



HOUSING FINANCE AT A GLANCE

A MONTHLY CHARTBOOK

December 2022

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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INTRODUCTION

2022 Year-End Housing Finance Policy Center Wrap-Up

As we publish our last chartbook of 2022, we want to thank you for your continued support of our work. It has been gratifying to see housing finance research summon the cooperation and innovation required to manage the pandemic's economic consequences and dismantle the barriers that have made owning a home inaccessible to many.

For your easy reference, we've compiled a quick summary of the Housing Finance Policy Center's work in 2022, and a look ahead to what we plan to focus on in the coming year.

In 2022, we published:

- 33 *Urban Wire* blog posts;
- 40 research papers and briefs, including 12 editions of *Housing Finance At A Glance*;
- 4 updates to our [Housing Credit Availability Index \(HCAI\)](#); and
- 12 updates to our interactive feature, [Tracking Rent Payments to Mom-and-Pop Landlords](#).

We provided public comments and policy proposals including:

- [Normalizing forbearance](#) as the first step in loss mitigation;
- New financial eligibility requirements [for Fannie Mae and Freddie Mac seller/servicers](#);
- [Streamlining refinances](#) to expand availability;
- Incentivizing landlords to accept [Housing Choice Vouchers](#); and
- Potential improvements to the FHA's [Title I manufactured home lending program](#).

Our research provided evidence on critical matters in the housing market, including:

- Considerations around [race in the Community Investment Act](#) and [lending outside assessment areas](#);
- The roles of the [GSE cross-subsidy](#), [manufactured housing](#), and [credit risk transfers](#) in expanding affordable housing;
- Strategies for implementing [special purpose credit programs](#); and
- Improving access to homeownership for Black households through the [treatment of student loan debt](#) and [use of alternative data](#) in mortgage underwriting.

Top issues for 2023 include:

- As always, monitoring the housing finance system and rapidly responding to emerging issues;
- Housing wealth gaps;
- Policy actions on loss mitigation;
- Expanding the credit box; and
- The housing supply shortage.

As we imagine a dynamic and equitable future for housing finance, we look forward to the possibilities of the coming year. **We hope you will continue to use and share our work. Thank you again for your support!**

INSIDE THIS ISSUE

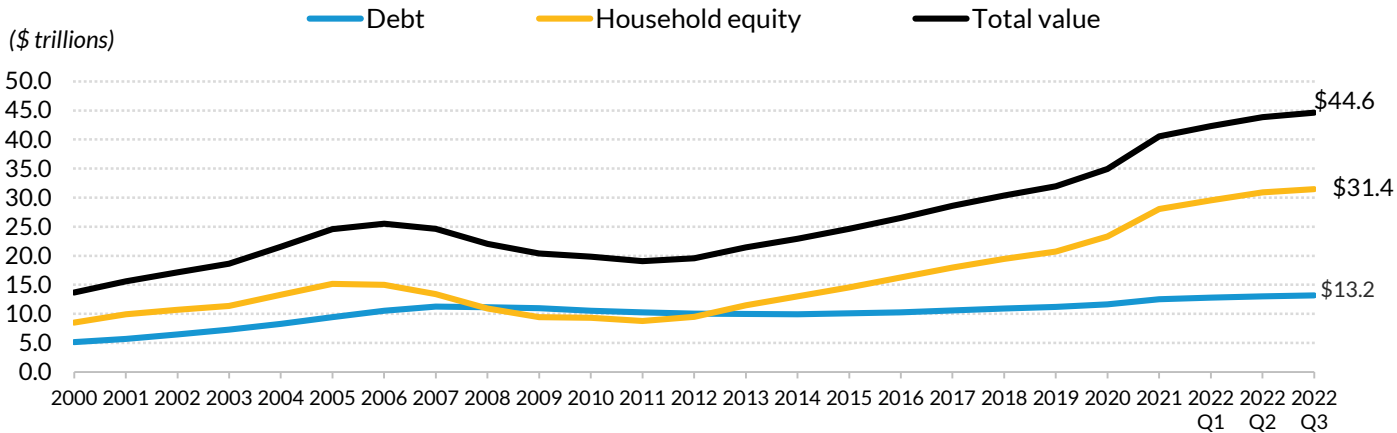
- Mortgage debt outstanding increased to \$13.2 trillion in Q3 2022 (p. 6).
- Non-agency securitization slowed considerably in 2022 relative to 2021, reflecting weaker originations amidst higher rates and wider spreads (p. 12)
- The Federal Reserve's purchases of agency MBS dropped to \$0 in November 2022, reflecting their policy of allowing paydowns up to \$35 billion per month to runoff (p. 31)
- FICO scores have been declining in 2022 (p. 17-18)

OVERVIEW

MARKET SIZE OVERVIEW

The Financial Accounts of the United States has indicated a gradually increasing total value of the housing market, driven primarily by growing home equity since 2012. Mortgage debt outstanding increased slightly from \$13.0 trillion in Q2 2022 to \$13.2 trillion in Q3 2022, while total household equity increased from \$30.9 trillion to \$31.4 trillion. The total value of the housing market reached \$44.6 trillion in the third quarter of 2022, 74.8 percent higher than the pre-crisis peak in 2006. Agency MBS account for 66.4 percent of the total mortgage debt outstanding while private-label securities and home equity loans each make up 3.2 percent. Unsecuritized first liens comprise the remaining 26.9 percent with banks making up 19.0 percent, credit unions 4.2 percent, and other non-depositories accounting for 3.7 percent of the total.

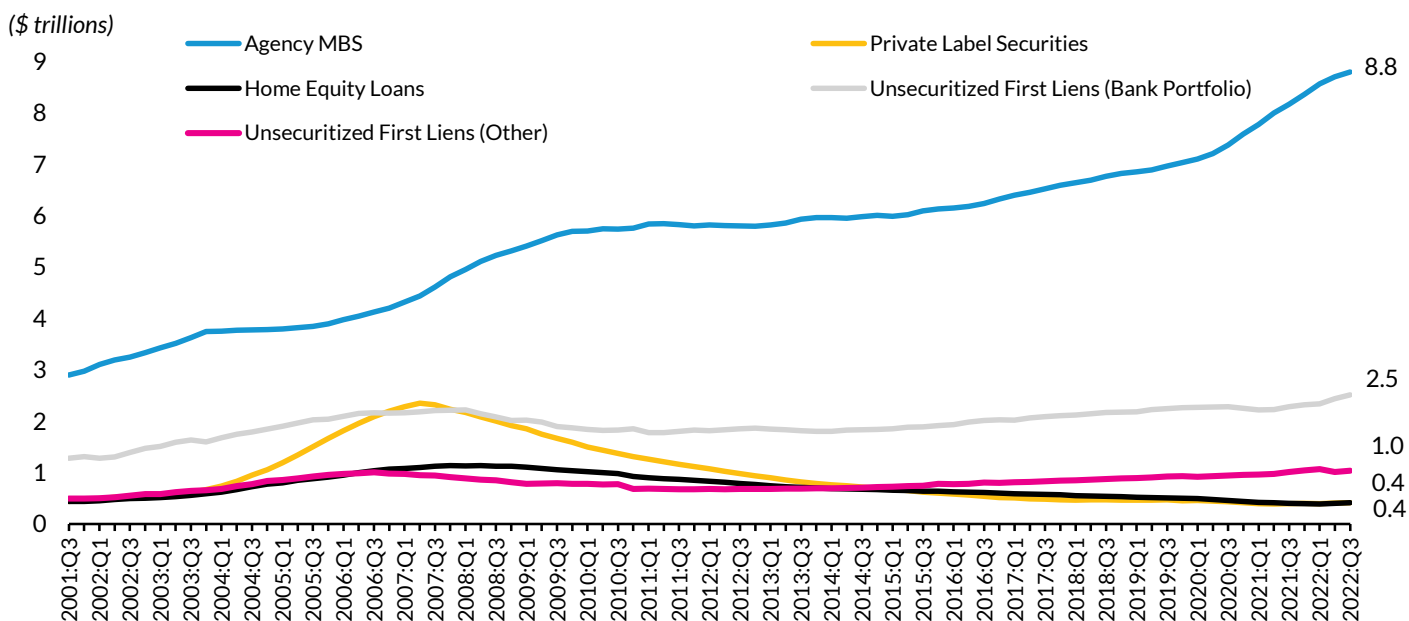
Value of the US Single Family Housing Market



Sources: Financial Accounts of the United States and Urban Institute. Last updated December 2022.

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 December 2022.

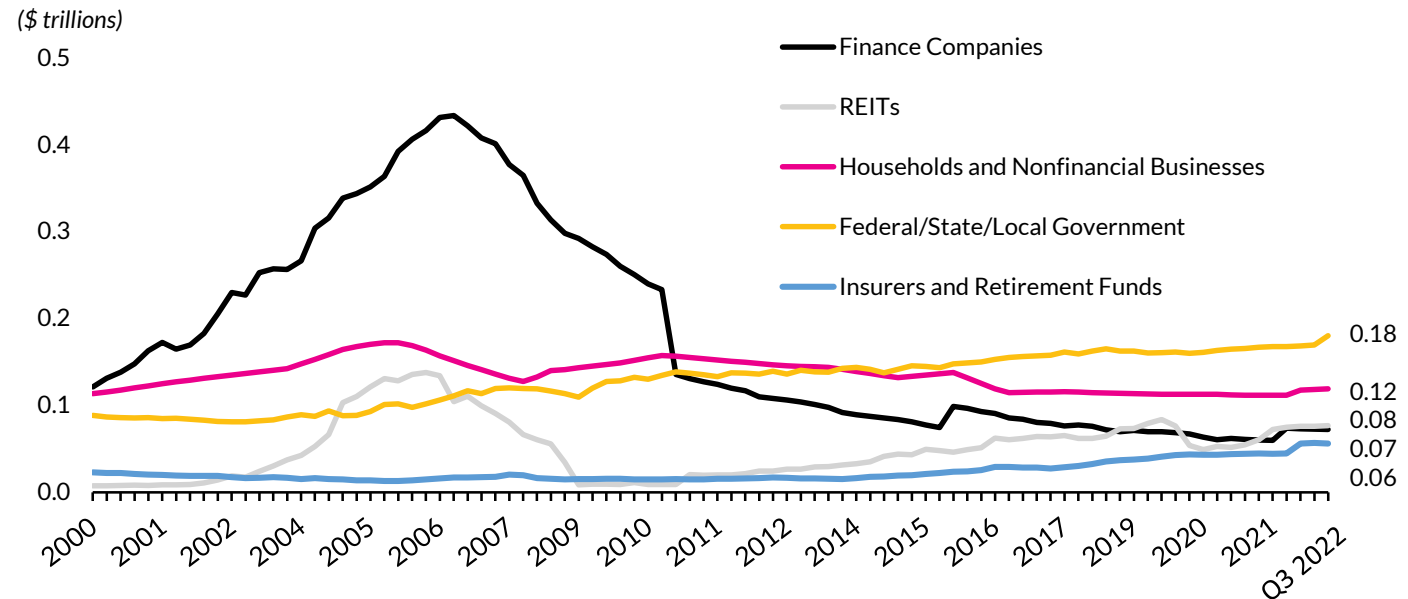
Notes: Unsecuritized First Liens (Other) includes mortgages not held on bank balance sheets.

OVERVIEW

MARKET SIZE OVERVIEW

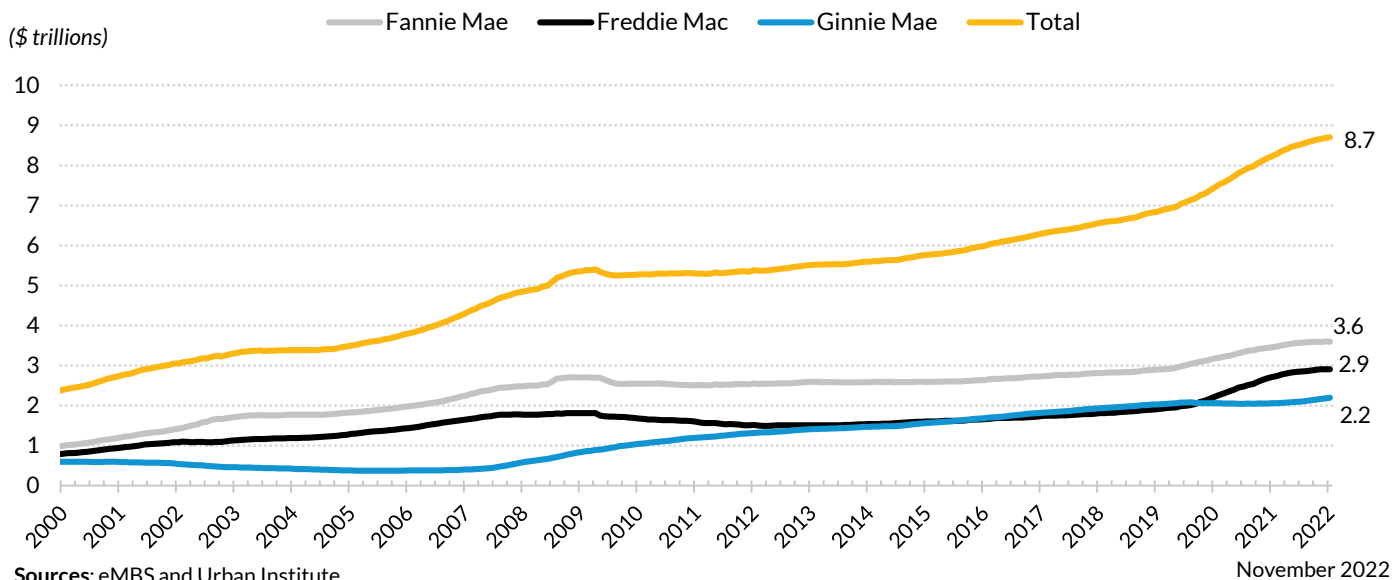
As of Q3 2022, unsecuritized first liens held outside banks and credit unions totaled \$0.51 trillion. In this space, REITs, insurers and retirements funds have experienced particularly robust percentage increases over the last decade. In November 2022, outstanding securities in the agency market totaled \$8.7 trillion, 41.4 percent of which was Fannie Mae, 33.4 percent Freddie Mac, and 25.2 percent Ginnie Mae.

Unsecuritized 1st Liens Held by Non-Depositories



Sources: Federal Reserve Financial Accounts of the United States and Urban Institute. Last updated December 2022.

Agency Mortgage-Backed Securities

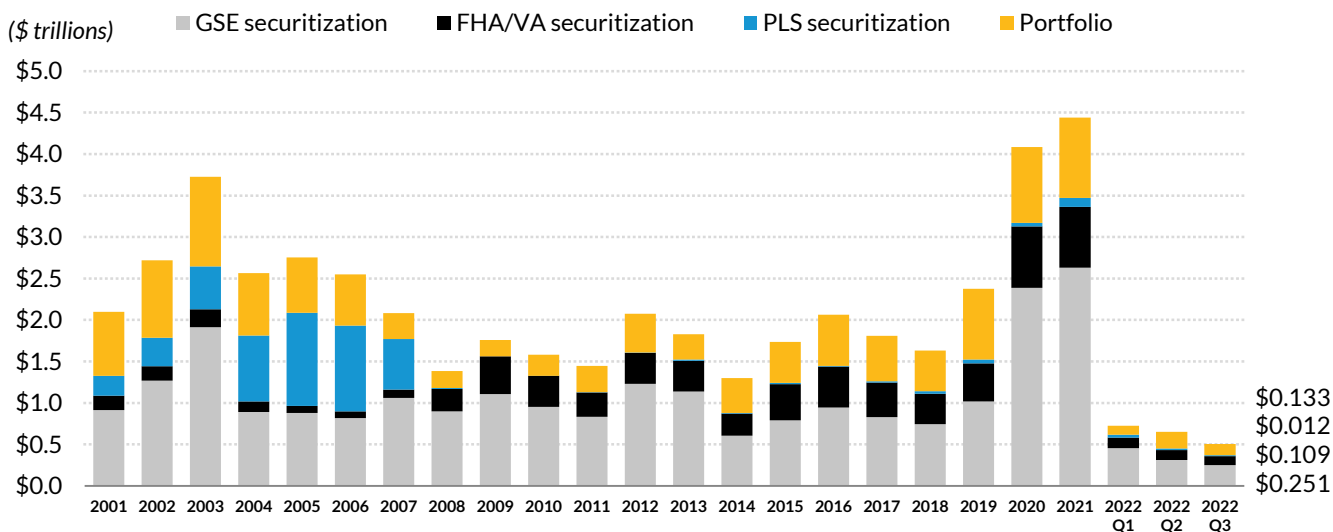


Sources: eMBS and Urban Institute.

ORIGINATION VOLUME AND COMPOSITION

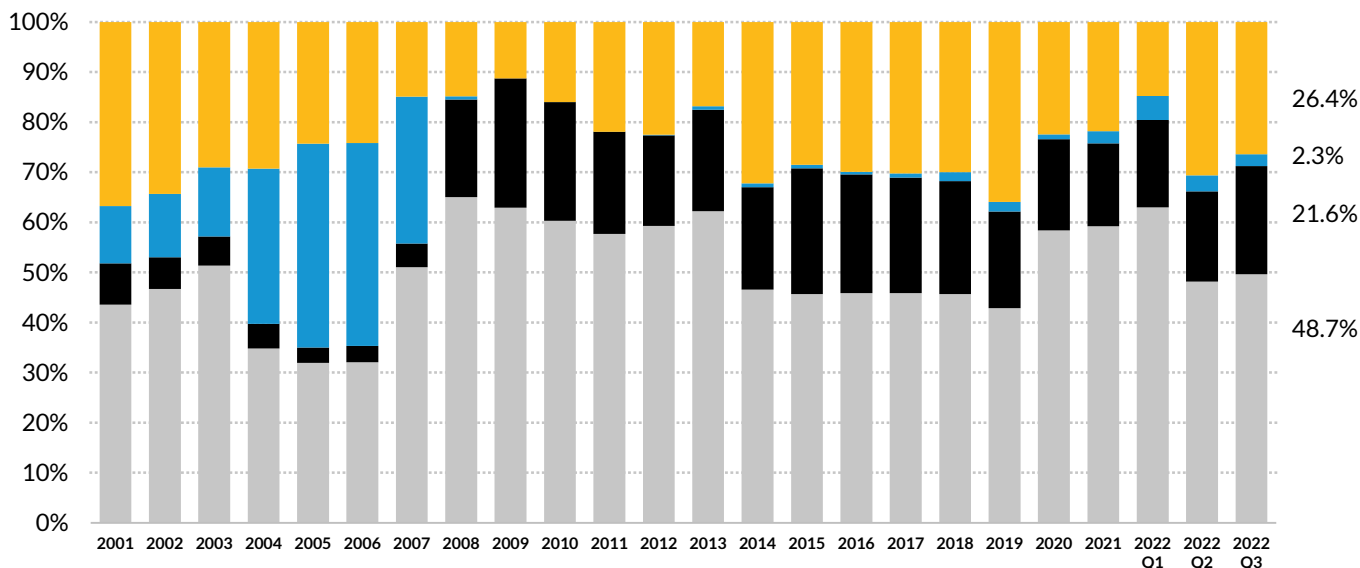
First Lien Origination Volume

Mortgage origination volume totaled \$505 billion in Q3 2022, far lower than the \$1.09 trillion total in Q3 2021. The share of portfolio originations was 26.4 percent in Q3 2022, a slight increase compared to the 25.1 percent share in Q3 2021 and roughly consistent with the portfolio share in the pre-pandemic years. The GSE share was lower in Q3 2022 at 49.7 percent, compared to 55.4 percent in Q3 2021. The lower GSE share in Q3 2022 reflects substantial slowdown of the refinance wave, which boosted GSE purchases in Q3 2021. The FHA/VA share in Q3 2022 stood at 21.6 percent, up from 16.3 percent in Q3 2021. The PLS share was lower in Q3 2022 at 2.3 percent, compared to 3.1 percent in Q3 2021.



Sources: Inside Mortgage Finance and Urban Institute. Last updated November 2022.

(Share, percent)



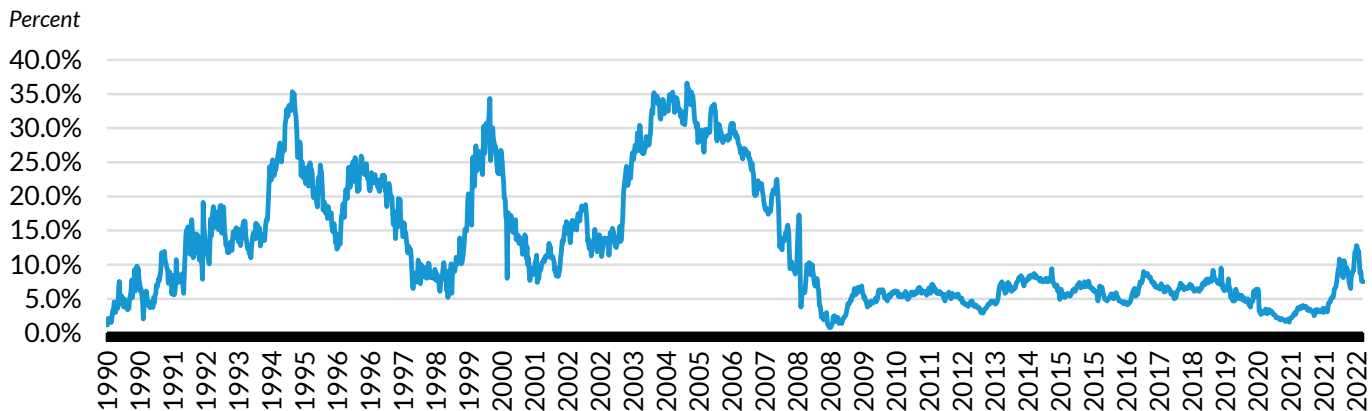
Sources: Inside Mortgage Finance and Urban Institute. Last updated November 2022.

OVERVIEW

PRODUCT COMPOSITION AND REFINANCE SHARE

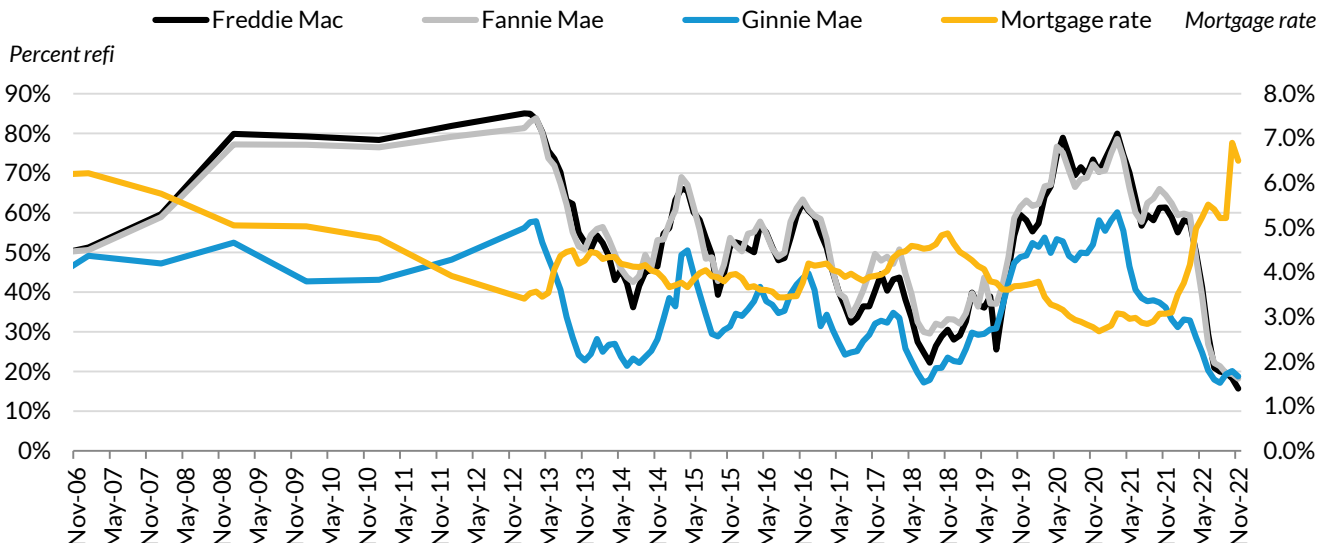
The adjustable-rate share of weekly mortgage applications varied widely in the 1990s and the early to mid-2000s, ranging from a low of 5 percent to a high of over 35 percent. From 2009 to early 2022, the ARM share remained very low, generally between 5 to 8 percent, as ultra-low rates persisted. However, with rates rising substantially in 2022 and affordability worsening, the ARM share increased from 3.4 percent in Jan 2022 to 12.8 percent as of October 14, 2022. Since then, the share has decreased to 7.5 percent as of December 16, 2022.

Adjustable-Rate Mortgage Share of Applications



From late 2018-though March 2021, while there was some month-to-month variation, the refi share generally increased for both the GSEs and for Ginnie Mae as interest rates dropped. Since April 2021, in reaction to higher interest rates, the refi share has dropped significantly. In November 2022, the GSE refi shares are in the 15 to 19 percent range; the Ginnie Mae refi share was 18.8 percent, up from a low in August 2022, but lower than in September and October. The refinance share reflects mortgage rates from 6-8 weeks earlier. GSEs refi shares have 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 channels.

Percent Refi at Issuance

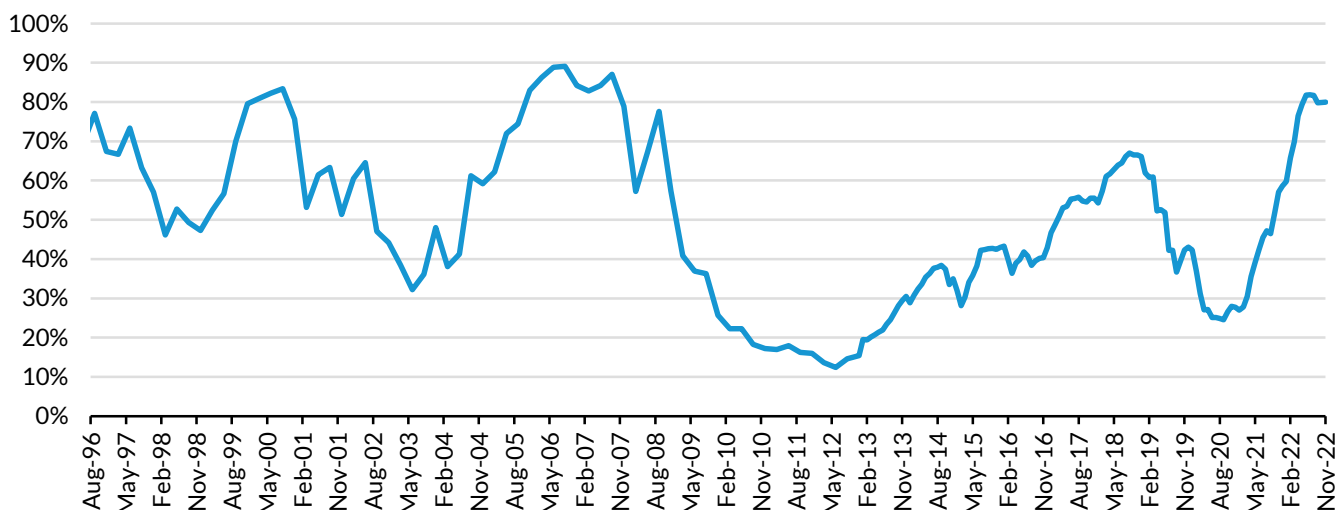


OVERVIEW

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 has increased to 80.0 percent as of November 2022. Despite the increase in the cash-out share, the absolute volume of cash-out refinances has come down sharply since the spring of 2021, when mortgage rates began to rise. Note that the decline is far less at Ginnie Mae than at the GSEs, reflecting that while cash out refinances are not economic for most, they are the only way lower credit borrowers can extract cash from their homes.

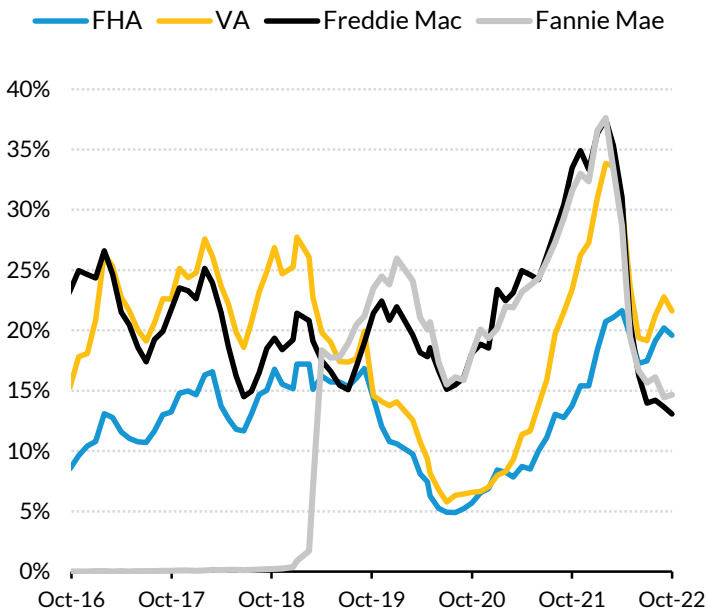
Cash-out Share of Conventional Refinances



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 November 2022.

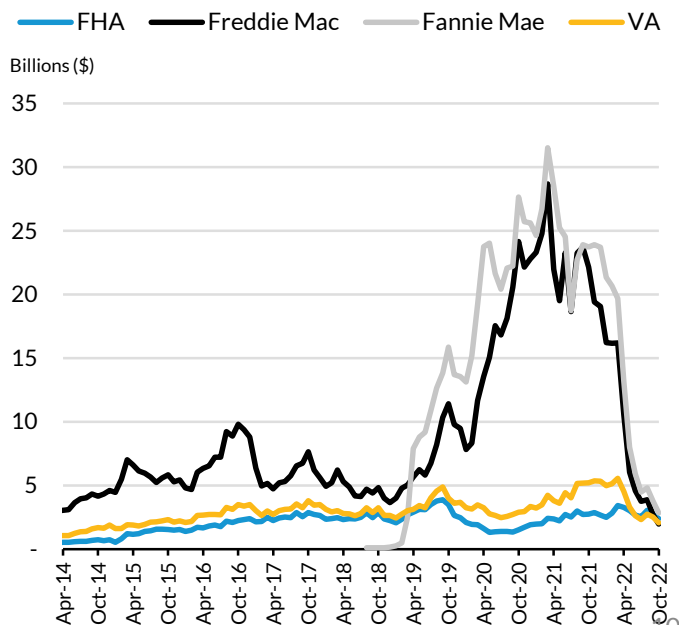
Cash-out Refi Share of All Originations



Sources: eMBS and Urban Institute.

Note: Data as of October 2022.

Cash-out Refinance Volume by Agency



Sources: eMBS and Urban Institute

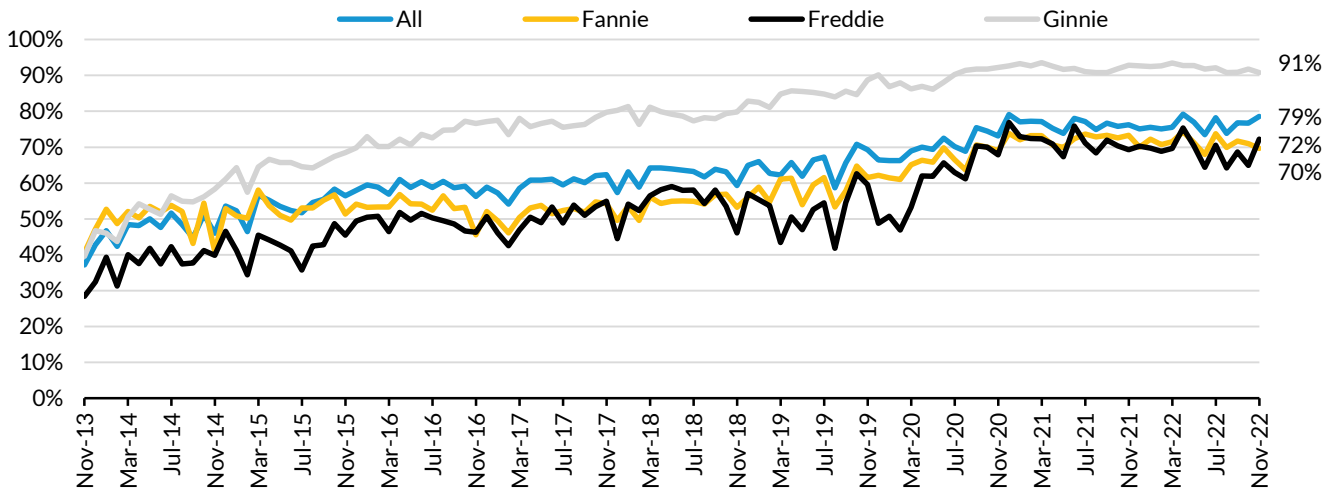
Note: Data as of October 2022.

OVERVIEW

AGENCY NONBANK ORIGINATION SHARE

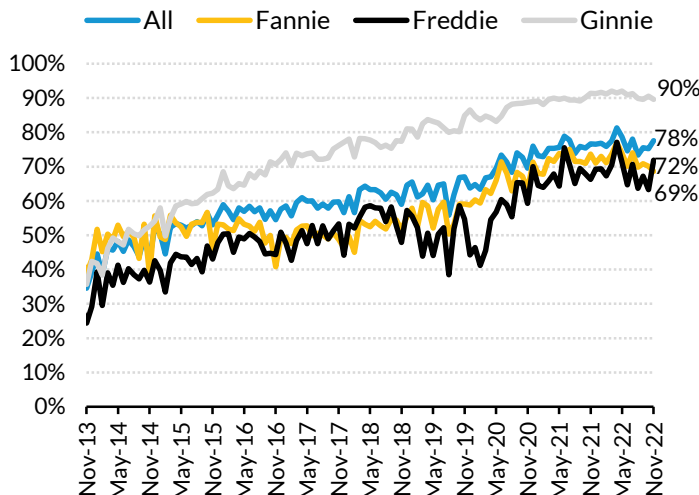
The nonbank share for agency originations has been rising steadily since 2013, standing at 78.6 percent in November 2022. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at 90.8 percent in November 2022. Fannie and Freddie had nonbank shares of 69.7 percent and 72.2 percent respectively in November 2022. Fannie, Freddie, and Ginnie all had higher nonbank origination shares for refi activity than purchase activity in November 2022.

Nonbank Origination Share: All Loans



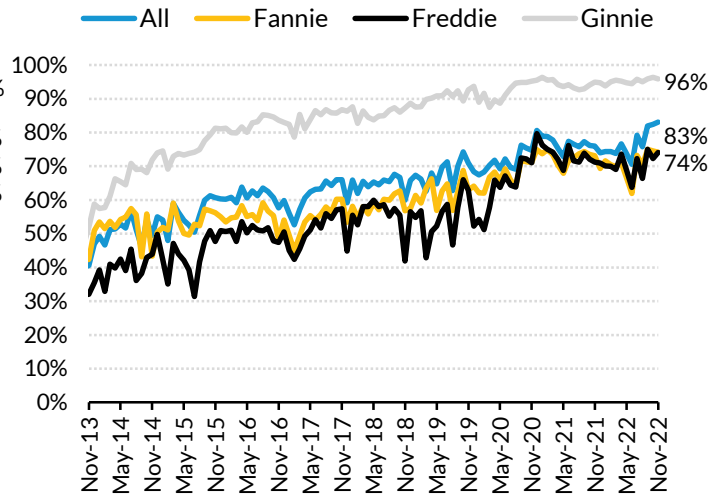
Sources: eMBS and Urban Institute.

Nonbank Origination Share: Purchase Loans



Sources: eMBS and Urban Institute.

Nonbank Origination Share: Refi Loans



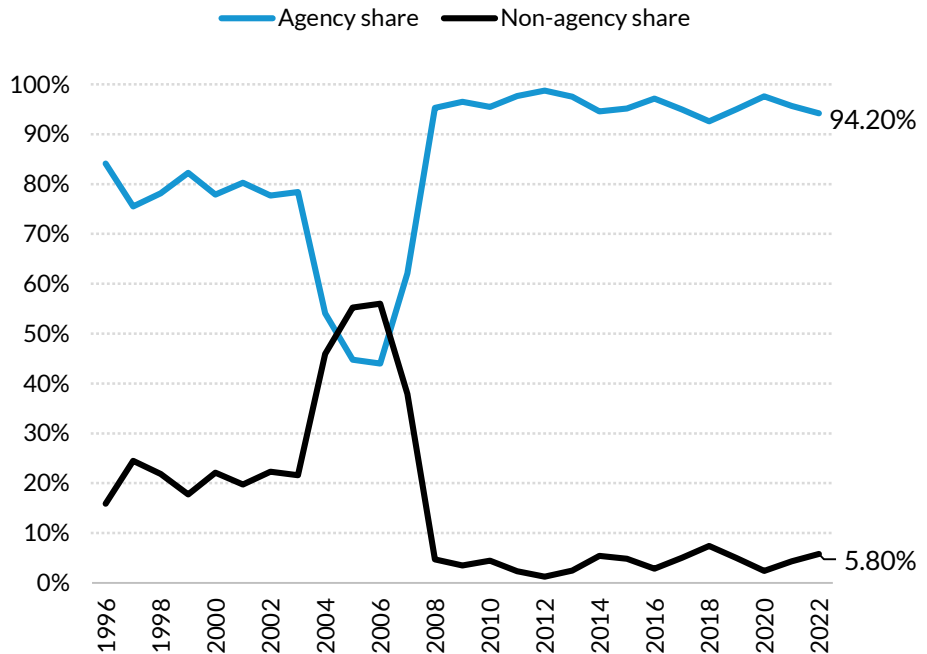
Sources: eMBS and Urban Institute.

OVERVIEW

SECURITIZATION VOLUME AND COMPOSITION

Agency/Non-Agency Share of Residential MBS Issuance

The non-agency share of mortgage securitizations increased gradually from 1.83 percent in 2012 to 5.0 percent in 2019. In 2020, the non-agency share dropped to 2.44 percent, reflecting increased agency refinances and less non-agency production due to COVID-19. The market recovered in 2021 with the nonagency share rising to 4.32 percent. In the Jan-November 2022 period, the nonagency share was 5.80 percent. 2021 was the largest year of non-agency securitization, as measured by dollar volume, since 2008. Non-agency issuance reached \$21.19 billion in Q3 2022, a decrease relative to the \$45.78 billion in Q3 2021, reflecting both a broader slowdown in originations amidst higher rates as well as wider spreads. Non-agency securitization totaled a meager \$2.4 billion in November 2022. These numbers remain small compared to pre-housing market crisis levels.

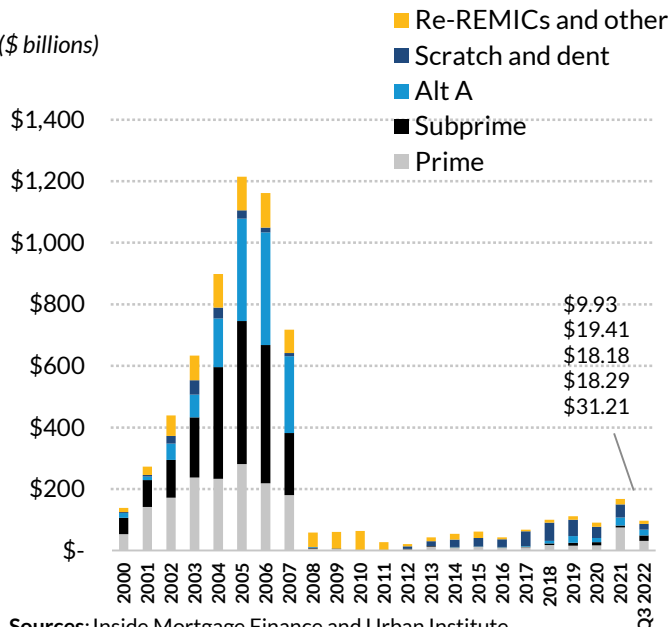


Sources: Inside Mortgage Finance and Urban Institute.

Note: Based on data from November 2022. Monthly non-agency volume is subject to revision.

Non-Agency MBS Issuance

(\$ billions)

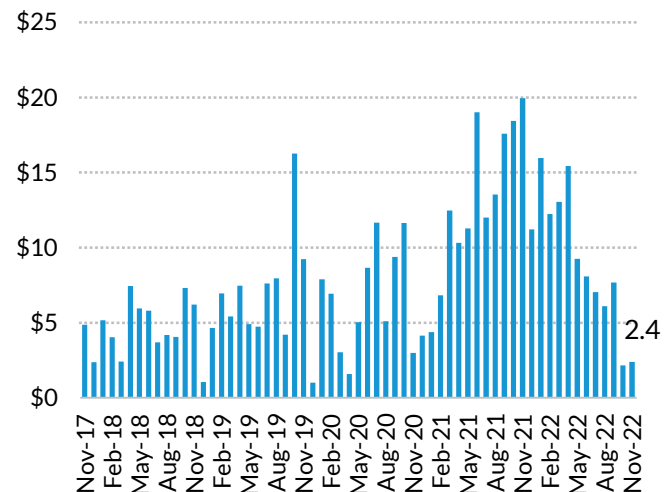


Sources: Inside Mortgage Finance and Urban Institute.

Note: Data in 2022 is through Q3.

Monthly Non-Agency Securitization

(\$ billions)



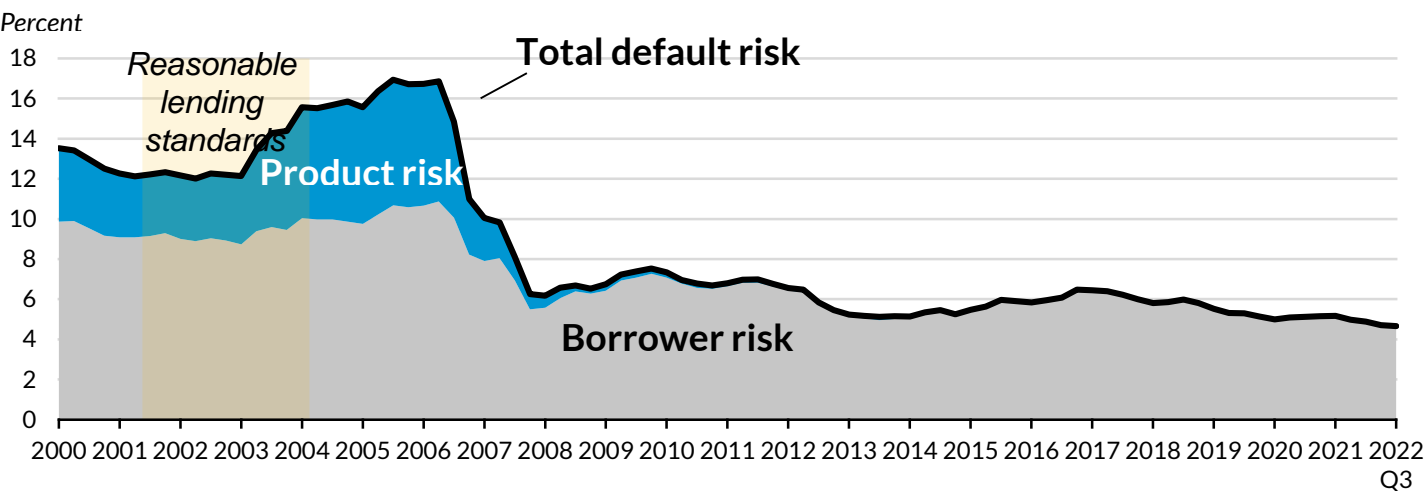
Sources: Inside Mortgage Finance and Urban Institute.

CREDIT BOX

HOUSING CREDIT AVAILABILITY INDEX

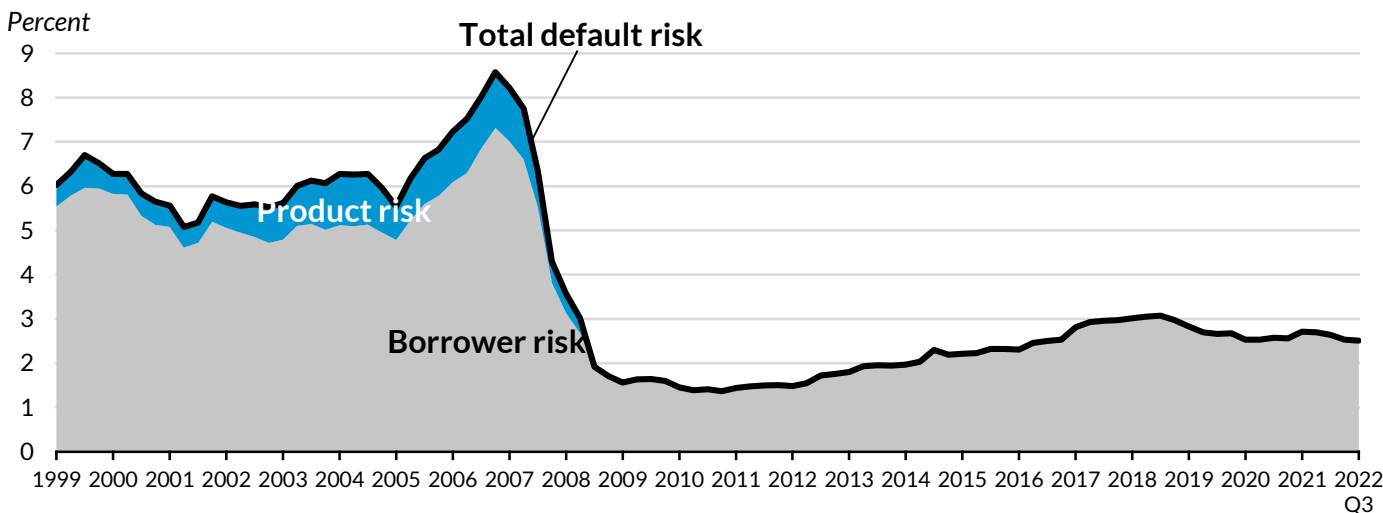
The Urban Institute's Housing Credit Availability Index (HCAI) assesses lenders' tolerance for both borrower risk and product risk, calculating the share of owner-occupied purchase loans that are likely to go 90+ days delinquent over the life of the loan. The HCAI stood at 4.7 percent in Q3 2022, remaining flat from Q2 2022. The tightening from Q3 2021 to Q3 2022 reflects a decrease in default risk taken across all channels, particularly for loans held in portfolio which saw a significant increase in market share in 2022. 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 2020, the total risk taken by the GSE channel doubled, from 1.4 percent to 2.7 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 2022, credit availability stood at 2.51 percent, slightly down from 2.53 percent in Q2 2022.



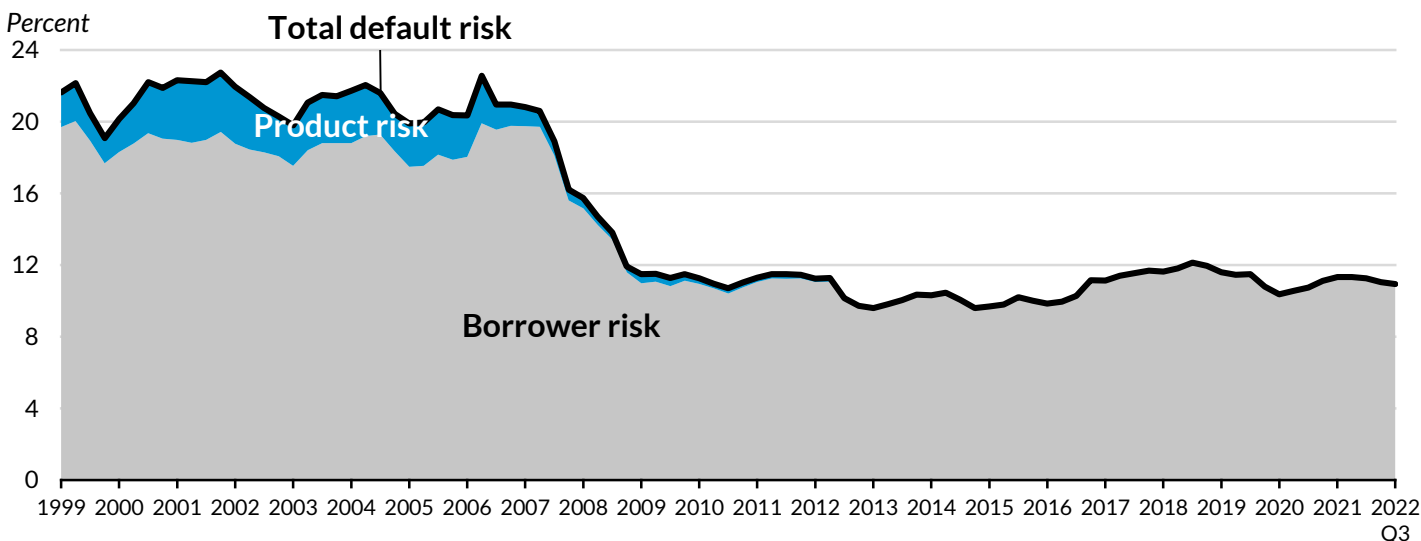
Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.

Note: Default is defined as 90 days or more delinquent at any point. Last updated December 2022.

HOUSING CREDIT AVAILABILITY INDEX

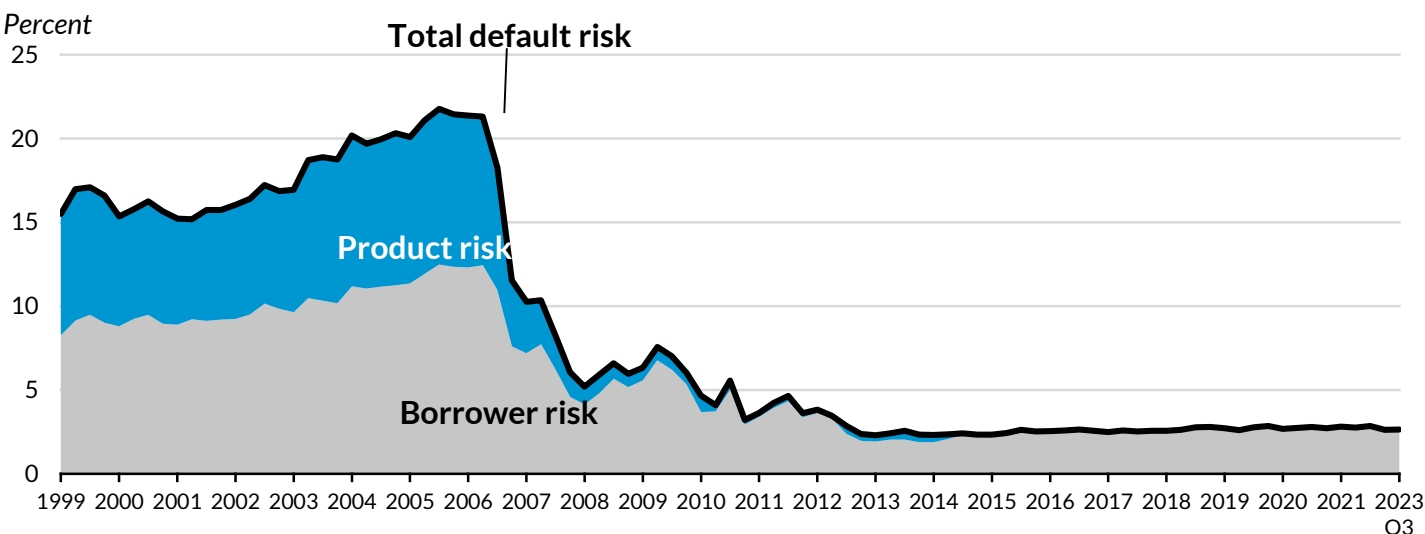
Government Channel

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 significantly 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 11.0 percent in Q3 2022; far below the pre-bubble level 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 2.7 percent in Q3 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 December 2022.

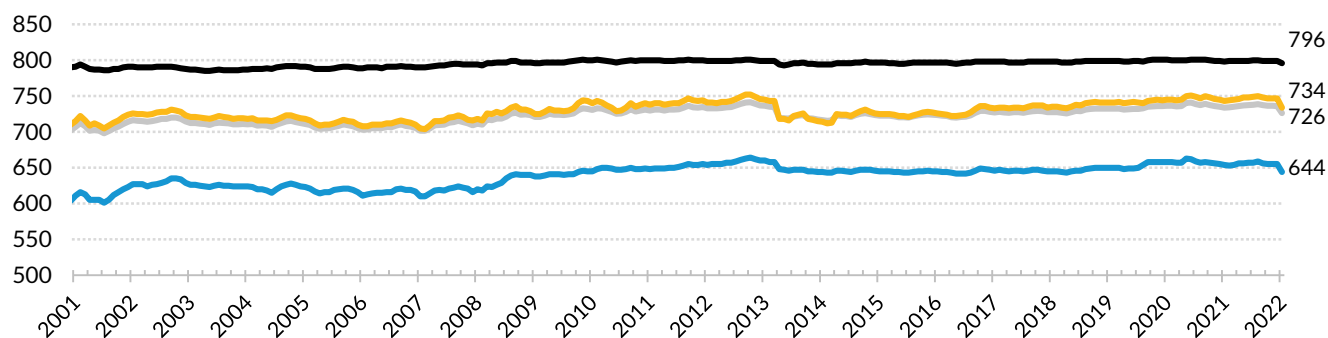
CREDIT AVAILABILITY FOR PURCHASE LOANS

Access to credit remains tight by historical standards, especially for lower FICO borrowers. The median FICO for current purchase loans is about 12 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 644 in October 2022, which is still high compared to low-600s pre-bubble. The median LTV at origination of 95 percent also remains high, reflecting the rise of FHA and VA lending. Origination DTIs trended lower over the course of 2020 and early 2021, reflecting the sharp decline in mortgage rates; this has reversed, with a concurrent rise in DTIs.

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

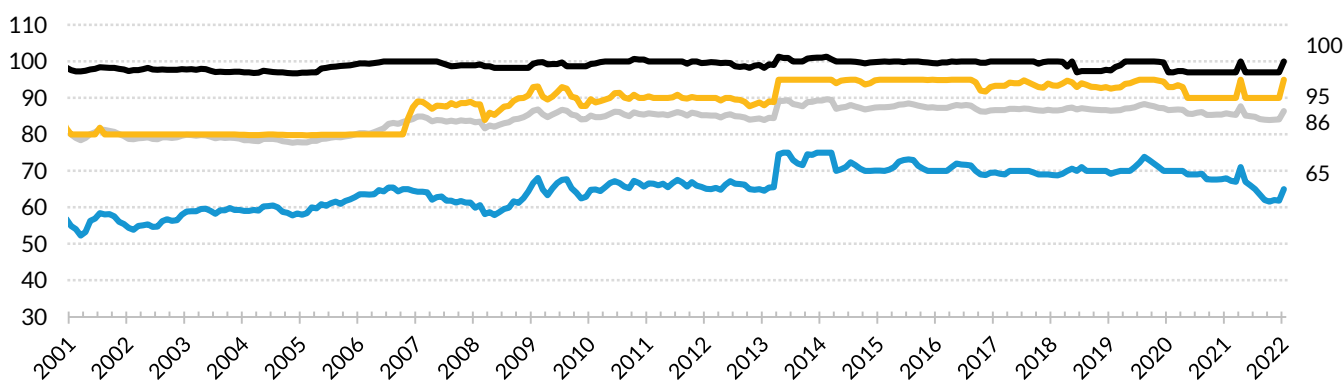
Borrower FICO Score at Origination

FICO Score



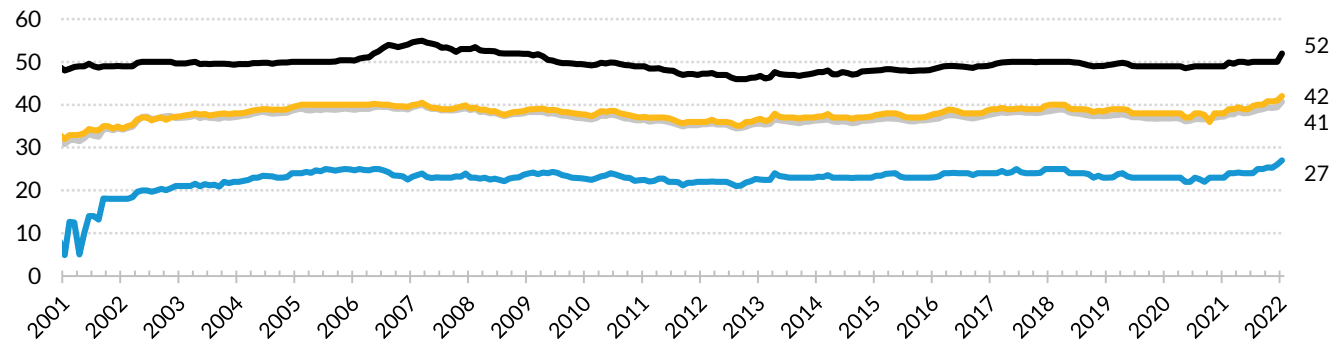
Combined LTV at Origination

LTV



DTI at Origination

DTI



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

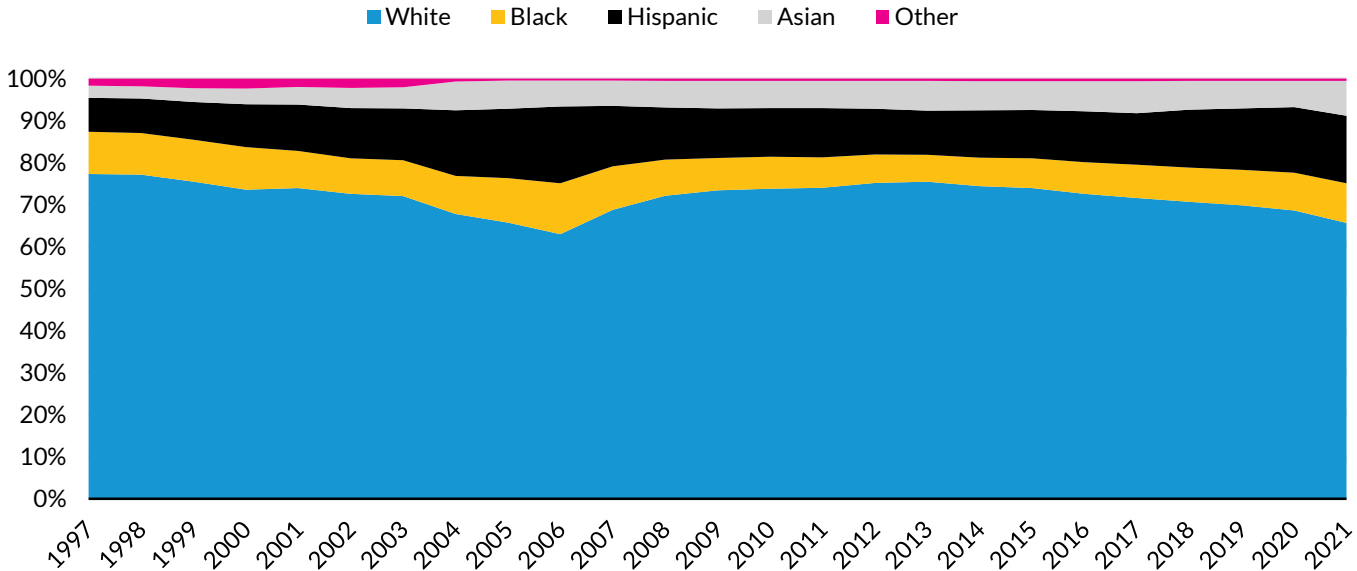
Note: Includes owner-occupied purchase loans only. DTI data prior to April 2018 is from CoreLogic; after that date, it is from Black Knight. A back-update to the Black Knight historical series was made in September 2021 for data starting from 2001 onward. Data as of October 2022.

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.

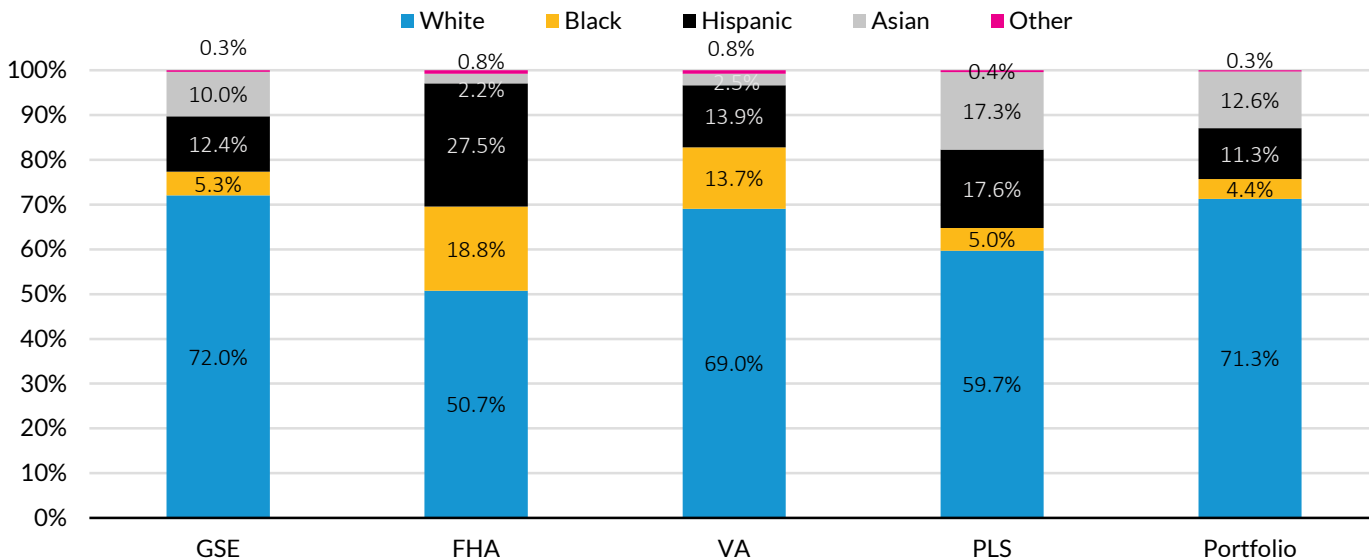
2021 Purchase Loan Shares by Race



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).

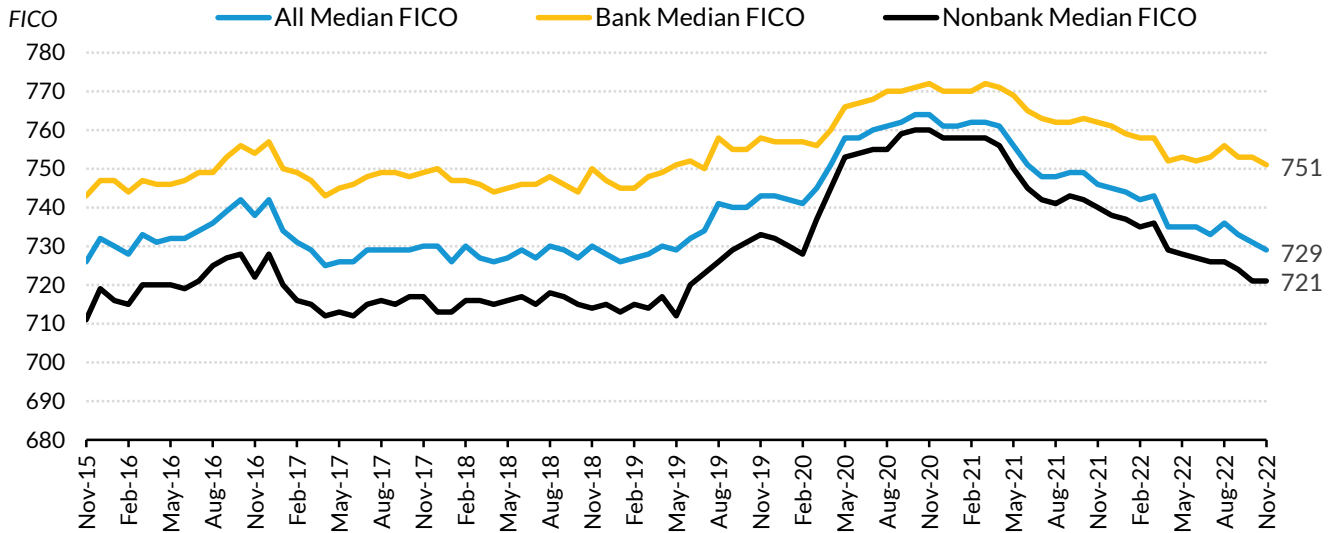
Note: Includes purchase loans only. Shares based on loan counts

CREDIT BOX

AGENCY NONBANK CREDIT BOX

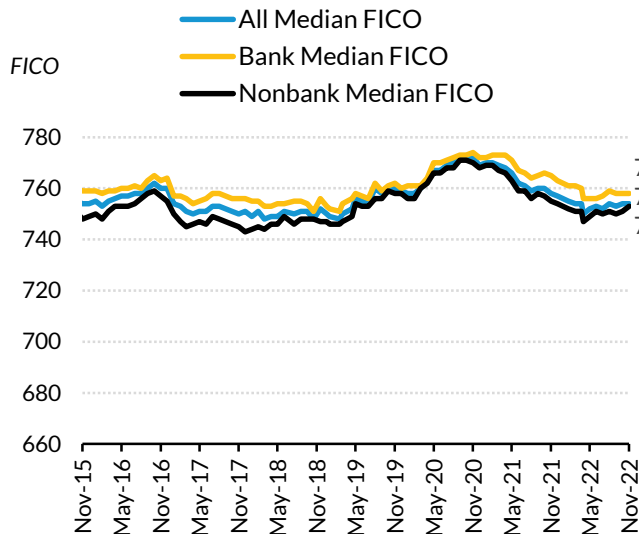
FICO scores for banks and nonbanks, in both the Ginnie Mae and GSE arenas, dipped in 2021 and 2022. The difference between the FICOs on bank and non-bank GSE loans stood at 5 points in November 2022, compared to the 22-point gap in the Ginnie space. FICO scores for banks and nonbanks in both GSE and Ginnie Mae segments increased during the Q1 2019 to Q1 2021 period, due to increased refi activity. Because borrowers of refi loans typically have higher FICO scores than borrowers of purchase loans, FICO scores are now declining as the refi wave wanes. Note that there has been a sharp cut-back in FHA lending by banks post-2008. As pointed out on page 11, banks now comprise only about 9 percent of Ginnie Mae originations.

Agency FICO: Bank vs. Nonbank



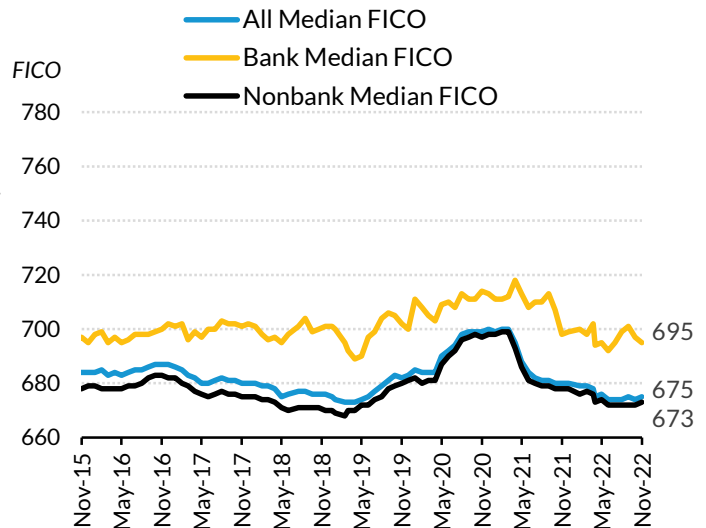
Sources: eMBS and Urban Institute.

GSE FICO: Bank vs. Nonbank



Sources: eMBS and Urban Institute.

Ginnie Mae FICO: Bank vs. Nonbank



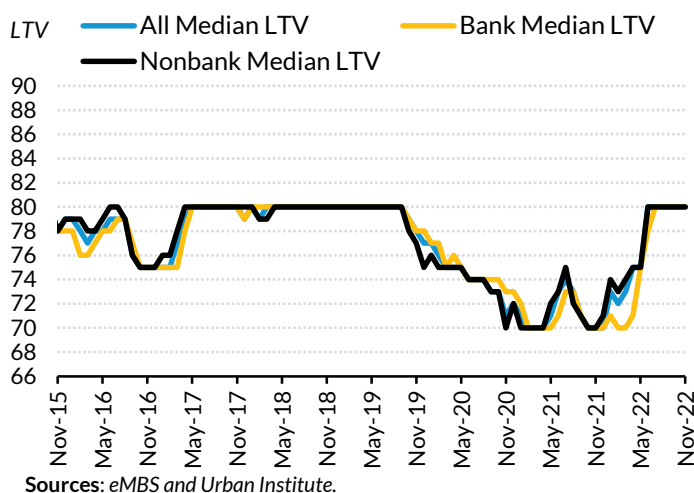
Sources: eMBS and Urban Institute.

CREDIT BOX

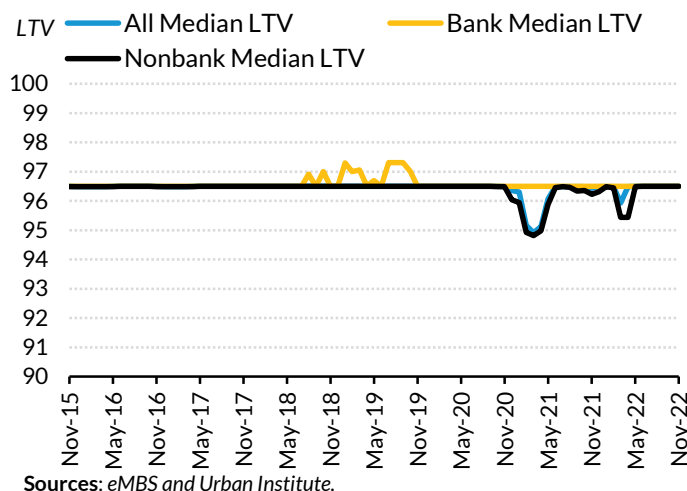
AGENCY NONBANK CREDIT BOX

Non-banks are more expansive in their lending than their bank counterparts, as indicated by higher 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 2017 and 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.

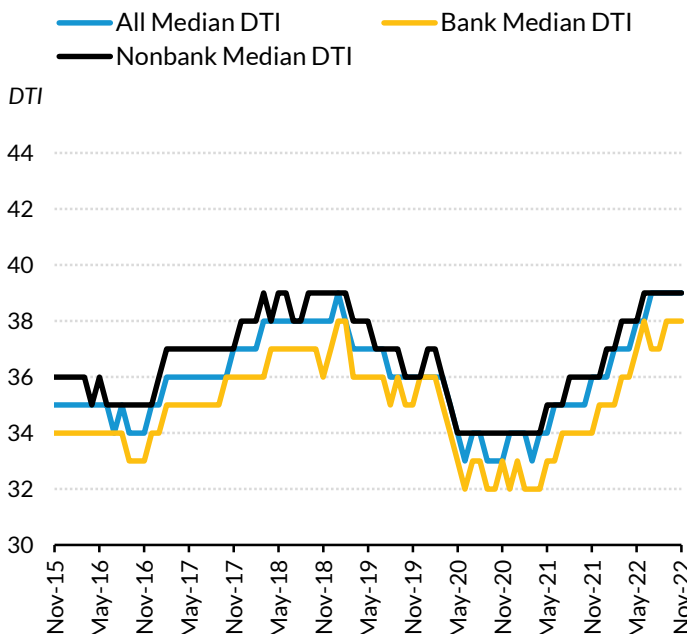
GSE LTV: Bank vs. Nonbank



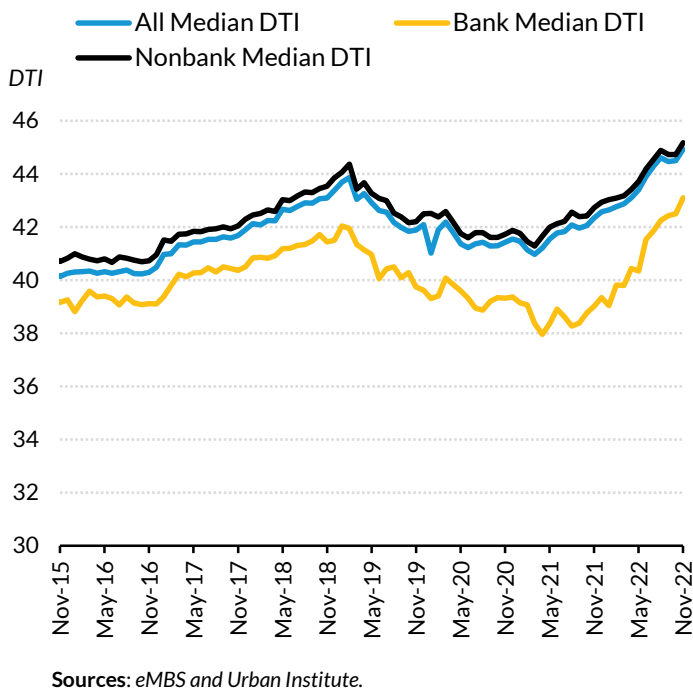
Ginnie Mae LTV: Bank vs. Nonbank



GSE DTI: Bank vs. Nonbank



Ginnie Mae DTI: Bank vs. Nonbank



STATE OF THE MARKET

MORTGAGE ORIGINATION PROJECTIONS

Fannie Mae, Freddie Mac and the MBA estimate 2022 origination volume to be between \$2.25 and \$2.60 trillion, down from \$4.44 to \$4.84 trillion in 2021, representing declines of 2.19 to 2.24 trillion. The very robust origination volume in 2020 and 2021 is due to very strong refinance activity. All three groups expect the 2022 refinance share to be 29 percentage points lower than in 2021.

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	745	847	689	47	50	45
2022 Q2	676	744	678	25	28	30
2022 Q3	520	551	480	19	11	19
2022 Q4	398	453	410	21	12	17
2023 Q1	326	406	392	26	17	25
2023 Q2	452	525	540	20	14	23
2023 Q3	473	538	519	21	15	24
2023 Q4	461	474	525	22	18	26
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	2346	2595	2245	29	29	33
2023	1696	1942	1976	22	16	27

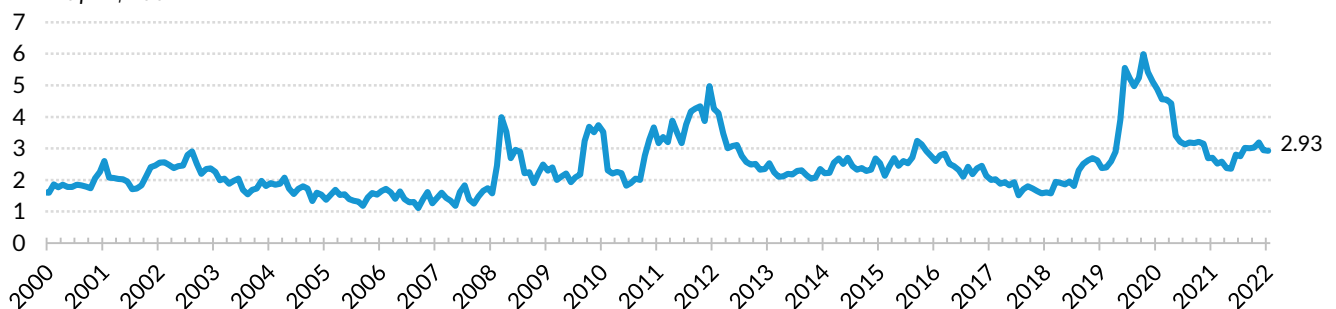
Sources: Fannie Mae, Freddie Mac, Mortgage Bankers Association and Urban Institute.

Note: Shaded boxes indicate forecasted figures. All figures are estimates for total single-family 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 respective projections for Fannie, Freddie, and MBA are 5.0, 4.6, and 5.5 percent. Freddie Mac forecasts are now released quarterly, last updated December 2022.

Originator Profitability and Unmeasured Costs

In November 2022, Originator Profitability and Unmeasured Costs (OPUC) stood at \$2.93 per \$100 loan, down considerably from \$5.99 per \$100 loan in 2020. Increased profitability in 2020 and early 2021 reflects lender capacity constraints amidst strong refi demand. Reduced profitability in 2022 reflects 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 November 2022.

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

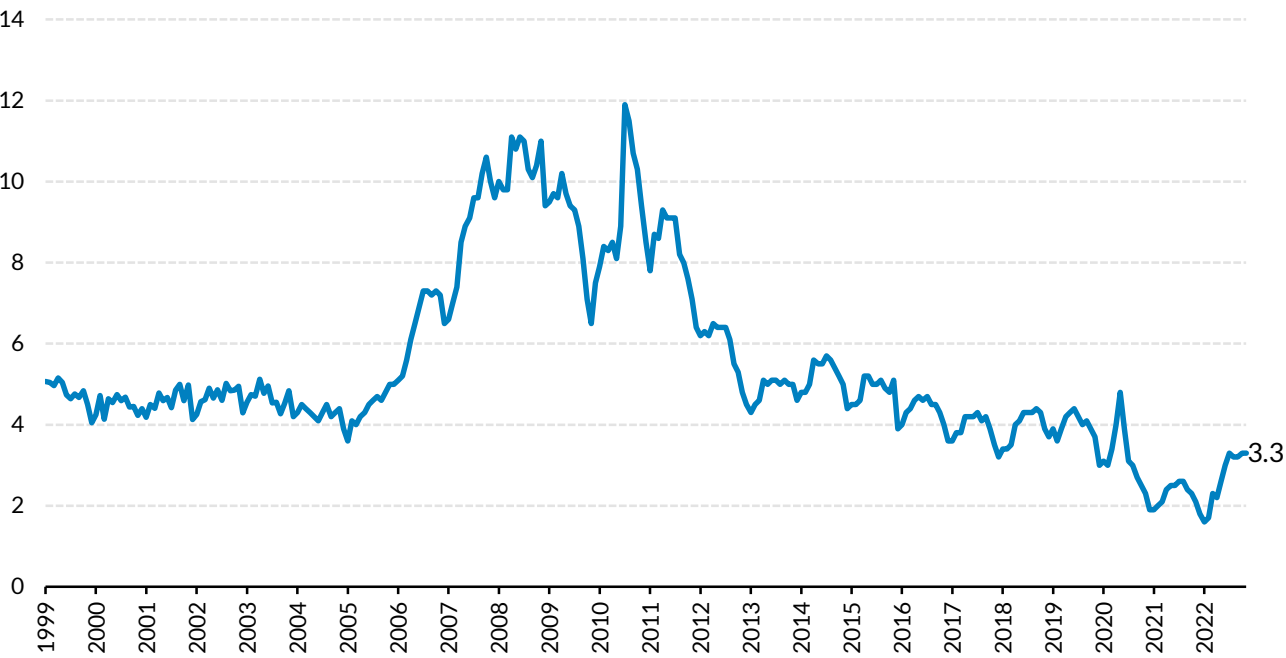
STATE OF THE MARKET

HOUSING SUPPLY

Months of supply in November 2022 increased marginally to 3.3, up from a near record low of 1.7 in February 2022. While months of supply remains low by historical standards, higher interest rates have slowed demand, leading to the small increase in months of inventory. Fannie Mae, the MBA, and the NAHB forecast 2022 housing starts to be between 1.54 and 1.57 million units, below 2021 levels. Fannie Mae, Freddie Mac, the MBA, and the NAHB predict total home sales of 5.28 to 5.80 million units in 2022; these estimates all reflect declines from their 2021 sales volume calculations.

Months of Supply

Months of supply



November 2022

Source: National Association of Realtors and Urban Institute. Data as of August 2022.

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	5890
2021	1601	1605	1605	6891	6900	6896	6188
2022	1551	1567	1538	5723	5800	5804	5282
2023	1145	1472	1401	4568	5100	5309	4888

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

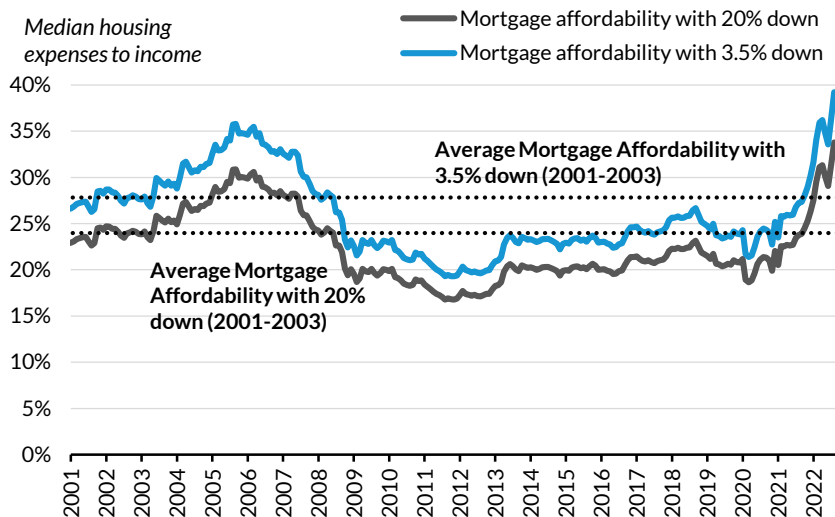
Note: Shaded boxes indicate forecasted figures; column labels indicate source of estimate. Freddie Mac home sales are now updated quarterly instead of monthly, with the last update in November 2022. *NAHB home sales estimate is for single-family structures only, it excludes condos and co-ops. Other figures include all single-family sales.

STATE OF THE MARKET

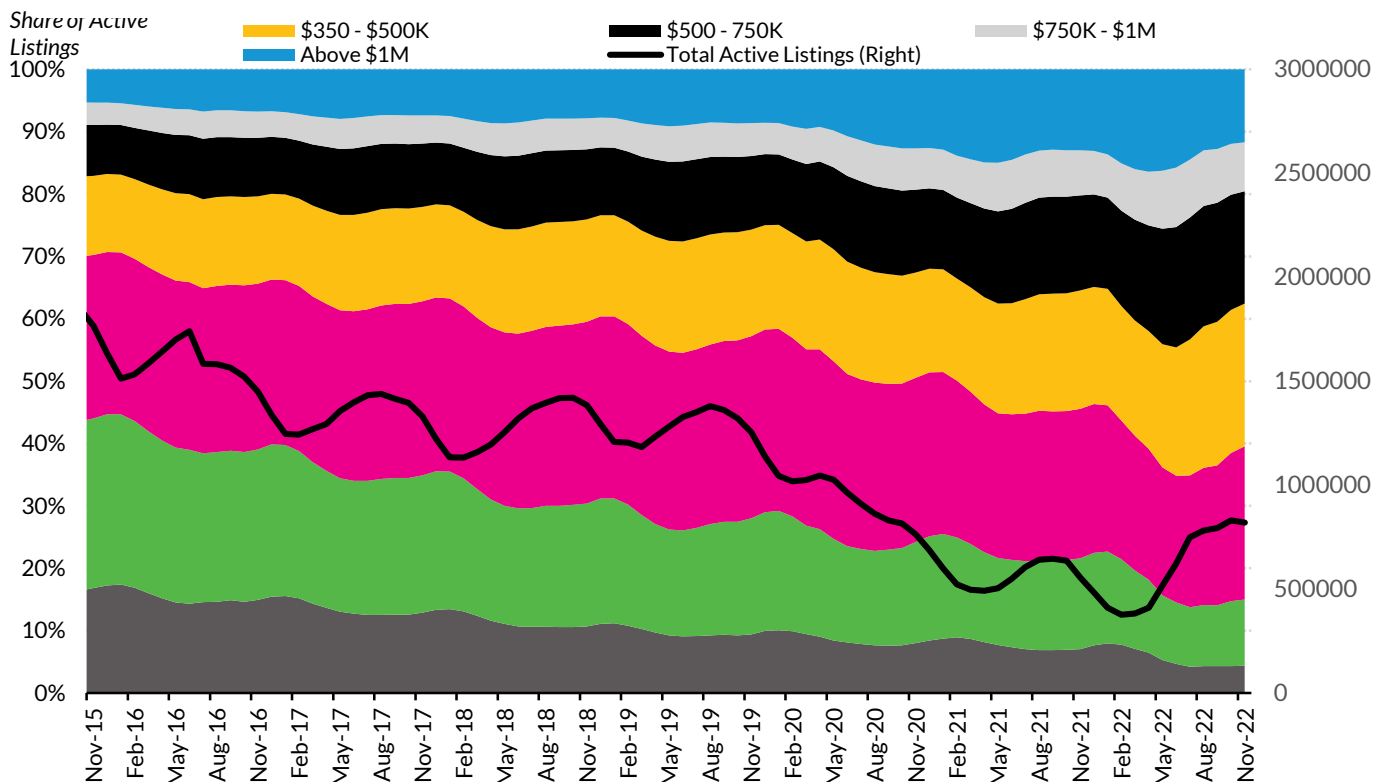
HOUSING AFFORDABILITY

National Mortgage Affordability Over Time

With the rise in interest rates, and rapid increases in home prices, affordability continues to worsen. As of November 2022, with a 20 percent down payment, the share of median income needed for the monthly mortgage payment stood at 33.2 percent, slightly higher than the 30.9 percent at the peak of the housing bubble in November 2005; with 3.5 percent down it is 38.5 percent, also slightly above the 35.8 percent prior peak in November 2005. These numbers represent a sharp worsening in affordability over the past year. As shown in the bottom picture, despite the recent small increase, active listings have declined substantially 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.

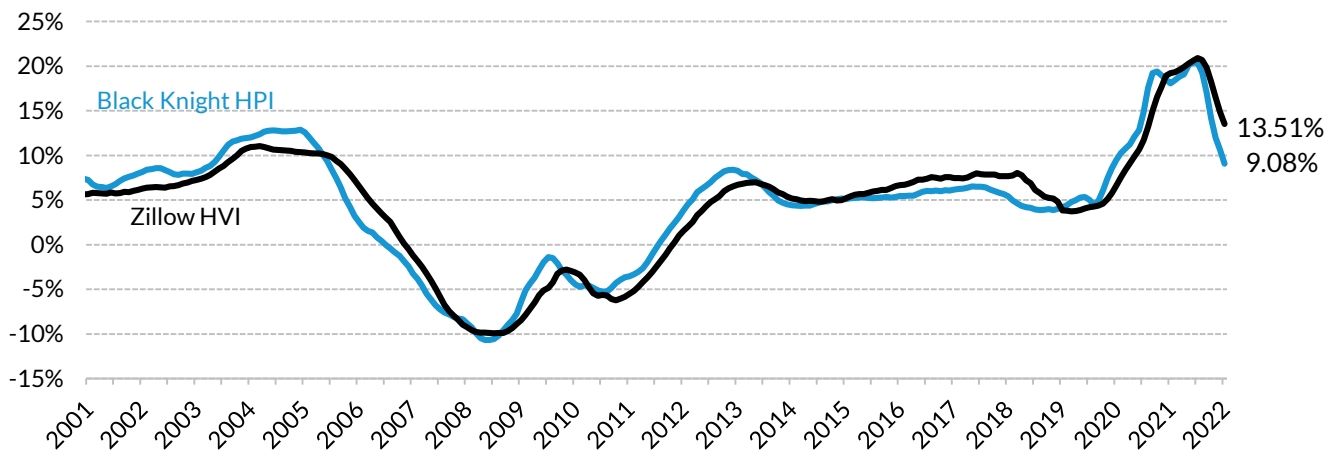
Note: Mortgage affordability is the share of median family income devoted to the monthly principal, interest, taxes, and insurance payment required to buy the median home at the Freddie Mac prevailing rate for a 30-year fixed-rate mortgage and property tax and insurance at 1.75 percent of the housing value. Data for the bottom chart provided by Realtor.com as of November 2022.

HOME PRICE INDICES

National Year-Over-Year HPI Growth

According to Black Knight's updated repeat sales index, year-over-year home price appreciation decreased to 9.08 percent in September 2022, compared to 10.61 percent the previous month. Year-over-year home price appreciation as measured by Zillow's hedonic index was 13.51 percent in October 2022, down from 14.86 percent in September. Home price appreciation has continued to decrease since March 2022 but affordability is still constrained by sharp rises in interest rates along with previous spikes in prices.

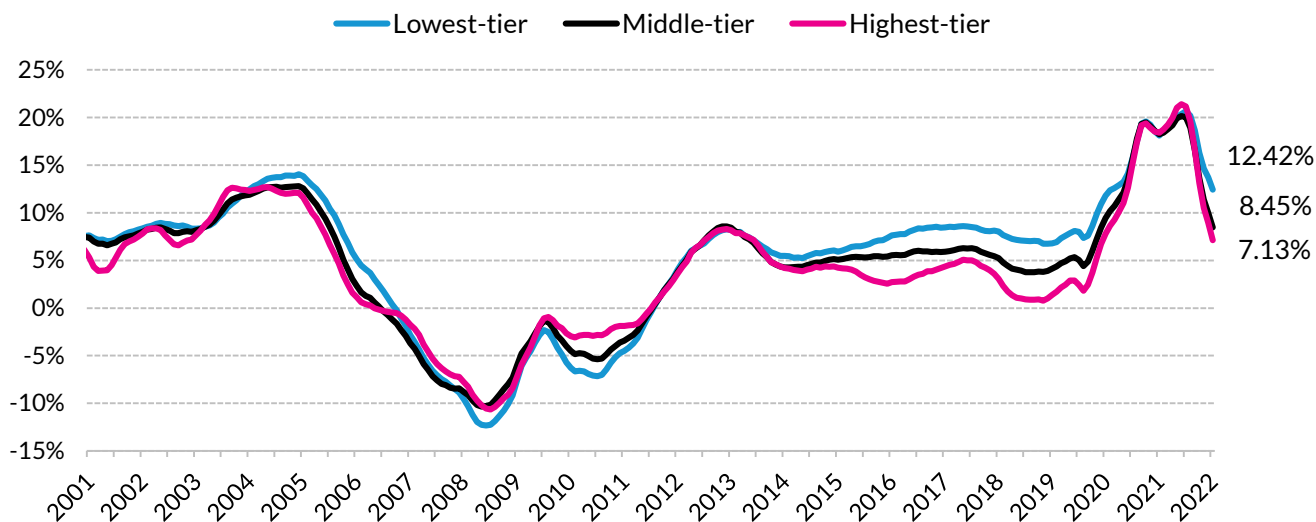
Year-over-year growth



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 October 2022.

National Year-Over-Year HPI Growth by Price Tier

House price growth escalated dramatically in the second half of 2020 into 2021 and continues to remain elevated in 2022 across all price tiers. Before the pandemic, lower-priced homes appreciated more than higher-priced homes. With higher-priced homes experiencing steep appreciation in 2020 and 2021, year-over-year growth in the highest-tier had surpassed 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. Note that the sharp deceleration in year-over-year growth means that most markets have experienced declines since the mid-2022 peak.



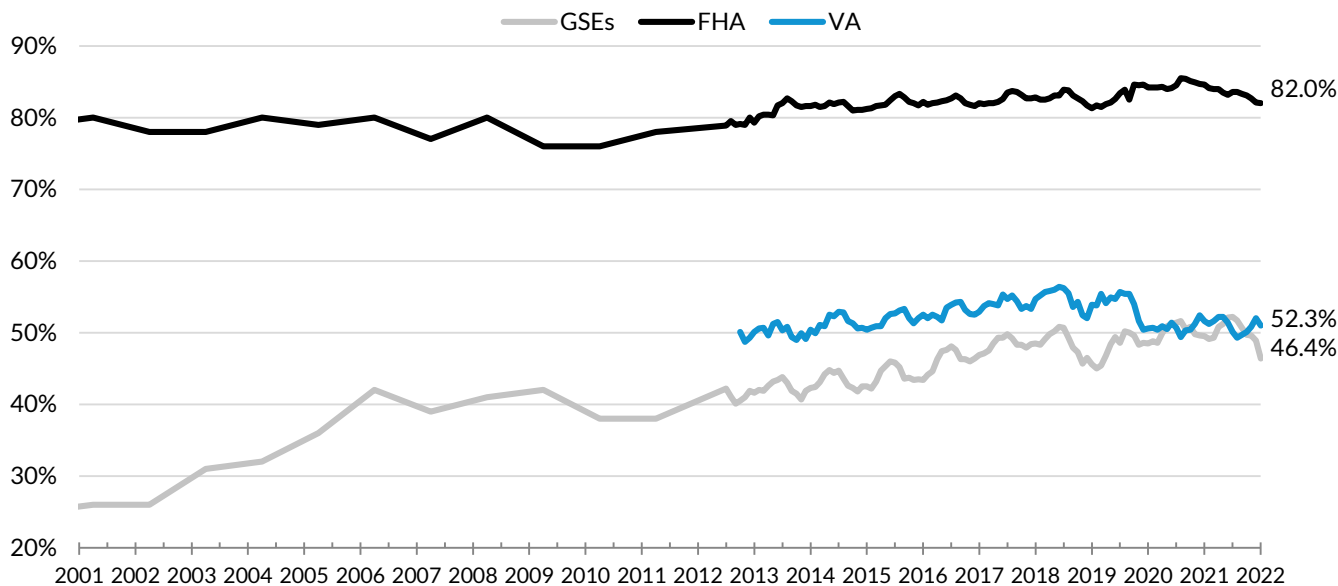
Sources: Black Knight and Urban Institute. **Note:** Black Knight modified the methodology behind their HPI in February 2021, resulting in changes to historic price estimates. Data as of October 2022.

STATE OF THE MARKET

FIRST-TIME HOMEBUYERS

First-Time Homebuyer Share

In October 2022, 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 October was 46.4 percent; the VA share was 52.3 percent. The bottom table shows that based on mortgages originated in October 2022, 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.



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

October 2022

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 (\$)	324,308	341,554	286,245	299,654	314,626	346,353
Credit Score	746	756	672	670	719	742
LTV (%)	86	76	95	92	90	81
DTI (%)	37	38	45	46	40	39
Loan Rate (%)	5.47	5.41	5.39	5.24	5.42	5.32

Sources: eMBS and Urban Institute.

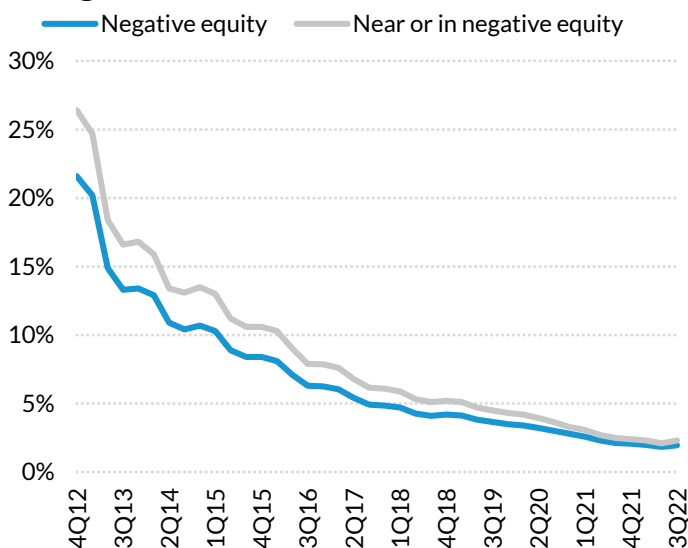
Note: Based on owner-occupied purchase mortgages originated in October 2022.

STATE OF THE MARKET

DELINQUENCIES AND LOSS MITIGATION ACTIVITY

Loans in and near negative equity increased marginally in Q3 2022; 1.95 percent now have negative equity, an additional 0.31 percent have less than 5 percent equity. The share of loans that are 90 days or more delinquent or in foreclosure declined by 25 basis points, from 2.12 percent in Q2 2022 to 1.87 percent in Q3 2022, 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 has 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 dropping to 0.70% as of November 30, 2022. GSE loans have consistently had the lowest forbearance rates, standing at 0.32 percent at the end of November. The most recent forbearance rate for other (e.g., portfolio and PLS) loans was 0.97 percent; Ginnie Mae loans had the highest forbearance rate at 1.46 percent.

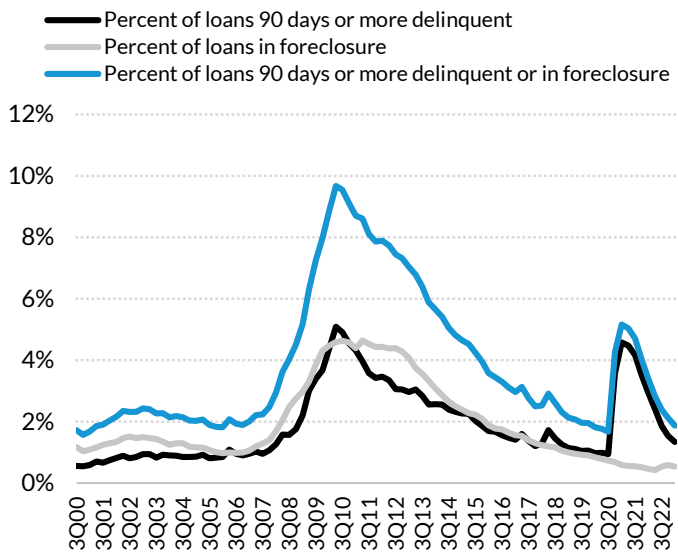
Negative Equity Share



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 2022.

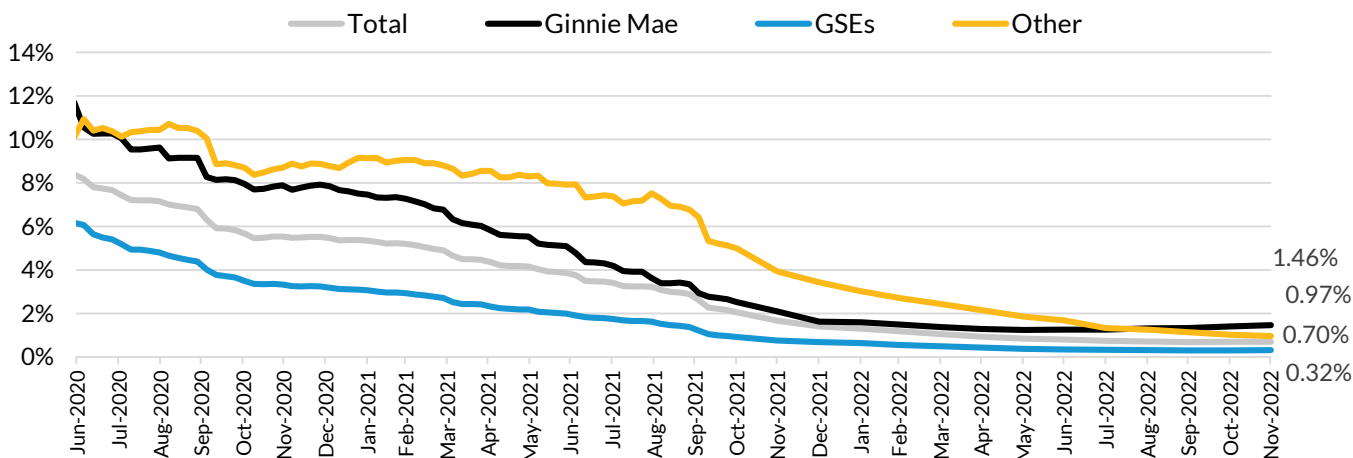
Loans in Serious Delinquency/Foreclosure



Sources: Mortgage Bankers Association and Urban Institute. Last updated November 2022.

Q3 2022

Forbearance Rates by Channel



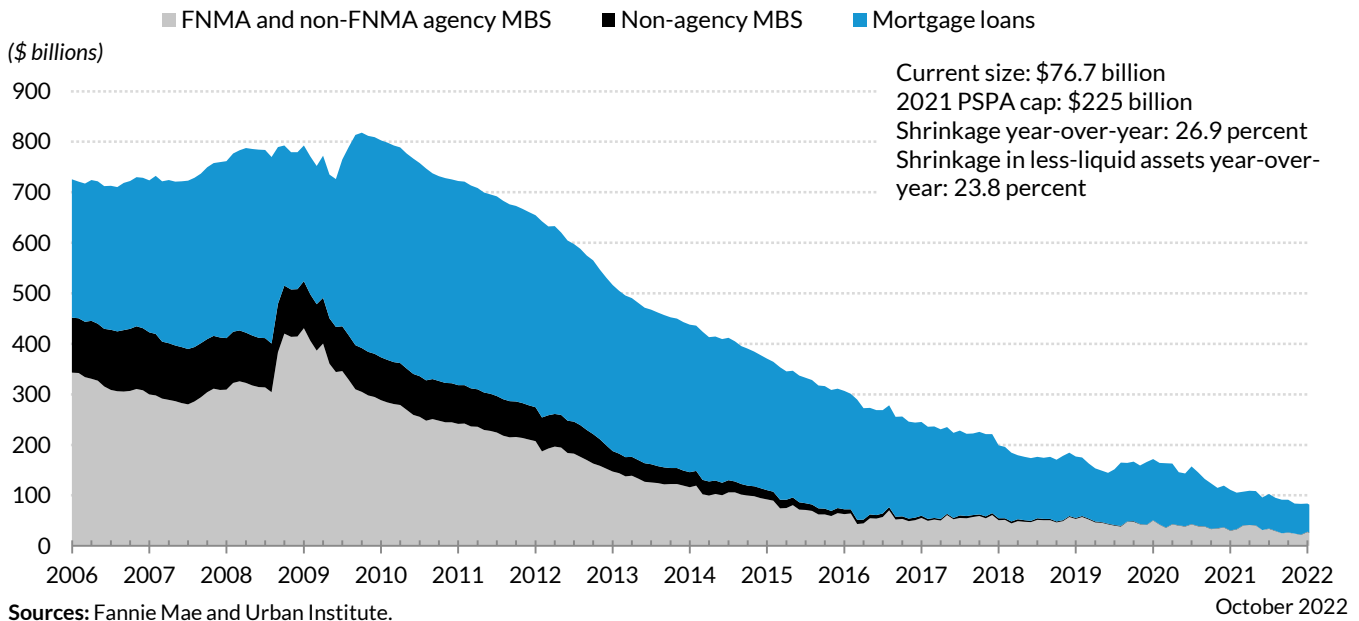
Source: MBA Weekly Forbearance and Call Volume Survey. Forbearance rates as of November 30th, 2022.

GSES UNDER CONSERVATORSHIP

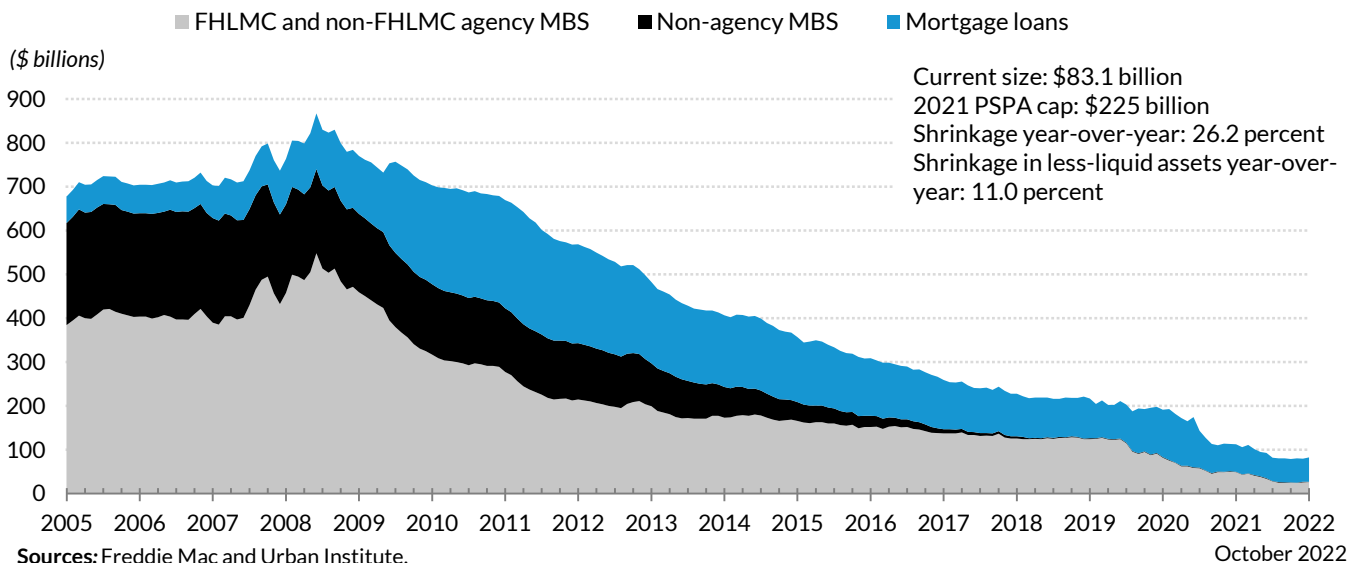
GSE PORTFOLIO WIND-DOWN

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 2021 to October 2022, the Fannie portfolio contracted year-over-year by 26.9 percent, and the Freddie portfolio contracted by 26.2 percent. Within the portfolio, both Fannie Mae and Freddie Mac contracted their less-liquid assets (mortgage loans, non-agency MBS), by 23.8 percent and 11.0 percent, respectively, over the same 12 month period.

Fannie Mae Mortgage-Related Investment Portfolio Composition



Freddie Mac Mortgage-Related Investment Portfolio Composition



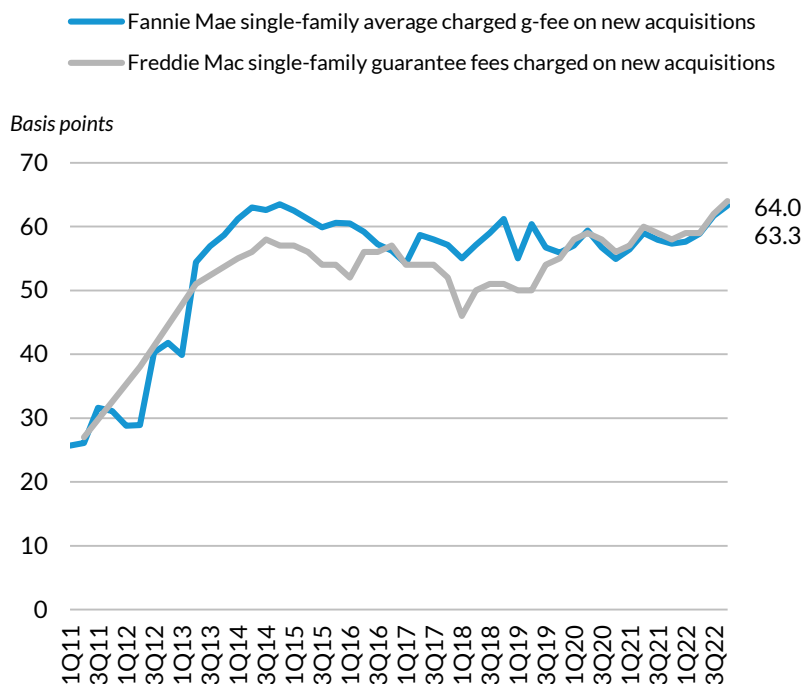
Note: Effective March 2021, Freddie Mac doesn't provide FHLMC/non-FHLMC breakout of agency MBS. The above charts were updated in May 2021 to reflect this.

GSES UNDER CONSERVATORSHIP

EFFECTIVE GUARANTEE FEES

Guarantee Fees Charged on New Acquisitions

Fannie Mae and Freddie Mac's average g-fees charged have largely converged since the first quarter of 2020. Fannie Mae's average g-fees charged on new acquisitions increased from 61.7 bps in Q2 2022 to 63.3 bps in Q3 2022. Freddie's increased from 62.0 in Q2 2022 to 64.0 percent in Q3 2022. The gap between the two g-fees was 0.7 bps in Q3 2022. Today's g-fees are markedly higher than g-fee levels in 2011 and 2012, and have contributed to the GSEs' earnings; 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.



Sources: Fannie Mae, Freddie Mac and Urban Institute.
Last updated November 2022.

Fannie Mae Upfront Loan-Level Price Adjustments (LLPAs)

Credit Score	LTV (%)								
	≤60	60.01 – 70	70.01 – 75	75.01 – 80	80.01 – 85	85.01 – 90	90.01 – 95	95.01 – 97	>97
> 740	0.00	0.25	0.25	0.50	0.25	0.25	0.25	0.75	0.75
720 – 739	0.00	0.25	0.50	0.75	0.50	0.50	0.50	1.00	1.00
700 – 719	0.00	0.50	1.00	1.25	1.00	1.00	1.00	1.50	1.50
680 – 699	0.00	0.50	1.25	1.75	1.50	1.25	1.25	1.50	1.50
660 – 679	0.00	1.00	2.25	2.75	2.75	2.25	2.25	2.25	2.25
640 – 659	0.50	1.25	2.75	3.00	3.25	2.75	2.75	2.75	2.75
620 – 639	0.50	1.50	3.00	3.00	3.25	3.25	3.25	3.50	3.50
< 620	0.50	1.50	3.00	3.00	3.25	3.25	3.25	3.75	3.75
Product Feature (Cumulative)									
Investment Property	2.125	2.125	2.125	3.375	4.125	4.125	4.125	4.125	4.125

Sources: Fannie Mae and Urban Institute.
Last updated March of 2021.

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. Historically, the GSEs have transferred majority of their credit risk to private markets. Fannie Mae's CAS issuances since inception total \$2.12 trillion; Freddie's STACR totals \$2.62 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 Capital Rule now finalized, 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
January 2022	CAS 2022 – R01	\$53,747	\$1,506	2.8
February 2022	CAS 2022 – R02	\$44,278	\$1,241	2.8
March 2022	CAS 2022 – R03	\$44,382	\$1,242	2.8
April 2022	CAS 2022 – R04	\$36,440	\$1,142	3.1
May 2022	CAS 2022 – R05	\$39,341	\$952	2.4
June 2022	CAS 2022 – R06	\$25,539	\$754	3.0
June 2022	CAS 2022 – R07	\$31,176	\$866	2.8
August 2022	CAS 2022 – R08	\$20,733	\$626	3.2
September 2022	CAS 2022 – R09	\$29,965	\$591	2.0
Total		\$2,115,375	\$58,618	2.7

Freddie Mac – Structured Agency Credit Risk (STACR)

Date	Transaction	Reference Pool Size (\$ m)	Amount Issued (\$m)	% of Reference Pool Covered
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
January 2022	STACR Series 2022 – DNA1	\$33,573	\$1,353	4.0
February 2022	STACR Series 2022 – DNA2	\$44,961	\$1,919	4.3
March 2022	STACR Series 2022 – HQA1	\$45,831	\$1,816	4.0
April 2022	STACR Series 2022 – DNA3	\$42,886	\$1,842	4.3
May 2022	STACR Series 2022 – DNA4	\$35,369	\$1,519	4.3
June 2022	STACR Series 2022 – DNA5	\$33,545	\$1,422	4.2
July 2022	STACR Series 2022 – HQA2	\$19,741	\$627	3.2
August 2022	STACR Series 2022 – HQA3	\$15,433	\$540	3.5
September 2022	STACR Series 2022 – DNA6	\$36,144	\$1,165	3.2
October 2022	STACR Series 2022 – DNA7	\$20,290	\$517	2.6
Total		\$2,660,839	\$70,026	2.6

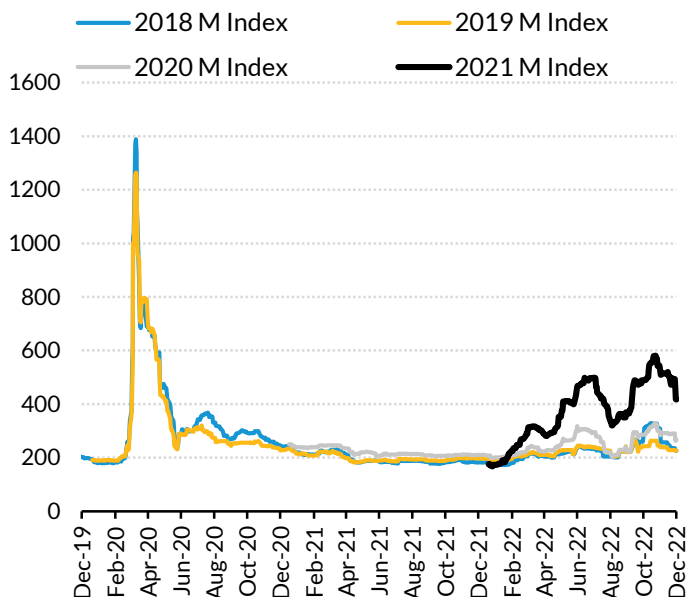
Sources: Fannie Mae, Freddie Mac and Urban Institute. **Note:** Classes A-H, M-1H, M-2H, and B-H are reference tranches only. These classes are not issued or sold. The risk is retained by Fannie Mae and Freddie Mac. "CE" = credit enhancement.

GSES UNDER CONSERVATORSHIP

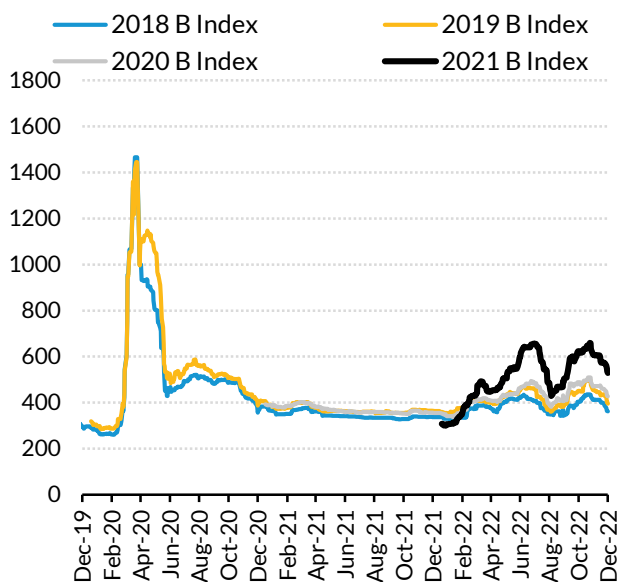
GSE RISK-SHARING INDICES

The figures below show the spreads on 2018, 2019, 2020 and 2021 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, have been generally widening since February 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 indices due to less embedded home price appreciation, recent price declines in some market and a growing risk of a recession. 2020 and 2021 indices are heavily Freddie Mac as Fannie did not issue any new deals from Q2 2020 to Q4 2021.

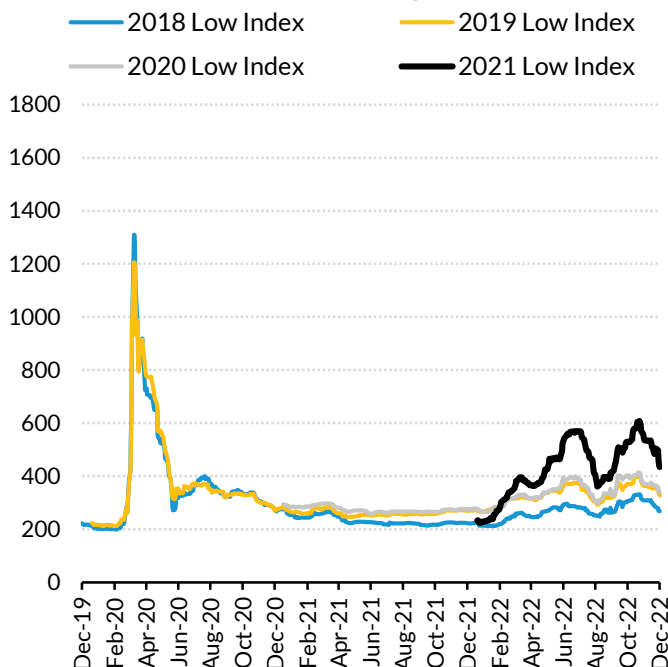
M Indices



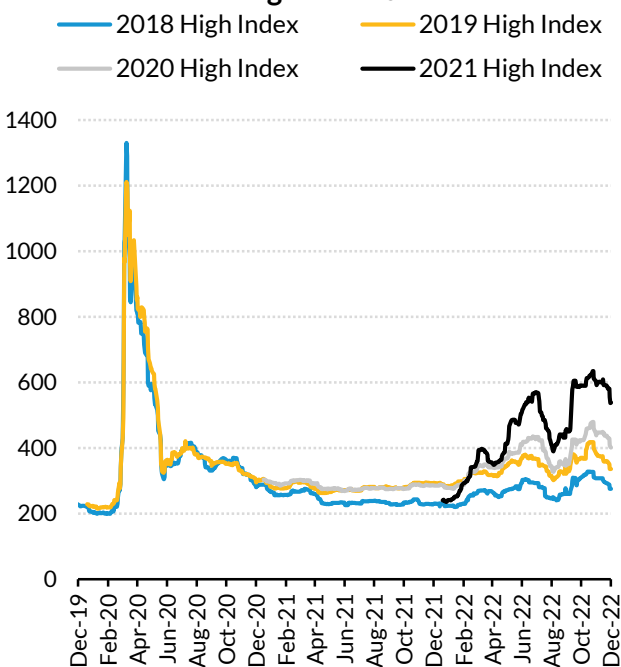
B Indices



Low Indices



High Indices

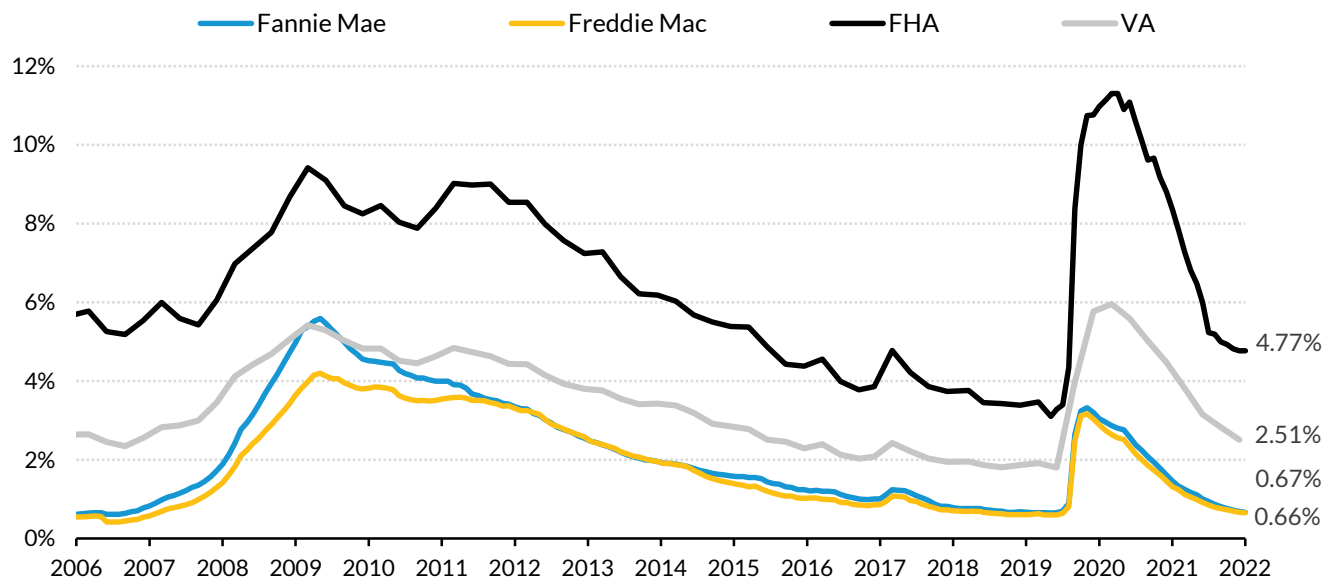


GSES UNDER CONSERVATORSHIP

SERIOUS DELINQUENCY RATES

Serious delinquency rates for single-family GSE loans decreased in October 2022, to 0.67 percent for Fannie Mae and 0.66 percent for Freddie Mac. Serious delinquency rates for FHA loans remained at 4.77 percent in October 2022. In Q3 2022, VA serious delinquency rates declined to 2.51 percent. Note that loans that are in forbearance are counted as delinquent for the purpose of measuring delinquency rates. Fannie and Freddie multifamily delinquencies increased marginally in October to 0.27 percent, and 0.15 percent, respectively.

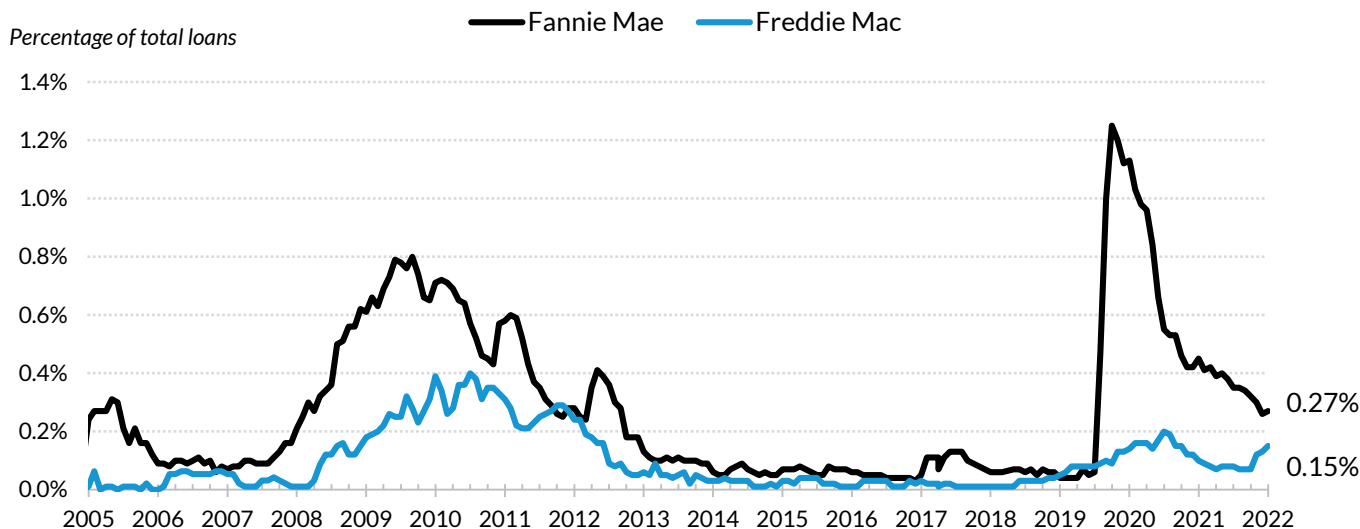
Serious Delinquency Rates–Single-Family Loans



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 Q3 2022. GSE and FHA delinquencies are reported monthly, last updated for October 2022.

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.

October 2022

AGENCY ISSUANCE

AGENCY GROSS AND NET ISSUANCE

Agency gross issuance was \$1,646.2 billion YTD in November 2022, a 49.6 percent decrease from YTD November 2021. This reflects a 71.0 percent YTD decline in refinance activity and a 13.7 percent YTD decline in purchase activity. Net issuance (new securities issued less the decline in outstanding securities due to principal pay-downs or prepayments) totaled \$419.3 billion in YTD November 2022, a 40.2 percent decrease compared to YTD November 2021.

Agency Gross Issuance

Issuance Year	GSEs	Ginnie Mae	Total
2001	\$885.1	\$171.5	\$1,056.6
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	\$1,148.5	\$497.7	\$1,646.2
2022 % Change Over 2021	-53.6%	-37.2%	-49.6%
2022 Annualized	\$1,252.9	\$542.95	\$1,798.82

Agency Net Issuance

Issuance Year	GSEs	Ginnie Mae	Total
2001	\$368.40	-\$9.90	\$358.50
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	\$297.0	\$122.3	\$419.3
2022 % Change Over 2021	-57.7%	14544.6%	-40.2%
2022 Annualized	\$324.0	\$133.4	\$457.4

Sources: eMBS and Urban Institute.

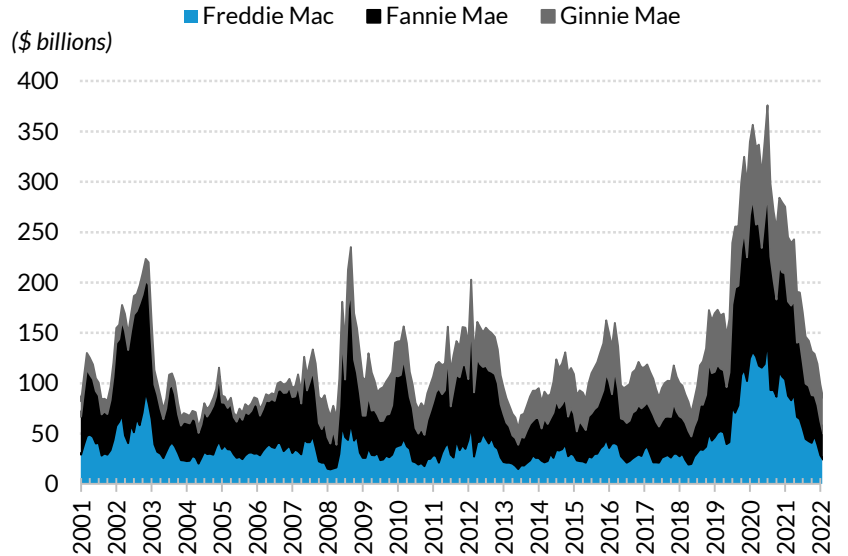
Note: Dollar amounts are in billions. Data as of November 2022.

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. As the refi share is currently low, the Ginnie share in November 2022 remains high at 34.4 percent.

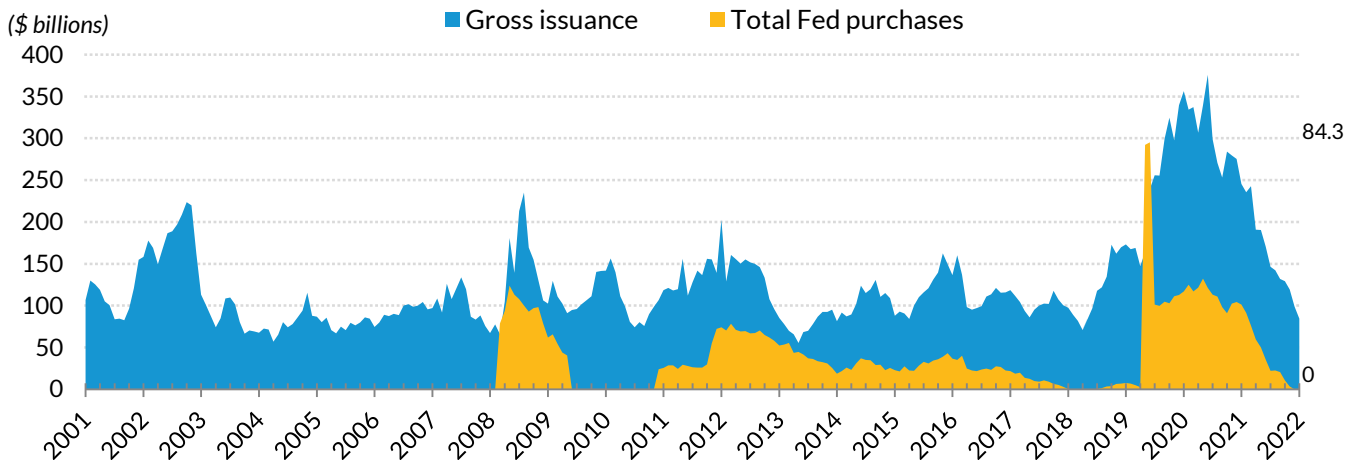


Source: eMBS and Urban Institute Calculations

November 2022

Fed Absorption of Agency Gross Issuance

Agency MBS on Fed balance sheet totaled \$2.66 trillion in November 2022. The Federal Reserve'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. 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.

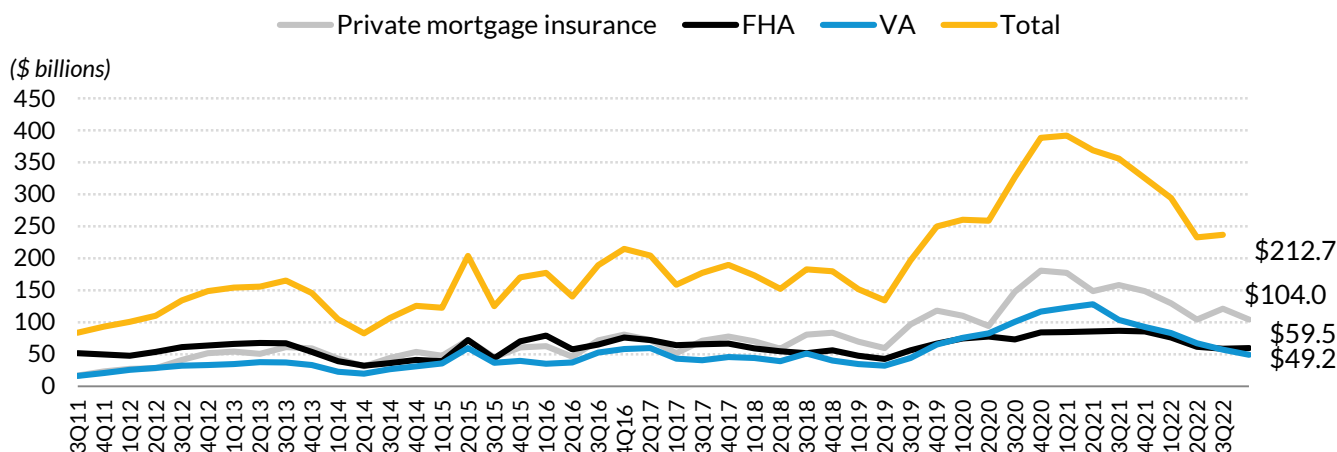
November 2022

AGENCY ISSUANCE

MORTGAGE INSURANCE ACTIVITY

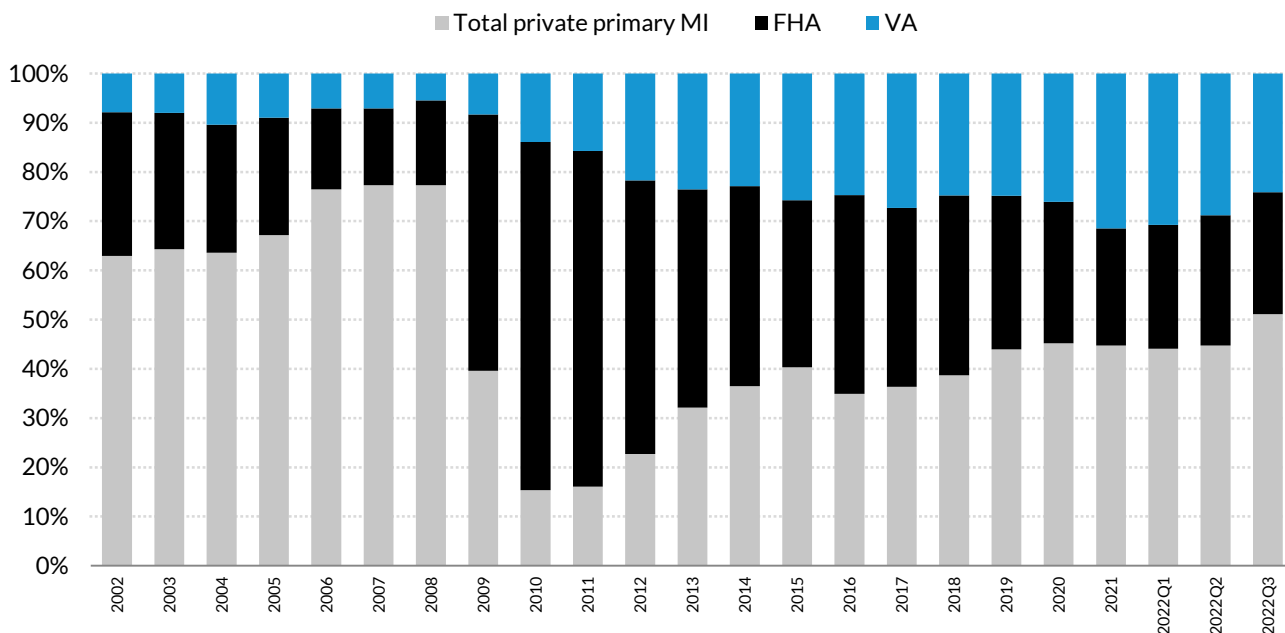
MI Activity

In the third quarter of 2022, private mortgage insurance written decreased by \$44.7 billion, FHA decreased by \$26.2 billion, and VA decreased by \$43.3 billion relative to Q3 2021. Over the same period (i.e. from Q3 2021 to Q3 2022), the private mortgage insurers share increased from 45.5 to 48.9 percent, FHA's share slightly increased from 26.2 to 28.0 percent, and VA's share decreased from 28.3 to 23.1 percent.



Sources: Inside Mortgage Finance and Urban Institute. Last updated November 2022.

MI Market Share



Sources: Inside Mortgage Finance and Urban Institute. Last updated November 2022.

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, making FHA mortgages more attractive than GSE mortgages for the overwhelming majority of borrowers putting down less than 5%. The April 2016 reduction in PMI rates for borrowers with higher FICO scores and April 2018 reduction for lower FICO borrowers had partially offset that. Between December 2021 and December 2022, PMMS rates have more than doubled from 3.10 percent to 6.33 percent as of December 9, 2022. As shown in the bottom table, a borrower putting 3.5 percent down with a FICO score less than 720 will currently find FHA financing to be more financially attractive, borrowers with FICO's of 720 and above will find GSE execution with PMI to be more attractive.

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
Beginning 1/26/2015 ^c	175	85

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. PMI

Assumptions								
Property Value	\$300,000							
Loan Amount	\$289,500							
LTV	96.5							
Base Rate								
Conforming	6.33							
FHA	6.40							

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	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PMI								
GSE LLPA*	3.50	2.75	2.25	1.50	1.50	1.00	0.75	0.75
PMI Annual MIP	1.86	1.65	1.54	1.21	0.99	0.87	0.70	0.58
Monthly Payment								
FHA	\$2,048	\$2,048	\$2,048	\$2,048	\$2,048	\$2,048	\$2,048	\$2,048
PMI	\$2,381	\$2,301	\$2,255	\$2,147	\$2,093	\$2,045	\$1,995	\$1,966
PMI Advantage	-\$333	-\$253	-\$207	-\$99	-\$46	\$2	\$53	\$40

Sources: Enact Mortgage Insurance, Ginnie Mae, and Urban Institute. FHA rate from MBA Weekly Applications Survey. Conforming rate from Freddie Mac Primary Mortgage Market Survey.

Note: Rates as of December 9, 2022.

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 does not include special programs like Fannie Mae's HomeReady and Freddie Mac's Home Possible (HP), both offer more favorable rates for low- to moderate-income borrowers. LLPA= Loan Level Price Adjustment, described in detail on page 25.

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Authors: Jung Hyun Choi, Amalie Zinn

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