Video Gaming in the Pandemic

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Introduction

- Covid-19 affected many industries
- Positive effect on the Video Game Industry
- We examine trends before and after Pandemic in US
- March 1st, 2020 is our start date for Pandemic

Methodology

Initial Hypotheses:

- 1: Covid caused an increase in concurrent players
- 2: Covid caused an increase in stock growth for gaming companies

Gathered daily data from:

- Steam Database - Concurrent Players
- CDC - daily Covid cases and concurrent infected
- Yahoo Finance - Stock value

Gathered daily data for 18 months prior to and 18 months following the onset of Covid.

Hypothesis 1

- To test our first hypothesis, performed t-test on Steam data
- Comparing concurrent users before and after Covid

Statistic	Value
t	-73.847
df	546
p-value	$< 2.2e\text{-}16$

Table 1: Users Before and After.

- Suggests significant difference in mean of data sets
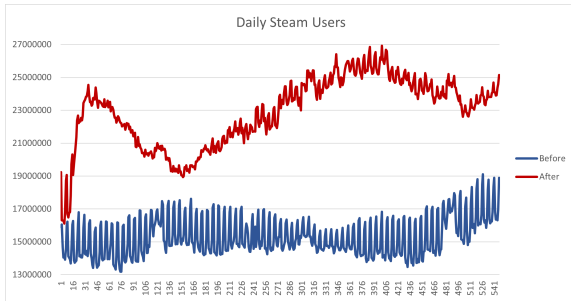- Graph 1 further supports first hypothesis

Steam Users

Figure 1: Steam users before and after pandemic

Hypothesis 2

- To test our second hypothesis, performed t-test on Stock data
- Comparing stock price growth before and after Covid

Statistic	Value
t	-0.90194
df	371
p-value	0.3677

Table 2: Stock Growth Before and After.

- This indicates stock growth is not significantly different before and after Covid.
- Further analysis on companies with stronger focus on gaming needed.
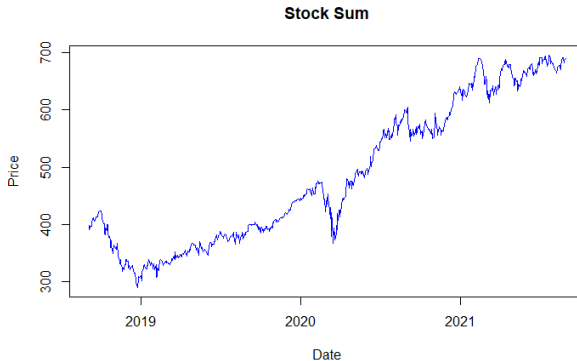
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Stock Prices

Figure 2: Video Game Industry Stock

Hypothesis 3

- Hypothesis 3: Current cases are positively correlated to current players
- We use a Pearson Correlation test on current Covid cases and current players

Statistic	Value
Correlation Coefficient	0.3140215

Table 3: Covid Cases and Current Players

- This indicates a weakly positive correlation between current cases and current players

Hypothesis 4

- To test our fourth hypothesis, performed t-test on Nintendo data
- Comparing stock price growth before and after Covid

Statistic	Value
t	-0.5206
df	748.74
p-value	0.6028

Table 4: Nintendo Growth Before and After.

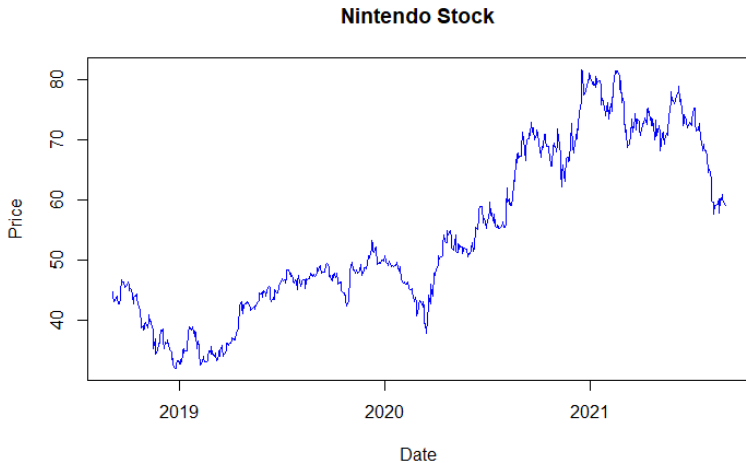- This indicates that Nintendo growth is not significantly different before and after Covid.

Figure 3: Nintendo Stock Prices

Hypothesis 5

- To test our fifth hypothesis, performed t-test on Sony data
- Comparing stock price growth before and after Covid

Statistic	Value
t	-0.73053
df	747.02
p-value	0.4653

Table 5: Sony Growth Before and After.

- This indicates that Sony growth is not significantly different before and after Covid.
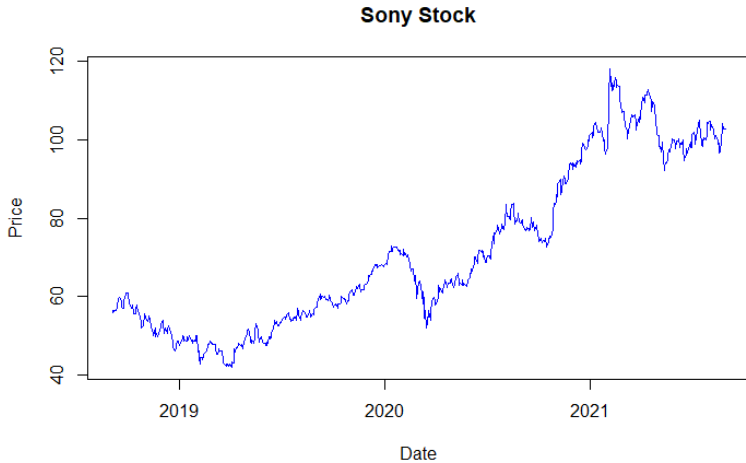
Figure 4: Sony Stock Prices

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Hypothesis 6

- To test our sixth hypothesis, performed t-test on Microsoft data
- Comparing stock price growth before and after Covid

Statistic	Value
t	-0.22533
df	743.99
p-value	0.8218

Table 6: Microsoft Growth Before and After.

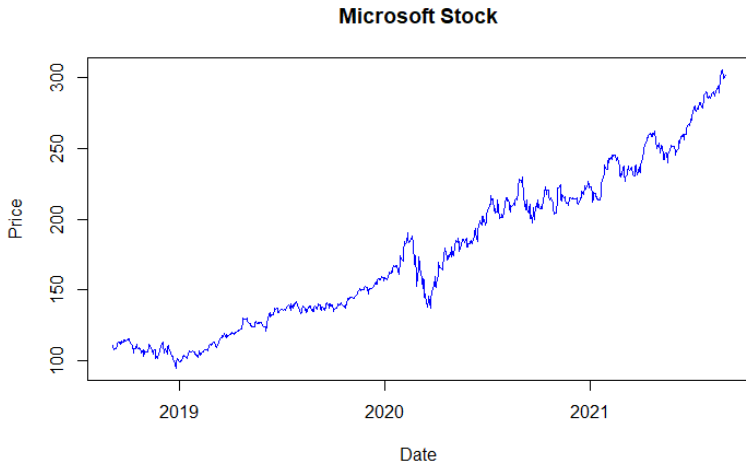- This indicates that Microsoft growth is not significantly different before and after Covid.

Figure 5: Microsoft Stock Prices

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Hypothesis 7

- To test our seventh hypothesis, performed t-test on EA data
- Comparing stock price growth before and after Covid

Statistic	Value
t	0.55057
df	734.1
p-value	0.5821

Table 7: EA Growth Before and After.

- This indicates that EA growth is not significantly different before and after Covid.
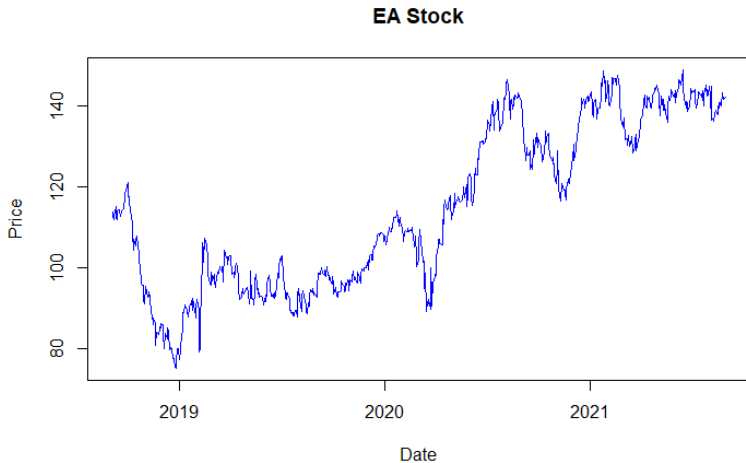
Figure 6: EA Stock Prices

Hypothesis 8

- To test our eighth hypothesis, performed t-test on Activision data
- Comparing stock price growth before and after Covid

Statistic	Value
t	-0.71769
df	742.86
p-value	0.4732

Table 8: Activision Growth Before and After.

- This indicates that Activision growth is not significantly different before and after Covid.
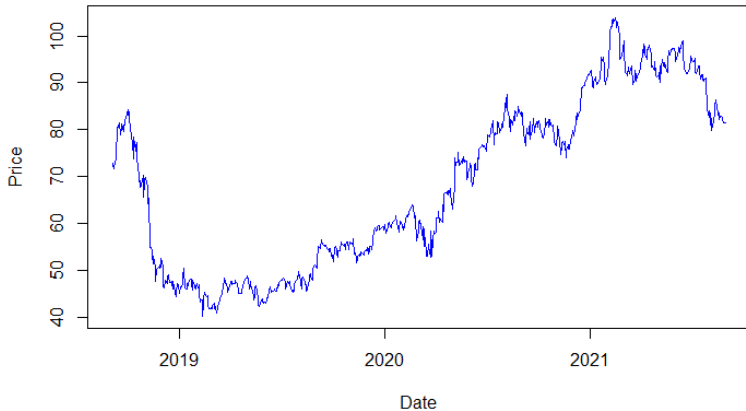
Figure 7: Activision Stock Prices

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Conclusions

- Evidence strongly suggests Covid caused a surge in players
- A loose correlation exists between current cases and current players
- The rate of change in stock prices seems to be the same, however there still appears to be a distinct increase in stock value after the advent of Covid.

This suggests that entering the pandemic introduced many new people to gaming, and this increase will likely not fall back to precovid levels when the pandemic ends.

Limitations

Steam Databases was used for two reasons:

- PC gaming is the most comprehensive source for players
- Steam is the largest and most popular platform for PC gamers

Therefore, as a standalone source Steam is the most representative of player trends. However, conclusions would be more accurate with more sources of data on player data.

Further Research

- Stock analysis should continue with different representative groups from the gaming industry.
- Group trends, such as gender distribution, should be analyzed before and after pandemic.
- Determine if stock prices surged up after Covid began significantly.

Sources

- https://steamdb.info/
- https://finance.yahoo.com/
- https://covid.cdc.gov/covid-data-tracker/datatracker-home

Questions?