

GLOBAL MARKETS ANALYSIS REPORT

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



September 2023

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

This month's *Highlights* section focuses on perspectives from market participants in East Asia regarding Ginnie Mae MBS and the broader Agency MBS market. The *Highlights* provide investment community perspectives on Agency MBS in the three largest markets for Ginnie Mae MBS outside of the United States: China, Japan, and Taiwan. It captures current trends as well as future concerns of East Asian investors as it relates to the Ginnie Mae MBS market.

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

- The [Fixed Income Product Performance Comparisons](#) section shows that Ginnie Mae MBS continue to offer attractive yields relative to sovereigns with comparable durations globally.
- The [Single-Family MBS Pass-Through Issuance](#) section captures the dominant role government lending/mortgage insurance programs are playing in the mortgage market post-pandemic. Gross and net issuance of single-family Ginnie Mae pass-throughs exceeds that of both Fannie and Freddie Mac.
- The [Environmental, Social, and Governance](#) section takes note of the newly introduced Ginnie Mae Social Bond program, announced by President Alanna McCargo.
- The [U.S. Housing Market](#) section illustrates the recent cool down in home price appreciation. The section also captures the fact that affordability remains a significant issue driving overall MBS issuance down.

Highlights

For the *Global Market Analysis Report's* September 2023 publication, a series of questions were posed to fixed income market participants in East Asia that trade securitized products, including Agency MBS. The focus was on China, Japan, and Taiwan, given that they are the three largest foreign holders of Agency MBS. The responses have been edited for readability.

1. In terms of financial institution types, what does the institutional investor landscape look like in East Asia with regard to investment in Ginnie Mae MBS?

Typically, three types of investors historically buy GNMA MBS in Asia: banks, insurance companies, and in some cases, asset managers. In 2023, the majority of East Asian MBS investors are banks, rather than insurance companies. In China, most banks see MBS as an alternative to investment grade corporate bonds when the mortgage basis is wide. Also, we have seen some securities firms trading both MBS pools and TBAs as a short-term directional trade. In Japan, banks are mainly interested in CMO floaters and MBS pools, which are typically financed through repo. There are insurance companies and money managers interested in MBS pools and TBA as well. In Taiwan, like other areas, banks rather than insurance companies are the main MBS audience, and they are interested in both CMOs (short Sequential Play Classes, Planned Amortization Classes or floaters) and pools. There are some duration needs from insurance companies and money managers in Taiwan, but their transaction volume is lower than in prior years. Finally, some central banks in East Asia are active in the MBS market as well.

Asian central banks have typically had a very close alignment with the USD and connection with the Fed as the dollar has been, for many decades, the only reserve currency of choice with both global liquidity and the depth of asset classes to satisfy growing central bank reserve accumulation. Asian central banks, in a number of cases over recent history, had a peg to the USD due to volatility in their own domestic markets, hence the dollar has been a valuable reserve tool to protect domestic currencies. As Asian central banks have become accustomed to the dollar, and with reserves in USD usually comprising around 50 percent of their entire reserves, the need to diversify with high quality assets has been important, especially as reserves have grown substantially away from US Treasury securities. Diversification has supported adding Ginnie Mae products, which offers an explicit government guaranty but with the added dimension of a spread in excess of Treasury security yields. In addition, since the financial crisis, Ginnie Mae stands out as the bellwether for the mortgage market due to its depth of liquidity and explicit guaranty. All these factors highlight the safety and importance of this asset class for reserve investments but with the added benefit of incremental yield over government debt and even sovereign/supranational debt.

2. Do East Asian investors view Ginnie Mae MBS as a highly liquid financial instrument? If so, what considerations contribute to this view?

Investors regard Ginnie Mae MBS pools and TBAs as highly liquid financial instruments. The full faith and credit US government guarantee and scalability on trades are key: USD 100 million-plus transaction size is common on current coupon trades with a tight market.

3. What value do East Asian institutional investors place on the explicit full faith and credit guaranty of the US government on Ginnie Mae MBS?

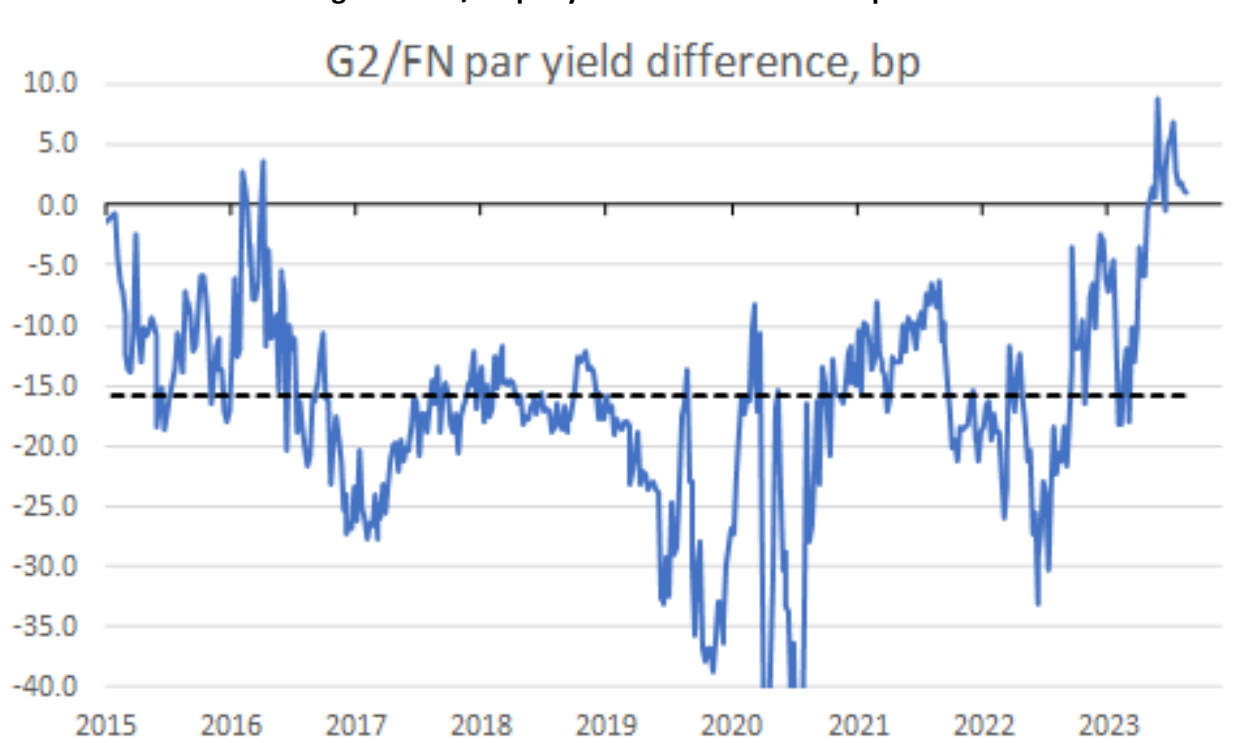
The full faith and credit guaranty of the US government on Ginnie Mae MBS is very important. In general, many investors in Asia consider Ginnie Mae a zero risk-rating and Level 1 asset under Basel III. In fact, for some East Asia broker/dealers, 80-90% of mortgage-backed security trades currently, in both CMO and passthrough, are Ginnie Mae securities. Many Asia clients invest in Ginnie Mae MBS because of the explicit guarantee. In comparison, the implicit guarantee from UMBS has so far generated less demand. This difference is very relevant for bank treasuries in particular, as they need to meet liquidity ratios by owning high quality liquid assets (HQLA). Having said that, certain jurisdictions may need further clarification with local regulators on Ginnie Mae vs UMBS HQLA treatment.

4. What are the factors that drive relative value of Ginnie Mae MBS and REMIC products for East Asian mortgage securities investors?

The size and liquidity, the explicit guarantee by US government and the flexible structuring capability in REMICs drive relative value of Ginnie Mae MBS and REMIC products. Also, relative value versus Asian credits is a key factor for relative value considerations in China.

The graph below demonstrates the relative attractiveness of Ginnie Mae MBS compared to conventional MBS on a historical basis.

Figure 1. G2/FN par yield difference in basis points



5. What looks attractive in the Ginnie Mae MBS coupon stack from the perspective of East Asian Ginnie Mae MBS institutional investors?

Most Asia investors like current coupon MBS priced at par or slightly below. Currently, the current coupon GNMA MBS is 6% (G2SF 6) and it offers an attractive yield, and the dollar price is at a discount, thus having less exposure to premium/prepayment risk. Asian investors prefer to buy MBS current coupons given that there is no clear view at this point in time regarding interest rate direction and future Fed action. Lower coupon MBS have a lower yield relative to the hedge and funding costs, and both factors are not favorable for Asia investors.

6. Is there anything else that is top of mind for institutional investors in East Asia about Ginnie Mae MBS?

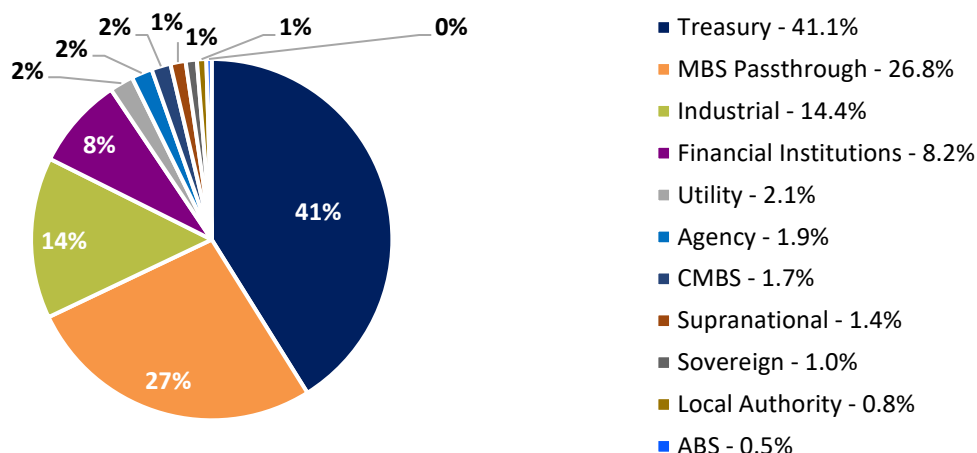
While many investors agree that MBS spreads are attractive, they are concerned about MBS market technicals in the near future, as banks in North America are currently not as active with MBS purchases. North American banks are historically the largest investors in MBS. Lack of demand from domestic banks leads to attractive MBS yields for investors, but also gives investors concern about the performance of MBS investments in the near term.

1 US AGGREGATE AND GLOBAL INDICES

1.1 Bloomberg US Aggregate and Global Indices

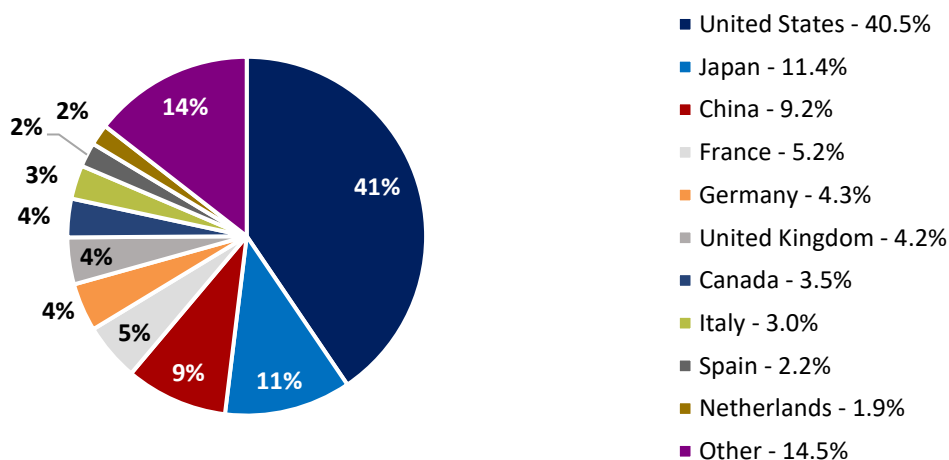
At month-end August, US Treasuries contributed 41.1% to the Bloomberg US Aggregate Index, stable from the prior month. US MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) contributed 26.8%, down approximately 0.1% from the month prior. For the US Aggregate Index, all other changes to the index components were no larger than 1%.

Figure 2. Bloomberg US Aggregate Index



In the Bloomberg Global Aggregate Index by Country, the US share of fixed income remained the largest share of total outstanding issuance, representing 40.5% of the total Bloomberg Global Aggregate Index, flat from the prior month. Japan's share of fixed income was the second highest at 11.4%, down slightly for the third consecutive month. For the Global Aggregate Index, all countries remained stable compared to the prior month with no changes larger than 1%.

Figure 3. Bloomberg Global Aggregate Index by Country



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

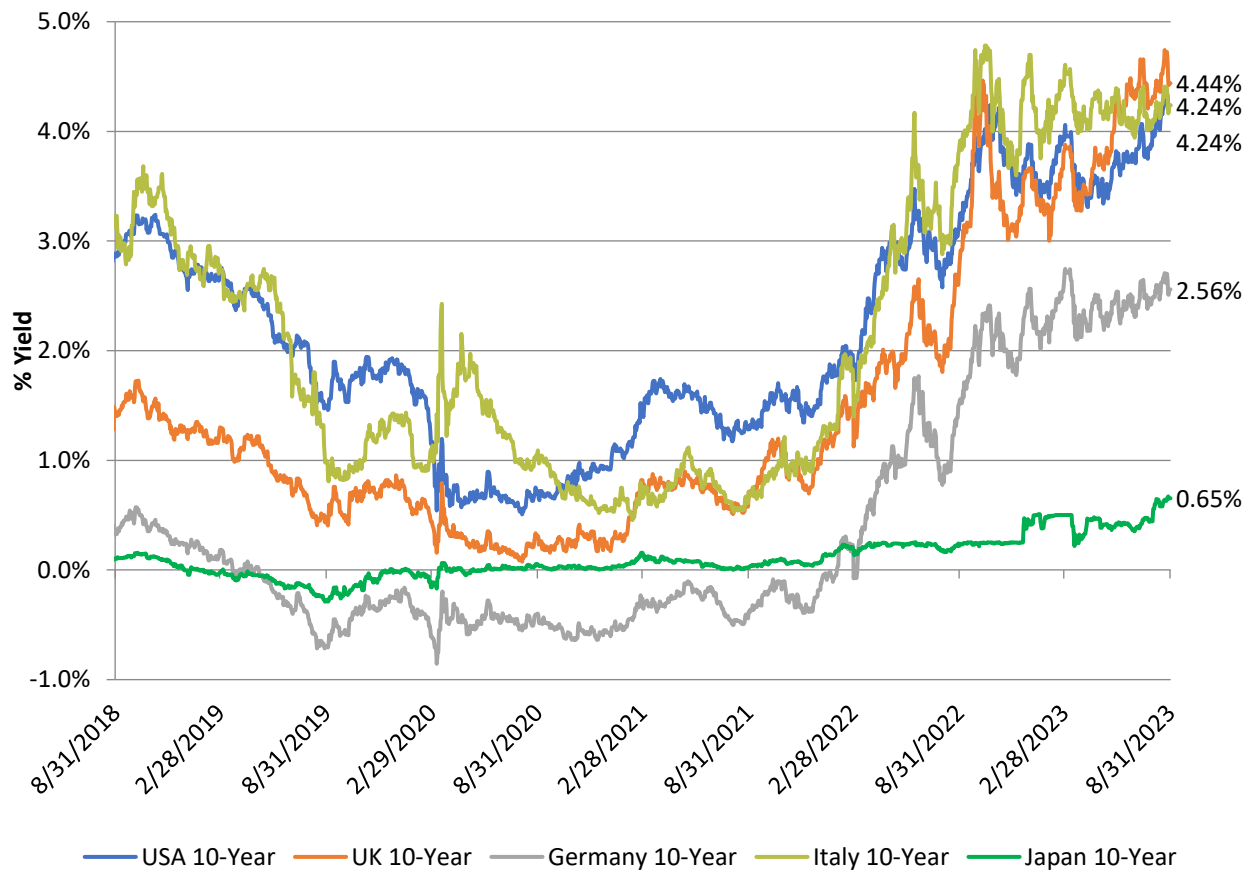
2 SOVEREIGN DEBT PRODUCT PERFORMANCE COMPARISONS

2.1 Global 10-Year Treasury Yields (Unhedged)

The US 10-year Treasury yield moved to 4.24% at month-end August 2023, a MoM increase of 24 bps. US Treasury yields alongside Italian government bond yields were the second highest of all the government treasury yields depicted in the figure below behind UK government bond yields. All month-end yields listed have increased for two consecutive months.

- The yield on the UK 10-year note increased to 4.44% at month-end August, a MoM increase of 13 bps.
- The yield on the German 10-year note increased to 2.56% at month-end August, a MoM increase of 9 bps.
- The yield on the Italian 10-year note increased to 4.24% at month-end August, a MoM increase of 17 bps.
- The yield on the Japanese 10-year note increased to 0.65% at month-end August, a MoM increase of 21 bps.

Figure 4. Global 10-Year Treasury Yields



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

2.2 US Treasury Hedged Yields

The yield for the 10-year Treasury, hedged in Japanese Yen stood at -1.29% at month-end August, a 23 bp increase from month-end July.

The yield for the 10-year Treasury, hedged in Euros stood at 2.47% at month-end August, a 21 bp increase from month-end July.

Figure 5. US 10yr Total Return Hedged, JPY

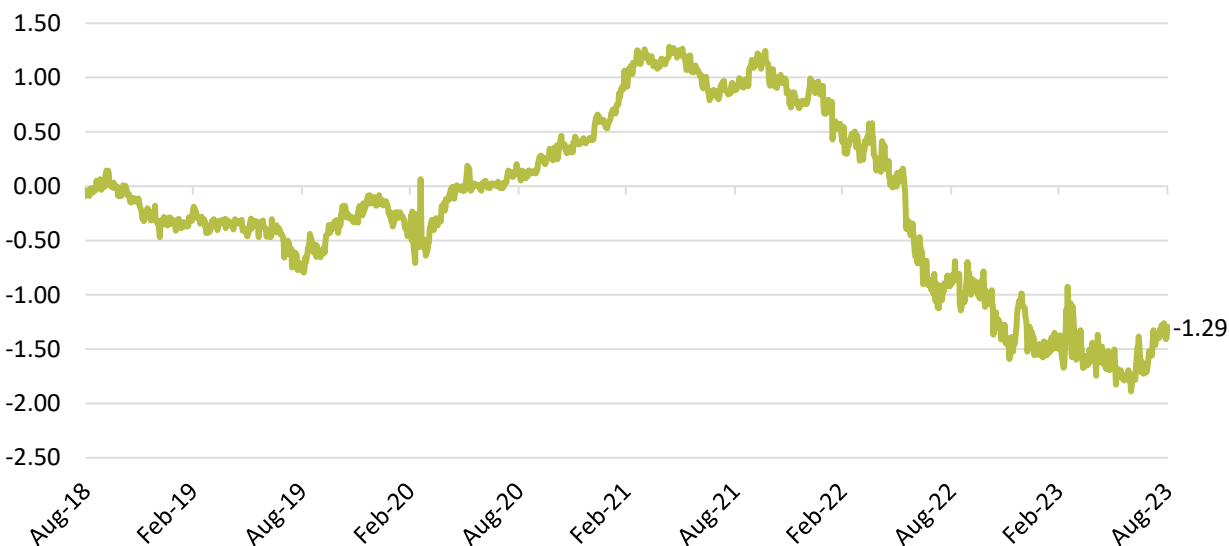


Figure 6. US 10yr Total Return Hedged, EUR



Source: Bloomberg. Notes: Data as of August 2023. The 10yr Total Return Hedged Yields are calculated by taking the 10yr treasury yield and subtracting the 1yr hedge cost for JPY and EUR.

SECONDARY MORTGAGE MARKET

3 FIXED INCOME PRODUCT PERFORMANCE COMPARISONS

3.1 Ginnie Mae Yields – USD

Ginnie Mae II yields were 5.67% in June, increased 4 bps to 5.71% at month-end July, then increased 14 bps to 5.85% at month-end August. Ginnie Mae II spreads over the US 10-year Treasury yield increased 33 bps YoY to 161 bps over the US 10-year Treasury yield as of month-end August 2023.

Figure 7. Ginnie Mae II SF Yield, USD



Figure 8. Ginnie Mae II SF Yield – US 10yr Treasury Yield



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

3.2 Ginnie Mae Hedged Yields

The yield for Ginnie Mae II's, hedged in Japanese Yen stood at 0.32% at month-end August, a 13 bp increase from month-end July.

The yield for Ginnie Mae II's, hedged in Euros stood at 4.08% at month-end August, a 11 bp increase from month-end July.

Figure 9. Ginnie Mae II Hedged, JPY

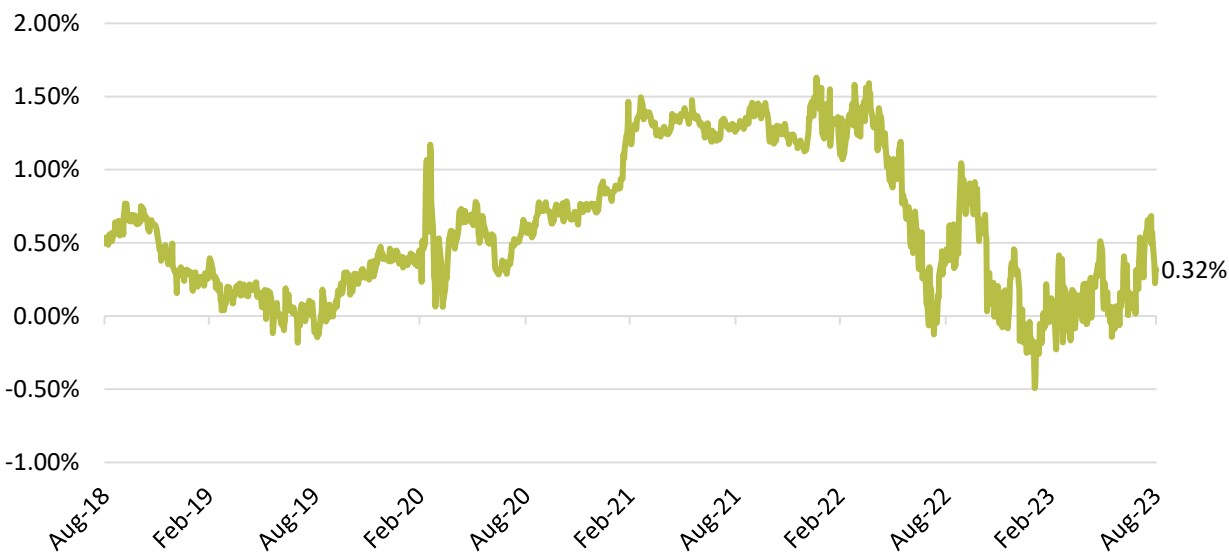


Figure 10. Ginnie Mae II Hedged, EUR



Source: Bloomberg. Notes: Data as of August 2023. The Ginnie Mae II Hedged Yields are calculated by taking the Ginnie Mae II Yield and subtracting the 1yr hedge cost for JPY and EUR.

3.3 Ginnie Mae Yield Spreads – Intermediate Credit

The GNMA II 30-year OAS increased 5 bps MoM as of month-end August. The US Intermediate credit OAS increased 8 bps MoM as of month-end August. The yield differential between US Intermediate Credit and GNMA II 30-year OAS increased by 3 bps to 0.49% at month-end August.

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

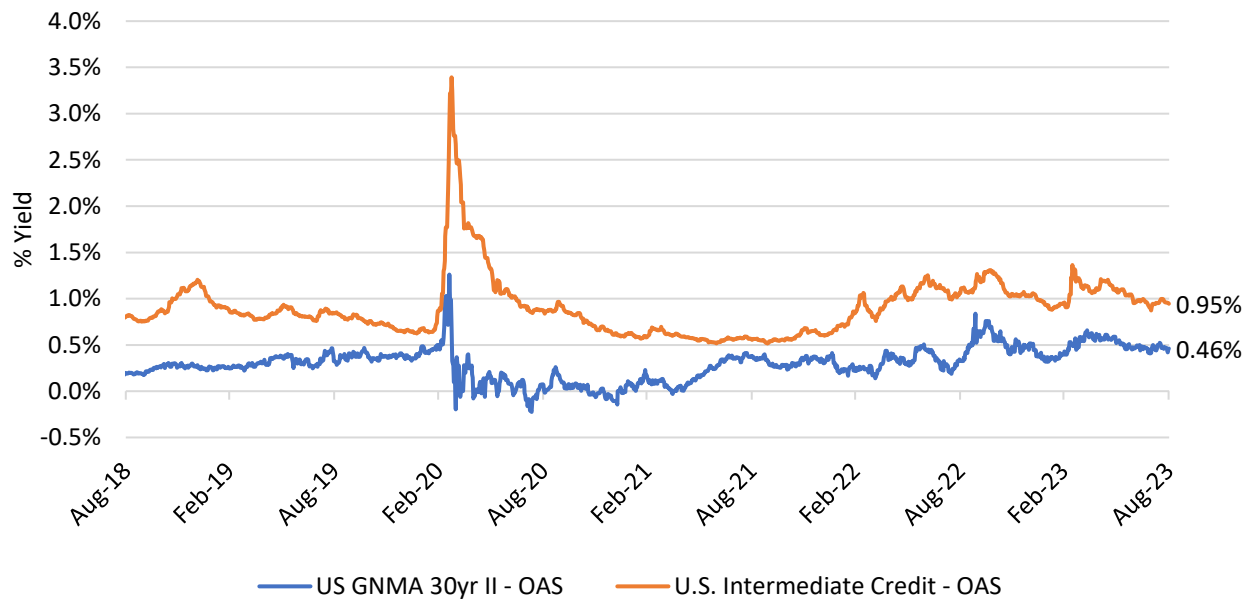
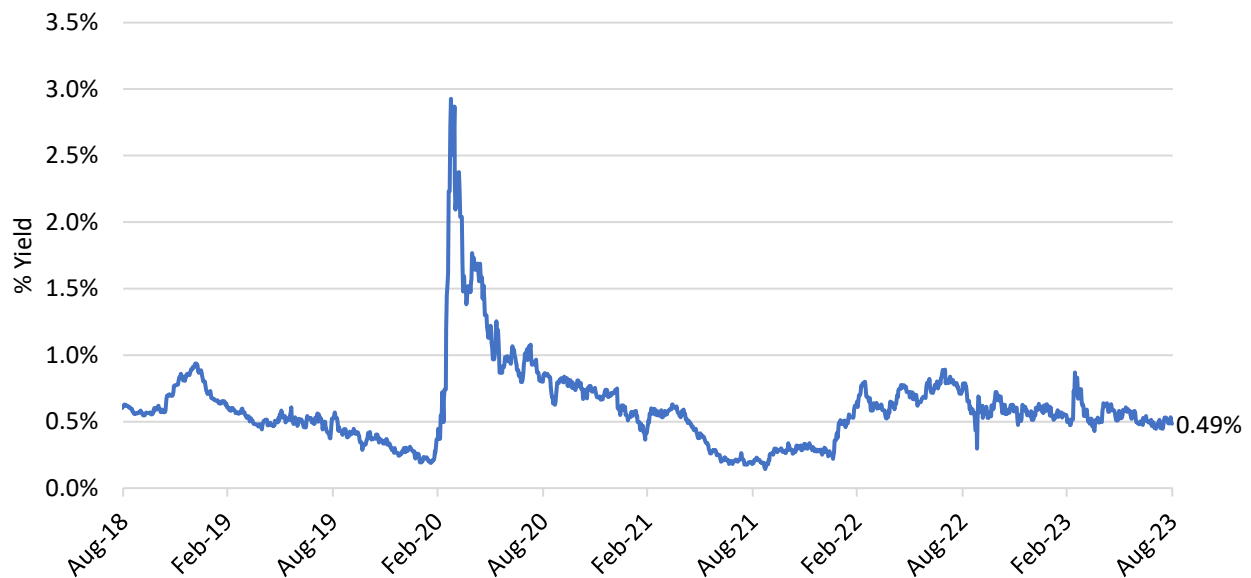


Figure 12. Spread between US Intermediate Credit and US GNMA II 30yr MBS OAS

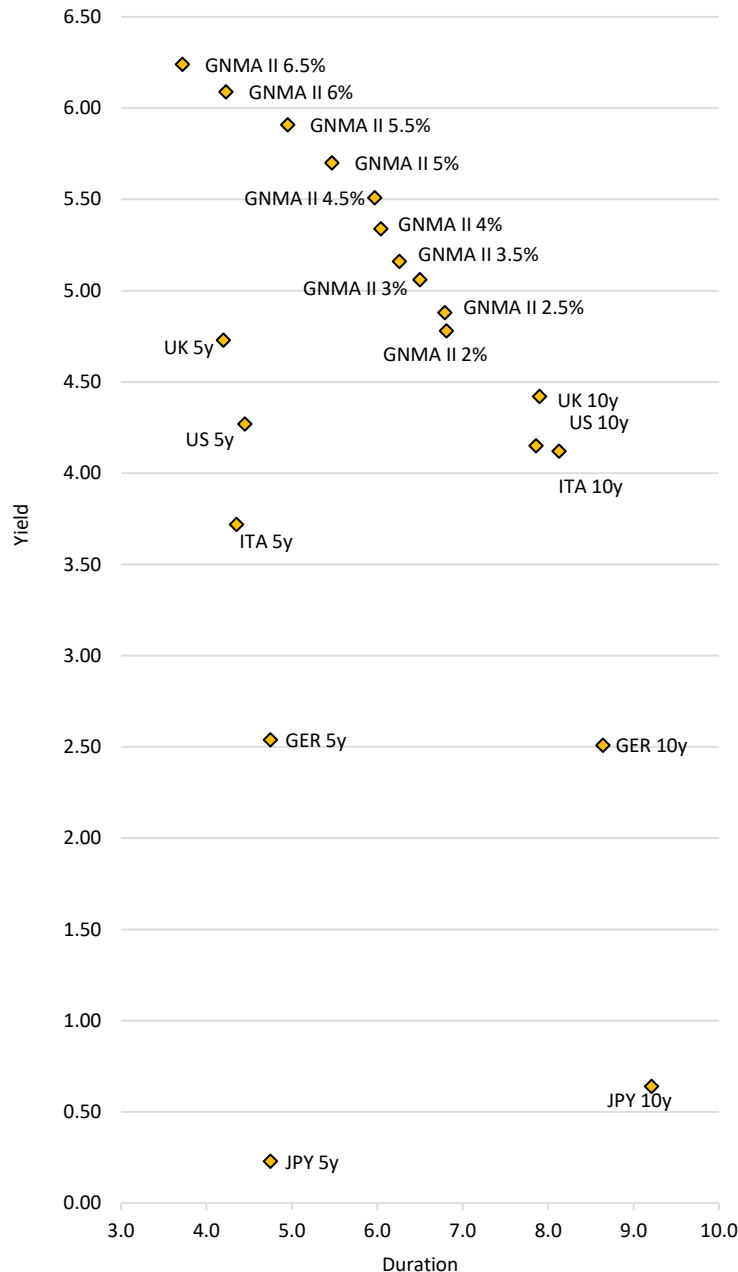


Source: Bloomberg. Note: Data as of August 2023.

3.4 Global Treasury Yield Per Duration

GNMA MBS continued 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 13. Yield vs. Duration



| Security | Duration | Yield |
|--------------|----------|-------|
| US 5y | 4.45 | 4.27 |
| US 10y | 8.13 | 4.12 |
| JPY 5y | 4.75 | 0.23 |
| JPY 10y | 9.21 | 0.64 |
| GER 5y | 4.75 | 2.54 |
| GER 10y | 8.64 | 2.51 |
| ITA 5y | 4.35 | 3.72 |
| ITA 10y | 7.86 | 4.15 |
| UK 5y | 4.20 | 4.73 |
| UK 10y | 7.90 | 4.42 |
| GNMA II 2% | 6.81 | 4.78 |
| GNMA II 2.5% | 6.79 | 4.88 |
| GNMA II 3% | 6.50 | 5.06 |
| GNMA II 3.5% | 6.26 | 5.16 |
| GNMA II 4% | 6.04 | 5.34 |
| GNMA II 4.5% | 5.97 | 5.51 |
| GNMA II 5% | 5.47 | 5.70 |
| GNMA II 5.5% | 4.95 | 5.91 |
| GNMA II 6% | 4.23 | 6.09 |
| GNMA II 6.5% | 3.72 | 6.24 |

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 2023. Yields are in base currency of security and unhedged.

4 PREPAYMENTS

4.1 Aggregate Prepayments (CPR)

Ginnie Mae fixed rate aggregate prepayment speeds increased in August 2023 by 6.2% MoM. Likewise, Fannie Mae and Freddie Mac CPRs increased 6.6% and 8.6%, respectively. ARM prepayments increased for Freddie Mac and Fannie Mae but decreased for Ginnie Mae MoM.

Figure 14. Fixed Rate Aggregate 1-Month CPR

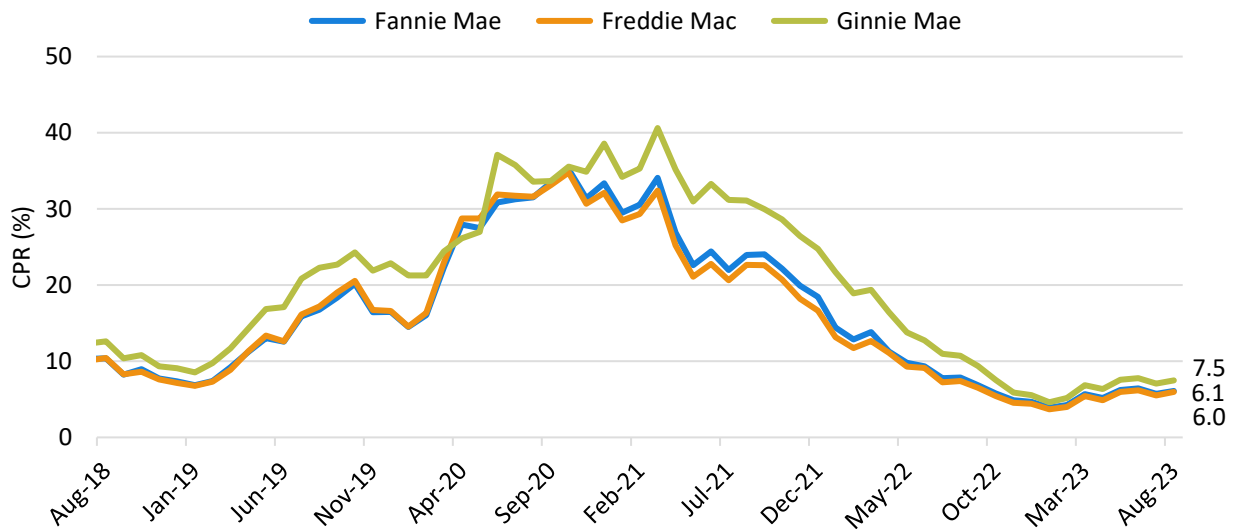
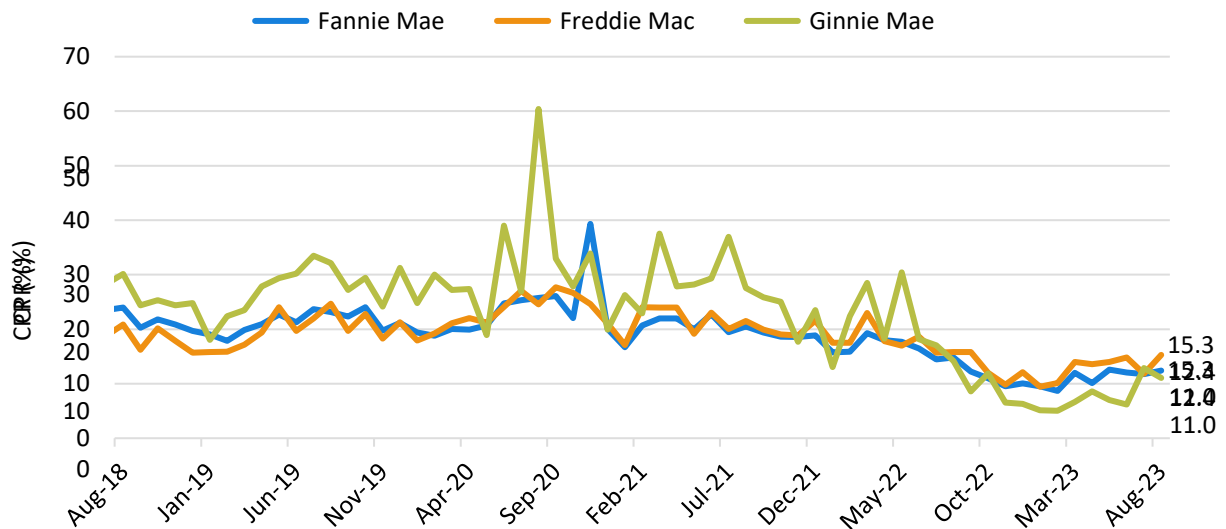


Figure 15. ARM Aggregate 1-Month CPR



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

4.2 Involuntary Prepayments (CDR)

Fixed rate involuntary prepayments (CDR) remained 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 peak of 12.4 CDR in June 2020. ARM CDRs for Freddie Mac continued to remain below Ginnie Mae as of month-end August 2023 after slightly overtaking Ginnie Mae in September 2022.

Figure 16. Fixed Rate Aggregate CDR

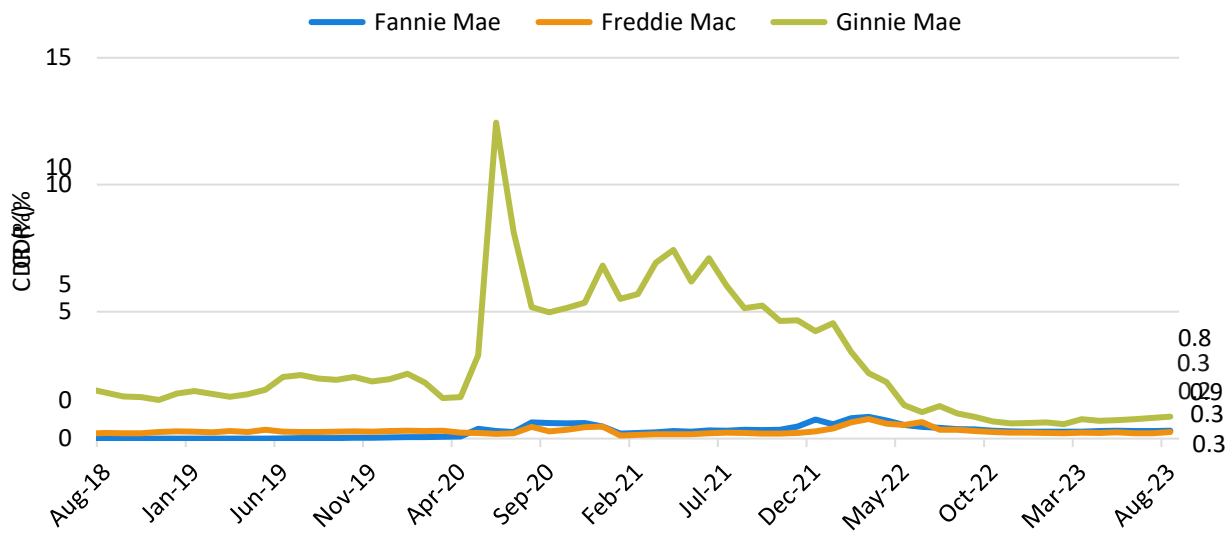
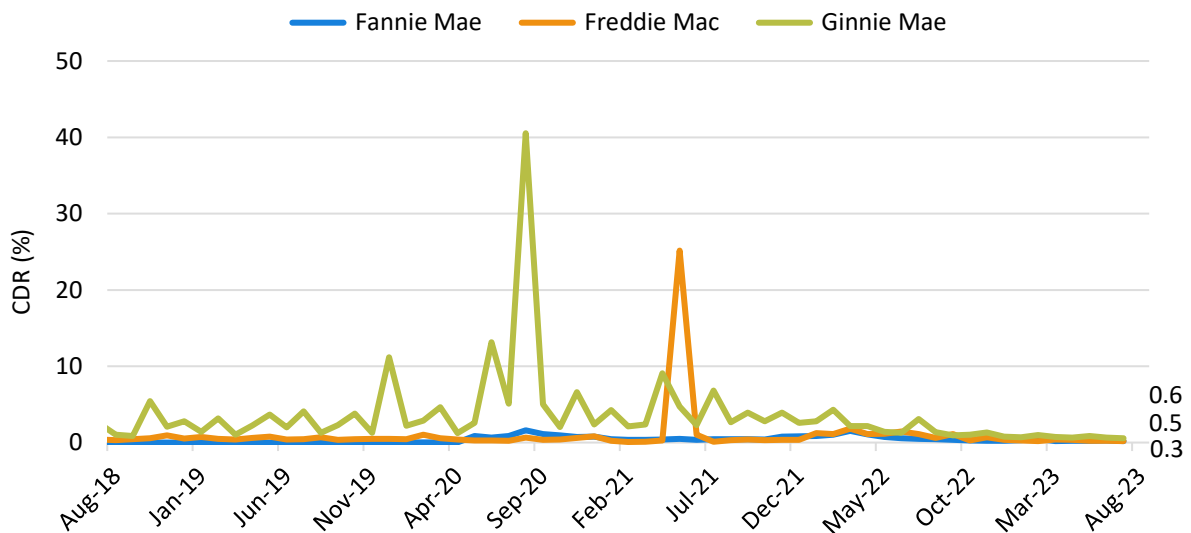


Figure 17. ARM Aggregate CDR



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

4.3 Voluntary Prepayment Rates (CRR)

Fixed rate voluntary prepayments (CRR) continue to remain higher for Ginnie Mae relative to the GSEs. Fannie Mae and Freddie Mac saw increases of 6.6% MoM and 8.1% MoM in fixed rate aggregate CRR, respectively. Freddie Mac saw a 29.1% MoM increase and Fannie Mae saw a 3.1% MoM increase in ARM aggregate CRR. Ginnie Mae increased 6.2% MoM in fixed rate aggregate CRR and decreased 14.8% MoM in ARM aggregate CRR.

Figure 18. Fixed Rate Aggregate CRR

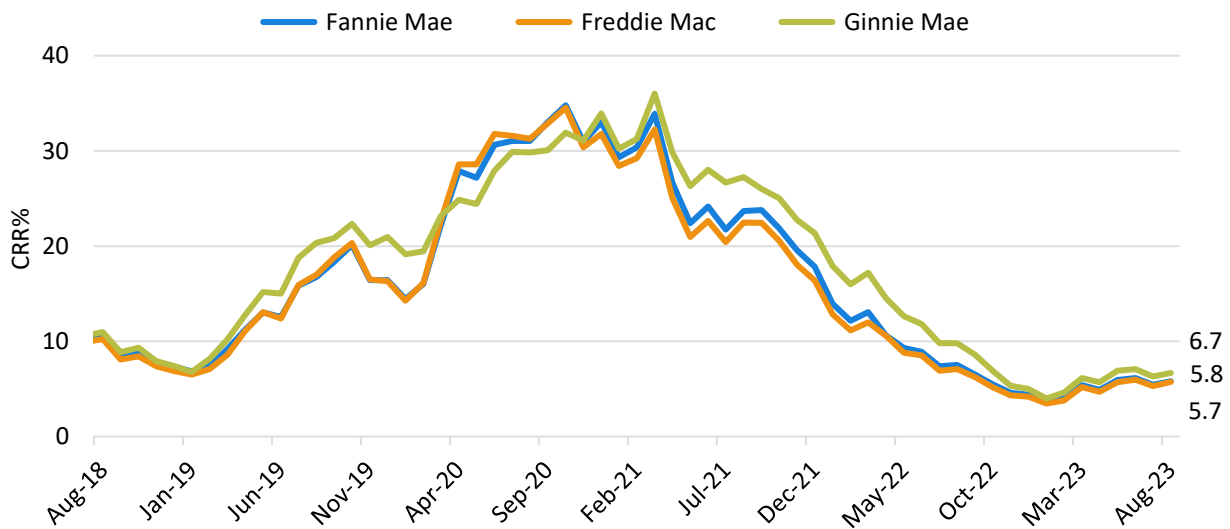
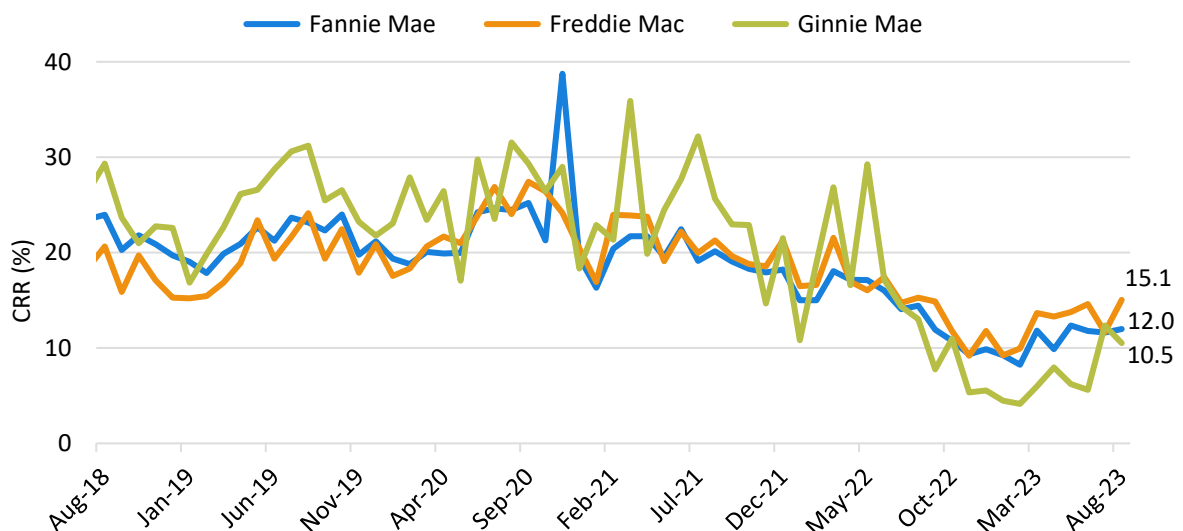


Figure 19. ARM Aggregate CRR



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

5 SINGLE-FAMILY MBS PASS-THROUGH ISSUANCE

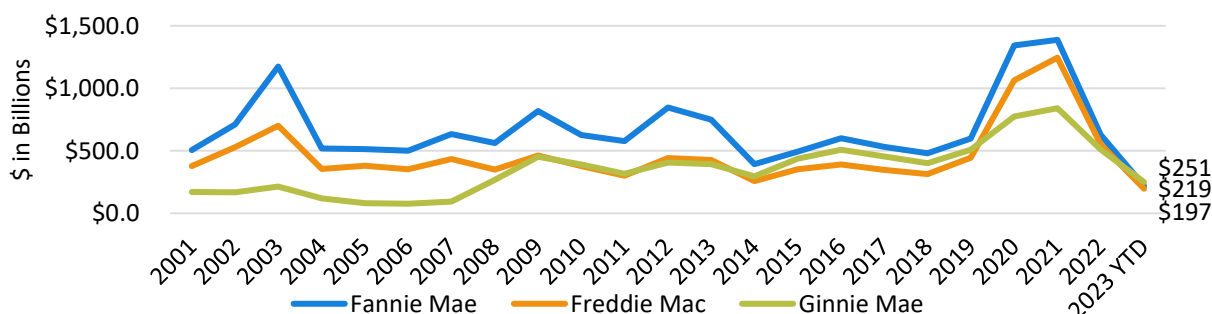
5.1 Gross Issuance of Agency MBS

Agency gross MBS issuance decreased by 4% MoM. Fannie Mae saw a 12% MoM decrease and Ginnie Mae saw a 1% MoM increase in gross issuance. Freddie Mac gross issuance remained relatively the same compared to July 2023 as seen in [Section 5.3](#).

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 | \$628.3 | \$551.6 | \$1,179.9 | \$512.3 | \$1,692.2 |
| 2023 YTD | \$219.3 | \$196.7 | \$416.0 | \$250.6 | \$666.6 |

Figure 20. Agency Gross Issuance

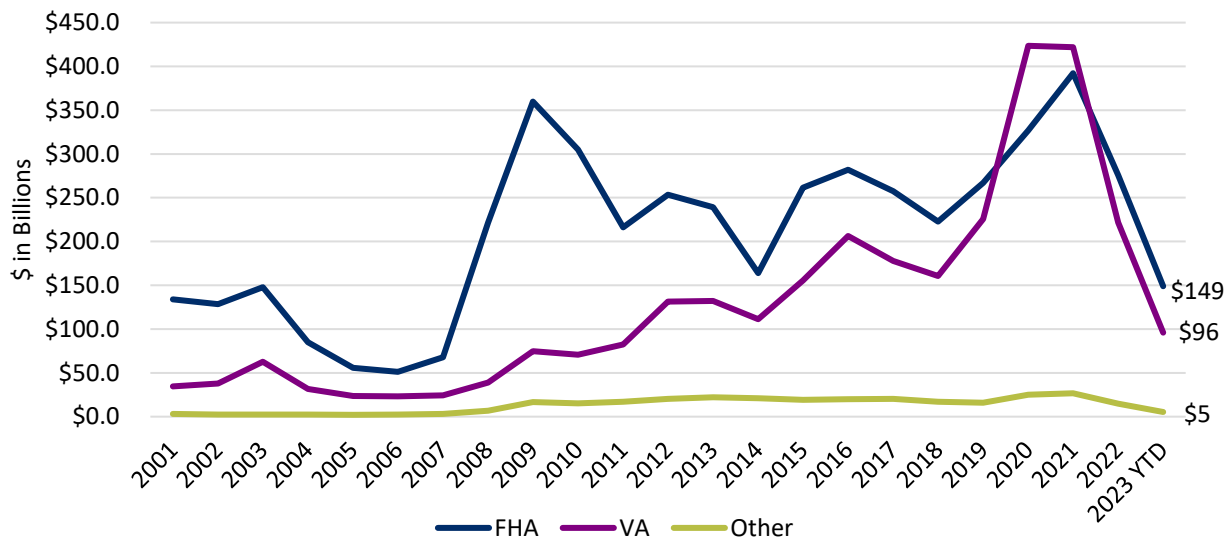


Source: Recursion. Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

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

| Issuance Year | FHA | VA | Other | Total |
|---------------|---------|---------|--------|---------|
| 2001 | \$133.8 | \$34.7 | \$3.1 | \$171.5 |
| 2002 | \$128.6 | \$37.9 | \$2.5 | \$169.0 |
| 2003 | \$147.9 | \$62.7 | \$2.5 | \$213.1 |
| 2004 | \$85.0 | \$31.8 | \$2.5 | \$119.2 |
| 2005 | \$55.7 | \$23.5 | \$2.1 | \$81.4 |
| 2006 | \$51.2 | \$23.2 | \$2.3 | \$76.7 |
| 2007 | \$67.7 | \$24.2 | \$3.0 | \$94.9 |
| 2008 | \$221.7 | \$39.0 | \$6.9 | \$267.6 |
| 2009 | \$359.9 | \$74.6 | \$16.8 | \$451.3 |
| 2010 | \$304.9 | \$70.6 | \$15.3 | \$390.7 |
| 2011 | \$216.1 | \$82.3 | \$16.9 | \$315.3 |
| 2012 | \$253.4 | \$131.3 | \$20.3 | \$405.0 |
| 2013 | \$239.2 | \$132.2 | \$22.2 | \$393.6 |
| 2014 | \$163.9 | \$111.4 | \$21.0 | \$296.3 |
| 2015 | \$261.5 | \$155.6 | \$19.2 | \$436.3 |
| 2016 | \$281.8 | \$206.5 | \$19.9 | \$508.2 |
| 2017 | \$257.6 | \$177.8 | \$20.2 | \$455.6 |
| 2018 | \$222.6 | \$160.8 | \$17.2 | \$400.6 |
| 2019 | \$266.9 | \$225.7 | \$16.0 | \$508.6 |
| 2020 | \$327.0 | \$423.5 | \$24.9 | \$775.4 |
| 2021 | \$392.2 | \$422.1 | \$26.7 | \$840.9 |
| 2022 | \$275.8 | \$221.7 | \$14.8 | \$512.3 |
| 2023 YTD | \$148.9 | \$96.1 | \$5.4 | \$250.4 |

Figure 21. Ginnie Mae Gross Issuance



Source: Recursion. 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.

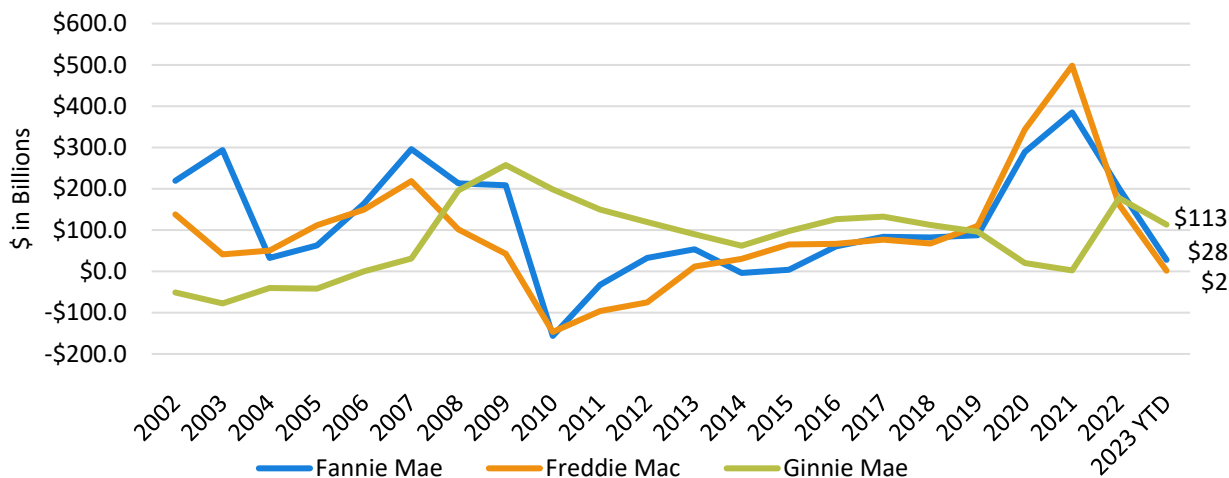
5.2 Net Issuance of Agency MBS

Agency Net Issuance as of month-end August was \$143.1 billion for 2023 YTD as shown in **Table 3**. Since 2022, FHA net issuance has outpaced VA net issuance, 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 |
|---------------|------------|-------------|----------|------------|----------|
| 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 | \$28.2 | \$1.8 | \$30.0 | \$113.0 | \$143.1 |

Figure 22. Agency Net Issuance

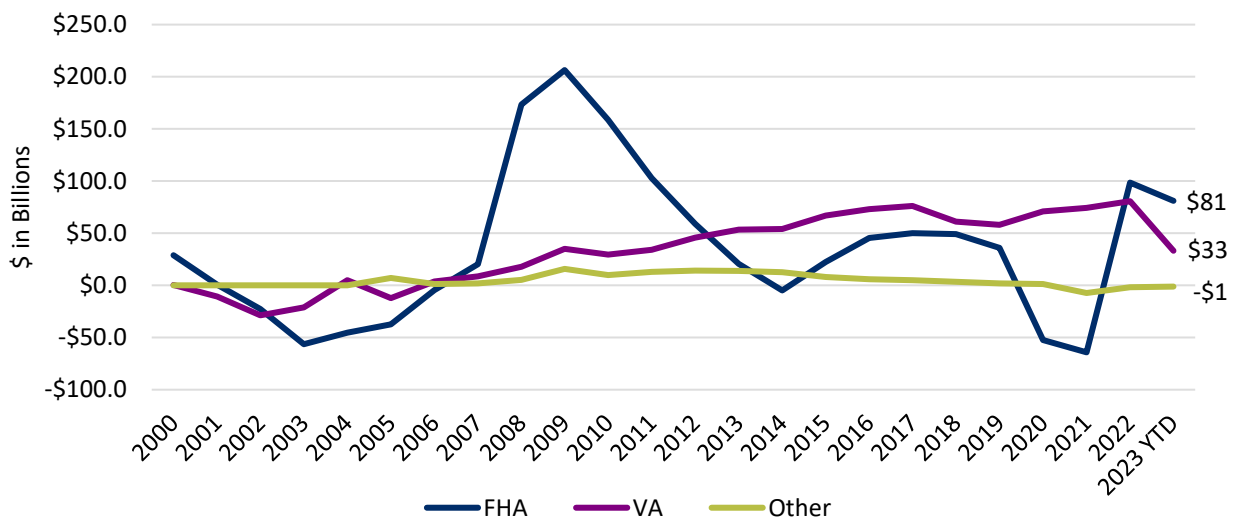


Source: Recursion. Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

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

| Issuance Year | FHA | VA | Other | Total |
|---------------|---------|---------|--------|---------|
| 2000 | \$29.0 | \$0.3 | \$0.0 | \$29.3 |
| 2001 | \$0.7 | -\$10.6 | \$0.0 | -\$9.9 |
| 2002 | -\$22.5 | -\$28.7 | \$0.0 | -\$51.2 |
| 2003 | -\$56.5 | -\$21.1 | \$0.0 | -\$77.6 |
| 2004 | -\$45.2 | \$5.1 | \$0.0 | -\$40.1 |
| 2005 | -\$37.3 | -\$12.1 | \$7.2 | -\$42.2 |
| 2006 | -\$4.7 | \$3.8 | \$1.2 | \$0.2 |
| 2007 | \$20.2 | \$8.7 | \$2.0 | \$30.9 |
| 2008 | \$173.3 | \$17.7 | \$5.4 | \$196.4 |
| 2009 | \$206.4 | \$35.1 | \$15.8 | \$257.4 |
| 2010 | \$158.6 | \$29.6 | \$10.0 | \$198.3 |
| 2011 | \$102.8 | \$34.0 | \$12.8 | \$149.6 |
| 2012 | \$58.9 | \$45.9 | \$14.3 | \$119.1 |
| 2013 | \$20.7 | \$53.3 | \$13.9 | \$87.9 |
| 2014 | -\$4.8 | \$53.9 | \$12.5 | \$61.6 |
| 2015 | \$22.5 | \$66.9 | \$7.9 | \$97.3 |
| 2016 | \$45.6 | \$73.2 | \$6.0 | \$124.9 |
| 2017 | \$50.1 | \$76.1 | \$5.0 | \$131.2 |
| 2018 | \$49.2 | \$61.2 | \$3.5 | \$113.9 |
| 2019 | \$35.9 | \$58.0 | \$1.9 | \$95.7 |
| 2020 | -\$52.5 | \$71.0 | \$1.3 | \$19.9 |
| 2021 | -\$64.2 | \$74.2 | -\$7.3 | \$2.7 |
| 2022 | \$98.5 | \$80.7 | -\$1.7 | \$177.4 |
| 2023 YTD | \$80.9 | \$33.3 | -\$1.2 | \$113.0 |

Figure 23. Ginnie Mae Net Issuance



Source: Recursion. 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

Agency net issuance as of month-end August was approximately \$20.5 billion, which represents a 25.5% MoM decrease. Ginnie Mae net issuance was \$17.2 billion as of month-end August, a 4.5% decrease from July 2023. Ginnie Mae's \$36.5 billion in gross issuance as of month-end August, seen in **Table 5**, was approximately 14.5% below the average monthly issuance for 2022.

Table 5. Agency Issuance (\$ 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 |
| 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 | \$3.4 | \$5.3 | \$14.1 | \$8.7 | \$22.8 |
| Feb-23 | \$18.9 | \$16.5 | \$22.7 | \$35.4 | \$58.1 | -\$4.4 | -\$1.4 | \$8.6 | -\$5.8 | \$2.8 |
| Mar-23 | \$23.6 | \$19.2 | \$26.2 | \$42.8 | \$69.0 | -\$4.4 | -\$2.4 | \$8.7 | -\$6.8 | \$1.9 |
| Apr-23 | \$27.7 | \$21.0 | \$31.6 | \$48.7 | \$80.3 | \$1.4 | \$0.6 | \$15.0 | \$2.0 | \$17.0 |
| May-23 | \$30.4 | \$29.0 | \$32.6 | \$59.4 | \$92.0 | \$0.6 | \$6.0 | \$13.5 | \$6.6 | \$20.1 |
| Jun-23 | \$33.5 | \$32.9 | \$37.5 | \$66.4 | \$103.9 | \$3.1 | \$9.3 | \$17.8 | \$12.4 | \$30.2 |
| Jul-23 | \$31.7 | \$27.9 | \$36.3 | \$59.6 | \$95.9 | \$3.6 | \$5.9 | \$18.0 | \$9.5 | \$27.5 |
| Aug-23 | \$27.8 | \$27.9 | \$36.5 | \$55.7 | \$92.2 | -\$1.5 | \$4.8 | \$17.2 | \$3.3 | \$20.5 |

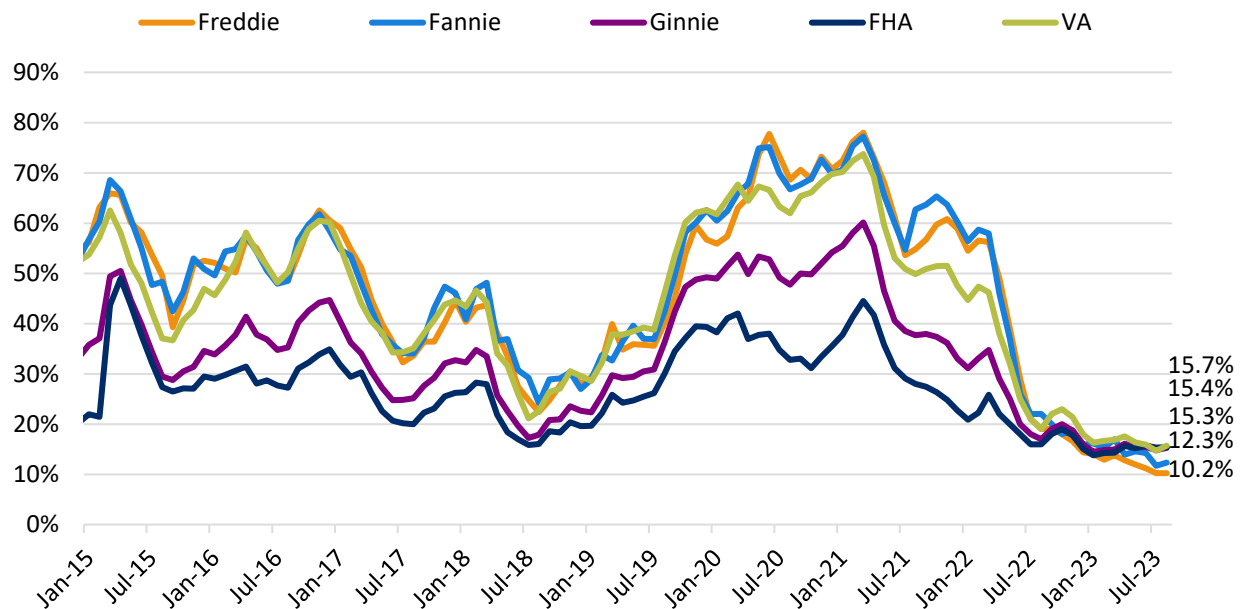
Sources: Beginning May 2021, data for Gross and Net Issuance was sourced from Fannie Mae, Freddie Mac, and Ginnie Mae loan level disclosure files. Net issuance is defined here as the difference between prior period UPB and current period UPB. Data as of August 2023. Beginning with the October 2021 GMAR, the Fannie Mae and Freddie Mac net issuance data have been updated to reflect the current UPB of the portfolios. July 2021 through August 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 increased by approximately 2.8% MoM for Ginnie Mae as of month-end August 2023. VA's refinance volume increased approximately 7.2% MoM. FHA's refinance share increased by approximately 0.3%. In the conventional conforming mortgage market space, Fannie Mae saw an increase of 5.5% MoM and Freddie Mac saw a decrease of 0.3% MoM.

- Freddie Mac's refinance percentage decreased to 10.2% in August, down from 10.3% in July.
- Fannie Mae's refinance percentage increased to 12.3% in August, up from 11.7% in July.
- Ginnie Mae's refinance percentage increased to 15.3% in August, up from 14.8% in July.
- FHA's refinance percentage increased to 15.4% in August, up from 15.3% in July.
- VA's refinance percentage increased to 15.7% in August, up from 14.7% in July.

Figure 24. Percent Refinance at Issuance – Single-Family



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

6 AGENCY SINGLE-FAMILY MBS OUTSTANDING

6.1 Outstanding Single-Family Agency MBS

As of month-end August 2023, outstanding single-family MBS in the agency market totaled \$8.746 trillion: 40.9% Fannie Mae, 33.4% Freddie Mac, and 25.7% Ginnie Mae MBS. Over the past twelve months, Fannie Mae's, Freddie Mac's, and Ginnie Mae's total outstanding MBS increased by approximately 0.4%, 2.0%, and 8.8%, respectively. Fannie Mae outstanding MBS remains larger than Freddie Mac's and Ginnie Mae's by approximately \$652 billion and \$1.3 trillion, respectively.

Ginnie Mae MBS collateral composition has changed dramatically over the past five years. In August 2018, 60.0% of Ginnie Mae outstanding collateral was FHA and 33.9% was VA. As of month-end August 2023, FHA collateral comprised 53.8% of Ginnie Mae MBS outstanding, and VA collateral comprised 41.6% of Ginnie Mae MBS outstanding.

Figure 25. Outstanding Agency Mortgage-Backed Securities

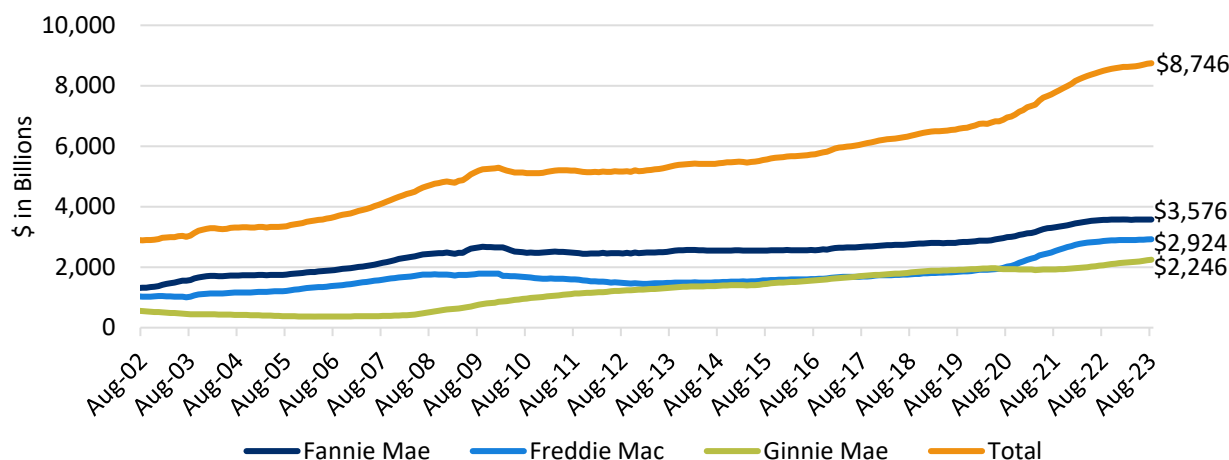
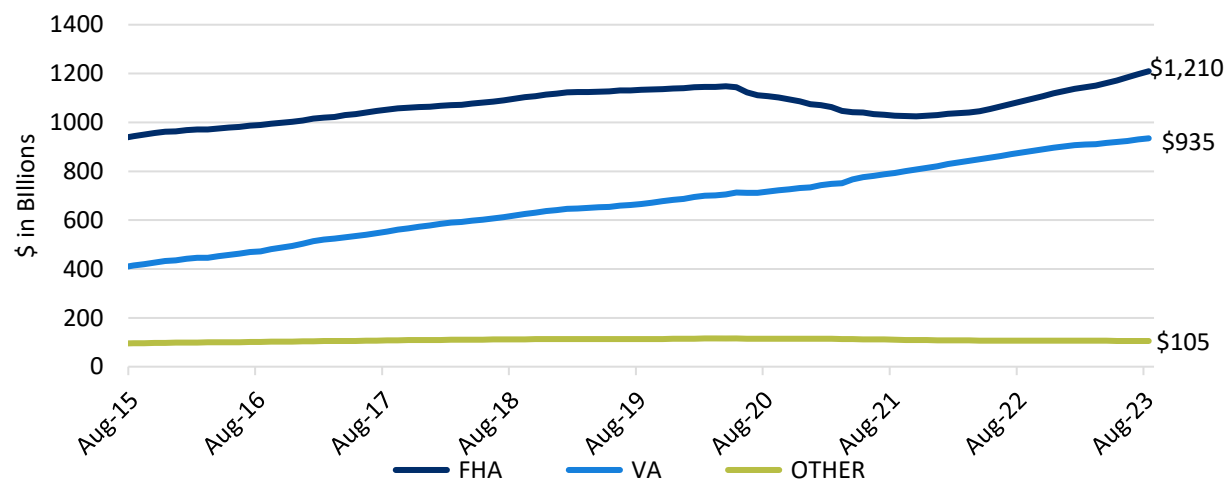


Figure 26. Composition of Outstanding Ginnie Mae Mortgage-Backed Securities



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

6.2 Origination Volume and Share Over Time

First lien origination volume increased in Q2 2023, with approximately \$400 billion in originations, which represents an approximate rise in issuance of 38% from Q1 2023. Ginnie Mae's share of total origination increased from 22.3% to 22.8% in Q2 2023, while portfolio origination increased from 31.1% to 32.1%.

Figure 27. First Lien Origination Volume

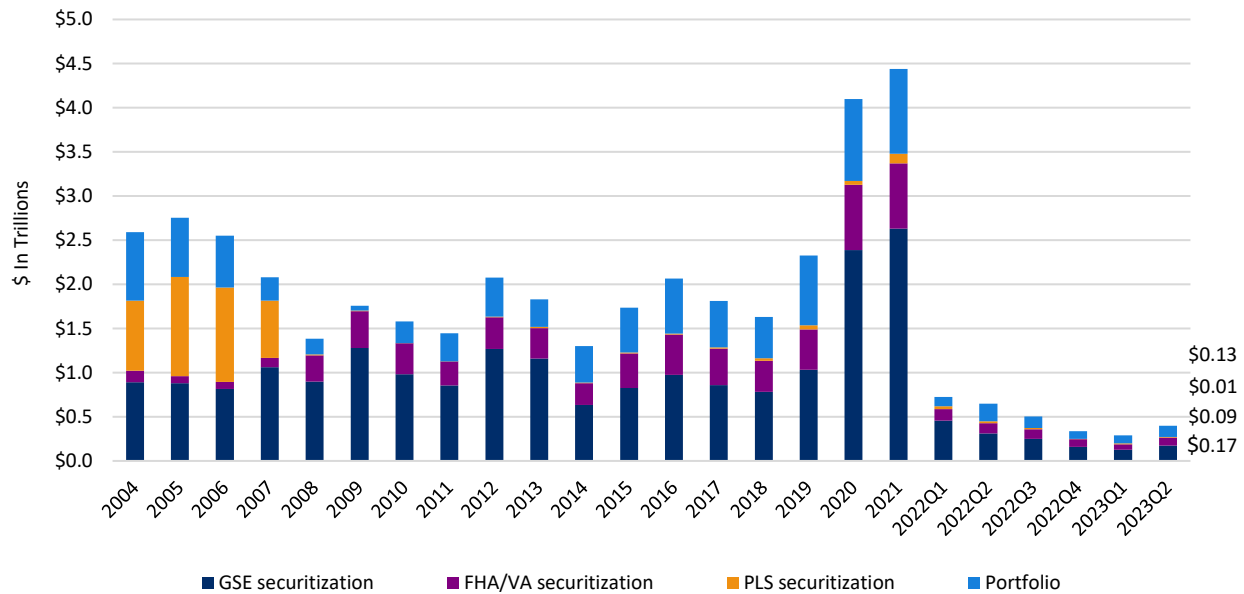
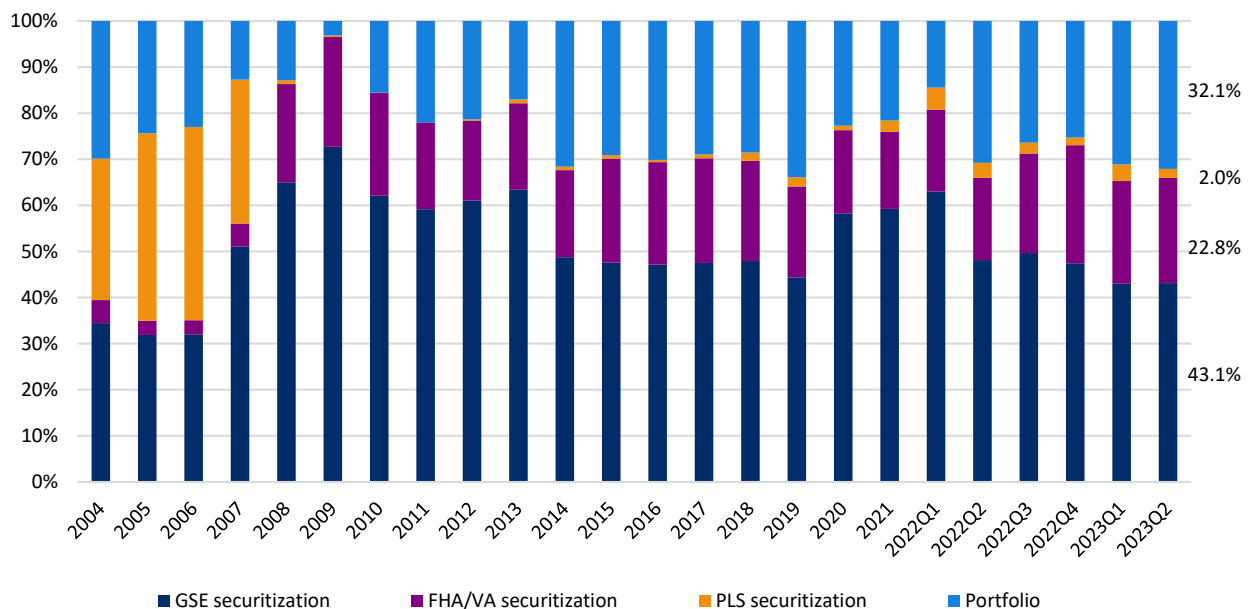


Figure 28. First Lien Origination Share



Source: Inside Mortgage Finance. Note: Data as of Q2 2023.

6.3 Agency Issuance and Agency Outstanding by State

Ginnie Mae MBS represent approximately 36% of new agency issuance over the past year, roughly 10% higher than Ginnie Mae's 26% share of agency outstanding. The share of Ginnie Mae's new agency issuance varies across states, with the highest Ginnie Mae share being in Alaska (58%) and the lowest in the District of Columbia (23%). The highest Ginnie Mae outstanding share is in Mississippi (49%) and the lowest in the District of Columbia (14%).

Table 6. Agency Issuance Breakdown by State

| National | Agency Issuance (past 1 year) | | | | Agency Outstanding (past 1 year) | | | |
|----------|-------------------------------|-----------------|---------------------------|--------------------------|----------------------------------|-----------------|---------------------------|--------------------------|
| | GNMA Share by UPB | 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) |
| | 36% | 1,775,601 | 292.97 | 300.11 | 26% | 10,976,069 | 208.40 | 211.41 |
| AK | 58% | 5,557 | 349.11 | 310.51 | 48% | 37,589 | 263.36 | 220.31 |
| AL | 50% | 42,361 | 232.49 | 246.07 | 41% | 242,887 | 161.03 | 178.44 |
| AR | 46% | 21,897 | 199.33 | 230.59 | 39% | 139,136 | 135.38 | 161.97 |
| AZ | 36% | 52,246 | 332.12 | 337.45 | 25% | 284,148 | 226.84 | 227.94 |
| CA | 32% | 105,307 | 460.73 | 457.26 | 17% | 701,688 | 332.69 | 319.78 |
| CO | 34% | 38,253 | 415.02 | 405.89 | 24% | 218,399 | 298.52 | 279.23 |
| CT | 33% | 15,157 | 275.67 | 287.12 | 26% | 107,685 | 203.83 | 208.97 |
| DC | 23% | 1,285 | 514.72 | 427.63 | 14% | 9,167 | 388.48 | 348.36 |
| DE | 37% | 8,066 | 280.24 | 307.77 | 31% | 53,117 | 206.78 | 212.23 |
| FL | 39% | 165,051 | 313.70 | 311.29 | 32% | 879,469 | 219.04 | 214.60 |
| GA | 43% | 95,058 | 271.90 | 304.03 | 34% | 511,199 | 185.90 | 209.10 |
| HI | 47% | 4,450 | 630.22 | 511.21 | 32% | 34,022 | 472.24 | 357.39 |
| IA | 33% | 13,212 | 189.59 | 201.74 | 23% | 83,981 | 136.53 | 148.39 |
| ID | 32% | 10,118 | 340.11 | 331.72 | 24% | 64,887 | 224.64 | 224.56 |
| IL | 30% | 57,574 | 216.73 | 250.68 | 22% | 374,627 | 161.85 | 179.41 |
| IN | 37% | 47,559 | 200.29 | 220.68 | 31% | 284,537 | 137.46 | 152.10 |
| KS | 37% | 15,382 | 202.85 | 230.02 | 29% | 97,462 | 142.80 | 164.41 |
| KY | 45% | 28,390 | 206.01 | 221.89 | 35% | 168,541 | 146.64 | 156.41 |
| LA | 50% | 32,904 | 210.37 | 241.16 | 41% | 206,183 | 159.50 | 177.44 |
| MA | 29% | 17,311 | 391.06 | 383.67 | 16% | 116,108 | 288.34 | 267.90 |
| MD | 44% | 42,816 | 348.77 | 339.19 | 34% | 297,505 | 267.31 | 249.37 |
| ME | 35% | 5,917 | 257.94 | 281.16 | 26% | 38,430 | 180.60 | 192.39 |
| MI | 28% | 43,606 | 193.74 | 221.24 | 21% | 280,114 | 136.04 | 157.00 |
| MN | 23% | 21,323 | 258.81 | 285.40 | 18% | 160,735 | 184.51 | 198.70 |
| MO | 38% | 39,877 | 206.70 | 227.93 | 29% | 248,141 | 144.99 | 162.69 |
| MS | 57% | 20,677 | 210.00 | 223.96 | 49% | 125,089 | 146.80 | 161.64 |
| MT | 32% | 4,678 | 324.33 | 324.19 | 24% | 32,600 | 213.34 | 217.62 |
| NC | 37% | 74,980 | 266.88 | 299.34 | 29% | 423,538 | 181.36 | 204.08 |
| ND | 36% | 2,618 | 250.78 | 242.91 | 25% | 17,193 | 194.72 | 183.39 |
| NE | 35% | 9,694 | 231.71 | 231.99 | 27% | 65,516 | 152.72 | 161.54 |
| NH | 30% | 5,494 | 329.50 | 321.29 | 23% | 38,664 | 229.71 | 215.70 |
| NJ | 30% | 35,510 | 332.61 | 348.83 | 22% | 236,121 | 243.95 | 254.49 |
| NM | 46% | 14,800 | 252.33 | 264.29 | 38% | 96,875 | 170.44 | 179.37 |
| NV | 40% | 23,543 | 356.74 | 344.56 | 31% | 137,311 | 253.98 | 237.29 |
| NY | 27% | 39,036 | 303.45 | 342.31 | 20% | 311,046 | 212.38 | 248.54 |
| OH | 36% | 66,196 | 192.68 | 208.57 | 29% | 430,433 | 132.81 | 149.78 |
| OK | 46% | 29,141 | 210.86 | 231.44 | 42% | 191,789 | 144.32 | 163.63 |
| OR | 27% | 16,578 | 364.59 | 373.39 | 20% | 112,597 | 258.28 | 254.36 |
| PA | 30% | 52,993 | 209.20 | 255.00 | 26% | 394,122 | 150.57 | 182.45 |
| RI | 44% | 5,680 | 344.37 | 313.62 | 31% | 36,461 | 238.53 | 213.05 |
| SC | 43% | 46,537 | 264.72 | 271.25 | 35% | 242,307 | 188.33 | 193.78 |
| SD | 39% | 4,604 | 253.32 | 252.72 | 30% | 29,474 | 176.16 | 177.69 |
| TN | 39% | 49,433 | 271.62 | 292.67 | 32% | 275,239 | 181.68 | 206.54 |
| TX | 36% | 186,574 | 283.90 | 316.47 | 32% | 1,128,273 | 188.72 | 215.85 |
| UT | 29% | 16,654 | 395.15 | 398.31 | 19% | 98,252 | 268.88 | 265.57 |
| VA | 48% | 70,265 | 340.72 | 334.10 | 37% | 453,202 | 259.88 | 250.24 |
| VI | 27% | 113 | 388.66 | 437.65 | 24% | 803 | 258.88 | 305.88 |
| VT | 25% | 1,684 | 250.09 | 273.44 | 19% | 12,258 | 182.47 | 180.93 |
| WA | 31% | 34,813 | 413.04 | 420.87 | 22% | 235,474 | 289.92 | 290.67 |
| WI | 27% | 18,916 | 219.44 | 235.53 | 17% | 125,428 | 158.77 | 163.05 |
| WV | 53% | 9,843 | 200.05 | 197.23 | 44% | 61,043 | 146.04 | 145.22 |
| WY | 42% | 3,870 | 275.60 | 276.62 | 35% | 25,204 | 208.04 | 201.95 |

Source: Recursion. Note: Outstanding balance is based on loan balance as of August 2023. Ginnie Mae issuance is based on the last 12 months, from July 2022 to August 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 month-end August 2023, the weighted average coupon (WAC) on outstanding Ginnie Mae MBS increased slightly from 3.32% in July 2023 to 3.36% as seen in **Figure 29**. **Figure 30** illustrates that loans originated since 2019 account for approximately 80% of Ginnie Mae MBS collateral outstanding.

Figure 29. Outstanding Ginnie Mae MBS Balance, by Coupon

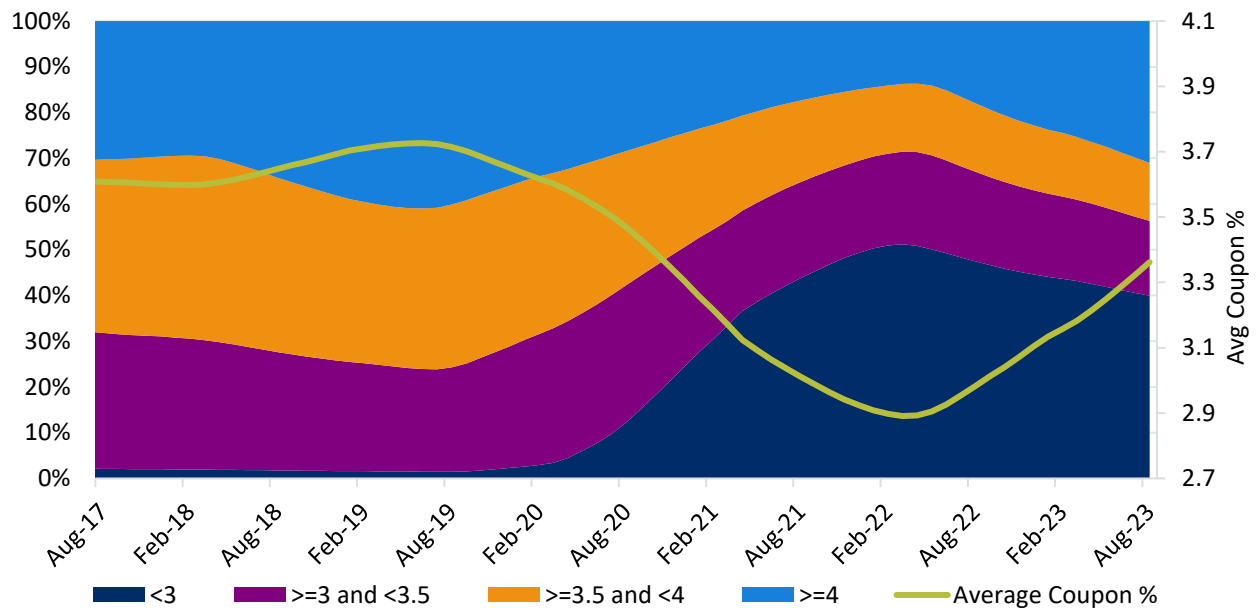
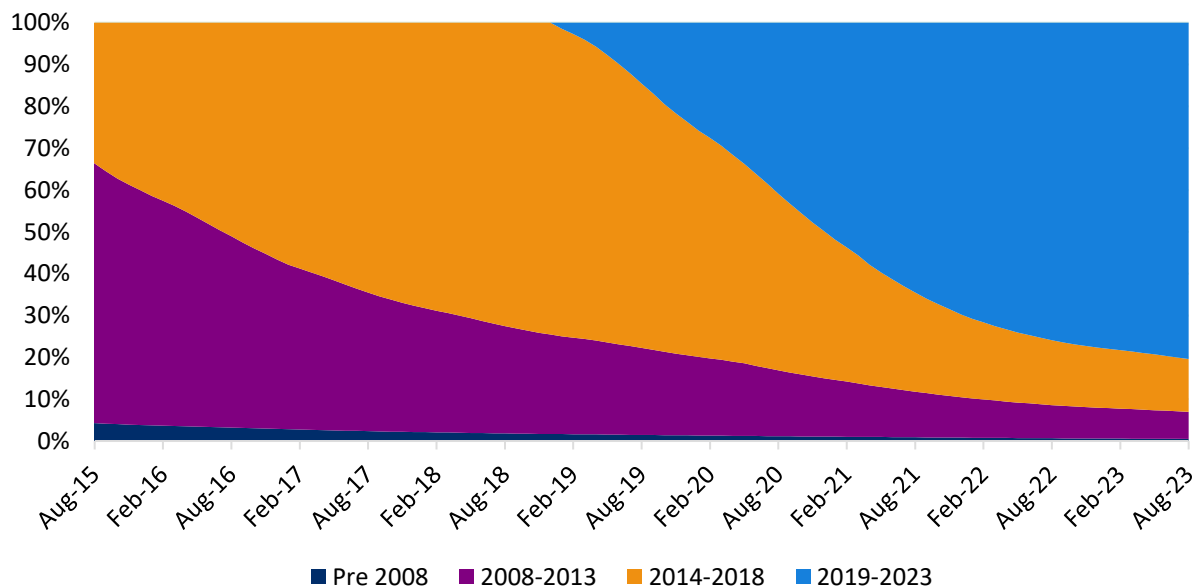


Figure 30. Outstanding Ginnie Mae MBS Balance, by Vintage



Source: Recursion. Note: August 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

As of month-end August 2023, \$10.8 billion of Ginnie Mae MBS were securitized into Real Estate Mortgage Investment Conduits (REMICs) as underlying collateral. This represents an 81.4% increase YoY from \$6.0 billion in August 2022, and a 119.5% MoM increase from \$4.9 billion in July 2023. Of that, approximately \$482.9 million were multifamily MBS having coupons over 4.01%. \$9.5 billion were single-family MBS having coupons over 5.01%.

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

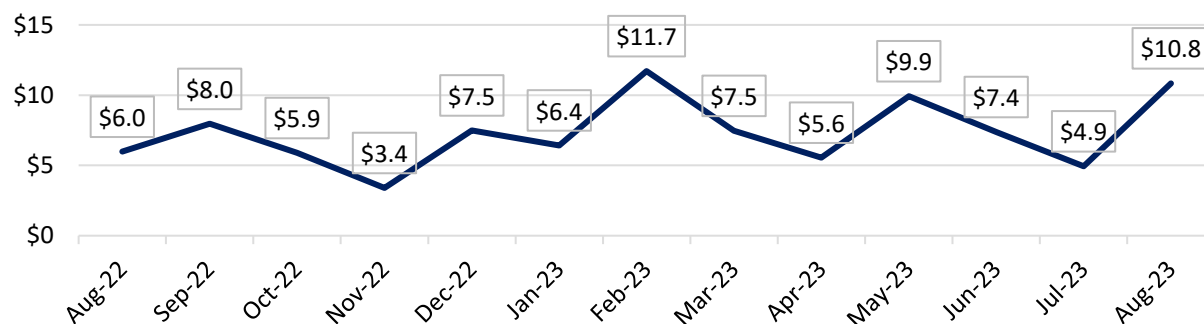


Table 7. August 2023 REMIC Collateral Coupon Distribution

| Net Coupon (%) | Approx. Ginnie Mae MBS amount securitized into REMIC Deals (\$MM) ¹ | % Breakdown of REMIC Collateral by coupon |
|----------------------|--|---|
| Multifamily | | |
| <2.01 | 0.0 | 0.0% |
| 2.01-3.00 | 0.0 | 0.0% |
| 3.01-4.00 | 343.8 | 41.6% |
| 4.01-5.00 | 457.9 | 55.4% |
| >5.00 | 25.0 | 3.0% |
| Subtotal | 826.7 | 100.0% |
| Single-Family | | |
| <2.01 | 0.0 | 0% |
| 3.00-4.00 | 439.0 | 4.4% |
| 4.01-5.00 | 70.6 | 0.7% |
| 5.01-6.00 | 3,738.0 | 37.3% |
| 6.01-7.00 | 5,737.7 | 57.3% |
| >7.00 | 32.7 | 0.3% |
| Subtotal | 10,018.0 | 100.0% |
| Grand Total | 10,844.8 | 100.0% |

Source: Ginnie Mae Disclosure Files

¹Totals may not sum due to rounding.

7.2 REMIC Market Snapshot

- In August 2023, Ginnie Mae and Freddie Mac single-family REMIC issuance collateral coupons increased 6 bps and 4 bps, respectively. Fannie Mae saw a 4 bp decrease MoM.
- In August 2023, Ginnie Mae and Freddie Mac multifamily REMIC issuance collateral coupons decreased 27 bps and 13 bps, respectively.
- In August 2023, Ginnie Mae issued 19 deals, across single-family and multifamily, an increase of 4 deals MoM. Ginnie Mae's total REMIC issuance increased to \$11.33 billion in August, the highest recorded issuance since February 2023.
- In August 2023, Fannie Mae did not issue a multifamily deal, their sixth time since August 2022. Fannie Mae's total REMIC issuance was \$1.03 billion in August, the lowest recorded issuance since April 2023.

Figure 32. REMIC Issuance by Agency²

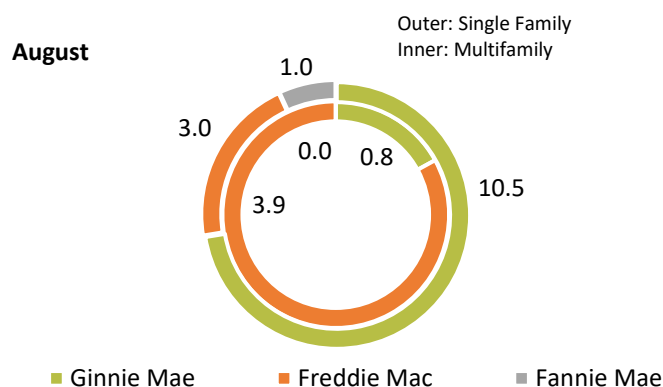


Table 8. Monthly REMIC Issuance by Agency

| | <i>SF REMIC Issuance Volume (\$B)</i> | <i>% of SF REMIC Issuance Volume</i> | <i>Number of SF REMIC Transactions</i> | <i>MF REMIC Issuance Volume (\$B)</i> | <i>% of MF REMIC Issuance Volume</i> | <i>Number of MF REMIC Transactions</i> |
|--------------------------|---|--|--|---|--|--|
| Ginnie Mae | 10.50 | 72.3 | 11 | 0.83 | 17.5 | 8 |
| Freddie Mac | 2.99 | 20.6 | 10 | 3.90 | 82.5 | 6 |
| Fannie Mae | 1.03 | 7.1 | 4 | 0.00 | 0.0 | 0 |
| Total³ | \$14.52 | 100% | 25 | \$4.73 | 100% | 14 |

Source: Ginnie Mae Disclosure Files

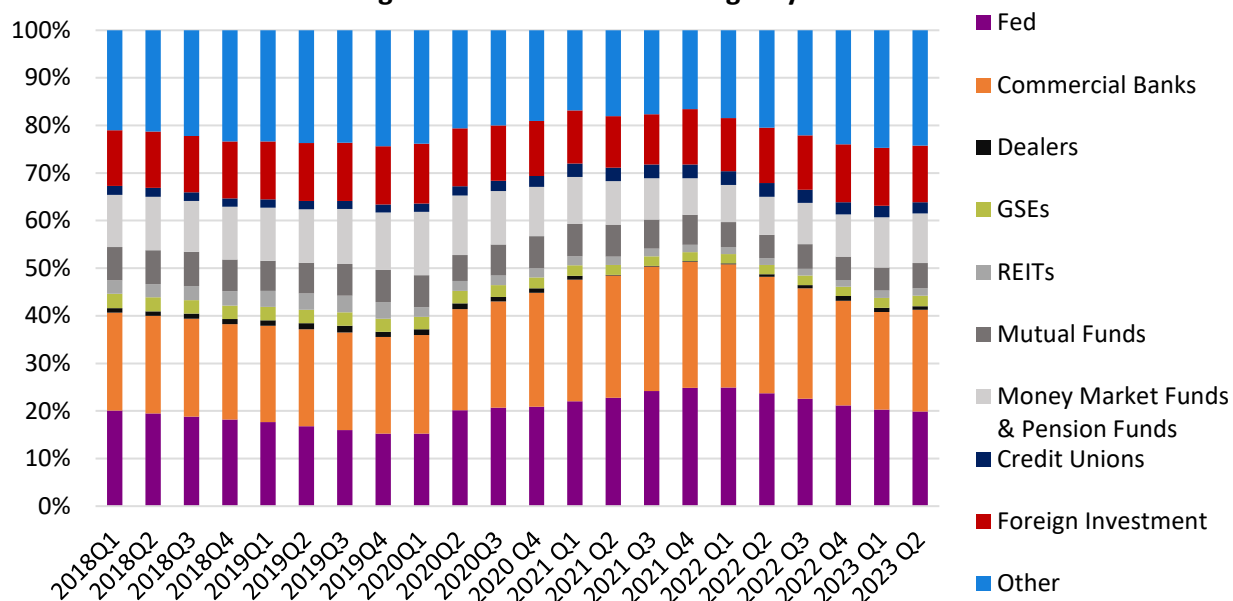
² The REMIC Market Snapshot is inclusive of Re-REMIC deals which are not included in the "Monthly REMIC Demand for Ginnie Mae MBS" above.

³ Totals may not sum due to rounding.

8 MBS OWNERSHIP

As of Q2 2023, the largest holders of agency debt (agency MBS + agency notes and bonds) included commercial banks (21%), the Federal Reserve (20%), and foreign investors (12%). The Federal Reserve's share remained stable at 20% in the second quarter of 2023 as compared to the first quarter of 2023. Out of the approximately \$2.6 trillion in holdings as of the end of August 2023, roughly \$1.94 trillion was held by the top 25 domestic banks per **Table 9** below.

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 2023.

8.1 Commercial Bank Holdings of Agency MBS

Table 9. Commercial Bank Holdings of Agency MBS

| | Commercial Bank Holdings (\$Billions) | | | | | | | | |
|-----------------------------------|---------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 |
| Largest 25 Domestic Banks | 2,056.5 | 2,054.5 | 1,961.4 | 1,952.3 | 1,953.4 | 1,947.1 | 1,961.3 | 1,955.1 | 1,944.4 |
| Small Domestic Banks | 677.3 | 663.5 | 764.0 | 700.9 | 627.8 | 628.4 | 618.2 | 610.5 | 602.0 |
| Foreign Related Banks | 36.6 | 30.0 | 27.0 | 28.4 | 26.8 | 24.0 | 26.2 | 24.3 | 23.2 |
| Total, Seasonally Adjusted | 2,770.4 | 2,748.0 | 2,752.4 | 2,681.6 | 2,608.0 | 2,599.5 | 2,605.7 | 2,589.9 | 2,569.6 |

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

8.2 Bank and Thrift Residential MBS Holdings

In Q2 2023, MBS holdings at banks and thrifts continued to decrease. The decrease was driven by GSE pass-throughs, agency CMO holdings, and Private CMO holdings, with GSE pass-throughs seeing the largest decrease. Ginnie Mae pass-throughs saw a decrease of 0.7%, showing the smallest percentage decrease of all banks and thrifts, quarter over quarter (QoQ). Total bank and thrift MBS holdings decreased by approximately 13.1% from Q2 2022 and 3.2% from Q1 2023. Out of the \$2.28 trillion in MBS holdings at banks and thrifts as of Q2 2023, \$1.39 trillion were GSE pass-throughs and \$383 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 |
| 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 |
| 4Q22 | \$2,423.87 | \$1,505.65 | \$371.91 | \$3.96 | \$481.69 | \$60.65 | \$2,154.46 | \$269.41 |
| 1Q23 | \$2,356.93 | \$1,441.18 | \$386.32 | \$4.12 | \$465.24 | \$60.08 | \$2,088.27 | \$268.65 |
| 2Q23 | \$2,280.38 | \$1,389.37 | \$383.52 | \$3.03 | \$446.19 | \$58.27 | \$2,022.46 | \$257.92 |
| Change: | | | | | | | | |
| 1Q23-2Q23 | -3.2% | -3.6% | -0.7% | -26.5% | -4.1% | -3.0% | -3.2% | -4.0% |
| 2Q22-2Q23 | -13.1% | -16.6% | 3.9% | -20.5% | -14.7% | -5.7% | -12.9% | -14.8% |

Source: Inside Mortgage Finance. Notes: Data as of Q2 2023.

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 | \$425,886.0 | \$358,807.0 | \$60,878.0 | \$6,054.0 | \$147.0 | 18.7% |
| 2 | WELLS FARGO & COMPANY | \$238,211.0 | \$154,323.0 | \$81,335.0 | \$2,491.0 | \$62.0 | 10.4% |
| 3 | JPMORGAN CHASE & CO. | \$161,413.0 | \$68,554.0 | \$79,707.0 | \$517.0 | \$12,635.0 | 7.1% |
| 4 | CHARLES SCHWAB | \$156,171.0 | \$88,295.0 | \$5,622.0 | \$62,254.0 | \$0.0 | 6.8% |
| 5 | Truist Bank | \$102,173.0 | \$51,563.0 | \$11,661.0 | \$35,921.0 | \$3,028.0 | 4.5% |
| 6 | U.S. BANCORP | \$98,929.9 | \$64,621.7 | \$23,225.0 | \$11,083.2 | \$0.1 | 4.3% |
| 7 | CITIGROUP INC. | \$82,573.0 | \$68,947.0 | \$10,716.0 | \$2,231.0 | \$679.0 | 3.6% |
| 8 | PNC Bank, National Association | \$69,861.0 | \$59,357.1 | \$4,037.6 | \$5,451.7 | \$1,014.5 | 3.1% |
| 9 | CAPITAL ONE FINANCIAL CORPORATION | \$63,138.3 | \$30,002.4 | \$14,901.6 | \$17,900.2 | \$334.1 | 2.8% |
| 10 | MORGAN STANLEY | \$50,757.0 | \$32,486.0 | \$7,190.0 | \$11,081.0 | \$0.0 | 2.2% |
| 11 | BANK OF NEW YORK MELLON CORP | \$39,946.0 | \$28,321.0 | \$1,578.0 | \$8,152.0 | \$1,895.0 | 1.8% |
| 12 | USAA Federal Savings Bank | \$38,196.0 | \$32,268.0 | \$1,886.0 | \$4,042.0 | \$0.0 | 1.7% |
| 13 | State Street Bank and Trust Company | \$35,556.7 | \$13,705.0 | \$6,956.0 | \$13,345.7 | \$1,550.0 | 1.6% |
| 14 | BMO Harris Bank National Association | \$30,642.6 | \$4,179.4 | \$6,247.3 | \$20,215.9 | \$0.0 | 1.3% |
| 15 | The Huntington National Bank | \$28,073.2 | \$11,158.7 | \$9,193.6 | \$7,598.1 | \$122.8 | 1.2% |
| 16 | TD Bank USA/TD Bank NA | \$26,928.8 | \$1,079.3 | \$75.9 | \$25,737.0 | \$36.6 | 1.2% |
| 17 | KeyBank National Association | \$24,634.7 | \$3,723.2 | \$182.9 | \$20,728.6 | \$0.0 | 1.1% |
| 18 | HSBC Bank USA, National Association | \$23,944.3 | \$4,209.0 | \$14,418.1 | \$5,316.6 | \$0.7 | 1.1% |
| 19 | Citizens Bank, National Association | \$23,183.4 | \$12,233.4 | \$5,315.4 | \$5,634.6 | \$0.0 | 1.0% |
| 20 | Ally Bank | \$19,630.0 | \$12,338.0 | \$1,801.0 | \$1,576.0 | \$3,915.0 | 0.9% |
| | Total Top 20 | \$1,739,848.9 | \$1,100,171.1 | \$346,927.3 | \$267,330.7 | \$25,419.8 | 76.3% |

Source: Inside Mortgage Finance. Notes: Data as of Q2 2023.

8.3 SOMA Holdings

FOMC and Economic Highlights:

Federal Open Market Committee Meeting 9/20/2023 Press Release:

- “The Committee decided to maintain the target range for the federal funds rate at 5-1/4 to 5-1/2 percent.”
- “The Committee is strongly committed to returning inflation to its 2% objective.”
- “The Committee will continue reducing its holdings of Treasury securities and agency debt and agency mortgage-backed securities, as described in its previously announced plans.”
- Federal Reserve Chair, Jerome Powell, indicated that the consensus of the committee is to increase rates once more this year. The final 2023 FOMC meetings are scheduled for November 1st and December 13th.
- Inflation rose slightly to 3.7% in August, per the September 13th CPI report.

SOMA Portfolio Highlights (Aug 2, 2023 vs. Aug 30, 2023)

- SOMA holdings of domestic securities totaled \$7.4 trillion on Aug 30 (a decrease of \$61.3 billion or -0.82% from Aug 2).
- \$42.6 billion (69% of the total decrease) was in U.S. Treasury holdings and \$18.7 billion (31% of the total decrease) was in Agency MBS.
- Agency MBS comprise about 34% of the total SOMA portfolio. The \$18.7 billion decrease was comprised of a \$7.7 billion decrease in Fannie Mae holdings, a \$6.6 billion decrease in Freddie Mac holdings, and a \$4.4 billion decrease in Ginnie Mae holdings.
- Over 99% of SOMA Agency MBS holdings have coupons of 4.5% or lower with an average WAC of 2.508%.
- The redemption cap for SOMA’s Agency MBS holdings is set at \$35 billion per month. The reduction of \$18.7 billion in Agency MBS represents 53% of the liquidation cap.

Table 12: SOMA Holdings as of August 2, 2023, and August 30, 2023 (\$ Billions)

| Holdings by Security Type | August 02, 2023 | | August 30, 2023 | | Month-Over-Month | |
|------------------------------|-----------------|---------|-----------------|---------|------------------|---------------------|
| | SOMA Holdings | % Share | SOMA Holdings | % Share | \$ Change | % Change |
| US Treasuries | \$4,939.6 | 66.22% | \$4,897.0 | 66.19% | -\$42.6 | -0.86% |
| Federal Agency Debt | \$2.3 | 0.03% | \$2.3 | 0.03% | \$0.0 | 0.00% |
| Agency MBS | \$2,509.2 | 33.64% | \$2,490.5 | 33.66% | -\$18.7 | -0.74% |
| Agency Commercial MBS | \$8.4 | 0.11% | \$8.4 | 0.11% | \$0.0 | -0.09% ⁴ |
| Total SOMA Holdings | \$7,459.5 | 100.0% | \$7,398.2 | 100.0% | -\$61.3 | -0.82% |

Table 13: SOMA Agency MBS Liquidations from August 2, 2023, to August 30, 2023 (\$ Billions)

| | MBS Holdings as of 8.02.23 | MBS Holdings 8.30.23 | Liquidated Amount | Liquidation Cap | Percentage of Liquidation Cap |
|--------------|----------------------------|----------------------|-------------------|-----------------|-------------------------------|
| Total | \$2,509.2 | \$2,490.5 | \$18.7 | \$35.0 | 53% |

Source: New York FED SOMA Holdings <https://www.newyorkfed.org/markets/soma-holdings>. Notes: The liquidation cap is per calendar month. Our analysis here instead covers a four-week period to maintain consistency with other analyses in this report.

⁴ Table 12 illustrates figures in \$ billions, any change less than \$50 million will be expressed as a “\$0.0” change in the “\$ Change” column.

8.4 Foreign Ownership of MBS

For the month of July 2023, foreign ownership of MBS represented \$1.248 trillion in agency MBS, up approximately \$74 billion from July 2022. Total foreign ownership of Agency MBS represents roughly 14% of total Agency MBS outstanding. Total foreign ownership excluding Fed Holdings and CMO's represents roughly 23% of total Agency MBS available.

Figure 34. Agency MBS Owned by Foreign Entities Ex-Fed Holdings and CMO's (USD Billions)

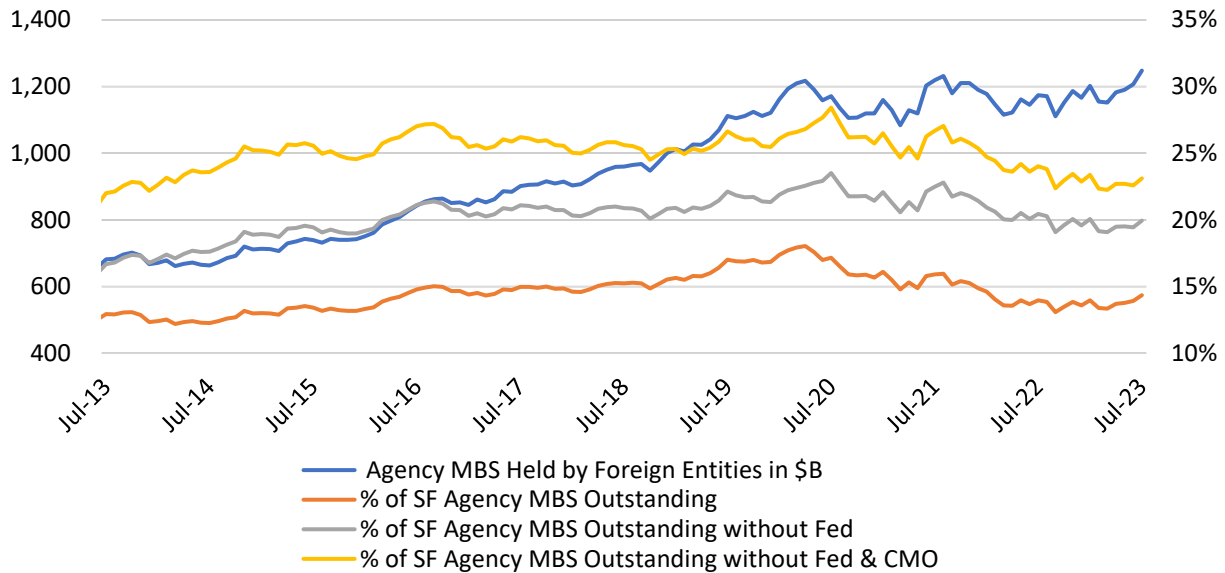
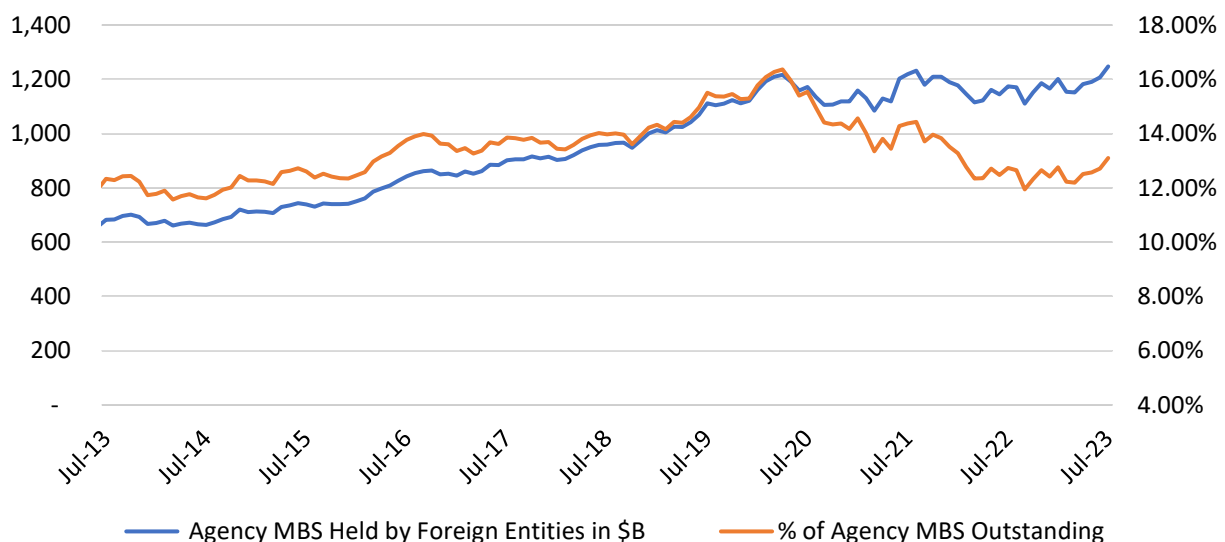


Figure 35. Agency MBS Owned by Foreign Entities (USD Billions)



Sources: TIC and Recursion, as of July 2023.

8.5 Foreign Ownership of Agency Debt and Agency MBS

The largest holders of agency MBS were China, Japan, and Taiwan. As of June 2023, these three owned 58% of all foreign owned US MBS. Between June 2022 and June 2023, China and Japan increased their agency MBS holdings while Taiwan's holdings decreased. China's holdings increased by \$25.6 billion, Japan's holdings increased by \$21.9 billion, and Taiwan's holdings decreased by \$14.4 billion.

Table 14. All Agency Debt

| Country | Level of Holdings (\$ Millions) | | | | Change in Holdings (\$ Millions) | | | |
|----------------|---------------------------------|------------------|------------------|------------------|----------------------------------|----------------|---------------|---------------|
| | 9/1/2022 | 12/1/2022 | 3/1/2023 | 6/1/2023 | Q3 2022 | Q4 2022 | Q1 2023 | Q2 2023 |
| China | 241,523 | 251,592 | 263,892 | 269,980 | -2,866 | 10,069 | 12,300 | 6,088 |
| Japan | 232,769 | 278,069 | 287,051 | 253,357 | 1,332 | 45,300 | 8,982 | -33,694 |
| Taiwan | 209,453 | 210,309 | 212,533 | 208,226 | -13,217 | 856 | 2,224 | -4,307 |
| Canada | 89,313 | 97,234 | 105,527 | 105,330 | 12,922 | 7,921 | 8,293 | -197 |
| United Kingdom | 56,348 | 61,393 | 41,101 | 55,682 | -9,881 | 5,045 | -20,292 | 14,581 |
| Luxembourg | 38,559 | 47,240 | 51,202 | 40,971 | -4,281 | 8,681 | 3,962 | -10,231 |
| Ireland | 17,692 | 22,478 | 25,099 | 36,766 | -2,512 | 4,786 | 2,621 | 11,667 |
| South Korea | 35,643 | 36,237 | 38,131 | 36,737 | -2,320 | 594 | 1,894 | -1,394 |
| Cayman Islands | 35,081 | 30,941 | 29,485 | 30,398 | 100 | -4,140 | -1,456 | 913 |
| Bermuda | 18,681 | 19,008 | 19,418 | 21,930 | -791 | 327 | 410 | 2,512 |
| Other | 188,623 | 226,067 | 199,801 | 206,671 | -7,888 | 37,444 | -26,266 | 6,870 |
| Total | 1,163,685 | 1,280,568 | 1,273,240 | 1,266,048 | -29,402 | 116,883 | -7,328 | -7,192 |

Table 15. Agency MBS

| Country | Level of Holdings (\$ Millions) | | |
|----------------|---------------------------------|------------------|--------------------------------------|
| | 6/1/2022 | 6/1/2023 | YoY Change in Holdings (\$ Millions) |
| China | 244,389 | 269,980 | 25,591 |
| Japan | 231,437 | 253,357 | 21,920 |
| Taiwan | 222,670 | 208,226 | -14,444 |
| Canada | 76,391 | 105,330 | 28,939 |
| United Kingdom | 66,229 | 55,682 | -10,547 |
| Luxembourg | 42,840 | 40,971 | -1,869 |
| Ireland | 20,204 | 36,766 | 16,562 |
| South Korea | 37,963 | 36,737 | -1,226 |
| Cayman Islands | 34,981 | 30,398 | -4,583 |
| Bermuda | 19,472 | 21,930 | 2,458 |
| Other | 196,511 | 206,671 | 10,160 |
| Total | 1,193,087 | 1,266,048 | 72,961 |

Source: Treasury International Capital (TIC). Note: Level of agency debt Holdings by month data as of Q2 2023. Agency MBS as of June 2023. Table 15 includes the top 10 holders of agency debt listed as of June 2023.

9 FIXED INCOME LIQUIDITY INDICATORS

The agency MBS average daily trading volume YTD as of month-end August 2023 was \$248 billion, which was up from a monthly average of \$241 billion for calendar year 2022. As of month-end August 2023, agency MBS average daily trading volume increased 3.5% MoM. See footnote below for update on “Average Daily Turnover by Sector” data.

Figure 36. Average Daily Trading Volume by Sector

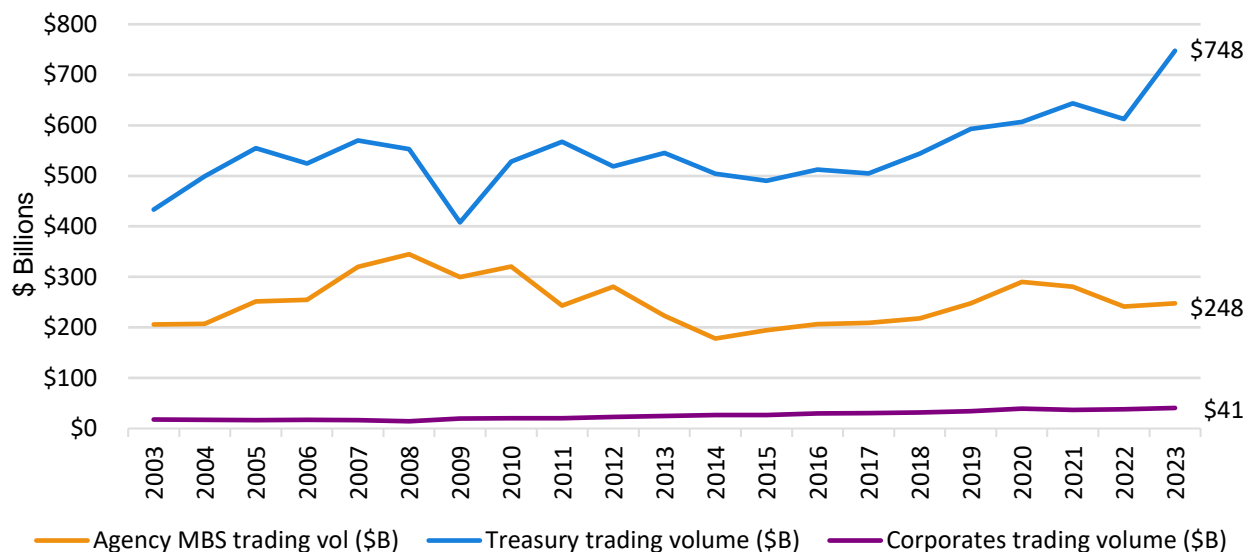
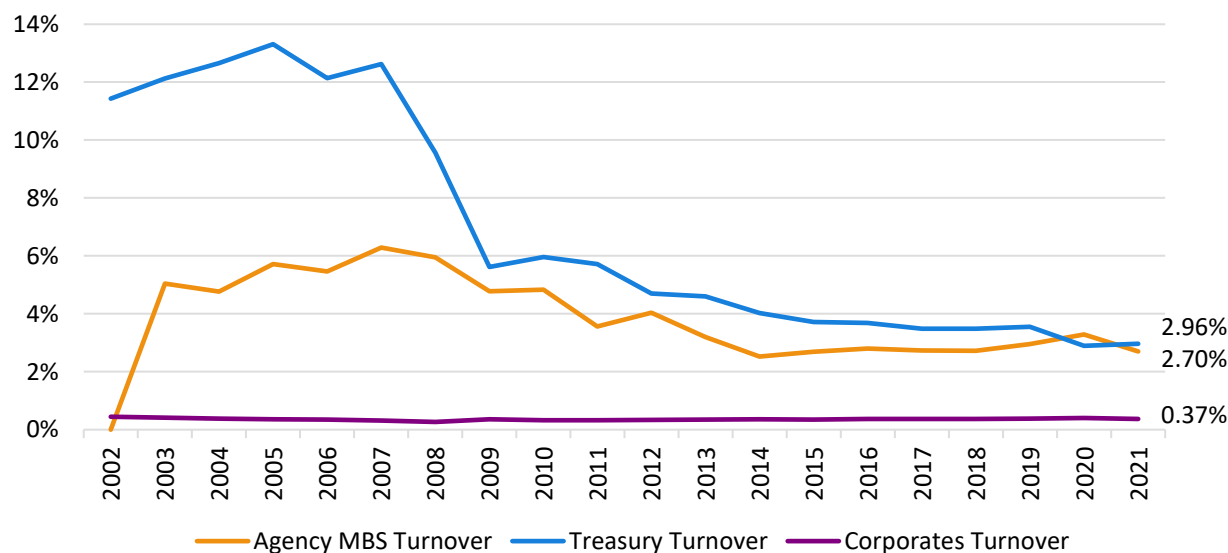


Figure 37. Average Daily Turnover by Sector



Source: SIFMA. Note: Data as of August 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

Tables 16, 17, and 18 below outline the population distributions of FICO, DTIs, and LTVs between the agencies and between FHA, VA, and other Ginnie Mae loan sources as of month-end August 2023. The distribution statistics capture some key differences in the populations served by the agencies.

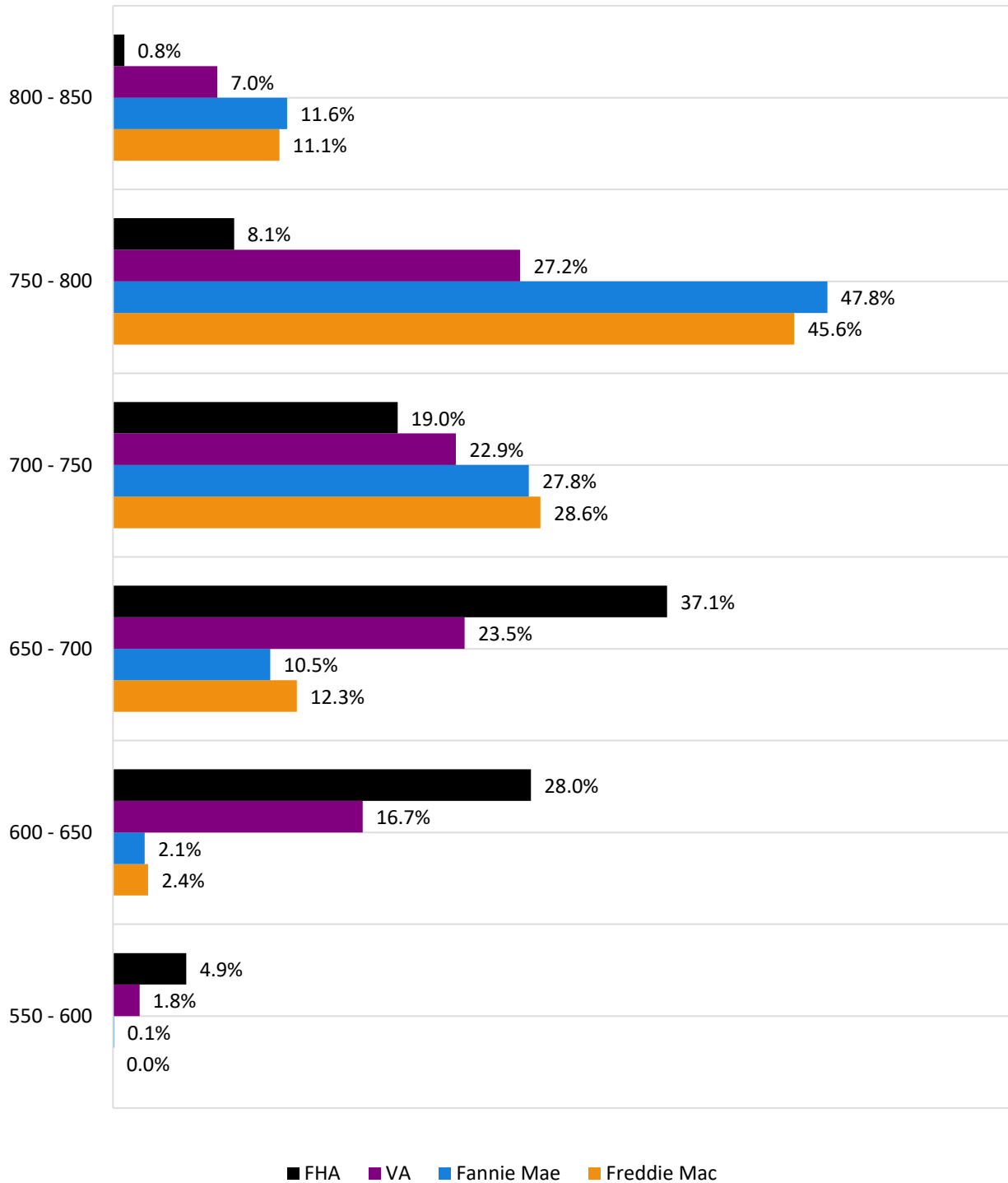
10.1 Credit Scores

Table 16. Share of Loans by FICO Score

| <i>Purchase FICO</i> | | | | | | | |
|--|------------------------|------------|------------|---------------|------------|------------|-------------|
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 237,172 | 652 | 693 | 744 | 780 | 799 | 734 |
| <i>Fannie</i> | 71,578 | 699 | 732 | 765 | 789 | 802 | 757 |
| <i>Freddie</i> | 76,872 | 694 | 727 | 762 | 788 | 802 | 754 |
| <i>Ginnie</i> | 88,722 | 628 | 653 | 691 | 740 | 780 | 697 |
| <i>Refi FICO</i> | | | | | | | |
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 47,285 | 624 | 657 | 703 | 755 | 788 | 703 |
| <i>Fannie</i> | 14,123 | 666 | 702 | 744 | 779 | 799 | 738 |
| <i>Freddie</i> | 12,562 | 662 | 694 | 734 | 773 | 796 | 731 |
| <i>Ginnie</i> | 20,600 | 600 | 629 | 660 | 695 | 735 | 663 |
| <i>All FICO</i> | | | | | | | |
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 284,457 | 646 | 685 | 738 | 778 | 798 | 729 |
| <i>Fannie</i> | 85,701 | 692 | 727 | 762 | 788 | 802 | 754 |
| <i>Freddie</i> | 89,434 | 687 | 722 | 759 | 787 | 801 | 751 |
| <i>Ginnie</i> | 109,322 | 623 | 648 | 684 | 733 | 776 | 691 |
| <i>Purchase FICO: Ginnie Mae Breakdown By Source</i> | | | | | | | |
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 88,722 | 628 | 653 | 691 | 740 | 780 | 697 |
| <i>FHA</i> | 56,026 | 624 | 647 | 678 | 716 | 754 | 683 |
| <i>VA</i> | 29,562 | 639 | 675 | 731 | 776 | 798 | 724 |
| <i>Other</i> | 3,134 | 634 | 659 | 696 | 734 | 762 | 697 |
| <i>Refi FICO: Ginnie Mae Breakdown By Source</i> | | | | | | | |
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 20,600 | 600 | 629 | 660 | 695 | 735 | 663 |
| <i>FHA</i> | 14,158 | 593 | 624 | 654 | 686 | 717 | 655 |
| <i>VA</i> | 6,421 | 615 | 643 | 677 | 721 | 761 | 682 |
| <i>Other</i> | 21 | 639 | 659 | 702 | 749 | 753 | 700 |
| <i>All FICO: Ginnie Mae Breakdown By Source</i> | | | | | | | |
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 109,322 | 623 | 648 | 684 | 733 | 776 | 691 |
| <i>FHA</i> | 70,184 | 618 | 643 | 673 | 710 | 749 | 677 |
| <i>VA</i> | 35,983 | 633 | 666 | 720 | 770 | 796 | 716 |
| <i>Other</i> | 3,155 | 634 | 659 | 696 | 734 | 762 | 697 |

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

Figure 38. FICO Distributions by Agency



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

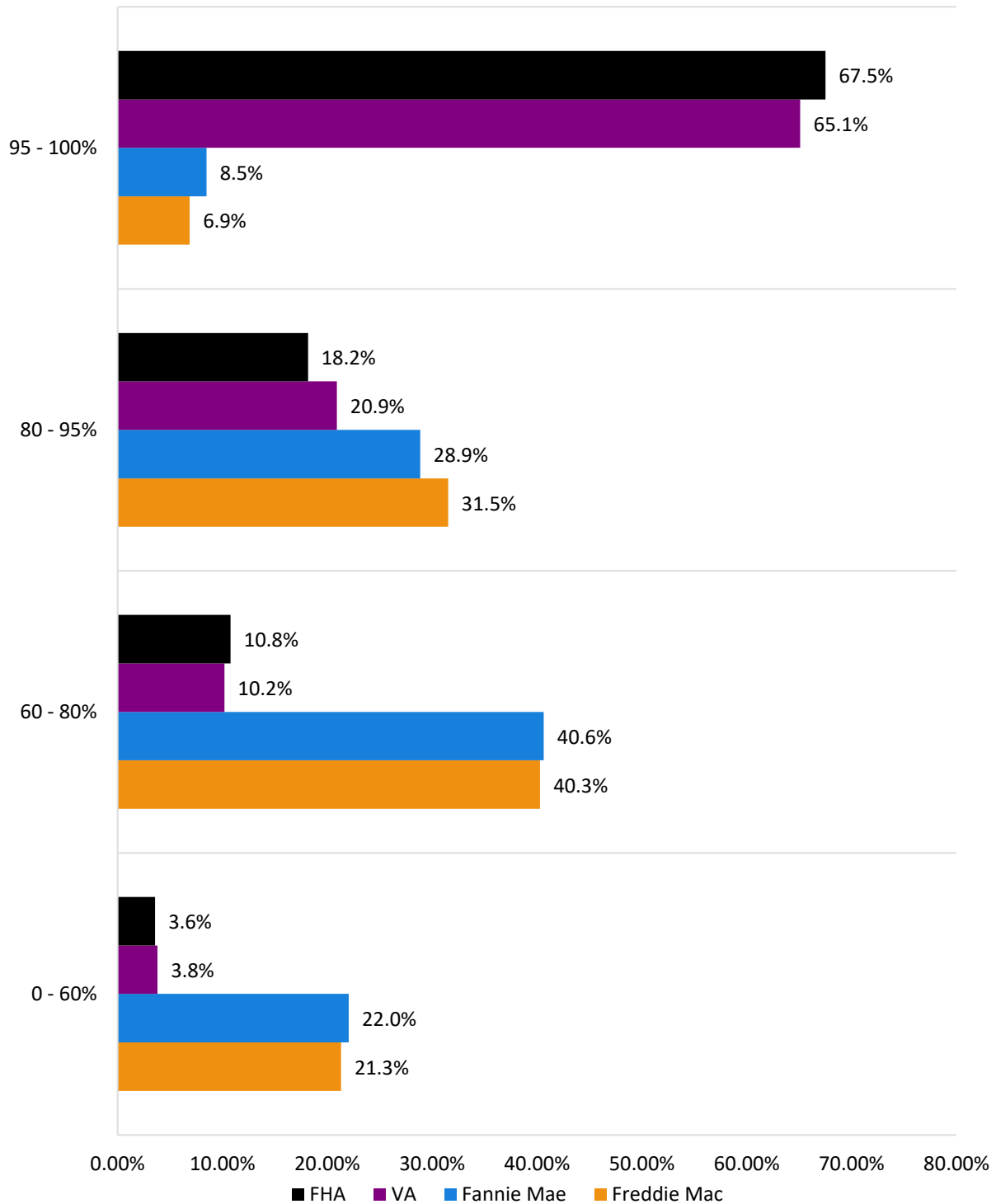
10.2 Loan-to-Value (LTV)

Table 17. Share of Loans by LTV

| <i>Purchase LTV</i> | | | | | | | |
|---|------------------------|------------|------------|---------------|------------|------------|-------------|
| Names | Number of Loans | P10 | P25 | Median | P75 | P90 | Mean |
| <i>All</i> | 237,416 | 61 | 80 | 93 | 98 | 100 | 85 |
| <i>Fannie</i> | 71,670 | 54 | 75 | 80 | 95 | 96 | 79 |
| <i>Freddie</i> | 76,906 | 52 | 74 | 80 | 95 | 95 | 79 |
| <i>Ginnie</i> | 88,840 | 90 | 97 | 98 | 100 | 100 | 96 |
| <i>Refi LTV</i> | | | | | | | |
| Names | Number of Loans | P10 | P25 | Median | P75 | P90 | Mean |
| <i>All</i> | 47,172 | 34 | 51 | 68 | 80 | 86 | 64 |
| <i>Fannie</i> | 14,126 | 27 | 41 | 57 | 70 | 77 | 54 |
| <i>Freddie</i> | 12,563 | 28 | 42 | 59 | 70 | 78 | 55 |
| <i>Ginnie</i> | 20,483 | 56 | 70 | 80 | 81 | 94 | 76 |
| <i>All LTV</i> | | | | | | | |
| Names | Number of Loans | P10 | P25 | Median | P75 | P90 | Mean |
| <i>All</i> | 284,588 | 53 | 75 | 89 | 97 | 99 | 82 |
| <i>Fannie</i> | 85,796 | 45 | 65 | 80 | 90 | 95 | 75 |
| <i>Freddie</i> | 89,469 | 45 | 66 | 80 | 91 | 95 | 75 |
| <i>Ginnie</i> | 109,323 | 76 | 90 | 98 | 99 | 100 | 92 |
| <i>Purchase LTV: Ginnie Mae Breakdown By Source</i> | | | | | | | |
| Names | Number of Loans | P10 | P25 | Median | P75 | P90 | Mean |
| <i>All</i> | 88,840 | 90 | 97 | 98 | 100 | 100 | 96 |
| <i>FHA</i> | 56,095 | 92 | 97 | 98 | 98 | 98 | 96 |
| <i>VA</i> | 29,599 | 83 | 100 | 100 | 100 | 102 | 96 |
| <i>Other</i> | 3,146 | 93 | 98 | 101 | 101 | 101 | 98 |
| <i>Refi LTV: Ginnie Mae Breakdown By Source</i> | | | | | | | |
| Names | Number of Loans | P10 | P25 | Median | P75 | P90 | Mean |
| <i>All</i> | 20,483 | 56 | 70 | 80 | 81 | 94 | 76 |
| <i>FHA</i> | 14,262 | 53 | 67 | 78 | 81 | 81 | 72 |
| <i>VA</i> | 6,201 | 66 | 78 | 90 | 97 | 100 | 85 |
| <i>Other</i> | 20 | 65 | 71 | 78 | 89 | 96 | 79 |
| <i>All LTV: Ginnie Mae Breakdown By Source</i> | | | | | | | |
| Names | Number of Loans | P10 | P25 | Median | P75 | P90 | Mean |
| <i>All</i> | 109,323 | 76 | 90 | 98 | 99 | 100 | 92 |
| <i>FHA</i> | 70,357 | 75 | 89 | 98 | 98 | 98 | 91 |
| <i>VA</i> | 35,800 | 79 | 91 | 100 | 100 | 102 | 94 |
| <i>Other</i> | 3,166 | 93 | 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 39. Loan-to Value by Agency



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

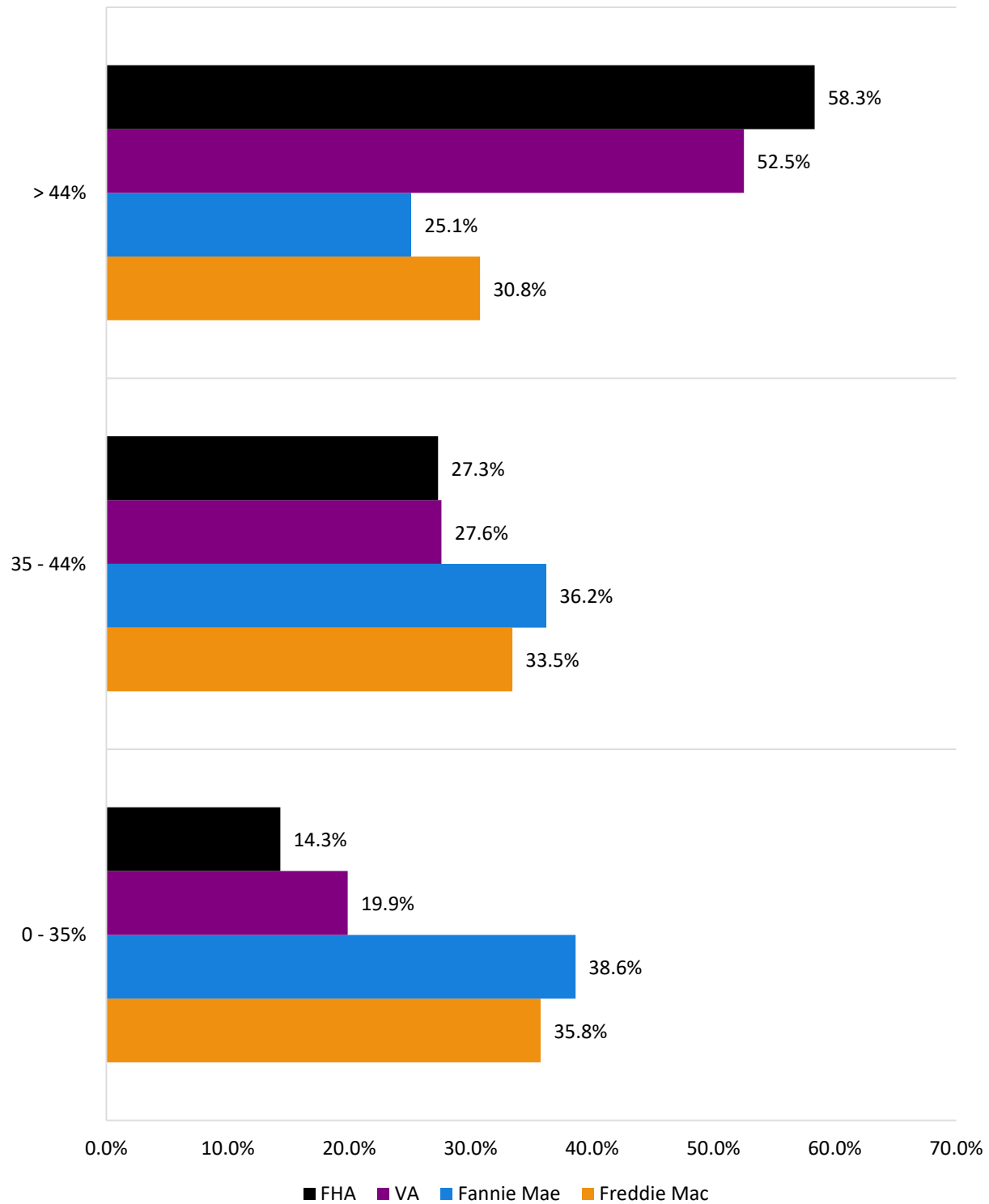
10.3 Debt-to-Income (DTI)

Table 18. Share of Loans by DTI

| <i>Purchase DTI</i> | | | | | | | |
|---|------------------------|------------|------------|---------------|------------|------------|-------------|
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 236,958 | 26 | 34 | 42 | 48 | 51 | 40 |
| <i>Fannie</i> | 71,670 | 24 | 31 | 39 | 45 | 48 | 37 |
| <i>Freddie</i> | 76,906 | 24 | 32 | 40 | 46 | 49 | 38 |
| <i>Ginnie</i> | 88,382 | 32 | 39 | 46 | 51 | 55 | 45 |
| <i>Refi DTI</i> | | | | | | | |
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 46,638 | 25 | 33 | 41 | 47 | 50 | 39 |
| <i>Fannie</i> | 14,126 | 22 | 30 | 37 | 43 | 47 | 36 |
| <i>Freddie</i> | 12,563 | 24 | 32 | 40 | 46 | 49 | 38 |
| <i>Ginnie</i> | 19,949 | 29 | 36 | 44 | 50 | 55 | 42 |
| <i>All DTI</i> | | | | | | | |
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 283,596 | 26 | 34 | 42 | 47 | 51 | 40 |
| <i>Fannie</i> | 85,796 | 24 | 31 | 39 | 45 | 48 | 37 |
| <i>Freddie</i> | 89,469 | 24 | 32 | 40 | 46 | 49 | 38 |
| <i>Ginnie</i> | 108,331 | 31 | 38 | 45 | 51 | 55 | 44 |
| <i>Purchase DTI: Ginnie Mae Breakdown By Source</i> | | | | | | | |
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 88,382 | 32 | 39 | 46 | 51 | 55 | 45 |
| <i>FHA</i> | 56,051 | 34 | 40 | 47 | 52 | 55 | 45 |
| <i>VA</i> | 29,187 | 30 | 38 | 45 | 51 | 56 | 44 |
| <i>Other</i> | 3,144 | 27 | 31 | 36 | 40 | 42 | 35 |
| <i>Refi DTI: Ginnie Mae Breakdown By Source</i> | | | | | | | |
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 19,949 | 29 | 36 | 44 | 50 | 55 | 42 |
| <i>FHA</i> | 14,065 | 29 | 36 | 44 | 50 | 55 | 43 |
| <i>VA</i> | 5,863 | 29 | 35 | 43 | 49 | 54 | 42 |
| <i>Other</i> | 21 | 30 | 33 | 37 | 41 | 42 | 36 |
| <i>All DTI: Ginnie Mae Breakdown By Source</i> | | | | | | | |
| <i>Names</i> | <i>Number of Loans</i> | <i>P10</i> | <i>P25</i> | <i>Median</i> | <i>P75</i> | <i>P90</i> | <i>Mean</i> |
| <i>All</i> | 108,331 | 31 | 38 | 45 | 51 | 55 | 44 |
| <i>FHA</i> | 70,116 | 33 | 39 | 46 | 52 | 55 | 45 |
| <i>VA</i> | 35,050 | 30 | 37 | 45 | 51 | 56 | 44 |
| <i>Other</i> | 3,165 | 27 | 31 | 36 | 40 | 42 | 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

Comparing the three-month range of June 2022 – August 2022 to the three-month range of June 2023 – August 2023, the share of high-LTV agency loans with:

- FICO scores above 750 increased by approximately 5.0%.
- DTIs below 35% decreased by approximately 17.6%.

YoY, the share of high-LTV loans increased in the Ginnie Mae guarantee portfolio by approximately 5% and in the GSE guarantee portfolios by approximately 8%. 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 71.29% of its issuances between June 2023 – August 2023 having LTVs of 95 or above, compared to 23.00% for the GSEs.

Table 19. Share of Loans with LTV > 95

| | <i>Ginnie Mae</i> | <i>GSE</i> | <i>All</i> |
|----------------------------|-------------------|------------|------------|
| Jun 2022 - Aug 2022 | 67.73% | 21.21% | 36.04% |
| Jun 2023 - Aug 2023 | 71.29% | 23.00% | 41.25% |

Table 20. Agency Market Share by DTI and FICO for Loans with LTV > 95 (June 2022-August 2022)

| <i>DTI</i> | <i>FICO</i> | | | | | <i>All</i> |
|---------------|----------------|----------------|----------------|---------------|--------------|----------------|
| | <i><650</i> | <i>650-700</i> | <i>700-750</i> | <i>≥750</i> | <i>NA</i> | |
| <35 | 2.21% | 3.75% | 5.26% | 8.61% | 0.04% | 19.87% |
| 35-45 | 5.75% | 9.08% | 10.64% | 11.96% | 0.04% | 37.47% |
| ≥45 | 7.38% | 12.37% | 10.94% | 9.99% | 0.05% | 40.73% |
| NA | 0.43% | 0.33% | 0.21% | 0.22% | 0.73% | 1.92% |
| All | 15.76% | 25.53% | 27.06% | 30.78% | 0.86% | 100.00% |

Table 21. Agency Market Share by DTI and FICO for Loans with LTV > 95 (June 2023-August 2023)

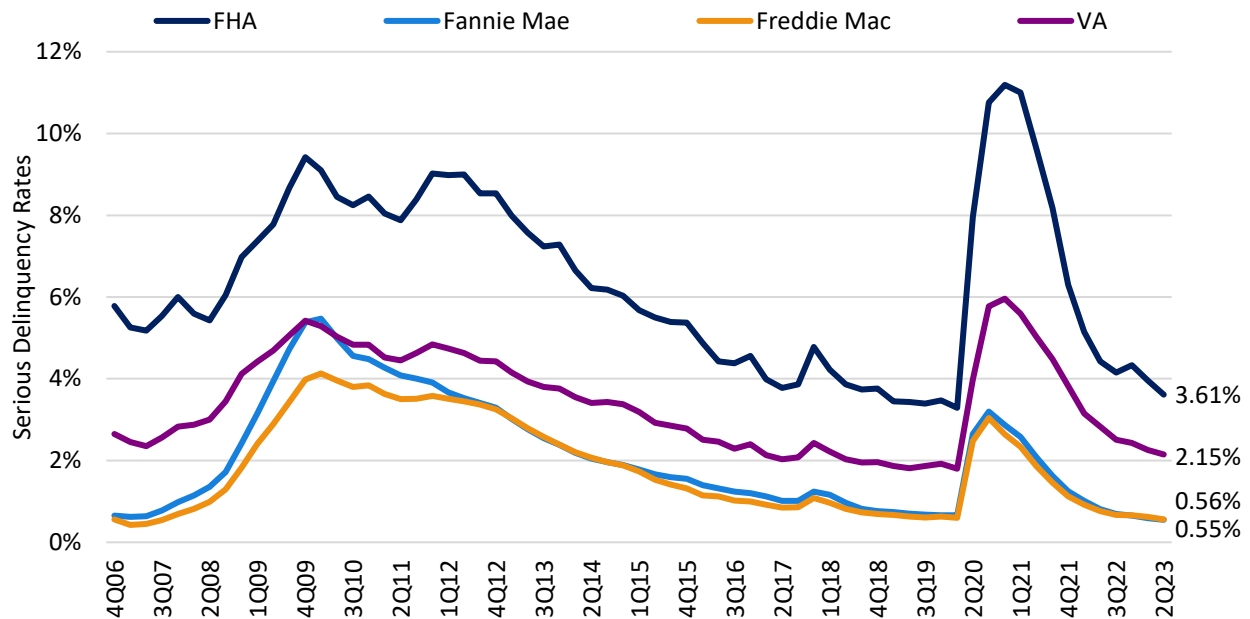
| <i>DTI</i> | <i>FICO</i> | | | | | <i>All</i> |
|---------------|----------------|----------------|----------------|---------------|--------------|----------------|
| | <i><650</i> | <i>650-700</i> | <i>700-750</i> | <i>≥750</i> | <i>NA</i> | |
| <35 | 1.80% | 2.89% | 4.19% | 7.44% | 0.05% | 16.37% |
| 35-45 | 5.27% | 8.00% | 9.96% | 12.25% | 0.04% | 35.52% |
| ≥45 | 7.73% | 13.21% | 13.49% | 12.44% | 0.11% | 46.98% |
| NA | 0.24% | 0.20% | 0.13% | 0.19% | 0.37% | 1.13% |
| All | 15.04% | 24.30% | 27.77% | 32.32% | 0.57% | 100.00% |

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

10.5 Serious Delinquency Rates

Serious delinquency rates for single-family GSE, VA, and FHA loans all fell in Q2 2023. From Q1 2023 to Q2 2023, Fannie and Freddie serious delinquencies decreased by 4 bps and 6 bps, respectively. Ginnie Mae collateral's serious delinquency rates decreased more than the GSE rate, with VA decreasing 11 bps and FHA decreasing 35 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 41. Serious Delinquency Rates: Single-Family Loans



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

Note: Serious delinquency is defined as 90 days or more past due or in the foreclosure process. Data as of Q2 2023.

10.6 Credit Box

The first-time homebuyer share for agency purchase loans was 54.2% as of month-end August 2023, an increase from 53.7% in July 2023 and up from 51.2% in August 2022. Freddie Mac and Fannie Mae's first-time homebuyer shares, 46.6% and 47.2% respectively, as of month-end August 2023, have increased 4.4% and 1.3% respectively, YoY. Ginnie Mae's first-time homebuyer share decreased 0.6% YoY. **Table 22** shows that based on mortgages originated as of month-end August 2023, the average GSE first-time homebuyer was more likely to have a higher credit score and lower LTV. Ginnie Mae's first-time homebuyers were more likely to have lower loan amounts and lower mortgage rates, while having higher DTI's.

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

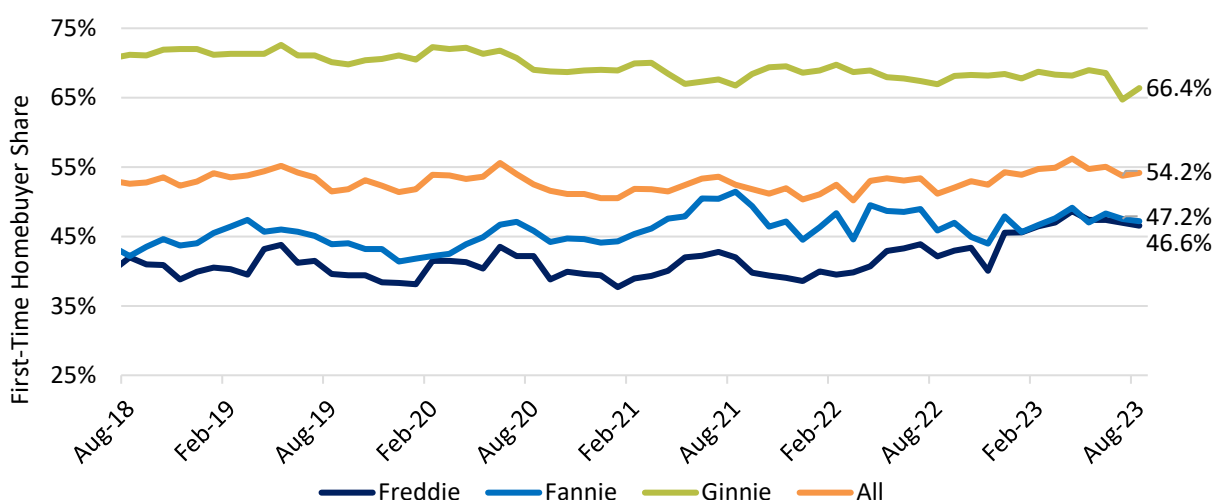


Table 22. Agency First-Time Homebuyer Share Summary

| | Fannie Mae | | Freddie Mac | | Ginnie Mae | | All | |
|-----------------------|------------|---------|-------------|---------|------------|---------|------------|---------|
| | First-Time | Repeat | First-Time | Repeat | First-Time | Repeat | First-Time | Repeat |
| Loan Amount \$ | 332,123 | 347,751 | 319,147 | 330,963 | 309,718 | 361,424 | 318,236 | 345,166 |
| Credit Score | 751 | 762 | 747 | 761 | 691 | 710 | 722 | 747 |
| LTV (%) | 85 | 74 | 85 | 74 | 97 | 94 | 91 | 79 |
| DTI (%) | 37 | 37 | 38 | 38 | 44 | 45 | 41 | 40 |
| Loan Rate (%) | 6.6 | 6.7 | 6.6 | 6.7 | 6.4 | 6.3 | 6.5 | 6.6 |

Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files as of August 2023

In the Ginnie Mae purchase market, 74.2% of FHA loans, 49.6% of VA loans, and 83.7% of other loans provided financing for first-time home buyers as of month-end August 2023. The share of first-time home buyers in the Ginnie Mae purchase market increased MoM for FHA and other loans while decreasing for VA loans. **Table 23** shows that based on mortgages originated as of month-end August 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 15.5% smaller loans, had a 22.3-point lower credit score, 5.1% higher LTV and had a 11 bp higher interest rate. FHA's first-time homebuyers are much more like their repeat buyers, with only 5.0% smaller loans, similar interest rates, and 2.2% 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 have similar credit scores compared to their first-time home buyers. For VA and conventional borrowers alike, repeat buyers tend to have higher credit scores than first-time homebuyers.

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

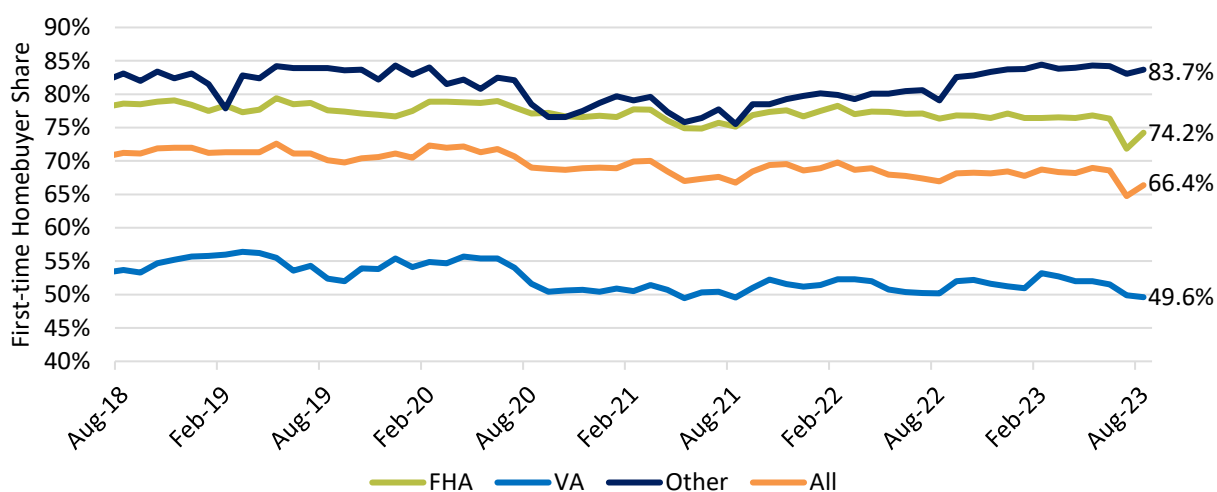


Table 23. Ginnie Mae First-Time Homebuyer Share Breakdown Summary

| | FHA | | VA | | Other | | Total | |
|-----------------------|------------|---------|------------|---------|------------|---------|------------|---------|
| | First-Time | Repeat | First-Time | Repeat | First-Time | Repeat | First-Time | Repeat |
| Loan Amount \$ | 306,139 | 322,401 | 342,280 | 404,991 | 184,722 | 194,496 | 309,718 | 361,424 |
| Credit Score | 683 | 685 | 712 | 735 | 697 | 697 | 691 | 710 |
| LTV (%) | 97 | 95 | 99 | 94 | 98 | 98 | 97 | 94 |
| DTI (%) | 45 | 46 | 44 | 45 | 35 | 36 | 44 | 45 |
| Loan Rate (%) | 6.4 | 6.4 | 6.3 | 6.2 | 6.5 | 6.4 | 6.4 | 6.3 |

Sources: Fannie Mae, Freddie Mac, and Ginnie Mae disclosure files as of August 2023

10.7 Credit Box: Historical

The median FICO score for all agency loans originated as of month-end August 2023 was 735, which represents a 3-point increase YoY. Ginnie Mae median FICO scores increased 10 points YoY to 680 as of month end August 2023. As of month-end August 2023, average FICO scores for refinances increased for Fannie Mae and Freddie Mac borrowers by 11 and 10 points YoY, respectively.

Figure 44. FICO Scores for All Loans

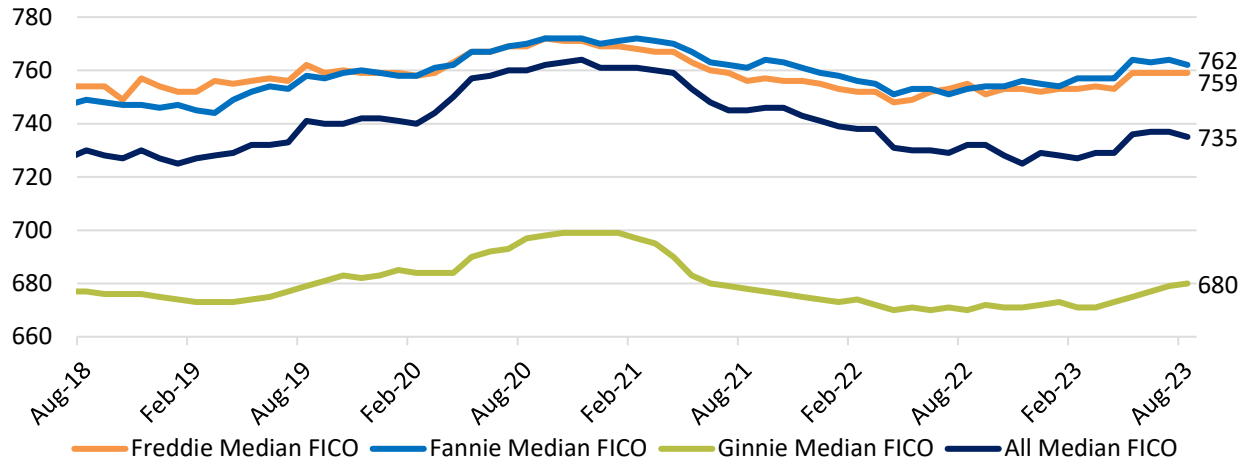


Figure 45. FICO Scores for Purchase Loans

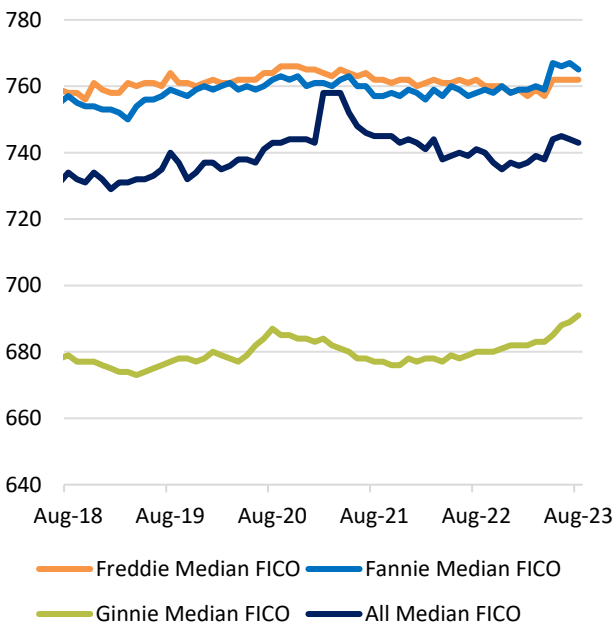
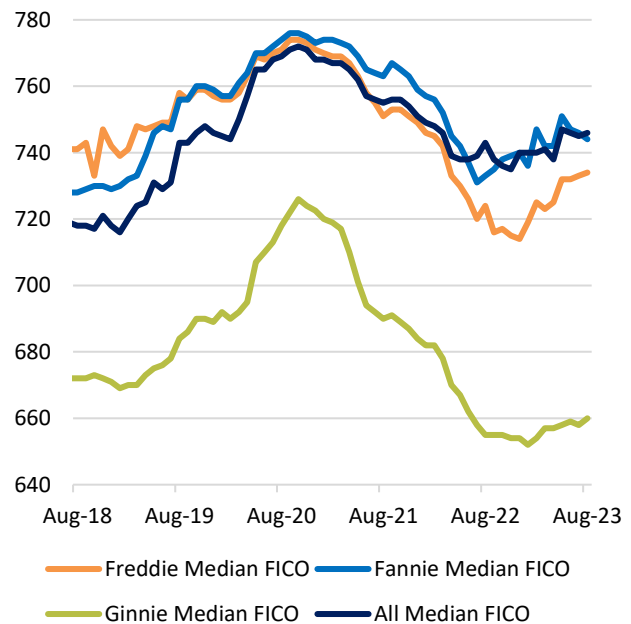


Figure 46. FICO Scores for Refinance Loans



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

In August 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. Ginnie Mae, Fannie Mae, and Freddie Mac all saw their LTV ratios remain flat YoY from August 2022 to August 2023. In August 2023, median DTIs for Ginnie Mae, Freddie Mac, and Fannie Mae were 45.0%, 40.0%, and 39.0% respectively. In August 2022, median DTIs for Ginnie Mae, Freddie Mac, and Fannie Mae were 44.3%, 39.0%, and 39.0% respectively.

Figure 47. LTV Ratio for All Loans

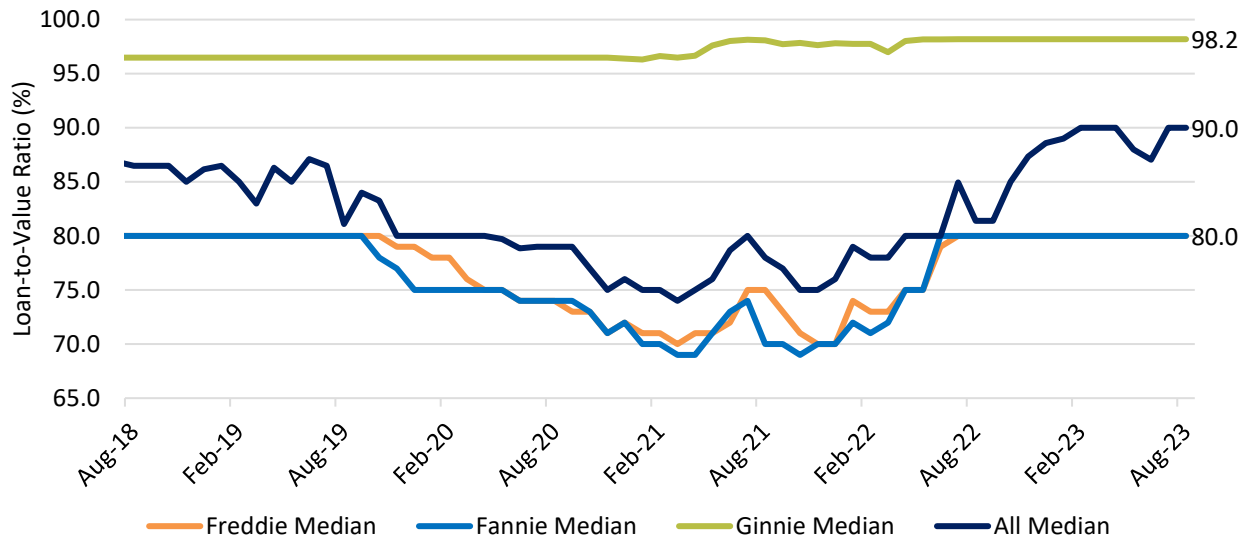
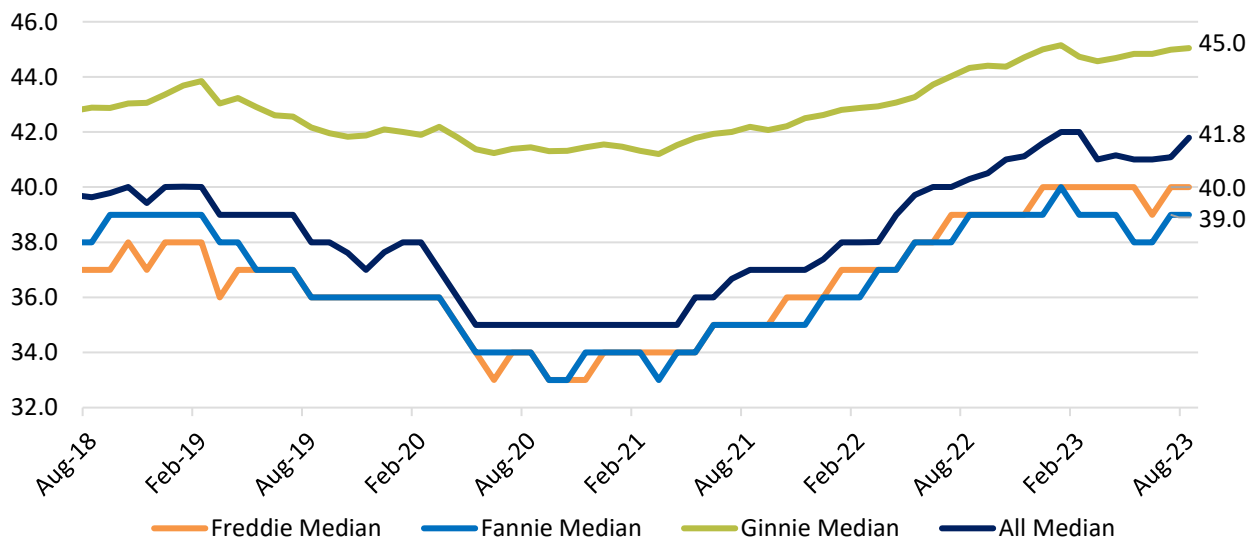


Figure 48. DTI Ratio for All Loans



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

11 FORBEARANCE TRENDS

At the end of August 2023, 55,319 Ginnie Mae loans were in forbearance. The number of loans in forbearance removed from MBS pools in August was 332 while 54,987 loans in forbearance remain in pools. The number of loans in forbearance and loans in forbearance that remained in pools decreased MoM. The median current principal balance for Ginnie Mae, FHA, and VA was higher for loans in forbearance originated by nonbanks than banks in all subsets.

Table 24. Forbearance Snapshot

| All Loans in Forbearance – August 2023 | | | | | | |
|--|-------------|------------|----------------------------------|--------------------------------|--------------------|------------|
| | FICO Score* | Note Rate* | Current Principal Balance Median | First Time Homebuyer Share (%) | Purchase Share (%) | Loan Count |
| Ginnie | 654 | 3.8 | 205,652 | 73.6 | 75.1 | 55,319 |
| Bank | 671 | 4.0 | 139,949 | 83.1 | 87.6 | 8,495 |
| Nonbank | 653 | 3.8 | 218,751 | 72.4 | 73.8 | 46,808 |
| FHA | 651 | 3.9 | 198,563 | 77.3 | 77.6 | 42,270 |
| Bank | 671 | 4.1 | 137,738 | 86.0 | 89.5 | 7,296 |
| Nonbank | 648 | 3.9 | 212,225 | 76.0 | 76.2 | 34,961 |
| VA | 663 | 3.6 | 269,307 | 58.3 | 64.3 | 9,906 |
| Bank | 674 | 3.5 | 186,554 | 55.4 | 70.7 | 797 |
| Nonbank | 663 | 3.7 | 277,675 | 58.4 | 64.0 | 9,108 |
| Loans in Forbearance and Removed from Pools – August 2023 | | | | | | |
| | FICO Score* | Note Rate* | Current Principal Balance Median | First Time Homebuyer Share (%) | Purchase Share (%) | Loan Count |
| Ginnie | 664 | 3.9 | 185,569 | 69.3 | 65.6 | 332 |
| Bank | 678 | 4.8 | 124,828 | 70.1 | 85.9 | 111 |
| Nonbank | 659 | 3.6 | 208,154 | 68.9 | 59.7 | 221 |
| FHA | 654 | 4.1 | 176,084 | 73.1 | 69.0 | 231 |
| Bank | 671 | 5.4 | 111,830 | 79.5 | 84.8 | 87 |
| Nonbank | 648 | 3.7 | 210,745 | 70.3 | 63.8 | 144 |
| VA | 687 | 3.4 | 225,168 | 50.8 | 50.6 | 73 |
| Bank | 712 | 3.6 | 234,703 | 39.6 | 84.5 | 16 |
| Nonbank | 681 | 3.3 | 225,168 | 55.2 | 43.7 | 57 |
| Loans in Forbearance that Remain in Pools – August 2023 | | | | | | |
| | FICO Score* | Note Rate* | Current Principal Balance Median | First Time Homebuyer Share (%) | Purchase Share (%) | Loan Count |
| Ginnie | 654 | 3.8 | 205,793 | 73.6 | 75.1 | 54,987 |
| Bank | 671 | 4.0 | 140,071 | 83.3 | 87.7 | 8,384 |
| Nonbank | 653 | 3.8 | 218,775 | 72.4 | 73.9 | 46,587 |
| FHA | 651 | 3.9 | 198,672 | 77.3 | 77.6 | 42,039 |
| Bank | 671 | 4.1 | 138,200 | 86.1 | 89.6 | 7,209 |
| Nonbank | 648 | 3.9 | 212,233 | 76.0 | 76.2 | 34,817 |
| VA | 663 | 3.6 | 269,891 | 58.3 | 64.3 | 9,833 |
| Bank | 673 | 3.5 | 185,421 | 55.8 | 70.3 | 781 |
| Nonbank | 663 | 3.7 | 277,900 | 58.4 | 64.1 | 9,051 |

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

12 HOLDERS OF GINNIE MAE MORTGAGE SERVICING RIGHTS

The 30 largest owners of mortgage servicing rights (MSR) by UPB for loans collateralizing Ginnie Mae MBS is shown in **Table 25**. The top 30 firms collectively own 87.28% of Ginnie Mae MSRs (see Cumulative Share). Twenty-two of these top 30 are non-depository institutions, the remaining eight are depository institutions. As of August 2023, over half (53.67%) of the Ginnie Mae MSRs are owned by the top six firms.

Table 25. Top 30 Holders of Ginnie Mae Mortgage Servicing Rights (MSRs), by UPB

| MSR Holder | Current Rank | Year prior Rank | Change | UPB (\$ millions) | Share | Cumulative Share | CPR | CDR |
|--------------------------|--------------|-----------------|--------|-------------------|--------|------------------|--------|-------|
| LAKEVIEW LOAN SERVIC | 1 | 3 | ↑ | \$303,859,186,240 | 13.51% | 13.51% | 7.46% | 1.01% |
| DBA FREEDOM HOME MOR | 2 | 1 | ↓ | \$279,195,485,698 | 12.41% | 25.92% | 8.20% | 0.89% |
| PENNYMAC LOAN SERVIC | 3 | 2 | ↓ | \$261,702,025,108 | 11.63% | 37.55% | 7.78% | 1.08% |
| NATIONSTAR MORTGAGE, | 4 | 4 | ↔ | \$127,619,630,619 | 5.67% | 43.22% | 9.23% | 1.39% |
| NEWREZ LLC | 5 | 8 | ↑ | \$125,060,780,077 | 5.56% | 48.78% | 6.79% | 0.56% |
| ROCKET MORTGAGE, LLC | 6 | 6 | ↔ | \$109,925,052,885 | 4.89% | 53.67% | 9.30% | 0.45% |
| CARRINGTON MORTGAGE | 7 | 7 | ↔ | \$105,268,686,418 | 4.68% | 58.35% | 7.73% | 0.76% |
| WELLS FARGO BANK, NA | 8 | 5 | ↓ | \$102,600,447,877 | 4.56% | 62.91% | 7.53% | 0.41% |
| PLANET HOME LENDING, | 9 | 12 | ↑ | \$62,729,994,673 | 2.79% | 65.70% | 7.39% | 0.37% |
| U. S. BANK, NA | 10 | 10 | ↔ | \$54,919,695,335 | 2.44% | 68.14% | 6.46% | 0.84% |
| UNITED WHOLESAL MOR | 11 | 11 | ↔ | \$46,661,612,370 | 2.07% | 70.21% | 5.34% | 0.86% |
| LOANDEPOT.COM, LLC | 12 | 14 | ↑ | \$38,778,545,678 | 1.72% | 71.94% | 8.16% | 0.69% |
| NAVY FEDERAL CREDIT | 13 | 15 | ↑ | \$29,228,716,932 | 1.30% | 73.24% | 6.92% | 0.23% |
| M&T BANK | 14 | NR | ↑ | \$27,874,607,043 | 1.24% | 74.48% | 6.53% | 0.34% |
| MORTGAGE RESEARCH CE | 15 | 13 | ↓ | \$27,292,280,858 | 1.21% | 75.69% | 8.46% | 0.48% |
| GUILD MORTGAGE COMPANY | 16 | 17 | ↑ | \$23,532,977,595 | 1.05% | 76.74% | 7.02% | 0.57% |
| AMERIHOM MORTGAGE | 17 | 16 | ↑ | \$22,560,816,401 | 1.00% | 77.74% | 5.29% | 1.41% |
| THE MONEY SOURCE INC | 18 | 18 | ↔ | \$21,995,274,359 | 0.98% | 78.72% | 8.29% | 0.91% |
| CROSSCOUNTRY MORTGAGE | 19 | 20 | ↑ | \$20,589,060,989 | 0.92% | 79.63% | 6.34% | 0.67% |
| TRUIST BANK | 20 | 19 | ↓ | \$20,215,483,509 | 0.90% | 80.53% | 7.85% | 1.20% |
| NEW AMERICAN FUNDING | 21 | 21 | ↔ | \$19,337,799,092 | 0.86% | 81.39% | 6.99% | 0.41% |
| MOVEMENT MORTGAGE, LLC | 22 | 23 | ↑ | \$19,302,885,478 | 0.86% | 82.25% | 6.19% | 0.60% |
| CMG MORTGAGE, INC. | 23 | 24 | ↑ | \$18,921,824,139 | 0.84% | 83.09% | 8.07% | 2.01% |
| IDAHO HOUSING | 24 | 26 | ↑ | \$15,942,309,455 | 0.71% | 83.80% | 5.19% | 0.69% |
| PHH MORTGAGE CORPORATION | 25 | 29 | ↑ | \$15,757,292,660 | 0.70% | 84.50% | 6.99% | 0.86% |
| CITIZENS BANK N.A. | 26 | 27 | ↑ | \$13,992,214,570 | 0.62% | 85.12% | 7.08% | 0.70% |
| FLAGSTAR BANK, N.A. | 27 | NR | ↑ | \$13,546,467,746 | 0.60% | 85.72% | 6.54% | 0.07% |
| MIDFIRST BANK | 28 | 28 | ↔ | \$12,368,310,852 | 0.55% | 86.27% | 10.79% | 3.80% |
| CARDINAL FINANCIAL | 29 | 30 | ↑ | \$11,332,731,151 | 0.50% | 86.78% | 8.55% | 1.85% |
| VILLAGE CAPITAL | 30 | 22 | ↑ | \$11,278,518,802 | 0.50% | 87.28% | 13.01% | 1.05% |

Sources: Deloitte, Recursion. Notes: Data as of August 2023.

13 AGENCY NONBANK ORIGINATOR

Total agency nonbank origination share increased as of month-end August 2023 by approximately 0.3% MoM. The increase in nonbank origination share was driven by an increase in both Ginnie Mae and Fannie Mae nonbank origination share, up 0.2% and 2.2% MoM, respectively. The Ginnie Mae nonbank share rose to 89.9% as of August 2023 and has remained consistently higher than the GSEs, largely driven by origination share of refinance mortgage loans.

Figure 49. Agency Nonbank Originator Share (All, Purchase, Refi)

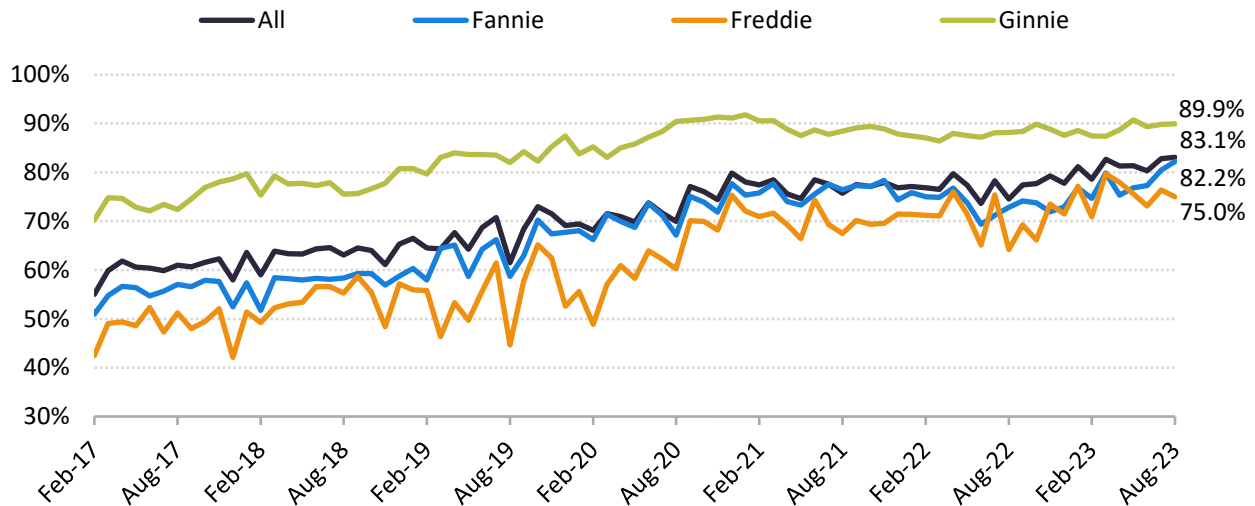


Figure 50. Nonbank Origination Share: Purchase Loans

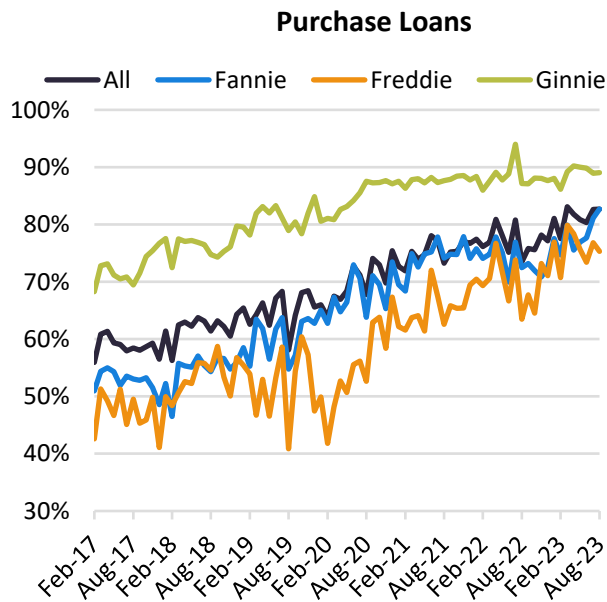
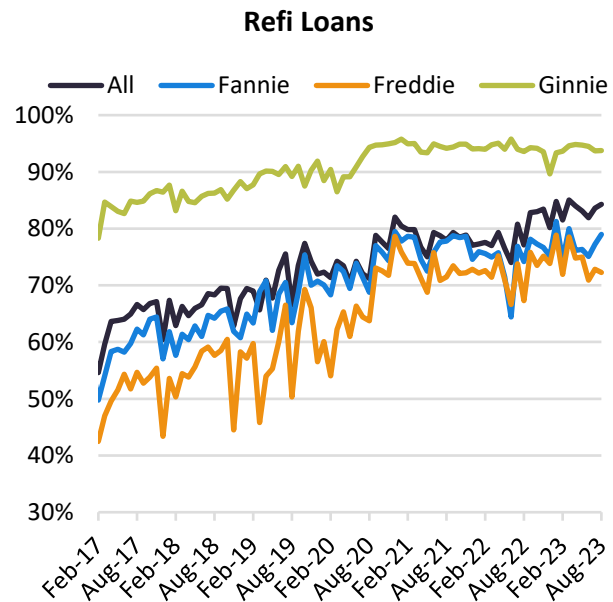


Figure 51. Nonbank Origination Share: Refi Loans



Source: Recursion. Notes: Data as of August 2023.

Ginnie Mae's total nonbank originator share remained relatively stable as of month-end August 2023. Ginnie Mae continues to have a high proportion of nonbank originations, with a rate of 89.9% in August 2023. The percent of Ginnie Mae's Other nonbank refinanced loans increased to 90.7% in August 2023.

Figure 52. Ginnie Mae Nonbank Originator Share (All, Purchase, Refi)

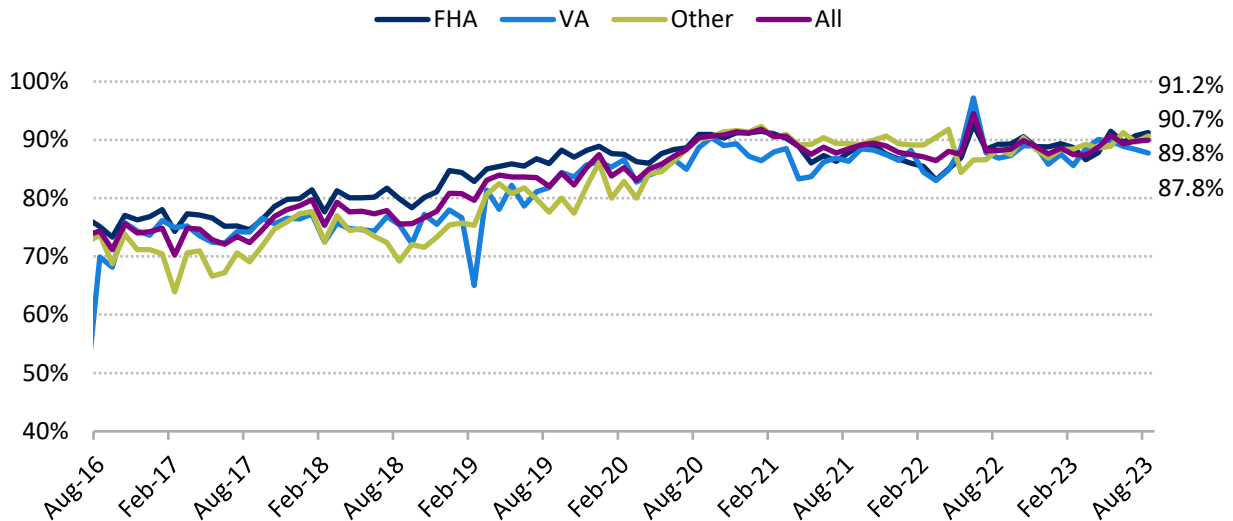


Figure 53. Ginnie Mae Nonbank Share: Purchase Loans

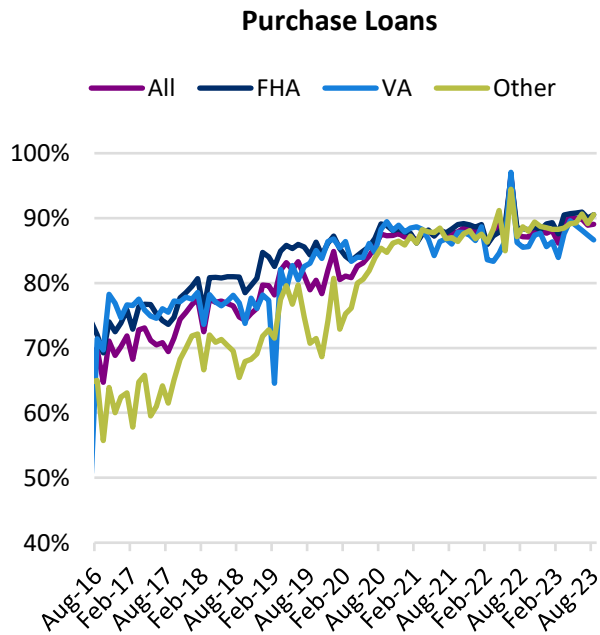
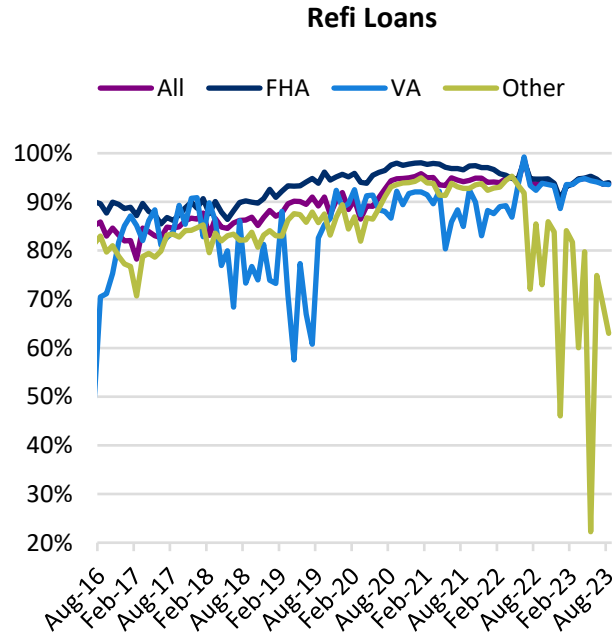


Figure 54. Ginnie Mae Nonbank Share: Refi Loans



Source: Recursion. Notes: Data as of August 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 nonbanks continued to have a consistently lower median FICO score than their bank counterparts across all agencies. The spread between nonbank and bank FICO scores decreased by 1 point from July 2023 to August 2023. The agency median FICO decreased by 2 points MoM to 735.

Figure 55. Agency FICO: Bank vs. Nonbank

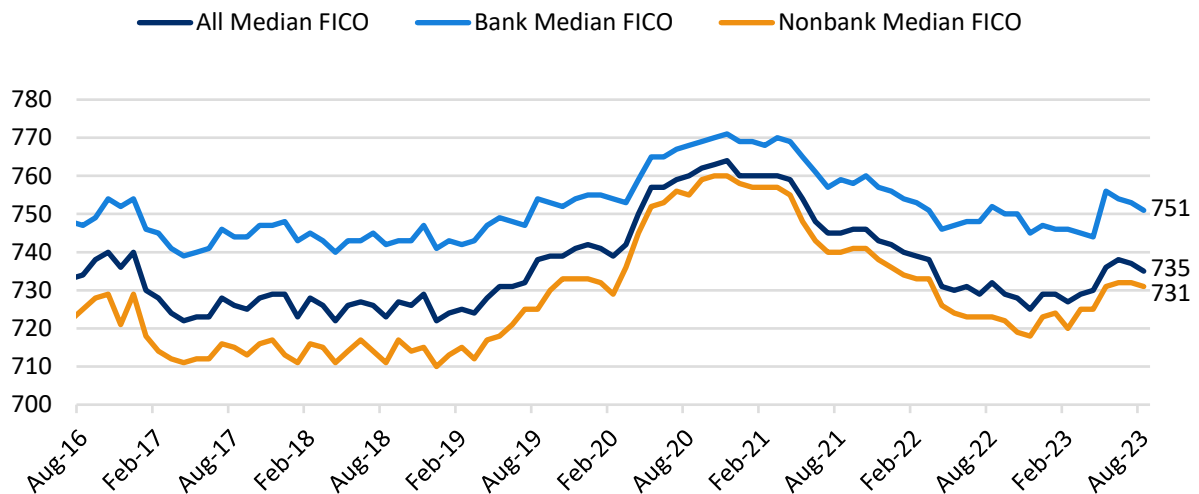


Figure 56. GSE FICO: Bank vs. Nonbank

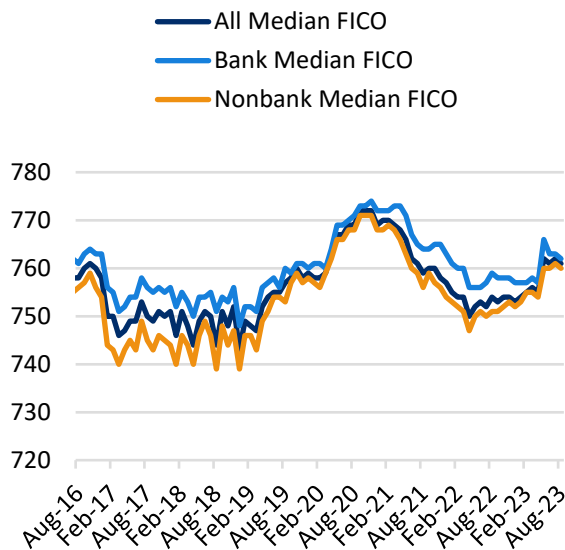
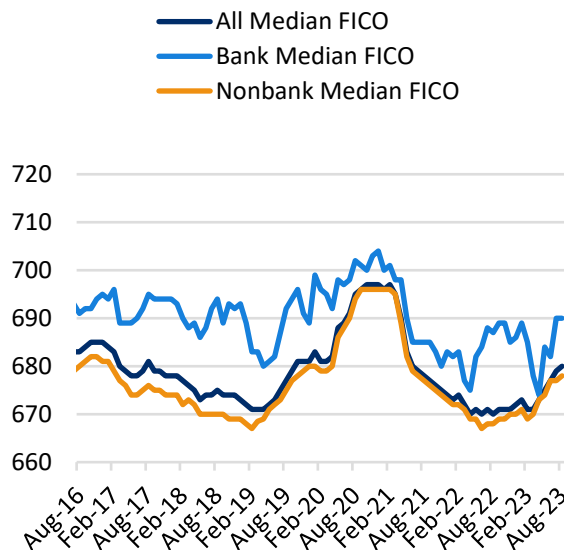


Figure 57. Ginnie Mae FICO: Bank vs. Nonbank



Source: Recursion; Notes: Data as of August 2023.

The median LTV for all GSE originators remained the same as of month-end August 2023 MoM at 80%. Ginnie Mae median bank and nonbank LTV remained flat at 98.19% MoM. Ginnie Mae median DTI slightly rose to 45.3% MoM August 2023 in nonbank originations.

Figure 58. GSE LTV: Bank vs. Nonbank

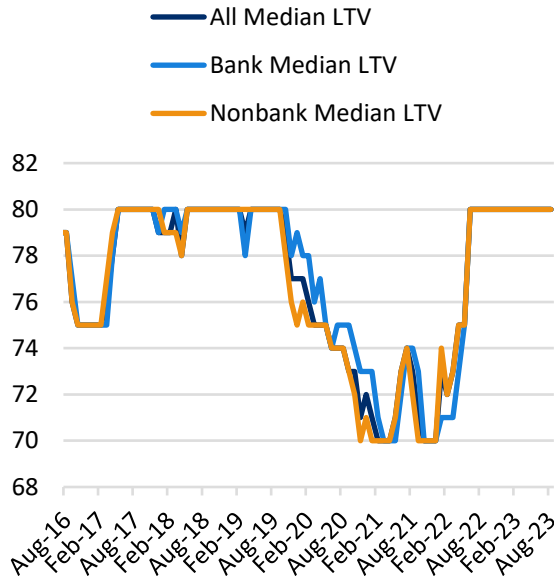


Figure 60. GSE DTI: Bank vs. Nonbank

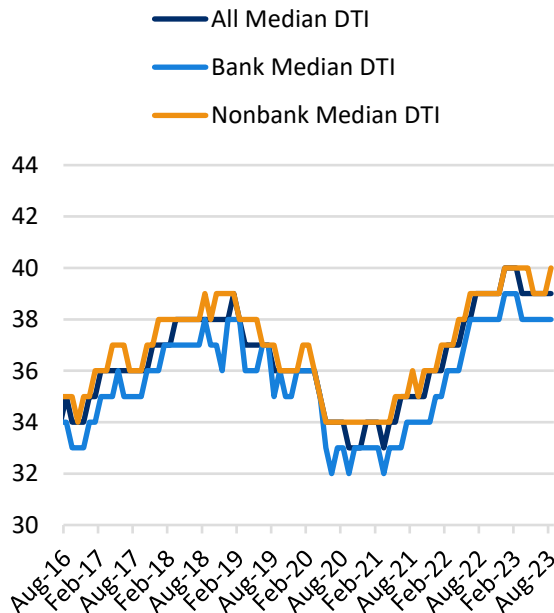


Figure 59. Ginnie Mae LTV: Bank vs. Nonbank

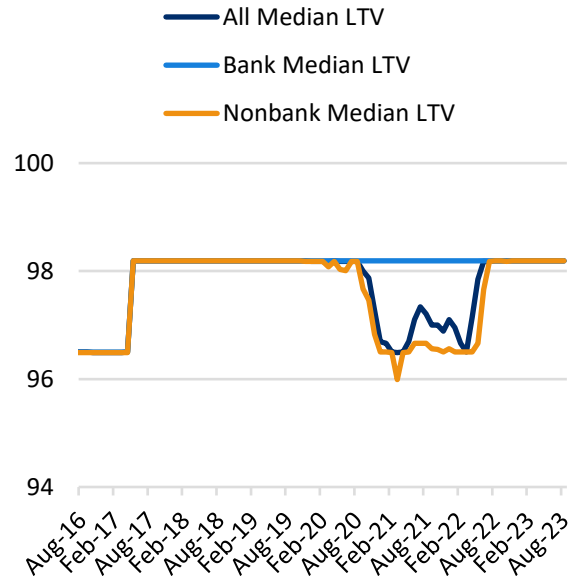
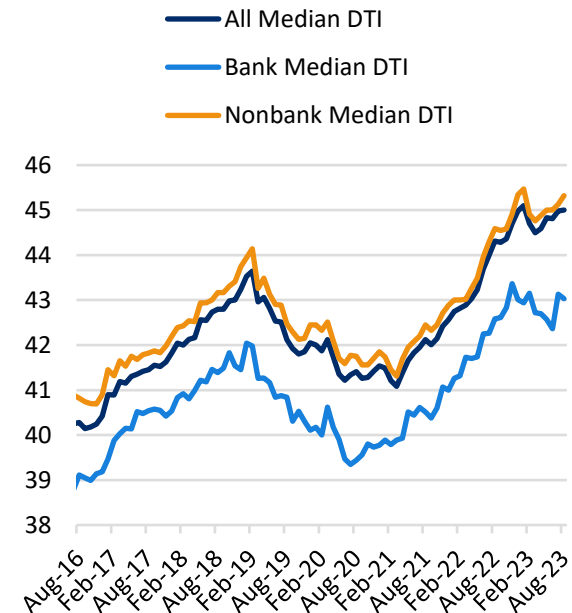


Figure 61. Ginnie Mae DTI: Bank vs. Nonbank



Source: Recursion. Notes: Data as of August 2023.

As of month-end August 2023, the median FICO score for Ginnie Mae bank remained stable at 690 MoM and nonbank increased by 1 point to 678 MoM. The median FICO for all Ginnie originations increased 1 point to 680 MoM. The gap between banks and nonbanks is most apparent in VA and Other lending (14-point spread).

Figure 62. Ginnie Mae FICO Score:

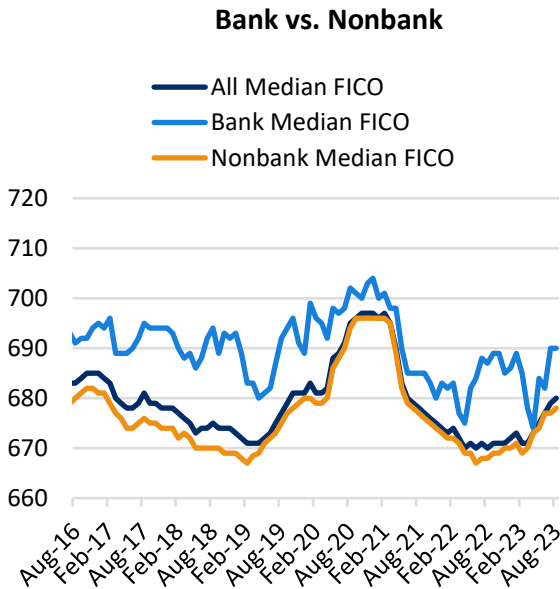


Figure 63. Ginnie Mae FHA FICO Score:

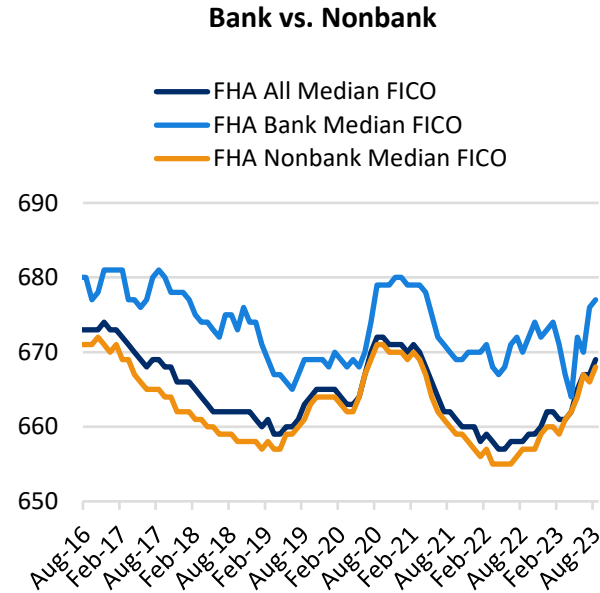


Figure 64. Ginnie Mae VA FICO Score:

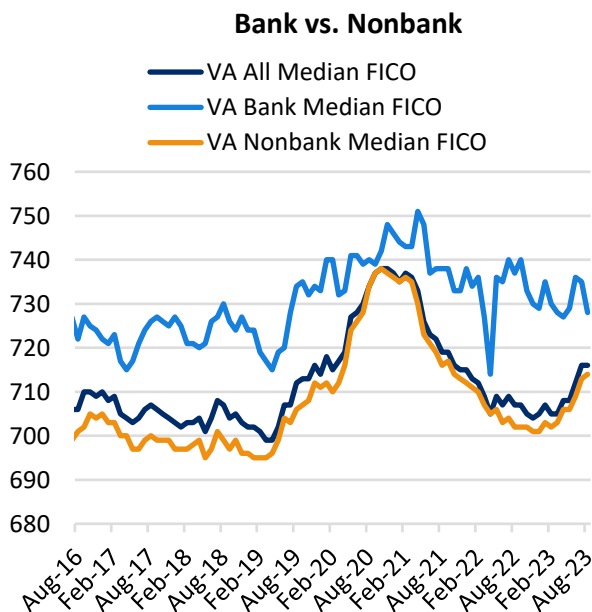
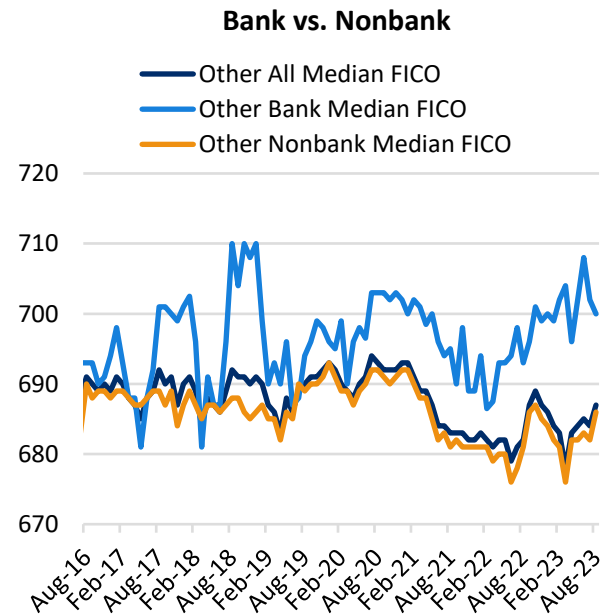


Figure 65. Ginnie Mae Other FICO Score:



Source: Recursion. Notes: Data as of August 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 66. Ginnie Mae DTI: Bank vs. Nonbank

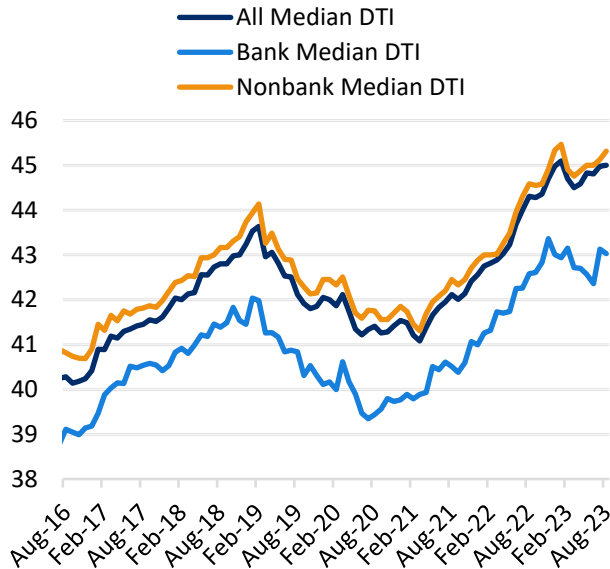


Figure 67. Ginnie Mae FHA DTI: Bank vs. Nonbank

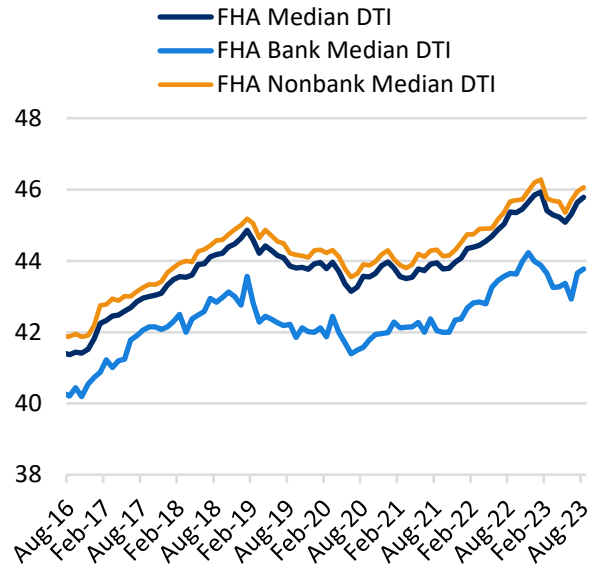


Figure 68. VA DTI: Bank vs. Nonbank

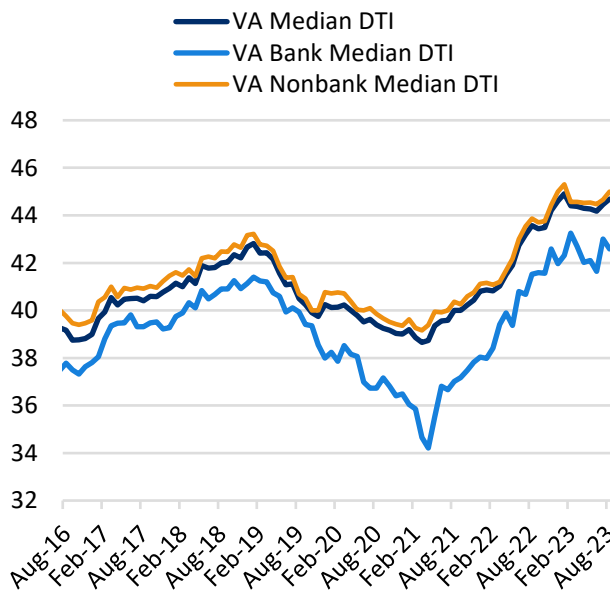
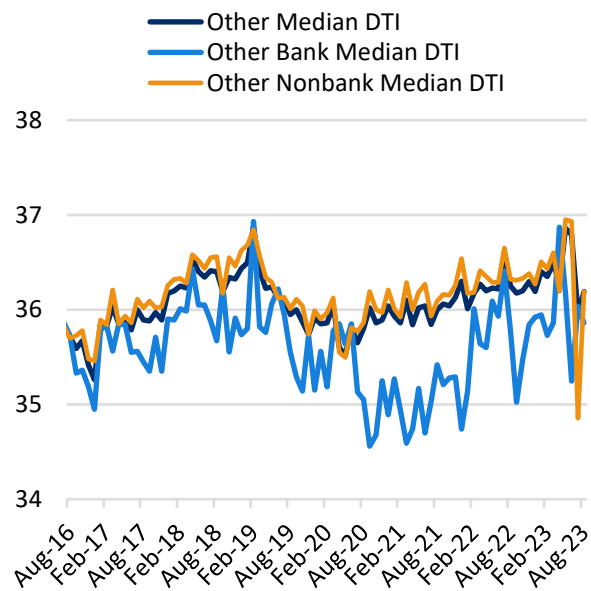


Figure 69. Other DTI: Bank vs. Nonbank



Source: Recursion. Notes: Data as of August 2023.

14 ENVIRONMENTAL, SOCIAL, AND GOVERNANCE

Ginnie Mae Mortgage-Backed Securities are collateralized by loans that facilitate homeownership for low-to-moderate income (LMI) borrowers, veterans, rural borrowers, and others that traditionally experience challenges in their efforts to achieve homeownership or obtain housing. Ginnie Mae is enhancing their disclosures to provide insight into the extent that the securities they guarantee support meaningful environmental and social goals. The timeline below captures the efforts Ginnie Mae has taken to produce ESG disclosures in recent years.



14.1 Environmental, Social, and Governance: A Summary

Ginnie Mae's guaranty of the securities provides a connection between the primary and secondary mortgage markets that promote access to mortgage credit throughout the Nation for residential and multifamily properties. The table below captures the outcomes Ginnie Mae has seen, both socially and environmentally, through its guaranty program.

Table 26. ESG Metrics – MBS Portfolio (August 2023)

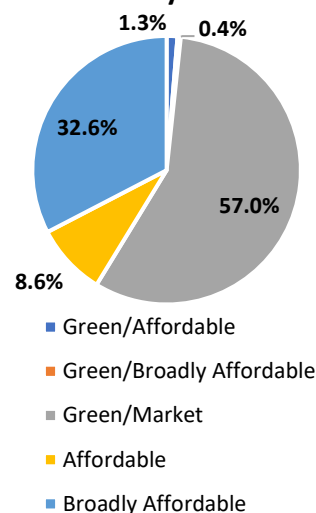
| Ginnie Mae's ESG Metrics – MBS Portfolio as of August 2023 | | | |
|--|--|---|--|
| | Targeted Population | Positive Outcomes | Our Commitment |
| Social - Affordable | FHA Borrowers - 6,746,999 | <u>Loans under \$200K</u> 6,514,938 Loans | Ginnie Mae was established by Congress in 1968 to offer broad access to credit nationwide with a special emphasis on low- and moderate-income borrowers, and rural, inner-city, and underserved communities. |
| | VA Borrowers – 3,553,087 | <u>First-Time Home Buyers</u> 4,047,520 Loans | |
| | RHS Borrowers – 23,759 | <u>Down Payment Assistance</u> 689,114 Loans | |
| | PIH Borrowers – 786,790 | | Ginnie Mae securitization provides a unique and sustainable service in making home ownership more affordable, accessible, and equitable for our nation. The proceeds from the sale of Ginnie Mae Primary Issuance MBS are a source of capital to finance the specific residential mortgage loans collateralizing the Ginnie Mae MBS. |
| | Low-to-Moderate Income Borrowers (LMI) | 3,178,829 Loans | Ginnie Mae securitization collateral selection is restricted to agency insured mortgages from the following United States Government Agencies. These agencies are the: Federal Housing Administration (FHA), Department of Veterans Affairs (VA), United States Department of Agriculture's Rural Housing Service (USDA-RHS), and HUD Public and Indian Housing (PIH). The combination of these insuring agency programs and Ginnie Mae's guaranty enable housing outcomes for households who might otherwise not be able to obtain mortgage access. |
| | LMI Majority Census Tract Loans | 1,711,346 Loans | |
| | Borrowers Facing Difficulties | 791,455 modifications with over 615,623 in partial claims | Ginnie Mae has been integral to the federal actions to prevent foreclosure for homeowners experiencing financial hardship. |
| HECM | Senior Citizens Aging in Place | 287,716 Home Equity Convertible Mortgages (HECM) or Reverse | Ginnie Mae has developed the securities market for the FHA HECM (Reverse Mortgage) program which provides senior citizens a vehicle for accessing the equity in their homes. |
| | Multifamily Housing (MF) | 1.31 million apartment homes 499,111 healthcare living units | Affordable rental housing is in critically short supply. Government lending and subsidy programs support preservation and creation of new affordable housing units nationwide. |
| | MF Affordable | 4,837 MF loans are either Green, Affordable, or both | |
| Green | MF Green | | Ginnie Mae provides information to investors via its monthly bond disclosure on multifamily investments that meet FHA's MF Green Mortgage Insurance Premium (MIP) Discount Qualified Mortgages and those loans meeting FHA's MF Broadly Affordable and Affordable requirements. |
| | | | Multifamily |

14.2 Environmental

Table 27. UPB by ESG Status

| ESG Status | UPB | % |
|---------------------------------|--------------------------|---------------|
| Green/Affordable | \$1,054,948,859 | 0.7% |
| Green/Broadly Affordable | \$326,397,467 | 0.2% |
| Green/Market | \$46,410,196,212 | 31.1% |
| Green Total | \$47,791,542,538 | 32.0% |
| Affordable ⁵ | \$7,032,069,092 | 4.7% |
| Broadly Affordable ² | \$26,537,850,192 | 17.8% |
| Affordable Total | \$34,951,265,610 | 23.4% |
| ESG Total | \$81,361,461,822 | 54.5% |
| Total | \$149,319,922,016 | 100.0% |

Figure 70. Composition of Ginnie Mae Green Status and Affordable Multifamily Collateral



Much of Ginnie Mae’s environmental impact is made through its Multifamily programs. Approximately 32% of Ginnie Mae collateral are “Green”-certified, as defined by the multiple organizations that sponsor and maintain green building certifications, including the US Green Building Council, Energy Star, Greenpoint, and the National Green Building Standard, just to name a few. Additionally, over 23% of Ginnie Mae Multifamily collateral is “Affordable” or “Broadly Affordable”. In total 54.5% of Ginnie Mae’s Multifamily collateral is considered ESG.

Sources: Ginnie Mae Disclosures as of August 2023, https://www.hud.gov/program_offices/housing/mfh/green

14.3 Social

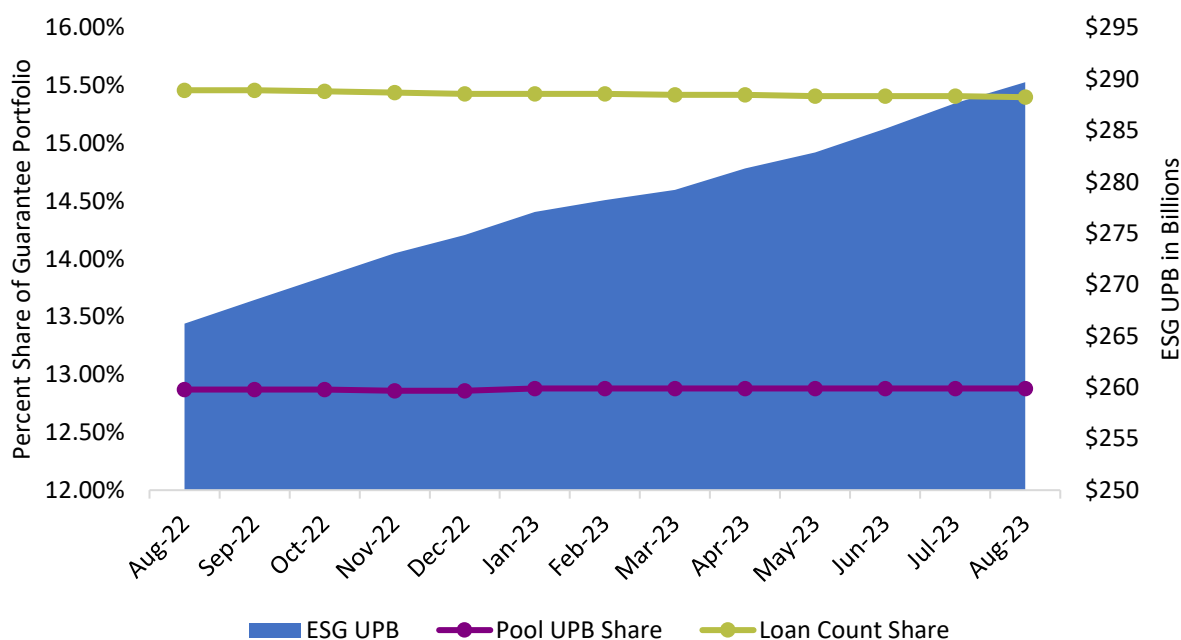
With the introduction of Ginnie Mae’s new social disclosures, investors can now identify the number of underlying loans made to LMI borrowers, the percentage of LMI loan count out of total loan count, the unpaid principal balance (UPB) of LMI loans in the MBS, and the percentage of LMI UPB out of total MBS UPB. The borrower household income and address data, received from the government’s insuring and guarantying agencies, is compared against the appropriate Federal Financial Institution’s Examination Council (FFIEC) Area Median Income (AMI) database by loan origination year. If the borrower income is less than 80 percent of its respective AMI income value, in the associated census tract, their mortgage will be flagged as an LMI loan. In September 2023, Ginnie Mae launched its Social Bond update to its Single-Family Forward MBS program and its Social Impact and Sustainability Framework. These enhancements highlight the structural aspects of Ginnie Mae’s mission and program which drives broader access to mortgage financing, affordable homeownership, and rental opportunities for historically underserved communities.

⁵ “Affordable” and “Broadly Affordable” removes “Green/Affordable” and “Green/Broadly Affordable” from the UPB total.

14.3.1 LOW-TO-MODERATE INCOME BORROWERS

Over \$289 billion of Ginnie Mae single-family collateral and approximately 1.7 million of loans outstanding have been issued too low to moderate income borrowers. Total ESG UPB increased by approximately \$24 billion over the past 12 months as of August 2023.

Figure 71. ESG Share of the Outstanding SF Portfolio



Source: Ginnie Mae Disclosures as of August 2023

The UPB of pools that are made up of 20% or more LMI loans make up over 9% of total pool UPB. These pools have slightly higher LTV's, marginally lower FICO scores, and substantially lower loan sizes than pools made up of less than 20% LMI loans. The UPB of pools that are made up of less than 20% LMI loans make up roughly 90% of total UPB.

Table 28. Percent LMI by Pool Share

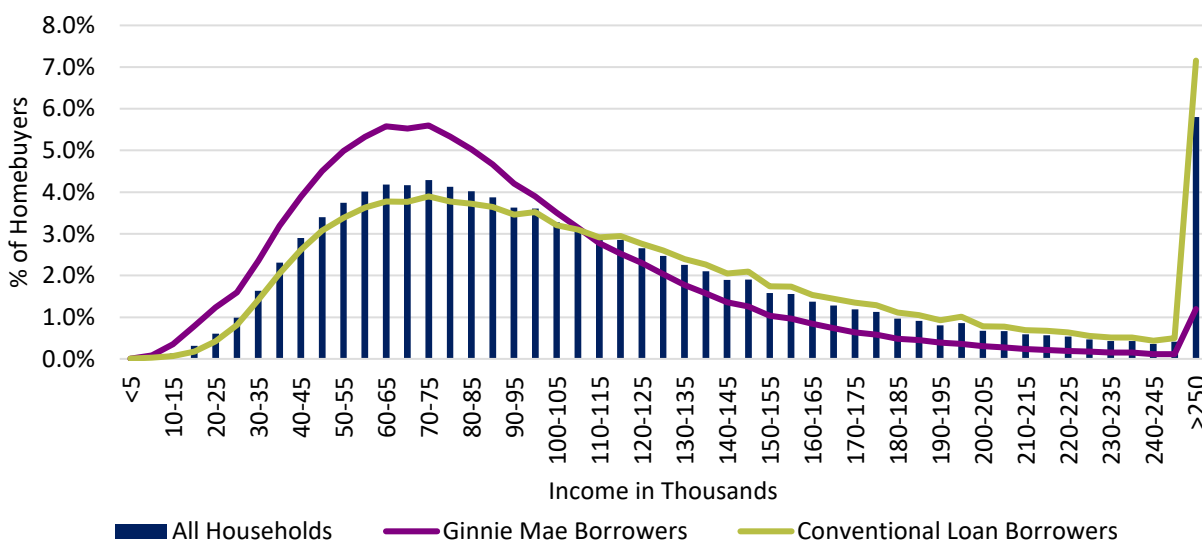
| Metric | LMI Pool Share >50% | LMI Pool Share >=20 - <50% | LMI Share < 20% | All Pools |
|----------------------------|---------------------|----------------------------|-----------------|-----------|
| Total UPB (\$ billions) | \$8.0 | \$195.0 | \$2,001.9 | \$2,204.9 |
| Average Original Loan Size | \$170,604 | \$188,224 | \$332,625 | \$319,271 |
| Credit Score (Median) | 675 | 675 | 679 | 677 |
| DTI (Median) | 40% | 40% | 40% | 40% |
| LTV (Median) | 97% | 96% | 95% | 96% |
| Interest Rate (WA) | 4.67% | 4.46% | 3.73% | 3.80% |

Source: Ginnie Mae Disclosures as of August 2023

14.3.2 PURCHASE AND REFINANCE ORIGATION BY INCOME BRACKET

Over 18% of all purchase and refinance loan originations guaranteed by Ginnie Mae are to households with income less than \$50,000 compared to 10.7% of the Government Sponsored Entities (GSE's) single-family guarantee portfolio. Additionally, over 68% of these loan originations guaranteed by Ginnie Mae are to households with income less than \$100,000 compared to 47.3% at the GSE's.

Figure 72. Income Distribution of Homebuyers Served Under Ginnie Mae Program



Source: Home Mortgage Disclosure Act (HMDA) data as of 2022

U.S. HOUSING MARKET

15 HOUSING AFFORDABILITY

15.1 Housing Affordability – Home Price Appreciation

Home prices increased in all regions in Q2 2023. Notably, the East North Central, Middle Atlantic, and New England regions all saw over a 2% increase QoQ. The East South Central and Mountain regions saw the smallest QoQ increases, 0.7% and 1.07%, respectively. The East North Central has appreciated more than any other region over the past four quarters appreciating by 5.40%.

Figure 73. Regional HPI Trend Analysis Q/Q

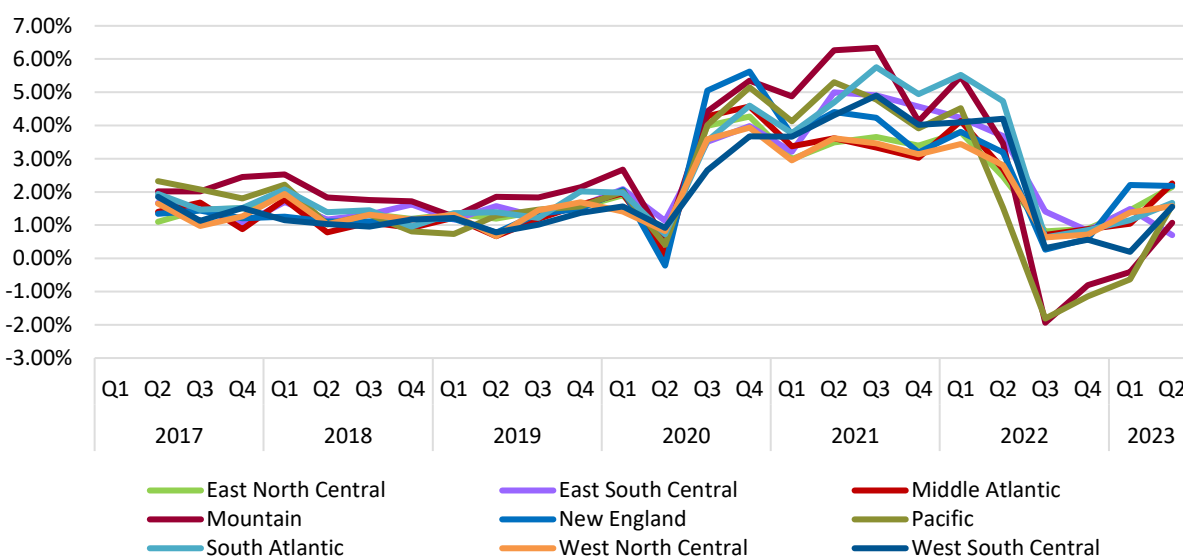
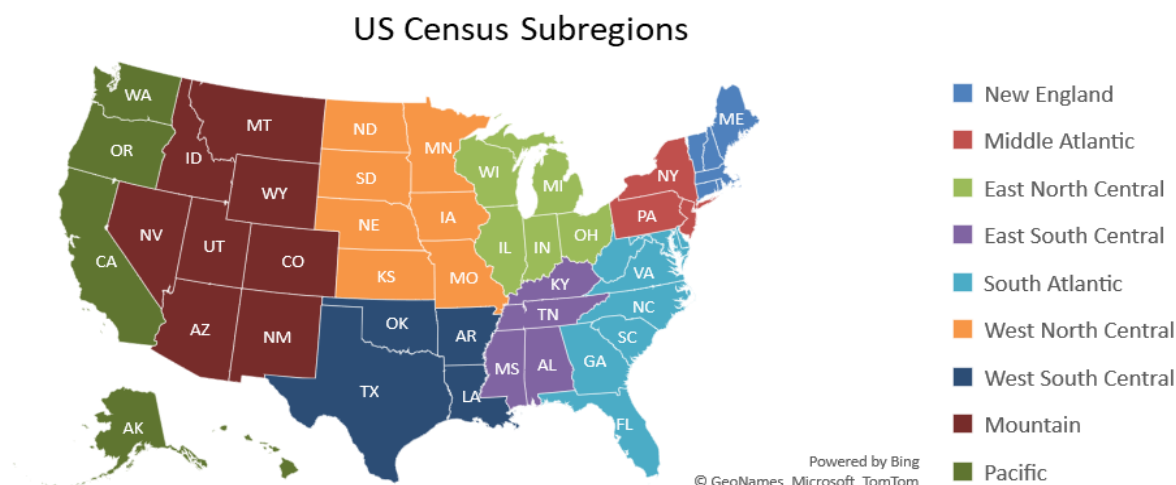


Figure 74. FHFA US Census Subregions as defined by the US Census Bureau



Source: HPI data from FHFA and is seasonally adjusted. US Census Subregions as defined by the US Census Bureau.

15.2 Housing Affordability – Inflation, Wages, and the Price of Real Estate

As of month-end August 2023, inflation was 3.7%, up 0.4% from the month prior. Nationally, rents are down 0.06% YoY as of month-end August 2023. The MoM change in rents from July 2023 to August 2023 increased by 0.71%. Wage growth saw a decrease from 5.7% in July 2023 to 5.3% as of month-end August 2023. Month-end June 2023 reporting data shows YoY home price appreciation was flat, appreciating 0.0%, an increase from a 0.4% decrease in May 2023.

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

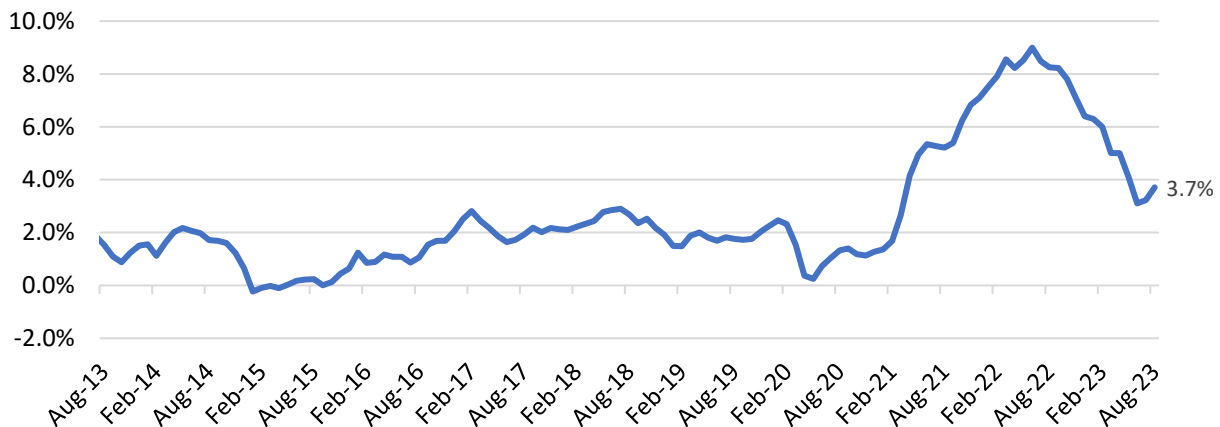
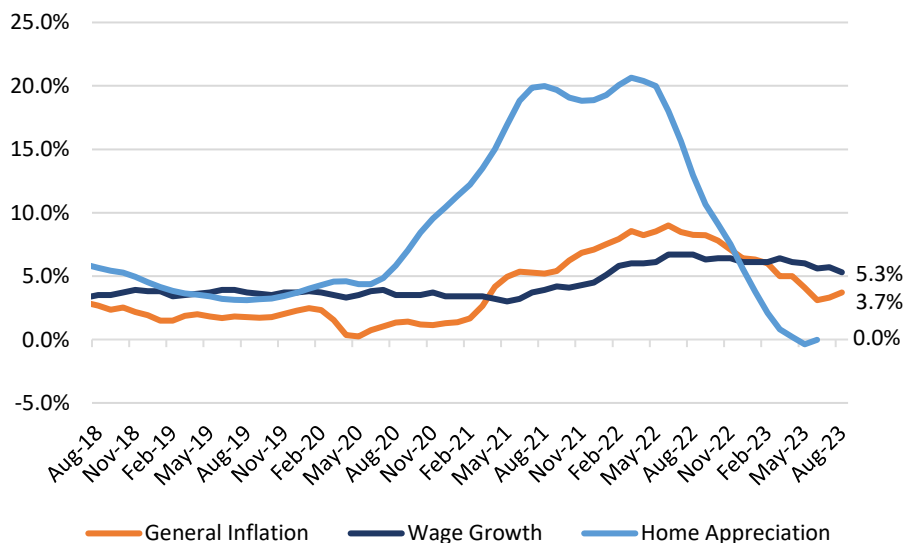


Figure 76. Asset Price Appreciation vs. Wage Increases

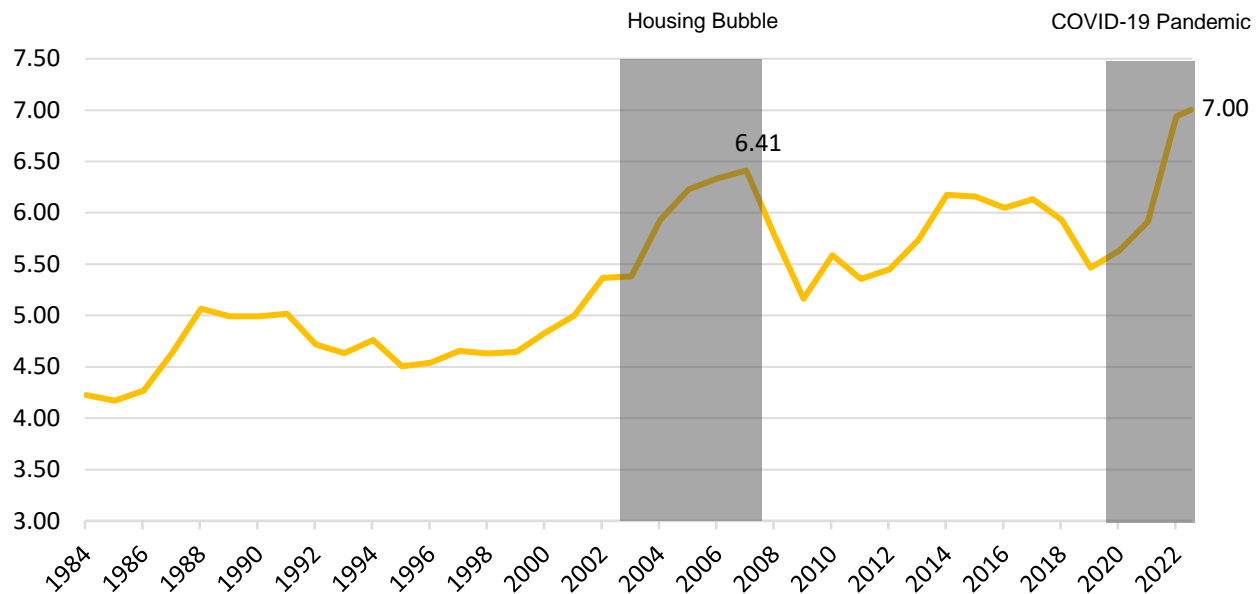


| Metric | Statistic |
|--|-----------|
| General Inflation | 3.7% |
| Home Price Appreciation (YoY) | 0.0% |
| Rental Price Appreciation (Median Rent Change YoY) | -0.06% |
| Wage Growth | 5.3% |

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 low, as the ratio of the average price of sold homes to median incomes is at a historically high level. Typically, this ratio has been around 5:1; the current 7:1 sales price to median income ratio exceeds the ratio observed during the housing bubble (6.4:1). With 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

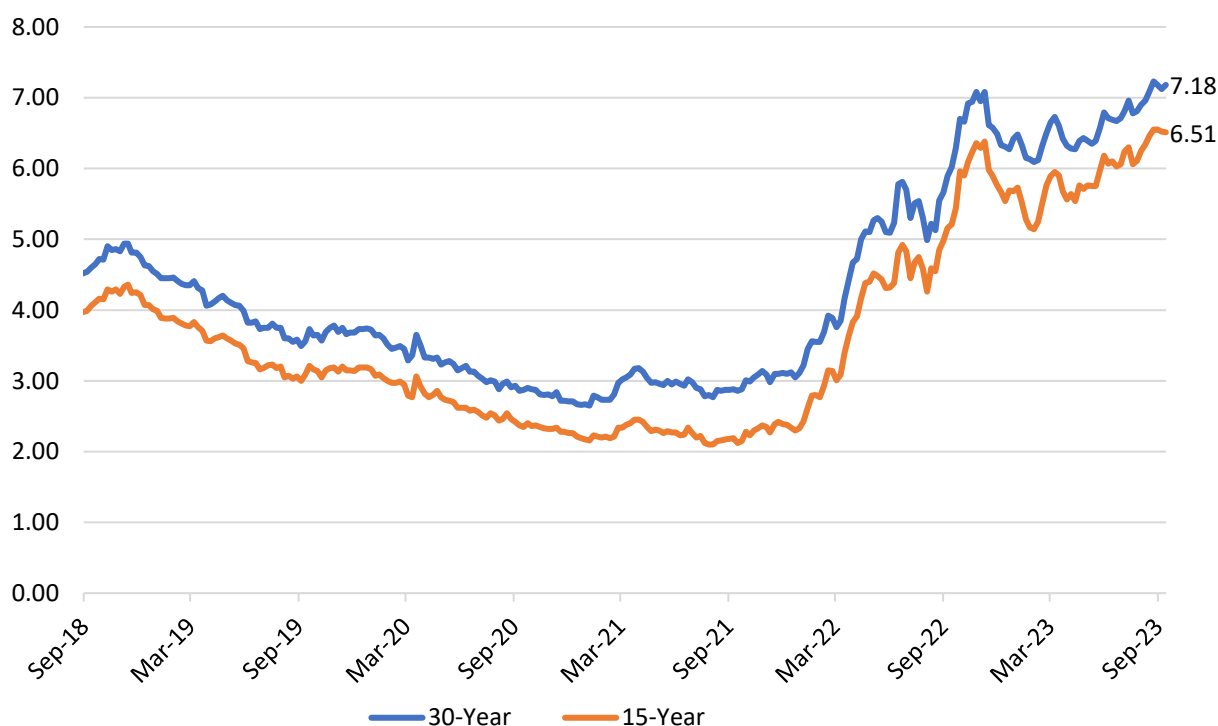


Source: FRED Average Home Sales Data, FRED Median Income Data

15.2.1 HOUSING AFFORDABILITY – MORTGAGE RATE TRENDS

The Federal Reserve maintained the Federal Funds target range on September 20, 2023, at a range of 5.25% and 5.50% per the FOMC.⁶ As of September 14, 2023, the average 30-year and 15-year fixed rate mortgage rates were 7.18% and 6.51%, respectively. The average 30-year fixed rate mortgage rate increased 9 bps and the average 15-year fixed rate mortgage rate increased 5 bps MoM from August 17, 2023.

Figure 78. Average Fixed Rate Mortgage Rates



Sources: FRED data as of September 2023

⁶<https://www.federalreserve.gov/newsevents/pressreleases/monetary20230920a.htm>

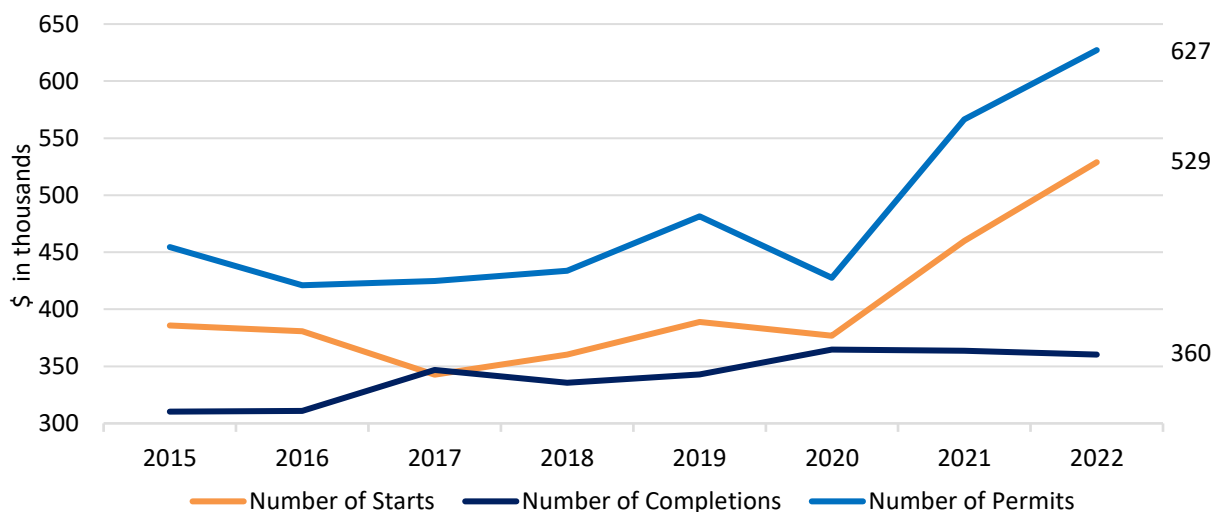
15.3 Housing Inventory

As of July 2023, there was 7.3 months of housing inventory on the market, a decrease from 7.5 months in June 2023. As housing affordability continues to remain low (See above [Section 15.2](#)) 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. Figure 79: data as of July 2023. New Residential Construction, US Census Bureau. Figure 80: data as of December 2022.

15.4 Size and Value of the US Housing Market

The total value of the single-family housing market increased to \$44.4 trillion in Q2 2023. The total value of the US housing market is up 133% from its trough in 2011. From Q2 2022 to Q2 2023 mortgage debt outstanding increased from \$12.1 trillion to \$12.8 trillion and household equity increased from \$31.1 trillion to \$31.6 trillion. At \$9.0 trillion in Q2 2023, agency single family MBS continues to account for a growing percentage of the total mortgage debt outstanding, up to 65% of total mortgage debt from just 52% in 2011.

Figure 81. Value of the US Housing Market

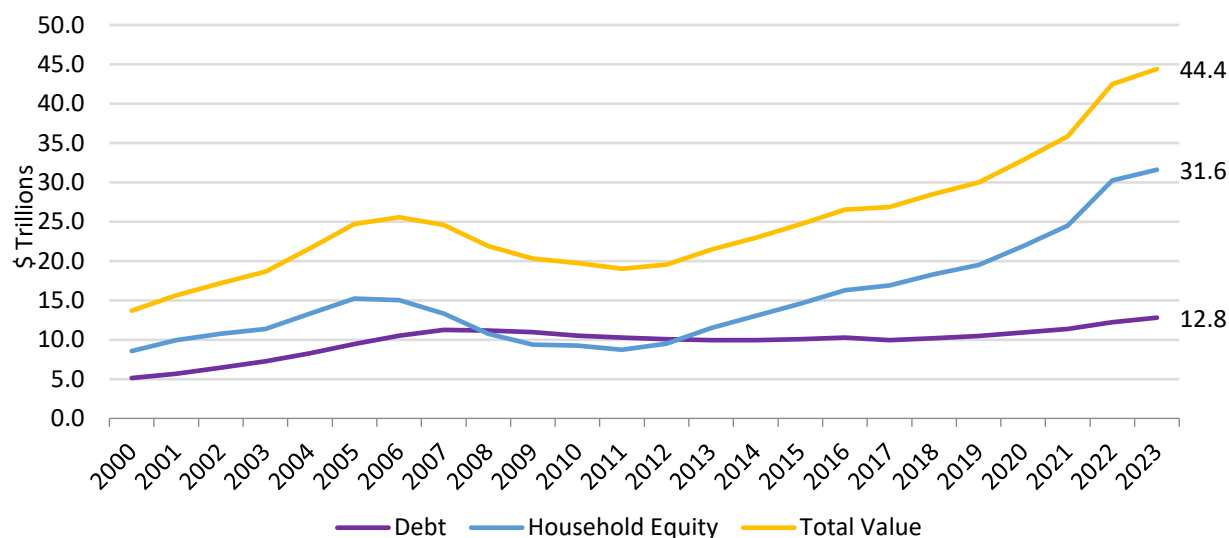
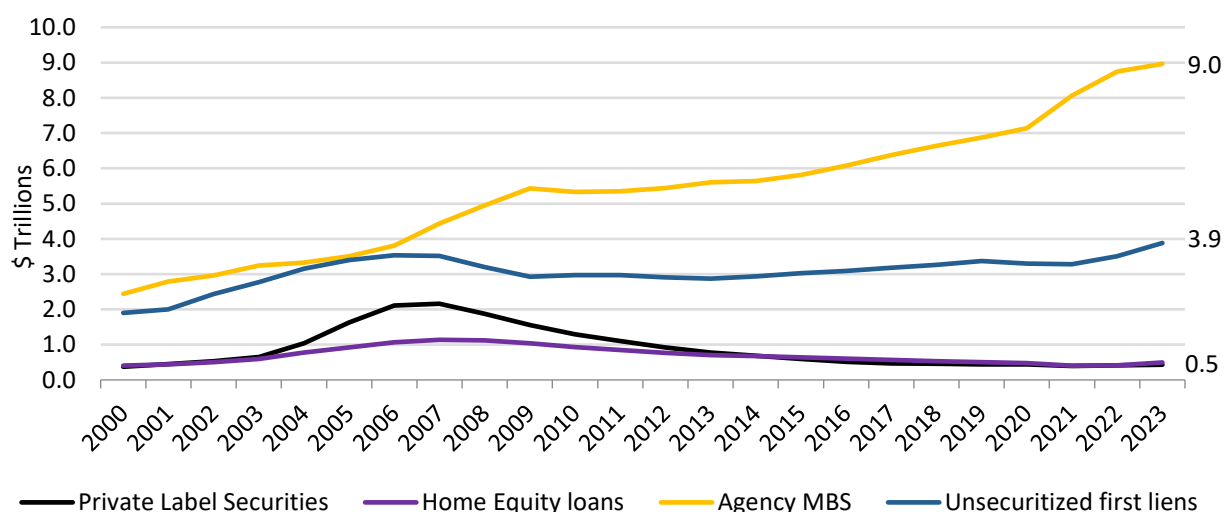


Figure 82. Size of the US Residential Mortgage Market



Source: Federal Reserve Flow of Funds Data as of Q2 2023.

16 DISCLOSURE

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