

2nd Annual ERP Contest

Kickoff event

Hull
TACTICAL

ORGANIZED BY

Hull Tactical Asset Allocation and
Department of Statistics & Applied Probability

January 10, 2020



S&P 500 Prediction Contest Overview

Timeline: Today – May 15, 2020.

Website: erpcontest.pstat.ucsb.edu

Email: erpcontest@gmail.com

Two categories: Most Creative & Best Prediction.

Teams: Open to Undergraduates and Masters (UCSB) students.

Changes: Scoring system, prizes, format and others.

Prizes: 6,000 cash prizes (one less than last year).

S&P 500 Prediction Contest Overview

Sign up for mailing list on our website ...

Important Dates:

Register team by January 24.

Qualification phase ends the week of March 2nd,
... live contest begins soon after.

Award Ceremony on May 15, 2020.

May 16, 2019.



Who can beat the market?

The US Senate

SENATORS' STOCKS BEAT THE MARKET BY 12 PERCENT

—The New York Times, February 24, 2004.

US senators' personal stock portfolios outperformed the market by an average of 12 per cent a year in the five years to 1998, according to a new study.

The US Senate

SENATORS' STOCKS BEAT THE MARKET BY 12 PERCENT

—The New York Times, February 24, 2004.

... the politicians' timing of transactions is uncanny. Most stocks bought by senators had shown little movement before the purchase. But after the stock was bought, it outperformed the market by 28.6% on average in the following calendar year.

The US Senate

SENATORS' STOCKS BEAT THE MARKET BY 12 PERCENT
—The New York Times, February 24, 2004.

There was no difference in performance between Democrats and Republicans.

The US Senate

SENATORS' STOCKS BEAT THE MARKET BY 12 PERCENT

—The New York Times, February 24, 2004.

A separate study in 2000, covering 66,465 US households from 1991 to 1996 showed that the average household's portfolio underperformed the market by 1.44 per cent a year, on average.

The studies.

“Abnormal Returns from the Common Stock Investments of the U.S. Senate”. *Journal of Financial and Quantitative Analysis*, 2004.

Alan J. Ziobrowski, Ping Cheng, James W. Boyd, and Brigitte J. Ziobrowski.

“Abnormal Returns From the Common Stock Investments of Members of the U.S. House of Representatives.” *Business and Politics* 2011. *Alan J. Ziobrowski, James W. Boyd, Ping Cheng, and Brigitte J. Ziobrowski.*

What is the efficient market hypothesis?

A random walk view of markets (1950s) ...

“... the series of price changes has no memory, that is, the past cannot be used to predict the future in any meaningful way.”

Financial markets are efficient ...

“prices always fully reflect available information”

First category of “available information” includes the previously recorded prices.

“*weak form efficient*”

Second category of “available information” includes other information that is obviously publicly available (e.g., announcements of annual earnings, stock splits, etc.)

“*semi-strong form efficient*”

Third category of “available information” is limited to a very select group of insiders.

“*strong form efficient*”

Which category are we in?

The S&P 500 index

ERP - Equity Risk Premium

S&P 500 index dates back to 1926.

[https://us.spindices.com/documents/methodologies/
methodology-index-math.pdf](https://us.spindices.com/documents/methodologies/methodology-index-math.pdf)

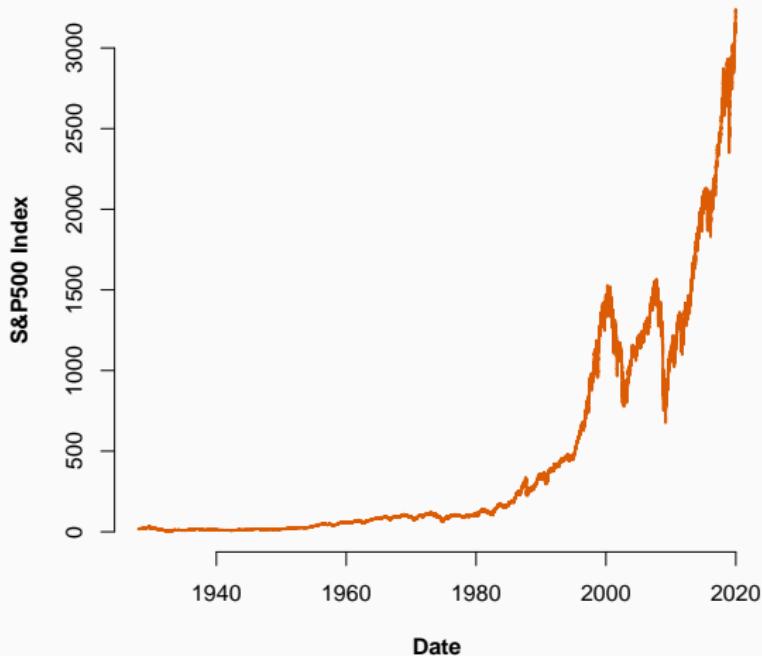
Highly traded via ETFs such as the SPY.

Average return is roughly 10%.

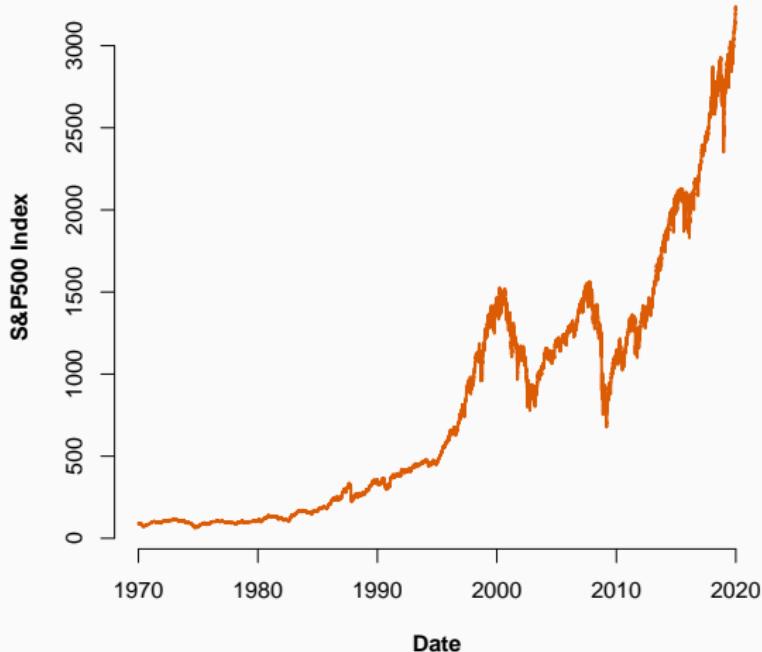
To “beat the market” means to outperform the S&P 500.

Are there variables in category two that predict it?

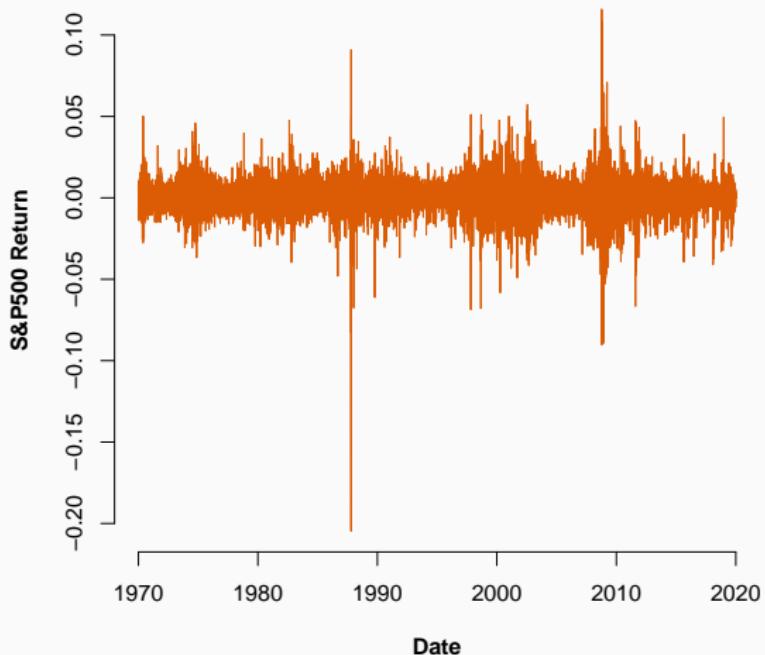
The S&P 500 index



The S&P 500 index



The S&P 500 return



Hull Tactical Data Set

Daily S&P 500 returns dating back to 1952 and
... many potential predictors of prices, e.g.,

US10YR

VIX

CAPE

PER

HSNSI

You should hunt for new ones too!

Financial and business news are highly useful resources.

Welcome Petra ...

Contest Rules

Undergraduates & Masters (UCSB) students only.

At most 4 students per team.

At most 1 Masters student per team.

Team registration deadline: January 24.

Can participate in either or both categories

Best Prediction & Most Creative.

3,000 in cash prizes awarded in each.

1st place (\$1,500), 2nd place (\$1,000), 3rd place (\$500).

Official certificates awarded for successful completion of the qualification phase (Week of March 2nd).

Prediction Category

Problem. Predict S&P 500 daily return and implement a market timing strategy that buys and sells the index automatically.

Scoring system. The return to your strategy.

Must pass qualification phase which includes an out-of-sample test of your predictions and return.

Passing teams are awarded official certificates of completion by PSTAT and HT. Must pass to move to live competition!

Cash prizes are for the live contest only (Begins early March).

Additional prizes for high performing teams outside top 3.

Restrictions. No short positions and must be active.

Budget. Each team starts with (virtual) \$10,000.

Creative Category

Problem. Come up with a novel analysis of the market timing problem, *e.g., an explanation of some market phenomena, an insightful analysis of a strategy, an interesting visualization, discovering nonlinear relationships in the variables, etc.*

Scoring system. A typewritten report judged by a panel of experts consisting of UCSB faculty and Hull Tactical professionals.

Must pass a qualification test which includes a typewritten proposal for a creative contest submission (Due March 2nd).

Qualifying teams are granted directed research course units, ... and allowed to participate for the cash prizes.

Resources

Timeline: Today – May 15, 2020.

Website: erpcontest.pstat.ucsb.edu

Email: erpcontest@gmail.com

Office Hours with Hull Tactical PhD Fellow, Youhong Lee.

Demos and readings will be posted on Contest Website.

Scheduled Tutorials and Q&A Sessions.

The business press is useful

ON DAYS WHEN PRESIDENT TRUMP TWEETS A LOT, THE STOCK MARKET FALLS, INVESTMENT BANK FINDS

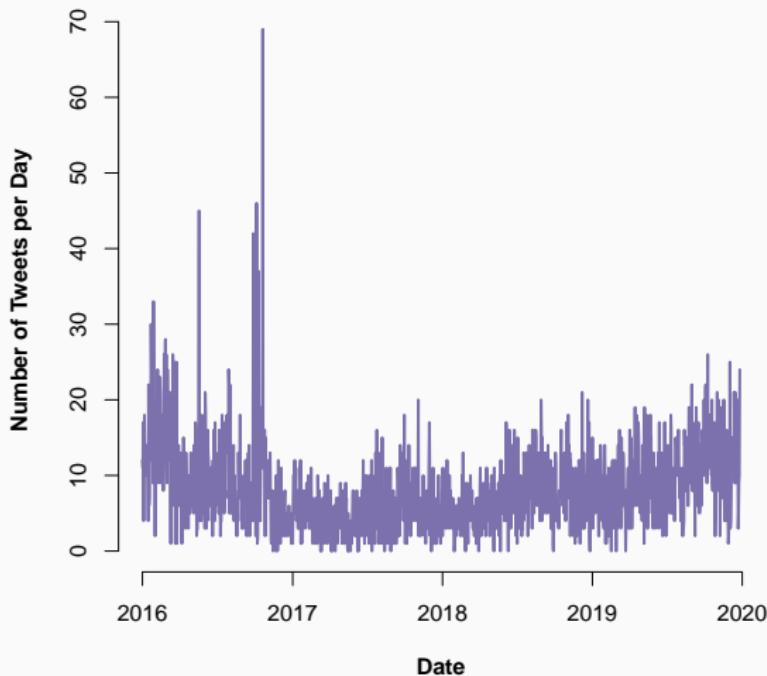
—CNBC, September 3, 2019

Bank of America says that

“... since 2016, days with more than 35 tweets (90 percentile) by Trump have seen negative returns (-9bp).”

“Days with less than 5 tweets (10 percentile) have seen positive returns (+5bp) — statistically significant,”

Number of Tweets per Day by President Trump



Last Spring ...

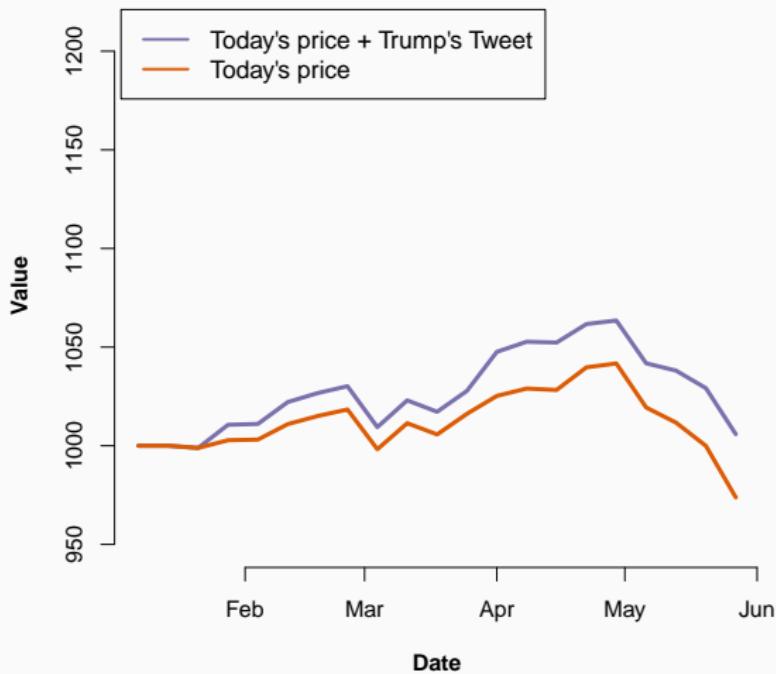
ON DAYS WHEN PRESIDENT TRUMP TWEETS A LOT, THE STOCK
MARKET FALLS, INVESTMENT BANK FINDS

—CNBC, September 3, 2019.

... down 1.6% since May 5, however, when the president shocked financial markets by announcing on Twitter that he would increase tariffs of 10% on \$200 billion to 25%, dashing hopes that the world's two largest economies were nearing a trade resolution.

Strategy: buy/sell half on up/down

Trump tweet variable: (low, med, high) tweets per day.



Q & A