

Real Estate Cycles

Glenn R. Mueller, Ph.D.

Academic Director

Family Office Real Estate Institute

glenn.mueller@fore.institute

&

Professor - University of Denver

Franklin L. Burns School of Real Estate

& Construction Management

glenn.mueller@du.edu



UNIVERSITY of
DENVER

DANIELS COLLEGE OF BUSINESS
Franklin L. Burns School of Real
Estate & Construction Management



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INSTITUTE



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Undergraduate BSBA - Real Estate and/or Construction Management

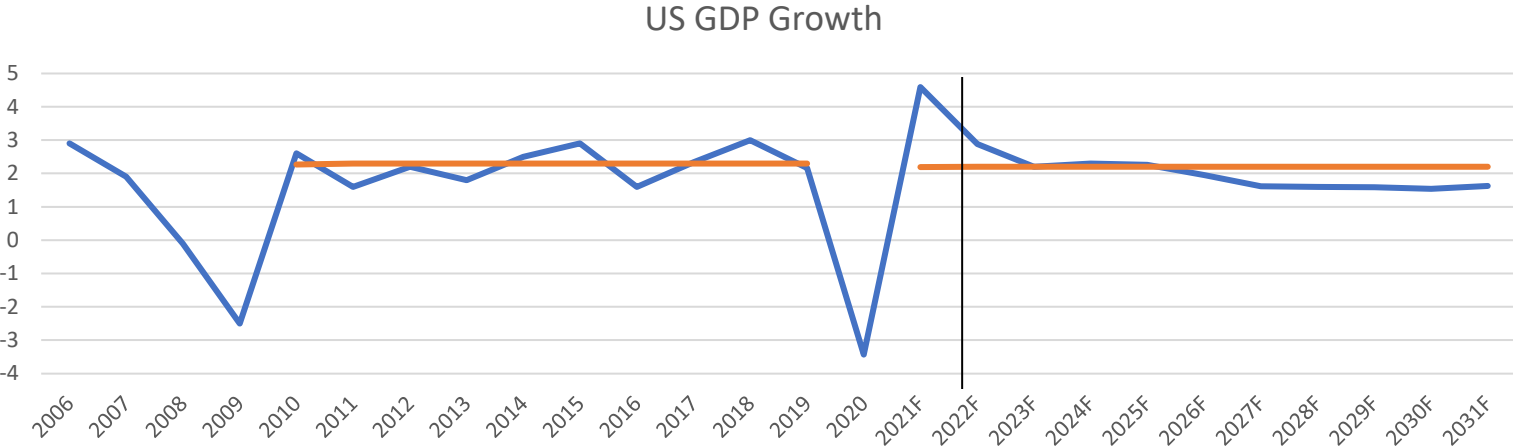
Graduate MBA or MS - Real Estate and/or Construction Management

Executive MS in Real Estate and/or Construction Management

Executive PhD in Business with RECM major concentration

Five Key Macro Economic Factors - 3 Demand Drivers

Population Growth 0.7% = 3 million people/year



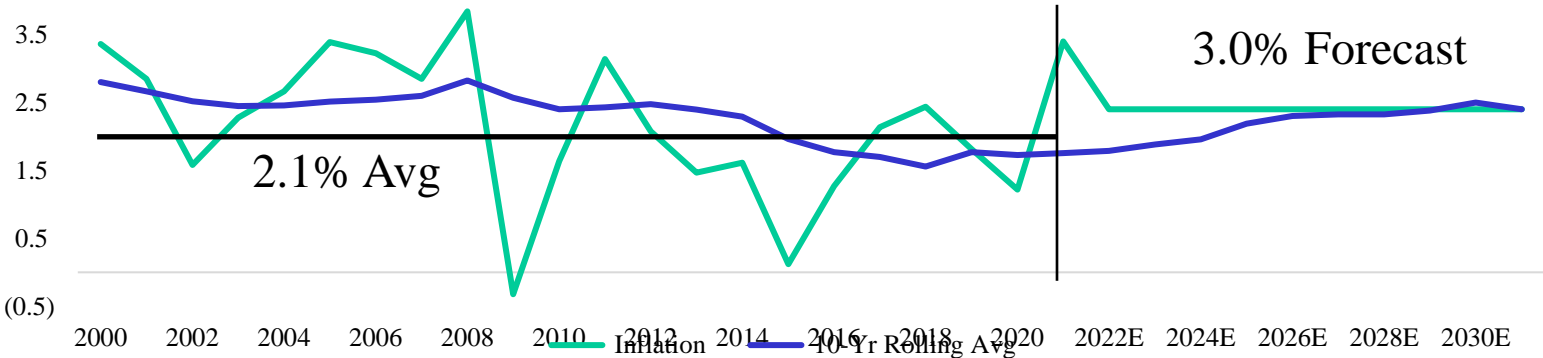
¹ Source: U.S. Bureau of Economic Analysis, January 2020; Congressional Budget Office, January 2020.

² Source: U.S. Bureau of Labor Statistics, January 2020; Congressional Budget Office, January 2020.

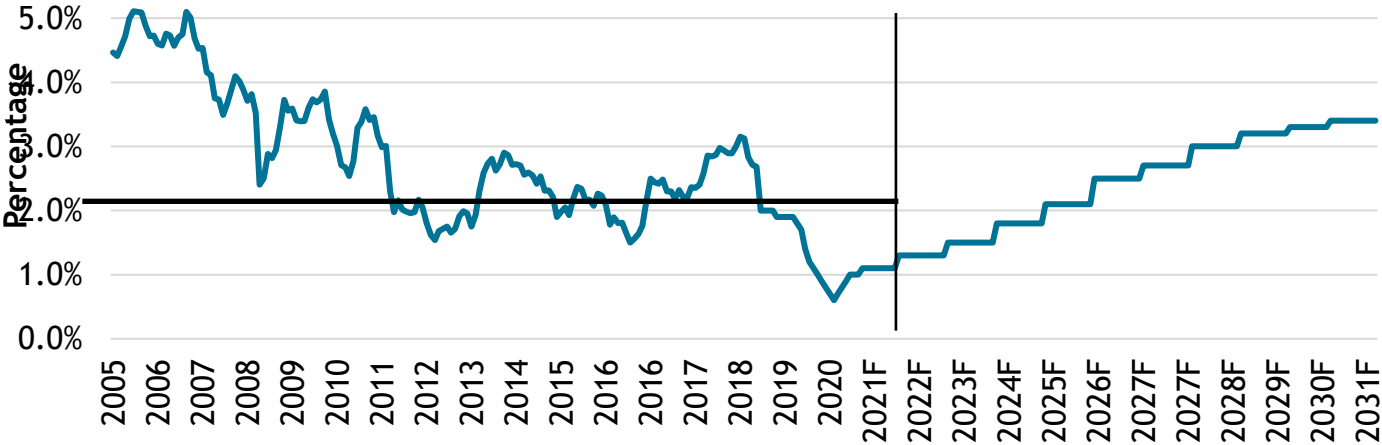
Five Key Macro Economic Factors

Costs

Inflation



Interest Rates – 10 Year Treasury



¹ Source: Federal Reserve Bank of St. Louis, January, 2020 – Congressional Budget Office January 2020

Market Cycle Analysis

Physical Cycle

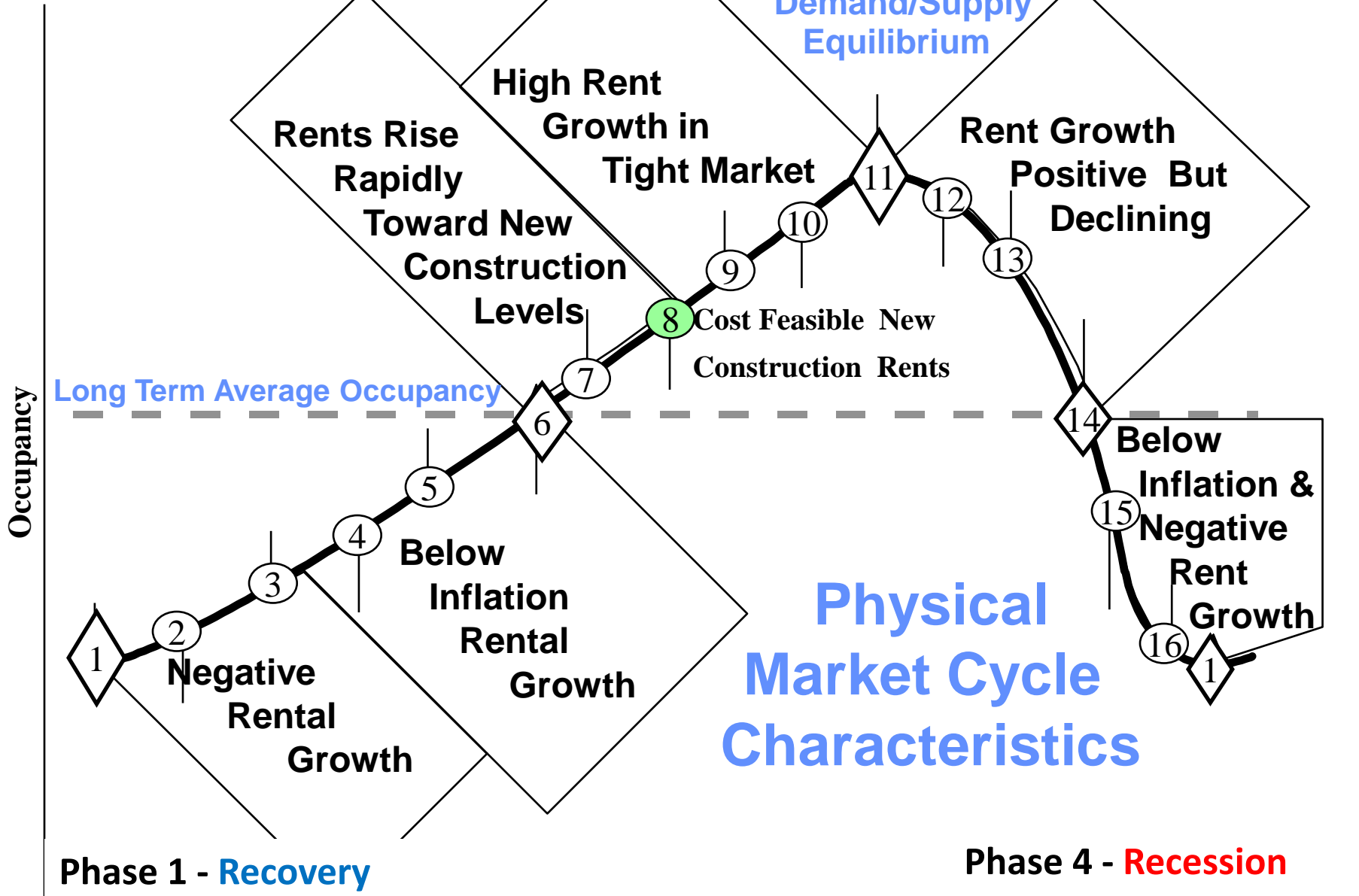
Demand & Supply drive Occupancy

Occupancy drives Rental Growth

Occupancy + Rent = Income Growth

Phase 2 - Expansion

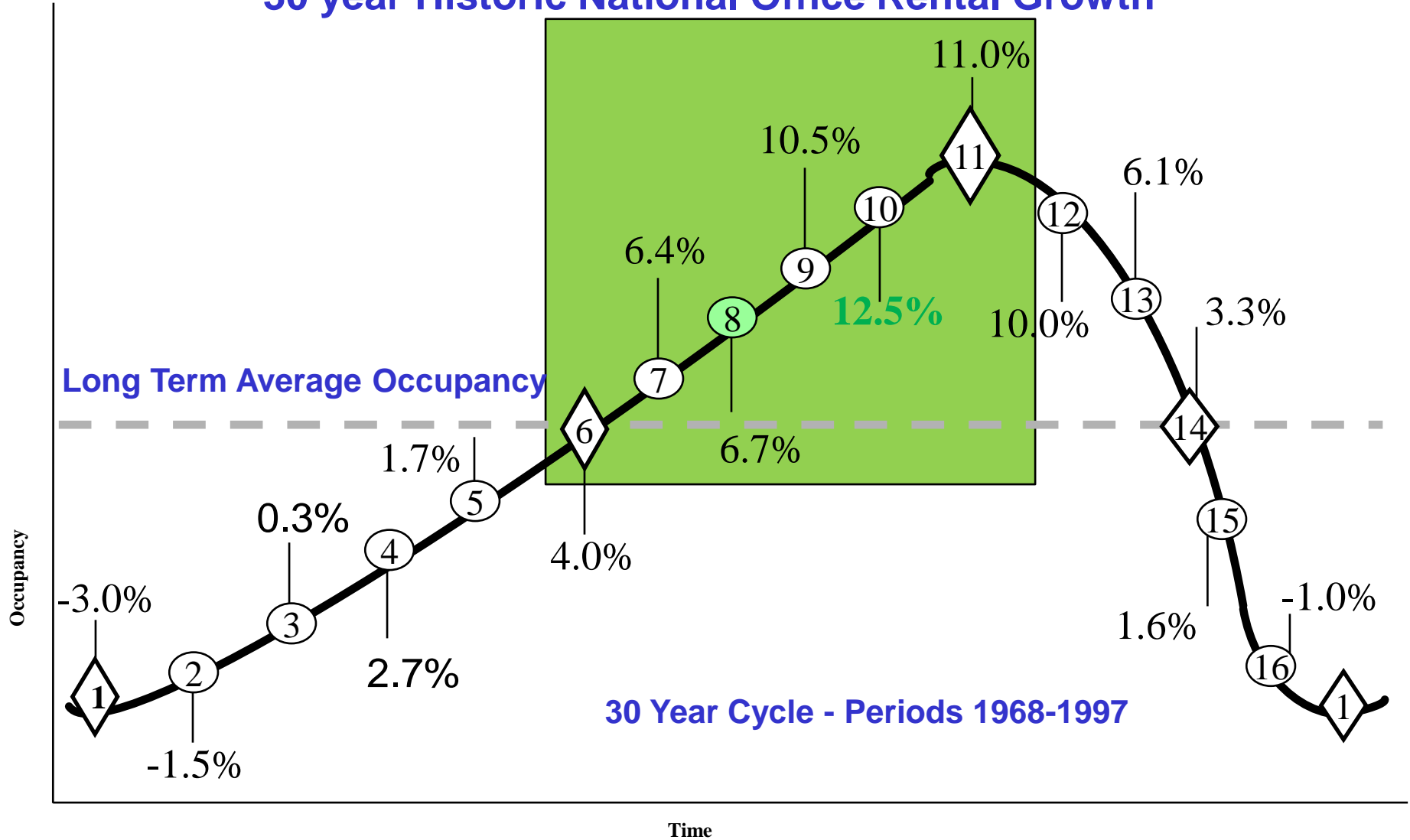
Phase 3 - Hyper-supply



Phase 2 - Expansion

Phase 3 - Hyper-supply

30 year Historic National Office Rental Growth



Phase 1 - Recovery

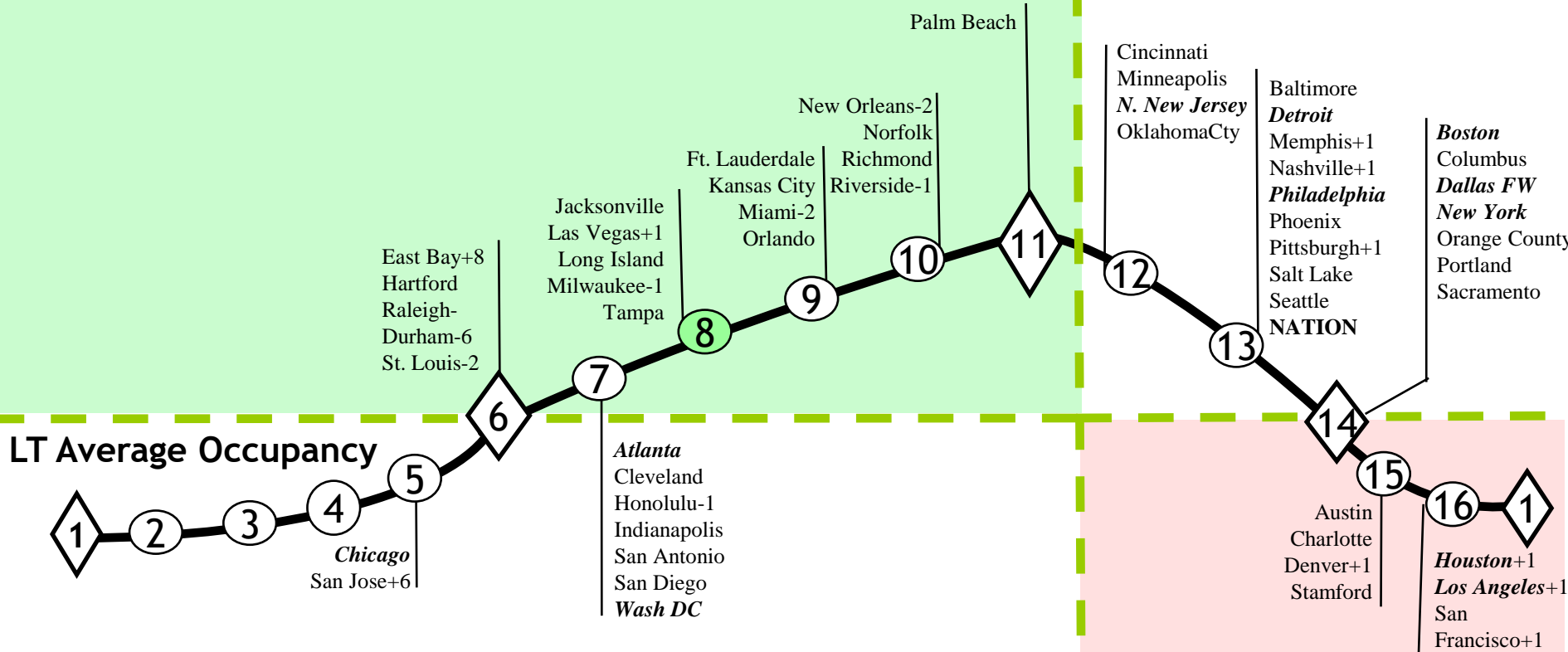
Phase 4 - Recession

Office Market Cycle Analysis

4th Quarter, 2021

Phase 2 – Expansion

Phase 3 – Hypersupply



Phase 1 – Recovery

Phase 4 – Recession

Industrial Market Cycle Analysis

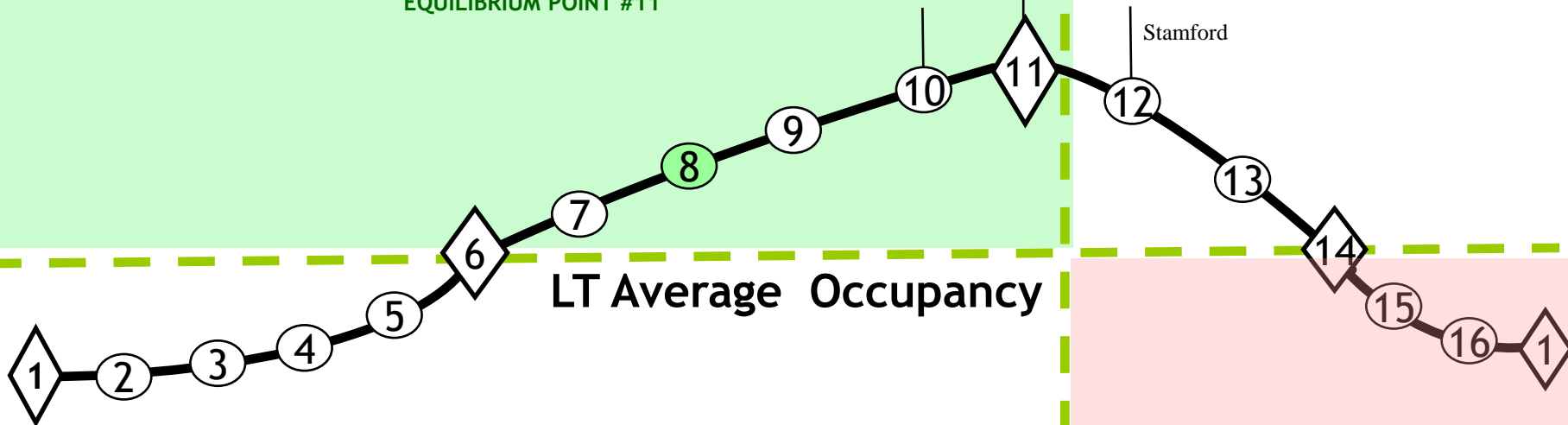
4th Quarter, 2021

Phase 2 – Expansion

Phase 3 – Hypersupply

<i>Atlanta</i>	Hartford	New York	Richmond
Austin	Honolulu	Norfolk	Riverside
Baltimore+1	Houston-1	<i>N. New Jersey</i>	Sacramento
Boston	Indianapolis	New Orleans	Salt Lake
Charlotte	Jacksonville	Oklahoma City	San Antonio
Chicago	Kansas City	Orange County	San Diego
Cincinnati-1	Las Vegas	Orlando	San Francisco-1
Cleveland	Long Island	Palm Beach	San Jose
Columbus	Los Angeles	Philadelphia	Seattle-1
Dallas FW	Memphis	Phoenix	St. Louis
Denver-1	Miami	Pittsburgh	Tampa
Detroit	Milwaukee	Portland	Wash DC
East Bay-1	Minneapolis	Raleigh-Durham	NATION
Ft. Lauderdale	Nashville		

EQUILIBRIUM POINT #11



Stamford

Phase 1 – Recovery

Phase 4 – Recession

2021 Annual Rent Growth

Top 10

Miami - FL	13.3%
Northern New Jersey - NJ	13.1%
Columbus - OH	12.3%
Inland Empire - CA	11.8%
Phoenix - AZ	11.7%
Philadelphia - PA	11.7%
Fort Lauderdale - FL	11.4%
Atlanta - GA	11.2%
Salt Lake City - UT	11.0%
Orlando - FL	10.4%
Las Vegas - NV	10.3%
Nashville - TN	10.1%

Bottom 10

Milwaukee - WI	5.7%
Portland - OR	5.6%
Kansas City - MO	5.6%
Indianapolis - IN	5.6%
East Bay - CA	4.5%
Denver - CO	4.5%
Cleveland - OH	4.3%
Houston - TX	4.3%
San Jose - CA	3.7%
Saint Louis - MO	3.5%

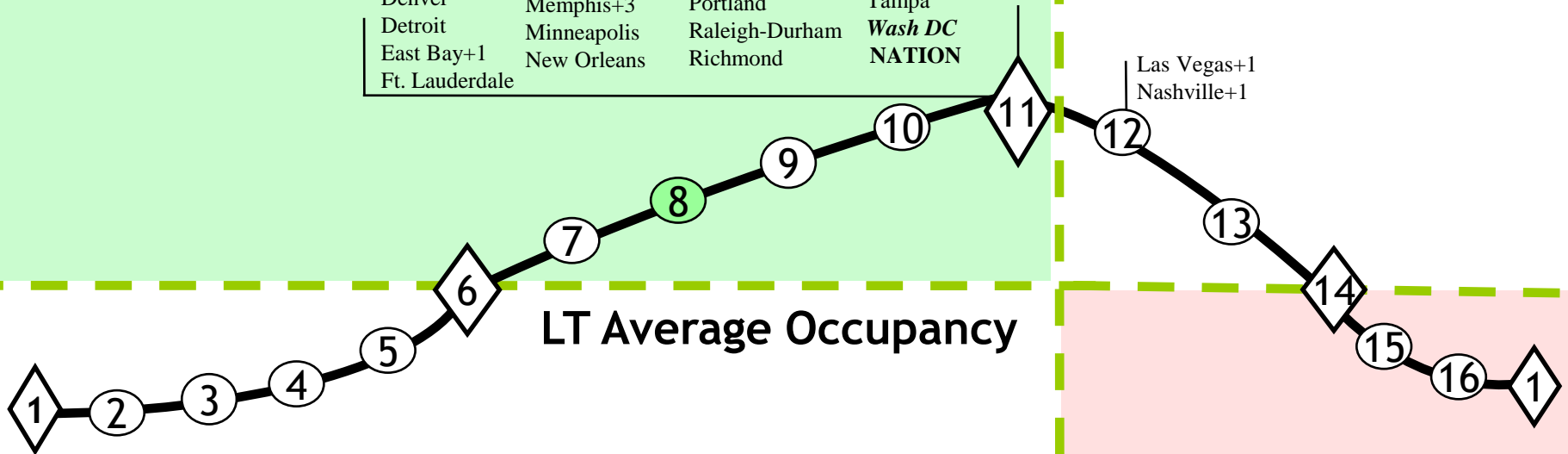
Apartment Market Cycle Analysis

4th Quarter, 2021

Phase 2 – Expansion

Phase 3 – Hypersupply

<i>Atlanta</i>	Hartford	<i>New York-1</i>	Riverside
Austin	Honolulu	Norfolk	Sacramento
Baltimore	Houston	<i>N. New Jersey</i>	Salt Lake
Boston	Indianapolis	Oklahoma City	San Antonio
Charlotte	Jacksonville	Orange County	San Diego
Chicago	Kansas City	Orlando	San Francisco-1
Cleveland	Long Island	Palm Beach	San Jose
Cincinnati	Los Angeles	Philadelphia	Seattle
Columbus	Miami	Pittsburgh	Stamford
Dallas FW	Milwaukee	Phoenix	St. Louis
Denver	Memphis+3	Portland	Tampa
Detroit	Minneapolis	Raleigh-Durham	Wash DC
East Bay+1	New Orleans	Richmond	NATION
Ft. Lauderdale			



LT Average Occupancy

Phase 1 – Recovery

Phase 4 – Recession

Retail Market Cycle Analysis

4th Quarter, 2021

Phase 2 – Expansion

Phase 3 – Hypersupply

<i>Atlanta</i>	Hartford	New Orleans	Richmond
Austin	Honolulu	<i>New York</i>	Riverside
<i>Boston</i>	<i>Houston</i>	<i>N. New Jersey</i>	San Diego-1
Charlotte	Indianapolis	Norfolk	St. Louis
<i>Chicago</i>	Jacksonville	Oklahoma City	Sacramento
Cincinnati	Kansas City	<i>Orange County</i>	Salt Lake
Cleveland	Las Vegas	Orlando	San Antonio
Columbus	Long Island	Palm Beach	San Jose
<i>Dallas FW-1</i>	Memphis	<i>Philadelphia</i>	Seattle
<i>Detroit</i>	Miami	<i>Phoenix</i>	Stamford
Denver	Milwaukee	Pittsburgh	<i>Tampa</i>
East Bay-1	Minneapolis	Portland	NATION
Ft. Lauderdale	Nashville	Raleigh-Durham	

EQUILIBRIUM POINT #11

Los Angeles
San Francisco
Wash DC

Baltimore

LT Average Occupancy

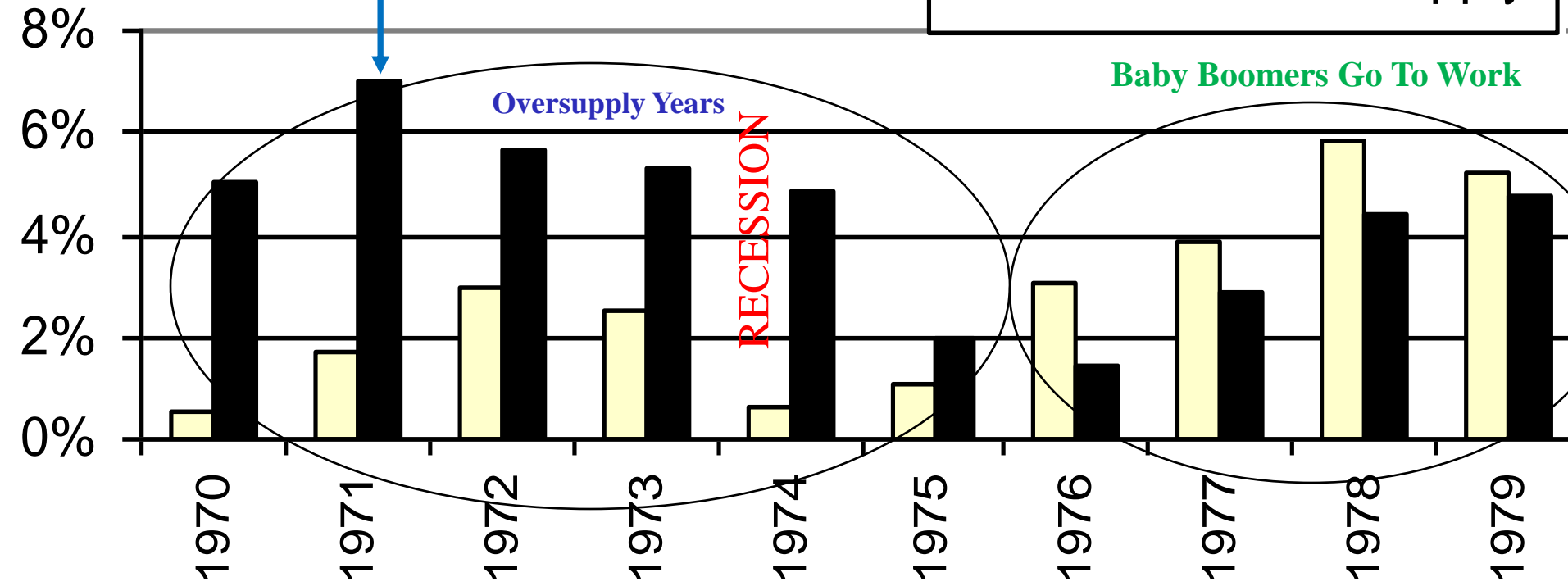
Phase 1 – Recovery

Phase 4 – Recession

1970s Office Demand & Supply

Mortgage REITS financing construction

□ Demand ■ Supply

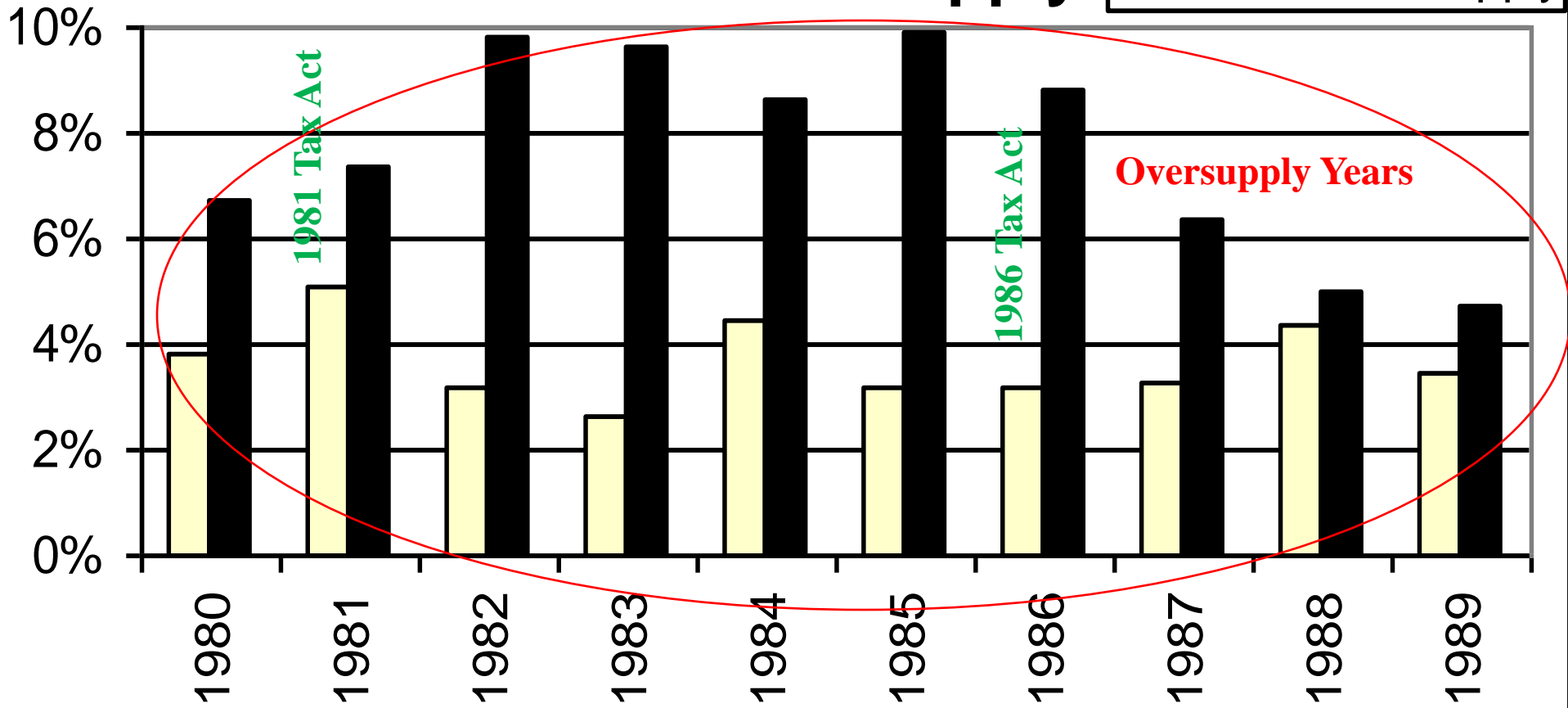


Source: FW Dodge, CB Commercial, BLS, Mueller

Markets Tighten

1980s Office Demand & Supply

□ Demand ■ Supply



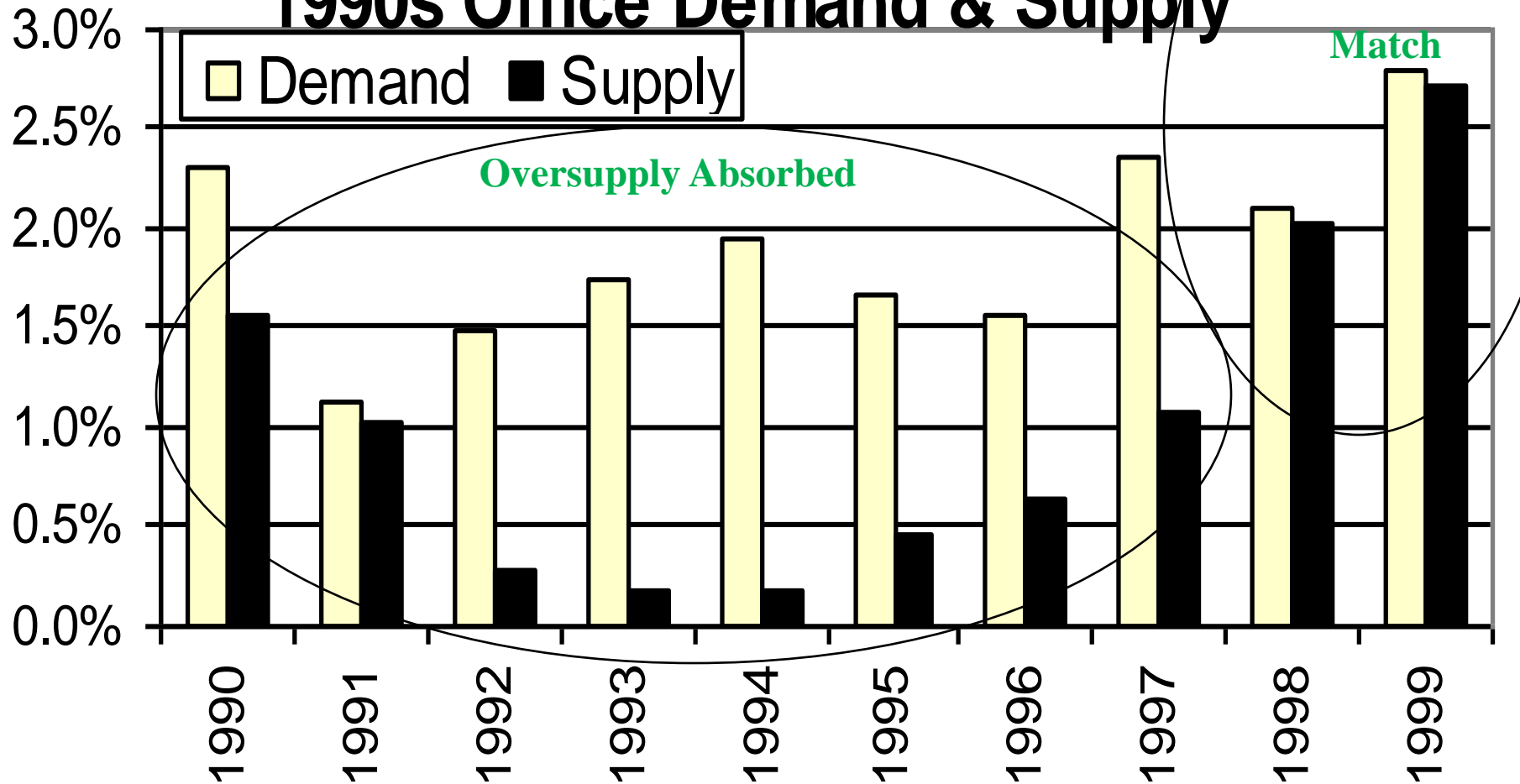
•Rents & prices up

•Inflation pushed prices higher

•Bad stock market attracts Pension Capital

•Rising R.E. prices masks poor income returns

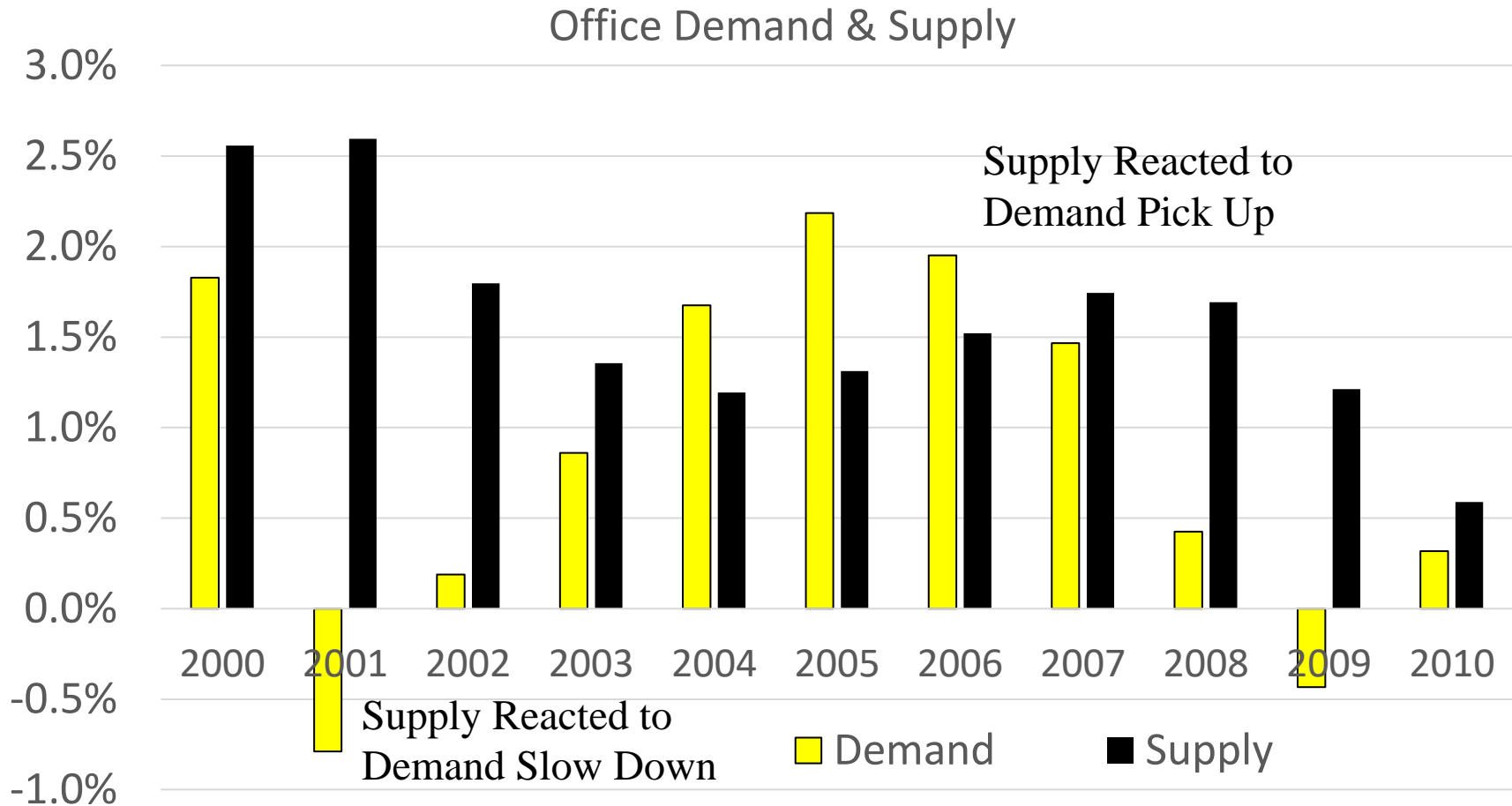
1990s Office Demand & Supply



- Moderate 2% demand growth
- Foreclosures shut down construction
- Excess space Absorbed

- Oversupply Absorbed - Return improved
- Construction “Constrained” rents & prices rise
- “Efficient Markets” demand –supply match

2000s US Office Demand & Supply



• *Globalization* – stable / slower U.S. growth

• *Technology* vs manufacturing economy

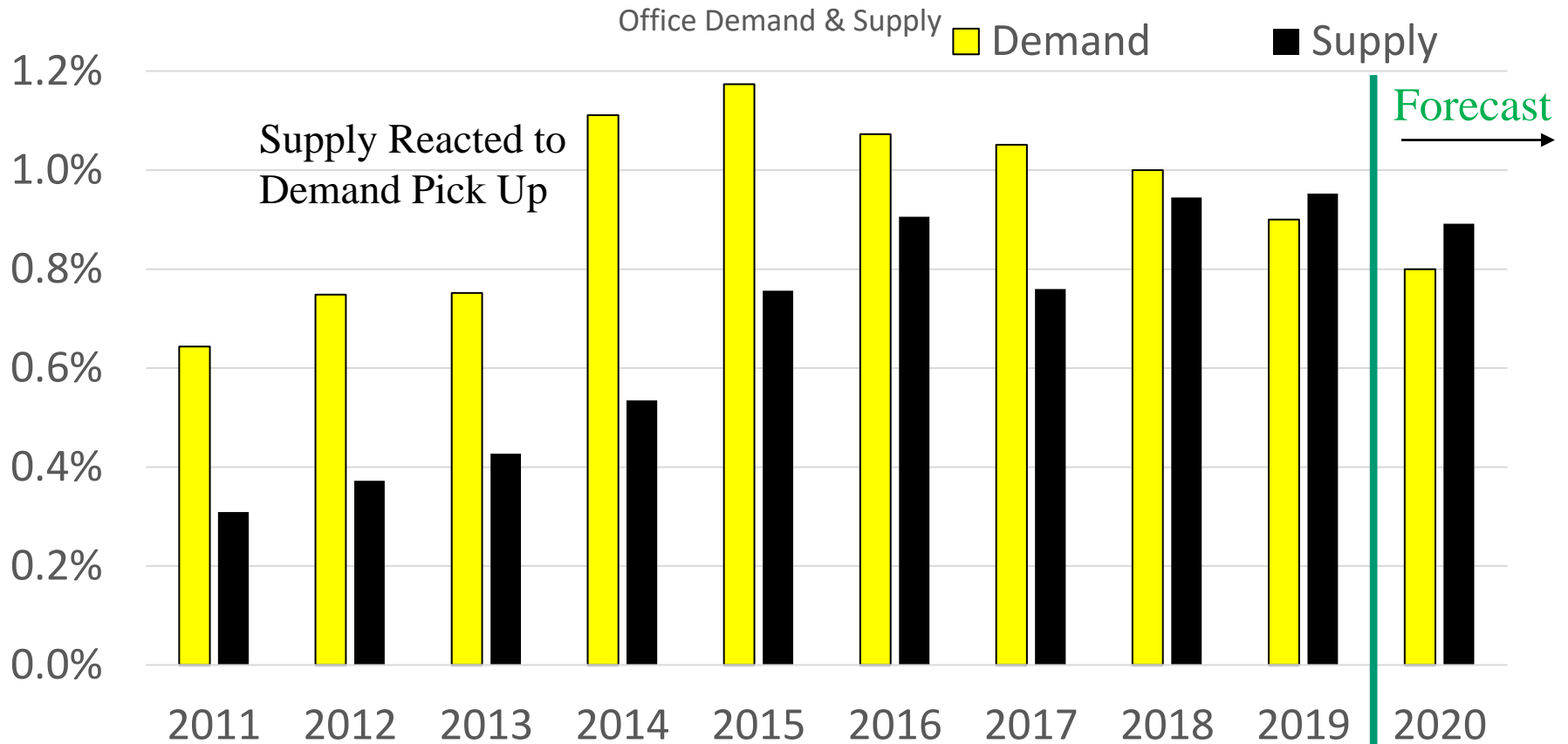
• *Market Data* available = demand / supply balance

• *Millennial Generation* workforce

• *Public Markets* (R.E. Capital more efficient)

• *Supply Constraints* (labor, steel, concrete)

2010s US Office Demand & Supply



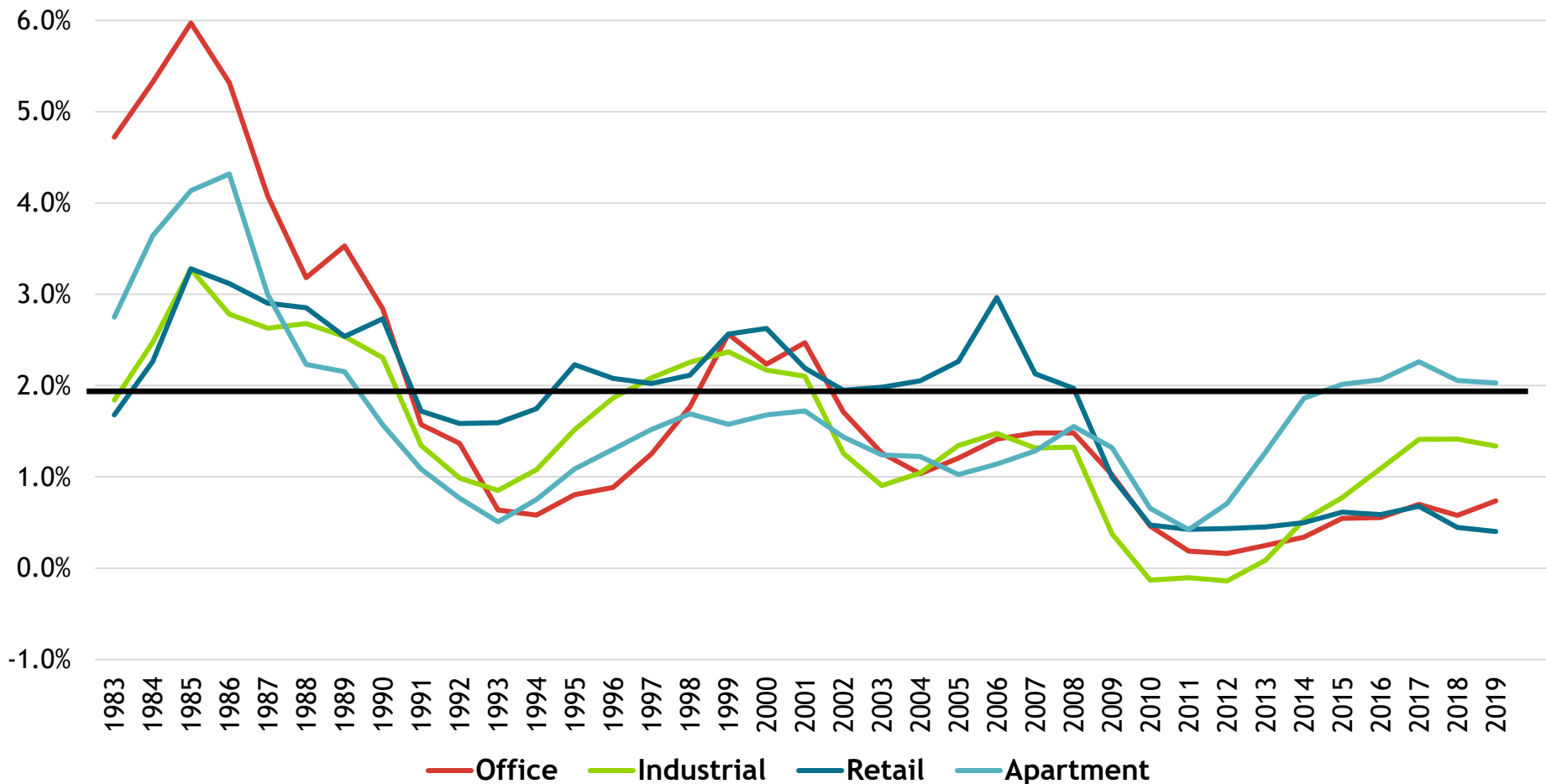
- *Slower Economic Growth*
- *Longer Economic Cycle?*
- *Lower Interest Rates?*

- *Technology disrupting*
- *Sustainability*
- *Baby Boomers retiring*

Commercial Real Estate Supply Starts to Increase

Real Estate supply SLOW since 2013 low.

SUPPLY GROWTH



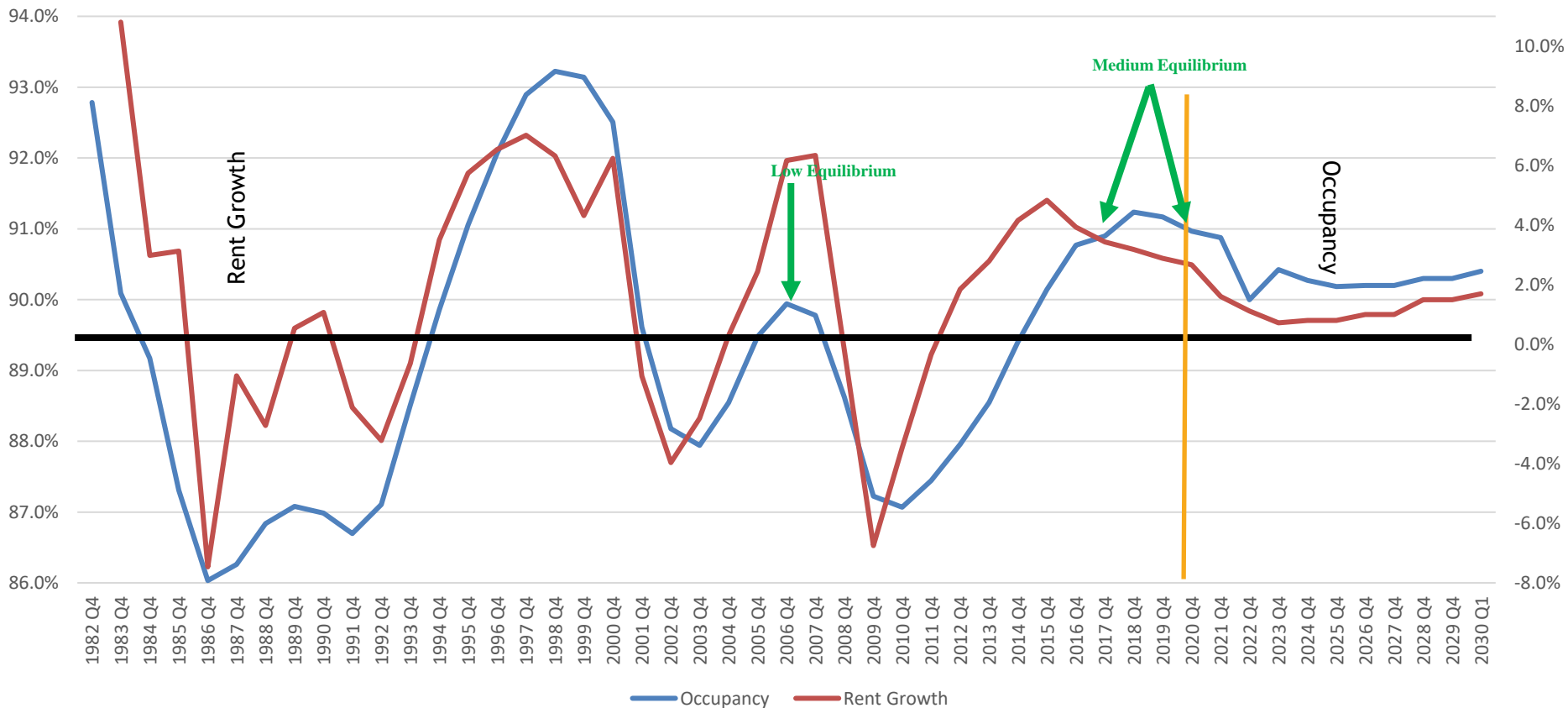
Source: CoStar Portfolio Strategy, January 2020

Occupancy and Rent Growth Correlation

Rents Overall = 52.2%

Occupancy Rent Correlation = 79%

Office



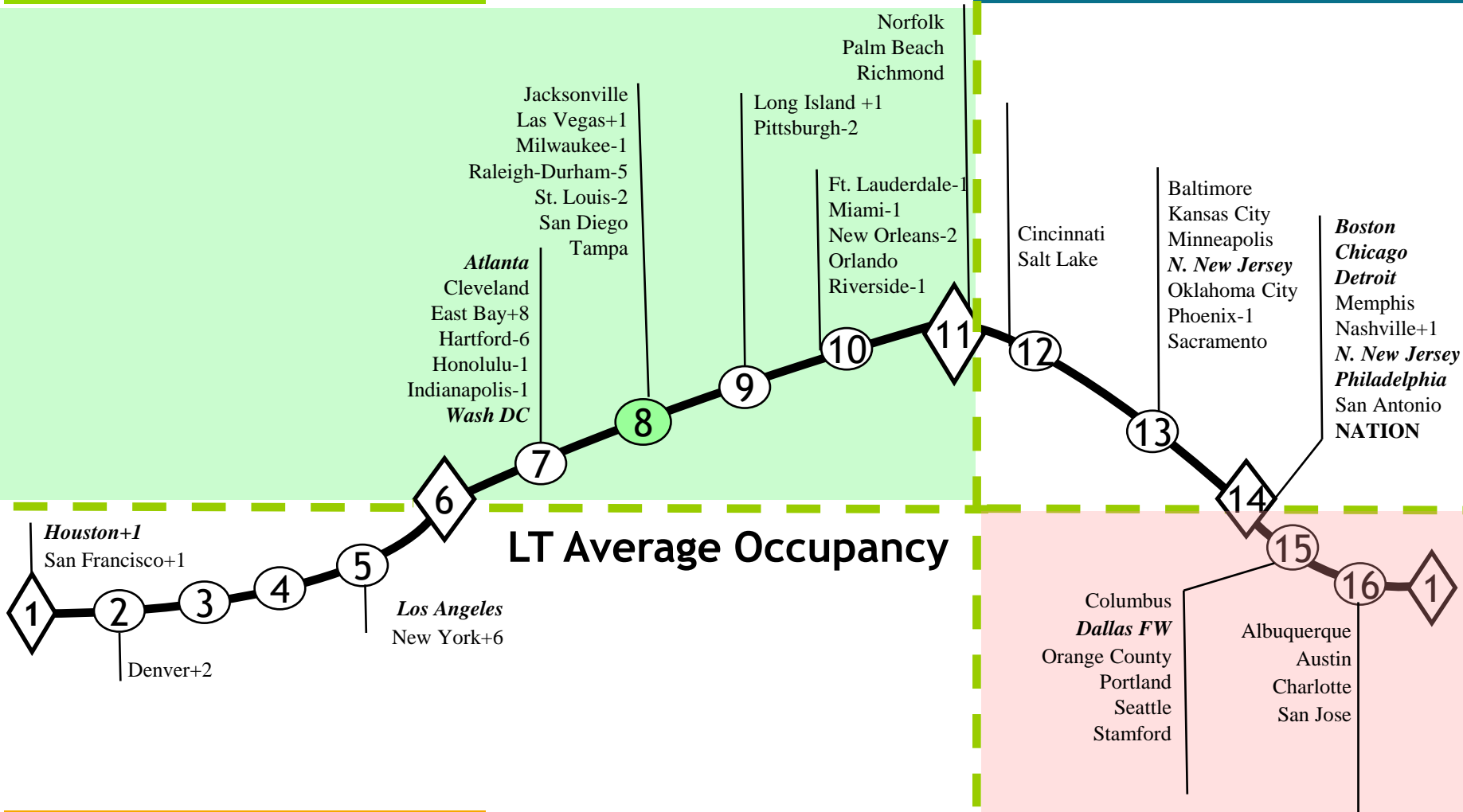
¹ Source: CoStar Portfolio Strategy and Mueller, August 2021

Office Market Cycle FORECAST

4th Quarter, 2022 Estimates

Phase 2 – Expansion

Phase 3 – Hypersupply



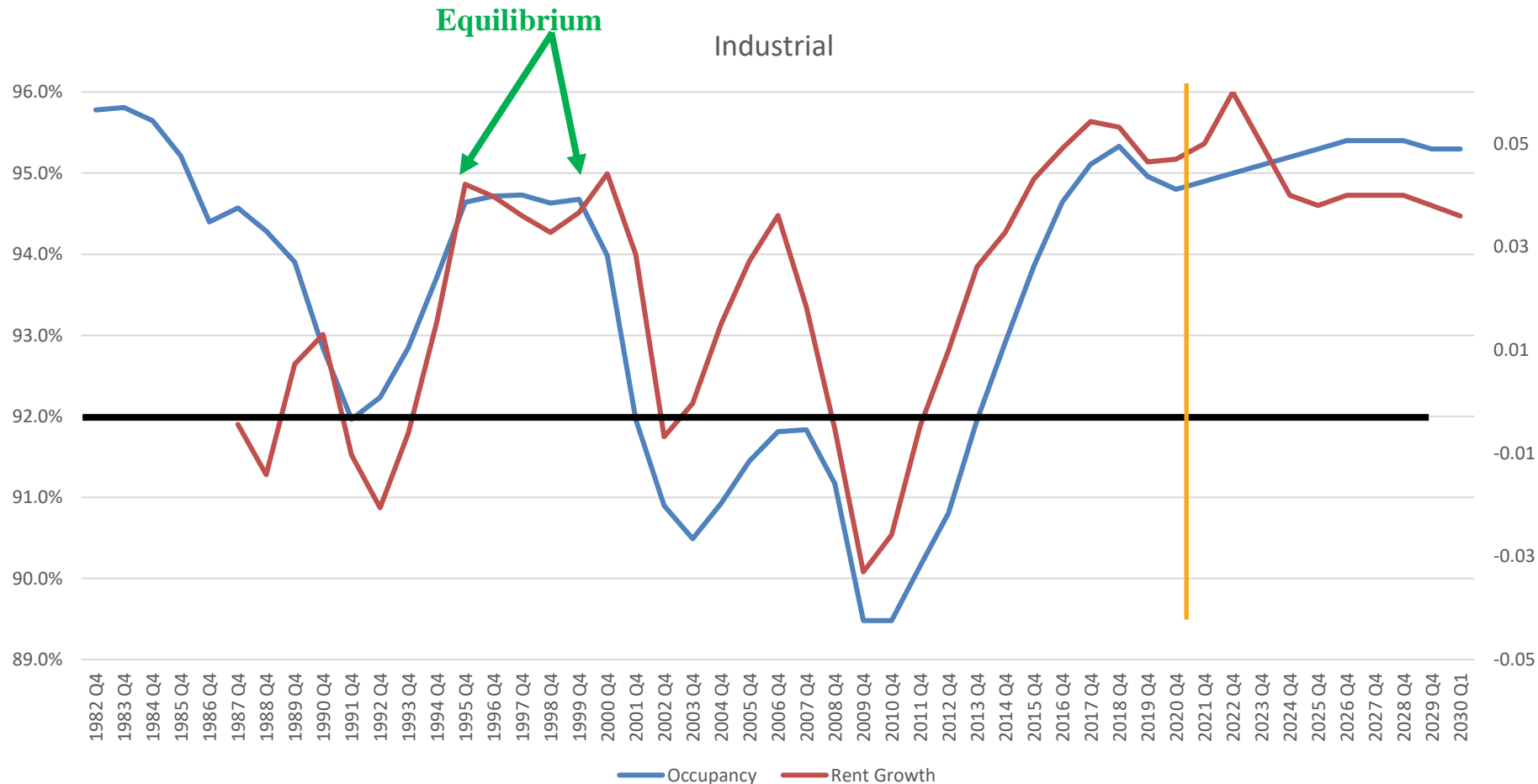
Phase 1 – Recovery

Phase 4 – Recession

Occupancy and Rent Growth Correlation

Rents Overall = 40.1%

Occupancy Rent Correlation = 79%



¹ Source: CoStar Portfolio Strategy and Mueller, August 2021

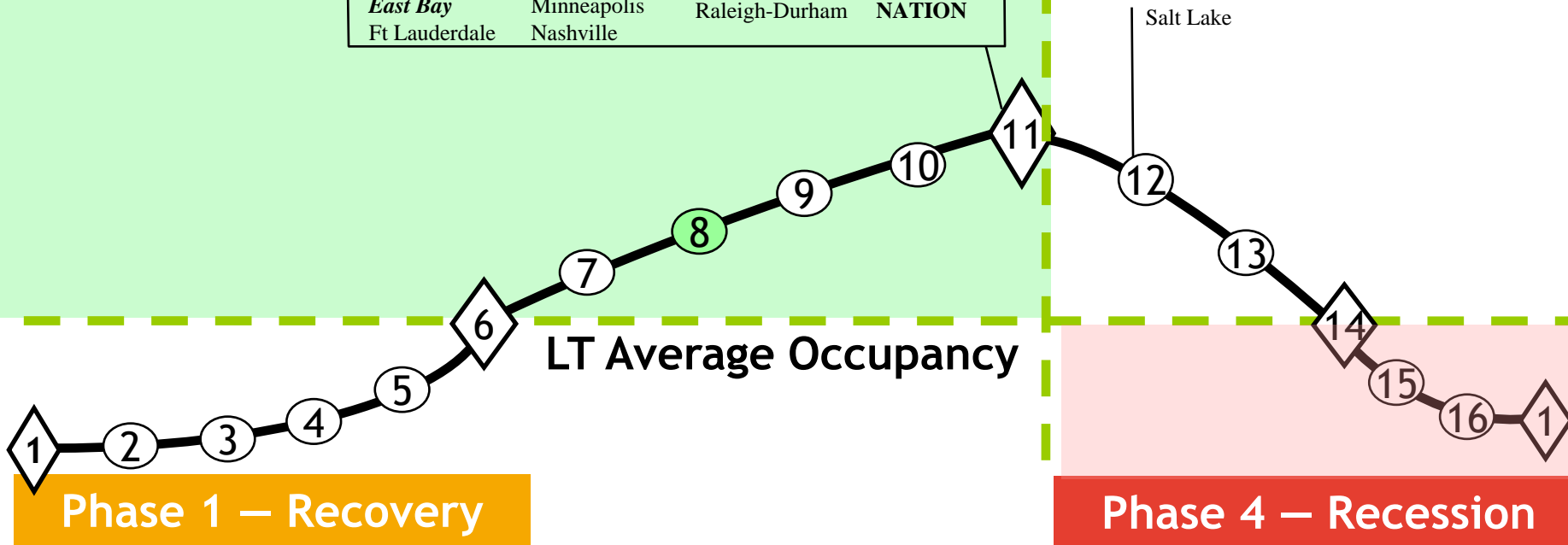
Industrial Market Cycle FORECAST

4th Quarter, 2022 Estimates

Phase 2 – Expansion

Phase 3 – Hypersupply

<i>Atlanta</i>	Hartford	New York	<i>Riverside</i>
Austin	Honolulu	New Orleans	Richmond
Baltimore	Houston-1	Norfolk	Sacramento
Boston	Indianapolis	<i>N. New Jersey</i>	San Antonio
Chicago	Jacksonville	Oklahoma City	San Diego
Charlotte	Kansas City	Orange County	San Francisco-1
Cincinnati	Las Vegas	Orlando	San Jose
Cleveland	Long Island	Palm Beach	Seattle
Columbus	Los Angeles	Philadelphia	St. Louis
Dallas FW	Memphis	Pittsburgh	Stamford-1
Denver-1	Miami	Portland	Tampa
Detroit	Milwaukee	Phoenix	Wash DC
East Bay	Minneapolis	Raleigh-Durham	NATION
Ft Lauderdale	Nashville		



2021 Annual Absorption

Over 3 Million

Dallas-Fort Worth - TX	13,723,188
Atlanta - GA	9,637,486
Houston - TX	9,397,007
Phoenix - AZ	7,839,069
New York - NY	5,285,730
Inland Empire - CA	5,039,221
Chicago - IL	4,033,076
Columbus - OH	3,897,094
Philadelphia - PA	3,771,898
Las Vegas - NV	3,144,742
Nashville - TN	3,074,796

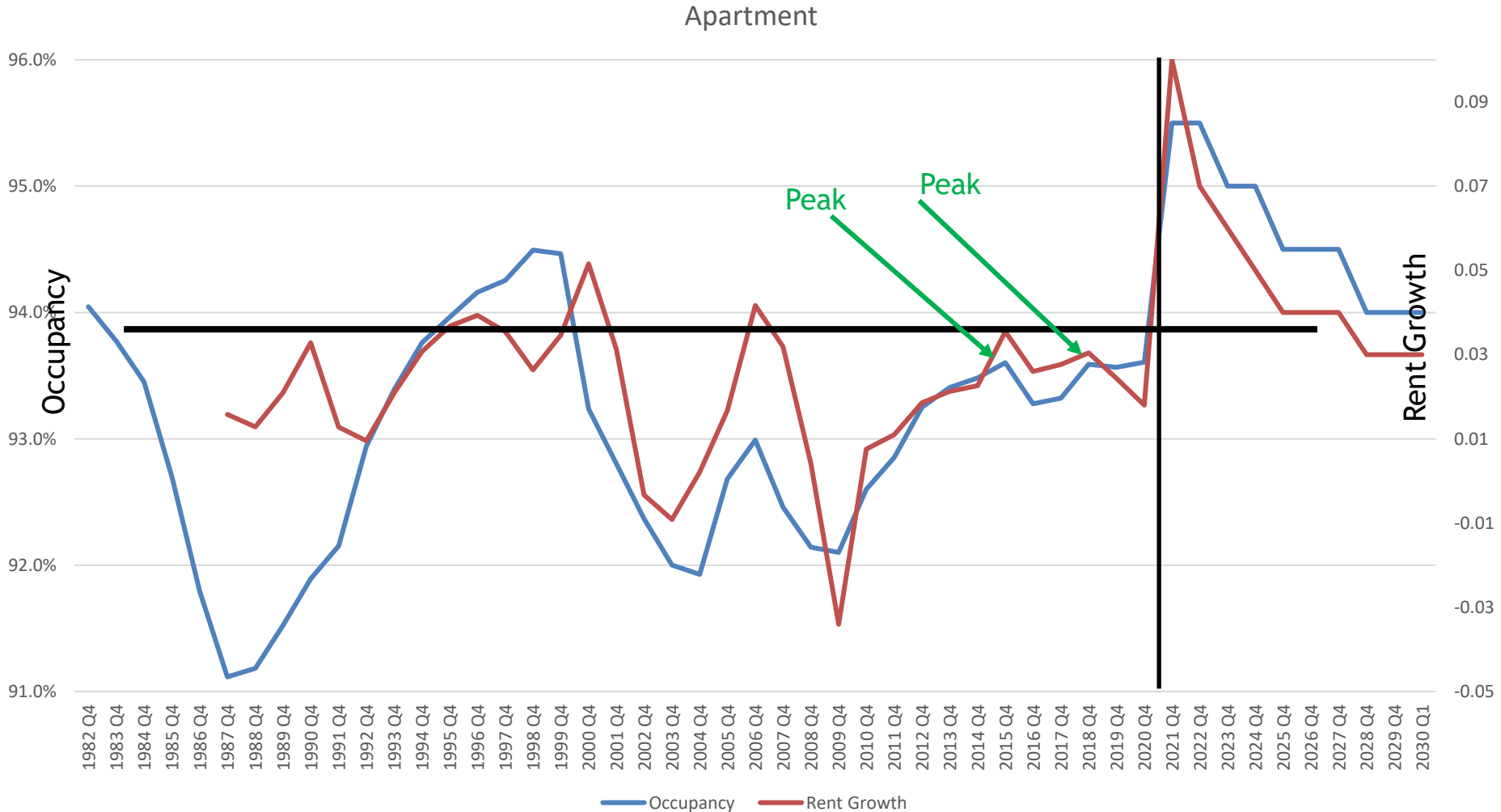
Under 500 K

San Francisco - CA	573,099
Long Island - NY	568,382
Oklahoma City - OK	523,567
Pittsburgh - PA	462,029
Hartford - CT	455,080
Northern New Jersey - NJ	322,138
New Orleans - LA	321,491
Palm Beach - FL	204,821
Jacksonville - FL	70,962
Stamford - CT	59,584
Cleveland - OH	58,460
Orange County - CA	20,954

Occupancy and Rent Growth Correlation

Rents Overall = 55.3%

Occupancy Rent Correlation = 70%



¹ Source: CoStar Portfolio Strategy and Mueller, August 2021

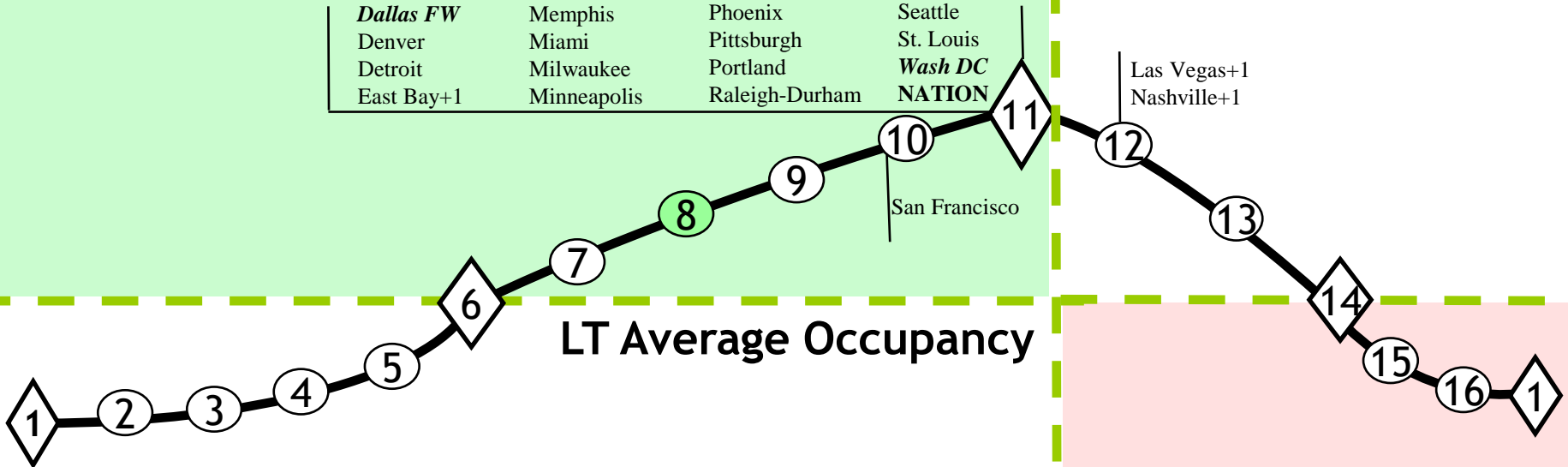
Apartment Market Cycle FORECAST

4th Quarter, 2022 Estimates

Phase 2 – Expansion

Phase 3 – Hypersupply

<i>Atlanta</i>	Ft. Lauderdale	New Orleans	Richmond
Austin	Hartford	<i>New York</i>	Riverside
Baltimore	Honolulu	Norfolk	San Antonio
<i>Boston</i>	<i>Houston</i>	<i>N. New Jersey</i>	San Diego
Charlotte	Indianapolis	Oklahoma City	San Jose+1
<i>Chicago</i>	Jacksonville	Orange County	Stamford
Cincinnati	Kansas City	Orlando	Tampa
Cleveland	<i>Los Angeles</i>	Palm Beach	Sacramento
Columbus	Long Island	<i>Philadelphia</i>	Salt Lake
<i>Dallas FW</i>	Memphis	Phoenix	Seattle
Denver	Miami	Pittsburgh	St. Louis
Detroit	Milwaukee	Portland	<i>Wash DC</i>
East Bay+1	Minneapolis	Raleigh-Durham	NATION



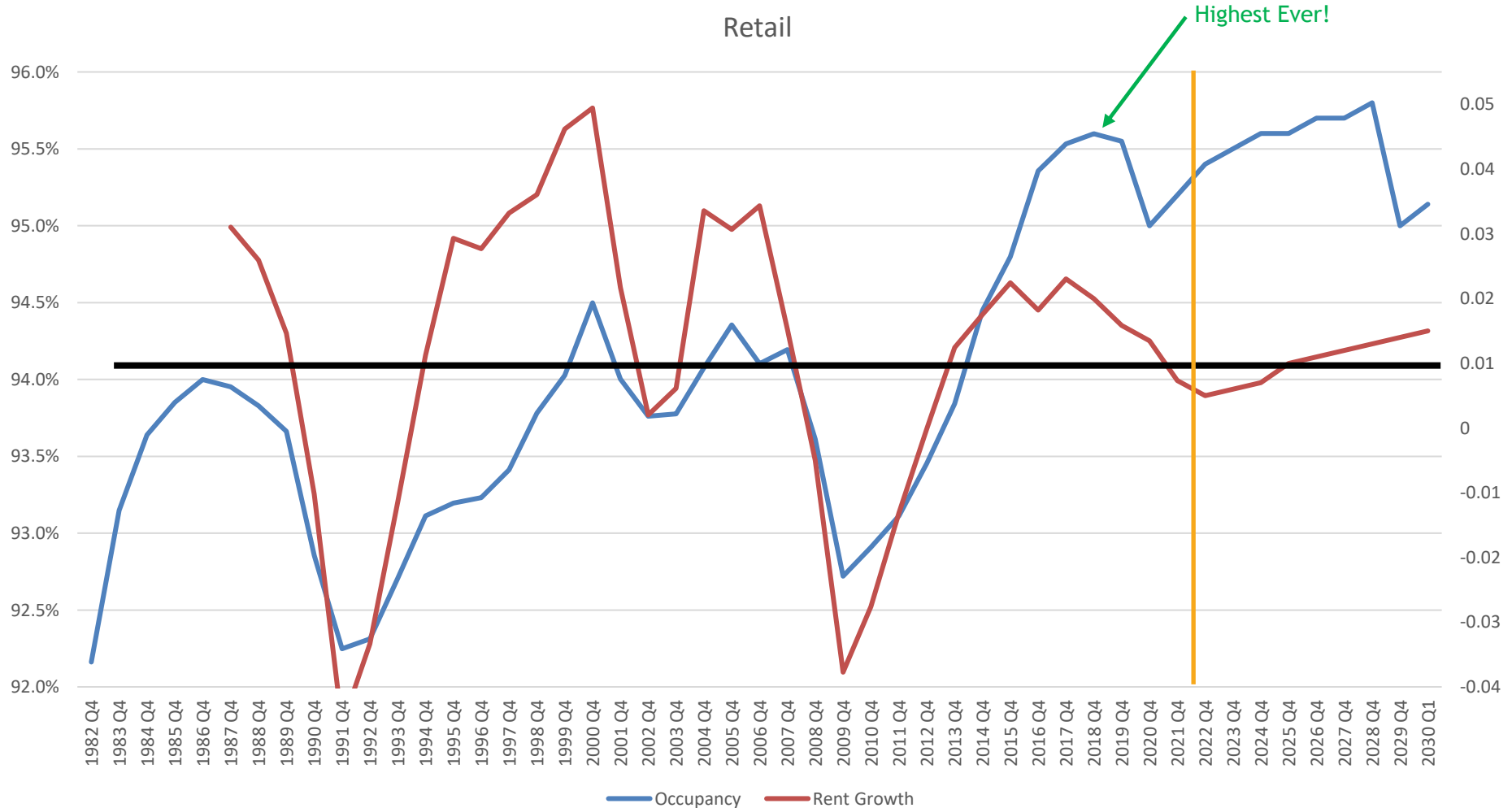
Phase 1 – Recovery

Phase 4 – Recession

Occupancy and Rent Growth Correlation

Rents Overall = 31.5%

Occupancy Rent Correlation = 67%



¹ Source: CoStar Portfolio Strategy and Mueller, August 2021

Retail Market Cycle FORECAST

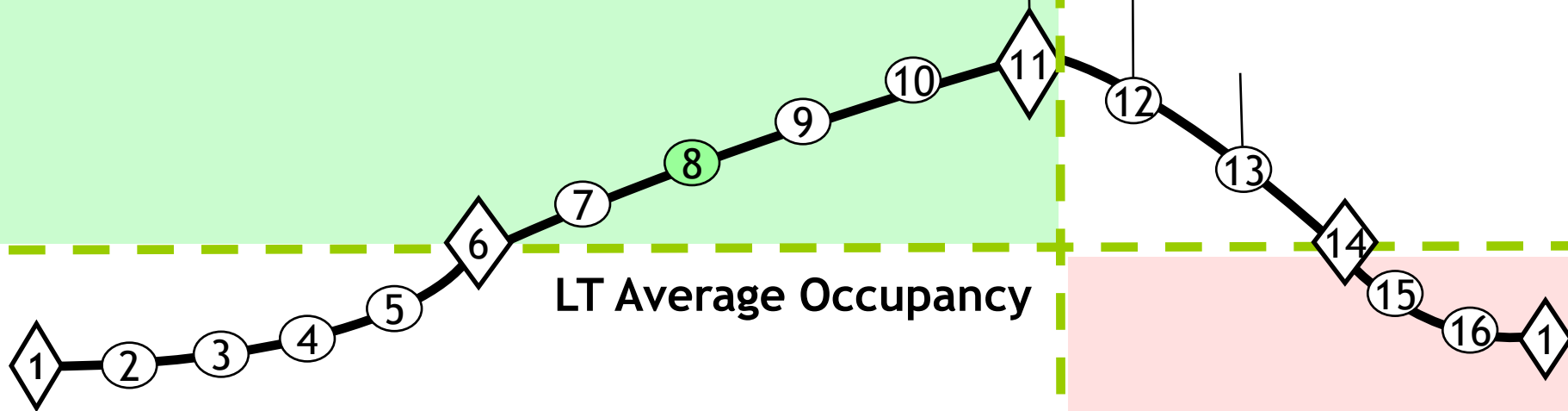
4th Quarter, 2021 Estimates

Phase 2 – Expansion

Phase 3 – Hypersupply

<i>Atlanta</i>	East Bay	New Orleans	Richmond
Austin-1	Ft. Lauderdale-1	<i>New York</i>	<i>Riverside-1</i>
Boston-1	Hartford	<i>N. New Jersey</i>	Sacramento-1
Baltimore	Indianapolis	Norfolk	Salt Lake
Charlotte	Jacksonville	Oklahoma City	San Antonio
<i>Chicago</i>	Kansas City-1	Orlando	San Diego-1
Cincinnati	Las Vegas	<i>Orange County-1</i>	San Jose-1
Cleveland	Long Island -1	Palm Beach-1	Seattle
Columbus	Memphis	<i>Philadelphia</i>	Stamford
<i>Dallas FW-1</i>	Miami-1	Pittsburgh	St. Louis
Denver	Milwaukee	<i>Phoenix</i>	<i>Tampa</i>
<i>Detroit</i>	Minneapolis	Portland	<i>Wash DC-1</i>
	Nashville	Raleigh-Durham	NATION

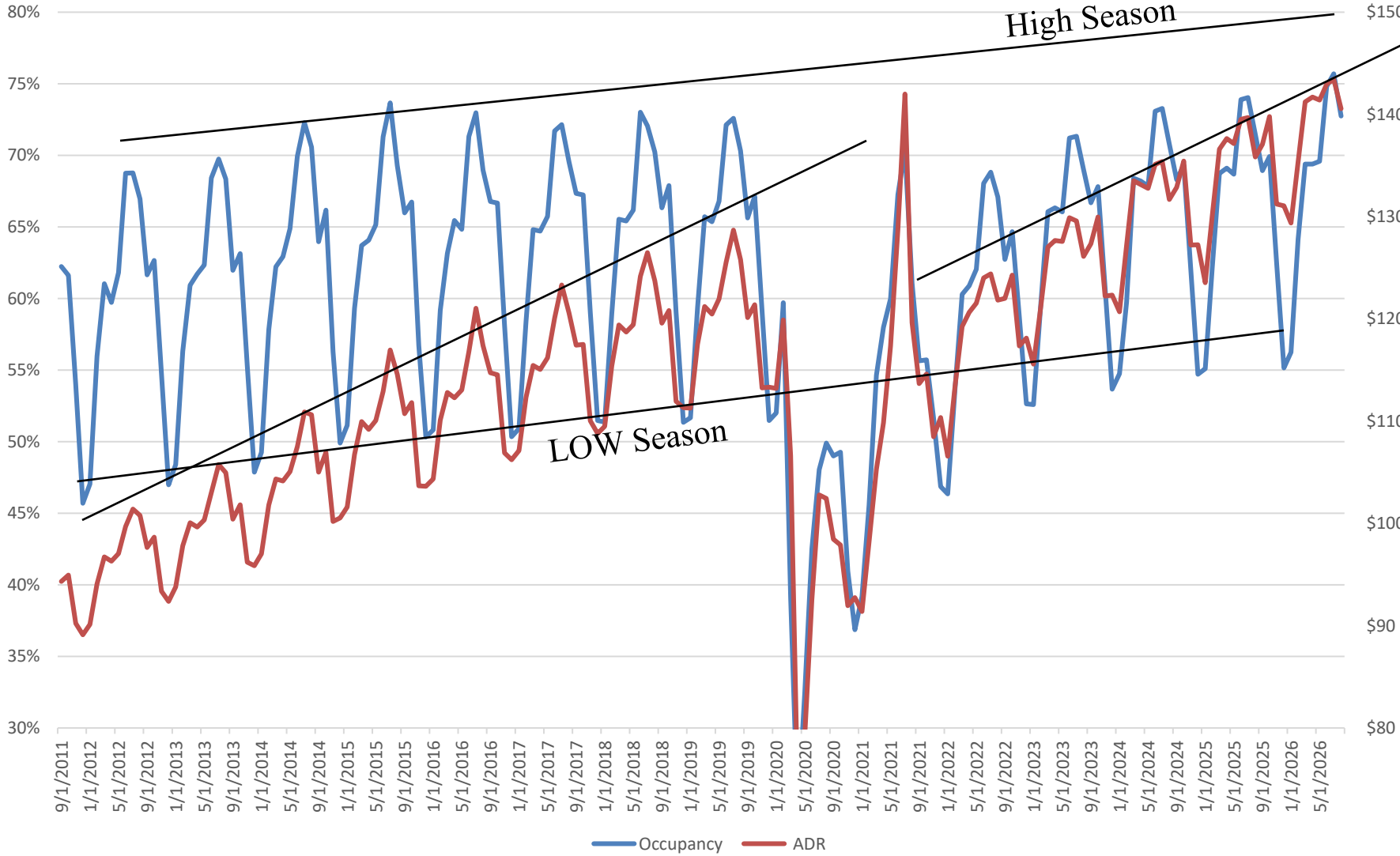
Honolulu-1
Los Angeles-1
San Francisco



Phase 1 – Recovery

Phase 4 – Recession

Hotel



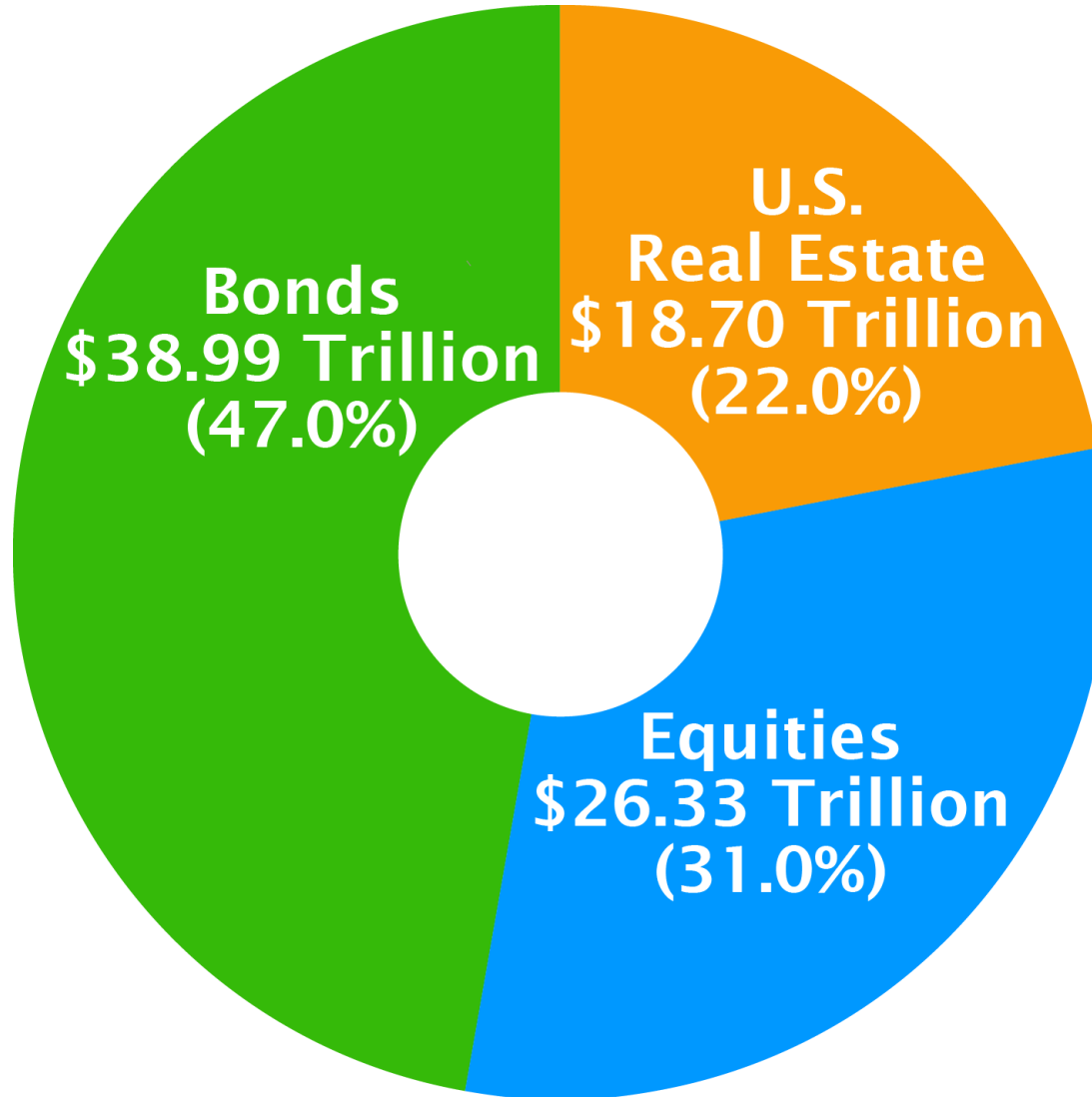
Financial Cycle

\$ Capital \$ Flows

drive Prices

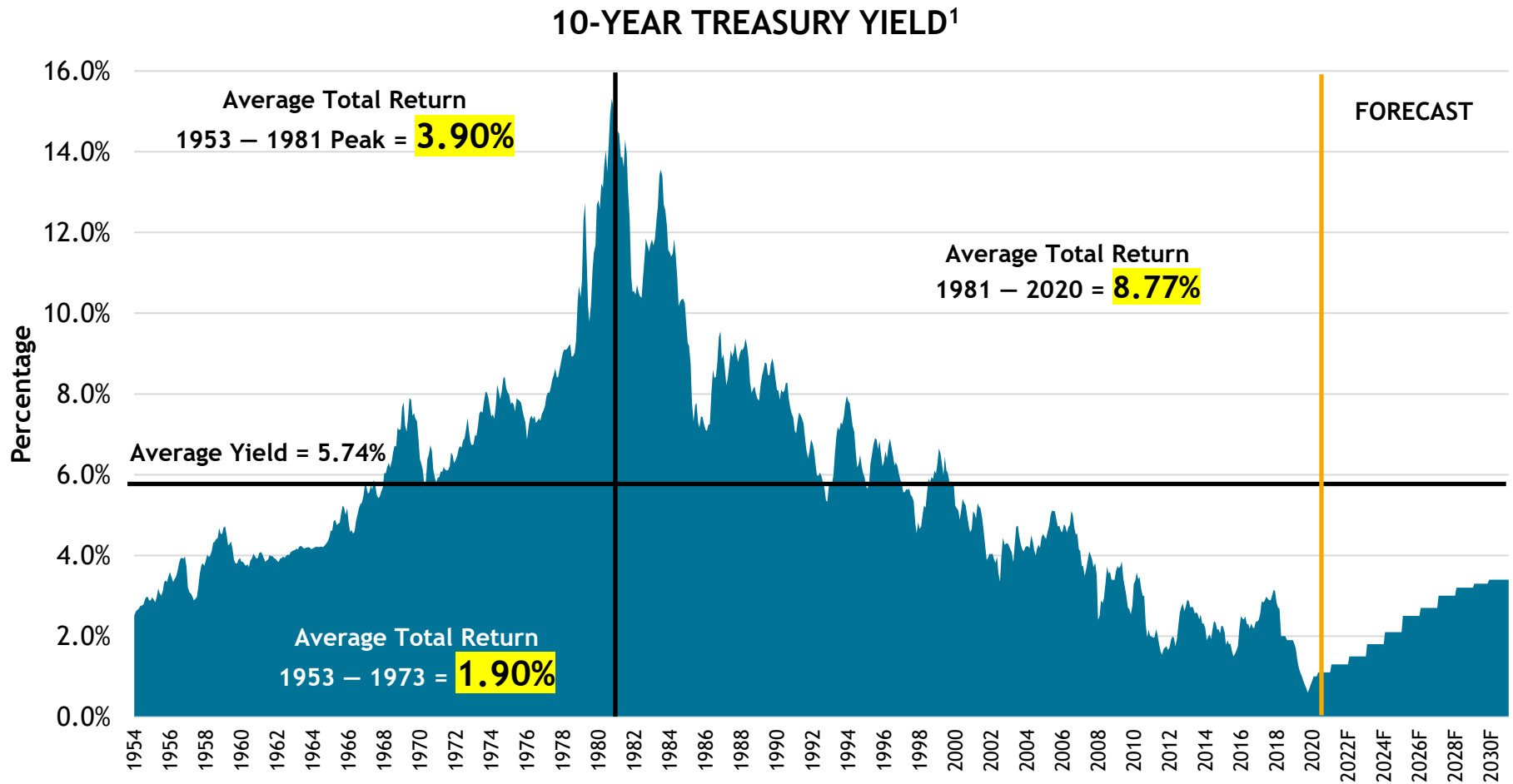
Why Real Estate Fits an Investment Portfolio = SIZE

U.S. Real Estate vs. Other Asset Classes



Source: Bonds = SIFMA, January 2015; Equities = World Federation of Exchanges for Equities, January 2015; U.S. Real Estate = Moody's Real CPPI, January 2015. Commercial real estate are subject to real estate risks associated with operating and leasing properties. Additional risks include changes in economic conditions, interest rates, property values, and supply and demand, as well as possible environmental liabilities, zoning issues and natural disasters.

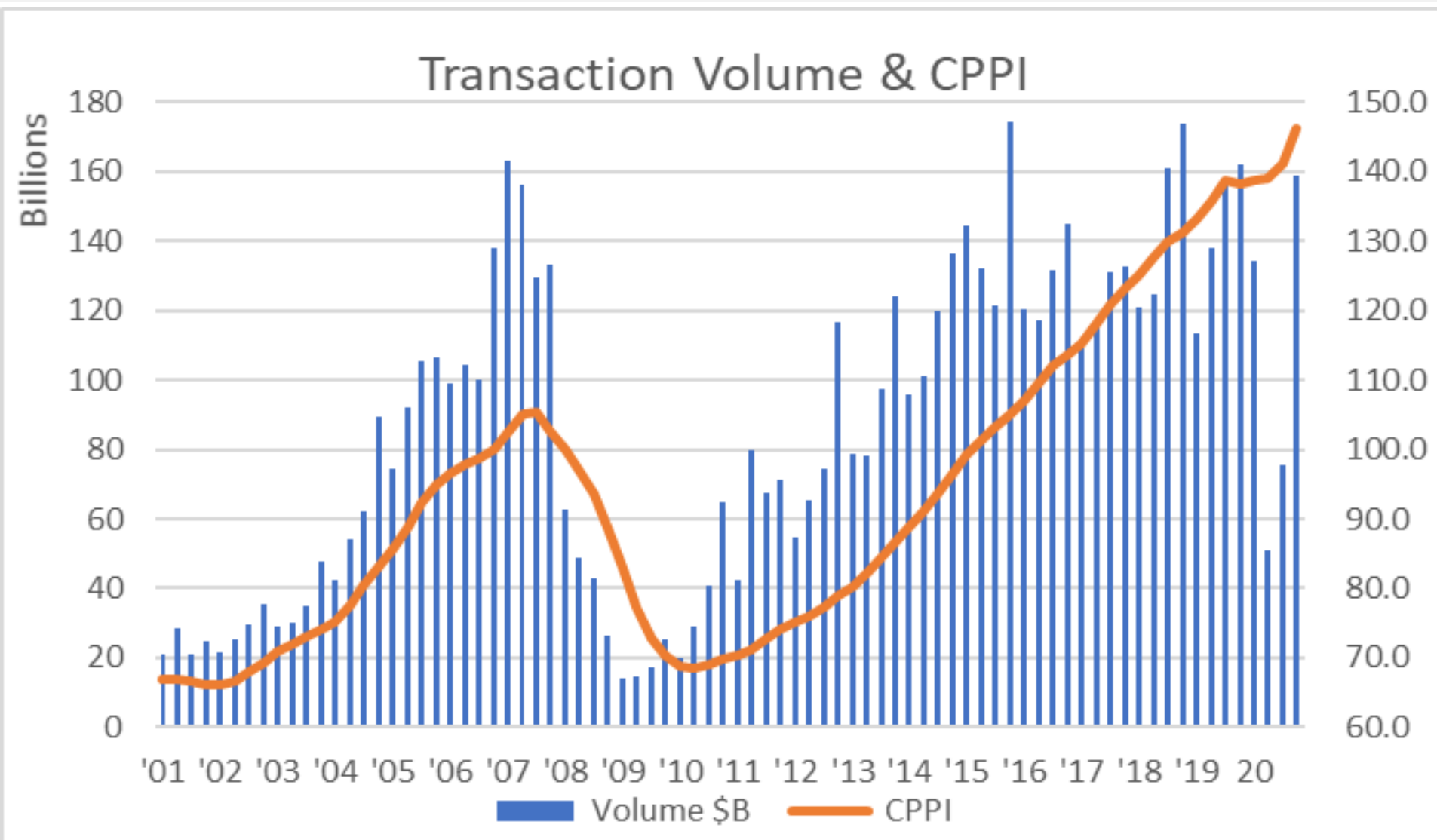
Bond Values DROP as Interest Rates Rise



¹Source: U.S. Treasury — Federal Reserve Bank of St. Louis, February 2021; Fedprimerate.com/libor/libor_rates_history.htm February 2021.



U.S. Commercial Property Prices

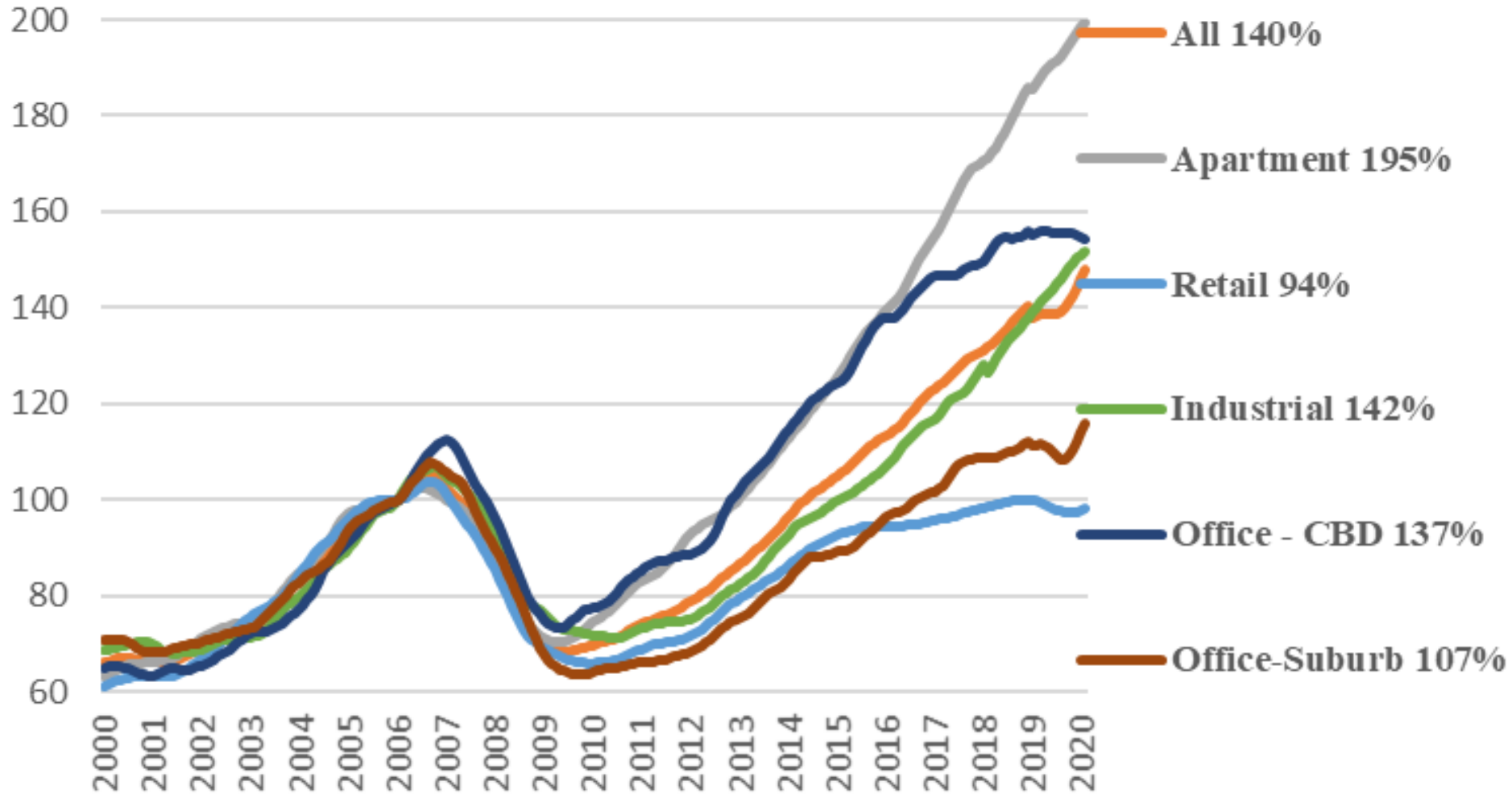


¹ Source: Real Capital Analytics, Inc., January 2021

² CPPI represents the Commercial Property Price Index of all properties over \$2.5 million sold nationally.

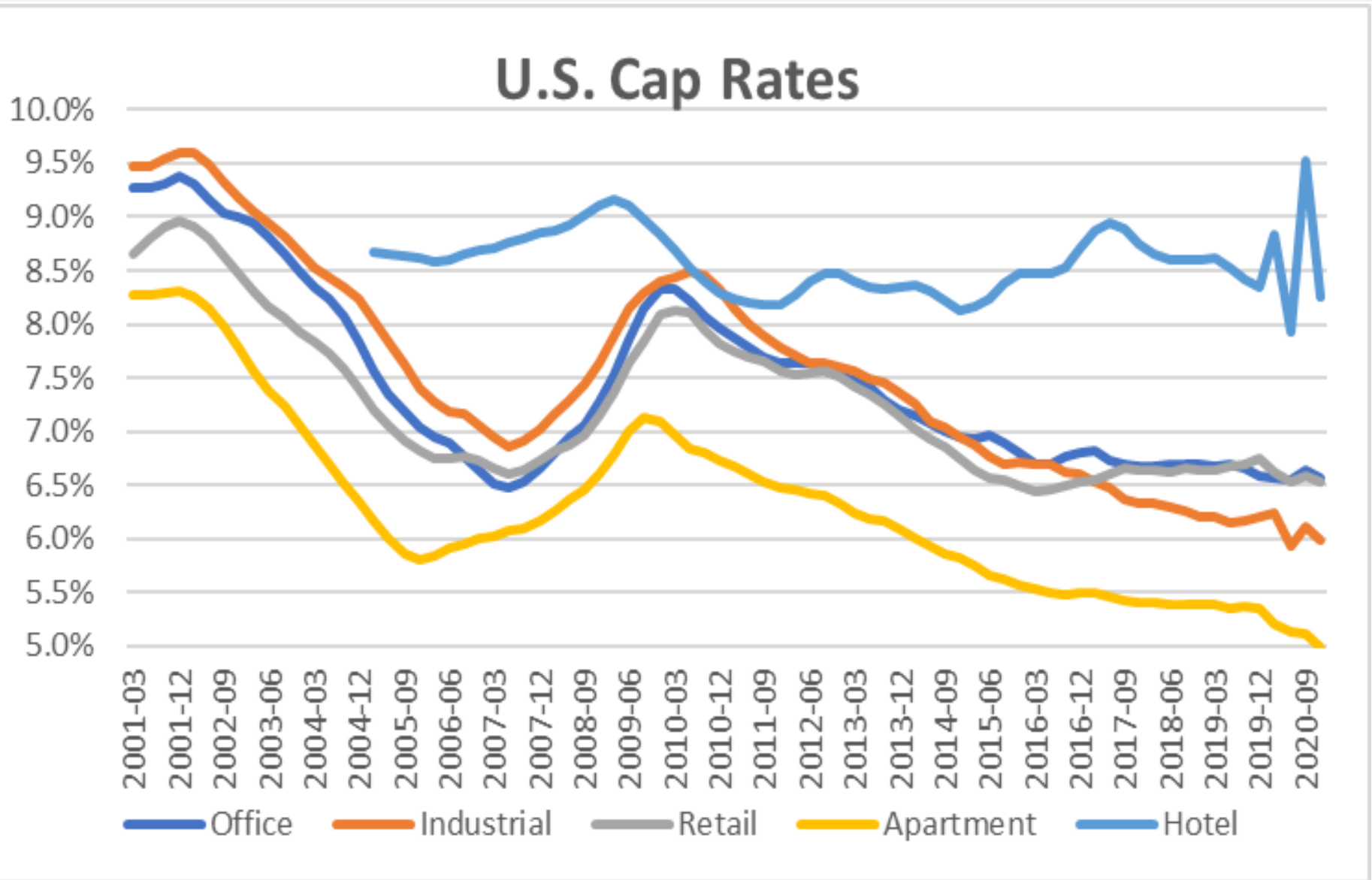
Property Price Cycle Growth

Price from 2007 Peaks



¹ Source: Real Capital Analytics, Inc., January 2021

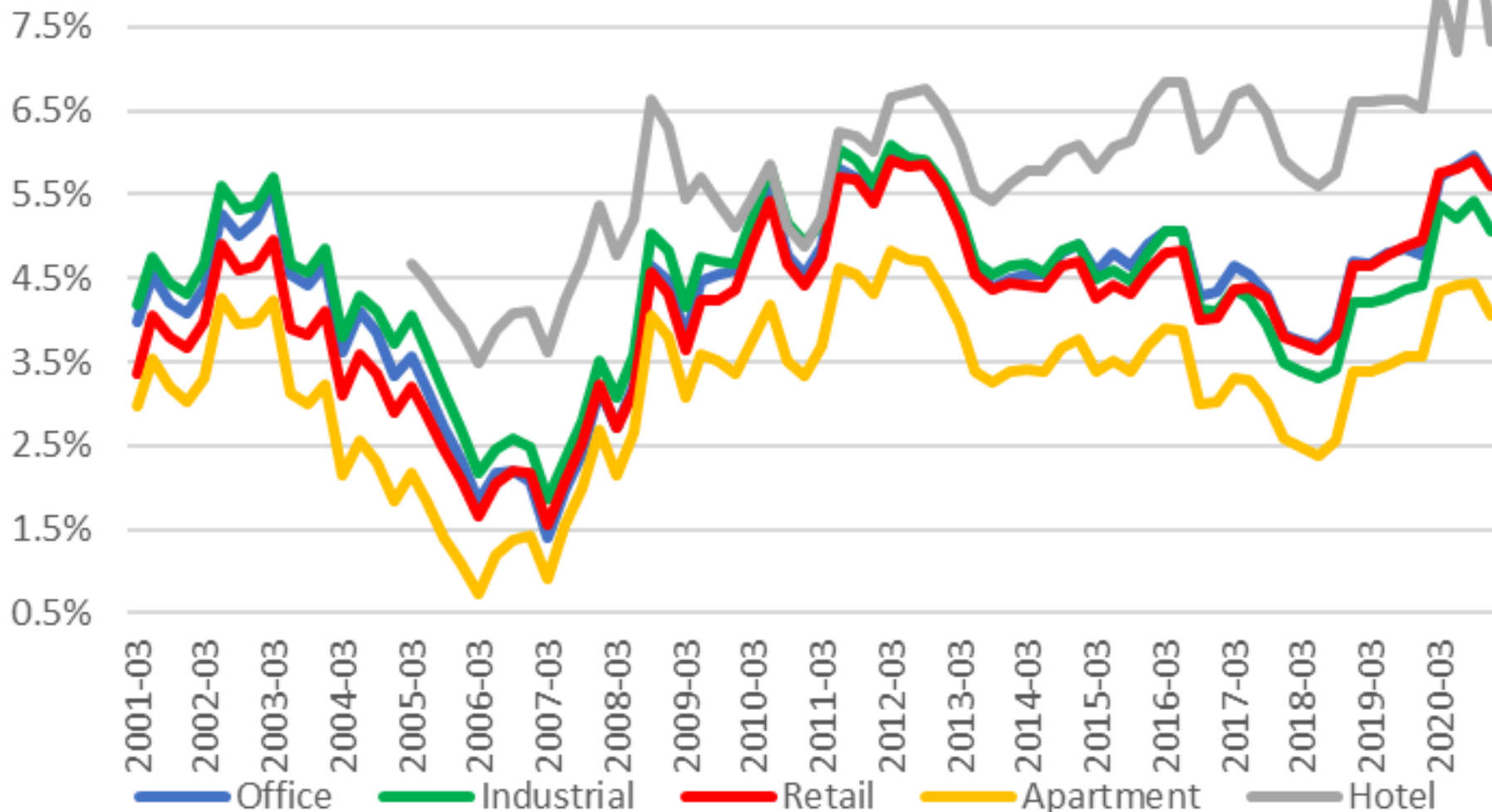
Property Price Cycle Recovering



¹ Source: Real Capital Analytics January 2021.

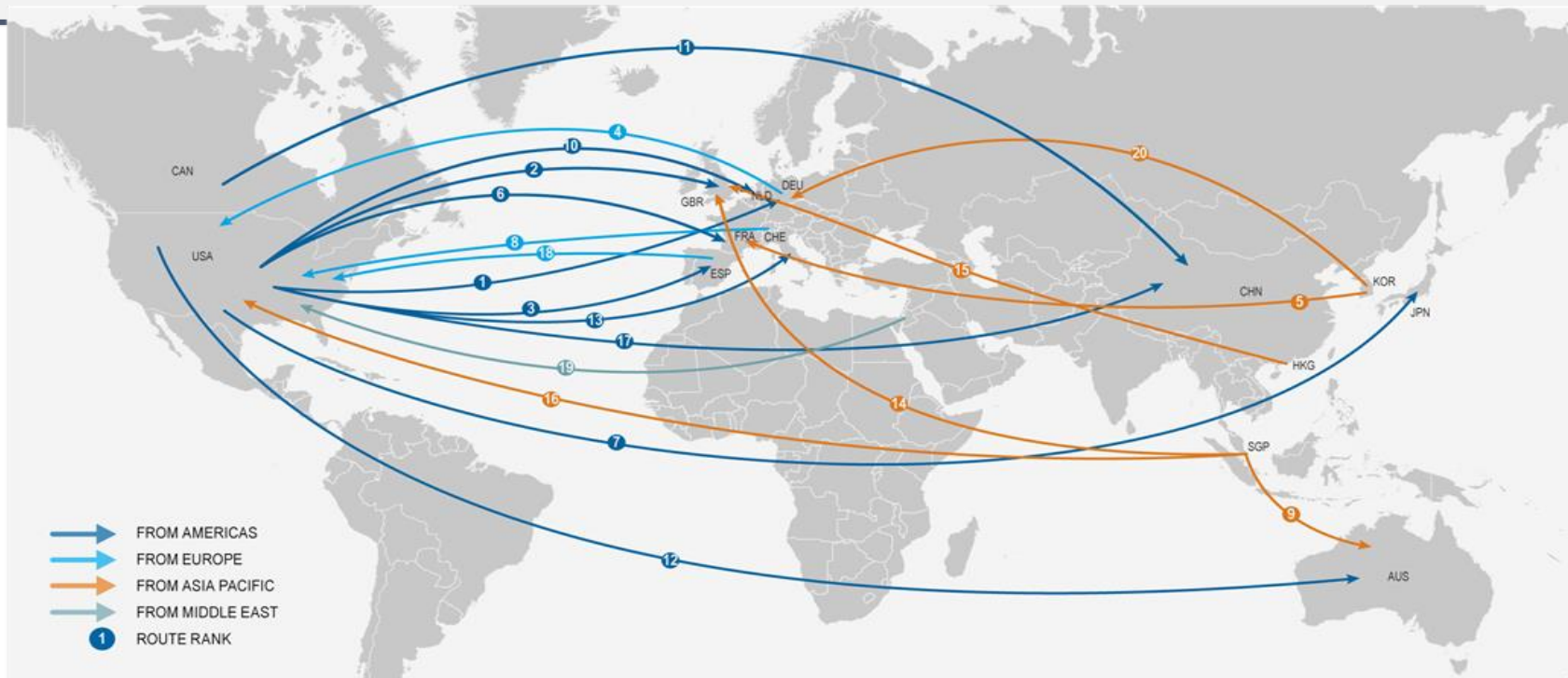
Wide Yields Attracting Capital

R.E. Cap Rate Spread to 10 year T-Bill



¹Source: Real Capital Analytics, January 2021. Capitalization Rate or “Cap Rate” is the rate of return on a real estate investment property based on the income that the property is expected to generate.

Cross Border Capital Flows 2020



Rank	Source	Destination	Vol (\$b)	YOY Chg	Rank	Source	Destination	Vol (\$b)	YOY Chg
1	United States	Germany	11.8	27%	11	Canada	China	2.9	581%
2	United States	United Kingdom	8.5	1%	12	United States	Australia	2.9	23%
3	United States	Spain	6.7	-41%	13	United States	Italy	2.8	103%
4	Germany	United States	5.6	-1%	14	Singapore	United Kingdom	2.5	-25%
5	South Korea	France	5.0	1079%	15	Hong Kong, SAR, China	United Kingdom	2.3	-24%
6	United States	France	4.5	-33%	16	Singapore	United States	2.3	-66%
7	United States	Japan	3.7	30%	17	United States	China	2.2	-39%
8	Switzerland	United States	3.4	19%	18	Spain	United States	2.2	262%
9	Singapore	Australia	3.4	17%	19	Israel	United States	2.2	31%
10	United States	Netherlands	3.4	-27%	20	South Korea	Germany	2.2	42%

Trade routes analysis shows flows between continents; trade routes comprised of only a single transaction are excluded.

Source: Real Capital Analytics, January 2021

2021 Physical Cycle

- Economic & RE Cycles can be *Long or Short*
- Economic GDP expansion ended 1Q20 – Rebounded – 3Q20
- Cycles can be driven by *Demand or Supply*
- Supply growth slowest in 2013 - increasing below 2% since
- Recovery 2021 Full Growth phase 2023? (market & property type dependent)

2021 Financial Cycle

- Capital flows affect prices — volatile stock market & lower bond rates (high prices)
- COVID - “**HAVES**” – vs – “**HAVE NOTs**”
- Real estate “**HAVES**” *Safer* investment ? (higher income = attractive)
- **LOTS** of WORLD cash available to purchase – pushing prices **UP**
- **Conservative Debt Financing** this cycle – more cash down (less speculation)
- Low new construction
- *Differentiate* residential ownership versus commercial real estate to your investors!

QUESTIONS?

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Topics Covered

Economic Fundamentals

5 key Macro Economic Drivers of Real Estate
Performance
Economic Base Analysis

Real Estate Physical Cycle Fundamentals

Demand for Real Estate
Supply of Real Estate
Occupancy Cycles
Rent Cycles

Real Estate Financial Cycle Fundamentals

Interest Rates
Capital Flows
Buyers
Real Estate Prices
Cap Rates