GLOBAL MARKETS ANALYSIS REPORT

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

October 2023

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

This month's *Highlights* section takes a deeper dive into Agency REMIC Issuance. The Highlights provides insight on why Ginnie Mae has continued to be the majority issuer of Single-Family REMIC issuance even as Ginnie Mae's share of the Agency MBS market has remained steady, as well as trends in deal structures as interest rates continue to climb higher.

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 Mae 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 Single-Family MBS Pass-Through Issuance section captures Ginnie Mae's leading net issuance of Agency MBS through 2023.
- The U.S. Housing Market section illustrates recent record highs of 30- and 15-year fixed mortgage rates for the month of October.

Highlights

Ginnie Mae continues to be the largest guarantor of new issue Single-Family Agency REMICs, accounting for over 69% of all Single-Family REMIC issuance year-to-date. Ginnie Mae's fiscal YTD issuance, from October 2022 to September 2023, including HREMIC's and Multifamily, amounts to $105.3 billion, down roughly 29% from October 2021 to September 2022. However, overall Agency MBS issuance, which can be seen in Section 5.3 Monthly Issuance Breakdown, over the same period has decreased by 53.3% indicating that REMIC issuance volumes have remained strong in comparison. The decreasing supply of primary mortgages leads to less new origination MBS securities which ultimately limits the supply of collateral used for Agency REMIC issuance.

One of the reasons Ginnie Mae has been the predominant issuer of Single-Family Agency REMIC Issuance in 2023 is due to the regulatory capital treatment they receive compared to conventional Agency REMICs. Under Basel III, a set of financial reforms with the aim of strengthening regulation, supervision, and risk management within the banking industry, banks are required to hold a pre-determined amount of capital in relation to the risk profile of their assets. Ginnie Mae guaranteed assets hold a risk weighting of 0%, similar to Treasuries, while assets guaranteed by Freddie Mac and Fannie Mae hold a risk weighting of 20%, meaning that banks face an additional cost when holding conventional mortgage-backed securities versus Ginnie Mae. This is important in the current environment as bank capital ratios continue to tighten due to the increasing unrecognized losses on bank balance sheets pushing the banking industry to eliminate risk-based capital charges.

Table 1: Single-Family Agency REMIC Issuance 2023 YTD

Month	Freddie Mac	Fannie Mae	Ginnie Mae	Total	Ginnie Mae Market Share
January	0.51	0.63	6.43	7.57	84.89%
February	1.78	1.60	10.23	13.61	75.15%
March	1.50	2.16	7.15	10.82	66.13%
April	0.85	0.46	5.78	7.08	81.61%
May	1.34	1.22	9.63	12.19	78.99%
June	1.84	2.39	6.73	10.96	61.41%
July	2.67	0.90	4.50	8.07	55.73%
August	2.99	1.03	10.50	14.52	72.27%
September	5.55	1.65	8.28	15.48	53.49%
Total	**19.03**	**12.05**	**69.22**	**100.30**	**69.01%**

With interest rates on the rise, the trend in structures of REMIC issuance is more simplistic, weighted towards pass-throughs, and there is diminished need for prepayment risk protection using balance schedules and support. The trend is also towards structures that provide for variability, or that at least recognize uncertainty, in the interest rate environment.

With rates continuing to increase, REMIC structures in Ginnie Mae's September issuance feature a significant volume of float/inverse float issuance. Many MX combos in August and September included optionality in formulas and margins. Passthrough and simple sequential structures were used to accommodate the increase in MX combos, which included simple waterfall rules.

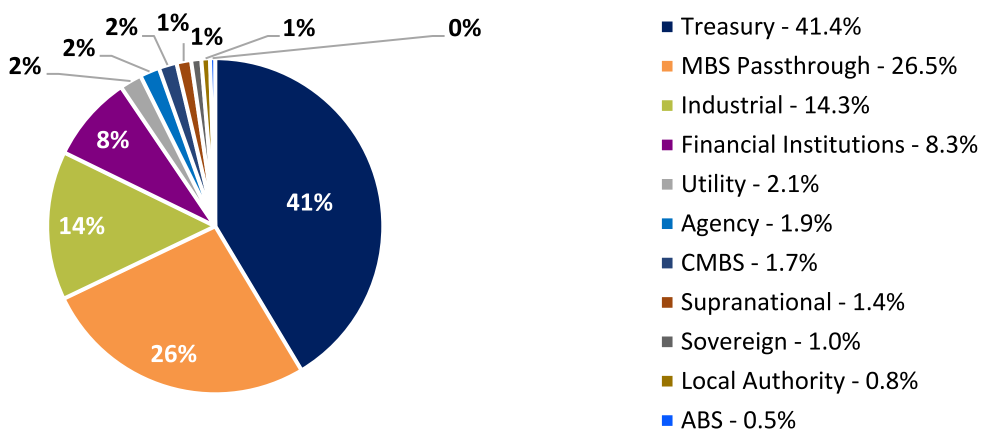
September 2023 REMIC issuance transactions also included Re-REMICs of legacy LIBOR tranches which were indexed to Adjusted CME Term SOFR and are now indexed to a new reference rate, CME Term SOFR. The first Re-REMIC of this type was issued in July 2023, BMO 2023-100. Unlike Ginnie Mae, the GSEs selected the 30-day Average SOFR plus a fixed tenor spread adjustment as the benchmark replacement for their LIBOR-indexed CMOs following the cessation of LIBOR.

1 US AGGREGATE AND GLOBAL INDICES

1.1 Bloomberg US Aggregate and Global Indices

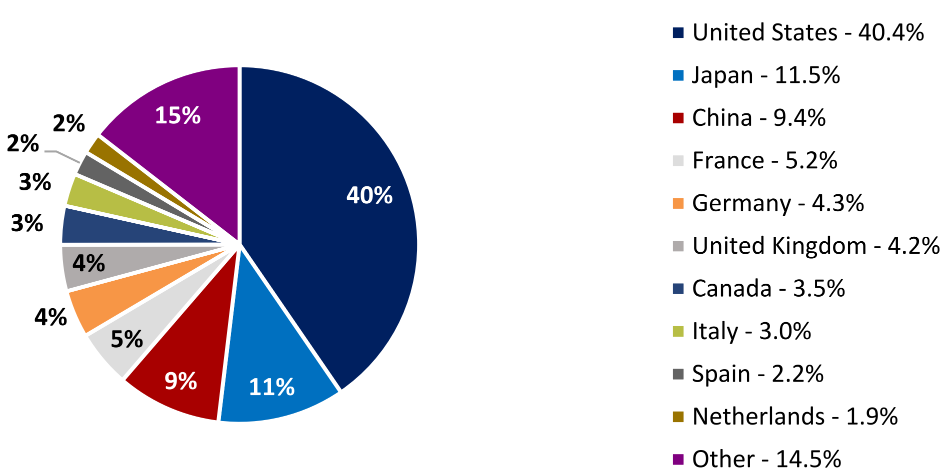
At month-end September, U.S. Treasuries contributed 41.4% to the Bloomberg U.S. Aggregate Index, up approximately 0.3% from the prior month. U.S. MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) contributed 26.5%, down approximately 0.3% from the month prior. For the U.S. Aggregate Index, all other changes to the index components were no larger than 0.1%.

Figure 2. Bloomberg U.S. Aggregate Index



In the Bloomberg Global Aggregate Index by Country, the U.S. share of fixed income remained the largest share of total outstanding issuance, representing 40.4% of the total Bloomberg Global Aggregate Index, down 0.1% from the prior month. Japan's share of fixed income was the second highest at 11.5%, up slightly for the first time in four months. China's share of fixed income saw the largest increase, approximately 0.2% for the month end September. All other countries remained stable compared to the prior month with no changes larger than 0.1%.

Figure 3. Bloomberg Global Aggregate Index by Country



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

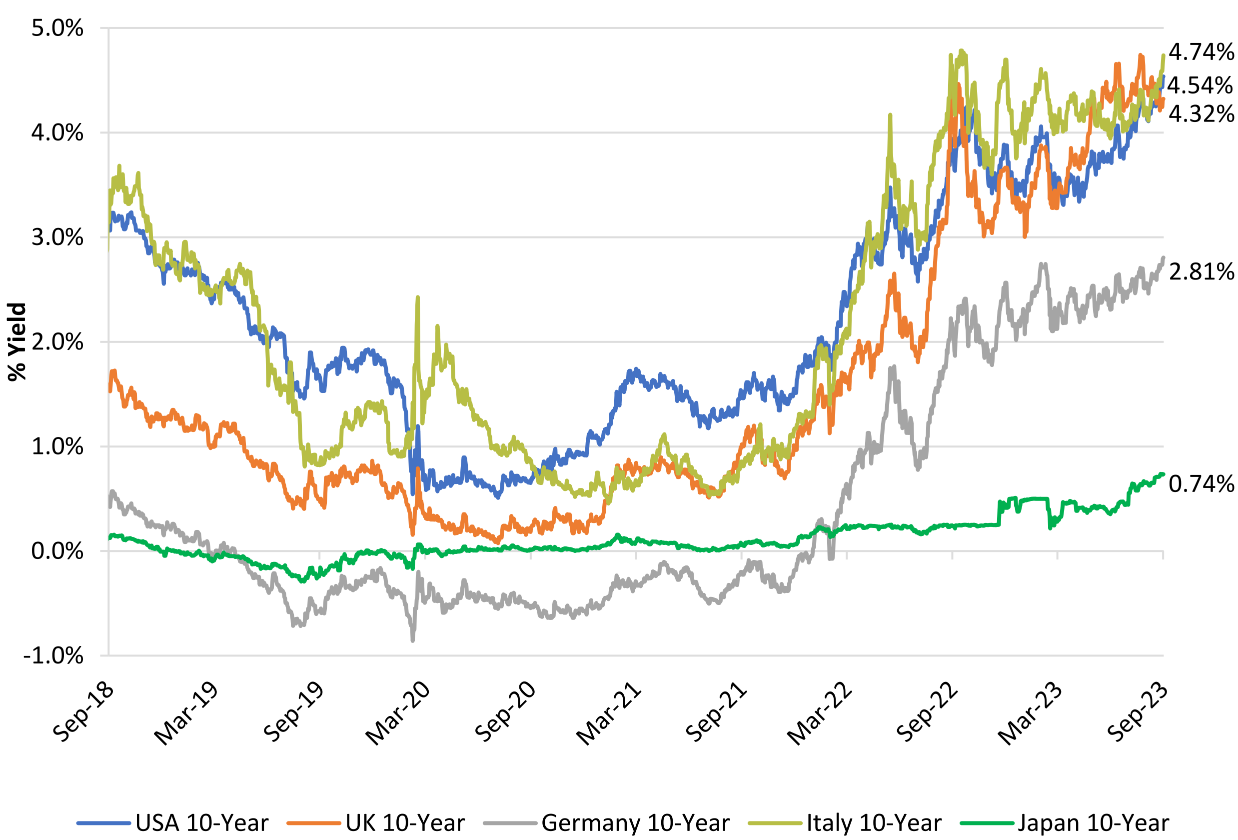
2 SOVEREIGN DEBT PRODUCT PERFORMANCE COMPARISONS

2.1 Global 10-Year Treasury Yields (Unhedged)

The U.S. 10-year Treasury yield moved to 4.54% at month-end September 2023, a MoM increase of 30 bps. U.S. Treasury yields remain the second highest of all the government treasury yields behind Italian government bond yields. All month-end yields listed, excluding the UK, have increased for the third consecutive month.

- The yield on the UK 10-year note decreased to 4.32% at month-end September, a MoM decrease of 12 bps.
- The yield on the German 10-year note increased to 2.81% at month-end September, a MoM increase of 25 bps.
- The yield on the Italian 10-year note increased to 4.74% at month-end September, MoM increase of 50 bps. Italian government bond yields have separated from the U.S. in the prior month, claiming the highest yield in the group listed at month-end September.
- The yield on the Japanese 10-year note increased to 0.74% at month-end September, a MoM increase of 9 bps.

Figure 4. Global 10-Year Treasury Yields



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

2.2 U.S. Treasury Hedged Yields

The yield for the 10-year Treasury, hedged in Japanese Yen stood at -1.03% at month-end September, a 26 bp increase from month-end August.

The yield for the 10-year Treasury, hedged in Euros stood at 2.86% at month-end September, a 39 bp increase from month-end August.

Figure 5. U.S. 10yr Total Return Hedged, 1 yr. JPY

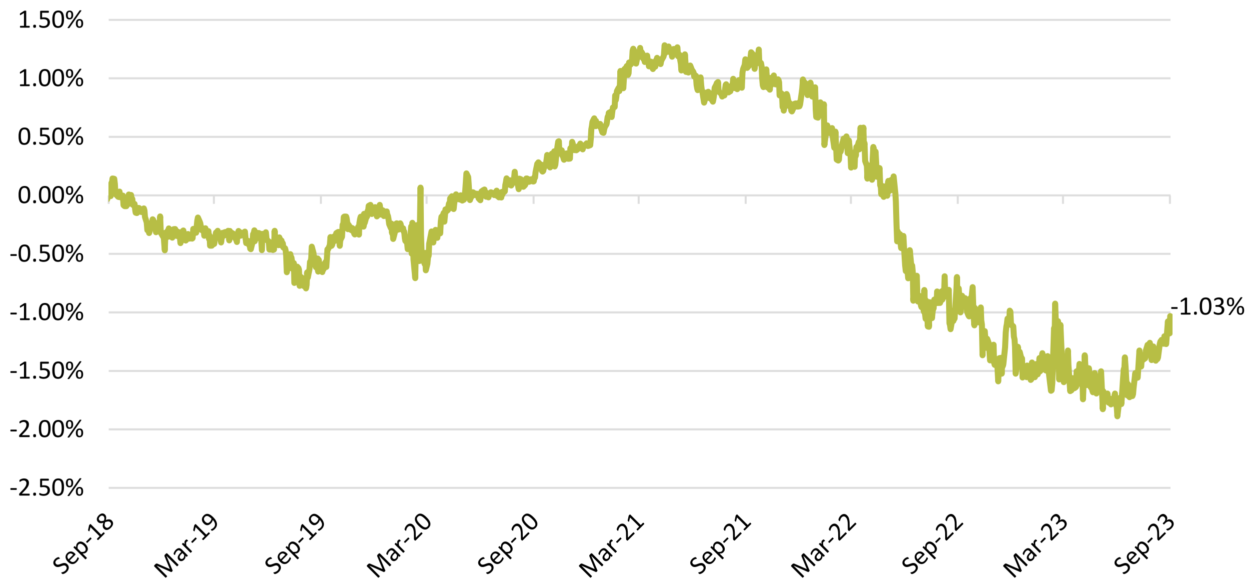


Figure 6. U.S. 10yr Total Return Hedged, 1 yr. EUR

Source: Bloomberg. Notes: Data as of September 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

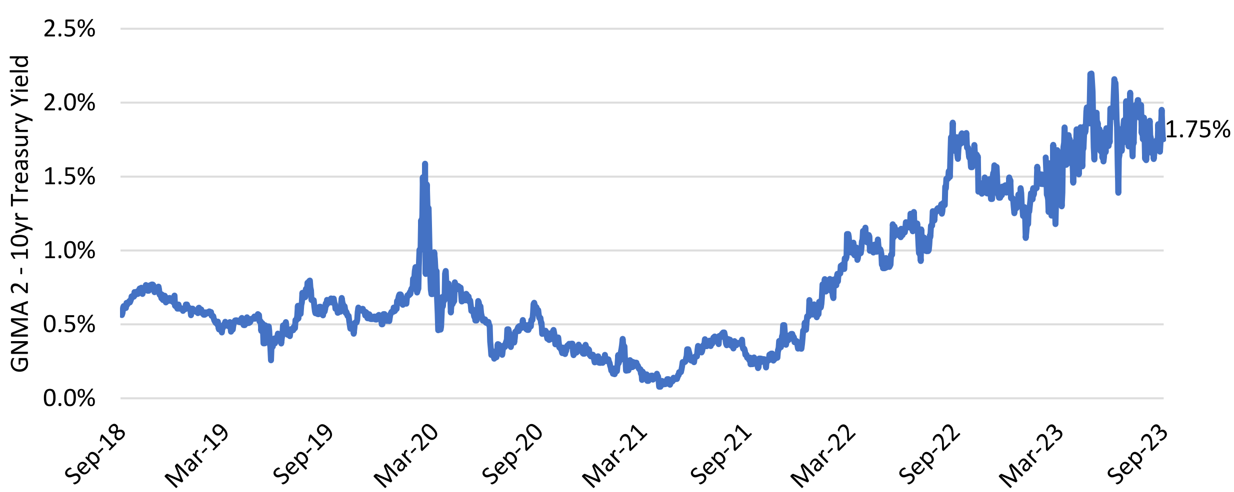
3 FIXED INCOME PRODUCT PERFORMANCE COMPARISONS

3.1 Ginnie Mae Yields – USD

Ginnie Mae II yields were 5.71% in July, increased 14 bps to 5.85% at month-end August, then increased 44 bps to 6.29% at month-end September. Ginnie Mae II spreads over the U.S. 10-year Treasury yield increased 2 bps YoY to 175 bps over the U.S. 10-year Treasury yield as of month-end September 2023.

Figure 7. Ginnie Mae II SF Yield, USD

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



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

3.2 Ginnie Mae Hedged Yields

- The yield for Ginnie Mae II's, hedged in Japanese Yen stood at 0.72% at month-end September, a 40 bp increase from month-end August.
- The yield for Ginnie Mae II's, hedged in Euros stood at 4.61% at month-end September, a 53 bp increase from month-end August.

Figure 9. Ginnie Mae II Hedged, 1 yr. JPY

Figure 10. Ginnie Mae II Hedged, 1 yr. EUR

Source: Bloomberg. Notes: Data as of September 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 11 bps MoM, to 0.57%, as of month-end September. The U.S. Intermediate credit OAS increased 6 bps MoM, to 1.01%, as of month-end September. The yield differential between U.S. Intermediate Credit and GNMA II 30-year OAS decreased by 5 bps to 0.44% at month-end September.

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

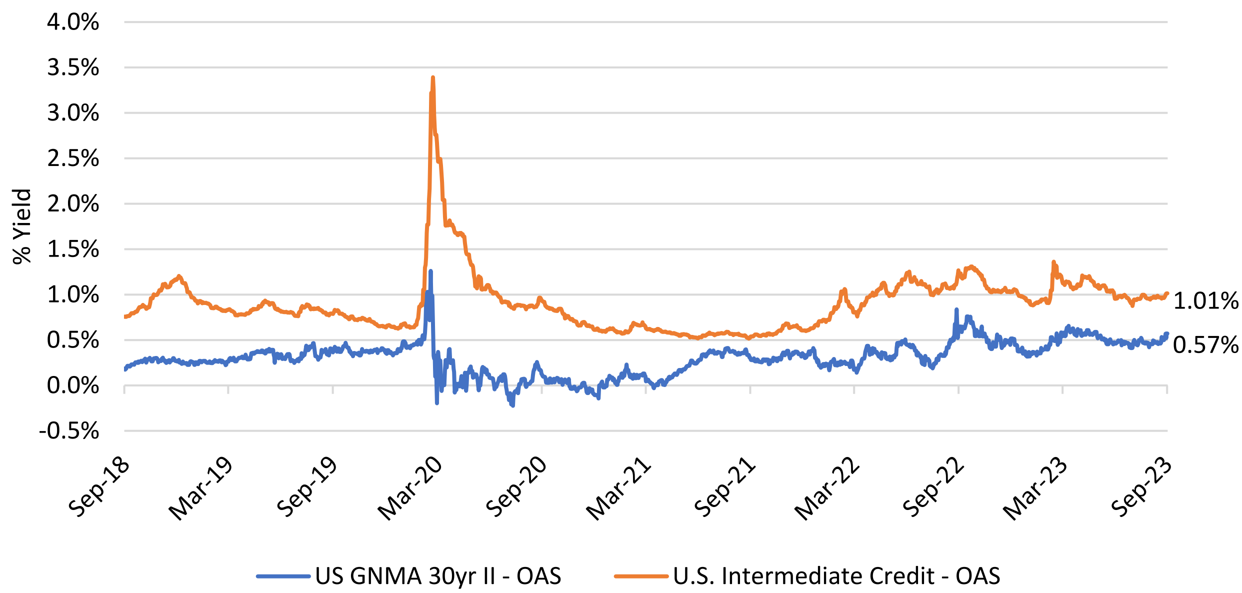


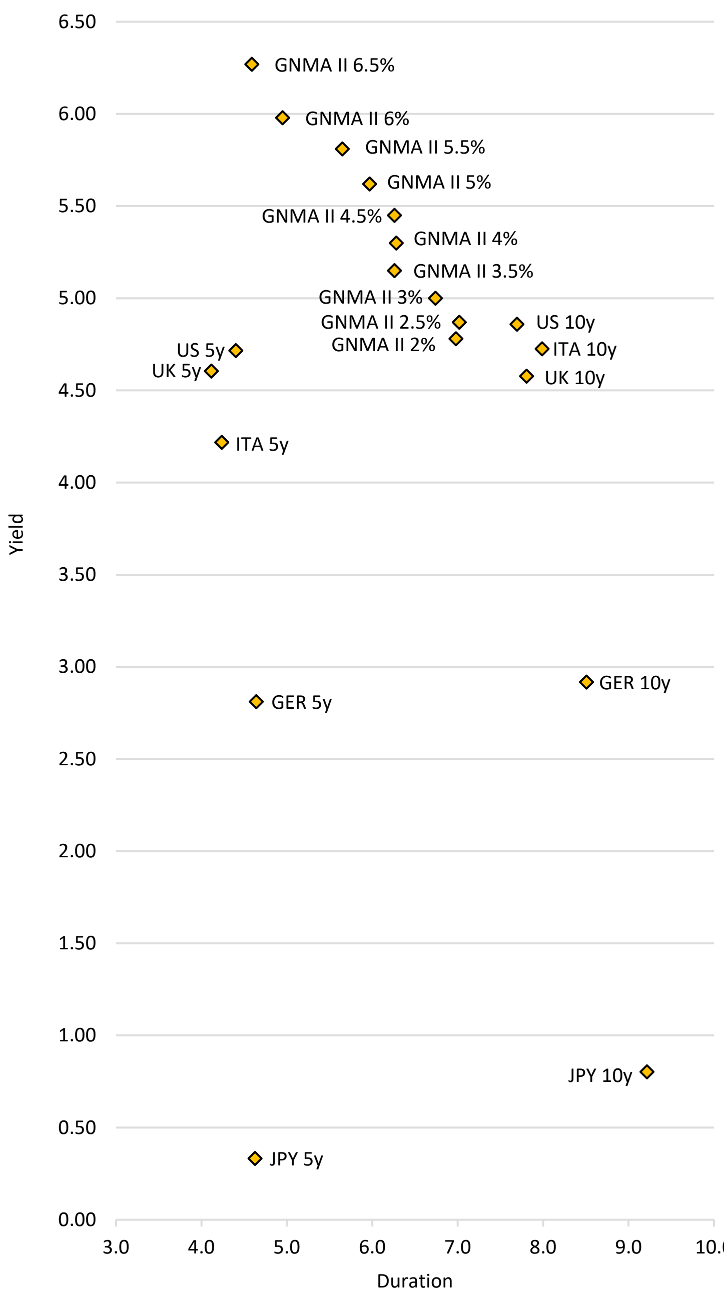
Figure 12. Spread between U.S. Intermediate Credit and U.S. GNMA II 30yr MBS OAS

Source: Bloomberg. Note: Data as of September 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
U.S. 5y	4.40	4.72
U.S. 10y	7.99	4.73
JPY 5y	4.63	0.33
JPY 10y	9.22	0.80
GER 5y	4.64	2.81
GER 10y	8.51	2.92
ITA 5y	4.24	4.22
ITA 10y	7.69	4.86
UK 5y	4.12	4.61
UK 10y	7.81	4.58
GNMA II 2%	6.98	4.78
GNMA II 2.5%	7.02	4.87
GNMA II 3%	6.74	5.00
GNMA II 3.5%	6.26	5.15
GNMA II 4%	6.28	5.30
GNMA II 4.5%	6.26	5.45
GNMA II 5%	5.97	5.62
GNMA II 5.5%	5.65	5.81
GNMA II 6%	4.95	5.98
GNMA II 6.5%	4.59	6.27

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

4 PREPAYMENTS

4.1 Aggregate Prepayments (CPR)

Ginnie Mae fixed rate aggregate prepayment speeds decreased in September 2023 by 1.5%. Likewise, Fannie Mae and Freddie Mac CPRs decreased 0.9% and 1.1%, respectively. ARM prepayments decreased for Freddie Mac, Fannie Mae, and Ginnie Mae.

Figure 14. Fixed Rate Aggregate 1-Month CPR

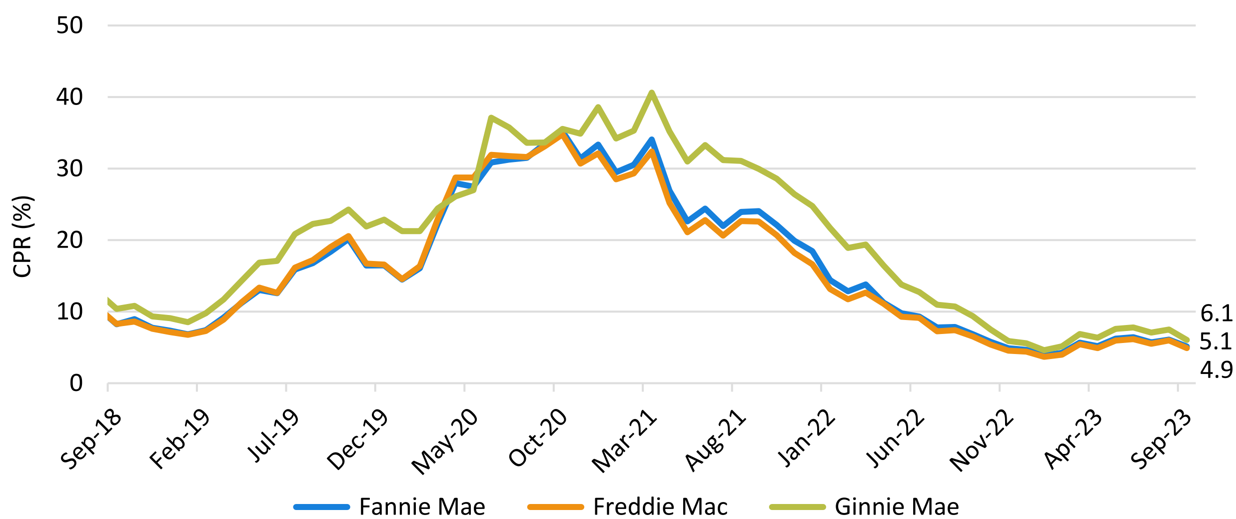
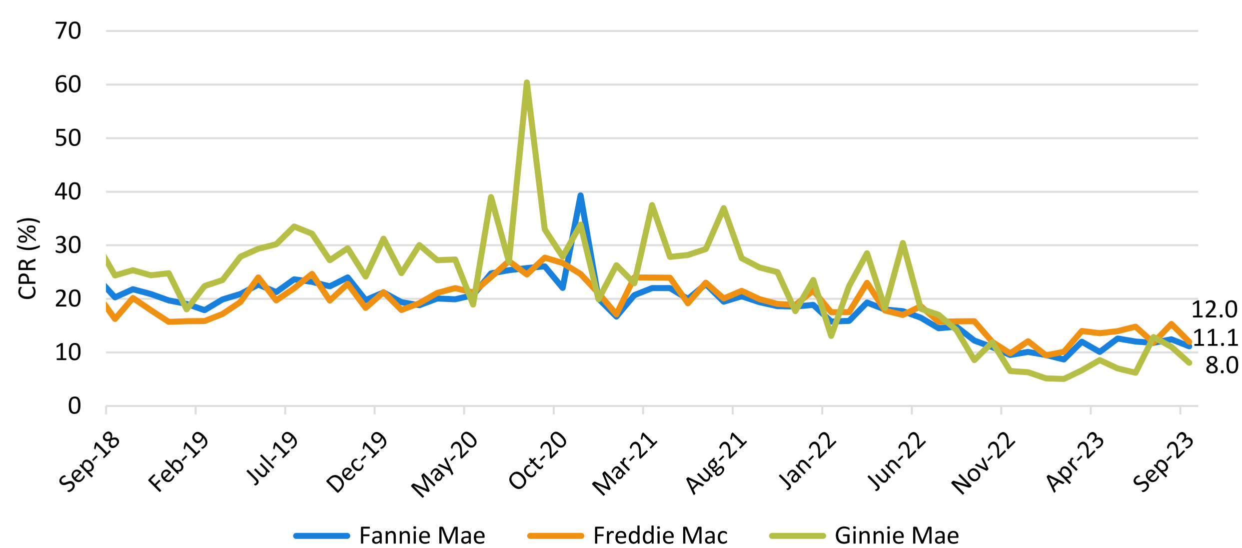


Figure 15. ARM Aggregate 1-Month CPR



Source: Recursion. Note: Data as of September 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 September 2023 after slightly overtaking Ginnie Mae in September 2022.

Figure 16. Fixed Rate Aggregate CDR

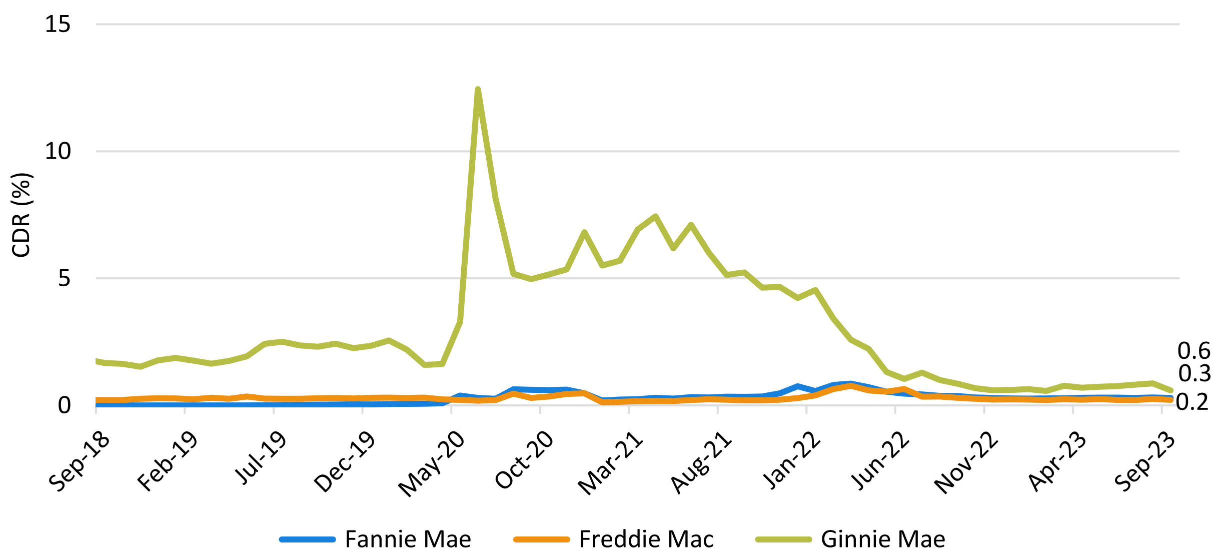
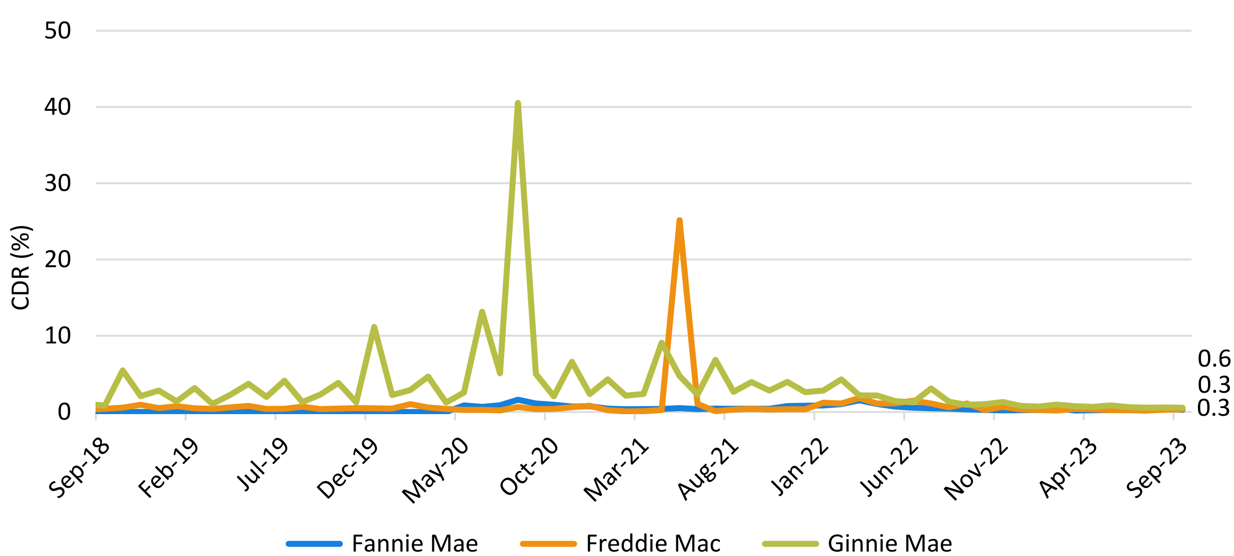


Figure 17. ARM Aggregate CDR



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

4.3 Voluntary Prepayment Rates (CRR)

Fixed rate voluntary prepayments continue to remain higher for Ginnie Mae relative to the GSEs. Fannie Mae and Freddie Mac saw a decrease of 0.9% and 1.0% in fixed rate aggregate CRR, respectively. Freddie Mac saw a 3.4% decrease and Fannie Mae saw a 1.1% decrease in ARM aggregate CRR. Ginnie Mae fixed rate aggregate CRR decreased by 1.2% and 3.0% in ARM aggregate CRR.

Figure 18. Fixed Rate Aggregate CRR

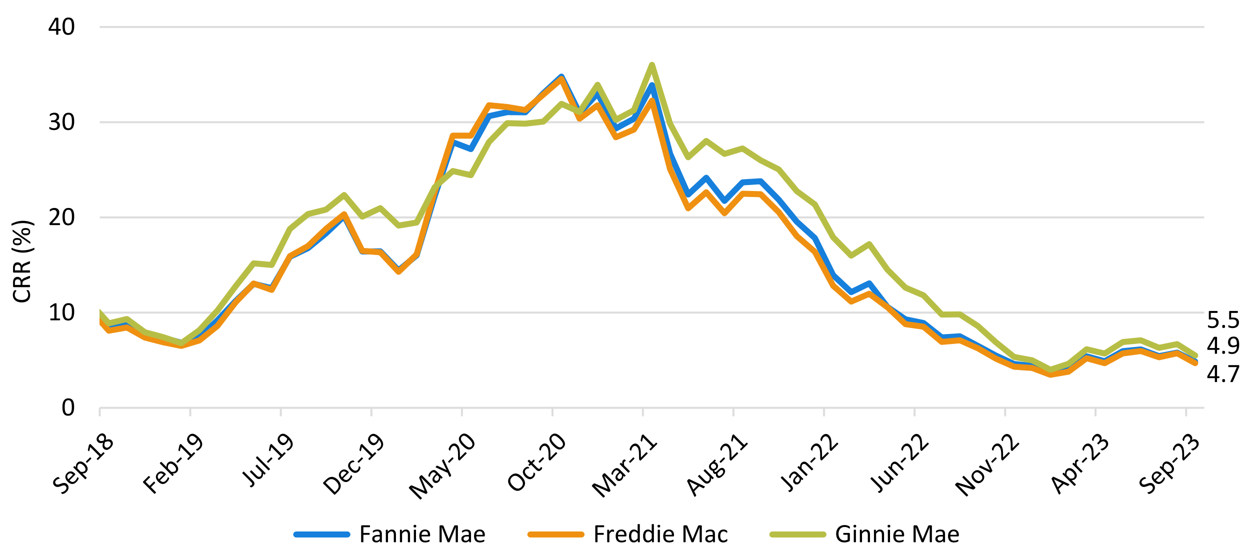
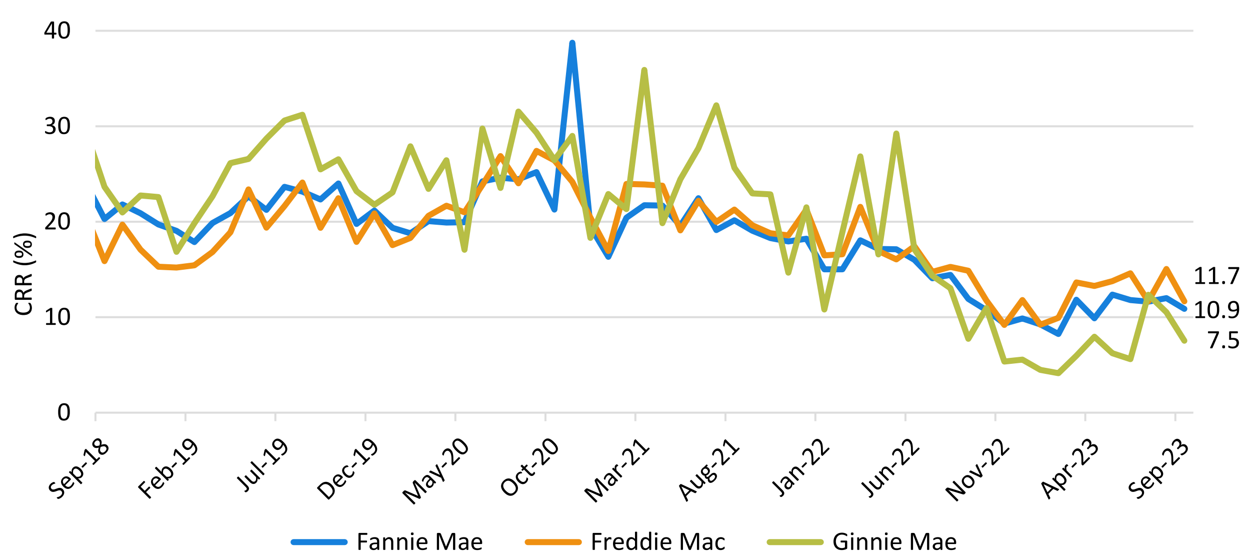


Figure 19. ARM Aggregate CRR



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

5 SINGLE-FAMILY MBS PASS-THROUGH ISSUANCE

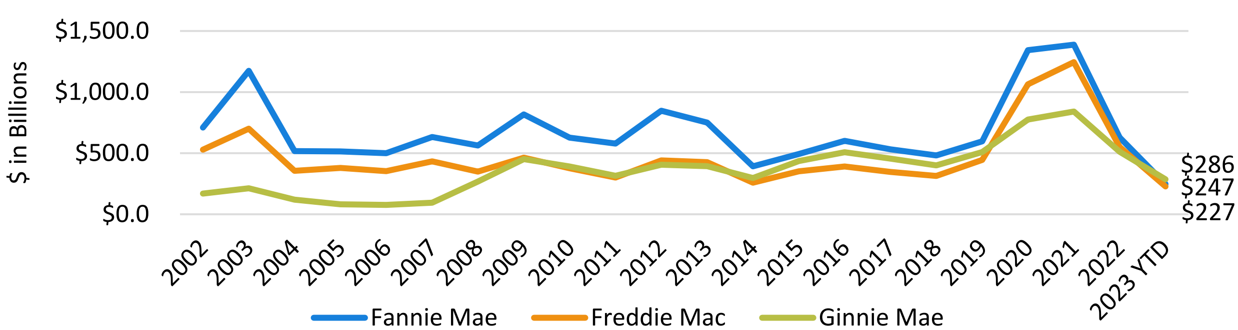
5.1 Gross Issuance of Agency MBS

Agency gross MBS issuance increased by approximately $2.1 billion in September. Fannie Mae and Freddie Mac saw an increase of $0.3 and $3.2 billion, respectively, while Ginnie Mae saw a $1.4 billion decrease in gross issuance as seen in Section 5.3.

Table 2. 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	$247.4	$227.8	$475.2	$285.7	$760.9

Figure 20. Agency Gross Issuance

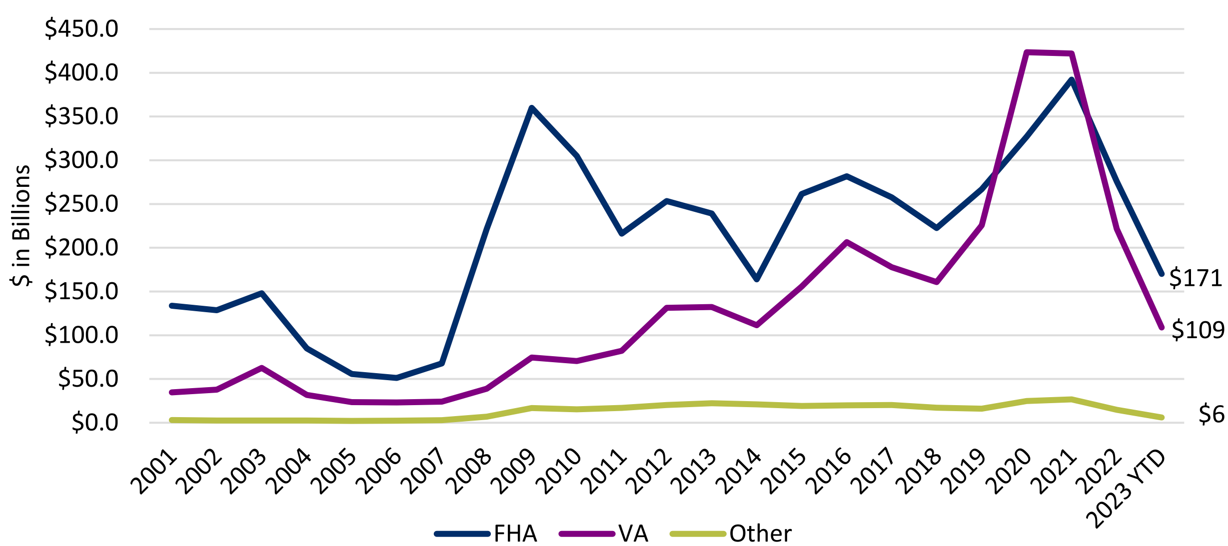


Source: Recursion. Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

Table 3. 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	$170.1	$108.8	$6.1	$285.0

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.

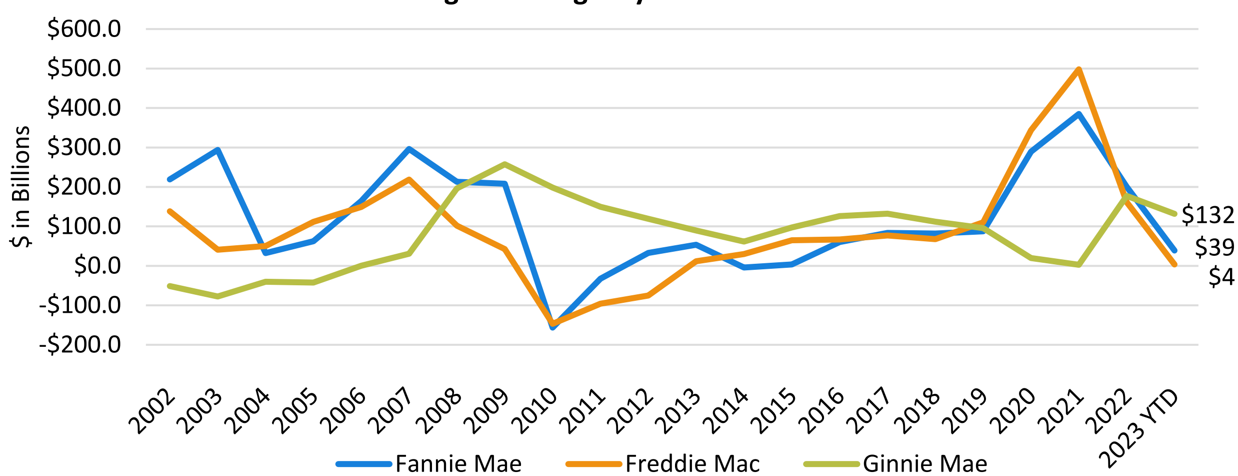
5.2 Net Issuance of Agency MBS

Agency Net Issuance as of month-end September was $174.2 billion for 2023 YTD, shown in **Table 4**. Since 2022, FHA net issuance has outpaced VA net issuance, as shown in **Table 5 and Figure 23.**

Table 4. 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	$38.9	$3.8	$42.6	$131.6	$174.2

Figure 22. Agency Net Issuance

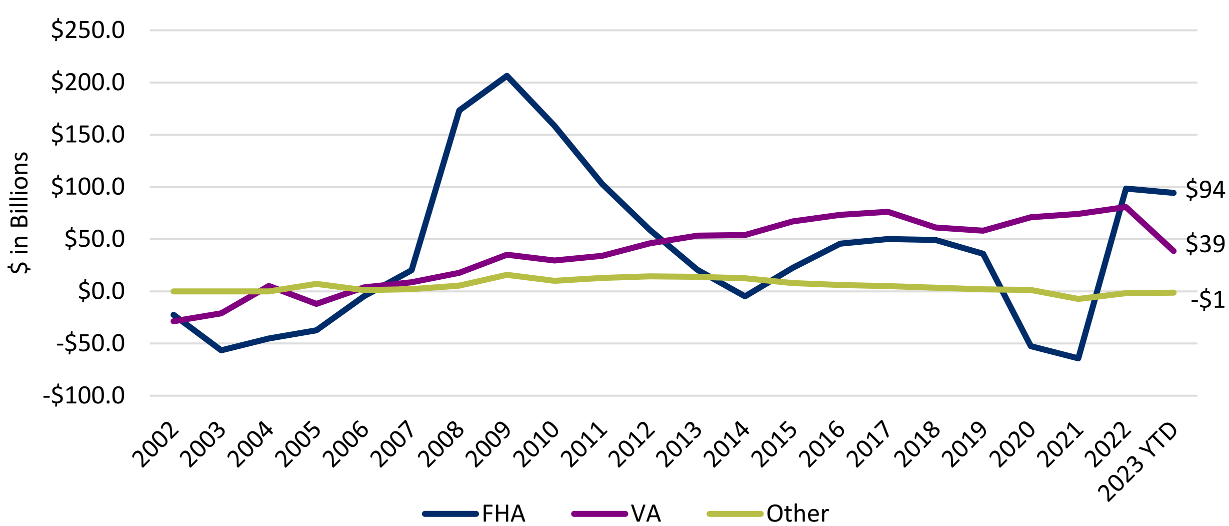


Source: Recursion. Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

Table 5. 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	$94.3	$38.6	-$1.3	$131.6

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 September was approximately $31.2 billion, which represents a $10.7 billion increase. Ginnie Mae net issuance was $18.6 billion as of month-end September, a $1.4 billion increase from August 2023. Ginnie Mae's $35.1 billion in gross issuance as of month-end September, seen in **Table 6**, was approximately $7.6 billion below the average monthly issuance in 2022.

Table 6. Agency Issuance ($ in billions)

	Agency Gross Issuance Amount (in $ Billions)					*Agency Net Issuance Amount (in $ Billions)*				
Month	***Fannie Mae***	***Freddie Mac***	***Ginnie Mae***	***GSEs***	***Total***	***Fannie Mae***	***Freddie Mac***	***Ginnie Mae***	***GSEs***	***Total***
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
Sep-23	$28.1	$31.1	$35.1	$59.2	$94.3	$1.9	$10.7	$18.6	$12.6	$31.2

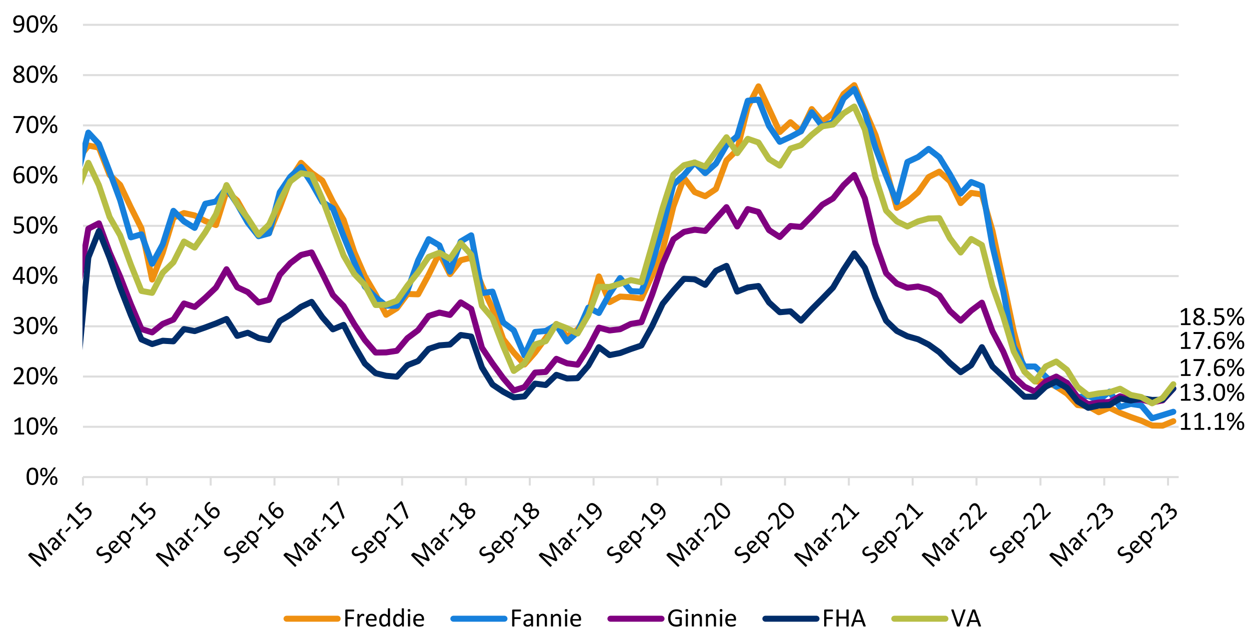
Sources: Beginning May 2021, data for Gross and Net Issuance was sourced from Fannie Mae, Freddie Mac, and Ginnie Mae loan level disclosure files. Net issuance is defined here as the difference between prior period UPB and current period UPB. Data as of September 2023. Beginning with the October 2021 GMAR, the Fannie Mae and Freddie Mac net issuance data have been updated to reflect the current UPB of the portfolios. July 2021 through September 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 2.4% for Ginnie Mae as of month-end September 2023. VA's refinance volume increased approximately 2.7%. FHA's refinance share increased by approximately 2.2%. In the conventional conforming mortgage market space, Fannie Mae saw an increase of 0.7% and Freddie Mac saw an increase of 0.9%.

- Freddie Mac's refinance percentage increased to 11.1% in September, up from 10.2% in August.
- Fannie Mae's refinance percentage increased to 13.0% in September, up from 12.3% in August.
- Ginnie Mae's refinance percentage increased to 17.6% in September, up from 15.3% in August.
- FHA's refinance percentage increased to 17.6% in September, up from 15.4% in August.
- VA's refinance percentage increased to 18.5% in September, up from 15.7% in August.

Figure 24. Percent Refinance at Issuance – Single-Family



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

6 AGENCY SINGLE-FAMILY MBS OUTSTANDING

6.1 Outstanding Single-Family Agency MBS

As of month-end September 2023, outstanding Single-Family MBS in the agency market totaled $8.777 trillion: 40.8% Fannie Mae, 33.4% Freddie Mac, and 25.8% Ginnie Mae MBS. Over the past twelve months, Fannie Mae's, Freddie Mac's, and Ginnie Mae's total outstanding MBS increased by approximately 0.3%, 1.9%, and 8.7%, respectively. Fannie Mae outstanding MBS remains larger than Freddie Mac's and Ginnie Mae's by approximately $644 billion and $1.3 trillion, respectively.

Ginnie Mae MBS collateral composition has changed dramatically over the past five years. In September 2018, 59.9% of Ginnie Mae outstanding collateral was FHA and 34.0% was VA. As of month-end September 2023, FHA collateral comprised 53.9% of Ginnie Mae MBS outstanding, and VA collateral comprised 41.5% of Ginnie Mae MBS outstanding.

Figure 25. Outstanding Agency Mortgage-Backed Securities

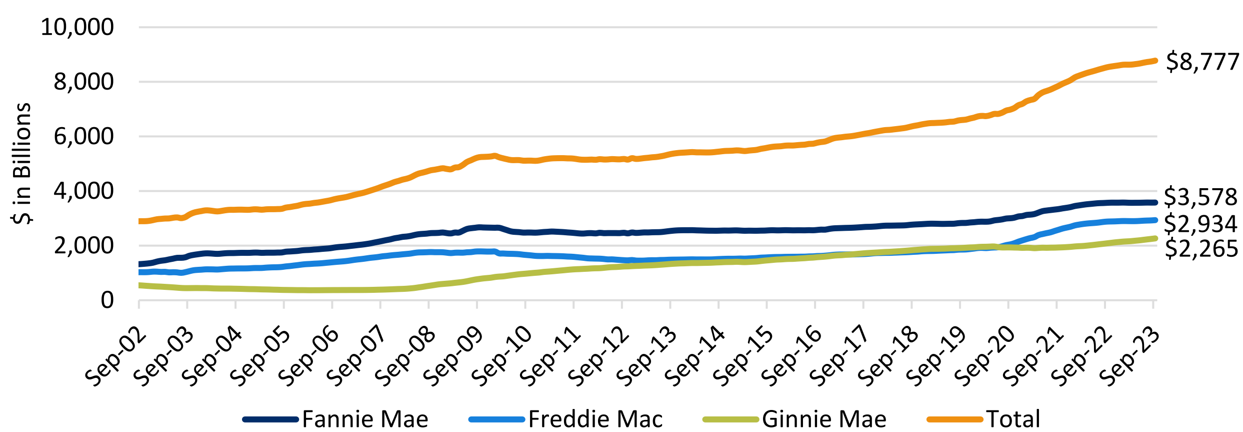
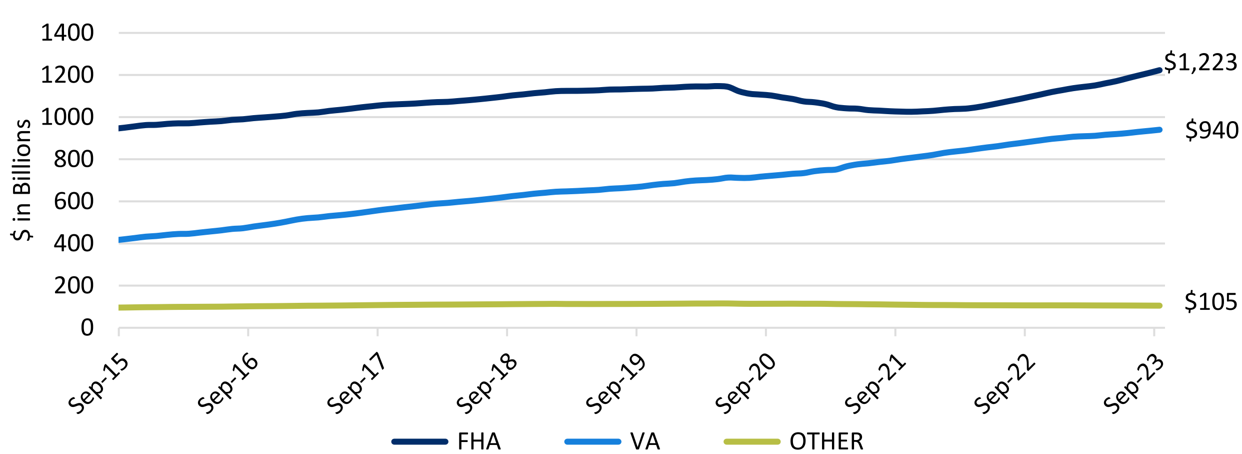


Figure 26. Composition of Outstanding Ginnie Mae Mortgage-Backed Securities



Source: Recursion. Note: Data as of September 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

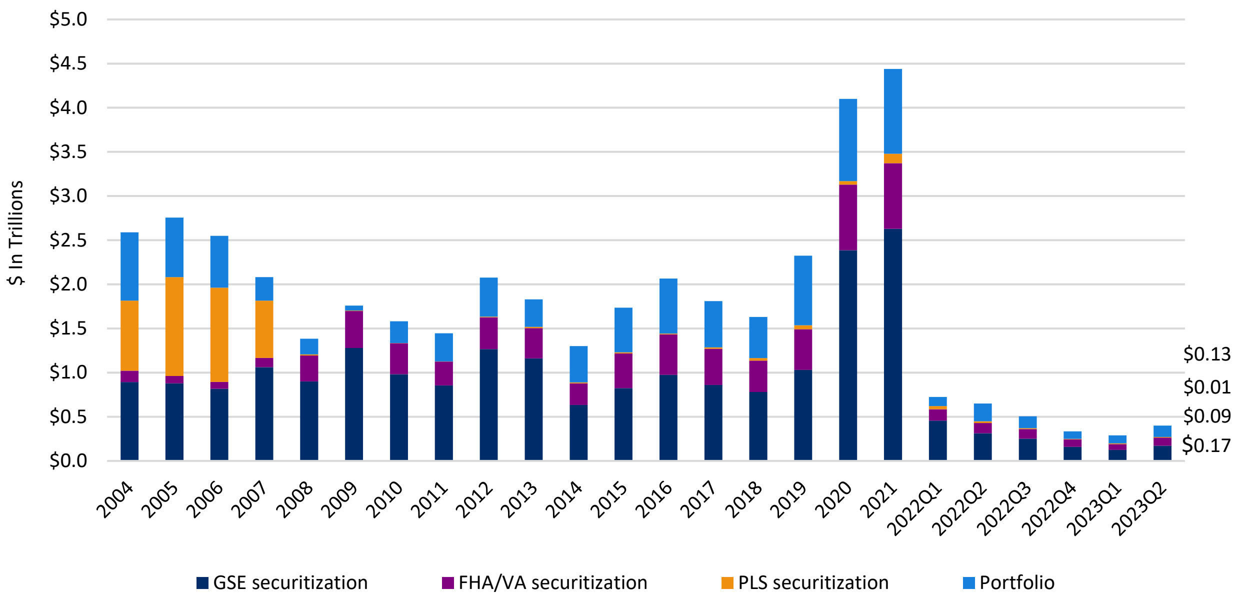
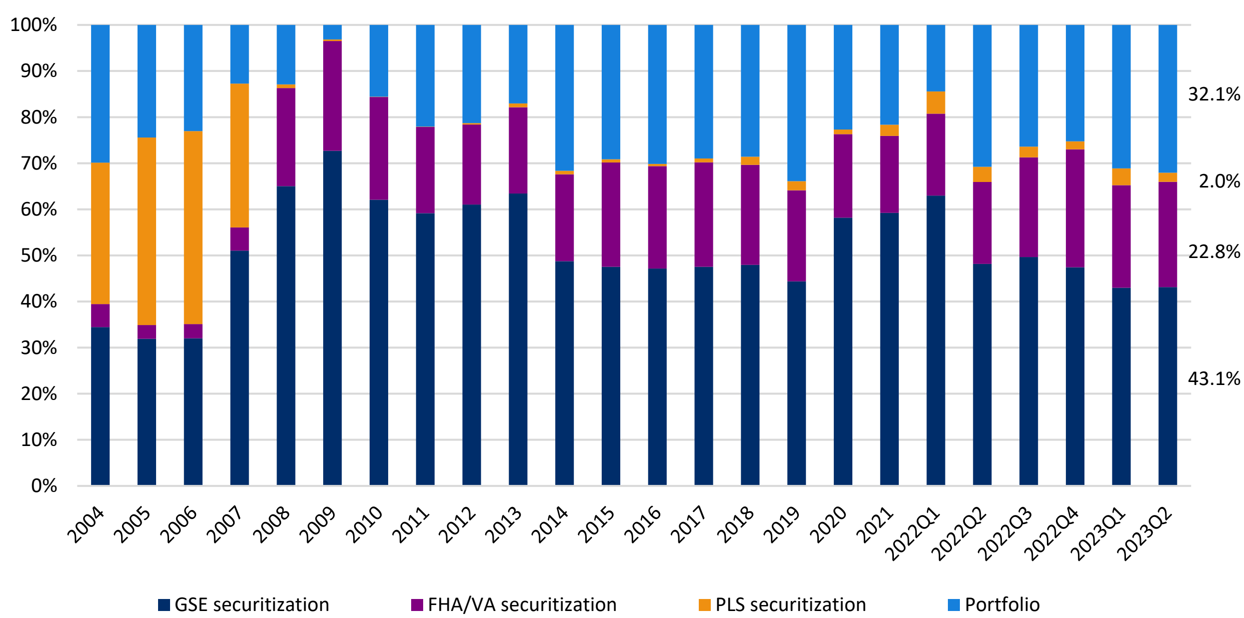


Figure 28. First Lien Origination Share



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

6.3 Agency Issuance and Agency Outstanding by State

Ginnie Mae MBS represent approximately 37% of new agency issuance over the past year, roughly 11% 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 (59%) 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 7. Agency Issuance Breakdown by State

	Agency Issuance (past 1 year)				Agency Outstanding (past 1 year)			
National	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)
	37%	1,594,353	294.67	301.17	26%	11,027,379	209.07	211.55
AK	59%	4,660	351.76	309.02	48%	37,645	263.68	220.30
AL	51%	38,098	233.16	246.68	41%	244,113	161.65	178.54
AR	47%	20,037	200.34	231.78	40%	139,752	135.94	162.24
AZ	37%	47,577	334.34	338.96	25%	285,981	227.95	228.08
CA	32%	93,428	464.43	461.74	17%	705,372	333.59	319.62
CO	35%	34,086	416.60	407.29	24%	219,582	299.48	279.35
CT	34%	13,413	277.24	289.03	26%	107,963	204.21	209.10
DC	23%	1,135	513.34	428.76	14%	9,215	389.40	348.25
DE	38%	7,173	282.84	308.75	32%	53,362	207.25	212.35
FL	40%	149,081	316.32	313.77	33%	884,841	220.03	214.95
GA	44%	85,767	274.19	305.19	34%	513,676	186.77	209.37
HI	47%	3,826	626.00	514.65	32%	34,144	472.62	357.24
IA	33%	11,875	190.96	202.08	23%	84,439	137.06	148.42
ID	33%	9,185	341.31	331.72	24%	65,216	225.82	224.68
IL	30%	50,888	218.21	250.72	22%	376,120	162.27	179.55
IN	38%	42,850	201.32	221.45	31%	285,646	138.02	152.31
KS	38%	13,837	203.37	229.02	30%	97,770	143.27	164.50
KY	46%	25,842	206.59	223.23	35%	169,337	147.15	156.49
LA	51%	28,676	210.89	240.83	41%	207,191	159.69	177.39
MA	30%	15,418	393.20	385.47	17%	116,704	289.24	267.93
MD	44%	37,790	349.97	340.61	34%	298,642	267.74	249.42
ME	35%	5,279	260.46	281.82	26%	38,531	181.23	192.69
MI	28%	39,042	194.27	221.60	21%	281,041	136.44	157.14
MN	24%	18,811	260.37	284.75	18%	161,290	185.04	198.79
MO	38%	35,788	207.61	228.36	29%	249,077	145.49	162.84
MS	58%	18,398	209.85	225.39	49%	125,711	147.24	161.72
MT	32%	4,245	325.20	324.49	24%	32,719	214.16	217.80
NC	38%	68,149	268.96	300.46	30%	425,637	182.18	204.33
ND	36%	2,266	250.56	244.31	25%	17,233	194.97	183.42
NE	36%	8,679	232.14	232.77	27%	65,696	153.48	161.66
NH	30%	4,945	332.20	323.49	23%	38,779	230.34	215.97
NJ	31%	31,530	336.74	352.02	22%	237,003	244.70	254.69
NM	47%	13,273	253.99	266.71	39%	97,275	171.04	179.54
NV	41%	21,203	358.63	344.96	31%	138,114	254.91	237.33
NY	27%	35,057	305.16	344.18	20%	311,884	213.14	248.78
OH	36%	59,511	194.35	209.28	30%	432,166	133.30	149.96
OK	47%	26,617	212.21	231.83	42%	192,432	144.80	163.72
OR	28%	14,760	365.17	373.62	20%	113,157	259.11	254.45
PA	30%	47,582	210.66	255.85	26%	395,131	150.88	182.64
RI	45%	5,026	345.83	316.19	31%	36,632	239.38	213.19
SC	44%	41,787	266.11	271.80	35%	243,777	189.09	193.99
SD	40%	4,162	253.94	252.53	30%	29,693	177.02	177.74
TN	39%	44,657	273.43	294.22	32%	276,494	182.66	206.90
TX	37%	171,283	286.10	318.21	32%	1,134,947	189.64	216.22
UT	30%	15,226	396.38	398.36	19%	98,951	270.25	265.70
VA	48%	60,687	341.75	336.25	37%	455,098	260.33	250.29
VI	29%	101	409.45	439.79	24%	802	260.23	306.71
VT	25%	1,488	252.05	275.62	19%	12,301	182.74	181.23
WA	32%	30,985	414.02	421.72	22%	236,507	290.86	290.77
WI	28%	16,896	220.64	236.02	18%	125,880	159.29	163.10
WV	54%	8,777	201.60	198.05	45%	61,389	146.56	145.35
WY	44%	3,501	276.59	275.68	35%	25,321	208.54	201.87

Source: Recursion. Note: Outstanding balance based on loan balance as of September 2023. Ginnie Mae issuance based on the last 12 months, from August 2022 to September 2023. Values above are based on loan level disclosure data, thus excluding loan balances for 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 September 2023, the weighted average coupon (WAC) on outstanding Ginnie Mae MBS increased slightly from 3.36% in August 2023 to 3.40% as seen in **Figure 29**. **Figure 30** illustrates that loans originated since 2019 account for approximately 81% of Ginnie Mae MBS collateral outstanding.

Figure 29. Outstanding Ginnie Mae MBS Balance, by Coupon

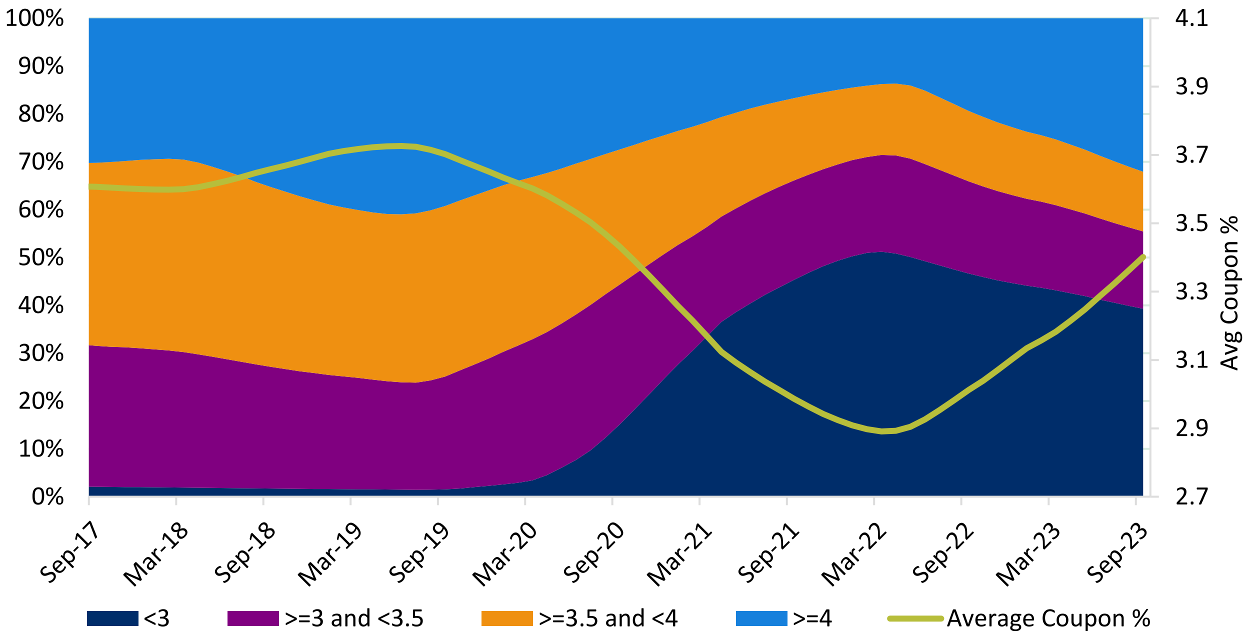
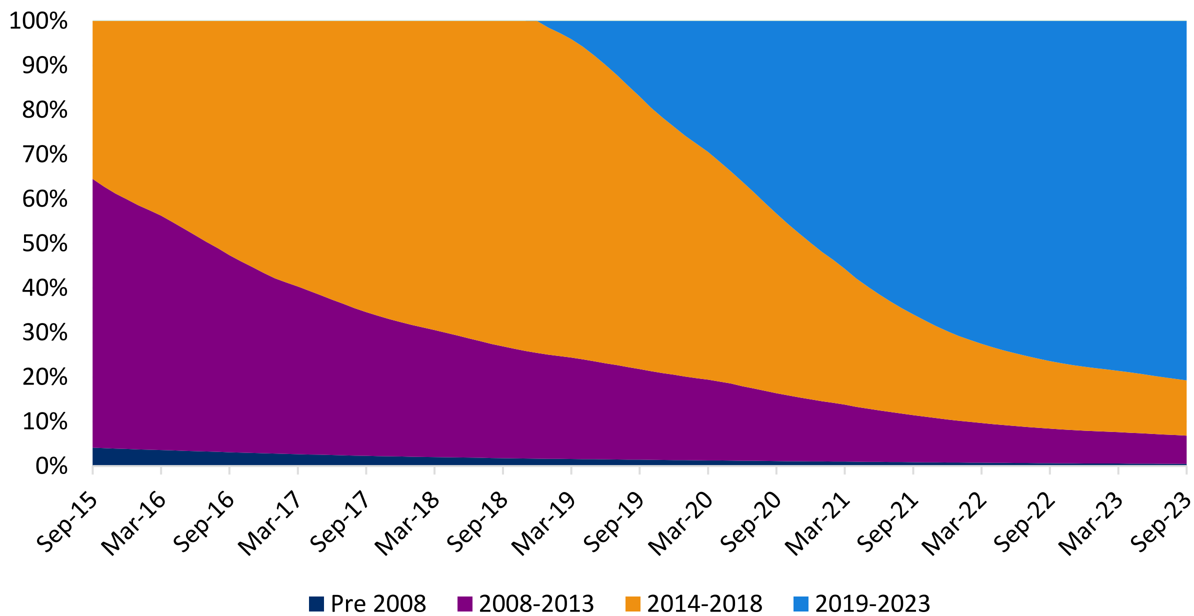


Figure 30. Outstanding Ginnie Mae MBS Balance, by Vintage



Source: Recursion. Note: September 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 September 2023, $8.1 billion of Ginnie Mae MBS were securitized into Real Estate Mortgage Investment Conduits (REMICs) as underlying collateral. This represents an 1.87% increase YoY from $8.0 billion in September 2022, and a 25.24% MoM decrease from $10.8 billion in August 2023. Of that, approximately $661.2 million were multifamily MBS having coupons over 2.51%. $7.45 billion were Single-Family MBS having coupons over 4.01%.

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

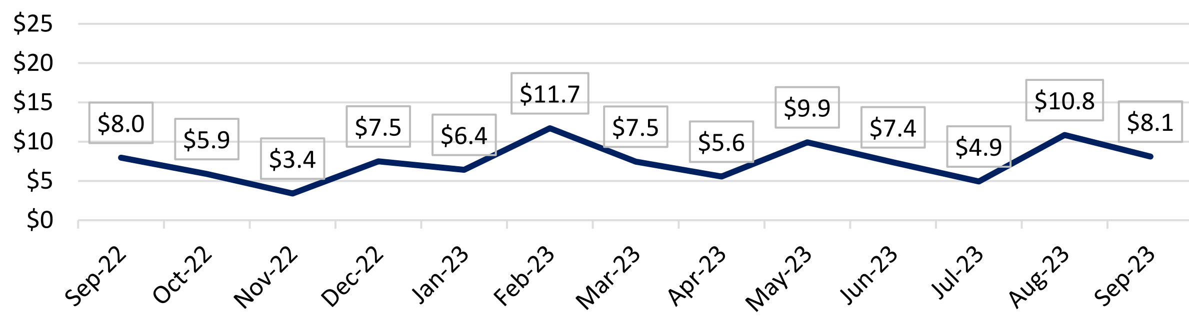


Table 8. September 2023 REMIC Collateral Coupon Distribution

Net Coupon (%)	Approx. Ginnie Mae MBS amount securitized into REMIC Deals ($MM)[1]	% Breakdown of REMIC Collateral by coupon
Multifamily		
2.51-3.00	115.0	17.4 %
3.01-3.50	0.0	0.0%
3.51-4.00	166.2	25.1%
4.01-4.50	113.3	17.1%
4.51-5.00	191.2	29.0%
>5.01	75.4	11%
Subtotal	**661.2**	**100.0%**
Single-Family		
4.01-4.50	24.6	0.3%
4.51-5.00	32.1	0.4%
5.01-5.50	42.0	0.6%
5.51-6.00	834.7	11.2%
6.01-6.50	4,984.0	66.9%
6.51-7.00	1,372.3	18.4%
>7.00	156.3	2.1%
Subtotal	**7,445.9**	**100.0%**
Grand Total	**8,107.1**	**100.0%**

Source: Ginnie Mae Disclosure Files

[1] *Totals may not sum due to rounding.*

7.2 REMIC Market Snapshot

- In September 2023, Ginnie Mae, Freddie Mac, and Fannie Mae saw increases in their Single-Family REMIC issuance collateral coupon of 30 bps, 21 bps, and 48 bps, respectively.
- In September 2023, Freddie Mac saw a 95 bps increase in their multifamily REMIC issuance collateral coupon, the highest collateral coupon, 5.17%, since February 2023. Ginnie Mae saw a 10-basis point decrease in their multifamily REMIC issuance collateral coupon.
- In September 2023, Ginnie Mae issued 16 deals, across SF and MF, a decrease of 3 deals MoM. Freddie Mac issued 19 deals, across SF and MF, an increase of 3 deals MoM.
- In September 2023, Fannie Mae did not issue a multifamily deal, their seventh time doing so since August 2022. Fannie Mae's total REMIC issuance was $1.65 billion in September, up slightly from $1.03 billion in August.

Figure 32. September 2023 REMIC Issuance by Agency[2]

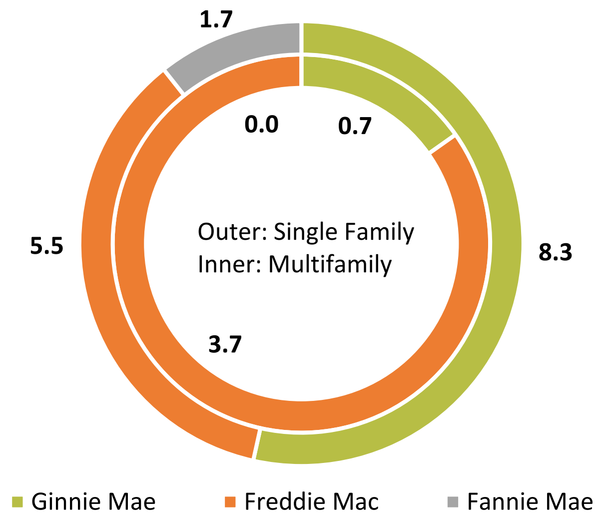


Table 9. Monthly REMIC Issuance by Agency

	SF REMIC Issuance Volume ($B)	% of SF REMIC Issuance Volume	Number of SF REMIC Transactions	MF REMIC Issuance Volume ($B)	% of MF REMIC Issuance Volume	Number of MF REMIC Transactions
Ginnie Mae	8.28	53.5%	10	0.66	15.2%	6
Freddie Mac	5.55	35.8%	12	3.68	84.8%	7
Fannie Mae	1.65	10.7%	9	0.00	0.0%	0
Total [3]	**$15.48**	**100%**	**31**	**$4.34**	**100%**	**13**

Source: Ginnie Mae Disclosure Files

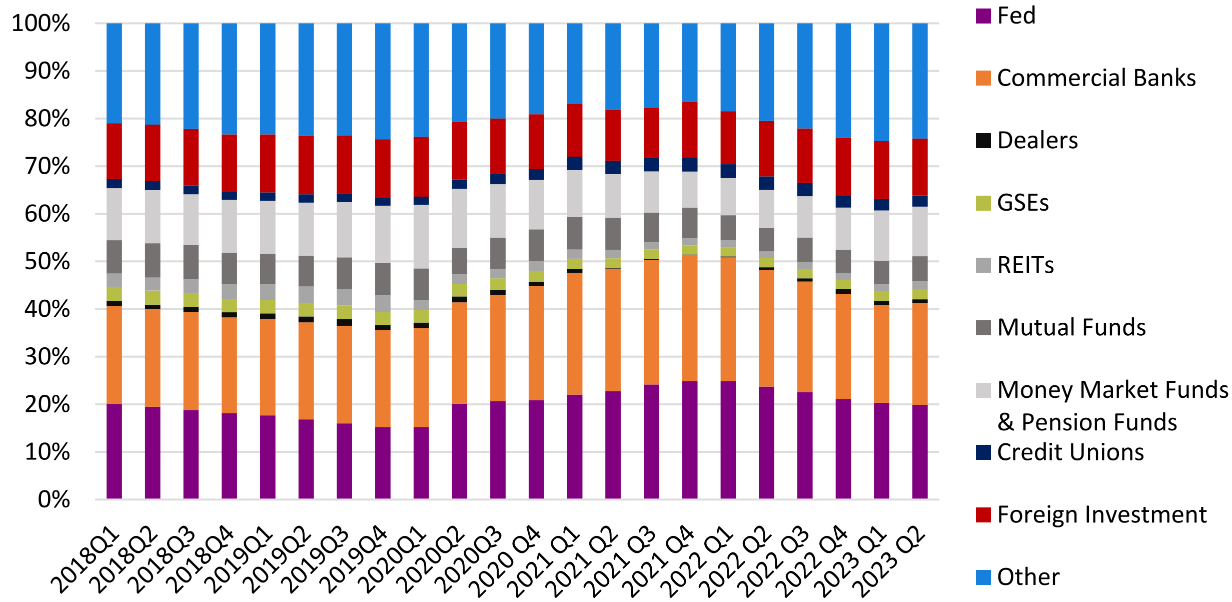
[2] *The REMIC Market Snapshot is inclusive of Re-REMIC deals which are not included in the "Monthly REMIC Demand for Ginnie Mae MBS" above.*

[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 September 2023, roughly $1.94 trillion was held by the top 25 domestic banks per **Table 10** 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 10. Commercial Bank Holdings of Agency MBS

	Commercial Bank Holdings ($Billions)								
	Jan-23	***Feb-23***	***Mar-23***	***Apr-23***	***May-23***	***Jun-23***	***Jul-23***	***Aug-23***	***Sep-23***
Largest 25 Domestic Banks	2,054.5	1,961.4	1,952.3	1,953.4	1,947.1	1,961.3	1,955.1	1,944.4	1,940.1
Small Domestic Banks	663.5	764.0	700.9	627.8	628.4	618.2	610.5	602.0	587.2
Foreign Related Banks	30.0	27.0	28.4	26.8	24.0	26.2	24.3	23.2	25.9
Total, Seasonally Adjusted	**2,748.0**	**2,752.4**	**2,681.6**	**2,608.0**	**2,599.5**	**2,605.7**	**2,589.9**	**2,569.6**	**2,553.2**

Source: Federal Reserve Bank. Note: Small domestic banks include all domestically chartered commercial banks not included in the top 25. Data as of September 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 11. Bank and Thrift Residential MBS Holdings

	All Banks & Thrifts ($ in billions)						*All MBS ($ in billions)*	
Year	*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 12. Top 20 Bank and Thrift Residential MBS Investors ($ in millions)

Rank	Institution	Total	GSE PT	GNMA PT	Agency CMO	Non-Agency	Share
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 30, 2023 vs. Sep 27, 2023)

- SOMA holdings of domestic securities totaled $7.3 trillion on Sep 27 (a decrease of $68.7 billion or -0.93% from Aug 30).
- $49.6 billion (72% of the total decrease) was in U.S. Treasury holdings and $19.1 billion (28% of the total decrease) was in Agency MBS.
- Agency MBS comprise about 34% of the total SOMA portfolio. The $19.1 billion decrease was comprised of a $7.8 billion decrease in Fannie Mae holdings, a $6.8 billion decrease in Freddie Mac holdings, and a $4.5 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 $19.1 billion in Agency MBS represents 55% of the liquidation cap.

Table 13: SOMA Holdings as of Aug 30, 2023, and Sep 27, 2023 ($ Billions)

Holdings by Security Type	*August 30, 2023*		*September 27, 2023*		*Month-Over-Month*	
	SOMA Holdings	*% Share*	*SOMA Holdings*	*% Share*	*$ Change*	*% Change*
U.S. Treasuries	$4,897	66.19%	$4,847.4	66.14%	-$49.6	-1.01%
Federal Agency Debt	$2.3	0.03%	$2.3	0.03%	$0.0	0.00%
Agency MBS	$2,490.5	33.66%	$2,471.4	33.72%	-$19.1	-0.77%
Agency Commercial MBS	$8.4	0.11%	$8.3	0.11%	$0.0	-0.54%[4]
Total SOMA Holdings	**$7,398.2**	**100.0%**	**$7,329.5**	**100.0%**	**-$61.3**	**-0.93%**

Table 14: SOMA Agency MBS Liquidations from Aug 30, 2023, to Sep 30, 2023 ($ Billions)

	MBS Holdings as of 8.30.23	*MBS Holdings 9.27.23*	*Liquidated Amount*	*Liquidation Cap*	*% of Liquidation Cap*
Total	$2,490.5	$2,471.4	$19.1	$35.0	55%

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 13 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)

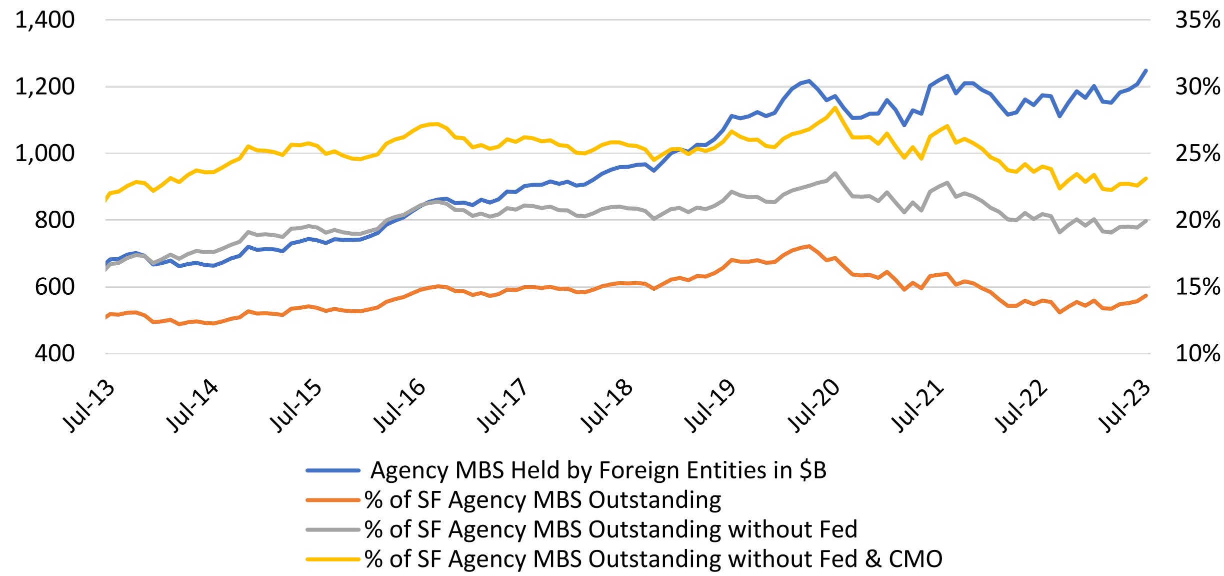
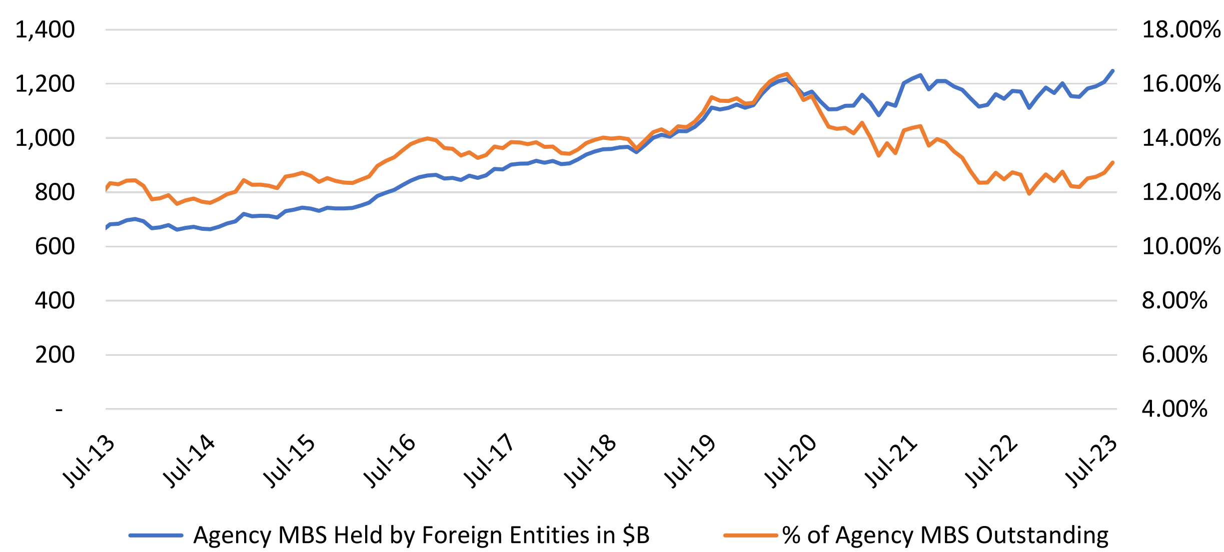


Figure 35. Agency MBS Owned by Foreign Entities (USD Billions)



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 U.S. 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 15. 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 16. 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 16 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 September 2023 was $250 billion, which was up from a monthly average of $241 billion for calendar year 2022. As of month-end September 2023, agency MBS average daily trading volume increased $15 billion MoM. *See footnote below for update on "Average Daily Turnover by Sector" data.*

Figure 36. Average Daily Trading Volume by Sector

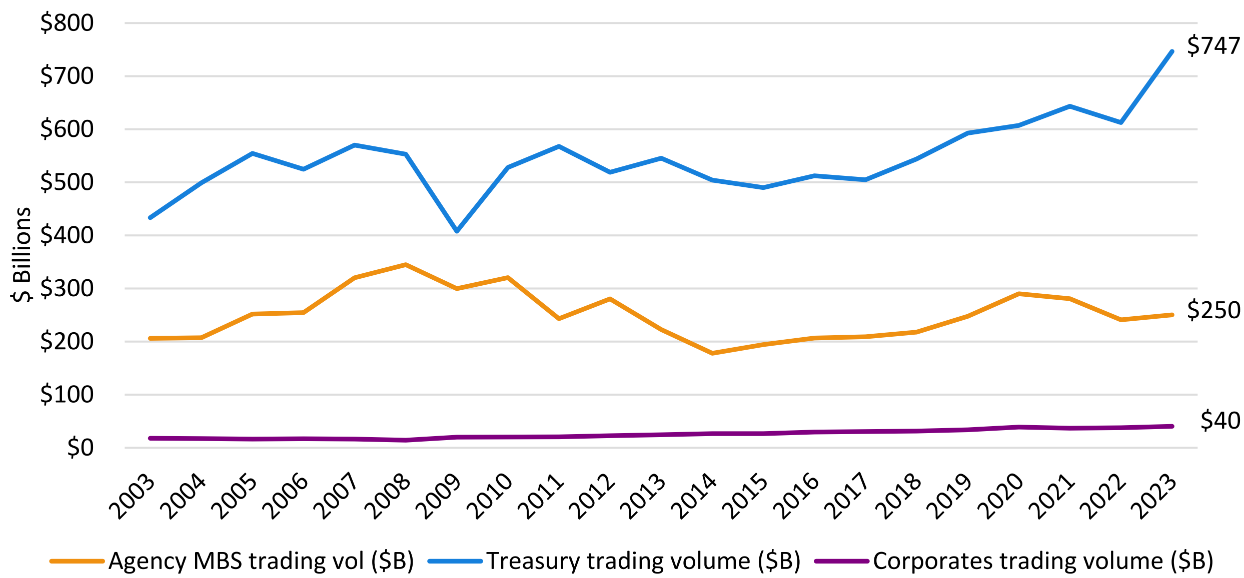
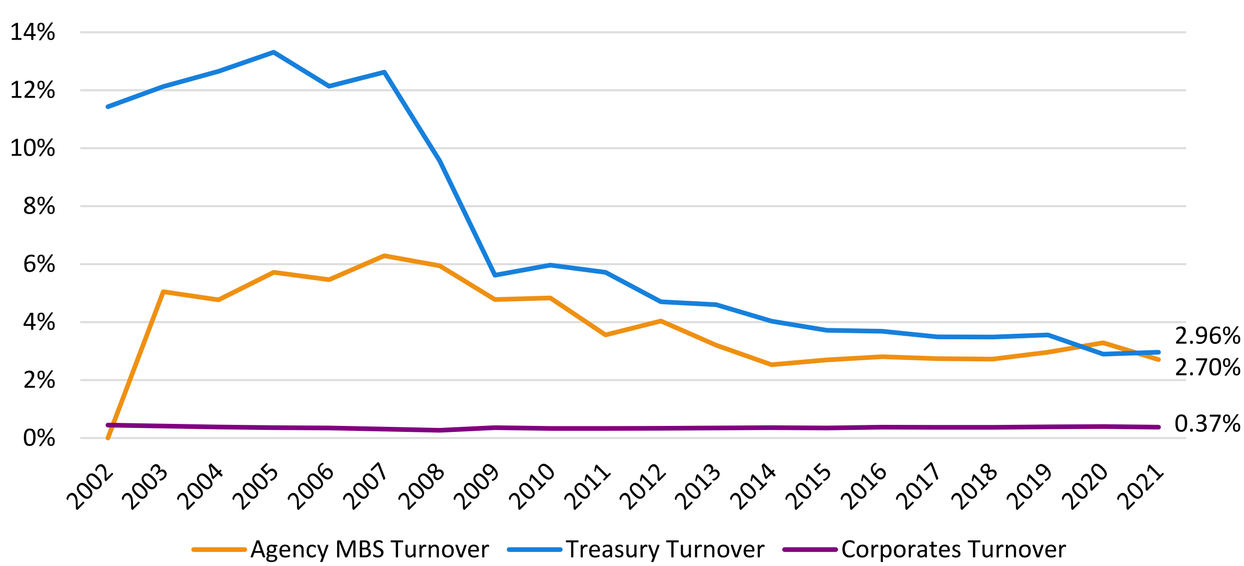


Figure 37. Average Daily Turnover by Sector



Source: SIFMA. Note: Data as of September 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 17, 18, and 19 below outline the population distributions of FICOs, DTIs, and LTVs between the agencies and between FHA, VA, and other Ginnie Mae loan sources as of month-end September 2023. The distribution statistics capture some key differences in the populations served by the agencies.

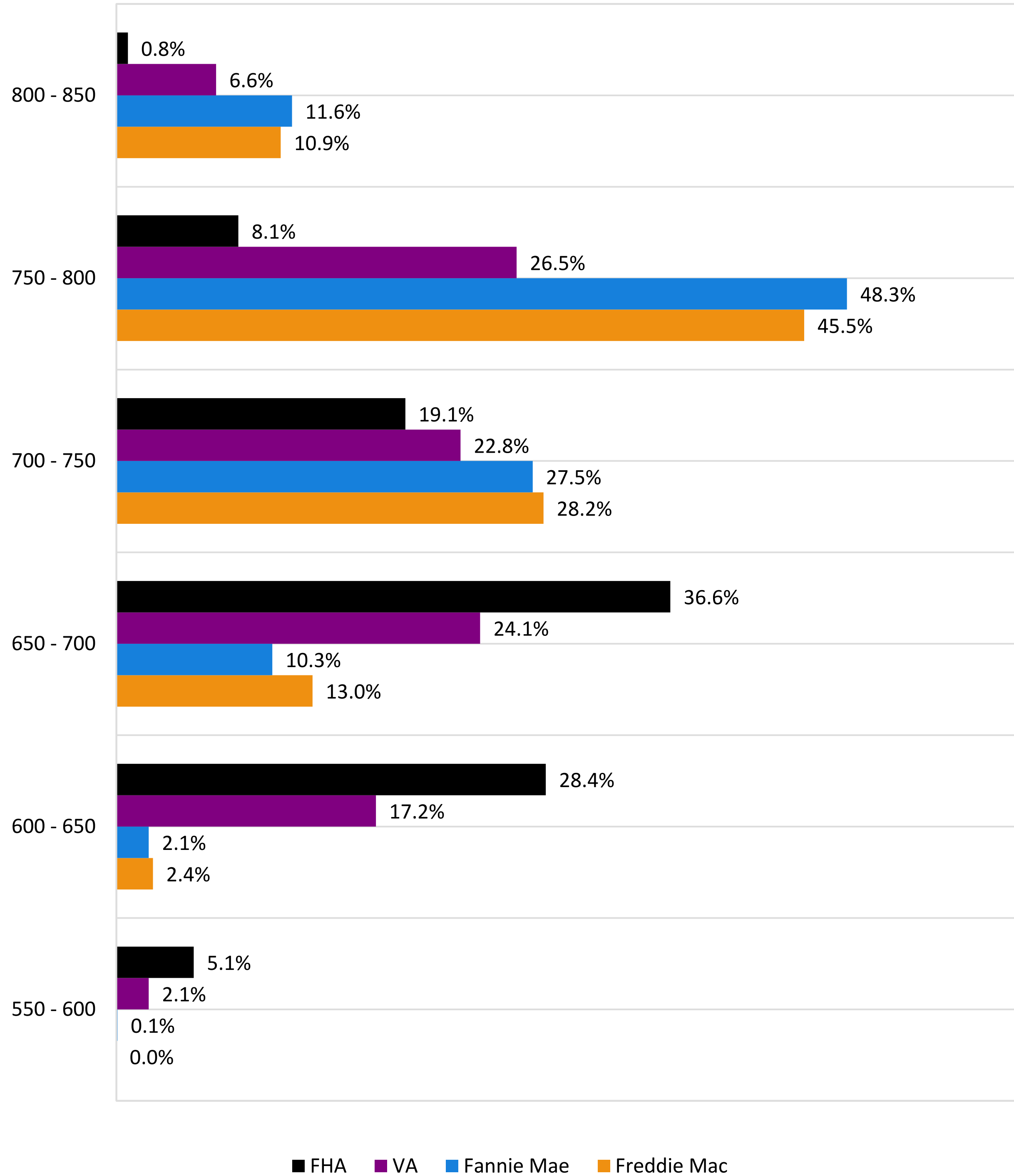
10.1 Credit Scores

Table 17. Share of Loans by FICO Score

			Purchase FICO				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	240,249	653	696	746	781	799	735
Fannie	71,875	701	733	766	790	802	758
Freddie	85,392	692	726	762	788	802	754
Ginnie	82,982	627	652	690	739	780	696
			Refi FICO				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	53,636	624	657	703	755	788	704
Fannie	15,602	667	702	743	778	799	737
Freddie	14,795	663	695	735	773	796	732
Ginnie	23,239	599	629	659	695	736	663
			All FICO				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	293,885	646	686	739	778	798	729
Fannie	87,477	692	727	763	788	802	754
Freddie	100,187	686	721	759	787	801	750
Ginnie	106,221	621	647	682	731	774	689
			Purchase FICO: Ginnie Mae Breakdown By Source				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	82,982	627	652	690	739	780	696
FHA	53,748	623	647	677	717	755	683
VA	26,273	638	673	730	776	798	723
Other	2,961	634	661	700	737	764	699
			Refi FICO: Ginnie Mae Breakdown By Source				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	23,239	599	629	659	695	736	663
FHA	16,230	593	624	653	685	719	654
VA	6,986	616	643	678	722	763	683
Other	23	669	701	734	750	786	728
			All FICO: Ginnie Mae Breakdown By Source				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	106,221	621	647	682	731	774	689
FHA	69,978	616	641	671	709	749	676
VA	33,259	632	664	717	769	795	715
Other	2,984	634	661	701	737	764	699

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.

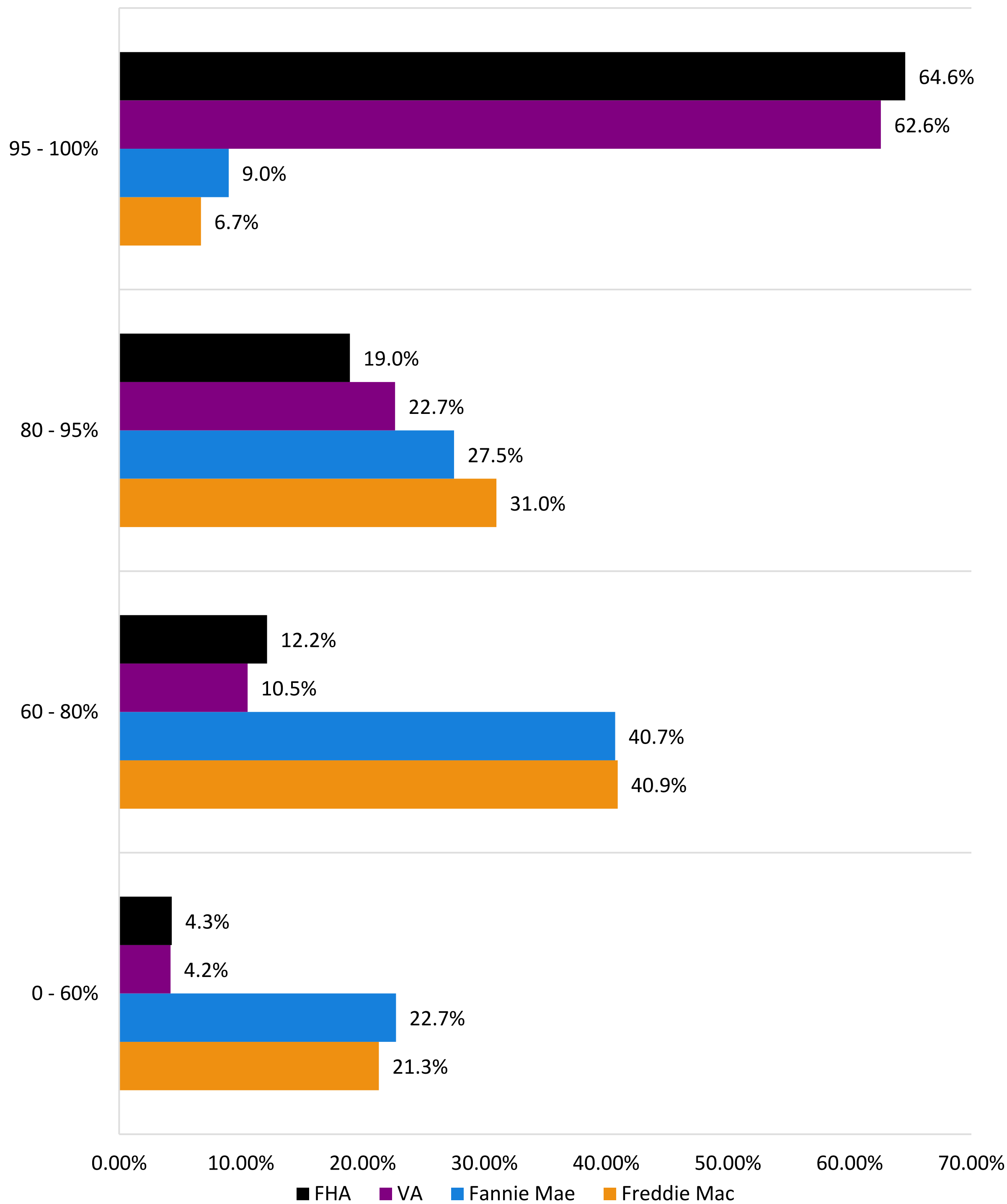
10.2 Loan-to-Value (LTV)

Table 18. Share of Loans by LTV

Purchase LTV							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	240,514	60	80	90	97	99	85
Fannie	71,959	55	75	80	95	97	80
Freddie	85,423	53	73	80	95	95	79
Ginnie	83,132	90	97	98	100	100	96
Refi LTV							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	53,896	33	51	68	80	85	64
Fannie	15,604	27	40	57	69	76	54
Freddie	14,796	28	42	59	70	79	56
Ginnie	23,496	55	69	80	81	93	76
All LTV							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	294,410	52	73	85	97	98	81
Fannie	87,563	44	64	80	90	95	75
Freddie	100,219	46	66	80	91	95	75
Ginnie	106,628	74	88	98	99	100	92
Purchase LTV: Ginnie Mae Breakdown By Source							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	83,132	90	97	98	100	100	96
FHA	53,843	92	97	98	98	98	96
VA	26,316	83	99	100	100	102	96
Other	2,973	94	99	101	101	101	98
Refi LTV: Ginnie Mae Breakdown By Source							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	23,496	55	69	80	81	93	76
FHA	16,373	52	66	77	81	81	72
VA	7,100	64	78	89	96	100	85
Other	23	62	74	80	95	98	81
All LTV: Ginnie Mae Breakdown By Source							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	106,628	74	88	98	99	100	92
FHA	70,216	73	81	98	98	98	90
VA	33,416	77	90	100	100	102	94
Other	2,996	93	99	101	101	101	98

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

Figure 39. Loan-to Value by Agency



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

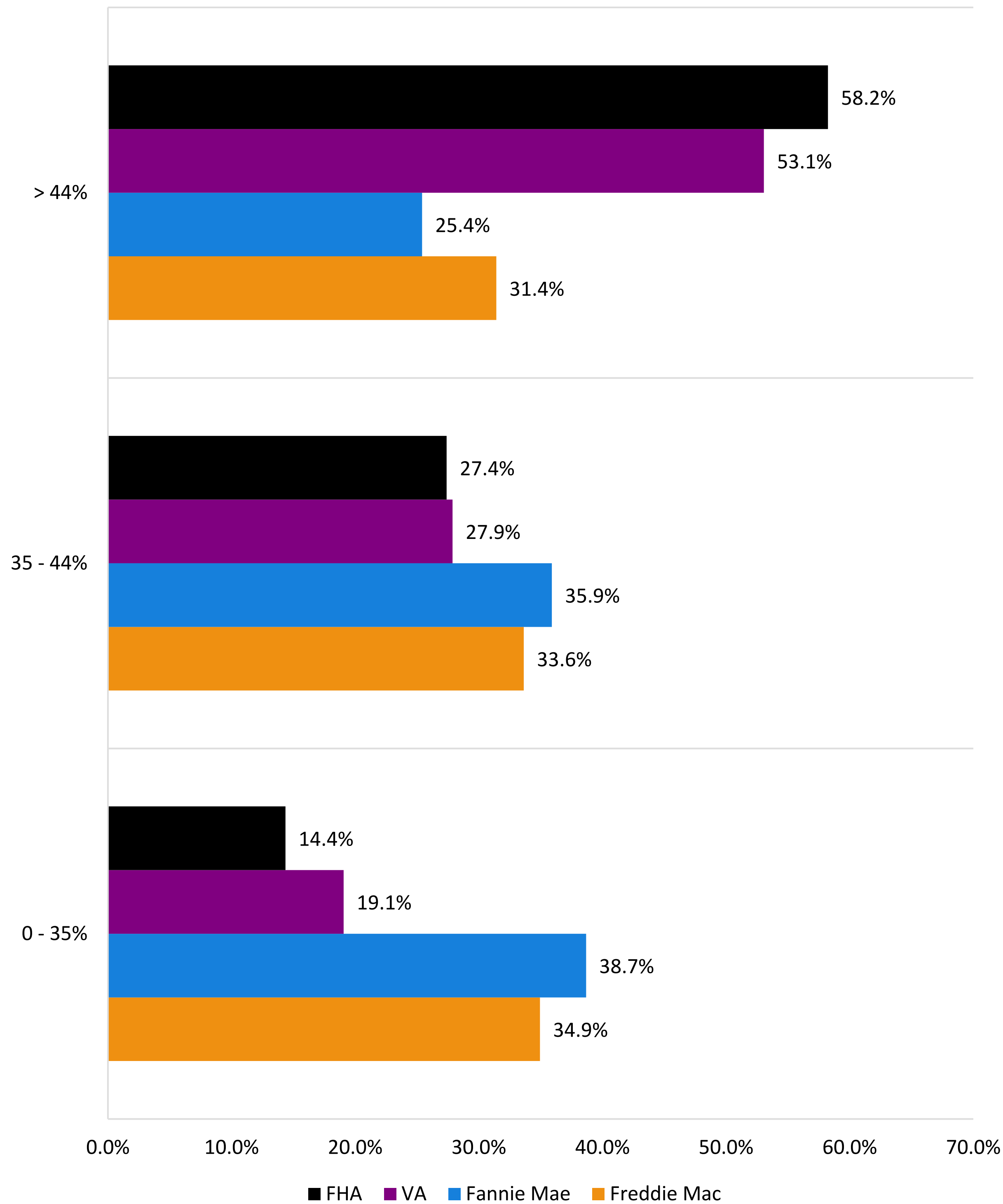
10.3 Debt-to-Income (DTI)

Table 19. Share of Loans by DTI

Names	Number of Loans	P10	P25	Median	P75	P90	Mean
Purchase DTI							
All	240,163	26	34	42	48	50	40
Fannie	71,959	24	31	39	45	48	37
Freddie	85,423	25	32	40	46	49	38
Ginnie	82,781	32	39	46	51	55	45
Refi DTI							
All	52,915	25	33	41	47	50	39
Fannie	15,604	22	29	37	43	46	36
Freddie	14,796	24	32	40	46	49	38
Ginnie	22,515	29	36	44	50	55	42
All DTI							
All	293,078	26	34	41	47	50	40
Fannie	87,563	24	31	39	45	48	37
Freddie	100,219	24	32	40	46	49	38
Ginnie	105,296	31	38	45	51	55	44
Purchase DTI: Ginnie Mae Breakdown By Source							
All	82,781	32	39	46	51	55	45
FHA	53,819	34	40	46	52	55	45
VA	25,990	31	38	45	52	56	44
Other	2,972	27	31	36	40	42	35
Refi DTI: Ginnie Mae Breakdown By Source							
All	22,515	29	36	44	50	55	42
FHA	16,145	29	36	44	50	55	43
VA	6,347	28	35	43	49	54	42
Other	23	28	33	37	40	41	35
All DTI: Ginnie Mae Breakdown By Source							
All	105,296	31	38	45	51	55	44
FHA	69,964	33	39	46	51	55	45
VA	32,337	30	37	45	51	56	44
Other	2,995	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 July 2022 – September 2022 to the three-month range of July 2023 – September 2023, the share of high-LTV agency loans with:

- FICO scores above 750 increased by approximately 1.5%.
- DTIs below 35% decreased by approximately 3.5%.

YoY, the share of high-LTV loans increased in the Ginnie Mae guarantee portfolio by approximately 2.7% and in the GSE guarantee portfolios by approximately 1.2%. 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 70.87% of its issuances between July 2023 – September 2023 having LTVs of 95 or above, compared to 23.08% for the GSEs.

Table 20. Share of Loans with LTV > 95

	Ginnie Mae	*GSE*	*All*
Jul 2022 - Sep 2022	68.21%	21.87%	37.09%
Jul 2023 - Sep 2023	70.87%	23.08%	41.34%

Table 21. Agency Market Share by DTI and FICO for Loans with LTV > 95 (July 2022-September 2022)

	FICO					
DTI	**<650**	**650-700**	**700-750**	**≥750**	**NA**	**All**
<35	2.14%	3.60%	5.07%	8.21%	0.04%	19.05%
35-45	5.74%	9.07%	10.77%	11.94%	0.04%	37.56%
≥45	7.50%	12.64%	11.38%	10.26%	0.05%	41.83%
NA	0.35%	0.27%	0.19%	0.20%	0.54%	1.55%
All	**15.73%**	**25.58%**	**27.41%**	**30.61%**	**0.67%**	**100.00%**

Table 22. Agency Market Share by DTI and FICO for Loans with LTV > 95 (July 2023-September 2023)

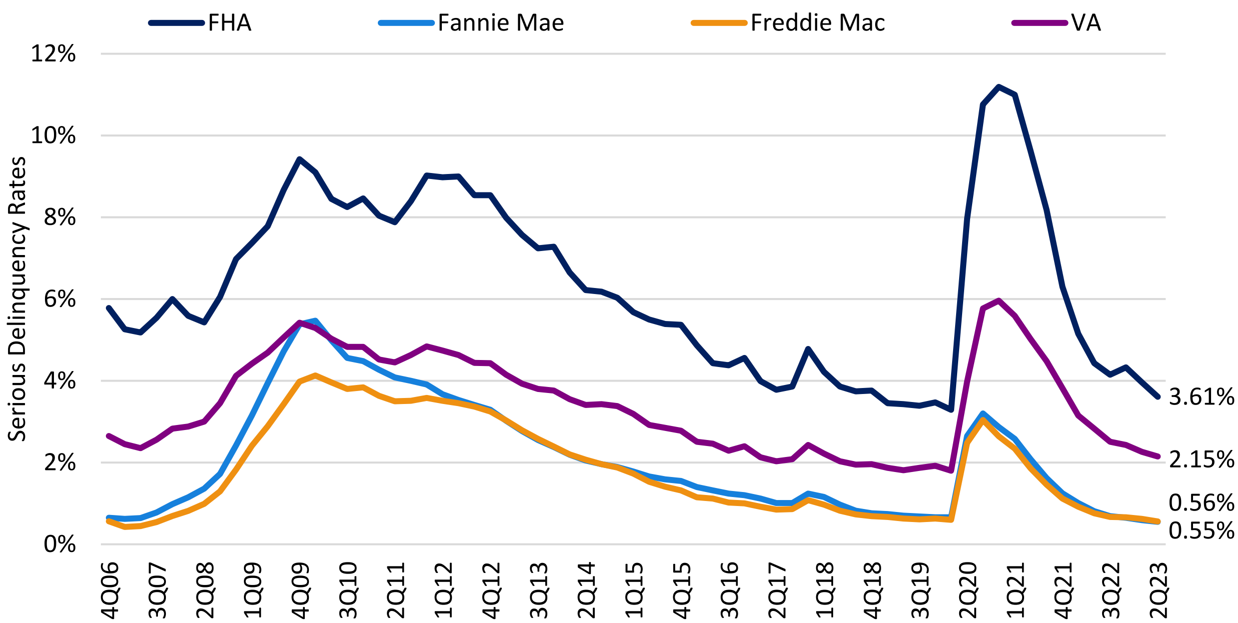
	FICO					
DTI	**<650**	**650-700**	**700-750**	**≥750**	**NA**	**All**
<35	1.74%	2.75%	4.03%	7.01%	0.05%	15.58%
35-45	5.21%	7.95%	9.93%	12.16%	0.04%	35.29%
≥45	7.77%	13.40%	13.87%	12.76%	0.11%	47.92%
NA	0.26%	0.23%	0.15%	0.21%	0.36%	1.21%
All	**14.99%**	**24.33%**	**27.98%**	**32.14%**	**0.56%**	**100.00%**

Sources: Recursion and Ginnie Mae. Data as of September 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.

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 54.4% as of month-end September 2023, an increase from 54.2% in August 2023 and up from 52% in September 2022. Freddie Mac and Fannie Mae's first-time homebuyer shares, 45.8% and 49.1% respectively, as of month-end September 2023, have increased 6.5% and 4.6% respectively, YoY. Ginnie Mae's first-time homebuyer share decreased 0.4% YoY. **Table 23** shows that based on mortgages originated as of month-end September 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

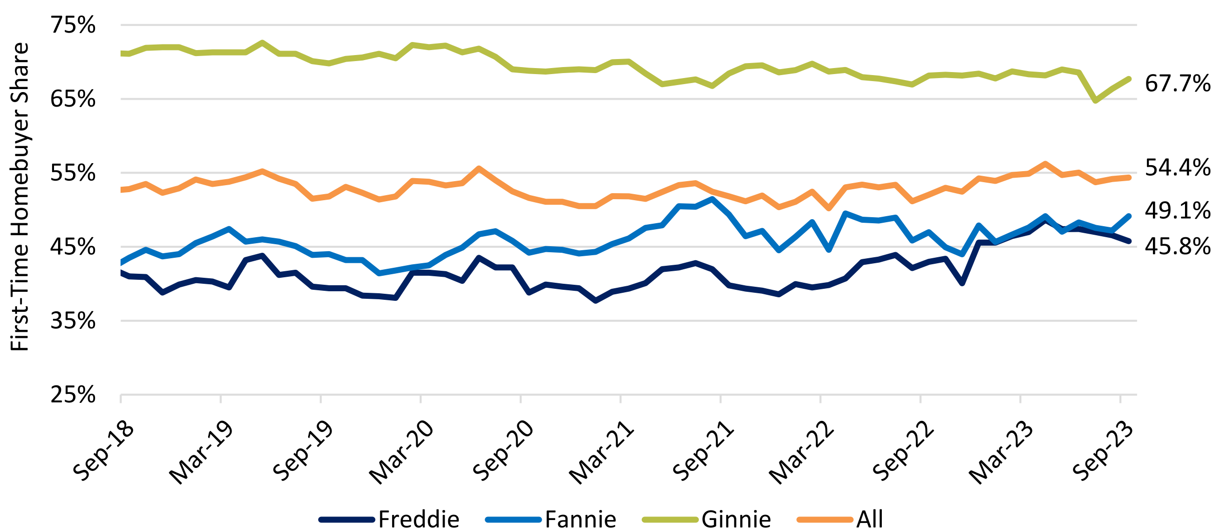


Table 23. Agency First-Time Homebuyer Share Summary

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	*Repeat*	*First-Time*	*Repeat*	*First-Time*	*Repeat*	*First-Time*	*Repeat*
Loan Amount $	335,936	345,498	317,502	327,143	309,492	363,823	319,038	342,232
Credit Score	752	763	746	760	691	708	724	748
LTV (%)	86	74	85	74	97	94	90	79
DTI (%)	37	37	38	38	44	46	41	40
Loan Rate (%)	6.7	6.8	6.7	6.8	6.6	6.5	6.7	6.7

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

In the Ginnie Mae purchase market, 75.4% of FHA loans, 50.2% of VA loans, and 84.2% of other loans provided financing for first-time home buyers as of month-end September 2023. The share of first-time home buyers in the Ginnie Mae purchase market increased MoM for FHA while decreasing for other loans. **Table 24** shows that based on mortgages originated as of month-end September 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 16.9% smaller loans, had a 25.5-point lower credit score, 5% higher LTV and had a 14 bp higher interest rate. FHA's first-time homebuyers are much more like their repeat buyers, with only 4.7% smaller loans, similar interest rates, and 2.3% 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

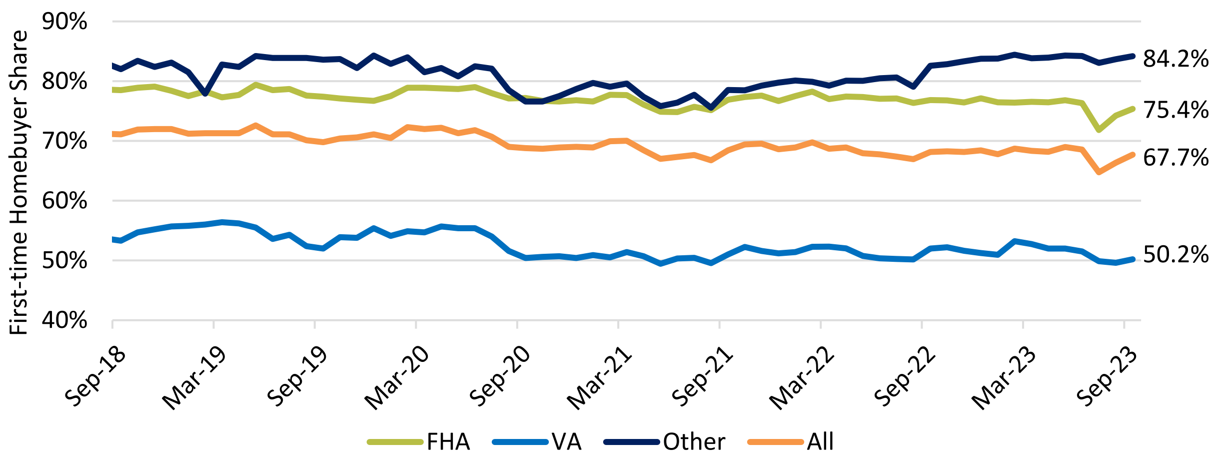


Table 24. Ginnie Mae First-Time Homebuyer Share Breakdown Summary

	FHA		VA		Other		Total	
	First-Time	*Repeat*	*First-Time*	*Repeat*	*First-Time*	*Repeat*	*First-Time*	*Repeat*
Loan Amount $	$306,546	$321,577	$342,684	$412,575	$182,119	$197,181	$309,492	$363,823
Credit Score	684	681	710	736	699	703	691	708
LTV (%)	97%	94%	99%	94%	98%	98%	97%	94%
DTI (%)	45%	46%	44%	45%	35%	35%	44%	46%
Loan Rate (%)	6.6%	6.6%	6.5%	6.4%	6.6%	6.5%	6.6%	6.5%

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

Note: Loan Rate % rounded to nearest tenth of a percent

10.7 Credit Box: Historical

The median FICO score for all agency loans originated as of month-end September 2023 was 737, which represents a 5-point increase YoY. Ginnie Mae median FICO scores increased 6 points YoY to 678 as of month end September 2023. As of month-end September 2023, average FICO scores for refinances increased for Fannie Mae and Freddie Mac borrowers by 8 and 19 points YoY, respectively.

Figure 44. FICO Scores for All Loans

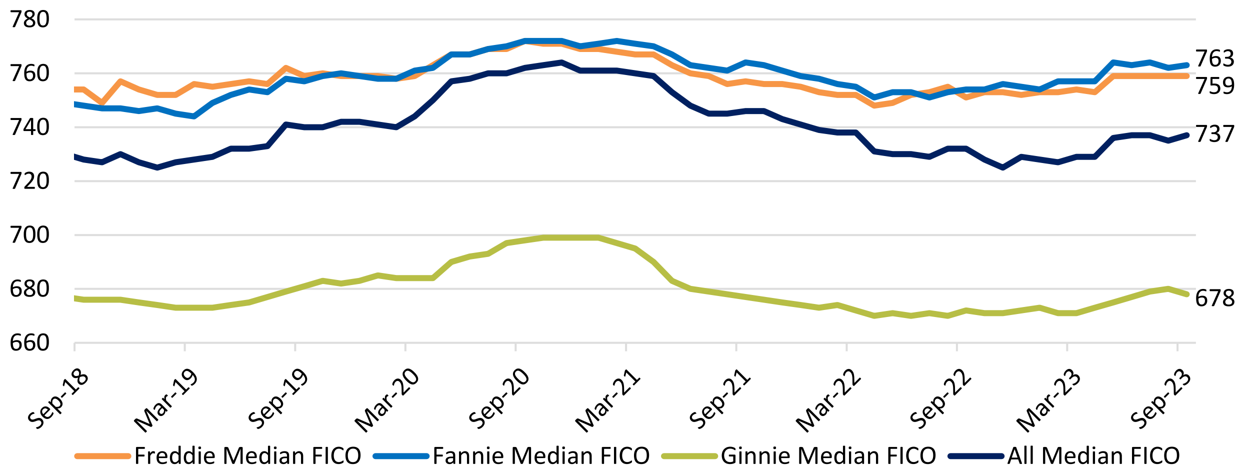


Figure 45. FICO Scores for Purchase Loans

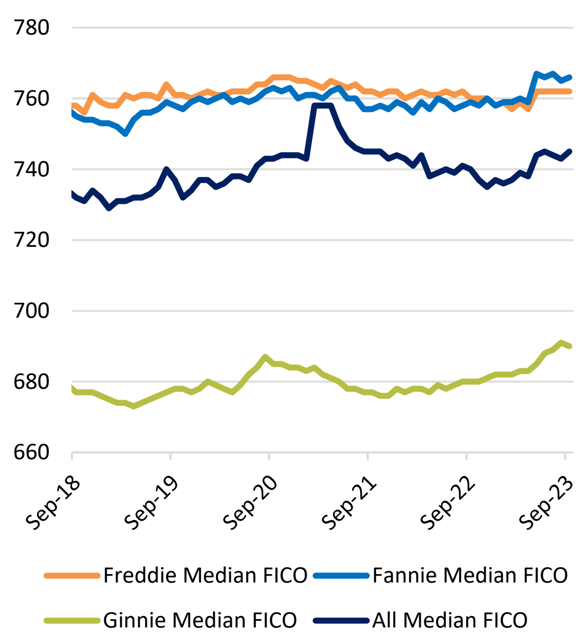
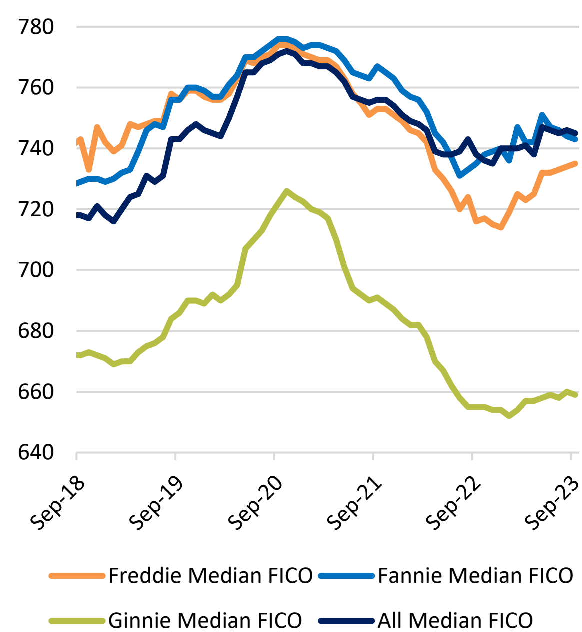


Figure 46. FICO Scores for Refinance Loans



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

In September 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 September 2022 to September 2023. In September 2023, median DTIs for Ginnie Mae, Freddie Mac, and Fannie Mae were 45.1%, 40.0%, and 39.0% respectively. In September 2022, median DTIs for Ginnie Mae, Freddie Mac, and Fannie Mae were 44.4%, 39.0%, and 39.0% respectively.

Figure 47. LTV Ratio for All Loans

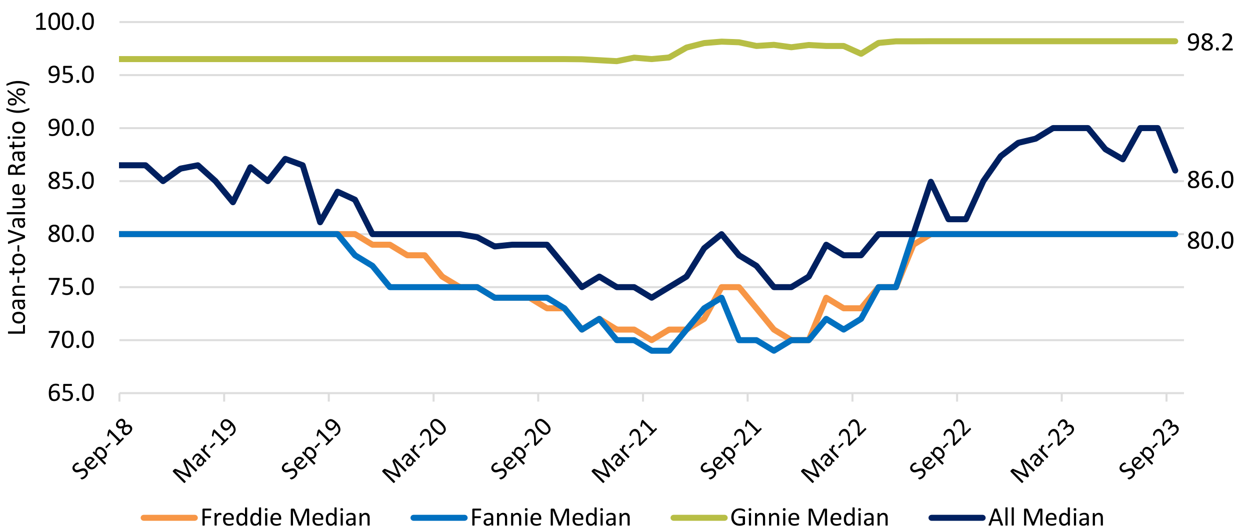
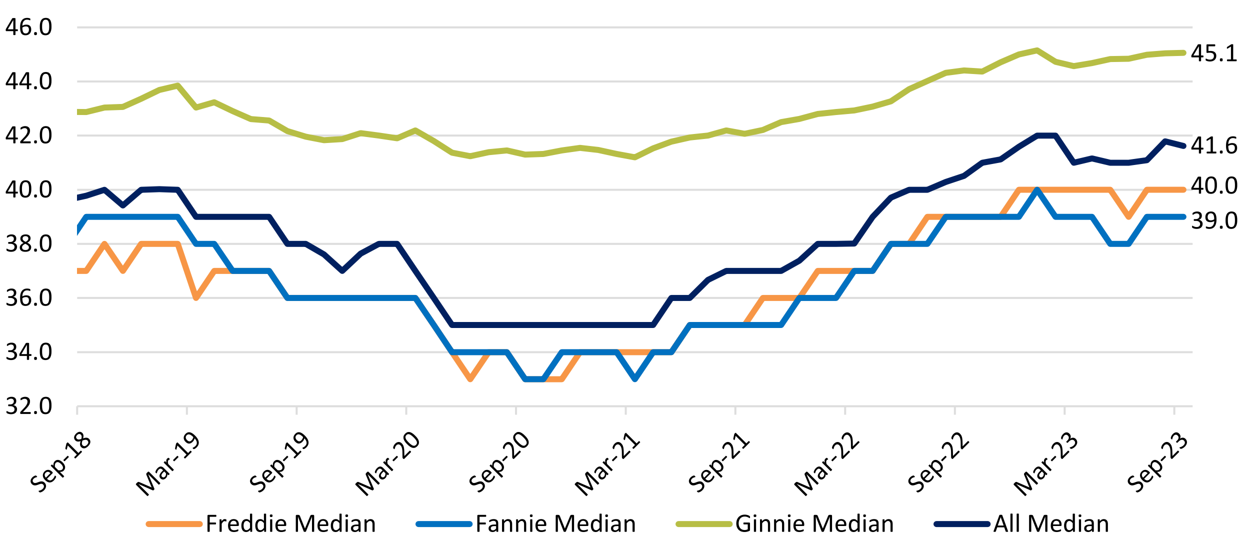


Figure 48. DTI Ratio for All Loans



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

11 FORBEARANCE TRENDS

At the end of September 2023, 47,339 Ginnie Mae loans were in forbearance. The number of loans in forbearance removed from MBS pools in September was 192 while 47,147 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.

Tables 25-27. Forbearance Snapshot

All Loans in Forbearance – September 2023

	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie	653	3.9	$204,609	73.8	75.2	47,339
Bank	671	4.0	$137,892	83.5	86.1	7,331
Nonbank	652	3.9	$217,529	72.7	74.1	39,984
FHA	650	4.0	$196,555	77.6	77.6	36,468
Bank	670	4.1	$135,119	86.4	88.0	6,270
Nonbank	648	4.0	$210,108	76.4	76.4	30,178
VA	662	3.7	$270,826	58.6	65.0	8,352
Bank	673	3.6	$181,989	59.0	70.2	708
Nonbank	662	3.7	$279,683	58.5	64.8	7,642

Loans in Forbearance and Removed from Pools – September 2023

	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie	658	3.7	$191,841	61.9	63.3	192
Bank	700	4.2	$93,687	65.8	68.2	43
Nonbank	652	3.7	$201,271	61.3	62.6	149
FHA	645	4.0	$159,627	58.5	62.4	131
Bank	696	4.4	$80,666	48.7	71.8	28
Nonbank	639	3.9	$188,784	60.1	61.3	103
VA	679	3.3	$243,973	63.4	61.2	49
Bank	705	3.8	$233,825	100.0	60.3	10
Nonbank	675	3.2	$247,601	57.4	61.3	39

Loans in Forbearance that Remain in Pools – September 2023

	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie	653	3.9	$204,705	73.8	75.2	47,147
Bank	671	4.0	$138,117	83.5	86.2	7,288
Nonbank	652	3.9	$217,655	72.7	74.2	39,835
FHA	650	4.0	$196,625	77.7	77.7	36,337
Bank	670	4.1	$135,299	86.5	88.0	6,242
Nonbank	648	4.0	$210,179	76.5	76.5	30,075
VA	662	3.7	$270,882	58.5	65.1	8,303
Bank	672	3.6	$181,200	58.3	70.4	698
Nonbank	662	3.7	$279,885	58.5	64.8	7,603

*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 September 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 28.** The top 30 firms collectively own 87.34% 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 September 2023, over half (53.91%) of the Ginnie Mae MSRs are owned by the top six firms.

Table 28. Top 30 Holders of Ginnie Mae Mortgage Servicing Rights (MSRs), by UPB

MSR Holder	Current	Rank Year prior	Change	UPB ($ millions)	Share	Cumulative Share	CPR	CDR
LAKEVIEW LOAN SERVIC	1	3	↑	$ 304,319,539,668	13.4%	13.42%	6.03%	0.71%
DBA FREEDOM HOME MOR	2	1	↓	$ 291,201,480,507	12.8%	26.26%	6.86%	0.70%
PENNYMAC LOAN SERVIC	3	2	↓	$ 263,859,411,506	11.6%	37.89%	6.04%	0.66%
NATIONSTAR MORTGAGE,	4	4	↔	$ 127,617,751,015	5.6%	43.52%	6.93%	0.80%
NEWREZ LLC	5	8	↑	$ 125,862,240,433	5.5%	49.07%	5.75%	0.54%
ROCKET MORTGAGE, LLC	6	6	↔	$ 109,973,350,811	4.8%	53.91%	7.57%	0.33%
CARRINGTON MORTGAGE	7	7	↔	$ 107,102,610,767	4.7%	58.64%	6.07%	0.52%
WELLS FARGO BANK, NA	8	5	↓	$ 101,794,042,300	4.5%	63.12%	6.62%	0.38%
PLANET HOME LENDING,	9	12	↑	$ 63,598,906,077	2.8%	65.93%	5.17%	0.24%
U. S. BANK, NA	10	11	↑	$ 55,440,953,569	2.4%	68.37%	5.33%	0.46%
UNITED WHOLESALE MOR	11	10	↓	$ 49,791,646,432	2.2%	70.57%	4.61%	1.23%
LOANDEPOT.COM,LLC	12	14	↑	$ 39,291,937,754	1.7%	72.30%	5.92%	0.52%
NAVY FEDERAL CREDIT	13	15	↑	$ 29,229,618,738	1.3%	73.59%	6.24%	0.33%
M&T BANK	14	NR	↑	$ 27,715,222,316	1.2%	74.81%	5.33%	0.60%
MORTGAGE RESEARCH CE	15	13	↓	$ 27,404,688,728	1.2%	76.02%	6.99%	0.66%
GUILD MORTGAGE COMPA	16	17	↑	$ 23,798,369,965	1.0%	77.07%	5.34%	0.40%
THE MONEY SOURCE INC	17	18	↑	$ 22,072,698,062	1.0%	78.04%	6.67%	1.15%
CROSSCOUNTRY MORTGAG	18	20	↑	$ 20,832,680,958	0.9%	78.96%	6.63%	1.04%
TRUIST BANK	19	19	↔	$ 20,230,481,927	0.9%	79.85%	6.21%	0.86%
MOVEMENT MORTGAGE,LL	20	23	↑	$ 19,765,245,736	0.9%	80.72%	5.69%	0.48%
NEW AMERICAN FUNDING	21	21	↔	$ 19,655,238,926	0.9%	81.59%	6.67%	1.15%
CMG MORTGAGE, INC.	22	24	↑	$ 19,065,355,856	0.8%	82.43%	5.21%	0.85%
PHH MORTGAGE CORPORA	23	29	↑	$ 16,626,521,037	0.7%	83.16%	4.91%	0.55%
IDAHO HOUSING AND FI	24	26	↑	$ 16,224,929,933	0.7%	83.88%	3.89%	0.53%
AMERIHOME MORTGAGE C	25	16	↑	$ 15,754,684,859	0.7%	84.57%	3.52%	0.43%
CITIZENS BANK N.A.	26	27	↑	$ 14,028,797,856	0.6%	85.19%	5.76%	0.29%
FLAGSTAR BANK, N.A.	27	NR	↑	$ 13,875,638,225	0.6%	85.80%	5.56%	0.22%
VILLAGE CAPITAL & IN	28	22	↓	$ 12,293,406,718	0.5%	86.35%	9.57%	0.86%
MIDFIRST BANK	29	28	↓	$ 12,195,204,589	0.5%	86.88%	12.71%	6.77%
SUN WEST MORTGAGE CO	30	NR	↑	$ 10,310,153,277	0.5%	87.34%	6.05%	0.38%

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

13 AGENCY NONBANK ORIGINATOR

Total agency nonbank origination share decreased as of month-end September 2023 by approximately 2.2%. The decrease in nonbank origination share was driven by a decrease in both Freddie Mac and Fannie Mae nonbank origination share, down 3.2% and 3.1%, respectively. The Ginnie Mae nonbank share rose to 90.5% as of September 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)

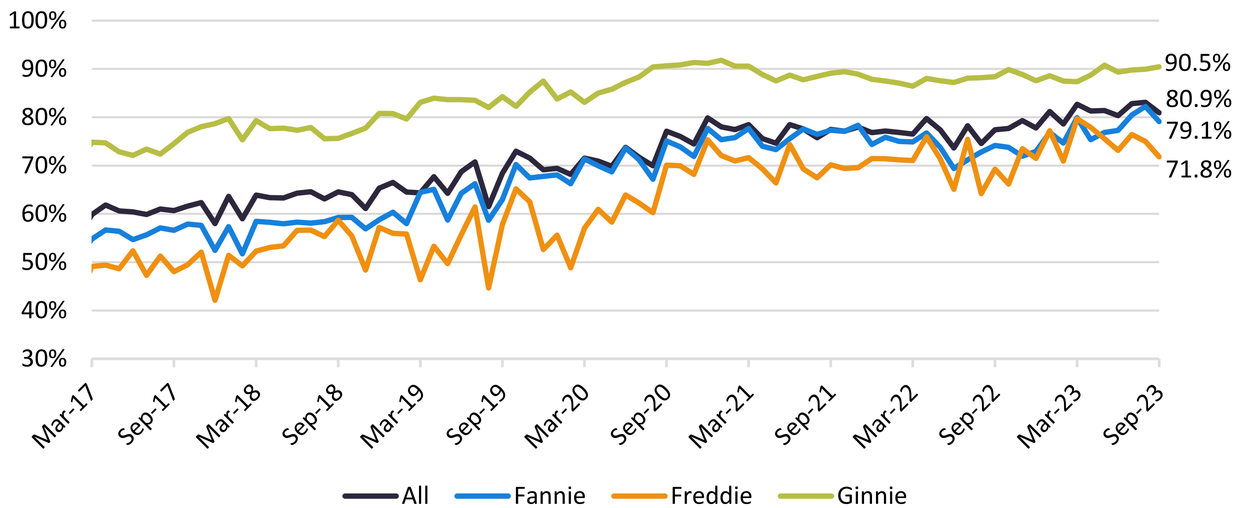


Figure 50. Nonbank Origination Share: Purchase Loans

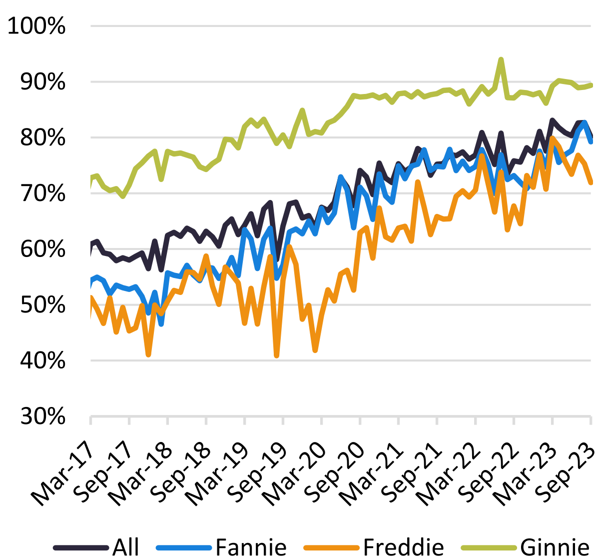
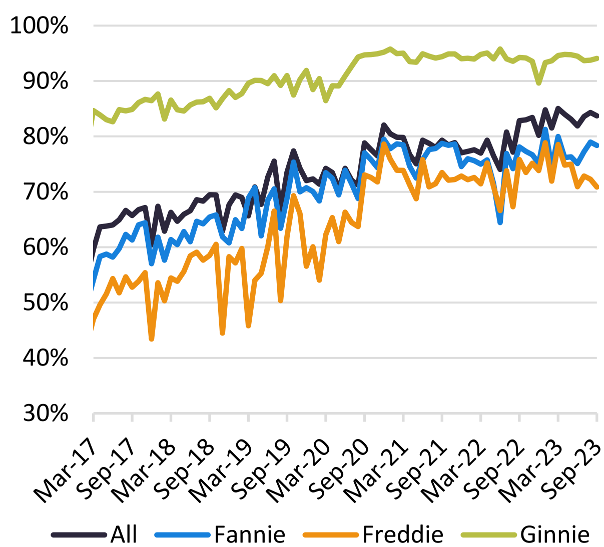


Figure 51. Nonbank Origination Share: Refi Loans



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

Ginnie Mae's total nonbank originator share remained relatively stable as of month-end September 2023. Ginnie Mae continues to have a high proportion of nonbank originations, with a rate of 90.5% in September 2023. The percentage of Ginnie Mae's Other nonbank refinanced loans decreased to 90.3% in September 2023.

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

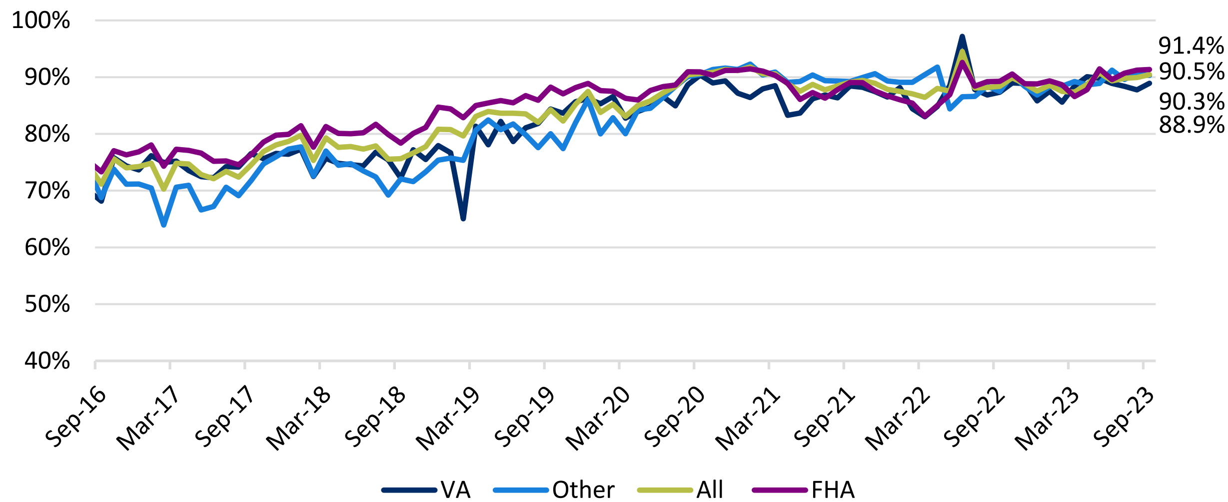


Figure 53. Ginnie Mae Nonbank Share: Purchase Loans

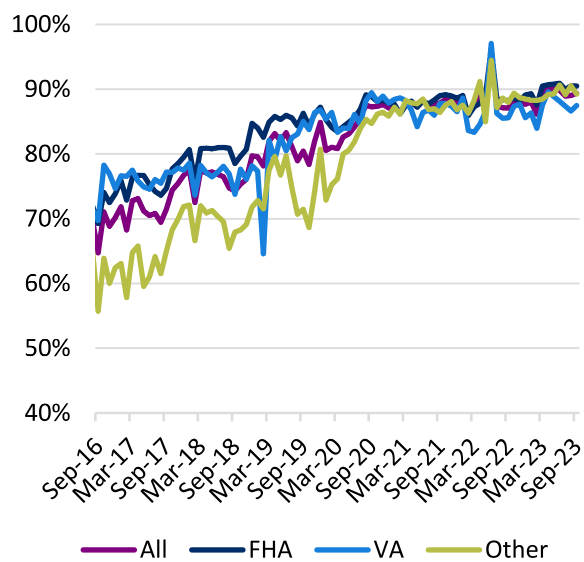
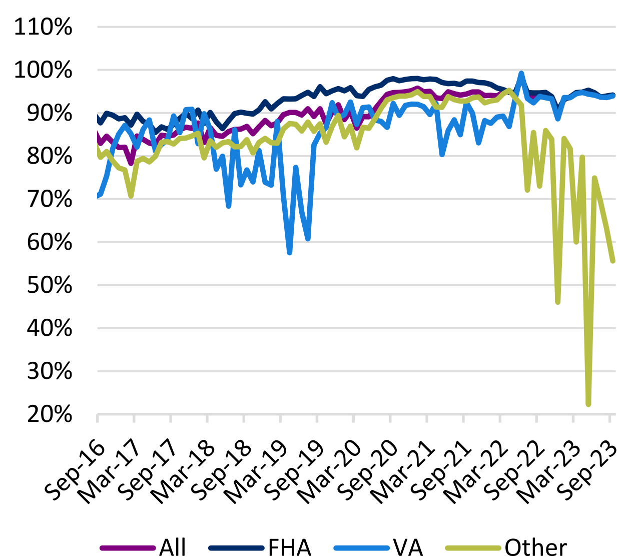


Figure 54. Ginnie Mae Nonbank Share: Refi Loans



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

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

14.1.1 (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 increased by 3 points from August 2023 to September 2023. The agency median FICO score increased by 2 points to 737 in September 2023.

Figure 55. Agency FICO: Bank vs. Nonbank

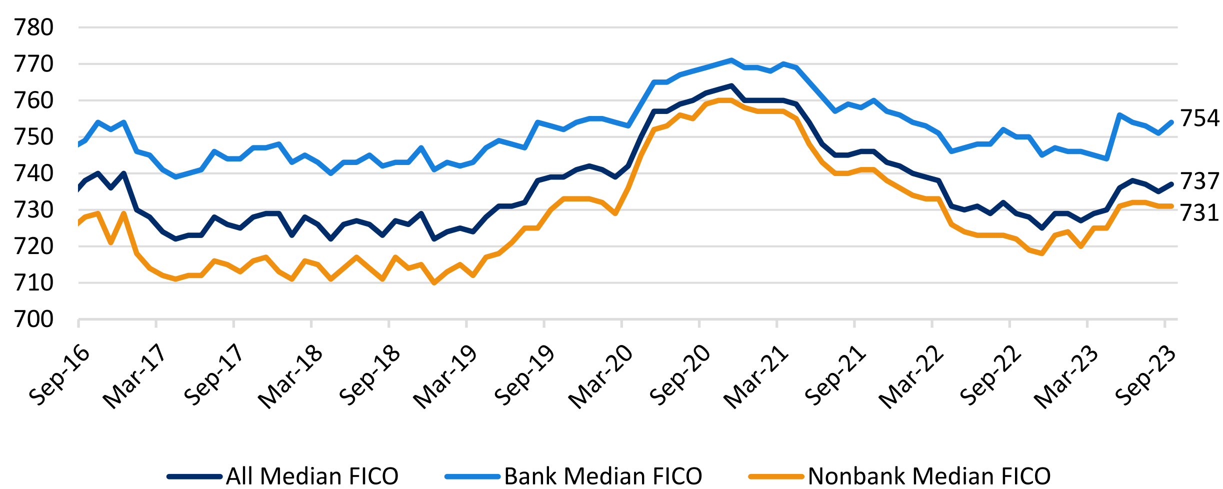


Figure 56. GSE FICO: Bank vs. Nonbank

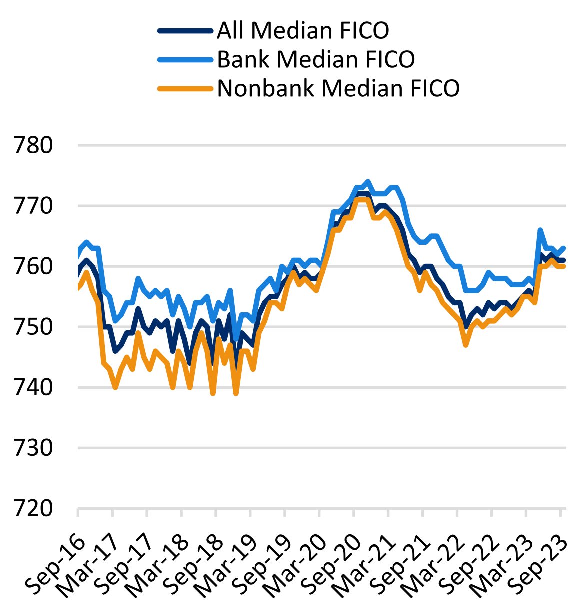
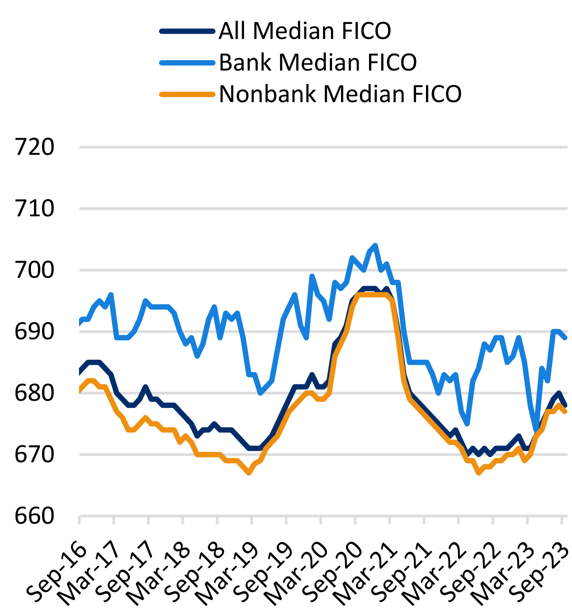


Figure 57. Ginnie Mae FICO: Bank vs. Nonbank



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

The median LTV for all GSE originators remained the same as of month-end September 2023 at 80%. Ginnie Mae median bank and nonbank LTV remained flat at 98.19%. Ginnie Mae median DTI remained steady at 45.3% through September 2023 in nonbank originations.

Figure 58. GSE LTV: Bank vs. Nonbank

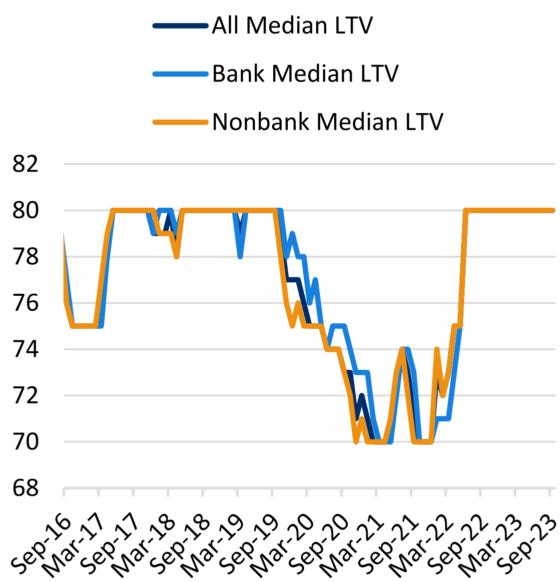


Figure 59. Ginnie Mae LTV: Bank vs. Nonbank

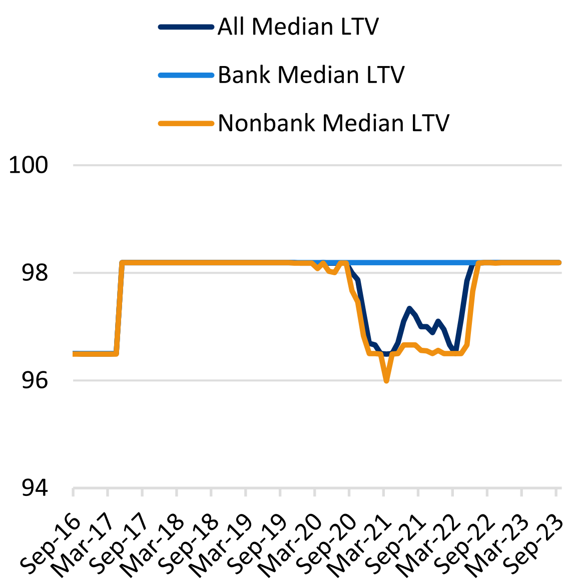


Figure 60. GSE DTI: Bank vs. Nonbank

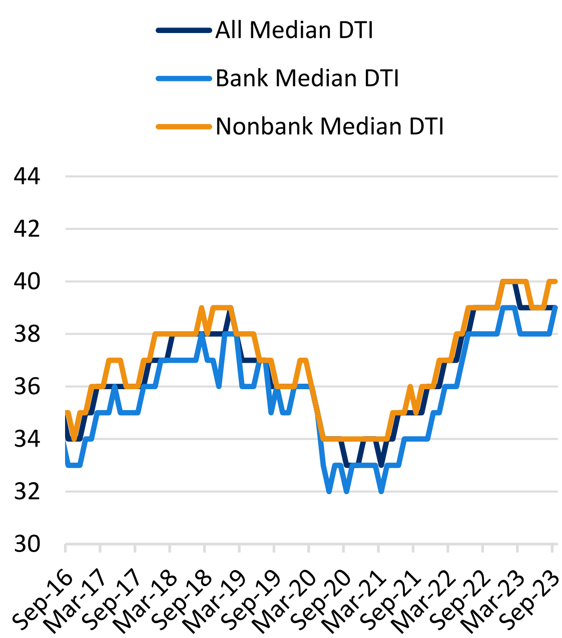
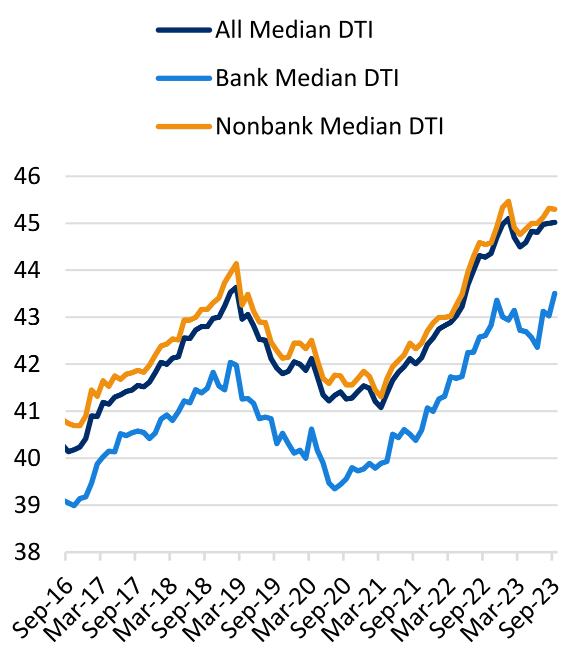


Figure 61. Ginnie Mae DTI: Bank vs. Nonbank



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

As of month-end September 2023, the median FICO score for Ginnie Mae bank and nonbank both decreased by 1 point to 689 and 677, respectively. The median FICO score for all Ginnie originations decreased 2 points to 678. The gap between banks and nonbanks is most apparent in "Other" lending (26-point spread).

Figure 62. Ginnie Mae FICO Score: Bank vs. Nonbank

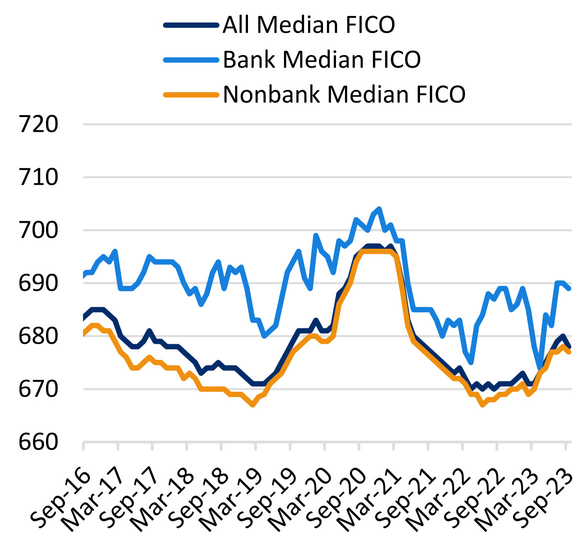


Figure 63. Ginnie Mae FHA FICO Score: Bank vs. Nonbank

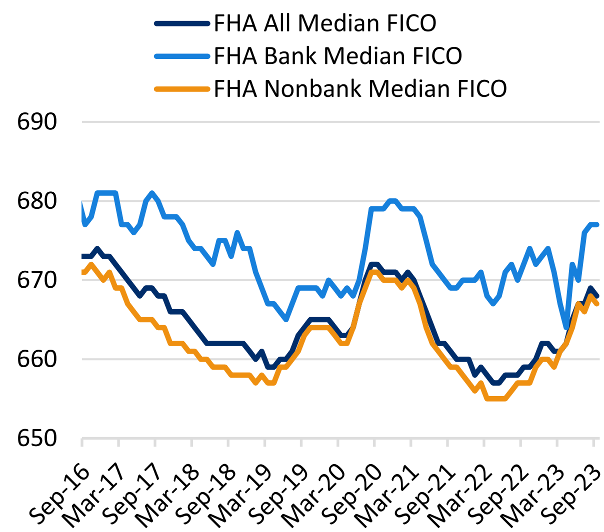


Figure 64. Ginnie Mae VA FICO Score: Bank vs. Nonbank

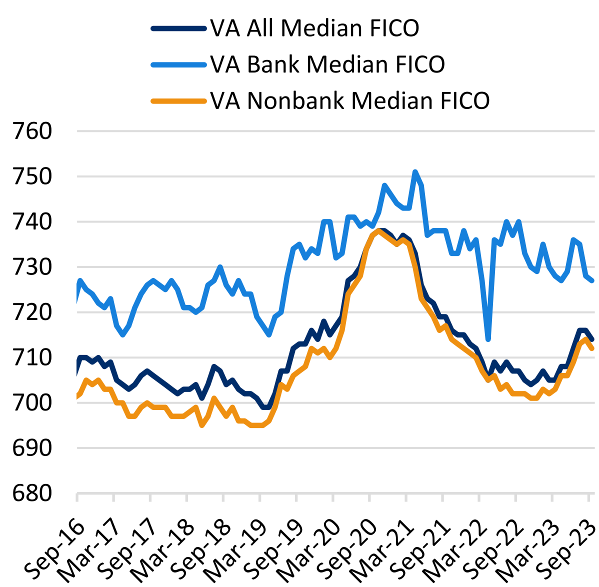
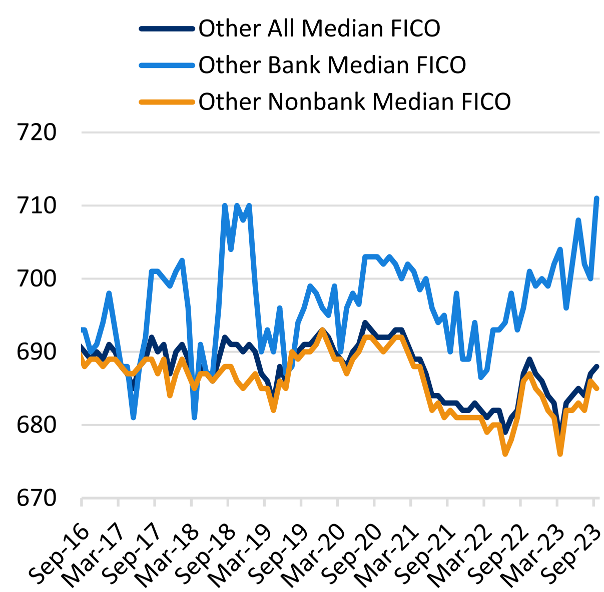


Figure 65. Ginnie Mae Other FICO Score: Bank vs. Nonbank



Source: Recursion. Notes: Data as of September 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

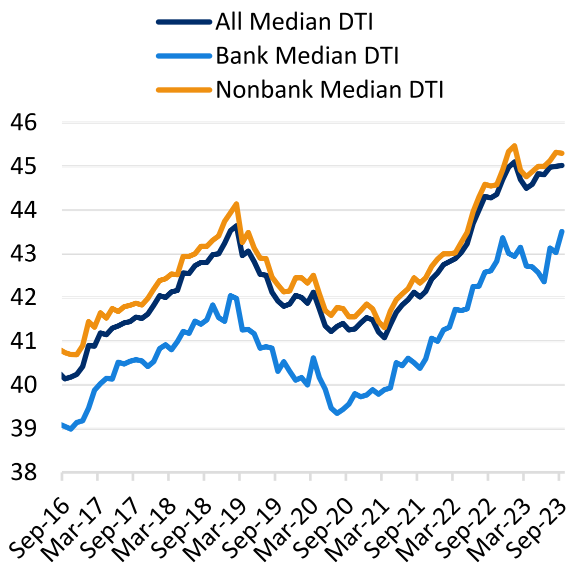


Figure 67. Ginnie Mae FHA DTI: Bank vs. Nonbank

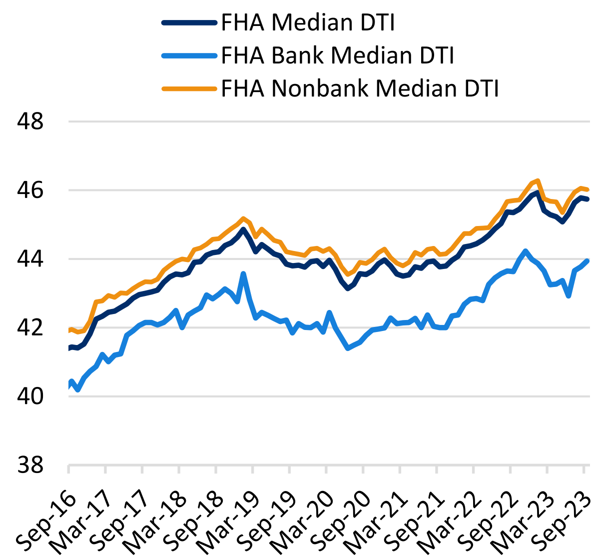


Figure 68. VA DTI: Bank vs. Nonbank

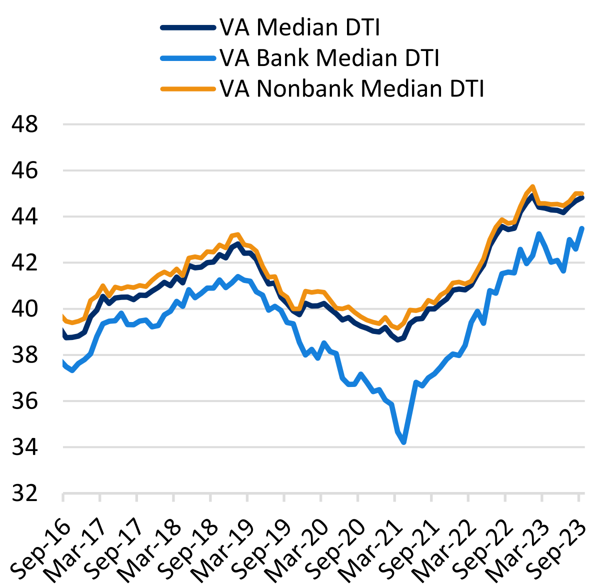
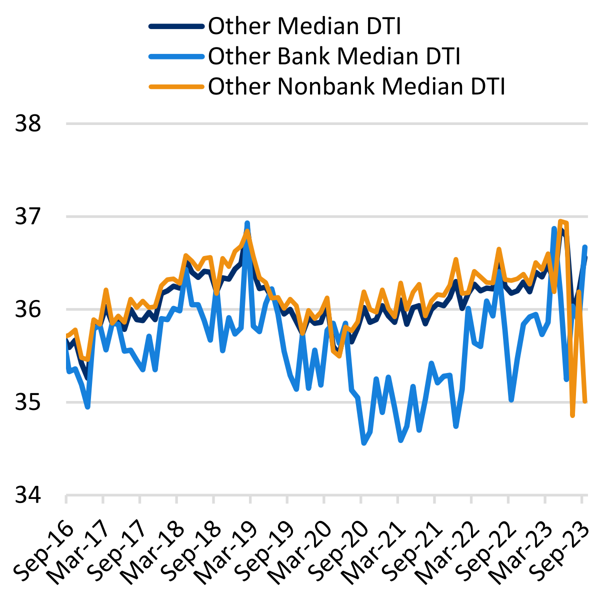


Figure 69. Other DTI: Bank vs. Nonbank



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

15 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.

15.1 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 29. ESG Metrics – MBS Portfolio (September 2023)

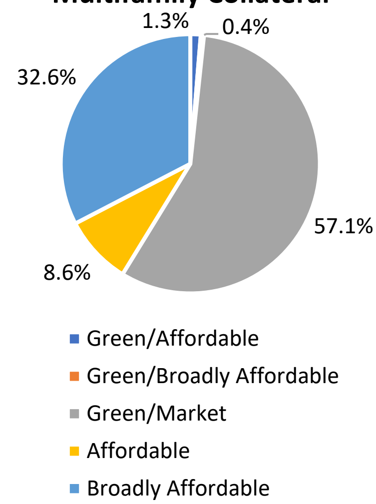
Ginnie Mae's ESG Metrics – MBS Portfolio as of September 2023				
	Targeted Population	**Positive Outcomes**	**Our Commitment**	
Social - Affordable	FHA Borrowers – 7,786,437 VA Borrowers – 3,565,713 RHS Borrowers – 23,767 PIH Borrowers – 786,057	Loans under $200K 6,512,467 Loans First-Time Home Buyers 4,047,520 Loans Down Payment Assistance 692,903 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. 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. 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.	Single Family
Social - Affordable	Low-to-Moderate Income Borrowers (LMI)	3,192,718 Loans		Single Family
Social - Affordable	LMI Majority Census Tract Loans	1,717,998 Loans		Single Family
Social - Affordable	Borrowers Facing Difficulties	792,294 modifications with over 631,956 in partial claims	Ginnie Mae has been integral to the federal actions to prevent foreclosure for homeowners experiencing financial hardship.	Single Family
Social - Affordable	Senior Citizens Aging in Place	286,764 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.	HECM
Social - Affordable	Multifamily Housing (MF)	1.31 million apartment homes 497,128 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.	Multi-Family
Social - Affordable	MF Affordable	4,849 MF loans are either Green, Affordable, or both	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.	Multi-Family
Green	MF Green			Multi-Family

15.2 Environmental

Table 30. UPB by ESG Status

ESG Status	UPB	%
Green/Affordable	1,058,035,882	0.7%
Green/Broadly Affordable	326,085,414	0.2%
Green/Market	46,584,658,679	31.1%
Green Total	47,968,779,975	32.1%
Affordable[5]	7,034,638,678	4.7%
Broadly Affordable[2]	26,625,173,528	17.8%
Affordable Total	35,043,933,502	23.4%
ESG Total	81,628,592,181	54.6%
Total	149,611,290,933	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 U.S. 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 54.6% of Ginnie Mae's Multifamily collateral is considered ESG.

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

15.3 Social

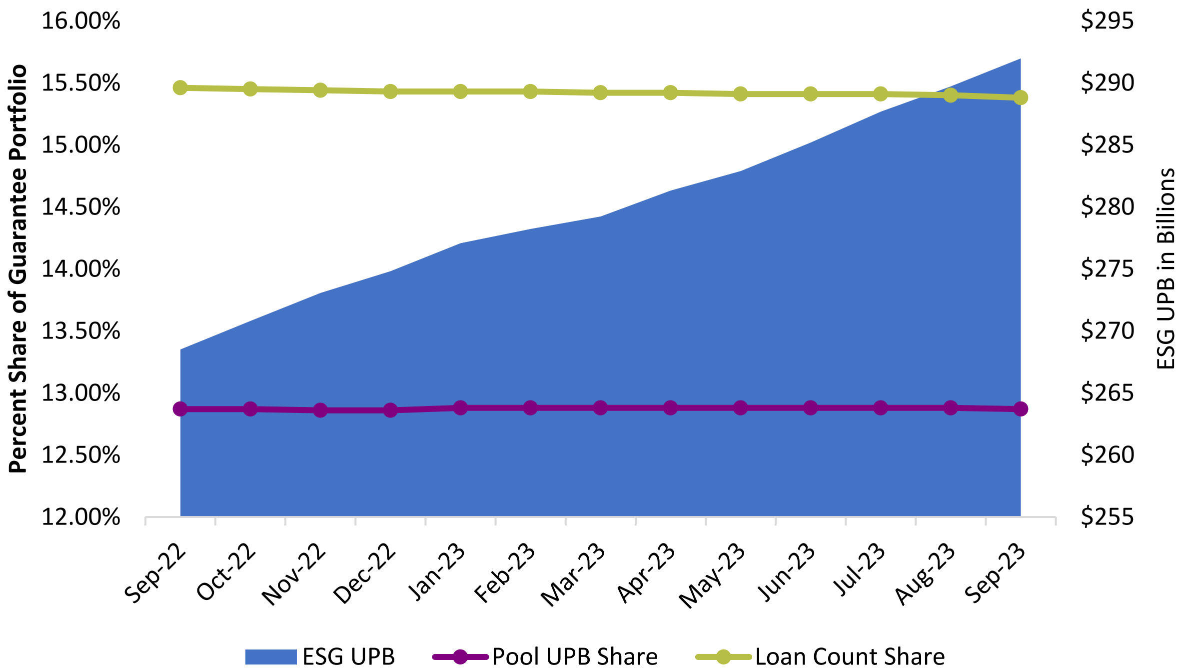
With the introduction of Ginnie Mae's new social disclosures, investors can now identify the number of underlying loans made to LMI borrowers, the percentage of LMI loan count out of total loan count, the unpaid principal balance (UPB) of LMI loans in the MBS, and the percentage of LMI UPB out of total 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.*

15.3.1 Low-to-Moderate Income Borrowers

Over $291 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 $26 billion over the past 12 months as of September 2023.

Figure 71. ESG Share of the Outstanding SF Portfolio



Source: Ginnie Mae Disclosures as of September 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 31. Percent LMI by Pool Share

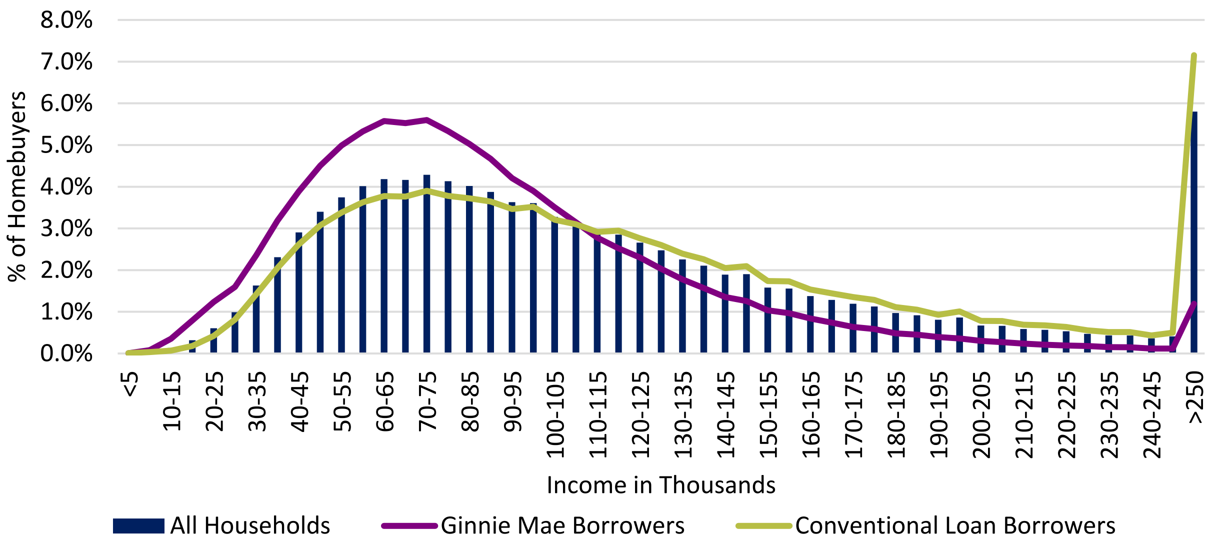
Metric	LMI Pool Share >50%	LMI Pool Share 20% - 50%	LMI Share < 20%	All Pools
Total UPB ($ billions)	$8.0	$196.9	$2,017.8	$2,222.7
Average Original Loan Size	$171,211	$189,158	$334,027	320,610
Credit Score (Median)	675	675	679	677
DTI (Median)	40%	40%	40%	40%
LTV (Median)	97%	96%	95%	96%
Interest Rate (WA)	4.69%	4.50%	3.77%	3.84%

Source: Ginnie Mae Disclosures as of September 2023

15.3.2 Purchase and Refinance Origination 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

16 HOUSING AFFORDABILITY

16.1 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

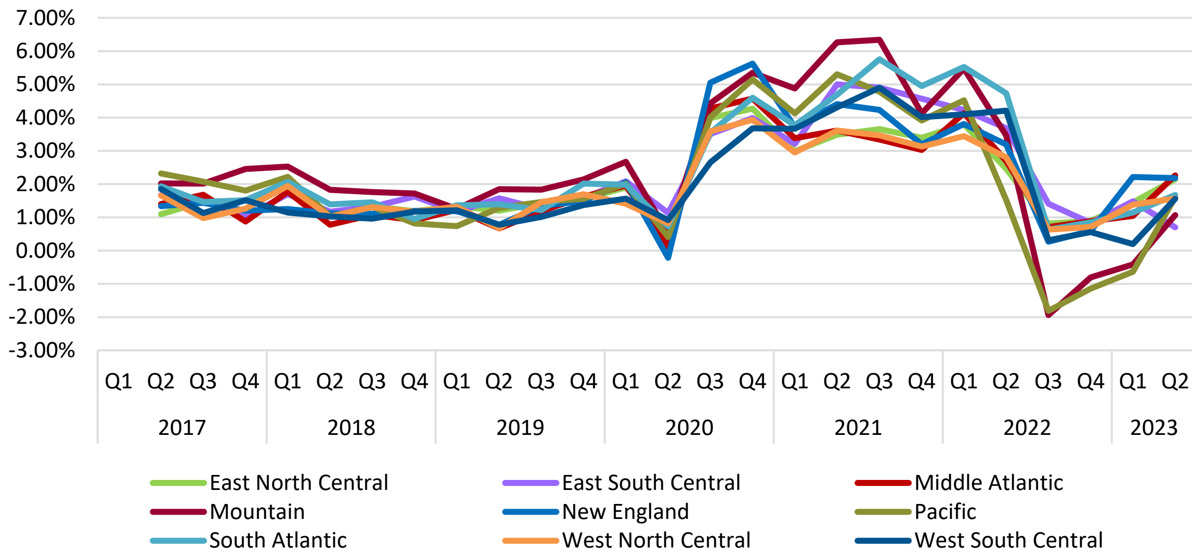
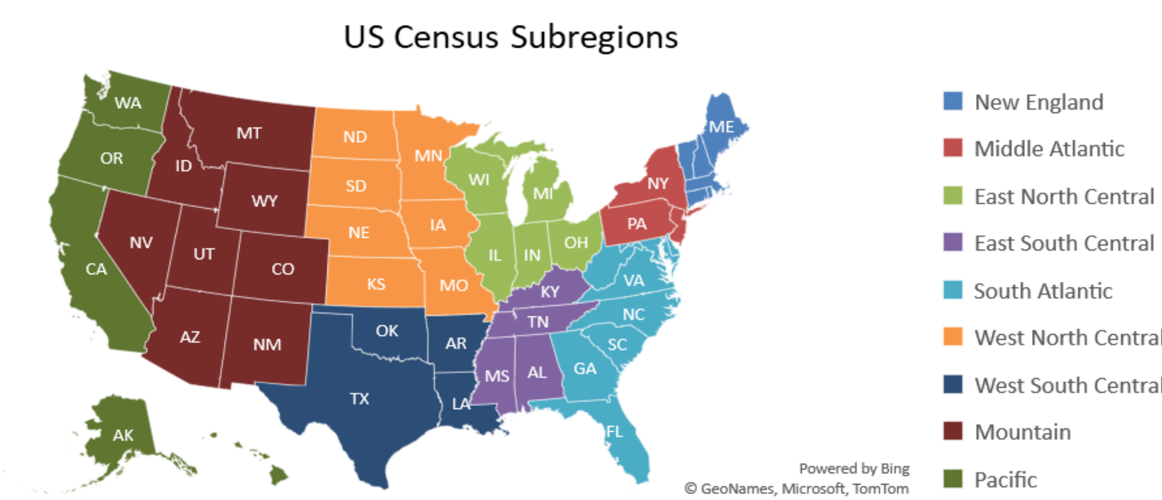


Figure 74. FHFA U.S. Census Subregions as defined by the U.S. Census Bureau



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

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

As of month-end September 2023, inflation was 3.7%, unchanged from the month prior. Nationally, rents are up 0.4% YoY as of month-end September 2023. The MoM change in rents from August 2023 to September 2023 decreased by 2.0%. Wage growth saw a decrease from 5.3% in August 2023 to 5.2% as of month-end September 2023. Month-end July 2023 reporting data shows YoY home price appreciation increased by 1.0% from a 0.0% YoY change in June 2023.

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

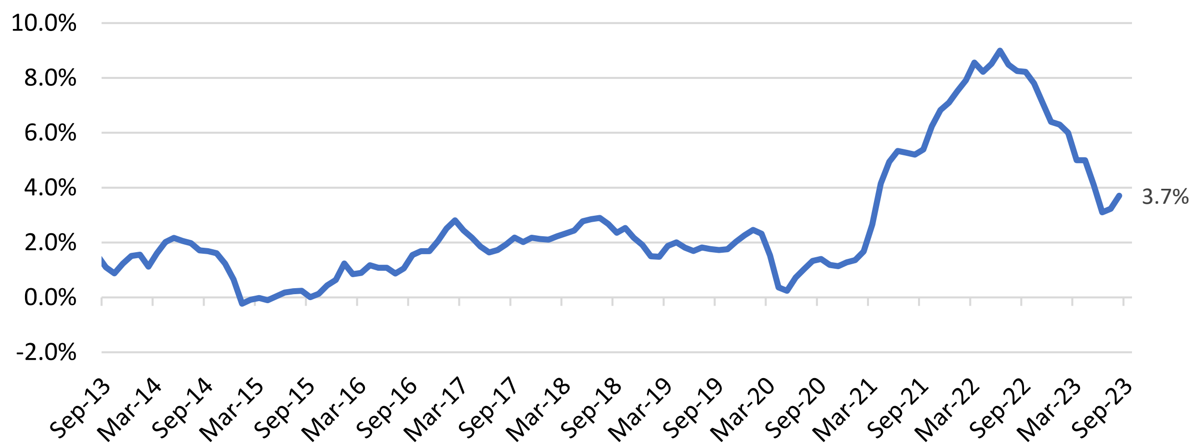
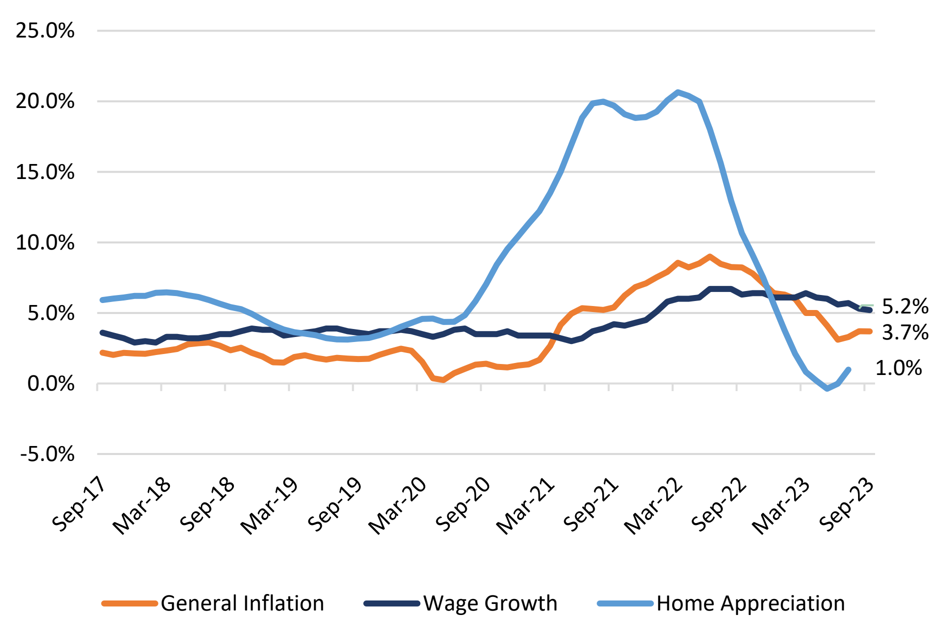


Figure 76. Asset Price Appreciation vs. Wage Increases

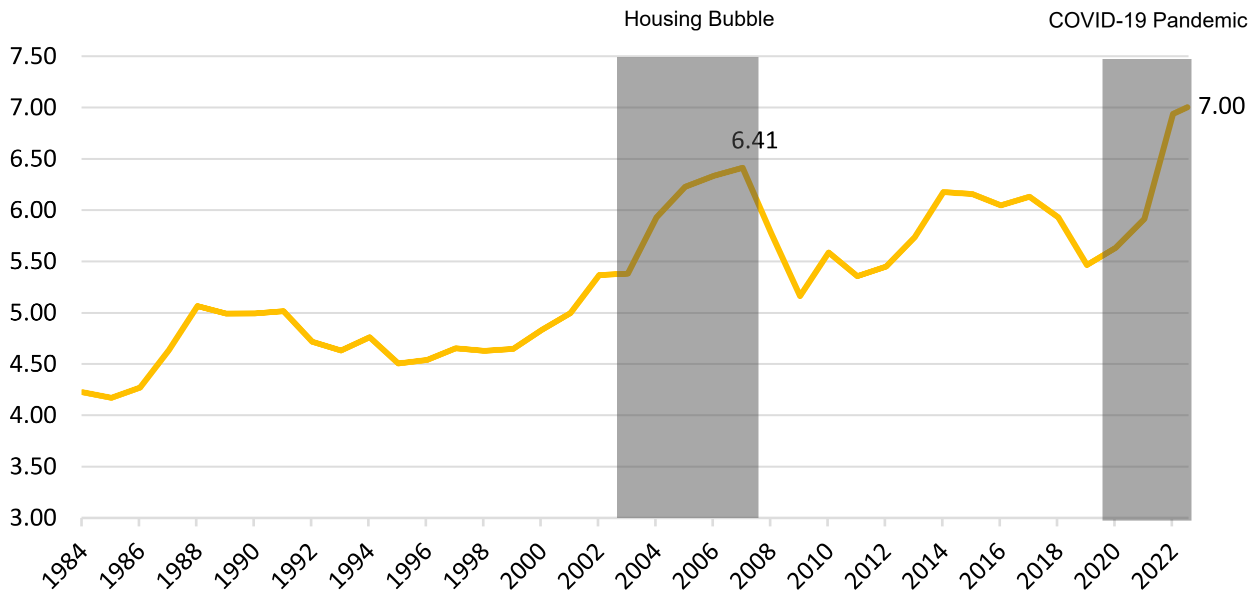


Metric	*Statistic*
General Inflation	*3.7%*
Home Price Appreciation *(YoY)*	*1.0%*
Rental Price Appreciation *(Median Rent Change YoY)*	*0.4%*
Wage Growth	*5.2%*

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

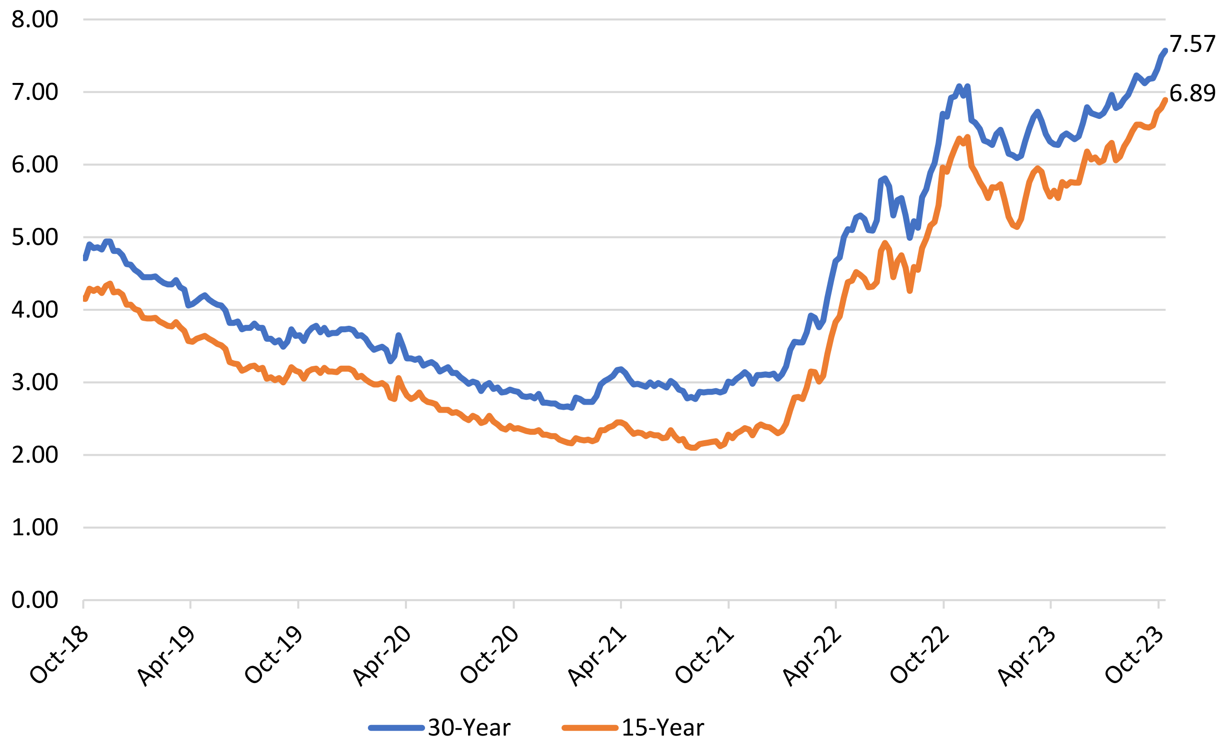


Source: FRED Average Home Sales Data, FRED Median Income Data

16.2.1 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 October 12, 2023, the average 30-year and 15-year fixed rate mortgage rates were 7.57% and 6.89%, respectively. The average 30-year fixed rate mortgage rate increased 39 bps and the average 15-year fixed rate mortgage rate increased 38 bps MoM from September 14, 2023.

Figure 78. Average Fixed Rate Mortgage Rates



Sources: FRED data as of October 2023

[6] https://www.federalreserve.gov/newsevents/pressreleases/monetary20230920a.htm

16.3 Housing Inventory

As of September 2023, there was 6.9 months of housing inventory on the market, a decrease of 0.8 months from 7.7 months in August 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

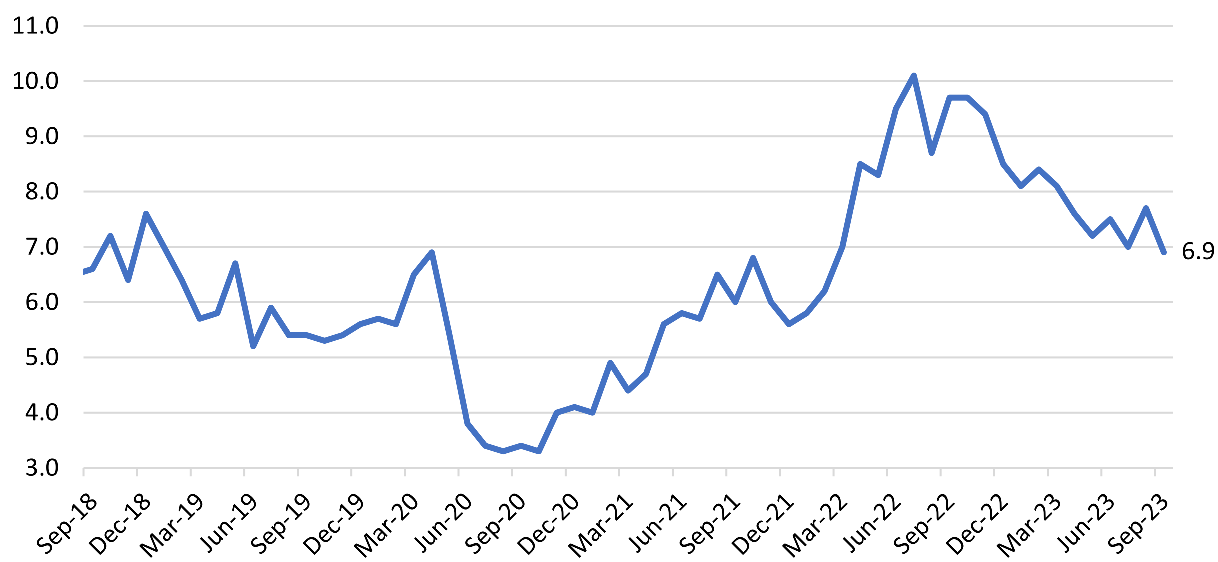
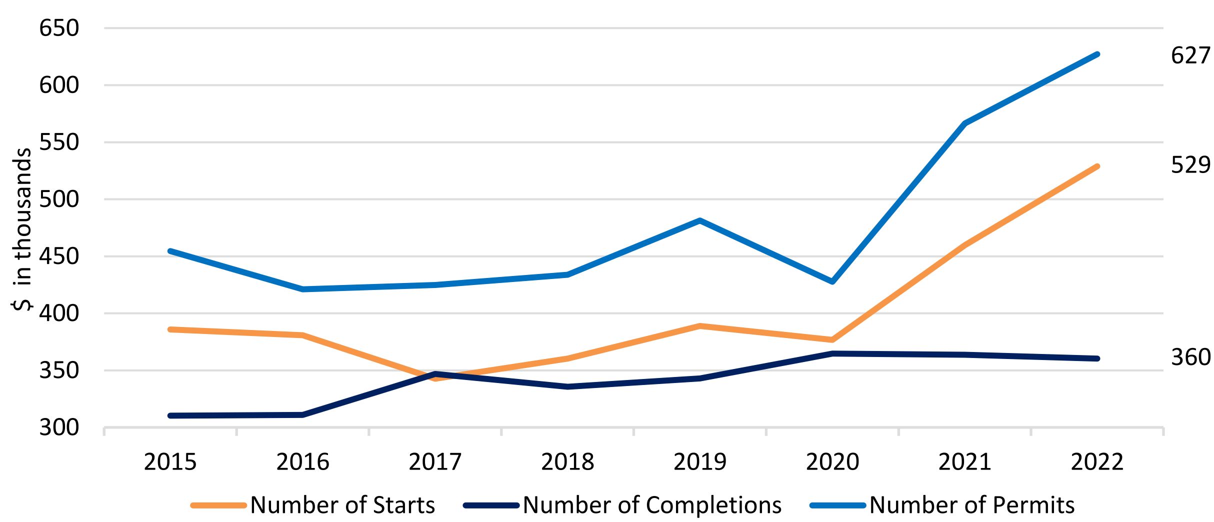


Figure 80. Multifamily Construction Metrics: Permits, Starts, Completions



Source: FRED. Figure 79: data as of September 2023. New Residential Construction, U.S. Census Bureau. Figure 80: data as of December 2022.

16.4 Size and Value of the U.S. 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 U.S. Housing Market

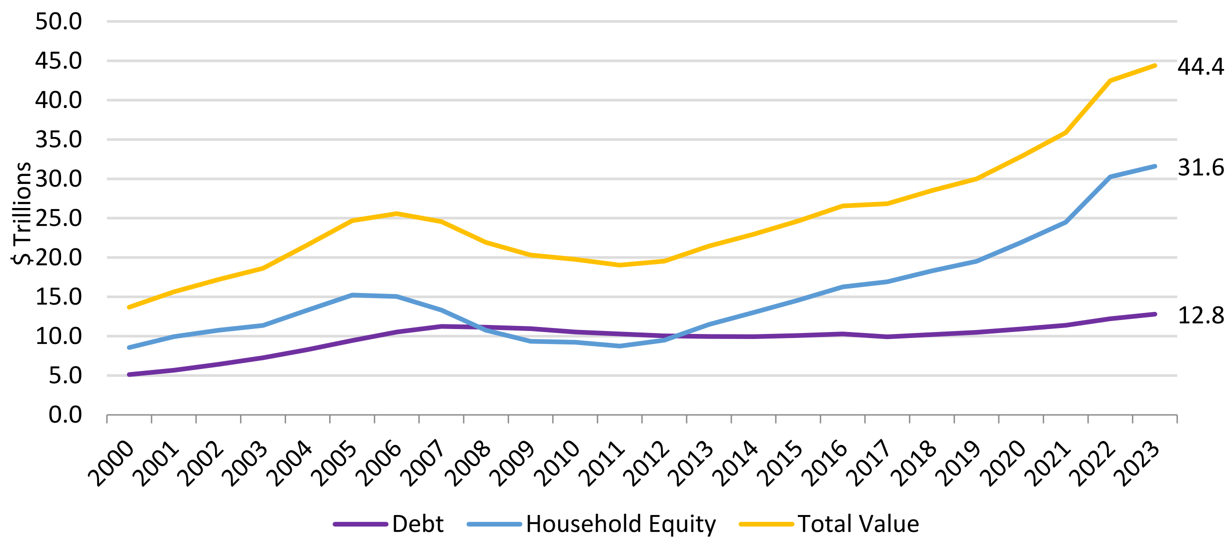
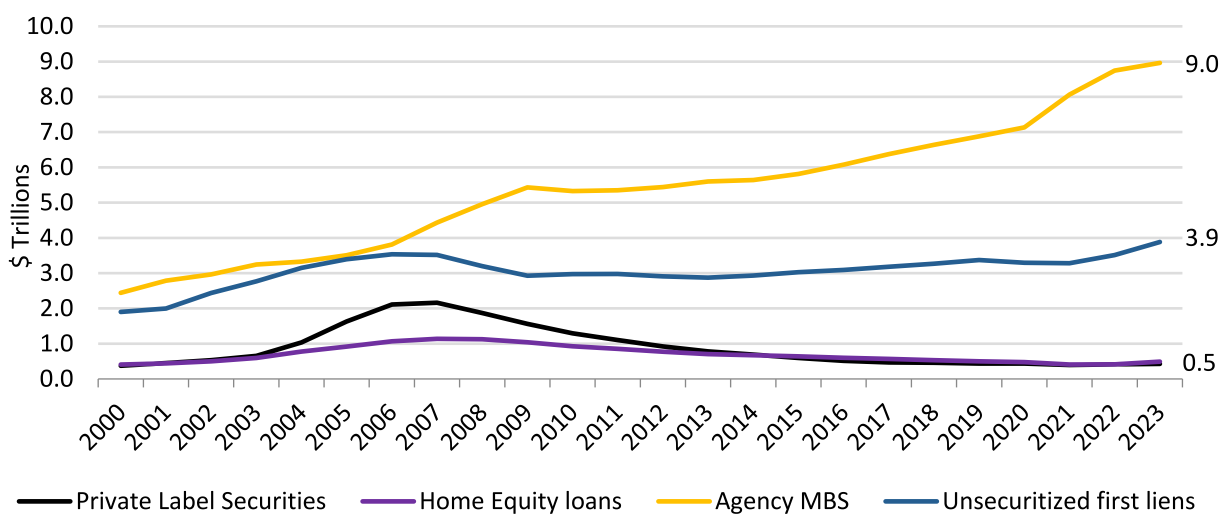


Figure 82. Size of the U.S. Residential Mortgage Market



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

17 DISCLOSURE

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

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