

Global Markets Analysis Report

A MONTHLY PUBLICATION OF GINNIE MAE'S
OFFICE OF CAPITAL MARKETS

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2021



 **GinnieMae**
Our Guaranty Matters

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Highlights

On November 15th, 2021, the Federal Housing Administration (FHA) released the Fiscal Year 2021 (FY 2021) *Annual Report to Congress Regarding the Financial Status of the Federal Housing Administration Mutual Mortgage Insurance Fund*. FHA’s Mutual Mortgage Insurance (MMI) Fund supports homeownership across the United States by providing insurance on mortgages to expand access to credit for the most vulnerable and overlooked households. The health of the MMI Fund is critical to ensuring first time homebuyers and underserved communities have access to the capital to afford homes and build wealth through homeownership. The FY 2021 Annual Report on the MMI Fund financial status contains an abundance of information on borrower characteristics, the status of forbearance programs, and MMI Fund capital amounts.

A key metric in evaluating the financial health of the MMI Fund is the MMI Capital Ratio. The MMI Capital Ratio will be the subject of episode 11 of the [Ginnie Mae Capital Markets Live](#) podcast series to be released at the beginning of January 2022. FHA is required to hold the equivalent of 2% of FHA-insured mortgage principal balance. If the MMI Fund capital falls below that threshold, FHA requests Congress allocate enough funds to maintain the 2% MMI Capital Ratio.

The MMI Capital Ratio has exceeded the 2% threshold for six consecutive years. The FY 2021 MMI Capital Ratio is calculated as 8.03%.

Table 1. MMI Capital Fund Ratio Fiscal Year 2017 - 2021¹

2016	2017	2018	2019	2020	2021
2.35%	2.18%	2.76%	4.84%	6.10%	8.03%

The calculation of the MMI Capital Ratio has three inputs:

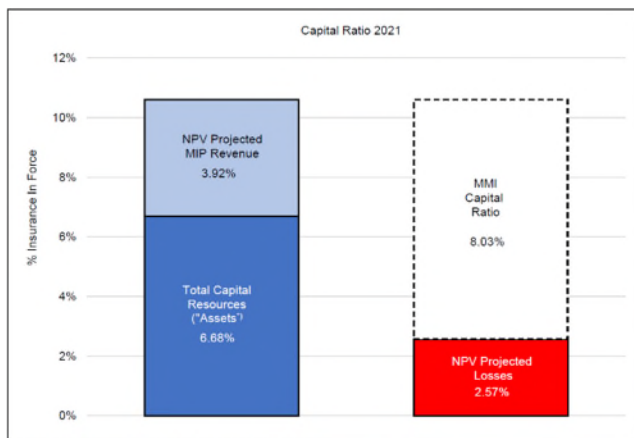


Figure 1. Fiscal Year 2021 MMI Capital Ratio Calculation¹

1. The capital currently available to FHA (“Total Capital Resources”).
2. The present value of future mortgage insurance premiums paid (“NPV Projected MIP Revenue”).
3. The present value of future claims withdrawn from the MMI Fund (“NPV Projected Losses”).

Figure 1 displays the calculation of the FY 2021 MMI Capital Ratio, showing each input as a percentage of FHA-insured mortgage principal balance. The MMI Capital Ratio has increased since FY 2017 as shown in **Table 1** above. The most recent MMI Capital Ratio increase from 6.10% to 8.03% represents about a \$21.5 billion increase in MMI Fund capital. The increase in capital can be attributed to a combination of an increase of roughly \$13 billion in

¹ <https://www.hud.gov/sites/dfiles/Housing/documents/2021FHAAAnnualReportMMIFund.pdf>

available capital and a decrease of roughly \$8 billion in projected losses. FHA acknowledged that, “a decrease in year-over-year loss expectations may appear contrary to many indicators of macroeconomic stress resulting from the COVID-19 pandemic. However, the housing market remained an area of strength in the economy

Scenario	Forward Capital (\$ billion)	HECM Capital (\$ billion)	MMI Capital (\$ billion)	MMI Capital Ratio
Interest -1	(5.1)	(0.2)	(5.3)	-0.42%
HPA -1	(9.3)	(6.6)	(15.8)	-1.26%
Interest +1	3.4	0.0	3.4	0.27%
HPA +1	6.1	5.9	12.1	0.97%

SOURCE: U.S. Department of HUD/FHA, October 2021.

Figure 2. MMI Capital Ratio Sensitivity Table²

during the period of pandemic-related economic disruption. For example, strong home price appreciation rates have continued through FY 2021, resulting in a 45 percent decrease in FHA’s average loss severity on foreclosed properties from the peak of 64.53 percent in 2011 to 35.50 percent in FY 2021.”² While the FY 2021 MMI Capital Ratio represents a surplus in capital, FHA indicated in the Annual Report that shifting economic conditions could impact the MMI Capital Ratio through changes in HPA rates. **Figure 2** outlines the sensitivity of the MMI Capital Ratio to a +/- 1% change in interest rates and HPA rates. Based on the data provided, the MMI Capital Ratio is three times more sensitive to changes in HPA rates than changes in interest rates. A 1% decrease in interest rates would lead to a 0.42% decrease in the MMI Capital Ratio, whereas a 1% decrease in HPA rates would lead to a 1.26% decrease in the MMI Capital Ratio. According to FHA, “because the MMI Fund Capital Ratio is so closely tied to HPA, the assessment of FHA’s financial health represented by the ratio can change materially and quickly with changes in both actual and projected home values.”² For further information, please refer to section [2.1 National HPI](#).

Ginnie Mae MBS Investors

In the upcoming episode of [Ginnie Mae Capital Markets Live](#), Alven Lam, Ginnie Mae’s Managing Director of International Markets, and Steve Abrahams, Senior Managing Director and Head of Investment Strategy at Amherst Pierpont Securities, will discuss why this news was of interest to Ginnie Mae MBS investors. According to Mr. Abrahams, historically, FHA has adjusted mortgage insurance premiums (MIPs) based on the MMI Capital Ratio, which has had a big impact on mortgage prepayment risk. For further information please refer to section [7.0 Prepayments](#). With borrowers still exiting forbearance programs and roughly 660,000 FHA-insured loans categorized as serious delinquent, Mr. Abrahams believes that FHA will assess how these circumstances play out prior to making any adjustments in MIPs. For further information please refer to section [2.4 Forbearance](#).

As we move into 2022, FHA will continue to focus on helping homeowners and distressed borrowers recover from the effects of the pandemic. Through close collaboration with mortgage servicers and other industry participants to negotiate extensions or loss mitigation arrangements, FHA is committed to promoting equitable recovery for borrowers who have entered forbearance due to the COVID-19 pandemic.²

Capital Surplus

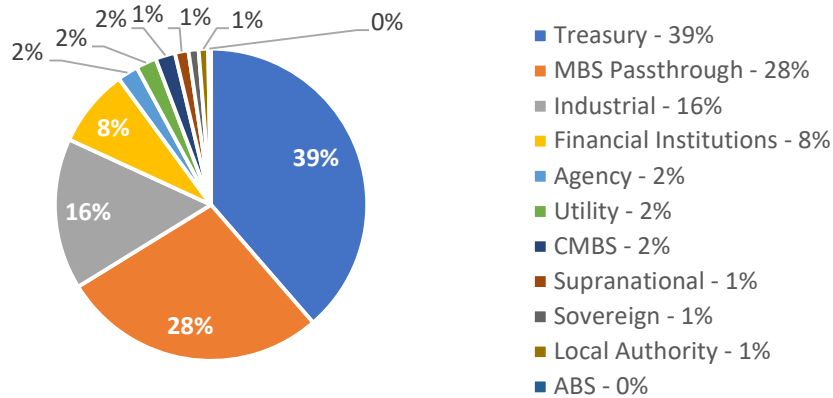
Over the long term, FHA will focus on its goals of promoting and expanding affordable homeownership and access to mortgage credit for underserved consumers in the housing market. Coupled with the Biden-Harris administration’s goal of increasing housing supply, FHA is also working to expand credit accessibility among underserved prospective homebuyers, particularly those within the low-to-moderate income bracket. FHA is also dedicated to helping communities and neighborhoods become more climate resilient. FHA and HUD are working closely with federal agency partners to improve and integrate climate-related data into the government mortgage loan programs and include climate-related risks into the underwriting process.

1.0 Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

US Treasuries contribute approximately 39% to the Barclays US Aggregate Index. US MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) contribute approximately 28% to the Barclays US Aggregate Index. For the US Aggregate Index, the month over month (MoM) changes to the index components were no bigger than 1%. In the Barclays Global Aggregate Index by Country, the US share of fixed income still represents the largest share of total outstanding issuance, representing approximately 38% of the total Barclays Global Aggregate Index. There was no change from the previous month. France and Canada’s share of fixed income decreased by 1% from the previous month. All the other categories remained stable when compared to the previous month.

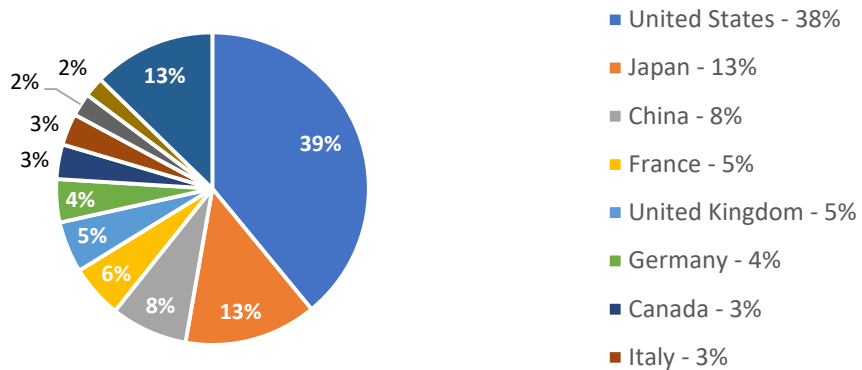
1.1 Barclays US Aggregate and Global Indices

Barclays US Aggregate Index



Sources: Bloomberg. Note: Data as of November 2021. Numbers in chart may not add to 100 % due to rounding.

Barclays Global Aggregate Index by Country



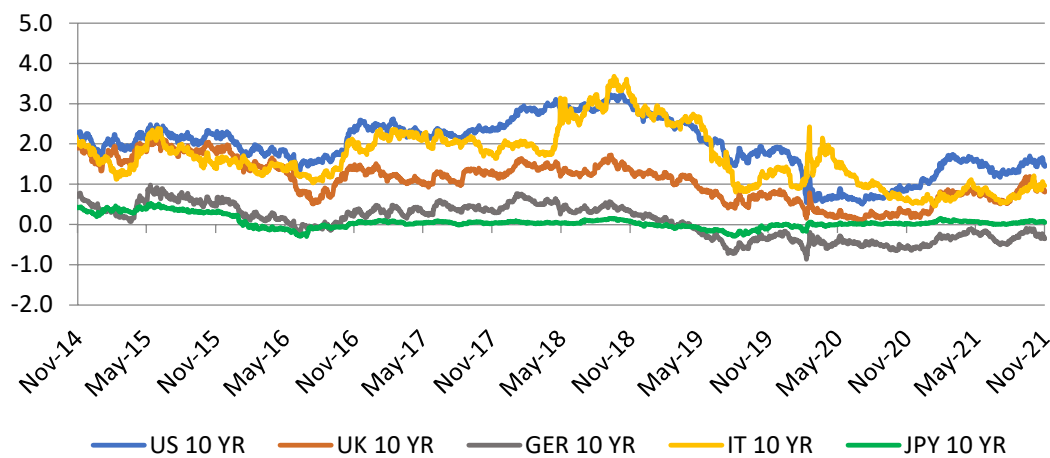
Sources: Bloomberg. Note: Data as of November 2021. Figures in charts may not add to 100 % due to rounding.

1.2 Global 10-Year Treasury Yields

The US 10-year Treasury yield moved to 1.45% in November 2021, a decrease MoM of 11 bps. US Treasury yields remain the highest of all the government treasury yields depicted in the figure below.

- The yield on the Italian 10-year note decreased to 0.97% in November, a decrease MoM of 20 bps.
- The yields on the German 10-year and the UK 10-year notes decreased by 24 bps to -0.35%, and 22 bps to 0.81%, respectively.
- The yield on the Japanese 10-year government notes increased to 0.05% in November, a slight decrease MoM of 4 bps.
- At the end of November 2021, the hedged yield for the 10-year Treasury JPY held at 2.63%, a slight increase of 3 bps from the previous month.
- The hedged yield for the 10-year Treasury EUR held at 1.50%, a slight increase of 2 bps from the previous month.

Global 10-Year Treasury Yields



7– 10yr Total Return Hedged Index, JPY



7 – 10yr Total Return Hedged Index, EUR



Sources: Bloomberg. Note: Data as of November 2021

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1.3 Ginnie Mae Yields– USD

Ginnie Mae fixed rate MBS yields remained relatively stable in November 2021. Ginnie Mae II yields were at 1.82% on November 30, 2021, remaining stable from the prior month. Ginnie Mae I yields were at 2.00%, down by 3 bps from the prior month. On November 30, Ginnie Mae II SF yields were 37 bps higher than the US 10-year Treasury yield, unchanged since October 31, 2021. The yields on the Ginnie Mae I SF were 55 bps higher than the US 10-year Treasury yield on November 30, 2021, representing a decrease in spread of 3 bps since October 31, 2021.

Ginnie Mae II SF Yield, USD



Ginnie Mae I SF Yield, USD

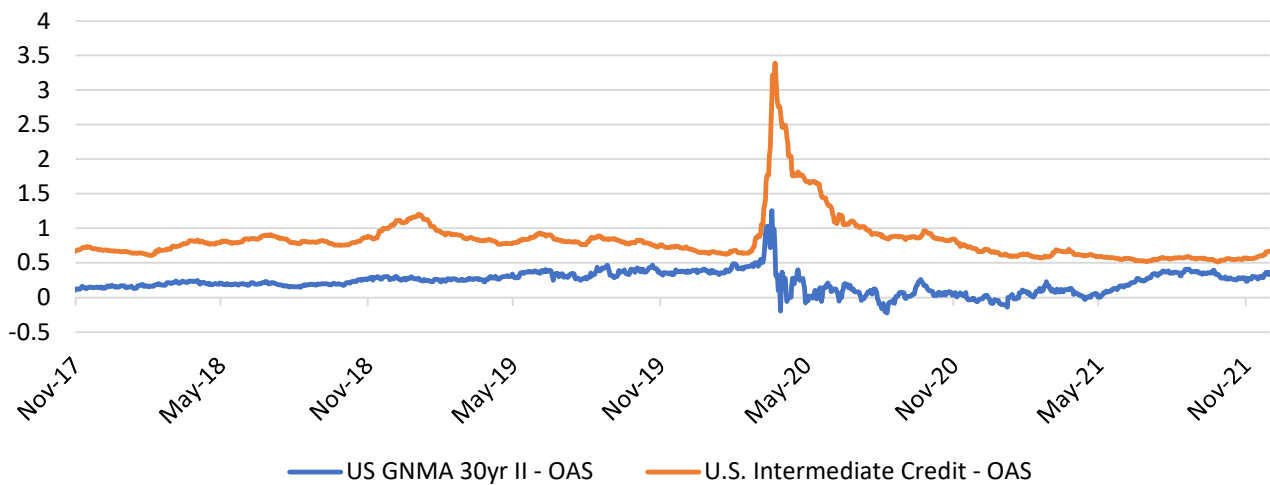


Sources: Bloomberg. Note: Data as of November 30, 2021

1.4 Ginnie Mae Yield Spreads – Intermediate Credit

The yield differential between US Intermediate Credit and Ginnie Mae II 30-year OAS increased when compared to the previous month, ending at 0.31%, an increase of 2 bps since the previous month. The Ginnie Mae II 30-year OAS increased by 8 bps since the previous month. The US Intermediate credit OAS has increased by 10 bps since last month.

US Ginnie Mae II 30yr MBS OAS versus US Intermediate Credit OAS



Spread between US Intermediate Credit and US Ginnie Mae II 30yr MBS OAS

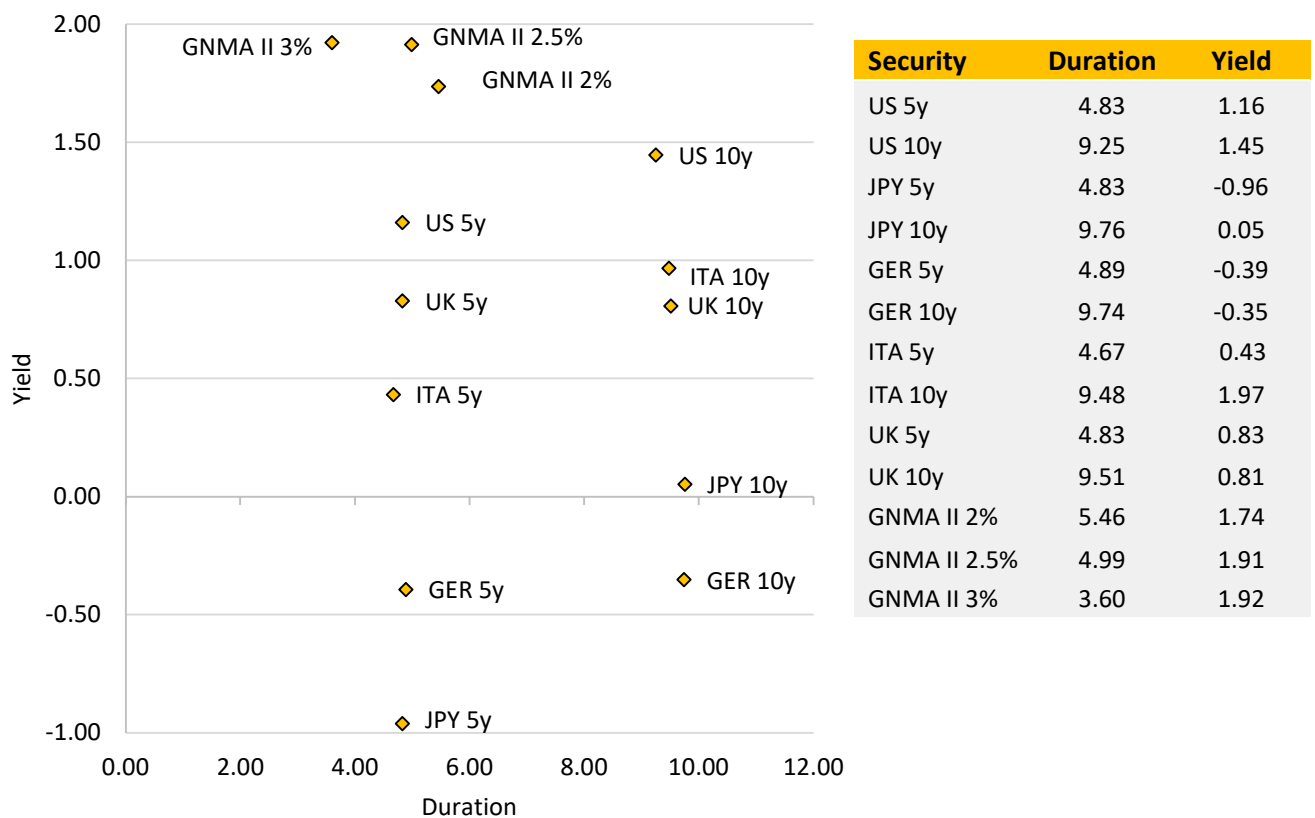


Sources: Bloomberg. Note: Data as of November 2021.

1.5 Global Treasury Yield Per Duration

Ginnie Mae Fixed Rate MBS continue to offer a higher yield in comparison to other government fixed income securities of various tenors with similar or longer duration. Prepayment risk is a feature of MBS. The yields on Ginnie Mae 2.5% and 3% MBS products have increased in November. The duration of Ginnie Mae II 2.5% securities remained stable and their yield increased by 1 bp over the previous month. Additionally, the duration of Ginnie Mae II 3% securities increased by 0.07 units and their yield increased by 5 bps when compared to the previous month.

Yield vs. Duration

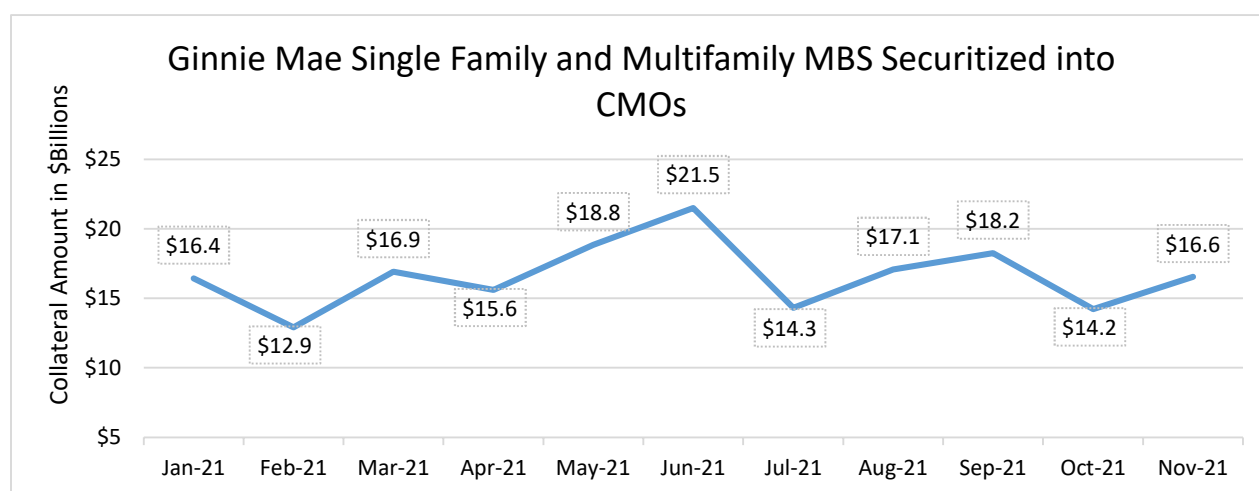


Sources: Bloomberg. Note: Yield and modified duration for GNMA II securities is from illustrative TBA using base prepayment assumptions and an assumed settlement of 12/19. All other data is as of November 2021. Yields are in base currency of security and unhedged.

1.6 Monthly CMO Demand for Ginnie Mae MBS

In November 2021, \$16.6 billion of Ginnie Mae MBS were securitized into Collateralized Mortgage Obligations (CMOs) as underlying collateral, a 16% month over month increase. Of that, approximately \$3.3 billion were Multifamily MBS having coupons between 2% and 3%. \$13.3 billion were Single Family MBS with a majority of the Single-Family MBS having coupons between 2% and 3%.

In calendar year 2021 (January – November) approximately \$183 billion of Ginnie Mae Single Family and Multifamily MBS were securitized into Ginnie Mae CMO transactions. This represents a roughly 50% increase over the same period in calendar year 2020.



November 2021 CMO Collateral Coupon Distribution

Net Coupon (%)	Approx. Ginnie Mae MBS amount securitized into CMO Deals (\$MM) ²	% Breakdown of CMO Collateral by coupon ²
Multifamily		
2.01-2.50	1,492.0	45%
2.51-3.00	1,851.7	55%
Subtotal	3,343.8	100%
Single Family		
<2.01	62.7	0%
2.01-2.50	3,871.3	29%
2.51-3.00	6,882.3	52%
3.01-3.50	2,076.6	16%
3.51-4.00	202.4	2%
4.51-5.00	117.7	1%
5.01-5.50	50.0	0%
Subtotal	13,263.0	100%
Grand Total	16,606.8	

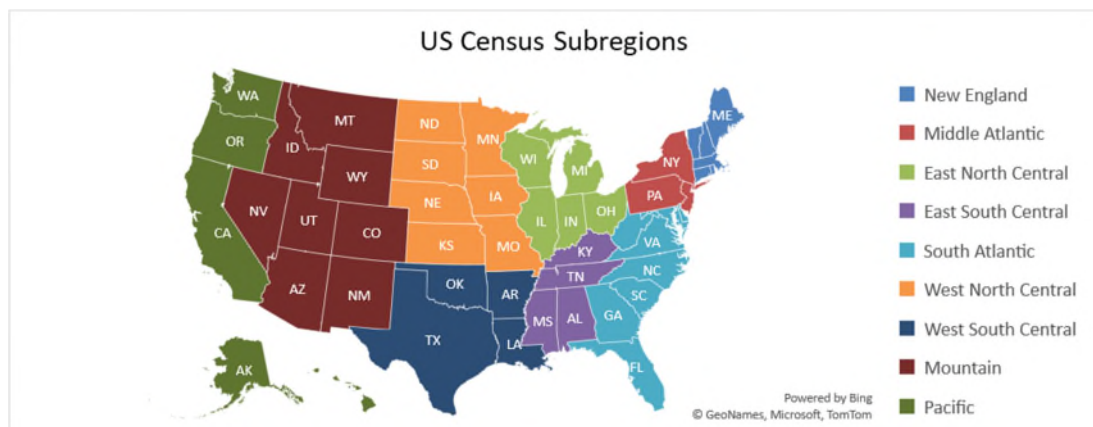
²Totals may not sum due to rounding.

2.0 State of the US Housing Market

2.1 National HPI

Home prices have increased rapidly during the pandemic, with Compound Annual Growth Rate (CAGR) for HPI at 15.7% between March 2020 to September 2021. March 2020 to August 2021 national HPI CAGR was approximately 60 bps lower, at 15.1%, suggesting a continued trend in September of accelerating HPI increases. Over that period, the Mountain region has had the greatest home price appreciation (19.8% CAGR), while in the East and West North Central regions, collectively the “Midwest”, increases in home values have been slowest (13.4%). Every sub-region has Pandemic HPI CAGR that outpaces any single 12-month period during the observation period (1991 to present), with the exception of the Pacific states, which experienced a period between 2004 and 2005 during which HPI increased 22.4%, YoY. The rapid home price appreciation has led to recent sharp increases in both conventional conforming and FHA loan limits.

U.S. Census Subregion	New England	Middle Atlantic	East North Central	East South Central	South Atlantic	West North Central	West South Central	Mountain	Pacific	National
2000 to Peak CAGR	10.5%	8.7%	4.0%	4.6%	8.7%	5.0%	4.3%	8.3%	13.9%	7.1%
Peak to Trough CAGR	-8.3%	-5.3%	-9.7%	-5.5%	-14.1%	-5.7%	-2.1%	-15.1%	-17.9%	-9.7%
Trough to Pandemic CAGR	3.7%	3.6%	4.8%	4.5%	5.9%	4.7%	5.1%	8.3%	8.1%	5.5%
Pandemic CAGR	16.5%	13.7%	13.5%	15.9%	17.0%	13.3%	15.2%	19.8%	17.0%	15.7%
12-Month Period of Max HPI Growth During Pandemic	7-2020 to 6-2021	8-2020 to 7-2021	7-2020 to 6-2021	9-2020 to 8-2021	9-2020 to 8-2021	6-2020 to 5-2021	8-2020 to 7-2021	9-2020 to 8-2021	8-2020 to 7-2021	8-2020 to 7-2021
Max 12-Month Period Change, During Pandemic	21.7%	18.1%	17.1%	18.8%	20.6%	16.3%	17.8%	25.8%	22.1%	19.2%
12-Month Period of Max HPI Growth, Pre-Pandemic	12-2001 to 11-2002	12-2003 to 11-2004	2-2017 to 1-2018	2-2005 to 1-2006	9-2004 to 8-2005	4-1993 to 3-1994	3-2005 to 2-2006	11-2004 to 10-2005	5-2004 to 4-2005	10-2004 to 9-2005
Max 12-Month HPI Growth, Pre-Pandemic	14.0%	12.4%	6.9%	8.5%	15.3%	7.4%	7.5%	18.0%	22.4%	10.7%



Sources: HPI data from FHFA. US Census Subregions as defined by the US Census Bureau.

Notes: HPI data as of September 2021. Peak refers to the month when HPI reached the highest level for each state/US during the housing boom period, ranging from 2005 to 2008. Trough represents the month when HPI fell to the lowest level for each region/US after the housing bust, ranging from 2009 to 2012. Pandemic Period refers to March 2020 to the current period, 9/2021. $CAGR = (End\ Value/Starting\ Value)^{(1/n)} - 1$

Nationally, home prices exceed their pre-crisis peak on a nominal basis by 48.6% through September 2021. As shown in both the tables above and below, the extent of HPI increases since the trough has varied from region to region and state to state. Nationally, home prices exceed the trough by 88.4%. As shown in the regional HPI table above, much of this asset appreciation has taken place during the pandemic.

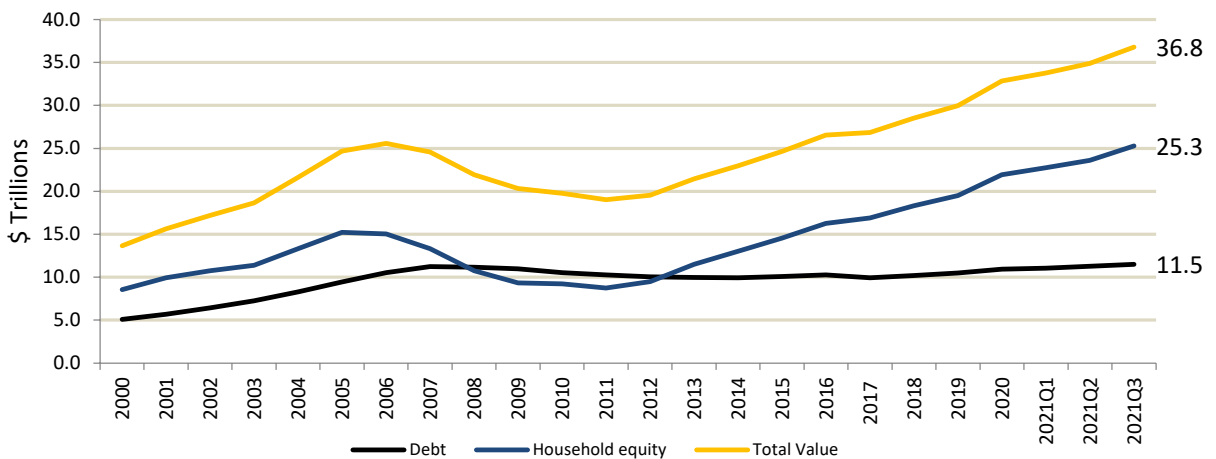
State	2000 to Peak	Peak to Trough	Trough to Current	YOY	Current HPI % Above Peak
National	59.6%	-21.1%	88.4%	12.7%	48.6%
AK	66.9%	-5.2%	40.3%	9.0%	33.0%
AL	41.6%	-15.0%	64.7%	13.1%	40.0%
AR	39.8%	-11.0%	56.3%	13.1%	39.1%
AZ	110.2%	-49.5%	178.2%	20.8%	40.5%
CA	144.8%	-47.0%	137.5%	16.6%	25.8%
CO	32.3%	-10.3%	140.3%	16.1%	115.6%
CT	72.9%	-19.6%	36.9%	15.6%	10.0%
DC	162.5%	-11.7%	115.1%	10.8%	90.0%
DE	88.5%	-23.5%	52.0%	13.4%	16.3%
FL	130.0%	-46.5%	144.6%	17.2%	30.8%
GA	35.9%	-27.1%	112.7%	14.7%	55.1%
HI	139.0%	-27.0%	96.0%	11.9%	43.0%
IA	27.8%	-5.4%	54.2%	9.9%	45.8%
ID	73.3%	-32.2%	201.0%	28.4%	104.0%
IL	49.9%	-23.8%	46.4%	10.7%	11.6%
IN	19.1%	-8.7%	76.9%	13.3%	61.6%
KS	31.0%	-7.8%	66.2%	12.6%	53.2%
KY	28.9%	-5.4%	64.3%	12.6%	55.4%
LA	51.6%	-6.7%	45.0%	8.3%	35.2%
MA	69.8%	-18.2%	76.7%	14.4%	44.5%
MD	126.4%	-26.5%	51.8%	11.5%	11.6%
ME	72.0%	-12.4%	76.8%	18.3%	54.8%
MI	18.4%	-31.5%	110.8%	13.7%	44.3%
MN	52.5%	-23.0%	83.7%	12.0%	41.5%
MO	39.2%	-15.0%	74.2%	13.4%	48.1%
MS	38.9%	-12.8%	43.6%	9.9%	25.3%
MT	79.3%	-13.6%	98.1%	19.3%	71.2%
NC	39.7%	-14.1%	83.9%	16.2%	57.9%
ND	51.7%	-0.9%	69.8%	7.9%	68.3%
NE	24.3%	-5.9%	77.3%	13.0%	66.7%
NH	72.7%	-21.9%	81.1%	17.4%	41.4%
NJ	102.2%	-22.7%	50.2%	14.6%	16.2%
NM	66.6%	-17.9%	55.7%	12.8%	27.8%
NV	117.4%	-59.3%	203.6%	17.1%	23.6%
NY	75.7%	-10.5%	56.5%	13.5%	40.1%
OH	19.6%	-16.6%	77.4%	13.1%	48.0%
OK	36.8%	-4.6%	60.2%	11.9%	52.7%
OR	85.6%	-28.6%	129.9%	16.3%	64.1%
PA	68.9%	-10.9%	57.3%	12.6%	40.1%
RI	108.1%	-28.0%	79.2%	17.0%	29.0%
SC	40.6%	-16.0%	84.6%	14.3%	55.1%
SD	40.2%	-2.4%	72.9%	15.1%	68.7%
TN	38.4%	-12.6%	100.0%	17.2%	74.7%
TX	35.8%	-3.0%	96.9%	14.4%	91.0%
UT	65.1%	-26.1%	152.8%	23.1%	86.9%
VA	95.1%	-18.8%	59.7%	12.7%	29.8%
VT	78.1%	-10.3%	55.3%	16.8%	39.3%
WA	83.4%	-27.3%	144.1%	17.3%	77.5%
WI	38.6%	-14.2%	69.8%	12.6%	45.6%
WV	39.2%	-5.7%	40.8%	11.6%	32.8%
WY	84.7%	-9.7%	52.8%	10.7%	38.1%

Source: FHFA Notes: HPI State-level data is provided quarterly by FHFA and presented here as of September 2021. Peak refers to the month when HPI reached the highest level for each state/US during the housing boom period, ranging from 2005 to 2008. Trough represents the month when HPI fell to the lowest level for each state/US after the housing bust, ranging from 2009 to 2012.

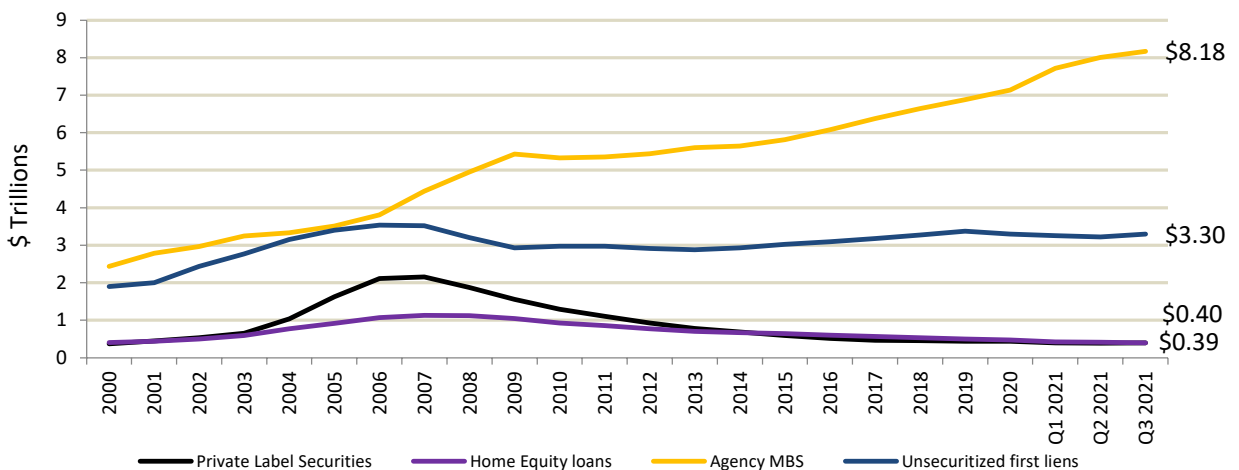
2.2 Size and Value of the US Housing Market

The total value of the single-family housing market reached \$36.8 trillion in Q3 2021. The value of household equity has continued to trend upward into Q3 2021. As mentioned in Section 2.1 above, the unprecedented pace of asset appreciation during the pandemic is driving much of the increase in the overall value of real estate as an asset class, as debt remains relatively flat. The total value of the US housing market is up 93.4% from its trough in 2011. Conversely, mortgage debt outstanding has increasing slightly from \$11.3 trillion in Q2 2021 to \$11.5 trillion in Q3 2021. Agency MBS account for a growing percentage of the total mortgage debt outstanding, up to 67% of total mortgage debt.

Value of the US Housing Market



Size of the US Residential Mortgage Market

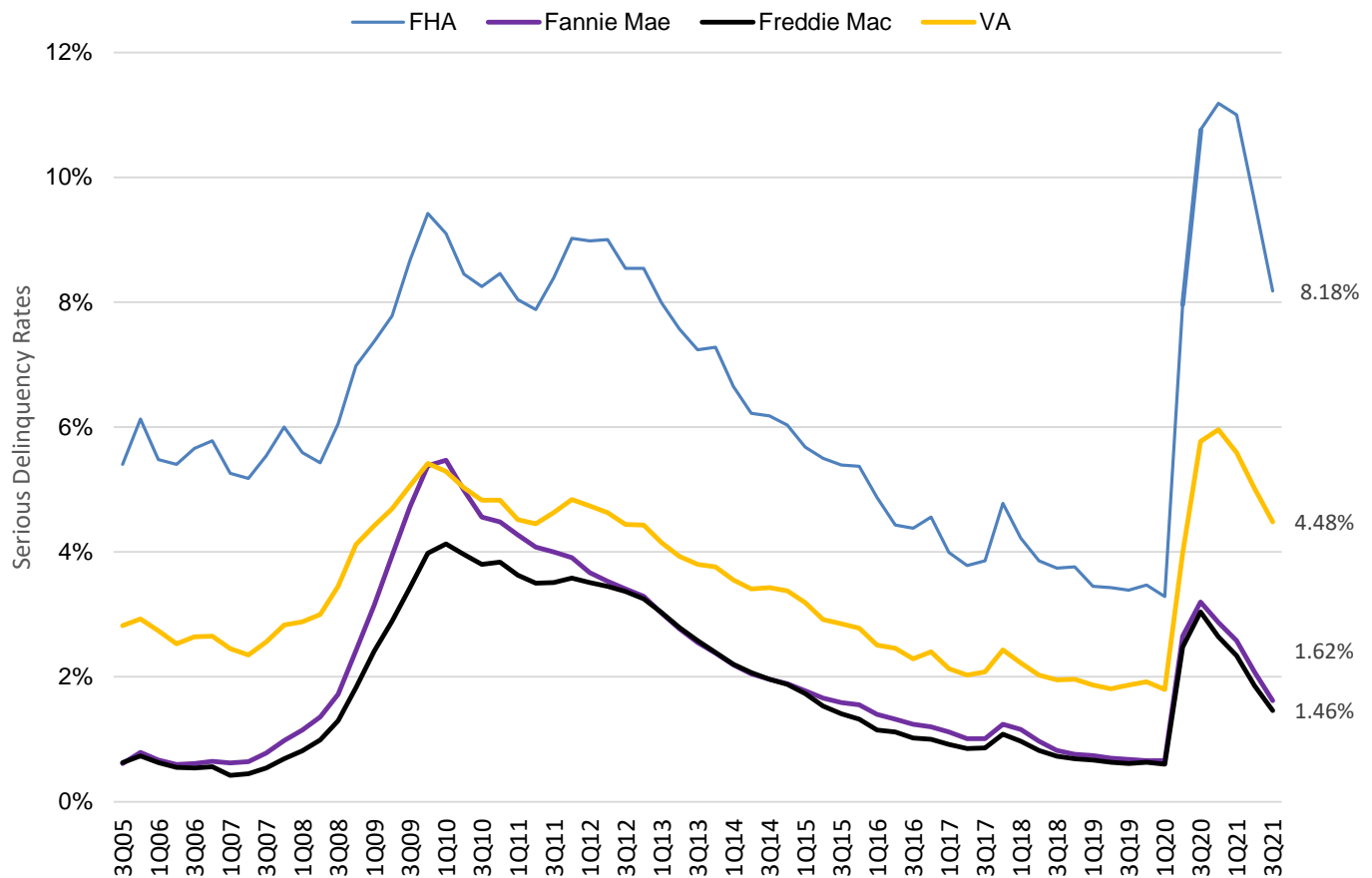


Source: Federal Reserve Flow of Funds Data. Notes: Data as of Q3 2021.

2.3 Serious Delinquency Rates

Serious delinquency rates for single family GSE, FHA, and VA loans all fell sharply in Q3 2021. From Q2 2021 to Q3 2021, Fannie and Freddie serious delinquencies decreased 46 and 40 bps, respectively, or 22% each, as a percentage change. Ginnie Mae collateral’s serious delinquency rates decreased more than the GSE rates in absolute terms, with FHA and VA dropping 144 and 54 bps respectively. This decline in serious delinquency rates is consistent with the decrease in the number of loans in forbearance captured in Section 2.4 below.

Serious Delinquency Rates: Single Family Loans



Sources: Fannie Mae and Freddie Mac Monthly Summary Reports, and MBA Delinquency Survey.

Note: Serious delinquency is defined as 90 days or more past due or in the foreclosure process. Data as of Q3 2021.

2.4 Characteristics of Ginnie Mae Loans in Forbearance

188,395 Ginnie Mae loans were in forbearance as of the end of October 2021. This represents an 11% decrease MoM, accelerating the trend of decline in forbearance observed since May 2020. 7,002 of loans in forbearance were removed from MBS pools and 181,393 still actively remain in pools. Most liquidated loans (5,494) were FHA and within that subset, 2,782 of those loans were originated by nonbanks. Almost 95% of the loans in forbearance are due to COVID-19 circumstances, down from over 97% from the prior month.

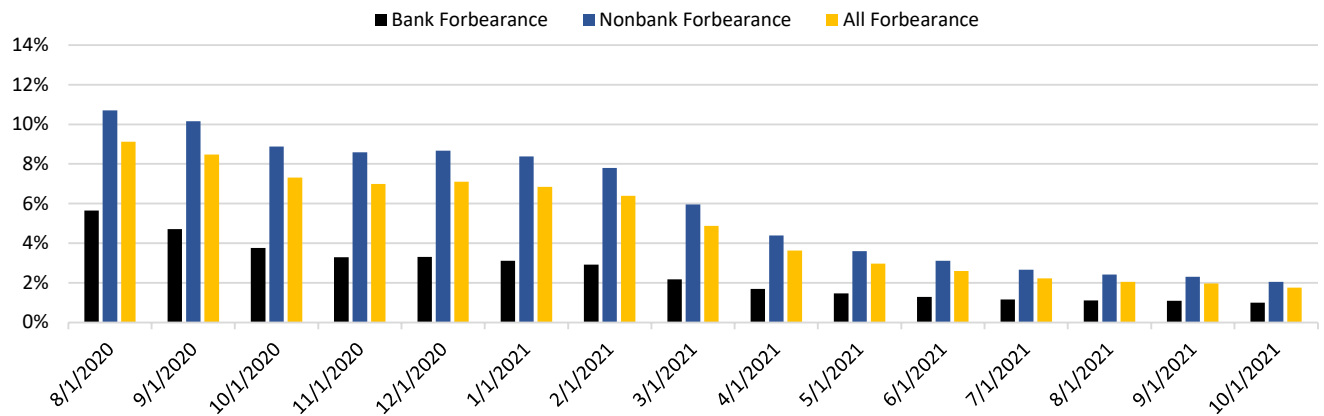
All Loans in Forbearance – October 2021						
	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie	658	3.6	\$ 169,548.88	77.1	67.2	188,395
Bank	672	4.0	\$ 121,708.01	76.3	79.2	29,975
Nonbank	656	3.6	\$ 178,621.84	77.2	65.9	158,420
FHA	653	3.7	\$ 164,379.76	79.5	73.2	132,697
Bank	665	4.1	\$ 112,265.97	79.2	82.6	22,745
Nonbank	651	3.7	\$ 175,082.27	79.5	72.2	109,952
VA	668	3.3	\$ 220,831.28	65.1	45.8	38,830
Bank	684	3.6	\$ 178,114.32	66.7	69.5	5,566
Nonbank	666	3.3	\$ 227,428.56	64.8	42.8	33,264
Loans in Forbearance and Removed from Pools – October 2021						
	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie	659	3.9	\$ 135,281.73	78.2	66.3	7,002
Bank	672	4.0	\$ 104,069.55	78.2	82.8	3,368
Nonbank	653	3.8	\$ 170,368.32	78.1	59.2	3,634
FHA	654	4.0	\$ 130,710.62	79.6	70.0	5,494
Bank	670	4.1	\$ 98,801.06	79.4	85.1	2,712
Nonbank	647	3.9	\$ 168,803.54	79.7	63.4	2,782
VA	674	3.6	\$ 179,039.19	67.2	46.5	1,080
Bank	682	3.7	\$ 143,074.82	66.9	68.0	441
Nonbank	671	3.5	\$ 214,215.61	67.3	39.2	639
Loans in Forbearance that Remain in Pools – October 2021						
	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie	658	3.6	\$ 170,775.22	77.1	67.3	181,393
Bank	671	4.0	\$ 123,894.53	76.1	78.9	26,607
Nonbank	656	3.6	\$ 178,864.18	77.2	66.1	154,786
FHA	653	3.7	\$ 165,723.38	79.5	73.3	127,203
Bank	664	4.1	\$ 114,000.00	79.2	82.3	20,033
Nonbank	651	3.7	\$ 175,287.74	79.5	72.5	107,170
VA	668	3.3	\$ 221,785.68	65.1	45.8	37,750
Bank	684	3.6	\$ 181,617.31	66.7	69.6	5,125
Nonbank	666	3.3	\$ 227,644.80	64.8	42.9	32,625

Sources: Ginnie Mae loan level MBS disclosure and forbearance file and Ginnie Mae Issuer Operational Performance Profile (IOPP) -Peer Group Listings.

Notes: Data as of October 2021; *Averages weighted by remaining principal balance of the loans.

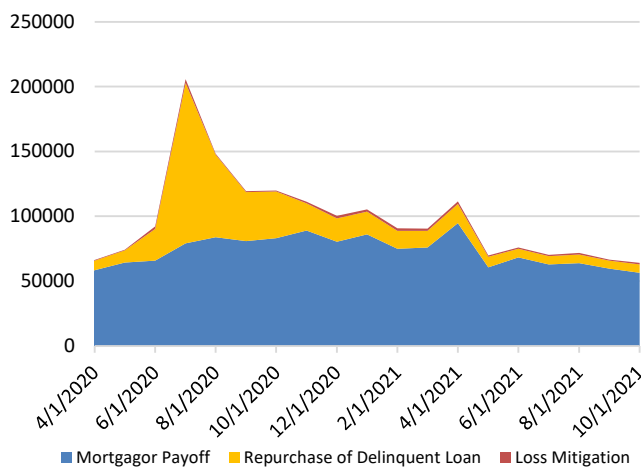
The current share of Ginnie Mae loans in forbearance stands at 1.75% as of the end of October, down approximately a fifth of a percent MoM. This decline indicates that at least approximately one in ten previously forbore borrowers is no longer in forbearance. The forbearance rate remains significantly higher than the forbearance rate prevailing in the period prior to the pandemic between Jan 2019 and February 2020 (approximately 0.1%) but may decline substantially as forbore borrowers exit their forbearance plans in October 2021.

Share of Ginnie Mae Loans in Forbearance

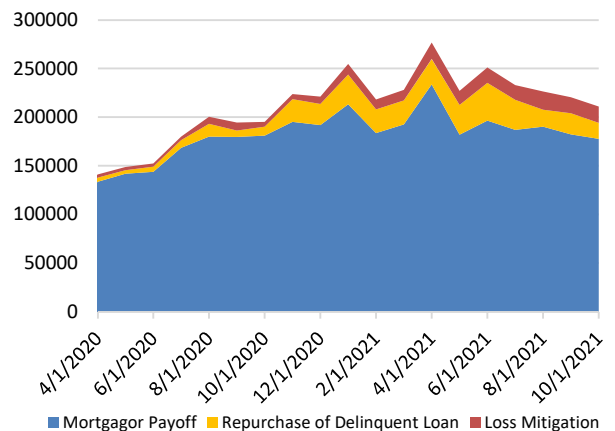


Sources: eMBS and Urban Institute. Data beginning May 2021 sourced from Ginnie Mae forbearance disclosure files and IOPP Peer Group list. Notes: Data as of October 2021.

Number of Loans Removed from Pools: Bank



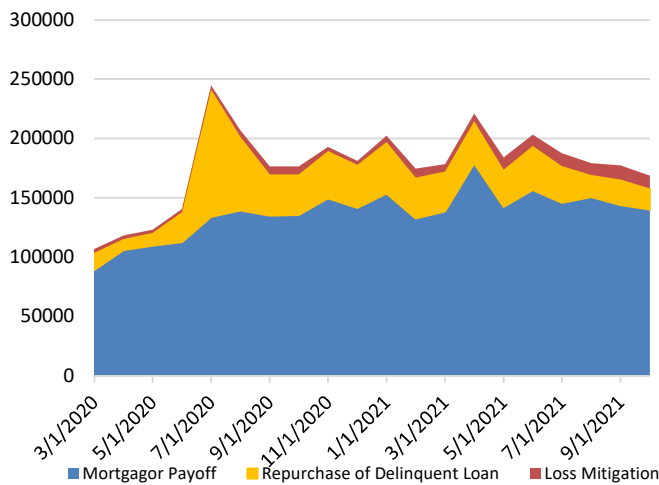
Number of Loans Removed from Pools: Nonbank



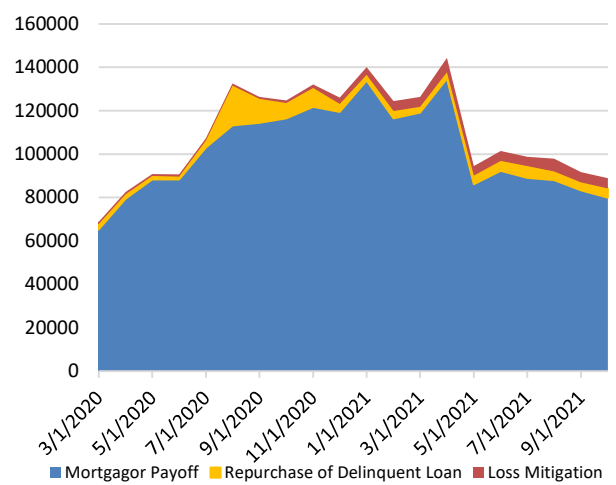
Sources: eMBS and Urban Institute. Data beginning June 2021 sourced from Ginnie Mae Loan Level MBS disclosure files and IOPP Peer Group list. Notes: Data as of October 2021.

Of the Ginnie Mae loans that were liquidated from pools due to mortgage delinquency (these counts include all delinquent buyouts, regardless of forbearance status), a higher share of the loans were FHA versus VA loans (top charts, yellow areas). Liquidated loans across FHA and VA are also more likely to have coupons greater than or equal to 3.5% (bottom charts: “Number of Loans Removed from Pools by Coupon”). In October 2021, the number of loans repurchased due to delinquency decreased 18% to 17,724 for FHA and 25% to 3,167 for VA loans. High refinance activity (blue areas) continues to be driving the repurchase activity for both FHA and VA.

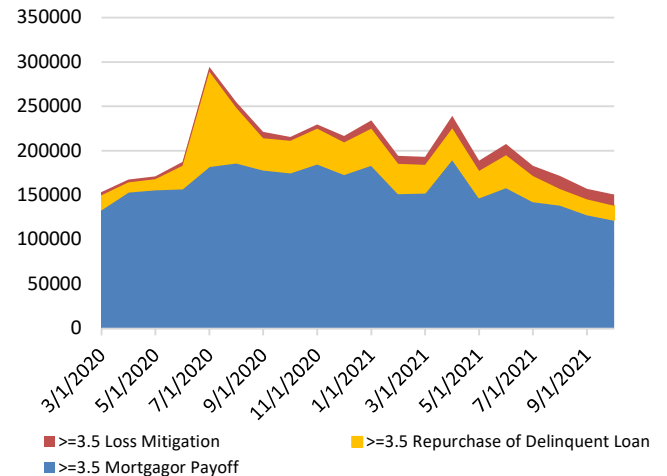
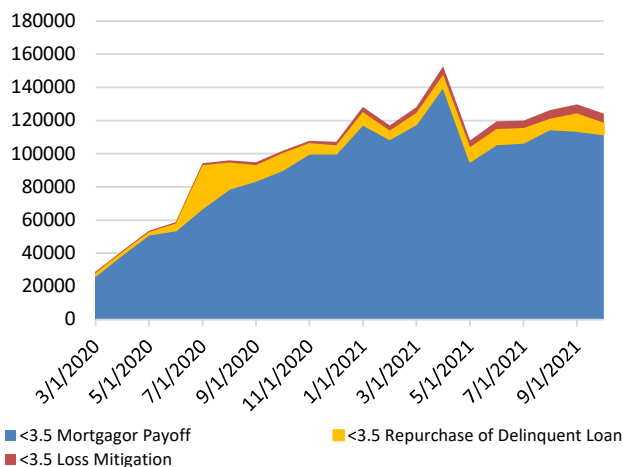
Number of Loans Removed from Pools: FHA



Number of Loans Removed from Pools: VA



Number of Loans Removed from Pools by Coupon



Sources: eMBS and Urban Institute. Data beginning June 2021 sourced from Ginnie Mae Loan Level MBS disclosure files, Ginnie Mae Pool Level MBS disclosure files and IOPP Peer Group list. Notes: Data as of October 2021.

Additionally, a small number of loans were removed due to 'Foreclosure with Claim' and 'Other' reasons in October 2021.

2.5 Ginnie Mae Agency Issuance and Agency Outstanding by State

Ginnie Mae MBS represent approximately 23% of new Agency issuance over the past year. The share of Ginnie Mae outstanding varies across states, with the highest Ginnie Mae share in Alaska (48%) and the lowest in the District of Columbia (13%). The difference between Ginnie Mae share of Agency Issuance (23%) over the past year and Ginnie Mae’s share of overall outstanding Agency MBS (26%) is reflective of ebbs and flows in FHA and VA first lien origination market share, discussed in [Section 2.8 below](#).

National	Agency Issuance (past 1 year)				Agency Outstanding			
	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)	GNMA Share by UPB	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)
	23%	2,996,172	273.80	291.19	26%	10,611,120	186.89	217.03
AK	51%	10,795	329.22	286.47	48%	36,881	252.71	216.56
AL	37%	59,862	215.12	225.63	41%	232,485	145.88	171.37
AR	35%	31,737	182.70	203.93	40%	136,003	123.74	154.39
AZ	23%	101,713	274.94	274.42	25%	278,274	198.71	212.24
CA	16%	256,687	424.77	410.10	16%	679,081	308.72	315.00
CO	24%	84,840	358.42	337.04	24%	215,879	269.87	266.23
CT	22%	26,614	262.08	276.06	25%	103,491	193.95	206.12
DC	11%	2,811	456.69	455.59	13%	8,644	361.14	349.76
DE	28%	14,382	261.16	267.02	32%	50,321	194.98	204.39
FL	31%	261,074	267.68	262.49	33%	833,391	195.39	198.68
GA	31%	137,535	235.93	260.85	34%	492,428	165.61	195.86
HI	37%	14,200	582.27	459.07	31%	32,818	449.20	349.95
IA	19%	18,056	192.08	195.59	22%	82,022	126.98	146.92
ID	21%	20,452	279.83	276.65	24%	66,085	194.72	210.10
IL	18%	87,211	218.65	239.30	22%	350,387	152.97	176.04
IN	26%	66,515	186.10	195.14	31%	279,116	124.75	145.01
KS	25%	23,048	197.42	216.24	30%	96,945	132.76	159.36
KY	29%	40,460	193.32	202.89	35%	161,890	134.83	150.81
LA	37%	46,814	209.63	230.14	39%	190,173	150.83	174.16
MA	14%	35,479	363.62	353.08	16%	111,535	268.61	265.85
MD	32%	90,881	344.04	322.07	34%	283,087	255.11	245.49
ME	23%	10,522	229.78	247.37	26%	37,765	167.38	185.70
MI	16%	65,196	184.30	206.52	20%	275,559	125.68	152.94
MN	15%	39,964	249.90	253.66	18%	160,873	173.70	193.87
MO	24%	58,652	196.35	209.48	29%	245,100	133.79	157.49
MS	42%	26,098	199.14	207.95	48%	117,588	134.64	156.31
MT	24%	10,015	278.03	274.49	25%	33,490	195.33	206.15
NC	27%	117,903	234.73	257.81	30%	415,774	162.94	191.97
ND	24%	5,104	249.94	236.35	23%	16,460	186.17	182.94
NE	22%	14,836	215.19	206.08	27%	65,931	139.69	156.49
NH	20%	11,553	291.86	276.98	23%	39,142	214.84	208.41
NJ	18%	63,021	309.88	330.95	21%	225,205	227.76	250.15
NM	34%	23,305	230.31	232.12	39%	94,534	157.01	171.39
NV	30%	48,260	310.07	286.56	31%	131,408	230.07	222.61
NY	16%	54,971	312.95	339.32	20%	302,938	197.48	241.53
OH	24%	92,726	184.30	199.75	30%	420,101	123.19	144.69
OK	38%	40,326	197.94	208.40	43%	188,338	132.91	155.81
OR	19%	39,031	321.97	316.83	20%	112,273	237.25	242.99
PA	21%	82,456	208.17	242.39	27%	386,906	143.89	177.15
RI	27%	10,339	296.67	271.06	30%	34,696	217.75	207.34
SC	32%	69,536	237.63	242.77	35%	228,025	170.15	183.73
SD	27%	7,865	227.10	221.58	30%	29,303	162.59	172.70
TN	28%	73,484	239.27	253.91	33%	276,151	161.61	192.98
TX	29%	276,401	251.21	268.93	33%	1,062,485	169.50	200.18
UT	18%	35,847	324.89	313.10	20%	99,568	235.56	249.88
VA	35%	143,899	341.36	325.34	36%	435,945	245.80	246.80
VT	18%	3,127	236.12	247.51	19%	12,174	175.13	175.58
WA	21%	84,926	366.51	364.74	22%	237,265	265.54	279.45
WI	14%	33,642	199.90	214.94	17%	123,324	148.68	160.24
WV	39%	13,884	195.43	195.32	44%	56,820	137.38	141.53
WY	34%	8,027	258.13	249.15	35%	25,043	196.97	196.24

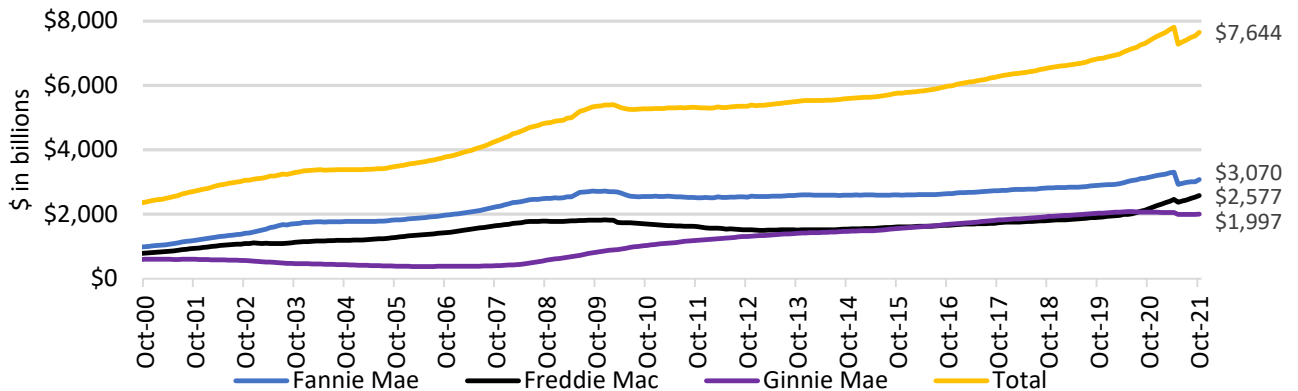
Sources: eMBS, Ginnie Mae/Freddie Mac/Fannie Mae Loan Level MBS Disclosure Files. Notes: Outstanding balance is based on loan balance as of October 2021. Ginnie Mae issuance is based on the last 12 months, from November 2020 to October 2021.

2.6 Outstanding Single-Family Agency MBS

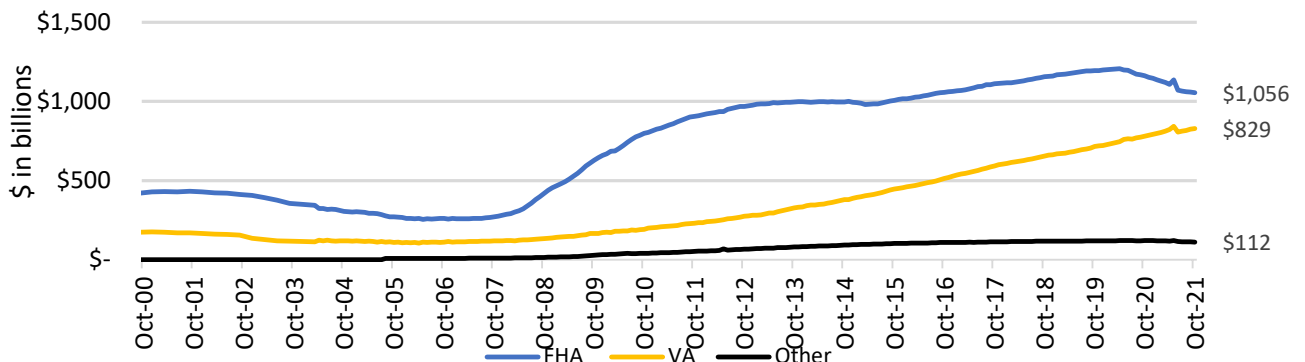
As of October 2021, outstanding single-family securities in the Agency market totaled \$7.64 trillion: 40.2% Fannie Mae, 33.7% Freddie Mac, and 26.1% Ginnie Mae MBS. Over the past twelve months, Freddie Mac’s total outstanding issuance has increased by approximately 16%, while Fannie and Ginnie have decreased outstanding issuance by 4% and 3% respectively. Despite this, Fannie outstanding remains larger than either Freddie or Ginnie.

Ginnie Mae MBS collateral composition has changed dramatically over the past ten years. In October 2011, over 76% of Ginnie Mae outstanding collateral was FHA and under 20% was VA. In October 2021, FHA collateral comprised 53% of Ginnie Mae MBS outstanding and VA collateral comprised 42% of Ginnie Mae MBS outstanding.

Outstanding Agency Mortgage-Backed Securities



Composition of Outstanding Ginnie Mae Mortgage-Backed Securities

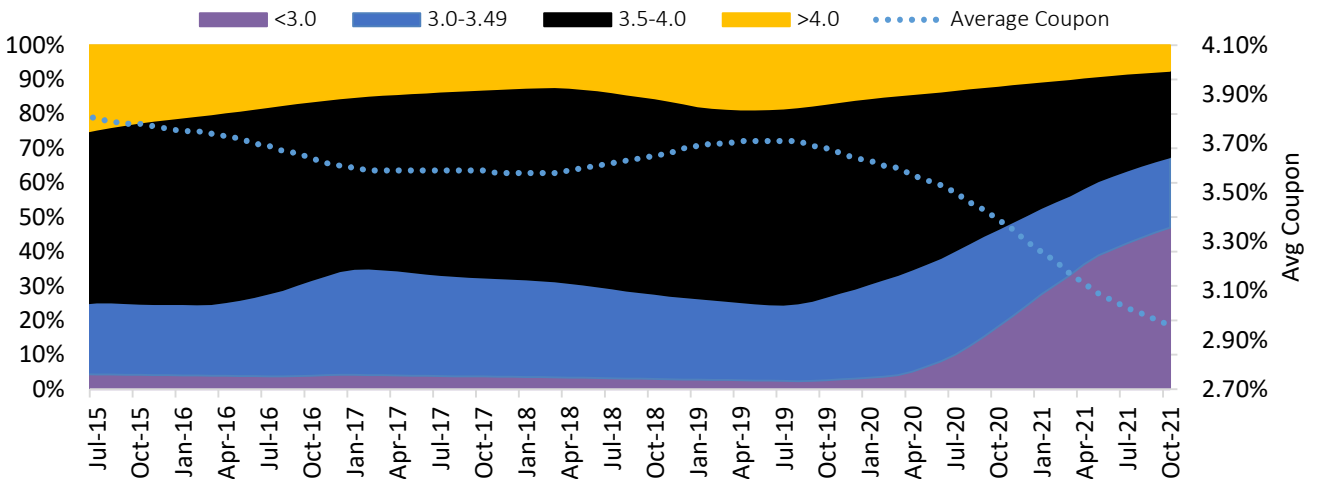


Sources: Data beginning in May 21 is based on outstanding balances in the Ginnie Mae/Freddie Mac/Fannie Mae Loan Level MBS Disclosure Files. Note: Data as of October 2021. Beginning with the October 2021 GMAR, the Fannie Mae and Freddie Mac data within the Outstanding Agency MBS graph have been updated to reflect the Current UPB of the portfolio. July 2021 through September 2021 GMAR reflect the UPB at Security issuance for Fannie Mae and Freddie Mac for data from May 2021 through July 2021.

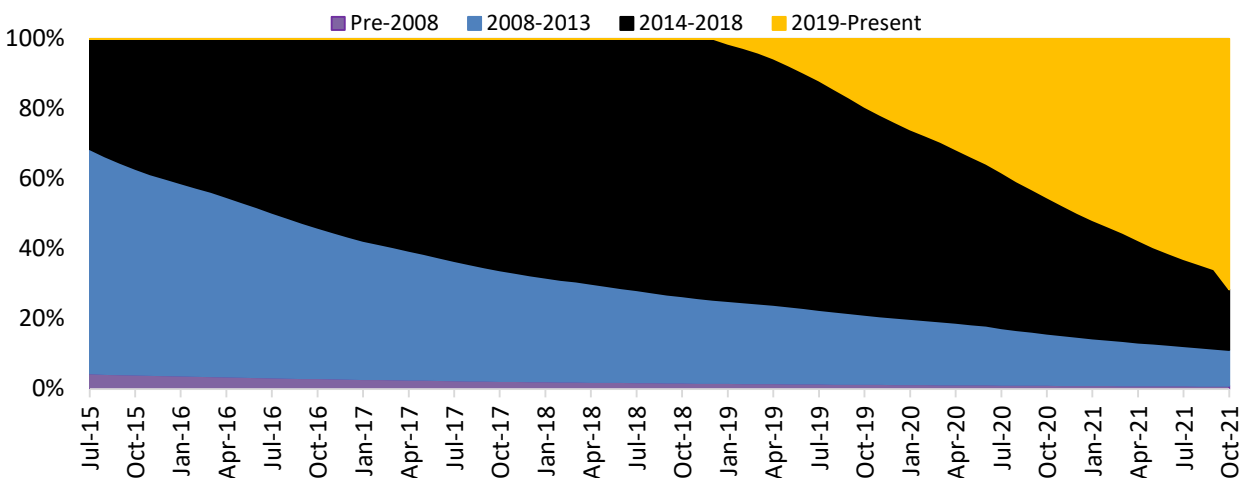
2.7 Outstanding Ginnie Mae MBS Volume by Coupon and Vintage Over Time

As of October 2021, the weighted average coupon on outstanding Ginnie Mae pools was 2.96%, down 2 bps since September 2021 and 43 bps since October 2020. The share of outstanding MBS pools with coupons below 3.0% (47% as of October 2021) began a rapid expansion in 2020. Approximately 25% of the outstanding MBS coupons are between 2.5 and 3.0%, 21% has coupons between 2.0 and 2.5%, while approximately half a percent (0.55%) has coupons under 2.0%. The bottom chart illustrates that loans originated since 2019 accounting for 72% of Ginnie MBS collateral outstanding.

Outstanding Ginnie MBS Balance, by Coupon



Outstanding Ginnie MBS Balance, by Vintage

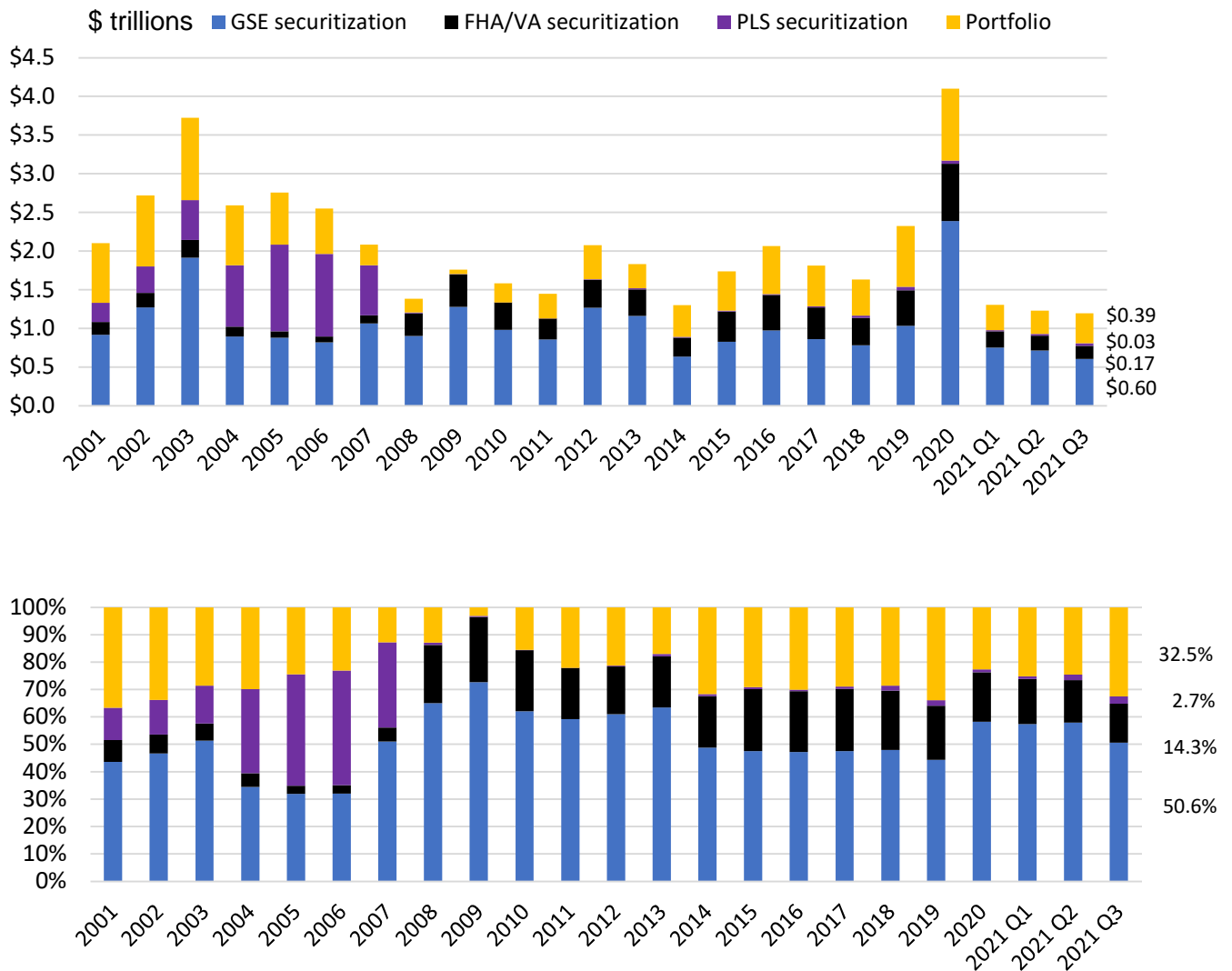


Sources: Ginnie Mae Pool Level MBS Disclosure Files. Note: October 2021 data points reflect the current composition of balances by coupon and vintage; factor data is not applied to prior date balance compositions. Average coupon is weighted by remaining principal balance.

2.8 Origination Volume and Share Over Time

Strong origination volume trends have continued in Q3 2021, with \$3.73 trillion in originations year to date, which outpaces Q1-Q3 2020 issuance by approximately 32%. Ginnie Mae collateral continued to decrease as a percentage of total originations, with Ginnie Mae’s share of total origination declining to under 15% in Q3 2021.

First Lien Origination Volume & Share



Source: Inside Mortgage Finance. Note: Data as of Q3 2021.

3.0 US Agency Market, Issuance

Securitized first lien originations, comprised of GSE, Ginnie Mae, and Private Label securitizations, declined as a percentage of total originations from 75% to 68% from Q2 to Q3 2021. MoM, Agency gross MBS issuance decreased 2.2% (from September to October), driven by a decline in both Freddie and Ginnie Issuance. Fannie Mae MBS gross issuance increased approximately 2% in October. Ginnie Mae gross issuance through October outpaces that of the first ten months of 2020 by approximately 14.8%, \$718.6 billion to \$626.0 billion. Agency net issuance in October was approximately \$83.4 billion, which represents a 11% increase in net issuance relative to September. Ginnie Mae net issuance is below zero year-to-date in 2021, at -\$6.1 billion, with FHA driving the negative net issuance. As noted in Section 2.6, VA production continues to outpace FHA.

Agency Gross Issuance (\$ in billions)					
Issuance Year	Fannie Mae	Freddie Mac	GSE Total	Ginnie Mae	Total
2001	\$506.9	\$378.2	\$885.1	\$171.5	\$1,056.6
2002	\$710.0	\$529.0	\$1,238.9	\$169.0	\$1,407.9
2003	\$1,174.4	\$700.5	\$1,874.9	\$213.1	\$2,088.0
2004	\$517.5	\$355.2	\$872.6	\$119.2	\$991.9
2005	\$514.1	\$379.9	\$894.0	\$81.4	\$975.3
2006	\$500.2	\$352.9	\$853.0	\$76.7	\$929.7
2007	\$633.0	\$433.3	\$1,066.2	\$94.9	\$1,161.1
2008	\$562.7	\$348.7	\$911.4	\$267.6	\$1,179.0
2009	\$817.1	\$462.9	\$1,280.0	\$451.3	\$1,731.3
2010	\$626.6	\$377.0	\$1,003.5	\$390.7	\$1,394.3
2011	\$578.2	\$301.2	\$879.3	\$315.3	\$1,194.7
2012	\$847.6	\$441.3	\$1,288.8	\$405.0	\$1,693.8
2013	\$749.9	\$426.7	\$1,176.6	\$393.6	\$1,570.2
2014	\$392.9	\$258.0	\$650.9	\$296.3	\$947.2
2015	\$493.9	\$351.9	\$845.7	\$436.3	\$1,282.0
2016	\$600.5	\$391.1	\$991.6	\$508.2	\$1,499.8
2017	\$531.3	\$345.9	\$877.3	\$455.6	\$1,332.9
2018	\$480.9	\$314.1	\$795.0	\$400.6	\$1,195.6
2019	\$597.4	\$445.2	\$1,042.6	\$508.6	\$1,551.2
2020	\$1,343.4	\$1,064.1	\$2,407.5	\$775.4	\$3,182.9
2021 YTD	\$1,201.5	\$1,078.4	\$2,279.9	\$718.6	\$2,998.5

Ginnie Mae Gross Issuance Collateral Composition (\$ in billions)					
Issuance Year	FHA	VA	Other	Total	
2001	\$133.8	\$34.7	\$3.1	\$171.5	
2002	\$128.6	\$37.9	\$2.5	\$169.0	
2003	\$147.9	\$62.7	\$2.5	\$213.1	
2004	\$85.0	\$31.8	\$2.5	\$119.2	
2005	\$55.7	\$23.5	\$2.1	\$81.4	
2006	\$51.2	\$23.2	\$2.3	\$76.7	
2007	\$67.7	\$24.2	\$3.0	\$94.9	
2008	\$221.7	\$39.0	\$6.9	\$267.6	
2009	\$359.9	\$74.6	\$16.8	\$451.3	
2010	\$304.9	\$70.6	\$15.3	\$390.7	
2011	\$216.1	\$82.3	\$16.9	\$315.3	
2012	\$253.4	\$131.3	\$20.3	\$405.0	
2013	\$239.2	\$132.2	\$22.2	\$393.6	
2014	\$163.9	\$111.4	\$21.0	\$296.3	
2015	\$261.5	\$155.6	\$19.2	\$436.3	
2016	\$281.8	\$206.5	\$19.9	\$508.2	
2017	\$257.6	\$177.8	\$20.2	\$455.6	
2018	\$222.6	\$160.8	\$17.2	\$400.6	
2019	\$266.9	\$225.7	\$16.0	\$508.6	
2020	\$327.0	\$423.5	\$24.9	\$775.4	
2021 YTD	\$327.6	\$369.4	\$21.6	\$718.6	



US Agency Market, Issuance

Agency Net Issuance (\$ in billions)					
Issuance Year	Fannie Mae	Freddie Mac	GSE	Ginnie Mae	Total
2000	\$92.0	\$67.8	\$159.8	\$29.3	\$189.1
2001	\$216.6	\$151.8	\$368.4	-\$9.9	\$358.5
2002	\$218.9	\$138.3	\$357.2	-\$51.2	\$306.1
2003	\$293.7	\$41.1	\$334.9	-\$77.6	\$257.3
2004	\$32.3	\$50.2	\$82.5	-\$40.1	\$42.4
2005	\$62.5	\$111.7	\$174.2	-\$42.2	\$132.0
2006	\$164.3	\$149.3	\$313.6	\$0.2	\$313.8
2007	\$296.1	\$218.8	\$514.9	\$30.9	\$545.7
2008	\$213.0	\$101.8	\$314.8	\$196.4	\$511.3
2009	\$208.1	\$42.5	\$250.6	\$257.4	\$508.0
2010	-\$156.4	-\$146.8	-\$303.2	\$198.3	-\$105.0
2011	-\$32.6	-\$95.8	-\$128.4	\$149.6	\$21.2
2012	\$32.9	-\$75.3	-\$42.4	\$119.1	\$76.8
2013	\$53.5	\$11.8	\$65.3	\$89.6	\$154.9
2014	-\$4.0	\$30.0	\$26.0	\$61.6	\$87.7
2015	\$3.5	\$65.0	\$68.4	\$97.3	\$165.7
2016	\$60.5	\$66.8	\$127.4	\$126.1	\$253.5
2017	\$83.7	\$77.0	\$160.7	\$132.3	\$293.0
2018	\$81.9	\$67.6	\$149.4	\$112.0	\$261.5
2019	\$87.4	\$110.3	\$197.7	\$95.7	\$293.5
2020	\$289.3	\$343.5	\$632.8	\$19.9	\$652.7
2021 YTD	\$321.6	\$428.7	\$750.2	-\$6.1	\$744.1

Ginnie Mae Net Issuance Collateral Composition (\$ in billions)				
Issuance Year	FHA	VA	Other	Total
2000	\$29.0	\$0.3	\$0.0	\$29.3
2001	\$0.7	-\$10.6	\$0.0	-\$9.9
2002	-\$22.5	-\$28.7	\$0.0	-\$51.2
2003	-\$56.5	-\$21.1	\$0.0	-\$77.6
2004	-\$45.2	\$5.1	\$0.0	-\$40.1
2005	-\$37.3	-\$12.1	\$7.2	-\$42.2
2006	-\$4.7	\$3.8	\$1.2	\$0.2
2007	\$20.2	\$8.7	\$2.0	\$30.9
2008	\$173.3	\$17.7	\$5.4	\$196.4
2009	\$206.4	\$35.1	\$15.8	\$257.4
2010	\$158.6	\$29.6	\$10.0	\$198.3
2011	\$102.8	\$34.0	\$12.8	\$149.6
2012	\$58.9	\$45.9	\$14.3	\$119.1
2013	\$20.7	\$53.3	\$13.9	\$87.9
2014	-\$4.8	\$53.9	\$12.5	\$61.6
2015	\$22.5	\$66.9	\$7.9	\$97.3
2016	\$45.6	\$73.2	\$6.0	\$124.9
2017	\$50.1	\$76.1	\$5.0	\$131.2
2018	\$49.2	\$61.2	\$3.5	\$113.9
2019	\$35.9	\$58.0	\$1.9	\$95.7
2020	-\$52.5	\$71.0	\$1.3	\$19.9
2021 YTD	-\$62.0	\$56.7	\$0.5	-\$4.8



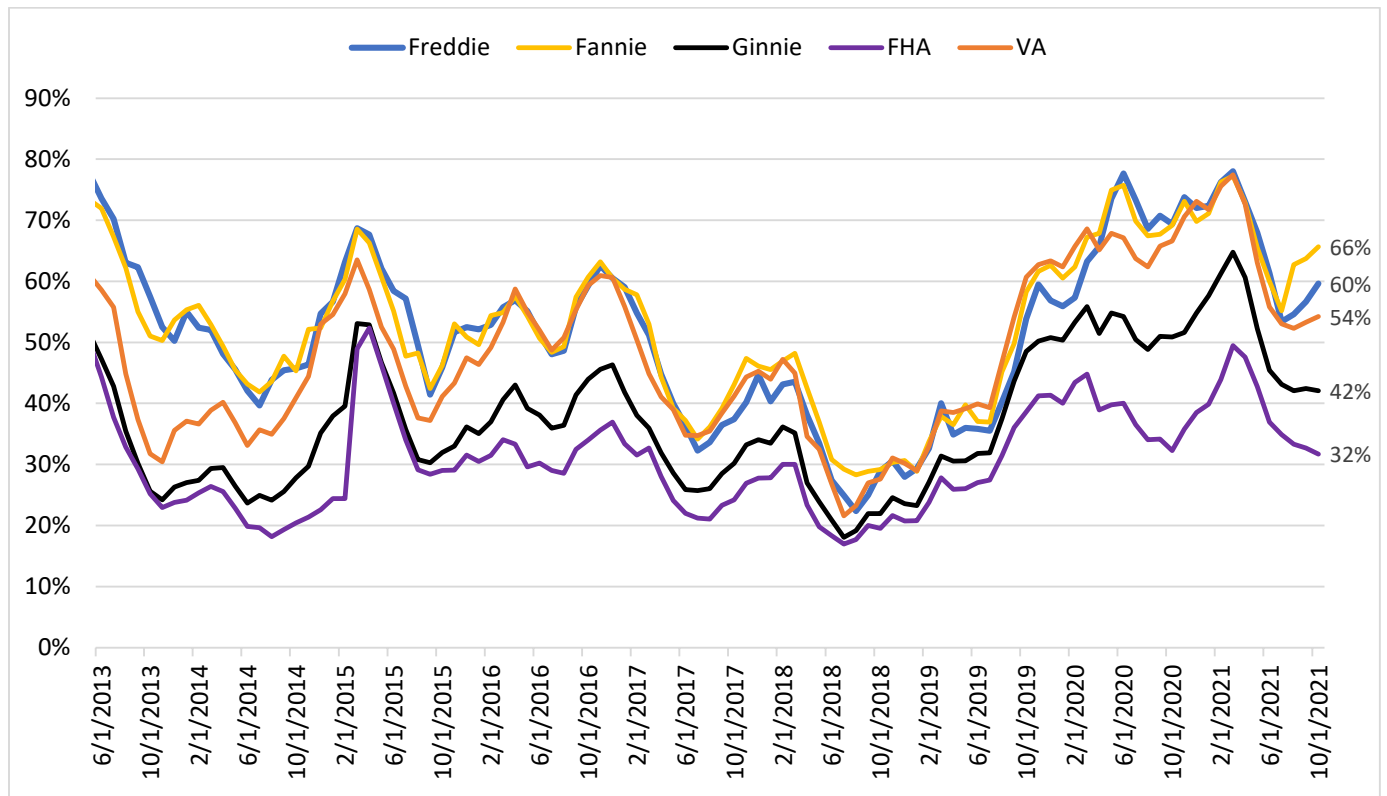
US Agency Market, Issuance

Month	Agency Gross Issuance Amount (in \$ Billions)					Agency Net Issuance Amount (in \$ Billions)				
	Fannie Mae	Freddie Mac	Ginnie Mae	GSEs	Total	Fannie Mae	Freddie Mac	Ginnie Mae	GSEs	Total
Jul-17	\$45.3	\$27.6	\$40.6	\$72.9	\$113.5	\$5.6	\$3.5	\$12.3	\$9.2	\$21.5
Aug-17	\$49.1	\$29.3	\$42.8	\$78.4	\$121.1	\$12.0	\$6.7	\$15.4	\$18.7	\$34.1
Sep-17	\$47.3	\$27.9	\$40.2	\$75.3	\$115.5	\$7.7	\$3.8	\$10.6	\$11.4	\$22.0
Oct-17	\$42.9	\$34.6	\$38.4	\$77.6	\$115.9	\$5.5	\$12.5	\$11.0	\$17.9	\$28.9
Nov-17	\$43.5	\$37.2	\$37.8	\$80.7	\$118.5	\$3.9	\$13.6	\$8.3	\$17.5	\$25.8
Dec-17	\$45.3	\$30.0	\$36.2	\$75.3	\$111.5	\$9.2	\$8.1	\$7.0	\$17.4	\$24.4
Jan-18	\$47.4	\$21.4	\$35.4	\$68.8	\$104.2	\$12.1	\$0.2	\$7.7	\$12.3	\$20.0
Feb-18	\$40.3	\$21.5	\$32.0	\$61.8	\$93.8	\$8.3	\$2.2	\$7.1	\$10.5	\$17.6
Mar-18	\$35.6	\$21.3	\$29.1	\$56.9	\$86.0	\$4.9	\$3.0	\$6.3	\$7.9	\$14.1
Apr-18	\$36.3	\$26.2	\$32.8	\$62.5	\$95.3	\$1.7	\$6.0	\$8.8	\$7.7	\$16.5
May-18	\$38.9	\$27.5	\$33.8	\$66.4	\$100.2	\$5.1	\$7.2	\$10.5	\$12.3	\$22.8
Jun-18	\$38.2	\$28.8	\$35.6	\$67.0	\$102.6	\$2.5	\$6.8	\$10.3	\$9.3	\$19.6
Jul-18	\$40.3	\$26.2	\$35.6	\$66.5	\$102.2	\$4.2	\$3.7	\$10.4	\$7.8	\$18.3
Aug-18	\$50.4	\$29.9	\$37.5	\$80.3	\$117.8	\$15.8	\$7.9	\$12.5	\$23.6	\$36.1
Sep-18	\$41.8	\$30.1	\$34.8	\$71.8	\$106.6	\$5.9	\$6.2	\$9.0	\$12.1	\$21.1
Oct-18	\$39.8	\$27.4	\$33.2	\$67.1	\$100.3	\$9.7	\$7.1	\$11.4	\$16.8	\$28.2
Nov-18	\$35.1	\$30.1	\$32.4	\$65.2	\$97.6	\$3.6	\$11.0	\$9.8	\$14.6	\$24.4
Dec-18	\$36.9	\$23.9	\$28.4	\$60.7	\$89.1	\$8.2	\$6.4	\$8.2	\$14.6	\$22.8
Jan-19	\$33.3	\$19.2	\$29.0	\$52.6	\$81.6	\$5.9	\$2.5	\$9.2	\$8.3	\$17.6
Feb-19	\$27.3	\$19.9	\$23.5	\$47.2	\$70.7	\$1.4	\$3.4	\$4.6	\$4.7	\$9.3
Mar-19	\$29.6	\$27.3	\$26.6	\$56.9	\$83.5	\$1.8	\$10.3	\$5.6	\$12.0	\$17.6
Apr-19	\$33.1	\$30.8	\$32.9	\$63.9	\$96.8	\$1.3	\$10.8	\$8.3	\$12.0	\$20.4
May-19	\$44.5	\$34.3	\$38.8	\$78.8	\$117.6	\$6.7	\$9.8	\$9.4	\$16.6	\$26.0
Jun-19	\$44.6	\$34.0	\$43.3	\$78.6	\$121.9	\$1.9	\$5.9	\$9.0	\$7.8	\$16.8
Jul-19	\$51.7	\$36.9	\$45.9	\$88.6	\$134.5	\$10.9	\$10.1	\$11.0	\$21.0	\$32.0
Aug-19	\$71.1	\$50.4	\$51.2	\$121.4	\$172.6	\$20.8	\$17.1	\$8.7	\$37.9	\$46.6
Sep-19	\$67.1	\$43.0	\$52.0	\$110.1	\$162.1	\$14.1	\$7.5	\$6.5	\$21.5	\$28.0
Oct-19	\$65.0	\$46.2	\$58.4	\$111.2	\$169.6	\$7.4	\$7.1	\$11.9	\$14.6	\$26.5
Nov-19	\$68.1	\$50.7	\$54.3	\$118.7	\$173.1	\$5.2	\$8.6	\$4.1	\$13.8	\$18.0
Dec-19	\$62.1	\$52.5	\$52.7	\$114.6	\$167.3	\$10.1	\$17.3	\$7.4	\$27.3	\$34.7
Jan-20	\$61.7	\$51.4	\$56.0	\$113.1	\$169.0	\$9.1	\$16.5	\$8.6	\$25.6	\$34.2
Feb-20	\$56.5	\$39.5	\$51.2	\$96.0	\$147.2	\$9.4	\$7.9	\$7.1	\$17.4	\$24.4
Mar-20	\$69.5	\$41.4	\$53.0	\$110.8	\$163.9	\$17.9	\$6.3	\$8.8	\$24.2	\$33.0
Apr-20	\$101.6	\$76.3	\$61.4	\$177.9	\$239.3	\$30.5	\$27.5	\$10.2	\$58.0	\$68.2
May-20	\$124.3	\$70.6	\$60.8	\$194.9	\$255.7	\$35.2	\$8.2	\$5.7	\$43.4	\$49.1
Jun-20	\$118.9	\$78.1	\$58.5	\$197.0	\$255.4	\$30.0	\$15.9	\$1.3	\$45.9	\$47.2
Jul-20	\$125.0	\$108.1	\$66.5	\$233.1	\$299.5	\$23.4	\$38.0	-\$15.5	\$61.4	\$45.9
Aug-20	\$137.6	\$113.6	\$73.6	\$251.3	\$324.8	\$34.2	\$43.4	-\$4.1	\$77.6	\$73.5
Sep-20	\$122.9	\$102.1	\$72.4	\$225.0	\$297.5	\$16.5	\$29.9	\$1.0	\$46.5	\$47.5
Oct-20	\$142.3	\$124.8	\$72.6	\$267.1	\$339.7	\$28.9	\$48.3	-\$0.3	\$77.2	\$76.9
Nov-20	\$152.4	\$131.5	\$72.6	\$283.9	\$356.5	\$31.4	\$48.4	-\$4.5	\$79.8	\$75.3
Dec-20	\$130.8	\$126.7	\$76.9	\$257.5	\$334.4	\$22.8	\$53.1	\$1.7	\$75.8	\$77.5
Jan-21	\$141.6	\$117.3	\$78.2	\$258.9	\$337.1	\$25.9	\$37.9	-\$6.5	\$63.8	\$57.3
Feb-21	\$118.8	\$115.5	\$72.3	\$234.3	\$306.6	\$16.8	\$44.3	-\$0.9	\$61.1	\$60.2
Mar-21	\$143.9	\$118.9	\$76.9	\$262.8	\$339.7	\$37.6	\$44.0	\$1.0	\$81.6	\$82.6
Apr-21	\$148.0	\$142.3	\$85.6	\$290.3	\$375.9	\$26.2	\$57.0	-\$4.2	\$83.3	\$79.0
May-21	\$132.3	\$91.4	\$71.7	\$223.7	\$295.4	\$64.9	\$38.8	-\$3.1	\$103.7	\$100.6
Jun-21	\$108.5	\$91.2	\$67.7	\$199.7	\$267.4	\$34.0	\$33.7	\$2.6	\$67.8	\$70.4
Jul-21	\$95.4	\$84.6	\$69.0	\$180.0	\$249.0	\$27.6	\$31.9	-\$1.4	\$59.5	\$58.0
Aug-21	\$104.8	\$109.3	\$66.6	\$214.1	\$280.8	\$27.5	\$48.5	\$1.4	\$76.1	\$77.4
Sep-21	\$102.9	\$105.3	\$68.0	\$208.3	\$276.3	\$26.4	\$45.6	\$3.1	\$72.0	\$75.1
Oct-21	\$105.1	\$102.7	\$62.5	\$207.8	\$270.3	\$34.6	\$46.9	\$1.9	\$81.5	\$83.4

Source: Beginning May 2021, data for Gross and Net Issuance was sourced from Fannie Mae, Freddie Mac, and Ginnie Mae loan level disclosure files. Net issuance is defined here as the difference between prior period UPB and current period UPB. Data as of October 2021. Beginning with the October 2021 GMAR, the Fannie Mae and Freddie Mac net issuance data have been updated to reflect the current UPB of the portfolios. July 2021 through September 2021 GMAR net issuance data reflect the UPB at security issuance for Fannie Mae and Freddie Mac for data from May 2021 through July 2021.

The total Ginnie Mae refinance share stood at 42% in October. The FHA refinance share stood at 32% in October 2021, below the 66% share for Fannie, the 60% refi share for Freddie originations, and the 54% share for the VA. Refinances as a share of all Agency originations have continued their rebound, up to 58% in October, after having dropped from 57% to 51% from June to July. This interrupts the trend of refinances representing a decreasing proportion of overall issuance since recent refinance peaks in early 2021 and mid-2020.

3.1 Percent Refi at Issuance



Sources: eMBS and Urban Institute; Beginning January 2021 data sourced from Ginnie Mae loan level disclosure files and IOPP. Notes: Data as of October 2021.

4.0 High LTV Loans: Ginnie Mae vs. GSEs

The share of high-LTV Agency loans going to borrowers with FICO scores above 750 has increased by 4% between periods September - November 2019 and September - November 2021. The share of borrowers with DTIs below 35% has decreased by approximately 3% over the same period. The share of high-LTV loans decreased in both the Ginnie Mae guarantee book and the GSE portfolios by approximately 3% and 31%, respectively, from September to November 2019 to September to November 2021. Still, Ginnie Mae maintains its key role of expanding credit access to low-to-moderate income borrowers as it continues to dominate high-LTV lending, with 62.47% of its issuances between September and November 2021 having LTVs of 95 or above, compared to 4.58% for the GSEs.

Share of Loans with LTV \geq 95

	Ginnie Mae	GSE	All
Sept 2019-Nov 2019	64.73%	6.61%	26.63%
Sept 2021 - Nov 2021	62.47%	4.58%	21.12%

Agency Market Share by DTI and FICO for Loans with LTV \geq 95

Sept 2019-Nov 2019

DTI	FICO				NA	All
	<650	650-700	700-750	\geq 750		
<35	4.51%	6.18%	3.40%	5.01%	1.29%	20.37%
35-45	6.70%	8.72%	4.25%	4.30%	0.21%	24.18%
\geq 45	5.33%	8.05%	4.05%	3.45%	0.13%	21.01%
NA	5.50%	7.03%	4.24%	5.89%	11.75%	34.44%
All	22.04%	29.98%	15.94%	18.62%	13.40%	100.00%

Sept 2021-Nov 2021

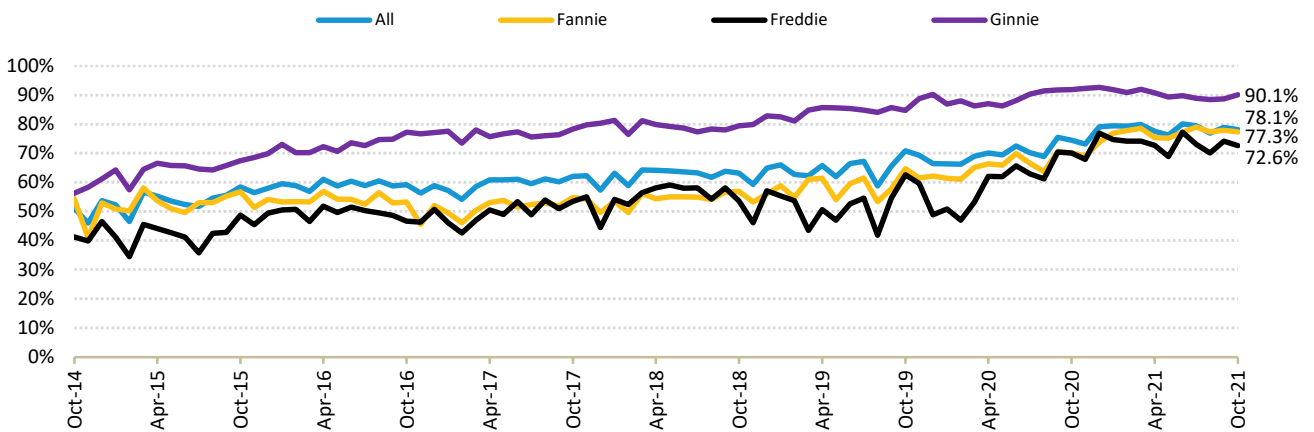
DTI	FICO				NA	All
	<650	650-700	700-750	\geq 750		
<35	4.38%	6.00%	3.16%	5.16%	1.15%	19.86%
35-45	6.51%	8.54%	3.86%	3.97%	0.23%	23.11%
\geq 45	5.22%	7.97%	3.71%	3.16%	0.16%	20.22%
NA	4.96%	6.53%	4.26%	7.12%	13.95%	36.81%
All	21.06%	29.04%	14.99%	19.42%	15.49%	100.00%

Sources: eMBS, Recursion and Ginnie Mae. Data as of November 2021

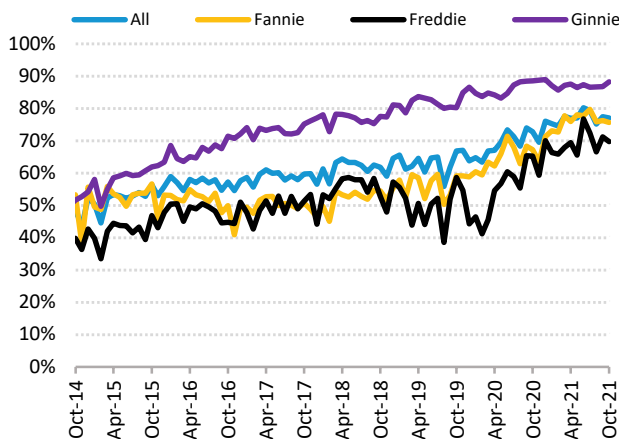
5.0 Agency Nonbank Originators

Total Agency nonbank origination share declined slightly in October after an approximately 3% increase in the prior month. The decrease in nonbank origination share was driven by the GSEs, as Fannie and Freddie’s nonbank originator share declined 1% and 2%, respectively. Ginnie Mae’s nonbank share increased approximately 2% in October 2021. The Ginnie Mae nonbank share has been consistently higher than the GSEs, at 90.1% in October 2021. Ginnie Mae nonbank origination share of refinance mortgage loans (92.7%) has continued to drive Ginnie Mae’s relatively higher nonbank origination share (90.1%). The nonbank originator share of Ginnie Mae’s refinance loans is significantly higher than for purchase loans. GSE nonbank origination share differs less on the basis of loan purpose.

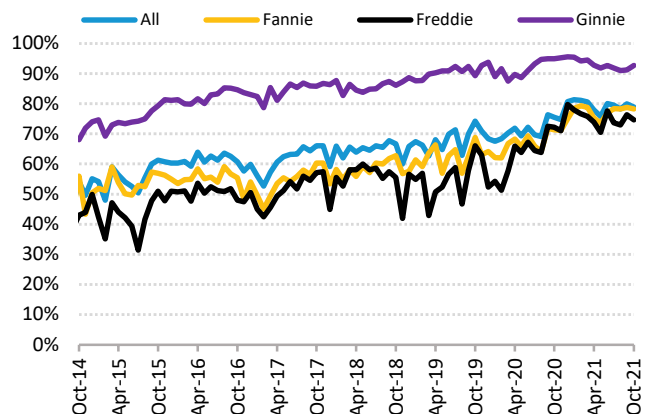
5.1 Agency Nonbank Originator Share (All, Purchase, Refi)



Nonbank Origination Share: Purchase Loans



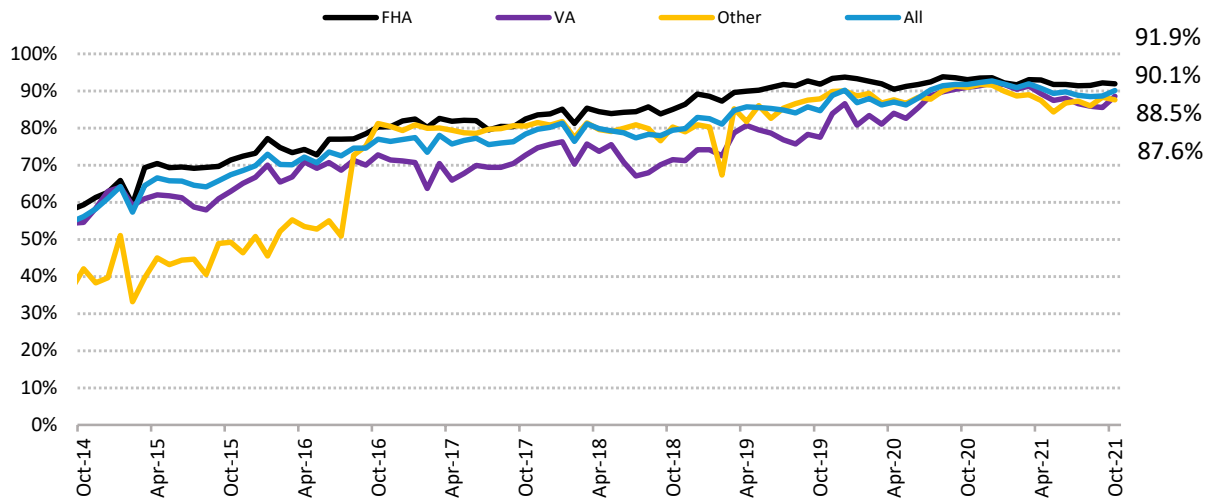
Nonbank Origination Share: Refi Loans



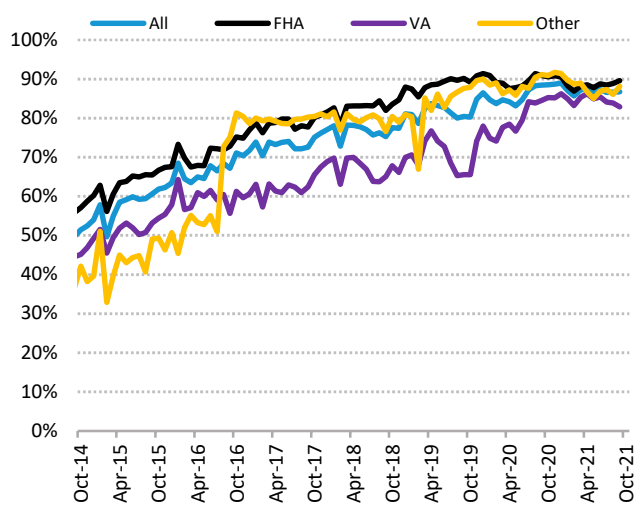
Sources: eMBS and Urban Institute; Beginning January 2021 data sourced from Ginnie Mae loan level disclosure files and IOPP. Notes: Data as of October 2021.

Ginnie Mae’s total nonbank originator share increased in October, up 1.47% MoM. This increase in Ginnie Mae nonbank origination share was driven primarily by VA origination, as VA-insured loans increased their nonbank origination share MoM by 3.02%. In October 2021 there was an increase in nonbank origination share for both purchase and refi loans. The increase in nonbank origination share for refi loans was primarily driven by VA loans, with an approximately 2.5% increase MoM.

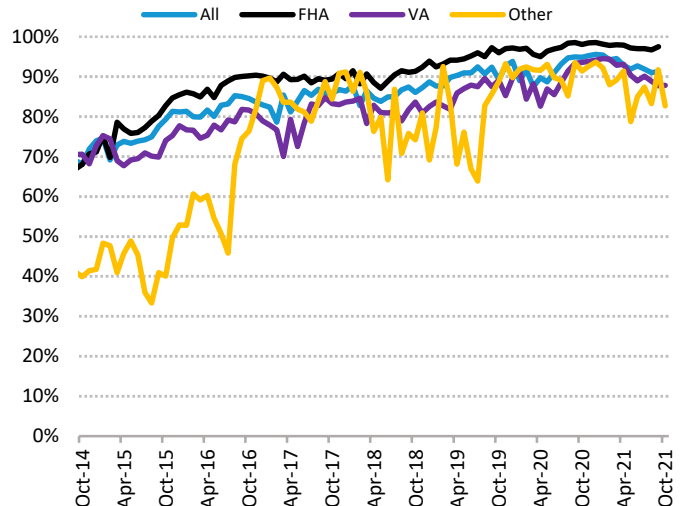
5.2 Ginnie Mae Nonbank Originator Share (All, Purchase, Refi)



Ginnie Mae Nonbank Share: Purchase Loans



Ginnie Mae Nonbank Share: Refi Loans

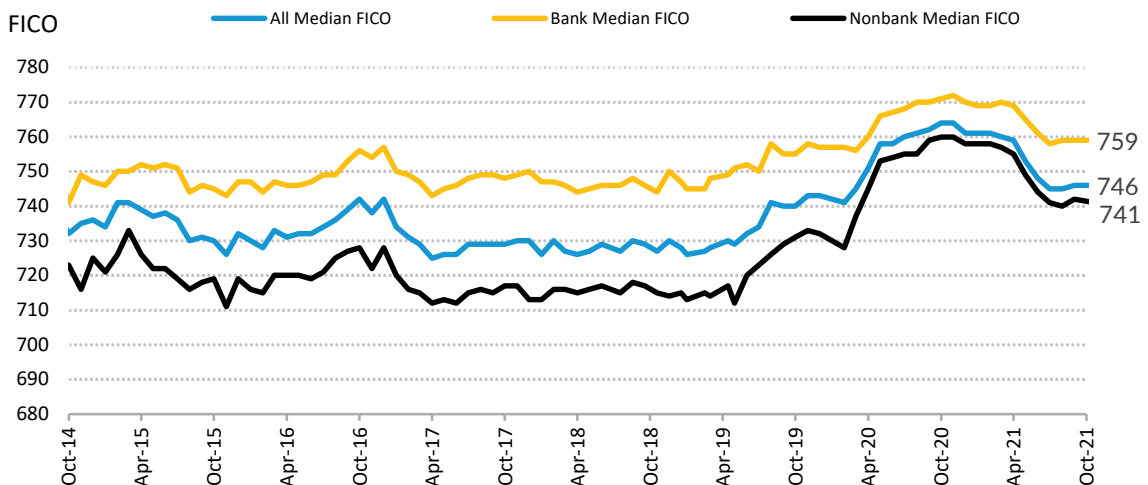


Sources: eMBS and Urban Institute; Beginning January 2021 data sourced from Ginnie Mae loan level disclosure files and IOPP. Notes: "Other" refers to loans guaranteed by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of October 2021.

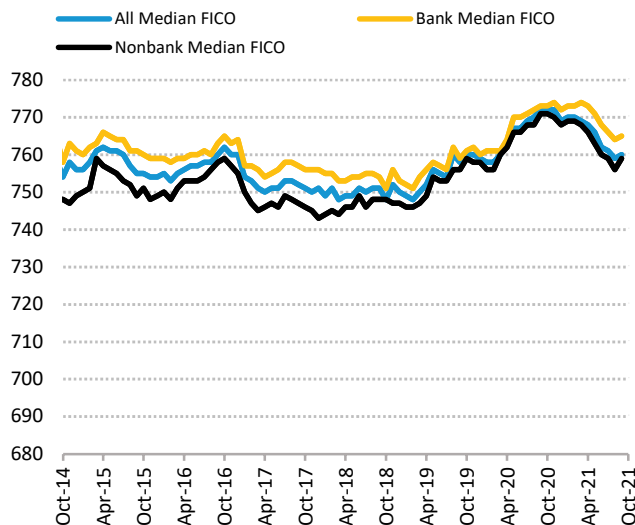
5.3 Bank vs. Nonbank Originators Historical Credit Box, Ginnie Mae vs. GSE (FICO, LTV, DTI)

The mortgage loan originations of nonbanks continue to have a lower median FICO score than their bank counterparts across the Agencies. The spread between nonbank and bank FICO scores increased by 1 point from September 2021 to 18 points in October 2021, approximately 7 points below the 5-year average spread. The Agency median FICO remained at 746 in October. Ginnie median FICO is down 21 points since January.

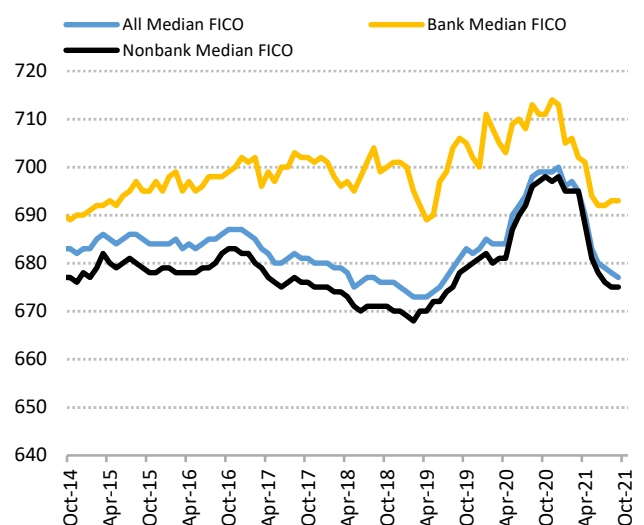
Agency FICO: Bank vs. Nonbank



GSE FICO: Bank vs. Nonbank



Ginnie Mae FICO: Bank vs. Nonbank

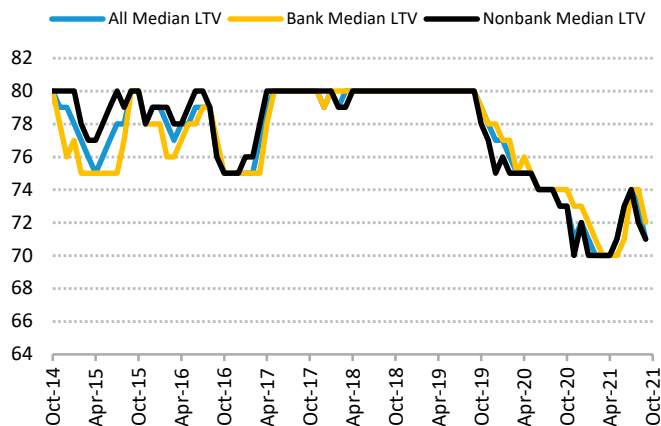


Sources: eMBS and Urban Institute; Beginning January 2021 data sourced from Ginnie Mae loan level disclosure files and IOPP. Notes: Data as of October 2021.

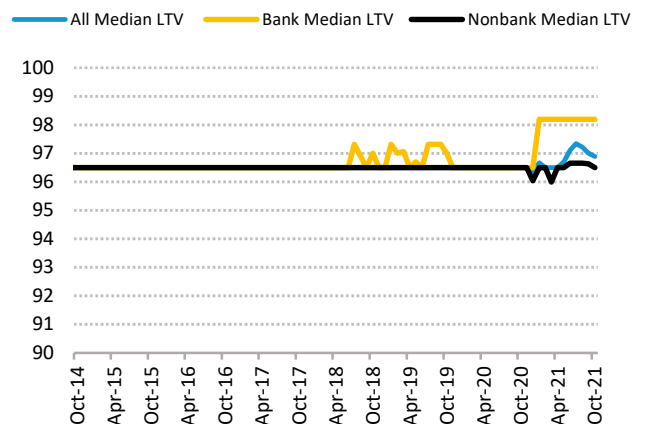
Agency Nonbank Originators

The median LTV for GSE bank and nonbank originators declined again in October 2021. Ginnie Mae median LTV also had another slight MoM decline to 96.9%. The decline in the GSEs' median LTV in October is attributable to the continued increase in volume of refs in the GSE space ([see Section 3.1](#)). Ginnie Mae median DTI saw a significant reversal from its slight decline in September, with October 2021 showing the highest median DTI value since July of 2019.

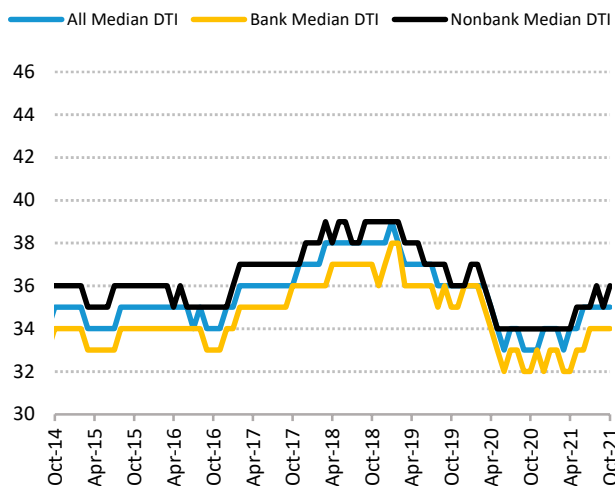
GSE LTV: Bank vs Nonbank



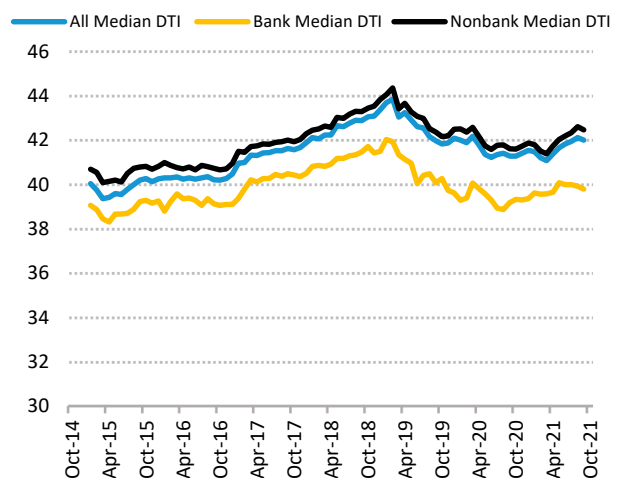
Ginnie Mae LTV: Bank vs. Nonbank



GSE DTI: Bank vs Nonbank



Ginnie Mae DTI: Bank vs. Nonbank

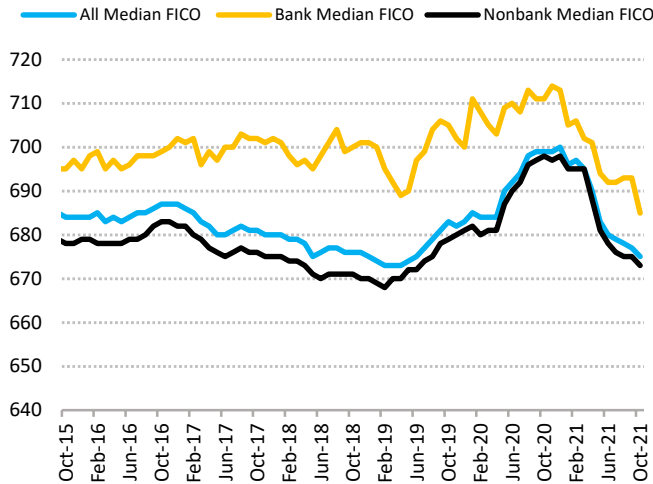


Sources: eMBS and Urban Institute; Beginning January 2021 data sourced from Ginnie Mae loan level disclosure files and IOPP. Notes: Data as of October 2021.

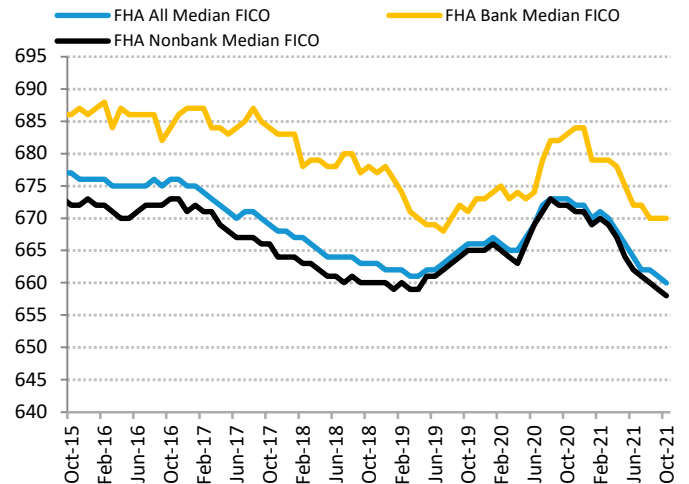
Agency Nonbank Originators

October 2021 marked the eighth consecutive month of decline in the median FICO score for Ginnie Mae bank and nonbank originators. The median FICO for all Ginnie originations declined from 677 to 675, driven primarily by an 8-point drop in Bank Median FICO.

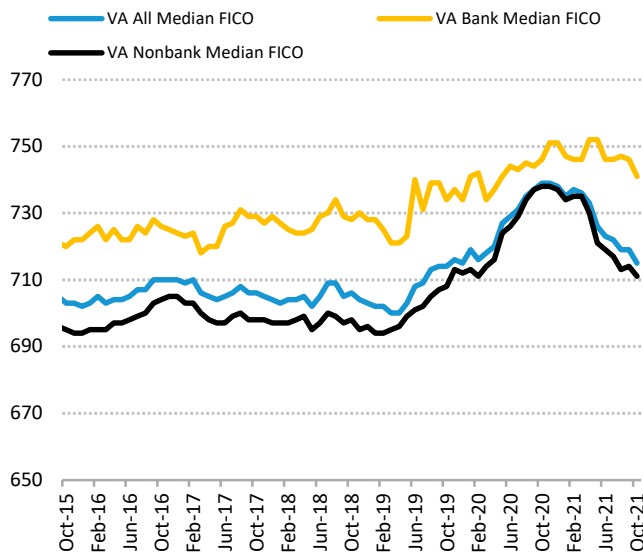
Ginnie Mae FICO Score: Bank vs. Nonbank



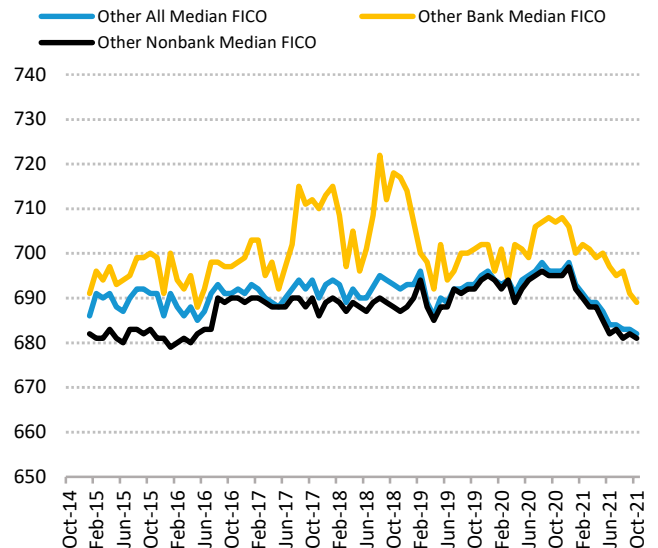
Ginnie Mae FHA FICO Score: Bank vs. Nonbank



Ginnie Mae VA FICO Score: Bank vs. Nonbank



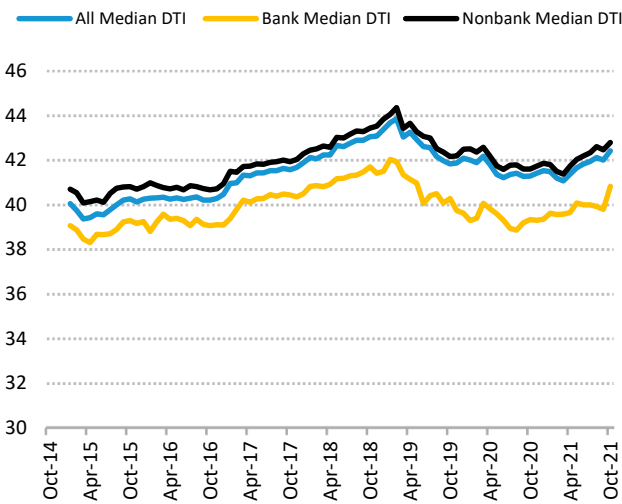
Ginnie Mae Other FICO Score: Bank vs. Nonbank



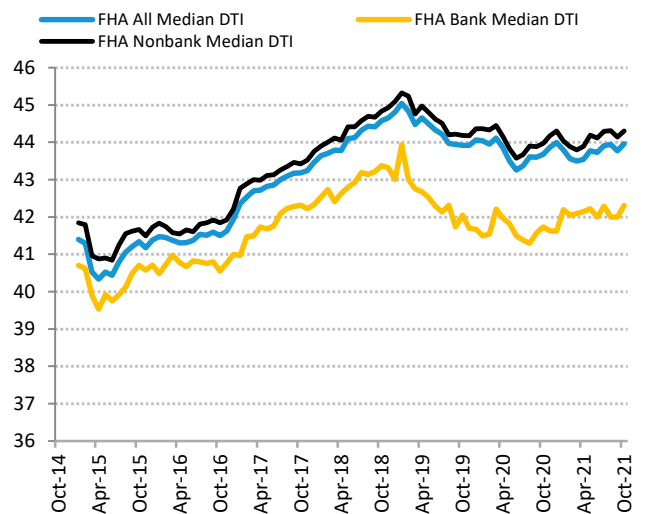
Sources: eMBS and Urban Institute; Beginning January 2021 data sourced from Ginnie Mae loan level disclosure files and IOPP. Notes: "Other" refers to loans guaranteed by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of October 2021.

Median DTI for Ginnie Mae nonbank originations has been consistently higher than median DTI for Ginnie Mae bank originations. This is a trend evident for all Ginnie Mae-eligible loan types except for the “Other” category, where the spread between median bank and nonbank DTI is relatively small. FHA, VA, and Other DTIs all saw minor upticks in October.

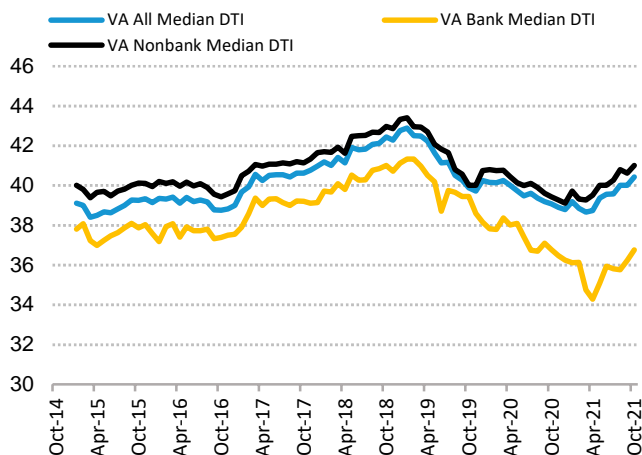
Ginnie Mae DTI: Bank vs. Nonbank



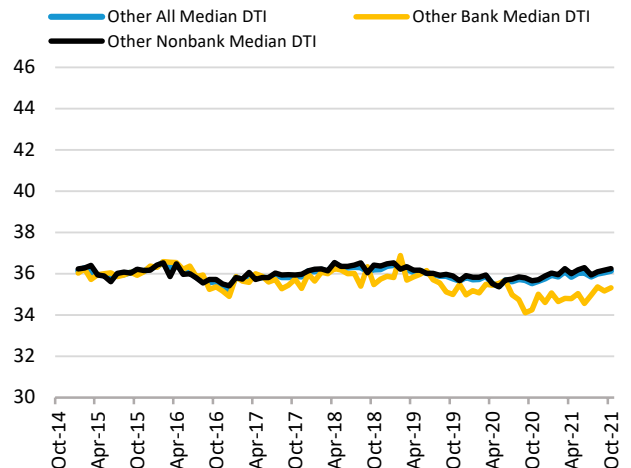
Ginnie Mae FHA DTI: Bank vs. Nonbank



Ginnie Mae VA DTI: Bank vs. Nonbank



Ginnie Mae Other DTI: Bank vs. Nonbank



Sources: eMBS and Urban Institute; Beginning January 2021 data sourced from Ginnie Mae loan level disclosure files and IOPP. Notes: “Other” refers to loans insured by HUD’s Office of Public and Indian Housing and the Department of Agriculture’s Rural Development. Data as of October 2021



Holders of Ginnie Mae Mortgage Servicing Rights

6.0 Holders of Ginnie Mae Mortgage Servicing Rights

This table shows the 30 largest owners of mortgage servicing rights (MSR) by UPB for Ginnie Mae MBS. The top 30 firms collectively own 82.3% of Ginnie Mae MSR (see Cumulative Share). Twenty-two of these top 30 are non-depository institutions, the remaining 8 are depository institutions. As of November 2021, over half (51.1%) of the Ginnie Mae MSR are owned by the top six firms.

Top 30 Holders of Ginnie Mae Mortgage Servicing Rights (MSRs), by UPB

Rank	MSR Holder	UPB (\$ millions)	Share	Cumulative Share
1	Freedom Home Mortgage	\$ 257,950	13.23%	13.23%
2	PennyMac	\$ 217,829	11.17%	24.40%
3	Lakeview	\$ 202,103	10.37%	34.77%
4	Wells Fargo	\$ 125,388	6.43%	41.20%
5	Rocket Mortgage	\$ 98,806	5.07%	46.27%
6	Nationstar	\$ 94,670	4.86%	51.13%
7	Newrez	\$ 59,160	3.03%	54.16%
8	Caliber Home Loans	\$ 49,156	2.52%	56.68%
9	US Bank	\$ 47,845	2.45%	59.14%
10	Carrington Mortgage	\$ 43,440	2.23%	61.37%
11	United Wholesale Mortgage	\$ 41,999	2.15%	63.52%
12	USAA Federal Savings Bank	\$ 33,285	1.71%	65.23%
13	Loan Depot	\$ 32,833	1.68%	66.91%
14	Mortgage Research Center	\$ 29,750	1.53%	68.44%
15	Navy Federal Credit Union	\$ 28,257	1.45%	69.89%
16	Planet Home Lending	\$ 28,250	1.45%	71.34%
17	Truist Bank	\$ 22,380	1.15%	72.48%
18	The Money Source	\$ 21,350	1.10%	73.58%
19	Guild Mortgage	\$ 20,310	1.04%	74.62%
20	Home Point Financial Corporation	\$ 17,926	0.92%	75.54%
21	Crosscountry Mortgage	\$ 15,181	0.78%	76.32%
22	New American Funding	\$ 14,510	0.74%	77.06%
23	Village Capital	\$ 14,017	0.72%	77.78%
24	Midfirst Bank	\$ 13,680	0.70%	78.48%
25	Citizens Bank	\$ 13,068	0.67%	79.15%
26	Idaho Housing and Finance Association	\$ 12,600	0.65%	79.80%
27	CMG Mortgage, INC	\$ 12,202	0.63%	80.43%
28	Amerihome Mortgage Company	\$ 12,146	0.62%	81.05%
29	PHH Mortgage Corporation	\$ 11,750	0.60%	81.65%
30	JP Morgan Chase	\$ 11,714	0.60%	82.25%

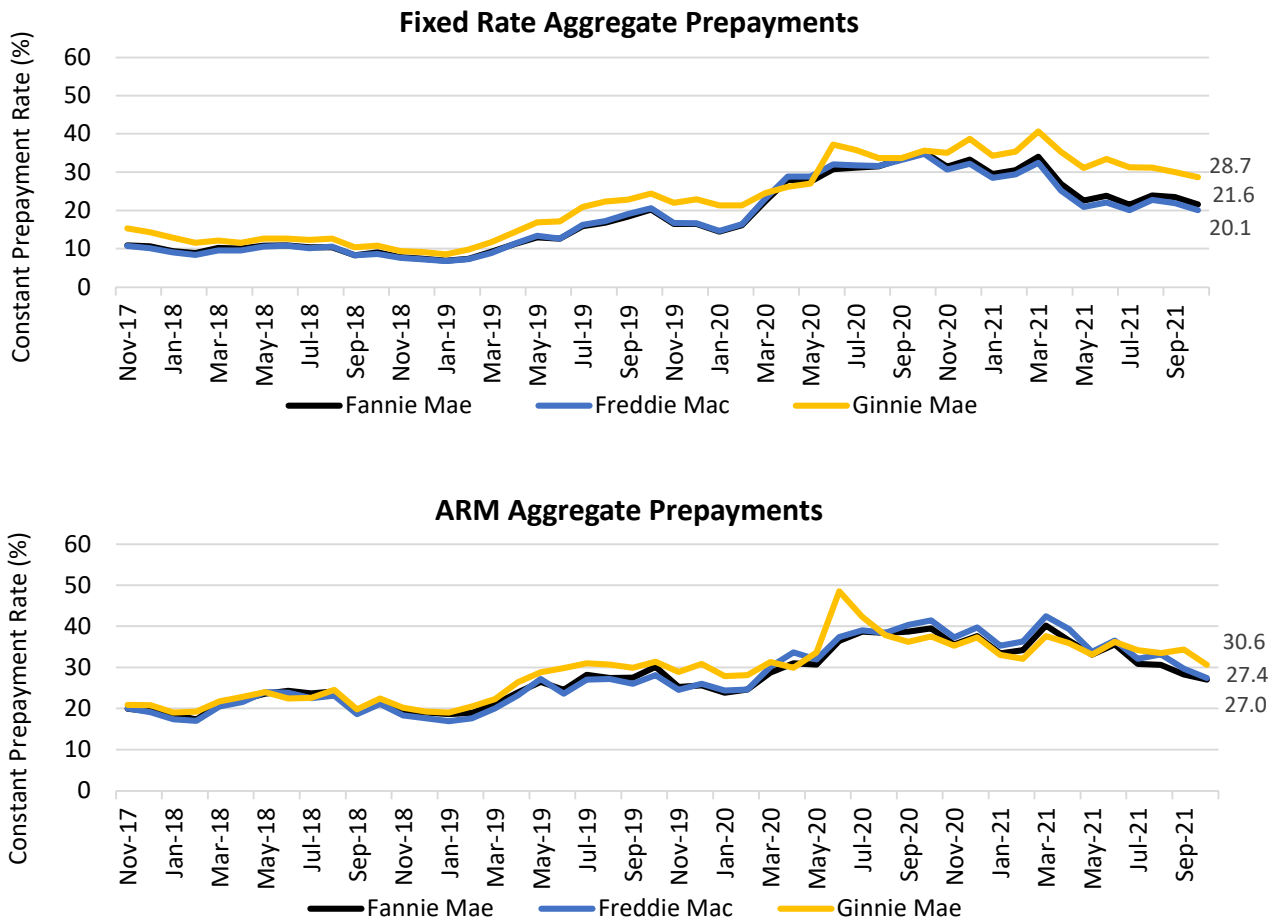
Source: Deloitte and Ginnie Mae. Data as of November 2021.

7.0 Prepayments

In October 2021, Ginnie Mae fixed rate prepayment speeds decreased by 4%, to 28.7 CPR. The slowdown was driven by both voluntary prepayment and Ginnie Mae II 30-year buyout rate decreases. On the other hand, Ginnie Mae I 30-year posted a 13% increase in its Conditional Buyout Rate (CBR).⁵ The Ginnie Mae prepayment outlook is expected to get more clarity by late Q1 2022 when indicators of seriously delinquent portfolio performance become available.⁶

In October 2021, Fannie Mae and Freddie Mac fixed rate prepayment speeds both continued to decrease by 8%. ARM MBS prepayments for Ginnie Mae, Fannie Mae and Freddie Mac all posted a significant decline, down by 11%, 5% and 8%, respectively.

7.0 Aggregate Prepayments



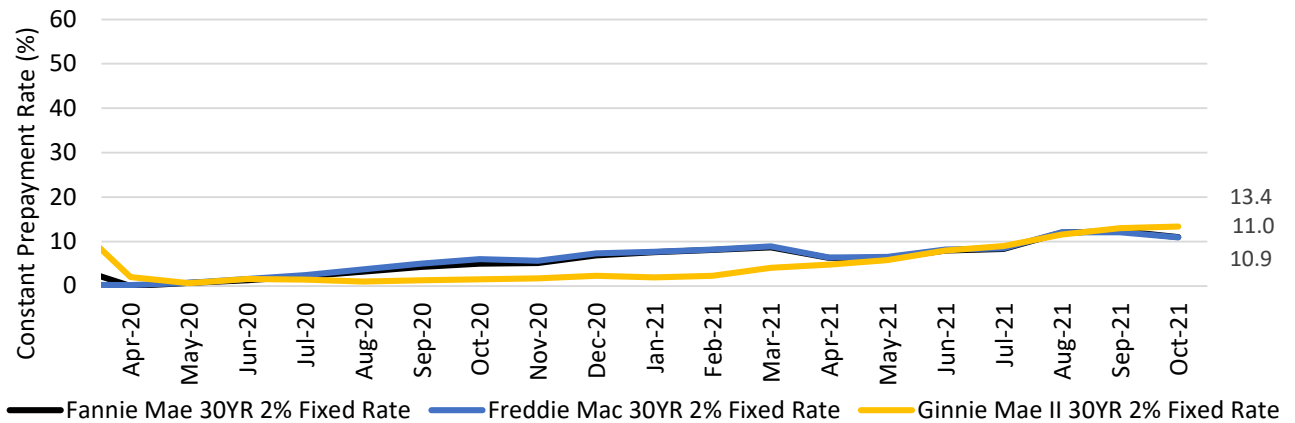
Source: eMBS; Note: Data as of October 2021.

⁵ Ahlgren R and Ichaso M (2021, November 5). US Structured Products Trading Desk Strategy | RMBS Strategy | Drop in VPRs Only Post Modest Slowdown, Buyouts Fall, pp. 1.

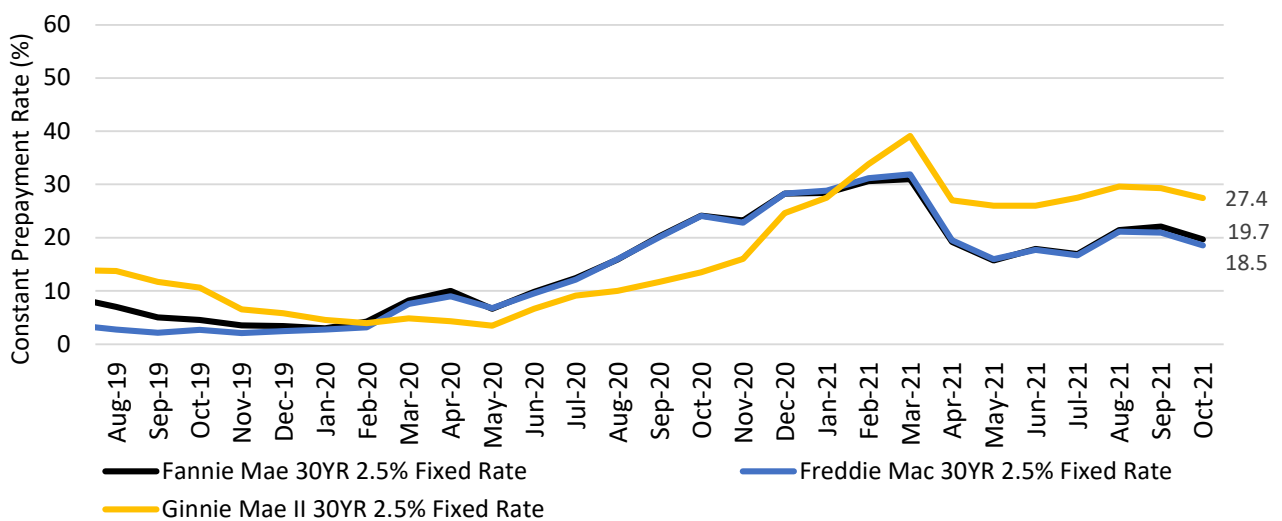
⁶ <https://www.insidemortgagefinance.com/articles/223010-time-to-cut-the-mip-fhas-insurance-fund-ends-fy21-with-a-capital-ratio-north-of->

30-year fixed rate MBS with 2-2.5% coupons accounted for 45% of Agency remaining principal balance. Production of these Agency MBS ramped up in 2019. In October 2021, Fannie Mae speeds decreased by 11% in both coupon cohorts. Freddie Mac speeds also decreased similarly by 10% and 11% in the 2% and 2.5% coupon cohorts, respectively. Ginnie Mae prepayment speeds continued to increase in the 2% coupon cohort by 3% and continued to decline in the 2.5% coupon cohort by 6%.

All Agency 2% Coupon CPR



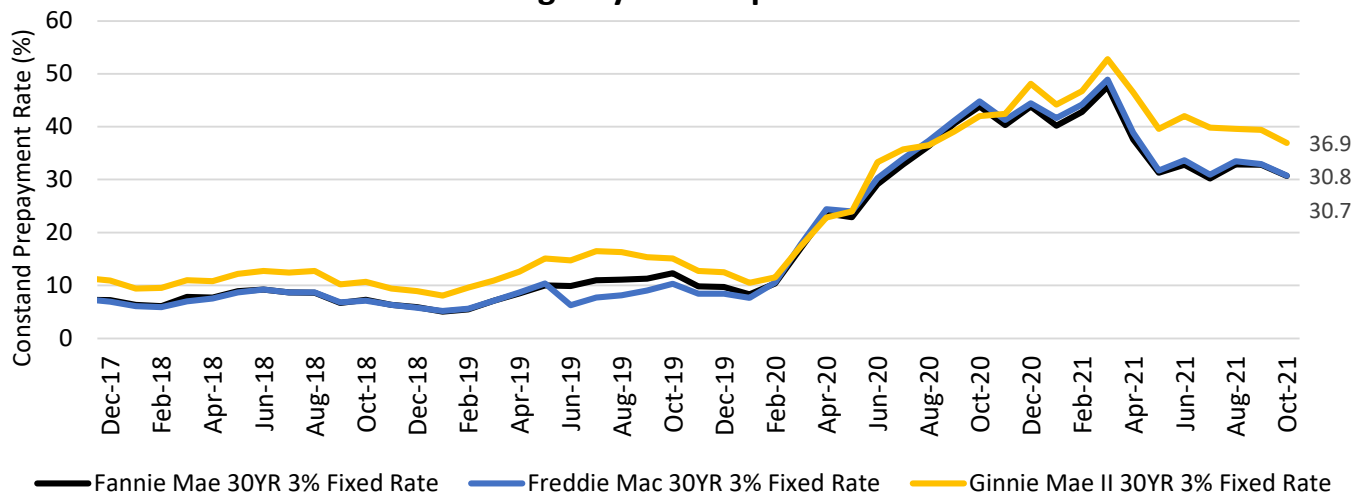
All Agency 2.5% Coupon CPR



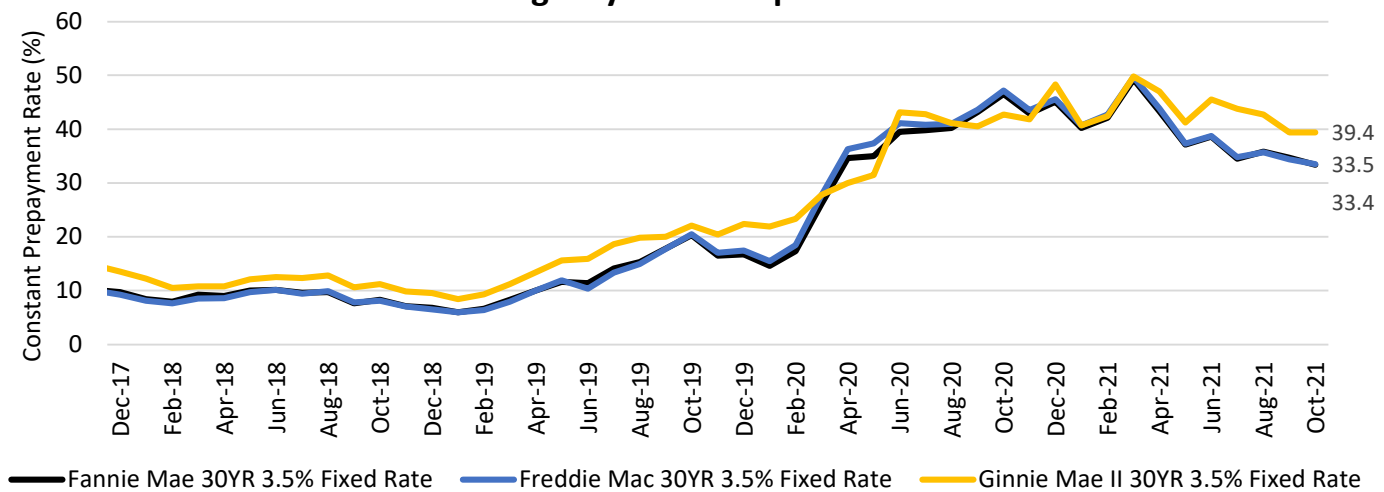
Source: eMBS. Note: Data as of October 2021. Freddie prepayment data is aggregated from 55-day UMBS and 45-day Gold PC, weighted average by October 2021 remaining principal balance.

30-year fixed rate MBS with 3-4% coupons accounted for 29% of Agency remaining principal balance. Of the 3-4% coupon cohorts, Ginnie Mae buyout rates were substantially higher than conventional rates, while its voluntary prepayment rates were close to conventional mortgage loans. In October 2021, the prepayment differential was consistent across coupon cohorts with differences remaining at 6.2, 5.9 and 6.1 CPR for 3%, 3.5% and 4% respectively.

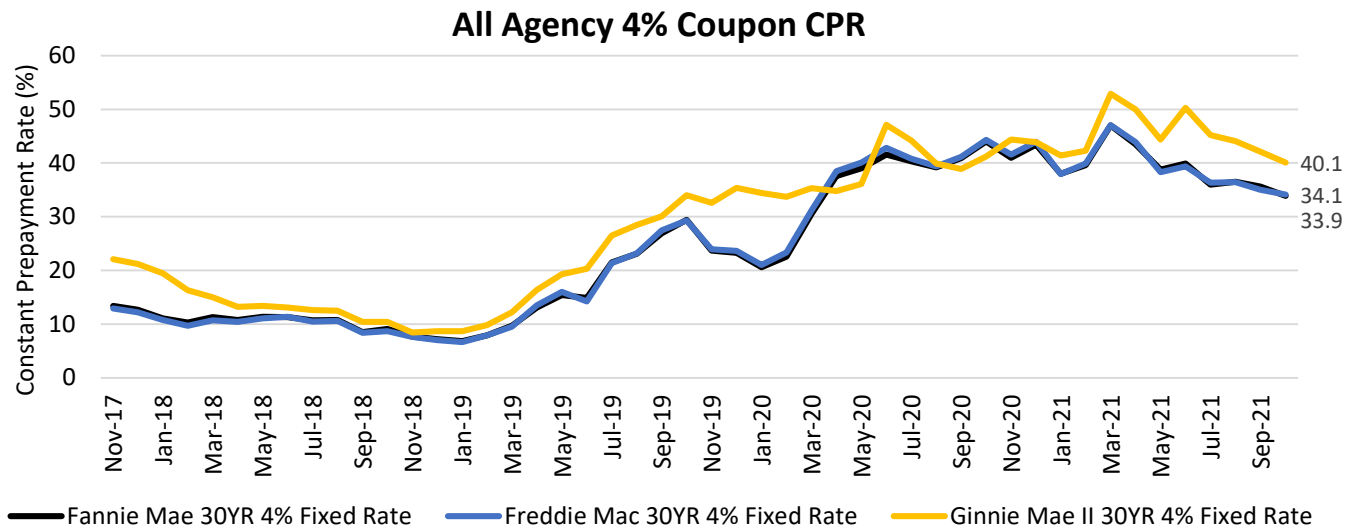
All Agency 3% Coupon CPR



All Agency 3.5% Coupon CPR



Source: eMBS. Note: Data as of October 2021. Freddie prepayment data is aggregated from 55-day UMBS and 45-day Gold PC, weighted average by October 2021 remaining principal balance.



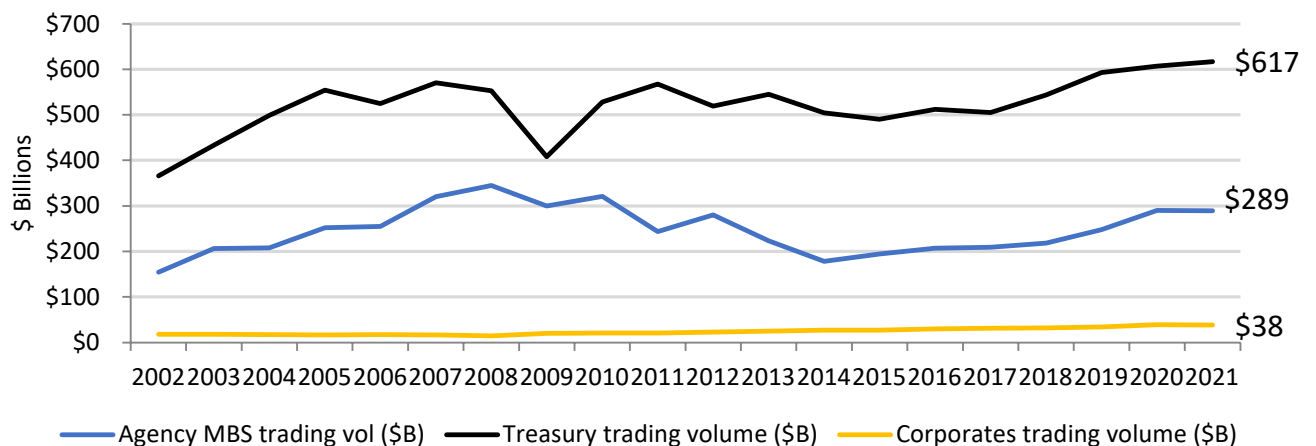
Source: eMBS. Note: Data as of October 2021. Freddie prepayment data is aggregated from 55-day UMBS and 45-day Gold PC, weighted average by October 2021 remaining principal balance.

8.0 Fixed Income Market Conditions

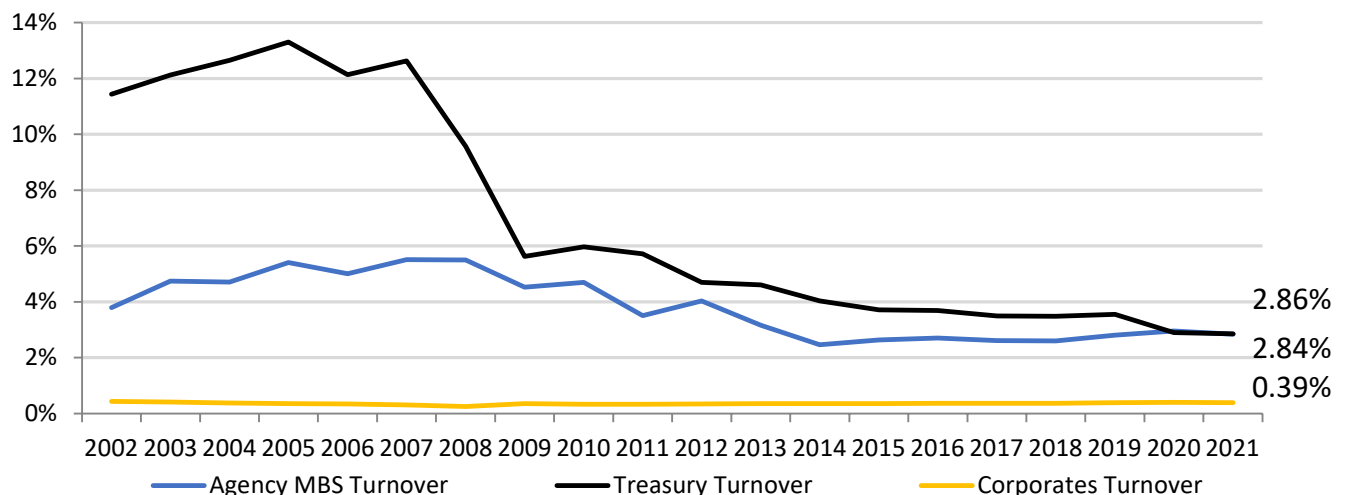
Agency MBS average daily trading volume was \$289 billion from January 2021 to October 2021. In October, daily trading volume rebounded to near the year-to-date daily trading average, with approximately \$284 billion in daily trading volume. Agency MBS turnover in 2021 is 11 basis points lower than its 2020 average, at 2.84%. 2021 YTD Agency MBS turnover and US Treasury turnover are 2.84% and 2.86% respectively. Corporate bond turnover remains minimal relative to either Agency MBS or Treasury turnover.

8.1 Average Daily Trading Volume and Turnover by Sector

Average Daily Trading Volume by Sector



Average Daily Turnover by Sector

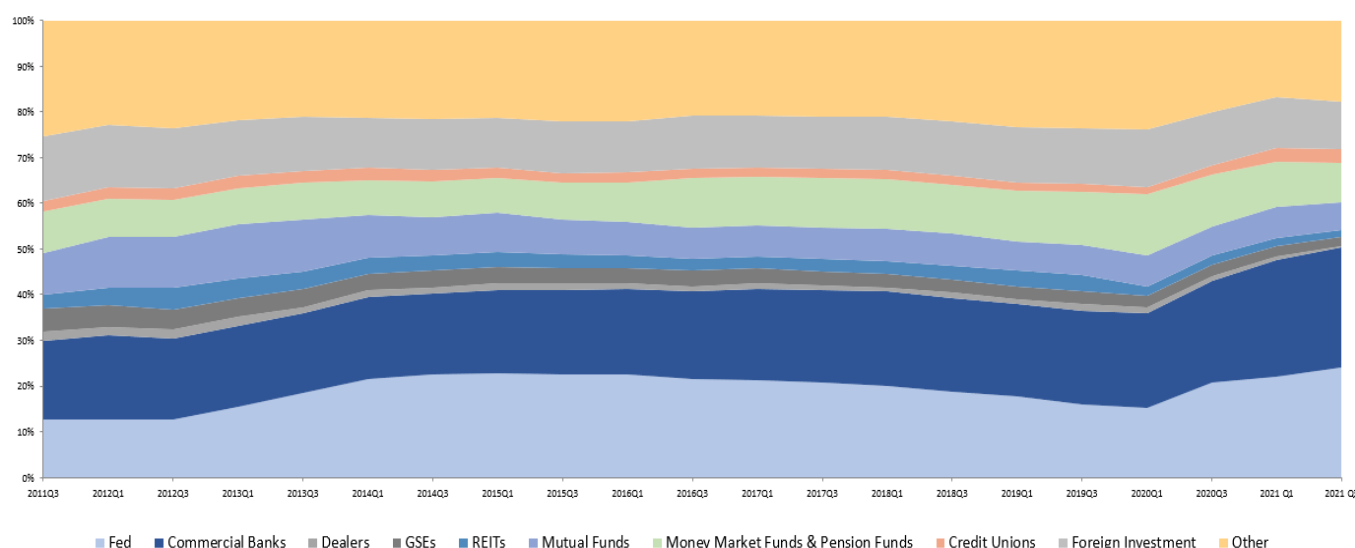


Source: SIFMA. Note: Data as of October 2021.

9.0 MBS Ownership

As of Q3 2021, the largest holders of Agency debt (Agency MBS + Agency notes and bonds) included commercial banks (26%), the Federal Reserve (24%), and foreign investors (11%). The Federal Reserve's share increased to 24% in the third quarter of 2021, the highest it has been since 2015. Despite large Federal Reserve purchases, commercial banks continue to be the largest holders of Agency MBS. Out of their \$2.9 trillion in holdings as of the end of September 2021, \$2.1 trillion was held by the top 25 domestic banks.

Who Owns Total Agency Debt?



Source: Federal Reserve Flow of Funds. Note: The "other" category includes primarily life insurance companies, state and local governments, households, and nonprofits. Data as of Q3 2021.

9.1 Commercial Bank Holdings of Agency MBS

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Oct-20	Apr-21	May-21	June-21	July-21	Aug-21	Sep-21	Oct-21	3-Nov	10-Nov	17-Nov	24-Nov
Largest 25 Domestic Banks	1,820.2	2,049.7	2,080.6	2,091.6	2,110.9	2,129.9	2,134.1	2,146.1	2,141.8	2,132.5	2,120.6	2,125.9
Small Domestic Banks	539.0	629.3	650.0	661.3	672.1	684.7	700.8	719.1	724.7	729.5	729.1	730.7
Foreign Related Banks	40.0	50.8	48.8	46.9	47.3	48.4	48.3	49.2	53.1	47.2	47.3	43.9
Total, Seasonally Adjusted	2,399.2	2,729.8	2,779.4	2,799.8	2,830.3	2,863.0	2,883.2	2,914.4	2,919.6	2,909.2	2,897.0	2,900.5

Source: Federal Reserve Bank. Note: Small domestic banks include all domestically chartered commercial banks not included in the top 20. Data as of October 2021.

9.2 Bank and Thrift Residential MBS Holdings

In Q3 2021, MBS holdings at banks and thrifts increased for the twelve-consecutive quarter. The increase was driven by both GSE pass-throughs and Private CMO holdings, with the increase in GSE pass-throughs making the larger contribution. Total bank and thrift MBS holdings increased by 3% from Q2 2021. Out of the \$2.9 trillion in MBS holdings at banks and thrifts as of Q3 2021, \$2.2 trillion were Agency pass-throughs. \$1.9 trillion were GSE pass-throughs and \$353 billion were Ginnie Mae pass-throughs. Another \$566 billion were Agency CMOs, while non-Agency holdings totaled \$53 billion.

Bank and Thrift Residential MBS Holdings

Year	All Banks & Thrifts (\$ in billions)						All MBS (\$ in billions)	
	Total	GSE PT	GNMA PT	Private MBS	Agency CMO	Private CMO	Banks	Thrifts
2000	683.90	234.01	84.26	21.57	198.04	71.43	470.47	212.65
2001	810.50	270.59	109.53	37.62	236.91	76.18	606.91	203.37
2002	912.36	376.11	101.46	20.08	244.98	89.88	702.44	209.66
2003	982.08	461.72	75.11	19.40	236.81	106.86	775.66	206.45
2004	1,113.89	572.40	49.33	20.55	208.18	160.55	879.75	234.31
2005	1,033.77	566.81	35.92	29.09	190.70	211.25	897.06	242.69
2006	1,124.46	628.52	31.13	42.32	179.21	243.28	983.49	223.42
2007	1,149.10	559.75	31.58	26.26	174.27	357.24	971.42	264.59
2008	1,218.77	638.78	100.36	12.93	207.66	259.04	1,088.00	211.73
2009	1,275.52	629.19	155.00	7.53	271.17	212.64	1,161.67	184.07
2010	1,433.38	600.80	163.13	7.34	397.30	181.61	1,233.28	200.09
2011	1,566.88	627.37	214.81	3.28	478.82	167.70	1,359.24	207.64
2012	1,578.86	707.87	242.54	17.16	469.27	138.67	1,430.63	148.22
2013	1,506.60	705.97	231.93	26.11	432.60	114.15	1,363.65	142.94
2014	1,539.32	733.71	230.45	20.33	449.90	104.94	1,409.84	129.48
2015	1,643.56	823.10	292.30	11.14	445.39	71.63	1,512.67	130.89
2016	1,736.93	930.67	323.46	7.40	419.80	55.60	1,576.07	160.86
2017	1,844.15	1,010.83	367.70	4.63	413.97	47.01	1,672.93	171.22
1Q18	1,809.98	991.57	360.71	3.92	412.41	41.37	1,635.52	174.46
2Q18	1,806.58	976.92	368.88	7.45	414.41	38.92	1,631.65	174.93
3Q18	1,794.39	966.52	373.21	2.42	416.20	36.04	1,618.29	176.10
4Q18	1,814.97	980.56	380.43	2.69	416.59	34.69	1,634.99	179.98
1Q19	1,844.99	1,001.61	383.49	3.06	422.18	34.65	1,673.40	171.59
2Q19	1,907.13	1,037.93	407.97	2.90	421.56	36.76	1,727.65	179.47
3Q19	1,975.78	1,079.82	427.10	4.74	428.69	35.44	1,786.74	189.04
4Q19	1,985.38	1,089.41	426.85	4.62	428.99	35.52	1,796.29	189.09
1Q20	2,107.66	1,173.36	448.34	4.65	443.73	37.57	1,907.02	200.64
2Q20	2,195.19	1,228.87	441.06	5.00	478.11	42.14	1,946.36	248.83
3Q20	2,310.42	1,349.48	415.24	4.43	499.50	41.78	2,040.61	269.81
4Q20	2,520.90	1,537.54	390.66	3.94	548.65	40.10	2,210.22	310.68
1Q21	2,690.92	1,713.78	374.63	4.88	555.35	42.28	2,350.94	339.98
2Q21	2,781.91	1,825.80	352.77	4.77	555.45	43.12	2,431.76	350.15
3Q21	2,858.59	1,886.78	353.12	4.24	565.51	48.95	2,487.32	371.27
Change:								
2Q21-3Q21	3%	3%	0%	-11%	2%	14%	2%	6%
3Q20-3Q21	24%	40%	-15%	-4%	13%	17%	22%	38%

Source: Inside Mortgage Finance. Notes: Data as of Q3 2021.

Bank and Thrift Residential MBS Holdings

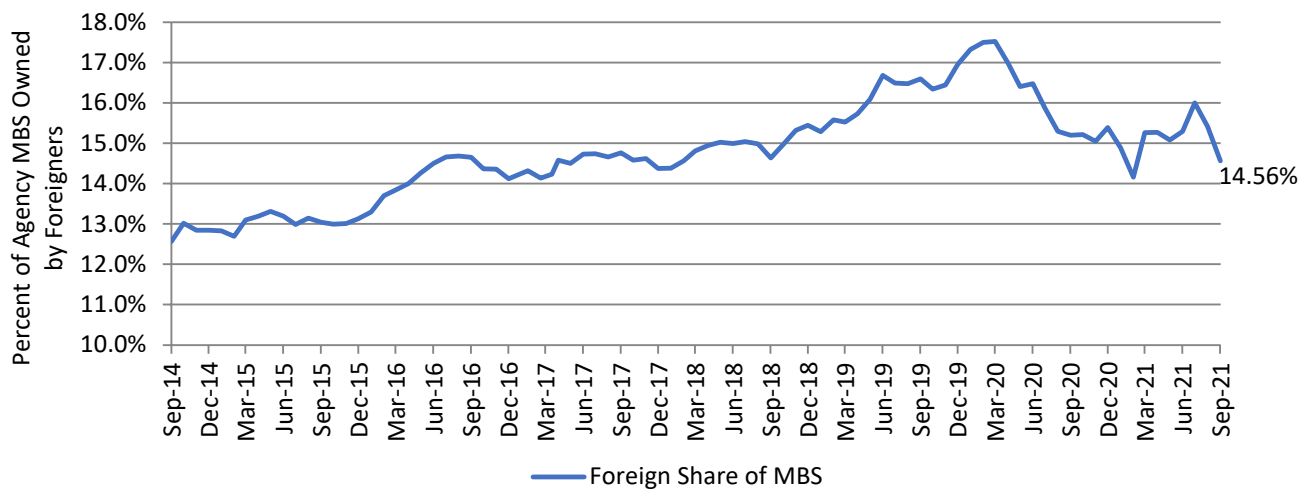
Top Bank & Thrift Residential MBS Investors (\$ in millions)		Institution	Total	GSE PT	GNMA PT	Agency CMO	Non-Agency	Share
1		BANK OF AMERICA CORPORATION	618,309.0	526,541.0	80,915.0	10,635.0	218.0	22%
2		WELLS FARGO & COMPANY	278,377.0	207,309.0	66,166.0	4,520.0	382.0	10%
3		CHARLES SCHWAB	226,430.0	118,676.0	10,350.0	97,404.0	-	8%
4		JPMORGAN CHASE & CO.	166,473.0	94,815.0	58,178.0	125.0	13,355.0	6%
5		Truist Bank	135,894.0	61,801.0	16,031.0	55,216.0	2,846.0	5%
6		U.S. BANCORP	112,695.5	78,394.8	19,927.3	14,373.0	0.4	4%
7		CITIGROUP INC.	96,349.0	89,399.0	2,199.0	3,650.0	1,101.0	3%
8		CAPITAL ONE FINANCIAL CORPORATION	75,144.4	42,773.2	11,089.7	20,769.3	512.2	3%
9		Silicon Valley Bank	66,093.3	55,853.5	7,456.8	2,783.0	-	2%
10		PNC Bank, National Association	56,449.2	48,265.0	5,989.7	953.2	1,241.2	2%
11		BANK OF NEW YORK MELLON CORP	55,558.0	42,485.0	2,105.0	8,322.0	2,646.0	2%
12		USAA Federal Savings Bank	47,396.6	39,988.7	2,382.4	5,025.4	-	2%
13		State Street Bank and Trust Company	40,967.1	16,759.0	4,101.0	17,597.1	2,510.0	1%
14		MORGAN STANLEY	34,094.0	23,254.0	3,964.0	6,876.0	-	1%
15		E*TRADE Bank	32,484.8	25,934.8	4,672.5	1,877.5	-	1%
16		The Huntington National Bank	28,050.4	16,846.6	4,597.7	6,486.7	119.5	1%
17		HSBC Bank USA, National Association	24,992.4	8,560.0	8,449.1	7,981.7	1.6	1%
18		BMO Harris Bank National Association	24,283.5	3,978.7	406.9	19,892.2	5.7	1%
19		KeyBank National Association	24,257.5	5,265.4	333.7	18,658.4	-	1%
20		Ally Bank	23,610.0	16,871.0	888.0	2,463.0	3,388.0	1%
Total Top 20			2,167,908.6	1,523,770.8	310,202.8	305,608.5	28,326.5	76%

Source: Inside Mortgage Finance. Notes: Data as of Q3 2021.

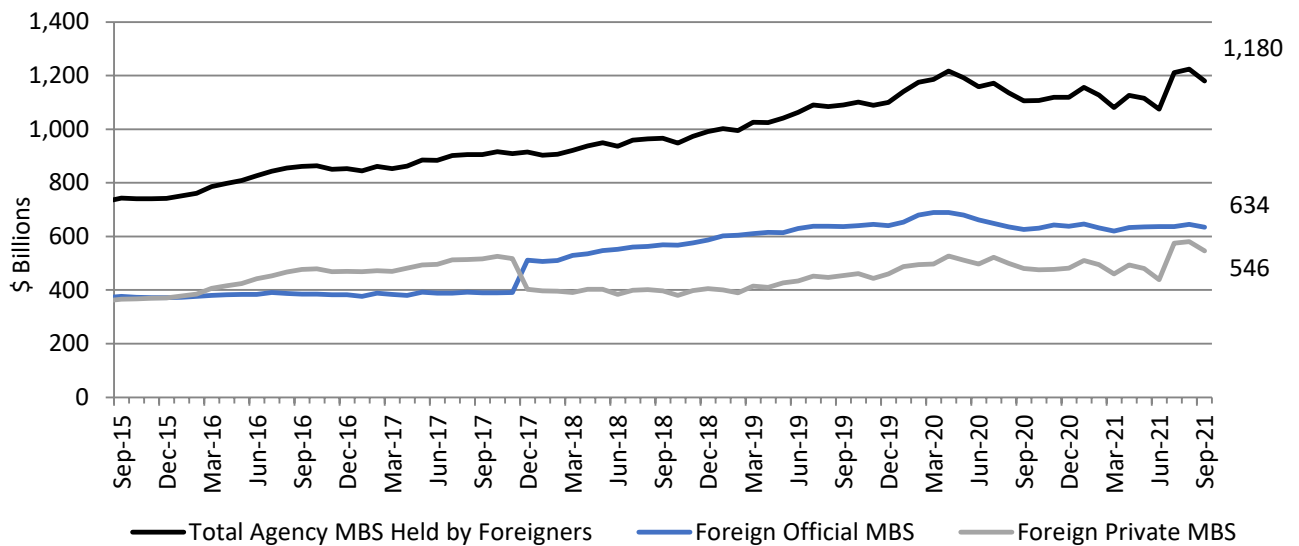
9.3 Foreign Ownership of MBS

For the month of September 2021, foreign ownership of MBS represents \$1.18 trillion in Agency MBS, which includes \$546 billion held by foreign private institutions and \$634 billion held by foreign official institutions. This represents an overall increase in foreign holdings of Agency MBS since April 2020.

Foreign Share of Agency MBS Market



Monthly Foreign MBS Holdings



Sources: eMBS [Top Chart], Treasury International Capital (TIC) [Bottom Chart] Notes: In December 2017, there was a data correction that moved about \$120 billion from privately held U.S. Agency bonds to officially held U.S. Agency bonds; this resulted in a series break in December 2017 in the split between the portion held by foreign private and the portion held by foreign official. Data as of September 2021.

9.4 Foreign Ownership of Agency Debt and Agency MBS

The largest non-US holders of Agency MBS are in Japan, Taiwan, and China. These three own 70% of all US MBS held by investors outside of the United States. Between June 2020 and June 2021, these top three have decreased their Agency MBS holdings by over \$4.6 billion. Japan has decreased their holdings by \$1.4 billion, Taiwan has decreased their holdings by \$208 million and China has decreased their holdings by \$3.0 billion.

All Agency Debt

Country	Level of Holdings (\$ Millions)				Change in Holdings (\$ Millions)			
	12/1/2020	3/1/2021	6/1/2021	9/1/2021	Q4 2020	Q1 2021	Q2 2021	Q3 2021
Japan	308,033	319,771	311,375	311,892	2,969	11,738	-8,396	517
Taiwan	262,453	253,036	250,081	247,341	-1,817	-9,417	-2,955	-2,740
China	212,317	200,972	217,842	215,102	5,456	-11,345	16,870	-2,740
Luxembourg	36,223	34,371	35,497	33,339	597	-1,852	1,126	-2,158
Ireland	31,064	26,965	21,453	22,617	2,778	-4,099	-5,512	1,164
South Korea	42,628	43,032	43,201	43,208	2,325	404	169	7
Cayman Islands	34,264	37,111	36,027	36,160	-231	2,847	-1,084	133
Bermuda	27,988	26,443	23,806	24,411	-7,763	-1,545	-2,637	605
Netherlands	12,344	13,049	12,544	17,435	1,380	705	-505	4,891
Malaysia	19,147	19,047	19,089	19,445	-661	-100	42	356
Other	197,462	173,905	166,009	268,746	7,287	-23,557	-7,896	102,737
Total	1,183,923	1,147,702	1,136,924	1,239,696	12,320	-36,221	-10,778	102,772

Agency MBS

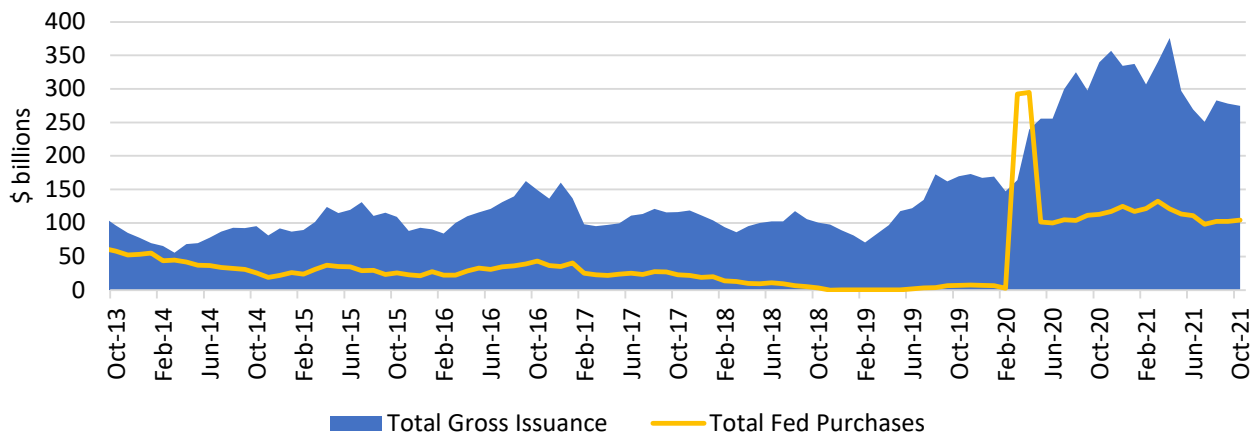
Country	Level of Holdings (\$ Millions)		
	6/1/2020	6/1/2021	YoY Change in Holdings (\$ Millions)
Japan	306,963	305,580	-1,383
Taiwan	267,700	267,492	-208
China	235,078	232,076	-3,002
Luxembourg	40,207	34,255	-5,952
Ireland	21,091	25,336	4,245
South Korea	28,743	34,313	5,570
Cayman Islands	28,431	29,682	1,251
Bermuda	25,111	24,245	-866
Netherlands	12,739	13,351	612
Malaysia	20,028	19,949	-79
Other	173,716	170,062	-3,654
Total	1,159,809	1,156,341	-3,468

Sources: Treasury International Capital (TIC). Notes: Level of Agency debt Holdings by month data as of Q3 2021. Agency MBS as of June 2021. Revised to include top 10 holders of Agency debt listed as of June 2018.

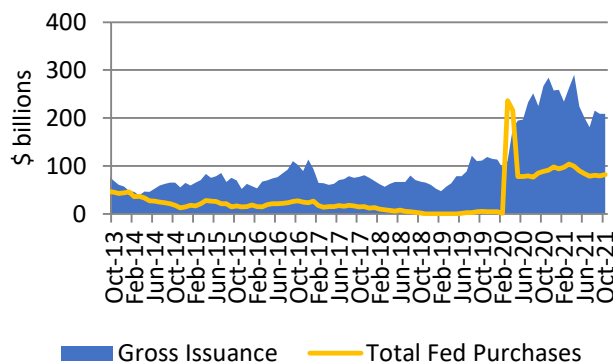
9.5 Federal Reserve Absorption of Agency MBS

The Fed purchased \$104.3 billion of Agency MBS in October 2021 (38.0% of monthly gross issuance) which was a slight increase from the \$102.3 billion purchased in September 2021 (36.8% of monthly gross issuance). Fed purchases of Ginnie Mae MBS decreased MoM, with \$22.0 billion (33.4% of gross Ginnie Mae Issuance) compared to \$23.2 billion in Fed purchases (33.6% of gross Ginnie Mae issuance) in September 2021. In their most recent press release on November 3, 2021, the FOMC outlined a plan to reduce the monthly pace of its net asset purchases by \$10 billion for Treasury securities and \$5 billion for agency MBS. The FOMC’s plan involves scheduled increases in holdings of at least \$35 billion in Agency MBS in November, then at least \$30 billion in December, with similar reductions in net asset purchases continuing into 2022.

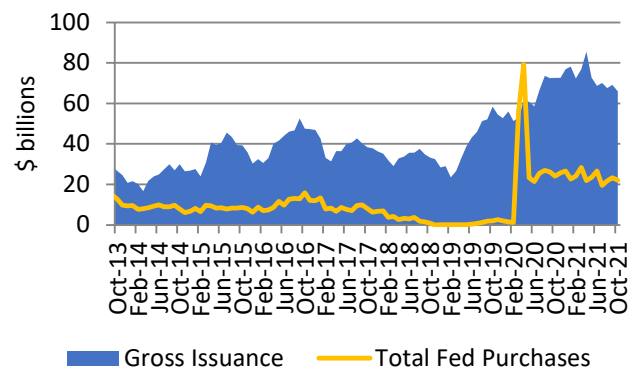
Total Fed Absorption



Fed Absorption of GSE MBS



Fed Absorption of Ginnie Mae MBS



Sources: eMBS, Federal Reserve Bank of New York and <https://fred.stlouisfed.org/series/WSHOMCB>. Notes: Data as of October 2021.



Disclosure:

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