The US Housing Market

A dive into the best investment locations

By Rany & Naweed

Data used was acquired from Zillow®
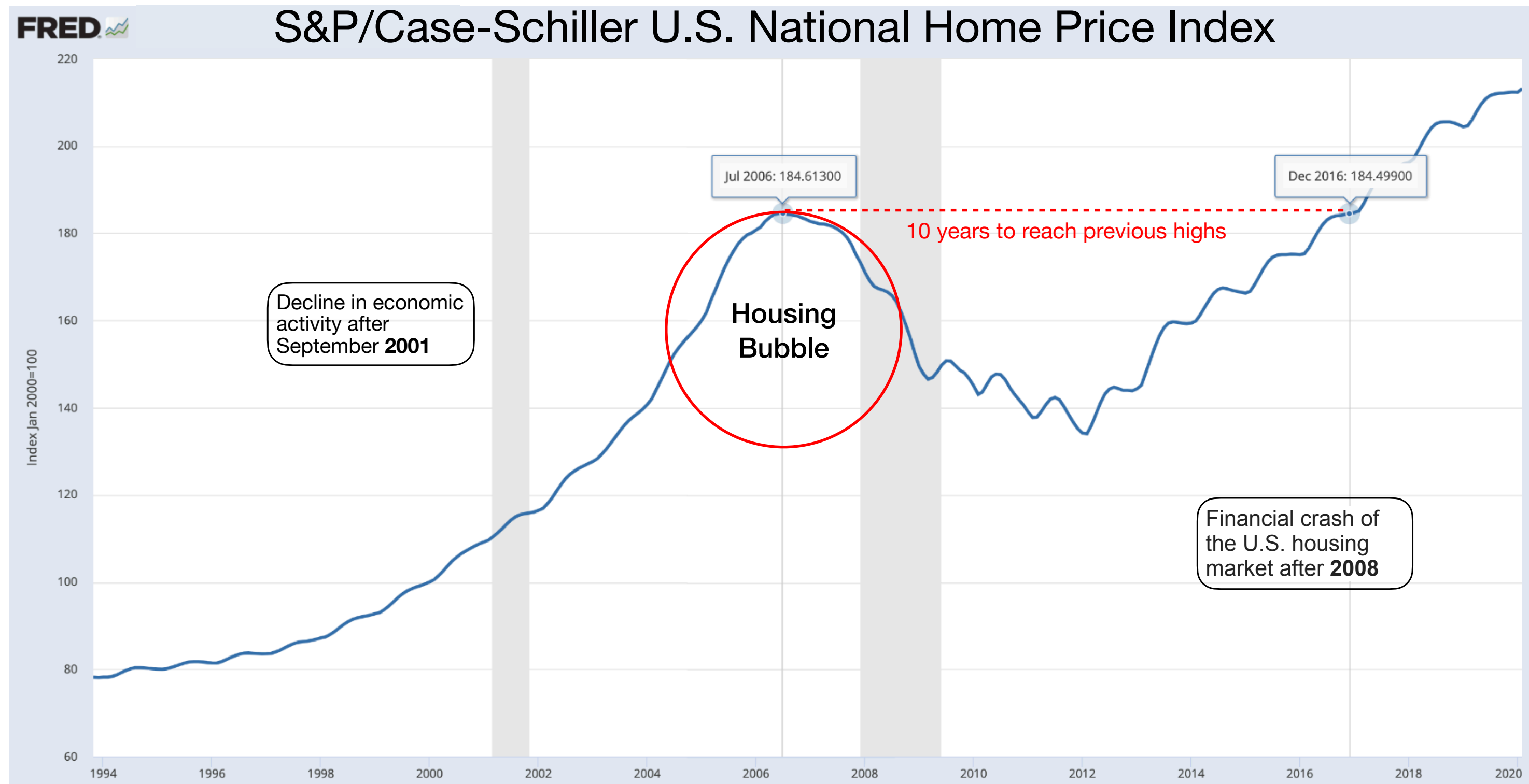
A leading real estate and rental marketplace

Zillow receives information about property sales from the municipal office responsible for recording real estate transactions across the US

Risk Management: The Black Swan Event of 2008

What happened?

S&P/Case-Schiller U.S. National Home Price Index

- Decline in economic activity after September **2001**
- Housing Bubble
- Jul 2006: 184.61300
- 10 years to reach previous highs
- Dec 2016: 184.49900
- Financial crash of the U.S. housing market after **2008**

GDP shrank by 4.7% from 2008 through the first half of 2009

8+ million jobs disappeared between 2008 and 2009

$17 trillion in household net worth evaporated from 2007 through the first quarter of 2009, a larger amount than the nation's GDP of $14.4 trillion in 2008

8+ million home foreclosures is an estimate of what the final number may be since the crisis

Home prices plummeted **32%** on average from their peak in 2006 to their bottom in early 2009, but some regions experienced much steeper declines than that

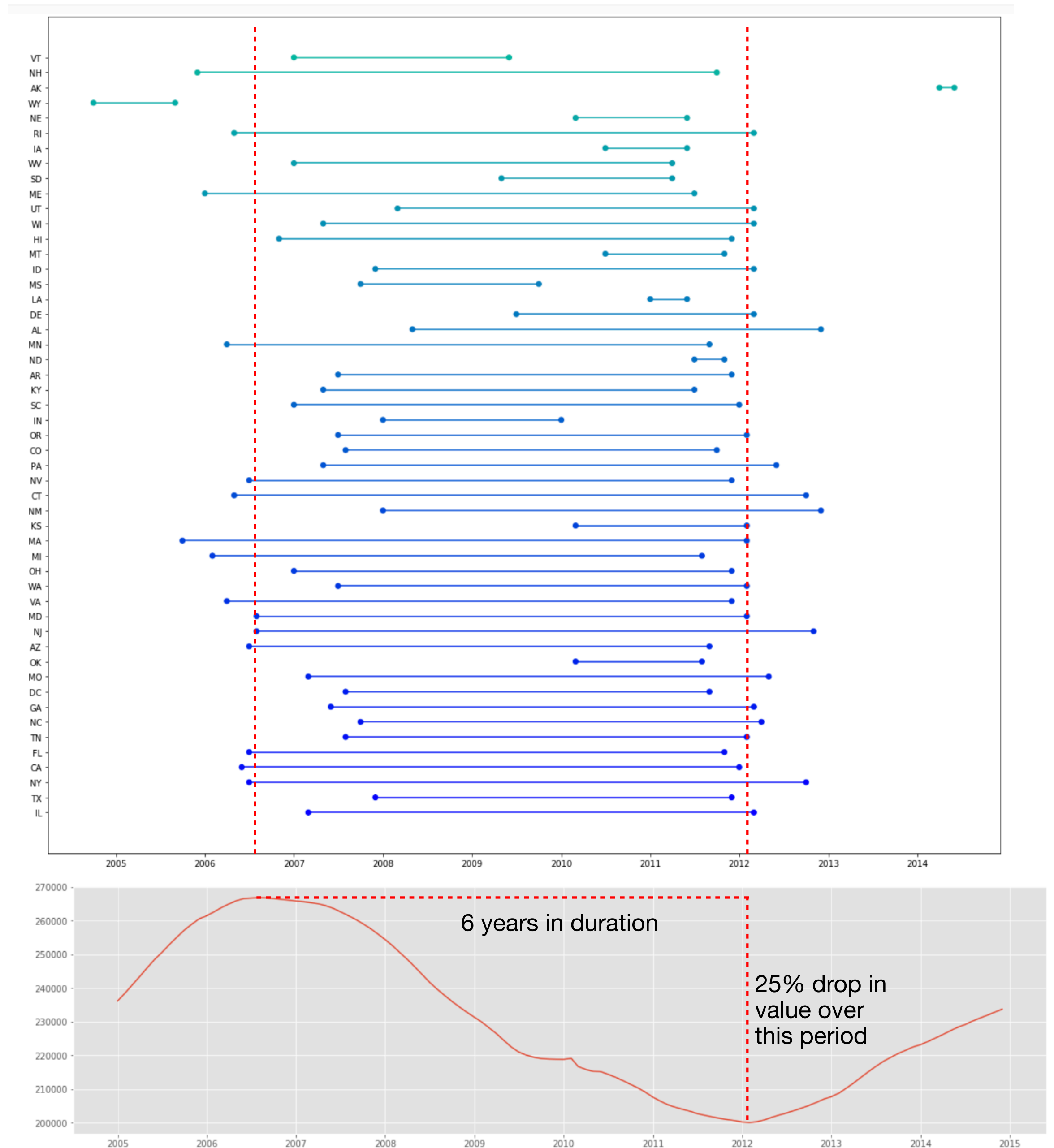Retirement account assets fell by **$2.8 trillion** from September 2007 through December 2008, about a third of their value at the time

Looking at the data:
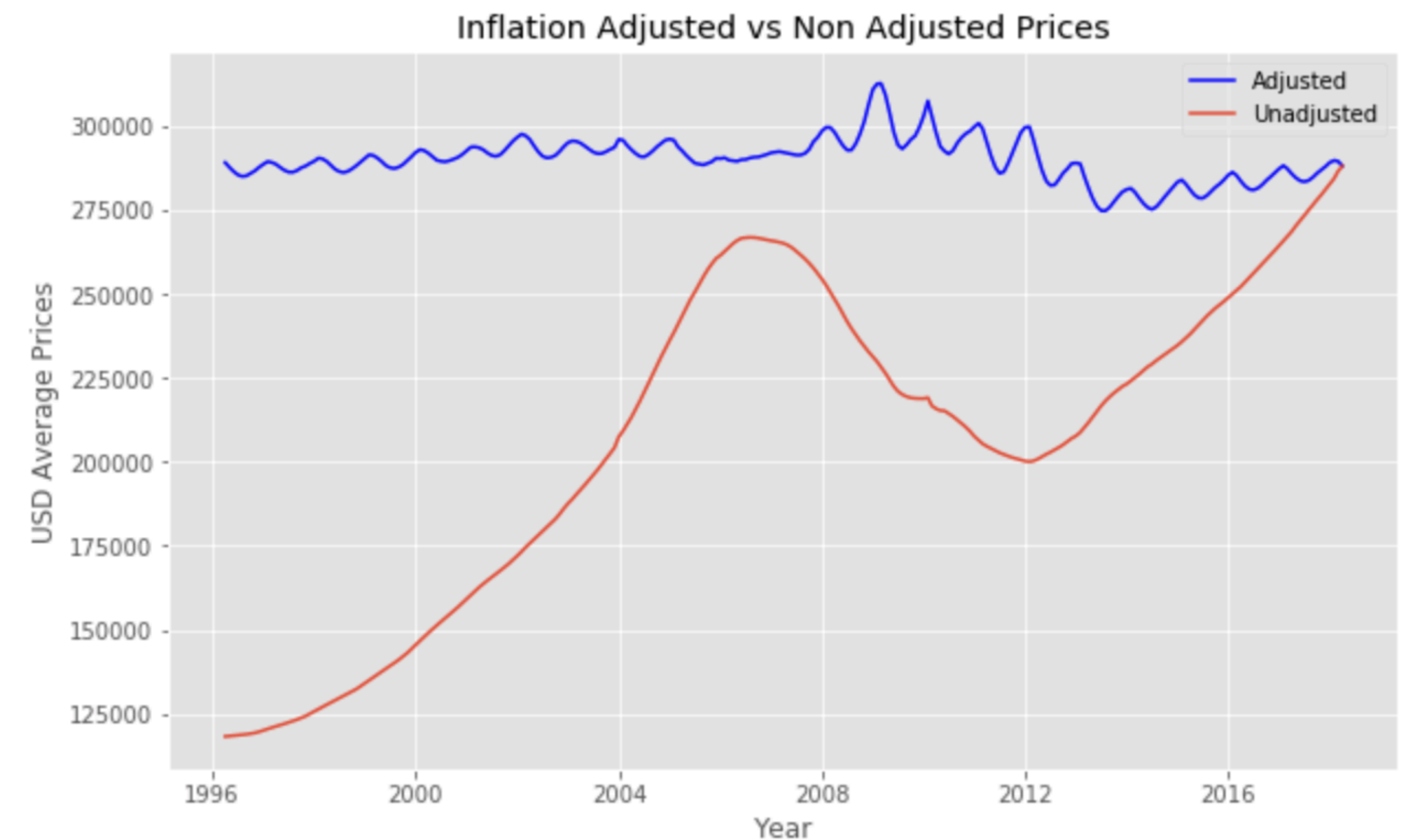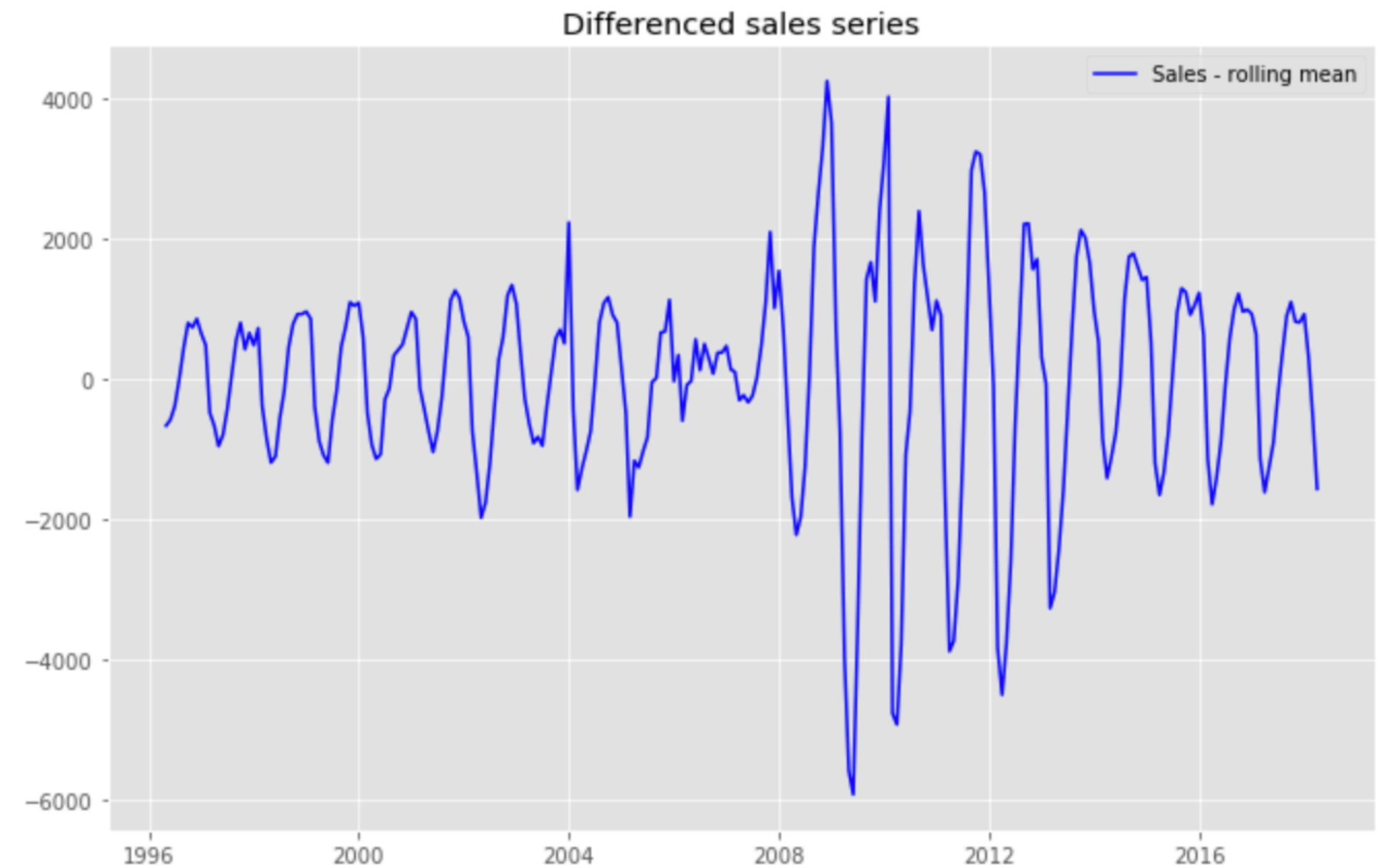
Drawdown during the 2008 crash

- **Drawdown** definition: Peak to trough decline during a specific period for an investment.

- While a drawdown trend can be seen between the years 2006 and 2012, some states were able to averse this trend.

- Wyoming, Alaska, North Dakota, and Louisiana seemed to have outperformed during this period.

Index adjusted values
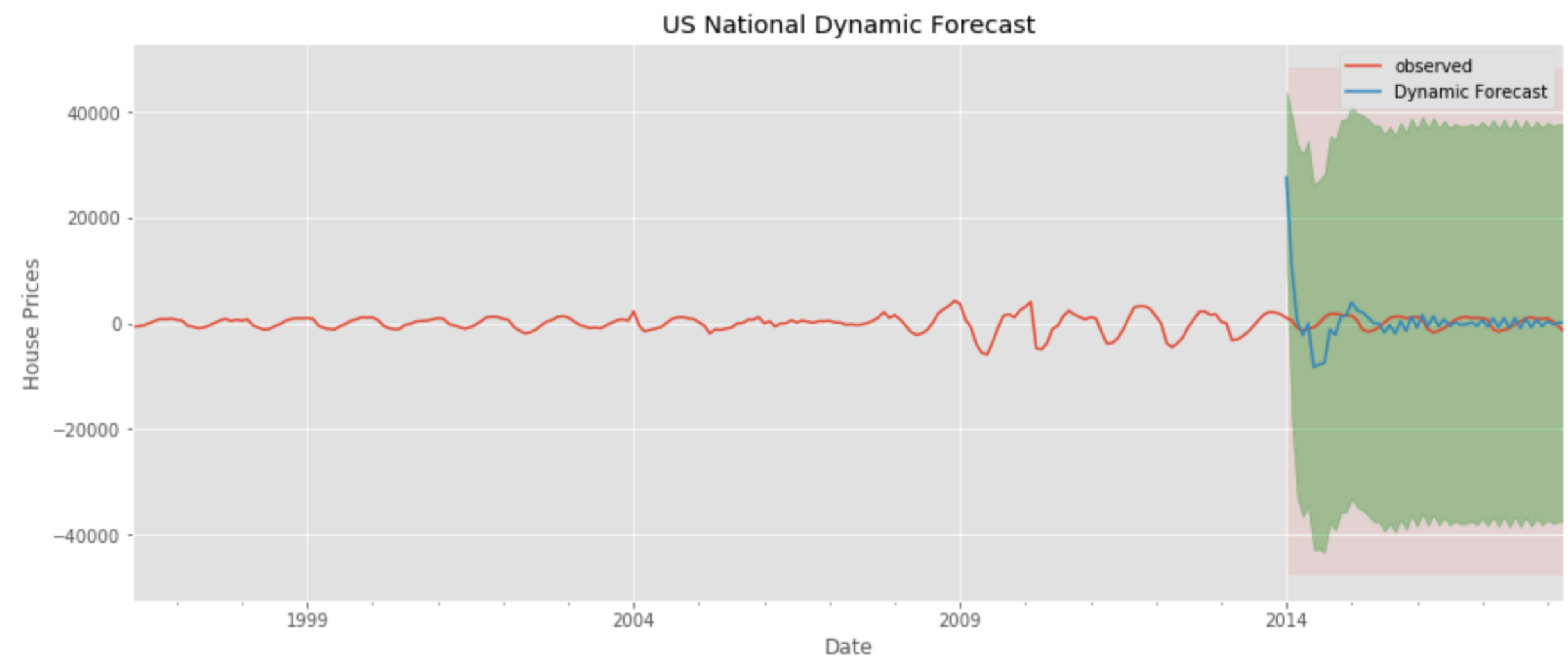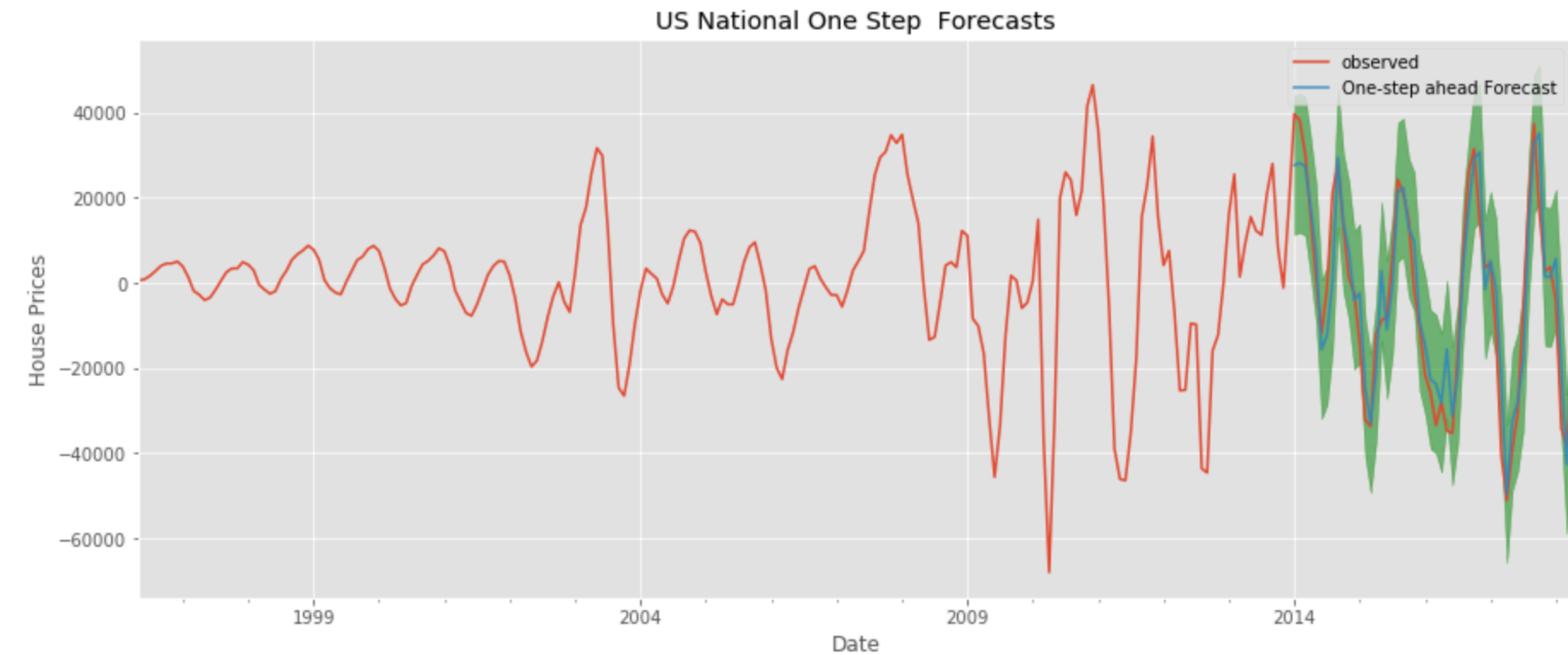
Schiller Index - Zillow Housing data

- The chart to the bottom right illustrate the housing data prices before and after adjusting index value — Stationarity achieved.

- The top right chart illustrates the differenced rolling mean sale values — It is easy to see the increased volatility after 2008.

Differenced sales series

Inflation Adjusted vs Non Adjusted Prices
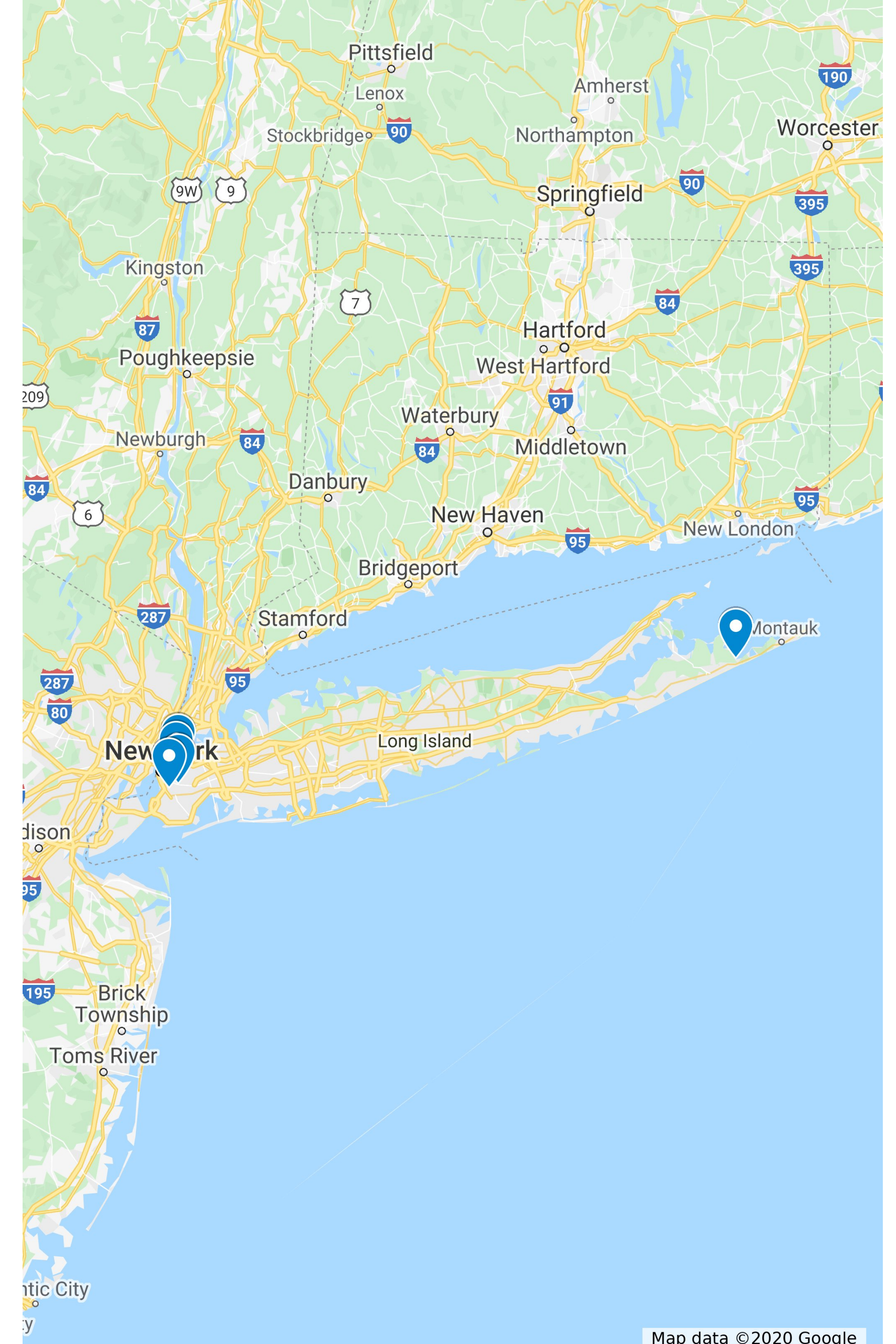
Forward step predictions

National values

- The national forecasts showed to the right show the time series prediction for one step forecasts as well as the dynamic forecast.

- These predictions were forecasted based on the inflation-adjusted values and provide an idea of the model accuracy and outputs.

US National One Step Forecasts

US National Dynamic Forecast

Final Findings
Best performing zipcodes

- Looking at all the data thus far, the criteria used to search for the data involved:

  - Classifying the at-risk states

  - Choosing a slice of the best performing zipcodes within non risky sates based on year-on-year returns

  - Predicting their returns based on the time series model — yearly step

  - Choosing the best zipcodes based on the model returns

- Zipcodes: 11222,11211,11216,11930,11215

Disclaimer:

While the global economic situation is currently unstable as a result of the worldwide pandemic caused by Covid-19, forecasts contained within this study may be unreliable or not accurate.

Thank you

Questions?