We used bootstrapping to sample 20-day periods for each of the indices and assets. For each bootstrap we ran 500 simulations to try to get a more accurate values of the true risk and expected returns for each. Overall the volatility indices seem to be just that very volatile, with very large earning potential, while also being a potential source of significant losses.

The VIX index is a perfect example of this, with a mean return of 6.4% over a four-week trading period. More relevantly though VIX has potential of huge returns with its top five percent of simulations returning at least 71.56%, while the five percent value at risk was estimated to be 37.15%. RVX was fairly similar but with an expected return of 2.57%, significantly lower than VIX. However it’s top percent of simulations returned at least 49.52% over the four-week trading period, while the bottom five percent of simulations averaged a loss at least of 32.41%. VXD had average returns of 5.55% placing it between VIX and RVX, and it has fairly similar earning and loss potential. The top five percent returned at least 67.28% while the bottom five percent of simulations lost at least 38.35%. It is fairly clear from these simulations that investing in any of the volatility indices for a four-week period is a risk proposition but one that comes with a high chance at reward.

Running 500 simulations on the other assets gave us a better idea as to the risk/reward nature of the non-volatility indices. SPY averaged a return of just 0.58% over the four trading weeks, which is significantly less than any of the volatility indices. However, it has a lesser range of possible outcomes, as the top five percent of simulations returned at least 10.21% while the bottom five percent lost at least nine percent. RUT had an average return of 1.15%, and had a greater range of possible outcomes than SPY. The top five percent of RUT simulations returned at least 14.23% while the bottom five percent lost 11.08%. DJI averaged returns of 0.78% over the 500 simulations of four trading weeks. The top five percent of theses simulations returned at least 9.08% while the bottom five percent lost at least 7.83 percent. VTI recorded the best average return of the group at 1.32 percent as well as the highest 95th percentile returns at 12.27% and the lowest five percent value at risk of 8.75%. So while individual volatility indices seem like a risky investment, investing in the collective group appears to be a smarter move than investing in any of the individual markets.