



HOUSING FINANCE AT A GLANCE

A MONTHLY CHARTBOOK

May 2023

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.

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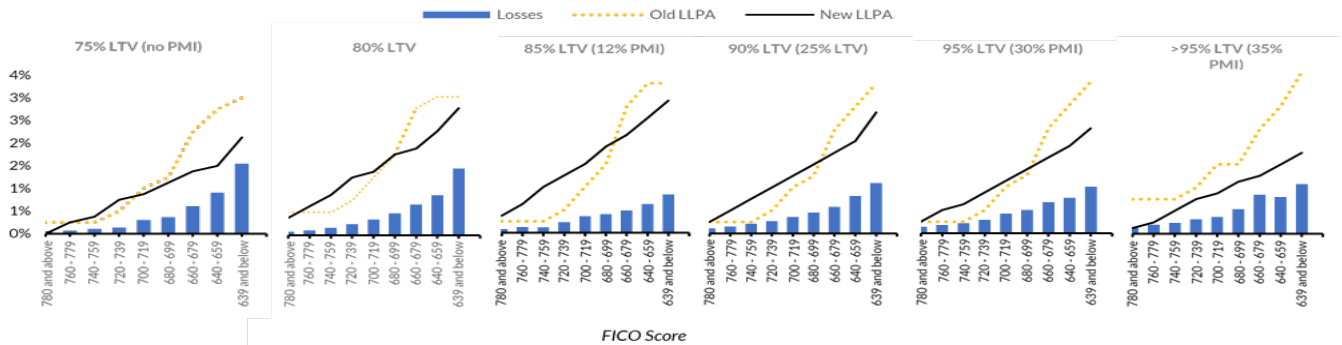
INTRODUCTION

Adjusted LLPAs more fair, but won't win over many FHA borrowers

FHFA's new May 1 loan level price adjustments (LLPAs) better reflect expected losses and reduce cross subsidies across effected GSE loans. It appears the new LLPAs are fairer and will benefit high LTV borrowers for whom FHA is not an option, but they only result in a better execution than FHA for a marginal number of additional borrowers.

The chart below compares old (dotted yellow line) and new LLPAs (black line). Some loans, especially high LTV loans and loans with lower credit scores, appear to have been overpaying before, and cross subsidizing others. The new LLPAs are more linear and align better with losses (blue bars).

Figure 1: Expected losses on GSE loans compared with LLPAs by LTV and credit score categories



Source: Fannie Mae Loan-Level Price Adjustment Matrix version 02.01.2023 and version 03.22.2023; For losses, Fannie Mae loan-level data, purchase only, fixed-30, owner-occupied 1-unit single family mortgages.

Methodology: We calculated the loss rate for loans. We assumed 10 percent probability of distressed scenario (2007-08) and 90 percent probability of normal scenario (2009-15), then compared the weighted loss rates with the LLPA. The figure shows the difference between loss rate and LLPA.

Why the changes?

FHFA has realigned GSE pricing with the 2020 capital rule by adjusting the risk-based LLPAs rather than the base guarantee fee. LLPAs are set to cover expected losses based on credit score, LTV and other factors, plus generate a profit margin. Prior changes included raising the profit margins on “mission-remote” loans (cash out refinances, investment properties, vacation homes, and loans above \$726,200 in the continental US), and lowering margins on the “mission” loans, such as those to lower-income first-time homebuyers and other underserved segments. The May 1 changes apply to the core business only: purchases and refinances for all other owner-occupants, the bulk of GSE business.

High LTV GSE borrowers also carry private mortgage insurance, which lowers losses to the GSEs. PMI costs increase steeply with credit scores, reflecting the reality that PMI companies too must hold more capital against loans with lower credit scores. Thus, lower credit score loans are being heavily capitalized for by both the GSEs and the PMIs. The new LLPAs better capture the relief that PMI and its capital provide the GSEs.

Interestingly, FHA lowered annual pricing in March 2023 [see p 33]. As a result, the inflection point where credit score and LTV combination make a GSE loans a better execution than an FHA loan has fluctuated this year. Page 33 shows that the tradeoff point for today's borrowers with less than 5% who meet the GSE's affordable housing goals is 740 credit score and above. However, these borrowers were not affected by the May 1 LLPA changes.

For loans affected by the May 1 LLPA changes, none of the borrowers with LTVs above 95% had a better execution with GSE loans than with FHA before, but after the changes, those with credit score of 780+ could go either way. We estimate that core borrowers with LTVs of 95% have a better execution with a conventional GSE loans if their credit score is around 760 or higher, as was the case before May 1.

In closing, it's worth noting that the recent changes to LLPAs and FHA premiums reflect risk fundamentals, and do not compromise the risk quality of their loans. As our Housing Credit Availability Index (HCAI, p 13) and loan performance charts (p29) credit quality remains high in both channels.

GSE + PMI Advantage	<640 FICO	640 - 659 FICO	660 - 679 FICO	680 - 699 FICO	700 - 719 FICO	720 - 739 FICO	740 - 759 FICO	760-779 FICO
>95% LTV w/ 35% PMI	-\$372	-\$312	-\$275	-\$191	-\$128	-\$94	-\$44	-\$5
Before May 1	-\$441	-\$361	-\$314	-\$206	-\$152	-\$104	-\$53	-\$25
95% LTV 30% PMI	-\$293	-\$257	-\$236	-\$150	-\$98	-\$60	-\$19	\$21
Before May 1	-\$332	-\$291	-\$260	-\$145	-\$93	-\$46	-\$5	\$30

Sources: Enact Mortgage Insurance, Ginnie Mae, and Urban Institute. FHA and 30-year conforming rates from MBA Weekly Applications Survey. Note: Rates as of May 12, 2023. Mortgage insurance premiums listed in percentage points. No shade indicates FHA monthly payment is more favorable, while blue indicates PMI is equal to or more favorable. The PMI monthly payment calculation is based on the percent coverage that applies to Fannie Mae's standard loans. Note that these are based on indicative pricing and MI Premiums and actual pricing is likely to vary, and in some cases these differences will be wiped out or even reversed.

INSIDE THIS ISSUE

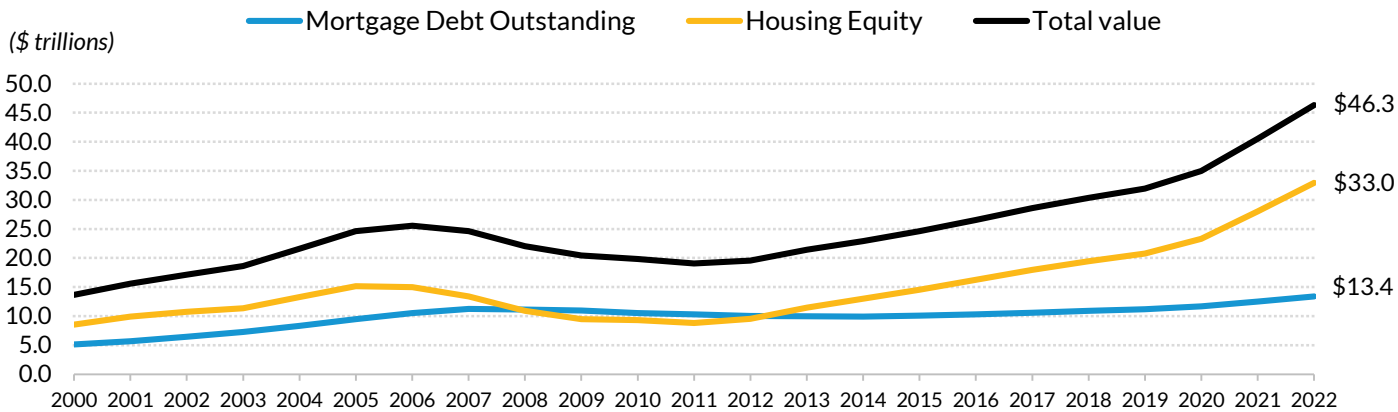
- Amid rising rates, mortgage origination volume totaled \$290 billion in the first quarter of 2023, versus \$725 billion trillion for the same period in 2022 (Page 8).
- House prices are now flat year-over-year, according to Black Knight data from April 2023 (Page 22).
- While the D180+ rate for the 2018 and later originations are running above 1999-2003 levels, most of these loans have 5 successfully exited COVID-19 forbearance (Page 24).

OVERVIEW

MARKET SIZE OVERVIEW

The Financial Accounts of the United States has indicated an increasing total value of the housing market since 2012, driven primarily by household equity. Over 2022, the total value of the single-family housing market expanded from \$40.6 trillion to \$46.3 trillion as housing equity expanded from \$28.0 to \$33.0 trillion while mortgage debt owed rose from \$12.5 to \$13.4 trillion. By the end of 2022, agency MBS accounted for 67.8 (\$8.9 trillion) percent of the total mortgage debt outstanding while private-label securities and home equity loans make up 3.2 (\$0.42 trillion) and 3.3 (\$0.43 trillion) percent, respectively. Unsecuritized first liens, both Bank Portfolio and Other, comprise the remaining 25.7 (\$3.4 trillion) percent with banks making up 17.5 (2.3 trillion) percent, credit unions 4.3 percent (\$0.57 trillion), and other non-depositories accounting for 3.8 (\$0.51 trillion) percent of the total.

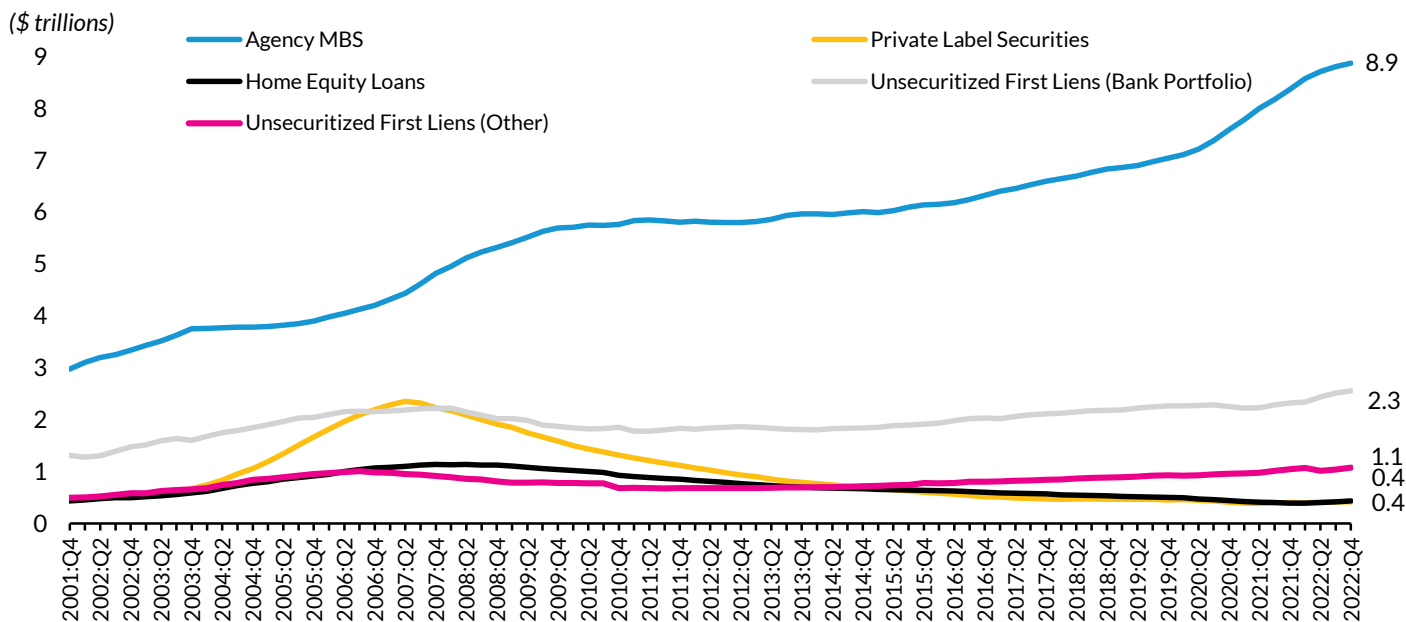
Value of the US Single Family Housing Market



Sources: Financial Accounts of the United States and Urban Institute. Last updated March 2023.

Note: Single family includes 1-4 family mortgages. The home equity number is grossed up from Fed totals to include the value of households and the non-financial business sector.

Composition of the US Single Family Mortgage Market



Sources: Financial Accounts of the United States and Urban Institute. Last updated March 2023.

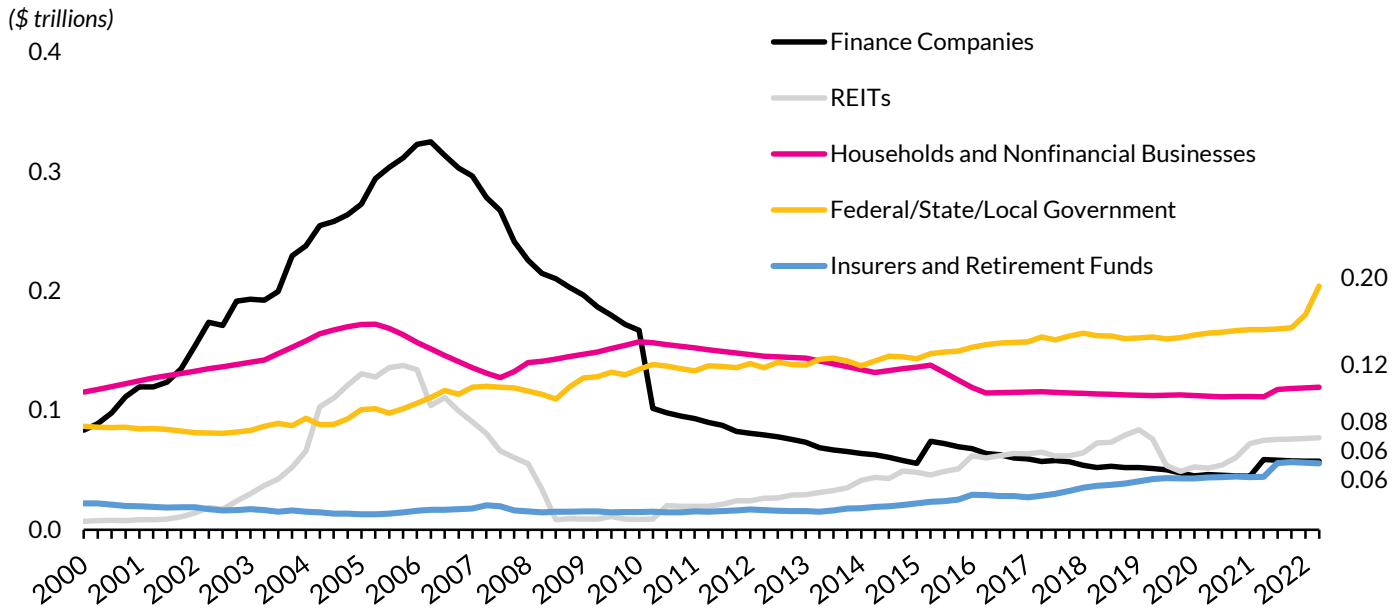
Notes: Unsecuritized First Liens (Other) includes mortgages not held on bank balance sheets.

OVERVIEW

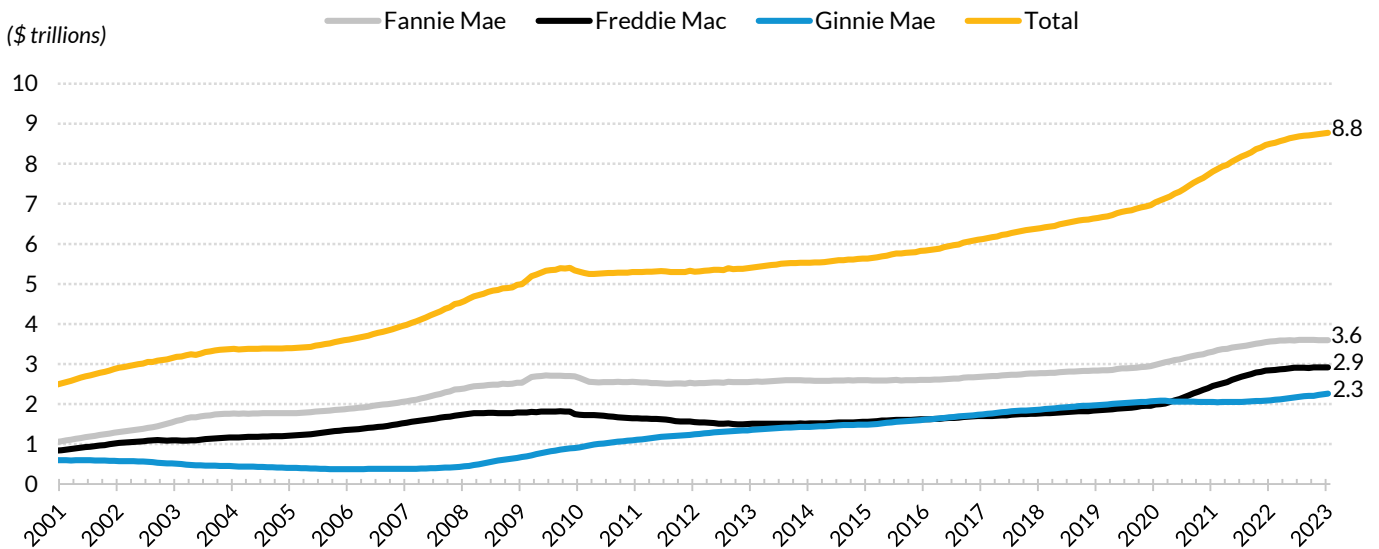
MARKET SIZE OVERVIEW

As of Q4 2022, unsecuritized first liens held outside banks and credit unions totaled \$ 0.51 trillion, an increase of about 12.4 percent relative to Q4 2021. Amid higher interest rates, holdings by federal/state/local governments, the largest holders of these unsecuritized first liens, grew by 21.8% over the year. By April 2023, outstanding securities in the agency market totaled \$8.8 trillion, 41.1 percent (\$3.6 trillion) of which was Fannie Mae, 33.3 percent (\$2.9 trillion) Freddie Mac, and 25.7 percent (\$2.3 trillion) Ginnie Mae. After closing the gap in securitizations with Freddie Mac in the aftermath of the Great Recession, Ginnie securitizations again lag.

Unsecuritized 1st Liens Held by Non-Depositories



Agency Mortgage-Backed Securities

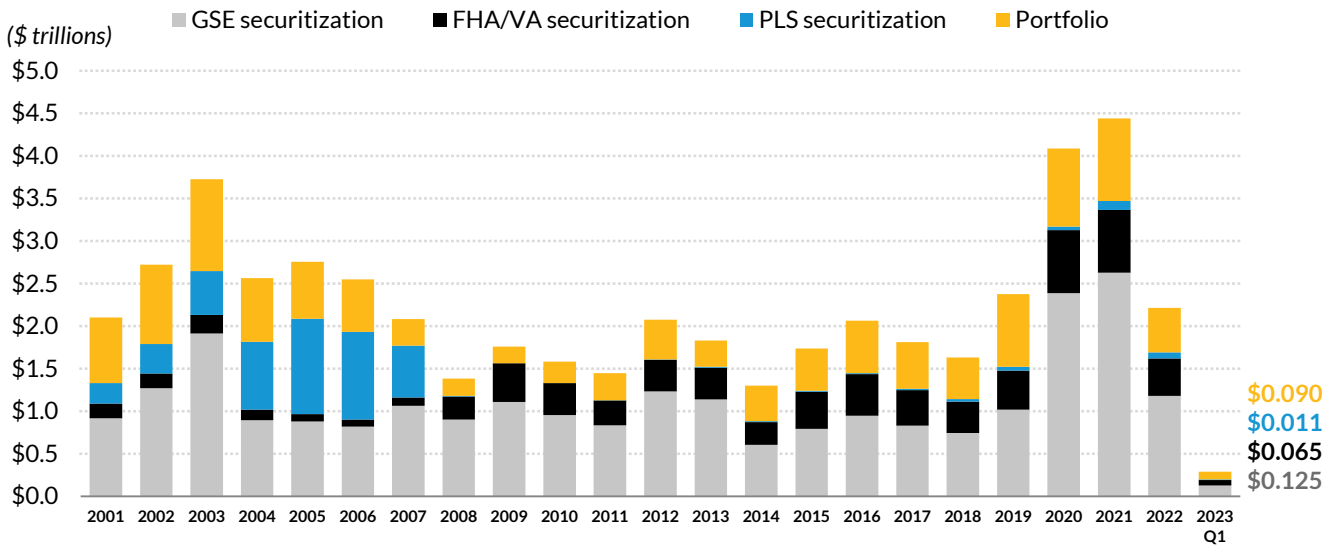


OVERVIEW

ORIGINATION VOLUME AND COMPOSITION

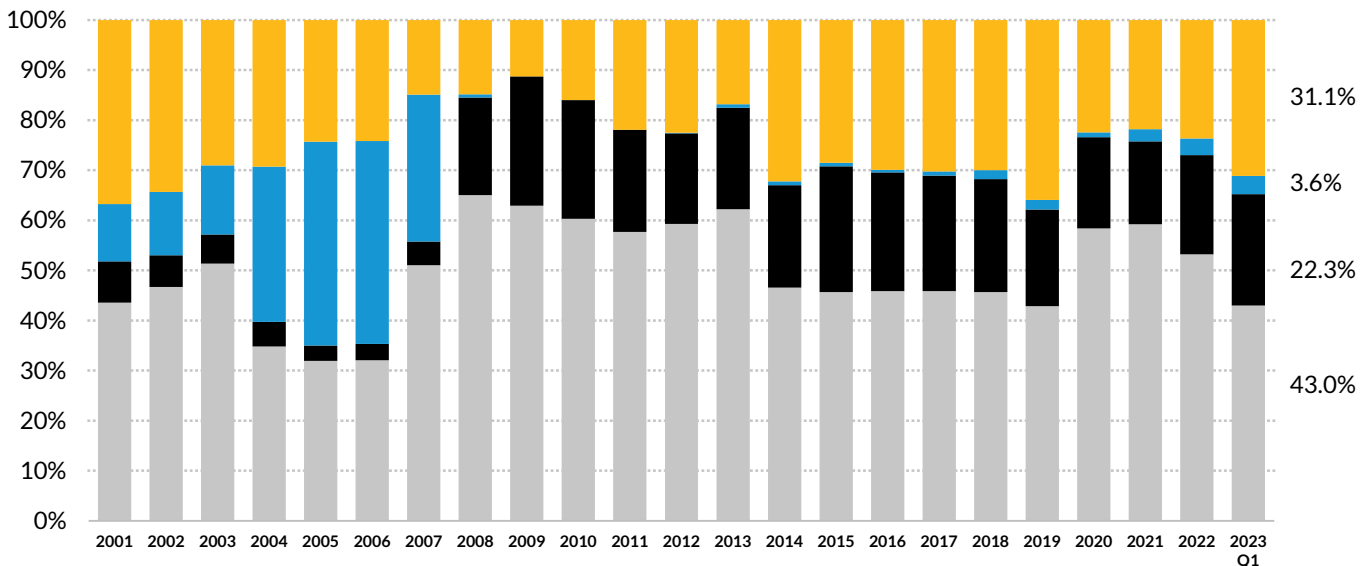
First Lien Origination Volume

Amid rising interest rates, mortgage origination volume totaled \$290 billion in the first quarter of 2023, versus \$725 billion trillion for Q1 2022. The decline in originations largely reflects fewer refinance loans. The GSE share was lower in Q1 2023 at 43.0 percent, compared to 63.0 percent in Q1 2022. The PLS share was 3.6 percent in Q1 2023, down from 4.8 percent in Q1 2022. The decline in the share of GSE and PLS originations was offset by portfolio loan share which reached 31.1 percent in Q1 2023, an increase compared to the 14.8 percent share in Q1 2022. The FHA/VA share in Q1 2023 stood at 22.3 percent, up from 17.5 percent in Q1 2022. However, while the shares of portfolio 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 May 2023.

(Share, percent)



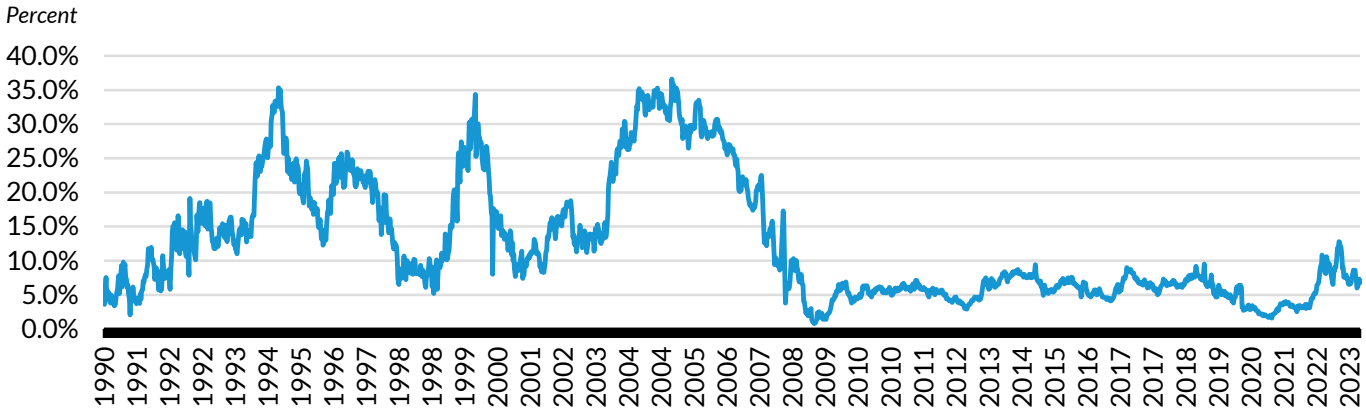
Sources: Inside Mortgage Finance and Urban Institute. Last updated May 2023.

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. As rates have stabilized just above six percent, the adjustable-rate share has broadly decreased to 6.8 percent by the week ending May 5, 2023.

Adjustable-Rate Mortgage Share of Applications

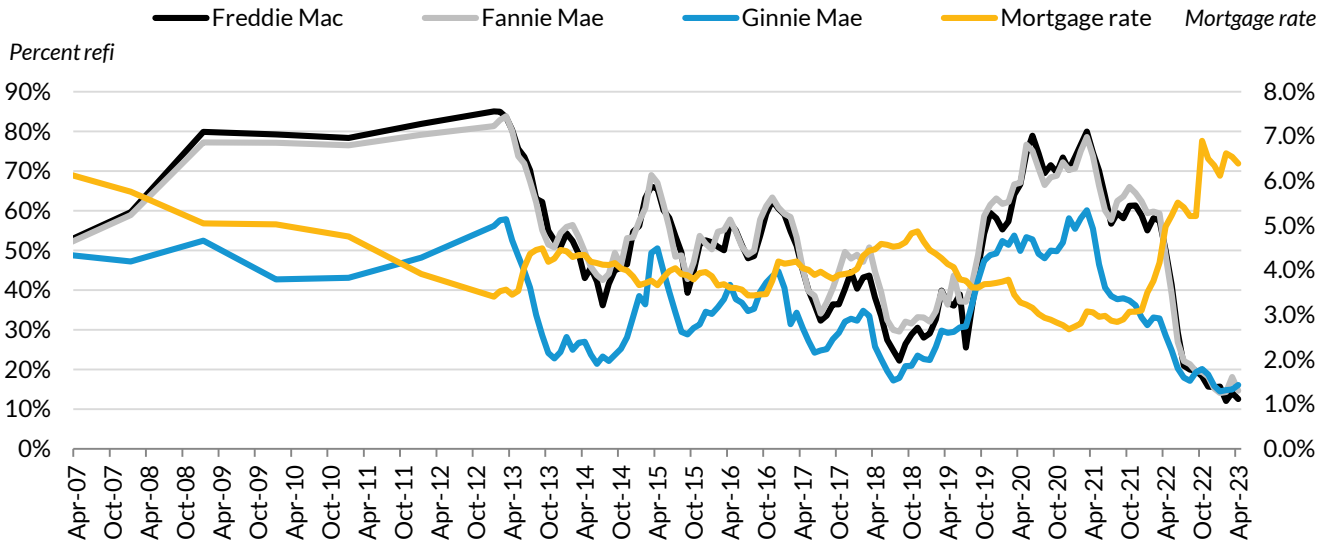


Source: Mortgage Bankers Association (MBA) Weekly Mortgage Applications Survey.

Note: Includes purchase and refinance applications. Data updated through May 5, 2023.

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 April 2023, the Fannie Mae refi share is 14.7 percent, and the Ginnie Mae refi share is 16.1 percent. Meanwhile, the Freddie Mac refi share is 12.6 percent, down near a series low of 12.1 percent from February 2023. The refi share across the GSEs has declined much more than Ginnie Mae's as rates increased in 2022. This has led to a rare convergence in refi share for GSE and Ginnie Mae channels.

Percent Refi at Issuance



Sources: eMBS and Urban Institute.

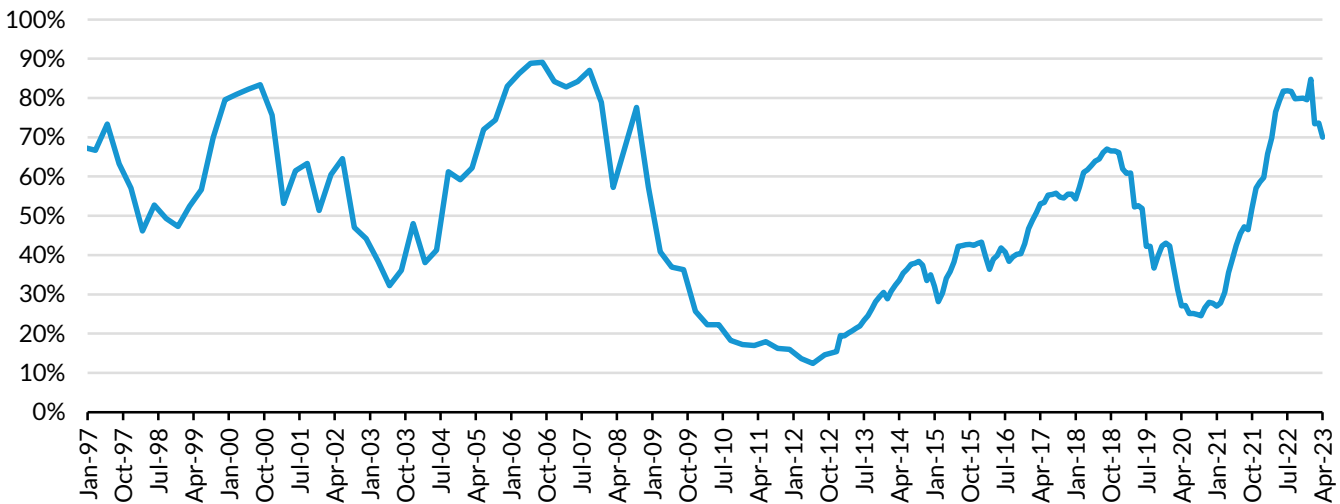
Note: Based on at-issuance balance. Figure based on data from April 2023.

OVERVIEW

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 but has modestly declined to 70.0 percent in April as rates have settle modestly below their recent peak. The cash-out share still remains elevated, but the absolute volume of cash-out refinances is low. The cash-out refi share of total originations continues to decline, but the cash-out refi share is lower in Fannie and Freddie than FHA or VA. While FHA 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.

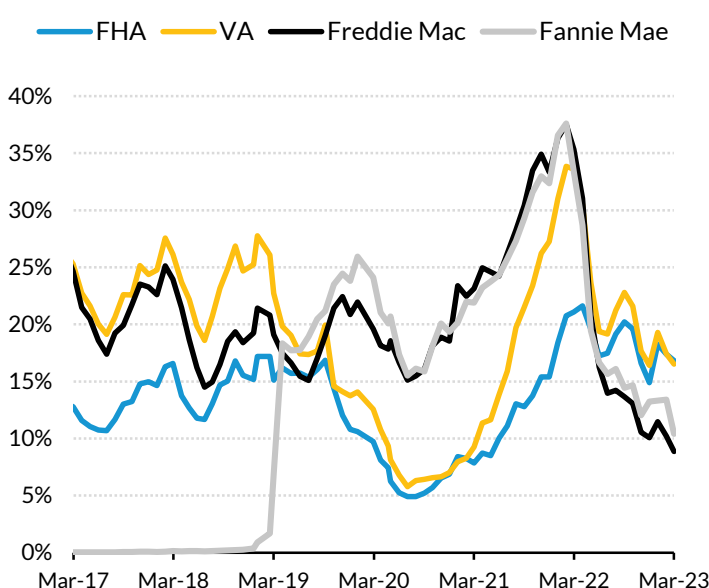
Cash-out Share of Conventional Refinances



Sources: Freddie Mac, eMBS and Urban Institute.

Note: The cashout 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 April 2023.

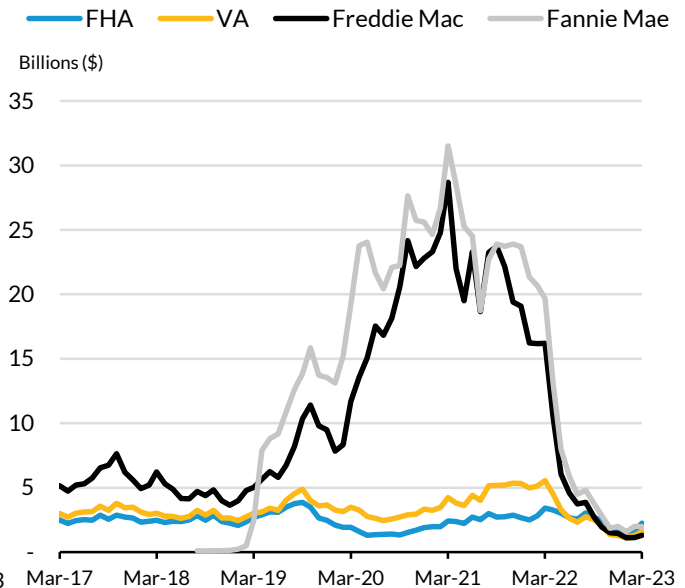
Cash-out Refi Share of All Originations



Sources: eMBS and Urban Institute.

Note: Data as of March 2023.

Cash-out Refinance Volume by Agency



Sources: eMBS and Urban Institute

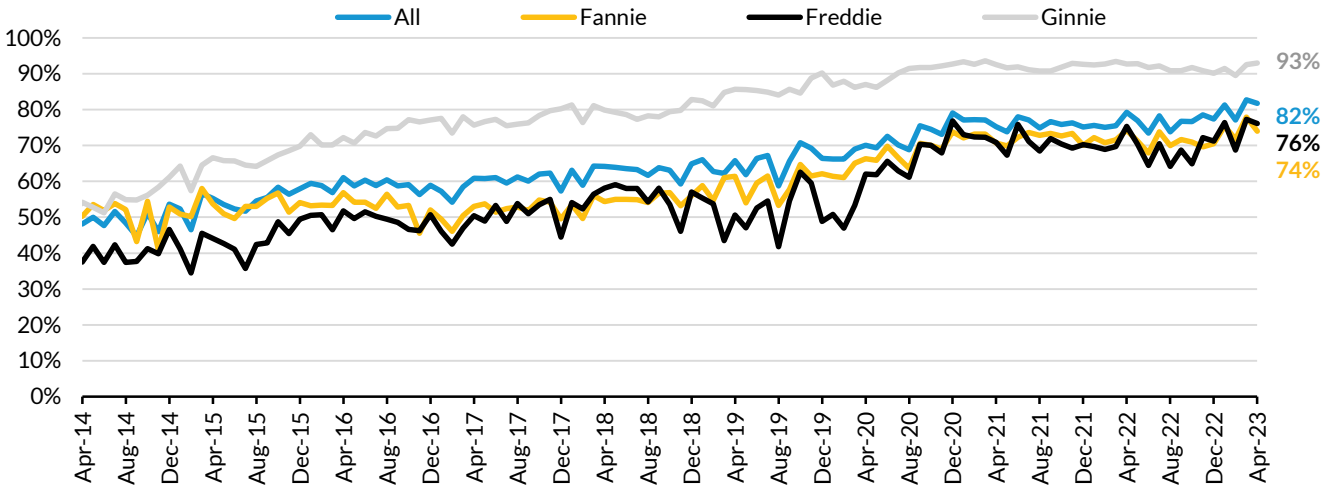
Note: Data as of March 2023.

OVERVIEW

AGENCY NONBANK ORIGINATION SHARE

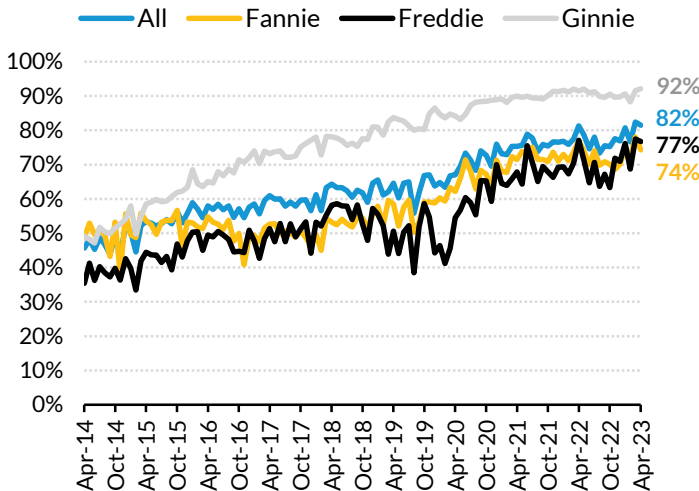
The nonbank share for agency originations has been rising steadily since 2013, standing at 82 percent in April 2023. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at 93 percent in April 2023. Fannie and Freddie had nonbank shares of 74 percent and 76 percent respectively in April 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 April 2023.

Nonbank Origination Share: All Loans



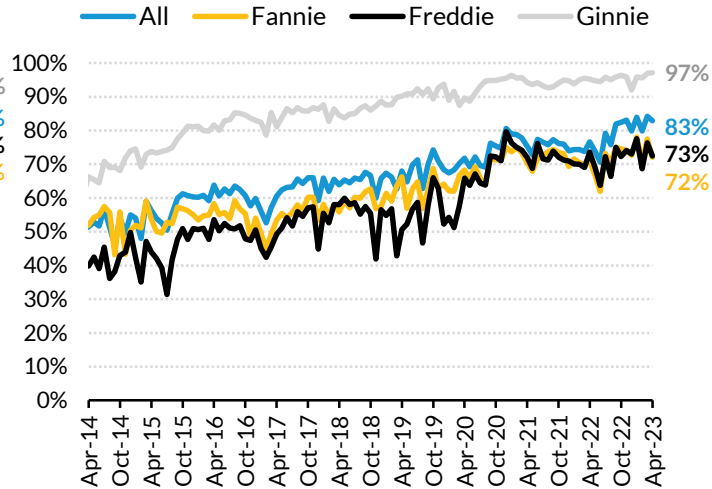
Sources: eMBS and Urban Institute.

Nonbank Origination Share: Purchase Loans



Sources: eMBS and Urban Institute.

Nonbank Origination Share: Refi Loans



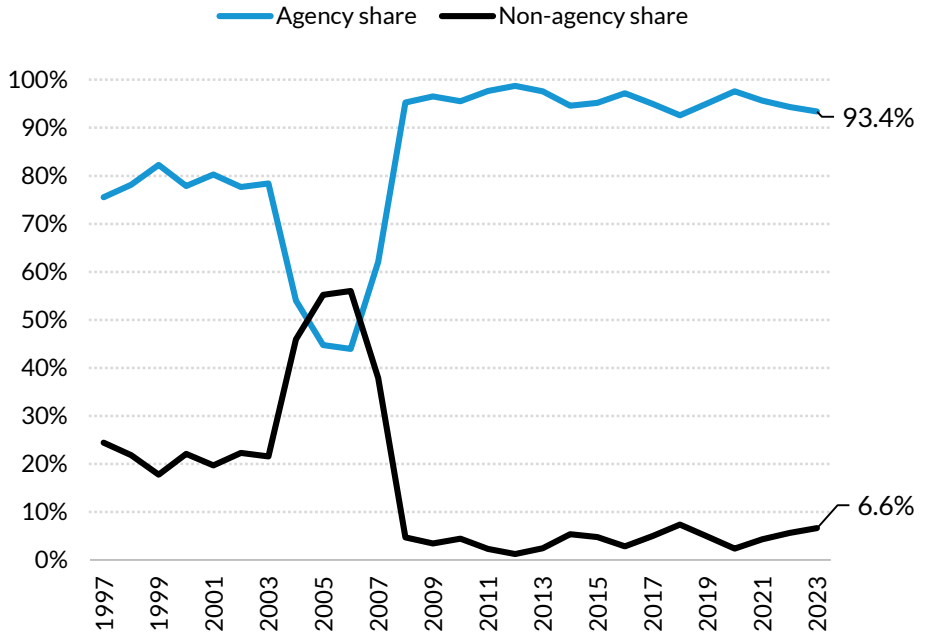
Sources: eMBS and Urban Institute.

OVERVIEW

SECURITIZATION VOLUME AND COMPOSITION

Agency/Non-Agency Share of Residential MBS Issuance

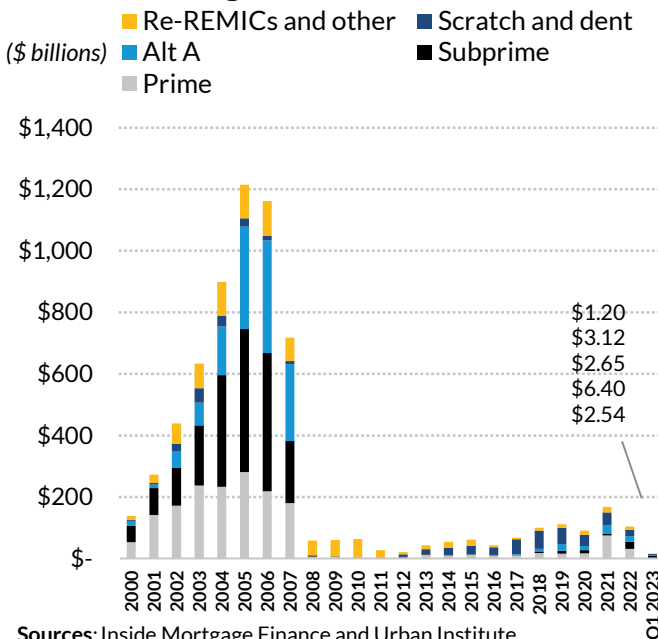
The non-agency share of mortgage securitizations increased gradually from 1.23 percent in 2012 to 7.42 percent in 2018. In 2020, the non-agency share dropped to 2.41 percent, reflecting increased agency refinances and less non-agency production due to COVID-19. The non-agency share has risen modestly since 2020, rising to 6.6 percent by April 2023, near its 2018 level. In dollar terms, non-agency issuance reached \$15.9 billion in Q1 2023, a decrease relative to the \$42.5 billion in Q1 2022 and \$28.6 billion in Q1 2021. Non-agency securitization totaled \$4.4 billion in April 2023, its second consecutive increase since February 2023. These numbers remain small compared to 2021 and the first half of 2022 levels.



Sources: Inside Mortgage Finance and Urban Institute.

Note: Based on data from April 2023. Monthly non-agency volume is subject to revision.

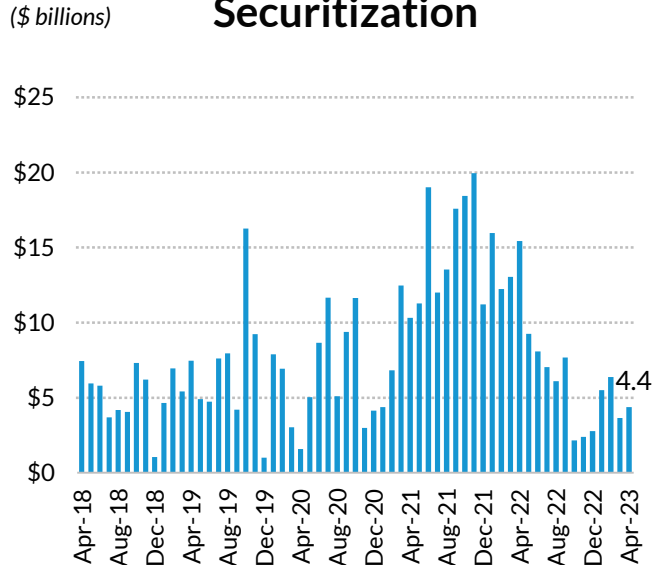
Non-Agency MBS Issuance



Sources: Inside Mortgage Finance and Urban Institute.

Note: Data through Q1 2023.

Monthly Non-Agency Securitization



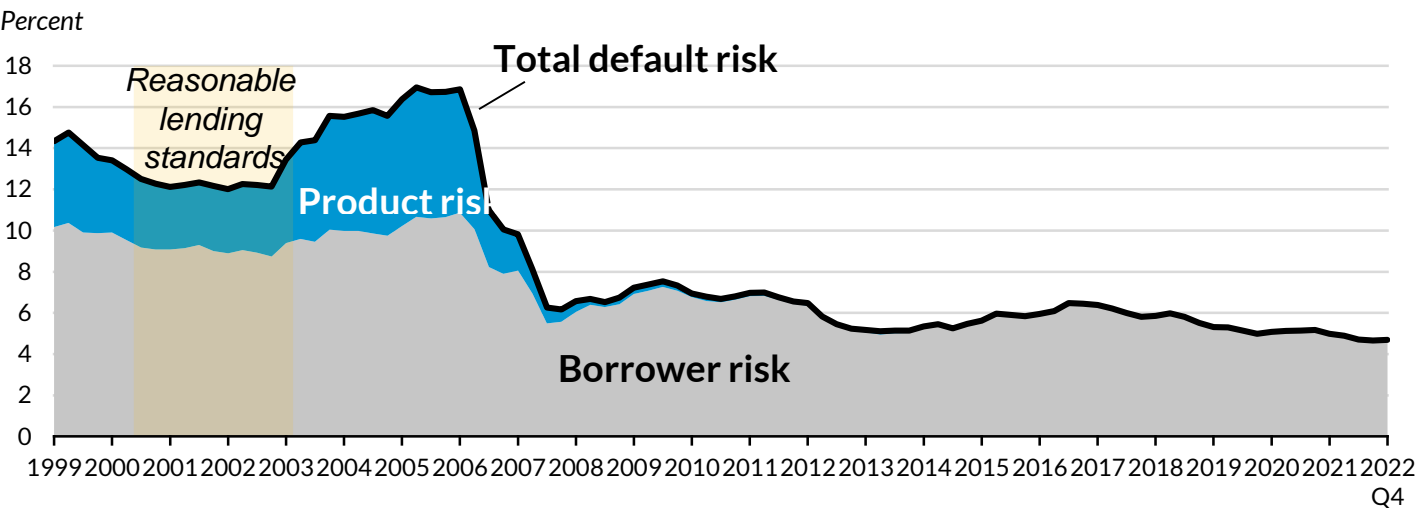
Sources: Inside Mortgage Finance and Urban Institute.

CREDIT BOX

HOUSING CREDIT AVAILABILITY INDEX

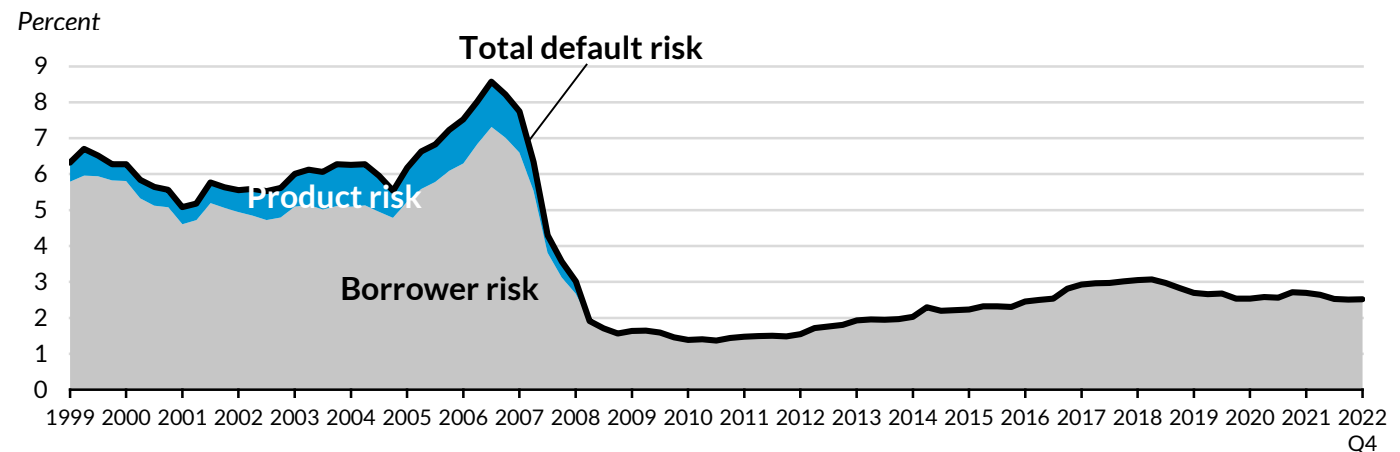
The Urban Institute’s Housing Credit Availability Index (HCAI) assesses lenders’ tolerance for both borrower risk and product risk, calculating the share of owner-occupied purchase loans that are likely to go 90+ days delinquent over the life of the loan. The HCAI stood at 4.7 percent in Q4 2022, remaining flat from Q3 2022 and lower from Q4 2021. The tightening from Q4 2021 to Q4 2022 reflects a decrease in default risk taken across all channels but was led by a seven percent decline among the GSEs, followed by a six percent decrease among portfolio and private label securities and three percent decline in the government channel. Note that we updated the methodology as of Q2 2020, see new methodology [here](#). More information about the HCAI is available [here](#).

All Channels



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 Q4 2022, credit availability stood at 2.52 percent, slightly up from 2.51 percent in Q3 2022 and down from 2.69 percent in Q4 2021.



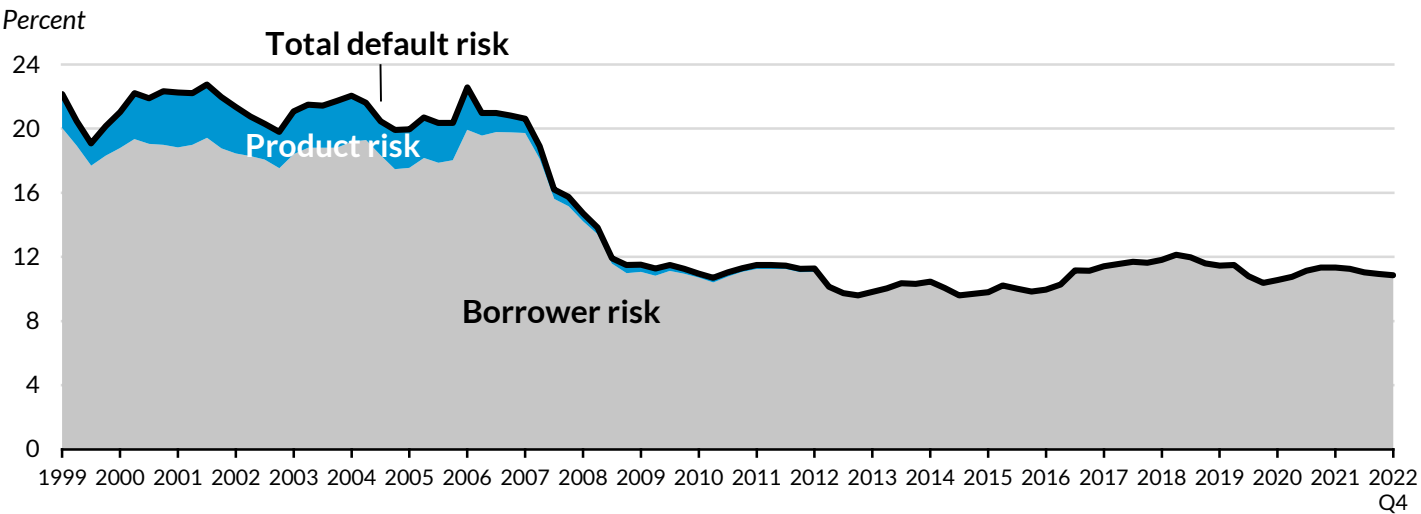
Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.

Note: Default is defined as 90 days or more delinquent at any point. Last updated April 2023.

CREDIT BOX HOUSING CREDIT AVAILABILITY INDEX

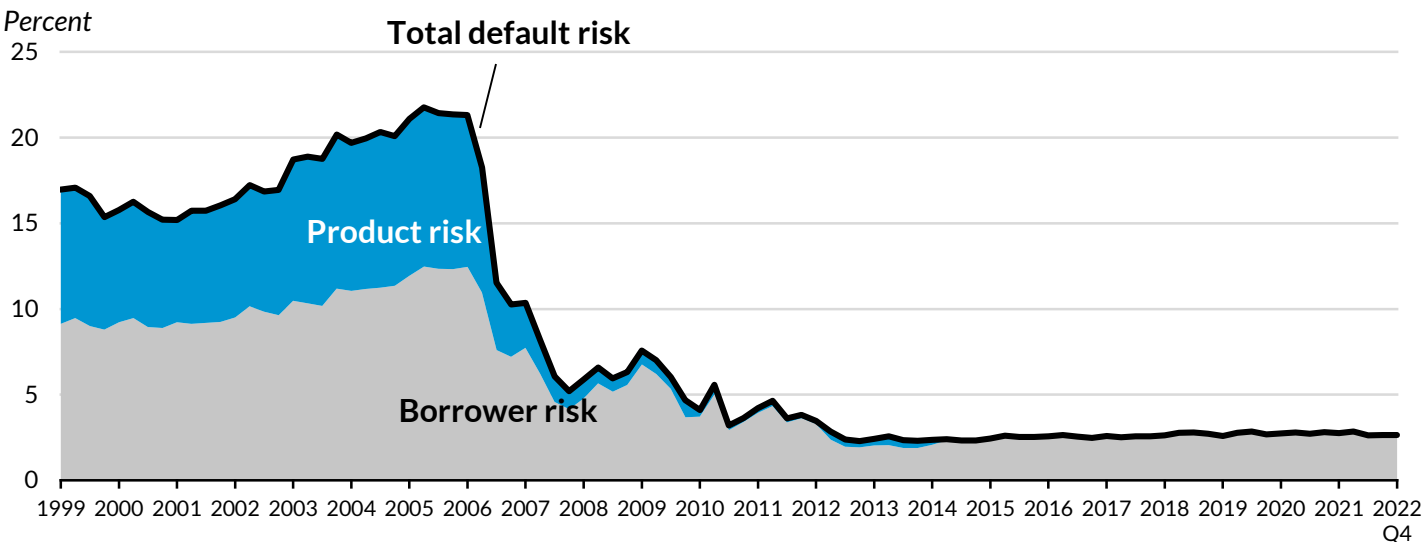
Government Channel

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 before dropping to 10.9 percent in Q4 2022; far below the pre-bubble range of 19 to 23 percent.



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 0.5 percent and total risk largely in the range of 2.3-3.0 percent; it was 2.6 percent in Q4 2022. This 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 April 2023.

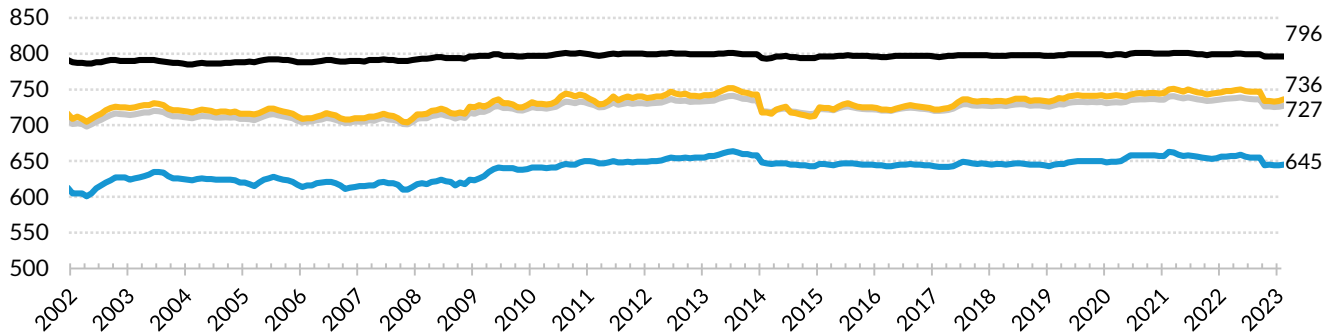
CREDIT AVAILABILITY FOR PURCHASE LOANS

Access to credit remains tight by historical standards, but it has loosened marginally in recent months for lower FICO borrowers. The median FICO for current purchase loans is about 14 points higher than the pre-housing crisis level of around 722. The 10th percentile, which represents the lower bound of creditworthiness to qualify for a mortgage, was 645 in March 2023, which is still high compared to low-600s pre-bubble. The higher rate environment has coincided with a rise in DTIs. However, DTIs largely stabilized since January 2023 with the 10th percentile DTI declining modestly. Since the fourth quarter of 2022, the median LTV at origination of 95 percent also remains higher.

— Mean — 90th percentile — 10th percentile — Median

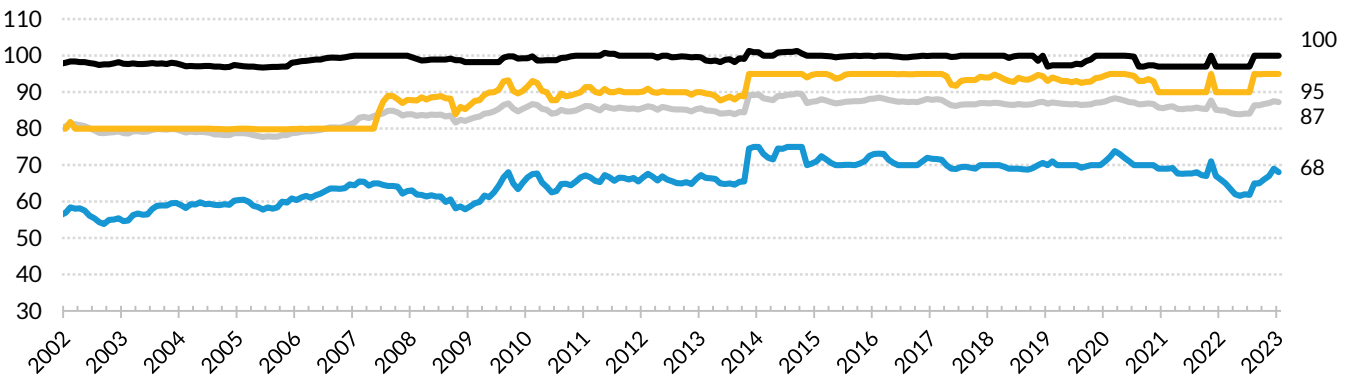
Borrower FICO Score at Origination

FICO Score



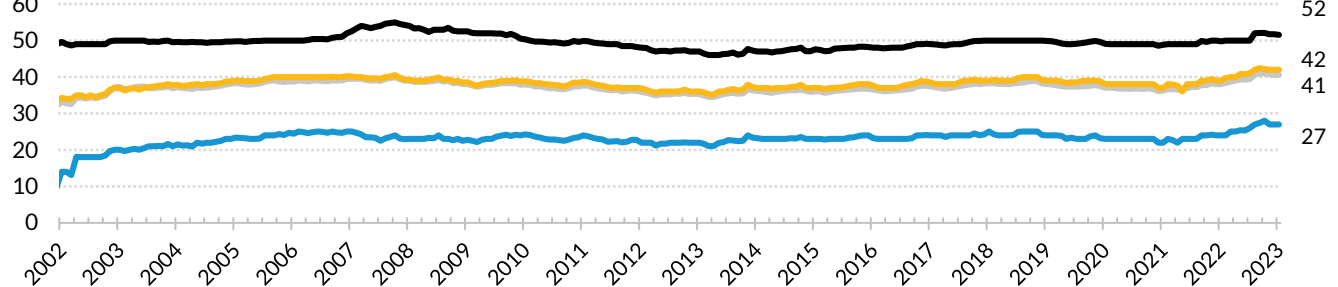
Combined LTV at Origination

LTV



DTI at Origination

DTI



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

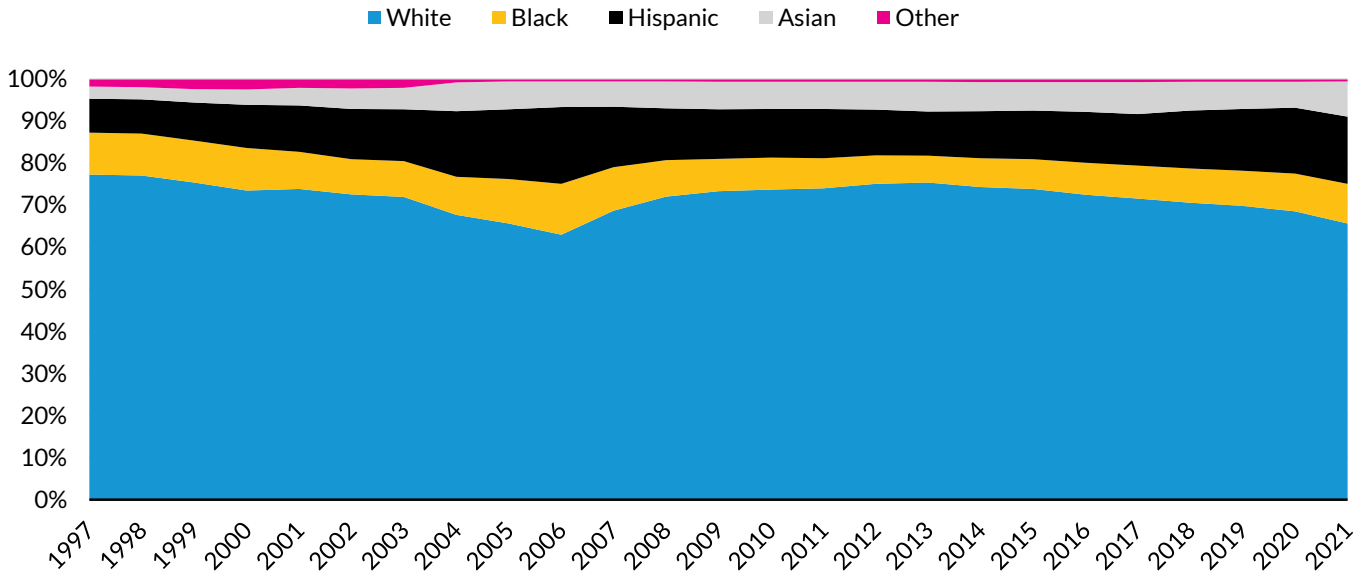
Note: Includes owner-occupied purchase loans only. DTI data prior to April 2018 is from CoreLogic; after that date, it is from Black Knight. A back-update to the Black Knight historical series was made in September 2021 for data starting from 2001 onward. Data as of March 2023.

OVERVIEW

RACIAL & ETHNIC COMPOSITION

Across all channels, the share of purchase lending to minorities reached a peak of 37.0% in 2006. Following the Great Recession and amidst a period of very tight credit, the minority share of purchase lending declined to a low of 24.5% in 2013. Since then, it has slowly recovered – it stood at 34.3% in 2021, up from 31.4% in 2020. The share of purchase lending to Black borrowers varied widely by channel in 2021. 18.8 percent of FHA loans were originated to Black borrowers compared with 13.7 percent of VA loans, 5.3 percent for GSEs and 4.4 percent of portfolio loans. Similarly, 27.5 percent of FHA purchase loans were originated to Hispanic borrowers in 2021 compared to 13.9 percent of VA loans, 12.4 percent for GSEs, and 11.3 percent of portfolio loans.

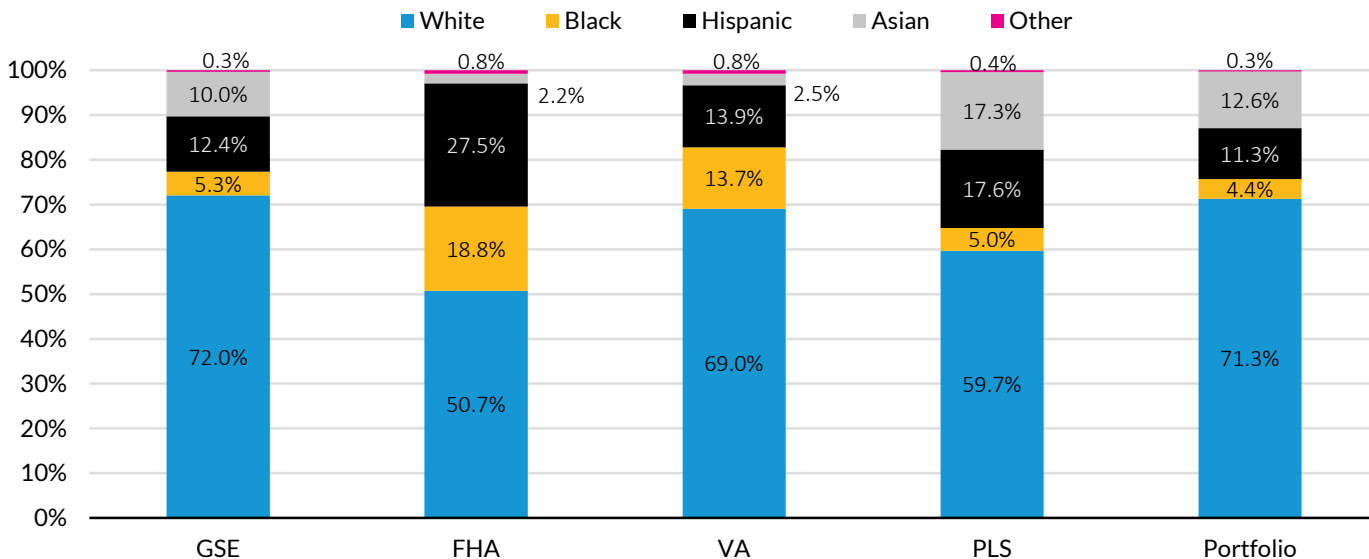
2021 Purchase Loan Shares by Race



Source: 1997 to 2021 Home Mortgage Disclosure Act (HMDA).

Note: Includes purchase loans only. Shares based on loan counts

2021 Purchase Loan Channel Shares by Race



Source: 1997 to 2021 Home Mortgage Disclosure Act (HMDA).

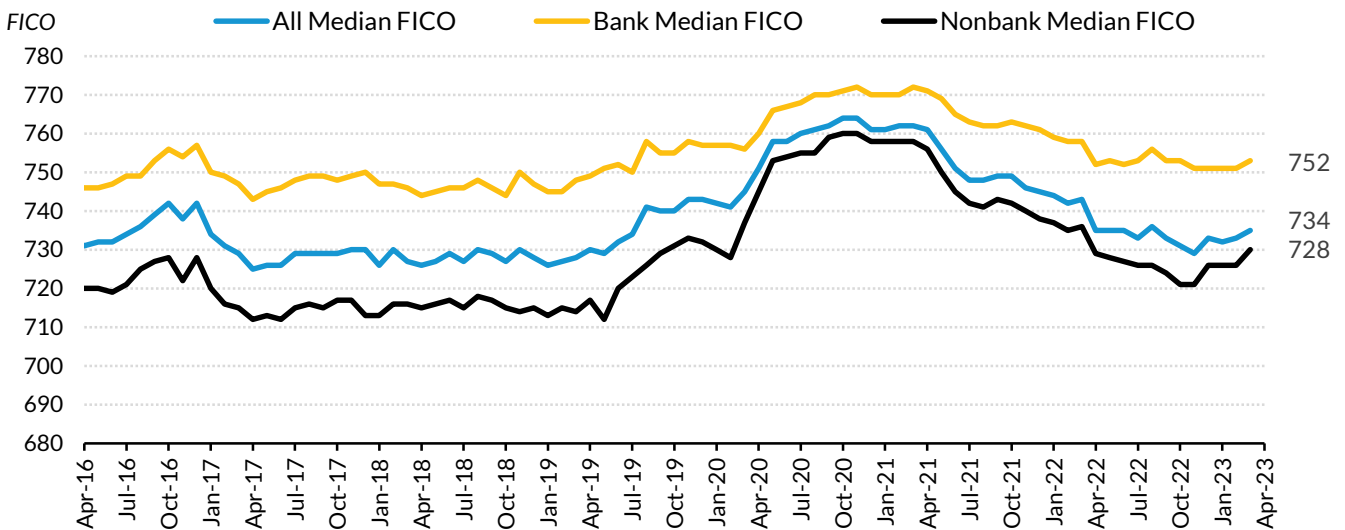
Note: Includes purchase loans only. Shares based on loan counts

CREDIT BOX

AGENCY NONBANK CREDIT BOX

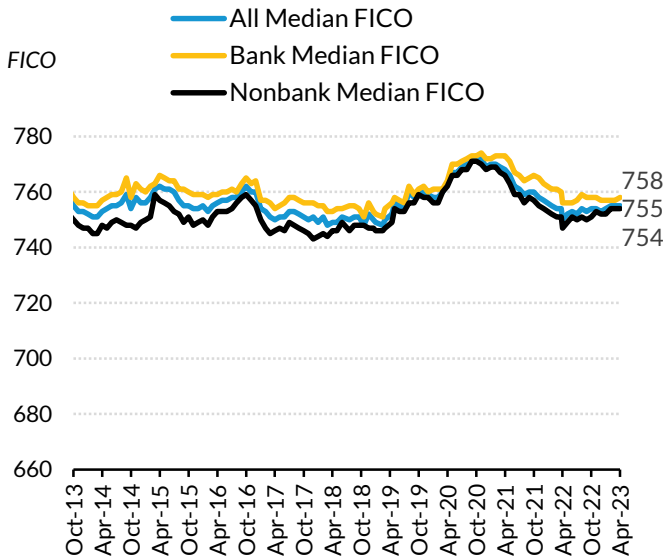
After falling in 2021 and most of 2022, median FICO scores have risen modestly in 2023, from 726 to 734, as interest rates have settled slightly off their recent peak. FICO scores for banks and nonbanks in both GSE and Ginnie Mae segments increased during the Q1 2019 to Q1 2021 period due to increased 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. There has also been a sharp cut-back in FHA lending by banks post-2008. As pointed out on page 11, banks now comprise only about 7 percent of Ginnie Mae originations. The gap between agency bank and nonbank FICOs reached 24 points in April 2023. The difference between the median FICO on bank and non-bank GSE loans stood at 4 points in April 2023. But across Ginnie Mae loans, the gap currently sits at 18 points.

Agency FICO: Bank vs. Nonbank



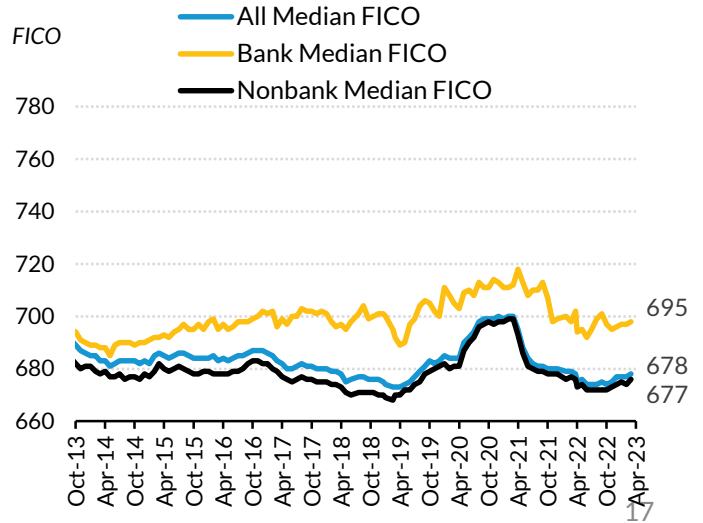
Sources: eMBS and Urban Institute.

GSE FICO: Bank vs. Nonbank



Sources: eMBS and Urban Institute.

Ginnie Mae FICO: Bank vs.



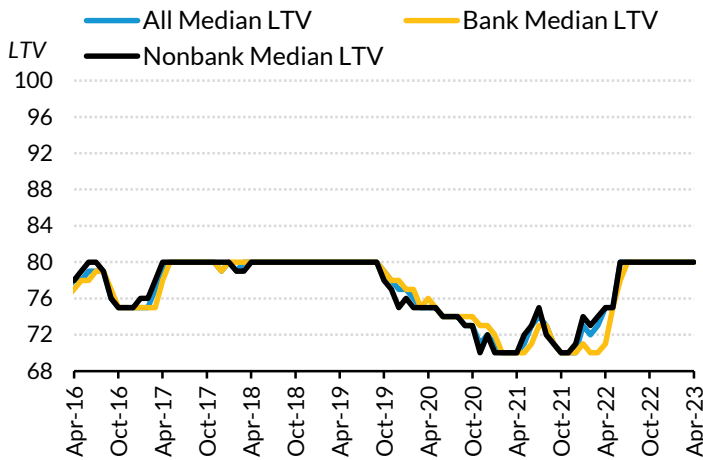
Sources: eMBS and Urban Institute.

CREDIT BOX

AGENCY NONBANK CREDIT BOX

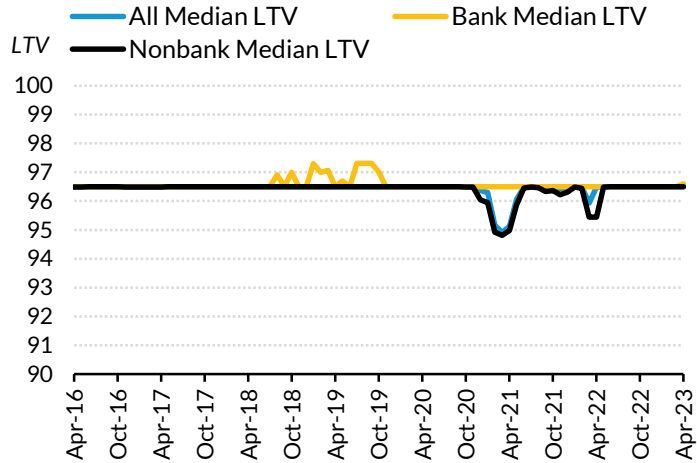
Nonbanks are more expansive in their lending than their bank counterparts, as indicated by higher back-end DTIs in both GSE and Ginnie Mae markets. From early 2017 to early 2019, there was a sustained increase in DTIs, which has reversed beginning in the spring of 2019. This is true for both Ginnie Mae 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 steep house price increases, both of which force households to borrow more in relation to income. In recent months, nonbank median DTI has declined marginally as rates have retreated from peak levels, pushing down the overall Ginnie Mae DTI.

GSE LTV: Bank vs. Nonbank



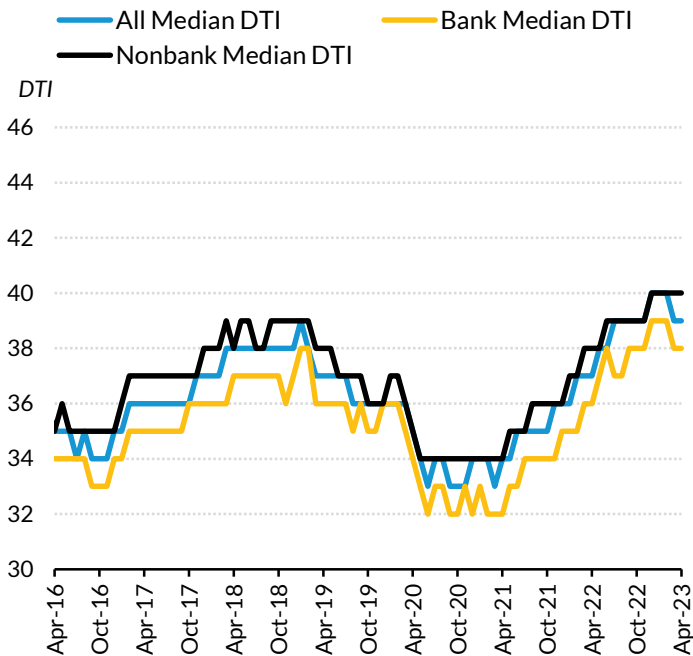
Sources: eMBS and Urban Institute.

Ginnie Mae LTV: Bank vs. Nonbank



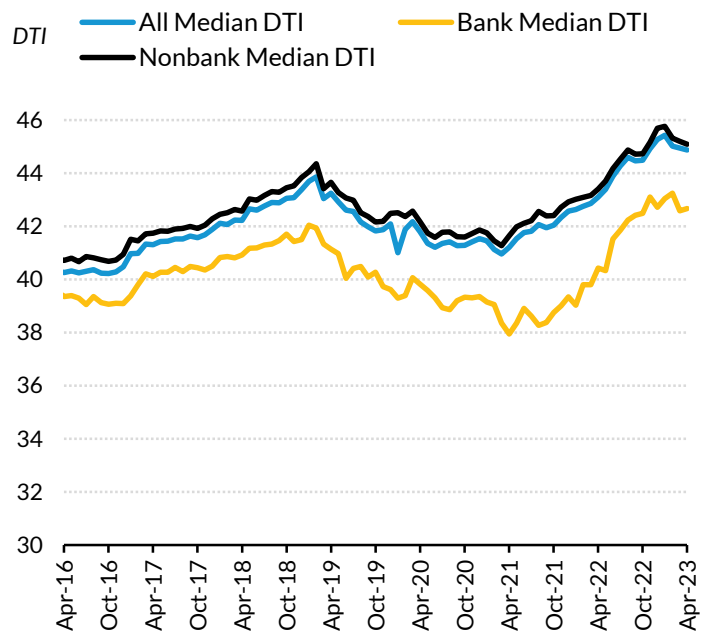
Sources: eMBS and Urban Institute.

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

MORTGAGE ORIGINATION PROJECTIONS

Fannie Mae, Freddie Mac and the MBA estimate 2023 origination volume will range from \$1.6 trillion to \$1.9 trillion. For the full year of 2023, each organization expects 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 coincides with an expectation that the refi share will also be lower as well. And as illustrated on slide 20, these projections reflect an expectation of fewer home sales in 2023 relative to 2022 as well.

Total Originations and Refinance Shares

Period	Originations (\$ billions)			Refi Share (percent)		
	Total, FNMA estimate	Total, FHLMC estimate	Total, MBA estimate	FNMA estimate	FHLMC estimate	MBA estimate
2022 Q1	753	847	689	48	50	48
2022 Q2	678	744	678	26	28	33
2022 Q3	534	551	480	19	11	22
2022 Q4	402	453	398	17	12	17
2023 Q1	317	406	333	16	17	20
2023 Q2	436	525	461	16	14	21
2023 Q3	463	538	490	18	15	26
2023 Q4	441	474	522	25	18	28
2017	1826	1810	1760	36	37	35
2018	1766	1700	1677	30	32	28
2019	2462	2432	2253	46	46	44
2020	4374	4441	4108	64	64	64
2021	4570	4838	4436	58	58	62
2022	2418	2595	2245	31	29	33
2023	1656	1942	1844	19	16	26

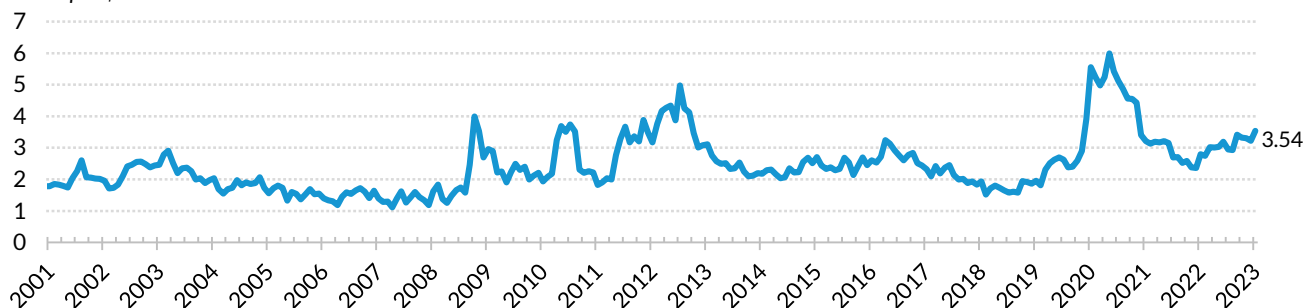
Sources: Fannie Mae, Freddie Mac, Mortgage Bankers Association and Urban Institute.

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, and 2021 were 4.0, 4.6, 3.9, 3.0, and 3.0 percent. For 2022, the annual averages for Fannie, Freddie, and MBA are 5.3, 4.6 (projection), and 6.6 percent. Freddie Mac forecasts are now released quarterly, last updated October 2022.

Originator Profitability and Unmeasured Costs

In April 2023, Originator Profitability and Unmeasured Costs (OPUC) stood at \$3.54 per \$100 loan, up from \$2.90 per \$100 loan in February 2020. Increased profitability 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.

Dollars per \$100 loan



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 April 2023.

Note: OPUC is a monthly (4-week moving) average as discussed in [Fuster et al. \(2013\)](#).

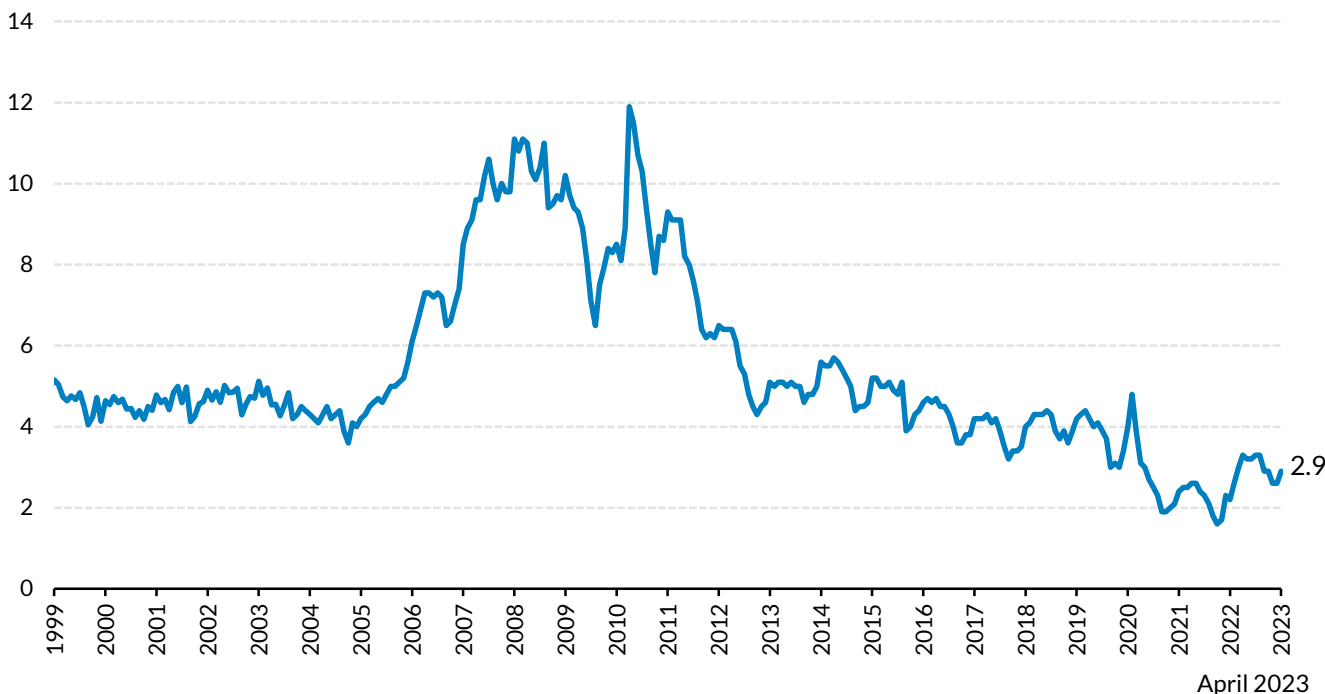
STATE OF THE MARKET

HOUSING SUPPLY

Months' supply of existing homes, single-family and condos/co-ops, was 2.9 in April 2023, up from 2.6 in February and March. Months' supply increased over much of 2022, reflecting some seasonality and coinciding with rising interest rates over most of the year, but it has declined over the first quarter of 2023 entering the Spring buying season. Fannie Mae, the MBA, and the NAHB forecast 2023 housing starts to be between 1.23 and 1.40 million units. Fannie Mae, Freddie Mac, the MBA, and the NAHB predict total home sales in 2023 ranging between 4.59 to 5.10 million units inclusive. Both housing starts and home sales forecasts for 2023 are below their respective 2022 estimates of housing market activity.

Months' Supply

Months



Source: National Association of Realtors and Urban Institute. Data as of April 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, FHLMC estimate	Total, MBA estimate	Total, NAHB estimate*
2017	1203	1208	1205	6123	6120	6158	5520
2018	1250	1250	1247	5957	5960	5956	5350
2019	1290	1295	1291	6023	6000	6016	5429
2020	1380	1397	1395	6462	6500	6506	5888
2021	1601	1605	1605	6891	6900	6896	6189
2022	1553	1556	1554	5671	5800	5737	5171
2023	1233	1398	1321	4841	5100	4826	4589

Sources: Mortgage Bankers Association, Fannie Mae, Freddie Mac, National Association of Home Builders and Urban Institute.

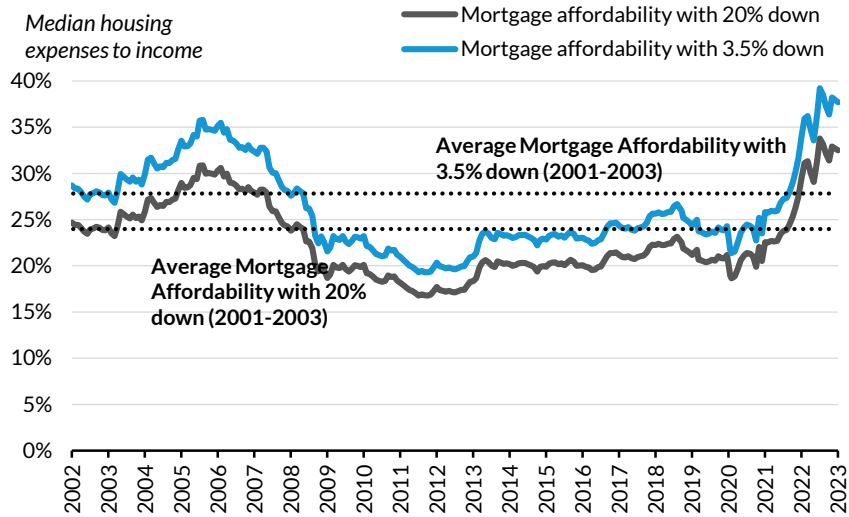
Note: Shaded boxes indicate forecasted figures; column labels indicate source of estimate. Freddie Mac home sales are now updated quarterly instead of monthly, with the last update in October 2022. The NAHB home sales also excludes existing condos and co-ops reported by NAR.

STATE OF THE MARKET

HOUSING AFFORDABILITY

National Mortgage Affordability Over Time

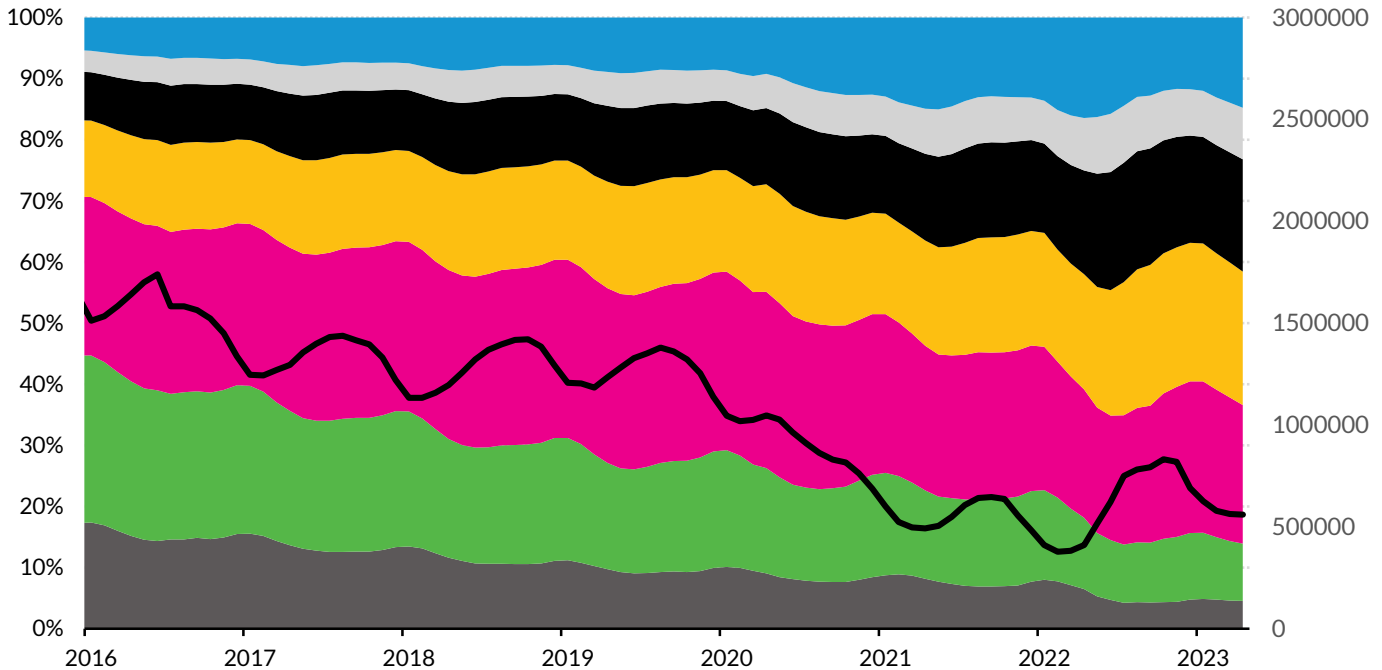
After some modest relief in December and January, mortgage affordability worsened in February, but, as rates have modestly retreated, mortgage affordability improved slightly in March and April. Still, as of April 2023, with a 20 percent down payment, the share of median income needed for the monthly mortgage payment stood at 32.5 percent, slightly higher than the 30.9 percent at the peak of the housing bubble in November 2005; and with 3.5 percent down it is 37.7 percent, also slightly 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

Share of Active Listings

- Under \$100K
- \$100 - \$200K
- \$200 - \$350K
- \$350 - \$500K
- \$500 - 750K
- \$750K - \$1M
- Above \$1M
- Total Active Listings (Right)



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 April 2023.

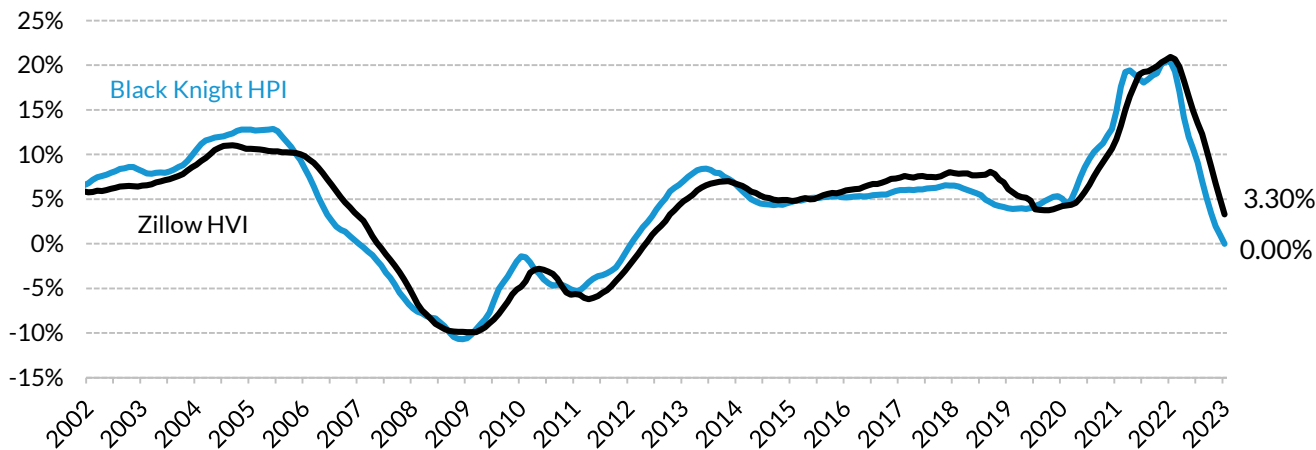
STATE OF THE MARKET

HOME PRICE INDICES

National Year-Over-Year HPI Growth

According to Black Knight's updated repeat sales index, year-over-year home price appreciation slowed to 0.00 percent in April 2023, compared to 1.00 percent in March 2023. Year-over-year home price appreciation as measured by Zillow's hedonic home value index was 3.30 percent in April 2023, down from 4.99 percent in March 2023. Home price appreciation has continued to slow since April 2022; that may have modestly improved affordability. However, affordability remains low amid the broader increase in home prices combined with a sharp rise in interest rates over 2022.

Year-over-year growth

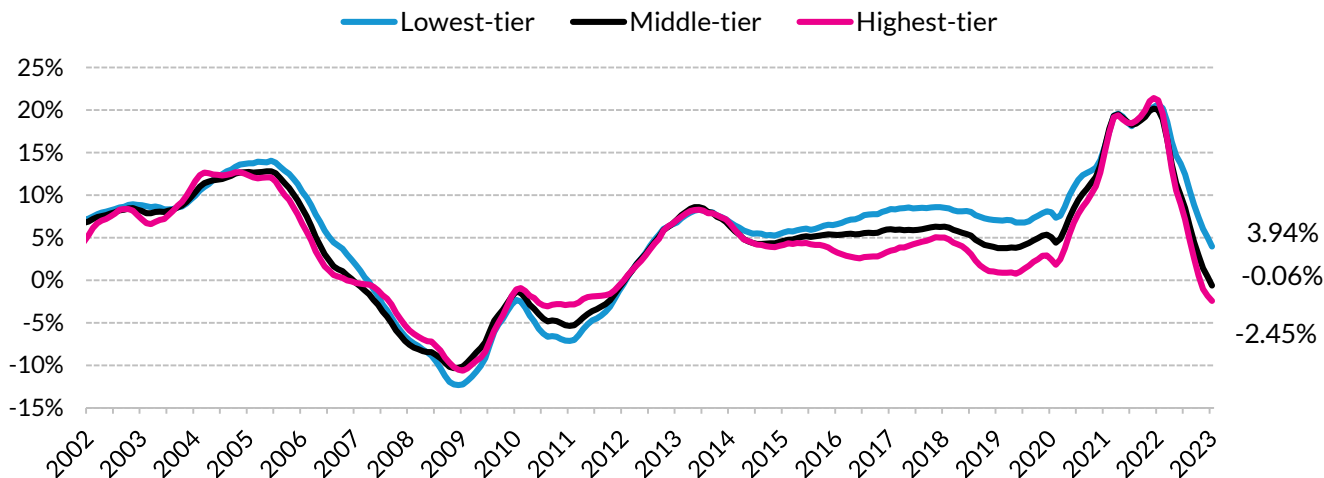


Sources: Black Knight, Zillow, and Urban Institute.

Note: Black Knight modified the methodology behind their HPI in February 2021, resulting in changes to historic price estimates. Data as of April 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 has slowed for all price tiers, with the impact most noticeable at the highest price tier. The sharp deceleration in year-over-year growth reflects monthly declines in house prices since their mid-2022 peak. Prices of middle and high-tier homes in April 2023 were slightly lower than they were 12 months ago, decreasing by 0.06 percent and 2.45 percent, respectively, over the year.



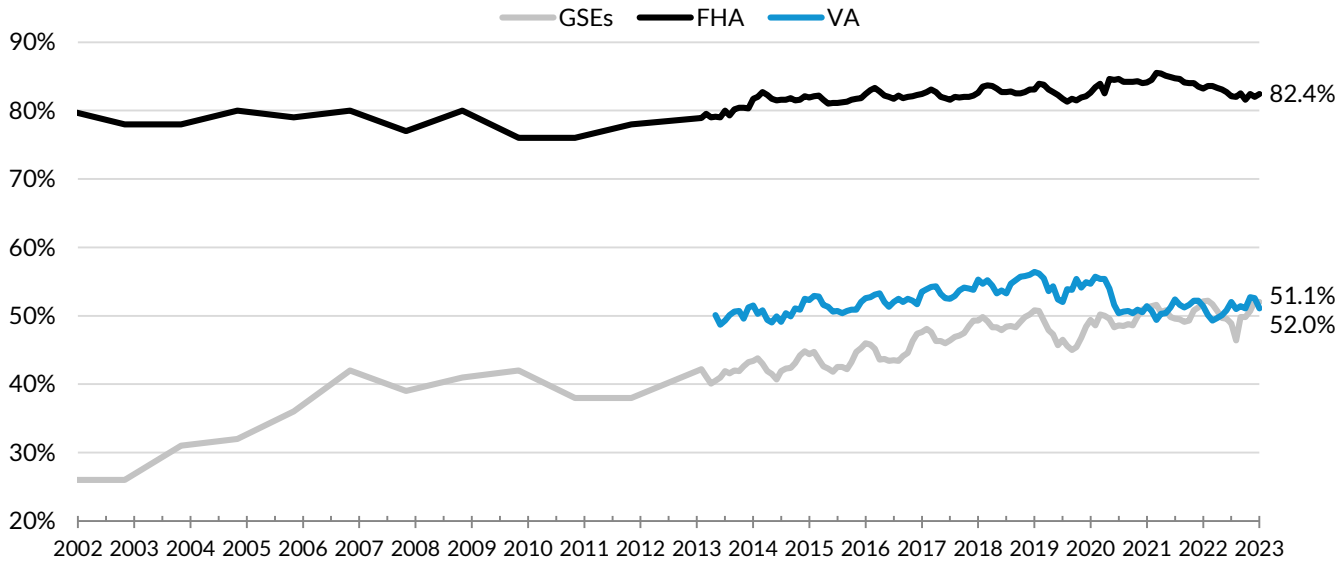
Sources: Black Knight and Urban Institute. Note: Black Knight modified the methodology behind their HPI in February 2021, resulting in changes to historic price estimates. Data as of April 2023.

STATE OF THE MARKET

FIRST-TIME HOMEBUYERS

First-Time Homebuyer Share

In March 2023, the FTHB share for FHA, which has always been more focused on first time homebuyers, was 82.4 percent. The FTHB share of GSE lending in November was 52.0 percent; the VA share was 51.1 percent. The bottom table shows that based on mortgages originated in March 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, thus paying a higher interest rate. These differences are smaller for FHA loans than for GSE loans.



Sources: eMBS, Federal Housing Administration (FHA), and Urban Institute.

March 2023

Note: All series measure the first-time homebuyer share of purchase loans for principal residences.

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

Characteristics	GSEs		FHA		GSEs and FHA	
	First-time	Repeat	First-time	Repeat	First-time	Repeat
Loan Amount (\$)	323,681	340,909	285,083	299,112	311,591	343,300
Credit Score	745	756	676	672	718	741
LTV (%)	86	76	95	92	90	81
DTI (%)	38	38	45	47	41	41
Loan Rate (%)	6.44	6.39	6.36	6.32	6.40	6.35

Sources: eMBS and Urban Institute.

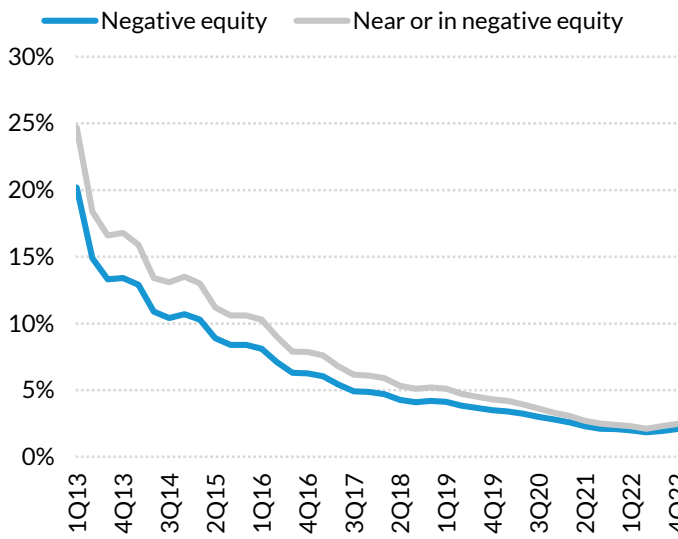
Note: Based on owner-occupied purchase mortgages originated in March 2023.

STATE OF THE MARKET

DELINQUENCIES AND LOSS MITIGATION ACTIVITY

Loans in and near negative equity increased marginally from 2.3 percent in Q3 2022 to 2.5 Q4 2022. The share of loans in or near negative equity in Q4 2022 consists of approximately 2.1 percent with negative equity, and 0.4 percent with between zero and 5 percent equity. The share of loans that are 90 days or more delinquent or in foreclosure declined by 16 basis points, from 1.89 percent in Q4 2022 to 1.73 percent in Q1 2023, nearing the pre-pandemic level of 1.67 percent. 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 decreased 4 bp to 0.51 percent as of April 30, 2023. GSE loans have consistently had the lowest forbearance rates, standing at 0.24 percent at the end of April. The most recent forbearance rate for other (e.g., portfolio and PLS) loans was 0.61 percent; Ginnie Mae loans had the highest forbearance rate at 1.11 percent.

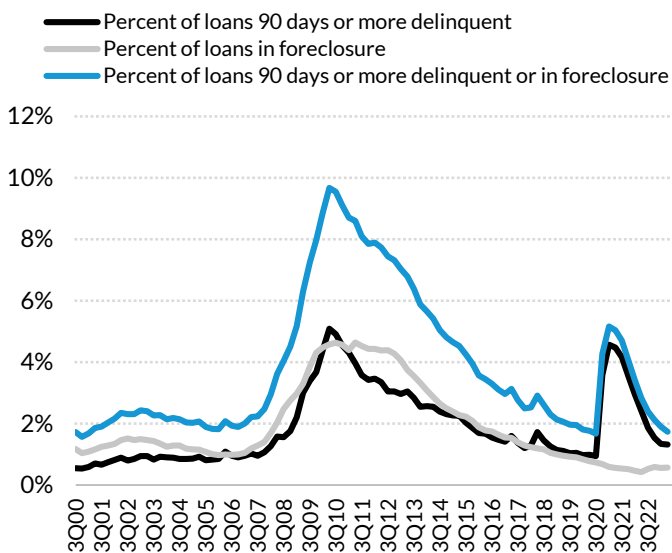
Negative Equity Share



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 March 2023.

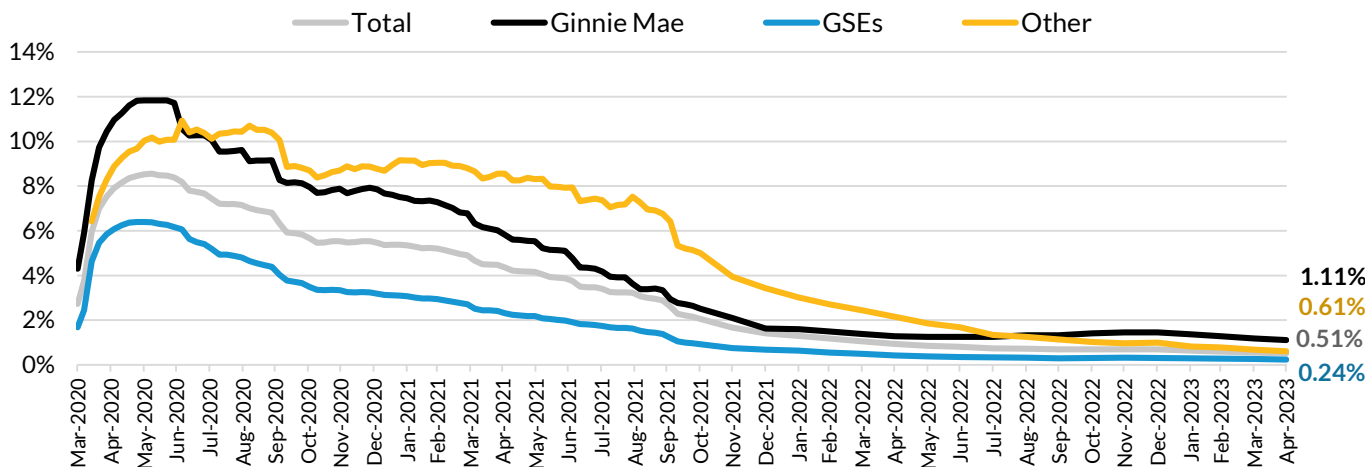
Loans in Serious Delinquency/Foreclosure



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

Q1 2023

Forbearance Rates by Channel



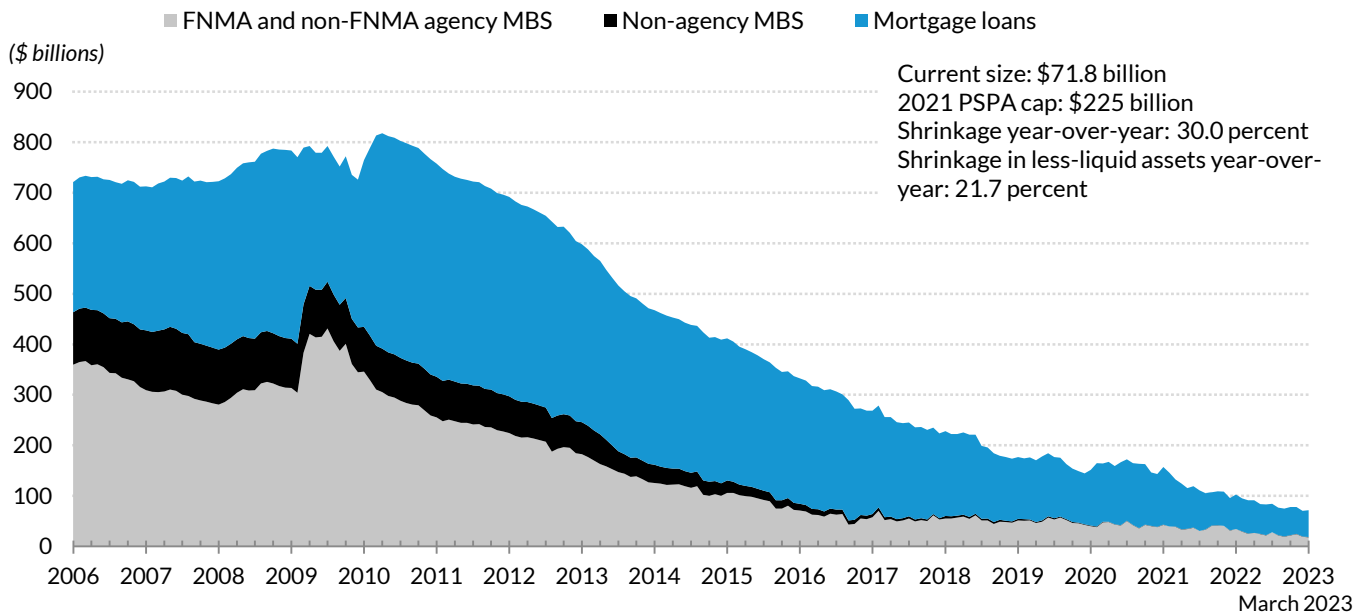
Source: MBA Weekly Forbearance and Call Volume Survey. Forbearance rates as of April 30th, 2023

GSES UNDER CONSERVATORSHIP

GSE PORTFOLIO WIND-DOWN

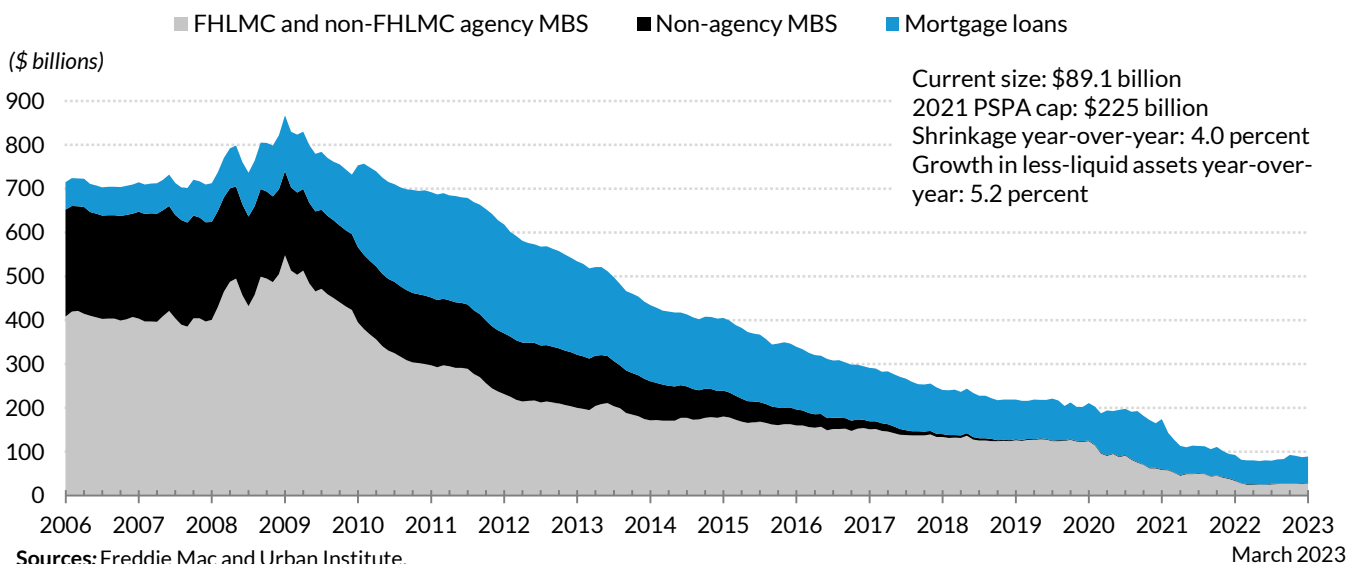
The Fannie Mae and Freddie Mac portfolios remain well below the \$225 billion cap mandated in January 2021 by the new Preferred Stock Purchase Agreements (PSPAs). From March 2022 to March 2023, the Fannie portfolio contracted year-over-year by 30.0 percent, and the Freddie portfolio contracted by 4.0 percent. Within the portfolio, Fannie Mae contracted their less-liquid assets (mortgage loans, non-agency MBS), by 21.7 percent and Freddie Mac increased their less-liquid assets by 5.2 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.

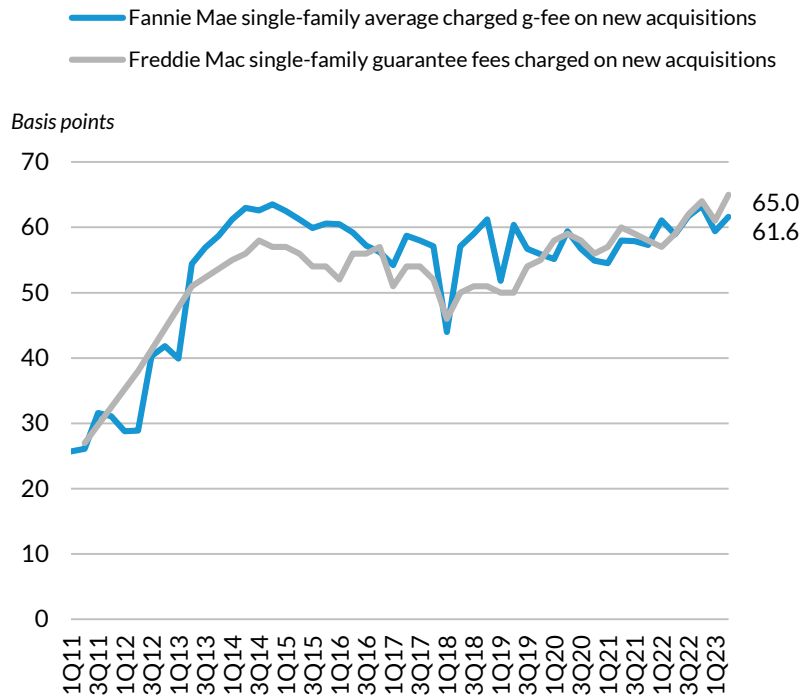
GSES UNDER CONSERVATORSHIP

EFFECTIVE GUARANTEE FEES

Guarantee Fees Charged on New Acquisitions

Fannie Mae's average g-fees charged on new acquisitions increased from 59.4 bps in Q4 2022 to 61.6 bps in Q1 2023. Freddie's increased from 61.0 bps in Q4 2022 to 65.0 bps in Q1 2023. Fannie Mae and Freddie Mac's average g-fees charged have largely converged since the first quarter of 2020, but the current gap of 3.4 is the widest it has been since Q1 2022. Today's g-fees are markedly higher than g-fee levels in 2011 and 2012, and have contributed to the GSEs' earnings amid sharp changes 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 Mac and Urban Institute.
Last updated May 2023.



Fannie Mae Upfront Loan-Level Price Adjustments (LLPAs)

Credit Score	LTV (%)								
	≤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

Effective 5/1/2023

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

GSES UNDER CONSERVATORSHIP

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 majority of their credit risk to private markets. Fannie Mae's CAS issuances since inception total \$2.16 trillion; Freddie's STACR totals \$2.69 trillion. After the COVID-19 spread widening in March 2020, and the repropoed 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.

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	\$227,234	\$5,849	2.6
2015	CAS 2015 deals	\$187,126	\$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	\$205,900	\$7,314	3.6
2019	CAS 2019 deals	\$291,400	\$8,071	2.8
2020	CAS 2020 deals	\$210,000	\$3,130	1.5
2021	CAS 2021 deals	\$142,202	\$3,095	2.2
2022	CAS 2022 deals	\$227,576	\$6,173	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
Total		\$2,159,123	\$57,349	2.6

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	\$209,521	\$6,658	3.2
2016	STACR 2016 deals	\$183,421	\$5,541	2.8
2017	STACR 2017 deals	\$248,821	\$5,663	2.3
2018	STACR 2018 deals	\$216,581	\$6,055	2.8
2019	STACR 2019 deals	\$271,105	\$5,947	2.2
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 2021 – DNA2	\$18,242	\$762	4.2
Total		\$2,694,248	\$71,399	2.7

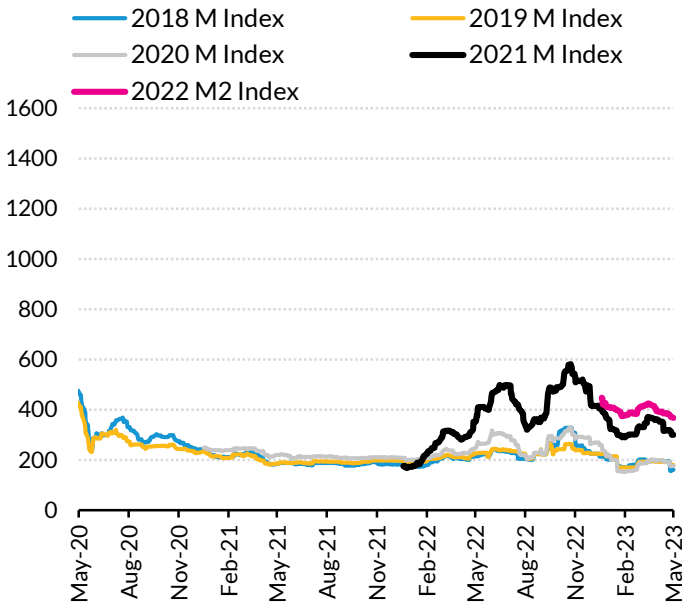
Sources: Fannie Mae, Freddie Mac and Urban Institute. Note: Classes A-H, M-1H, M-2H, and B-H are reference tranches only. These classes are not issued or sold. The risk is retained by Fannie Mae and Freddie Mac. "CE" = credit enhancement.

GSES UNDER CONSERVATORSHIP

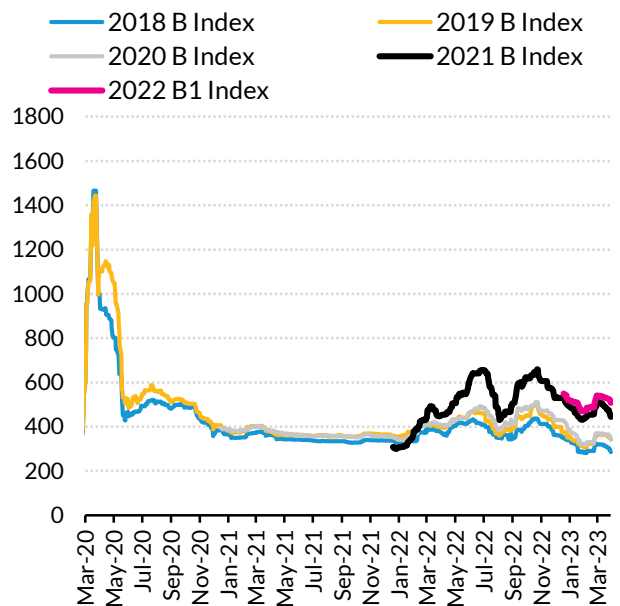
GSE RISK-SHARING INDICES

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 market and a growing risk of a recession. Spreads have largely declined over the last 5 months amid greater comfort with the broader housing and macro-outlook, but the small uptick in the most recent period may reflect emerging concerns over banking stability. 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.

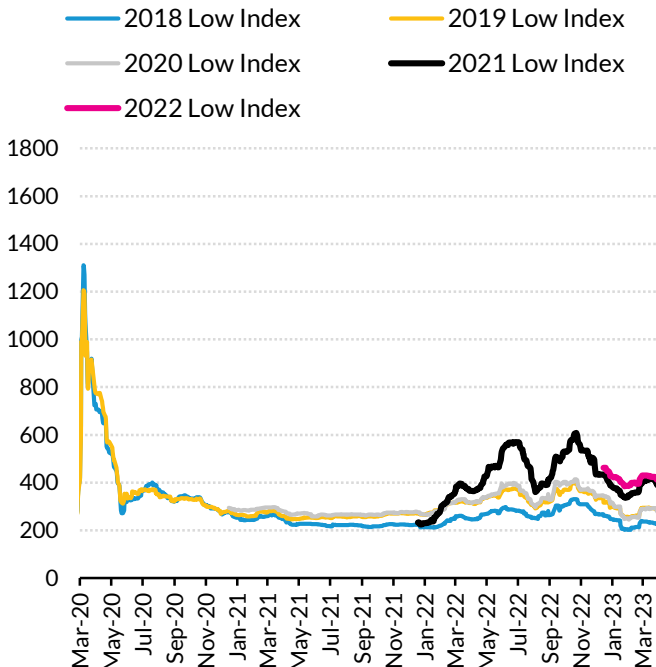
M Indices



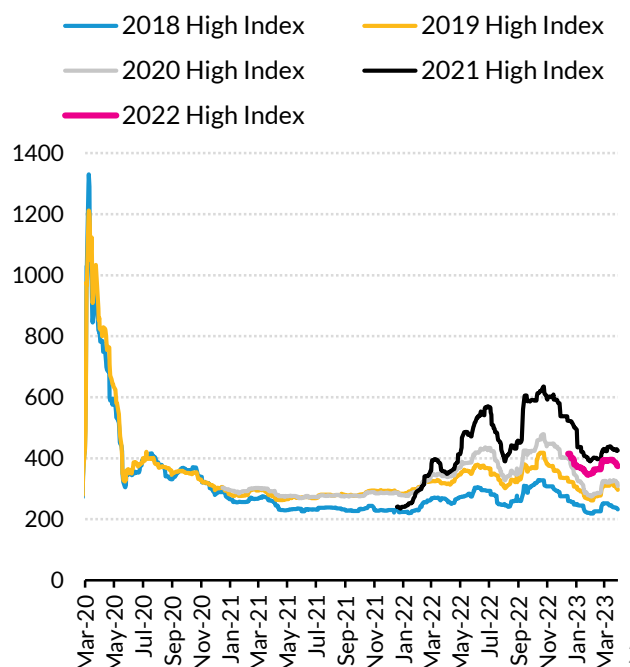
B Indices



Low Indices



High Indices



Sources: Vista Data Services and Urban Institute.

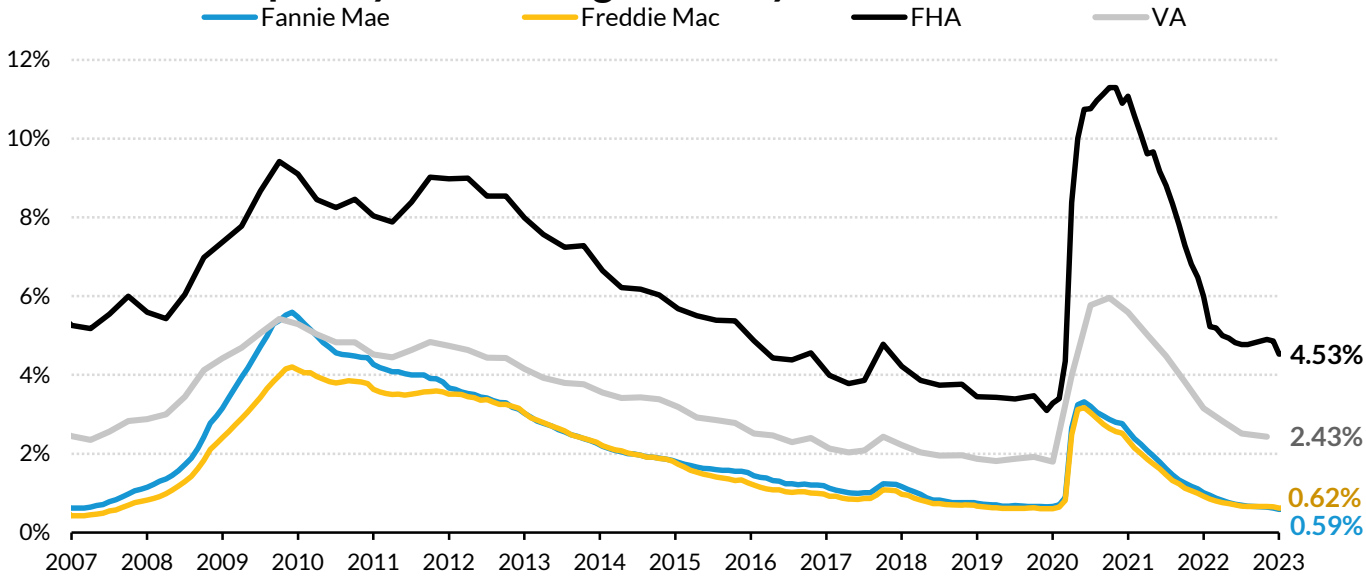
Note: Data as of May 15, 2023.

GSES UNDER CONSERVATORSHIP

SERIOUS DELINQUENCY RATES

Serious delinquency rates for single family loans have continued their decline. Fannie Mae single-family loans decreased slightly from 0.62 percent in February 2023 to 0.59 percent in March 2023, the serious delinquency rate among Freddie Mac loans likewise decreased slightly from 0.65 percent in February to 0.62 percent in March. Serious delinquency rates for FHA loans decreased from 4.86 percent in February to 4.53 percent in March. In Q4 2022, VA serious delinquency rates declined to 2.43 percent from 2.51 percent in Q3. Note that loans that are in forbearance are counted as delinquent for the purpose of measuring delinquency rates. Fannie and Freddie multifamily delinquencies remained at 0.35 percent and 0.13 percent respectively from February to March 2023.

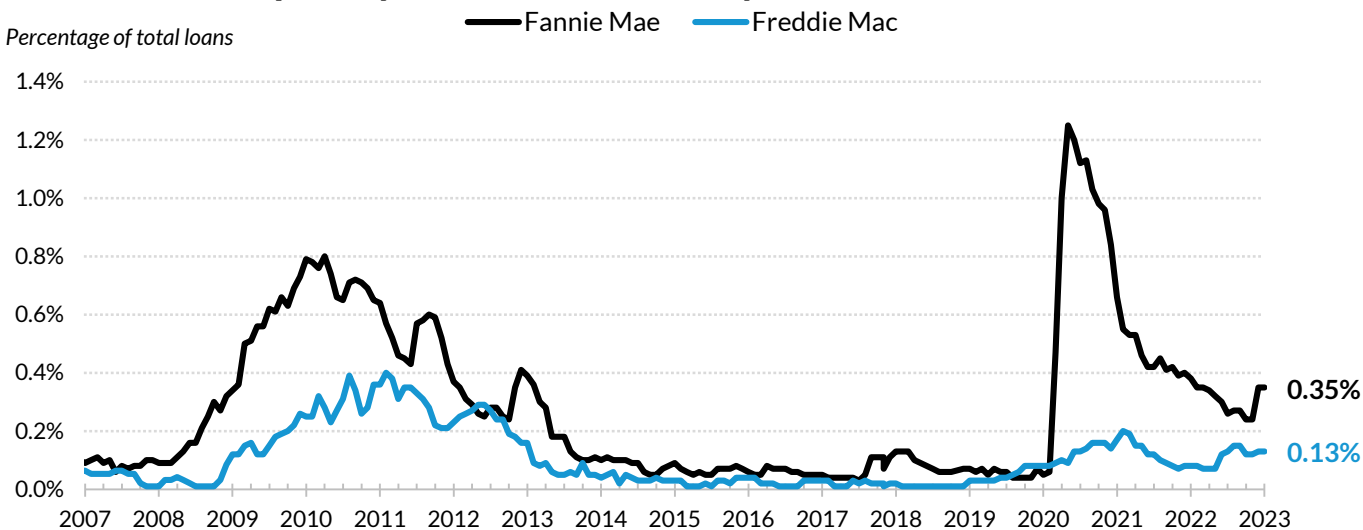
Serious Delinquency Rates—Single-Family Loans



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, last updated for March 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.

March 2023

AGENCY ISSUANCE

AGENCY GROSS AND

NET ISSUANCE

Agency gross issuance totaled \$290.8 billion over the first four months of 2023, \$181.0 billion by the GSEs and \$109.8 billion by Ginnie Mae. These levels lag 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 \$50.0 billion issued through April exceeds the \$27.8 billion issued over the same period in 2022.

Agency Gross Issuance

Agency Net Issuance

Issuance Year	GSEs	Ginnie Mae	Total	Issuance Year	GSEs	Ginnie Mae	Total
2002	\$1,238.9	\$169.0	\$1,407.9	2002	\$357.20	-\$51.20	\$306.10
2003	\$1,874.9	\$213.1	\$2,088.0	2003	\$334.90	-\$77.60	\$257.30
2004	\$872.6	\$119.2	\$991.9	2004	\$82.50	-\$40.10	\$42.40
2005	\$894.0	\$81.4	\$975.3	2005	\$174.20	-\$42.20	\$132.00
2006	\$853.0	\$76.7	\$929.7	2006	\$313.60	\$0.20	\$313.80
2007	\$1,066.2	\$94.9	\$1,161.1	2007	\$514.90	\$30.90	\$545.70
2008	\$911.4	\$267.6	\$1,179.0	2008	\$314.80	\$196.40	\$511.30
2009	\$1,280.0	\$451.3	\$1,731.3	2009	\$250.60	\$257.40	\$508.00
2010	\$1,003.5	\$390.7	\$1,394.3	2010	-\$303.20	\$198.30	-\$105.00
2011	\$879.3	\$315.3	\$1,194.7	2011	-\$128.40	\$149.60	\$21.20
2012	\$1,288.8	\$405.0	\$1,693.8	2012	-\$42.40	\$119.10	\$76.80
2013	\$1,176.6	\$393.6	\$1,570.1	2013	\$69.10	\$87.90	\$157.00
2014	\$650.9	\$296.3	\$947.2	2014	\$30.5	\$61.6	\$92.1
2015	\$845.7	\$436.3	\$1,282.0	2015	\$75.1	\$97.3	\$172.5
2016	\$991.6	\$508.2	\$1,499.8	2016	\$127.4	\$125.8	\$253.1
2017	\$877.3	\$455.6	\$1,332.9	2017	\$168.5	\$131.3	\$299.7
2018	\$795.0	\$400.6	\$1,195.3	2018	\$149.4	\$112.0	\$261.5
2019	\$1,042.6	\$508.6	\$1,551.2	2019	\$197.8	\$95.7	\$293.5
2020	\$2,407.5	\$775.4	\$3,182.9	2020	\$632.8	\$19.9	\$652.7
2021	\$2,650.8	\$855.3	\$3,506.1	2021	\$753.5	\$5.6	\$759.1
2022	\$1,200	\$527.4	\$1,727.4	2022	\$276.6	\$133.3	\$409.3
2023 YTD	\$181.0	\$109.8	\$290.8	2023 YTD	\$13.0	\$50.0	\$63.0
YTD 2023 % Change Over 2022	-69.1%	-47.5%	-63.4%	YTD 2023 % Change Over 2022	-92.9%	80.0%	-70.1%
2023 Annualized	\$542.9	\$329.4	\$872.3	2023 Annualized	\$39.0	\$150.0	\$189.0

Sources: eMBS and Urban Institute.

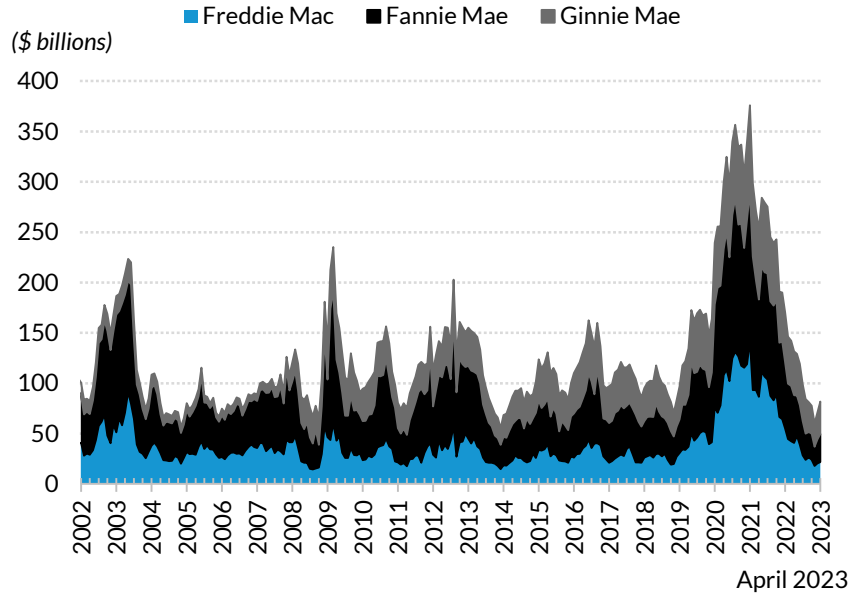
Note: Dollar amounts are in billions. Data as of April 2023.

AGENCY ISSUANCE

AGENCY GROSS ISSUANCE & FED PURCHASES

Monthly Gross Issuance

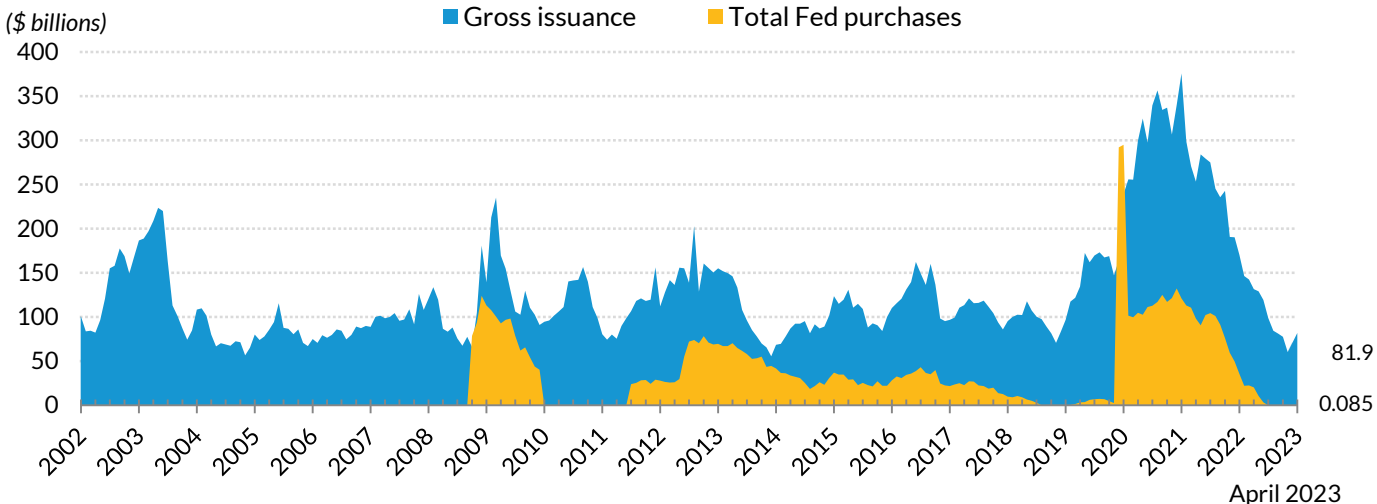
While FHA, VA and GSE lending have dominated the mortgage market since the 2008 housing crisis, there has been a change in the mix. The Ginnie Mae share of new issuances has risen from a pre-crisis level of 10-12 percent to 34.8 percent in February 2020, reflecting gains in both purchase and refinance 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 in recent months while refinances were low reaching a high of 40.8 percent in November 2022. The Ginnie share in April 2023 remains high at 39.3 percent.



Source: eMBS and Urban Institute Calculations

Fed Absorption of Agency Gross Issuance

Agency MBS on the Federal Reserve’s balance sheet totaled \$2.66 trillion in November 2022. The Fed’s purchases of agency MBS dropped to \$0 in November 2022, 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 the Fed’s 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.



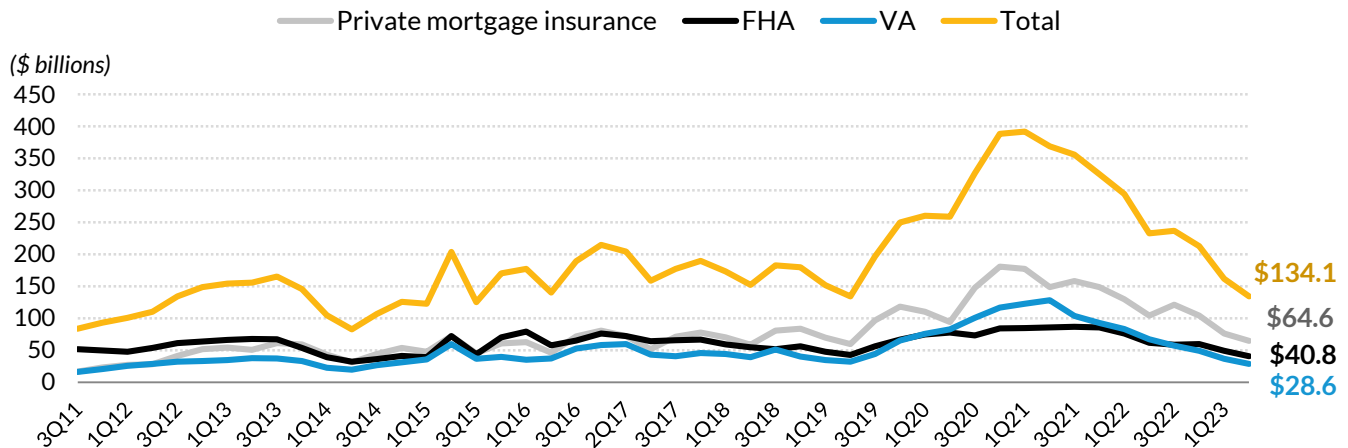
Sources: eMBS, Federal Reserve Bank of New York and Urban Institute.

AGENCY ISSUANCE

MORTGAGE INSURANCE ACTIVITY

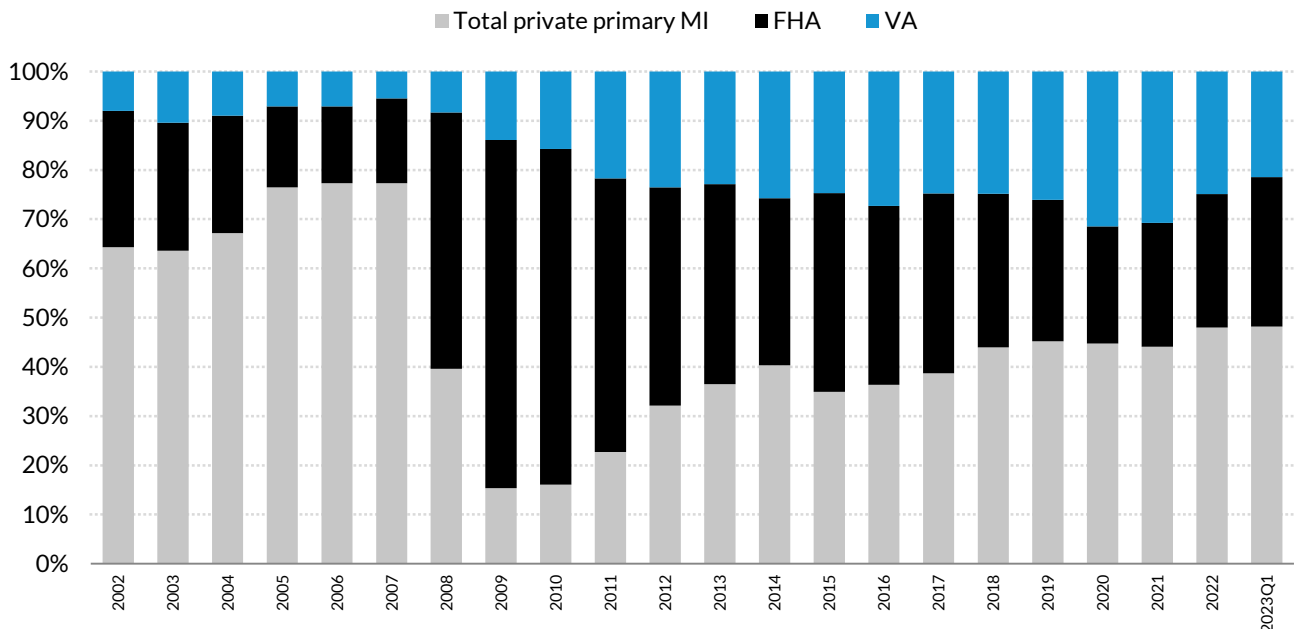
MI Activity

In the first quarter of 2023, private mortgage insurance written decreased by \$39.5 billion, FHA decreased by \$20.9 billion, and VA decreased by \$38.2 billion relative to Q1 2022. Over the same period (i.e. from Q1 2022 to Q1 2023), the private mortgage insurers share increased from 44.7 to 48.2 percent, FHA's share increased from 26.5 to 30.4 percent, and VA's share decreased from 28.8 to 21.4 percent.



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

MI Market Share



Sources: Inside Mortgage Finance and Urban Institute. Last updated May 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 bps cut in annual insurance premiums. In February 2023, Vice president Harris announced another 30 bps 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 740 will currently find FHA financing to be more financially attractive, borrowers with FICOs of 740 and above will find GSE execution with PMI to be more attractive. This calculation shows both the FHA MIP cut and the new GSE LLPAs; it reflects 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	6.42
FHA Base Rate	6.47

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	\$2,011	\$2,011	\$2,011	\$2,011	\$2,011	\$2,011	\$2,011	\$2,011
GSE plus PMI	\$2,228	\$2,183	\$2,163	\$2,103	\$2,057	\$2,035	\$2,006	\$1,978
GSE plus PMI Advantage	-\$218	-\$172	-\$152	-\$92	-\$46	-\$25	\$4	\$33

Sources: Enact Mortgage Insurance, Ginnie Mae, and Urban Institute. FHA and 30-year conforming rates from MBA Weekly Applications Survey.

Note: Rates as of May 12, 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 Q4 2022 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.

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%
2018-4Q22	≤700	4.3%	3.9%	1.4%	2.3%	11.9%
	700 to 750	6.7%	8.8%	3.6%	6.4%	25.6%
	>750	22.9%	22.4%	7.5%	9.7%	62.5%
	Total	33.9%	35.1%	12.5%	18.4%	100.0%
Total		33.7%	41.1%	11.3%	13.9%	100.0%

Sources: Fannie Mae and Urban Institute.

Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q4 2022. 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

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 in the Great Recession. Post-2009 originations have pristine credit characteristics and a more favorable home price environment, contributing to very low default rates. Even so, delinquencies on new origination, which jumped in 2020 and 2021 due to COVID-19, 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	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%	28.7%	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%	5.8%	6.7%	8.9%	6.3%
	700 to 750	2.3%	2.6%	2.9%	4.0%	2.9%
	>750	0.8%	0.9%	1.1%	1.6%	1.0%
	Total	1.6%	1.9%	2.3%	3.3%	2.1%
2018-4Q22	≤700	2.7%	3.8%	4.7%	6.6%	4.0%
	700 to 750	1.3%	1.8%	2.3%	3.1%	2.0%
	>750	0.4%	0.6%	0.9%	1.3%	0.7%
	Total	0.8%	1.3%	1.7%	2.6%	1.4%
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 Q4 2022, with performance information on these loans also through Q4 2022. 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.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

FREDDIE MAC COMPOSITION

Since 2008, the composition of loans purchased by Freddie Mac has shifted towards borrowers with higher FICO scores. For example, 58.8 percent of loans originated from 2018 to Q3 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.

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%
2018-3Q22	≤700	5.3%	4.1%	1.5%	1.9%	12.9%
	700 to 750	8.0%	10.1%	4.1%	6.0%	28.3%
	>750	20.1%	22.1%	7.8%	8.8%	58.8%
	Total	33.5%	36.4%	13.5%	16.7%	100.0%
Total		33.9%	42.2%	11.2%	12.8%	100.0%

Sources: Freddie Mac and Urban Institute.

Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2022, with performance data through Q4 2022. 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

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 in the recession. 2009 and later originations have pristine credit characteristics and a more favorable home price environment, contributing to very low default rates. Even so, delinquencies on new origination, which jumped in 2020 and 2021 due to COVID-19, 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%	8.1%	9.3%	4.3%
	Total	6.9%	11.5%	17.1%	19.2%	10.8%
2009-2011	≤700	4.7%	6.5%	6.3%	6.6%	5.6%
	700 to 750	1.4%	2.6%	2.8%	3.4%	2.2%
	>750	0.4%	0.9%	1.3%	1.6%	0.7%
	Total	0.9%	1.7%	2.0%	2.7%	1.4%
2011-2017	≤700	4.9%	5.2%	6.1%	7.4%	5.6%
	700 to 750	2.4%	2.6%	3.0%	3.8%	2.8%
	>750	0.9%	1.0%	1.3%	1.7%	1.1%
	Total	1.8%	1.9%	2.4%	3.2%	2.1%
2018-4Q22	≤700	1.8%	2.8%	3.6%	4.7%	2.8%
	700 to 750	0.9%	1.4%	1.7%	2.5%	1.5%
	>750	0.3%	0.6%	0.7%	1.1%	0.6%
	Total	0.7%	1.1%	1.4%	2.0%	1.1%
Total		1.8%	3.0%	3.5%	3.8%	2.8%

Sources: Freddie Mae and Urban Institute.

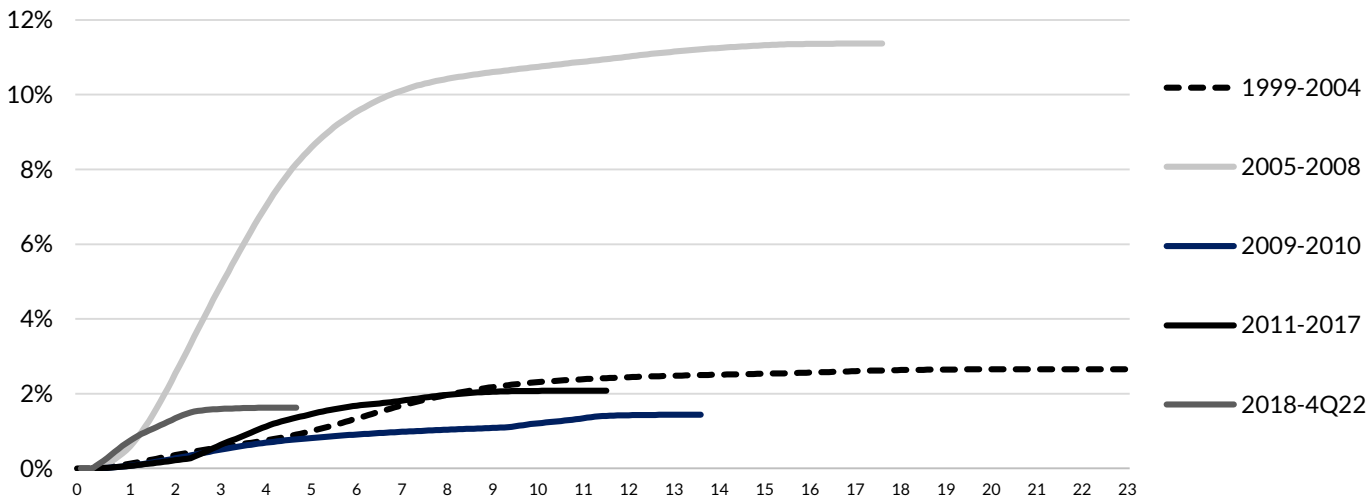
Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2022, with performance data through Q4 2022. Default is defined as six months delinquent or disposed of via short sales, third-party sales, deeds-in-lieu of foreclosure, or real estate owned (REO acquisitions). The 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 and a strong housing market, 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 Q4 2022 for Fannie and Q3 2022 for 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. Given the array of options available for borrowers existing forbearance, we expect relatively few of these D180+ borrowers will land in foreclosure.

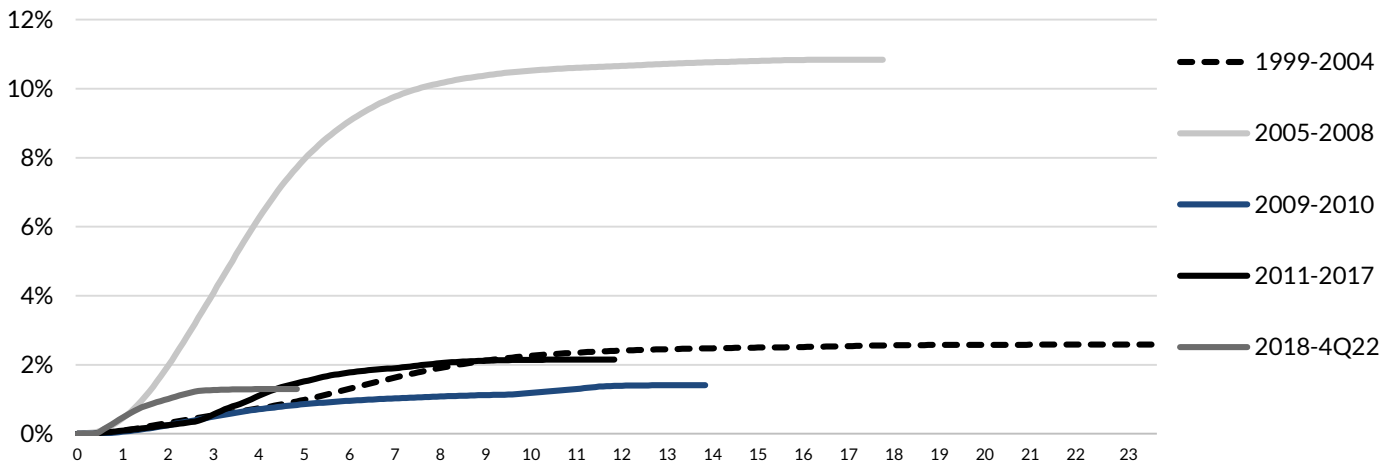
Fannie Mae Cumulative Default Rate by Vintage Year



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.

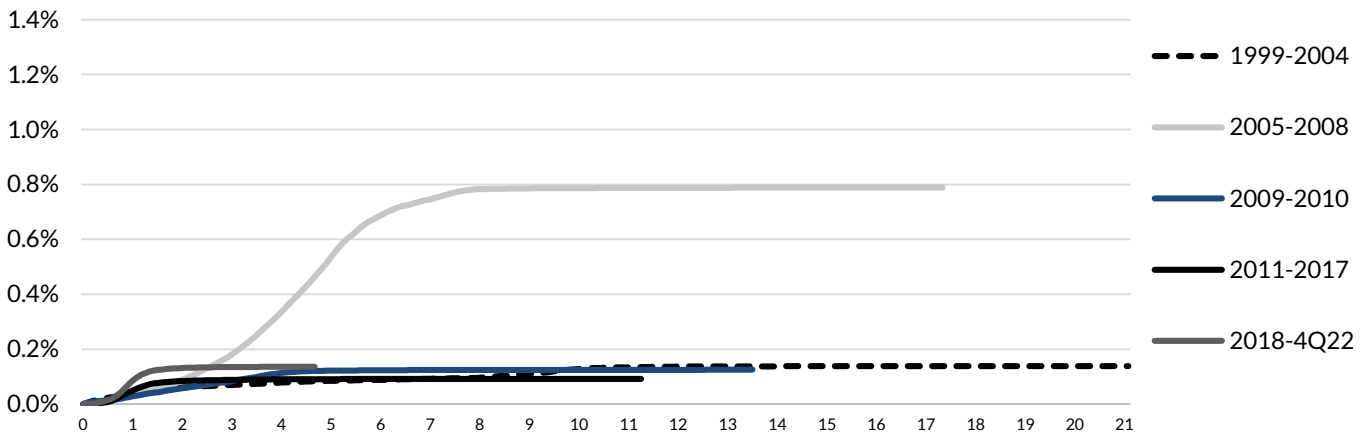
Note: The analysis included only mortgages with original terms of 241-420 months. A default is defined as a delinquency of 180 days or more, a deed-in-lieu, short sale, foreclosure sale or REO sale.

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. Moreover, lenders' attitudes are formed by the total share of put-backs on their books. The database used in this analysis, while very characteristic of new production, excludes many loans that are likely to be put back, including limited documentation loans, non-traditional products (such as interest-only loans), and loans with pool insurance policies.

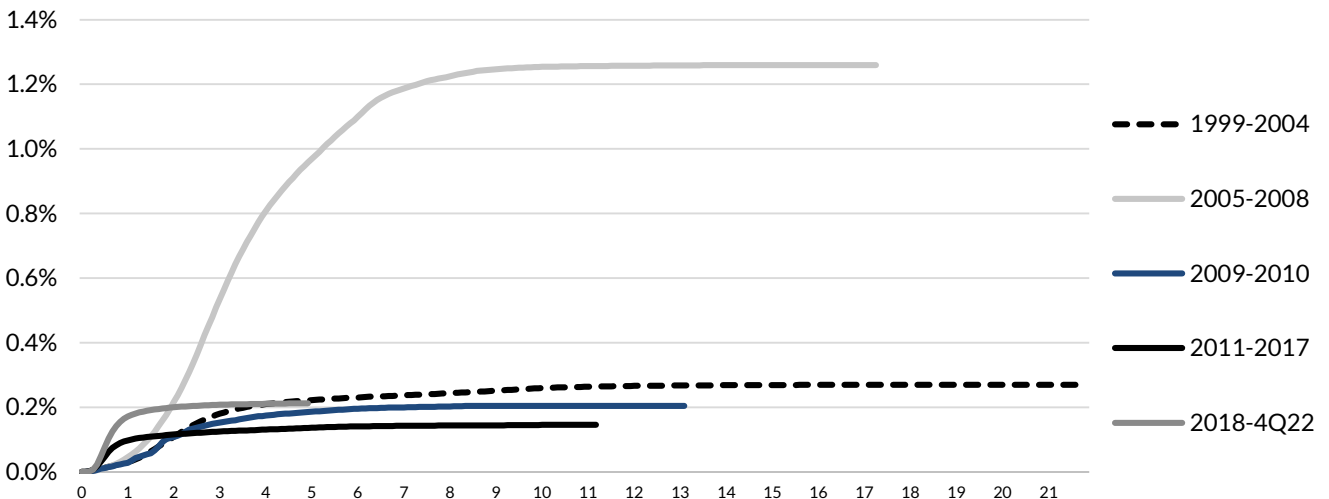
Fannie Mae Repurchase Rate by Vintage Year



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.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

LOSS SEVERITY

Both Fannie Mae and Freddie Mac’s credit data include the status of loans after they experience a credit event (default). 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) 17.06 percent are current, 22.87 percent are prepaid, 9.06 percent are still in the pipeline (not current, not prepaid, not liquidated) and 51.01 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 35 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		<=60	60-80	>80	Total
	Current	Prepay	Still in the Pipeline	% Already Liquidated Loans				
1999-2004	6.62%	25.82%	2.24%	65.32%	21.2%	35.4%	23.6%	30.0%
2005-2008	6.10%	16.95%	1.86%	75.08%	30.4%	43.5%	31.0%	39.0%
2009-2010	17.52%	27.50%	6.64%	48.34%	18.6%	30.5%	17.4%	26.9%
2011-2017	40.04%	31.48%	15.71%	12.78%	5.2%	13.2%	6.2%	9.3%
2018-4Q22	45.66%	28.03%	23.47%	2.84%	1.1%	2.0%	1.9%	1.9%
Total	17.80%	23.75%	7.40%	51.05%	26.2%	39.8%	26.2%	34.5%

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		<=60	60-80	>80	Total
	Current	Prepay	Still In The Pipeline	% Already Liquidated Loans				
1999-2004	4.73%	24.29%	2.26%	68.72%	20.5%	33.7%	25.1%	29.9%
2005-2008	4.16%	14.14%	1.77%	79.93%	28.7%	42.2%	30.9%	38.3%
2009-2010	13.19%	22.42%	5.29%	59.10%	16.0%	28.9%	25.4%	26.3%
2011-2017	34.57%	27.07%	13.31%	25.05%	5.3%	15.2%	20.2%	18.5%
2018-4Q22	46.96%	27.23%	24.60%	1.22%	2.9%	10.5%	5.5%	7.0%
Total	15.07%	20.68%	6.65%	57.60%	24.7%	39.1%	27.1%	34.0%

Sources: Fannie Mae, Freddie Mac, and Urban Institute.

Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q4 2022, with performance information on these loans also through Q4 2022. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2022, with performance information on these loans through Q4 2022. The analysis included only mortgages with original terms of 241-420 months.

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, including short sales, note 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 \$178,408 and a loss severity of 21.1% percent, versus a mean defaulted UPB of \$145,567 and a loss severity of 47.0 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	238,697	157,266	81,431	111,409	105,615	122,598	29.95%	39.00%	14.90%
2005-2008	393,687	220,153	173,534	185,487	172,627	201,803	38.99%	52.18%	24.69%
2009-2010	28,297	14,546	13,751	172,074	162,721	181,968	26.87%	39.10%	15.31%
2011-2017	30,135	11,019	19,116	172,831	149,341	186,371	9.26%	19.59%	4.50%
2018-4Q22	5,083	1,101	3,982	224,701	159,200	242,812	1.89%	4.60%	1.40%
Total	695,899	404,085	291,814	159,271	145,518	178,314	34.51%	46.88%	20.54%

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	171,353	94,778	76,575	112,355	105,651	120,651	29.90%	41.77%	17.04%
2005-2008	394,518	170,414	224,104	182,084	164,163	195,711	38.28%	54.41%	27.99%
2009-2010	45,383	15,304	30,079	190,963	172,213	200,503	26.34%	43.12%	19.01%
2011-2017	55,142	13,440	41,702	175,745	151,859	183,443	18.46%	36.33%	13.69%
2018-4Q22	1,462	287	1,175	191,869	147,458	202,716	7.00%	14.76%	5.62%
Total	667,858	294,223	373,635	164,295	145,155	179,367	34.03%	49.84%	23.96%

Sources: Fannie Mae, Freddie Mac and Urban Institute.

Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q4 2022. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2022, with performance information on these loans through Q4 2022. The analysis included only mortgages with original terms of 241-420 months. Because the 2018 and later liquidated loan counts are a small sample, results may not be representative.

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