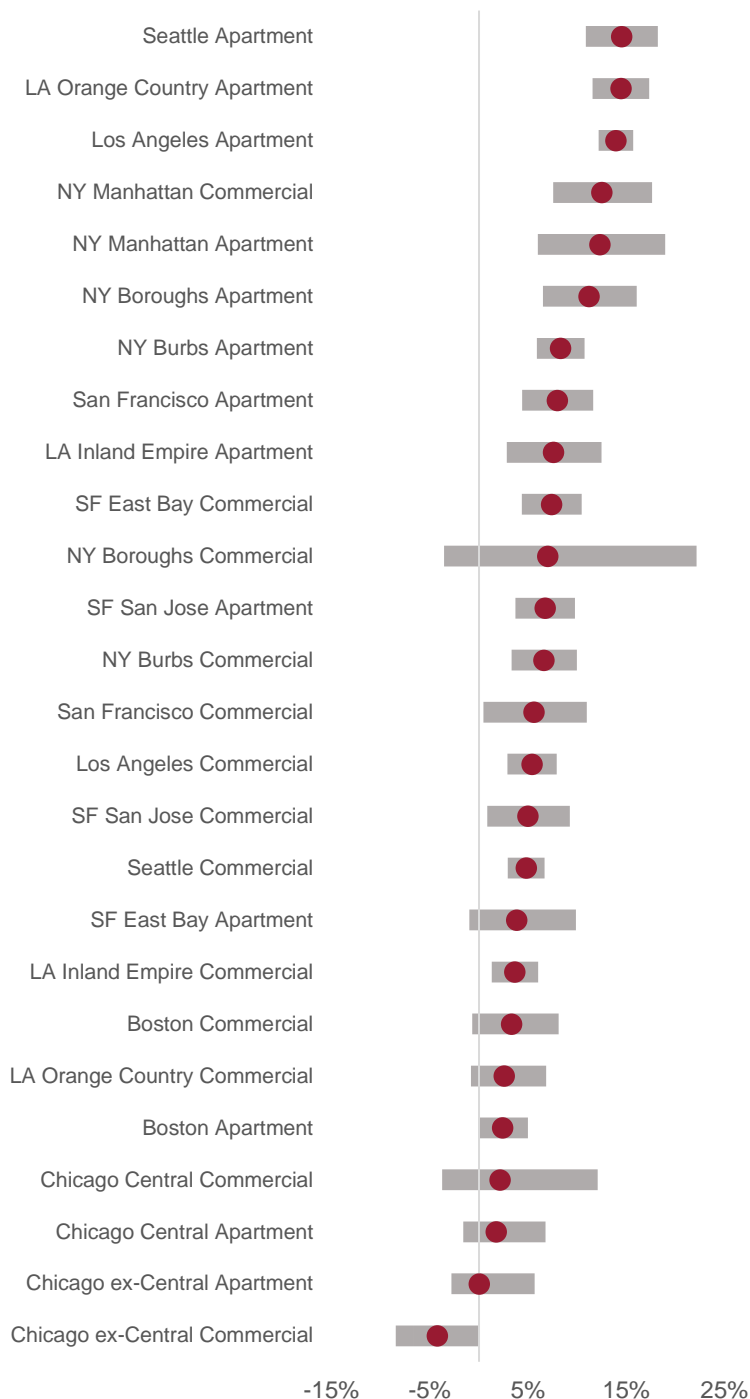


# CPPI FORECAST REPORT

Forecast capital gains from 2018Q2 through 2020Q2.



Based on data through 2018Q2 we forecast an average cumulative capital gain of 6% through 2020Q2. Combined with high expected inflation, this results in the lowest real price growth since the recovery in 2012.

In total 22 of our 26 markets show forecast growth lower than the previous 2 years of history. The exception are Manhattan apartments and commercial, and apartments in New York City Suburbs and San Francisco (Proper). In the New York instances, it seems as if these markets are recuperating recent capital losses.

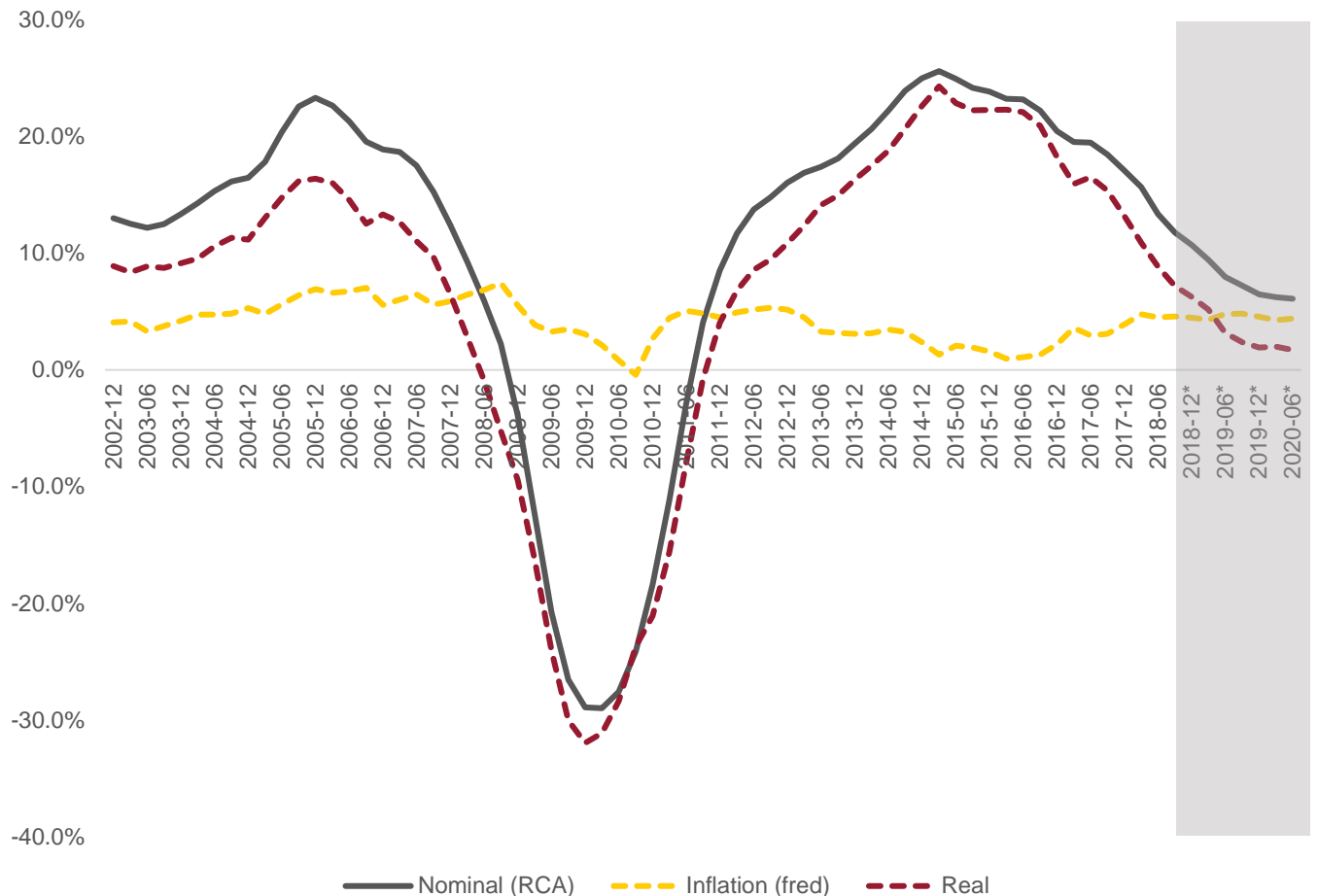
The only markets where our average prediction is negative is Chicago (ex-central) apartments and commercial. However, the lower bound of our forecasts (the left end of the grey bars) includes 8 markets with capital losses. This encompasses all of the Chicago markets, as well as LA Orange County (apartment and commercial), San Francisco East Bay apartment and New York Boroughs and Boston commercial.

On the other hand, Seattle apartment is projected to have the highest growth of all our markets.

## Methodology

We employ nearly 100 forecasting models within a Dynamic Factor Modeling framework. The forecasts apply to the RCA CPPIs. We take the average forecast of the 10 best models based on historic performance (a Model-of-Models). The lower bound is based on the low end of those 10 forecasts, and vice versa.

Rolling 2-year average returns across all markets, both in nominal and real terms (forecast in grey box).



### About the Real Estate Price Dynamics Platform

The MIT Center for Real Estate’s Price Dynamics Platform (PDP, or “Platform” for short) serves at the intersection between Academia and the Real Estate Industry. Seeded by a generous gift by Real Capital Analytics in 2017, we utilize the newest data combined with cutting-edge and interdisciplinary econometric techniques from many fields not just real estate, such as (space) navigation, weather forecasts, and healthcare. We develop innovative tools that potentially have a global impact for real estate stakeholders, resulting in a more transparent real estate market.

We presently publish three products; (1) the Total Return Index, (2) CPPI Forecasts and (3) Investors Supply/Demand Indexes. We aspire to update our products on a regular basis. For more information on the methodology, to get access to the data or other reports, or to subscribe to our products, visit us at: <http://pricedynamicsplatform.mit.edu/>.