Research Paper

How the world indices responding to novel coronavirus (COVID-19)

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ABSTRACT

The main context of the study is to analyze the financial markets indices response to novel coronavirus (COVID-19). In general, international stock markets are overlooking financial crises due to the COVID-19 pandemic outbreak. This review focuses on a statistical survey to know the index of gain/loss and to what degree. Based on the findings of critical analysis, the benchmark index such as the S&P 500 and Dow Jones Industrial Average (DJI) has plummeted. Other indices such as FTSE 100, NIKKEI 225, NASDAQ 100, SSE 50, DAX, HENG SENG, MOEX.ME and SENSEX have shown a negative % change. Global stock markets posted the biggest fall since 2008 financial crises.

Key words: COVID-19, outbreak, lockdown, world indices, financial crises,

JEL: G1, G15, G19.

INTRODUCTION

Similar to SARS (Severe Acute Respiratory Syndrome) in 2003, a new virus named "2019-nCoV" (novel Coronavirus) has been identified first time in Wuhan, a city of China in December 2019. Later on, novel coronavirus (2019-nCoV) was referred to as "coronavirus disease 2019" by World Health Organization (WHO) while coronavirus study group (CSG) of international committee proposed "SARS-CoV-2" as name to the novel coronavirus (Yan-Rong Guo, 2020). The coronavirus disease causes respiratory illness with symptoms of flu, cough, and fever, in more severe condition difficulty in breathing end with fatality. The hazardous side of this COVID-19 is that it spreads very vastly from human to human via droplets inhalation and physical contact. According to WHO (World Health Organization) report at the end of January, China has 9720 confirmed cases with 213 deaths, and the disease has spread to 19 countries outside China with 106 confirmed cases due to travelling to and from Wuhan. As a result of this dispersion rate, WHO declared global health emergency in the mid January (World Health Organization, 2020).

World Health organization (WHO) shared some statistics about COVID-19 epidemic outbreak at the end of first quarter of 2020. The origin country of epidemic China has 82,545 confirmed cases with 3,314 deaths. The infectious disease is rapidly spreading in European region, as Italy has 1, 01,739 confirmed cases and 11,591 deaths, Germany has 61,913 confirmed cases and 583 deaths occurred while France with 43,977, Japan with 1953 and Spain has 85,195 confirmed cases. COVID-19 has infected 22,145 people in United Kingdom(UK). USA has lead in this epidemic outbreak with 1, 40,640 definite patients and 2,398 deaths. Across the globe, the outbreak of COVID-19 is 7, 50,890 confirmed cases and 36,405 deaths (World Health Organization, 2020).

The dispersion of coronavirus is much more than SARS and MERS, even infected cases of SARS in a month are less than coronavirus infected cases within a week. According to current situation, fatality rate of coronavirus is about 2.2% less than that of SARS with 10%, while MERS had around 35% fatality rate (Kelland, 2020).

Financial markets panic

The increasing economic activities regionalization and financial markets liberalization since 1980s caused integration among world economies. Recently due to
COVID-19, worldwide capital markets are unstable. The pandemic outbreak covered 208 countries till date (updated) due to which there is a complete lockdown around the world. The interruption in economic activities such as production, supply chain value, spending by household and services facilities caused the economic supply and demand shocks.

The U.S security and Exchange commission terminated stock exchanges trading for 15 min four times just in the month of March to bring out the market from panic trading. Before this, in 1987 and 1997 stock trading had been halted due to market crash. When S&P 500 dropped more than 7% from previous close, the trading stopped during the opening hour on March 9, 12, 16 and in the mid-day of 18th March. The trading of Dow and NASDAQ has been shutdown in response to S&P 500 pause. The Dow and S&P 500 prices have plunged the volatility of Chicago Board of Exchange to increase (Hartman, 2020).

FTSE 100 has been gaining since 2011, presently just within a month, index has plunged to its lowest level. To avoid the severity of damages, governments and central banks restricted the economic activity, investor anxiety affect the Wall Street impulse it into fast bear-market. Dow Jones Industrial Average companies shares prices fell by more than 20% from its latest peak. Dow Jones has plummeted by 12.9%, index worn-out by almost 3000 points on 16th, March referred to the worst day. World second largest economy country was fighting against COVID-19 in late January, China global supply chain disrupted when the central city Wuhan was lockdown. The first time the Asian powerful economy is suffering a fall in GDP since 1976. Due to the fall in share prices, the world richest people have lost $1tn. Italian debt suffered its biggest selloff since 2011 (Wearden, 2020). The U.S and German bond market has also suffered 10-year bonds yields fell by 20 points in the first week of March. Almost 7000 stock in global equities have lost $6trillion of their market value in start of March. One third of German market, half of Japanese, nearly 80% of South Korean shares and emerging market have jumped in the bear-market (Wilkes, world Economic Forum, 2020).

Similar to 2008 recession where stock markets crashed and interest rate reduction strategies were implemented, the world is witnessing global financial crises in 2020 due to COVID-19. US Federal Reserve and bank of Canada has reduced interest rate from 1.75 to 1.25%, and bank of England reduced from 0.75 to 0.25% within first two weeks of March(Yik, 2020). The Managing Director of IMF, Kristalina Georgieva, declared that global growth will drop in 2020 below the preceding year due to COVID-19. Low income and emerging economies will get $50 billion by IMF to tackle financial emergency. According to estimation, one-third of economic losses suffered will be by direct cost, while two-third will be indirect by the harsh circumstances for business and financial markets (Georgieva, 2020).

The spread of COVID-19 in China has restricted activities such as traveling, transportation, labor mobility and working hours in February, resulting in output decline. Global financial uncertainty caused the assumption that global GDP growth might be as low as below zero in the first quarter of 2020. It might be possible that global growth has declined by ¾ percentage in this year based on 2019. Countries like Japan, Korea and Australia interrelated with China though their economic activities such as Production, imports, exports and supply chain have also suffered to the infectious disease (Organisation for Economic Co-operation and Development, 2020). The Chinese exports reduced by 2% due to the Manufacturing Production Manager’s index (PMI) drop by 22 points in February. According to today statistics, Chinese manufacturing intermediates inputs trade covers 20% of global trade. COVID-19 disruption of Chinese manufacturing inputs is crucial to global value chain. The interruption in China supply chain has affected production by many companies around the world (United Nations Conference on trade and development, 2020). The financial markets have undergone restrictions due to coronavirus outbreak, Euro Stoxx 50 plummeting 83% to its lowest level. Australia manage A$17.6 billion against coronavirus dispersion to avoid severe conditions in recession (Shalal, 2020).

Financial markets and a number of industries have revealed severe adverse conditions in the response to COVID-19. Eurostoxx 50 has dropped by 50% while S&P 500 reduced by 18% from its peak in the mid-February, this decrease in index points is critical than SARS. European countries and U.S went into lockdown to prevent the virus spreads, therefore GDP growth and output plummeted. Tourism in Italy has dropped by 40 to 80%, while in France 30 to 40% due to the pandemic situation (Maria Demertzis, 2020).

Germany financial market is also in panic, DAX blue-chip stock index dropped by 8% (updated till 10th March) its worst day since from 9/11 attack. Germany industrial State, North Rhine-Westphalia, which contributes 20% to the country’s productivity, has 1200 confirmed cases of the infectious disease. To tackle the financial panic, government needs to facilitate companies' financing, credit collateral and tax relief (Ferguson, 2020). This is the worst quarter for Asia-Pacific stock markets since 2008. Japan Nikkei index has plunged by 20%, Australian S&P/ASX dropped by 24%, while Indian Sensex index points dropped by 28% (Wilkes, The Guardian, 2020).

Statistics and Interpretation

To take a close look at market, the indices monthly prices of first quarter of this year (2020) are collected and shown in Table 1. To analyze the gain/loss percentage change measure adopted for per month or quarter, Figure out the situation of markets by critical examination of the indices in
There are three major indices; DJI (Dow Jones Industrial Average), GSPC (Standard & Poor’s 500) and NDX (NASDAQ 100) in the United States mutually exertion as security market indicator series. Empirical data in Table 1 disclosed a continuous downfall from Jan, 2020 to Mar, 2020 with increasing trend in benchmark index S&P 500 and DJI. At the end of first quarter of this year, DJI has dropped 6,621.28 points with -23.20% changes, while S&P 500 move from 3,225.52 points to 2,584.59 with 20% decrease. In the first month of year, NDX has gained 2.96% and thereafter, index plunged by 10.53% due to COVID-19. The drip in NIKKEI 225 by -1.91% in January indicates the impact of the start of pandemic outbreak in China. After dispersion of virus outside China, NIKKEI 225 decreased by 8.89% in Feb and 10.53% in March. In general, FTSE 100 is a leading indicator of United Kingdom (UK) financial markets. FTSE 100 is the most popular and widely used market index in Europe. This year begins with 7,286 points of FTSE 100 but at the 31st March 5,671.96 points exposed index collapsed by 24.80%. DAX is the main stock index in Germany, the index price fell from 28.10 to 20.59 in the Q1 (Quarter 1). SSE 50 related to Shanghai Stock Exchange, China was in lead of pandemic outbreak in the first two month, so that is why in the end of third month, SSE 50 showed overall 12.20% negative change. Aggregate fall in Q1 by HENGSENG is 16.27% directs Hong Kong stock market also fronting crises. Russian stock market index MOEX.ME displayed gain in January and then negative % change. As shown in Table 1, there is major drop by 8,828.80 points just in March with -23.05% change in SENSEX trading in Bombay stock market.

The decreasing pattern in prices showed that there are stock market crises all over the world. The negative % change in Q1 column indicates that all the indices have collapsed. This is great recession time period since 2008 crises, global countries adopting some precautionary measures such as trading halt, decrease in interest rates, ease in collateral policies, and relaxation in credit policies, government central banks funding to control and limit global crises.

Table 1.

<table>
<thead>
<tr>
<th>Indicies</th>
<th>2019 price</th>
<th>Jan price</th>
<th>% change</th>
<th>Feb price</th>
<th>% change</th>
<th>Mar price</th>
<th>% change</th>
<th>Q1 price</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>DJI</td>
<td>28,538.44</td>
<td>28,256.03</td>
<td>-0.99</td>
<td>25,409.36</td>
<td>-10.07</td>
<td>21,917.16</td>
<td>-13.74</td>
<td>21,917.16</td>
<td>-23.20</td>
</tr>
<tr>
<td>GSPC</td>
<td>3,230.78</td>
<td>3,225.52</td>
<td>-0.16</td>
<td>2,954.22</td>
<td>-8.41</td>
<td>2,584.59</td>
<td>-12.51</td>
<td>2,584.59</td>
<td>-20.00</td>
</tr>
<tr>
<td>NDX</td>
<td>8,733.07</td>
<td>8,991.51</td>
<td>2.96</td>
<td>8,461.83</td>
<td>-5.89</td>
<td>7,813.50</td>
<td>-7.66</td>
<td>7,813.50</td>
<td>-10.53</td>
</tr>
<tr>
<td>NIKKEI225</td>
<td>23,656.62</td>
<td>23,205.18</td>
<td>-1.91</td>
<td>21,142.96</td>
<td>-8.89</td>
<td>18,917.01</td>
<td>-10.53</td>
<td>18,917.01</td>
<td>-20.04</td>
</tr>
<tr>
<td>FTSE100</td>
<td>7,542.40</td>
<td>7,286.00</td>
<td>-3.40</td>
<td>6,580.60</td>
<td>-9.68</td>
<td>5,671.96</td>
<td>-13.81</td>
<td>5,671.96</td>
<td>-24.80</td>
</tr>
<tr>
<td>DAX</td>
<td>28.10</td>
<td>27.10</td>
<td>-3.57</td>
<td>24.95</td>
<td>-7.93</td>
<td>20.59</td>
<td>-17.47</td>
<td>20.59</td>
<td>-26.73</td>
</tr>
<tr>
<td>SSE50</td>
<td>3,063.22</td>
<td>2,932.49</td>
<td>-4.27</td>
<td>2,821.04</td>
<td>-3.80</td>
<td>2,689.38</td>
<td>-4.67</td>
<td>2,689.38</td>
<td>-12.20</td>
</tr>
<tr>
<td>HENGSENG</td>
<td>28,189.75</td>
<td>26,312.63</td>
<td>-6.66</td>
<td>26,129.93</td>
<td>-0.69</td>
<td>23,603.48</td>
<td>-9.67</td>
<td>23,603.48</td>
<td>-16.27</td>
</tr>
<tr>
<td>MOEX.ME</td>
<td>107.75</td>
<td>109.94</td>
<td>2.03</td>
<td>99.08</td>
<td>-9.88</td>
<td>97.25</td>
<td>-1.85</td>
<td>97.25</td>
<td>-9.74</td>
</tr>
<tr>
<td>SENSEX</td>
<td>41,253.74</td>
<td>40,723.49</td>
<td>-1.29</td>
<td>38,297.29</td>
<td>-5.96</td>
<td>29,468.49</td>
<td>-23.05</td>
<td>29,468.49</td>
<td>-28.57</td>
</tr>
</tbody>
</table>

Statistics visualization

Data visualization makes it easier to understand, and to detect pattern and trend of data. Every index has been represented in chart (Figures 1 to 10) for quick
**Figure 1:** Closing price and Moving Average of Dow Jones Industrial Average (DJI) from Jan, 2020 to March, 2020.

**Figure 2:** Closing price and Moving Average of Standard & Poor’s 500 (GSPC) from Jan, 2020 to March, 2020.
Figure 3: Closing price and moving average of NASDAQ-100 (NDX) from Jan, 2020 to March, 2020.

Figure 4: Closing price and Moving Average of Financial Times Stock Exchange (FTSE100) from Jan, 2020 to March, 2020.
Figure 5: Closing price and Moving Average of Tokyo Stock Exchange (NIKKEI 225) from Jan, 2020 to March, 2020.

Figure 6: Closing price and Moving Average of Deutscher Aktien (DAX) from Jan, 2020 to March, 2020.
Figure 7: Closing price and Moving Average of Shanghai Stock Exchange (SSE50) from Jan, 2020 to March, 2020.

Figure 8: Closing price and Moving Average of HENG SENG Index from Jan, 2020 to March, 2020.
Figure 9: Closing price and Moving Average of Moscow Exchange (MOEX.ME) from Jan, 2020 to March, 2020.

Figure 10: Closing price and Moving Average of Bombay Stock Exchange (SENSEX) from Jan, 2020 to March, 2020.
understanding of market direction. Two lines plotted in Figure 1 show the closing price, while the other one signifies simple moving average. Moving average is a simple technical tool analysis to watch market trend or direction. It helps smooth out price action by filtering out the ‘noise’ from price fluctuations. As per analysis, the moving averages of all indices have downward trend in March. Down fall trend in moving averages and even prices below the averages signal for short trader to sell stock at the point where prices crossover. But it is best for long term traders to buy stock at the point where maximum price is below the averages. NASDAQ 100 showed little bit uptrend in the mid February and then downtrend. SSE 50 moving average indicates slightly down fall trend as compared with DJI, S&P500 and NASDAQ.

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