COVID-19 and The United States Stock Market: A sector analysis

Juan Romero

Abstract

This paper investigates the empirical relationship between the COVID-19 pandemic and stock prices in the S&P 500. Using a multivariable regression and panel data, we investigated the time-varying impact of the COVID-19 pandemic on stock prices from January 1, 2018, to December 31, 2021. More importantly, our study focused on a sector analysis approach when analyzing the impact of COVID-19. Our study suggests there are positive relationships between COVID-19 cases and stock prices in the Technology, Consumer Staples, Industrials, and Healthcare sectors. However, our study suggests COVID-19 cases were only significant for the Technology and Health Care sectors at .01 and .05 significance levels, respectively. COVID-19 cases were an insignificant factor for stock prices in the Industrial, Consumer Staples, and Finance sectors. On the other hand, our studies presented a negative relationship between stock price and COVID-19 cases in the Financials sector. Lastly, our study also showed that Volume and EPS were highly significant variables across all sectors with significance levels of .001.

Introduction

In December 2019, the first case of COVID-19 was reported in Wuhan, China. Although first perceived as a mild cough, COVID-19 began to slowly become a disease far more

deadly than initially perceived. According to the World Health Organization, COVID-19 can attack the respiratory system with symptoms ranging from mild to severe and develop into a disease that is quite serious for the elderly or those with chronic medical problems(WHO, 2020a). Initially, it was not believed that the virus could be deadly and could spread to every part of the world. However, by early 2020, 2,631,839 cases were confirmed globally, with the number of deaths reaching 182, 100(WHO, 2020b). As a result of the rapid spread and transmission, The World Health Organization officially declared COVID-19 a pandemic on March 11,2020(WHO,2020).

Shortly after the announcement, individuals and markets across the world were overtaken by fear and uncertainty. In response to the news, countries across the world began to impose strict lockdowns to contain the spread of the virus. In addition, all major economic operations were also halted. Subsequently, markets around the world began to react negatively to the news of a lockdown.

Based on the above discussion, this paper aims to solve the following question: How did the COVID-19 pandemic affect different sectors in the S&P 500? To capture the effect of COVID-19, our study used panel data ranging from 2018 to 2021. The sectors examined are Technology, Financials, Consumer Staples, Industrials, and Healthcare. This study will use regression analysis to study the impact of COVID-19 on different sectors in the S&P 500. To analyze the effect of COVID-19 on sectors across the S&P 500, we examine fifteen stocks of companies across the sectors mentioned, resulting in

three stocks per sector(3 stocks x 5 sectors = 15 companies). The fifteen companies examined in this study were selected based on their ownership in each sector-related SPDR Fund, as of September 2022. SPDR or Spider Funds are Exchange Traded Funds(ETFs) that are managed by State Street Global Advisors(Yahoo Finance, 2022). More importantly, SPDR Funds allow investors to invest in a certain sector within the S&P 500. For example, the Energy Select SPDR Fund ($XLE) is an index that strictly includes companies that have been identified as Energy companies by the Global Industry Classification Standard(GICS). The $XLE index comprises securities of companies from the following industries: oil, gas, and consumable fuels; and energy equipment and services(Yahoo Finance, 2022). To analyze the effect of COVID-19, our study will look at COVID-19 confirmed cases reported to the World Health Organization. In addition to COVID-19 cases, our study will also consider macroeconomic and fundamental index variables. The macroeconomic variables we have chosen to use in our study are Consumer Price Index(CPI), the Unemployment Rate, and the CBOE Volatility Index(VIX). The index variables our study will consider are Volume and Earnings per Share(EPS). Ultimately, these variables will be examined and presented in a multivariable regression analysis to understand the effect of COVID-19 on companies within different sectors in the S&P 500.

Our results provide evidence of a positive relationship between COVID-19 cases and stock prices for the Technology, Consumer Staples, Industrials, and Healthcare sectors. However, our regression results show that COVID-19 cases were only significant for the Technology and Health Care sectors at .01 and .05 significance levels, respectively.

The implications of our study are important for stock market investors to understand and predict how different stock market sectors react to pandemic diseases. Our research extends the existing literature work by considering the impact of COVID-19 on various sectors within the U.S. stock market. In addition, our research extends the existing literature by using modern data which can be useful in understanding the long-term impact of COVID-19 on the U.S. stock market.

The remainder of the article is structured as follows: the second section discusses a detailed review of the data, followed by the Literature Review and econometric model in the third section and fourth section, respectively. Finally, in the fifth section, we conclude the paper with final thoughts and results.

Data

This research paper analyzes the impact of COVID-19 on index prices by using an econometric model that includes the following variables: Volume, Consumer Price

Index(CPI), Unemployment Rate, The CBOE Volatility Index(VIX), Earnings per Share(EPS), and COVID-19 confirmed cases.

For this study, we have chosen to use panel data from January 2018 to December 2021 with monthly intervals. More importantly, to better understand the effect of COVID-19 on index prices, all data has been adjusted to omit any data from non-trading days(such as weekends and national holidays) for the reason that index prices are not available.

To study the dynamic impact of the COVID-19 pandemic on stock returns, we selected fifteen stocks across various sectors as research samples. The sectors analyzed are Consumer Staples, Technology, Financials, Health Care, and Industrials. The fifteen companies examined in this study were selected based on their ownership in each sector-related SPDR Fund, as of September,2022. For example, Apple($AAPL), Microsoft($MSFT), and NVIDIA($NVDA) were chosen because these are companies that compose the Technology Select Sector SPDR ETF($XLK) with 24.02%, 21.04% and 4.12% in total net assets, respectively(Yahoo Finance, 2022). Spider or SPDR Funds are Exchange Traded Funds(ETF) that are managed by State Street Global Advisors(Yahoo Finance, 2022). More importantly, SPDR Funds were chosen for this study because they are able to capture a specific sector within the S&P 500. JPMorgan Chase & Co.($JPM), Bank of America Corp.($BAC), Berkshire Hathaway Inc Class B($BRK.B), Procter & Gamble Co.($PG), PepsiCo($PEP), Coca-Cola Co.($KO), United Parcel Service Inc.($UPS), Union Pacific Corporation($UNP), Raytheon Technologies Corp($RTX), Johnson & Johnson($JNJ), UnitedHealth Group Inc($UNH), Pfizer

Inc.($PFE) were all chosen under the same criteria. To understand the impact of COVID-19 on stock prices, the index's monthly closing price was chosen as the dependent variable. With this in mind, the closing price of each index will be measured in USD.

Although we are studying the effect of COVID-19 on index prices, we must also take into consideration other variables that affect stock prices. Overall, previous studies have suggested that changes at a macro-level have a strong relationship with index prices because abrupt variations of macroeconomic variables cause stock returns to fluctuate due to uncertainty of the market(Ahmad and Ramzan, 2016). With this in mind, our study has incorporated the CBOE Volatility Index, also known as VIX, as a key variable in our regression. The CBOE Volatility Index is an Index that measures the expectation of volatility across 30 days based on S&P 500 options(Yahoo Finance, 2022). The VIX Index is often considered the "Fear Index" as it measures market sentiment across the S&P 500. Historically, as the VIX Index increases, fear and volatility follow with a strong trend.

In this study, we have chosen to include Monthly Unemployment Rate as a macroeconomic variable. Historically, when the unemployment rate is high, The Federal Reserve decreases interest rates. As a result, stock prices increase(Gonzalo and Taamouti, 2017). In 2020, the unemployment rate saw an annual increase in 4.38% when compared to 2019(Bureau of Labor Statistics, 2022). The unemployment rate is

an important variable to consider for stock prices, but more importantly during the COVID-19 pandemic.

In addition to Unemployment Rate, Consumer Price Index has been shown to have a strong impact on stock price(Tran et. al., 2020). For this study, we have included the Consumer Price Index as a macroeconomic variable that will be measured in USD.

In addition to macroeconomic factors, our study will also consider index variables such as Earnings per Share(EPS). Previous studies have suggested that earnings per share strongly influences share price(Islam and Jahan, 2012). Generally, a higher book value per share indicates financial security which is pivotal for potential investors. In order to fit our model, we have adjusted Earnings per Share to an annual average for every individual stock.

To conclude our index-based variables, we have included Volume in our regression. Volume measures the number of a stock's shares that are traded on a stock exchange for a given period of time(Yahoo Finance, 2022). Volume is a critical variable in a stock's price as there is a significant causal relationship between price changes and volume(Smirlock and Starks,1988).

To measure the effect of COVID-19, our study has considered COVID-19 cases. Since our study is using data with monthly intervals, we have gathered COVID-19 monthly data by taking the sum of all daily confirmed cases in a given month. All

COVID-19-related data was directly obtained from the World Health Organization(WHO). However, all data has been adjusted to only include data from days where the National Association of Securities Dealers Automated Quotations(NASDAQ) and New York Stock Exchange(NYSE) are open. In other words, national holidays and weekends have been excluded from the data set for all variables. All COVID-19-related data was directly obtained from the World Health Organization(WHO).

Summary Statistics

Date	Close	Volume
Min. :2018-01-01	Min. : 21.23	Min. : 46590000
Mean :2019-12-16	Mean :120.11	Mean : 543155143
Max. :2021-12-01	Max. : 502.14	Max. : 6280072400

CPI	Unemployment	VIX	EPS
Min. : 247.9	Min. : .03500	Min. : 12.12	Min. : -2.590
Mean : 259.1	Mean: .05254	Mean : 20.82	Mean : 6.778
Max. : 278.8	Max. : .14700	Max. : 53.54	Max. : 39.610

Cases

Min. :   0

Mean : 1138448

Max. : 6476781

Based on our summary statistics, we can view minimum, mean, and maximum values

for each variable. For our variable of interest, we were able to see that the maximum

number of COVID-19 cases was 6,476,781. Other key statistics to note include the

maximum values for the VIX Index and Unemployment Rate. After reviewing our data,

we find that the maximum value for the VIX Index occurred during March 2020. This

value is particularly important because it further confirms the idea that the VIX is highest

during times of uncertainty and instability. Similarly, the highest value for Unemployment

was registered in April 2020. This statistic is also important because it further confirms

the effect of lockdowns on the workforce and economy. Based on our summary

statistics, we can also note that there was a company in our data set that reported a

negative Earnings per Share(EPS) value. After looking at our data set, we learn that

Raytheon Technologies Corp($RTX) reported Earnings per share of $-2.59 in the year

2020. In other words, Raytheon Technologies Corp($RTX) was losing money or

spending more than they were earning in 2020. Another important trend to consider is

that CPI has slowly increased over the years. This statistic poses the idea that inflation

is transitory and slowly impacting the economy.

Literature Review

The first case of the novel coronavirus known as COVID-19 was reported in December 2019. A few months later, The World Health Organization(WHO) declared the COVID-19 virus a global pandemic on March 11, 2020. As a result, the pandemic severely impacted the financial markets across the world, including commodity markets, stock markets, and debt markets.

I. Global Events

The reaction of stock markets to global events has been documented by various studies. Using the data from 55 mining accidents between 1986 and 2019, Kowalewski and Śpiewanowski(2020) examined stock market reactions to natural disasters and man-made accidents in potash mines. On average, the affected mining firms experienced a cumulative drop in their market value of 1.15% in the first 2 days of a disaster. More importantly, it was also noted that a firm's market loss was significantly related to the severity of the accident. Overall, there was a significantly strong response of the stock market to natural events.

Similarly, the effect of political events on stock market returns was observed in other studies. Using panel data over five years (2012-2017), Shanaev and Ghimire(2019) investigated the presence of political risk premia among 298 listed companies from 59 different Russian regions. The research was able to conclude that returns on Russian stocks were inversely related to regional political stability.

Furthermore, the political risk premium varied across Russian regions and was substantially high. More importantly, it was concluded that political factors were impactful both as long-term risk and short-term shocks.

A study conducted by Chen et. al(2007) investigated the impact of a disease outbreak on stock market returns. In 2003, Severe Acute Respiratory Syndrome(SARS) was put on the radar worldwide. The World Health Organization(WHO) issued a global alert about SARS on March 12, 2003. Although fully contained a few months later, this highly contagious and deadly disease was responsible for the deaths of 813 people while also infecting 8,437 over the span of four months(WHO,2003b). Chen et. al(2007) investigated the impact of the 2003 SARS outbreak on Taiwanese stock performance. Overall, the SARS outbreak was responsible for a major decline across several industry sectors of the Taiwan economy. The research concluded that the tourism industry was one of the most severely impacted industries during the SARS period. The findings of the study showed that there was an approximate 29% decline in the stock price in the month following the SARS outbreak. In addition, several publicly traded hotel companies had significant declines in their earnings during the SARS period. It was also noted that, on average, hotel stocks were exposed to above-market-average risk during the SARS outbreak period.

II. COVID-19

While COVID-19 research is ongoing and limited, various articles have discussed the impact of COVID-19 on financial markets across the world. However, while there is literature estimating the effects of COVID-19 on stock market returns and volatility, relatively less studies have focused on and included sectoral analysis in their discussion.

Using data from January 10 to March 16, 2020, Al-Awadhi et. al(2020) studied the impact of the COVID-19 virus on stock market returns. This study used data from companies included in the Hang Seng Index and Shanghai Stock Exchange Composite Index from January 10 to March 16, 2020. While stock prices decreased significantly following the announcement of the World Health Organization(WHO), Al-Awadhi et. al(2020) noted that not all sectors were negatively impacted by COVID-19. For example, empirical research concluded that stock returns of information technology and medicine manufacturing sectors performed significantly better than the market. However, stock returns of beverages and transportation performed significantly worse than the market during the COVID-19 outbreak.

Similarly, Yousef(2020) conducted a study that examined the impact of COVID-19 on stock market volatility. Yousef(2020) conducted a study that examined the effect of COVID-19 on the primary stock index in each of the G7 countries. For example, the S&P500 index for the USA, the FTSE100 index for the UK, the S&P/TSX index for Canada, the DAX index for Germany, the CAC40

index for France, the FTSE MIB Index for Italy, and the Nikkei 225 index for Japan. After conducting a basic regression model including COVID-19 variables as well as other macro-level economy data, Yousef(2020) was able to conclude that COVID-19 had led to an increase in stock market volatility. More importantly, there was a significant positive impact of both the daily number of new cases and the growth rate in daily new cases on stock market volatility.

In a similar study, Ganie et. al.(2022) examined the impact of COVID-19 on selected stock exchanges. More importantly, this study focused on the six most affected countries based on the total number of confirmed cases of the virus. The study used one major index for each of the countries and also used the daily index close price data for each of these countries. The indices and countries used in the study were USA(S&P 500), India(NIFTY 50), Brazil(IBOVESPA), Russia(MOEX), Mexico(IPC 35), and Spain(IBEX 35). Using an event study methodology, Ganie et. al.(2022) were able to conclude that COVID-19 affected stock markets severely and elevated volatility, especially in March 2020. Furthermore, it is also noted that Brazilian stock indices showed the highest decline among the selected countries, with a fall of more than 50% during the pandemic. On the other hand, Mexican indices showed the lowest fall of the selected countries with a decrease of around 30% during the same period. The highest volatility during the event was recorded at standard deviations above 3.5% and 2.% for Brazilian indices and US indices, respectively. Lastly, it is also important to note that both US and Indian markets were the first to recover from

the crash by more than 85% by September 2020. On the other hand, Spanish

markers were the least performing with IBEX 35 index continuing to

underperform by more than 35% till the last week of September 2020.

Econometric Model

In order to measure the effect of COVID-19 on stock price, we have created the

following regression:

$$Price_{it} = B_0 + B_1 Volume_{it} + B_2 CPI_{it} + B_3 Unemployment_{it} + B_4 VIX_{it} + B_5 EPS_{it} + B_6 Cases_{it} + U_{it}$$

However, we must filter our data in order to only use data from a specific sector. As a

result, we must create five unique regressions that filter our data. After creating our five

regressions, we can analyze our research using the following summary statistics:

<u>Technology</u>

Call:

lm(formula = Close ~ Volume + CPI + Unemployment + VIX + EPS +

   Cases, data = Data[Data$Sector == "Technology",])

Residuals:

   Min   1Q Median   3Q   Max

-77.128 -18.231 0.835 18.652 132.657

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	-1004.038347607913	117.715777071234	-8.529	.00000000000002431	***
Volume	-0.000000023753	0.000000002721	-8.729	.00000000000000783	***
CPI	4.171770477459	0.462592809334	9.018	.00000000000000151	***
Unemployment	222.636820925798	118.958305394154	1.872	0.06340	
VIX	0.697515207038	0.369202974457	1.889	0.06097	
EPS	12.951454703896	1.424536248434	9.092	0.00000000000000099	***
Cases	0.000005290496	0.000001969203	2.687	0.00811	**

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 31.48 on 137 degrees of freedom

Multiple R-squared: 0.8299,   Adjusted R-squared: 0.8225

F-statistic: 111.4 on 6 and 137 DF, p-value: < 0.00000000000000022

Financials

Call:

lm(formula = Close ~ Volume + CPI + Unemployment + VIX + EPS +

   Cases, data = Data[Data$Sector == "Financials",])

Residuals:

   Min   1Q Median   3Q   Max

-68.285 -24.738 -2.776 26.042 108.716

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	397.673503702704	114.619059445856	3.470	0.000697 ***
Volume	-0.000000096420	0.000000005242	-18.394	0.0000000000000002 ***
CPI	-1.038004277977	0.450083460805	-2.306	0.022597 *
Unemployment	20.115018923149	119.018013927153	0.169	0.866039
VIX	0.980390184533	0.358316275648	2.736	0.007041 **
EPS	1.058233589078	0.259737256884	4.074	0.0000778 ***
Cases	-0.000000274907	0.000001964665	-0.140	0.888924

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 31.44 on 137 degrees of freedom

Multiple R-squared: 0.7899,   Adjusted R-squared: 0.7807

F-statistic: 85.86 on 6 and 137 DF, p-value: < 0.00000000000000022

Consumer Staples

Call:

lm(formula = Close ~ Volume + CPI + Unemployment + VIX + EPS +

   Cases, data = Data[Data$Sector == "Consumer Staples",])

Residuals:

  Min   1Q Median   3Q   Max

-45.974 -12.929 0.161 11.042 65.804

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-228.22553546896	61.79592385750	-3.693	0.000319 ***
Volume	-0.00000027292	0.00000002014	-13.549	0.0000000000000002 ***
CPI	1.33175148944	0.23916559525	5.568	0.000000131 ***
Unemployment	63.33107042932	66.50591463569	0.952	0.342641
VIX	0.80171768392	0.21159610682	3.789	0.000226 ***
EPS	3.56335254949	0.92233176871	3.863	0.000172 ***
Cases	0.00000042227	0.00000110231	0.383	0.702258

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 17.62 on 137 degrees of freedom

Multiple R-squared: 0.8056,   Adjusted R-squared: 0.797

F-statistic: 94.59 on 6 and 137 DF, p-value: < 0.00000000000000022

Industrials

Call:

lm(formula = Close ~ Volume + CPI + Unemployment + VIX + EPS +

  Cases, data = Data[Data$Sector == "Industrials",])

Residuals:

  Min   1Q Median   3Q Max

-64.49 -19.39 -3.64 22.37 76.14

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	-159.2335802248	99.8957683415	-1.594	0.11324	
Volume	-0.0000003531	0.0000000551	-6.408	0.00000000219697168	***
CPI	0.9560423831	0.3918219964	2.440	0.01597	*

Unemployment	357.3711308930	107.9665744555	3.310	0.00119 **
VIX	0.8252448743	0.3407425696	2.422	0.01675 *
EPS	6.5064805161	0.7047180076	9.233	0.00000000000000044 ***
Cases	0.0000015505	0.0000017529	0.885	0.37797

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 27.95 on 137 degrees of freedom

Multiple R-squared: 0.7044,   Adjusted R-squared: 0.6915

F-statistic: 54.42 on 6 and 137 DF, p-value: < 0.00000000000000022

Health Care

Call:

lm(formula = Close ~ Volume + CPI + Unemployment + VIX + EPS +

   Cases, data = Data[Data$Sector == "Health Care",])

Residuals:

   Min   1Q Median   3Q   Max

-63.353 -23.151   2.451 16.827 125.055

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	29.45216120541	106.07612255158	0.278	0.7817	
Volume	-0.00000006447	0.00000001488	-4.332	0.0000284	***
CPI	0.00180128747	0.41749870118	0.004	0.9966	
Unemployment	86.84695458660	113.68677267520	0.764	0.4462	
VIX	-0.22188009956	0.34593834791	-0.641	0.5223	
EPS	17.66125893739	0.68669476377	25.719	0.0000000000000002	***
Cases	0.00000432616	0.00000191295	2.262	0.0253	*

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 30.05 on 137 degrees of freedom

Multiple R-squared: 0.9362,   Adjusted R-squared: 0.9334

F-statistic: 335.1 on 6 and 137 DF, p-value: < 0.00000000000000022

Based on our results, we can interpret that there was a positive relationship between COVID-19 cases and stock prices in Technology, Consumer Staples, Industrials, and Healthcare sectors. However, COVID-19 cases were only significant at the .01 and .05 significance levels for Technology and Healthcare sectors, respectively.

Furthermore, our studies also found that our index variables were variables of high significance. According to our results, Earnings per Share(EPS) and Volume were highly significant variables for all sectors with a significance level of .001. In addition, our studies further confirm Islam and Jahan's(2012) findings suggesting that Earnings per Share(EPS) is a dominant variable that influences share price. Based on our regressions, we found that a $1 increase in Earnings per Share(EPS) resulted in an increase in stock price for all sectors. The largest change in the stock price as a result of Earnings per Share(EPS) was for the Healthcare sector with an increase of $17.66 for a dollar increase in Earnings per Share(EPS). In addition to Earnings per Share, our research also confirms Smirlock and Starks's(1998) findings suggesting that there is a causal relationship between price changes and volume. Based on our results, we were able to find that as the number of shares traded increased by one, stock prices would fall for all sectors. This result can be explained by the idea that an increase in volume does not always lead to an increase in price during times of high volatility. Based on our summary statistics, we can see that the average Volatility measure(VIX) for our data was 20.82. However, the yearly average for 2021 was 30.26 which points to high volatility in the market. As discussed before, high levels of volatility are often attributed to global events such as a pandemic, war or substantial monetary policy change. According to Yahoo Finance(2022), the long-run average for the CBOE Volatility Index(VIX) has been 21. As a result, high levels of VIX can often lead to high levels of volatility and fear. In addition, our studies also suggest that the CBOE Volatility Index(VIX) was a significant variable for the Financials, Consumer Staples, and Industrials sectors. According to our data, we found that the VIX Index has levels of

significance of .01, .001, and .05 for the Financials, Consumer Staples, and Industrials sectors, respectively. More importantly, our data also suggest that the VIX Index and stock price share a positive relationship amongst the sectors shared above. This can be explained by the constant demand for products in the Consumer Staples sector. Due to the constant high demand for products from companies such as Procter & Gamble($PG), the Consumer Staples sector is virtually unaffected by recessions or times of high uncertainty. However, our data also suggest that the Financials and Industrials sectors were impacted by VIX while showing a positive relationship. While these seem unlikely, we can hypothesize that this impact can be attributed to the impact of COVID-19 on monetary policy, specifically stimulus checks. As the country pumped trillions of dollars into the economy, individuals across the country began to invest in the stock market. Consequently, stimulus packages increased trading and prices of stocks favored by retail investors(Greenwood et. al., 2022). Our results also suggest that CPI and Unemployment significance varied by sector. In the Industrials and Financials sectors, our data suggest that CPI was a significant variable in stock price with a significance level of .05. However, CPI was highly significant in the Consumer Staples sector with a significance level of .001. Our findings further confirm that the Consumer Staples sector historically holds up well in market downturns and phases of market instability(Cannivet and Teufel, 2009). In other words, as the Consumer Price Index(CPI) increases, investors will look and invest in the Consumer Staples sector as a way of leveraging a bear market, causing share prices to rise. Lastly, our data suggest that unemployment was a significant variable in stock price within the Industrials sector.

While our results show that unemployment was insignificant for other sectors, the Industrials sector was impacted by unemployment with a significance level of .01.

Conclusion

The study aims at examining the impact of COVID-19 on stock prices during the COVID-19 pandemic, specifically across different sectors. To capture the effect of COVID-19, our study will use panel data ranging from 2018 to 2022. Our study used panel data that extended the framework of the data set into monthly intervals. Overall, our OLS regression draws out a relationship between COVID-19 cases with share prices and other variables such as EPS, Volume, CPI, Unemployment Rate, and VIX. Our results provide evidence of a positive relationship between COVID-19 cases and stock prices for the Technology, Consumer Staples, Industrials, and Healthcare sectors. However, our regression results show that COVID-19 cases were only significant for the Technology and Healthcare sectors at .01 and .05 significance levels, respectively. Furthermore, our studies also found that our index variables were variables of high significance. According to our results, Earnings per Share(EPS) and Volume were highly significant variables for all sectors with a significance level of .001. In conclusion, COVID-19 cases played a pivotal role in share prices in the Technology and Healthcare sectors with significance levels of .01 and .05, respectively.

Based on our results and discussion, we were able to identify potential limitations that could be further investigated in the future. One key variable that could potentially change the direction of the study, is monetary policy, specifically the impact of stimulus checks. Due to trillions of dollars being pumped into the economy, prices of goods and stock shares increased. In other words, prices inflated because everyone had access to an influx of money being provided by the government. As a result, there was an intangible increase in share prices that our regression did not account for. In addition, possible limitations also include the exclusion of other fundamental factors such as the P/E ratio and market capitalization. In addition to economic variables, our study also faces possible limitations when discussing the impact of COVID-19. For example, a possible limitation our study faced is the exclusion of vaccination data. While COVID-19 cases were accounted for, vaccination data could have impacted our results because we would then be able to capture the effect that vaccinations have on market volatility and stock market stability. Overall, while our study presents a concrete analysis of stock prices in relation to COVID-19 cases, future research can be developed with additional economic and COVID-19 variables.

References:

Ahmad, Naveed, and Muhammad Ramzan. "Stock market volatility and macroeconomic factor volatility." International Journal of Research in Business Studies and Management 3.7 (2016).

Al-Awadhi, Abdullah M et al. "Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns." Journal of behavioral and experimental finance vol. 27 (2020).

Bureau of Labor Statistics, U.S. Department of Labor. www.bls.gov.

Chen, Ming-Hsiang et al. "The impact of the SARS outbreak on Taiwanese hotel stock performance: An event-study approach." International journal of hospitality management vol. 26,1 (2007): 200-212.

Ganie, I. R., Wani, T. A., & Yadav, M. P. (2022). Impact of COVID-19 Outbreak on the Stock Market: An Evidence from Select Economies. Business Perspectives and Research, 0(0).

Gonzalo, Jesús and Taamouti, Abderrahim. "The reaction of stock market returns to unemployment" Studies in Nonlinear Dynamics & Econometrics, vol. 21, no. 4, 2017, pp. 20150078.

Islam, M. and Jahan, S. (2012). Analysis of Financial Products of Capital Market in Bangladesh: Present Status and
Future Development. IJMS, 4(5).

Kowalewski, Oskar & Śpiewanowski, Piotr. (2017). Stock market response to potash mine disasters.

Shanaev, Savva & Ghimire, Binam. (2018). Is all politics local? Regional political risk in Russia and the panel of stock returns. Journal of Behavioral and Experimental Finance.

Yousef, Ibrahim. (2020). Spillover of COVID-19: Impact on Stock Market Volatility.

Li Y., Liang C., Ma F., Wang J. The role of the IDEMV in predicting European stock market volatility during the COVID-19 pandemic. Finance Res. Lett. 2020.

World Health Organisation. 2020b. "WHO Characterizes COVID-19 as a Pandemic." 11 March.

Yahoo!Finance. http://finance.yahoo.com.