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## The Retail Fairy Tale

Are retail traders *really* dumb money?

20201203

FNCE 237-001

Prepared for Prof. Michael Roberts

# Background and Data Sources

Mobile apps and commission free trading have led to an explosion of retail participation in financial markets. We wanted to dive more quantitatively into the interactions between these mobile phone traders and financial markets.

## ROBINHOOD



- May 2, 2018 to August 13, 2020
- Hourly data on number of distinct Robinhood users holding the stock
- Sourced from robintrack.net
- Does not include options data
- Not perfect: missing Jan 06 to 16, 2020
- 8,597 CSV files
- 3.44 GB

## WRDS/COMPUSTAT



- Financial metrics & stock prices
- Includes columns for splits and dividends
- Total return imputed in preprocessing
- Includes prices each day at close, open, high, and low
- Sourced directly through WRDS Python API
- 4.38 GB total (w/ Robintrack)

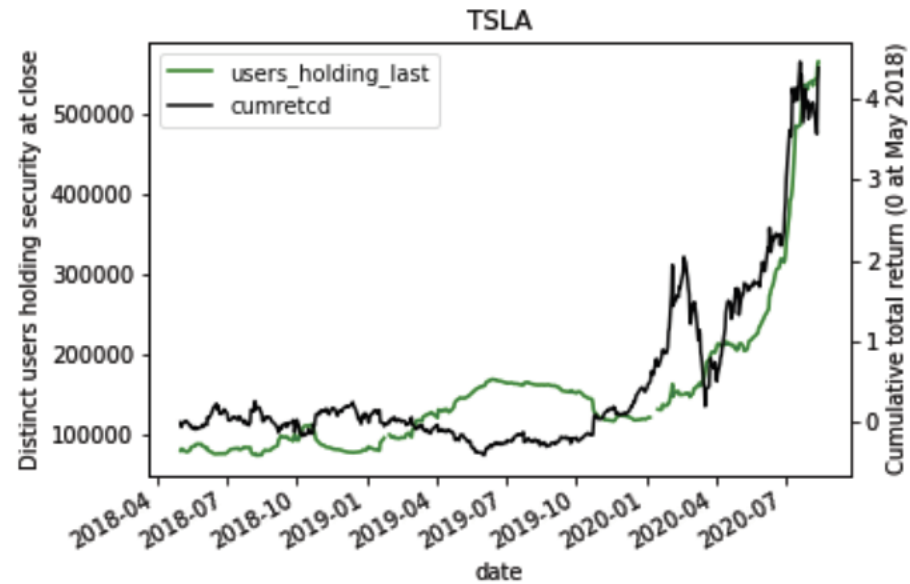
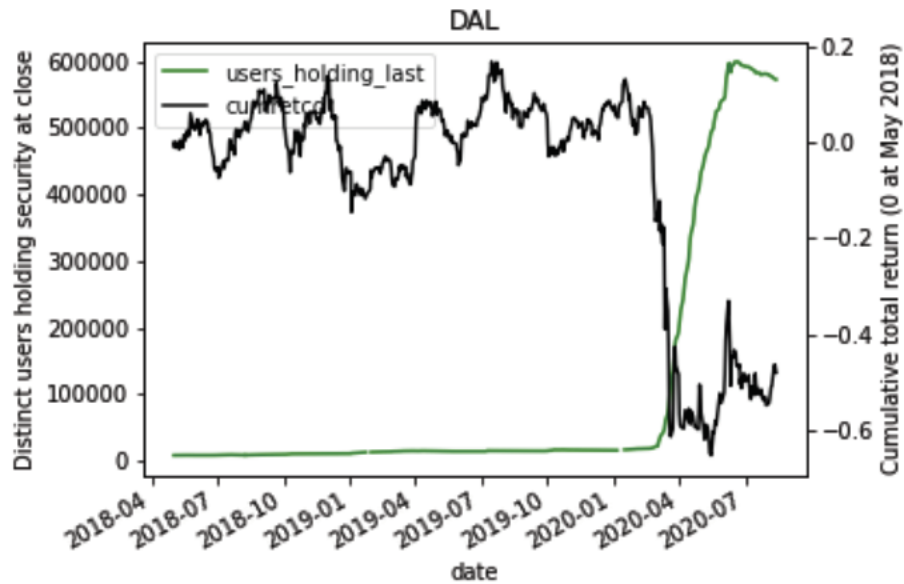
## KAGGLE/REDDIT



- Data from inception to August 15, 2020
- Dump of all posts to r/wallstreetbets
- Pulled dates & tickers mentioned from this data
- Spikes tend to coincide with security news
- Used to select popular stocks to investigate manually
- 0.974 GB

# Selected Initial Visualizations

Cumulative total return and distinct users holding security at market close over time for Delta Airlines (DAL) and Tesla (TSLA). These charts have cumulative return as indexed to the start of our data on May 2<sup>nd</sup>, 2018.



# Selected Regression Analysis

BIG TECH\*



## OLS Regression Results

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=====
Dep. Variable:      Q("users_holding_avg_change")  R-squared:      0.096
Model:              OLS                          Adj. R-squared: 0.094
Method:             Least Squares                F-statistic:    35.29
Date:               Tue, 01 Dec 2020              Prob (F-statistic): 9.50e-41
Time:               13:41:50                      Log-Likelihood: -17334.
No. Observations:  1992                          AIC:            3.468e+04
Df Residuals:      1985                          BIC:            3.472e+04
Df Model:          6
Covariance Type:   nonrobust
=====

```

|                            | coef     | std err | t      | P> t  | [0.025  | 0.975]  |
|----------------------------|----------|---------|--------|-------|---------|---------|
| Intercept                  | 456.1460 | 32.710  | 13.945 | 0.000 | 391.997 | 520.295 |
| Q("cumretcd_futureret-20") | -5.8145  | 4.366   | -1.332 | 0.183 | -14.376 | 2.748   |
| Q("cumretcd_futureret-5")  | -63.7714 | 11.613  | -5.491 | 0.000 | -86.547 | -40.996 |
| Q("cumretcd_futureret-1")  | 140.3186 | 11.353  | 12.360 | 0.000 | 118.054 | 162.583 |
| Q("cumretcd_futureret1")   | -22.3671 | 27.451  | -0.815 | 0.415 | -76.202 | 31.468  |
| Q("cumretcd_futureret5")   | 27.3836  | 10.575  | 2.590  | 0.010 | 6.645   | 48.122  |
| Q("cumretcd_futureret20")  | -10.4372 | 5.715   | -1.826 | 0.068 | -21.645 | 0.770   |

```

=====
Omnibus:          2378.299  Durbin-Watson:      0.755
Prob(Omnibus):    0.000    Jarque-Bera (JB):   543565.398
Skew:             5.914    Prob(JB):           0.00
Kurtosis:         83.057   Cond. No.           17.7
=====

```

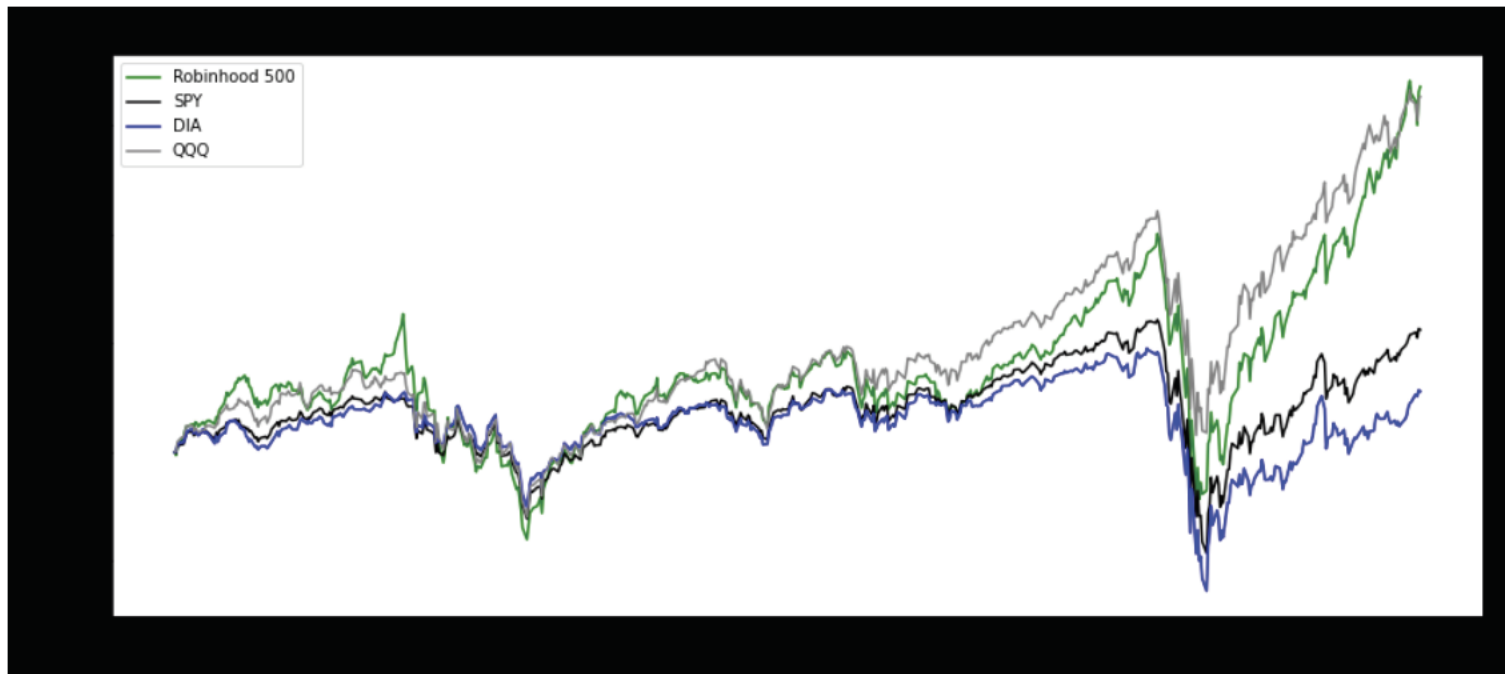
# Popular Stocks Index Comparison

We found the most popular stocks ever recorded on Robinhood history and the most popular ones based on May 2, 2018 (start of our data). Using the latter, we created the Robinhood 500 Index, weighted by the average number of users on the first day of holding.

| Most popular ever |           |         |
|-------------------|-----------|---------|
| Ticker            | Peak Date | Users   |
| ACB               | 8-May-20  | 990,587 |
| F                 | 16-Jul-20 | 944,401 |
| GE                | 5-Aug-20  | 862,741 |
| AAPL              | 13-Aug-20 | 730,774 |
| AAL               | 10-Jul-20 | 659,893 |

| Most popular (May 2, 2018) |         |       |
|----------------------------|---------|-------|
| Ticker                     | Users   | % All |
| AAPL                       | 150,785 | 3.46  |
| GE                         | 134,735 | 3.09  |
| F                          | 131,071 | 3.01  |
| AMD                        | 128,212 | 2.94  |
| GPRO                       | 114,106 | 2.62  |

| Expected Return                           |        |        |        |
|-------------------------------------------|--------|--------|--------|
| Index                                     | Mean   | Std    | Sharpe |
| Robinhood 500<br>(Weighted on Start Date) | 22.51% | 29.58% | 0.761  |
| SPY (S&P 500)                             | 8.87%  | 24.47% | 0.362  |
| DIA (Dow)                                 | 4.62%  | 26.38% | 0.175  |
| QQQ (Nasdaq)                              | 22.01% | 26.91% | 0.818  |



# Selected r/wallstreetbets Reaction

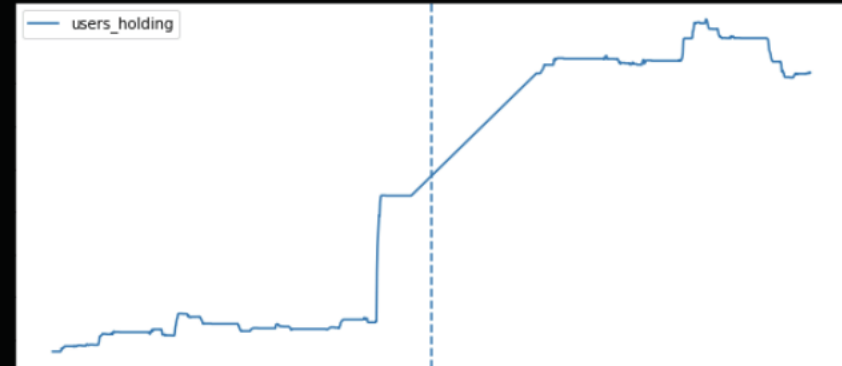
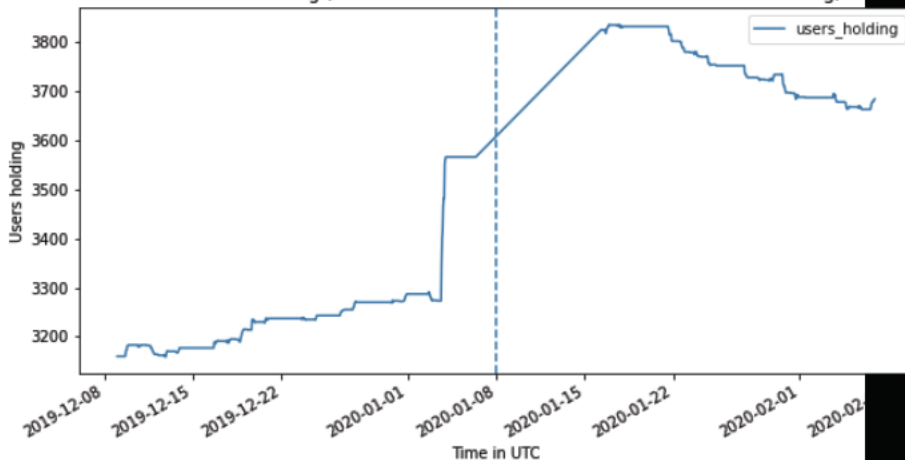
Jan 03, 2020: Defense Stocks Are Jumping After U.S. Airstrike Raises Tensions in Middle East ([Barron's](#)).

Jan 07, 2020: Joke post reaches Reddit overall front page and all-time most popular list in subreddit drives holdings up on days old news ([Reddit](#), pictured right).

Unfortunately, data is missing Jan 06 to Jan 16, but the trend is clear. Robinhood distinct users holding these stocks saw an unusually large jump on the joke, days after the pop (in stock and holdings) on the news.



NOC Users Holding (Centered Around Reddit Post with 720 Hours of Padding)



NORTHROP GRUMMAN



LOCKHEED MARTIN

