Investing in 2018 Real Estate

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Summary

Of the 14,000 + zip codes provided in our Zillow data set we selected five which we forecast will provide 50% return on investment for over a five year time horizon

- 49507 - Grand Rapids, Michigan
- 32809 - Sky Lake, Florida
- 76131 - Fort Worth, Texas
- 98203 - Everett, Washington
- 80012 - Aurora, CO

Outline

- Business Problem
- Data
- Methods
- Results
- Conclusions

Business Problem

Vega Capital is a real estate investment firm with $2 billion in AUM. The main strategy of their fund has historically been in commercial real estate, but they would like to include single family and multi family homes in their product mix. They would like to maximize their return for the 5 year period to come and have tasked us with finding the top 5 zip codes in the US that they should invest in. The benchmark 5 year return for a REIT is ~15% so at a minimum that is our target

Data

Our data is made up of zillow housing data that includes 14,000+ zip codes across the US. There are fields that cover State, County, City, and Zip Code which we use to narrow the scope of our investment choices. The data covers 1996 to 2018 average home prices.

Additionally, we pulled data from the Federal Reserve Economic Data site as it relates to the 10 Year US Treasury Note for the same time periods of which our dataset includes

Methods - Transforming

Our most prominent metric used in determining whether or not a investment was viable was looking at the sharpe ratio for the area of interest. Sharpe Ratio is used as a risk-adjusted rate of return given by the formula below.

$$S(x) = \frac{(r_x - R_f)}{StdDev(r_x)}$$

where:

$x =$ The investment

$r_x =$ The average rate of return of x

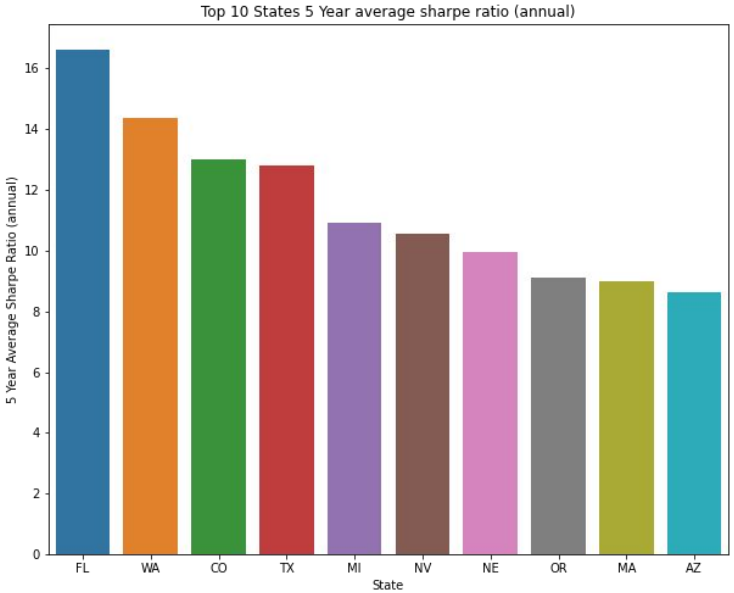
$R_f =$ The best available rate of return of a risk-free security (i.e. T-bills)

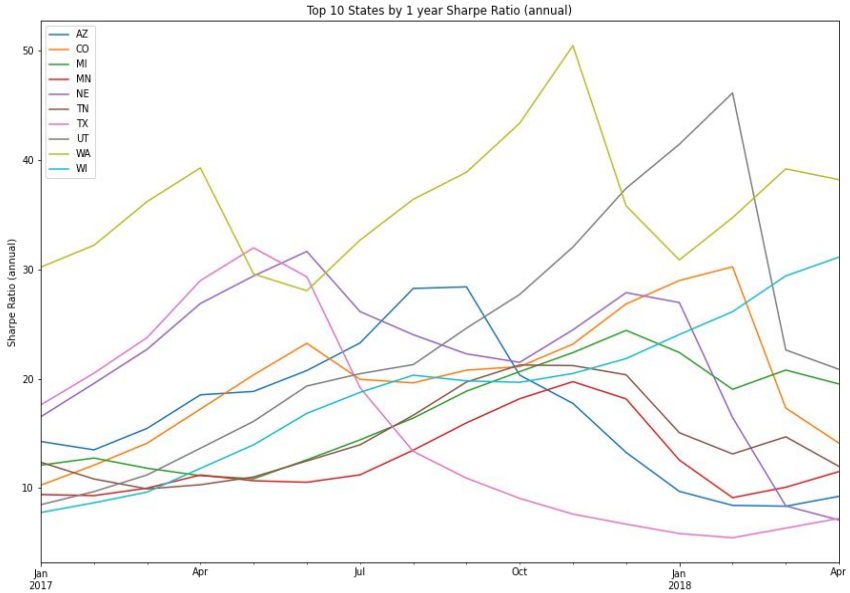
$StdDev(r_x) =$ The standard deviation of r_x

Methods - EDA (States)

State level - Isolated 14 states we wanted to consider

AZ, CO, FL, MA, MI, MN, NE, NV, OR, TN, TX, WA, UT, WA, and WI

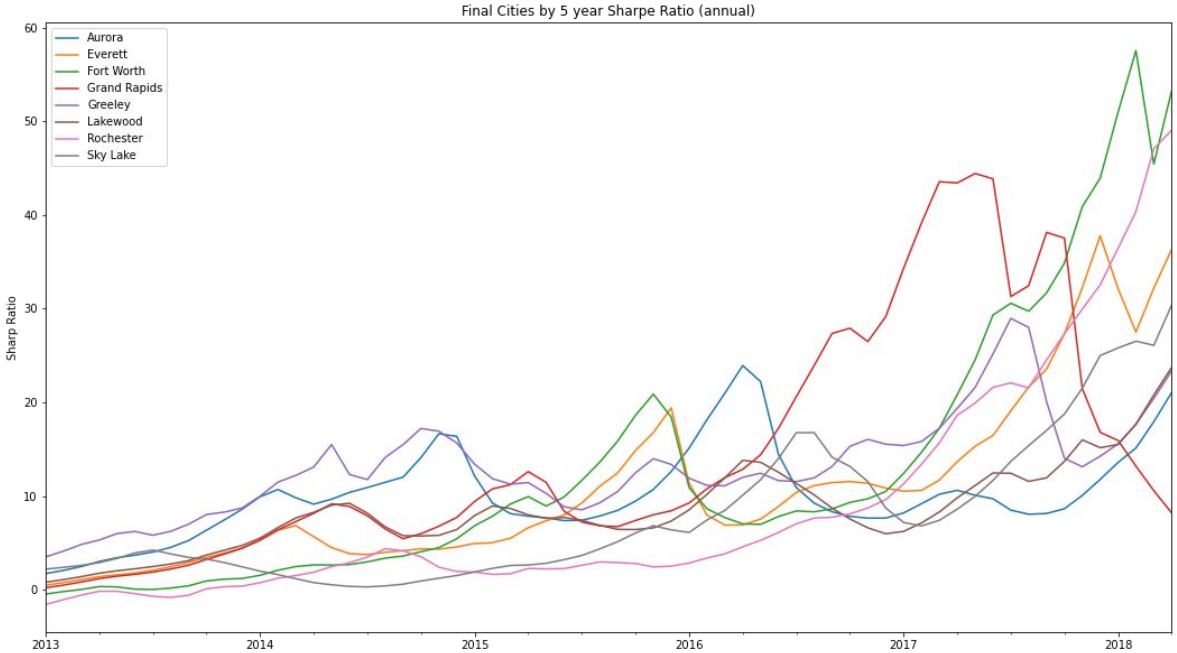




Methods - EDA (Cities)

City level - Isolated 8 cities we wanted to further explore

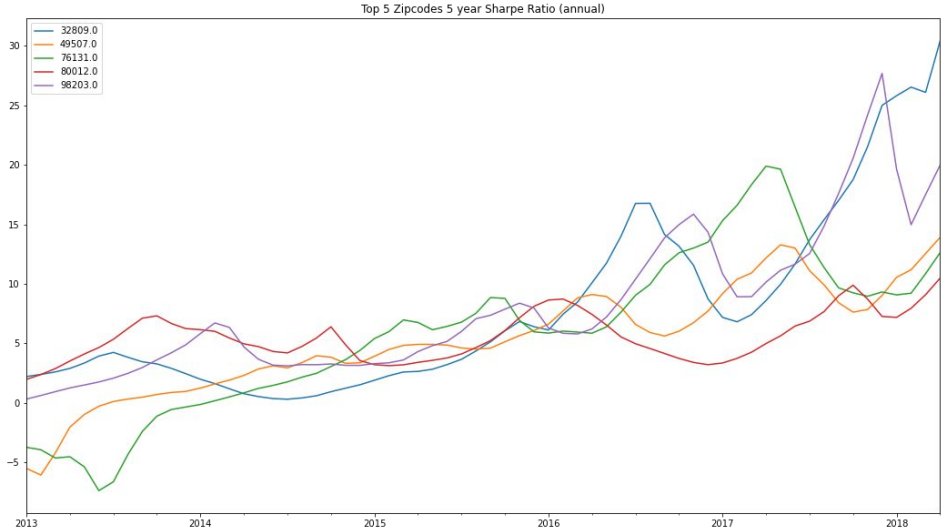
Aurora, Everett, Fort Worth, Grand Rapids, Greeley, Lakewood, Rochester, Sky Lake

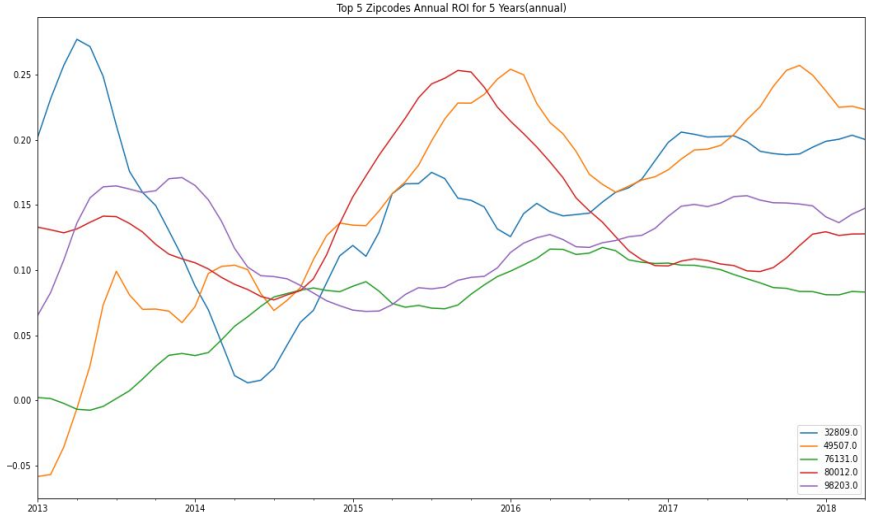


Methods - EDA (Zip Codes)

Final Zip Codes:

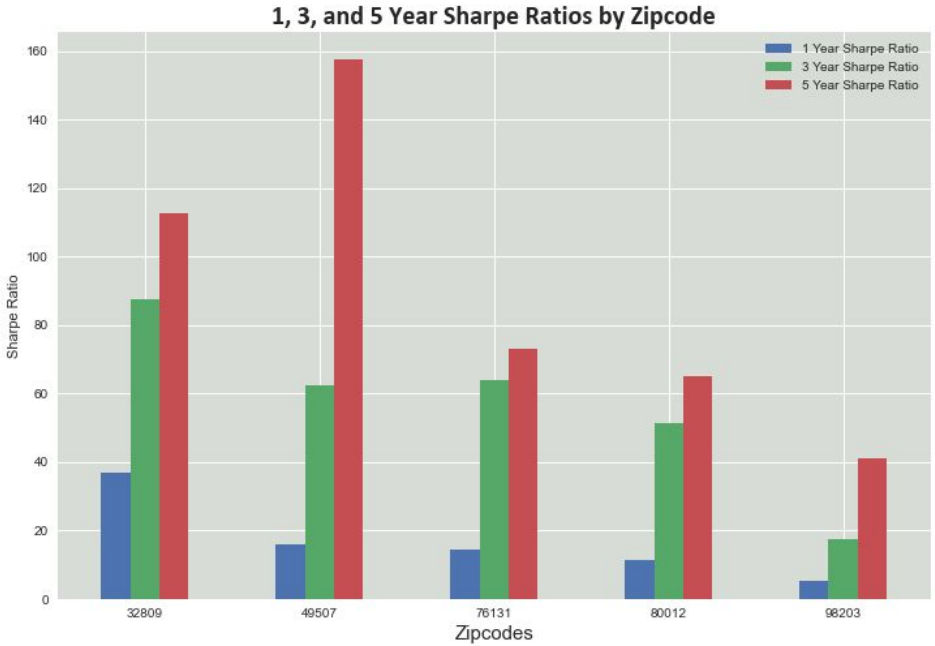
Our final Zip codes were in Sky Lake, FL, Fort Worth, TX, Aurora, CO, Grand Rapids, MI, and Everett, WA





Results

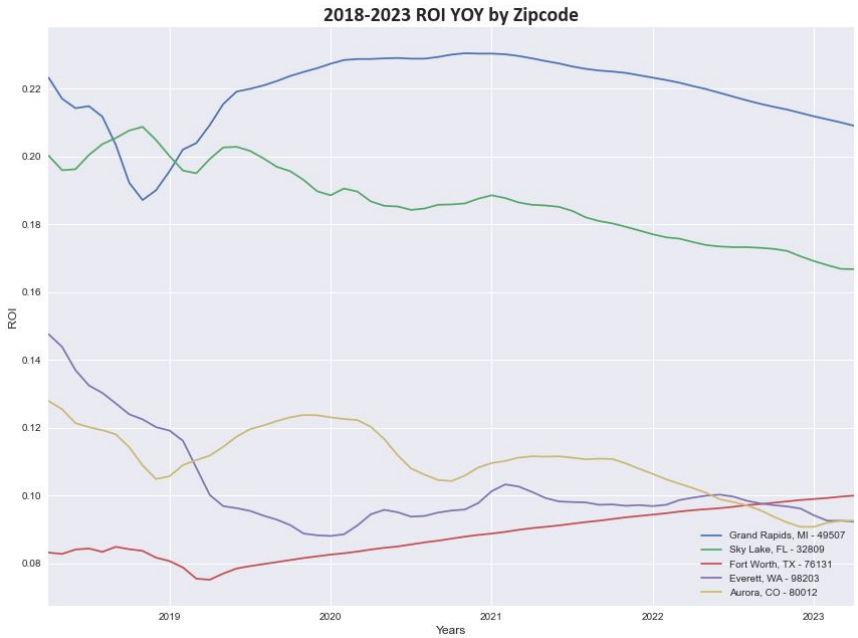
Across all of our zip codes, our projected return was above 50% with Grand Rapids and Sky Lake as the stand outs above 100% return

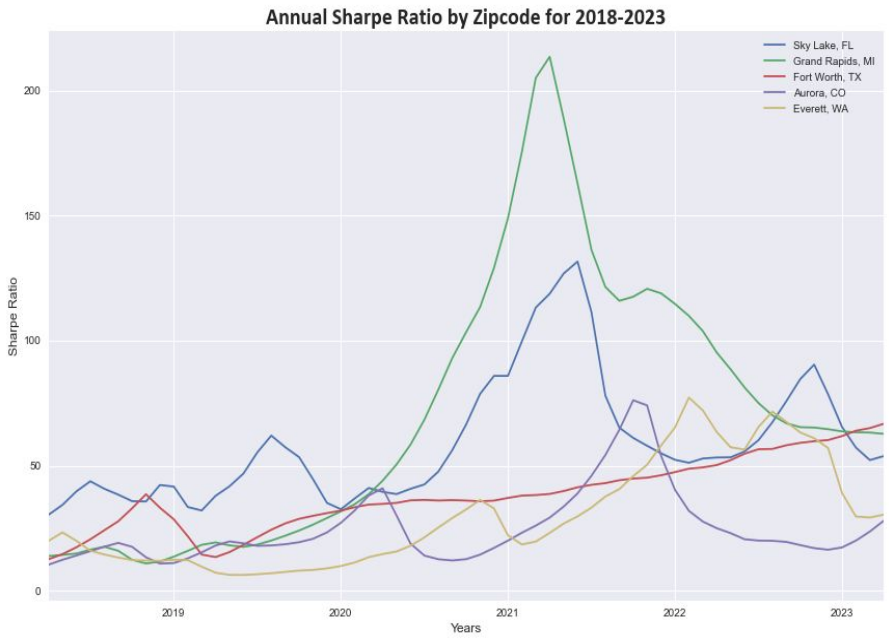


Zipcode	1 Year ROI	3 Year ROI	5 Year ROI
32809	19.927666	68.773075	131.341128
49507	20.926289	82.621367	169.575863
76131	7.523901	27.098230	53.187808
80012	11.180724	38.455272	66.728049
98203	10.022461	32.594237	59.225062

Results

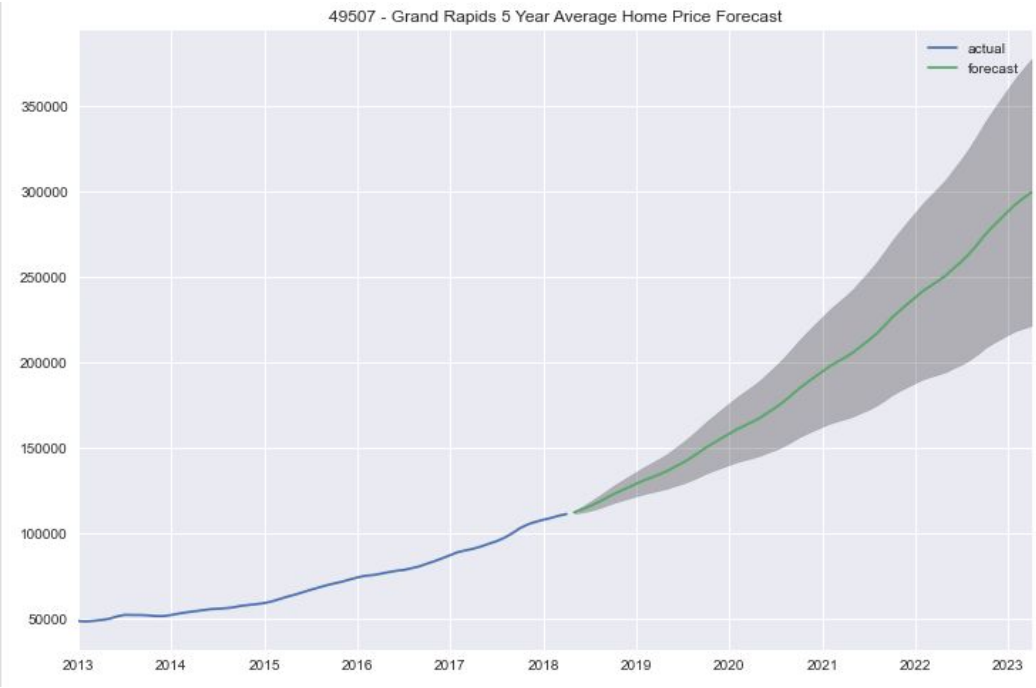
Annual ROI and Annual Sharpe Ratio for the for the forecasted 2018 - 2023





Results

Top performing Zip Code: Grand Rapids, MI - 49507



Conclusions

Using sharpe ratio as our distinguishing metric, we were able to select 5 zip codes which all are projected to return at least 3x the benchmark for REIT's (15%)

- Grand Rapids, MI - 49507 (169% projected 5 year return)
- Sky Lake, FL -32809 (131% projected 5 year return)

Future Work

- The scope of this project solely looks at price appreciation of homes in terms of buying and selling a home outright. It would interesting to analyze properties that could be converted into income streams of rental income as well and how that would change the return for each property.
- Additionally, it would appropriate to include the full scope of costs incurred to buy a home as this analysis solely looks at price appreciation. In a real world scenario, there are legal fees, service fees, and the like to purchasing and selling homes that are not taken into account to our rate of return.

Thank You!

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