

# Covid-19's Impact on US Tech Stocks

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# Big Picture Question

How have American tech stocks performed during the Covid-19 pandemic?

- Covid-19 was a Black Swan Event
- Markets plunged and some feared a 1929-style crash was in progress
- Despite a significant initial drop, markets quickly recovered, despite the ongoing pandemic
- This represents a unique historical event, worthy further analysis
- **Our analysis focuses on the technology sector**



# Stock Picking Criteria

- **Blue Chip**
  - Defined (for purposes of our analysis) as the 5 largest market cap companies in the tech sector
- **Newcomers**
  - Defined (for purposes of our analysis) the top 5 tech stocks by market cap that IPO'd between 2018-2019
- **Special Purpose Acquisition Company ("SPAC")**
  - We also included 5 SPAC's for our analysis
  - Also known as a "blank check company" is a shell corporation listed on a stock exchange with the purpose of acquiring a private company, thus making it public without going through the traditional IPO process

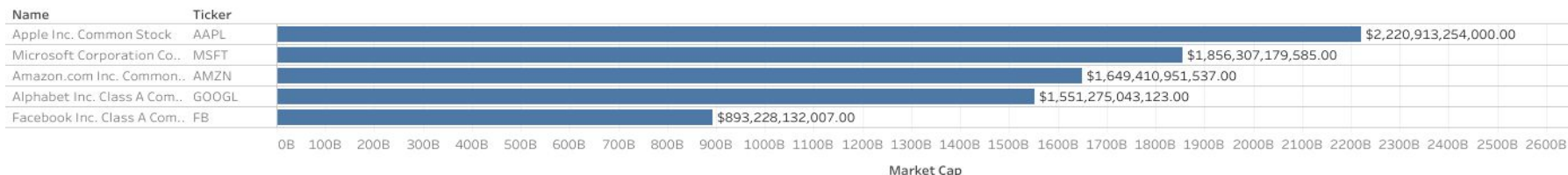
# Stock pick criteria



We picked out stocks based on 2 criteria:

- Tech sector
- Top 5 Market Cap

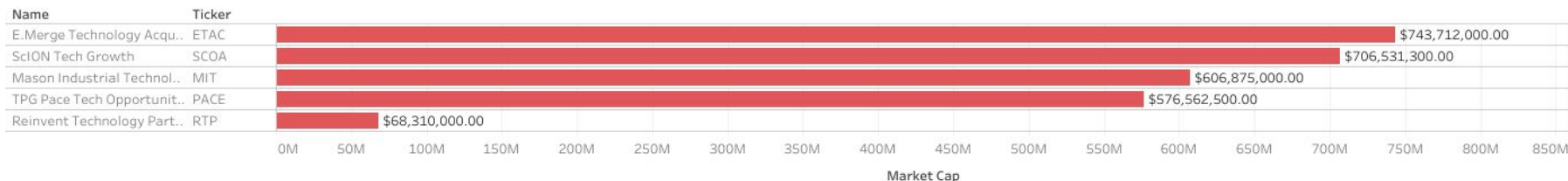
## Blue Chip by Market Cap



## IPO by Market Cap



## Spac by Market Cap





## Do Blue Chip stocks have any advantage in forecasting prices with Machine Learning as opposed to newer companies (IPO after 2018)?

- Hypothesis: Blue Chip stocks will have more accurate predictions due to lower volatility



Newly IPOed





# Machine Learning

## ARIMA/ARMA tests

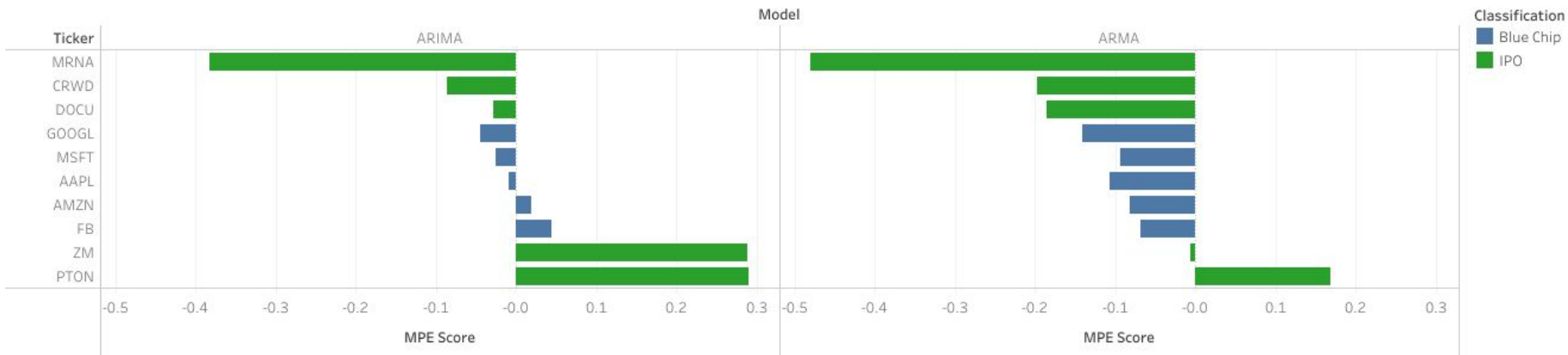
- Example of 2 models ran for each stock
- Each model resulted in a MSE score and an MPE score





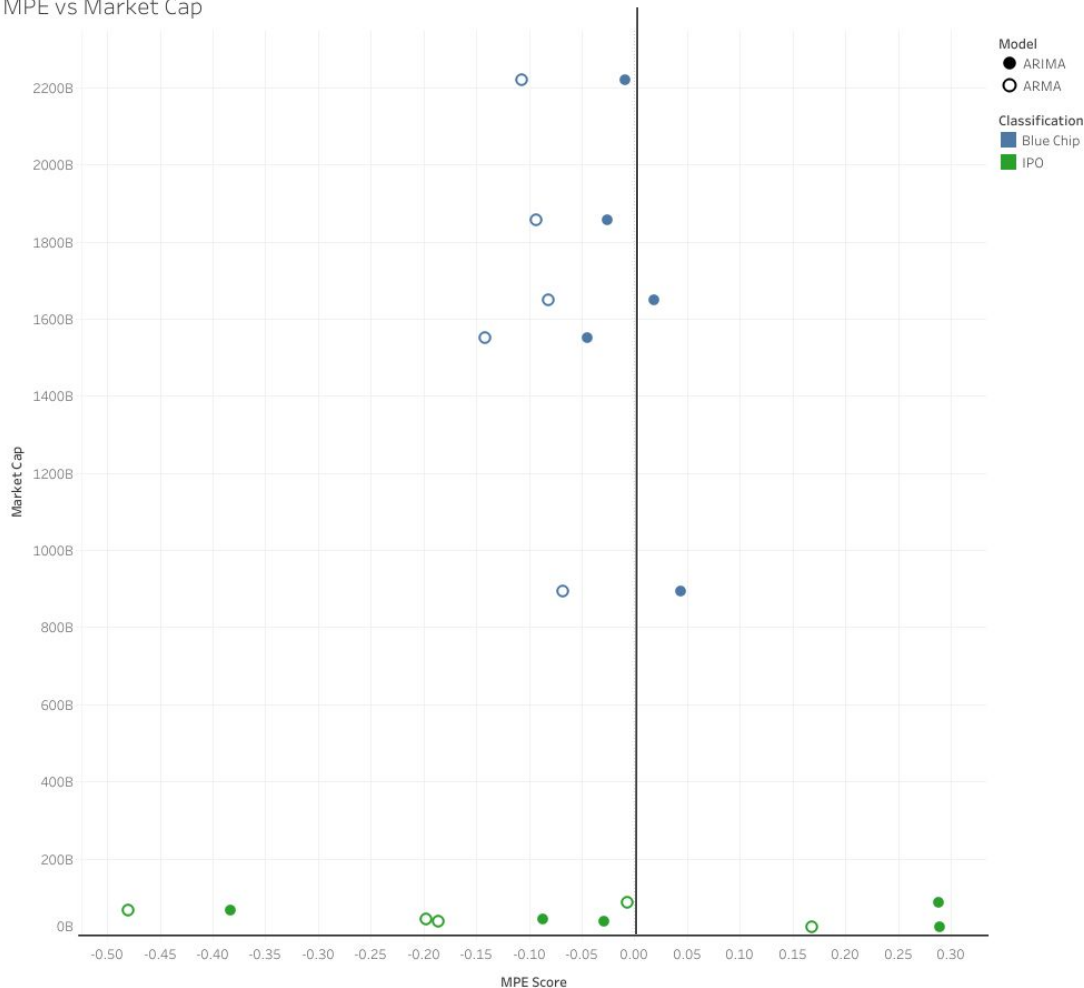
# Machine Learning

MPE Score Distribution





- We can see the results of our MPE scores plotted against the market cap of each company
- As hypothesized we see more accurate results from Blue Chip companies.







## Have SPACs overtaken IPOs for investor returns in the tech sector?

Hypothesis: Despite the buzz around SPACs, they have generated less return for investors than IPOs because this alternate method of going public signals to markets some underlying issue in the company's fiscal health.



## Changes over Time - IPOs

Ticker	Market Cap 1/4	Market Cap 5/7	Change
ZM US Equity	102956.82	86936.45	-16020.37
MRNA US Equity	44212.69	65509.2588	21296.5688
CRWD US Equity	44361.167	42352.905	-2008.262
DOCU US Equity	41492.1241	37992.9183	-3499.2058
PTON US Equity	42698.0328	24999.9592	-17698.074

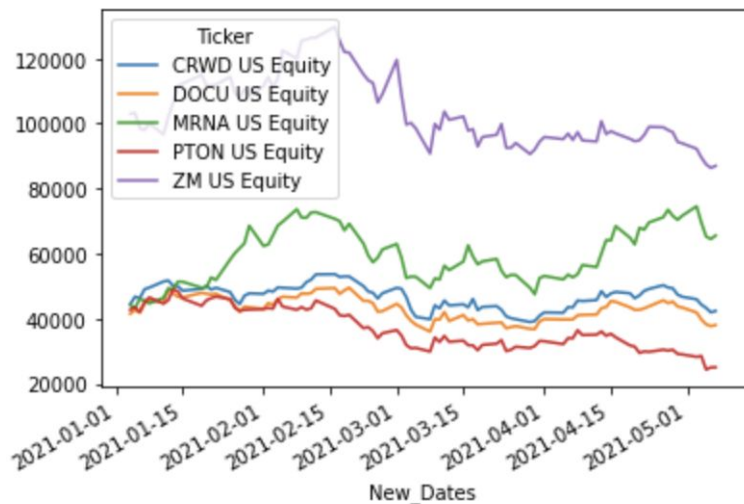


## Changes over Time - SPACs

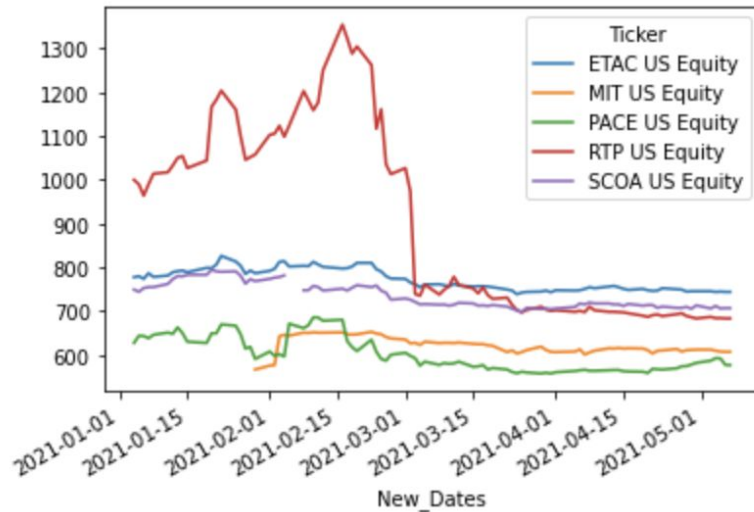
Ticker	Market Cap 1/4	Market Cap 5/7	Change
RTP US Equity	999.64	683.1	-316.54
MIT US Equity	566.4375	606.875	40.4375
ETAC US Equity	777.24	743.712	-33.528
SCOA US Equity	748.9375	706.5313	-42.4062
PACE US Equity	627.1875	576.5626	-50.6249



# IPOs



# SPACs



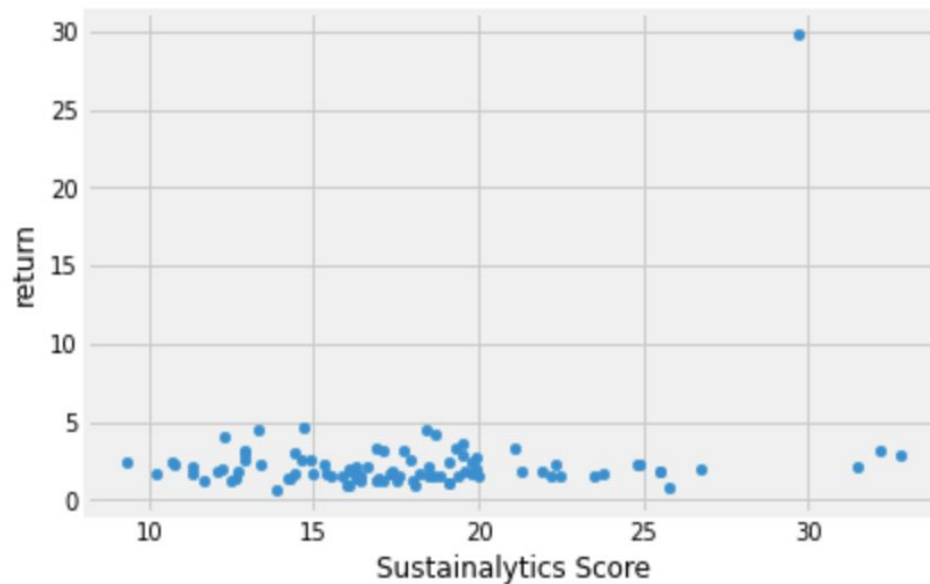


Have tech stocks with higher ESG scores generated higher returns during the Covid-19 pandemic?

- Hypothesis: companies with better ESG scores (environmental, social, governance) have performed better during the Covid-19 pandemic.



## Two different ESG scores vs. returns

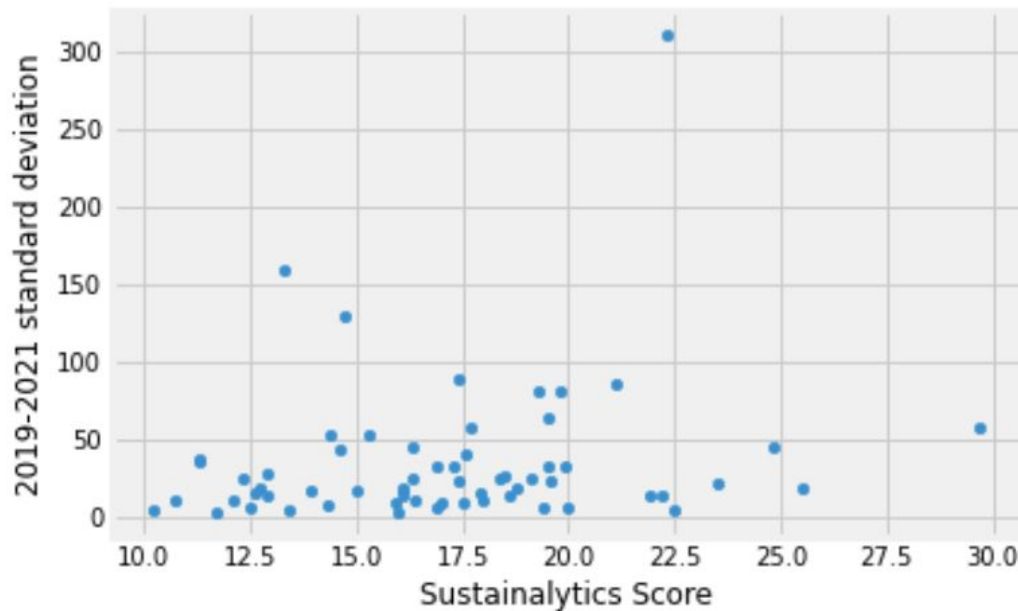


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The bigger the bubble,  
the higher the relative  
return



# ESG Scores vs. Standard Deviation

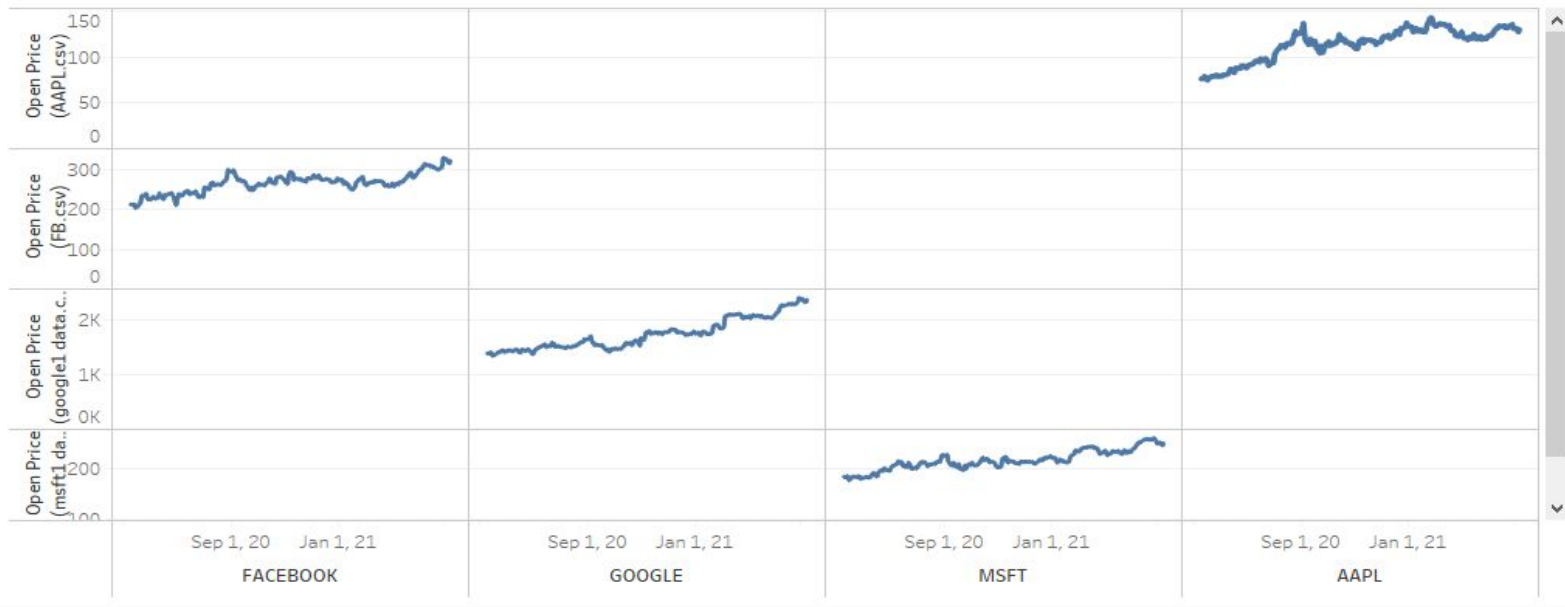




# Have tech stocks outperformed other sectors since the beginning of the Covid-19 pandemic?

- Hypothesis: the large cap stocks in the tech sector have outperformed stocks in other industries during the Covid-19 pandemic

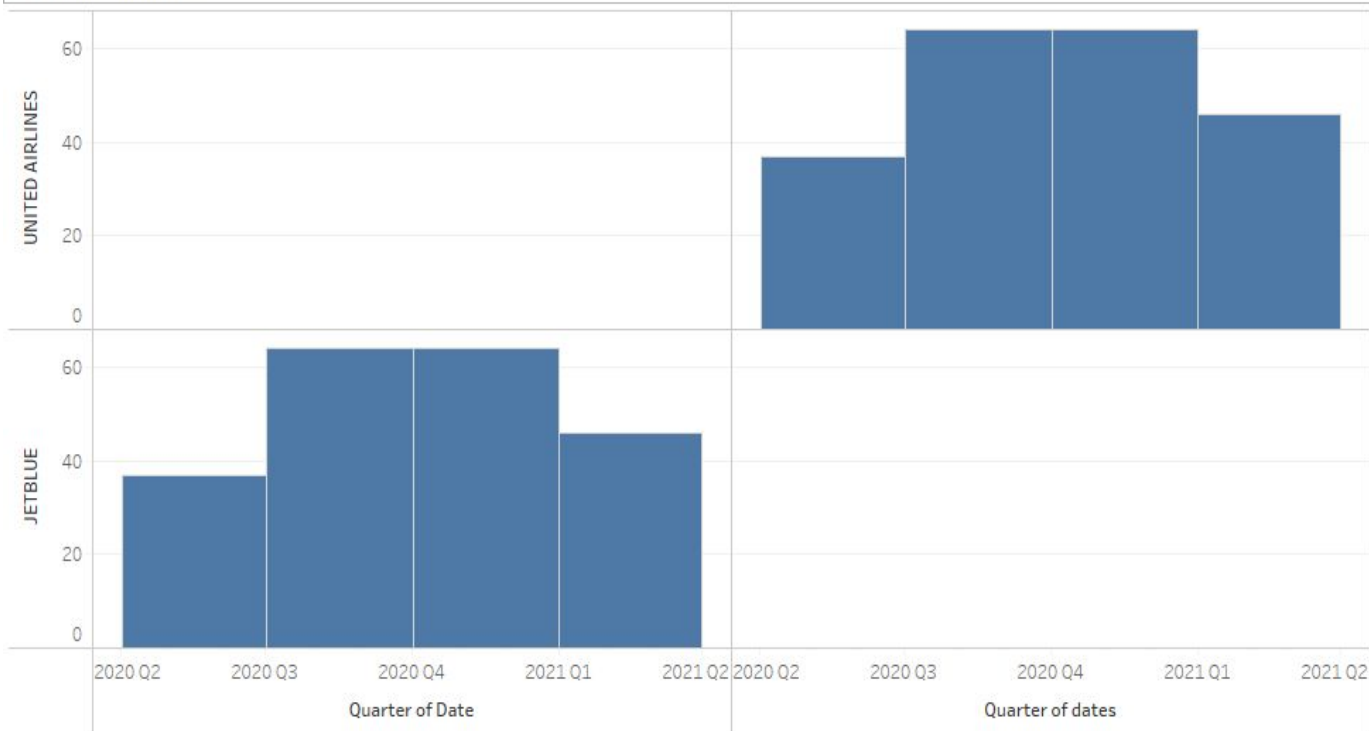
## Tech Stocks





# Airline Stocks

Airline Stocks





## Summary

- Tech has been a solid investment for the Covid era
- Blue chip tech stocks performed better than recently IPO'd stocks
- Despite their popularity, tech IPOs outperform tech SPECS



# Data sources

- Yahoo Finance - <https://www.finance.yahoo.com/>
- FactSet
- MSCI
- Sustainalytics
- Bloomberg
- Nasdaq - <https://www.nasdaq.com/market-activity/stocks/screener>