



# **A DEEPER DIVE INTO A TRILLION DOLLAR STOCK EVALUATION**

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# INTRO

Apple is a prominent hardware and software company that has benefitted from its innovative marketing strategies for its products. Since the company's inception in 1976 it has continuously seen growth in pushing the boundaries of new ideas in the technological space which has changed the culture of people.

Apple went public with its stock December of 1980 and was one of the highest valued openings of its time. This rare feat doesn't stop there as Apple has been labeled as the first company in history to hit \$1 trillion in 2018 due to its high stock evaluation.



# ORIGINAL ASSUMPTIONS:

What may be a contributing factor to the rising stock price of Apple?

## QUESTION:

Is there a correlation between Apple monthly stock prices and the monthly trend of disposable income in the U.S.?

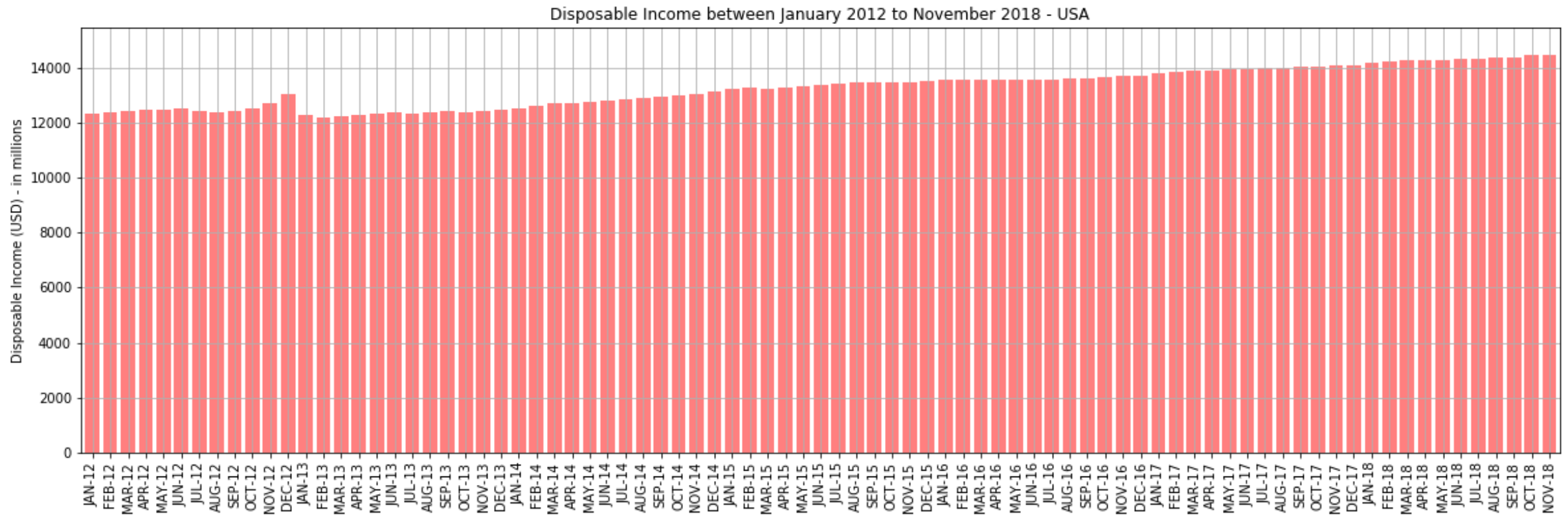
## Expected Outcome:

As disposable income adjust over time (increase or decrease), the stock price will correspond in similar fashion.



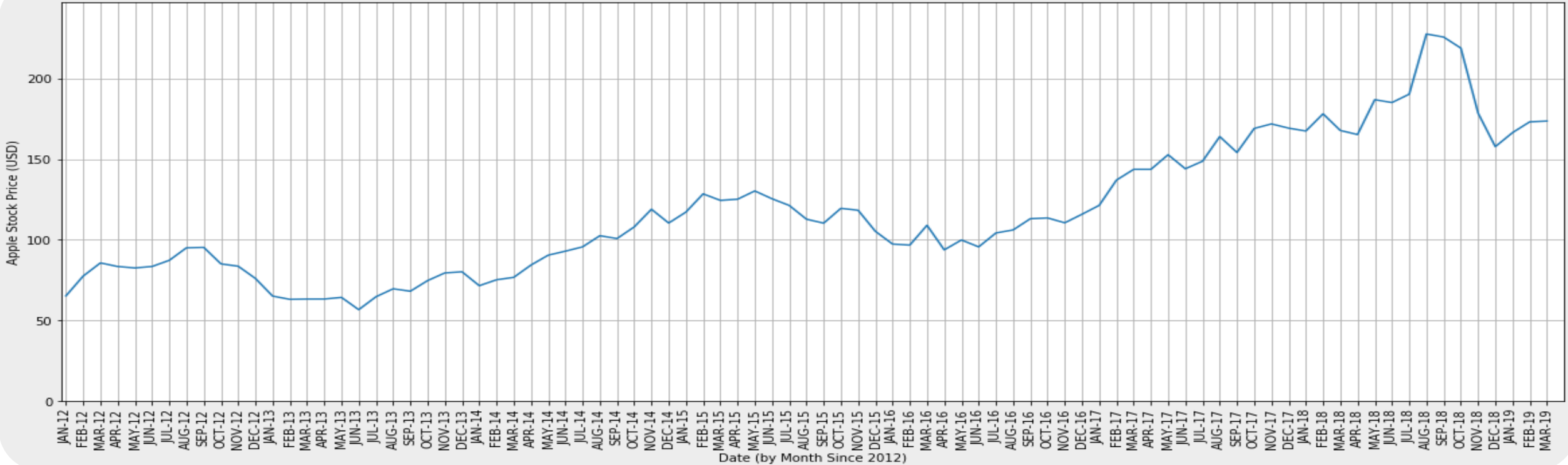


# Disposable Income Timeline

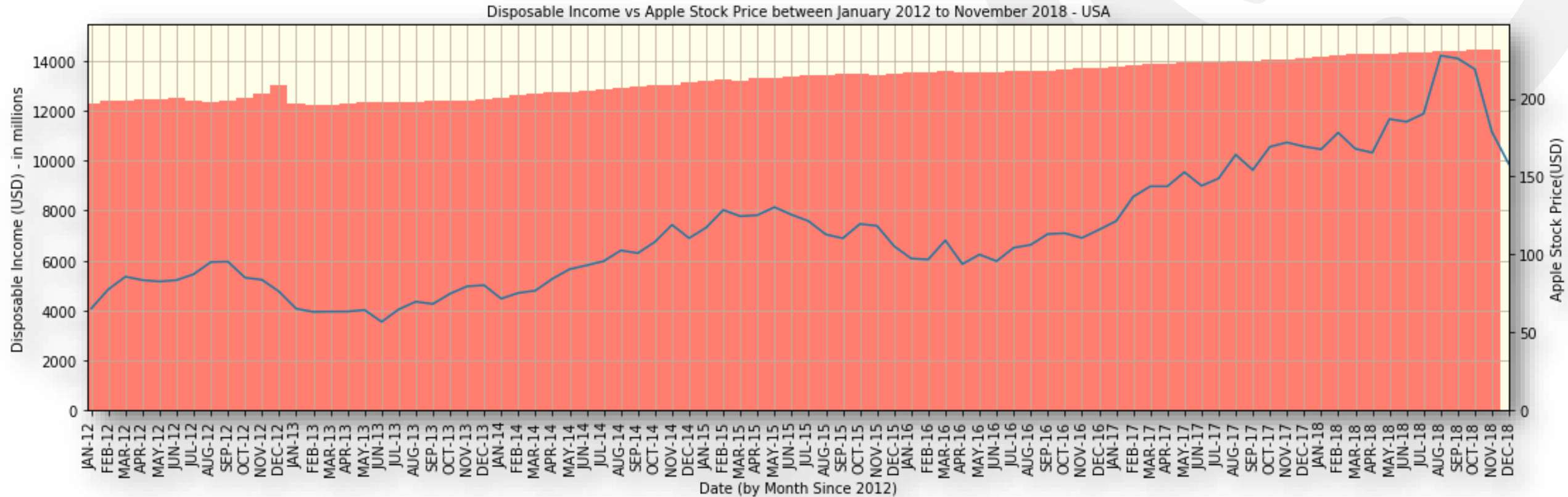


# Apple Stock Timeline

Apple Stock Price Between January 2012 to December 2018



# Apple Stock vs U.S. Disposable Income



# Hypothesis

- Null Hypothesis – the means of the price of the closing dates will be no different among the two group of stock dates (non-keynote dates and keynote dates)
- Alternative Hypothesis – The means of the closing prices of the two groups will differ significantly from each other

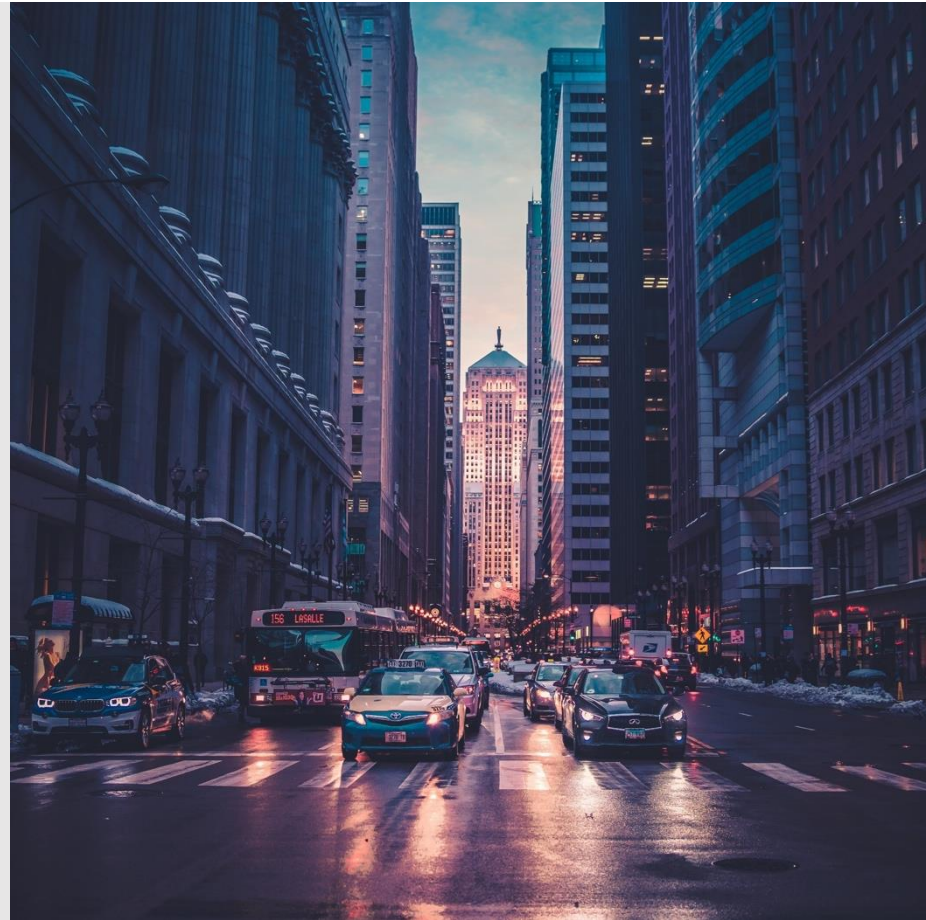


# How Does a Big Announcement Affect the Stock?



## Apple Stock Data

- Utilized an API to pull stock data
- Dates 2012 – 2018
- Daily feed, converted to monthly
- Utilized closing price to plot



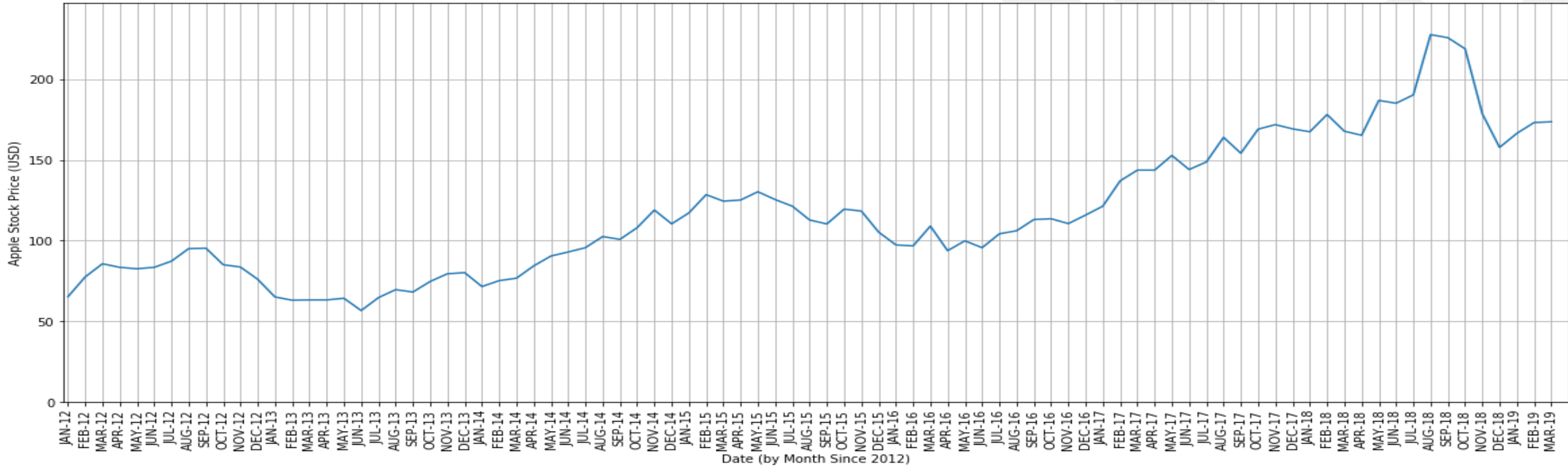
## Keynote Announcement

- Utilized a CSV file to pull in Announcement dates
- 29 Announcements which correspond over the same time frame as stock data

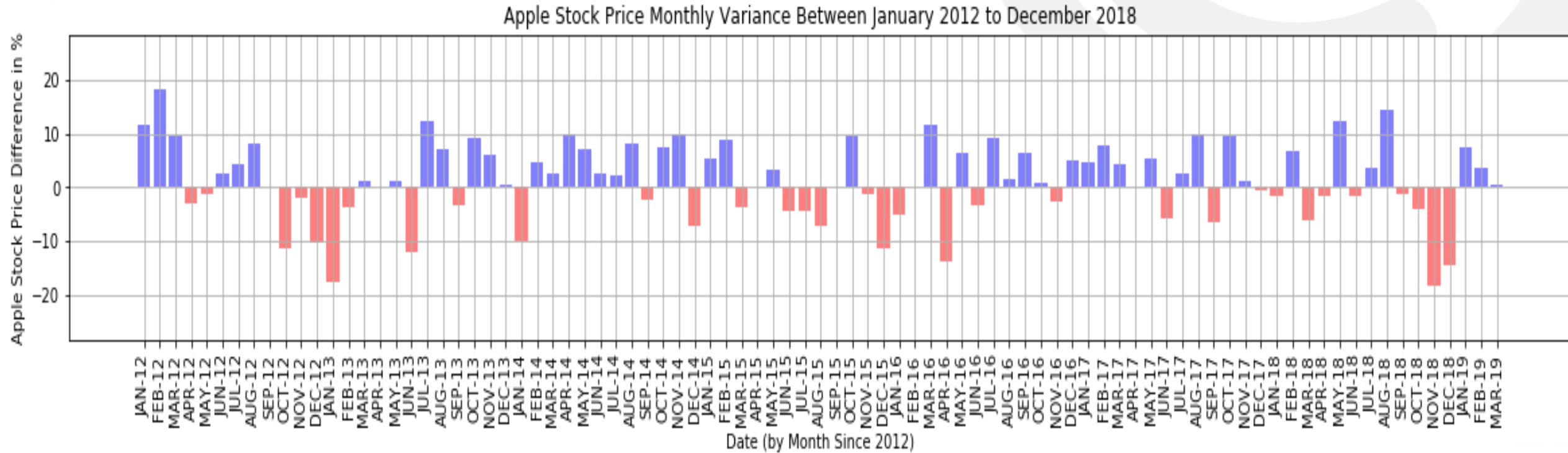


# Apple Stock Data Explored – Line Graph

Apple Stock Price Between January 2012 to December 2018

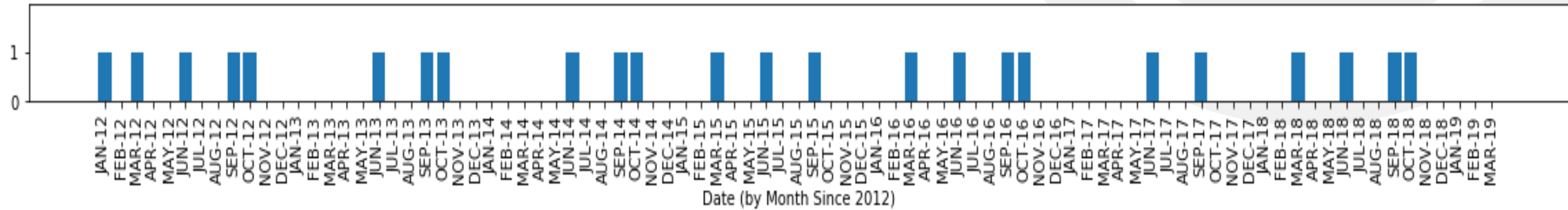


# Apple Stock Data Explored – Variance Graph



# Keynote Announcement Dates Data Explored –

Apple Keynote Events Between January 2012 to December 2018

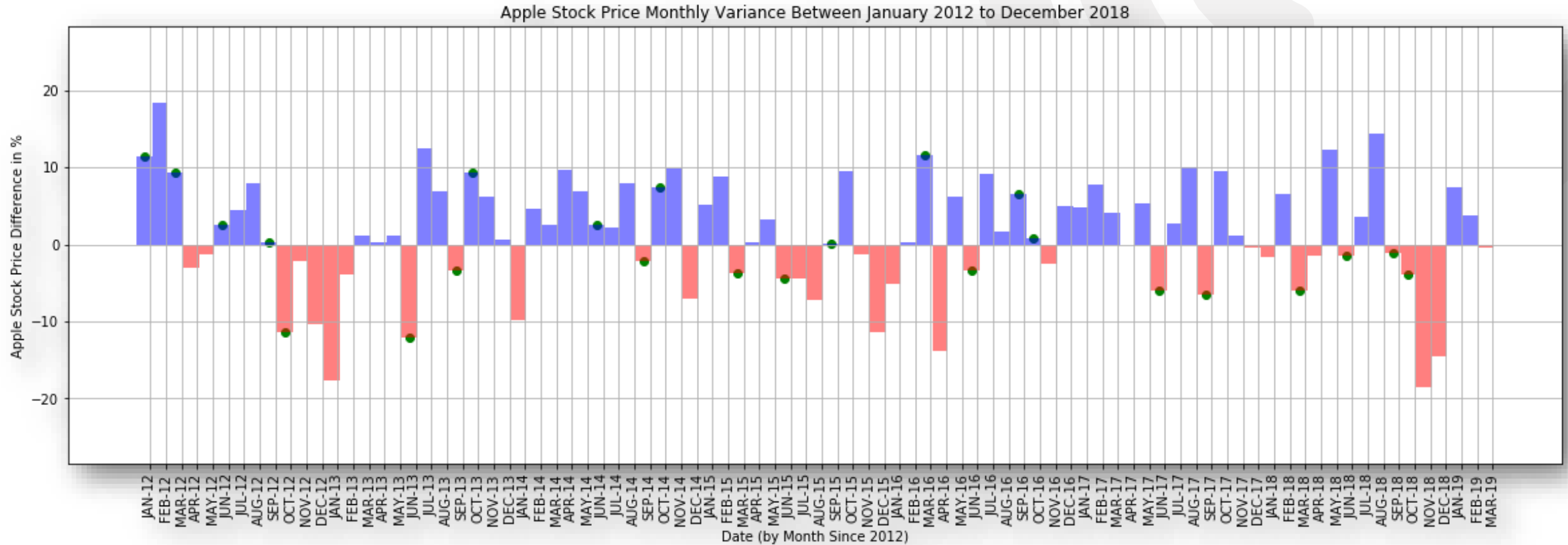


# Apple Stock vs Keynote Announcement Dates – Line Graph





# Visual Encore



- Observations: 24 Keynote dates – 5 months where a Keynote event was followed by negative closing price

# Statistical Analysis

- **From** `scipy.stats` **import** in Python to run the T-Test and the P-Value
- Random sample set of 12 keynote dates to vs. random sample sets of 12 non-keynote dates
- Run 5 separate tests [5 different, random sets each time of each group for each test]
- Comparing end of the month closing price to use for the mean

	t-test	p-value
0	3.739730	0.004627
1	6.273640	0.000108
2	3.374708	0.006200
3	2.828507	0.022201
4	3.622791	0.005491

# Conclusion

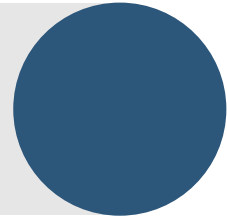
Null Hypothesis – Rejecting

Alternative Hypothesis – Accepting

Based on the visualization of the data and the statistical analysis there is strong evidence reject the null which leads to accepting the alternative. We feel there is a strong correlation between the Keynote Announcements and the movement of Apple Stock prices

# Furthermore....

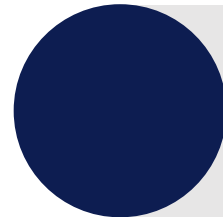
## Other Potential Factors



Understanding that there are many factors that can impact stock prices – here are some considerations which may have bearing on the outcome of stocks

Starting the project – focus was to find clean datasets, quickly realized there were many gaps in the analysis

## Caveats





# Data Analytics Team

Questions?



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Jupyter Notebook Aficionado  
Python Wizard



**Lissette Miranda**

API Ping Professional  
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**Roy Henry**

Excel Ninja  
Git Hub King