

# ***GLOBAL MARKETS ANALYSIS REPORT***

A Monthly Publication of Ginnie Mae's  
Office of Capital Markets



**September  
2022**

## Table of Contents

<b>Inside this Month's Global Market Analysis Report...</b>	<b>1</b>
<b>Highlights</b>	<b>2</b>
<b>1 US Aggregate and Global Indices</b>	<b>3</b>
1.1 Bloomberg US Aggregate and Global Indices	4
<b>2 Sovereign Debt Product Performance Comparisons</b>	<b>5</b>
2.1 Global 10-Year Treasury Yields (Unhedged)	5
2.2 US Treasury Hedged Yields	6
<b>SECONDARY MORTGAGE MARKET</b>	<b>7</b>
<b>3 Fixed Income Product Performance Comparisons</b>	<b>7</b>
3.1 Ginnie Mae Yields – USD	7
3.2 Ginnie Mae Yield Spreads – Intermediate Credit	8
3.3 Global Treasury Yield Per Duration	9
<b>4 Prepayments</b>	<b>10</b>
4.1 Aggregate Prepayments (CPR)	10
4.2 Involuntary Prepayments (CDR)	11
4.3 Voluntary Prepayment Rates (CRR)	12
<b>5 Single-Family MBS Pass-Through Issuance</b>	<b>13</b>
5.1 Gross Issuance of Agency MBS	13
5.2 Net Issuance of Agency MBS	15
5.3 Monthly Issuance Breakdown	17
5.4 Percent Refi at Issuance – Single-Family	18
<b>6 Agency Single-Family MBS Outstanding</b>	<b>19</b>
6.1 Outstanding Single-Family Agency MBS	19
6.2 Origination Volume and Share Over Time	20
6.3 Agency Issuance and Agency Outstanding by State	21
6.4 Outstanding Ginnie Mae MBS Volume by Coupon and Vintage Over Time	22
<b>7 Agency REMIC Securities</b>	<b>23</b>
7.1 Monthly REMIC Demand for Ginnie Mae MBS	23
7.2 REMIC Market Snapshot	24
<b>8 MBS Ownership</b>	<b>25</b>
8.1 Commercial Bank Holdings of Agency MBS	25
8.2 Bank and Thrift Residential MBS Holdings	26
8.3 Foreign Ownership of MBS	28
8.4 Foreign Ownership of Agency Debt and Agency MBS	29

<b>9</b>	<b>Fixed Income Liquidity Indicators .....</b>	<b>30</b>
	<b>PRIMARY MORTGAGE MARKET .....</b>	<b>31</b>
<b>10</b>	<b>Agency Credit Breakdown .....</b>	<b>31</b>
	10.1 Credit Scores .....	31
	10.2 Loan-to-Value (LTV) .....	33
	10.3 Debt-to-Income (DTI) .....	35
	10.4 High LTV Loans: Ginnie Mae vs. GSEs .....	37
	10.5 Serious Delinquency Rates .....	38
	10.6 Credit Box .....	39
	10.7 Credit Box: Historical .....	41
<b>11</b>	<b>Forbearance Trends .....</b>	<b>43</b>
<b>12</b>	<b>Holders of Ginnie Mae Mortgage Servicing Rights .....</b>	<b>46</b>
<b>13</b>	<b>Agency Nonbank Originators .....</b>	<b>47</b>
	13.1 Bank vs. Nonbank Originators Historical Credit Box, Ginnie Mae vs. GSE .....	49
	13.1.1 (FICO, LTV, DTI) .....	49
	<b>U.S. HOUSING MARKET .....</b>	<b>53</b>
<b>14</b>	<b>Housing Affordability .....</b>	<b>53</b>
	14.1 Housing Affordability – Home Price Appreciation .....	53
	14.2 Housing Affordability – Inflation, Wages, and the Price of Real Estate and Rent .....	55
	14.2.1 Housing Affordability – Mortgage Rate Trends .....	56
	14.3 Housing Inventory .....	57
	14.4 Size and Value of the US Housing Market .....	58
<b>15</b>	<b>Disclosure .....</b>	<b>59</b>

## Inside this Month's Global Market Analysis Report...

This month's *Highlights* section includes an analysis of Ginnie Mae's issuance trends in 2022 relative to those of 2021. The section discusses the second-order effects of increasing mortgage rates and home prices on the Ginnie Mae guarantee book; with rates and home prices increasing, refinancing activity has slowed significantly, and net issuance has increased.

Notable insights in this month's Global Market Analysis Report include the following.

- The [Prepayments](#) section illustrates the convergence of Ginnie Mae aggregate prepayment rates to those of Fannie Mae and Freddie Mac (GSE) securities.
- The [Agency REMIC issuance](#) section continues to capture the current upward trend in coupon rates for REMIC deals.
- The [Agency Credit Breakdown](#) section has been expanded to include a discussion of the Agencies' first-time homebuyer shares. Not only does Ginnie Mae remain the leader in high-LTV lending, but it also plays a larger role in providing homeownership opportunities to first-time homebuyers.
- In the [Agency Nonbank Originators](#) section, an increasing nonbank origination portion of refinance mortgage loans for Ginnie Mae has resulted in a comparatively higher nonbank origination share.
- In the [U.S. Housing Market](#) section, the data details a lack of affordability within the housing market due to factors that include increasing home prices, and rising inflation that is outpacing wage growth. The housing market metrics show a slight deceleration captured in the section. Of note, August had the first decline in rental rates for one- and two-bedroom dwellings in 2022.

## Highlights

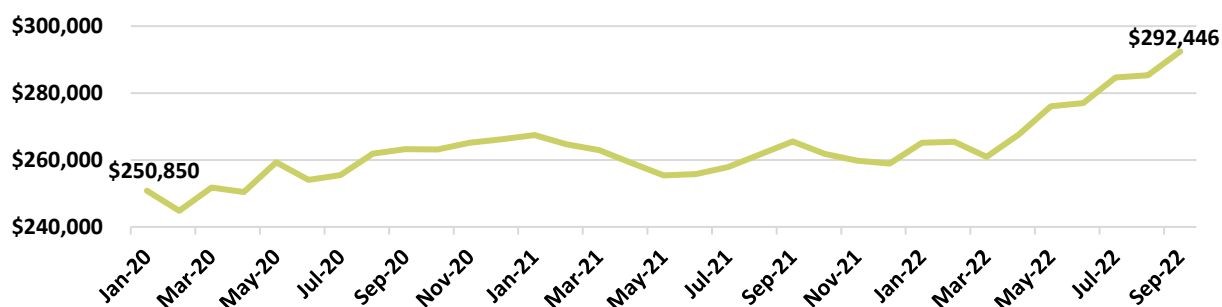
Ginnie Mae net MBS issuance has continued to rise throughout 2022, reaching \$109.5 billion YTD as of the end of August 2022. Ginnie Mae net MBS issuance in 2021 from January 2021 to August 2021 was \$8.2 billion, just 7.5% of net MBS issuance over the same period in 2022. The increase in net MBS issuance in 2022 contrasts with Ginnie Mae gross MBS issuance volume, which has declined in 2022 compared to 2021. During 2021, Ginnie Mae guaranteed \$584.5 billion of gross issuance from January 2021 to August 2021, but in the same period during 2022 that issuance number declined to \$374.5 billion.

Issuance Type	2020 (in \$ Billions)	2021 (in \$ Billions)	2022 YTD (in \$ Billions)
<b>Ginnie Mae Net MBS Issuance</b>	(\$19.3)	\$36.5	\$109.5
<b>Ginnie Mae Gross MBS Issuance</b>	\$763.9	\$840.9	\$374.5

According to the Congressional Budget Office, “The total dollar value of outstanding MBSs grows each year by net issuance, which is the difference between the amount of new MBSs issued in a year and the amount of previously issued MBSs repaid during that year. The gap between annual new issuance and net issuance depends mainly on the refinancing of outstanding mortgages. That gap is small in years with little refinancing and large in years with a great deal of refinancing.”<sup>1</sup>

The reduction in Ginnie Mae gross issuance would generally cause net issuance to fall as well, but the average size of new issued loans flowing into Ginnie Mae MBS now is considerably larger than pre-pandemic in early 2020. The increase in average loan size may offset the reduction in gross issuance caused by higher rates and keep net issuance positive for the foreseeable future. **Figure 1**, below, plots the average loan size securitized into new Single-Family Ginnie Mae MBS. Since December 2019, the average loan size securitized into new Single-Family Ginnie Mae MBS has risen 16.6% to \$292,446. As larger loans are securitized into MBS and prepayment rates on smaller loans decline, Ginnie Mae has recorded 14 straight months of positive net MBS issuance.

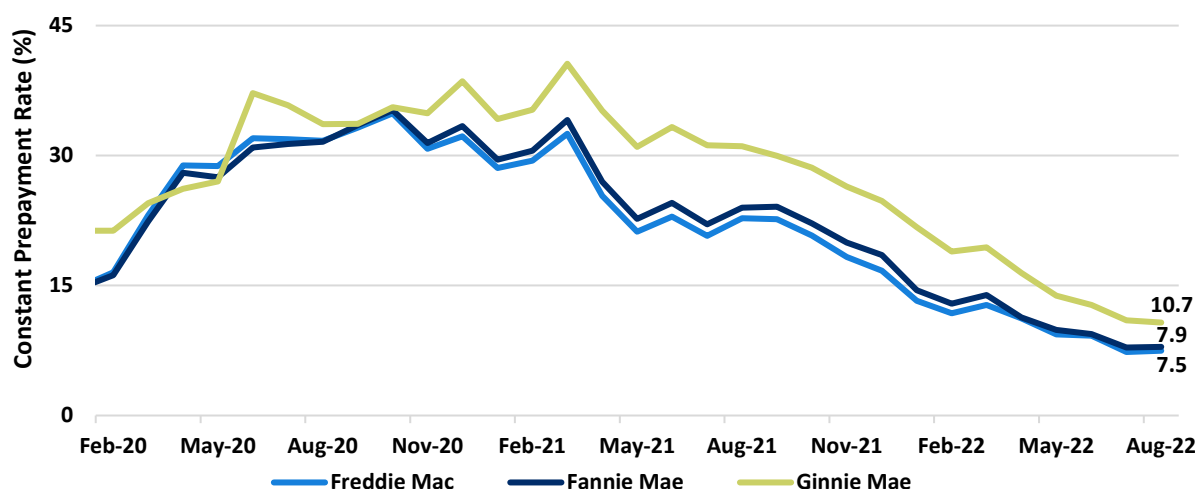
**Figure 1. Ginnie Mae New Issued Single-Family MBS, Average Loan Size**



<sup>1</sup> <https://www.cbo.gov/publication/57176>

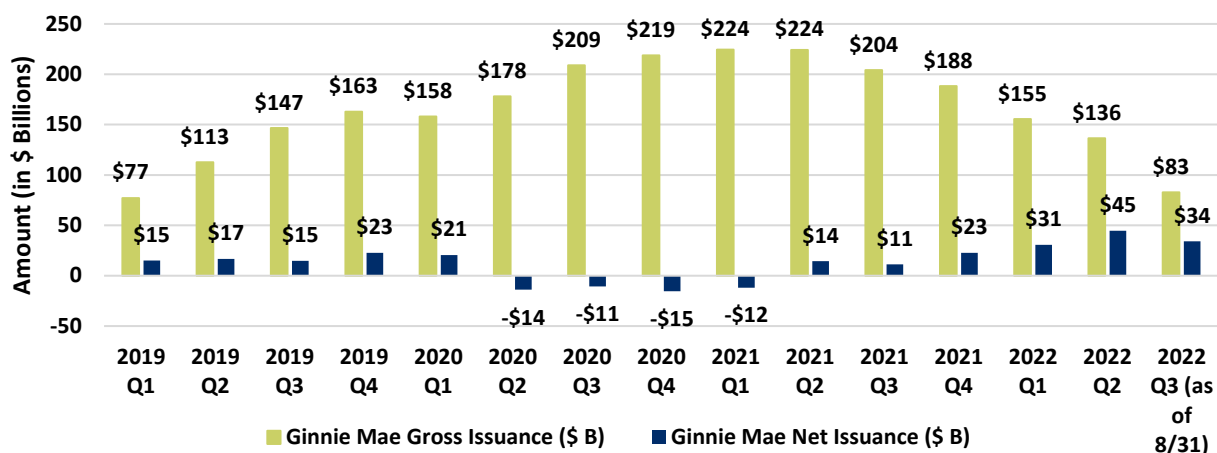
High Ginnie Mae prepayment rates result in more repaid Ginnie Mae MBS, negatively impacting net issuance. Reduced prepayment rates in Ginnie Mae MBS contributes towards growing net issuance numbers in 2022. As **Figure 2** below demonstrates, Ginnie Mae's one-month CPR has declined from a high of 40.6% in March 2021 to 10.7% in August 2022. As refinance activity and prepayment activity declines or remains stable at current levels, Ginnie Mae net issuance continues to grow for an extended period, presenting an opportunity for global investors to add Ginnie Mae MBS to their fixed-income portfolio.

**Figure 2. Agency One-Month Constant Prepayment Rate**



With higher average loans, lower prepayment rates and lower refinance rates, Ginnie Mae net MBS issuance will continue to grow. In this increasing rate environment, investors with regulations around risk thresholds, such as Banks, and investors with lower risk thresholds may look to Ginnie Mae MBS as an avenue to generate returns while managing risk. Ginnie Mae MBS carries a 0% risk weight due to the guarantee provided by the U.S. Government and can be used to maintain returns while limiting risk. **Figure 3** charts the increase of Ginnie Mae net issuance through August 2022.

**Figure 3. Ginnie Mae MBS Gross and Net Issuance (in \$ Billions)**



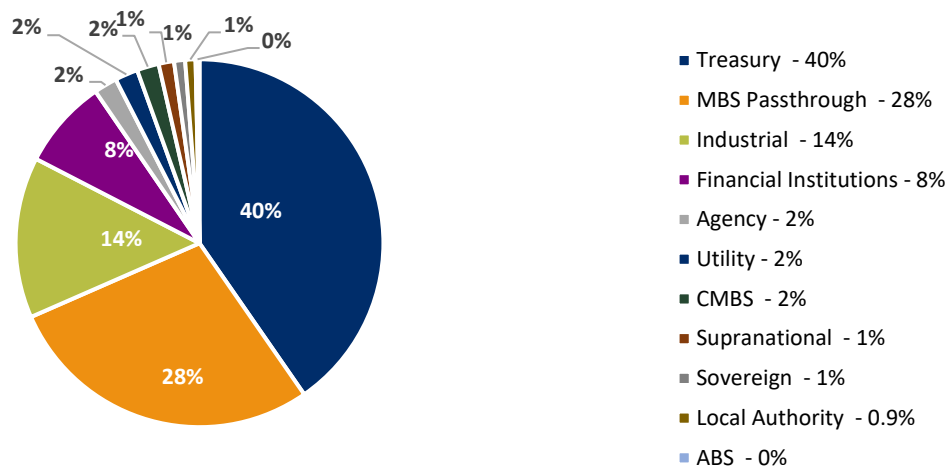
Source: Recursion. Data as of August 31, 2022.



## 1 US AGGREGATE AND GLOBAL INDICES

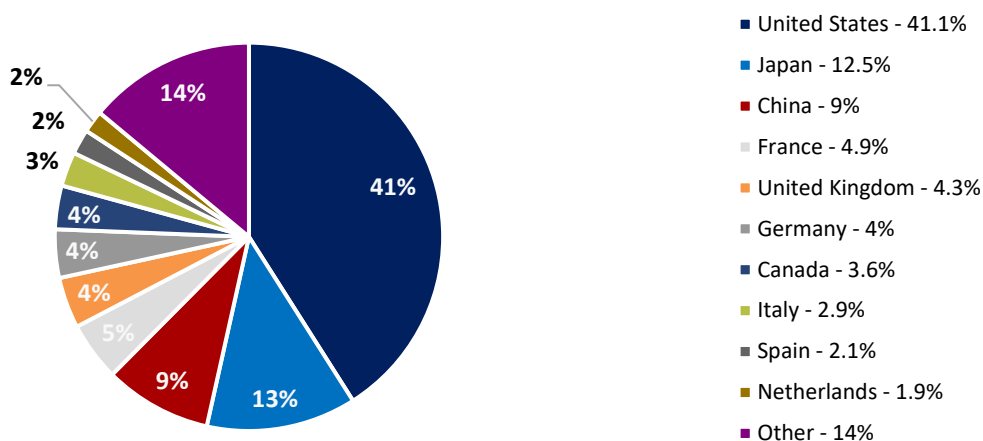
### 1.1 Bloomberg US Aggregate and Global Indices

**Figure 4. Bloomberg US Aggregate Index.**



US Treasuries continue to contribute approximately 40% to the Bloomberg US Aggregate Index. US MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) also continues to contribute approximately 28% to the Bloomberg US Aggregate Index. For the US Aggregate Index, the month over month (MoM) changes to the index components were no larger than 1% and were relatively stable.

**Figure 5. Bloomberg Global Aggregate Index by Country.**



In the Bloomberg Global Aggregate Index by Country, the US share of fixed income remains the largest share of total outstanding issuance, representing approximately 41% of the total Bloomberg Global Aggregate Index. Japan's share of fixed income increased to 13% from 12% while all other categories remained stable when compared to the prior month.

*Source: Bloomberg [both charts]. Note: Data as of September 2022. Figures in charts may not add to 100% due to rounding.*

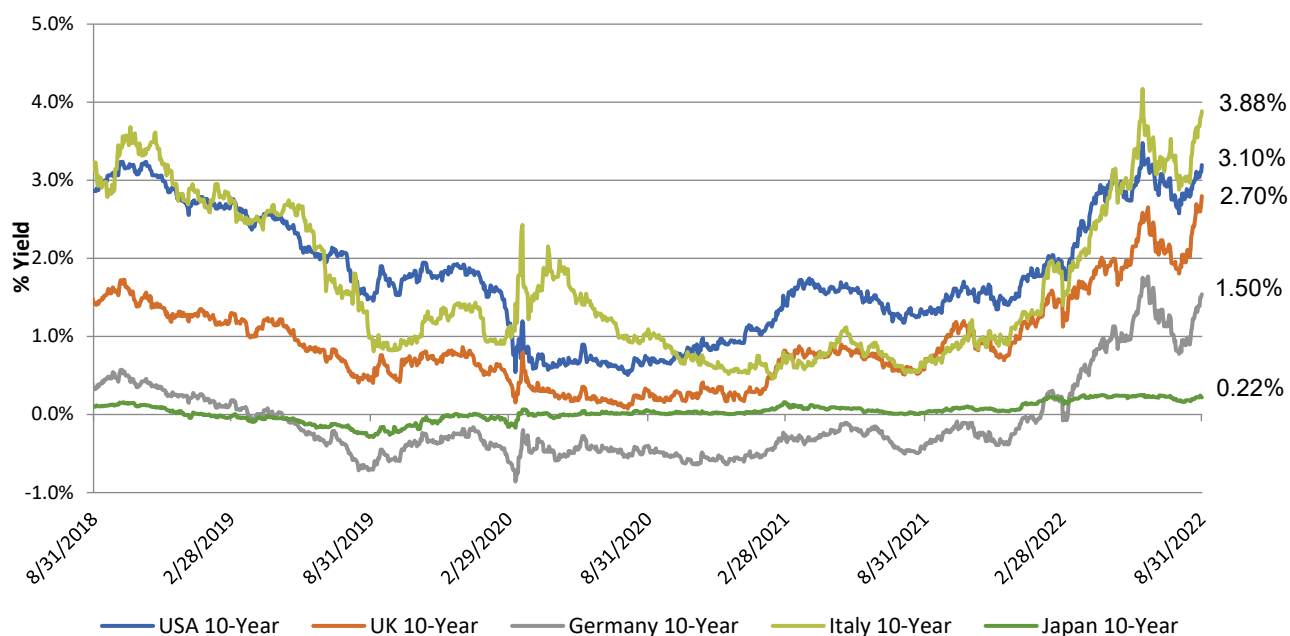
## 2 SOVEREIGN DEBT PRODUCT PERFORMANCE COMPARISONS

### 2.1 Global 10-Year Treasury Yields (Unhedged)

The US 10-year Treasury yield moved to 3.10% at month end August 2022, a MoM increase of 45 bps. US Treasury yields continue to remain second highest of all the government treasury yields depicted in the figure below, behind Italian Treasury yields.

- The yield on the UK 10-year notes increased to 2.70% at month-end August, a MoM increase of 84 bps.
- The yield on the German 10-year notes increased to 1.50% at month-end August, a MoM increase of 69 bps.
- The yield on the Italian 10-year note increased to 3.88% at month-end August, a MoM increase of 87 bps.
- The yield on the Japanese 10-year notes increased to 0.22% at month-end August, a MoM increase of 4 bps.

**Figure 6. Global 10-Year Treasury Yields.**



Source: Bloomberg. Note: Data as of September 2022.



## 2.2 US Treasury Hedged Yields

- The hedged yield for the 10-year Treasury JPY decreased MoM 10 bps to 2.27% at month-end August.
- The hedged yield for the 10-year Treasury EUR decreased MoM 5 bps to 1.30% at month-end August.

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



**Figure 8. 7–10yr Total Return Hedged, EUR.**



Source: Bloomberg. Note: Data as of September 2022.

## SECONDARY MORTGAGE MARKET

### 3 FIXED INCOME PRODUCT PERFORMANCE COMPARISONS

#### 3.1 Ginnie Mae Yields – USD

Ginnie Mae fixed rate MBS yields increased MoM in August 2022. Ginnie Mae II yields were at 4.12% at month-end June, decreased to 3.63% at month-end July, and have now increased 85 bps MoM to 4.48%. Ginnie Mae I yields were at 4.08% at month-end June, decreased to 3.61% at month-end July, and have now increased 88 bps to 4.49%. Over the past year, Ginnie Mae spreads over US 10-year Treasury yields have widened. Ginnie Mae II spreads over the US 10-year Treasury yield, just 38 bps at month end August 2021, had increased 91 bps to 129 bps over the US 10-year Treasury yield at month end August 2022. The yields on the Ginnie Mae I SF were 130 bps higher than the US 10-year Treasury yield at month end August, an increase in spread of 70 bps MoM and an increase of 89 bps YoY.

**Figure 9. Ginnie Mae II SF Yield, USD**



**Figure 10. Ginnie Mae I SF Yield, USD**

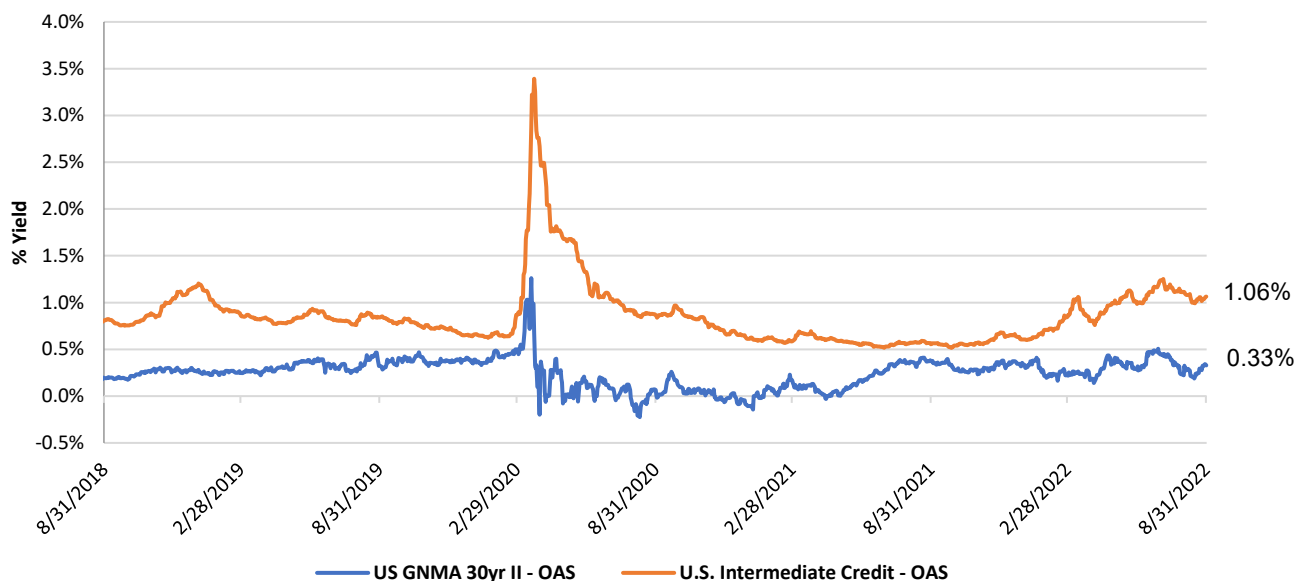


Sources Bloomberg. Note: Data as of September 2022

### 3.2 Ginnie Mae Yield Spreads – Intermediate Credit

The yield differential between US Intermediate Credit and GNMA II 30-year OAS decreased by 15 bps to 0.73% at month end August. The Ginnie Mae II 30-year OAS increased 10 bps MoM. The US Intermediate credit OAS has decreased 5 bps MoM.

**Figure 11. US GNMA II 30yr MBS OAS versus US Intermediate Credit OAS.**



**Figure 12. Spread between US Intermediate Credit and US GNMA II 30yr MBS OAS.**

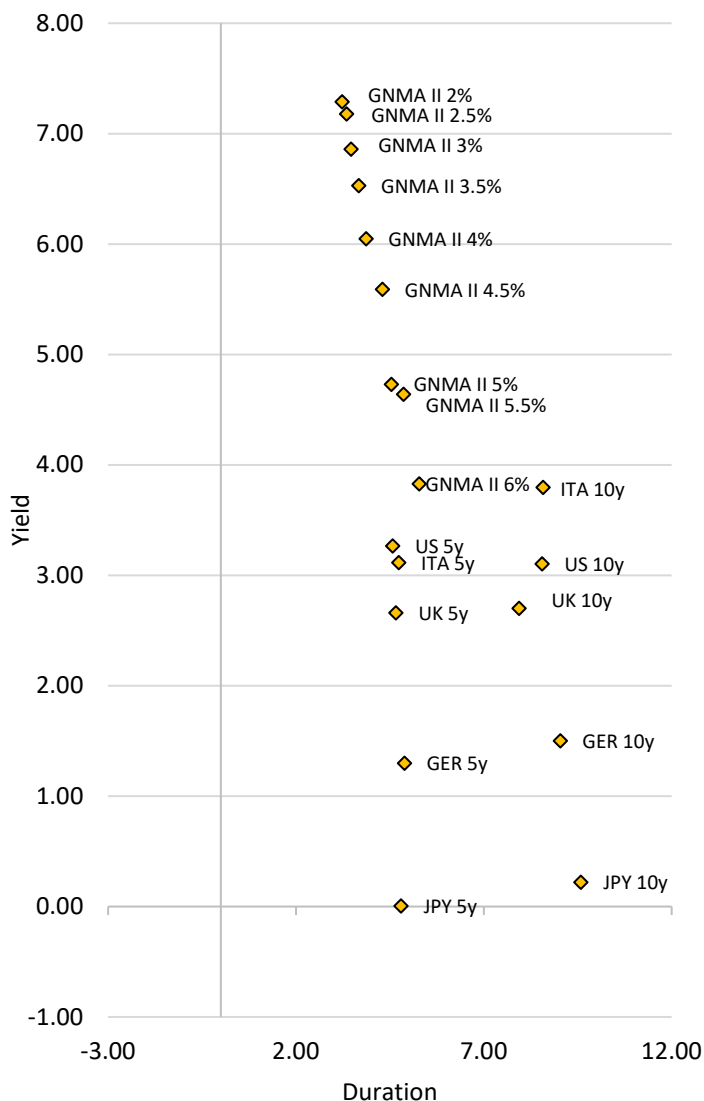


Source: Bloomberg. Note: Data as of September 2022.

### 3.3 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. In the aftermath of the recent interest rate hikes, sharp declines in duration, particularly for lower coupon GNMA II securities, have been observed. Yields have increased sharply as well.

**Figure 13. Yield vs. Duration.**



Security	Duration	Yield
US 5y	4.57	3.27
US 10y	8.55	3.10
JPY 5y	4.80	0.01
JPY 10y	9.58	0.22
GER 5y	4.89	1.30
GER 10y	9.03	1.50
ITA 5y	4.73	3.12
ITA 10y	8.58	3.80
UK 5y	4.66	2.66
UK 10y	7.94	2.70
GNMA II 2%	3.23	7.29
GNMA II 2.5%	3.35	7.18
GNMA II 3.0%	3.47	6.86
GNMA II 3.5%	3.67	6.53
GNMA II 4.0%	3.87	6.05
GNMA II 4.5%	4.30	5.59
GNMA II 5.0%	4.54	4.73
GNMA II 5.5%	4.86	4.64
GNMA II 6.0%	5.28	3.83

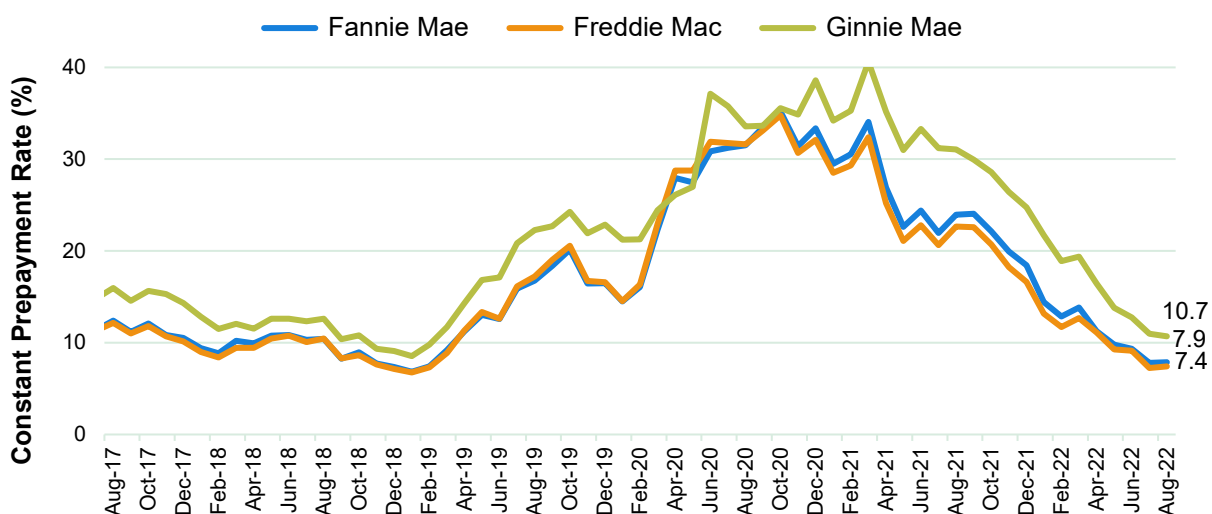
Source: Bloomberg. Note: Yield and modified duration for GNMA II securities is based on median prepayment assumptions from surveyed Bloomberg participants. All data is as of August 2022. Yields are in base currency of security and unhedged.

## 4 PREPAYMENTS

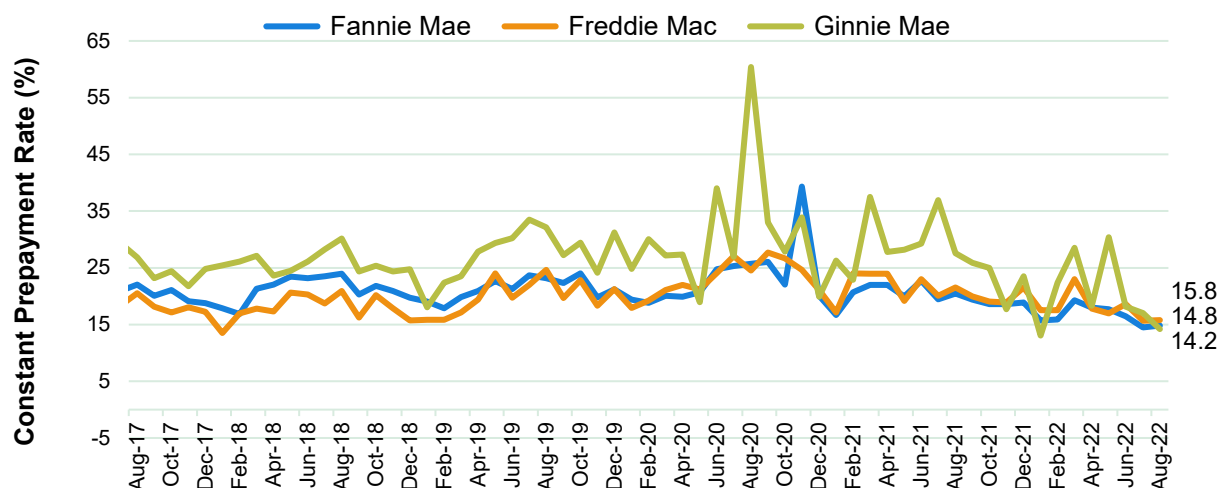
### 4.1 Aggregate Prepayments (CPR)

Ginnie Mae fixed rate aggregate prepayment speeds decreased in August by 2.7% MoM, while Fannie Mae and Freddie Mac CPRs increased by 1.3% and 2.8%, respectively. ARM prepayments have dropped for all Agencies, due to decreased refinance activity in the current higher interest rate environment.

**Figure 14. Fixed Rate Aggregate 1-Month CPR.**



**Figure 15. ARM Aggregate 1-Month CPR.**

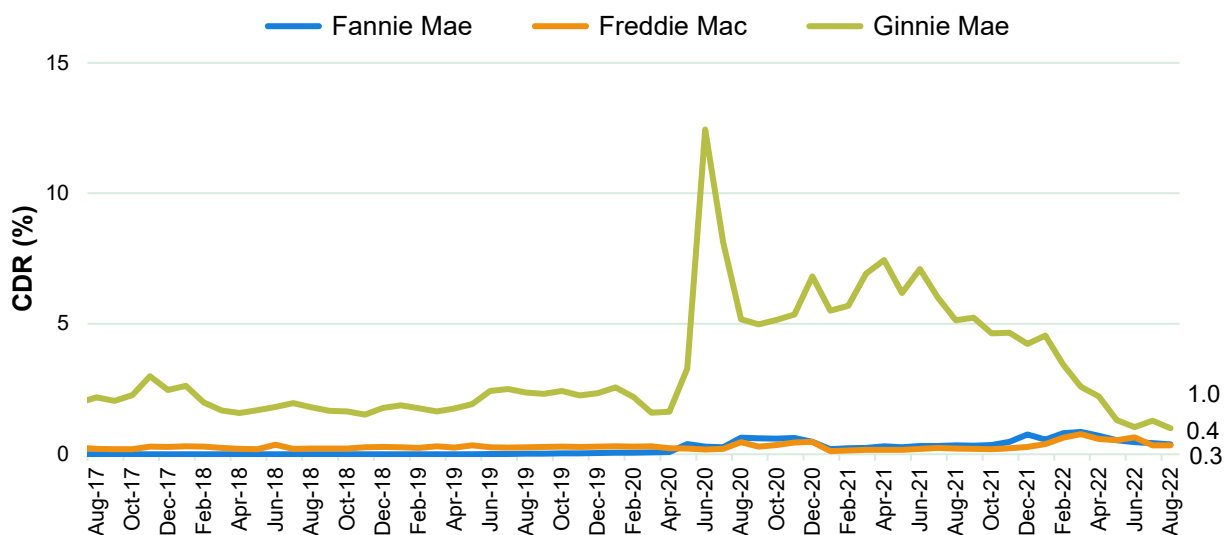


Source: Recursion, Note: Data as of August 2022

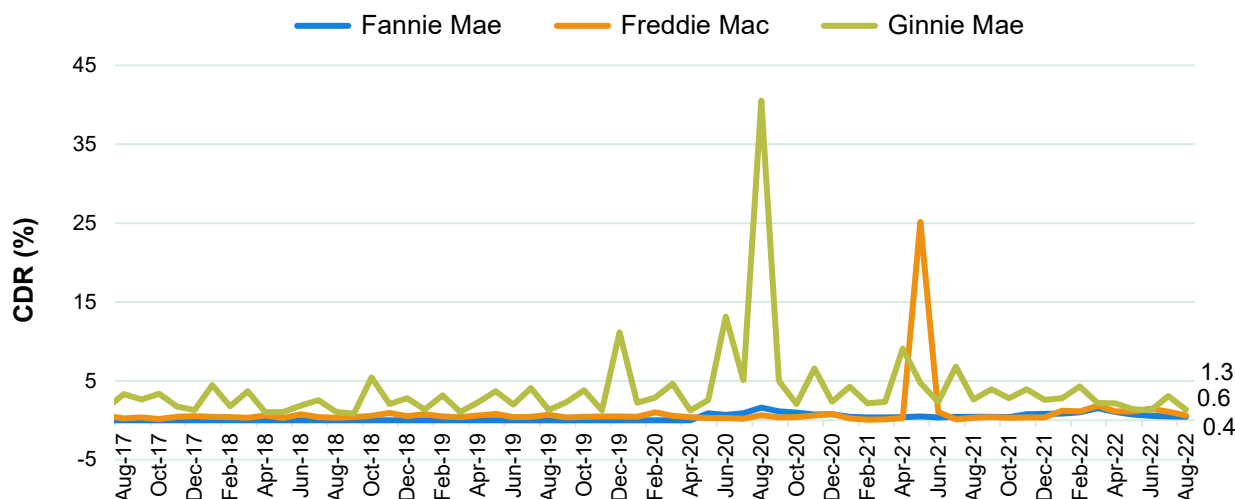
## 4.2 Involuntary Prepayments (CDR)

Fixed rate involuntary prepayments (CDR) remain higher for Ginnie Mae than for the GSEs. The spread in prepayment speeds between Ginnie Mae's and GSE prepayments has converged significantly since Ginnie Mae's CDR peak of 12.4 CDR in June 2020. ARM CDRs for Ginnie Mae's remained higher than those of the GSEs, due to the lower credit quality of the Ginnie Mae loans but did decrease by 58% from July to August.

**Figure 16. Fixed Rate Aggregate CDR.**



**Figure 17. ARM Aggregate CDR.**



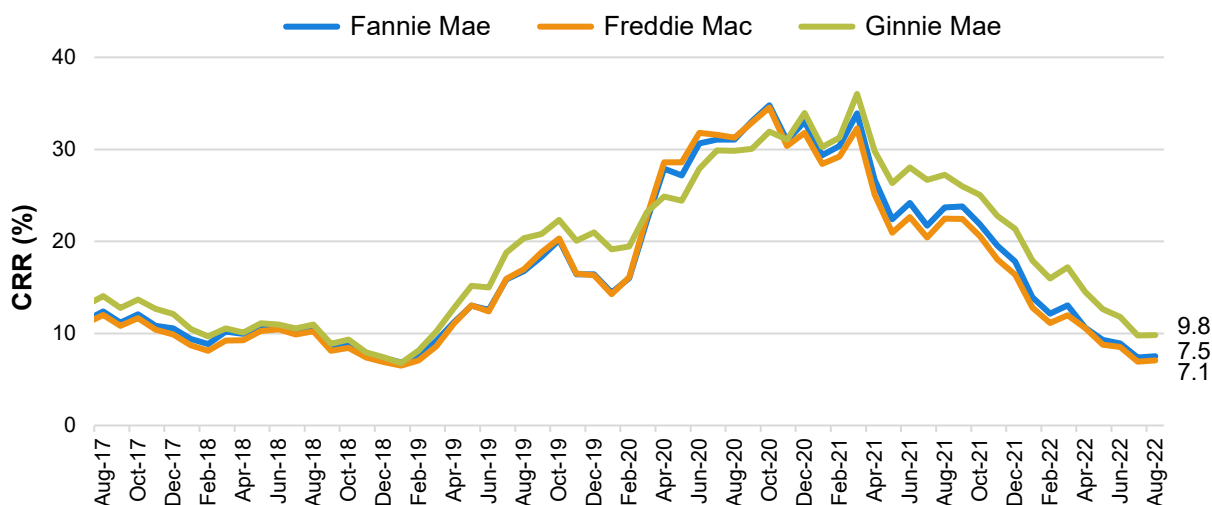
Source: Recursion, Note: Data as of August 2022



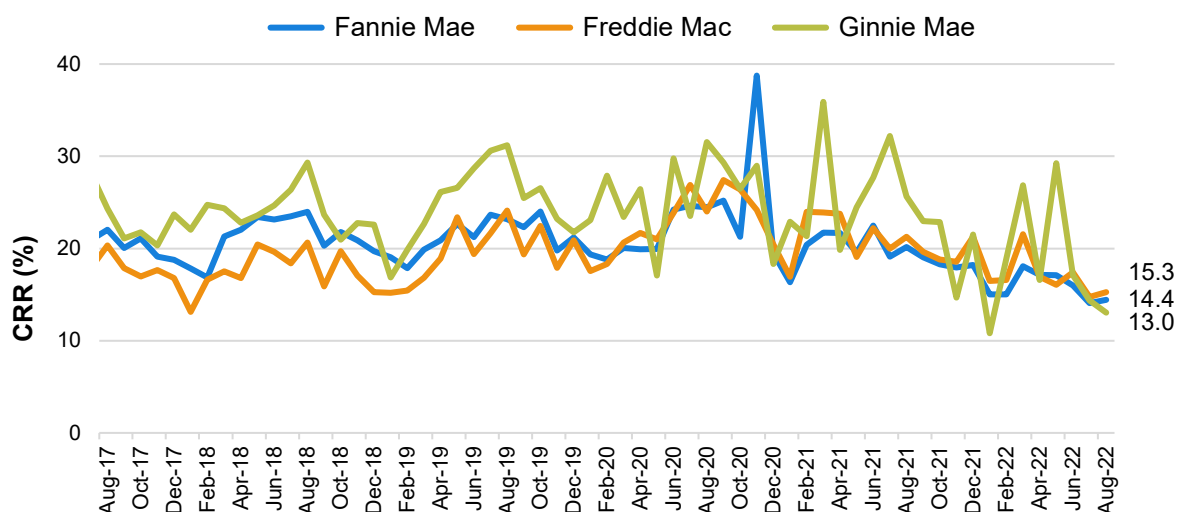
### 4.3 Voluntary Prepayment Rates (CRR)

Voluntary prepayments (CRR) continue to remain higher for Ginnie Mae relative to the GSEs. In the existing market of increasing interest rates and higher prices ([see section on Housing Affordability – Mortgage Rate Trends](#)), voluntary prepayments are facing downward trends for both Ginnie Mae and the GSEs. Fannie Mae and Freddie Mac saw slight increases of 1.4% and 2.9% MoM in fixed rate aggregate CRR, respectively. Freddie Mac saw a 3.4% MoM increase and Fannie Mae saw a 2.1% MoM increase in ARM aggregate CRR. Ginnie Mae remained consistent in fixed rate aggregate CRR and saw a 9.1% MoM decrease in ARM aggregate CRR.

**Figure 18. Fixed Rate Aggregate CRR.**



**Figure 19. ARM Aggregate CRR.**



Source: Recursion, Note: Data as of August 2022

## 5 SINGLE-FAMILY MBS PASS-THROUGH ISSUANCE

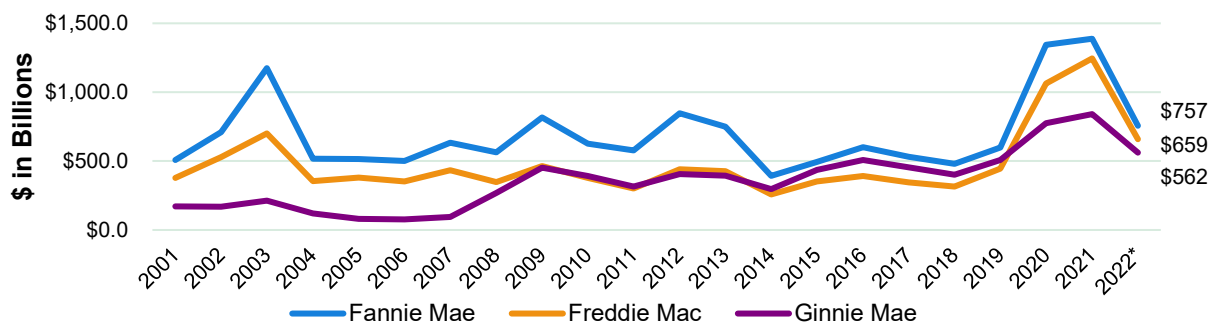
### 5.1 Gross Issuance of Agency MBS

Agency gross MBS issuance decreased MoM by 2.4% (from July to August). Fannie Mae and Ginnie Mae saw decreases in gross issuance as compared to July, while Freddie Mac saw an increase of 14.9%.

**Table 1. 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	\$1,388.0	\$1,245.1	\$2,633.1	\$840.9	\$3,474.0
2022 YTD	\$504.4	\$439.0	\$943.4	\$374.5	\$1,317.9
2022 Annualized	\$756.6	\$658.6	\$1,415.1	\$561.8	\$1,976.9

**Figure 20. Agency Gross Issuance**



\*2022 values have been annualized – the annualization methodology is not seasonally adjusted.

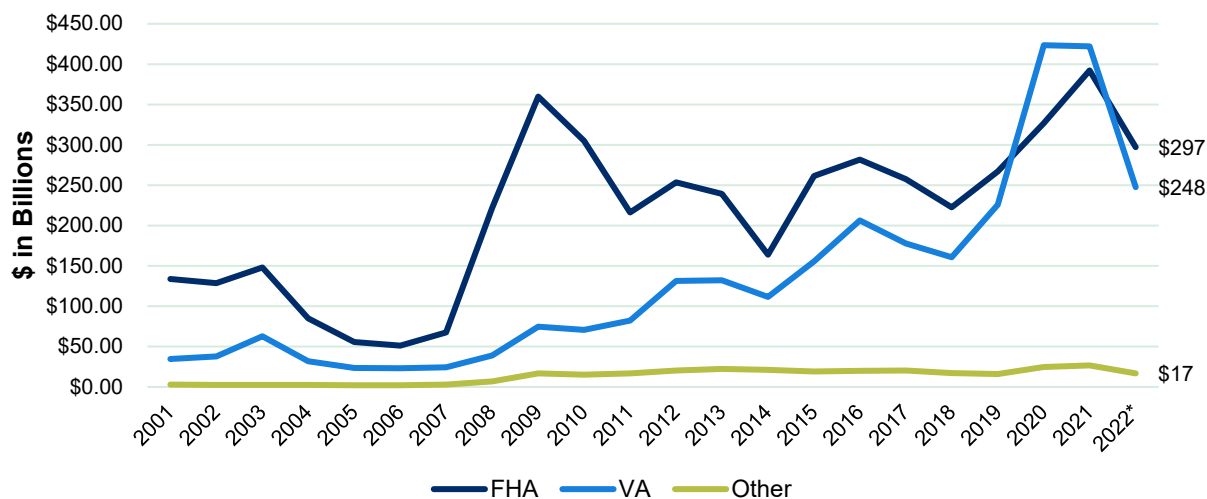
Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

Ginnie Mae's \$40.3 billion in gross issuance in August was approximately 43% below the average monthly issuance for 2021. Thus far in 2022, Ginnie Mae is on pace to have lower gross issuance than 2021 by approximately \$279.1 billion.

**Table 2. Ginnie Mae Gross Issuance Collateral Composition (\$ in billions)**

<i>Issuance Year</i>	<i>FHA</i>	<i>VA</i>	<i>Other</i>	<i>Total</i>
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	\$392.2	\$422.1	\$26.7	\$840.9
2022 YTD	\$198.2	\$165.1	\$11.2	\$374.5
2022 Annualized	\$297.3	\$247.7	\$16.8	\$561.8

**Figure 21. Ginnie Mae Gross Issuance**



\*2022 values have been annualized – the annualization methodology is not seasonally adjusted.

Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

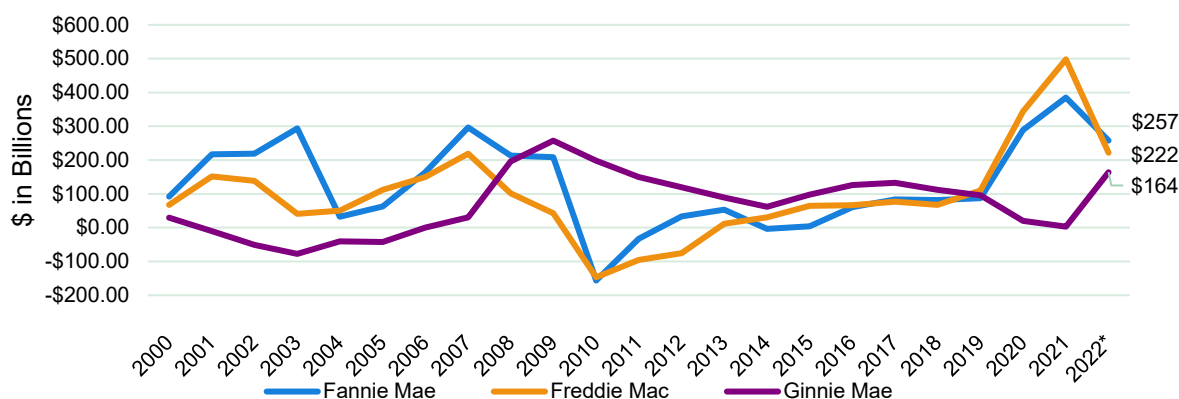
## 5.2 Net Issuance of Agency MBS

Agency net issuance in August was approximately \$40.8 billion, which represents an 8.3% MoM decrease in net issuance. Ginnie Mae net issuance was \$16.2 billion in August. FHA net issuance now slightly outpaces VA, as shown in Table 4 and Figure 23.

**Table 3. 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	\$384.9	\$498.0	\$882.9	\$2.7	\$885.6
2022 YTD	\$171.6	\$147.7	\$319.3	\$109.5	\$428.8
2022 Annualized	\$257.4	\$221.6	\$479.0	\$164.3	\$643.3

**Figure 22. Agency Net Issuance**



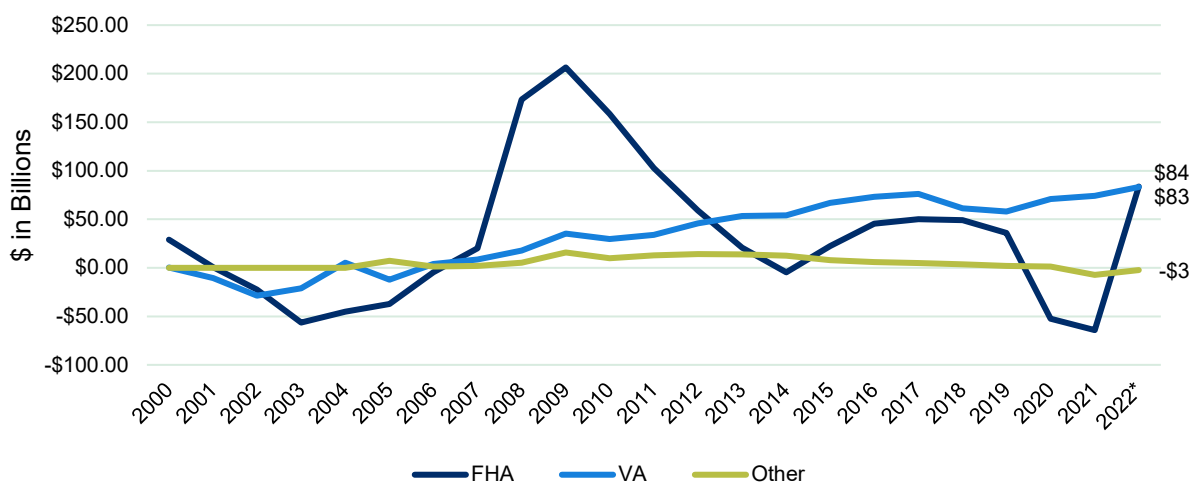
\*2022 values have been annualized – the annualization methodology is not seasonally adjusted.

Note: Numbers are rounded to the nearest hundred million. For sums, like “GSE Total”, the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

**Table 4. Ginnie Mae Net Issuance Collateral Composition (\$ in billions)**

<i>Issuance Year</i>	<i>FHA</i>	<i>VA</i>	<i>Other</i>	<i>Total</i>
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	-\$64.2	\$74.2	-\$7.3	\$2.7
2022 YTD	\$55.7	\$55.5	-\$1.7	\$109.5
2022 Annualized	\$83.6	\$83.2	-\$2.5	\$164.3

**Figure 23. Ginnie Mae Net Issuance**



\*2022 values have been annualized – the annualization methodology is not seasonally adjusted.

Note: Numbers are rounded to the nearest hundred million. For sums, like “GSE Total”, the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

### 5.3 Monthly Issuance Breakdown

**Table 5. Ginnie Mae Net Issuance Collateral Composition (\$ in billions)**

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-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
Dec-21	\$93.7	\$85.4	\$58.9	\$179.1	\$238.0	\$33.8	\$34.4	\$5.7	\$68.3	\$73.9
Jan-22	\$93.1	\$85.9	\$59.0	\$179.0	\$238.0	\$45.6	\$37.6	\$14.0	\$83.2	\$97.3
Feb-22	\$73.3	\$64.6	\$49.0	\$137.9	\$186.9	\$27.8	\$22.7	\$9.7	\$50.5	\$60.2
Mar-22	\$76.8	\$62.9	\$47.4	\$139.7	\$187.1	\$22.6	\$23.1	\$6.9	\$45.7	\$52.6
Apr-22	\$65.3	\$53.5	\$47.8	\$118.8	\$166.6	\$19.5	\$17.7	\$13.2	\$37.2	\$50.4
May-22	\$54.7	\$43.7	\$45.0	\$98.4	\$143.4	\$13.6	\$12.5	\$15.5	\$26.1	\$41.6
Jun-22	\$54.5	\$42.0	\$43.6	\$96.5	\$140.1	\$14.8	\$10.7	\$16.0	\$25.5	\$41.5
Jul-22	\$46.8	\$40.3	\$42.4	\$87.1	\$129.5	\$12.1	\$14.4	\$18.0	\$26.5	\$44.5
Aug-22	\$39.8	\$46.3	\$40.3	\$86.1	\$126.4	\$4.8	\$19.8	\$16.2	\$24.6	\$40.8

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 August 2022. 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 August 2022 GMAR net issuance data reflect the UPB at security issuance for Fannie Mae and Freddie Mac. Note: Numbers are rounded to the nearest hundred million.

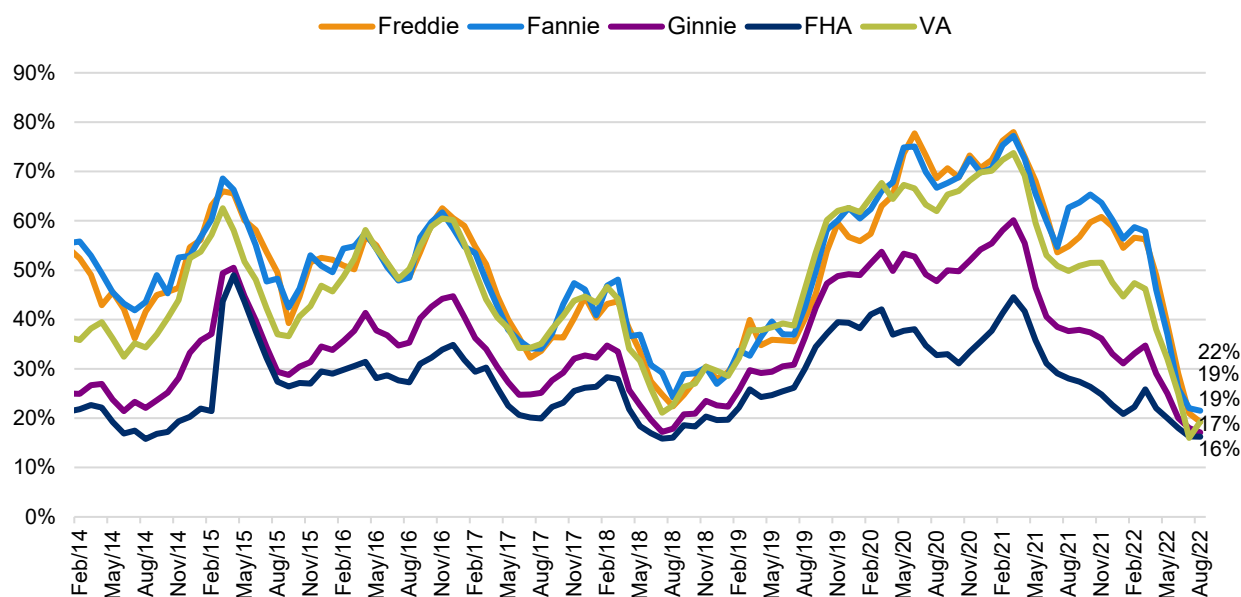


## 5.4 Percent Refi at Issuance – Single-Family

Refinance activity has dropped or remained stagnant for all of the agencies. In the conventional mortgage market space, Freddie Mac saw a decline of approximately 10% MoM while Fannie Mae's refinance share remained stable MoM. Ginnie Mae's MoM decline has been approximately 6%, with the greater decline taking place with VA lending which was down almost 10% in August MoM. FHA's refinance share remained consistent. The decline in refinance activity is leading to, particularly in the case of Ginnie Mae, a sharp increase in net issuance.

- Freddie Mac's refinance percentage has dropped to 19% in August, down from 21% in July.
- Fannie Mae's refinance percentage has stayed consistent at 22% in August.
- Ginnie Mae's refinance percentage dropped to 17% in August, down from 18% in July.
- FHA's refinance percentage has stayed consistent at 16% in August.
- VA's refinance percentage has dropped to 19% in August, down from 21% in July.

**Figure 24. Percent Refinance at Issuance – Single-Family.**



Sources: Recursion. Notes: Data as of August 2022

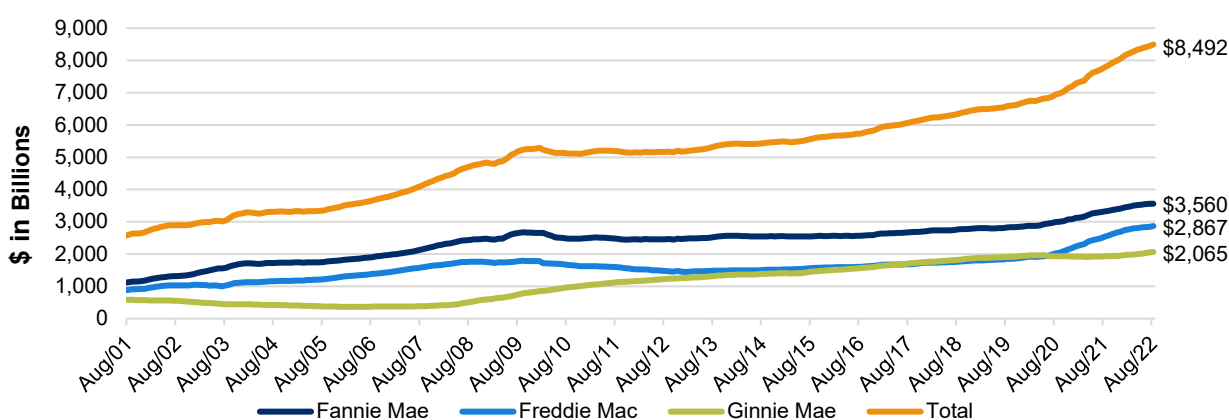
## 6 AGENCY SINGLE-FAMILY MBS OUTSTANDING

### 6.1 Outstanding Single-Family Agency MBS

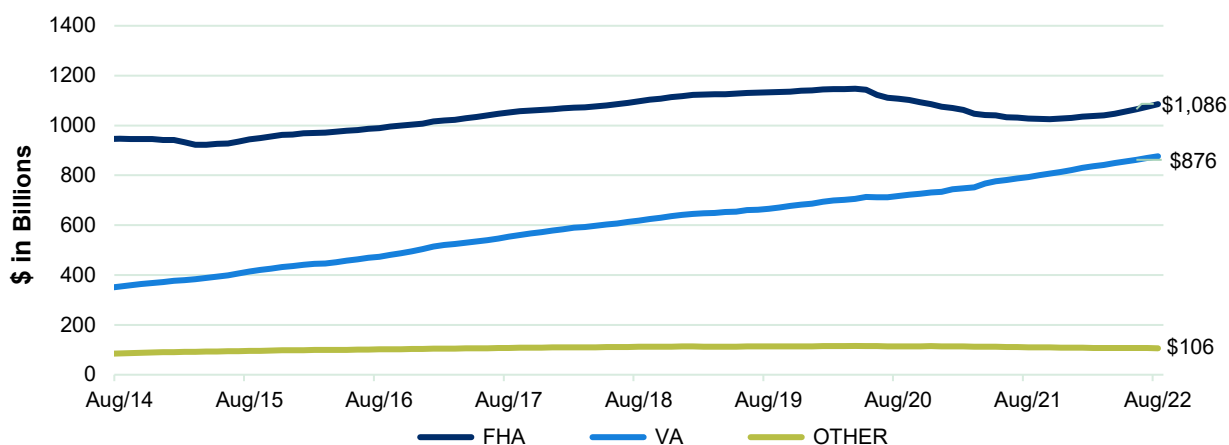
As of August 2022, outstanding single-family MBS in the Agency market totaled \$8.492 trillion: 41.9% Fannie Mae, 33.8% Freddie Mac, and 24.3% Ginnie Mae MBS. Over the past twelve months, Freddie Mac's, Fannie Mae's, and Ginnie Mae's total outstanding MBS increased by approximately 13.0%, 7.2% and 7.2%, respectively. Fannie Mae outstanding MBS remains larger than Freddie Mac's and Ginnie Mae's by approximately \$693 billion and \$1.5 trillion, respectively.

Ginnie Mae MBS collateral composition has changed dramatically over the past five years. In August 2017, 61.4% of Ginnie Mae outstanding collateral was FHA and 32.3% was VA. In August 2022, FHA collateral comprised 52.5% of Ginnie Mae MBS outstanding and VA collateral comprised 42.4% of Ginnie Mae MBS outstanding.

**Figure 25. Outstanding Agency Mortgage-Backed Securities.**



**Figure 26. Composition of Outstanding Ginnie Mae Mortgage-Backed Securities.**

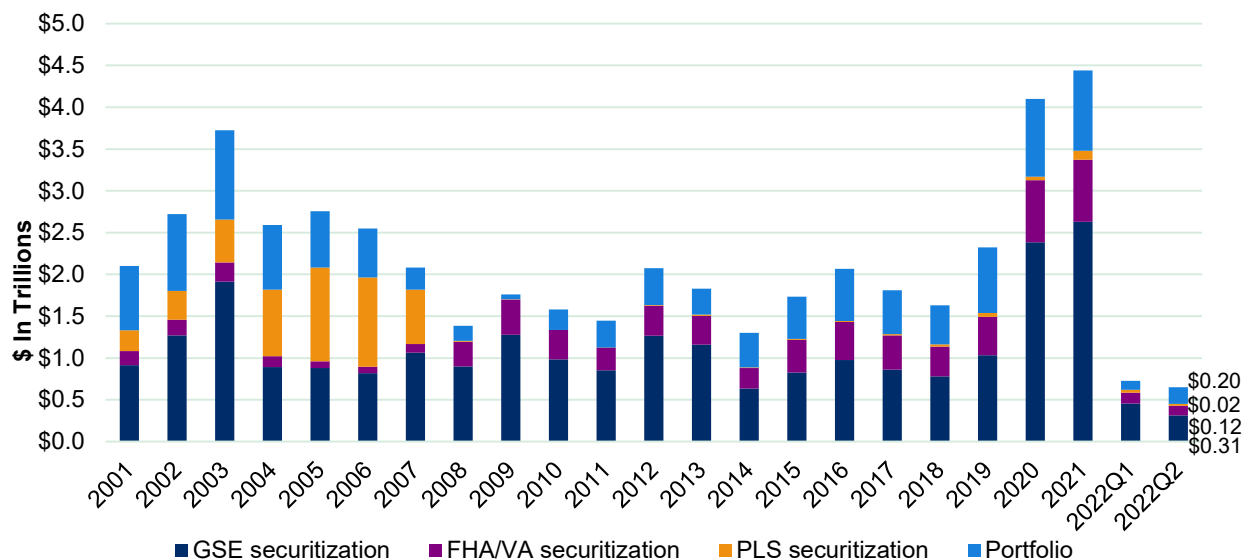


Sources: Recursion. Notes: Data as of August 2022.

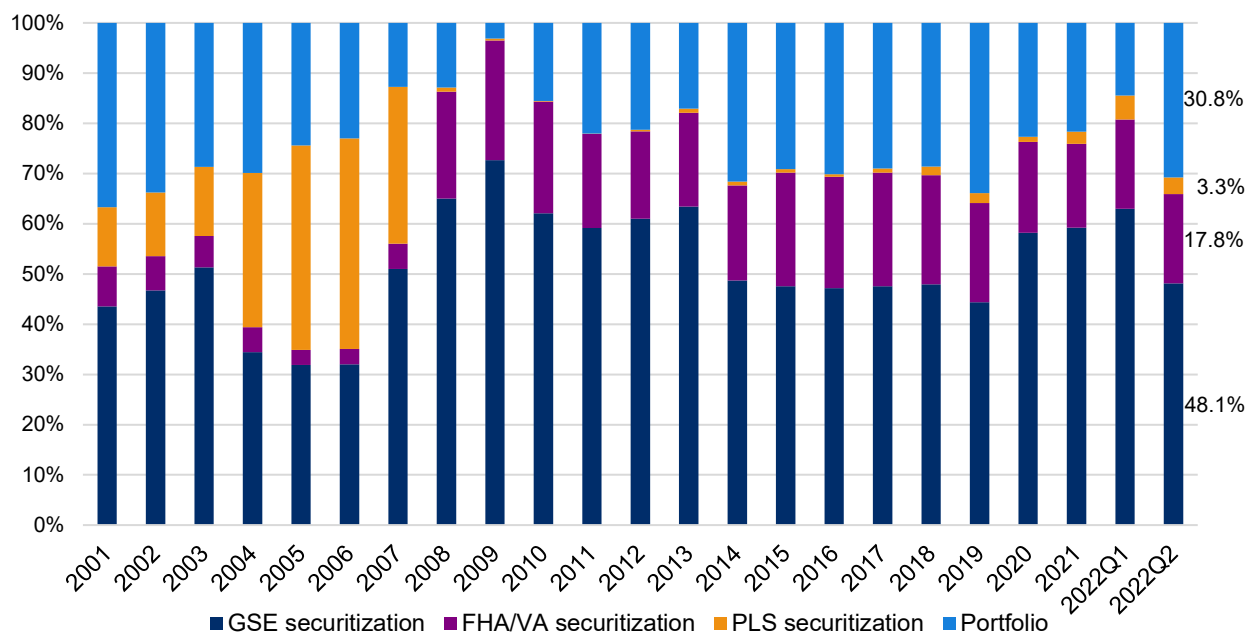
## 6.2 Origination Volume and Share Over Time

Origination volume continued to decline in Q2 2022, with \$650 billion in originations in Q2, which represents a decline in issuance from Q1 2022 of approximately 10%. Ginnie Mae's share of total origination increased slightly from 17.4% to 17.8% in Q2 2022, while Portfolio origination more than doubled from 14.7% to over 30.8% in Q2 2022.

**Figure 27. First Lien Origination Volume**



**Figure 28. First Lien Origination Share**



Source: Inside Mortgage Finance. Note: Data as of Q2 2022.

### 6.3 Agency Issuance and Agency Outstanding by State

Ginnie Mae MBS represent approximately 27% of new agency issuance over the past year. The share of Ginnie Mae's new agency issuance varies across states, with the highest Ginnie Mae share still being in Alaska (51%) and the lowest still in the District of Columbia (16%). The highest Ginnie Mae outstanding share is in Alaska and Mississippi (47%) and the lowest still in the District of Columbia (13%). There is currently a 2% difference between Ginnie Mae's share of new agency issuance and Ginnie Mae's share of agency outstanding.

**Table 6. Agency Issuance Breakdown by State**

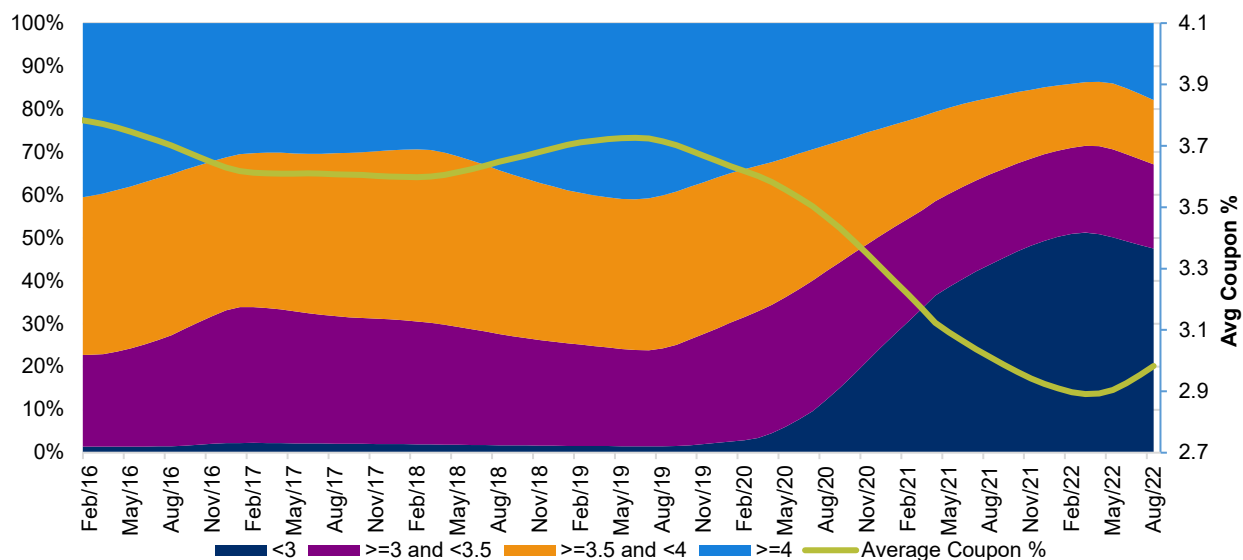
National	Agency Issuance (past 1 year)				Agency Outstanding			
	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)	GNMA Share by UPB	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)
	<b>27%</b>	<b>2,883,500</b>	<b>269.68</b>	<b>277.91</b>	<b>25%</b>	<b>10,481,638</b>	<b>201.63</b>	<b>210.55</b>
AK	51%	9,765	326.40	288.74	47%	36,923	260.14	221.25
AL	40%	61,311	213.21	229.18	40%	231,414	154.08	177.07
AR	37%	33,051	181.82	211.57	38%	134,580	129.93	160.32
AZ	25%	88,146	293.73	301.05	24%	265,744	214.00	224.68
CA	19%	208,364	425.03	418.80	16%	665,621	323.48	321.70
CO	26%	68,129	379.42	362.29	23%	209,064	286.79	276.63
CT	27%	27,567	254.30	272.17	25%	103,595	200.12	209.71
DC	16%	2,347	496.73	435.15	13%	8,743	378.41	352.37
DE	32%	14,155	256.76	276.69	31%	50,572	201.95	210.66
FL	31%	252,235	273.40	277.25	31%	825,152	207.37	209.69
GA	34%	143,851	237.99	272.07	33%	485,832	175.70	205.34
HI	37%	9,813	599.21	478.14	31%	32,946	467.52	359.33
IA	24%	19,698	178.85	194.43	22%	80,974	132.22	148.98
ID	23%	17,363	319.71	306.59	23%	62,382	213.35	221.96
IL	23%	96,584	205.38	239.43	21%	356,556	158.13	179.67
IN	30%	71,383	181.42	200.00	30%	273,048	131.34	150.09
KS	29%	23,359	188.45	217.42	28%	94,735	138.08	163.80
KY	34%	41,894	190.35	206.69	34%	161,339	141.31	155.63
LA	43%	52,118	200.97	230.70	39%	195,697	156.41	177.90
MA	19%	32,612	359.39	357.18	15%	110,584	281.13	269.98
MD	36%	83,604	328.45	320.12	33%	285,305	263.33	250.31
ME	26%	9,869	233.56	256.83	25%	37,086	175.05	191.47
MI	20%	68,638	180.45	208.50	20%	269,195	131.64	156.90
MN	18%	38,911	239.34	263.93	17%	157,078	180.32	198.52
MO	29%	60,323	191.27	213.00	28%	239,818	139.83	162.02
MS	47%	30,172	194.46	209.00	47%	119,660	141.35	160.98
MT	23%	8,177	289.63	296.33	23%	31,912	205.31	215.68
NC	28%	112,923	235.54	269.05	28%	405,183	172.05	200.87
ND	28%	4,628	240.04	238.31	23%	16,707	192.19	185.47
NE	26%	14,764	207.71	211.94	26%	63,920	146.67	160.95
NH	22%	9,783	293.28	290.43	22%	37,570	223.04	214.76
NJ	24%	65,120	302.22	326.13	21%	226,066	237.25	254.95
NM	36%	22,642	228.73	239.06	37%	93,259	164.11	177.77
NV	30%	42,334	320.98	310.35	29%	129,257	243.82	234.22
NY	20%	63,406	299.10	339.00	19%	301,168	206.50	248.41
OH	28%	101,604	175.55	197.76	28%	413,930	128.21	148.95
OK	39%	43,074	193.91	213.04	41%	185,954	138.95	161.60
OR	20%	31,461	335.26	340.68	19%	108,263	250.69	253.14
PA	24%	84,972	196.35	240.71	25%	381,306	147.53	181.93
RI	33%	9,940	303.10	283.40	29%	34,653	230.41	213.33
SC	34%	68,971	238.52	250.59	33%	228,181	179.88	191.36
SD	30%	7,085	234.03	233.33	29%	28,787	170.78	177.76
TN	30%	73,252	243.51	266.67	31%	264,865	171.59	203.00
TX	29%	277,625	246.03	282.41	31%	1,062,479	178.28	210.56
UT	19%	28,987	351.84	351.83	18%	93,162	254.62	262.64
VA	39%	123,016	325.56	315.78	35%	437,043	254.90	251.04
VI	19%	153	369.86	397.33	23%	772	242.60	302.37
VT	19%	2,844	232.27	253.44	18%	11,883	179.87	180.40
WA	23%	67,774	379.98	382.57	21%	227,959	280.89	289.18
WI	18%	31,768	203.61	221.03	16%	121,053	154.84	163.95
WV	44%	14,877	190.24	194.14	43%	58,007	142.42	145.38
WY	35%	7,058	256.74	258.94	34%	24,656	204.53	201.90

Sources: Recursion. Notes: Outstanding balance is based on loan balance as of August 2022. Ginnie Mae issuance is based on the last 12 months, from July 2021 to August 2022. Values above are based on loan level disclosure data, thus excluding loan balances for the first six months that loans are in a pool. This accounts for the difference in the share of outstanding MBS represented above and in [Outstanding Single-Family Agency MBS](#).

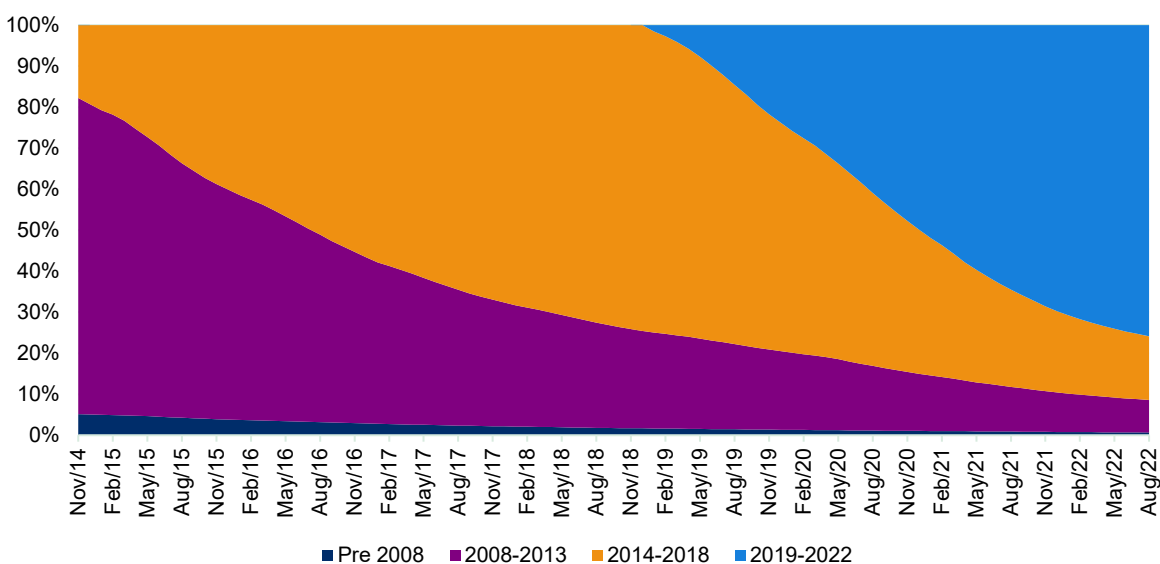
## 6.4 Outstanding Ginnie Mae MBS Volume by Coupon and Vintage Over Time

As of August 2022, the weighted average coupon (WAC) on outstanding Ginnie Mae MBS increased slightly from 2.95% in July 2022 to 2.98% in August. With 30-year fixed mortgage rates for certain credit profiles at over 6.0% in August, this increase in WAC is likely to continue. The bottom chart illustrates that loans originated since 2019 account for 76% of Ginnie Mae MBS collateral outstanding.

**Figure 29. Outstanding Ginnie Mae MBS Balance, by Coupon.**



**Figure 30. Outstanding Ginnie Mae MBS Balance, by Vintage.**



Sources: Recursion. Note: August 2022 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.

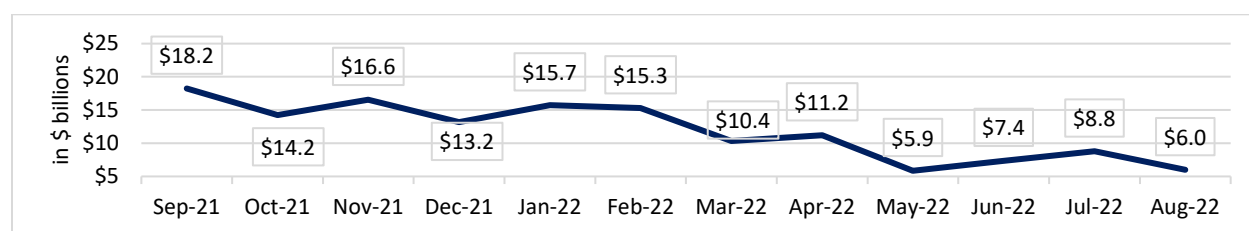
## 7 AGENCY REMIC SECURITIES

### 7.1 Monthly REMIC Demand for Ginnie Mae MBS

In July 2022, \$6.0 billion of Ginnie Mae MBS were securitized into Real Estate Mortgage Investment Conduits (REMICs) as underlying collateral, a 32% month over month decrease. Of that, approximately \$1.6 billion were Multifamily MBS having coupons between 2.5% and 3.5%. \$4.4 billion were Single-Family MBS with 67% of the Single-Family MBS having coupons over 4.5%.

As of August, in 2022 approximately \$80.6 billion of Ginnie Mae Single-Family and Multifamily MBS were securitized into Ginnie Mae REMIC transactions. This represents a roughly 40% decrease over the same period in 2021 (\$133.6 billion).

**Figure 31. Ginnie Mae Single-Family and Multifamily MBS Securitized into REMICs.**



**Table 7. July 2022 REMIC Collateral Coupon Distribution.**

Net Coupon (%)	Approx. Ginnie Mae MBS amount securitized into REMIC Deals (\$MM) <sup>2</sup>	% Breakdown of REMIC Collateral by coupon <sup>17</sup>
<b>Multifamily</b>		
2.51-3.00	614.6	39%
3.01-3.50	951.4	61%
<b>Subtotal</b>	<b>1,566.0</b>	<b>100%</b>
<b>Single-Family</b>		
2.51-3.00	162.1	4%
3.01-3.50	-	0%
3.51-4.00	591.1	13%
4.01-4.50	690.0	16%
4.51-5.00	1,870.3	42%
5.01-5.50	1,015.8	23%
5.51-6.00	70.1	2%
6.01-6.51	11.9	0%
<b>Subtotal</b>	<b>4,411.3</b>	<b>100%</b>
<b>Grand Total</b>	<b>5,977.3</b>	

Source: Ginnie Mae Disclosure Files

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



## 7.2 REMIC Market Snapshot

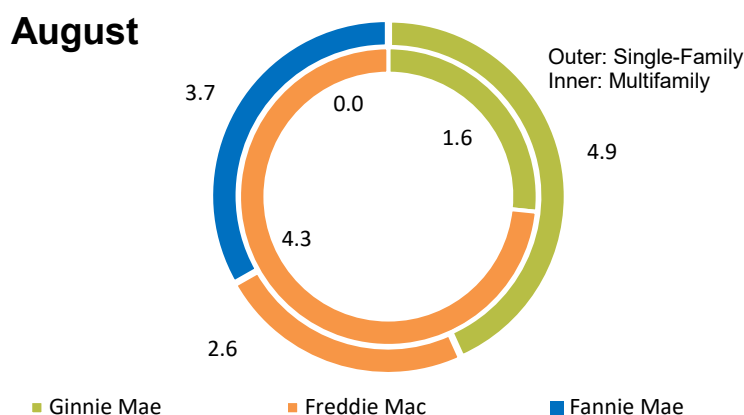
In August 2022, Ginnie Mae, Fannie Mae, and Freddie Mac Single-Family REMIC collateral WAC continued to increase month over month.

- All three Agencies experienced the highest Single-Family REMIC collateral WAC since October 2016.
- Fannie Mae and Freddie Mac Single-Family REMIC collateral WAC surpassed 5.00% in the month of August 2022.

In August 2022, Fannie Mae did not guarantee a Multifamily REMIC transaction for the second consecutive month.

- In August 2022, Ginnie Mae REMIC issuance volume was \$7.4 billion, the fourth consecutive month of REMIC issuance volume below \$10.0 billion (July 2022 issuance volume was \$9.98 billion).
- Ginnie Mae guaranteed three HREMIC transactions in August 2022. This is the third month in 2022 in which Ginnie Mae has guaranteed three HREMIC transactions. In 2021, there were no months where Ginnie Mae guaranteed three or more HREMIC transactions.

**Figure 32. REMIC Issuance by Agency**



**Table 8. Monthly REMIC Issuance by Agency**

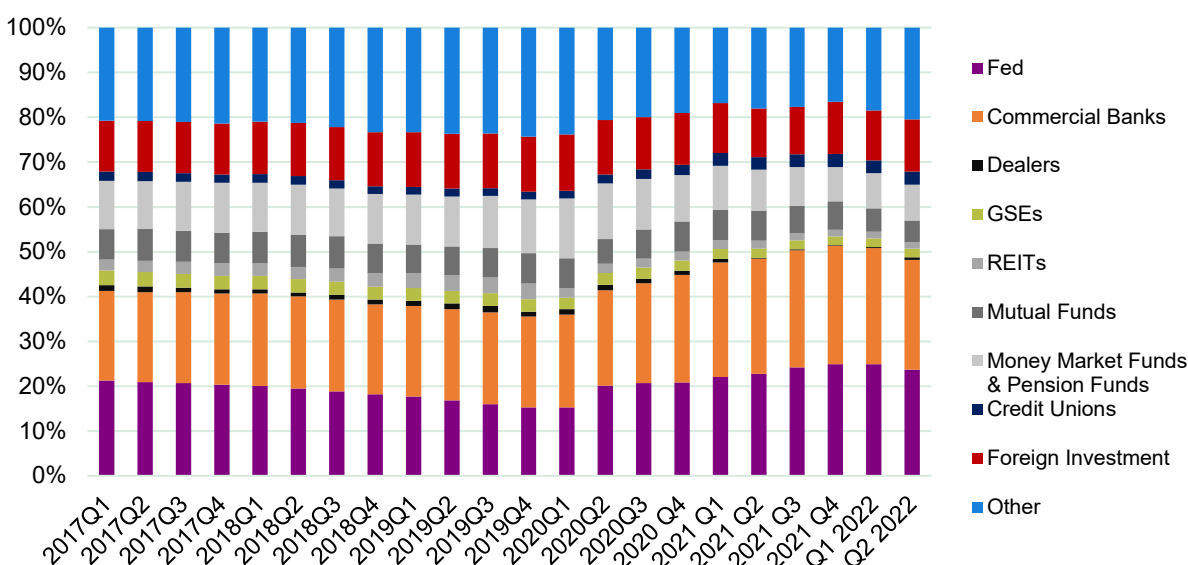
	<i>SF REMIC Issuance Volume (\$B)</i>	<i>% of SF REMIC Issuance Volume</i>	<i>Number of SF REMIC Trans- actions</i>	<i>MF REMIC Issuance Volume (\$B)</i>	<i>% of MF REMIC Issuance Volume</i>	<i>Number of MF REMIC Trans- actions</i>
<b>Ginnie Mae</b>	4.9	43.2	9	1.6	26.6	7
<b>Freddie Mac</b>	2.6	23.5	8	4.3	73.4	6
<b>Fannie Mae</b>	3.7	33.2	8	0.0	0.0	0
<b>Total</b>	<b>\$11.3</b>	<b>100%</b>	<b>25</b>	<b>\$5.9</b>	<b>100%</b>	<b>13</b>

Source: Ginnie Mae, Fannie Mae, and Freddie Mac Disclosure Files

## 8 MBS OWNERSHIP

As of Q2 2022, the largest holders of agency debt (agency MBS + agency notes and bonds) included commercial banks (24%), the Federal Reserve (24%), and foreign investors (12%). The Federal Reserve's share decreased slightly to 24% in the second quarter of 2022 from 25% in the first quarter. Along with Federal Reserves, commercial banks are also the largest holders of agency MBS. Out of their nearly \$2.9 trillion in holdings as of the end of June 2022, \$2.1 trillion was held by the top 25 domestic banks.

**Figure 33. 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 Q2 2022.

### 8.1 Commercial Bank Holdings of Agency MBS

**Table 9. Commercial Bank Holdings of Agency MBS**

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	3-Aug	10-Aug	17-Aug	24-Aug
Largest 25 Domestic Banks	2,153.7	2,188.8	2,200.4	2,186.8	2,163.9	2,143.9	2,122.4	2,117.0	2,113.2	2,119.0	2,116.7	2,105.6
Small Domestic Banks	730.7	742.2	748.6	744.1	736.1	730.8	735.8	731.8	737.7	739.7	738.8	742.9
Foreign Related Banks	43.2	42.2	39.3	36.6	34.2	36.5	36.5	38.0	36.7	35.9	35.1	35.3
<b>Total, Seasonally Adjusted</b>	<b>2,927.6</b>	<b>2,973.2</b>	<b>2,988.3</b>	<b>2,967.5</b>	<b>2,934.2</b>	<b>2,911.2</b>	<b>2,894.7</b>	<b>2,886.8</b>	<b>2,887.6</b>	<b>2,894.6</b>	<b>2,890.6</b>	<b>2,883.8</b>

Source: Federal Reserve Bank. Note: Small domestic banks include all domestically chartered commercial banks not included in the top 25. Data as of August 2022.

## 8.2 Bank and Thrift Residential MBS Holdings

In Q2 2022, MBS holdings at banks and thrifts continued to decrease. Like Q1 2022, the decrease was driven by GSE pass-throughs, Private MBS, and agency CMO holdings, with GSE pass-throughs seeing the largest decrease. In contrast, Ginnie Mae pass-throughs saw an increase of 0.2%. Total bank and thrift MBS holdings decreased by approximately 5.7% from Q2 2021 and 6.3% from Q1 2022. Out of the \$2.6 trillion in MBS holdings at banks and thrifts as of Q2 2022, \$2 trillion were GSE pass-throughs and \$369 billion were Ginnie Mae pass-throughs.

**Table 10. 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
2001	730.84	380.12	109.53	37.62	236.91	76.18	606.91	203.37
2002	832.50	477.57	101.46	20.08	244.98	89.88	702.44	209.66
2003	899.89	536.83	75.11	19.40	236.81	106.86	775.66	206.45
2004	1,011.01	621.73	49.33	20.55	208.18	160.55	879.75	234.31
2005	1,033.77	602.73	35.92	29.09	190.70	211.25	897.06	242.69
2006	1,124.46	659.65	31.13	42.32	179.21	243.28	983.49	223.42
2007	1,149.10	591.34	31.58	26.26	174.27	357.24	971.42	264.59
2008	1,218.77	739.14	100.36	12.93	207.66	259.04	1,088.00	211.73
2009	1,275.52	784.18	155.00	7.53	271.17	212.64	1,161.67	184.07
2010	1,433.38	763.93	163.13	7.34	397.30	181.61	1,233.28	200.09
2011	1,566.88	842.17	214.81	3.28	478.82	167.70	1,359.24	207.64
2012	1,578.86	950.41	242.54	17.16	469.27	138.67	1,430.63	148.22
2013	1,506.60	937.91	231.93	26.11	432.60	114.15	1,363.65	142.94
2014	1,539.32	964.16	230.45	20.33	449.90	104.94	1,409.84	129.48
2015	1,643.56	1,115.40	292.30	11.14	445.39	71.63	1,512.67	130.89
2016	1,736.93	1,254.13	323.46	7.40	419.80	55.60	1,576.07	160.86
1Q17	1,762.38	1,280.63	329.91	7.03	419.34	55.39	1,589.93	172.45
2Q17	1,798.66	1,320.59	335.47	6.38	417.89	53.79	1,635.11	163.55
3Q17	1,838.93	1,364.75	351.86	5.65	418.08	50.45	1,661.84	177.09
4Q17	1,844.15	1,378.53	367.70	4.63	413.97	47.01	1,672.93	171.22
1Q18	1,809.98	1,352.28	360.71	3.92	412.41	41.37	1,635.52	174.46
2Q18	1,806.58	1,345.80	368.88	7.45	414.41	38.92	1,631.65	174.93
3Q18	1,794.39	1,339.73	373.21	2.42	416.20	36.04	1,618.29	176.10
2018	1,814.97	1,361.00	380.43	2.69	416.59	34.69	1,634.99	179.98
1Q19	1,844.99	1,385.10	383.49	3.06	422.18	34.65	1,673.40	171.59
2Q19	1,907.13	1,445.91	407.97	2.90	421.56	36.76	1,727.65	179.47
3Q19	1,975.78	1,506.92	427.10	4.74	428.69	35.44	1,786.74	189.04
2019	1,985.38	1,516.26	426.85	4.62	428.99	35.52	1,796.29	189.09
1Q20	2,107.66	1,621.70	448.34	4.65	443.73	37.57	1,907.02	200.64
2Q20	2,195.19	1,669.93	441.06	5.00	478.11	42.14	1,946.36	248.83
3Q20	2,310.42	1,764.72	415.24	4.43	499.50	41.78	2,040.61	269.81
4Q20	2,520.90	1,928.21	390.66	3.94	548.65	40.10	2,210.22	310.68
1Q21	2,690.92	2,088.41	374.63	4.88	555.35	42.28	2,350.94	339.98
2Q21	2,781.91	2,178.57	352.77	4.77	555.45	43.12	2,431.76	350.15
3Q21	2,858.59	2,239.90	353.12	4.24	565.51	48.95	2,487.32	371.27
4Q21	2,906.04	2,268.19	352.71	4.45	577.98	55.42	2,529.78	376.26
1Q22	2,799.21	2,186.14	368.43	4.04	548.60	60.43	2,476.11	323.10
2Q22	2,623.79	2,035.14	369.20	3.81	523.01	61.83	2,321.17	302.62
<b>Change:</b>								
1Q22-2Q22	-6.3%	-6.9%	-8.4%	0.2%	-5.6%	-4.7%	-6.3%	-6.3%
2Q21-2Q22	-5.7%	-6.6%	-8.8%	4.7%	-20.0%	-5.8%	-4.5%	-13.6%

Source: Inside Mortgage Finance. Notes: Data as of Q2 2022

**Table 11. Top 20 Bank and Thrift Residential MBS Investors (\$ in millions)**

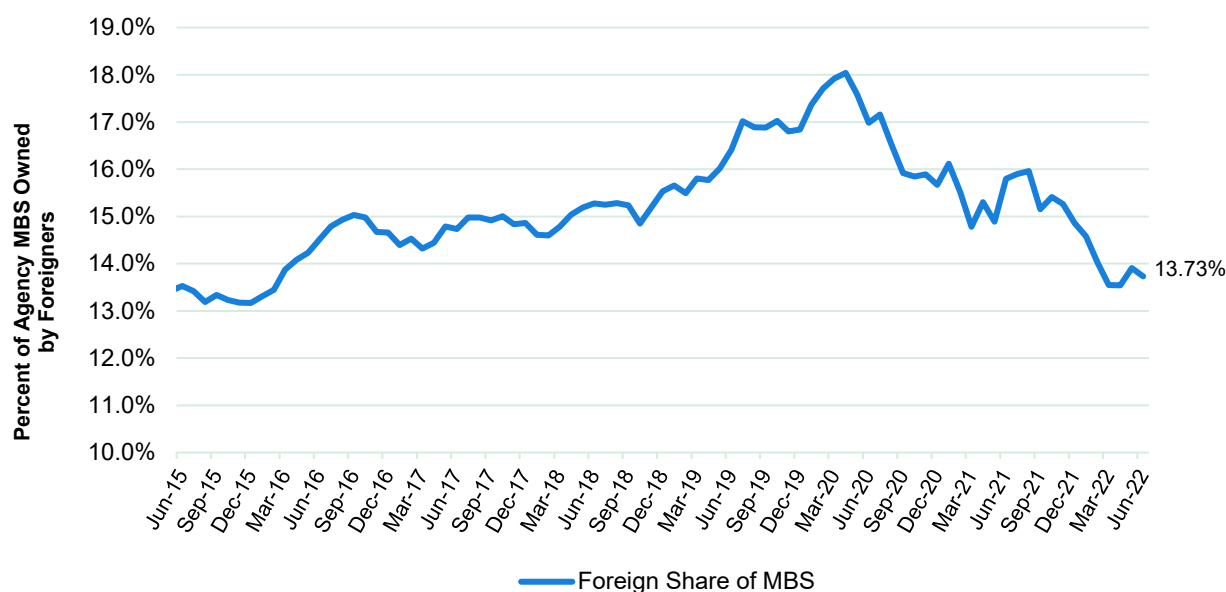
	<i>Institution</i>	<i>Total</i>	<i>GSE PT</i>	<i>GNMA PT</i>	<i>Agency CMO</i>	<i>Non-Agency</i>	<i>Share</i>
1	BANK OF AMERICA CORPORATION	\$495,136.0	\$415,280.0	\$71,947.0	\$7,758.0	\$151.0	18.9%
2	WELLS FARGO & COMPANY	\$249,055.0	\$177,562.0	\$68,239.0	\$3,125.0	\$129.0	9.5%
3	CHARLES SCHWAB	\$193,778.0	\$109,214.0	\$7,006.0	\$77,558.0	\$0.0	7.4%
4	JPMORGAN CHASE & CO.	\$166,937.0	\$83,341.0	\$67,650.0	\$98.0	\$15,848.0	6.4%
5	Truist Bank	\$119,517.0	\$58,899.0	\$13,721.0	\$43,472.0	\$3,425.0	4.6%
6	U.S. BANCORP	\$111,998.70	\$74,187.8	\$23,448.4	\$14,362.4	\$0.1	4.3%
7	CITIGROUP INC.	\$88,468.0	\$80,696.0	\$4,199.0	\$2,754.0	\$819.0	3.4%
8	Silicon Valley Bank	\$72,216.0	\$52,841.0	\$8,614.0	\$10,761.0	\$0.0	2.8%
9	PNC Bank, National Association	\$69,410.6	\$56,515.3	\$4,870.6	\$6,817.9	\$1,206.7	2.6%
10	CAPITAL ONE FINANCIAL CORPORATION	\$65,099.6	\$32,784.9	\$14,056.7	\$17,864.0	\$394.0	2.5%
11	MORGAN STANLEY	\$52,526.0	\$37,767.0	\$8,449.0	\$6,310.0	\$0.0	2.0%
12	BANK OF NEW YORK MELLON CORP	\$44,587.0	\$33,805.0	\$1,452.0	\$6,984.0	\$2,346.0	1.7%
13	USAA Federal Savings Bank	\$44,229.0	\$37,351.0	\$2,244.0	\$4,634.0	\$0.0	1.7%
14	State Street Bank and Trust Company	\$37,413.3	\$16,068.0	\$3,830.0	\$15,526.3	\$1,989.0	1.4%
15	The Huntington National Bank	\$30,194.1	\$12,956.1	\$9,571.6	\$7,514.8	\$151.6	1.2%
16	KeyBank National Association	\$27,174.5	\$4,278.4	\$237.6	\$22,658.5	\$0.0	1.0%
17	TD Bank USA/TD Bank NA	\$24,125.3	\$1,005.3	\$89.5	\$22,989.6	\$41.0	0.9%
18	Citizens Bank, National Association	\$23,774.7	\$13,187.7	\$5,149.5	\$5,437.5	\$0.0	0.9%
19	Ally Bank	\$22,166.0	\$14,142.0	\$1,756.0	\$1,874.0	\$4,394.0	0.8%
20	HSBC Bank USA, National Association	\$21,949.7	\$6,955.3	\$8,307.3	\$6,686.2	\$1.0	0.8%
<b>Total Top 20</b>		<b>\$1,959,755.5</b>	<b>\$1,318,836.8</b>	<b>\$324,838.2</b>	<b>\$285,185.2</b>	<b>\$30,895.4</b>	<b>74.8%</b>

Source: Inside Mortgage Finance. Notes: Data as of Q2 2022.

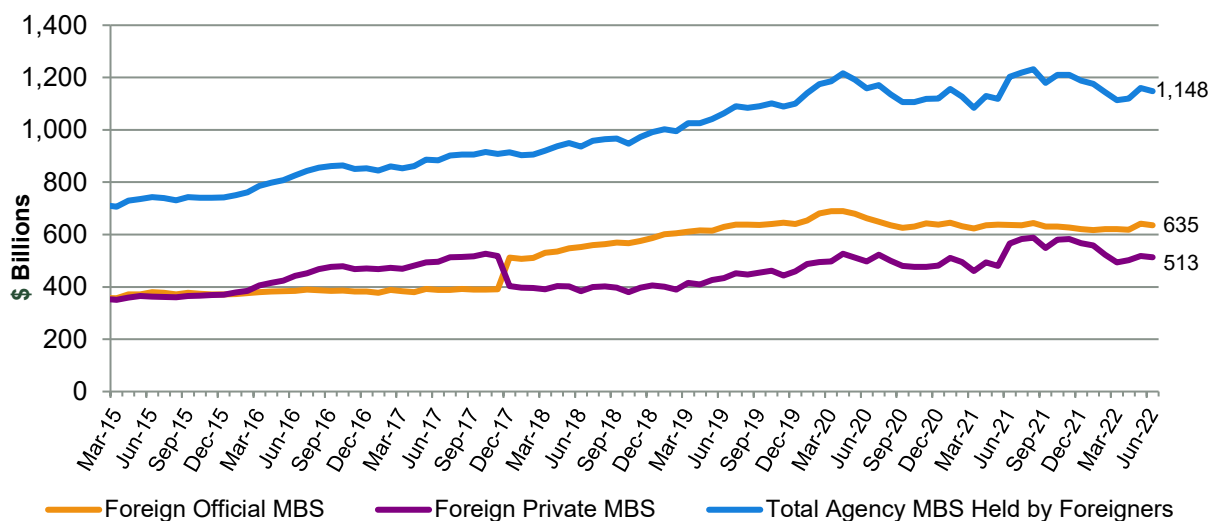
### 8.3 Foreign Ownership of MBS

For the month of June 2022, foreign ownership of MBS represents \$1.15 trillion in agency MBS, down approximately \$9 billion from May 2022. Total foreign ownership includes \$513 billion held by foreign private institutions and \$635 billion held by foreign official institutions. The foreign share of the agency MBS Market continues to decline since the beginning of COVID. The pre-Covid peak of approximately 17.5% has fallen all the way to 13.73% in June of 2022.

**Figure 34. Foreign Share of Agency MBS Market**



**Figure 35. Monthly Foreign MBS Holdings**



Sources: Recursion and Treasury International Capital (TIC) [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 June 2022.

## 8.4 Foreign Ownership of Agency Debt and Agency MBS

The largest non-US holders of agency MBS are in Japan, Taiwan, and China. As of December 2021, these three own 60% 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.

**Table 12. All Agency Debt**

Country	Level of Holdings (\$ Millions)				Change in Holdings (\$ Millions)			
	9/1/2021	12/1/2021	3/1/2022	6/1/2022	Q3 2021	Q4 2021	Q1 2022	Q2 2022
Japan	311,892	301,979	259,844	252,455	517	-9,913	-42,135	7,389
Taiwan	247,341	244,375	233,340	222,670	-2,740	-2,966	-11,035	10,670
China	215,102	202,659	219,553	244,266	-2,740	-12,443	16,894	-24,713
Luxembourg	33,339	34,277	33,130	42,207	-2,158	938	-1,147	-9,077
Ireland	22,617	21,305	20,589	19,838	1,164	-1,312	716	751
South Korea	43,208	42,051	40,362	37,932	7	-1,157	-1,689	2,430
Cayman Islands	36,160	35,004	31,795	32,937	133	-1,156	-3,209	-1,142
Bermuda	24,411	23,209	21,159	19,464	605	-1,202	-2,050	1,695
Netherlands	17,435	16,249	14,851	14,648	4,891	-1,186	-1,398	203
Malaysia	19,445	18,830	18,305	16,556	356	-615	-525	1749
Other	268,746	302,816	269,544	302,692	102,737	34,070	-33,372	-33,148
<b>Total</b>	<b>1,239,696</b>	<b>1,242,754</b>	<b>1,162,472</b>	<b>1,205,665</b>	<b>102,772</b>	<b>3,058</b>	<b>-80,282</b>	<b>-43,193</b>

**Table 13. Agency MBS**

Country	Level of Holdings (\$ Millions)		
	6/1/2021	6/1/2022	YoY Change in Holdings (\$ Millions)
Japan	305,580	252,455	-53,125
Taiwan	267,492	222,670	-44,822
China	232,076	244,266	12,190
Luxembourg	34,255	42,207	7,952
Ireland	25,336	19,838	-5,498
South Korea	34,313	37,932	3,619
Cayman Islands	29,682	32,937	3,255
Bermuda	24,245	19,464	-4,781
Netherlands	13,351	14,648	1,297
Malaysia	19,949	16,556	-3,393
Other	170,062	302,692	132,630
<b>Total</b>	<b>1,156,341</b>	<b>1,205,665</b>	<b>49,324</b>

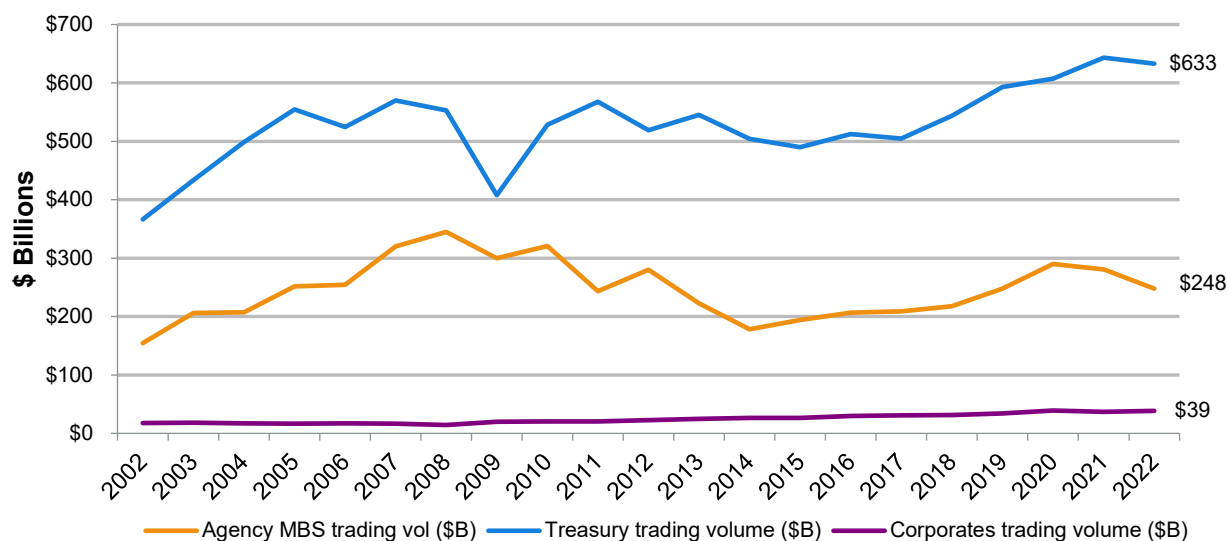
Sources: Treasury International Capital (TIC). Notes: Level of agency debt Holdings by month data as of Q1 2022. Agency MBS as of June 2021. Revised to include top 10 holders of agency debt listed as of June 2018.



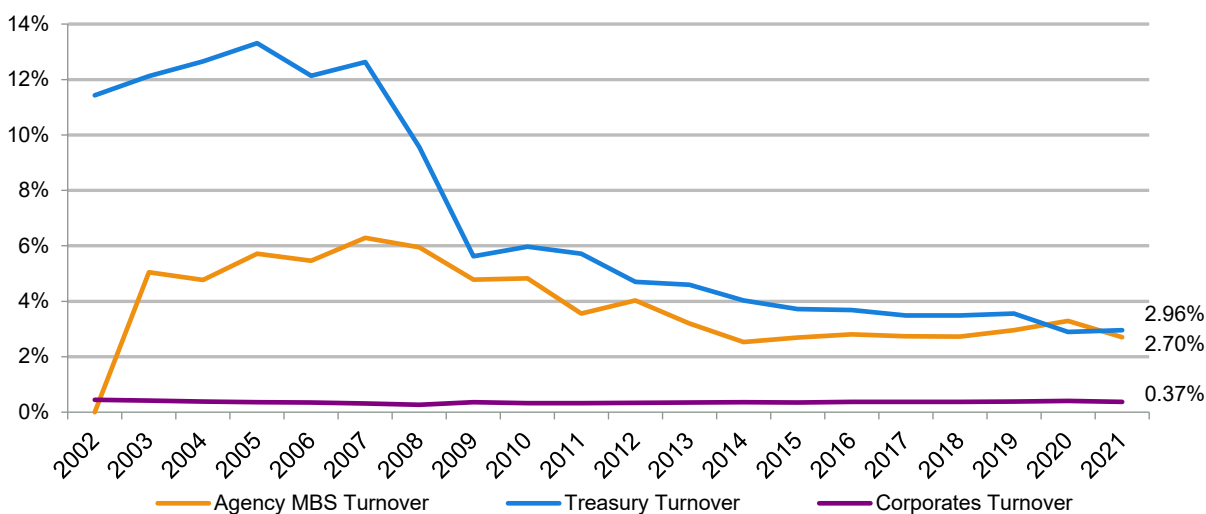
## 9 FIXED INCOME LIQUIDITY INDICATORS

The agency MBS average daily trading volume as of August 2022 was \$248 billion for 2022 YTD, which is down from \$281 billion from January 2021 to December 2021. Compared to July 2022, agency MBS average daily trading volume saw a 1.6% decrease MoM. In 2021, average agency MBS was at 2.70%, 25 bps lower than the 2020 average of 2.95%. In 2021, US Treasury turnover finished at 2.96%. Turnover for Corporates remains minimal relative to agency MBS or Treasury turnover.

**Figure 36. Average Daily Trading Volume by Sector**



**Figure 37. Average Daily Turnover by Sector**



Source: SIFMA. Note: Data as of August 2022 for Average Daily Trading Volume by Sector and as of December 2021 for Agency MBS in Average Daily Turnover by Sector

## PRIMARY MORTGAGE MARKET

### 10 AGENCY CREDIT BREAKDOWN

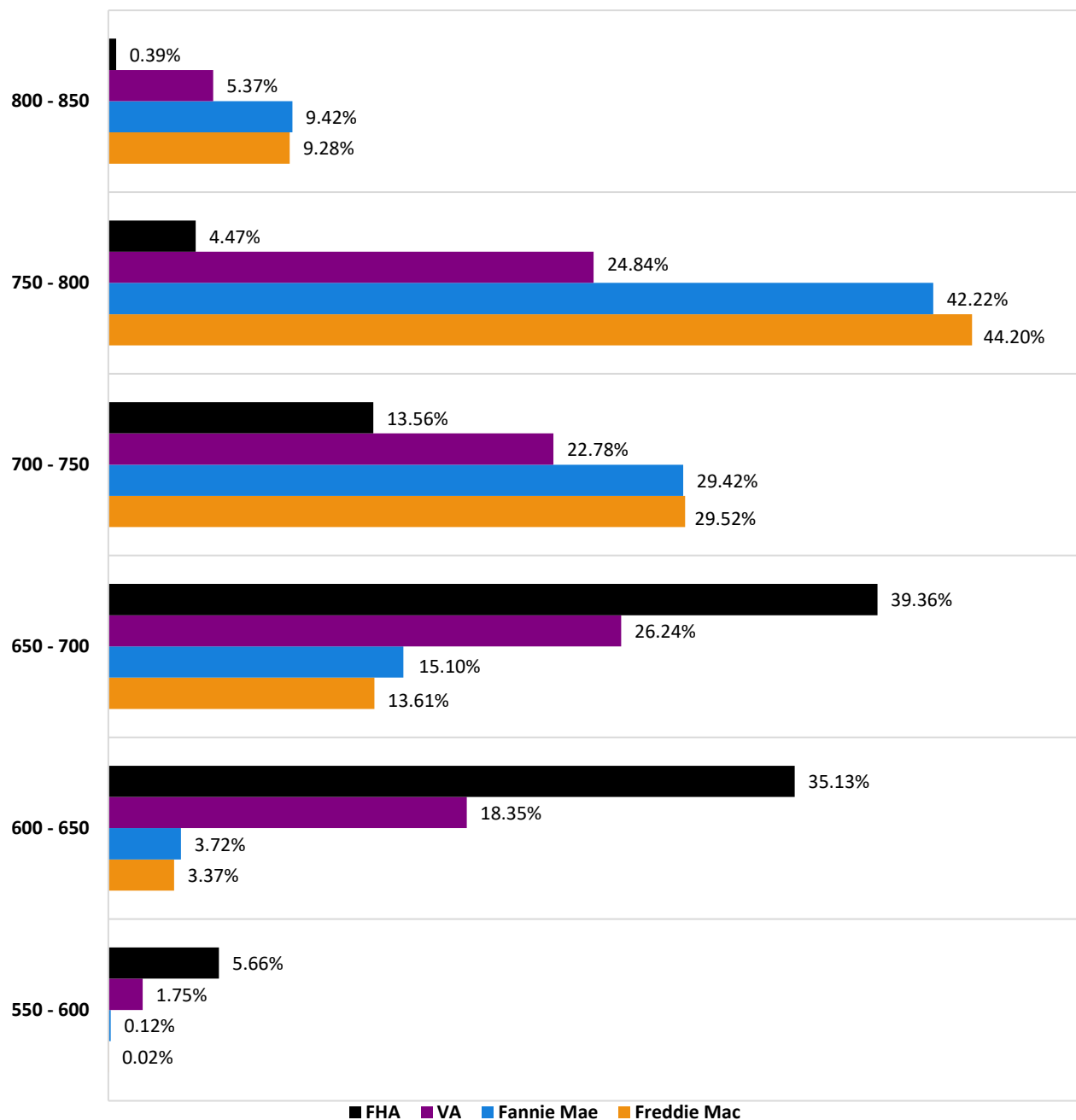
The tables below outline the population distributions of FICOs, DTIs, and LTVs between the agencies and between FHA, VA, and other Ginnie Mae loan sources as of the end of August 2022. The distribution statistics capture some key differences in the populations served by the agencies.

#### 10.1 Credit Scores

**Table 14. Share of Loans by FICO Score**

<i>Purchase FICO</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	299,683	651	692	743	779	798	733
Fannie	96,415	688	721	758	786	801	750
Freddie	108,853	697	729	762	787	801	755
Ginnie	94,415	625	647	680	729	776	690
<i>Refi FICO</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	93,700	629	662	708	756	788	708
Fannie	33,767	655	690	733	771	796	729
Freddie	34,169	650	683	724	765	791	722
Ginnie	25,764	600	626	655	690	734	661
<i>All FICO</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	393,383	645	683	735	776	797	727
Fannie	130,182	678	712	753	783	800	745
Freddie	143,022	682	717	755	784	800	747
Ginnie	120,179	620	643	674	721	770	683
<i>Purchase FICO: Ginnie Mae Breakdown By Source</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	94,415	625	647	680	729	776	690
FHA	55,134	620	641	665	696	733	671
VA	34,460	638	670	723	772	796	719
Other	4,821	636	659	691	730	760	695
<i>Refi FICO: Ginnie Mae Breakdown By Source</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	25,764	600	626	655	690	734	661
FHA	15,366	593	618	644	671	698	645
VA	10,363	617	643	679	723	763	683
Other	35	658	689	720	755	782	718
<i>All FICO: Ginnie Mae Breakdown By Source</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	120,179	620	643	674	721	770	683
FHA	70,500	612	635	660	691	728	665
VA	44,823	632	661	710	764	792	711
Other	4,856	636	659	692	730	761	695

**Figure 38. FICO Distributions by Agency**



Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files.

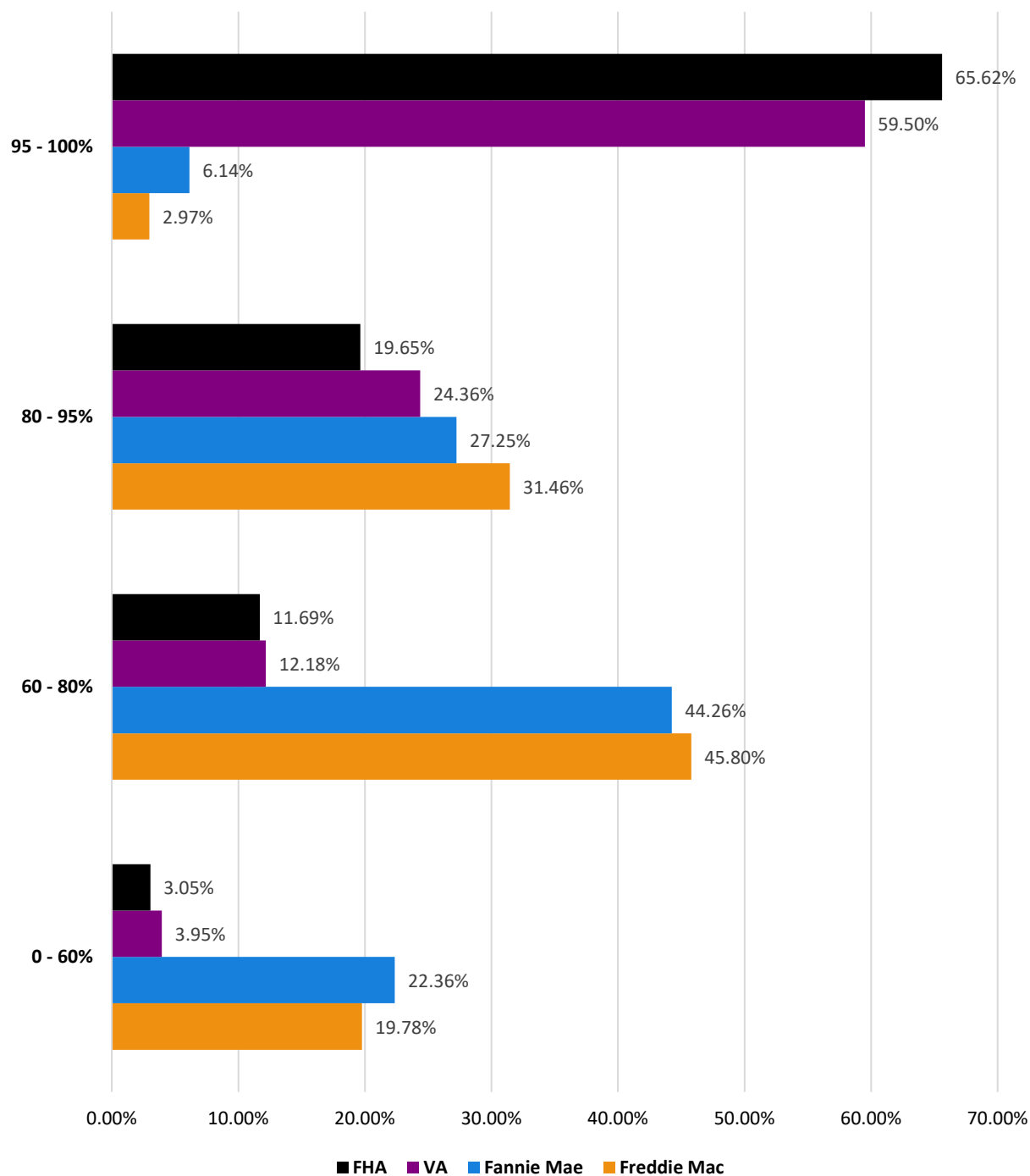
## 10.2 Loan-to-Value (LTV)

**Table 15. Share of Loans by LTV**

<b>Purchase LTV</b>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
<i>All</i>	299,988	65	80	90	97	99	85
<i>Fannie</i>	96,512	57	75	80	95	95	80
<i>Freddie</i>	108,890	59	75	80	95	95	80
<i>Ginnie</i>	94,586	90	98	98	100	100	96
<b>Refi LTV</b>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
<i>All</i>	93,751	39	54	68	79	81	65
<i>Fannie</i>	33,768	34	49	61	73	80	59
<i>Freddie</i>	34,170	36	51	64	74	80	61
<i>Ginnie</i>	25,813	59	71	80	84	90	77
<b>All LTV</b>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
<i>All</i>	393,739	53	71	80	95	98	80
<i>Fannie</i>	130,280	47	65	80	90	95	75
<i>Freddie</i>	143,060	50	67	80	90	95	75
<i>Ginnie</i>	120,399	76	89	98	100	100	92
<b>Purchase LTV: Ginnie Mae Breakdown By Source</b>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
<i>All</i>	94,586	90	98	98	100	100	96
<i>FHA</i>	55,264	92	97	98	98	98	96
<i>VA</i>	34,487	85	100	100	100	102	97
<i>Other</i>	4,835	93	99	101	101	101	98
<b>Refi LTV: Ginnie Mae Breakdown By Source</b>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
<i>All</i>	25,813	59	71	80	84	90	77
<i>FHA</i>	15,393	56	68	78	81	81	73
<i>VA</i>	10,382	62	75	86	90	100	82
<i>Other</i>	38	67	77	87	97	100	85
<b>All LTV: Ginnie Mae Breakdown By Source</b>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
<i>All</i>	120,399	76	89	98	100	100	92
<i>FHA</i>	70,657	75	85	98	98	98	91
<i>VA</i>	44,869	76	90	100	100	102	93
<i>Other</i>	4,873	93	99	101	101	101	98

Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files. Note: All averages are rounded to the nearest whole number.

**Figure 39. Loan-to-Value by Agency**



Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files.

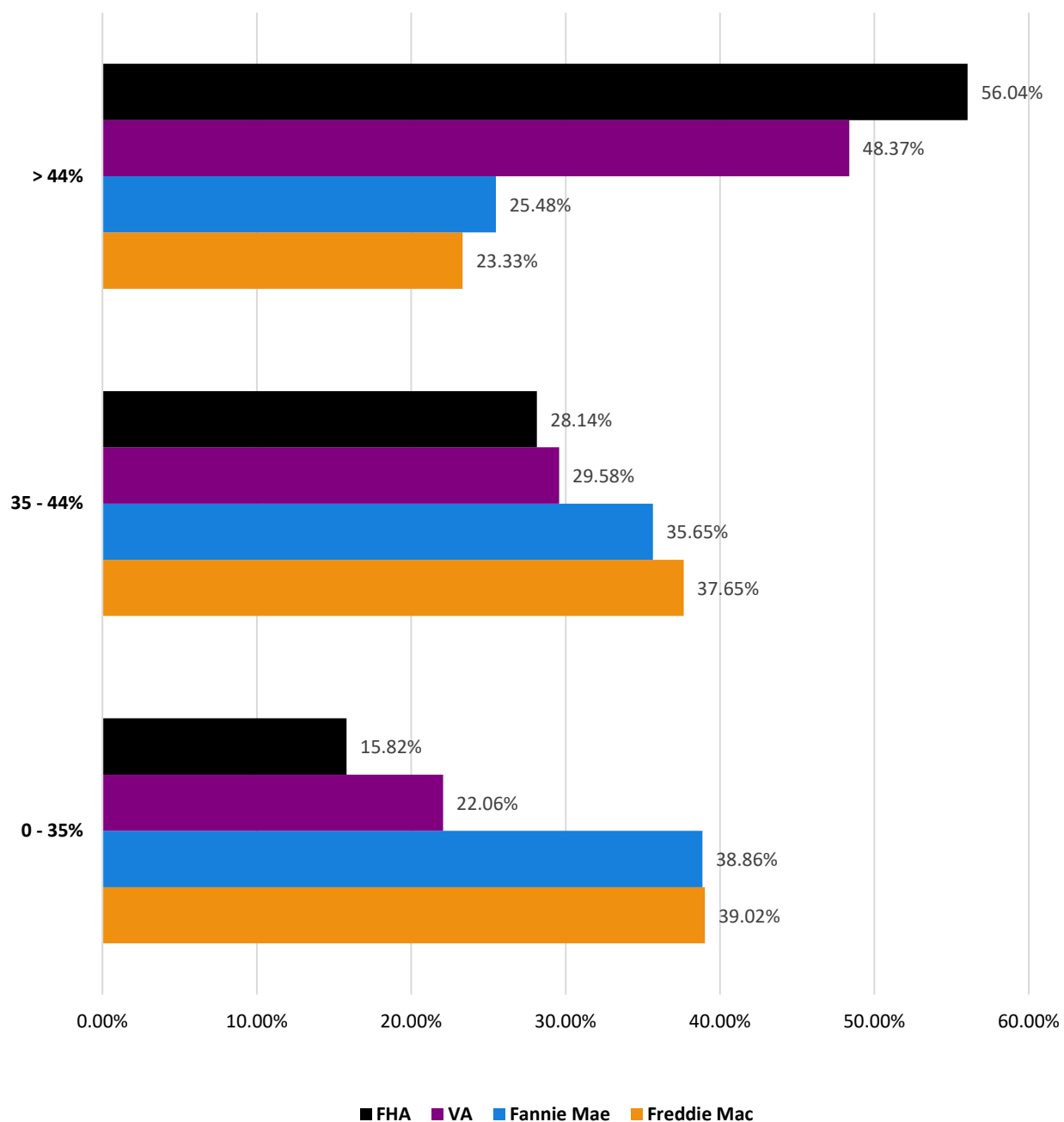
## 10.3 Debt-to-Income (DTI)

**Table 16. Share of Loans by DTI**

<i>Purchase DTI</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	299,395	25	33	41	47	50	39
Fannie	96,512	24	31	39	45	48	37
Freddie	108,890	24	31	38	44	48	37
Ginnie	93,993	31	38	45	51	55	44
<i>Refi DTI</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	93,486	25	32	40	45	49	39
Fannie	33,768	23	31	38	44	47	37
Freddie	34,170	24	32	39	44	48	38
Ginnie	25,548	28	36	43	50	54	42
<i>All DTI</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	392,881	25	33	40	46	50	39
Fannie	130,280	24	31	39	45	48	37
Freddie	143,060	24	31	39	44	48	37
Ginnie	119,541	30	37	45	51	55	44
<i>Purchase DTI: Ginnie Mae Breakdown By Source</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	93,993	31	38	45	51	55	44
FHA	55,240	33	40	46	52	55	45
VA	33,925	29	37	44	51	56	43
Other	4,828	27	31	36	40	43	35
<i>Refi DTI: Ginnie Mae Breakdown By Source</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	25,548	28	36	43	50	54	42
FHA	15,291	29	37	44	50	55	43
VA	10,220	27	35	42	49	54	41
Other	37	21	25	34	38	40	31
<i>All DTI: Ginnie Mae Breakdown By Source</i>							
<b>Names</b>	<b>Number of Loans</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Mean</b>
All	119,541	30	37	45	51	55	44
FHA	70,531	32	39	46	51	55	44
VA	44,145	29	36	44	50	56	43
Other	4,865	27	31	36	40	43	35

Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files. Note: All averages are rounded to the nearest whole number.

**Figure 40. Debt-to Income by Agency**



Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files.

## 10.4 High LTV Loans: Ginnie Mae vs. GSEs

The share of high-LTV agency loans going to borrowers with FICO scores above 750 has decreased by approximately 13% between periods June 2020 – August 2020 and June 2022 - August 2022. The share of borrowers with DTIs below 35% decreased by approximately 14% over the same period. From the period between June 2020 – August 2020 to the period between June 2022 – August 2022, the share of high-LTV loans increased in the Ginnie Mae guarantee book by approximately 8% and in the GSE portfolios by approximately 107%. 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 67.73% of its issuances between June 2022 and August 2022 having LTVs of 95 or above, compared to 21.21% for the GSEs.

**Table 17. Share of Loans with LTV > 95**

	<b>Ginnie Mae</b>	<b>GSE</b>	<b>All</b>
Jun 2020 - Aug 2020	62.90%	10.23%	21.99%
Jun 2022 - Aug 2022	67.73%	21.21%	36.04%

**Table 18. Agency Market Share by DTI and FICO for Loans with LTV > 95 (Jun 2020-Aug 2020)**

FICO						
DTI	<650	650-700	700-750	≥750	NA	All
<35	2.00%	4.54%	6.75%	11.35%	0.34%	24.97%
35-45	4.19%	9.20%	10.80%	11.61%	0.13%	35.92%
≥45	3.81%	7.89%	7.04%	2.91%	0.07%	21.73%
NA	1.75%	2.67%	2.48%	2.72%	7.76%	17.38%
All	11.75%	24.30%	27.07%	28.58%	8.30%	100.00%

**Table 19. Agency Market Share by DTI and FICO for Loans with LTV > 95 (Jun 2022-Aug 2022)**

FICO						
DTI	<650	650-700	700-750	≥750	NA	All
<35	2.39%	4.07%	5.70%	9.32%	0.04%	21.53%
35-45	6.23%	9.84%	11.53%	12.96%	0.04%	40.61%
≥45	7.99%	13.40%	11.86%	2.47%	0.06%	35.78%
NA	0.47%	0.35%	0.23%	0.24%	0.79%	2.09%
All	17.08%	27.67%	29.32%	25.00%	0.93%	100.00%

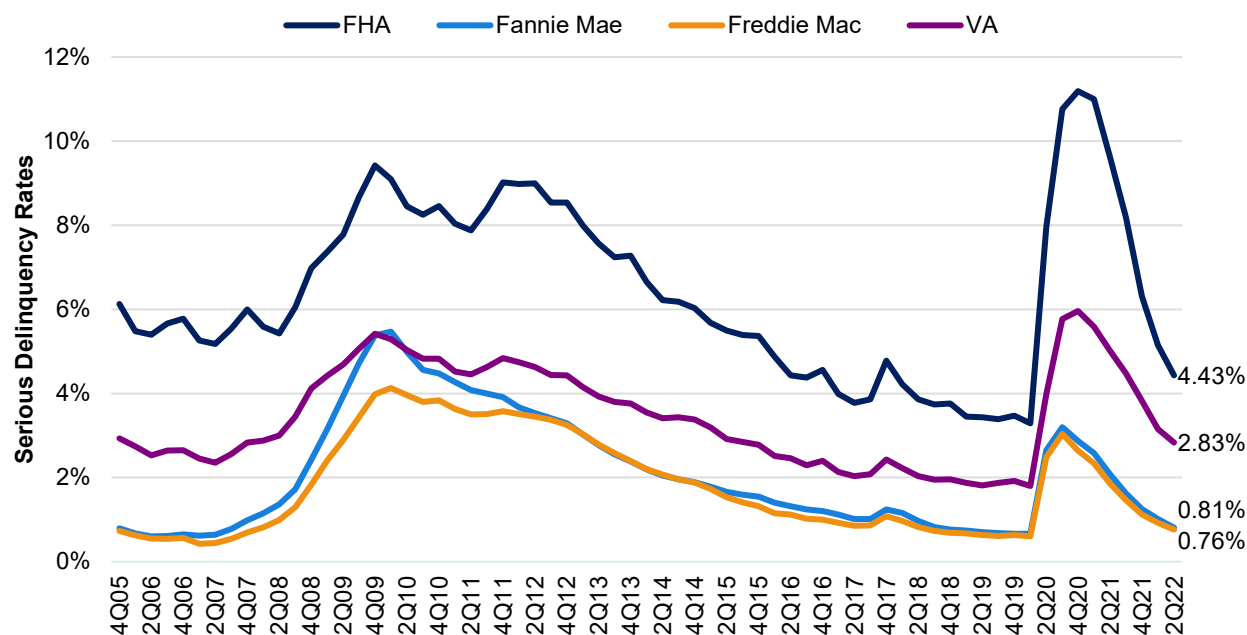
Sources: Recursion and Ginnie Mae. Data as of August 2022.



## 10.5 Serious Delinquency Rates

Serious delinquency rates for single-family GSE, FHA, and VA loans all continued to fall sharply in Q2 2022. From Q1 2022 to Q2 2022, Fannie and Freddie serious delinquencies decreased 20 and 16 bps, respectively, or 20% and 17% respectively, 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 72 and 32 bps respectively. This decline in serious delinquency rates is consistent with the decrease in the number of loans in forbearance captured in [Section 11 below](#).

**Figure 41. Serious Delinquency Rates: Single-Family Loans.**



Sources:

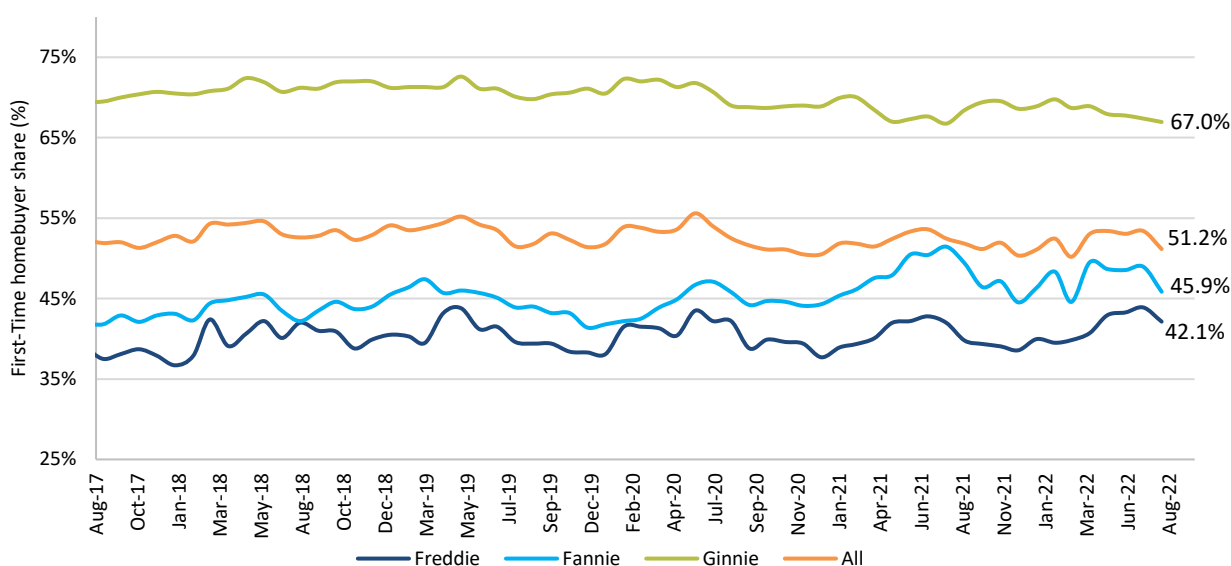
1. Fannie Mae and Freddie Mac Monthly Summary Reports
2. MBA Delinquency Survey.

Note: Serious delinquency is defined as 90 days or more past due or in the foreclosure process. Data as of Q2 2022.

## 10.6 Credit Box

The first-time homebuyer share for agency purchase loans was 51.2% in August 2022, down slightly from 52.4% in August 2021. Ginnie Mae and Freddie Mac's first-time homebuyer shares, 67.0% and 42.1% respectively in August, have remained relatively flat YoY. Fannie Mae's first-time homebuyer share has declined 4.8% YoY. Table 20 shows that based on mortgages originated in August 2022, the average GSE first-time homebuyer was more likely than an average repeat buyer to have a lower credit score, and higher LTVs. While Ginnie Mae's first-time homebuyers were more likely than their repeat buyers to have lower loan amounts and credit scores, other components of the credit profile were very similar.

**Figure 42. First-Time Homebuyer Share: Purchase Only Loans**



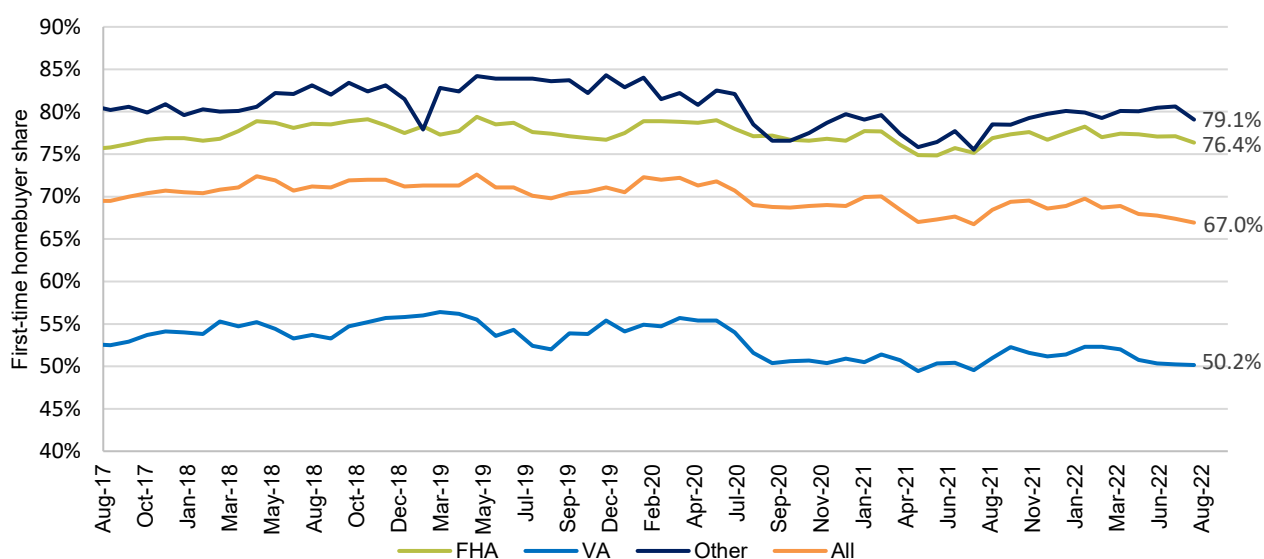
**Table 20. Agency First-Time Homebuyer Share Summary**

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount \$	323,564	323,418	338,798	338,560	293,051	355,894	315,811	336,859
Credit Score	743.7	756.2	749.6	758.6	683.1	702.9	720.4	745.8
LTV (%)	85.70	74.9	85.5	76.2	97.3	94.4	90.4	79.6
DTI (%)	37.10	37.4	36.6	36.9	43.6	44.4	39.7	38.7
Loan Rate (%)	5.50	5.6	5.4	5.4	5.3	5.1	5.4	5.4

Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files.

Within the Ginnie Mae purchase market, 76.4% of FHA loans, 50.2% of VA loans, and 79.1% of other loans represent financing for first-time home buyers in August 2022. Table 21 shows that based on mortgages originated in August 2022, the credit profile of the average VA first-time homebuyer was significantly different than the average VA repeat buyer. The average VA first-time homebuyer took out 17% smaller loans, had a 21-point lower credit score, 4.5% higher LTVs and were 20 basis points higher in interest. FHA's first-time homebuyers are much more like their repeat buyers, with only 4% smaller loans, 2.4% higher LTVs, and have very similar interest rates. FHA's repeat buyers tend to have lower credit scores than their first-time home buyers. For VA and conventional borrowers alike, repeat buyers tend to have higher credit scores than first-time homebuyers. For FHA, the opposite is true, in part because FHA lending is one of few credit options for borrowers with lower credit scores.

**Figure 43. First-time Homebuyer Share: Ginnie Mae Breakdown**



**Table 21. Ginnie Mae First-Time Homebuyer Share Breakdown Summary**

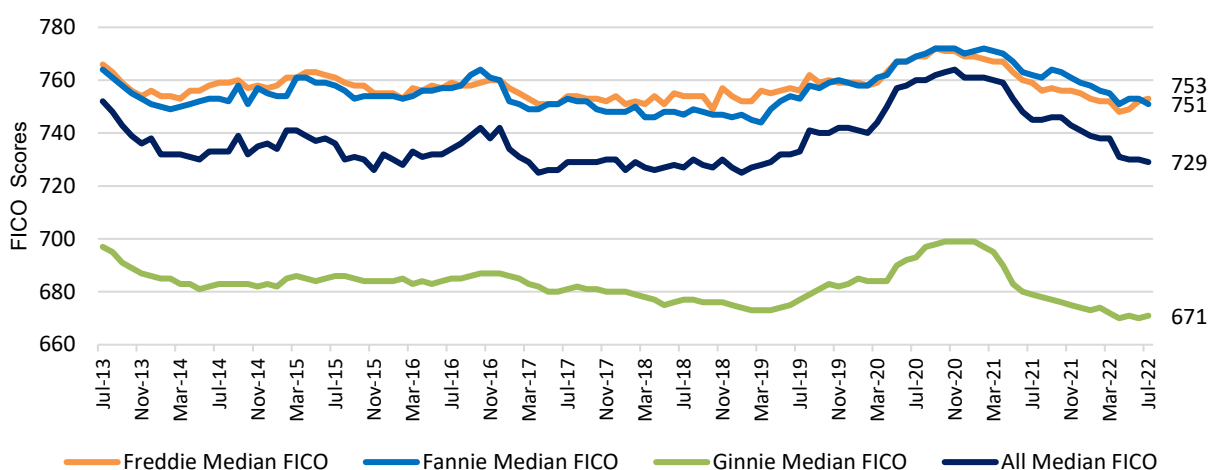
	FHA		VA		Other		Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount \$	282,864	295,680	342,880	411,755	180,110	184,980	293,051	355,894
Credit Score	671.4	668.0	708.6	729.9	696.1	691.2	683.1	702.9
LTV (%)	96.7	94.3	98.8	94.3	98.2	98.6	97.4	94.4
DTI (%)	44.7	45.5	42.8	44.1	35.2	35.5	43.6	44.4
Loan Rate (%)	5.3	5.3	5.2	5.0	5.3	5.2	5.3	5.1

Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files.

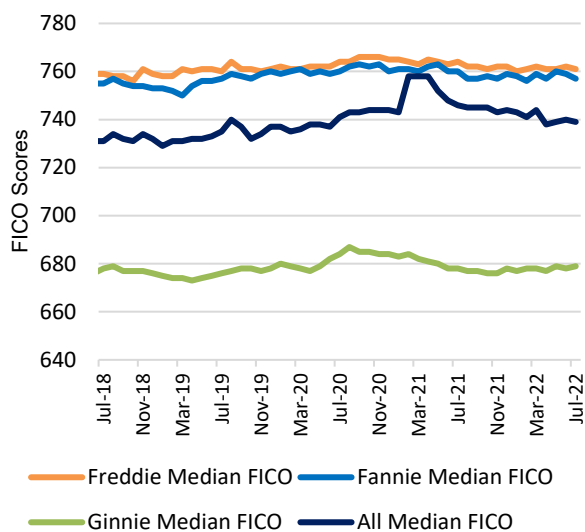
## 10.7 Credit Box: Historical

For each of the agencies, the median borrower FICO scores have been slowly declining since year-end 2020. The median FICO score for all agency loans originated in July 2022 was 729, which represents a decrease of 10 points since the start of 2022, a decline of 16 points YoY, and 32 points since December 2020. The trend in declining median FICO scores has been much more pronounced for refinance loans. Ginnie median FICO scores have declined from 692 in July 2021 to 658 in July 2022, a 34 point drop. As of July 2022, average FICOs for refinances have dropped for Fannie Mae and Freddie Mac borrowers YoY 35 and 33 points respectively.

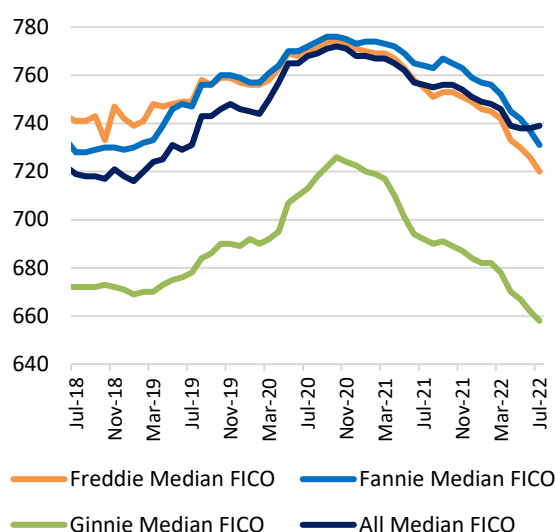
**Figure 44. FICO Scores for All Loans**



**Figure 45. FICO Scores for Purchase Loans**



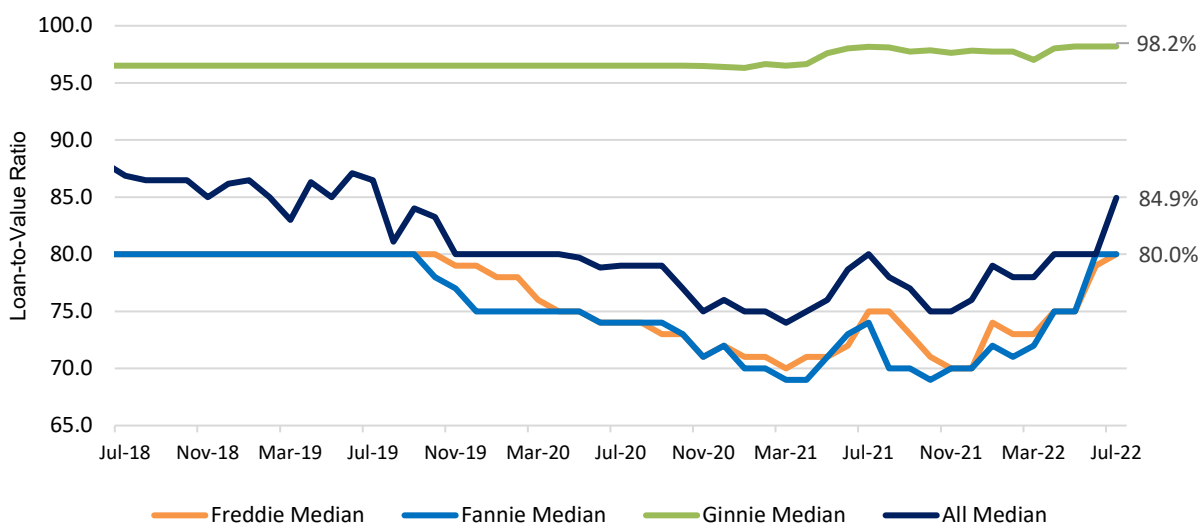
**Figure 46. FICO Scores for Refinance Loans**



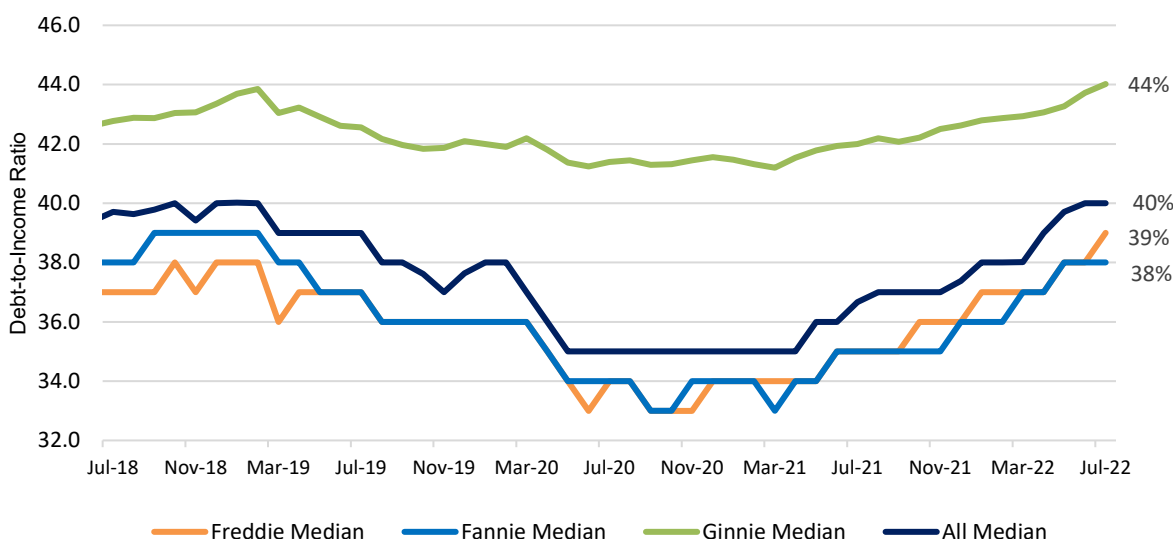
Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files.

In July 2022, the median LTV for Ginnie Mae loans was 98.2% compared to 80% for the GSEs. Freddie Mac and Fannie Mae each saw increases in median LTV YoY, whereas Ginnie Mae LTVs remained relatively flat over that period. Median LTV for Fannie Mae and Freddie Mac increased 6.6% each, YoY. Since early 2022, DTIs have been increasing for Ginnie Mae, Freddie Mac, and Fannie Mae and are all higher relative to July 2021.

**Figure 47. LTV Ratio for All Loans**



**Figure 48. DTI Ratio for All Loans**



Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files.

## 11 FORBEARANCE TRENDS

As of the end of June 2022, 129,734 Ginnie Mae loans were in forbearance. This represents a 5.6% decrease MoM. 3,074 of loans in forbearance were removed from MBS pools and 126,660 loans in forbearance still actively remain in pools. Most liquidated loans (2,209) were FHA and within that subset, 1,402 of those loans were originated by non-banks.

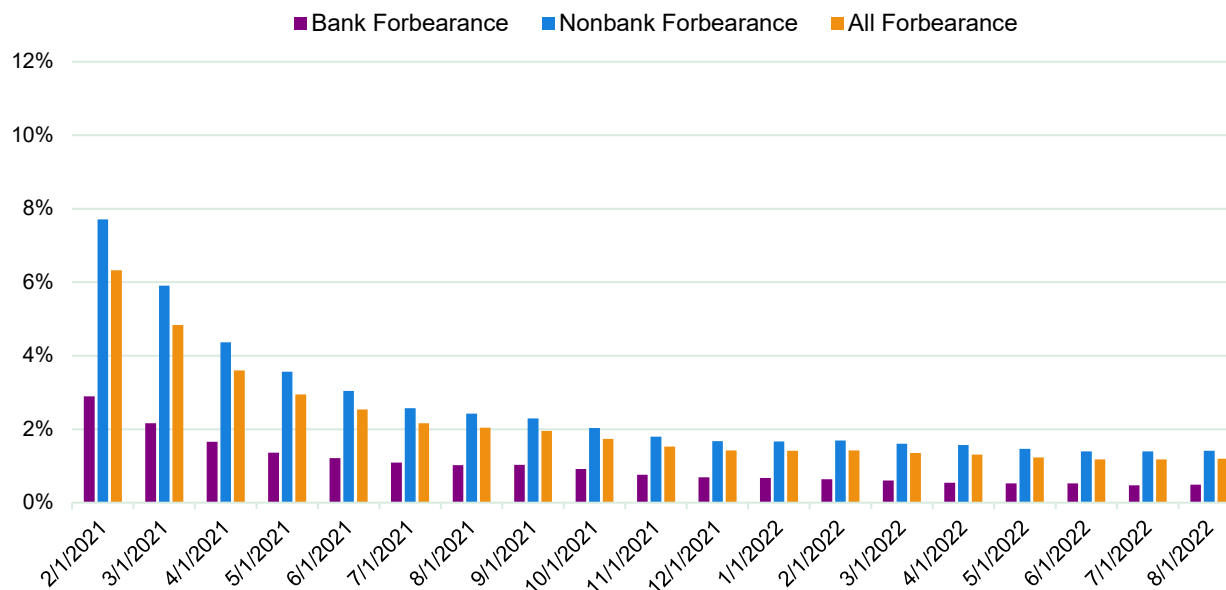
**Table 22. Forbearance Snapshot**

<b>All Loans in Forbearance – June 2022</b>						
	<b>FICO</b>	<b>Note</b>	<b>Current Principal</b>	<b>First Time</b>	<b>Purchase</b>	<b>Loan Count</b>
<b>Ginnie Bank</b>	657	3.3	\$187,386.55	77.2	71.4	129,734
<b>Nonbank</b>	673	3.6	\$139,477.52	79.5	81.5	13,510
<b>FHA</b>	656	3.3	\$193,254.76	76.9	70.6	116,224
<b>Bank</b>	654	3.4	\$184,105.90	80.0	76.2	94,080
<b>Nonbank</b>	668	3.7	\$133,454.30	83.1	85.2	10,264
<b>VA</b>	652	3.4	\$190,572.75	79.7	75.5	83,816
<b>Bank</b>	667	3.1	\$234,876.20	63.6	52.4	24,998
<b>Nonbank</b>	684	3.4	\$183,424.45	64.3	67.6	2,412
<b>Nonbank</b>	665	3.0	\$239,897.11	63.5	51.2	22,586
<b>Loans in Forbearance and Removed from Pools – June 2022</b>						
	<b>FICO</b>	<b>Note</b>	<b>Current Principal</b>	<b>First Time</b>	<b>Purchase</b>	<b>Loan Count</b>
<b>Ginnie Bank</b>	659	3.7	\$147,022.21	73.3	68.5	3,074
<b>Nonbank</b>	667	4.3	\$99,293.00	72.6	73.6	1,003
<b>FHA</b>	657	3.6	\$175,468.10	73.5	67.2	2,071
<b>Bank</b>	653	3.9	\$137,821.70	76.8	73.6	2,209
<b>Nonbank</b>	662	4.4	\$96,581.25	75.1	72.6	807
<b>VA</b>	651	3.7	\$170,186.06	77.4	73.9	1,402
<b>Bank</b>	670	3.3	\$206,214.36	58.0	51.0	607
<b>Nonbank</b>	682	3.8	\$137,212.56	57.9	70.2	125
<b>Nonbank</b>	668	3.2	\$220,728.30	58.0	47.8	482
<b>Loans in Forbearance that Remain in Pools – June 2022</b>						
	<b>FICO</b>	<b>Note</b>	<b>Current Principal</b>	<b>First Time</b>	<b>Purchase</b>	<b>Loan Count</b>
<b>Ginnie Bank</b>	657	3.3	\$188,310.06	77.2	71.5	126,660
<b>Nonbank</b>	673	3.6	\$142,924.55	79.9	81.9	12,507
<b>FHA</b>	656	3.3	\$193,508.91	77.0	70.7	114,153
<b>Bank</b>	654	3.4	\$185,141.26	80.1	76.3	91,871
<b>Nonbank</b>	669	3.7	\$137,414.16	83.5	85.9	9,457
<b>VA</b>	652	3.4	\$190,957.22	79.7	75.5	82,414
<b>Bank</b>	666	3.1	\$235,564.16	63.7	52.4	24,391
<b>Nonbank</b>	684	3.4	\$186,851.06	64.6	67.5	2,287
<b>Nonbank</b>	665	3.0	\$240,316.50	63.6	51.2	22,104

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 June 2022; \*Averages weighted by remaining principal balance of the loans.

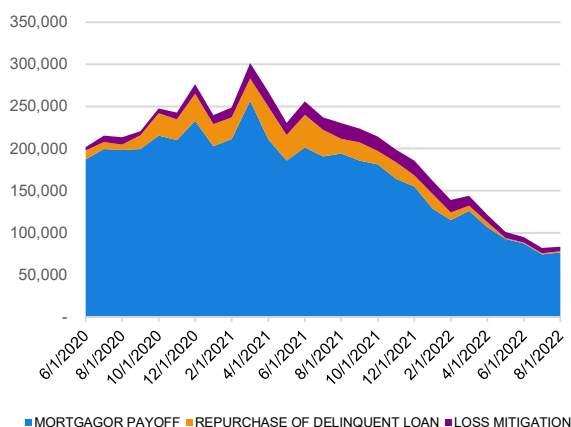
The current share of Ginnie Mae loans in forbearance stands at 1.20% as of the end of August 2022, approximately 1.7% higher than observed as of the end of July 2022. With the forbearance rate for Ginnie Mae collateral having been just 0.25% in March of 2020, prior to lockdown and the introduction of borrowers' right to forbearance under the CARES Act, the current rates remain approximately five times higher than the forbearance rate just prior to the pandemic. The rate of convergence to pre-pandemic rates has continued to slow down in August 2022.

**Figure 49. Share of Ginnie Mae Loans in Forbearance.**

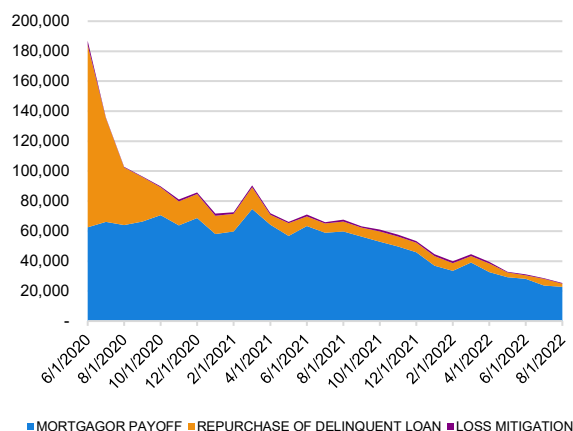


Sources: Recursion. Notes: Data as of August 2022

**Figure 50. Number of Loans Removed from Pools: Non-bank**



**Figure 51. Number of Loans Removed from Pools: Bank**

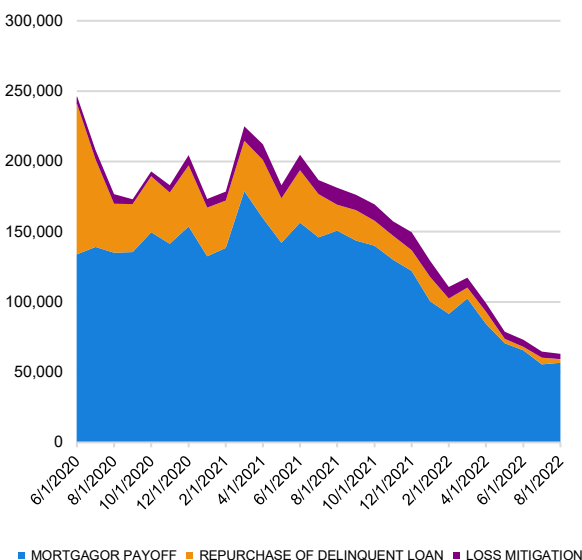


Sources: Recursion. Notes: Data as of August 2022. Beginning with the May 2022 GMAR Report, Credit Unions will be classified as Banks based on the updated Recursion data source.

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 now more likely to have coupons less than 3.5% (bottom charts: “Number of Loans Removed from Pools by Coupon”). In August 2022, the number of loans repurchased due to delinquency decreased 44% to 2,580 for FHA and decreased 35% to 510 for VA loans.

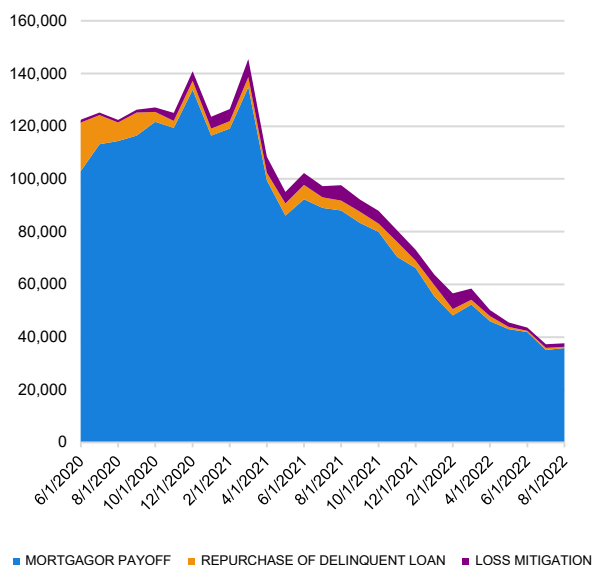
**Figure 52. Number of Loans Removed from**

**Pools: FHA**

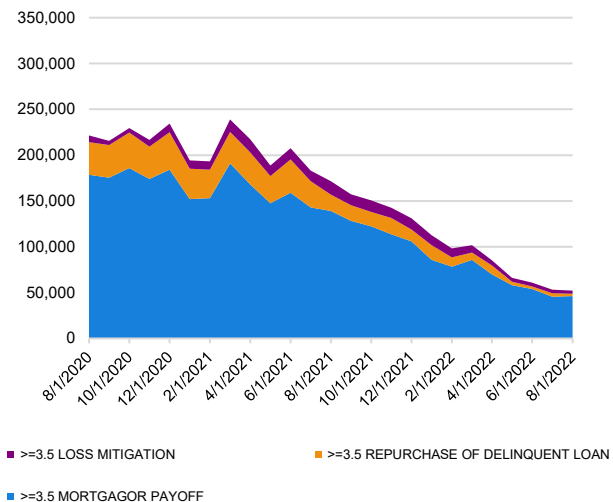
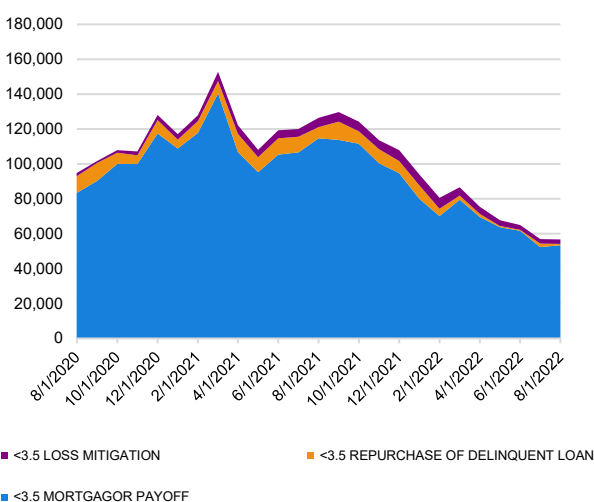


**Figure 53. Number of Loans Removed**

**from Pools: VA**



**Figure 54. Number of Loans Removed from Pools by Coupon:**



Sources: Recursion. Notes: Data as of August 2022



## 12 HOLDERS OF GINNIE MAE MORTGAGE SERVICING RIGHTS

This table shows the 30 largest owners of mortgage servicing rights (MSR) by UPB for loans collateralizing Ginnie Mae MBS. The top 30 firms collectively own 83.5% of Ginnie Mae MSRs (see Cumulative Share). Twenty-three of these top 30 are non-depository institutions, the remaining 7 are depository institutions. As of August 2022, over half (51.1%) of the Ginnie Mae MSRs are owned by the top six firms.

**Table 23. Top 30 Holders of Ginnie Mae Mortgage Servicing Rights (MSRs), by UPB**

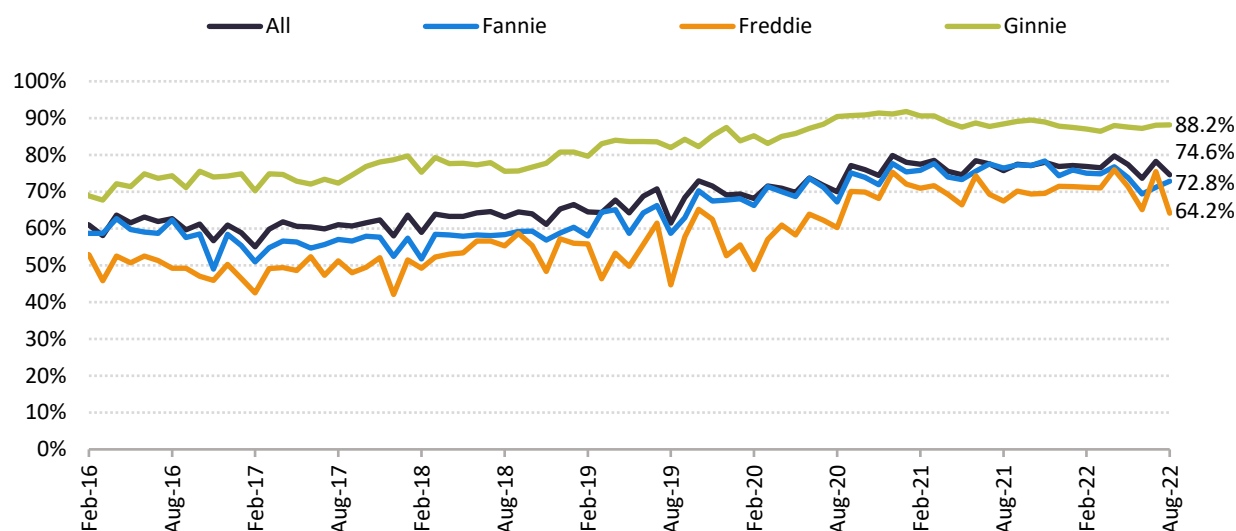
Rank	MSR Holder	UPB (\$ millions)	Share	Cumulative Share
1	DBA FREEDOM HOME MOR	\$ 252,782,177,165	12.2%	12.22%
2	PENNYMAC LOAN SERVIC	\$ 236,265,073,644	11.4%	23.64%
3	LAKEVIEW LOAN SERVIC	\$ 226,133,166,613	10.9%	34.57%
4	NATIONSTAR MORTGAGE,	\$ 124,744,124,615	6.0%	40.61%
5	WELLS FARGO BANK, NA	\$ 115,692,320,381	5.6%	46.20%
6	ROCKET MORTGAGE, LLC	\$ 101,498,092,188	4.9%	51.11%
7	CARRINGTON MORTGAGE	\$ 78,618,527,746	3.8%	54.91%
8	NEWREZ LLC	\$ 65,219,384,071	3.2%	58.06%
9	CALIBER HOME LOANS,	\$ 52,396,863,643	2.5%	60.59%
10	U. S. BANK, NA	\$ 48,939,091,230	2.4%	62.96%
11	UNITED WHOLESALE MOR	\$ 46,759,537,558	2.3%	65.22%
12	PLANET HOME LENDING,	\$ 36,685,499,275	1.8%	66.99%
13	MORTGAGE RESEARCH CE	\$ 35,942,596,932	1.7%	68.73%
14	LOANDEPOT.COM,LLC	\$ 34,564,832,866	1.7%	70.40%
15	NAVY FEDERAL CREDIT	\$ 28,772,392,963	1.4%	71.79%
16	AMERIHOME MORTGAGE C	\$ 26,416,808,227	1.3%	73.07%
17	GUILD MORTGAGE COMPA	\$ 21,509,967,996	1.0%	74.11%
18	THE MONEY SOURCE INC	\$ 21,080,198,647	1.0%	75.13%
19	TRUIST BANK	\$ 20,392,647,451	1.0%	76.11%
20	CROSSCOUNTRY MORTGAG	\$ 17,243,987,998	0.8%	76.95%
21	NEW AMERICAN FUNDING	\$ 16,498,045,013	0.8%	77.74%
22	VILLAGE CAPITAL & IN	\$ 15,026,223,346	0.7%	78.47%
23	MOVEMENT MORTGAGE,LL	\$ 14,654,705,200	0.7%	79.18%
24	CMG MORTGAGE, INC.	\$ 14,370,426,902	0.7%	79.87%
25	RUSHMORE LOAN MANAGE	\$ 14,041,677,750	0.7%	80.55%
26	IDAHO HOUSING AND FI	\$ 13,790,197,758	0.7%	81.22%
27	CITIZENS BANK N.A.	\$ 13,659,189,231	0.7%	81.88%
28	MIDFIRST BANK	\$ 12,049,030,978	0.6%	82.46%
29	PHH MORTGAGE CORPORA	\$ 11,700,202,545	0.6%	83.03%
30	CARDINAL FINANCIAL C	\$ 10,928,393,723	0.5%	83.56%

Source: Deloitte. Data as of September 2022.

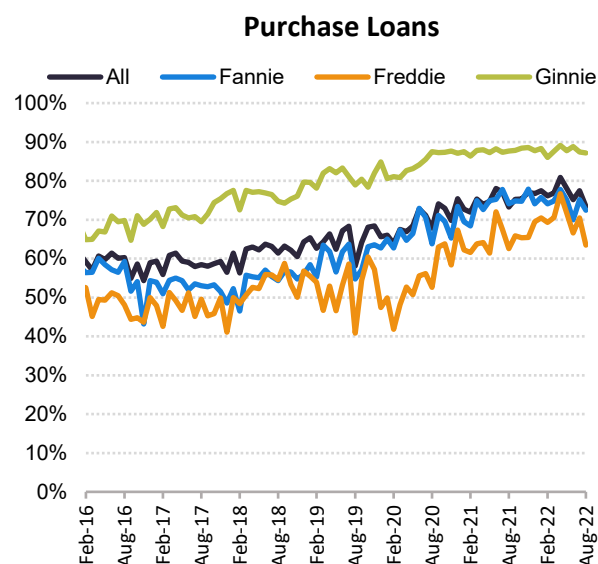
## 13 AGENCY NONBANK ORIGINATORS

Total agency non-bank origination experienced a decrease in August, down approximately 1% since last month. This decrease in non-bank origination share was driven primarily by Freddie Mac (non-bank origination share down 15% MoM). The Ginnie Mae non-bank share rose to 88.2% as of August 2022 and has remained consistently higher than the GSEs since September 2021 (89.1%). Ginnie Mae non-bank origination share of refinance mortgage loans has continued to drive Ginnie Mae's relatively higher non-bank origination share. GSE origination volume of purchase mortgage loans has been the primary driver in the MoM decline of agency non-bank origination share.

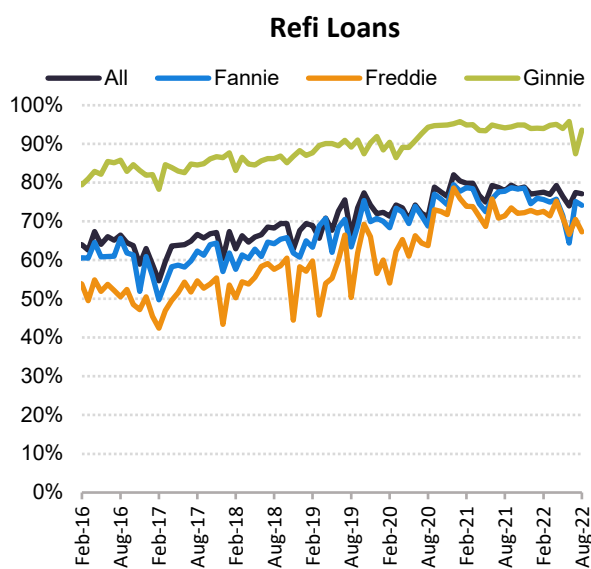
**Figure 55. Agency Nonbank Originator Share (All, Purchase, Refi)**



**Figure 56. Nonbank Origination Share: Purchase Loans**



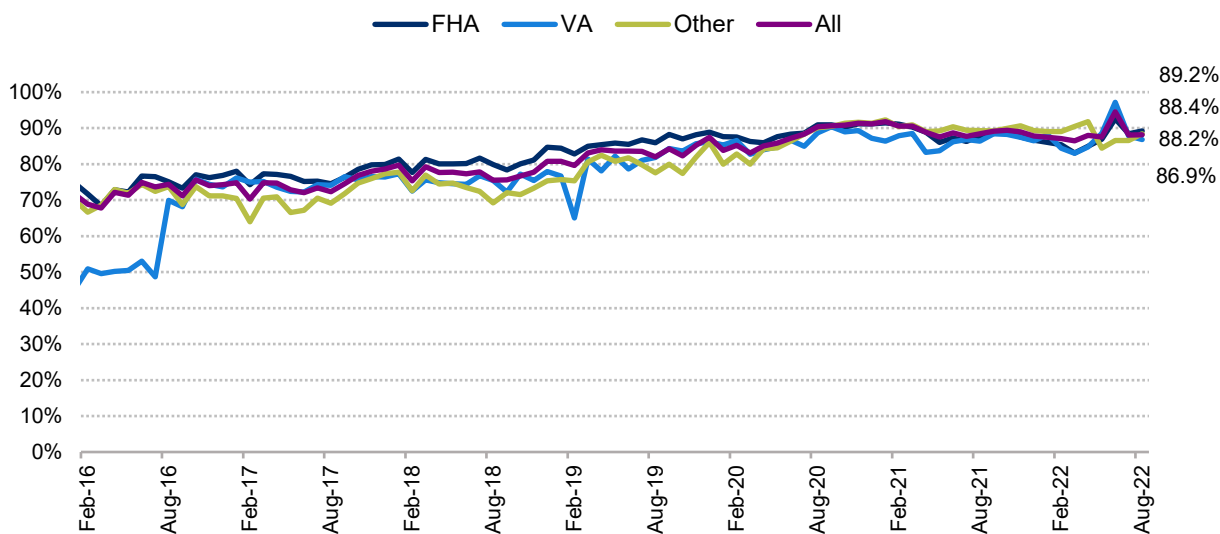
**Figure 57. Nonbank Origination Share: Refi Loans**



Sources: Recursion. Notes: Data as of August 2022.

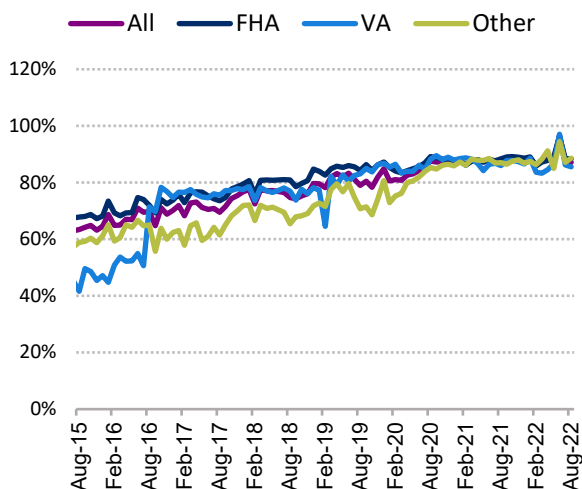
Ginnie Mae's total non-bank originator share remained relatively stable in August 2022.

**Figure 58. Ginnie Mae Nonbank Originator Share (All, Purchase, Refi)**



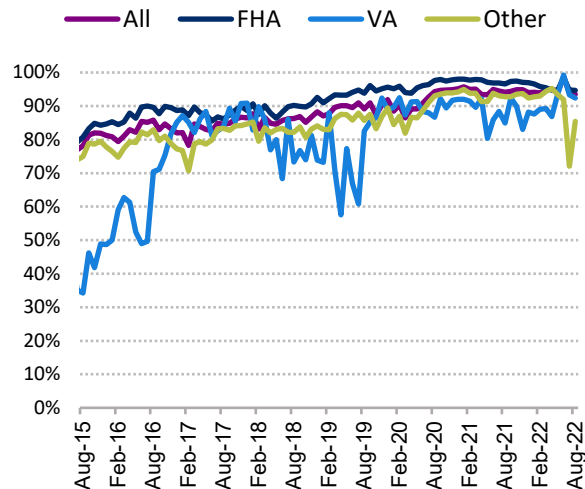
**Figure 59. Ginnie Mae Nonbank Share:**

**Purchase Loans**



**Figure 60. Ginnie Mae Nonbank Share:**

**Refi Loans**



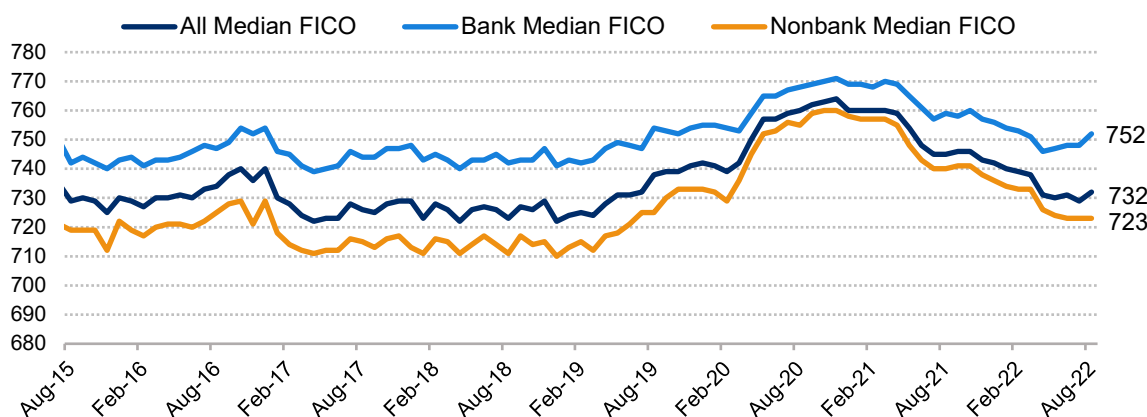
Sources: Recursion. Notes: Data as of August 2022.

## 13.1 Bank vs. Nonbank Originators Historical Credit Box, Ginnie Mae vs. GSE

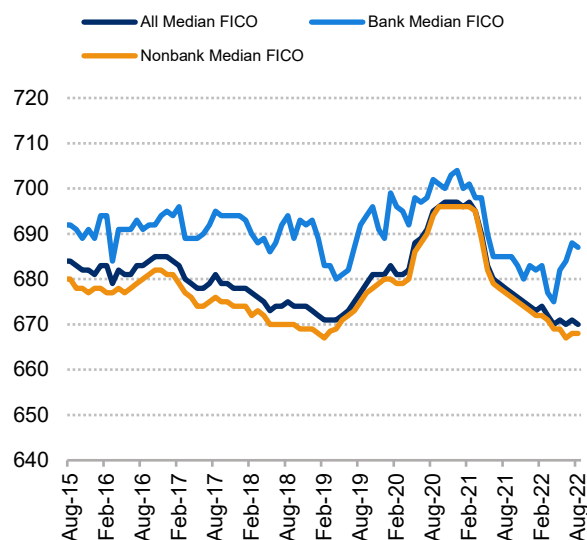
### 13.1.1 (FICO, LTV, DTI)

The mortgage loan originations of non-banks continue to have a consistently lower median FICO score than their bank counterparts across all Agencies. The spread between non-bank and bank FICO scores increased by 4 FICO score points from July 2022 to August 2022. The agency median FICO increased by 3 FICO score points to 732 MoM.

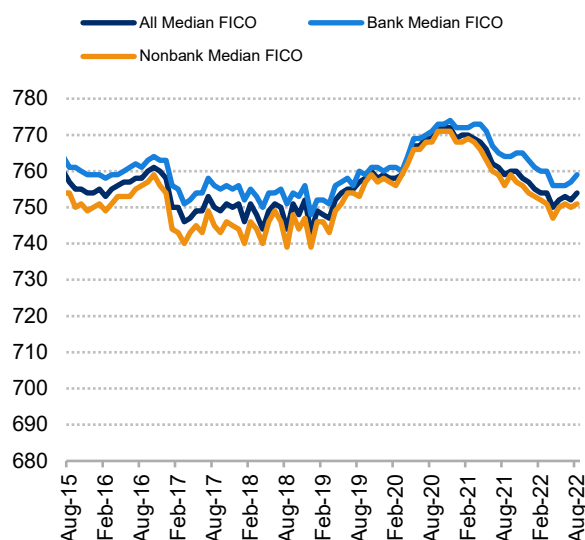
**Figure 61. Agency FICO: Bank vs. Nonbank**



**Figure 62. GSE FICO: Bank vs. Nonbank**

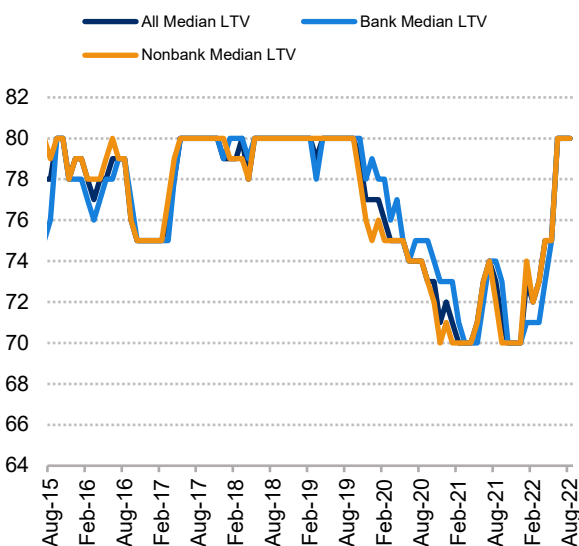
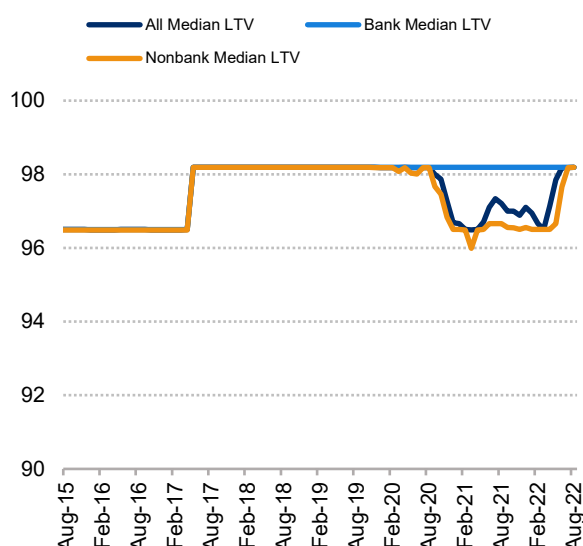
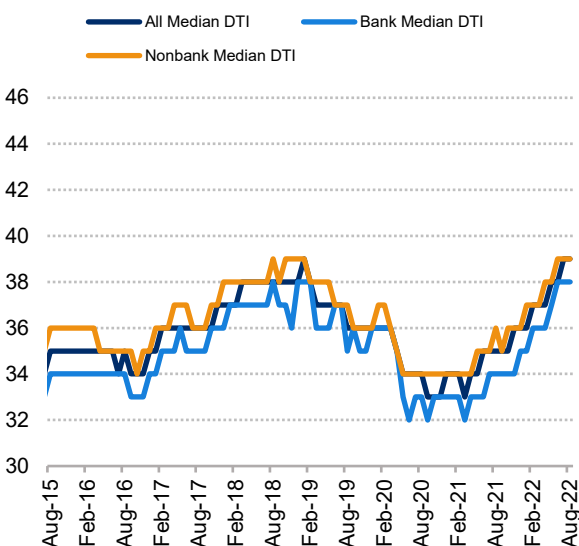
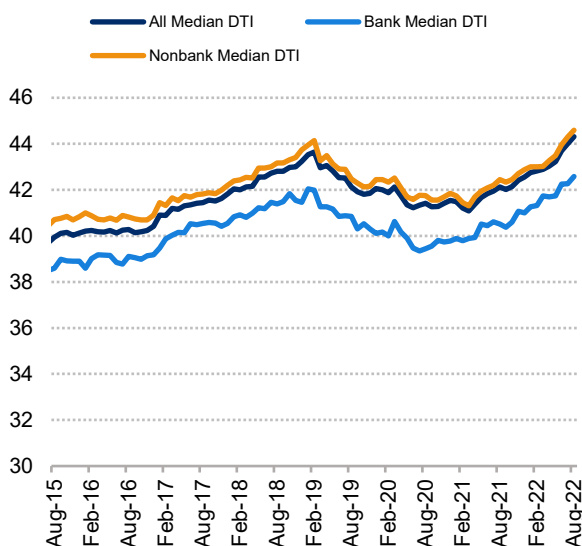


**Figure 63. Ginnie Mae FICO: Bank vs. Nonbank**



Sources: Recursion: Data as of August 2022.

The median LTV for all GSE originators remained the same in August 2022 MoM at 80%. While Ginnie Mae median bank LTV has been very flat at 98.19% since January 2021, non-bank median LTV has fluctuated more, increasing 0.1% MoM to 98.19% in August 2022. Ginnie Mae median DTI remained consistent MoM at approximately 44% in August 2022 in non-bank originations.

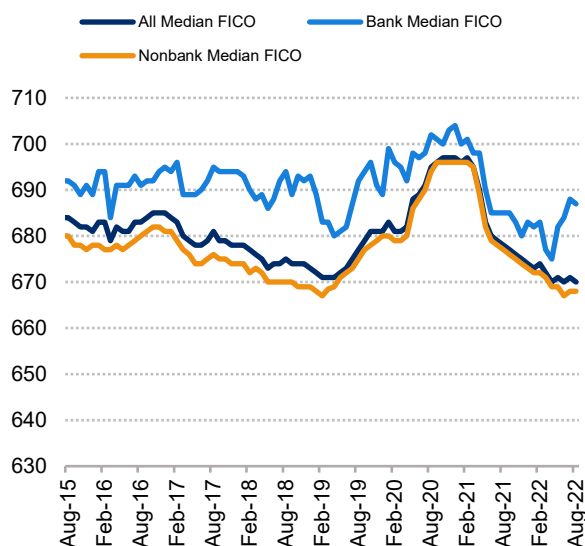
**Figure 64. GSE LTV: Bank vs. Nonbank**

**Figure 65. Ginnie Mae LTV: Bank vs. Nonbank**

**Figure 66. GSE DTI: Bank vs. Nonbank**

**Figure 67. Ginnie Mae DTI: Bank vs. Nonbank**


Sources: Recursion. Notes: Data as of August 2022.

In August 2022, the median FICO score for Ginnie Mae bank decreased by 1 point and non-bank originators remained stagnant MoM. The median FICO for all Ginnie originations decreased to 670 MoM. The gap between banks and non-banks is most apparent in VA lending (35-point spread).

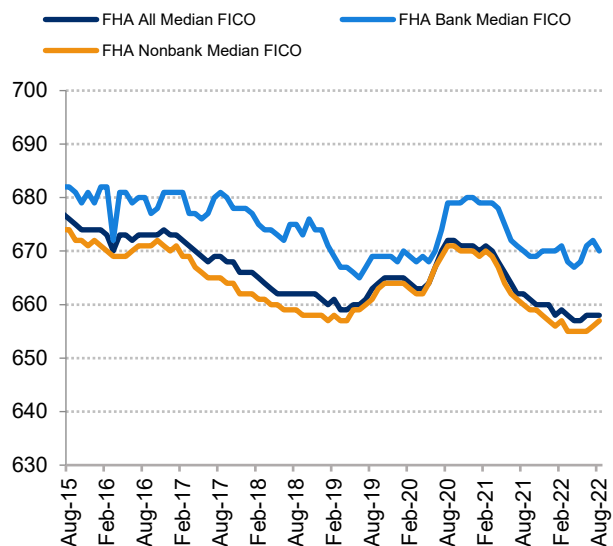
**Figure 68. Ginnie Mae FICO Score:**

**Bank vs. Nonbank**



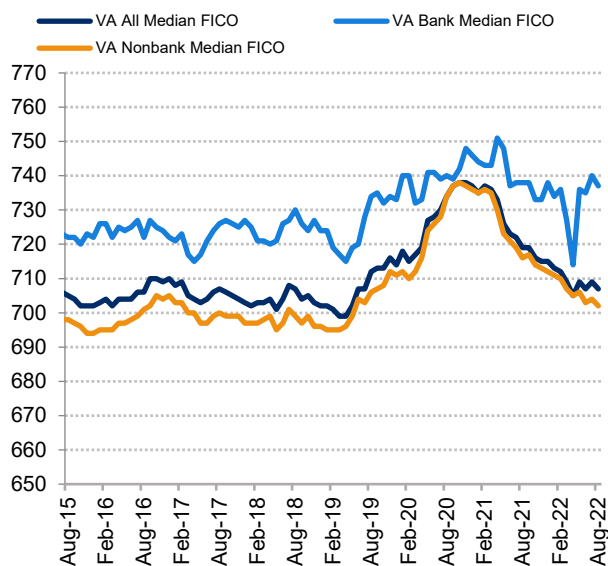
**Figure 69. Ginnie FHA FICO Score:**

**Bank vs. Nonbank**



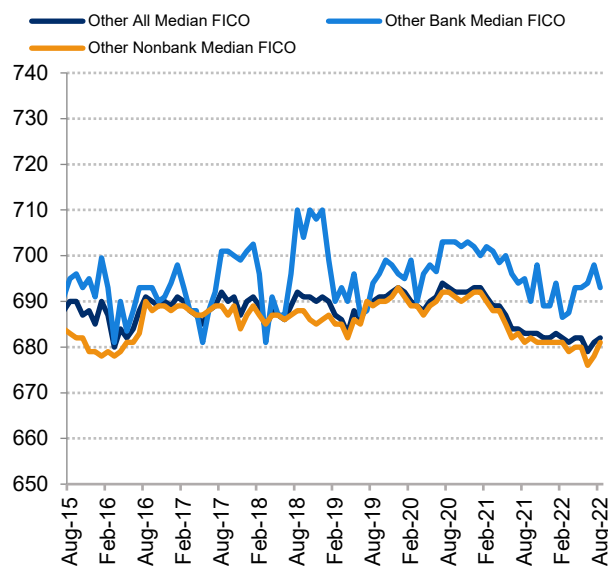
**Figure 70. Ginnie Mae VA FICO Score:**

**Bank vs. Nonbank**



**Figure 71. Ginnie Mae Other FICO Score:**

**Bank vs. Nonbank**

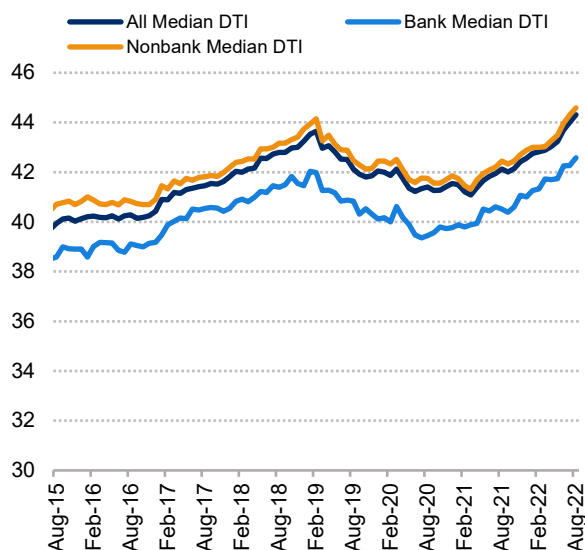


Sources: Recursion. Data as of August 2022.

Median DTI for Ginnie Mae nonbank originations has been consistently higher than the 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.

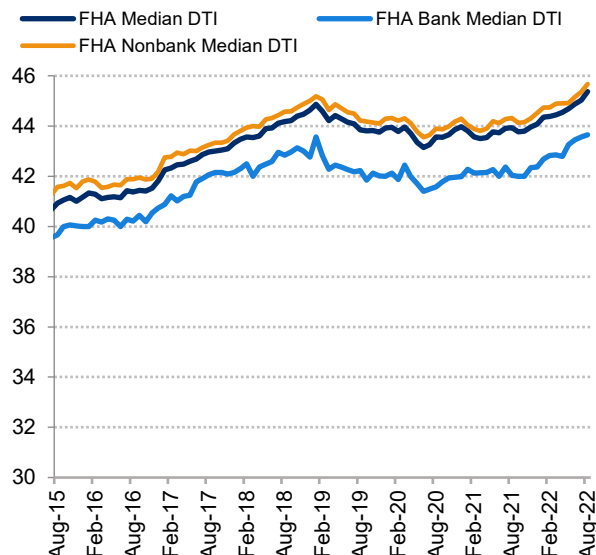
**Figure 72. Ginnie Mae DTI FI:**

**Bank vs. Nonbank**



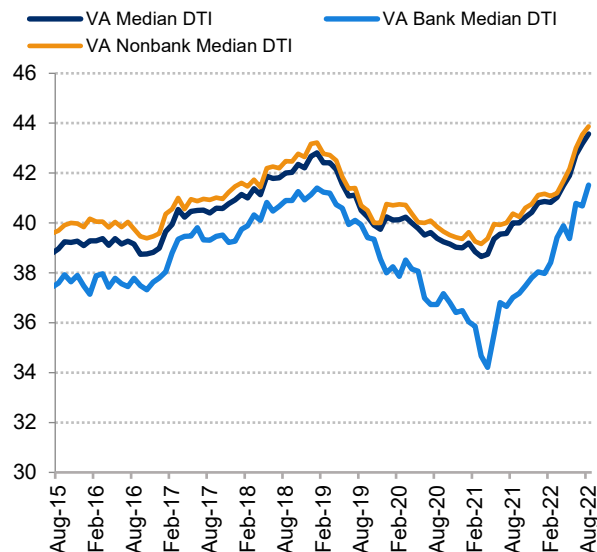
**Figure 73. Ginnie Mae FHA DTI:**

**Bank vs. Nonbank**



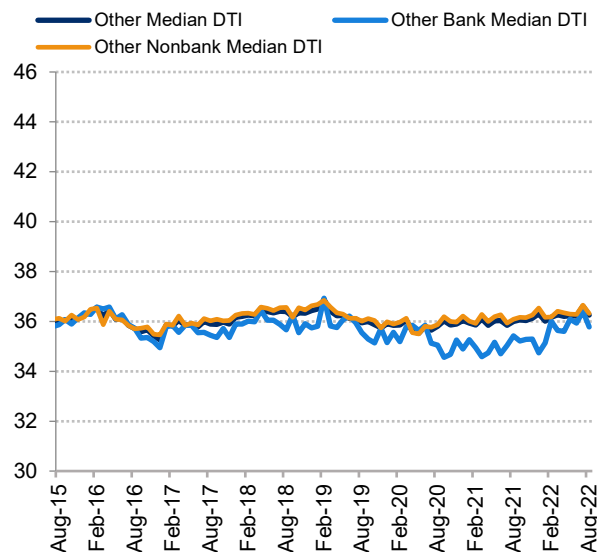
**Figure 74. Ginnie Mae VA DTI:**

**Bank vs. Nonbank**



**Figure 75. Ginnie Mae Other DTI:**

**Bank vs. Nonbank**



Sources: Recursion. Notes: Data as of August 2022.

## U.S. HOUSING MARKET

### 14 HOUSING AFFORDABILITY

#### 14.1 Housing Affordability – Home Price Appreciation

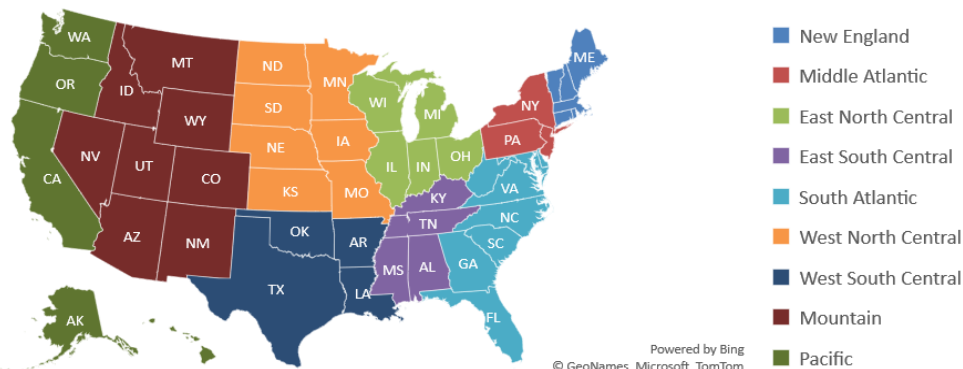
Home prices have increased rapidly during the pandemic, with Compound Annual Growth Rate (CAGR) for HPI at 19.2% between April 2020 and June 2022. Over that same period, the Mountain region has experienced the greatest home price appreciation (23.3% CAGR), while in the West North Central region, increases in home values have remained the slowest (15.8% CAGR).

**Table 24. Regional HPI Trend Analysis**

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	-8.4%	-5.3%	-9.8%	-5.5%	-14.2%	-5.9%	-2.1%	-15.1%	-17.9%	-10.4%
Trough to Pandemic CAGR	3.7%	3.5%	4.7%	4.5%	5.9%	4.6%	5.1%	8.3%	8.1%	5.4%
Pandemic CAGR	19.4%	17.3%	16.1%	20.2%	22.6%	15.8%	18.9%	23.3%	18.9%	19.2%
12-Month Period of Max HPI Growth During Pandemic	7-2020 to 6-2021	8-2020 to 7-2021	7-2020 to 6-2021	4-2021 to 3-2022	3-2021 to 2-2022	5-2021 to 4-2022	6-2021 to 5-2022	9-2020 to 8-2021	7-2020 to 6-2021	8-2020 to 7-2021
Max 12-Month Period Change, During Pandemic	21.8%	18.1%	17.2%	21.5%	23.9%	16.1%	19.3%	25.7%	21.8%	19.3%
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%	6.8%	8.5%	15.3%	7.4%	7.4%	18.0%	22.3%	10.7%

**Figure 76. FHFA.US Census Subregions as defined by the US Census Bureau.**

US Census Subregions



Source: HPI data from FHFA.US Census Subregions as defined by the US Census Bureau. Notes: HPI data as of May 2022. 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, 3/2022.  $CAGR = (End\ Value/Starting\ Value)^{(1/n)} - 1$



S&P's CoreLogic Case-Shiller US National Housing Price Index's August 30, 2022, reporting data indicated that home prices had decreased to 18.0% YoY as of June 2022, down from 19.9% in the previous month. This latest reported YoY HPI appreciation value suggests continued increases at a slower rate as home prices start to show signs of deceleration.

**Table 25. Home Price Trends by State**

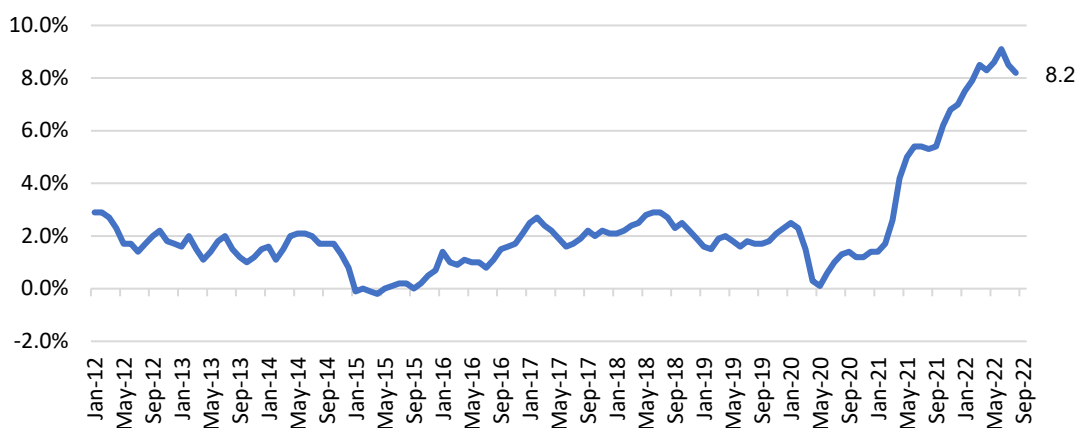
State	2000 to Peak	Peak to Trough	Trough to Current	YOY	Current HPI % Above Peak
<b>National</b>	<b>59.5%</b>	<b>-21.2%</b>	<b>113.1%</b>	<b>10.0%</b>	<b>68.0%</b>
AK	66.9%	-5.4%	42.5%	10.7%	34.8%
AL	41.6%	-15.1%	68.1%	15.7%	42.7%
AR	39.8%	-11.1%	60.5%	16.1%	42.6%
AZ	110.2%	-49.5%	186.4%	24.5%	44.6%
CA	144.8%	-47.1%	141.9%	19.0%	28.1%
CO	32.2%	-10.3%	144.2%	18.2%	119.0%
CT	72.8%	-19.7%	38.4%	16.9%	11.1%
DC	163.1%	-11.7%	112.6%	9.9%	87.6%
DE	88.3%	-23.5%	53.5%	15.3%	17.4%
FL	130.0%	-46.5%	152.4%	21.2%	35.0%
GA	35.9%	-27.1%	118.3%	18.2%	59.1%
HI	139.0%	-27.1%	100.9%	15.1%	46.5%
IA	27.8%	-5.4%	56.3%	11.5%	47.8%
ID	73.3%	-32.2%	206.6%	30.9%	107.7%
IL	49.9%	-23.8%	48.0%	12.3%	12.8%
IN	19.0%	-8.6%	79.4%	15.2%	63.9%
KS	31.0%	-7.7%	68.0%	14.3%	55.0%
KY	28.9%	-5.4%	66.6%	14.5%	57.6%
LA	51.6%	-6.7%	46.5%	9.7%	36.7%
MA	69.9%	-18.3%	78.9%	16.1%	46.2%
MD	126.4%	-26.4%	52.9%	12.9%	12.5%
ME	72.0%	-12.4%	80.0%	20.8%	57.8%
MI	18.4%	-31.6%	113.6%	15.7%	46.2%
MN	52.6%	-23.0%	85.4%	13.3%	42.7%
MO	39.2%	-15.0%	76.3%	15.2%	49.9%
MS	38.9%	-12.8%	47.2%	13.1%	28.4%
MT	79.4%	-13.5%	103.1%	22.6%	75.7%
NC	39.6%	-14.1%	88.4%	19.4%	61.7%
ND	51.6%	-0.8%	71.4%	9.4%	70.1%
NE	24.3%	-5.9%	79.6%	14.7%	69.0%
NH	72.9%	-21.9%	83.9%	19.5%	43.6%
NJ	102.2%	-22.8%	52.2%	16.4%	17.5%
NM	66.5%	-17.9%	58.0%	14.7%	29.8%
NV	117.4%	-59.4%	211.8%	20.1%	26.7%
NY	75.6%	-10.6%	58.1%	15.0%	41.4%
OH	19.5%	-16.6%	79.5%	14.8%	49.8%
OK	36.7%	-4.5%	62.7%	14.1%	55.4%
OR	85.6%	-28.6%	133.2%	18.4%	66.5%
PA	68.8%	-10.9%	59.1%	14.2%	41.7%
RI	108.2%	-28.2%	82.1%	19.0%	30.7%
SC	40.6%	-16.0%	89.4%	17.7%	59.1%
SD	40.2%	-2.3%	76.2%	17.2%	72.1%
TN	38.2%	-12.6%	105.8%	20.6%	79.9%
TX	35.8%	-3.0%	101.1%	17.1%	95.0%
UT	65.1%	-26.0%	158.9%	26.3%	91.5%
VA	95.0%	-18.8%	61.5%	14.3%	31.1%
VT	78.4%	-10.5%	58.4%	19.3%	41.8%
WA	83.3%	-27.3%	149.1%	20.0%	81.0%
WI	38.6%	-14.3%	71.9%	14.2%	47.3%
WV	39.3%	-5.9%	41.6%	12.5%	33.3%
WY	84.6%	-9.7%	55.9%	13.4%	40.8%

Source: FHFA/S&P Corelogic Case-Shiller US National Housing Price Index Data; Notes: HPI State-level data is provided quarterly by FHFA and presented here as of March 2022. 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; S&P Corelogic Case-Shiller US National Housing Price Index reported for January 2022 in its Report dated March 29, 2022

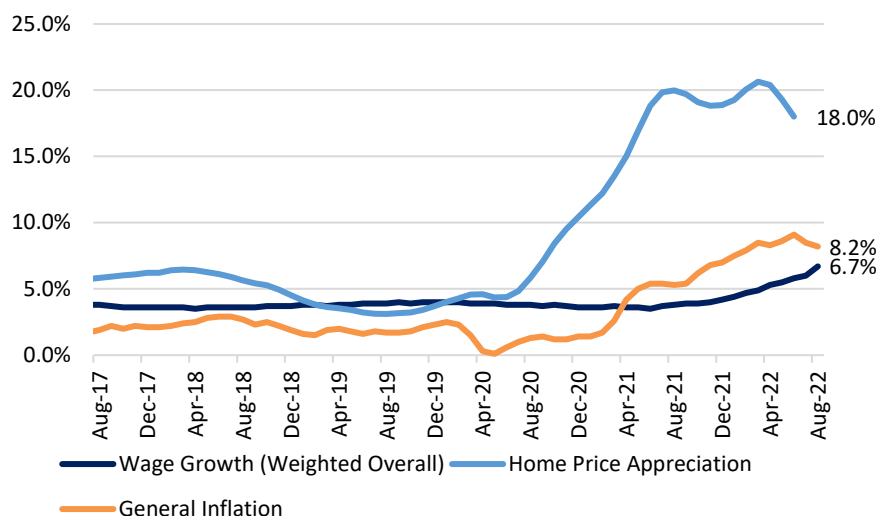
## 14.2 Housing Affordability – Inflation, Wages, and the Price of Real Estate and Rent

While housing affordability is directly affected by real estate price fluctuation, affordability is also impacted by general asset price changes. As of September, inflation has dropped slightly to 8.2%. As of August 2022, YoY rental price appreciation was down to 27.1% for 1 Bedroom units, and 23.4% for 2 Bedroom units; this decline in YoY rental price appreciation is due to a 2.77% and 2.47% MoM decrease in August rental prices. The August rental price decline is the first decline of the calendar year. Also, wage growth is now at 6.7%, a 21.8% MoM increase.

**Figure 77. Inflation | 12-Month Percent Change in CPI**



**Figure 78. Asset Price Appreciation vs. Wage Increases**



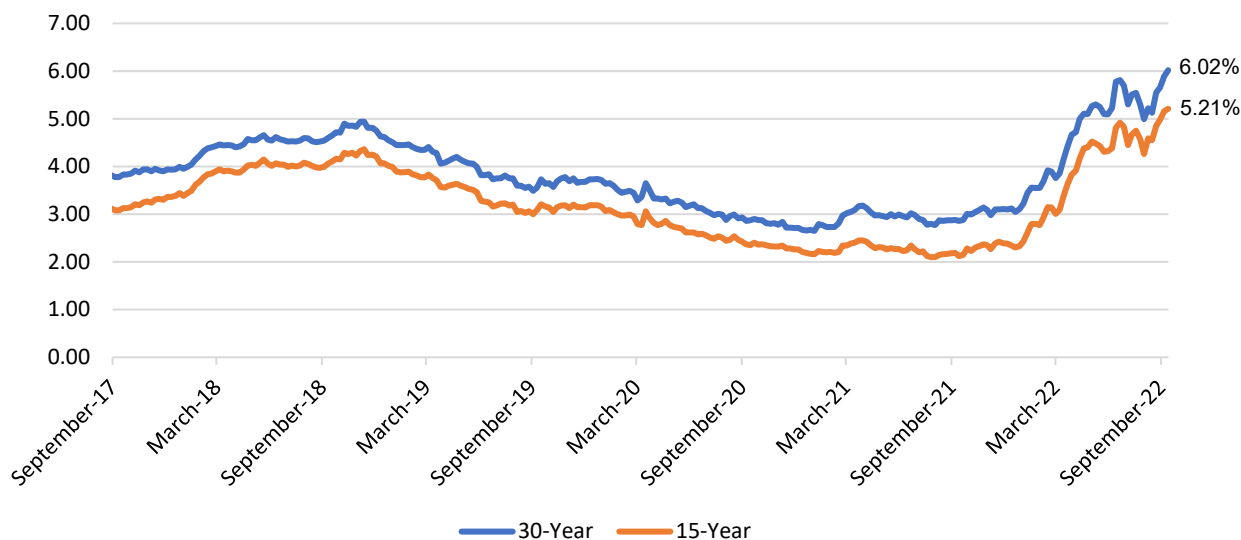
Metric	Statistic	
General Inflation	8.2%	
Home Price Appreciation	18.0%	
Rental Price Appreciation	1 Bedroom	27.1%
	2 Bedroom	23.4%
Wage Growth	6.7%	

Sources: Bureau of Labor Statistics – Consumer Price Index and Wage-Growth Data; Rent.com - Rental Price Appreciation; S&P/Case-Schiller U.S. National Home Price Index – Home Price Appreciation.

### 14.2.1 HOUSING AFFORDABILITY – MORTGAGE RATE TRENDS

To address high inflation levels, the Federal Funds Target Rate was raised again in September 2022 by 75 bps to a range of 3.00%-3.25%—the fifth consecutive hike since March 2022. As of September 15, 2022, the average 30-year and 15-year fixed rate mortgage rates were 6.02% and 5.21% respectively. The average 30-year fixed rate mortgage was up by 47 bps and the average 15-year fixed rate mortgage was up by 36 bps compared to the prior month.

**Figure 79. Average Fixed Rate Mortgage Rates**

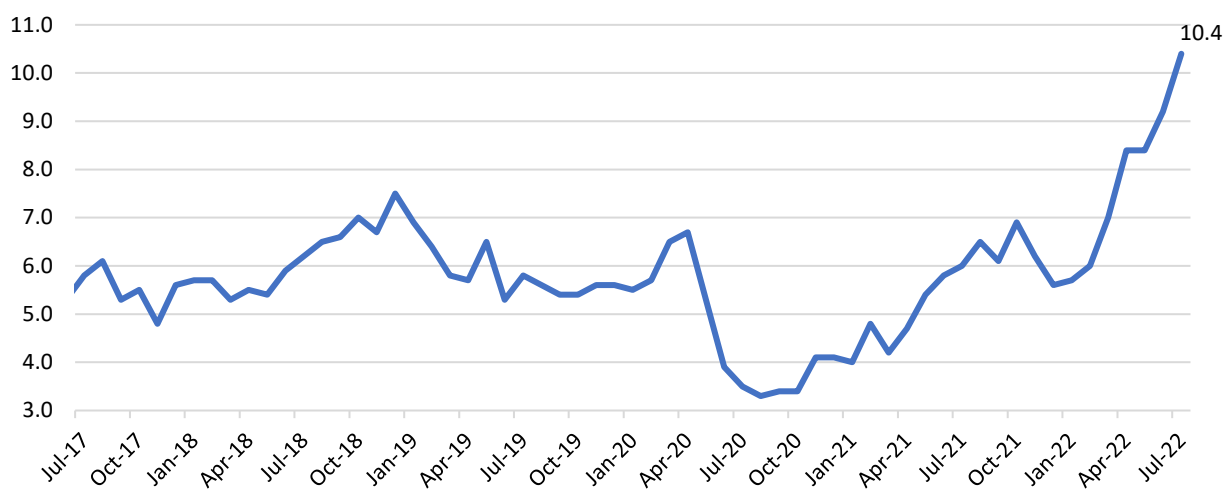


Sources: [federalreserve.gov/monetarypolicy/openmarket.htm](https://federalreserve.gov/monetarypolicy/openmarket.htm); Federal Reserve Chair News Conference, June 15, 2022, FRED

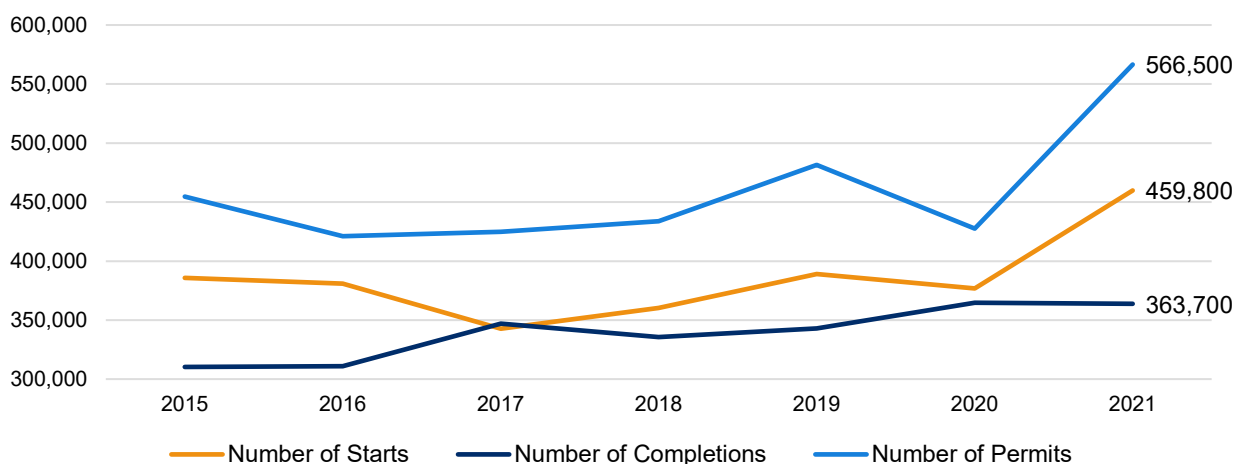
### 14.3 Housing Inventory

As of July 2022, there was 10.4 months of housing inventory on the market, despite estimates of a housing shortfall in excess of 1.5 million homes.<sup>3</sup> The July housing inventory values increased 13.0% MoM. As housing affordability continues to remain high (see above section [14.2 – Inflation, Wages, and the Price of Real Estate and Rent](#)) single-family home sales are unlikely to play a large role in the resolution of the housing shortfall. Multifamily construction volume metrics, shown in Figure 81, have been increasing.-

**Figure 80. Single-Family Housing Inventory**



**Figure 81. Multifamily Construction Metrics: Permits, Starts, Completions**

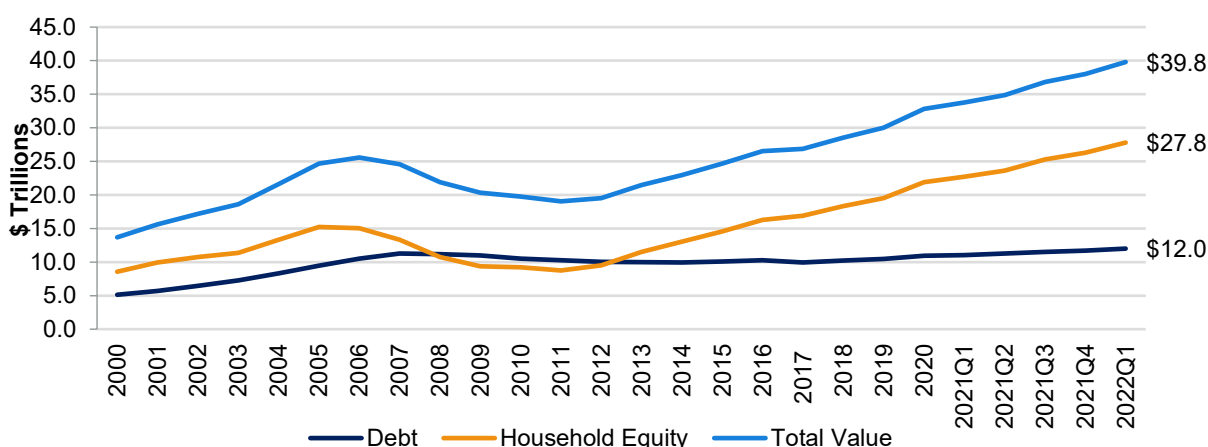


<sup>3</sup> "President Biden Announces New Actions to Ease the Burden of Housing Costs.", The White House, 16 May 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/16/president-biden-announces-new-actions-to-ease-the-burden-of-housing-costs/>. Press Release

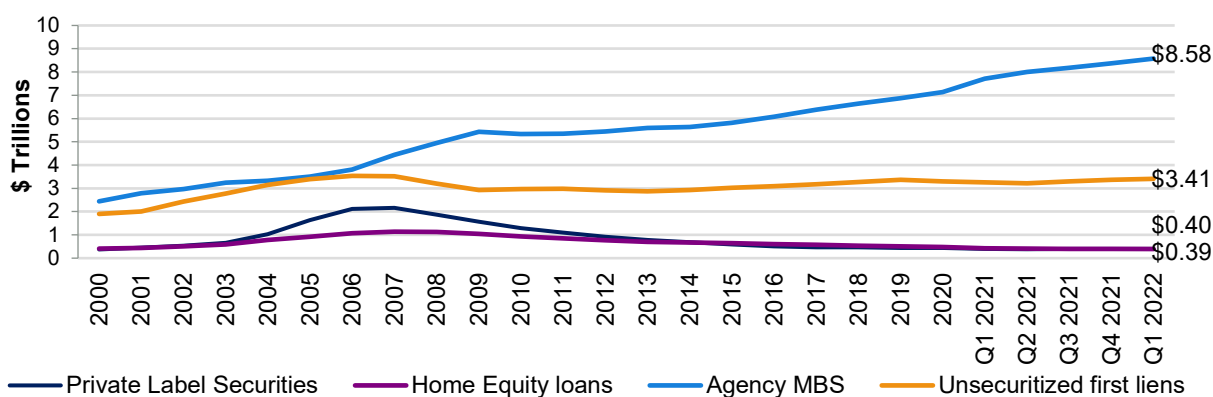
## 14.4 Size and Value of the US Housing Market

The total value of the single-family housing market reached \$39.8 trillion in Q1 2022. The total value of the US housing market is up 109% from its trough in 2011. Over that same period, mortgage debt outstanding has increased just 17%, approximately six times less rapidly. From Q4 2021 to Q1 2022 mortgage debt outstanding has increased from \$11.7 trillion to \$12.0 trillion. Thus, the expansion in the housing market is being driven primarily by increases in home values, as detailed in the [Housing Affordability Section](#), agency SF MBS account for a growing percentage of the total mortgage debt outstanding, up to 67% of total mortgage debt from just 52% in 2011.

**Figure 82. Value of the US Housing Market.**



**Figure 83. Size of the US Residential Mortgage Market.**



Sources:

1. Federal Reserve Flow of Funds Data. Notes: Data as of Q1 2022.
2. Idzelis, Christine. "Fed May Need to Be Even More Aggressive Fighting Inflation as U.S. Household Cash Exceeds Debt for First Time in Three Decades, Warns Deutsche Bank." MarketWatch, MarketWatch, 20 Apr. 2022, <https://www.marketwatch.com/story/fed-may-need-to-be-even-more-aggressive-fighting-inflation-as-u-s-household-cash-exceeds-debt-for-first-time-in-three-decades-warns-deutsche-bank-11650474606>.

---

## 15 DISCLOSURE

---

“The data provided in the Global Markets Analysis Report (hereinafter, the “report”) should be considered as general information only and is current only as of its specified date, unless otherwise noted. No information contained herein is, and should not be construed to be, investment advice. Nor does any information contained herein constitute an offer to sell, or is a solicitation of an offer to buy, securities.

The information contained herein is based upon information generally available to the public from sources believed to be reliable as of the specified date. The accuracy of the information contained herein is based on the corresponding accuracy of the issuer data as reported to the Government National Mortgage Association (hereinafter, “Ginnie Mae”).

Therefore, if there is insufficient or inaccurate data to support calculations of any specific disclosure information, Ginnie Mae disclaims any and all liability relating to that information, including, without limitation, any express or implied representations or warranties for statements or errors contained in, or omissions from, the report.

The forward-looking statements, and underlying assumptions, speak only as of the date of October 20, 2021. Ginnie Mae expressly disclaims any obligation or undertaking to update or revise any forward-looking statement or underlying assumption contained in the report to reflect any change in its expectations or any change in circumstances upon which such statement is based.

Past performance is not a guarantee of future results. Accordingly, there are no assurances given, nor representations or warranties made, that all estimated returns or projections will be realized, or that actual returns or performance results will not materially differ from those estimated herein.”