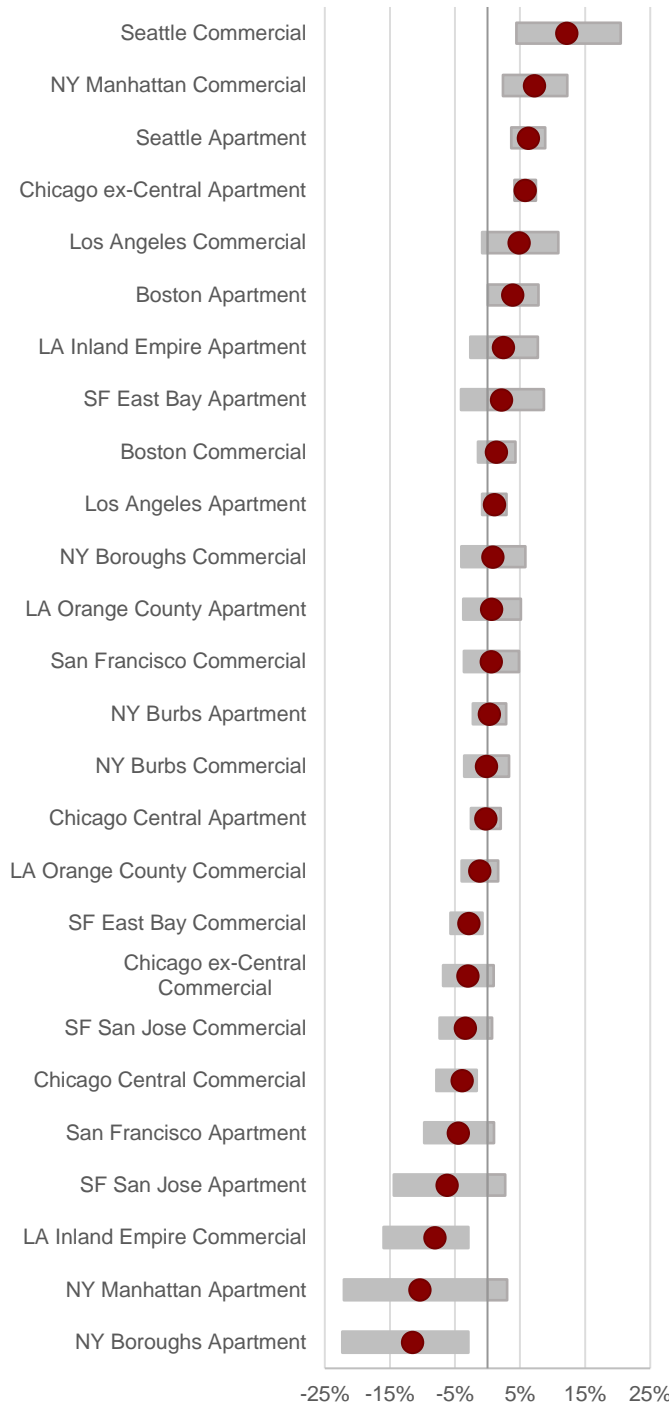


CPPI FORECAST REPORT

Forecast capital gains from 2021Q1 through 2023Q1



Based on data through 2021Q1, we forecast average cumulative price change to remain relatively stable through 2023Q1. Six markets are projected to see prices change by less than 1%. Forecasts for the remaining 20 markets are evenly split between estimated price growth and decline.

The average cumulative price forecast is for the coming two years is 4.5% below the actual change between 2019Q1 and 2021Q1. Among our 26 markets, just 6 are projected to outperform recent history. However, these same markets, all of which are in the San Francisco or New York areas, realized the sharpest price declines over the past two years.

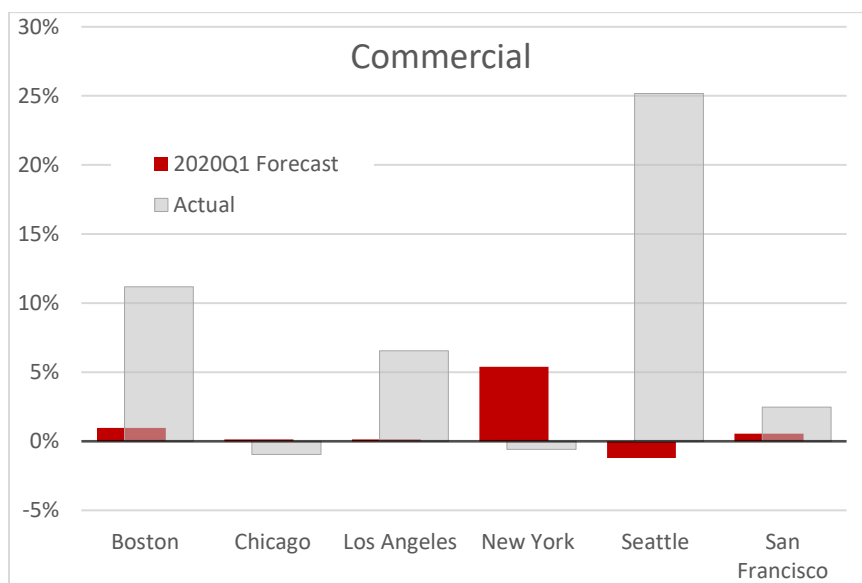
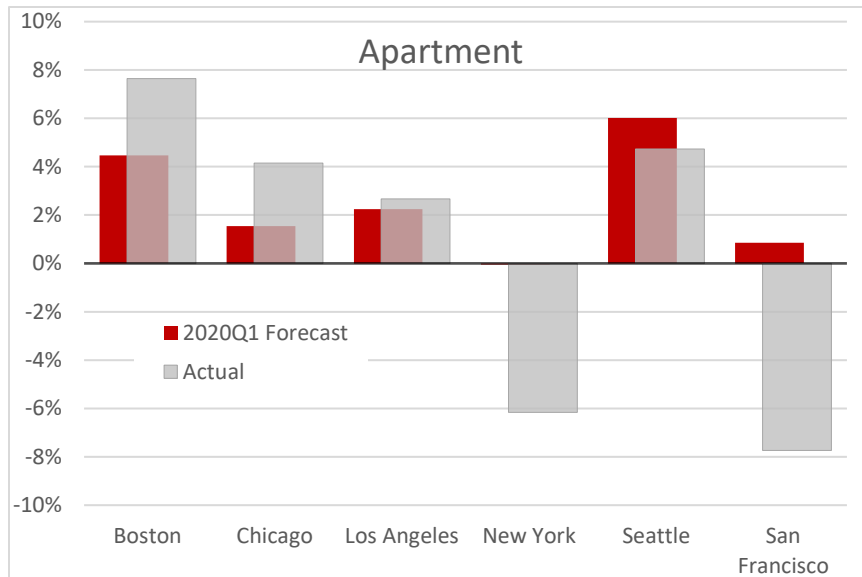
The Seattle commercial (12%) and apartment (6%) markets are projected to have the highest growth in each sector. Capital gains are also anticipated for both sectors in Boston.

While the forecasts for residential real estate in Manhattan and the New York Boroughs are negative, they both exhibit relatively wide uncertainty bounds. In contrast, commercial real estate in these markets are expected to improve and show much narrower range.

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.

RCA CPPIs 2020Q1 one-year forecast versus actual 2020Q1-2021Q1 percent change



At the end of 2020Q1 Covid-19 was just beginning to emerge in the US. The one-year forecasts for both apartments and commercial real estate were largely positive at that point. Looking back over the past year we can see some similarities with our forecast and differences across both industry and geography.

New York was hit hardest by the pandemic with both falling 6% short of the 2020Q1 forecast. San Francisco was the only other metro where apartment prices declined, falling 9% from the pre-pandemic forecast. However, commercial prices ended slightly higher than forecast.

The Boston market showed the greatest strength relative to the 2020Q1 forecast. Apartment and commercial prices ended much higher than projected. The Seattle market was split. Commercial prices rose 26% over the year, compared to an expected 1% decline. Apartment prices also rose, but they fell short of the prior forecast.

Apartment prices in Chicago and LA outperformed expectations. On the commercial side, the 2020Q1 showed prices would remain flat. LA commercial prices beat expectations, while Chicago's fell short.

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 two products, (1) the CPPI Forecasts and (2) 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/>.