Investment Theory & Practice—Asset Management
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TEXAS
The University of Texas at Austin

Sorting by Trading Volume

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Investment Strategy

We are going to create a portfolio consisting of:

- 200 stocks with highest monthly trading volume
- Equally weighted
- Rebalance monthly:
  - Sell previous securities
  - Buy next month's securities

Rationale

- Higher trading volume stocks will likely have much higher buying trends versus low volume stocks -> higher buying trends, higher returns.
- Efficient market: Market participants will be more attracted to good fundamental companies so when there is a good earnings/good news -> more shares are purchased.
- The higher the volume, the tighter the Bid-Ask spread -> less cost incurred.

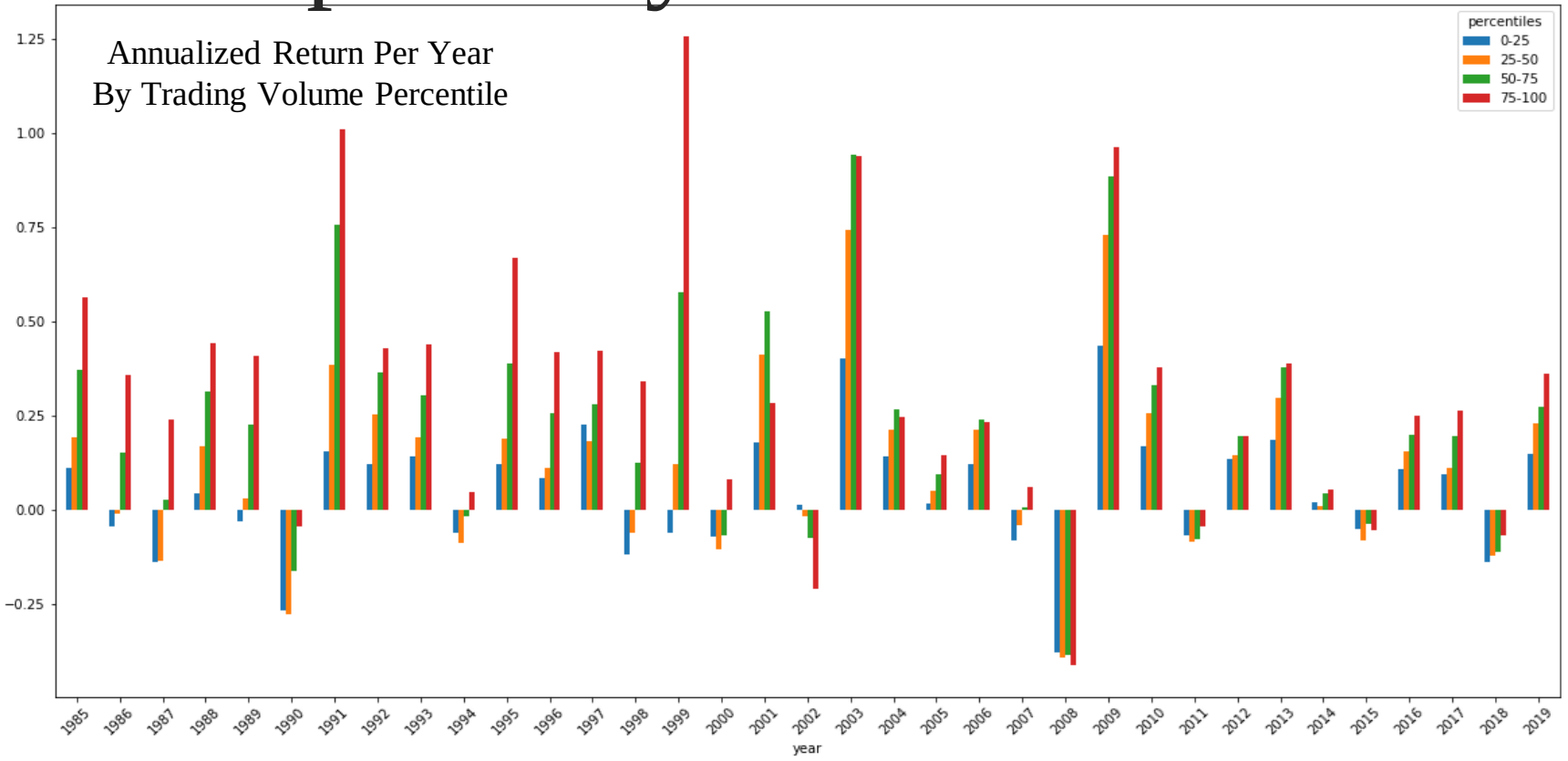
Data Pre-Processing

- ***Data Acquisition:***
  - We pulled all historical performances (with volume) from CRSP database for date range 01/01/1985 - 12/31/2019
- ***Data Cleanup:***
  - We created a calculated field called “relative trading volume” by taking the monthly trading volume of a stock and divide it by the total trading volume of all stocks for that month.
  - Eliminated the bottom 10% of firms by market cap because those volumes were ~ 0.
  - Split stocks to quartiles based on trading volume.

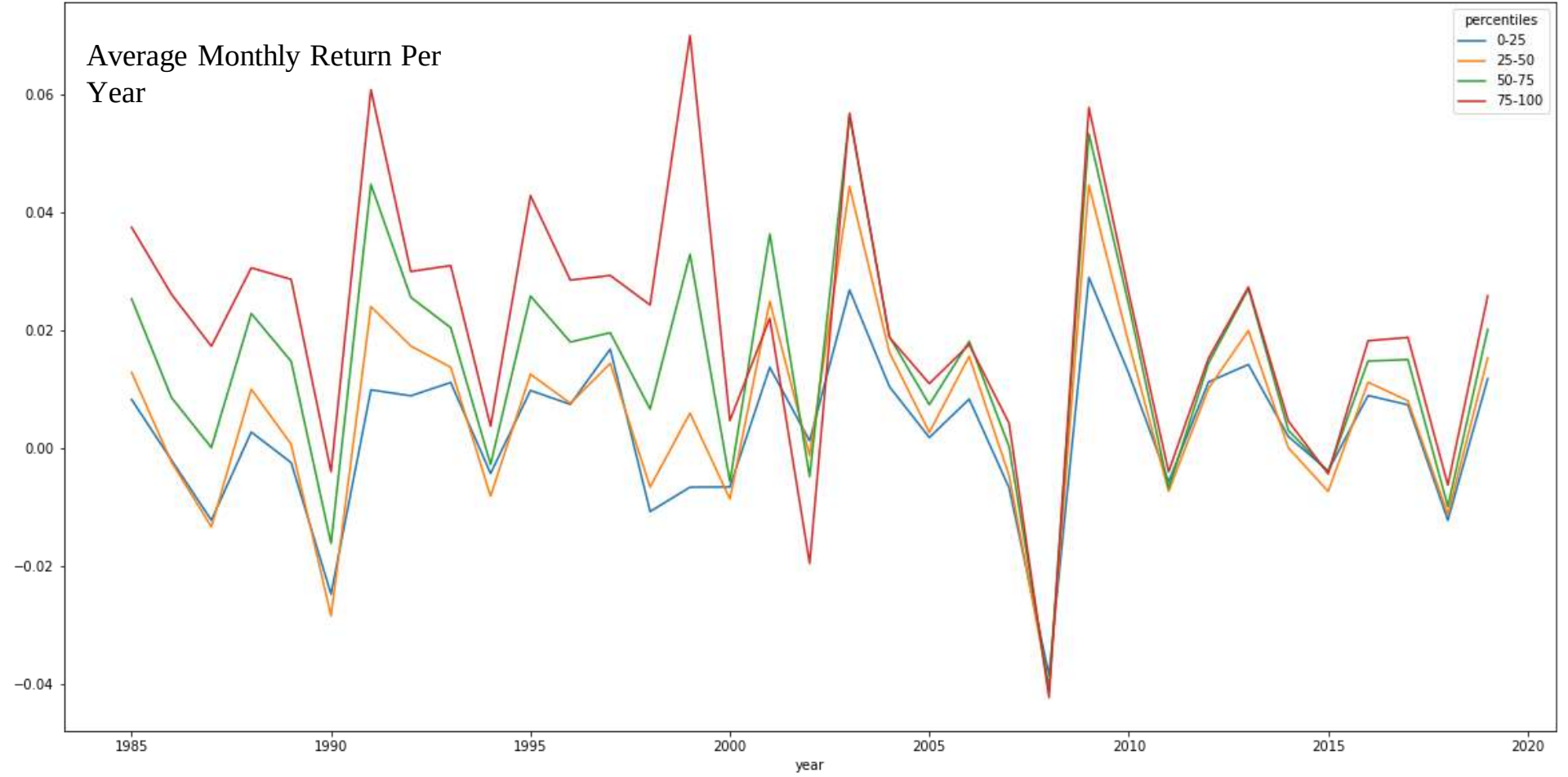
Findings

- High volume quartiles tends to outperform in favorable times.
- But in some time generate more losses in market downturns.

Exploratory & Statistical Proof

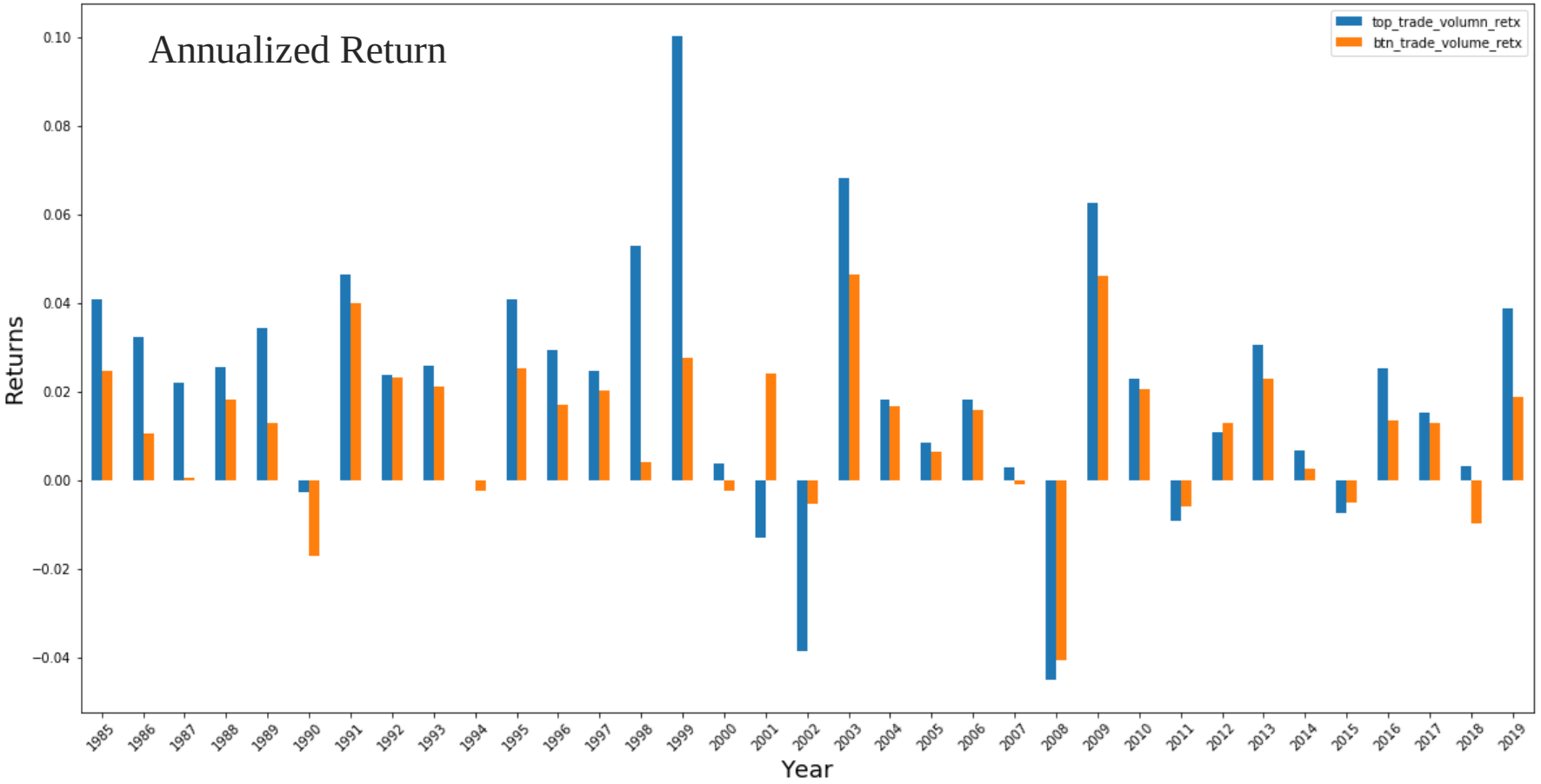


Average Monthly Return Per Year



Portfolio Backtesting

We created 2 portfolios that consist of the top 200 and the bottom 200 relative trading volume stocks


Annualized Return
top_trade_volumn_retx
btn_trade_volume_retx
Returns
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
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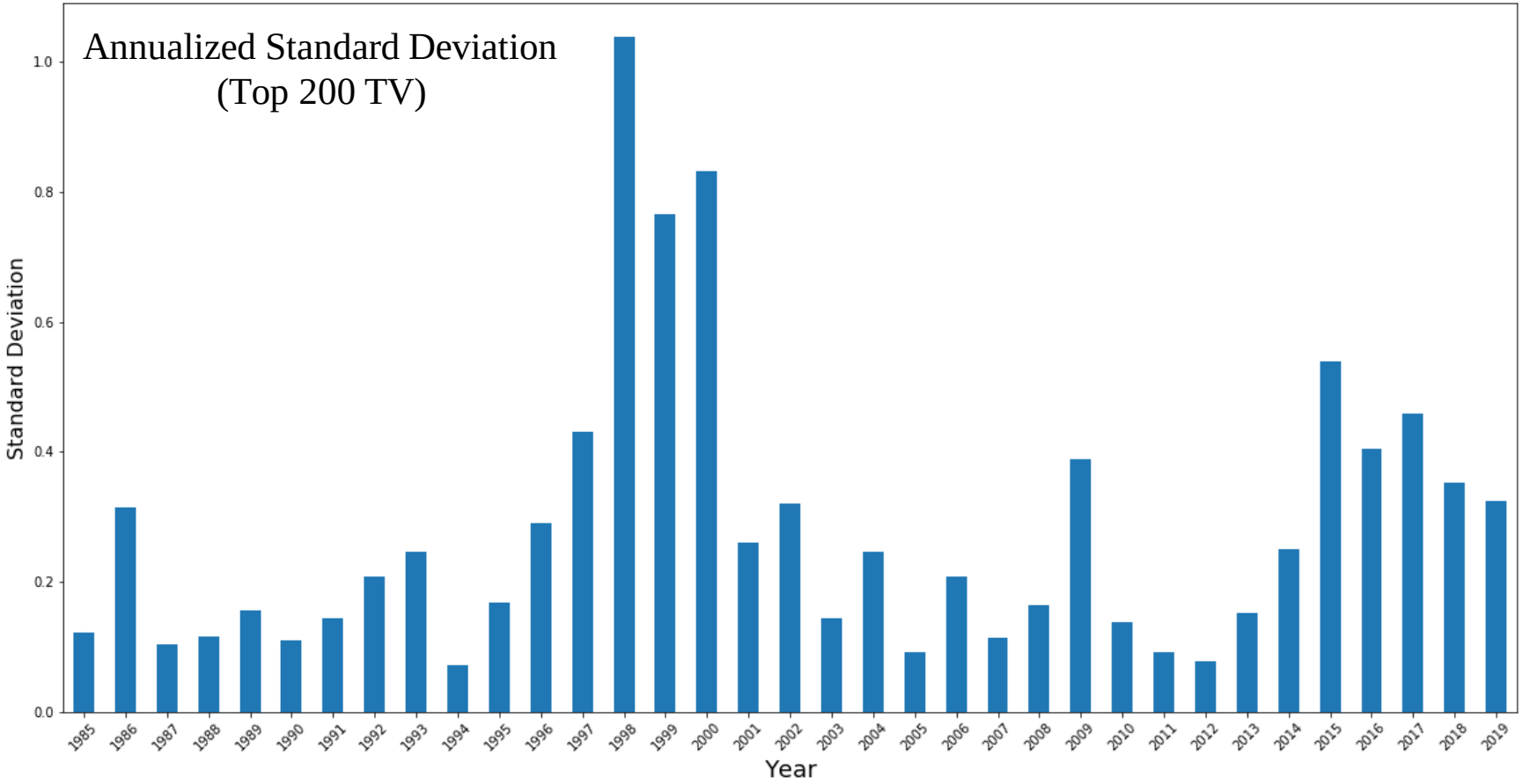
2016
2017
2018
2019
Year


Annualized Standard Deviation
(Top 200 TV)
Standard Deviation
0.0
0.2
0.4
0.6
0.8
1.0
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Year

H-Null: The return of the 200 stock with highest trading volume is not statistically significant different from the 200 lowest trading volume stock

```
((diff['top_trade_volumn_retx'] - diff['btn_trade_volume_retx']).mean()) / (( diff['top_trade_volumn_retx'] -
diff['btn_trade_volume_retx']).std()/math.sqrt(len(diff['top_trade_volumn_retx'])))
```

4.25, Reject !

H-Null: The return of top 25% trading volume is not statistically significant different from lowest 25% trading volume stocks

```
((percentile_retx['75-100'] - percentile_retx['0-25']).mean() - 0 ) / (( percentile_retx['75-100'] -
percentile_retx['0-25']).std()/math.sqrt(len(percentile_retx['75-100'])))
```

7.686, Reject!

Final Results

- Assumptions:
- high volume portfolios trading cost of 5 BP
- low volume portfolios trading cost of 10 BP

	Top_200 Portfolio	Btm_200 Portfolio	Difference
Cost of Trading	**5bp * 12 months**	**10 bp * 12 months**	**-**
Avg Annual Return	**27.711%**	**15.29%**	**12.421%**
Avg Net Return	**27.111%**	**14.29%**	**12.821%**
Std (Annualized) (DrawDown %)	**27.24%**	**18.01%**	

Shortcomings

- Strategy assumes pre-knowledge of stocks with highest trading volume for that month.

- Strategy does not hedge against selloffs of low performing stocks in portfolio for each month.

How To Improve

- Research the relationship of high trading volume and momentum factor for better stock selection
- Hedge against low performing stocks by dropping security if it falls below mean return for all stocks in portfolio
- Add a factor in addition to volume to rebalance each month

  Eg. Price to book ratio
- Volume alone does not factor in momentum 1000 shares of AMZN vs 1000 shares of BAC)
- Build a Predictive model to identify most traded volume stocks. Use relative volume for allocation instead of equally weighted.