

Housing and Mortgage Market Review

HaMMR – Issue 3-2022

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Housing Poised for a Soft Landing After Some Turbulence

by **Parker Ross,** Senior Vice President, Chief Economist, Arch Capital Services LLC, and **Leonidas Mourelatos**, Director of Real Estate Economics

The U.S. housing market is entering a period of transition that — in the end — will be healthy for its long-term health. While we peg the odds of a recession in the next year at roughly 50%, solid but slowing consumer spending and a strong labor market underpin our base view for a soft-landing scenario. This would include real GDP growth slowing to a crawl, the unemployment rate rising gradually and national home-price appreciation easing while remaining positive.

For the housing market, this will be an ideal scenario for a rebalancing of the market, with home-price growth slowing meaningfully while allowing income growth to catch up to the pandemic era's home-price gains. Over the medium to long term, this will improve affordability and reinvigorate demand to a more sustainable level.

In addition to our outlook for a normalization of demand and gradually improving affordability, the other key factor bolstering a soft landing for national home prices is the long-term fundamental shortage of homes. As we discussed in detail in the Fall 2021 Housing and Mortgage Market Review[®] (HaMMRSM), the overall inventory of homes remains exceedingly tight following years of underbuilding in the wake of the Global Financial Crisis (GFC). Based on our prior analysis of U.S. Census Bureau data, we estimated the U.S. was short 4 million homes as of 2020, the latest year with complete official data.

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Housing Poised for a Soft Landing (continued from page 1)

Bringing the supply-constrained housing market into balance would require construction activity to exceed demand for an extended period. Given the slowdown in construction activity in response to the recent mortgage rate shock, the prospect of sustained overbuilding remains exceedingly remote. Needless to say, a persistently supply-constrained market is not a precursor to widespread and sustained price declines.

How Quickly Are We Losing Altitude?

As the Federal Reserve has initiated one of its most aggressive rate-hiking cycles in history in an attempt to tame inflation, mortgage rates have jumped from below 3% to nearly 6% in less than one year. The jump in borrowing costs priced out many marginal buyers and resulted in a cooling of demand that previously far exceeded supply. Mortgage rates have since come down slightly from a June peak of 5.81% to 5.66% as of Sept. 1., but this modest improvement is unlikely to reverse the normalization of market conditions that is now underway. The pace of new listings of existing homes is slowing, homes for sale are staying on the market longer and Google searches for 'homes for sale' have pulled back. We also don't expect mortgage rates to return to the sub-3% — or sub-4% — range any time soon. Instead, we expect the 30-year fixed rate mortgage to settle in around the low-to-mid-5% range over the next several quarters.

Builder confidence has also dropped sharply as homebuyer traffic has declined rapidly to its lowest point since 2014, pointing to further slowdowns in home construction. Single-family starts have already dropped sequentially in 10 out of the past 12 months (Figure 1). As a result, the months' supply of completed new homes for sale remains near historic lows, indicating that strong demand remains for move-in-ready homes despite the recent hit to affordability. Meanwhile, the market continues to soften for homes with lengthy and uncertain delivery timelines, including homes currently under construction. Notably, the market for homes in the development pipeline had been softening prior to this year's rate shock as homebuilders were previously restraining sales of new homes to manage through difficulties with supply chain delays and labor shortages.



Figure 1: NAHB Builder Confidence and Single-Family Housing Starts

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Housing Poised for a Soft Landing (continued from page 3)

Affordability constraints have considerably slowed housing market activity as the run-up in home prices followed by the jump in mortgage rates has sharply increased borrowing costs at a rate that has outpaced income growth. For a buyer of a median-priced existing single-family home (with a 10% down payment), the monthly mortgage payment is up \$660 or 50% from one year ago. Put another way, a family earning an annual income of \$75,000 would currently spend 32% of their monthly income on principal and interest alone compared to 21% last July.

Consequently, existing home sales have declined sharply to a seasonally adjusted annualized rate of 4.81 million units, 28% below the January 2021 pandemic peak of 6.65 million and about 10% below the 2019 average of 5.235 million. Although the pace of existing home sales has slowed, demand still far exceeds supply. As a result, a tight market remains as the inventory of existing single-family, condo and co-op homes for sale only recently climbed back to last year's level but still remains 31% below the pre-pandemic level (Figure 2). The months' supply of existing homes for sale, or the amount of time it would take to sell the inventory of homes for sale at the current pace of sales, remains near historical lows at three months (Figure 3) as the slowdown in sales has been somewhat offset by fewer new listings. Historically, months' supply has averaged close to five months during balanced markets, suggesting that the housing market still has ground to cover before supply and demand find a new level of balance.



Figure 2: Existing Single-Family, Condo and Co-Op Home Inventory (SA) by Year

Figure 3: Existing Single-Family Home Sale Price and Months' Supply



The housing market is entering uncharted territory, but it is doing so from a position of strength on multiple measures:

- The inventory of homes for sale remains near historic lows despite the recent pullback in sales activity.
- The overall homeowner vacancy rate remains at a record low.
- Mortgage delinquency rates continue to fall despite already being at a historic low.
- Mortgage credit standards remain historically tight.

These sound underlying fundamentals suggest the housing market will be able to cool back to a more balanced state and be resilient in the face of a slowing economy.

Real Affordability Concerns

As we have discussed in detail previously, the pandemic resulted in historically low mortgage rates and created the opportunity for many office workers to work from home either on a full-time basis or several days per week. The combination of extremely low borrowing costs and newfound geographic flexibility resulted in a surge in demand for homes with more space in less dense neighborhoods. Many would-be city renters instead purchased homes in the suburbs and exurbs while the collapse in mortgage rates supported refinancing, relocation and second-home investment activity by existing homeowners.

The result of surging demand on top of an already tight housing market was a 42% cumulative increase in national home prices since December 2019, according to Freddie Mac (Figure 4). The growth in home prices was strong across the nation, although prices in certain housing markets clearly outpaced the national average. While we expect home-price growth to slow rapidly over the next year, the pace of slowdowns will likely be uneven as well. Prices are likely to slow the most rapidly — and decline in some cases — in the housing markets that experienced the greatest increases over the past two years, particularly in markets where prices became most disconnected from fundamentals.



Figure 4: Home-Price Growth December 2019–July 2022

Sources: Freddie Mac/Arch MI

(continued on page 6)



Real Affordability Concerns (continued from page 5)



Let's Get Real

Home-price growth has far exceeded income growth since the pandemic, but low mortgage rates originally limited the affordability squeeze for homebuyers. Looking at our preferred measure of home-price affordability, the homeownership cost-to-income (CTI) ratio was just under 34%, or about 10% below its historical average at the onset of the pandemic (Figure 5). This meant potential homebuyers were well positioned to absorb rapidly rising home prices before monthly homeownership expenses would account for the typical 37% share of household income, a level that was breached in the second quarter of 2021.

Figure 5: Real Home-Price Growth vs. Homeownership Cost-to-Income Ratio



Sources: NAR/Moody's Analytics/Freddie Mac/U.S. Census/U.S. Bureau of Economic Analysis (BEA)

Over the past year, home prices climbed another 13% and mortgage rates jumped from an average of 3% in Q2 2021 to an average of 5.3% in Q2 2022, which caused the cost of homeownership to surge 48% year-over-year and 79% over two years. Income growth has been strong, but has not been enough to offset the rising cost of homeownership, resulting in the CTI rising to 48% — the fastest relative two-year increase in history. The current level of the CTI is just above the 47% reached in 4Q 2005 but remains well below the extreme levels reached in the early 1980s when home prices were rising at a similar pace and mortgage rates were nearly 20%.

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Read the latest HaMMR Digest at archmi.com/insights/hammr-digest.

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Putting Everything In Perspective

Although the current level of affordability is slightly worse than in 2005, we see more similarities to the early 1980s housing market than the mid-2000s housing market. A significant portion of homebuyer demand in the early 2000s was created by easy access to risky mortgage products that allowed many people to purchase a home who would not have been able to otherwise. When easy mortgage credit was removed, homebuyer demand collapsed quickly and home prices followed. We go into greater detail on this topic later this issue in our article titled "How the Mortgage Market Evolved Since the Early 2000s."

Meanwhile, the strong home-price gains of the late 1970s and early 1980s were not fueled by creative mortgage products, rather by broad inflationary pressures more akin to today's macroeconomic backdrop. Although home-price growth exceeded 10% for five years during the late 1970s, overall inflation was much higher as well. Considering real, or inflation-adjusted home-price growth, the recent peak year-over-year home price-gain of 20% in Q2 2021 far outpaced any other period in history, including the late 1970s (Figure 6).

Figure 6: Nominal and Real Home-Price Appreciation (HPA)



Historically, when the CTI has climbed above 40% of the median household income, real home-price growth has turned negative, averaging -1% over the next two years. By comparison, when the CTI was below 40%, home-price growth averaged 3.3% over the next two years. This is generally consistent with our view that the pace of home-price gains is likely to slow to less than the rate of broader consumer inflation over the next several years. In nominal terms, we continue to expect national home-price appreciation to slow substantially but remain positive as mortgage rates stabilize and above-trend income growth chips away at the current affordability constraints.

Although we expect modest national home-price growth over the next few years, we do anticipate outright price declines in the markets where prices became most disconnected from local fundamentals. Historically, there is typically some share of metro areas recording annual homeprice declines, even while national home-price growth remains positive (Figure 7). Given solid fundamentals in many markets and still tight lending standards, we expect a return closer to the historical mix of gainers and decliners rather than the broad national decline in home prices that developed over the course of the GFC.



Figure 7: Share of Metro Areas with Negative Annual HPA vs. National HPA

How the Mortgage Market Evolved Since the Early 2000s

While the housing market is undergoing a bumpy transition period, what is certain is that a repeat of 2008 is not in the cards. As mentioned earlier, a substantial amount of the homebuyer demand during the mid-2000s was artificially created by incredibly loose mortgage lending standards that allowed many people to become homebuyers without the means to truly service the debt.

When the housing slowdown started, loose lending standards vanished and exacerbated the price downturn as a meaningful share of the artificially inflated homebuyer pool could no longer access credit. In the aftermath of 2008, regulations surrounding mortgage lending increased substantially, ensuring that mortgage lenders remained prudent even during the peak of the recent pandemic-induced buying frenzy (Figure 8).



Figure 8: Urban Institute's Housing Credit Availability Index (HCAI)

 1999
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 2001
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 2007
 2008
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 2013
 2014
 2015
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 2019
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 2021
 2021

 Sources:
 eMBS, CoreLogic, Home Mortgage Disclosure Act, IMF and Urban Institute
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According to the Urban Institute: "The Housing Credit Affordability Index (HCAI) measures the percentage of owner-occupied home purchase loans that are likely to default — that is, go unpaid for more than 90 days past their due date. A lower HCAI indicates that lenders are unwilling to tolerate defaults and are imposing tighter lending standards, making it harder to get a loan. A higher HCAI indicates that lenders are willing to tolerate defaults and are taking more risks, making it easier to get a loan."

Lending standards are significantly tighter relative to the pre-GFC era, in part due to fewer creative or risky mortgage products as well as stricter underwriting requirements. Much of the risky loan product from the early 2000s was originated via the portfolio and private-label securitization channel, which accounted for over 60% of mortgage originations in 2005 compared to closer to 20% now. Over the same period, GSE mortgage origination market share increased to roughly 60%, up from just over 30% in 2005, despite the criteria for selling qualified loans to GSEs becoming much stricter in the years since the GFC.

The Urban Institute's Housing Credit Availability Index (HCAI) classifies loans with risky features as any loan that was not a fixed-rate mortgage or an adjustable-rate mortgage with an initial fixed-interest-rate period of five years or longer, or loans with any of the following features: prepayment penalties, balloon terms, interest-only terms and negative amortizations.

The number of mortgage loans with risky product terms was relatively small pre-GFC (28%), grew significantly during the lead-up to the housing crash (51%) and has disappeared nearly entirely since. Products that fell into the riskiest category are virtually non-existent today despite accounting for nearly 30% of total mortgage originations at their peak in 2005. The Urban Institute's classification of risky loans includes interest-only loans with principal payments that are not required for a pre-specified period and negative amortization loans with required payments that are less than the interest charged.

Tighter lending standards are also readily apparent in the distribution of borrower credit scores over time, with borrower credit scores above 760 accounting for 70% of mortgage originations in 2021 compared to only 25% in 2005 (Figure 9). Additionally, in the lead-up to the GFC, the share of low-credit-score originations — scores less than 660 — continued to rise as a share of total originations to 26% until the beginning of 2007 — even after existing home sales had already dropped 25% from the 2005 peak. Home sales have declined by a similar amount since early 2021, and yet the share of low-credit-score originations has actually declined to 5.5% in Q1 2022 from 6.5% in Q1 2021.



Figure 9: Mortgage Originations by Credit Score

Sources: Federal Reserve Bank of New York Consumer Credit Panel/Equifax/Arch MI

* Credit Score is Equifax Riskscore 3.0

While the share of Adjustable-Rate Mortgages (ARM) has increased during the recent rate shock, they remain a relatively small share of the market (accounting for about 7% as of early September) compared with well above 30% during the GFCera (Figure 10). Additionally, ARM underwriting standards have tightened significantly, making ARMs less of a product to make homeownership more affordable for lower-income borrowers and instead more prevalent in higher-cost areas.



Figure 10: ARM Share (%) of Mortgage Applications

Altogether, mortgage lending standards have remained prudent through the recent housing cycle, significantly reducing the risk of a housing downturn driven by distressed borrowers even in the case of a recession. The risk of a large wave of forced sales during a recession is also extremely low, given the current record level of home equity possessed by current homeowners.

S&P/Case-Shiller 20-City Composite S&P/Case-Shiller U.S. National HPI FHFA Purchase Only HPI

Federal Housing Finance Agency All-Transactions House Price Index (FHFA AT HPI®)

YEAR-OVER-YEAR PERCENTAGE CHANGE IN HOME PRICES

National home-price growth has slowed. Home-price growth in June 2022 was strong across two key indices, with the Federal Housing Finance Agency (FHFA) Purchase-Only Index up 16.2% year-over-year - decelerating steadily from the 19.3% advance posted in February. Likewise, the S&P CoreLogic Case-Shiller U.S. National Home Price Index decelerated to 18.0% year-over-year in June from 20% in May. These homeprice indicators differ in methodologies and data sources (the FHFA only uses GSE loans, while the Case-Shiller index includes many jumbo and other types of loans) but they both reflect a modest deceleration in 2022 Q2 vs. Q1.

Sources: FHFA/S&P Case-Shiller/Moody's Analytics/Arch MI

MBA MORTGAGE PURCHASE APPLICATION INDEX

As of September 2022, the number of mortgage purchase applications is down 23% compared with 2021 amid the increase in mortgage rates, and 12% below September 2019 application volume. Meanwhile, the sharp rise in home prices has lifted the dollar volume of mortgage purchase originations 11% above the September 2019 level. The rise in mortgage rates has been sharp so far in 2022 as the Fed has been aggressive in raising rates. The Fed is not done with its hiking cycle yet and we do not expect rates to come down materially in the next few quarters, creating a headwind for purchase activity despite a solid demographic and labor market backdrop.

Note: Index rebased so that current activity level = 100

Sources: MBA/Arch MI

HOUSING STARTS, IN THOUSANDS — SEASONALLY ADJUSTED ANNUAL RATE

2,000 1,500 1,000 500 0 Jul-02 Jul-04 Jul-06 Jul-08 Jul-10 Jul-12 Jul-14 Jul-16 Jul-18 Jul-20 Jul-22 Single-Family Starts _____ Multifamily Starts

Single-family housing starts stand at 916,000 units (seasonally adjusted annual rate) in July and are down 30% from their pandemic peak of 1.3 million units reached in December **2020.** Builders struggled with supply chain bottlenecks at the beginning of the pandemic but are now facing a much different demand backdrop as overall housing activity has slowed. Despite the pullback in activity, the current pace of single-family housing starts is roughly inline with the July 2019 pace. Additionally, the pace of multifamily starts remains elevated at 530,000 units (annualized rate) as of July, which is 55% above the July 2019 pace.

Sources: U.S. Census Bureau/Freddie Mac/ NAR/Moody's Analytics/Arch MI

NEW AND EXISTING HOME SALES, IN THOUSANDS — SEASONALLY ADJUSTED ANNUAL RATE

Sales of existing homes (including single-family, condo and co-ops) continue to soften, with the July figure down 20% year over year to a 4.8-million-unit pace. New home sales likewise have precipitously eased, falling 30% year over year amid a deteriorating sales backdrop given rising affordability constraints. Existing home sales are based on the closing of contracts signed one to two months earlier, while new home sales are counted at the time of signing.

Sources: NAR/ U.S. Census Bureau/Moody's Analytics/Arch MI

Existing Home Sales: Single-Family & Condo & Co-op Existing Home Sales: Single-Family New Home Sales: Single-Family (RHS)

MONTHS' SUPPLY OF HOMES FOR SALE

The months' supply of existing single-family homes for sale (total seasonally adjusted listings divided by last month's seasonally adjusted annualized sales pace) was 3.0 months as of July, up from an average of 2.2 months in 2021 but below the pre-pandemic average of closer to 5 **months.** The months' supply of new homes for sale increased to 10.9 months in July from 5.7 months in December. However, an unusual share of the new home inventory comprises units still under construction and units not yet started due to builder backlogs. Considering only the inventory of completed homes for sale, the inventory was equivalent to 3.7 months of supply in July, up from an average of 2.1 months in 2021 but down from the pre-pandemic average of roughly 4 months.

Sources: NAR/Moody's Analytics/Arch MI

HOME-PRICE GROWTH BY STATE: YEAR-OVER-YEAR (%)

Annual home price growth accelerated compared with the prior quarter in all states except Arizona, Idaho, Oregon, Utah and Washington. The fastest growth in home prices was in Florida (30%), Arizona (29%) and Tennessee (27%). Meanwhile, the slowest growth occurred in the District of Columbia (11%), North Dakota (13%) and Louisiana (13%).

Sources: FHFA AT HPI/Arch MI

HOME-PRICE GROWTH SINCE PRIOR PEAK

Strong home-price appreciation over the past year pushed home prices further above their prior peaks in all 50 states in Q2 2022. Cumulative home-price growth has varied widely since prices last peaked around 2007 (we measure since the peak for each state, which varied around 2006-2009). The largest cumulative home-price growth since home prices peaked was in Colorado (132%), followed by Idaho (122%), Texas (117%) and Utah (112%), compared to the national average of 62%. This chart is intended to aid understanding of market strength since the prior downturn and doesn't indicate any overvaluation since it doesn't account for changes in income or reasonableness of prices at their prior peak. Growth rates are based on nominal (not inflation-adjusted) values.

Sources: FHFA/Arch MI

PERCENTAGE OF MEDIAN INCOME NEEDED FOR HOMEOWNERSHIP COSTS ON A MEDIAN-PRICED HOME

Our affordability measure is the percentage of median household income required to cover homeownership costs on a median-priced home, including mortgage payments, escrow expenses, maintenance costs, mortgage insurance (MI) and risk add-ons. Lower values indicate better affordability, such as in Iowa (29%) and West Virginia (29%). Calculations are based on pre-tax median household income, a 10% down payment, escrow of annual expenses of roughly 1.5% of the initial home price (for insurance and property taxes, which we vary by state), the prevailing 30-year fixed-rate mortgage rate, plus 0.75% to cover MI and risk add-ons, as well as roughly 1% of the initial home price to cover annual maintenance costs.

Sources: U.S. Census Bureau/Freddie Mac/ NAR/Moody's Analytics/Arch MI

HOMEOWNERSHIP COST-TO-INCOME RATIO CHANGE VS. 1990-2003 AVERAGE

Affordability is now worse than historical norms in all states but two (West Virginia and Connecticut), with the West Coast and Mountain West generally the least affordable along with Florida, Vermont and Hawaii. This map shows how affordability differs now compared to historical norms; a value of five indicates homeownership costs on today's median home requires 5% more of a borrower's income than it did during more typical market conditions. It is the percentage of median income needed to cover homeownership costs on a median-priced home (shown above) minus the average from the pre-bubble years between 1990 and 2003. For the U.S., the median-priced home requires 48% of the median income, up 11% from its 1990–2003 average of 37%. Hawaii (36%) was the least affordable state compared to its 1990–2003 average, followed by Montana (33%) and Idaho (32%). The most affordable markets now compared to their 1990–2003 averages include Connecticut (-2%), West Virginia (0%) and Illinois (0%).

Sources: U.S. Census Bureau/Freddie Mac/NAR/Moody's Analytics/Arch MI

ANNUAL PERCENTAGE CHANGE IN HOUSING STARTS

The annual growth in single-family housing starts varies widely but is generally weakest in the Northeast and strongest in the West, Midwest and parts of the Southeast. Housing starts increased the most in the District of Columbia (27%), New Mexico (23%) and Montana (13%). To get a clearer understanding of the trend, we smooth the data by calculating the growth in the 12-month moving average to dampen short-term volatility due to factors like weather and survey limitations.

Sources: U.S. Census Bureau/Moody's Analytics/Arch MI

State Housing and Demographic Trends

STATE	FHFA HP	I (% Y/Y)	HOMEOWNERSHIP COST-TO-INCOME RATIO (%)					
(Sorted alphabetically)	2022Q2	YEAR AGO	2022Q2	VS 1990-2003 AVG				
Alabama	20.2	11.2	38	7				
Alaska	14.6	7.0	36	7				
Arizona	28.7	19.6	47	16				
Arkansas	20.9	11.3	30	1				
California	21.3	12.4	73	20				
Colorado	22.5	14.1	55	18				
Connecticut	17.5	13.2	43	-7				
Delaware	18.4	11.3	35	4				
District of Columbia	11.2	8.9	55	15				
Florida	29.7	14.9	49	15				
Georgia	25.5	13.3	38	9				
Hawaii	21.4	7.3	77	21				
Idaho	24.8	26.7	54	24				
Illinois	15.6	8.2	34	-3				
Indiana	18.9	12.9	28	3				
lowa	16.0	8.5	26	2				
Kansas	17.5	12.0	33	6				
Kentucky	18.0	10.6	31	2				
Louisiana	13.5	6.1	32	3				
Maine	22.2	15.9	46	14				
Maryland	14.7	10.4	35	5				
Massachusetts	17.8	11.8	54	8				
Michigan	17.6	12.5	29	0				
Minnesota	16.4	11.2	33	5				
Mississippi	16.8	8.8	34	3				
Missouri	19.0	12.5	30	-1				
Montana	26.3	18.3	56	22				
Nebraska	18.4	11.3	29	3				
Nevada	25.5	14.5	52	19				
New Hampshire	20.6	14.9	42	9				
New Jersey	19.1	11.5	45	6				
New Mexico	18.6	11.6	43	5				
New York	16.7	10.1	50	6				
North Carolina	26.6	13.3	42	12				
North Dakota	13.0	5.6	30	8				
Ohio	18.4	12.2	30	-1				
Oklahoma	19.3	10.1	28	2				
Oregon	19.2	15.2	58	22				
Pennsylvania	16.2	11.1	32	2				
Rhode Island	21.4	14.4	43	2				
South Carolina	23.5	12.1	40	7				
South Dakota	21.1	12.4	31	4				
Tennessee	27.3	14.3	38	7				
Texas	24.6	12.6	40	10				
Utah	26.1	21.0	49	16				
Vermont	20.6	12.8	43	14				
Virginia	18.0	10.6	39	5				
Washington	22.3	16.4	56	20				
West Virginia	14.8	7.7	26	-4				
Wisconsin	18.7	11.2	35	6				
wyoming Demulation Weight at Tatal	19.2	9.6	45	11				
ropulation weighted lotal	21.0	12.4	44	9				

Sources: FHFA/BLS/U.S. Census Bureau/Freddie Mac/NAR/Moody's Analytics/Arch MI

State Housing and Demographic Trends

STATE		UNEMPLOYMENT RATE		POPULATI	ON (000s)	MEDIAN HOUSEHOLD INCOME			
(Sorted alphabetically)	JUL '22	COVID PEAK	PRE-COVID (FEB '20)	2022Q2	% Ү/Ү	20	22Q2	% Ү/Ү	
Alabama	2.6	13.7	3.4	4,942	0.2	\$	57,930	3.9	
Alaska	4.5	11.9	5.2	747	1.1	\$	85,895	3.2	
Arizona	3.3	13.9	5.0	7,773	2.3	\$	70,118	3.9	
Arkansas	3.3	10.0	3.6	3,061	0.5	\$	55,116	4.1	
California	3.9	16.1	4.1	40,077	0.9	\$	90,226	4.4	
Colorado	3.3	11.8	2.8	5,903	0.8	\$	82,025	4.0	
Connecticut	3.7	11.4	3.4	3,560	0.0	\$	84,621	3.7	
Delaware	4.4	13.3	3.7	997	0.5	\$	74,901	3.9	
District of Columbia	5.2	11.1	5.4	696	-1.2	\$	105,278	4.3	
Florida	2.7	13.9	2.7	22,588	1.9	\$	66,223	3.8	
Georgia	2.8	12.3	3.6	10,928	1.0	\$	66,895	4.0	
Hawaii	4.1	22.4	2.2	1,415	0.3	\$	91,252	3.1	
Idaho	2.6	11.8	3.0	1,870	1.2	\$	67,434	4.4	
Illinois	4.4	17.4	3.8	12,609	0.1	\$	76,516	4.1	
Indiana	2.6	16.8	3.4	6,784	0.2	Ş	66,239	4.4	
lowa	2.5	10.5	2.6	3,149	-0.2	Ş	66,641	4.5	
Kansas	2.4	12.2	3.1	2,921	0.1	Ş	67,504	4.1	
Kentucky	3.7	16.5	4.1	4,497	0.2	Ş	58,273	4.1	
Louisiana	3.6	13.5	5.2	4,654	0.1	Ş	54,634	3.7	
Maine	2.8	9.2	2.8	1,352	0.0	Ş	62,239	4.5	
Maryland	5.9	9.5	4.2	6,14/	0.7	Ş	94,664	5.8	
Massachusetts	5.5	17.1	2.9	6,917	0.2	Ş	95,555	4.1	
Michigan	4.2	22.7	5.8	9,905	0.0	\$	00,048	4.0	
Minnesota	1.8	10.8	5.9	5,/50	0.0	\$	80,118	4.0	
Mississippi	0.0 0.5	10.4	0./ 7.7	Z,97Z	0.1	\$	50,/1/	4.2	
Missouri	2.0	11.2	0.0 Z 7	0,100	0.5	\$ ¢	0Z,/0U	4.0	
Nobraska	2.7	12.2	J./ Z ()	1,000	0.2	s c	60 500	4.5	
Nevada	2.0	28.5	1.0	3 281	0.0	ç	67 358	4.7 3.1	
New Hampshire	4.4	16.2	4.0	1 3 8 7	0.7	ç	87 681	J.4 15	
New Jersev	3.7	15.8	3.5	8 935	0.7	Ś	92 530	3.0	
New Mexico	4.5	9.8	5.4	2 114	0.0	ŝ	54 310	3.4	
New York	4.0	16.5	3.9	19 296	-0.1	ŝ	77 870	3.8	
North Carolina	3.4	14.2	3.7	10.870	1.3	ŝ	63.865	4.0	
North Dakota	2.3	8.3	2.2	760	-0.4	ŝ	64,700	4.6	
Ohio	3.9	16.4	4.6	11.663	-0.1	ŝ	64.676	4.0	
Oklahoma	3.0	12.6	3.2	4,008	0.3	S	57,079	3.5	
Oregon	3.5	13.3	3.4	4,340	1.2	\$	72,336	3.9	
Pennsylvania	4.3	16.5	5.0	12,775	0.0	\$	69,574	3.9	
Rhode Island	2.7	18.4	3.7	1,058	0.0	\$	82,060	4.0	
South Carolina	3.2	11.6	2.9	5,283	0.6	\$	60,430	4.0	
South Dakota	2.3	8.8	2.6	892	-0.1	\$	65,904	5.2	
Tennessee	3.3	15.9	3.6	6,992	0.8	\$	60,475	4.2	
Texas	4.0	12.6	3.5	30,195	1.4	\$	70,187	3.7	
Utah	2.0	10.0	2.6	3,342	1.4	\$	83,735	4.3	
Vermont	2.1	14.3	2.6	627	0.3	\$	73,074	3.7	
Virginia	2.7	11.6	2.7	8,748	0.9	\$	84,716	3.7	
Washington	3.7	16.8	3.9	7,902	1.4	\$	85,909	4.2	
West Virginia	3.7	15.5	5.1	1,769	-0.4	\$	52,196	3.8	
Wisconsin	3.0	14.1	3.0	5,859	0.2	\$	68,816	3.9	
Wyoming	3.0	8.6	4.9	581	-0.1	\$	69,580	3.4	
Population Weighted Total	3.5	14.6	3.7	334,142	0.7	\$	73,642	4.0	

Sources: FHFA/BLS/U.S. Census Bureau/Freddie Mac/NAR/Moody's Analytics/Arch MI

Housing and Demographic Trends for the 100 Largest MSAs

100 LARGEST METROPOLITAN	FHFA HPI (% Y/Y)		HOMEOWNERSHIP Cost-to-income ratio (%)		UNEMPLOYMENT RATE (%)			POPULATI	ON (000s)	MEDIAN HOUSEHOLD Income		
	2022Q2	YEAR Ago	2022Q2	VS 1990-2003 AVG	JUL '22	COVID PEAK	PRE-COVID (FEB '20)	2022Q2	% Y/Y	2022Q2	% Y/Y	
New York-Jersey City-White Plains, NY-NJ	14.7	7.8	64	11	4.9	18.5	3.6	14,182	0.0	\$ 85,031	3.3	
Los Angeles-Long Beach-Glendale, CA	20.5	11.1	93	36	4.9	19.2	4.4	10,313	0.9	\$ 80,686	0.6	
Houston-The Woodlands-Sugar Land, TX	17.6	8.0	46	19	4.6	13.8	3.6	7,369	1.4	\$ 73,735	0.2	
Chicago-Naperville-Evanston, IL	15.3	8.0	43	4	4.3	18.4	4.0	7,142	0.1	\$ 81,513	0.3	
Atlanta-Sandy Springs-Alpharetta, GA	26.5	14.0	44	18	2.8	12.6	3.5	6,207	1.0	\$ 76,474	-2.0	
Phoenix-Mesa-Chandler, AZ	30.4	20.4	55	25	2.8	13.2	4.4	5,304	2.3	\$ 78,010	1.3	
Dallas-Plano-Irving, TX	28.4	13.1	49	18	3.4	12.3	3.1	5,300	1.4	\$ 82,823	0.4	
Washington-Arlington-Alexandria, DC-VA-MD-WV	13.9	10.3	43	12	3.2	10.4	3.2	5,043	0.6	\$ 119,087	1.0	
Riverside-San Bernardino-Ontario, CA	24.7	16.1	66	27	3.7	15.8	4.1	4,777	0.9	\$ 79,453	-0.5	
Minneapolis-St. Paul-Bloomington, MN-WI	16.0	11.2	37	9	1.6	11.4	3.5	3,725	0.6	\$ 91,498	3.5	
San Diego-Chula Vista-Carlsbad, CA	25.1	13.7	89	32	3.1	16.3	3.3	3,429	0.9	\$ 94,746	0.6	
Tampa-St. Petersburg-Clearwater, FL	31.0	17.1	56	26	2.6	13.4	2.7	3,385	1.9	\$ 64,650	-0.1	
Anaheim-Santa Ana-Irvine, CA	22.0	9.6	107	53	2.7	15.5	2.9	3,262	0.9	\$ 106,932	0.4	
Seattle-Bellevue-Kent, WA	23.1	14.8	68	28	2.5	17.0	2.6	3,200	1.4	\$ 111,463	0.4	
Denver-Aurora-Lakewood, CO	22.8	14.3	62	28	3.2	12.3	2.6	3,040	0.8	\$ 94,856	0.3	
Oakland-Berkeley-Livermore, CA	19.0	11.6	86	22	3.0	14.9	3.1	2,902	0.9	\$ 120,373	0.2	
Miami-Miami Beach-Kendall, FL	26.9	12.5	85	44	2.4	15.0	1.6	2,878	1.9	\$ 62,520	3.2	
Baltimore-Columbia-Towson, MD	14.1	9.9	38	11	3.7	9.6	4.2	2,864	0.7	\$ 93,443	4.1	
Nassau County-Suffolk County, NY	15.7	9.8	57	20	2.8	18.6	3.7	2,825	-0.1	\$ 121,130	1.3	
St. Louis, MO-IL	15.7	10.6	31	2	2.9	12.0	3.1	2,824	0.2	\$ 72,472	0.1	
Orlando-Kissimmee-Sanford, FL	26.3	12.9	54	25	2.8	22.1	2.7	2,763	1.9	\$ 69,555	2.6	
Charlotte-Concord-Gastonia, NC-SC	27.2	14.5	52	27	3.2	13.9	3.4	2,705	1.2	\$ 70,311	-1.8	
San Antonio-New Braunfels, TX	24.5	11.7	49	21	3.6	12.9	3.1	2,660	1.4	\$ 66,736	-0.6	
Fort Worth-Arlington-Grapevine, TX	28.3	13.1	43	16	3.5	12.6	3.1	2,598	1.4	\$ 74,561	-0.3	
Portland-Vancouver-Hillsboro, OR-WA	19.1	14.1	63	28	3.3	13.4	3.3	2,582	1.2	\$ 86,327	-1.3	
Warren-Troy-Farmington Hills, MI	16.1	11.4	35	5	3.8	22.7	3.6	2,571	0.0	\$ 79,846	1.1	
Newark, NJ-PA	16.8	11.0	57	8	3.7	14.8	3.6	2,519	0.3	\$ 99,439	1.8	
Sacramento-Roseville-Folsom, CA	20.3	15.3	59	22	3.3	14.5	3.6	2,428	0.9	\$ 85,742	0.4	
Las Vegas-Henderson-Paradise, NV	28.3	12.6	65	32	4.9	32.0	4.2	2,424	2.2	\$ 63,282	-2.5	
Cambridge-Newton-Framingham, MA	18.1	10.7	60	10	3.1	15.4	2.6	2,413	0.2	\$ 113,060	3.0	
Austin-Round Rock-Georgetown, TX	31.4	23.2	60	28	3.0	11.9	2.7	2,323	1.4	\$ 92,045	0.0	
Pittsburgh, PA	15.0	10.6	29	3	4.4	17.1	5.0	2,316	0.0	\$ 68,870	1.2	
Cincinnati, OH-KY-IN	20.7	11.5	35	4	3.2	13.6	4.0	2,196	-0.1	\$ 73,339	0.7	
Kansas City, MO-KS	19.2	13.7	37	9	2.6	12.5	3.1	2,173	0.2	\$ 76,385	-0.1	
Philadelphia, PA	12.7	11.3	38	9	5.2	17.5	5.6	2,149	0.0	\$ 58,844	2.6	
Columbus, OH	20.6	13.2	39	7	3.1	13.0	4.1	2,115	-0.1	\$ 75,043	0.9	
Indianapolis-Carmel-Anderson, IN	20.6	13.5	38	12	2.4	13.1	3.1	2,088	0.2	\$ 67,348	-2.1	
Fort Lauderdale-Pompano Beach-Sunrise, FL	27.6	13.2	67	31	2.6	16.9	3.1	2,069	1.9	\$ 69,333	1.1	
San Jose-Sunnyvale-Santa Clara, CA	21.7	5.0	106	41	2.3	12.4	2.7	2,045	0.9	\$ 156,991	1.3	
Boston, MA	17.2	11.3	60	13	3.3	17.3	2.8	2,043	0.2	\$ 103,444	2.3	
Cleveland-Elyria, OH	17.8	11.9	33	0	5.4	21.2	4.6	2,041	-0.1	\$ 63,586	1.0	
Nashville-DavidsonMurfreesboroFranklin, TN	30.4	13.9	48	18	2.5	15.8	2.8	2,004	0.8	\$ 73,902	-4.1	
Montgomery County-Bucks County-Chester County, PA	16.5	11.3	38	4	3.3	14.1	4.0	1,983	0.0	\$ 107,611	1.6	
Virginia Beach-Norfolk-Newport News, VA-NC	17.2	10.4	37	8	3.1	12.9	2.9	1,792	0.9	\$ 74,911	0.3	
Detroit-Dearborn-Livonia, MI	16.2	12.5	30	3	4.6	26.0	4.8	1,750	0.0	\$ 54,742	1.4	
San Francisco-San Mateo-Redwood City, CA	17.8	-0.1	112	33	2.1	12.5	2.3	1,693	0.9	\$ 159,730	3.7	
Jacksonville, FL	27.7	14.3	48	19	2.5	11.2	2.7	1,652	1.9	\$ 72,481	-0.4	
Providence-Warwick, RI-MA	20.1	13.9	52	10	3.2	19.6	3.7	1,630	0.1	\$ 79,923	3.5	
Milwaukee-Waukesha, Wl	18.1	10.9	44	10	3.3	14.4	3.3	1,587	0.2	\$ 71,764	-0.6	
West Palm Beach-Boca Raton-Boynton Beach, FL	30.3	14.8	68	32	2.7	14.0	3.1	1,586	1.9	\$ 73,161	-2.2	

Housing and Demographic Trends for the 100 Largest MSAs

100 LARGEST METROPOLITAN	FHFA HPI (% Y/Y)		HOMEOWNERSHIP COST-TO-INCOME RATIO (%)		UNEMPLOYMENT RATE (%)			POPULATIO	MEDIAN HOUSEHOLD Income			
	2022Q2	YEAR Ago	2022Q2	VS 1990-2003 AVG	JUL '22	COVID PEAK	PRE-COVID (FEB '20)	2022Q2	% Y/Y	20	22Q2	% Y/Y
Raleigh-Cary, NC	31.3	13.2	48	21	2.7	12.3	3.3	1,444	1.3	\$	86,025	-2.3
Oklahoma City, OK	18.6	10.3	30	7	2.7	13.1	2.9	1,423	0.3	\$	64,711	1.8
Memphis, TN-MS-AR	20.6	12.8	47	16	4.7	13.2	4.4	1,380	0.6	\$	55,141	-4.0
Frederick-Gaithersburg-Rockville, MD	15.0	10.1	44	8	3.5	8.6	3.7	1,340	0.7	\$ 1	25,203	5.4
Richmond, VA	20.4	12.0	43	14	2.8	12.0	2.8	1,328	0.9	\$	76,505	0.2
Louisville/Jefferson County, KY-IN	16.2	10.8	36	8	3.1	16.6	3.5	1,306	0.2	\$	63,509	-3.1
Salt Lake City, UT	25.7	20.0	53	25	2.1	10.8	2.4	1,285	1.4	\$	94,320	3.4
New Orleans-Metairie, LA	13.9	8.2	44	13	4.1	17.5	4.9	1,274	0.1	\$	59,897	3.3
Camden, NJ	20.8	13.8	36	4	3.5	14.9	3.5	1,255	0.3	\$	91,124	0.8
Hartford-East Hartford-Middletown, CT	18.1	11.3	39	0	3.6	11.0	3.4	1,207	0.0	\$	83,283	1.4
Birmingham-Hoover, AL	18.4	10.7	42	8	2.3	12.2	3.1	1,161	0.2	\$	63,349	0.5
Buffalo-Cheektowaga, NY	19.3	12.5	35	6	3.7	21.8	4.4	1,125	-0.1	\$	64,781	1.9
Tucson, AZ	26.5	16.5	54	19	3.3	13.6	4.7	1,123	2.3	\$	62,232	0.3
Grand Rapids-Kentwood, MI	20.3	15.4	38	14	3.0	20.2	2.9	1,074	0.0	\$	71,494	0.2
Rochester, NY	18.9	13.6	32	4	3.4	16.8	4.3	1,067	-0.1	\$	66,657	1.7
Fresno, CA	22.8	13.9	59	25	5.9	16.7	7.1	1,026	0.9	\$	64,478	-0.1
Tulsa, OK	20.7	11.0	36	10	3.1	13.3	3.1	1,009	0.3	Ş	62,064	1.0
Urban Honolulu, HI	18.6	5.1	103	35	3.9	19.4	2.1	983	0.3	Ş	95,693	3.7
Worcester, MA-CT	16.8	14.0	46	8	3.7	15.6	3.2	952	0.1	Ş	84,423	1.9
Omaha-Council Blutts, NE-IA	18.7	11.9	35	8	2.2	9.5	3.0	950	0.0	Ş	75,845	1.3
Bridgeport-Stamford-Norwalk, Cl	18.1	15.6	55	-9	5.6	11.4	5.4	945	0.0	\$ 1	08,681	1.5
lacoma-Lakewood, WA	20.5	18.0	01	28	4.5	18.5	5.1	942	1.4	\$	85,959	-1.2
Greenville-Anderson, SC	24.0	11.1	44	12	2.8	11.9	2.6	938	0.6	\$	62,680	-0.6
Bakerstield, CA	22.8	14.4	60	28	6.8	18.1	8.0	925	0.9	Ş	58,/84	0.1
Albuquerque, NM	20.4	15.5	40	11	4.2	10.2	5.0	924	0.2	Ş	65,5/1	2.7
KNOXVIIIE, IN MeAllen Edinburg Mission TV	20.0	10.1	48	1/	2.9	14.2	5.4 4 F	910	0.8	ç	00,000	-4.0
McAllen-Edinburg-Mission, IX	22.9	/.8	3U (7	о 70	7.4	1/.2	0.0	900	1.4	ç	44,201	-1.1
NOTH POIL-SUIDSOLD-DIQUEILION, FL	04.0 20.4	10.1	03	50 17	L./	14.1	Z./ Z.A	00/	1.9	ç	70,04Z	-2.1
LI FUSO, IA Albany-Schenectady-Troy NV	16 3	0 /	40 3/	10	4.7	14.1	3.4	878	-0.1	ç	99,209 80 611	0.5
Inke County-Kenosha County II-WI	17.1	7. 4 8.6	34	-2	1.7	14.4	3.7	860	0.1	¢	00,044	0.0
Ovnard-Thousand Oaks-Ventura CA	20.1	11 1	78	-2	4.2	1/1.0	3.3	860	0.1	ې ¢ 1	01 675	0.0
New Haven-Milford CT	17.7	1/1.1	/5	20	3.0	14.0	3.7	856	0.7	¢	77 006	0.4
Columbia SC	21.3	11.0	30	11	3.0	8.3	2.8	854	0.6	ŝ	59 825	-10
Allentown-Bethlehem-Faston PA-NI	18.6	13.4	39	6	4.1	17.0	4.8	845	0.0	ŝ	78 025	0.7
Raton Rouge 1A	13.6	53	36	8	3.2	12.5	4.0	835	0.0	ŝ	65 272	3.9
Charleston-North Charleston SC	24.6	13.6	45	13	2.7	11.6	24	817	0.6	ŝ	76 974	-0.9
Cape Coral-Fort Myers, Fl	36.2	17.5	57	30	2.6	14.6	2.9	816	1.9	ŝ	68.037	-0.9
Dayton-Kettering, OH	17.5	12.5	31	3	3.5	15.6	4.4	805	-0.1	ŝ	63.679	0.7
Greensboro-High Point, NC	23.7	12.0	44	11	3.6	16.3	4.0	802	1.3	Ś	54.204	-2.4
Stockton, CA	21.4	18.0	62	24	5.2	17.6	5.9	783	0.9	ŝ	78.605	-0.4
Boise City, ID	22.1	29.3	59	31	2.4	12.5	2.8	776	1.2	ŝ	75.864	2.0
Elgin, IL	19.8	9.4	35	1	4.6	16.5	3.7	768	0.1	S	84,425	-0.8
Lakeland-Winter Haven, FL	29.0	15.1	50	24	3.3	18.0	3.5	768	1.9	\$	59,226	0.4
Colorado Springs, CO	22.1	17.1	52	21	3.5	12.0	3.2	764	0.8	\$	78,785	-0.7
Little Rock-North Little Rock-Conway, AR	17.7	8.7	30	5	3.2	10.6	3.3	754	0.5	\$	60,746	-0.1
Wilmington, DE-MD-NJ	18.5	10.6	40	8	4.2	12.1	3.9	736	0.5	\$	84,302	4.8
Gary, IN	17.3	12.9	35	10	4.1	19.5	4.8	708	0.2	\$	64,056	-3.1
Akron, OH	18.0	11.6	29	0	3.8	14.8	4.6	701	-0.1	\$	63,071	0.4
Des Moines-West Des Moines, IA	17.0	8.8	35	8	2.4	11.4	2.5	658	-0.2	\$	77,219	1.2

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