and is typically appropriate for empirical analyses (Tariq, 2015).

### **Research Design**

Considering the context of the current investigation, the researcher has placed a strong emphasis on the quantitative approach when it comes to study design. Along with the positivist ideology, the quantitative research approach helps the researcher analyse how the COVID-19 pandemic has affected the performance of the UK and US financial markets and evaluate the hypothesis employing statistical methods and tools. Additionally, it makes it easier for the researcher to reduce extraneous errors while also increasing the accuracy of the findings by minimising psychological and systematic limitations. The researcher used a secondary strategy to gather information, relating to the source or the procedures for data gathering. For stock prices in UK companies, the FTSE100 index was utilised, and for stock performance in US companies, the S&P 500 index. Data for the FTSE100 index and S&P 500 index was gathered from the websites Investing.com and Yahoo Finance. In order to undertake this research, which is now focused on analysing the influence of the COVID-19 pandemic on the stock market performance, notably in the UK and USA, the researcher will be able to collect secondary data on the stock market indexes of the two nations. Data from the previous five years for the corresponding stock price indices of the UK and USA were collected because the study's goal is to evaluate the influence of pandemic on stock performance. To enable comparison assessments of the stock prices throughout the three time periods, the five-year data, which covers the years 2017 to 2022, comprised pre-pandemic, pandemic, and post-pandemic periods.



## Data Analysis

Analysis is a crucial step in interpreting the data that has been received for addressing a research topic after the pertinent data has been gathered. To examine the relationship between the study variables, the method of data analysis typically required summarizing the data that had been obtained and interpreting it using logical or critical rationalization (Deeks et al., 2019). In the current study, descriptive statistics, ANOVA, and paired sample t-tests are used to analyze the data acquired. It is a crucial statistical tool that aids in managing, analyzing, and producing visual data so a researcher may examine the relationships of the variables studied. The tool is also useful for analyzing secondary data to accomplish study goals (Eshete et al., 2018).

## Results

### Descriptive Statistics

Table 1 shows a summary of the descriptive statistics for the stock prices in UK before pandemic, during pandemic and post-pandemic. It can be seen from the table that the mean value of stock prices (FTSE100 Index) before the pandemic was 7370.62 with a standard deviation of 306.589. Furthermore, it can be seen from the table that the mean value of stock prices (FTSE100 Index) during the pandemic was 6803.88 with a standard deviation of 591.479. This shows that there has been a considerable decrease in the stock prices in UK during the pandemic as per the FTSE100 Index. Post-pandemic, the mean value of stock prices (FTSE100 Index) was 7321.99 with a standard deviation of 266.756. This shows that the stock prices are stabilising after the pandemic, reaching pre-pandemic trends in the stock value.

Price Open High Low Percent_change * Year						
Year		Price	Open	High	Low	Percent_change
Pre-pandemic (2017-2018)	Mean	7370.62	7425.26	7579.92	7180.84	-.70929
		79	71	21	36	
	N	14	14	14	14	14

	Std. Deviation	306.589 28	245.318 56	238.860 01	316.213 83	3.483618
During Pandemic (2019-2021)	Mean	6803.88 28	6785.64 92	7055.35 81	6584.07 11	.35833
	N	36	36	36	36	36
	Std. Deviation	591.479 70	583.126 93	501.879 15	645.196 63	4.458928
Post-pandemic (2022)	Mean	7321.99 70	7359.75 50	7549.57 30	7057.60 80	-.69800
	N	10	10	10	10	10
	Std. Deviation	266.756 15	236.391 12	177.398 92	225.730 02	2.905492
Total	Mean	7022.47 57	7030.57 77	7260.12 55	6802.24 08	-.06683
	N	60	60	60	60	60
	Std. Deviation	558.771 82	561.636 69	480.463 71	592.332 92	4.003983

Table 1 Descriptive Statistics for Stock Prices in UK (Pre-pandemic, during pandemic and Post-pandemic)

Table 2 shows a summary of the descriptive statistics for the stock prices in USA before pandemic, during pandemic and post-pandemic. It can be seen from the table that the mean value of stock prices (S&P500 Index) before the pandemic was 4727.28 with a standard deviation of 109.576. Furthermore, it can be seen from the table that the mean value of stock prices (FTSE100 Index) during the pandemic was 3477.89 with a standard deviation of 645.653. This shows that there has been a considerable decrease in the stock prices in USA during the pandemic as per the S&P500 Index. Post-pandemic, the mean value of stock prices (S&P500 Index) was 4072.31 with a standard

deviation of 346.413. This shows that the stock prices are stabilising after the pandemic, reaching pre-pandemic trends in the stock value.

Price High Open Low Percent_change * Year						
Year		Price	High	Open	Low	Percent_change
Pre-pandemic	Mean	4727.28	2812.51	2735.49	2624.63	-.10929
		14	93	64	86	
	N	14	14	14	14	14
	Std.	109.576	88.3279	101.614	123.656	4.165580
	Deviation	56	4	79	25	
During Pandemic	Mean	3477.89	3568.84	3422.63	3321.37	1.92361
		14	75	06	08	
	N	36	36	36	36	36
	Std.	645.653	632.026	638.174	656.808	5.028499
	Deviation	98	41	94	79	
Post-pandemic	Mean	4072.31	4352.28	4193.37	3881.49	-2.65400
		90	20	50	80	
	N	10	10	10	10	10
	Std.	346.413	306.415	362.685	267.065	5.924983
	Deviation	04	37	45	49	
Total	Mean	3401.82	3522.94	3390.75	3252.15	.68633
		03	33	67	45	
	N	60	60	60	60	60
	Std.	675.234	700.449	689.658	658.525	5.210940
	Deviation	73	78	63	47	

Table 2 Descriptive Statistics for Stock Prices in USA (Pre-pandemic, during pandemic and Post-pandemic)

It can also be seen from table 1 and table 2 that the stock price index of UK and USA, that is, FTSE100 and S&P500 that there are differences in the means of these indexes prior to pandemic, during pandemic and post-pandemic. A decrease in Stock price indexes has been observed from the tables above.

*Analysis of Variance (ANOVA)*

The ANOVA table for stock prices in UK pre-pandemic, during pandemic and post-pandemic depicts that there is no statistical difference in the stock prices in UK during the period 2017-2022.

<b>ANOVA</b>					
Price					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4314252.198	2	2157126.099	8.716	.000
Within Groups	14107078.890	57	247492.612		
Total	18421331.088	59			

Table 3 ANOVA table for stock prices in UK pre-pandemic, during pandemic and post-pandemic.

The ANOVA table for stock prices in USA pre-pandemic, during pandemic and post-pandemic depicts that there is a statistical difference (p-value less than 0.05) in the stock prices in USA during the period 2017-2022.

<b>ANOVA</b>
--------------

Price					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11074047.894	2	5537023.947	19.942	.000
Within Groups	15826526.619	57	277658.362		
Total	26900574.513	59			

Table 4 ANOVA table for stock prices in USA pre-pandemic, during pandemic and post-pandemic.

Multiple Comparisons						
Dependent Variable: Price						
LSD						
(I) Year	(J) Year	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pre-pandemic	During Pandemic	-750.60996*	165.96829	.000	-1082.9557	-418.2642
	Post-pandemic	-1345.03757*	218.17098	.000	-1781.9174	-908.1577
During Pandemic	Pre-pandemic	750.60996*	165.96829	.000	418.2642	1082.9557

	Post-pandemic	- 594.42761*	188.357 55	.003	-971.6071	-217.2481
Post-pandemic	Pre-pandemic	1345.03757 *	218.170 98	.000	908.1577	1781.9174
	During Pandemic	594.42761*	188.357 55	.003	217.2481	971.6071
*. The mean difference is significant at the 0.05 level.						

*Paired Sample t-Test*

To compare the mean stock prices of the UK and US markets, a paired sample t-test was used. As the p-value is less than 0.05, it is clear from the table that there is a substantial difference between the stock processes in the UK and the USA. Compared to the UK, the stock values in the USA were more adversely impacted.

Paired Samples Test								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Price (UK) – Price (USA)	3620.65533	857.43719	110.69466	3399.15582	3842.15485	32.708	59	.000

Table 5 Comparison between Stock Prices of UK and USA

It can be concluded from the results that there are differences in the stock price index of both UK and USA. In UK, the FTSE100 index was low during the pandemic. However, no statistical significance was found. On the other hand, in case of USA, the S&P index showed that there was a significant statistical difference between the stock prices during, before and after the pandemic. Overall, the results showed that USA stock prices were affected more compared to UK.

### Discussion

In order to determine how the COVID-19 pandemic has impacted the performance of the UK and US financial markets, this study was carried out. The study's conclusions revealed that the COVID-19 pandemic significantly hampered stock value. The stock market performance in USA had decreased below the pre-pandemic levels. Likewise, the stock price index for UK also declined in contrast to the pre-pandemic levels. A comparison of the USA and UK stock indexes used in this study, namely S&P500 index and FTSE100 index respectively, reflected that the USA stock market faced a greater decline in contrast to the UK stock price index. These findings are in line with the previous findings from other studies. According to a prior study, in comparison to its peak level on February 18, 2020, the S&P 500 Index experienced a loss of 35% on March 23, 2020. The US S&P 500 index decreased by 30% in March 2020 (Fernandes, 2020). The UK-FTSE index fell by 29.72 percent. The findings of this research also reflected that there is a significant difference in the stock prices of UK and USA in comparison to each other as depicted by the p-value. The findings from another study demonstrated that the COVID-19 developments had a significant negative effect on activity, with the G8 indicators' minimum value occurring in March. Additionally, the G8 stock market has the biggest impact on US lockdown and changes in monetary policy, followed by Germany, France, and the UK (Al-Najjar et al., 2021). Overall the research findings emphasised that there is a significant difference between the stock performance in UK and USA firms (FTSE100 and S&P500 Index) during the COVID-19 pandemic.

	Hypothesis Statements	Accepted	Rejected
--	-----------------------	----------	----------

H0a	The stock performance of UK companies is unaffected by the COVID-19 epidemic (FTSE100 Index).	✓	
H1a	The stock performance of UK companies is affected by the COVID-19 epidemic (FTSE100 Index).		✓
H0b	The COVID-19 epidemic has no discernible impact on the stock performance of US companies (S&P500 Index).		✓
H1b	The COVID-19 epidemic has a discernible impact on the stock performance of US companies (S&P500 Index).	✓	
H0c	The FTSE100 and S&P500 Index stock performance of UK and US companies during the COVID-19 epidemic differed significantly.		✓
H1c	The FTSE100 and S&P500 Index stock performance of UK and US companies during the COVID-19 epidemic did not differ significantly.	✓	

### Conclusion and Future Implications

The current study attempted to examine how COVID-19 affected stock performance in the US and the UK. Three primary theories were established to address this goal. The findings of the current investigation indicated that COVID-19 had an impact on the stock performance in both UK and USA. However, only USA importance was discovered. However, the UK stock price index also revealed a decrease from pre-pandemic values. In the framework of the COVID-19 scenario, it was also discovered that there was a considerable variation between the stock market indexes of the UK and the USA. Conclusions from earlier investigations have also supported similar findings.

Therefore, the results of the current study have significantly contributed to filling in the gaps in earlier literature and studies about the effect of the COVID-19 pandemic on stock performance in the UK and the USA and a comparative analysis of both powerful economies,



specifically taking into account the FTSE100 index for the UK and S&P500 index for the USA. These findings highlight the need of taking the appropriate steps to preserve the economic situation during danger and crisis.

## References

- Ahmad, W., Kutan, A.M. and Gupta, S., 2021. Black swan events and COVID-19 outbreak: Sector level evidence from the US, UK, and European stock markets. *International Review of Economics & Finance*, 75, pp.546-557.
- Alameer, Z., Elaziz, M.A., Ewees, A.A., Ye, H. and Jianhua, Z., 2019. Forecasting copper prices using hybrid adaptive neuro-fuzzy inference system and genetic algorithms. *Natural Resources Research*, 28(4), pp.1385-1401.
- Al-Awadhi, A.M., Alsaifi, K., Al-Awadhi, A. and Alhammadi, S., 2020. Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. *Journal of behavioral and experimental finance*, 27, p.100326.
- Alber, N., 2020. The effect of coronavirus spread on stock markets: The case of the worst 6 countries. Available at SSRN 3578080.
- Albulescu, C.T., 2021. COVID-19 and the United States financial markets' volatility. *Finance research letters*, 38, p.101699.
- Al-Najjar, H., Al-Rousan, N., Al-Najjar, D., Assous, H. F., & Al-Najjar, D. (2021). Impact of COVID-19 pandemic virus on G8 countries' financial indices based on artificial neural network. *Journal of Chinese Economic and Foreign Trade Studies*.
- Barro, R.J., Ursúa, J.F. and Weng, J., 2020. The coronavirus and the great influenza pandemic: Lessons from the "spanish flu" for the coronavirus's potential effects on mortality and economic activity (No. w26866). National Bureau of Economic Research.
- Boone, L., Haugh, D., Pain, N. and Salins, V., 2020. Tackling the fallout from COVID-19. *Economics in the Time of COVID-19*, 37, p.44.

- Choi, Y., Kim, H.J. and Lee, Y., 2022. Economic consequences of the COVID-19 pandemic: will it be a barrier to achieving sustainability?. *Sustainability*, 14(3), p.1629.
- Contessi, S. and De Pace, P., 2021. The international spread of COVID-19 stock market collapses. *Finance Research Letters*, 42, p.101894.
- Dang, T.L. and Nguyen, T.M.H., 2020. Liquidity risk and stock performance during the financial crisis. *Research in International Business and Finance*, 52, p.101165.
- Deeks, J.J., Higgins, J.P., Altman, D.G. and Cochrane Statistical Methods Group, 2019. Analysing data and undertaking meta-analyses. *Cochrane handbook for systematic reviews of interventions*, pp.241-284.
- Fernandes, N., 2020. Economic effects of coronavirus outbreak (COVID-19) on the world economy.
- Gherghina, Ș.C., Armeanu, D.Ș. and Joldeș, C.C., 2020. Stock market reactions to Covid-19 pandemic outbreak: Quantitative evidence from ARDL bounds tests and Granger causality analysis. *International journal of environmental research and public health*, 17(18), p.6729.
- Goodell, J.W., 2020. COVID-19 and finance: Agendas for future research. *Finance research letters*, 35, p.101512.
- Hatmanu, M. and Cautisanu, C., 2021. The impact of COVID-19 pandemic on stock market: evidence from Romania. *International Journal of Environmental Research and Public Health*, 18(17), p.9315.
- He, P., Sun, Y., Zhang, Y. and Li, T., 2020. COVID-19's impact on stock prices across different sectors—An event study based on the Chinese stock market. *Emerging Markets Finance and Trade*, 56(10), pp.2198-2212.

- Kartal, M.T., Kiliç Depren, S. and Depren, Ö., 2021. How main stock exchange indices react to Covid-19 pandemic: Daily evidence from East Asian countries. *Global Economic Review*, 50(1), pp.54-71.
- Lyócsa, Š., Baumöhl, E., Výrost, T. and Molnár, P., 2020. Fear of the coronavirus and the stock markets. *Finance research letters*, 36, p.101735.
- Ozili, P.K. and Arun, T., Spillover of COVID-19: Impact on the Global Economy. *SSRN Electron. J.*, (2020).
- Saunders, M.N., Lewis, P., Thornhill, A. and Bristow, A., 2015. Understanding research philosophy and approaches to theory development.
- Tahat, Y. and Ahmed, A., 2020. Stock Market Returns and COVID-19 Outbreak: Evidence from the UK. *Memo: University of Dundee*.
- Tariq, M.U., 2015. Hypothetico-deductive method: A comparative analysis. *JOBARI*, 7, pp.228-31.
- Turyahikayo, E., 2021. Philosophical paradigms as the bases for knowledge management research and practice. *Knowledge Management & E-Learning: An International Journal*, 13(2), pp.209-224.
- Vasiu, D.E., 2020. The COVID-19 impact on Bucharest stock Exchange. The first six months. *Studies in Busine and Economics*, 15(2), pp.256-269.
- Wallace, M., Li, A. and Hyde, A., 2022. The great Recession index: a place-based indicator for countries, states, and metropolitan areas. *Social indicators research*, 160(1), pp.401-426.
- Yousfi, M., Zaiied, Y.B., Cheikh, N.B., Lahouel, B.B. and Bouzgarrou, H., 2021. Effects of the COVID-19 pandemic on the US stock market and uncertainty: A comparative assessment between the first and second waves. *Technological Forecasting and Social Change*, 167, p.120710.