

# Simple Moving Average Trading ► Strategy

Qing Guo

# Background

- Use  $x$  days moving average of the portfolio price, we will get a averaged-out price. Then we can observe the longer-term behavior of the portfolio



# Background

## ► Advantage

- SMA is straightforward calculation, the average price over a chosen time period

$$P1' = \text{Mean} ( p1 + p2 + ..... p20)$$

$$P2' = \text{Mean} ( p2 + p3 + ..... p21)$$

- SMA offers a smoothed line

## ► Cost

- SMA is slower to respond to rapid price changes
- e.g. if we are using 100 days, SMA maybe late by about 50 days

# Data Collection

- First, we scrape Wikipedia for the tickers of the S&P 500 constituents.

```
# Visit page and grab html
r = requests.get('https://en.wikipedia.org/wiki/List_of_S%26P_500_companies')
soup = BeautifulSoup(r.text, 'lxml')

# Extract company info
table = soup.find_all('table')[0]
rows = table.find_all('tr')
dictionaries = []
for row in rows[1:]:
    ticker, company, _, sector, _, _, _, _ = row.find_all('td')
```

```
companies_df.head(10)
```

	company	sector	ticker
0	3M Company	Industrials	MMM
1	Abbott Laboratories	Health Care	ABT
2	AbbVie Inc.	Health Care	ABBV
3	Accenture plc	Information Technology	ACN
4	Activision Blizzard	Information Technology	ATVI
5	Acuity Brands Inc	Industrials	AYI
6	Adobe Systems Inc	Information Technology	ADBE
7	Advanced Micro Devices Inc	Information Technology	AMD
8	Advance Auto Parts	Consumer Discretionary	AAP
9	AES Corp	Utilities	AES

- There are 505 companies in total. The first 10 companies are shown below as an example.

# Data Collection

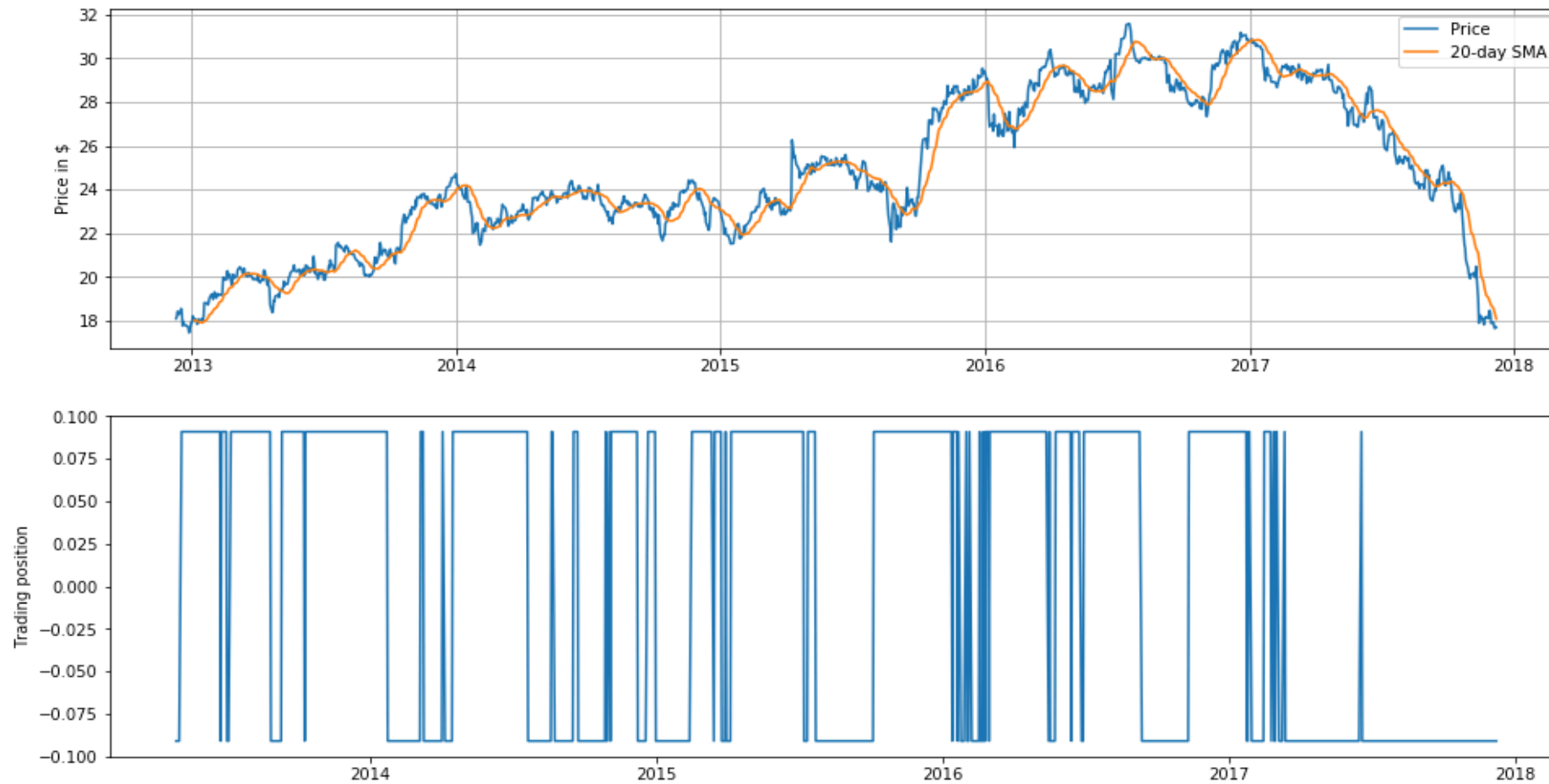
- Get daily trading volume on 12/8/2017 to get a sense of the liquidity of each stock.
- Our stock universe consists of the 11 most liquid stocks (as measured by daily volume on 12/8/2017) in each of the 11 sectors of the S&P 500.

	company	sector	ticker	volume
213	General Electric	Industrials	GE	53894500.0
314	Micron Technology	Information Technology	MU	44469800.0
106	Chesapeake Energy	Energy	CHK	29929700.0
58	AT&T Inc	Telecommunication Services	T	25299800.0
125	Comcast Corp.	Consumer Discretionary	CMCSA	22111200.0
485	Wells Fargo	Financials	WFC	21749500.0
366	Pfizer Inc.	Health Care	PFE	14580100.0
122	Coca-Cola Company (The)	Consumer Staples	KO	13026700.0
208	Freeport-McMoRan Inc.	Materials	FCX	11856300.0
375	PPL Corp.	Utilities	PPL	10265200.0
214	General Growth Properties Inc.	Real Estate	GGP	5452400.0

```
select_stocks = companies_df.sort_values('volume', ascending=False).drop_duplicates('sector')
select_stocks
```

# Model Building

► e.g. GE

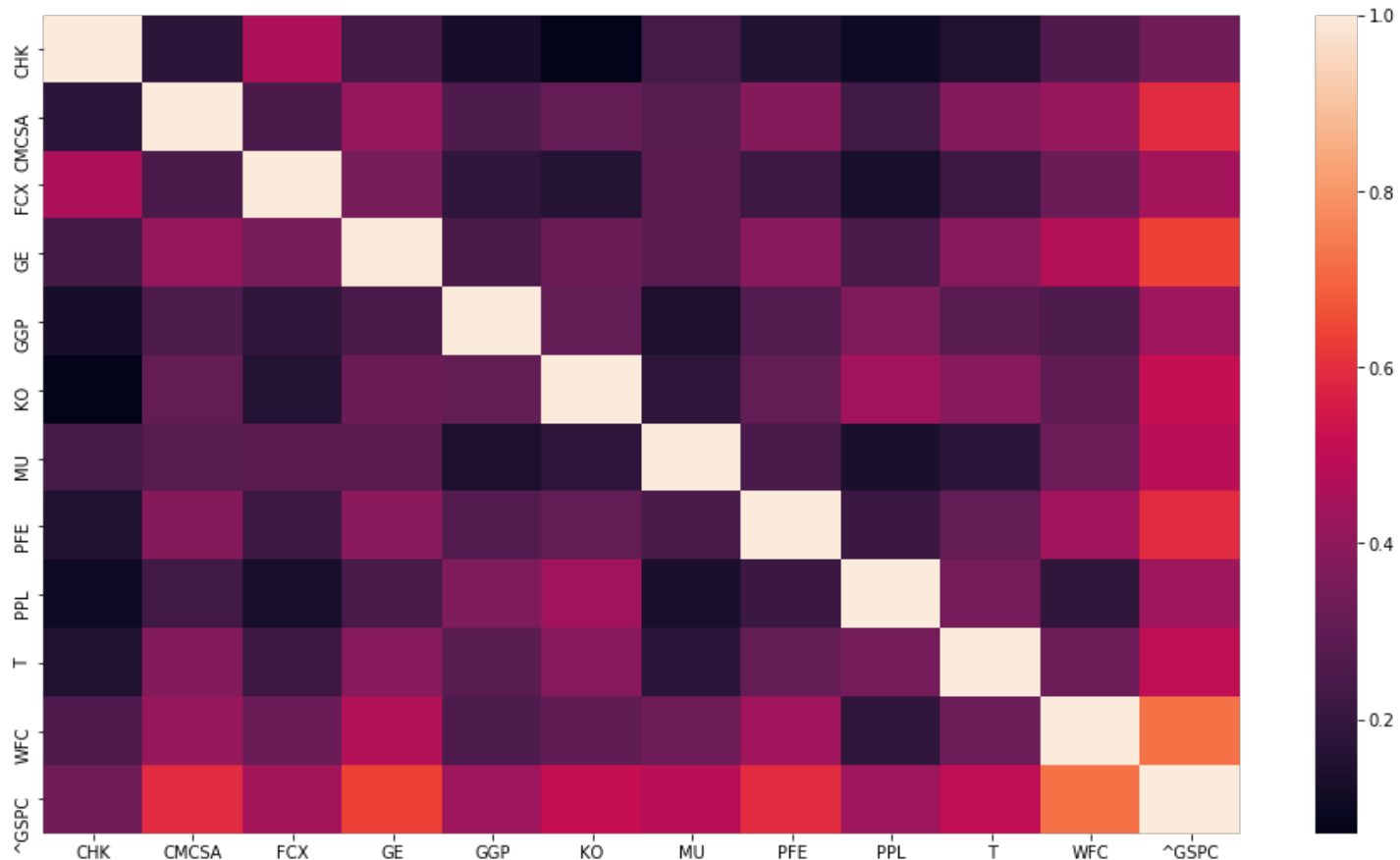


# Performance



# Reasoning

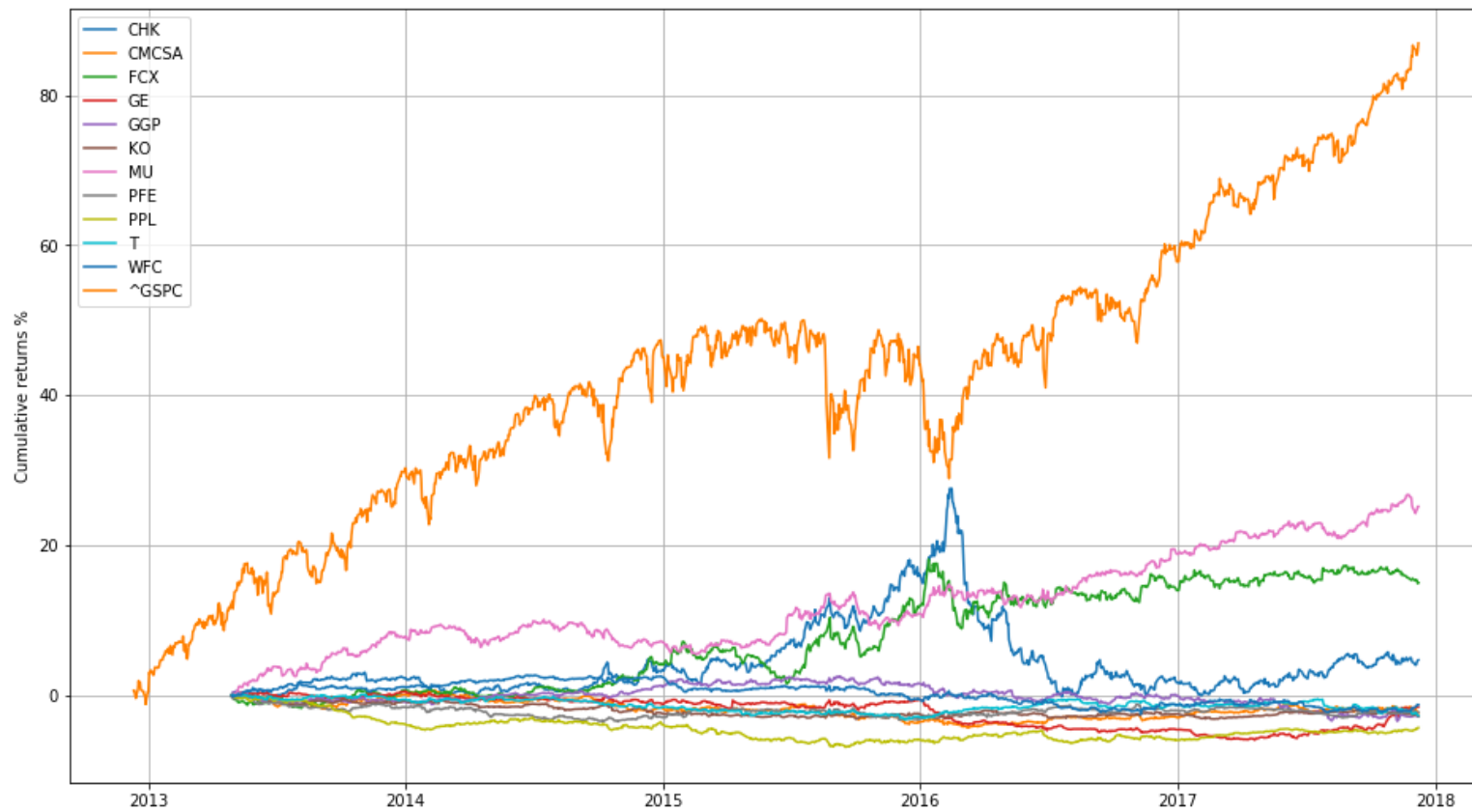
- All positive correlated





# Reasoning

## ► Portfolio selection



# Reasoning

## ► Model selection



Thank you