

INVESTOR DAY 2023

Economic and Housing Research: Financial Stress, Affordability, Migration

New research leveraging unique data that increases our understanding of housing market risk and opportunities

Today's Speaker



Leonard Kiefer

Deputy Chief Economist, Economic and Housing Research

Leonard (Len) Kiefer is an economist who helps people understand what's going on in the economy, housing, mortgage markets. Len joined Freddie Mac in 2009 and has served as Deputy Chief Economist since December 2012. Len is responsible for primary and secondary mortgage market analysis and research, macroeconomic analysis and forecasting. Kiefer holds a B.A. in economics from the University of Kentucky, and a PhD from The Ohio State University.

Our Agenda

1. The U.S. Economy Under Stress

Stress is building in the economy, inflation remains high, the growth outlook darkens, will resilient consumers power through?

2. Affordability Challenged by Higher Rates

Even though higher rates price out millions, millions more potential first-time buyers compete with investors over what little inventory is available

3. House Prices Driven by Migration

House prices may have turned the corner, buyers are moving for affordability but may be exposing themselves to other risks





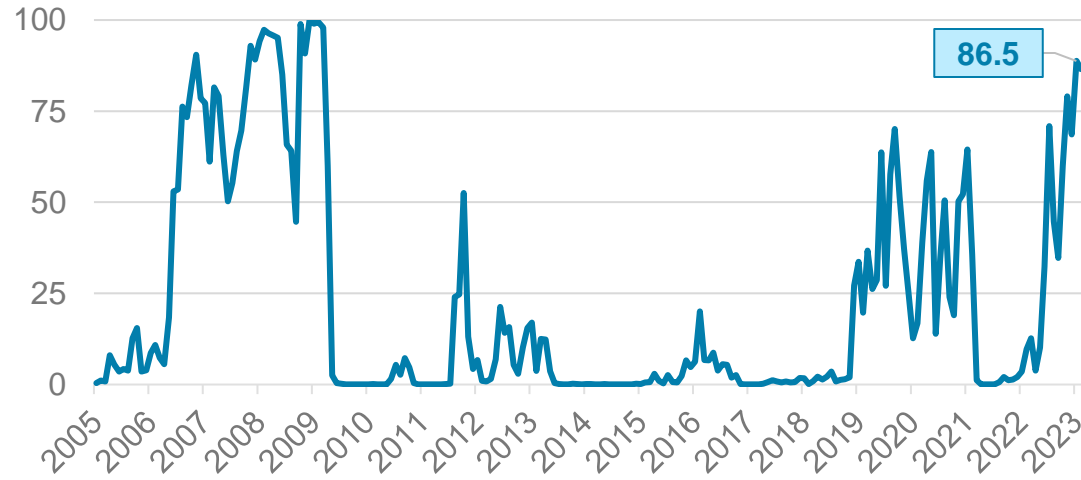
The U.S. Economy Under Stress

Stress is building in the economy, inflation remains high, the growth outlook darkens, will resilient consumers power through?

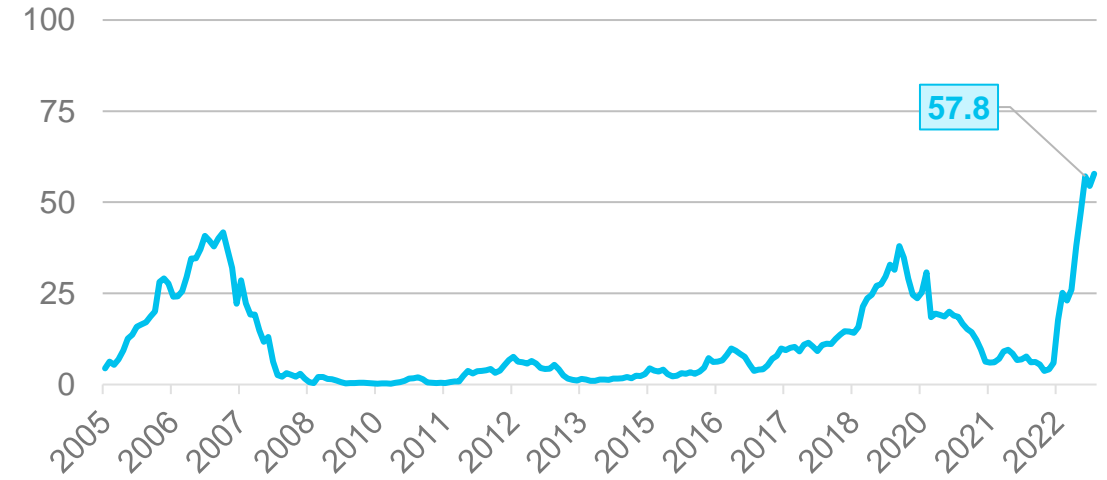
The Probability of a Recession in the Next 12 months is Ramping Up



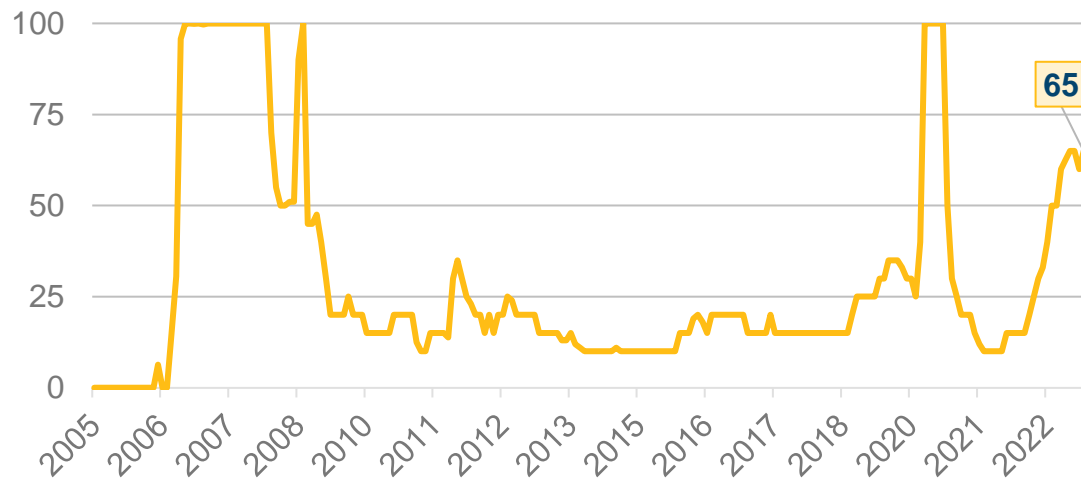
Moody's Analytics



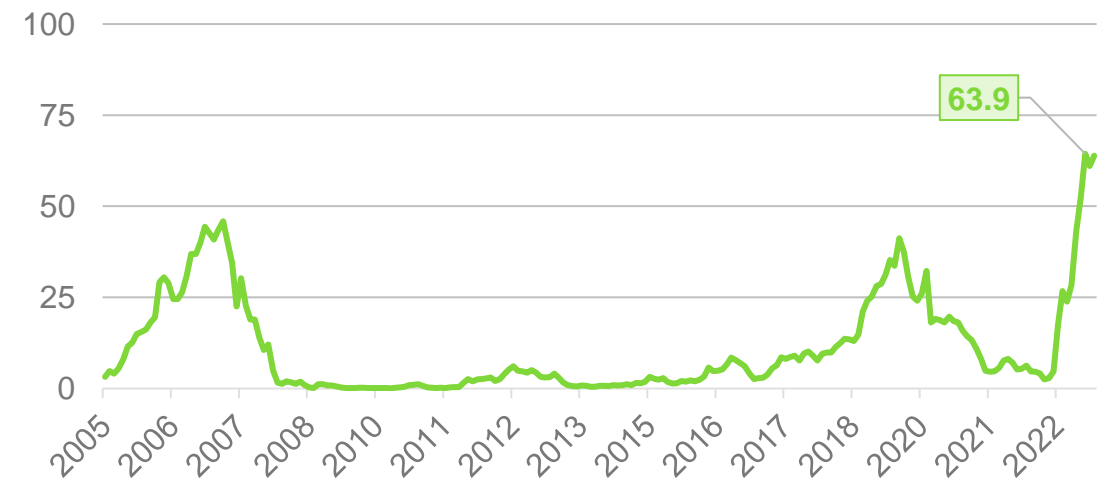
New York Fed



Bloomberg



Cleveland Fed



Source: Moody's Analytics, NY Fed, Bloomberg, Cleveland Fed



Measuring Mortgage Market Credit Conditions with Daily Conditional Mortgage Rate Spreads

$$r_{i,t} = c + f_t' \beta + x_{i,t}' \gamma + \epsilon_{i,t}$$

where

$r_{i,t}$ is mortgage interest rate for borrower i at time t ,

c is a constant,

f_t is a summary of daily Treasury yield curve (level, slope, curvature, volatility) ,

$x_{i,t}$ are borrower/loan-specific controls (credit score, LTV, loan product, term etc),

and

$\epsilon_{i,t}$ the residual is interpreted as a *conditional mortgage rate spread*

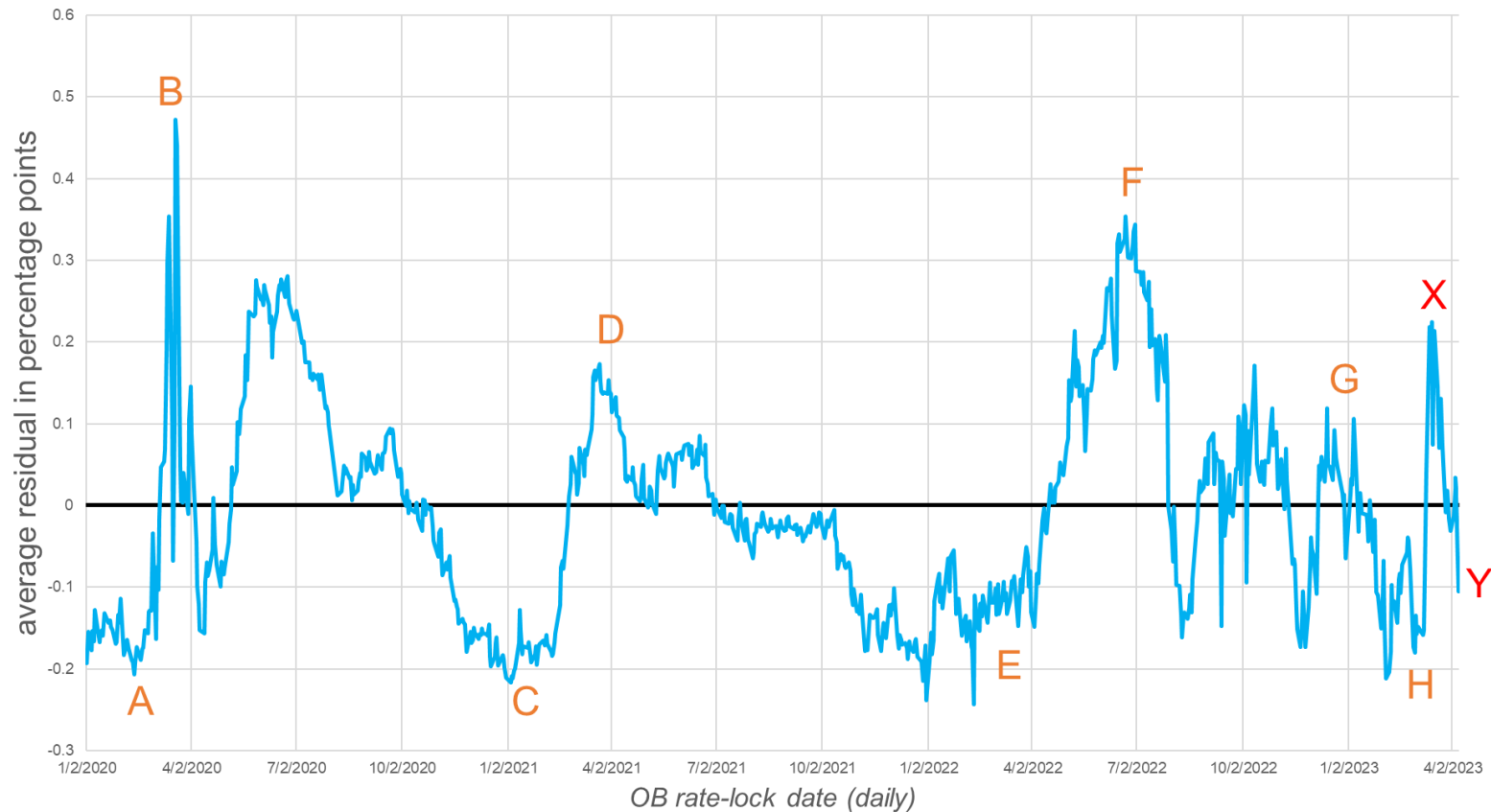
Daily conditional mortgage rate spreads are a modified version of conditional mortgage rate spreads as originally defined in:
Justiniano, A., Primiceri, G. E., & Tambalotti, A. (2022). The mortgage rate conundrum. *Journal of Political Economy*, 130(1), 121-156.

Financial Conditions Tightened Following SVB Failure, but Spreads have Normalized in the Past Few Weeks



Conditional Mortgage Rate Spreads

Daily average residuals from regression controlling for market conditions and applicant characteristics
Jan 01, 2020-April 07, 2023



Timeline of Recent Events

- (A) Pre-COVID in early 2020, financial market conditions were relatively loose
- (B) When COVID hit conditions rapidly tightened
- (C) But as the market stabilized conditions loosened and returned roughly to pre-COVID levels
- (D) Conditions tightened again with the Delta variant of COVID in March 2021
- (E) Conditions gradually loosened up until the Fed began tightening in spring 2022
- (F) Conditional spreads widened as the Fed began hiking by 75 bps in 2022
- (G) Things stabilized again through early 2023
- (H) Optimism about policy normalization and a gradual slowdown in inflation
- (X) **SVB failure and concerns about contagion spreading to regional banks**
- (Y) **FDIC, Federal Reserve, and US Treasury interventions calm market**

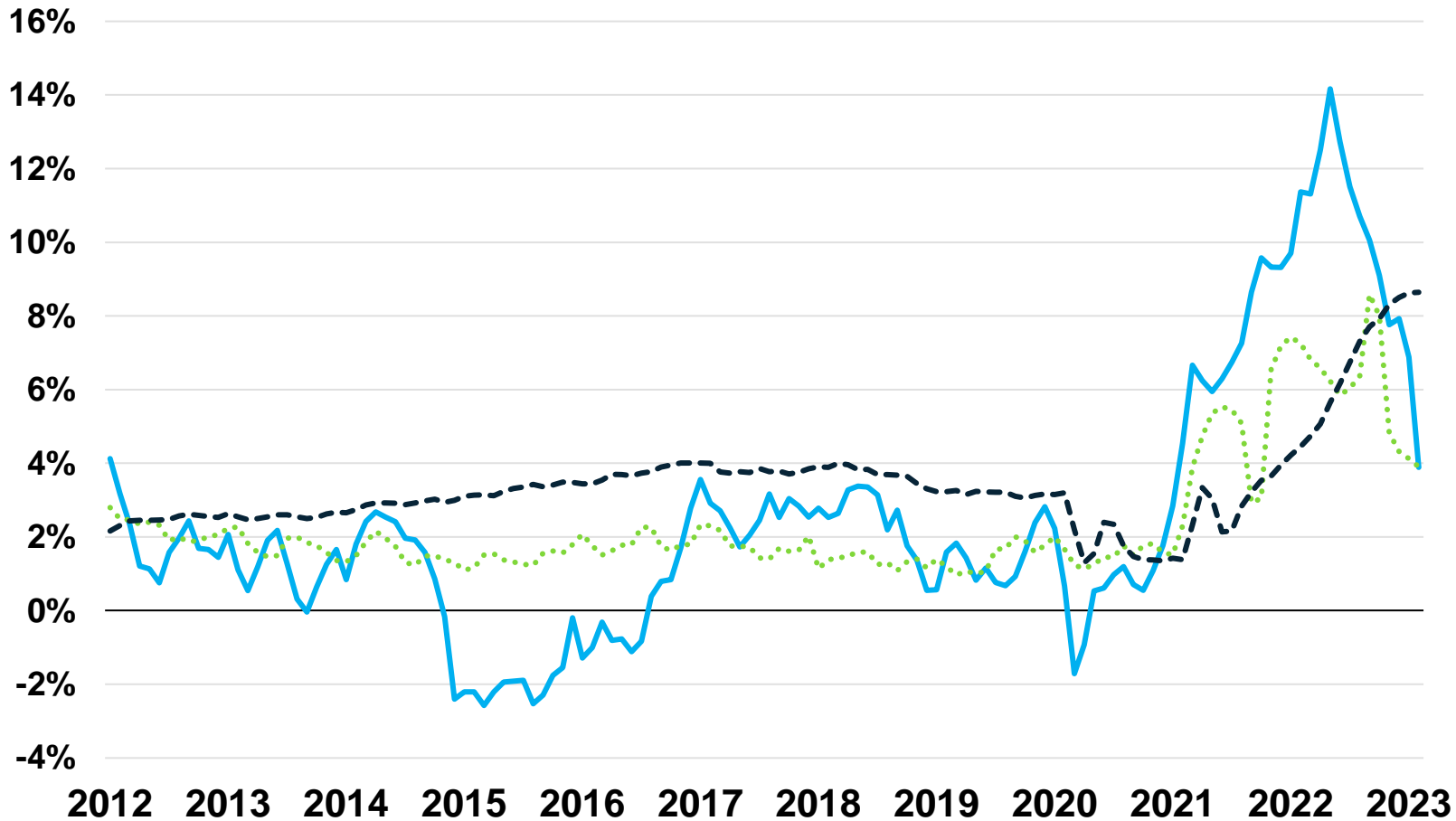
Data source: Optimal Blue, U.S. Treasury
OB level rate regressed on Treasury yield curve (level, slope, curvature, volatility) and application features (loan product, property type, borrower credit profile)
Home purchase applications only, excludes cash-out and rate/term refinances
Original Source: Justiniano, A., Primiceri, G. E., & Tambalotti, A. (2022). The mortgage rate conundrum. *Journal of Political Economy*, 130(1), 121-156.

Inflation has Started to Moderate...But A Long Way from Fed Target



CPI by Frequency of Purchase (YoY%)

— Frequent Infrequent - - - Contractual



Frequent includes eggs:
up **36% YoY** in March 2023



Infrequent includes airline fares:
up **18% YoY** in March 2023



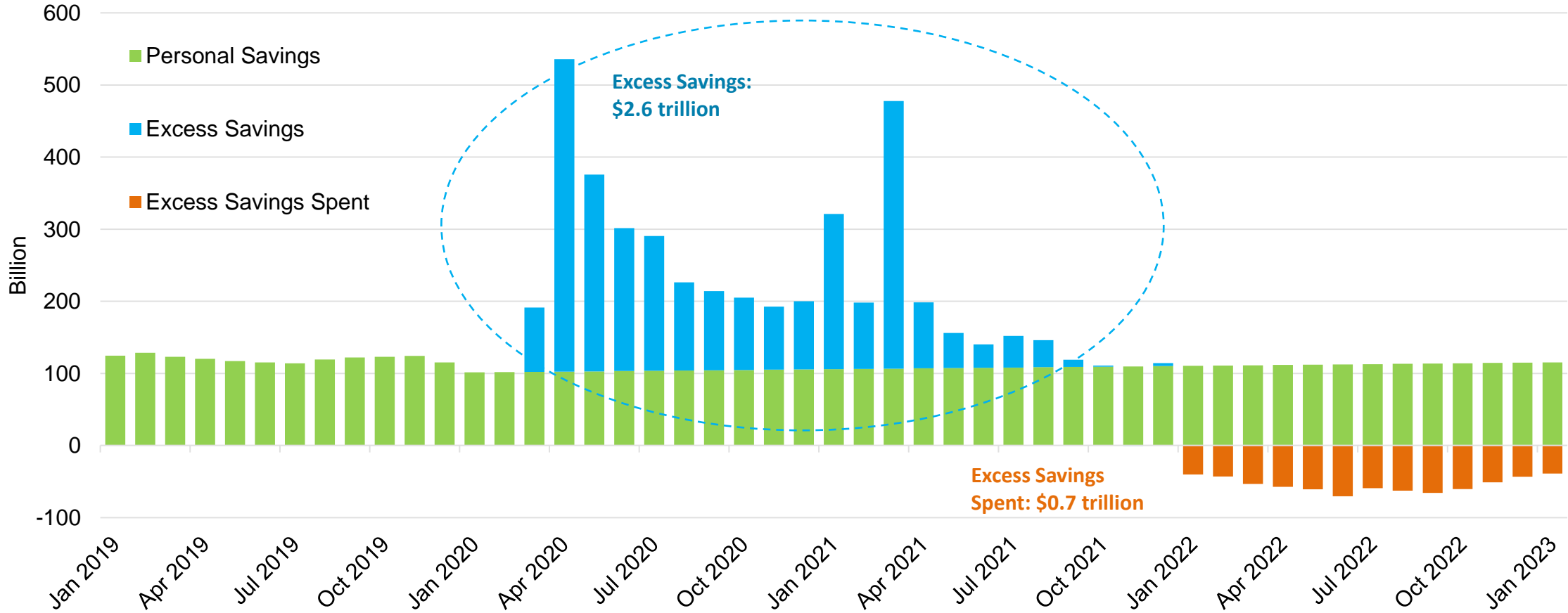
Contractual includes motor vehicle insurance:
up **14% YoY** in March 2023

Source: BLS: Consumer Price Index for All Urban Consumers year-over-year % changes through March 2023

Consumers have Significant Buffers to Deal with a Negative Hit to Incomes



Personal Savings

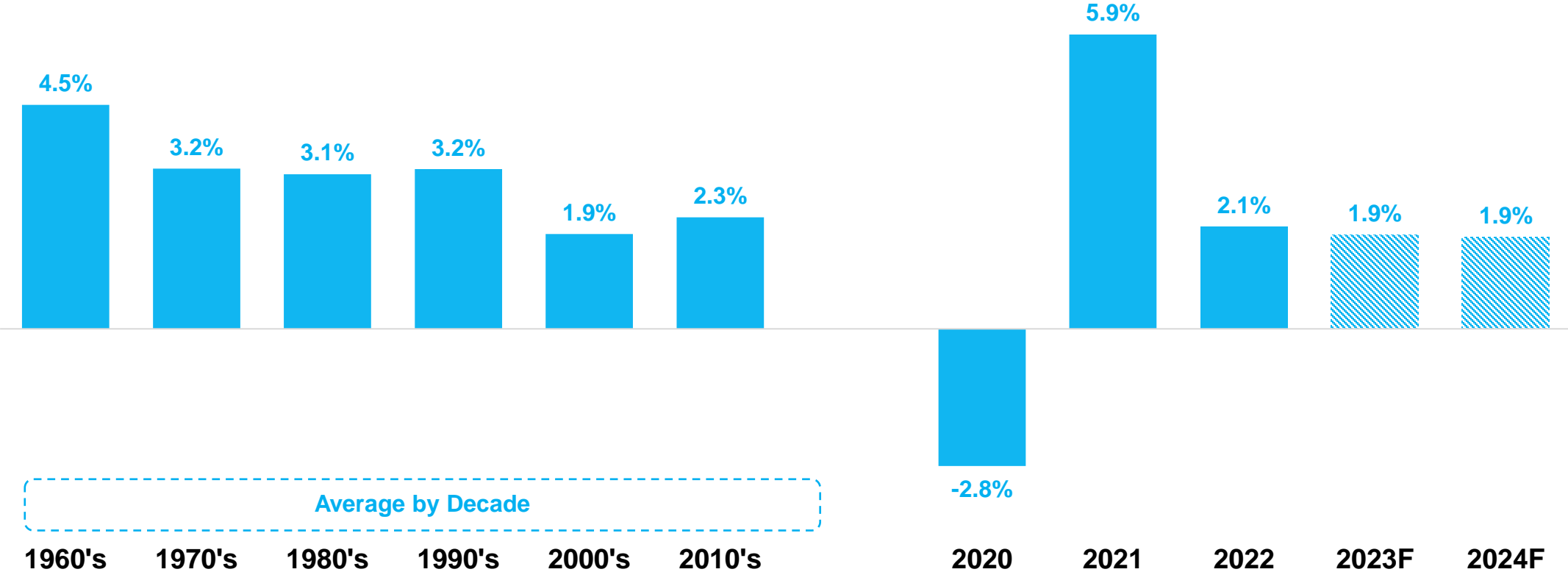


Source: BEA, NY Fed

Economic Growth for 2022 Drops Back to Trend and Economic Growth Expected to Remain Flat in 2023



U.S. Real Gross Domestic Product (GDP) *Annualized Growth*



Average by Decade

Note: Shaded areas are forecast
Source: BEA, Moody's Baseline (March 2023)



Affordability Challenged by Higher Rates

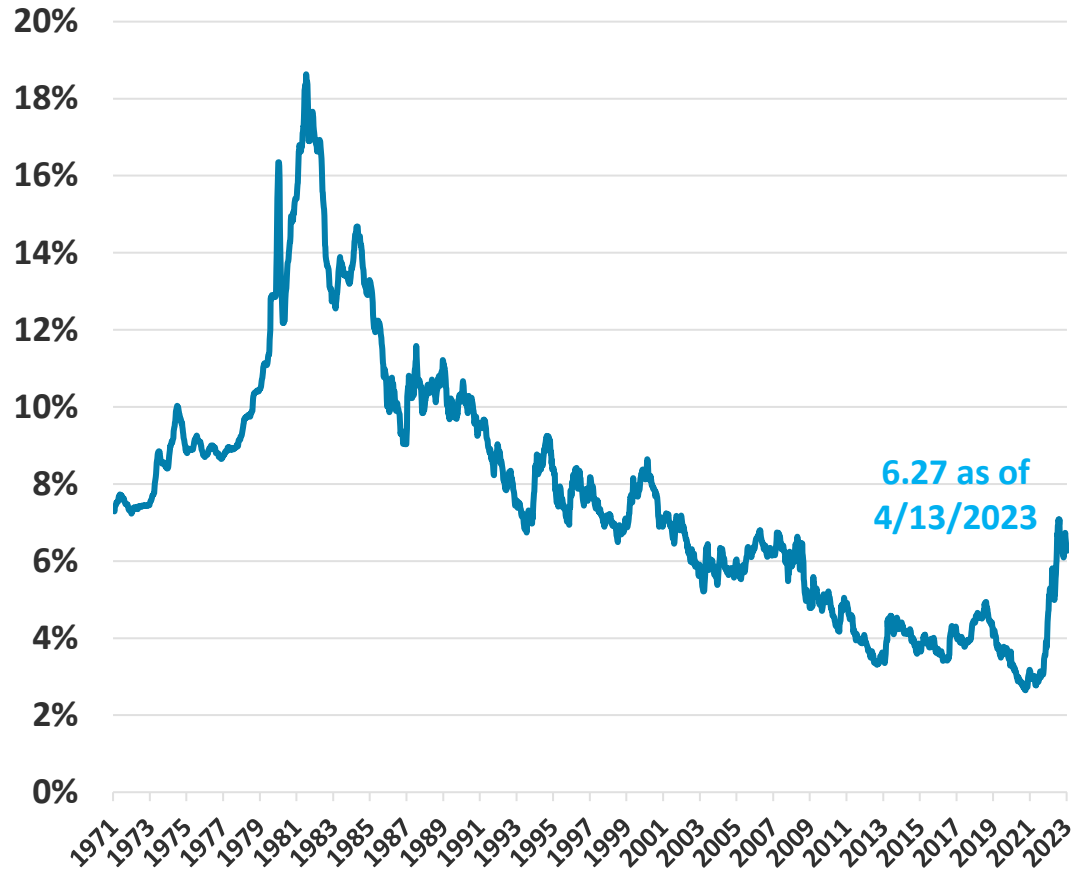
Even though higher rates price out millions, millions more potential first-time buyers compete with investors over what little inventory is available

Mortgage Rates in 2022 had the Largest Ever Annual Increase



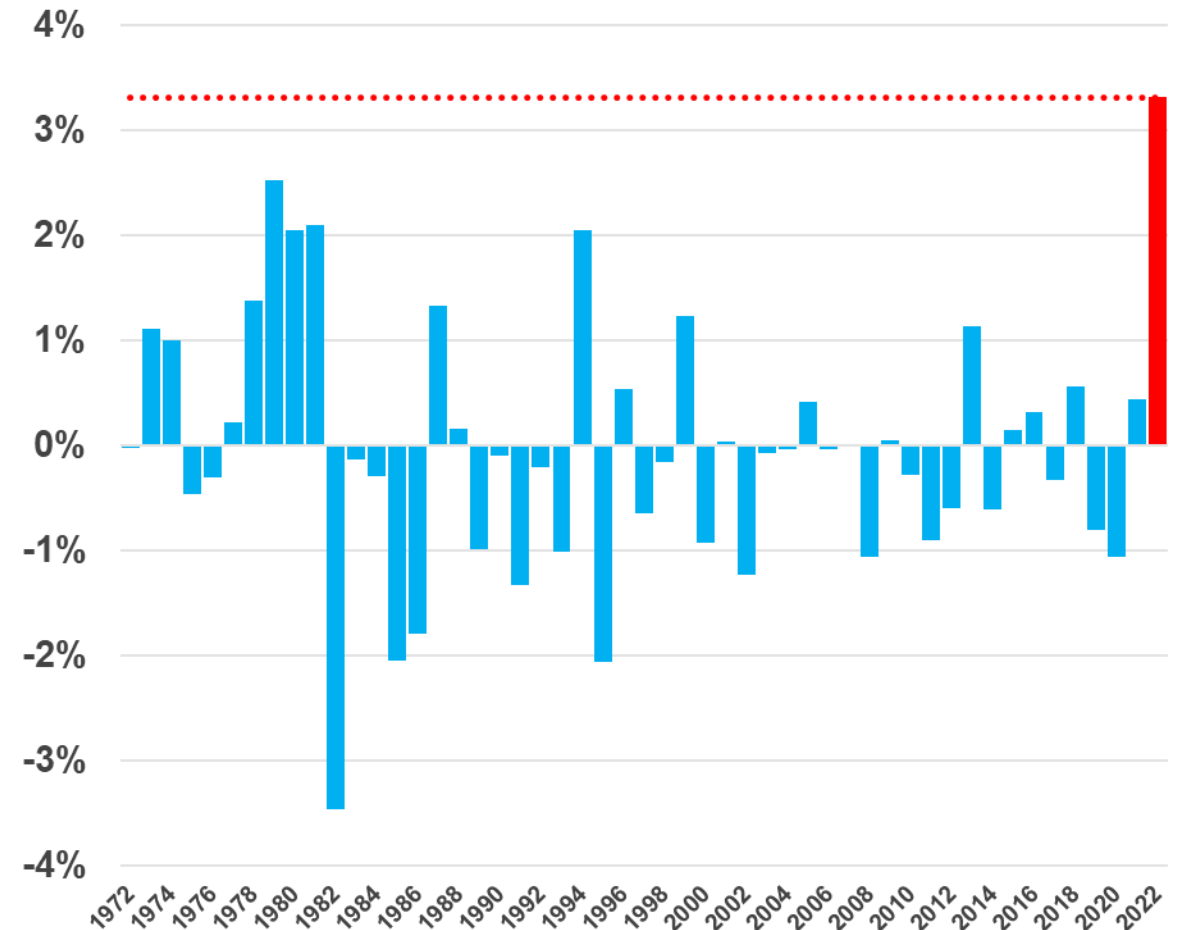
30-Year Fixed Rate Mortgage Rate

U.S. weekly average rate 1971-2023 (%)



Annual change in 30-year fixed mortgage rate

difference in last rate of each year 1972-2022 (p.p.)

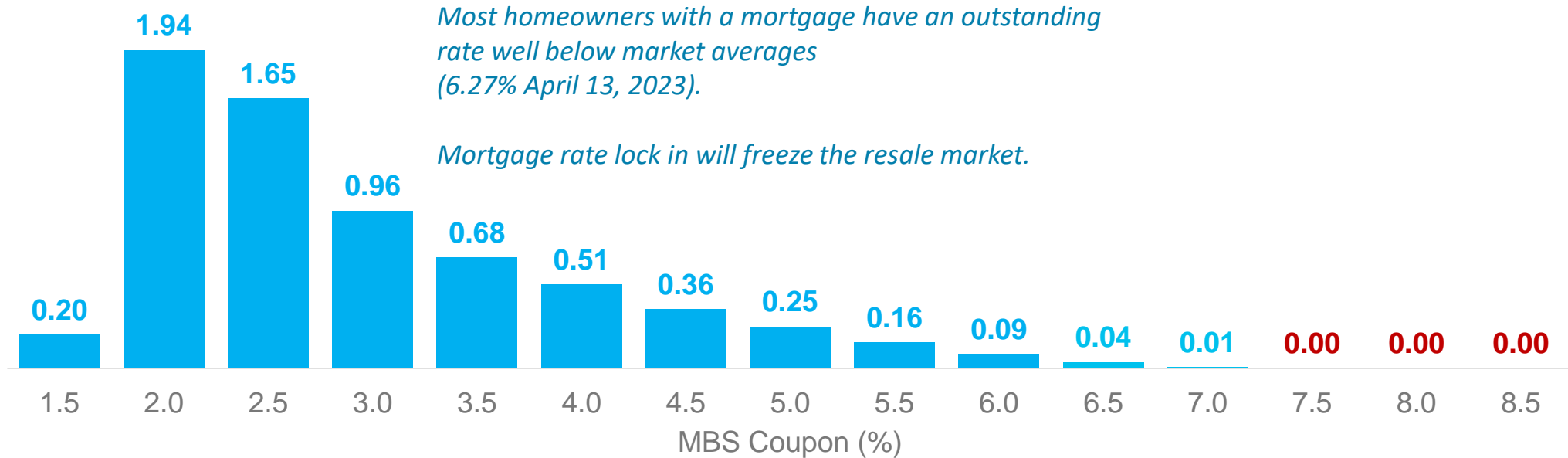


Source: Freddie Mac Primary Mortgage Market Survey

Historically Low Rates in Previous Years Means There is No Refi Incentive Given Today's Rates



Outstanding 30-year Conforming Balance by Coupon (\$T's)



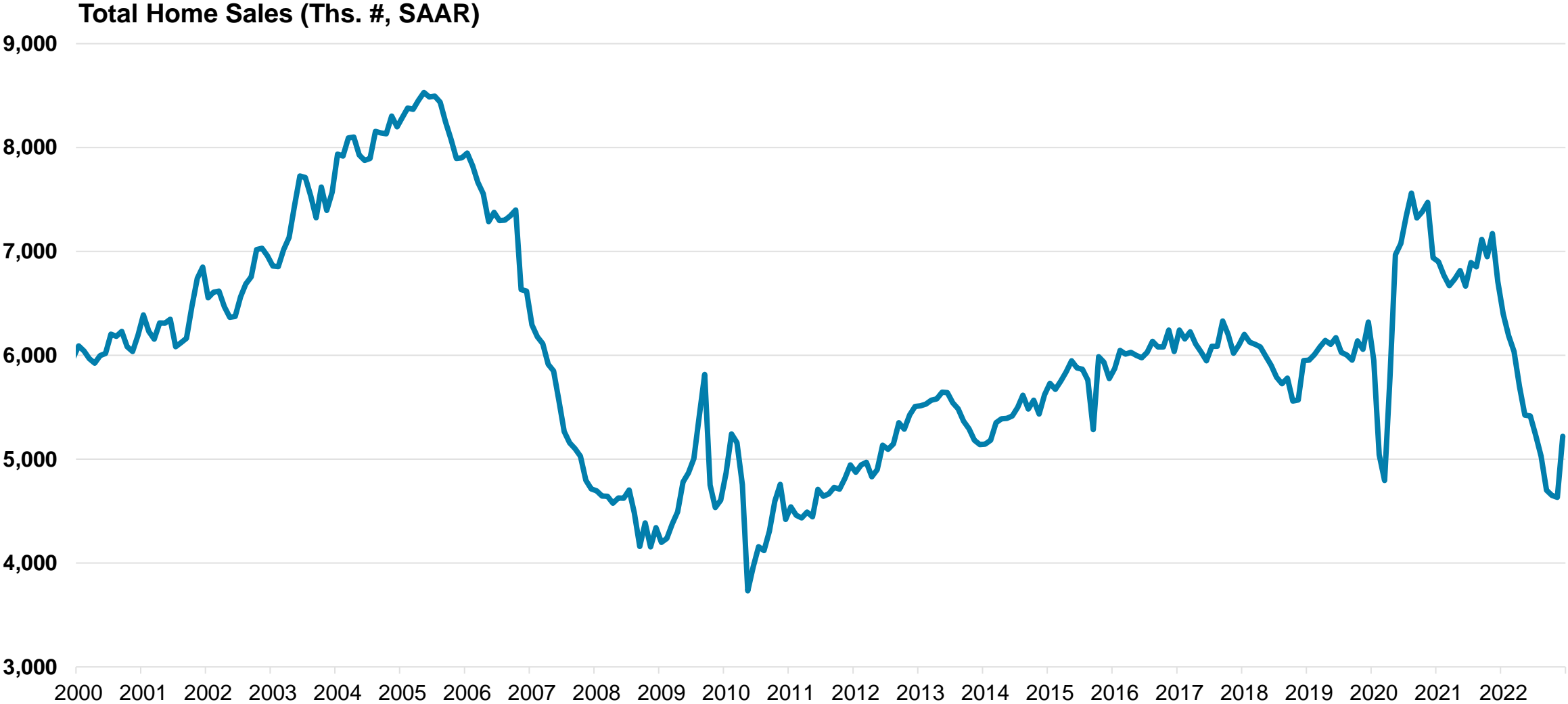
Out-of-the-money
 Coupon < 6%
 ~ \$6.7 Trillion

Marginally In-the-money
 6% < Coupon < 7%
 ~ \$0.05 Trillion

Deep In-the-money
 Coupon > 7%
 ~ \$0.93 Billion

Source: Bloomberg as of 4/10/2023
 Conforming includes Freddie Mac, Fannie Mae, Ginnie Mae 30-year fixed MBS Outstanding (UMBS, GNMA1, GNMA 2)

Home Sales Cooled Due to Rapidly Rising Rates

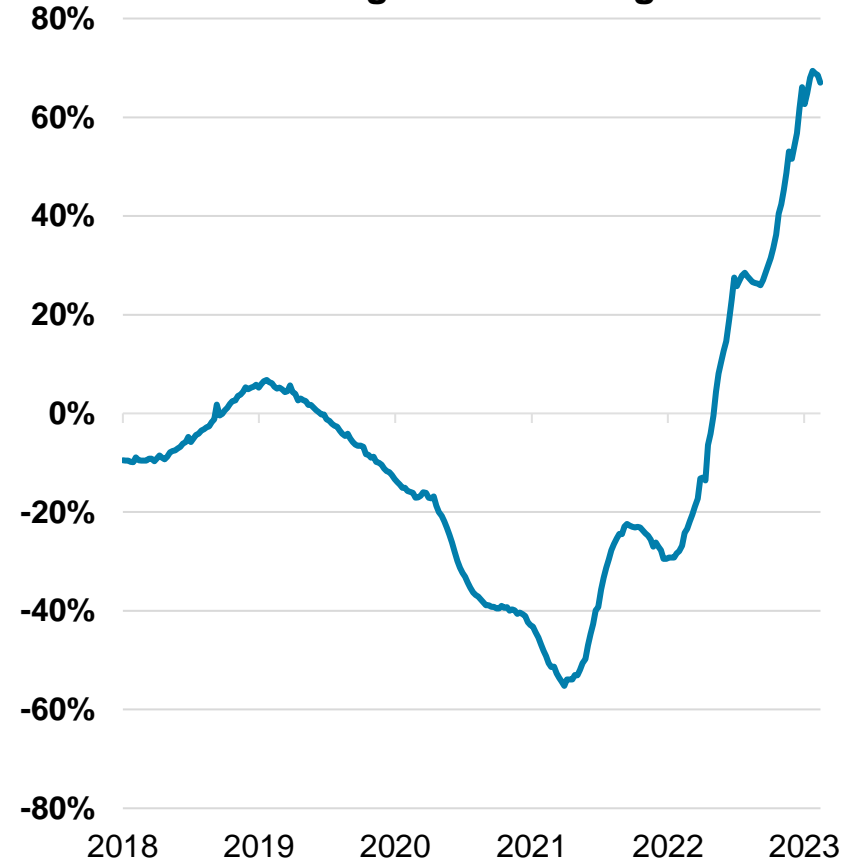


Sources : National Association of Realtors (NAR); U.S. Census Bureau

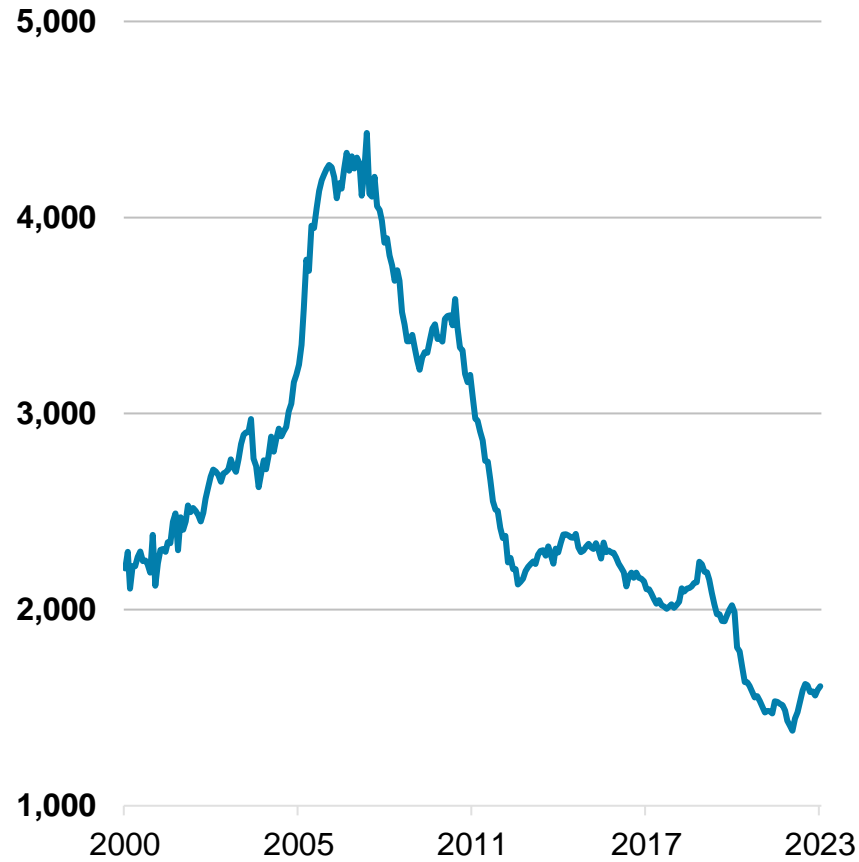
Softer Demand Has Led to a Rise in Inventory and a Decrease in the Velocity of Transactions, but Supply Remains Near Record Lows



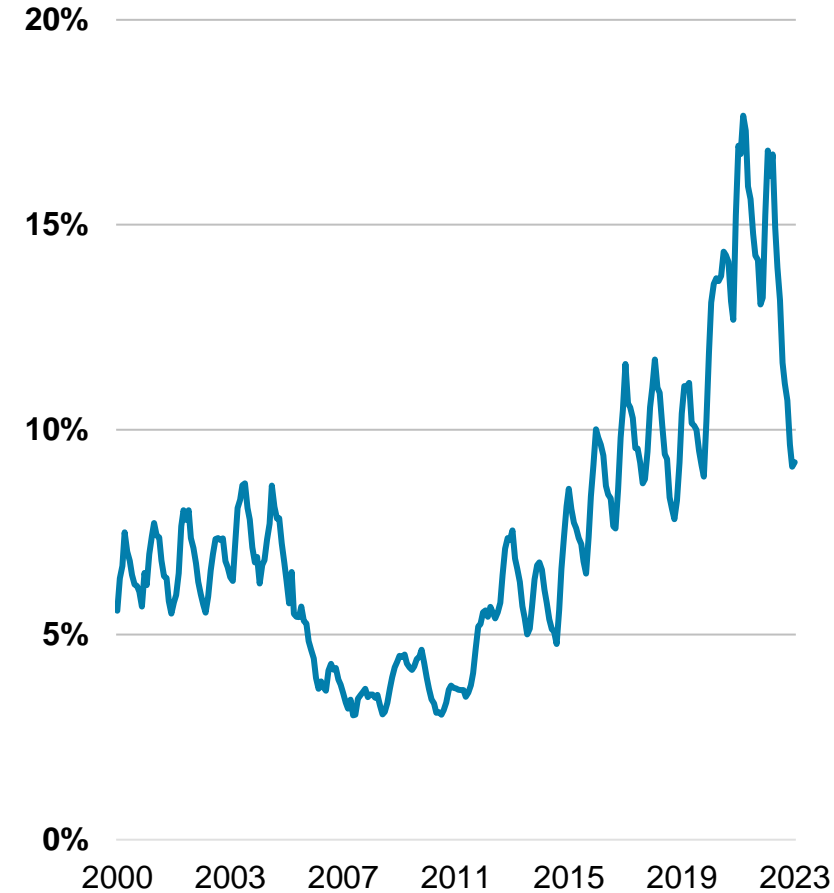
**Active Listings Inventory
Pct Change from Year Ago**



**Total Homes For Sale
Ths. #, SA**



Pct Under Contract Within 3 Days



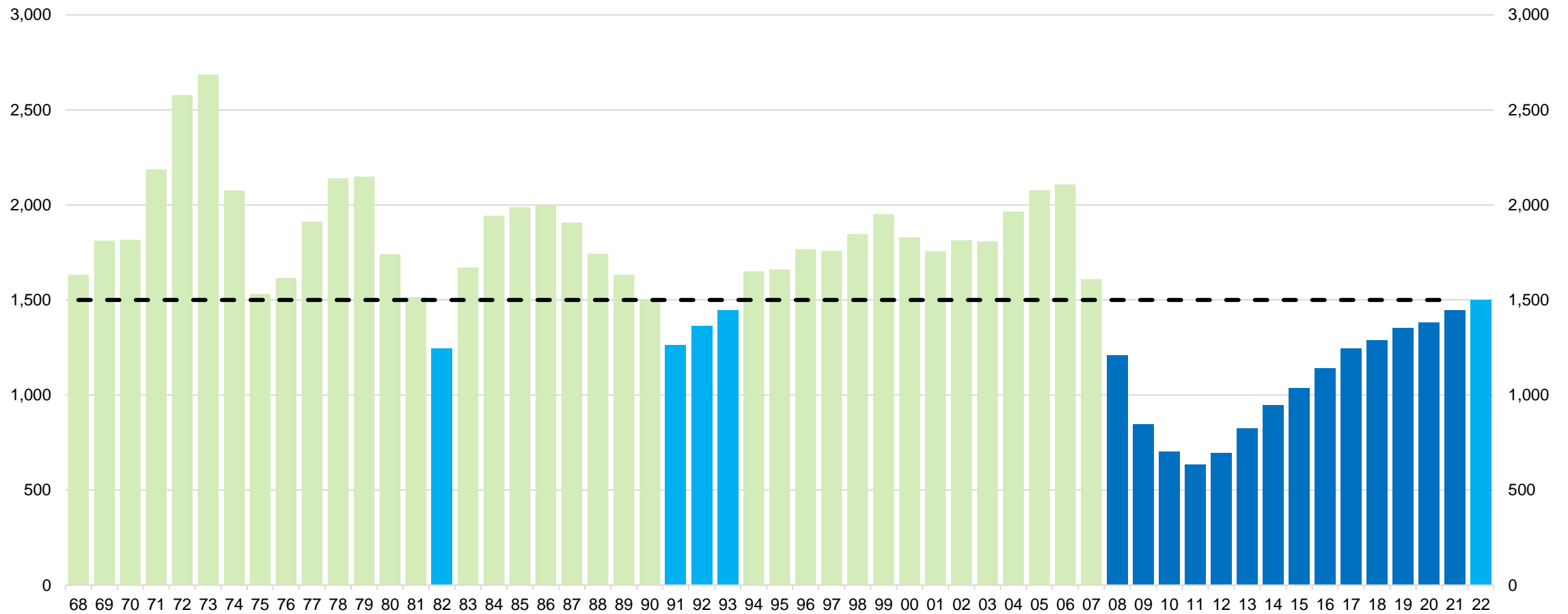
Source: Realtor.com, NAR, Census, CoreLogic

Note: Includes listings that sold during the month and listings still under contract.

New Housing Completions Improved in 2022, but Still Below Pre-GFC Levels...



U.S. annual housing completions and manufactured home shipments (1000s)

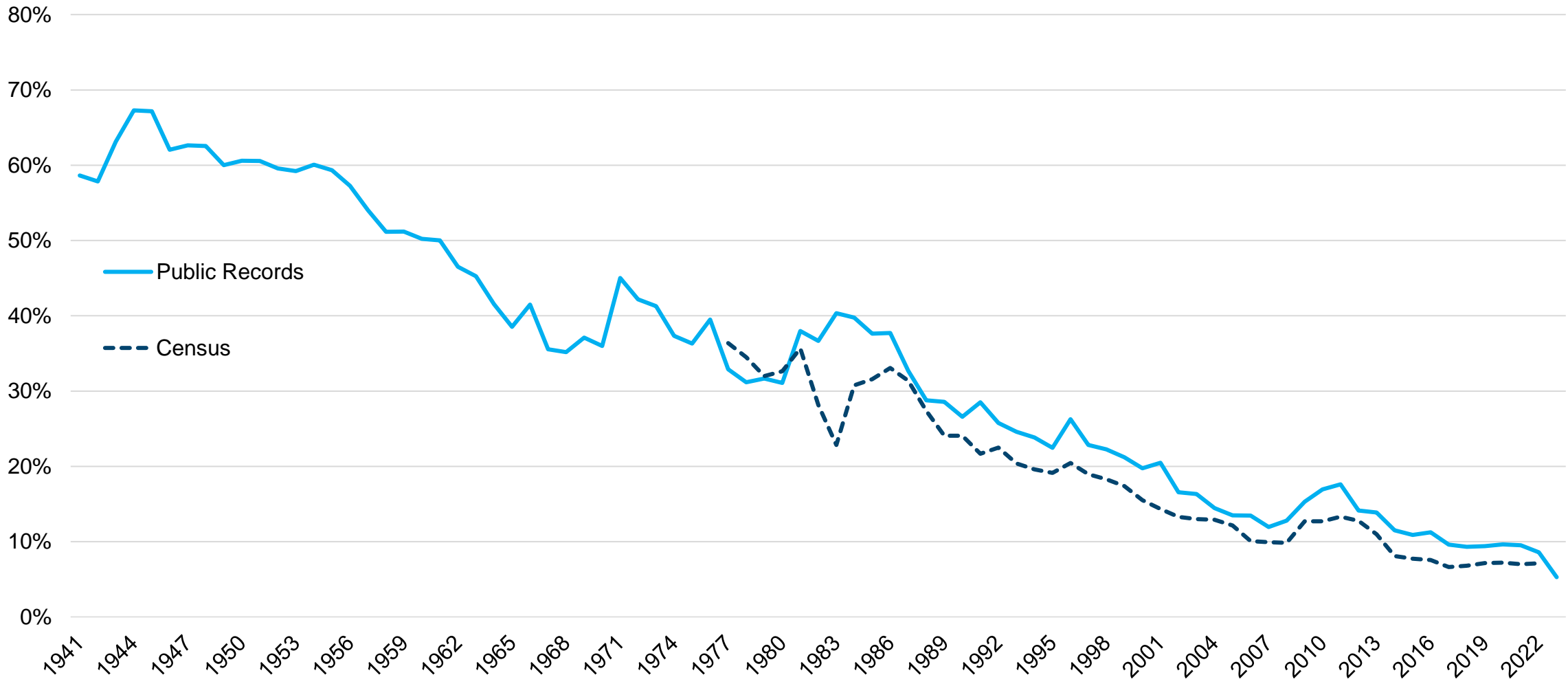


Source: U.S. Census Bureau and Department of Housing and Urban Development, Institute for Building Technology & Safety

....and Entry-Level Supply Had Been Declining for Decades...



Share of SF Construction that is 1,400 Square Feet or Less

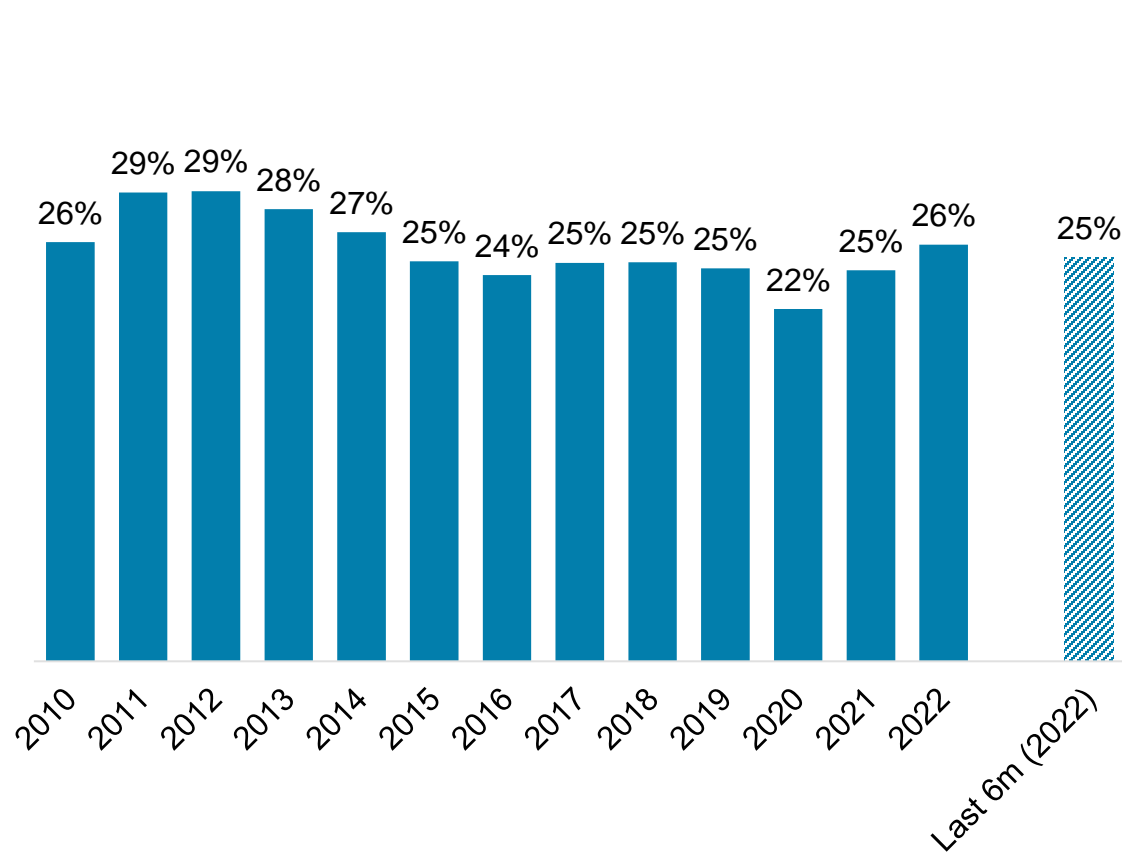


Source: Census and CoreLogic

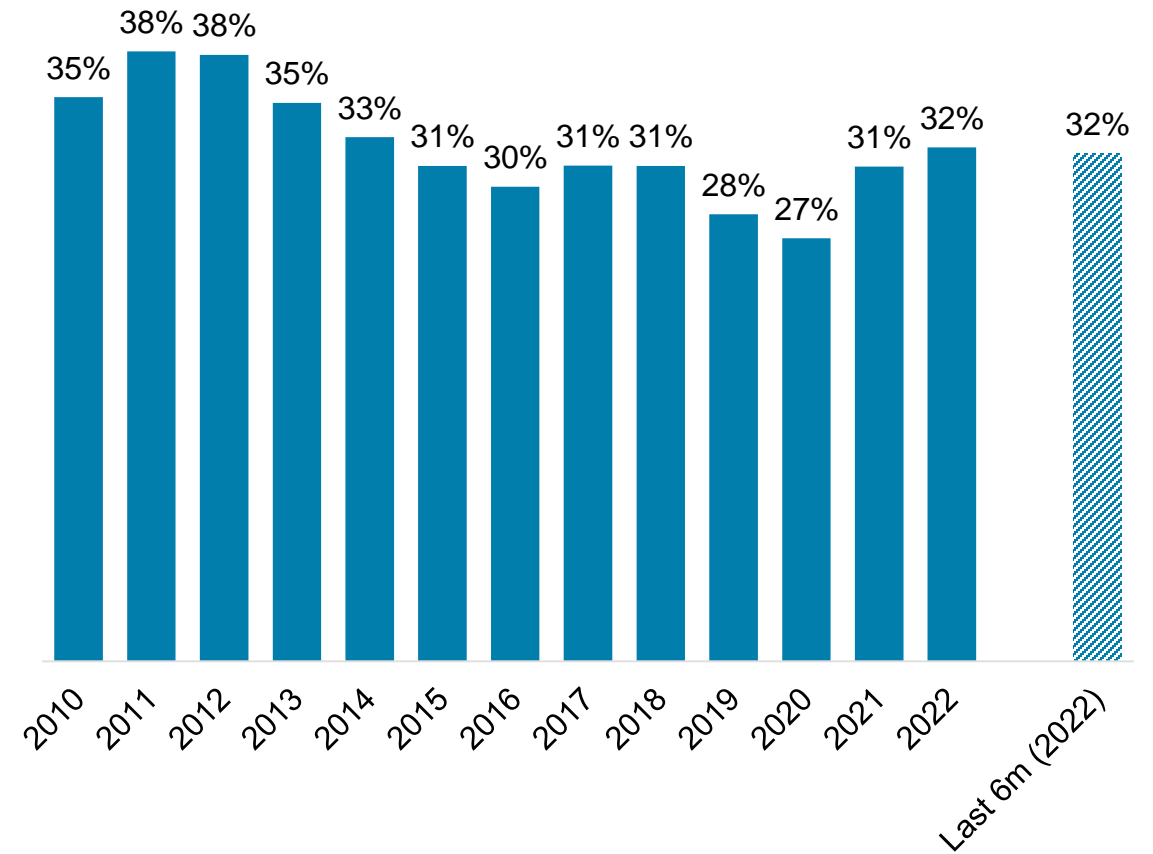
There Has Been a Modest Increase in Investor and Cash Share Since the Pandemic Began and it Has Only Slightly Declined



Overall Investor Share



Total All-Cash Share

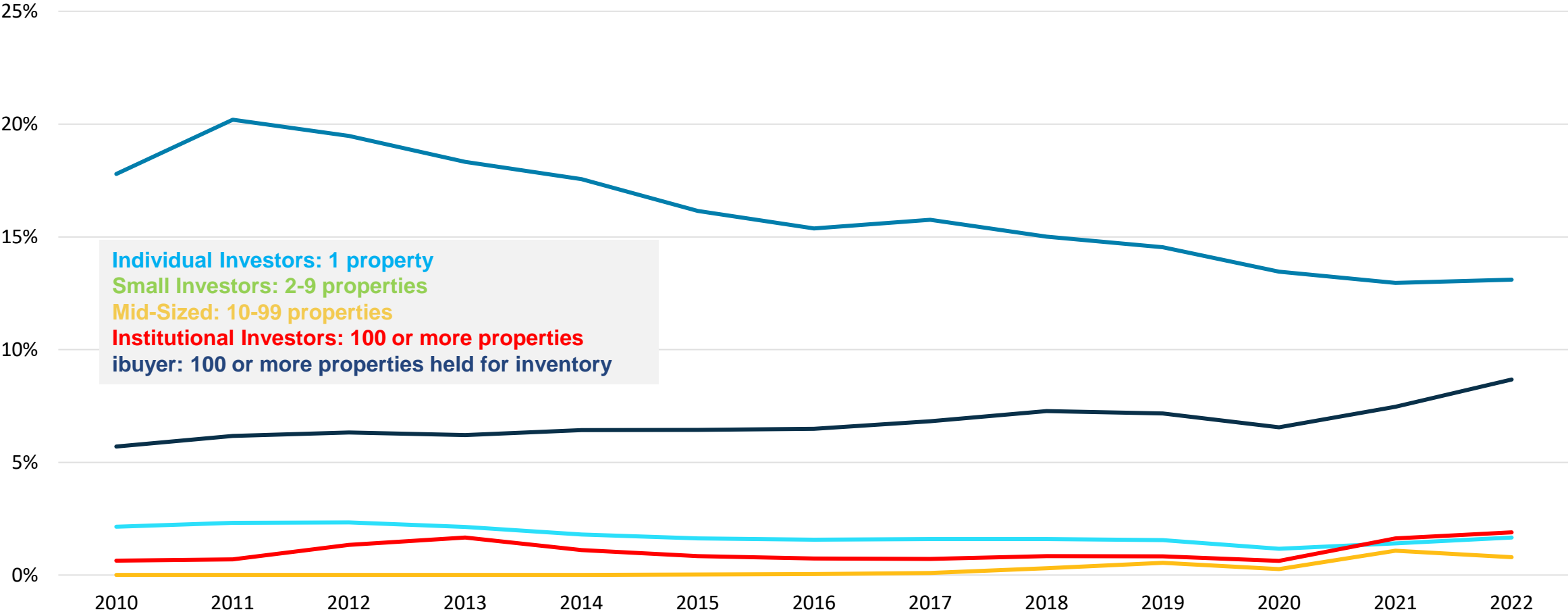


Source: Corelogic

They Receive Little Attention, but Individual Investors Are Largest Category of Real Estate Investors



Investor Share of Total Home Sales By Type

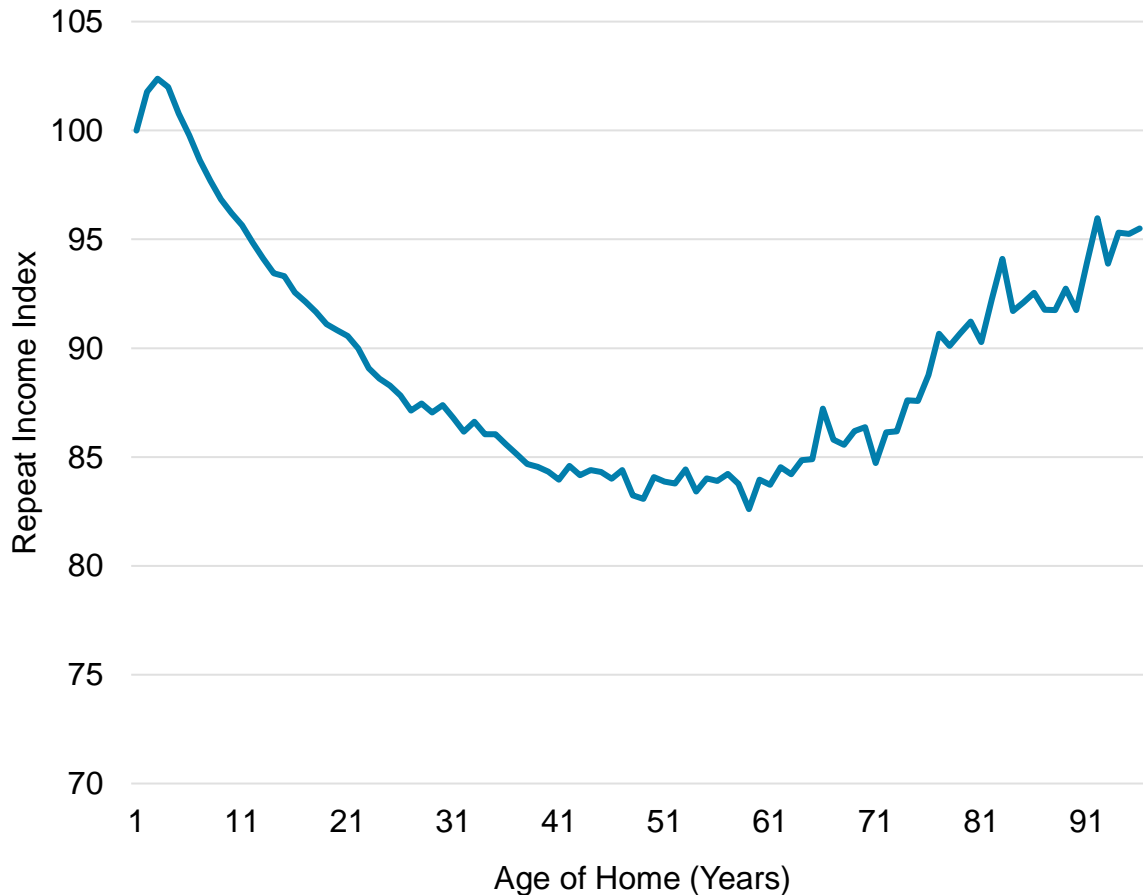


Source: Freddie Mac Economic and Housing Research group tabulation of CoreLogic data

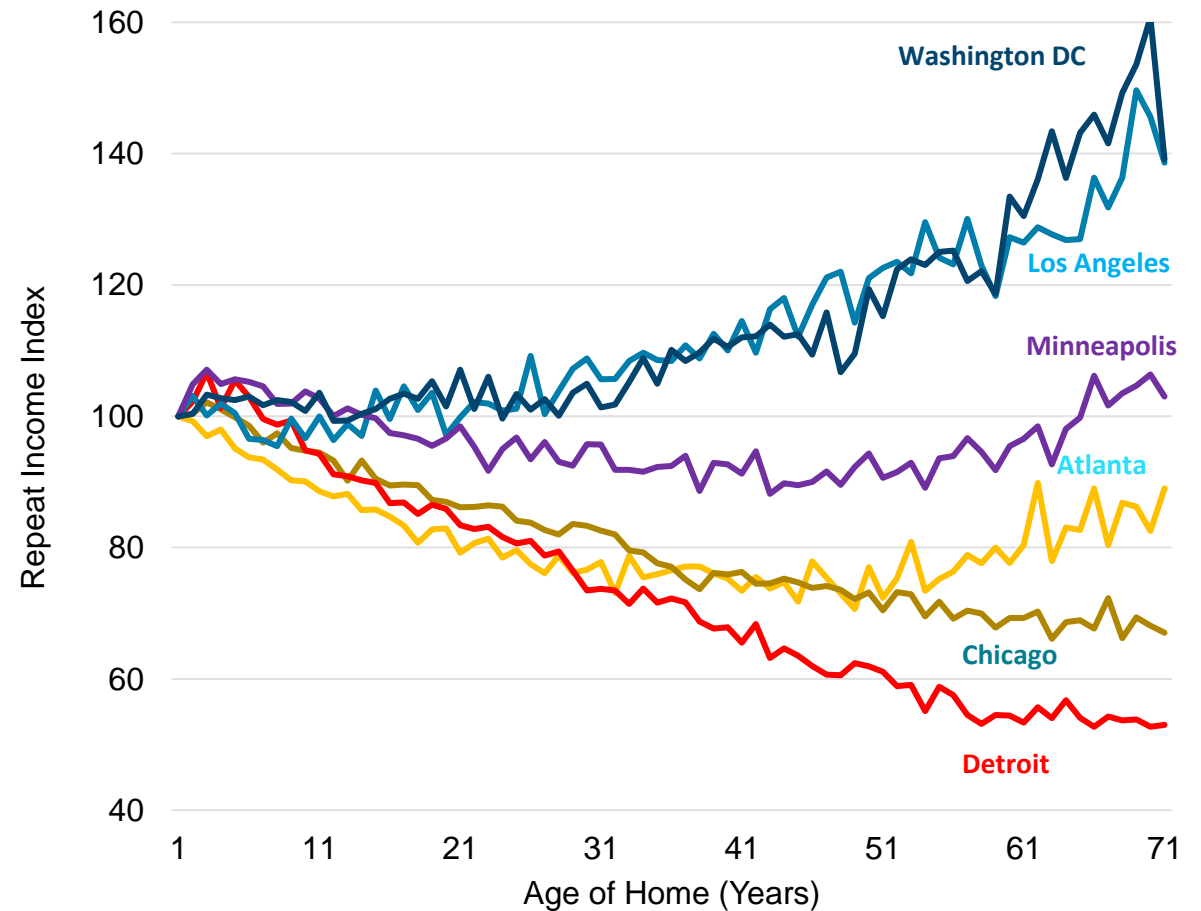
The Market's Mechanism for Providing Affordable Housing is 'Filtering' But Not Working in High Priced Markets Due to Demand/Supply Imbalance



Older More Affordable Homes Are Filtering Up Due to Being Raided By Higher Income Households



Older Homes in High-Cost Markets Are Not Filtering Down at All Due to High Demand

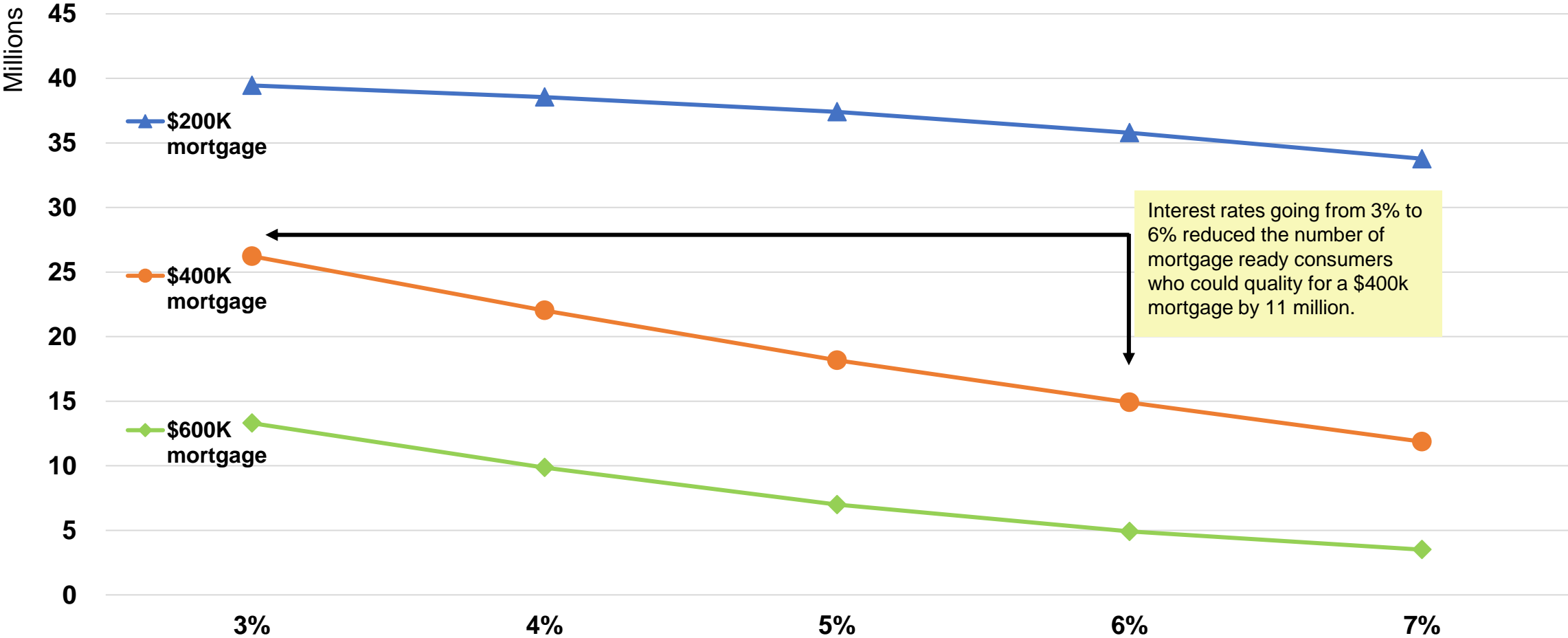


Source: Freddie Mac. Full paper available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3527800

Higher Mortgage Rates and House Prices have Dramatically Reduced the Number of Potential Homebuyers



Number of "Mortgage Ready" Consumers Who Can Potentially Qualify for a Mortgage



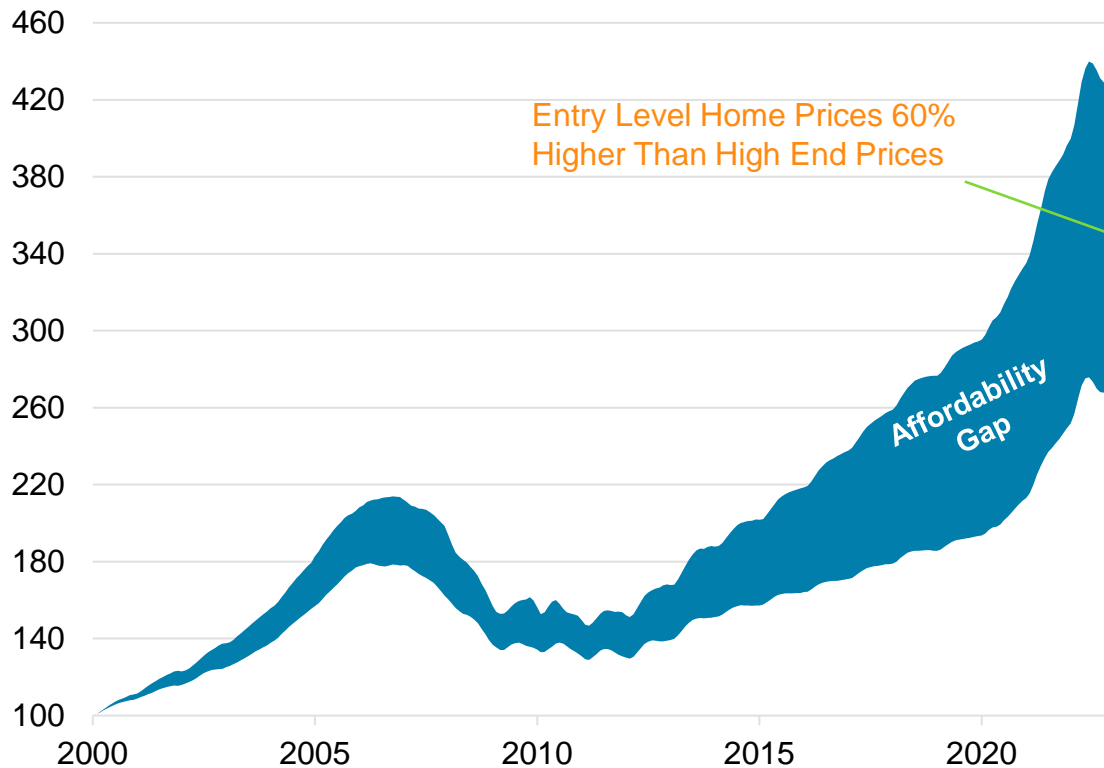
Source: "Do Rising Interest Rates Price Out Mortgage-Ready Borrowers?"
<https://www.freddiemac.com/research/insight/20221121-do-rising-interest-rates-price-out-mortgage-ready>

Chronic Supply Shortage and High Entry-Level Demand Caused Entry-Level Prices to Soar



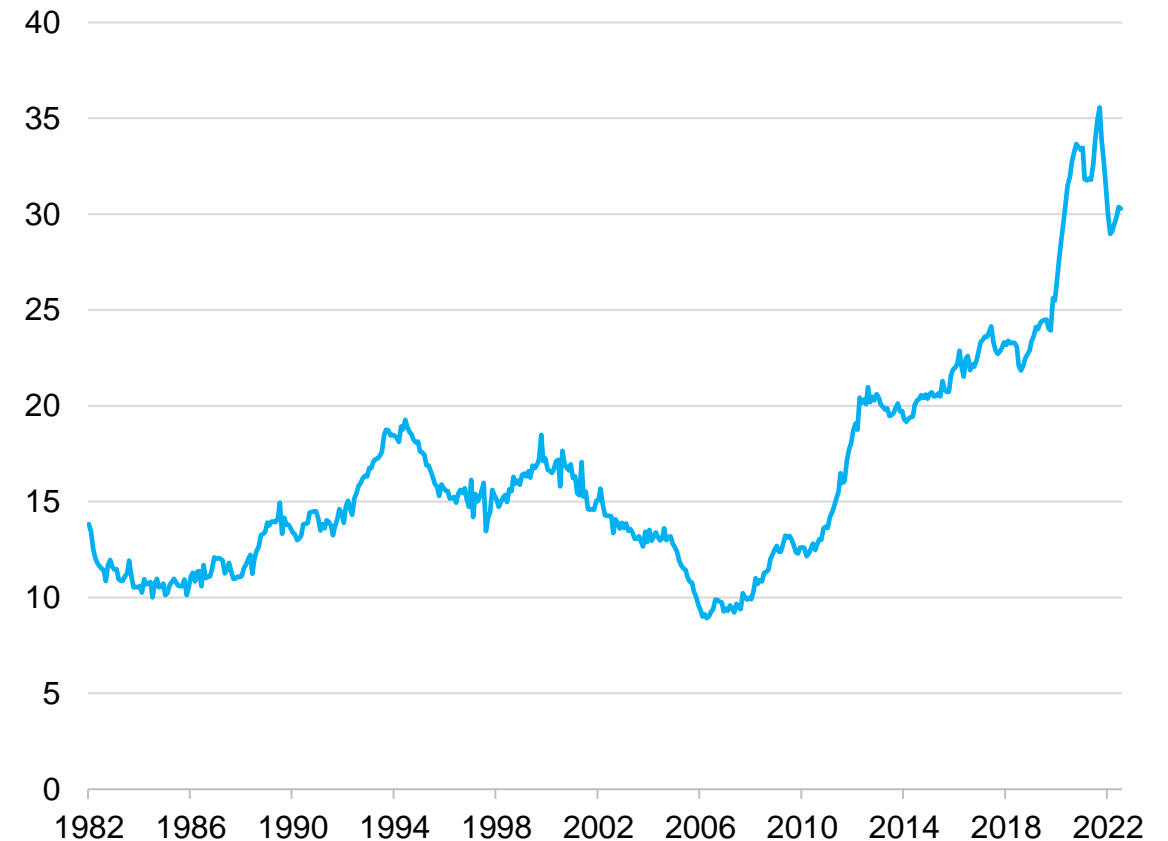
Entry-Level Home Prices Skyrocket

Affordability Gap Rapidly Rising
Cumulative Gap Between Entry Level and High End Home Prices – Home Price Index Level



Renters Scramble For Shrinking Inventory

Number of Renter Household Per Homes For Sale



Sources: NAR, Census and CoreLogic. Entry level home prices are homes that sell at 75% of the median or below. High end home prices sell at 125% of the median or higher. Last data point December 2022.



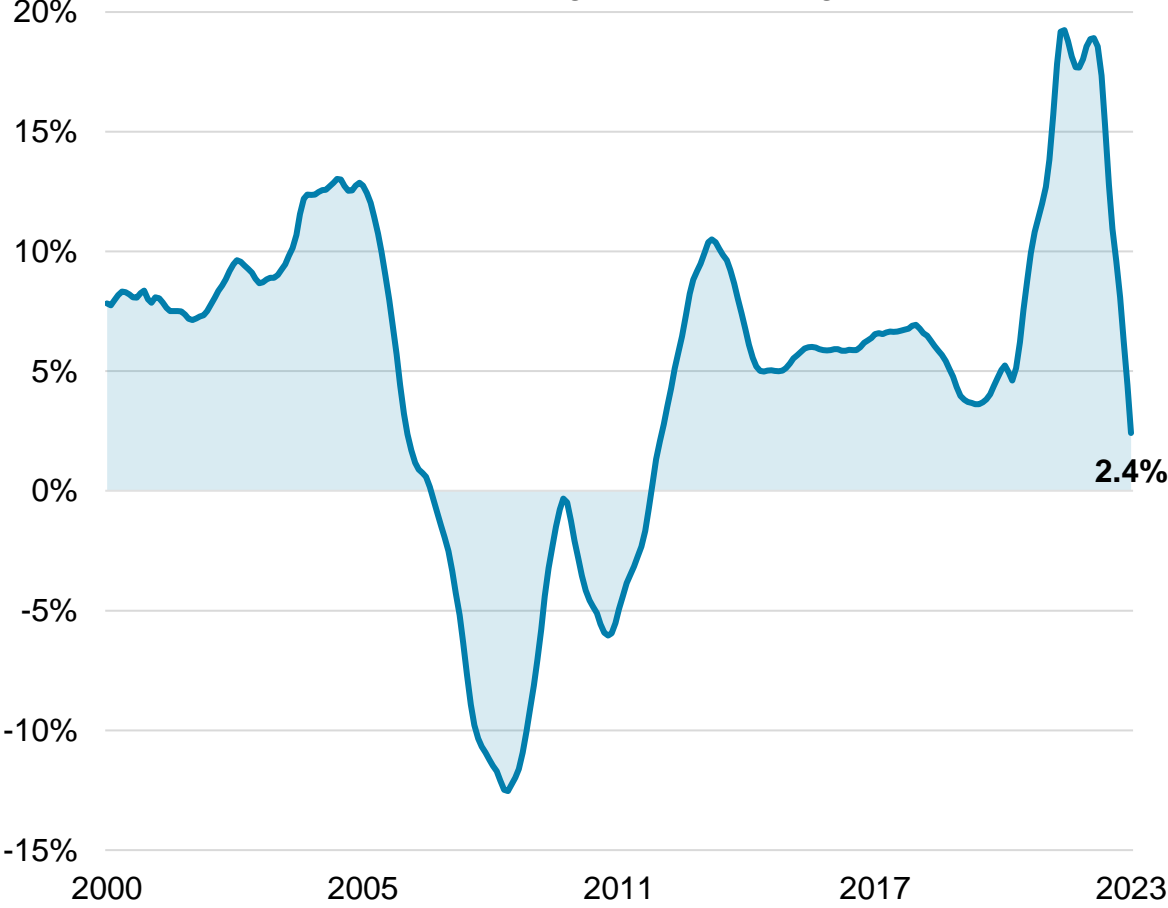
House Prices Driven by Migration

House prices may have turned the corner, buyers are moving for affordability but may be exposing themselves to other risks.

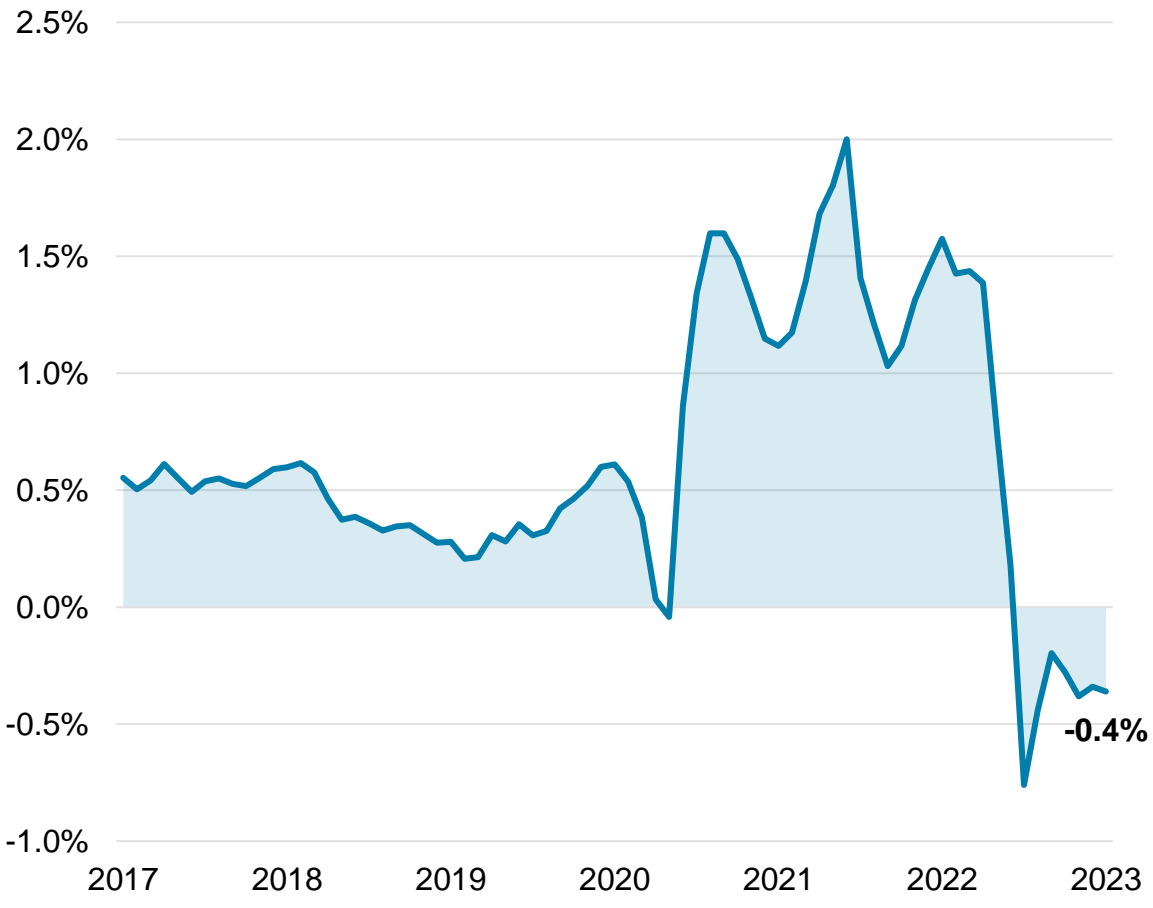
Home Price Growth Declines have Stabilized and Preliminary February/March Data Suggests Modest Increases



Freddie Mac House Price Index - January 2023
Percent Change from Year Ago, SA



Freddie Mac House Price Index - January 2023
Percent Change from Month Ago, SA

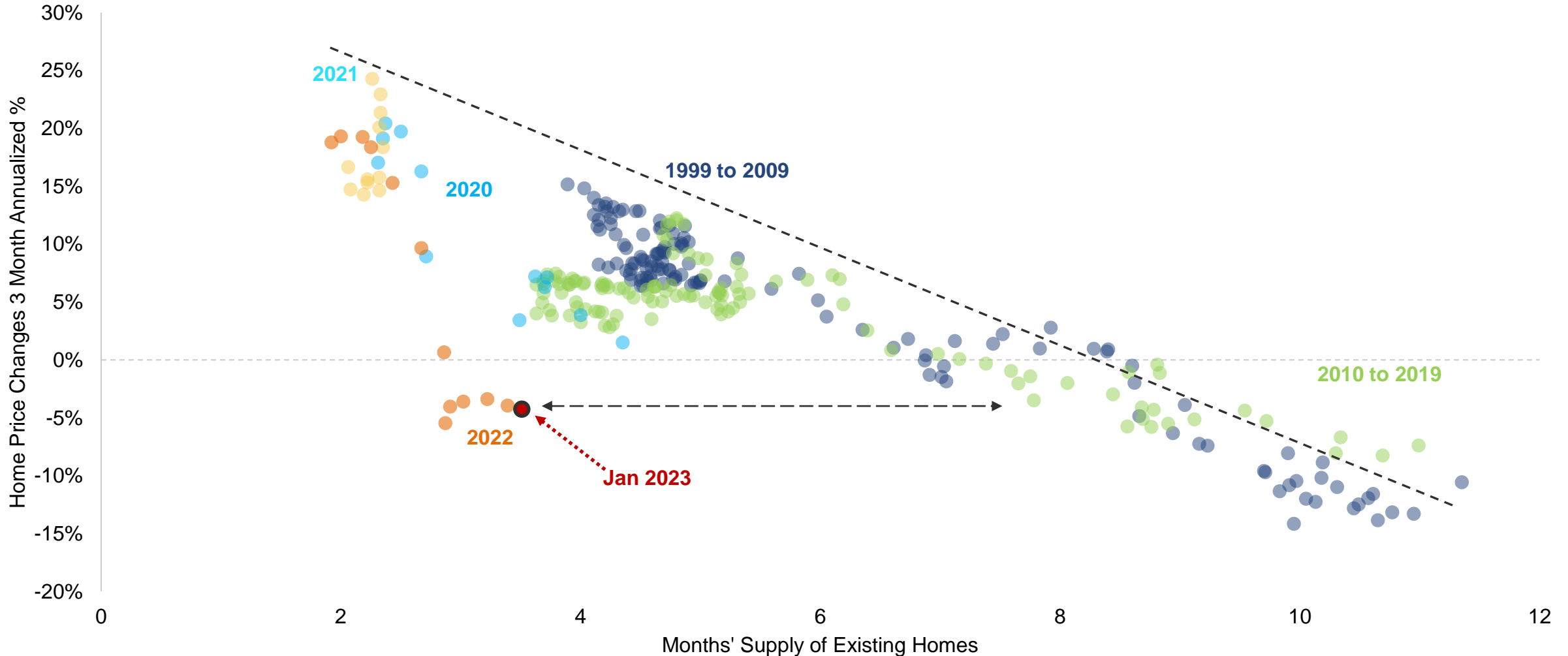


Source: Freddie Mac

Despite Still Low Supply, Very Large Drop in Demand Has Led to a Decline in Home Prices

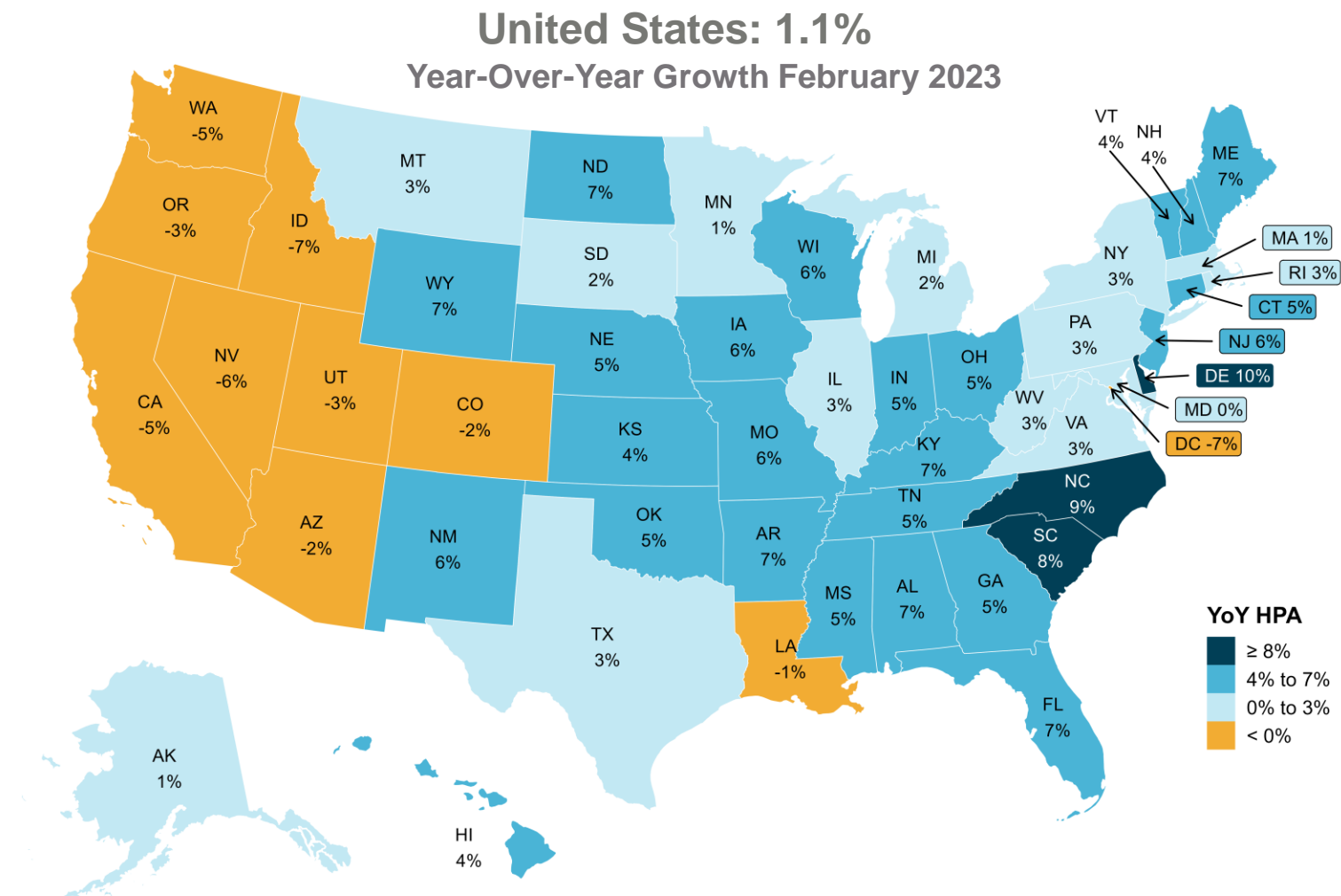


Months' Supply vs House Price Appreciation



Sources: Freddie Mac and NAR

Prices in Western Markets are Rapidly Declining, and the Slowdown is Spreading to Majority of Markets, but Some Markets Remain Resilient

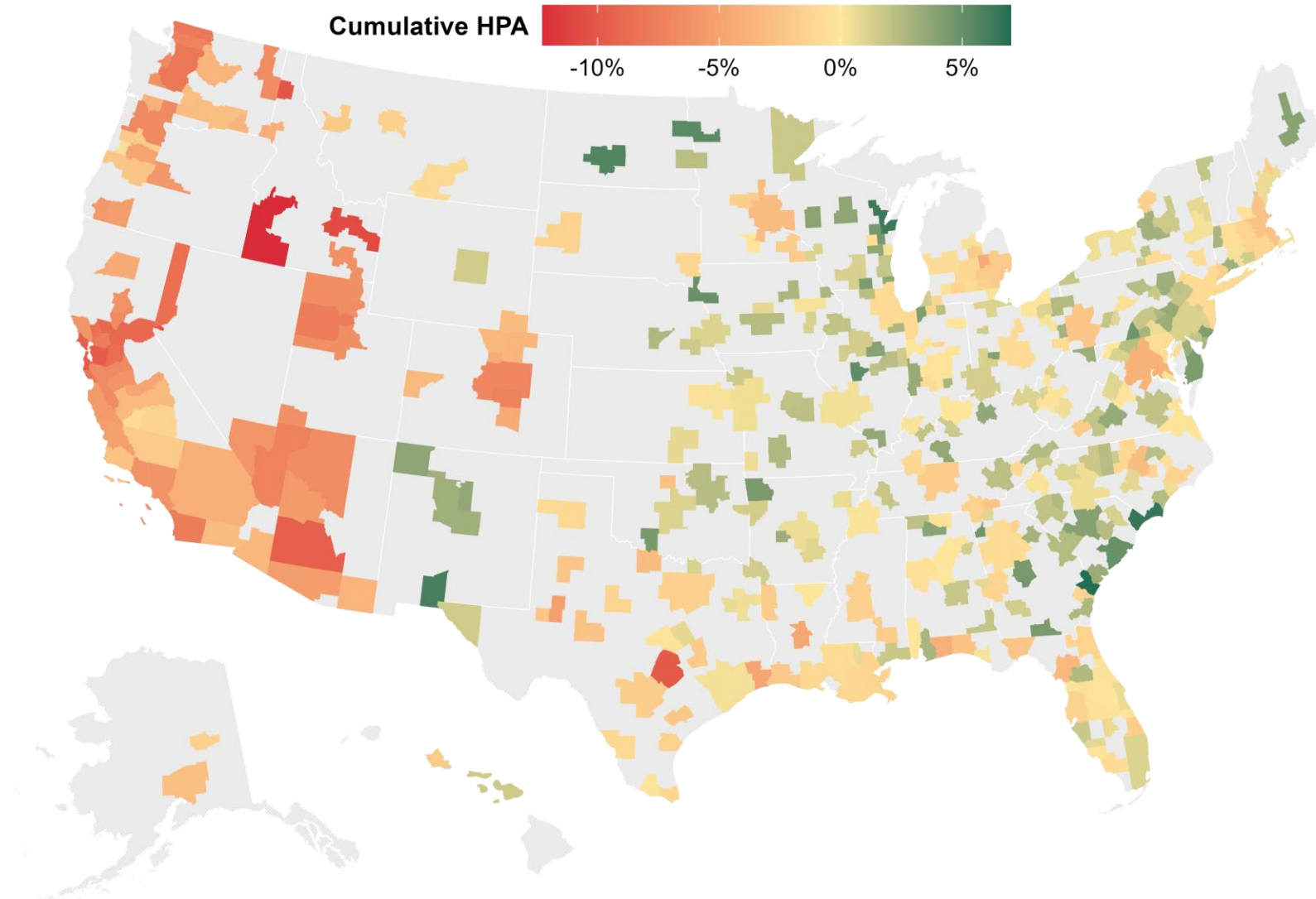


¹ The Freddie Mac House Price Index for the U.S. is a value-weighted average of the state indexes where the value weights are based on Freddie Mac's single-family credit guarantee portfolio. Other indices of home prices may have different results, as they are determined using different pools of mortgage loans and calculated under different conventions. The Freddie Mac House Price Index for the U.S. is a seasonally-adjusted monthly series. Percent changes were rounded to nearest whole percentage point
Source: Freddie Mac

Prices in Western Markets are Rapidly Declining, and the Slowdown is Spreading to Majority of Markets, but Some Markets Remain Resilient



Cumulative MSA House Price Appreciation from May 2022 to January 2023

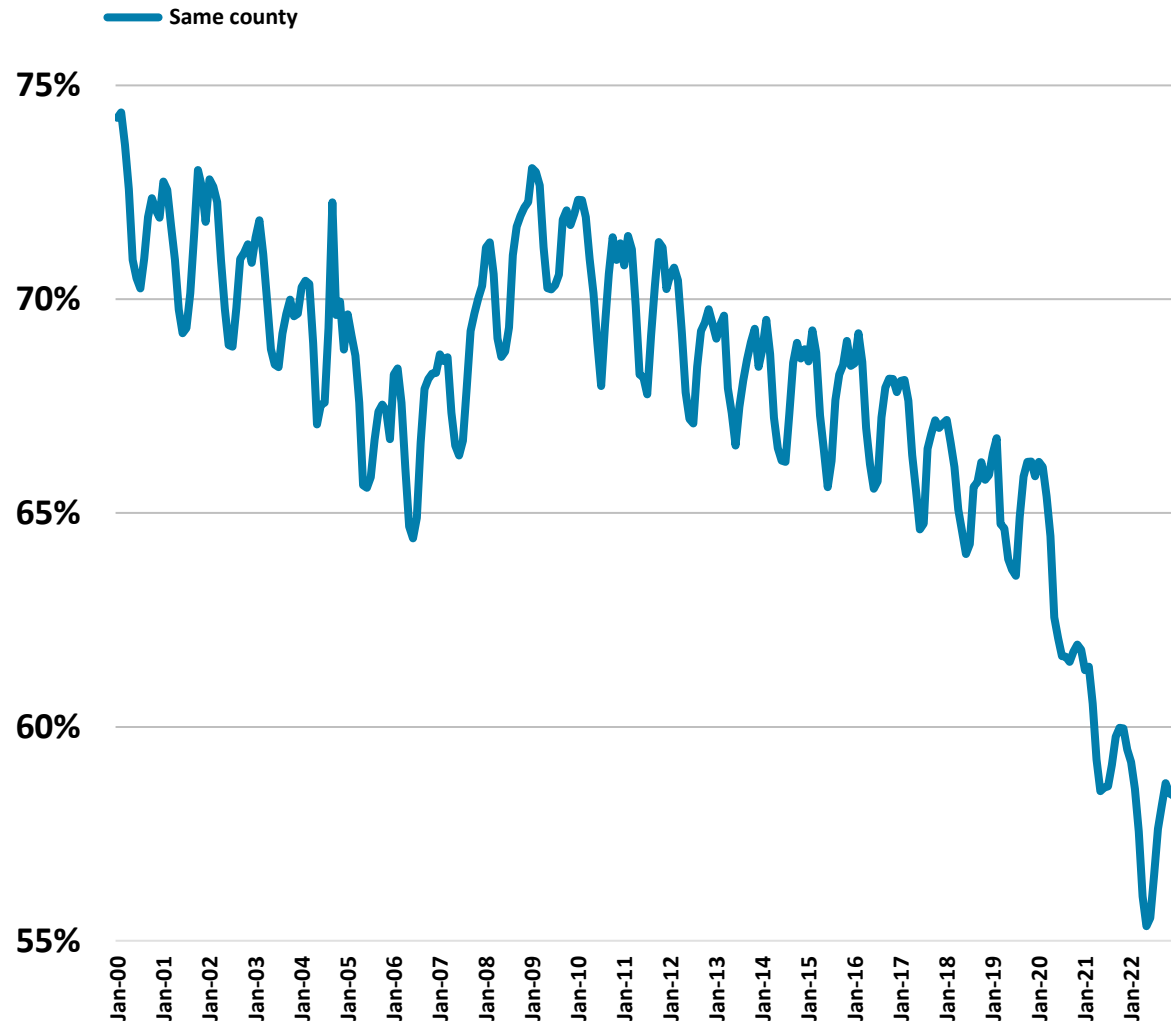


Source: Freddie Mac House Price Index, SA

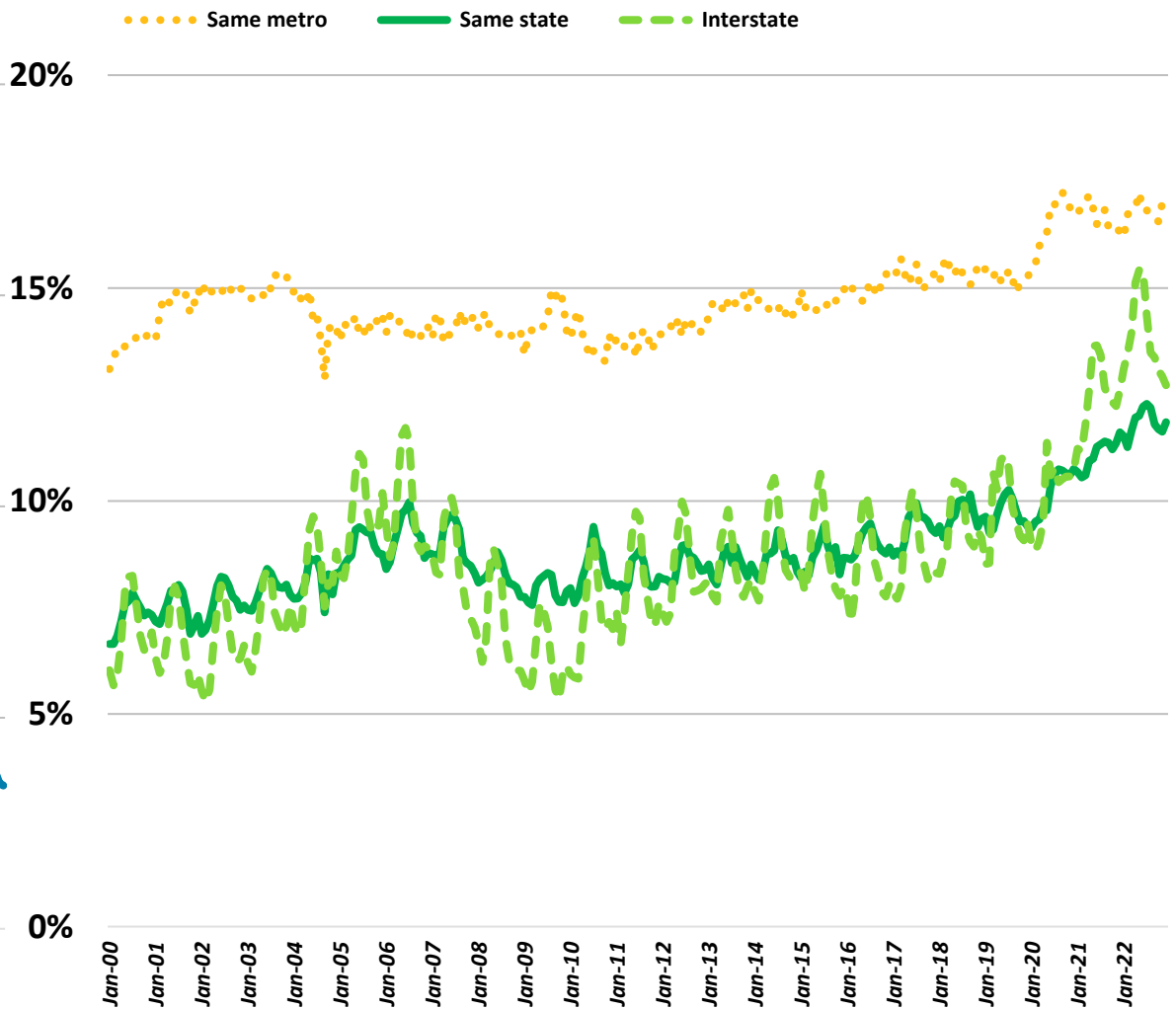
Increasing Share of Homebuyers Moving Out of Metro and State



Share of Homebuyers by Type of Move



Share of Homebuyers by Type of Move

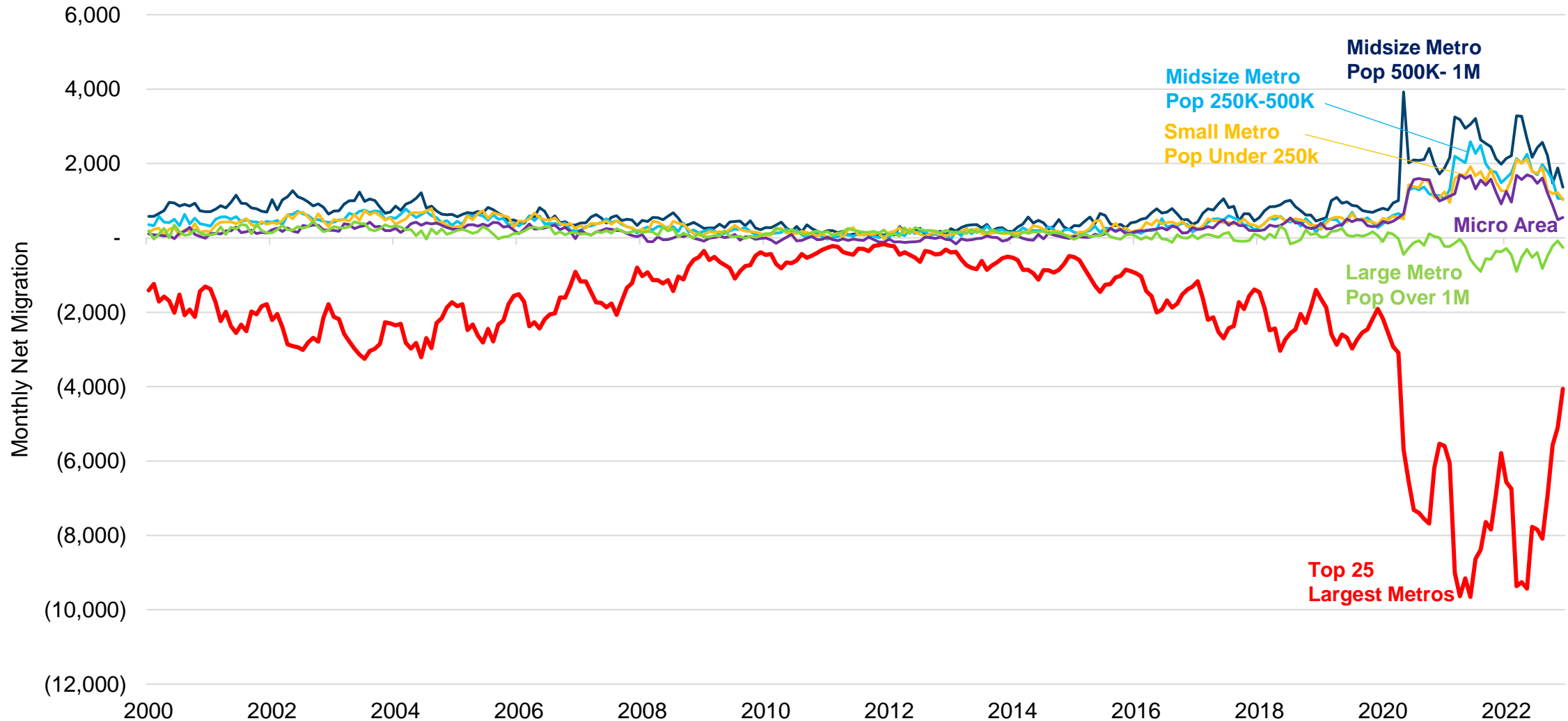


Source: Freddie Mac Loan Product Advisor

Migration to More Affordable Markets is a Large Countervailing Force to Housing Affordability Pressures in Expensive Markets

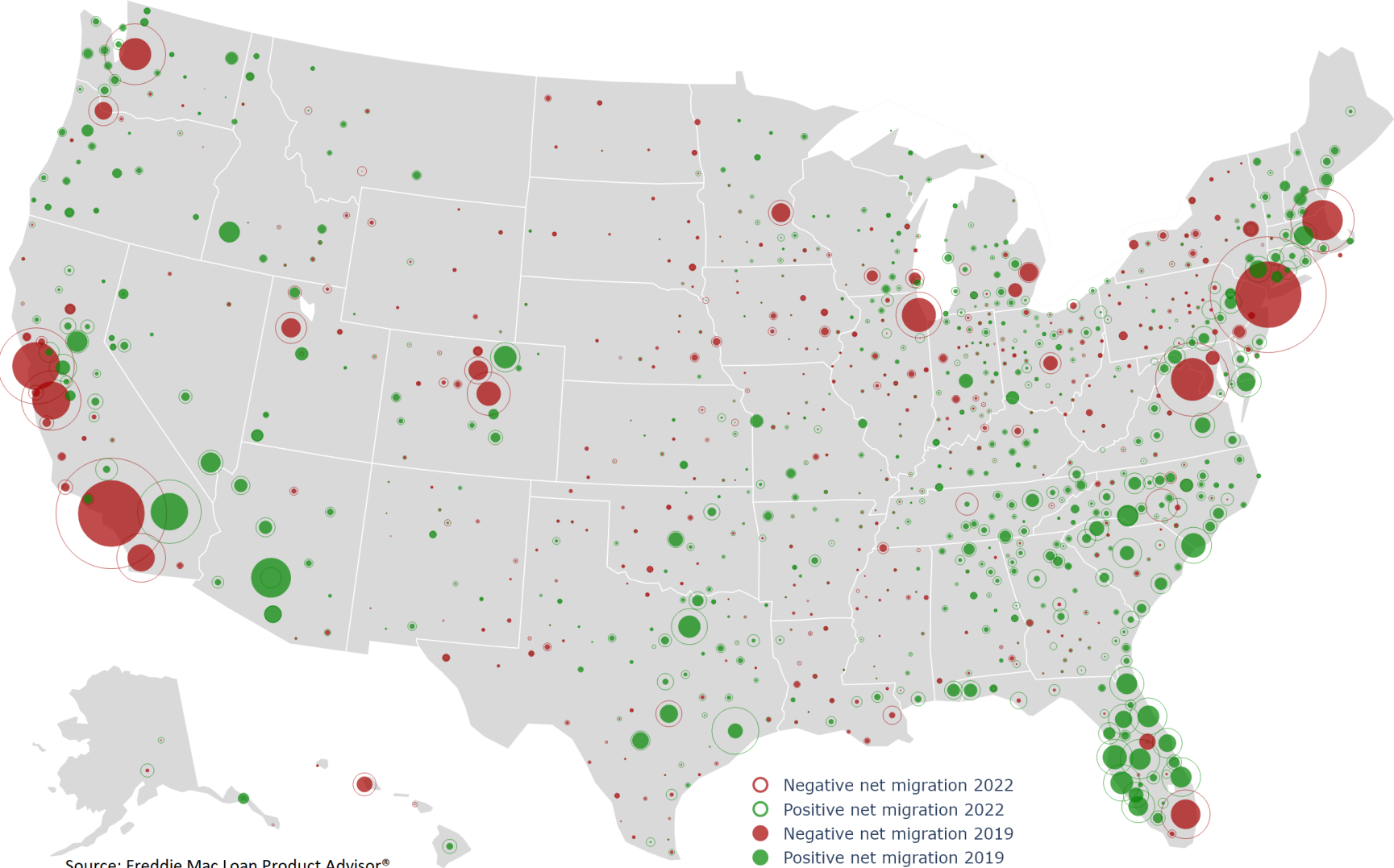


Monthly Net Migration by Metro Size



Source: Freddie Mac and Census

Homebuyers are Flocking to Many Small and Medium Markets, Especially in Southeast and Interior Markets

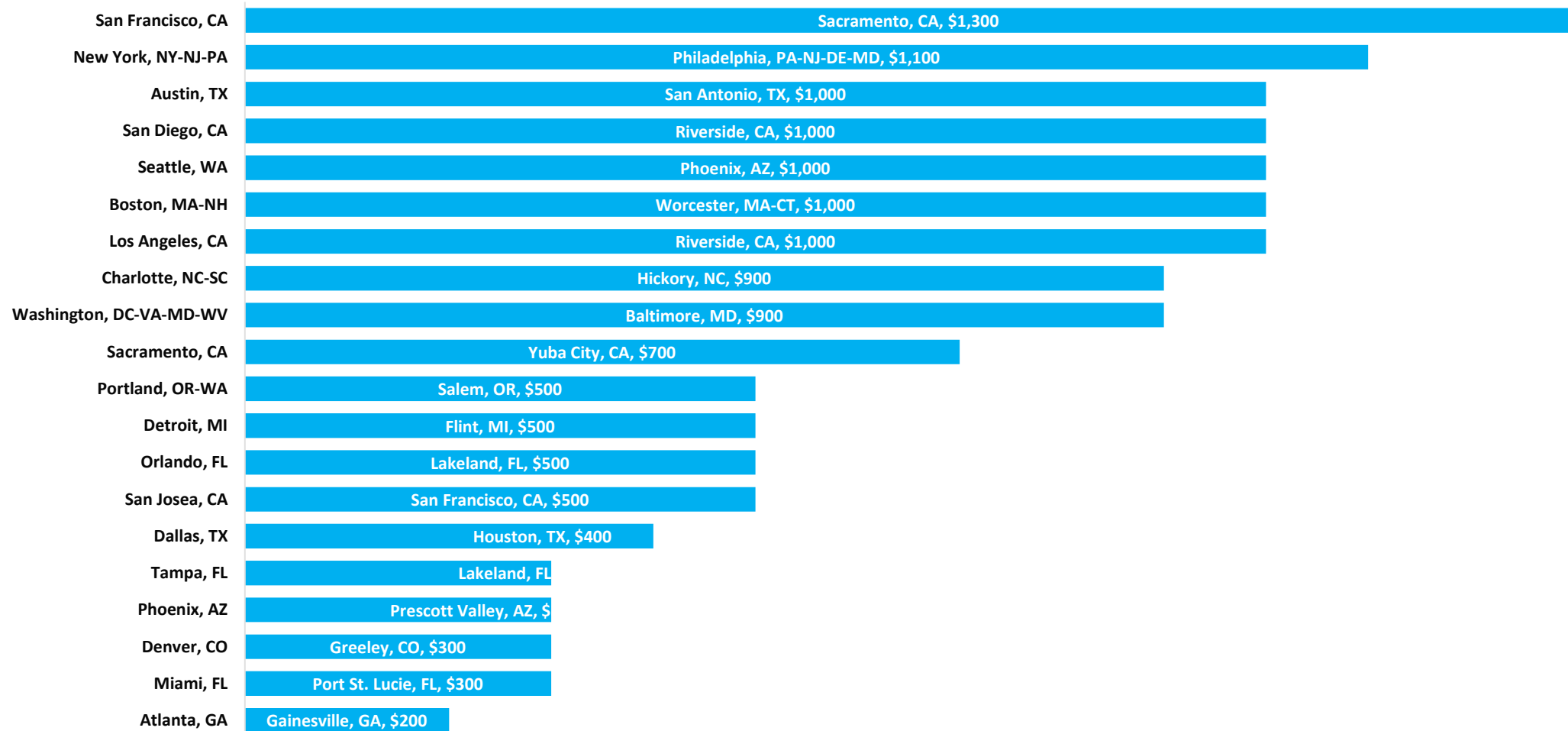


Source: Freddie Mac Loan Product Advisor®

Average Savings by Migrating to a More Affordable Location is \$600

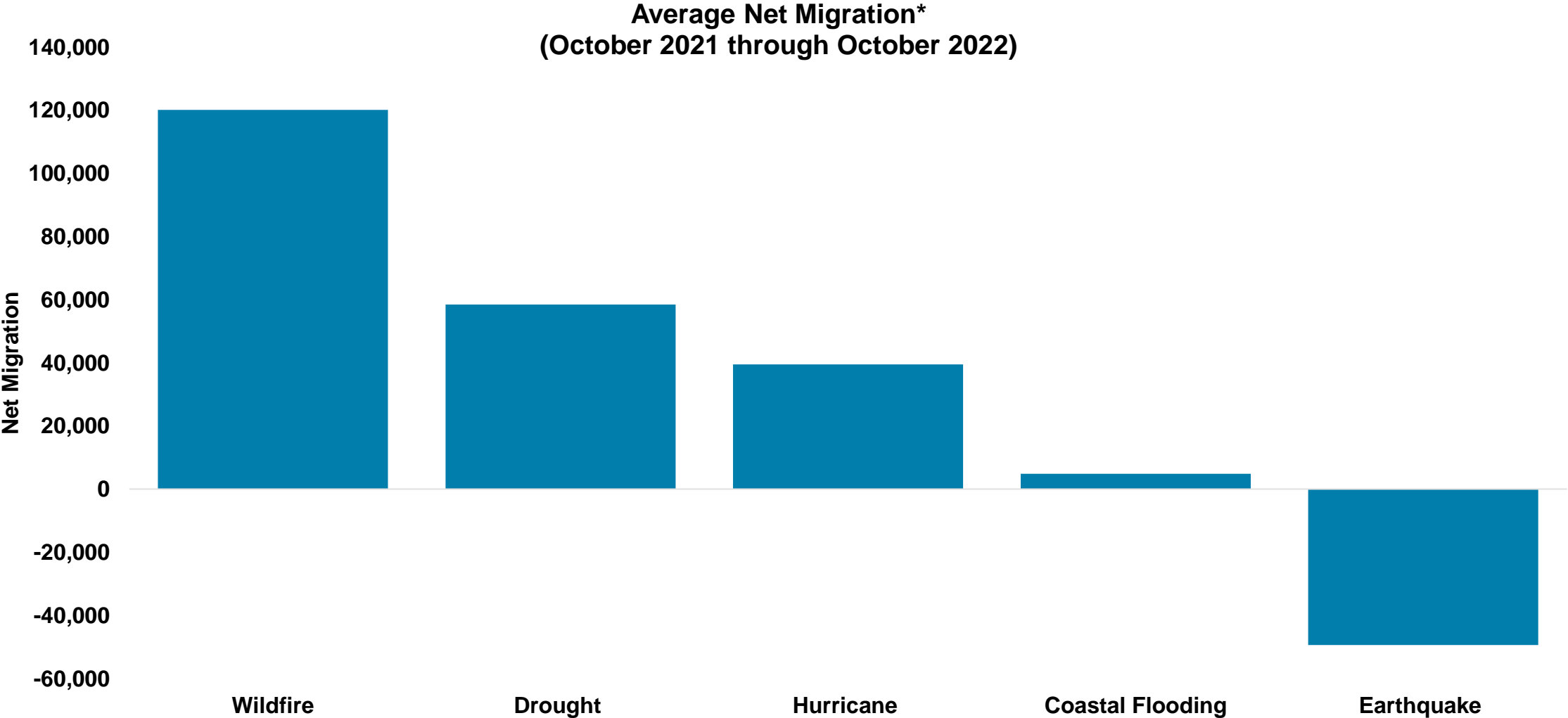


Monthly Savings By Moving to the Top Affordable Metro Compared to Staying in the Same Metro



Source: Freddie Mac Loan Product Advisor

Buyers Seeking Affordability are Moving to Areas that have High Exposure to Wildfire, Drought and Hurricanes



Source: Freddie Mac <https://www.freddiemac.com/research/insight/20221109-migration-environmentally-risky-areas-consequence>



Summary

1. The U.S. Economy Under Stress

Stress is building in the economy, inflation remains high, the growth outlook darkens, will resilient consumers power through?

2. Affordability Challenged by Higher Rates

Even though higher rates price out millions, millions more potential first-time buyers compete with investors over what little inventory is available

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Questions?



Thank You