

A STUDY ON IMPACT OF COVID 19 ON STOCK MARKET INDICES

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ABSTRACT

The emerging coronavirus pandemic (COVID-19) outbreak in 2020 had a huge impact on world financial markets. It has developed unmatched risk, resulting in large losses for investors within a very short period of time. The purpose of this paper is to define the key drivers and their effect on the capital markets of the countries (China, India, Italy, Japan, Qatar, Singapore, the UK and the USA). In the framework of regression analysis, the impact of the COVID 19 cases was found to with dependent variables being the daily price closing return of each country's index, and the independent variable being the confirmed daily cases of COVID 19, the daily COVID 19 death cases and the Government of Stringency index. The analysis also analyses the effect on stock market returns for the countries chosen over the entire year of changing number of cases in the COVID 19 situations. The findings of this analysis show that the output of the financial markets of selected countries was substantially influenced by COVID 19 in the year 2020.

KEYWORDS: COVID- 19, Stock Market Indices, Government Stringency Index, Financial Markets

Article History

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INTRODUCTION

COVID-19 Pandemic

The COVID 19 Pandemic is also called as coronavirus pandemic. It is an on-going pandemic caused by extreme acute respiratory coronavirus 2 syndromes (SARS-CoV-2) which was recognized for the first time in December in the year 2019 in a place known as Wuhan, China. The disease was declared a Global Health Emergency of International Concern in January 2020 by WHO and a pandemic in March 2020. About 85.7 million cases were confirmed as of 5 January 2021, with more than 1.85 million deaths due to COVID-19.

There are very complex signs of COVID-19, ranging from zero to extreme disease. The virus is known to spread usually through the air when people are close to each other. An individual is then infected which later passes on to another person by entering into their mouth, nose, or eyes when they breathe, cough, sneeze, or speak. It can also spread across surfaces that are polluted. People just stay contagious for up to 2 weeks and will transmit the virus even though they do not display any symptoms.

Preventive measures such as social distancing, home quarantine, wearing masks in public, washing hands regularly, etcetera are prescribed by the authorities to the people who show symptoms. There are several vaccines being

produced and distributed. As work is on-going to create medicinal medications that suppress the virus, existing therapies specialize in treating symptoms. By enforcing travel bans, lockdowns, occupational danger regulations, and facility closures, authorities worldwide have responded.

The economic instability associated with the COVID-19 pandemic has had a wide-ranging and significant impact on financial markets, including the markets for stocks, bonds, and resources (including oil and gold). Significant events such as the oil price competition between the countries, Russia and Saudi Arabia, which culminated in a fall of petroleum prices and led to a stock exchange crash in March of the year 2020 after failing to succeed in the OPEC agreement.

National Responses

A set of territories and about 190 countries have had at least one single case of COVID-19, and several countries in Europe have limited freedom of travel as a result of the pandemic Containment initiatives including quarantines and curfews included National reactions (known as stay-at-home orders, shelter-in-place orders, or lockdowns). The WHO's advices on locks and cuts are that short-term steps should be taken to redevelop, merge, rebalance services and protect fatigued healthcare workers. In order to reach a balance, long-term alternatives to the pandemic should include strict personal hygiene, constructive communication and isolation when ill, in order to realize a compromise between constraints and daily life.

By April last, some 300 million inhabitants were shut up in European countries, not just Italy, France, Spain and the United Kingdom, but also millions of people in Latin America. Next to 300 million people or about 90% of the population is stuck in the US, some 100 million in the Philippines, some 59 million in South Africa and some 1.3 billion in India. 100,000 new diseases occurred globally on 21 May 2020, the most important since the onset of the pandemic, with an estimated number of five million cases.

Asia

As of April 2020, apart from Turkmenistan and North Korea, cases are reported in Asian countries, but there are possibly still cases in these countries. While the key region of the world impacted by the epidemic, it has been surprisingly successful with the first wide-ranging response by several countries in Asia, especially Mongolia (Singapore), South Korea, Taiwan and Vietnam. China is originally blamed for ignoring the magnitude of the epidemic, but since March 2020 the massive sluggish response has largely been in the way of the disease. Singapore has a worldwide rock-bottom-of-the-floor mortality rate of 0, 51 people per 100,000. The Pandemic has had direct side effects, as per. a report on 28 November, in Japan. Considering the report by the country's National Police Agency, suicides had increased. to 2,153 in October.

China

In China as of Bastille Day 2020, 83,545 cases were confirmed with the exception of 114 asymptomatic cases, 62 of which were imported under medical observation; asymptomatic cases with 4,634 deaths and 78,509 retrievals have not been registered until 31 March 2020, meaning that only 302 cases have been reported. Hubei has the largest events, Xinjiang followed. By March 2020, COVID-19 infections in China were effectively controlled and small outbreaks occurred. On November 25th, some 1 million citizens in the country are vaccinated in compliance with the state Council of China; COVID-19 vaccines are from Sinopharm, which produces two and one from Sinovac. Vaccines against Sinovac have been registered.

India

The first case in India was reported on January 30th, 2020. There was a nationwide lockdown for the whole of India from 24th March, 2020 with phased unlock that started from 1st of June, 2020. The main cities that were affected were Mumbai, Delhi, Pune, Kolkata, Ahmedabad .and Chennai. India was said to have most number of cases of COVID 19 in Asia by the end of September, 2020, making India the second-highest number of confirmed cases within the world. On 30 August, 2020, India crossed the US record .for the foremost cases .during a single day, with quite 78,000 cases, and set a replacement record on 16 September 2020, with almost 98,000 cases reported that day. On 10 June 2020, India's recoveries exceeded active cases for the primary time. As of 30 August 2020, India's death rate is comparatively low at 2.3%., against the worldwide 4.7%.

Iran

The Iranian Ministry of Health and Health Education has stated that Iran had the first confirmed SARS-CoV- 2 infection in Qom on 19 February 2020, where two people have died that day. The government declared that concerts or other artistic festivals, athletic sports, Friday prayers and the closure of universities and universities, institutions of higher education and colleges will be postponed. Plans have been confirmed for March 2020 to limit travel between towns.

Iran was developed as a foundation to spread the virus to China by February 2020. The Iranian government, the most reported in the nation since the outbreak, declared 100 deaths one day on 15 March 2020. The data leaked revealed that by July 2020, a total of around 42,000 people were officially killed with only signs of COVID-19, triples, up from 14,405.

South Korea

On 20 January 2020, COVID-19 recorded spreading from China to South Korea. An significant increase in reported cases, which were primarily due to the Shincheonji Church in Daegu, has been announced by the national health agency on 20 February. The cause of the outbreak was thought to have been Shincheonji devotees who visited Wuhan Daegu. By 22 February, 1 261 of 9,336 church followers reported symptoms, or around 13%. South Korea declared the highest level of alert on 23 February 2020. On 29 February, there were over 3,150 confirmed cases reported. After checking, all South korean military bases were in charge. Three soldiers had the virus. Airline schedules had to be altered as well.

South Korea initiated what was considered the world's largest and most coordinated campaign to search the population for the virus and isolate any infectious people and monitor and quarantine anyone who encountered the virus. Screening tactics included the obligatory auto-report of symptoms from new international entry via smartphone devices, drive virus checking on next day outcomes, and increasing test capabilities to screen up to 20,000 people per day. Despite some early criticism of President moon Jae's approach to the crisis, South Korea's strategy is considered a good control of the epidemic without quarantining whole cities.

Europe

The World Health Organization (WHO) started to recognize Europe as the active core of the pandemic as of 13 March 2020, when the number of new cases became larger than those in China. Country-by-country cases across Europe have doubled over periods of usually 3 to 4 days, with some countries (mostly those at earlier detection stages) doubling every 2 days. As of 17 March, all countries within Europe had a confirmed COVID-19 case, with at least one case being registered by Montenegro as the last European country. In all European countries, apart from Vatican City, at least one death has been confirmed. More than 250 million people were in lockdown in Europe as of mid of March of 2020.

Montenegro became Europe's first COVID-19-free country as of May, but this situation only lasted 44 days before a newly imported case was found there. Russia, France, Spain, the UK, and Italy are the European countries with the largest number of confirmed cases of COVID-19.

France

While the pandemic was first believed to have reached France on 24 January 2020, that is when the first case of COVID-19 in Europe was confirmed in Bordeaux, but it was later found that a person near Paris tested positive for the virus on 27 December 2019 after re-testing old samples. A crucial event in the region's dissemination of the disease was the annual assembly of the Christian Open Door Church in Mulhouse between 17 and 24 February, attended by about 2,500 people, at least half of whom are thought to have contracted the infection.

It was revealed on 12 November that France was the worst country affected by the COVID-19 pandemic in all of Europe, surpassing Russia in the process. Then the total of new cases was confirmed came up to more than 1.8 million, that made the French government to hold national lockdown.

Italy

On 31 January, when two Chinese tourists tested positive for SARS-CoV-2 in Rome, the epidemic was confirmed to have spread to Italy. Cases started to rise rapidly, causing the Italian government to suspend and declare a state of emergency for all flights to and from China. A disassociated COVID-19 cluster of cases was later observed, beginning in Lombardy on 21 February with 16 confirmed cases.

There were 287,753 confirmed cases as of 14 September, the majority of which occurred in the Lombardy zone. A CNN study suggested that the combination of a large elderly population in Italy and the failure to screen all those with the virus to date may lead to a high fatality risk. It was announced on 19 April that the country had its lowest death rate of 433 in seven days, and some companies are calling for restrictions to be loosened after six weeks of lockdown. On 13 October 2020, the Government of Italy again released restrictive regulations aimed at containing the increase in infections. On the 10th of November, the day before, Italy had reached 1 .million COVID-19 confirmed cases, following which the President imposed restrictions. It was confirmed on 23 November that the second wave of the virus had prompted some hospitals in Italy to stop accepting patients.

United Kingdom

The United Kingdom's exit has meant the distinct response of every of the four UK countries to COVID-19 and so on. UK Government moved to lift restrictions more effectively on behalf of England. The UK Government started to introduce social distancing and quarantine steps on 18 March 2020.

On 24 April, a promising vaccine project in England was announced; the government devoted over £50 million to the test. Several clinics have been designed for temporary emergency care. Great Britain became the first western world to permit the COVID-19 Pfizer virus. Vaccine instantly will be available for use on 2 December with 800,000 doses.

United States

More has been available since January 2020. In the United States there are more than 20,800,000 confirmed cases, resulting in over 353,000 deaths, the largest number of countries and the 14th highest per capita.

The first case in the United States was reported on 20 January and the US public health emergency was announced by President Donald Trump on 31 January. The original US reaction to the pandemic was slower in terms of preparing for the medical system, stopping other travel and research, however, there were few flights coming from China. The first such deaths took place in February. By mid-April and all inhabited areas of the U.S., cases were confirmed in every fifty states. Following relaxed restrictions in some states, a second increase in infections started in June 2020.

South America

Argentina was one of the top averages for responding to the pandemic in Latin America. On 26 February 2020, when Brazil announced a case in São Paulo, the pandemic had been confirmed. At least one case was registered in all of the countries and territories of South America by 3 April. More than 400,000 Latin American and Caribbean infections were reported in May, resulting in 23,091 deaths. On 22 May, the WHO proclaimed South America to be the epicenter of the pandemic, in specific regard to the accelerated growth of Brazilian infections. Around 7,5 million confirmed cases were registered in South America and there were 238,000 dead by September.

Brazil

The reported deaths in Brazil in one day on 20 May were 1.179, for a total of almost 18,00. Brazil is the third-largest country behind Russia and the US with a combined number of nearly 272,000 cases. On 25 May, Brazil exceeded the number of cases reported in Russia by reporting 11,687 new cases, for a total of over 374,800 deaths within 24 hours, confirmed in Russia.

Africa

The pandemic reportedly spread to Africa on 14 February 2020 and the first confirmed case was in Egypt. The first confirmed case in sub-Saharan Africa was registered in Nigeria at the end of February. Within three months, the virus dispersed throughout the continent, when Lesotho, the last African sovereign state to remain free of the virus, confirmed its case on 13 May. By 26 May the majority of African countries tended to be in groups, although there were minimal study capacities. Most cases found to be smuggled occurred in Europe and the United States instead of China. It is said that there are reports that are not brought into light in many countries in Africa because of underdeveloped healthcare.

Impact on Economy

The outbreak of coronavirus was a major threat to global economic stability. In cases outside China, the number of cases on 24 February 2020 caused a collapse on the global financial markets. According to US inventory indices, their sharpest losses as of February 27, 2008, resulted from an out bridge of coronavirus with the decline of Dow 1,191 points, with all of the three main indexes finishing the week dropping by more than 10 per cent, the highest one-day drop since 2007-08. The stocks again fell due to coronavirus issues and on the 16th March the largest decline was.

Lloyd's of London projected that the world insurance industry would cover US\$204 billion in costs, beyond the losses from the 2017 Atlantic Hurricane season and the attacks of September 11, suggesting that the COVID-19 pandemic is set to go down in history as the most expensive tragedy in human history.

Owing to traffic limits, close-up of tourist places, including travel destinations and government counselling for travelling, so tourism turned out to be one of the most affected industries. Due to reduced demand, many airlines had to cancel their services, which led to the bankruptcy of UK regional carrier, Flybe. The cruise ship industry and several train

stations and ferry ports have also been deserted, was a further industry which is significantly affected. As domestic services between them have been reduced or ceased, external courier has been suspended or deferred to those countries.

There may be hundreds of millions of workers globally, who lost their job due to the pandemic. The economic consequences and widespread displacement sparked by the pandemic have increased concerns of losing jobs. Roughly 60% of U.S. businesses that have closed since the beginning of the pandemic will remain shut entirely, according to a survey by Yelp.

The pandemic caused recession could leave 14 -22 million more people in severe poverty in Latin America according to a report undertaken in the United Nations Economic Commission for Latin America. According to the World Bank, a range of up to 100 million people more will be extreme poverty due to global shutdowns. The International Labour Organisation (ILO) figures indicate that the world's job earnings in the first nine months of the year 2020 have dropped by 10.7% following the epidemic of coronavirus.

LITERATURE REVIEW

In the study conducted by **HaiYue Liu, Aqsa Manzoor, CangYu Wang, Lei Zhang, ZairaManzoo, (2020)**, analyses the short term impact of COVID 19 on majorly affected countries such as Japan, Korea, Singapore, the USA, Germany, Italy, and the UK etc. The analysis results in identifying the adverse effect of COVID-19 confirmed cases on stock indices abnormal returns through an effective channel by adding up investors' pessimistic sentiment on future returns and fears of uncertainties. **Heather Yan, Andy Tu, Logan Stuart, Qingquan Zhang, (2020)**, talks about the effect of COVID 19 on stock markets and potential investing strategies through which an individual investor can gain from during such a global viral outbreak by studying the market response during the past outbreaks. The paper has focused on industries like travel industry, technology industry, entertainment industry and gold industry as it seems to have more potential to make profit. **Nuhu A Sansa, (2020)**, explains the impact of COVID 19 on the financial markets of USA and China in particular from 1st March 2020 to 25th March 2020. The study shows that the virus has had a significant impact on the financial markets of USA and China during the specified period taken in to account for the study. **Peterson Ozili and Thankom Arun, (2020)**, focus on the overall impact of COVID 19 on the global market by analysing how a health crisis turned into economic crisis. A proper analysis is done on the impact of social distancing policies on economic activities and stock market indices by taking the restrictive measures, monetary policy measures, fiscal policy measures and the public health measures that were adopted during the period into consideration. Various industries affected by the virus such as hotel, travel, hospitality, sports industries including the financial sector are studied for the analysis. **According to Dayong Zhang, Min Hua, Qiang J (2020)**, the outbreak has had clear significant economic impacts on the financial markets globally under the COVID 19 pandemic. The paper states that as many countries have adopted strict quarantine policies, their economic activities would be significantly limited in the short run. The longer-term consequences of this pandemic may arise from mass unemployment and business failures. The data analysis in the study is done based on volatility and correlation analysis. This paper provides a simple and an original statistical analysis of the impact of the COVID 19 on stock market risks. **Dinh Hoang Bach Phan & Paresh Kumar Narayan (2020)**, basically talks about a snapshot of how different countries responded to the declaration of COVID-19 as a pandemic by the World Health Organization (WHO) by studying the timing of government actions and policy responses. They have tried to relate those policy responses to reactions of the stock price. Their paper focus on understanding the reaction of stock price which they believe this pandemic can potentially lead to a global financial crisis. The paper has studied on patterns in these relations that could potentially have

implications for how countries should position themselves to react to future pandemics. In this paper, there is a definite study on the government responses to COVID-19 for the top 25 countries most affected by the COVID-19. According to **Scott R. Baker, Nicholas Bloom, Steven J. Davis, Kyle Kost, Marco Sammon, and Tasaneeya Viratyosin (2020)**, "No previous infectious disease outbreak, including the Spanish Flu, has impacted the stock market as forcefully as the COVID-19 pandemic." This paper evaluates the potential explanations for the unprecedented stock market reaction to the COVID-19 pandemic. This study was conducted by studying the U.S. economy government regulations and the main reasons for the U.S. stock market to react so much more forcefully to COVID-19 than to previous pandemics in 1918-19, 1957-58 and 1968. The authors prove that the effects of COVID-19 developments and policy responses on the U.S. stock market are without historical precedent and they believe their comparison of market reactions during different years based on the other virus could not explain the reasons for the extra ordinary stock market reaction caused by COVID 19. **Felix E. Arcilla Jr. (2020)**, states in his paper that COVID-19 has a substantial negative impression on market indices. In addition, critical analysis findings are benchmark index like the S&P 500, and Dow Jones Industrial Average has plummeted. This study has analysed the impact of COVID 19 on economic factors like GDP, inflation, interest rate and effects of COVID 19 on credit markets in countries like China, UK, USA, Japan, Germany, Hong Kong, Russia and India from the 1st of January to 31st March 2020. The paper is concluded by stating that COVID-19 has severe effects on global financial markets and even the developed economies exchanges responding slumped. **Balilla Jeffhraim (2020)**, explains in his paper the impact of COVID19 on the global stock indices using a comparative analysis of stock indices of various countries covering various regions of the world. The paper failed to prove that there is a significant relationship between the changes in the prices of indices and COVID 19 infection count. It is concluded by saying that too early to tell if the measures employed by the government in the selected countries can endure the growing cases of COVID 19 infections and it says that the developing conflict between the US and China could also play a significant role in the future values of the indices across the region. This paper by **Dr. Senol Zekai, Dr. Zeren Feyyaz, (2020)**, has done a proper investigation on the effect of COVID 19 outbreak on global markets from the dates 21st January, 2020 to 7th April, 2020. The indices of MSCI' World, emerging markets, European and G7 are used to represent global markets. COVID-19 is expressed in the number of cases and deaths. The results of the study show that all the indices used are long term relationship with the COVID-19 outbreak. The following authors, **Nurul Mohammad Zayed, Shahiduzzaman Khan Shahi, Arafat Hosain Neloy, Mithila Afrin, Tanzina Haque (2020)**, in their recent study on effects of Coronavirus on International Financial Market has observed and performed a conceptual analysis considering all attributes or indicators of the financial market in the COVID 19 pandemic such as interest rate, inflation rate and net exports of goods and services. This study has come to a conclusion that sickness and mortality has a great impact not only on the health sector but also on fiscal year. It has a short-run effect on wages and income that may have impact on vulnerable poverty lines. **C Ngwakwe Collins' paper (2020)**, provides the first empirical research on the early effect of COVID-19 pandemic on three global important regional stock indexes, which finds that some stock markets such as the Shanghai Composite Index is resilient to COVID-19 pandemic. This paper presents a current analysis of the effect of coronavirus pandemic on select global stock indexes (SSE Composite Index [China], Euronext 100 [Europe], Dow Jones Industrial Average [United States of America]. The results reveal that the COVID-19 pandemic has different effects on the stock markets. The study conducted by **Kotishwar A (2020)**, on the impact of COVID 19 pandemic on stock markets of six selected countries (China, USA, Spain, France, Italy, China and India) from the period of 11th March to April of 2020 has done a statistical analysis of the relationship of COVID 19 pandemic with the selected countries' stock market indices using Vector Error Correction model and Cumulative Average Abnormal Returns Model. The study observed that the stock markets across the global have positively reacted in the pandemic. The study

states that the investors are considering the long-term strategy and investing at every low level. Hence, there is a need to do research in this area by considering the impact of COVID 19 affected deaths on the selected countries market returns. The paper by **Badar Nadeem Ashraf (2020)**, on stock market reactions to COVID 19 cases examines stock market responses to the pandemic using daily COVID-19 confirmed cases and deaths and stock market returns data of 64 countries over the period January 22, 2020 to April 17, 2020. It is also found that stock markets responded negatively to the growth in COVID-19 confirmed cases. That is, stock market returns declined as the number of confirmed cases increased. The paper further finds that stock markets reacted more proactively to the growth in number of confirmed cases as compared to the growth in number of deaths. Finally, the analysis suggests that stock markets quickly respond to COVID-19 pandemic and this response varies over time depending on the severity of outbreak. The study carried out by **Klement Josef, Zubikova Adela, Sevcik Miroslav, Lejsek Tomas (2020)**, deals with the development of volatility of selected stock indices, their mutual correlations, and the relationship with the number of infected in a given country using the data of number of people infected and the stock market prices using correlation analysis and stock market volatility analysis. The paper concluded by stating that the coronavirus pandemic has affected countries regardless of their size or population and whether a second wave of the coronavirus pandemic arrives or not, asset markets can be expected to fall for a second time once companies with short-term savings that allowed them to operate for several more months begin to collapse.

RESEARCH GAP

- There are very rare studies that have included different countries around globe where an overall analysis is done on the impact of COVID 19 on the performance of their stock markets.
- No study has been conducted that focuses on the Government stringency Index of the countries that will help in learning about the government regulations and lockdown restrictions caused by COVID 19.
- The studies conducted are mainly of a short term period and also none of the studies have been focused on one whole year.

STATEMENT OF THE PROBLEM

There is no doubt that the outbreak of novel Coronavirus disease has had negative impact on all sectors around the world. This study is conducted to identify the adverse impact of COVID 19 pandemic on the global stock market indices in the year 2020. This study aims to analyse and determine the impact of COVID 19 on the stock market indices of eight selected countries. The stock market index selected for the study for the countries, China, India, Italy, Japan, Qatar, Singapore, United Kingdom and the United States are Shanghai Stock Exchange, Bombay Stock Exchange, FTSE Milano Italia Borsa, Nikkei 225, Qatar Stock Exchange, Straits Times Index, London Stock Exchange and New York Stock Exchange respectively. By being able to identify the impact of COVID 19 on the downfall of the stock market performance in each country in the year 2020, it will help the investors or the interested parties to make proper judgements and investment decisions appropriately in the coming year.

METHODOLOGY

Objective of the Study

- To identify factors affecting the price fluctuations in stock market indices.
- To analyse the stock market volatility of the selected countries' indices based on the daily returns and confirmed cases for the selected time period.
- To examine the impact of change in active COVID 19 cases on the performance of the selected stock market indices throughout the year.

Nature of Study

Normal Regression Analysis

Source of Data

Internet

Period of Study

1st January, 2020 to 31st December 2020

Method of Collection of Data

Secondary data collection method is used that is the data collected for the study is obtained from observations, online documents and historical data records from the internet.

Hypothesis

Hypothesis 1:

- H_0 : There is no significant impact of COVID 19 on the performance of the stock markets of the selected countries
- H_1 : There is a significant impact of COVID 19 on the performance of the stock markets of the selected countries

Hypothesis 2:

- H_0 : There is no impact of changes in Coronavirus cases on changes in of the stock market index return.
- H_1 : There is impact of changes in Coronavirus cases on changes in of the stock market index return.

Research Model

The model is to know whether there is a significant impact of COVID 19 on the stock market indices of the selected countries and also to know the impact of change in the confirmed cases of COVID 19 on the performance of stock market indices of the selected 8 countries namely, China, India, Italy, Japan, Qatar, Singapore, United Kingdom and United States of America. The dependent variable taken is the daily closing prices of the stock indices and confirmed cases of COVID 19, death cases and Government Stringency Index of each country is taken as the independent variable for the study. The performance of the stock market indices is observed by collecting the daily closing price return of stock market indices in relation with the daily confirmed cases, daily death cases and government stringency index of each country. The analysis is done using multi-regression model and volatility of each index is ranked from highest to lowest by calculating the standard deviation.

Tools for Analysis of Data

Tools that will be used for data analysis are SPSS, Microsoft Excel for coding the responses.

Statistical Tools for Analysis of Data

Statistical tools such as standard deviation and regression analysis are used with the help of the statistical forecasting software, Eviews 11 SV and another major data analysis program, Microsoft Excel through.

EMPIRICAL RESULTS AND DISCUSSIONS

Correlation Analysis

Stationarity of the data was determined using Unit Root test and the data was made stationary to go ahead with the study. Correlation between the variables of each country was analysed and it was found out that they are negatively correlated to the dependent variable.

Regression Analysis

To determine the factors influencing the price fluctuations of the stock market indices of China, India, Italy, Japan, Qatar, Singapore, United Kingdom and United States of America in the year 2020, regression analysis is conducted by taking Daily closing price as dependent variable and Daily COVID 19 confirmed cases, daily death cases caused by COVID 19 and Government Stringency Index.

Further, to understand the risk and volatility of the market indices, a volatility analysis is conducted with the help of daily confirmed cases in each country and calculation of standard deviation using the daily closing price return of each index. The data was separated into four months of the year to do the analysis. The countries are ranked from highest to lowest based on their standard deviation to analyse how the market has gone through changes as the cases increased. Then again, a regression analysis is done to identify the impact of change in COVID 19 cases on the stock market index with the help of daily closing price return and daily confirmed cases in each country.

It was found out that the factors such as confirmed cases, death cases of COVID 19 and the Government Stringency has a significant impact on the performance of the stock market indices as the probability value of each country showed a value less than 0.05. And similarly, it was found that there is a significant impact of change in COVID 19 cases on the stock market indices of the countries taking the dependent variable as daily closing price and independent variable as daily confirmed cases of COVID 19.

Volatility Analysis

Table 1: Volatility Analysis

Country	Confirmed Cases and Market Volatility in 2020								
	Confirmed Cases (Jan-April)	Confirmed Cases (May-August)	Confirmed Cases (September-December)	STD_(Jan-April)	STD_(May-August)	STD_(September-December)	Rank 01	Rank 02	Rank 03
China	83956	89914	95963	0.0159	0.0134	0.0090	8	5	5
India	34863	3691166	10266674	0.0311	0.0120	0.0104	4	6	4
Italy	205463	269214	2107166	0.0319	0.0160	0.0140	3	2	2
Japan	14284	68396	235811	0.0236	0.0135	0.0088	7	4	6
Qatar	13409	118778	143834	0.1782	0.0065	0.0066	1	8	8
Singapore	16169	56812	58599	0.0226	0.0115	0.0087	6	7	7
United Kingdom	178771	338083	2496231	0.0307	0.0162	0.0198	5	1	1
United States of America	1080161	6019495	19968087	0.0337	0.0144	0.0109	2	3	3
Average STD				0.046	0.0129	0.011			

Interpretation

The first objective is to explain the relationship between risks in the stock market and the COVID19 outbreak. The eight countries in the table are listed. In each country during the year 2020, the reported cases of COVID 19 are collected and split into four months for easier review. Using standard deviations of regular returns, market risk is measured. It can be seen that Italy had the highest cases in the first four months of the year and Qatar had the lowest number of cases. And looking on to the next four months of the year, it can be seen that with the largest number of cases, the United States has overtaken, with Singapore being the least. The next four months show that United States is still the highest with highest number of cases with Singapore again being the country with least confirmed cases. The statistics listed in Table 1 confirm the strong effect of the pandemic on the financial markets. Both countries' risk levels have decreased dramatically, from an average of 0.046 in the first four months to 0.011 in the last four months of 2020. Such dramatic movement, instead, is not necessarily due to long-term assumptions, it is almost certain that some factors have played significant roles for such a change. Qatar has had the highest level of standard deviation in the first four months and the lowest in the last four months. Interestingly, during the last four months, the standard deviation rating is approximately consistent with the ranking of reported cases. The pandemic has clearly contributed to a great deal of risk and uncertainty in the global financial markets.

SUMMARY OF FINDINGS

From the above analysis it is seen that the first hypothesis of the study, the null hypothesis is rejected that is it can be interpreted that there is a significant impact of COVID 19 on the price fluctuations of the stock market indices of all the countries. But when it comes to the second hypothesis it can be seen that only some countries indices that have been affected by change in number of cases of COVID 19 in the year 2020. The volatility analysis shows that there has been a drastic change in the level of risks in every country throughout the year due to the pandemic.

CONCLUSIONS

It is seen that COVID 19 has had a major impact on the stock markets of the countries selected for the country. The price fluctuations are clearly affected by the daily increasing confirmed cases, death cases and stringency index of each country. The COVID-19 recession has seen the quickest, steepest downgrades of all global recessions in consensus growth forecasts. The stock markets have been highly volatile during the whole year causing high risk in investments and other

financial activities causing a huge overall risk to the economy. There has been not much effect on the stock market return by the change in COVID 19 cases as mainly the cause of impact on the stock prices is due to the fact that the pandemic was a long term event so therefore the change in the daily price return is not necessarily due to change in the daily confirmed cases of Coronavirus.

The present study focuses on the performance of only one year, hence there can be further research done concentrating on pre and post period of COVID 19. A study can be conducted on reasons for the impact of COVID 19 on the stock market index of the countries in depth. Several other independent variables can be used other than the ones used in the study for further research to identify the impact of COVID 19 on the stock market fluctuations.

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