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Measuring Apartment Performance

Sara Rutledge, NCREIF Director of Research

2016 NMHC Research Forum

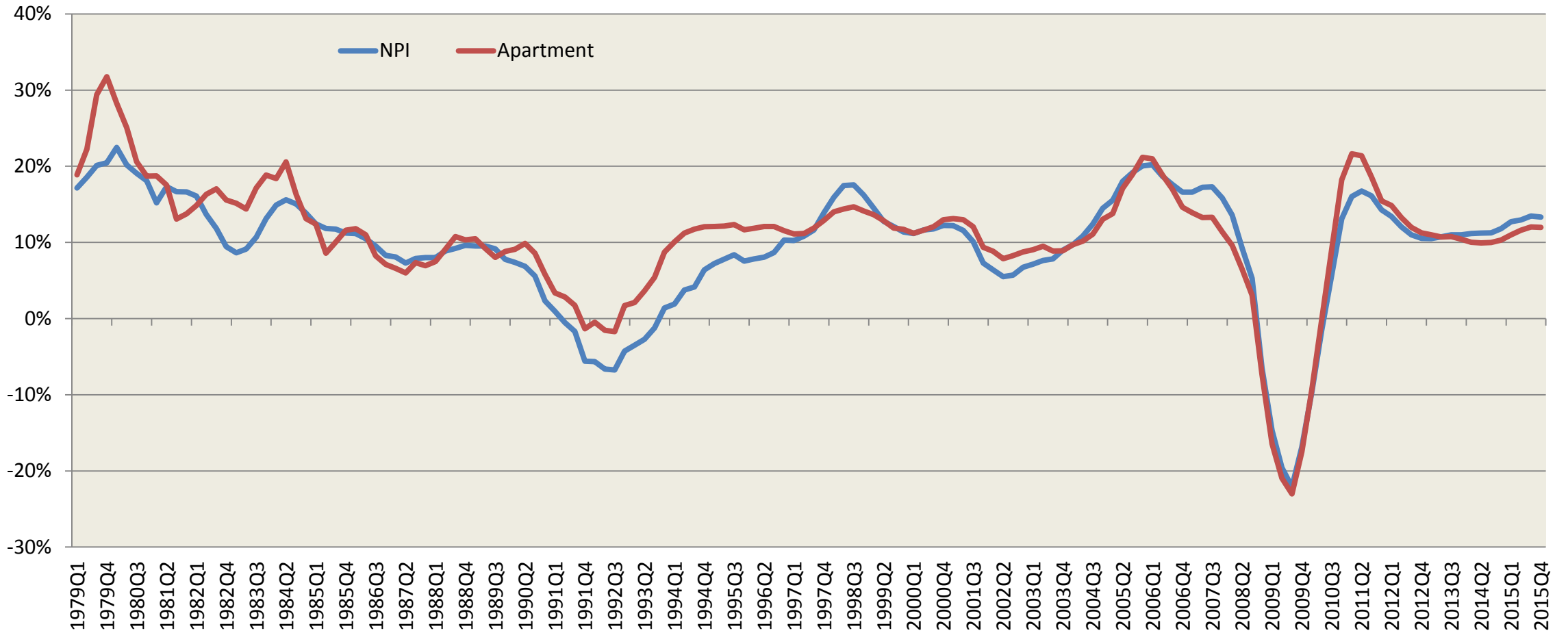
April 6-7, 2016

MEASURING APARTMENT PERFORMANCE

Using NCREIF Data

- NPI returns
- Analytics tool
- Price/value measures
- Fundamentals
- Operations measures

NCREIF Property Index: Overall and Apartment Total Annual Returns

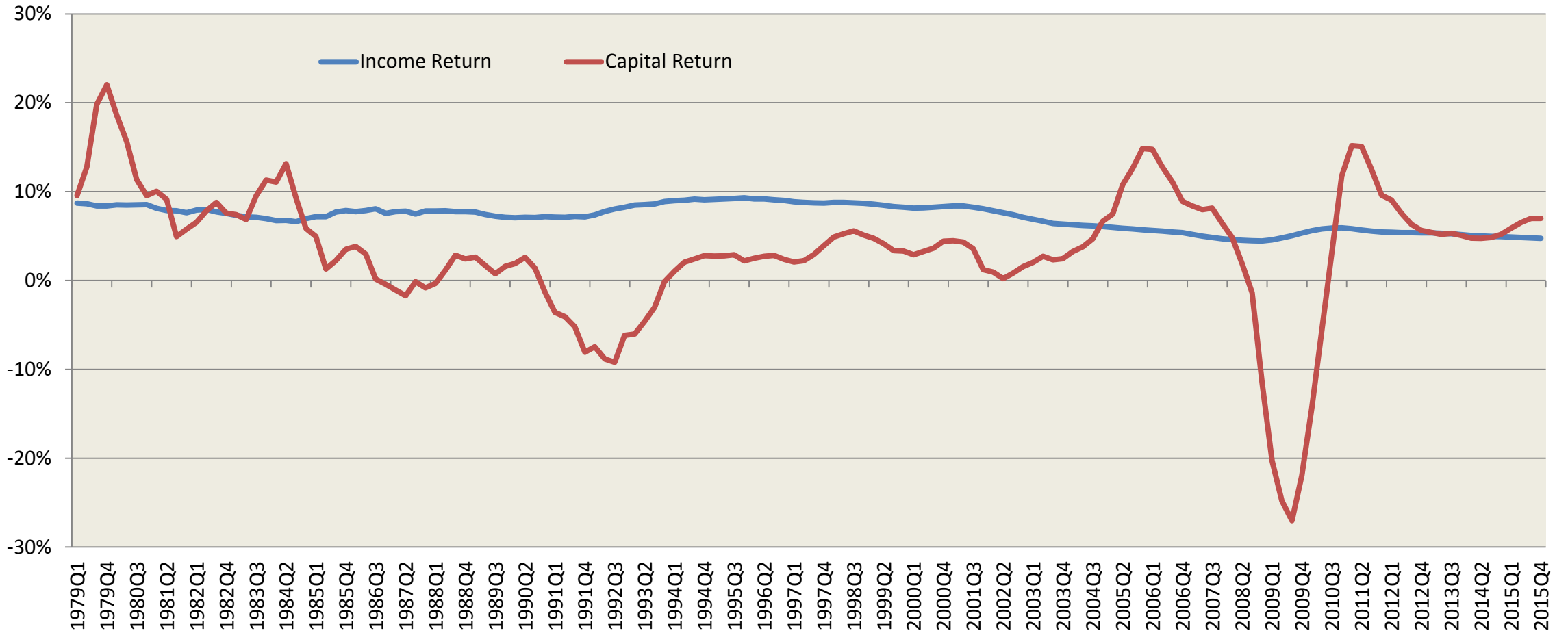


Data as of December 31, 2015



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NCREIF Property Index: Apartment Annual Income and Capital Returns



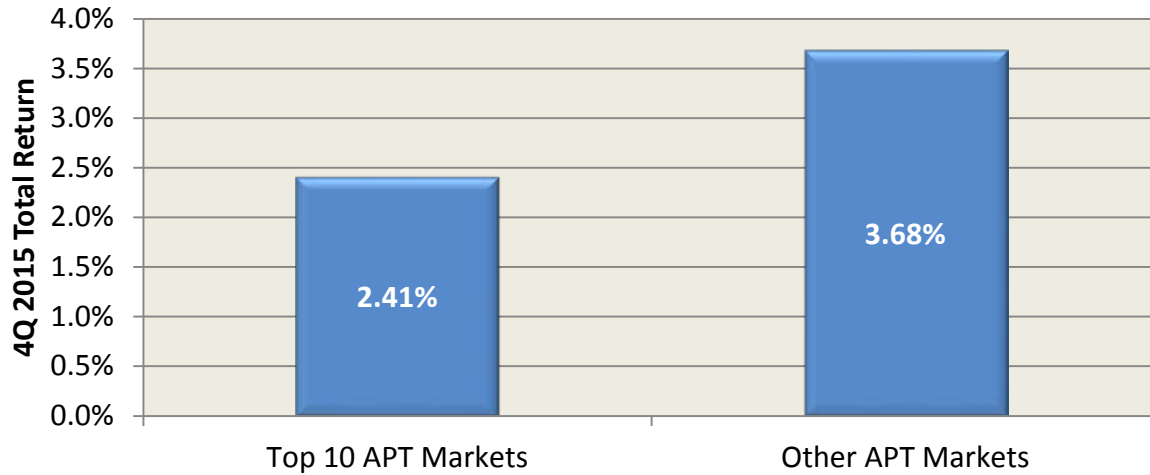
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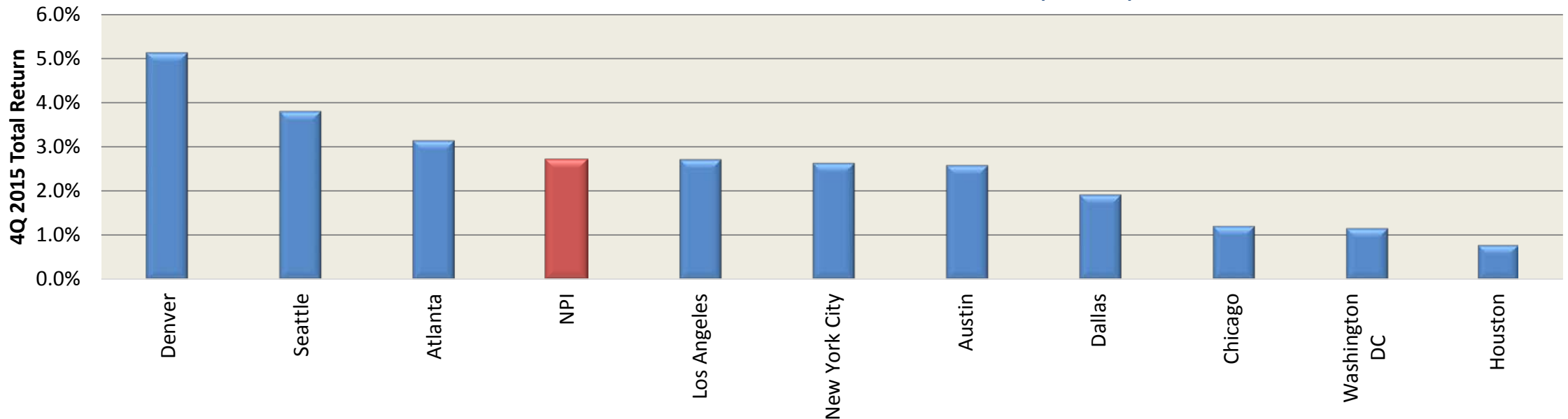
NCREIF Property Index: Top 10 Apartment Markets by Value

Top 10 Apartment Markets versus All Others



Top 10 APT Markets	MV (\$Bil)
New York City	\$ 12.55
Chicago	\$ 9.05
Los Angeles	\$ 7.79
Washington DC	\$ 7.47
Dallas	\$ 6.10
Seattle	\$ 5.75
Denver	\$ 5.51
Houston	\$ 5.04
Atlanta	\$ 3.74
Austin	\$ 3.31

Top 10 Apartment Markets and NPI APT



Data as of December 31, 2015

NCREIF Analytics

- Performance comparisons
 - Summary Performance Measures (shown) for cross-market analysis
 - Market Performance Report compares one market to US
- Operation indicators
 - Summary Operation Indicators for cross-market analysis
 - Market Operation Report compares one market to US
- Filters for property type, CBSA/Division, term, end date, and measures (for operation reports)

Property Type: CBSA:
 Term: As Of Date:
 Number of MSAs:

1 of 1 Find | Next

NCREIF ANALYTICS Summary Performance Measures (15q4) 15-Year Apartment CBSAs

Total Return v Risk

Total Return

15-Year Apartment Summary Statistics

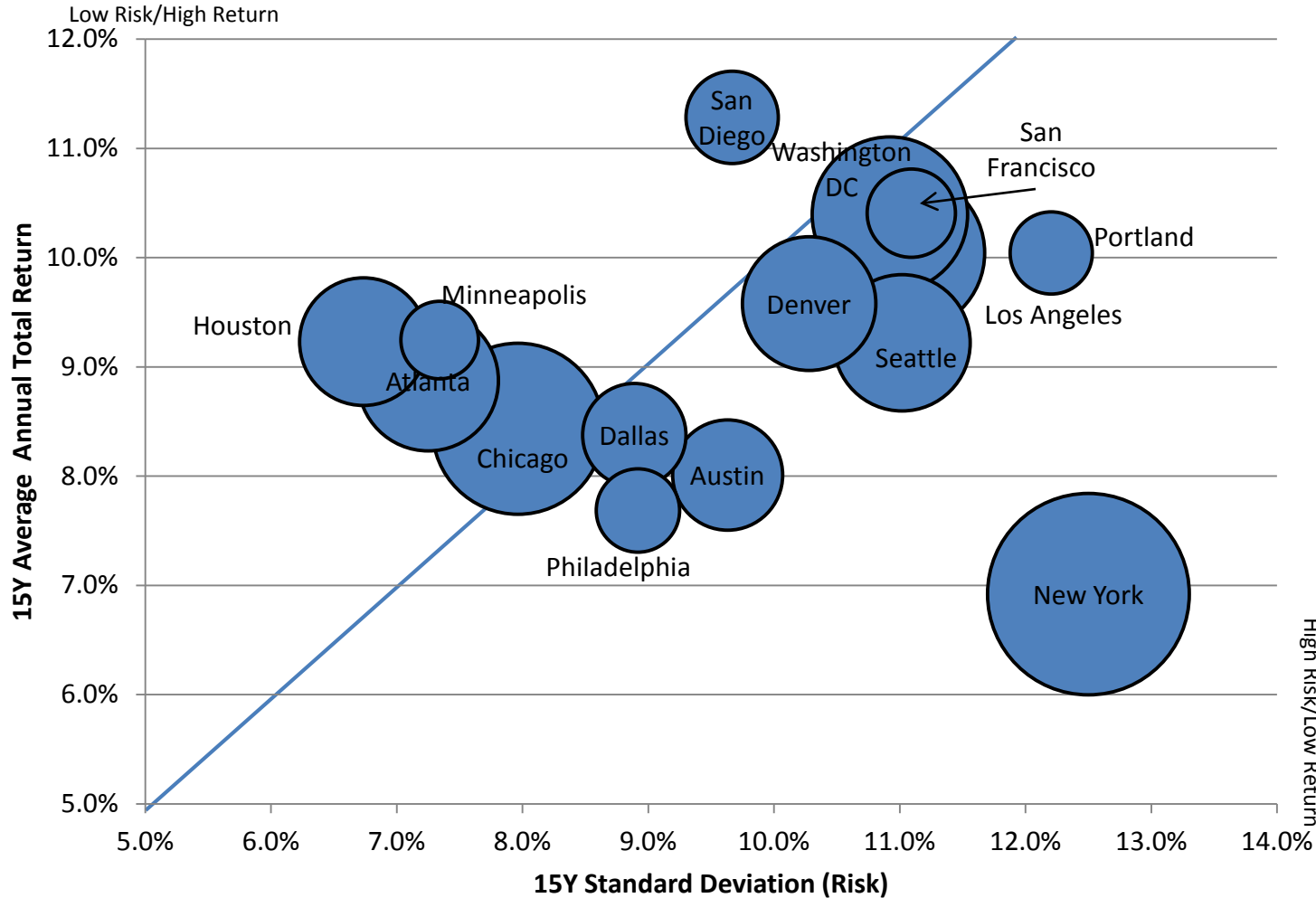
Metro	Pct NPI	Geomean	Mean	Stdev	Beta	Alpha	Correl. to NPI
New York	1.6%	6.9%	7.7%	12.5%	1.3	-4.5%	0.98
Washington, D.C.	1.1%	10.4%	10.9%	10.9%	0.9	2.5%	0.77
Chicago	0.9%	8.4%	8.7%	8.0%	0.8	1.4%	0.92
Los Angeles	0.9%	10.0%	10.6%	11.0%	1.1	0.3%	0.94
Dallas	0.7%	8.9%	9.1%	7.3%	0.7	2.7%	0.89
Atlanta	0.6%	8.0%	8.5%	9.6%	0.9	-0.5%	0.94
Miami	0.6%	10.9%	11.7%	13.8%	1.2	-0.1%	0.86
Houston	0.5%	9.2%	9.4%	6.7%	0.6	4.2%	0.78
Denver	0.5%	9.6%	10.1%	10.3%	0.9	1.4%	0.84
Seattle	0.4%	9.2%	9.8%	11.0%	1.1	-0.6%	0.95
San Francisco	0.4%	10.4%	11.0%	11.1%	1.1	0.6%	0.94
Austin	0.4%	8.4%	8.7%	8.9%	0.8	0.9%	0.89
San Diego	0.4%	11.3%	11.7%	9.7%	0.9	3.4%	0.86
Philadelphia	0.3%	7.7%	8.1%	8.9%	0.9	-0.2%	0.93
Phoenix	0.3%	8.1%	9.1%	14.4%	1.4	-4.1%	0.92
Riverside	0.2%	10.5%	11.2%	12.2%	1.1	0.5%	0.88
Tampa	0.2%	9.7%	10.3%	12.2%	1.1	-0.5%	0.90
Minneapolis	0.2%	9.2%	9.5%	7.3%	0.7	3.1%	0.87

Standard Deviation

Beta

NCREIF Analytics: Apartment Summary

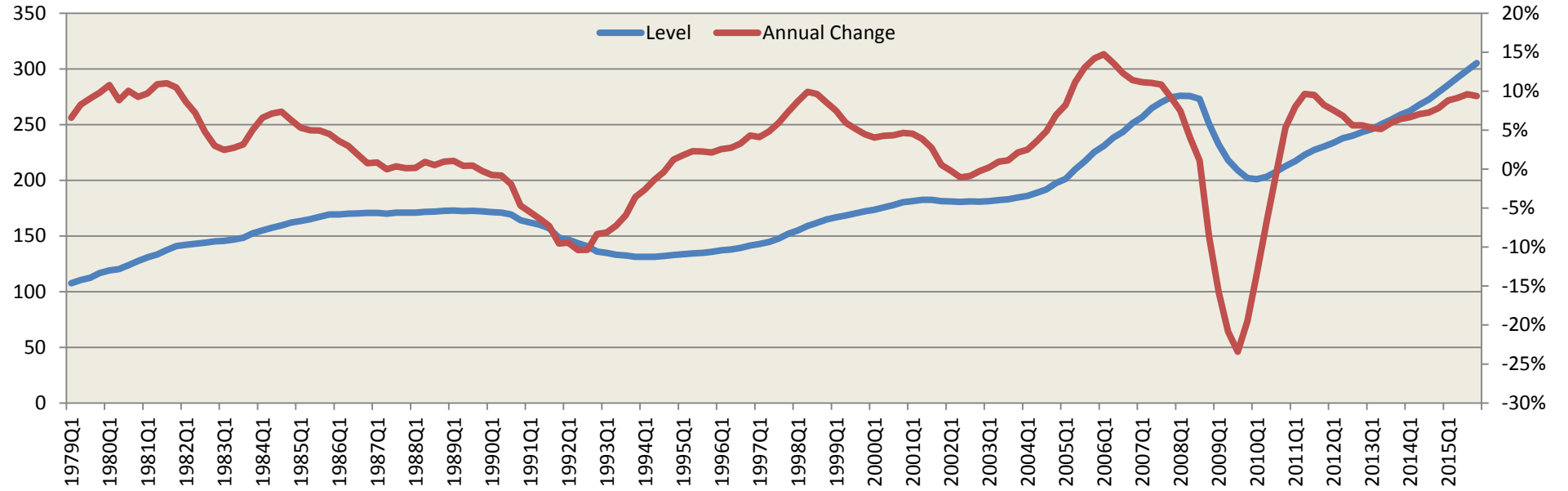
Long-Term Performance Characteristics of the Largest NPI Apartment Markets



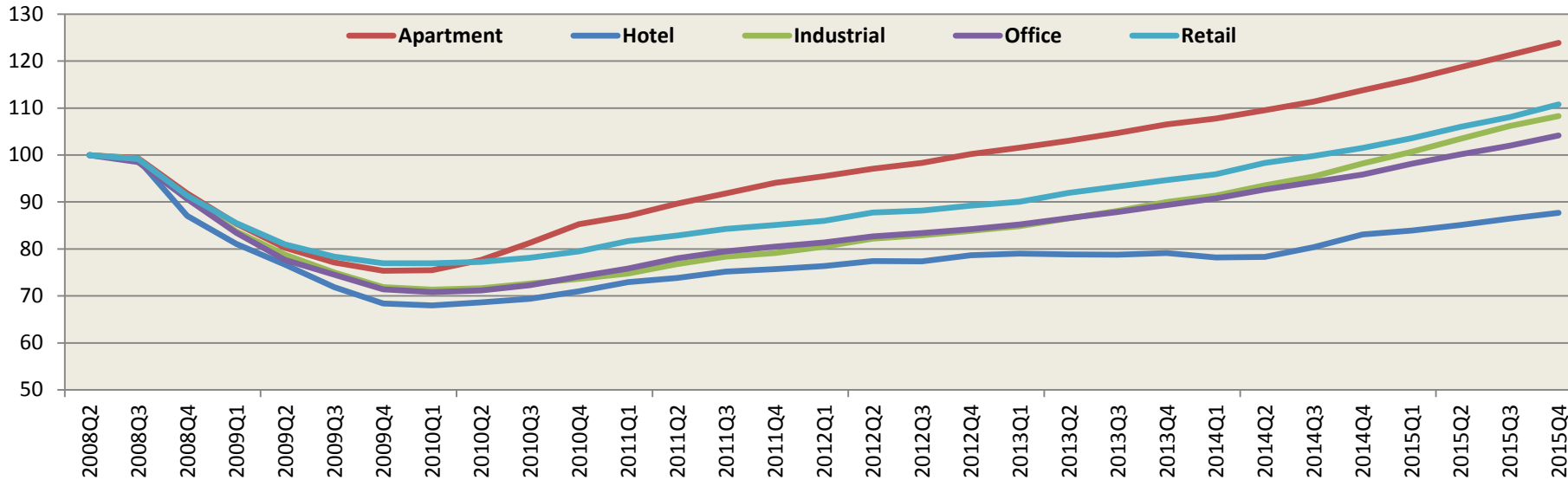
Market	Annual Avg Alpha to NPI	Correlation to NPI
New York	-4.5%	0.98
Chicago	1.4%	0.92
Los Angeles	0.3%	0.94
Washington DC	2.5%	0.77
Dallas	2.7%	0.89
Seattle	-0.6%	0.95
Denver	1.4%	0.84
Houston	4.2%	0.78
Atlanta	-0.5%	0.94
Austin	0.9%	0.89
San Diego	3.4%	0.86
San Francisco	0.6%	0.94
Philadelphia	-0.2%	0.93
Portland	0.4%	0.85
Minneapolis	3.1%	0.87

Data as of December 31, 2015

NCREIF Indicators: Market Value Index (MVI)

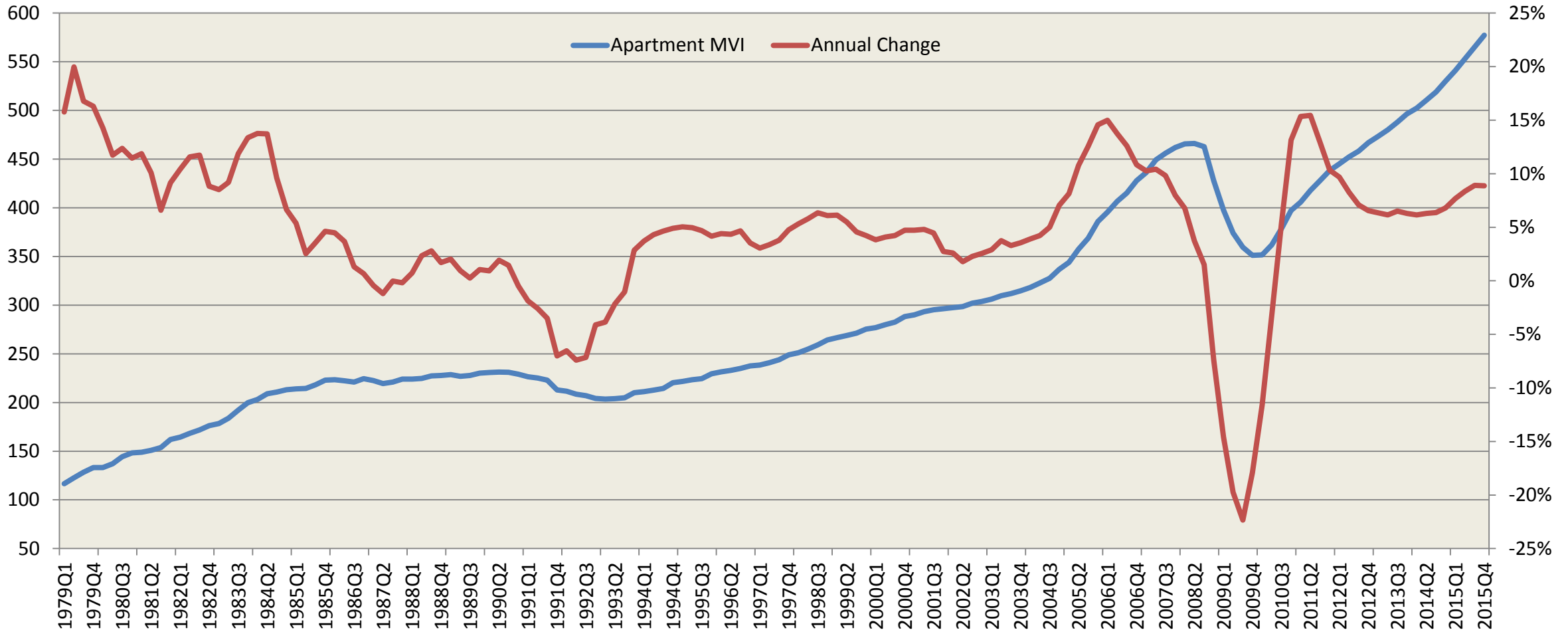


MVI by Property Type



Data as of December 31, 2015; The Market Value Index (MVI) is an equal-weighted index and excludes expansion capital expenditures.

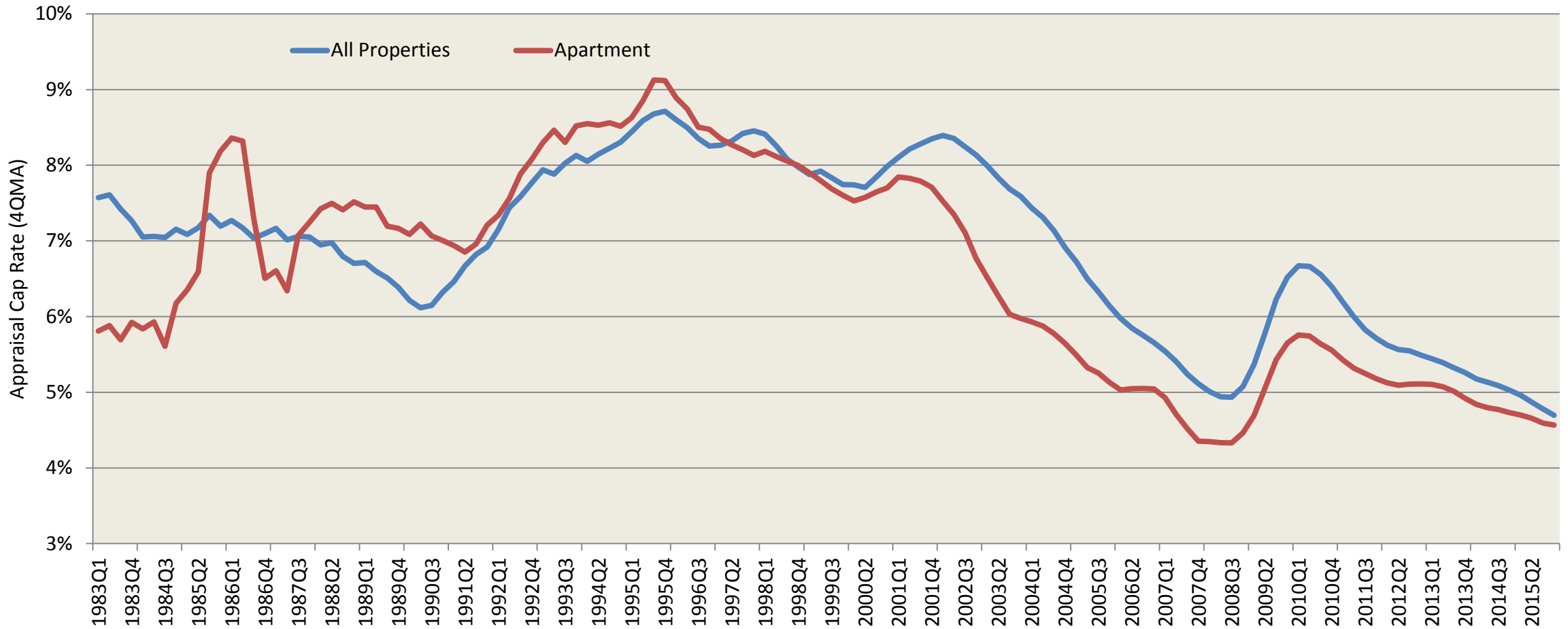
NCREIF Indicators: Apartment Market Value Index (MVI)



Data as of December 31, 2015



NCREIF Indicators: Overall and Apartment Implied Appraisal Cap Rates

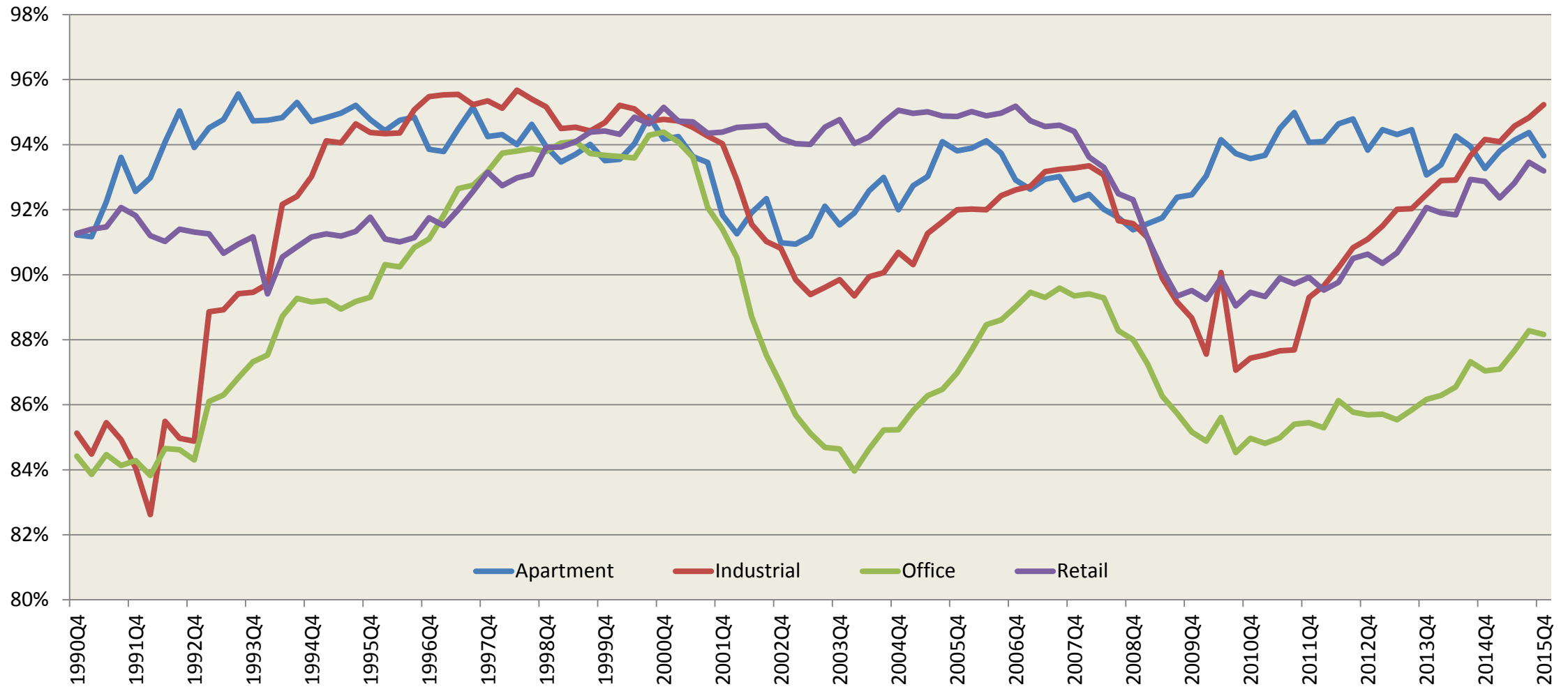


Data as of December 31, 2015



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NCREIF Indicators: Occupancy Rates by Property Type

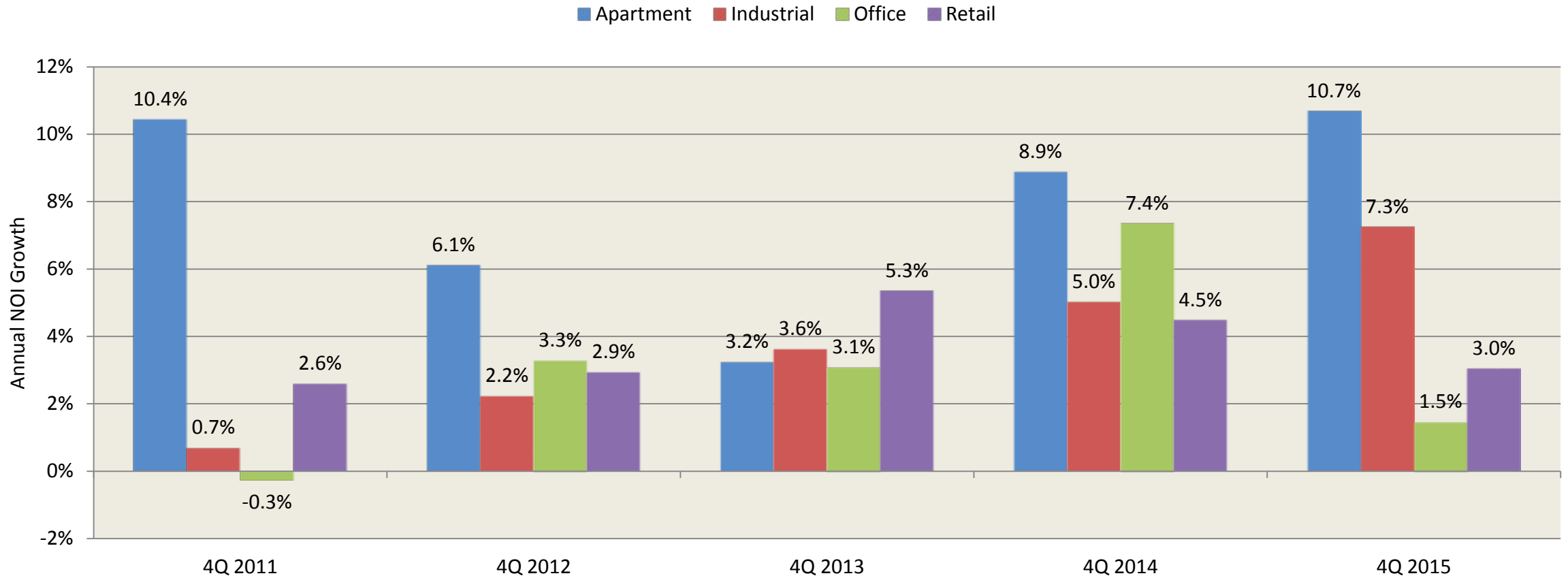


Data as of December 31, 2015



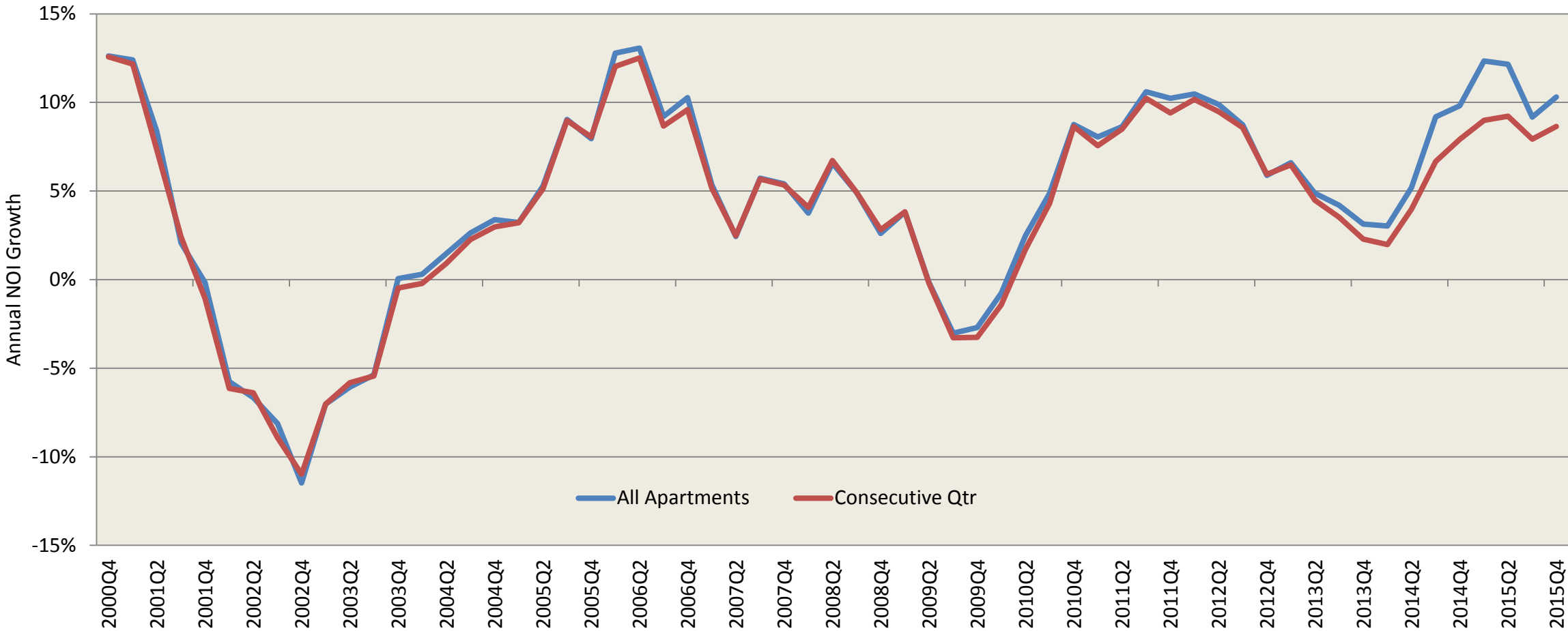
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NCREIF Indicators: Net Operating Income Growth by Property Type



Data as of December 31, 2015

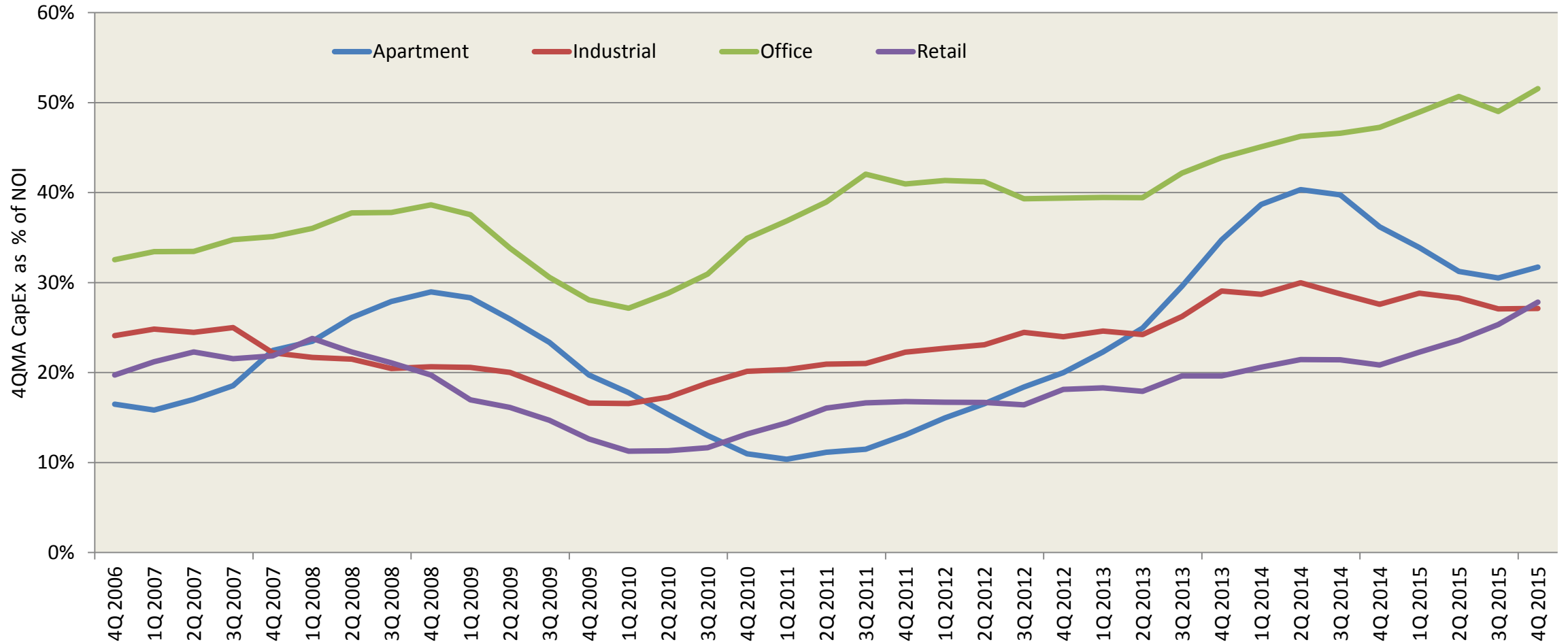
NCREIF Indicators: Apartment Net Operating Income



Data as of December 31, 2015; "Consecutive Qtr" reflects NOI growth for apartment properties in the NPI database for two consecutive quarters.



NCREIF Indicators: Capital Expenditures as Share of NOI by Property Type

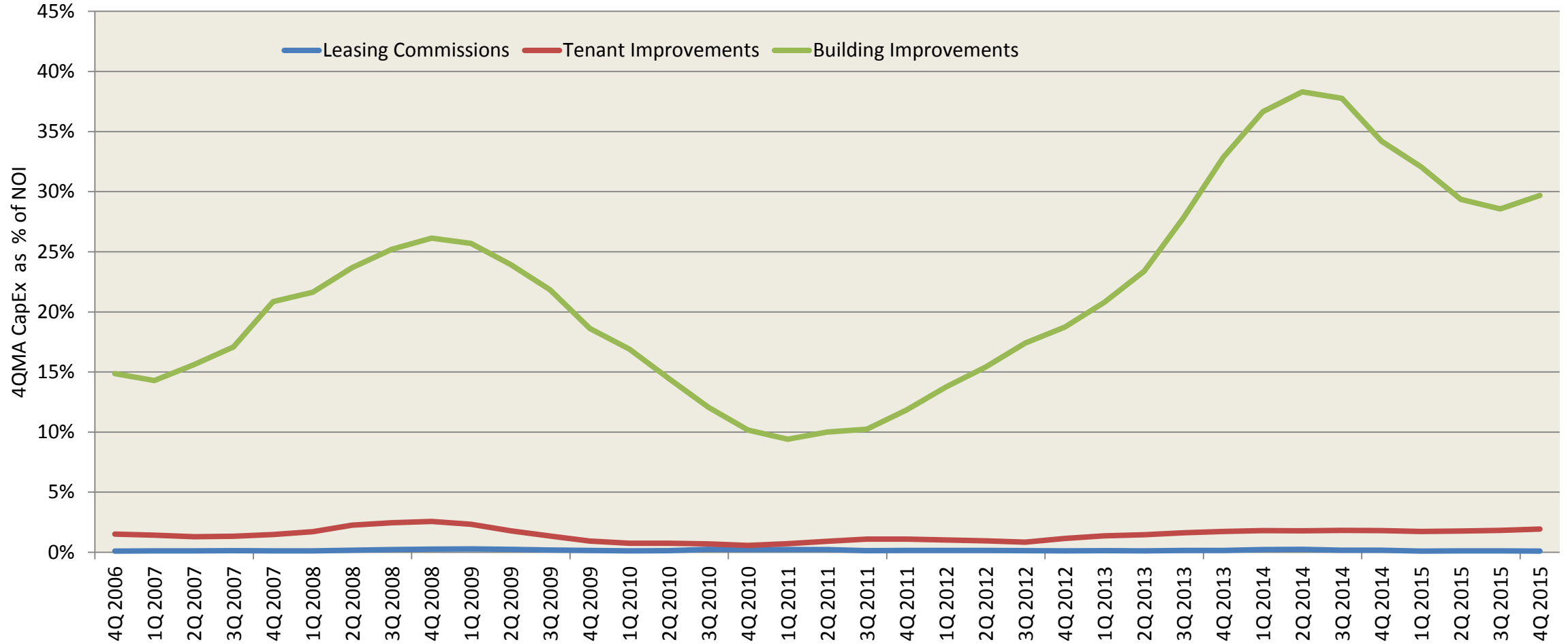


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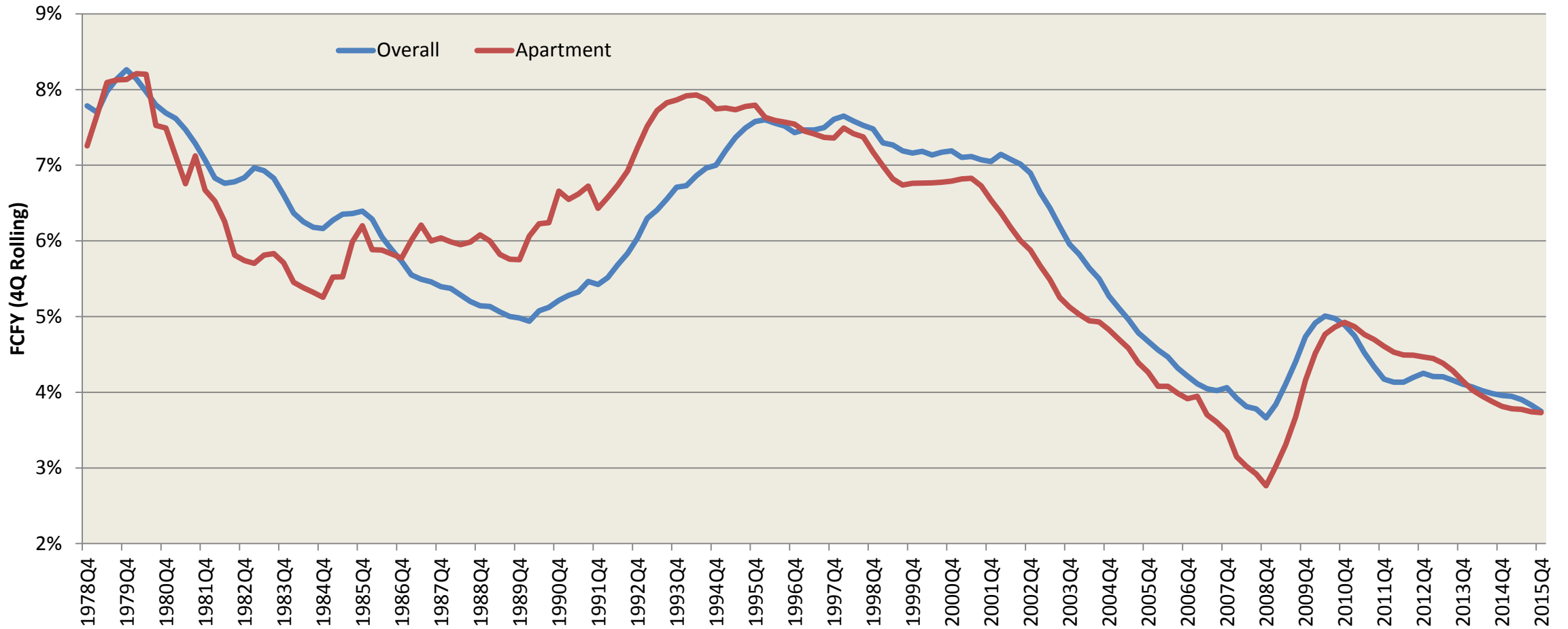
NCREIF Indicators: Apartment Capital Expenditure Detail as Share of NOI



Data as of December 31, 2015



NCREIF Indicators: Annual Free Cash Flow Yield (FCFY)



Data as of December 31, 2015



Thank You!

Sara Rutledge, NCREIF Director of Research

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