

Stock Market Sensitiveness: Impact Of Epidemic Or Pandemic

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Abstract

“Pandemic” is a disease that can get spread over an entire country or may be across the world impacting not only the people but also the economy. Epidemic is a disease that affects large number of persons within a community, region or country. This study looks upon the impact of the pandemic on the stock market and on the economy as a whole. It takes into consideration various wide spread disease such as Ebola, Swine flu, Severe Acute Respiratory Syndrome (SARS) and Coronavirus, and how their impact is been there on stock market as well as on the economy. In order to do study the impact on stock market the change on the levels are done. Further, the study will look upon the recovery period of each of these stock markets after the epidemic or pandemic. Descriptive analysis is been conducted to see the recovery period after COVID-19 in Indian markets.

Keywords: Stock exchange, Economy, Percentage Change, Descriptive Analysis.

1. INTRODUCTION

Epidemic is a disease that affects large number of persons within a community, region or country. While Pandemic is an epidemic that can spread to various countries or sometimes to continents. In epidemic many individuals are affected while in pandemic it covers a high portion of the population over a wide geographical area. Pandemics or be it Epidemics cannot only impact the country where it was established but also the other countries. It has a global impact due to the economic activity been stopped, imports and exports are affected and sectors like tourism is most affected wholly they have an impact on the economy and the growth of various countries. They also impact the stock exchanges due to the demand and supply also because of shortage in money supply and in some cases Foreign Institutional Investors lose their confidence in countries affected by the pandemics impacting the stock markets.

Ebola outbreak was in the year 2013 -2014 in Africa causing major issues in region such as Guinea, Liberia and Sierra Leone also affecting few countries Like United States, Italy, Spain and many more causing death toll of almost 11,300 all over the world. These three region in Africa lost about \$2.2 billion in GDP in 2015. Major loss was felt in the sectors such as agricultural production, private sector and trade. There was also restriction in trade and transport that lead to the fewer movements of people and goods. The outbreak lead to reduced tourism, as per World Bank nearly \$ 36 billion and almost 2.8% was contributed to the GDP by tourism sector which saw a downfall of almost 50% from 2013 to 2014. The main source of income in African countries comes from agricultural production, due to the outbreak this wad decreased impacting the economy of the country. The rate of unemployment was increased, almost 40% decrease was seen in people working in Liberia as per 2016 by World Bank.

SARS outbreak was first felt in the southern China during the year 2002, this affected more than 26 countries resulting in more than 8000 cases. There was a downfall of China's growth seen in the first quarter that came to 9.1% from 11.1 % year on year. Retail sales also saw the slowest growth in May 2003 which was around 4.3%. Slow growth was seen in the year 2003 in the segment of industrial output which was nearly 13.7%.

Coronavirus outbreak was first found in Wuhan, China in December 2019 which has affected regions around 213. More than 18 lakh people are affected due to coronavirus killing almost 1 lakh people. Major countries affected are Italy, USA, India and many more. Overall there is decrease in growth rate of GDP in almost all the countries like India's growth rate has decreased by 1.4% , US showing a decrease of almost 0.6%, China showing decrease of 0.6%. It has given a demand and supply shock along with the risk of global recession in the year 2020 due to the complete close of the economic activity. Due to the lockdown and social distancing it has affected not only tourism sector but also the hotel industry is in a bad shape as restaurant dinner globally has come down to 89% year on year nearly. Rate of unemployment is surged as US shows almost a rate of 33% week on week while India shows a rate of 23.8% week on week.

2. Literature Review

Richard David Smith

has done study of the impact of SARS on the macro economic factors. In order to do the study nation wise data was taken during the period of SARS outbreak. Countries were assessed based on atleast five case of SARs as per the report of WHO while assessing this it was seen that countries not having any cases were also affected due to tourism and other factors. Economic factors like GDP, growth, exports and trade and budget was taken into consideration and few sectors that could have been most impacted by the SARS were taken, they included Tourism, Hotel, Airlines, Hotels, Restaurants, Health, IT, Retail and Entertainment. It has been concluded the potential shortcomings in the cost estimation of health sector along with the chances of majority of costs that can be incurred by the non – health sectors which cannot be accurately estimated through traditional micro – economics analysis. Also macro – economics technique do not measure accurately the impact of disease outbreak like SARS.

Jong – Wha Lee and Warwick J. McKibbin

has done a study to see the global economic impact of SARS and also to provide comprehensive approach to estimate consequences of such major disease globally. To do the study G – Cubbed model has been used, it takes in to many consideration many countries and sectors such as Agriculture, Mining, Energy, Services, Durable manufacturing and Non – Durable manufacturing. It has been concluded that as per G – Cubbed model the impact of SARS on the economies of China and that of Hong Kong is large. It adds that the health budget for treating the patients is much lower than the actual cost of disease. Model also suggests that there should be direct intervention in improving health conditions in developing nations as there is insufficient investment for research on prevention of disease and not enough expenditure for public health.

Nuno Fernandes,

has done study to look on the economic effect on world economy by outbreak of coronavirus. In his study he has compared the economic effects of SARS and Ebola with that of Coronavirus. Further he says that the second quarter of 2020 would be worse than the first one also none of the sectors would be left being impacted. Taking 30 countries for his study he shows the impact on predicted pre – crisis growth. While countries whose GDP has a higher percentage of tourism would be more affected compared to the others having less percentage. Even shows that the stock markets have fall to the biggest one - day fall. To study the economic impact in the first case he has taken shutdown of 1.5 months showing an average –4.5 % economic impact as percentage of GDP for the countries analysed showing an impact of -4% on India, -3.8% on China and likewise. Adding to this the expected GDP growth would be -2.5 % for the year 2020. In second case were shutdown considered for 3 months the GDP growth expected would be –6.2

% and in the third case were shutdown considered for 4.5 months the decline in the GDP growth would be -10.4 %. To conclude the financial damage could not be predicted accurately as how a country would take it as well as the timing. It may lead to a global recession but the depth would depend on the success measures of prevention, the effects of government to reduce liquidity problems of SMEs and to support the families in distress.

3. Data

The method for collecting the data for this analysis was secondary. The data of the China stock exchange, Hong Kong stock exchange, US stock market and Indian stock market are taken. The data for the period from which the disease has been started up to 6 months are taken. For Ebola data from December 2013 to May 2014 was taken, for SARS the period taken was from November 2002 to April 2003 and for Coronavirus data from December 2019 to March 2020 was taken. Secondary data for Nifty is collected from the official site of National stock exchange (www.nseindia.com) and other stock exchange data is taken from the website named Yahoo Finance (www.yahoofinance.com).

4. Research Methodology

In order to study the impact of pandemic on various stock exchanges all over the world, percentage change has been taken. Percentage change on weekly basis along with 6 months overall change has been calculated. Descriptive analysis was done by taking the survey of 150 professionals that includes CA, Professors and few working in the finance industry. Selection of Sample is drawn using convenience method.

5. Results

- **Percentage Change**
- **Ebola**
- **Sars**
- **Coronavirus**

From the above tables, maximum negative impact has been seen during the period of coronavirus as compared to Ebola and SARS. This could be because the spread of coronavirus was in more than that of Ebola and SARS. While there was not major stoppage in the economic activity during Ebola and SARS, in case of coronavirus it was a global emergency which caused major stoppage in the economic activity. Epidemics have stopped movement of goods and persons which is impacting various sectors of the country.

For instance, above Table 2 shows us that China has a negative impact due to Ebola as there are major trades between China and Africa. China is the largest importer of Africa in terms of minerals and metals. Once the sectors are affected, companies and business are affected the supply of money becomes low leading to decrease in the demand causing an impact on the market. The markets also get impacted as few FII lose their interest and withdraw their money from the affected countries leading to major downfall in the market.

The major reason in the period of epidemics are the panic selling. During this period traders fear and sells out their shares leading to downfall in the market trend. Traders in this take decision based on their emotional aspect rather than fundamentals or any news.

Descriptive Analysis (Survey)

- 1. How much reduction will be seen in the growth of GDP?**
 - India's GDP will decline by more than 2 % as indicated by the 57% participants.
 - 21% of them expects that the decline would be around 1% - 2%.
 - 0.5 % - 1% decline is indicated by 14% of participants.

2. Which sectors do you think is most affected by COVID - 19?

- 100% participants indicate that Aviation & Tourism are highly affected due to COVID-19.
- Followed by Oil and Gas sector being adversely affected as responded by 57.1 %.
- Negative impact is also seen in sectors like E- commerce (35.7%), FMCG (14.3%), Manufacturing (50%), Food and Agriculture (21.4%) and Apparel & Textile (50%).

3. What could be the level of Nifty 50 by June 2020?

- We saw a big fall in the level of Nifty, that makes us to look upon the level by June 2020 as a view from Professionals.
- About 42.9% Professionals have responded by saying that Nifty 50 level would be somewhere in between of 9000 – 9500.
- While 35.7% and 21.4% responded as the level would be around 8500 – 9000 and 9500 – 10000 respectively.

4. How long would it take Indian stock markets to recover?

- While the recovery of the Nifty 50 in terms of period would be more than 1.5 years as responded by 35% Professionals.
- About 29% are optimistic about the recovery happening in 6 months.
- Followed by 22% of them responding the recovery in 12 months and for the rest 14% the recovery would be in 9 months.

6. Future Scope

The data studied can be increased to daily in order to perform much accurate results. Even some other stock exchange like Russian stock market, Korean stock market, Singapore stock market can be taken to perform the comparison and the result can be interpreted. Further other methods like G – Cubbed model can be used after the full eradication of this virus which can include economic factors as GDP, exports and imports, growth and many more. Infact, various sectors like Tourism, Hotel, Agricultural, Manufacturing and many more can be taken to analyse the impact upon their growth due to Coronavirus.

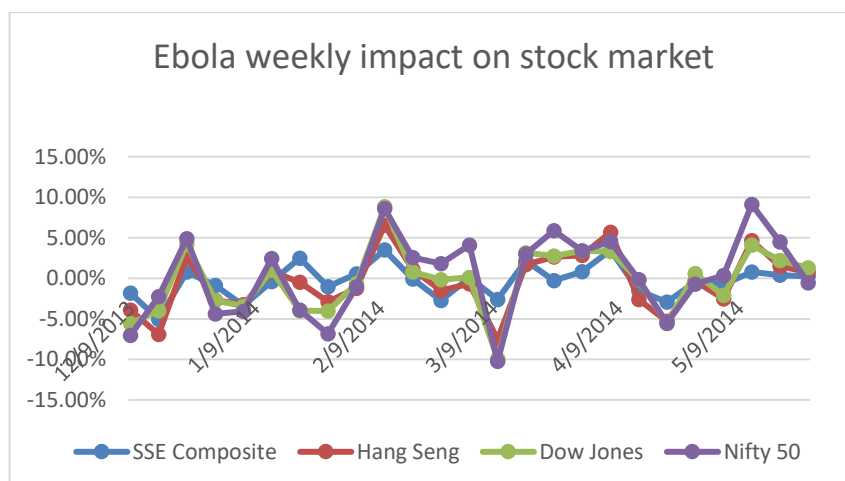


Figure 1.

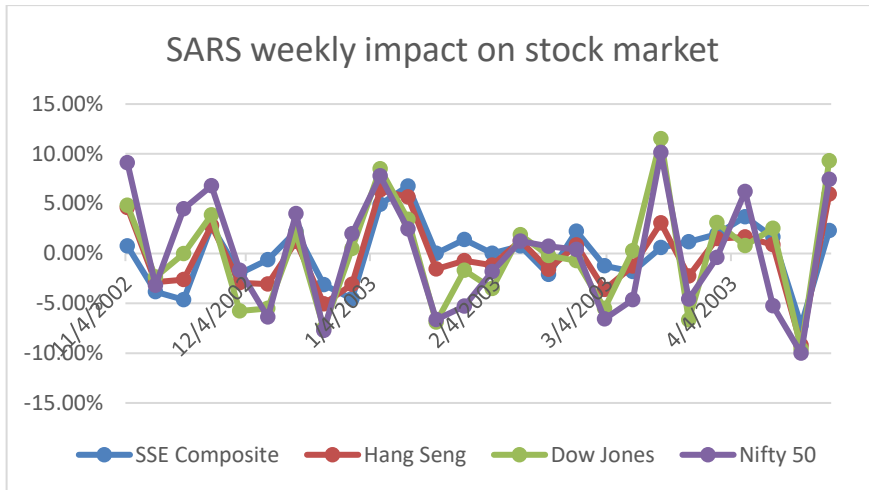


Figure 2.

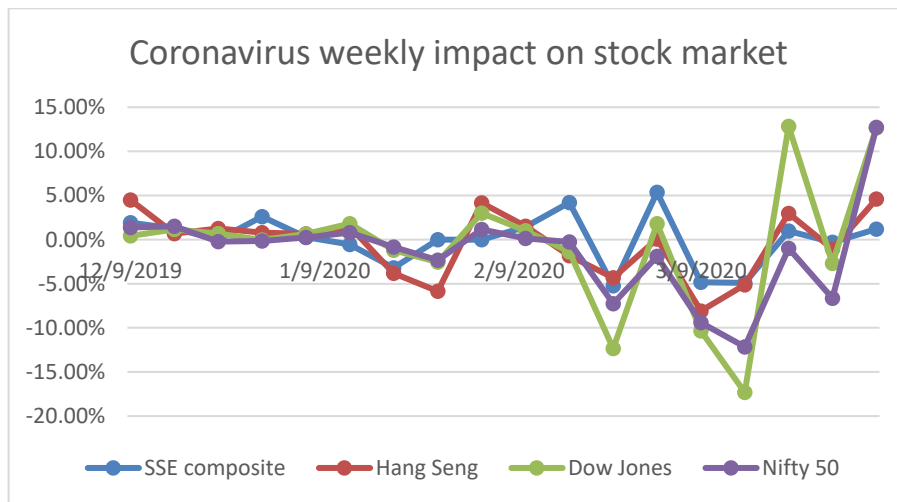


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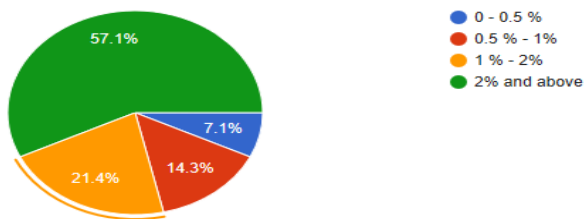


Figure 4.

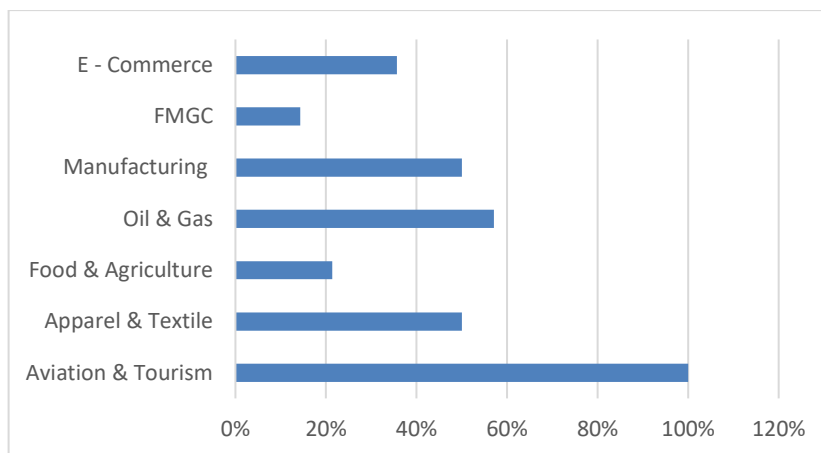


Figure 5.

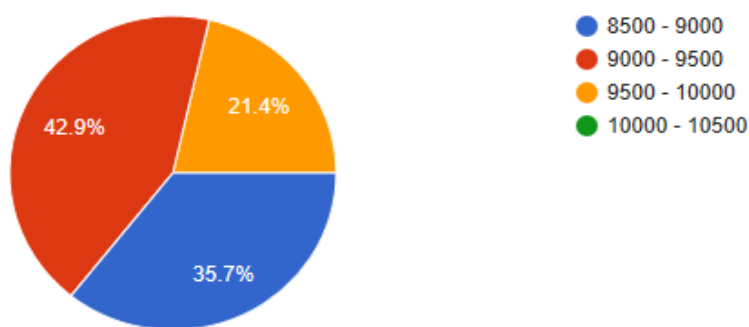


Figure 6.

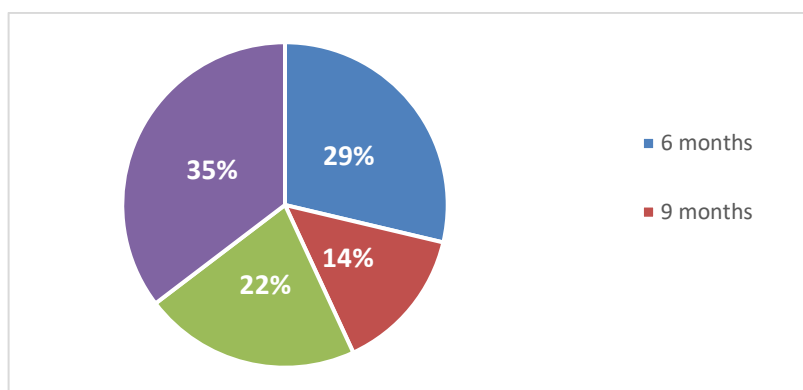


Figure 7.

Table I. Weekly Change in stock market due to Ebola

| China | Hang Seng | Dow Jones | Nifty50 |
|-------|-----------|-----------|---------|
| - | - | - | - |
| 1.83% | 2.09% | 1.65% | -1.46% |
| - | - | - | - |
| 5.07% | 1.87% | 2.96% | 1.72% |
| 0.79% | 1.89% | 1.59% | 0.63% |
| - | - | - | - |
| 0.86% | 1.83% | 0.05% | -1.63% |
| - | 0.13% | - | -0.64% |

| | | | |
|-------|-------|-------|--------|
| 3.35% | | 0.20% | |
| - | | | |
| 0.41% | 1.26% | 0.13% | 1.46% |
| 2.47% | - | - | 0.08% |
| - | - | - | |
| 1.04% | 1.85% | 1.14% | -2.83% |
| 0.56% | 1.81% | 0.61% | -0.43% |
| 3.49% | 3.06% | 2.28% | -0.24% |
| - | | - | |
| 0.10% | 1.21% | 0.32% | 1.77% |
| - | | | |
| 2.72% | 1.19% | 1.36% | 1.97% |
| 0.08% | - | 0.80% | 3.98% |
| - | - | - | |
| 2.60% | 4.95% | 2.35% | -0.34% |
| 2.16% | - | 1.48% | -0.17% |
| - | 0.48% | | |
| 0.29% | 2.93% | 0.12% | 3.12% |
| 0.84% | 2.01% | 0.55% | -0.02% |
| 3.48% | 2.19% | - | |
| - | - | 2.35% | 1.22% |
| 1.54% | 1.06% | 2.38% | 0.05% |
| - | - | - | |
| 2.92% | 2.36% | 0.29% | 0.05% |
| - | | | |
| 0.50% | 0.17% | 0.93% | -1.30% |
| - | - | | |
| 0.75% | 1.79% | 0.43% | 2.45% |
| 0.76% | 3.89% | - | |
| | | 0.55% | 5.02% |
| 0.40% | 1.11% | 0.70% | 2.28% |
| 0.23% | 0.50% | 0.56% | -1.86% |

Table II. Total Change in stock market due to Ebola

| China | Hang Seng | Dow Jones | Nifty50 |
|-------|-----------|-----------|---------|
| - | | | |
| 8.85% | -2.79% | 4.24% | 15.50% |

Table III. Weekly Change in stock market due to SARS

| China | Hang Seng | Dow Jones | Nifty50 |
|--------|-----------|-----------|---------|
| | | | |
| 0.76% | 3.86% | 0.23% | 4.27% |
| -3.84% | 0.97% | 0.49% | -0.84% |

| | | | |
|--------|-------|-------|--------|
| -4.66% | 2.02% | 2.63% | 4.49% |
| 2.77% | 0.05% | 1.04% | 2.94% |
| -2.00% | - | - | 4.06% |
| -0.61% | 0.95% | 2.81% | 4.06% |
| - | - | - | - |
| -0.61% | 2.46% | 2.45% | -0.87% |
| - | - | - | - |
| 2.22% | 1.03% | 0.92% | 1.87% |
| - | - | - | - |
| -3.15% | 1.91% | 2.44% | -0.23% |
| -4.56% | 1.47% | 3.59% | 1.48% |
| 4.92% | 1.44% | 2.13% | -0.70% |
| - | - | - | - |
| 6.77% | 1.10% | 2.26% | -0.98% |
| - | - | - | - |
| 0.03% | 1.60% | 5.31% | 0.24% |
| - | - | - | - |
| 1.40% | 2.13% | 0.95% | -3.60% |
| - | - | - | - |
| 0.00% | 1.17% | 2.35% | 1.70% |
| 0.74% | 0.56% | 0.57% | -0.63% |
| -2.12% | 0.53% | 1.38% | 0.92% |
| - | - | - | - |
| 2.24% | 1.39% | 1.58% | 1.13% |
| - | - | - | - |
| -1.25% | 2.36% | 1.91% | -1.06% |
| -1.81% | 0.55% | 1.55% | -4.93% |
| 0.59% | 2.49% | 8.43% | -1.36% |
| - | - | - | - |
| 1.17% | 3.44% | 4.41% | 2.10% |
| - | - | - | - |
| 1.96% | 0.46% | 1.61% | -3.52% |
| - | - | - | - |
| 3.66% | 2.00% | 0.89% | 5.45% |
| - | - | - | - |
| 1.66% | 0.77% | 1.64% | -7.78% |
| - | - | - | - |
| -7.23% | 1.98% | 0.38% | -0.42% |
| 2.31% | 3.67% | 3.33% | -1.87% |

Table IV. Total Change in stock market due to SARS

| China | Hang Seng | Dow Jones | Nifty50 |
|-------|-----------|-----------|---------|
| 0.71% | -7.34% | 0.77% | 0.74% |

Table V. Weekly Change in stock market due to Coronavirus

| China | Hang Seng | Dow Jones | Nifty50 |
|-------|-----------|-----------|---------|
| 1.91% | 4.49% | 0.43% | 1.39% |
| 1.26% | 0.66% | 1.14% | 1.53% |
| 0.00% | 1.27% | 0.67% | -0.21% |

| | | | |
|-------|--------|---------|--------|
| 2.62% | 0.80% | -0.04% | -0.16% |
| 0.28% | 0.66% | 0.66% | 0.25% |
| - | 1.46% | 1.82% | 0.78% |
| 0.54% | -3.81% | -1.22% | -0.84% |
| - | -5.86% | -2.53% | -2.34% |
| 3.22% | 4.15% | 3.00% | 1.14% |
| - | 1.50% | 1.02% | 0.12% |
| 1.43% | -1.82% | -1.38% | -0.27% |
| 4.21% | -4.32% | -12.36% | -7.28% |
| - | 5.35% | 1.79% | -1.90% |
| 5.24% | 0.06% | -10.36% | -9.41% |
| 4.85% | -8.08% | -17.30% | - |
| - | -5.11% | 12.84% | -0.97% |
| 4.91% | -1.06% | -2.70% | -6.66% |
| 0.97% | 2.98% | 12.67% | 12.72% |
| - | 0.30% | | |
| 0.30% | -1.06% | -2.70% | -6.66% |
| 1.18% | 4.58% | 12.67% | 12.72% |

Table VI . Total Change in stock market due to Coronavirus

| China | Hang Seng | Dow Jones | Nifty50 |
|--------|-----------|-----------|---------|
| -3.96% | -8.29% | -15.33% | -23.57% |

7. CONCLUSION

To conclude, somewhere down the line yes epidemics and pandemic both has an impact on the stock market of the country. Though we see recovery in China stock market in 9 Months, in Hong Kong stock market in 8 months while 3.1 months and 3 months were taken by US stock market and Indian stock market respectively during the Ebola. While during SARS recovery in China stock market was seen in 6 months, in Hong Kong stock markets was 7 months and 6 months for US stock market along with Indian stock market. We see that recovery during Ebola was comparatively quicker it may be due to not much spread of it. By taking the survey we could see that the recovery period is assumed to be more than 1.5 years for Nifty 50 i.e Indian stock market. We also see that there are chances of India’s GDP to fall by more than 2% for 2020-21.

Economic factors, fundamentals, news, tips and a lot of things impact the stock market along with these factors sudden outbreak of disease also plays a vital role while setting the trend of the market. This happens due to loss of lives, loss of confidence, fear of losing things, shift in the cost i.e more towards healthcare which makes traders emotional leading to major sell off of their shares creating a sudden downfall in the market.

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