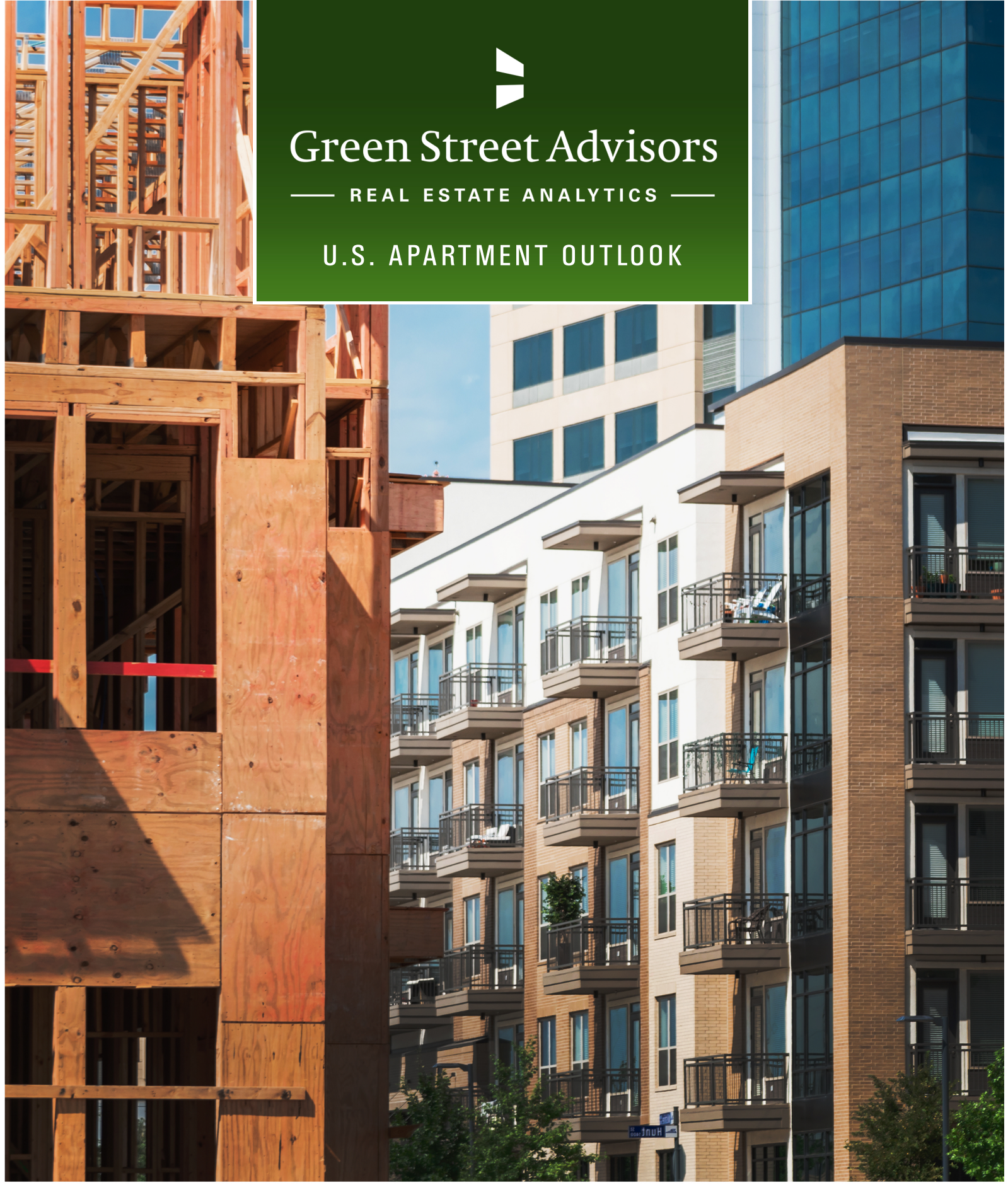




Green Street Advisors

— REAL ESTATE ANALYTICS —

U.S. APARTMENT OUTLOOK



— JANUARY 17, 2020 —

IMPORTANT DISCLOSURE ON PAGE 44

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use.
Green Street reserves all rights not expressly granted.

Executive Summary

Overview

Apartment operating fundamentals enjoyed another year of stability in '19, with most major markets successfully absorbing elevated levels of construction. Landlord pricing power is not as strong as it was earlier in the cycle, but it remains relatively healthy in a low-growth commercial real estate world. Most property sectors are experiencing a deceleration in operating fundamentals, driven in part by a moderation in broader economic growth (the pace of which surprised favorably more times than not in recent years). While there are no current discernible cracks in apartment fundamentals, the risk of oversupply will rise in the next few years. National apartment completions are expected to remain remarkably steady around cyclical highs, each year, for the next five years. Development deliveries will likely be met by softer population growth of key-renter cohorts and a moderation in employment growth. Sub-inflation market rent growth on average over the next five years remains our base case.

The apartment transaction market is currently enjoying ample liquidity, which appears likely to continue in '20. Apartment cap rates edged lower in most markets in '19, and the relationship between apartment yields and prevailing investment grade and high-yield bond rates suggest the bias for cap rates, if any, is lower. Geographically, bidding tents are fullest in large Southeast and Southwest metros, while coastal markets are relatively unloved. Private market apartment returns look attractive versus fixed-income alternatives, and apartments appear fairly valued versus other real estate sectors in both the private and public market.

Key Takeaways

- Our 5-year base case economic outlook is characterized by positive, but slowing GDP growth (~1.8%)
- Solid '19 fundamentals were supported by ~175k jobs/month, est. 40% fewer over next 5 years
- No large changes to our household formation ests. (slowing) and homeownership forecasts (sideways)
- Apartment operating fundamentals should see a cooling from a mid-3% rent growth world to mid-1%
- The demographic picture is full of cross currents, with the tailwind for apartments likely to ease
- Delayed life events and poorly positioned renter balance sheets should insulate fundamentals to a degree
- But, the “millennial boom” is fading; a deceleration in 25-34 year old growth is inevitable
- Apartment developers are not adjusting to the softer demand outlook. Pockets of oversupply will rise
- Modest gateway Market-RevPAF growth (change in rents & occ) outperformance is expected
- The transaction market is on firm footing; the bias for cap rates (if any) is likely lower (higher values)
- Significant Sun Belt market cap rate compression results in more attractive IRRs along the coasts
- The D.C. metro (the District and NoVa) is our top market of choice for private apartment investors
- Private market values: apartments look cheap vs. fixed income alternatives, fair vs. other property sectors
- Public market apartment values: apartment REITs look fairly valued vs. other property sectors

Authors

John Pawlowski, CFA, *Senior Analyst*
Alaine Coffey, *Associate*

Alan Peterson, *Senior Associate*
Galen Faurot-Pigeon, *Associate*

Table of Contents

Sections	Page:
I. U.S. Apartment Outlook Summary	4
II. Major Risk Factors	6
III. Apartment 101	7
IV. The Forces Shaping Apartment Demand	11
V. Supply Landscape	26
VI. Fundamentals	28
VII. Capital Expenditures	29
VIII. Gateway vs. Non-Gateway: Growth and IRRs	31
IX. Transaction and Financing Markets	33
X. Asset Values	35
XI. Return History and Relative Valuation	37

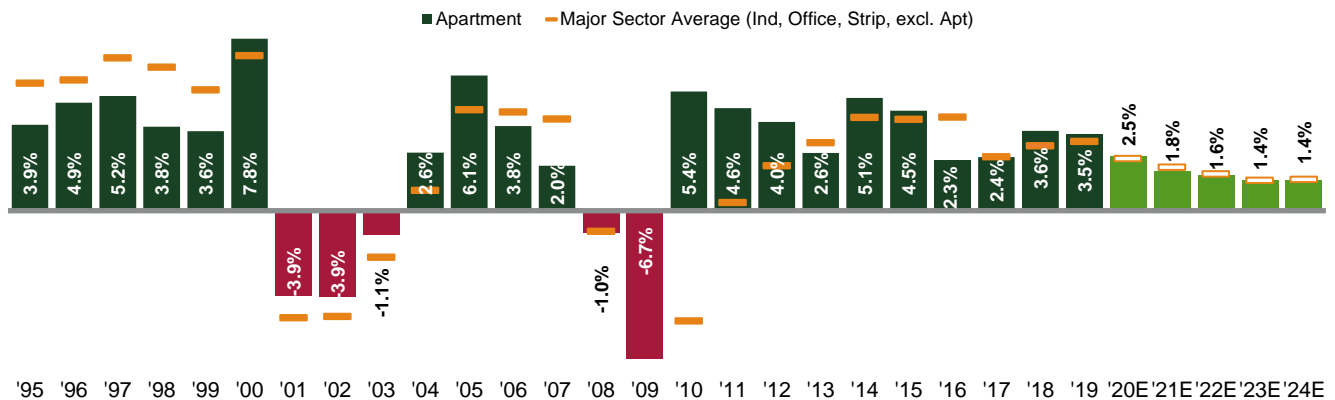
Appendices

A. Composition of U.S. Housing Stock	40
B. Apartment REIT NOI Concentrations by Market	41
C. Apartment Submarket Grades	42

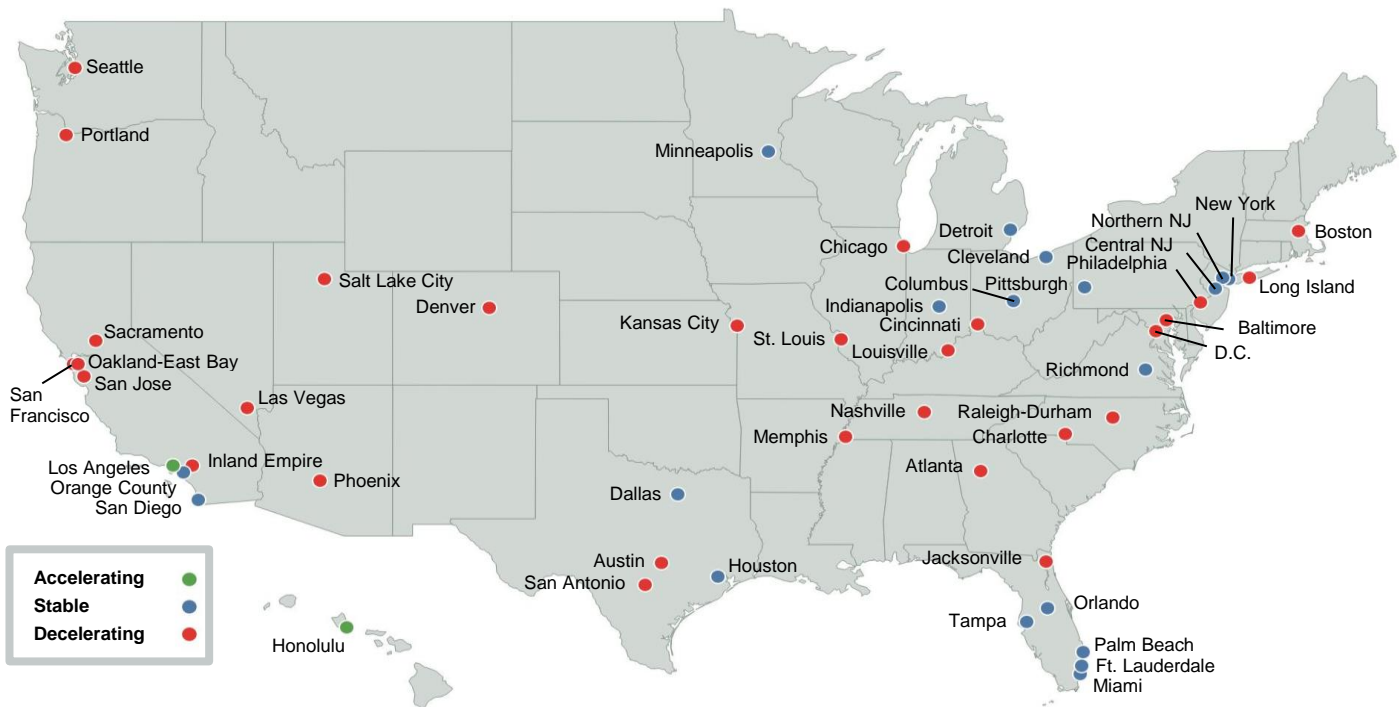
I. U.S. Apartment Outlook Summary

Set to Slow: Apartment M-RevPAF growth (combines occ. and rent) is expected to slow in the coming years from mid-3% observed in '18 and '19 toward sub-inflation levels. Our out-year estimates are modestly lower versus the forecast set a year ago due to incremental concern over the pace of multifamily construction, which is currently not slowing enough to accommodate a moderation in demand that should play out early this decade.

U.S. Apartment Market-RevPAF* Growth - Top 50



Market-RevPAF Growth Momentum (2020E vs. 2019)



*M-RevPAF growth combines changes in effective rents and occupancies into a single measure.

Source: CBRE and Green Street Advisors.

I. U.S. Apartment Outlook Summary (cont'd)

Market	Annualized M-RevPAF Growth	'20E	'20E-'24E	Employment Growth '20E - '24E	Supply Growth '20E - '24E	M-RevPAF Growth Rank '20E	M-RevPAF Growth Rank '20E - '24E
Boston	2.8%	3.6%		•	+	4	1
Seattle	2.6%	3.4%		++	--	7	2
Phoenix	2.6%		4.9%	++	-	1	3
San Diego	2.4%	3.4%		+	++	9	4
San Jose	2.3%	2.2%		+	++	39	5
Charlotte	2.3%	2.4%		++	--	31	6
Austin	2.2%	3.1%		++	--	12	7
Los Angeles	2.2%	3.1%		-	++	13	8
Dallas / Fort Worth	2.2%	2.9%		+	-	16	9
D.C. Metro	2.1%	2.2%		-	•	38	10
Denver	2.1%	2.6%		+	-	23	11
Philadelphia	2.1%	2.6%		--	•	24	12
New York	2.1%	2.9%		•	++	17	13
San Francisco	2.1%	1.5%		+	+	46	14
Las Vegas	2.0%	3.8%		++	+	3	15
Indianapolis	2.0%	4.1%		•	-	2	16
Orange County	2.0%	3.0%		•	+	14	17
San Antonio	1.9%	3.6%		++	--	5	18
Raleigh-Durham	1.9%	2.5%		++	--	29	19
Richmond	1.9%	2.8%		•	-	19	20
Nashville	1.9%	3.3%		+	--	10	21
Honolulu	1.9%	2.2%		-	++	40	22
Orlando	1.9%	2.3%		++	--	34	23
Inland Empire	1.8%	2.8%		++	•	18	24
Miami	1.8%	2.8%		-	•	21	25
Salt Lake City	1.8%	3.0%		++	--	15	26
Oakland-East Bay	1.7%	1.9%		•	•	42	27
Columbus	1.7%	2.5%		•	•	28	28
Houston	1.7%	1.8%		+	•	43	29
Sacramento	1.7%	2.3%		+	+	36	30
Portland	1.6%	3.4%		+	-	8	31
Palm Beach	1.6%	2.6%		•	•	25	32
Atlanta	1.5%	2.3%		•	-	35	33
Cleveland	1.5%	3.2%		--	++	11	34
Tampa-St. Petersburg	1.5%	2.4%		-	-	32	35
Minneapolis	1.5%	2.3%		-	-	37	36
Baltimore	1.5%	2.6%		-	+	26	37
New Jersey (Northern)	1.4%	2.5%		--	++	27	38
Louisville	1.4%	2.4%		-	+	33	39
Cincinnati	1.4%	2.8%		-	+	22	40
Pittsburgh	1.4%	2.5%		--	•	30	41
Fort Lauderdale	1.3%	1.9%		•	•	41	42
Detroit	1.3%	3.5%		--	+	6	43
Long Island	1.3%	1.1%		--	++	49	44
Kansas City	1.1%	0.9%		--	--	50	45
Memphis	1.1%	1.5%		--	-	47	46
Chicago	1.0%	1.3%		--	++	48	47
Jacksonville	0.9%	1.7%		+	--	44	48
New Jersey (Central)	0.9%	2.8%		-	++	20	49
St. Louis	0.7%	1.6%		--	+	45	50

Rank: 1-10 ++ 11-20 + 21-30 • 31-40 - 41-50 --

Source: CBRE, Oxford Economics, and Green Street Advisors. Forecasts represent annualized numbers.

660 Newport Center Drive, Suite 800, Newport Beach, CA 92660

Important disclosure on page 44

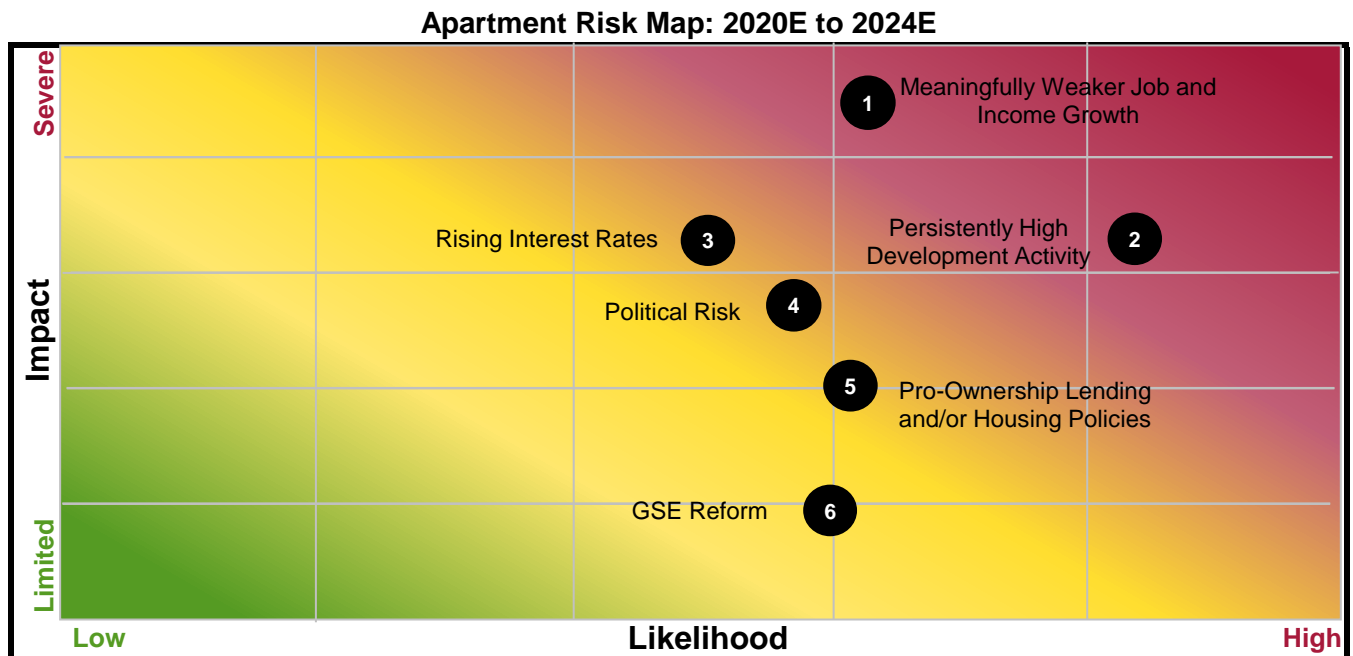
T + 1 949 640 8780 / greenstreetadvisors.com

© 2020, Green Street Advisors, LLC

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use.
Green Street reserves all rights not expressly granted.

II. Major Risk Factors

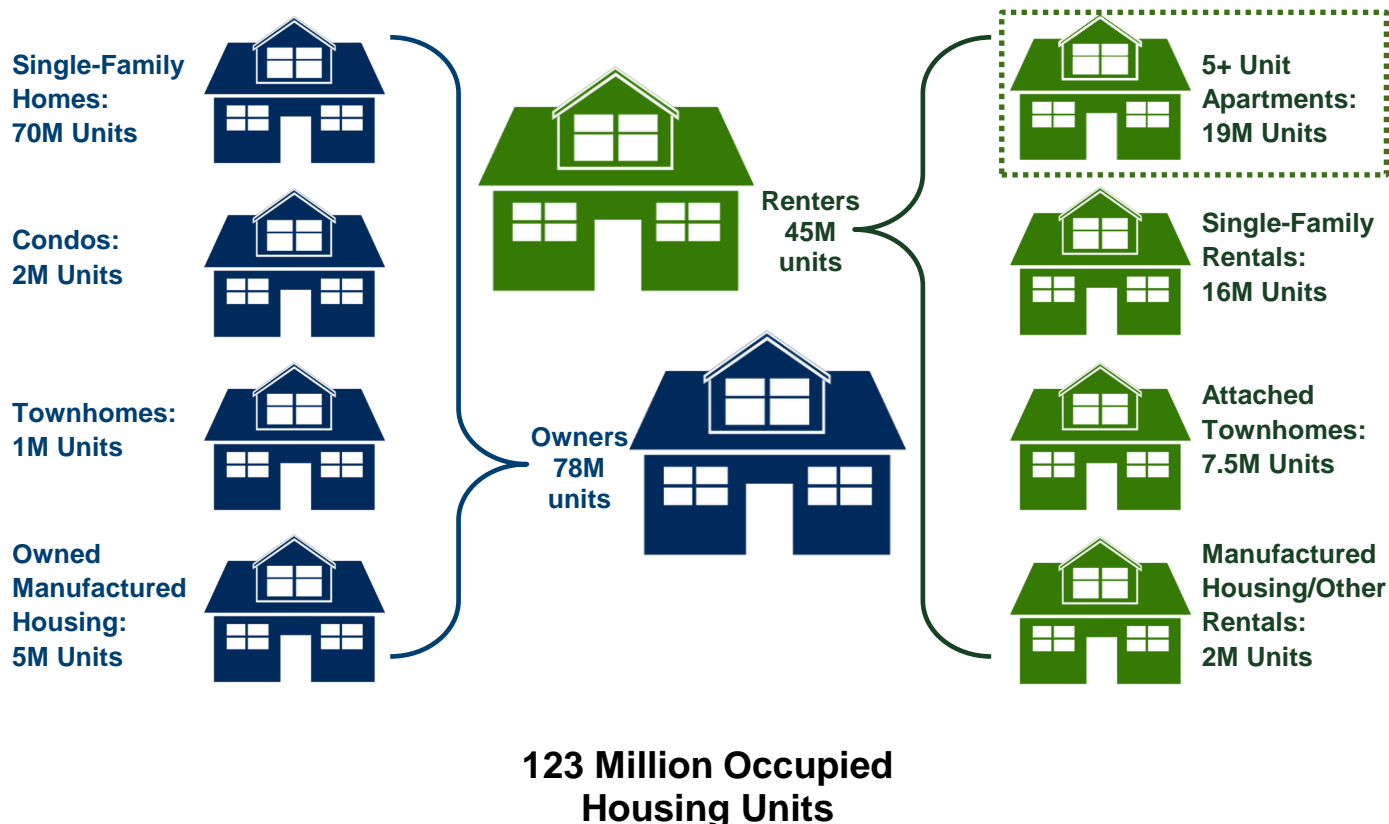
Keep One Eye Open: Times are still good for apartment investors relative to many property types. However, like any business, risks remain and the following is a list of key issues that bear watching over the coming years. The most likely risk to apartments seem cyclical in nature (new supply outstripping demand), but other idiosyncratic risks (namely rent control) have grown in recent years.



- 1 Job growth slowed modestly in '19 from the fantastic pace of the last few years, but remained strong enough to allow for absorption of elevated new supply in most markets. Should job growth decelerate meaningfully, investors will see pockets of oversupply spread quickly. Charlotte, Orlando, and Jacksonville appear most at-risk of oversupply in '20.
- 2 Third-party forecasters continue to paint an overly rosy supply growth picture for the next three years. Development remains historically high and is unlikely to slow meaningfully. Apartments are a solid, readily financeable business versus other sectors. The downside to these positive traits: developers will develop until the capital spigot shuts off.
- 3 In most markets, apartment cap rates edged lower throughout '19, along with the broader decline in interest rates observed since late-'18. Apartment yields are attractive versus prevailing bond rates, but a rapid rise in interest rates would still carry negative implications for asset values, particularly if inflation and rent growth do not follow.
- 4 Political pressure from affordable housing advocates is unlikely to abate, with coastal markets facing the greatest risk. In '19, NYC landlords fell into the crosshairs of new rent regulation with a painful outcome for owners of non-institutional rent stabilized buildings, and a benign impact for most institutional owners of market-rate units. In '20, California voters will likely have another chance to repeal statewide limits on rent control come election day.
- 5 Since the housing bust, mortgage credit has been granted to only the best borrowers and has only loosened marginally the past few years. Expanding mortgage availability could serve as bi-partisan low-hanging fruit among regulators to boost the economy.
- 6 Housing reform is underway, but is in the early innings and will likely be a multi-year process. GSE multifamily lending activity in '20 should prove accommodative enough to provide ample liquidity to the transaction market. Beyond '20, it's reasonable to expect a reduction of Fannie/Freddie support, but meaningful declines in volume will likely remain a tough political sell. Mandates could also shift quickly under a new administration.

IIIa. Apartment 101: The Basics

Housing America: There are 330 million people living in the U.S. today housed in approximately 120 million dwellings, including approximately 19 million apartment units in buildings with 5 or more units. Institutional-quality apartments, which exclude affordable housing and properties outside the top 100 markets, account for ~14 million units, or 12% of the total U.S. housing stock.



Types of Apartment Buildings

High-Rise



High-rise apartment buildings typically have more than ten stories and are located in downtown submarkets of larger cities.

Mid-Rise



Mid-rise apartment buildings typically stand between four and ten stories and are often located in suburbs of larger cities.

Garden



Garden-style apartment buildings with landscaped gardens or lawns are two or three story complexes generally located in the suburbs.

Subsidized

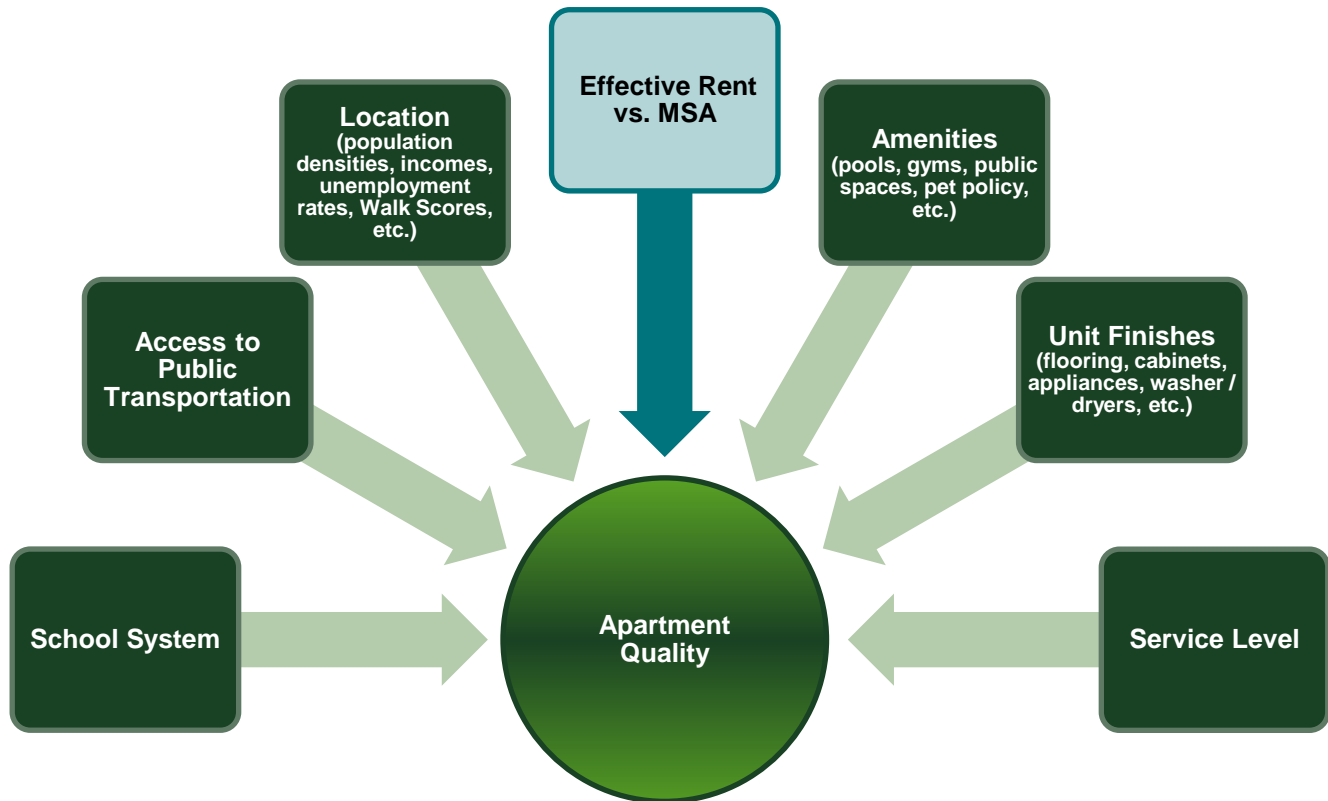


Government-subsidized apartments for people with low-to-moderate incomes can range widely from high-rise buildings in urban submarkets to garden style buildings in the suburbs.

Source: U.S. Census Bureau and Green Street Advisors.

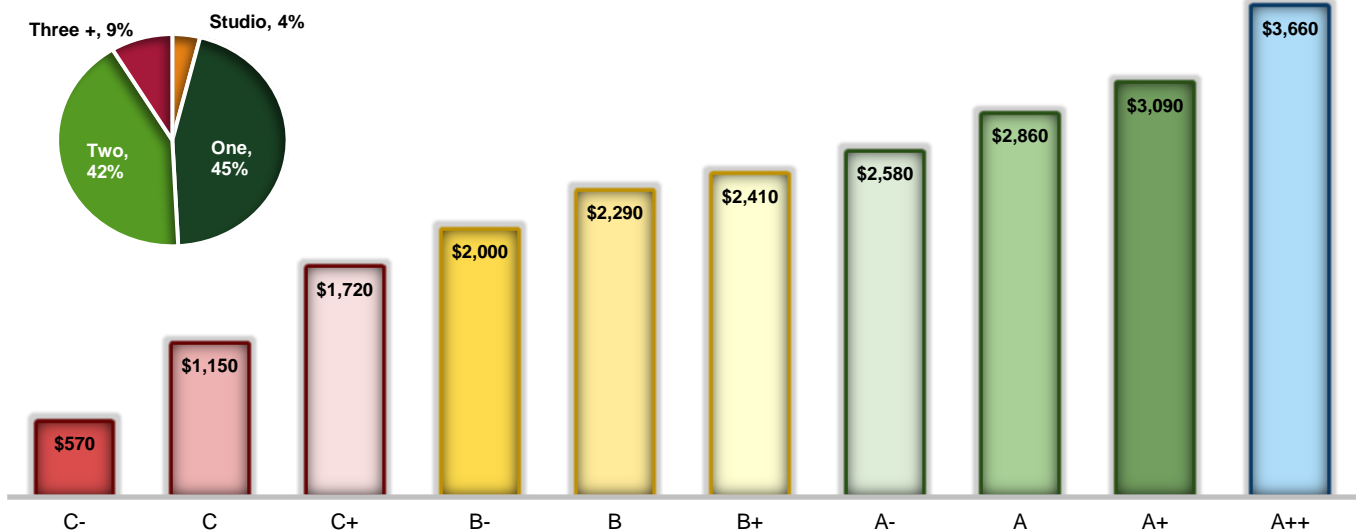
IIIb. Apartment 101: Assessing Asset Quality

A Price Point for Everyone: There are a variety of factors that affect the rent level of apartment buildings within an MSA, including: location, physical quality, school system, amenities, access to public transportation, unit finishes, local economic conditions (including incomes), and the owner's operating abilities. Rent levels are a good proxy for asset quality within a market.



Quality Scores - An Example of Average Rents in Los Angeles*

U.S. Apartment Stock By Bedroom Count



*Los Angeles rents are an average of various bedroom floor plans

Source: CBRE, Green Street Advisors, US Census.

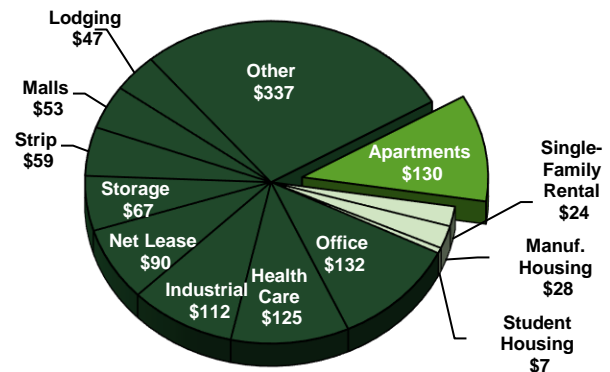
IIIc. Apartment 101: The Players

Fragmented: REIT ownership of institutional-quality apartments is limited, and has declined over time due to consolidation in the space. Unlike other sectors where REITs tend to possess a meaningful cost-of-debt advantage, Fannie/Freddie's presence in multifamily diminishes the REITs' advantage. REIT portfolios generally tilt toward higher-rent assets within a given market relative to private market peers.

% of Real Estate Owned by REITs

Malls	80%
Senior Housing	15%
Self-Storage	15%
Non-Mall Retail	10%
Industrial	5-10%
Lodging	5-10%
Office	5-10%
Apartments	<5%

REIT Equity Market Cap (\$B)



Top 50 Apartment Owners

(Portfolio data as of 1/1/19 - bold denotes publicly traded REITs)*

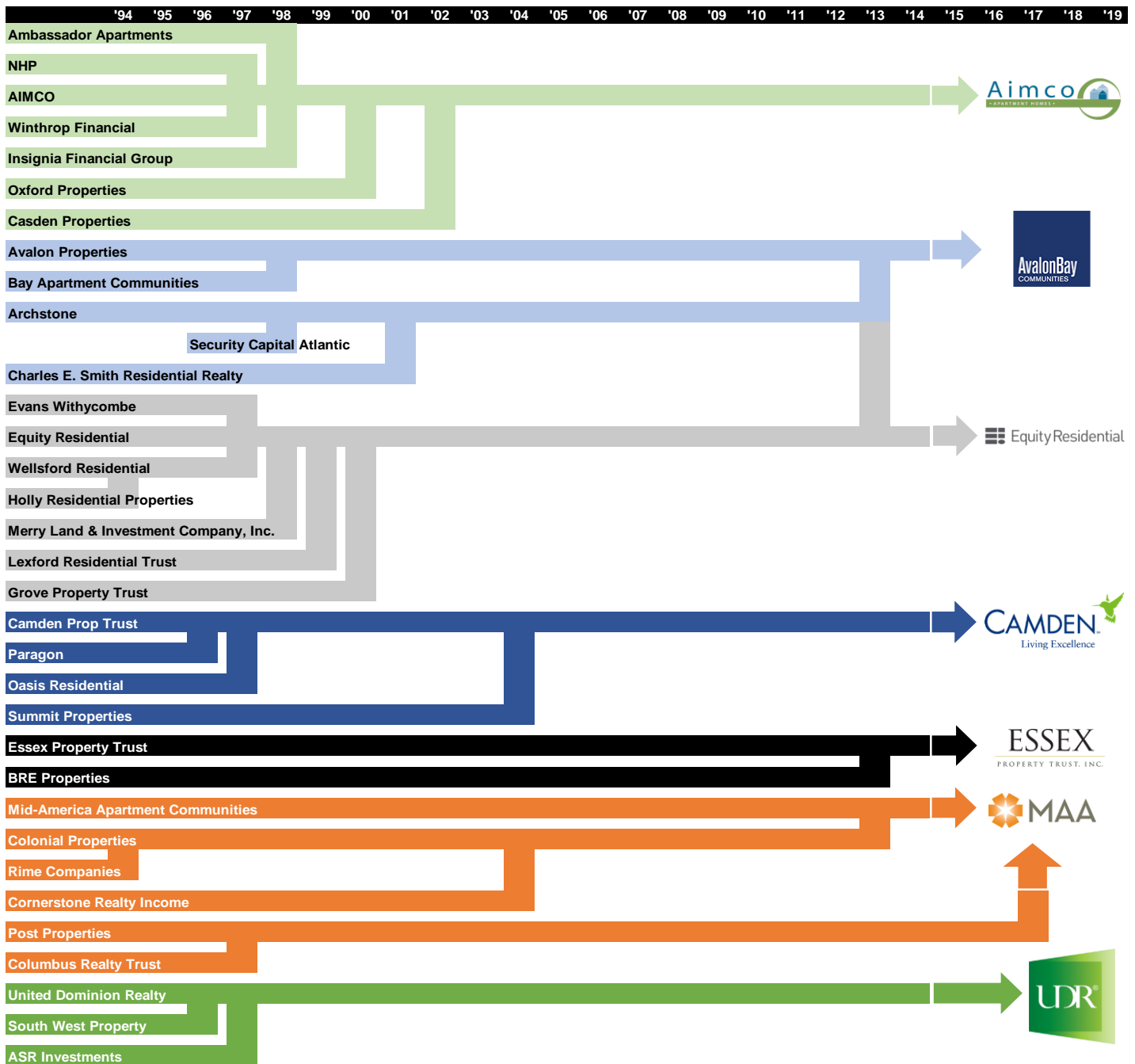
Name	Units	Name	Units
1 MAA	100,900	26 Invesco Real Estate	35,400
2 AvalonBay Communities, Inc.	82,000	27 American Campus Communities	33,500
3 Equity Residential	80,300	28 Dominion	33,300
4 Starwood Capital Group	76,900	29 Steadfast Companies	31,000
5 Related Companies	69,300	30 Harbor Group International, LLC	30,700
6 Edward Rose Building Enterprise	64,700	31 Westdale Real Estate Investment & Managem	29,400
7 Essex Property Trust, Inc.	62,500	32 FPA Multifamily	28,800
8 Greystar Real Estate Partners	62,000	33 GID	28,500
9 The Irvine Company	60,600	34 Heitman	28,000
10 Hunt Companies	60,200	35 Carroll Organization	27,600
11 BH Equities, LLC	58,400	36 JRK Property Holdings	26,300
12 Lincoln Property Company	58,400	37 Bridge Investment Group	26,300
13 Camden Property Trust	58,200	38 AEW Capital Management, L.P.	25,800
14 PGIM Real Estate	56,400	39 Southern Management Corporation	25,300
15 Weidner Apartment Homes	52,600	40 Northland Investment Corporation	25,000
16 Balfour Beatty Communities	51,300	41 Sentinel Real Estate Corporation	25,000
17 JPMorgan Asset Management	51,200	42 TruAmerica Multifamily, LLC	24,500
18 UDR, Inc.	51,100	43 AMLI Residential	24,200
19 Cortland	51,000	44 American Landmark/Electra America	24,000
20 Morgan Properties	50,700	45 Eaton Vance Management	23,700
21 Monarch Investment & Management Group	49,800	46 AIG Global Real Estate Investment Corp.	23,300
22 Michaels Development Company	49,500	47 Knighvest Capital	22,700
23 Nuveen Real Estate	38,400	48 ROCO Real Estate	21,100
24 UBS Realty Investors LLC	38,400	49 The NRP Group	20,700
25 Aimco	33,500	50 Berkshire Residential Investments	20,500

Source: Company documents, NAREIT, NMHC, and Green Street Advisors. *Data as of 1/1/19 and does not reflect larger portfolio sales and acquisitions in '19.

IIId. Apartment 101: Industry Consolidation

Darwinism at Work: Apartments are a highly scalable business. The adoption of centralized revenue management systems, call centers, and operations teams over the last ~25 years allowed companies to manage ever larger portfolios with limited incremental field personnel. The scalability and a growing divide in operating efficiency between small and large players prompted a consolidation wave. Today, only seven of the twenty public REITs that existed in '95 remain. The odds of further REIT privatizations or public-to-public mergers will remain fluid over the coming years, but are currently low.

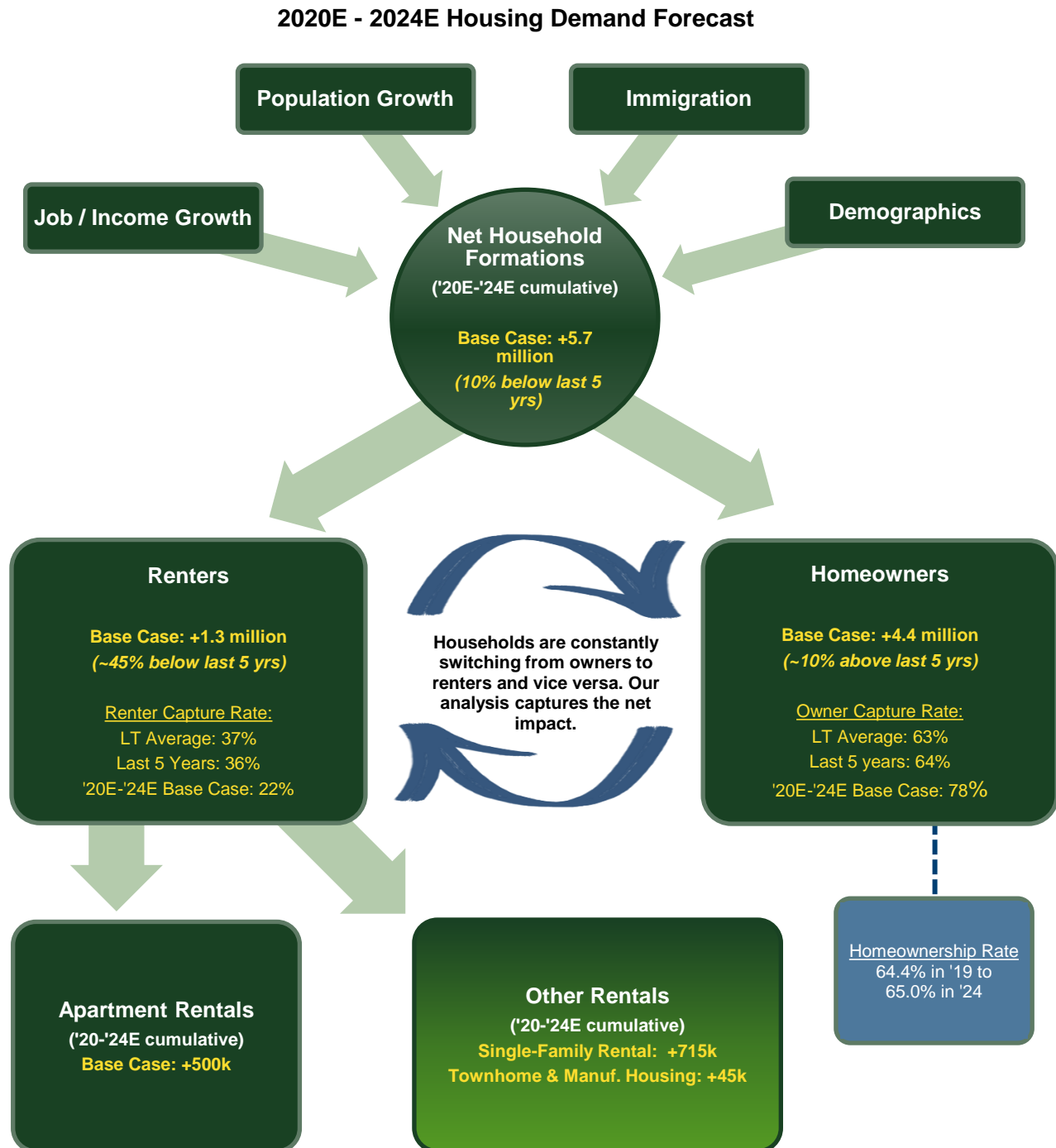
Apartment Consolidation (Notable Transactions)



Source: Company Disclosures and Green Street Advisors.

IVa. The Forces Shaping Apartment Demand

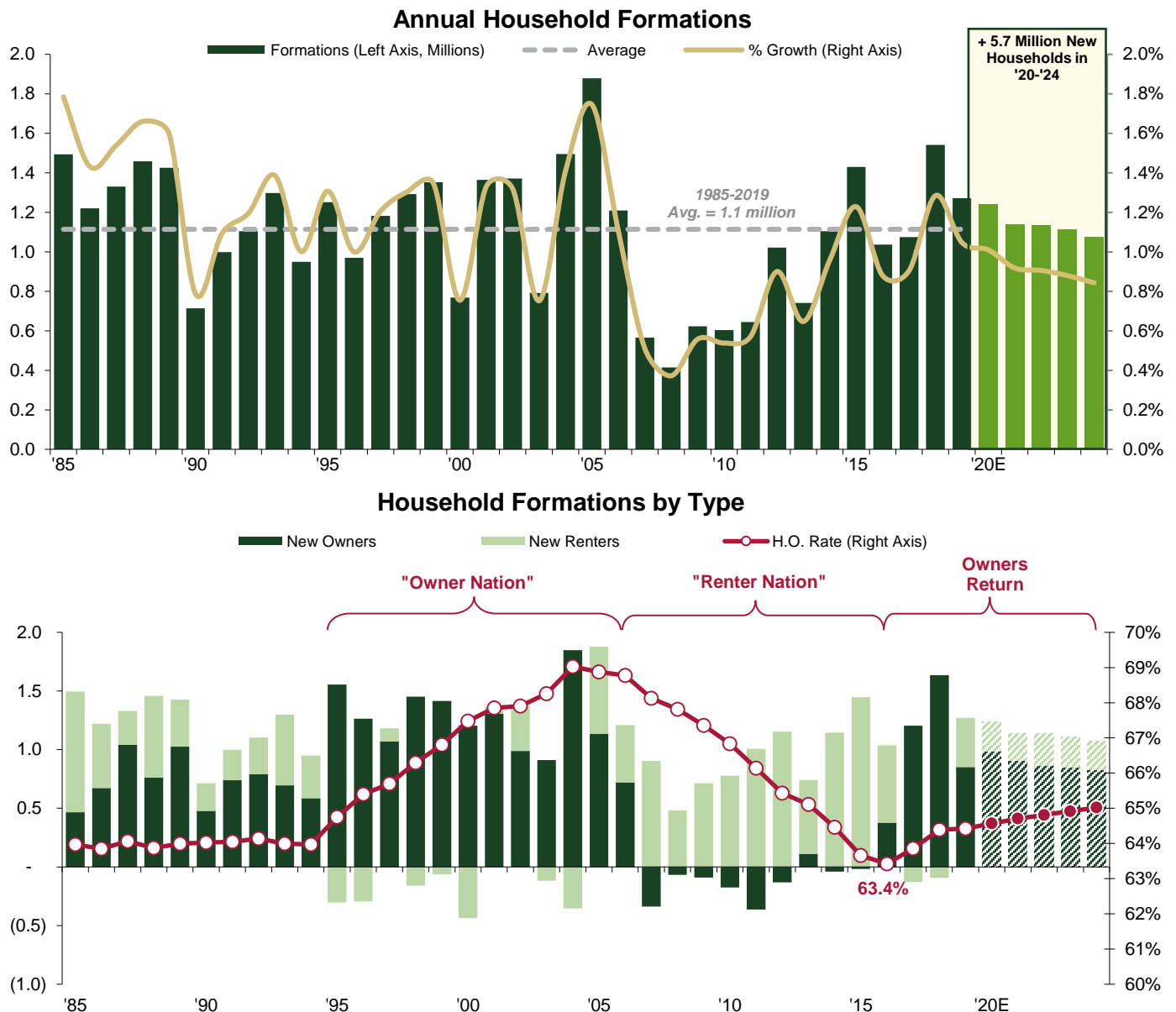
The Demand Waterfall: Household formations are a key measure of aggregate housing demand. A household's choice between an apartment or single-family home, and whether to rent or buy, is predicated on financial situations and lifestyle needs. Green Street's base case anticipates demand growth of 5.7 million total housing units over the next five years, ~10% below the robust pace observed over the previous five years. However, renters are only expected to represent 20-25% of this net demand, as homeownership stabilizes. Approximately 500,000 new households are expected to rent apartments by 2024.



Source: U.S. Census Bureau and Green Street Advisors.

IVb. Demand: Households & Homeownership

Growth is Good: Household formations in '19 were near the 35-year average and met our expectations. Our 5-year forecast is largely unchanged. Still-favorable population growth trends and decent job growth should lead to solid, though decelerating, household formations in the coming years. Homeownership surprised marginally higher versus our expectations in '19. The homeownership rate is expected to largely trend sideways through 2024, due to affordability issues for prospective first-time homebuyers.



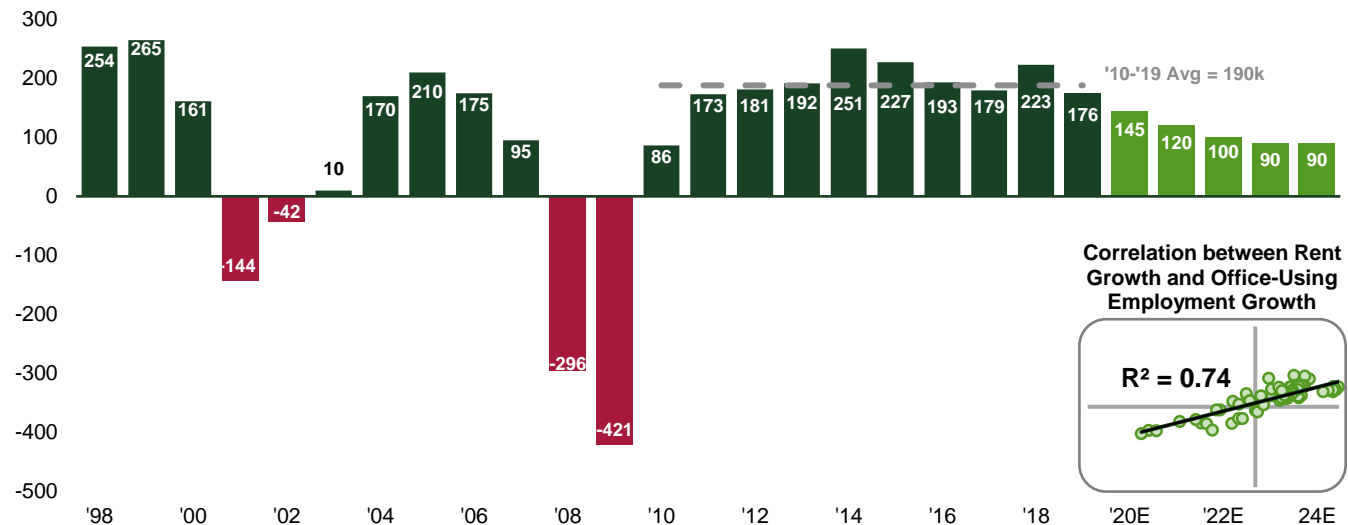
Our homeownership rate forecast contemplates population growth and propensity to own by age and birth cohorts. From '06-'16, the homeownership rate declined by an average of 50 bps per year. However in '17 and '18, the homeownership rate surprised to the upside and registered its first increases in ~12 years, driven by a modest revival of home buying among 25-34 year olds, which continued in '19.

Source: U.S. Census Bureau and Green Street Advisors. Forecasts by Green Street Advisors.

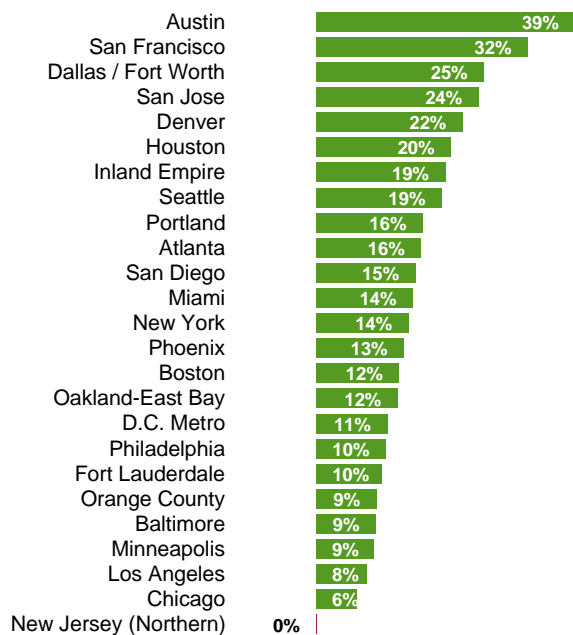
IVc. Demand: Employment

Still Solid: Job growth is the primary driver of near-term apartment fundamentals. Employment growth moderated in '19, but remains supportive of apartment fundamentals. The expected pace of deceleration in '20 and beyond, while not alarming in isolation, may prove problematic if the apartment construction pipeline does not begin to slow. West Coast and Sun Belt markets still enjoy higher absolute job growth, but have not been immune to the modest slowdown in hiring.

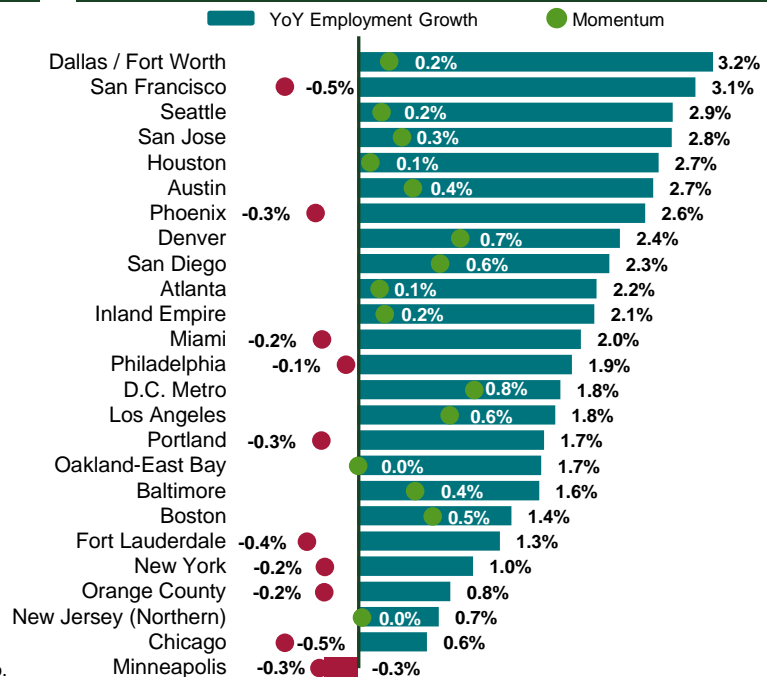
Total Nonfarm Job Growth Monthly Pace (000's)



Current Employment vs. Prior Peak



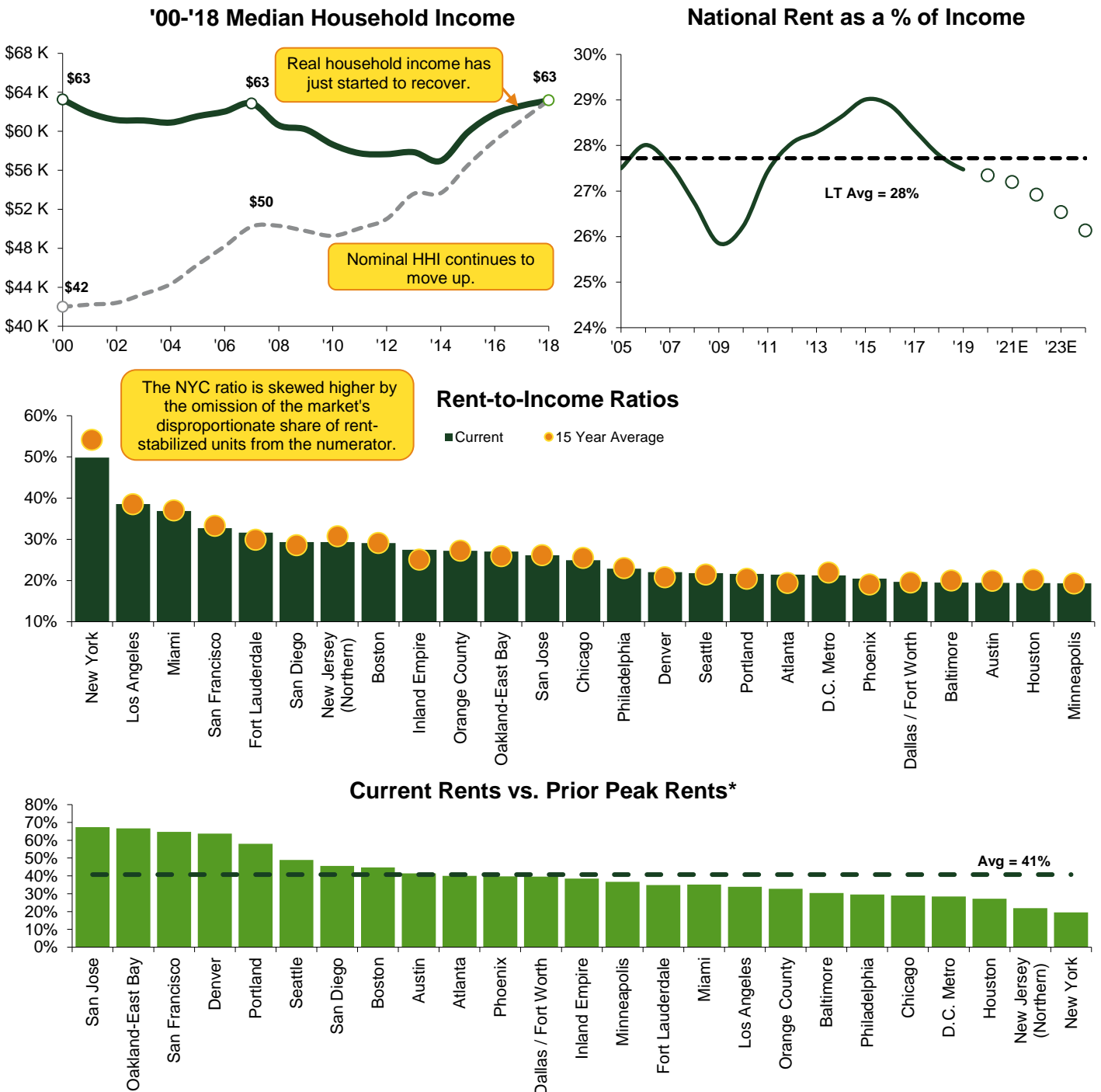
YoY Employment Growth and Momentum*



* Employment growth as of Nov. '19. Momentum = YoY Growth - Trailing 12 mo.
Source: Bureau of Labor Statistics, U.S. Census Bureau, and Green Street Advisors.

IVd. Demand: Wage Growth and Affordability

Wage Growth Kicking In: Historically, job growth and income growth have been closely correlated. Wage growth lagged job growth during the early part of the recovery, but has accelerated in the past few years. Growing wages has lent some relief to affordability pressures in several markets as rent as a percentage of income continues to ease gradually from peak '16 levels. Rent-to-income ratios are in line with historical levels in the majority of markets and should continue to improve.

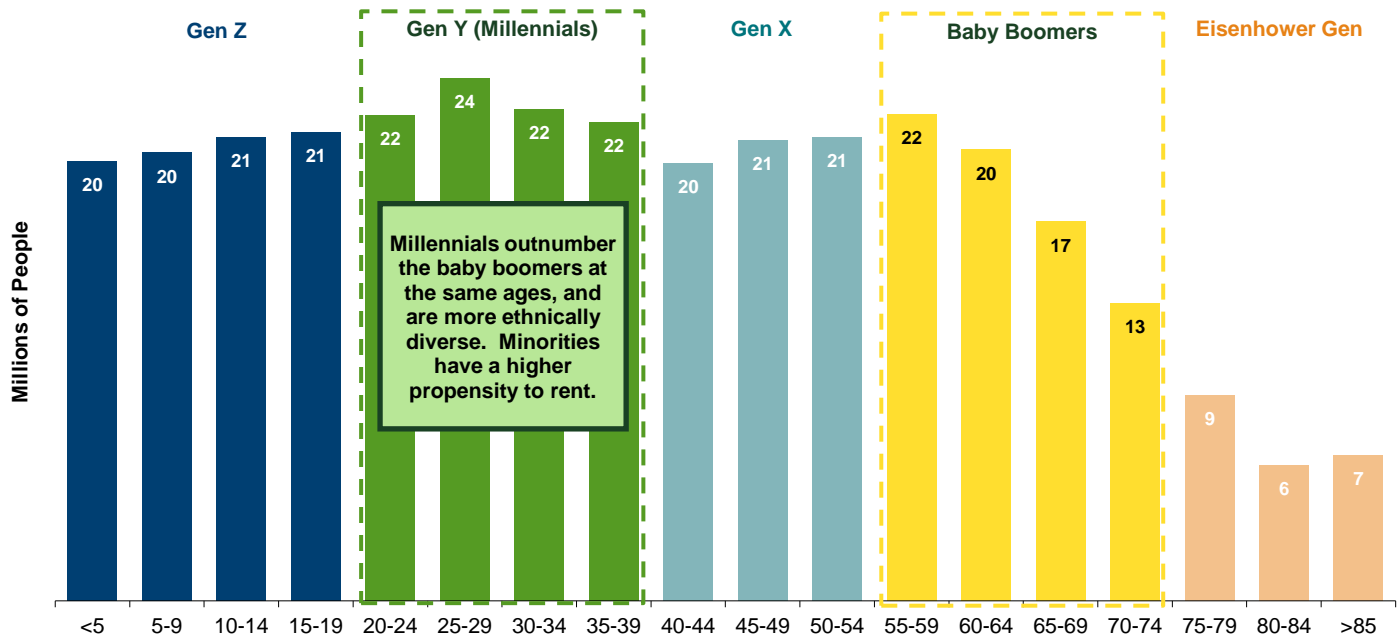


* 2007 Peak; Source: CBRE, Company disclosure, Economy.com, U.S. Census Bureau, and Green Street Advisors.

IVe. Demand: Demographics

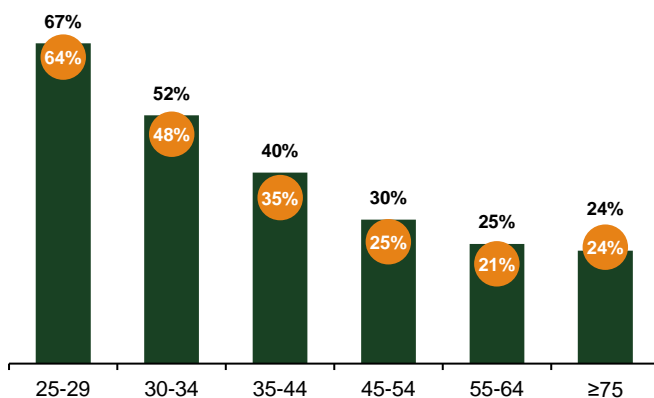
Aging Renters: Demographic shifts, while slow moving, can have large impacts on housing demand. Beginning in '20, the prime renter demographic – 25-34 year olds – is expected to grow at a rate below that of the broader population for the first time since '07. Millennials renting longer and downsizing Baby Boomers will provide some support to apartment demand, but aging demographics should still be a net drag on apartment consumption over the next five years relative to the last five years.

The Generations by Age Cohort Based on Census Projections



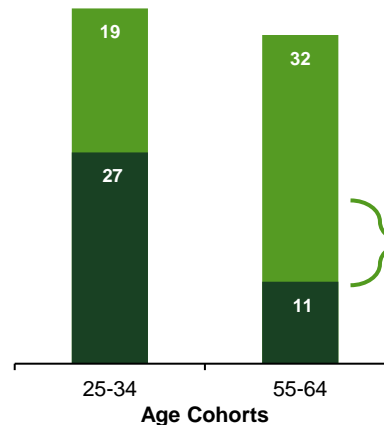
Propensity to Rent by Age Cohort

■ 2020E ■ LT Avg



Millennials vs. Boomers

■ Owners ■ Renters



Apartments would likely only capture a small share of future downsizing boomers, as demand is siphoned off between townhomes, smaller single-family homes, manufactured housing, and senior housing.

Source: U.S. Census Bureau and Green Street Advisors.

660 Newport Center Drive, Suite 800, Newport Beach, CA 92660

T + 1 949 640 8780 / greenstreetadvisors.com

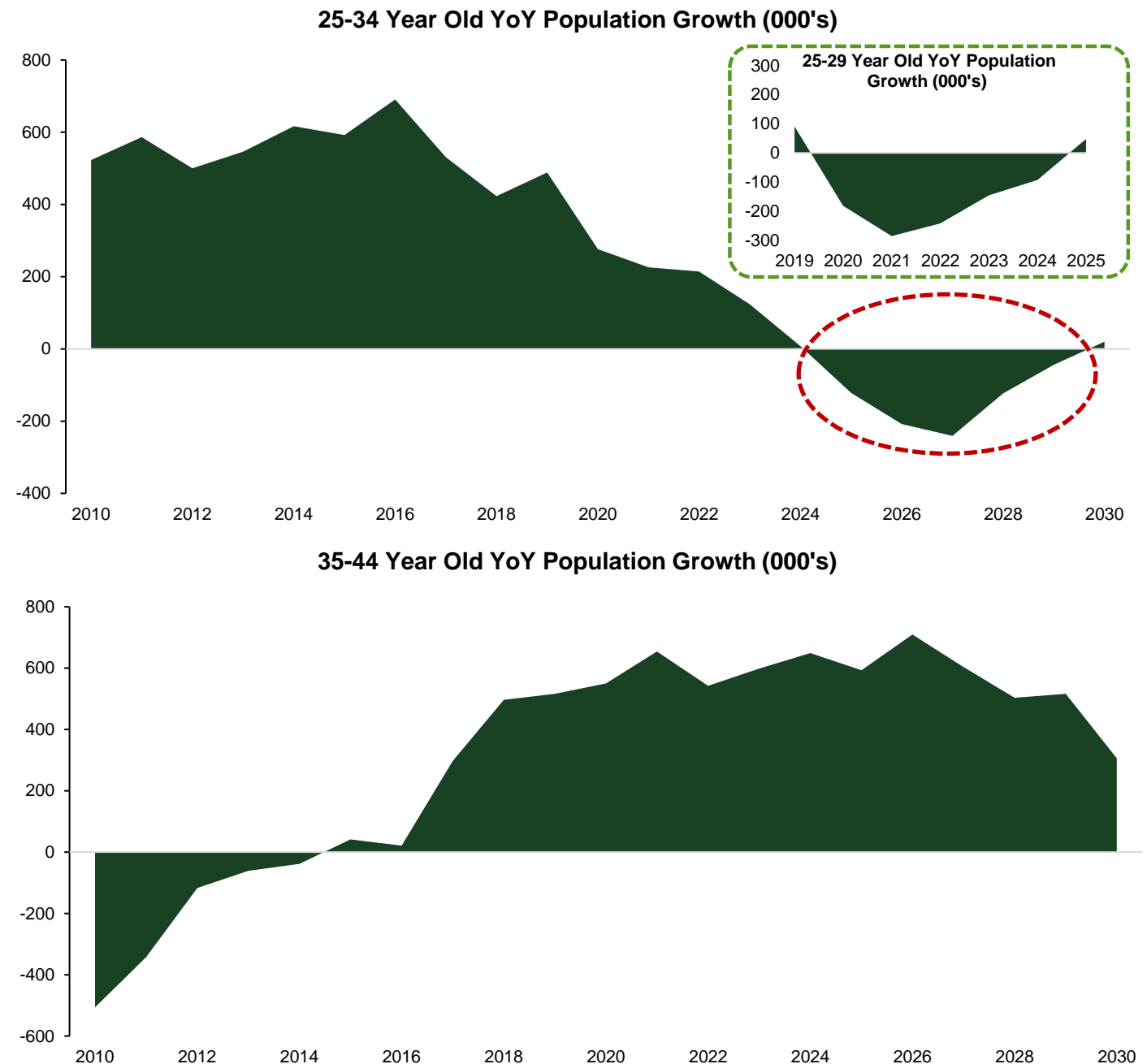
Important disclosure on page 44

© 2020, Green Street Advisors, LLC

This report contains copyrighted subject matter and is covered under Green Street's Terms of Use. Green Street reserves all rights not expressly granted.

IVe. Demand: Demographics (cont'd)

What Goes Up...: The “millennial boom” that has supported apartment fundamentals this cycle is fading. The 25-29-year-old population should begin to experience net declines in '20, and the broader 25-34-year-old population should cross over into negative territory in '25 for the first time since '03. The SFR sector stands to benefit from the aging of today's apartment renters (average SFR tenant age is ~40). However, the degree to which SFR demand benefits will depend on this cohort's propensity and ability to own.

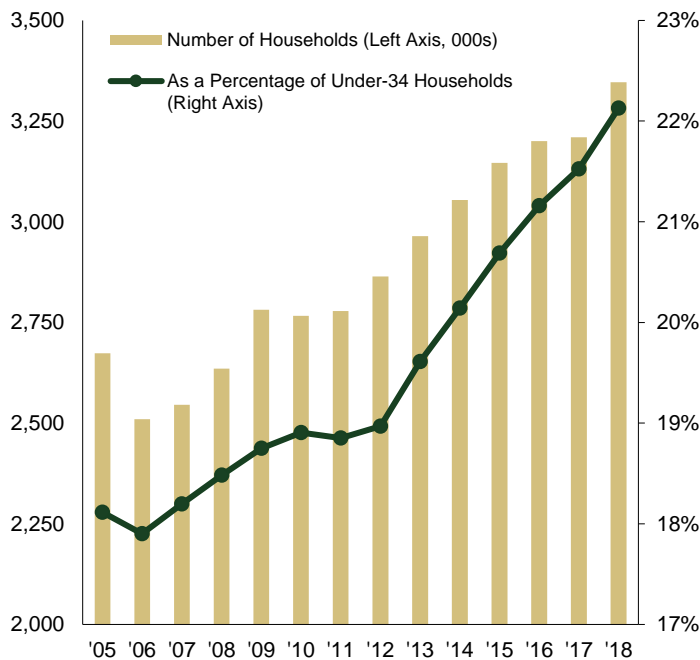


Source: U.S. Census Bureau.

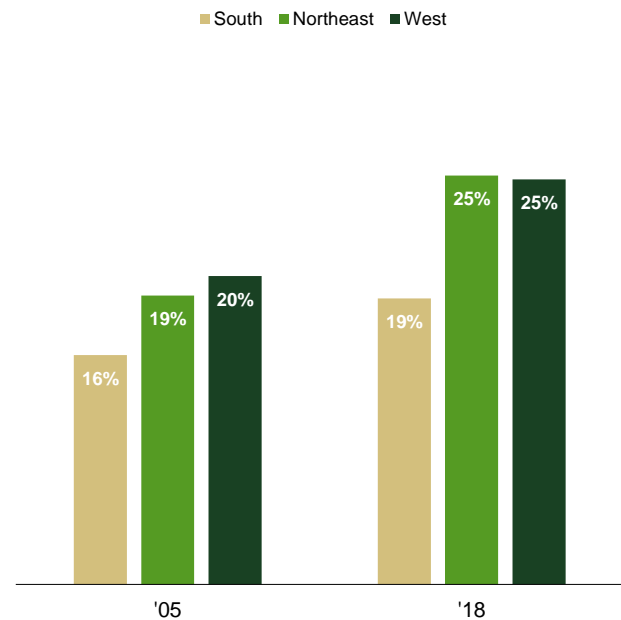
IVe. Demand: Demographics (cont'd)

Grow Up Peter Pan: The share of young adults living with parents, as well as the propensity to have roommates, continues to show little signs of reversion toward historical levels previously anticipated. An uncoupling of roommates and/or parents would represent a large source of pent up demand for apartments, but the “great uncoupling” appears to be a lower probability event. Doubling up with roommates continues to be disproportionately common along the coasts.

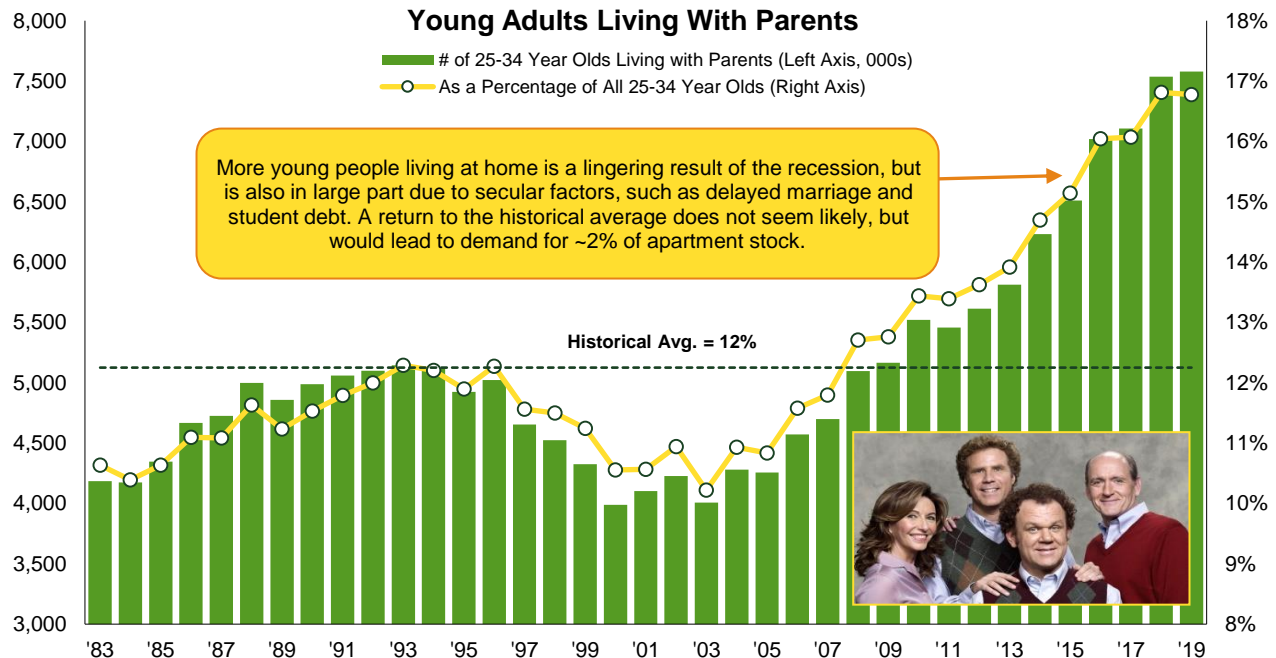
Under-34 Households with Roommates



% of Under-34 Households with Roommates by Region



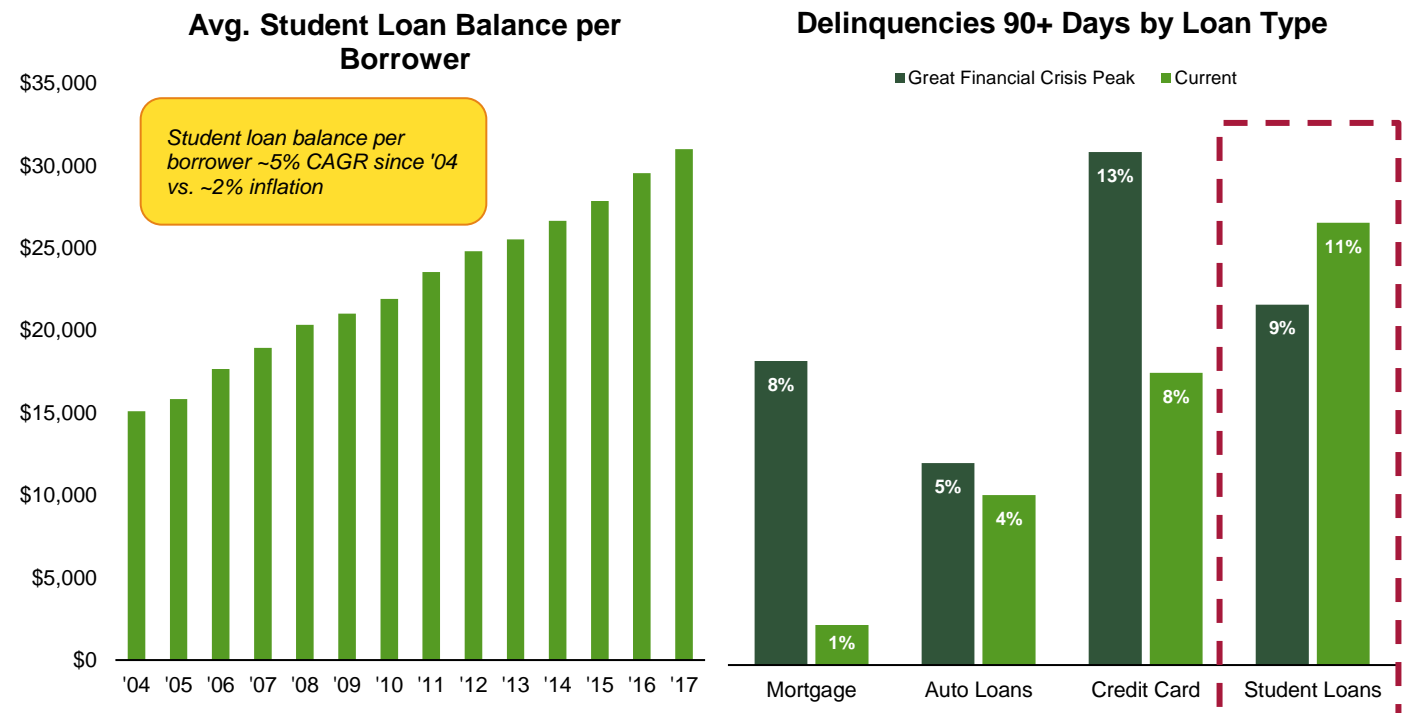
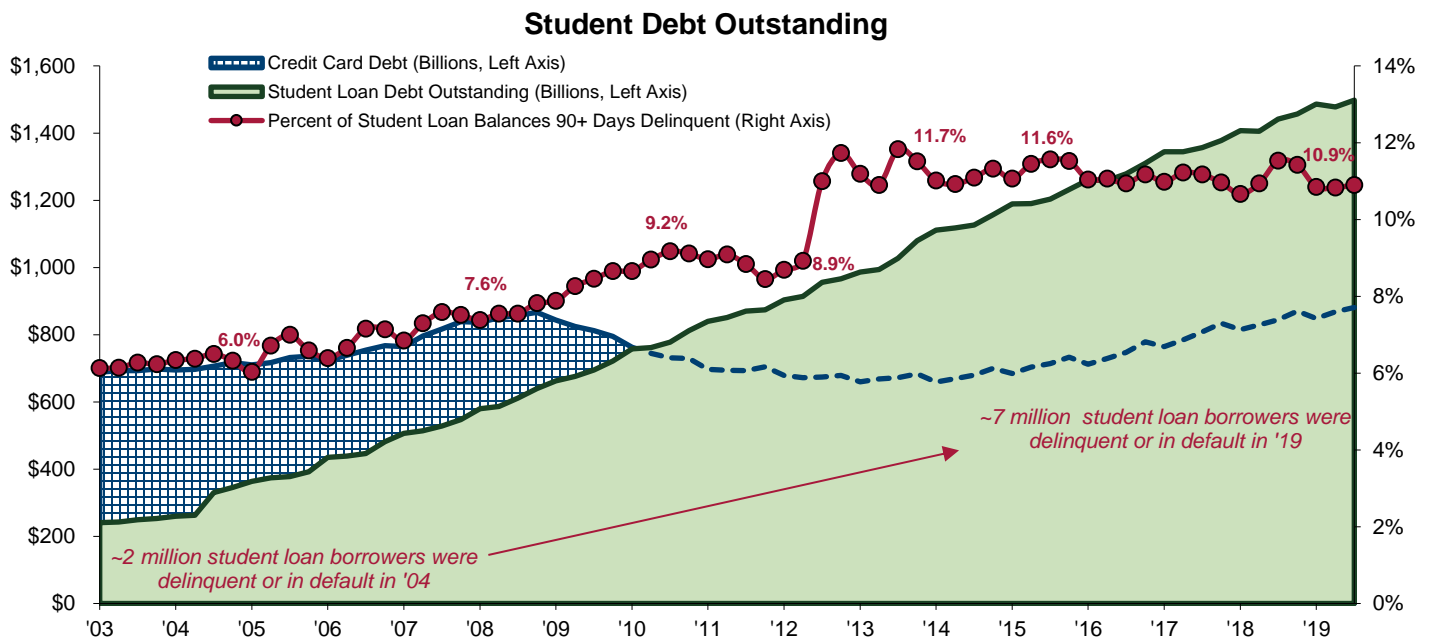
Young Adults Living With Parents



Source: Bureau of Labor Statistics and U.S. Census Bureau.

IVe. Demand: Demographics (cont'd)

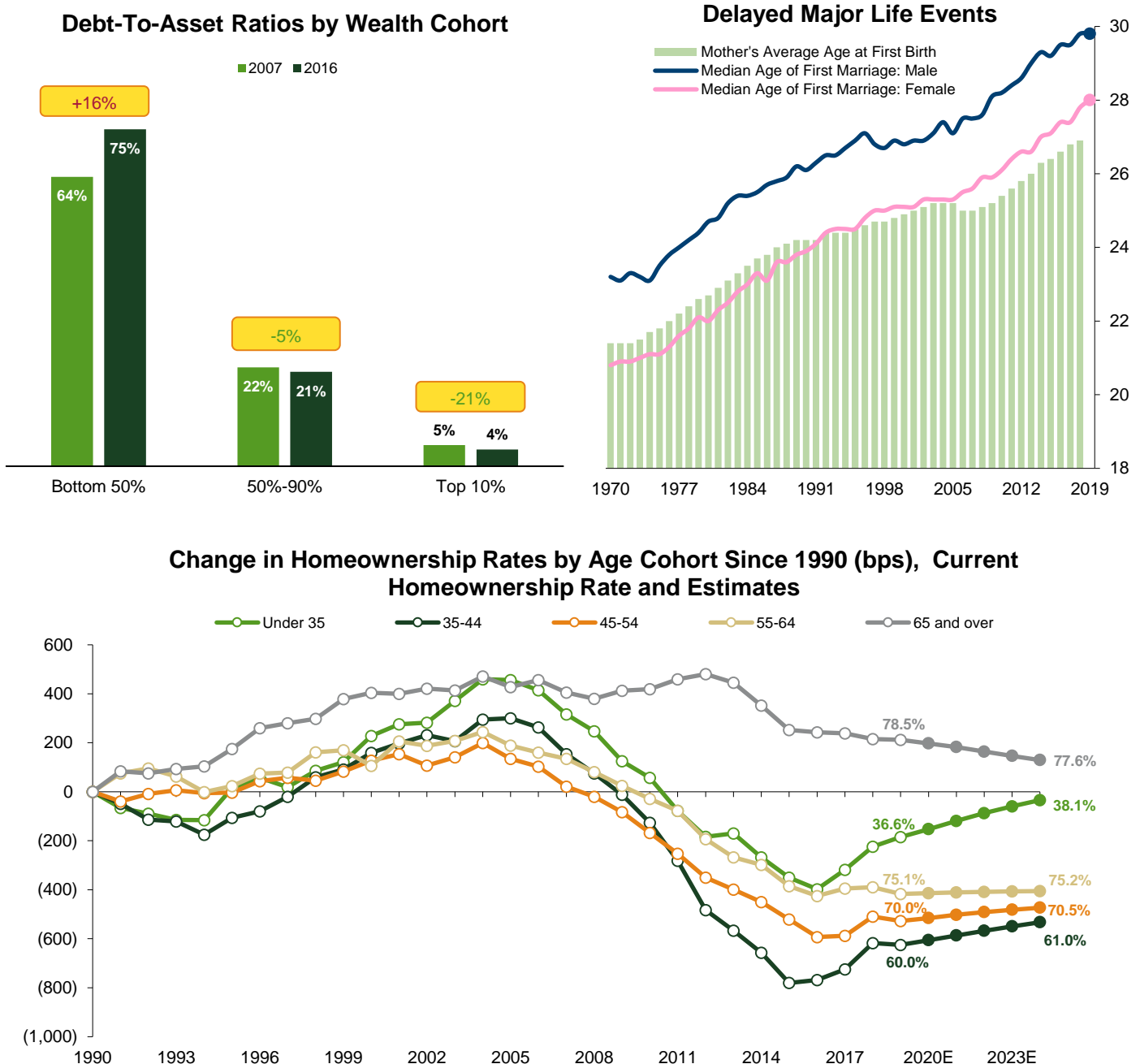
Crowded (out) Housing: Student loan debt has grown at an 11% annual rate since '04 to \$1.5 trillion, as both the number of borrowers and amount per loan have steadily increased. Roughly seven million borrowers are severely delinquent on their student debt, suggesting future access to mortgages for much of this group will be impaired (represents ~8% of rental housing stock assuming folks double up). An ~11% delinquency rate is eye popping in light of ostensibly rosy economic times. Student debt is the only form of debt that has not seen an improvement in delinquency rates during this cycle's recovery.



Source: Department of Education and Federal Reserve Bank of New York.

IVe. Demand: Demographics (cont'd)

Renters for Life? Despite a ~10-year bull market, the balance sheets of many renters have actually deteriorated in recent years. Many have found themselves on the wrong side of compounding interest, servicing non-mortgage related debt while missing out on massive appreciation in home prices and financial assets. The cohort that was 25-34 during the housing bust is likely to have an impaired homeownership rate through most of their adult lives. The homeownership rate for today's 25-34 year old households should continue to see greater improvement, but will likely remain restrained versus historical levels.

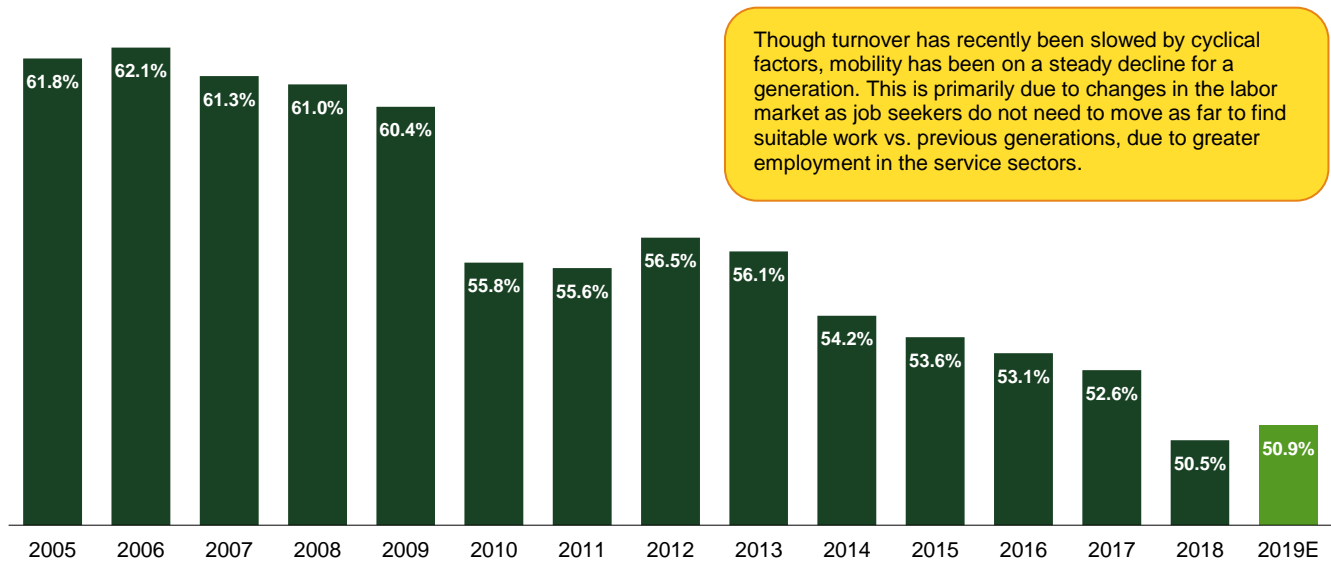


Source: CDC, Federal Reserve Bank of Minneapolis, and U.S. Census Bureau.

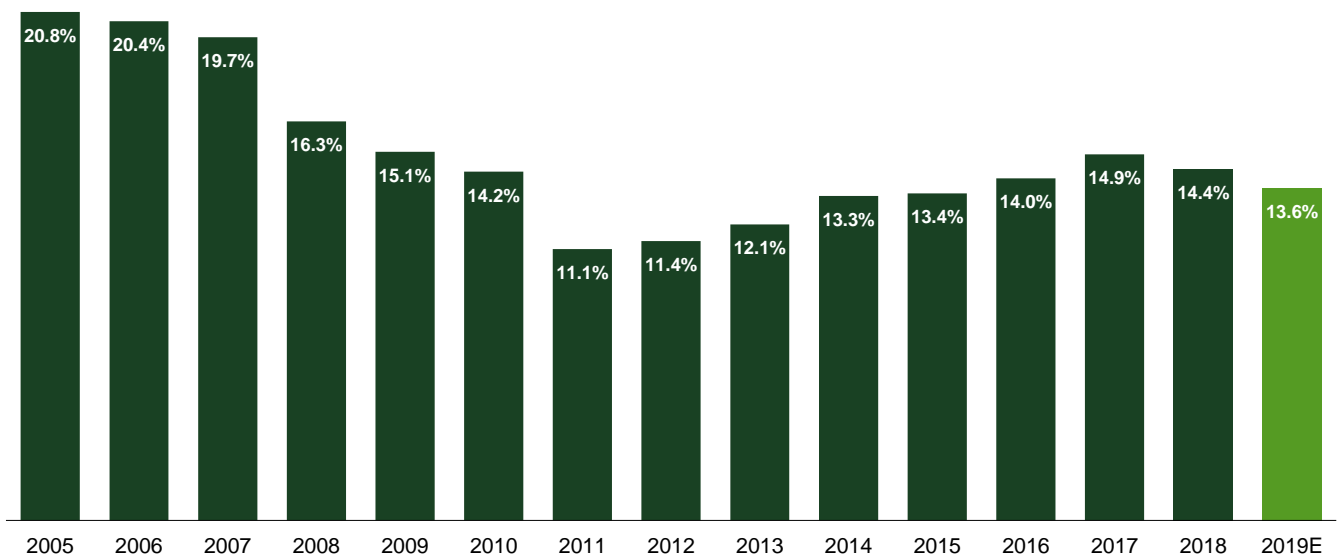
IVf. Demand: Apartment Turnover

Bouncing Along the Bottom: For a third consecutive year, apartment turnover rates came in lower-than-expected in '19. Home buying activity among renters remains muted (even in more affordable Sun Belt markets) and the concessionary environment, which can incentivize renters to move, remained rational. Turnover rates have appeared to find a bottom at historically low levels, but a dramatic pick up from here seems unlikely.

Annualized Gross Turnover - Apartments



Move-Out-to-Buy

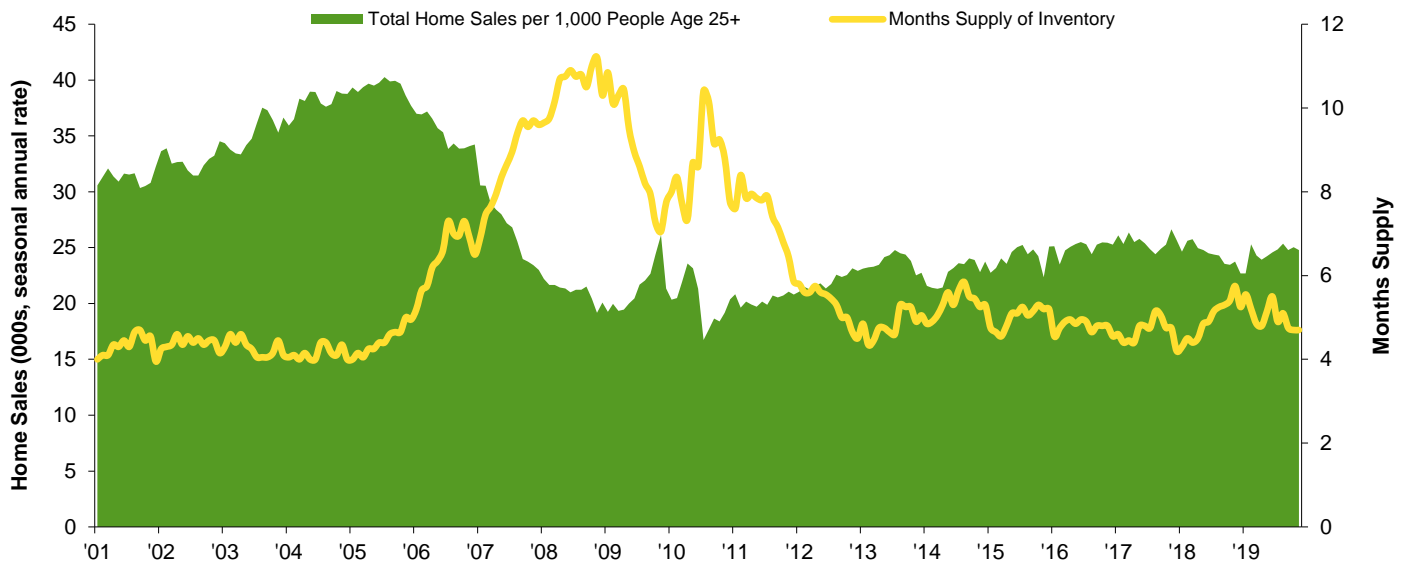


Source: Company disclosure (weighted by REIT unit count).

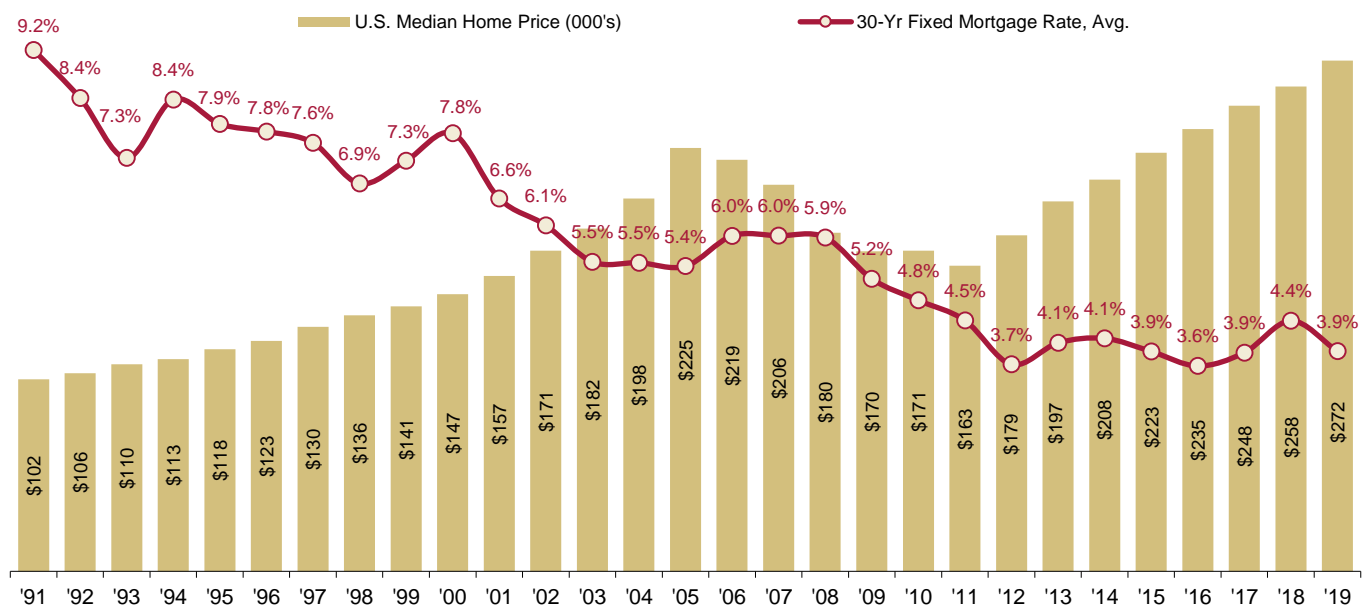
IVg. Demand: The Single-Family Market

Restrained: Following a rapid slowdown in late-'18, single-family home sales activity reaccelerated modestly in '19, but remain ~20% below early-2000s levels on a per-capita basis. Tight inventories are pushing home prices higher, but the pace of annual appreciation has slowed to the low-3% range versus the mid-5% average observed over the prior three years. Within a given market, lower-priced homes are seeing outsized appreciation while high-end home prices have begun to stagnate and even decline in some coastal markets.

Single-Family Home Sales and Months Supply of Inventory



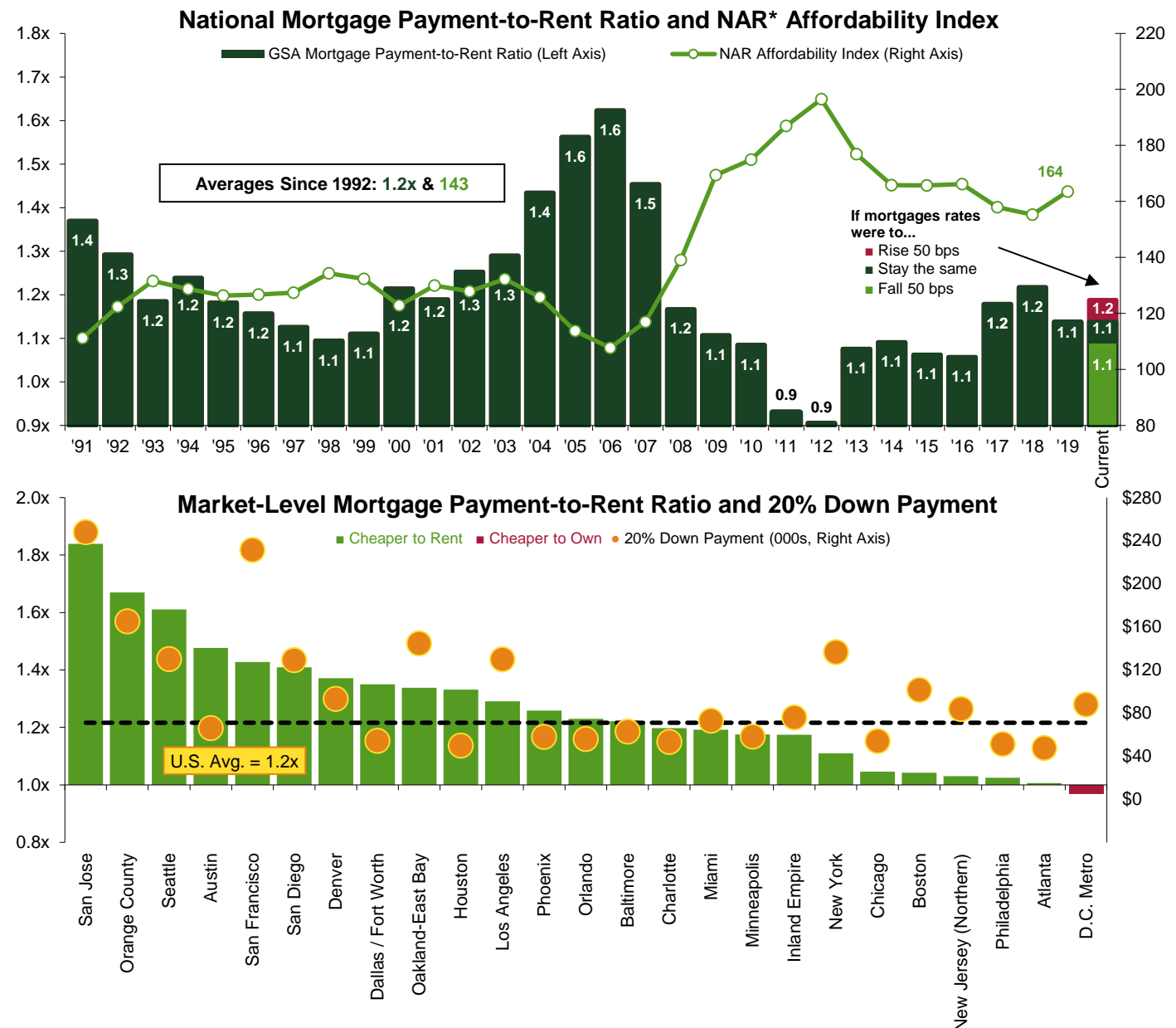
Home Prices vs. Mortgage Rates



Source: Fannie Mae, Federal Reserve, Freddie Mac, National Association of Realtors, U.S. Census Bureau, and Green Street Advisors.

IVg. Demand: The Single-Family Market (cont'd)

Savings Gap: Homeownership has become increasingly less affordable over the last several years, as home price appreciation has outstripped wage gains and wealth accumulation for a large share of prospective homebuyers. Affordability is often measured by the mortgage-to-rent ratio and NAR affordability index. Neither are a great predictor of home buying activity as both presuppose 1) credit access, which has been much tighter in recent years, and 2) that a household can afford the down payment. Barring a meaningful expansion of low-down payment lending, the lack of down payment savings will continue to be an anchor on home buying.



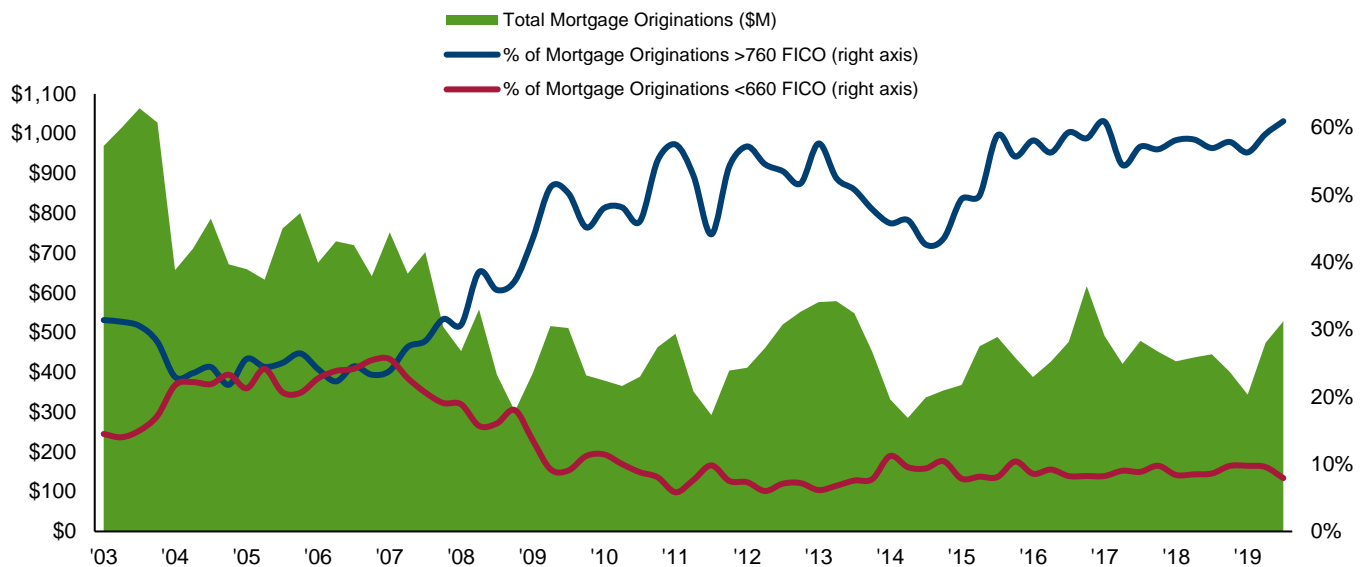
*NAR Methodology: Affordability index of 100 indicates a family with a median income has exactly enough income to qualify for a mortgage on a median priced home in a particular market, assuming a 20% down payment and a 25% qualifying income (i.e. monthly P&I payment cannot exceed 25% of median family monthly income). A score of 120.0 means a family earning the median family income has 120% of the income necessary to qualify for a conventional loan covering 80 percent of a median-priced existing single-family home. An increase in the score then shows that this family is more able to afford the median priced home.

GSA Methodology: Mortgage payment based on current rates for 30-year, fixed rate loan, assumes 80% LTV, and includes principal, interest, property taxes, tax savings on mortgage interest and property taxes, repair and maintenance of 1% of home price, and the difference in cost between homeowners and renters insurance. The median market-level rents used in the calculations above (i.e., the denominator) have been adjusted upwards in this year's outlook to reflect a greater share of 2-and 3-bedroom Source: CBRE, Federation of Tax Administrators, Freddie Mac, Insurance Information Institute, National Association of Realtors, RealtyTrac, Tax Foundation, and Green Street Advisors.

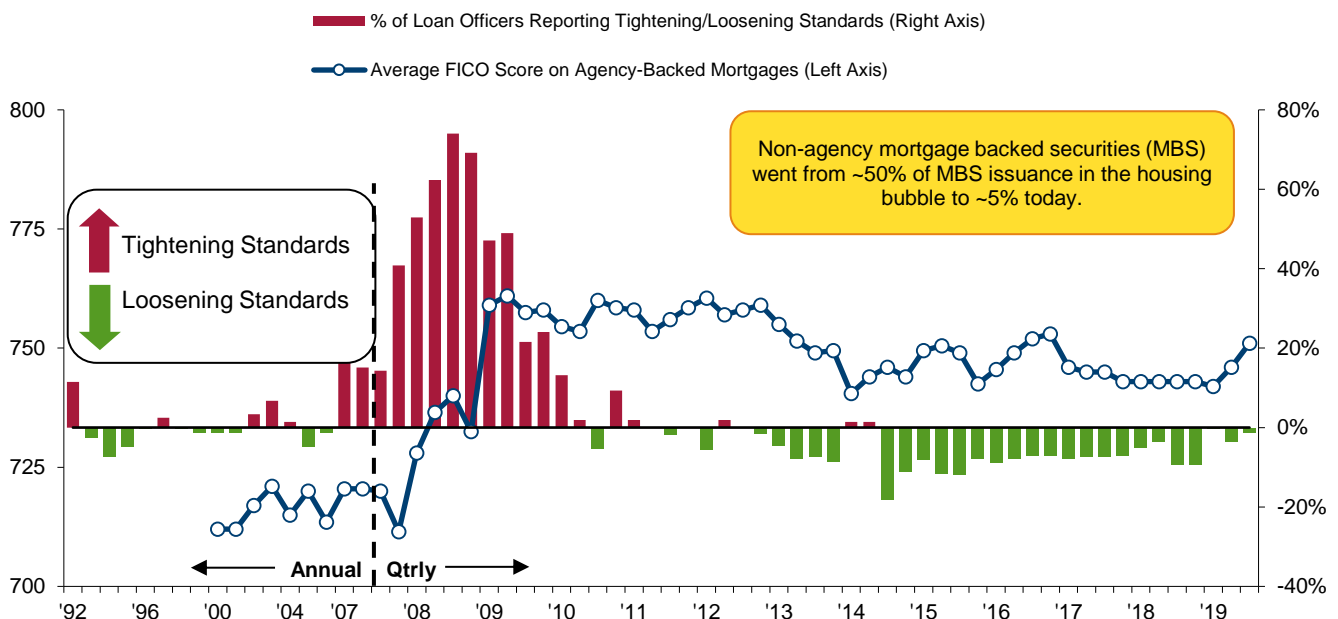
IVg. Demand: The Single-Family Market (cont'd)

No Bubble Here: Mortgage lending remains restrained relative to the early-2000's. Within a smaller total mortgage origination pie, lower-credit consumers represent a significantly smaller share of borrowers (e.g., <660 FICO share down 60% vs. '06). In light of historically low mortgage delinquency rates, it's reasonable to assume that banks will seek to expand mortgage access at the margins (if not, shadow lenders will). However, there are no current indicators of a meaningful loosening of the lending environment that could potentially jeopardize apartment or SFR operating fundamentals.

Mortgage Originations



Residential Mortgage Lending Standards

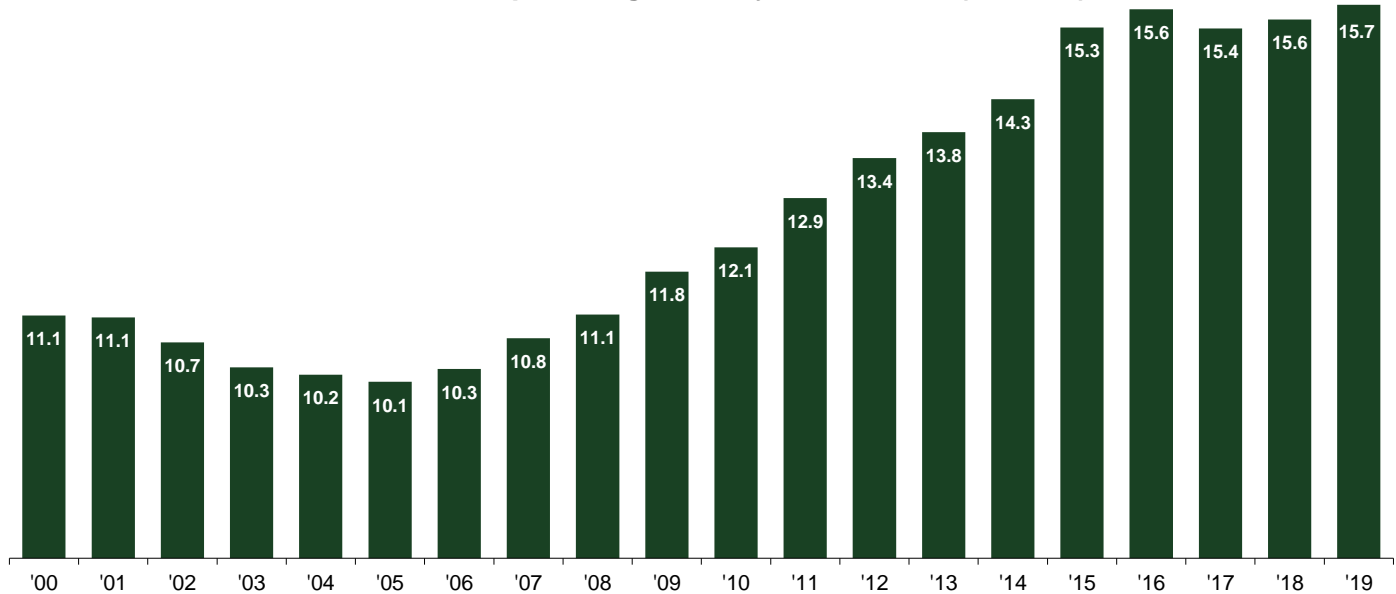


Source: Fannie Mae, Freddie Mac, National Association of Home Builders, National Association of Realtors, U.S. Census Bureau, and Green Street Advisors.

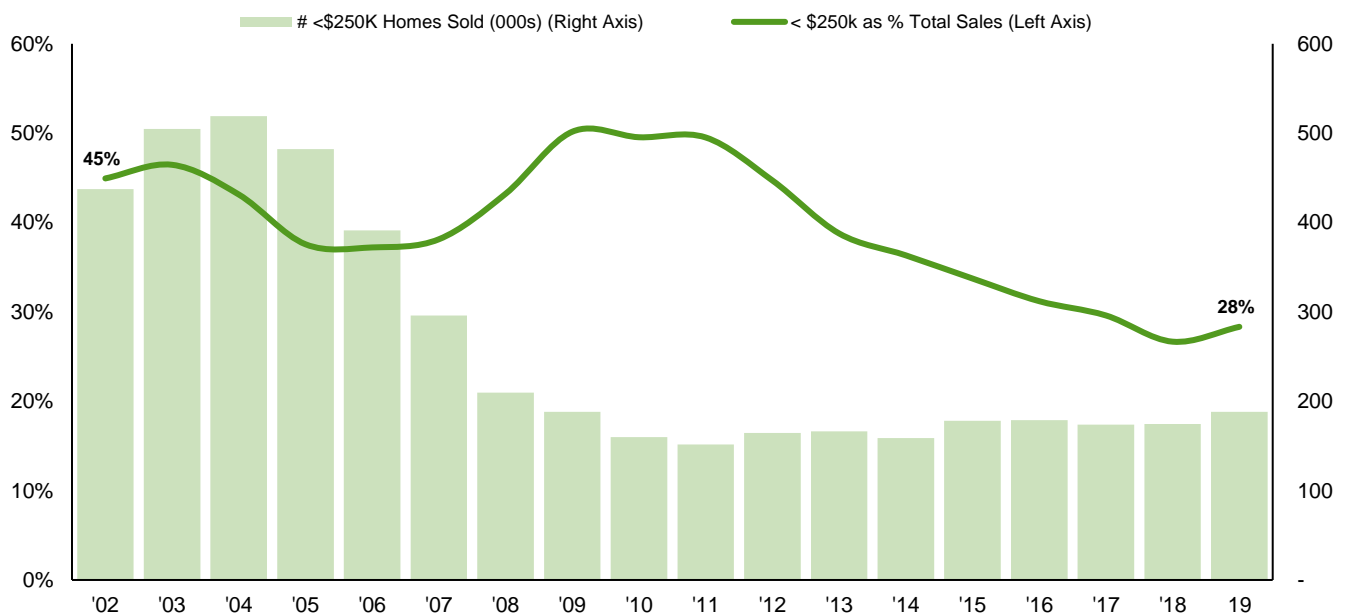
IVh. Demand: Single-Family Rental Landscape

Renting the Dream: The single-family rental sector (SFR) experienced a surge out of the downturn as the majority of foreclosed homes transitioned to SFR units. More recently, growth has slowed as the housing market settled into a new equilibrium of balanced growth between SFR and apartment renters, and homeowners. Tighter lending, lack of down-payment savings, and anemic starter-home construction will continue to support solid SFR fundamentals. Conditions on these fronts are poised to only improve marginally, and the demographic wave of 35-44 year-olds is in the early innings.

Occupied Single-Family Rental Units (Millions)



U.S. New Home Sales By Price

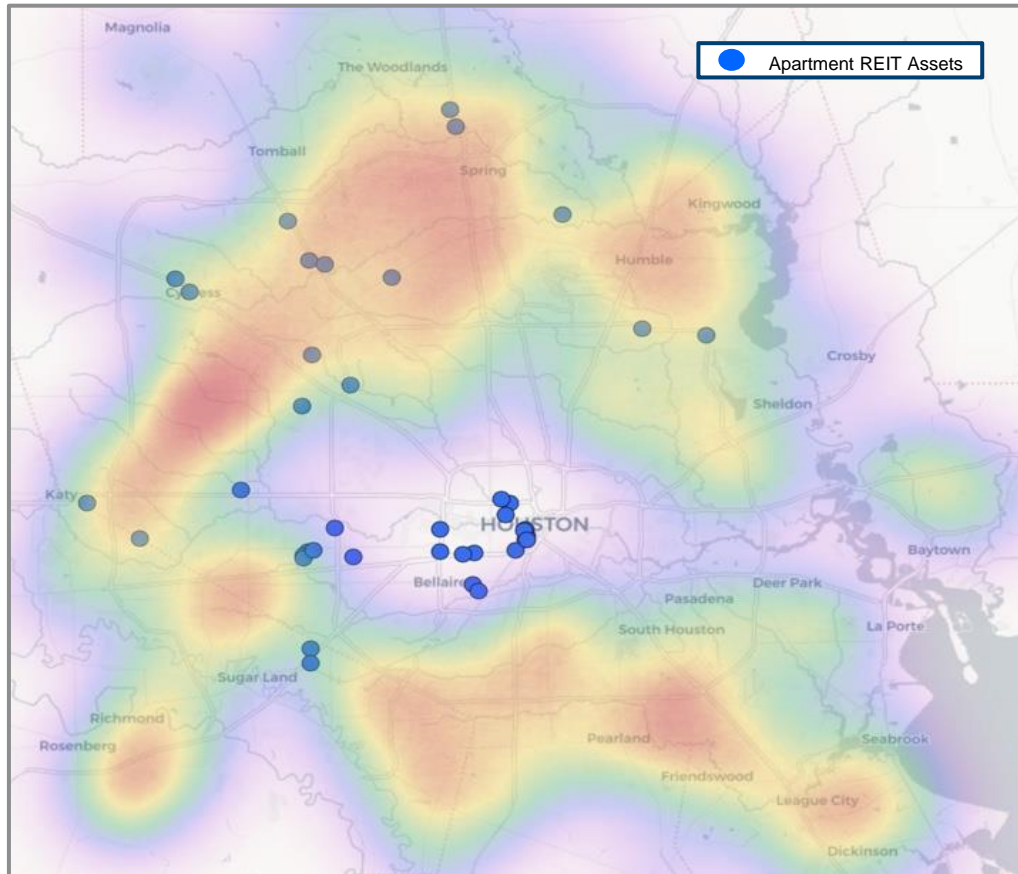


Source: National Association of Realtors, U.S. Census Bureau, and Green Street Advisors.

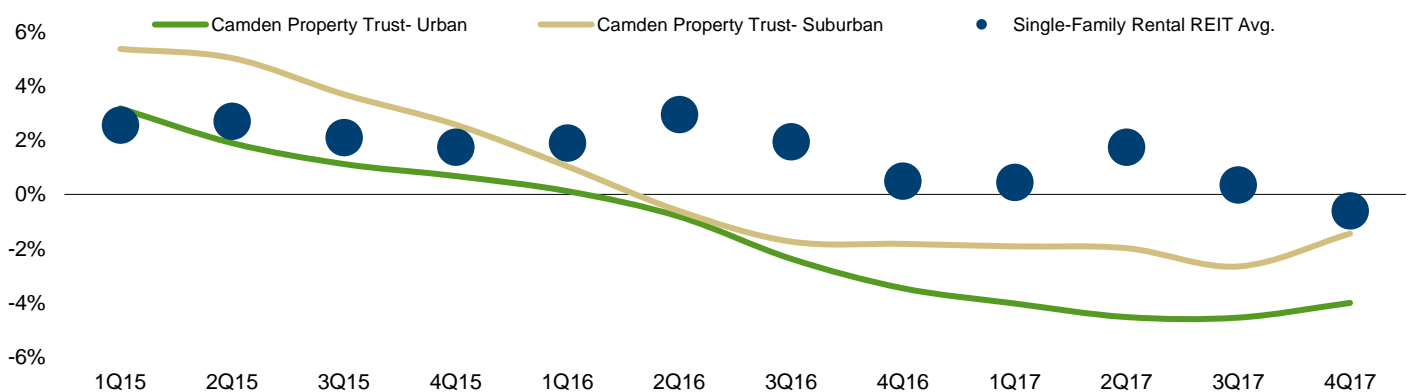
IVh. Demand: Single-Family Rental Landscape (cont'd)

Low-Beta: Due to differing geographic footprints and tenant lifestyle preferences, only a modest amount of competition exists between institutional-quality apartments and SFR (some competition in suburban Sun Belt markets.) In the early innings of its institutional life, SFR fundamentals have proven more stable during times of economic shocks versus apartments. Houston provided a case study during the brief energy recession of '15 and '16, where SFR REIT rent growth remained in positive territory while suburban and urban apartments saw low to mid-single digit declines.

Institutional SFR Heat Map vs. Houston Apartment REIT Portfolios*



Houston YoY Rent Growth- Apartment vs. Single-Family Rental

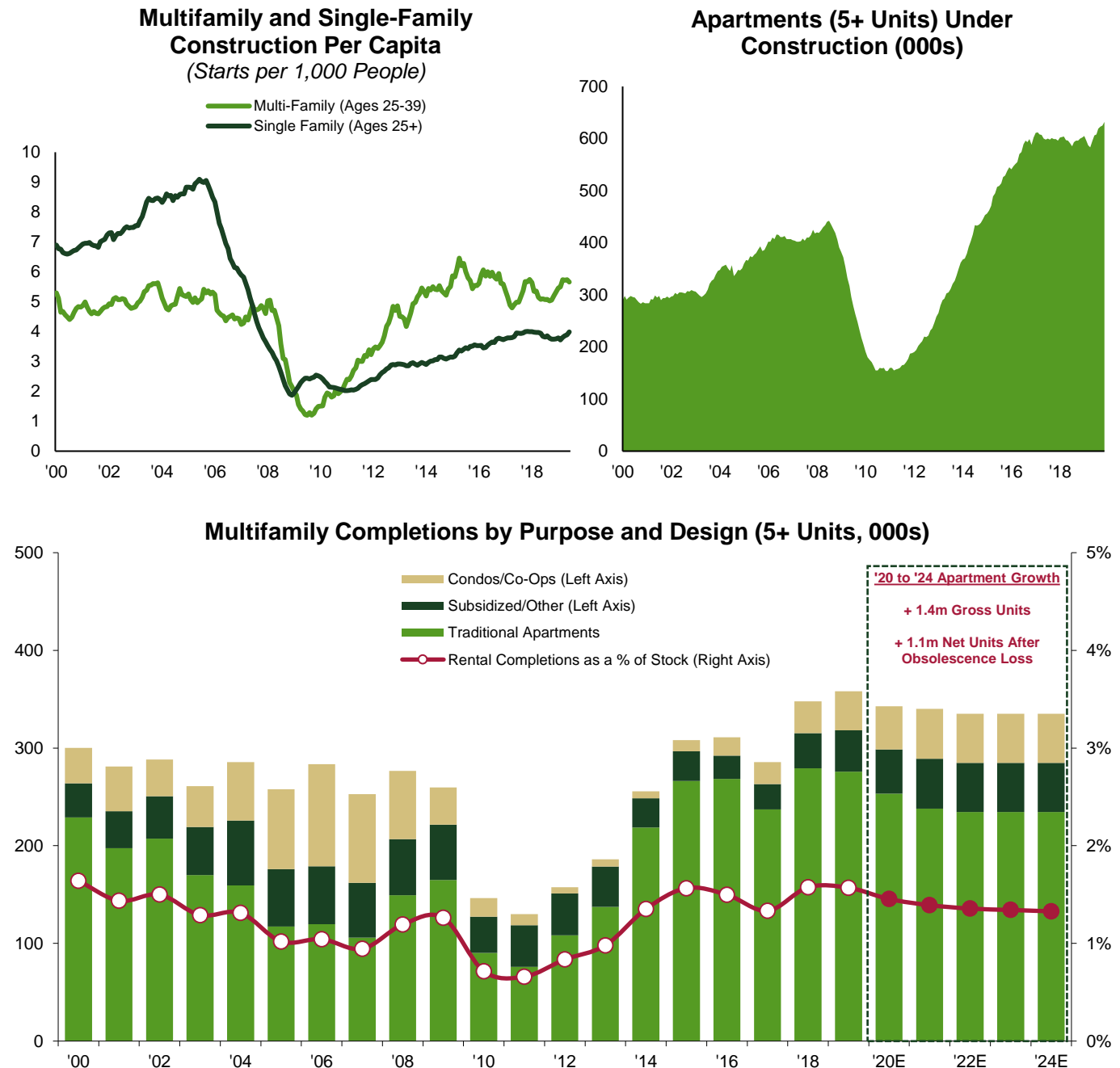


*Includes properties from: CPT, MAA, UDR. Heat blur represents public and private institutional quality SFR operators

Source: Company disclosure and Green Street Advisors. Heat map based off of Green Street's proprietary SFR database.

V. Multifamily Supply Landscape

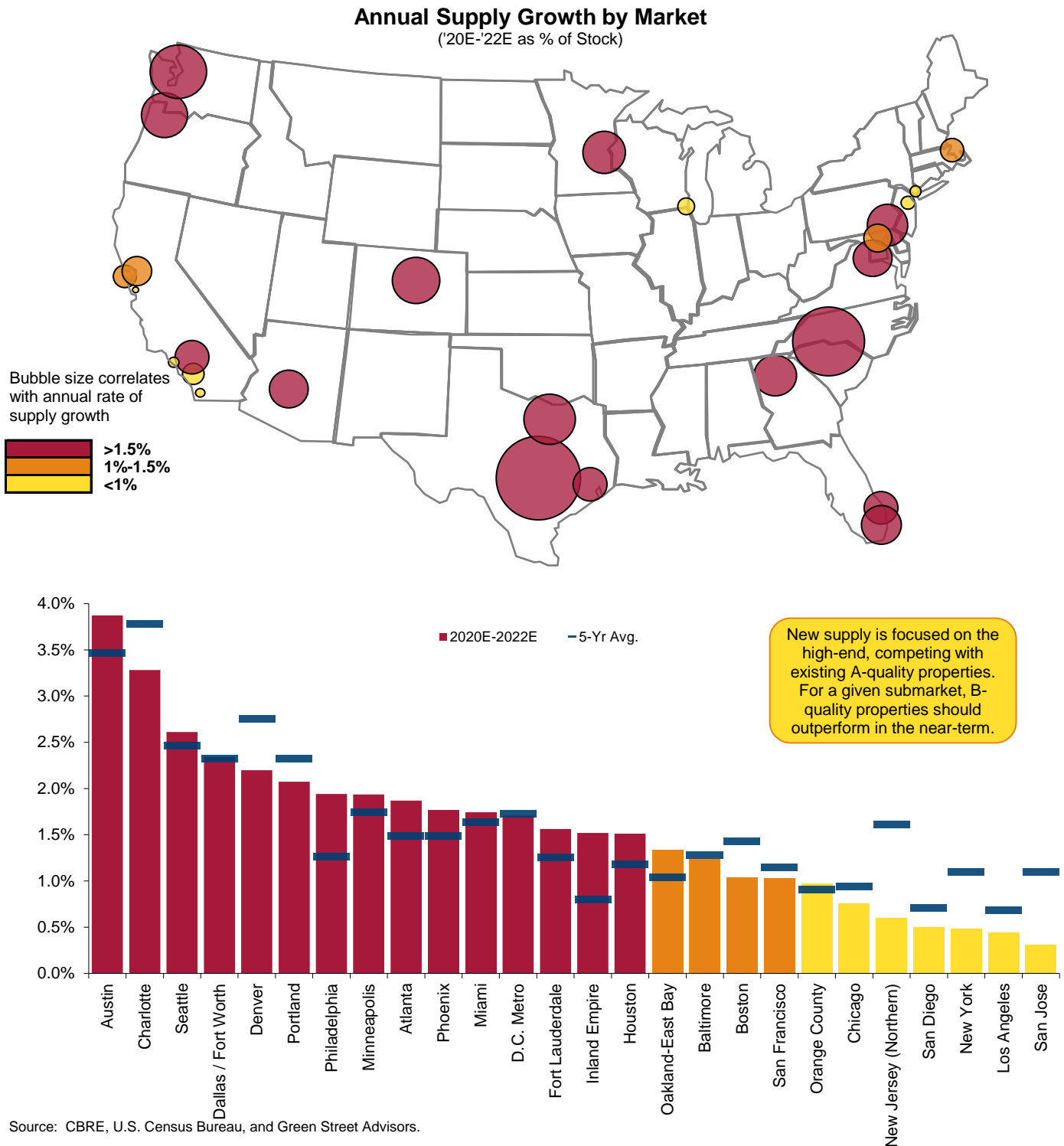
Full Capacity: Absent a meaningful lock-up in the capital markets, apartment construction should continue to come out of the ground at a similar elevated pace over the next five years as experienced in '18 and '19. Development profit margins (20-30%) are still attractive versus other real estate uses, and if anything, improved throughout '19 thanks to a decline in cap rates in many markets. While multifamily construction on a per-capita basis sits ~20% above 2000 levels, single-family construction is ~40% below last cycle's pace.



Source: NAHB, National Association of Realtors, NMHC, U.S. Census Bureau, and Green Street Advisors. Forecasts by Green Street Advisors.

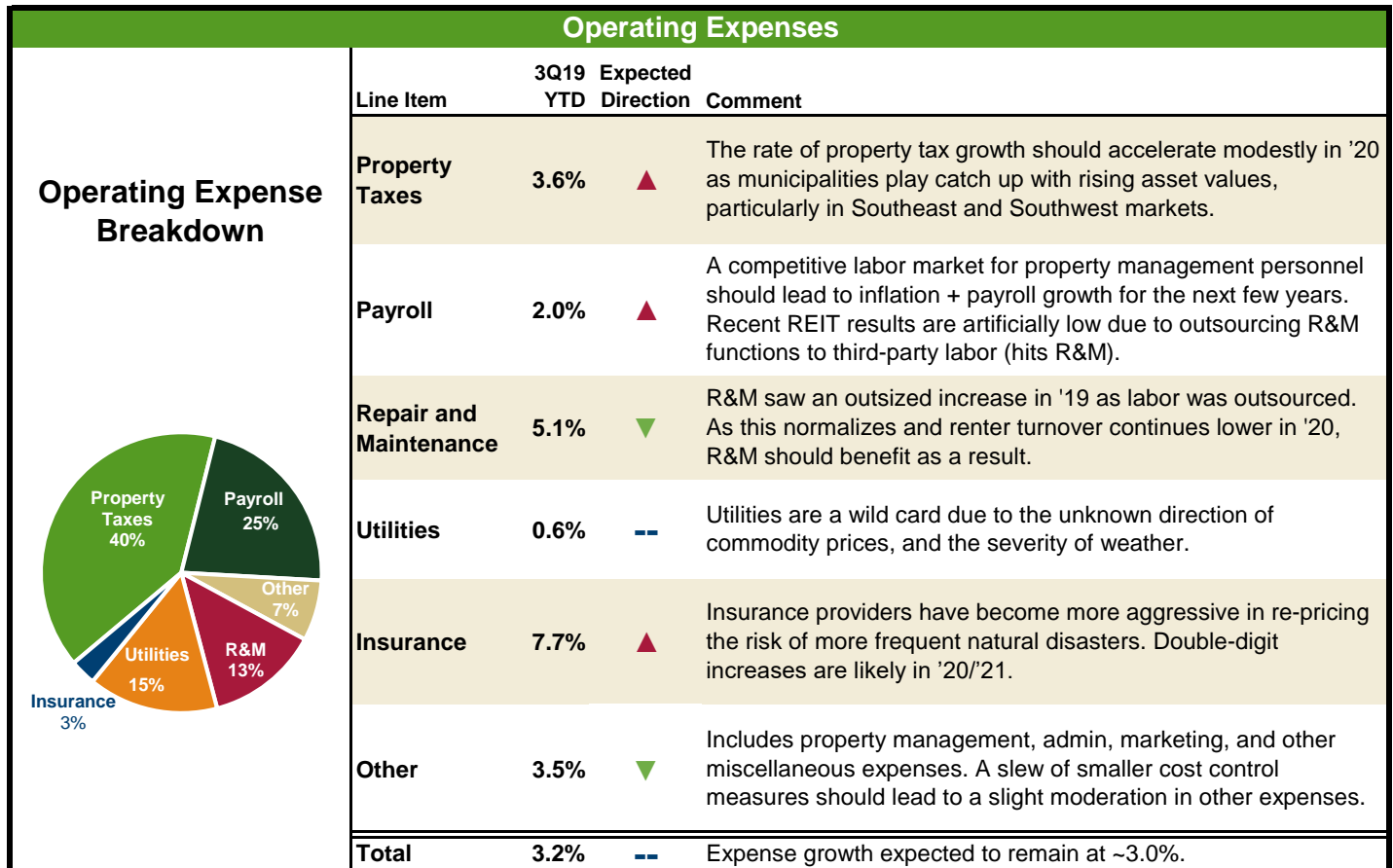
V. Multifamily Supply Landscape (cont'd)

Heading Down South: Within the steady national supply pipeline, coastal markets should see a moderation in deliveries over the next few years, while several key Sun Belt markets will see an acceleration. The absorption of elevated new supply in the Sun Belt exceeded our expectations throughout '19, but the risk of oversupply will continue to rise as developers bet that the combination of 1) recent blistering pace of job growth and 2) restrained homeownership trends continue over the next several years.

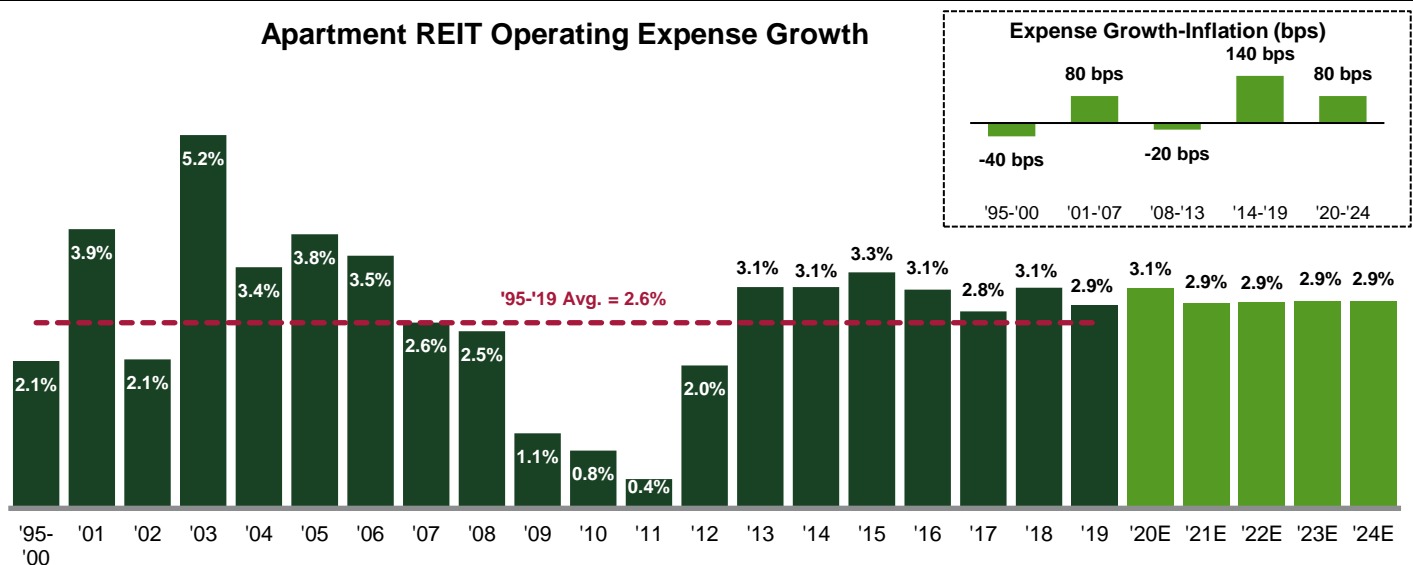


VI. Fundamentals: Operating Expenses

Inflation Plus: Apartment REITs have done a solid job controlling expenses this cycle. Expense growth of ~3.0%, on average (~80 bps north of CPI) is a decent betting line for the coming years. The two largest expense categories, property taxes and payroll, will continue to see pressure from recent asset value appreciation and a tight labor market, respectively. Initiatives to lower headcount in the field are underway, but meaningful benefits are likely several years away.







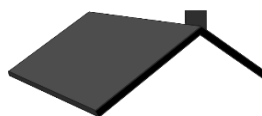




Apartment REIT Operating Expense Growth



Source: Company documents and Green Street Advisors.

VII. Capital Expenditures

Different Buckets: The upkeep and improvement of apartment assets can be expensed on the income statement or capitalized to the balance sheet. Items that are capitalized generally come in three varieties: 1) recurring, 2) infrequent or “non-recurring”, and 3) revenue-enhancing. The classifications are arbitrary (they all represent cash out the door), and Green Street’s cap-ex-reserve accounts for all three of these expenditures.

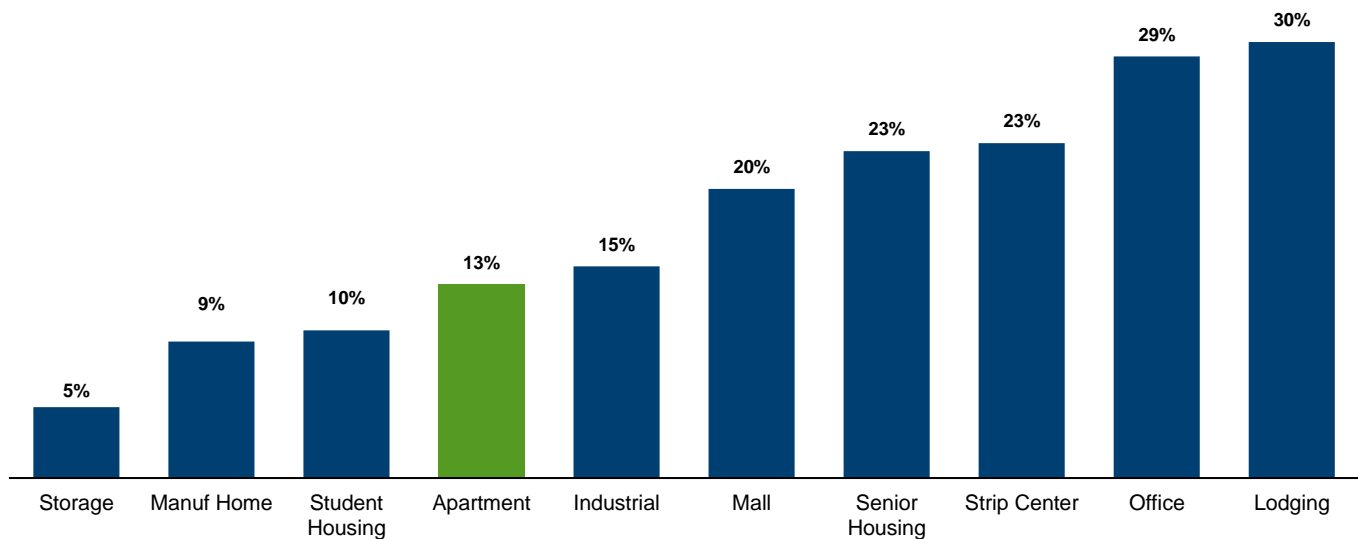
Repair and Maintenance Expenses		
Description	Typical Items	Bucket
Small dollar projects. Most tenant turnover costs fall into this bucket.	Interior painting, landscaping, snow removal, small dollar repairs.	
 		
Capital Expenditures		
1. Recurring	2. Infrequent / "Non-Recurring"	3. Revenue-Enhancing *
Description		
Expenditures that exceed a certain dollar amount are capitalized to an asset's gross carrying value. Policies and dollar triggers vary between REITs.	"Non-recurring" is a misnomer; "infrequent" is a better descriptor. Generally consists of big-ticket items with longer useful lives.	Money spent beyond maintenance cap-ex that improves an asset's competitive position. In reality, a portion of "revenue-enhancing" spend is simply deferred "recurring cap-ex".
Typical Items		
Floor coverings, appliances, cabinetry, and exterior painting.	New roofs, parking lot paving, HVAC, and window replacement.	Kitchen and bath upgrades, televisions, extensive exterior / interior work, new amenities.
		
Bucket		
		
Cap-Ex Reserve		

* Note: The analysis in this report does not include assets undergoing full-scale redevelopment for which units are removed from same-store pools

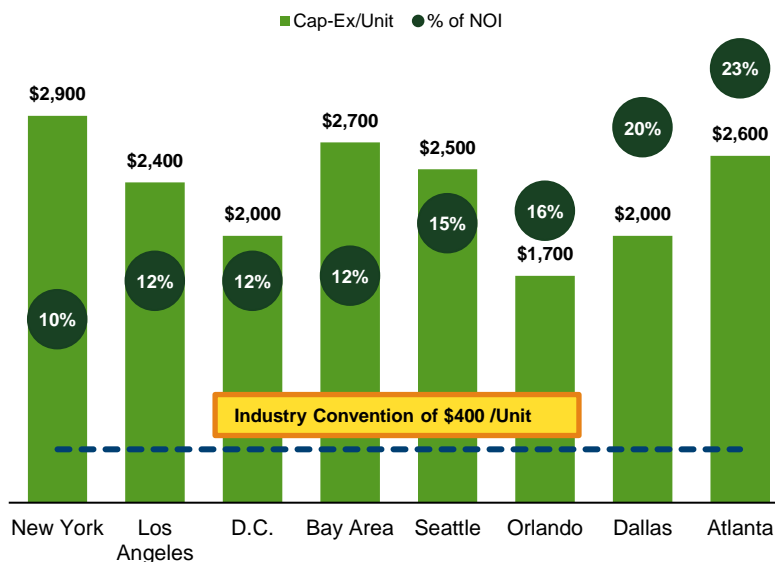
VII. Capital Expenditures (cont'd)

A Little Less Costly: Green Street's apartment cap-ex reserve of ~13% of NOI is slightly less burdensome than most commercial property types. There is a wide range of cap-ex requirements around the average, dependent on property age (younger = cheaper) and geography. All else equal, coastal markets offer a more attractive cap-ex profile versus Sun Belt regions thanks to 1) higher average rents absorbing relatively similar fixed costs, and 2) a greater proportion of asset value residing in the land versus depreciating structure.

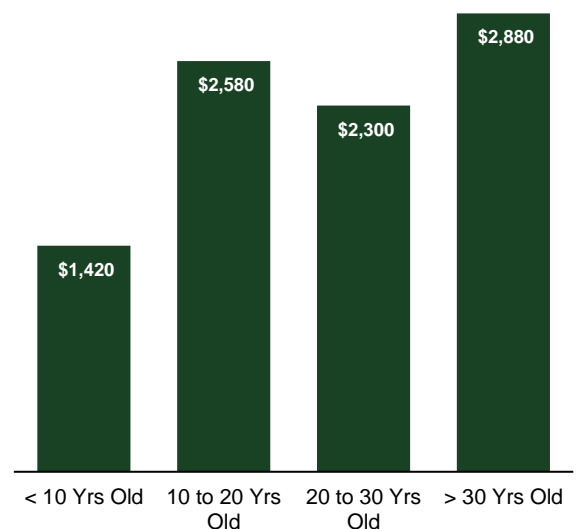
Green Street's Cap-Ex Reserves as % of NOI



Average Annual Cap-Ex per Unit by Market
(Apartment REITs: Trailing 5 years)



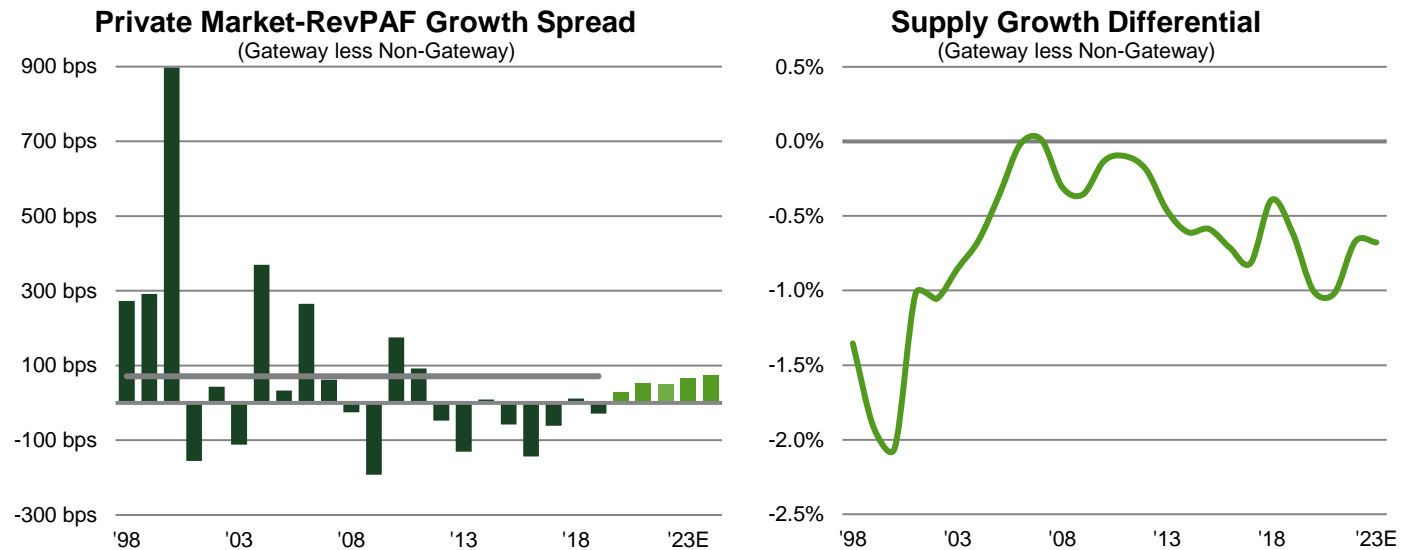
Average Annual Cap-Ex Spent per Unit by Property Age
(AVB, AIV, CPT, EQR, and UDR: Trailing 5 years)



Source: Public REIT documents and Green Street Advisors.

VIII. Gateway vs. Non-Gateway: Growth and IRRs

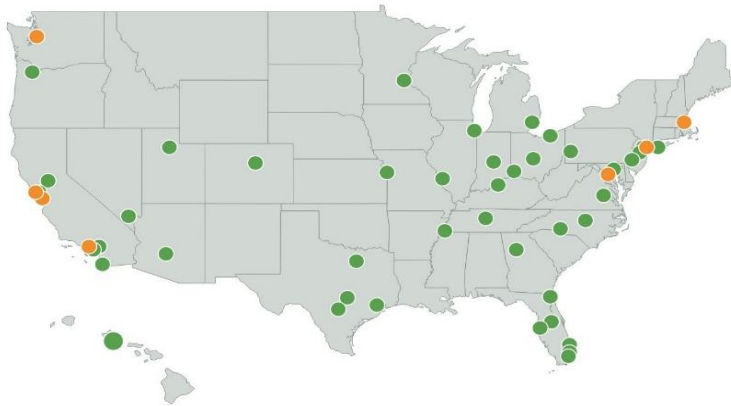
Convergence in Growth: Over the last twenty years, apartment properties in gateway markets (Boston, D.C., Los Angeles, New York, Seattle, and Bay Area) have enjoyed substantially better M-RevPAF growth versus other markets, on average. However, the recent track record has become more checkered, as the combination of excellent job growth in non-gateway markets and elevated supply on the coasts has led to better growth in non-gateway markets through much of the current cycle. Over the next five years, we expect coastal markets to outperform modestly, but not to the degree observed in the '90's and early-2000's.



Gateway markets should slightly outperform over the long term, as they retain their dual status as being magnets for income growth and possessing greater constraints on adding housing supply. Political risks are a wildcard, but have not yet meaningfully changed our long-term growth assumptions.

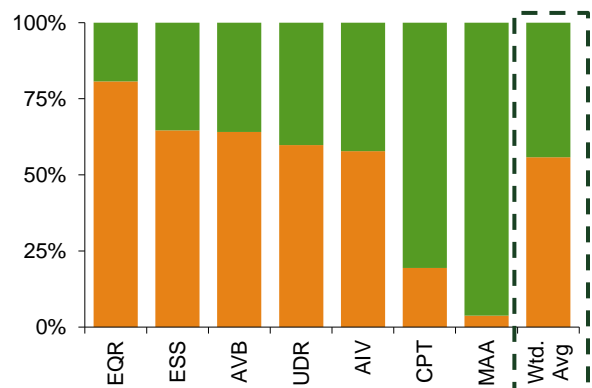
Green Street's Market Classification

● Non-Gateway ● Gateway



Apartment REIT NOI Breakout

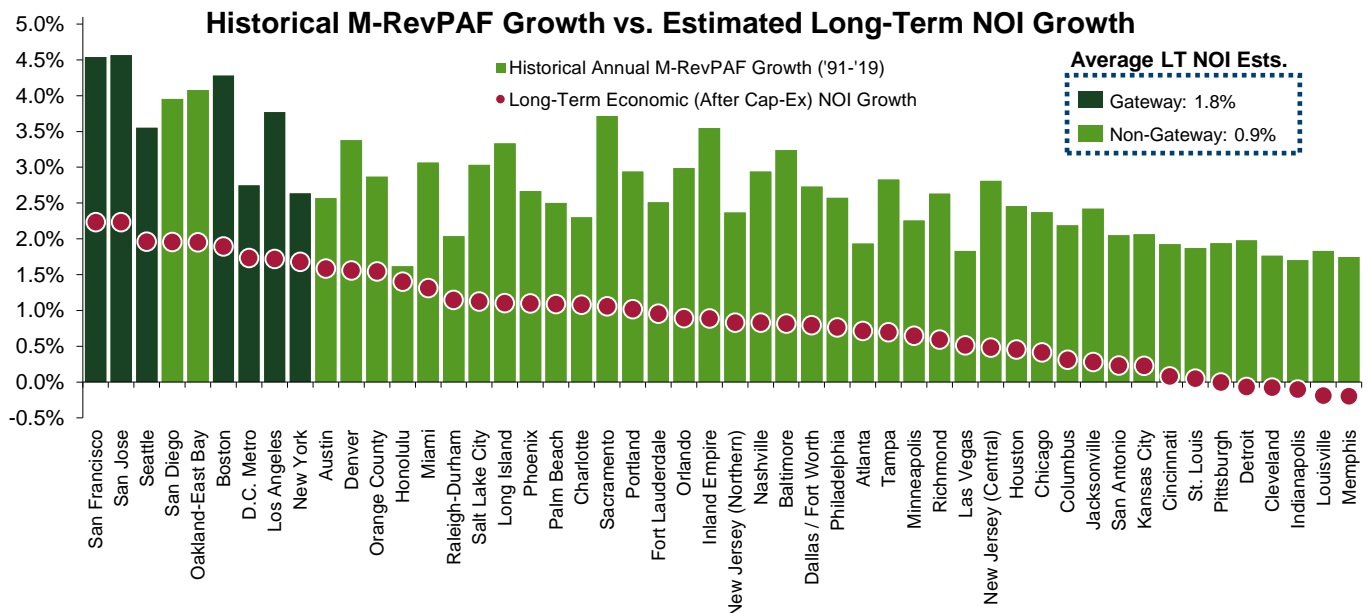
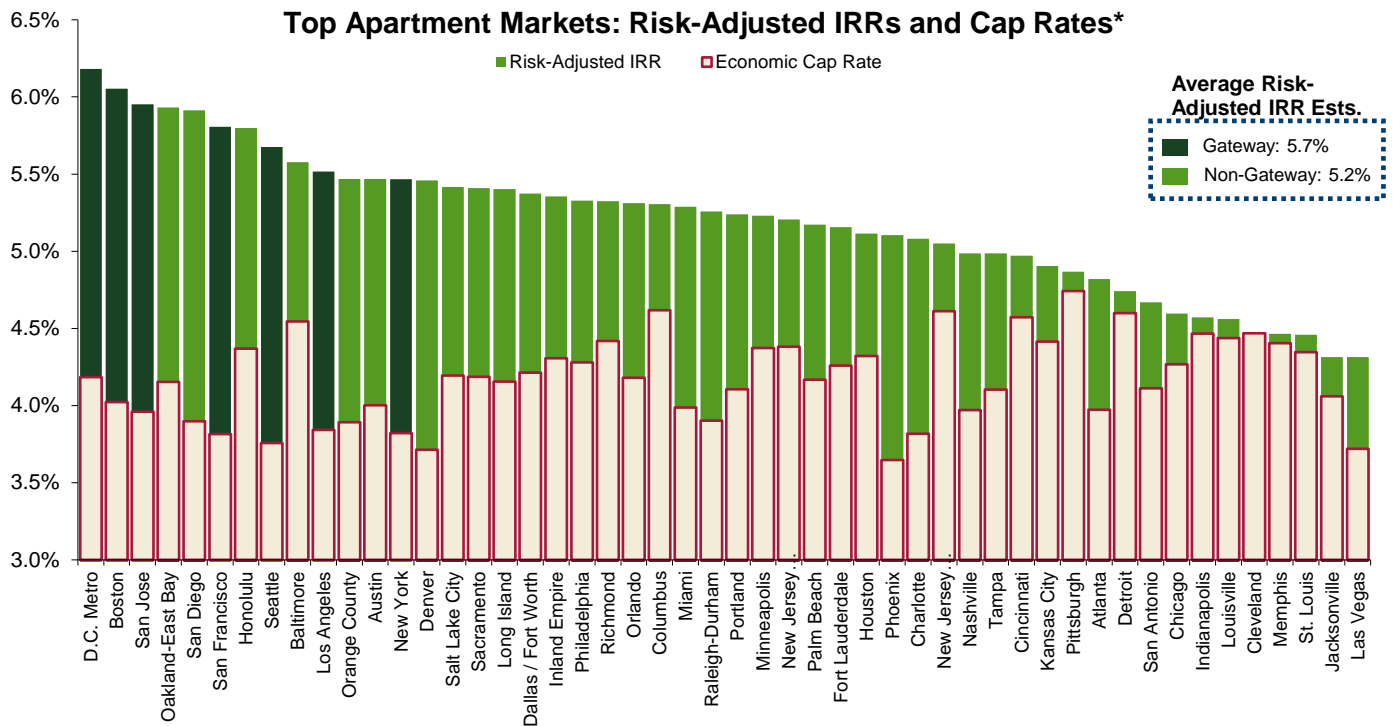
■ Gateway ■ Non-Gateway



Source: CBRE and Green Street Advisors.

VIII. Gateway vs. Non-Gateway: Growth and IRRs (cont'd)

Tilt Toward the Coasts: A dramatic compression in cap rates in Sun Belt markets over the last few years has resulted in long-term risk-adjusted IRRs becoming incrementally attractive in coastal markets. Long-term NOI growth in gateway markets is expected to outpace non-gateway markets by ~90 bps on average, a much narrower spread than the historical track record. The D.C. metro, which screens attractively under the current macroeconomic backdrop and would be a large relative winner in an economic downturn, is our top market of choice for private apartment investors today.



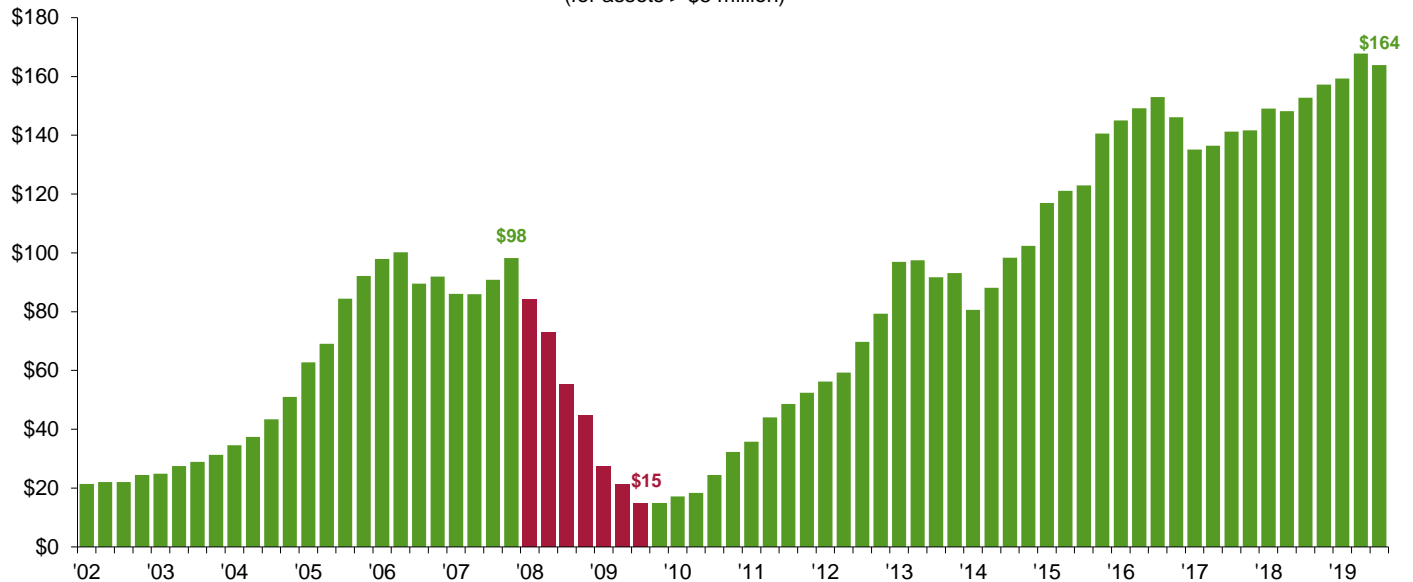
*Cap rate for B/B+ asset, based on forward 12-mo. NOI, w/ GSA-estimated cap-ex reserve and 3% mgmt. fee.

Source: CBRE and Green Street Advisors.

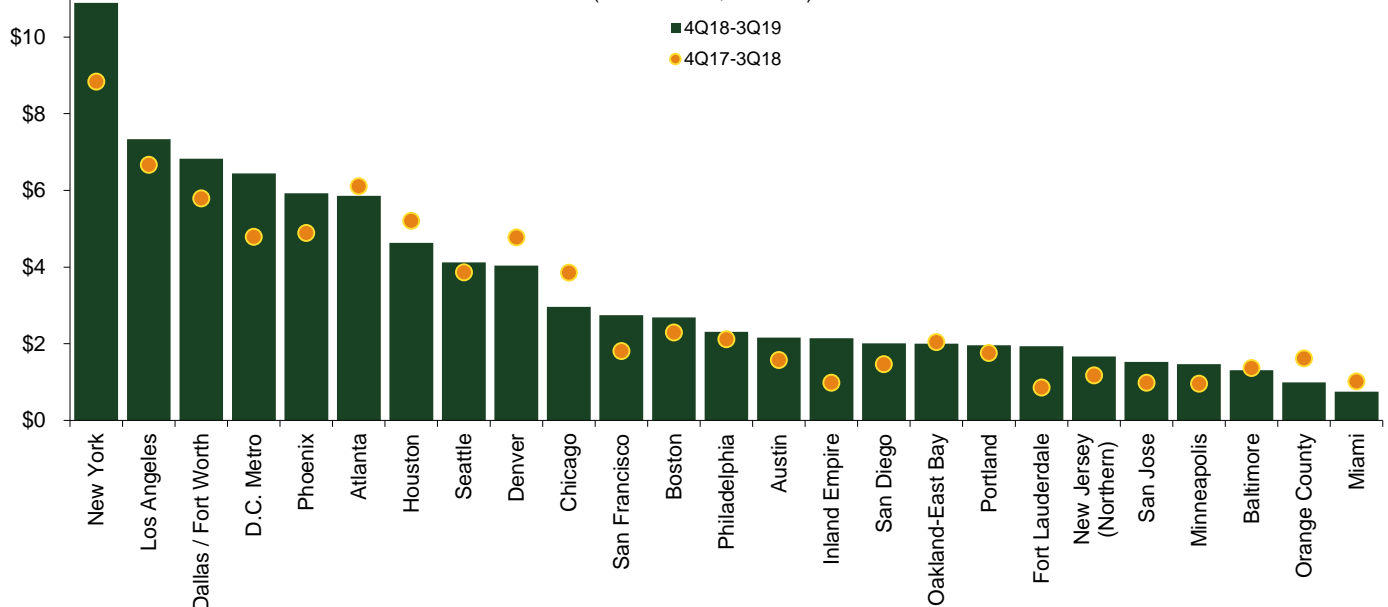
IX. Transaction and Financing Markets

Cranking Along: The apartment transaction market is firing on all cylinders. Debt and equity capital remains plenty, and the breadth of stability in operating fundamentals improved in '19, bolstering confidence in underwriting assumptions. Transaction volumes in '19 accelerated versus a year ago in most markets. The only outlier to an otherwise sanguine backdrop is non-institutional rent-regulated stock in New York City. The transaction market, particularly for older properties, has slowed to a crawl following recently strengthened rent regulations.

Rolling 4-Quarter Apartment Transaction Volume (Billions)
(for assets > \$5 million)



Rolling 4-Quarter Apartment Transaction Volume by Market (Billions)
(for assets > \$5 million)

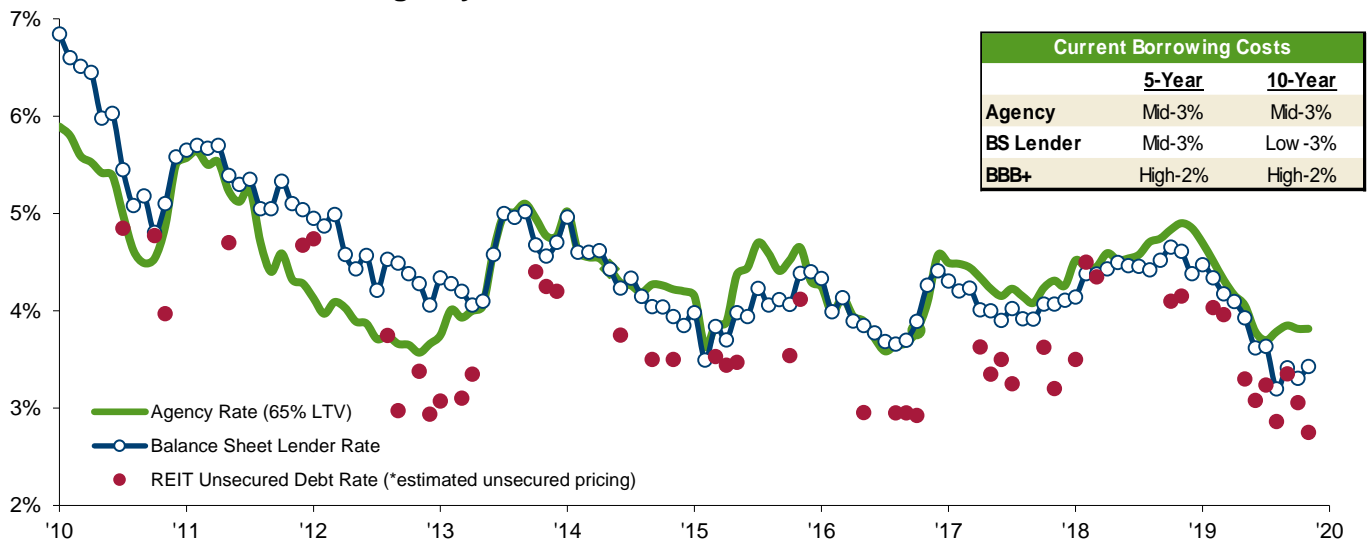


Source: Real Capital Analytics Inc.

IX. Transaction and Financing Markets (cont'd)

Spread Investing: Private and public apartment owners enjoyed increasingly accommodative debt markets in late-'19. After a mid-year lull, GSE activity picked back up in conjunction with fresh loan targets from the FHFA. Balance sheet lenders remain aggressive on pricing, and REIT unsecured rates are bouncing around record lows. Beyond '20, we expect a modest pullback in GSE lending.

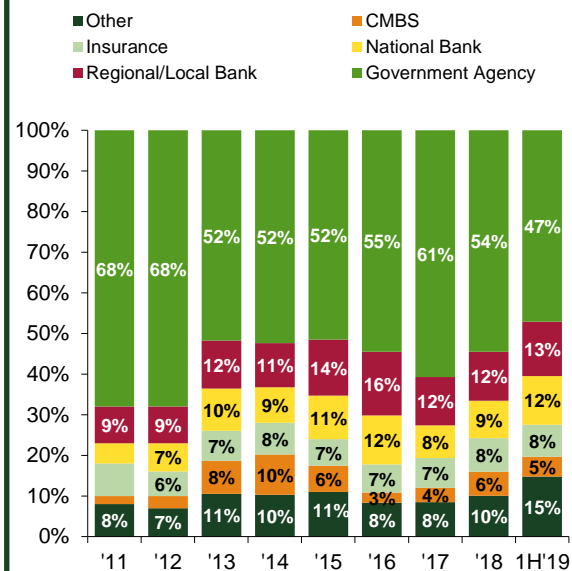
10-Year Agency, Balance Sheet Lender, and Unsecured Rates



The Latest on the GSEs

In late-'19, Fannie and Freddie's administrator – the Federal Housing and Finance Administration (FHFA) – published its '20 scorecard, which effectively establishes loan volume caps for the GSEs' multifamily activity. The caps allow for an aggregate \$40 billion in GSE-backed lending per quarter through '20. Affordable loans must represent a minimum of 38% of overall activity. The caps are high enough to accommodate similar levels of institutional-quality apartment financing that has prevailed in recent years. Beyond '20, it's reasonable to expect the head of the FHFA to attempt to gradually shrink the GSE footprint as it relates to conventional apartments. However, the timing and magnitude of any shift is highly uncertain given how quickly the political landscape (and administrations) can change.

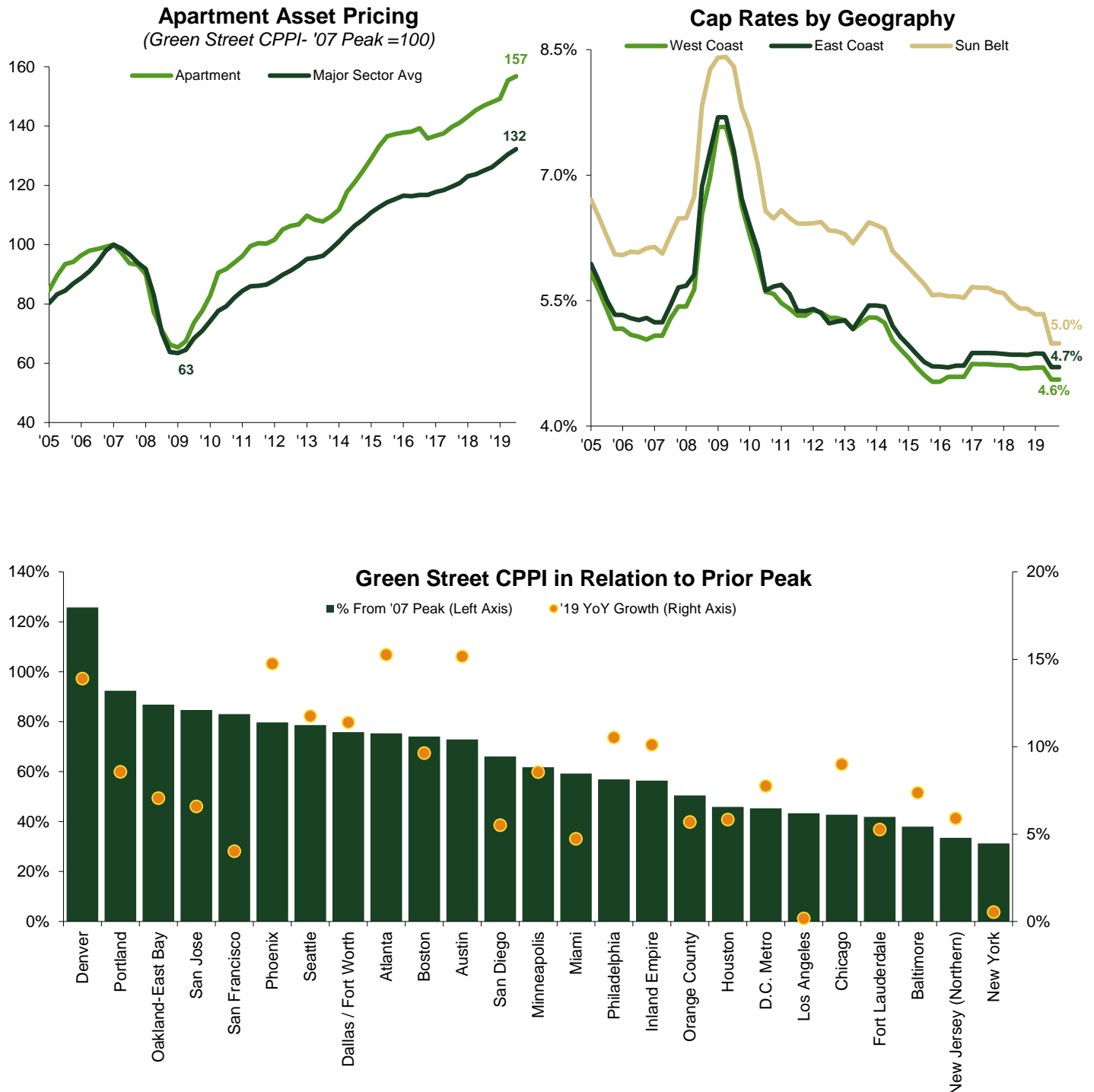
Apt. Mortgage Originations



Source: CBRE, Real Capital Analytics, and Green Street Advisors. GSE= Government-Sponsored Enterprise

X. Asset Values

Creeping Higher: After losing a third of value peak-to-trough during the Great Recession, average values for institutional-quality apartments are now ~55% above '07 peak levels, compared to ~30% for core property types. The spread between Sun Belt and coastal cap rates continues to compress, reaching new lows (~35 bps spread vs. 10-yr avg. of ~95 bps).

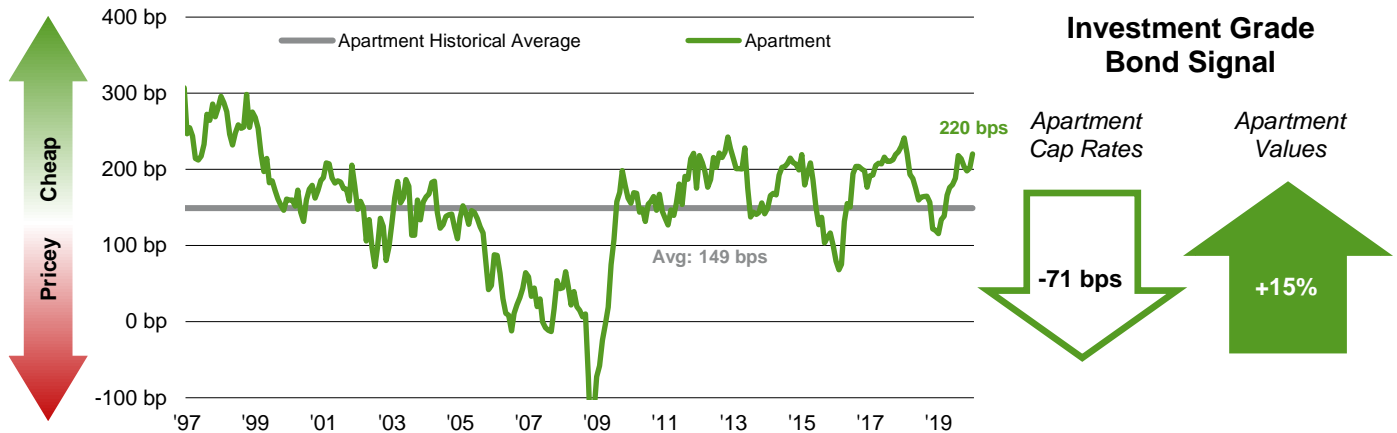


Source: Green Street Advisors.

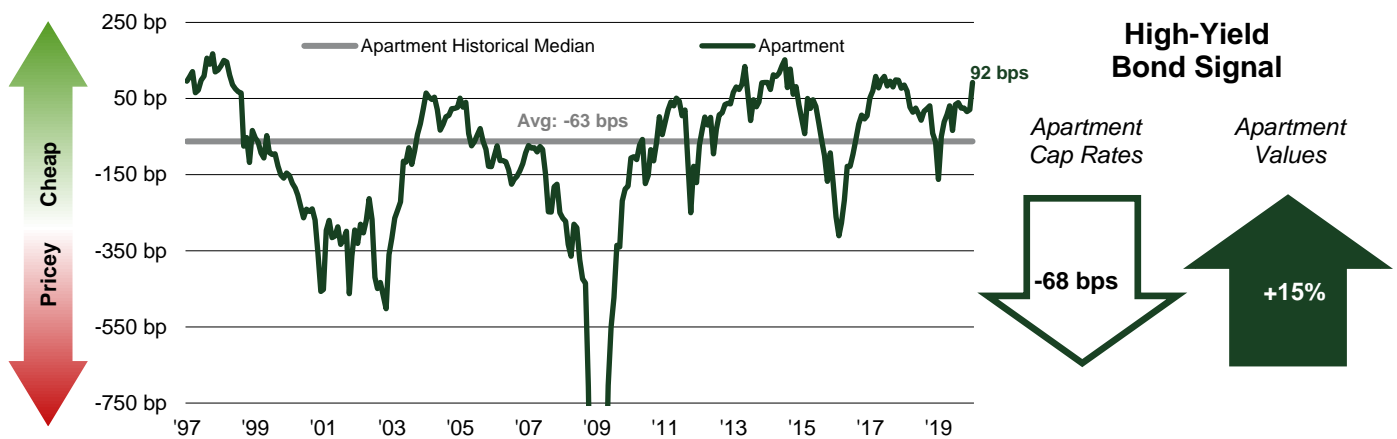
X. Asset Values (cont'd)

Cheap vs. Bonds: A recent bull run for bond prices leaves most commercial real estate property types, including apartments, screening cheap relative to fixed income alternatives. Within commercial real estate, apartment valuations appear fair. Apartments offer attractive returns versus many other major property types, but less compelling returns versus some niche property types (e.g., Manufactured Homes, Data Centers).

Apartment Unlevered IRR Spread to Investment Grade Bonds



Apartment Unlevered IRR Spread to High-Yield Bonds

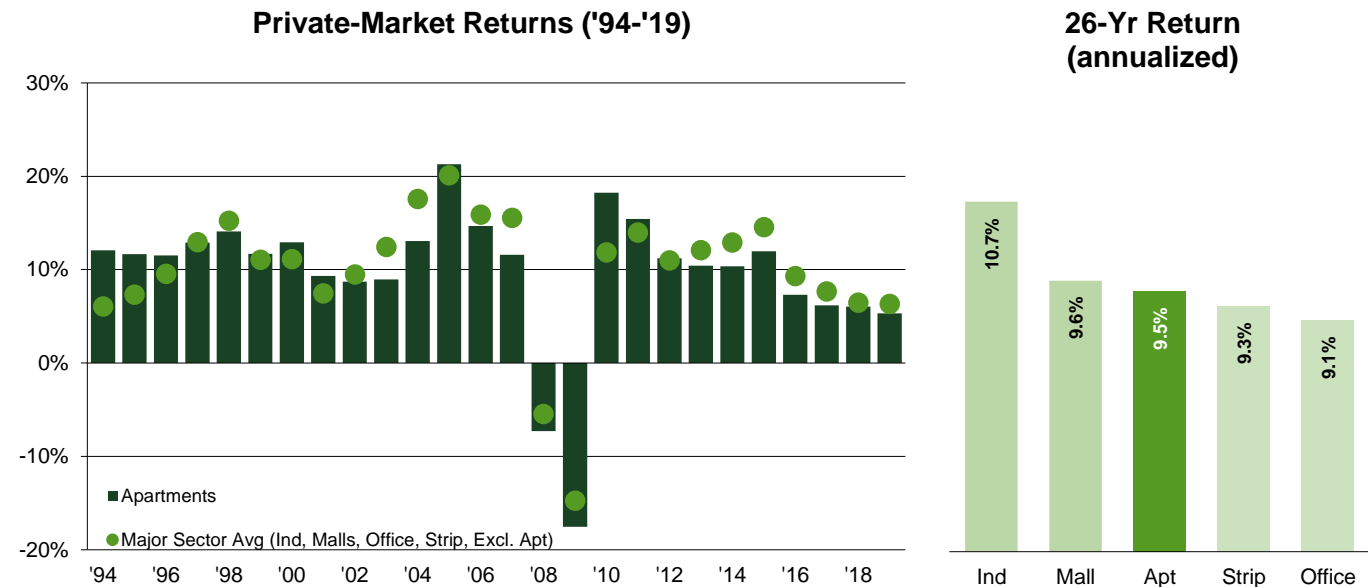


No Valuation Comparison to Treasuries: Green Street evaluates private-market real estate pricing (i.e., buy-and-hold unlevered return expectations) against long-maturity investment-grade corporate bonds and high-yield corporates — investments that historically have offered returns similar to those available on real estate. A comparison with Treasuries is not presented in this report. The spread of real estate returns to Treasuries provides a very broad measure of the risk premium offered by real estate and it is heavily influenced by the health of the economy. Using corporate bonds as the benchmark eliminates some, though not all, of the macro risk from the comparison (corporate bonds tend to widen relative to Treasuries when the economy weakens and vice versa) and better answers the question, “how is real estate priced relative to assets with similar risk?”

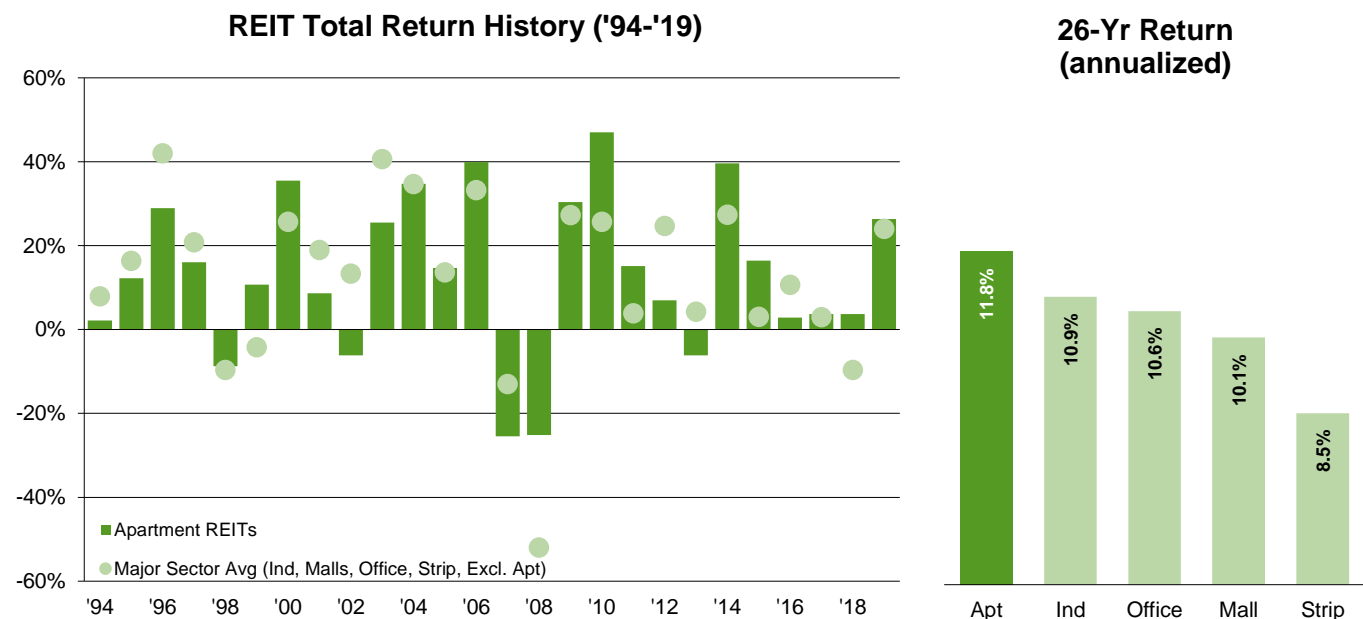
Source: Bloomberg and Green Street Advisors.

XI. Return History and Relative Valuation

Private Market – Average Returns: In the private market, apartments have turned in an average performance over the last twenty-six years. Private market data is somewhat noisy and the relative level of return between sectors will vary based on the time frame observed. Past returns across most sectors have been boosted by high starting yields and cap rate compression; future returns should be lower.



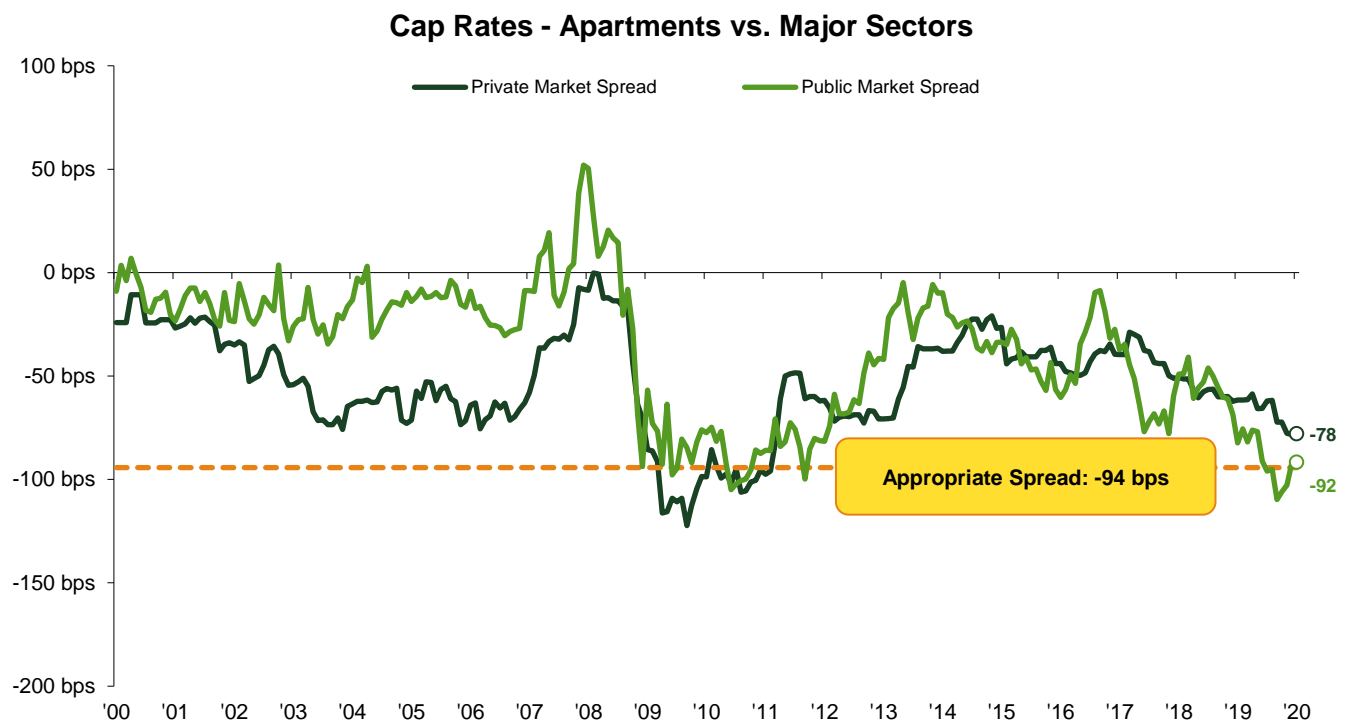
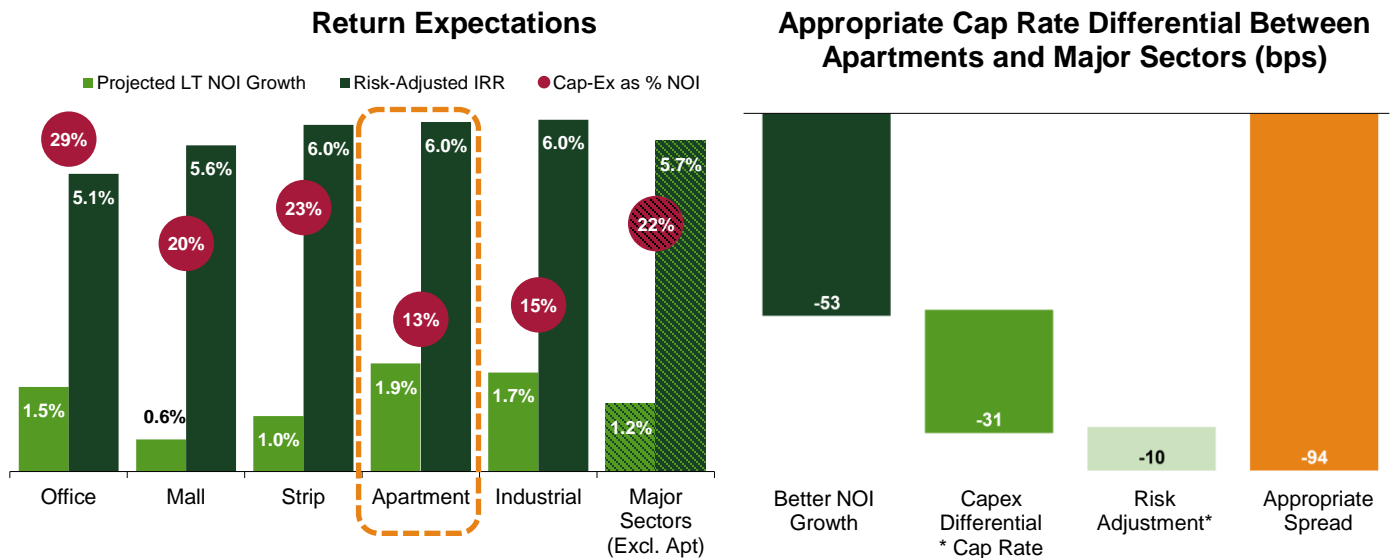
Public Market – Great Performance: Over the last twenty-six years, apartment REITs have outperformed the major sectors. While the performance of the underlying properties has a meaningful impact on long-term REIT total returns, differences in balance sheet management helps explain the sizable gap between sectors.



Source: FTSE/NAREIT Indices (public-market returns); NCREIF (private-market returns). NCREIF data is thru 3Q19 (Annualized).

XI. Return History and Relative Valuation (cont'd)

Still Attractive: Apartments are attractively priced versus most major property types. The combination of strong NOI growth and below-average cap-ex justifies slightly lower cap rates. The appropriate cap rate spread between apartments and major sectors is roughly reflected in the public market, but not quite there in the private market.



The unlevered sector returns shown above are higher than the market-level IRRs on page 32 as they are based on a REIT-weighted portfolio, which is comprised of higher quality properties disproportionately located in markets and submarkets with higher long-term NOI growth prospects

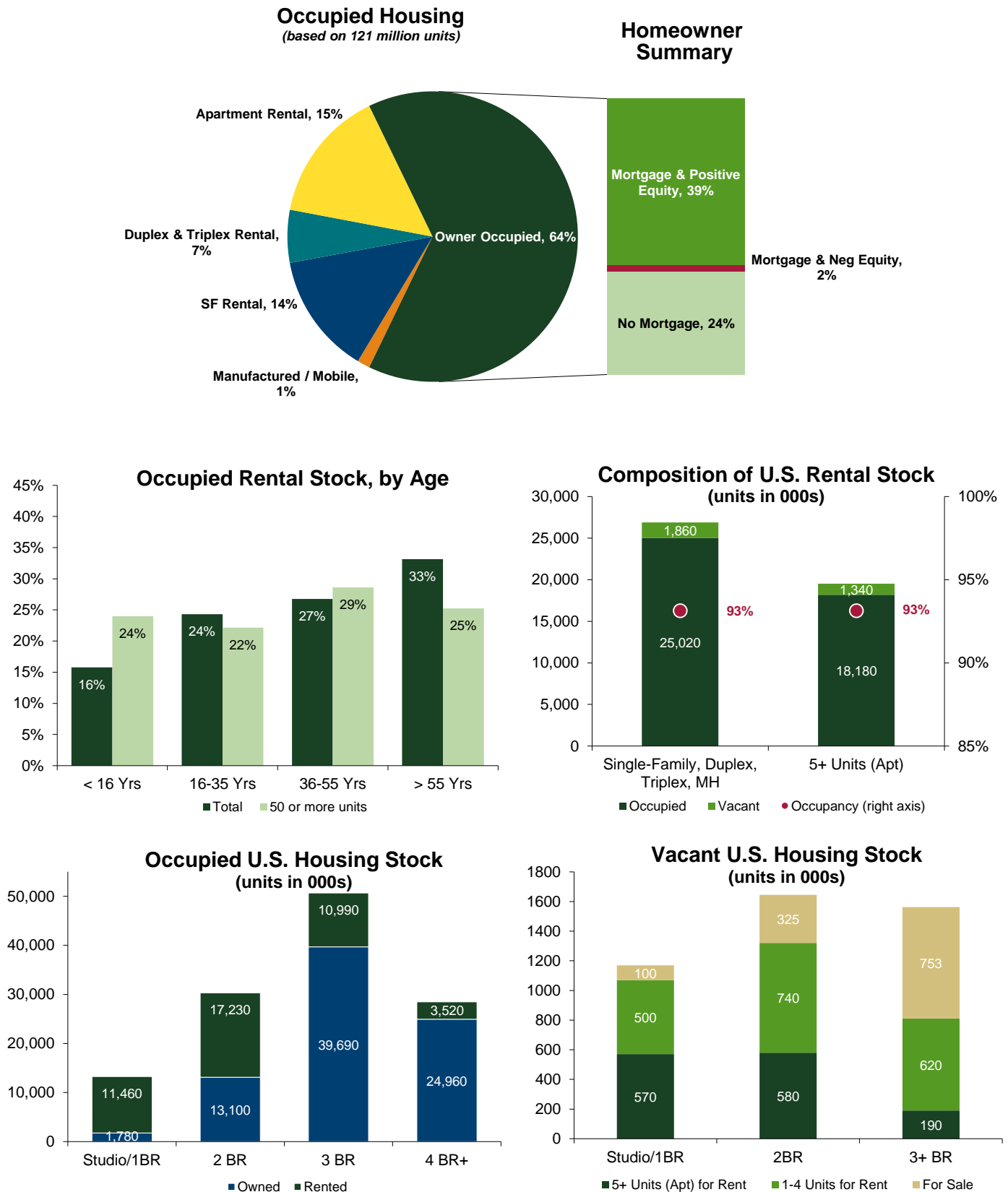
*Apartment rents are less sensitive to changes in the economy relative to other sectors

Source: Company documents, NCREIF, and Green Street Advisors.

Appendices

Section	Page:
A. Composition of U.S. Housing Stock	40
B. Apartment REIT NOI Concentrations by Market	41
C. Apartment Submarket Grades	42

Appendix A: Composition of U.S. Housing Stock



Source: 2017 American Housing Survey, CoreLogic, U.S. Census Bureau, and Green Street Advisors.

Appendix B: Apartment REIT NOI Concentrations by Market

MSA	NOI Concentration							Total
	AIV	AVB	CPT	EQR	ESS	MAA	UDR	
1 D.C. Metro	13%	14%	16%	17%		4%	19%	12%
2 Los Angeles	17%	13%	4%	18%	19%		4%	12%
3 Seattle	1%	6%		10%	17%		9%	7%
4 Boston	13%	12%		10%			9%	7%
5 San Francisco	7%	6%		10%	9%		8%	6%
6 San Jose	2%	8%		6%	20%		4%	6%
7 Orange County	3%	4%	5%	4%	10%		15%	6%
8 New York	3%	6%		11%			8%	5%
9 Oakland-East Bay	2%	6%		5%	12%			4%
10 San Diego	7%	2%	2%	4%	8%			3%
11 Dallas / Fort Worth			6%			13%	5%	3%
12 Atlanta	1%		9%			13%		3%
13 New Jersey (Northern)	1%	5%		3%				2%
14 Tampa-St. Petersburg			4%			6%	4%	2%
15 Orlando			6%			6%	3%	2%
16 Denver	5%	1%	6%	2%				1%
17 Houston			10%			4%		1%
18 Charlotte			5%			7%		1%
19 Austin			4%			7%	1%	1%
20 Nashville	1%					5%	3%	1%
21 Raleigh-Durham			4%			5%		1%
22 Long Island		5%						1%
23 Phoenix			7%			3%		1%
24 Baltimore	1%	1%	1%				2%	1%
25 New Jersey (Central)		3%						1%
26 Miami	5%		3%					1%
27 Philadelphia	7%							1%
28 Inland Empire			2%	1%			1%	1%
29 Richmond						2%	2%	0%
30 Jacksonville						3%		0%
31 Fort Lauderdale	1%		3%					0%
32 Chicago	4%							0%
33 Palm Beach		1%	1%					0%
34 Memphis						1%		0%
35 San Antonio						1%		0%
36 Minneapolis	1%							0%
Other U.S. Markets	4%	6%	1%	1%	5%	20%	4%	5%
Total:	100%	100%	100%	100%	100%	100%	100%	100%

Source: Company documents and Green Street Advisors.

660 Newport Center Drive, Suite 800, Newport Beach, CA 92660

T + 1 949 640 8780 / greenstreetadvisors.com

Important disclosure on page 44

© 2020, Green Street Advisors, LLC

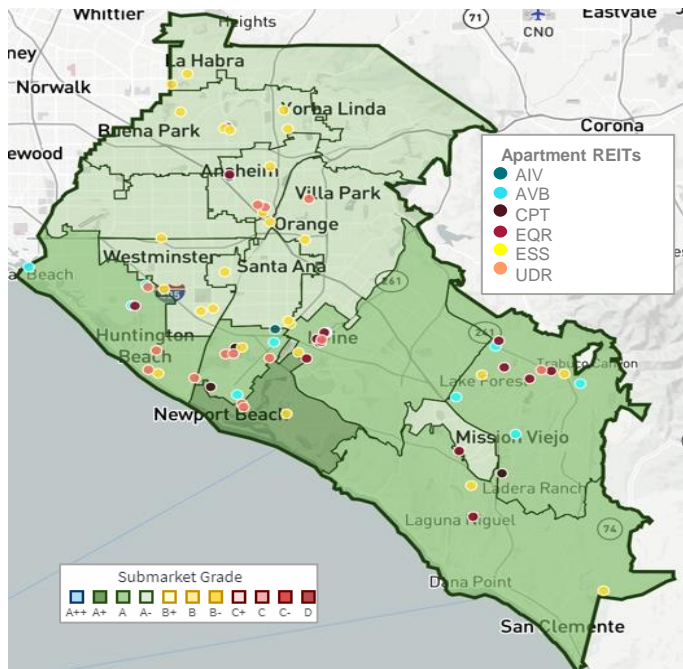
This report contains copyrighted subject matter and is covered under Green Street's Terms of Use.
Green Street reserves all rights not expressly granted.

Appendix C: Apartment Submarket Grades

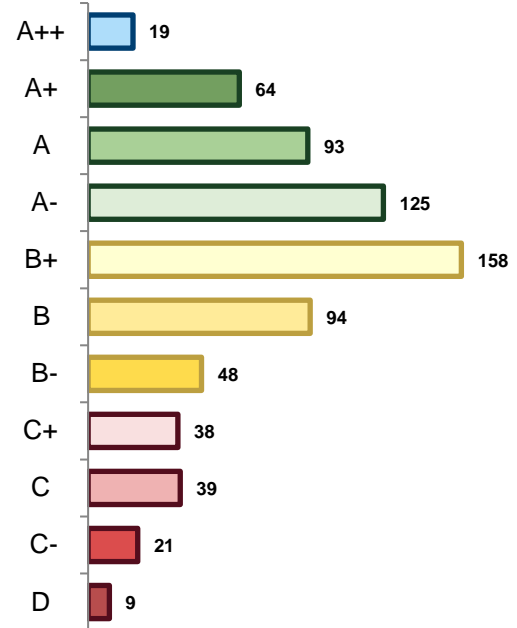
Submarket Grades: Green Street assigns letter grades to 708 submarkets across the top 50 MSAs. Grades range from A++ to D, and are meant to represent relative long-term rent growth potential.



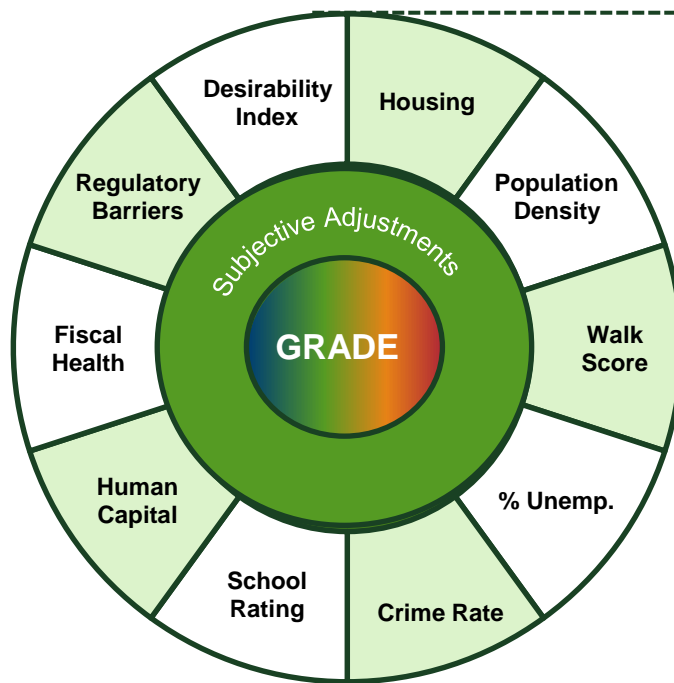
Map Example: Orange County, CA



Grade Distribution - Top MSAs



Variables: Grades are based on ten variables at the zip code level and then rolled up by submarket. Variable weightings are proprietary, and some grades include a subjective adjustment.



Submarket Variable Ranges: Top MSAs

Variable	Min	Max	Wtd. Avg
Med. Home Price	\$48,570	\$2,042,450	\$370,010
Affordability	Very Cheap	Very Expensive	Neutral
Population / Sq. mile	120	114,970	6,500
Walk Score	7	100	44
Unemployment Rate	1.4%	26.0%	5.7%
Crime Rate	8	90	41
School Rating (K-12)	1	10	5
Med. HH Income	17,380	181,180	76,360
% College Degree	5.9%	92.3%	38.1%
Fiscal Health	Concerning	Healthy	Stable
Regulatory Barriers	Very Low	Very High	Average
Desirability Index	28	81	56

Source: Great Schools, Oxford Economics, U.S. Census Bureau, Walk Score, and Green Street Advisors.

This Page Intentionally Left Blank

Green Street's Disclosure Information

Issuers of this Report: US and EEA: This report has been prepared by analysts working for Green Street Advisors (GSA (US)) and/or Green Street Advisors (U.K.) Limited (GSA (UK)), both of which are subsidiaries of Green Street Holdings, Inc.

This report is issued in the USA by GSA (US). GSA (UK) accepts no responsibility for this report to the extent that it is relied upon by persons based in the USA. GSA (US) is regulated by FINRA and the United States Securities and Exchange Commission, and its headquarters is located at 660 Newport Center Drive, Suite 800, Newport Beach, CA 92660.

This report is issued in the European Economic Area (EEA) by GSA (UK). GSA (US) accepts no responsibility for this report to the extent that it is relied upon by persons based in the EEA. GSA (UK) is registered in England, (Company number. 6471304), and its registered office is 20 Balderton Street, 5th Floor, London, W1K 6TL. GSA (UK) is authorized and regulated by the Financial Conduct Authority in the United Kingdom and is entered on the FCA's register (no. 482269J).

References to "Green Street" in Disclosures in this section and in the Other Important Information section apply to:

- GSA (US) to the extent that this report has been disseminated in the USA; or
- GSA (UK) to the extent that this report has been disseminated in the EEA.

Green Street Advisors US is exempt from the requirement to hold an Australian financial services license under the Act in respect of the financial services; and is regulated by the SEC under US laws, which differ from Australian laws.

Green Street Advisors UK Ltd. is exempt from the requirement to hold an Australian financial services license under the Act in respect of the financial services; and is regulated by the FCA under UK laws, which differ from Australian laws.

Swiss recipients: the funds, the REITs, the investment companies and any collective investment schemes referred to in these reports may not have been registered with the Swiss Financial Market Supervisory Authority (FINMA) and no Swiss representative or paying agent has been appointed in Switzerland. This report is provided in Switzerland for the use of the addressees only and may not be distributed, copied, reproduced or passed on to any third parties.

Green Street reserves the right to update the disclosures and policies set out in this document at any time. We encourage a careful comparison of these disclosures and policies with those of other research providers, and welcome the opportunity to discuss them.

Affiliate Disclosures: Green Street does not directly engage in investment banking, underwriting or advisory work with any of the companies in our coverage universe. However, the following are potential conflicts regarding our affiliates that should be considered:

- Green Street has an advisory practice servicing investors seeking to acquire interests in publicly-traded companies. Green Street may provide such valuation services to prospective acquirers of companies which are the subject(s) of Green Street's research reports.
- An affiliate of Green Street is an investment manager implementing a real estate securities strategy focused on REITs. The affiliate employs an investment strategy based on Green Street's published research and the portfolios managed by this affiliate contain securities of issuers covered by Green Street's research department. The principals of Green Street Advisors, Green Street Investors and its affiliates have invested in GSREF, L.P. Green Street Investors is located in separate offices.

Other Important Information

Management of Conflicts of Interest: Conflicts of interest can seriously impinge the ability of analysts to do their job, and investors should demand unbiased research. In that spirit, Green Street adheres to the following policies regarding conflicts of interest:

- Green Street employees are prohibited from owning the shares of any company in our coverage universe.
- Green Street employees do not serve as officers or directors of any of our subject companies.
- Neither Green Street nor its employees/analysts receives any compensation from subject companies for inclusion in our research.
- On occasion, Green Street analysts may be contacted by companies within the firm's coverage universe regarding potential employment opportunities. Additional disclosure will be made when appropriate.
- The research analysts who authored this report may hold shares of the non REIT companies mentioned in this research report. These are not companies in our coverage universe.

Please also have regard to the Affiliate Disclosures listed above when considering the extent to which you place reliance on this research report and any research recommendations made herein.

Green Street, at times, assists Eastdil Secured, a real estate brokerage and investment bank, when Eastdil Secured provides investment banking services to companies in Green Street's coverage universe. Green Street is never part of the underwriting syndicate or the selling group, but Green Street may receive compensation from Eastdil Secured for consulting services that Green Street provides to Eastdil Secured related to Eastdil Secured's investment banking services. Green Street does not control, have ownership in, or make any business or investment decisions for Eastdil Secured.

A number of companies covered by Green Street research reports pay an annual fee to receive Green Street's research reports. Green Street may periodically solicit this business from the subject companies. In the aggregate, annual fees for GSA (US) and GSA (UK) research reports received from subject companies represent approximately 3% of each of GSA (US)'s and GSA (UK)'s respective total revenues.

Green Street publishes research reports covering issuers that may offer and sell securities in an initial or secondary offering. Broker-dealers involved with selling the issuer's securities or their affiliates may pay compensation to GSA upon their own initiative, or at the request of Green Street's clients in the form of "soft dollars," for receiving research reports published by Green Street.

The information contained in this report is based on data obtained from sources we deem to be reliable; it is not guaranteed as to accuracy and does not purport to be complete. This report is produced solely for informational purposes and is not intended to be used as the primary basis of investment decisions. Because of individual client requirements, it is not, and it should not be construed as, advice designed to meet the particular investment needs of any investor. This report is not an offer or the solicitation of an offer to sell or buy any security.

Green Street Advisors, LLC is a Registered Investment Advisor. Services are only offered to clients or prospective clients where Green Street Advisors, LLC and its representatives are properly licensed or exempt from licensure.

For Green Street's advisory customers, this research report is for informational purposes only and the firm is not responsible for implementation. Nor can the firm be liable for suitability obligations.

GSA (US) generally prohibits research analysts from sending draft research reports to subject companies. However, it should be presumed that the analyst(s) who authored this report has/(have) had discussions with the subject company to ensure factual accuracy prior to publication, and has/(have) had assistance from the company in conducting due diligence, including visits to company sites and meetings with company management and other representatives.

This report is a property-sector review and does not contain the amount of in-depth company-specific analysis sufficient to make informed investment decisions about one specific issuer disclosed in this report. For a more thorough analysis, please review this report in conjunction with GSA's company-specific research.

Terms of Use

Protection of Proprietary Rights: To the extent that this report is issued by GSA (US), this material is the proprietary and confidential information of Green Street Advisors, LLC, and is protected by copyright. To the extent that this report is issued by GSA (UK), this material is the proprietary and confidential information of Green Street Advisors (U.K.) Limited, and is protected by copyright.

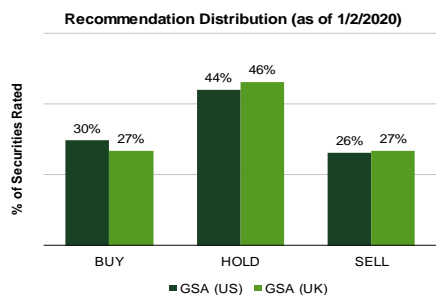
This report may be used solely for reference for internal business purposes. This report may not be reproduced, re-distributed, sold, lent, licensed or otherwise transferred without the prior consent of Green Street. All other rights with respect to this report are reserved by Green Street.

EEA Recipients: For use only by Professional Clients and Eligible Counterparties: GSA (UK) is authorized by the Financial Conduct Authority of the United Kingdom to issue this report to "Professional Clients" and "Eligible Counterparties" only and is not authorized to issue this report to "Retail Clients", as defined by the rules of the Financial Conduct Authority. This report is provided in the United Kingdom for the use of the addressees only and is intended for use only by a person or entity that qualifies as a "Professional Client" or an "Eligible Counterparty". **Consequently, this report is intended for use only by persons having professional experience in matters relating to investments. This report is not intended for use by any other person. In particular, this report is intended only for use by persons who have received written notice from GSA (UK) that he/she/it has been classified, for the purpose of receiving services from GSA (UK), as either a "Professional Client" or an "Eligible Counterparty". Any other person who receives this report should not act on the contents of this report.**

Review of Recommendations:

- Unless otherwise indicated, Green Street reviews all investment recommendations on at least a monthly basis.
- The research recommendation contained in this report was first released for distribution on the date identified on the cover of this report.
- Green Street will furnish upon request available investment information supporting the recommendation(s) contained in this report.

At any given time, Green Street publishes roughly the same number of "BUY" recommendations that it does "SELL" recommendations.



Green Street's "BUYs" have historically achieved far higher total returns than its "HOLDs", which, in turn, have outperformed its "SELLs".

Total Return of Green Street's Recommendations^{1,2}

Year ³	Buy	Hold	Sell	Universe
2019	21.8%	22.4%	17.8%	24.2%
2018	-5.1%	-6.8%	-9.2%	-7.0%
2017	5.4%	0.2%	2.1%	2.6%
2016	14.9%	14.7%	13.1%	14.4%
2015	8.3%	0.0%	-1.7%	2.4%
2014	1.6%	31.8%	27.3%	33.3%
2013	-4.1%	0.6%	1.7%	2.2%
2012	24.8%	24.7%	18.8%	23.6%
2011	18.8%	7.6%	-4.7%	7.6%
2010	43.3%	30.8%	26.6%	33.6%
2009	58.0%	47.7%	6.0%	37.0%
2008	-28.1%	-35.9%	-52.8%	-37.3%
2007	-5.9%	-22.4%	-27.8%	-19.7%
2006	46.8%	29.6%	19.5%	31.6%
2005	28.3%	16.5%	-1.8%	15.0%
2004	42.8%	28.7%	16.4%	29.4%
2003	-5.3%	37.4%	21.8%	34.4%
2002	17.3%	2.8%	2.6%	5.4%
2001	34.8%	10.1%	13.2%	21.1%
2000	53.4%	28.3%	5.9%	29.4%
1999	12.3%	-8.2%	-20.5%	-6.0%
1998	-1.6%	-15.1%	-15.5%	-12.1%
1997	36.7%	14.8%	7.2%	18.2%
1996	47.6%	30.7%	18.8%	32.1%
1995	22.0%	13.0%	0.0%	13.0%
1994	20.8%	-6.8%	-6.7%	3.1%
1993	27.3%	4.7%	8.1%	12.1%
Cumulative Total Return Annualized	2133.8%	1983.7%	42.9%	1617.6%

The results shown above are hypothetical; they do not represent the actual trading of securities. Actual performance will vary from the hypothetical performance shown above due to, but not limited to 1) advisory fees and other expenses that one would pay; 2) transaction costs; 3) the inability to execute trades at the last published price (the hypothetical returns assume execution at the last closing price); 4) the inability to maintain an equally-weighted portfolio in size (the returns above assume an equal weighting); and 5) market and economic factors will almost certainly cause one to invest differently than projected by the model that simulated the above returns. All returns include the reinvestment of dividends. Past performance, particularly hypothetical performance, cannot be used to predict future performance. Investing involves risk and possible loss of principal capital.

- Results are for recommendations made by Green Street's North American Research Team only (includes securities in the US, Canada, and Australia). Since July 5, 2017, performance is calculated whenever a recommendation is changed using the share price at the most recent market close. Previously, performance was based on recommendations provided in Green Street's "Real Estate Securities Monthly" (RESM) and assumed no change in recommendation between RESM publications. Results from January 28, 1993 through January 4, 2016 were independently verified by an international "Big 4" accounting firm. The accounting firm did not verify the stated results subsequent to January 4, 2016. As of January 4, 2016, the annualized total return of Green Street's recommendations since January 28, 1993 was: Buy +24.0%, Hold +11.1%, Sell +0.6%, Universe +11.7%.
- Beginning July 5, 2017, all companies in Green Street's North American coverage universe are included in the performance calculation. Previously, inclusion in the calculation of total return had been based on whether the companies were listed in the primary exhibit of Green Street's "Real Estate Securities Monthly" and had a rating other than "Not Rated".
- From 1993 until July 3, 2017, the returns for each year cover the period following the first RESM issued in the respective year through the first RESM issued in the following year and are not based on a calendar year. Subsequent to July 5, 2017, returns are based on calendar months.

Per NASD rule 2711, "Buy" = Most attractively valued stocks. We recommend overweight position; "Hold" = Fairly valued stocks. recommend market-weighting; "Sell" = Least attractively valued stocks. We recommend underweight position.

Green Street will furnish upon request available investment information regarding the recommendation

North American Team



Research

Strategic Research	Mike Kirby, Director of Research Dave Bragg, Managing Director Peter Rothmund, CFA, Managing Director Stephen Pazzano, Senior Associate Jared Giles, Associate	mkirby@greenst.com dbragg@greenst.com prothemund@greenst.com spazzano@greenst.com jgiles@greenst.com
Company and Sector Research	Cedrik Lachance, Director of REIT Research Michael Knott, Managing Director, Head of U.S. REIT Research Jim Sullivan, Senior Advisor	clachance@greenst.com mknott@greenst.com jsullivan@greenst.com
Data Centers/Towers	David Guarino, Analyst	dguarino@greenst.com
Industrial	Eric Frankel, CFA, Senior Analyst	efrankel@greenst.com
Lodging/Health Care	Lukas Hartwich, CFA, Senior Analyst	lhartwich@greenst.com
Net Lease/Self-Storage	Spenser Allaway, Analyst	sallaway@greenst.com
Office	Daniel Ismail, CFA, Analyst Chris Darling, CFA, Analyst Dylan Burzinski, Senior Associate	dismail@greenst.com cdarling@greenst.com dburzinski@greenst.com
Residential	John Pawlowski, CFA, Senior Analyst Alan Peterson, Senior Associate Galen Faurot-Pigeon, Associate	jpawlowski@greenst.com apeterson@greenst.com gfaurotpigeon@greenst.com
Retail	Vince Tibone, CFA, Senior Analyst Paulina Rojas-Schmidt, Senior Associate Nick Fromm, Senior Associate Emily Arft, Associate	vtibone@greenst.com projasschmidt@greenst.com nfromm@greenst.com earft@greenst.com
Research Generalists	Ryan Lumb, Analyst John Magee, Senior Associate Harsh Hemmani, Associate	rlumb@greenst.com jmagee@greenst.com hhemmani@greenst.com
Real Estate Analytics	Andrew McCulloch, CFA, Managing Director Joi Mar, CFA, Managing Director Rob Filley, CFA, Analyst Ryan Miller, CFA, Analyst Weston Mui, Senior Associate Alaine Coffey, Associate Alexander McIntyre, Associate Alexandra Boyle, Associate Claire Arora, Associate Emily Meckler, Associate Hannah Berg, Associate Kevin Neys, Associate Michael Stroyeck, Associate	amcculloch@greenst.com jmar@greenst.com rfilley@greenst.com rmiller@greenst.com wmui@greenst.com acoffey@greenst.com amcintyre@greenst.com aboyle@greenst.com carora@greenst.com emeckler@greenst.com hberg@greenst.com kneys@greenst.com mstroyeck@greenst.com

Executive

Jeff Stuek, Chief Executive Officer	jstuek@greenst.com
Jeff Meister, Chief Financial Officer	jmeister@greenst.com

Account Management

Damon Scott, Managing Director	dscott@greenst.com
Seth Laughlin, Managing Director	slaughlin@greenst.com

Sales

Kris Hoffman, Managing Director	khoffman@greenst.com
---------------------------------	----------------------

Advisory

Dirk Aulabaugh, Managing Director	daulabaugh@greenst.com
Phillip Owens, CFA, Managing Director	powens@greenst.com
Justin Brown, Managing Director	jbrown@greenst.com

Marketing & Media Relations

Katie Clemons, Vice President	kclemons@greenst.com
-------------------------------	----------------------

Green Street Advisors, LLC
660 Newport Center Drive, Suite 800
Newport Beach, CA 92660
T 949.640.8780

Green Street Advisors (UK) Limited
20 Balderton Street, 5th Floor
London W1K 6TL, United Kingdom
T +44 (0)20.3793.7000

Green Street Advisors, LLC
2828 N. Harwood Street, Suite 1200
Dallas, TX 75201
T. 214.749.4730

** These employees operate in a support capacity and are not yet licensed. All acts performed in the United States are supervised by Green Street Advisors US.