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EBUS633: Big Data Analytics for Business Assignment-II

Topic: How market reacted to US Election 2020?

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**CONTENT:**

1.Introduction……………………………………………………………………………………………............3

2.Hypothesis Development…………………………………………………………………………………...4

3.Event Study………………………………………………………………………………………………………….5

4.Intergroup Comparison………………………………………………………………………………….…...6

5. Discussion and Conclusion………………………………………………………………….………..…….8

6. References……………………………………………………………………………………………………..….9

**INTRODUCTION:**

On 3rd November 2020 election for 59th presidential election was held. Since 1900, this election had highest percentage of voter turnout. As per various articles market reacted positively to the news of Joe Biden elected as president. The Dow Jones Industrial average closed with again over 500 points, which is second best election day ever. The frequency of gain in last month of election year was higher than the historical average. (Rosenbaum, 2020) It was said that market returns outperformed in Biden’s presidency election compared to his predecessors. The election was an historic event in many ways, and this is the reason this topic for this research was chosen. More than 100 companies stock prices were analysed in the report which included different pharma, infrastructure real estate and IT companies. These sectors had significant impact from US Election2020.Therefore, these companies were selected as sample companies.

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Report will answer the following question:

1. What was the overall impact of US Election2020 on stock market returns?
2. Did US election2020 have a negative impact on pharmaceutical companies?
3. Did US election2020 have a positive impact on construction and renewable energy companies?

**HYPOTHESIS DEVELOPMENT:**

The 3 hypothesis for US Election 2020 impact on stock market are:

H1: US Election 2020 had a positive impact on stock market returns. (Brittany Labadie et al., 2020). This could because US Election 2020 held with backdrop of COVID19 and its devasting impact on economy. It was believed with US Election 2020 there would be policy change without the risk of tax hikes, regulation, and more aggressive Fed. (Song and Zhou, 2020). Also, Biden was expected to be less aggressive with trade. Market spooked due to trump’s frequent use of tariff have hurt corporate profit. Hence, there was a premature wall’s street celebration. (Business, 2020)

H2: Pharmaceutical companies stock market return had a negative impact of US Election 2020. (Philipson and Durie, 2021). The price control proposal by the party was not well received by the pharmaceutical companies. Price cuts has impact on future drug revenue on R&D spending eventually leading to fewer new drug approvals. Overall profit and revenue of these companies will be impacted. (Giaccotto, Santerre and Vernon, 2005)

H3:US Election 2020 had a positive impact on manufacturing companies. Joe Biden is expected to go easy with china trade and expected to support subsidies in exchange of strict regulation and higher taxes.Biden is promising a lot to invest in manufacturing sector in terms of federal R&D and manufacturing R&D. Biden is also promises to increase domestic manufacturing and create more jobs. His easy take on trade would help small manufactures. (Ryan Secard, 2020)

**EVENT STUDY:**

To study the impact of US Election2020 on companies’ stock market returns following setting were configured:

Risk Model: French-Fama-Three-Factor-Model

Estimation Window:100 days

Event Window:21 days (10 days before the event to 10 days after the event).

Event Window is chosen as 21 days because 10 days before the event like election is usually an intense atmosphere with very high market sentiments. So, it important to understand if there is any panic before the event and 10 days after the event to observe how market has absorbed the event and aftermath of event .Also ,many announcement were made during this period with contributed to intensity of the whole scenario. (CHAVALI, ALAM and ROSARIO, 2020)

French-Fama-Three-Factor-Model risk model is chosen because common variation in stock market return is better captured by this model than CAPM. (Bahl, 2006). Estimation Window is selected has 100 days as longer period ensure high precision of data. (Ulkem Basdas and Adi Oran, 2014)

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From the table it can be observed that p-value for 21 days is more than 0.05 which means the results are not significant and variations are random. Hence, H1 is rejected. From the table we can see that before the event there is drop which could be because of panic among the people but on the event day and 10 days later data appears to be stable this can be seen in the graph. Graph looks stable with slight dip before day 0.

Following could be the possible reasons:

US Election 2020 happened in backdrop of Covid19. COVID 19 had devasting impact on market and global economy due to lockdown and other reasons. Federal Reserve and its lending facilities helped pushing market upwards. $2.3 trillion loan was given by federal reserve. There were several other announcements by federal reserve which aided in Stock market recovery might reasonably be rationale behind the good news. (Didier et al., 2021)

Other reason could Covid19 vaccine announcement as vaccines presence boosted investors’confidence and improved stock market performance. After the widespread news of vaccine development in 2nd quarter 2020. In July many private and public agencies competed to produce covid vaccine. This gave a major boost to the market.US market had depreciated to 40%-50% since February-March 2020 had strongly recovered within 6 months. (Hartono, 2021)

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**INTERGROUP COMPARISON:** For Intergroup comparisons different sectors were considered like manufacturing sector and pharmaceutical sector and overall impact was evaluated. CAR was the test variable for intergroup comparison for both sectors.

**H2:** The sample of companies were divided into 2 groups based on SIC codes. Pharma group had 12 companies and non-pharma group had 77 companies. Mean CAR of Pharma companies is -. 017180.As per hypothesis pharma companies had a negative impact of US Election2020 due drug price control policy and other restrictions. As per Levene’s Test for Equality of Variances Value for Equal variances assumed sig is .102 >0.05. So, we will consider Equal variances not assumed and p value .0870 >0.05. Hence, our result is not significant so H2 is rejected.

The reason could be even though due to covid19 there was huge demand for pharmaceutical companies and with vaccine announcement the investors were optimistic investing, but the overall impact was negative because of paradoxical spiral effect which actions that provoke negative impact in interconnected sectors. Even though pharmaceutical companies like Pfizer and Moderna made significant contribution with their vaccine solution to COVID19 crisis but due to unequal impact of volatility and market sentiment overall result was different than expected. (Piñeiro-Chousa et al., 2022)

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Group | N | Mean CAR | Mean CAR Difference | t-value | p-value |
| Pharma | 12 | -.017180 | .0399142 | .165 | .870 |
| Non-pharma | 77 | -.021161 |

**H3:** The sample of companies were divided into 2 groups based on SIC Codes. Mean CAR for manufacturing companies is -0.14866 and mean CAR difference for two group is 0.0131395. As per Levene’s test for equality of variances sig value for equal variances assumed is 0.172. So, we will look at the values for equal variances not assumed and p value is 0.633 which more than 0.05. Hence, it is not significant, and this hypothesis is rejected.

The reason for stock price increase during that period after suffering crash from covid could be various initiatives taken by Fed like zero interest rates, various relief packages which helped manufacturing company stock prices rebound and market grew by end of year 2020 with Dow jones gain 6.6% and S&P 500 gained 15.6% (Frazier, 2021)

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| --- | --- | --- | --- | --- | --- |
| Group | N | Mean CAR | Mean CAR Difference | t-value | p-value |
| Manufacturing | 50 | -.014866 | .0131395 | 0.479 | 0.633 |
| Non-manufacturing | 39 | -.028006 |

Final Table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Group | N | Mean CAR | Mean CAR Difference | t-value | p-value |
| Pharma companies | 12 | -.017180 | .0399142 | .165 | .870 |
| Non-Pharma | 77 | -.021161 |
| Manufacturing | 50 | -.014866 | .0131395 | 0.479 | 0.633 |
| Non-Manufacturing | 39 | -.028006 |

**DISCUSSION AND CONCLUSION:** In the report all the three hypotheses were rejected as results were not significant which means US ELECTION2020 did not impacted the market. The factors which influenced the market were the initiatives taken by Fed and vaccine announcements. For pharma companies’ paradoxical spiral effect could be observed. As per different papers and articles it was mentioned that wall street had premature celebration and past papers also highlighted the factors which influenced market during the period. This is similar to the reasons of result which were obtained after analysis in this report.

LIMITATIONS:

* The data of companies available in Russel index 1000 were very limited. Due to this sample companies were limited and different sectors like construction sectors couldn’t be analysed.
* Limited factors were considered during analysis which means analysis given in this report cannot be claimed very accurate as there could be many factors affecting analysis couldn’t be considered.

FUTURE IMPLICATION:

* Future election can be analysed well in advance. If due to elections or other factors there is negative impact then government initiative, policy or strategies can be planned accordingly for recovery of negatively impacted sector.

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