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SPOTLIGHT

Housing & Mortgage Finance

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Sideways: Why KBW Expects a Flat Housing Market in 2024-2025

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All pricing metrics within this report as of December 11, 2023, unless otherwise noted.

Executive Summary

KBW's 2024-2025 housing forecast calls for home price growth of just 2% (below wage inflation) and home sales growth of just 2% (a 41-year per capita low). These forecasts are slightly above consensus for HPA and below for home sales, but importantly we believe many forecasts are at opposite ends of the range, with our work suggesting the middle path is likeliest. Our decomposition of inventory, vacancy, and demographics suggests a housing shortage of 1.5-2.5 million units, below the bulls but firmly in the undersupply camp. Demand is likely to remain tepid given continued high mortgage rates, although we believe ARM production may increase depending on borrower interest.

Structural supply shortage of 1.5-2.5 million homes (1-2% of household population). On supply, resale inventory of 1.1 million equates to 0.9% per capita, 40% of long-run averages. Nationally, vacancy totals 10.4%, 1.5-2% below the post-1990 average. Demographically, baby boomers and Gen-X, 40% of population, are aging in-place or not listing their homes. This is partly on "locked-in" mortgage rates, 50% below market rates and extending duration (with prepayments 50-60% below normal). On demand, Millennials and Gen-Z account for another 40% and are amidst or will approach home buying age.

Home prices will remain stubbornly high due to low inventory. We forecast 2% home price growth in 2024-2025. Affordability is 30% below the long-run with payment-to-income of 27% compared to 2002-2004's 20%. Alongside lower mortgage rates and 3-4% annual wage growth, we estimate it would take two to three years to normalize affordability. Similarly, we expect home sales to grow 1.6-2.4% in 2024-2025 including existing homes up 1-2% and new up 5%. While growth is modest, existing sales will remain anemic, hovering near the lowest per capita since 1970.

Who's right between bulls and bears? Neither. Housing bulls argue that housing starts averaging 1.1 million since 2009 trail the 1.5 million long-run, resulting in a 5-6 million deficit. We think this overstates the case due to prior excess and market composition. Bears argue that slowing birth rates, obscured by the pandemic, will result in inevitable oversupply. We think this overlooks medium-term homeownership growth from existing generations and projects too long a timescale.

Stock recommendations. The outlook for a sideways housing market makes KBW increasingly positive on homebuilders and mortgage servicers, and is also positive for mortgage insurers and single-family rental (SFR) REITs. **For homebuilders,** we believe new home sales and public builders can continue to gain share on account of land, better capitalization than private developers, and mortgage buydown incentives. We expect **mortgage servicers** to continue to benefit from slow prepayment speeds and low housing turnover. For **mortgage insurers,** the benefit is primarily from stable home prices, which should help limit credit losses. Finally, **we expect SFR REITs** to generate rent growth due to limited supply. However, we are not upgrading SFR as we believe lower rates are needed to narrow the gap between cap rates and cost of capital.

Ratings Changes. In our 2024 Outlooks, *CRE 2024 Outlook: Too Early to Get Positive* and *2024 Outlook: Servicers and MIs Should Outperform as Volumes Remain Tepid & HPA Stays Flat,* we upgraded DHI and RDN to Outperform (from Market Perform), and we reiterated our Outperform ratings on LEN, TOL, COOP, PFSI, MTG, and ACT.

Homebuilder Outlook

We view current housing supply/demand dynamics as favorable on net for the homebuilders and believe they have more room to run. The sector has outperformed YTD, up 65% vs. the S&P 500's 20%. Despite the rally, valuations are below historical averages at 1.3x book value vs. a long-run 1.5x. Looking at past cycles, homebuilders declined -18% in 2022, -29% in 2018, and -30% in 1999. Historical second year stock performance following declines averaged +23% excluding 2018's -29% (due to the taper tantrum) and the Global Financial Crisis (GFC) period. For 2024-2025, we expect homebuilders to deliver positive earnings and book value accretion as new home demand remains solid. We view interest rates (4-5% US 10-year) as in the sweet spot where the existing home market will remain muted and new home market share will remain elevated as homebuilders deploy sales incentives to subsidize monthly payments. In our concurrent report, *CRE 2024 Outlook: Too Early to Get Positive,* we upgraded DHI to Outperform (OP) and reiterated OP ratings on LEN and TOL due to positive earnings and book value growth, healthy liquidity, and track record of delivering value to shareholders via stock buybacks.

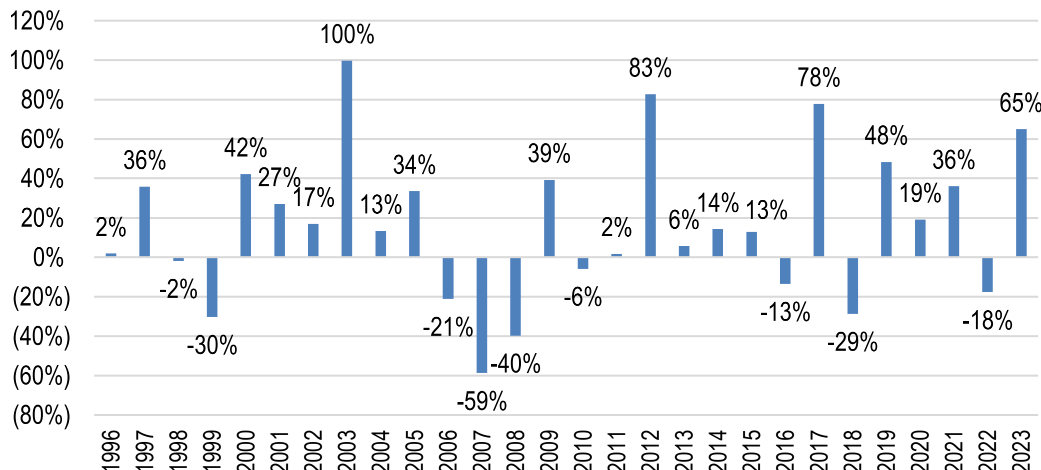
Exhibit 1: Homebuilder Comp Sheet

			Price-to-Book Value			P/E			KBW EPS				2024E		Gross Margin	
Ticker	Rating	Price	Current	Forward	2024-25E TBV chg. Y/Y	2023E	2024E	2025E	2023E	2024E	2025E	2024-25E vs. Prior Est.	Delivery Growth	Comm. Count Δ	2024E	Y/Y Δ
DHI	OP	$138.90	2.07x	1.68x	*+20.1%*	10.0x	9.5x	9.3x	$13.85	$14.58	$14.97	*+5.0%*	6.4%	7.0%	23.7%	0.41%
LEN	OP	$139.64	1.79x	1.51x	*+16.0%*	10.3x	9.3x	8.9x	$13.55	$14.95	$15.68	*+1.8%*	8.0%	5.1%	23.3%	(0.22%)
KBH	MP	$56.08	1.17x	1.04x	*+13.5%*	8.2x	7.8x	7.5x	$6.84	$7.20	$7.45	*+0.9%*	3.3%	3.6%	20.8%	(0.26%)
MTH	MP	$155.58	1.30x	1.12x	*+14.1%*	7.9x	8.3x	7.9x	$19.68	$18.73	$19.76	*+4.0%*	6.5%	8.1%	23.4%	(1.52%)
TOL	OP	$92.93	1.42x	1.19x	*+23.3%*	7.5x	7.6x	7.4x	$12.40	$12.19	$12.56	*+4.0%*	4.7%	10.8%	26.3%	(0.65%)
Average			**1.55x**	**1.31x**	**17.4%**	**8.8x**	**8.5x**	**8.2x**				**3.1%**	**5.8%**	**6.9%**	**23.5%**	**(0.45%)**
Median			**1.42x**	**1.19x**	**16.0%**	**8.2x**	**8.3x**	**7.9x**				**4.0%**	**6.4%**	**7.0%**	**23.4%**	**(0.26%)**

Note: DHI expects mid-to-high single-digit community count growth in its fiscal year 2024.

Source: FactSet, company reports, and KBW Research.

Exhibit 2: Homebuilder Annual Stock Returns

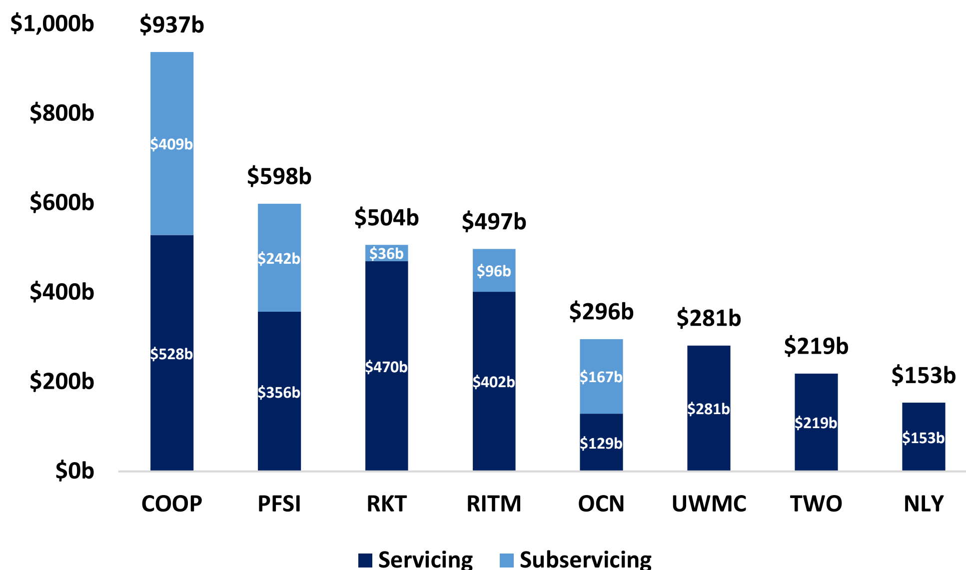


Source: FactSet and KBW Research.

Mortgage Servicer Outlook

We continue to believe historically low prepayments and strong residential credit trends will combine to produce high mortgage servicing returns, while higher rates should result in a meaningful increase in investment income. As long-term rates are expected to remain relatively high, this favorable environment for servicers appears likely to persist. At the same time, a combination of regulatory pressure and liquidity needs has resulted in mortgage servicing rights (MSRs) moving away from depositories and smaller Independent Mortgage Banks (IMBs) and towards the largest non-bank servicers. Given this backdrop, we recently upgraded PennyMac Financial (PFSI) and Mr. Cooper (COOP) to Outperform from Market Perform. We also remain Outperform on Rithm Capital (RITM).

Exhibit 3: Mortgage Servicer Unpaid Principal Balances (UPBs)

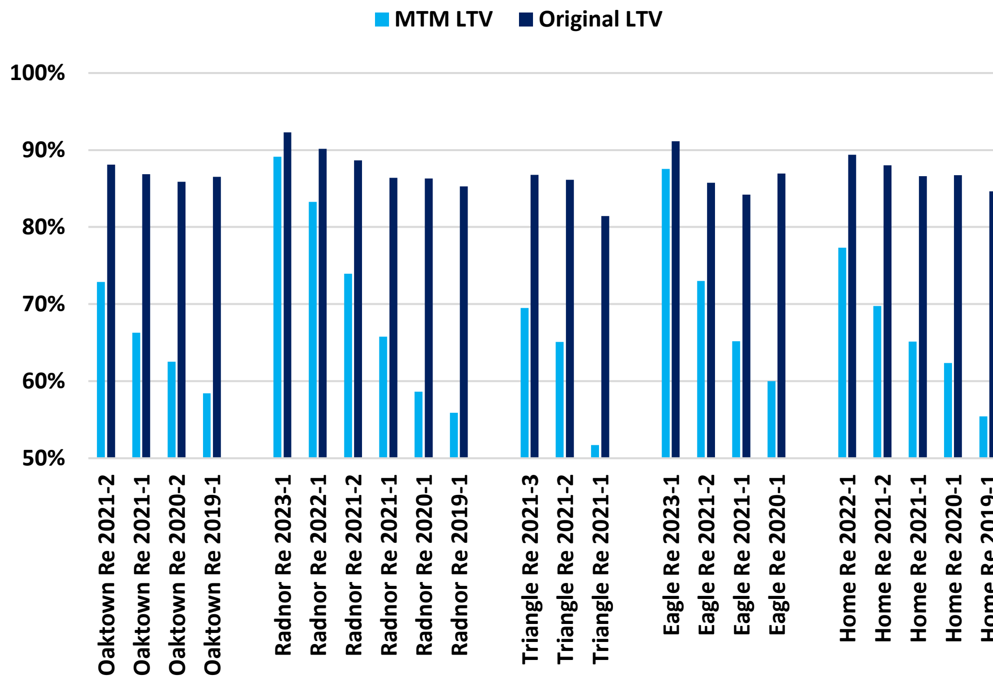


Note: NLY subservicing references latest available RoundPoint subservicing UPB (2Q23).
Source: Company reports and KBW Research

Mortgage Insurer Outlook

While the market remains somewhat cautious on consumer credit, credit trends in the residential mortgage market remain strong. Monthly delinquency rates for the mortgage insurers (disclosed for their books that are covered by insurance linked notes) remain relatively stable and are trending up, but only modestly. Further, stable home prices should reduce losses. The increase in home prices over the past few years has resulted in a considerable reduction in mark-to-market LTVs on all pre-2022 books. Also, the recent increase in home prices has now more than offset the decline in home prices from their peak in June 2022 to January 2023. We think the combination of strong home prices and stable unemployment should result in losses on the delinquent book coming in below assumptions, resulting in continued reserve releases. Given this background, we upgraded RDN to Outperform (from Market Perform) in our concurrent report, *2024 Outlook: Servicers and MIs Should Outperform as Volumes Remain Tepid & HPA Stays Flat*.

Exhibit 4: MI ILN Mark-to-Market LTVs vs. Original LTVs



Source: Bloomberg and KBW Research

Single-Family Rental (SFR) REITs

The SFR sector faced moderating fundamentals and valuation pressure in 2023 following two years of excess rent growth and as a result of higher interest rates. Overall performance, however, has been resilient and we expect SFR REITs to continue generating positive rent growth as a result of limited supply. Despite this, we believe the sector's main challenge, similar to commercial real estate generally, relates to the cost of capital above acquisition cap rates, which inhibits external growth, and managing to a higher cost of debt. As a result, we are not upgrading the names as we believe lower rates are needed to narrow the gap between cost of capital and cap rate.

Exhibit 5: SFR Comp Sheet

			P/FFO			P/AFFO			Economic	Dividend
Ticker	Rating	Price	2023E	2024E	2025E	2023E	2024E	2025E	Cap Rate	Yield
INVH	MP	$33.28	18.8x	17.7x	17.0x	22.5x	21.1x	20.2x	5.7%	3.4%
AMH	MP	$35.20	21.5x	20.2x	19.3x	24.3x	23.2x	22.1x	4.7%	2.5%
TCN	MP	$7.90	14.4x	13.2x	11.0x	18.0x	16.1x	13.4x	5.7%	3.0%
Average			**18.2x**	**17.0x**	**15.8x**	**21.6x**	**20.1x**	**18.6x**	**5.4%**	**2.9%**
Median			**18.8x**	**17.7x**	**17.0x**	**22.5x**	**21.1x**	**20.2x**	**5.7%**	**3.0%**

Source: FactSet, company reports, and KBW Research.

KBW Housing Forecast

KBW's 2024-2025 housing forecast calls for home price growth of 2% (below wage inflation, which is running at approximately 5%) and home sales growth of 1.6-2.4% (at a 41-year low on a per capita basis). We believe this is 1% above consensus expectations for HPA and 1% below for home sales. Our decomposition of inventory, vacancy, and demographics suggests a housing shortage of 1.5-2.5 million units, below the bulls but firmly in the camp of undersupply. However, we believe aggregate housing demand is likely to remain tepid given our expectation for continued high mortgage rates, although we believe ARM production could increase as long as the GSEs are willing.

Exhibit 6: KBW Housing Forecast

							Annual % Change						
	Housing Starts			Home Sales			Housing Starts			Home Sales			
Year	Total	Single-Family	Multi-Family	Total	Existing	New	Total	Single-Family	Multi-Family	Total	Existing	New	HPA
2012	781	535	245	5,025	4,656	369	28.2%	24.3%	37.6%	9.5%	8.7%	21.0%	6.4%
2013	925	618	307	5,516	5,087	429	18.5%	15.4%	25.2%	9.8%	9.3%	16.3%	11.8%
2014	1,003	648	356	5,374	4,935	439	8.5%	4.9%	15.7%	(2.6%)	(3.0%)	2.3%	4.6%
2015	1,110	715	396	5,755	5,254	501	10.7%	10.3%	11.3%	7.1%	6.5%	14.1%	5.2%
2016	1,171	782	390	6,013	5,452	561	5.5%	9.4%	(1.5%)	4.5%	3.8%	12.0%	5.1%
2017	1,203	849	354	6,124	5,511	613	2.7%	8.6%	(9.2%)	1.8%	1.1%	9.3%	6.0%
2018	1,250	876	374	5,960	5,343	617	3.9%	3.2%	5.7%	(2.7%)	(3.0%)	0.7%	4.1%
2019	1,290	888	402	6,026	5,344	682	3.2%	1.4%	7.5%	1.1%	0.0%	10.5%	3.3%
2020	1,380	991	389	6,465	5,644	821	7.0%	11.6%	(3.3%)	7.3%	5.6%	20.4%	5.5%
2021	1,601	1,127	474	6,891	6,120	771	16.1%	13.8%	21.9%	6.6%	8.4%	(6.1%)	15.5%
2022	1,559	1,004	555	5,680	5,026	654	(2.6%)	(10.9%)	17.1%	(17.6%)	(17.9%)	(15.2%)	13.5%
2023E	1,395	938	457	4,808	4,121	687	(10.5%)	(6.5%)	(17.7%)	(15.4%)	(18.0%)	5.0%	2.0%
2024E	1,388	985	403	4,884	4,163	721	(0.5%)	5.0%	(11.8%)	1.6%	1.0%	5.0%	2.0%
2025E	1,416	1,035	381	5,003	4,246	757	2.0%	5.0%	(5.3%)	2.4%	2.0%	5.0%	2.0%

Source: Census, National Association of Realtors, S&P Case-Schiller, and KBW Research.

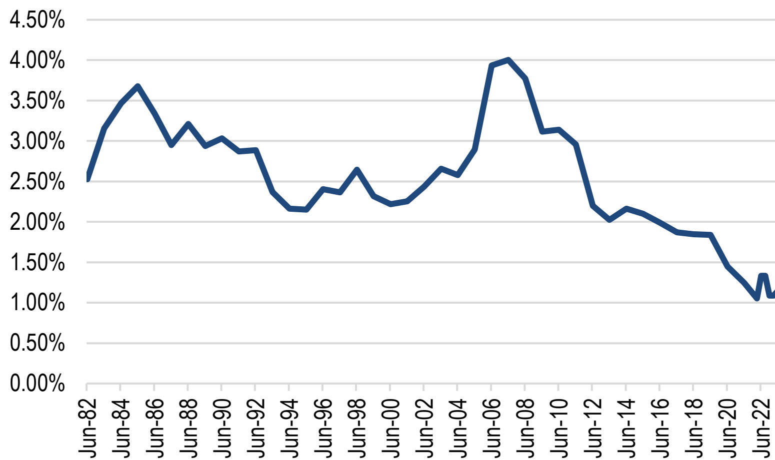
Quantifying the Housing Shortage

Inventory

While the "housing shortage" is frequently discussed, a variety of data must be reviewed to accurately describe and quantify it. One area is inventory: the number of single-family homes available for purchase, including both existing and newly built homes. Inventory as a percentage of households has declined steadily from the 2007 peak of 4.0% to 1.22% as of October 2023 and post-2020 has reached the lowest on record.

Compared to the long-run average of 2.4%, we estimate an additional 1.6 million homes are needed to restore available inventory to historical levels.

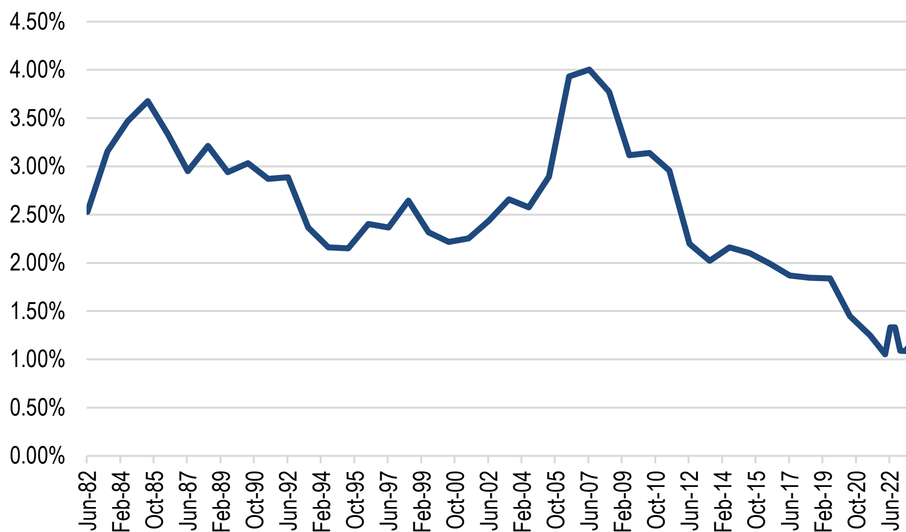
Exhibit 7: Inventory as % of Households



Source: FactSet, National Association of Realtors (NAR), and KBW Research.

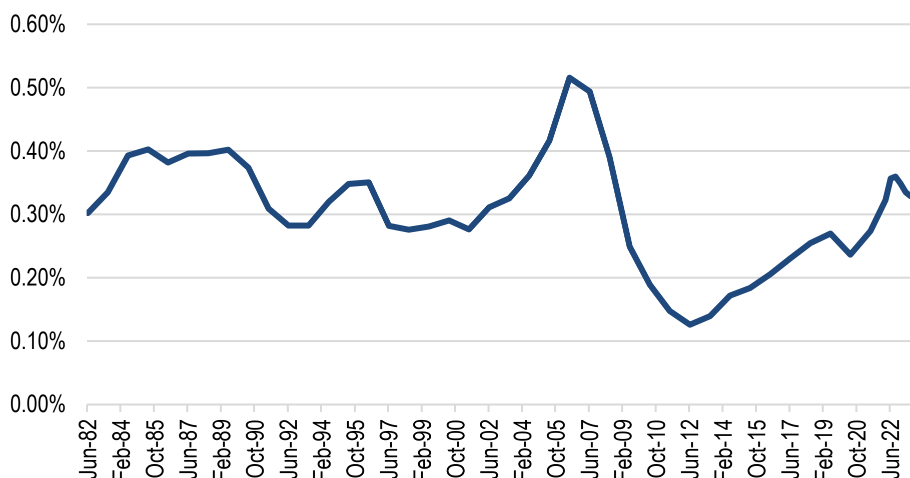
The chart above includes existing home inventory of 1.15 million and new home inventory of 439,000. Existing home inventory of 0.88% of household population is 58% below the historical average of 2.1% while new home inventory of 0.34% is in line with the historical average of 0.31%.

Exhibit 8: Existing Home Inventory as % of Households



Source: FactSet, National Association of Realtors (NAR), and KBW Research.

Exhibit 9: New Home Inventory as % of Households



Source: FactSet, Census, and KBW Research.

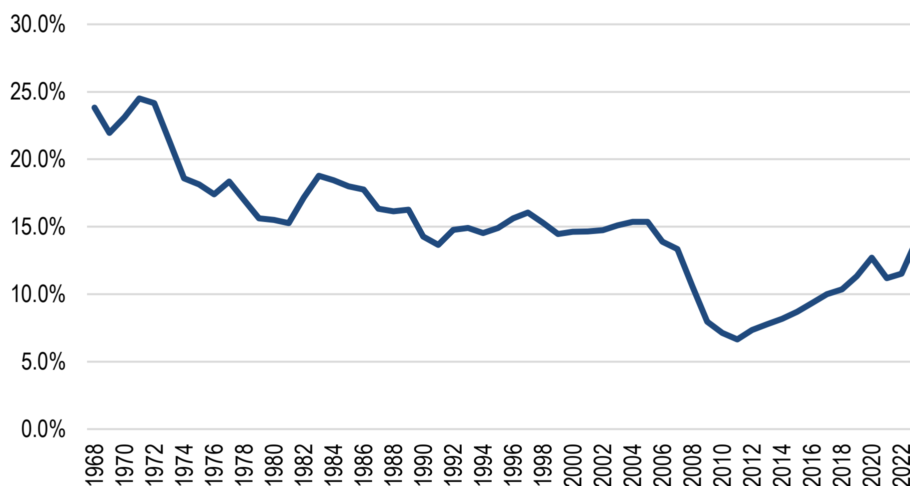
New Home Share Increasing

Historically, existing (i.e., resale) homes account for 85-90% of home sales while new homes account for 10-15%. In the aftermath of the 2006-2008 housing crash and 2008-2009 Global Financial Crisis (GFC), existing home share totaled approximately 90% as new home share declined to 8%, remained below 10% until 2017, and increased to 10.4% in 2018 and 11.3% in 2019.

Since 2019, a confluence of factors spurred on by the COVID era has changed the market, namely the drop in mortgage rates in 2020-2021 to record lows, increased demand for housing in 2020-2021, and an increasingly pronounced decline in existing home inventory.

As a result, recent existing home share has declined to 86% as inventory has dwindled while new home share has increased to 14% as homebuilders have grown production.

Exhibit 10: New Home Share of Total Home Sales



Source: FactSet, Census, National Association of Realtors (NAR), and KBW Research.

U.S. Housing Vacancy

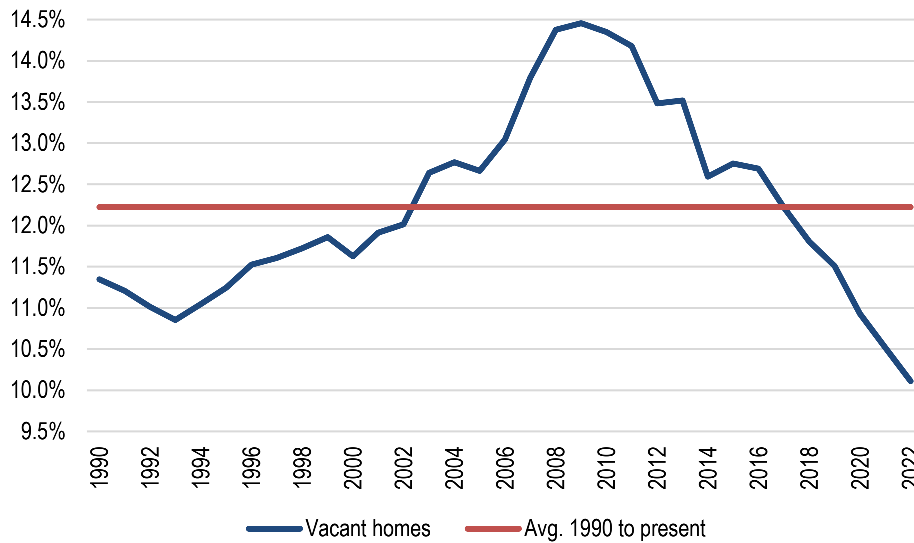
Housing vacancy suggests lower availability as well. As of 3Q23, there were 145.5 million total housing units in the United States, of which 15.1 million or 10.4% were vacant. Of the vacant homes, 11.6 million are vacant year-round and 3.5 million are seasonally vacant, which describes second homes or vacation homes. Additionally, of the 130.3 million occupied housing units, 86.0 million or 66.0% are owner occupied, which is in line with historical averages. Of particular note is how vacancy has trended over time. The vacancy rate should be relatively constant assuming stable demand and adequate construction of new homes to support household growth, which has historically averaged 1.4% per year. When the vacancy rate deviates meaningfully from its long-run steady-state, that indicates a shortage or excess of housing. Since 1990, the housing vacancy rate has averaged ~12%. During the GFC, the vacancy rate exceeded 14%, but it has since trended downward to 10.4% as of 3Q23. This indicates that demand for housing increased during the period of low interest rates post-GFC while housing starts have not kept pace. ***Taken together, we estimate an additional 1.5-2.0% or 2.0-2.5 million homes are needed to restore vacancy to the historical average.***

Exhibit 11: Structure of Vacant U.S. Homes

	3Q23	2022	2020	2015	2010	2000	1990	1980
Housing Stock	145,558	143,388	140,804	134,492	130,889	119,629	106,283	87,739
Total Occupied	130,386	128,317	125,920	117,164	112,108	105,721	94,224	79,638
Owner	86,014	84,398	83,884	74,591	74,955	71,251	60,248	52,223
Homeownership Rate	66.0%	65.8%	66.6%	63.7%	66.9%	67.4%	63.9%	65.6%
Vacant Homes/All Homes	10.4%	10.5%	10.6%	12.9%	14.3%	11.6%	11.3%	9.2%
Vacant Homes (Units)	15,172	15,071	14,884	17,328	18,782	13,908	12,059	8,102
Year-round vacant	11,642	11,406	11,301	12,957	14,328	10,439	9,128	5,996
For rent	3,194	2,739	2,857	3,275	4,294	3,024	2,667	1,575
For sale only	732	713	839	1,414	1,988	1,148	1,065	734
Rented or sold	1,018	952	923	1,078	910	855	661	623
Held off market	6,698	7,002	6,685	7,190	7,136	5,412	4,736	3,064
Occ'l use	2,001	2,121	1,986	2,009	2,247	1,892	1,483	814
URE	1,143	1,189	1,117	1,348	1,258	1,037	1,072	568
Other	3,554	3,693	3,583	3,833	3,633	2,482	2,181	1,683
Seasonal	3,529	3,665	3,583	4,372	4,454	3,469	2,931	2,106

Source: U.S. Census Bureau, and KBW Research.

Exhibit 12: Vacant Housing Units, % of Total



Source: U.S. Census Bureau, and KBW Research.

Housing Starts Show Underproduction of Single-Family Homes

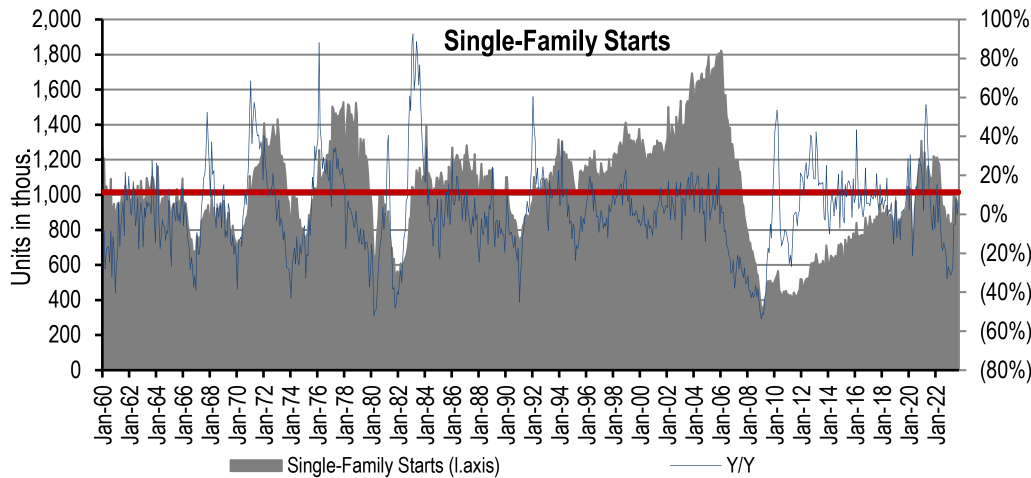
Another factor contributing to low housing inventory is the relative contribution of single-family to total housing construction, where multifamily has taken share over time. On average from 1959 through 2023, the seasonally-adjusted annual rate of single-family starts was 1,015k units and multifamily is 367k units. In the LTM period ending Oct-23, there were 909k single-family starts and 483k multifamily, implying upside/downside to historical averages of +11% and -21% respectively. Recently, new multifamily starts have declined from peak-levels as construction financing and commercial property sales remain challenged—avg. 360-380k per month in Sept./Oct. 2023 vs. 550-600K peak in 2H22.

Exhibit 13: LTM Housing Starts vs. Historical Averages

	Housing Starts		
	Total	**SF**	**MF**
Avg. 1997-2003	1,640	1,299	303
Avg. 2008-2020	984	683	289
Avg. 2013-2020	1,170	798	360
Avg. 1959-2023	**1,433**	**1,015**	**367**
LTM Oct. 2023	1,392	909	470
% upside to historical average	3.0%	11.6%	(21.8%)

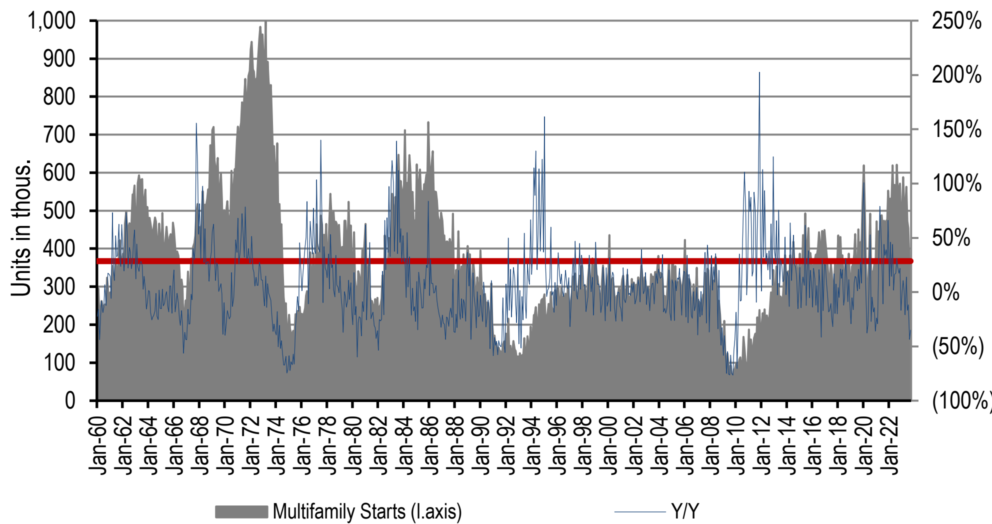
Source: U.S. Census Bureau, and KBW Research.

Exhibit 14: Single-Family Starts



Source: U.S. Census Bureau, and KBW Research.

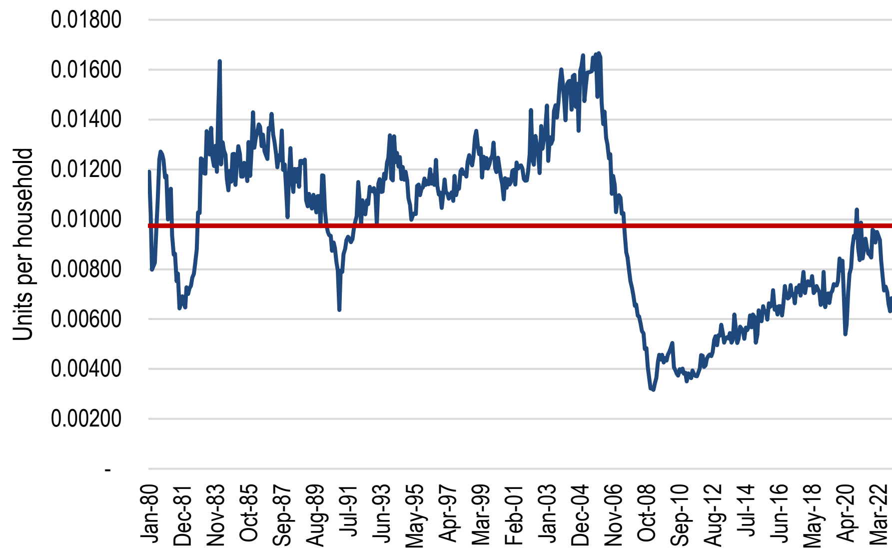
Exhibit 15: Multifamily Starts (5+ Units)



Source: Census Bureau, and KBW Research.

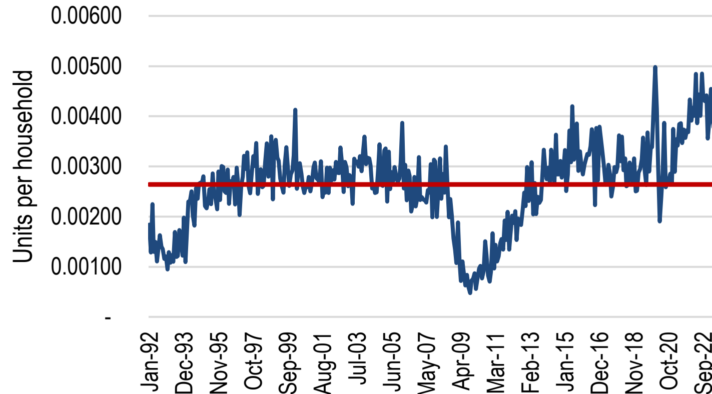
On a per-household basis, the long-term (LT) average of seasonally adjusted annual multifamily starts is 0.00264 since 1992 while single-family starts have averaged 0.00976 since 1980. Multifamily starts have generally exceeded the LT average since 2013 and average 0.00416 since Jan-22, 57% greater than the historical average. On the other hand, production of single-family housing has lagged historical averages since the GFC. Seasonally adjusted annual starts per household has averaged 0.00638 since 2010—34% below the LT historical average.

Exhibit 16: Single-Family Starts Per Household



Source: U.S. Census Bureau, and KBW Research.

Exhibit 17: Multifamily Starts Per Household



Source: U.S. Census Bureau, and KBW Research.

KBW's Housing Demand Model suggests an underproduction of housing based on the following factors:

- Household formation has been positive since 2010, averaging approximately 1.2-1.3 million annually, including approximately 1.95 million in Oct-23 LTM.
- Assuming 65% incremental homeownership and annual obsolescence of 350K (0.3% of households), we estimate annual single-family housing demand of 1.6 million.
- As a result, Oct-23 LTM single-family housing starts of 909K implies an annual production deficit of 711K and Oct-22 LTM starts imply a deficit of 347K.

Exhibit 18: KBW's Housing Demand Model

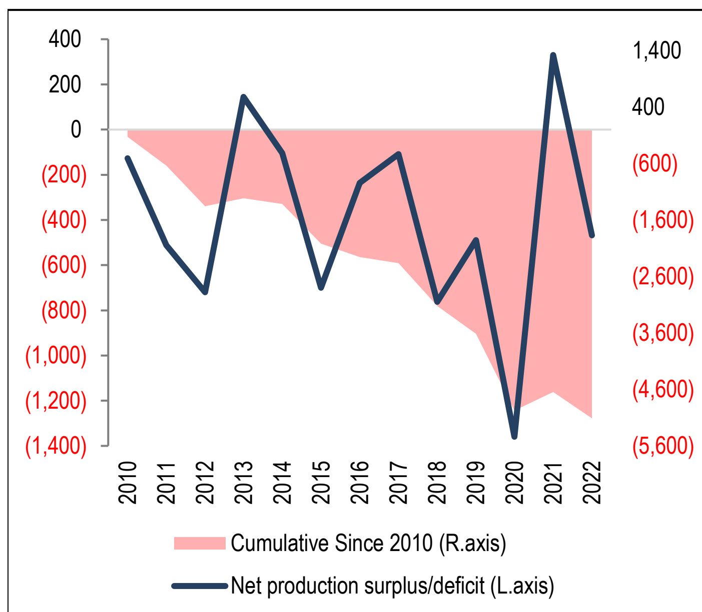
Housing Starts Summary	LTM Oct-23	LTM Oct-22	% Change Y/Y
Housing starts	1,392	1,610	(13.6%)
Single-family	909	1,057	(13.9%)
Multifamily	483	554	(12.8%)
Housing Demand Model			
U.S. households	130,386	128,307	
Owned homes	86,014	84,732	
Rented homes	44,372	43,575	
Household formation	1,954	1,621	
Obsolescence (i.e., tear downs)	350	350	
Total housing demand	2,304	1,971	
Household formation:			
@ 65% home ownership	1,270	1,054	
Total single-family housing demand	1,620	1,404	
Net production surplus/deficit	**(711)**	**(347)**	

Source: U.S. Census Bureau, and KBW Research.

Expanding this model further, we estimate a cumulative production deficit of ~5.1 mil. single-family homes since 2010, with an incremental deficit of 393k homes per year on average.

However, we believe this likely overstates the supply shortage as it does not account for pre-GFC excesses, existing vacant homes, and demographic trends.

Exhibit 19: KBW's Housing Demand Model - Expanded



Year	Single-Family Housing Starts	Single-Family Housing Demand	Production Deficit or Surplus
2010	471	599	(127)
2011	431	942	(512)
2012	535	1,255	(720)
2013	618	473	144
2014	648	753	(105)
2015	715	1,414	(699)
2016	782	1,017	(236)
2017	849	958	(109)
2018	876	1,638	(762)
2019	888	1,376	(489)
2020	991	2,350	(1,360)
2021	1,127	797	330
2022	1,004	1,472	(468)
Cumulative Deficit			**(5,112)**
Average			**(393)**

Source: U.S. Census Bureau, and KBW Research.

Demographic Analysis

In addition to available for-sale housing inventory, the structure of the U.S. housing stock, (ownership, rentership, and vacancy), and long-run housing demand, demographics play a critical role in any analysis of the housing market.

Based on the generational composition of the housing market, the demographic picture is complex. The U.S. population totals approximately 335.8 million including 130.6 million households (2.57 people per household). Four critical segments account for approximately 20% each of the population: Gen-Z (20.67%), Millennials (21.75%), Gen-X (19.83%), and the baby boomers (21.16%). Millennials and Gen-Z, a combined 42.4%, are currently amidst or will approach home buying age, providing a source for current and future housing demand. Gen-X are in mid-life (between 43 and 58 years old), at prime move-up age (to larger homes), and are benefiting from low in-place mortgages (average rate on mortgages outstanding of 3.5%). Finally, baby boomers (between 59 and 77 years old) face retirement yet are living longer and aging-in-place. The remaining population segments are children or seniors over 77. Given the current reluctance of Gen-X to part ways with their low-cost mortgages, known as the mortgage "lock-in effect," and the aging in place phenomenon of the baby boomers, we think these demographic factors will constrain supply for years to come.

Exhibit 20: U.S. Population and Households by Generation

Generation	Birth year	% of total	Population	Households	Implied age range	
Gen Z	1997-2012	20.67%	68,891	26,994	26	11
Millenials	1981-1996	21.75%	72,490	28,404	42	27
Gen X	1965-1980	19.83%	66,091	25,897	58	43
Baby Boomers	1946-1964	21.16%	70,524	27,633	77	59
Silent Generation	1925-1945	5.76%	19,197	7,522	98	78
Other		10.83%	36,095	14,143		
Total			**333,288**	**130,593**		

Note: "Other" includes Gen Alpha, born 2013-2025, and the Greatest Generation, born 1901-1924.

Source: Census, Center for Generational Kinetics, Zippia Research, and KBW Research.

In our view, the COVID era catalyzed household formation, spurring an increased preference for space, particularly single-family housing. Annual household population growth increased to 1.5% in each of 2022 and 2023 from a pre-pandemic CAGR of 0.9-1.0% and long-run 1.4%. At the same time, population and home prices rose fastest in non-urban areas. For example, population for surrounding metropolitan areas grew faster than the core city for 72 of the 100 largest cities (Source: Economic Innovation Group). In addition, home price appreciation was greatest for homes over 25-50 miles from the central business district (Source: Bright MLS).

Looking at homeownership rates by age cohort, although the homeownership rate has increased since 2019, key population cohorts remain below historical averages. Based on the table below, we estimate the continued normalization of homeownership rates by population cohort would support an incremental 3.4 million homeowners.

Exhibit 21: Homeownership Rate by Population Cohort

	1982	1989	1996	2003	2011	2017	2019	2021	2022	Avg. 1982-2003	Vs. 2021	Vs. 2022
United States, total	64.8	63.9	65.4	68.3	66.1	63.9	64.4	66.6	65.8	65.6	1.0%	0.2%
Less than 35 years	41.2	39.1	39.1	42.2	37.7	35.3	36.2	39.1	39.0	40.4	-1.3%	-1.4%
35 to 44 years	70.0	66.6	65.5	68.3	63.5	59.0	60.1	62.7	62.2	67.6	-4.9%	-5.4%
45 to 54 years	77.4	75.5	75.6	76.6	72.7	69.3	70.1	71.1	70.5	76.3	-5.2%	-5.8%
55 to 64 years	80.0	79.6	80.0	81.4	78.5	75.3	75.4	76.6	75.1	80.3	-3.7%	-5.2%
65 years and over	74.4	75.8	78.9	80.5	80.9	78.7	78.5	80.0	79.1	77.4	2.6%	1.7%

Source: U.S. Census Bureau, and KBW Research.

Exhibit 22: Incremental Homebuyers Based on Homeownership Rate

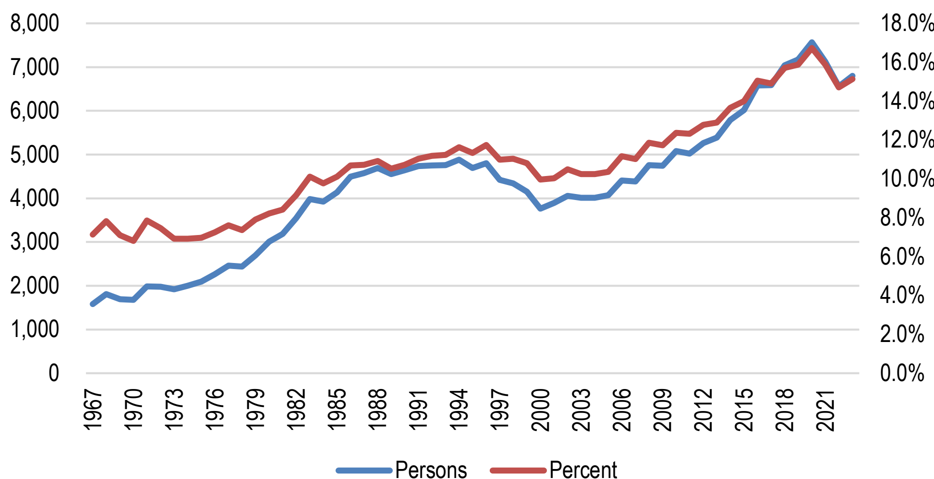
Incremental homebuyers	homeownership rate (%)		homeowners (mm)		
(ex. population growth)	current	historical	current	potential	change
Less than 35 years	39%	40%	10.3	10.6	0.4
35 to 44 years	62%	68%	13.8	15.0	1.2
45 to 54 years	71%	76%	15.0	16.3	1.2
55 to 64 years	75%	80%	17.6	18.8	1.2
65 years and over	79%	77%	27.7	27.1	-0.6
Total	**66%**	**66%**	**84.4**	**87.8**	**3.4**

Source: U.S. Census Bureau, and KBW Research.

In addition to pent-up demand from the normalization of homeownership rates, an estimated 6.8 million 25- to 34-year-olds are living at home, which is down 770k from the peak in 2020 but still totals approximately 15.1% of this population group vs. a historical average of 10.8%. Assuming a normalization to 12-13% would equate to 1.0-1.5 million households.

On net, we expect demographic trends to continue to drive growth in housing demand.

Exhibit 23: Percent of 25-34 Year Olds Living at Home

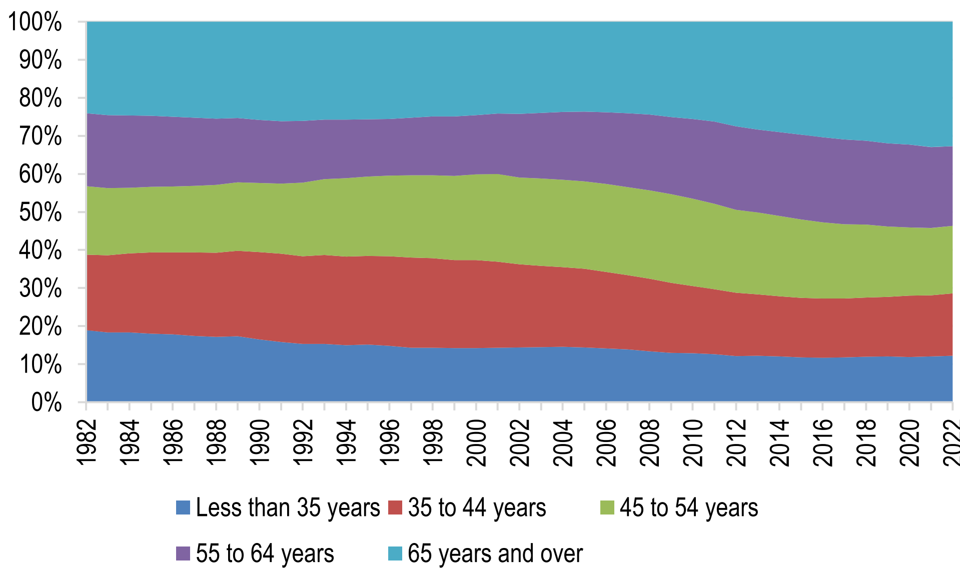


Source: Census and KBW Research.

Homeowner Age Analysis

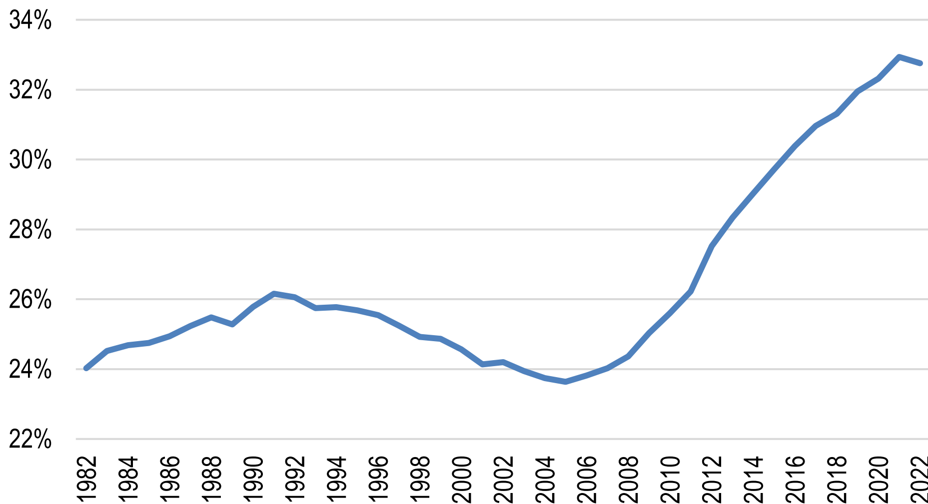
The average homeowner in the United States has gotten progressively older over the last 15+ years. As of 2022, householders ages 65 and older comprised 33% of all owned U.S. homes vs. 23% pre-GFC. Per the Joint Center for Housing Studies (JCHS) at Harvard University, the number of householders ages 65 and older grew by ~40% from 2012 to 2022 to 35 million households as the baby boomer population continued to age. At the same time, homeownership rates have declined for younger households. In 2022, the homeownership rate for householders below the age of 35 was 39% vs. 42% pre-GFC, and for householders between ages 35 and 44 it declined to 62% from 69%.

Exhibit 24: Homeownership Age Cohorts, % of Total Homeowners



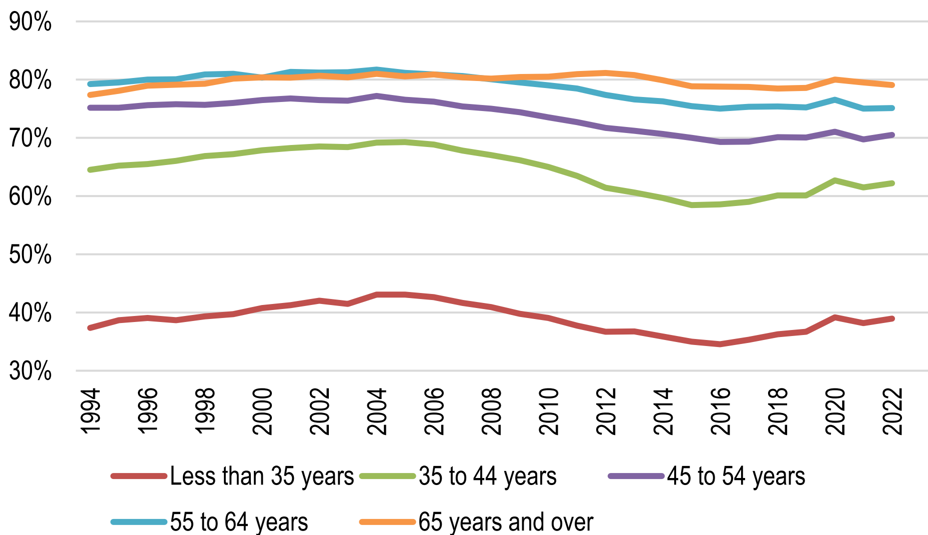
Source: U.S. Census Bureau, and KBW Research.

Exhibit 25: Ages 65 years and over, % of Total Homeowners



Source: U.S. Census Bureau, and KBW Research.

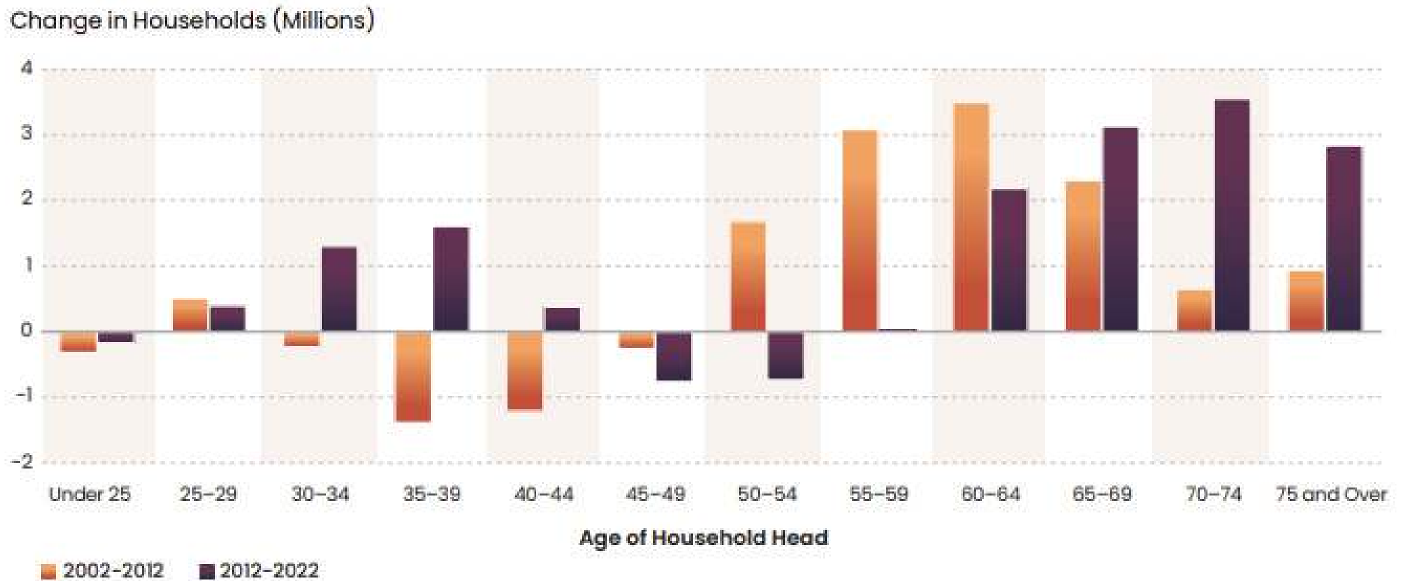
Exhibit 26: Homeownership Rate by Age Cohort



Source: U.S. Census Bureau, and KBW Research.

Also, as shown below, older adults are increasingly driving household growth. In our view, this indicates that there will be an ongoing need to replace or renovate homes currently occupied by those above the age of 65, which are likely older vintage. In 2021, the median home age was 43 years vs. 27 years in 1991, and 6.7% of homes had structural deficiencies or lacked basic features like plumbing, electricity, water, and heat. We view this as a long-term tailwind for homebuilders, as well as building products companies.

Exhibit 27: Older Adults Are Increasingly Driving Household Growth

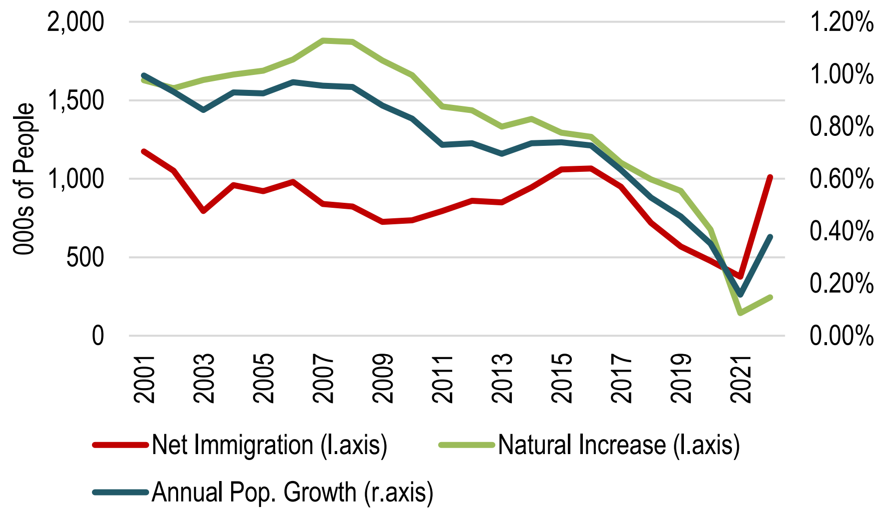


Source: JCHS and U.S. Census Bureau.

Additionally, early millennials, the oldest of which are approaching their early 40s, have been slower than older age cohorts (Gen Xers and Baby Boomers) to migrate out of downtown/urban areas into the suburbs. This indicates potentially greater demand for single-family housing from middle-aged millennials in the future as they continue to transition to homeownership and having families (Source: International Journal of Urban Sciences).

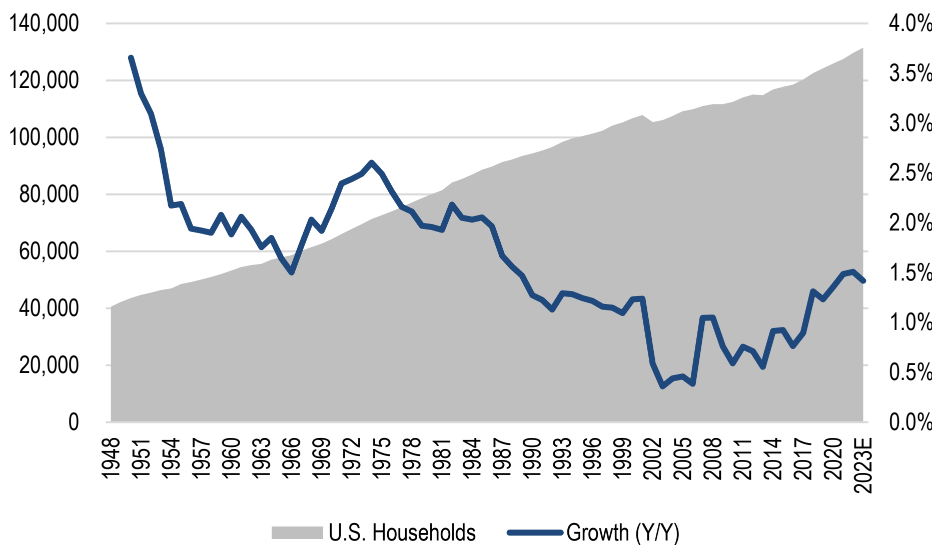
In general, U.S. population growth has slowed since post-war era of the 1950s when it was approximately 1.5-2.0% CAGR, falling slightly in the 1970s-80s as the economy slowed, and resuming in the 1990s. The decline in growth accelerated following the GFC as millennials postponed marriage and child-bearing and continued in 2017-19 as the Trump administration took a more restrictive stance towards immigration. As such, the U.S. population growth rate fell from 0.95% in 2008 to 0.46% in 2019, the last year prior to the Covid-19 pandemic where both natural and immigration driven growth stalled. In 2021-22, immigration was a significant contributor to population growth, as net immigration totaled 1.01 million—the highest amount since 2016 (pre-Trump administration). Going forward, immigration should play a significant role in population growth, as the average age in the U.S. has increased and younger age cohorts (Millennials and Gen Zers) have chosen to delay childbirth to later in life compared to their older counterparts (Gen Xers and Baby Boomers).

Exhibit 28: U.S. Net Immigration and Population Growth



Source: Brookings, U.S. Census Bureau, and KBW Research.

Exhibit 29: U.S. Historical Household Growth



Source: Brookings, U.S. Census Bureau, and KBW Research.

Geographic Migration Data

In general, there has been preference for cities located in the Sun Belt compared to other major metropolitan areas since the onset of the pandemic. In 2022, California, New York, and Illinois saw the largest population outflows at -343k, -299k, and -141k, respectively, likely driven by migration from their largest cities (SF, LA, NY, CHI). On the other hand, states with the strongest inward migration were Florida (+318k), Texas (+231k), North Carolina (+99k), and South Carolina (+84k). On a more local level, areas with more than 150,000 households with the highest inbound move rates (inbound moves ÷ [inbound +

outbound moves]) in 2022 were: Oscala, FL (+57.1%); Tallahassee (56.6%), Charlotte (56.6%), Savannah (55.8%), Houston (55.7%), Myrtle Beach (55.6%), Huntsville (55.4%), and Miami (55.2%). Notable cities with below average inbound move rates in 2022 were: Fort Wayne (45.4%), Vallejo-Fairfield, CA (45.6%); Pittsburgh (46.0%), Salt Lake City (46.6%), Minneapolis (47.1%), Sacramento (48.1%), New York (49.4%), Chicago (49.5%), and San Francisco (49.5%).

Exhibit 30: Top 10 Positive Net Migration 2022

		Domestic Net Migration 2022	Population chg. 2022
1.	Florida	318,855	1.9%
2.	Texas	230,961	1.6%
3.	North Carolina	99,796	1.3%
4.	South Carolina	84,030	1.7%
5.	Tennessee	81,646	1.2%
6.	Georgia	81,406	1.2%
7.	Arizona	70,984	1.3%
8.	Idaho	28,639	1.8%
9.	Alabama	28,609	0.5%
10.	Oklahoma	26,791	0.7%

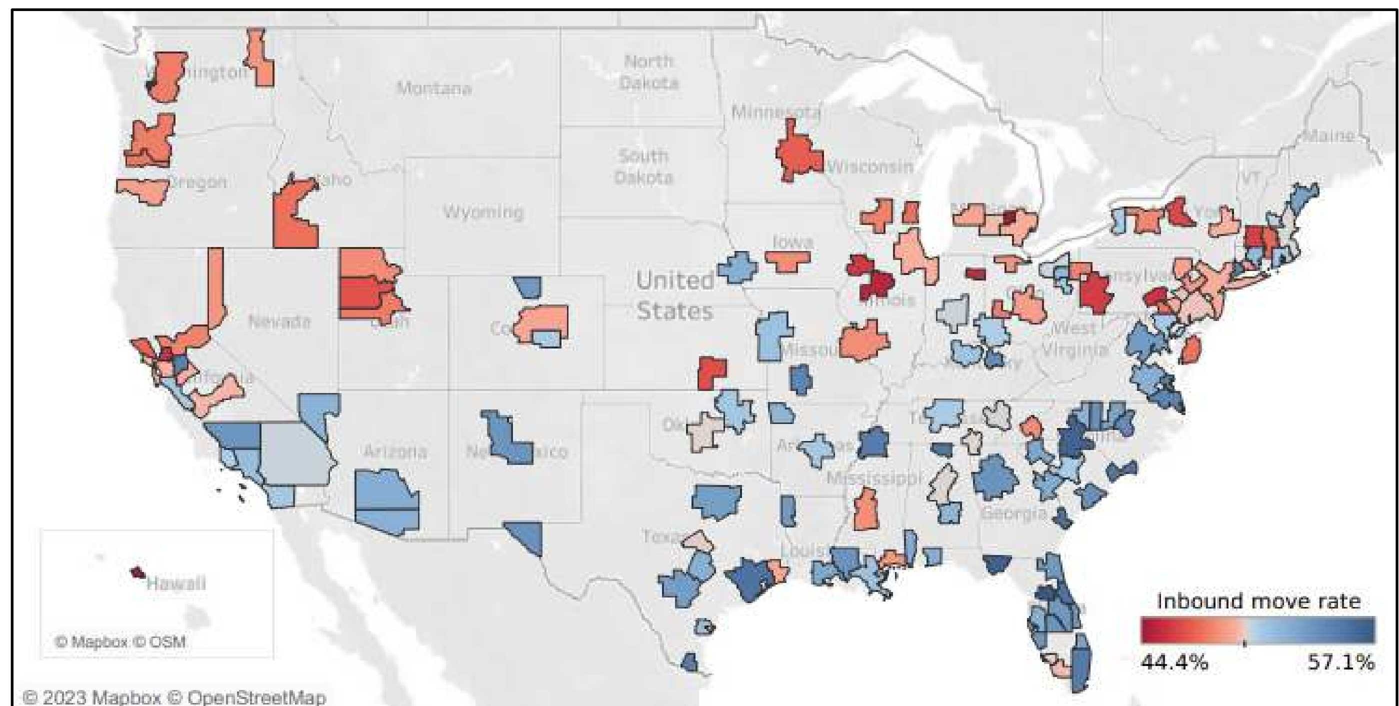
Source: NAR, and KBW Research.

Exhibit 31: Top 10 Negative Net Migration 2022

		Domestic Net Migration 2022	Population chg. 2022
1.	California	-343,230	-0.3%
2.	New york	-299,557	-0.9%
3.	Illinois	-141,656	-0.8%
4.	New Jersey	-64,231	-0.1%
5.	Massachusetts	-57,292	-0.1%
6.	Louisiana	-46,672	-0.8%
7.	Maryland	-45,101	-0.2%
8.	Pennsylvania	-39,957	-0.3%
9.	Virginia	-23,952	0.3%
10.	Minnesota	-19,400	0.1%

Source: NAR, and KBW Research.

Exhibit 32: 2022 Inbound Move Rates by City



Source: National Association of Realtors (NAR).

Additionally, *Move Buddah*, a moving company search-engine, uses customer data from its own platform to track moving requests to and from various U.S. cities. Among those with the highest search volumes (1,000+), the cities with the highest inbound-to-outbound ratios in 2022 were Tampa (1.8), Charlotte (1.74), Orlando (1.7), and Raleigh (1.68), while those with the lowest were San Jose (0.67), Brooklyn (0.69), Columbus (0.72), and San Diego (0.77) (see exhibit below). The data demonstrates a growing preference for Sun Belt locations and outmigration from some of the country's largest cities.

Exhibit 33: *Move Buddah's* Inbound-to-Outbound Move Ratios

City, State	In/Out Ratio
Tampa, Florida	1.8
Charlotte, North Carolina	1.74
Orlando, Florida	1.7
Raleigh, North Carolina	1.68
Nashville, Tennessee	1.65
Jacksonville, Florida	1.51
Colorado Springs, Colorado	1.49
Denver, Colorado	1.47
Boston, Massachusetts	1.46
Dallas, Texas	1.38
Austin, Texas	1.3
Houston, Texas	1.19
Richmond, Virginia	1.18
Atlanta, Georgia	1.18
Miami, Florida	1.17
Philadelphia, Pennsylvania	0.94
Cincinnati, Ohio	0.94
Salt Lake City, Utah	0.9
Saint Paul, Minnesota	0.9
Chicago, Illinois	0.87
Saint Louis, Missouri	0.85
Los Angeles, California	0.83
Baltimore, Maryland	0.82
San Francisco, California	0.82
Indianapolis, Indiana	0.82
Sacramento, California	0.77
San Diego, California	0.77
Columbus, Ohio	0.72
Brooklyn, New York	0.69
San Jose, California	0.67

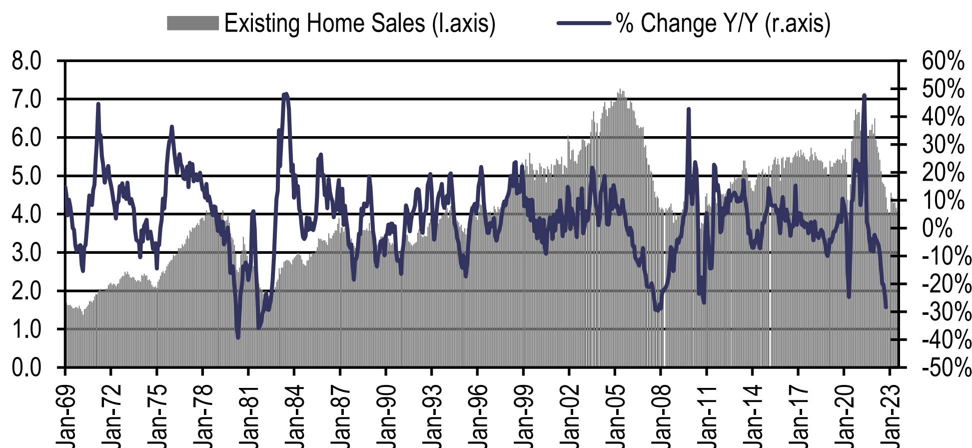
Source: Move Buddah, and KBW Research.

Current Housing Market Dynamics

Existing Homes

Existing home sales declined to 3.79 mil. units in Oct-23 (seasonally-adjusted annual figures) vs. 6.19 million in Oct-21 and 4.43 million in Oct-22 as demand has declined due to low inventory and lower affordability.

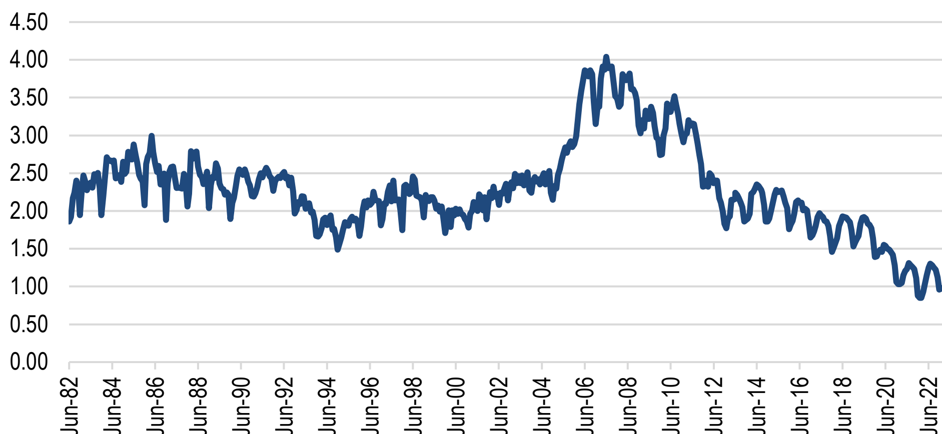
Exhibit 34: Existing Home Sales



Source: FactSet, NAR, and KBW Research.

Since 2021, existing home inventory has been especially tight. During 2023, existing home inventory has averaged 1.0 million units vs. the long-term average of 2.3 million and maximum of 4.0 million in July 2007. Inventory started tightening during 2021, as the pandemic and resulting policy response prompted strong demand for single-family housing.

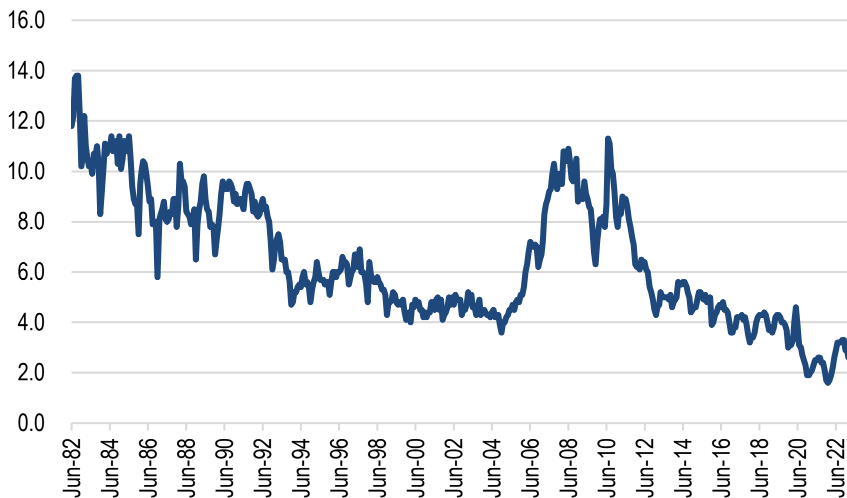
Exhibit 35: Existing Home Inventory – Units in Millions



Source: FactSet, NAR, and KBW Research.

Existing home sales months' supply is currently 3.6 months (Oct-23), above the 2021-22 average of 2.2 months but below the long-run 6.4, indicative of tight inventory.

Exhibit 36: Existing Home Inventory – Months' Supply



Source: FactSet, NAR, and KBW Research.

Exhibit 37: Existing Home Sales, Inventory, and Months' Supply

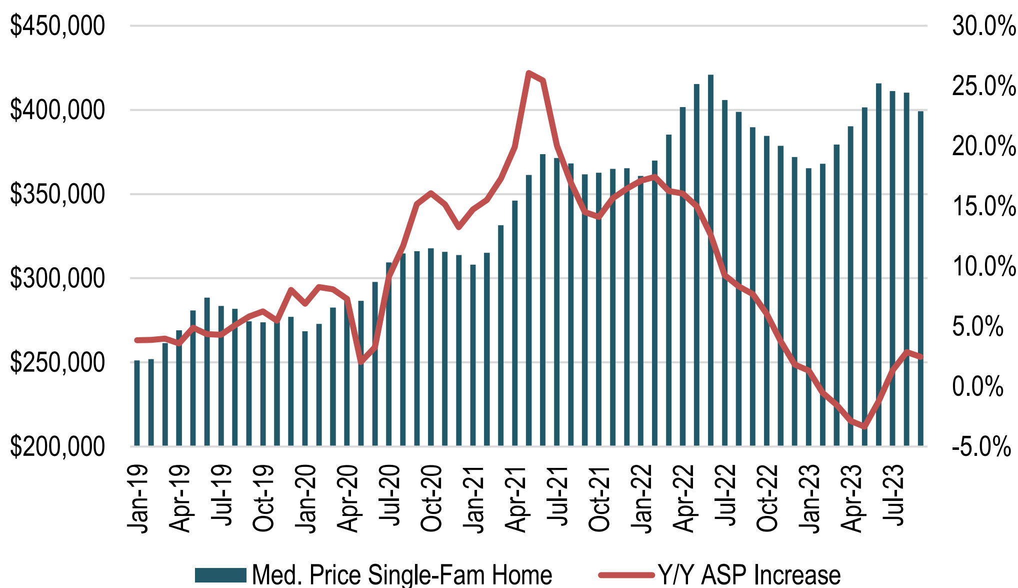
	Exis. Home Averages		
Year	Home Sales (Units)	Inventory (Units)	Month Supply
2010	4.2	3.2	9.0
2011	4.3	2.9	8.1
2012	4.7	2.3	5.8
2013	5.1	2.1	4.9
2014	4.9	2.1	5.2
2015	5.2	2.1	4.8
2016	5.4	2.0	4.4
2017	5.5	1.8	3.9
2018	5.3	1.8	4.0
2019	5.3	1.7	3.9
2020	5.7	1.4	3.1
2021	6.1	1.1	2.3
2022	5.1	1.1	2.7
2023	4.2	1.0	3.1
LT Average	**4.1**	**2.3**	**6.4**

Source: FactSet, NAR, and KBW Research.

Mortgage Lock-In Effect

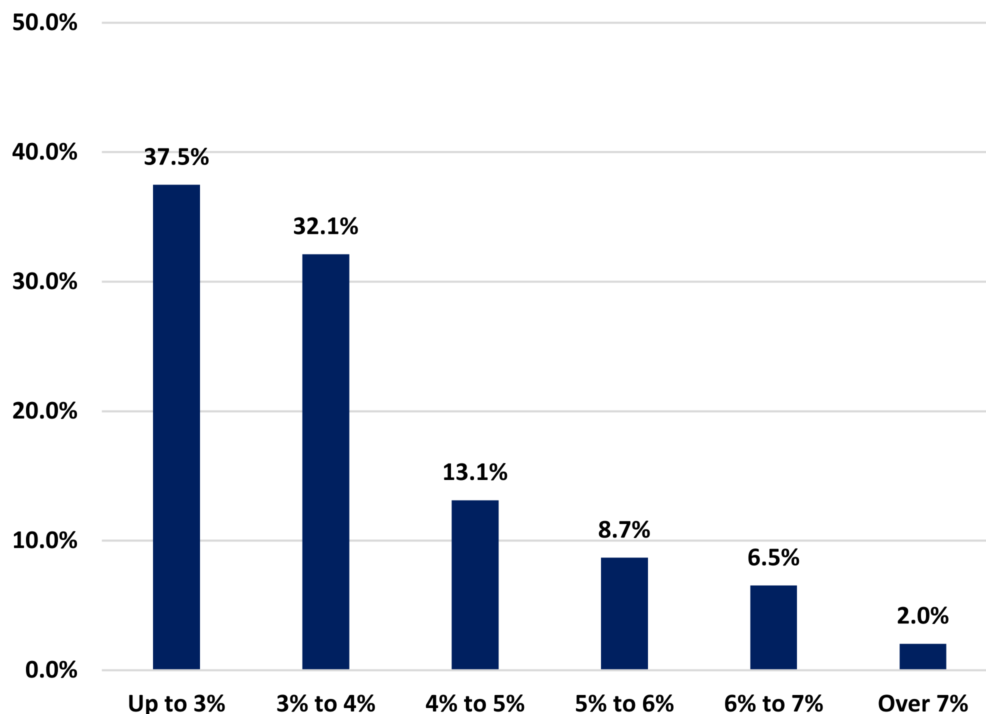
In our view, the primary factors contributing to the lack of existing home inventory are the "lock-in" effect, where most homeowners are deeply in-the-money on their existing mortgages, plus strong home price appreciation (HPA) in recent years, which has made homes more expensive. 30-year fixed rate mortgages were ~4% from 2010 until 2020 when the policy response to the pandemic drove rates to a low of 2.8-2.9% in 3Q21. At the same time, strong demand for housing drove up home prices significantly, peaking at +26% Y/Y in May-21. However, since the Fed began tightening in early 2022, 30-year FRMs have increased to ~7% today and HPA declined to 2.5% Y/Y as of Sept-23. Currently, only 7.8% of borrowers have a refinance incentive at a mortgage rate above 6%; in other words, 92% of borrowers have mortgages at rates below 6% (Source: eMBS). Paired with higher home prices this has locked up inventory and is keeping many would-be transactions from taking place. The incremental monthly cost of taking on a new mortgage at today's rates and prices is significant, potentially making it necessary to downsize when buying a new home, which is another deterrent.

Exhibit 38: Home Price Appreciation: 2019 to Present



Source: FactSet, NAR, and KBW Research.

Exhibit 39: Dispersion of Existing Mortgage Rates



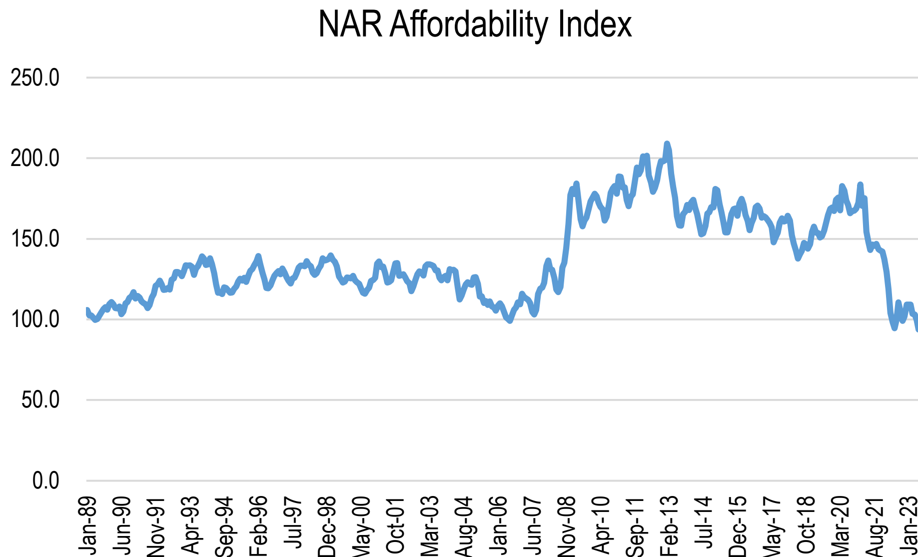
Note: Data as of November 2023.

Source: eMBS, and KBW Research.

Housing Affordability Is Constrained

Affordability has declined in recent years, implying that it is more difficult for the average American to purchase a home. The National Association of Realtors (NAR) housing affordability index is based on average mortgage rates, home prices, and household income. As of October, the index stood at 91.4, -7.7% Y/Y and -36% vs. Oct-21 (indicating lower affordability). An index value above 100 indicates that a family has more than enough income to qualify for a mortgage based on median income and home prices assuming a 20% down payment while a lower value represents lower affordability.

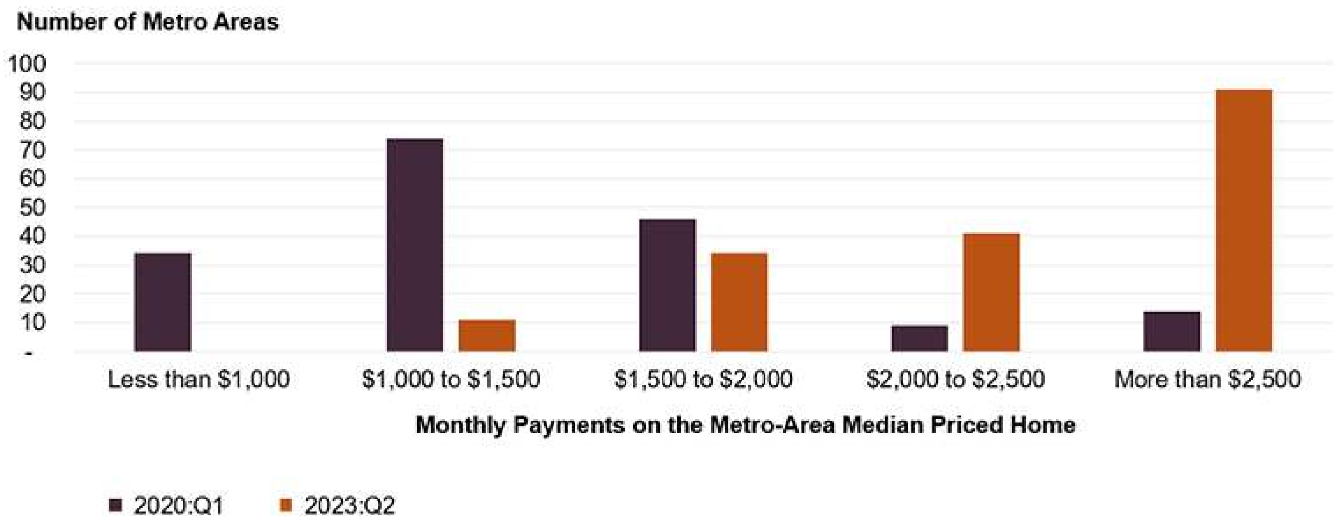
Exhibit 40: NAR Affordability Index



Source: FactSet, NAR, and KBW Research.

Monthly payments have increased meaningfully since early 2022, which has pushed many would-be-buyers out of the market. Per the Harvard Joint Center for Housing Studies (JCHS), assuming a 30-year fixed mortgage at 6.51% (less than today's 7%), 3.5% down payment, 0.85% mortgage insurance, 0.35% property insurance, and average metro area property taxes, monthly payments reached record-highs in 159 of 177 National Association of Realtors (NAR) markets in 2Q23. Homeowner costs were $2,500 per month for the median metro, $750 higher than early 2022. Further, an annual income greater than $99,600 was required to afford monthly housing payments in the average metro compared to $52,600 three years earlier (JCHS).

Exhibit 41: Monthly Payments On Metro-Area Median Priced Home



Source: Harvard Joint Center for Housing Studies (JCHS).

Median home prices, interest rates, property taxes, and insurance costs suggest a monthly payment to income ratio of 33.4% in Dec-23, up significantly from 25% in Aug-21 but down from 34.6% in Aug-23. Although not reflected in the example below, private mortgage insurance (PMI) is an additional cost on conventional mortgages when a down payment is less than 20%. It is a monthly fee throughout the life of the loan and typically costs 0.50-1.50% of principal annually. This pressures affordability further for those unable to produce a 20% down payment.

Exhibit 42: Mortgage Payment to Income Scenario Analysis

Period		Aug-21	Aug-22	Aug-23	Dec-23*
Median price single-fam home		$368,200	$398,800	$410,200	$393,792
Down pmt.	20.00%	$73,640	$79,760	$82,040	$78,758
Mortgage amt.		**$294,560**	**$319,040**	**$328,160**	**$315,034**
30 YR mtg. rate		2.84%	5.22%	7.07%	7.25%
Implied monthly mtg. pmt.		$1,217	$1,756	$2,199	$2,149
Property taxes	1.50%	$460	$499	$513	$492
Property insurance	0.35%	$107	$116	$120	$115
Total monthly pmt.		**$1,785**	**$2,371**	**$2,832**	**$2,756**
US median family income		$85,552	$93,857	$98,291	$99,028
Monthly pmt. to Income		**25.0%**	**30.3%**	**34.6%**	**33.4%**

Source: NAR, Federal Reserve, FactSet, and KBW Research.

KBW projects a modest improvement in affordability conditions to take place over 2024. Our forecast involves the following:

- Home Price Appreciation (HPA): We currently forecast 2% HPA in 2023 and +2% in 2024, as well as 4% projected income growth in 2023 and 2024.
- Average home price to household income: We estimate a current ratio of average home price to family income of 4.0 in October 2023. This compares with a long-term average of 3.8 including 3.9 in 2015-2019, 4.2 in 2002-2004, and 4.8 in mid-2006. For 2024, assuming HPA of 2%, average 30-year fixed mortgage rate of 6.75%, and income growth of 4.0%, we estimate that the ratio will decline to 3.7, approximately in line with the long-run average of 3.8.
- Mortgage payment (P&I) to household income: We estimate that the current average of P&I divided by household income is 27.5% as of October 2023 vs. a long-run average of 18.3%, 15.7% in 2015-2019, 19.4% in 2002-2004, and 25.1% in 2006. We project P&I / income to moderate to 25.3% by year-end 2023 and then decline to 24.7% in 2024.

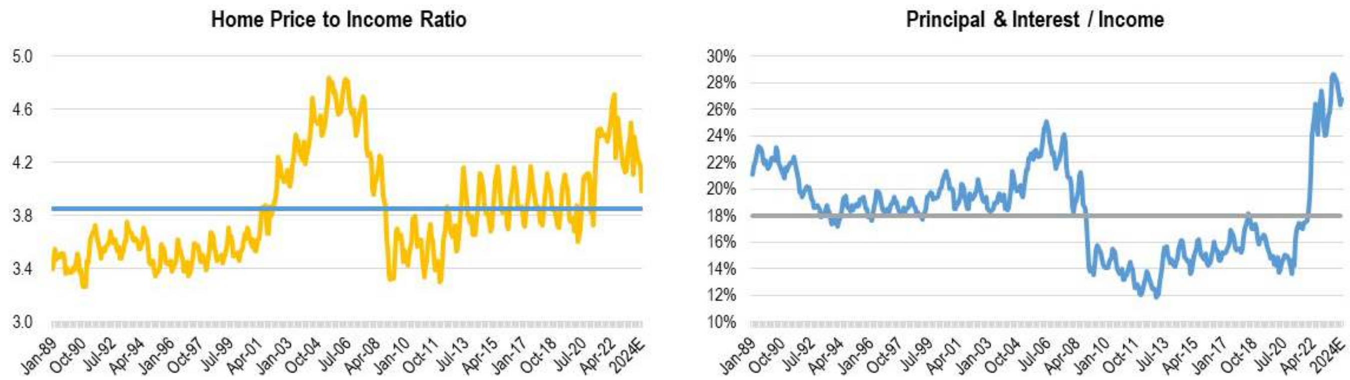
Exhibit 43: KBW Affordability Forecast

	Med. Price Single-Fam Home	Monthly Mortgage Rate	Princp.& Interest Payment	Family Income	Y/Y ASP Increase Median	Mean	P&I / Income	Avg. Home Price to Income	Long-run Avg.
Jan-22	$360,700	3.51	1297	$85,495	17.1%	9.1%	18.2%	4.4	3.8
Feb-22	$370,000	3.83	1384	$85,952	17.4%	9.6%	19.3%	4.4	3.8
Mar-22	$385,400	4.24	1515	$86,413	16.3%	9.5%	21.0%	4.5	3.8
Apr-22	$401,700	5.05	1735	$86,691	16.0%	9.3%	24.0%	4.6	3.8
May-22	$415,400	5.31	1847	$87,176	15.0%	8.4%	25.4%	4.7	3.8
Jun-22	$420,900	5.60	1933	$87,675	12.6%	7.1%	26.5%	4.7	3.8
Jul-22	$405,800	5.48	1839	$87,885	9.3%	5.3%	25.1%	4.2	3.8
Aug-22	$398,800	5.29	1770	$93,857	8.3%	4.8%	22.6%	4.3	3.8
Sep-22	$389,600	6.18	1905	$95,280	7.7%	4.4%	24.0%	4.1	3.8
Oct-22	$384,600	6.90	2043	$97,048	6.1%	3.4%	25.3%	4.0	3.8
Nov-22	$378,700	6.81	1993	$97,421	3.8%	2.1%	24.5%	4.0	3.8
Dec-22	$372,000	6.36	1869	$98,074	1.8%	1.0%	22.9%	3.9	3.8
Jan-23	$365,400	6.27	1819	$95,377	1.3%	0.7%	22.9%	3.9	3.8
Feb-23	$368,100	6.26	1830	$95,976	-0.5%	-0.3%	22.9%	3.9	3.8
Mar-23	$379,500	6.54	1943	$96,508	-1.5%	-0.9%	24.2%	4.0	3.8
Apr-23	$390,200	6.34	1957	$96,790	-2.9%	-1.6%	24.3%	4.1	3.8
May-23	$401,500	6.43	2032	$97,166	-3.3%	-1.9%	25.1%	4.1	3.8
Jun-23	$415,700	6.71	2166	$97,401	-1.2%	-0.7%	26.7%	4.2	3.8
Jul-23	$411,200	6.84	2174	$97,865	1.3%	0.8%	26.7%	3.8	3.8
Aug-23	$410,200	7.07	2220	$98,291	2.9%	1.6%	27.1%	4.1	3.8
Sep-23	$399,200	7.20	2188	$98,705	2.5%	1.4%	26.6%	4.0	3.8
Oct-23	$396,100	7.62	2262	$98,804	3.0%	1.7%	27.5%	4.0	3.8
Nov-23	$393,848	7.44	2211	$98,903	4.0%	2.3%	26.8%	4.0	3.8
Dec-23 E	$388,740	7.00	2088	$99,001	4.5%	2.5%	25.3%	3.9	3.8
2024E	$401,173	6.75	2101	$101,997	2.0%	1.1%	24.7%	3.7	3.8
Y/Y % chg.- full year 2022	10.7%								
Y/Y % chg.- full year 2023	0.8%								

	Med. Price Single-Fam Home	Monthly Mortgage Rate	Princp.& Interest Payment	Family Income	Y/Y ASP Increase Median	Mean	P&I / Income	Avg. Home Price to Income	Long-run Avg.
Average		6.10	867	$57,785	4.5%	3.8%	18.2%	3.8	
Average 2015-2019		4.17	964	$73,576	5.6%	4.0%	15.7%	3.9	
Average 2002-2004		6.01	858	$52,963	7.7%	8.4%	19.4%	4.2	
Median		6.20	812	$57,872	5.0%	4.4%	18.5%	3.7	
Max		10.59	2220	$98,291	26.1%	17.5%	27.1%	4.8	
Min		2.73	538	$33,287	-16.8%	-15.6%	11.9%	3.3	
2021 full year	$352,508	3.01	1191	$87,225	18.1%	11.9%	16.4%	4.3	
2022 full year	$390,300	5.38	1761	$90,747	10.9%	6.2%	23.2%	4.3	
2023 full year	$393,307	6.81	2074	$97,566	0.8%	0.5%	25.5%	4.0	

Source: NAR, U.S. Census Bureau, and KBW Research.

Exhibit 44: Housing Affordability Metrics



Source: NAR, U.S. Census Bureau, and KBW Research.

New Home Sales Taking Market Share

As existing home inventory has tightened over the past year, new home sales have taken market share. During late ’22 / early ’23, sentiment regarding the housing market was skewed negative as concerns mounted over higher interest rates, and certain public homebuilders reported orders misses and elevated cancellation rates. While rates certainly have impacted buyer demand as reflected by the decline in new + existing home sales, the new home market has fared better than expected. Tactics such as mortgage rate buydowns (discussed below) have helped stabilize demand in the new home market, which has driven market share growth as existing home sales have waned.

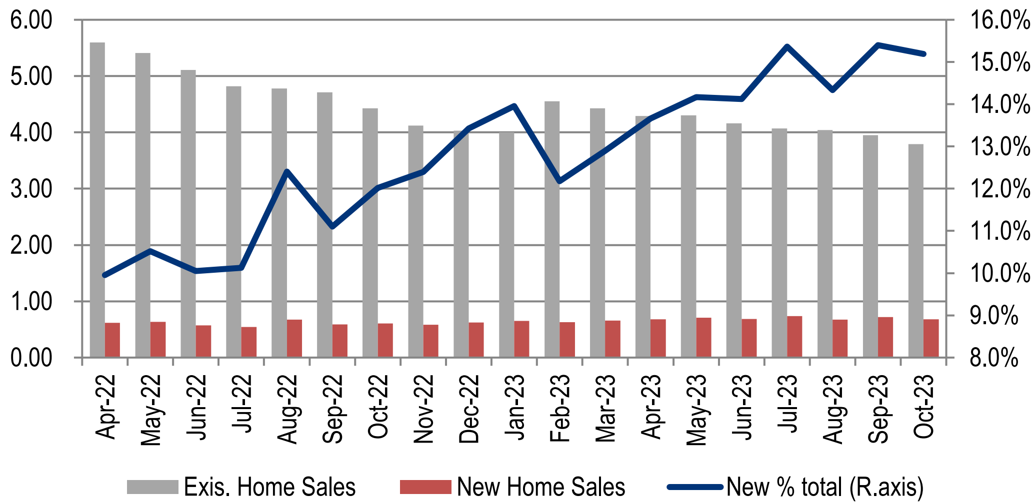
In October 2023, new home sales (seasonally adjusted) were 0.68 million vs. 0.61 in October 2022 and 0.67 in October 2021, +12% and +1%, respectively. On a market share basis, new homes comprised 15.2% of total home sales volume in October 2023 vs. 10.0% in April 2022, increasing throughout that timeframe. The long-term average new home sales market share (1968 to present) is 15% and the 2010 to 2021 average is 9%.

Exhibit 45: New Homes Sales Market Share Growth: Apr-22 to Present

Period	Exis. Home Sales	New Home Sales	New + Exis. Sales	New Home Mkt. Share	*Cumulative % chg.*
Apr-22	5.60	0.62	**6.22**	**10.0%**	*NA*
May-22	5.41	0.64	**6.05**	**10.5%**	*5.7%*
Jun-22	5.11	0.57	**5.68**	**10.1%**	*1.0%*
Jul-22	4.82	0.54	**5.36**	**10.1%**	*1.7%*
Aug-22	4.78	0.68	**5.46**	**12.4%**	*24.6%*
Sep-22	4.71	0.59	**5.30**	**11.1%**	*11.5%*
Oct-22	4.43	0.61	**5.04**	**12.0%**	*20.7%*
Nov-22	4.12	0.58	**4.70**	**12.4%**	*24.5%*
Dec-22	4.03	0.63	**4.66**	**13.4%**	*34.9%*
Jan-23	4.00	0.65	**4.65**	**14.0%**	*40.3%*
Feb-23	4.55	0.63	**5.18**	**12.2%**	*22.4%*
Mar-23	4.43	0.66	**5.09**	**12.9%**	*29.6%*
Apr-23	4.29	0.68	**4.97**	**13.7%**	*37.3%*
May-23	4.30	0.71	**5.01**	**14.2%**	*42.4%*
Jun-23	4.16	0.68	**4.84**	**14.1%**	*41.9%*
Jul-23	4.07	0.74	**4.81**	**15.4%**	*54.4%*
Aug-23	4.04	0.68	**4.72**	**14.3%**	*44.0%*
Sep-23	3.95	0.72	**4.67**	**15.4%**	*54.7%*
Oct-23	3.79	0.68	**4.47**	**15.2%**	*52.6%*

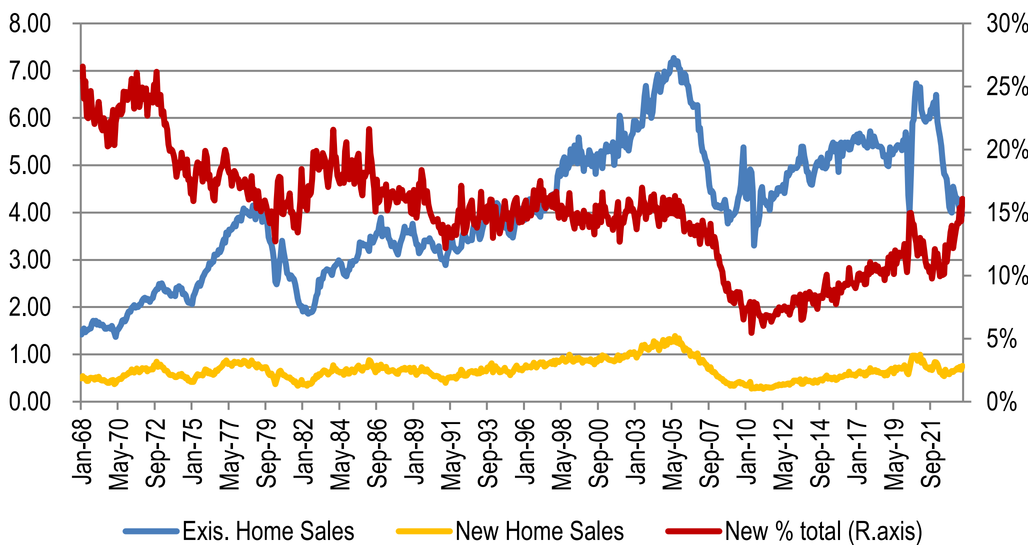
Source: FactSet, NAR, and KBW Research.

Exhibit 46: New Homes Sales Market Share Growth: April 2022 to Present



Source: FactSet, NAR, and KBW Research.

Exhibit 47: Historical New Home Sales Market Share



Source: FactSet, NAR, and KBW Research.

Mortgage Analysis

Mortgage Rate Buydowns

Homebuilders have utilized mortgage buydowns as a tool to make buyers' payments more affordable as rates have increased over the past two years. Importantly, this is a unique advantage for homebuilders as few existing home sellers can offer this to buyers, which has contributed to resilient new home sales volume, in our view. Although there are a few types of buydowns, they all involve the builder shouldering some of the mortgage cost to effectively prepay the buyers' interest. Two common types of mortgage buydowns are:

- **Full-Term.** Builders are offering buydowns of up to 3% and purchase forward commitments in order to facilitate this. *A general rule of thumb is that every incremental 1% on a full-term buydown has a homebuilder gross margin impact of ~400 bps.*
- **Temporary.** Typically, 2-1 or 3-2-1, temporary buydowns involve a reduction in the mortgage rate at first and then annual step-ups to the full market rate. In a 3-2-1 buydown, for example, the mortgage rate is reduced by 3% in the first year upon origination, 2% in second year, 1% in the third year, and then it reverts to the market rate for the remainder of the term (years 3-30). Borrowers are required to qualify at the market rate ex. buydown. This is effectively a teaser rate that offers some payment relief at first.

The GSEs have their own requirements for buydowns that must be followed to ensure that a loan is conforming. Fannie Mae does not allow temporary buydowns to exceed 3% and the rate increase cannot exceed 1% per year—so a 3-2-1 structure is the most significant temporary buydown permitted. Also, buydowns may only be used on purchase transactions, not refinance.

A few different methods are typically employed by homebuilders behind the scenes to secure mortgage buydowns. For full-term buydowns, builders lock in forward commitments with institutions to secure a pool of mortgage dollars at below market rates. In this approach the transactions would take place through the mortgage company, if the builder has one, and the builder is responsible for fulfilling the contracted mortgage dollars with closed homes. Forward commitments are typically purchased 90 days in advance. For temporary buydowns, the originator must create a separate account to fund the difference between market rate and the lower rate, and the funds need to be fully funded prior to purchase or securitization by Fannie Mae.

Several public homebuilders have commented on buydowns in recent months. It's important to note that there's a limit on how much a rate can be lowered through a buydown—typically by 200 to 300 bps at most for a full-term buydown. As such, effective interest rates have trended upward for borrowers over the past year as the prevailing 30-year mortgage rate has increased. Another factor is penetration: not all buyers are using buydowns and those that do aren't necessarily taking the largest possible rate reduction. Public homebuilders have discussed how buydowns and other incentives put downward pressure on gross margin, but they also have emphasized that maintaining sales pace is their top priority.

Mortgage Rates Likely to Remain Elevated but Should Be Modest Tailwind

While we expect the 30-year fixed-rate mortgage (FRM) rate to trend down from now through 2025, we believe mortgage rates will remain elevated relative to the last 15 years. The 30-year FRM rate is currently hovering around 7%. We expect the 30-year FRM rate to average around 7% in 2024 before trending down closer to the 6-6.5% range by the end of 2025 due to a combination of a lower 10-lower treasury yield and tighter agency MBS spreads. We believe this rate backdrop will continue to be challenging for the existing home sales market in 2024 with some modest relief potentially in 2025, especially if the yield curve steepens in the back half of 2024, which would support increased adjustable-rate mortgage (ARM) production. This mortgage rate backdrop should continue to favor the new home sales market as homebuilders continue to buy down rates.

Impact of Current Mortgage Rates

The 30-year fixed rate mortgage (Freddie Mac PMMS) is currently 7.03%, up from a low of 2.65% in early 2021. The exhibit below shows the trend in the Freddie Mac PMMS over time. The two other mortgage industry benchmark rates (Bankrate & the MBA weekly index rate) are both higher at 7.43% and 7.35% respectively. This is because the PMMS reflects the average rate available to strong credit quality borrower who put 20% down. So, while the PMMS is used as a market proxy for current mortgage rates, those other benchmark rates are a better indicator of average mortgage rates in the market.

Exhibit 48: Freddie Mac PMMS Mortgage Rate

Source: Freddie Mac, Bloomberg and KBW Research

The interest rate environment has contributed to the current logjam in the mortgage and housing market, with the average existing mortgage rate of 3.7% now being roughly 3.5% below the current mortgage rate.

Mortgages are now both a liability and an asset for borrowers. Because of the sharp increase in market interest rates, existing low-rate mortgages now have significant value that is not being captured in consumer balance sheets. This can be quantified by looking at the price of underlying mortgages in the market. We estimate that this is currently adding roughly $950 billion of wealth to homeowners who have agency mortgages (around 2/3 of the total mortgage market), making it harder (from a financial perspective) for these homeowners to move. For example, a borrower with a $300K mortgage with a 3.5% mortgage rate would be losing an estimated $90,000 of mark-to-market gains their mortgage if they sell their home to repurchase a new one. This benefit is reflected in their low monthly payments, which will go up if they sell and move into a house with a new market rate mortgage.

Exhibit 49: Price Impact of In-the-Money Mortgages

($ in Billions)	2.00% to 2.50%	2.51% to 3.00%	3.01% to 3.50%	3.51% to 4.00%	4.01% to 4.50%	4.51% to 5.00%	5.01% to 5.50%	5.51% to 6.00%	6.01% to 6.50%	6.51% to 7.00%	7.01% or Higher	Total in Nov. '23
Total In-the-Money	$619.12	$2,408.62	$1,552.26	$1,042.56	$611.18	$449.69	$328.10	$373.38	$295.41	$233.29	$165.21	$8,078.83
Average Current MBS Price	$80.77	$84.15	$87.55	$90.79	$93.69	$96.37	$98.61	$100.29	$101.61	$102.55	$103.38	N/A
Total Current Discount	$129.53	$422.64	$219.74	$111.91	$46.98	$22.20	$7.64	$1.69	($3.05)	($5.10)	($4.83)	$949.37

Source: eMBS, Bloomberg and KBW Research.

KBW Outlook for Mortgage Rates and Spreads

While the 30-year mortgage rate is driven primarily by the 10-year treasury yield, it is also dependent on two spreads: the spread between agency MBS and treasuries (the agency MBS spread) and the spread between the 30-year mortgage rate and agency MBS (the primary-secondary spread).

The exhibit below shows historical and current spreads in the market as well as our forecast for 2024/2025.

Exhibit 50: Mortgage Spreads

	2019	2021	Current	2024E	2025E
PMMS	**3.74%**	**3.11%**	**7.03%**	**6.60%**	**5.90%**
10-yr Treasury Yield	1.92%	1.51%	4.25%	4.00%	3.50%
Spread	1.82%	1.60%	2.78%	2.60%	2.40%
Agency MBS Yield	2.71%	2.06%	5.72%	5.40%	4.80%
Agency MBS Spread	0.79%	0.55%	1.49%	1.40%	1.30%
Primary-secondary Spread	1.03%	1.05%	1.31%	1.20%	1.10%

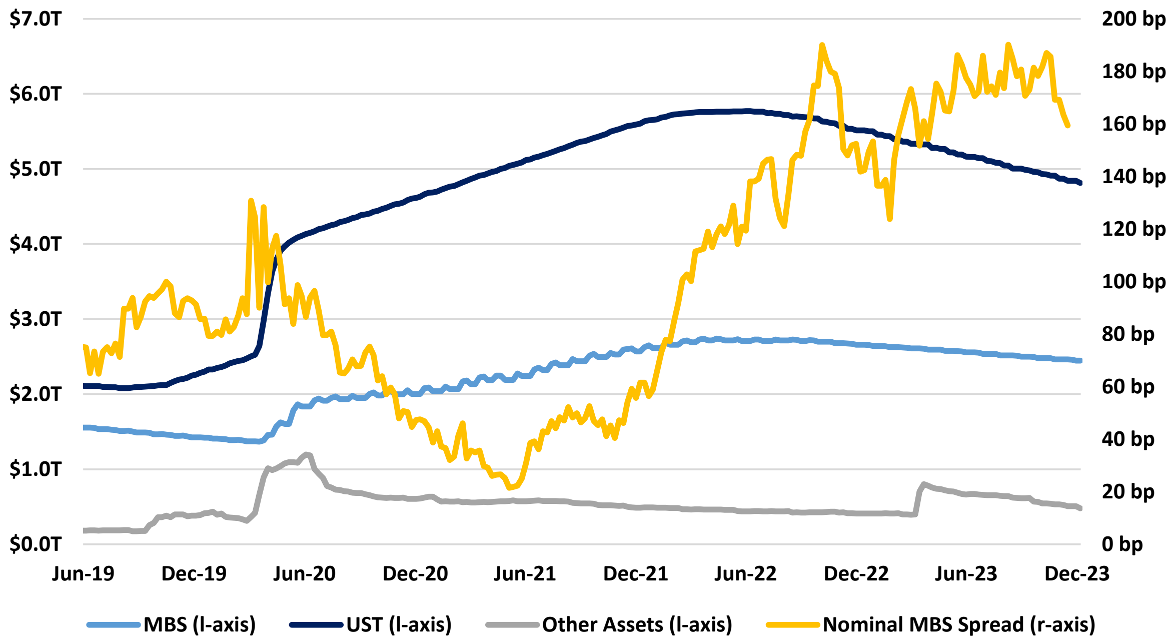
Source: Freddie Mac, Bloomberg and KBW Research.

Agency MBS Spreads

The agency MBS spread currently sits at roughly 150 bp. The MBS spread was ~20 bp at its most recent low in early 2022 (although it dipped as low as 4 bp in September 2012), when both the Fed and the banks were actively buying MBS. Since Agency MBS has no credit risk, its spread to Treasury is driven by technical factors including supply and demand for agency MBS and interest rate volatility. Interest rate volatility is important because borrowers have a prepayment option which means agency MBS investors are inherently short a prepayment option. The value of that option increases in periods of interest rate volatility, as the chance of that option being exercised increases.

As part of its most recent round of quantitative easing the Fed purchased roughly $580 billion of agency MBS in March and April of 2020, and purchased ~$40 billion a month of agency MBS from May 2020 through June 2021, which increased the Fed's total MBS holdings from $1.3 trillion to $2.4 trillion over that span. The Fed then began tapering its agency MBS purchases, and eventually kept the agency MBS portfolio flat from March 2022 to September 2022, after which they started running off both the Agency MBS and Treasury portfolio. The cap for MBS portfolio runoff is $35 billion a month but because prepayments have been muted, actual level of runoff has been closer to $20 billion a month. The exhibit below shows growth in the Fed balance sheet vs the agency MBS spread.

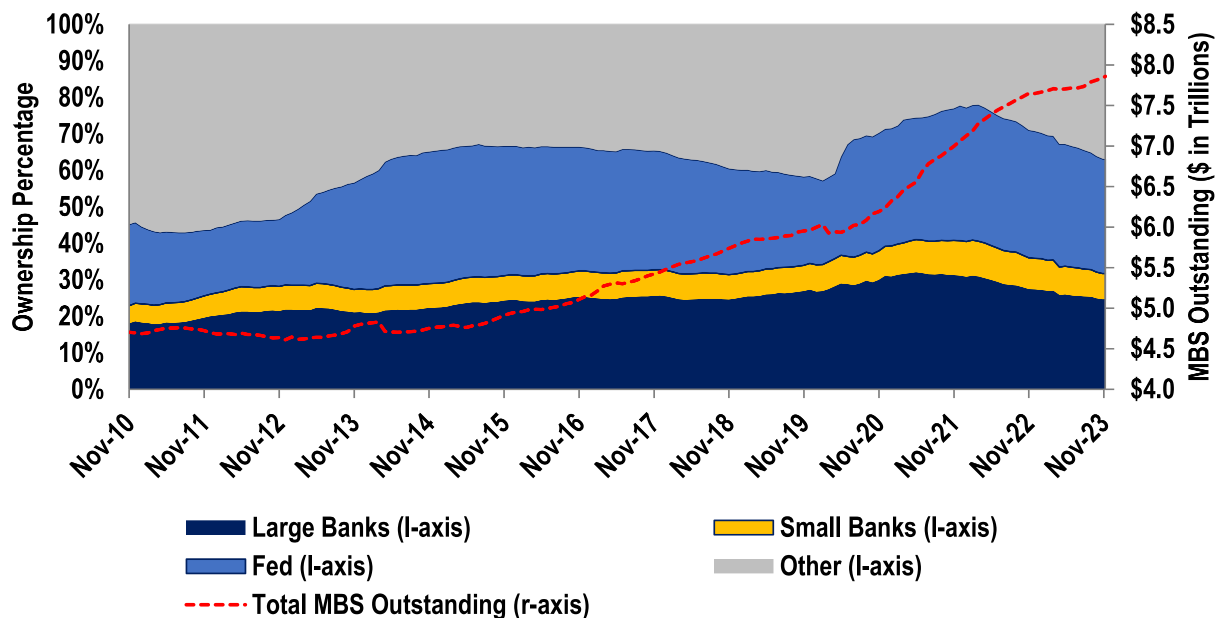
Exhibit 51: Federal Reserve Assets versus Agency MBS Spread (versus 10Yr UST)



Source: Bloomberg and KBW Research

The other negative for agency MBS spreads in 2023 was the regional bank turmoil in March. Before that, the expectation was that banks would be a source of support for the agency MBS market. After March 2023, bank holdings declined initially and are now back to being roughly flat again. So, while it appears that banks have stopped being a drag on agency MBS spreads, they are unlikely to increase their holdings of agency MBS in the near to medium term.

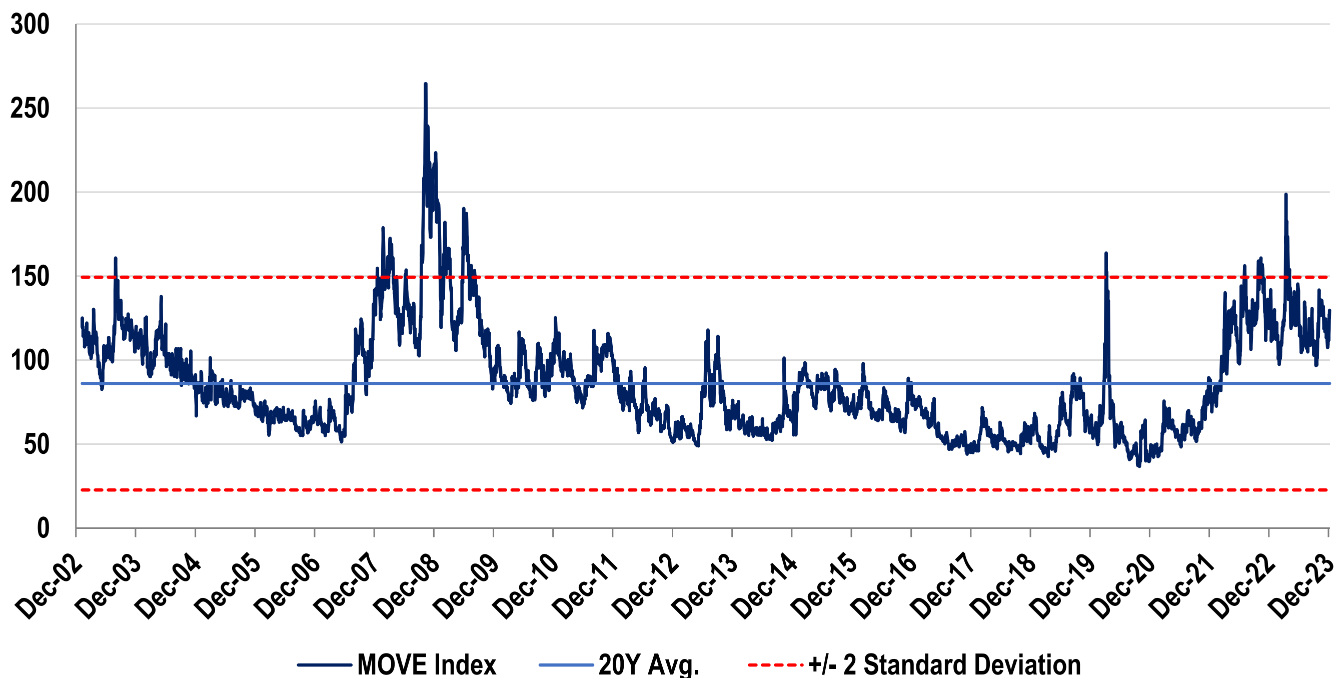
Exhibit 52: Bank versus Fed Ownership of MBS



Source: Bloomberg and KBW Research.

The other driver of agency MBS spreads is interest rate volatility, which can be captured by the MOVE index. As discussed previously, because the borrower has the option to prepay the mortgage, the mortgage investor is short the prepayment option. When volatility increases, the value of the prepayment option increases since it theoretically increases the likelihood that the borrower can exercise that option. This puts downward pressure on agency MBS valuations. While the MOVE Index has declined recently, it remains elevated relative to the last decade. See the exhibit below.

Exhibit 53: MOVE Index

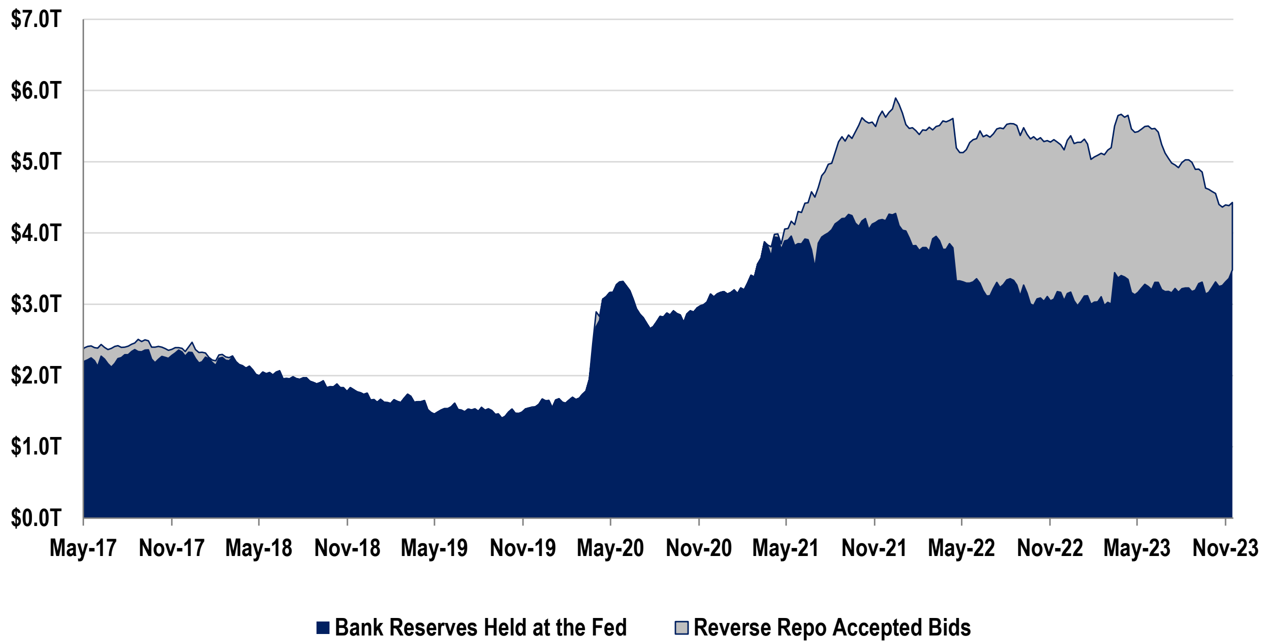


Source: Bloomberg and KBW Research.

While we expect spreads to continue to grind tighter in 2024, the magnitude of spread tightening is likely to be limited given the meaningful spread tightening that has already occurred since late October. We now expect spread tightening of ~20 bp through year-end 2025. We also expect interest rate volatility to keep declining as it becomes clearer that Fed is done raising and is moving closer to cutting rates. However, we think the negative technicals in terms of supply and demand are likely to persist in 2024 as the Fed continues to run off its agency MBS portfolio and banks remain on the sidelines.

We think spreads could tighten further in 2025. One key driver is that the market might start building in an expectation that the Fed is closer to finishing its quantitative tightening cycle. The Fed balance sheet has seen meaningful contraction over the past six months, primarily because of the reduction in reverse repo balances, which from the perspective of the Fed is equivalent to reserves held by non-banks. This balance has fallen by over $1 trillion since mid-year.

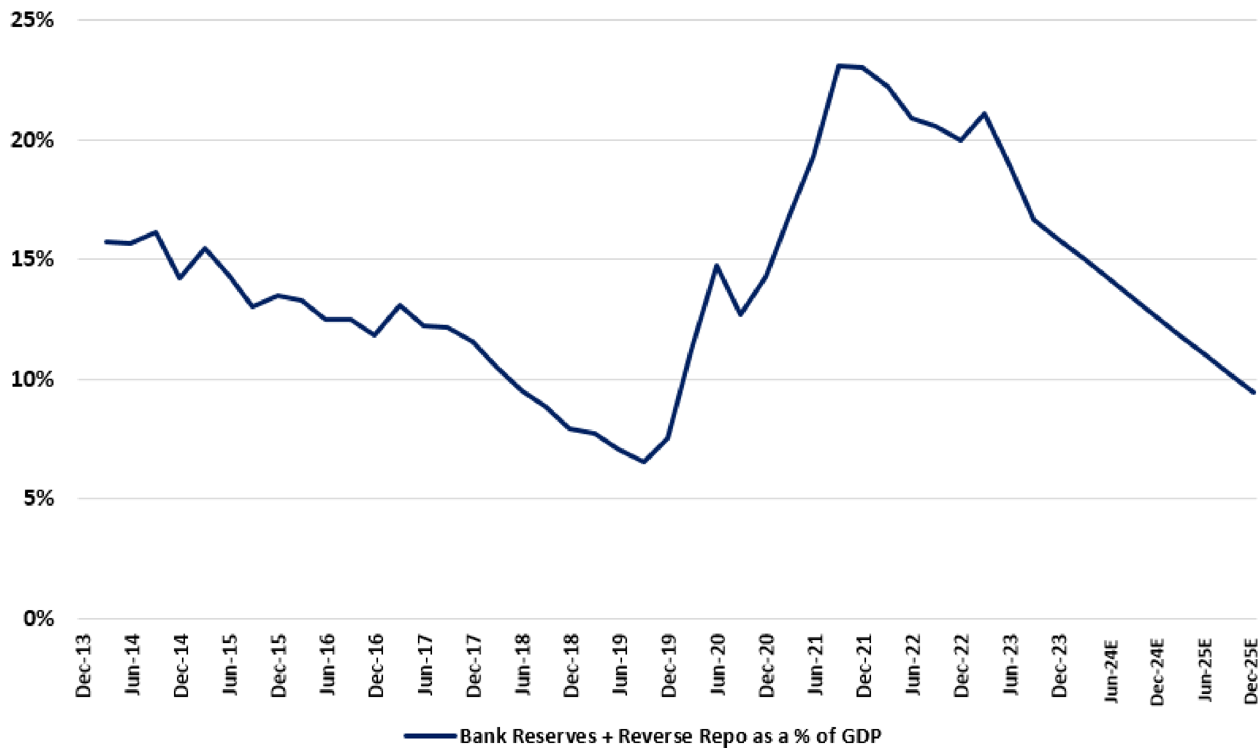
Exhibit 54: Bank Reserves Held at the Fed & Reverse Repo Balances



Source: Bloomberg and KBW Research.

When the Fed was running off its portfolio in 2018, there was a spike in repo rates that both the market and the Fed attributed to bank reserves falling below an optimal level.

Exhibit 55: Bank Reserves & Reverse Repo as a % of GDP



Note: December 2023-December 2025 is estimated using the run-off rate from September 2021-September 2023.

Source: Bloomberg and KBW Research.

Based on the current runoff trend, it looks like reserves will approach that optimal level at some point in late 2024 or early 2025. According to projections from the most recent Open Market Operations Annual Report from the New York Fed, The Fed should slow balance sheet runoff when reserves/GDP falls below 10%, stop runoff at 9%, and resume growth if it falls to 8%. However, the report also acknowledges that these are just projections. To the extent the market starts anticipating an end or slowdown in quantitative tightening, it could be a positive for agency MBS spreads in 2025.

Primary-Secondary Spreads

The primary-secondary spread is the spread between the borrower rate and the agency MBS yield. This rate is largely set by the demand for mortgages. At times when demand is high, this spread widens as originators have more pricing power and use higher prices as a way to both control their pipelines and generate higher margins.

The second driver of this spread is interest rate volatility. Since mortgage originators are committed to providing borrowers loans upon rate lock and the loan might not close (and sell) for 45-60 days or longer, mortgage originators generally hedge the locked pipeline. The cost of hedging increases during times of interest rate volatility. Given the very low current borrower demand for mortgages, one would expect primary-secondary spreads should be at very tight levels. However, they remain somewhat wide due to the high interest rate volatility. This suggests that lower volatility should result in lower primary-secondary spreads, which in turn should benefit the broader spread of Treasuries versus borrower mortgage rates. We would estimate this could benefit borrower rates by 10-20 bp through year-end 2025 as volatility declines.

Exhibit 56: Historical Primary-Secondary Mortgage Spreads

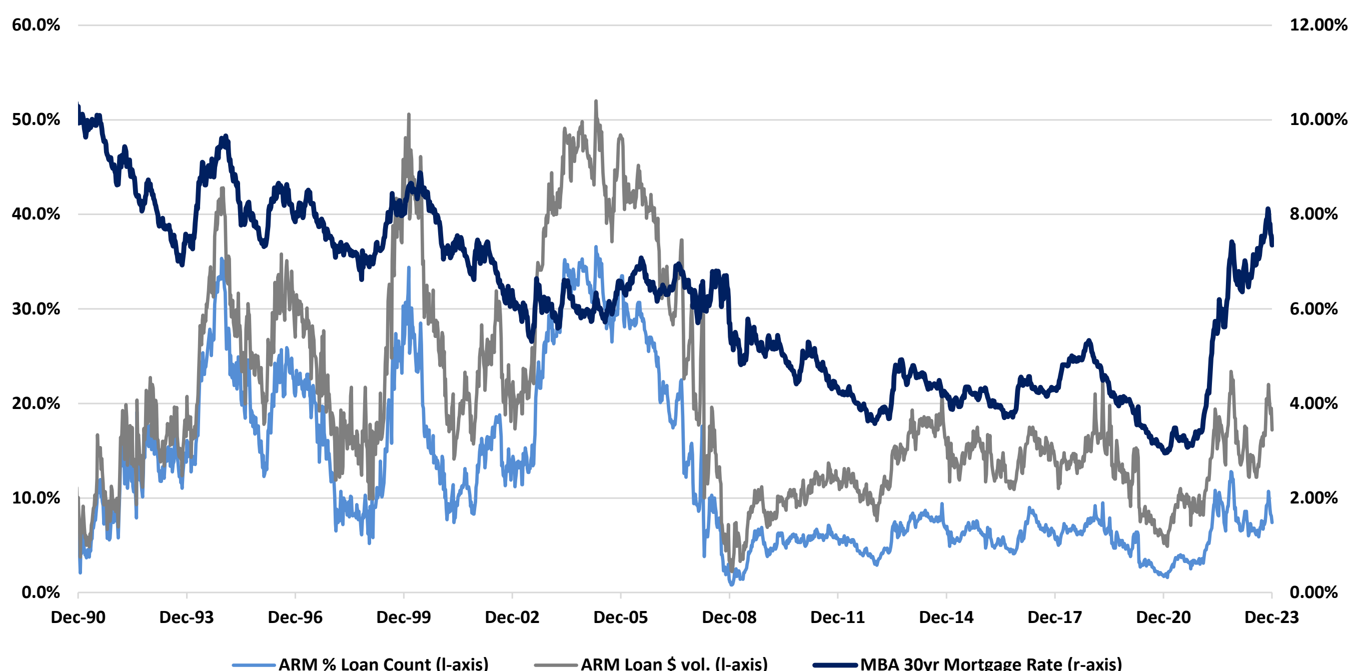
Source: Bloomberg and KBW Research

Could Adjustable-Rate Mortgages (ARMs) be a Partial Solution?

An emerging silver lining on rates is that the magnitude of the yield curve inversion has declined, and we expect any further decline in magnitude should benefit adjustable-rate mortgage (ARM) production. Historically, ARM volume has jumped in higher rate environments, but it hasn't happened this time around (yet) given the inverted yield curve and because borrowers have gone through 15 years without meaningful ARM production. Further, banks might not be interested in growing their mortgage exposure and ARMs are largely a bank portfolio product. However, if higher for longer is the new reality for long rates, a meaningful increase in ARM production might be needed to reduce the logjam in the housing market, and increased GSE participation could support this market even if banks remain cautious.

ARM production has historically increased when interest rates have increased. The exhibit below shows ARM loan application by loan count and dollar volume versus the 30-year mortgage rate.

Exhibit 57: ARM Loan Applications as a % of Total Applications versus 30Yr Mortgage Rate



Source: Mortgage Bankers Association (MBA) and KBW Research.

While the level of ARMs has increased recently, the pace of the increase has remained modest despite the sharp increase in mortgage rates. We think there have been two drivers. First, the yield curve has been inverted since July 2022. This makes the math more challenging since ARMs are indexed off the shorter end of the yield curve. However, as the yield curve has become less inverted, the attractiveness of ARMs has improved. Second, the market has gone through an extended period since the GFC of very limited ARM volume primarily because of very low rates but also because much of the riskier loan types pre-GFC were in the ARM market. We think an environment with relatively high long

rates and a steeper yield curve should result in a growing percentage of ARM volume given the likelihood of a wider spread between ARMs and the 30-year FRM.

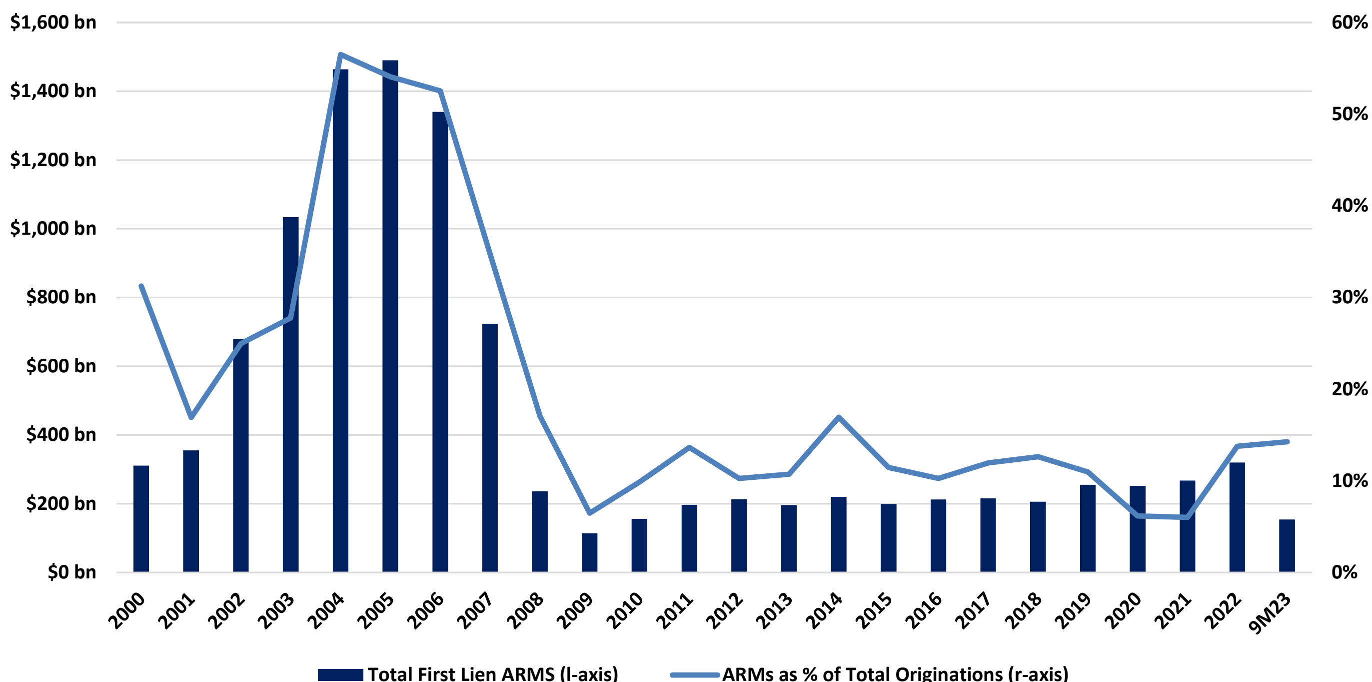
Last week's MBA survey shows an effective rate for the 5-year ARM of 6.84% versus 7.35% for a 30-year fixed. The percentage of ARM loan applications (by $) has increased to 17.4% of the overall market and 22.8% of the conventional market (it remains just 0.7% of FHA/VA volume). If the forward curve moves in line with market expectations and short rates decline roughly 100 bp by the end of 2025, this should take ARMs closer to 6% versus a fixed-rate mortgage still around 7%. If the forward curve is correct, this should result in ARM rates falling to 150 bp below fixed-rate mortgages and reaching ~5.5% in 2024 and ~4.5% in 2025.

The Role of Banks versus the GSEs in ARM Market

ARMs have historically been a bank product, so meaningful growth in the ARM market is likely to require increased interest from banks. While this is possible over time, the combination of the regional banking crisis in early 2023 and potential upcoming regulatory changes as part of Basel III Endgame is likely to keep bank appetite limited in 2024.

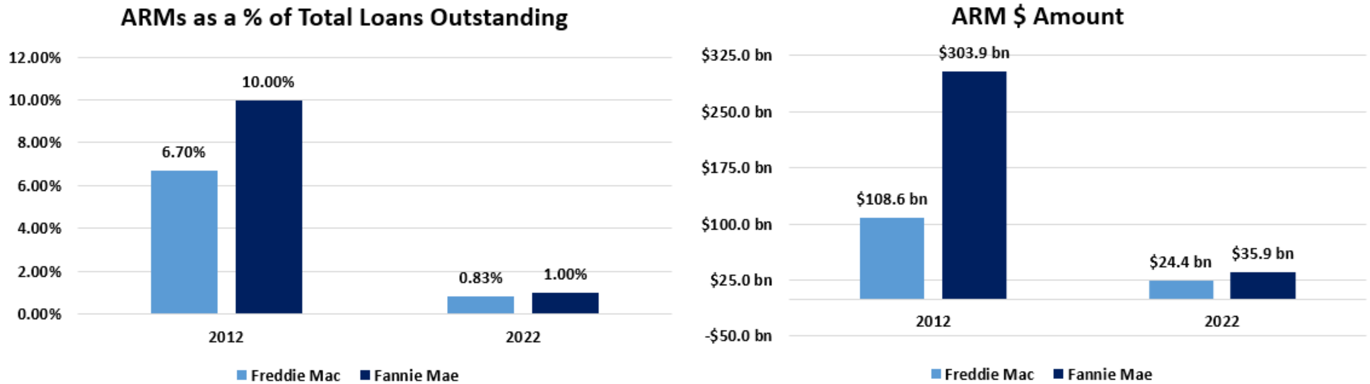
However, we believe that there is room for growth in ARMs through the GSE market. Currently, the ARM percentage of GSE loans outstanding is under 1%. Historically ARMs have been closer to 10% of GSE volume and that was in an environment in which the GSEs were not always competitive with banks on ARMs.

Exhibit 58: Historical ARM Production ($ Volume)



Source: Inside Mortgage Finance, Copyright 2023 (Used with Permission) and KBW Research.

Exhibit 59: ARMs Outstanding: 2012 versus 2022



Note: All metrics as of year-ends. Fannie Mae 2022 ARM $ amount is estimated.

Source: Company reports and KBW Research.

We also think ARMs have been seen as a riskier product over the past decade because many of the weaker loan products during the GFC were ARMs. However, we think longer duration ARMs (7/1s and 10/1s) are good products for consumers and the fixed rate period of these loans is in line with periods that homebuyers typically stay in a home, especially first-time homebuyers. To the extent long-term rates remain elevated (in line with our expectations), we think ARMs are likely to become more accepted by home buyers as a way to enter the home purchase market. While ARM loans now have to be underwritten to the fully indexed rate (the rate after the loan adjusts), the cash flows will still be lower for borrowers.

Residential Mortgage Credit Trends Remain Strong

Home prices remain a meaningful positive for the sector. The increase in home prices in recent years has resulted in a considerable reduction in mark-to-market loan-to-values (LTVs) on all pre-2022 books. Further, home prices continued their upward swing in 2023, in contrast with most full-year outlooks from the beginning of the year which called for the decline in home prices in late 2022 to continue. According to the CoreLogic S&P Case-Shiller Index, home prices (as of September) have increased 1.3% on average from the June 2022 peak and 6.6% from the January 2023 bottom.

At the same time, the role of the government-sponsored enterprises (GSEs) has evolved. The majority of lower-credit-quality borrowers (i.e., sub-700 FICO) are now largely being served by the FHA. And since the FHA has also meaningfully improved its credit profile and the subprime market has largely closed, many of the weakest borrowers are no longer homeowners. We believe that as a result of these changes, mortgage credit in general (and GSE credit risk in particular) should perform meaningfully better than it did during past downturns in future periods of economic distress. We highlight two meaningful indicators of the improvement in underwriting guidelines at the GSEs. The first is the significant increase in average credit scores. The second and probably more important change is the elimination of higher-risk loan products. These included loan types such as subprime and Alt-A, but also included underwriting changes to existing loan types such as adjustable-rate mortgages (ARMs), which (as previously mentioned) now have to be underwritten to

the fully indexed rate. Other examples include interest-only or negative-amortizing loans, both of which have been effectively eliminated. The exhibit below shows a summary of credit characteristics for Fannie Mae. The average FICO score on current loans is roughly 60 points higher than the average on pre-2008 loans.

Exhibit 60: Fannie Mae Credit Profile of Single-Family Book of Business by Origination Period

	Overall Book	Origination Year					
		2008 & Earlier	2009-2019	2020	2021	2022	9M23
Unpaid Principal Balance (UPB) ($B)	$3,639.4	$67.7	$873.0	$876.7	$1,105.3	$502.8	$213.9
Share of Single-Family Conventional Guaranty Book	100%	2%	24%	24%	30%	14%	6%
Average Unpaid Principal Balance	$207,661	$77,874	$134,875	$244,702	$263,063	$291,603	$316,743
Serious Delinquency Rate	0.54%	2.18%	0.67%	0.25%	0.34%	0.47%	0.04%
Weighted Average Origination LTV Ratio	73%	75%	75%	71%	70%	76%	78%
Origination LTV Ratio > 95%	5%	9%	8%	3%	3%	5%	7%
Weighted Average Mark-to-Market LTV Ratio	51%	30%	34%	47%	54%	69%	76%
Weighted Average FICO Credit Score	***753***	***696***	***747***	***762***	***755***	***747***	***755***
FICO < 680	***8%***	***38%***	***11%***	***4%***	***7%***	***9%***	***5%***
Share of Loans with Credit Enhancement (4)	45%	9%	46%	31%	52%	59%	41%

Source: Fannie Mae and KBW Research.

We think the improved credit trends at FHA are also important because the weakest borrowers in the market generally access credit through the FHA. The higher credit scores there suggest that the FHA should also see better performance in the next downturn, which we believe is important for the stability of the broader housing market. The exhibit below shows the changes in FHA credit scores since 2005.

Exhibit 61: FHA Average Borrower Credit Score Profiles

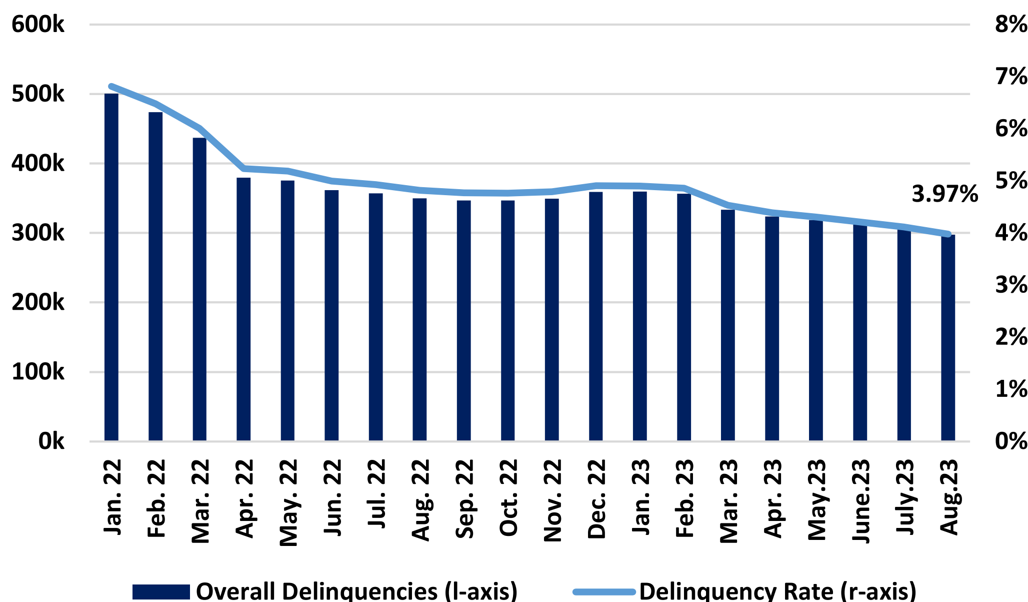
Fiscal Year	Purchase	Conventional Loan Refinance	FHA-to-FHA Refinance	Average Borrower Credit Score
2005	642	612	615	639
2006	646	623	627	641
2007	635	618	627	630
2008	656	633	639	647
2009	685	673	667	681
2010	697	696	688	697
2011	700	704	701	701
2012	696	706	707	698
2013	693	694	700	693
2014	683	674	674	682
2015	680	675	675	680
2016	681	677	673	680
2017	678	674	668	676
2018	671	665	661	670
2019	667	663	660	666
2020	673	666	666	672
2021	673	667	664	672
2022	668	651	647	664

Note: Borrower credit score data was not collected prior to fiscal-year 2005. This table does not include streamline refinance mortgages.

Source: FHA & KBW Research.

While we expect FHA delinquencies to tick up as credit continues to deteriorate, we note that FHA delinquencies have recently declined to 3.97% in August (most recent data). To the extent the economy weakens, we would expect residential credit weakness to be primarily experienced by FHA borrowers. The exhibit below shows recent FHA monthly delinquency trends.

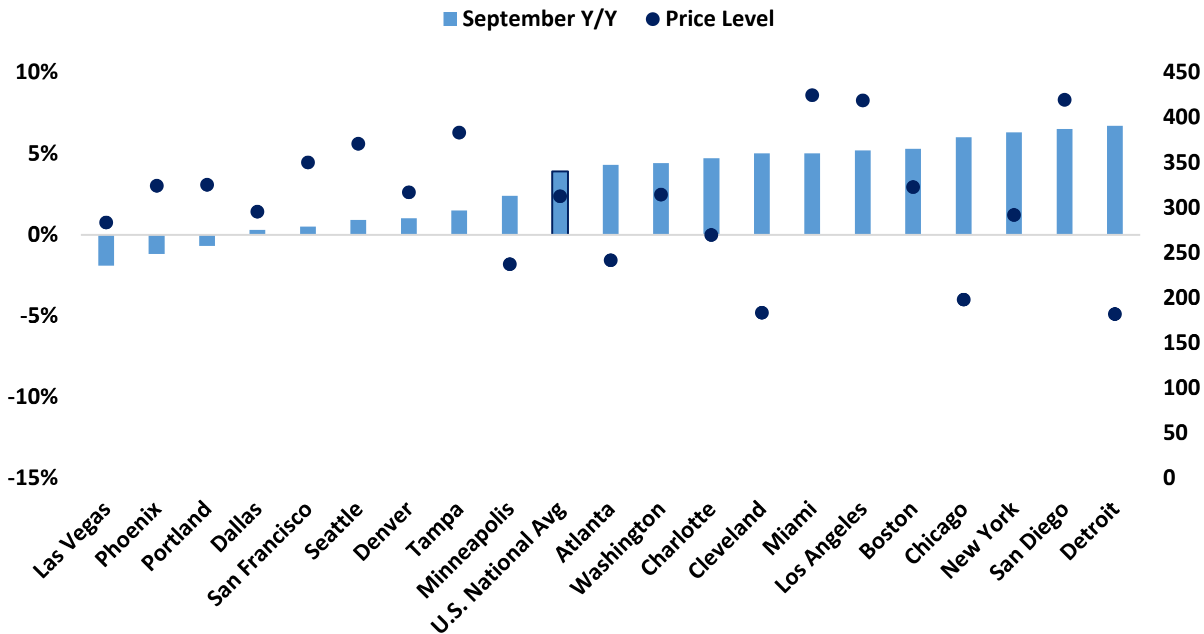
Exhibit 62: Recent FHA Monthly Delinquency Trends



Source: FHA and KBW Research

Home prices have continued their climb in 2023. According to the CoreLogic S&P Case-Shiller Index, home prices (as of September) have increased 1.3% on average from the June 2022 peak and 6.6% from the January 2023 bottom. Most of the more expensive home markets, which are primarily on the West Coast, either have seen more muted home price appreciation (HPA) or are seeing declines in home prices, while lower-priced areas like Cleveland, Chicago, and Detroit are experiencing HPA in the mid-single digits. The exhibit below compares home price level and year-over-year HPA for the 20 metro areas that make up the 20-City Composite CoreLogic Case-Shiller Index.

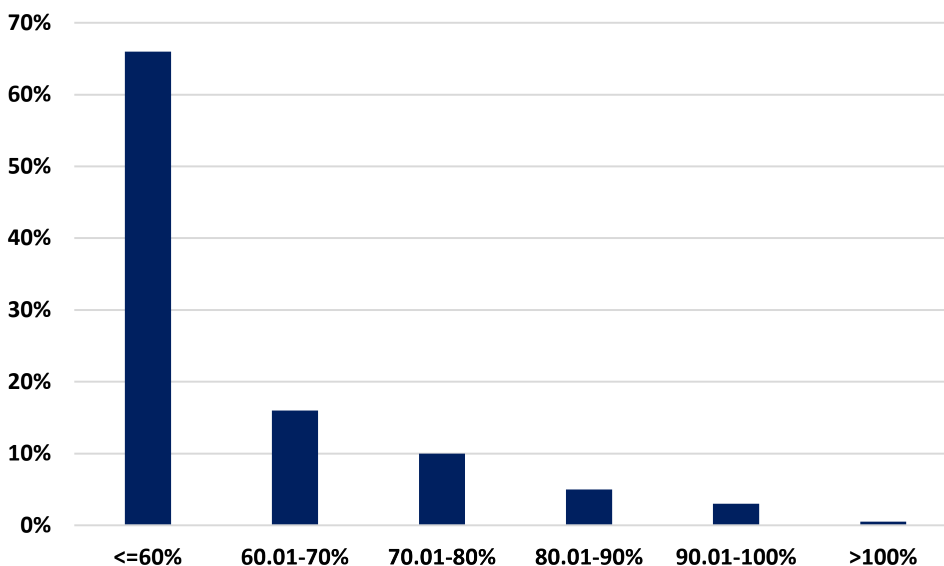
Exhibit 63: September HPA Y/Y by Metro Area (l-axis) versus Price Level (r-axis)



Source: S&P Dow Jones Indices, CoreLogic and KBW Research.

These home price trends have resulted in a considerable reduction in mark-to-market (MTM) LTVs. The exhibit below shows the current breakout of Fannie Mae's single-family guaranty book of business by MTM LTV ratio at the end of 2022 (latest available distribution for single-family book). At the end of 3Q23, Fannie Mae's weighted-average MTM LTV ratio for the entire single-family portfolio was 51%, down from 58% at year-end 2020.

Exhibit 64: Fannie Mae Single-Family Guaranty Book of Business by MTM LTV Ratio (as of YE2022)



Source: Fannie Mae and KBW Research.

Companies Mentioned

Company Name	Ticker	Price	Rating	KBW Analyst
Annaly Capital Management Inc.	NLY	$18.47	Outperform	Bose George
Enact Holdings, Inc.	ACT	$27.73	Outperform	Bose George
Essent Group Ltd.	ESNT	$50.45	Market Perform	Bose George
Federal National Mortgage Association	FNMA	$0.72	Underperform	Bose George
Federal Home Loan Mortgage Corporation	FMCC	$0.64	Underperform	Bose George
MGIC Investment Corp.	MTG	$18.41	Outperform	Bose George
Mr. Cooper Group Inc.	COOP	$65.32	Outperform	Bose George
NMI Holdings, Inc.	NMIH	$28.36	Market Perform	Bose George
Ocwen Financial Corp.	OCN	$25.66	Market Perform	Bose George
PennyMac Financial Services, Inc.	PFSI	$83.03	Outperform	Bose George
Radian Group Inc.	RDN	$26.31	Outperform	Bose George
Redwood Trust Inc.	RWT	$7.11	Outperform	Bose George
Rithm Capital Corp.	RITM	$10.51	Outperform	Bose George
Rocket Companies Inc.	RKT	$10.67	Market Perform	Bose George
Two Harbors Investment Corp.	TWO	$13.79	Market Perform	Bose George
UWM Holdings Corporation	UWMC	$5.92	Market Perform	Bose George

Company Name	Ticker	Price	Rating	KBW Analyst
D.R. Horton, Inc.	DHI	$138.90	Outperform	Jade J. Rahmani
Lennar Corporation Class A	LEN	$139.64	Outperform	Jade J. Rahmani
Toll Brothers, Inc.	TOL	$92.93	Outperform	Jade J. Rahmani
Meritage Homes Corporation	MTH	$155.58	Market Perform	Jade J. Rahmani
KB Home	KBH	$56.08	Market Perform	Jade J. Rahmani
Invitation Homes, Inc.	INVH	$33.28	Market Perform	Jade J. Rahmani
American Homes 4 Rent Class A	AMH	$35.20	Market Perform	Jade J. Rahmani
Tricon Residential Inc	TCN	$7.90	Market Perform	Jade J. Rahmani

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