



Amherst

2021 Market Outlook

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Executive Summary

Executive Summary



MACRO OVERVIEW

A MULTI-TRACK RECOVERY

- Financial markets have outpaced recovery in the real economy, driven both by Fed balance sheet expansion and stimulative fiscal policy response
- Stocks are at all-time highs even as 40% of jobs lost in the pandemic have not yet been recovered
- Job losses have been concentrated in the lower-income ranges; many office workers transitioned to work-from-home
- While renters are generally more financially burdened and vulnerable, much of the initial policy response to the pandemic has focused on homeowners



U.S. SINGLE-FAMILY HOUSING

HOUSING STRENGTH WILL PERSIST INTO 2021

- Despite an economy with 8-9 million fewer jobs and continued pressures from the pandemic, the single-family housing market maintained strong performance in 2020
- Low interest rates, demand for space driven by the shift to work-from-home and a supply-constrained market have all contributed to strong sales and rental performance
- We expect persistent supply constraints, supportive demographics and positive momentum to lead to another strong year in 2021

BUILDING A DIVERSIFIED SFR PORTFOLIO

- As single-family rental (SFR) grows as an institutional asset class, it is important to follow a systematic approach to portfolio construction that optimizes risk-adjusted returns with a focus on durable cashflows
- Robust, liquid debt markets currently provide attractive long-term financing options, which may enhance equity returns for SFR

Source: Amherst estimates as of January 2021 based on publicly available information



Executive Summary



U.S. COMMERCIAL REAL ESTATE

LONG-TERM DEMAND SHIFTS WILL SEPARATE WINNERS AND LOSERS

- CRE sectors have seen a multi-track recovery with industrial leading the way, while hotels, office and retail have taken the brunt of the pandemic-led falloff in demand
- As the economy recovers post-vaccines, these demand shifts will lead to strong repositioning activity
- We expect this repositioning and adaptive re-use to drive demand for both value-add equity capital and transitional loans in 2021 and beyond



SECURITIZED PRODUCTS

LOW RATES AND EVEN LOWER SPREADS

- The post-pandemic recovery has been steep, driven mostly by supportive monetary and fiscal policy
- Agency MBS valuations are rich and much of the Agency universe remains re-financeable; A taper-tantrum 2.0 scenario has the potential to add spread volatility to this market
- AAA CMBS/SFR residential credit spreads offer a decent pickup vs. Agency MBS, but going lower in securitized credit does not offer commensurate rewards
- Our research finds that the best opportunities for higher yields are in private transactions outside the securitized space, such as transitional loans



Source: Amherst estimates as of January 2021 based on publicly available information



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Multi-Track Recovery

Markets recovered sharply over 2H 2020 even as the real economy lagged

- Supported substantially by Fed asset purchases, the markets have looked past the pandemic towards the anticipated recovery in 2021 and beyond
- SPX 500 index up 16% for 2020 after hitting lows in late March (down ~31% vs. YE 2019)
- Economic fundamentals continue to lag

METRIC		2014	2015	2016	2017	2018	2019	2020
ECONOMIC FUNDAMENTALS	GDP Y-o-Y Growth(%)	2.9%	2.2%	2.1%	2.7%	2.5%	2.3%	-2.9%
	Non-Farm Payrolls Monthly Average (000s)	250	227	195	176	193	178	-852
	Commercial Property Price Growth (%)	11.1%	8.6%	7.6%	8.1%	7.2%	6.4%	3.6%
CAPITAL MARKETS	S&P 500 Price Return	11%	-1%	10%	19%	-6%	29%	16%
	CDX IG Spread Change (bp)	4	22	-21	-19	39	-42	5
	CDX HY Spread Change (bp)	52	113	-115	-48	143	-169	13
	CMBS BBB Spread Change (bp)	-12	212	-75	-135	60	-135	150
CONSUMER CONFIDENCE	University of Michigan Consumer Sentiment (avg)	2	9	-1	5	2	-2	-14
	Conference Board Consumer Confidence Index (avg)	9	11	2	21	10	-2	-26

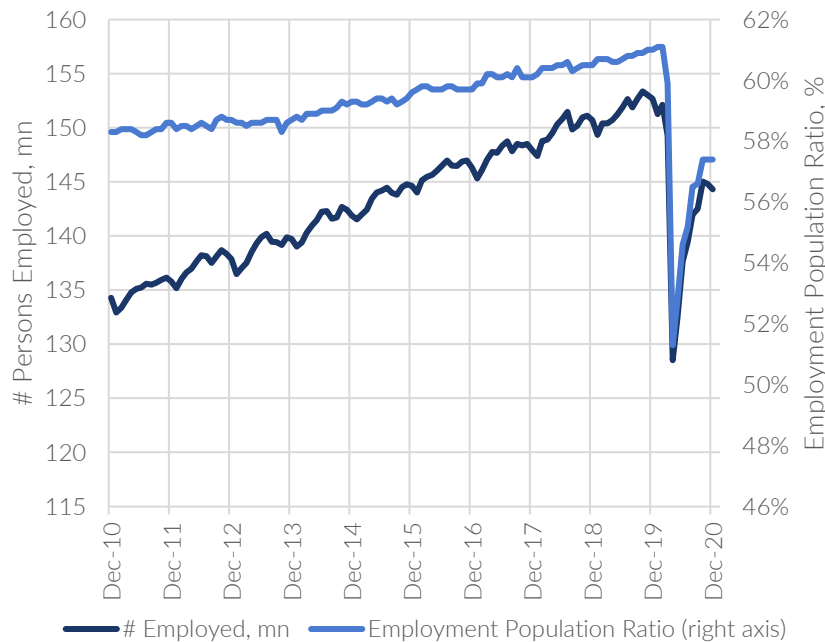
Source: Bloomberg, US Bureau of Economic Analysis, US Bureau of Labor Statistics, RCA, University of Michigan, Conference Board as of Dec 2020



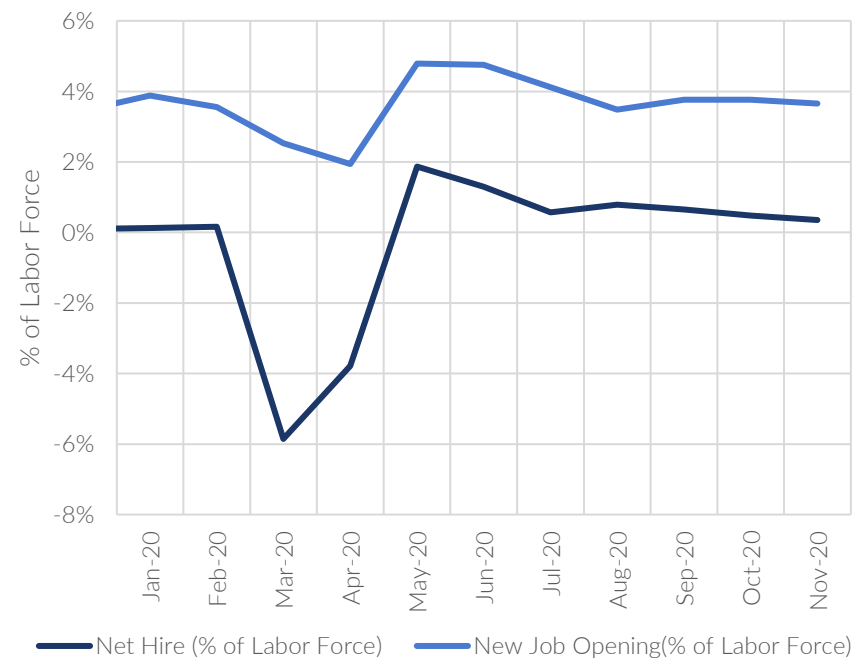
Employment is still lagging with ~40% of lost jobs still missing

- After an initial COVID-related economic shock (10pp drop from 61.2% to 51.3%), the employment-population ratio has recovered about 6pp to 57.3%
- ~4% of the working age population (8-9mn people) are still out of a job vs. pre-COVID levels

60% OF THE JOB LOSSES RECOVERED



NET HIRES, JOB LISTINGS AS % OF TOTAL LABOR FORCE

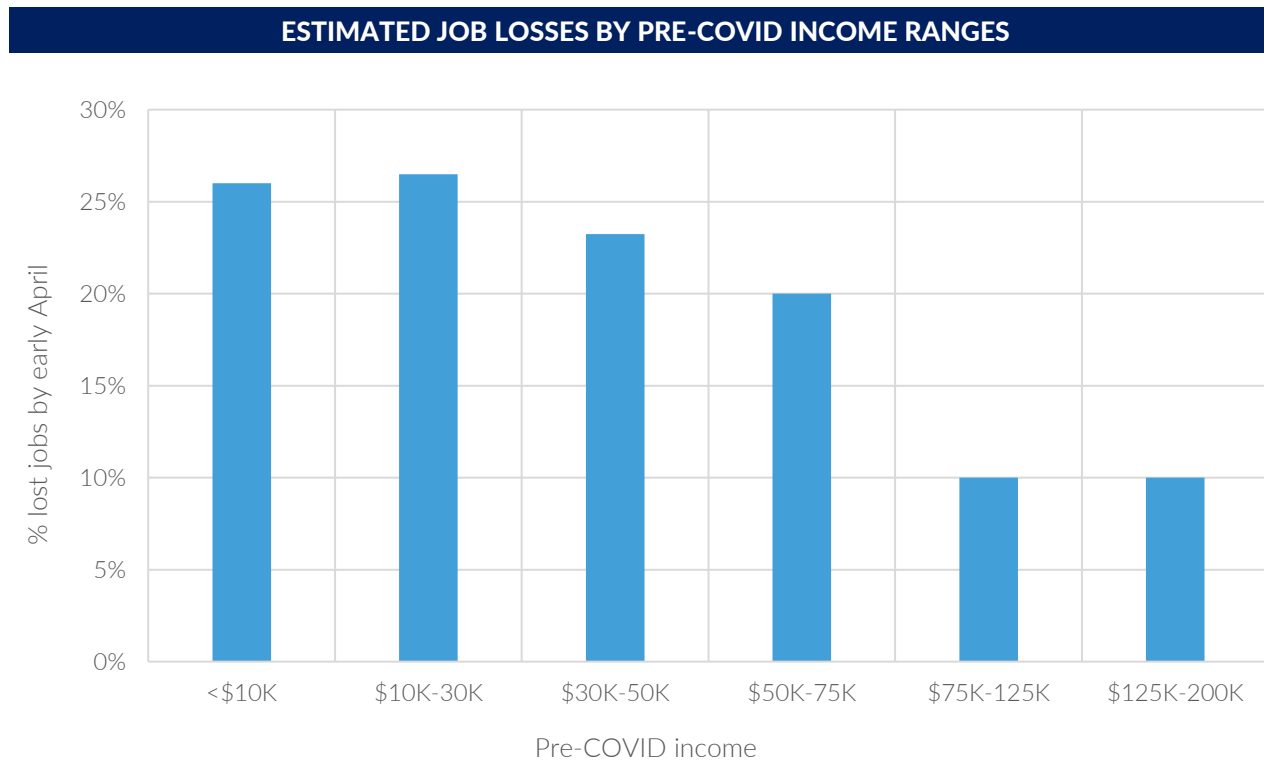


Source: US Bureau of Labor Statistics, as of January 2021



Job losses are concentrated in lower-income ranges

- Initial job losses were concentrated in the lower-income and hourly ranges; most office workers were able to transition to a 'work-from-home' environment
- This bifurcation of job losses by income range is leading to a varied recovery



Source: <https://voxeu.org/article/large-and-unequal-impact-covid-19-workers>

Note: Based on Amherst's extrapolations from a VoxEU & CEPR survey of 4,003 people in the US conducted in late March 2020.



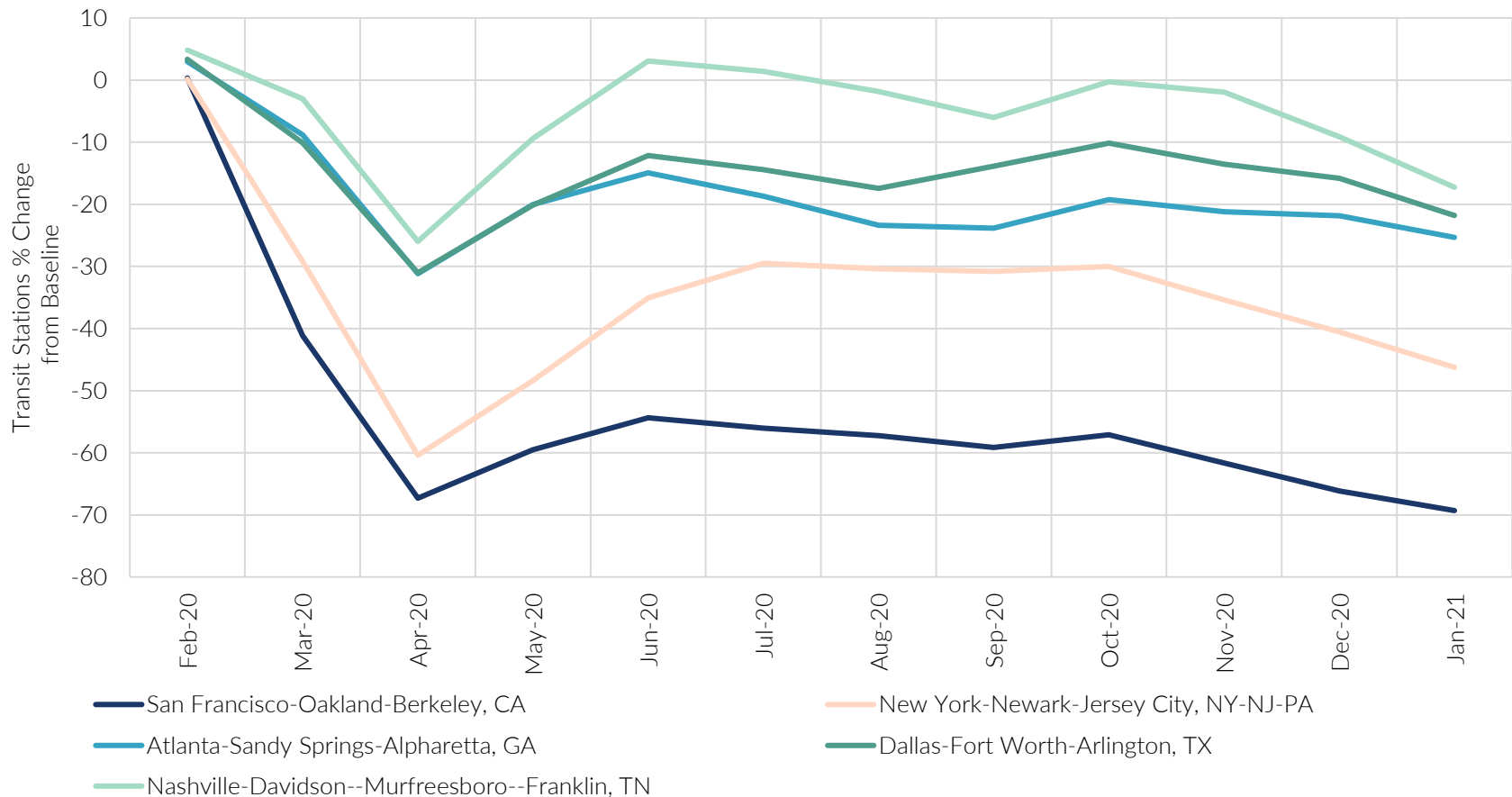


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How Has the World Changed Post-Pandemic?

Transit usage has dropped

- In April, transit usage dropped 30-70% from pre-COVID levels
- As of Jan 2021, transit activity still has not recovered to pre-COVID levels in many markets

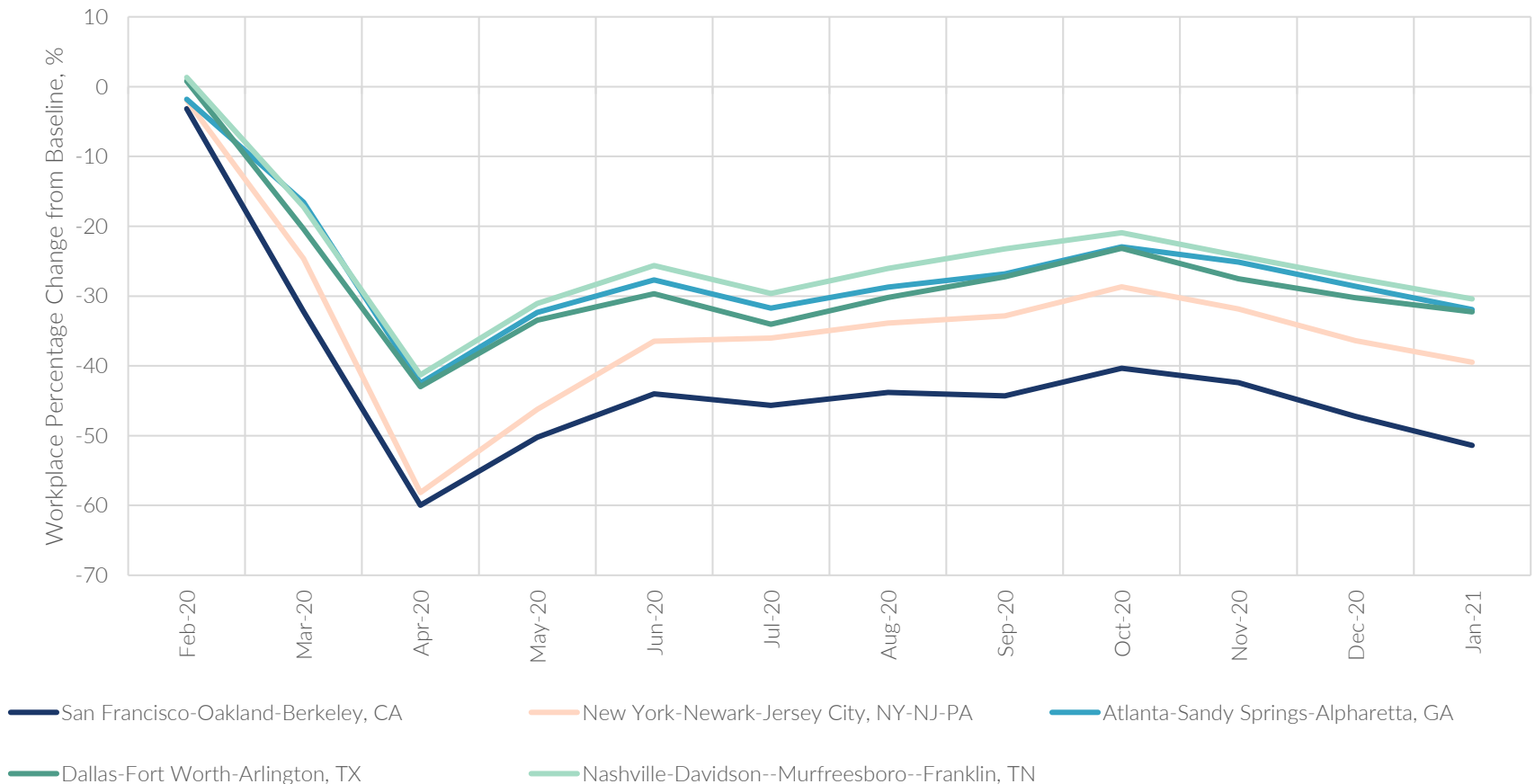


Source: Google Mobility Data as of Jan 2021



Workplaces have emptied out

- In April, workplace usage dropped 40-60% from pre-COVID levels
- As of Jan 2021, employees are still spending 30-50% less time in the workplace than usual

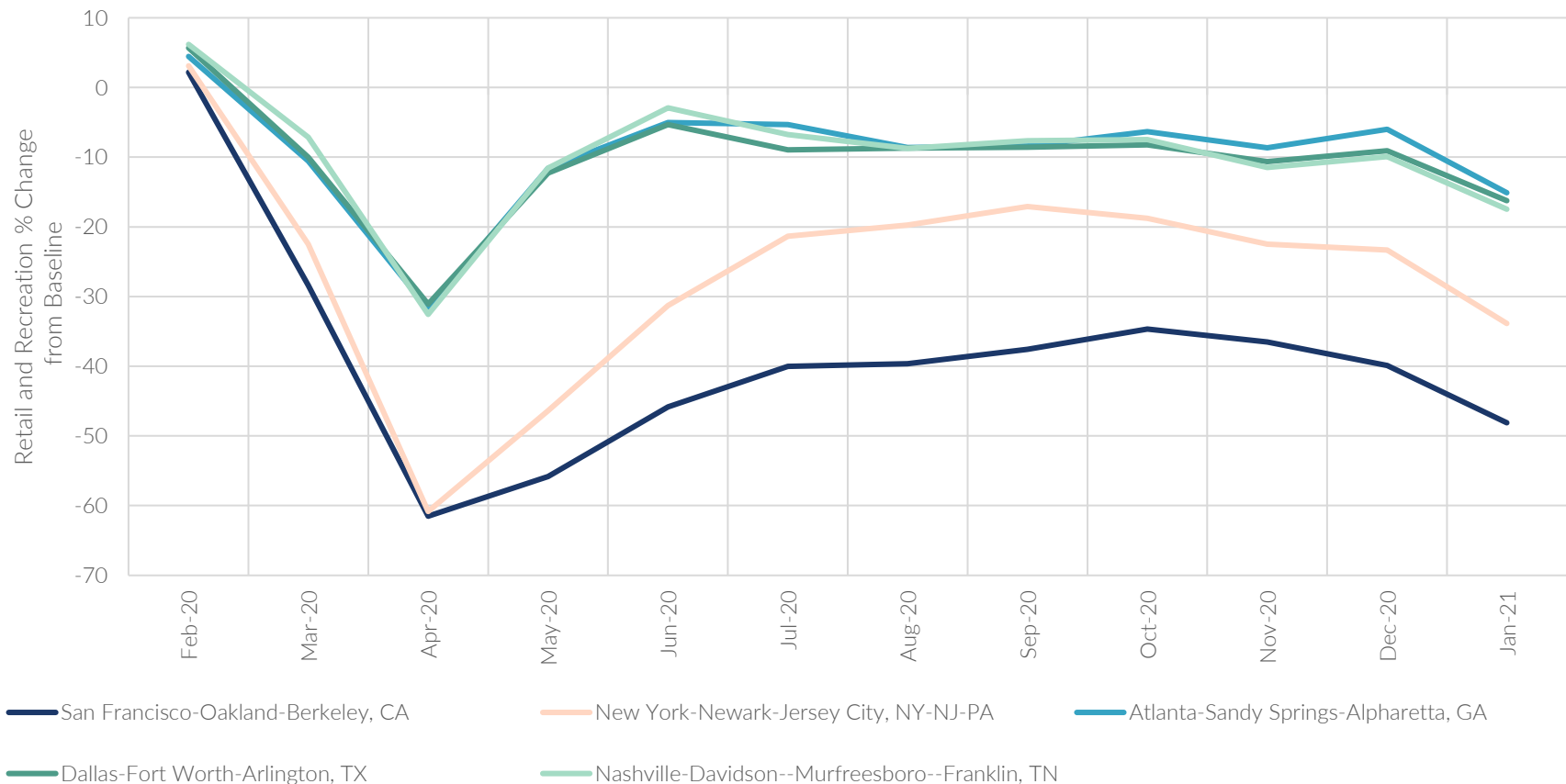


Source: Google Mobility Data as of Jan 2021



Brick-and-mortar retail and recreation has decreased

- In April, retail and recreation usage had dropped 30-60% from pre-COVID levels
- As of Jan 2021, consumers are still spending 15-50% less time in retail and recreation spaces

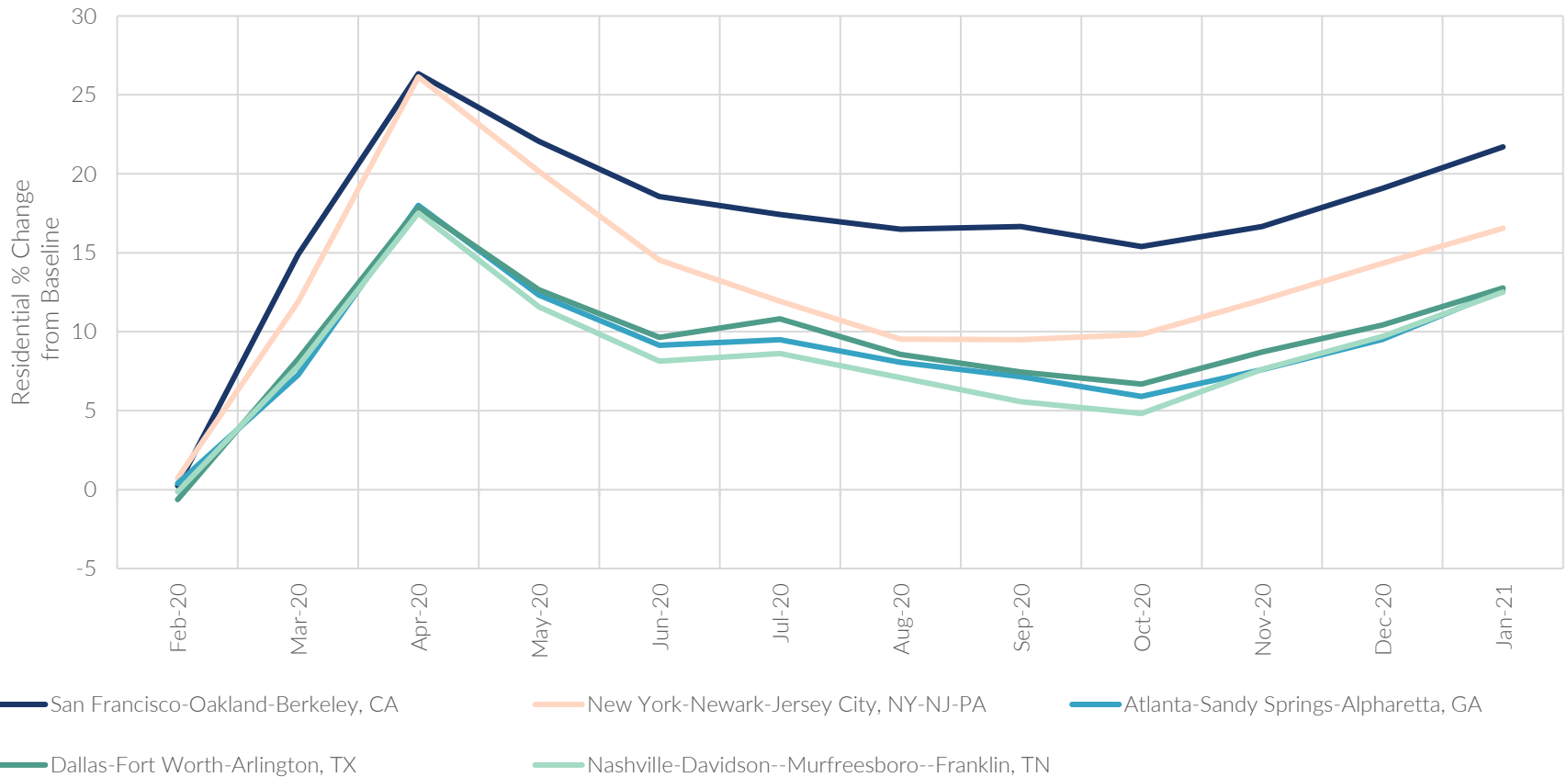


Source: Google Mobility Data as of Jan 2021. Retail and recreation are places like restaurants, cafes, shopping centers, theme parks, museums, libraries, and movie theaters.



More time is being spent at home

- In April, residential usage increased 15-25% from pre-COVID levels
- As of Jan 2021, people are still spending 10-20% more time at home



Source: Google Mobility Data as of Jan 2021



Spending drag on the economy persists

- Retail sales ended 2020 down 11% overall with leisure, travel and restaurants hit the hardest
- Alternatively, certain sectors, such as building materials, furniture stores and grocery stores have performed well

SAME-STORE \$ VOLUME GROWTH (% CHANGE FROM SAME MONTH 2019)										
	TRAVEL	LEISURE	FOOD SERVICES & DRINKING PLACES	CLOTHING & ACCESSORIES STORES	HEALTH & PERSONAL	MOTOR VEHICLES	FURNITURE & HOME FURNISHINGS	FOOD & BEV	BUILDING MATERIAL & GARDEN EQUIPMENT	TOTAL
DECEMBER	-66.2	-55.0	-17.5	-13.8	-10.3	3.9	8.5	10.6	10.9	-11.4
AUGUST	-75.8	-59.9	-22.1	-19.2	-6.0	10.3	11.8	11.3	13.7	-12.3
MAY	-90.4	-81.0	-51.1	-73.6	-28.3	-23.9	-53.5	14.6	-1.0	-34.4
APRIL	-59.8	-48.7	-28.6	-40.5	-9.4	-13.0	-24.1	23.5	-0.8	-18.1

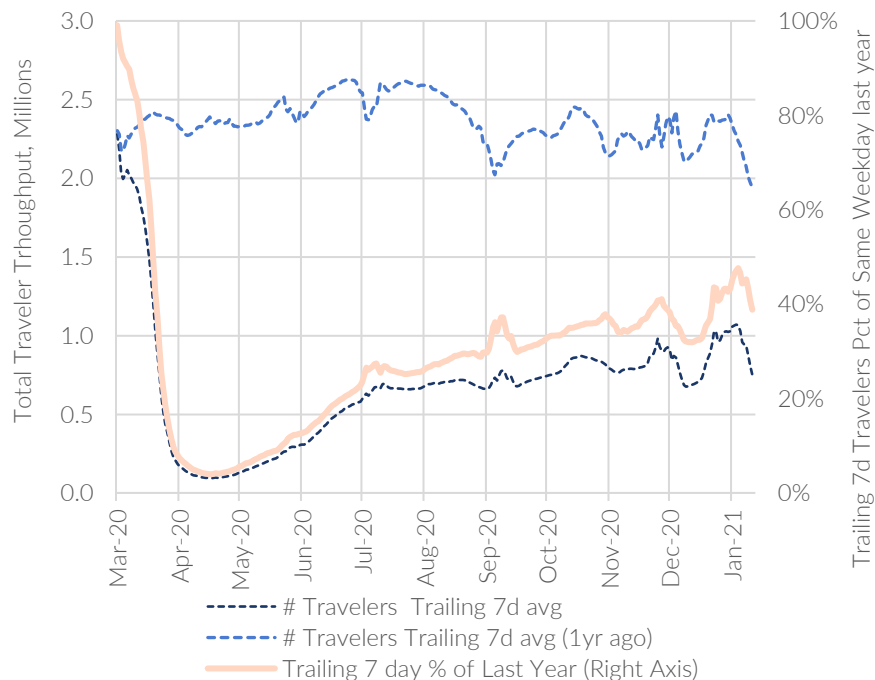
Source: US Bureau of Labor Statistics as of December 2020



Travel, leisure and restaurants are struggling

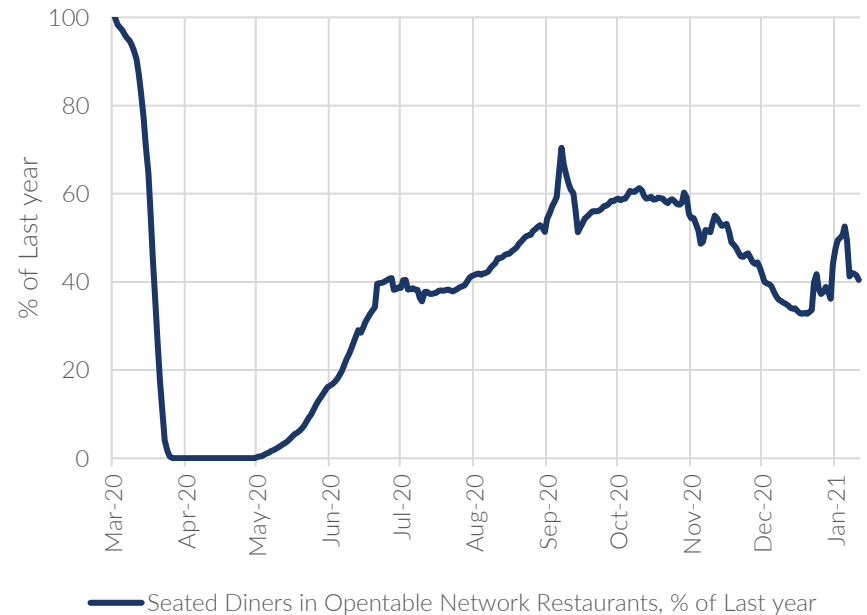
- Travel, leisure, hotels and restaurants continue to be most affected by pandemic and are expected to take the longest to recovery
- Closures, gathering restrictions and consumers' prioritization of safety continue to affect these businesses

AIR TRAVEL IS STILL SEVERELY RESTRICTED ...



Source: Transportation Security Administration, US Government (TSA) as of January 2021

... AS ARE RESTAURANTS

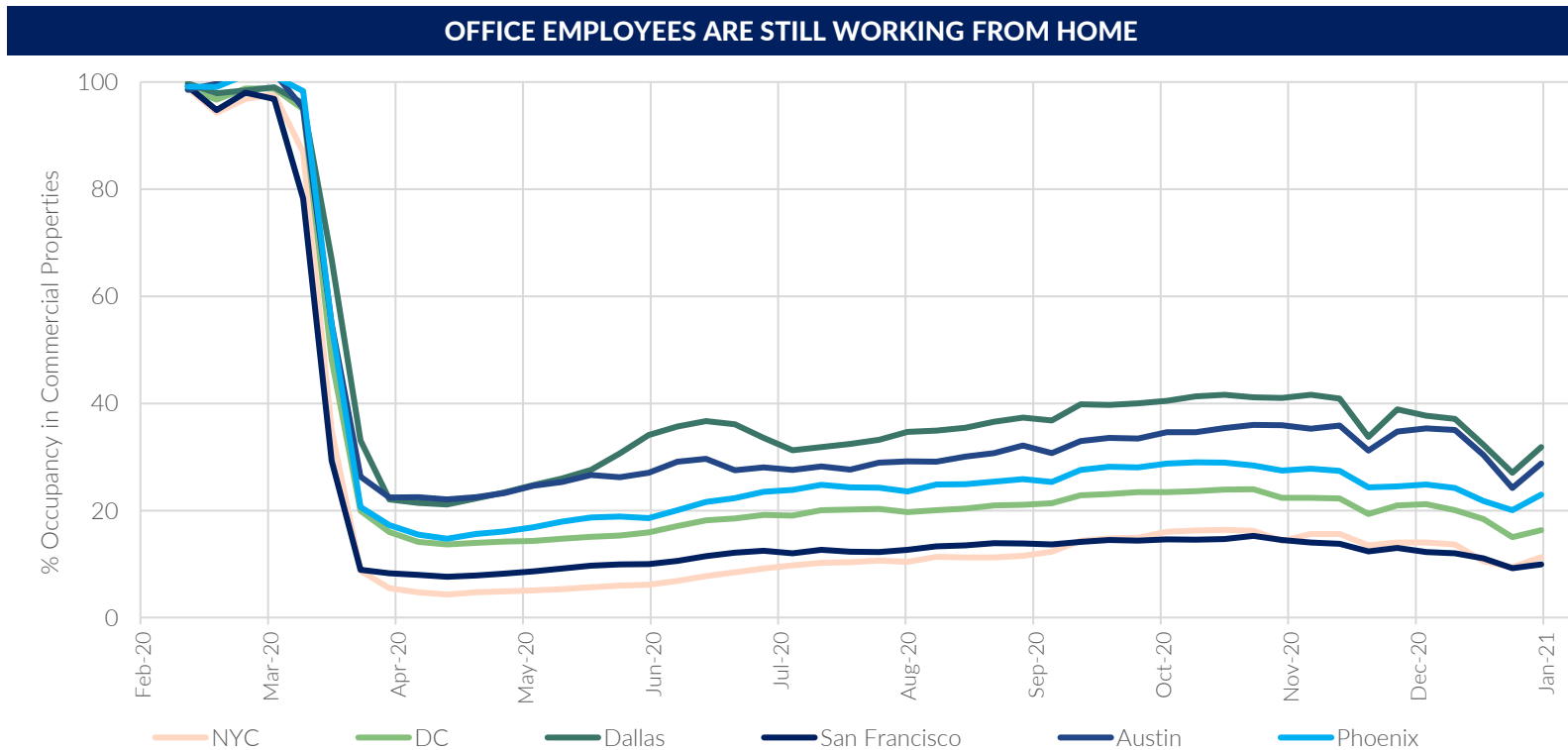


Source: Opentable.com <https://www.opentable.com/state-of-industry>



Back-to-work trackers show a slow return to the office

- Many office workers are still working from home, boosting demand for space within the residential sector and decreasing demand for office space
- This is especially acute in large central business districts like New York and San Francisco



Source: Kastle Systems as of January 2021. Kastle's reach of buildings, businesses and cardholders secured generates millions of access events daily as users enter office complexes, and individual company workspaces. Charted percentages are based on daily unique authorized user entries for Wednesdays in each market relative to a pre-COVID baseline.

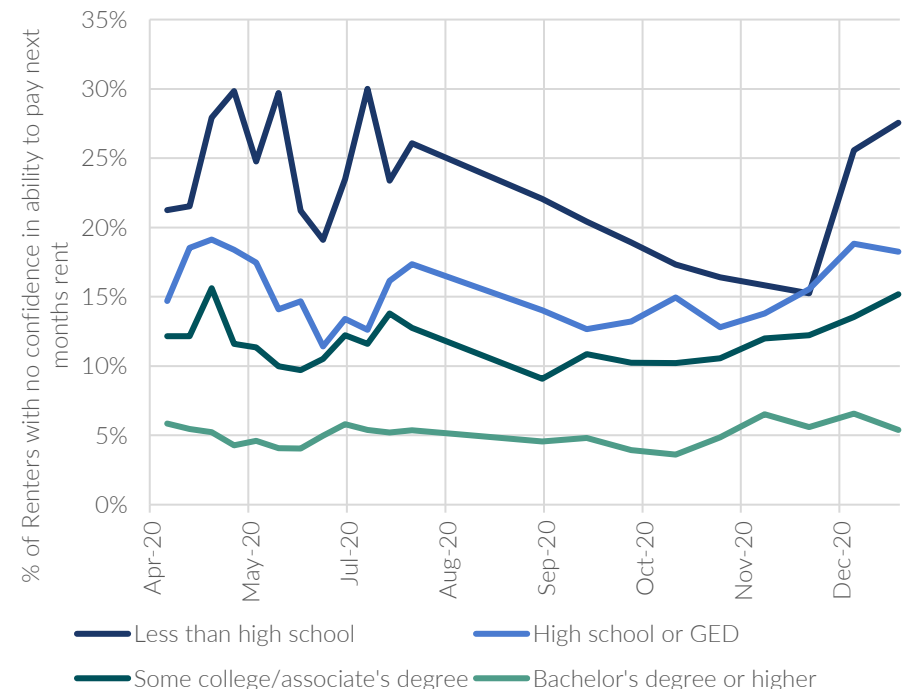
Households with lower-income and lower-education levels have been disproportionately affected by the pandemic

- Census Pulse Survey shows that 10-15% of renters had no confidence in their ability to pay next month's rent
- Significant variations in renters' confidence to pay next month's rent exist, with households with lower-education and lower-income levels less confident in their ability to pay

% OF RENTERS WITH NO CONFIDENCE IN ABILITY TO PAY NEXT MONTH'S RENT



% OF RENTERS WITH NO CONFIDENCE IN ABILITY TO PAY NEXT MONTH'S RENT BY EDUCATION LEVEL



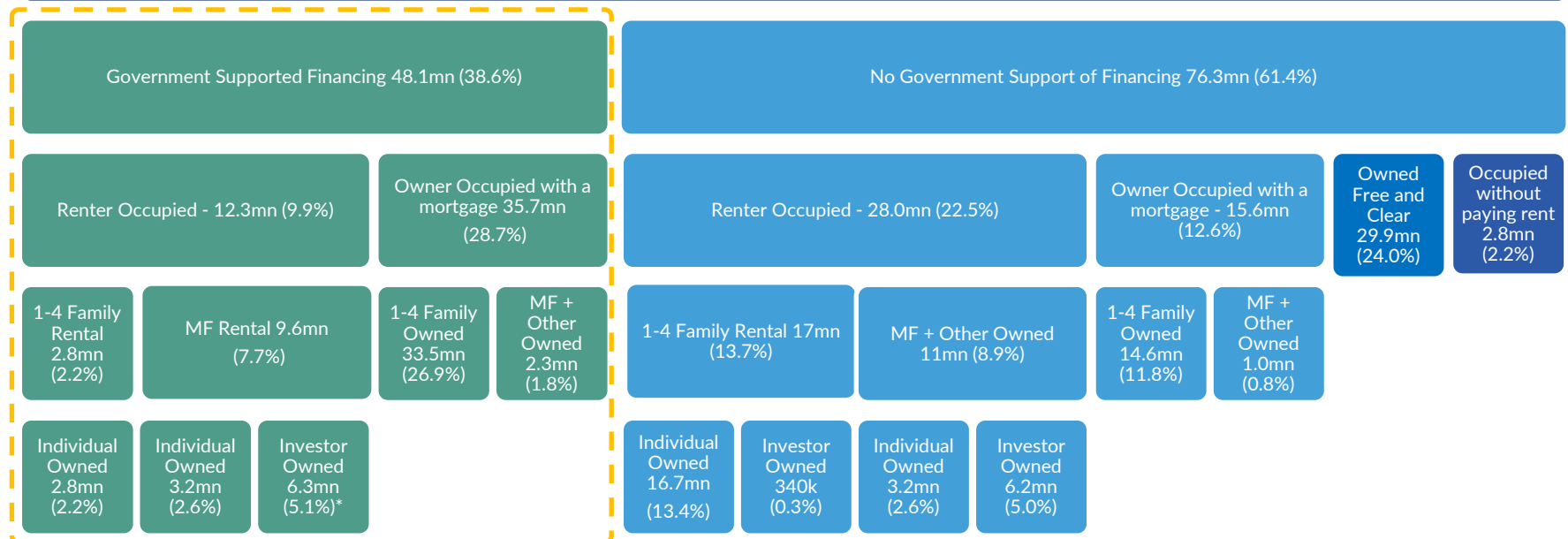
Source: US Bureau of Labor Statistics as of January 2021



Federal aid efforts targeted towards housing were limited to ~48mn households with government-backed financing

- CARES Act provided forbearance and helped buffer the pandemic impact on the higher income 48mn borrowers and renters
- 28mn more vulnerable renters were among the remaining 76mn who were not covered by forbearance measures

ALL U.S. HOUSEHOLDS 124.4MN (100%)

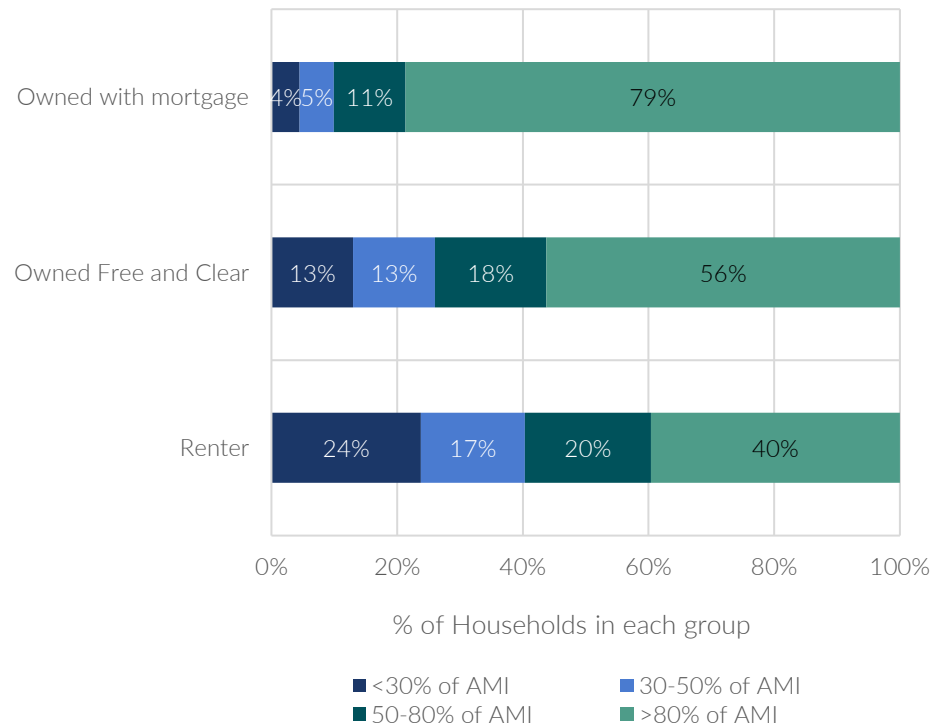


Source: US Census ACS Survey and US Census CPS/HVS Q1 2020, Amherst estimates as of December 2020

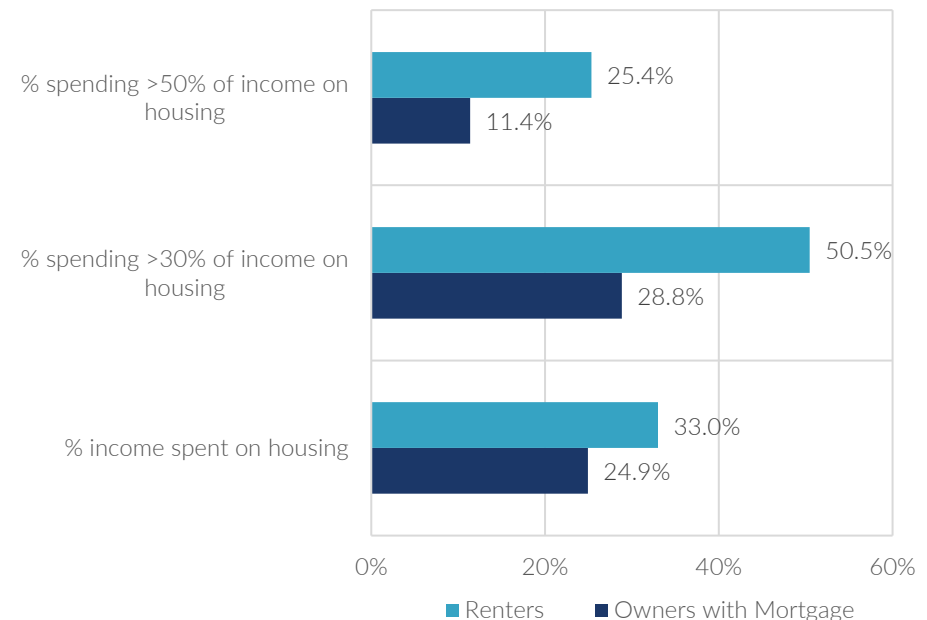
Renters are more burdened and more vulnerable

- Renters are more likely than homeowners to have incomes below the area median income (AMI)
- Renters are also more likely to have to spend a larger percentage of their income on housing payments

DISTRIBUTION OF RENTER VS. OWNER INCOMES



AVERAGE HOUSING COST BURDEN AS A FRACTION OF HOUSEHOLD INCOME



Source: Amherst tabulation of 2014-2018 5 yr ACS PUMS data

Source: Amherst tabulation of 2014-2018 5 yr ACS PUMS data

Note: Average for all sample households where the reported Owner cost or gross rent is $\leq 100\%$ of the reported income. The Owner Cost to household income ratio and Gross rent to income ratios are capped in the data reporting at 101 which represents all instances where housing cost was reported as higher than income.





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Housing Strength Despite the Pandemic Drag

Factors that would typically roil markets did not faze the housing market in 2020

- High unemployment, job and income losses, and an overall slowdown in economic activity, would traditionally put downward pressure on the housing market
- However, the single-family housing market has been surprisingly resilient due to a variety of factors impacting supply and demand



Low interest rates



Migration out of denser urban areas into lower-cost, low-tax, less-dense cities and suburbs



Demand for space as work-from-home and remote learning normalizes



Constrained single-family housing supply

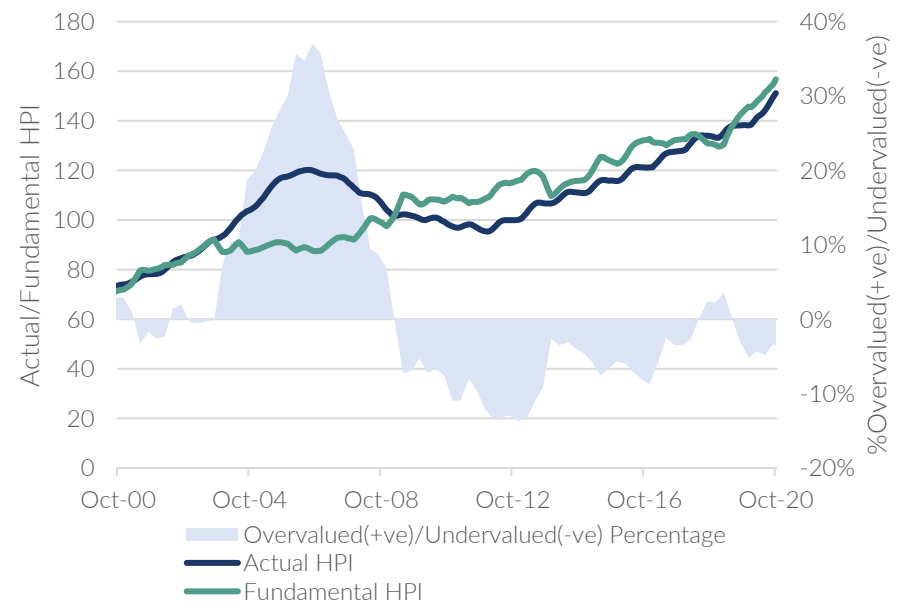
U.S. home price growth accelerated through 2020

- The Amherst Home Price Index (HPI) grew 9.4% YoY as of October 2020
- This appreciation was the fastest gain in home prices in more than a decade
- The compound annual growth rate (CAGR) over the last 20 years is ~3.6%
- As of YE 2020, national home prices were ~3.6% below fundamentals, well below the boom prior to the Great Financial Crisis (GFC) when homes were overvalued by 38% on average

AMHERST HOME PRICE INDEX YOY CHANGES
(JAN '00 – OCT '20)



AMHERST HOME PRICE INDEX AND FUNDAMENTAL VALUE
(DEC '94 – OCT '20)



Source: Amherst estimates as of January 2021 based on publicly available information



Lower interest rates and a desire for more space driving single-family housing demand higher

- After an initial decline in the immediate post-COVID shock, sales of new and existing homes are sharply up again and are above pre-COVID levels

NEW AND EXISTING HOMES SALES SPIKED SHARPLY AFTER THE INITIAL POST-COVID SLOWDOWN

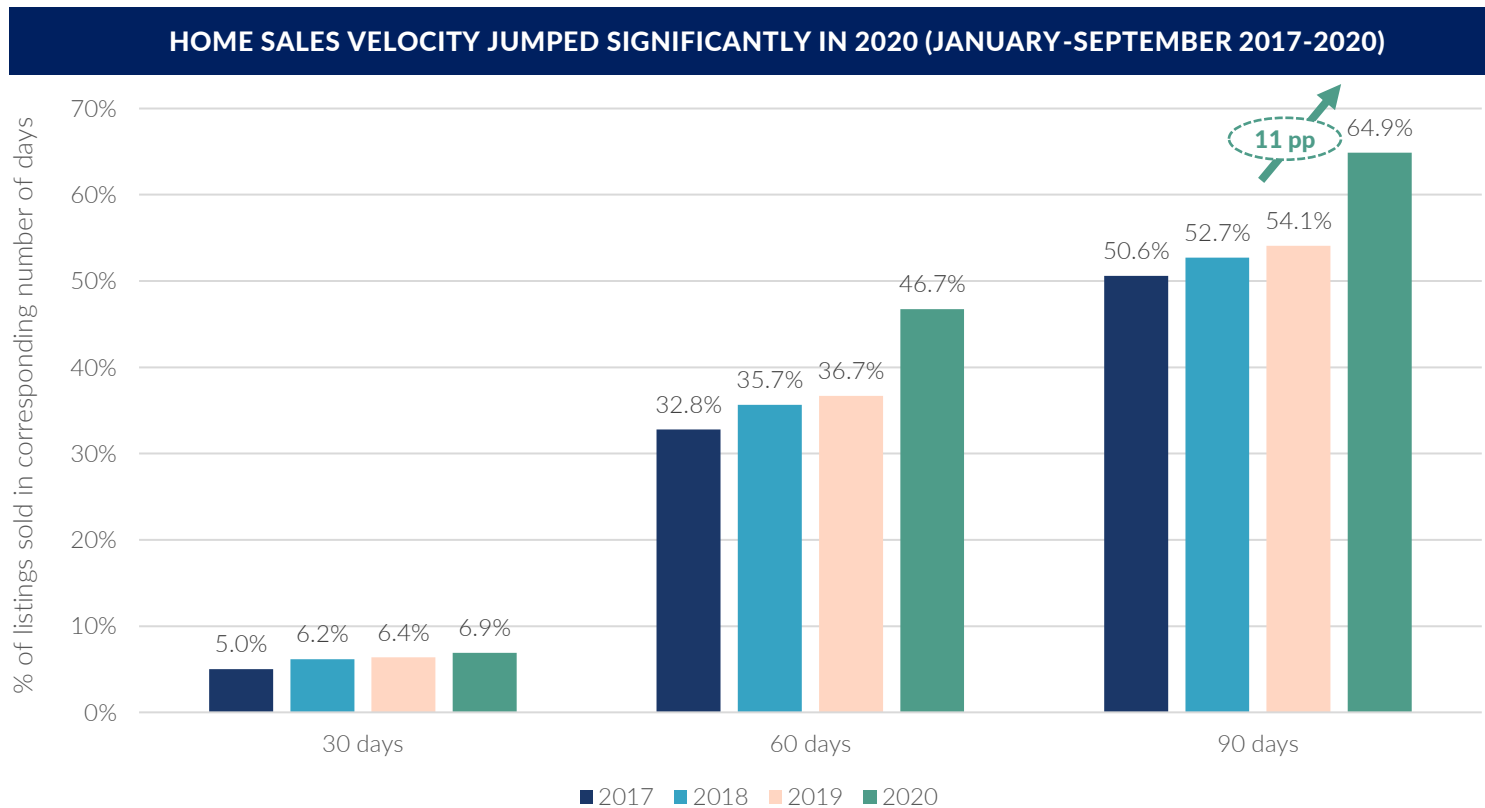


Source: U.S. Census Bureau as of January 2021, NAR as of January 2021



Sales velocity jumped higher in 2020

- Homes sales velocity has been steadily increasing since 2017, but made a significant leap in 2020
- Home sales velocity is measured as the portion of January-September listings that sold within the first 30-60-90 days

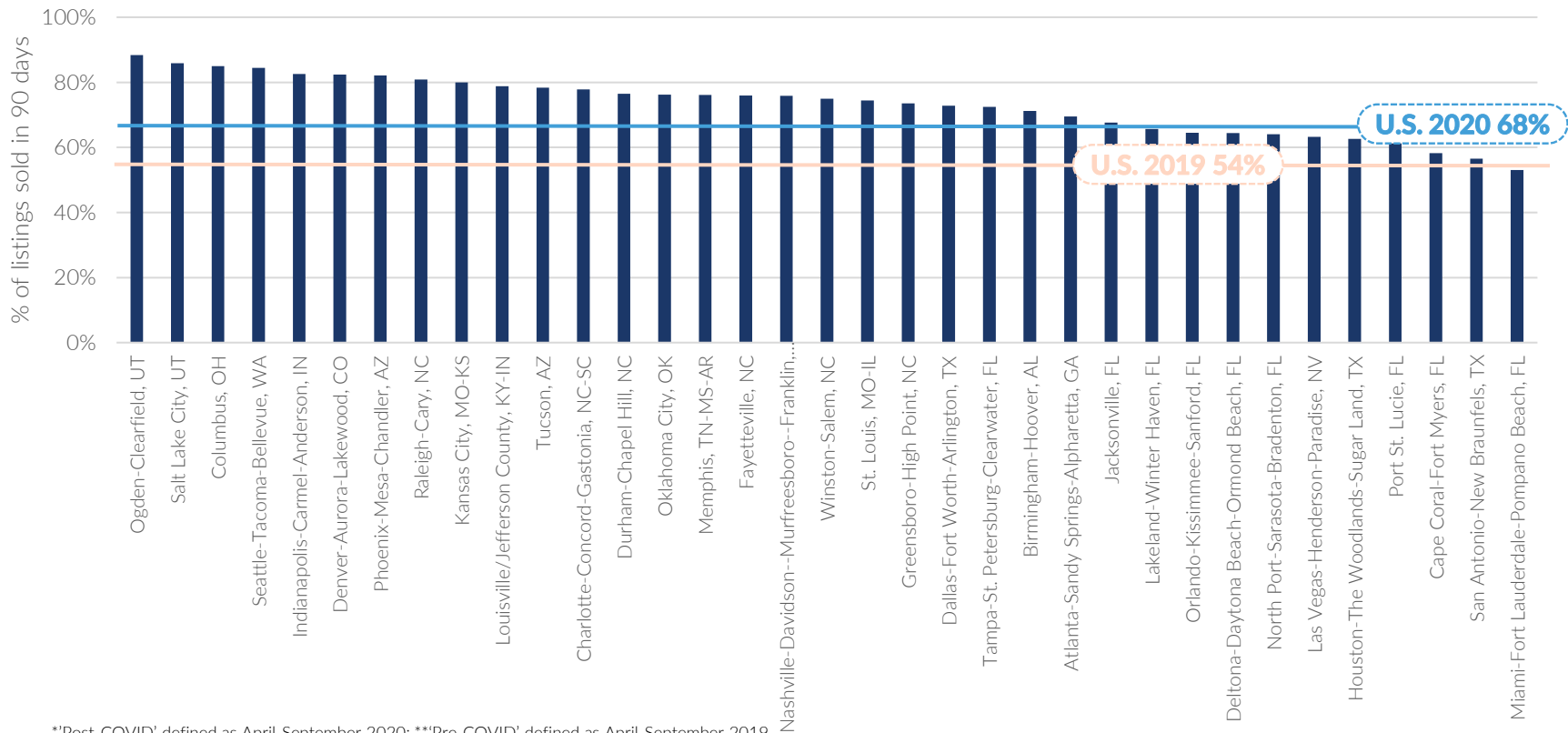


Source: Amherst estimates as of January 2021 based on publicly available information

Post-COVID, homes sales velocity picked up further

- Average U.S. homes sales velocity were at a 68% pace post-COVID* vs. 54% pre-COVID**

90-DAY POST-COVID HOMES SALES VELOCITY

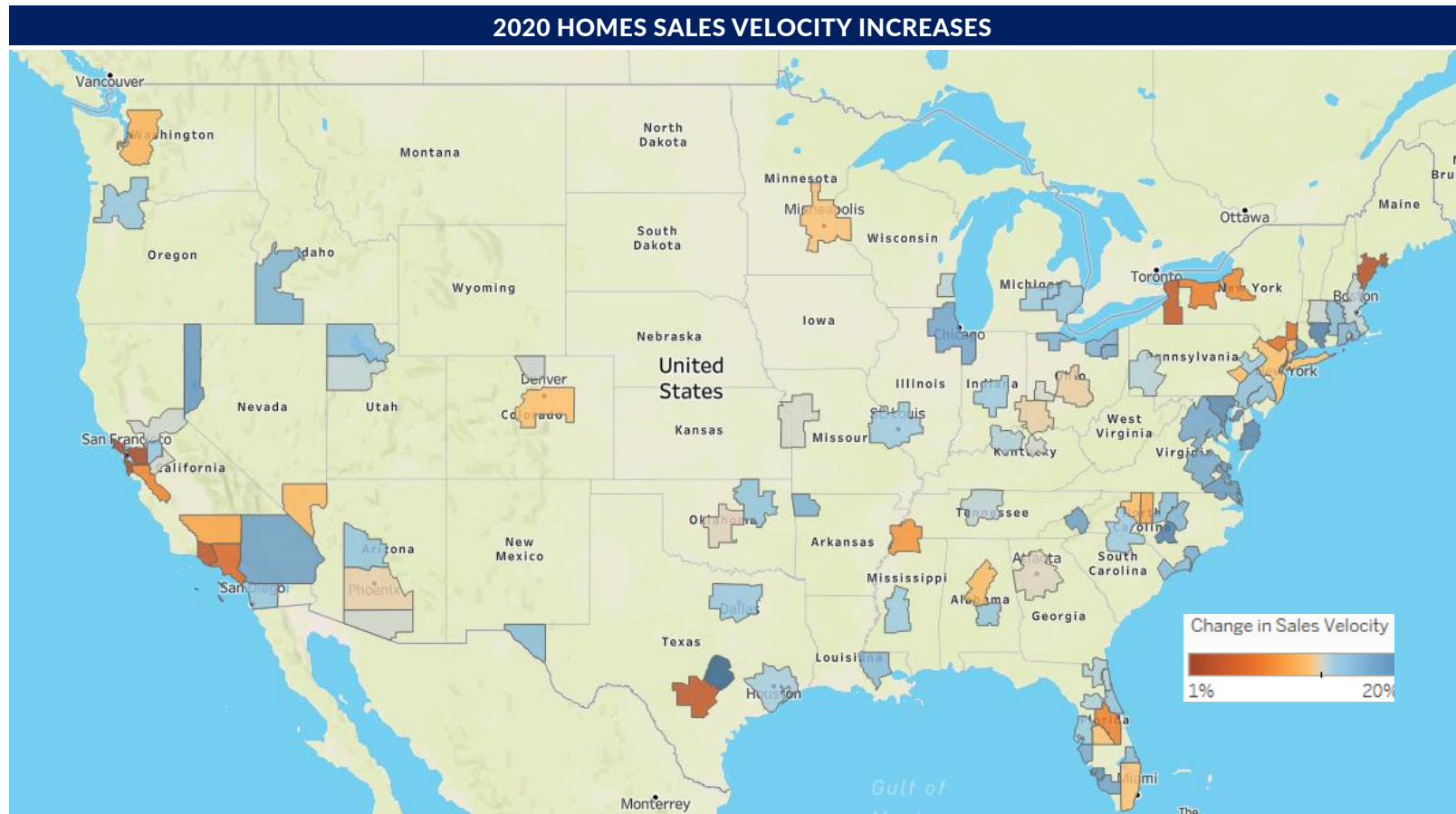


*Post-COVID' defined as April-September 2020; ***Pre-COVID' defined as April-September 2019

Source: Amherst estimates as of January 2021 based on publicly available information

Migration from denser cities drove largest velocity spikes

- Homes sales velocities are especially high in the mid-Atlantic, Texas and parts of Florida, as well as areas outside major cities as seen in California (e.g., Riverside outside L.A.)



Source: Amherst estimates as of January 2021 based on publicly available information

Out-migration is accelerating in large, dense cities

- Data from moving companies shows accelerated migrations out of major cities like San Francisco, Seattle and New York and into cities like Salt Lake City, Louisville and Richmond

TOP 10 CBSAs BY CHANGE IN OUTMIGRATION

CBSA	POPULATION 2019	% OUTBOUND MAY TO SEP 2019	% OUTBOUND MAY TO SEP 2020	CHANGE IN % OUTBOUND
San Francisco-Oakland-Berkeley, CA	4,731,803	53%	61%	8%
Seattle-Tacoma-Bellevue, WA	3,979,845	43%	50%	7%
New York-Newark-Jersey City, NY-NJ-PA	19,216,182	72%	79%	7%
San Antonio-New Braunfels, TX	2,550,960	48%	54%	6%
San Jose-Sunnyvale-Santa Clara, CA	1,990,660	61%	67%	6%
Houston-The Woodlands-Sugar Land, TX	7,066,141	49%	54%	6%
Washington-Arlington-Alexandria, DC-VA-MD-WV	6,280,487	51%	57%	6%
Memphis, TN-MS-AR	1,346,045	41%	47%	5%
Atlanta-Sandy Springs-Alpharetta, GA	6,020,364	44%	50%	5%
Las Vegas-Henderson-Paradise, NV	2,266,715	44%	49%	5%

BOTTOM 10 CBSAs BY CHANGE IN OUTMIGRATION (MOST IN-MIGRATION)

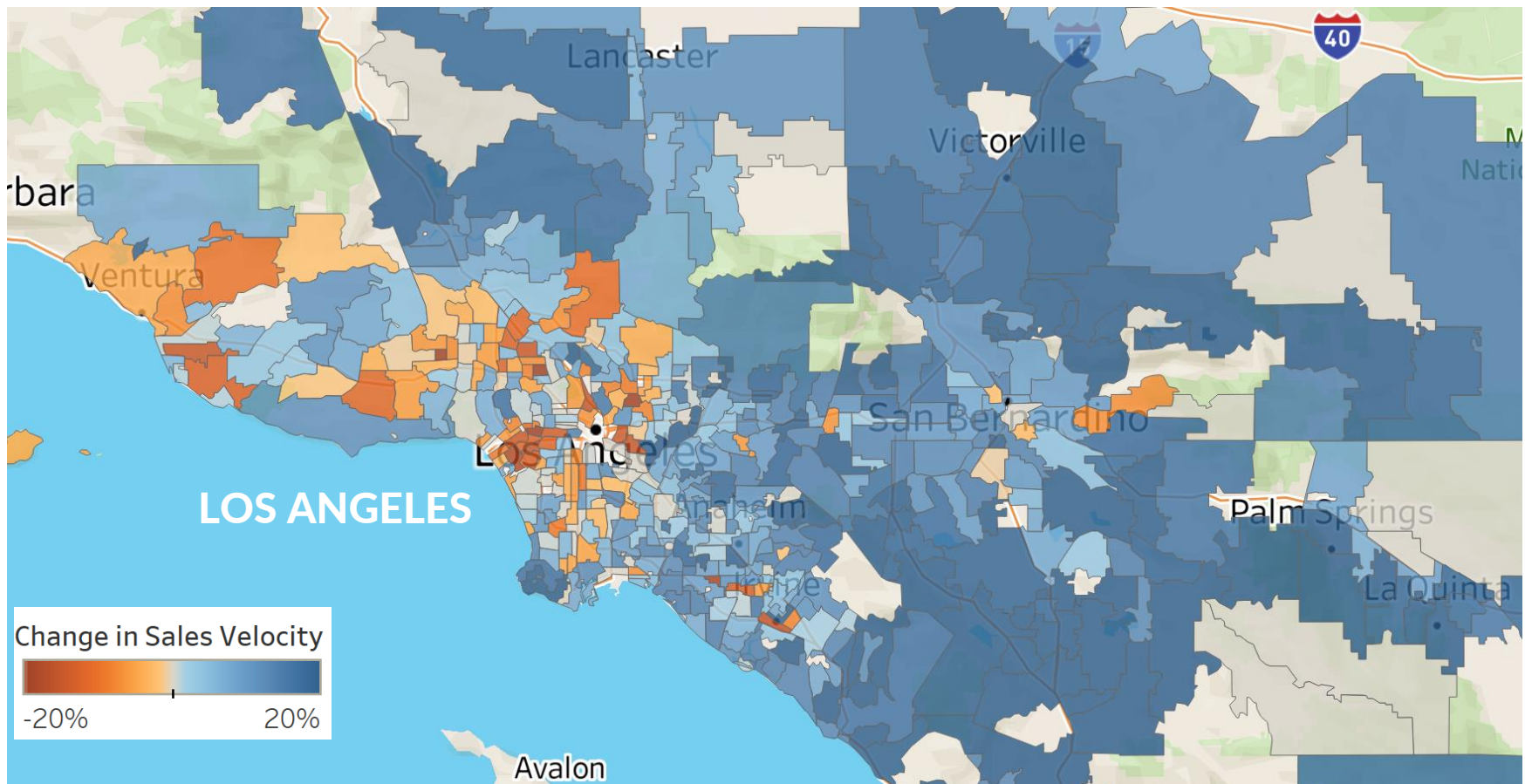
CBSA	POPULATION 2019	% OUTBOUND MAY TO SEP 2019	% OUTBOUND MAY TO SEP 2020	CHANGE IN % OUTBOUND
Sacramento-Roseville-Folsom, CA	2,363,730	50%	47%	-4%
Charlotte-Concord-Gastonia, NC-SC	2,636,883	39%	35%	-4%
Columbus, OH	2,122,271	55%	50%	-4%
Indianapolis-Carmel-Anderson, IN	2,074,537	55%	49%	-6%
Cleveland-Elyria, OH	2,048,449	58%	51%	-7%
Birmingham-Hoover, AL	1,090,435	52%	45%	-7%
Detroit-Warren-Dearborn, MI	4,319,629	66%	58%	-8%
Richmond, VA	1,291,900	55%	44%	-11%
Louisville/Jefferson County, KY-IN	1,265,108	52%	41%	-12%
Salt Lake City, UT	1,232,696	56%	43%	-13%

Source: United Van lines as of Oct 2020



Within the same metro, dense urban areas are seeing slowing homes sales while suburbs are seeing acceleration

- Areas near Downtown Los Angeles have weaker pick up in sales velocities – and in some areas declining velocities – while the city's outlying areas have seen steep increases in sales velocities



Source: Amherst estimates as of January 2021 based on publicly available information

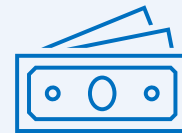
Multi-track recovery has led to a shift in home buyer profile



Homes sales velocities are the steepest for larger, more expensive homes



Homebuyers with higher-income and higher-education levels are leading the increased demand for housing



Average FICO scores have shifted higher for all borrowers

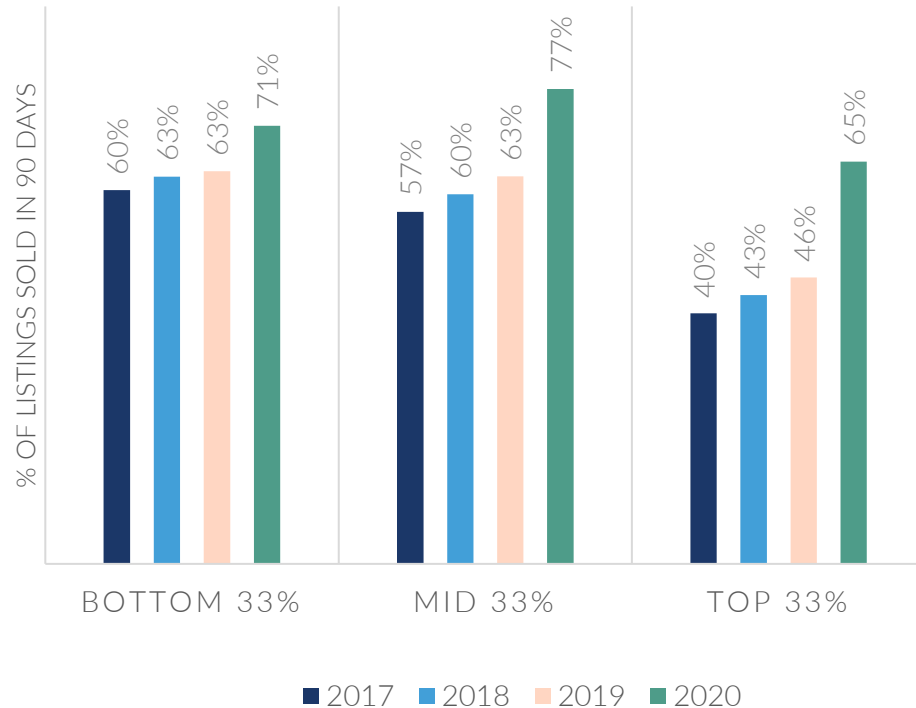


First-time borrowers have a FICO score that is 10 points higher on average, despite an increase in volumes vs. same period in 2019

Larger, more expensive homes saw the biggest pickup in sales velocities

- Sales velocities are up across all asset sizes and pricing tiers but have accelerated the most for homes in the highest tiers

SALES VELOCITY BY PRICE TIER



SALES VELOCITY BY SQFT



Source: Amherst estimates as of January 2021 based on publicly available information



Purchase demand shifted to better FICO, lower DTI, lower LTVs

- Homebuyer profiles are shifting to higher FICO, lower DTI and lower LTV

Quarter	Orig Amt	DTI	FICO	LTV	\$ LTV 90+ Origination	\$ DTI 45+ Origination	\$ FICO<680 Origination
2019 Q1	\$143.4B	39.0	724	87.9	\$78.7B	\$43.5B	\$31.9B
2019 Q2	\$219.0B	38.3	725	88.2	\$121.1B	\$60.0B	\$47.2B
2019 Q3	\$258.1B	37.8	728	87.9	\$139.8B	\$66.2B	\$52.3B
2019 Q4 *	\$148.4B	37.9	728	87.8	\$80.8B	\$38.0B	\$30.2B
2020 Q1	\$179.3B	38.1	728	88.0	\$98.4B	\$47.2B	\$36.2B
2020 Q2	\$220.6B	37.4	730	88.6	\$124.9B	\$50.8B	\$41.6B
2020 Q3	\$331.2B	36.9	735	87.9	\$174.8B	\$68.7B	\$53.2B
2020 Q4 *	\$223.6B	36.9	736	87.1	\$110.6B	\$46.6B	\$35.1B

* October – November

Source: EMBS as of December 2020



First-time homebuyer demand is driven primarily by individuals with higher income and education levels

- First-time buyers have +10 points on their FICO score vs. repeat buyers
- New demand driven primarily by homebuyers with higher-income, higher-education levels

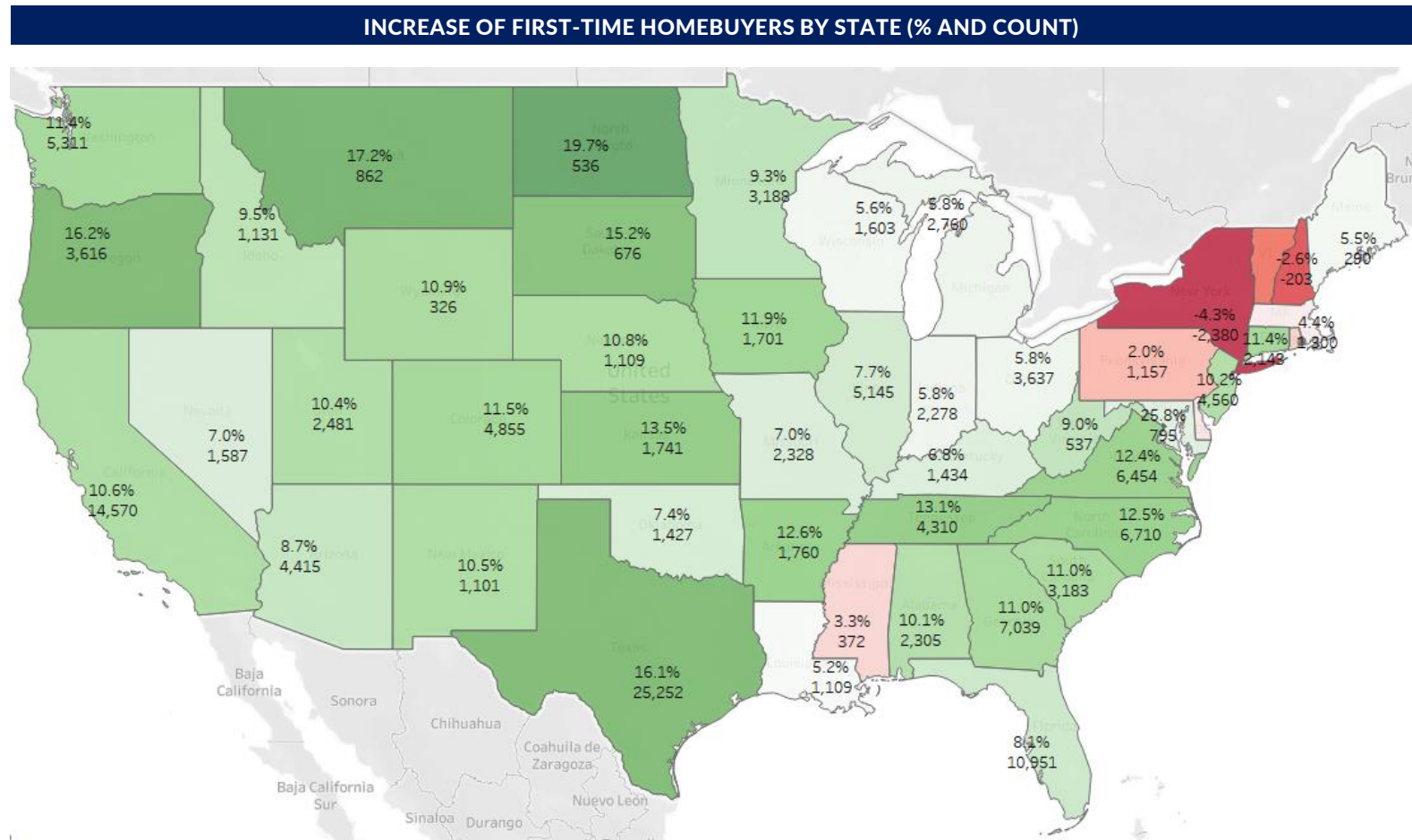
Quarter	Orig Amt	DTI	FICO	LTV	\$ LTV 90+ Origination	\$ DTI 45+ Origination	\$ FICO<680 Origination
2019 Q1	\$73.8B	39.5	709	92.6	\$52.5B	\$23.5B	\$22.5B
2019 Q2	\$113.2B	38.8	709	92.9	\$81.3B	\$32.5B	\$33.8B
2019 Q3	\$127.0B	38.4	712	92.7	\$90.8B	\$34.5B	\$36.2B
2019 Q4*	\$73.2B	38.4	712	92.8	\$52.7B	\$19.7B	\$20.9B
2020 Q1	\$90.2B	38.5	713	92.8	\$64.7B	\$24.7B	\$25.2B
2020 Q2	\$113.5B	37.7	715	93.0	\$82.2B	\$26.6B	\$29.3B
2020 Q3	\$164.2B	37.3	722	92.5	\$114.0B	\$35.2B	\$36.2B
2020 Q4*	\$107.4B	37.3	723	92.0	\$71.6B	\$23.4B	\$23.1B

* October – November

Source: EMBS as of December 2020



Rate of first-time homebuyers grew by double digits across U.S.



Source: EMBS as of December 2020



Strong absorption has led to record-low inventories



New listings dropped sharply in March after the COVID pandemic hit; delayed listings were back on the market in summer and fall



Supply for 2020 almost caught up with last year's levels, ending 5% lower vs. 2019



Ultimately, strong demand drove for-sale inventory to record lows

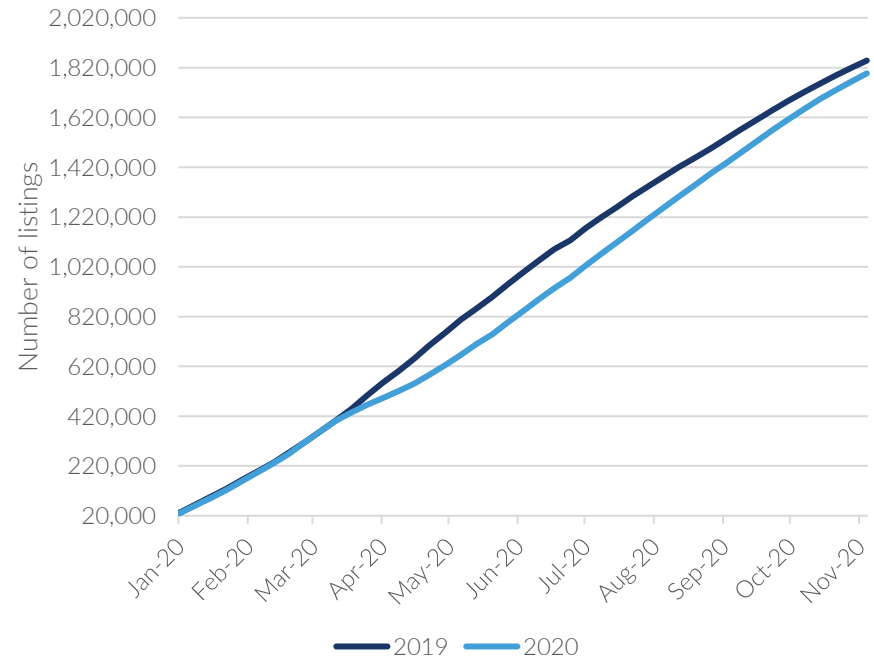
Sales listings picked up during the summer, leading to total supply in 2020 only marginally below 2019 levels

- New listings dropped sharply in March at the onset of COVID, but the pace of new listings recovered quickly by June
- Cumulative new listings ended 2020 marginally lower than 2019 levels

WEEKLY NEW LISTINGS



CUMULATIVE NEW LISTINGS

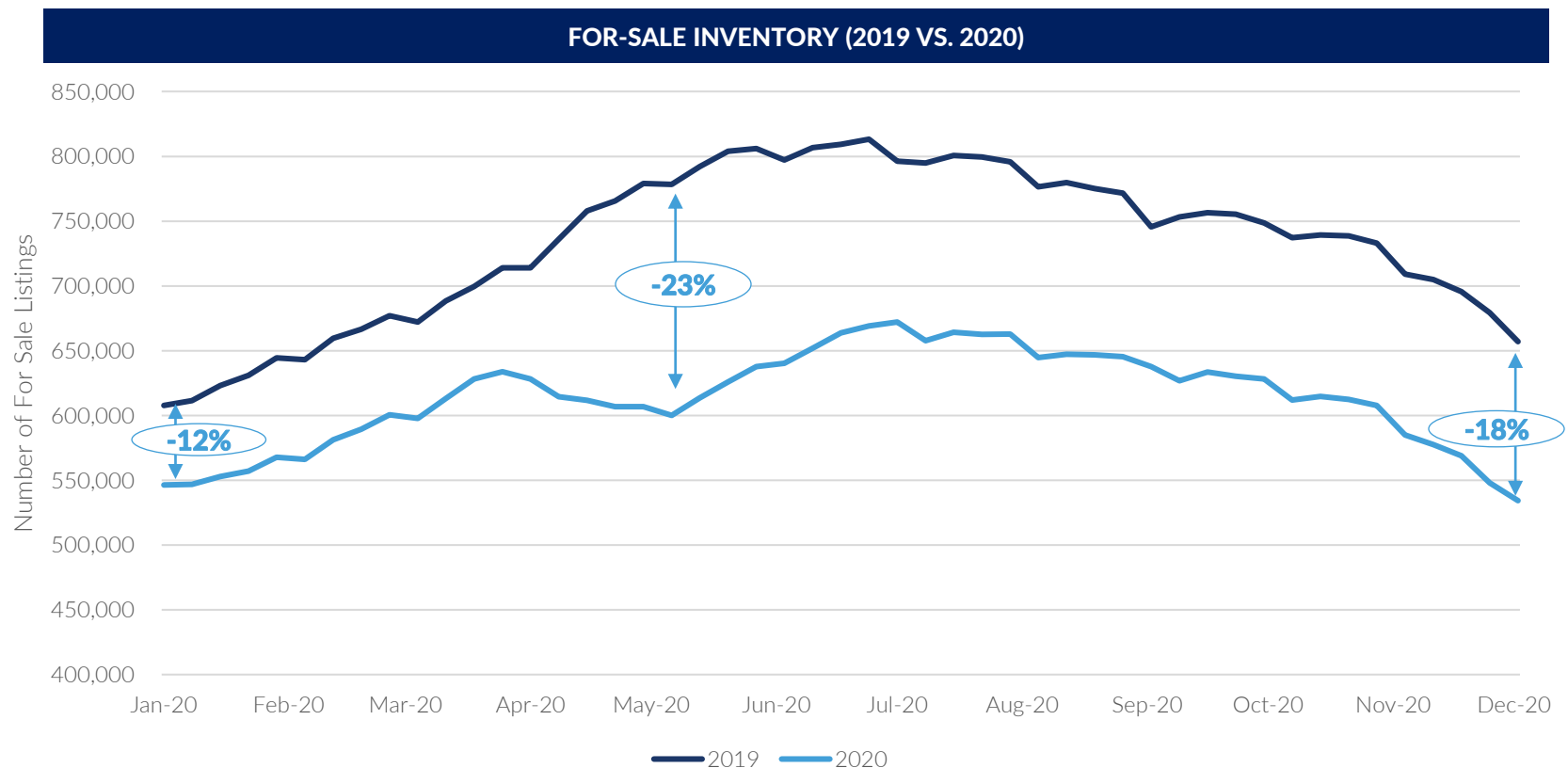


Source: Amherst Tabulation of Corelogic MLS database as of December 2020



Accelerating single-family home demand caused inventories to drop ~20% YoY

- For-sale inventory began 2020 12% below 2019 levels and further widened to -23% by May
- A recovering market and an improved listing pace closed the gap to -18% by the end of November

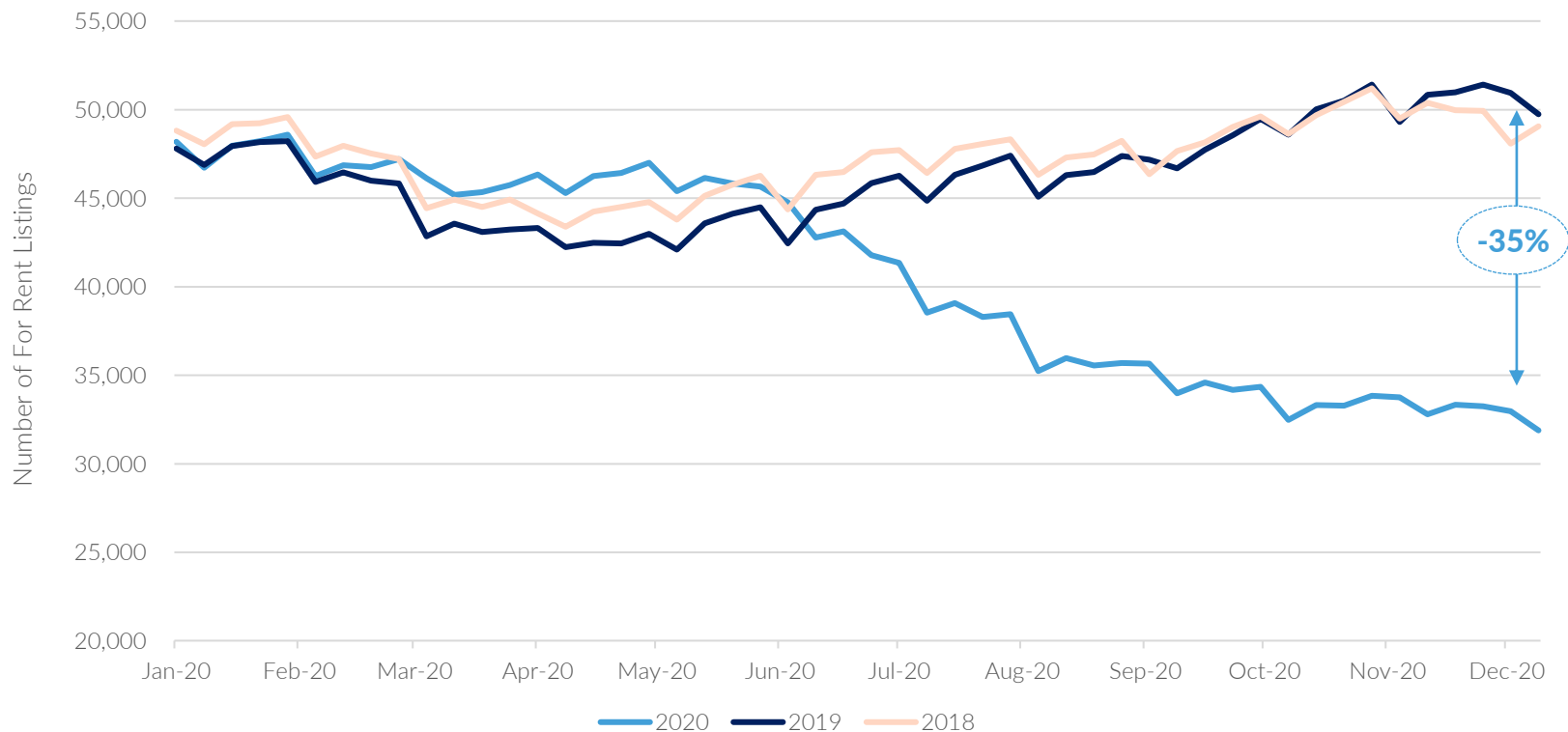


Source: Amherst Tabulation of Corelogic MLS database as of December 2020

SFR inventory fell even faster and is down 35% YoY

- Available SFR rental inventory started to fall rapidly in early June, ending 2020 35% below 2019 levels
- This led to rapid re-lease rent growth in SFR even as renewal growth remained more range-bound

RENTAL INVENTORY (2018 VS. 2019 VS. 2020)

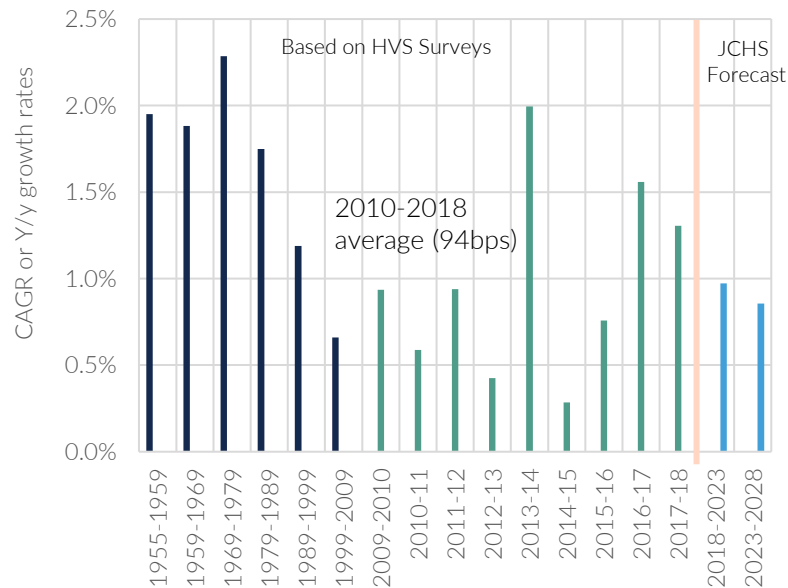


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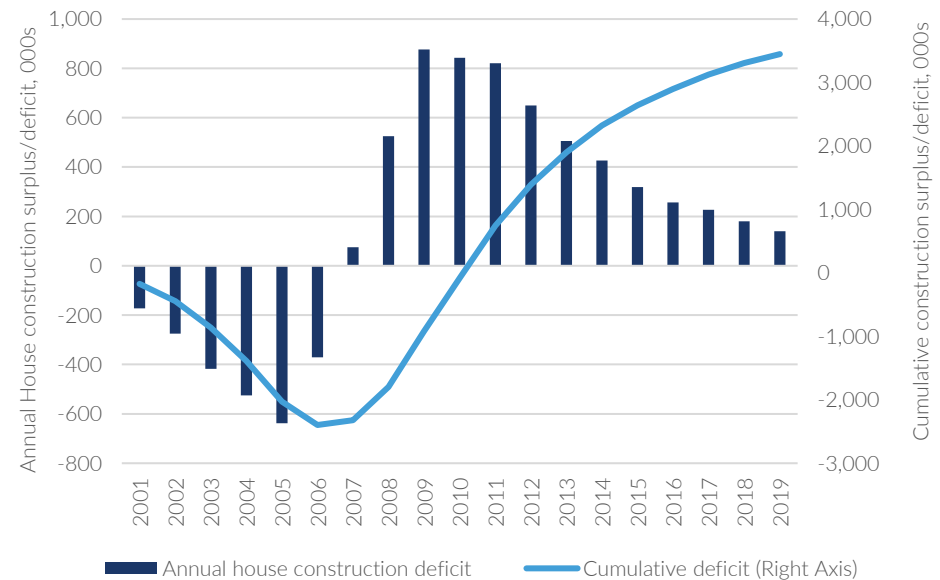
While housing deficits persist, long-term fundamentals are positive

- Population growth driven by millennial household formation will continue to fuel housing demand with household growth projected to increase at a faster rate through 2025 vs. 2010-2018 pace, which averaged 94bps over that period
- The lack of homes built post-GFC has led to an estimated deficit of nearly 3 million homes²

HOUSEHOLD GROWTH TO PICK UP¹



CONSTRUCTION DEFICIT POST-CRISIS SHOULD SUPPORT DEMAND²

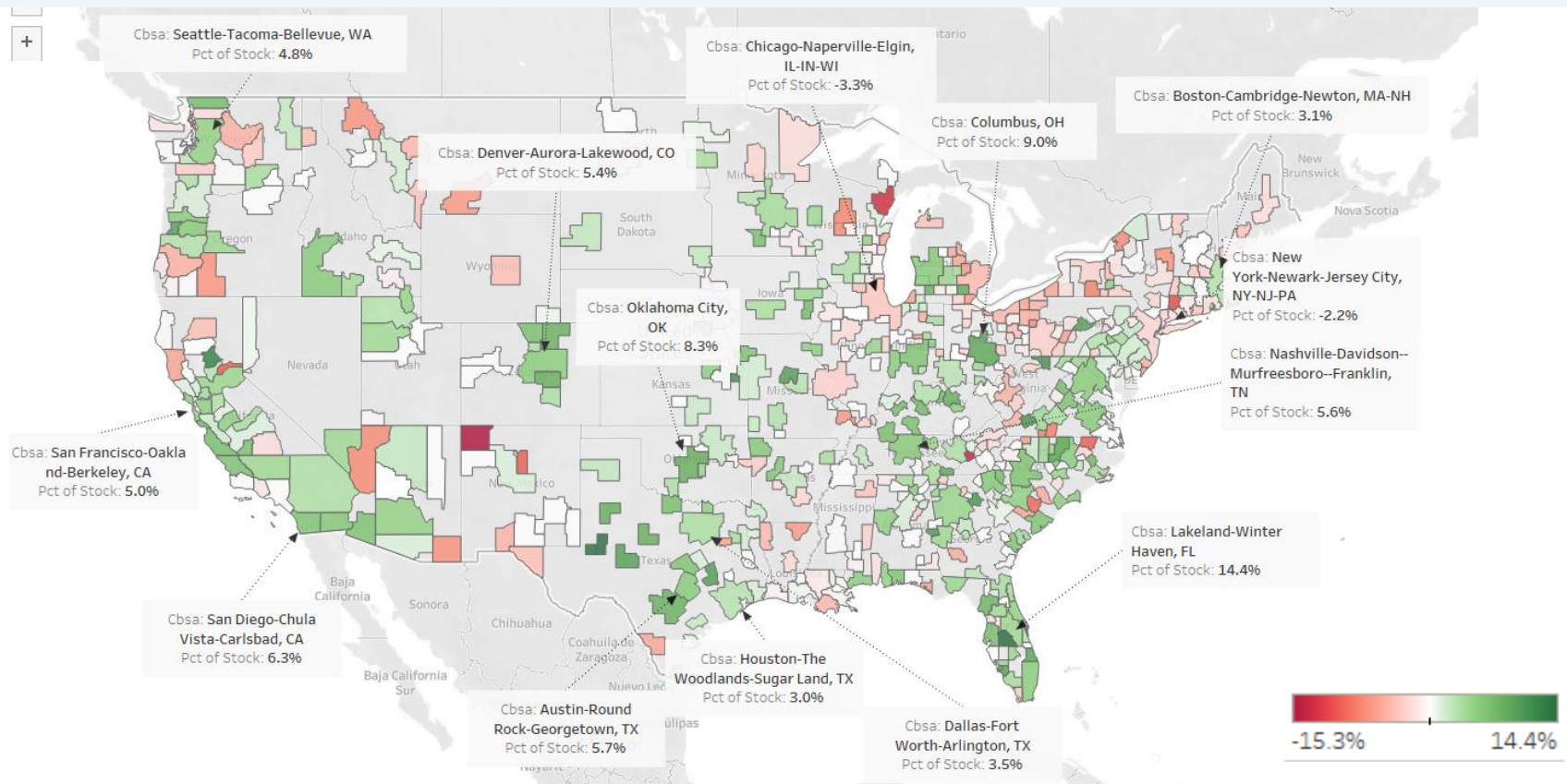


Source: (1) Household growth was derived by using population estimates and assuming the household rate by age group remains at 2017 levels provided by the Harvard Joint Center for Housing Studies as of YE 2018 (2) Amherst tabulation of U.S. Census bureau data on U.S. Housing Units Starts as of December 2020. Note: Annual deficit is shown as the difference between homes constructed in the year vs the longer run average from 1960-2000.



High-growth regions see corresponding high housing deficits

- Most supply-constrained areas are regions with strong population growth e.g., Florida, Texas, Colorado
- Areas like the Midwest and Northeast, which have declining populations, have excess housing supply



Source: Amherst estimates based on Census ACS data from 2005-2019 as of December 2020

Note: We estimate the underserved population based on the difference in population growth and growth in housing stock over the 2005 and 2011 period. We convert this to under-construction, using each MSAs average Population per housing unit ratio across the time period. Finally this number of homes is expressed as a percentage of the 2018 housing stock. Positive numbers show undersupply and negatives show oversupply

2021: SFR trends to watch



Housing fundamentals are expected to stay strong with fiscal and monetary policy surprises posing the main risk



As the economy starts to truly recover from the pandemic, we expect the multi-track recovery we have seen so far to begin to normalize



Affordability concerns should be somewhat mitigated by supportive fiscal policy response, low rates and continued Fed engagement keeping mortgage rates low



Overall, housing is expected to be a bright spot vs. other real estate asset classes, even with a modest sell-off in rates, as long as the overall post-pandemic fiscal and monetary policy responses remain in-line with market expectations



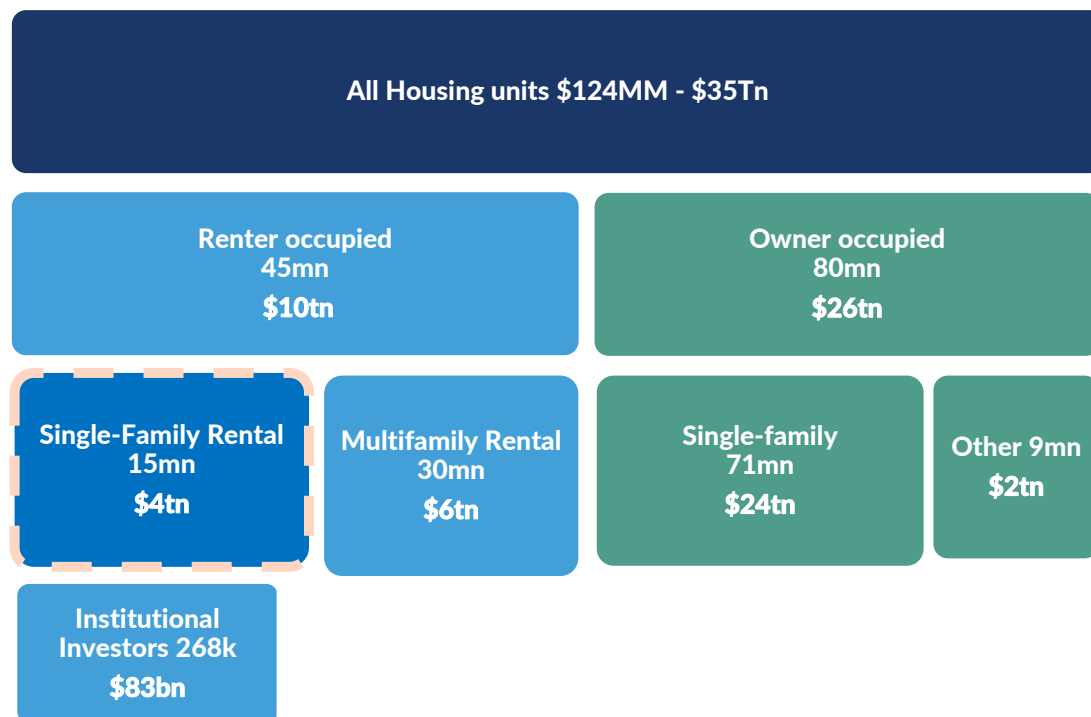


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Asset Class Spotlight: Building a Diversified SFR Portfolio

SFR is a huge asset class with only ~2% of the market institutionally owned¹

- The institutional SFR industry has grown significantly in the U.S. over the last few years but remains only about 2% of all SFR units
- The top 10 SFR owners hold ~255K units vs. multi-family where the top 10 owners own about 3-4x more units
- We expect rapid growth in institutional SFR portfolios over the coming years
- With this in mind, we examine a systematic approach to portfolio construction in the SFR space with the objective of maximizing the risk-reward



Source: Amherst Tabulation of CoreLogic Data as of September 2020, Census AHS

¹Compared to multifamily at ~55% institutional ownership.

Note: All percentages are expressed as a proportion of all households; box sizes are intended to show the breakdown of SFR ownership and are not fully to scale; all boxes in the same row add up to the corresponding numbers in the row above

How to approach SFR portfolio construction

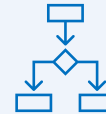
- The total return for owning real estate assets, including SFR, primarily comes from three sources:



Ongoing free cash flow
(current cap-rate)



Price appreciation
(driven by increase in rents
+ cap-rate compression)



Free cash flow margin
expansion
(better operational efficiencies)

- The volatility of total return is the measure of the overall risk. The goal is to have strong, durable cashflows and maximize the total return while controlling for risk
- Some approaches to portfolio construction focus on maximizing ongoing free cash flow or price appreciation, e.g., buying higher cap-rates or focusing on areas with the highest rent growth
- However, these approaches face two problems:
 - It is difficult to predict with conviction which markets will see persistent and continued growth in demand
 - It ignores the relative risks across different markets (e.g., the highest total return markets may also have high volatility of cashflows and high risk)

A systematic approach to SFR portfolio construction

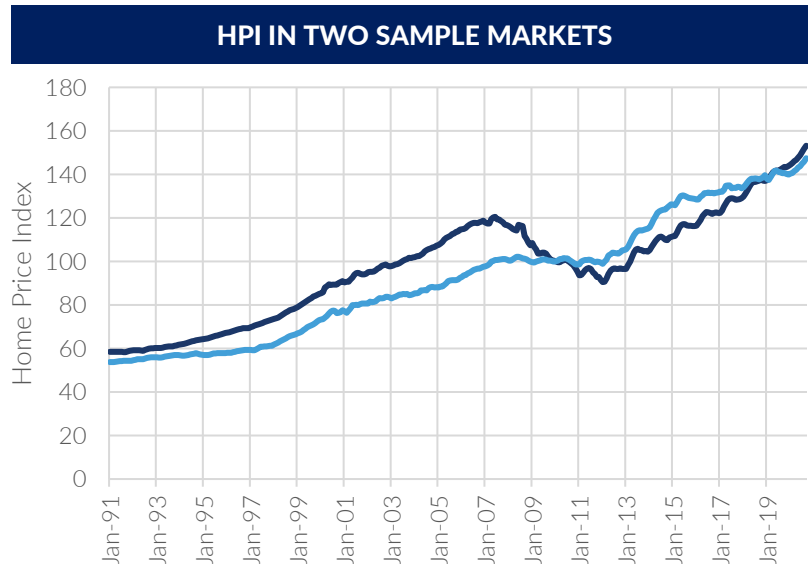
- We recommend an approach to portfolio construction that uses a risk-adjusted framework, similar to a mean-variance optimization
- An optimal portfolio seeks to maximize the Sharpe ratio or maximize the total return with a minimum Sharpe ratio constraint; to construct this for SFR:
 - 1 First, we need a cross-market variance-covariance matrix based on our proprietary long-term return and HPA data
 - 2 Next, we calculate the forward expected total return on homes based on current home prices and current/forward rents in each market

For #2 above, we make some adjustments:

- It is important to account for 'market impact' costs; for example, if \$100mn is allocated to a market at 8% returns, to allocate \$500mn to the same market, we would expect returns to drop
 - We estimate this 'impact cost' based on our proprietary models by analyzing where homes have traded in the past; we use this to develop volume-return tradeoff curves whereby allocating more to a market reduces its expected return
- 3 Using the results of the above analysis, we calculate optimal portfolio allocations

① Using historical data to estimate variance-covariance matrix

- Consider just two sample markets: since 1991 they have average HPA of 3.3% and 3.5%, and volatility of 2.35% and 1.75%, respectively
- The correlation between the two markets is 52%; the covariance matrix is shown below in green, which can be used to estimate overall portfolio volatility for different weights
- This can be expanded to more than just 2 markets, our full optimization uses data across all candidate markets under consideration



Source: Amherst estimates as of January 2021 based on publicly available information

SUMMARY STATISTICS		
	MARKET 1	MARKET 2
Simple Average Annualized HPA	3.33%	3.48%
Standard Deviation of Annual HPA	2.35%	1.75%
Variance of Annual HPA	0.055%	0.030%

		MARKET 1	MARKET 2
CORRELATION MATRIX	Market 1	100%	52%
	Market 2	52%	100%
COVARIANCE MATRIX	Market 1	0.055%	0.021%
	Market 2	0.021%	0.030%

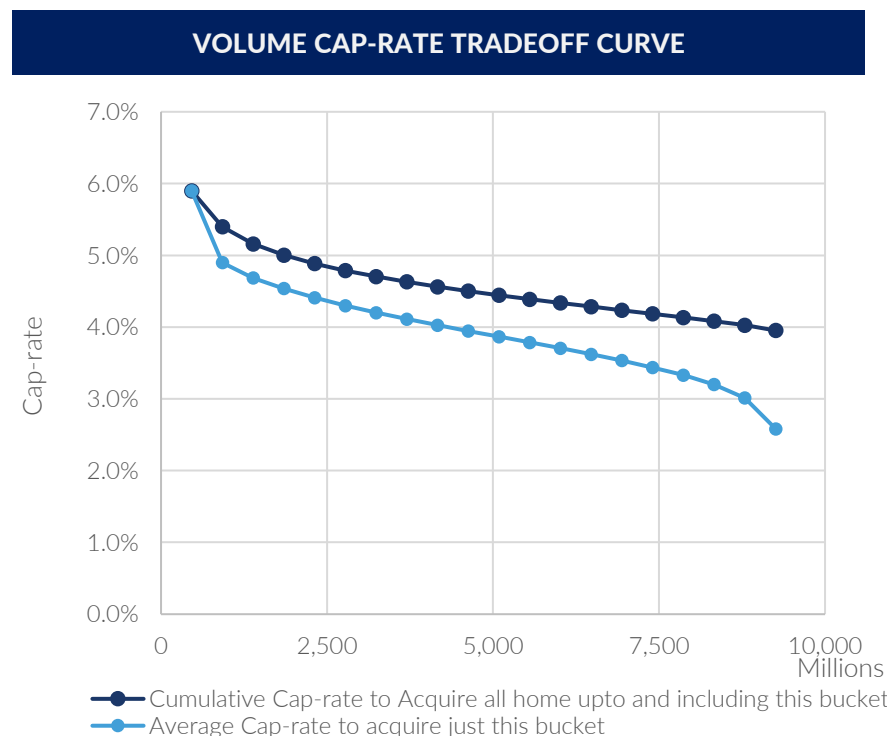


② Example of volume cap-rate tradeoff curve

- We start with all home transactions within the selected time period and underwrite net cash flow for each
- Next, we make MTM adjustments on price paid, model repair costs and forecast rents; this allows us to compute a prospective 'cap-rate' on each 'opportunity' that the market provided
- We rank-order these opportunities to get the volume-return tradeoff curves
- We make other assumptions on how efficiently homes can be purchased along this curve

PERCENTILE CUT	# OF PROPERTIES	BASIS TO ACQUIRE & REPAIR (\$MN)	CUMULATIVE CAP-RATE TO ACQUIRE ALL HOMES (UP TO & INCLUDING THIS BUCKET)	AVERAGE CAP-RATE TO ACQUIRE (JUST THIS BUCKET)
0% to 5%	2264	\$463	5.9%	5.9%
5% to 10%	2027	\$463	5.4%	4.9%
10% to 15%	1949	\$463	5.2%	4.7%
15% to 20%	1904	\$463	5.0%	4.5%
20% to 25%	1862	\$463	4.9%	4.4%
25% to 30%	1814	\$463	4.8%	4.3%
30% to 35%	1786	\$463	4.7%	4.2%
35% to 40%	1746	\$463	4.6%	4.1%
40% to 45%	1715	\$463	4.6%	4.0%
45% to 50%	1687	\$463	4.5%	3.9%
50% to 55%	1653	\$463	4.4%	3.9%
55% to 60%	1624	\$463	4.4%	3.8%
60% to 65%	1600	\$463	4.3%	3.7%
65% to 70%	1571	\$463	4.3%	3.6%
70% to 75%	1534	\$463	4.2%	3.5%
75% to 80%	1518	\$463	4.2%	3.4%
80% to 85%	1485	\$463	4.1%	3.3%
85% to 90%	1452	\$463	4.1%	3.2%
90% to 95%	1429	\$463	4.0%	3.0%
95% to 100%	1380	\$463	4.0%	2.6%

Source: Amherst estimates as of January 2021 based on publicly available information



3 Calculate optimal portfolio allocations

- Using this framework, optimal portfolio allocations can be calculated for each candidate market/region
 - The optimization strategy is to either:
 - **Maximize the Sharpe ratio** (Portfolio Return – Risk-Free Rate)/(Portfolio Volatility)
 - OR
 - **Maximize return subject to a constraint of a minimum Sharpe Ratio**, e.g., min 2x Sharpe Ratio
 - For any given allocation, portfolio vol can be calculated as $\omega^T * Cov * \omega$ where ω is the vector of assets' weights and Cov is the variance-covariance matrix
-
- To calculate expected return, for a specific allocation to a market, the volume-return tradeoff curves from the previous slide are used along with expected rent/NOI growth
 - The optimization solver then uses these tradeoff curves and other reasonability constraints to solve for the optimal allocation in each market
 - In the example on the next slide, we maximize returns while holding the Sharpe ratio at 2x for two sets of capital allocations \$500mn and \$2bn

12-month buy order optimization example: \$500mn vs \$2bn

- Calculating the results of two optimization runs: \$500mn over and \$2bn both over a 12-month period
- \$500mn order yields a 7.8% return, but decreases to 7% if the order is 4x larger (\$2bn order)
- Allocations shift from small, low-beta markets to the bigger markets for the larger size order

\$500MN ORDER FINAL ALLOCATIONS AND RETURN			
City	Weight	Forward return	Average Cap rate
Market 1	10.0%	8.0%	5.4%
Market 2	4.0%	7.8%	5.1%
Market 3	2.8%	7.7%	5.3%
Market 4	3.7%	7.8%	5.6%
Market 5	10.0%	7.7%	5.1%
Market 6	3.9%	7.7%	4.7%
Market 7	2.6%	7.7%	5.0%
Market 8	1.0%	7.6%	5.6%
Market 9	1.4%	7.8%	5.4%
Market 10	8.2%	7.7%	5.2%
Market 11	3.5%	7.9%	5.4%
Market 12	8.0%	7.7%	5.2%
Market 13	2.1%	7.8%	5.5%
Market 14	1.7%	7.8%	5.2%
Market 15	8.9%	7.8%	5.3%
Market 16	10.0%	7.9%	5.2%
Market 17	1.0%	7.4%	5.3%
Market 18	5.6%	7.6%	5.2%
Market 19	4.4%	7.6%	5.1%
Market 20	1.1%	7.9%	5.6%
Market 21	5.0%	8.1%	4.7%
Market 22	1.1%	7.7%	5.3%
Portfolio level		7.8%	5.2%
Portfolio Sharpe Ratio		2	

\$2BN ORDER FINAL ALLOCATIONS AND RETURN			
City	Weight	Forward return	Average cap rate
Market 1	10.0%	7.2%	4.6%
Market 2	5.6%	6.8%	4.2%
Market 3	8.0%	6.6%	4.3%
Market 4	1.3%	7.6%	5.3%
Market 5	9.0%	7.2%	4.6%
Market 6	2.2%	7.3%	4.3%
Market 7	7.5%	6.7%	4.1%
Market 8	3.7%	6.5%	4.5%
Market 9	0.9%	7.3%	4.7%
Market 10	2.6%	7.5%	5.1%
Market 11	3.3%	7.0%	4.5%
Market 12	10.0%	6.9%	4.3%
Market 13	1.0%	7.4%	5.0%
Market 14	1.2%	7.2%	4.6%
Market 15	10.0%	6.9%	4.5%
Market 16	6.5%	7.5%	4.8%
Market 17	2.6%	6.7%	4.7%
Market 18	2.8%	7.3%	5.0%
Market 19	5.6%	7.0%	4.6%
Market 20	0.4%	7.6%	5.2%
Market 21	5.0%	7.3%	3.9%
Market 22	1.1%	7.0%	4.5%
Portfolio level		7.0%	4.5%
Portfolio Sharpe Ratio		2	

Source: Amherst estimates as of January 2021 based on publicly available information

SFR offers attractive risk-adjusted returns

- S&P 500 Sharpe Ratio was ~90% over the last 5 years
- The technology sector outperformed the market with the Sharpe of 135%
- SFR portfolios shown on previous slide have the potential to outperform both with a 200% Sharpe Ratio

Sector/ ETF	Ticker	5 yr Sharpe Ratio	3 yr Sharpe Ratio	1 yr Sharpe Ratio
S&P 500 ETF	SPY Equity	88%	65%	67%
REIT ETF	VNQ Equity	32%	13%	-46%
Materials SPDR	XLB Equity	64%	31%	51%
Communications SPDR	XLC Equity			84%
Energy SPDR	XLE Equity	-21%	-49%	-84%
Financials SPDR	XLF Equity	42%	2%	-32%
Industrial SPDR	XLI Equity	61%	25%	15%
Technology SPDR	XLK Equity	135%	122%	167%
Consumer Staples SPDR	XLP Equity	69%	56%	47%
Utilities SPDR	XLU Equity	69%	45%	-20%
Healthcare SPDR	XLV Equity	76%	62%	103%
Consumer Discretionary SPDR	XLY Equity	86%	85%	82%
1-3yr UST	SHY Equity	38%	66%	177%
3-7yr UST	IEI Equity	60%	90%	178%
7-10yr UST	IEF Equity	60%	91%	152%
10-20yr UST	TLH Equity	62%	85%	116%
20+yr UST	TLT Equity	62%	81%	106%
IG Corporates ETF	LQD Equity	83%	75%	83%
HY Corporates ETF	HYG Equity	60%	23%	9%

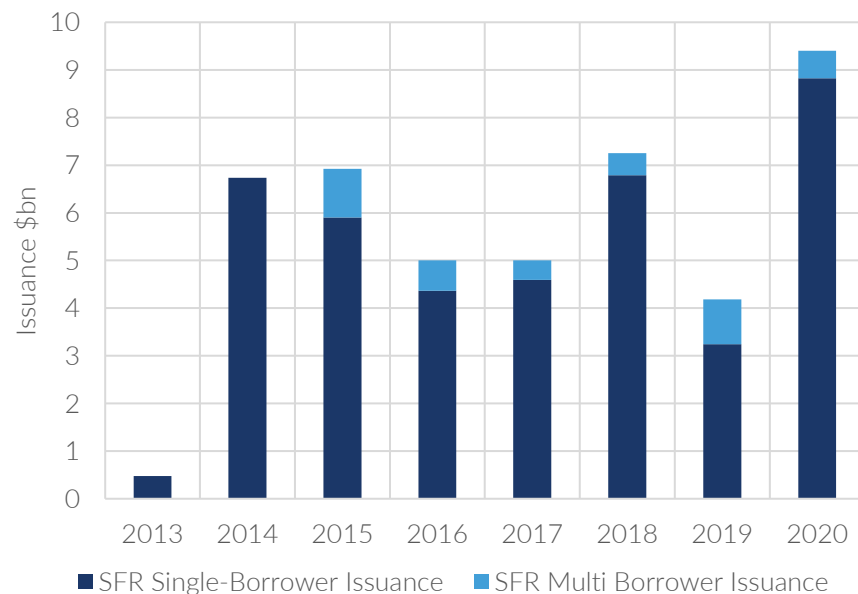
Source: Bloomberg as of October 2020



SFR securitization market provides deep and liquid financing options

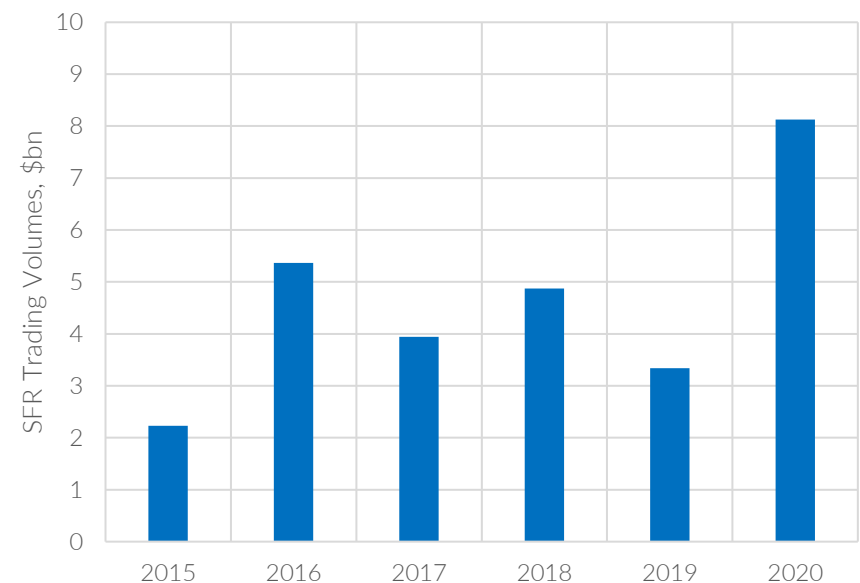
- New issuance of SFR securitizations topped \$9bn in total in 2020
- Secondary trading volumes were significant, averaging 1.75-2x the previous highest annual volume, demonstrating a deep and liquid market developing for these securitizations

SFR SECURITIZATIONS - PRIMARY ISSUANCE



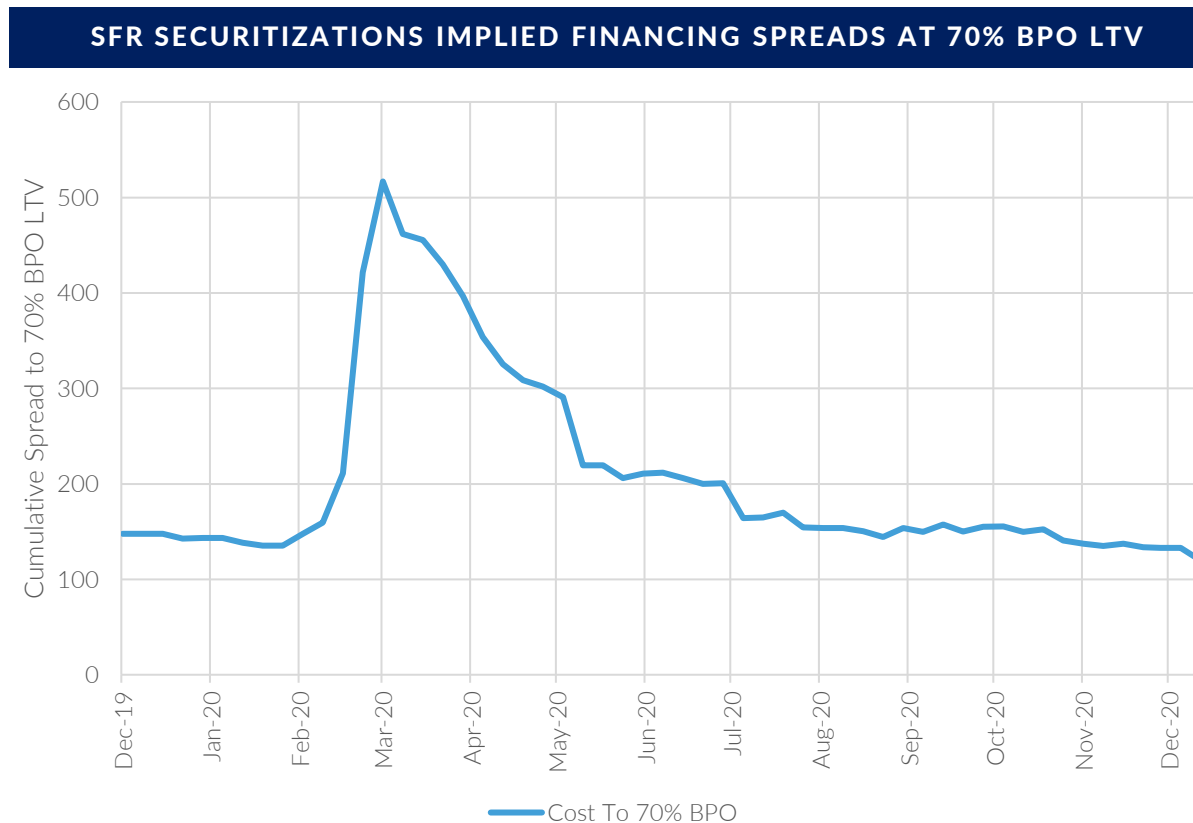
Source: SIFMA as of Dec 2020

SFR SECURITIZATIONS - SECONDARY TRADING



SFR securitization market provides attractive term-financing

- All-in financing costs fell sharply post-pandemic
- Even adding in deal costs, which can be substantial, this implies attractive financing rates



Source: Amherst estimates based on Dealer Marks on securitized tranches.



Equity IRR is likely high, even for modest cap-rate assets

- The current financing translates into a potential 20% IRR, even for a 4.5% cap rate asset with a modest 3% annualized home price growth
- We believe SFR cashflows are more durable than many other CRE assets and supportive of even higher potential leverage at attractive terms

EQUITY IRR FOR THE TWO ASSETS		
	4.5% CAP RATE +3% HPA	4% CAP RATE +2.5% HPA
BPO LTV	70%	
Debt financing spread	5y Swaps +158 bp (inclusive of deal costs in ongoing spread terms)	
Return (Cap rate + HPA)	7.5%	6.5%
5Y IRR TO EQUITY	20.0%	16.8%

Source: Amherst estimates based on Dealer Marks on securitized tranches. 5y Swap rate assumed to be 0.523% as of Jan 15 2021





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CRE Sectors at a Glance

Multi-track recovery in CRE

- Single-family rental operators and industrial sectors have performed well post-COVID
- Office and apartments have fared slightly better, but long-term concerns are emerging for office
- Retail and hotel have been impacted most severely

PUBLIC SECTOR REIT ENTERPRISE VALUE CHANGE BY REAL ESTATE SECTOR¹

	ENTERPRISE VALUE (\$BN) AS OF JAN 2021	2020 CHANGE THROUGH 3/31/2020	2020 CHANGE THROUGH 6/30/2020	2020 CHANGE THROUGH 9/30/2020	2020 YEAR END CHANGE
SFR	\$43	-16.4%	-2.1%	2.3%	6.3%
APT REITS	\$101	-20.3%	-18.9%	-23.2%	-16.7%
HOT REITS	\$7	-32.7%	-31.9%	-32.9%	-15.8%
IND REITS	\$112	2.4%	14.3%	20.8%	23.6%
OFF REITS	\$69	-24.1%	-21.1%	-24.6%	-19.4%
RET REITS	\$89	-35.3%	-28.0%	-28.6%	-19.9%
Self Storage REITS	\$41	-6.4%	-9.4%	4.4%	8.1%

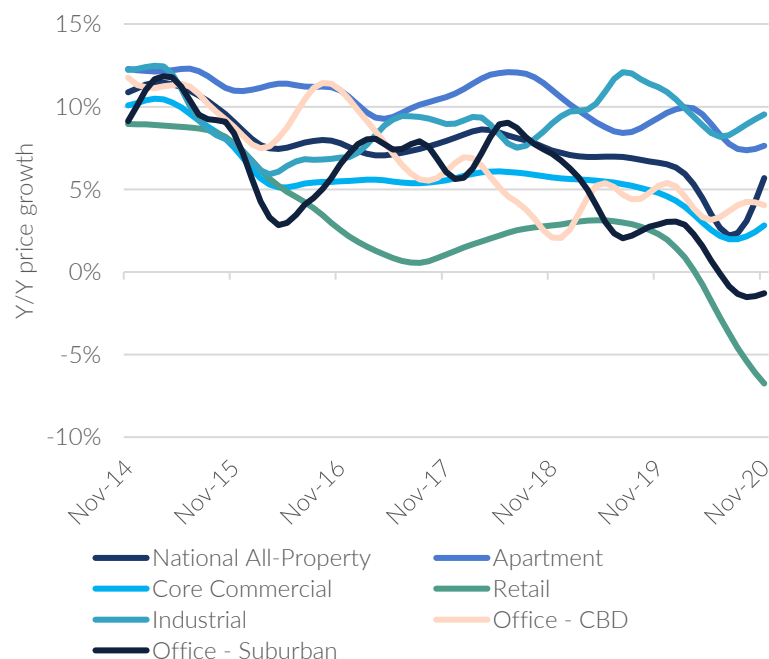
(1) As of 01/08/21. Amherst calculated based upon Bloomberg data and company filings. The following proxies are used for the respective sectors and may not be inclusive of all public sector entities and is being shown for informational purposes only: SFR Operators: INVH, AMH, TCN; APT: EQR, AVB, ESS, MAA; Hotel: SHO, DRH, SOHO; Industrial: PLD, DRE, COLD; Office: BXP, WPC, VNO, SLG; Retail: SPG, MAC, O; Self-Storage: PSA; The views expressed herein are for informational purposes only, and are derived by Amherst Capital, from current market conditions and assumptions, which may materially change over time. Information contained herein does not purport to be complete and is subject to change. Please see important disclosures at the end of this presentation.



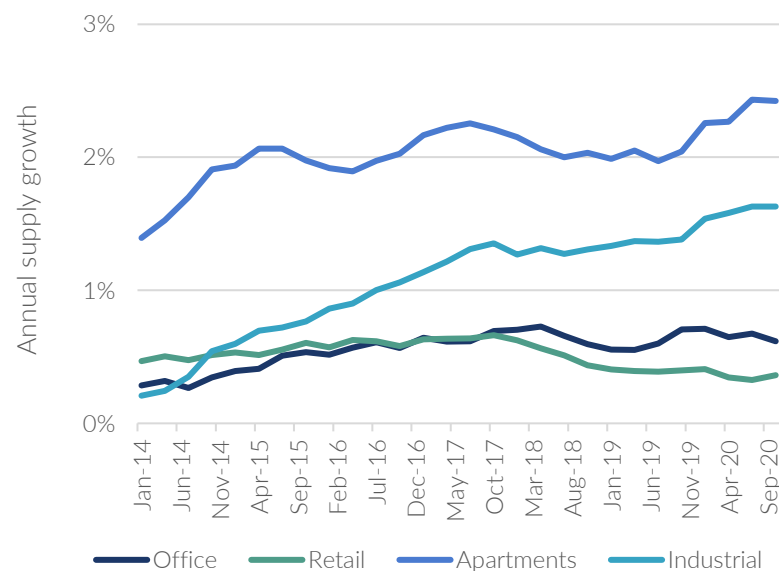
CRE price growth down significantly YoY

- All-properties price growth in September 2020 slowed to 3.1% vs. 6.8% in September 2019
- Retail prices declined by 5.4% YoY in September 2020 after growing 2.7% in September 2019
- Industrial and apartment price growth remained the strongest across all CRE sectors, while retail and suburban offices experienced negative price growth

PRICE GROWTH HAS SLOWED SINCE 2014 (JAN '14 - NOV '20)



INDUSTRIAL AND APARTMENTS SUPPLY INCREASED (JAN '14 - SEP '20)



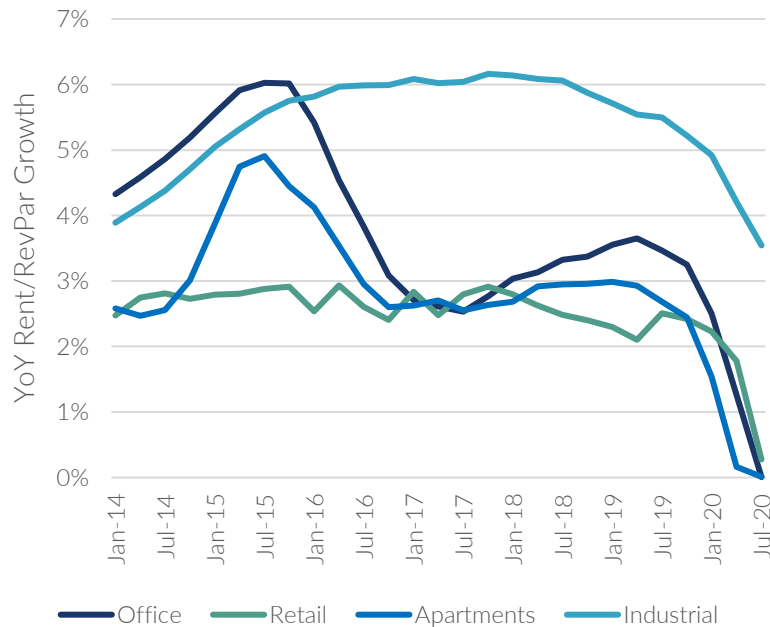
Source: RCA as of January 2021

Source: Costar data from SEP '14 - SEP '20 as of December 2020.

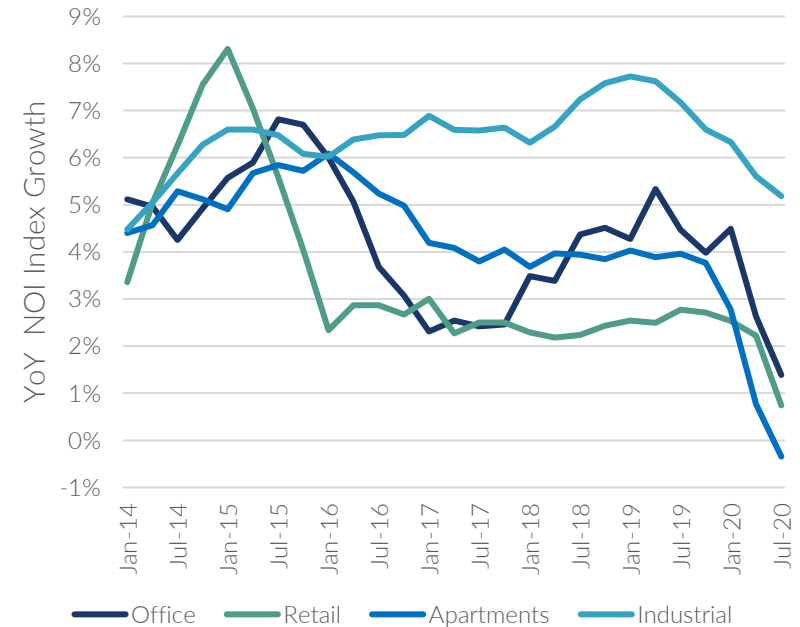
Rent and NOI growth decreased sharply in 2020

- Rent growth across all CRE types except industrial fell to 0% YoY by Q3 2020
- NOI growth trended higher than rent growth, particularly for industrial and office pre-COVID
- However, NOI growth also fell to 0% YoY by Q3 2020

RENT GROWTH HAS SLOWED (JAN '14 - SEP '20)



NOI GROWTH HAS SLOWED EVEN MORE (JAN '14 - SEP '20)

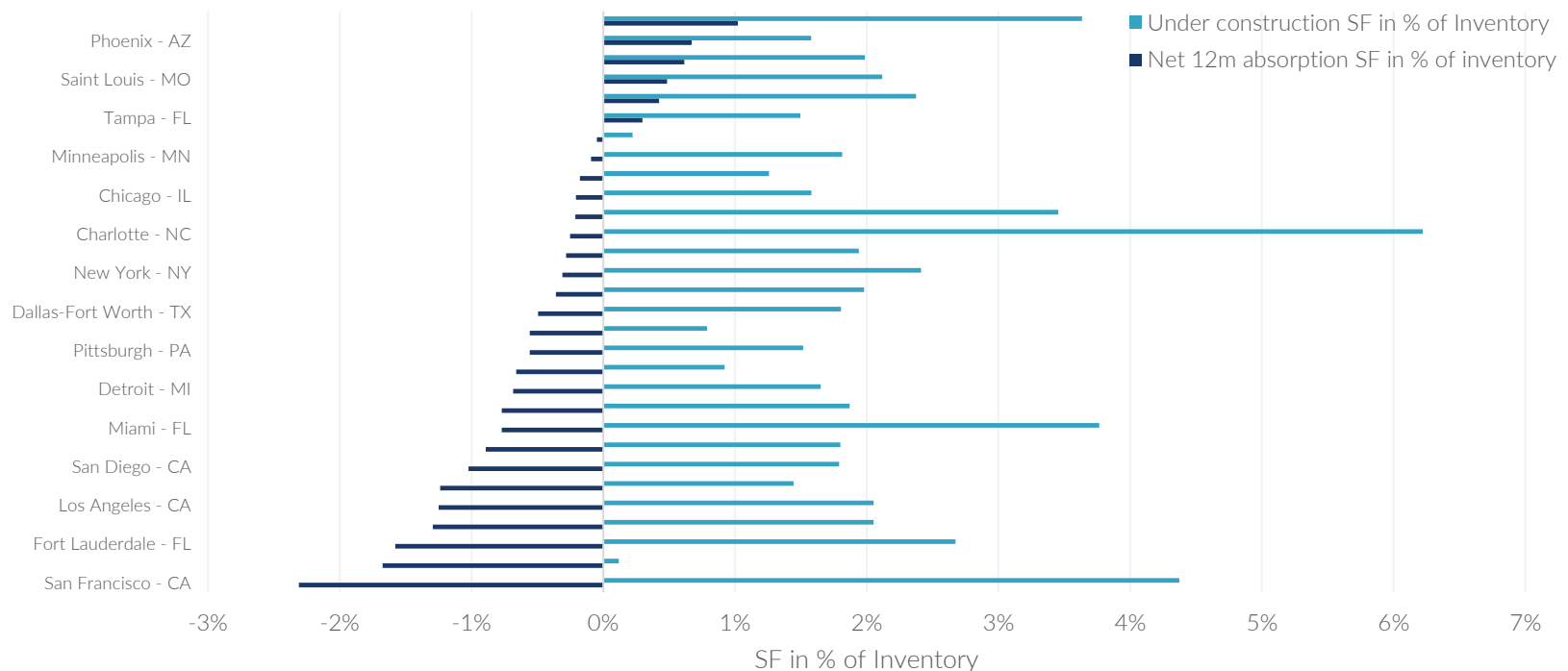


Source: Costar as of December 2020.

Office fundamentals remain at risk of weakening further

- U.S. office net absorption was -0.4% from Q4 2019 to Q3 2020
- Absorption was negative for many of the U.S.'s densest cities
- Many of these cities also have big supply pipelines, which along with the negative net absorption will put additional pressure on office fundamentals in areas like San Francisco and Los Angeles

NET ABSORPTION LAST 4 QUARTERS HAS BEEN NEGATIVE IN MANY MARKETS

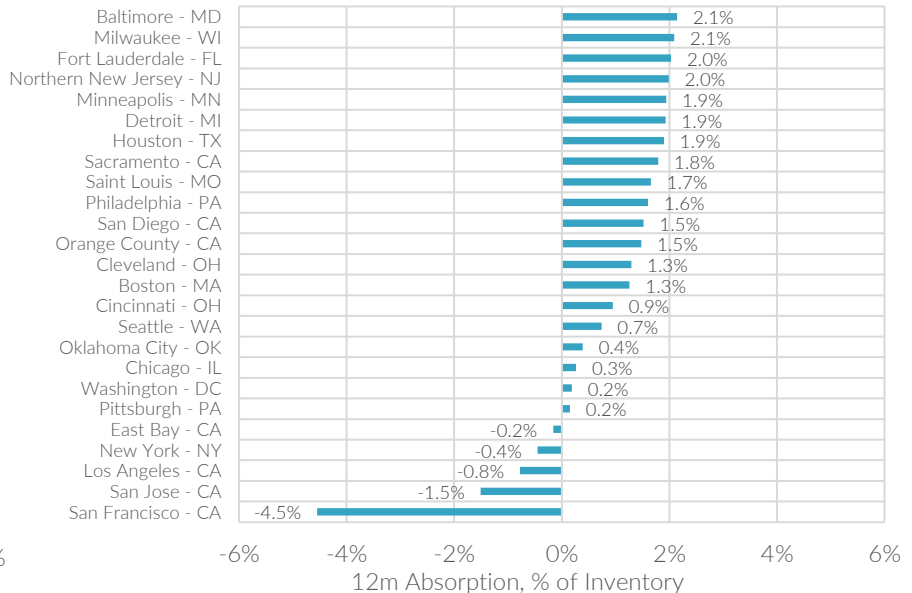
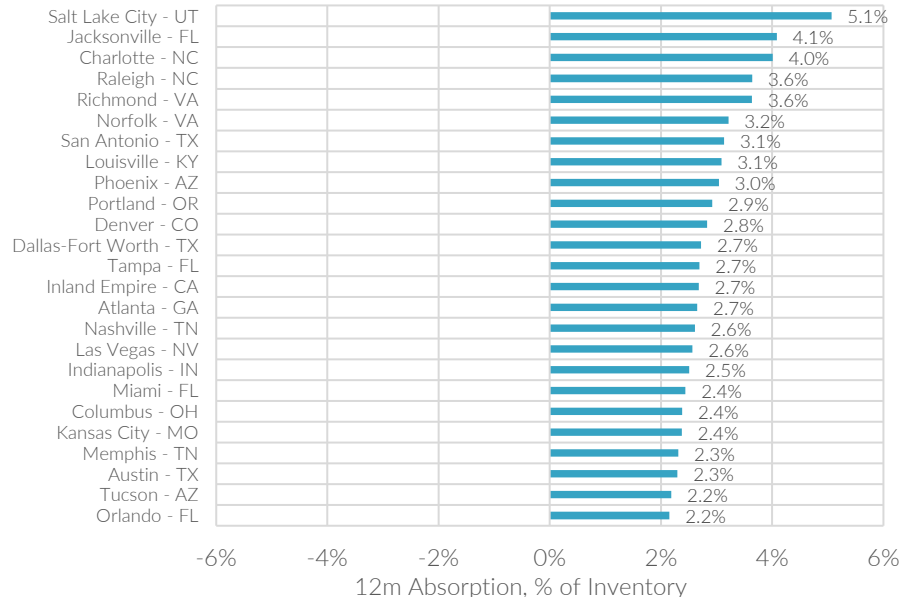


Source: Costar as of December 2020. Shows net absorption and construction as a percentage of the entire market's total occupied/vacant inventory by Square feet(SF)

Apartments: A tale of two (types of) cities

- Apartments have seen a bifurcation in absorption trends with some denser, urban, coastal and generally more expensive markets seeing drops in absorption
- However, more affordable areas with meaningful in-migration, strong job growth and population/income growth have seen the fastest absorption of rental units
- The top 5 areas by % absorption are Salt Lake City, Jacksonville, Charlotte, Raleigh and Richmond

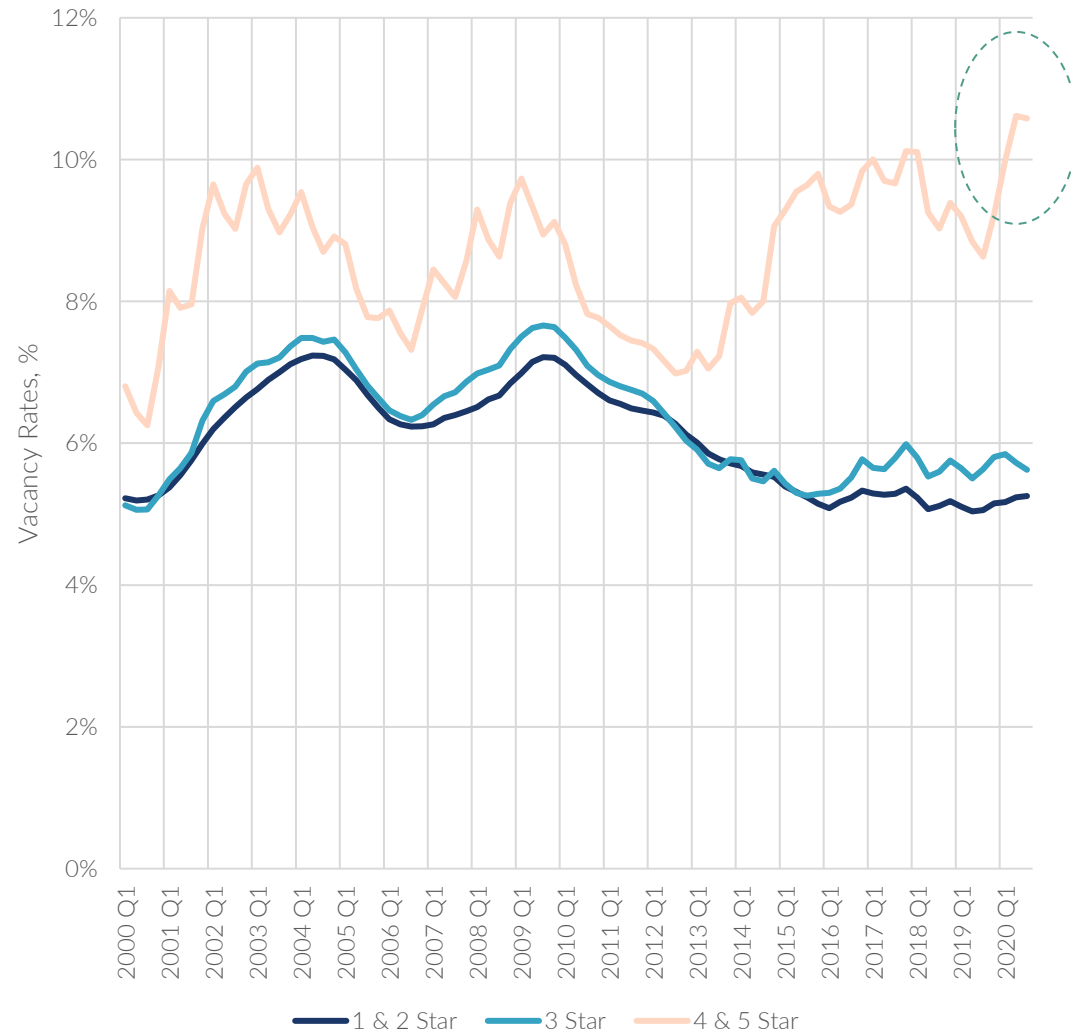
TRAILING 12-MONTH APARTMENT ABSORPTION AS % OF STOCK



Source: Costar as of December 2020

Lower-end apartments likely to outperform luxury buildings

- Higher-end apartments are seeing much larger vacancy spikes
- These spikes are likely to due location since high-end apartments tend to be in denser, urban, more expensive areas
- Lower-end apartments saw an initial uptick in vacancy, but absorption has returned in full force and is expected to stay steady



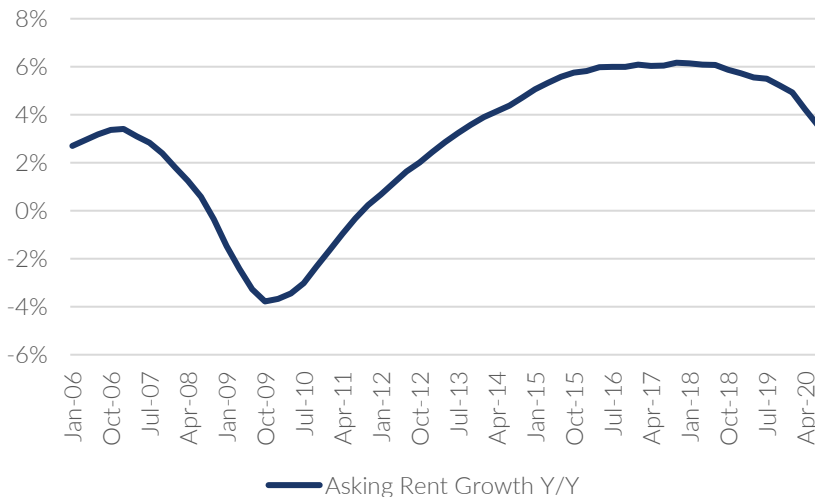
Source: Costar as of December 2020



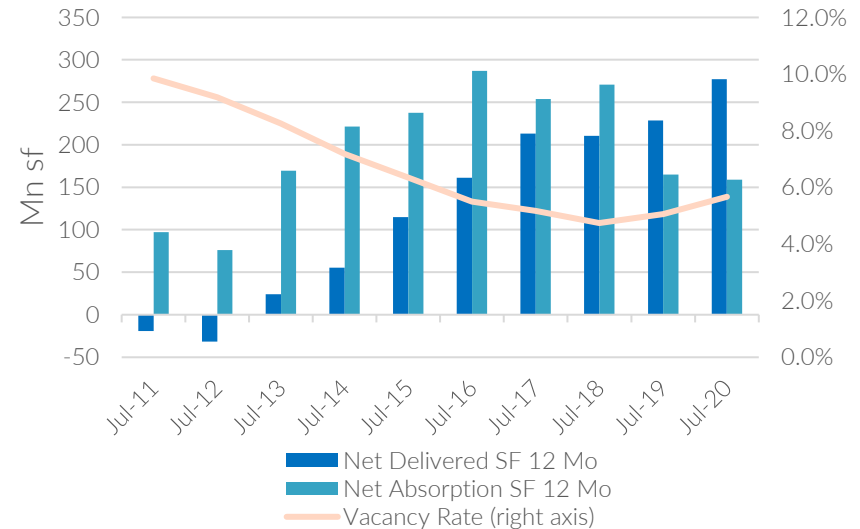
Industrial sector benefits at retail's expense

- The industrial sector posted the strongest rent growth among CRE asset classes at 3.5% as of Q3 2020, which is due largely to the massive upswing in e-commerce
- Industrial construction measured by square feet remains at an all time high of 333mn square feet as of Q3 2020
- Vacancies have ticked up as rapidly increasing supply may finally be catching up with demand leading to slowing rent growth
- Strong demand is expected to support the industrial sector as e-commerce continues to grow in 2021

INDUSTRIAL RENT GROWTH SLOWING SLIGHTLY (SEP '06 – SEP '20)



NEW CONSTRUCTION CATCHING UP TO DEMAND (JUL '11 – SEP '20)

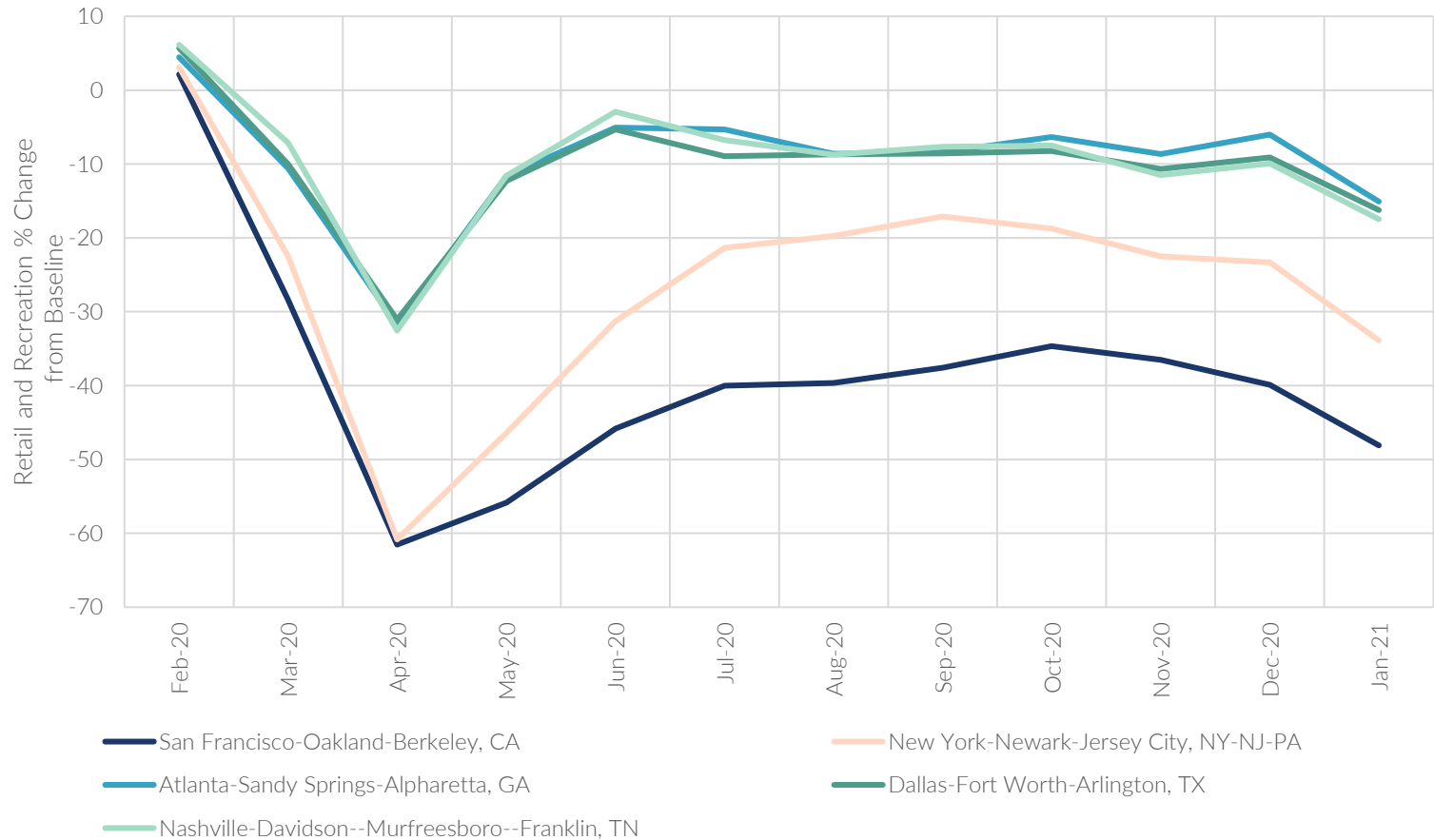


Source: Costar as of December 2020

2021 REAL ESTATE MARKET OUTLOOK / 06.CRE SECTORS AT A GLANCE

Retail utilization has suffered during the pandemic

**MANY AREAS SAW RETAIL USAGE DROP BY 50+% IN APRIL
WITH A LARGE GAP BETWEEN DENSER VS. LESS DENSE CITIES**



Source: Google Mobility Data as of Jan 2021. Retail and recreation are places like restaurants, cafes, shopping centers, theme parks, museums, libraries, and movie theaters.





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Relative Value in Securitized Products

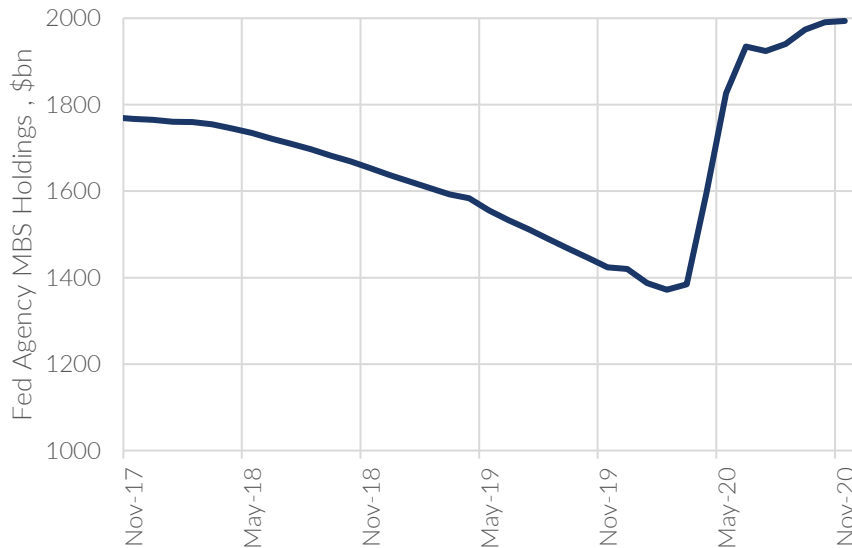
Low rates, even lower spreads; early rollback of monetary support or weaker fiscal support are the main risks

- The post-pandemic recovery in securitized asset pricing has been fast and steep, driven mostly by supportive monetary policy and fiscal support
- Even with a modest rate sell-off, most of the Agency MBS borrowers will remain highly refinanceable; pricing will remain driven by the Fed and a 'taper tantrum 2.0' scenario could create some spread volatility
- A strong housing market will likely continue to support residential/SFR/multi-family securitized credit spreads
- Some CRE sectors will continue to face issues. Even with a full reopening of the economy, some CMBS loans will face losses. On average, losses are unlikely to exceed below-IG level in conduits, but on some deals could creep into BBBs or higher.
- Overall, the risk to spreads is likely more from shifting expectations on a rollback of monetary policy measures (taper-tantrum 2.0) or a falling short of fiscal policy measures (this is less likely with Democrats gaining control of the Senate following the Georgia runoff election)

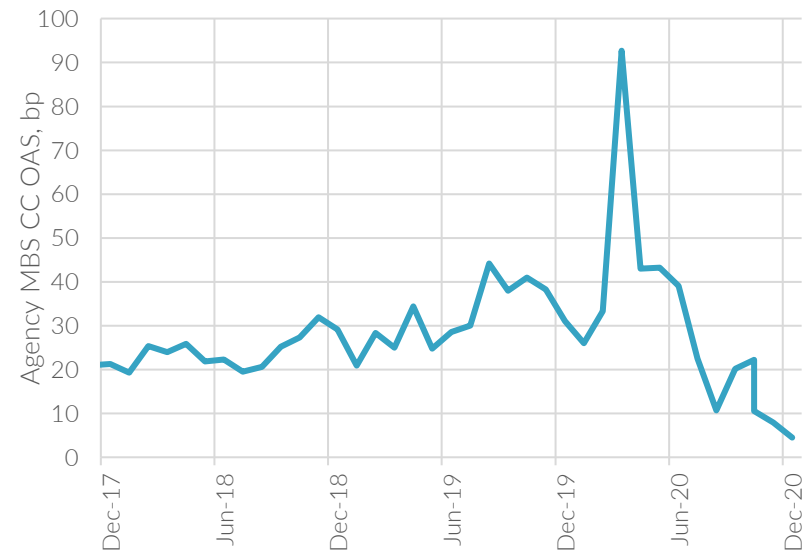
Fed response to the pandemic was swift

- After several years of reducing MBS holdings from ~\$1.8tn in 2017 to just under \$1.4tn in early 2020, the Fed had to reverse course in response to the pandemic
- As a result, the Fed's MBS portfolio has shot up to \$2tn and OAS have collapsed to at or below zero
- Even as rates sell-off modestly, much of the agency universe remains refinanceable. Additionally, a taper-tantrum 2.0 scenario could also add spread volatility to this market.

FED MBS HOLDING SPIKED POST-COVID
(NOV '17 – JAN '20)¹



...AND AGENCY MBS SPREADS COLLAPSED
(DEC '15 – DEC '20)²



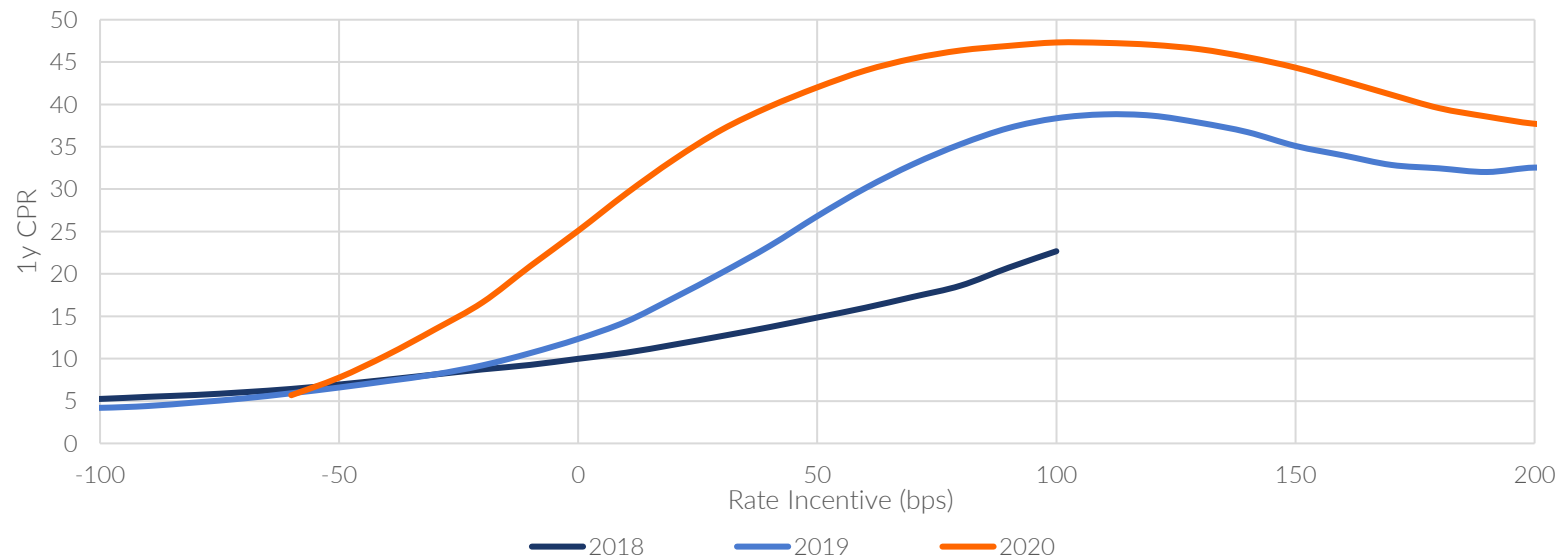
Source: (1) Federal Reserve, Amherst as of Jan 12, 2021. (2) Source: Dealer Marks, Amherst as of Dec 2020



Prepayment risk is noticeably higher

- The historic rally in rates caused a surge in prepayment speeds
- Prepayments were much higher than prior years even after adjusting for rate declines
- Risks from further credit easing and technological advancements that increase refinancing efficiency are not priced in

S-CURVES WERE MUCH STEEPER IN 2020, 6-18 WALA

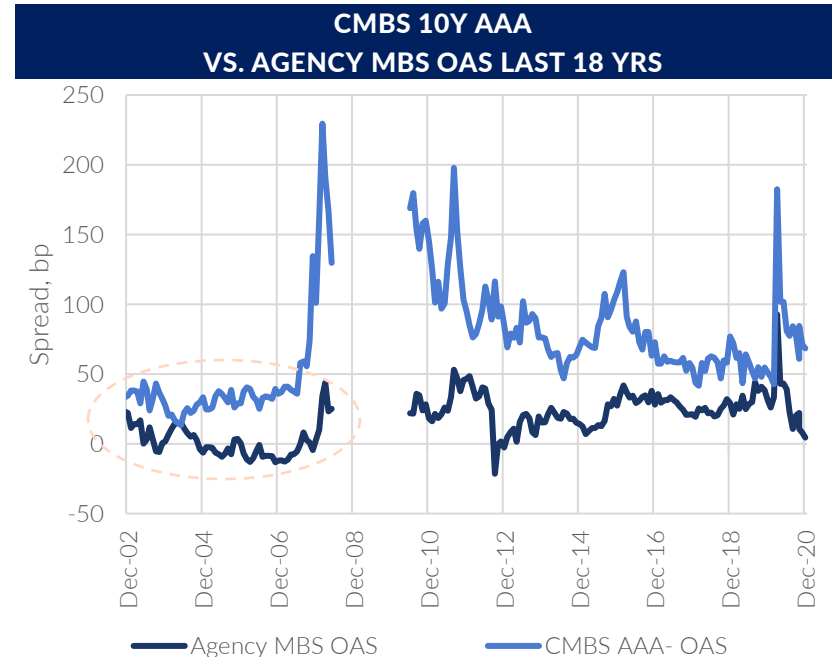
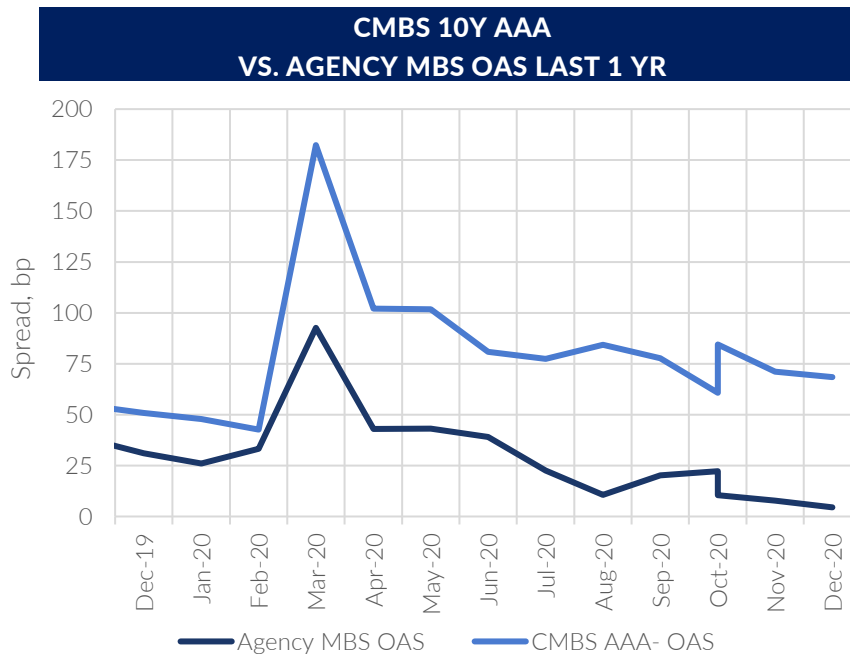


Source: FNMA, FHLMC, Amherst as of Jan 12, 2021



Agency MBS valuations remain challenging as Fed dominates, some SASB CMBS/SFR still offer value

- The COVID pandemic led to a big sell-off across the board with even Agency MBS OAS hitting 75-100bps for a short period
- CMBS spreads widened to largest gap in March at 250-275bps, the CMBS Agency basis widened to 175-180bps at peak
- Since then, as the Fed ramped up Agency MBS purchases, Agency OAS collapsed to close to 0bps OAS, or even entered negative territory, vs CMBS AAA spreads which are still about 60-65bps wider
- While this seems high compared to pre-COVID averages of about 30-50bps, the duration gap has widened considerably with Agency MBS index OAS close to 1-2 year whereas conduit CMBS AAAs are 10-year bonds – thus, some widening in this basis is to be expected
- Overall, there is some value in safe CMBS AAA spreads, especially in the SASB space as well as in SFR securitizations



Source: Dealer Marks, Amherst as of Jan 12, 2021

Securitized credit spreads have retraced sharply

- The COVID pandemic exposed the market's inherent weakness in pricing risk, most sectors over-corrected and then retraced to even tighter levels
- Other more leveraged sectors like lower rated CRT and CMBS BBs faced extreme volatility and have been slower to recover
- Leveraged CRE continues to struggle in a world where long-term real estate demand is unclear and some losses seem unavoidable, but are likely to remain constrained to below IG conduit bonds
- The spread pickup to go down the capital stack in structured credit is not commensurate with the risk

	1/8/2021	Max Spread (Week of Mar 23)	Week of Feb 1	% Spread Widening Retraced
Fannie DUS	30	135	53	128%
Freddie K A2	24	110	48	139%
CMBX 12 AAA	39	164	50	109%
Conduit 10yr AAA	68	350	76	103%
Office/ Industrial SASB AAA	65	350	85	108%
Hotel SASB AAA	100	550	125	106%
SFR AAA	70	378	93	108%
Non QM AAA RMBS 2.0	98	478	122	107%
Conduit 10yr BBB Cash	380	1,080	280	88%
SFR BBB	165	771	194	105%
SFR NR/B-	360	1,350	400	104%
CMBX 12 BBB-	419	1,097	315	87%
CMBX 12 BB-	874	1,834	589	77%
CRT M1 (From MS)	80	550	75	99%
CRT M2 (From MS)	230	700	180	90%
CRT B1 (From MS)	330	1,550	300	98%
CRT B2 (From MS)	550	3,000	480	97%
CDX IG	50	152	47	98%
CDX HY	289	871	292	101%

Source: Dealer Marks, Amherst as of Jan 2021

What to expect for securitized products in 2021?

OVERVIEW

- Valuations likely to be driven by expectation shifts on fiscal and monetary support for the post-pandemic economy
- The additional return in deep securitized credit does not adequately compensate for the leverage/idiosyncratic risks assumed
- Our research points to more value in the top of the capital stack in securitized credit products, especially in SASB/SFR AAAs

AGENCY MBS

- Valuations remain extremely tight with the Fed adding \$600+bn in Agency MBS in 2020; even with a modest sell-off much of the Agency universe is likely still refinanceable

PRIVATE LABEL AAA (CMBS/RMBS)

- AAA CMBS/SFR residential credit spreads offer a decent pickup vs. Agency MBS, but at least some of that pickup is due to differences in average life with Agency MBS at 1-2 years vs. CMBS at 5-10 years

PRIVATE LABEL MEZZANINE BONDS

- Most public/144a securitized sectors do not offer adequate compensation for credit risk
- Our research points to the best opportunities for higher yields in private transactions outside the securitized space in transitional CRE loans



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The Amherst Group LLC (including its subsidiaries and affiliates, “Amherst,”) is a real estate investment, development and operating firm with a full suite of products and services designed to unlock broader access to real estate opportunities for institutional and retail investors across the globe. Underpinned by proprietary technology, battle-tested data and a deep understanding of U.S. real estate markets, Amherst’s vertically-integrated platform seeks to provide investors a more efficient model to price, finance and manage real estate with turnkey execution capabilities across the firm’s debt and equity strategies in the public and private residential, commercial and mortgage-backed securities markets. Over the past two decades, Amherst and its affiliated funds have acquired, renovated and operated more than 30,000 homes serving 70,000 residents. Headquartered in Austin, Texas, Amherst has \$8 billion of assets under management with more than 900 employees in 30 markets across 20 states as of September 30, 2020. For more information, please visit: www.Amherst.com.

ABOUT AMHERST HPI MODEL

Amherst home price index is generated and maintained by Amherst. The index tracks price changes of single-family detached properties in more than 200 core- based statistical areas (CBSA) and 50 states in the US. The index is published monthly and is based on the Case Shiller repeated sales methodology. Unlike HPI published by S&P Case Shiller Weiss, Corelogic and Federal Housing Finance Agency (FHFA), Amherst HPI is a distressed-free index which does not include price changes due to foreclosures, short-sales, bank repossession and REO resale. The repeated sales HPI rely on tracking price changes in transactions of the same house over time. For each arms-length and distressed- free home sale transaction, a search is conducted to find information regarding previous arms-length and distressed-free sales of the same house. If an earlier transaction is found, the two transactions are paired into a “sale pair.” Sale pairs are designed to track price changes over time for the same house, while holding the quality and size of each house constant. After sales pairs are formed, the index is calculated under a weighted least square framework, in which weights are based on price anomalies and time interval within pairs.



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