# A COMPARATIVE ANLYSIS OF GLOBAL STOCK INDICES PRE AND DURING COVID PANDEMIC-AN EVENT STUDY

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**Abstract**

Stock Market is acting as barometer to measure the financial strength of any economy and it measures the financial health of nation. Volatility is mandatory in domain of finance. Calculation of volatility, along with the measures of central tendency, allows us to evaluate the chances of happening a particular result. The objective of this research paper is to compare Global stock Indices pre and during covid pandemic using various economic Indicators lie Inflation rate, unemployment rate, GDP r and volatility of the stock market indices of the top Five countries based on GDP using a widely . According to the study, the hypothesis should be accepted since most countries affected by Covid-19 are the USA, China, Japan, Hong Kong, and India.. Using macroeconomic metrics including the Gross domestic product, inflation rate, and unemployment rate, the study looked at how the COVID-19 epidemic influenced stock indexes internationally. Different variables were analysed statistically to determine the impact of the COVID-19 Pandemic on the countries before and during the epidemic

**Key words:** Stock Market, Global market Indices, Covi-19 Pandemic, Large cap, mid cap and Small cap.

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## 1. Introduction to Stock Market

The stock market refers to the collection of markets and exchanges where the issuing and trading of equities (stocks of publicly held companies), bonds, and other kinds of securities take place, either through formal exchanges or over-the-counter markets. It is also known as the equity market. The stock market is one the most vital components of the free-market economy, as it provides companies with access to capital in the exchange for giving investors a slice of ownership. A Stock market is one of the most important sources for companies to raise money. This allows trades to be publicly traded or raise additional capital for expansion by selling shares of ownership of the company in a public market. The buying and selling of equity shares of corporations take place on a stock market (buyers and sellers of stocks). Investors and traders looking for profits over the long or short term can be participants. The majority of the stockholders' prospects are long-term, and they gain from capital growth over time. However, traders concentrate on the minute price changes in equity shares, which typically persist for a few minutes or the duration of the trading session, in an effort to make quick gains. The two main exchanges in India where the majority of stock trading takes place are the Bombay Stock Exchange and the National Stock Exchange. Here,

### 1.1 Covid – 19 Impact On Stock Market:

The COVID-19 epidemic has had an enormous impact on the whole global financial sector. In reaction to the epidemic, the risk on the world's financial markets has significantly grown. The anxiety and uncertainty are causing enough losses for investors. The pandemic's effects have caused the world stock market to lose roughly US$6 trillion in one week, from February 24 to February 28. Since the Covid19 outbreak, the market value of Standard & Poor (S&P) 500 indices has decreased by 30% that the COVID-19 epidemic has caused a decline in the global proportion of oil, stock, and bonds. Pandemics have caused a dramatic one-day decline in the Financial Times Stock Exchange 100 index in Europe since 1987

This unanticipated epidemic has had a significant negative impact on most financial markets in developed and developing nations. The US stock market, the world's largest economy, tripped the circuit breaker four times in ten days in March 2020. On March 12, 2020, the FTSE, the top index in the UK, fell by more than 10%. It has been noted that the Japanese stock market fell by more than 20% in December 2019. From March 8 to March 18, 2020, the prices of the stock markets in Spain, Hong Kong, and China also decreased by 25,

brokers who provide online trading services are used by both buyers and sellers to place orders. The T+2 formats are used for the settlement cycle. Simply said, you have two days to complete the entire trading cycle, from the start to the end. Based on the market capitalization of the firm, which the total number of shares is held by a corporation, stocks can be categorized. This is derived by dividing the stock's current market price by the total number of outstanding shares.

The top 10 largest stock Indices in the world as of August 2021 are

1. NASDAQ (NASDAQ Composite Index)
2. Shanghai Stock Exchange (SSE Composite Index)
3. Tokyo Stock Exchange (Nikkei 225 Index)
4. Hong Kong Stock Exchange (Hang Sang Index)
5. National stock exchange(NIFTY)

The stock exchange operates as a real-time, continuous auction market where buyers and sellers trade. The stock market is significant to the economy. It facilitates the growth of businesses, allows for profit sharing, and helps to obtain cash for investment. It helps to establish small investor investment possibilities and raise money for government-sponsored development initiatives

14.75, and 12.1%, respectively. The disruption of the global market has caused a significant amount of volatility on the Indian financial sector. The Indian stock market also suffered as a result of the turmoil on the international financial market. It has also borne the brunt of the COVID-19 pandemic. On the Bombay Stock Exchange, there is a drop in the Sensex index to 13.2% on 23rd March 2020.

## 2. Review of Literature:

❖ Alaoui Mdaghri determined whether the global Coronavirus (COVID19) pandemic will impact stock market liquidity based on the depth and tightness dimensions. Through the panel data regression model the paper shows that the liquidity related to the depth measure was positively correlated with the growth in reported deaths and the stringency index and also market depths were positively correlated with confirmed COVID-19 cases. According to this study, both the depth and the tightness of the market have decreased due to the pandemic.

❖ Ravleen Kaur compared several major world stock exchanges in terms of both qualitative and quantitative rankings. India's Stock exchange includes both BSE and NSE and

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various regulations are differently applied on different stock exchanges over the world. The analysis is formed in two parts, which are quantitative and qualitative in which the stock exchanges of different countries are compared to their indexes. During the research, six main stock exchanges were examined for 16 years of data from 2001 to 2016 and the integration of Global Markets has forced the Indian Stock Exchange to know how it compares to its international markets.

❖ Marcin Stawarz and Michal Buszko discuss the stability of stock markets during the COVID-19 pandemic. A key purpose was to find how various sectors reacted to the COVID-19 shock and find out which sectors managed to keep stability and remained protected from the outbreak. By using two clustering methods: K-means and Ward techniques, the study found that 5 clusters of sector indices in the short term and 4 clusters in the medium term could be identified, and also the cluster composition is equally stable over time and none of the obtained clusters are unique.

❖ Taofeek Olusola and Taofeek Ayinde investigated how the global economic recovery affected the stability of the emerging African stock markets, using normality statistical tests and trend analysis with the use of panel quintile regression. The study found that this hypothesis should be rejected because most developing African stock markets are unstable, not only as a result of the global financial crisis but also because there are several institutional and structural rigidities in typical African economies.

❖ Man Dang and Miguel Vega investigated the effect of COVID-19 on the stock market behaviour during the crash of March 2020 using data from S&P 1500 firms. However, some sectors may benefit from the pandemic. They excluded firms that do IPOs in March 2020, as IPO stocks begin trading in the middle of the month. The study found that natural gas, food, healthcare, and software stocks earn high positive returns, whereas equity values in petroleum, real estate, entertainment, and hospitality sectors fall steeply. Loser stocks display extreme unequal volatility and negatively correlate with stock returns.

❖ Shameem Jawed and Manish Sarkhel investigated the changes in the dynamics of the stock markets of the G20 nations and their ties in the outcome of COVID-19. The study used Network theory and Detrended cross-correlation analysis (DCCA) to determine the cross-correlation coefficient between index price series of countries in pairs. This indicates that COVID-19 has caused contagion in the global equity market, and therefore, increased the risk of international portfolio diversification.

❖ Praveen Ranjan Srivastava examined the impact of the Coronavirus on the stock market during pre-lockdown and post-lockdown phases as well as the difference in Twitter sentiment about the Coronavirus during pre and post covid-19. The authors extracted tweets and comment related to Coronavirus from Twitter and used the closing prices of the stock exchanges' stock markets in the USA (S&P 500), the UK (London Stock Exchange), China (Shanghai Stock Exchange), and India (National Stock Exchange. The study uses a machine learning method to analyse and follow investor sentiment on Twitter and found that the only relief for the recovery of financial markets is the lowering of COVID-19 cases.

❖ Muhammad Mohsin and Wang Hui analysed the investor psychology and stock market behaviour during COVID-19. This study explores Shanghai, Nikkei 225, and Dow Jones stock markets by employing principal component analysis. The results showed that investor psychology was negatively related to three selected stock markets under psychological flexibility and pandemic burden. This research will open up new dimensions in understanding investor sentiment towards investment decisions in the stock market under special conditions during the outbreak of pandemics.

❖ Khakan Najaf aims to identify the reasons behind the biggest stock market decline on the 13th March 2020 (Black Friday). By using graphical representation and the OLS regression model the study found that there is a unidirectional relationship between China and the global stock markets. As a result, the value of the t-1 closing price on the China stock market describes the value of the t price on the global stock markets. And the study predicts that the stock market will suffer its sharpest one-day decline since October 1987 (Black Monday) on 13th March 2020.

❖ Elias kampouris and Stathis polyzoic study financial contagion risk by identifying movements and spill over effects from Covid-19 and lockdowns to other countries. By using dependence dynamics and network analysis, the study identified volatility and contagion risk among stock markets during the COVID-19 pandemic. The results verify the presence of infected risk on the dates where there is thought of a significant increase in the correlations and consequences. This verifies

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that this approach is highly effective in identifying and predicting risk inside financial networks and uses additional methods instead of dynamic conditional correlations to measure the risk

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## 3. Research Methodology

### 3.1 Need of the Study:

As most of the entities are globalized, there is a requirement of understanding the entire global stock market for investing. Every investor needs to analyze before investing in the stock market as they are subjected to risk. It also shows and growth of the industry.

### 3.2 Objectives of the Study:

❖ To study the impact of stock prices, GDP, inflation rate, and unemployment rates before and during Covid among five countries.

❖ To study the relationship between global stock prices, GDP, inflation rates, and unemployment rates over a range of seven years.

❖ To analyze the individual performance of stock indices.

### 3.3 Hypothesis of the Study:

❖ **H₁**: There is a significant change in the Closing stock prices, Gross Domestic Product, inflation rates, and unemployment rates among five countries before and during the covid.

❖ **H₁ₐ:** There is a relationship between Closing stock prices and Gross Domestic Product, inflation rates, and unemployment rates.

### 3.4 Scope of the Study:

The scope of the study is limited to selected stock indices globally. Data required for the study be collected from 2015-to 2021. The study is based on secondary data.

### 3.5 Research Design:

❖ The study uses secondary data relating to various selected stock indices globally, where closing stock prices in the market are the dependent variables and independent variables include macroeconomic indicators like GDP, inflation rates, and unemployment rates.

❖ The data collected from various sources like journals, official government sites & the internet

❖ The study period is taken from 2015-to 2021.

❖ Descriptive statistics and other tools like Paired T-tests, and correlation are used.

### 3.6 Limitations of the Study:

❖ The study is limited to secondary data.

❖ The study is confined only to the covid period the results can't be generalized to other global indices.

❖ The study focuses on only five global stock indices that represent the entire global market.

### Data Analysis and Interpretation

❖ Data of Five Stock Indices during 2015-2021 were collected from various sources. Mainly average closing prices are considered as the dependent variable for data analysis.

| Indices | The yearly average closing price of indices 2015-2021 | | | | | | |
|---|---|---|---|---|---|---|---|
| | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** |
| NASDAQ | 4932.729 | 5015.927 | 6293.024 | 7405.502 | 8013.87 | 10295.29 | 14398.9 |
| SSE | 3657.402 | 2978.145 | 3257.327 | 2920.177 | 2928.942 | 3109.778 | 3529.007 |
| NIKKEI | 19227.2 | 17044.59 | 20281.63 | 22285.02 | 21779.97 | 22709.56 | 28550.37 |
| HANGSENG | 24145.21 | 21511.54 | 26453.67 | 28804.14 | 27650.63 | 24915.82 | 26751.06 |
| NIFTY | 8294.05 | 8139.233 | 9661.417 | 10826.45 | 11535.4 | 11150.46 | 15942.68 |

❖ Gross Domestic Product, Inflation rates, and unemployment rates

❖ .

are considered as independent variables for the years 2015-2021

| Countries | GDP from 2015 to 2021 | | | | | | |
|---|---|---|---|---|---|---|---|
| | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** |
| USA | 2.70% | 1.70% | 2.30% | 2.90% | 2.30% | 3.40% | 5.70% |
| CHINA | 7% | 6.80% | 6.90% | 6.70% | 6% | 2.20% | 8.10% |
| JAPAN | 3.10% | 2.80% | 3.40% | 3.30% | 2.60% | 3.30% | 5.80% |

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|---|---|---|---|---|---|---|---|
| HONGKONG | 3.40% | 2.20% | 3.79% | 2.80% | 1.70% | 6.50% | 6.40% |
| INDIA | 8% | 8.30% | 6.80% | 6.50% | 3.70% | 6.60% | 8.90% |

| | Inflation rates from 2015 to 2021 | | | | | | |
|---|---|---|---|---|---|---|---|
| Countries | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| USA | 0.12% | 1.26% | 2.13% | 2.44% | 1.81% | 1.23% | 4.70% |
| CHINA | 1.44% | 2.00% | 1.59% | 2.07% | 2.90% | 2.42% | 0.98% |
| JAPAN | 0.80% | 0.13% | 0.50% | 1.00% | 0.47% | 0.02% | 0.23% |
| HONGKONG | 2.99% | 2.41% | 1.48% | 2.41% | 2.86% | 0.25% | 1.57% |
| INDIA | 4.91% | 4.95% | 3.30% | 3.90% | 3.70% | 6.60% | 5.13% |

Considering the above independent and dependent variables in which tools like Descriptive statistics, correlation, and paired t-tests are used based on hypothesis.

**H$_{1a}$:** There is a relationship between Closing Stock prices and Gross Domestic Product, inflation rates, and unemployment rates.

**USA (NASDAQ):** A stock market index known as the NASDAQ Composite (IXIC) contains practically all of the companies listed on the NASDAQ stock exchange. Along with the S&P 500 Index and the Dow Jones Industrial Average, it is one of the most well-known stock market indexes in the US. The NASDAQ Composite is significantly biased toward businesses in the information technology industry. Over 90% of the NASDAQ Composite's movement is accounted for by the NASDAQ 100, which consists of 100 of the biggest non-financial businesses listed on the Nasdaq Composite. The Nasdaq Composite is a capitalization-weighted index, and its price is determined by adding the closing price and index share of each security included in the index. During the 2020 stock market crash, on March 23, 2020, the index hit a low of 6,860. The below tables.1&2 show the Descriptive statistics and correlation of dependent and independent variables for the period 2015-2021 i.e., before and during Covid for the 5 countries.

| Descriptive Statistics | | | |
|---|---|---|---|
| | Mean | Std. Deviation | N |
| V1 | 7973.60600 | 3449.489913 | 7 |
| V4 | .019564 | .0142494 | 7 |
| V6 | .02029 | .027207 | 7 |
| V8 | .05086 | .014724 | 7 |

| Correlations | | | | | | |
|---|---|---|---|---|---|---|
| | | | V1 | V4 | V6 | V8 |
| Pearson Correlation | | V1 | 1.000 | .814 | .153 | .326 |
| | | V4 | .814 | 1.000 | .577 | -.187 |
| | | V6 | .153 | .577 | 1.000 | -.706 |
| | | V8 | .326 | -.187 | -.706 | 1.000 |
| Sig. (1-tailed) | | V1 | . | .013 | .372 | .238 |

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|---|---|---|---|---|---|
| | V4 | .013 | . | .088 | .344 |
| | V6 | .372 | .088 | . | .038 |
| | V8 | .238 | .344 | .038 | . |
| N | V1 | 7 | 7 | 7 | 7 |
| | V4 | 7 | 7 | 7 | 7 |
| | V6 | 7 | 7 | 7 | 7 |
| | V8 | 7 | 7 | 7 | 7 |

**Interpretation:**

**1.** There is a high degree of correlation between Closing price and inflation rate for which
r= 0.814.

**2.** There is no correlation between the closing price and GDP for which r=0.153

**3.** There is a low degree of correlation between the closing price and unemployment rate for which r=0.326

**CHINA(SSE)** The SSE Composite Index also known as the SSE Index is a stock market index of all stocks (A shares and B shares) that are traded on the Shanghai Stock Exchange. SSE Indices are all calculated using a Paasche weighted composite price index formula. This means that the index is based on a base period on a specific base day for its calculation. The base day for SSE Composite Index is December 19, 1990, and the base period is the total market capitalization of all stocks of that day. The Base Value is 100. The index was launched on July 15, 1991. There are also SSE 180, SSE 50, and SSE Mega-Cap Indexes for the top 180, 50 and 20 companies, respectively. The below tables.3&4 shows the Descriptive statistics and correlation of dependent and independent variables for the period 2015-2021 i.e., before and during Covid for the 5 countries.

| Descriptive Statistics | | | |
|---|---|---|---|
| | Mean | Std. Deviation | N |
| V10 | 3197.25400 | 297.161235 | 7 |
| V13 | .0191 | .00641 | 7 |
| V15 | .06243 | .018876 | 7 |
| V17 | .045943 | .0023999 | 7 |

| Correlations | | | | | |
|---|---|---|---|---|---|
| | | V10 | V13 | V15 | V17 |
| Pearson Correlation | V10 | 1.000 | -.804 | .349 | .370 |
| | V13 | -.804 | 1.000 | -.616 | -.092 |
| | V15 | .349 | -.616 | 1.000 | -.554 |
| | V17 | .370 | -.092 | -.554 | 1.000 |
| Sig. (1-tailed) | V10 | . | .015 | .222 | .207 |
| | V13 | .015 | . | .070 | .422 |
| | V15 | .222 | .070 | . | .098 |

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| | | | | | |
|---|---|---|---|---|---|
| | V17 | .207 | .422 | .098 | . |
| N | V10 | 7 | 7 | 7 | 7 |
| | V13 | 7 | 7 | 7 | 7 |
| | V15 | 7 | 7 | 7 | 7 |
| | V17 | 7 | 7 | 7 | 7 |

**Interpretation:**

1. There is a high degree of negative correlation between the closing price and inflation rate for which r=-0.804
2. There is a low degree of correlation between the closing price and GDP for which r=0.349
3. There is a low degree of correlation between the closing price and unemployment rate for which r=0.370

**JAPAN(N225):** The main index of the Tokyo Stock Exchange (TSE) is the Nikkei 225, or the Nikkei Stock Average. This index is calculated by Nihon Keizai Shimbun (The Nikkei) newspaper each day since 1950. Each year, its components are reviewed, and its price-weighted index is traded in Japanese Yen (JP*). This index tracks the performance of 225 large, publicly owned companies in Japan, representing a wide range of industries. It is a price-weighted index. According to the Index's late 2014 results, Fast Retailing had the largest influence on the index Nikkei 225 calculations began on 7 September 1950, 70 years ago, retroactively counting up from 16 May 1949. A new update of the index occurs every 15 seconds during the trading session since January 2010. The below tables.5&6 show the Descriptive statistics and correlation of dependent and independent variables for the period 2015-2021 i.e., before and during Covid for the 5 countries.

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| V19 | 21696.9057 | 3607.73966 | 7 |
| V22 | .003414 | .0047698 | 7 |
| V24 | .02529 | .027819 | 7 |
| V26 | .02814 | .003579 | 7 |

**Correlations**

| | | V19 | V22 | V24 | V26 |
|---|---|---|---|---|---|
| Pearson Correlation | V19 | 1.000 | -.295 | .217 | -.406 |
| | V22 | -.295 | 1.000 | .129 | -.177 |
| | V24 | .217 | .129 | 1.000 | .015 |
| | V26 | -.406 | -.177 | .015 | 1.000 |
| Sig. (1-tailed) | V19 | . | .260 | .320 | .183 |

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| | | | | | |
|---|---|---|---|---|---|
| | V22 | .260 | . | .391 | .352 |
| | V24 | .320 | .391 | . | .488 |
| | V26 | .183 | .352 | .488 | . |
| N | V19 | 7 | 7 | 7 | 7 |
| | V22 | 7 | 7 | 7 | 7 |
| | V24 | 7 | 7 | 7 | 7 |
| | V26 | 7 | 7 | 7 | 7 |

**Interpretation:**

**1.** There is a low degree of negative correlation between the closing price and inflation rate for which r=-0.295

**2.** There is a low degree of positive correlation between the closing price and GDP for which r=0.217

**3.** There is a low degree of negative correlation between the closing price and unemployment rate for which r=-0.406

**HONGKONG(HSI):** In Hong Kong, the HangSeng Index (HSI) is a capitalization-weighted stock market index with free float adjustment. Daily changes of the largest Hong Kong companies are recorded and monitored by it and are used as a primary indicator of the market's performance. Hong Kong's stock exchange has about 58% of its capitalization in these 50 constituent companies. A wholly owned subsidiary of Hang Seng Bank, one of the largest banks in Hong Kong in terms of market capitalization. It was founded on November 24, 1969. As part of its duties, the Hang Seng Index is compiled, published, and managed, and The Hang Seng China Enterprises Index, Hang Seng China AH Index Series, Hang Seng China H-Financials Index, Hang Seng Composite Index Series, Hang Seng China an Industry Top Index, and Hang Seng Corporate Sustainability Index Series are also managed by the company. The majority of Hang Seng belongs to another listed international financial institution, HSBC, even though the company is a public company.The below tables.7&8 shows the Descriptive statistics and correlation of dependent and independent variables for the period 2015-2021 i.e., before and during covid for the 5 countries.

| Descriptive Statistics | | | |
|---|---|---|---|
| | Mean | Std. Deviation | N |
| V28 | 2.57474385714286E4 | 2.438344472201228E3 | 7 |
| V31 | .019957 | .0096381 | 7 |
| V33 | .01484 | .042678 | 7 |
| V35 | .03803 | .012261 | 7 |

| Correlations | | | | | |
|---|---|---|---|---|---|
| | | V28 | V31 | V33 | V35 |
| Pearson Correlation | V28 | 1.000 | .016 | .081 | -.162 |
| | V31 | .016 | 1.000 | .432 | -.794 |
| | V33 | .081 | .432 | 1.000 | -.312 |
| | V35 | -.162 | -.794 | -.312 | 1.000 |

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| | | | | | |
|---|---|---|---|---|---|
| Sig. (1-tailed) | V28 | . | .487 | .431 | .364 |
| | V31 | .487 | . | .167 | .016 |
| | V33 | .431 | .167 | . | .248 |
| | V35 | .364 | .016 | .248 | . |
| N | V28 | 7 | 7 | 7 | 7 |
| | V31 | 7 | 7 | 7 | 7 |
| | V33 | 7 | 7 | 7 | 7 |
| | V35 | 7 | 7 | 7 | 7 |

**Interpretation:**

**1.** There is no correlation between the closing price and inflation rate for which r=0.16

**2.** There is a high degree of positive correlation between the closing price and GDP for which r=0.81

**3.** There is no correlation between the closing price and unemployment rate for which r=-0.162

**INDIA(NSE):** National Stock Exchange of India Limited (NSE), the main stock exchange in India, is located in Mumbai, Maharashtra. The NSE ranked fourth globally in terms of the volume of trading in cash equities for the calendar year 2021, according to data compiled by the World Federation of Exchanges (WFE). NSE was established in 1992 and is the first dematerialized electronic exchange in the country. The NSE was the first exchange in the country to offer a state-of-the-art, fully automated screen-based electronic trading system that gave investors spread over the whole country simple trading alternatives. The futures and options market at the NSE is well-known on a global level. The futures and options business of the NSE is well-known on a global scale. The NIFTY 50 Index, NIFTY IT Index, NIFTY Bank Index, NIFTY Next 50 Index, as well as single stock futures, are all traded in the futures and options market. The National Stock Exchange had a total market value of more than US$3.4 trillion as of August 2021, placing it tenth in the world in terms of market capitalisation. The below tables.9&10 show the Descriptive statistics and correlation of dependent and independent variables for the period 2015-2021 i.e., before and during covid for the 5 countries.

| Descriptive Statistics | | | |
|---|---|---|---|
| | Mean | Std. Deviation | N |
| V37 | 10792.81286 | 2638.401304 | 7 |
| V40 | .046414 | .0111635 | 7 |
| V42 | .05086 | .054281 | 7 |
| V44 | .057457 | .0132709 | 7 |

| Correlations | | | | | |
|---|---|---|---|---|---|
| | | V37 | V40 | V42 | V44 |
| Pearson Correlation | V37 | 1.000 | .143 | -.038 | .788 |
| | V40 | .143 | 1.000 | -.586 | .054 |
| | V42 | -.038 | -.586 | 1.000 | .483 |

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| | | | | | |
|---|---|---|---|---|---|
| | V44 | .788 | .054 | .483 | 1.000 |
| Sig. (1-tailed) | V37 | . | .380 | .468 | .018 |
| | V40 | .380 | . | .084 | .454 |
| | V42 | .468 | .084 | . | .136 |
| | V44 | .018 | .454 | .136 | . |
| N | V37 | 7 | 7 | 7 | 7 |
| | V40 | 7 | 7 | 7 | 7 |
| | V42 | 7 | 7 | 7 | 7 |
| | V44 | 7 | 7 | 7 | 7 |

**Interpretation:**

**1.** There is no correlation between the closing price and inflation rates for which r=0.143

**2.** There is a low degree of correlation between the closing price and GDP for which r=-0.38

**3.** There is a high degree of correlation between the closing price and unemployment rate for which r=0.788

**Findings**

According to the study, the hypothesis should be accepted since most countries affected by Covid-19 are the USA, China, Japan, Hong Kong, and India. Different variables were statistically analysed in different ways, and their impacts on the countries were evident. In the same manner, stock index prices have also undergone a significant change. The Paired T-tests demonstrate a significant relationship between closing prices and unemployment rates in 5 countries before and after COVID-19. The findings indicated that there is a high degree of positive correlation between Closing price and inflation rate for the USA, with r=0.814, and a high degree of positive correlation between the closing price and GDP for Hong Kong, with r=0.81.Based on our results, we conclude that the covid-19 pandemic has caused major challenges in all countries, particularly in economic terms and the continuous change in the economy as a result of macroeconomic indicators increasing or decreasing.

**Suggestions**

These Studies suggest investors should analyze their investments before making them in the stock market since they are subject to risks. When the stock market is volatile, investors should not sell off investments, but rather rebalance their portfolios to ensure long-term goals are met. It is essential for investors to diversify their portfolios by investing in global stocks, industrials, and energy stocks and to keep an eye on the economic indicators that are most affected by them. Before making any investment decision, every investor needs to understand valuation trends and other methods. There can be a more significant impact on individual decisions when it is more involved. As financial markets are forward-looking, investors should take advantage of any setbacks as long as possible, and keep an eye ahead. The Coronavirus pandemic hasn't ended yet, but investors are looking ahead to what's next, so they should be prepared for potential setbacks.

## 4. Conclusion

Using macroeconomic metrics including the Gross domestic product, inflation rate, and unemployment rate, the study looked at how the COVID-19 epidemic influenced stock indexes internationally. Different variables were analysed statistically to determine the impact of the COVID-19 Pandemic on the countries before and during the epidemic. Stock index prices have fluctuated significantly during these intervals. Considering the volatility in the stock market, the most appropriate solution to volatility is not to sell assets and keep withholding, but to rebalance the portfolio to protect long-term goals. Over half of the countries have already faced challenges due to the unprecedented pandemic. Stock markets were destroyed and economic output fell to historic lows due to the spread of Covid-19. Therefore, our paper focuses on using global stock indices and macroeconomic indicators to provide an original, yet simple, statistical analysis of the COVID-19 pandemic.

## 5. References

ANAS ALAOUI, MDAGHRI,(2020): "Stock market liquidity, the great lockdown and the COVID-19 global pandemic nexus in MENA countries"

RAVLEEN KAUR,(2017): "Comparative Analysis Of Indian Stock Exchange And Major Index

*Eur. Chem. Bull. 2023, 12 (S2), 2201– 2211*

2210

With Global Stock Exchange And Their Major Index"

MARCIN STAWARZ, MICHAL BUSZKO,(2020): "COVID-19 pandemic and stability of stock market—A sectoral approach"

TAOFEEK OLUSOLA TAOFEEK AYINDE,(2013): "Global Financial Recovery and the Stability of Africa Emerging Stock Markets"

MAN DANG, MIGUEL VEGA,(2020): "COVID-19 and the march 2020 stock market crash. Evidence from S&P 1500"

MOHAMMAD SHAMEEM JAWED AND MANISH SARKHEL,(2021): "COVID-19 pandemic and global financial market inter linkages: a dynamic temporal network analysis"

PRAVEEN RANJAN SRIVASTAVA, PRABIN KUMAR PANIGRAHI,(2021): "Sentiment Analysis of COVID-19 Pandemic on the Stock Market"

MUHAMMAD MOHSIN, WANG HUI,(2021): "The Investor psychology and stock market behaviour during the initial Era COVID-19: A Study of China, Japan, and the United States"

KHAKAN NAJAF, (2020): "The impact of the China Stock market on global financial markets during COVID-19"

ELIAS KAMPOURIS, STATHIS POLYZOS,(2021): "COVID-19 pandemic and spill over effects in stocks markets: A financial network approach"

BADAR NADEEM ASHRAF, (2020): "Economic impact of government interventions during the COVID-19 pandemic: International evidence from financial markets"

Eur. Chem. Bull. 2023, 12 (S2), 2201– 2211

2211