

# Global Markets Analysis Report

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

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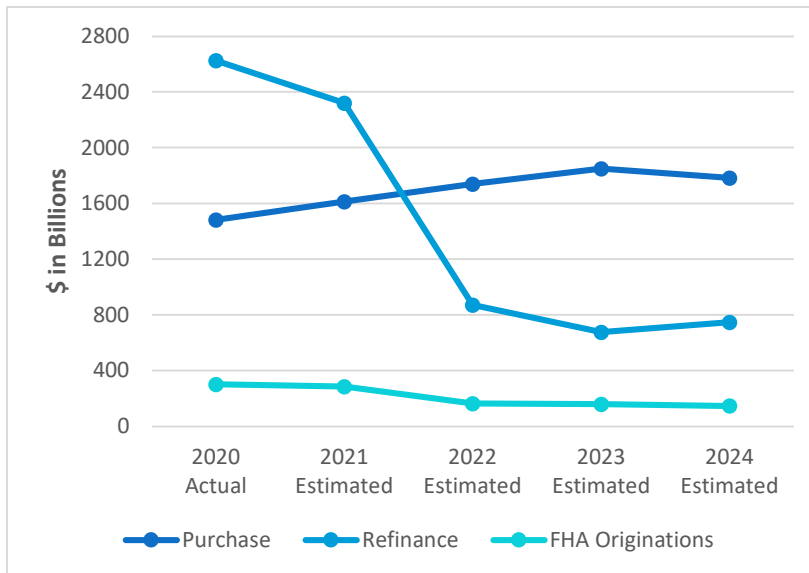


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## Highlights

In calendar year 2021, \$903 billion of Ginnie Mae mortgage-backed securities (MBS) were issued, which is an increase of 11.2% from 2020 and an increase of 72.3% from 2019. However, market participants expect that in 2022 we may see a decrease in Agency MBS gross issuance. As potential rate hikes are on the horizon, market participants anticipate that the majority of mortgage originations will shift from refinance to purchase as we move into 2022. *Figure 1*, below, provides a breakdown of the 2020 mortgage loan origination market as well as MBA's estimates of the origination market for the end of 2021 through 2024.<sup>1</sup>



**Figure 1. MBA Mortgage Finance Forecast, December 21, 2021<sup>2</sup>**

*The Global Market Analysis Report* sought the opinions of market participants, including Mortgage Bankers Association's (MBA's) Michael Fratantoni; T. Rowe Price's Keir Joyce; and Barclays Michael Khankin, to provide an outlook for the Ginnie Mae MBS market in 2022. Michael Fratantoni is MBA's Chief Economist and Senior Vice President of Research and Industry Technology. Keir Joyce is a portfolio manager in the Fixed Income Division for T. Rowe Price. Mr. Joyce manages the US Ginnie Mae Bond Strategy and the Mortgage-Backed Securities Multi-Sector Account Portfolio. Michael Khankin is the Head of RMBS Research at Barclays Investment Bank.

*Mr. Fratantoni:* 2022 should be a year of higher mortgage rates, fewer refinances, more purchase volume, a more sustainable rate of home-price growth, an increased, but still low level of foreclosures, and tighter margins for originators. A more hawkish Fed, a strongly recovering economy, and large federal budget deficits are all likely to put upward pressure on longer-term rates, including mortgage rates. MBA forecasts that 30-year mortgage rates, averaging about 3.3% today, will reach 4% by the end of 2022.

While the market struggled with a lack of inventory in 2021, with builders reporting ongoing supply chain challenges, there are more than 750,000 homes under construction right now, and a growing inventory of new homes for sale. The inventory of existing homes remains quite tight at less than 2.5 months, but the addition of new homes to the mix should lead to more choices for potential buyers in 2022, including many who had

<sup>1</sup> <https://www.mba.org/news-research-and-resources/research-and-economics/forecasts-and-commentary>

hesitated to list their homes in 2021. This in turn should lead to an increase in the number of existing homes listed. MBA's forecast for an increase in housing starts and home sales, coupled with our expectation of somewhat higher mortgage rates, should together lead to deceleration in home-price growth to around 5% in 2022.

Refinance volume totaled more than \$5 trillion between 2020 and 2021, roughly half of mortgage debt outstanding. MBA is forecasting a sharp drop in total refinance volume in 2022 and expects that volume to stay lower in 2023.

However, while total origination volume is forecast to drop from \$3.9 trillion in 2021 to \$2.6 trillion in 2022, perhaps the bigger shift is the transition from a refi market to a purchase market. MBA forecasts a record year for purchase volume in 2022, driven by millennials reaching peak first-time homebuyer age, a strong job market, and continued increases in home prices. We expect that this purchase market growth will heavily rely upon demand from first-time homebuyers, many of whom will utilize FHA, VA, or USDA loans securitized through Ginnie Mae. Thus, we expect Ginnie Mae net issuance will increase as a result, while prepayment speeds will slow due to the drop in refinance demand.

While MBA does not forecast industry-level margins, it is reasonable to expect more tightening in the year ahead given our forecast of a move to a purchase market coupled with a sharp drop in refinances. We have already seen tightening to an even greater extent in third-party channels, as the industry right sizes following a refinance wave. With tighter margins, some lenders may extend credit criteria somewhat to encourage more first-time homebuyers to apply, and this is credit growth that is likely to appear in the Ginnie Mae space.

*Mr. Joyce:* Last year, the Ginnie Mae sector suffered its worst annual total return performance since the Taper Tantrum of 2013 at -1.45% and its worst relative return to similar duration US Treasury securities since the 2008 Financial Crisis at -1.43%. While the sector still faces challenges in the upcoming year with the Federal Reserve stepping away from providing \$40 billion in monthly support to the broader agency MBS sector, there is optimism that the major themes of uncertainty in monetary policy, uncertainty in housing policy out of D.C, and historically tight valuations that drove the weaker returns last year are less of a headwind as we flip the calendar to 2022.

The market has already begun to see an impact from shifting expectations regarding balance sheet policy by the Federal Reserve, but valuations versus Treasuries and, more importantly, relative valuations to other opportunities in the market have improved considerably. Currency-adjusted yields offer international investors levels we have not seen in over six years; the additional spread premium above intermediate Treasuries has renormalized to levels consistent during a period of runoff in the Federal Reserve's SOMA portfolio, the yield differential versus intermediate real yields is historically wide, and investors with an Aa credit tolerance are sacrificing spread if they ignore the opportunities available in the Ginnie Mae market. Those fundamental opportunities exist across the sector. Lower coupons offer superior extension protection at current discount dollar prices, while higher coupons are expected to see tamer prepayments amid a decline in loan buyouts and protection against potential policy risk.

Another factor of less concern is GNMA fixed rate net supply, which continues trending lower in part to a deterioration in affordability measured by the Urban Institute for low-down payment options available to consumers. Rising rates in recent weeks have only compounded the problem with almost a 30bps rise in

bankrate.com's FHA national average rate or 40bps rise since summer 2021. That move in borrowing rates has increased monthly payments by +5.5%, making the cost of housing a bigger pinch on the consumer, as well as lowering aggregate measures of refinance risk in the sector. Additionally, while estimated net supply in the GNMA sector should rise +\$65 billion to an average amount of +\$93 billion, that number is roughly 85% of the annual supply we witnessed pre-pandemic. An overwhelming amount of the expected supply should result from loss mitigation loans, and that composition can improve the convexity profile of the GNMA universe with the intrinsic prepay protection of those loans.

With the attractive relative value relationships, improved underlying fundamentals, and liquidity appeal of the GNMA sector, concerns resulting from recent headlines regarding a faster runoff in the Federal Reserve's mortgage holdings can be tempered, presenting opportunities for active investors.

*Mr. Khankin:* G2s should continue to struggle as we enter 2022, facing continued weak regulatory demand and policy risk. We are more optimistic on the sector into the latter part of the year.

Lack of bank lending, buyouts, and elevated policy risk have kept G2/FN suppressed for much of the year, with most swaps underperforming year-to-date (YTD) and only G2/FN 2 posting modest outperformance recently. There are some reasons to be more optimistic for the sector in 2022, in our view. For one, we do not anticipate a repeat of sales by the banks or overseas in quite the same magnitude. Negative overall supply in the sector too, insulates G2s somewhat from the effects of the Fed taper. Finally, elevated buyouts, despite potential for some clean-up activity sometime during the year, are unlikely to match what happened in 2021. All this considered; however, we see the sector continuing to struggle until some clarity emerges on the policy side, be it with MIPs or the FHFA. Also, even without reductions seen in 2021, regulatory driven demand is likely to remain low as bank lending remains suppressed. So just as with basis, we do not see instant gratification here, and look toward the latter part of 2022 to see any traction.

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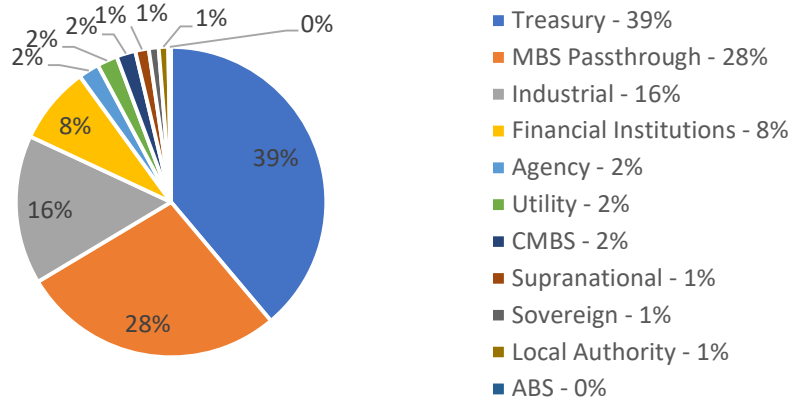
The featured commentators provided responses to our request for comment on the outlook for Ginnie Mae MBS in 2022 during the week of January 10th, 2022. Ginnie Mae would like to thank Mr. Fratantoni, Mr. Joyce, and Mr. Khankin for their perspectives on the outlook for the 2022 Ginnie Mae MBS market. The Global Market Analysis Report will continue to bring its readers current perspectives from MBS capital markets participants.

# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

## 1.0 Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

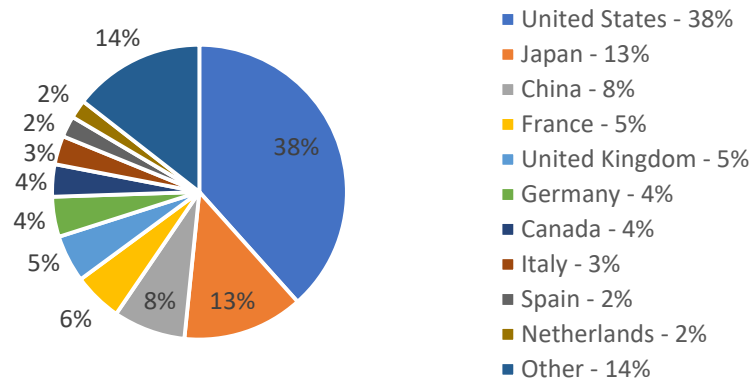
### 1.1 Barclays US Aggregate and Global Indices

**Barclays US Aggregate Index**



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 larger than 1%.

**Barclays Global Aggregate Index by Country**



In the Barclays Global Aggregate Index by Country, the US share of outstanding fixed income products still represents the largest share of total outstanding issuance, representing approximately 38% of the total Barclays Global Aggregate Index. There was no change in the US share of fixed income from the previous month. Canada's share of fixed income increased by 1% from the previous month. All the other fixed income categories remained stable when compared to the previous month.

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

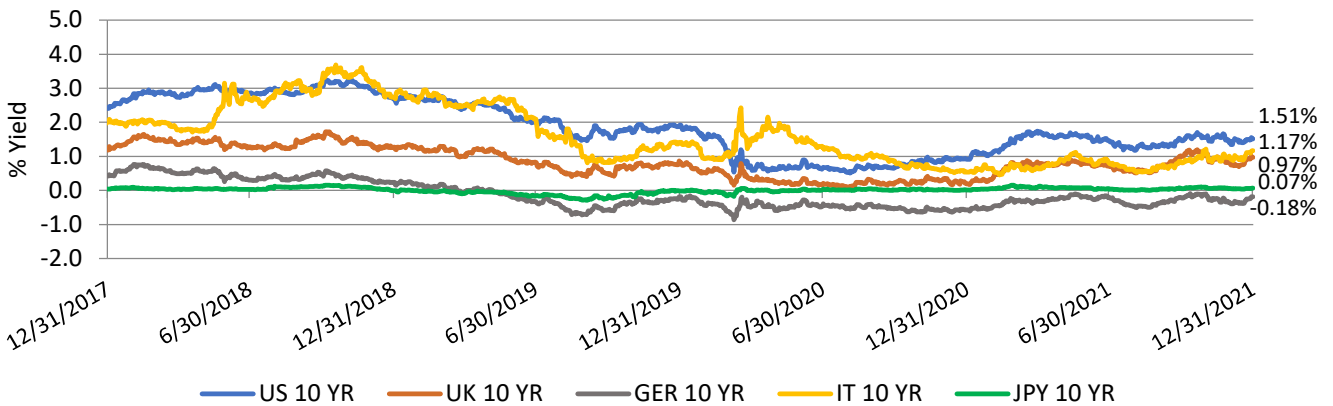
# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

## 1.2 Global 10-Year Treasury Yields

The US 10-year Treasury yield moved to 1.51% in December 2021, a MoM increase of 6 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 increased to 1.17% in December, a MoM increase of 20 bps.
- The yields on the German 10-year and the UK 10-year notes increased by 17 bps to -0.18%, and 16 bps to 0.97%, respectively.
- The yield on the Japanese 10-year government notes increased to 0.07% in December, a slight increase MoM of 1 bp.
- At the end of December 2021, the hedged yield for the 10-year Treasury JPY shifted to 2.62%, a slight decrease of 1 bp from the previous month.
- The hedged yield for the 10-year Treasury EUR shifted to 1.49%, a slight decrease of 1 bp from the previous month.

**Global 10-Year Treasury Yields**



**7–10yr Total Return Hedged Index, JPY**



**7–10yr Total Return Hedged Index, EUR**





# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

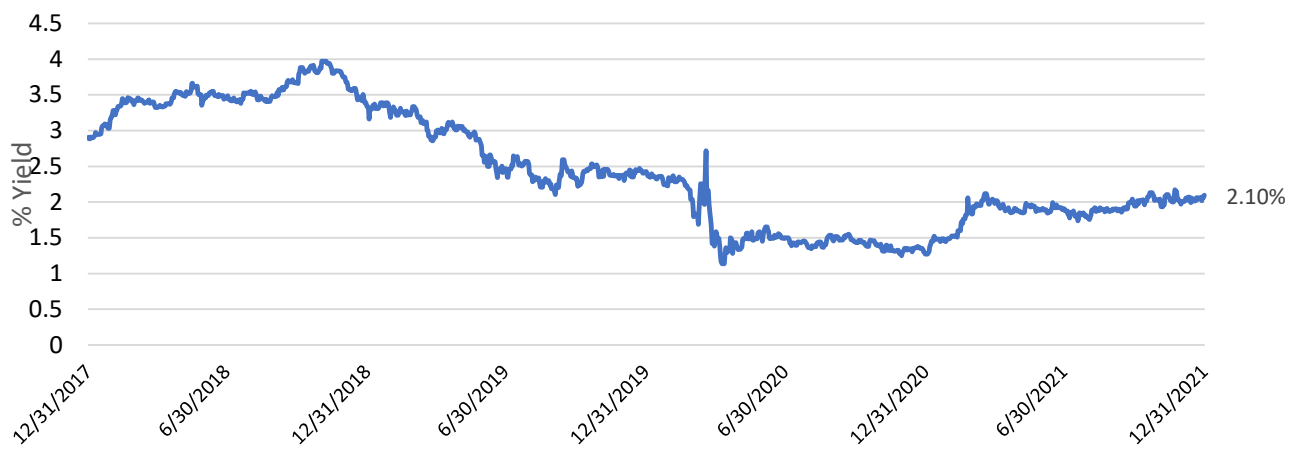
## 1.3 Ginnie Mae Yields– USD

Ginnie Mae fixed rate MBS yields remained relatively stable in December 2021. Ginnie Mae II yields were at 1.87% on December 31, 2021, up by 5 bps from the prior month. Ginnie Mae I yields were at 2.10%, up by 10 bps from the prior month. On December 31, Ginnie Mae II SF yields were 36 bps higher than the US 10-year Treasury yield, representing a decrease in spread of 1 bp since November 30, 2021. The yields on the Ginnie Mae I SF were 58 bps higher than the US 10-year Treasury yield on December 31, 2021, representing an increase in spread of 3 bps since November 30, 2021.

Ginnie Mae II SF Yield, USD



Ginnie Mae I SF Yield, USD



Sources: Bloomberg. Note: Data as of December 2021

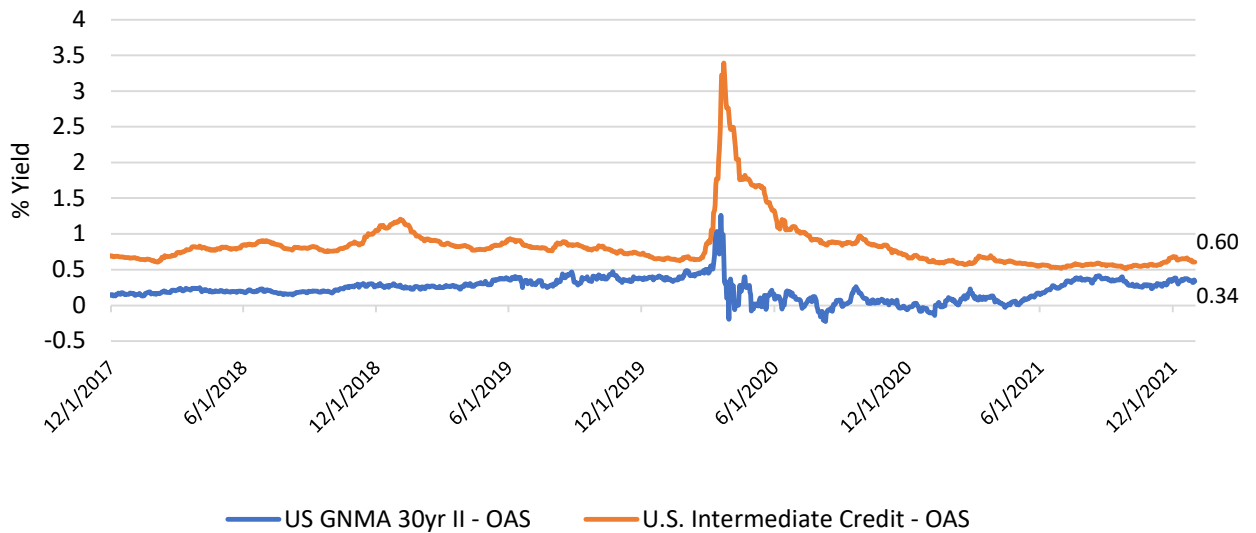


# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

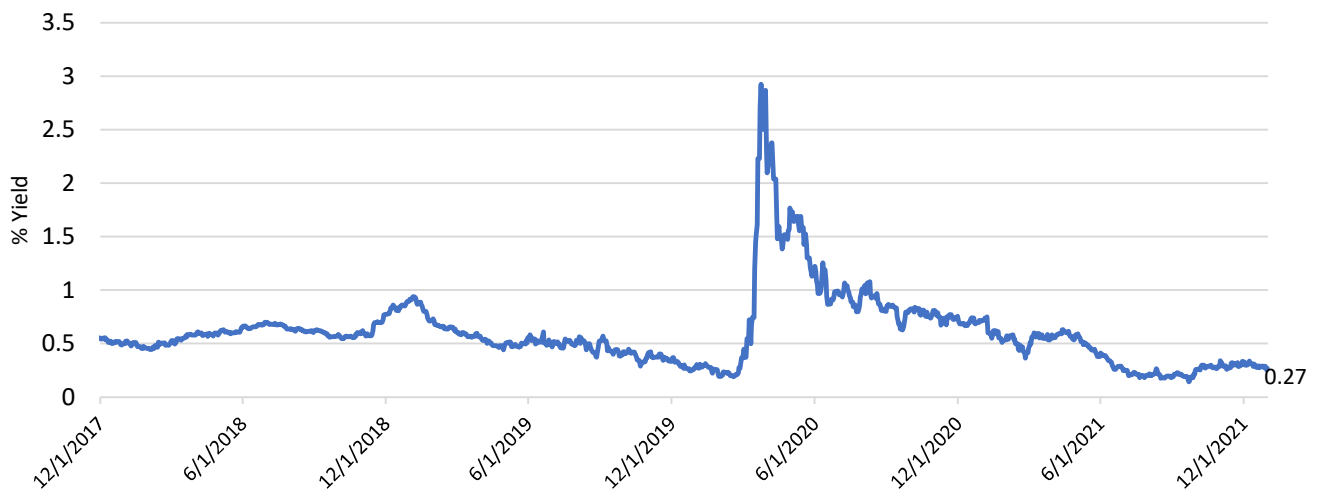
## 1.4 Ginnie Mae Yield Spreads – Intermediate Credit

The yield differential between US Intermediate Credit and GNMA II 30-year OAS decreased when compared to the previous month, ending at 0.27%, a decrease of 4 bps since the previous month. The Ginnie Mae II 30-year OAS decreased by 2 bps since the previous month. The US Intermediate credit OAS has decreased by 6 bps since last month.

**US GNMA II 30yr MBS OAS versus US Intermediate Credit OAS**



**Spread between US Intermediate Credit and US GNMA II 30yr MBS OAS**

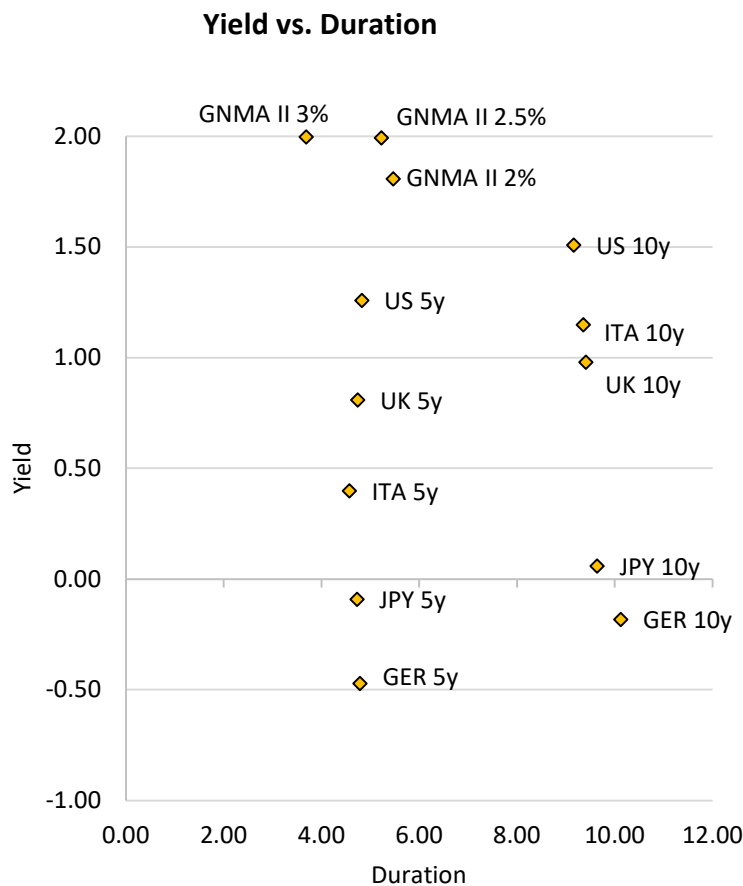


Sources: Bloomberg. Note: Data as of December 2021.

# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

## 1.5 Global Treasury Yield Per Duration

GNMA 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 (see [Section 6.0 Prepayments](#)). The GNMA II 2.5% securities' duration and yield increased by 0.24 units and 8 bps, respectively, when compared to the previous month. Additionally, the GNMA II 3% securities' duration and yield increased by 0.09 units and increased by 8 bps when compared to the previous month.



Security	Duration	Yield
US 5y	4.83	1.26
US 10y	9.16	1.51
JPY 5y	4.73	-0.09
JPY 10y	9.64	0.07
GER 5y	4.79	-0.47
GER 10y	10.12	-0.18
ITA 5y	4.57	0.40
ITA 10y	9.36	1.17
UK 5y	4.74	0.81
UK 10y	9.41	0.97
JPY 10y	9.64	0.07
GER 10y	10.12	-0.18
GNMA II 2%	5.47	1.81
GNMA II 2.5%	5.23	1.99
GNMA II 3%	3.69	2.00

Sources: Bloomberg. Note: Yield and modified duration for GNMA II securities is from illustrative TBA using base prepayment assumptions and an assumed settlement of 1/20. All other data is as of December 2021. Yields are in base currency of security and unhedged.

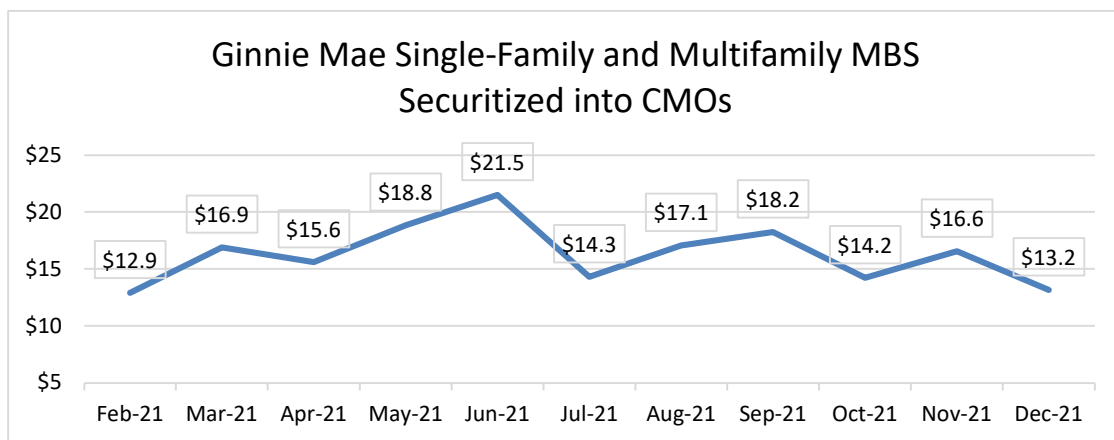


# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

## 1.6 Monthly CMO Demand for Ginnie Mae MBS

In December 2021, \$13.2 billion of Ginnie Mae MBS were securitized into Collateralized Mortgage Obligations (CMOs) as underlying collateral, a 21% MoM decrease. Of that \$13.2 billion, approximately \$1.9 billion were Multifamily MBS having coupons between 2% and 3%; and \$11.2 billion were Single-Family MBS with over 90-percent of the Single-Family MBS having coupons between 2% and 3.5%. Roughly \$5.2 billion (46 percent) of the Single-Family MBS had a Weighted Average Loan Age (WALA) of less than or equal to two months while \$3.4 billion (30 percent) had a WALA of greater than ten months.

In calendar year 2021 approximately \$196 billion of Ginnie Mae Single-Family and Multifamily MBS were securitized into Ginnie Mae CMO transactions. This represents a roughly 44% increase over calendar year 2020.



### December 2021 CMO Collateral Coupon Distribution

Net Coupon (%)	Approx. Ginnie Mae MBS amount securitized into CMO Deals (\$MM) <sup>2</sup>	% Breakdown of CMO Collateral by coupon <sup>1</sup>
<b>Multifamily</b>		
2.01-2.50	1,266.8	65%
2.51-3.00	681.9	35%
<b>Subtotal</b>	<b>1,948.6</b>	<b>100%</b>
<b>Single-Family</b>		
<2.01	214.9	2%
2.01-2.50	3,047.0	27%
2.51-3.00	5,025.0	45%
3.01-3.50	2,005.5	18%
3.51-4.00	701.0	6%
4.01-4.50	193.5	2%
4.51-5.00	56.4	1%
<b>Subtotal</b>	<b>11,243.3</b>	<b>100%</b>
<b>Grand Total</b>	<b>13,191.9</b>	

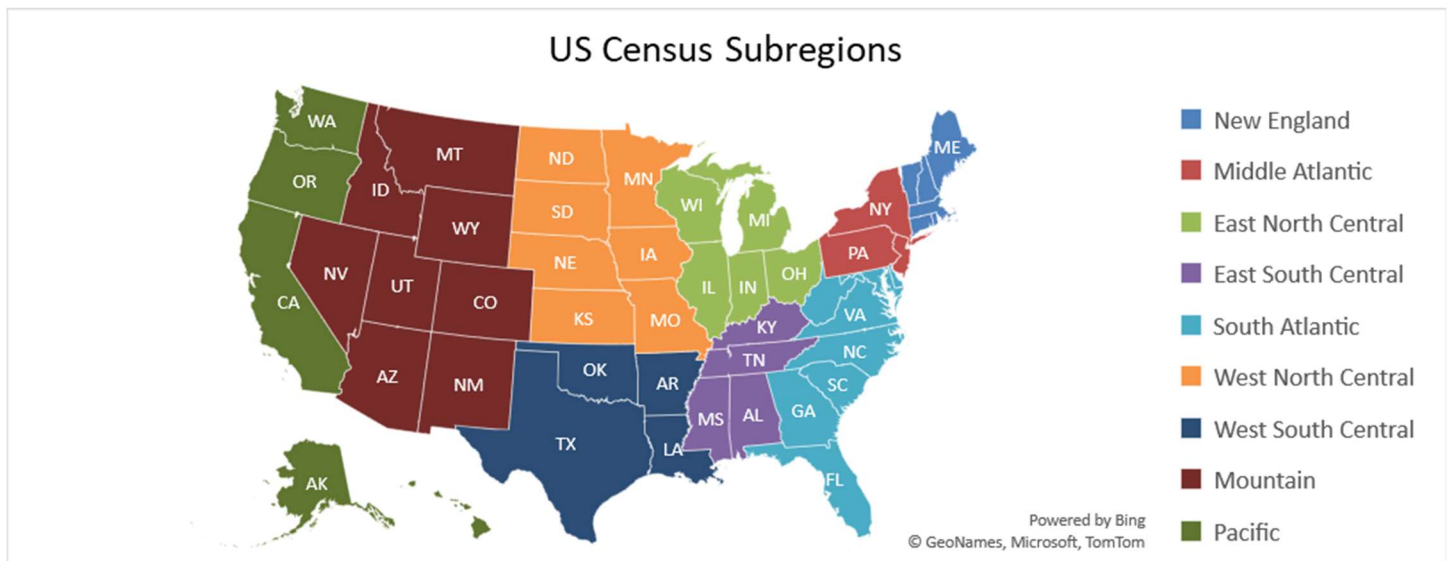
<sup>2</sup>Totals may not sum due to rounding.

## 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 16.5% between March 2020 to October 2021. March 2020 to September 2021 national HPI CAGR was approximately 80 bps lower, at 15.7%, suggesting a continued trend in October of accelerating HPI increases. Over that period, the Mountain region has had the greatest home price appreciation (20.7% CAGR), while in the West North Central region, increases in home values have been slowest (13.7%). The rapid home price appreciation has led to recent sharp increases in both conventional conforming and government 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	16.1%	14.8%	14.0%	17.1%	18.0%	13.7%	15.8%	20.7%	18.3%	16.5%
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 October 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, 10/2021.  $CAGR = (End\ Value / Starting\ Value)^{1/n} - 1$



# State of the US Housing Market

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.

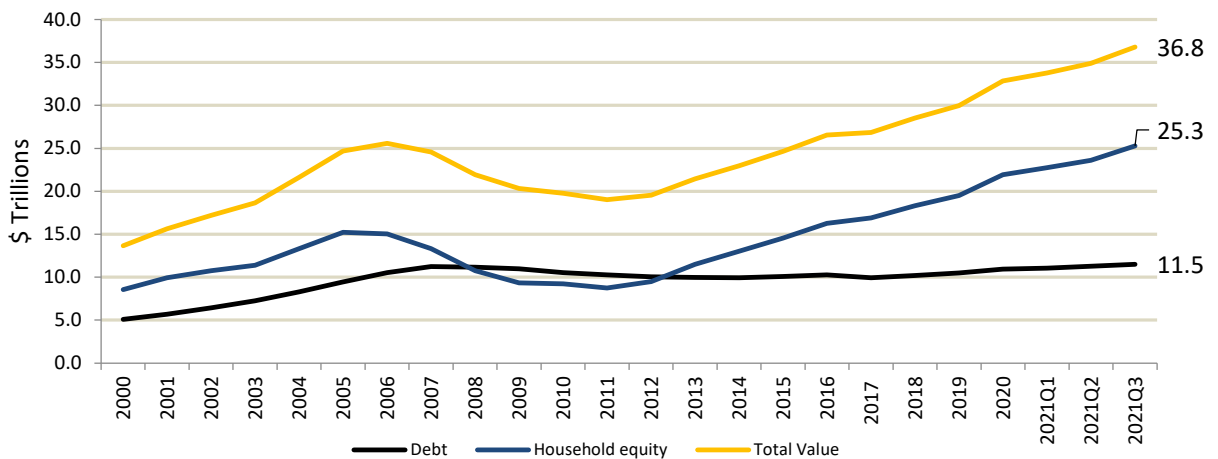
State	2000 to Peak	Peak to Trough	Trough to Current	YOY	Current HPI % Above Peak
<b>National</b>	59.6%	-21.1%	88.4%	12.7%	48.6%
AK	66.9%	-5.2%	40.3%	9.0%	33.0%
AL	41.6%	-15.0%	64.7%	13.1%	40.0%
AR	39.8%	-11.0%	56.3%	13.1%	39.1%
AZ	110.2%	-49.5%	178.2%	20.8%	40.5%
CA	144.8%	-47.0%	137.5%	16.6%	25.8%
CO	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.

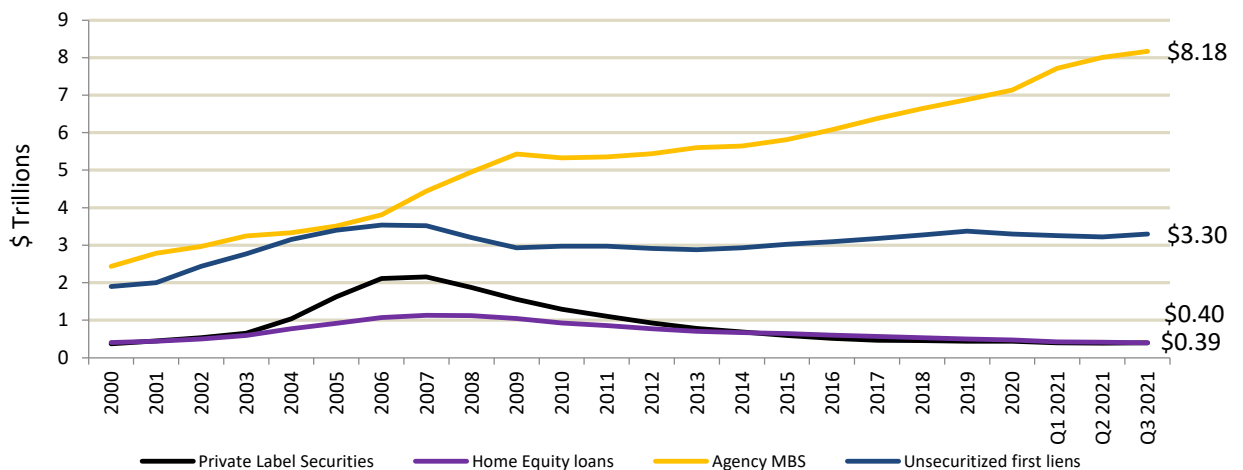
## 2.2 Size and Value of the US Housing Market

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

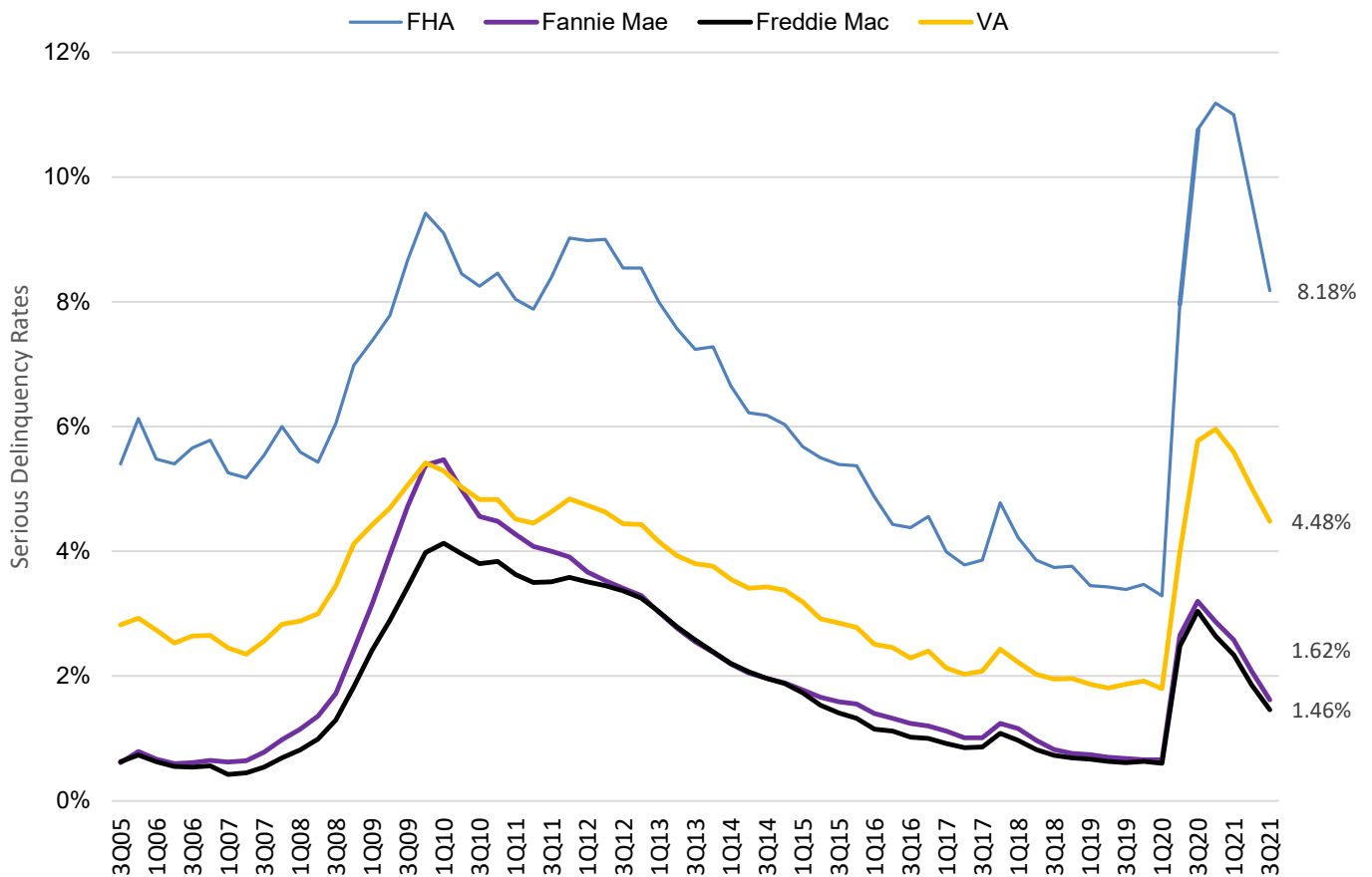


Source: Federal Reserve Flow of Funds Data. Notes: Data as of Q3 2021.

## 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.



# State of the US Housing Market

## 2.4 Characteristics of Ginnie Mae Loans in Forbearance

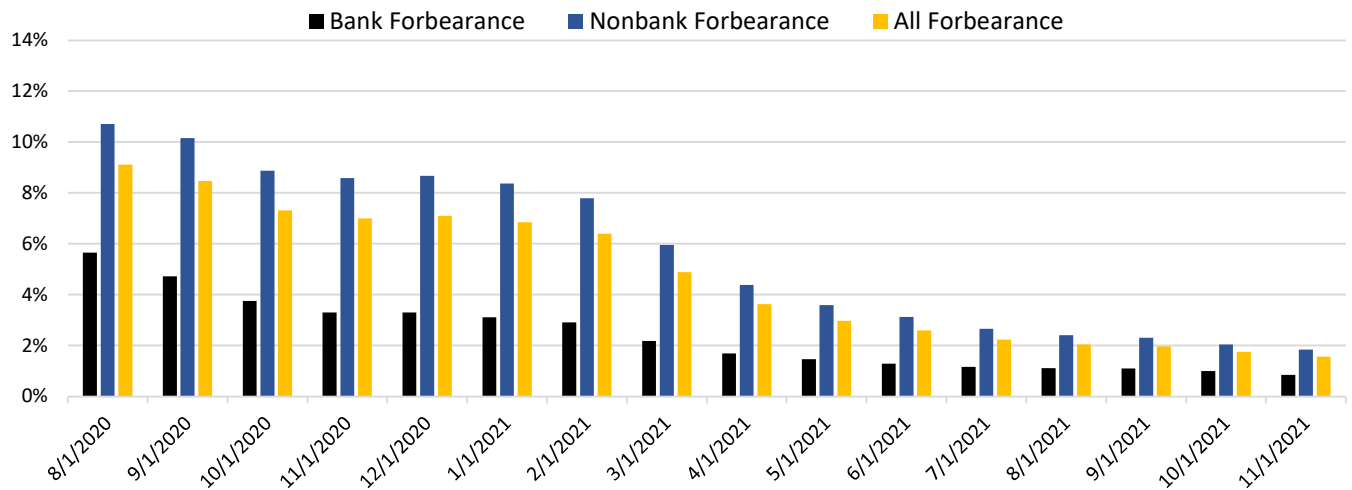
167,782 Ginnie Mae loans were in forbearance as of the end of November 2021. This represents a second consecutive month with an 11% decrease MoM, continuing the accelerated trend of decline in forbearance observed since October 2021. 8,129 of loans in forbearance were removed from MBS pools and 159,653 still actively remain in pools. Most liquidated loans (5,637) were FHA and within that subset, 2,917 of those loans were originated by nonbanks. Almost 95% of the loans that were in forbearance at the end of November were due to COVID-19 circumstances, approximately the same proportion as at the end of October.

All Loans in Forbearance – November 2021						
	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
<b>Ginnie</b>	658	3.6	\$171,744.15	76.9	67.9	167,782
<b>Bank</b>	671	3.9	\$123,139.01	76.7	79.6	24,709
<b>Nonbank</b>	656	3.5	\$180,395.09	77.0	66.7	143,073
<b>FHA</b>	653	3.7	\$166,296.38	79.6	74.2	117,478
<b>Bank</b>	664	4.1	\$113,300.10	80.1	83.2	18,354
<b>Nonbank</b>	651	3.6	\$176,148.93	79.5	73.3	99,124
<b>VA</b>	669	3.2	\$223,843.08	64.5	46.5	35,258
<b>Bank</b>	683	3.6	\$178,022.88	66.6	69.5	4,846
<b>Nonbank</b>	667	3.2	\$230,369.52	64.1	43.8	30,412
Loans in Forbearance and Removed from Pools – November 2021						
	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
<b>Ginnie</b>	652	4.0	\$135,099.97	77.6	70.3	8,129
<b>Bank</b>	672	3.9	\$109,134.69	79.0	79.8	3,417
<b>Nonbank</b>	645	4.0	\$153,805.77	77.0	66.6	4,712
<b>FHA</b>	649	4.1	\$127,023.33	78.9	75.0	5,637
<b>Bank</b>	670	4.0	\$103,014.65	80.4	82.0	2,720
<b>Nonbank</b>	638	4.1	\$150,264.41	77.9	71.5	2,917
<b>VA</b>	660	3.7	\$184,678.44	68.7	50.8	1,643
<b>Bank</b>	677	3.6	\$157,668.87	67.3	66.6	478
<b>Nonbank</b>	655	3.7	\$195,049.22	69.2	46.9	1,165
Loans in Forbearance that Remain in Pools – November 2021						
	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
<b>Ginnie</b>	658	3.5	\$173,855.58	76.9	67.8	159,653
<b>Bank</b>	671	3.9	\$125,921.21	76.5	79.6	21,292
<b>Nonbank</b>	657	3.5	\$181,279.81	77.0	66.7	138,361
<b>FHA</b>	653	3.6	\$168,345.97	79.6	74.1	111,841
<b>Bank</b>	663	4.1	\$115,042.37	80.1	83.3	15,634
<b>Nonbank</b>	652	3.6	\$177,005.25	79.5	73.3	96,207
<b>VA</b>	669	3.2	\$225,970.66	64.3	46.3	33,615
<b>Bank</b>	684	3.6	\$179,767.18	66.6	69.7	4,368
<b>Nonbank</b>	667	3.2	\$232,063.67	63.9	43.7	29,247

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 November 2021; \*Averages weighted by remaining principal balance of the loans.

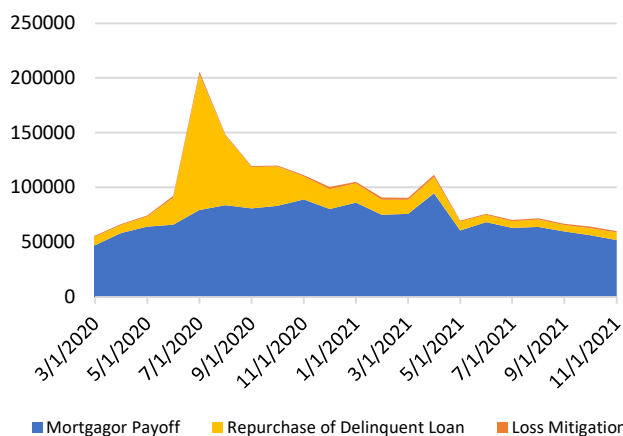
The current share of Ginnie Mae loans in forbearance stands at 1.57% as of the end of November, down approximately a fifth of a percent MoM. This approximately 20 bps decline is roughly the same as the prior month decrease in total forbearance. The forbearance rate remains significantly higher than the forbearance rate prevailing in the period prior to the pandemic between Jan 2019 and February 2020 (approximately 0.1%).

## Share of Ginnie Mae Loans in Forbearance

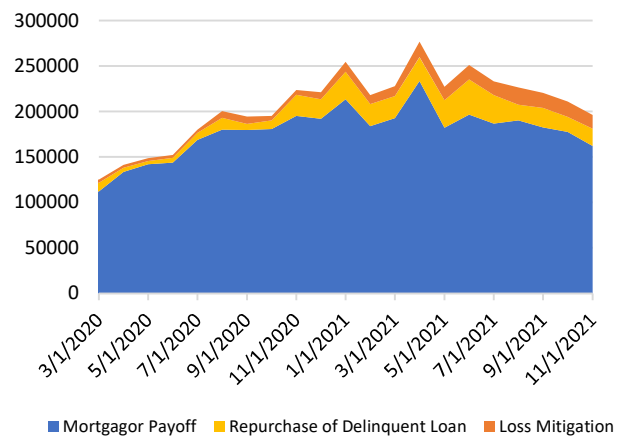


Sources: eMBS and Urban Institute. Data beginning May 2021 sourced from Ginnie Mae forbearance disclosure files and IOPP Peer Group list. Notes: Data as of November 2021.

## Number of Loans Removed from Pools: Bank



## Number of Loans Removed from Pools: Nonbank

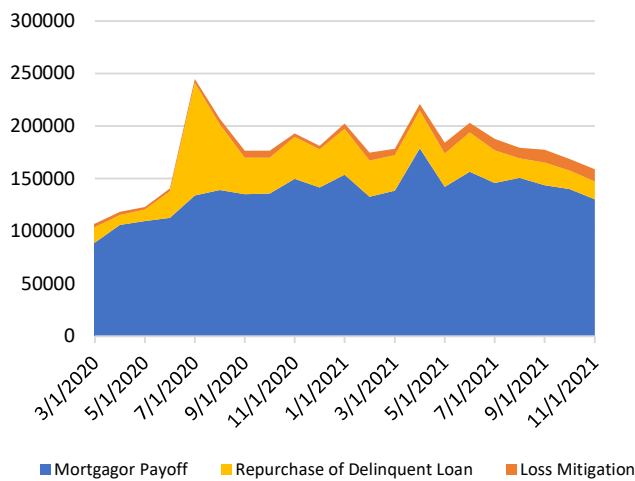


Sources: eMBS and Urban Institute. Data beginning June 2021 sourced from Ginnie Mae Loan Level MBS disclosure files and IOPP Peer Group list. Notes: Data as of November 2021.

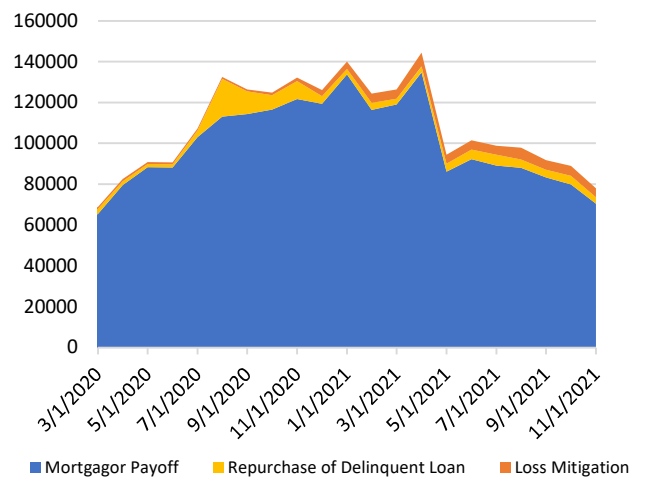
# State of the US Housing Market

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"), as refinances are likelier among these higher coupon loans. In November 2021, the number of loans repurchased due to delinquency decreased 4% to 17,026 for FHA but increased 80% to 5,705 for VA loans. High refinance activity (blue areas) continues to drive the repurchase activity for both FHA and VA, but total removal volume is trending downward.

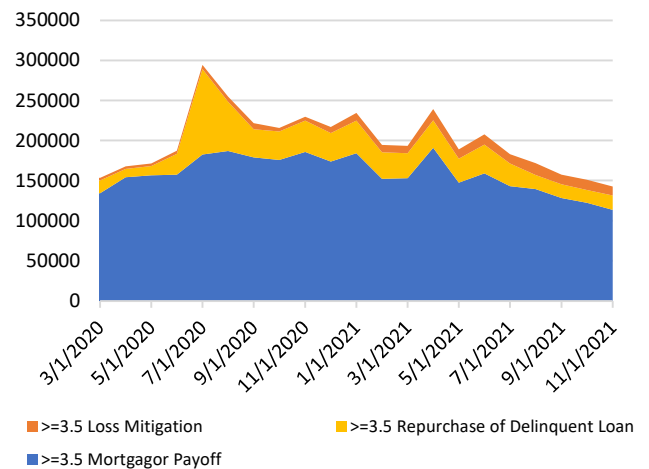
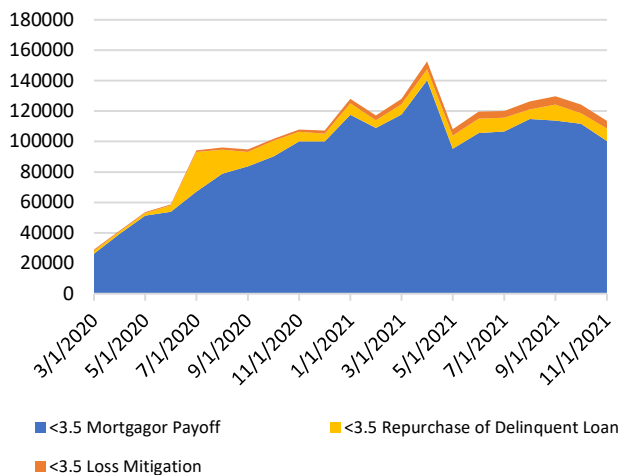
**Number of Loans Removed from Pools: FHA**



**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 November 2021.

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



# State of the US Housing Market

## 2.5 Ginnie Mae Agency Issuance and Agency Outstanding by State

Ginnie Mae MBS represent approximately 24% 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 (12%). The difference between Ginnie Mae share of Agency Issuance (24%) 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](#).

	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)
<b>National</b>	24%	2,957,558	273.57	293.21	26%	10,611,120	186.89	217.03
AK	52%	10,811	329.06	289.62	48%	36,860	253.56	217.33
AL	37%	59,591	214.96	227.49	41%	232,112	146.66	172.02
AR	35%	31,477	183.11	206.00	40%	135,786	124.36	155.05
AZ	23%	99,080	276.74	278.63	25%	275,853	200.10	213.66
CA	16%	250,172	425.68	413.12	16%	674,088	310.17	315.97
CO	24%	82,167	360.27	341.06	24%	214,518	271.56	267.44
CT	22%	26,518	262.29	277.71	25%	103,334	194.55	206.70
DC	14%	2,737	552.47	457.28	12%	8,594	362.78	350.26
DE	28%	14,342	261.03	268.88	32%	50,215	195.85	205.29
FL	31%	257,658	268.70	265.11	33%	831,826	196.46	199.74
GA	31%	136,667	239.23	263.44	34%	490,812	166.57	196.87
HI	36%	13,555	568.08	463.79	31%	32,793	450.78	351.12
IA	19%	18,107	191.62	197.23	22%	81,930	127.66	147.41
ID	21%	20,082	292.15	282.11	24%	65,340	196.65	211.82
IL	18%	87,279	217.29	241.47	22%	350,406	153.62	176.54
IN	26%	66,128	186.03	196.97	31%	277,862	125.34	145.74
KS	26%	22,872	197.49	217.76	29%	96,557	133.36	159.99
KY	30%	40,314	193.47	204.74	24%	161,577	135.42	151.49
LA	37%	46,637	209.80	231.64	39%	190,166	151.41	174.50
MA	15%	35,068	360.93	355.46	15%	111,139	270.03	266.68
MD	32%	89,658	346.90	323.96	34%	282,642	256.05	246.31
ME	23%	10,504	230.14	250.18	26%	37,680	168.42	186.70
MI	17%	65,027	186.61	208.39	20%	274,342	126.37	153.59
MN	15%	39,229	249.73	256.13	18%	160,050	174.58	194.62
MO	25%	58,305	195.95	211.43	29%	244,199	134.40	158.13
MS	43%	26,239	199.30	209.77	47%	117,692	135.31	156.73
MT	21%	9,755	243.89	278.63	24%	33,294	196.43	207.37
NC	27%	116,484	235.82	260.32	30%	414,094	163.80	193.12
ND	24%	5,083	249.72	237.30	23%	16,568	187.18	183.45
NE	23%	14,592	215.49	207.69	27%	65,632	140.49	157.06
NH	19%	11,290	272.98	280.12	23%	38,895	215.80	209.54
NJ	18%	62,629	312.44	332.60	21%	224,821	228.87	251.08
NM	33%	22,922	221.47	234.50	38%	94,295	157.69	172.07
NV	30%	47,069	309.60	291.15	31%	130,767	231.35	224.04
NY	17%	55,211	313.46	341.42	20%	302,210	198.41	242.55
OH	24%	92,781	183.66	201.00	29%	418,711	123.75	145.46
OK	38%	40,330	197.61	210.26	43%	187,997	133.43	156.37
OR	19%	38,073	323.31	320.80	20%	111,429	238.73	244.31
PA	21%	81,660	209.43	244.04	26%	385,753	144.26	177.95
RI	28%	10,303	298.82	273.74	29%	34,665	219.43	208.26
SC	32%	68,977	237.78	244.90	34%	227,693	171.13	184.58
SD	27%	7,664	228.49	224.63	30%	29,252	163.48	173.45
TN	28%	72,590	241.01	256.77	33%	274,503	162.50	194.05
TX	29%	272,748	250.89	272.09	32%	1,062,155	170.38	200.95
UT	18%	34,744	324.29	318.28	19%	98,186	237.37	251.24
VA	35%	141,809	337.81	326.22	36%	435,755	246.69	247.50
VT	18%	3,099	236.52	248.96	19%	12,114	175.70	176.57
WA	21%	82,182	368.40	368.29	22%	235,609	267.38	280.91
WI	15%	33,386	208.59	217.18	17%	122,939	149.41	160.89
WV	39%	13,937	192.52	197.32	43%	56,863	137.82	142.25
WY	34%	7,920	258.15	251.59	35%	24,994	197.95	196.92

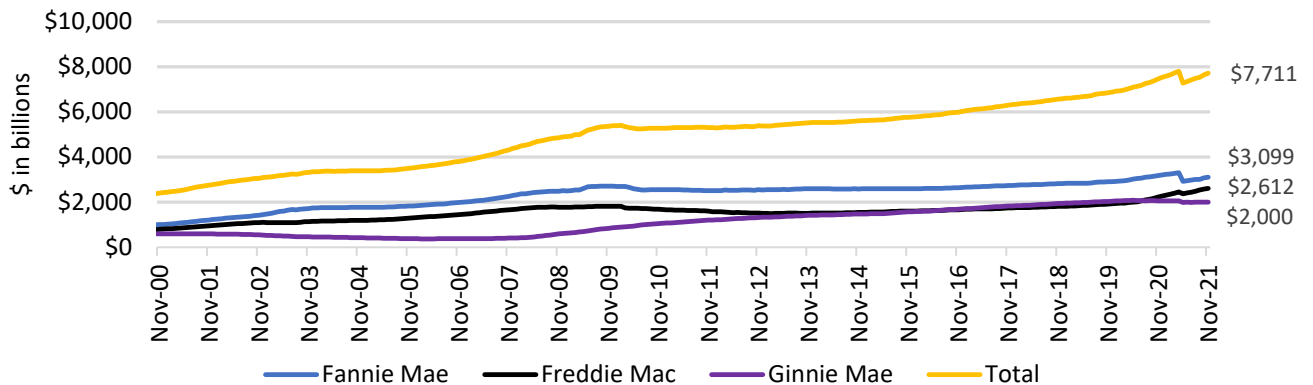
Sources: eMBS, Ginnie Mae/Freddie Mac/Fannie Mae Loan Level MBS Disclosure Files. Notes: Outstanding balance is based on loan balance as of October 2021. Ginnie Mae issuance is based on the last 12 months, from November 2020 to November 2021.

## 2.6 Outstanding Single-Family Agency MBS

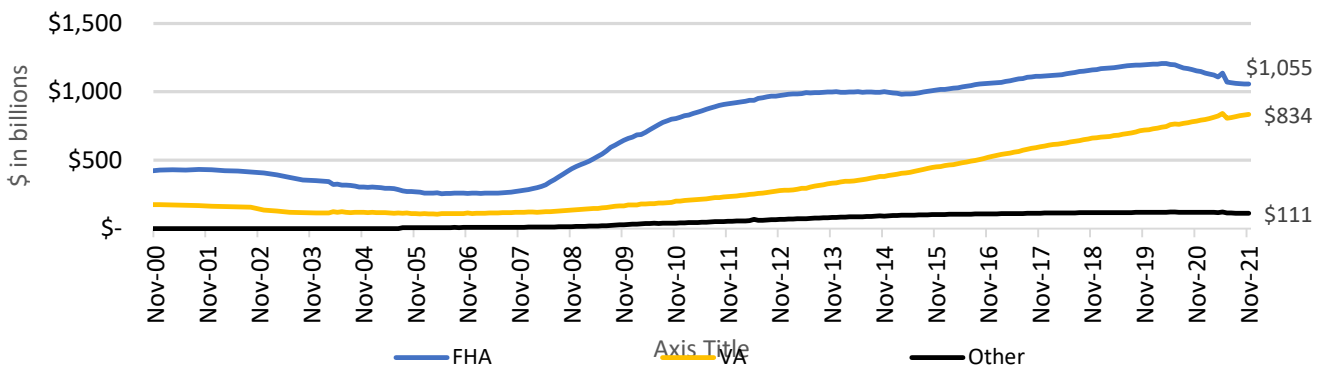
As of November 2021, outstanding single-family securities in the Agency market totaled \$7.71 trillion: 40.2% Fannie Mae, 33.9% Freddie Mac, and 25.9% Ginnie Mae MBS. Over the past twelve months, Freddie Mac's total outstanding issuance has increased by approximately 18%, while Fannie and Ginnie have decreased outstanding issuance by 2% 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 November 2011, 76% of Ginnie Mae outstanding collateral was FHA and under 20% was VA. In November 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



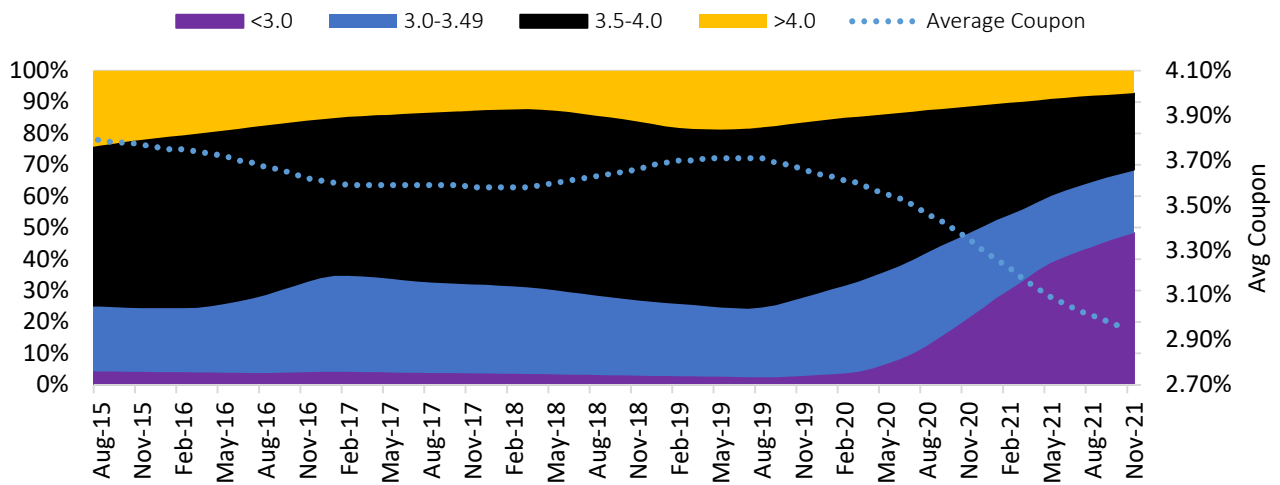
Sources: Data beginning in May 21 is based on outstanding balances in the Ginnie Mae/Freddie Mac/Fannie Mae Loan Level MBS Disclosure Files. Note: Data as of November 2021. Beginning with the October 2021 GMAR, the Fannie Mae and Freddie Mac data within the Outstanding Agency MBS graph have been updated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

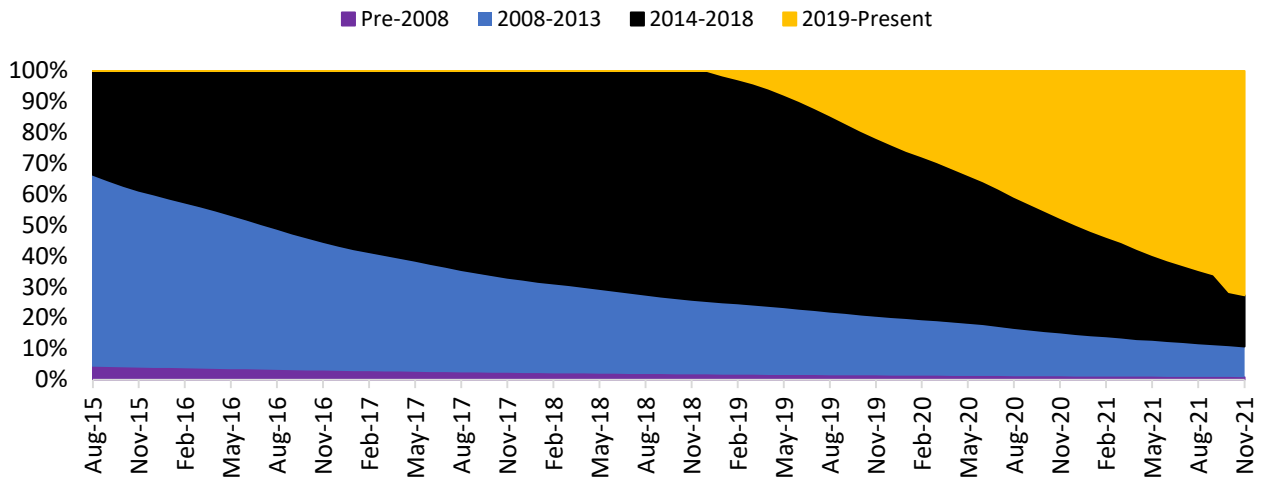
As of November 2021, the weighted average coupon on outstanding Ginnie Mae pools was 2.94%, down 2 bps since October 2021 and 41 bps since November 2020. The share of outstanding MBS pools with coupons below

3.0% (47% as of October 2021) began a rapid expansion in 2020. Approximately 26% of the outstanding MBS coupons are between 2.5 and 3.0%, 22% have coupons between 2.0 and 2.5%, while approximately half a percent (0.57%) have coupons under 2.0%. The bottom chart illustrates that loans originated since 2019 accounting for 73% of Ginnie MBS collateral outstanding.

## Outstanding Ginnie Mae MBS Balance, by Coupon



## Outstanding Ginnie Mae MBS Balance, by Vintage

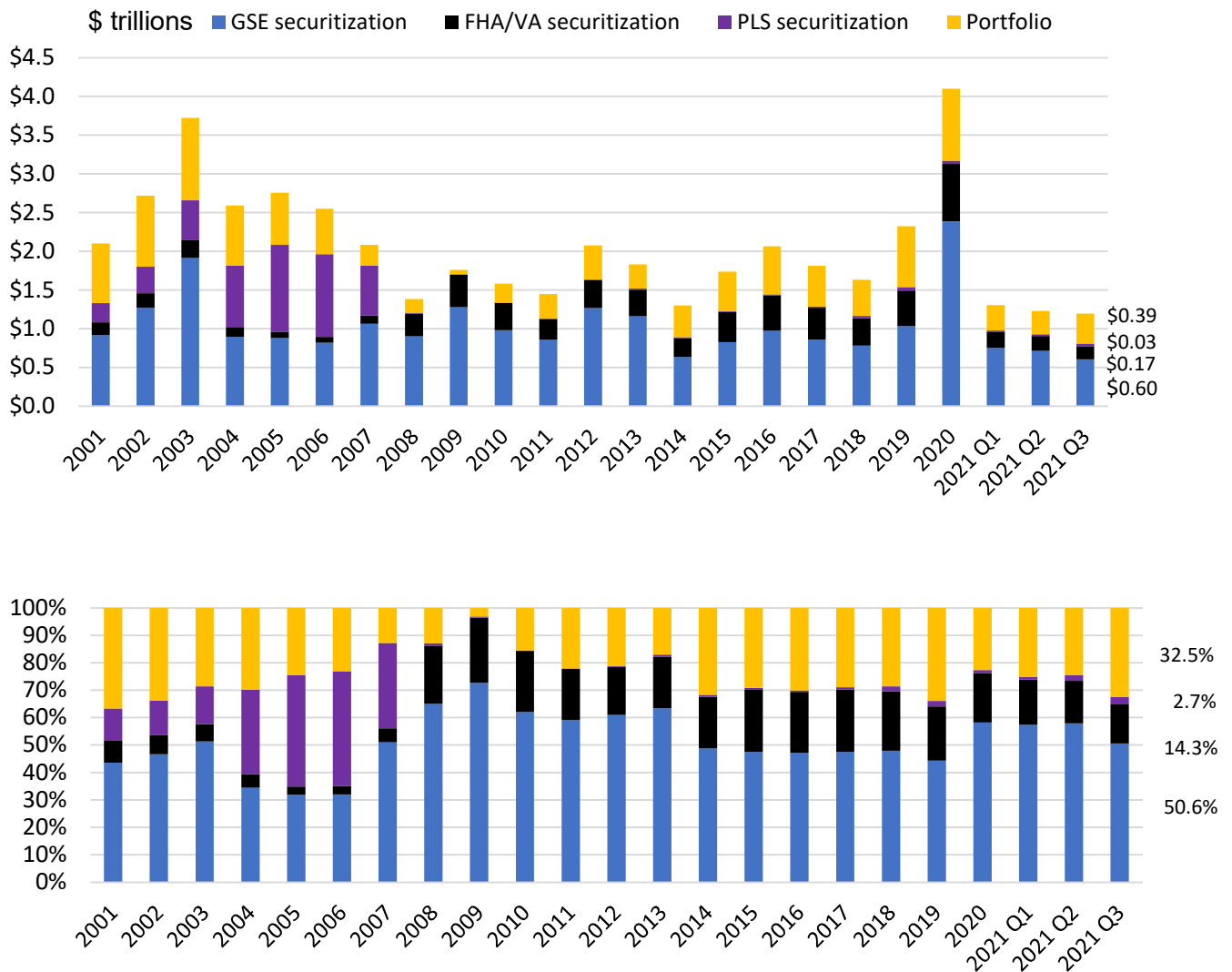


Sources: Ginnie Mae Pool Level MBS Disclosure Files. Note: November 2021 data points reflect the current composition of balances by coupon and vintage; factor data is not applied to prior date balance compositions. Average coupon is weighted by remaining principal balance.

## 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.



# US Agency Market, Issuance

## 3.0 US Agency Market, Issuance

MoM, Agency gross MBS issuance decreased 12.9% (from October to November), driven by a 16% decline in GSE Issuance. Fannie Mae MBS gross issuance decreased approximately 21% in November. Ginnie Mae gross issuance through November outpaces that of the first eleven months of 2020 by approximately 11.6%, \$779.4 billion to \$698.6 billion.

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	\$1,295.1	\$1,159.5	\$2,454.6	\$779.4	\$3,234.0

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	\$359.5	\$369.3	\$23.6	\$779.4



# US Agency Market, Issuance

Agency net issuance in November was approximately \$67.6 billion, which represents a 19% MoM decrease in net issuance. Ginnie Mae net issuance remains below zero year-to-date in 2021, at -\$3.0 billion, despite a steady rebound in Ginnie Mae net issuance that began in August and continued through November. As noted in Section 2.6, VA production continues to outpace FHA.

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	\$351.1	\$463.6	\$814.7	-\$3.0	\$811.7

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	-\$65.3	\$69.0	-\$6.6	-\$3.0



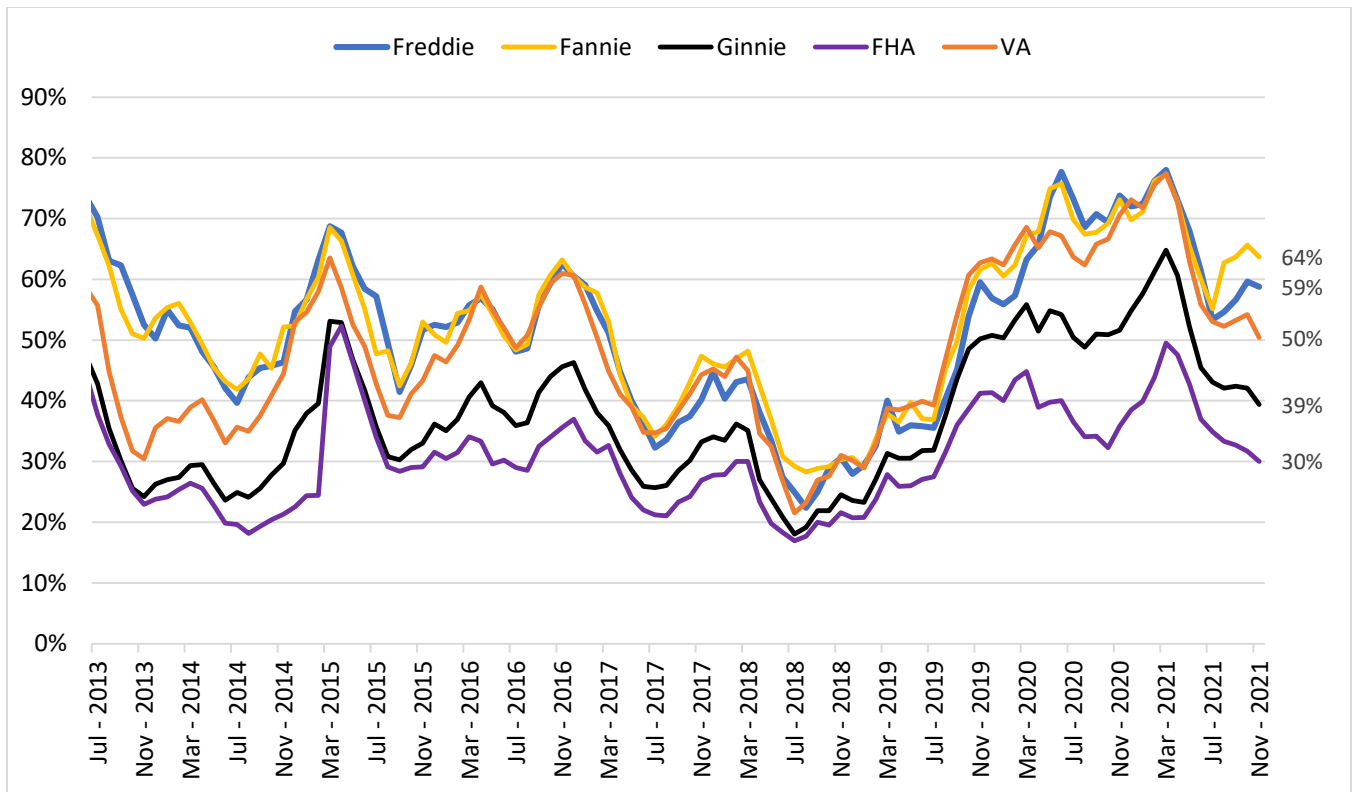
# US Agency Market, Issuance

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
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
Nov-21	\$93.6	\$81.1	\$60.8	\$174.7	\$235.5	\$29.5	\$34.9	\$3.1	\$64.4	\$67.6

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 November 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.

The total Ginnie Mae refinance share stood at 39% in November, down 6% MoM. The FHA refinance share stood at 30% in November 2021, below the 64% share for Fannie, the 59% refi share for Freddie originations, and the 50% share for the VA. Refinances as a share of all Agency originations decreased 3% to 56% in November.

### 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 November 2021.



# High LTV Loans: Ginnie Mae vs. GSEs

## 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 October - December 2019 and October - December 2021. The share of borrowers with DTIs below 35% has decreased by approximately 2.5% over the same period. The share of high-LTV loans decreased in both the Ginnie Mae guarantee book and the GSE portfolios by approximately 4% and 31%, respectively, from October to December 2019 and October to December 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 62.40% of its issuances between October to December 2021 having LTVs of 95 or above, compared to 4.52% for the GSEs.

### Share of Loans with LTV $\geq$ 95

	Ginnie Mae	GSE	All
Sept 2019-Nov 2019	64.74%	6.58%	26.57%
Sept 2021 - Nov 2021	62.40%	4.52%	20.94%

### 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	4.52%	6.18%	3.40%	5.02%	1.29%	20.37%
35-45	6.72%	8.71%	4.25%	4.29%	0.21%	24.18%
$\geq$ 45	5.35%	8.06%	4.05%	3.44%	0.13%	21.01%
NA	5.50%	7.02%	4.24%	5.90%	11.74%	34.44%
All	<b>22.09%</b>	<b>29.97%</b>	<b>15.93%</b>	<b>18.65%</b>	<b>13.37%</b>	<b>100.00%</b>

#### Sept 2021-Nov 2021

DTI	FICO				NA	All
	<650	650-700	700-750	$\geq$ 750		
<35	4.39%	6.00%	3.16%	5.18%	1.14%	19.87%
35-45	6.54%	8.56%	3.85%	3.98%	0.23%	23.16%
$\geq$ 45	5.27%	8.02%	3.73%	3.18%	0.15%	20.35%
NA	4.91%	6.45%	4.21%	7.08%	13.96%	36.62%
All	<b>21.10%</b>	<b>29.03%</b>	<b>14.95%</b>	<b>19.43%</b>	<b>15.48%</b>	<b>100.00%</b>

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



# Holders of Ginnie Mae Mortgage Servicing Rights

## 5.0 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 82.6% of Ginnie Mae MSRs (see Cumulative Share). Twenty-two of these top 30 are non-depository institutions, the remaining 8 are depository institutions. As of December 2021, over half (51.5%) of the Ginnie Mae MSRs 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	\$268,550	13.7%	13.7%
2	PennyMac	\$219,770	11.2%	24.9%
3	Lakeview	\$202,262	10.3%	35.3%
4	Wells Fargo	\$123,787	6.3%	41.6%
5	Rocket Mortgage	\$100,183	5.1%	46.7%
6	Nationstar	\$94,038	4.8%	51.5%
7	Newrez	\$59,287	3.0%	54.5%
8	Caliber Home Loans	\$49,648	2.5%	57.1%
9	US Bank	\$48,050	2.5%	59.5%
10	Carrington Mortgage	\$44,722	2.3%	61.8%
11	United Wholesale Mortgage	\$43,984	2.2%	64.0%
12	Loan Depot	\$33,397	1.7%	65.7%
13	USAA Federal Savings Bank	\$32,726	1.7%	67.4%
14	Mortgage Research Center	\$30,588	1.6%	69.0%
15	Planet Home Lending	\$29,028	1.5%	70.5%
16	Navy Federal Credit Union	\$28,040	1.4%	71.9%
17	Truist Bank	\$22,134	1.1%	73.0%
18	The Money Source	\$21,384	1.1%	74.1%
19	Guild Mortgage	\$20,388	1.0%	75.1%
20	Crosscountry Mortgage	\$15,440	0.8%	75.9%
21	New American Funding	\$14,611	0.7%	76.7%
22	Amerihome Mortgage Company	\$14,320	0.7%	77.4%
23	Village Capital	\$14,309	0.7%	78.1%
24	Midfirst Bank	\$13,312	0.7%	78.8%
25	Citizens Bank	\$13,133	0.7%	79.5%
26	Idaho Housing and Finance Association	\$12,732	0.6%	80.1%
27	CMG Mortgage, INC	\$12,332	0.6%	80.8%
28	Rushmore Loan Management	\$12,084	0.6%	81.4%
29	PHH Mortgage Corporation	\$11,739	0.6%	82.0%
30	JP Morgan Chase	\$11,467	0.6%	82.6%

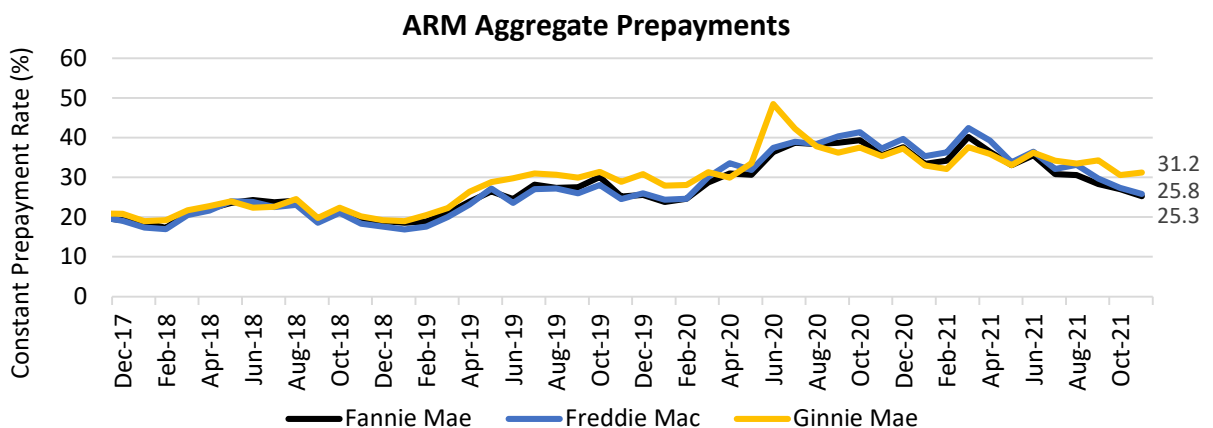
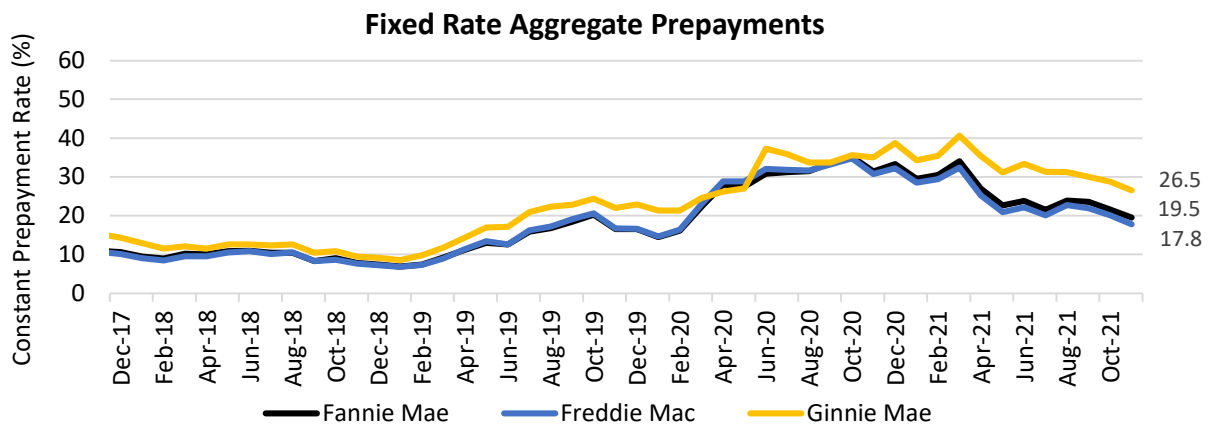
Source: Deloitte and Ginnie Mae. Data as of December 2021.

## 6.0 Prepayments

In November 2021, Ginnie Mae fixed rate prepayment speeds decreased by 8%, to 26.5 CPR. The slowdown was driven by both voluntary prepayment and buyout rate decreases. In contrary with the overall voluntary speed slowdown, Ginnie Mae II 2% coupon cohort and Ginnie Mae I 2%-2.5% coupon cohorts posted faster voluntary prepayment rates as they move further into the seasoning ramp.<sup>5</sup>

In November 2021, Fannie Mae and Freddie Mac fixed rate prepayment speeds both continued to decrease by 10% and 11% respectively. ARM MBS prepayments for Ginnie Mae increased by 2%. Fannie Mae and Freddie Mac both posted a significant decline of 6%.

### 6.1 Aggregate Prepayments

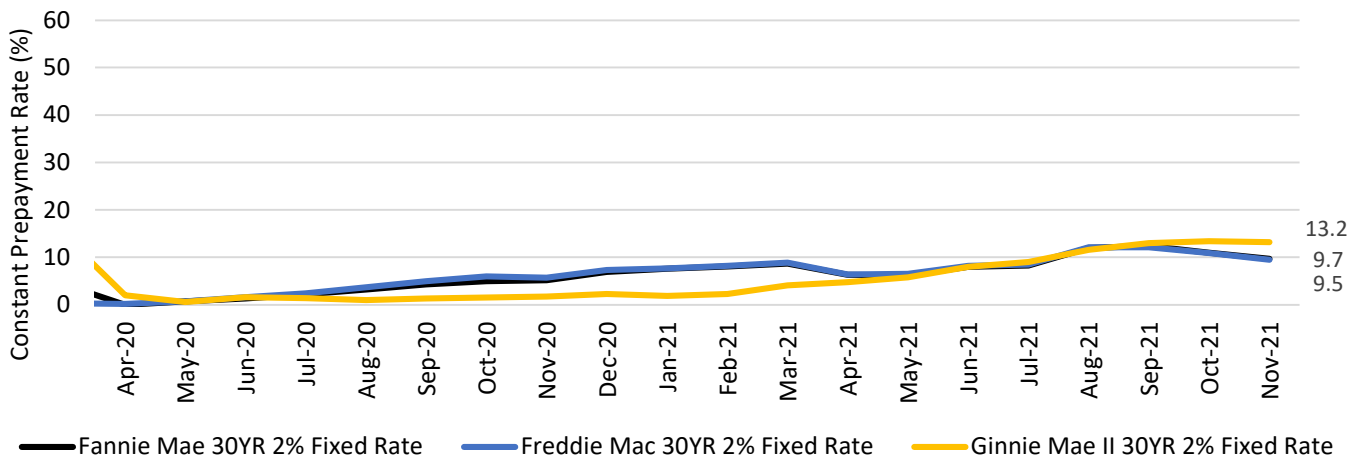


Source: eMBS; Note: Data as of November 2021.

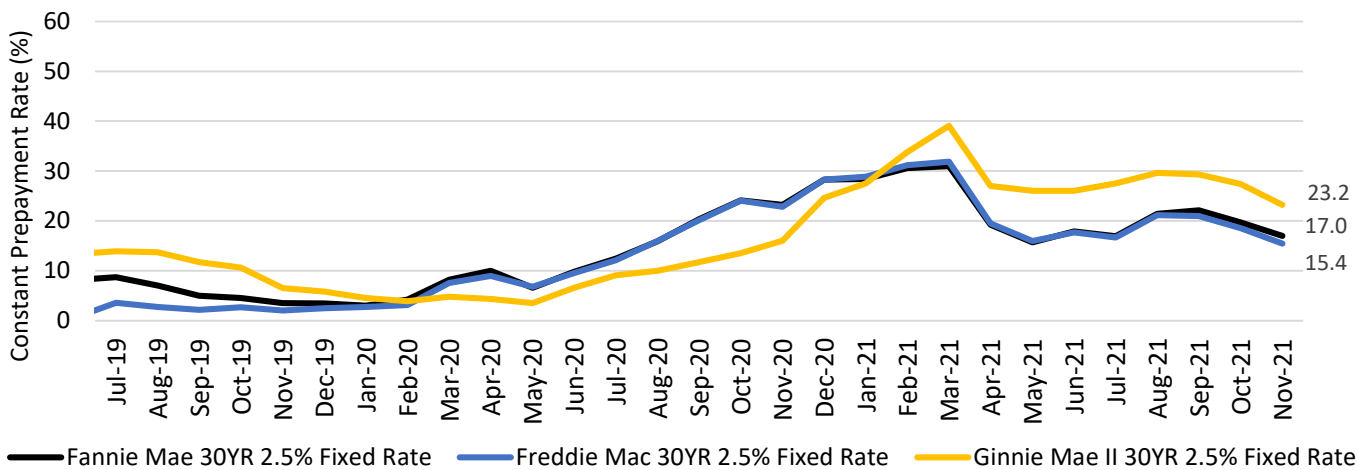
<sup>5</sup> Ahlgren R and Ichaso M (2021, December 7). US Structured Products Trading Desk Strategy | RMBS Strategy | Speeds Fall as VPRs Move Lower While CBRs Remain Steady, pp. 1.

In November 2021, Fannie Mae’s speed decreased by 12% and 14% in the 2% and 2.5% coupon cohorts, respectively. Freddie Mac’s speed also decreased similarly by 13% and 17% in the 2% and 2.5% coupon cohorts, respectively. Ginnie Mae prepayment speeds decreased in the 2% coupon cohort by 1% and continued to decline in the 2.5% coupon cohort by 15%. 30-year fixed rate MBS with 2-2.5% coupons accounted for 46% of Agency remaining principal balance. Production of these Agency MBS ramped up in 2019.

## All Agency 2% Coupon CPR



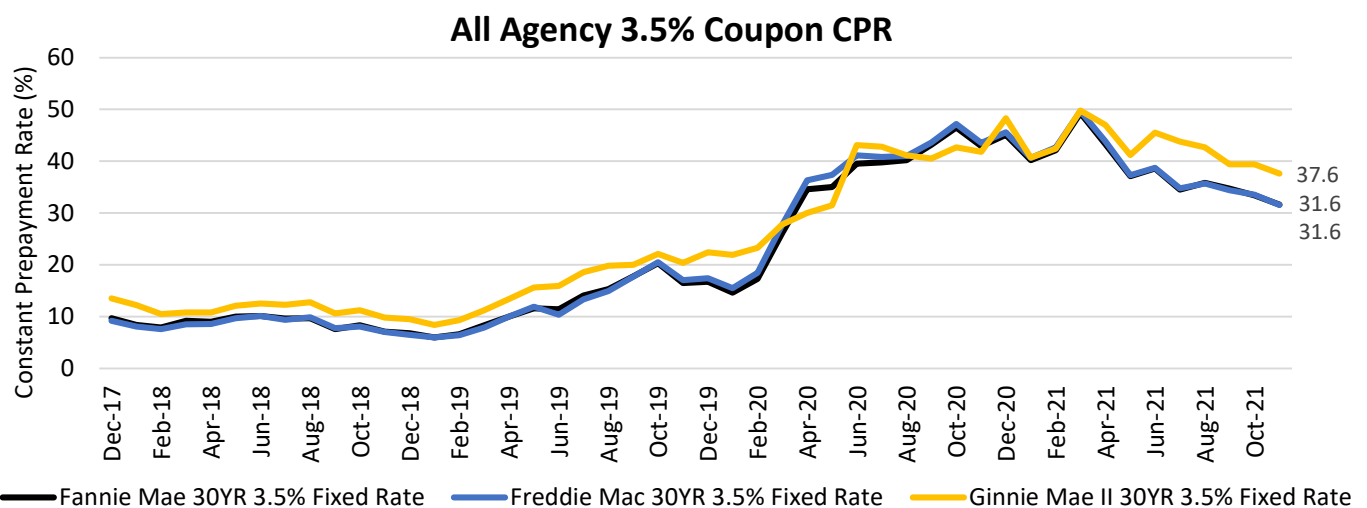
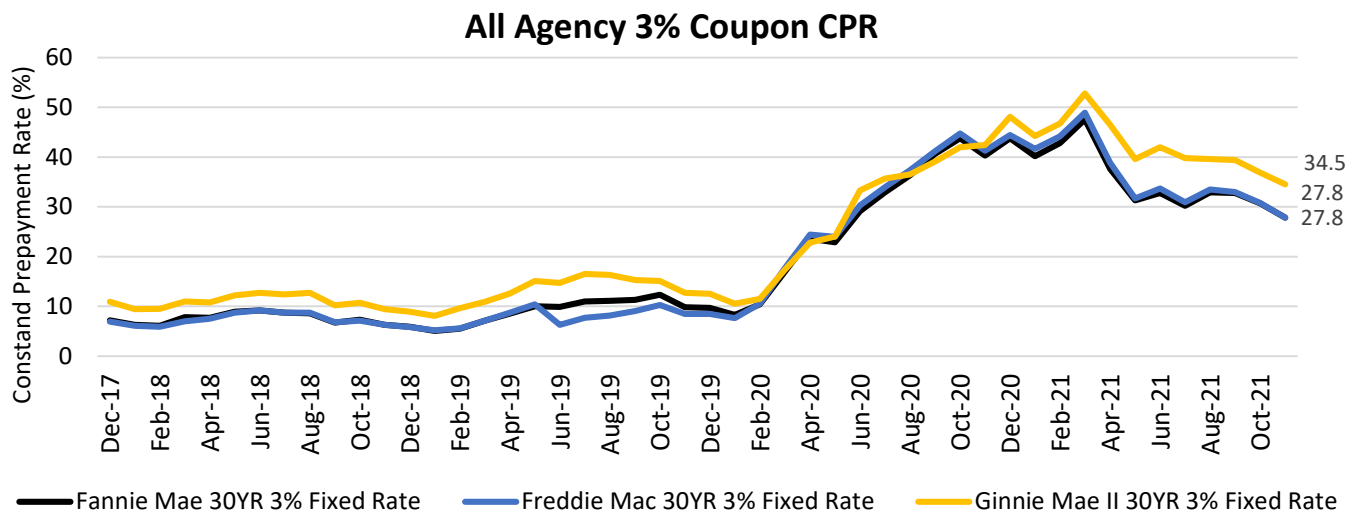
## All Agency 2.5% Coupon CPR



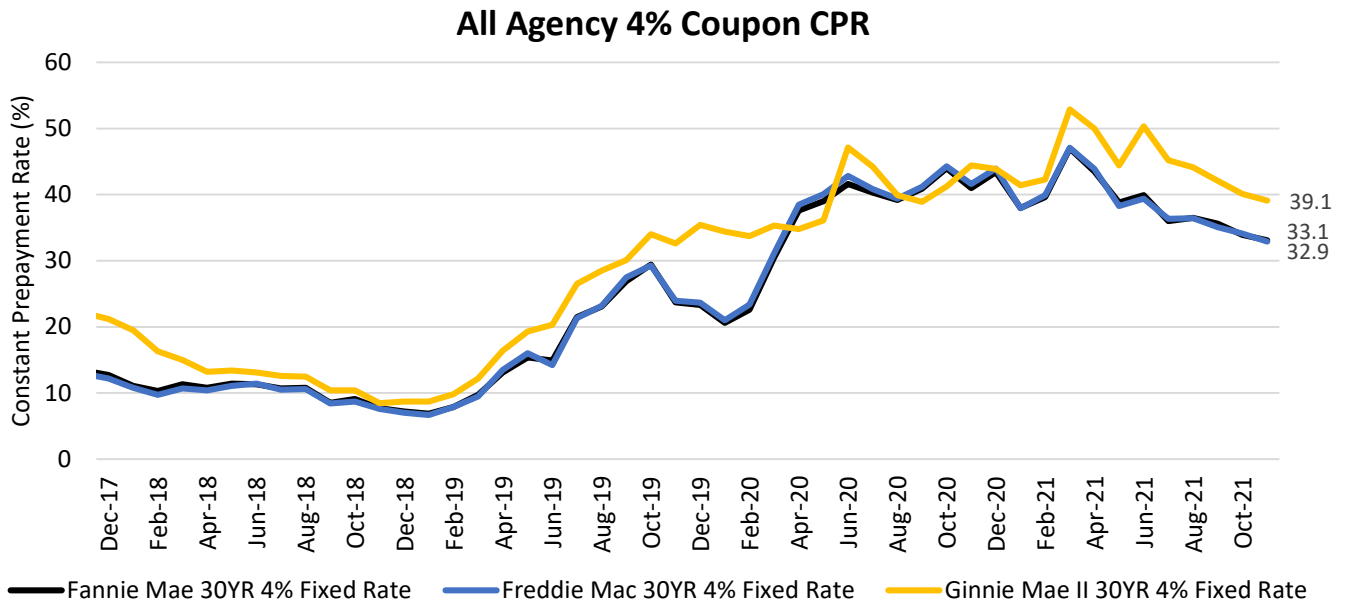
Source: eMBS. Note: Data as of November 2021. Freddie prepayment data is aggregated from 55-day UMBS and 45-day Gold PC, weighted average by November 2021 remaining principal balance.

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 November 2021, prepayment differential was consistent across coupon cohorts with differences remaining at 6.7 CPR for 3%, 6.0 CPR for 3.5%, and 6.1 CPR for 4%. 30-year fixed rate MBS with 3-4% coupons accounted for 28% of Agency remaining principal balance.

In November 2021, Fannie Mae and Freddie Mac prepayment speeds converged to the same value in the 3% and 3.5% coupon cohort. This convergence proves the overall Federal Housing Finance Agency efforts to maintain GSE prepayment speed consistency, a mandate for their Single Security initiative, fully implemented since 2019.



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

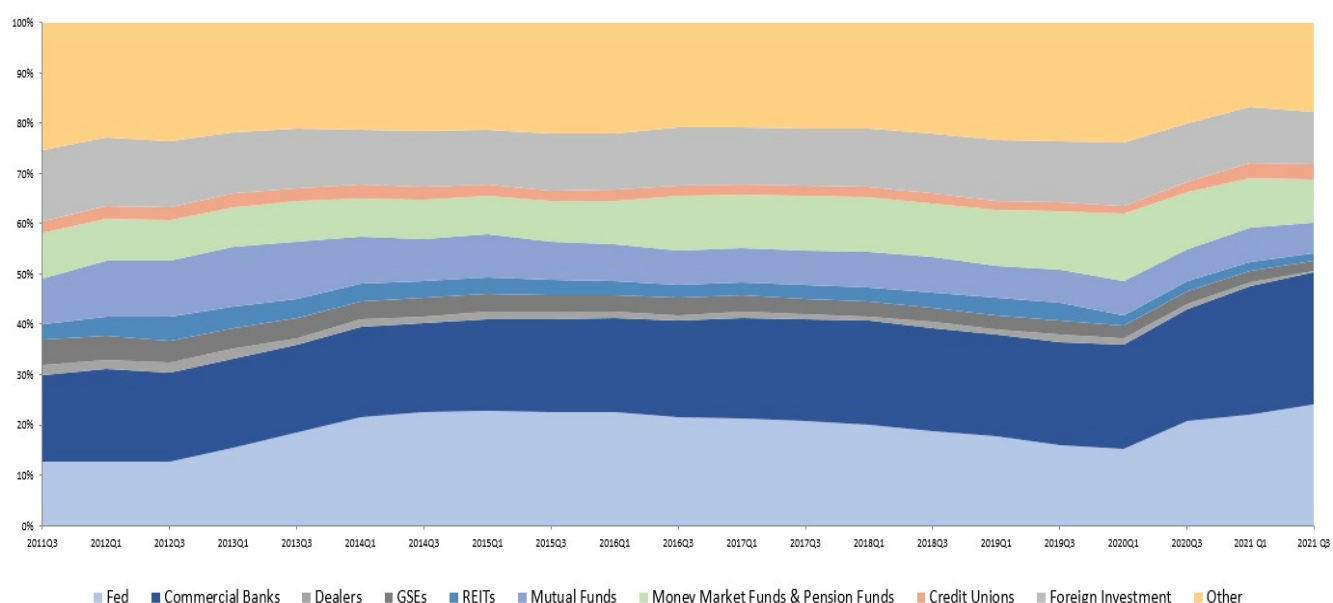


Source: eMBS. Note: Data as of November 2021. Freddie prepayment data is aggregated from 55-day UMBS and 45-day Gold PC, weighted average by November 2021 remaining principal balance.

## 7.0 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 December 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.

### 7.1 Commercial Bank Holdings of Agency MBS

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Nov-20	May-21	Jun-21	July-21	Aug-21	Sep-21	Oct-21	Nov-21	8-Dec	15-Dec	22-Dec	29-Dec
Largest 25 Domestic Banks	1,881.8	2,080.3	2,090.9	2,109.5	2,127.5	2,133.3	2,146.4	2,129.9	2,119.0	2,140.9	2,154.1	2,144.8
Small Domestic Banks	549.4	650.1	661.8	674.6	689.3	704.4	721.7	730.4	733.9	739.1	742.1	741.4
Foreign Related Banks	45.2	49.6	47.1	47.7	49.1	48.6	48.7	45.8	43.8	42.0	42.3	45.0
<b>Total, Seasonally Adjusted</b>	<b>2,476.4</b>	<b>2,780.0</b>	<b>2,779.8</b>	<b>2,831.8</b>	<b>2,865.9</b>	<b>2,886.3</b>	<b>2,916.8</b>	<b>2,906.1</b>	<b>2,896.7</b>	<b>2,922.0</b>	<b>2,938.5</b>	<b>2,931.2</b>

Source: Federal Reserve Bank. Note: Small domestic banks include all domestically chartered commercial banks not included in the top 25. Data as of November 2021.



# MBS Ownership

## 7.2 Bank and Thrift Residential MBS Holdings

In Q3 2021, MBS holdings at banks and thrifts increased for the twelfth 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, including \$1.9 trillion of GSE pass-throughs and \$353 billion of Ginnie Mae pass-throughs. In addition, another \$566 billion in bank and thrift holdings were Agency CMOs, while holdings of Private MBS and Private CMOs 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
<b>Change:</b>								
<b>2Q21-3Q21</b>	3%	3%	0%	-11%	2%	14%	2%	6%
<b>3Q20-3Q21</b>	24%	40%	-15%	-4%	13%	17%	22%	38%

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



# MBS Ownership

## Bank and Thrift Residential MBS Holdings

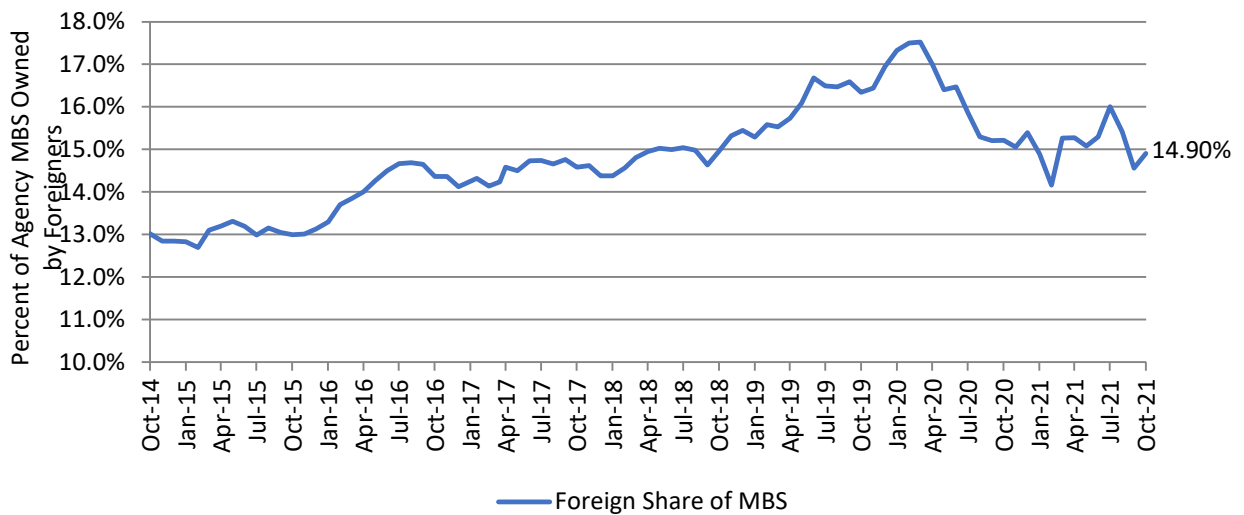
Top Bank & Thrift Residential MBS Investors (\$ in millions)	Institution	Total	GSE PT	GNMA PT	Agency CMO	Non-Agency	Share
1	BANK OF AMERICA CORPORATION	618,309.0	526,541.0	80,915.0	10,635.0	218.0	22%
2	WELLS FARGO & COMPANY	278,377.0	207,309.0	66,166.0	4,520.0	382.0	10%
3	CHARLES SCHWAB	226,430.0	118,676.0	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%
<b>Total Top 20</b>		<b>2,167,908.6</b>	<b>1,523,770.8</b>	<b>310,202.8</b>	<b>305,608.5</b>	<b>28,326.5</b>	<b>76%</b>

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

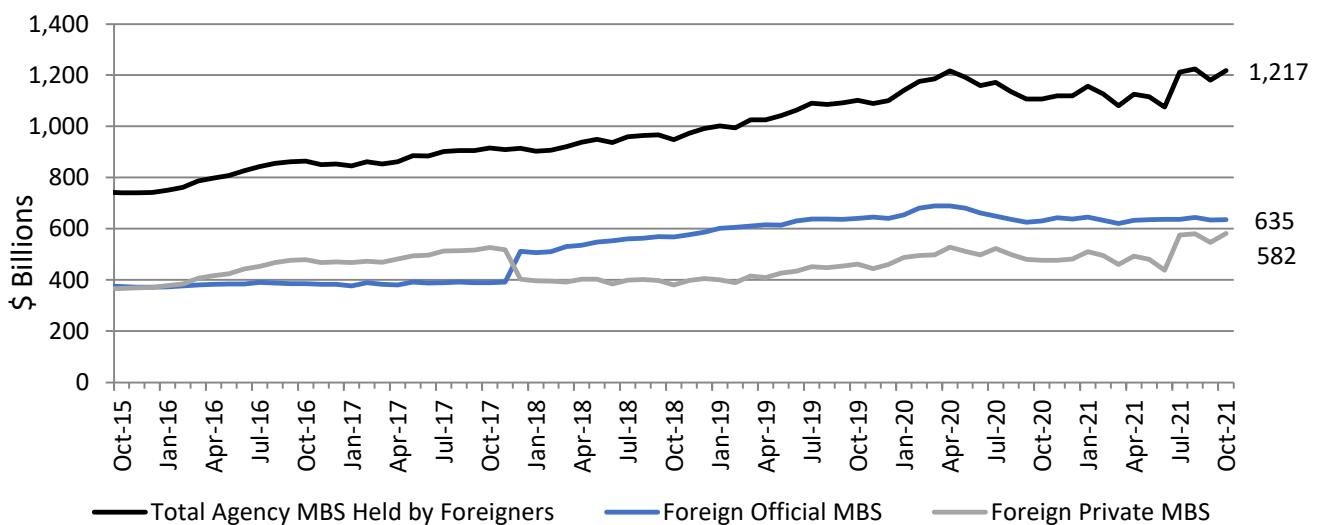
## 7.3 Foreign Ownership of MBS

For the month of October 2021, foreign ownership of MBS represents \$1.22 trillion in Agency MBS, which includes \$582 billion held by foreign private institutions and \$635 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 at December 2017 in the split between the portion held by foreign private and the portion held by foreign official. Data as of October 2021.

## 7.4 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
<b>Total</b>	<b>1,183,923</b>	<b>1,147,702</b>	<b>1,136,924</b>	<b>1,239,696</b>	<b>12,320</b>	<b>-36,221</b>	<b>-10,778</b>	<b>102,772</b>

### 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
<b>Total</b>	<b>1,159,809</b>	<b>1,156,341</b>	<b>-3,468</b>

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.



# Disclosure

## Disclosure:

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