THE GOLDEN AGE OF MULTIFAMILY INVESTING

Prepared for Capital Square Realty Advisors, LLC

CAPITAL SQUARE

U.S. MULTIFAMILY INVESTMENT SECTOR OVERVIEW

In the modern era of commercial real estate (CRE) investing, the multifamily sector has generally outperformed the other major CRE sectors, with a notable increase in the sector's cumulative return premium since the Financial Crisis. At the foundation of multifamily sector performance is a stable and essential asset that benefits from younger generations renting longer and increasing numbers of empty nesters downsizing to rental housing. With short-term leases (to hedge inflation), diversified tenancy (versus a handful of anchor tenants), low tenant improvement and capex requirements, high NOI-to-cash flow margins relative to other CRE sectors, and a deep capital pool due to Fannie and Freddie, multifamily continues to be an attractive asset class.

Linneman Associates examined the outcomes and determinants of 10-year and 3-year returns for commercial and multifamily real estate based on total return data from the National Association of Real Estate Investment Trusts (NAREIT) and the National Council of Real Estate Investment Fiduciaries (NCREIF). We found that if you bought the NCREIF unlevered property portfolio in any quarter since the fourth quarter of 1977 (137 10-year investment periods) and held for 10 years, you never would have lost money over these 44 years (through 4Q 2021). In fact, you would have realized an average compounded annual growth rate or CAGR (i.e., total annual return) of 9.4%. Notably, NCREIF data indicate that the multifamily sector generated the highest 10-year average return (9.4%), the lowest standard deviation, the highest minimum return, and no negative returns. Similarly, when examining the 165 3-year investment periods since 4Q 1977, multifamily saw the second-highest 3-year returns (9.8%), the lowest standard deviation, and the lowest incidence of negative returns. The industrial sector saw the highest average 3-year return (10.1%) but had a higher standard deviation and a greater incidence of negative returns.

> If you bought the NCREIF unlevered property portfolio in any quarter since the fourth quarter of 1977...you **never would have lost money over these 44 years.**

NCREIF Unlevered Returns Analysis - 4Q77 to 1Q22

(Sorted by 10-Yr Avg)	10-Year Hold Period CAGRs (%)					3-Year Hold Period CAGRs (%)				
	Avg	SD	Min	Max	% of Qtrs w/ Neg 10-Yr Ret	Avg	SD	Min	Max	% of Qtrs w/ Neg 3-Yr Ret
NCREIF INDICES										
Apartments	9.4	2.3	6.1	15.2	0.0	9.9	5.5	-5.9	22.3	6.0
Retail	9.3	2.4	5.2	13.8	0.0	9.2	5.5	-1.9	20.4	7.8
Industrial	9.1	2.9	4.8	16.6	0.0	10.2	6.1	-5.7	25.1	10.8
Total	8.4	2.6	4.0	13.4	0.0	9.0	5.7	-4.7	18.7	11.4
Office	7.3	3.6	0.4	13.9	0.0	8.2	7.4	-8.0	23.7	14.5

Source: NCREIF, Linneman Assoc.

CAGR = Compounded Annual Growth Rate; SD = Standard Deviation

FIGURE 1

On a nominal basis, investing $100 in the multifamily unlevered NCREIF index at the end of 1977 would have grown to $6,600 (10% CAGR) by year-end 2021, while the same investment in NCREIF's office, industrial, and retail indices would have increased to $3,210 (8.2%), $8,675 (10.7%), and $4,564 (9.1%), respectively. It should also be noted that industrial valuations spiked sharply in during the pandemic (2020-2021) but have moderated slightly in early 2022 (based on REIT data). Up until the pandemic, the multifamily sector had outpaced industrial during the previous 42 years.
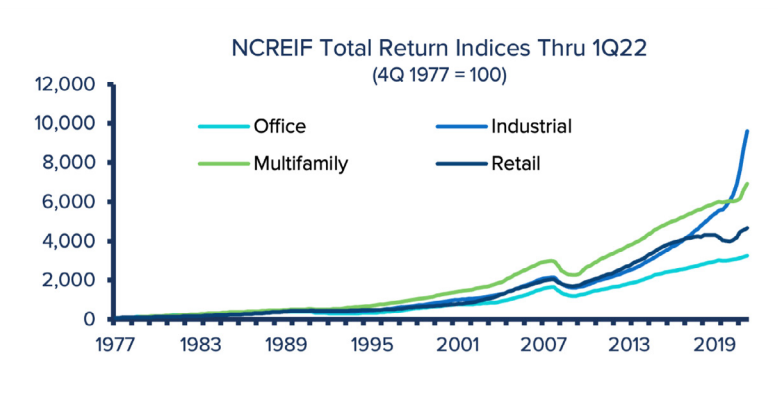

NCREIF Total Return Indices Thru 1Q22
(4Q 1977 = 100)

FIGURE 2

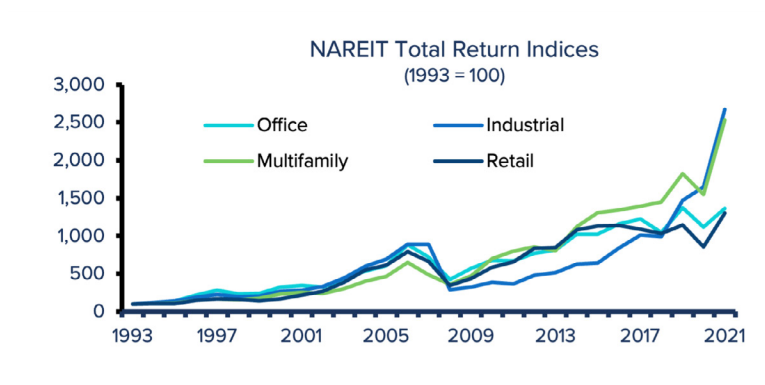NAREIT Total Return Indices
(1993 = 100)

FIGURE 3

We similarly examined 219 10-year investment periods and 303 3-year periods using monthly NAREIT data from December 1993 through February 2022. Of the traditional sectors (office, industrial, retail, multifamily, lodging), the multifamily sector generated the highest 10-year and 3-year CAGRs, at 12% and 12.2%, respectively, and the lowest standard deviations. Notably, the industrial sector experienced modestly levered negative returns in 9.6% of the 10-year periods and 11.9% of the 3-year hold periods. In contrast, multifamily had no negative 10-year returns in the nearly 30-year period and only an 8.7% negative incidence rate in the 3-year analysis, well below average versus other sectors. The lowest 10-year return period for multifamily REITs (4.1%) was February 1999 through February 2009, while the highest (21.5%) was February 2009 through February 2019.

NAREIT Returns Analysis - Dec 1993 to April 2022										
	10-Year Hold Period CAGRs (%)					3-Year Hold Period CAGRs (%)				
(Sorted by 10-Yr Avg)	Avg	SD	Min	Max	% of Mos w/ Neg 10-Yr Ret	Avg	SD	Min	Max	% of Mos w/ Neg 3-Yr Ret
NAREIT INDICES										
Self-Storage	16.4	2.0	10.7	22.0	0.0	16.0	11.0	-13.8	43.9	10.8
Healthcare	12.8	3.7	4.5	21.3	0.0	11.5	10.2	-12.7	36.1	13.1
Apartments	11.9	3.0	4.1	21.5	0.0	12.2	10.6	-24.4	51.6	8.5
Retail	10.6	5.2	1.4	20.1	0.0	10.2	15.3	-31.8	50.9	23.3
All Equity	10.6	3.1	3.4	18.8	0.0	11.0	10.8	-25.0	42.2	15.8
All REITS	10.1	3.0	3.2	18.3	0.0	10.5	10.7	-24.7	40.0	19.5
Office	8.9	4.4	1.9	18.0	0.0	10.0	11.9	-26.6	40.5	13.4
Industrial	8.8	7.8	-2.7	22.9	9.5	12.3	16.4	-42.0	42.3	11.8
Diversified	8.2	3.5	1.2	15.6	0.0	8.0	11.8	-26.8	41.6	22.3
Lodging	4.7	3.8	-6.9	21.7	9.5	5.1	16.3	-40.7	57.9	32.8

Source: NAREIT, Linneman Assoc.
CAGR = Compounded Annual Growth Rate; SD = Standard Deviation

FIGURE 4

The bottom line is that for all major property sectors, both NAREIT (modestly levered) and NCREIF (unlevered) data indicate solid multifamily returns over a 10-year hold. Not only are typical annual 10-year returns 7-9.5%, but periods of negative returns are non-existent. This is true even if you invested at a cyclical peak or exited at a cyclical low. The upshot of this research is that unless excessive leverage causes you to lose your property, you can expect solid returns that can be enhanced with modest leverage. It also makes clear that debt coverage (the ability to service your debt) rather than loan-to-value (the amount of debt) is the relevant leverage metric.

Continuing large cumulative shortages (versus historical norms) of both multifamily and single-family housing starts existed before the shutdown depression began. As the nation emerges from the worst of the pandemic and adapts to living in an endemic COVID-19 society, the economy is fundamentally strong, as seen by a steady and sustained rise in housing starts, rents, and home prices. Additionally, the U.S. stands to benefit as the world adjusts its energy, defense, and agricultural purchases in light of the Russian invasion of Ukraine. The cumulative 20-year multifamily production shortfall continues to decline and stood at 645,000 units through January 2022. According to the 2019 Census American Community Survey, 47.6% of all occupied multifamily rental units (in structures with 5+ units) were built before 1980. Housing production throughout the pandemic has been amazingly resilient and far stronger than many

47.6% of all occupied multifamily rental units (in structures with 5+ units) were built **before 1980.**

anticipated. People put their involuntary savings from reduced consumption opportunities and pre-mature inheritances during the pandemic into upgrading their housing, particularly in the suburbs, as many urban dwellers sought more space – through both ownership and rentals. Notably, height restrictions (i.e., no hi-rises), approval delays, and impact fees, etc. in the suburbs limit oversupply.
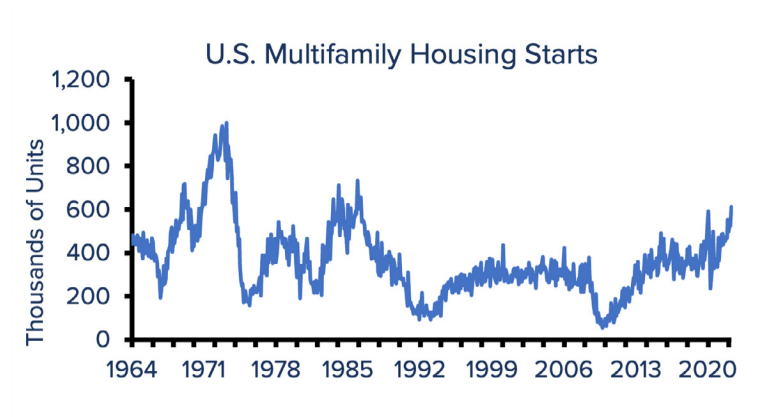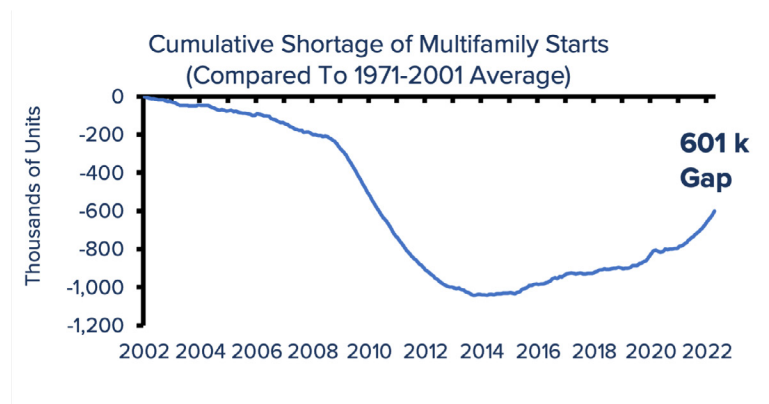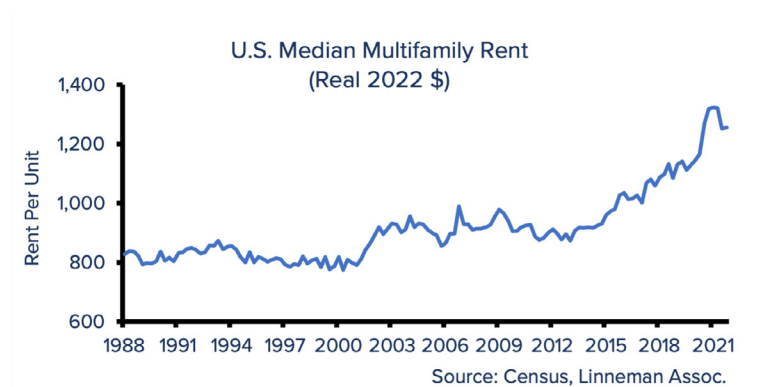

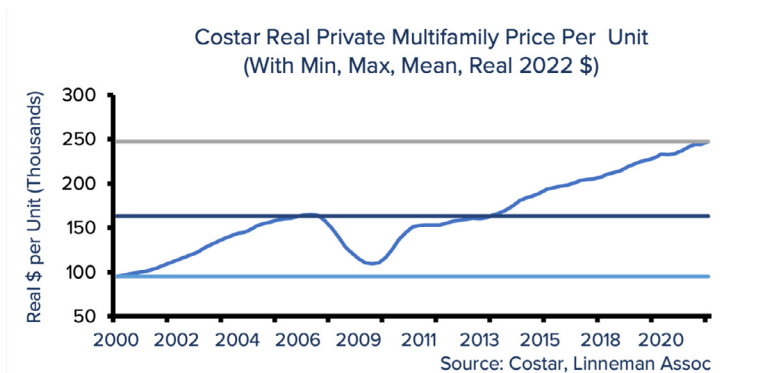FIGURE 5

FIGURE 6

FIGURE 7

Costar Real Private Multifamily Price Per Unit
(With Min, Max, Mean, Real 2022 $)

Source: Costar, Linneman Assoc

FIGURE 8

REIT Implied FFO Cap Rates

Total REITs Implied Cap Rate — Multifamily Implied Cap Rate

Source: BAS-ML

FIGURE 9

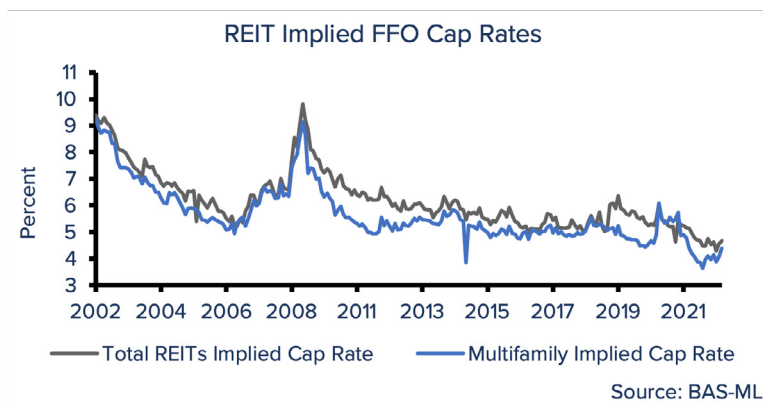**Multifamily REIT Implied Cap Rate Spread over 10-Year Treasury**
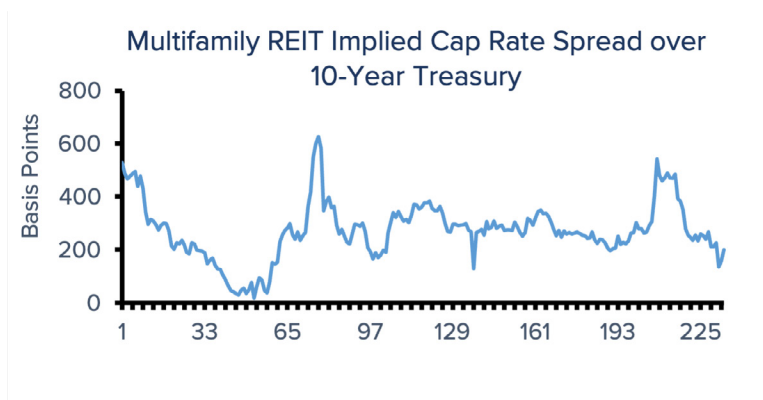

FIGURE 10

The Census Bureau's quarterly Housing Vacancy Survey indicates that the U.S. multifamily vacancy rate was 5.6% in the fourth quarter of 2021. This is 200 bps below the long-term average (1976-present) of 7.6%. The series peaked at 11.1% in the fourth quarter of 2009 and is at the lowest point since 1985. In comparison, at 5.5% in the fourth quarter of 2021, NCREIF's institutional quality multifamily vacancy rate decreased by 250 bps over the year but rose 50 bps during the quarter. Linneman Associates expects vacancy rates to remain low as pandemic uncertainties continue to dissipate and the labor market strengthens.

MULTIFAMILY OUTLOOK

Linneman Associates examined the historical relationship between employment growth and commercial property vacancy rates and determined that over the long term, for every 100-bp (1%) increase in U.S. employment, the U.S. multifamily vacancy rate declines by 26 bps. Given that Linneman Associates projects 12.1 million net new jobs in 2022-2026 (3.5 million per year in 2022-2023 and 1.7 million per year in 2023-2026), we anticipate that the U.S. multifamily vacancy rate will decline by 210 bps over that period, to 3.5% based on the Census series or 3.4% based on NCREIF data, respectively.
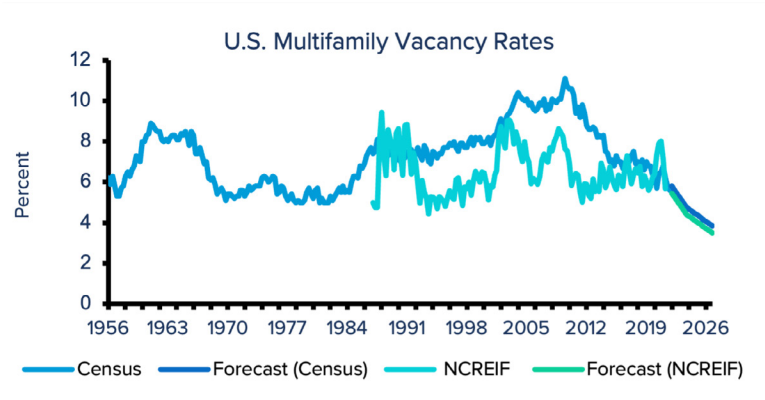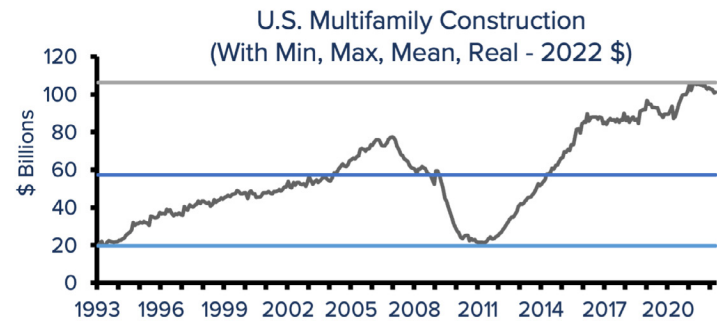

FIGURE 11

FIGURE 12

Linneman Real Estate Index vs. 18-Mos. Lagged Multifamily Cap Rate

LREI (left axis) — MF Cap Rate (right axis)
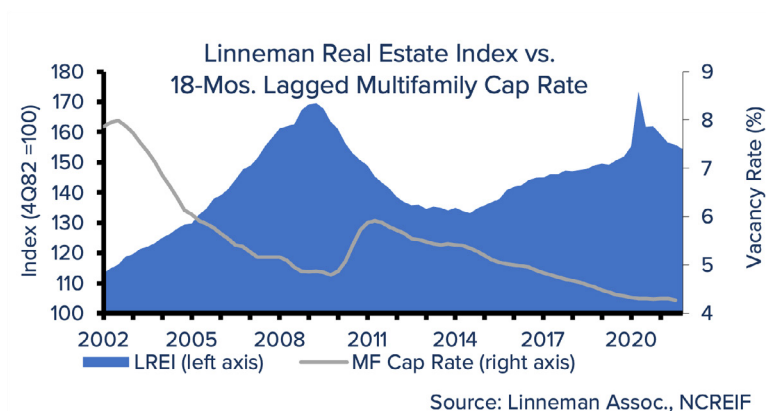
Source: Linneman Assoc., NCREIF

FIGURE 13

The Linneman Real Estate Index (LREI) monitors the supply of real estate capital, as proxied by the aggregate flow of commercial real estate debt (the numerator), with the fundamental demand for space, as measured by nominal GDP (the denominator). Linneman Associates research indicates this metric is the key determinant of cap rates, showing that a 100-bp increase in the LREI results in a 22-bp decline in multifamily cap rates. As the Fed intended with its "QE Infinity" monetary injections, there is significant liquidity in the capital markets. Linneman Associates anticipates that inflation over the next decade will be concentrated in investable assets, as that is where banks will disproportionately direct their capital. As a result, Linneman Associates expects cap rates to fall over the next decade as the money injected during the Fed's "QE Infinity" chases assets. Note that our outlook on asset pricing is in contrast to today's high consumer price inflation, which we expect will moderate over the next 12-18 months as supply chain issues are resolved.

> Linneman Associates expects cap rates to **fall** over the next decade.

The multifamily sector and housing in general further benefit from Fannie Mae and Freddie Mac's deep pools of capital, as well as from direct HUD loans. Since 1985, there have only been two periods of extended year-over-year declines in quarterly multifamily and commercial mortgages outstanding: 1991-1994 and 2009-2013. During both periods, outstanding commercial mortgages dramatically declined to a greater degree, and during the Financial Crisis, multifamily mortgages largely went flat. U.S. multifamily mortgages outstanding and flows are both near all-time highs.

U.S. Real Estate Mortgages Outstanding
Year-over-Year Percent Change
(1990-1994)

Multifamily   Commercial

FIGURE 14

U.S. Real Estate Mortgages Outstanding
Year-over-Year Percent Change
(2009-2013)

FIGURE 15

U.S. Multifamily Mortgage Flows
(Real 2020 $)

FIGURE 16

U.S. Multifamily Mortgages Outstanding
(Real 2020 $)
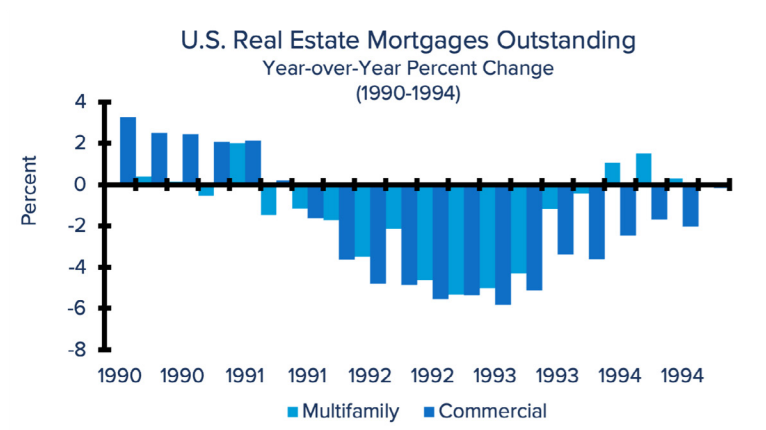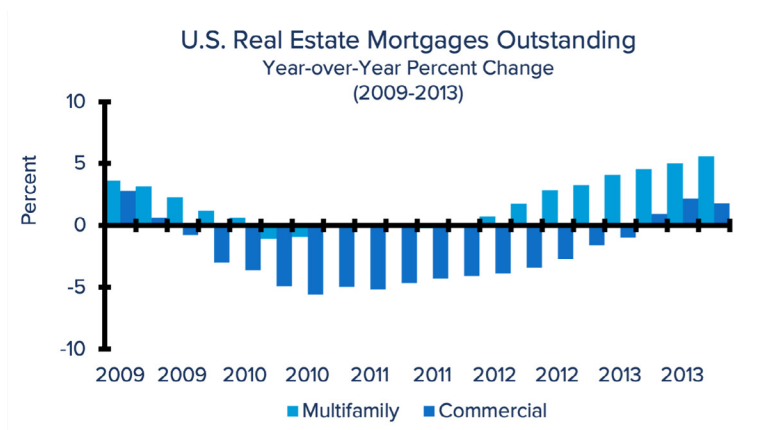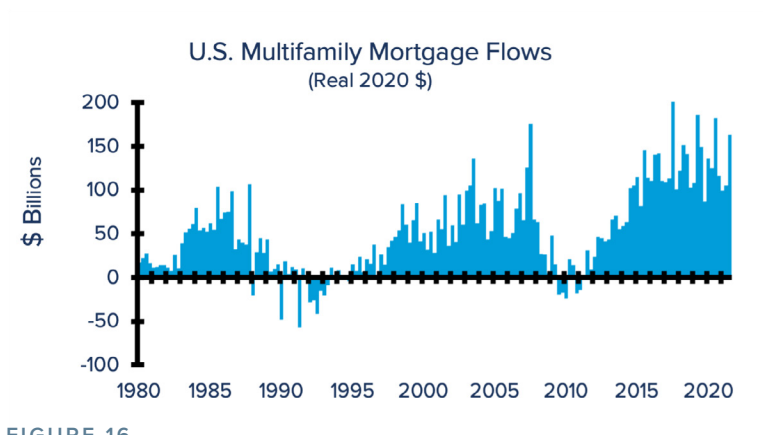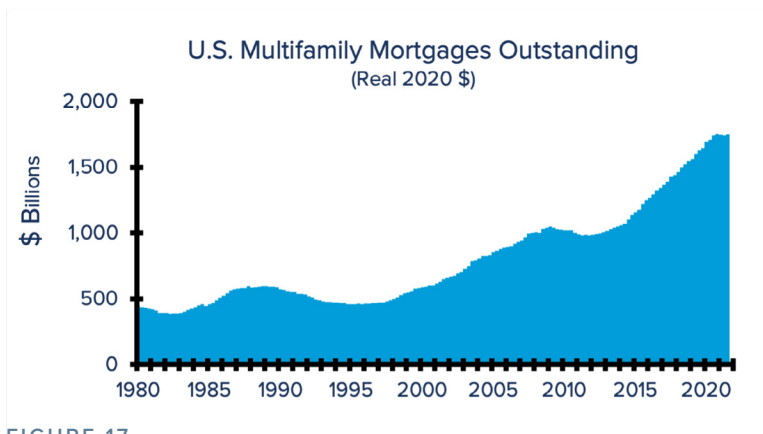
FIGURE 17

SOUTHEAST AND TEXAS MULTIFAMILY INVESTMENT OPPORTUNITY

In 2006, we co-authored, with Albert Saiz, a study in which we forecasted U.S. population by county and MSA. We found that past recent growth, the presence of immigrants, the fractions of population older than 25 and younger than 65, low taxes, and good weather are all positively associated with population growth. At that time, our forecasts revealed that most growth and

real estate development would occur in the West, the Southeast, and along the Southern I-85 route, which for the most part has played out. Linneman Associates expects that robust growth will continue in the Southeast and westward through Texas. Our statistical analysis revealed that high growth occurs where: people want to live and play; firms find it efficient to produce; necessary building approvals are relatively easy and can accommodate potential growth; and other "wild card" factors are in play. We found that the single most important factor in determining future population growth is past growth, which accounted for 69% of the forces driving our forecasts at that time.

U.S. Homeownership Rate

Source: Linneman, Census HVS

FIGURE 18

Rental Propensity by Region

Source: Linneman, Census HVS
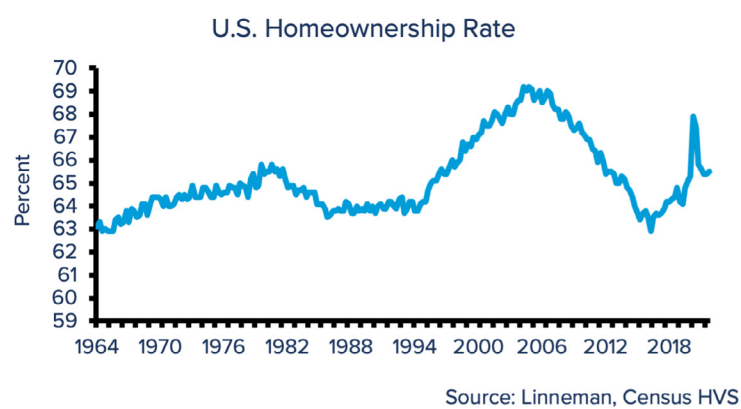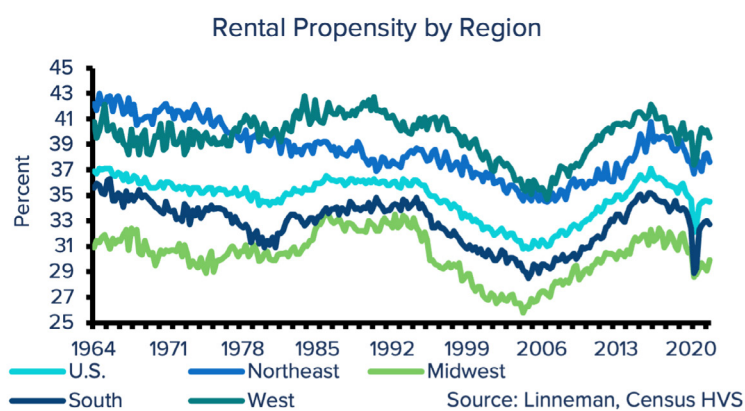
FIGURE 19

When the once-in-a-century pandemic shutdown occurred, savings rates soared because people were no longer able to spend their disposable income on vacations, concerts, dance classes, dining out, etc. As a result, people were able to quickly accumulate down payments and buy homes sooner than expected, driving the home ownership rate up (rental propensities down). However, as we predicted, this has proven to be a temporary shock to the system, with home ownership rates already reverting toward the long-term average. That is, the pandemic simply sped up the process and caused a time shift in homebuying. By year-end 2021, the U.S. and regional homeownership rates stood just below with their respective pre-pandemic levels.

Figures 21 and 22, respectively, detail the top 50 MSAs with the largest absolute and percentage growth in population between 2010 and 2021. On an absolute basis, the greatest population growth occurred in the Dallas (+1.4 million), Houston (+1.3 million), NY/NJ (+871,000), Atlanta (+857,000), and Phoenix (+753,000), while the top percentage growth was seen in The Villages, FL (+3.5% compounded annual growth), St. George, UT (+3.0%), Austin (2.9%), Myrtle Beach (+2.8%), and Greeley, CO (+2.7%). Thus, the Sunbelt is disproportionately represented among the top performers.

It is notable that 22 of the MSAs appear on both Top 50 lists, of which 18 markets are in the Sunbelt, which we define as Nevada, Colorado, Arizona, New Mexico, Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Tennesee, Alabama, Georgia, Virginia, North Carolina, South Carolina, and Florida. Note that some may include Utah in the Sunbelt as well.

MSAs Achieving Both the Top 50 Highest Absolute and Percentage Growth in Population 2010-2021

	MSA	Sunbelt
1	Austin-Round Rock-Georgetown, TX	✓
2	Boise City, ID	
3	Cape Coral-Fort Myers, FL	✓
4	Charleston-North Charleston, SC	✓
5	Charlotte-Concord-Gastonia, NC-SC	✓
6	Colorado Springs, CO	✓
7	Dallas-Fort Worth-Arlington, TX	✓
8	Des Moines-West Des Moines, IA	
9	Fayetteville-Springdale-Rogers, AR	✓
10	Houston-The Woodlands-Sugar Land, TX	✓
11	Jacksonville, FL	✓
12	Lakeland-Winter Haven, FL	✓
13	Las Vegas-Henderson-Paradise, NV	✓
14	Myrtle Beach-Conway-North Myrtle Beach, SC-NC	✓
15	Nashville-Davidson--Murfreesboro--Franklin, TN	✓
16	North Port-Sarasota-Bradenton, FL	✓
17	Ogden-Clearfield, UT	
18	Orlando-Kissimmee-Sanford, FL	✓
19	Phoenix-Mesa-Chandler, AZ	✓
20	Provo-Orem, UT	
21	Raleigh-Cary, NC	✓
22	San Antonio-New Braunfels, TX	✓

Source: Census, Linneman Assoc.

FIGURE 20

"

The Sunbelt is disproportionately represented among the top performers.

MSA Population Growth 2010-2021 - Sorted by Absolute Change

	Geographic Area	2021 Population	2010-2021 Population Change	2010-2021 Population Change (CAGR %)
	United States	**331,893,745**	**23,148,207**	**0.66**
	In Metropolitan Statistical Area	**286,472,775**	**23,376,106**	**0.78**
1	Dallas-Fort Worth-Arlington, TX	7,759,615	1,393,073	1.82
2	Houston-The Woodlands-Sugar Land, TX	7,206,841	1,286,425	1.80
3	New York-Newark-Jersey City, NY-NJ-PA	19,768,458	871,349	0.41
4	Atlanta-Sandy Springs-Alpharetta, GA	6,144,050	857,322	1.38
5	Phoenix-Mesa-Chandler, AZ	4,946,145	753,258	1.51
6	Washington-Arlington-Alexandria, DC-VA-MD-WV	6,356,434	706,894	1.08
7	Austin-Round Rock-Georgetown, TX	2,352,426	636,137	2.91
8	Seattle-Tacoma-Bellevue, WA	4,011,553	571,744	1.41
9	Orlando-Kissimmee-Sanford, FL	2,691,925	557,514	2.13
10	Miami-Fort Lauderdale-Pompano Beach, FL	6,091,747	527,112	0.83
11	San Antonio-New Braunfels, TX	2,601,788	459,280	1.78
12	Charlotte-Concord-Gastonia, NC-SC	2,701,046	457,086	1.70
13	Tampa-St. Petersburg-Clearwater, FL	3,219,514	436,271	1.33
14	Denver-Aurora-Lakewood, CO	2,972,566	429,084	1.43
15	Riverside-San Bernardino-Ontario, CA	4,653,105	428,254	0.88
16	Nashville-Davidson--Murfreesboro--Franklin, TN	2,012,476	366,276	1.84
17	Minneapolis-St. Paul-Bloomington, MN-WI	3,690,512	356,879	0.93
18	Boston-Cambridge-Newton, MA-NH	4,899,932	347,530	0.67
19	Las Vegas-Henderson-Paradise, NV	2,292,476	341,207	1.48
20	Raleigh-Cary, NC	1,448,411	317,921	2.28
21	Jacksonville, FL	1,637,666	292,070	1.80
22	San Francisco-Oakland-Berkeley, CA	4,623,264	287,873	0.59
23	Portland-Vancouver-Hillsboro, OR-WA	2,511,612	285,603	1.10
24	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	6,228,601	263,258	0.39
25	Sacramento-Roseville-Folsom, CA	2,411,428	262,301	1.05
26	Columbus, OH	2,151,017	249,043	1.12
27	Indianapolis-Carmel-Anderson, IN	2,126,804	238,927	1.09
28	San Diego-Chula Vista-Carlsbad, CA	3,286,069	190,756	0.55
29	Kansas City, MO-KS	2,199,490	190,148	0.83
30	Oklahoma City, OK	1,441,647	188,660	1.28
31	Boise City, ID	795,268	178,707	2.34
32	Salt Lake City, UT	1,263,061	175,188	1.37
33	Provo-Orem, UT	697,141	170,331	2.58
34	Cape Coral-Fort Myers, FL	787,976	169,222	2.22
35	Los Angeles-Long Beach-Anaheim, CA	12,997,353	168,516	0.12
36	North Port-Sarasota-Bradenton, FL	859,760	157,479	1.86
37	Lakeland-Winter Haven, FL	753,520	151,425	2.06
38	Charleston-North Charleston, SC	813,052	148,445	1.85
39	Richmond, VA	1,324,062	137,561	1.00
40	Myrtle Beach-Conway-North Myrtle Beach, SC-NC	509,794	133,072	2.79
41	Baltimore-Columbia-Towson, MD	2,838,327	127,838	0.42
42	Cincinnati, OH-KY-IN	2,259,935	122,268	0.51
43	Fayetteville-Springdale-Rogers, AR	560,709	120,588	2.23
44	Colorado Springs, CO	762,793	117,180	1.53
45	Greenville-Anderson, SC	940,774	116,662	1.21
46	San Jose-Sunnyvale-Santa Clara, CA	1,952,185	115,274	0.55
47	Des Moines-West Des Moines, IA	719,146	112,671	1.56
48	Ogden-Clearfield, UT	706,696	109,537	1.54
49	Omaha-Council Bluffs, NE-IA	971,637	106,287	1.06
50	McAllen-Edinburg-Mission, TX	880,356	105,587	1.17

FIGURE 21

MSA Population Growth 2010-2021 - Sorted by Compounded Annual Growth

	Geographic Area	2021 Population	2010-2021 Population Change	2010-2021 Population Change (CAGR %)
	United States	331,893,745	23,148,207	0.66
	In Metropolitan Statistical Area	286,472,775	23,376,106	0.78
1	The Villages, FL	135,638	42,218	3.45
2	St. George, UT	191,226	53,111	3.00
3	Austin-Round Rock-Georgetown, TX	2,352,426	636,137	2.91
4	Myrtle Beach-Conway-North Myrtle Beach, SC-NC	509,794	133,072	2.79
5	Greeley, CO	340,036	87,211	2.73
6	Provo-Orem, UT	697,141	170,331	2.58
7	Daphne-Fairhope-Foley, AL	239,294	57,029	2.51
8	Bend, OR	204,801	47,068	2.40
9	Coeur d'Alene, ID	179,789	41,295	2.40
10	Boise City, ID	795,268	178,707	2.34
11	Raleigh-Cary, NC	1,448,411	317,921	2.28
12	Fayetteville-Springdale-Rogers, AR	560,709	120,588	2.23
13	Cape Coral-Fort Myers, FL	787,976	169,222	2.22
14	Auburn-Opelika, AL	177,218	36,971	2.15
15	Orlando-Kissimmee-Sanford, FL	2,691,925	557,514	2.13
16	Lakeland-Winter Haven, FL	753,520	151,425	2.06
17	Crestview-Fort Walton Beach-Destin, FL	293,324	57,459	2.00
18	Sioux Falls, SD	281,958	53,697	1.94
19	North Port-Sarasota-Bradenton, FL	859,760	157,479	1.86
20	Charleston-North Charleston, SC	813,052	148,445	1.85
21	Nashville-Davidson--Murfreesboro--Franklin, TN	2,012,476	366,276	1.84
22	Midland, TX	173,180	31,509	1.84
23	Idaho Falls, ID	162,786	29,521	1.84
24	Dallas-Fort Worth-Arlington, TX	7,759,615	1,393,073	1.82
25	Punta Gorda, FL	194,843	34,865	1.81
26	Houston-The Woodlands-Sugar Land, TX	7,206,841	1,286,425	1.80
27	Jacksonville, FL	1,637,666	292,070	1.80
28	Kennewick-Richland, WA	308,293	54,953	1.80
29	Bismarck, ND	134,417	23,792	1.79
30	San Antonio-New Braunfels, TX	2,601,788	459,280	1.78
31	Logan, UT-ID	152,083	26,641	1.77
32	Fort Collins, CO	362,533	62,903	1.75
33	Fargo, ND-MN	252,136	43,359	1.73
34	Huntsville, AL	502,728	85,135	1.70
35	Charlotte-Concord-Gastonia, NC-SC	2,701,046	457,086	1.70
36	Naples-Marco Island, FL	385,980	64,460	1.68
37	Killeen-Temple, TX	486,101	80,801	1.67
38	Clarksville, TN-KY	328,304	54,355	1.66
39	College Station-Bryan, TX	272,041	43,381	1.59
40	Hilton Head Island-Bluffton, SC	222,072	35,062	1.57
41	Port St. Lucie, FL	503,521	79,414	1.57
42	Des Moines-West Des Moines, IA	719,146	112,671	1.56
43	Sebastian-Vero Beach, FL	163,662	25,634	1.56
44	Ogden-Clearfield, UT	706,696	109,537	1.54
45	Colorado Springs, CO	762,793	117,180	1.53
46	Spartanburg, SC	335,864	51,557	1.53
47	Olympia-Lacey-Tumwater, WA	297,977	45,713	1.53
48	Phoenix-Mesa-Chandler, AZ	4,946,145	753,258	1.51
49	Savannah, GA	410,008	62,397	1.51
50	Las Vegas-Henderson-Paradise, NV	2,292,476	341,207	1.48

FIGURE 22

Sunbelt MSAs on both Top 50 Absolute and Percent Growth Lists

MSAs	2010 Census	2020 Census	Total Population Change	Compounded Annual Growth Rate (%)	Natural Increase (Net Births)	Total Migration	Net Migration International	Domestic
United States	**308,745,538**	**331,501,080**	**22,755,542**	**0.71**	**12,257,668**	**8,468,350**	**8,468,350**	**0**
Total MSAs	**263,096,669**	**286,195,308**	**23,098,639**	**0.85**	**12,081,559**	**8,911,417**	**8,107,138**	**804,279**
Select Sunbelt MSAs	**34,840,761**	**42,113,200**	**7,272,439**	**1.91**	**2,413,832**	**5,149,290**	**1,366,553**	**3,782,737**
Austin	1,716,289	2,299,125	582,836	2.97	163,964	410,335	67,765	342,570
Cape Coral-Ft. Myers	618,754	764,679	145,925	2.14	-3,314	174,050	29,568	144,482
Charleston	664,607	802,961	138,354	1.91	38,017	115,721	11,247	104,474
Charlotte	2,243,960	2,669,665	425,705	1.75	120,201	318,467	58,476	259,991
Colorado Springs	645,613	756,573	110,960	1.60	50,936	57,145	12,001	45,144
Dallas-FW	6,366,542	7,662,325	1,295,783	1.87	562,335	763,593	256,511	507,082
Fayetteville	440,121	549,566	109,445	2.25	35,913	72,136	12,489	59,647
Houston	5,920,416	7,137,747	1,217,331	1.89	586,961	644,013	357,316	286,697
Jacksonville	1,345,596	1,611,388	265,792	1.82	56,224	185,756	38,792	146,964
Lakeland-Winter Haven	602,095	729,233	127,138	1.93	9,837	132,537	24,844	107,693
Las Vegas	1,951,269	2,273,386	322,117	1.54	113,611	250,044	35,102	214,942
Myrtle Beach	376,722	491,582	114,860	2.70	-5,729	142,172	3,661	138,511
Nashville	1,646,200	1,995,343	349,143	1.94	96,203	217,356	40,063	177,293
Northport-Sarasota	702,281	837,107	134,826	1.77	-31,879	183,136	18,797	164,339
Orlando	2,134,411	2,677,687	543,276	2.29	112,054	391,639	197,129	194,510
Phoenix	4,192,887	4,867,925	675,038	1.50	263,932	601,059	117,651	483,408
Raleigh	1,130,490	1,420,225	289,735	2.31	85,272	203,158	38,575	164,583
San Antonio	2,142,508	2,566,683	424,175	1.82	159,294	286,973	46,566	240,407

Estimates of the Components of Resident Population Change for Metropolitan Statistical Areas in the United States: April 1, 2010 to July 1, 2020 (CBSA-MET-EST2020-COMP)

Source: U.S. Census Bureau, Population Division; **Sunbelt states assumed to include NV, CO, AZ, NM, TX, OK, AK, LA, MS, TN, AL, GA, VA, NC, SC, and FL.

Note: Natural increase and net migration do not sum to the total change due to different vintages of the components versus the total.

FIGURE 23

Figure 23 and 24 detail the components of net migration for the 18 Sunbelt markets that saw both Top 50 absolute growth and Top 50 percentage growth from 2010-2021. Figure 23 details the components of growth from 2010-2020, while Figure 24 shows components of population change over the last year. Over both periods (2010-2020 and 2020-2021), population growth in the selected Sunbelt markets significantly outperformed growth in aggregated MSAs as well as the nation. In fact, from 2010-2020, population growth in the selected markets was more than 2.5 times that of the U.S. This trend was amplified by the pandemic, as evidenced in 2021 when the selected Sunbelt markets grew by 1.4% compared to U.S. and overall MSA population growth of just 0.1%.

Population growth in the selected Sunbelt markets significantly outperformed growth in aggregated MSAs.

MSAs	2020 Est.	2021 Est.	Total Population Change	Compounded Annual Growth Rate (%)	Natural Increase (Net Births)	Total Migration	Net Migration International	Domestic
							Cumulative Estimates of the Components of Population Change	
United States	331,501,080	331,893,745	392,665	0.12	148,043	244,622	244,622	(X)
Total MSAs	286,195,308	286,472,775	277,467	0.10	279,340	-1,493	231,980	-233,473
Select Sunbelt MSAs	42,113,200	42,698,419	585,219	1.39	115,334	466,124	44,781	421,343
Austin	2,299,125	2,352,426	53,301	2.32	11,145	42,541	2,277	40,264
Cape Coral-Ft. Myers	764,679	787,976	23,297	3.05	-3,184	26,813	949	25,864
Charleston	802,961	813,052	10,091	1.26	1,194	8,882	666	8,216
Charlotte	2,669,665	2,701,046	31,381	1.18	4,737	26,652	2,682	23,970
Colorado Springs	756,573	762,793	6,220	0.82	2,854	3,249	-41	3,290
Dallas-FW	7,662,325	7,759,615	97,290	1.27	35,344	62,921	8,602	54,319
Fayetteville	549,566	560,709	11,143	2.03	2,553	1,593	249	1,344
Houston	7,137,747	7,206,841	69,094	0.97	37,529	31,921	12,495	19,426
Jacksonville	1,611,388	1,637,666	26,278	1.63	621	25,857	1,042	24,815
Lakeland-Winter Haven	729,233	753,520	24,287	3.33	-876	25,517	578	24,939
Las Vegas	2,273,386	2,292,476	19,090	0.84	3,325	15,395	2,036	13,359
Myrtle Beach	491,582	509,794	18,212	3.70	-3,421	21,921	170	21,751
Nashville	1,995,343	2,012,476	17,133	0.86	4,296	13,234	906	12,328
Northport-Sarasota	837,107	859,760	22,653	2.71	-6,643	29,691	505	29,186
Orlando	2,677,687	2,691,925	14,238	0.53	4,477	9,939	5,920	4,019
Phoenix	4,867,925	4,946,145	78,220	1.61	8,142	70,097	3,247	66,850
Raleigh	1,420,225	1,448,411	28,186	1.98	4,943	23,279	1,536	21,743
San Antonio	2,566,683	2,601,788	35,105	1.37	8,298	26,622	962	25,660

Estimates of the Components of Resident Population Change for Metropolitan Statistical Areas in the United States: April 1, 2010 to July 1, 2020 (CBSA-MET-EST2020-COMP)

Source: U.S. Census Bureau, Population Division; **Sunbelt states assumed to include NV, CO, AZ, NM, TX, OK, AK, LA, MS, TN, AL, GA, VA, NC, SC, and FL.

FIGURE 24

Examining the percent share of the components of population change reveals that the selected Sunbelt markets benefitted greatly from in-migration, which accounted for 70% of the total change, over the last decade. Furthermore, 75% of the 70% were domestic movers. In comparison, only 38% of 2010-2020 population growth in MSAs overall was due to in-migration, 90% of which was driven by international movers. Net births accounted for more than half of the population growth seen in MSAs over the last decade. The picture is even starker during the pandemic, with 100% of growth in MSAs due to net birth in 2021. On net, MSAs saw population declines in 2021, with an 84% share of the total change in population moving out of MSAs. However, this was almost fully offset by international in-migration.

Select Sunbelt Markets: % Share of 2010-2020 Population Change* Due to:

	Net Births	Migration Total	Internat.	Domestic
U.S.	53.9	37.2	37.2	n/a
Total MSAs	52.3	38.6	35.1	3.5
Select Sunbelt MSAs	33.2	70.8	18.8	52.0
Austin	28.1	70.4	11.6	58.8
Cape Coral-Ft. Myers	-2.3	119.3	20.3	99.0
Charleston	27.5	83.6	8.1	75.5
Charlotte	28.2	74.8	13.7	61.1
Colorado Springs	45.9	51.5	10.8	40.7
Dallas-FW	43.4	58.9	19.8	39.1
Fayetteville	32.8	65.9	11.4	54.5
Houston	48.2	52.9	29.4	23.6
Jacksonville	21.2	69.9	14.6	55.3
Lakeland-Winter Haven	7.7	104.2	19.5	84.7
Las Vegas	35.3	77.6	10.9	66.7
Myrtle Beach	-5.0	123.8	3.2	120.6
Nashville	27.6	62.3	11.5	50.8
Northport-Sarasota	-23.6	135.8	13.9	121.9
Orlando	20.6	72.1	36.3	35.8
Phoenix	39.1	89.0	17.4	71.6
Raleigh	29.4	70.1	13.3	56.8
San Antonio	37.6	67.7	11.0	56.7

Source: Census, Linneman Assoc.

*Percent shares do not total 100% due to residual values reported by the Census and differences in the timing of component and total reporting.

**Sunbelt states assumed to include NV, CO, AZ, NM, TX, OK, AK, LA, MS, TN, AL, GA, VA, NC, SC, and FL

FIGURE 25

Select Sunbelt Markets: % Share of 2020-2021 Population Change* Due to:

	Net Births	Migration Total	Internat.	Domestic
U.S.	37.7	62.3	62.3	n/a
Total MSAs	100.7	-0.5	83.6	-84.1
Select Sunbelt MSAs	19.7	79.6	7.7	72.0
Austin	20.9	79.8	4.3	75.5
Cape Coral-Ft. Myers	-13.7	115.1	4.1	111.0
Charleston	11.8	88.0	6.6	81.4
Charlotte	15.1	84.9	8.5	76.4
Colorado Springs	45.9	52.2	-0.7	52.9
Dallas-FW	36.3	64.7	8.8	55.8
Fayetteville	22.9	14.3	2.2	12.1
Houston	54.3	46.2	18.1	28.1
Jacksonville	2.4	98.4	4.0	94.4
Lakeland-Winter Haven	-3.6	105.1	2.4	102.7
Las Vegas	17.4	80.6	10.7	70.0
Myrtle Beach	-18.8	120.4	0.9	119.4
Nashville	25.1	77.2	5.3	72.0
Northport-Sarasota	-29.3	131.1	2.2	128.8
Orlando	31.4	69.8	41.6	28.2
Phoenix	10.4	89.6	4.2	85.5
Raleigh	17.5	82.6	5.4	77.1
San Antonio	23.6	75.8	2.7	73.1

Source: Census, Linneman Assoc.

*Percent shares do not total 100% due to residual values reported by the Census and differences in the timing of component and total reporting.

**Sunbelt states assumed to include NV, CO, AZ, NM, TX, OK, AK, LA, MS, TN, AL, GA, VA, NC, SC, and FL

FIGURE 26

Similarly, eight of the top 10 states with net state-to-state migration from July 1, 2020-July 1, 2021 are in the Sunbelt, with Florida gaining over 220,000 residents from other states.

Linneman Associates expects population and economic growth in the Southeast and Texas to continue, driving demand for high quality multifamily housing. The region's warm and sunny weather, low taxes, and limited NIMBYism (which keeps living costs low) fuels growth. The low cost of living and of doing business will continue to be the key drivers of growth in the Southeast and Texas.

Notably, the region's net positive growth stems from both domestic and international movers. Residents move for the low cost of living and high quality of life, while businesses move to where there are low input costs, ample labor, and efficient transportation networks. The region is experiencing a rise in agglomeration economies, which occur as firms cluster in a location and share a large pool of input resources (including skilled labor), resulting in increased efficiency, greater innovation, and declining costs. This in turn attracts related firms, workers, and customers to accommodate further growth. BMW, Michelin, The Home Depot, The Coca-Cola Company, and Lowes are just a few of the corporate headquarters in the Southeast. Tellingly, within the last decade, Hertz and Mercedes Benz moved their headquarters from New Jersey to Florida and Georgia, respectively, saving on labor and input costs, as well as taxes. In addition, CoStar, a national real estate data company, opted to open its second headquarters in Richmond, Virginia, instead of expanding in Bethesda due to cost savings, lower density, and ample access to an educated workforce.

U.S. States by Net Domestic Migration (July 1, 2020-July 1, 2021)

	State	Net Dom. Migration
1	Florida	220,890
2	Texas	170,307
3	Arizona	93,026
4	North Carolina	88,673
5	South Carolina	64,833
6	Tennessee	61,390
7	Georgia	50,632
8	Idaho	48,876
9	Utah	32,200
10	Nevada	25,327

Source: Census, Wikipedia

FIGURE 27

Amazon and Facebook also recently opened substantial facilities in the Richmond MSA. Thus, with assets in Gateway cities priced to perfection, commercial real estate investors should and are looking south for growth opportunities, particularly in secondary and tertiary markets.

Many such markets are undergoing localized renaissances, neighborhood by neighborhood, transforming from obsolete industrial to trendy mixed-use. These neighborhoods provide a full range of work, residential, and entertainment space in an easily accessible urban setting, and are attracting companies, young professionals, and entrepreneurs. Scott's Addition, Richmond's fastest growing neighborhood, is an illustration of a formerly industrial area that has become urbanized and is now a popular and hip place to live, work and play. The economic benefits are being felt in in-fill urban locations as well as ex-urban and suburban communities throughout the Southeast. The southward population migration in combination with the fundamental stability of regional economies and the ongoing redevelopment of neighborhoods will drive long-term demand for high-end apartments sought by educated and affluent young professionals.

Scott's Addition, Richmond's fastest growing neighborhood, is an illustration of a formerly industrial area that has become urbanized and is now a popular and hip place to live, work and play.

Communities that embrace growth are communities with both high levels of latent demand and a willingness to approve growth. These areas also possess the social networks that tend to attract immigrants. Our research reveals that diverse local economies experience greater growth, as diversity increases the chance that an area is able to "ride the right horse." It is also true that the more diversified the economy, the less likely it is that an area becomes calcified by the social and political control of a single industry constituency. This is exemplified by Houston, which has boomed as it transformed from a pure play oil city to a more diversified economy, while New Orleans remained tied to the oil industry and stagnated. Atlanta, Austin, Charlotte, Raleigh-Durham, and Richmond are also examples of metro areas that have and continue to undergo economic rebirths.

MULTIFAMILY DEMAND PROJECTIONS USING POPULATION GROWTH

We use the 18 MSAs in the Sunbelt that achieve a top-50 standing for both absolute and relative net growth in population since 2010 as case studies to project the 5-year demand for multifamily units. Specifically, we apply the respective 2010-2021 compounded annual growth rates to 2021 populations and then use the MSA-specific average household size and homeownership rates to arrive at expected multifamily households. We also adjust for the units each market needs to achieve 5% vacancy, which we use is a proxy for a balanced market. Lastly, we assume obsolescence of about 0.3% of inventory each year. Based on this analysis, Houston, Austin, Dallas-Ft. Worth, Las Vegas, and San Antonio are expected to experience the greatest multifamily supply shortfalls over the next five years. In contrast, Nashville and Charlotte will be oversupplied given current demand and supply expectations.

5-Year Multifamily Demand Projections Based on Population Growth (2022-2026)

MSA	2021 Population	2010-2021 CAGR (%)	Proj. 5-Yr Pop Growth*	Avg. HH Size	Proj. New HHs	4Q21 HO Rate (%)	Proj. 5-Yr Rental HH Demand	Mkt Balance Adj to 5% Vac**	Proj. 5-Yr Obsol Replace***	Total Proj. Demand	Proj. 5-Yr Pipeline	Proj. 5-Yr Pipeline Shortfall / (Excess)
Austin	2,352,426	2.9	362,480	2.39	151,665	59.0	62,183	2,711	4,116	69,009	49,649	19,360
Cape Coral	787,976	2.2	91,528	2.82	32,457	77.5	7,303	433	463	8,198	7,700	498
Charleston	813,052	1.8	78,025	2.45	31,847	76.2	7,580	1,741	981	10,301	11,161	-860
Charlotte	2,701,046	1.7	237,487	2.46	96,539	72.9	26,162	3,103	3,225	32,489	38,488	-5,999
Colorado Springs	762,793	1.5	60,077	2.47	24,323	65.8	8,318	404	742	9,464	8,906	558
Dallas-FW	7,759,615	1.8	730,279	2.54	287,511	62.0	109,254	4,739	12,630	126,623	109,317	17,306
Fayetteville	560,709	2.2	65,242	2.43	26,848	60.7	10,551	-213	569	10,907	4,980	5,927
Houston	7,206,841	1.8	673,769	2.59	260,142	61.4	100,415	13,702	10,260	124,377	72,483	51,894
Jacksonville	1,637,666	1.8	152,952	2.45	62,429	66.7	20,789	198	1,604	22,591	15,915	6,676
Lakeland	753,520	2.1	80,893	3.06	26,436	69.5	8,063	-45	376	8,393	4,738	3,655
Las Vegas	2,292,476	1.5	174,230	2.66	65,500	58.1	27,444	-174	2,696	29,967	14,199	15,768
Myrtle Beach	509,794	2.8	75,144	2.60	28,902	76.0	6,936	-44	287	7,179	7,300	-121
Nashville	2,012,476	1.8	192,424	2.36	81,536	70.7	23,890	847	2,436	27,172	36,981	-9,809
North Port	859,760	1.9	82,816	2.57	32,224	79.8	6,509	-797	562	6,274	5,520	754
Orlando	2,691,925	2.1	299,474	2.77	108,113	62.9	40,110	375	3,095	43,580	35,549	8,031
Phoenix	4,946,145	1.5	385,757	2.67	144,478	66.3	48,689	686	5,572	54,947	52,098	2,849
Raleigh	1,448,411	2.3	172,698	2.41	71,659	66.2	24,221	109	1,816	26,146	22,550	3,596
San Antonio	2,601,788	1.8	240,137	2.71	88,611	65.1	30,925	1,382	3,128	35,436	25,350	10,086

Source: Linneman Associates LLC, Census, 2022 American Community Survey, Costar (Pipeline, Inventory, Vacancy)

* Assumed to grow at the historical 10-year compounded annual growth rate (Linneman Assoc)

**Market balance adj = units needed to achieve 5% vacancy rate

***Obsolescence assumed to be 0.295% of inventory per year

FIGURE 28

Projected Multifamily Supply Pipeline (Units)

	2022	2023	2024	2025	2026	5-Yr Total
Austin	14,603	10,072	8,146	8,637	8,191	**49,649**
Cape Coral	1,526	922	1,550	1,840	1,862	**7,700**
Charleston	1,408	3,073	1,951	2,372	2,357	**11,161**
Charlotte	9,956	7,740	7,605	6,834	6,353	**38,488**
Colorado Springs	1,352	2,647	1,799	1,543	1,565	**8,906**
Dallas-FW	21,558	23,246	22,559	22,100	19,854	**109,317**
Fayetteville	1,201	906	838	1,015	1,020	**4,980**
Houston	13,969	14,131	14,668	15,339	14,376	**72,483**
Jacksonville	4,077	2,990	2,751	3,105	2,992	**15,915**
Lakeland	998	811	877	1,018	1,034	**4,738**
Las Vegas	3,240	2,301	2,898	2,850	2,910	**14,199**
Myrtle Beach	2,165	1,371	1,107	1,323	1,334	**7,300**
Nashville	10,046	8,531	5,403	6,492	6,509	**36,981**
North Port	1,735	507	973	1,157	1,148	**5,520**
Orlando	8,815	7,662	5,897	6,772	6,403	**35,549**
Phoenix	15,418	12,199	7,630	8,547	8,304	**52,098**
Raleigh	4,679	5,967	4,072	4,151	3,681	**22,550**
San Antonio	5,372	3,814	4,444	5,738	5,982	**25,350**

Source: Costar

FIGURE 29

Units to Achieve Market Balance

	4Q21 Inventory	4Q21 Vacancy %	Mkt Balance Adj to 5% Vac*
Austin	246,416	6.1%	2,711
Cape Coral	27,063	6.6%	433
Charleston	60,029	7.9%	1,741
Charlotte	193,908	6.6%	3,103
Colorado Springs	44,834	5.9%	404
Dallas-FW	789,754	5.6%	4,739
Fayetteville	35,531	4.4%	-213
Houston	652,483	7.1%	13,702
Jacksonville	98,811	5.2%	198
Lakeland	22,701	4.8%	-45
Las Vegas	174,259	4.9%	-174
Myrtle Beach	14,729	4.7%	-44
Nashville	141,111	5.6%	847
North Port	34,659	2.7%	-797
Orlando	187,375	5.2%	375
Phoenix	342,919	5.2%	686
Raleigh	108,826	5.1%	109
San Antonio	197,487	5.7%	1,382

Source: Costar, Linneman Assoc.

*Market balance adj = units needed to achieve 5% vacancy rate

FIGURE 30

MULTIFAMILY DEMAND PROJECTIONS USING EMPLOYMENT GROWTH

Richmond Case Study

We ran a similar analysis for Richmond, VA. As the capital of Virginia, Richmond benefits from continued growth of D.C. and Northern Virginia. The metro also has a low cost of doing business, including a 6% corporate tax rate and electric rates that are 30% below the national average. It is also home to numerous universities. Linneman Associates' Richmond analysis reveals an expected oversupply of about 4,200 units (4.5% of inventory) over the next five years. This assumes that 100% of the 3,709 units under construction, 50% of the 7,579 planned units, and 25% of the 19,726 prospective units are completed. The prospective unit pipeline has more than doubled over the last year, resulting in a potential oversupply.

Richmond Beta Analysis Employment Projection

(Jobs in thousands)

U.S.

4Q21 Employment	149,240
Proj. 4Q26 Employment	161,879
Proj. New Jobs Thru 2026	12,639
Proj. Job Growth (%) Thru 2026	8.5%

Richmond MSA

Employment Alpha	0.14
Employment Beta	0.88
Proj. Job Growth (%) Thru 2026	8.2%
Est. Non-Construction Jobs as of 4Q21	616
Proj. New Non-Construction Jobs (beta	50
Est. Payroll Jobs as of 4Q21	652
Proj. New Total Payroll Jobs (beta)	53

Source: BLS, Linneman Associates
Estim. MSA and Actual U.S. payroll data through December 2021

Richmond Metro Area Multifamily Demand-Supply Analysis

	Beta Forecast	Statistical	Average
New Non-Construction Job Forecast Thru 2026 (000s	50	65	58
Multifamily Market			
Historical Occupied MF Units/Worker	0.145	0.145	0.145
Projected MF Demand (Units)	7,281	9,443	8,362
Pipeline as of 4Q21*	12,430	12,430	12,430
Supply (Shortage)/Overage	*5,149*	*2,987*	*4,068*
MF Inventory	93,102	93,102	93,102
MF Demand as % of Inventory	7.8%	10.1%	9.0%
MF Pipeline as % of Inventory	13.4%	13.4%	13.4%
Supply Excess/(Shortage) as a % of Inventory (bps)	550	320	440

Source: BLS, Berkadia Linneman Associates
*Pipeline: 3,709 units U/C + 50% of 7,579 planned + 25% of 19,726 prospective

FIGURE 31

Richmond payroll employment stood at 668,000 in January 2022, reflecting the recovery of 35,000 jobs since the shutdown low seen in April. The current level is just 3.5% below pre-pandemic employment in the MSA. Since 1990, the Richmond MSA unemployment rate has been, on average, 150 bps lower than the national rate. The MSA and U.S. unemployment rates were 2.8% and 3.5%, respectively, prior to the pandemic shutdown. They rose to 11.7% and 14.8%, respectively, and stood at 3.5% and 4.0% in January and February 2022, respectively.

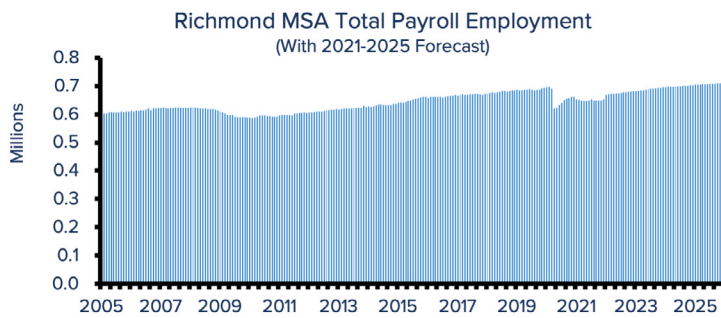> ## Since 1990, the Richmond MSA unemployment rate has been, on average, 150 bps lower than the national rate.

Richmond MSA Total Payroll Employment
(With 2021-2025 Forecast)

FIGURE 32

Richmond MSA vs. U.S. Unemployment Rate
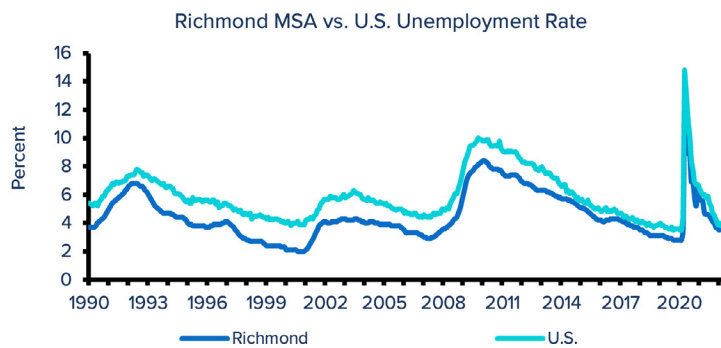

Richmond ——— U.S.

FIGURE 33

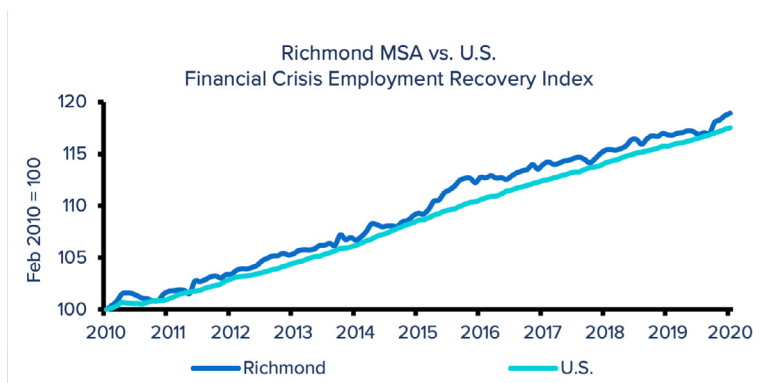Based on our alpha-beta model, Linneman Associates projects that the MSA will add 48,000 jobs over the next 5 years, fueling economic growth and demand for multifamily housing. With an empl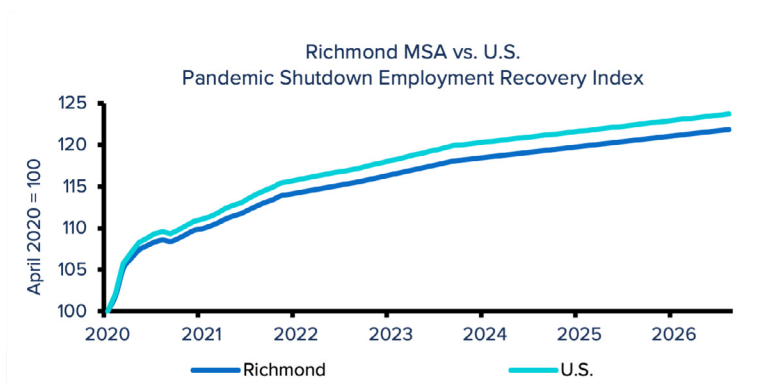oyment beta of 0.88, Richmond's employment base generally increases or decreases 12% below national growth on a percentage basis. As a capital city, Richmond benefits from the stability of the government sector and is somewhat insulated from large economic swings (in either direction). During the recovery from the Financial Crisis, Richmond employment modestly outperformed national job grow, but modestly lags (as expected based on a beta of 0.88) during the pandemic recovery. The MSA has an alpha of 0.14 and a break-even point of -0.16. The alpha indicates that even when national employment growth is zero, Richmond area employment is still expected to grow by 0.14% per year. The breakeven point indicates that U.S. employment can decrease by as much as 0.16%, and Richmond employment growth would still be positive.

> Linneman Associates projects that the MSA will add **48,000 jobs over the next 5 years**, fueling economic growth and demand for multifamily housing.

Richmond MSA vs. U.S.
Financial Crisis Employment Recovery Index

FIGURE 34

Richmond MSA vs. U.S.
Pandemic Shutdown Employment Recovery Index

FIGURE 35

As a pipeline benchmark, the Richmond MSA has averaged 1,127 multifamily unit (in structures with 5+ units) permits annually since 1995. The 25-year low of 75 was seen 2000, while the region reached a high of 3,489 units permitted in 2019. In 2021, 3,197 multifamily permits were issued, which is 184% above the long-term average.

Average real asking rents (in 2020 dollars) per unit in the MSA are at $1,226 per unit in 2021. This is in comparison to the historical low of $1,028 per unit and the 2019 high of $1,246. The 2000-2022 average is $1,113 per unit. Multifamily rents in the MSA are on a long-term upward trend, despite modest dips occurring during recessionary periods.

"Multifamily rents in the MSA are on a long-term upward trend.

Richmond MSA Multifamily Unit Permits
(In Structures with 5+ Units)

Richmond MSA Asking Rent Per Unit
(Actual thru 4Q21, projected thereafter)

Actual — Min — Average — Max
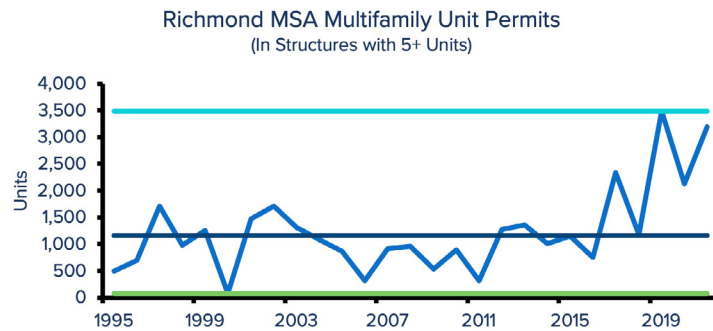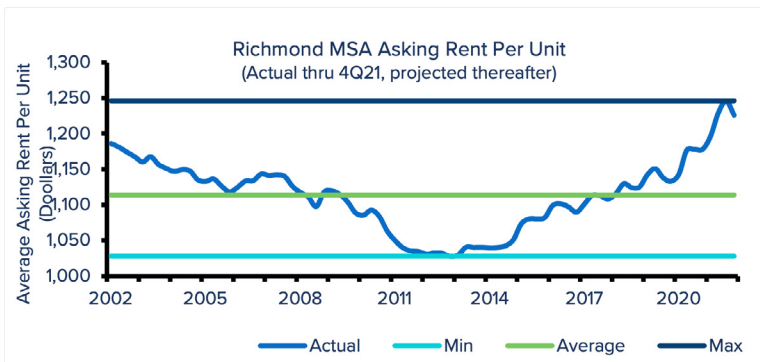
While sales transaction data is limited for the Richmond multifamily investment market, Costar reports that the average price per unit (real 2020 dollars) was $175,000 in the fourth quarter of 2021. This is in comparison to $158,000 and $166,000 per unit in the prior year and quarter, respectively. Four-quarter rolling sales volume peaked in 2019 and stood at $942 million in the fourth quarter of 2021.

With its educated labor pool, low cost of living and doing business, strong ties to the federal government, and moderate climate, Virginia is an attractive place to live and conduct business. Linneman Associates has a long-term positive outlook for Richmond's multifamily investment market.

Richmond Multifamily Sale Pricing
(With Min, Max, Mean, Real - 2020 $)

Richmond — Richmond Avg — U.S.

Source: Costar

Richmond Multifamily 4-Qtr Rolling Sale Volume
(With Min, Max, Mean, Real - 2020 $)

Richmond — Richmond Avg

Source: Costar
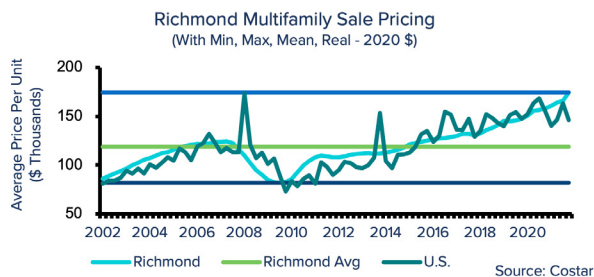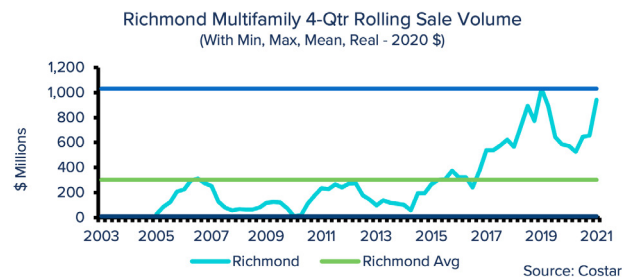
Houston Case Study

Linneman Associates forecasts MSA employment using two methods: a statistical analysis and an alpha-beta analysis. The alpha-beta analysis examines how employment in a given MSA is expected to perform based on U.S. employment trends. We calculated a statistical equation, which summarizes how a 100-basis point change in the national variable affects the local indicator. The equation consists of a constant ("alpha") and a "beta", which is a multiplier applied to the national percent change in employment. The alpha indicates MSA growth that is independent of national growth. Our statistical regression forecast is net of construction jobs due to the volatility and short-term nature of that sector. Using currently "out of favor" Houston as a case study, Linneman Associates' statistical analysis forecasts that the MSA will add about 480,000 non-construction jobs through 2026. Linneman Associates' "beta" or covariance analysis examines how various economic indicators behave in individual metropolitan areas based on national economic changes.

Houston Beta Analysis Employment Projection	
(Jobs in thousands)	
U.S.	
4Q21 Employment	149,240
Proj. 4Q26 Employment	161,879
Proj. New Jobs Thru 2026	12,639
Proj. Job Growth (%) Thru 2026	8.5%
Houston MSA	
Employment Alpha	0.93
Employment Beta	0.88
Proj. Job Growth (%) Thru 2026	12.4%
Est. Non-Construction Jobs as of 4Q21	2,840
Proj. New Non-Construction Jobs (beta)	353
Est. Payroll Jobs as of 4Q21	3,129
Proj. New Total Payroll Jobs (beta)	389

Source: BLS, Linneman Associates
Estim. MSA and Actual U.S. payroll data through December 2021

Houston Metro Area Multifamily Demand-Supply Analysis			
	Forecast Methodology		
	Beta	**Statistical**	**Average**
New Non-Construction Job Forecast Thru 2026 (000s)	353	377	365
Multifamily Market			
Historical Occupied MF Units/Worker	0.227	0.227	0.227
Projected MF Demand (Units)	80,350	85,767	83,058
Pipeline as of 4Q21	72,483	72,483	72,483
Supply (Shortage)/Overage	*-7,867*	*-13,284*	*-10,575*
MF Inventory	652,518	652,518	652,518
MF Demand as % of Inventory	12.3%	13.1%	12.7%
MF Pipeline as % of Inventory	11.1%	11.1%	11.1%
Supply Excess/(Shortage) as a % of Inventory (bps)	-120	-200	-160

Source: BLS, Costar, Linneman Associates

FIGURE 40

Based on Linneman Associates' estimate that U.S. employment will grow by 12.1 million jobs, or 8.1% of the national employment base, through 2026, Houston's non-construction job base is expected to grow by a corresponding 344,000 (12.1%) over the same period. Thus, the statistical (377,000 new jobs) and the beta (344,000) methods project similar 5-year job growth in Houston, with an average of 361,000 new non-construction jobs by year-end 2026. With projected employment, we apply the historical ratio of occupied multifamily units per worker for Houston (a ratio that changes very little over time) to arrive at about 82,000 projected multifamily units through 2026. Note that this is below but in the neighborhood of the 100,000 units projected based on the population forecast method. On the supply side, as shown in figure 29, the 5-year Houston multifamily construction pipeline is just over 72,000 units. Thus, comparing the demand projections to the construction pipeline in Houston reveals a 9,500-unit multifamily supply shortfall, or 1.5% of inventory, through 2026. Factoring in the market balance and obsolescence adjustments discussed in the population-driven analysis would provide another 350-bp demand cushion.

DEMOGRAPHIC TRENDS FUEL RENTAL DEMAND

When discussing multifamily demand, it is impossible to avoid the 62 million strong Millennial generation (born 1981-1996 according to Pew Research), who are 26 to 41 years old and appeared to be in no rush to experience homeownership until involuntary savings suddenly materialized. The Millennials (Gen Y) averaged 3.87 million births per year in the U.S., a level not seen since the Baby Boom. And while much is made of the Millennials, they are not the only ones driving multifamily demand. Notably, their successors in Gen Z (born 1997-2012), the leading edge of which is in its prime renting age, averaged 4.08 million births per year. This is also higher than average annual births during the Baby Boom (3.99 million per year). In aggregate, the Millennial generation had nearly 62 million births, while Gen Z had 65.3 million births. In addition, we expect that Gen Z will have about the same rental propensities as the Millennials as more of them enter adulthood.
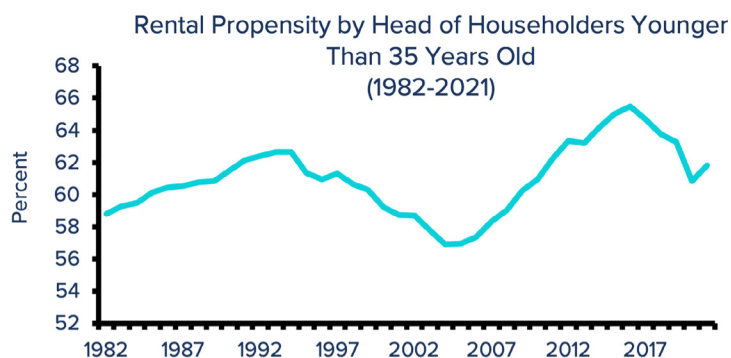

FIGURE 41

FIGURE 42

**Rental Propensity by Head of Householders Younger Than 35 Years Old (1982-2021)**
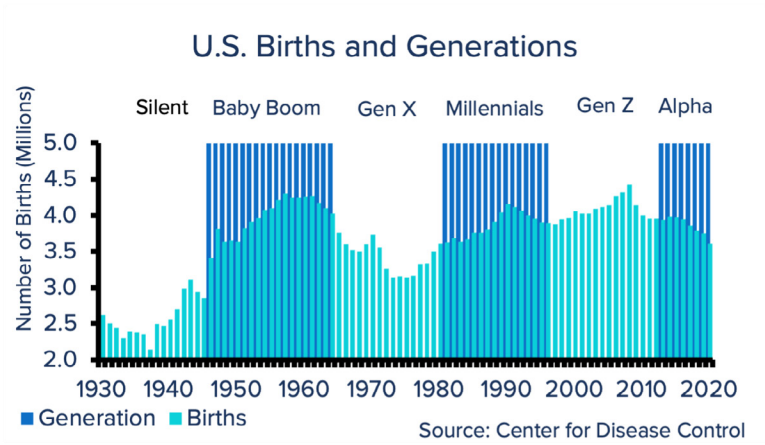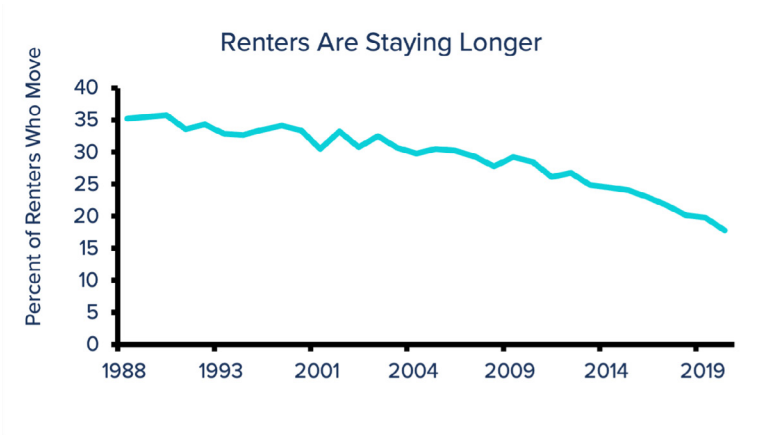
Source: Linneman, Census HVS

FIGURE 43

The rental propensity rate for heads of household below 35 years old steadily increased from 2004-2016, to 65.5%. This was partially out of necessity, as younger generations are increasingly saddled with student debt (though much has been forgiven) and, prior to COVID-19, had been unable to assemble the requisite down payment. Since the 2016 high, the below-35-year-old rental propensity rate steadily dropped to 60.9% through 2020. It reversed course in 2021, to 61.8%, and is 80 bps above the long-term average (1982-2022).

Further exacerbating housing choices, home prices are at all-time highs, while real wage growth is challenged by high consumer price inflation. As a result, renters are staying put for a longer period of time than previous generations. According to the U.S. Census Current Population Survey, 35.2% of renters who had been in their homes for at least a year in 1987 moved somewhere else in 1988. In contrast, this rate was cut nearly in half, to 17.8%, between 2019 and 2020.

Rental Propensity by Age of Householder (1982-2021)
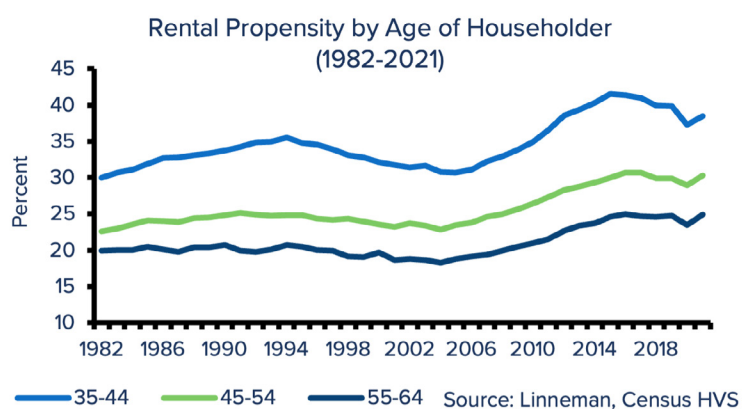
35-44   45-54   55-64   Source: Linneman, Census HVS

FIGURE 44

Further exacerbating housing choices, **home prices are at all-time highs**, while real wage growth is challenged by high consumer price inflation.

Rental Propensity by Head of Households Older Than 65 Years Old (1982-2021)
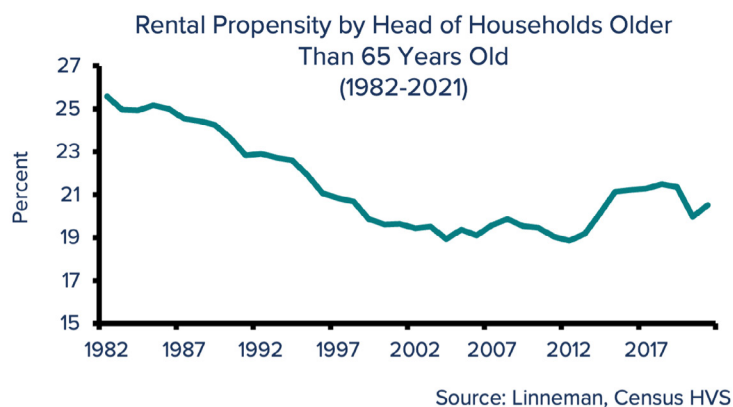
Source: Linneman, Census HVS

FIGURE 45

Rental propensity rates for heads of households older than 65 rose in 2012-2019 but dropped during the pandemic in 2020. This again reversed in 2021, with all major age cohorts experiencing rental propensity rate increases. The 65+ age cohort' rental propensity rate rose by 50 bps in 2021, to 20.5%, and is 10 bps above where it stood in 2019.

Retiring Boomers (born 1946-1964) seek to locate where it is warm and close to their grandchildren, which bodes well for the Southeast and Texas, particularly the drier parts.

In addition, Boomers will age with greater wealth and income than any previous generation. Thus, they will desire easy-to-navigate, warm, safe communities that provide all of their preferred creature comforts. But as Boomers age, they will also seek access to the best medical facilities in the world. The emergence of high-quality medical facilities throughout the Southeast and Texas, such as in Richmond, Virginia and the Research Triangle in North Carolina, will be a key box to check off for the retiree population.

CONCLUSION

The U.S. economy is poised for long-term growth, with several sectors including housing and autos experiencing significant pent-up production and demand. The pandemic -- not cyclical factors – interrupted the nation's decade-long economic recovery, resulting in both U.S. GDP and employment standing below trend at year-end 2021. The U.S. will see above normal growth for the next two years as it makes up for these shortfalls.

Economic Forecast					
	2022	2023	2024	2025	2026
GDP Growth (%)	3.5	3.5	2.5	2.5	2.5
New Jobs (000s	3,500	3,500	1,700	1,700	1,700
CPI (%)	3.5	3.5	2.5	2.5	2.5

Source: Linneman Assoc.

FIGURE 46

The multifamily sector will be a key driver of growth due to pent-up household formations and a cumulative under-production of units since the Financial Crisis. The sector has significant tailwinds including: a supply shortage, an aging inventory, favorable demographics, and a wall of capital (resulting from unprecedented quantitative easing).

With short-term leases (to hedge inflation), diversified tenancy (versus a handful of anchor tenants), low tenant improvement and capex requirements, high NOI-to-cash flow margins relative to other CRE sectors, a deep capital pool due to Freddie and Fannie, and consistently strong returns relative to other sectors, multifamily continues to be an attractive asset class.

The long-term migration trend toward the Southeast and Texas are well established and only accelerated during the pandemic. Because the single most important statistical factor in determining future population growth is past growth, the MSAs throughout the Sunbelt are particularly attractive multifamily investment markets. These markets will be a major beneficiaries of U.S. growth due to the long-standing migration trends, an openness to growth (versus NIMBYism on the coasts), lower costs of living and doing business, temperate weather, and an aging housing stock.

If long rates rise by 100 bps, spreads will narrow by at least 30 bps, resulting in a 70-bp net interest rate increase. But excess reserves in the system are so high (literally endless) that even if some highly leveraged financial investors implode due to the rate rise, it will not endanger the banking system. QE Infinity keeps banks awash with liquidity which will ultimately chase assets. Our research with Matt Larriva of FCP suggests that a 100-bp increase in the Linneman Real Estate Index (the ratio of real estate debt to GDP) results in a 22-bp decline in multifamily cap rates (all else being equal). This means that as QE Infinity injections come out as loans, a 200-300-bp increase in the LREI will generate a 10% reduction in apartment cap rates in 5-7 years. A lower cap rate will tighten spreads, but the open lending spigots of Freddie and Fannie will especially benefit the multifamily sector.

Linneman Associates examined the historical relationship between employment growth and commercial property vacancy rates and determined that over the long term, for every 100-bp (1%) increase in U.S. employment, the U.S. multifamily vacancy rate declines by 26 bps. Linneman Associates projects that the U.S. will add 12.1 million net new jobs in 2022-2026, resulting in an anticipated decline of 210 bps in the U.S. multifamily vacancy over that period.

"For every 100-bp (1%) increase in U.S. employment, the U.S. multifamily vacancy rate declines by 26 bps. Linneman Associates projects that the U.S. will add 12.1 million net new jobs in 2022-2026, resulting in an anticipated decline of 210 bps in the U.S. multifamily vacancy over that period.

ABOUT LINNEMAN ASSOCIATES, LLC

Founded in 1979, Linneman Associates, LLC is a premier consulting and research firm, specializing in commercial real estate investment strategy. Our clients represent a wide range of industries and countries, but primarily include institutional investors, REITs, developers, and opportunistic private equity firms seeking to implement thoughtful and disciplined investment strategies. Our clients value our market insights and analyses as well as our ability to assess and simplify the ever-changing macroeconomic, political, and capital market environments, particularly as they relate to commercial real estate investing.

Over his more than four-decade career, Dr. Peter Linneman has been a critical influence in the professionalization of real estate capital markets and the commercial real estate industry. Thousands of global and regional real estate investment professionals look to Linneman Associates, LLC's insights each quarter through subscriptions to The Linneman Letter and his webinars.

Dr. Linneman's highly regarded textbook, Real Estate Finance and Investments: Risks and Opportunities is widely adopted by universities and corporate training programs. Now in edition 5.1, the textbook includes a robust online companion with supplemental materials for teachers and students. This book, an encapsulation of his long-time popular Wharton course, includes and analysis of corporate real estate decisions.