

# ***GLOBAL MARKETS ANALYSIS REPORT***

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



**February 2023**

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

This month's *Highlights* section discusses agency single-family MBS issuance and agency single-family and multifamily REMIC issuance in 2022. This month's *Highlights* section compares Ginnie Mae's agency MBS and REMIC issuance to the GSEs.

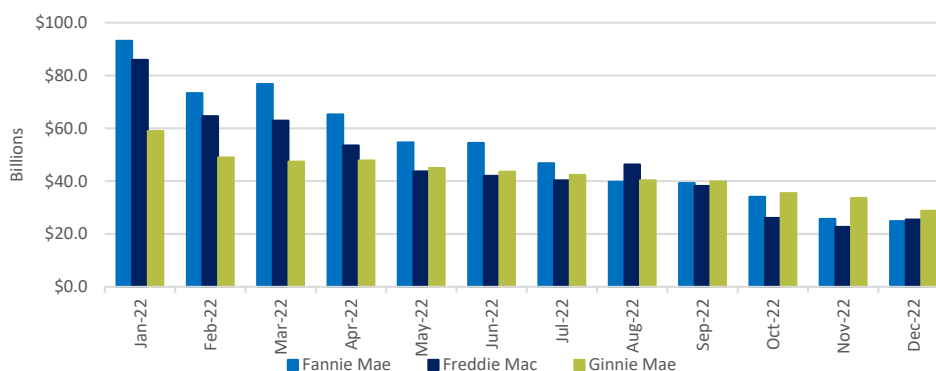
Notable insights in this month's Global Market Analysis Report include the following:

- The [Prepayments](#) section illustrates the decline of prepayment rates across the agencies, due to decreased refinance activity in the U.S. housing market.
- The [Agency REMIC Issuance](#) section captures the continued upward trend in coupon rates for REMIC deals as well as the dampened issuance volume, YoY, driven by lower sales and refinance activity.
- The [Agency Credit Breakdown](#) section illustrates the leading role that Ginnie Mae continues to play in high-LTV lending and in providing homeownership opportunities to first-time homebuyers.
- The [U.S. Housing Market](#) section includes home price indices for each of the U.S. census regions by quarter. The market shows signs of decelerating inflation and mortgage rates this month, as well as home prices beginning to decline nationally. However, inflation and mortgage rates continue to outpace wage growth. This section also includes an analysis of the average price of homes sold to median income, which shows housing affordability remaining historically low.

## Highlights

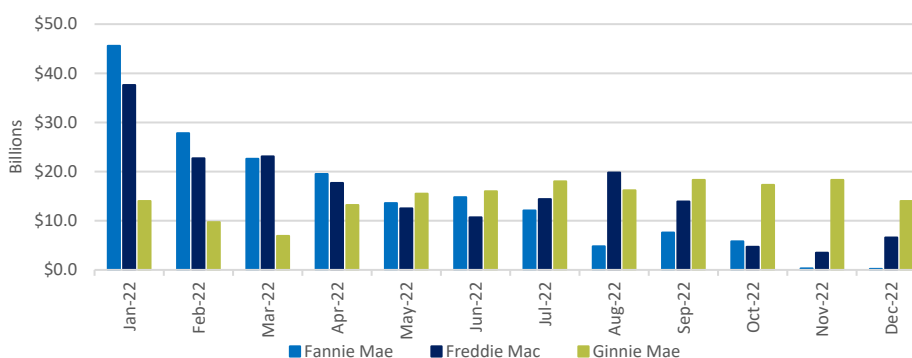
In December of 2022, Ginnie Mae gross issuance volume of MBS was \$28.8 billion in unpaid principal balance (UPB). That same month, Fannie Mae gross issuance volume was \$24.9 billion and Freddie Mac gross issuance volume was \$25.5 billion. Total gross MBS issuance volume in 2022 for Ginnie Mae was \$512.3 billion. Total gross MBS issuance volume in 2022 for Fannie Mae was \$628.3 billion and for Freddie Mac was \$551.7 billion. As illustrated in **Figure 1**, through 2022, the GSEs had a sharper decline in monthly gross MBS issuance volume in comparison to Ginnie Mae. Freddie Mac gross monthly issuance volume decreased by 70.3% in 2022 while Fannie Mae gross monthly issuance volume decreased by 73.2%. Ginnie Mae gross monthly issuance volume only decreased 51.1% during the same period.

**Figure 1. Agency Single-Family MBS Gross Issuance Amount**



Net MBS issuance amounts for the GSEs were also significantly lower in 2022 relative to Ginnie Mae. In fact, Fannie Mae experienced a 99.5% decline in monthly net issuance amount from \$45.6 billion in January 2022 to only \$200 million in net issuance in December 2022. In December 2022 Freddie Mac also saw an 82.4% drop in net MBS issuance amount from \$37.6 billion in January 2022 to \$6.6 billion in December 2022. Ginnie Mae maintained a net issuance amount of \$14 billion in January 2022 and \$14 billion in December 2022—showing a stable performance in 2022 for Ginnie Mae as depicted in **Figure 2**.

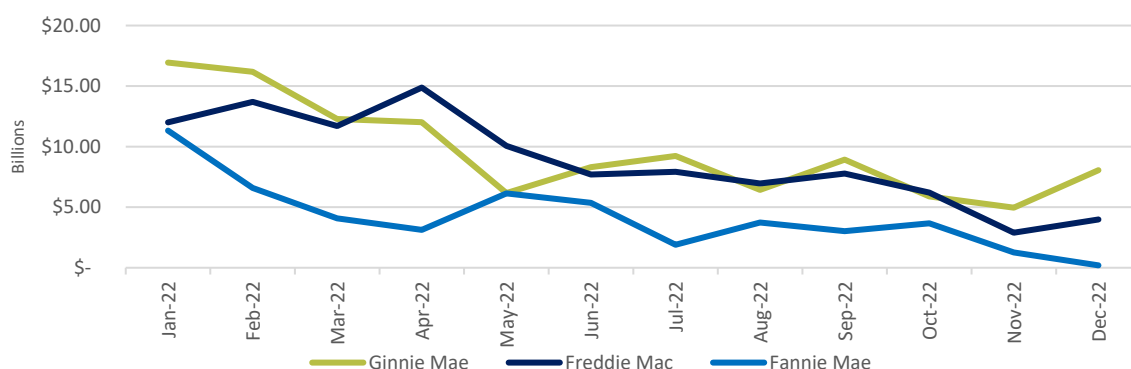
**Figure 2. Agency Single-Family MBS Net Issuance Amount**



Sources: Ginnie, Freddie Mac, and Fannie Mae loan level disclosure files

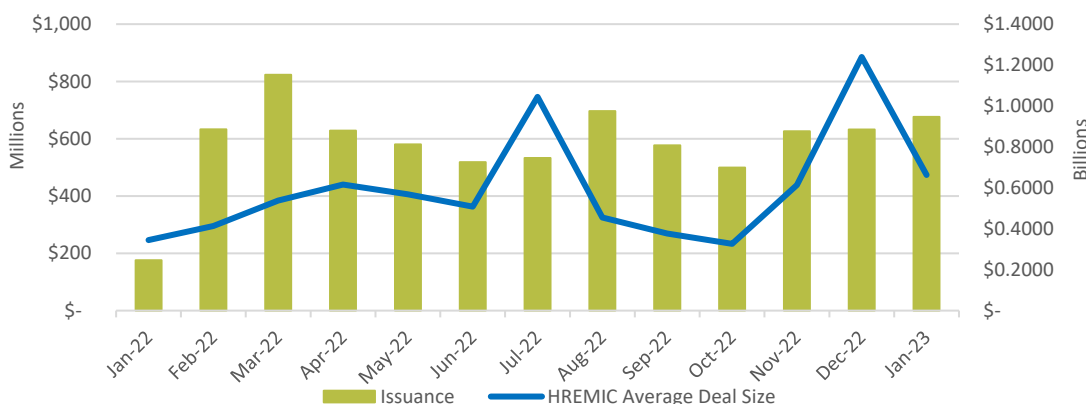
In 2022, Ginnie Mae total single-family and multifamily REMIC issuance volume was \$115.4 billion. The total REMIC issuance amount for Freddie Mac was \$105.8 billion and \$50.4 billion for Fannie Mae. The GSEs saw a dip during 2022 in single-family and multifamily monthly REMIC issuance volume as well. As shown in **Figure 3**, Freddie Mac monthly REMIC issuance volume dropped from \$12.0 billion in January 2022 to \$4.0 billion in December 2022—a 66.7% decrease; Fannie Mae monthly REMIC issuance volume dropped from \$11.3 billion in January 2022 to less than \$1 billion in December 2022—a 98.2% decrease. With \$8.1 billion of single and multifamily REMIC issuance in December 2022, Ginnie Mae had a higher issuance REMIC issuance volume compared to Freddie Mac and Fannie Mae.

**Figure 3. Agency Single-Family and Multifamily REMIC Issuance**



Ginnie Mae is the only agency issuer of HREMICs (collateralized by Home Equity Conversion Mortgages, which are FHA’s reverse mortgage loan product). The average monthly deal size for Ginnie Mae HREMICs has grown 260% from \$246.2 million in January 2022 to \$885.3 million in December 2022 as seen in **Figure 4**. Total HREMIC issuance was \$9.7 billion in 2022 with 26 deals compared to 19 transactions in 2021. \$947 million of HREMICs were issued in January 2023 relative to \$885 million in December 2022.<sup>1</sup>

**Figure 4. Ginnie Mae HREMIC Issuance**



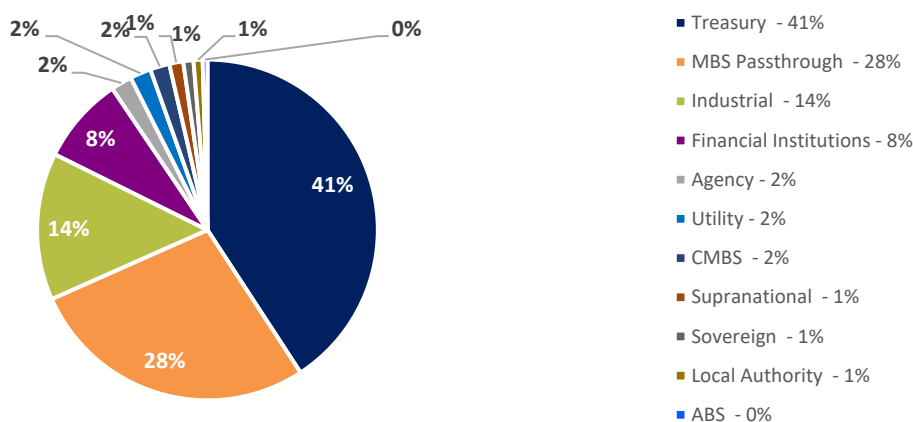
<sup>1</sup> [https://www.ginniemae.gov/data\\_and\\_reports/reporting/REMIC%20issuance%20Summaries/remic%20monthly\\_issuance\\_jan23.pdf](https://www.ginniemae.gov/data_and_reports/reporting/REMIC%20issuance%20Summaries/remic%20monthly_issuance_jan23.pdf)



## 1 US AGGREGATE AND GLOBAL INDICES

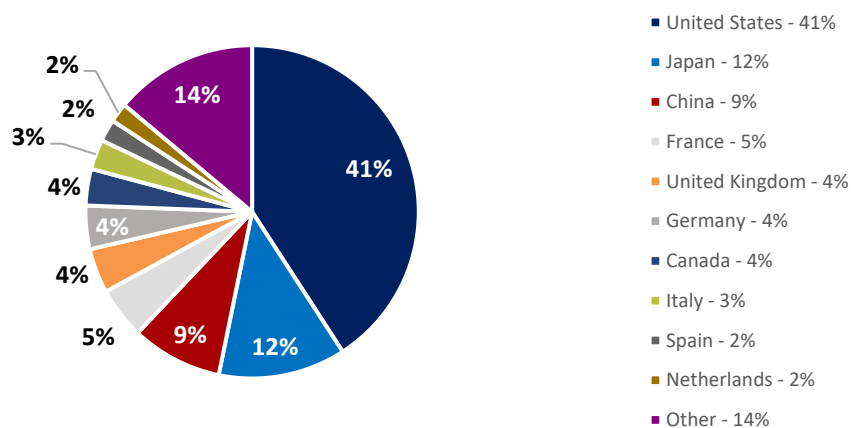
### 1.1 Bloomberg US Aggregate and Global Indices

**Figure 5. Bloomberg US Aggregate Index**



At month-end January, US Treasuries contributed approximately 41% to the Bloomberg US Aggregate Index, stable from the prior month. US MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) continues to contribute approximately 28%. For the US Aggregate Index, all other changes to the index components were no larger than 1%.

**Figure 6. 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 is the second highest at 12%. For the Global Aggregate Index, all countries remained stable when compared to the prior month with no changes larger than 1%.

Source: Bloomberg [both charts]. Note: Data as of January 2023. Figures in charts may not add to 100% due to rounding.

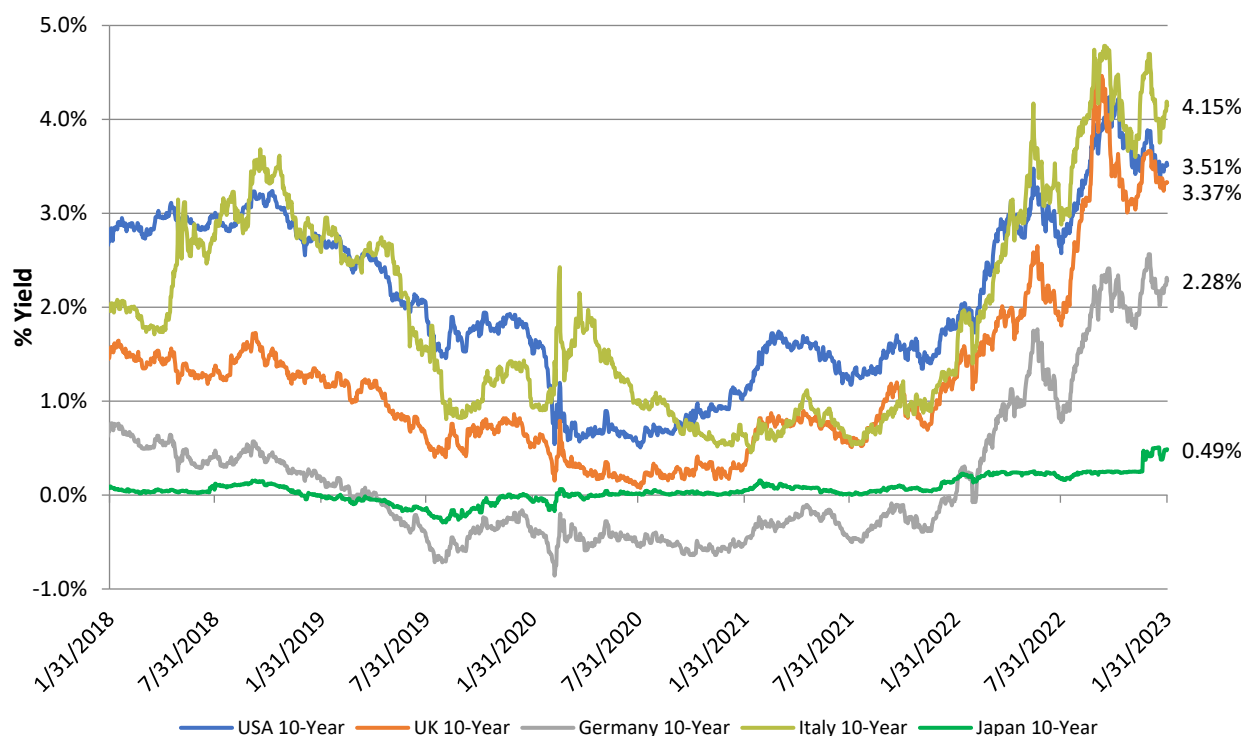
## 2 SOVEREIGN DEBT PRODUCT PERFORMANCE COMPARISONS

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

The US 10-year Treasury yield moved to 3.51% at month-end January 2023, a MoM decrease of 37 bps. US Treasury yields remain the 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 decreased to 3.37% at month-end January, a MoM decrease of 29 bps.
- The yield on the German 10-year note fluctuated during January, having dipped 54 bps from 2.57% at month-end December to 2.02% at mid-month January. The yield rebounded to 2.28% at month-end January which represents a MoM decrease of 29 bps
- The yield on the Italian 10-year note fluctuated during January, having dipped 95 bps from 4.70% at month-end December to 3.75% at mid-month January. The yield rebounded to 4.15% at month-end January which represents a MoM decrease of 47 bps
- The yield on the Japanese 10-year notes increased to 0.49% at month-end January, a MoM increase of 8 bps.

**Figure 7. Global 10-Year Treasury Yields**



Source: Bloomberg. Note: Data as of January 2023.



## 2.2 US Treasury Hedged Yields

The hedged yield for the 10-year Treasury JPY increased MoM 6 bps to 2.21% at month-end January.

The hedged yield for the 10-year Treasury EUR increased MoM 3 bps to 1.27% at month-end January.

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



**Figure 9. 7–10yr Total Return Hedged, EUR**



Source: Bloomberg. Note: Data as of January 2023.

## SECONDARY MORTGAGE MARKET

### 3 FIXED INCOME PRODUCT PERFORMANCE COMPARISONS

#### 3.1 Ginnie Mae Yields – USD

Ginnie Mae fixed rate MBS yields decreased MoM in January 2023. Ginnie Mae II yields were 5.03% in November, increased 28 bps to 5.31% in December, and have now decreased 59 bps to 4.72%. Ginnie Mae I yields were 4.99% in November, increased 23 bps to 5.22%, and have now decreased 47 bps to 4.75%. Ginnie Mae II spreads over the US 10-year Treasury yield increased 65 bps to 120 bps over the US 10-year Treasury yield at month-end January 2023. The yields on the Ginnie Mae I were 123 bps higher than the US 10-year Treasury yield at month-end January 2023, a decrease of 12 MoM but an increase of 56 bps YoY.

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



**Figure 11. Ginnie Mae I SF Yield, USD**



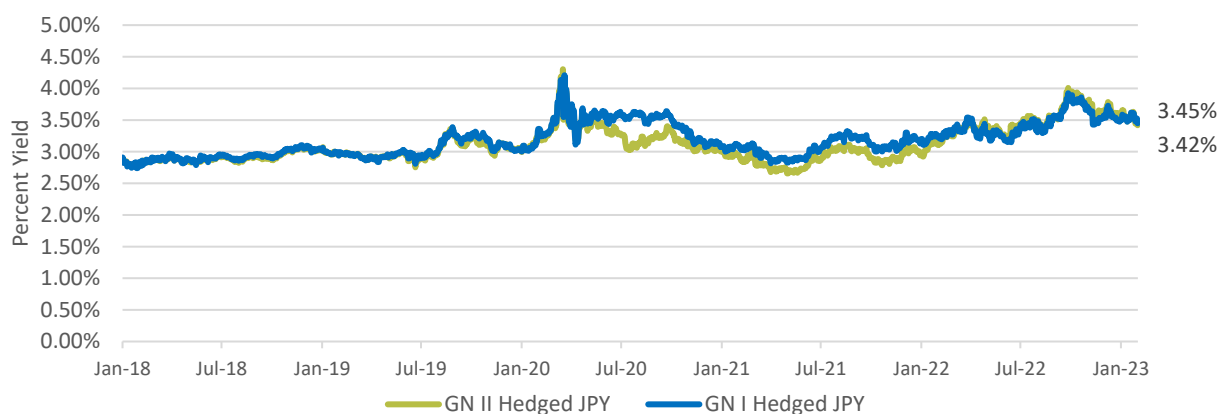
Sources Bloomberg. Note: Data as of January 2023.

### 3.2 Ginnie Mae Hedged Yields

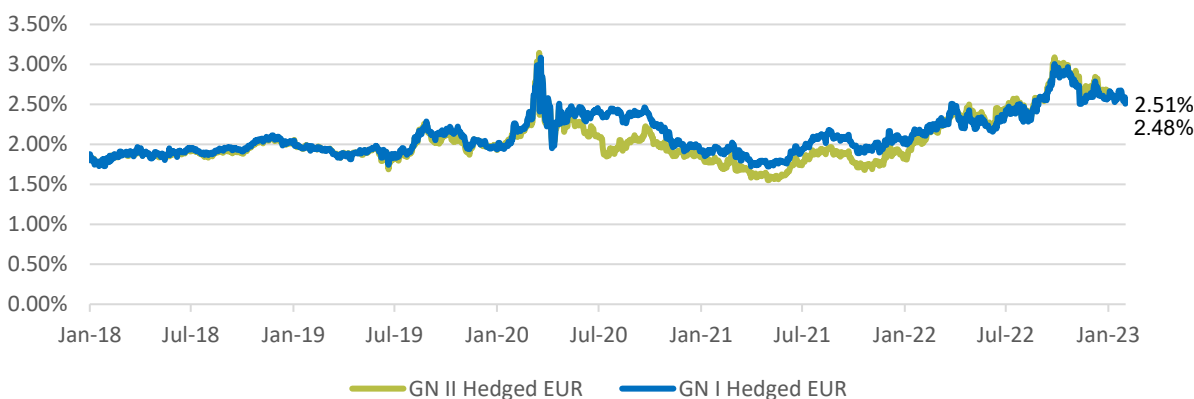
The yield for the Ginnie Mae II, hedged in the Japanese Yen stood at 3.42% at month-end January, a 17 bps decrease MoM. The yield for the Ginnie Mae II, hedged in the Euro, stood at 2.48% at month-end January, a 19 bps decrease MoM.

The yield for the Ginnie Mae I, hedged in the Japanese Yen, stood at 3.45% at month-end January, a 5 bps decrease MoM. The yield for the Ginnie Mae I, hedged in the Euro, stood at 2.51% at month-end January, a 7 bps decrease MoM.

**Figure 12. Ginnie Mae I and II Hedged, JPY**



**Figure 13. Ginnie Mae I and II Hedged, EUR**



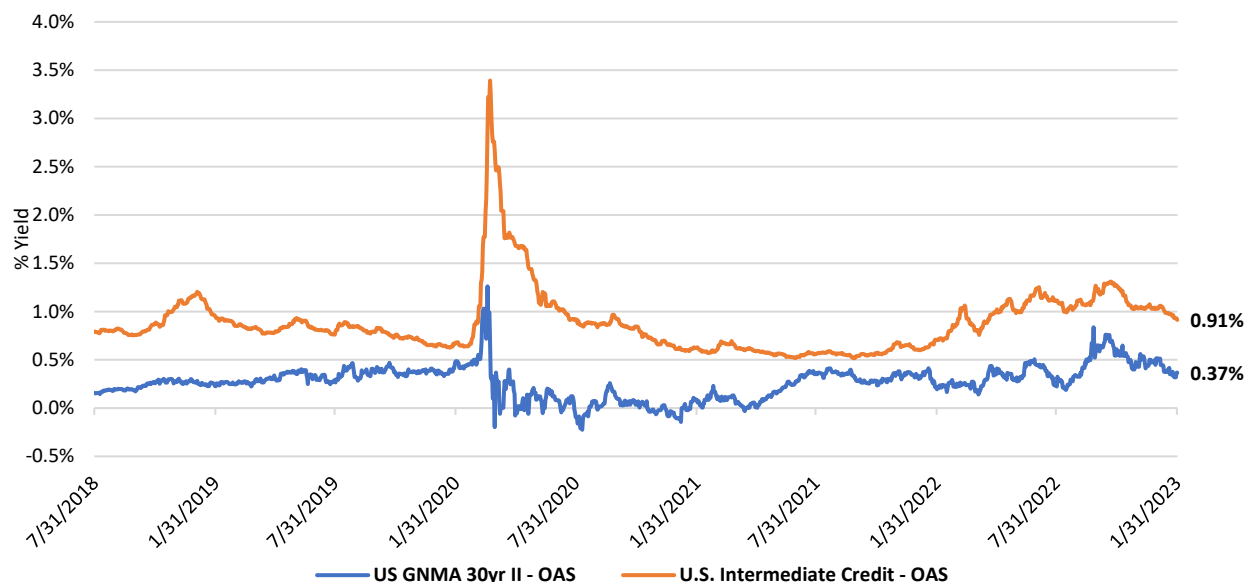
Source: Bloomberg. Note: Data as of January 2023.

Note: Hedged yield calculations assume hedge costs for Ginnie Mae securities are equivalent to those for U.S. Treasuries.

### 3.3 Ginnie Mae Yield Spreads – Intermediate Credit

The yield differential between US Intermediate Credit and GNMA II 30-year OAS increased 4 bps to 0.55% at month-end January. After significant fluctuation in the month of January, the GNMA II 30-year OAS decreased 15 bps MoM as of month-end January. The US Intermediate credit OAS was similarly volatile in January but as of month-end January there had been a 12 bps decrease MoM.

**Figure 14. US GNMA II 30yr MBS OAS versus US Intermediate Credit OAS**



**Figure 15. Spread between US Intermediate Credit and US GNMA II 30yr MBS OAS**

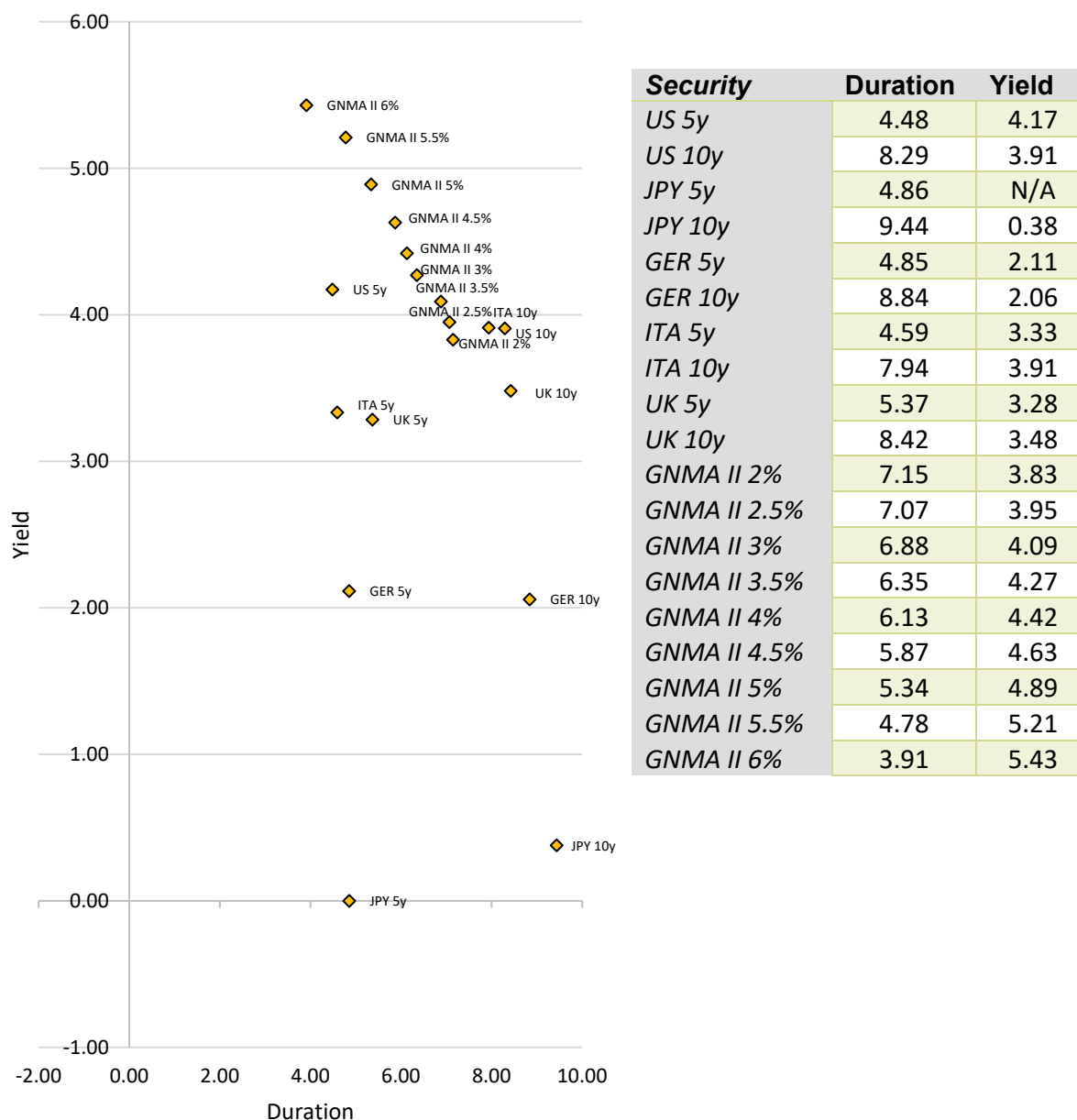


Source: Bloomberg. Note: Data as of January 2023.

### 3.4 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.

**Figure 16. Yield vs. Duration**



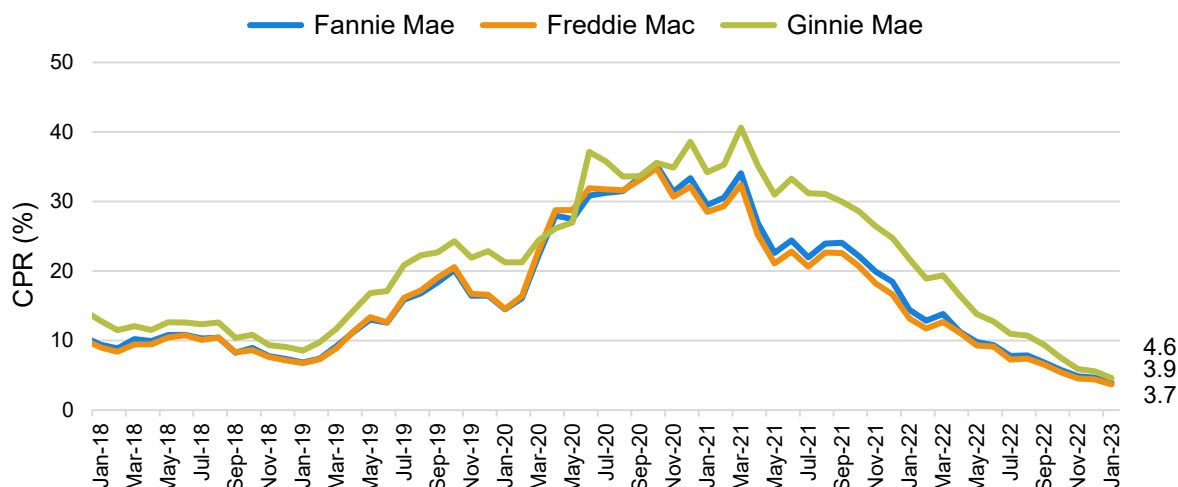
Source: Bloomberg. Note: Yield and modified duration for GNMA II securities is based on median prepayment assumptions from surveyed Bloomberg participants. All data is as of January 2023. Yields are in base currency of security and unhedged. JPY 5Y yields were unavailable on the date this data was pulled.

## 4 PREPAYMENTS

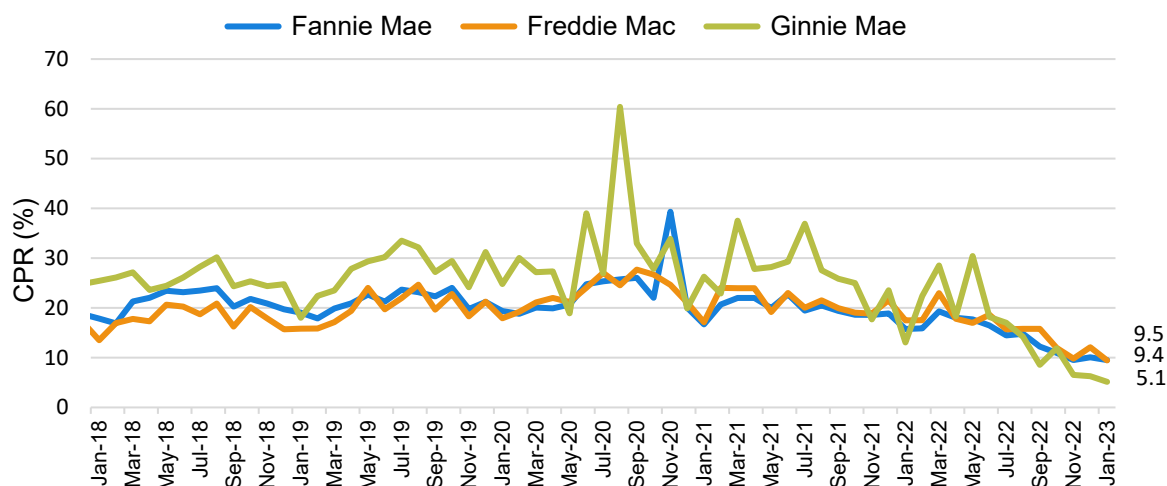
### 4.1 Aggregate Prepayments (CPR)

Ginnie Mae fixed rate aggregate prepayment speeds decreased in January by 17.2% MoM, while Fannie Mae and Freddie Mac CPRs decreased 16.1% and 16.4%, respectively. ARM prepayments have decreased for GSEs since December 2022 and dropped for Ginnie Mae for the third straight month, due to decreased refinance activity in the current higher interest rate environment.

**Figure 17. Fixed Rate Aggregate 1-Month CPR**



**Figure 18. ARM Aggregate 1-Month CPR**



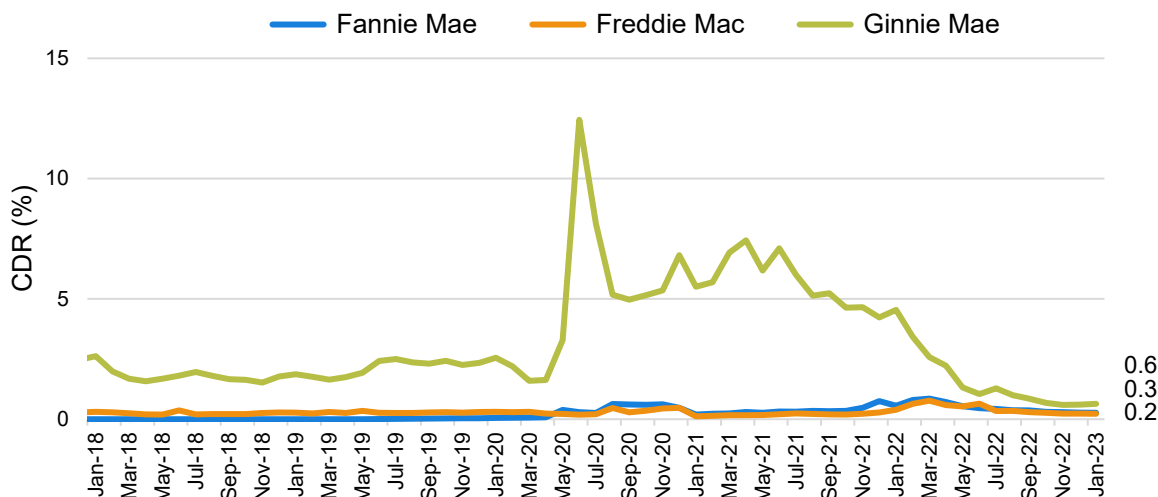
Source: Recursion. Note: Data as of January 2023.



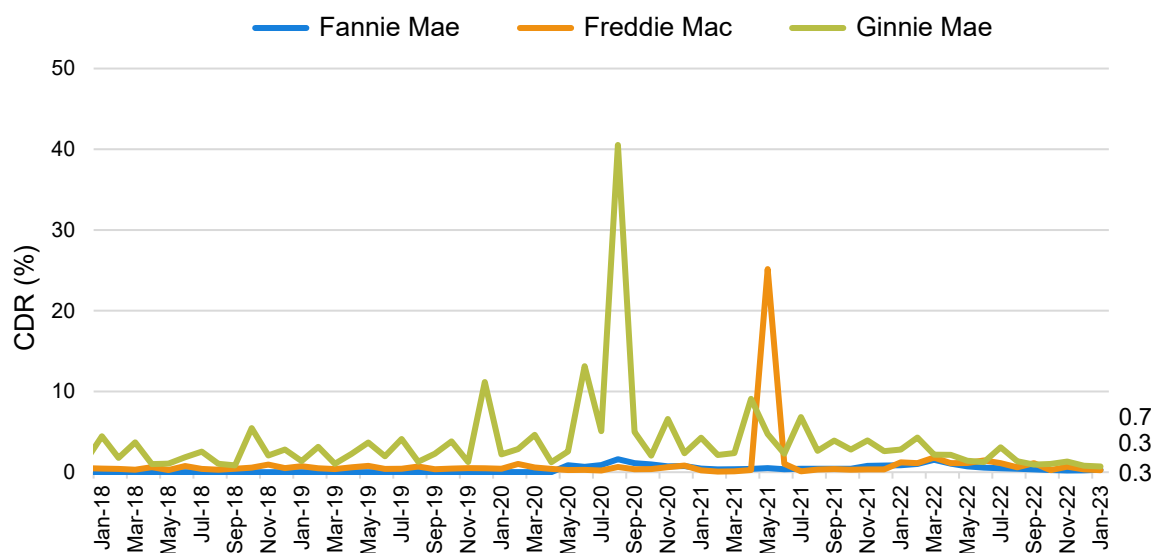
## 4.2 Involuntary Prepayments (CDR)

Fixed rate involuntary prepayments (CDR) remain higher for Ginnie Mae than for the GSEs. The spread in prepayment speeds between Ginnie Mae and GSE prepayments has converged significantly since Ginnie Mae's CDR peak of 12.4 CDR in June 2020. ARM CDRs for Freddie Mac continued to remain below Ginnie Mae in January 2023 after slightly overtaking Ginnie Mae in September 2022.

**Figure 19. Fixed Rate Aggregate CDR**



**Figure 20. ARM Aggregate CDR**

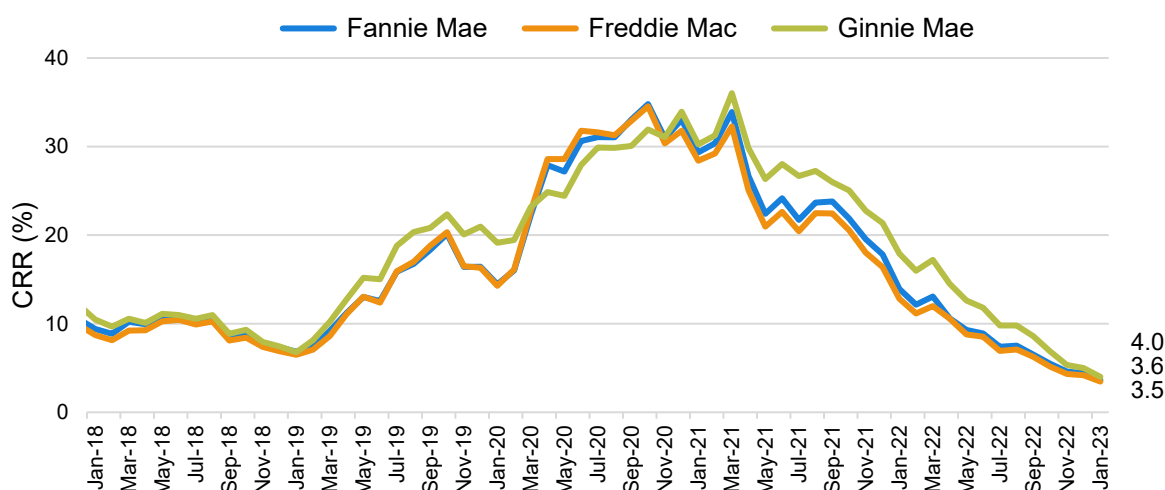


Source: Recursion. Note: Data as of January 2023.

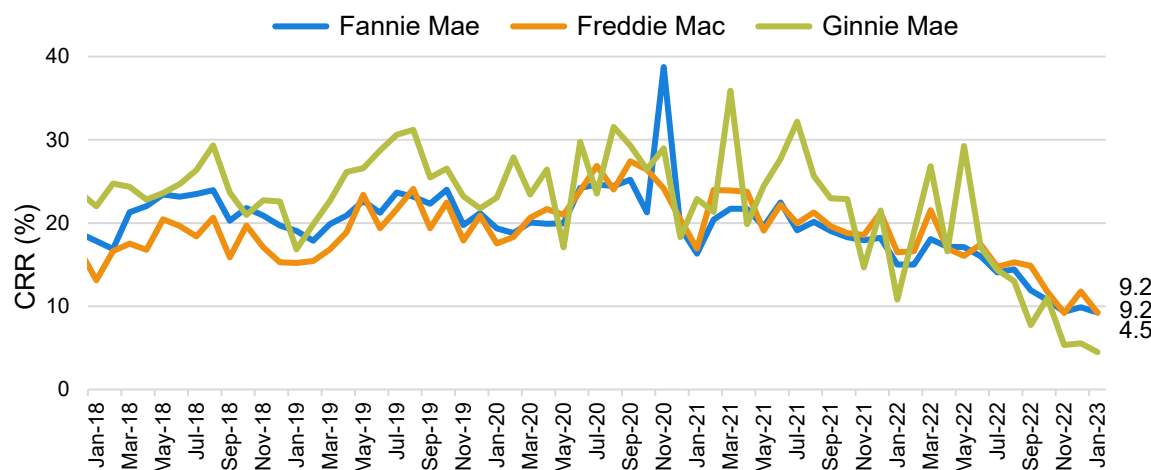
### 4.3 Voluntary Prepayment Rates (CRR)

Fixed rate voluntary prepayments (CRR) continue to remain higher for Ginnie Mae relative to the GSEs. In the environment of increasing interest rates and higher prices (See [Section 14.2.1](#)), voluntary prepayments are facing downward trends for both Ginnie Mae and the GSEs. Fannie Mae and Freddie Mac saw decreases of 17.0% MoM and 17.2% MoM in fixed rate aggregate CRR, respectively. Freddie Mac saw a 21.8% MoM decrease and Fannie Mae saw a 6.3% MoM decrease in ARM aggregate CRR. Ginnie Mae decreased 19.9% MoM in fixed rate aggregate CRR and saw a 19.3% MoM decrease in ARM aggregate CRR.

**Figure 21. Fixed Rate Aggregate CRR**



**Figure 22. ARM Aggregate CRR**



Source: Recursion. Note: Data as of January 2023.

## 5 SINGLE-FAMILY MBS PASS-THROUGH ISSUANCE

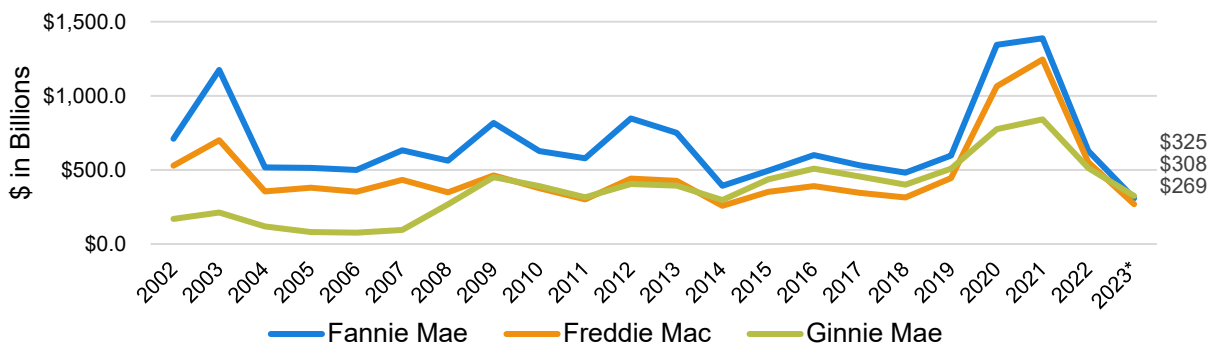
### 5.1 Gross Issuance of Agency MBS

Agency gross MBS issuance decreased MoM by 5.05%. Freddie Mac and Ginnie Mae saw decreases in gross issuance as compared to December, while Fannie Mae saw an increase.

**Table 1. Agency Gross Issuance (\$ in billions)**

<i>Issuance Year</i>	<i>Fannie Mae</i>	<i>Freddie Mac</i>	<i>GSE Total</i>	<i>Ginnie Mae</i>	<i>Total</i>
<b>2001</b>	\$506.9	\$378.2	\$885.1	\$171.5	\$1,056.6
<b>2002</b>	\$710.0	\$529.0	\$1,238.9	\$169.0	\$1,407.9
<b>2003</b>	\$1,174.4	\$700.5	\$1,874.9	\$213.1	\$2,088.0
<b>2004</b>	\$517.5	\$355.2	\$872.6	\$119.2	\$991.9
<b>2005</b>	\$514.1	\$379.9	\$894.0	\$81.4	\$975.3
<b>2006</b>	\$500.2	\$352.9	\$853.0	\$76.7	\$929.7
<b>2007</b>	\$633.0	\$433.3	\$1,066.2	\$94.9	\$1,161.1
<b>2008</b>	\$562.7	\$348.7	\$911.4	\$267.6	\$1,179.0
<b>2009</b>	\$817.1	\$462.9	\$1,280.0	\$451.3	\$1,731.3
<b>2010</b>	\$626.6	\$377.0	\$1,003.5	\$390.7	\$1,394.3
<b>2011</b>	\$578.2	\$301.2	\$879.3	\$315.3	\$1,194.7
<b>2012</b>	\$847.6	\$441.3	\$1,288.8	\$405.0	\$1,693.8
<b>2013</b>	\$749.9	\$426.7	\$1,176.6	\$393.6	\$1,570.2
<b>2014</b>	\$392.9	\$258.0	\$650.9	\$296.3	\$947.2
<b>2015</b>	\$493.9	\$351.9	\$845.7	\$436.3	\$1,282.0
<b>2016</b>	\$600.5	\$391.1	\$991.6	\$508.2	\$1,499.8
<b>2017</b>	\$531.3	\$345.9	\$877.3	\$455.6	\$1,332.9
<b>2018</b>	\$480.9	\$314.1	\$795.0	\$400.6	\$1,195.6
<b>2019</b>	\$597.4	\$445.2	\$1,042.6	\$508.6	\$1,551.2
<b>2020</b>	\$1,343.4	\$1,064.1	\$2,407.5	\$775.4	\$3,182.9
<b>2021</b>	\$1,388.0	\$1,245.1	\$2,633.1	\$840.9	\$3,474.0
<b>2022</b>	\$628.3	\$551.6	\$1,179.9	\$512.3	\$1,692.2
<b>2023 YTD</b>	\$25.7	\$22.4	\$48.1	\$27.1	\$75.2
<b>2023 Annualized</b>	\$308.4	\$268.8	\$577.2	\$325.2	\$902.4

**Figure 23. Agency Gross Issuance**



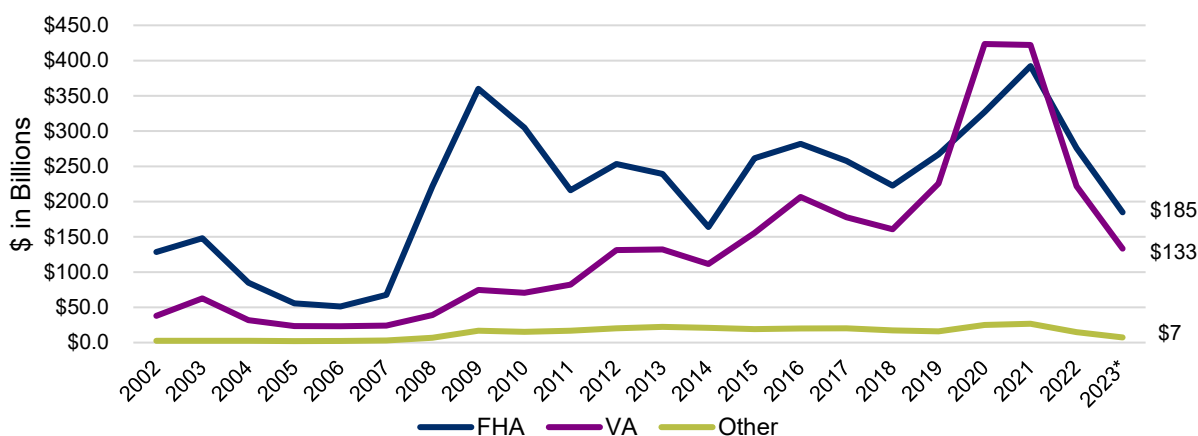
Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

Ginnie Mae's \$27.1 billion in gross issuance in January was approximately 37% below the average monthly issuance for 2022. Table 2 below provides an annualized 2023 value that assumes steady production throughout 2023. At the current pace, Ginnie Mae's gross issuance will be approximately \$187.1 billion less than that of 2022.

**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>
<b>2001</b>	\$133.8	\$34.7	\$3.1	\$171.5
<b>2002</b>	\$128.6	\$37.9	\$2.5	\$169.0
<b>2003</b>	\$147.9	\$62.7	\$2.5	\$213.1
<b>2004</b>	\$85.0	\$31.8	\$2.5	\$119.2
<b>2005</b>	\$55.7	\$23.5	\$2.1	\$81.4
<b>2006</b>	\$51.2	\$23.2	\$2.3	\$76.7
<b>2007</b>	\$67.7	\$24.2	\$3.0	\$94.9
<b>2008</b>	\$221.7	\$39.0	\$6.9	\$267.6
<b>2009</b>	\$359.9	\$74.6	\$16.8	\$451.3
<b>2010</b>	\$304.9	\$70.6	\$15.3	\$390.7
<b>2011</b>	\$216.1	\$82.3	\$16.9	\$315.3
<b>2012</b>	\$253.4	\$131.3	\$20.3	\$405.0
<b>2013</b>	\$239.2	\$132.2	\$22.2	\$393.6
<b>2014</b>	\$163.9	\$111.4	\$21.0	\$296.3
<b>2015</b>	\$261.5	\$155.6	\$19.2	\$436.3
<b>2016</b>	\$281.8	\$206.5	\$19.9	\$508.2
<b>2017</b>	\$257.6	\$177.8	\$20.2	\$455.6
<b>2018</b>	\$222.6	\$160.8	\$17.2	\$400.6
<b>2019</b>	\$266.9	\$225.7	\$16.0	\$508.6
<b>2020</b>	\$327.0	\$423.5	\$24.9	\$775.4
<b>2021</b>	\$392.2	\$422.1	\$26.7	\$840.9
<b>2022</b>	\$275.8	\$221.7	\$14.8	\$512.3
<b>2023 YTD</b>	\$15.4	\$11.1	\$0.6	\$27.1
<b>2023 Annualized</b>	\$184.8	\$133.2	\$7.2	\$325.2

**Figure 24. Ginnie Mae Gross Issuance**



*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.*

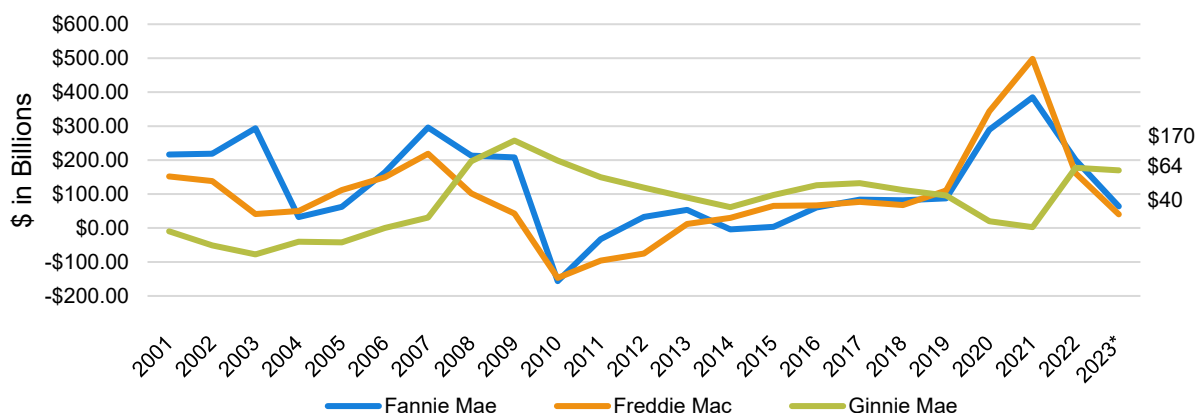
## 5.2 Net Issuance of Agency MBS

Agency net issuance in January was approximately \$22.8 billion, which represents a 9.7% MoM increase in net issuance. Ginnie Mae net issuance was \$14.1 billion in January, a 1.0% increase from December 2022. Since May 2022, FHA net issuance outpaces VA net issuance MoM, as shown in Table 4 and Figure 21.

**Table 3. Agency Net Issuance (\$ in billions)**

Issuance Year	Fannie Mae	Freddie Mac	GSE	Ginnie Mae	Total
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	\$200.4	\$161.5	\$361.9	\$177.4	\$539.4
2023 YTD	\$5.3	\$3.4	\$8.7	\$14.1	\$22.8
2023 Annualized	\$64.0	\$40.3	\$104.2	\$169.6	\$273.8

**Figure 25. Agency Net Issuance**

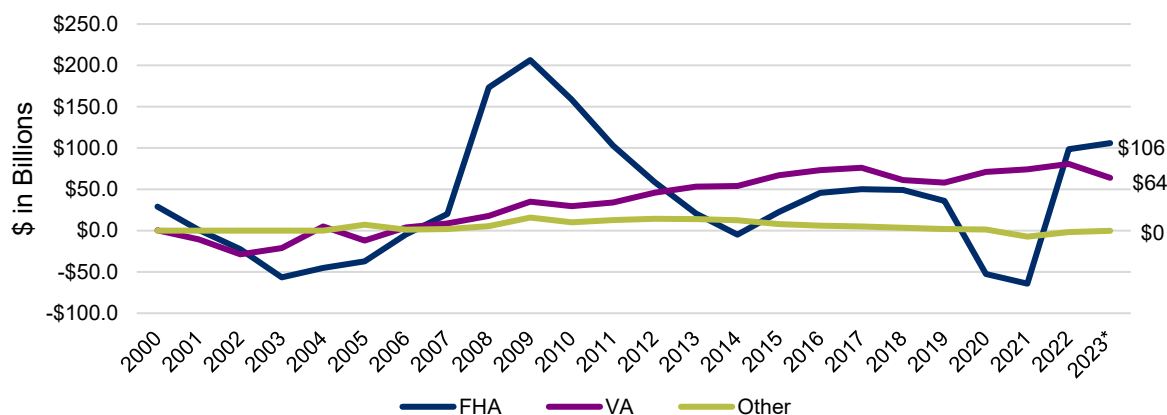


Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

**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	\$98.5	\$80.7	-\$1.7	\$177.4
2023 YTD	\$8.8	\$5.3	\$0.0	\$14.1
2023 Annualized	\$105.9	\$64.0	-\$0.2	\$169.6

**Figure 26. Ginnie Mae Net Issuance**



*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
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
Sep-22	\$39.3	\$38.2	\$39.9	\$77.5	\$117.4	\$7.6	\$13.9	\$18.3	\$21.5	\$39.8
Oct-22	\$34.1	\$26.1	\$35.5	\$60.2	\$95.7	\$5.8	\$4.7	\$17.3	\$10.5	\$27.8
Nov-22	\$25.7	\$22.7	\$33.6	\$48.4	\$82.0	\$0.3	\$3.5	\$18.3	\$3.8	\$22.1
Dec-22	\$24.9	\$25.5	\$28.8	\$50.4	\$79.2	\$0.2	\$6.6	\$14.0	\$6.8	\$20.8
Jan-23	\$25.7	\$22.4	\$27.1	\$48.1	\$75.2	\$5.3	\$3.4	\$14.1	\$8.7	\$22.8

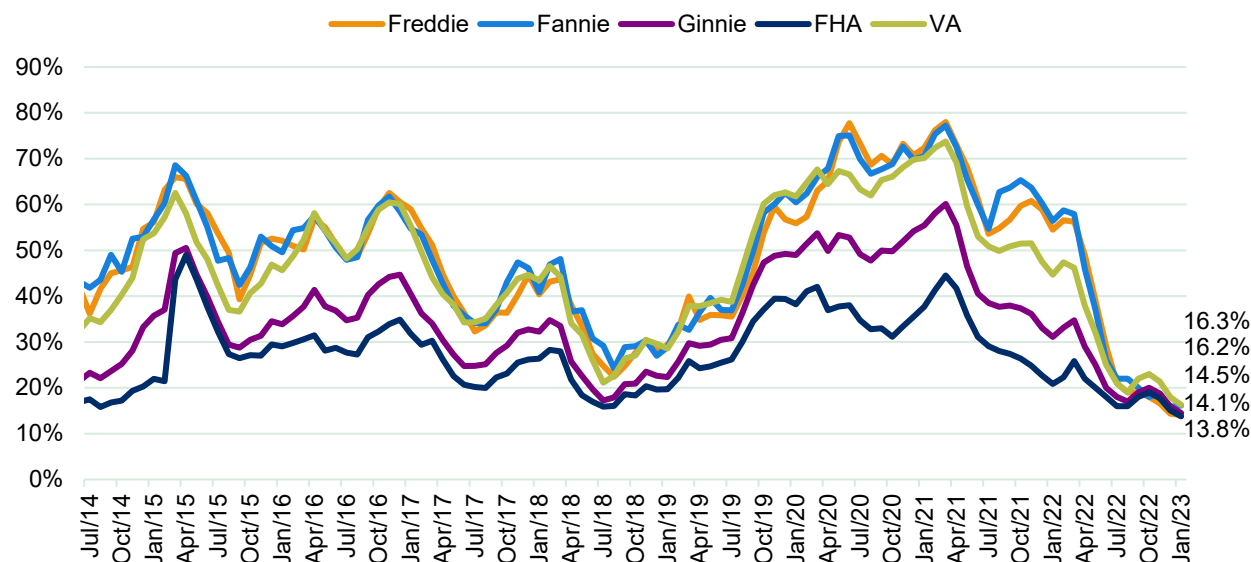
Source: Beginning May 2021, data for Gross and Net Issuance was sourced from Fannie Mae, Freddie Mac, and Ginnie Mae loan level disclosure files. Net issuance is defined here as the difference between prior period UPB and current period UPB. Data as of January 2023. Beginning with the October 2021 GMAR, the Fannie Mae and Freddie Mac net issuance data have been updated to reflect the current UPB of the portfolios. July 2021 through January 2023 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 decreased for Ginnie Mae in January 2023. In the conventional mortgage market space, Fannie Mae saw an increase of 1.5% MoM and Freddie Mac saw a decrease of 1.9% MoM. Ginnie Mae's MoM decrease was approximately 8.7%, with the greater drop taking place with VA lending which was down approximately 9.3% in January MoM. FHA's refinance share decreased by approximately 8.6%.

- Freddie Mac's refinance percentage dropped to 14.1% in January, down from 14.4% in December.
- Fannie Mae's refinance percentage rose to 16.2% in January, up from 15.9% in December.
- Ginnie Mae's refinance percentage dropped to 14.5% in January, down from 15.9% in December.
- FHA's refinance percentage dropped to 13.8% in January, down from 15.1% in December.
- VA's refinance percentage dropped to 16.3% in January, down from 17.9% in December.

**Figure 27. Percent Refinance at Issuance – Single-Family**



Sources: Recursion. Note: Data as of January 2023.

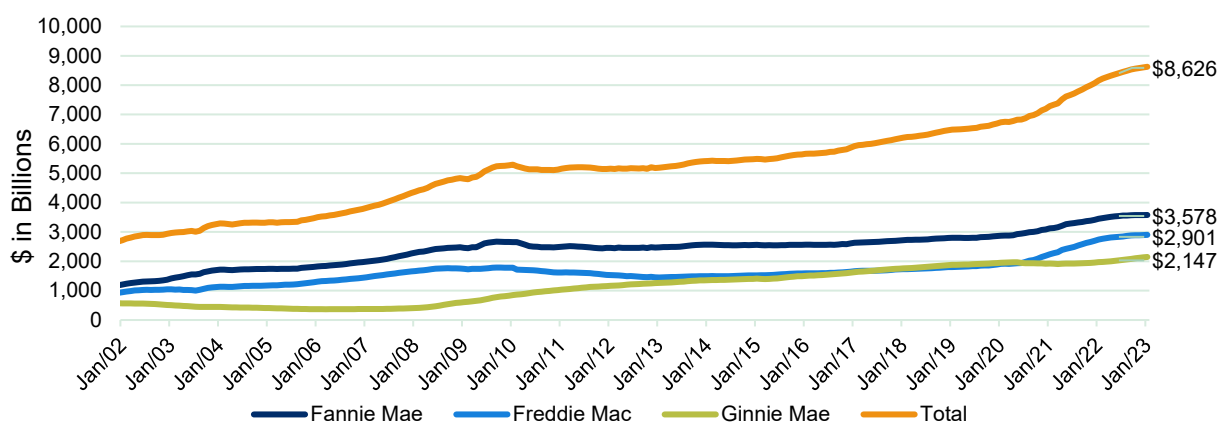
## 6 AGENCY SINGLE-FAMILY MBS OUTSTANDING

### 6.1 Outstanding Single-Family Agency MBS

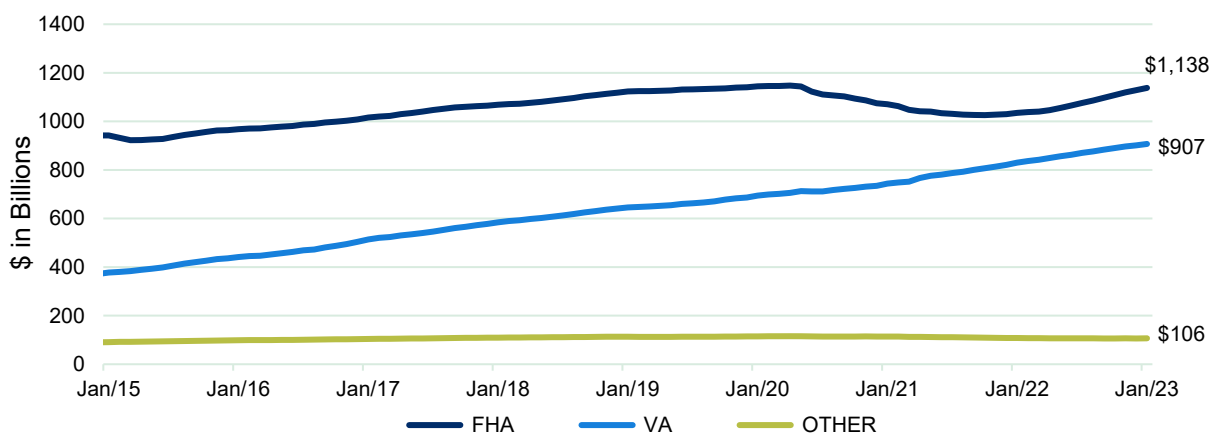
As of January 2023, outstanding single-family MBS in the agency market totaled \$8.626 trillion: 41.5% Fannie Mae, 33.6% Freddie Mac, and 24.9% Ginnie Mae MBS. Over the past twelve months, Fannie Mae's, Freddie Mac's, and Ginnie Mae's total outstanding MBS increased by approximately 3.7%, 5.8%, and 9.0%, respectively. Fannie Mae outstanding MBS remains larger than Freddie Mac's and Ginnie Mae's by approximately \$677 billion and \$1.4 trillion, respectively.

Ginnie Mae MBS collateral composition has changed dramatically over the past five years. In January 2018, 60.6% of Ginnie Mae outstanding collateral was FHA and 33.3% was VA. In January 2023, FHA collateral comprised 52.9% of Ginnie Mae MBS outstanding and VA collateral comprised 42.2% of Ginnie Mae MBS outstanding.

**Figure 28. Outstanding Agency Mortgage-Backed Securities**



**Figure 29. Composition of Outstanding Ginnie Mae Mortgage-Backed Securities**

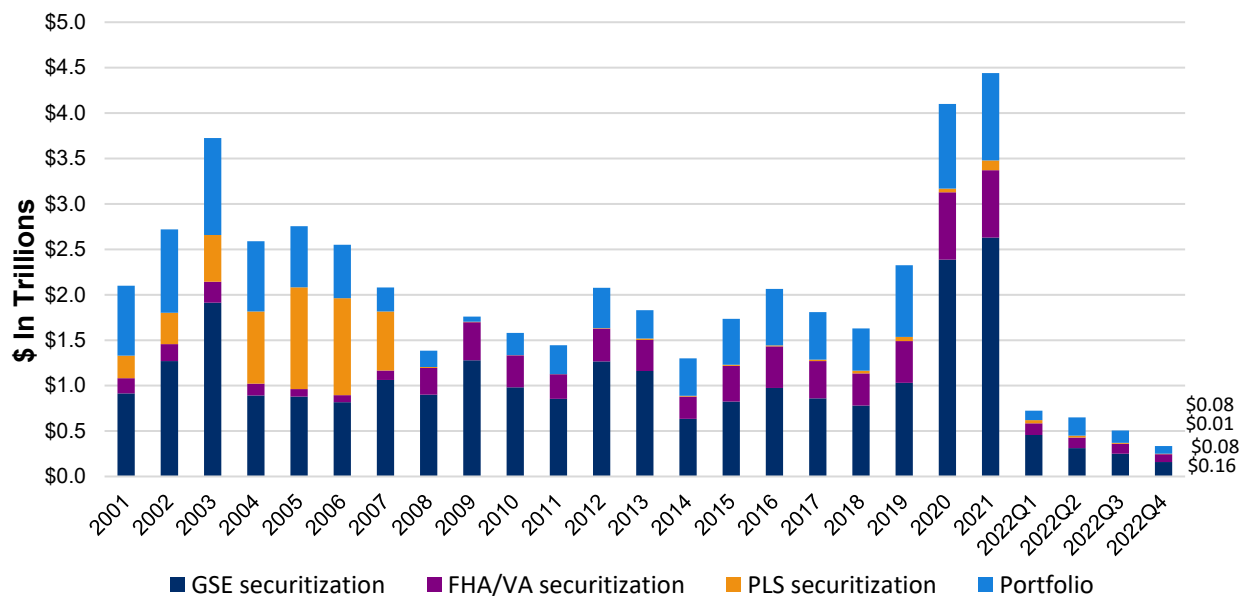


Sources: Recursion. Note: Data as of January 2023.

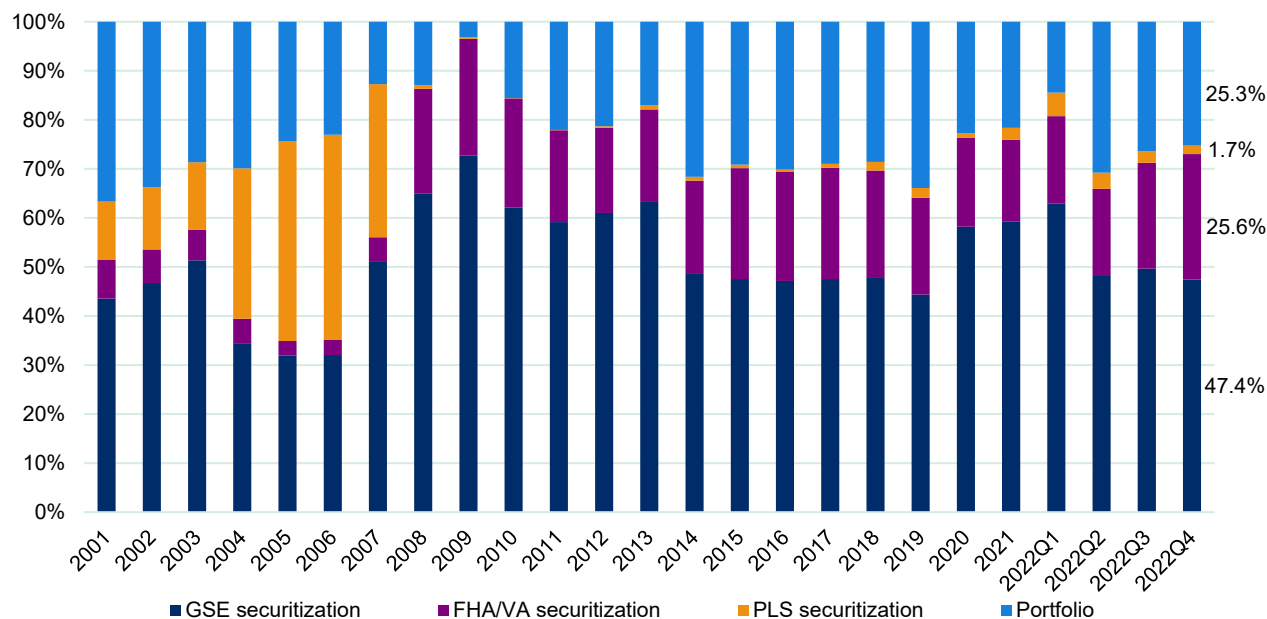
## 6.2 Origination Volume and Share Over Time

Origination volume continued to decline in Q4 2022, with \$335 billion in originations in Q4, which represents a decline in issuance from Q3 2022 of approximately 34%. Ginnie Mae's share of total origination increased from 21.6% to 25.6% in Q4 2022, while Portfolio origination decreased from 26.4% to 25.3% in Q4 2022.

**Figure 30. First Lien Origination Volume**



**Figure 31. First Lien Origination Share**



Source: Inside Mortgage Finance. Note: Data as of Q4 2022.

### 6.3 Agency Issuance and Agency Outstanding by State

Ginnie Mae MBS represent approximately 30% 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 being in Alaska (52%) and the lowest in the District of Columbia (19%). The highest Ginnie Mae outstanding share is also in Alaska (48%) and the lowest also in the District of Columbia (13%). There is currently a 4% 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**

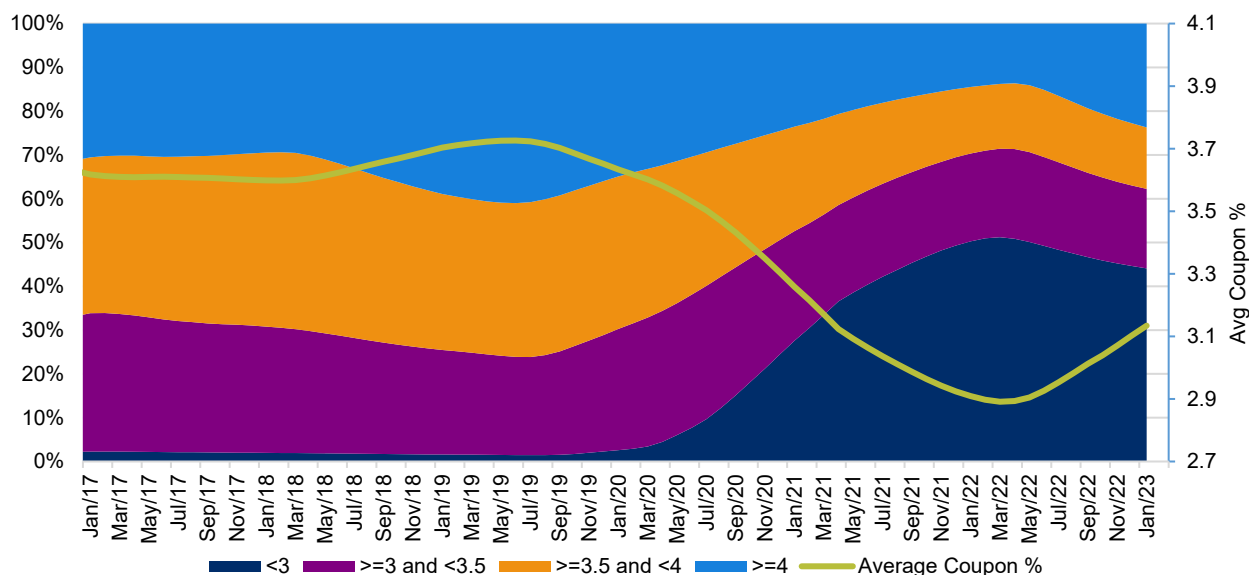
National	Agency Issuance (past 1 year)				Agency Outstanding			
	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)	GNMA Share by UPB	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)
	<b>30%</b>	<b>2,189,973</b>	<b>279.09</b>	<b>287.30</b>	<b>26%</b>	<b>10,711,729</b>	<b>204.78</b>	<b>210.99</b>
AK	52%	7,299	332.22	297.26	48%	37,505	261.98	221.32
AL	44%	48,524	222.04	235.98	40%	236,193	157.10	177.77
AR	40%	25,692	190.44	219.01	39%	136,743	132.44	160.94
AZ	28%	65,322	313.39	320.28	24%	272,630	219.29	226.13
CA	23%	147,681	440.27	434.54	16%	682,990	327.75	320.91
CO	28%	48,879	397.47	383.88	23%	213,362	292.02	277.81
CT	30%	20,700	262.76	276.93	25%	105,865	202.54	209.68
DC	19%	1,776	491.20	429.35	13%	8,903	382.08	350.54
DE	34%	10,633	267.15	291.36	31%	51,755	204.30	211.63
FL	33%	194,139	292.75	293.40	32%	847,772	212.16	211.62
GA	37%	113,350	253.29	286.53	33%	496,911	180.18	207.01
HI	39%	6,657	611.42	492.94	32%	33,485	469.36	358.52
IA	28%	15,313	181.13	195.49	22%	82,452	134.07	148.59
ID	27%	12,834	331.04	320.66	23%	63,537	218.18	223.05
IL	27%	73,667	209.33	241.80	22%	366,196	160.16	179.50
IN	33%	56,114	190.14	208.45	30%	278,608	134.33	151.11
KS	32%	17,735	192.89	221.31	29%	96,134	140.18	164.03
KY	38%	33,566	196.80	213.28	34%	164,802	143.76	156.06
LA	46%	41,242	205.02	235.75	40%	200,494	157.92	177.74
MA	24%	23,780	373.32	366.11	16%	113,465	285.10	269.11
MD	39%	59,920	336.87	325.84	33%	291,650	265.55	249.95
ME	30%	7,503	243.61	265.92	26%	37,847	178.01	191.95
MI	24%	54,019	185.81	212.94	20%	275,062	134.05	157.11
MN	21%	28,010	246.71	272.85	18%	159,470	182.51	198.75
MO	32%	47,018	197.28	218.54	29%	244,197	142.30	162.27
MS	51%	24,309	200.73	215.60	48%	122,323	143.74	161.40
MT	25%	5,887	307.08	309.86	23%	32,335	209.40	216.55
NC	31%	88,063	249.17	282.39	29%	413,082	176.01	202.34
ND	31%	3,354	243.22	239.86	24%	17,040	193.54	184.69
NE	29%	11,253	217.13	220.04	26%	64,831	149.39	161.19
NH	25%	7,260	308.94	302.70	22%	38,211	226.78	215.34
NJ	27%	49,125	315.94	332.80	21%	231,342	240.82	254.87
NM	39%	17,685	239.83	249.53	38%	95,062	167.08	178.54
NV	33%	30,707	340.26	328.93	30%	132,415	248.20	235.75
NY	23%	51,922	300.85	340.45	20%	306,518	209.50	248.80
OH	32%	79,529	182.73	200.52	29%	422,657	130.54	149.38
OK	41%	34,312	201.80	221.43	42%	188,643	141.36	162.65
OR	22%	22,325	348.98	356.66	19%	110,296	254.29	253.78
PA	26%	66,081	201.08	244.91	25%	387,675	149.16	182.31
RI	37%	7,468	319.87	295.42	30%	35,550	234.70	213.43
SC	37%	54,371	250.50	259.56	34%	234,323	183.57	192.40
SD	33%	5,437	241.36	241.46	29%	29,320	173.41	177.91
TN	32%	57,151	256.49	278.28	31%	269,288	175.86	204.65
TX	30%	212,527	263.19	297.38	31%	1,088,713	182.65	212.81
UT	22%	20,943	372.40	378.24	18%	95,155	260.40	264.18
VA	42%	88,957	329.51	318.96	36%	445,918	257.16	250.56
VI	21%	128	355.29	416.80	23%	791	249.03	302.64
VT	21%	2,135	239.02	261.32	18%	12,100	181.72	181.04
WA	26%	47,109	394.36	397.63	21%	231,940	285.22	289.74
WI	21%	23,459	210.23	226.13	17%	123,587	156.97	163.63
WV	47%	11,913	194.26	195.55	43%	59,553	144.40	145.70
WY	37%	5,190	264.07	266.55	35%	25,033	206.38	201.97

Source: Recursion. Note: Outstanding balance is based on loan balance as of January 2023. Ginnie Mae issuance is based on the last 12 months, from December 2021 to January 2023. Values above are based on loan level disclosure data, thus excluding loan balances for the first 6 months that loans are in a pool. This accounts for the difference in share of outstanding MBS represented above & in [Outstanding Single-Family Agency MBS](#).

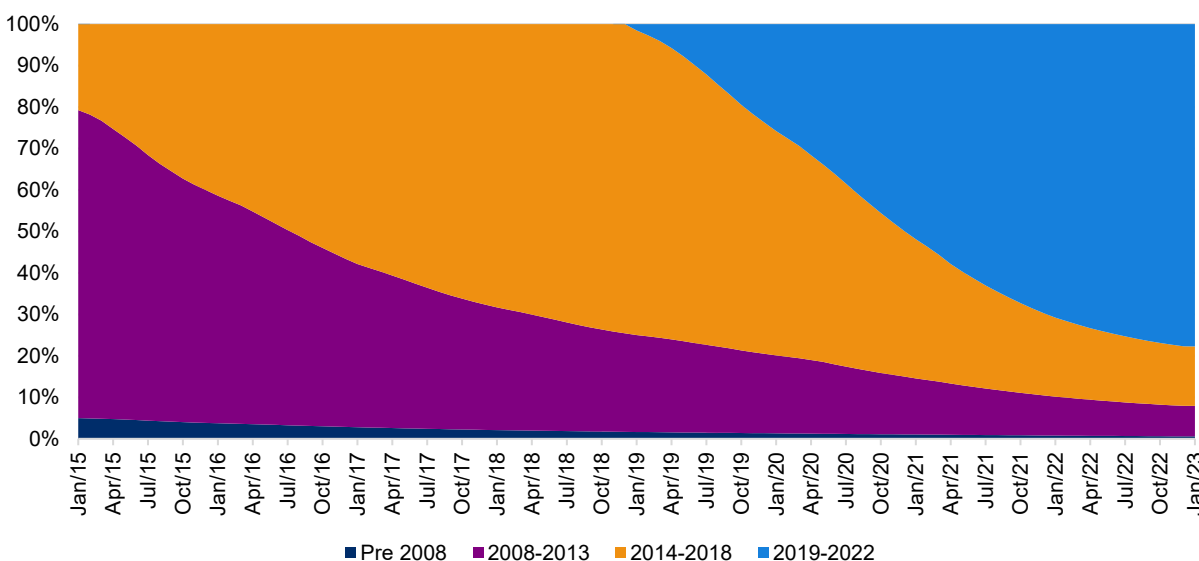
## 6.4 Outstanding Ginnie Mae MBS Volume by Coupon and Vintage Over Time

As of January 2023, the weighted average coupon (WAC) on outstanding Ginnie Mae MBS increased slightly from 3.10% in December 2022 to 3.13% in January 2023. With 30-year fixed mortgage rates for certain credit profiles over 6.0% in January, this increase in WAC is likely to continue. **Figure 30** illustrates that loans originated since 2019 account for 77% of Ginnie Mae MBS collateral outstanding.

**Figure 32. Outstanding Ginnie Mae MBS Balance, by Coupon**



**Figure 33. Outstanding Ginnie Mae MBS Balance, by Vintage**



Sources: Recursion. Note: January 2023 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.



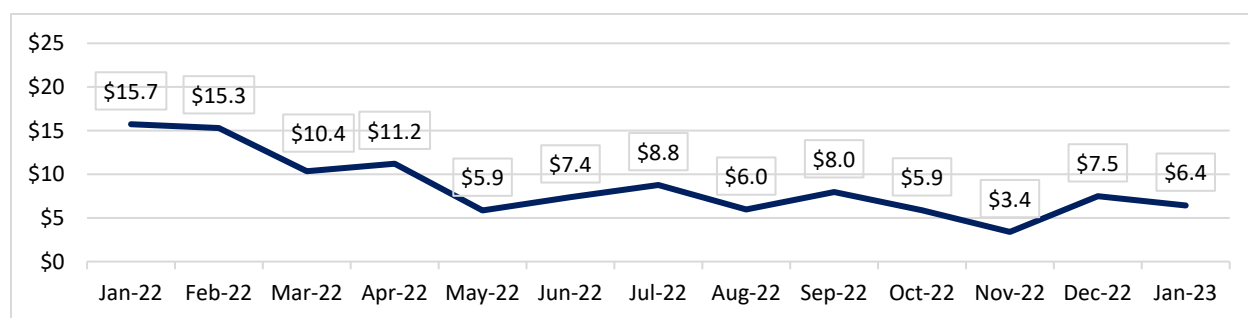
## 7 AGENCY REMIC SECURITIES

### 7.1 Monthly REMIC Demand for Ginnie Mae MBS

In January 2023, \$6.4 billion of Ginnie Mae MBS were securitized into Real Estate Mortgage Investment Conduits (REMICs) as underlying collateral. This represents a roughly 59.2% decrease YoY from \$15.7 billion in January 2022.

Of that, approximately \$928.7 million were multifamily MBS having coupons over 3.51%. \$5.3 billion were single-family MBS with 100% of the single-family MBS having coupons over 4.51%.

**Figure 34. Ginnie Mae Single-Family and Multifamily MBS Securitized into REMICs**



**Table 7. December 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	222.7	19.3%
3.51-4.00	354.7	30.8%
4.01-4.50	252.8	22.0%
4.51-5.00	321.2	
<b>Subtotal</b>	<b>1,151.5</b>	<b>100%</b>
<b>Single-Family</b>		
4.51-5.00	378.2	7.0%
5.01-5.50	880.0	17.0%
5.51-6.00	2,097.3	40.0%
6.01-6.50	1,544.5	29.0%
6.51-7.00	375.2	7.0%
<b>Subtotal</b>	<b>5,275.2</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>6,426.7</b>	<b>100.0%</b>

Source: Ginnie Mae Disclosure Files

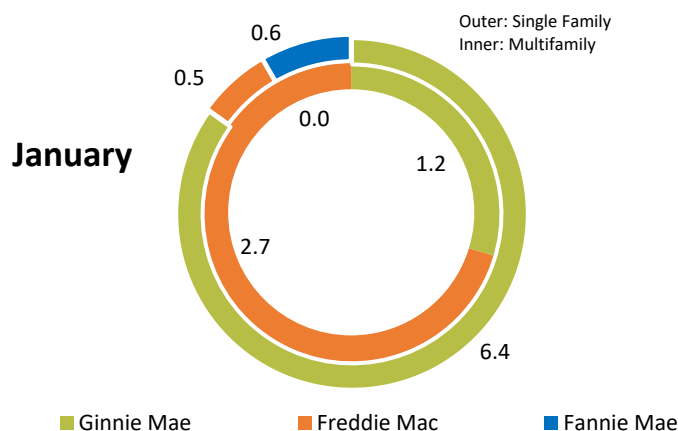
<sup>2</sup>Totals may not sum due to rounding.

## 7.2 REMIC Market Snapshot

As of month-end January 2023, Ginnie Mae's Single-Family REMIC collateral WAC had increased 300 bps YoY. This is the second consecutive year of an increase in Ginnie Mae Single-Family REMIC collateral WAC as the WAC increased 54 bps between January 2022 and January 2021. By comparison, Freddie Mac's and Fannie Mae's Single-Family REMIC collateral WAC increased by 248 and 229 bps, respectively.

- In January 2023, Fannie Mae REMIC issuance volume was \$728.7 million, the second consecutive month of FY23 where REMIC issuance volume was under \$1.0 billion.

**Figure 35. REMIC Issuance by Agency**



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

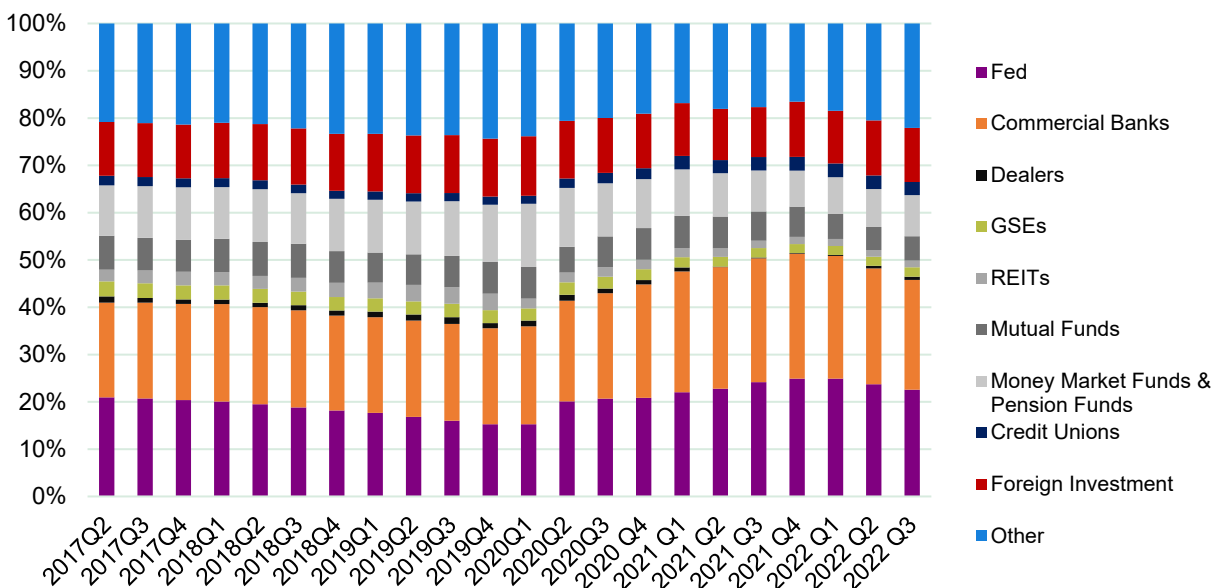
	SF REMIC Issuance Volume (\$B)	% of SF REMIC Issuance Volume	Number of SF REMIC Trans- actions	MF REMIC Issuance Volume (\$B)	% of MF REMIC Issuance Volume	Number of MF REMIC Trans- actions
<b>Ginnie Mae</b>	6.4	84.9	9	1.2	29.7	7
<b>Freddie Mac</b>	0.5	6.8	6	2.7	70.3	3
<b>Fannie Mae</b>	0.6	8.4	3	0.0	0.0	0
<b>Total</b>	7.6	100	18	3.9	100	10

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

## 8 MBS OWNERSHIP

As of Q3 2022, the largest holders of agency debt (agency MBS + agency notes and bonds) included commercial banks (23%), the Federal Reserve (23%), and foreign investors (11%). The Federal Reserve's share decreased slightly to 23% in the third quarter of 2022 from 24% in the second quarter. Along with the Federal Reserve, commercial banks are also the largest holders of agency MBS. Out of their approximately \$2.8 trillion in holdings as of the end of September 2022, \$2.1 trillion was held by the top 25 domestic banks.

**Figure 36. Who Owns Total Agency Debt?**



Source: Federal Reserve Flow of Funds. Note: The "other" category includes primarily life insurance companies, state and local governments, households and nonprofits. Data as of Q3 2022.

### 8.1 Commercial Bank Holdings of Agency MBS

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

	Commercial Bank Holdings (\$Billions)								Week Ending			
	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	11-Jan	18-Jan	25-Jan	1-Feb
Largest 25 Domestic Banks	2,143.9	2,122.4	2,117.0	2,115.5	2,096.8	2,067.6	2,052.0	2,056.5	2,036.5	2,041.8	2,043.9	2,039.0
Small Domestic Banks	730.8	735.8	731.8	738.3	712.4	692.2	690.9	677.3	680.5	673.1	675.3	680.5
Foreign Related Banks	36.5	36.5	38.0	35.1	37.4	35.9	39.3	36.6	32.9	33.4	25.1	25.0
<b>Total, Seasonally Adjusted</b>	<b>2,911.2</b>	<b>2,894.7</b>	<b>2,886.8</b>	<b>2,888.9</b>	<b>2,846.6</b>	<b>2,795.7</b>	<b>2,782.2</b>	<b>2,770.4</b>	<b>2,749.9</b>	<b>2,748.3</b>	<b>2,744.3</b>	<b>2,744.5</b>

Source: Federal Reserve Bank. Note: Small domestic banks include all domestically chartered commercial banks not included in the top 25. Data as of January 2023.

## 8.2 Bank and Thrift Residential MBS Holdings

In Q3 2022, MBS holdings at banks and thrifts continued to decrease. Like Q2 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 14.9% from Q3 2021 and 7.3% from Q2 2022. Out of the \$2.4 trillion in MBS holdings at banks and thrifts as of Q3 2022, \$1.5 trillion were GSE pass-throughs and \$352 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	\$270.59	\$109.53	\$37.62	\$236.91	\$76.18	\$606.91	\$203.37
2002	\$832.50	\$376.11	\$101.46	\$20.08	\$244.98	\$89.88	\$702.44	\$209.66
2003	\$899.89	\$461.72	\$75.11	\$19.40	\$236.81	\$106.86	\$775.66	\$206.45
2004	\$1,011.01	\$572.40	\$49.33	\$20.55	\$208.18	\$160.55	\$879.75	\$234.31
2005	\$1,033.77	\$566.81	\$35.92	\$29.09	\$190.70	\$211.25	\$897.06	\$242.69
2006	\$1,124.46	\$628.52	\$31.13	\$42.32	\$179.21	\$243.28	\$983.49	\$223.42
2007	\$1,149.10	\$559.75	\$31.58	\$26.26	\$174.27	\$357.24	\$971.42	\$264.59
2008	\$1,218.77	\$638.78	\$100.36	\$12.93	\$207.66	\$259.04	\$1,088.00	\$211.73
2009	\$1,275.52	\$629.19	\$155.00	\$7.53	\$271.17	\$212.64	\$1,161.67	\$184.07
2010	\$1,433.38	\$600.80	\$163.13	\$7.34	\$397.30	\$181.61	\$1,233.28	\$200.09
2011	\$1,566.88	\$627.37	\$214.81	\$3.28	\$478.82	\$167.70	\$1,359.24	\$207.64
2012	\$1,578.86	\$707.87	\$242.54	\$17.16	\$469.27	\$138.67	\$1,430.63	\$148.22
2013	\$1,506.60	\$705.97	\$231.93	\$26.11	\$432.60	\$114.15	\$1,363.65	\$142.94
2014	\$1,539.32	\$733.71	\$230.45	\$20.33	\$449.90	\$104.94	\$1,409.84	\$129.48
2015	\$1,643.56	\$823.10	\$292.30	\$11.14	\$445.39	\$71.63	\$1,512.67	\$130.89
2016	\$1,736.93	\$930.67	\$323.46	\$7.40	\$419.80	\$55.60	\$1,576.07	\$160.86
2017	\$1,844.15	\$1,010.83	\$367.70	\$4.63	\$413.97	\$47.01	\$1,672.93	\$171.22
1Q17	\$1,762.38	\$950.72	\$329.91	\$7.03	\$419.34	\$55.39	\$1,589.93	\$172.45
2Q17	\$1,798.66	\$985.12	\$335.47	\$6.38	\$417.89	\$53.79	\$1,635.11	\$163.55
3Q17	\$1,838.93	\$1,012.89	\$351.86	\$5.65	\$418.08	\$50.45	\$1,661.84	\$177.09
4Q17	\$1,844.15	\$1,010.83	\$367.70	\$4.63	\$413.97	\$47.01	\$1,672.93	\$171.22
1Q18	\$1,809.98	\$991.57	\$360.71	\$3.92	\$412.41	\$41.37	\$1,635.52	\$174.46
2Q18	\$1,806.58	\$976.92	\$368.88	\$7.45	\$414.41	\$38.92	\$1,631.65	\$174.93
3Q18	\$1,794.39	\$966.52	\$373.21	\$2.42	\$416.20	\$36.04	\$1,618.29	\$176.10
2018	\$1,814.97	\$980.56	\$380.43	\$2.69	\$416.59	\$34.69	\$1,634.99	\$179.98
1Q19	\$1,844.99	\$1,001.61	\$383.49	\$3.06	\$422.18	\$34.65	\$1,673.40	\$171.59
2Q19	\$1,907.13	\$1,037.93	\$407.97	\$2.90	\$421.56	\$36.76	\$1,727.65	\$179.47
3Q19	\$1,975.78	\$1,079.82	\$427.10	\$4.74	\$428.69	\$35.44	\$1,786.74	\$189.04
2019	\$1,985.38	\$1,089.41	\$426.85	\$4.62	\$428.99	\$35.52	\$1,796.29	\$189.09
1Q20	\$2,107.66	\$1,173.36	\$448.34	\$4.65	\$443.73	\$37.57	\$1,907.02	\$200.64
2Q20	\$2,195.19	\$1,228.87	\$441.06	\$5.00	\$478.11	\$42.14	\$1,946.36	\$248.83
3Q20	\$2,310.42	\$1,349.48	\$415.24	\$4.43	\$499.50	\$41.78	\$2,040.61	\$269.81
4Q20	\$2,520.90	\$1,537.54	\$390.66	\$3.94	\$548.65	\$40.10	\$2,210.22	\$310.68
1Q21	\$2,690.92	\$1,713.78	\$374.63	\$4.88	\$555.35	\$42.28	\$2,350.94	\$339.98
2Q21	\$2,781.91	\$1,825.80	\$352.77	\$4.77	\$555.45	\$43.12	\$2,431.76	\$350.15
3Q21	\$2,858.59	\$1,886.78	\$353.12	\$4.24	\$565.51	\$48.95	\$2,487.32	\$371.27
4Q21	\$2,906.04	\$1,915.48	\$352.71	\$4.45	\$577.98	\$55.42	\$2,529.78	\$376.26
1Q22	\$2,799.22	\$1,817.72	\$368.43	\$4.04	\$548.60	\$60.43	\$2,476.12	\$323.10
2Q22	\$2,623.79	\$1,665.94	\$369.20	\$3.81	\$523.01	\$61.83	\$2,321.17	\$302.62
3Q22	\$2,431.57	\$1,520.24	\$352.02	\$3.29	\$496.72	\$59.30	\$2,156.16	\$275.41
<b>Change:</b>								
2Q22-3Q22	-7.3%	-8.7%	-4.7%	-13.6%	-5.0%	-4.1%	-7.1%	-9.0%
3Q21-3Q22	-14.9%	-19.4%	-0.3%	-22.3%	-12.2%	21.1%	-13.3%	-25.8%

Source: Inside Mortgage Finance. Notes: Data as of Q3 2022

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

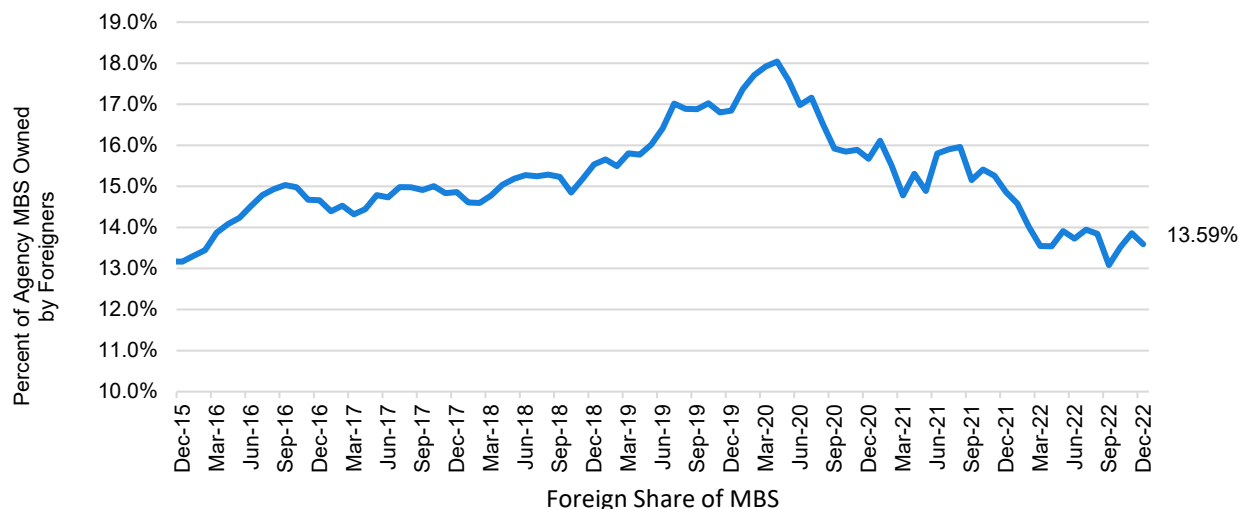
	<i>Institution</i>	<i>Total</i>	<i>GSE PT</i>	<i>GNMA PT</i>	<i>Agency CMO</i>	<i>Non-Agency</i>	<i>Share</i>
1	BANK OF AMERICA CORPORATION	\$448,327.00	\$376,124.00	\$65,016.00	\$7,038.00	\$149.00	18.4%
2	WELLS FARGO & COMPANY	\$230,903.00	\$161,579.00	\$66,412.00	\$2,847.00	\$65.00	9.5%
3	CHARLES SCHWAB	\$173,008.00	\$97,210.00	\$6,137.00	\$69,661.00	\$0.00	7.1%
4	JPMORGAN CHASE & CO.	\$146,574.00	\$70,263.00	\$61,958.00	\$91.00	\$14,262.00	6.0%
5	Truist Bank	\$108,697.00	\$53,669.00	\$12,382.00	\$39,508.00	\$3,138.00	4.5%
6	U.S. BANCORP	\$103,431.40	\$67,470.00	\$22,443.20	\$13,518.10	\$0.10	4.3%
7	CITIGROUP INC.	\$83,110.00	\$73,174.00	\$6,488.00	\$2,530.00	\$918.00	3.4%
8	PNC Bank, National Association	\$68,253.30	\$56,515.30	\$4,389.40	\$6,219.70	\$1,129.00	2.8%
9	Silicon Valley Bank	\$65,587.00	\$48,005.00	\$7,860.00	\$9,722.00	\$0.00	2.7%
10	CAPITAL ONE FINANCIAL CORPORATION	\$61,577.50	\$29,729.40	\$14,004.70	\$17,478.10	\$365.40	2.5%
11	MORGAN STANLEY	\$49,019.00	\$34,203.00	\$7,652.00	\$7,164.00	\$0.00	2.0%
12	BANK OF NEW YORK MELLON CORP	\$41,178.00	\$30,530.00	\$1,302.00	\$7,203.00	\$2,143.00	1.7%
13	USAA Federal Savings Bank	\$40,447.00	\$34,160.00	\$2,027.00	\$4,260.00	\$0.00	1.7%
14	State Street Bank and Trust Company	\$36,143.50	\$14,552.00	\$5,553.00	\$14,349.50	\$1,689.00	1.5%
15	TD Bank USA/TD Bank NA	\$29,579.30	\$947.80	\$81.70	\$28,508.70	\$41.00	1.2%
16	The Huntington National Bank	\$28,292.80	\$11,753.20	\$9,272.30	\$7,125.50	\$141.80	1.2%
17	KeyBank National Association	\$24,956.00	\$3,940.80	\$211.20	\$20,804.00	\$0.00	1.0%
18	Citizens Bank, National Association	\$22,339.10	\$12,379.30	\$4,908.60	\$5,051.20	\$0.00	0.9%
19	HSBC Bank USA, National Association	\$22,123.40	\$6,672.60	\$9,532.50	\$5,917.30	\$1.00	0.9%
20	Ally Bank	\$20,683.00	\$12,868.00	\$1,967.00	\$1,707.00	\$4,141.00	0.9%
	<b>Total Top 20</b>	<b>\$1,804,229.3</b>	<b>\$1,195,745.4</b>	<b>\$309,597.6</b>	<b>\$270,702.1</b>	<b>\$28,183.3</b>	<b>74.2%</b>

Source: Inside Mortgage Finance. Notes: Data as of Q3 2022.

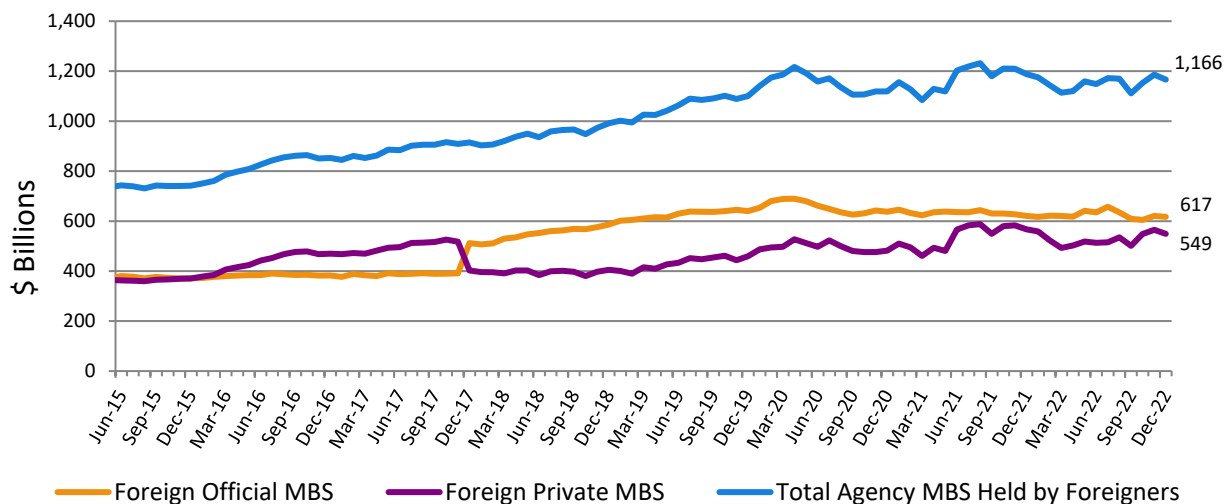
### 8.3 Foreign Ownership of MBS

For the month of December 2022, foreign ownership of MBS represents \$1.17 trillion in agency MBS, down approximately \$20 billion from November 2022. Total foreign ownership includes \$549 billion held by foreign private institutions and \$617 billion held by foreign official institutions. The pre-Covid foreign ownership peak of approximately 17.5% has fallen to 13.6% as of December 2022.

**Figure 37. Foreign Share of Agency MBS Market**



**Figure 38. 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 December 2022.



## 8.4 Foreign Ownership of Agency Debt and Agency MBS

The largest holders of agency MBS were China, Japan, and Taiwan. As of September 2022, these three own 59% of all foreign owned US MBS. Between September 2021 and September 2022, Japan and Taiwan have decreased their agency MBS holdings while China's holdings have increased. Japan's holdings have decreased by \$77.5 billion, Taiwan's holdings have decreased by \$37.4 billion, and China's holdings have increased by \$26.4 billion.

**Table 12. All Agency Debt**

Country	Level of Holdings (\$ Millions)				Change in Holdings (\$ Millions)			
	12/1/2021	3/1/2022	6/1/2022	9/1/2022	Q4 2021	Q1 2022	Q2 2022	Q3 2022
China	202,659	219,553	244,266	241,462	-12,397	16,894	24,713	-2,804
Japan	301,979	259,844	252,455	232,764	-8,293	-42,135	-7,389	-19,691
Taiwan	244,375	233,340	222,670	209,453	-2,512	-11,035	-10,670	-13,217
Canada	77,979	73,475	75,998	89,083	2,305	-4,504	2,523	13,085
United Kingdom	72,486	47,582	65,393	55,677	29,251	-24,904	17,811	-9,716
Luxembourg	34,288	33,130	42,207	38,341	1,173	-1,158	9,077	-3,866
South Korea	42,051	40,362	37,934	35,643	-970	-1,689	-2,428	-2,291
Cayman Islands	35,004	31,795	33,984	34,996	-599	-3,209	2,189	1,012
Switzerland	19,770	17,261	19,634	20,126	-7,000	-2,509	2,373	492
Bermuda	23,209	21,159	19,464	18,681	-1,070	-2,050	-1,695	-783
Other	188,982	184,971	192,728	185,849	7,907	-4,011	7,757	-6,879
<b>Total</b>	<b>1,242,782</b>	<b>1,162,472</b>	<b>1,206,733</b>	<b>1,162,075</b>	<b>7,795</b>	<b>-80,310</b>	<b>44,261</b>	<b>-44,658</b>

**Table 13. Agency MBS**

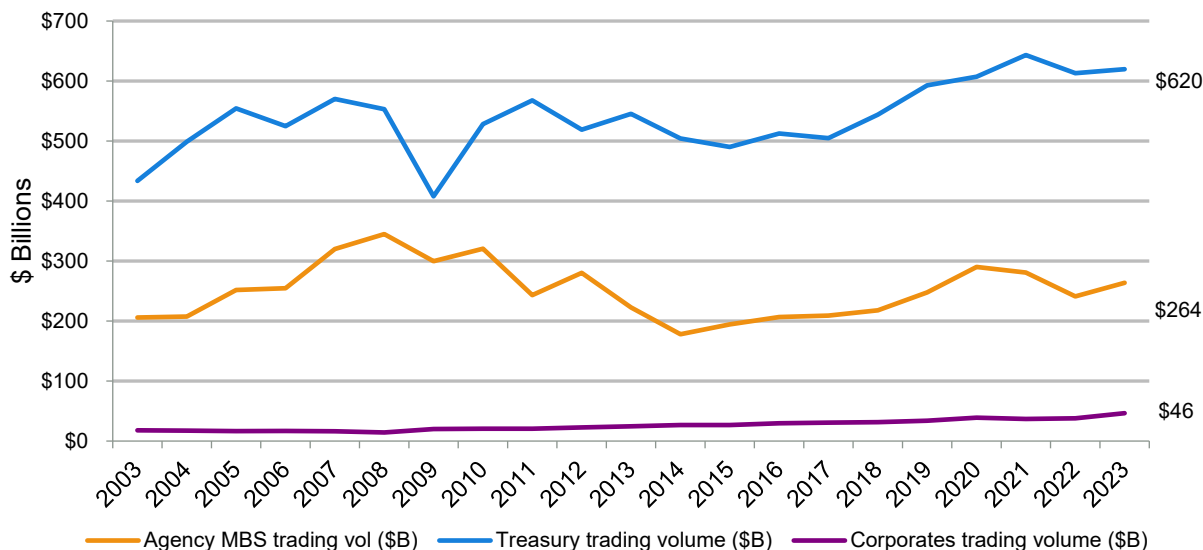
Country	Level of Holdings (\$ Millions)		
	9/1/2021	9/1/2022	YoY Change in Holdings (\$ Millions)
China	215,056	241,462	26,406
Japan	310,272	232,764	-77,508
Taiwan	246,887	209,453	-37,434
Canada	75,674	89,083	13,409
United Kingdom	43,235	55,677	12,442
Luxembourg	33,115	38,341	5,226
South Korea	43,021	35,643	-7,378
Cayman Islands	35,603	34,996	-607
Switzerland	26,770	20,126	-6,644
Bermuda	24,279	18,681	-5,598
Other	181,075	185,849	4,774
<b>Total</b>	<b>1,234,987</b>	<b>1,162,075</b>	<b>-72,912</b>

Source: Treasury International Capital (TIC). Note: Level of agency debt Holdings by month data as of Q3 2022. Agency MBS as of September 2022. Revised to include top 10 holders of agency debt listed as of September 2022.

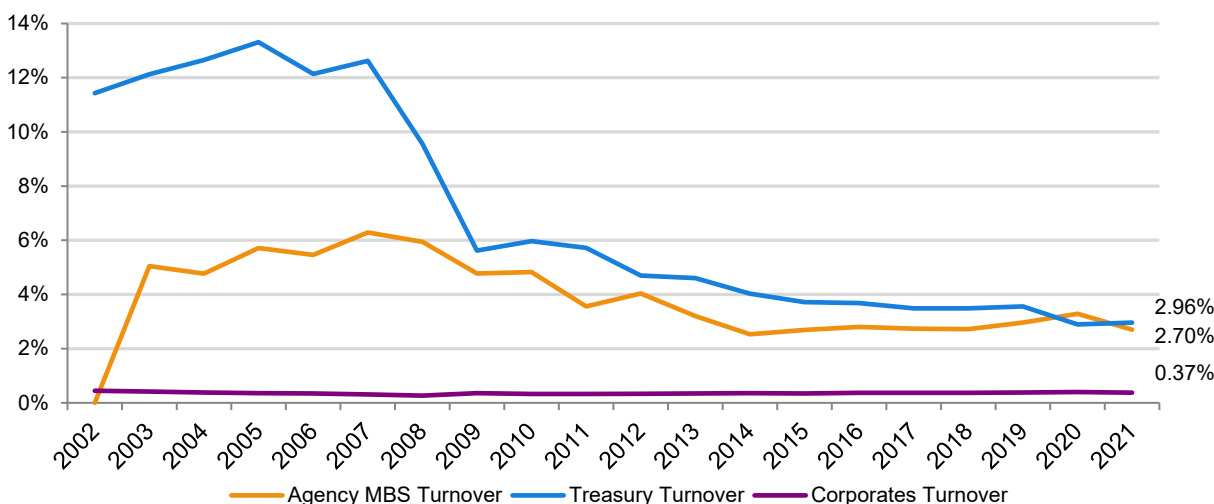
## 9 FIXED INCOME LIQUIDITY INDICATORS

The agency MBS average daily trading volume in January 2023 was \$264 billion, which is up from a monthly average of \$241 billion for calendar year 2022. In January 2023, agency MBS average daily trading volume saw a 33.2% increase MoM. See footnote below for update on “Average Daily Turnover by Sector” data.

**Figure 39. Average Daily Trading Volume by Sector**



**Figure 40. Average Daily Turnover by Sector**



Source: SIFMA. Note: Data as of January 2023 for Average Daily Trading Volume by Sector and as of December 2021 for agency MBS in Average Daily Turnover by Sector. The MBS outstanding database for Turnover by Sector is under maintenance and is not updated in this report.

## PRIMARY MORTGAGE MARKET

### 10 AGENCY CREDIT BREAKDOWN

The tables below outline the population distributions of FICO's, DTIs, and LTVs between the agencies and between FHA, VA, and other Ginnie Mae loan sources as of the end of January 2023. The distribution statistics capture some key differences in the populations served by the agencies.

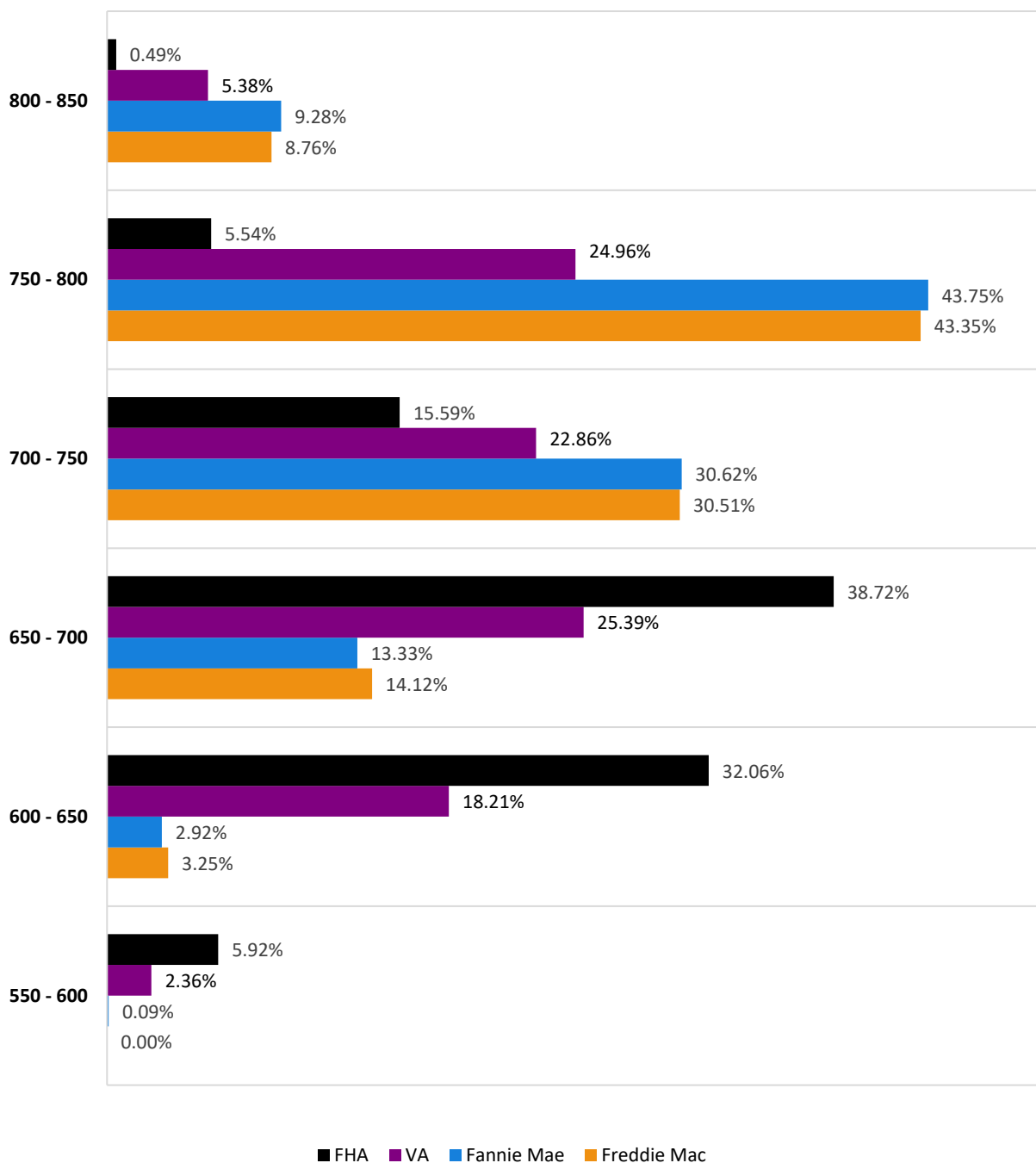
#### 10.1 Credit Scores

**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	184,732	647	687	738	776	797	729
Fannie	58,810	692	724	759	786	800	752
Freddie	56,812	694	725	759	785	800	752
Ginnie	69,110	624	648	682	731	775	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	44,860	625	656	702	751	785	702
Fannie	16,649	661	695	736	772	795	731
Freddie	13,081	649	680	719	760	788	719
Ginnie	15,130	594	623	652	687	727	656
<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	229,592	642	680	731	773	795	724
Fannie	75,459	683	717	754	783	800	747
Freddie	69,893	682	716	753	782	799	746
Ginnie	84,240	619	643	676	723	770	684
<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	69,110	624	648	682	731	775	690
FHA	41,793	620	642	668	702	739	674
VA	24,378	635	669	723	770	795	718
Other	2,939	633	656	690	730	761	694
<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	15,130	594	623	652	687	727	656
FHA	9,332	588	617	644	672	700	645
VA	5,781	607	636	671	713	753	675
Other	17	670	688	719	750	773	720
<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	84,240	619	643	676	723	770	684
FHA	51,125	612	637	664	697	735	668
VA	30,159	628	660	710	763	792	710
Other	2,956	634	656	691	730	762	694

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

**Figure 41. FICO Distributions by Agency**



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

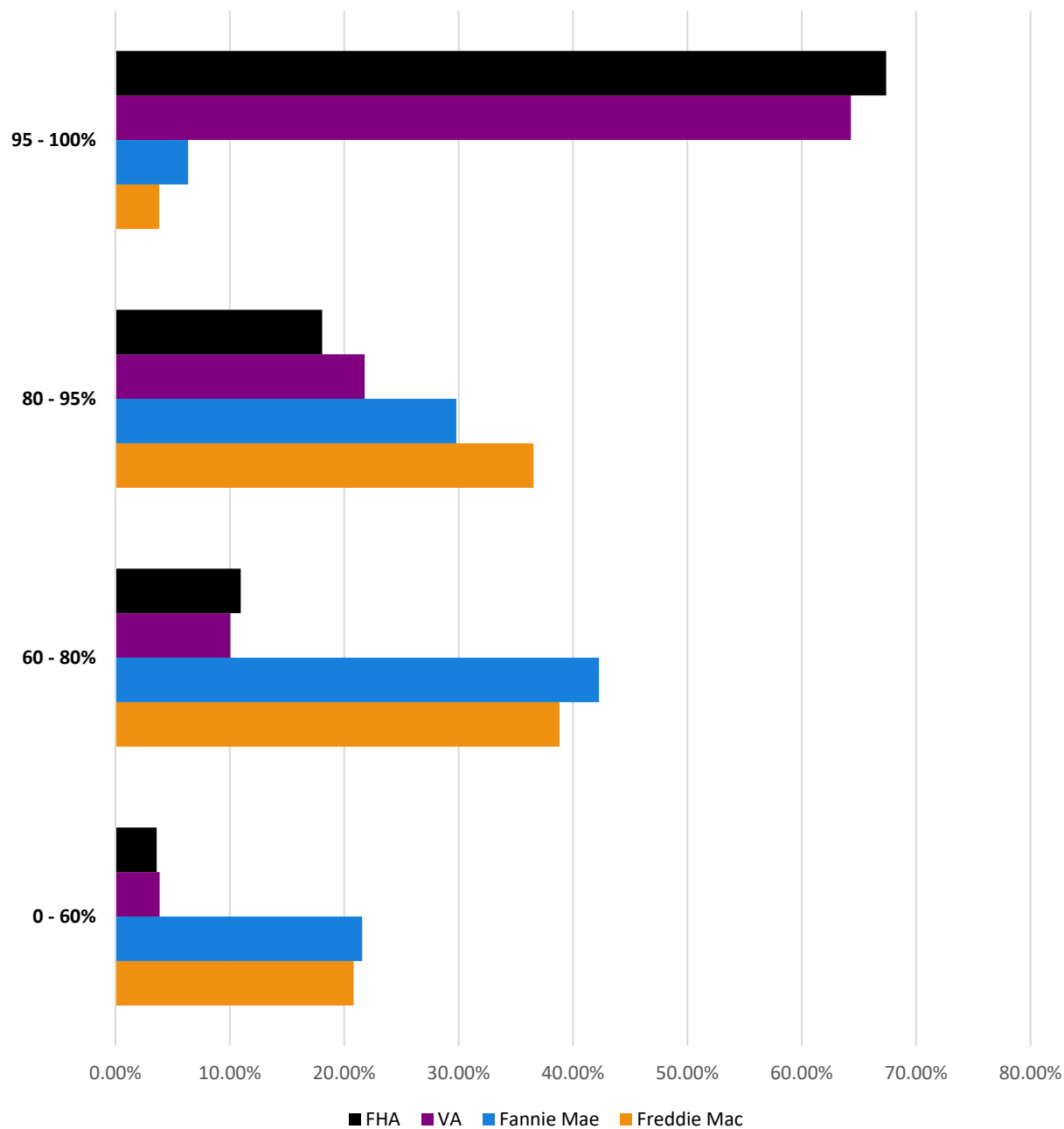
## 10.2 Loan-to-Value (LTV)

**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>
All	184,923	65	80	93	98	100	86
Fannie	58,873	57	75	80	95	95	80
Freddie	56,845	54	75	80	95	95	80
Ginnie	69,205	90	97	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>
All	44,976	36	53	68	80	84	64
Fannie	16,653	31	46	60	70	80	58
Freddie	13,082	32	47	60	73	80	58
Ginnie	15,241	56	69	80	85	93	76
<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>
All	229,899	54	75	88	97	98	82
Fannie	75,526	47	65	80	90	95	75
Freddie	69,927	47	67	80	91	95	76
Ginnie	84,446	77	91	98	100	100	93
<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>
All	69,205	90	97	98	100	100	96
FHA	41,837	92	97	98	98	98	96
VA	24,417	86	100	100	100	102	97
Other	2,951	93	98	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>
All	15,241	56	69	80	85	93	76
FHA	9,386	52	66	76	81	81	72
VA	5,838	64	77	89	91	100	84
Other	17	51	60	83	98	100	78
<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>
All	84,446	77	91	98	100	100	93
FHA	51,223	75	90	98	98	98	91
VA	30,255	79	90	100	100	102	94
Other	2,968	92	98	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 42. Loan-to Value by Agency**



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

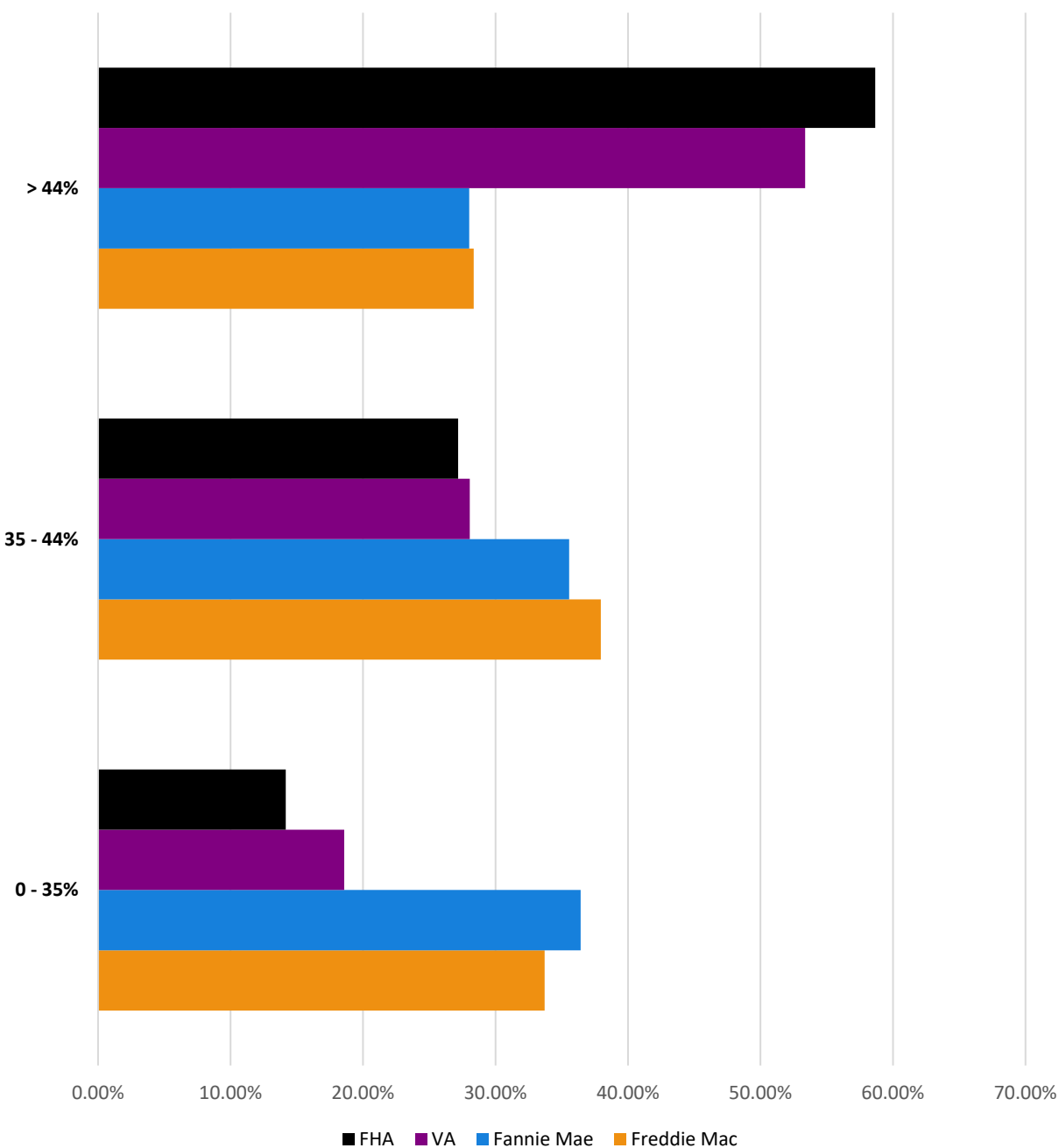
## 10.3 Debt-to-Income (DTI)

**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	184,583	27	35	42	48	51	41
Fannie	58,873	25	32	40	46	49	38
Freddie	56,845	25	32	40	45	49	38
Ginnie	68,865	32	39	46	52	56	45
<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	44,877	26	33	41	45	50	40
Fannie	16,653	23	31	39	44	48	38
Freddie	13,082	25	33	40	45	48	39
Ginnie	15,142	29	36	44	50	54	43
<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	229,460	27	34	42	47	51	40
Fannie	75,526	24	32	40	45	49	38
Freddie	69,927	25	32	40	45	49	38
Ginnie	84,007	32	39	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	68,865	32	39	46	52	56	45
FHA	41,832	34	40	47	52	55	45
VA	24,079	31	38	46	52	57	45
Other	2,954	27	32	37	40	42	36
<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	15,142	29	36	44	50	54	43
FHA	9,359	29	37	44	50	55	43
VA	5,766	29	36	43	49	54	42
Other	17	27	34	38	41	43	36
<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	84,007	32	39	45	51	55	44
FHA	51,191	33	40	46	52	55	45
VA	29,845	31	38	45	51	56	44
Other	2,971	27	32	37	40	42	36

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

**Figure 43. Debt-to Income by Agency**



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



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

From November 2020 – January 2021 to November 2022 – January 2023, the share of high-LTV agency loans going to borrowers with:

- FICO scores above 750 has decreased by approximately 3%
- DTIs below 35% decreased by approximately 30%

The share of high-LTV loans increased in the Ginnie Mae guarantee book by approximately 22% and in the GSE portfolios by approximately 179%. 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 69.84% of its issuances between November 2022 and January 2023 having LTVs of 95 or above, compared to 23.37% for the GSEs.

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

	<i>Ginnie Mae</i>	<i>GSE</i>	<i>All</i>
Nov 2020 - Jan 2021	57.40%	8.37%	19.14%
Nov 2022 - Jan 2023	69.84%	23.37%	40.96%

**Table 18. Agency Market Share by DTI and FICO for Loans with LTV > 95 (Nov 2020-Jan 2021)**

<i>FICO</i>						
<i>DTI</i>	<650	650-700	700-750	≥750	NA	<i>All</i>
<b>&lt;35</b>	1.91%	4.47%	6.16%	10.24%	0.12%	22.90%
<b>35-45</b>	4.08%	8.96%	9.97%	10.63%	0.03%	33.68%
<b>≥45</b>	3.92%	8.08%	6.98%	5.69%	0.02%	24.69%
<b>NA</b>	1.56%	3.13%	2.97%	3.36%	7.71%	18.73%
<b>All</b>	<b>11.47%</b>	<b>24.64%</b>	<b>26.09%</b>	<b>29.92%</b>	<b>7.88%</b>	<b>100.00%</b>

**Table 19. Agency Market Share by DTI and FICO for Loans with LTV > 95 (Nov 2022-Jan 2023)**

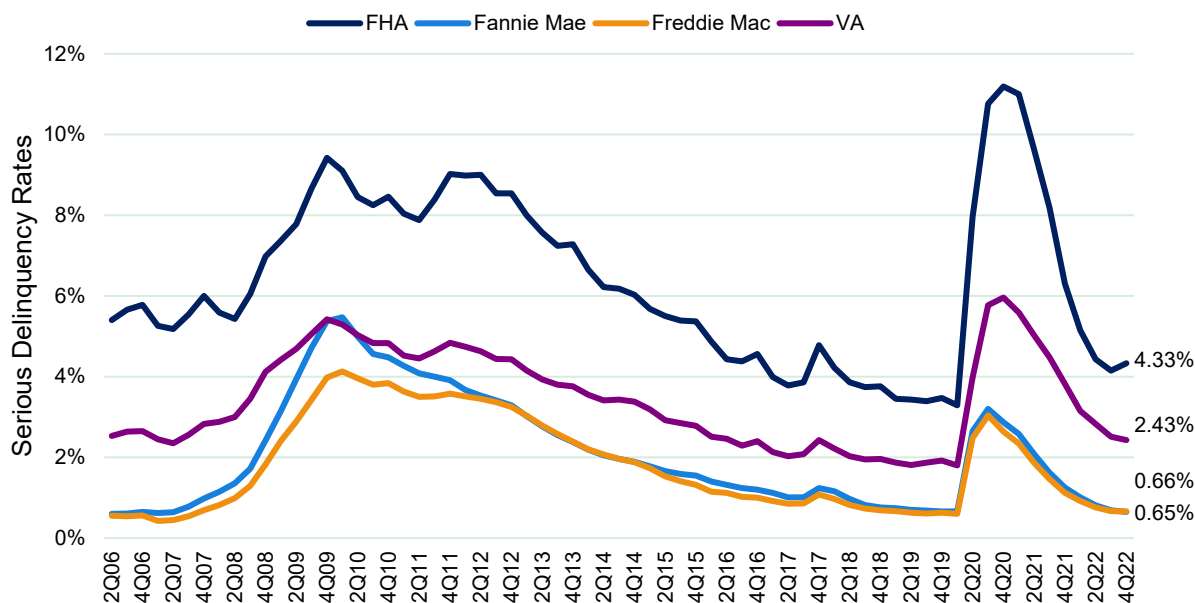
<i>FICO</i>						
<i>DTI</i>	<650	650-700	700-750	≥750	NA	<i>All</i>
<b>&lt;35</b>	2.03%	3.13%	4.29%	6.53%	0.05%	16.02%
<b>35-45</b>	5.75%	8.68%	10.29%	11.08%	0.03%	35.84%
<b>≥45</b>	8.38%	14.18%	12.91%	11.33%	0.06%	46.86%
<b>NA</b>	0.27%	0.21%	0.14%	0.18%	0.46%	1.27%
<b>All</b>	<b>16.43%</b>	<b>26.20%</b>	<b>27.63%</b>	<b>29.13%</b>	<b>0.61%</b>	<b>100.00%</b>

Sources: Recursion and Ginnie Mae. Data as of January 2023.

## 10.5 Serious Delinquency Rates

Serious delinquency rates for single-family GSE and VA loans continued to fall in Q4 2022, while FHA loans saw an increase for the first time since Q4 2020. From Q3 2022 to Q4 2022, Fannie and Freddie serious delinquencies decreased 4 and 1 bps, respectively, or 6% and 1% respectively, as a percentage change. Ginnie Mae collateral's serious delinquency rates decreased less than the GSE rates in absolute terms, with VA dropping 8 bps but FHA increasing 18 bps. This overall decline in serious delinquency rates is consistent with the decrease in the number of loans in forbearance captured in [Section 11 below](#).

**Figure 44. Serious Delinquency Rates: Single-Family Loans**



Sources:

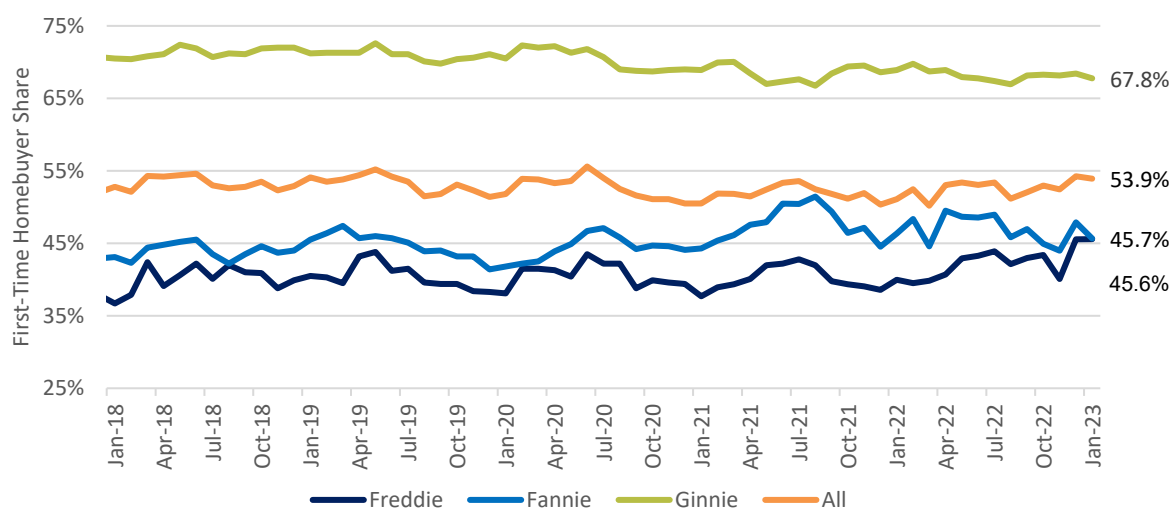
1. Fannie Mae and Freddie Mac Monthly Summary Reports
2. MBA Delinquency Survey

Note: Serious delinquency is defined as 90 days or more past due or in the foreclosure process. Data as of Q3 2022.

## 10.6 Credit Box

The first-time homebuyer share for agency purchase loans was 53.9% in January 2023, down slightly from 54.2% in December 2022 but up from 51.1% in January 2022. Ginnie Mae and Fannie Mae's first-time homebuyer shares, 67.8% and 45.7% respectively in January 2023, have remained relatively flat YoY. Freddie Mac's first-time homebuyer share has increased 14.1% YoY. Table 20 shows that based on mortgages originated in January 2023, the average GSE first-time homebuyer was more likely to have a lower credit score, and higher LTVs compared to the average GSE repeat homebuyer. Ginnie Mae's first-time homebuyers were more likely to have lower loan amounts and credit scores while DTI and loan rate were very similar.

**Figure 45. First-Time Homebuyer Share: Purchase Only Loans**



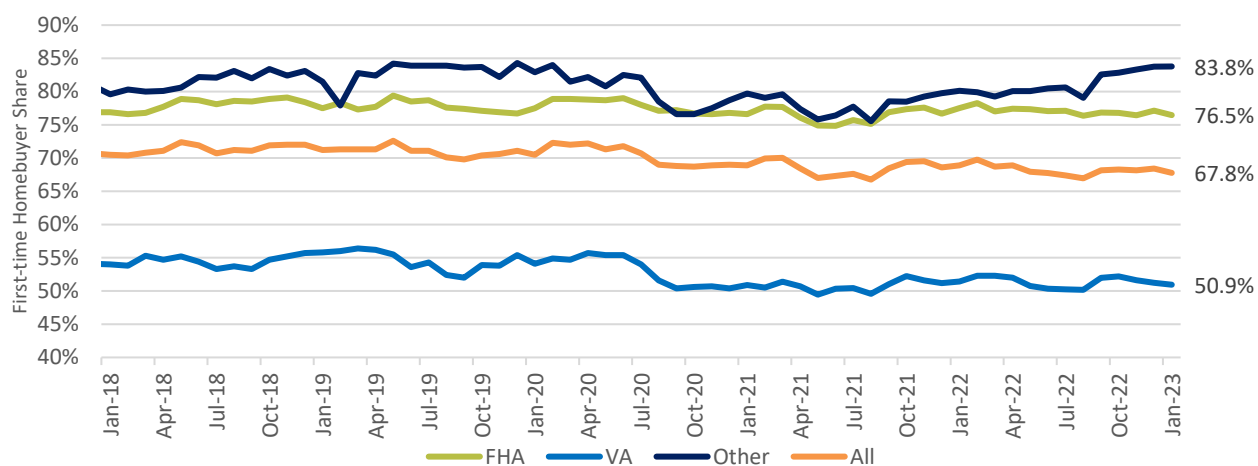
**Table 20. Agency First-Time Homebuyer Share Summary**

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount \$	320,953	329,562	328,480	329,810	298,112	355,359	313,991	334,861
Credit Score	744.7	757.3	747.0	756.3	683.3	703.1	720.9	746.0
LTV (%)	86.3	75.3	85.6	76.2	97.4	94.4	90.5	79.5
DTI (%)	37.2	37.4	36.7	37.1	43.6	44.4	39.6	38.7
Loan Rate (%)	5.5	5.5	5.4	5.5	5.3	5.2	5.4	5.4

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

Within the Ginnie Mae purchase market, 76.5% of FHA loans, 50.9% of VA loans, and 83.8% of other loans provided financing for first-time home buyers in January 2023. While FHA and VA loans decreased MoM, other loans remained relatively stable MoM. Table 21 shows that based on mortgages originated in January 2023 the credit profile of the average VA first-time homebuyer differed from the average VA repeat buyer. The average VA first-time homebuyer took out 15.2% smaller loans, had a 22-point lower credit score, 4.5% higher LTVs and had a 10 bps higher interest rate. FHA's first-time homebuyers are much more like their repeat buyers, with only 4.9% smaller loans, 10 bps higher in interest rate, and 2.4% higher LTVs. Because FHA provides one of few credit options for borrowers with lower credit scores, repeat borrowers with weaker credit profiles are often limited to FHA financing; FHA's repeat buyers continue 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.

**Figure 46. First-time Homebuyer Share: Ginnie Mae Breakdown**



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

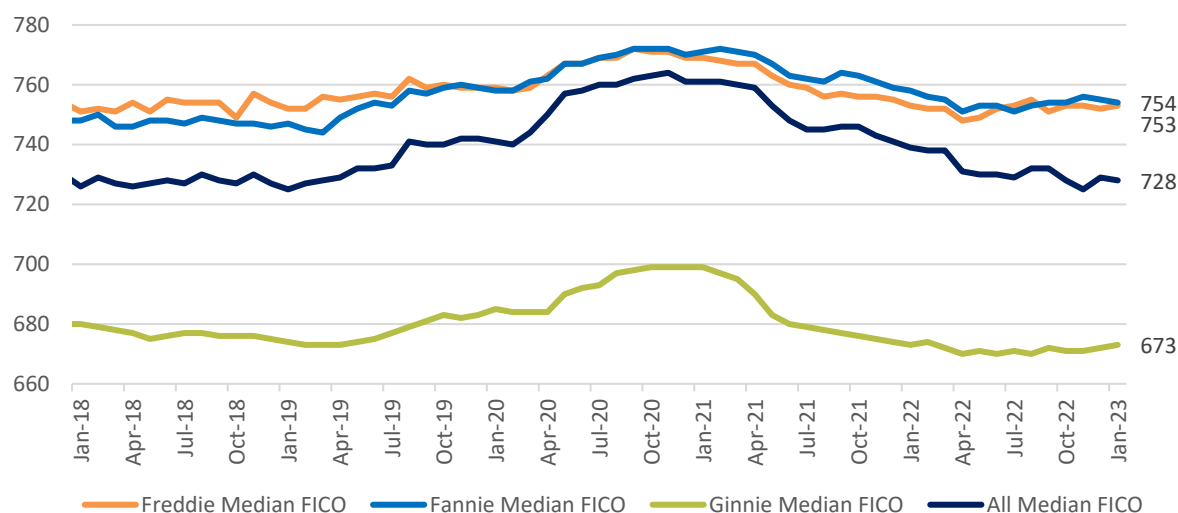
	FHA		VA		Other		Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount \$	290,406	305,532	341,390	402,407	185,606	200,132	298,112	355,359
Credit Score	672.1	669.1	707.6	729.7	695.9	704.3	683.3	703.1
LTV (%)	96.7	94.3	98.8	94.3	98.4	98.5	97.4	94.4
DTI (%)	44.8	45.6	42.7	43.9	35.0	35.7	43.6	44.4
Loan Rate (%)	5.4	5.3	5.2	5.1	5.3	5.3	5.3	5.2

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

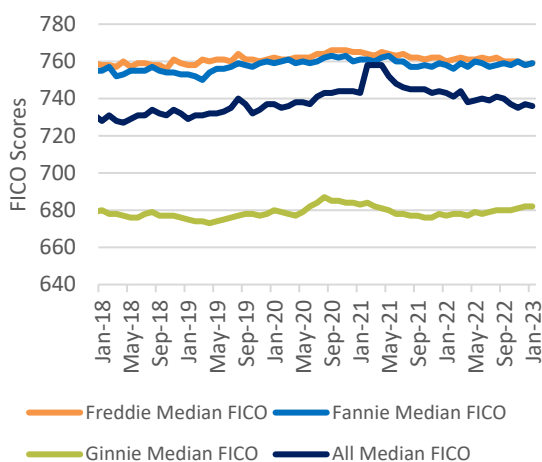
## 10.7 Credit Box: Historical

The median FICO score for all agency loans originated in January 2023 was 728, which represents an 11-point decline YoY from January 2022. The trend in declining median FICO scores has been much more pronounced for refinance loans. Ginnie Mae median FICO scores have remained stable at 673 between January 2022 and January 2023. As of January 2023, average FICO scores for refinances have dropped for Fannie Mae and Freddie Mac borrowers by 21 and 27 points YoY respectively.

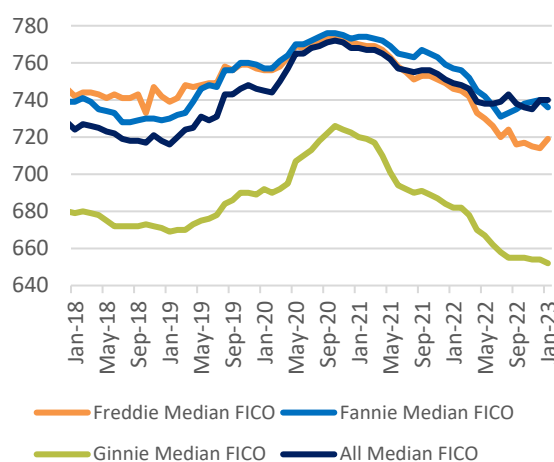
**Figure 47. FICO Scores for All Loans**



**Figure 48. FICO Scores for Purchase Loans**



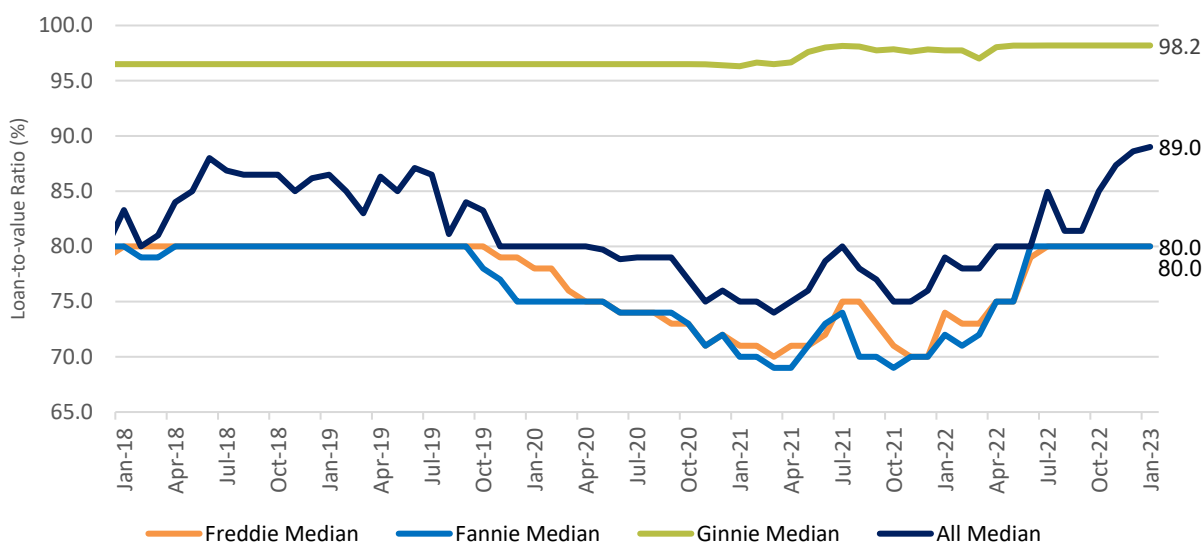
**Figure 49. FICO Scores for Refinance Loans**



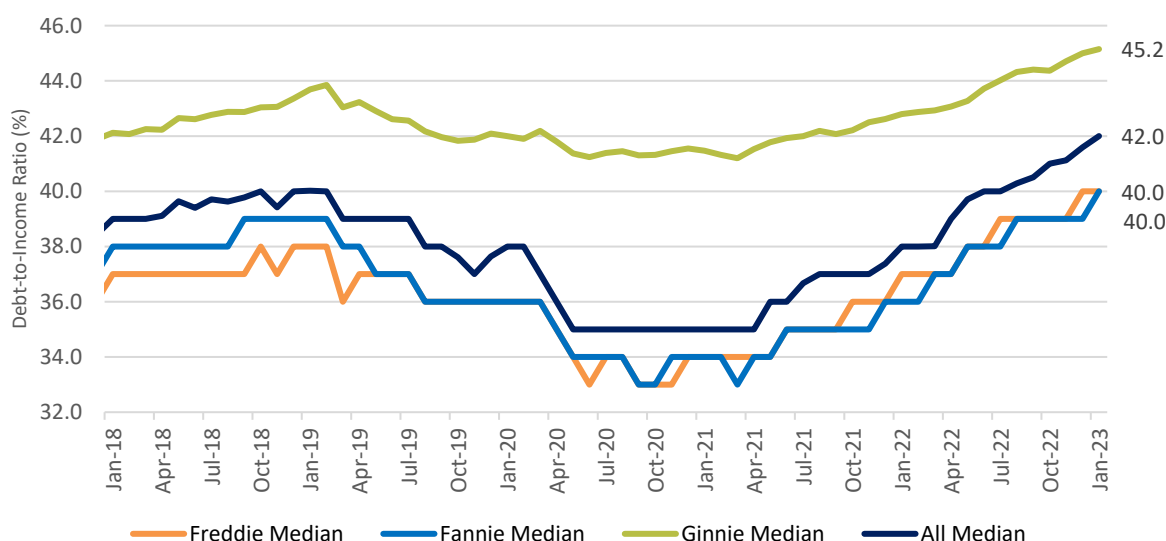
Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files

In January 2023, the median LTV for Ginnie Mae loans was 98.2% compared to 80% for Fannie Mae and Freddie Mac, owing primarily to the lower down-payment requirements for Government loan programs. Freddie Mac and Fannie Mae each saw increases in median LTV YoY from 74% and 72% respectively in January 2023 whereas Ginnie Mae LTVs remained relatively flat from 97.8% over that same period. In January 2023, median DTIs for Ginnie Mae, Freddie Mac, and Fannie Mae were 45.2%, 40.0%, and 40.0% respectively. These median DTIs are all higher compared to January 2022. In January 2022, median DTI for Ginnie Mae, Fannie Mae, and Freddie Mac was 38.0% compared to 42.0% in January 2023.

**Figure 50. LTV Ratio for All Loans**



**Figure 51. DTI Ratio for All Loans**



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

## 11 FORBEARANCE TRENDS

At the end of January 2023, 127,523 Ginnie Mae loans were in forbearance. The number of loans in forbearance removed from MBS pools was 582 while 126,941 loans in forbearance still actively remain in pools. The number of loans in forbearance, removed from pools, and loans that remained in pools has decreased compared to the month prior. The median current principal balance for Ginnie Mae, FHA, and VA was higher for loans originated by nonbanks than banks in all subsets.

**Table 22. Forbearance Snapshot**

<b>All Loans in Forbearance – January 2023</b>						
	<b>FICO Score*</b>	<b>Note Rate*</b>	<b>Current Principal Balance Median</b>	<b>First Time Homebuyer Share (%)</b>	<b>Purchase Share (%)</b>	<b>Loan Count</b>
<b>Ginnie</b>	656	3.5	\$201,326.65	74.4	74.6	127,523
<b>Bank</b>	671	3.8	\$147,895.61	81.9	86.2	13,247
<b>Nonbank</b>	655	3.5	\$208,000.00	73.8	73.8	114,264
<b>FHA</b>	652	3.6	\$197,458.32	77.8	78.1	93,459
<b>Bank</b>	670	3.8	\$145,639.44	85.0	88.5	10,781
<b>Nonbank</b>	651	3.6	\$204,791.54	77.1	77.2	82,669
<b>VA</b>	666	3.3	\$255,506.65	59.7	60.6	24,308
<b>Bank</b>	678	3.5	\$190,711.39	63.0	72.1	1,669
<b>Nonbank</b>	665	3.3	\$259,627.84	59.5	60.0	22,637
<b>Loans in Forbearance and Removed from Pools – January 2023</b>						
	<b>FICO Score*</b>	<b>Note Rate*</b>	<b>Current Principal Balance Median</b>	<b>First Time Homebuyer Share (%)</b>	<b>Purchase Share (%)</b>	<b>Loan Count</b>
<b>Ginnie</b>	668	3.8	\$135,838.39	73.4	61.1	582
<b>Bank</b>	658	5.0	\$80,697.20	75.6	77.3	255
<b>Nonbank</b>	670	3.3	\$190,886.03	72.6	56.3	327
<b>FHA</b>	657	4.1	\$119,352.22	78.2	66.5	373
<b>Bank</b>	656	5.2	\$76,042.58	81.4	74.5	190
<b>Nonbank</b>	658	3.5	\$179,909.86	76.6	63.0	183
<b>VA</b>	681	3.2	\$192,156.25	61.0	48.8	153
<b>Bank</b>	649	4.5	\$94,411.14	55.2	78.6	40
<b>Nonbank</b>	686	3.0	\$225,069.97	62.0	45.2	113
<b>Loans in Forbearance that Remain in Pools – January 2023</b>						
	<b>FICO Score*</b>	<b>Note Rate*</b>	<b>Current Principal Balance Median</b>	<b>First Time Homebuyer Share (%)</b>	<b>Purchase Share (%)</b>	<b>Loan Count</b>
<b>Ginnie</b>	656	3.5	\$201,635.88	74.4	74.7	126,941
<b>Bank</b>	671	3.8	\$149,168.09	82.0	86.3	12,992
<b>Nonbank</b>	655	3.5	\$208,080.82	73.8	73.8	113,937
<b>FHA</b>	652	3.6	\$197,750.96	77.8	78.2	93,086
<b>Bank</b>	670	3.8	\$146,943.73	85.1	88.6	10,591
<b>Nonbank</b>	651	3.6	\$204,910.07	77.1	77.3	82,486
<b>VA</b>	666	3.3	\$255,874.58	59.7	60.6	24,155
<b>Bank</b>	678	3.5	\$193,377.63	63.0	72.0	1,629
<b>Nonbank</b>	665	3.3	\$259,761.10	59.5	60.1	22,524

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 January 2023; \*Averages weighted by remaining principal balance of the loans.

## 12 HOLDERS OF GINNIE MAE MORTGAGE SERVICING RIGHTS

Table 23 shows the 30 largest owners of mortgage servicing rights (MSR) by UPB for loans collateralizing Ginnie Mae MBS. The top 30 firms collectively own 85.64% 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 January 2023, over half (53.07%) 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**

MSR Holder	Rank			UPB (\$ millions)	Share	Cumulative Share	CPR	CDR
	Current	Year prior	Change					
LAKEVIEW LOAN SERVIC	1	3	↑	\$272,273,475,120	12.7%	12.66%	4.39%	0.41%
DBA FREEDOM HOME MOR	2	1	↓	\$261,756,100,219	12.2%	24.83%	5.33%	1.04%
PENNYMAC LOAN SERVIC	3	2	↓	\$248,558,123,865	11.6%	36.39%	4.19%	0.65%
NATIONSTAR MORTGAGE,	4	6	↑	\$127,821,916,064	5.9%	42.33%	4.74%	0.67%
NEWREZ LLC	5	7	↑	\$119,144,048,732	5.5%	47.87%	4.14%	0.57%
WELLS FARGO BANK, NA	6	4	↓	\$111,837,413,124	5.2%	53.07%	5.10%	0.50%
ROCKET MORTGAGE, LLC	7	5	↓	\$104,302,473,215	4.8%	57.92%	5.75%	0.48%
CARRINGTON MORTGAGE	8	10	↑	\$89,263,741,507	4.2%	62.07%	4.78%	0.76%
U. S. BANK, NA	9	9	↔	\$51,662,773,973	2.4%	64.47%	4.25%	0.87%
UNITED WHOLESALE MOR	10	11	↑	\$45,951,106,614	2.1%	66.61%	2.33%	0.50%
PLANET HOME LENDING,	11	15	↑	\$43,936,379,389	2.0%	68.65%	2.97%	0.21%
LOANDEPOT.COM, LLC	12	12	↔	\$36,852,218,454	1.7%	70.36%	4.83%	0.41%
MORTGAGE RESEARCH CE	13	14	↑	\$33,963,436,769	1.6%	71.94%	3.02%	0.23%
AMERIHOM MORTGAGE C	14	22	↑	\$31,712,229,854	1.5%	73.42%	2.43%	0.25%
NAVY FEDERAL CREDIT	15	16	↑	\$29,217,152,269	1.4%	74.77%	4.37%	0.31%
GUILD MORTGAGE COMPA	16	19	↑	\$22,404,410,154	1.0%	75.82%	3.80%	0.50%
THE MONEY SOURCE INC	17	18	↑	\$20,906,874,348	1.0%	76.79%	5.05%	0.80%
TRUIST BANK	18	17	↓	\$20,304,845,519	0.9%	77.73%	4.31%	0.39%
CROSSCOUNTRY MORTGAG	19	20	↓	\$18,259,278,838	0.8%	78.58%	3.62%	0.51%
NEW AMERICAN FUNDING	20	21	↑	\$17,852,279,406	0.8%	79.41%	4.07%	0.53%
VILLAGE CAPITAL & IN	21	23	↑	\$16,682,006,041	0.8%	80.19%	6.33%	0.58%
MOVEMENT MORTGAGE, LL	22	N/A	↑	\$16,528,613,618	0.8%	80.95%	2.75%	0.50%
CMG MORTGAGE, INC.	23	27	↑	\$15,671,593,426	0.7%	81.68%	3.71%	0.62%
IDAHO HOUSING AND FI	24	26	↑	\$14,618,867,326	0.7%	82.36%	3.58%	1.06%
CITIZENS BANK N.A.	25	25	↔	\$13,895,196,614	0.6%	83.01%	3.46%	0.40%
PHH MORTGAGE CORPORA	26	29	↑	\$12,949,689,031	0.6%	83.61%	4.91%	0.82%
FLAGSTAR BANK, FSB	27	N/A	↑	\$11,737,519,785	0.5%	84.16%	3.54%	0.23%
MIDFIRST BANK	28	N/A	↑	\$11,443,548,148	0.5%	84.69%	6.24%	1.99%
JP MORGAN CHASE BANK	29	30	↑	\$10,276,190,079	0.5%	85.17%	5.71%	1.71%
SUN WEST MORTGAGE CO	30	N/A	↑	\$10,123,926,030	0.5%	85.64%	4.52%	0.30%

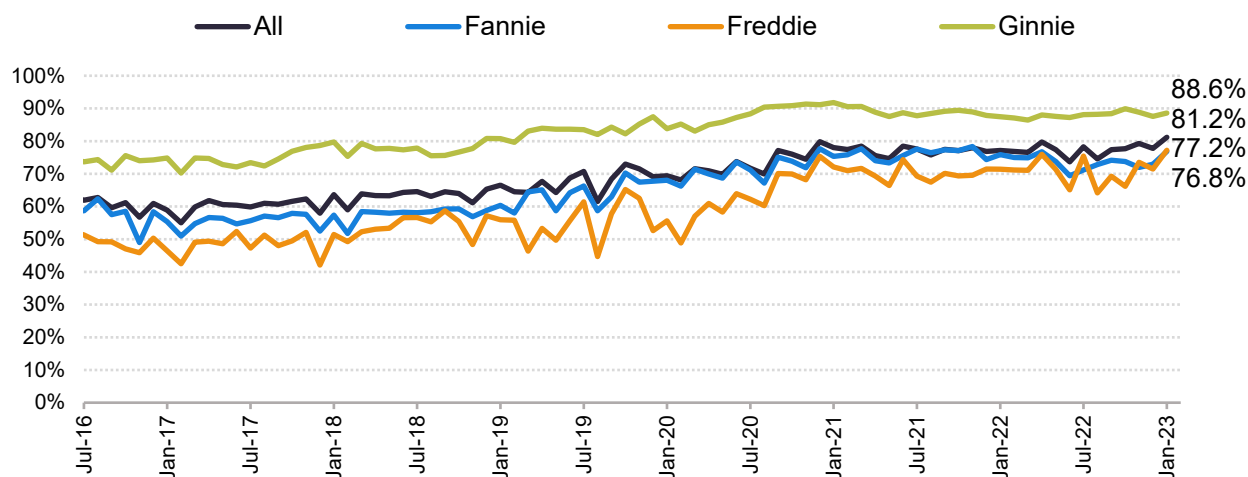
Source: Deloitte. Data as of January 2023



## 13 AGENCY NONBANK ORIGINATORS

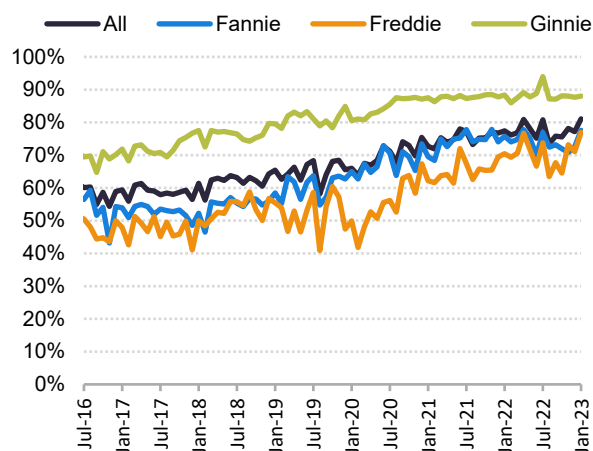
Total agency non-bank origination experienced an increase in January 2023, up approximately 4.4% MoM. This increase in non-bank origination share was driven primarily by Freddie Mac (non-bank origination share up 8.0% MoM). The Ginnie Mae non-bank share rose to 88.6% as of January 2023 but has remained consistently higher than the GSEs, largely driven by origination share of refinance mortgage loans. GSE origination volume of purchase mortgage loans has been the primary driver in the MoM decline of agency non-bank origination share.

**Figure 52. Agency Nonbank Originator Share (All, Purchase, Refi)**



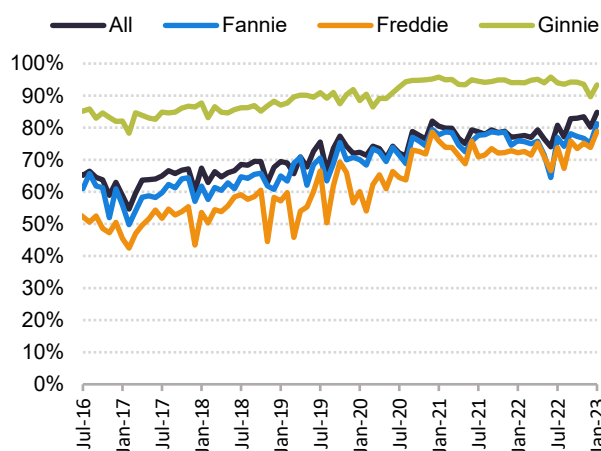
**Figure 53. Nonbank Origination Share:**

### Purchase Loans



**Figure 54. Nonbank Origination Share:**

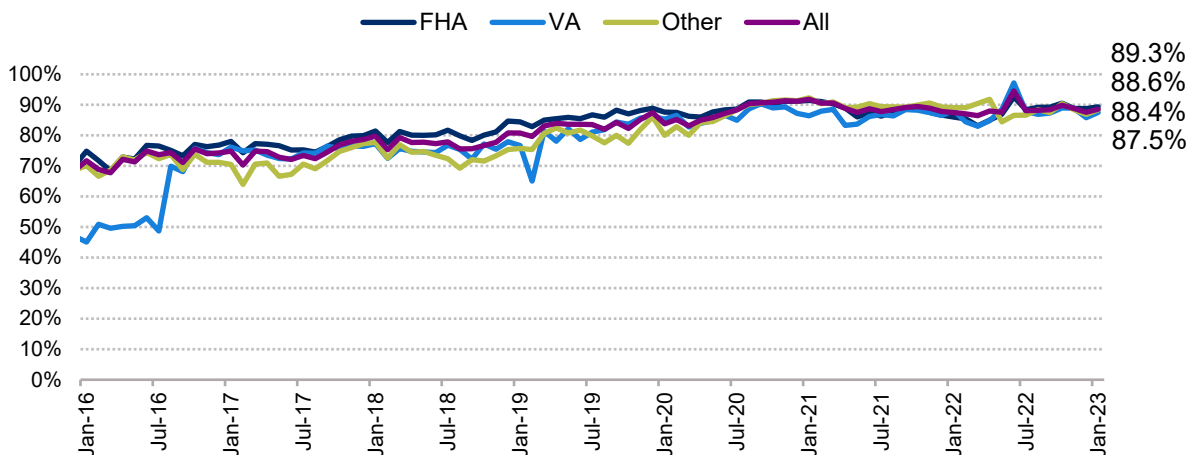
### Refi Loans



Sources: Recursion. Notes: Data as of January 2023.

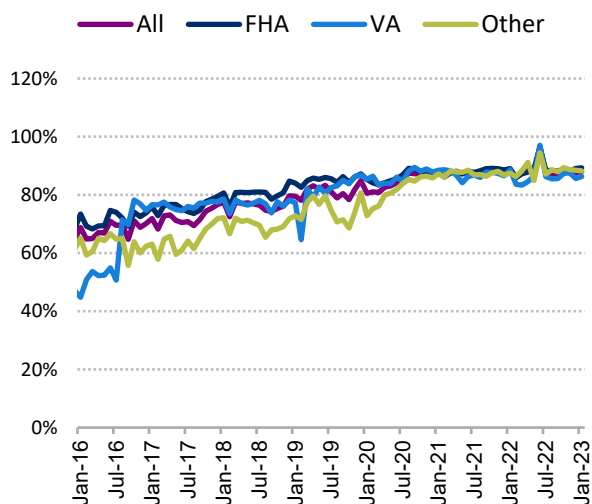
Ginnie Mae's total non-bank originator share remained relatively stable in January 2023. Ginnie Mae continues to have a very high proportion of nonbank originations, with a rate of 88.6% in January 2023. The percent of Ginnie Mae's Other non-bank refinanced loans rose to approximately 88.4% in January 2023, an increase of about 2% from December 2022.

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



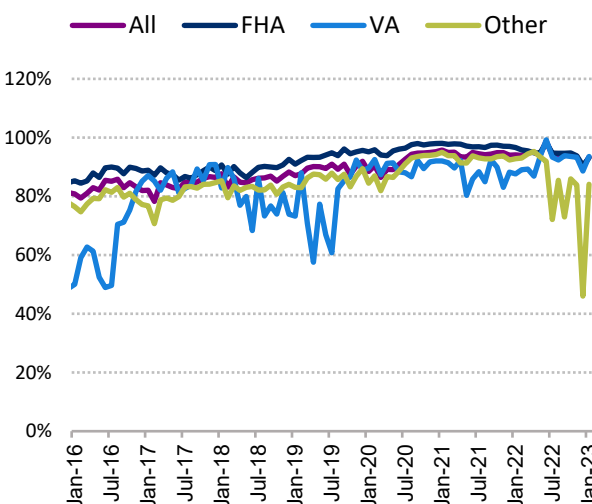
**Figure 56. Ginnie Mae Nonbank Share:**

**Purchase Loans**



**Figure 57. Ginnie Mae Nonbank Share:**

**Refi Loans**



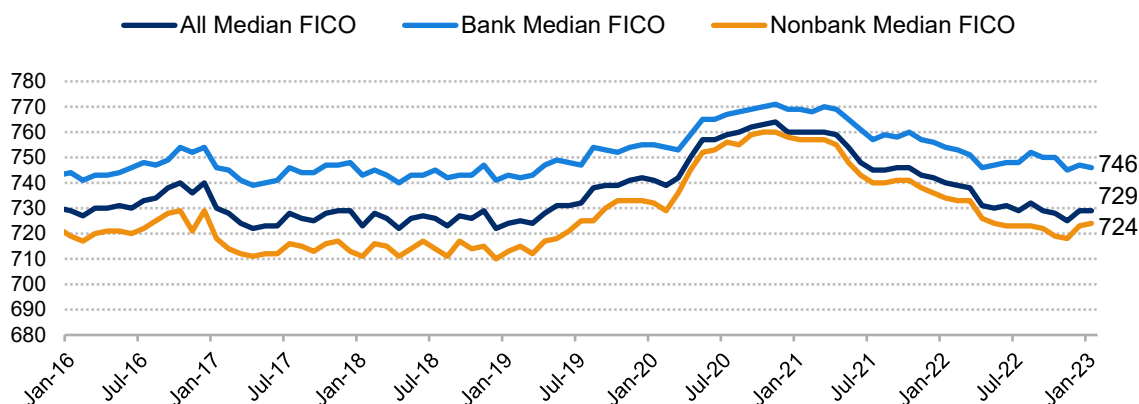
Sources: Recursion. Notes: Data as of January 2023.

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

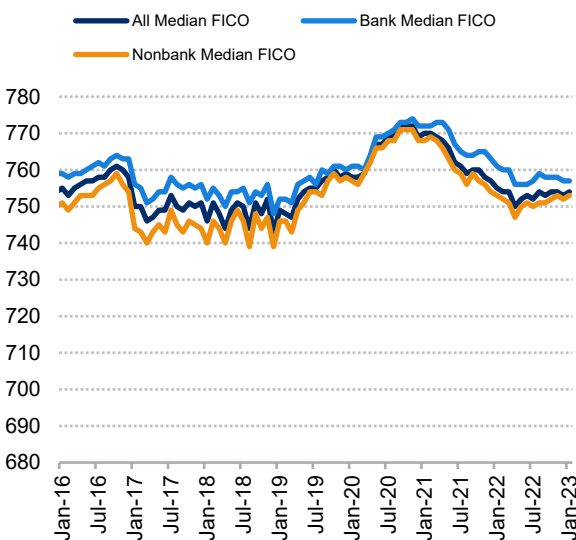
### 13.1.1 (FICO, LTV, DTI)

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 decreased by 2 points from December 2022 to January 2023. The agency median FICO remained consistent at 729 MoM.

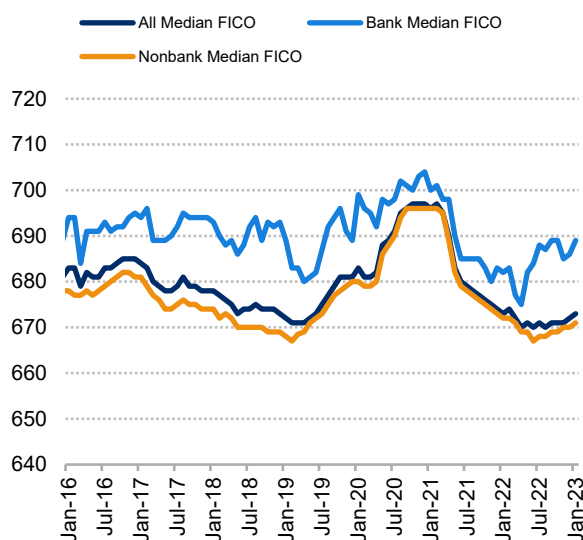
**Figure 58. Agency FICO: Bank vs. Nonbank**



**Figure 59. GSE FICO: Bank vs. Nonbank**



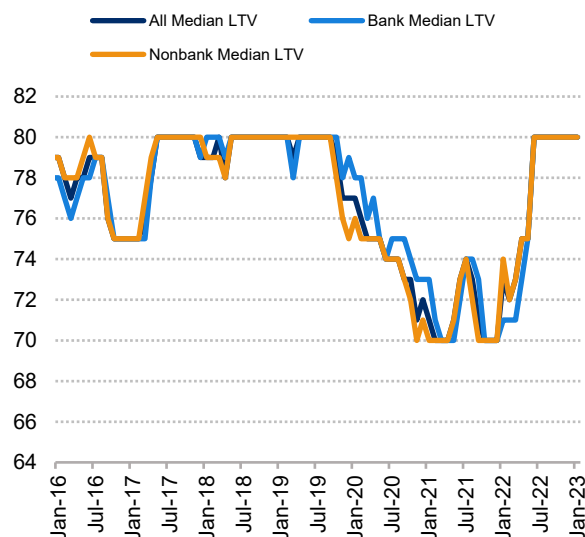
**Figure 60. Ginnie Mae FICO: Bank vs. Nonbank**



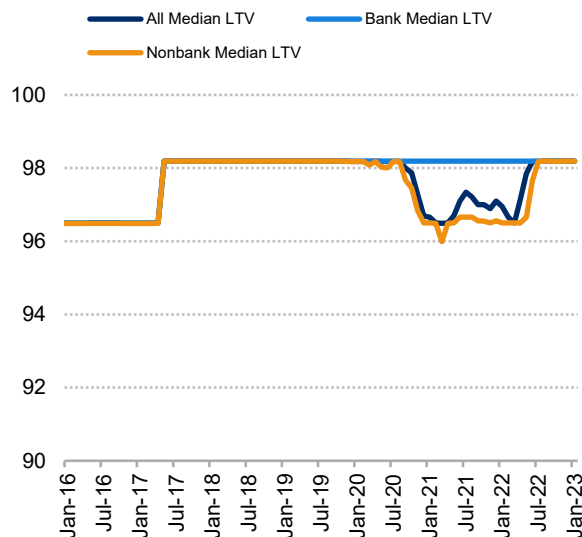
Sources: Recursion; Notes: Data as of January 2023.

The median LTV for all GSE originators remained the same in January 2023 MoM at 80%. Ginnie Mae median bank and non-bank LTV remained flat at 98.19% MoM. Ginnie Mae median DTI remained consistent MoM at approximately 46% in January 2023 in non-bank originations.

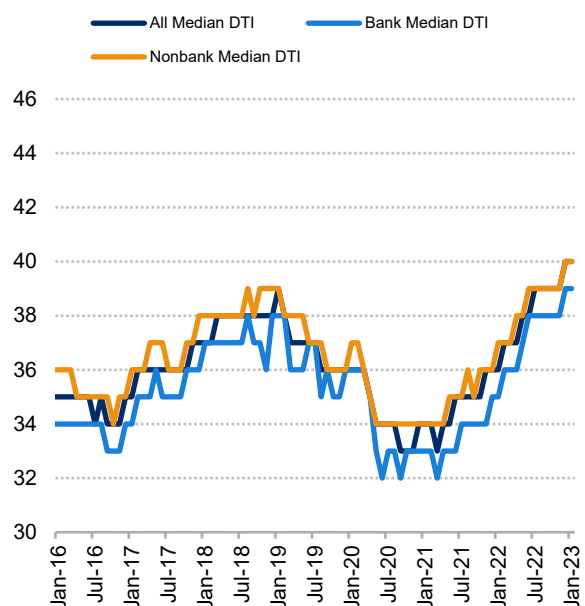
**Figure 61. GSE LTV: Bank vs. Nonbank**



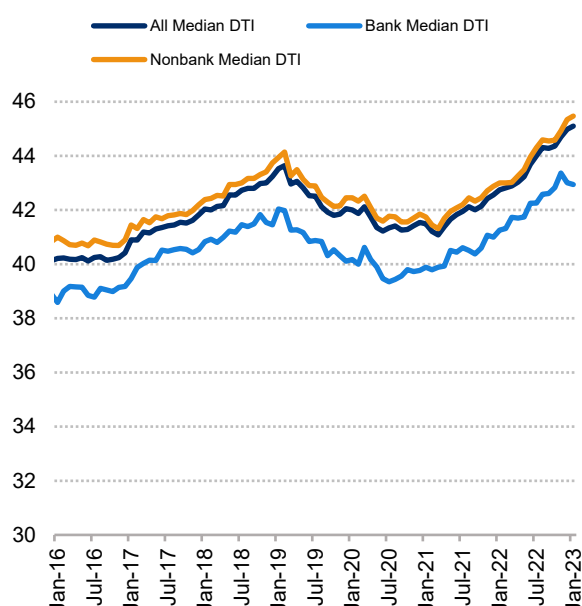
**Figure 62. Ginnie Mae LTV: Bank vs. Nonbank**



**Figure 63. GSE DTI: Bank vs. Nonbank**



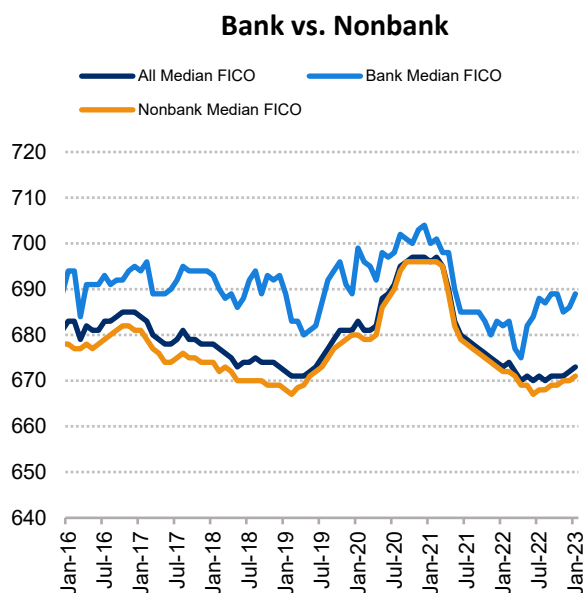
**Figure 64. Ginnie Mae DTI: Bank vs. Nonbank**



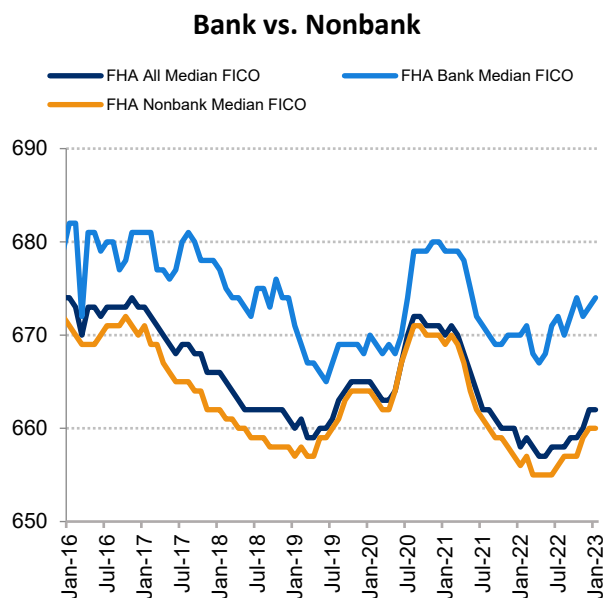
Sources: Recursion. Notes: Data as of January 2023.

In January 2023, the median FICO score for Ginnie Mae bank increased 3 points to 689 and non-bank increased 1 point to 671 MoM. The median FICO for all Ginnie originations increased 1 point to 673 MoM. The gap between banks and non-banks is most apparent in VA lending (32-point spread).

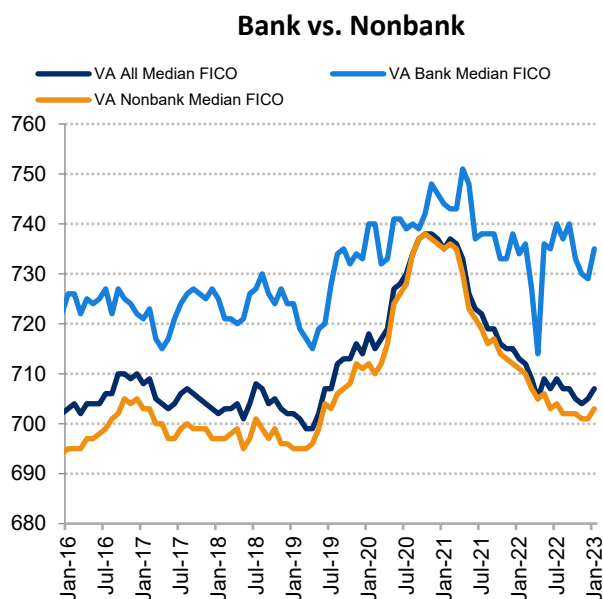
**Figure 65. Ginnie Mae FICO Score:**



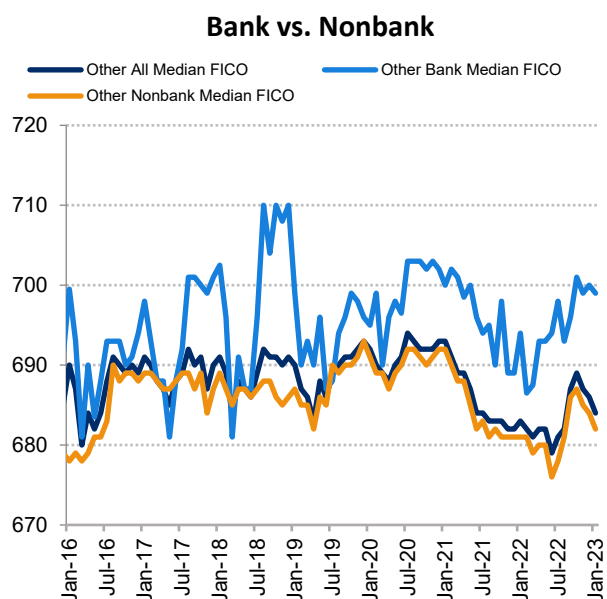
**Figure 66. Ginnie Mae FHA FICO Score:**



**Figure 67. Ginnie Mae VA FICO Score:**



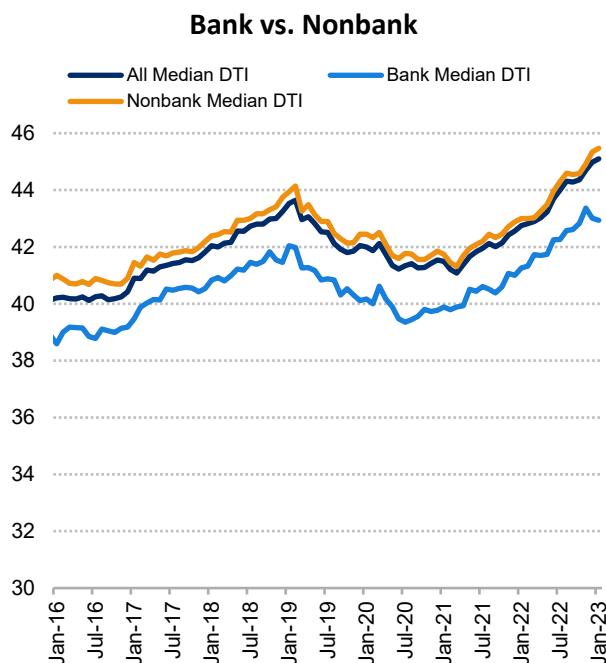
**Figure 68. Ginnie Mae Other FICO Score:**



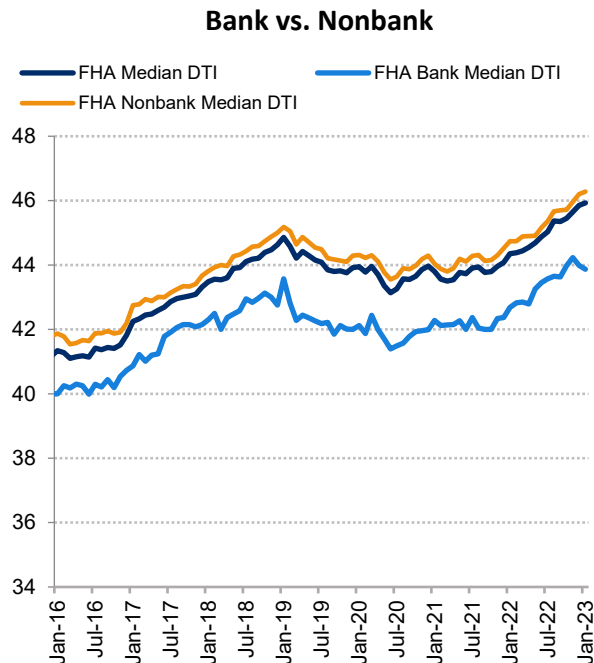
Sources: Recursion. Notes: Data as of January 2023.

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.

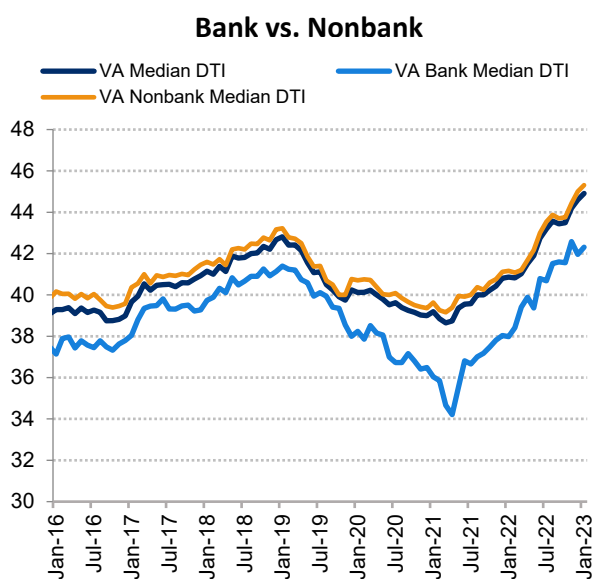
**Figure 69. Ginnie Mae DTI:**



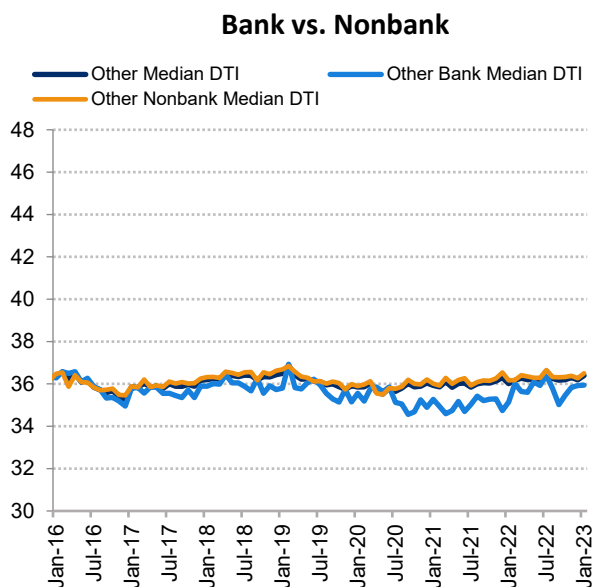
**Figure 70. Ginnie Mae FHA DTI:**



**Figure 71. Ginnie Mae VA DTI:**



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



Sources: Recursion. Notes: Data as of January 2023.

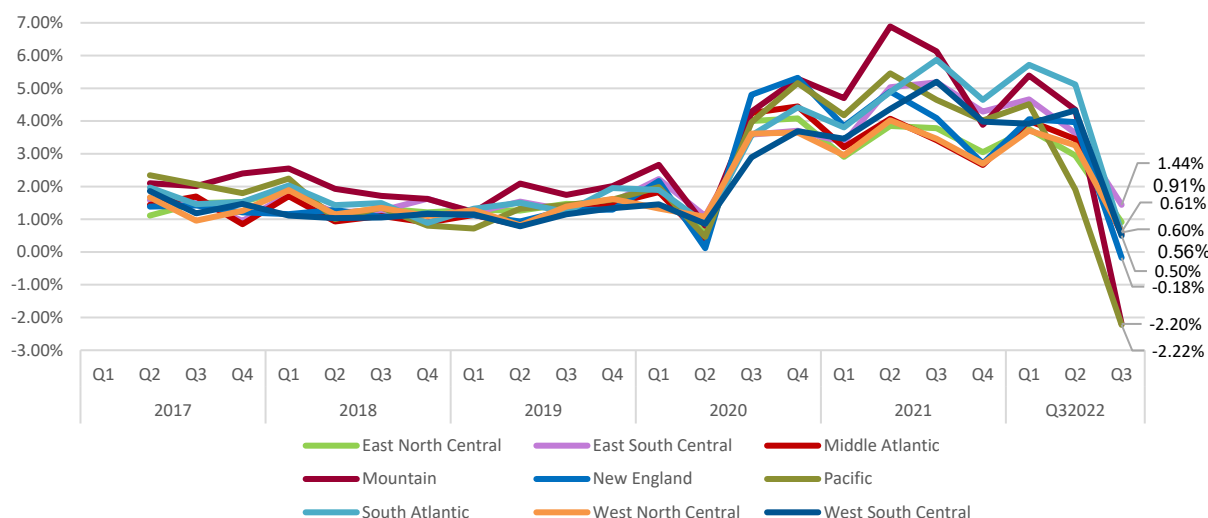
## U.S. HOUSING MARKET

### 14 HOUSING AFFORDABILITY

#### 14.1 Housing Affordability – Home Price Appreciation

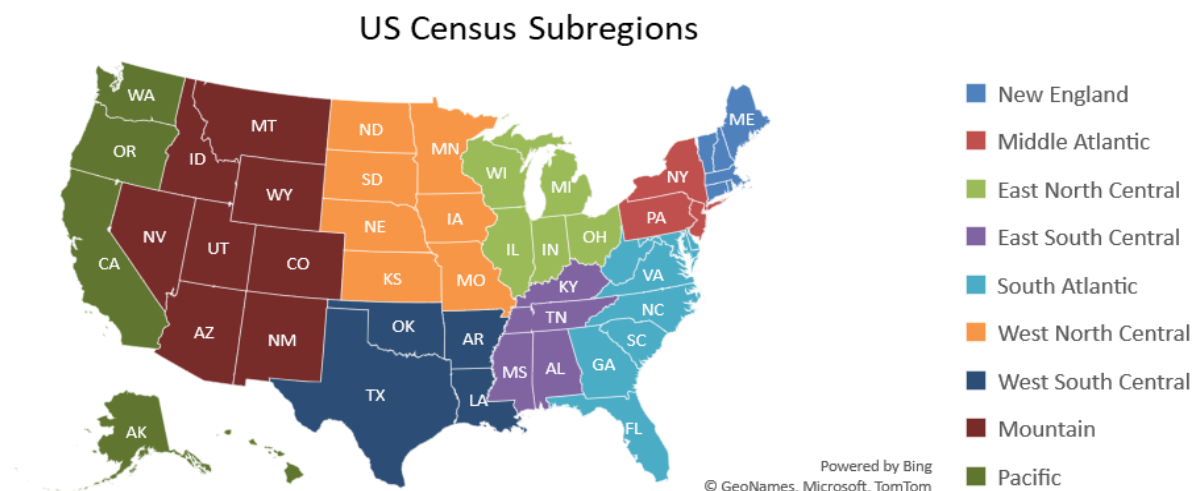
Home prices are beginning to decelerate, with HPI's dropping in both the Pacific and Mountain regions between July 2022 and September 2022. Notably, the Mountain region experienced the greatest home price appreciation (22.7% CAGR) during the pandemic months, and the Pacific region also experience very strong home price appreciation (18.0% CAGR).

**Figure 73. Regional HPI Trend Analysis Q/Q**



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

**Figure 74. FHFA.US Census Subregions as defined by the US Census Bureau**



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

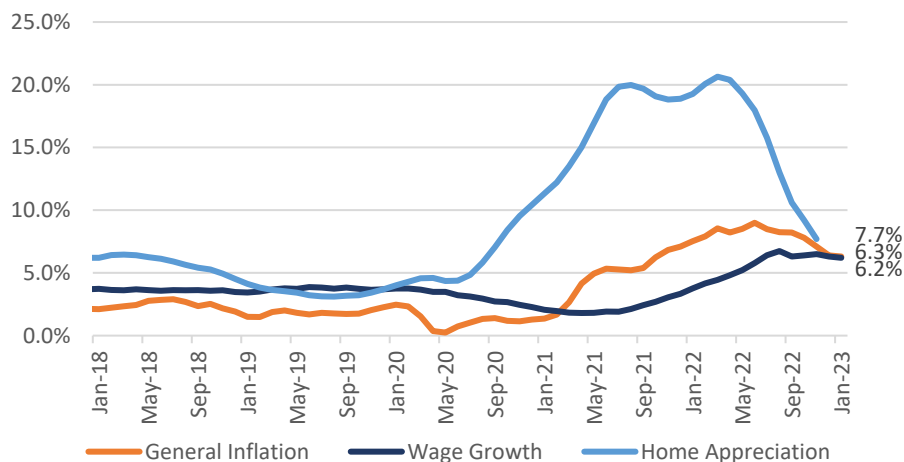
## 14.2 Housing Affordability – Inflation, Wages, and the Price of Real Estate and Rent

While housing affordability is directly affected by real estate price fluctuation, affordability is also impacted by general asset price changes. As of January 2023, inflation was 6.3%, down slightly from 6.4% the month prior. Nationally, rents are up 2.4% YoY as of month-end January 2023. However, January's median rent has declined 1.88% suggesting that the YoY increases are being driven by strong rental price appreciation in early to mid-2022. The MoM decline in January continues the declining rent trend observed in December 2022 when median rent decreased 1.41% MoM. Wage growth saw a minor decrease from 6.3% in December 2022 to 6.2% in January 2023. November 2022 reporting data shows YoY home price appreciation has now slowed to 7.7%, down from 9.2% in October 2022.

**Figure 75. Inflation | 12-Month Percent Change in CPI**



**Figure 76. Asset Price Appreciation vs. Wage Increases**

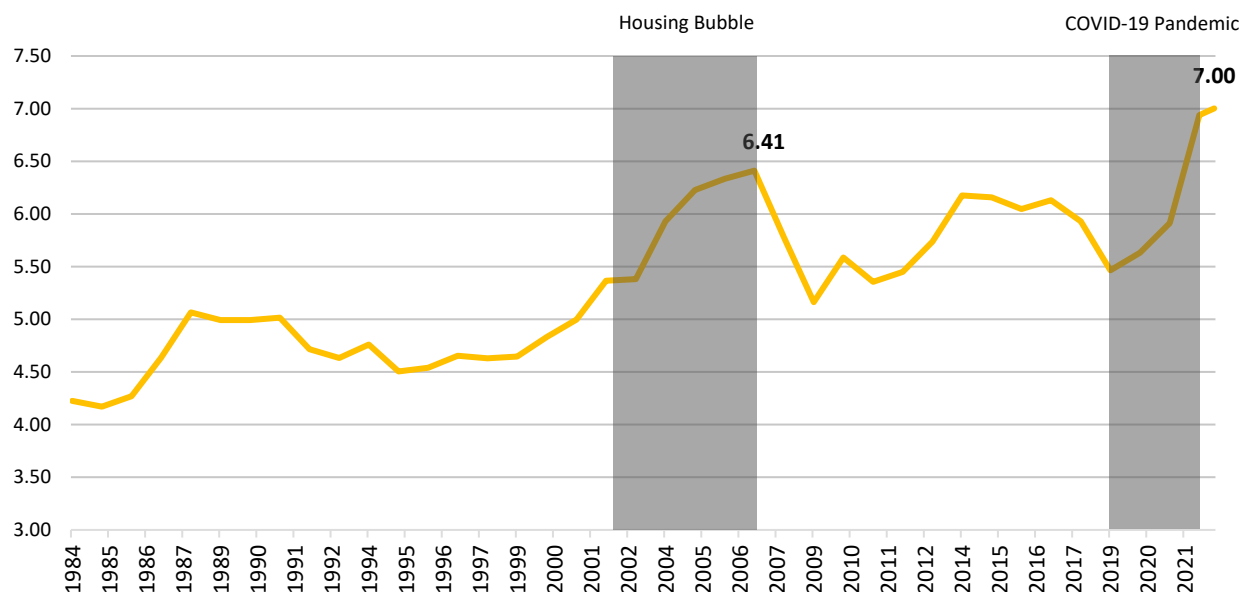


Sources: Bureau of Labor Statistics – Consumer Price Index and Wage-Growth Data; Rent.com – Rental Price Appreciation; S&P/Case-Schiller U.S. National Home Price Index – Home Price Appreciation.



Home affordability remains at a historic low, as the ratio of the average price of sold homes to median incomes is at a historically high level. Historically, this ratio has been around 5:1; the current 7:1 sales price to median income ratio exceeds the maximum value observed during the housing bubble (6.4:1). With the increase in mortgage rates, declining home price appreciation, and home prices even dropping in some regions in the country, this ratio may drop back down to historically normal levels.

**Figure 77. Average Price of Homes Sold to Median Income Ratio**



Source: FRED Average Home Sales Data, FRED Median Income Data

### 14.2.1 HOUSING AFFORDABILITY – MORTGAGE RATE TRENDS

The Federal Funds Target Rate was increased by 25 bps on February 1, 2023 to a range of 4.50% and 4.75% per the FOMC.<sup>3</sup> As of February 16, 2023, the average 30-year and 15-year fixed rate mortgage rates were 6.32% and 5.51% respectively. The average 30-year fixed rate mortgage rate increased 17 bps and the average 15-year fixed rate mortgage rate increased 23 bps MoM.

**Figure 78. Average Fixed Rate Mortgage Rates**



Sources: FRED data as of January 2023

<sup>3</sup><https://www.federalreserve.gov/newsevents/pressreleases/monetary20230201a.htm>

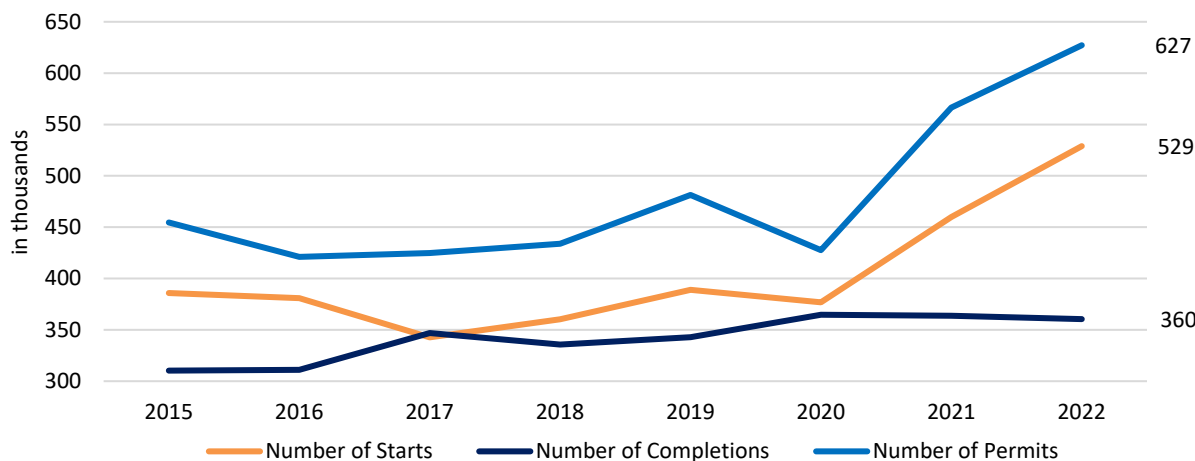
### 14.3 Housing Inventory

As of December 2022, there was 9.0 months of housing inventory on the market, an increase from 8.6 as of November 2022. As housing affordability continues to remain high (See above [section 14.2](#)) 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 80** increased in 2022; number of starts increased by 15.0% and numbers of permits increased by 10.7% while number of completions remained relatively stable.

**Figure 79. Single-Family Housing Inventory**



**Figure 80. Multifamily Construction Metrics: Permits, Starts, Completions**

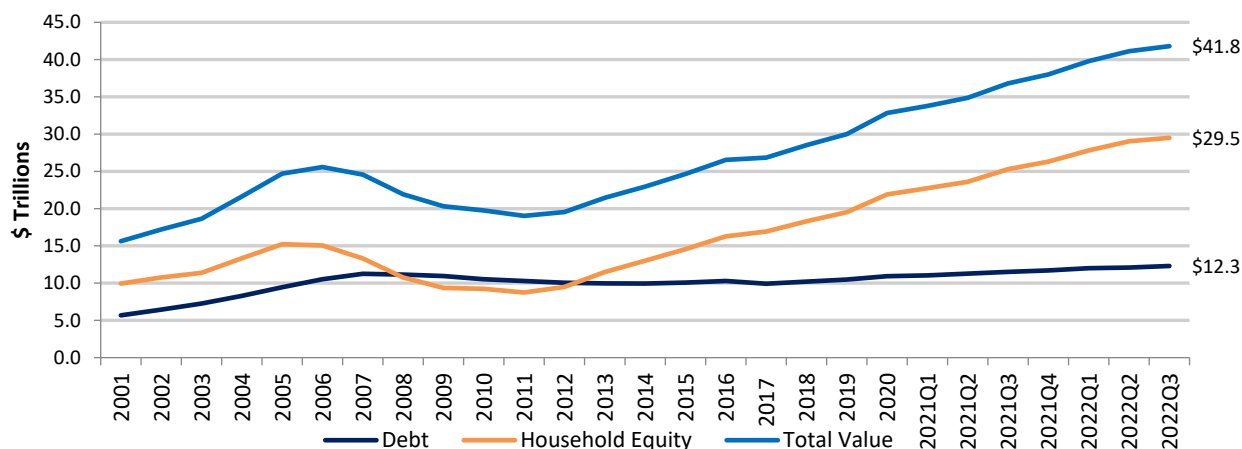


Source: FRED data as of December 2022 and New Residential Construction, US Census Bureau

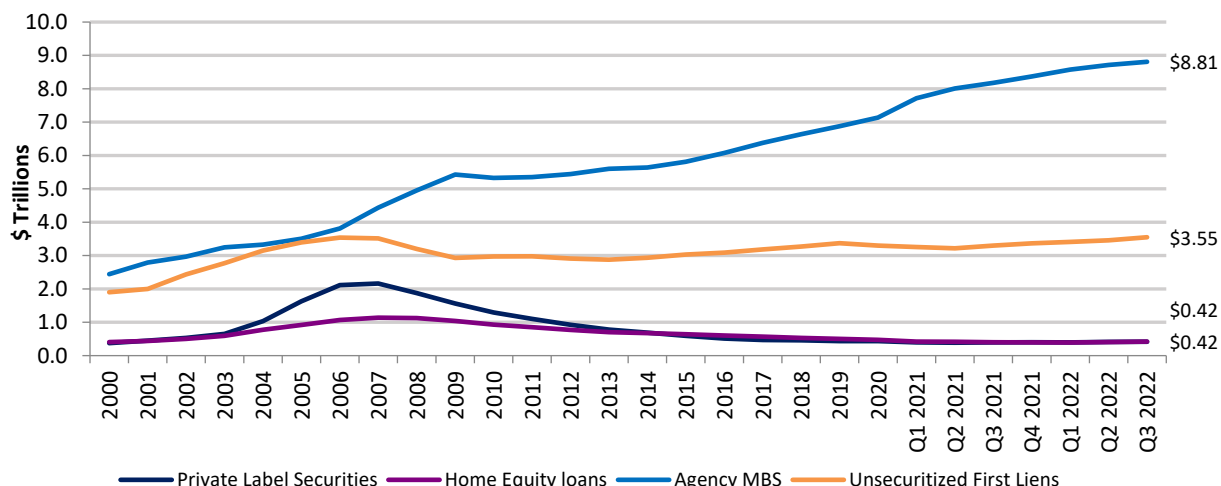
## 14.4 Size and Value of the US Housing Market

The total value of the single-family housing market reached \$41.8 trillion in Q3 2022. The total value of the US housing market is up 120% from its trough in 2011. From Q4 2021 to Q3 2022 mortgage debt outstanding increased from \$11.7 trillion to \$12.3 trillion and household equity increased from \$25.3 trillion to \$29.5 trillion. Thus, the expansion in the housing market is being driven primarily by increases in home values, as illustrated in the [Housing Affordability Section](#). At \$8.81 trillion in Q3 2022, agency SF MBS continues to account for a growing percentage of the total mortgage debt outstanding, up to 67% of total mortgage debt from just 52% in 2011.

**Figure 81. Value of the US Housing Market**



**Figure 82. Size of the US Residential Mortgage Market.**



Source: Federal Reserve Flow of Funds Data as of Q3 2022.

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## 15 DISCLOSURE

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“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.

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