Apartment Markets: The Macro Perspective

Jeff Adler
Vice President
Yardi Matrix

Jeanette Rice
Americas Head of Multifamily Research
CBRE

Mark Obrinsky
SVP of Research and Chief Economist
NMHC

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*Valuations break even at 3.9% revenue growth given a 50 bp increase in rates and 5.3% given a 75 bp increase in rates.
**SURPRISE? INTERNAL RATE OF RETURN OUTPUTS ARE REACTIVE**

The chart illustrates the effect of interest rates on the internal rate of return (IRR) for a given 3% revenue growth. Here are the key points:

- **0 bps (Initial estimate)**: 16.1%
- **50 bps**: 14.8%
- **75 bps**: 14.1%
- **100 bps**: 13.4%
- **125 bps**: 12.7%

*An increase of 75 basis points (bps) results in an internal rate of return that is 2.0% lower.*

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*A 75 bp increase in rates cuts 2.0% off of internal rate of return.*
APARTMENT PIPELINE – TOP 64 MARKETS: 2011 – 2017

Construction Activity and Completions

Units

Under Construction
Completions

0 100,000 200,000 300,000 400,000 500,000 600,000 700,000 800,000
EMPLOYMENT VS SUPPLY; FEW MARKETS IN DANGER OF OVERSUPPLY

- Slower growth, Potential Supply Absorption Issues
  - <4.0% forecasted rent growth
  - 4.0%-7.0% forecasted rent growth
  - >7.0% forecasted rent growth

- Higher Growth, Potential Supply Absorption Issues
- Higher Growth, Not yet oversupplied

<table>
<thead>
<tr>
<th>Completions as a % of Stock</th>
<th>Job Growth YoY</th>
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<tbody>
<tr>
<td>0%</td>
<td>0.0%</td>
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<tr>
<td>1%</td>
<td>1.0%</td>
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<tr>
<td>2%</td>
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<tr>
<td>3%</td>
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<tr>
<td>4%</td>
<td>4.0%</td>
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<tr>
<td>5%</td>
<td>5.0%</td>
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<tr>
<td>6%</td>
<td>6.0%</td>
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</tbody>
</table>

Cities and their respective growth rates:
- Atlanta: 4.0%-7.0% forecasted rent growth
- Baltimore: <4.0% forecasted rent growth
- Boston: >7.0% forecasted rent growth
- Charlotte: <4.0% forecasted rent growth
- Chicago: >7.0% forecasted rent growth
- Cincinnati: <4.0% forecasted rent growth
- Cleveland: >7.0% forecasted rent growth
- Dallas: <4.0% forecasted rent growth
- Denver: >7.0% forecasted rent growth
- Detroit: <4.0% forecasted rent growth
- Houston: >7.0% forecasted rent growth
- Indianapolis: <4.0% forecasted rent growth
- Jacksonville: >7.0% forecasted rent growth
- Kansas City: <4.0% forecasted rent growth
- Las Vegas: >7.0% forecasted rent growth
- Los Angeles: >7.0% forecasted rent growth
- Memphis: <4.0% forecasted rent growth
- Miami: >7.0% forecasted rent growth
- Milwaukee: <4.0% forecasted rent growth
- Minneapolis: <4.0% forecasted rent growth
- Nashville: >7.0% forecasted rent growth
- New York: >7.0% forecasted rent growth
- Orlando: >7.0% forecasted rent growth
- Philadelphia: >7.0% forecasted rent growth
- Phoenix: >7.0% forecasted rent growth
- Portland: >7.0% forecasted rent growth
- Sacramento: >7.0% forecasted rent growth
- San Antonio: >7.0% forecasted rent growth
- San Diego: >7.0% forecasted rent growth
- San Francisco: >7.0% forecasted rent growth
- Seattle: >7.0% forecasted rent growth
- St. Louis: <4.0% forecasted rent growth
- Tampa: >7.0% forecasted rent growth
- Washington, DC: >7.0% forecasted rent growth
- Austin: >7.0% forecasted rent growth
- Denver: >7.0% forecasted rent growth
- Portland: >7.0% forecasted rent growth
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NMHC
TOTAL HOUSING SUPPLY LAGS DEMAND SINCE RECESSION

- Housing Starts-Single family
- Housing Starts-Multifamily
- New Household Formations

[Bar chart showing total housing supply from 1990 to 2014, with labels for each year and split categories for housing starts and new household formations.]
REAL ESTATE FUNDAMENTALS: DEMOGRAPHICS FAVORABLE

Demographics favor apartments over the long-term

U.S. Population: Age 20-34 Cohort

Millions

2015 2017 2019 2021 2023 2025 2027 2029 2031 2033 2035 2037 2039 2041
FUTURE RENTAL DEMAND LOOKS STRONG

Total Demand

- High
- Middle
- Low

Millions of Units

**MILLENNIAL TAILWINDS**

**FACT:**

The average age of first-time mothers has steadily increased

Since 1970, the average age of mothers giving birth to their first child has increased from 21 to 25. For all births, the average age of the mother has increased by about three years over this same period.

MILLENNIAL HEADWINDS

Head of the Class
Average debt per borrower in each year’s graduating class

Source: Mark Kantrowitz | WSJ.com