

GLOBAL MARKETS ANALYSIS REPORT

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



July 2022

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

This month's *Highlights* section includes a discussion of the growth in MBS outstanding occurring in calendar year 2022. The section captures the difference between gross issuance and net issuance observed due to the prevalence of refinance activity during the low interest rate regime experienced during the COVID-19 Pandemic.

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

- Under the [Global Treasury Yield Per Duration](#) section, the yield vs. duration analysis is expanded to include a larger coupon stack to reflect new issuance and interest rates.
- The [Prepayments](#) section illustrates the convergence of Ginnie Mae aggregate prepayment rates to those of Fannie Mae and Freddie Mac (GSE) securities.
- The [Agency REMIC issuance](#) section is a new addition which captures the current upward trend in coupon rates for REMIC deals.
- In the [Agency Credit Breakdown](#) section, Ginnie Mae remains the leader in high-LTV lending because of a higher percentage of issuances with LTVs of 95 or above relative to the GSEs.
- In the [Agency Nonbank Originators](#) section, an increasing nonbank origination portion of refinance mortgage loans for Ginnie Mae has resulted in a comparatively higher nonbank origination share.
- Throughout the [U.S. Housing Market](#) section, the data details a lack of affordability within the housing market due to factors that include increasing home prices, rising inflation that is outpacing wage growth.

Highlights

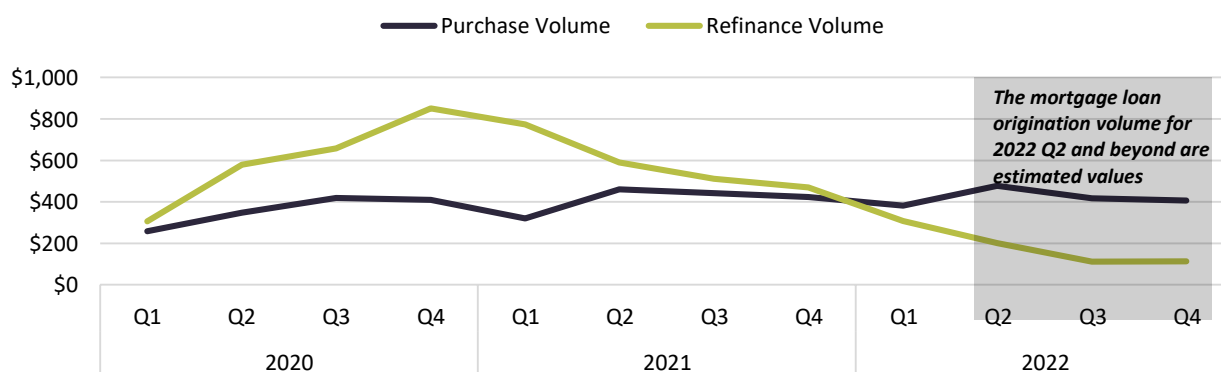
Ginnie Mae net issuance of MBS through the first six months of calendar year 2022 is \$64.1 billion of unpaid principal balance. This represents a \$70 billion increase compared to the same period in calendar year 2021, when net issuance was -\$5.9 billion.

According to the Congressional Budget Office, “The total dollar value of outstanding MBSs grows each year by net issuance, which is the difference between the amount of new MBSs issued in a year and the amount of previously issued MBSs repaid during that year. The gap between annual new issuance and net issuance depends mainly on the refinancing of outstanding mortgages. That gap is small in years with little refinancing and large in years with a great deal of refinancing. For example, with the surge in refinancing in calendar year 2020 that resulted from low interest rates, new issuance of Ginnie Mae–guaranteed MBSs exceeded \$775 billion, but net issuance declined by about \$14 billion. The result was a small decrease in the total value of outstanding Ginnie Mae–guaranteed MBSs between the end of December 2019 and the end of December 2020.”¹

As displayed in **Figure 1**, Refinance volume outpaced purchase volume throughout 2021 but decreased below purchase volume in the first quarter of 2022. In 2021, Ginnie Mae MBS net issuance was just \$2.7 billion; its lowest annual level since 2006. This represented an 86% decline in net issuance compared to 2020.

Factors that contributed to the decline in net issuance in 2021 include increased involuntary prepayments through early buyouts of delinquent loans, increased voluntary prepayments in a declining rate environment, and refinance volume outpacing purchase volume in the originations market.

Figure 1. Mortgage Bankers Association Purchase & Refinance Origination Volume (in \$ billions)²



As interest rates have risen in 2022 and home prices continue to rise, purchase volume has begun outpacing refinance volume. Additionally, as forbearance levels decline, both involuntary and

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

² https://www.mba.org/docs/default-source/research-and-forecasts/forecasts/mortgage-finance-forecast-june-2022.pdf?sfvrsn=e3eb1d80_1

voluntary prepayment rates are declining. A combination of these factors has led to the increase in Ginnie Mae MBS net issuance through the first six months of 2022. **Figure 2**, below, details the quarterly Ginnie Mae gross and net issuance trend since the first quarter of 2018. Market participants expect interest rates to continue to rise and the Mortgage Bankers Association forecasts that purchase volume will continue to outpace refinance volume throughout 2022 and into 2023.

Figure 2. Ginnie Mae Gross versus Net Issuance (in \$ billions)³

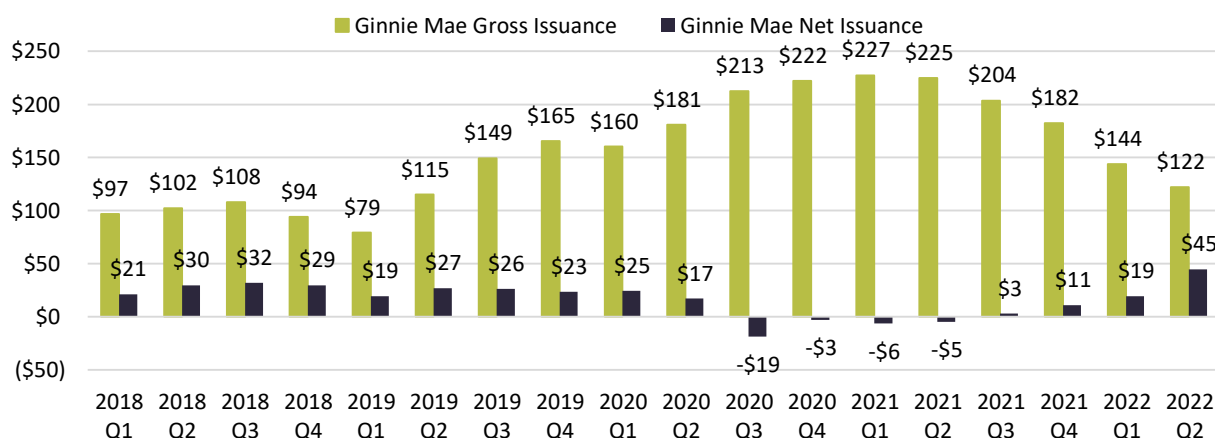
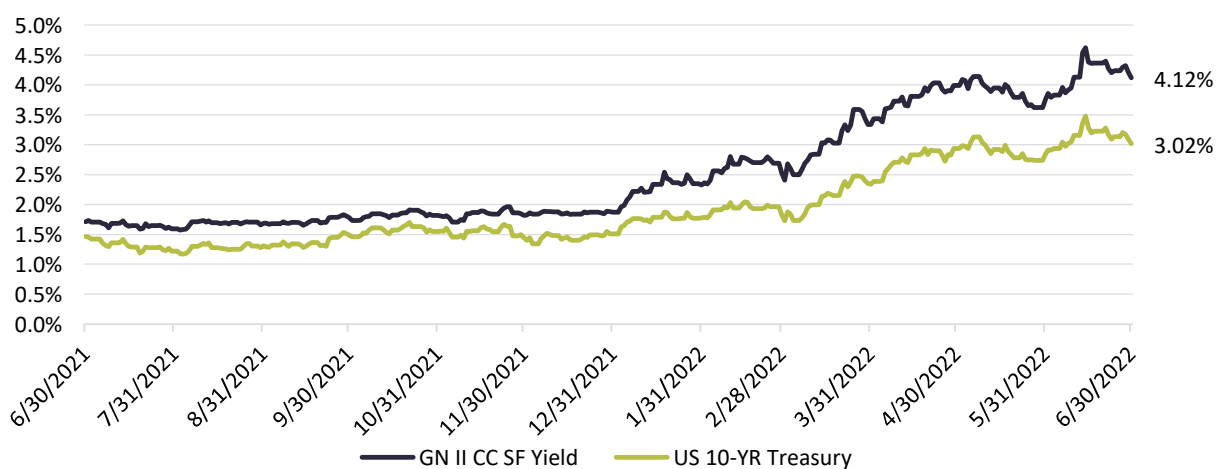


Figure 3 below displays changes to the spread between Ginnie Mae II Single Family MBS and US 10-year Treasury securities as net MBS issuance increased in 2022. In June 2021 the spread between these two securities was just 14 basis points. The spread hit a high of 116 basis points on April 26, 2022, declined slightly to 85 basis points in early June and rebounded to 112 as of June 30, 2022.

Figure 3. Ginnie Mae II Single Family Index versus US Treasury 10-Yr Yields⁴



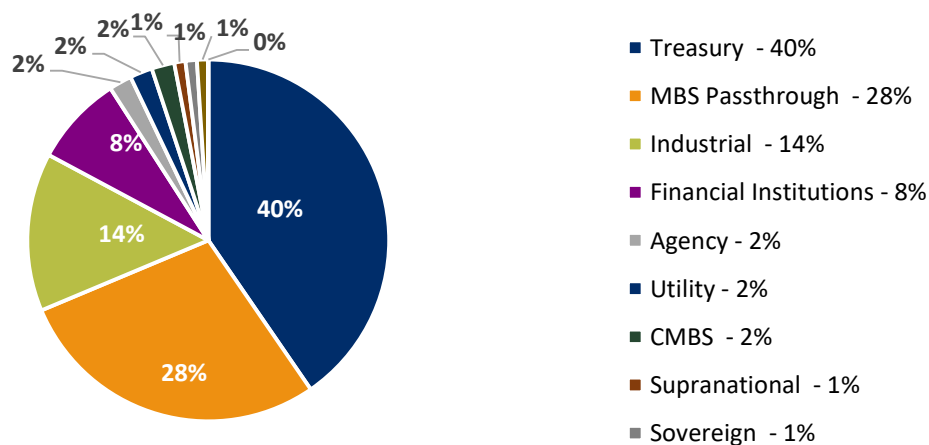
³ Data sourced from Recursion

⁴ Data sourced from Bloomberg

1 US AGGREGATE AND GLOBAL INDICES

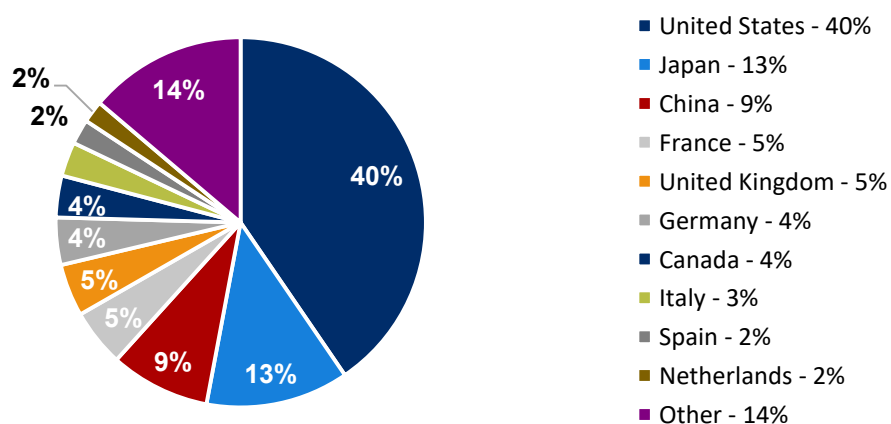
1.1 Bloomberg US Aggregate and Global Indices

Figure 4. Bloomberg US Aggregate Index.



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

Figure 5. Bloomberg Global Aggregate Index by Country.



In the Bloomberg Global Aggregate Index by Country, the US share of fixed income remains the largest share of total outstanding issuance, representing approximately 40% of the total Barclays Global Aggregate Index. All categories remained stable when compared to the prior month.

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

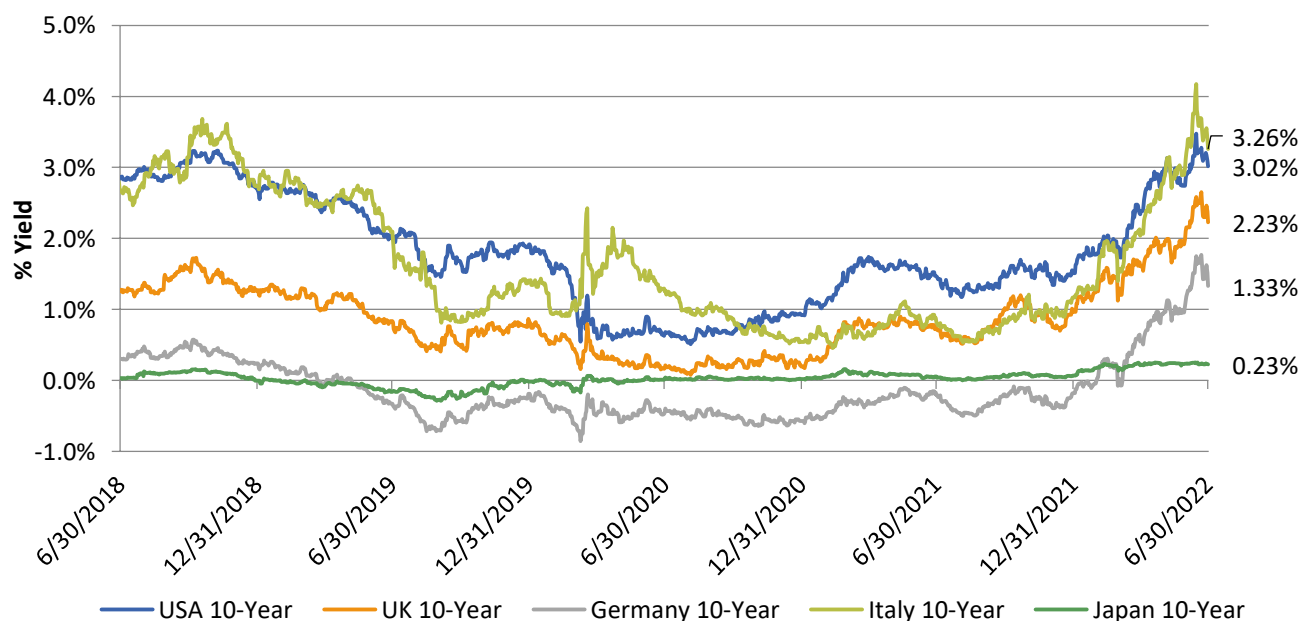
2 SOVEREIGN DEBT PRODUCT PERFORMANCE COMPARISONS

2.1 Global 10-Year Treasury Yields (Unhedged)

The US 10-year Treasury yield moved to 3.02% at month end June 2022, a MoM increase of 17 bps. US Treasury yields are the second highest of all the government treasury yields depicted in the figure below, behind Italian Treasury yields.

- The yield on the UK 10-year government notes increased to 2.23% at month-end May, a MoM increase of 13 bps.
- The yield on the German 10-year note increased to 1.33% at month-end May, a MoM increase of 21 bps.
- The yield on the Italian 10-year note increased to 3.26% at month-end May, a MoM increase of 14 bps.
- The yield on the Japanese 10-year government notes decreased to 0.23% at month-end May, a MoM decrease of 1 bp.

Figure 6. Global 10-Year Treasury Yields.



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

2.2 US Treasury Hedged Yields

- The hedged yield for the 10-year Treasury JPY decreased MoM 3 bps to 2.31% at month-end June.
- The hedged yield for the 10-year Treasury EUR increased MoM 2 bps to 1.32% at month-end June.

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

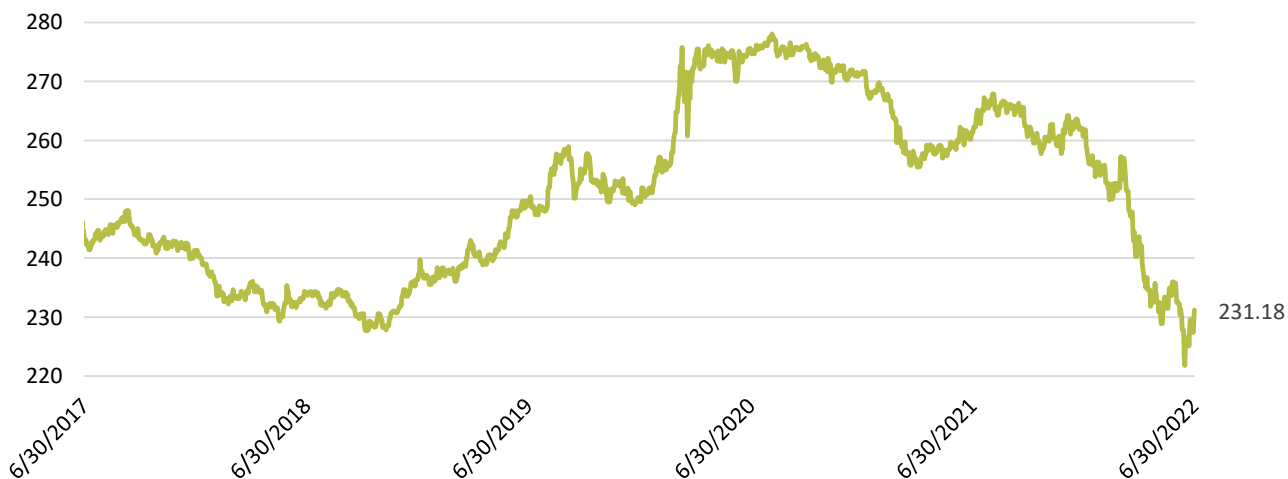


Figure 8. 7–10yr Total Return Hedged, EUR.



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

SECONDARY MORTGAGE MARKET

3 FIXED INCOME PRODUCT PERFORMANCE COMPARISONS

3.1 Ginnie Mae Yields – USD

Ginnie Mae fixed rate MBS yields increased MoM in June 2022. Ginnie Mae II yields were at 3.76% at month end May, down by 23 bps MoM, but have rebounded to 4.12% at month-end June. Ginnie Mae I yields were at 3.72%, down by 17 bps MoM, but have similarly rebounded 36 bps to 4.08%. Over the past year, Ginnie Mae spreads over the 10-year Treasury yields have widened. Ginnie Mae II spreads over the US 10-year Treasury yield, just 24 bps at month end June 2021, had increased 86 bps to 110 bps over the US 10-year Treasury yield at month end June 2022. The yields on the Ginnie Mae I SF were 106 bps higher than the US 10-year Treasury yield at month end June, an increase in spread of 19 bps MoM and 64 YoY.

Figure 9. Ginnie Mae II SF Yield, USD



Figure 10. Ginnie Mae I SF Yield, USD



Sources Bloomberg. Note: Data as of June 2022

3.2 Ginnie Mae Yield Spreads – Intermediate Credit

The yield differential between US Intermediate Credit and GNMA II 30-year OAS increased by 7 bps to 0.77% at month end June. The Ginnie Mae II 30-year OAS increased 24 bps MoM. The US Intermediate credit OAS has increased 17 bps MoM.

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

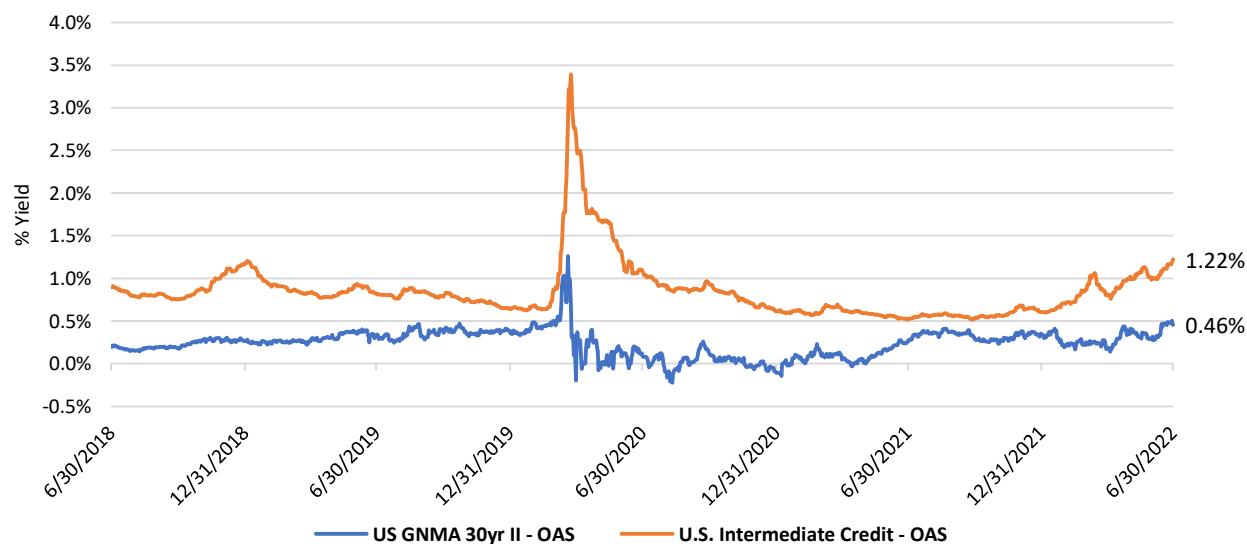


Figure 12. Spread between US Intermediate Credit and US GNMA II 30yr MBS OAS.

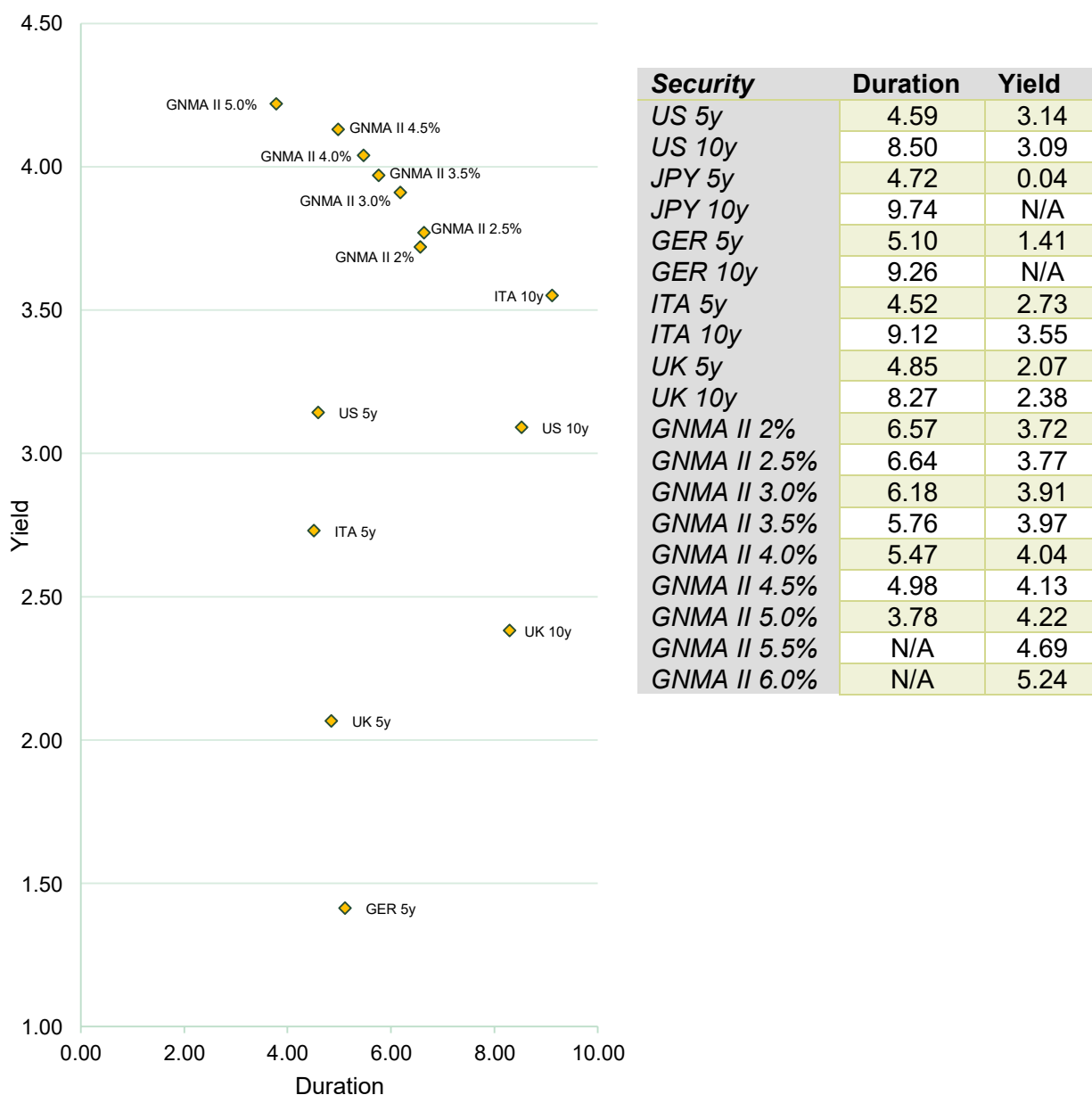


Source: Bloomberg. Note: Data as of June 2022.

3.3 Global Treasury Yield Per Duration

GNMA MBS continue to offer a higher yield in comparison to other government fixed income securities of various tenors with similar or longer duration. Prepayment risk is a feature of MBS. In June, the GNMA II 2.5% securities duration increased MoM by 0.5 units and yield increased MoM by 31 bps. In June, the GNMA II 5% securities duration increased MoM by 0.11 units and yield increased MoM by 11 bps.

Figure 13. Yield vs. Duration.



Source: Bloomberg. Note: Yield and modified duration for GNMA II securities is from illustrative TBA using base prepayment assumptions. All other data is as of June 2022. Yields are in base currency of security and unhedged. "N/As" are shown where a security had no listed value on the end-of-month as-of date.

4 PREPAYMENTS

4.1 Aggregate Prepayments (CPR)

Fixed rate aggregate prepayment speeds decreased for each of the Agencies in June, driven primarily by lower voluntary prepayment rates ([see below on Voluntary Prepayments](#)). Fannie Mae and Freddie Mac CPRs have dropped by 4.8% and 1.7% MoM to 9.3 and 9.1 CPR, respectively. ARM prepayments have dropped significantly also, due to decreased refinance activity in the current higher interest rate environment.

Figure 14. Fixed Rate Aggregate 1-Month CPR.

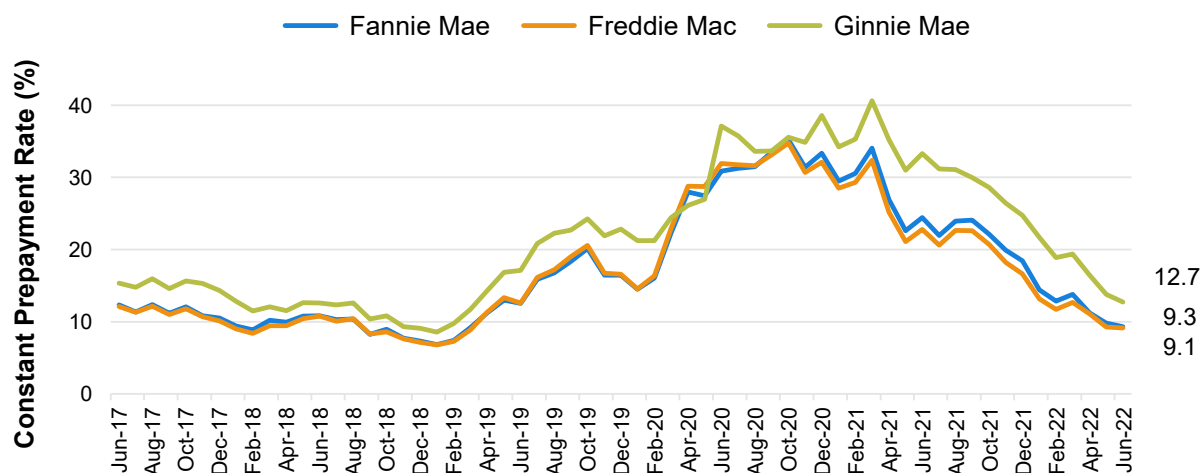
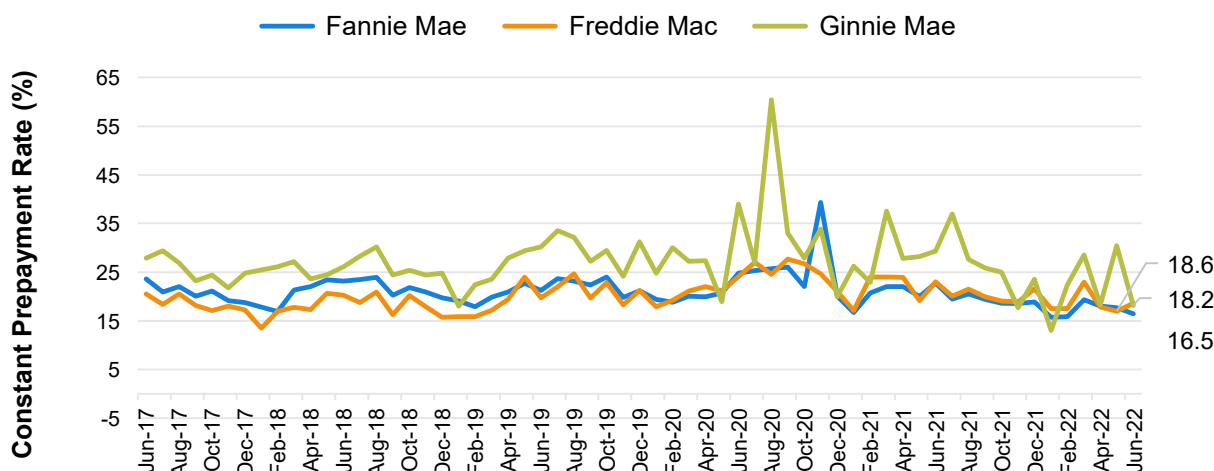


Figure 15. ARM Aggregate 1-Month CPR.



Source: Recursion, Note: Data as of June 2022

4.2 Involuntary Prepayments (CDR)

Fixed rate involuntary prepayments (CDR) remain higher for Ginnie Mae than for the GSEs. The spread in prepayment speeds between Ginnie Mae's and GSE prepayments has converged significantly since Ginnie Mae's CDR peak of 8.1 CDR in July 2020. ARM CDRs for Ginnie's are also typically higher than those of the GSEs, due to the lower credit quality of the Ginnie Mae loans, although current ARM CDRs for Ginnie Mae's are equal to those of Freddie Mac ARM MBS (1.5 CDR for Freddie Mac vs. 1.5 CDR for Ginnie Mae).

Figure 16. Fixed Rate Aggregate CDR.

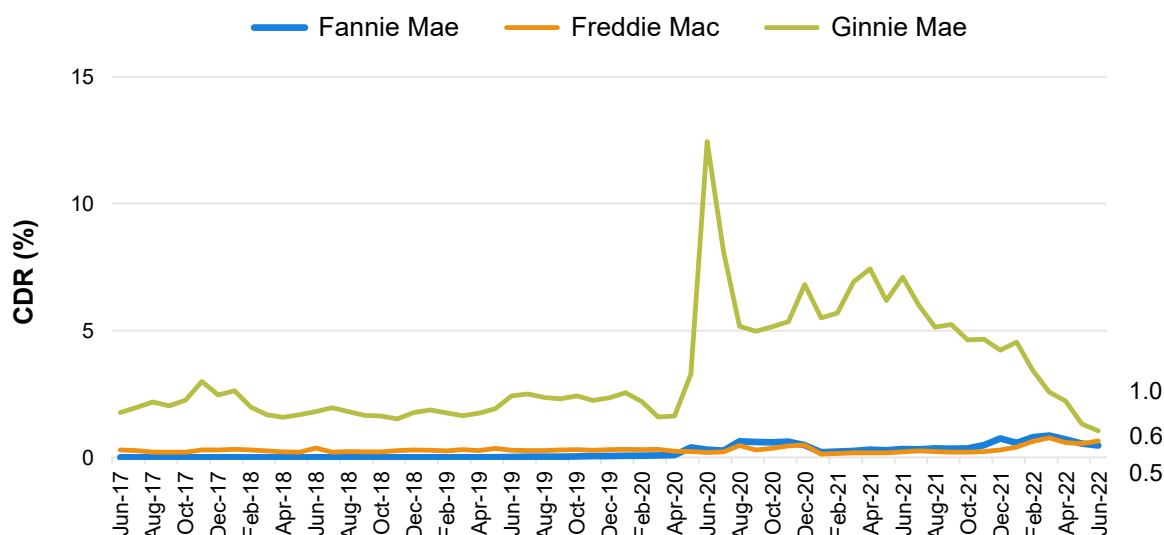
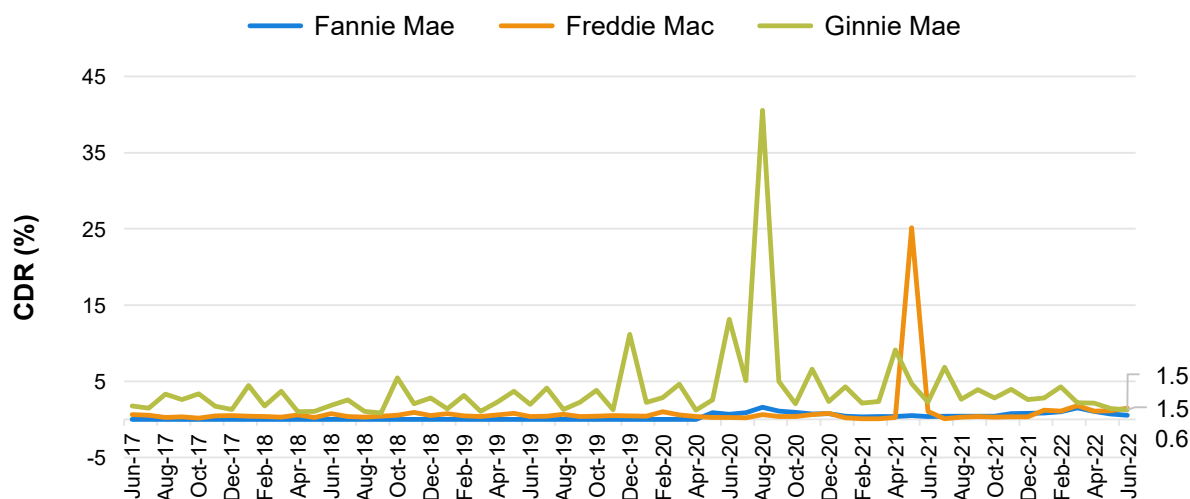


Figure 17. ARM Aggregate CDR.



Source: Recursion, Note: Data as of June 2022

4.3 Voluntary Prepayment Rates (CRR)

Voluntary prepayments (CRR) are higher for Ginnie Mae compared to the GSEs. In the current environment of rising interest rates and prices ([see section on Housing Affordability - Mortgage Rate Trends](#)), voluntary prepayments are facing downward pressure from homeowners' diminished incentive to refinance into higher rate mortgages, and upward pressure from homeowners' increased incentive to cash-out or trade-up using their growing home equity as purchase capital. As such the direction and magnitude of changes in voluntary prepayment rates is currently very challenging to anticipate.

Figure 18. Fixed Rate Aggregate CRR.

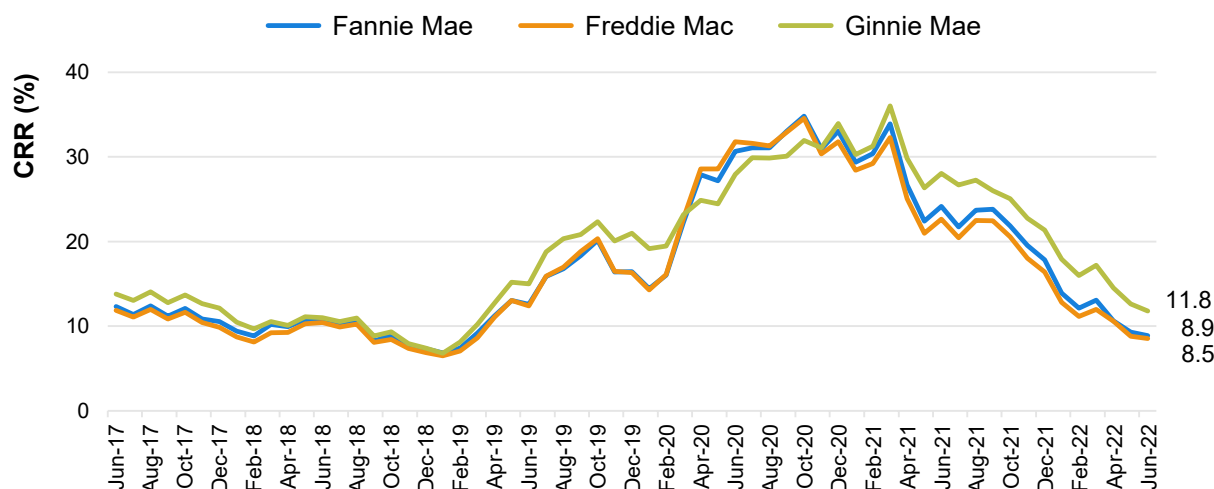
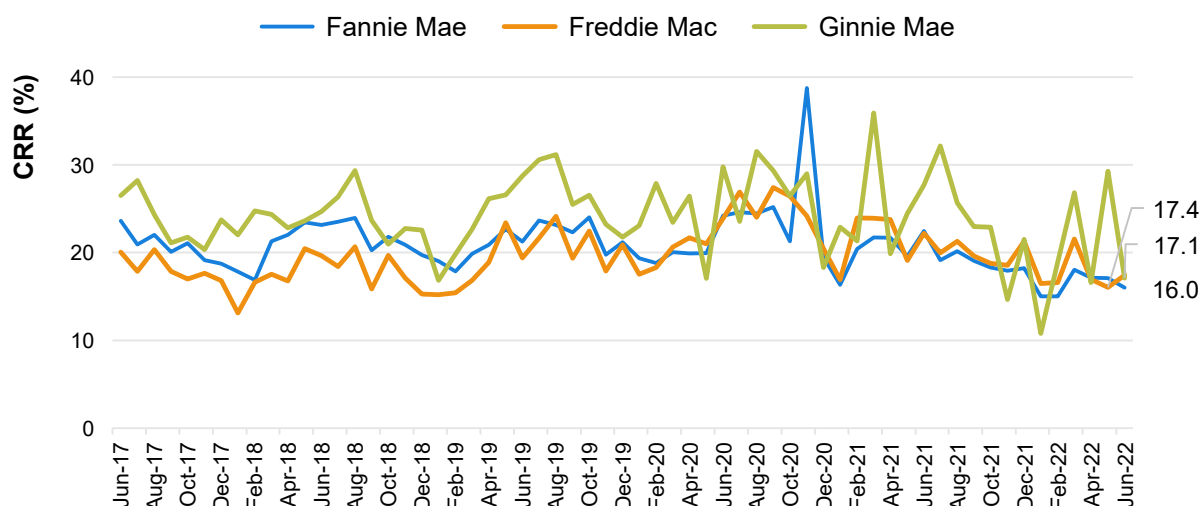


Figure 19. ARM Aggregate CRR.



Source: Recursion, Note: Data as of June 2022

5 SINGLE-FAMILY MBS PASS-THROUGH ISSUANCE

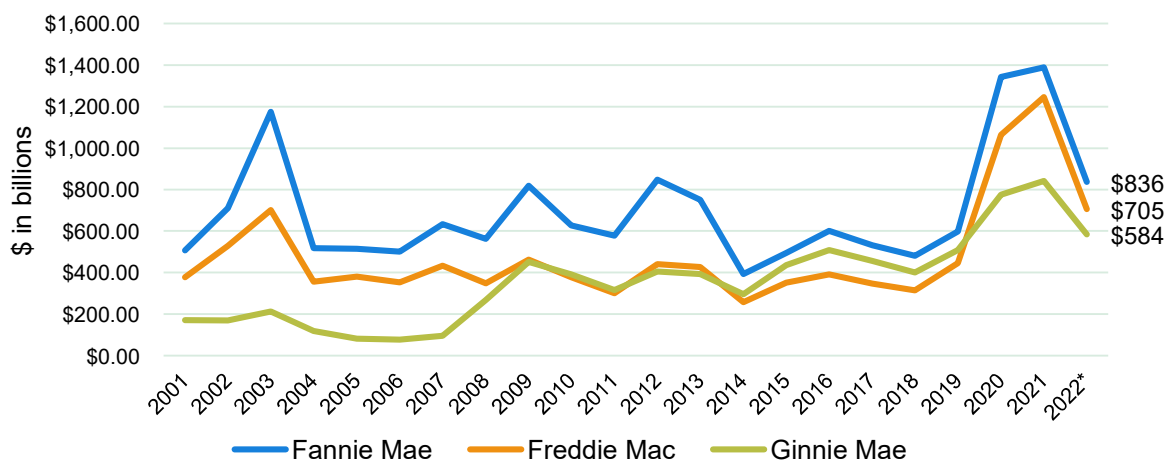
5.1 Gross Issuance of Agency MBS

Agency gross MBS issuance decreased MoM by 2.3% (from May to June). All three agencies saw decreases in gross issuance as compared to June.

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

Issuance Year	Fannie Mae	Freddie Mac	GSE Total	Ginnie Mae	Total
2001	\$506.9	\$378.2	\$885.1	\$171.5	\$1,056.6
2002	\$710.0	\$529.0	\$1,238.9	\$169.0	\$1,407.9
2003	\$1,174.4	\$700.5	\$1,874.9	\$213.1	\$2,088.0
2004	\$517.5	\$355.2	\$872.6	\$119.2	\$991.9
2005	\$514.1	\$379.9	\$894.0	\$81.4	\$975.3
2006	\$500.2	\$352.9	\$853.0	\$76.7	\$929.7
2007	\$633.0	\$433.3	\$1,066.2	\$94.9	\$1,161.1
2008	\$562.7	\$348.7	\$911.4	\$267.6	\$1,179.0
2009	\$817.1	\$462.9	\$1,280.0	\$451.3	\$1,731.3
2010	\$626.6	\$377.0	\$1,003.5	\$390.7	\$1,394.3
2011	\$578.2	\$301.2	\$879.3	\$315.3	\$1,194.7
2012	\$847.6	\$441.3	\$1,288.8	\$405.0	\$1,693.8
2013	\$749.9	\$426.7	\$1,176.6	\$393.6	\$1,570.2
2014	\$392.9	\$258.0	\$650.9	\$296.3	\$947.2
2015	\$493.9	\$351.9	\$845.7	\$436.3	\$1,282.0
2016	\$600.5	\$391.1	\$991.6	\$508.2	\$1,499.8
2017	\$531.3	\$345.9	\$877.3	\$455.6	\$1,332.9
2018	\$480.9	\$314.1	\$795.0	\$400.6	\$1,195.6
2019	\$597.4	\$445.2	\$1,042.6	\$508.6	\$1,551.2
2020	\$1,343.4	\$1,064.1	\$2,407.5	\$775.4	\$3,182.9
2021	\$1,388.0	\$1,245.1	\$2,633.1	\$840.9	\$3,474.0
2022 YTD	\$417.8	\$352.5	\$770.3	\$291.9	\$1,062.2
2022 Annualized	\$835.6	\$705.0	\$1,540.6	\$583.8	\$2,124.4

Figure 20. Agency Gross Issuance



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

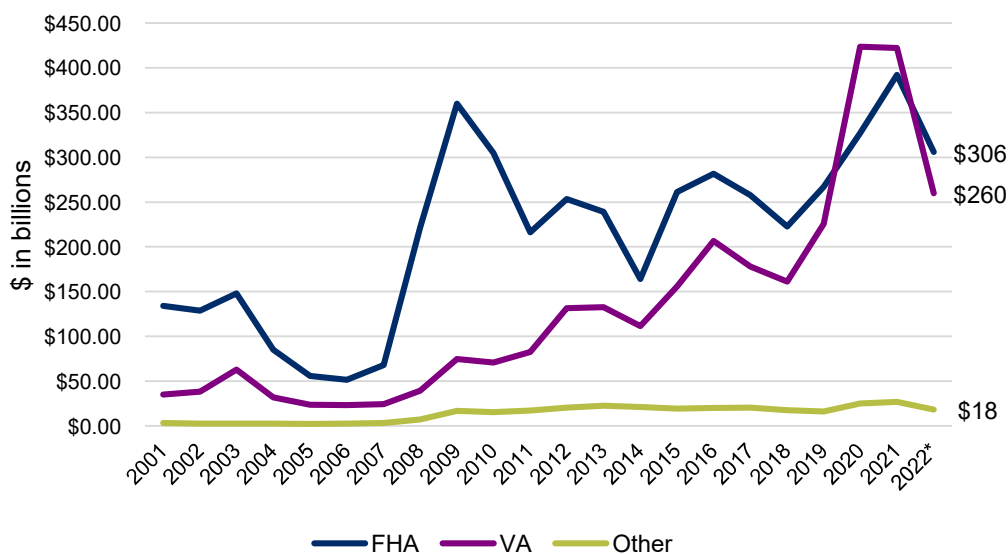
Note: Numbers are rounded to the nearest hundred million. For sums, like “GSE Total”, the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

Ginnie Mae's \$43.6 billion in gross issuance in June was approximately 38% below the average monthly issuance for 2021. Thus far in 2022, Ginnie Mae is on pace to have lower gross issuance than 2021 by approximately \$41.5 billion.

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

<i>Issuance Year</i>	<i>FHA</i>	<i>VA</i>	<i>Other</i>	<i>Total</i>
2001	\$133.8	\$34.7	\$3.1	\$171.5
2002	\$128.6	\$37.9	\$2.5	\$169.0
2003	\$147.9	\$62.7	\$2.5	\$213.1
2004	\$85.0	\$31.8	\$2.5	\$119.2
2005	\$55.7	\$23.5	\$2.1	\$81.4
2006	\$51.2	\$23.2	\$2.3	\$76.7
2007	\$67.7	\$24.2	\$3.0	\$94.9
2008	\$221.7	\$39.0	\$6.9	\$267.6
2009	\$359.9	\$74.6	\$16.8	\$451.3
2010	\$304.9	\$70.6	\$15.3	\$390.7
2011	\$216.1	\$82.3	\$16.9	\$315.3
2012	\$253.4	\$131.3	\$20.3	\$405.0
2013	\$239.2	\$132.2	\$22.2	\$393.6
2014	\$163.9	\$111.4	\$21.0	\$296.3
2015	\$261.5	\$155.6	\$19.2	\$436.3
2016	\$281.8	\$206.5	\$19.9	\$508.2
2017	\$257.6	\$177.8	\$20.2	\$455.6
2018	\$222.6	\$160.8	\$17.2	\$400.6
2019	\$266.9	\$225.7	\$16.0	\$508.6
2020	\$327.0	\$423.5	\$24.9	\$775.4
2021	\$392.2	\$422.1	\$26.7	\$840.9
2022 YTD	\$153.0	\$129.9	\$9.0	\$291.9
2022 Annualized	\$306.0	\$259.8	\$18.0	\$583.8

Figure 21. Ginnie Mae Gross Issuance



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

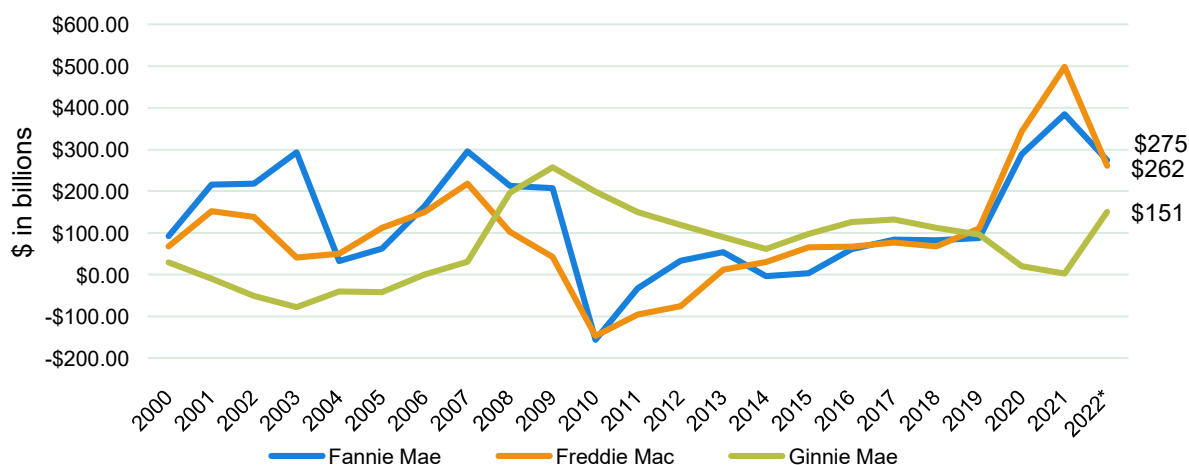
5.2 Net Issuance of Agency MBS

Agency net issuance in June was approximately \$41.5 billion, which represents a 0.2% MoM decrease in net issuance. Ginnie Mae net issuance was \$16.0 billion in June. VA net issuance continues to outpace FHA.

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

Issuance Year	Fannie Mae	Freddie Mac	GSE	Ginnie Mae	Total
2000	\$92.0	\$67.8	\$159.8	\$29.3	\$189.1
2001	\$216.6	\$151.8	\$368.4	-\$9.9	\$358.5
2002	\$218.9	\$138.3	\$357.2	-\$51.2	\$306.1
2003	\$293.7	\$41.1	\$334.9	-\$77.6	\$257.3
2004	\$32.3	\$50.2	\$82.5	-\$40.1	\$42.4
2005	\$62.5	\$111.7	\$174.2	-\$42.2	\$132.0
2006	\$164.3	\$149.3	\$313.6	\$0.2	\$313.8
2007	\$296.1	\$218.8	\$514.9	\$30.9	\$545.7
2008	\$213.0	\$101.8	\$314.8	\$196.4	\$511.3
2009	\$208.1	\$42.5	\$250.6	\$257.4	\$508.0
2010	-\$156.4	-\$146.8	-\$303.2	\$198.3	-\$105.0
2011	-\$32.6	-\$95.8	-\$128.4	\$149.6	\$21.2
2012	\$32.9	-\$75.3	-\$42.4	\$119.1	\$76.8
2013	\$53.5	\$11.8	\$65.3	\$89.6	\$154.9
2014	-\$4.0	\$30.0	\$26.0	\$61.6	\$87.7
2015	\$3.5	\$65.0	\$68.4	\$97.3	\$165.7
2016	\$60.5	\$66.8	\$127.4	\$126.1	\$253.5
2017	\$83.7	\$77.0	\$160.7	\$132.3	\$293.0
2018	\$81.9	\$67.6	\$149.4	\$112.0	\$261.5
2019	\$87.4	\$110.3	\$197.7	\$95.7	\$293.5
2020	\$289.3	\$343.5	\$632.8	\$19.9	\$652.7
2021	\$384.9	\$498.0	\$882.9	\$2.7	\$885.6
2022 YTD	\$137.4	\$130.8	\$268.2	\$75.4	\$343.6
2022 Annualized	\$274.9	\$261.6	\$536.5	\$150.8	\$687.2

Figure 22. Agency Net Issuance

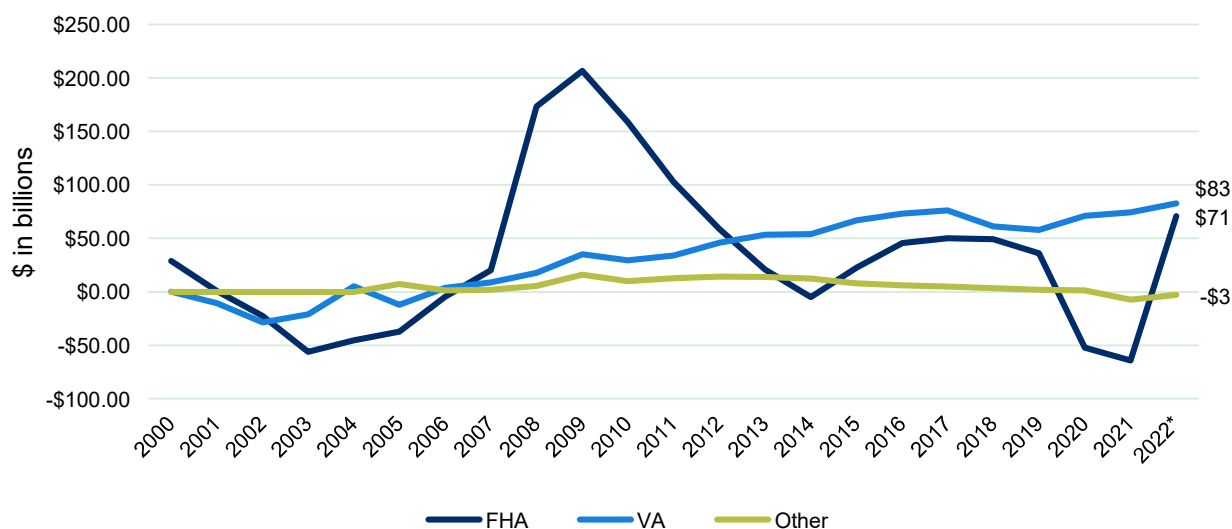


Note: Numbers are rounded to the nearest hundred million. For sums, like "GSE Total", the values are rounded after the exact underlying values are summed. As a result, some sums may not appear to match the sum of their rounded component values.

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

<i>Issuance Year</i>	<i>FHA</i>	<i>VA</i>	<i>Other</i>	<i>Total</i>
2000	\$29.0	\$0.3	\$0.0	\$29.3
2001	\$0.7	-\$10.6	\$0.0	-\$9.9
2002	-\$22.5	-\$28.7	\$0.0	-\$51.2
2003	-\$56.5	-\$21.1	\$0.0	-\$77.6
2004	-\$45.2	\$5.1	\$0.0	-\$40.1
2005	-\$37.3	-\$12.1	\$7.2	-\$42.2
2006	-\$4.7	\$3.8	\$1.2	\$0.2
2007	\$20.2	\$8.7	\$2.0	\$30.9
2008	\$173.3	\$17.7	\$5.4	\$196.4
2009	\$206.4	\$35.1	\$15.8	\$257.4
2010	\$158.6	\$29.6	\$10.0	\$198.3
2011	\$102.8	\$34.0	\$12.8	\$149.6
2012	\$58.9	\$45.9	\$14.3	\$119.1
2013	\$20.7	\$53.3	\$13.9	\$87.9
2014	-\$4.8	\$53.9	\$12.5	\$61.6
2015	\$22.5	\$66.9	\$7.9	\$97.3
2016	\$45.6	\$73.2	\$6.0	\$124.9
2017	\$50.1	\$76.1	\$5.0	\$131.2
2018	\$49.2	\$61.2	\$3.5	\$113.9
2019	\$35.9	\$58.0	\$1.9	\$95.7
2020	-\$52.5	\$71.0	\$1.3	\$19.9
2021	-\$64.2	\$74.2	-\$7.3	\$2.7
2022 YTD	\$35.4	\$41.4	-\$1.4	\$75.4
2022 Annualized	\$70.7	\$82.8	-\$2.7	\$150.8

Figure 23. Ginnie Mae Net Issuance



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

5.3 Monthly Issuance Breakdown

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

Month	Agency Gross Issuance Amount (in \$ Billions)					Agency Net Issuance Amount (in \$ Billions)				
	Fannie Mae	Freddie Mac	Ginnie Mae	GSEs	Total	Fannie Mae	Freddie Mac	Ginnie Mae	GSEs	Total
Jul-18	\$40.3	\$26.2	\$35.6	\$66.5	\$102.2	\$4.2	\$3.7	\$10.4	\$7.8	\$18.3
Aug-18	\$50.4	\$29.9	\$37.5	\$80.3	\$117.8	\$15.8	\$7.9	\$12.5	\$23.6	\$36.1
Sep-18	\$41.8	\$30.1	\$34.8	\$71.8	\$106.6	\$5.9	\$6.2	\$9.0	\$12.1	\$21.1
Oct-18	\$39.8	\$27.4	\$33.2	\$67.1	\$100.3	\$9.7	\$7.1	\$11.4	\$16.8	\$28.2
Nov-18	\$35.1	\$30.1	\$32.4	\$65.2	\$97.6	\$3.6	\$11.0	\$9.8	\$14.6	\$24.4
Dec-18	\$36.9	\$23.9	\$28.4	\$60.7	\$89.1	\$8.2	\$6.4	\$8.2	\$14.6	\$22.8
Jan-19	\$33.3	\$19.2	\$29.0	\$52.6	\$81.6	\$5.9	\$2.5	\$9.2	\$8.3	\$17.6
Feb-19	\$27.3	\$19.9	\$23.5	\$47.2	\$70.7	\$1.4	\$3.4	\$4.6	\$4.7	\$9.3
Mar-19	\$29.6	\$27.3	\$26.6	\$56.9	\$83.5	\$1.8	\$10.3	\$5.6	\$12.0	\$17.6
Apr-19	\$33.1	\$30.8	\$32.9	\$63.9	\$96.8	\$1.3	\$10.8	\$8.3	\$12.0	\$20.4
May-19	\$44.5	\$34.3	\$38.8	\$78.8	\$117.6	\$6.7	\$9.8	\$9.4	\$16.6	\$26.0
Jun-19	\$44.6	\$34.0	\$43.3	\$78.6	\$121.9	\$1.9	\$5.9	\$9.0	\$7.8	\$16.8
Jul-19	\$51.7	\$36.9	\$45.9	\$88.6	\$134.5	\$10.9	\$10.1	\$11.0	\$21.0	\$32.0
Aug-19	\$71.1	\$50.4	\$51.2	\$121.4	\$172.6	\$20.8	\$17.1	\$8.7	\$37.9	\$46.6
Sep-19	\$67.1	\$43.0	\$52.0	\$110.1	\$162.1	\$14.1	\$7.5	\$6.5	\$21.5	\$28.0
Oct-19	\$65.0	\$46.2	\$58.4	\$111.2	\$169.6	\$7.4	\$7.1	\$11.9	\$14.6	\$26.5
Nov-19	\$68.1	\$50.7	\$54.3	\$118.7	\$173.1	\$5.2	\$8.6	\$4.1	\$13.8	\$18.0
Dec-19	\$62.1	\$52.5	\$52.7	\$114.6	\$167.3	\$10.1	\$17.3	\$7.4	\$27.3	\$34.7
Jan-20	\$61.7	\$51.4	\$56.0	\$113.1	\$169.0	\$9.1	\$16.5	\$8.6	\$25.6	\$34.2
Feb-20	\$56.5	\$39.5	\$51.2	\$96.0	\$147.2	\$9.4	\$7.9	\$7.1	\$17.4	\$24.4
Mar-20	\$69.5	\$41.4	\$53.0	\$110.8	\$163.9	\$17.9	\$6.3	\$8.8	\$24.2	\$33.0
Apr-20	\$101.6	\$76.3	\$61.4	\$177.9	\$239.3	\$30.5	\$27.5	\$10.2	\$58.0	\$68.2
May-20	\$124.3	\$70.6	\$60.8	\$194.9	\$255.7	\$35.2	\$8.2	\$5.7	\$43.4	\$49.1
Jun-20	\$118.9	\$78.1	\$58.5	\$197.0	\$254.4	\$30.0	\$15.9	\$1.3	\$45.9	\$47.2
Jul-20	\$125.0	\$108.1	\$66.5	\$233.1	\$299.5	\$23.4	\$38.0	-\$15.5	\$61.4	\$45.9
Aug-20	\$137.6	\$113.6	\$73.6	\$251.3	\$324.8	\$34.2	\$43.4	-\$4.1	\$77.6	\$73.5
Sep-20	\$122.9	\$102.1	\$72.4	\$225.0	\$297.5	\$16.5	\$29.9	\$1.0	\$46.5	\$47.5
Oct-20	\$142.3	\$124.8	\$72.6	\$267.1	\$339.7	\$28.9	\$48.3	-\$0.3	\$77.2	\$76.9
Nov-20	\$152.4	\$131.5	\$72.6	\$283.9	\$356.5	\$31.4	\$48.4	-\$4.5	\$79.8	\$75.3
Dec-20	\$130.8	\$126.7	\$76.9	\$257.5	\$334.4	\$22.8	\$53.1	\$1.7	\$75.8	\$77.5
Jan-21	\$141.6	\$117.3	\$78.2	\$258.9	\$337.1	\$25.9	\$37.9	-\$6.5	\$63.8	\$57.3
Feb-21	\$118.8	\$115.5	\$72.3	\$234.3	\$306.6	\$16.8	\$44.3	-\$0.9	\$61.1	\$60.2
Mar-21	\$143.9	\$118.9	\$76.9	\$262.8	\$339.7	\$37.6	\$44.0	\$1.0	\$81.6	\$82.6
Apr-21	\$148.0	\$142.3	\$85.6	\$290.3	\$375.9	\$26.2	\$57.0	-\$4.2	\$83.3	\$79.0
May-21	\$132.3	\$91.4	\$71.7	\$223.7	\$295.4	\$64.9	\$38.8	-\$3.1	\$103.7	\$100.6
Jun-21	\$108.5	\$91.2	\$67.7	\$199.7	\$267.4	\$34.0	\$33.7	\$2.6	\$67.8	\$70.4
Jul-21	\$95.4	\$84.6	\$69.0	\$180.0	\$249.0	\$27.6	\$31.9	-\$1.4	\$59.5	\$58.0
Aug-21	\$104.8	\$109.3	\$66.6	\$214.1	\$280.8	\$27.5	\$48.5	\$1.4	\$76.1	\$77.4
Sep-21	\$102.9	\$105.3	\$68.0	\$208.3	\$276.3	\$26.4	\$45.6	\$3.1	\$72.0	\$75.1
Oct-21	\$105.1	\$102.7	\$62.5	\$207.8	\$270.3	\$34.6	\$46.9	\$1.9	\$81.5	\$83.4
Nov-21	\$93.6	\$81.1	\$60.8	\$174.7	\$235.5	\$29.5	\$34.9	\$3.1	\$64.4	\$67.6
Dec-21	\$93.7	\$85.4	\$58.9	\$179.1	\$238.0	\$33.8	\$34.4	\$5.7	\$68.3	\$73.9
Jan-22	\$93.1	\$64.1	\$49.0	\$157.2	\$206.2	\$44.0	\$46.2	\$8.3	\$90.2	\$97.3
Feb-22	\$73.3	\$62.3	\$47.3	\$135.6	\$182.8	\$28.7	\$28.3	\$4.2	\$57.0	\$60.2
Mar-22	\$76.8	\$62.9	\$47.4	\$139.7	\$187.1	\$23.1	\$22.6	\$6.9	\$45.7	\$52.6
Apr-22	\$65.3	\$53.5	\$47.8	\$118.8	\$166.6	\$17.7	\$19.5	\$13.2	\$37.2	\$50.3
May-22	\$54.7	\$43.7	\$45.0	\$98.4	\$143.4	\$12.5	\$13.6	\$15.5	\$26.1	\$41.6
Jun-22	\$54.5	\$42.0	\$43.6	\$96.5	\$140.1	\$14.8	\$10.7	\$16.0	\$41.5	\$41.5

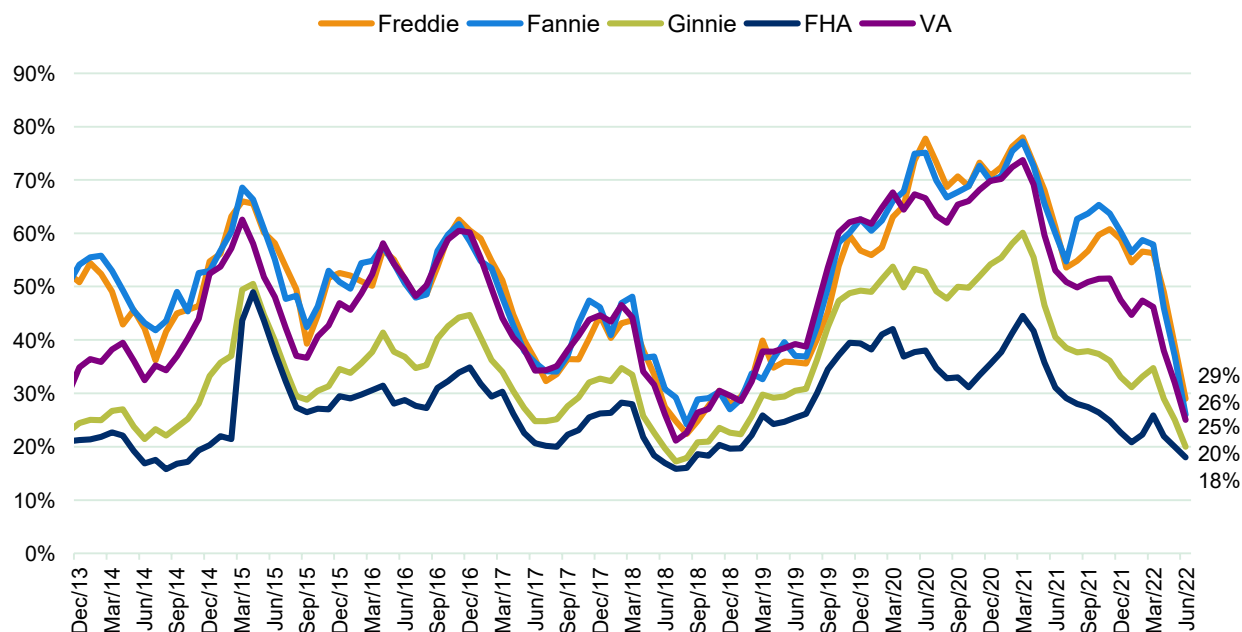
Source: Beginning May 2021, data for Gross and Net Issuance was sourced from Fannie Mae, Freddie Mac, and Ginnie Mae loan level disclosure files. Net issuance is defined here as the difference between prior period UPB and current period UPB. Data as of June 2022. Beginning with the October 2021 GMAR, the Fannie Mae and Freddie Mac net issuance data have been updated to reflect the current UPB of the portfolios. July 2021 through May 2022 GMAR net issuance data reflect the UPB at security issuance for Fannie Mae and Freddie Mac. Note: Numbers are rounded to the nearest hundred million.

5.4 Percent Refi at Issuance – Single-Family

Refinance activity has dropped for all of the agencies, but the rate of decline has been greater in the conventional mortgage market space, as Fannie and Freddie’s refinance percentages have declined approximately 30% and 26%, respectively. Ginnie Mae’s MoM decline has been approximately 20%, with the greater decline taking place with VA lending which was down almost 22% in June MoM. FHA’s refinance share declined just 10% in June MoM. The decline in refinance activity is leading to, particularly in the case of Ginnie Mae, a sharp increase in net issuance.

- Freddie Mac’s refinance percentage has dropped to 29% in June, down from 39% in May.
- Fannie Mae’s refinance percentage has dropped to 26% in June, down from 37% in May.
- Ginnie Mae’s refinance percentage dropped to 20% in June, down from 25% in May.
- FHA’s refinance percentage has dropped to 18% in June, down from 20% in May.
- VA’s refinance percentage has dropped to 25% in June, down from 32% in May.

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



Sources: Recursion. Notes: Data as of June 2022

6 AGENCY SINGLE-FAMILY MBS OUTSTANDING

6.1 Outstanding Single-Family Agency MBS

As of June 2022, outstanding single-family MBS in the Agency market totaled \$8.403 trillion: 42.2% Fannie Mae, 33.7% Freddie Mac, and 24.2% Ginnie Mae MBS. Over the past twelve months, Freddie Mac's, Fannie Mae's and Ginnie Mae's total outstanding MBS increased by approximately 13.2%, 7.4% and 5.4%, respectively. Despite this, Fannie Mae outstanding MBS remains larger than either Freddie or Ginnie by approximately \$711 billion and \$1.5 trillion, respectively.

Ginnie Mae MBS collateral composition has changed dramatically over the past ten years. In December 2011, 76% of Ginnie Mae outstanding collateral was FHA and 19.5% was VA. In June 2022, FHA collateral comprised 52.4% of Ginnie Mae MBS outstanding and VA collateral comprised 42.4% of Ginnie Mae MBS outstanding.

Figure 25. Outstanding Agency Mortgage-Backed Securities.

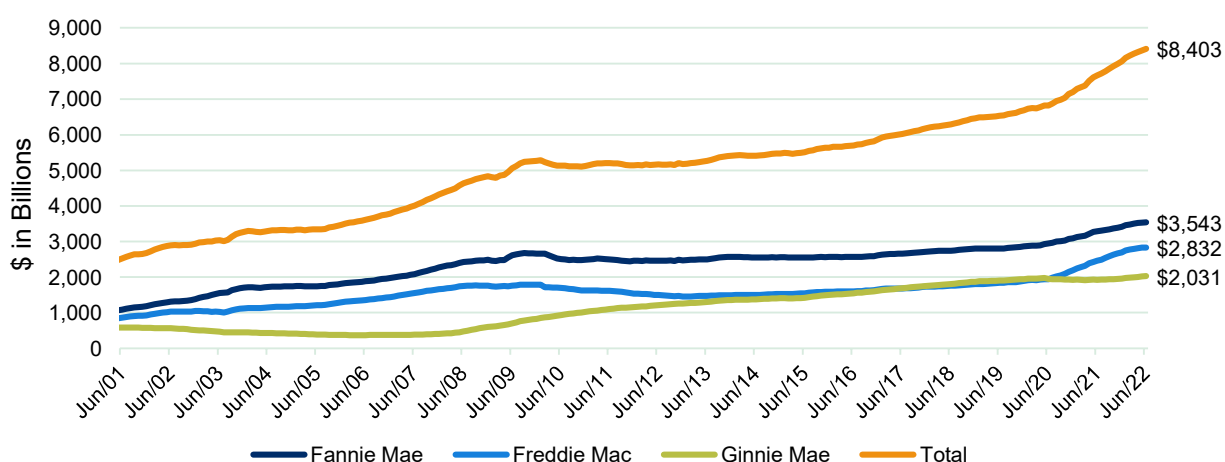
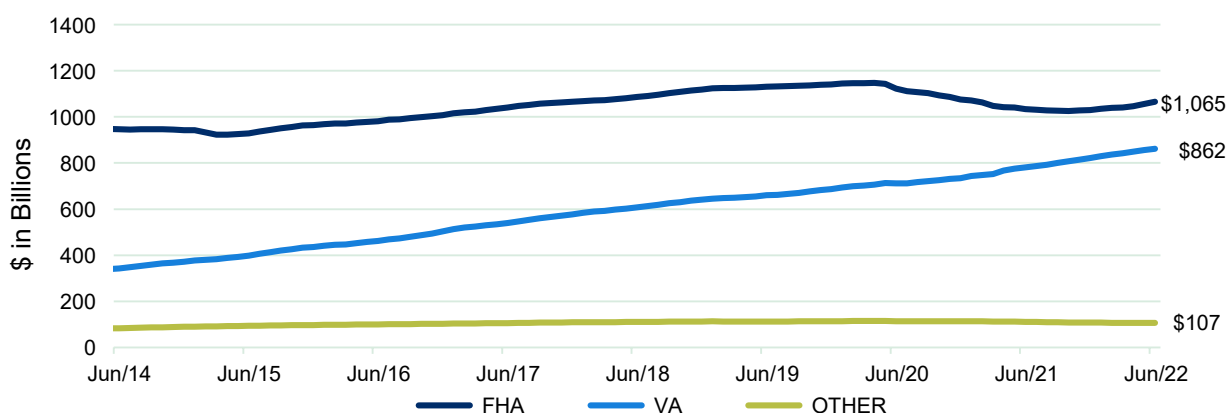


Figure 26. Composition of Outstanding Ginnie Mae Mortgage-Backed Securities.



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

6.2 Origination Volume and Share Over Time

Origination volume declined in Q1 2022, with \$725 billion in originations in Q1, which represents a decline in issuance from Q4 2021 of approximately 34%. Ginnie Mae's share of total origination increased 20.0% from 14.5% to 17.4% in Q1 2022.

Figure 27. First Lien Origination Volume

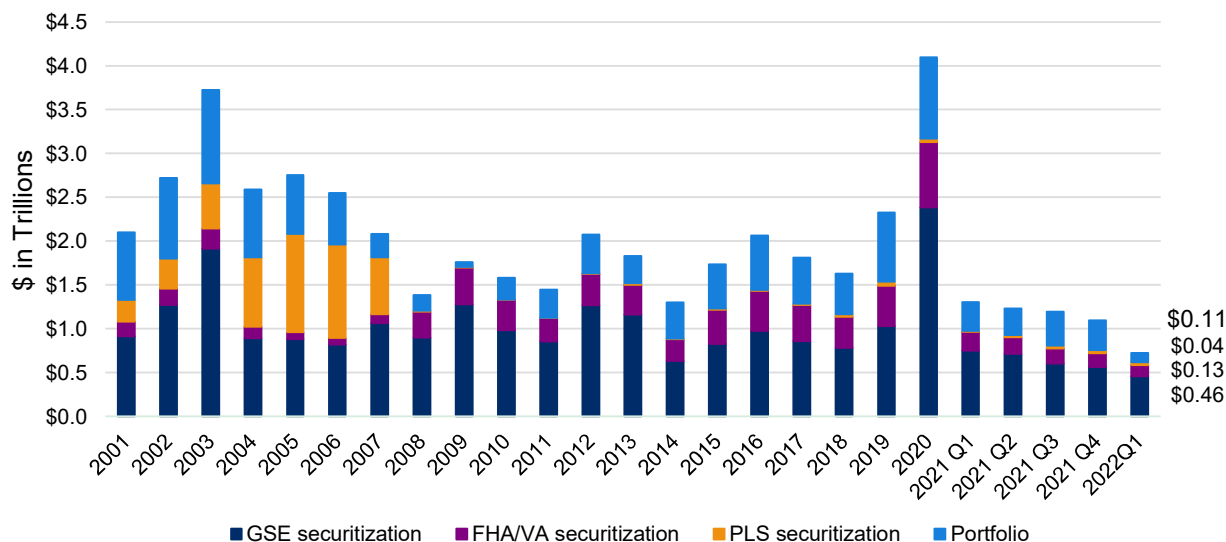
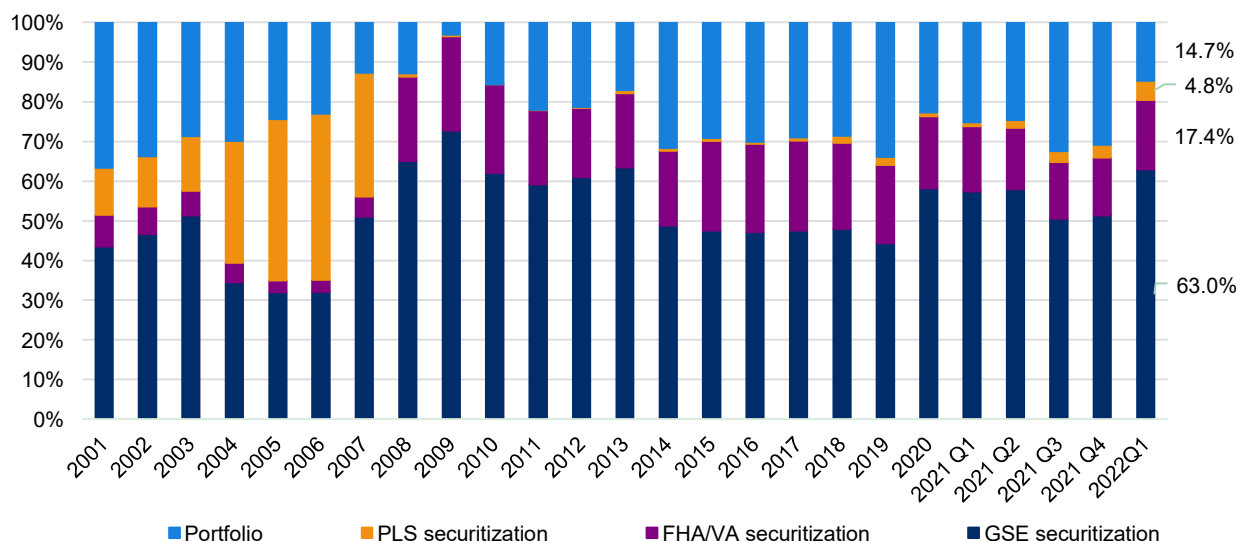


Figure 28. First Lien Origination Share



Source: Inside Mortgage Finance. Note: Data as of Q1 2022.

6.3 Agency Issuance and Agency Outstanding by State

Ginnie Mae MBS represent approximately 25% of new Agency issuance over the past year. The share of Ginnie Mae's new Agency issuance varies across states, with the highest Ginnie Mae share still being in Alaska (50%) and the lowest still in the District of Columbia (15%). The highest Ginnie Mae outstanding share is still in Alaska and Mississippi (47%) and the lowest in the District of Columbia (13%). There is currently a 1% difference between Ginnie Mae's share of new Agency issuance and Ginnie Mae's share of Agency outstanding.

Table 6. Agency Issuance Breakdown by State

National	Agency Issuance (past 1 year)				GNMA Share by UPB	Agency Outstanding (past 1 year)		
	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)		GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)
	26%	3,542,811	266.40	274.07	25%	10,412,004	199.74	209.62
AK	50%	12,279	321.49	285.17	47%	36,539	258.16	220.40
AL	39%	73,934	210.66	227.13	40%	229,854	152.30	176.20
AR	36%	39,379	179.69	209.05	38%	134,099	128.61	159.37
AZ	24%	112,120	285.71	292.96	23%	264,272	211.35	223.30
CA	18%	267,080	420.25	413.26	16%	659,158	321.01	321.49
CO	25%	85,737	372.32	354.02	23%	207,716	283.51	275.18
CT	25%	33,437	250.53	269.90	25%	102,831	198.78	209.06
DC	15%	3,004	507.50	438.75	13%	8,655	375.67	352.65
DE	31%	17,307	254.27	271.45	31%	50,132	200.76	209.75
FL	31%	312,737	267.62	271.79	31%	818,277	204.82	208.07
GA	33%	174,686	233.37	267.78	33%	483,027	173.43	203.69
HI	36%	12,796	590.94	470.77	31%	32,707	464.33	358.79
IA	22%	23,467	178.92	193.92	21%	80,580	131.12	148.90
ID	22%	21,576	311.58	298.85	22%	62,145	210.24	220.60
IL	22%	115,130	204.73	238.25	21%	352,798	156.95	179.01
IN	29%	85,193	179.43	196.94	29%	271,583	129.79	149.17
KS	28%	28,121	188.05	215.80	28%	94,433	136.77	162.97
KY	33%	50,228	188.87	203.49	33%	160,294	139.98	155.00
LA	41%	62,264	200.23	229.65	39%	193,058	155.31	177.20
MA	17%	40,516	353.50	352.00	15%	109,659	278.59	269.59
MD	35%	104,684	327.48	317.92	33%	282,678	261.83	249.68
ME	25%	12,051	228.62	251.80	25%	36,842	173.31	190.56
MI	19%	82,205	178.76	206.17	19%	267,544	130.35	156.29
MN	17%	47,093	237.37	259.73	17%	156,332	178.89	197.63
MO	27%	72,555	189.50	210.69	28%	238,866	138.42	161.28
MS	46%	35,640	192.86	207.78	47%	118,598	139.88	160.20
MT	23%	10,362	284.08	289.00	23%	31,858	203.21	214.38
NC	28%	139,115	231.82	264.43	28%	403,691	170.11	199.45
ND	26%	5,765	239.78	237.15	23%	16,607	190.93	185.25
NE	24%	17,734	205.06	209.24	26%	63,714	144.89	160.06
NH	21%	12,229	287.94	282.61	22%	37,505	221.18	213.80
NJ	22%	79,575	298.19	323.68	21%	223,904	235.43	254.28
NM	36%	27,560	225.92	235.81	37%	92,801	162.59	176.79
NV	30%	53,475	314.31	302.71	29%	128,177	241.38	232.79
NY	19%	75,449	296.91	337.66	19%	299,893	204.80	247.67
OH	27%	120,149	174.75	196.88	28%	411,635	127.05	148.27
OK	39%	51,342	191.85	211.41	41%	185,485	137.61	160.63
OR	20%	39,960	329.03	332.74	19%	107,562	248.34	251.86
PA	23%	103,331	195.46	239.16	25%	379,625	146.72	181.18
RI	31%	12,106	297.17	277.10	29%	34,294	227.55	212.50
SC	33%	84,415	234.97	247.63	33%	225,951	177.78	190.07
SD	28%	8,376	229.33	228.59	29%	28,650	168.82	176.82
TN	29%	88,903	239.33	262.04	31%	264,309	169.34	201.39
TX	30%	343,081	242.04	277.05	31%	1,056,124	176.19	208.69
UT	19%	36,615	341.66	340.74	18%	92,716	251.17	261.05
VA	37%	154,080	325.53	316.11	35%	432,945	252.95	250.60
VI	17%	151	365.95	393.79	23%	761	239.83	299.55
VT	19%	3,530	228.36	248.30	18%	11,847	178.52	179.70
WA	22%	85,241	373.93	375.66	21%	226,964	278.07	288.01
WI	17%	38,754	201.70	217.77	16%	120,337	153.46	163.56
WV	42%	17,410	189.82	193.88	43%	57,393	141.29	144.92
WY	35%	8,884	253.54	255.23	34%	24,579	203.19	201.01

Sources: Recursion. Notes: Outstanding balance is based on loan balance as of June 2022. Ginnie Mae issuance is based on the last 12 months, from May 2021 to June 2022. Values above are based on loan level disclosure data, thus excluding loan balances

for the first six months that loans are in a pool. This accounts for the difference in the share of outstanding MBS represented above and in [Outstanding Single-Family Agency MBS](#).

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

As of June 2022, the weighted average coupon on outstanding Ginnie Mae increased slightly from 2.90% in May 2022 to 2.92%. With rates rising to over 6.0% in June, this expansion is likely to stop. The bottom chart illustrates that loans originated since 2019 account for 75% of Ginnie MBS collateral outstanding.

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

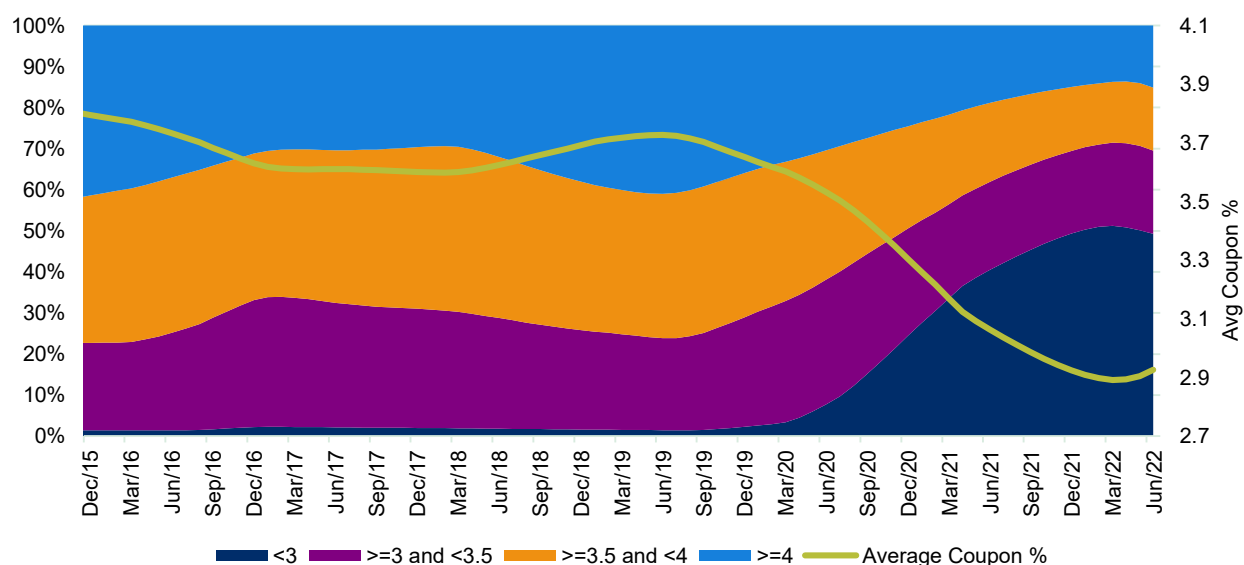
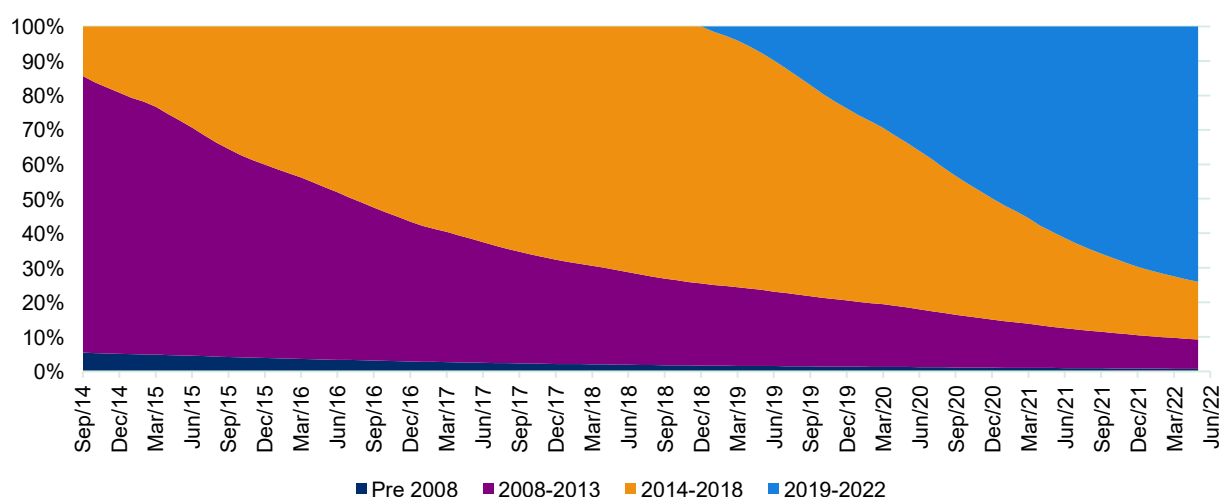


Figure 30. Outstanding Ginnie Mae MBS Balance, by Vintage.



Sources: Recursion. Note: June 2022 data points reflect the current composition of balances by coupon and vintage; factor data is not applied to prior date balance compositions. Average coupon is weighted by remaining principal balance.

7 AGENCY REMIC SECURITIES

7.1 Monthly REMIC Demand for Ginnie Mae MBS

In June 2022, \$7.4 billion of Ginnie Mae MBS were securitized into Real Estate Mortgage Investment Conduits (REMICs) as underlying collateral, a 25% MoM increase. Of that, approximately \$1.8 billion were Multifamily MBS having coupons between 2.5% and 3.5%. \$5.6 billion were Single-Family MBS with 81% of the Single-Family MBS having coupons over 4%.

Through the first half of Calendar Year 2022 approximately \$66 billion of Ginnie Mae Single-Family and Multifamily MBS were securitized into Ginnie Mae REMIC transactions. This represents a roughly 35% decrease over the same period in Calendar Year 2021 (\$102 billion).

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

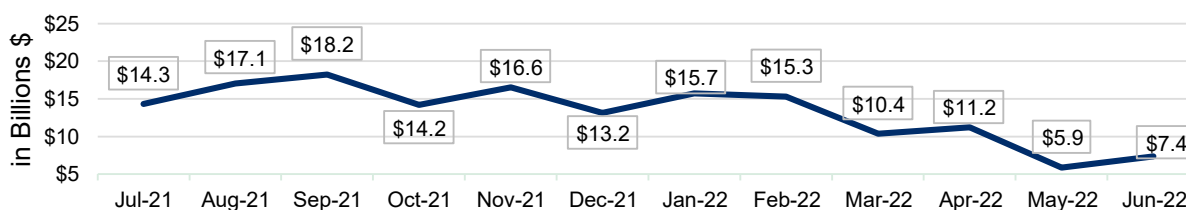


Table 7. June 2022 REMIC Collateral Coupon Distribution.

Net Coupon (%)	Approx. Ginnie Mae MBS amount securitized into REMIC Deals (\$MM) ⁵	% Breakdown of REMIC Collateral by coupon ¹⁷
Multifamily		
2.01-2.50	1,675.1	93%
2.51-3.00	135.0	7%
Subtotal	1,810.1	100%
Single-Family		
<2.00	-	0%
2.01-2.50	-	0%
2.51-3.00	212.6	4%
3.01-3.50	198.6	4%
3.51-4.00	625.1	11%
4.01-4.50	2,803.5	50%
4.51-5.00	1,345.1	24%
5.01-5.50	377.1	7%
5.50-6.00	-	0%
6.01-6.50	-	0%
Subtotal	5,562.0	100%
Grand Total	7,372.1	

Source: Ginnie Mae Disclosure Files

⁵Totals may not sum due to rounding.

7.2 REMIC Market Snapshot

In June 2022, Ginnie Mae REMIC issuance volume increased 29% month-over-month from \$7.0 to just over \$9.0 billion. This is the first time that Ginnie Mae REMIC issuance volume has increased MoM in calendar year 2022. The average Ginnie Mae Multifamily REMIC deal size for the month of June 2022 was \$231.3 million, which is the lowest average Multifamily REMIC deal size since October 2019. In June 2022, the average Single-Family coupon for Ginnie Mae, Freddie Mac, and Fannie Mae REMIC transactions was over 4%.

- Ginnie Mae's average Single-Family REMIC coupon increased 54 basis points from 3.97% to 4.51%.
- Freddie Mac's average Single-Family REMIC coupon increased 50 basis points from 3.75% to 4.25%.
- Fannie Mae's average Single-Family REMIC coupon decreased 4 basis points from 4.21% to 4.17%.

In June 2022, GSE REMIC issuance totaled just over \$13 billion. This is the lowest level of GSE REMIC issuance since May 2019.

- Freddie Mac REMIC issuance dropped below \$10 billion for the first time since July 2021.

Figure 32. REMIC Issuance by Agency

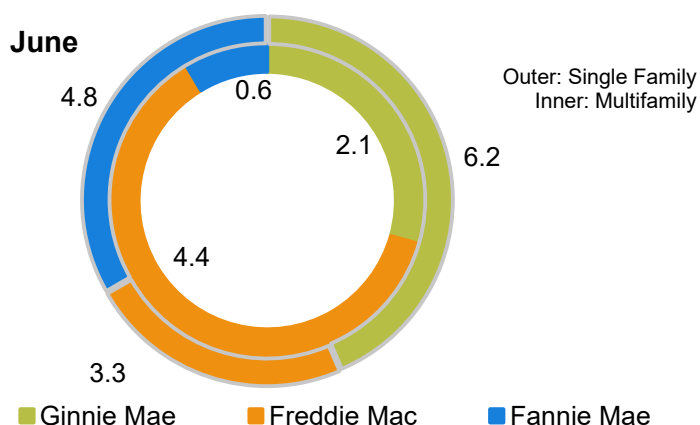


Table 8. Monthly REMIC Issuance by Agency

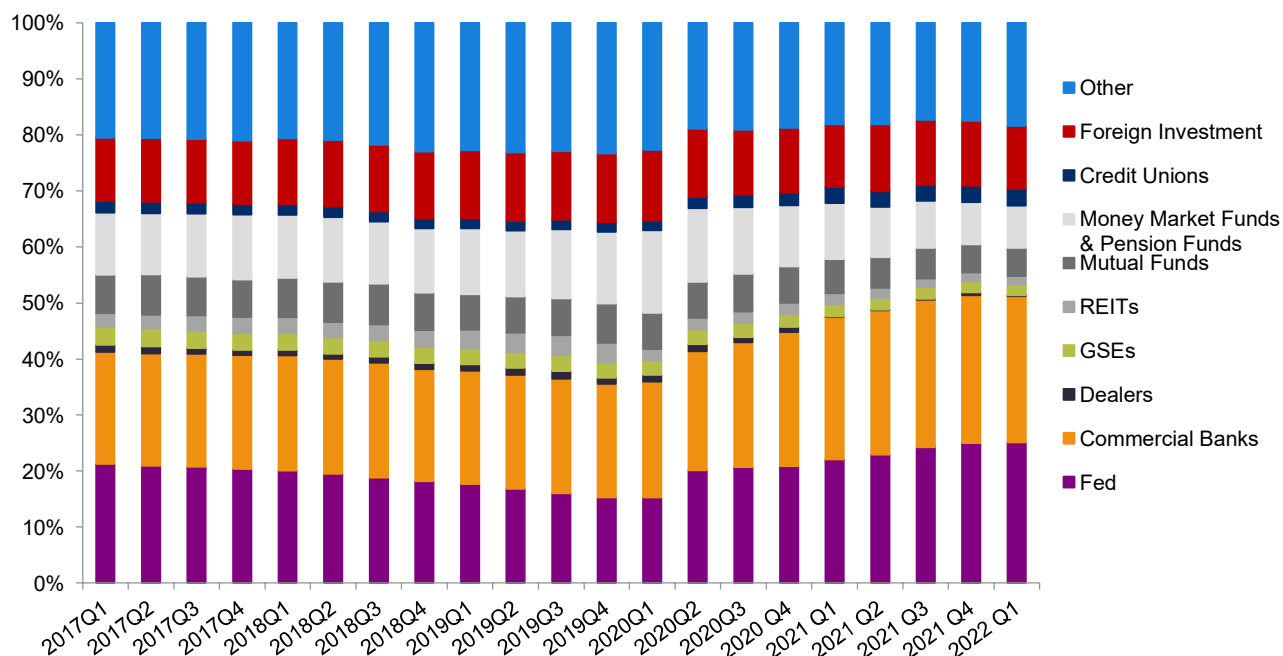
	SF REMIC Issuance Volume (\$B)	% of SF REMIC Issuance Volume	Number of SF REMIC Transactions	MF REMIC Issuance Volume (\$B)	% of MF REMIC Issuance Volume	Number of MF REMIC Transactions
Ginnie Mae	6.2	43.5	11	2.1	29.4	9
Freddie Mac	3.3	23.2	9	4.4	62.0	5
Fannie Mae	4.8	33.3	10	0.6	8.6	2
Total	\$14.30	100%	30	\$7.1	100%	16

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

8 MBS OWNERSHIP

As of Q1 2022, the largest holders of Agency debt (Agency MBS + Agency notes and bonds) included commercial banks (26%), the Federal Reserve (25%), and foreign investors (11%). The Federal Reserve's share remained at 25% in the first quarter of 2022, the highest it has been since 2015. Despite large Federal Reserve purchases, commercial banks continue to be the largest holders of Agency MBS. Out of their nearly \$2.9 trillion in holdings as of the end of May 2022, \$2.1 trillion was held by the top 25 domestic banks.

Figure 33. Who Owns Total Agency Debt?



Source: Federal Reserve Flow of Funds. Note: The "other" category includes primarily life insurance companies, state and local governments, households and nonprofits. Data as of Q1 2022.

8.1 Commercial Bank Holdings of Agency MBS

Table 9. Commercial Bank Holdings of Agency MBS

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	8-Jun	15-Jun	22-Jun	29-Jun
Largest 25 Domestic Banks	2,149.9	2,140.2	2,153.7	2,188.8	2,200.4	2,186.8	2,163.9	2,143.9	2,133.2	2,117.1	2,113.9	2,116.7
Small Domestic Banks	712.0	721.5	730.7	742.2	748.6	744.1	736.1	730.8	735.3	737.0	738.3	734.0
Foreign Related Banks	47.9	46.2	43.2	42.2	39.3	36.6	34.2	34.1	34.8	35.2	36.6	39.0
Total, Seasonally Adjusted	2,909.8	2,907.9	2,927.6	2,973.2	2,988.3	2,967.5	2,934.2	2,908.8	2,903.3	2,889.3	2,888.8	2,889.7

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

8.2 Bank and Thrift Residential MBS Holdings

In Q1 2022, MBS holdings at banks and thrifts decreased for the first in thirteen consecutive quarters. The decrease was driven by GSE pass-throughs, Private MBS, and Agency CMO holdings, with the decrease in GSE pass-throughs making the largest contribution. In contrast, Ginnie Mae pass-throughs increased by approximately 4.5%. Total bank and thrift MBS holdings decreased by approximately 4% from Q4 2021. Out of the \$2.8 trillion in MBS holdings at banks and thrifts as of Q1 2022, \$2.3 trillion were Agency pass-throughs, including \$1.8 trillion of GSE pass-throughs and \$368 billion of Ginnie Mae pass-throughs.

Table 10. Bank and Thrift Residential MBS Holdings

Year	All Banks & Thrifts (\$ in billions)						All MBS (\$ in billions)	
	Total	GSE PT	GNMA PT	Private MBS	Agency CMO	Private CMO	Banks	Thrifts
2001	810.50	270.59	109.53	37.62	236.91	76.18	606.91	203.37
2002	912.36	376.11	101.46	20.08	244.98	89.88	702.44	209.66
2003	982.08	461.72	75.11	19.40	236.81	106.86	775.66	206.45
2004	1,113.89	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
1Q18	1,809.98	991.57	360.71	3.92	412.41	41.37	1,635.52	174.46
2Q18	1,806.58	976.92	368.88	7.45	414.41	38.92	1,631.65	174.93
3Q18	1,794.39	966.52	373.21	2.42	416.20	36.04	1,618.29	176.10
4Q18	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
4Q19	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	2,906.07	1,915.48	352.71	4.45	578.01	55.42	2,529.81	376.26
1Q22	2,799.21	1,817.72	368.43	4.04	548.60	60.43	2,476.11	323.10
Change:								
4Q21-1Q22	-3.7%	-5.1%	4.5%	-9.3%	-5.1%	9.0%	-2.1%	-14.1%
1Q21-1Q22	4.0%	6.1%	-1.7%	-17.3%	-1.2%	42.9%	5.3%	-5.0%

Source: Inside Mortgage Finance. Notes: Data as of Q1 2022.

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

	<i>Institution</i>	<i>Total</i>	<i>GSE PT</i>	<i>GNMA PT</i>	<i>Agency CMO</i>	<i>Non-Agency</i>	<i>Share</i>
1	BANK OF AMERICA CORPORATION	\$562,474.0	\$449,150.0	\$101,103.0	\$11,969.0	\$252.0	20.9%
2	WELLS FARGO & COMPANY	\$259,187.0	\$188,326.0	\$64,441.0	\$5,994.0	\$426.0	9.6%
3	JPMORGAN CHASE & CO.	\$204,088.0	\$118,246.0	\$70,487.0	\$154.0	\$15,201.0	7.6%
4	Charles Schwab Bank	\$171,739.0	\$84,782.0	\$13,336.0	\$73,621.0	\$0.0	6.4%
5	Truist Bank	\$116,435.0	\$46,913.0	\$13,485.0	\$56,037.0	\$0.0	4.3%
6	U.S. BANCORP	\$116,049.7	\$82,567.1	\$17,779.4	\$15,702.8	\$0.5	4.3%
7	CITIGROUP INC.	\$98,691.0	\$90,354.0	\$2,390.0	\$4,402.0	\$1,545.0	3.7%
8	CAPITAL ONE FINANCIAL CORPORATION	\$75,021.9	\$42,658.4	\$9,173.5	\$22,612.9	\$577.1	2.8%
9	BANK OF NEW YORK MELLON CORP	\$61,338.0	\$45,554.0	\$2,891.0	\$10,384.0	\$2,509.0	2.3%
10	PNC Bank, National Association	\$52,989.3	\$44,323.4	\$5,950.7	\$1,292.2	\$1,423.1	2.0%
11	Silicon Valley Bank	\$44,909.4	\$35,394.5	\$534.7	\$8,980.2	\$0.0	1.7%
12	USAA Federal Savings Bank	\$44,529.1	\$39,219.0	\$2,064.3	\$3,245.7	\$0.0	1.7%
13	State Street Bank and Trust Company	\$43,141.8	\$17,869.0	\$5,849.0	\$16,928.8	\$2,495.0	1.6%
14	E*TRADE Bank	\$38,091.1	\$28,463.4	\$6,156.7	\$3,471.1	\$0.0	1.4%
15	MORGAN STANLEY	\$33,957.0	\$21,722.0	\$3,981.0	\$8,254.0	\$0.0	1.3%
16	TD Bank USA/TD Bank NA	\$26,046.0	\$1,526.5	\$133.0	\$24,290.0	\$96.4	1.0%
17	Ally Bank	\$24,197.0	\$18,367.0	\$961.0	\$2,594.0	\$2,275.0	0.9%
18	BMO Harris Bank National Association	\$23,317.9	\$4,777.3	\$431.3	\$18,107.5	\$1.9	0.9%
19	HSBC Bank USA, National Association	\$23,285.8	\$7,790.5	\$7,487.0	\$8,006.5	\$1.8	0.9%
20	KeyBank National Association	\$22,140.1	\$3,852.8	\$419.3	\$17,868.0	\$0.0	0.8%
Total Top 20		\$2,041,628.1	\$1,371,855.9	\$329,053.9	\$313,914.7	\$26,803.8	76.1%

Source: Inside Mortgage Finance. Notes: Data as of Q1 2022.

8.3 Foreign Ownership of MBS

For the month of April 2022, foreign ownership of MBS represents \$1.12 trillion in Agency MBS, up approximately \$7 billion from March 2022. Total foreign ownership includes \$502 billion held by foreign private institutions and \$618 billion held by foreign official institutions. The foreign share of the Agency MBS Market continues to decline since the beginning of COVID. The pre-Covid peak of approximately 17.5% has fallen all the way to 13.46% in April of 2022.

Figure 34. Foreign Share of Agency MBS Market

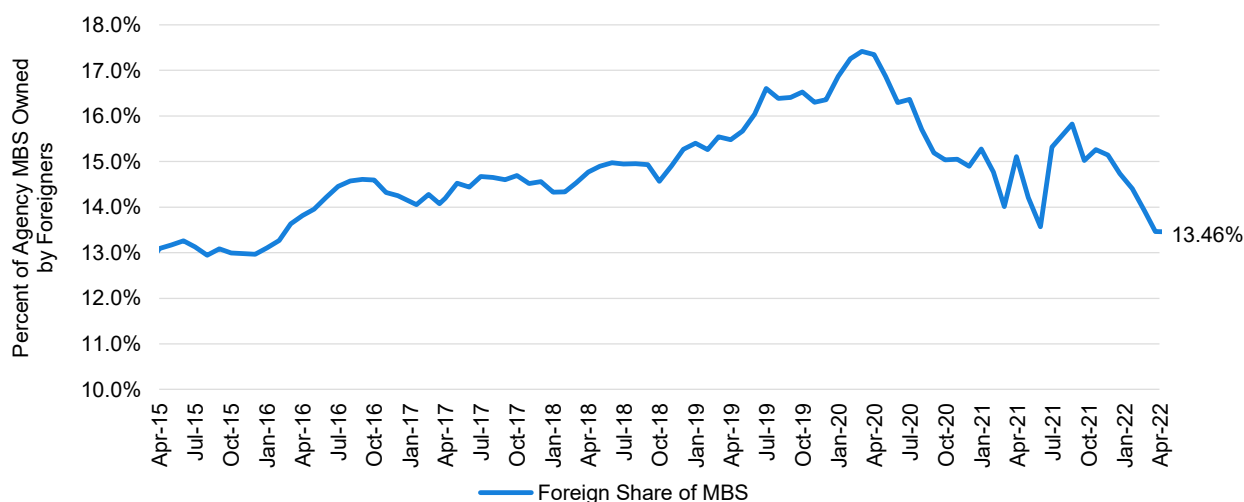
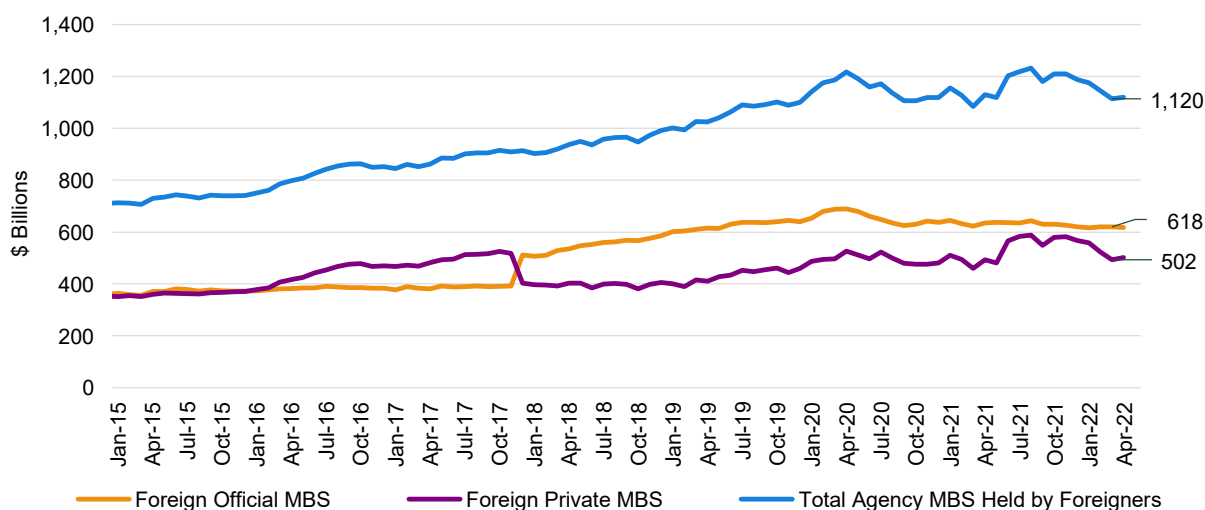


Figure 35. Monthly Foreign MBS Holdings



Sources: eMBS [Top Chart], Treasury International Capital (TIC) [Bottom Chart] Notes: In December 2017, there was a data correction that moved about \$120 billion from privately held U.S. Agency bonds to officially held U.S. Agency bonds; this resulted in a series break at December 2017 in the split between the portion held by foreign private and the portion held by foreign official. Data as of April 2022.

8.4 Foreign Ownership of Agency Debt and Agency MBS

The largest non-US holders of Agency MBS are in Japan, Taiwan, and China. As of December 2021, these three own 60% of all US MBS held by investors outside of the United States. Between June 2020 and June 2021, these top three have decreased their Agency MBS holdings by over \$4.6 billion. Japan has decreased their holdings by \$1.4 billion, Taiwan has decreased their holdings by \$208 million and China has decreased their holdings by \$3.0 billion.

Table 12. All Agency Debt

Country	Level of Holdings (\$ Millions)				Change in Holdings (\$ Millions)			
	6/1/2021	9/1/2021	12/1/2021	3/1/2022	Q2 2021	Q3 2021	Q4 2021	Q1 2022
Japan	311,375	311,892	301,979	259,844	-8,396	517	-9,913	-42,135
Taiwan	250,081	247,341	244,375	233,340	-2,955	-2,740	-2,966	-11,035
China	217,842	215,102	202,659	219,553	16,870	-2,740	-12,443	16,894
Luxembourg	35,497	33,339	34,277	33,130	1,126	-2,158	938	-1,147
Ireland	21,453	22,617	21,305	20,589	-5,512	1,164	-1,312	-716
South Korea	43,201	43,208	42,051	40,362	169	7	-1,157	-1,689
Cayman Islands	36,027	36,160	35,004	31,795	-1,084	133	-1,156	-3,209
Bermuda	23,806	24,411	23,209	21,159	-2,637	605	-1,202	-2,050
Netherlands	12,544	17,435	16,249	14,851	-505	4,891	-1,186	-1,398
Malaysia	19,089	19,445	18,830	18,305	42	356	-615	-525
Other	166,009	268,746	302,816	269,544	-7,896	102,737	34,070	-33,372
Total	1,136,924	1,239,696	1,242,754	1,162,472	-10,778	102,772	3,058	-80,282

Table 13. Agency MBS

Country	Level of Holdings (\$ Millions)		
	6/1/2020	6/1/2021	YoY Change in Holdings (\$ Millions)
Japan	306,963	305,580	-1,383
Taiwan	267,700	267,492	-208
China	235,078	232,076	-3,002
Luxembourg	40,207	34,255	-5,952
Ireland	21,091	25,336	4,245
South Korea	28,743	34,313	5,570
Cayman Islands	28,431	29,682	1,251
Bermuda	25,111	24,245	-866
Netherlands	12,739	13,351	612
Malaysia	20,028	19,949	-79
Other	173,716	170,062	-3,654
Total	1,159,809	1,156,341	-3,468

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

9 FIXED INCOME LIQUIDITY INDICATORS

Agency MBS average daily trading volume as of June 2022 was \$256 billion for 2022 YTD, which is down from \$281 billion from January 2021 to December 2021. January 2022 remained the highest month of Agency MBS trading volume since February 2021. Agency MBS turnover in 2021 was 25 bps lower than its 2020 average, at 2.70% and 2.95% respectively. 2021 Agency MBS turnover and US Treasury turnover both finished lower than the 2020 averages at 2.70% and 2.87% respectively. Corporates turnover remains minimal relative to either Agency MBS or Treasury turnover.

Figure 36. Average Daily Trading Volume by Sector

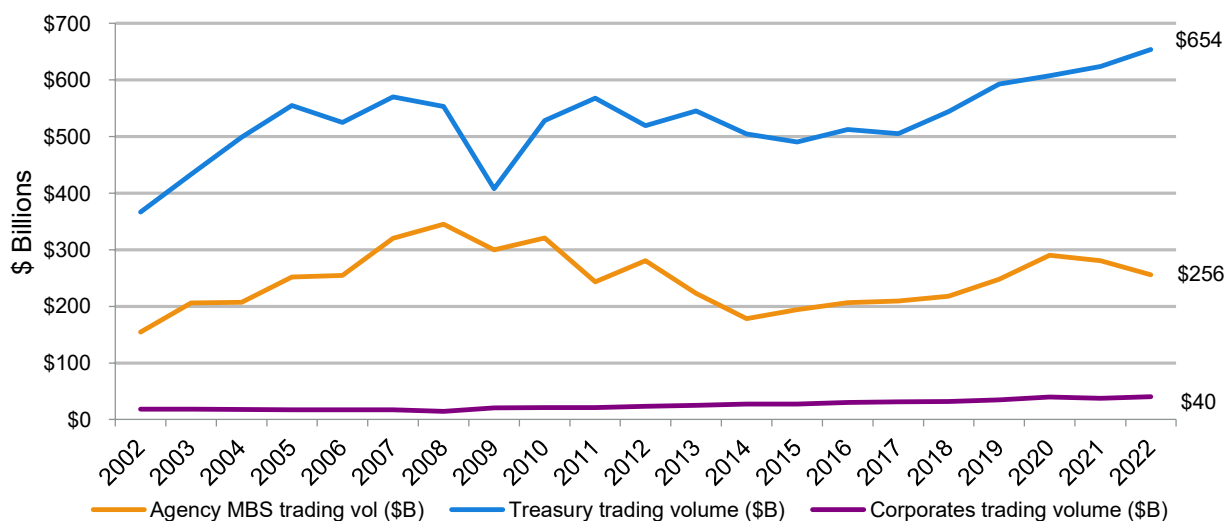
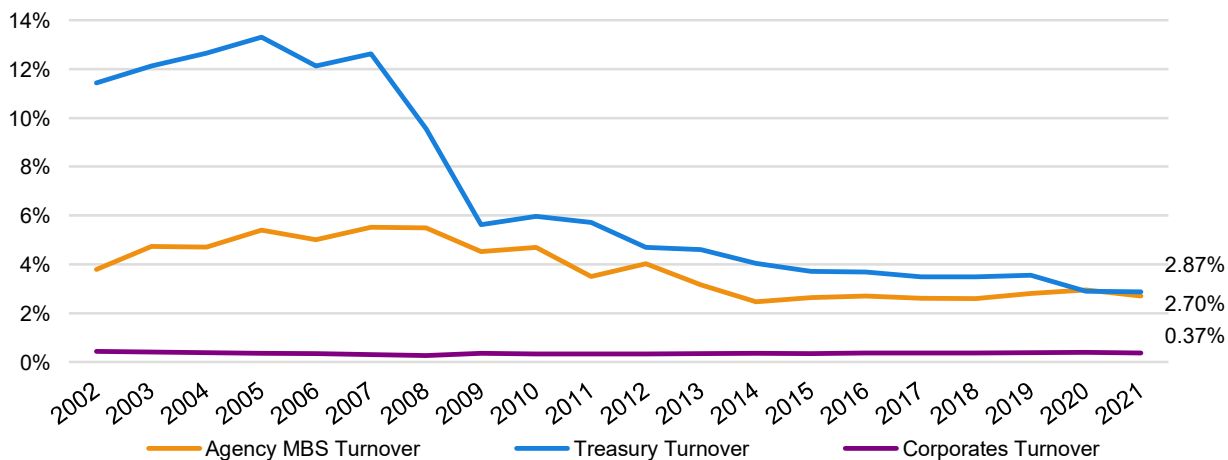


Figure 37. Average Daily Turnover by Sector



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

PRIMARY MORTGAGE MARKET

10 AGENCY CREDIT BREAKDOWN

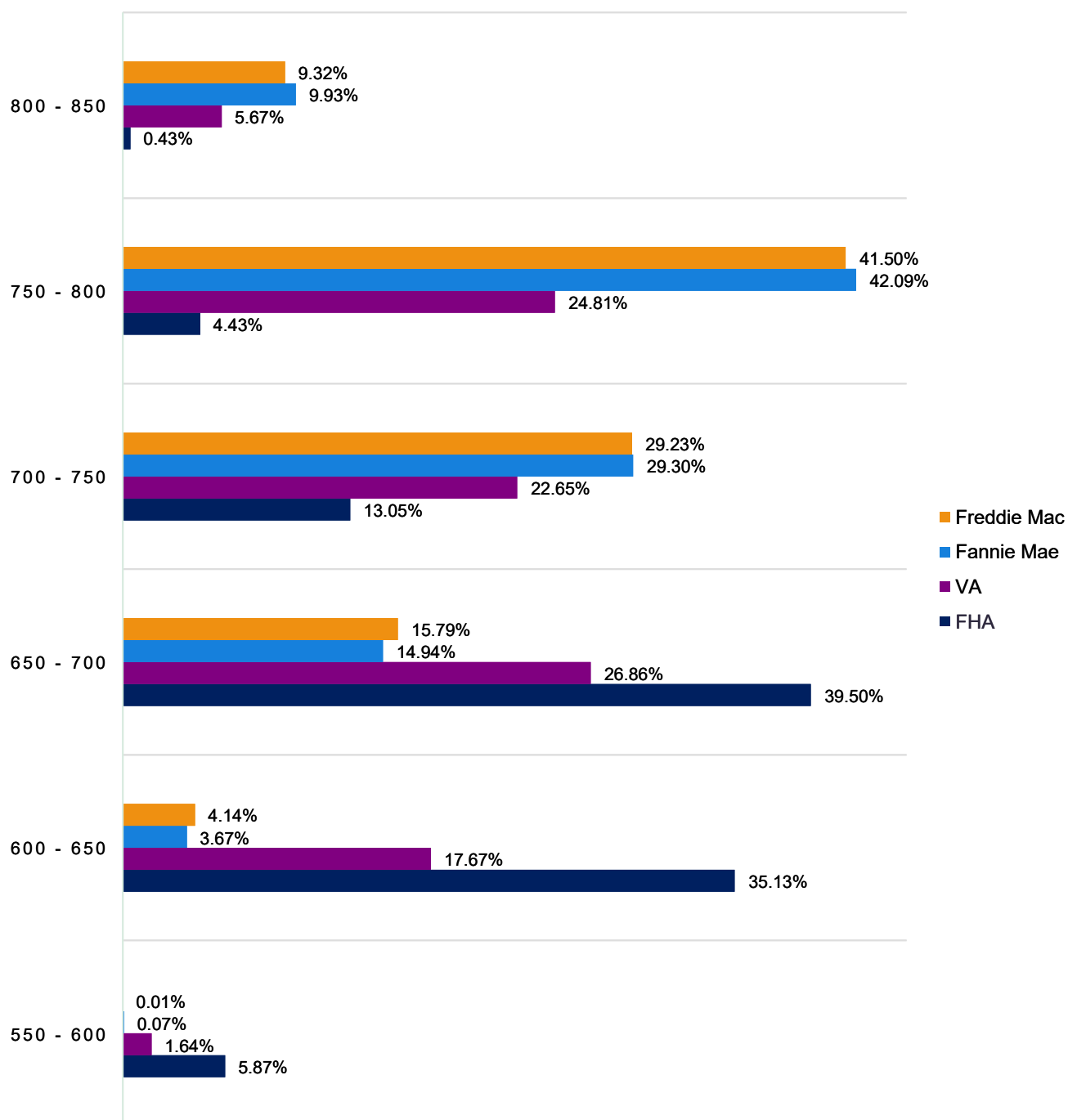
The tables below outline the population distributions of FICO's, DTIs, and LTVs between the agencies and between FHA, VA, and the Other Ginnie Mae loan sources. The distribution statistics capture some key differences in the populations served by the agencies.

10.1 Credit Scores

Table 14. Share of Loans by FICO Score

Purchase FICO							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	304,544	650	691	743	779	798	732
Fannie	121,072	690	723	759	786	801	751
Freddie	88,034	694	727	762	787	801	754
Ginnie	95,438	625	647	678	728	776	688
Refi FICO							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	136,095	636	670	715	764	792	715
Fannie	56,320	659	693	737	776	798	732
Freddie	47,495	653	685	726	767	793	724
Ginnie	32,280	606	631	662	700	748	668
All FICO							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	440,639	646	683	735	776	797	726
Fannie	177,392	679	713	753	784	800	745
Freddie	135,529	675	711	752	783	800	743
Ginnie	127,718	621	643	674	721	771	683
Purchase FICO: Ginnie Mae Breakdown By Source							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	95,438	625	647	678	728	776	688
FHA	56,192	620	640	664	694	731	669
VA	33,954	638	669	723	773	796	719
Other	5,292	640	658	690	729	760	694
Refi FICO: Ginnie Mae Breakdown By Source							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	32,280	606	631	662	700	748	668
FHA	18,121	596	622	647	674	701	648
VA	14,093	625	652	690	736	774	694
Other	66	606	639	690	750	759	687
All FICO: Ginnie Mae Breakdown By Source							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	127,718	621	643	674	721	771	683
FHA	74,313	612	635	660	689	726	664
VA	48,047	633	663	711	764	793	712
Other	5,358	640	658	690	729	760	694

Figure 38. FICO Distributions by Agency



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

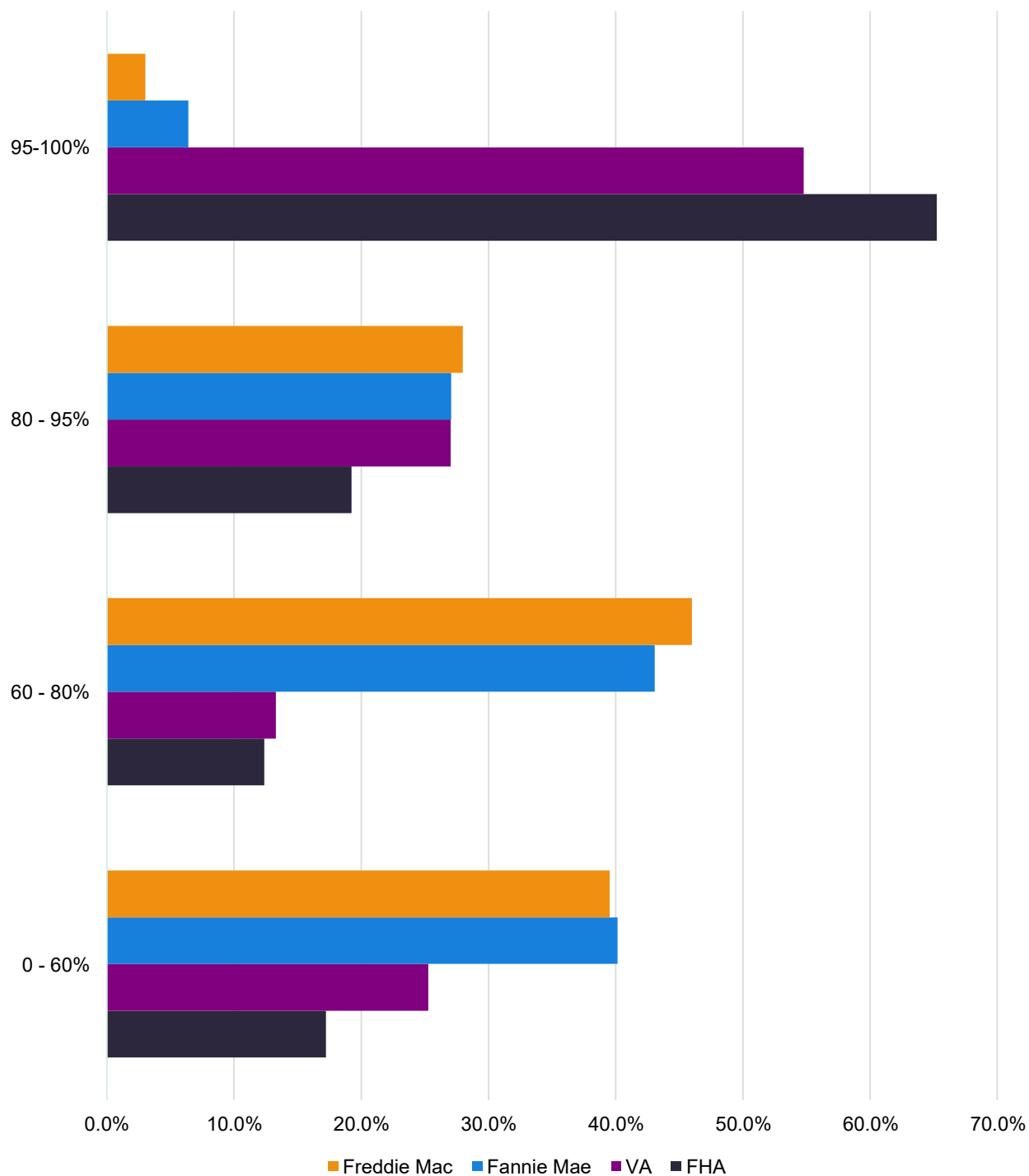
10.2 Loan-to-Value (LTV)

Table 15. Share of Loans by LTV

Purchase LTV							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	304,789	67	80	90	97	99	86
Fannie	121,188	60	75	80	95	95	81
Freddie	88,062	60	75	80	95	95	80
Ginnie	95,539	90	96	98	100	101	96
Refi LTV							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	136,586	38	53	67	77	81	63
Fannie	56,322	34	48	60	73	80	59
Freddie	47,497	37	51	64	74	80	60
Ginnie	32,767	57	69	80	85	90	76
All LTV							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	441,375	51	70	80	95	98	79
Fannie	177,510	46	63	80	90	95	74
Freddie	135,559	47	63	79	90	95	73
Ginnie	128,306	73	86	98	99	100	91
Purchase LTV: Ginnie Mae Breakdown By Source							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	95,539	90	96	98	100	101	96
FHA	56,244	91	96	98	98	98	96
VA	33,984	86	100	100	100	102	96
Other	5,311	93	99	101	101	101	98
Refi LTV: Ginnie Mae Breakdown By Source							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	32,767	57	69	80	85	90	76
FHA	18,397	56	68	78	81	81	73
VA	14,253	59	73	85	90	9	80
Other	117	50	64	81	93	100	78
All LTV: Ginnie Mae Breakdown By Source							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	128,306	73	86	98	99	100	91
FHA	74,641	73	81	98	98	98	90
VA	48,237	73	88	100	100	102	92
Other	5,428	9	98	101	101	101	98

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

Figure 39. Loan-to Value by Agency



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

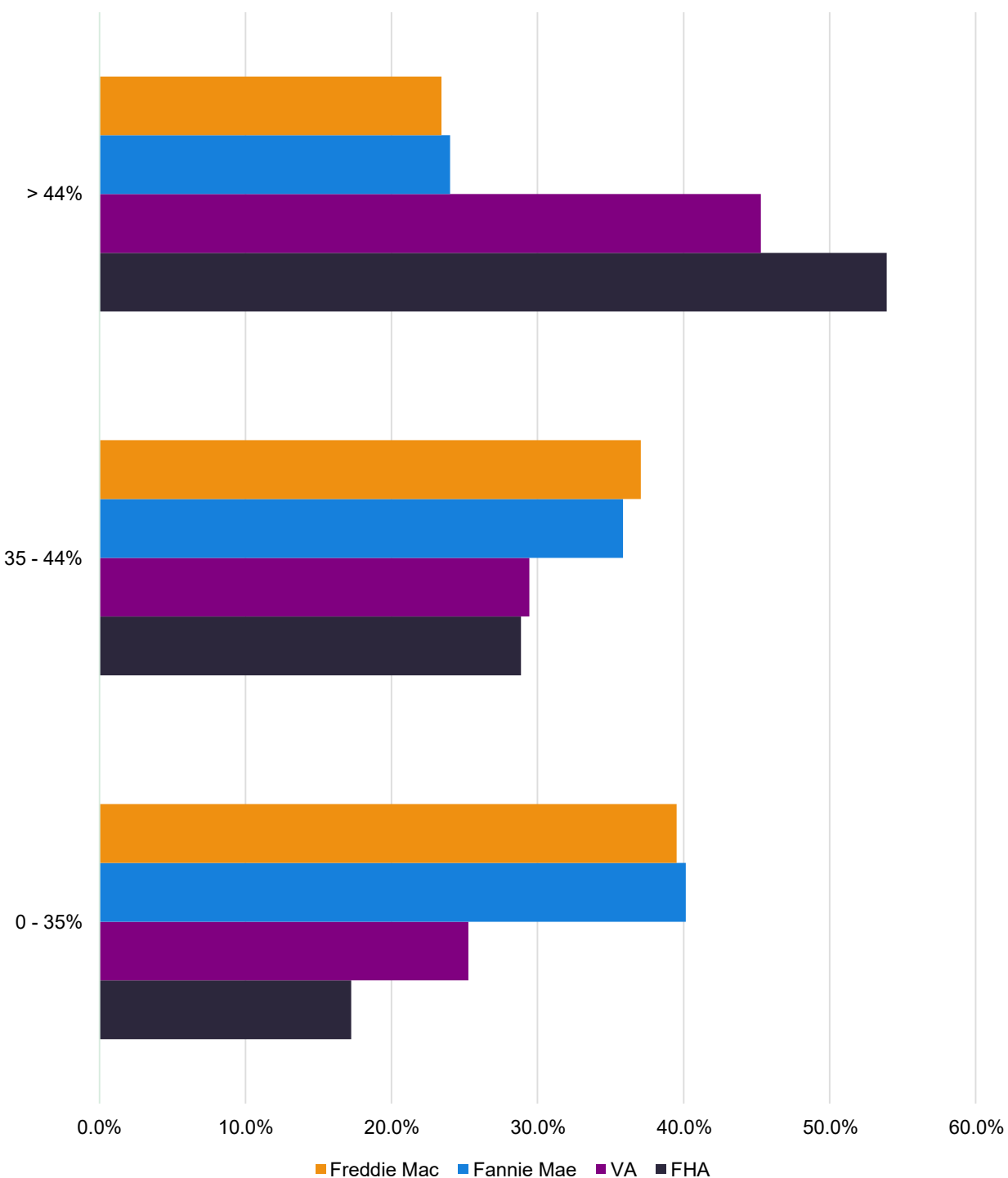
10.3 Debt-to-Income (DTI)

Table 16. Share of Loans by DTI

<i>Purchase DTI</i>							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	304,166	25	32	40	46	50	38
Fannie	121,188	24	31	39	45	48	37
Freddie	88,062	23	30	38	44	48	36
Ginnie	94,916	29	37	44	50	55	43
<i>Refi DTI</i>							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	135,369	24	31	39	45	49	38
Fannie	56,322	23	30	38	44	47	36
Freddie	47,497	24	31	39	44	48	37
Ginnie	31,550	27	34	42	49	54	41
<i>All DTI</i>							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	439,535	25	32	40	46	50	38
Fannie	177,510	23	30	38	44	48	36
Freddie	135,559	24	31	38	44	48	37
Ginnie	126,466	29	36	43	50	50	42
<i>Purchase DTI: Ginnie Mae Breakdown By Source</i>							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	94,916	29	37	44	50	55	43
FHA	56,206	31	38	45	51	54	44
VA	33,414	28	35	43	50	56	42
Other	5,296	26	31	35	40	43	35
<i>Refi DTI: Ginnie Mae Breakdown By Source</i>							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	31,550	27	34	42	49	54	41
FHA	17,761	28	35	43	49	54	42
VA	13,693	26	32	40	48	53	40
Other	96	12	17	25	35	40	26
<i>All DTI: Ginnie Mae Breakdown By Source</i>							
Names	Number of Loans	P10	P25	Median	P75	P90	Mean
All	126,466	29	36	43	50	54	42
FHA	73,967	30	38	45	50	54	43
VA	47,107	27	34	42	49	55	42
Other	5,392	26	31	35	40	42	35

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

Figure 40. Debt-to Income by Agency



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

10.4 High LTV Loans: Ginnie Mae vs. GSEs

The share of high-LTV Agency loans going to borrowers with FICO scores above 750 has increased by approximately 5% between periods April 2020 – June 2020 and April 2022 - June 2022. The share of borrowers with DTIs below 35% decreased by approximately 7% over the same period. From the period between April 2020 – June 2020 to the period between April 2022 – June 2022, the share of high-LTV loans increased in the Ginnie Mae guarantee book by approximately 3% and the GSE portfolios increased by approximately 81%. Still, Ginnie Mae maintains its key role of expanding credit access to low-to-moderate income borrowers as it continues to dominate high-LTV lending, with 63.56% of its issuances between April 2022 and June 2022 having LTVs of 95 or above, compared to 18.14% for the GSEs.

Table 17. Share of Loans with LTV > 95

	Ginnie Mae	GSE	All
<i>Apr 2020 - Jun 2020</i>	61.81%	10.00%	22.38%
<i>Apr 2022 - Jun 2022</i>	63.56%	18.14%	31.91%

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

		FICO					
<i>DTI</i>		<650	650-700	700-750	≥750	NA	All
<35		2.40%	4.24%	6.32%	10.08%	0.42%	23.47%
35-45		4.97%	8.22%	9.77%	10.34%	0.17%	33.47%
≥45		4.76%	7.67%	6.75%	5.60%	0.09%	24.87%
NA		2.03%	3.03%	2.65%	2.94%	7.53%	18.19%
All		14.17%	23.16%	25.50%	28.97%	8.21%	100.00%

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

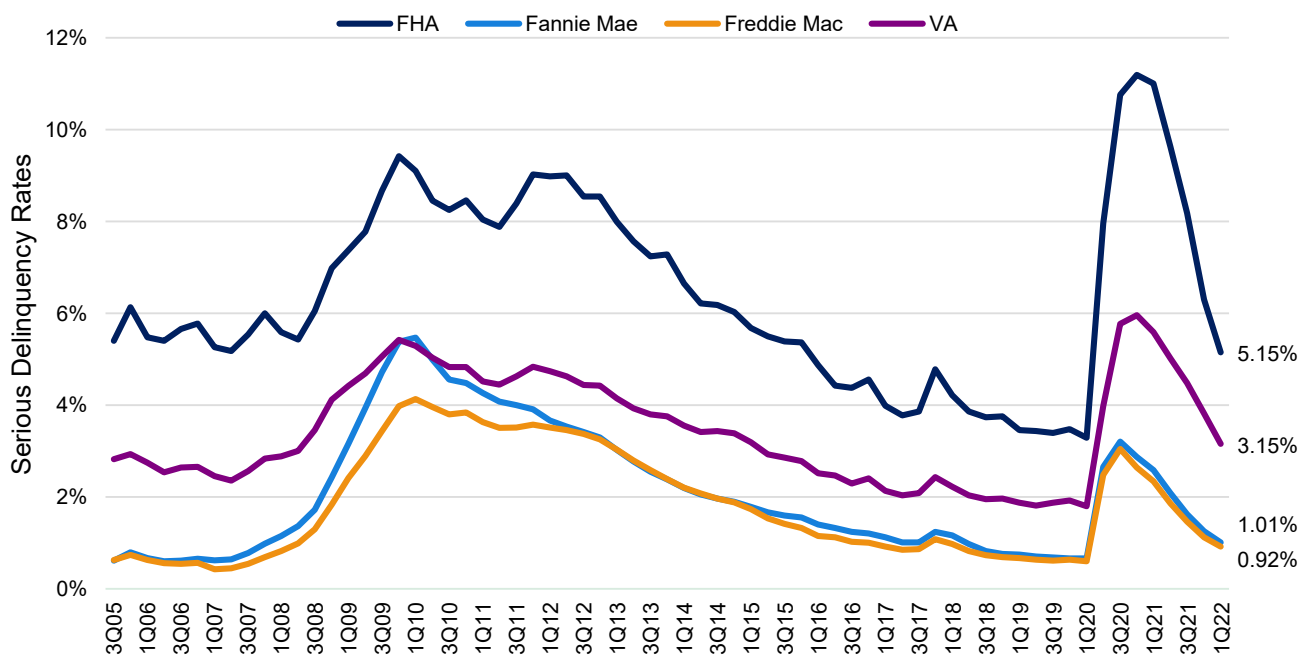
		FICO					
<i>DTI</i>		<650	650-700	700-750	≥750	NA	All
<35		2.44%	4.19%	5.72%	9.44%	0.06%	21.86%
35-45		5.82%	9.19%	10.47%	11.75%	0.05%	37.27%
≥45		7.01%	11.44%	9.81%	8.91%	0.05%	37.22%
NA		0.75%	0.50%	0.31%	0.26%	1.84%	3.65%
All		16.02%	25.32%	26.30%	30.36%	2.01%	100.00%

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

10.5 Serious Delinquency Rates

Serious delinquency rates for single-family GSE, FHA, and VA loans all continued to fall sharply in Q1 2022. From Q4 2021 to Q1 2022, Fannie and Freddie serious delinquencies decreased 24 and 20 bps, respectively, or 19% and 18% respectively, as a percentage change. Ginnie Mae collateral's serious delinquency rates decreased more than the GSE rates in absolute terms, with FHA and VA dropping 115 and 67 bps respectively. This decline in serious delinquency rates is consistent with the decrease in the number of loans in forbearance captured in [Section 11 below](#).

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



Sources:

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

Note: Serious delinquency is defined as 90 days or more past due or in the foreclosure process. Data as of Q1 2022.

11 FORBEARANCE TRENDS

137,398 Ginnie Mae loans were in forbearance as of the end of May 2022. This represents a 3.0% decrease MoM. 4,219 of loans in forbearance were removed from MBS pools and 133,269 loans in forbearance still actively remain in pools. Most liquidated loans (2,746) were FHA and within that subset, 1,684 of those loans were originated by non-banks.

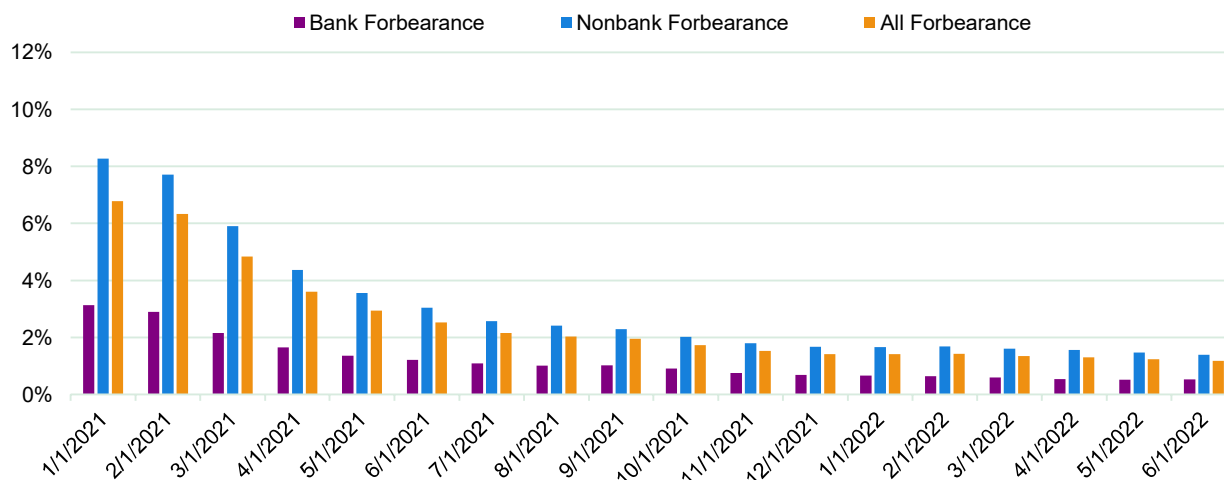
Table 20. Forbearance Snapshot

<i>All Loans in Forbearance – May 2022</i>						
	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie Bank	658	3.3	\$186,285.12	77.3	71.0	137,398
Nonbank	673	3.7	\$138,150.27	79.0	81.3	13,984
FHA	656	3.3	\$91,964.20	77.1	70.1	123,414
Bank	653	3.4	\$182,979.61	80.1	76.2	98,566
Nonbank	668	3.8	\$130,927.55	82.5	85.5	10,405
VA	652	3.4	\$189,190.52	79.9	75.4	88,161
Bank	668	3.1	\$233,660.68	63.9	51.3	27,258
Nonbank	686	3.4	\$185,140.13	65.7	67.6	2,701
Nonbank	666	3.0	\$238,744.84	63.7	49.9	24,557
<i>Loans in Forbearance and Removed from Pools – May 2022</i>						
	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie Bank	658	3.7	\$148,909.71	72.3	66.7	4,129
Nonbank	671	4.1	\$109,183.48	71.5	69.3	1,390
FHA	655	3.6	\$178,783.23	72.6	65.9	2,739
Bank	651	3.9	\$135,917.23	76.0	72.5	2,746
Nonbank	664	4.3	\$101,359.94	73.8	69.0	1,062
VA	647	3.7	\$173,633.72	76.7	73.7	1,684
Bank	672	3.3	\$209,663.32	58.9	49.2	963
Nonbank	685	3.7	\$165,552.09	64.6	64.3	243
Nonbank	669	3.3	\$227,397.43	57.3	45.8	720
<i>Loans in Forbearance that Remain in Pools – May 2022</i>						
	FICO Score*	Note Rate*	Current Principal Balance Median	First Time Homebuyer Share (%)	Purchase Share (%)	Loan Count
Ginnie Bank	658	3.3	\$187,386.55	77.4	71.1	133,269
Nonbank	673	3.6	\$142,372.16	79.5	82.2	12,594
FHA	656	3.3	\$192,154.01	77.2	70.2	120,675
Bank	654	3.4	\$184,144.93	80.2	76.3	95,820
Nonbank	668	3.7	\$136,006.35	83.1	86.8	9,343
VA	652	3.4	\$189,502.18	80.0	75.5	86,477
Bank	667	3.1	\$234,510.12	64.1	51.3	26,295
Nonbank	686	3.4	\$188,005.32	65.7	67.8	2,458
Nonbank	666	3.0	\$239,000.00	63.9	50.0	23,837

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

The current share of Ginnie Mae loans in forbearance stands at 1.18% as of the end of June 2022, a 5 bp MoM decline from 1.23% observed as of the end of May 2022. With the forbearance rate for Ginnie Mae collateral having been just 0.25% in March of 2020, prior to lockdown and the introduction of borrowers' right to forbearance under the CARES Act, the current rates remain approximately five times higher than the forbearance rate just prior to the pandemic, and the rate of convergence to pre-pandemic rates has continued to slow down in June 2022.

Figure 42. Share of Ginnie Mae Loans in Forbearance.



Sources: Recursion. Notes: Data as of June 2022

Figure 43. Number of Loans Removed from Pools: Non-bank

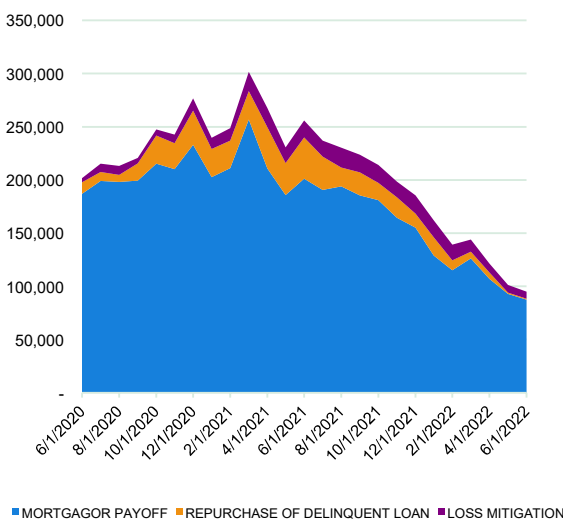
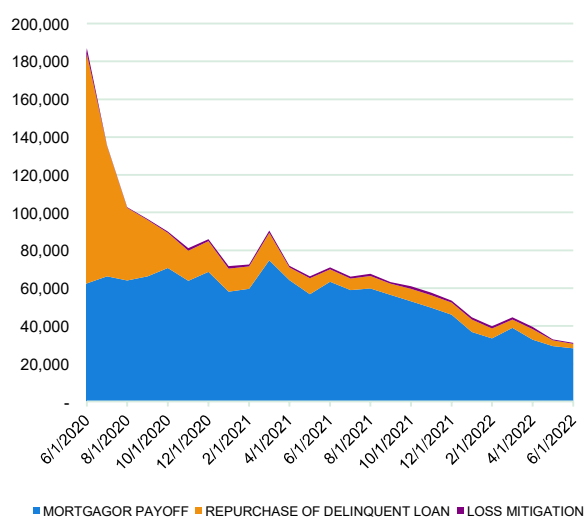


Figure 44. Number of Loans Removed from Pools: Bank



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

Of the Ginnie Mae loans that were liquidated from pools due to mortgage delinquency (these counts include all delinquent buyouts, regardless of forbearance status), a higher share of the loans were FHA versus VA loans (top charts, yellow areas). Liquidated loans across FHA and VA are now more likely to have coupons less than 3.5% (bottom charts: “Number of Loans Removed from Pools by Coupon”). In June 2022, the number of loans repurchased due to delinquency decreased 19% to 2,593 for FHA and decreased 41% to 469 for VA loans.

Figure 45. Number of Loans

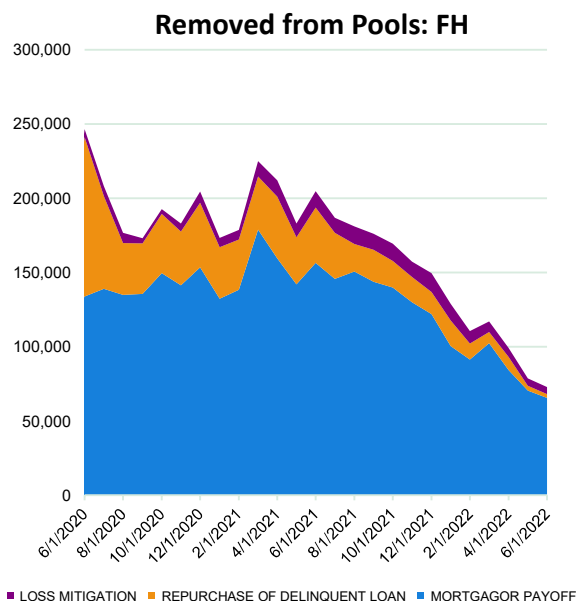


Figure 46. Number of Loans Removed

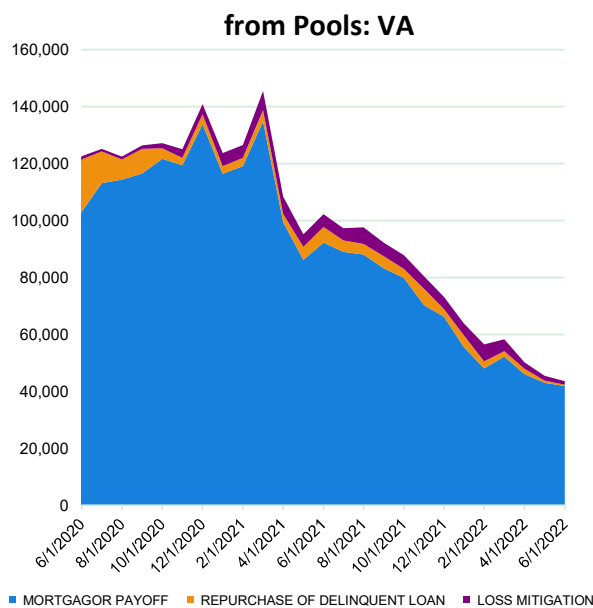
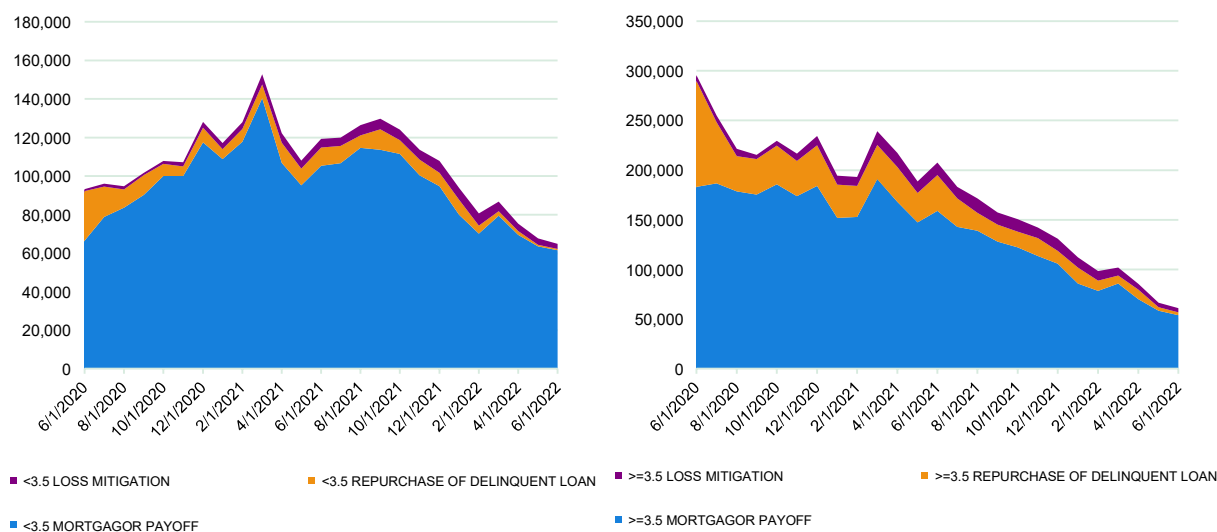


Figure 45. Number of Loans Removed from Pools by Coupon.



Sources: Recursion. Notes: data as of June 2022.

12 HOLDERS OF GINNIE MAE MORTGAGE SERVICING RIGHTS

This table shows the 30 largest owners of mortgage servicing rights (MSR) by UPB for loans collateralizing Ginnie Mae MBS. The top 30 firms collectively own 82.8% of Ginnie Mae MSRs (see Cumulative Share). Twenty-three of these top 30 are non-depository institutions, the remaining 7 are depository institutions. As of June 2022, over half (50.2%) of the Ginnie Mae MSRs are owned by the top six firms.

Table 21. Top 30 Holders of Ginnie Mae Mortgage Servicing Rights (MSRs), by UPB

Rank	MSR Holder	UPB (\$ millions)	Share	Cumulative Share
1	FREEDOM HOME MORTGAGE	\$253,866,602,787	12.58%	12.58%
2	PENNYMAC LOAN SERVICING	\$230,709,867,373	11.43%	24.01%
3	LAKEVIEW LOAN SERVICING	\$212,478,955,141	10.53%	34.54%
4	WELLS FARGO BANK	\$118,794,926,631	5.89%	40.42%
5	ROCKET MORTGAGE	\$101,360,992,284	5.02%	45.44%
6	NATIONSTAR MORTGAGE	\$96,606,829,506	4.79%	50.23%
7	CARRINGTON MORTGAGE	\$74,975,495,757	3.71%	53.95%
8	NEWREZ	\$62,553,609,347	3.10%	57.04%
9	CALIBER HOME LOANS	\$51,105,368,817	2.53%	59.58%
10	U. S. BANK	\$48,555,985,319	2.41%	61.98%
11	UNITED WHOLESALE MORTGAGE	\$39,928,270,507	1.98%	63.96%
12	MORTGAGE RESEARCH CENTER	\$33,574,884,259	1.66%	65.62%
13	LOANDEPOT.COM, LLC	\$32,906,733,178	1.63%	67.26%
14	PLANET HOME LENDING	\$32,580,916,487	1.61%	68.87%
15	USAA FEDERAL SAVINGS	\$29,829,583,713	1.48%	70.35%
16	NAVY FEDERAL CREDIT	\$28,570,765,838	1.42%	71.76%
17	AMERIHOMES MORTGAGE	\$22,333,222,506	1.11%	72.87%
18	THE MONEY SOURCE INC	\$21,151,492,537	1.05%	73.92%
19	GUILD MORTGAGE COMPA	\$20,855,158,246	1.03%	74.95%
20	TRUIST BANK	\$20,854,161,946	1.03%	75.98%
21	CROSSCOUNTRY MORTGAG	\$16,383,580,458	0.81%	76.80%
22	NEW AMERICAN FUNDING	\$15,616,890,374	0.77%	77.57%
23	VILLAGE CAPITAL & INVESTMENT	\$14,484,895,023	0.72%	78.29%
24	RUSHMORE LOAN MANAGEMENT	\$13,608,014,319	0.67%	78.96%
25	IDAHO HOUSING AND FINANCE	\$13,522,206,282	0.67%	79.63%
26	CITIZENS BANK N.A.	\$13,446,474,274	0.67%	80.30%
27	CMG MORTGAGE, INC.	\$13,292,311,445	0.66%	80.96%
28	MOVEMENT MORTGAGE, LL	\$13,281,381,552	0.66%	81.61%
29	MIDFIRST BANK	\$12,680,168,232	0.63%	82.24%
30	CARDINAL FINANCIAL	\$11,111,915,247	0.55%	82.79%

Source: Deloitte. Data as of June 2022.

13 AGENCY NONBANK ORIGINATORS

Total Agency non-bank origination experienced a decrease in June, down approximately 5% since last month. This decrease in non-bank origination share was driven primarily by Freddie Mac (non-bank origination share down 9% MoM). The Ginnie Mae non-bank share fell to 87.2% as of June 2022 but has remained consistently higher than the GSEs since September 2021 (89.1%). Ginnie Mae non-bank origination share of refinance mortgage loans has continued to drive Ginnie Mae's relatively higher non-bank origination share. GSE origination volume of purchase mortgage loans has been the primary driver in the MoM decline of Agency non-bank origination share.

Figure 46. Agency Nonbank Originator Share (All, Purchase, Refi)

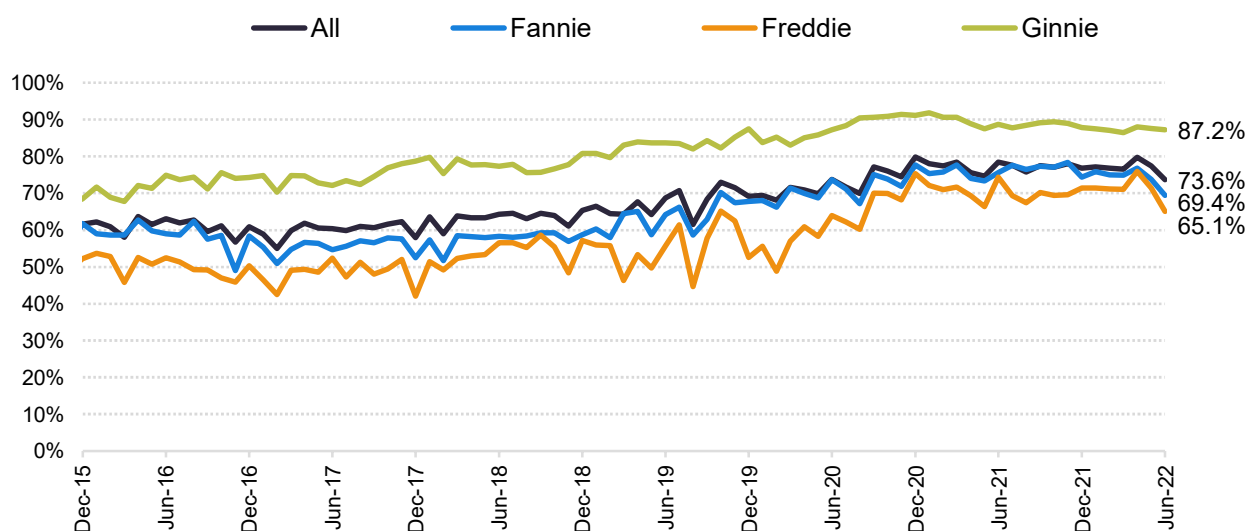


Figure 47. Nonbank Origination Share:

Purchase Loans

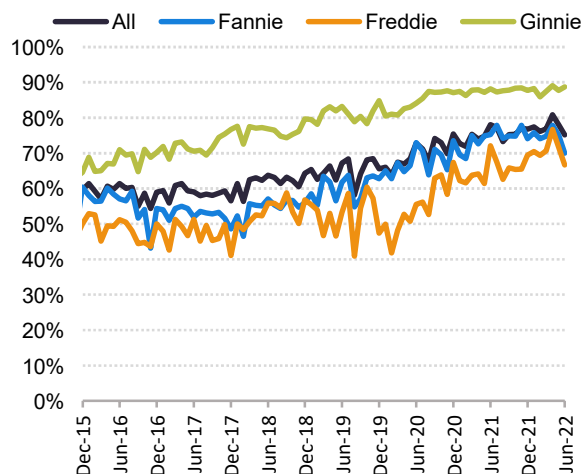
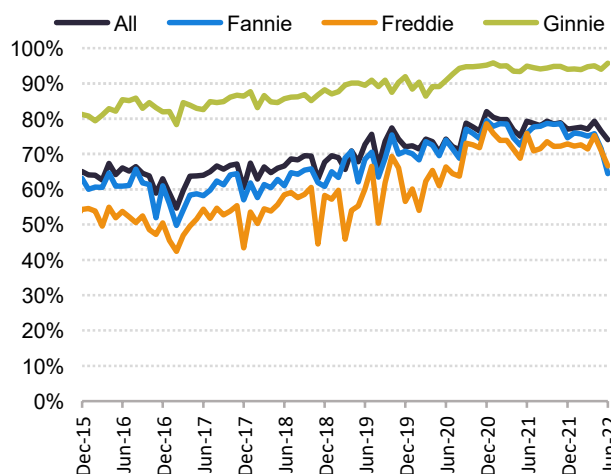


Figure 50. Nonbank Origination Share:

Refi Loans



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

Ginnie Mae's total non-bank originator share remained relatively level in June 2022.

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

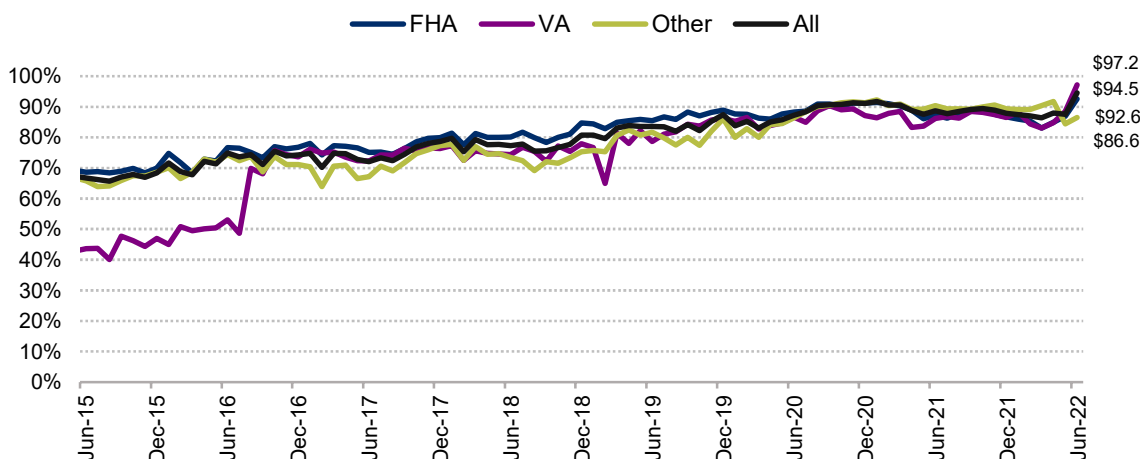


Figure 52. Ginnie Mae Nonbank Share:

Purchase Loans

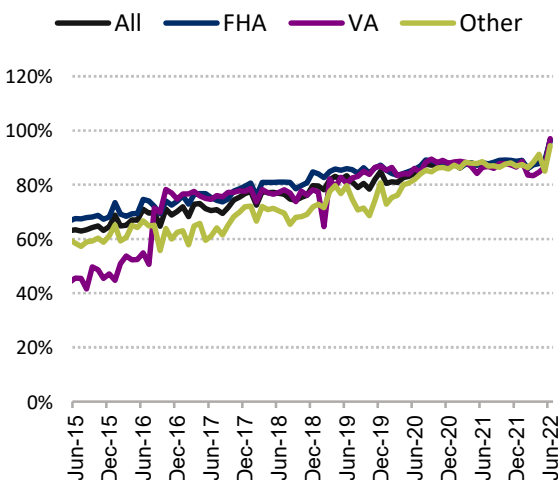
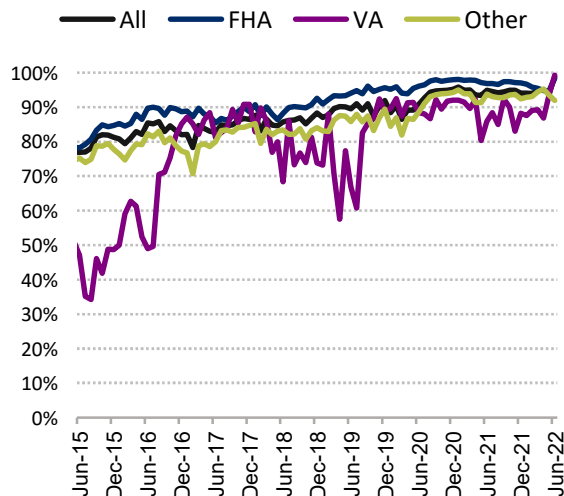


Figure 53. Ginnie Mae Nonbank Share:

Refi Loans



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

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

13.1.1 (FICO, LTV, DTI)

The mortgage loan originations of non-banks continue to have a consistently lower median FICO score than their bank counterparts across all Agencies. The spread between non-bank and bank FICO scores increased by 2 FICO score points from May 2022 to June 2022. The Agency median FICO increased by 1 FICO score point to 731 MoM.

Figure 49. Agency FICO: Bank vs. Nonbank

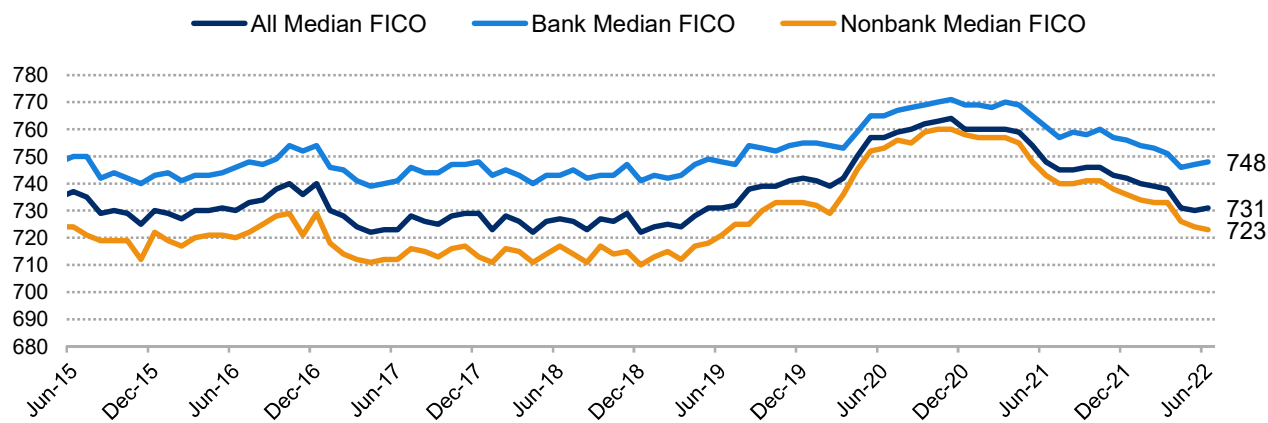


Figure 55. GSE FICO: Bank vs. Nonbank

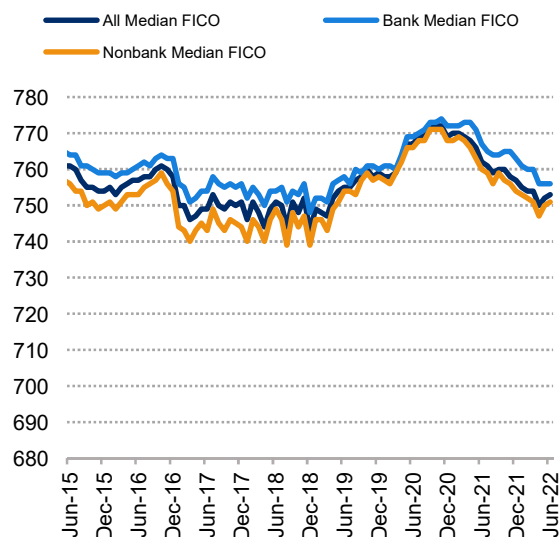
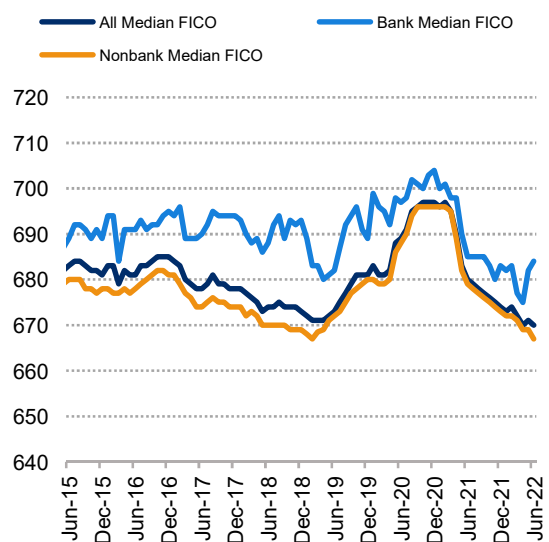


Figure 50. Ginnie Mae FICO: Bank vs. Nonbank



Sources: Recursion; Data as of June 2022.

The median LTV for all GSE originators increased in June 2022 by 6.7% MoM to 80%. While Ginnie Mae median bank LTV has been very flat at 98.19% since January 2021, non-bank median LTV has fluctuated more, increasing 1.0% MoM to 97.66% in June 2022. Ginnie Mae median DTI remained consistent MoM at approximately 44% in June 2022 in non-bank originations.

Figure 51. GSE LTV: Bank vs. Nonbank

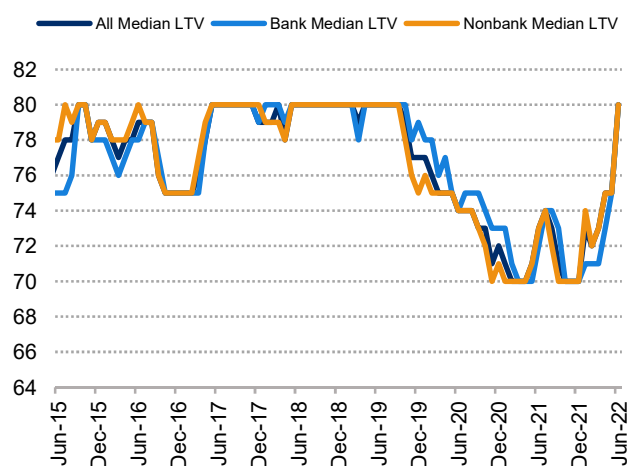


Figure 52. Ginnie Mae LTV: Bank vs. Nonbank

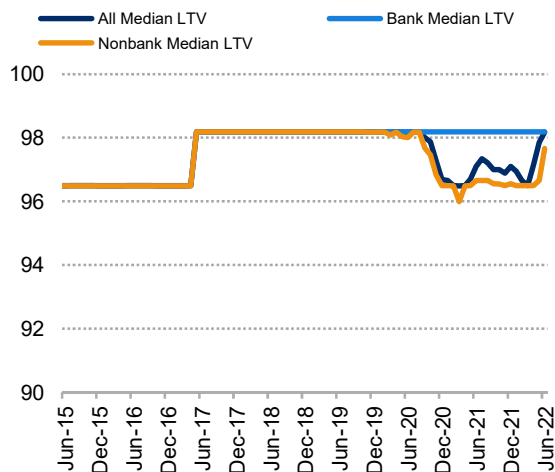


Figure 59. GSE DTI: Bank vs. Nonbank

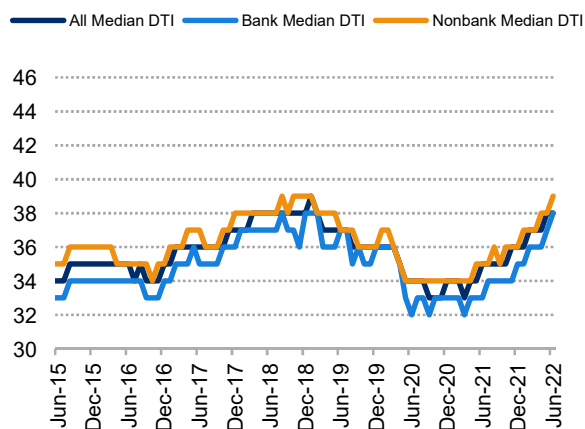
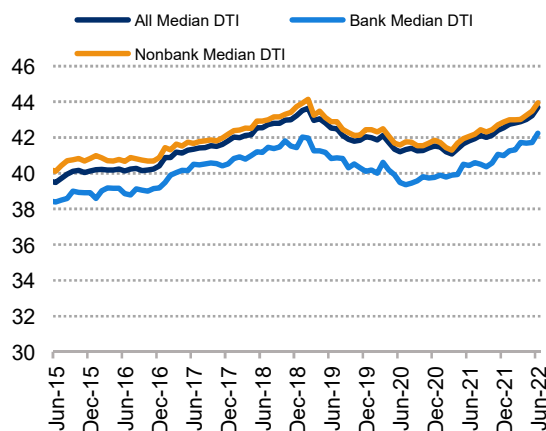


Figure 53. Ginnie Mae DTI: Bank vs. Nonbank



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

In June 2022, the median FICO score for Ginnie Mae bank increased by 2 points and non-bank originators decreased by 2 points MoM. The median FICO for all Ginnie originations decreased to 670 MoM. The gap between banks and non-banks is most apparent in VA lending (32-point spread).

Figure 54. Ginnie Mae FICO Score: Bank vs.

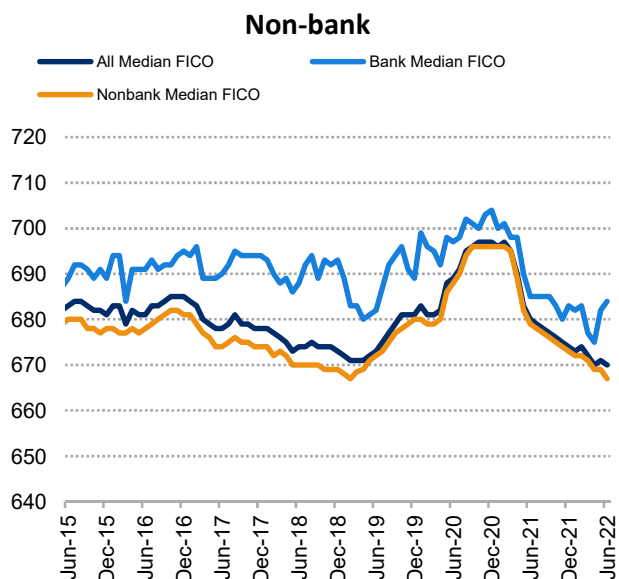


Figure 55. Ginnie FHA FICO Score: Bank vs.

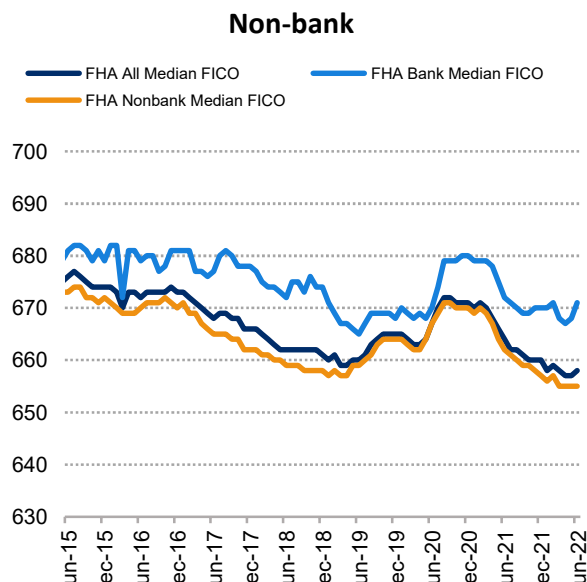


Figure 56. Ginnie Mae VA FICO Score: Bank vs.

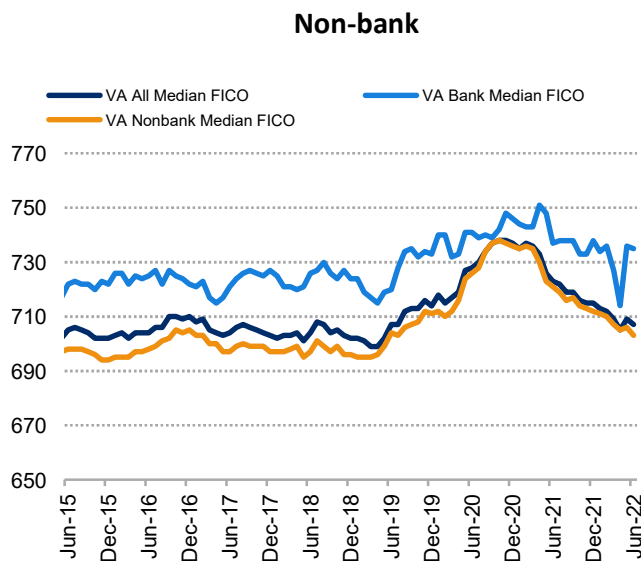
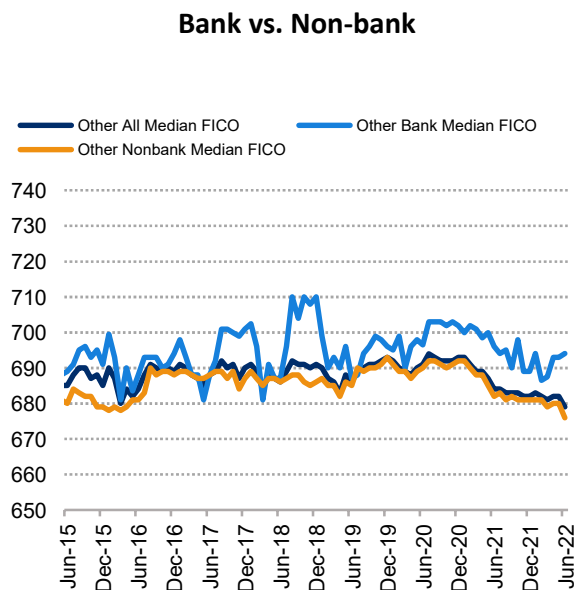


Figure 64. Ginnie Mae Other FICO Score:



Sources: Recursion. Data as of June 2022.

Median DTI for Ginnie Mae nonbank originations has been consistently higher than the median DTI for Ginnie Mae bank originations. This is a trend evident for all Ginnie Mae-eligible loan types except for the “Other” category, where the spread between median bank and nonbank DTI is relatively small.

Figure 57. Ginnie Mae DTI FI: Bank vs. Non-bank

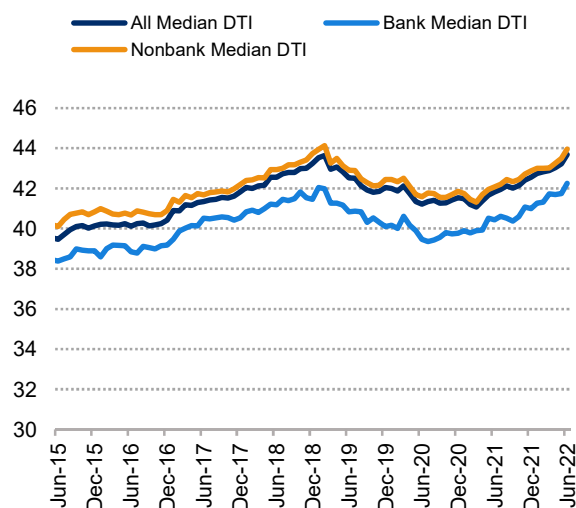


Figure 66. Ginnie Mae FHA DTI: Bank vs. Non-bank

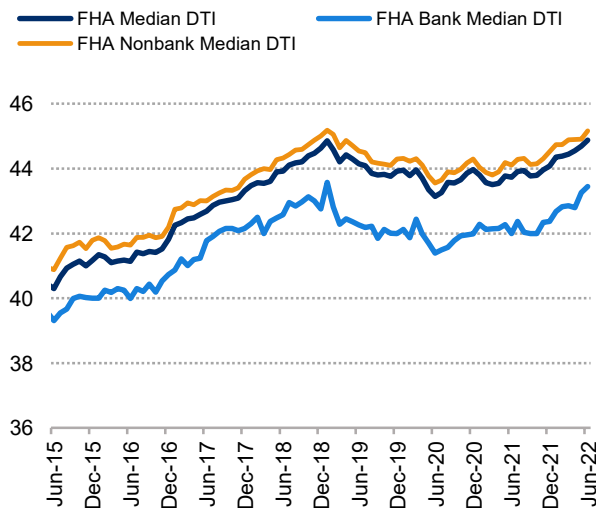


Figure 67. Ginnie Mae VA DTI: Bank vs. Non-bank

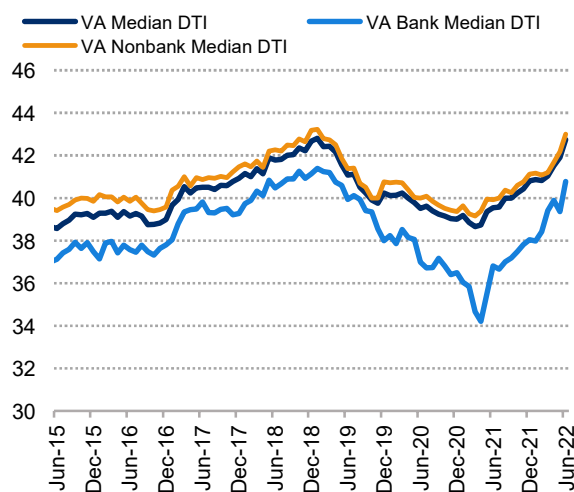
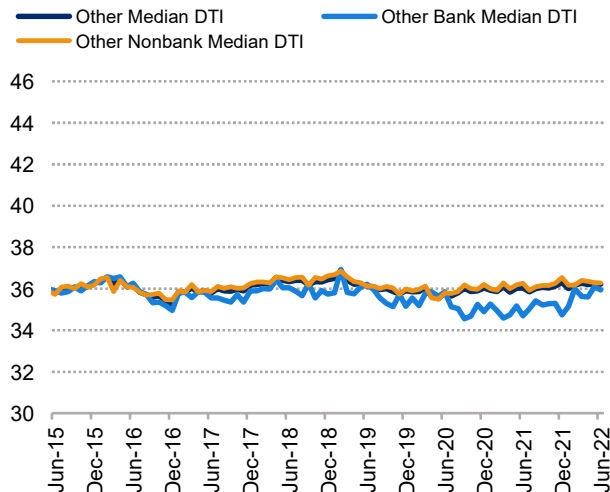


Figure 68. Ginnie Mae Other DTI: Bank vs. Non-bank



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

U.S. HOUSING MARKET

14 HOUSING AFFORDABILITY

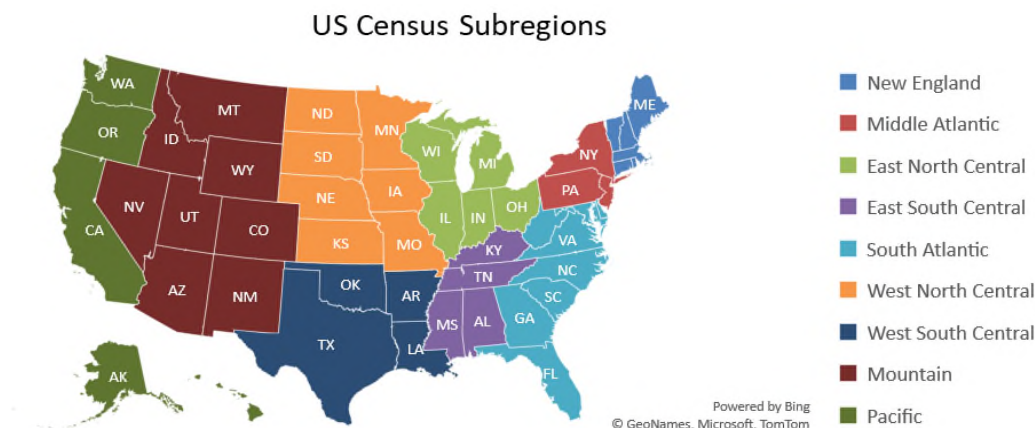
14.1 Housing Affordability – Home Price Appreciation

Home prices have increased rapidly during the pandemic, with Compound Annual Growth Rate (CAGR) for HPI at 17.5% between April 2020 and April 2022. Over that same period, the Mountain region has had the greatest home price appreciation (22.2% CAGR), while in the West North Central region, increases in home values have been the slowest (14.5% CAGR).

Table 22. Regional HPI Trend Analysis

U.S. Census Subregion	New England	Middle Atlantic	East North Central	East South Central	South Atlantic	West North Central	West South Central	Mountain	Pacific	National
2000 to Peak CAGR	10.5%	8.7%	4.0%	4.6%	8.7%	5.0%	4.3%	8.3%	13.9%	7.1%
Peak to Trough CAGR	-8.4%	-5.3%	-9.8%	-5.5%	-14.2%	-5.9%	-2.1%	-15.1%	-17.9%	-10.4%
Trough to Pandemic CAGR	3.7%	3.5%	4.8%	4.5%	5.9%	4.6%	5.1%	8.3%	8.1%	5.4%
Pandemic CAGR	17.6%	15.2%	14.8%	18.0%	19.9%	14.5%	16.2%	22.2%	18.7%	17.5%
12-Month Period of Max HPI Growth During Pandemic	7-2020 to 6-2021	8-2020 to 7-2021	7-2020 to 6-2021	4-2021 to 3-2022	3-2021 to 2-2022	7-2020 to 6-2021	2-2021 to 1-2022	9-2020 to 8-2021	7-2020 to 6-2021	6-2020 to 7-2021
Max 12-Month Period Change, During Pandemic	21.8%	18.1%	17.1%	21.5%	23.9%	16.1%	18.8%	25.7%	21.8%	19.3%
12-Month Period of Max HPI Growth, Pre-Pandemic	12-2001 to 11-2002	12-2003 to 11-2004	2-2017 to 1-2018	2-2005 to 1-2006	9-2004 to 8-2005	4-1993 to 3-1994	3-2005 to 2-2006	11-2004 to 10-2005	5-2004 to 4-2005	10-2004 to 9-2005
Max 12-Month HPI Growth, Pre-Pandemic	14.0%	12.4%	6.8%	8.5%	15.3%	7.4%	7.4%	18.0%	22.3%	10.7%

Figure 69. FHFA.US Census Subregions as defined by the US Census Bureau.



Source: HPI data from FHFA.US Census Subregions as defined by the US Census Bureau. Notes: HPI data as of March 2022. Peak refers to the month when HPI reached the highest level for each state/US during the housing boom period, ranging from 2005

to 2008. Trough represents the month when HPI fell to the lowest level for each region/US after the housing bust, ranging from 2009 to 2012. Pandemic Period refers to March 2020 to the current period, 3/2022. $CAGR = (End\ Value/Starting\ Value)^{(1/n)} - 1$

S&P's CoreLogic Case-Shiller US National Housing Price Index's March 29, 2022 reporting data indicated that home prices had increased by 17.9% YoY as of January 2022. This latest reported YoY HPI appreciation value is just 135 bps lower than the historical maximum value (19.2%) observed in July of 2021, suggesting a sustained pace of home price increases.

Table 23. Home Price Trends by State

State	2000 to Peak	Peak to Trough	Trough to Current	YOY	Current HPI % Above Peak
National	59.6%	-21.1%	92.0%	14.4%	51.4%
AK	66.9%	-5.2%	42.3%	10.6%	35.0%
AL	41.8%	-15.0%	68.0%	15.7%	42.8%
AR	39.8%	-11.0%	60.4%	16.0%	42.8%
AZ	110.1%	-49.5%	186.6%	24.6%	44.8%
CA	145.0%	-47.0%	142.0%	19.0%	28.2%
CO	32.4%	-10.3%	144.4%	18.2%	119.2%
CT	72.7%	-19.6%	38.5%	17.0%	11.3%
DC	162.4%	-11.7%	113.4%	10.1%	88.5%
DE	88.6%	-23.5%	53.9%	15.3%	17.7%
FL	130.0%	-46.5%	152.2%	21.0%	34.9%
GA	36.0%	-27.1%	118.4%	18.0%	59.2%
HI	138.7%	-27.0%	101.3%	14.8%	46.9%
IA	28.0%	-5.4%	56.2%	11.5%	47.7%
ID	73.2%	-32.2%	206.7%	30.9%	107.9%
IL	49.9%	-23.8%	48.2%	12.3%	13.0%
IN	19.1%	-8.7%	79.6%	15.1%	64.0%
KS	31.0%	-7.8%	68.2%	14.2%	55.2%
KY	29.0%	-5.4%	66.7%	14.4%	57.6%
LA	51.6%	-6.7%	46.6%	9.6%	36.8%
MA	69.8%	-18.2%	79.0%	16.1%	46.4%
MD	126.4%	-26.5%	53.3%	12.7%	12.7%
ME	72.2%	-12.4%	79.9%	20.7%	57.5%
MI	18.4%	-31.5%	113.8%	15.6%	46.4%
MN	52.5%	-23.0%	85.7%	13.4%	43.0%
MO	39.2%	-15.0%	76.8%	15.3%	50.3%
MS	38.6%	-12.8%	47.4%	12.8%	28.6%
MT	80.0%	-13.6%	102.5%	22.5%	75.0%
NC	39.8%	-14.1%	88.4%	19.2%	61.7%
ND	51.3%	-0.9%	72.2%	9.4%	70.8%
NE	24.3%	-5.9%	79.8%	14.8%	69.2%
NH	72.7%	-21.9%	84.4%	19.4%	44.0%
NJ	102.3%	-22.7%	52.3%	16.5%	17.8%
NM	66.7%	-17.9%	58.2%	14.8%	29.8%
NV	117.4%	-59.3%	211.5%	20.1%	26.9%
NY	75.7%	-10.5%	58.3%	14.9%	41.6%
OH	19.5%	-16.6%	79.8%	14.8%	50.1%
OK	36.9%	-4.6%	63.1%	14.2%	55.5%
OR	85.6%	-28.6%	133.5%	18.3%	66.7%
PA	68.8%	-10.9%	59.3%	14.2%	41.9%
RI	108.0%	-28.0%	82.1%	18.9%	31.1%
SC	40.5%	-16.0%	89.6%	17.4%	59.2%
SD	40.2%	-2.4%	76.8%	17.7%	72.6%
TN	38.4%	-12.6%	105.6%	20.5%	79.6%
TX	35.8%	-3.0%	101.2%	17.1%	95.1%
UT	65.1%	-26.1%	158.9%	26.3%	91.4%
VA	95.1%	-18.8%	61.6%	14.3%	31.3%
VT	77.9%	-10.3%	58.7%	19.2%	42.4%
WA	83.4%	-27.3%	149.2%	19.9%	81.2%
WI	38.6%	-14.2%	72.0%	14.2%	47.5%
WV	38.7%	-5.7%	42.5%	12.8%	34.4%
WY	85.1%	-9.7%	55.8%	13.4%	40.8%

Source: FHFA/S&P CoreLogic Case-Shiller US National Housing Price Index Data; Notes: HPI State-level data is provided quarterly by FHFA and presented here as of December 2021. Peak refers to the month when HPI reached the highest level for each state/US

during the housing boom period, ranging from 2005 to 2008. Trough represents the month when HPI fell to the lowest level for each state/US after the housing bust, ranging from 2009 to 2012; S&P Corelogic Case-Shiller US National Housing Price Index reported for January 2022 in its Report dated March 29, 2022

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

While housing affordability is directly affected by real estate price fluctuation, affordability is also impacted by general asset price changes. As of June of 2022, inflation, as measured by the 12-month percent change in the Bureau of Labor Statistics' Consumer Price Index, had hit a 40-year high of 9.1%. As of April of 2022, inflation was almost double the pace of wage-growth nationally, signaling increased pressure on housing affordability. As of May of 2022, rents were up 25.5% for 1 Bedroom units, and 26.8% for 2 Bedroom units, year over year. Meanwhile, wage growth remains significantly lower, and relatively flat at just 5.3%.

Figure 70. Inflation | 12-Month Percent Change in CPI

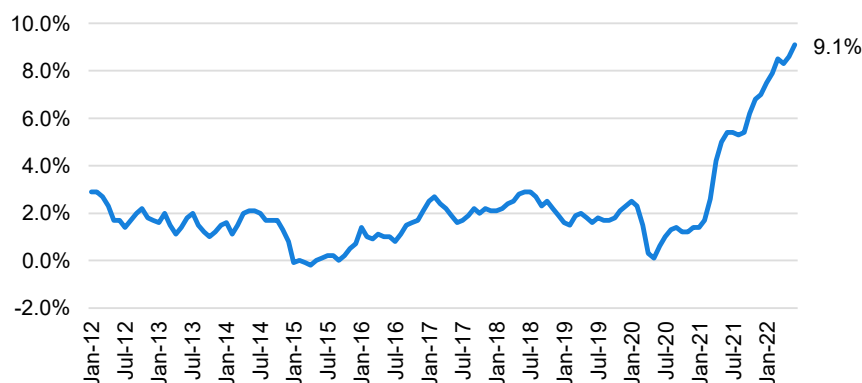
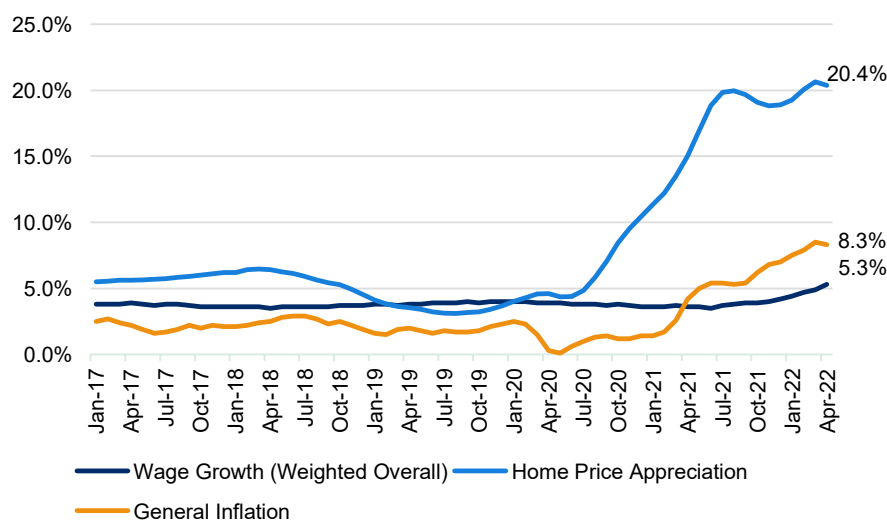


Figure 71. Asset Price Appreciation vs. Wage Increases



Metric	Statistic	
General Inflation	9.1%	
Home Price Appreciation	20.4%	
Rental Price Appreciation	1 Bedroom	2 Bedroom
	25.5%	26.8%
Wage Growth	5.3%	

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

14.2.1 HOUSING AFFORDABILITY – MORTGAGE RATE TRENDS

As inflation has surged, the Federal Reserve has raised the Federal Funds Target Rate, leading to recent increases in mortgage rates. In March the Federal Open Market Committee (FOMC) voted to increase the target rate by 25 bps to 25 – 50 bps. In May the rate was increase 50 bps to 75 -100 bps, and in June the rate was increased 75 bps to 150 -175 bps. As of July 7, 2022, the average 30-year and 15-year fixed rate mortgage rates were 5.30% and 4.45% respectively. With inflation hitting a 40-year high (shown above in [Housing Affordability – Inflation, Wages, and the Price of Real Estate and Rent](#)), Federal Reserve Chairman Jerome Powell has indicated the likelihood for additional interest rate hikes, including an either 50 or 75 bps increase in July.

Figure 58. Average Fixed Rate Mortgage Rates



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

14.3 Housing Inventory

As of April 2022, there was 9 months of housing inventory on the market, despite estimates of a housing shortfall in excess of 1.5 million homes.⁶ With inflation and specifically housing affordability declining due to asset price increases, rent increases, and mortgage rate increases, single-family construction, and specifically housing sales to owner occupants, are unlikely to resolve the housing shortfall in the near future. Multifamily construction volume metrics, shown in the bottom table, have been increasing.

Figure 73. Single-Family Housing Inventory

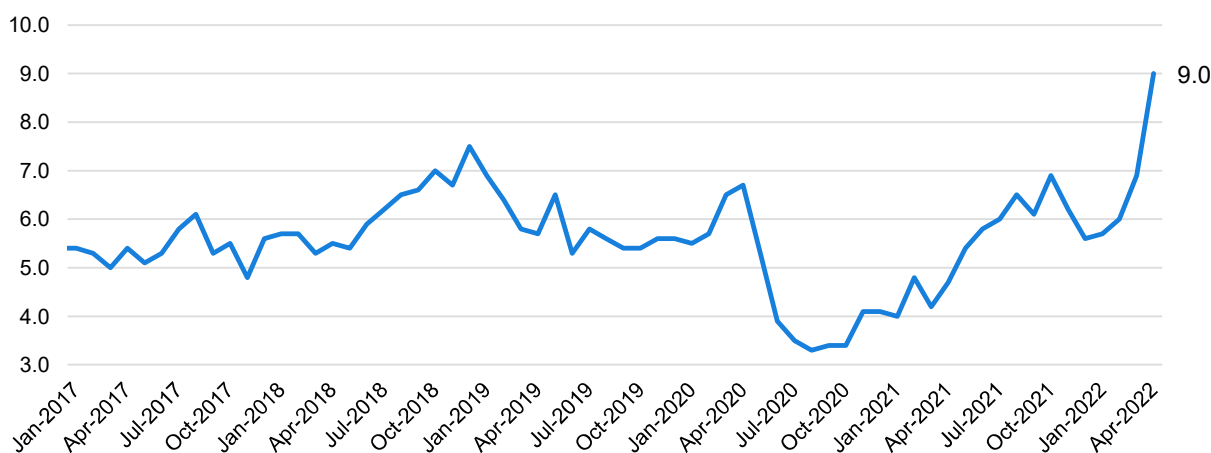
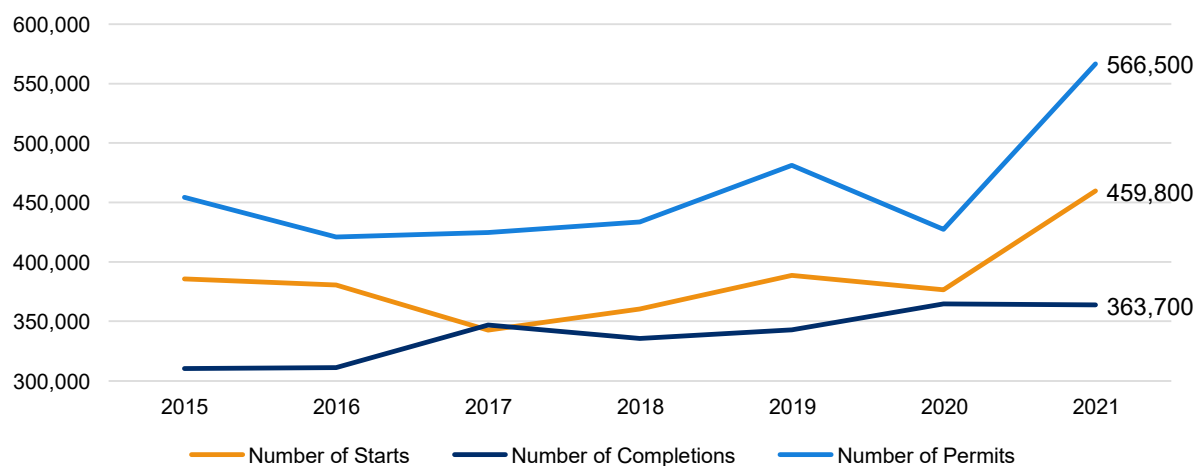


Figure 59. Multifamily Construction Metrics: Permits, Starts, Completions



⁶ "President Biden Announces New Actions to Ease the Burden of Housing Costs.", The White House, 16 May 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/16/president-biden-announces-new-actions-to-ease-the-burden-of-housing-costs/>. Press Release

14.4 Size and Value of the US Housing Market

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

Figure 75. Value of the US Housing Market.

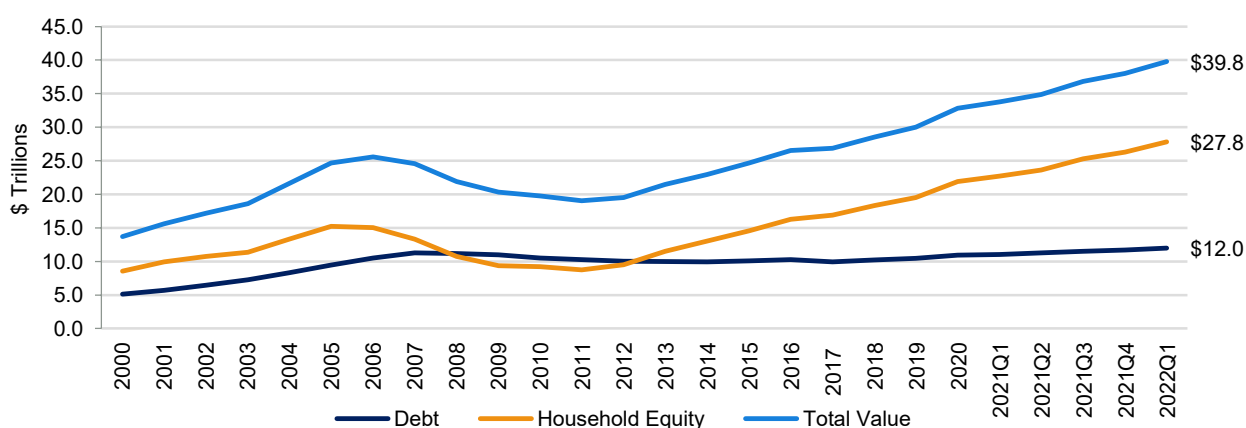
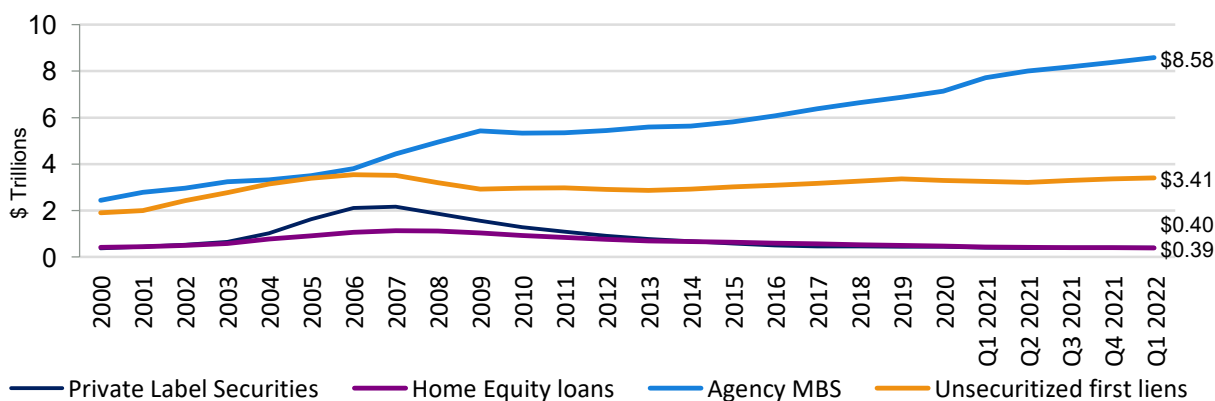


Figure 76. Size of the US Residential Mortgage Market.



Sources:

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

15 DISCLOSURE

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