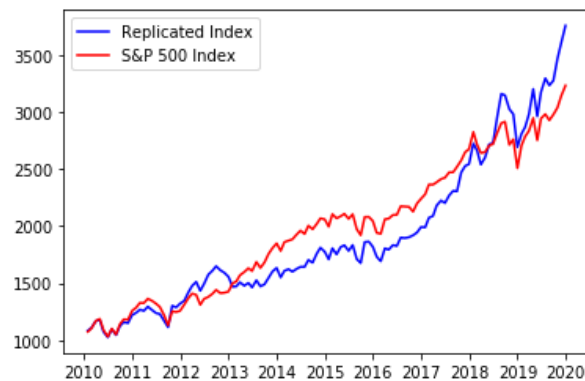


## Assignment 1: Replicating Indices

**Acknowledgements:** I worked on code and discussions with Yuhan Yin (yy8996), Xuxian Chen (xc3984) and Troy Walton (tdw2395). Bryant Leal (bal2589) and Patricia Schutter (pls949) also briefly worked with me on understanding how WRDS works and I also had a code trouble shooting session with Bryant Leal. The data was gathered from WRDS and Yahoo Finance.

### S&P 500 Index

The result of reconstituting annually and rebalancing quarterly is shown below. The comparison between the replicated index, the actual index, an ETF and Mutual Fund is shown in the table.

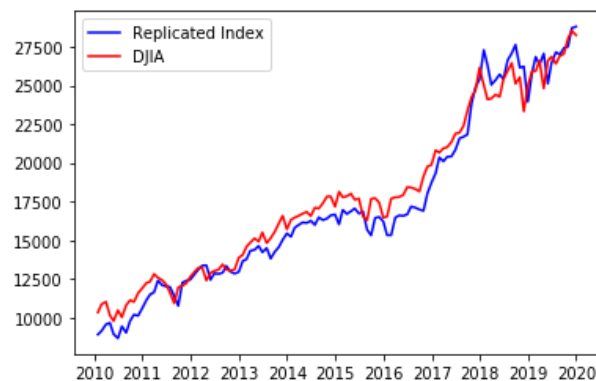


Annualized	Replicated Index	S&P 500	ETF: SPY	MUTF: VFINX
Return	0.145	0.126	0.126	0.145
Standard Deviation	0.142	0.124	0.124	0.127

After gathering required data from WRDS, the market cap was calculated along with adjusted prices and shares. After cleaning the data in order to get rid of duplicates and securities that were not common stock, a series of control statements were applied to reconstitute and rebalance. The replicated index was reconstituted using five hundred and five of the most valued stocks per time period and a divisor was estimated.

### Dow Jones Industrial Average Index

The results shown below were obtained in a similar fashion using the steps outlined above. For reconstitution purposes, a list of DJIA constituents were gathered per time period.



Annualized	Replicated Index	DJIA	ETF: DIA	MUTF: RYDAX
Return	0.135	0.115	0.141	0.165
Standard Deviation	0.131	0.120	0.121	0.126

To conclude, the replicated indices over estimate the actual indices and the difference can be attributed to the assumptions.