HOUSING FINANCE POLICY CENTER

HOUSING FINANCE AT A GLANCE

A MONTHLY CHARTBOOK

December 2023

URBAN INSTITUTE · ELEVATE · THE · DEBATE

ABOUT THE CHARTBOOK

The Housing Finance Policy Center's (HFPC) mission is to produce analyses and ideas that promote sound public policy, efficient markets, and access to economic opportunity in the area of housing finance. *At A Glance*, a monthly chartbook and data source for policymakers, academics, journalists, and others interested in the government's role in mortgage markets, is at the heart of this mission.

We welcome feedback from our readers on how we can make *At A Glance* a more useful publication. Please email any comments or questions to ataglance@urban.org.

To receive regular updates from the Housing Finance Policy Center, please visit here to sign up for our bi-weekly newsletter.

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2023 End of Year Message from the Housing Finance Policy Center at Urban Institute

As we publish our final Housing Finance At-A-Glance Chartbook for 2023, we offer our thanks to all who have viewed, read, shared, and cited the chartbook. This year we reflected on ten years of impact by the Housing Finance Policy Center and one of the earliest products we delivered to the public was the chartbook. As we look ahead to the next ten years, we understand we face unprecedented challenges as we did when the center was founded. Your continued support of HFPC and this chartbook provides real impact as we continue to inform debate and discussion on the US housing finance system.

For your reference, we have included a summary of our center's work and impact in 2023, and key focus areas as part of our **NEXT10: The Future of Home** research agenda building for 2024.

In 2023, we published:

- 38 blog posts with a total of 87,921 views and over 145 hours of viewing time;
- 52 research papers, including 12 At-A-Glance Chartbooks, with a total of 38, 157 views over 92 hours of viewing time;
- 4 updates to our Housing Credit Availability Index (HCAI).

Critical issues in housing and housing finance that garnered the most interest by readers:

- Changes to the pricing that Fannie Mae and Freddie Mac charge for their guarantee
- Institutional single-family rental (SFR) owners and operators and analysis of their characteristics
- Equity in homeownership, particularly for Black and Latino borrowers
- Analysis on the Bank Capital Notice of Proposed Rulemaking

Key partnerships and collaborations maximizing HFPC's research and analytic capabilities:

- Racial Equity Accelerator Project with Federal Home Loan Bank of San Francisco
- The Home Ownership Means Equity (HOME) initiative with UnidosUS
- Wealth Opportunities Realized Through Homeownership (WORTH) project
- Barriers and Solutions for Equitable Homeownership with Living Cities
- Challenges and Policy Responses to Affordable Housing Supply with National Community Stabilization Trust

In 2024, as we reflect and celebrate ten years of data and innovation for a more equitable future through NEXT10, emerging issues you can expect us to research and analyze include:

- The interaction of credit history and housing
- Financing structures to facilitate affordable multifamily supply
- Preserving housing wealth of Black and Brown families for future generations
- How AI can be deployed to reduce disparity in mortgage finance
- Rapid response to emerging policy issues; and more

We look forward to the possibilities of the coming year and for the next 10 years of impact. Please continue to utilize and share our work. **Thank you again for your support!**

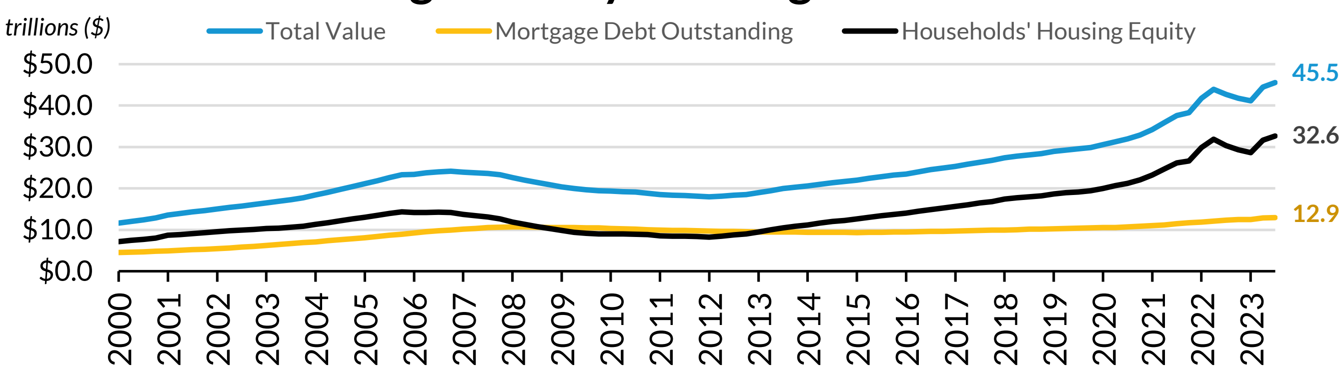
Inside this Issue

- The value of the US singe family housing market reached a new high, totaling $45.5 billion, with $32.6 billion of home equity (page 6).
- The cash out refinance share for FHA and VA is considerably higher than for GSE mortgages (page 11).
- This issue contains our special feature on GSE loan level credit data: composition, default rates, repurchase activity and loss severities.

MARKET SIZE OVERVIEW

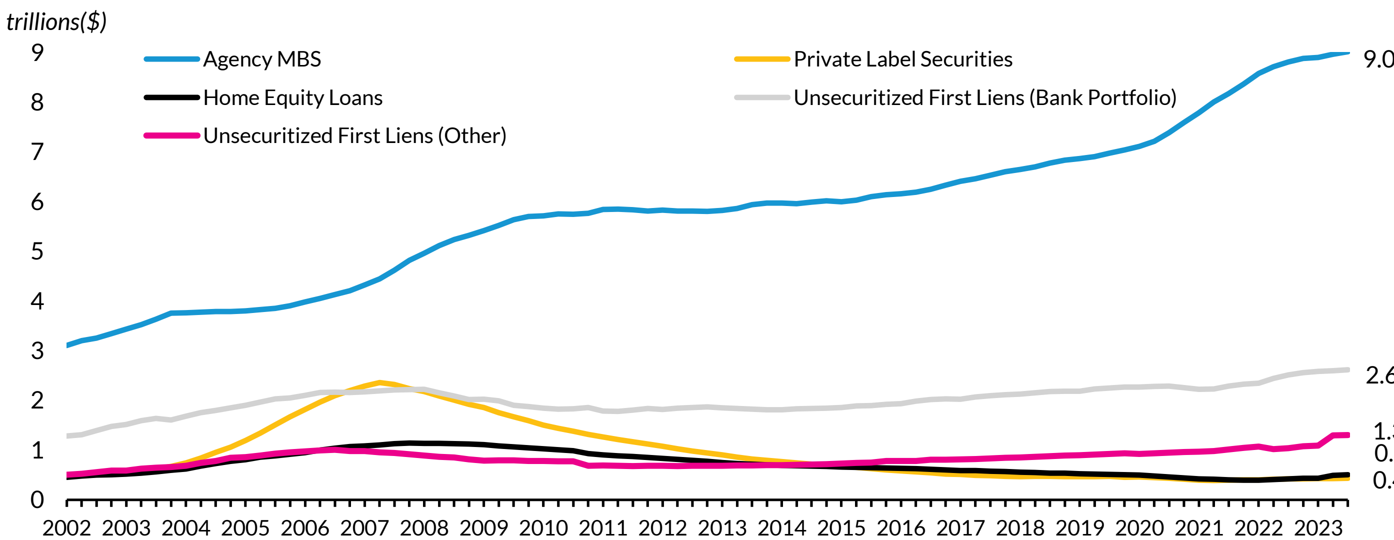
In the third quarter of 2023, the total value of the housing market owned by households increased by 2.3 percent to $45.5 trillion, a series high and driven by a 3.1 percent increase in households' housing equity to $32.6 trillion. Outstanding mortgage debt owed by households rose by 0.6 percent over the quarter to $12.9 trillion. Despite a small decline over the fourth quarter of 2022 and first quarter of 2023, the total housing market value owned by households in the third quarter of 2023 is 88.7 percent above its fourth quarter of 2006 peak. The strong growth in market value of homes owned by households largely reflects households' housing equity, which more than doubled over this time period, rising by 129.8 percent. Outstanding mortgage debt owed by households expanded by 30.0% percent during the same time. In the third quarter of 2023, agency MBS accounted for 65.1 percent ($9.0 trillion) of total mortgage debt outstanding while private-label securities made up 3.1 percent (0.43 trillion) and home equity loans made up 3.6 percent (0.49 trillion). Unsecuritized first liens, both Bank Portfolio and Other, comprise the remaining 28.2 percent ($3.9 trillion) with Banks making up 18.9 percent ($2.6 trillion), and Other accounting for 9.4 percent ($1.29 trillion). Of Other, credit unions account for 4.2 percent ($0.57 trillion), and other non-depositories accounted for 5.2 percent ($0.72 trillion) of the total (not shown).

Value of the US Single Family Housing Market



Sources: Financial Accounts of the United States, Table B.101 and Urban Institute. Last updated December 2023.
Note: Single family includes 1-4 family owner-occupied mortgages.

Composition of the US Single Family Mortgage Market



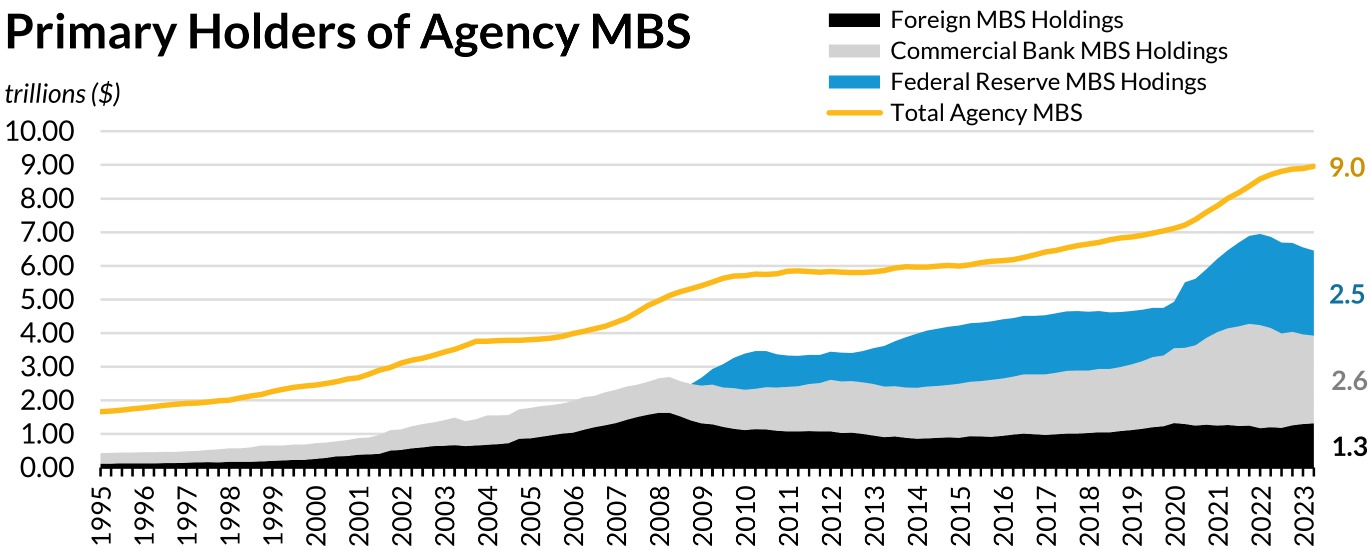
Sources: Financial Accounts of the United States and Urban Institute. Last updated December 2023.
Notes: Unsecuritized First Liens (Other) includes mortgages not held on bank balance sheets. Debt between top and bottom charts do not match as bottom chart includes investor-owned properties.

OVERVIEW

MARKET SIZE OVERVIEW

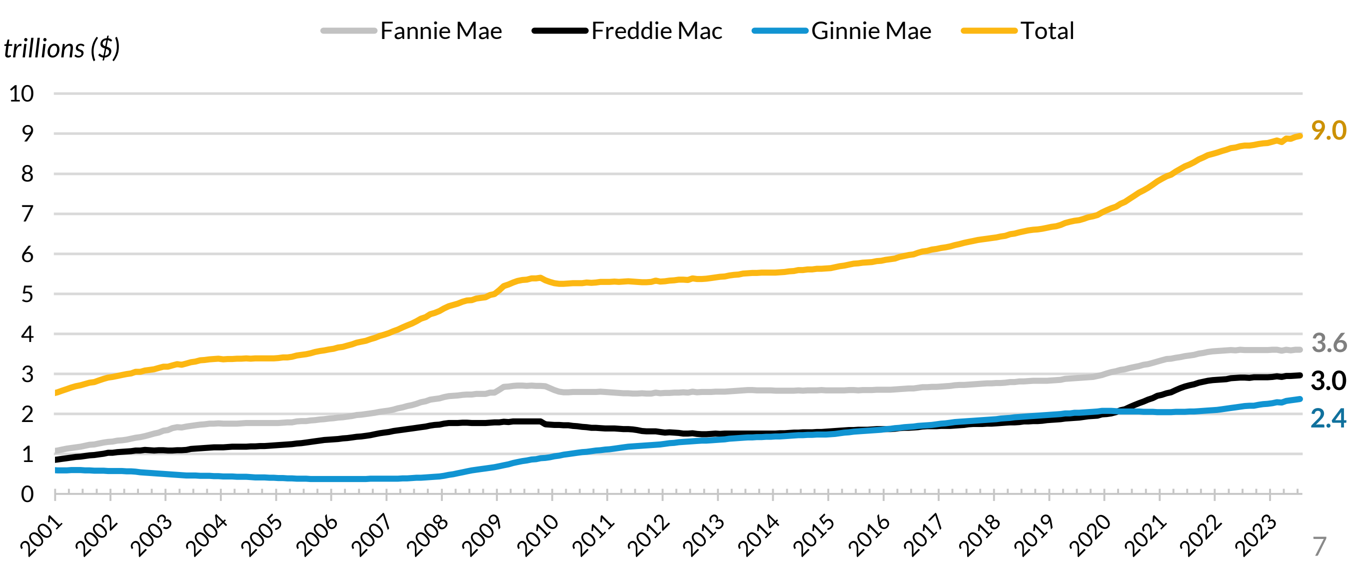
The three largest holders of the $9.0 trillion in outstanding agency MBS are commercial banks ($2.6 trillion), the Federal Reserve ($2.5 trillion) and foreign investors ($1.3 trillion).The foreign investor holdings includes both sovereign as well as private holdings. Commercial banks and the Federal Reserve have both had noticeable reductions in their holdings over the past year. From Q2 2022 to Q2 2023 commercial banks holdings are down by 12 percent while Federal Reserve holdings are down by 6 percent. By the end of Q3 2023, outstanding securities in the agency market totaled $9.0 trillion according to loan-level data, 40.3 percent ($3.6 trillion) of which was Fannie Mae, 33.2 percent ($3.0 trillion) Freddie Mac, and 26.5 percent ($2.4 trillion) Ginnie Mae. After closing the gap in securitized volume with Freddie Mac in the aftermath of the Great Recession, Ginnie securitized volumes have lagged particularly over the 2020-2022 period; the gap has begun to close again in 2023.

Primary Holders of Agency MBS



Sources: Financial Accounts of the United States (table L.211), Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Moody's Analytics and Urban Institute Calculations. Last updated September 2023.
Note: A small amount (roughly 5%) of foreign MBS holdings is agency debentures. Holders not shown: Households, nonfinancial business, federal, state and local governments, insurance companies, pension and retirement funds, money market and mutual funds, REITs, ABS issuers, brokers, and holding companies.

Agency Mortgage-Backed Securities



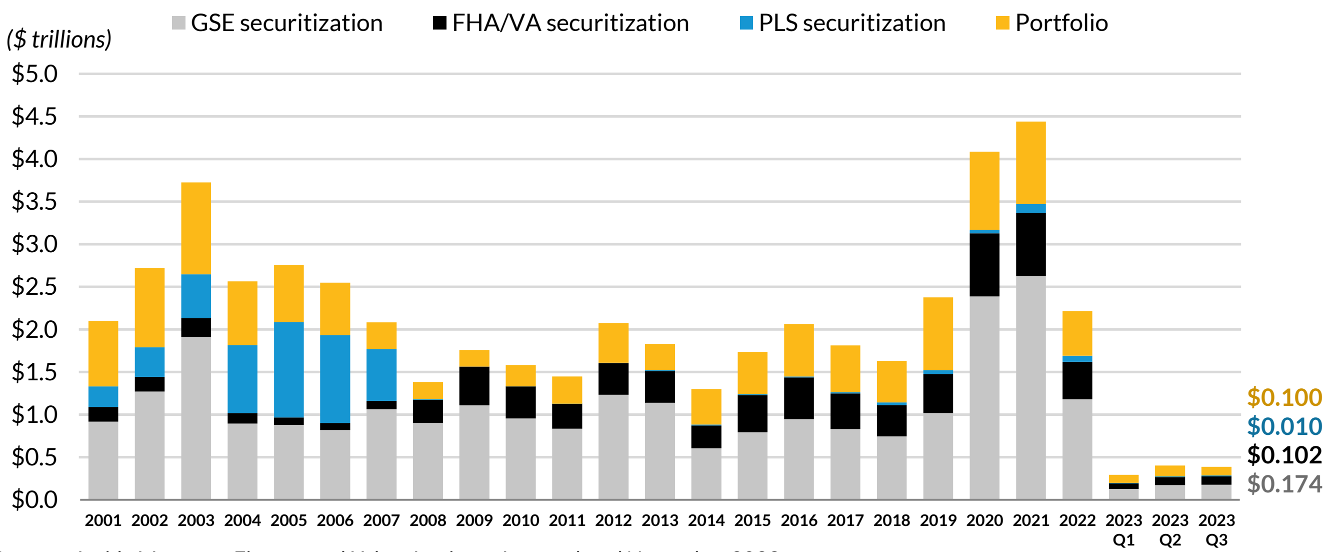
Sources: eMBS and Urban Institute.

OVERVIEW

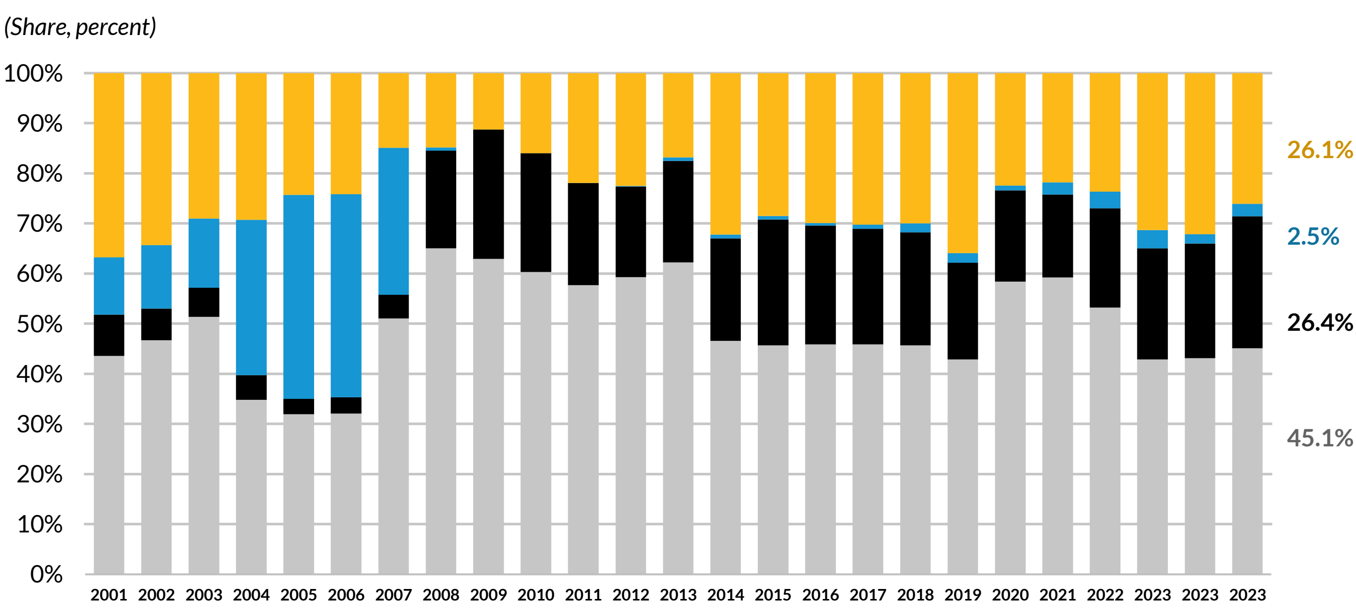
ORIGINATION VOLUME AND COMPOSITION

First Lien Origination Volume

Amid rising interest rates, mortgage origination volume totaled $385 billion in the third quarter of 2023, versus $505 billion for Q3 2022. The decline in originations largely reflects fewer refinance loans. The GSE share was lower in Q3 2023 at 45.1 percent, compared to 49.7 percent in Q3 2022. And portfolio originations made up 26.1 percent of total volume in Q3 2023, down slightly from 26.4 percent in Q3 2022. The PLS share was 2.5 percent in Q3 2023, up from 2.3 percent in Q3 2022 and the FHA/VA share in Q3 2023 stood at 26.4 percent, up from 21.6 percent in Q3 2022. However, while the shares of PLS and FHA/VA originations rose year-over-year, origination volume in each of these segments fell over the same period.



Sources: Inside Mortgage Finance and Urban Institute. Last updated November 2023.



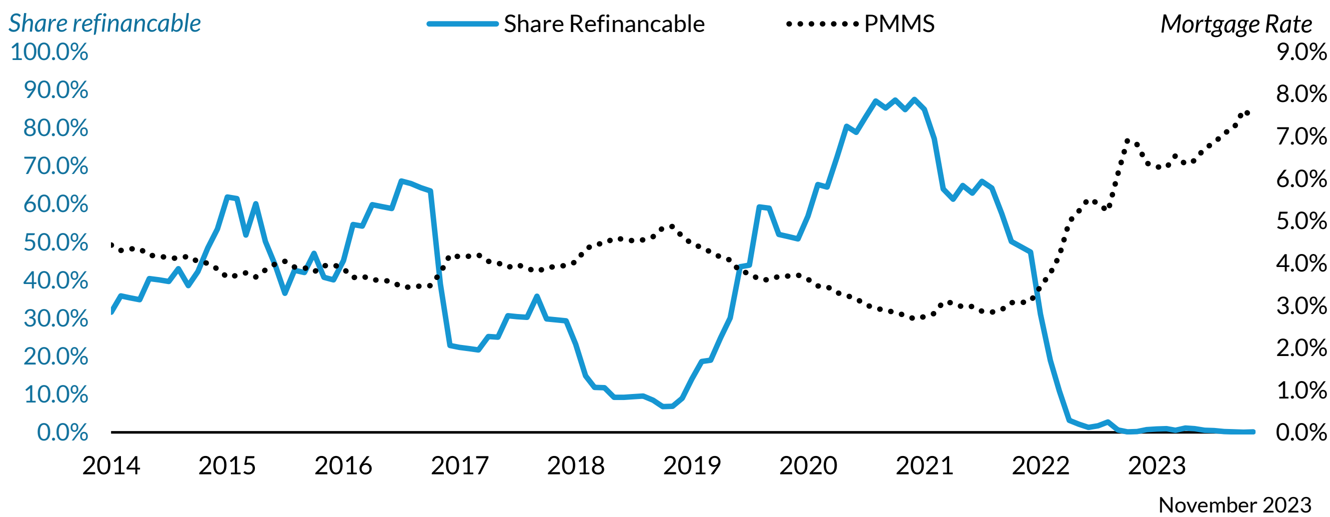
Sources: Inside Mortgage Finance and Urban Institute. Last updated November 2023.

OVERVIEW

REFINANCABLE MORTGAGES

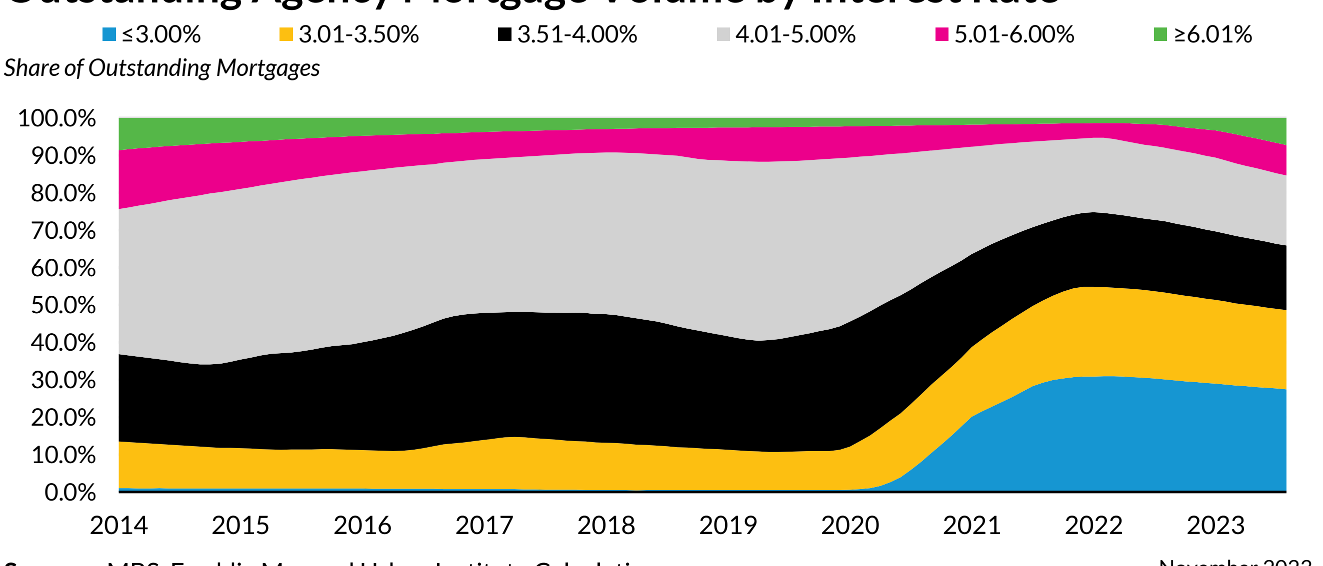
After peaking at 4.87 percent in November 2018, mortgage rates began to decline, falling to 2.68 percent in December 2020. Amid falling mortgage rates, the share of agency loans considered refinancable rose from 6.8 percent in October 2018 to 87.4 percent in December 2020. Lower mortgage rates contributed to a burst in refinancings over 2020, 2021 and the first four months of 2022. The share of agency mortgages with a rate less than 3.5 percent expanded significantly, from 11.0 percent in December 2019 to 54.9 percent in April 2022. As mortgage rates rose over 2022 and 2023, the share of agency mortgages considered refinancable plummeted to 3.21 percent in April 2022 and remains low at 0.15 percent in November 2023. Higher mortgage rates helped reduce both refinancability, with many current borrowers having already refinanced into lower rates, and homebuyer affordability. Reduced affordability largely reflects higher mortgage payments and low housing inventory as current homeowners are disincentivized to sell and give up their low-rate mortgages. Amid higher rates, the share of outstanding mortgage volume with a rate of 3.5 percent or less has declined by only 6.3 percentage points from a high of 54.9 percent in April 2022 to 48.6 percent in November 2023.

Refinancable Share of Agency Loans



Source: eMBS, Freddie Mac and Urban Institute Calculations
Note: Loans are counted as refinancable if the note rate is at least 50 basis points over the mortgage rate reported by Freddie Mac's Primary Mortgage Market Survey.

Outstanding Agency Mortgage Volume by Interest Rate



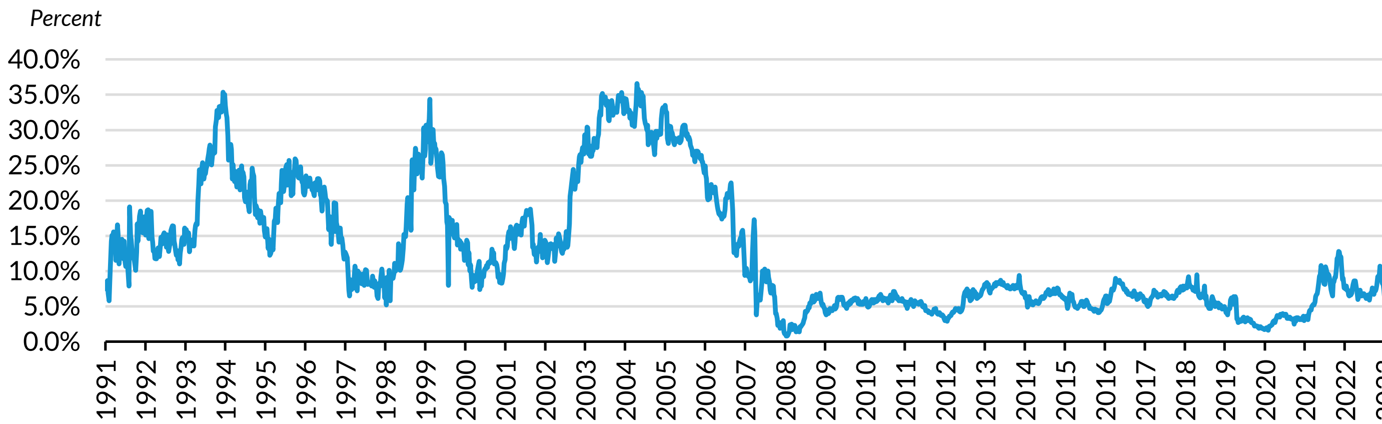
Source: eMBS, Freddie Mac and Urban Institute Calculations.

OVERVIEW

PRODUCT COMPOSITION AND REFINANCE SHARE

The adjustable-rate share of weekly mortgage applications varied widely in the 1990s and the early to mid-2000s, ranging from a low of 5 percent to a high of over 35 percent. From 2009 to early 2022, the ARM share remained very low, generally between 5 to 8 percent, as ultra-low rates persisted, and product risk was wrung out of the market following the housing bust. However, with rates rising substantially in 2022 and affordability worsening, the ARM share increased from 3.1 percent in the week ending January 7, 2022, to 12.8 percent as of the week ending October 14, 2022. After subsiding to 5.9 percent by July 21, 2023, the ARM share began another ascent peaking at 10.7 percent, but has since declined to 6.3 percent as of December 8, 2023, within its 2009-2018 range.

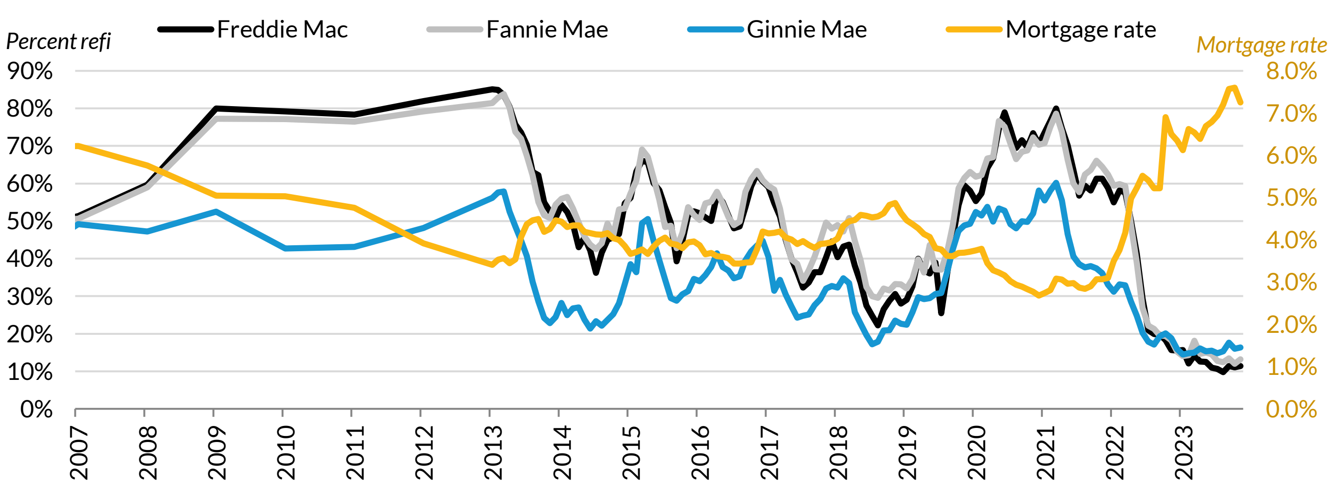
Adjustable-Rate Mortgage Share of Applications



Source: Mortgage Bankers Association (MBA) Weekly Mortgage Applications Survey.
Note: Includes purchase and refinance applications. Data updated through December 8, 2023.

Percent Refi at Issuance

Despite some monthly variation, from late 2018-though March 2021 the percent refi at issuance (refi share) generally increased for both the GSEs and for Ginnie Mae as interest rates dropped. Refinance originations reflect mortgage rates from 6-8 weeks earlier. Since April 2021, and in reaction to higher interest rates, the refi share has declined significantly. In November 2023, the Fannie Mae refi share increased to 13.2 percent, the Freddie Mac refi share was 11.4 percent, and the Ginnie Mae share was 16.3 percent. The refi share across the GSEs has declined much more than Ginnie Mae's as rates increased in 2022 and 2023. This has led to a rare reversal, where the Ginnie Mae refi share now exceeding that of the GSEs.

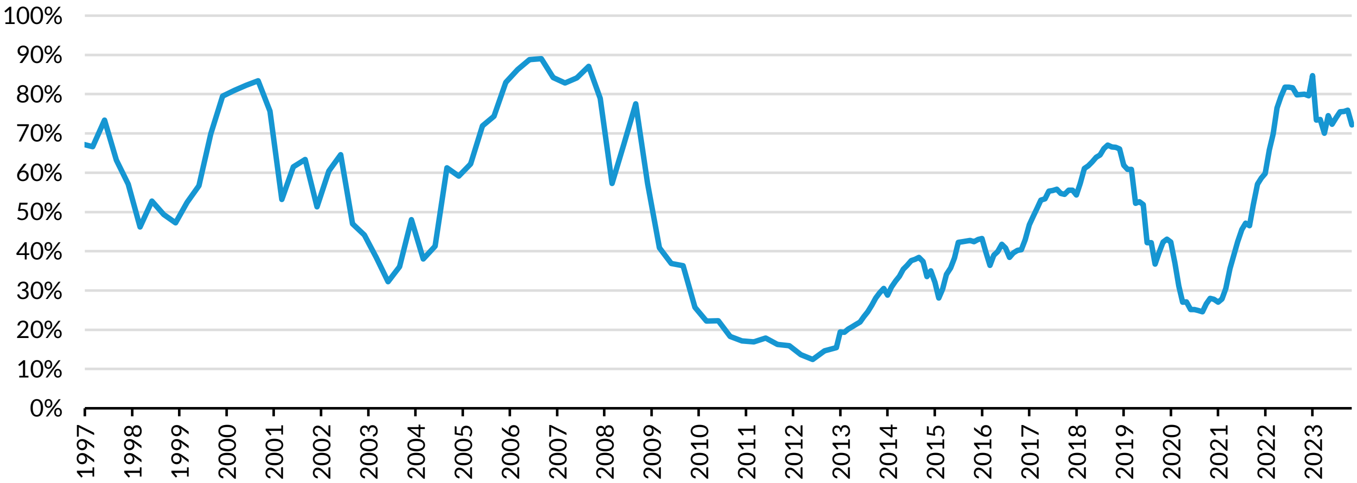


Sources: eMBS and Urban Institute.
Note: Based on at-issuance balance. Figure based on data from November 2023.

CASH-OUT REFINANCES

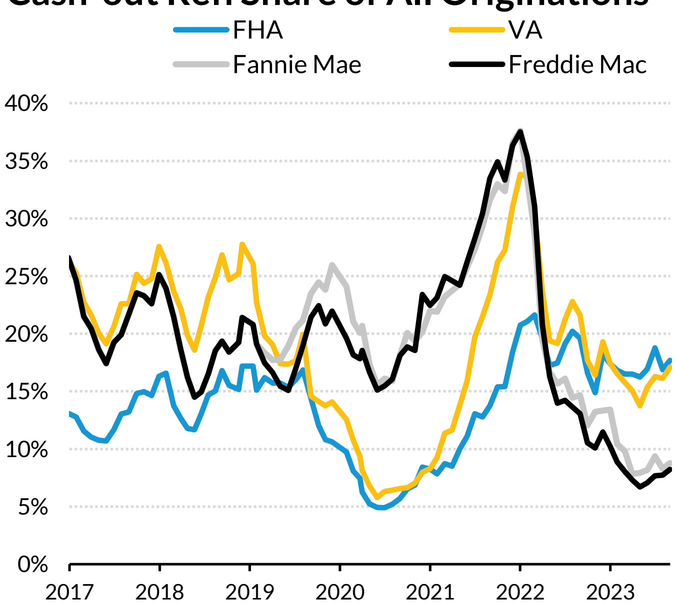
When mortgage rates are low, the share of cash-out refinances tends to be relatively smaller, as rate/term refinancing allows borrowers to save money by taking advantage of lower rates. But when rates are high, the cash-out refinance share is higher since the rate reduction incentive is gone and the only reason to refinance is to take out equity. The cash-out share of refinances generally declined in 2020, reaching 25 percent in September 2020 due to increased rate refinances amidst historically low rates. With rates rising dramatically and the bulk of rate-refinance activity behind us, the cash-out share increased to 84.8 percent as of January 2023 and is now trending between 70 and 80 percent. While the cash-out share of total refis remains elevated, the absolute volume of cash-out refinances is low. However, the cash-out refi share of total originations for Fannie Mae and Freddie Mac lags that of FHA and VA. While cash-out refinances may not be the optimal vehicle for home equity extraction, it may be the only way for lower credit borrowers to extract cash from their homes.

Cash-out Share of Conventional Refinances

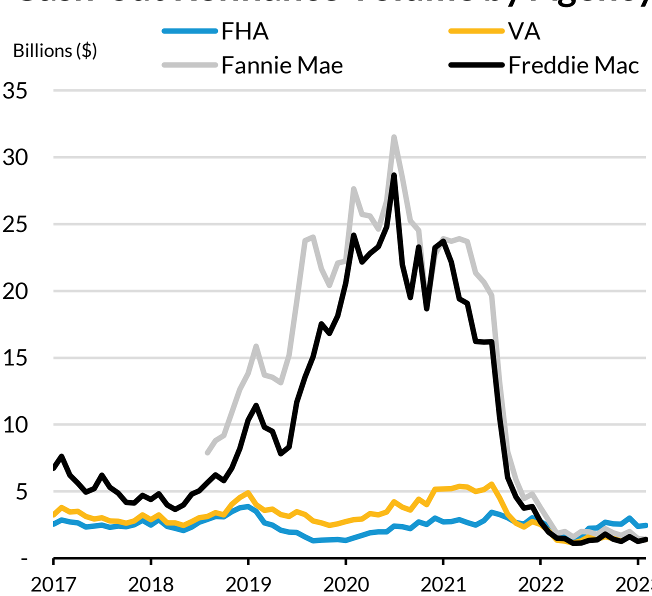


Sources: Freddie Mac, eMBS and Urban Institute.
Note: The cash-out share for conventional market is calculated using Freddie Mac's quarterly refinance statistics from 1995 to 2013. Post 2013 it is calculated monthly using eMBS. Data as of November 2023.

Cash-out Refi Share of All Originations



Cash-out Refinance Volume by Agency



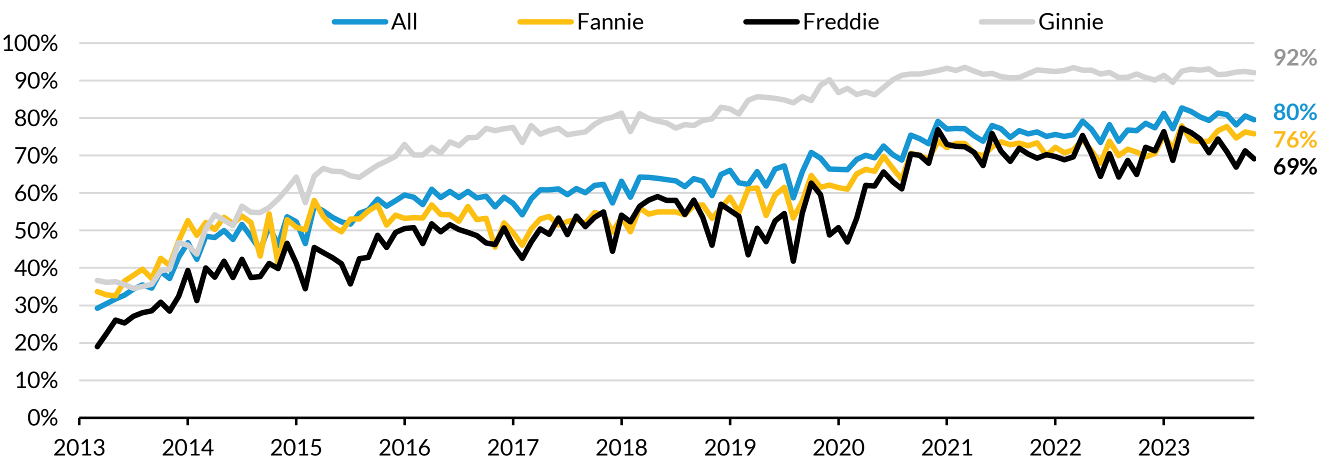
Sources: eMBS and Urban Institute
Note: Data as of October 2023. Fannie Mae started reporting cash-out volume in 2018.

OVERVIEW

AGENCY NONBANK ORIGINATION SHARE

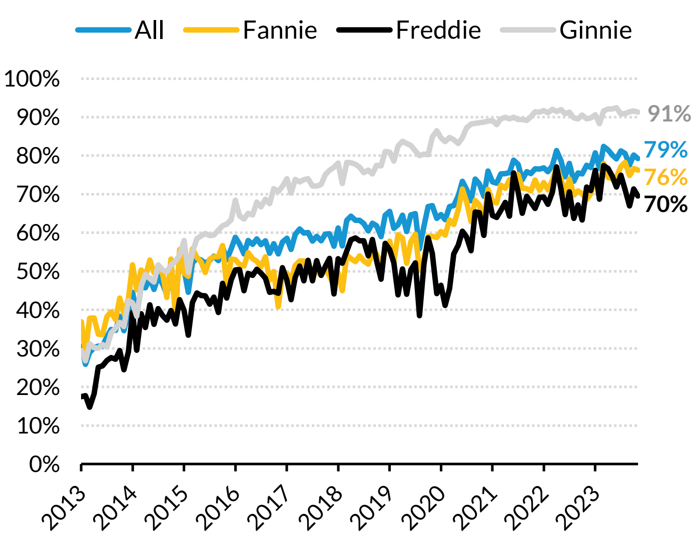
The nonbank share for agency originations has been rising steadily since 2013, standing at 80 percent in November 2023. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at 92 percent in November 2023. Fannie and Freddie had nonbank shares of 76 and 69 percent, respectively, in November 2023. Overall, nonbanks accounted for a larger share of refis than purchase loans. However, this reflected the greater nonbank share across Ginnie Mae refi loans. The nonbank purchase share was higher among both Fannie and Freddie purchase loans relative to refi loans in November 2023.

Nonbank Origination Share: All Loans



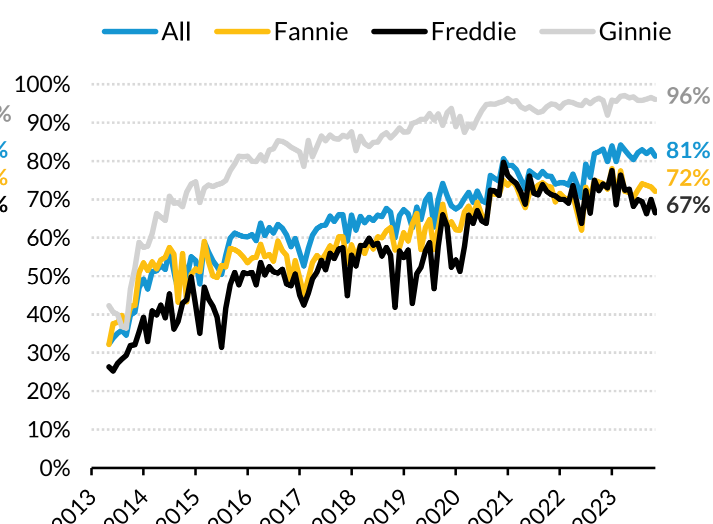
Sources: eMBS and Urban Institute.

Nonbank Origination Share: Purchase Loans



Sources: eMBS and Urban Institute.

Nonbank Origination Share: Refi Loans



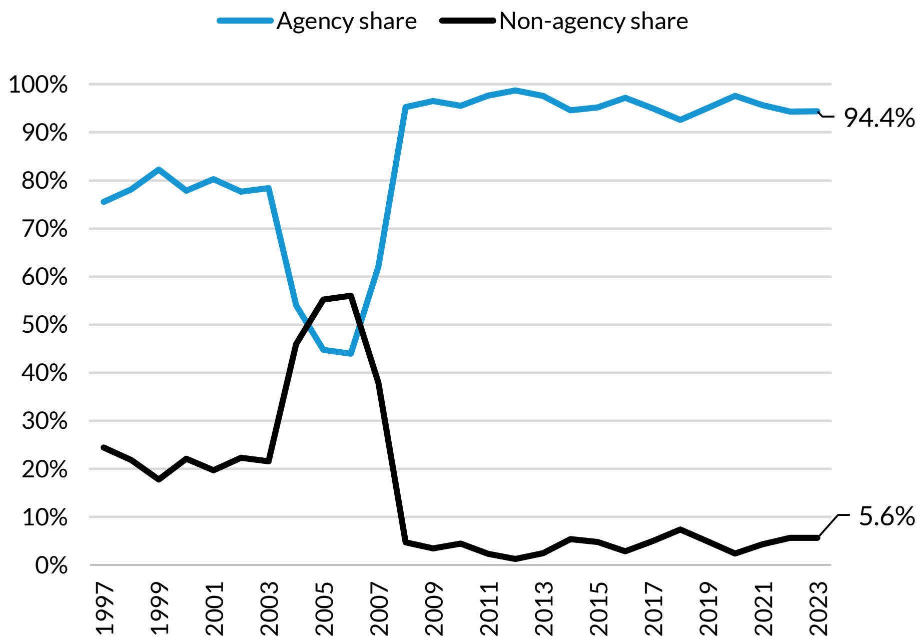
Sources: eMBS and Urban Institute.

OVERVIEW

SECURITIZATION VOLUME AND COMPOSITION

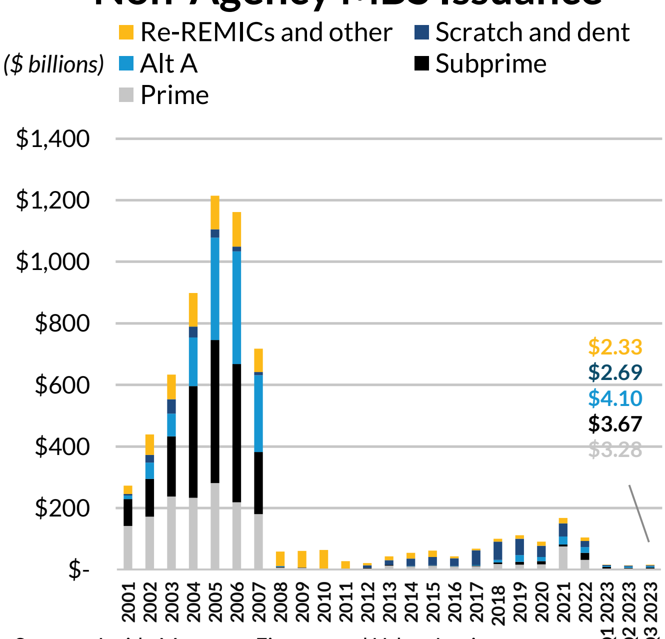
Agency/Non-Agency Share of Residential MBS Issuance

Since 2008, the agency and non-agency shares of residential MBS issuance have been oscillating within range. The non-agency share of mortgage securitizations increased gradually from 1.2 percent in 2012 to 7.4 percent in 2018. In 2020, the non-agency share dropped to 2.41 percent, reflecting increased agency refinances and less non-agency production due to COVID-19. The non-agency share more than doubled to 5.6 percent by November 2023. Despite a higher share, in dollar terms, non-agency issuance reached $16.1 billion in Q3 2023, a decrease relative to the $20.8 billion in Q3 2022 and $45.8 billion in Q3 2021. Non-agency securitization totaled $3.0 billion in November 2023, a significant decrease from October 2023, when it stood at $6.3 billion.



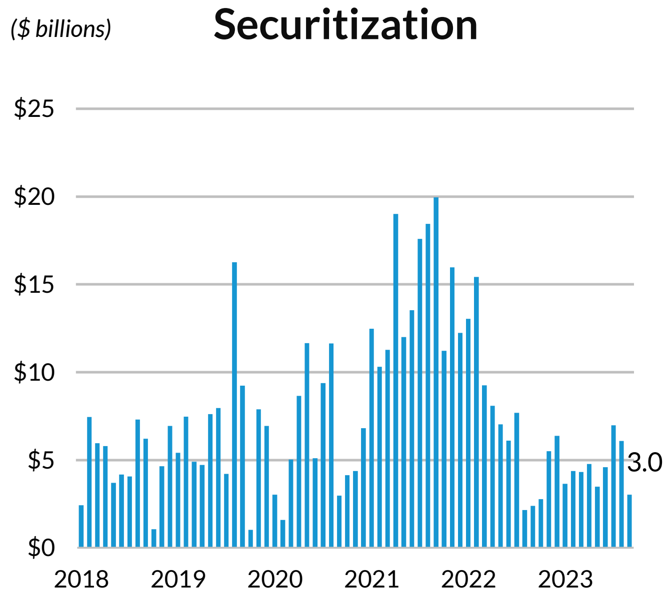
Sources: Inside Mortgage Finance and Urban Institute.
Note: Based on data from November 2023. Monthly non-agency volume is subject to revision.

Non-Agency MBS Issuance



Sources: Inside Mortgage Finance and Urban Institute.
Note: Data through September 2023.

Monthly Non-Agency Securitization



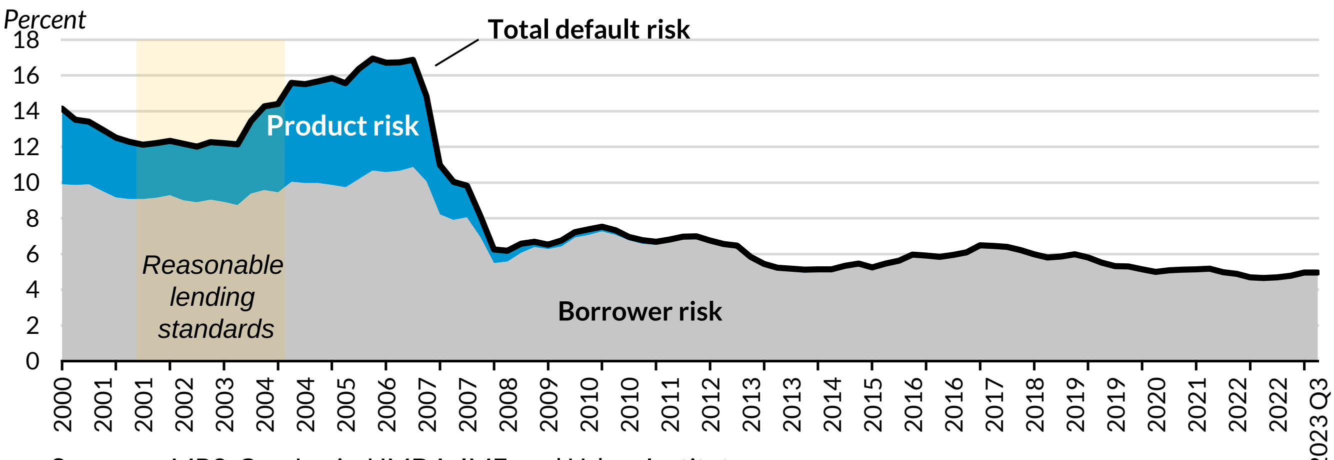
Sources: Inside Mortgage Finance and Urban Institute.

CREDIT BOX

HOUSING CREDIT AVAILABILITY INDEX

The Urban Institute's Housing Credit Availability Index (HCAI) assesses lenders' tolerance for both borrower risk and product risk, calculating the share of owner-occupied purchase loans that are likely to go 90+ days delinquent over the life of the loan. The HCAI stood at 4.96 percent in Q3 2023, down slightly from Q2 2023, but up year-over-year. The loosening from Q3 2022 to Q3 2023 reflects an increase in default risk driven by a 10 percent increase among portfolio and private label securities. The GSE channel was largely unchanged; but there was tightening in the government channel, with a nearly seven percent decline in default risk taken year-over-year. Note that we updated the methodology as of Q2 2020, see new methodology here. More information about the HCAI is available here.

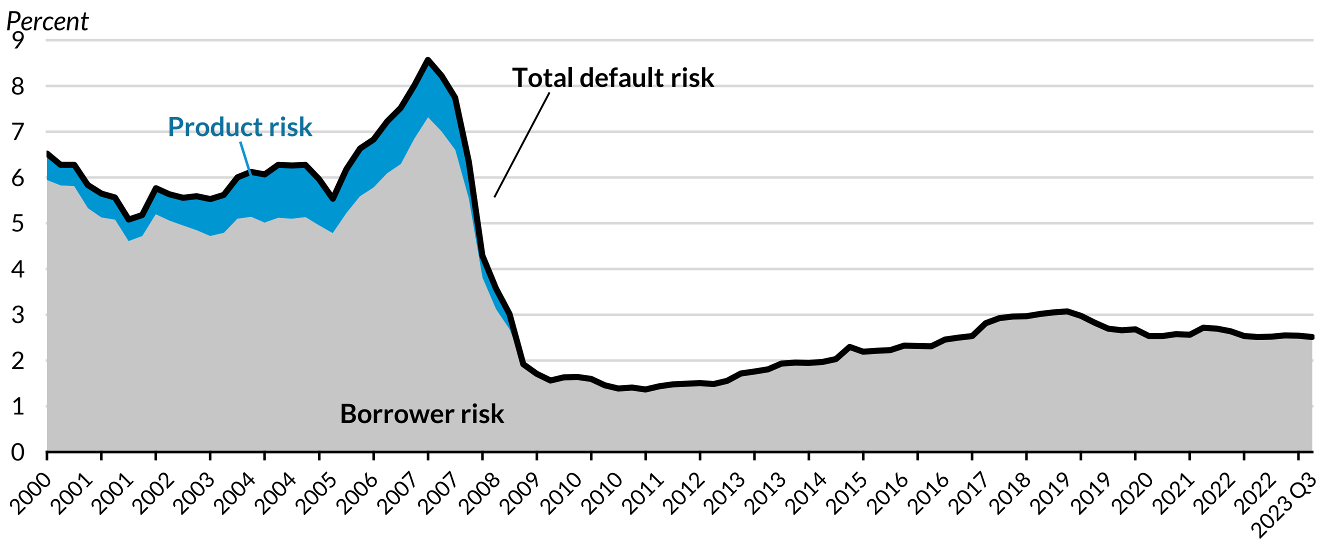
All Channels



Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.

GSE Channel

The trend toward greater credit availability in the GSE channel began in Q2 2011. From Q2 2011 to Q1 2019, the total risk taken by the GSE channel more than doubled, from 1.4 percent to 3.1 percent. This is still very modest by pre-crisis standards. However, accelerated tightening throughout 2020 induced by market conditions due to COVID-19 drove down credit risk to 2.5 percent in Q4 2020. The increase in Q1 2021, to 2.58 percent, marked the first expansion of credit availability in the GSE channel since Q1 2019. In Q3 2023, credit availability stood at 2.51 percent, at parity with availability in Q3 2022.



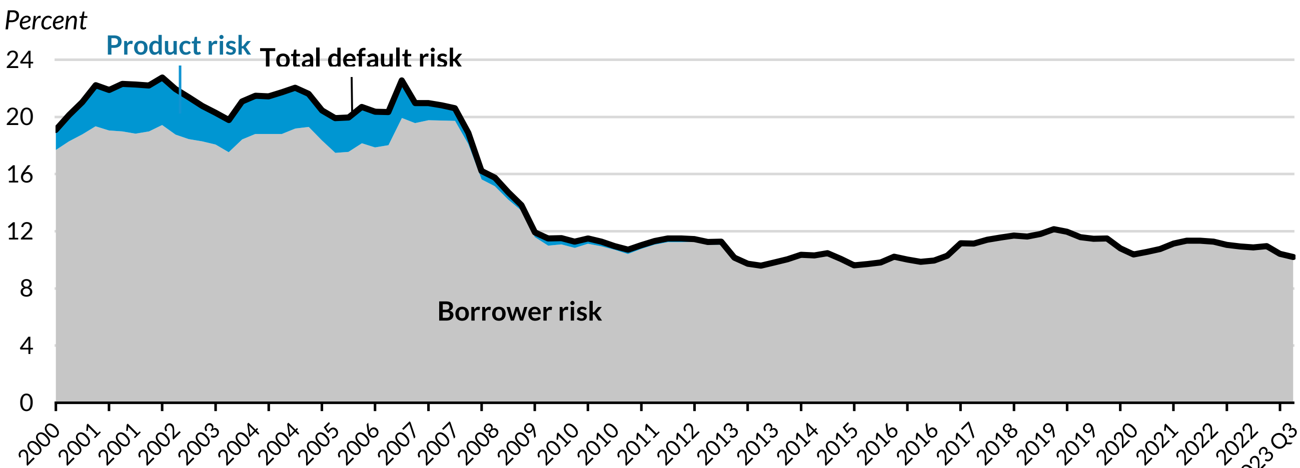
Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.
Note: Default is defined as 90 days or more delinquent at any point. Last updated December 2023.

CREDIT BOX

HOUSING CREDIT AVAILABILITY INDEX

Government Channel

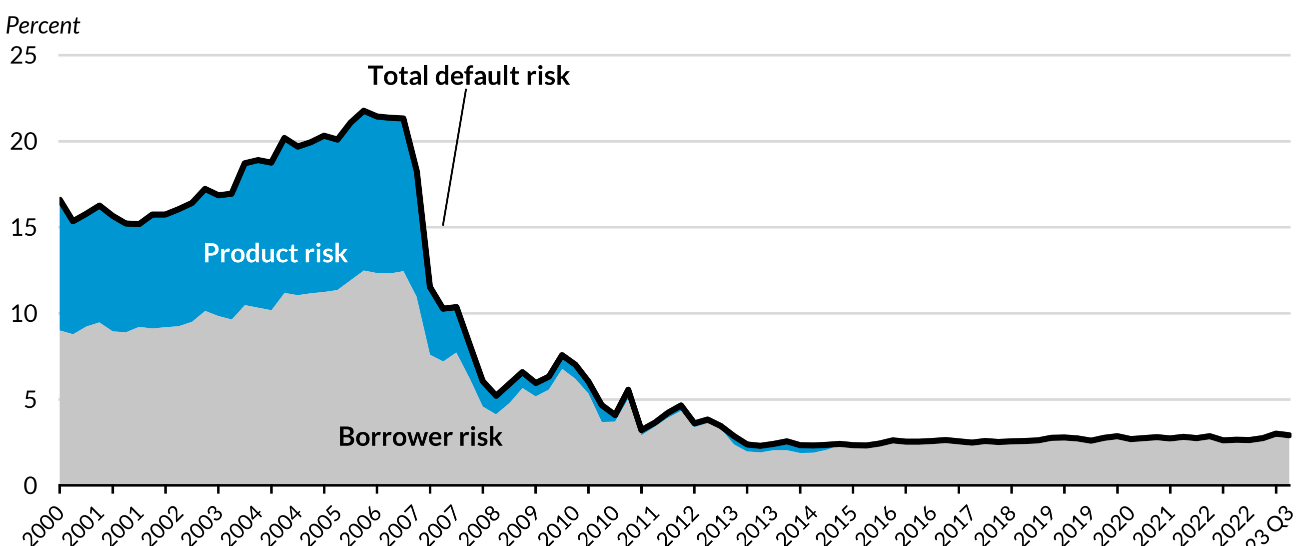
The total default risk the government loan channel is willing to take bottomed out at 9.6 percent in Q3 2013. It fluctuated in a narrow range at or above that number for three years. In the eleven quarters from Q4 2016 to Q1 2019, the risk in the government channel increased from 9.9 to 12.1 percent but has since receded. After declining to 10.4 percent in Q3 of 2020, the government channel had begun to increase risk to 11.3 percent up until Q1 2022 but has since dropped to 10.2 percent in Q3 2023; far below the pre-bubble level of 19 to 23 percent.



Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.

Portfolio and Private Label Securities Channels

The portfolio and private-label securities (PP) channel took on more product risk than the government and GSE channels during the bubble. After the crisis, the channel's product and borrower risks dropped sharply. The numbers have stabilized since 2013, with product risk well below 5.0 percent and total risk largely in the range of 2.3-3.0 percent. In the third quarter of 2023, PP risk was measured at 2.9 percent, up substantially from 2.7 percent a year ago. Overall, risk in the PP channel is a shadow of the default risk taken prior to the Great Financial Crisis.



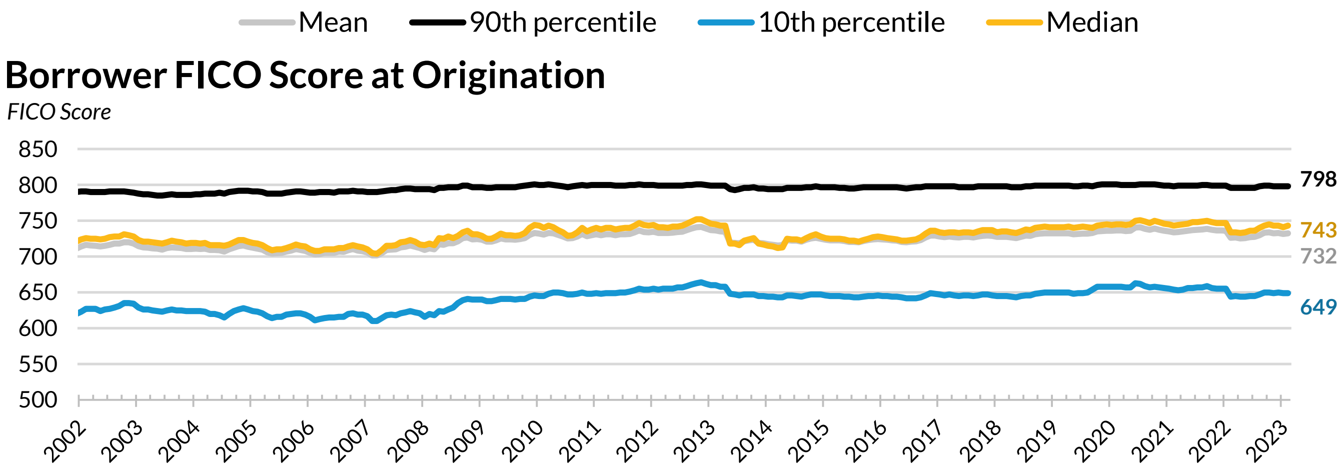
Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.
Note: Default is defined as 90 days or more delinquent at any point. Last updated December 2023.

CREDIT BOX

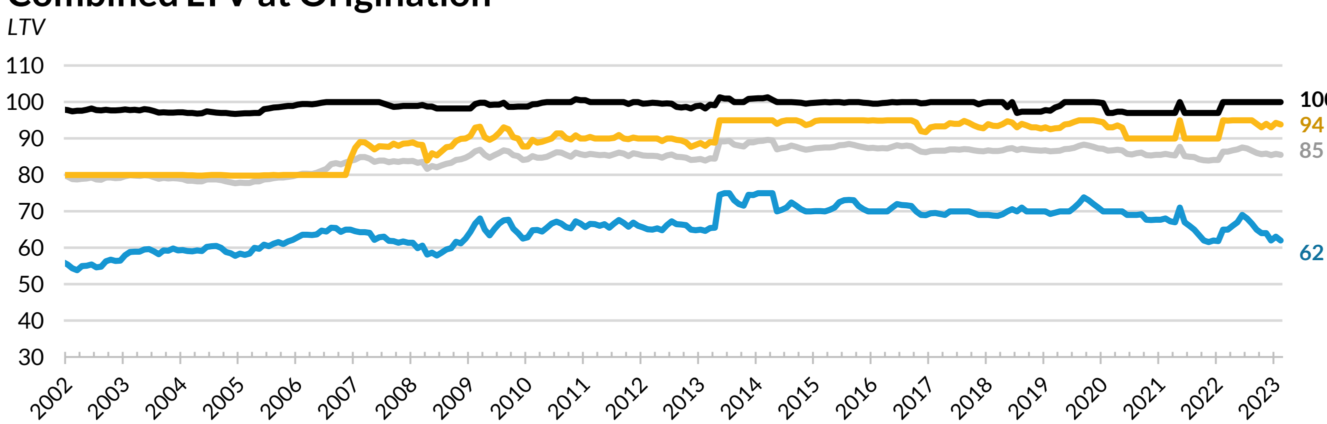
CREDIT AVAILABILITY FOR PURCHASE LOANS

Over 2023, credit standards have tightened, mostly across the FICO dimension, but remain broadly easier relative to the levels that prevailed in December 2021, just prior to the significant rise in interest rates. Median FICO score at origination in October 2023 was 743, just under its 745 level in December 2021. Median DTI was 43 percent, which remains above its December 2021 rate of 39 percent. Median LTV sits at 94 percent in October, above its December 2021 level of 90 percent.

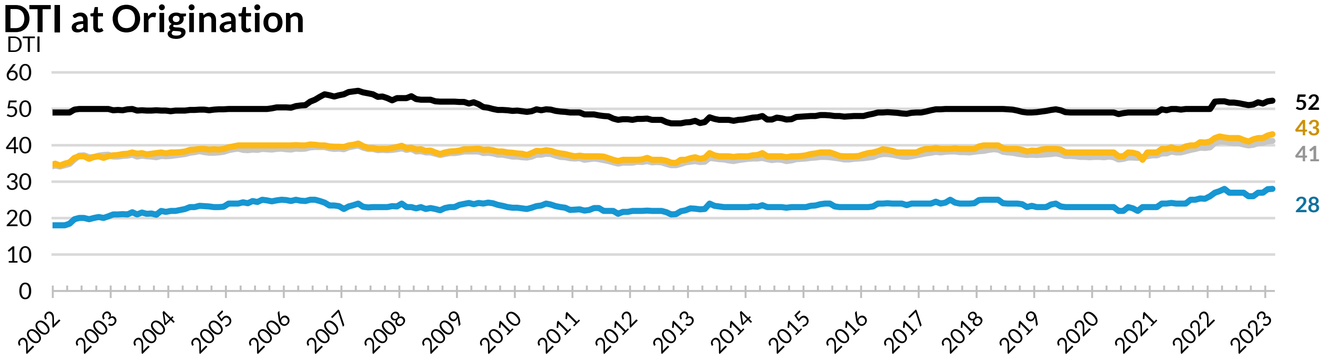
Borrower FICO Score at Origination



Combined LTV at Origination



DTI at Origination



Sources: Black Knight, eMBS, HMDA, SIFMA, CoreLogic and Urban Institute.

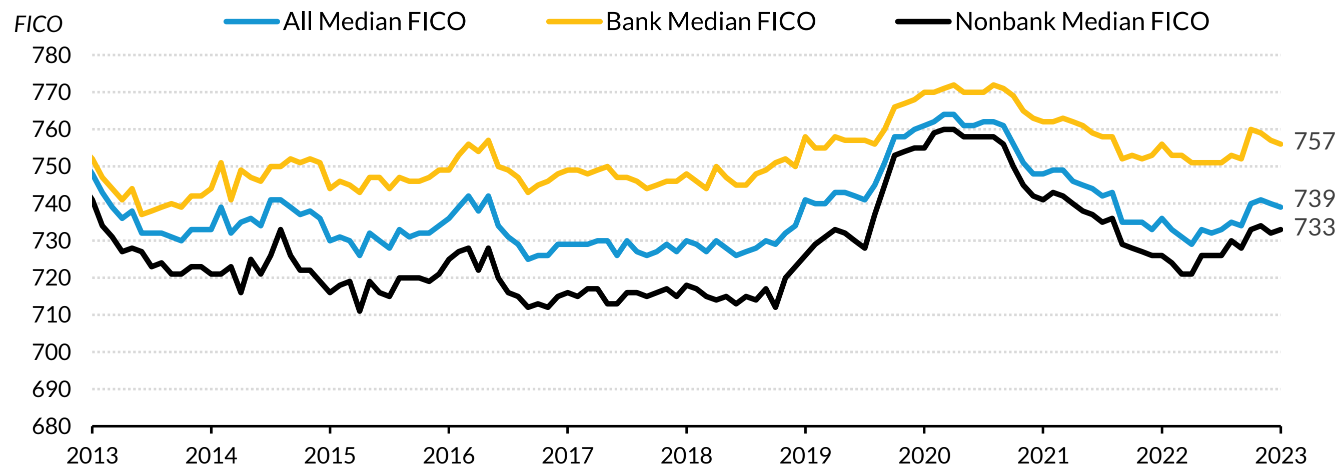
Note: Includes owner-occupied purchase loans only. DTI data prior to April 2018 is from CoreLogic; after that date, it is from Black Knight. A back-update to the Black Knight historical series was made in September 2021 for data starting from 2001 onward. Data as of October 2023.

CREDIT BOX

AGENCY NONBANK CREDIT BOX

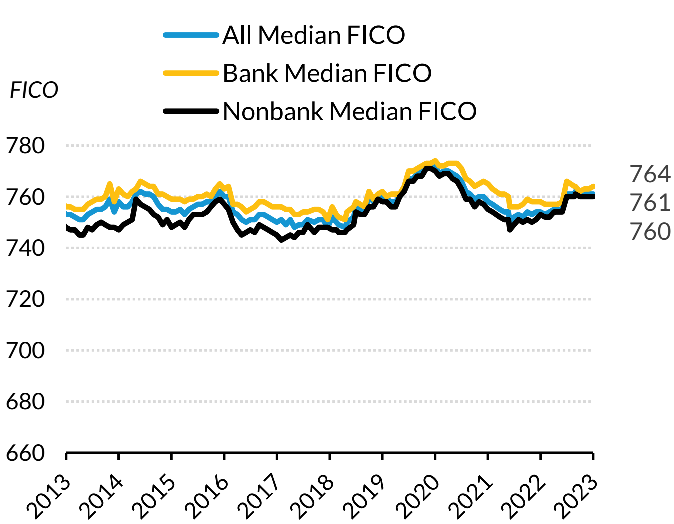
FICO scores for banks and nonbanks in both GSE and Ginnie Mae segments increased during the Q1 2019 to Q1 2021 period due to increased refi activity in response to lower rates; as refi activity tapered, FICO scores fell. Borrowers of refi loans typically have higher FICO scores than borrowers of purchase loans, which boosted median scores amid the most recent refi wave and reduced scores as rates rose. But after falling in 2021 and most of 2022, median FICO scores are higher over 2023, rising from 726 to 740, despite a sharp contraction in refinance activity. This likely reflects the fact that with affordability stretched due to the increases in interest rates and home prices, qualification often requires higher FICO scores to compensate. The gap between agency bank and nonbank FICOs reached 24 points in November 2023. The difference between the median FICO on bank and non-bank GSE loans stood at 4 points in November 2023. But across Ginnie Mae loans, the gap currently sits at 11 points. Due to the sharp cut-back in FHA lending by banks post-2008, banks now comprise only about 8 percent of Ginnie Mae originations.

Agency FICO: Bank vs. Nonbank



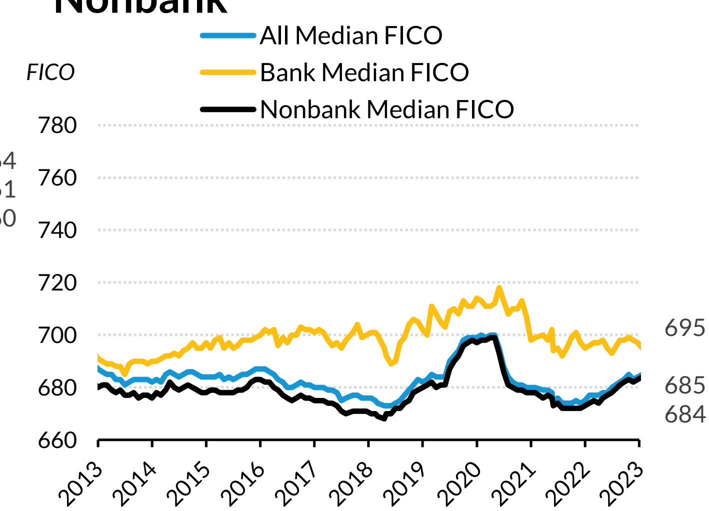
Sources: eMBS and Urban Institute.

GSE FICO: Bank vs. Nonbank



Sources: eMBS and Urban Institute.

Ginnie Mae FICO: Bank vs. Nonbank



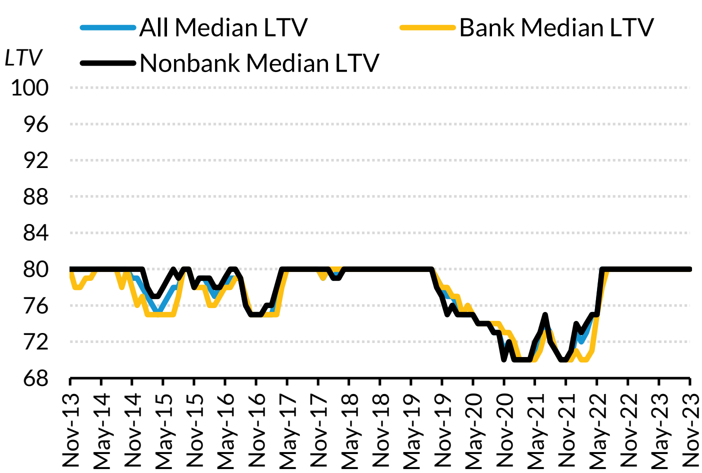
Sources: eMBS and Urban Institute.

CREDIT BOX

AGENCY NONBANK CREDIT BOX

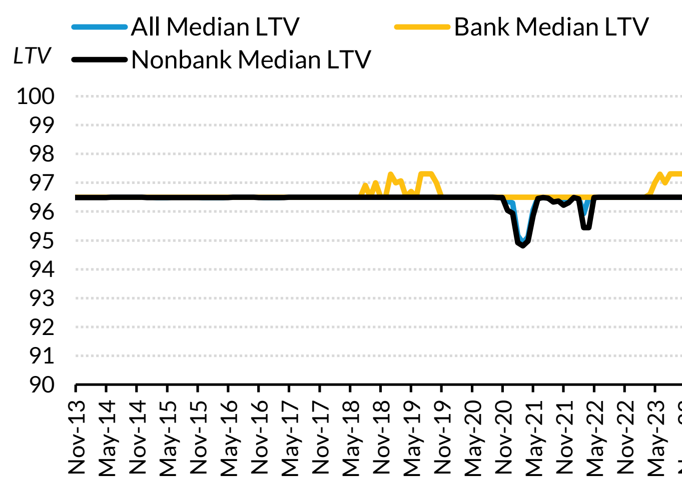
Nonbanks are more expansive in their lending than their bank counterparts, as indicated by higher back-end DTIs in both GSE and Ginnie Mae markets. From early 2017 to early 2019, there was a sustained increase in DTIs, which has reversed beginning in the spring of 2019. This is true for both Ginnie Mae and the GSEs, for banks and nonbanks. As interest rates in 2018 increased, DTIs rose, because borrower payments were driven up relative to incomes. As rates fell during most of 2019 and 2020, DTIs fell as borrower payments declined relative to incomes. Since March 2021, DTIs have increased, reflecting the rise in rates and elevated house price increases, both of which force households to borrow more in relation to income.

GSE LTV: Bank vs. Nonbank



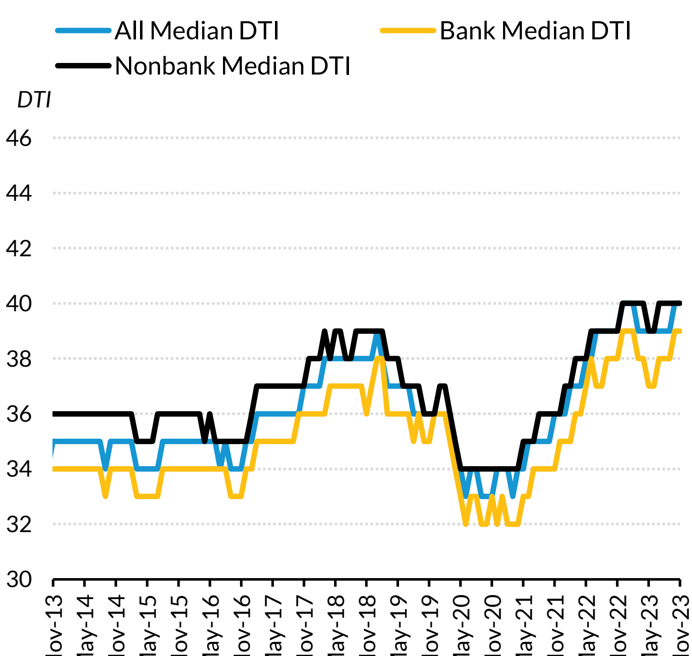
Sources: eMBS and Urban Institute.

Ginnie Mae LTV: Bank vs. Nonbank



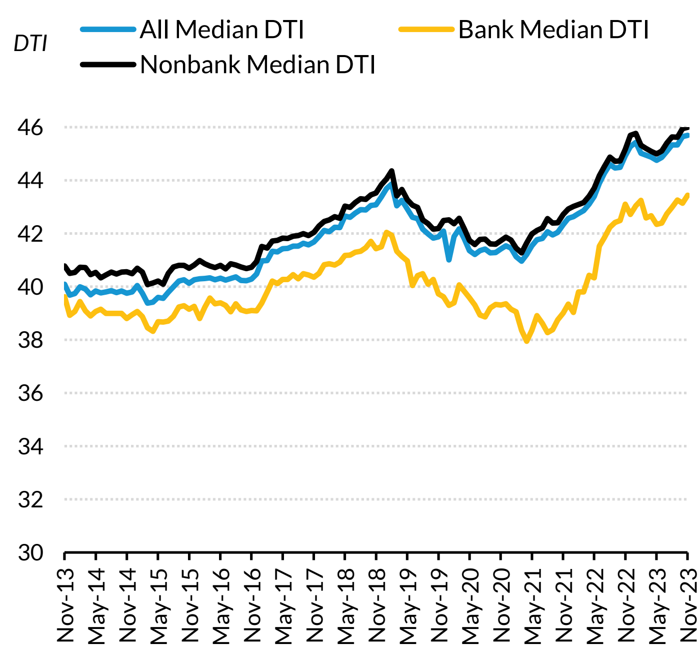
Sources: eMBS and Urban Institute.

GSE DTI: Bank vs. Nonbank



Sources: eMBS and Urban Institute.

Ginnie Mae DTI: Bank vs. Nonbank



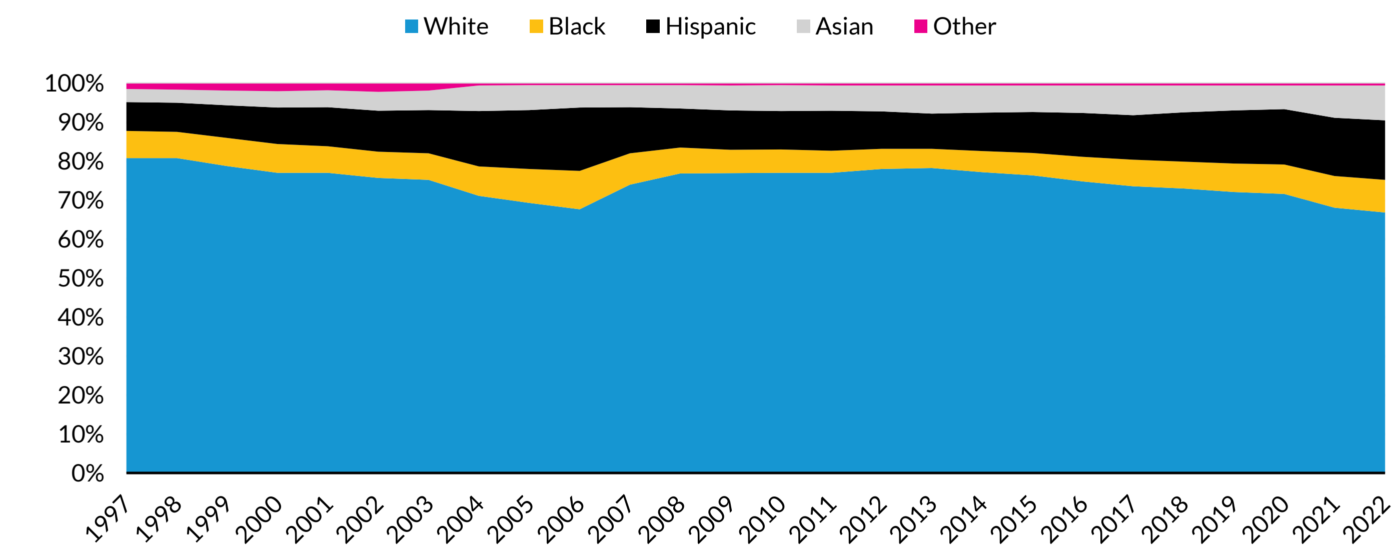
Sources: eMBS and Urban Institute.

STATE OF THE MARKET

RACIAL & ETHNIC COMPOSITION

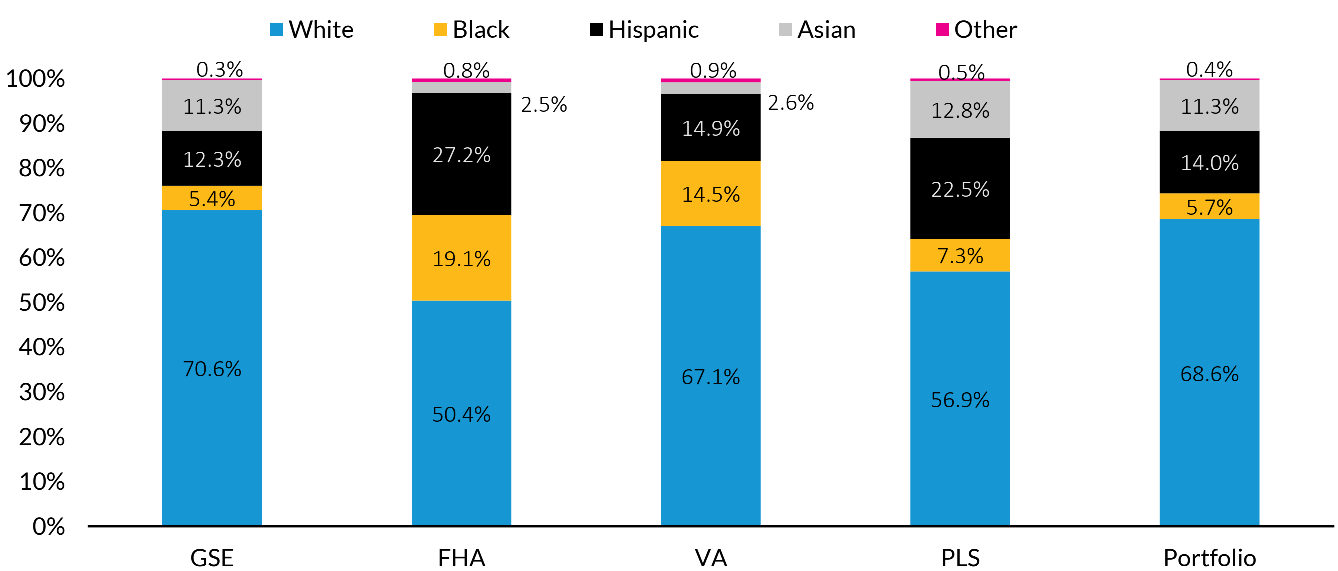
Across all channels, the share of purchase lending to applicants of color reached a peak of 32.3% in 2006. Following the Great Recession and amidst a period of very tight credit, the share of purchase loans extended to borrowers of color declined to a low of 21.7% in 2013. Since then, it has slowly recovered. In 2022, the borrower of color share stood at 33.1% in 2022, up from 31.8% in 2021. But the share of purchase lending to borrowers of color varied widely by channel in 2022. At 49.6 percent and 43.1 percent, respectively, borrowers of color accounted for a larger share of FHA and PLS purchase lending. Borrowers of color represented a smaller loans share in the GSE, Portfolio and VA channels, 29.4 percent, 31.4 percent and 32.9 percent, respectively.

2022 Purchase Loan Shares by Race



Source: 1997 to 2022 Home Mortgage Disclosure Act (HMDA).
Note: Includes purchase loans only. Shares based on loan counts

2022 Purchase Loan Channel Shares by Race



Source: 2022 Home Mortgage Disclosure Act (HMDA).
Note: Includes purchase loans only. Shares based on loan counts

MORTGAGE ORIGINATION PROJECTIONS

For the full year of 2023, both Fannie Mae and Mortgage Bankers' Association expect total origination volume to be below its level in 2022 continuing the decrease from the recent peak established in 2021. The lower full year projections of mortgage originations in 2023 is primarily due to the lower the refi share. A secondary contributing factor, as illustrated on page 21, is fewer home sales in 2023 relative to 2022. However, originations over full year 2024 are expected to exceed their 2023 level but are not projected to return to 2022 levels. Current projections for 2025 predict origination and refinance levels similar to those in 2022.

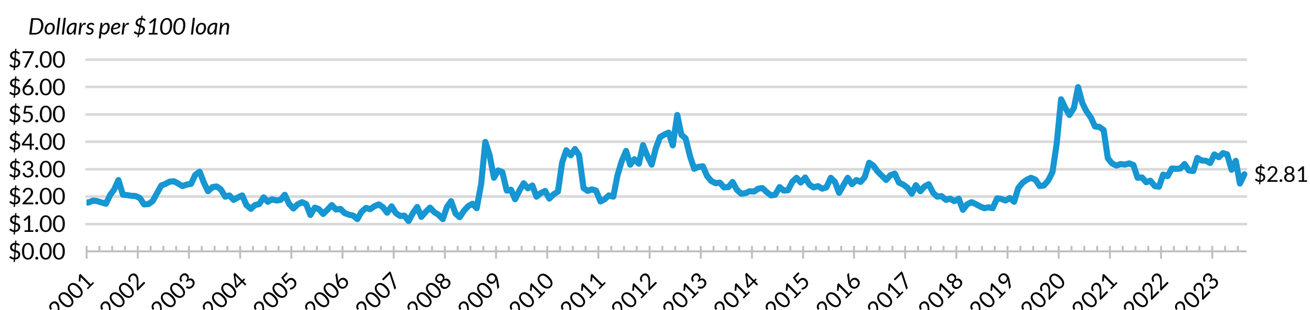
Total Originations and Refinance Shares

	Originations ($ billions)		Refi Share (percent)	
Period	Total, FNMA estimate	Total, MBA estimate	FNMA estimate	MBA estimate
2022 Q1	774	689	50	48
2022 Q2	683	678	27	33
2022 Q3	534	480	20	22
2022 Q4	396	398	17	19
2023 Q1	341	333	17	20
2023 Q2	430	463	16	20
2023 Q3	402	444	16	18
2023 Q4	355	399	16	19
2019	2462	2253	46	44
2020	4374	4108	64	64
2021	4570	4436	58	62
2022	2374	2245	31	33
2023	1528	1639	16	23
2024	1889	2001	24	29
2025	2308	2339	30	32

Sources: Fannie Mae, Mortgage Bankers Association and Urban Institute. Fannie Mae, as of December 2023.
Note: Shaded boxes indicate forecasted figures. All figures are estimates for total single-family (1-4 unit) market. Regarding interest rates, the yearly averages for 2017, 2018, 2019, 2020, 2021, and 2022 were 4.0, 4.6, 3.9, 3.0, 3.0, and 5.3 percent.

Originator Profitability and Unmeasured Costs

In November 2023, Originator Profitability and Unmeasured Costs (OPUC) stood at $2.81 per $100 loan, up from $2.47 per $100 loan in October 2023. Higher profitability seen in 2020 and early 2021 reflected lender capacity constraints amidst strong refi demand. Reduced profitability in 2022 reflected slower refinance activity, forcing originators to compete more aggressively on price. OPUC, formulated and calculated by the Federal Reserve Bank of New York, is a good relative measure of originator profitability. OPUC uses the sales price of a mortgage in the secondary market (less par) and adds two sources of profitability; retained servicing (both base and excess servicing, net of g-fees), and points paid by the borrower. As volumes decline, fixed costs are spread out over fewer loans, overstating the relative profitability. OPUC is generally high when interest rates are low, as originators are capacity constrained due to refinance demand and have no incentive to reduce rates. Conversely, when interest rates are higher and refi activity low, competition forces originators to lower rates, driving profitability down. While higher rates are limiting volume, originators are adapting to the new environment by slashing head counts and fixed costs.



Sources: Federal Reserve Bank of New York, updated monthly and available at this link: http://www.ny.frb.org/research/epr/2013/1113fust.html and Urban Institute. Last updated November 2023.
Note: OPUC is a is a monthly (4-week moving) average as discussed in Fuster et al. (2013).

STATE OF THE MARKET
HOUSING SUPPLY

Months' supply of existing homes, or the inventory of homes as a share of home sales, remains low, although higher than the record low levels seen in 2021. Despite some fluctuation, existing months' supply increased over much of 2022 and 2023. Over this period, existing inventory has increased by 3.8 percent while existing home sales have declined by 40.2 percent. Fannie Mae, the MBA, and the NAHB expect that housing starts over full year 2023 will lag its level in 2022. In 2024, industry forecasters expect housing starts to be lower than in 2023, with a rebound in 2025. Amid the lack of inventory, and reduced affordability, industry forecasters project fewer home sales over 2023. Industry forecasters expect marginally greater home sale volume in 2024 relative to 2023, but still well below 2022 levels. Forecasts for home sales in 2025 are much closer to volume in 2022.

Months' Supply

Source: National Association of Realtors and Urban Institute. Data as of November 2023.

November 2023

Housing Starts and Home Sales

Year	Housing Starts, thousands			Home Sales. thousands		
	Total, FNMA estimate	Total, MBA estimate	Total, NAHB estimate	Total, FNMA estimate	Total, MBA estimate	Total, NAHB estimate*
2017	1203	1208	1205	6123	6158	5520
2018	1250	1250	1247	5957	5956	5350
2019	1290	1295	1292	6023	6016	5431
2020	1380	1397	1397	6462	6506	5889
2021	1601	1605	1606	6891	6896	6189
2022	1553	1551	1551	5671	5740	5167
2023	1395	1396	1394	4785	4186	4364
2024	1277	1376	1336	4792	5130	4503
2025	1372	1449	1414	5387	5631	5022

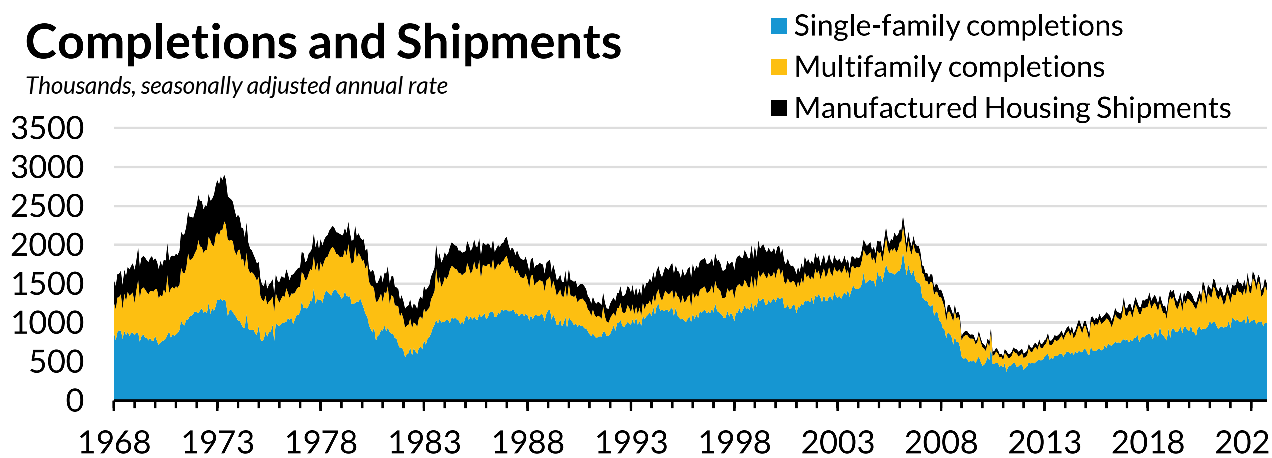
Sources: Mortgage Bankers Association, Fannie Mae, National Association of Home Builders and Urban Institute.
Note: Shaded boxes indicate forecasted figures; column labels indicate source of estimate.
*The NAHB home sales also excludes existing condos and co-ops reported by NAR.

New Residential Production

New residential production, including single-family and multifamily completions as well as manufactured housing shipments, reached a seasonally adjusted annual rate of 1.50 million units in October 2023, above its level in October 2022, 1.45 million units. Since reaching a low of 565 thousand units in January 2011, new production has risen by 166 percent. However, current production is still 37 percent lower than the peak March 2006 level of 2.38 million units. In October 2023, single-family completions are 48 percent lower than the March 2006 peak of 1.91 million units. Multifamily completions are 10 percent greater than their level in March 2006. Only 4.5 percent of multifamily units completed in 2023 Q3 were built-for-sale, down significantly from its 2007 Q2 peak of 43.9 percent. Amid higher interest rates, 69.2 percent of single-family completions were built for-sale in 2023 Q3, 7.0 percentage points lower than the share built for sale in 2022 Q3. The owner-occupied share of mobile homes fell from 2006 to 2014, but partially recovered in the ensuing years.

Completions and Shipments

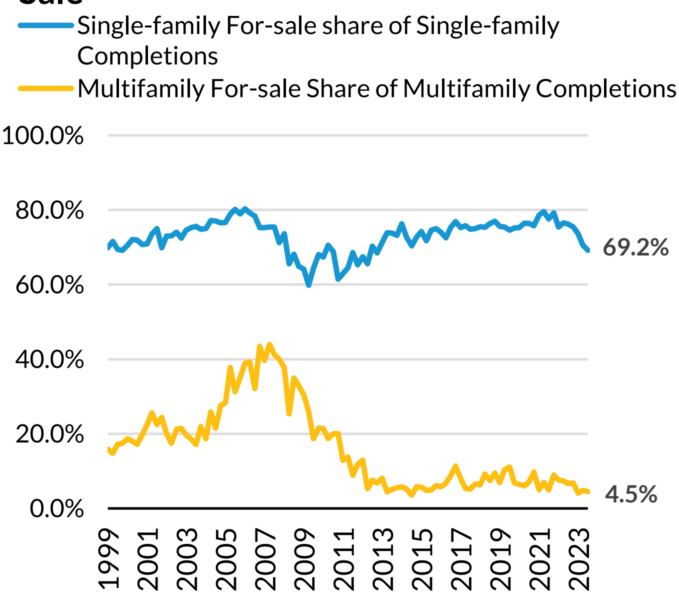
Thousands, seasonally adjusted annual rate



Source: Moody's Analytics, U.S. Census Bureau (BOC) and Urban Institute Calculations

October 2023

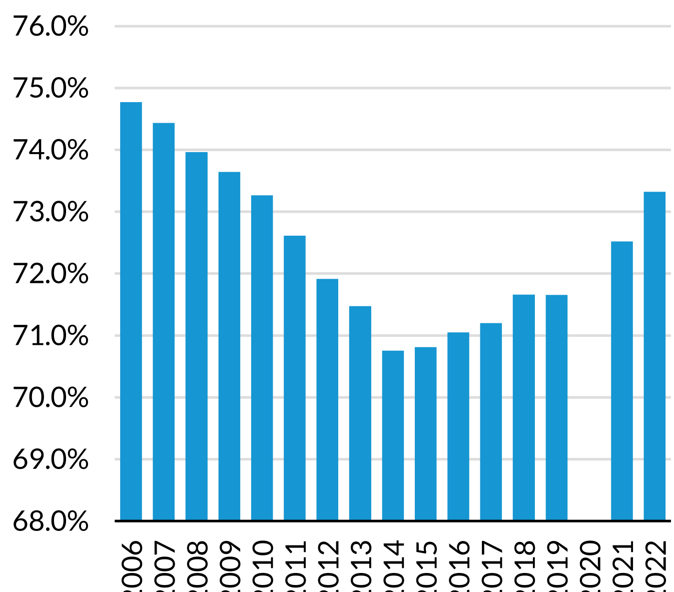
Share of Residential Completions Built For Sale



Source: U.S. Census Bureau (BOC) and Urban Institute Calculations.

September 2023

Owner-Occupied Share of Occupied Mobile Homes

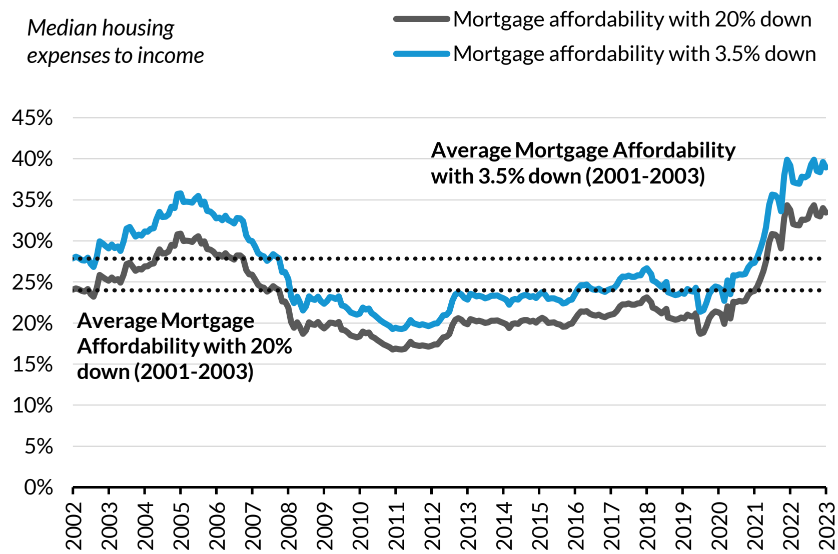


Source: 1-year American Community Survey.
Note: This data for 2020 is not available due to the pandemic.

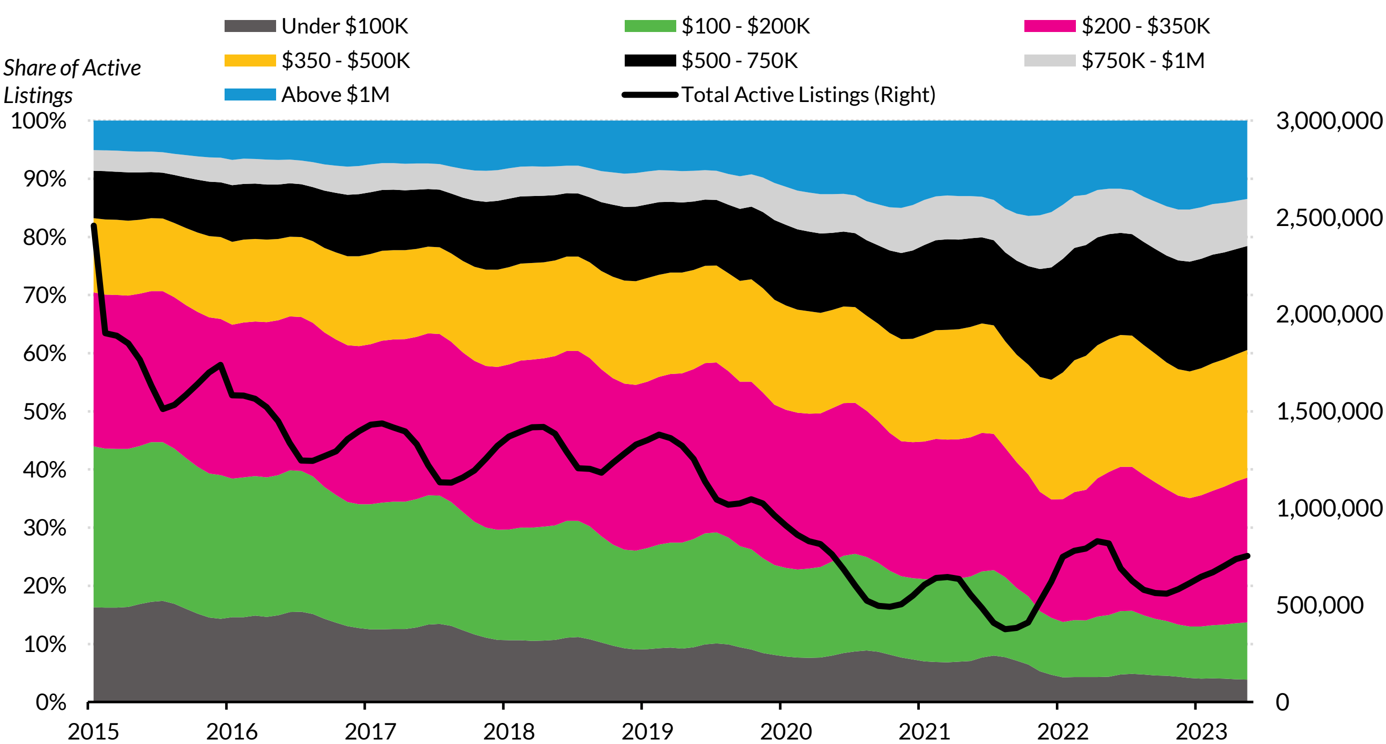
HOUSING AFFORDABILITY

National Mortgage Affordability Over Time

Mortgage affordability, while marginally better than in October, remains close to the worst level since the inception of this series in 2002. As of November 2023, with a 20 percent down payment, the share of median income needed for the monthly mortgage payment stood at 33.5% percent, higher than the 30.9 percent at the peak of the housing bubble in November 2005; and with 3.5 percent down the housing cost burden is 38.9 percent, also above the 35.8 percent prior peak in November 2005. As shown in the bottom picture, even amid seasonality, active listings have largely declined over time and the distribution has shifted markedly towards higher priced homes.



Active Listings by Price Tier Over Time

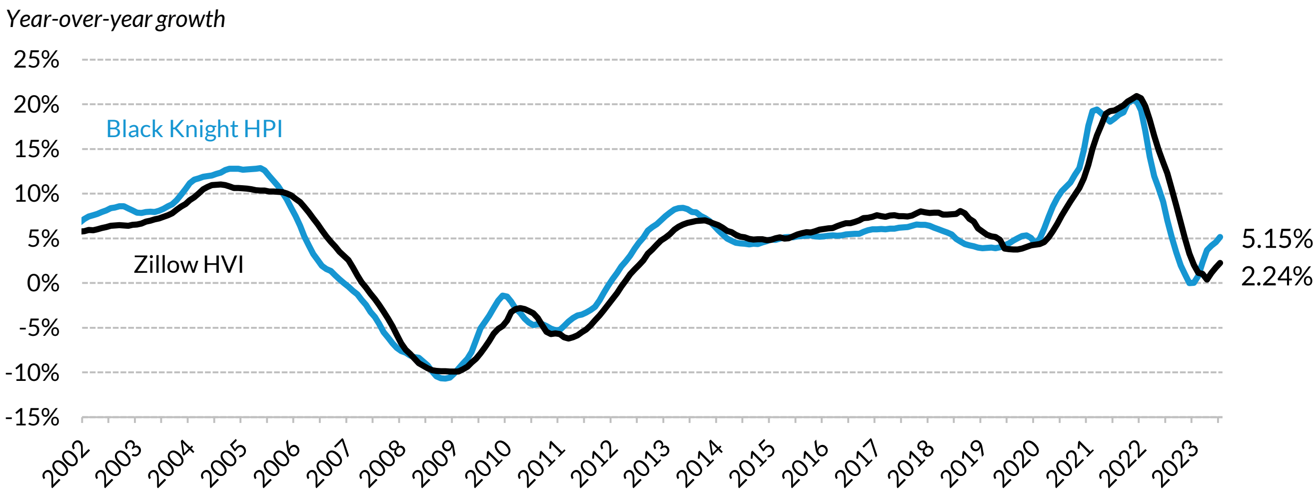


Sources: National Association of Realtors, US Census Bureau, Current Population Survey, American Community Survey, Moody's Analytics, Freddie Mac Primary Mortgage Market Survey, Realtor.com, and the Urban Institute.
Note: Mortgage affordability is the share of median family income devoted to the monthly principal, interest, taxes, and insurance payment required to buy the median home at the Freddie Mac prevailing rate for a 30-year fixed-rate mortgage and property tax and insurance at 1.75 percent of the housing value. Data for the bottom chart provided by Realtor.com as of November 2023.

HOME PRICE INDICES

National Year-Over-Year HPI Growth

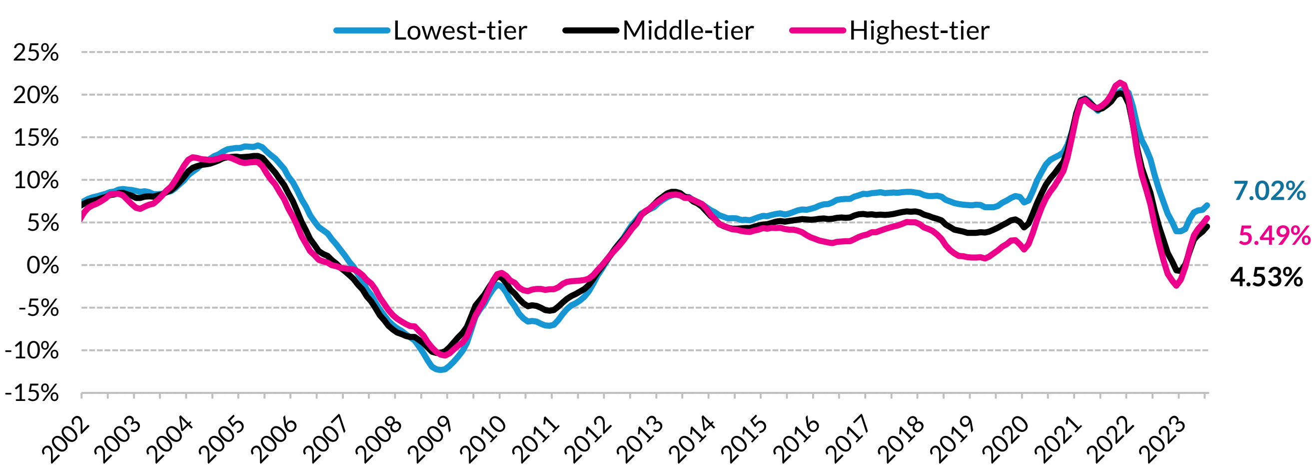
According to Black Knight's repeat sales index, year-over-year home price appreciation was 5.15 percent in November 2023, up from the previous month's 4.59 percent as home prices continue to rise. Year-over-year home price appreciation as measured by Zillow's hedonic home value index is similarly increasing and stands at 2.24 percent in November 2023, up from 1.75 percent in October. Affordability remains low amid the broad increase in home prices combined with a sharp rise in interest rates since 2022.



Sources: Black Knight, Zillow, and Urban Institute.
Note: Black Knight modified the methodology behind their HPI in February 2021, resulting in changes to historic price estimates.Data as of November 2023.

National Year-Over-Year HPI Growth by Price Tier

House price growth accelerated in the second half of 2020 into 2022 across all price tiers. With higher-priced homes experiencing steeper appreciation in 2020 and 2021, year-over-year growth in the highest-tier had surpassed the middle and lowest tiers by Feb 2022. With rates rising sharply in 2022, the rate of appreciation slowed, then dropped for all price tiers. After bottoming at the end of Q1 2023, home prices began to rise. As of November 2023, year-over-year house price appreciation is now positive and increasing at each tier. The greatest appreciation is at the lowest end of the market at 7.02 percent. Appreciation at the highest tier, which had been lowest since July 2022 has now surpassed appreciation of middle tier homes which now stand at 5.49 and 4.53 percent, respectively.

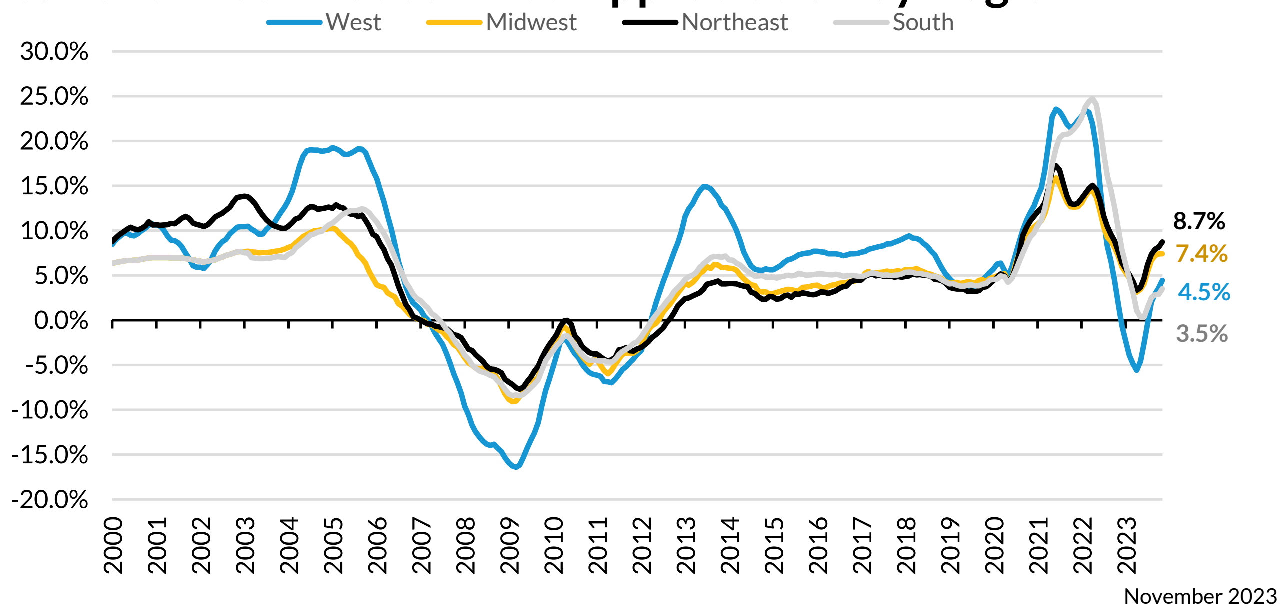


Sources: Black Knight and Urban Institute.
Note: Black Knight modified the methodology behind their HPI in February 2021, resulting in changes to historic price estimates. Data as of November 2023.

OVERVIEW
REGIONAL HOME PRICE INDICES

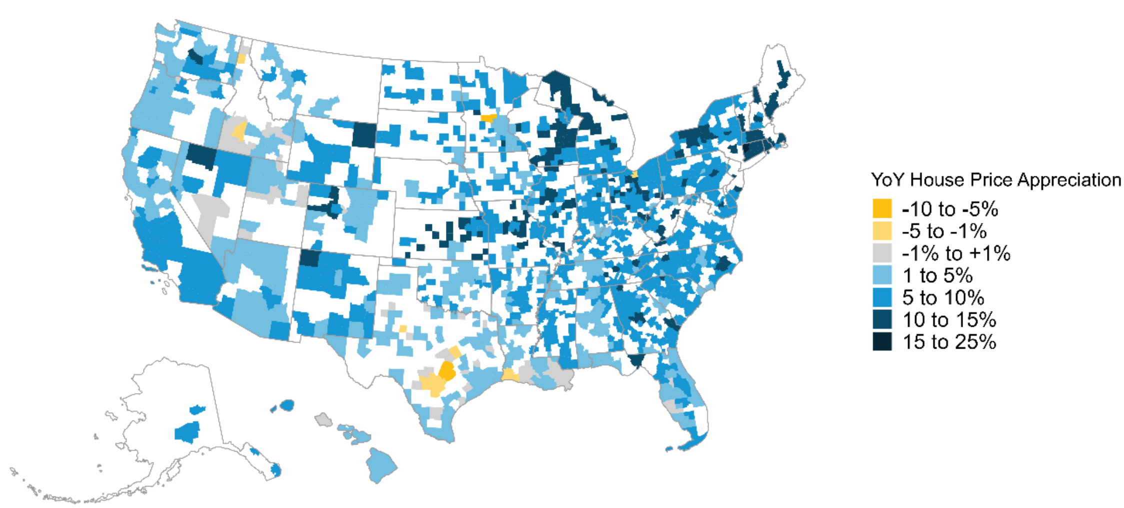
In November 2023, house prices in all regions of the country were higher than their level 12 months ago. The Northeast has the highest appreciation at 8.7 percent , followed closely by the Midwest at 7.4 percent. After lagging the rest of the US since July 2022, the West now has higher appreciation than the South at 4.5 and 3.5 percent, respectively. From 2020 to the first quarter of 2021, home prices rose sharply, led by the South and West. From Q2, 2022 to Q1, 2023, home prices fell for most of the country, with the most dramatic drops in the South and West. While house price performance across the South is traditionally not an outlier region compared to the other three regions of the country, house prices across the West are historically more volatile.

Year over Year House Price Appreciation by Region



Source: Black Knight and Urban Institute Calculations.

Year over Year House Price Appreciation by Metro and Micropolitan Areas

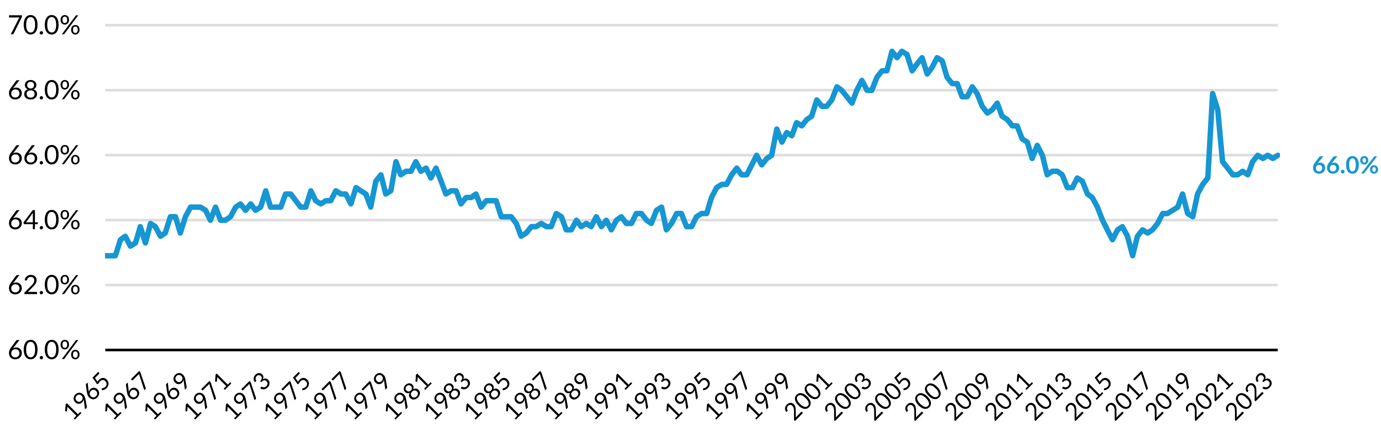


Source: Black Knight and Urban Institute Calculations.
Note: Data as of November 2023

OVERVIEW
HOMEOWNERSHIP RATES

In the third quarter of 2023, the homeownership rate was at 66.0 percent, close to the rate in the second quarter of 2023, 65.9 percent, and equal to the rate in the third quarter of 2022. After falling to 62.9 percent in the second quarter of 2016, the homeownership rate has begun to recover, but remains 3.0 percentage points below its first quarter of 2005 peak of 69.0 percent. By age groups, senior households are more likely to be homeowners relative to younger households. In addition, the homeownership rate for households 65 years old and above is closest to its 2000s peak levels. By race and ethnicity, white households are more likely to be homeowners relative to households of color. However, the homeownership rate among Hispanic households is closest to returning to its 2000s peak.

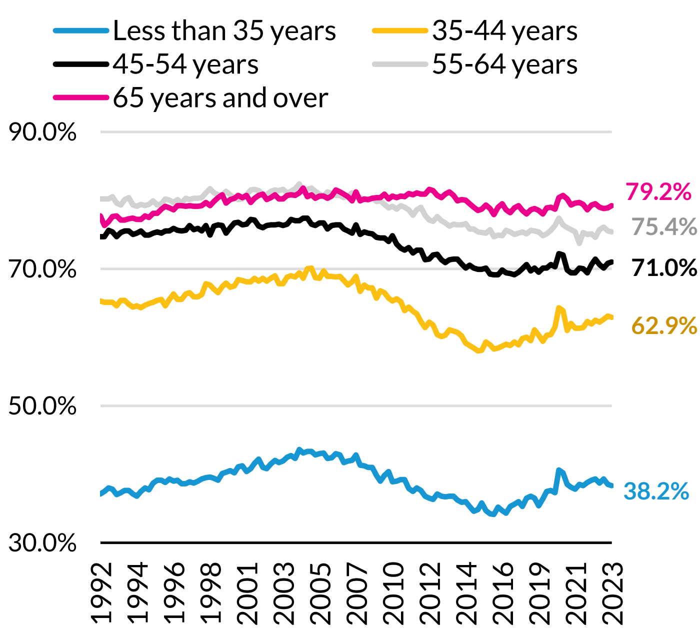
Overall Homeownership Rate



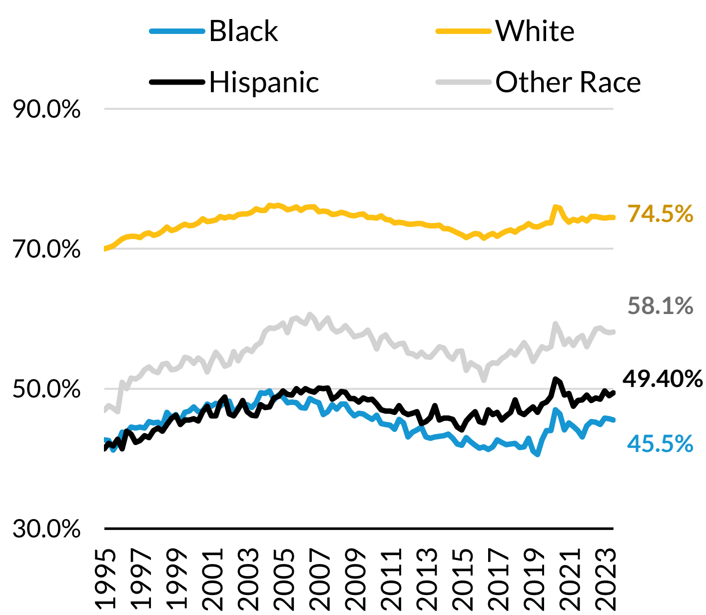
Source: Moody's Analytics, U.S. Census Bureau (BOC) and Urban Institute Calculations.
Note: Data from 2020 and 2021 is poor due to low response rates during the pandemic.

September 2023

Homeownership by Owner Age



Homeownership Rate by Race/Ethnicity

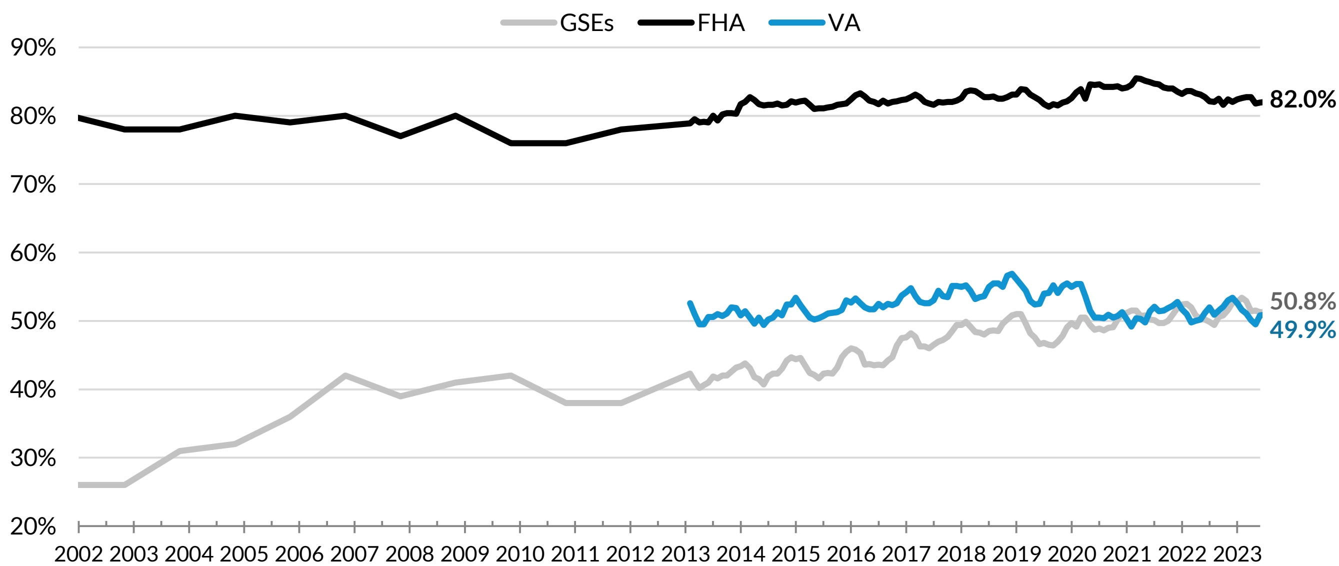


Source: U.S. Census Bureau (BOC) and Urban Institute Calculations.

FIRST-TIME HOMEBUYERS

First-Time Homebuyer Share

In October 2023, the FTHB share for FHA, which has always been more focused on first time homebuyers, was 82.0 percent. The FTHB share of GSE lending in September was 50.8 percent; the VA share was 49.9 percent. The bottom table shows that based on mortgages originated in October 2023, the average FTHB was more likely than an average repeat buyer to take out a smaller loan, have a lower credit score, and have a higher LTV.



Sources: eMBS, Federal Housing Administration (FHA), and Urban Institute.
Note: All series measure the first-time homebuyer share of purchase loans for principal residences.

October 2023

Comparison of First-Time and Repeat Homebuyers, GSE and FHA Originations

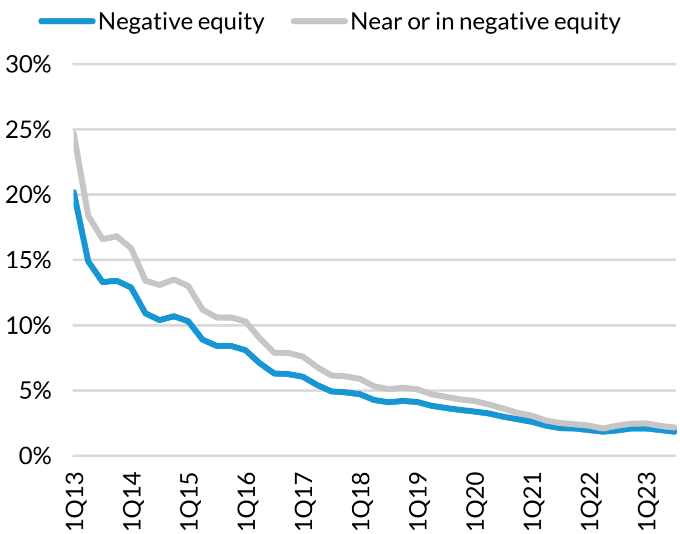
	GSEs		FHA		GSEs and FHA	
Characteristics	First-time	Repeat	First-time	Repeat	First-time	Repeat
Loan Amount ($)	$335,527	$356,892	$316,355	$324,658	$329,605	$359,618
Credit Score	750	761	687	686	723	746
LTV (%)	84	74	95	92	89	80
DTI (%)	38	39	45	47	42	41
Loan Rate (%)	7.20	7.20	6.85	6.84	7.03	7.07

Sources: eMBS and Urban Institute.
Note: Based on owner-occupied purchase mortgages originated in October 2023.

DELINQUENCIES AND LOSS MITIGATION ACTIVITY

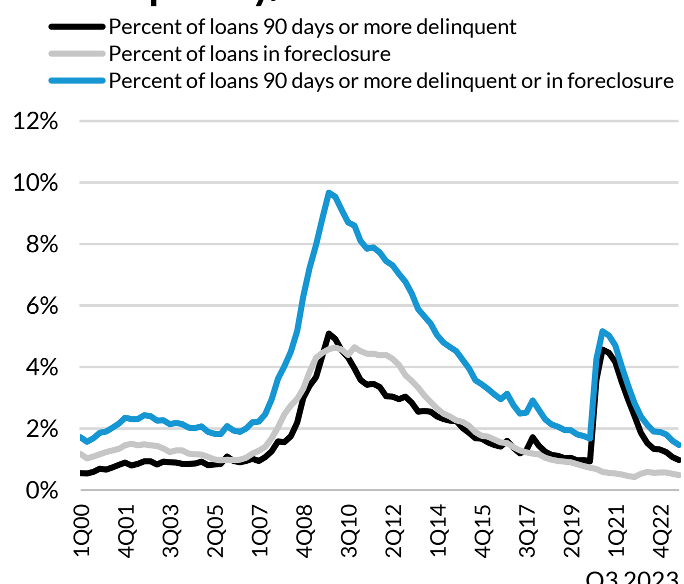
The share of loans in and near negative equity decreased slightly from 2.3 percent in Q2 2023 to 2.2 percent in Q3. In the third quarter of 2023, the composition of loans in or near negative equity consisted of approximately 1.8 percent with negative equity, and 0.3 percent between zero and 5 percent equity. The share of loans that are 90 days or more delinquent or in foreclosure decreased by 13 basis points, from 1.60 percent in Q2 2023 to 1.47 percent in Q3 2023 reflecting a decrease in the share of mortgages 90 or more days delinquent; the foreclosure rate has stabilized. This number includes loans where borrowers have missed their payments, including loans in COVID-19 forbearance. The bottom chart shows the share of loans in forbearance according to the MBA Weekly Forbearance and Call Volume Survey, launched in March 2020. After peaking at 8.55 percent in early June 2020, the total forbearance rate declined to 2.06 percent as of October 31st, 2021, the final week of the call survey. The MBA has since moved to conducting a monthly survey with the most recent forbearance rate decreasing 3 basis points to 0.26 percent as of November 30, 2023. GSE loans have consistently had the lowest forbearance rates, standing at 0.16 percent at the end of November. The most recent forbearance rate for Other (e.g., portfolio and PLS) loans was 0.30 percent; Ginnie Mae loans had the highest forbearance rate at 0.47 percent.

Negative Equity Share



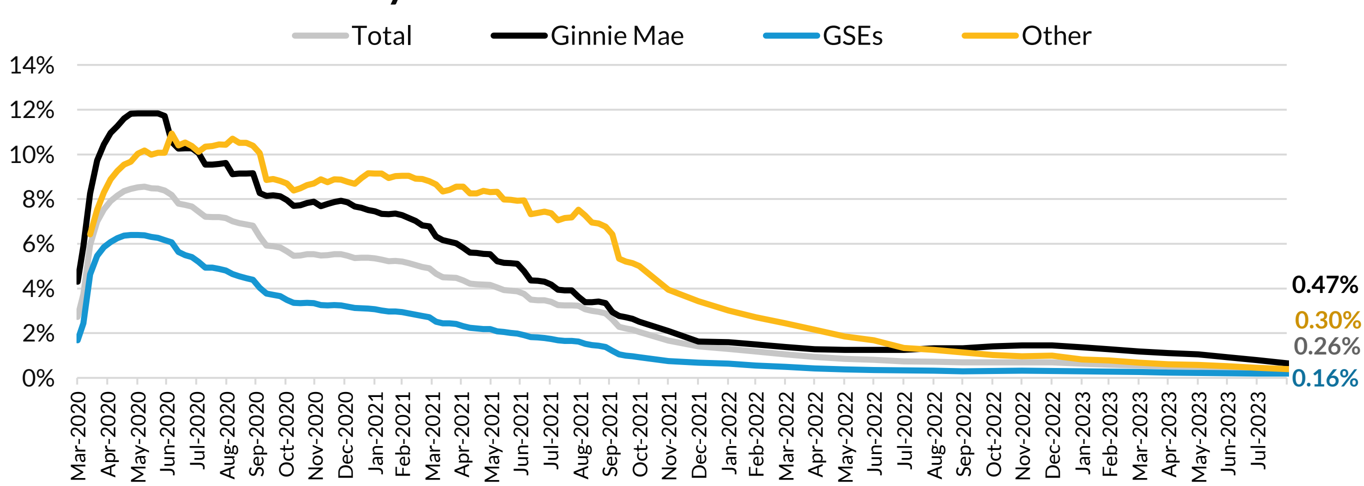
Sources: CoreLogic and Urban Institute.
Note: Loans with negative equity refer to loans above 100 percent LTV. Loans near negative equity refer to loans above 95 percent LTV. *Last updated December 2023.*

Loans in Serious Delinquency/Foreclosure



Sources: Mortgage Bankers Association and Urban Institute. *Last updated November 2023.*

Forbearance Rates by Channel



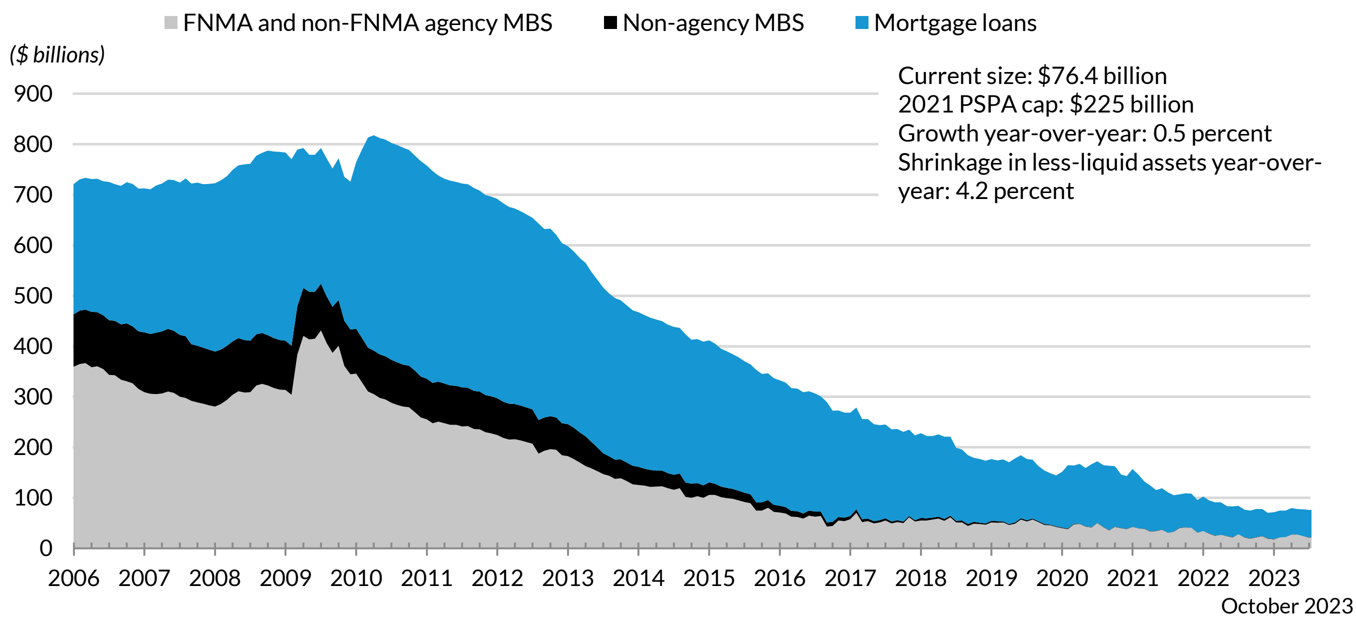
Source: MBA Weekly Forbearance and Call Volume Survey. *Forbearance rates as of November 30th, 2023*

GSES UNDER CONSERVATORSHIP

GSE PORTFOLIO WIND-DOWN

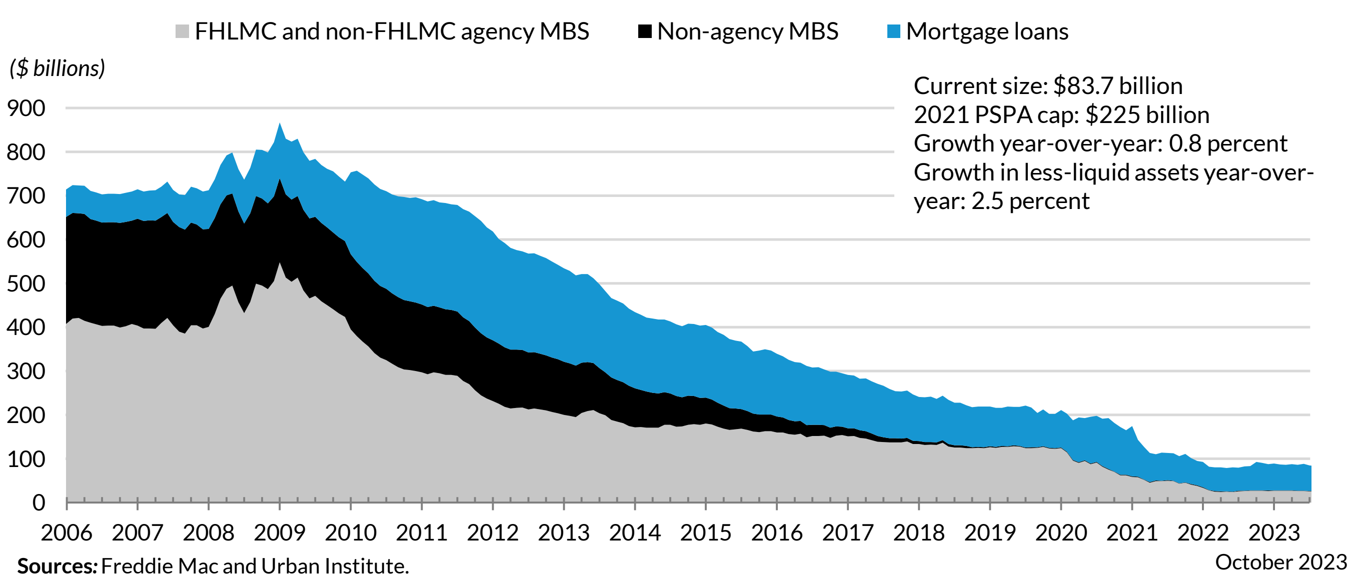
The Fannie Mae and Freddie Mac portfolios remain well below the $225 billion cap mandated in January 2021 by the new Preferred Stock Purchase Agreements (PSPAs). From October 2022 to October 2023, the Fannie and Freddie portfolios expanded by 0.9 and 0.8 percent, respectively. Within the portfolio, Fannie Mae contracted their less-liquid assets (mortgage loans, non-agency MBS), by 4.2 percent and Freddie Mac increased their less-liquid assets by 2.5 percent, over the same 12-month period.

Fannie Mae Mortgage-Related Investment Portfolio Composition



Sources: Fannie Mae and Urban Institute.

Freddie Mac Mortgage-Related Investment Portfolio Composition



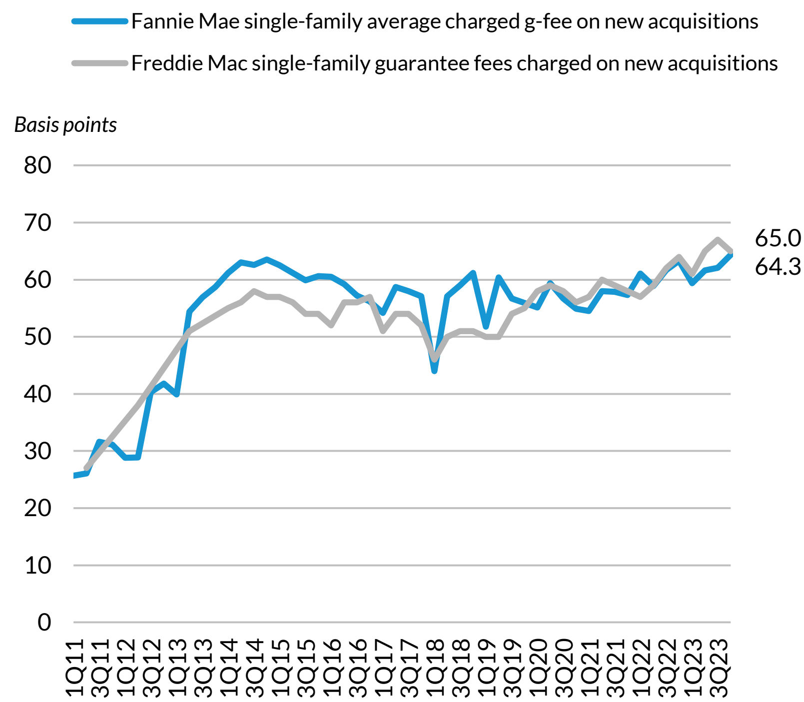
Sources: Freddie Mac and Urban Institute.

Note: Effective March 2021, Freddie Mac doesn't provide FHLMC/non-FHLMC breakout of agency MBS. The above charts were updated in May 2021 to reflect this.

EFFECTIVE GUARANTEE FEES

Guarantee Fees Charged on New Acquisitions

Fannie Mae's average g-fees charged on new acquisitions increased from 62.1 basis points in Q2 2023 to 64.3 basis points in Q3 2023 . Freddie's decreased from 67.0 basis points in Q2 2023 to 65.0 basis points in Q3 2023. Today's g-fees are markedly higher than g-fee levels in 2011 and 2012, contributing to the GSEs' earnings amid sharp drops in acquisition volume. The bottom table shows Fannie Mae LLPAs, which are expressed as upfront charges. In October 2022, the GSEs announced the elimination of LLPAs for loans to FTHB's earning up to the AMI, affordable mortgage products such as Home Possible and Home Ready, and for loans supporting the Duty to Serve program. In January 2023, the GSEs released an updated LLPA Adjustment Matrix, effective May 1, 2023.



Sources: Fannie Mae, Freddie Mae and Urban Institute.
Last updated November 2023.

Fannie Mae Upfront Loan-Level Price Adjustments (LLPAs)

	LTV (%)								
Credit Score	≤60	30.01 – 60	60.01 – 70	70.01 – 75	75.01 – 80	80.01 – 85	85.01 – 90	90.01 – 95	>95
> 779	0.000	0.000	0.000	0.500	0.375	0.375	0.250	0.250	0.125
760 – 779	0.000	0.000	0.000	0.250	0.625	0.625	0.500	0.500	0.250
740 – 759	0.000	0.000	0.125	0.375	0.875	1.000	0.750	0.625	0.500
720 – 739	0.000	0.000	0.250	0.750	1.250	1.250	1.000	0.875	0.750
700 – 719	0.000	0.000	0.375	0.875	1.375	1.500	1.250	1.125	0.875
680 – 699	0.000	0.000	0.625	1.125	1.750	1.875	1.500	1.375	1.125
660 – 679	0.000	0.000	0.750	1.375	1.875	2.125	1.750	1.625	1.250
640 – 679	0.000	0.000	1.125	1.500	2.250	2.500	2.000	1.875	1.500
< 640	0.000	0.125	1.500	2.125	2.750	2.875	2.625	2.250	1.750

Sources: Fannie Mae and Urban Institute.
Last updated January of 2023.

GSE RISK-SHARING TRANSACTIONS

Fannie Mae and Freddie Mac have been laying off back-end credit risk through CAS/STACR and reinsurance transactions and front-end risk via originators, reinsurers and mortgage insurers. Since 2014, the GSEs have transferred the majority of their credit risk to private markets. Fannie Mae's CAS issuances since inception total $2.15 trillion; Freddie's STACR totals $2.63 trillion. After the COVID-19 spread widening in March 2020, and the re-proposed capital rules released by FHFA shortly thereafter, Fannie Mae did not issue any deals from Mar 2020 to Sep 2021, while Freddie Mac continued to issue. With the changes in the final Capital Rule more CRT friendly, and more positive attitude toward CRT at FHFA, Fannie resumed CAS issuance in October 2021. As originations are more limited in 2023, CRT volume is substantially lower than in prior years.

Fannie Mae – Connecticut Avenue Securities (CAS)

Date	Transaction	Reference Pool Size ($ m)	Amount Issued ($m)	% of Reference Pool Covered
2013	CAS 2013 deals	$26,756	$675	2.5
2014	CAS 2014 deals	$222,224	$5,849	2.6
2015	CAS 2015 deals	$187,127	$5,463	2.9
2016	CAS 2016 deals	$236,459	$7,392	3.1
2017	CAS 2017 deals	$264,697	$8,707	3.3
2018	CAS 2018 deals	$205,998	$7,314	3.6
2019	CAS 2019 deals	$290,211	$8,073	2.8
2020	CAS 2020 deals	$58,015	$2,167	3.7
2021	CAS 2021 deals	$142,202	$3,095	2.2
2022	CAS 2022 deals	$325,601	$8,920	2.7
January 2023	CAS 2023 – R01	$23,101	$731	3.2
February 2023	CAS 2023 – R02	$20,647	$709	3.4
April 2023	CAS 2023 – R03	$38,969	$622	1.6
May 2023	CAS 2023 – R04	$21,404	$765	3.6
June 2023	CAS 2023 – R05	$20,734	$738	3.6
July 2023	CAS 2023 – R06	$20,781	$766	3.7
October 2023	CAS 2023 – R07	$26,505	$536	2.0
November 2023	CAS 2023 – R08	$19,356	$573	3.0
Total		**$2,150,787**	**$63,095**	**2.9**

Freddie Mac – Structured Agency Credit Risk (STACR)

Date	Transaction	Reference Pool Size ($ m)	Amount Issued ($m)	% of Reference Pool Covered
2013	STACR 2013 deals	$57,912	$1,130	2.0
2014	STACR 2014 deals	$147,120	$4,916	3.3
2015	STACR 2015 deals	$179,196	$6,658	3.7
2016	STACR 2016 deals	$183,421	$5,541	3.0
2017	STACR 2017 deals	$248,821	$5,663	2.3
2018	STACR 2018 deals	$243,007	$6,055	2.5
2019	STACR 2019 deals	$181,753	$5,807	3.2
2020	STACR 2020 deals	$403,591	$10,372	2.6
2021	STACR 2021 deals	$574,706	$11,024	1.9
2022	STACR 2022 deals	$327,773	$11,203	3.4
March 2023	STACR Series 2023 – DNA1	$15,167	$611	4.0
April 2023	STACR Series 2023– DNA2	$18,242	$762	4.2
May 2023	STACR Series 2023 – HQA1	$13,876	$317	2.3
June 2023	STACR Series 2023 – HQA2	$17,440	$512	2.9
November 2023	STACR Series 2023 – HQA3	$23,069	$636	2.8
Total		**$2,635,094**	**$71,207**	**2.7**

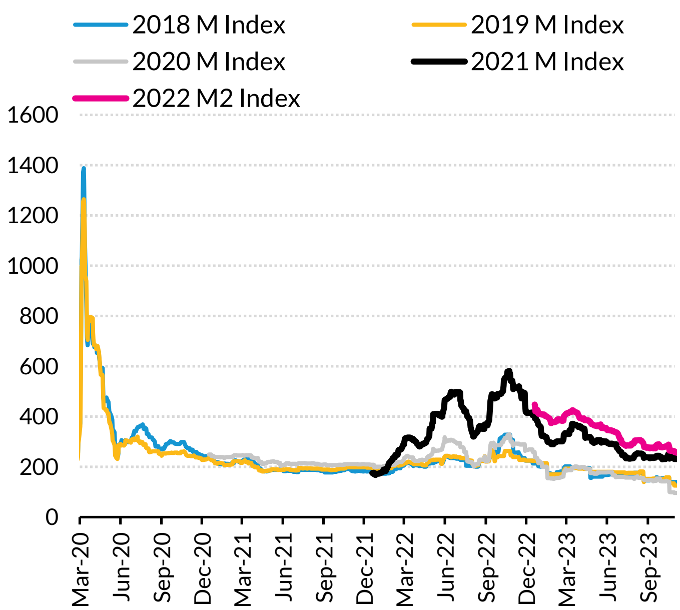
Sources: Fannie Mae, Freddie Mac and Urban Institute. **Note**: Classes A-H, M-1H, M-2H, and B-H are reference tranches only. These classes are not issued or sold. The risk is retained by Fannie Mae and Freddie Mac. "CE" = credit enhancement.

GSES UNDER CONSERVATORSHIP

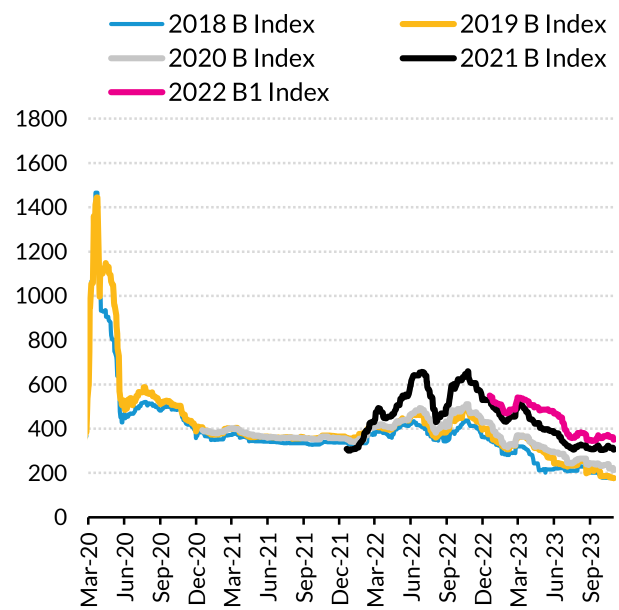
GSE RISK-SHARING INDICES

The figures below show the spreads on 2018, 2019, 2020, 2021 and 2022 indices, as priced by dealers. Note the substantial spread widening in March 2020. This reflected expectations of higher defaults and potential credit losses owing to COVID-19, as well as forced selling. Since then, spreads have narrowed significantly. Spreads, while volatile, were generally widening from February through November of 2022. This reflects slower prepayment expectations and longer exposure to default risk in the face of higher rates. The widening is more pronounced for 2021 and 2022 indices due to less embedded home price appreciation including recent price declines in some markets and a growing risk of a recession. Spreads have largely declined since late 2022 as mortgage non-performance and the unemployment rate remain low, and home price growth has resumed. Note that the 2020 and 2021 indices are heavily Freddie Mac as Fannie did not issue any new deals from Q2 2020 to Q4 2021.

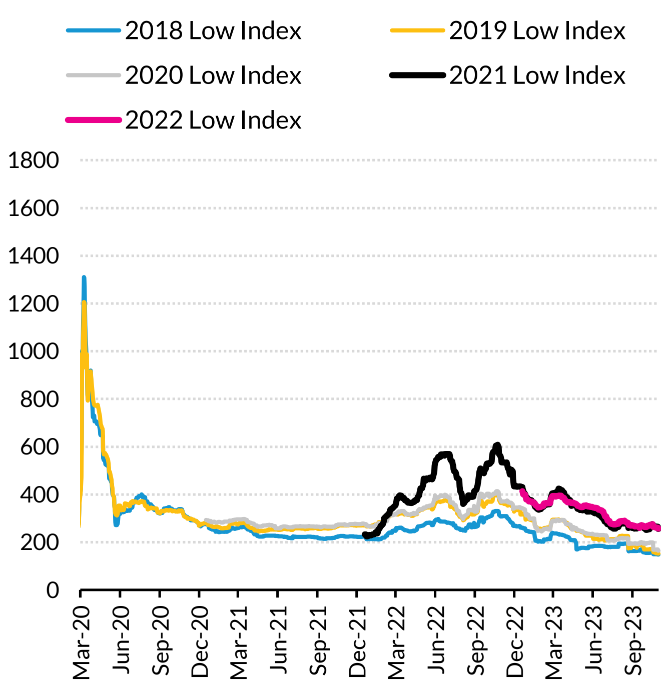
M Indices



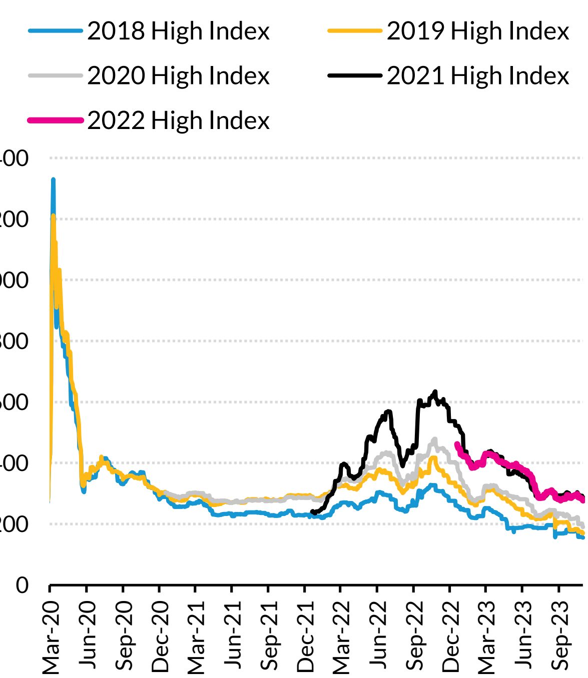
B Indices



Low Indices



High Indices

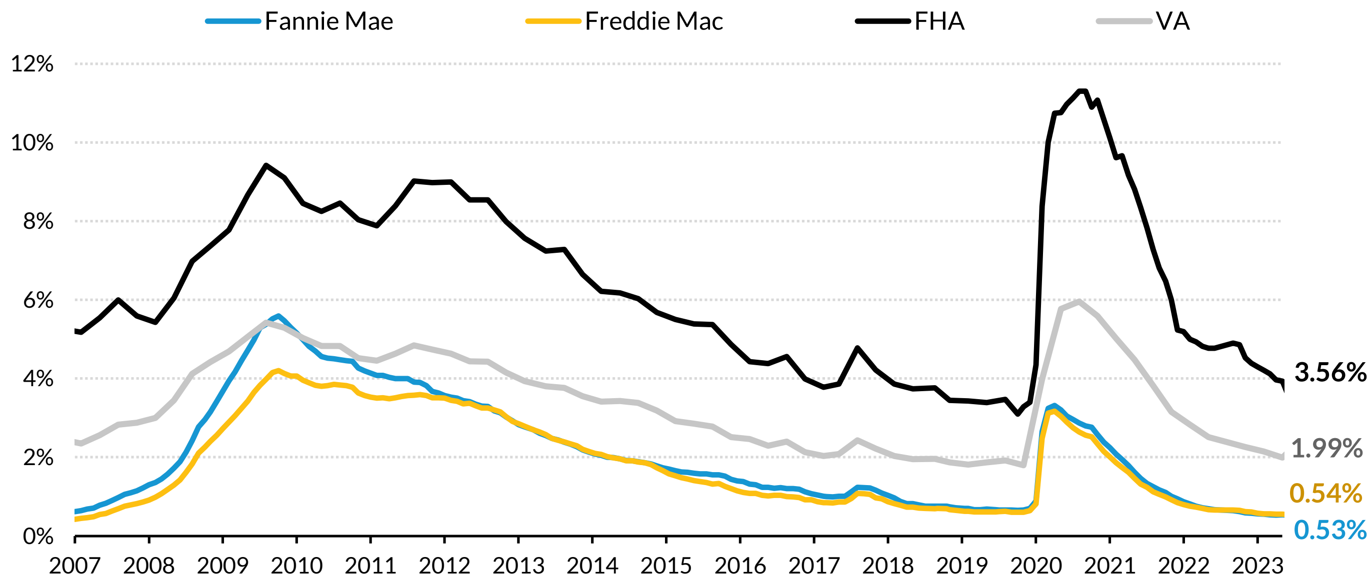


Sources: Vista Data Services and Urban Institute.
Note: Data as of December 13, 2023.

SERIOUS DELINQUENCY RATES

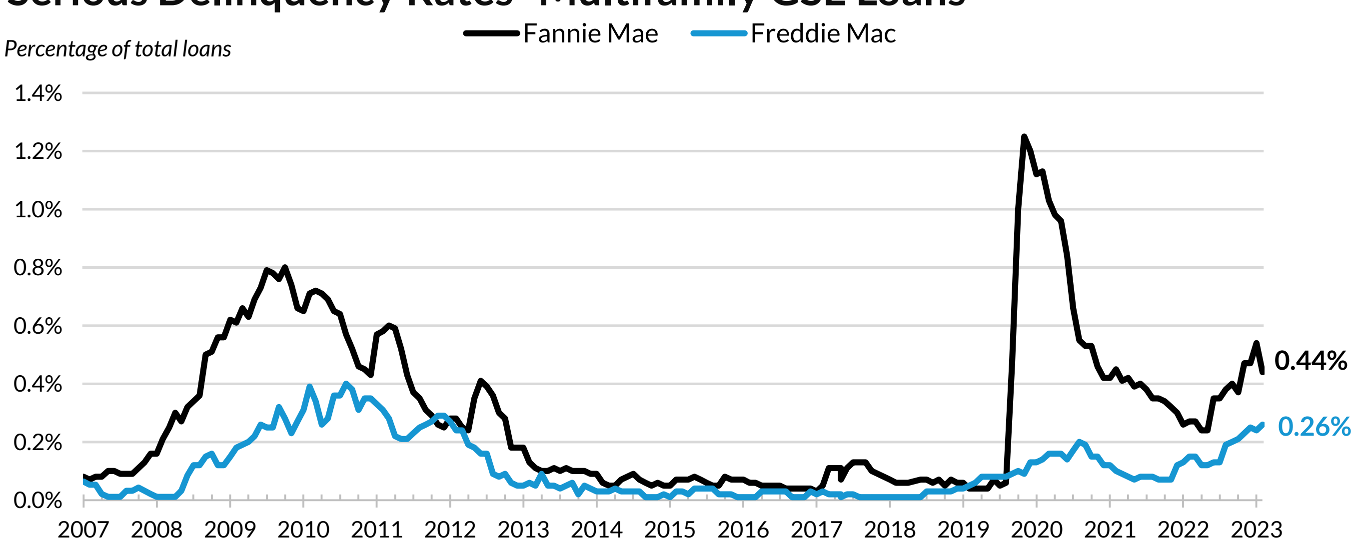
Serious delinquency rates for single family loans have continued their decline. In October 2023 Fannie Mae and Freddie Mac single-family loans held steady at 0.53 percent and 0.54 percent, respectively. Serious delinquency rates for FHA loans, which are higher than those on GSE or VA loans, continued its recent decline from 3.93 percent in September to 3.56 percent in October. In Q3 2023, VA serious delinquency rates declined to 1.99 percent from 2.15 percent in Q2 2023. Note that loans that are in forbearance are counted as delinquent for the purpose of measuring delinquency rates. Serious delinquency rates on Fannie and Freddie multifamily loans have risen since 2022. Though, Fannie Mae's serious multifamily delinquency rate sits at 0.44 percent in October, 10 basis points lower than the previous month. Freddie Mac's serious delinquency rate is currently 0.26 percent, modestly higher than its rate in September.

Serious Delinquency Rates–Single-Family Loans



Sources: Fannie Mae, Freddie Mac, Federal Housing Administration, MBA Delinquency Survey and Urban Institute.
Note: Serious delinquency is defined as 90 days or more past due or in the foreclosure process. Not seasonally adjusted. VA delinquencies are reported on a quarterly basis, last updated for Q4 2022. GSE and FHA delinquencies are reported monthly, data as of October 2023.

Serious Delinquency Rates–Multifamily GSE Loans



Sources: Fannie Mae, Freddie Mac and Urban Institute.
Note: Multifamily serious delinquency rate is the unpaid balance of loans 60 days or more past due, divided by the total unpaid balance.

AGENCY ISSUANCE

AGENCY GROSS AND NET ISSUANCE

Agency gross issuance totaled $946.6 billion from January to November 2023, $591.6 billion by the GSEs and $355.0 billion by Ginnie Mae. These levels are considerably lower than early 2022 issuance activity. Total 2023 net issuance (new securities issued less the decline in outstanding securities due to principal pay-downs or prepayments) also lags 2022 levels. However, Ginnie Mae has been stronger to-date as the $166.0 billion issued through November exceeds the $122.3 billion issued over the same period in 2022.

Agency Gross Issuance

Issuance Year	GSEs	Ginnie Mae	Total
2002	$1,238.9	$169.0	$1,407.9
2003	$1,874.9	$213.1	$2,088.0
2004	$872.6	$119.2	$991.9
2005	$894.0	$81.4	$975.3
2006	$853.0	$76.7	$929.7
2007	$1,066.2	$94.9	$1,161.1
2008	$911.4	$267.6	$1,179.0
2009	$1,280.0	$451.3	$1,731.3
2010	$1,003.5	$390.7	$1,394.3
2011	$879.3	$315.3	$1,194.7
2012	$1,288.8	$405.0	$1,693.8
2013	$1,176.6	$393.6	$1,570.1
2014	$650.9	$296.3	$947.2
2015	$845.7	$436.3	$1,282.0
2016	$991.6	$508.2	$1,499.8
2017	$877.3	$455.6	$1,332.9
2018	$795.0	$400.6	$1,195.3
2019	$1,042.6	$508.6	$1,551.2
2020	$2,407.5	$775.4	$3,182.9
2021	$2,650.8	$855.3	$3,506.1
2022	$1,200	$527.4	$1.727.4
2023 YTD	$591.6	$355.0	$946.6
YTD 2023 % Change Over 2022	-48.5%	-28.7%	-42.5%
2023 Annualized	$645.4	$387.3	$1,032.6

Agency Net Issuance

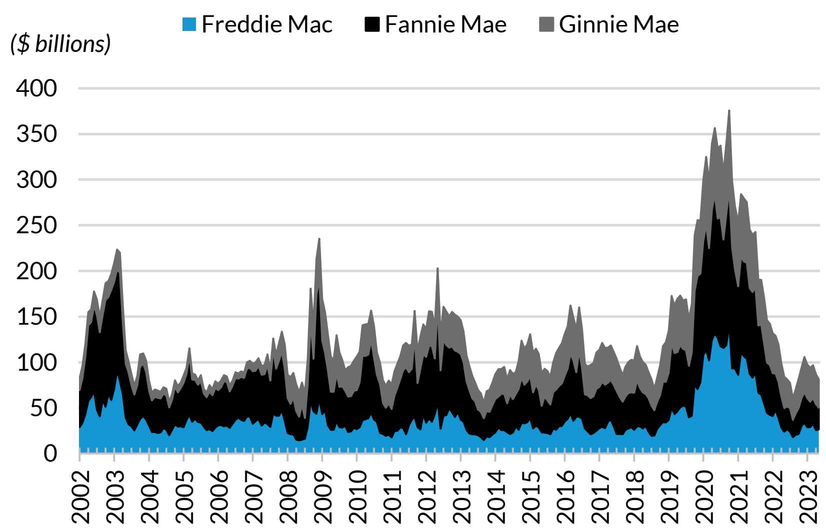
Issuance Year	GSEs	Ginnie Mae	Total
2002	$357.20	-$51.20	$306.10
2003	$334.90	-$77.60	$257.30
2004	$82.50	-$40.10	$42.40
2005	$174.20	-$42.20	$132.00
2006	$313.60	$0.20	$313.80
2007	$514.90	$30.90	$545.70
2008	$314.80	$196.40	$511.30
2009	$250.60	$257.40	$508.00
2010	-$303.20	$198.30	-$105.00
2011	-$128.40	$149.60	$21.20
2012	-$42.40	$119.10	$76.80
2013	$69.10	$87.90	$157.00
2014	$30.5	$61.6	$92.1
2015	$75.1	$97.3	$172.5
2016	$127.4	$125.8	$253.1
2017	$168.5	$131.3	$299.7
2018	$149.4	$112.0	$261.5
2019	$197.8	$95.7	$293.5
2020	$632.8	$19.9	$652.7
2021	$753.5	$5.6	$759.1
2022	$276.6	$133.3	$409.3
2023 YTD	$66.0	$166.0	$232.0
YTD 2023 % Change Over 2022	-76.6%	35.7%	-42.6%
2023 Annualized	$72.0	$181.1	$253.1

Sources: eMBS and Urban Institute.
Note: Dollar amounts are in billions. Data as of October 2023.

AGENCY GROSS ISSUANCE & FED PURCHASES

While FHA, VA and GSE lending have dominated the mortgage market since the 2008 housing crisis, there has been a change in the mix. The Ginnie Mae share of new issuances has risen from a pre-crisis level of 10-12 percent to 34.8 percent in February 2020, reflecting gains in both purchase and refinance shares. The Ginnie share then declined to a low of 20.4 percent in November 2020, reflecting the more robust ramp up in GSE refinances relative to Ginnie Mae refinances. The Ginnie share increased substantially as refinance dropped, reaching a high of 40.8 percent in November 2022. The Ginnie share is 38.3 percent in November still high by historical standards.

Monthly Gross Issuance

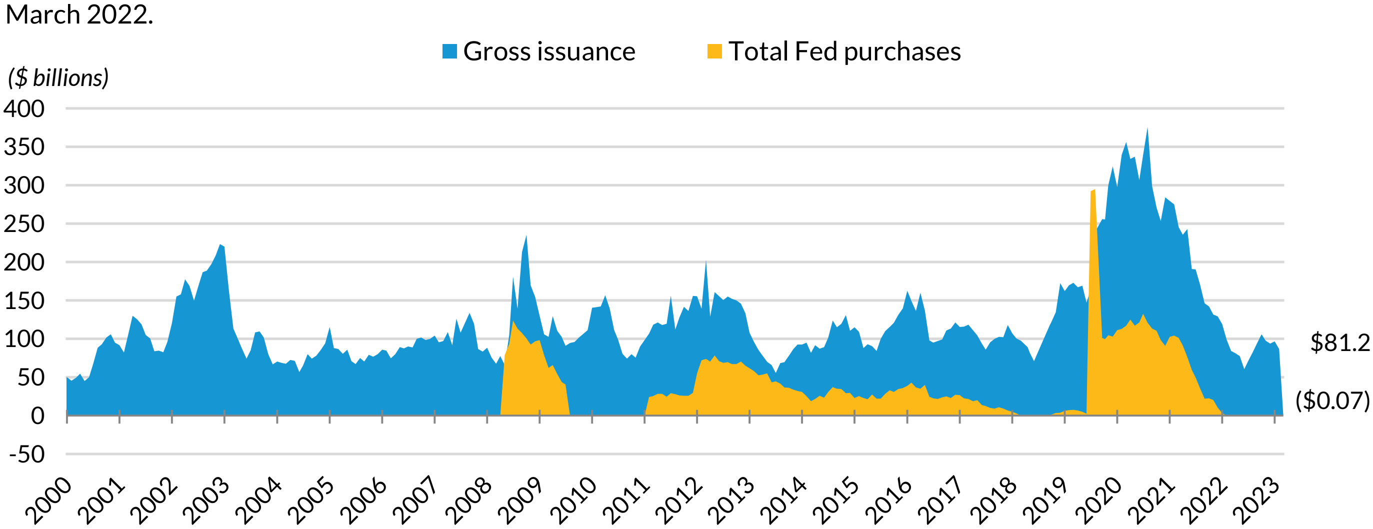


Source: eMBS and Urban Institute Calculations

November 2023

Fed Absorption of Agency Gross Issuance

In the November 2023, agency MBS on the Federal Reserve's balance sheet totals $2.5 trillion, down from $2.70 trillion in October 2022. The Fed's purchases of agency MBS dropped to $0 in November 2022 and has remained negligible since, reflecting their policy of allowing paydowns up to $35 billion to run off. Beginning in June 2022, the Fed allowed up to $17.5 billion to run off each month; the cap on runoffs increased to $35 billion per month in September 2022. The Federal Reserve's portfolio was a critical policy tool during the pandemic. In March of 2020, the Fed announced they would buy mortgages in an amount necessary to support smooth functioning markets; March and April of 2020 were the largest two months of mortgage purchases ever and exceeded total issuance. Once the market stabilized, the Fed began to purchase $40 billion net of MBS each month; this buying plus runoff replacements equated to purchases of $100 to $125 billion per month. In November 2021, the Fed began to reduce purchases, with these purchases ending in March 2022.



Sources: eMBS, Federal Reserve Bank of New York and Urban Institute.

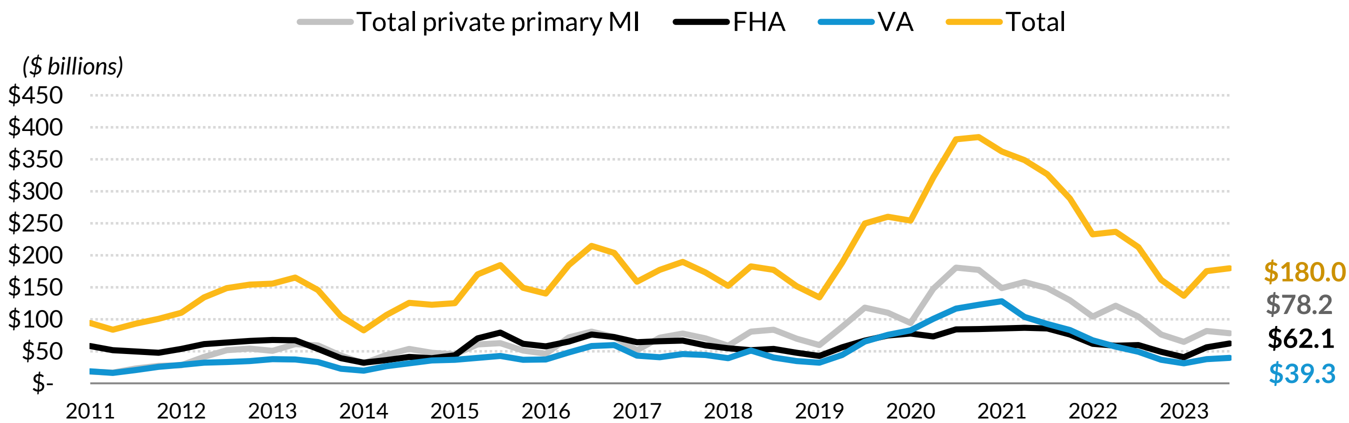
November 2023

AGENCY ISSUANCE

MORTGAGE INSURANCE ACTIVITY

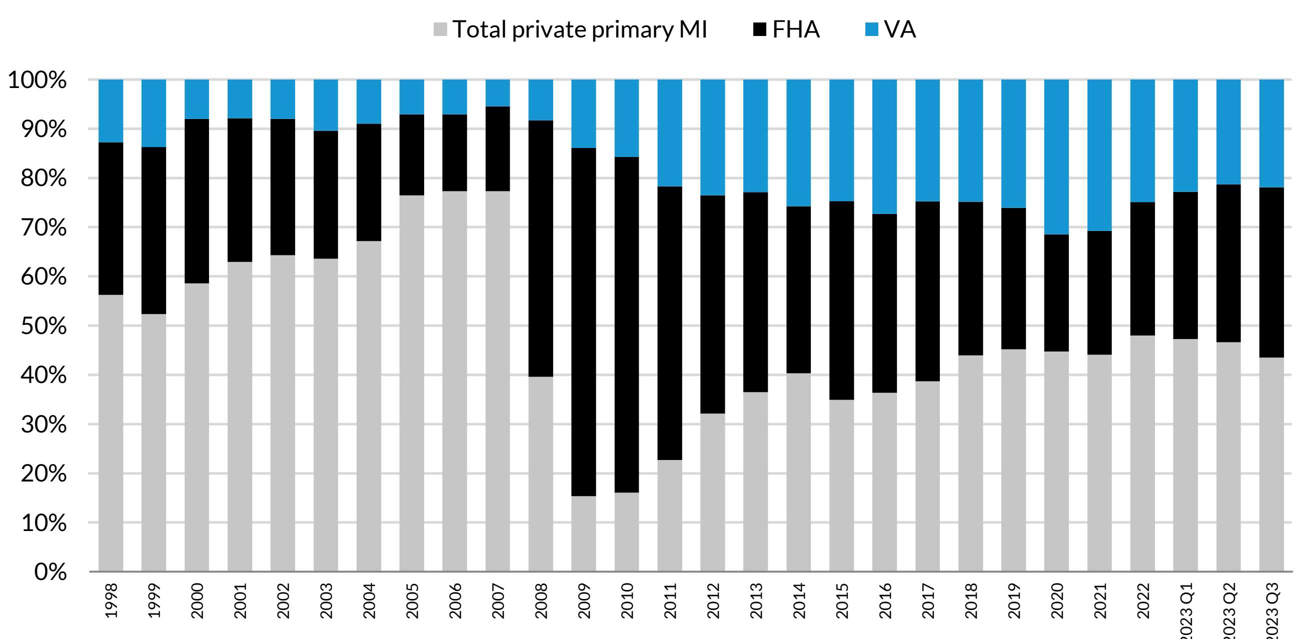
MI Activity

Total mortgage insurance written increased marginally by $4.5 billion to $180 billion from Q2 to Q3 of 2023. However, there was a shift in the mix; FHA and VA whose insurance activity increased by $6.0 and $2.0 billion, respectively, while private insurance activity decreased by $3.5 billion. The private mortgage insurers share decreased from 46.6 to 43.5 percent. FHA's share increased from 32.0 to 34.6 percent and VA's share increased marginally from 21.4 to 21.9 percent.



Sources: Inside Mortgage Finance and Urban Institute. *Last updated November 2023.*

MI Market Share



Sources: Inside Mortgage Finance and Urban Institute. *Last updated November 2023.*

MORTGAGE INSURANCE ACTIVITY

FHA premiums rose significantly in the years following the housing crash, with annual premiums rising from 50 to 135 basis points between 2008 to 2013 as FHA worked to shore up its finances. In January 2015, President Obama announced a 50 basis points cut in annual insurance premiums. In February 2023, Vice President Harris announced another 30 basis points cut to FHA insurance premiums, making FHA mortgages more attractive than GSE mortgages for the overwhelming majority of borrowers putting down less than 5%. As shown in the bottom table, a borrower putting 3.5 percent down with a FICO score less than 760 will currently find FHA financing to be more financially attractive, borrowers with FICOs of 760 and above will find GSE execution with PMI to be more attractive. This calculation reflects both the FHA MIP cut and the more favorable GSE LLPAs for LMI borrowers.

FHA MI Premiums for Typical Purchase Loan

Case number date	Upfront mortgage insurance premium (UFMIP) paid	Annual mortgage insurance premium (MIP)
1/1/2001 - 7/13/2008	150	50
7/14/2008 - 4/5/2010*	175	55
4/5/2010 - 10/3/2010	225	55
10/4/2010 - 4/17/2011	100	90
4/18/2011 - 4/8/2012	100	115
4/9/2012 - 6/10/2012	175	125
6/11/2012 - 3/31/2013[a]	175	125
4/1/2013 – 1/25/2015[b]	175	135
1/26/2015 – 3/19/2023[c]	175	85
Beginning 3/20/2023	175	55

Sources: Ginnie Mae and Urban Institute.
Note: A typical purchase loan has an LTV over 95 and a loan term longer than 15 years. Mortgage insurance premiums are listed in basis points.
* For a short period in 2008 the FHA used a risk based FICO/LTV matrix for MI.
[a] Applies to purchase loans less than or equal to $625,500. Those over that amount have an annual premium of 150 bps.
[b] Applies to purchase loans less than or equal to $625,500. Those over that amount have an annual premium of 155 bps.
[c] Applies to purchase loans less than or equal to $625,500. Those over that amount have an annual premium of 105 bps.

Initial Monthly Payment Comparison: FHA vs. GSE with PMI

Assumptions	
Property Value	$300,000
Loan Amount	$289,500
LTV	96.5
Base Rate	
Conforming Base Rate	6.98
FHA Base Rate	7.19

FICO	620 - 639	640 - 659	660 - 679	680 - 699	700 - 719	720 - 739	740 - 759	760 +
FHA MI Premiums								
FHA UFMIP	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
FHA MIP	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
PMI								
PMI Annual MIP	1.50%	1.31%	1.23%	0.98%	0.79%	0.70%	0.58%	0.46%
Monthly Payment								
FHA	$2,088	$2,088	$2,088	$2,088	$2,088	$2,088	$2,088	$2,088
GSE plus PMI	$2,325	$2,279	$2,259	$2,199	$2,153	$2,132	$2,103	$2,074
GSE plus PMI Advantage	-$236	-$190	-$171	-$111	-$65	-$43	-$14	$15

Sources: Enact Mortgage Insurance, Ginnie Mae, and Urban Institute. FHA and 30-year conforming rates from MBA Weekly Applications Survey.
Note: Rates as of December 8, 2023.
Mortgage insurance premiums listed in percentage points. Grey shade indicates FHA monthly payment is more favorable, while blue indicates PMI is more favorable.
The PMI monthly payment calculation is based on the 25 percent coverage that applies to Fannie Mae's HomeReady and Freddie Mac's Home Possible (HP) programs.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA
FANNIE MAE COMPOSITION

Since 2008, the composition of loans purchased by Fannie Mae has shifted towards borrowers with higher FICO scores. For example, 62.5 percent of loans originated from 2018 to Q2 2023 were for borrowers with FICO scores above 750, compared to 44.2 percent of borrowers from 2005-2008 and 36.7 percent from 1999-2004. At the same time, LTVs have shifted up, 18.6 percent of Fannie Mae loans purchased between 2018 and Q2 2023 had an LTV above 90 percent, higher than all earlier periods.

Balance on 30-year, Fixed-rate, Full-doc, Amortizing Loans

Origination Year	Origination FICO	LTV				Total
		≤70	70 to 80	80 to 90	>90	
1999-2004	≤700	9.3%	15.0%	4.5%	4.5%	33.3%
	700 to 750	9.2%	14.2%	3.4%	3.2%	30.0%
	>750	15.6%	16.1%	2.7%	2.3%	36.7%
	Total	34.0%	45.3%	10.7%	10.0%	100.0%
2005-2008	≤700	10.6%	13.1%	3.8%	2.4%	29.8%
	700 to 750	8.4%	12.7%	3.0%	1.8%	26.0%
	>750	16.9%	21.4%	3.6%	2.2%	44.2%
	Total	36.0%	47.2%	10.4%	6.4%	100.0%
2009-2010	≤700	3.6%	2.9%	0.3%	0.2%	6.9%
	700 to 750	8.2%	10.8%	1.7%	0.8%	21.5%
	>750	32.3%	33.5%	4.0%	1.7%	71.6%
	Total	44.1%	47.2%	6.0%	2.7%	100.0%
2011-2017	≤700	3.5%	5.0%	1.3%	2.1%	12.0%
	700 to 750	5.6%	10.0%	3.2%	5.0%	23.8%
	>750	20.1%	28.0%	7.4%	8.8%	64.2%
	Total	29.2%	42.9%	12.0%	15.9%	100.0%
2018-2Q23	≤700	4.3%	3.9%	1.4%	2.3%	11.9%
	700 to 750	6.7%	8.8%	3.6%	6.5%	25.6%
	>750	22.7%	22.4%	7.6%	9.8%	62.5%
	Total	33.7%	35.1%	12.6%	18.6%	100.0%
Total		33.6%	41.0%	11.4%	14.0%	100.0%

Sources: Fannie Mae and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 2023. The percentages are weighted by origination balance. The analysis included only mortgages with original terms of 241-420 months.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

FANNIE MAE DEFAULT RATE

Default rates on Fannie Mae purchased loans typically rise directly with LTV and inversely with FICO. While the composition of Fannie Mae loans originated from 2005-2008 were similar to that of 2004 and earlier vintage years, 2005-2008 loans experienced a much higher default rate due to the sharp drop in home values and the increase in unemployment during the recession. Post-2009 originations have pristine credit characteristics amid a more favorable home price environment, low unemployment and institutional forbearance as well as other policies enacted in response to the pandemic, all contributing to very low default rates. Even so, delinquencies on new originations, which jumped in 2020 and 2021 due to COVID-19 and resulting stay-at-home orders, have declined meaningfully.

Default Rate on 30-year, Fixed-rate, Full-doc, Amortizing Loans

Origination Year	Origination FICO	LTV ≤70	LTV 70 to 80	LTV 80 to 90	LTV >90	Total
1999-2004	≤700	4.0%	4.9%	6.5%	7.4%	5.2%
	700 to 750	1.3%	2.0%	3.1%	3.2%	2.1%
	>750	0.5%	0.9%	1.6%	1.8%	0.8%
	Total	1.7%	2.6%	4.2%	4.8%	2.7%
2005-2008	≤700	17.8%	22.0%	28.3%	28.8%	21.9%
	700 to 750	7.5%	11.8%	16.7%	16.1%	11.3%
	>750	2.3%	4.7%	8.7%	9.2%	4.3%
	Total	8.1%	11.4%	18.1%	18.5%	11.4%
2009-2011	≤700	5.3%	6.9%	6.5%	7.6%	6.1%
	700 to 750	1.6%	2.8%	3.2%	3.9%	2.4%
	>750	0.4%	0.9%	1.4%	1.8%	0.7%
	Total	1.0%	1.7%	2.1%	2.8%	1.4%
2011-2017	≤700	5.2%	5.9%	6.8%	8.9%	6.3%
	700 to 750	2.3%	2.6%	3.0%	4.0%	2.9%
	>750	0.8%	0.9%	1.1%	1.6%	1.0%
	Total	1.6%	1.9%	2.3%	3.4%	2.1%
2018-2Q23	≤700	2.8%	4.0%	4.8%	6.7%	4.2%
	700 to 750	1.3%	1.8%	2.3%	3.2%	2.1%
	>750	0.4%	0.6%	0.9%	1.3%	0.7%
	Total	0.9%	1.3%	1.7%	2.6%	1.5%
Total		1.9%	2.8%	3.7%	3.8%	2.7%

Sources: Fannie Mae and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 2023, with performance information on these loans also through Q2 2023. Default is defined as more than six months delinquent or disposed of via short sales, third-party sales, deeds-in-lieu of foreclosure, or real estate owned (REO acquisitions). The analysis included only mortgages with original terms of 241-420 months.

FREDDIE MAC COMPOSITION

Since 2008, the composition of loans purchased by Freddie Mac has shifted towards borrowers with higher FICO scores. For example, 58.6 percent of loans originated from 2018 to Q1 2022 were for borrowers with FICO scores above 750, compared to 42.0 percent of borrowers from 2005-2008 and 34.2 percent from 1999-2004. At the same time, LTVs have shifted up, 17.1 percent of Freddie Mac loans purchased between 2018 and Q2 2023 had an LTV above 90 percent, higher than all earlier periods.

Balance on 30-year, Fixed-rate, Full-doc, Amortizing Loans

Origination Year	Origination FICO	LTV				Total
		≤70	70 to 80	80 to 90	>90	
1999-2004	≤700	8.7%	16.7%	4.5%	4.5%	34.3%
	700 to 750	9.9%	16.1%	2.8%	2.6%	31.5%
	>750	15.1%	15.7%	1.9%	1.5%	34.2%
	Total	33.7%	48.5%	9.2%	8.5%	100.0%
2005-2008	≤700	9.5%	14.0%	3.3%	3.1%	29.9%
	700 to 750	9.0%	14.5%	2.5%	2.0%	28.1%
	>750	17.6%	19.8%	2.7%	1.9%	42.0%
	Total	36.1%	48.3%	8.5%	7.1%	100.0%
2009-2010	≤700	3.8%	3.2%	0.3%	0.2%	7.6%
	700 to 750	9.3%	11.8%	1.7%	0.9%	23.7%
	>750	32.8%	31.0%	3.6%	1.4%	68.8%
	Total	46.0%	46.0%	5.5%	2.5%	100.0%
2011-2017	≤700	3.9%	5.0%	1.5%	2.0%	12.4%
	700 to 750	6.9%	12.2%	3.6%	5.3%	28.0%
	>750	18.5%	26.8%	6.6%	7.7%	59.6%
	Total	29.3%	44.0%	11.6%	15.1%	100.0%
2018-1Q23	≤700	5.3%	4.1%	1.6%	2.0%	12.9%
	700 to 750	7.9%	10.1%	4.2%	6.2%	28.4%
	>750	19.8%	22.0%	7.9%	9.0%	58.6%
	Total	33.1%	36.2%	13.6%	17.1%	100.0%
Total		33.7%	42.0%	11.3%	13.0%	100.0%

Sources: Freddie Mac and Urban Institute.
Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q1 2023, with performance data through Q2 2023. The percentages are weighted by origination balance. The analysis included only mortgages with original terms of 241-420 months.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

FREDDIE MAC DEFAULT RATE

Default rates on Freddie Mac purchased loans typical rise directly with LTV and indirectly with FICO. While the composition of Freddie Mac loans originated from 2005-2008 were similar to that of 2004 and earlier vintage years, 2005-2008 loans experienced a much higher default rate due to the sharp drop in home values and the increase in unemployment during the recession. 2009 and later originations have pristine credit characteristics amid a more favorable home price environment, low unemployment and institutional forbearance as well as other policies enacted in response to the pandemic, all contributing to very low default rates. Even so, delinquencies on new origination, which jumped in 2020 and 2021 due to COVID-19 and resulting stay-at-home orders, have declined meaningfully.

Default Rate on 30-year, Fixed-rate, Full-doc, Amortizing Loans

Origination Year	Origination FICO	LTV				Total
		≤70	70 to 80	80 to 90	>90	
1999-2004	≤700	3.4%	4.7%	7.0%	7.4%	5.0%
	700 to 750	1.2%	1.9%	3.1%	3.2%	1.9%
	>750	0.4%	0.9%	1.7%	2.1%	0.8%
	Total	1.4%	2.5%	4.7%	5.2%	2.6%
2005-2008	≤700	15.5%	20.5%	25.6%	27.7%	20.2%
	700 to 750	6.9%	11.5%	15.4%	15.6%	10.6%
	>750	2.2%	5.1%	8.2%	9.3%	4.3%
	Total	6.9%	11.5%	17.1%	19.2%	10.8%
2009-2011	≤700	4.7%	6.5%	6.3%	6.7%	5.6%
	700 to 750	1.4%	2.6%	2.8%	3.4%	2.2%
	>750	0.4%	0.9%	1.4%	1.6%	0.7%
	Total	1.0%	1.7%	2.1%	2.7%	1.4%
2011-2017	≤700	4.9%	5.3%	6.2%	7.5%	5.6%
	700 to 750	2.4%	2.6%	3.0%	3.8%	2.8%
	>750	0.9%	1.1%	1.3%	1.7%	1.1%
	Total	1.8%	2.0%	2.4%	3.3%	2.2%
2018-2Q23	≤700	2.1%	3.1%	3.8%	4.9%	3.0%
	700 to 750	1.0%	1.5%	1.8%	2.5%	1.6%
	>750	0.4%	0.6%	0.7%	1.1%	0.6%
	Total	0.8%	1.1%	1.4%	2.1%	1.2%
Total		1.9%	3.0%	3.5%	3.8%	2.8%

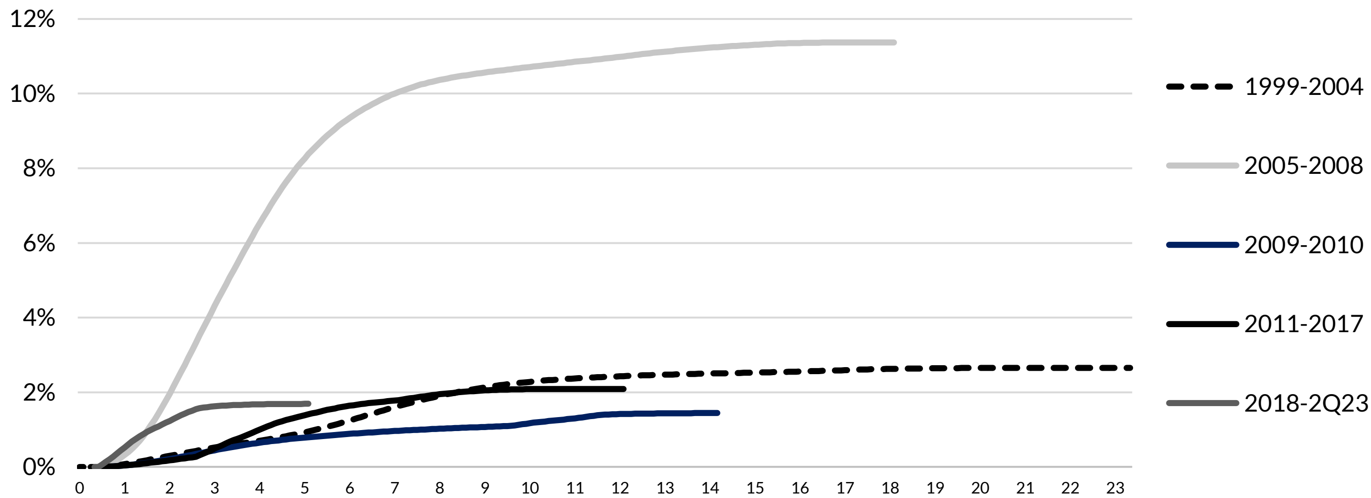
Sources: Freddie Mae and Urban Institute.
Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q1 2023, with performance data through Q2 2023. Default is defined as six months delinquent or disposed of via short sales, third-party sales, deeds-in-lieu of foreclosure, or real estate owned (REO acquisitions). The analysis included only mortgages with original terms of 241-420 months.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

DEFAULT RATE BY VINTAGE

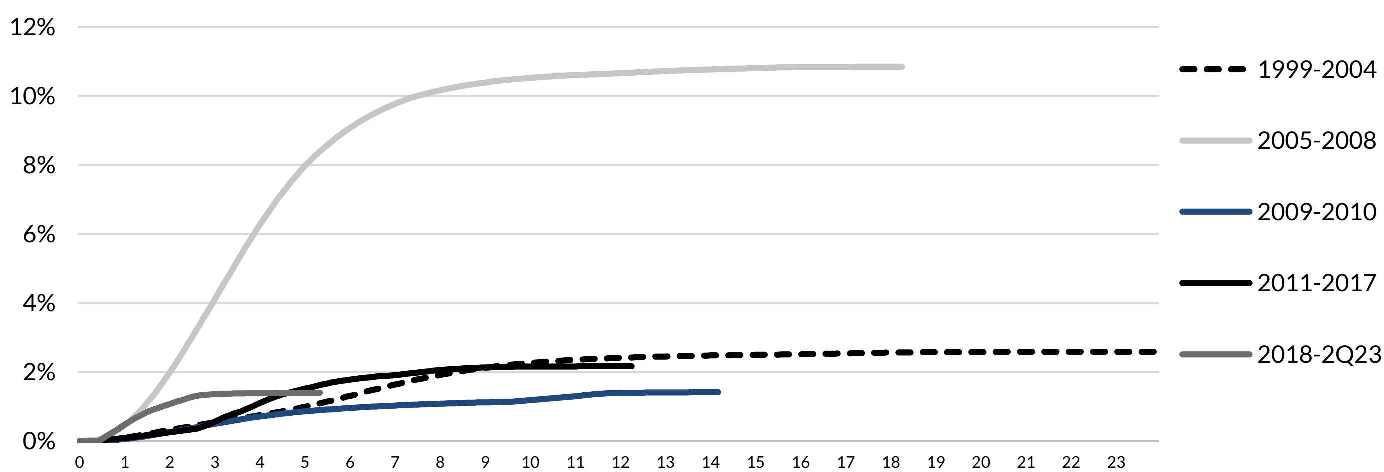
As a result of pristine books of business, strong housing market and an array of public policies, the effect of COVID-19 on GSE delinquencies is a fraction of what it was in the Great Financial Crisis. These charts show cumulative D180 (default) rates as of the end of Q2 2023 for Fannie and Freddie. For Fannie Mae and Freddie Mac's 1999-2004 vintages, cumulative defaults total around 2.5 to 2.7 percent, while cumulative defaults for the 2005-2008 vintages are around 10.4 percent for Freddie originations and 11.4 percent for Fannie originations. While the D180+ rate for the 2018 and later originations are running above 1999-2003 levels, most of these loans have successfully exited COVID-19 forbearance. Relatively few of these D180 borrowers have landed in foreclosure.

Fannie Mae Cumulative Default Rate by Vintage Year



Sources: Fannie Mae and Urban Institute.
Note: The analysis included only mortgages with original terms of 241-420 months. A default is defined as a delinquency of 180 days or more, a deed-in-lieu, short sale, foreclosure sale or REO sale.

Freddie Mac Cumulative Default Rate by Vintage Year



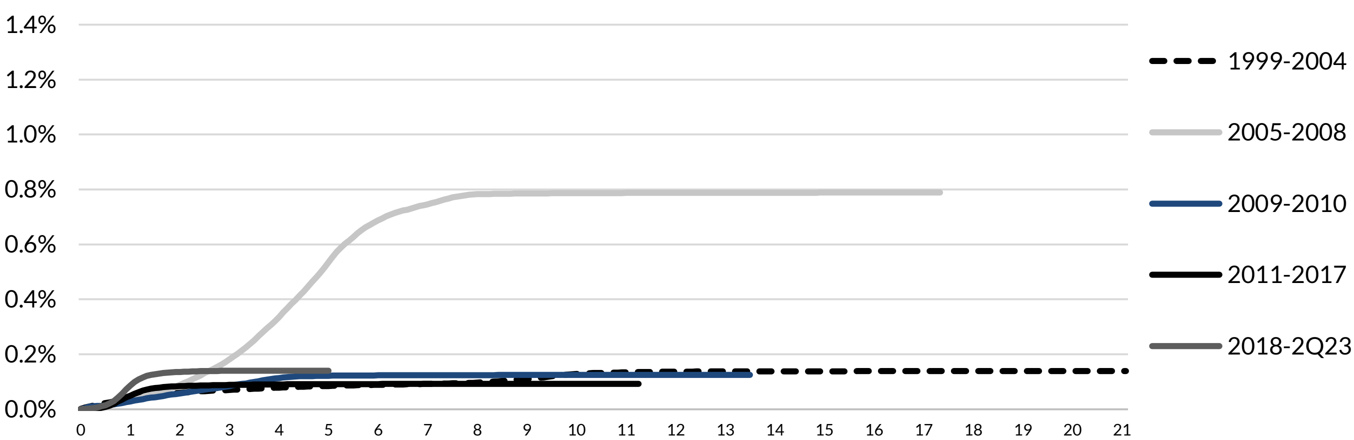
Sources: Freddie Mac and Urban Institute.
Note: The analysis included only mortgages with original terms of 241-420 months. A default is defined as a delinquency of 180 days or more, a deed-in-lieu, short sale, foreclosure sale or REO sale. The horizontal axes represent year since origination.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

REPURCHASE RATE BY VINTAGE

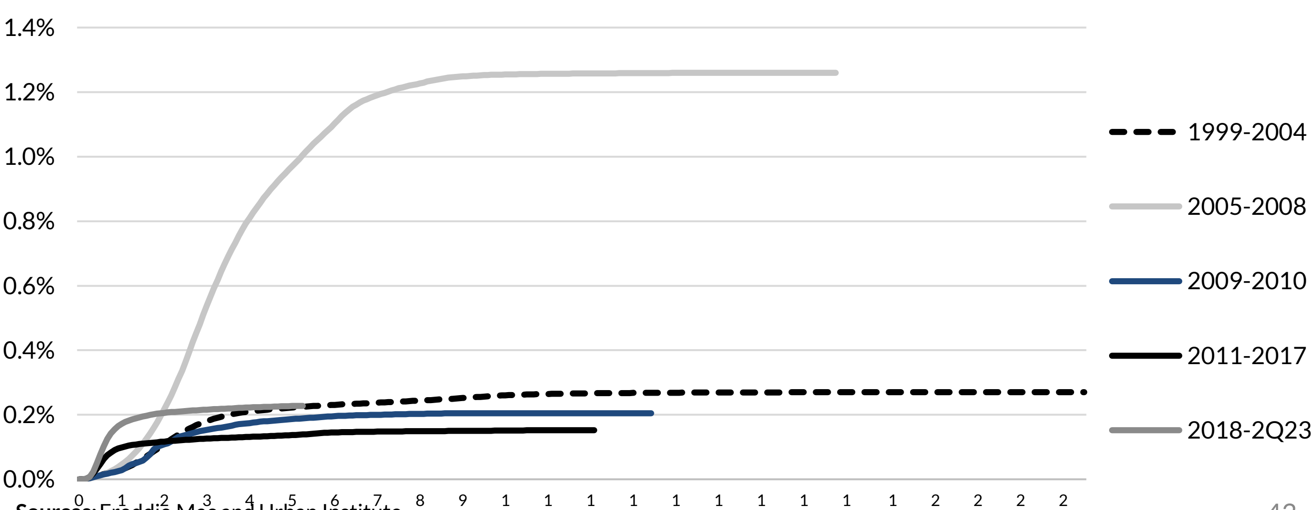
These figures show the cumulative percentage of fixed-rate, full documentation, amortizing 30-year loans of a given vintage that Fannie and Freddie have put back to lenders due to reps and warrants violations. Bubble era vintages were significantly more likely to be put back than either pre- or post-bubble vintages. Note that put-backs are generally quite small, with the exception of the 2005-2008 vintages. These numbers exclude loans put back through global settlements, which are not done at the loan level. In recent years, the GSEs have sharply increased their repurchase activity and become more aggressive in forcing more repurchases earlier in the life of the loan than was the case with earlier vintages. In the first few years of the mortgages' life, there have been more repurchases for the 2018-2022 origination years than there were in the 2005-08 origination years. Even though the number of affected loans is still low, the economic impact is magnified in a high interest rate environment as access to credit becomes restricted when originators become less inclined to originate loan types with characteristics found in the repurchase requests.

Fannie Mae Repurchase Rate by Vintage Year



Sources: Fannie Mae and Urban Institute.
Note: The analysis included only mortgages with original terms of 241-420 months.

Freddie Mac Repurchase Rate by Vintage Year



Sources: Freddie Mac and Urban Institute.
Note: The analysis included only mortgages with original terms of 241-420 months. The horizontal axes represent year since origination.

LOSS SEVERITY

Both Fannie Mae and Freddie Mac's credit data include the status of loans after they experience a credit event. A credit event is defined as a delinquency of 180 days or more, a deed-in-lieu, short sale, foreclosure sale or REO sale. We look at each loan that has experienced a credit event and categorize it based on present status—for Fannie Mae loans (top table) 17.99 percent are current, 32.31 percent are prepaid, 7.05 percent are still in the pipeline (not current, not prepaid, not liquidated) and 42.66 percent have already liquidated (deed-in-lieu, short sale, foreclosure sale, REO sale). Freddie Mac's results (bottom table) are very similar. The right side of both tables shows the severity of all loans that have liquidated, broken down by LTV buckets: total Fannie and Freddie severities are around 41 to 42 percent.

Fannie Mae - Liquidation Rates and Severities for D180+ loans

Origination Year	Paths for D180+ Loans (% of total count)				Severity for Already Liquidated Loans			
	Paths With No Eventual Loss		Paths With Eventual Loss					
	Current	Prepay*	Still in the Pipeline	% Already Liquidated Loans†	<=60	60-80	>80	Total
1999-2004	6.60%	34.02%	2.03%	57.35%	27.6%	40.9%	26.3%	34.3%
2005-2008	6.02%	29.63%	1.70%	62.65%	40.5%	52.9%	36.7%	47.3%
2009-2010	17.39%	36.38%	6.07%	40.16%	26.6%	37.1%	19.9%	32.7%
2011-2017	40.18%	36.68%	14.27%	8.87%	15.9%	23.5%	10.2%	16.2%
2018-2Q23	45.75%	29.62%	22.97%	1.66%	8.7%	10.9%	6.3%	7.8%
Total	17.99%	32.31%	7.05%	42.66%	36.1%	48.5%	31.1%	42.0%

Freddie Mac - Liquidation Rates and Severities for D180+ loans

Origination Year	Paths for D180+ Loans (% of total count)				Severity for Already Liquidated Loans			
	Paths With No Eventual Loss		Paths With Eventual Loss					
	Current	Prepay*	Still In The Pipeline	% Already Liquidated Loans†	<=60	60-80	>80	Total
1999-2004	4.80%	36.60%	2.00%	56.59%	25.5%	39.5%	28.8%	34.8%
2005-2008	4.18%	30.61%	1.59%	63.62%	38.2%	50.0%	37.1%	45.8%
2009-2010	13.34%	36.85%	4.65%	45.15%	22.8%	34.5%	29.8%	31.4%
2011-2017	35.12%	36.45%	11.30%	17.12%	13.5%	22.0%	26.3%	25.3%
2018-2Q23	47.09%	27.57%	24.25%	1.08%	6.1%	9.9%	8.3%	8.7%
Total	15.58%	33.06%	6.25%	45.10%	34.1%	46.6%	32.7%	41.0%

Sources: Fannie Mae, Freddie Mac, and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 2023, with performance information on these loans also through Q2 2023. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q1 2023, with performance information on these loans through Q2 2023. The analysis included only mortgages with original terms of 241-420 months. *Prepay category includes reperforming loan sales. †Already liquidated loans include notes sales.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

LOSS SEVERITY BY CHANNEL

The table below shows the severity of Fannie and Freddie loans that have liquidated, broken down by liquidation channel and vintage year. Foreclosure alternatives, notes sales, short sales, and third-party sales have higher defaulted unpaid principal balance (UPB) and much lower loss severities than REO sales. For example, for all Fannie Mae originations, foreclosure alternatives had a mean defaulted UPB of $179,404 and a loss severity of 33.2% percent, versus a mean defaulted UPB of $145,500 and a loss severity of 46.8 percent for REO sales.

Fannie Mae - Loss Severity for Already Liquidated Loans

Origination Year	Number of Loans			Mean defaulted UPB ($)			Severity		
	All	REO	Foreclosure Alternatives*	All	REO	Foreclosure Alternatives	All	REO	Foreclosure Alternatives
1999-2004	209,747	157,335	52,412	110,915	105,597	126,881	34.31%	39.00%	22.58%
2005-2008	328,702	220,237	108,465	183,294	172,606	204,996	47.32%	52.17%	39.01%
2009-2010	23,588	14,576	9,012	171,051	162,601	184,719	32.73%	39.07%	23.72%
2011-2017	21,103	11,189	9,914	158,335	149,062	168,801	16.21%	19.53%	12.90%
2018-2Q23	3,115	1,294	1,821	182,480	160,376	198,186	7.76%	4.37%	9.71%
Total	586,255	404,631	181,624	156,003	145,500	179,404	41.98%	46.83%	33.21%

Freddie Mac - Loss Severity for Already Liquidated Loans

Origination Year	Number of Loans			Mean defaulted UPB ($)			Severity		
	All	REO	Foreclosure Alternatives*	All	REO	Foreclosure Alternatives	All	REO	Foreclosure Alternatives
1999-2004	141,343	94,866	46,477	111,111.4	105,612.4	122,335.5	34.77%	41.78%	22.41%
2005-2008	314,301	170,584	143,717	180,000.4	164,114.2	198,856.3	45.77%	54.40%	37.30%
2009-2010	34,845	15,359	19,486	189,878.4	172,019.9	203,954.7	31.41%	43.09%	23.65%
2011-2017	38,104	13,723	24,381	169,233.2	151,276.4	179,340.3	25.28%	36.16%	20.12%
2018-2Q23	1,425	427	998	170,927.8	147,633.0	180,894.6	8.73%	14.26%	6.81%
Total	530,018	294,959	235,059	161,480.4	145,089.2	182,048.4	40.99%	49.81%	32.17%

Sources: Fannie Mae, Freddie Mac and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 2023, with performance information on these loans also through Q2 2023. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q1 2023, with performance information on these loans through Q2 2023. The analysis included only mortgages with original terms of 241-420 months.
*Foreclosure Alternatives include notes sales.

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