Ginnie Mae
Our Guaranty Matters

GLOBAL MARKETS ANALYSIS REPORT

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

December 2023

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

This month's *Highlights* section captures some key indicators of Ginnie Mae's performance for 2023. Data relating to Agency Issuance, Economic Data, Capital Markets, and Social Impact are summarized through month end November. The *Highlights* section also includes broad commentary on 2023 macroeconomic trends as they relate to the actions from the Fed.

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 SOMA Holdings section captures FED Chair Jerome Powell's comments regarding the FED's decision to keep the policy rate unchanged and includes the composition of the FED's Agency MBS portfolio run-off.

Highlights

2023 came with many ups and downs as markets faced a multitude of headwinds and obstacles. Economists largely predicted that the U.S. economy would enter a recession in the second half of 2023 on the back of elevated inflation, tighter monetary policy, and higher forecasted unemployment rates causing a slowdown in the real economy. However, these anticipated recessionary elements never materialized into a full-blown recession.

The annual inflation rate began the year at 6.4% causing the Federal Reserve (Fed) to continue its rate hike cycle which started in 2022. The Fed hiked an additional four times in 2023 (February, March, May, and July) in an effort to reel in inflation. Due to the Fed's restrictive monetary policy, the annual inflation rate as of November 2023 was 3.1% and approaching the Fed's 2% target. The tightening cycle was also widely expected to lead to increased unemployment. Early in 2023, unemployment rates were 3.5% peaking at 3.9% in October 2023 before falling to 3.7% in November. 10-year treasury rates traded in a 170 bp range in 2023, trading as low as 3.30% and as high as 5.00%, as bond markets digested the constantly changing environment. 30-year mortgage rates traded in a very wide range, trading as low as 6.00% and as high as 8.00% in some regions.

Although the macroeconomic environment was unsettled throughout the year, the U.S. economy remained resilient and capital markets are looking to end the year with a more bullish tone than they began the year. The Fed's December Federal Open Market Committee meeting indicated that the Fed's hiking cycle may be over and that three rate cuts are possible for 2024 as the Fed moves towards a less restrictive policy. The Fed pivot has led to a rally in many asset classes, including treasury yields and mortgage rates which are both substantially lower than their highs for the year.

Year in review as of month-end November:

Agency Issuance:

- Ginnie Mae gross issuance YTD totals $348.2 billion surpassing Fannie Mae and Freddie Mac gross issuance for the year, which were $299.4 billion and $277.6 billion, respectively.
- Ginnie Mae net issuance YTD totals $163.8 billion, making up roughly 75% of all Agency net issuance for the year. Fannie Mae and Freddie Mac net issuances for the year were $49.9 billion and $6.2 billion, respectively.
- Ginnie Mae's FHA net collateral volume YTD totals $118.0 billion, the highest FHA net collateral volume since 2010.

Economic Data:

- Serious delinquency rates for FHA and VA loans as of Q3 2023 fell to 3.24% and 1.99%, respectively. Delinquency rates are down from 4.33% and 2.43% for FHA and VA, respectively, from Q4 2022.
- Home prices appreciated roughly 3.9% YoY as of September 2023 after turning slightly negative in May.
- Home prices have been supported by higher wage growth, 5.2% YoY as of November, limited supply, and expectations of lower mortgage rates in the future.

Capital Markets:

- The Ginnie Mae mortgage basis has tightened nearly 100 basis points to the US Treasury 10-Yr Note, as of month-end November, from year highs as Ginnie Mae MBS have rallied alongside 30-year mortgage rates.
- The U.S. Intermediate Credit and U.S. GNMA 30yr OAS spread has tightened to near year lows indicating subdued concerns over U.S. credit.
- Ginnie Mae II yields hedged with 1yr JPY and EUR both remain positive and attractive to investors in these regions as of month-end November.

Social Impact and Sustainability:

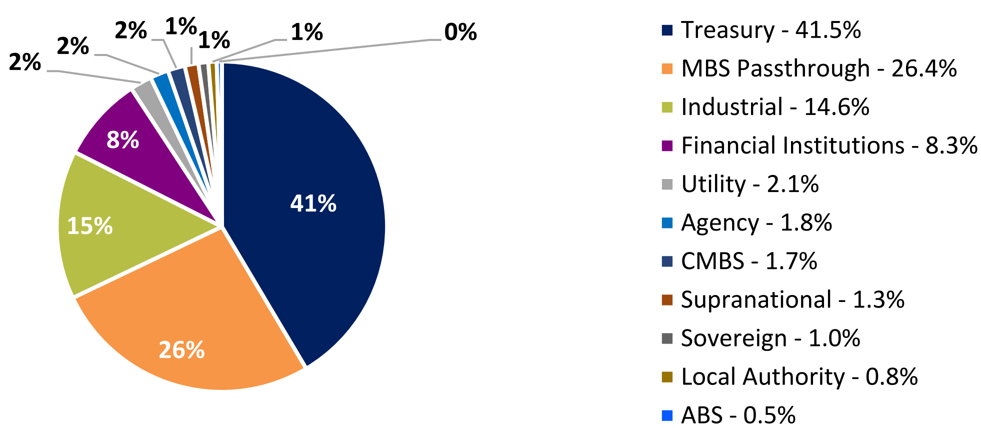
- Over $296 billion of Ginnie Mae Single-Family collateral and over 1.7 million of loans outstanding have been issued too low to moderate income borrowers. Total Single-Family social impact UPB increased by approximately $23 billion YoY.
- Ginnie Mae "Green"-certified sustainable collateral increased roughly $4 billion from December 2022 while "Affordable"-certified collateral increased over $2 billion from December 2022.

1 US AGGREGATE AND GLOBAL INDICES

1.1 Bloomberg US Aggregate and Global Indices

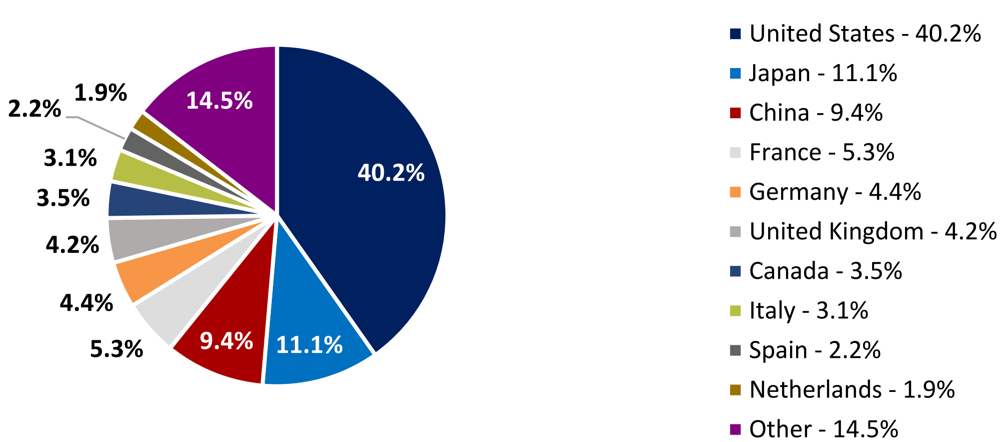
At month-end November, U.S. Treasuries contributed 41.5% to the Bloomberg U.S. Aggregate Index, down approximately 0.4% from the prior month. U.S. MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) contributed 26.4%, up approximately 0.1% from the month prior. Industrials saw the largest increase of approximately 0.3% MoM at month end November. For the U.S. Aggregate Index, all other changes to the index components were no larger than 0.1%.

Figure 1. 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 40.2% of the total Bloomberg Global Aggregate Index, down 0.4% from the prior month. Japan's share of fixed income was the second largest at 11.1%, unchanged from the prior month. China's share of fixed income saw a decrease of approximately 0.2% and Spain's share saw an increase of 0.3% for month end November. All other countries remained stable compared to the prior month with no changes larger than 0.1%.

Figure 2. Bloomberg Global Aggregate Index by Country



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

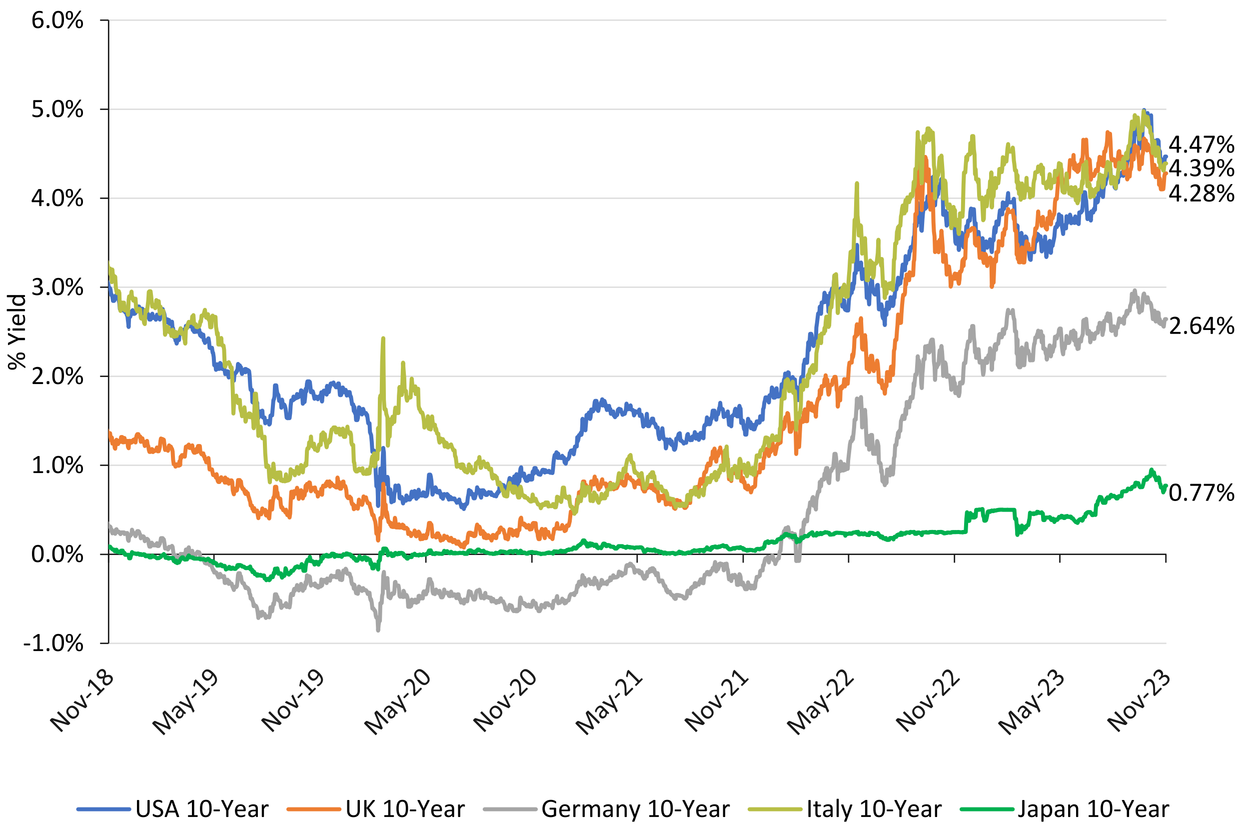
2 SOVEREIGN DEBT PRODUCT PERFORMANCE COMPARISONS

2.1 Global 10-Year Treasury Yields (Unhedged)

The U.S. 10-year Treasury yield moved to 4.47% at month-end November 2023, a MoM decrease of 37 bps. This marks the first MoM decrease for U.S. 10-year Treasury notes since June 2023; still claiming the highest government yield amongst the countries listed below. All month-end yields listed have decreased MoM from October to November 2023.

- The yield on the UK 10-year note decreased to 4.28% at month-end November, a MoM decrease of 26 bps.
- The yield on the German 10-year note decreased to 2.64% at month-end November, a MoM decrease of 19 bps.
- The yield on the Italian 10-year note decreased to 4.39% at month-end November, a MoM decrease of 41 bps.
- The yield on the Japanese 10-year note decreased to 0.77% at month-end November, a MoM decrease of 11 bps.

Figure 3. Global 10-Year Treasury Yields



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

2.2 U.S. Treasury Hedged Yields

The yield for the 10-year Treasury, hedged in Japanese Yen (JPY) stood at -0.73% at month-end November, a 7 bp decrease from month-end October.

The yield for the 10-year Treasury, hedged in Euros (EUR) stood at 2.88% at month-end November, a 24 bp decrease from month-end October.

Figure 4. U.S. 10yr Total Return Hedged, 1 yr. JPY

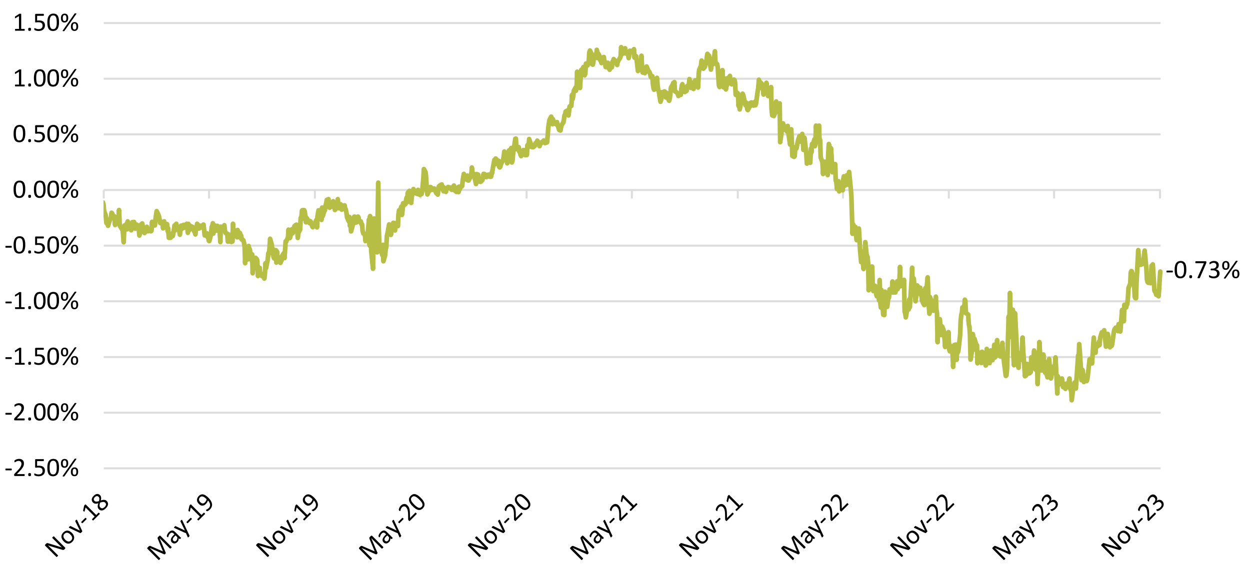
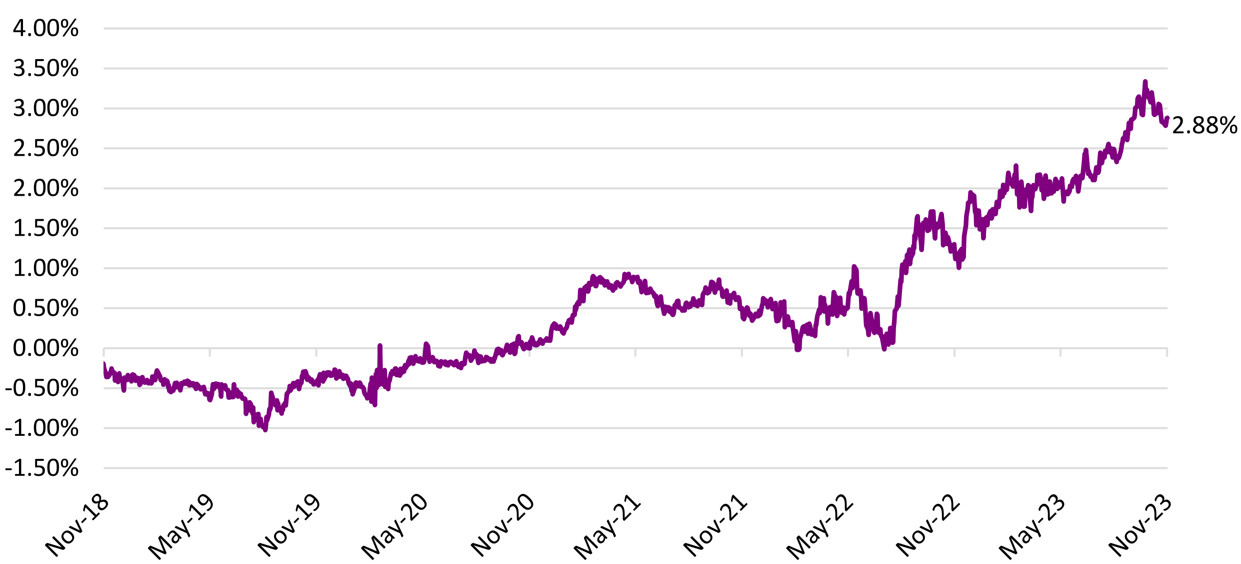


Figure 5. U.S. 10yr Total Return Hedged, 1 yr. EUR



Source: Bloomberg. Notes: Data as of November 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 6.29% in September, increased 29 bps to 6.58% at month-end October, then decreased 86 bps to 5.72% at month-end November. Ginnie Mae II spreads over the U.S. 10-year Treasury yield decreased 6 bps YoY to 125 bps over the U.S. 10-year Treasury yield as of month-end November 2023.

Figure 6. Ginnie Mae II SF Yield, USD

Figure 7. Ginnie Mae II SF Yield – U.S. 10yr Treasury Yield

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

3.2 Ginnie Mae Hedged Yields

- The yield for Ginnie Mae II's, hedged in Japanese Yen stood at 0.52% at month-end November, a 56 bp decrease from month-end October.
- The yield for Ginnie Mae II's, hedged in Euros stood at 4.13% at month-end November, a 73 bp decrease from month-end October.

Figure 8. Ginnie Mae II Hedged, 1 yr. JPY

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

Source: Bloomberg. Notes: Data as of November 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 decreased 14 bps MoM, to 0.50%, as of month-end November. The U.S. Intermediate Credit OAS decreased 22 bps MoM, to 0.88%, as of month-end November. The yield differential between U.S. Intermediate Credit and GNMA II 30-year OAS decreased by 8 bps to 0.38% at month-end November.

Figure 10. U.S. GNMA II 30yr MBS OAS versus U.S. Intermediate Credit OAS

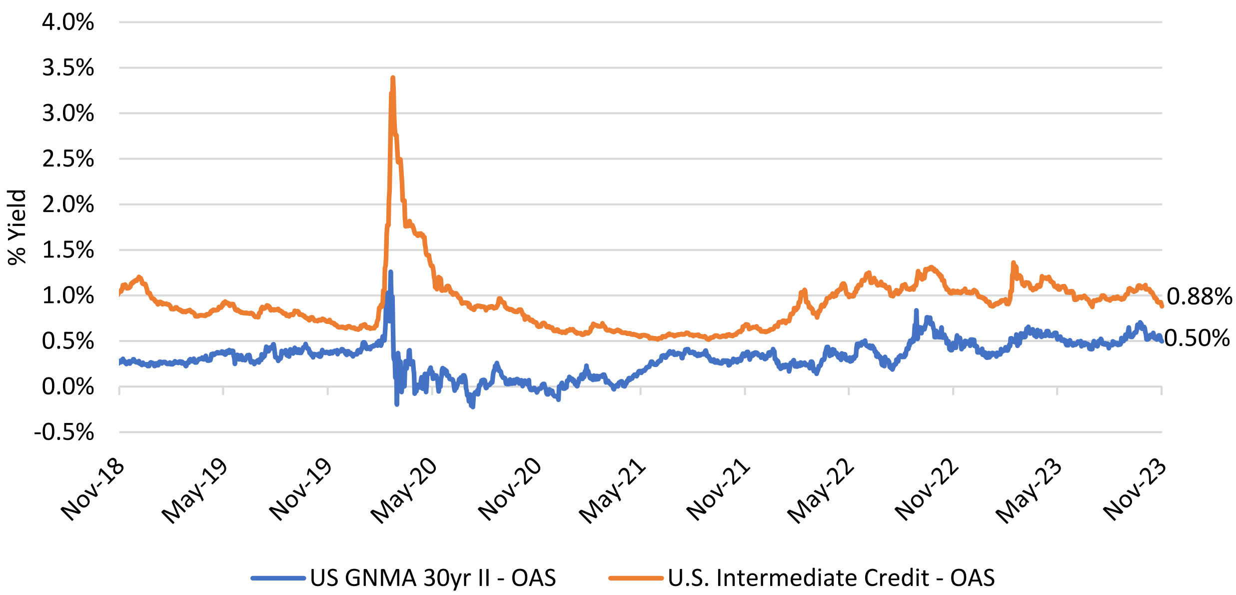


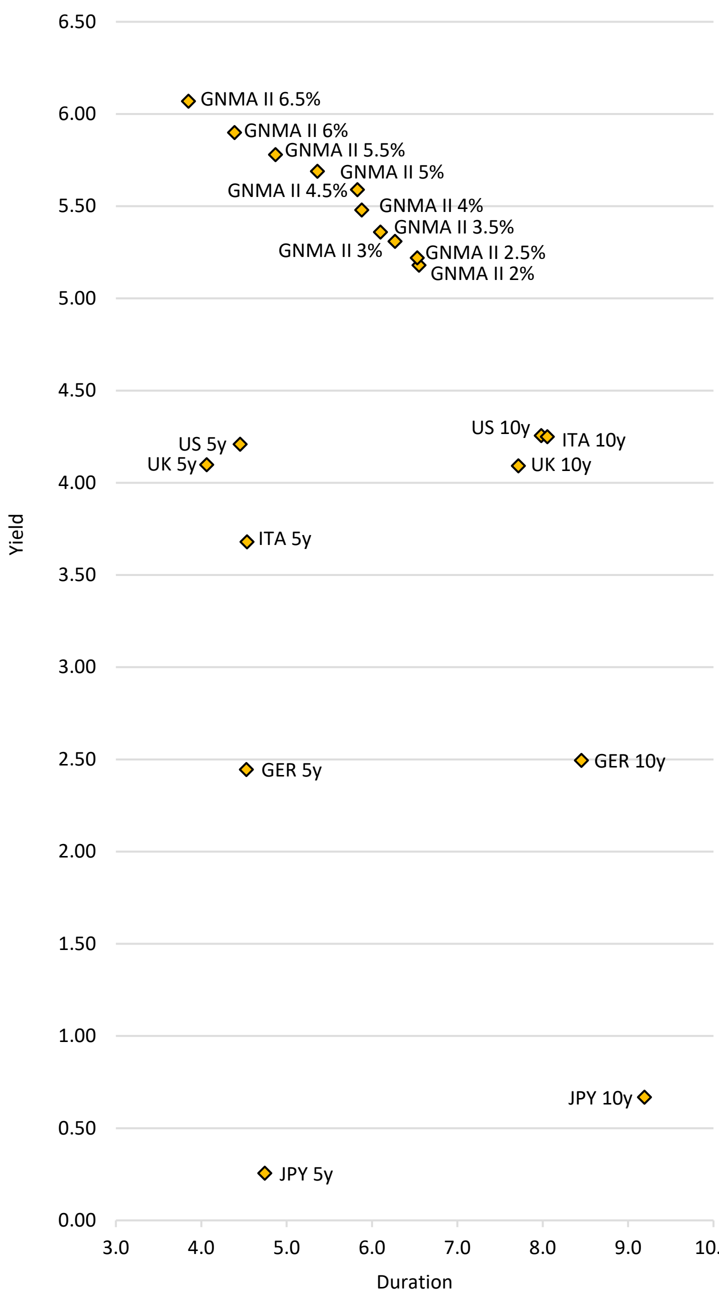
Figure 11. Spread between U.S. Intermediate Credit and U.S. GNMA II 30yr MBS OAS

Source: Bloomberg. Note: Data as of November 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 12. Yield vs. Duration



Security	Duration	Yield
U.S. 5y	4.46	4.21
U.S. 10y	7.98	4.26
JPY 5y	4.74	0.26
JPY 10y	9.19	0.67
GER 5y	4.53	2.45
GER 10y	8.45	2.49
ITA 5y	4.54	3.68
ITA 10y	8.05	4.25
UK 5y	4.06	4.10
UK 10y	7.71	4.09
GNMA II 2%	6.52	5.20
GNMA II 2.5%	6.53	5.22
GNMA II 3%	6.27	5.31
GNMA II 3.5%	6.10	5.37
GNMA II 4%	5.88	5.48
GNMA II 4.5%	5.83	5.59
GNMA II 5%	5.36	5.69
GNMA II 5.5%	4.87	5.78
GNMA II 6%	4.39	5.90
GNMA II 6.5%	3.85	6.07

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

4 PREPAYMENTS

4.1 Aggregate Prepayments (CPR)

Ginnie Mae fixed rate aggregate prepayment speeds remained at 5.3% from October 2023 to November 2023. Contrarily, Fannie Mae and Freddie Mac CPRs both decreased by 0.5% from October to November 2023. ARM prepayments also decreased for Fannie Mae and Ginnie Mae but increased for Freddie Mac.

Figure 13. Fixed Rate Aggregate 1-Month CPR

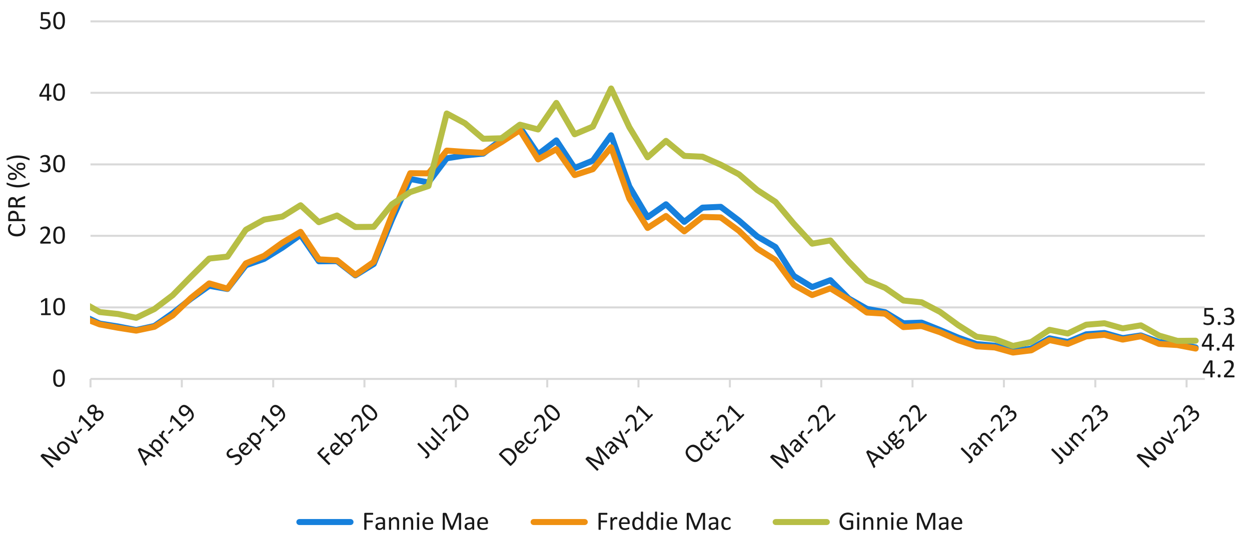
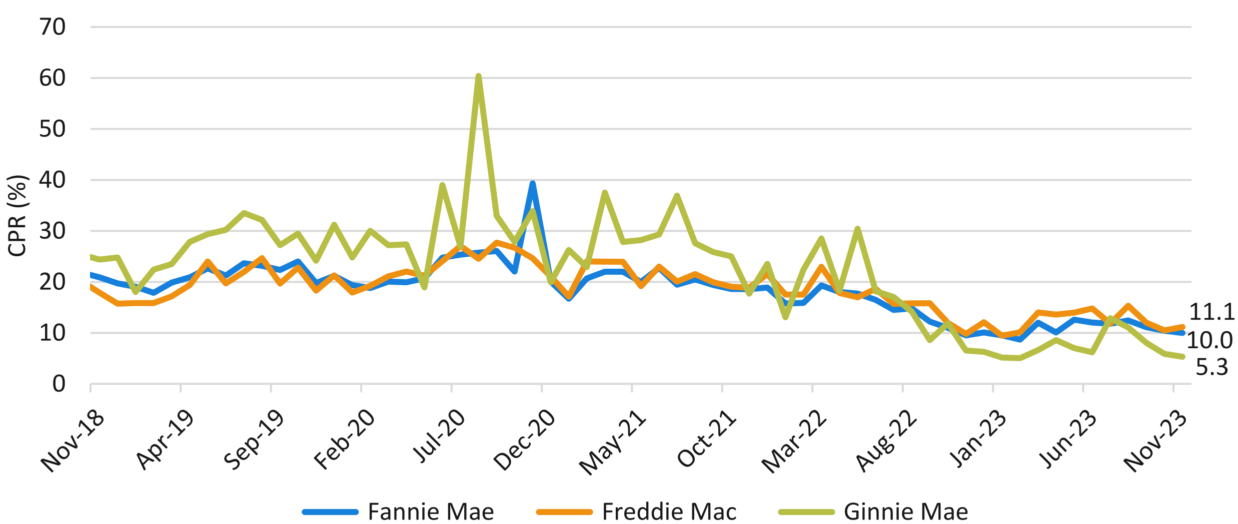


Figure 14. ARM Aggregate 1-Month CPR



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

Figure 15. Fixed Rate Aggregate CDR

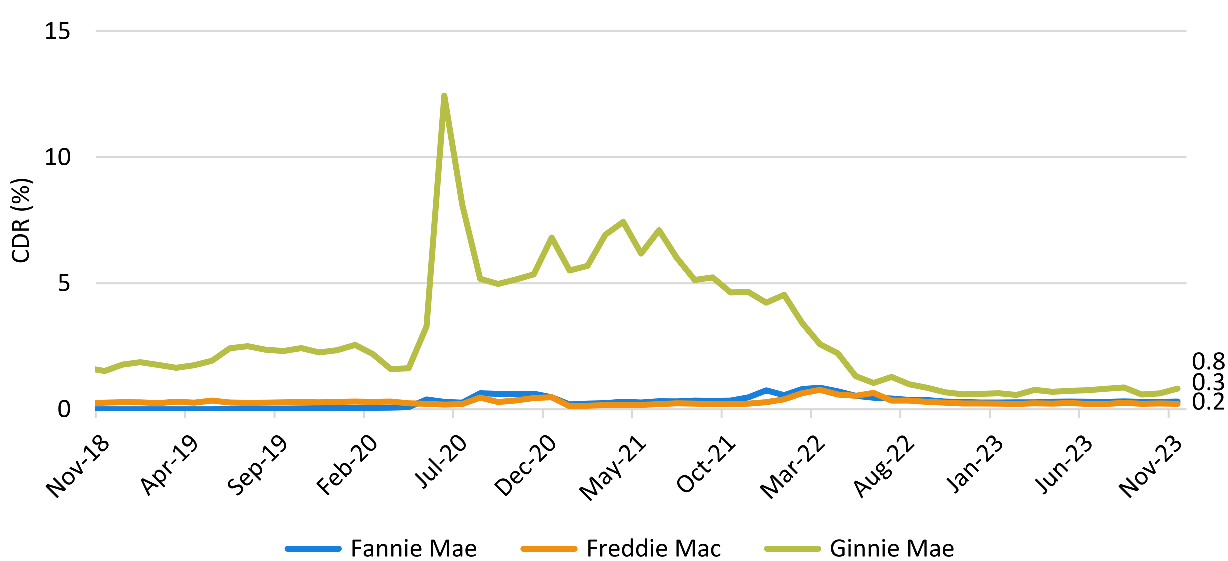
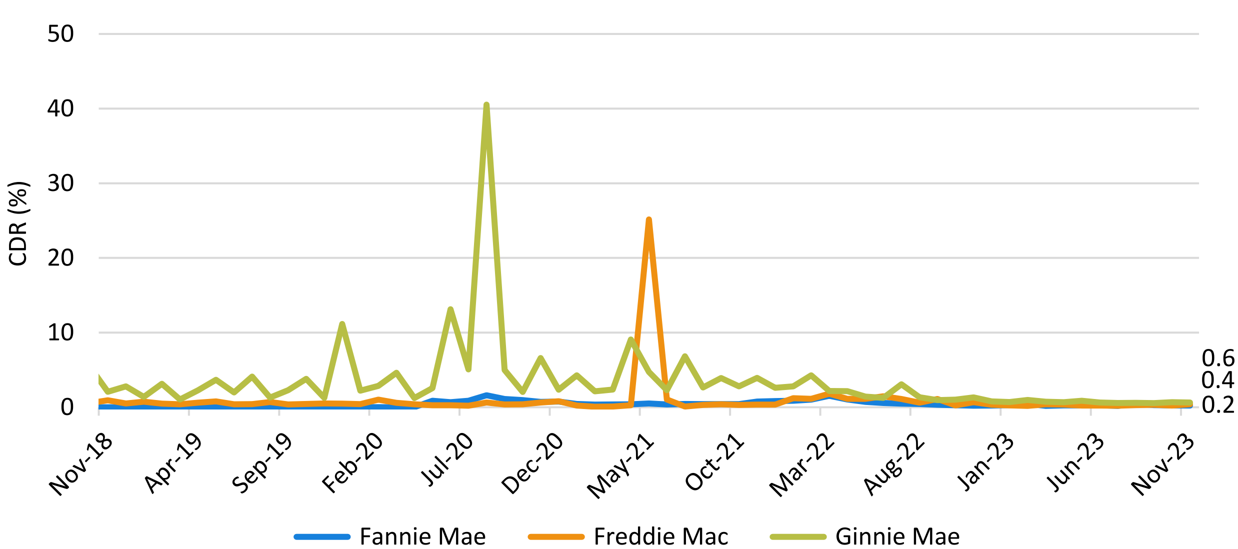


Figure 16. ARM Aggregate CDR



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

4.3 Voluntary Prepayment Rates (CRR)

Fixed rate voluntary prepayments were higher for Ginnie Mae and Fannie Mae than Freddie Mac. Fannie Mae and Freddie Mac saw a decrease of 0.6% and 0.5% in fixed rate aggregate CRR, respectively. Freddie Mac saw a 0.5% increase and Fannie Mae saw a 0.4% decrease in ARM aggregate CRR. Ginnie Mae fixed rate aggregate CRR decreased by 0.1% and ARM aggregate CRR decreased by 0.6%.

Figure 17. Fixed Rate Aggregate CRR

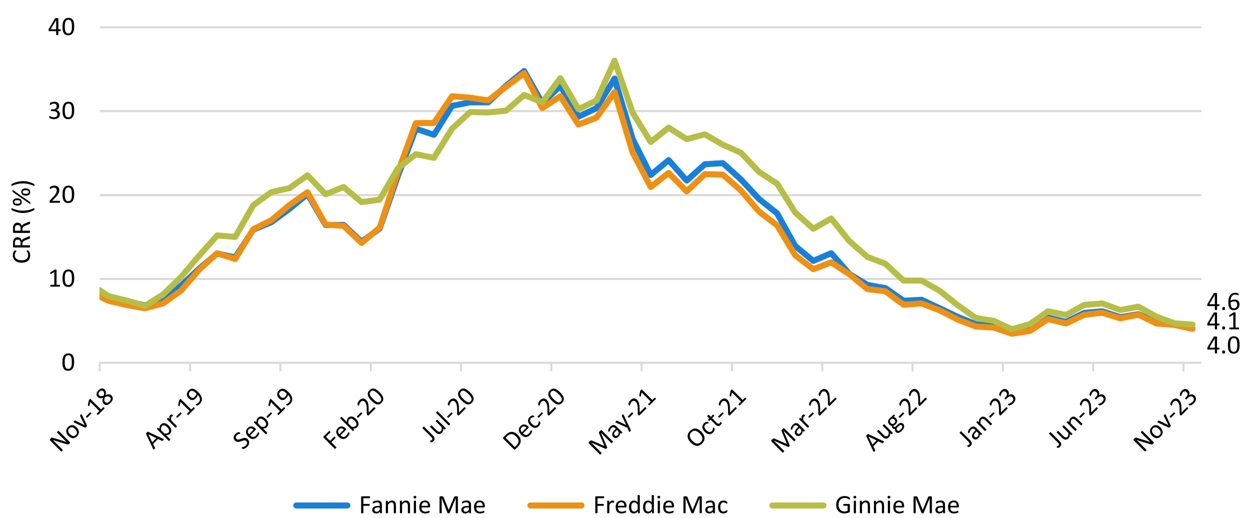
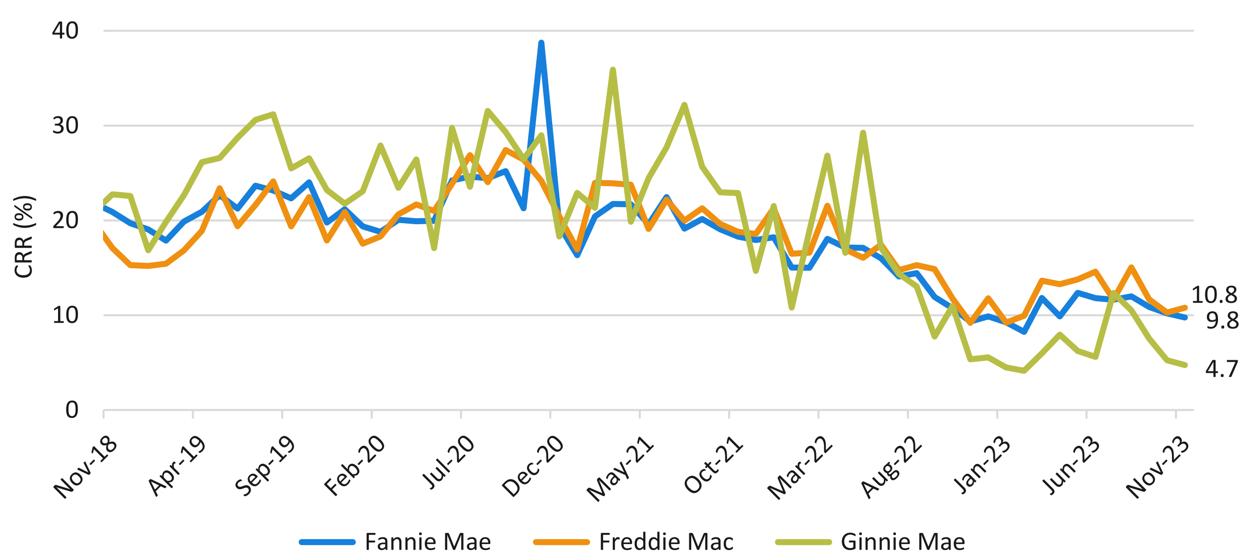


Figure 18. ARM Aggregate CRR



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

5 SINGLE-FAMILY MBS PASS-THROUGH ISSUANCE

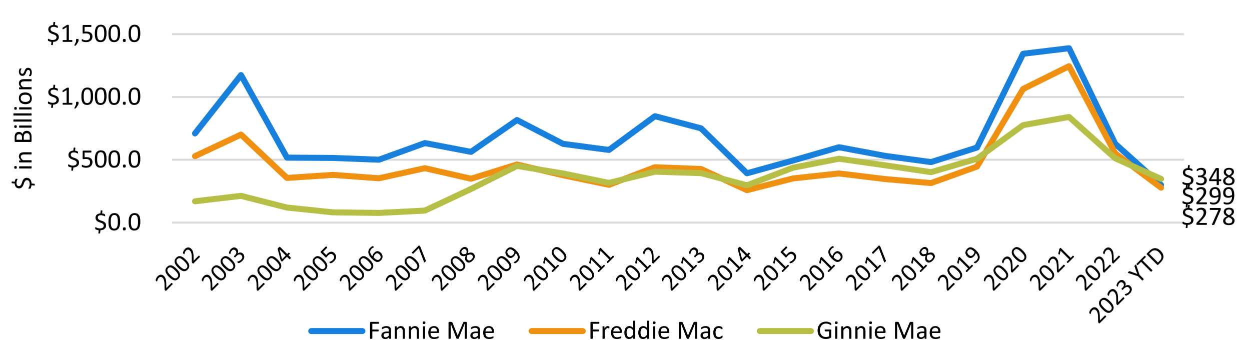
5.1 Gross Issuance of Agency MBS

In November 2023, Total gross MBS issuance increased by approximately $79.6 billion MoM. Freddie Mac and Fannie Mae saw a MoM increase of $25.3 and $23.8 billion, respectively. Ginnie Mae saw a $30.5 billion MoM increase in gross issuance.

Table 1. Agency Gross Issuance ($ in billions)

Issuance Year	Fannie Mae	Freddie Mac	GSE Total	Ginnie Mae	Total
2001	$506.9	$378.2	$885.1	$171.5	$1,056.6
2002	$710.0	$529.0	$1,238.9	$169.0	$1,407.9
2003	$1,174.4	$700.5	$1,874.9	$213.1	$2,088.0
2004	$517.5	$355.2	$872.6	$119.2	$991.9
2005	$514.1	$379.9	$894.0	$81.4	$975.3
2006	$500.2	$352.9	$853.0	$76.7	$929.7
2007	$633.0	$433.3	$1,066.2	$94.9	$1,161.1
2008	$562.7	$348.7	$911.4	$267.6	$1,179.0
2009	$817.1	$462.9	$1,280.0	$451.3	$1,731.3
2010	$626.6	$377.0	$1,003.5	$390.7	$1,394.3
2011	$578.2	$301.2	$879.3	$315.3	$1,194.7
2012	$847.6	$441.3	$1,288.8	$405.0	$1,693.8
2013	$749.9	$426.7	$1,176.6	$393.6	$1,570.2
2014	$392.9	$258.0	$650.9	$296.3	$947.2
2015	$493.9	$351.9	$845.7	$436.3	$1,282.0
2016	$600.5	$391.1	$991.6	$508.2	$1,499.8
2017	$531.3	$345.9	$877.3	$455.6	$1,332.9
2018	$480.9	$314.1	$795.0	$400.6	$1,195.6
2019	$597.4	$445.2	$1,042.6	$508.6	$1,551.2
2020	$1,343.4	$1,064.1	$2,407.5	$775.4	$3,182.9
2021	$1,388.0	$1,245.1	$2,633.1	$840.9	$3,474.0
2022	$628.3	$551.6	$1,179.9	$512.3	$1,692.2
2023 YTD	$299.4	$277.6	$577.0	$348.2	$925.2

Figure 19. Agency Gross Issuance

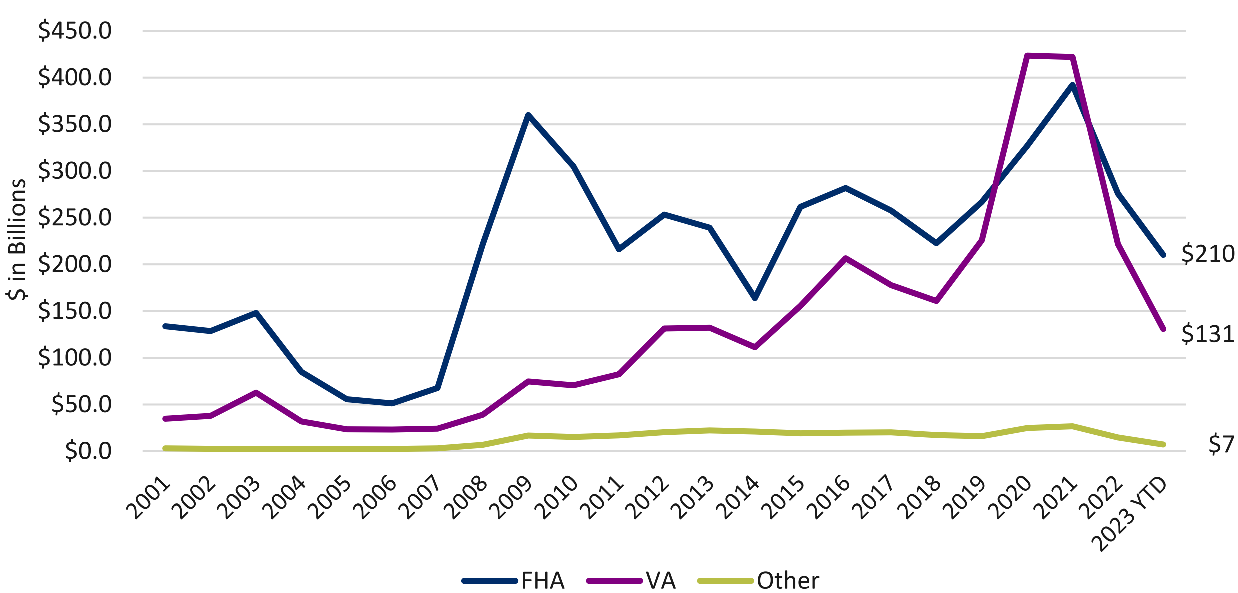


Source: Recursion. Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

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

Issuance Year	FHA	VA	Other	Total
2001	$133.8	$34.7	$3.1	$171.5
2002	$128.6	$37.9	$2.5	$169.0
2003	$147.9	$62.7	$2.5	$213.1
2004	$85.0	$31.8	$2.5	$119.2
2005	$55.7	$23.5	$2.1	$81.4
2006	$51.2	$23.2	$2.3	$76.7
2007	$67.7	$24.2	$3.0	$94.9
2008	$221.7	$39.0	$6.9	$267.6
2009	$359.9	$74.6	$16.8	$451.3
2010	$304.9	$70.6	$15.3	$390.7
2011	$216.1	$82.3	$16.9	$315.3
2012	$253.4	$131.3	$20.3	$405.0
2013	$239.2	$132.2	$22.2	$393.6
2014	$163.9	$111.4	$21.0	$296.3
2015	$261.5	$155.6	$19.2	$436.3
2016	$281.8	$206.5	$19.9	$508.2
2017	$257.6	$177.8	$20.2	$455.6
2018	$222.6	$160.8	$17.2	$400.6
2019	$266.9	$225.7	$16.0	$508.6
2020	$327.0	$423.5	$24.9	$775.4
2021	$392.2	$422.1	$26.7	$840.9
2022	$275.8	$221.7	$14.8	$512.3
2023 YTD	$210.2	$130.8	$7.2	$348.2

Figure 20. 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.

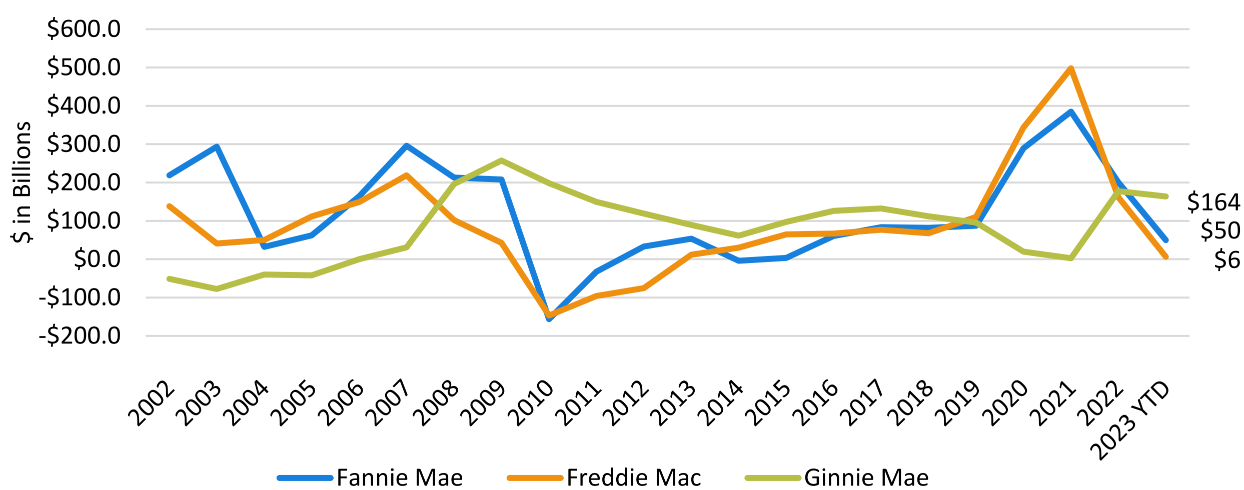
5.2 Net Issuance of Agency MBS

Agency Net Issuance as of month-end November was $219.9 billion for 2023 YTD, shown in **Table 3.** Since 2022, FHA net issuance has outpaced VA net issuance, as shown in **Table 4 and Figure 22.**

Table 3. Agency Net Issuance ($ in billions)

Issuance Year	Fannie Mae	Freddie Mac	GSE	Ginnie Mae	Total
2002	$218.9	$138.3	$357.2	-$51.2	$306.1
2003	$293.7	$41.1	$334.9	-$77.6	$257.3
2004	$32.3	$50.2	$82.5	-$40.1	$42.4
2005	$62.5	$111.7	$174.2	-$42.2	$132.0
2006	$164.3	$149.3	$313.6	$0.2	$313.8
2007	$296.1	$218.8	$514.9	$30.9	$545.7
2008	$213.0	$101.8	$314.8	$196.4	$511.3
2009	$208.1	$42.5	$250.6	$257.4	$508.0
2010	-$156.4	-$146.8	-$303.2	$198.3	-$105.0
2011	-$32.6	-$95.8	-$128.4	$149.6	$21.2
2012	$32.9	-$75.3	-$42.4	$119.1	$76.8
2013	$53.5	$11.8	$65.3	$89.6	$154.9
2014	$-4.0	$30.0	$26.0	$61.6	$87.7
2015	$3.5	$65.0	$68.4	$97.3	$165.7
2016	$60.5	$66.8	$127.4	$126.1	$253.5
2017	$83.7	$77.0	$160.7	$132.3	$293.0
2018	$81.9	$67.6	$149.4	$112.0	$261.5
2019	$87.4	$110.3	$197.7	$95.7	$293.5
2020	$289.3	$343.5	$632.8	$19.9	$652.7
2021	$384.9	$498.0	$882.9	$2.7	$885.6
2022	$200.4	$161.5	$361.9	$177.4	$539.4
2023 YTD	$49.9	$6.2	$56.1	$163.8	$219.9

Figure 21. Agency Net Issuance

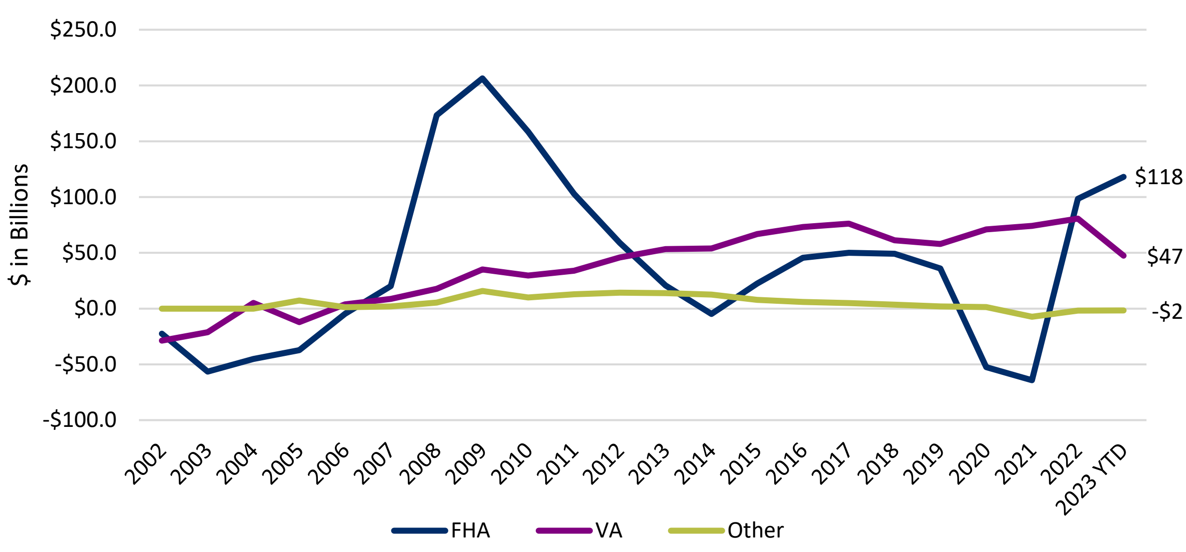


Source: Recursion. Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

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

Issuance Year	FHA	VA	Other	Total
2000	$29.0	$0.3	$0.0	$29.3
2001	$0.7	-$10.6	$0.0	-$9.9
2002	-$22.5	-$28.7	$0.0	-$51.2
2003	-$56.5	-$21.1	$0.0	-$77.6
2004	-$45.2	$5.1	$0.0	-$40.1
2005	-$37.3	-$12.1	$7.2	-$42.2
2006	-$4.7	$3.8	$1.2	$0.2
2007	$20.2	$8.7	$2.0	$30.9
2008	$173.3	$17.7	$5.4	$196.4
2009	$206.4	$35.1	$15.8	$257.4
2010	$158.6	$29.6	$10.0	$198.3
2011	$102.8	$34.0	$12.8	$149.6
2012	$58.9	$45.9	$14.3	$119.1
2013	$20.7	$53.3	$13.9	$87.9
2014	-$4.8	$53.9	$12.5	$61.6
2015	$22.5	$66.9	$7.9	$97.3
2016	$45.6	$73.2	$6.0	$124.9
2017	$50.1	$76.1	$5.0	$131.2
2018	$49.2	$61.2	$3.5	$113.9
2019	$35.9	$58.0	$1.9	$95.7
2020	-$52.5	$71.0	$1.3	$19.9
2021	-$64.2	$74.2	-$7.3	$2.7
2022	$98.5	$80.7	-$1.7	$177.4
2023 YTD	$118.0	$47.4	-$1.6	$163.8

Figure 22. 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 for the month of November was approximately $21.6 billion, which represents a $2.5 billion decrease MoM. Ginnie Mae net issuance was $15.2 billion in November, a $1.8 billion decrease from October 2023. Ginnie Mae's $30.5 billion of gross issuance in November, seen in **Table 5** was approximately $12.2 billion below the average monthly issuance in 2022.

Table 5. 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***
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
Oct-23	$28.2	$24.5	$32.1	$52.7	$84.8	$2.6	$4.5	$17.0	$7.1	$24.1
Nov-23	$23.8	$25.3	$30.5	$49.1	$79.5	-$0.1	$6.5	$15.2	$6.4	$21.6

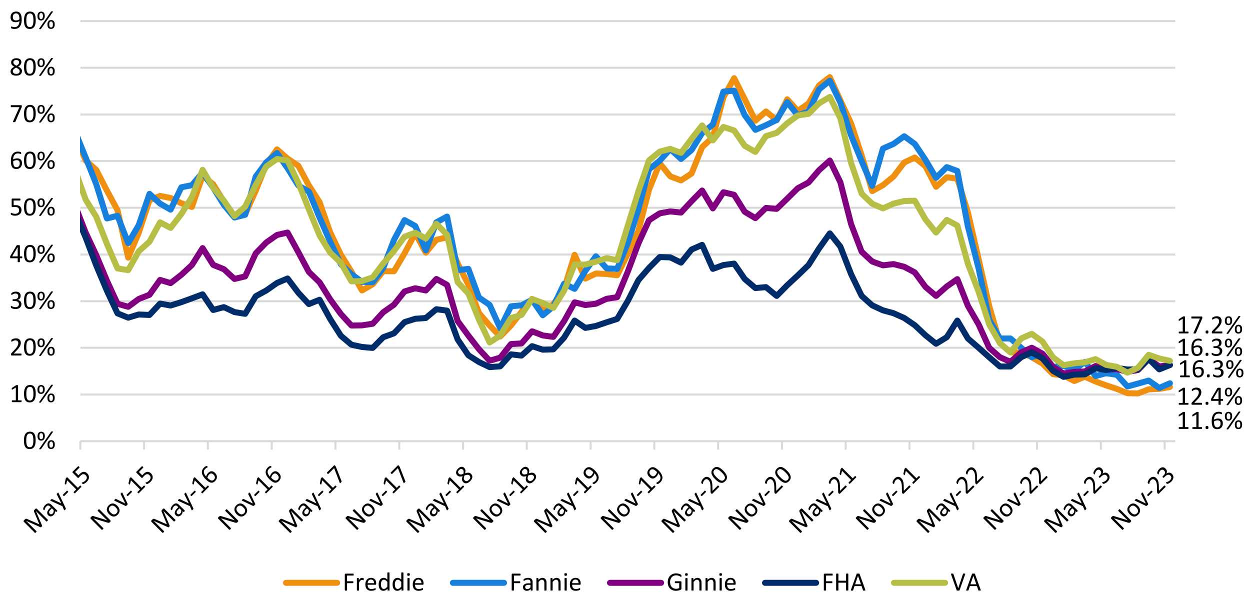
Sources: Beginning May 2021, data for Gross and Net Issuance was sourced from Fannie Mae, Freddie Mac, and Ginnie Mae loan level disclosure files. Net issuance is defined here as the difference between prior period UPB and current period UPB. Data as of November 2023. Beginning with the October 2021 GMAR, the Fannie Mae and Freddie Mac net issuance data have been updated to reflect the current UPB of the portfolios. July 2021 through November 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 1.9% MoM for Ginnie Mae as of month-end November 2023. The increase is likely due to decreasing mortgage rates encouraging refinance activity.

- Freddie Mac's refinance percentage increased to 11.6% in November, up from 11.2% in October.
- Fannie Mae's refinance percentage increased to 12.4% in November, up from 11.4% in October.
- Ginnie Mae's refinance percentage increased to 16.3% in November, up from 16.0% in October.
- FHA's refinance percentage increased to 16.3% in November, up from 15.4% in October.
- VA's refinance percentage decreased to 17.2% in November, down from 17.7% in October.

Figure 23. Percent Refinance at Issuance – Single-Family



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

6 AGENCY SINGLE-FAMILY MBS OUTSTANDING

6.1 Outstanding Single-Family Agency MBS

As of month-end November 2023, outstanding Single-Family MBS in the agency market totaled $8.823 trillion: 40.6% Fannie Mae, 33.4% Freddie Mac, and 26.0% Ginnie Mae MBS. Over the past twelve months, Fannie Mae's, Freddie Mac's, and Ginnie Mae's total outstanding MBS increased by approximately 0.2%, 2.0%, and 8.4%, respectively. Fannie Mae outstanding MBS remains larger than Freddie Mac's and Ginnie Mae's by approximately $635 billion and $1.3 trillion, respectively.
n
Ginnie Mae MBS collateral composition has changed dramatically over the past five years. In November 2018, 59.8% of Ginnie Mae outstanding collateral was FHA and 34.2% was VA. As of month-end November 2023, FHA collateral comprised 54.2% of Ginnie Mae MBS outstanding, and VA collateral comprised 41.3% of Ginnie Mae MBS outstanding.

Figure 24. Outstanding Agency Mortgage-Backed Securities

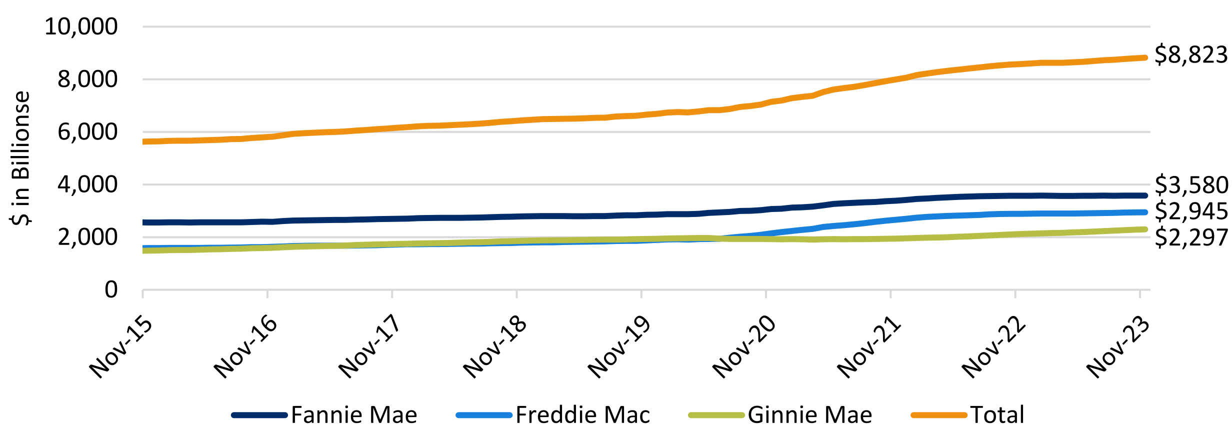
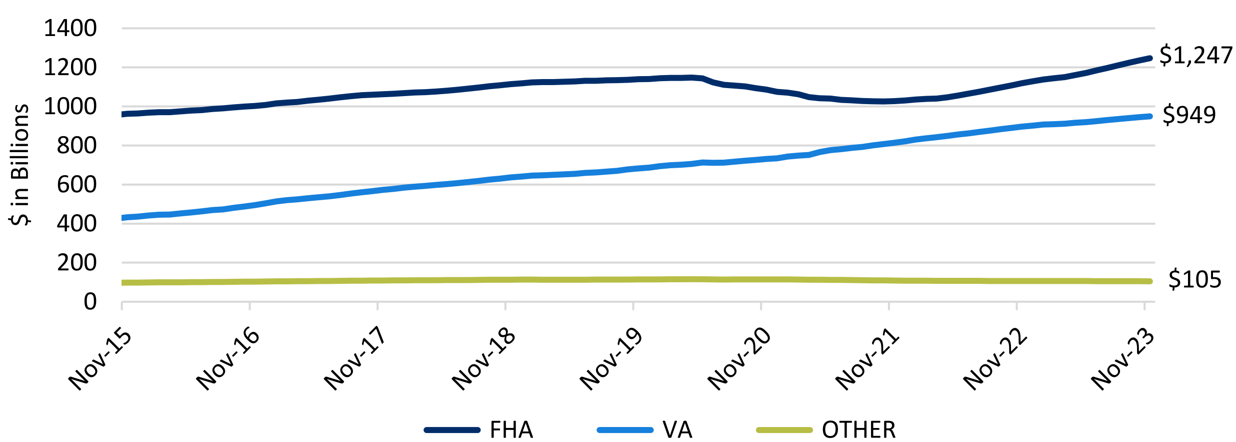


Figure 25. Composition of Outstanding Ginnie Mae Mortgage-Backed Securities



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

6.2 Origination Volume and Share Over Time

First lien origination volume decreased in Q3 2023, with approximately $385 billion in originations, which represents a decrease in issuance of 3.8% from Q2 2023. Ginnie Mae's share of total origination increased from 22.8% to 26.4% in Q3 2023, while portfolio origination decreased from 32.1% to 26.1%.

Figure 26. First Lien Origination Volume

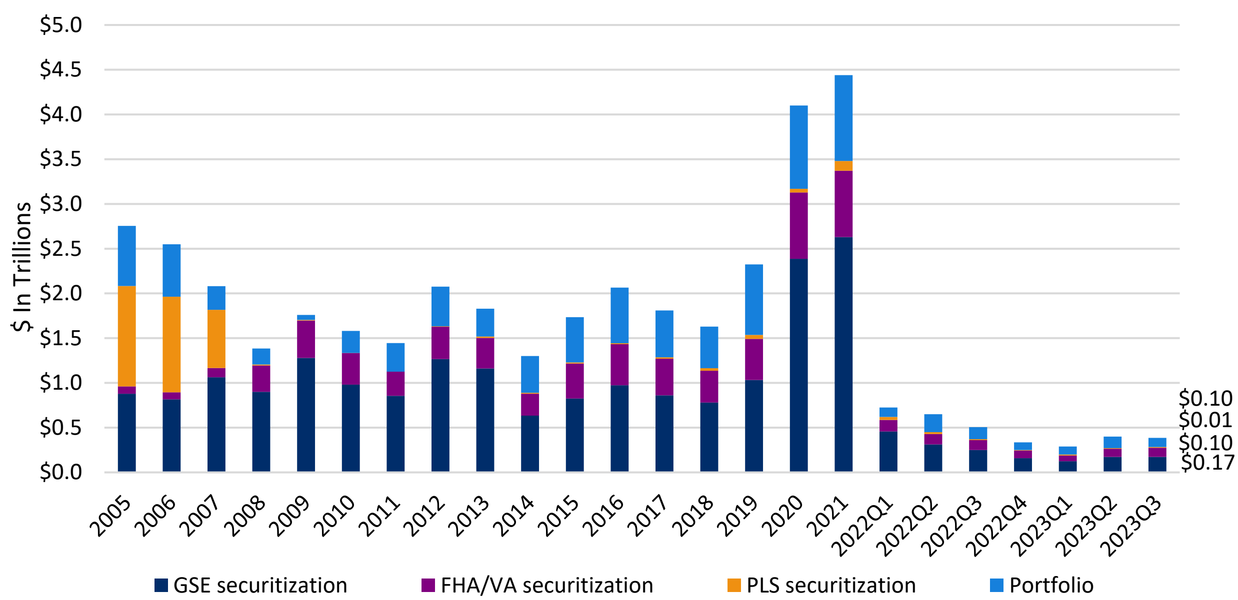
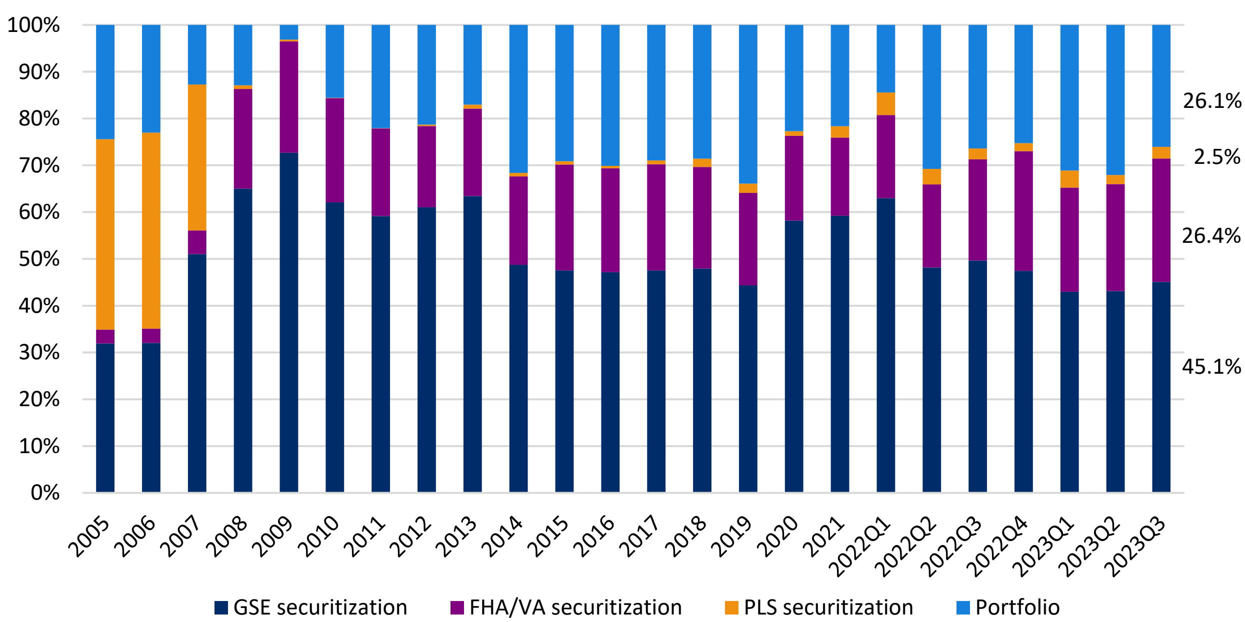


Figure 27. First Lien Origination Share



Source: Inside Mortgage Finance. Note: Data as of Q3 2023.

6.3 Agency Issuance and Agency Outstanding by State

Ginnie Mae MBS represents approximately 38% of new agency issuance over the past year, roughly 11% higher than Ginnie Mae's 27% share of agency outstanding. The share of Ginnie Mae's new agency issuance varies across states, with the highest Ginnie Mae share being Alaska (60%) and the lowest in the District of Columbia (23%). The highest Ginnie Mae outstanding share is in Mississippi and Alaska (49%) and the lowest in the District of Columbia (14%).

Table 6. 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)
	38%	**1,522,177**	**296.62**	**302.05**	**27%**	**11,118,283**	**210.20**	**211.64**
AK	60%	4,218	353.73	309.88	49%	37,846	264.37	220.29
AL	53%	36,653	234.42	246.79	42%	246,237	162.75	178.60
AR	48%	19,134	201.60	233.67	40%	140,789	136.90	162.62
AZ	39%	46,218	336.78	340.76	26%	289,206	229.76	228.25
CA	33%	88,057	468.72	465.70	17%	711,662	335.06	319.22
CO	35%	32,129	417.84	409.33	24%	221,527	300.98	279.55
CT	34%	12,408	279.41	289.27	26%	108,534	204.87	209.10
DC	23%	1,070	516.91	432.18	14%	9,286	390.44	347.51
DE	38%	6,764	285.29	308.26	32%	53,749	207.96	212.43
FL	42%	144,939	319.04	315.43	33%	895,653	221.84	215.43
GA	45%	82,062	276.58	306.72	35%	517,889	188.28	209.71
HI	47%	3,539	627.58	519.84	32%	34,344	473.31	357.12
IA	33%	11,578	192.80	203.21	23%	85,120	137.93	148.47
ID	34%	9,008	343.26	332.36	24%	66,031	227.90	224.98
IL	30%	47,467	219.46	251.30	23%	378,546	162.87	179.58
IN	38%	40,578	202.92	221.37	31%	287,604	139.02	152.54
KS	39%	13,144	204.54	229.09	30%	98,341	144.03	164.55
KY	47%	24,651	207.93	222.48	36%	170,648	148.00	156.47
LA	52%	26,989	211.12	238.62	41%	208,913	160.14	177.02
MA	30%	14,324	396.34	389.41	17%	117,521	290.46	267.86
MD	45%	35,211	352.04	342.45	34%	300,625	268.39	249.26
ME	35%	4,989	262.32	283.75	26%	38,794	182.39	193.05
MI	29%	36,806	196.02	222.06	21%	282,688	137.21	157.24
MN	24%	17,739	263.12	285.21	18%	162,084	185.90	198.96
MO	39%	33,817	209.17	229.68	30%	250,534	146.30	162.99
MS	59%	17,593	211.21	225.26	49%	126,792	148.12	161.62
MT	33%	4,021	328.82	326.39	24%	32,868	215.76	218.13
NC	40%	65,836	271.55	301.41	30%	429,503	183.73	204.68
ND	37%	2,115	250.43	245.57	25%	17,307	195.15	183.04
NE	37%	8,295	233.43	233.76	27%	66,066	154.54	161.84
NH	30%	4,618	334.92	326.07	23%	38,926	231.46	216.42
NJ	31%	29,363	342.15	355.26	22%	238,380	246.02	254.84
NM	48%	12,726	256.42	269.85	39%	98,044	172.11	179.84
NV	42%	20,417	361.31	346.29	31%	139,489	256.48	237.57
NY	28%	33,307	309.09	343.84	20%	313,309	214.50	248.85
OH	37%	56,391	196.61	209.89	30%	434,919	134.15	150.19
OK	48%	25,569	212.70	232.30	42%	193,866	145.69	163.95
OR	29%	14,109	367.19	375.06	20%	114,241	260.46	254.58
PA	31%	44,582	212.32	256.15	26%	396,702	151.40	182.75
RI	46%	4,712	350.01	318.50	31%	36,975	240.98	213.31
SC	45%	40,186	268.80	272.56	35%	246,516	190.50	194.20
SD	41%	4,012	256.15	252.04	30%	29,926	178.32	177.74
TN	41%	42,724	276.94	295.84	32%	278,515	184.38	207.26
TX	39%	168,215	288.07	319.57	33%	1,148,647	191.33	216.60
UT	32%	14,974	397.82	398.66	20%	100,166	272.33	265.85
VA	48%	56,440	342.61	338.55	37%	457,469	260.98	250.05
VI	27%	84	402.12	420.74	24%	804	262.12	306.36
VT	25%	1,385	252.56	277.21	19%	12,367	183.38	181.46
WA	32%	29,324	415.26	425.79	22%	238,209	292.24	290.96
WI	28%	16,009	222.35	237.40	18%	126,694	160.09	163.20
WV	54%	8,407	202.52	197.04	45%	61,985	147.29	145.30
WY	46%	3,271	282.20	276.87	35%	25,427	209.81	201.89

Source: Recursion. Note: Outstanding balance based on loan balance as of November 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 November 2023, the weighted average coupon (WAC) on outstanding Ginnie Mae MBS increased slightly from 3.44% in October 2023 to 3.48% as seen in **Figure 28**. **Figure 29** illustrates that loans originated since 2019 account for approximately 81% of Ginnie Mae MBS collateral outstanding.

Figure 28. Outstanding Ginnie Mae MBS Balance, by Coupon

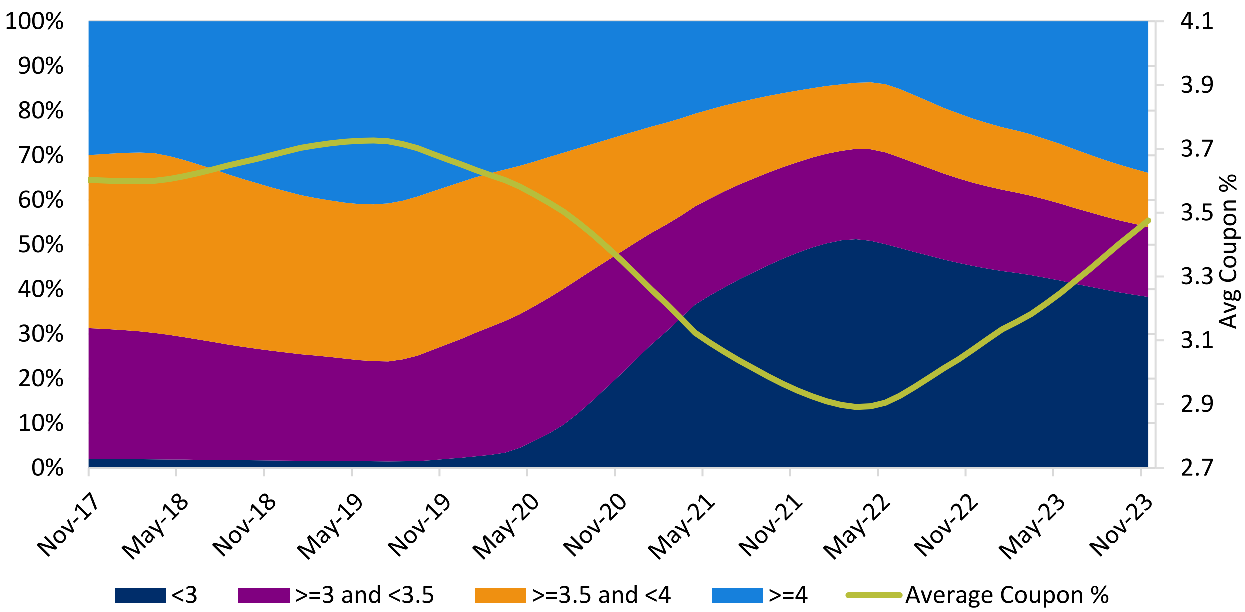
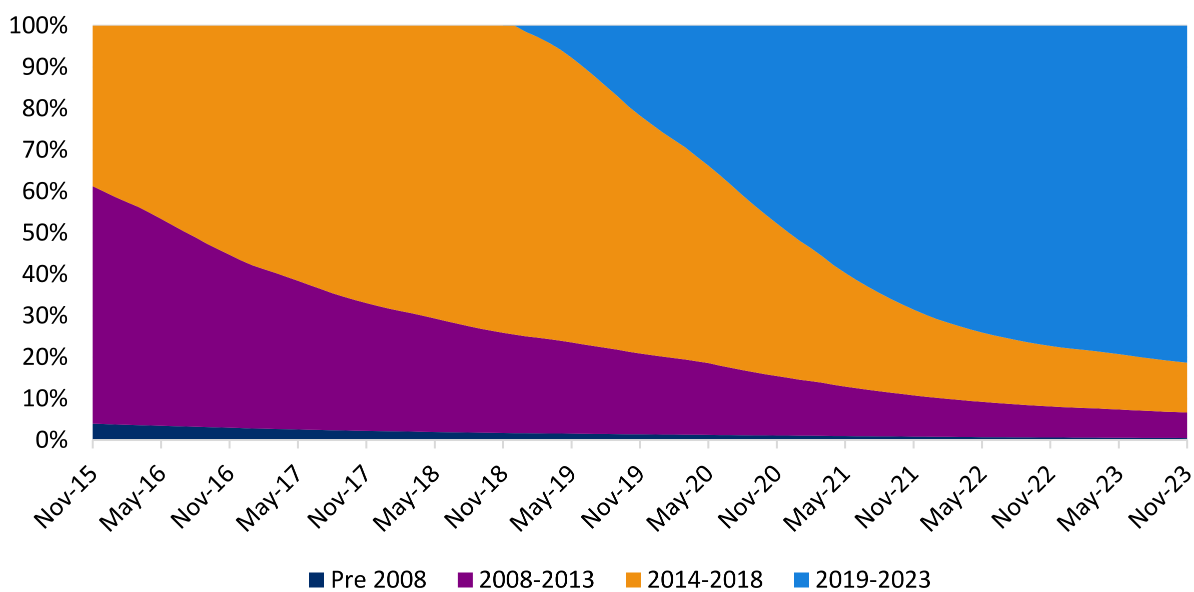


Figure 29. Outstanding Ginnie Mae MBS Balance, by Vintage



Source: Recursion. Note: November 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

Ginnie Mae Real Estate Mortgage Investment Conduit (REMIC) issuance volume for the month of November was $8.8 billion. This represents a 13.2% MoM decrease from $10.2 billion in October 2023, and a 76.4% increase YoY from $5.0 billion in November 2022. Approximately $474.4 million of the November 2023 issuance volume were Multifamily MBS having coupons over 4.0% and over $7.5 billion were Single-Family MBS having coupons over 5.0%. $319.3 million of previously securitized REMICs were re-securitized into new REMIC deals in November.

Figure 30. Ginnie Mae Single-Family and Multifamily REMIC Issuance

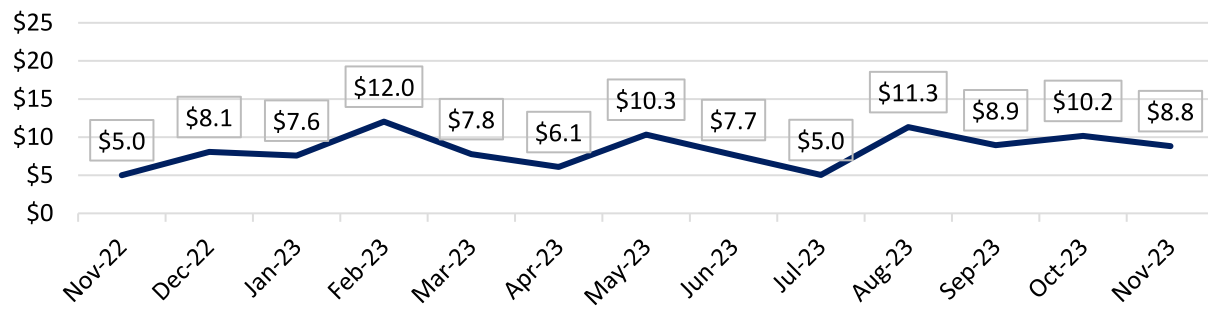


Table 7. November 2023 REMIC Collateral Coupon Distribution

Net Coupon (%)	*Approx. Ginnie Mae MBS amount securitized into REMIC Deals ($MM)[1]*	*% Breakdown of REMIC Collateral by coupon*
Multifamily		
2.501-3.000	101.6	12.6%
3.501-4.000	232.6	28.8%
4.001-4.500	100.0	12.4%
4.501-5.000	163.1	20.2%
5.001-5.501	211.3	26.1%
Subtotal	**808.6**	**100.0%**
Single-Family		
ReREMIC	319.3	4.0%
3.001-3.501	162.5	2.0%
5.001-5.501	28.3	0.4%
5.501-6.001	212.5	2.7%
6.001-6.501	3,847.5	48.0%
6.501-7.001	3,434.4	42.8%
>7.001	12.4	0.2%
Subtotal	**8,016.9**	**100.0%**
Grand Total	**8,825.4**	**100.0%**

Source: Ginnie Mae Disclosure Files

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

7.2 REMIC Market Snapshot

- In November 2023, Ginnie Mae, Freddie Mac, and Fannie Mae saw increases in their Single-Family REMIC issuance collateral coupon of 2 bps, 5 bps, and 2 bps, respectively, to new 12-month highs.
- In November 2023, Ginnie Mae and Freddie Mac saw increases of 75 bps and 15 bps, respectively, in their Multifamily REMIC issuance collateral coupon. However, Fannie Mae saw a 144 bp decrease in their Multifamily REMIC issuance collateral coupon. Freddie Mac's Multifamily collateral coupon now sits at the highest level in the past 12 months at 5.42%.
- In November 2023, Ginnie Mae and Fannie Mae issued 18 deals and 8 deals, respectively, across SF and MF, both unchanged from a month prior. Freddie Mac issued 14 deals, across SF and MF, a decrease of 4 deals MoM.
- In November 2023, total Single-Family and Multifamily issuance across the three agencies fell 22.4% or $4.93 billion from October.

Figure 31. November 2023 REMIC Issuance by Agency

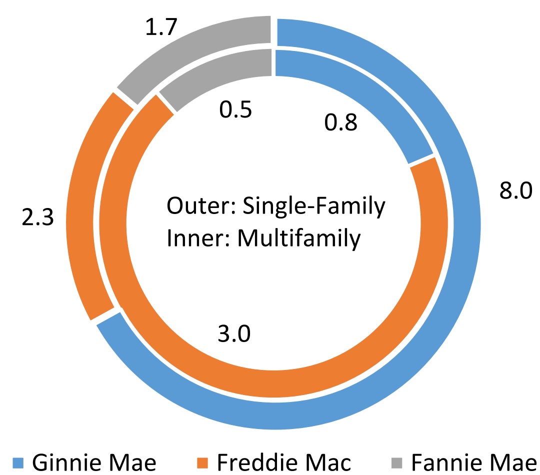


Table 8. Monthly REMIC Issuance by Agency

	SF REMIC Issuance Volume ($B)	% of SF REMIC Issuance Volume	Number of SF REMIC Transactions	MF REMIC Issuance Volume ($B)	% of MF REMIC Issuance Volume	Number of MF REMIC Transactions
Ginnie Mae	8.02	67.0%	11	0.81	18.6%	7
Freddie Mac	2.29	19.2%	9	3.03	69.8%	5
Fannie Mae	1.66	13.9%	7	0.50	11.6%	1
Total [2]	**$11.97**	**100%**	**27**	**$4.34**	**100%**	**13**

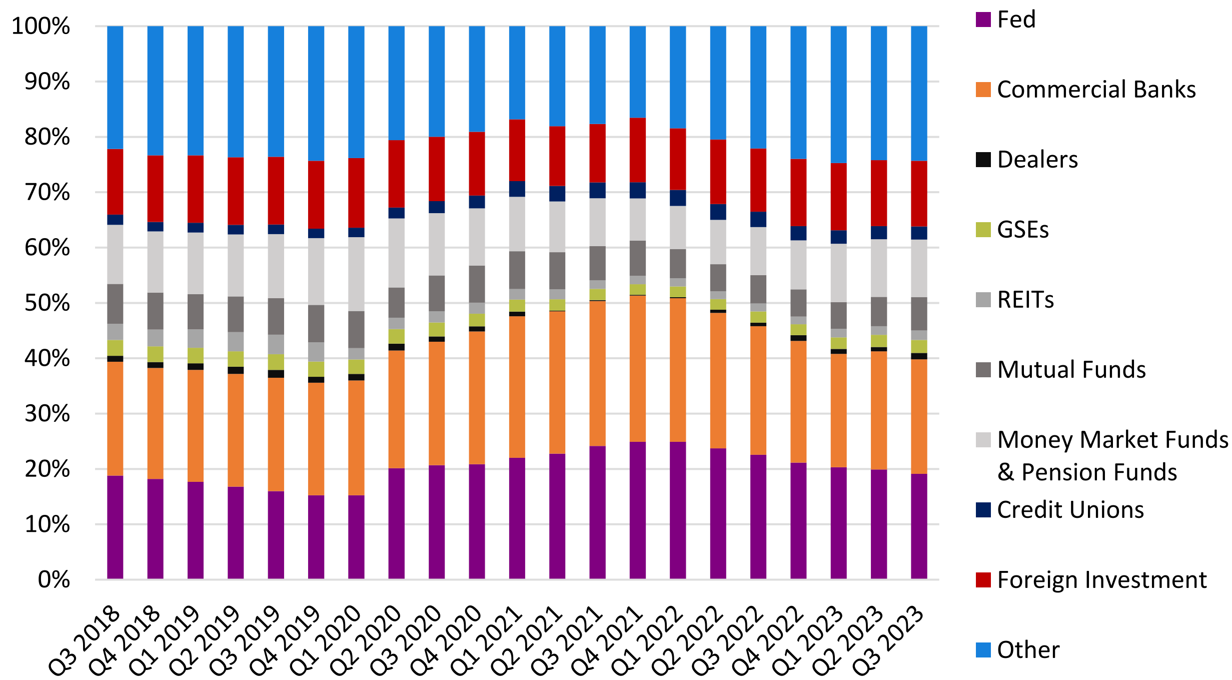
Source: Ginnie Mae Disclosure Files

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

8 MBS OWNERSHIP

As of Q3 2023, the largest holders of agency debt (agency MBS + agency notes and bonds) included commercial banks (21%), the Federal Reserve (19%), and foreign investors (12%). The Federal Reserve's share decreased slightly by 1% in the third quarter of 2023 as compared to the second quarter of 2023. Out of the approximately $2.5 trillion in holdings as of the end of November 2023, roughly $1.93 trillion was held by the top 25 domestic banks per **Table 9** below.

Figure 32. Who Owns Total Agency Debt?



Source: Federal Reserve Flow of Funds. Note: The "other" category includes primarily life insurance companies, state and local governments, households, and nonprofits. Data as of Q3 2023.

8.1 Commercial Bank Holdings of Agency MBS

Table 9. Commercial Bank Holdings of Agency MBS

	Commercial Bank Holdings ($Billions)								
	Mar-23	**Apr-23**	**May-23**	**Jun-23**	**Jul-23**	**Aug-23**	**Sep-23**	**Oct-23**	**Nov-23**
Largest 25 Domestic Banks	1,952.3	1,953.4	1,947.1	1,961.3	1,955.1	1,944.4	1,940.1	1,921.3	1,927.7
Small Domestic Banks	700.9	627.8	628.4	618.2	610.5	602.0	587.2	578.1	572.8
Foreign Related Banks	28.4	26.8	24.0	26.2	24.3	23.2	25.9	26.7	30.1
Total, Seasonally Adjusted	**2,681.6**	**2,608.0**	**2,599.5**	**2,605.7**	**2,589.9**	**2,569.6**	**2,553.2**	**2,526.1**	**2,530.6**

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

8.2 Bank and Thrift Residential MBS Holdings

In Q3 2023, MBS holdings at banks and thrifts continued to decrease. The decrease was mostly driven by GSE pass-throughs and Agency CMO holdings. Ginnie Mae pass-throughs saw a decrease of 2.8%, showing the smallest percentage decrease of all banks and thrifts, quarter over quarter (QoQ). Total bank and thrift MBS holdings decreased by approximately 12.1% from Q3 2022 and 6.3% from Q2 2023. Out of the $2.14 trillion in MBS holdings at banks and thrifts as of Q3 2023, $1.29 trillion were GSE pass-throughs and $373 billion were Ginnie Mae pass-throughs.

Table 10. 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
3Q23	$2,137.37	$1,289.29	$372.71	$2.63	$416.84	$55.89	$1,892.93	$244.44
Change:								
2Q23-3Q23	-6.3%	-7.2%	-2.8%	-13.1%	-6.6%	-4.1%	-6.4%	-5.2%
3Q22-3Q23	-12.1%	-15.2%	5.9%	-20.0%	-16.1%	-5.7%	-12.2%	-11.2%

Source: Inside Mortgage Finance. Notes: Data as of Q3 2023.

Table 11. 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	$391,501.0	$329,448.0	$56,255.0	$5,656.0	$142.0	18.3%
2	Wells Fargo & Company	$221,156.0	$141,703.0	$77,058.0	$2,337.0	$58.0	10.3%
3	JPMorgan Chase & Co.	$155,852.0	$65,121.0	$78,094.0	$492.0	$12,145.0	7.3%
4	Charles Schwab	$146,103.0	$82,508.0	$5,184.0	$58,411.0	$0.0	6.8%
5	Truist Bank	$94,378.0	$47,324.0	$10,741.0	$33,505.0	$2,808.0	4.4%
6	U.S. Bancorp	$93,011.4	$59,409.8	$23,102.3	$10,499.2	$0.1	4.4%
7	Citigroup Inc.	$82,089.0	$63,563.0	$15,799.0	$2,110.0	$617.0	3.8%
8	PNC Bank, National Association	$66,149.3	$56,128.4	$3,733.4	$5,346.2	$941.3	3.1%
9	Capital One Financial Corporation	$59,512.4	$28,072.3	$13,922.7	$17,197.5	$320.0	2.8%
10	Morgan Stanley	$47,308.0	$29,290.0	$6,466.0	$11,523.0	$29.0	2.2%
11	Bank Of New York Mellon Corporation	$37,611.0	$26,281.0	$1,471.0	$8,096.0	$1,763.0	1.8%
12	USAA Federal Savings Bank	$35,306.0	$29,812.0	$1,734.0	$3,760.0	$0.0	1.7%
13	State Street Bank and Trust Company	$34,679.3	$12,693.0	$7,927.0	$12,493.3	$1,566.0	1.6%
14	BMO Harris Bank National Association	$28,675.4	$3,870.8	$5,751.2	$19,053.4	$0.0	1.3%
15	The Huntington National Bank	$26,094.3	$10,300.1	$8,502.9	$7,172.6	$118.7	1.2%
16	TD Bank USA/TD Bank NA	$25,998.1	$1,164.1	$70.8	$24,730.9	$32.3	1.2%
17	KeyBank National Association	$23,122.6	$3,463.2	$167.6	$19,491.8	$0.0	1.1%
18	HSBC Bank USA, National Association	$23,053.7	$3,876.6	$14,222.4	$4,954.0	$0.7	1.1%
19	Citizens Bank, National Association	$22,907.3	$11,578.3	$5,101.0	$6,228.1	$0.0	1.1%
20	Ally Bank	$18,161.0	$11,369.0	$1,675.0	$1,457.0	$3,660.0	0.8%
Total	Top 20	$1,632,668.7	$1,016,975.5	$336,978.3	$254,514.0	$24,201.0	76.4%

Source: Inside Mortgage Finance. Notes: Data as of Q3 2023.

8.3 SOMA Holdings

FOMC and Economic Highlights:

Federal Open Market Committee Meeting 12/13/2023 Press Release:

- "The Committee decided to maintain the target range for the federal funds rate at 5-1/4 to 5-1/2 percent."
- "Tighter financial and credit conditions for households and businesses are likely to weigh on economic activity, hiring, and inflation. The extent of these effects remains uncertain. The Committee remains highly attentive to inflation risks."
- "The Committee is strongly committed to returning inflation to its 2 percent 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."
- Powell indicated in his press conference that "we are likely at or near the peak rate for this cycle," but is "not taking the possibility of future rate hikes off the table." The next FOMC meeting is scheduled for January 30-31.

SOMA Portfolio Highlights (Nov 1, 2023 vs. Nov 29, 2023)

- SOMA holdings of domestic securities totaled $7.2 trillion on Nov 29 (a decrease of $46.4 billion or -0.64% from Nov 1). $30.5 billion (67% of the total decrease) was in U.S. Treasury holdings and $15.9 billion (33% of the total decrease) was in Agency MBS.
- Since the institution of redemption caps in June 2022, SOMA holdings have decreased by $1.2 trillion. The total reduction of holdings of U.S. Treasuries was $953.2 billion and $259.8 billion for Agency MBS. This represents 96.3% and 45.0% of the total redemption cap over the period for U.S. Treasuries and Agency MBS, respectively.
- Agency MBS comprise about 34% of the total SOMA portfolio. The $15.9 billion monthly decrease was primarily due to MBS principal repayments rather than outright sales and was comprised of a $6.7 billion decrease in Fannie Mae holdings, a $5.8 billion decrease in Freddie Mac holdings, and a $3.4 billion decrease in Ginnie Mae holdings.
- Over 99% of SOMA Agency MBS holdings have coupons of 4.5% or lower with an average WAC of 2.508%.
- The redemption cap for SOMA's Agency MBS holdings is set at $35 billion per month. The reduction of $15.9 billion in Agency MBS represents 45% of the monthly liquidation cap.

Table 12. SOMA Holdings as of November 1, 2023 and November 29, 2023 ($ Billions)

Holdings by Security Type	*November 1, 2023*		*November 29, 2023*		*Month-Over-Month*	
	SOMA Holdings	*% Share*	*SOMA Holdings*	*% Share*	*$ Change*	*% Change*[3]
U.S. Treasuries	$4,759.7	65.88%	$4,729.1	65.89%	-$30.5	-0.64%
Federal Agency Debt	$2.3	0.03%	$2.3	0.03%	$0.0	0.00%
Agency MBS	$2,4754.6	33.97%	$2,438.8	33.79%	-$15.9	-0.65%
Agency Commercial MBS	$8.3	0.11%	$8.3	0.12%	$0.12	-0.24%
Total SOMA Holdings	**$7,224.9**	**100.0%**	**$7,178.5**	**100.0%**	**-$46.4**	**-0.64%**

Table 13. SOMA Agency MBS Holdings Distribution ($ Billions)

Agency	Singly-Family AMBS Outstanding November 1, 2023	% AMBS Outstanding	SOMA AMBS Holdings November 1, 2023	% SOMA Holdings	SOMA AMBS Holdings November 29, 2023	% SOMA Holdings
Fannie Mae	$3,580.6	40.7%	$1,011.0	41.2%	$1,004.3	41.2%
Freddie Mac	$2,938.8	33.4%	$937.2	38.2%	$931.4	38.2%
Ginnie Mae	$2,281.7	25.9%	$506.5	20.6%	$503.1	20.6%
Total	$8,801.1	100.0%	$2,454.6	100.0%	$2,438.8	100.0%

Table 14. SOMA Agency MBS Liquidations from Nov 1, 2023 to Nov 29, 2023 ($ Billions)

	MBS Holdings as of 11.01.23	*MBS Holdings 11.29.23*	*Liquidated Amount*	*Liquidation Cap*[4]	*% of Liquidation Cap*
Total	$2,454.6	$2,438.8	$15.9	$35.0	45%

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.

[3] *Table 12 illustrates figures in $ billions, any change less than $50 million will be expressed as a "$0.0" change in the "$ Change" column.*

[4] *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.*

8.4 Foreign Ownership of MBS

For the month of September 2023, foreign ownership of MBS represented $1.252 trillion in Agency MBS, up approximately $141 billion from September 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 33. Agency MBS Owned by Foreign Entities Ex-Fed Holdings and CMO's (USD Billions)

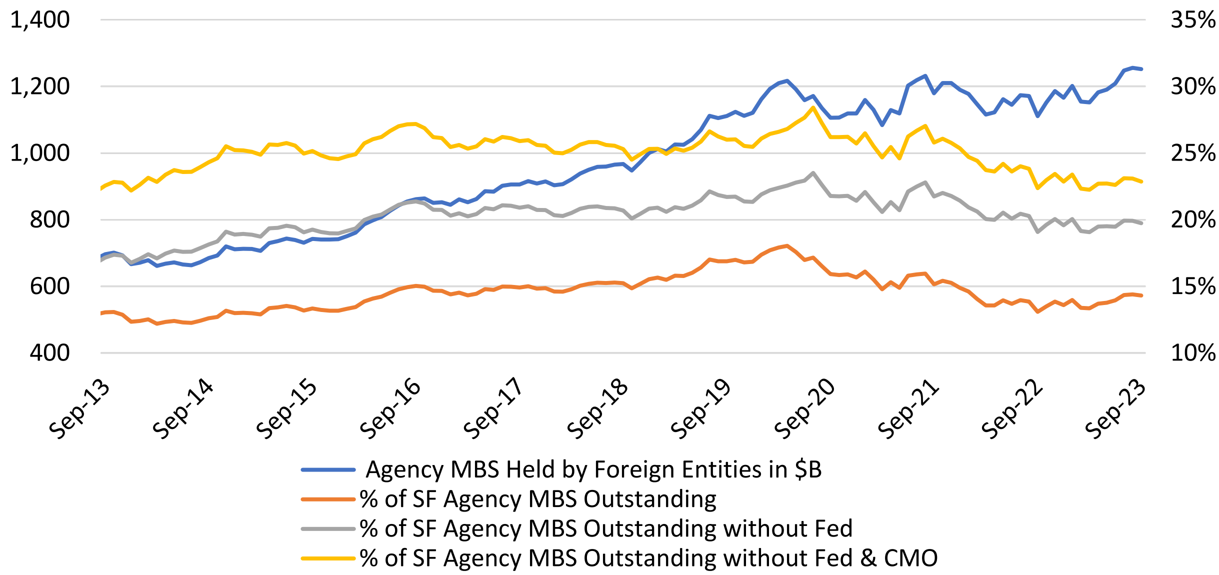
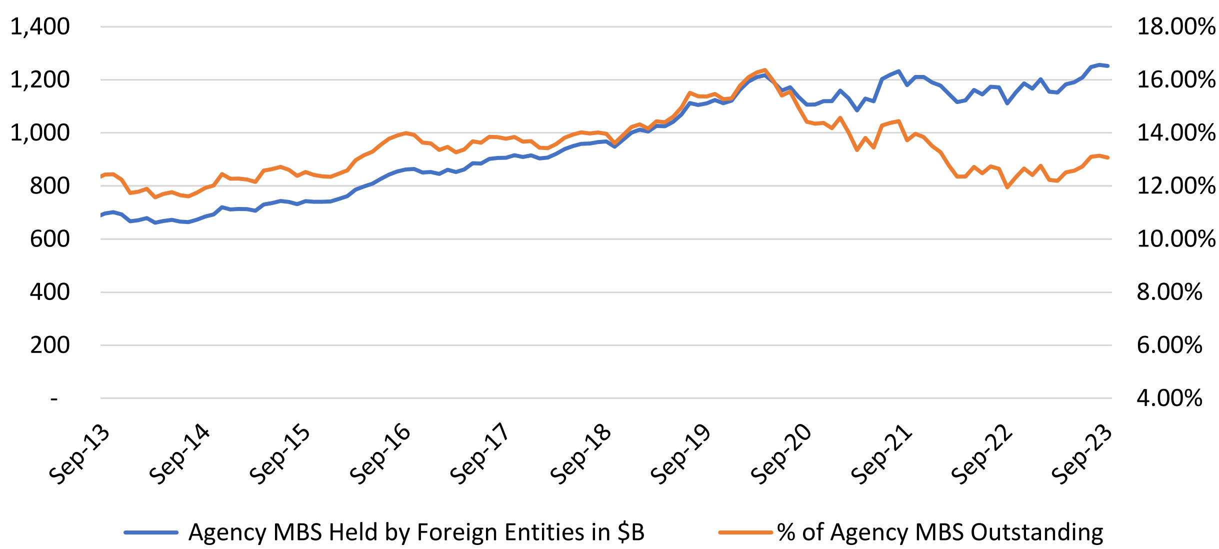


Figure 34. Agency MBS Owned by Foreign Entities (USD Billions)



Sources: TIC and Recursion, as of September 2023.

8.5 Foreign Ownership of Agency Debt and Agency MBS

The largest holders of Agency MBS were China, Japan, and Taiwan. As of September 2023, these three owned roughly 54% of all foreign owned Agency MBS. Between September 2022 and September 2023, China and Japan increased their Agency MBS holdings while Taiwan's holdings decreased. China's holdings increased by $13.6 billion, Japan's holdings increased by $19.7 billion, and Taiwan's holdings decreased by $8.4 billion.

Table 15. All Agency Debt

Country	*Level of Holdings ($ Millions)*				*Change in Holdings ($ Millions)*			
	12/1/2022	3/1/2023	6/1/2023	9/1/2023	Q4 2022	Q1 2023	Q2 2023	Q3 2023
China	251,592	263,892	269,980	255,110	10,069	12,300	6,088	-14,870
Japan	278,069	287,051	253,357	252,463	45,300	8,982	-33,694	-894
Taiwan	210,309	212,533	208,226	201,010	856	2,224	-4,307	-7,216
Canada	97,234	105,527	105,330	116,642	7,921	8,293	-197	11,312
United Kingdom	61,393	41,101	55,682	90,017	5,045	-20,292	14,581	34,335
Luxembourg	47,240	51,202	40,971	42,656	8,681	3,962	-10,231	1,685
Ireland	22,478	25,099	36,766	39,697	4,786	2,621	11,667	2,931
Cayman Islands	30,941	29,485	30,398	37,089	-4,140	-1,456	913	6,691
South Korea	36,237	38,131	36,737	36,508	594	1,894	-1,394	-229
France	19,609	22,578	20,411	24,287	3,410	2,969	-2,167	3,876
Other	225,466	196,641	208,190	218,177	34,361	-28,825	11,549	9,987
Total	**1,280,568**	**1,273,240**	**1,266,048**	**1,313,656**	**116,883**	**-7,328**	**-7,192**	**47,608**

Table 16. Agency MBS

Country	*Level of Holdings ($ Millions)*		
	9/1/2022	9/1/2023	*YoY Change in Holdings ($ Millions)*
China	241,523	255,110	13,587
Japan	232,769	252,463	19,694
Taiwan	209,453	201,010	-8,443
Canada	89,313	116,642	27,329
United Kingdom	56,348	90,017	33,669
Luxembourg	38,559	42,656	4,097
Ireland	17,692	39,697	22,005
Cayman Islands	35,081	37,089	2,008
South Korea	35,643	36,508	865
France	16,199	24,287	8,088
Other	191,105	218,177	27,072
Total	**1,163,685**	**1,313,656**	**149,971**

Source: Treasury International Capital (TIC). Note: Level of agency debt Holdings by month data as of Q3 2023. Agency MBS as of September 2023. Table 16 includes the top 10 holders of agency debt listed as of September 2023.

9 FIXED INCOME LIQUIDITY INDICATORS

The Agency MBS average daily trading volume YTD as of month-end November 2023 was $255 billion, which was up from a monthly average of $241 billion for calendar year 2022. As of month-end November 2023, Agency MBS average daily trading volume decreased 0.8% MoM. *See footnote below for update on "Average Daily Turnover by Sector" data.*

Figure 35. Average Daily Trading Volume by Sector

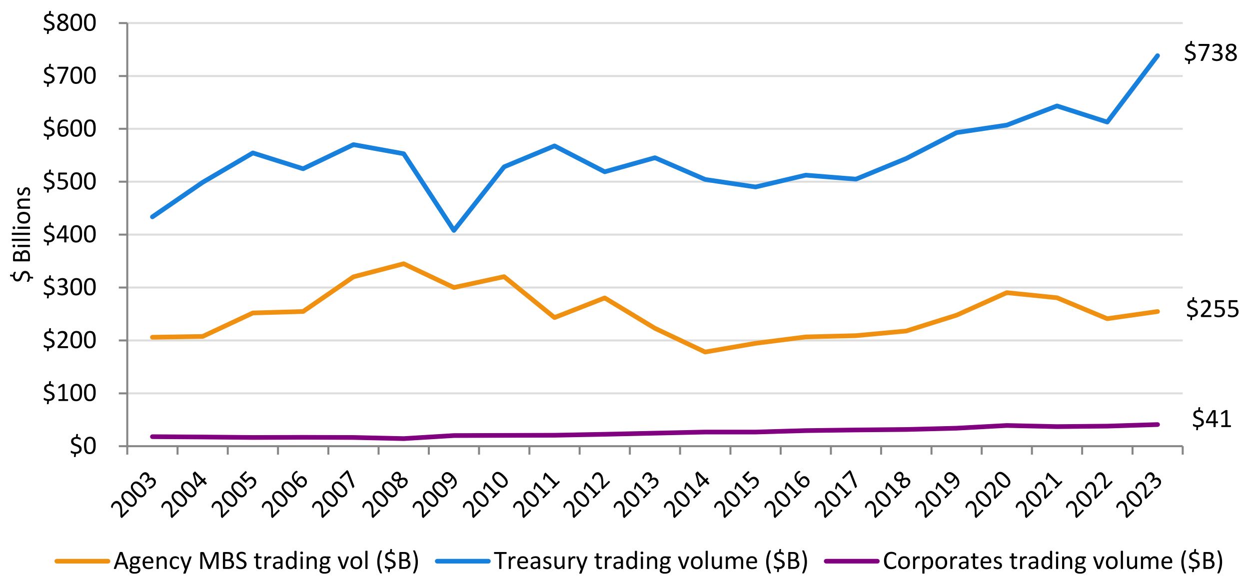
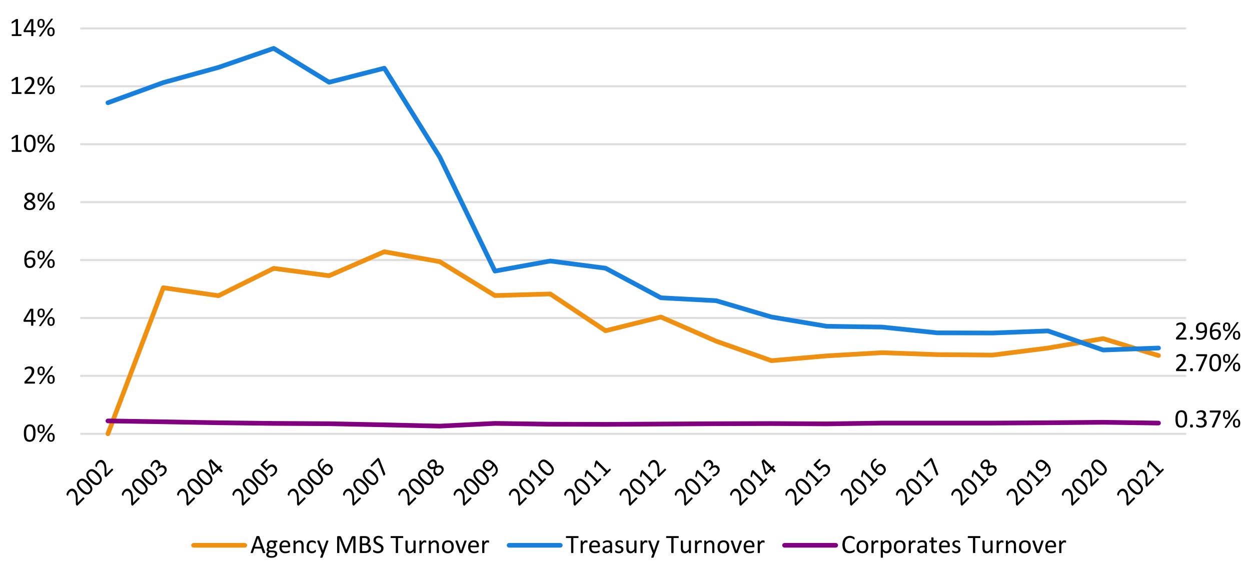


Figure 36. Average Daily Turnover by Sector



Source: SIFMA. Note: Data as of November 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 October 2023. The distribution statistics capture some key differences in the populations served by the agencies.

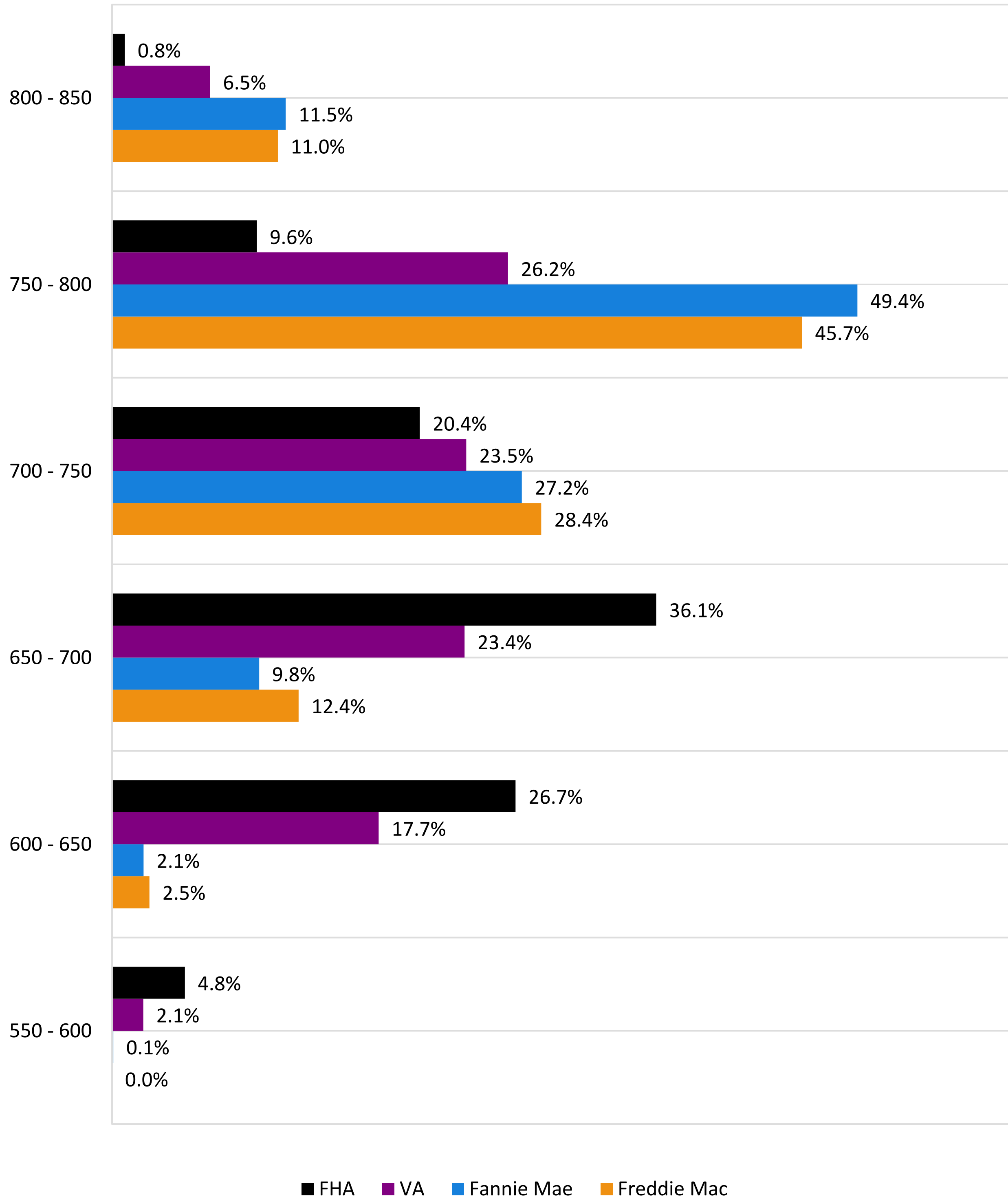
10.1 Credit Scores

Table 17. Share of Loans by FICO Score

			Purchase FICO				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	203,114	653	695	745	781	799	735
Fannie	59,313	703	735	767	790	802	759
Freddie	68,630	694	727	763	788	802	754
Ginnie	75,171	629	654	693	741	779	698
			Refi FICO				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	43,921	622	654	701	753	788	702
Fannie	11,791	663	700	742	778	798	736
Freddie	12,890	663	695	735	773	797	732
Ginnie	19,240	596	627	657	694	734	661
			All FICO				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	247,035	645	686	739	778	798	729
Fannie	71,104	694	729	764	788	802	755
Freddie	81,520	687	722	759	787	801	751
Ginnie	94,411	622	648	684	733	774	690
			Purchase FICO: Ginnie Mae Breakdown by Source				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	75,171	629	654	693	741	779	698
FHA	49,734	626	649	682	722	760	687
VA	22,770	637	674	729	774	797	722
Other	2,667	633	660	700	741	771	700
			Refi FICO: Ginnie Mae Breakdown by Source				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	19,240	596	627	657	694	734	661
FHA	13,645	590	623	652	684	718	653
VA	5,588	612	639	675	719	760	680
Other	7	648	662	736	744	749	706
			All FICO: Ginnie Mae Breakdown by Source				
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	94,411	622	648	684	733	774	690
FHA	63,379	619	643	675	715	754	680
VA	28,358	630	664	717	767	795	714
Other	2,674	633	660	700	741	771	700

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

Figure 37. FICO Distributions by Agency



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

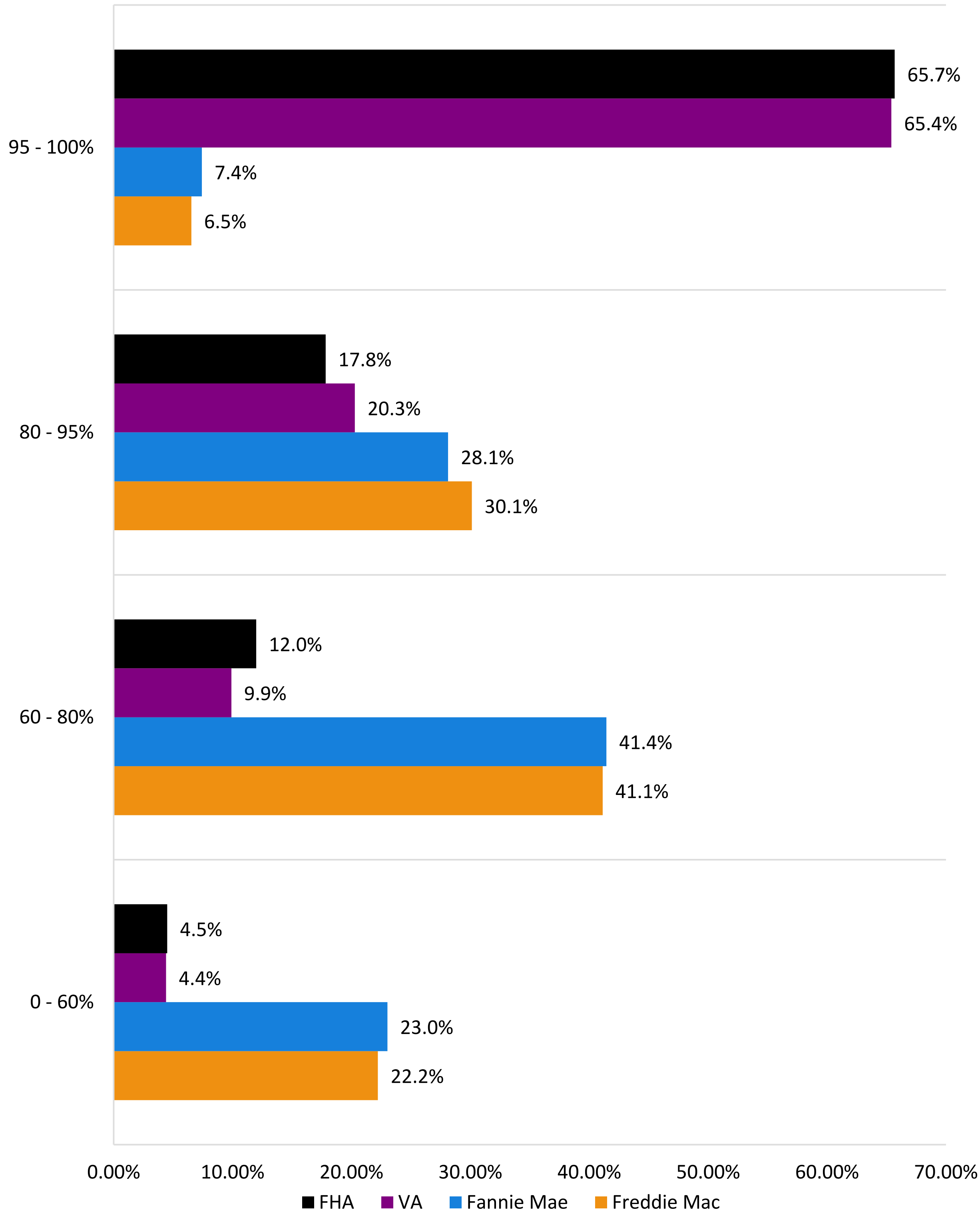
10.2 Loan-to-Value (LTV)

Table 18. Share of Loans by LTV

Purchase LTV							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	203,349	60	80	91	98	99	85
Fannie	59,396	53	73	80	93	95	79
Freddie	68,659	52	73	80	95	95	78
Ginnie	75,294	90	97	98	100	100	96
Refi LTV							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	44,143	33	50	68	80	85	63
Fannie	11,797	27	41	56	69	76	54
Freddie	12,890	26	41	59	70	79	55
Ginnie	19,456	53	68	80	81	92	75
All LTV							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	247,492	52	73	85	97	99	81
Fannie	71,193	45	64	80	90	95	75
Freddie	81,549	44	65	80	90	95	75
Ginnie	94,750	74	90	98	99	100	92
Purchase LTV: Ginnie Mae Breakdown by Source							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	75,294	90	97	98	100	100	96
FHA	49,804	92	97	98	98	98	96
VA	22,801	83	100	100	100	102	96
Other	2,689	92	98	101	101	101	98
Refi LTV: Ginnie Mae Breakdown by Source							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	19,456	53	68	80	81	92	75
FHA	13,756	50	65	76	81	81	71
VA	5,693	64	78	90	97	100	85
Other	7	56	67	78	85	94	76
All LTV: Ginnie Mae Breakdown by Source							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	94,750	74	90	98	99	100	92
FHA	63,560	73	84	98	98	98	90
VA	28,494	77	90	100	100	102	94
Other	2,696	92	98	101	101	101	98

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

Figure 38. Loan-to Value by Agency



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

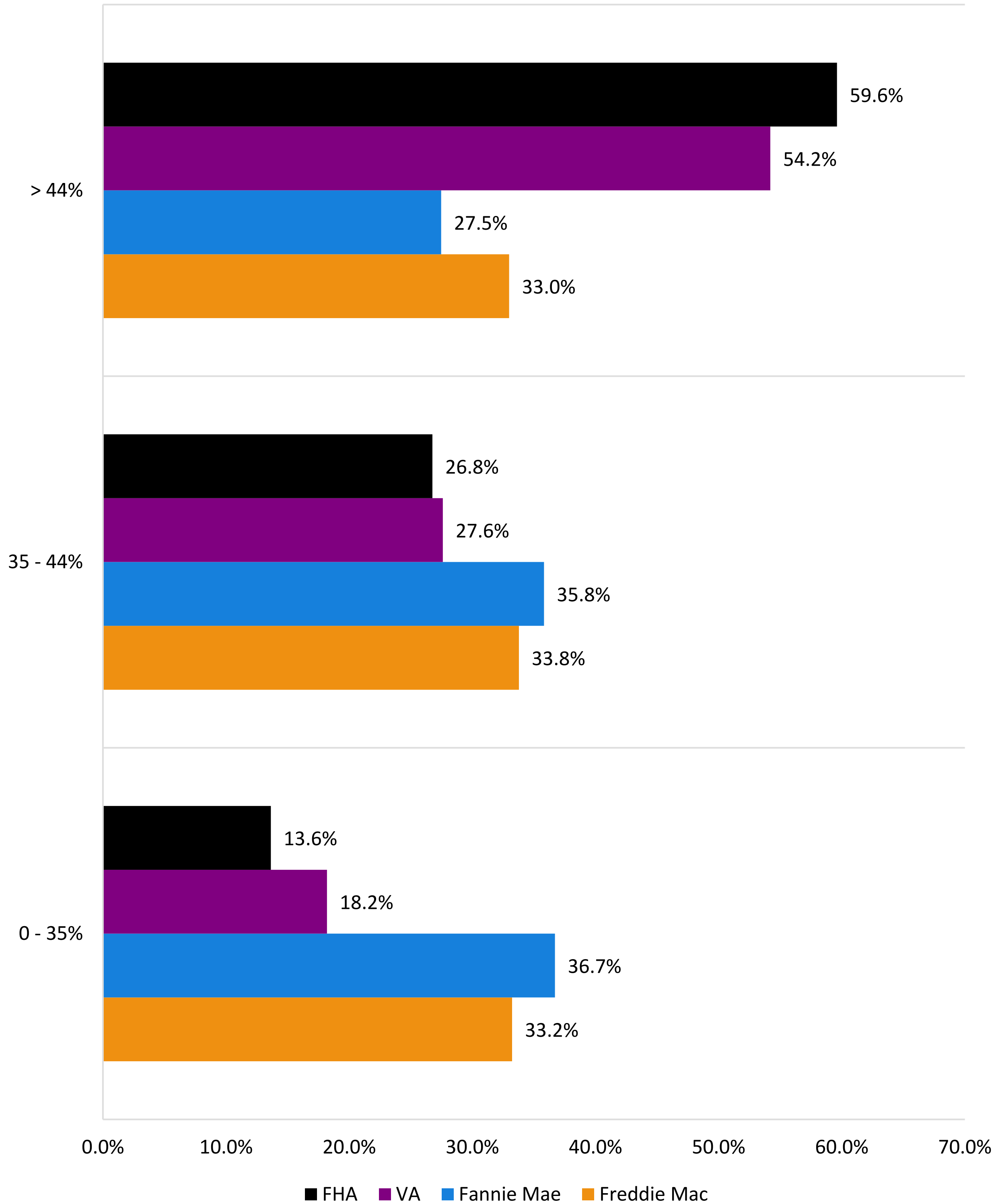
10.3 Debt-to-Income (DTI)

Table 19. Share of Loans by DTI

Purchase DTI							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	203,031	27	35	42	48	51	41
Fannie	59,396	25	32	40	45	49	38
Freddie	68,659	25	33	41	46	49	39
Ginnie	74,976	33	39	46	52	56	45
Refi DTI							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	43,709	25	33	41	47	51	39
Fannie	11,797	22	29	37	43	47	36
Freddie	12,890	24	32	40	46	49	38
Ginnie	19,022	29	36	44	50	55	43
All DTI							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	246,740	27	34	42	48	51	41
Fannie	71,193	24	31	39	45	49	38
Freddie	81,549	25	32	41	46	49	39
Ginnie	93,998	32	39	46	51	55	44
Purchase DTI: Ginnie Mae Breakdown by Source							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	74,976	33	39	46	52	56	45
FHA	49,809	34	41	47	52	55	46
VA	22,501	31	38	46	52	56	45
Other	2,666	27	32	36	40	42	35
Refi DTI: Ginnie Mae Breakdown by Source							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	19,022	29	36	44	50	55	43
FHA	13,617	29	36	44	50	55	43
VA	5,398	29	36	43	50	55	43
Other	7	23	26	29	37	38	31
All DTI: Ginnie Mae Breakdown by Source							
Names	**Number of Loans**	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	93,998	32	39	46	51	55	44
FHA	63,426	33	40	46	52	55	45
VA	27,899	31	38	45	51	56	44
Other	2,673	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 39. 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 September 2022 – November 2022 to the three-month range of September 2023 – November 2023, the share of high-LTV agency loans with:

- FICO scores above 750 increased by approximately 10.1%.
- DTIs below 35% decreased by approximately 20.3%.

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 70.45% of its issuances between September 2023 – November 2023 having LTVs of 95 or above, compared to 22.27% for the GSEs.

Table 20. Share of Loans with LTV > 95

	Ginnie Mae	*GSE*	*All*
Sep 2022 - Nov 2022	67.77%	21.89%	38.84%
Sep 2023 - Nov 2023	70.45%	22.27%	40.46%

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

	FICO					
DTI	**<650**	**650-700**	**700-750**	**≥750**	**NA**	**All**
<35	2.21%	3.49%	4.73%	7.38%	0.03%	17.84%
35-45	5.95%	9.19%	10.44%	11.17%	0.03%	36.79%
≥45	8.21%	13.54%	12.03%	10.38%	0.06%	44.23%
NA	0.28%	0.22%	0.15%	0.17%	0.33%	1.14%
All	**16.65%**	**26.44%**	**27.35%**	**29.10%**	**0.46%**	**100.00%**

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

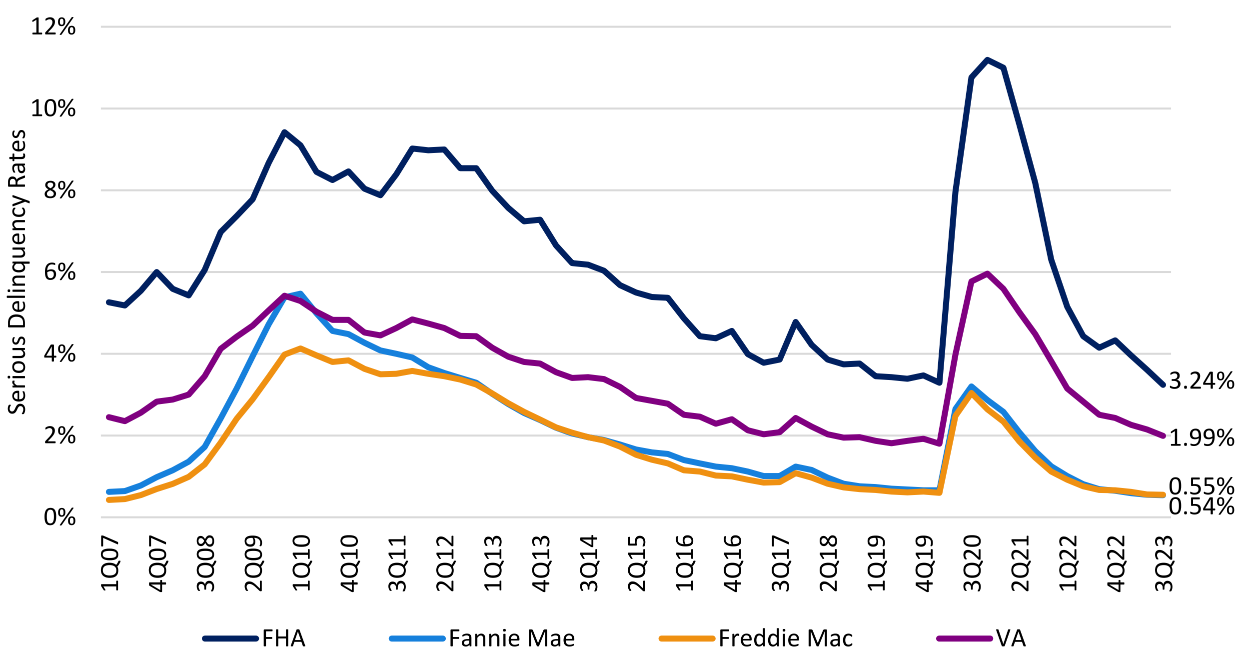
	FICO					
DTI	**<650**	**650-700**	**700-750**	**≥750**	**NA**	**All**
<35	1.63%	2.59%	3.69%	6.25%	0.05%	14.22%
35-45	5.03%	7.71%	9.82%	12.07%	0.04%	34.68%
≥45	7.76%	13.91%	14.58%	13.52%	0.10%	49.87%
NA	0.27%	0.22%	0.16%	0.19%	0.39%	1.23%
All	**14.69%**	**24.43%**	**28.25%**	**32.04%**	**0.59%**	**100.00%**

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

10.5 Serious Delinquency Rates

Serious delinquency rates for Single-Family GSE, VA, and FHA loans all fell in Q3 2023. From Q2 2023 to Q3 2023, Fannie and Freddie serious delinquencies both decreased by 1 bp. Ginnie Mae collateral's serious delinquency rates decreased more than the GSE rate, with VA decreasing 16 bps and FHA decreasing 37 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 40. 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 Q3 2023.

10.6 Credit Box

The first-time homebuyer share for agency purchase loans was 55.6% as of month-end November 2023, an increase from 54.8% in October 2023 and up from 52.4% in November 2022. Freddie Mac and Fannie Mae's first-time homebuyer shares, 46.9% and 47.0%, respectively, as of month-end November 2023, increased 17.0% and 6.9%, respectively, YoY. Ginnie Mae's first-time homebuyer share increased 3.0% YoY. **Table 23** shows that based on mortgages originated as of month-end November 2023, the average GSE first-time homebuyer was more likely to have a higher credit score and lower LTV than a Ginnie Mae first-time homebuyer. Ginnie Mae's first-time homebuyers were more likely to have lower loan amounts and lower credit scores, while having higher mortgage rates than Ginnie Mae repeat buyers.

Figure 41. First-Time Homebuyer Share: Purchase Only Loans

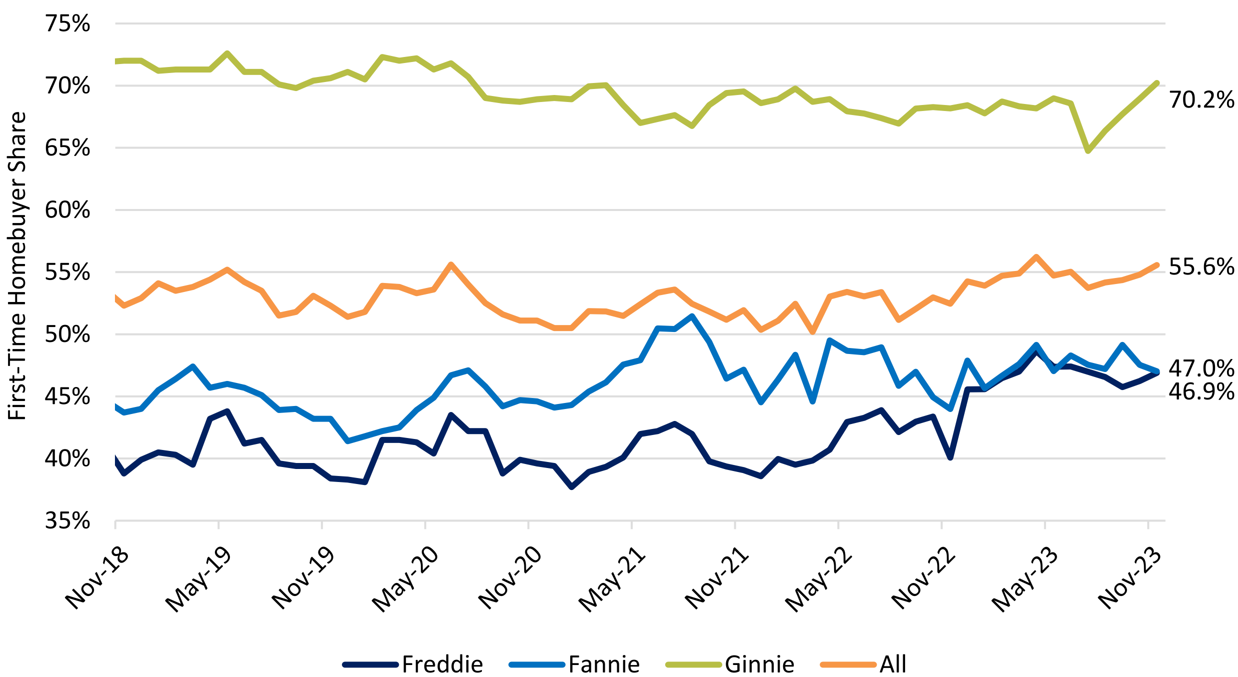


Table 23. Agency First-Time Homebuyer Share Summary

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	*Repeat*	*First-Time*	*Repeat*	*First-Time*	*Repeat*	*First-Time*	*Repeat*
Loan Amount $	$345,802	$356,030	$322,285	$326,541	$307,171	$356,444	$321,024	$344,234
Credit Score	753	764	747	761	693	710	723	749
LTV (%)	85%	74%	84%	73%	97%	94%	90%	79%
DTI (%)	38%	38%	39%	38%	45%	46%	41%	40%
Loan Rate (%)	7.1%	7.2%	7.1%	7.2%	6.8%	6.7%	7.0%	7.1%

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

In the Ginnie Mae purchase market, 77.7% of FHA loans, 52.3% of VA loans, and 83.0% of "Other" loans provided financing for first-time home buyers as of month-end November 2023. The share of first-time home buyers in the Ginnie Mae purchase market increased MoM for FHA and VA loans, while "Other" loans decreased. **Table 24** shows that based on mortgages originated as of month-end November 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 17.1% smaller loans, had a 25.1-point lower credit score, 5.1% higher LTV and had a 10 bp higher interest rate. FHA's first-time homebuyers are much more like their repeat buyers, with only 4.0% smaller loans, similar interest rates, and 2.6% 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 42. First-time Homebuyer Share: Ginnie Mae Breakdown

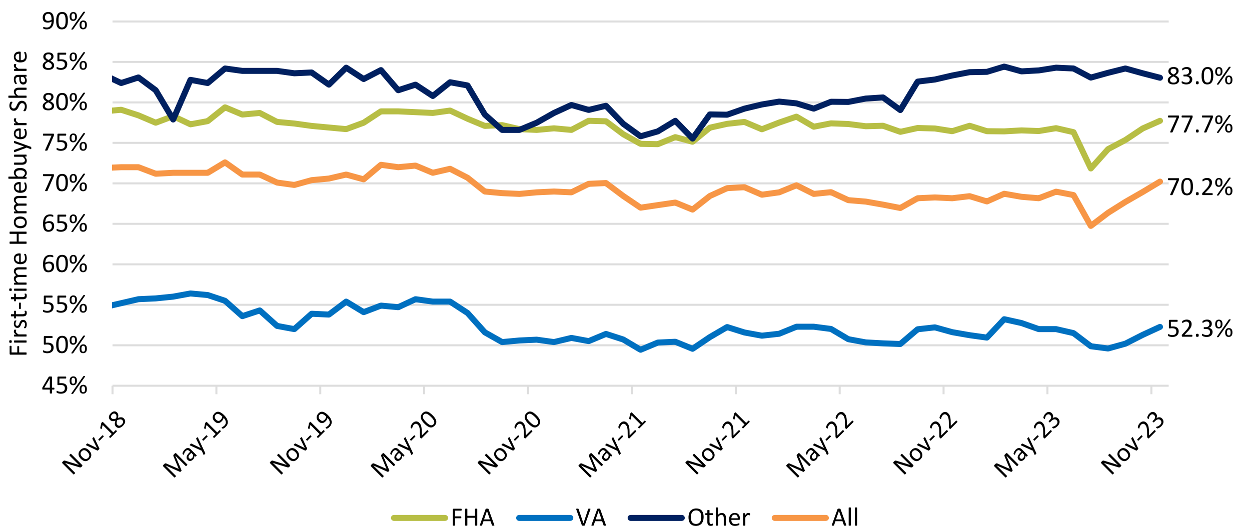


Table 24. Ginnie Mae First-Time Homebuyer Share Breakdown Summary

	FHA		VA		Other		Total	
	First-Time	*Repeat*	*First-Time*	*Repeat*	*First-Time*	*Repeat*	*First-Time*	*Repeat*
Loan Amount $	$306,557	$319,360	$332,673	$401,288	$181,682	$188,559	$307,171	$356,444
Credit Score	687	685	710	735	700	703	693	710
LTV (%)	96.5%	93.8%	98.3%	93.2%	97.8%	97.9%	97.0%	93.6%
DTI (%)	45.4%	46.7%	44.0%	45.2%	35.2%	35.9%	44.6%	45.8%
Loan Rate (%)	6.8%	6.8%	6.8%	6.7%	6.9%	6.8%	6.8%	6.7%

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

Note: %'s rounded to nearest tenth of a percent, all other numbers rounded to nearest whole number.

10.7 Credit Box: Historical

The median FICO score for all agency loans originated as of month-end November 2023 was 737, which represents a 12-point increase from November 2022. Ginnie Mae median FICO scores increased 10 points from 671 in November 2022 to 681 as of month-end November 2023. As of month-end November 2023, average FICO scores for refinances increased for Fannie Mae and Freddie Mac borrowers by 3 and 20 points YoY, respectively.

Figure 43. FICO Scores for All Loans

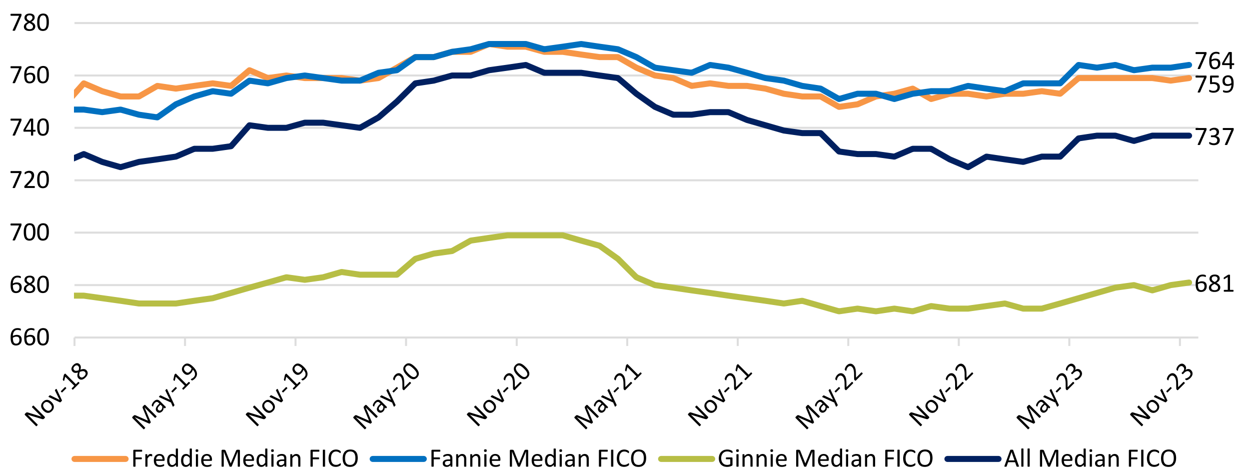


Figure 44. FICO Scores for Purchase Loans

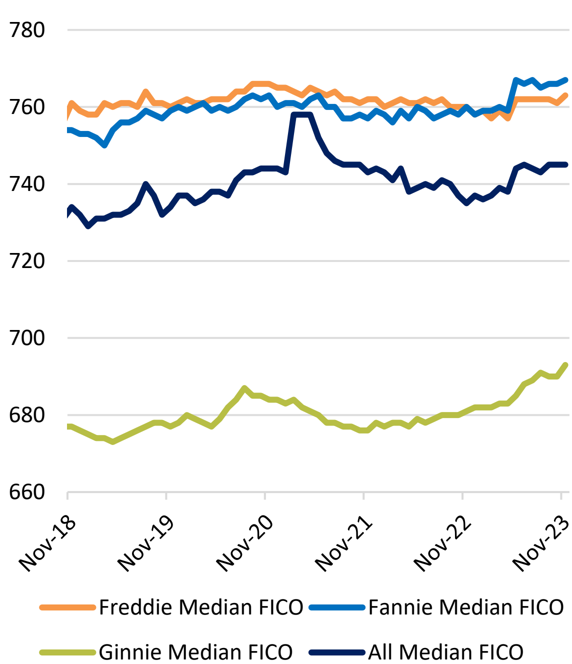
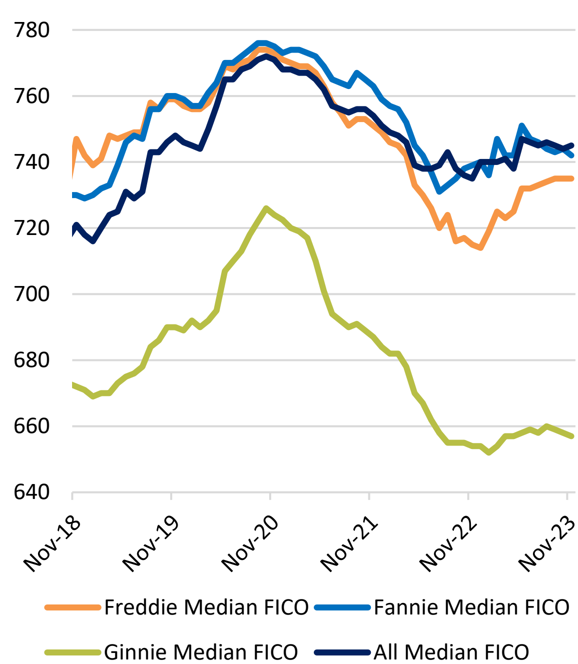


Figure 45. FICO Scores for Refinance Loans



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

In November 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 November 2022 to November 2023. In November 2023, median DTIs for Ginnie Mae, Freddie Mac, and Fannie Mae were 45.5%, 41.0%, and 39.0%, respectively. In November 2022, median DTIs for Ginnie Mae, Freddie Mac, and Fannie Mae were 44.7%, 39.0%, and 39.0%, respectively.

Figure 46. LTV Ratio for All Loans

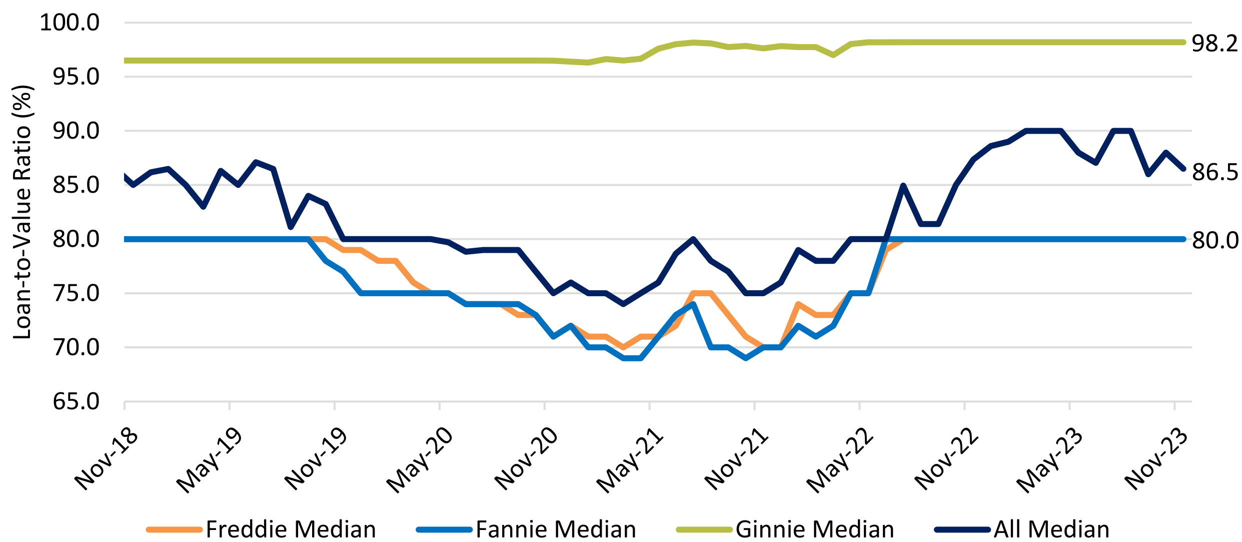
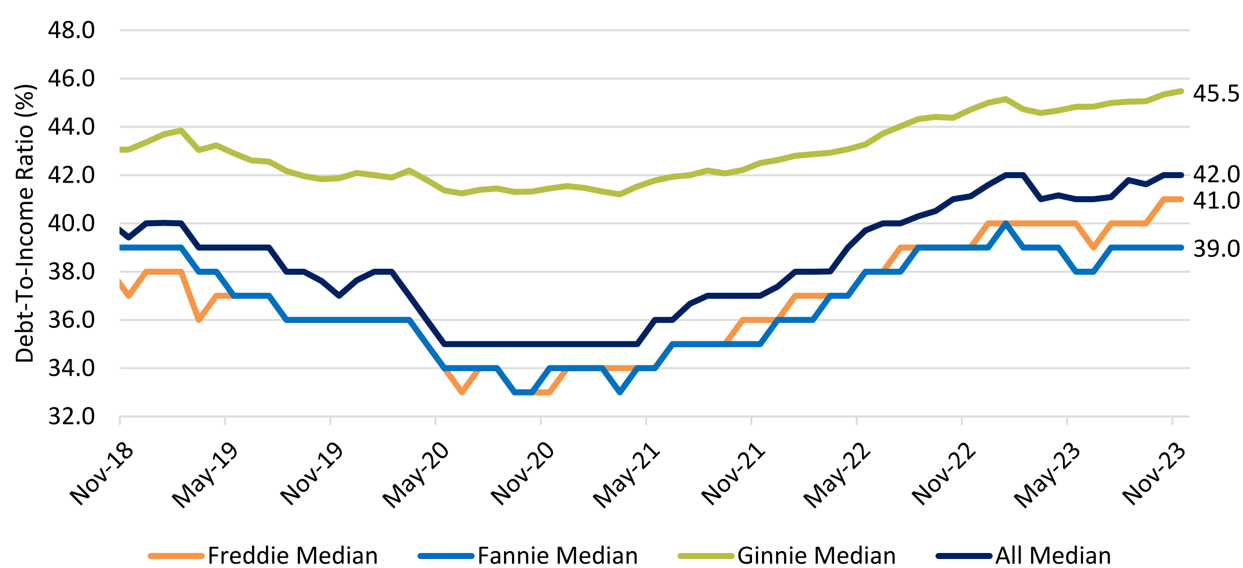


Figure 47. DTI Ratio for All Loans



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

11 FORBEARANCE TRENDS

At the end of November 2023, 37,197 Ginnie Mae loans were in forbearance. The number of loans in forbearance removed from MBS pools in November was 251 while 36,946 loans in forbearance remained 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 – November 2023

	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie	652	4.1	$199,451	73.7	75.2	37,197
Bank	670	4.1	$135,736	82.5	84.1	6,411
Nonbank	650	4.1	$213,771	72.6	74.3	30,758
FHA	649	4.1	$189,675	77.3	77.2	29,394
Bank	669	4.2	$133,918	84.7	85.2	5,493
Nonbank	646	4.1	$203,900	76.3	76.2	23,877
VA	660	3.9	$277,801	58.6	66.4	6,106
Bank	673	3.6	$185,169	61.7	71.2	583
Nonbank	659	3.9	$288,999	58.4	66.1	5,520

Loans in Forbearance and Removed from Pools – November 2023

	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie	661	5.0	$161,573	71.4	72.2	251
Bank	686	5.7	$116,810	83.1	89.5	111
Nonbank	651	4.6	$205,904	64.7	65.0	140
FHA	649	5.4	$143,462	81.3	72.8	207
Bank	679	6.1	$112,956	92.8	86.6	97
Nonbank	636	5.0	$188,230	74.4	66.3	110
VA	694	3.7	$250,428	40.0	69.4	40
Bank	713	3.9	$202,990	50.3	100.0	12
Nonbank	689	3.7	$264,289	34.7	59.9	28

Loans in Forbearance that Remain in Pools – November 2023

	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie	652	4.1	$199,606	73.7	75.3	36,946
Bank	669	4.1	$136,005	82.5	84.0	6,300
Nonbank	650	4.0	$213,837	72.6	74.3	30,618
FHA	649	4.1	$189,928	77.3	77.3	29,187
Bank	669	4.2	$134,198	84.6	85.2	5,396
Nonbank	646	4.1	$203,966	76.3	76.2	23,767
VA	659	3.9	$277,924	58.7	66.3	6,066
Bank	672	3.6	$185,169	62.2	70.2	571
Nonbank	659	3.9	$289,011	58.5	66.1	5,492

*Sources: Ginnie Mae loan level MBS disclosure and forbearance file and Ginnie Mae Issuer Operational Performance Profile (IOPP) -Peer Group Listings. Notes: Data as of November 2023; *Averages weighted by remaining principal balance of the loans. Rounded to nearest tenth*

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 87.44% 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 November 2023, over half (53.61%) 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 Servicing	1	2	↑	$304,398,543,829	13.2%	13.23%	4.90%	0.78%
DBA Freedom Mortgage	2	1	↓	$293,152,953,517	12.7%	25.97%	5.41%	0.76%
PennyMac Loan Service	3	3	↔	$270,042,948,528	11.7%	37.71%	4.85%	0.83%
Mr. Cooper (Nationstar)	4	4	↔	$127,223,026,474	5.5%	43.24%	7.01%	1.44%
Newrez LLC	5	8	↑	$126,854,018,137	5.5%	48.76%	4.46%	0.52%
Carrington Mortgage	6	7	↑	$111,711,185,591	4.9%	53.61%	5.27%	0.65%
Rocket Mortgage (Quicken Loans)	7	6	↓	$110,074,497,654	4.8%	58.40%	6.08%	0.30%
Wells Fargo Bank	8	5	↓	$ 99,488,430,481	4.3%	62.72%	5.48%	0.57%
Planet Home Lending	9	12	↑	$66,794,667,969	2.9%	65.62%	3.98%	0.37%
U.S. Bank	10	11	↑	$56,133,705,245	2.4%	68.06%	5.12%	1.44%
United Wholesale Mortgage	11	10	↓	$55,182,816,479	2.4%	70.46%	4.89%	1.99%
LoanDepot	12	14	↑	$40,007,038,882	1.7%	72.20%	5.52%	1.10%
Navy Federal Credit Union	13	15	↑	$29,346,821,372	1.3%	73.48%	4.73%	0.22%
Mortgage Research Center	14	13	↓	$27,789,966,000	1.2%	74.68%	6.47%	0.77%
M&T Bank	15	NR	↑	$27,426,564,582	1.2%	75.88%	4.25%	0.38%
Guild Mortgage	16	17	↑	$24,164,031,728	1.1%	76.93%	4.47%	0.40%
The Money Source	17	18	↑	$22,310,212,534	1.0%	77.90%	5.56%	0.52%
Crosscountry Mortgage	18	20	↑	$21,248,017,033	0.9%	78.82%	4.16%	0.52%
Movement Mortgage	19	23	↑	$20,456,481,219	0.9%	79.71%	3.85%	0.57%
Truist Bank	20	19	↓	$20,320,940,555	0.9%	80.59%	5.51%	0.98%
New American Funding	21	21	↔	$20,117,444,524	0.9%	81.47%	4.87%	0.73%
CMG Mortgage	22	24	↑	$19,117,645,522	0.8%	82.30%	4.65%	0.87%
AmeriHome Mortgage	23	16	↓	$18,651,789,249	0.8%	83.11%	3.30%	0.86%
PHH Mortgage	24	28	↑	$18,222,387,301	0.8%	83.90%	3.77%	0.51%
Idaho Housing and Finance	25	25	↔	$17,150,976,489	0.7%	84.65%	3.21%	0.48%
Flagstar Bank	26	NR	↑	$14,464,492,188	0.6%	85.28%	3.82%	0.60%
Citizens Bank.	27	27	↔	$14,073,811,996	0.6%	85.89%	4.34%	0.20%
Village Capital & Investment	28	22	↓	$13,503,207,617	0.6%	86.47%	9.38%	4.46%
MidFirst Bank	29	29	↔	$11,910,688,676	0.5%	86.99%	10.39%	5.64%
Sun West Mortgage.	30	NR	↑	$10,336,578,540	0.4%	87.44%	4.44%	0.19%

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

13 AGENCY NONBANK ORIGINATORS

Total agency nonbank origination share decreased as of month-end November 2023 by approximately 1.3% MoM. The decrease in nonbank origination share was driven by a decrease in both Freddie Mac and Ginnie Mae nonbank origination share, down 4.5% MoM and 0.3% MoM, respectively. The Ginnie Mae nonbank share fell to 90.7% as of November 2023 but has remained consistently higher than the GSEs, largely driven by origination share of refinance mortgage loans.

Figure 48. Agency Nonbank Originator Share (All, Purchase, Refi)

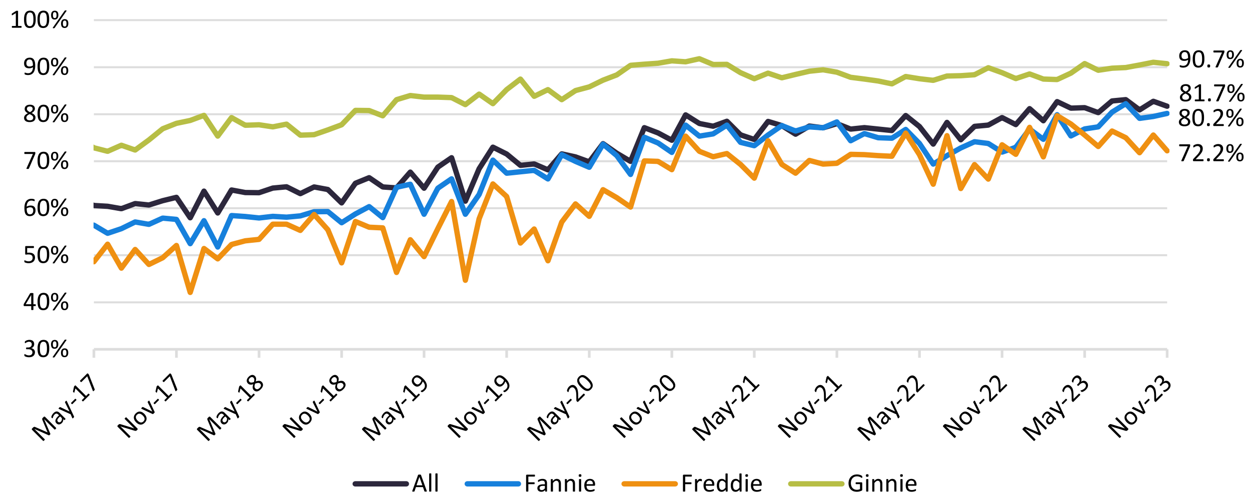


Figure 49. Nonbank Origination Share: Purchase Loans

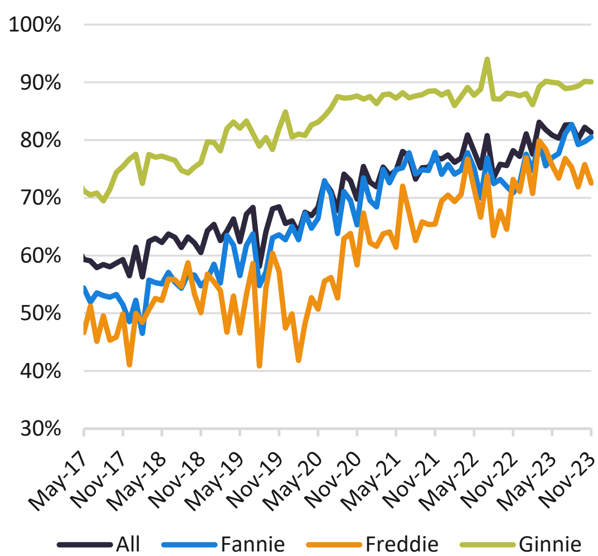
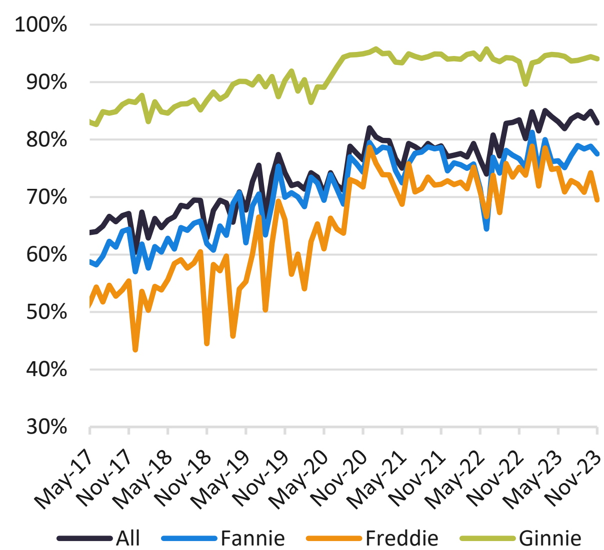


Figure 50. Nonbank Origination Share: Refi Loans



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

Ginnie Mae's total nonbank originator share remained relatively stable as of month-end November 2023. Ginnie Mae continues to have a high proportion of nonbank originations, with a rate of 90.7% in November 2023. The percentage of Ginnie Mae's "Other" nonbank refinanced loans decreased to 48.5% in November 2023.

Figure 51. Ginnie Mae Nonbank Originator Share (All, Purchase, Refi)

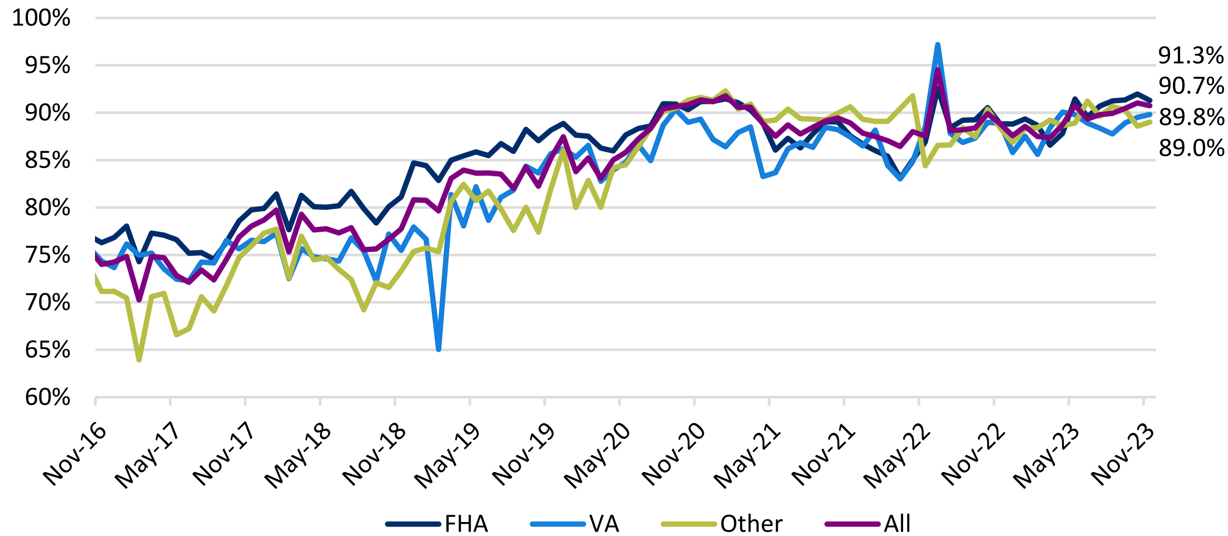


Figure 52. Ginnie Mae Nonbank Share: Purchase Loans

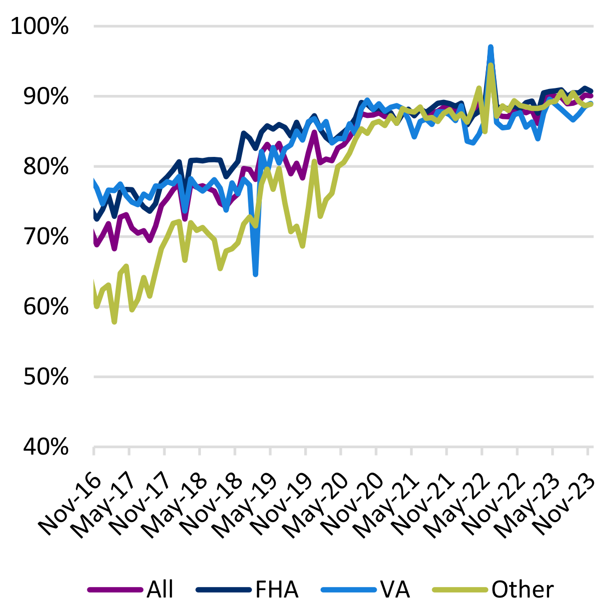
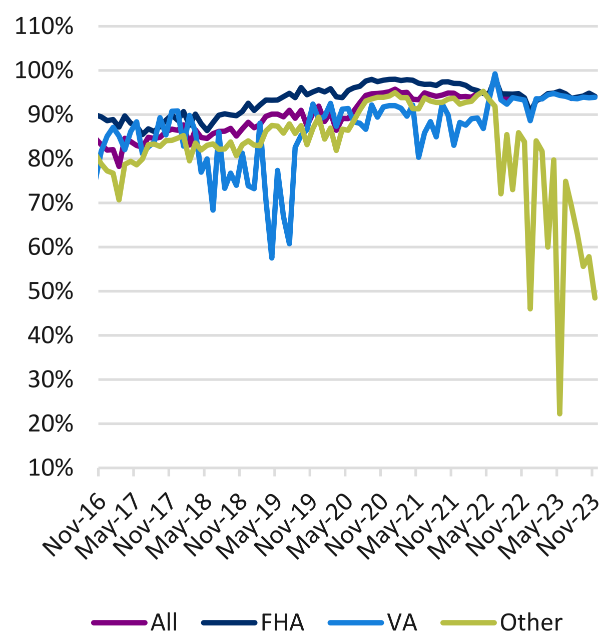


Figure 53. Ginnie Mae Nonbank Share: Refi Loans



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

14 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 decreased by 1 point from October 2023 to November 2023. The agency median FICO score remained at 737 in November 2023.

Figure 54. Agency FICO: Bank vs. Nonbank

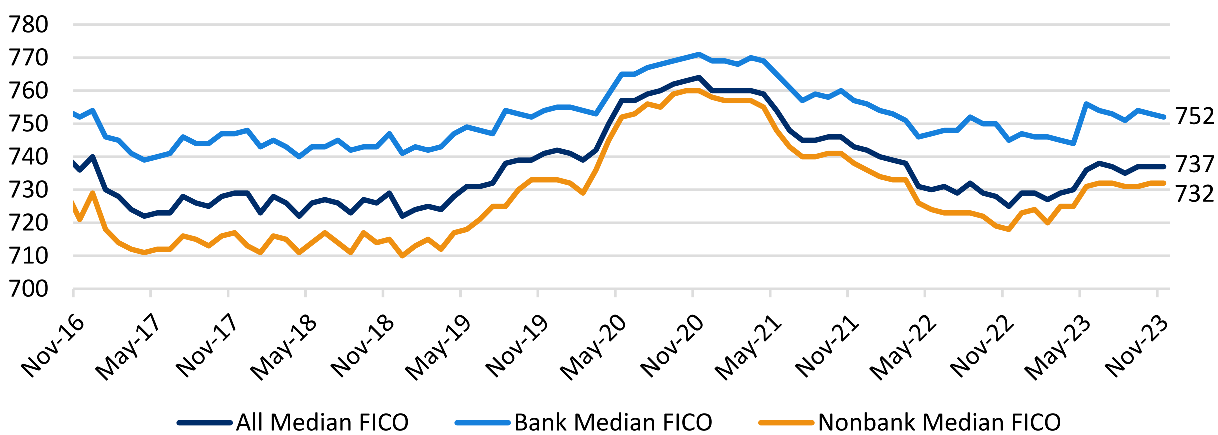


Figure 55. GSE FICO: Bank vs. Nonbank

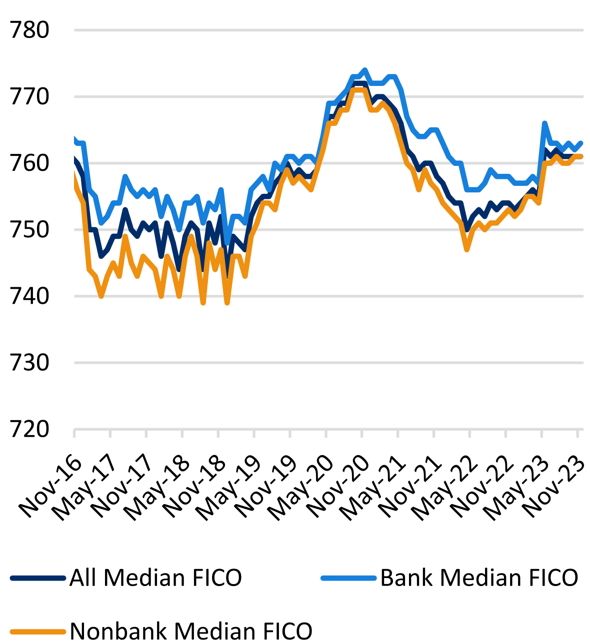
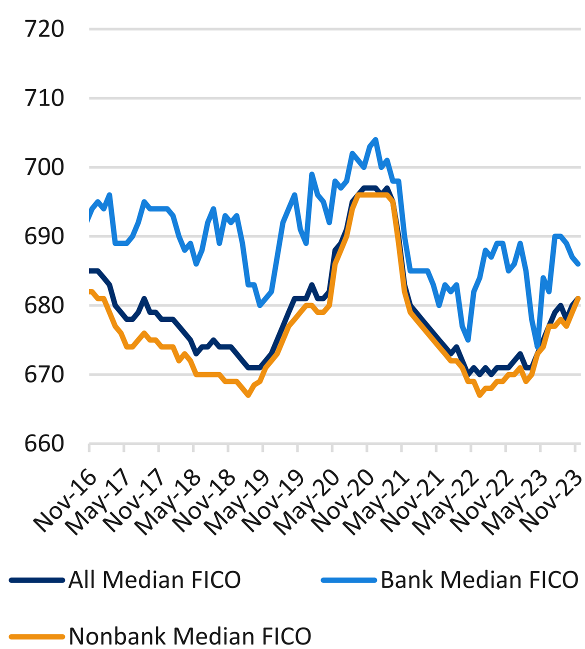


Figure 56. Ginnie Mae FICO: Bank vs. Nonbank



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

The median LTV for all GSE originators remained the same as of month-end November 2023 at 80%. Ginnie Mae median bank and nonbank LTV remained flat at 98.19%. Ginnie Mae median DTI increased to 45.8% through November 2023 in nonbank originations.

Figure 57. GSE LTV: Bank vs. Nonbank

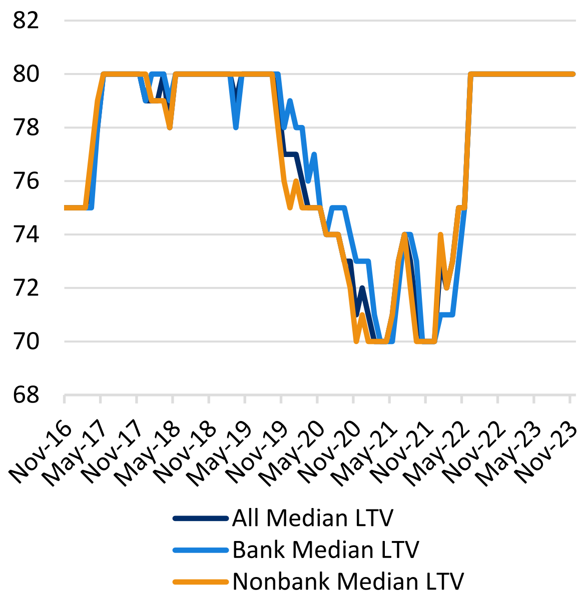


Figure 58. Ginnie Mae LTV: Bank vs. Nonbank

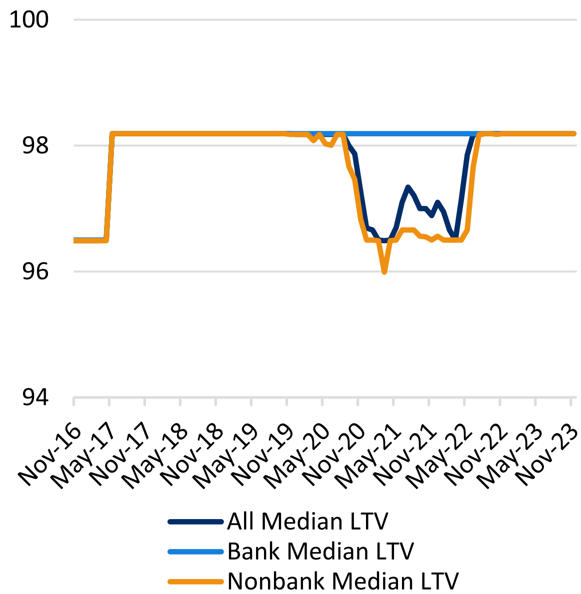


Figure 59. GSE DTI: Bank vs. Nonbank

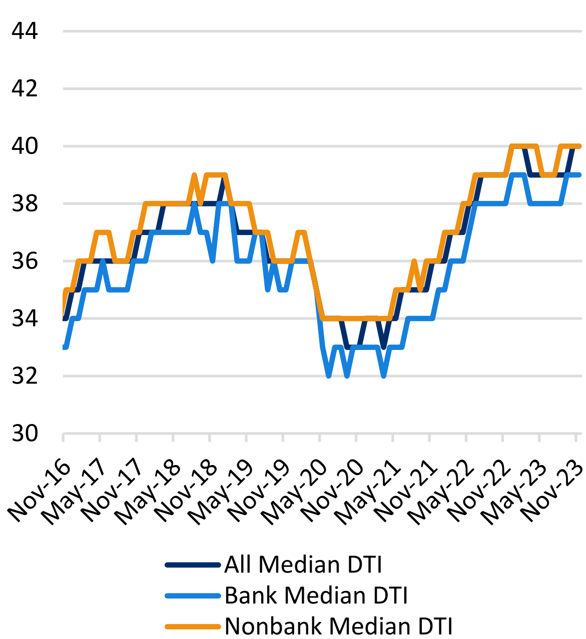
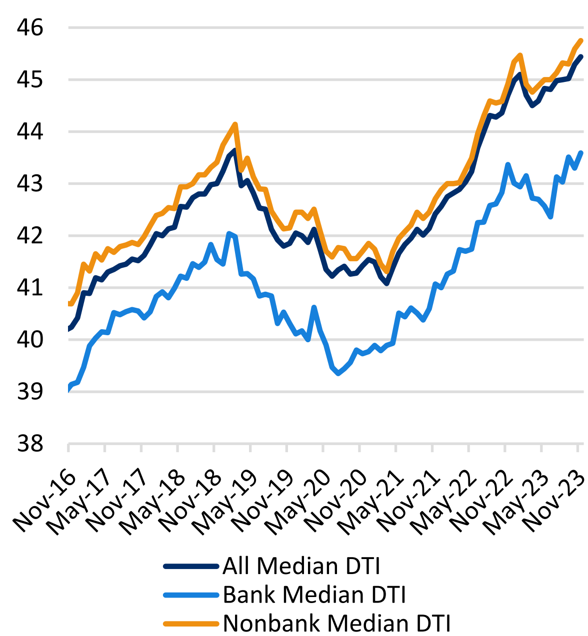


Figure 60. Ginnie Mae DTI: Bank vs. Nonbank



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

As of month-end November 2023, the median FICO score for Ginnie Mae bank decreased by 1 point to 686 and nonbank increased by 2 points to 681. The median FICO score for all Ginnie originations increased 1 point to 681. The gap between banks and nonbanks is most apparent in FHA lending (9-point spread).

Figure 61. Ginnie Mae FICO Score: Bank vs. Nonbank

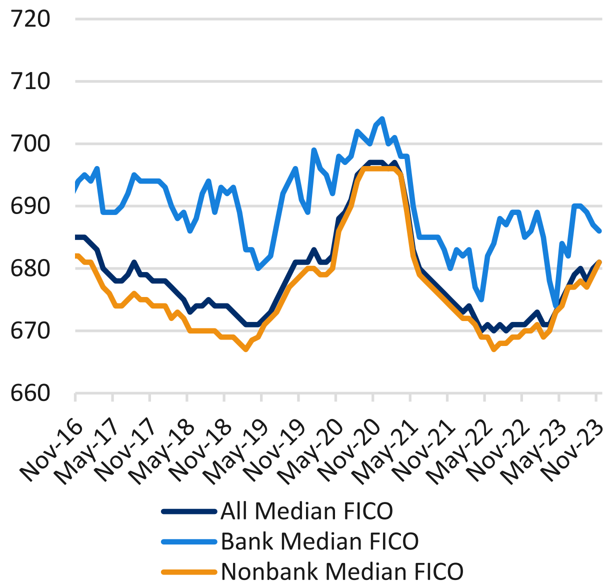


Figure 62. Ginnie Mae FHA FICO Score: Bank vs. Nonbank

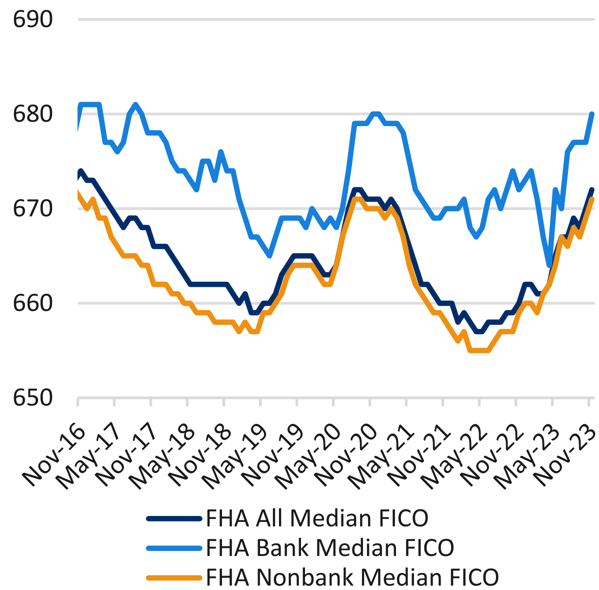


Figure 63. Ginnie Mae VA FICO Score: Bank vs. Nonbank

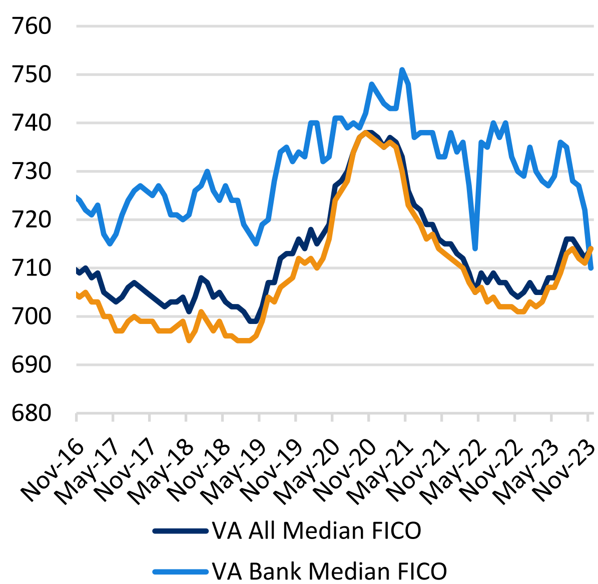
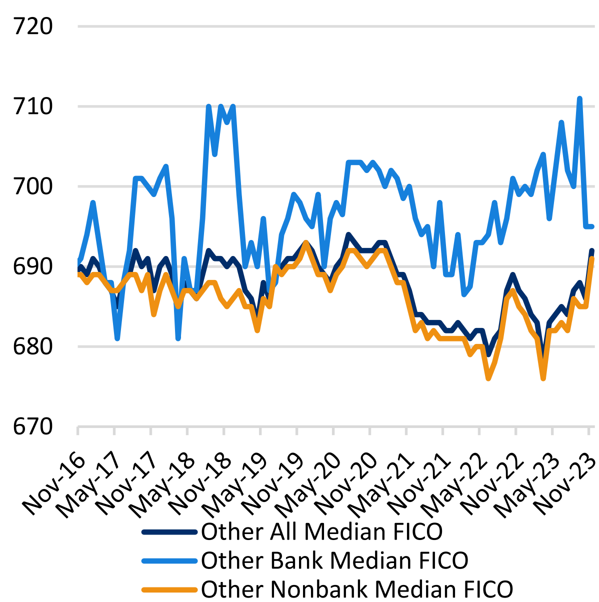


Figure 64. Ginnie Mae Other FICO Score: Bank vs. Nonbank



Source: Recursion. Notes: Data as of November 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 65. Ginnie Mae DTI: Bank vs. Nonbank

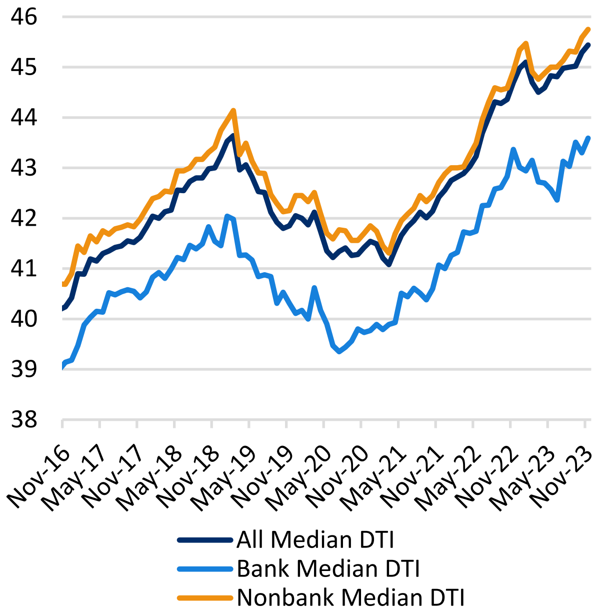


Figure 66. Ginnie Mae FHA DTI: Bank vs. Nonbank

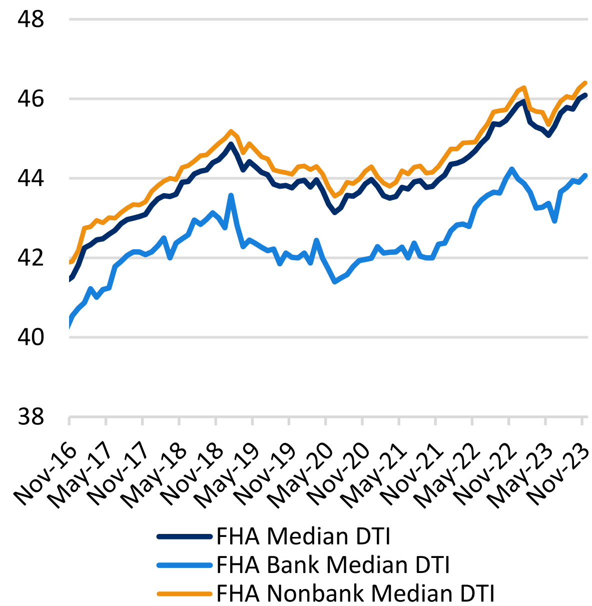


Figure 67. VA DTI: Bank vs. Nonbank

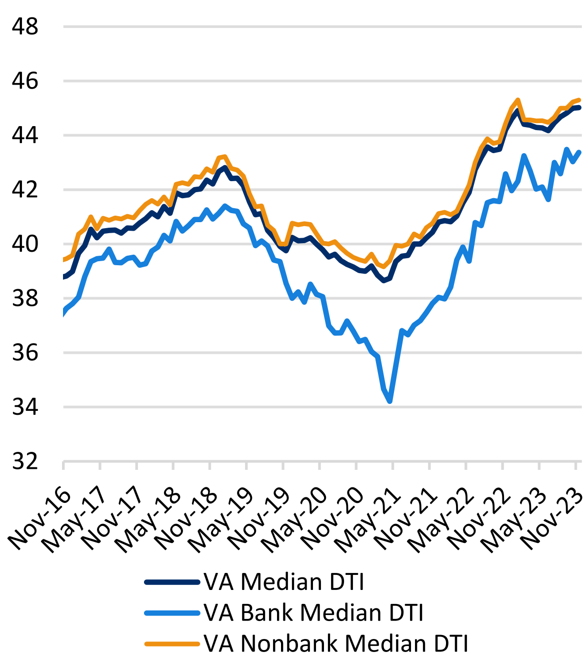
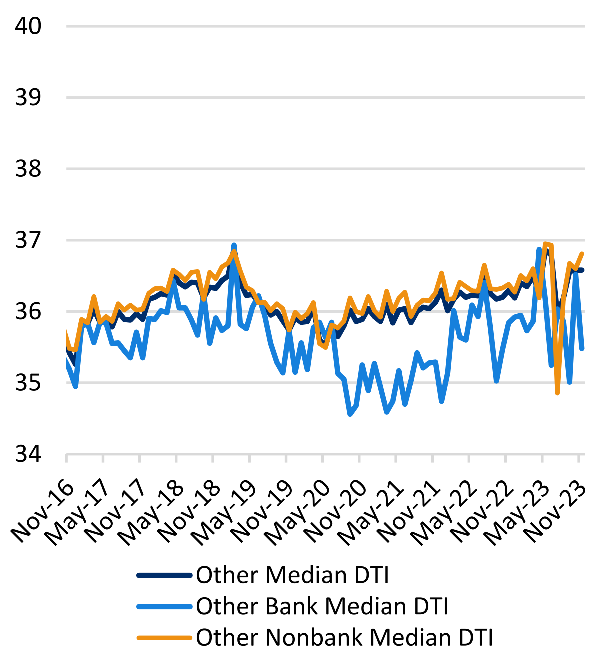


Figure 68. Other DTI: Bank vs. Nonbank



Source: Recursion. Notes: Data as of November 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.

- May 2021: LMI "Social" Disclosures (% of loans in LMI Areas)
- June 2021: Disclosures reveal approximately $259 billion of Outstanding Ginnie Mae MBS categorized as LMI area loans as defined by HUD's CDBG Program
- November 2021: Green "Environmental" Status Disclosures Announced identifies Green properties within Multifamily Pools.
- March 2022: Full implementation of Green Status Field into Multifamily Disclosures
- April 2022: Introduction of Affordable Status Disclosure for Multifamily properties
- February 2023: Low-Moderate Income Borrower (LMIB) Disclosure Announced
- September 2023: Social Bond Program Introduced
- December 2023: ESG Page Enhancement for Platinum Pool Search Results

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 (November 2023)

Ginnie Mae's ESG Metrics – MBS Portfolio as of November 2023

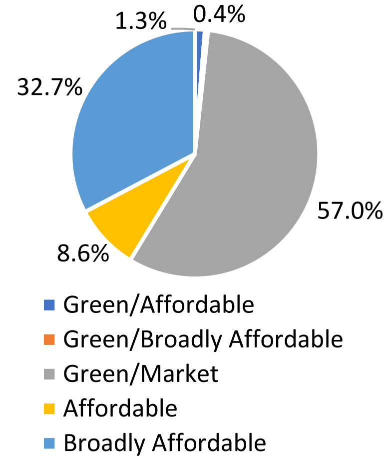
	Targeted Population	Positive Outcomes	Our Commitment	
Social - Affordable	FHA Borrowers – 6,856,490 VA Borrowers – 3,588,430 RHS Borrowers – 784,204 PIH Borrowers - 23,754	Loans under $200K 6,517,541 Loans First-Time Home Buyers 4,162,870 Loans Down Payment Assistance 695,754 Loans	Ginnie Mae was established 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)	3,212,310 Loans		Single Family
Social - Affordable	LMI Majority Census Tract Loans	1,730,738 Loans		Single Family
Social - Affordable	Borrowers Facing Difficulties	792,142 modifications with over 667,220 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	284,288 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)	1.314 million apartment homes 492,506 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	4,892 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	1,061,930,923	0.7%
Green/Broadly Affordable	343,633,240	0.2%
Green/Market	47,050,497,659	31.3%
Green Total	48,456,061,822	32.3%
Affordable[5]	7,069,623,603	4.7%
Broadly Affordable	26,996,464,254	18.0%
Affordable Total	35,471,652,020	23.6%
ESG Total	82,522,149,679	54.9%
Total	**150,241,790,734**	**100.0%**

Figure 69. 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 54.9% of Ginnie Mae's Multifamily collateral is considered ESG.

Sources: Ginnie Mae Disclosures as of November 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. In December 2023, Ginnie Mae added Low/Moderate Geographic Area Values and Low/Moderate Borrower Income Values to their Platinum pool securities including UPB amount and UPB percentage.

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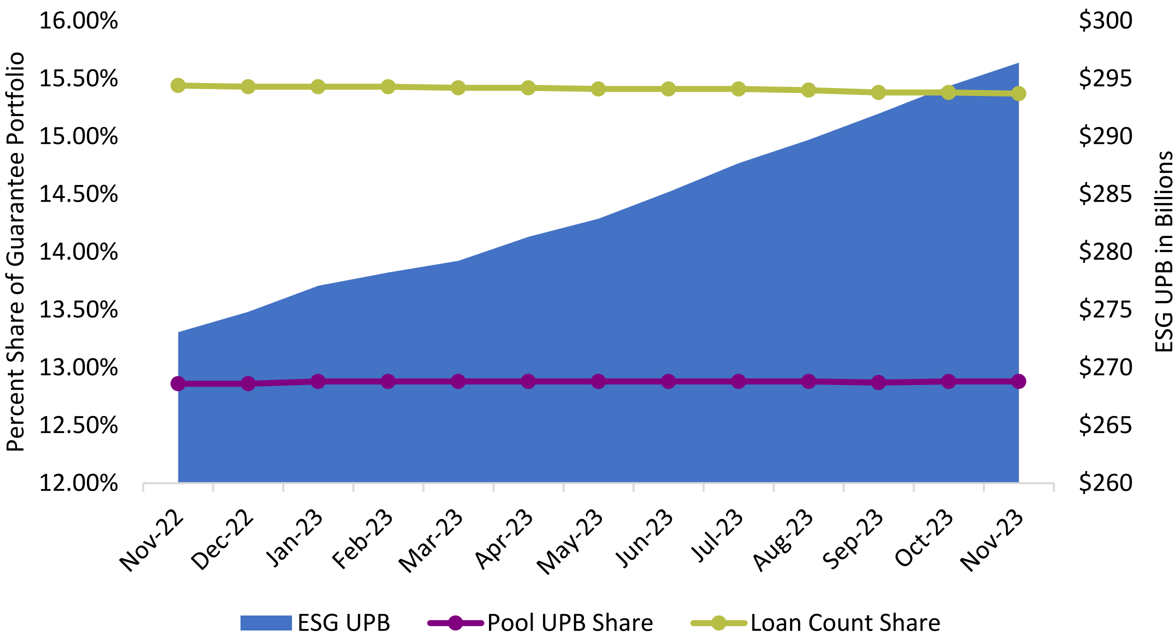
[5] *"Affordable" and "Broadly Affordable" removes "Green/Affordable" and "Green/Broadly Affordable" from the UPB total.*

15.3.1 Low-to-Moderate Income Borrowers

Over $296 billion of Ginnie Mae Single-Family collateral and over 1.7 million of loans outstanding have been issued too low to moderate income borrowers. Total ESG UPB increased by approximately $23 billion YoY.

Figure 70. ESG Share of the Outstanding SF Portfolio



Source: Ginnie Mae Disclosures as of November 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 91% of total UPB.

Table 31. Percent LMI by Pool Share

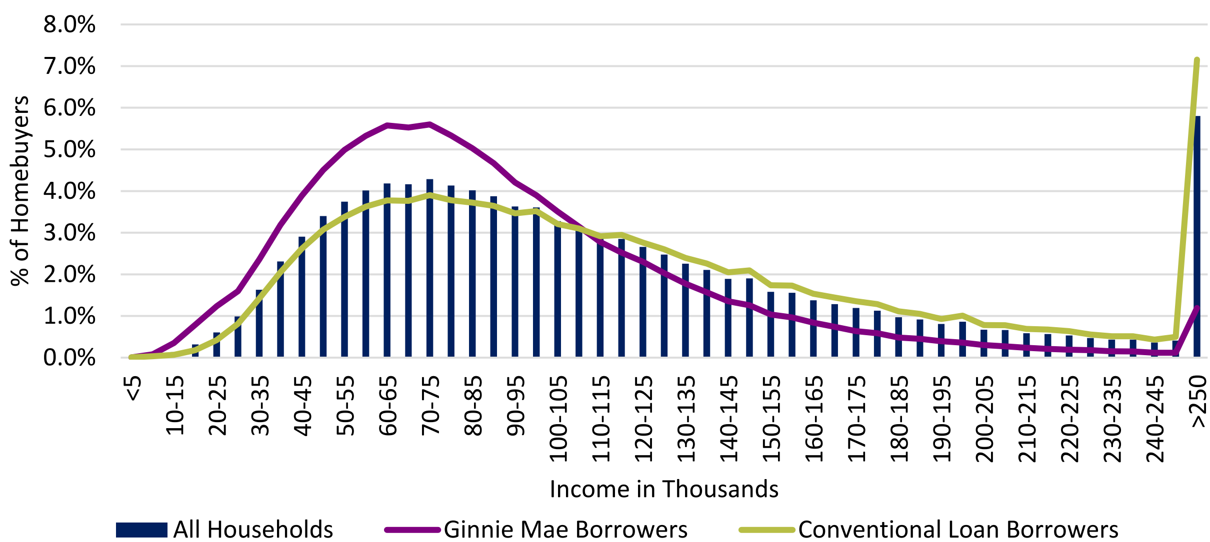
Metric	LMI Pool Share >50%	LMI Pool Share 20% - 50%	LMI Share < 20%	All Pools
Total UPB ($ billions)	$8.2	$199.8	$2,046.0	$2,253.9
Average Original Loan Size	$172,970	$190,907	$336,302	$322,824
Credit Score (Median)	674	675	679	677
DTI (Median)	40%	40%	40%	40%
LTV (Median)	97%	96%	95%	96%
Interest Rate (WA)	4.73%	4.55%	3.85%	3.92%

Source: Ginnie Mae Disclosures as of November 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 71. 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 Q3 2023. Notably, the East North Central, Middle Atlantic, South Atlantic, and New England regions all saw over a 2.00% increase QoQ. The West South Central region saw the smallest QoQ increase in HPI of 1.06%. The New England region has appreciated more than any other region over the past four quarters, appreciating by 9.21% from Q3 2022 to Q3 2023.

Figure 72. Regional HPI Trend Analysis Q/Q

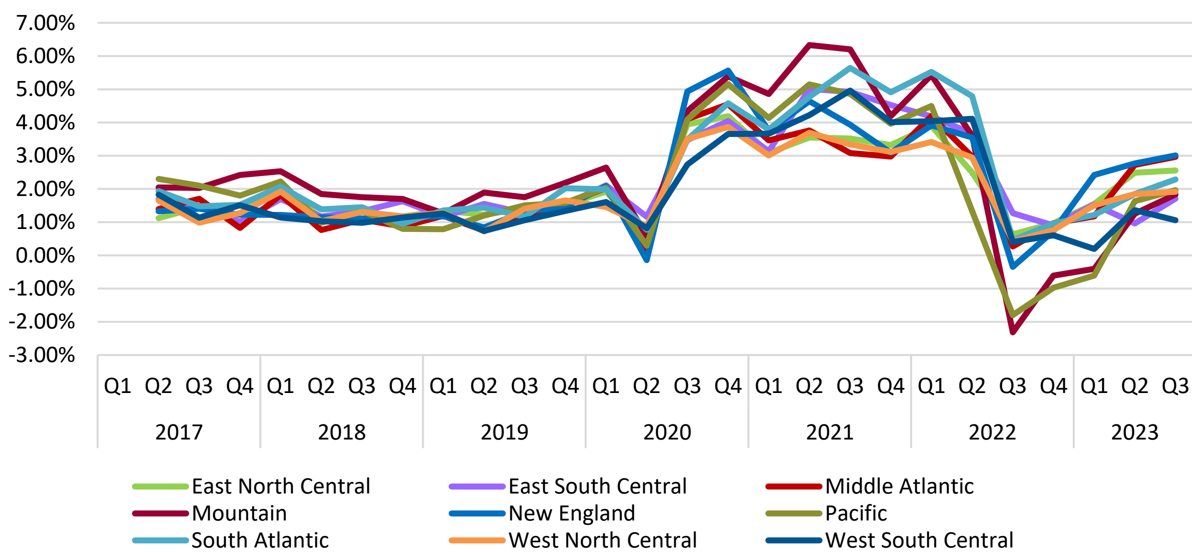
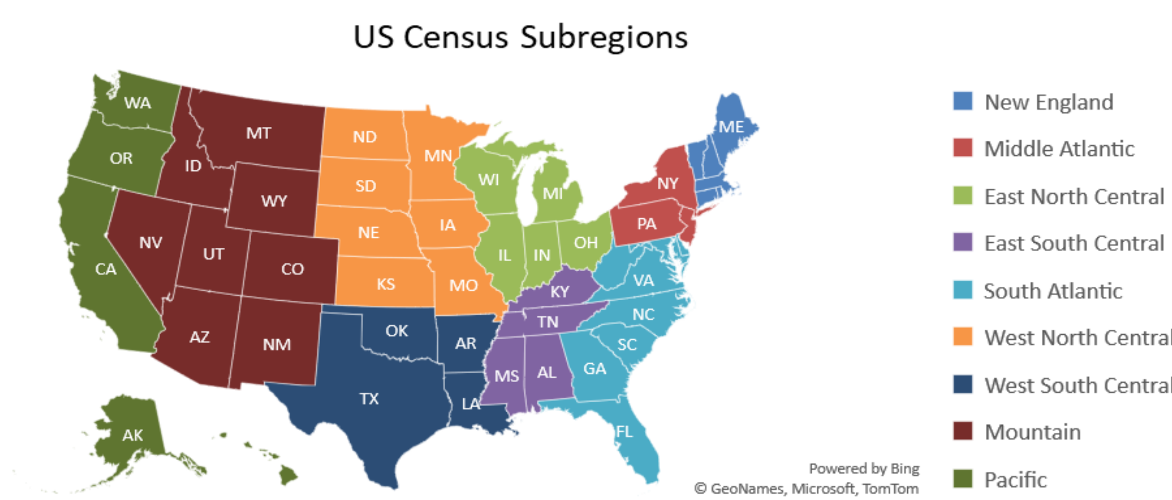


Figure 73. FHFA U.S. Census Subregions as defined by the U.S. Census Bureau



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 November 2023, inflation was 3.1%, decreasing from 3.2% in the month prior. Nationally, rents are down 2.1% YoY as of month-end November 2023. The MoM change in rents from October 2023 to November 2023 decreased by 0.6%. Wage growth saw no change from 5.2% in October 2023 to 5.2% as of month-end November 2023. Month-end September 2023 reporting data shows YoY home price appreciation increased by 3.9% from a 2.6% YoY change in August 2023.

Figure 74. Inflation | 12-Month Percent Change in CPI

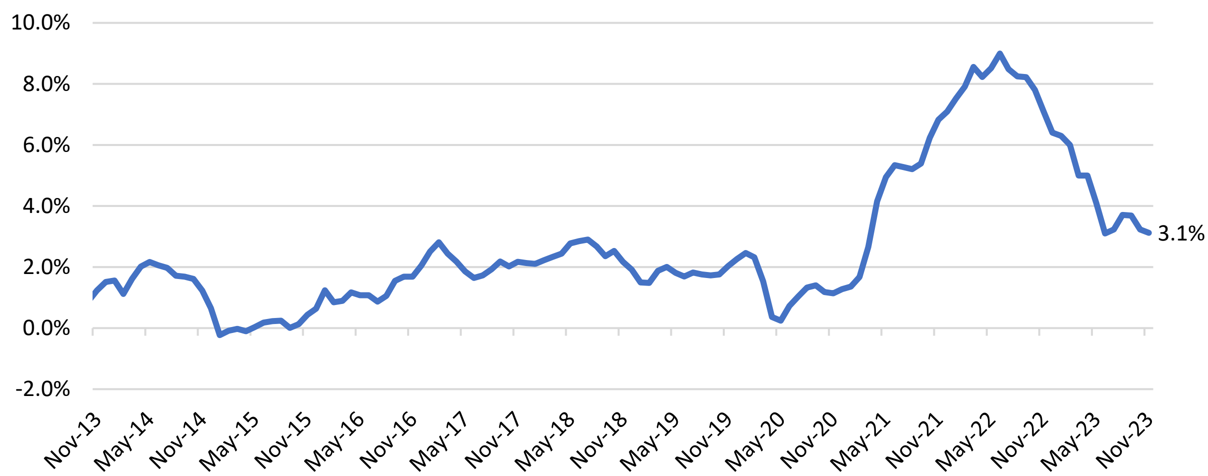
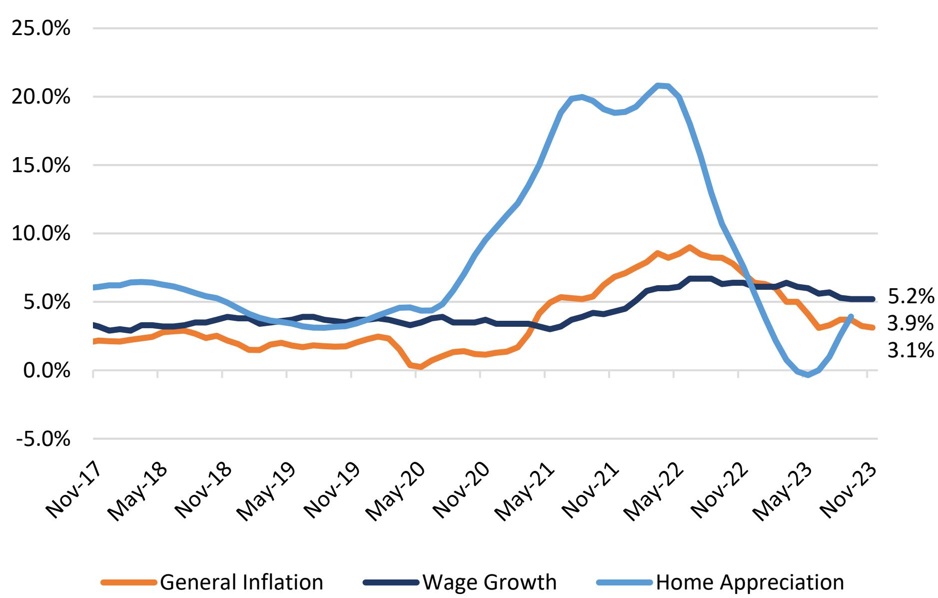


Figure 75. Asset Price Appreciation vs. Wage Increases

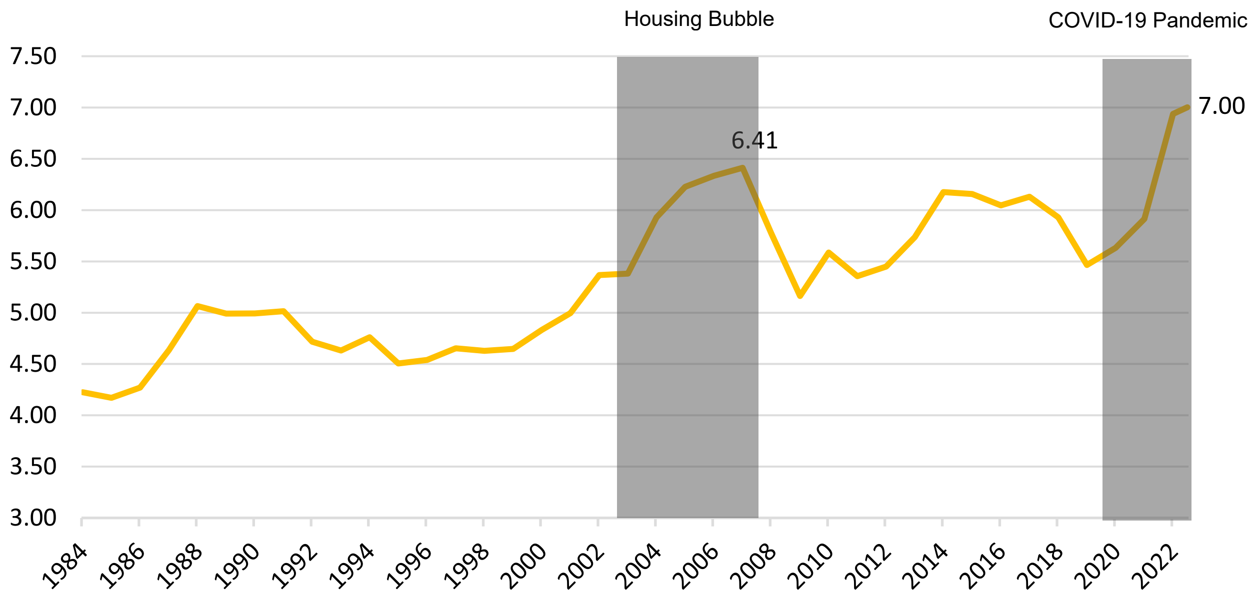


Metric	*Statistic*
General Inflation	*3.1%*
Home Price Appreciation *(YoY)*	*3.9%*
Rental Price Appreciation *(Median Rent Change YoY)*	*-2.1 %*
Wage Growth	*5.2%*

Sources: Bureau of Labor Statistics – Consumer Price Index; Federal Reserve Bank of Atlanta, Research and Data - 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 76. Average Price of Homes Sold to Median Income Ratio

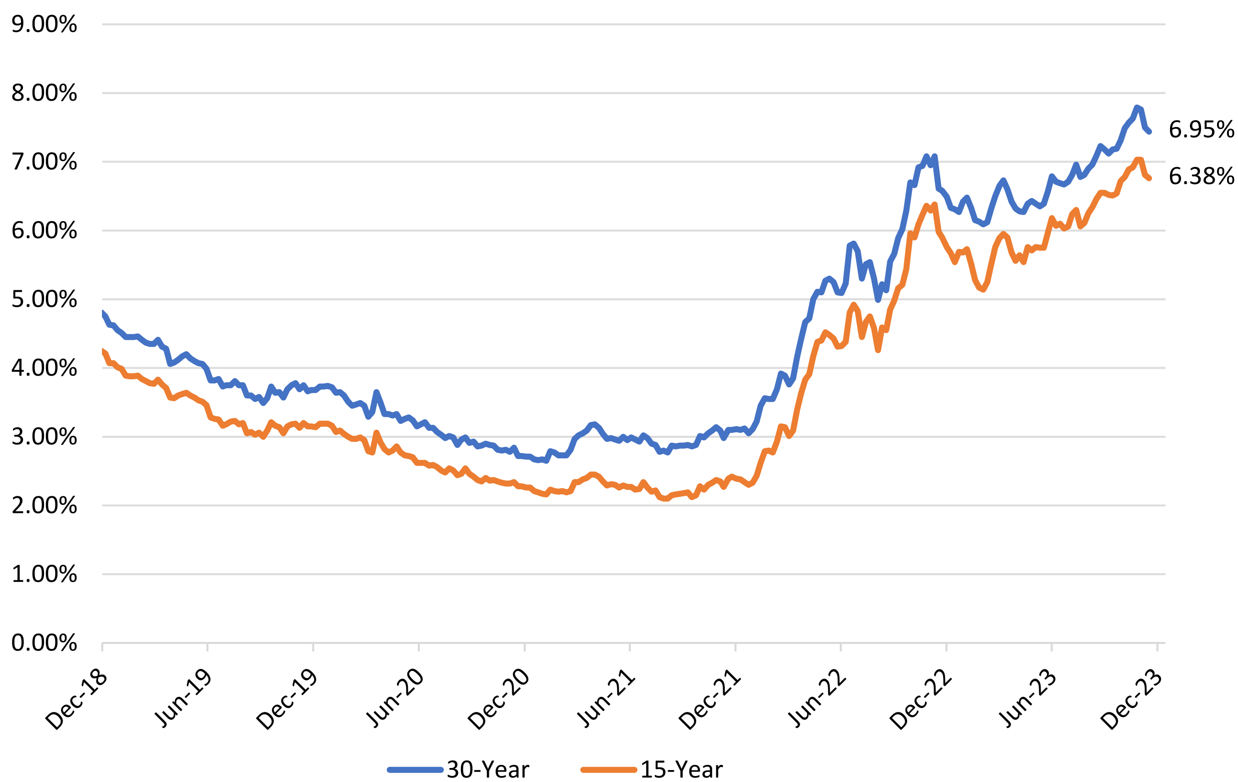


Source: FRED Average Home Sales Data, FRED Median Income Data

16.2.1 Housing Affordability – Mortgage Rate Trends

The Federal Reserve maintained the Federal Funds target range on December 13, 2023, at a range of 5.25% and 5.50% per the FOMC[6]. As of December 14, 2023, the average 30-year and 15-year fixed rate mortgage rates were 6.95% and 6.38%, respectively. The average 30-year fixed rate mortgage rate decreased 49 bps and the average 15-year fixed rate mortgage rate decreased 38 bps MoM from November 16, 2023.

Figure 77. Average Fixed Rate Mortgage Rates



Sources: FRED data as of December 2023

[6] *Federal Reserve Board - Federal Reserve issues FOMC statement*

16.3 Housing Inventory

As of November 2023, there was 9.2 months of housing inventory on the market, an increase of 1.3 months from a readjusted 7.9 months in October 2023. As housing affordability continues to remain low (See above Section 16.2) 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 79**, 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 78. Single-Family Housing Inventory

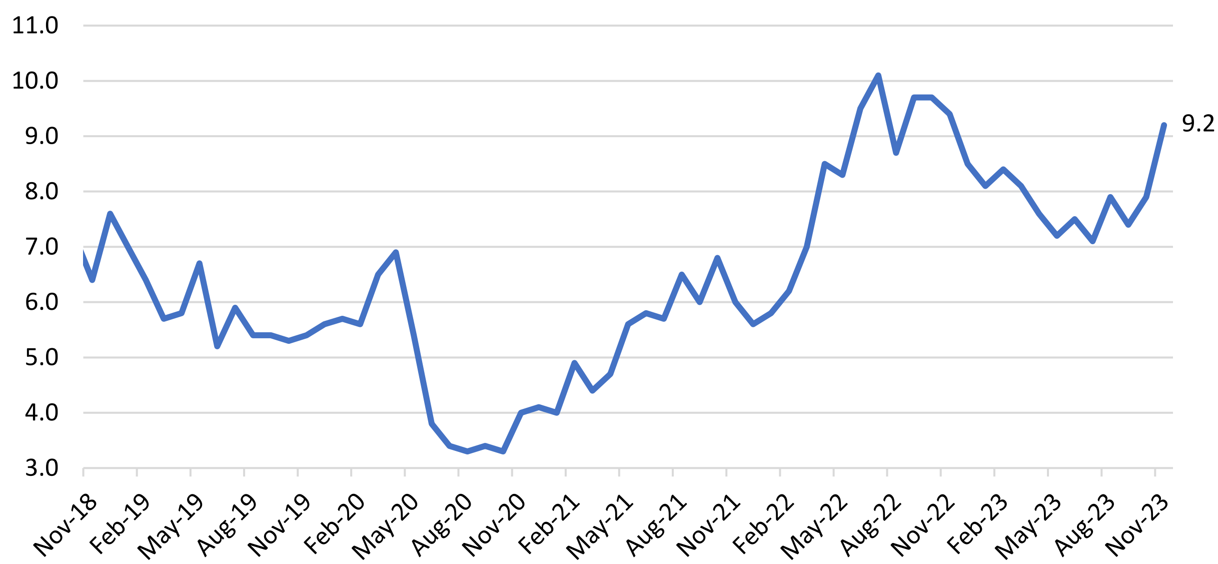
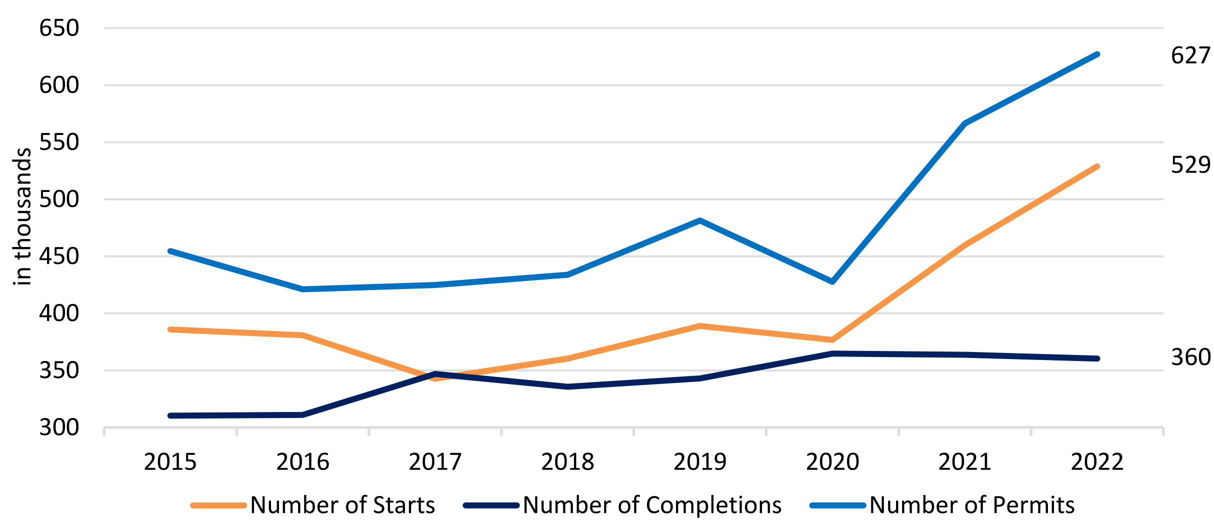


Figure 79. Multifamily Construction Metrics: Permits, Starts, Completions



Source: FRED. Figure 78: data as of November 2023. New Residential Construction, U.S. Census Bureau. Figure 79: 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 $45.5 trillion in Q3 2023. The total value of the US housing market is up approximately 139% from its trough in 2011. From Q3 2022 to Q3 2023 mortgage debt outstanding increased from $12.3 trillion to $12.9 trillion and household equity increased from $31.2 trillion to $32.6 trillion. At roughly $9.0 trillion in Q3 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 80. Value of the U.S. Housing Market

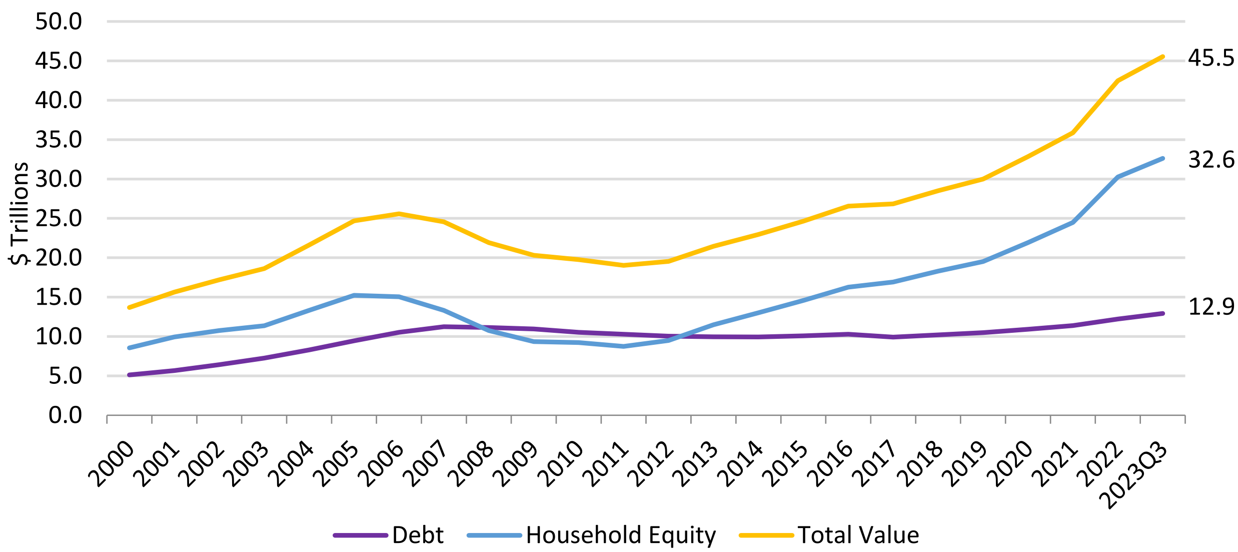
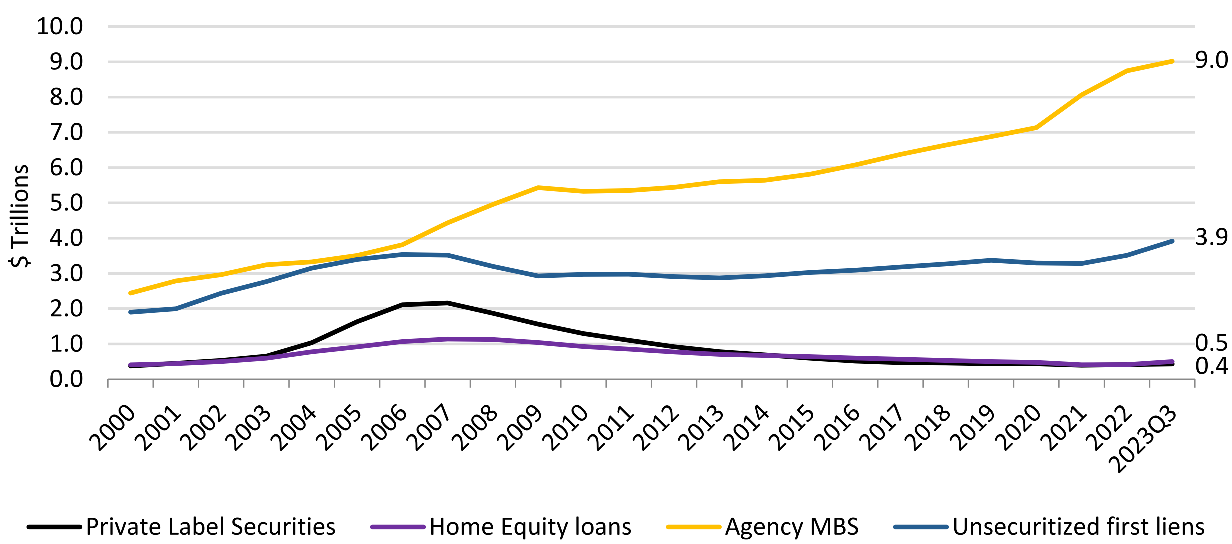


Figure 81. Size of the U.S. Residential Mortgage Market



Source: Federal Reserve Flow of Funds Data as of Q3 2023.

17 DISCLOSURE

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

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

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