Global Markets Analysis Report

A MONTHLY PUBLICATION OF GINNIE MAE'S
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Ginnie Mae
Our Guaranty Matters

PREPARED FOR GINNIE MAE
BY STATE STREET GLOBAL ADVISORS
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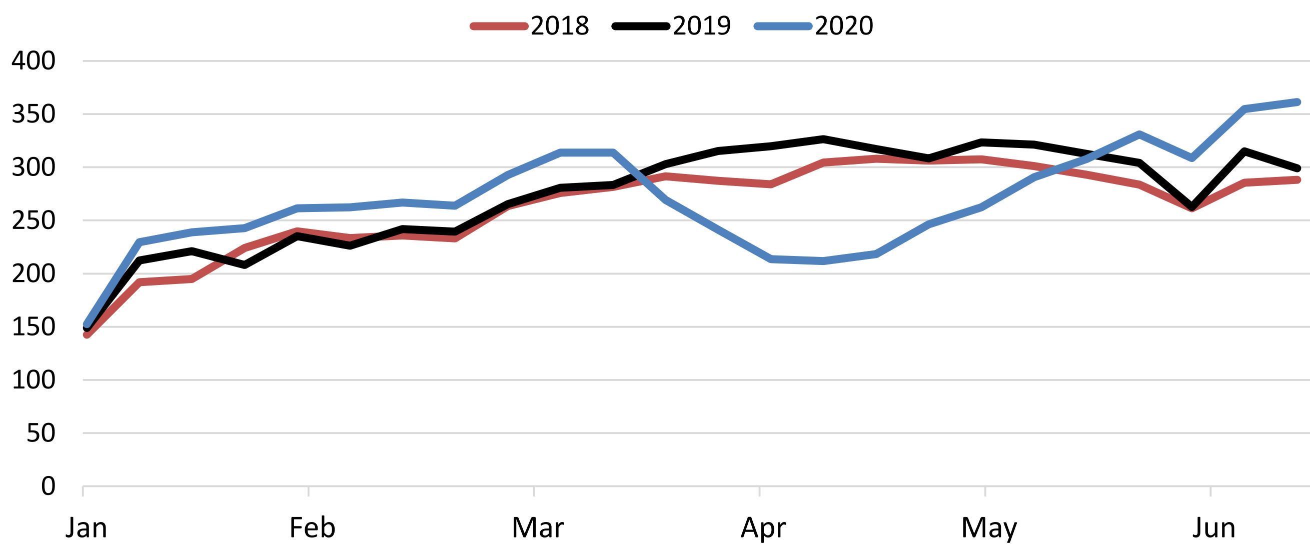
HIGHLIGHTS

How has the housing market fared during COVID-19?

The COVID-19 pandemic and government response to it, and the ensuing recession and mass unemployment, have all had a severe impact on large parts of the US economy. US gross domestic product plunged at an annualized rate of 32.9 percent in the second quarter of 2020. The unemployment rate has reached historic highs. However, unlike the 2008 financial crisis, COVID-19 has not adversely impacted the housing market as one may have expected. Demand for housing, house prices, and mortgage origination volumes, for instance, have all risen even as the pandemic continues. While many borrowers have fallen behind on their mortgage payment, the CARES Act forbearance of up to 12 months and foreclosure moratoriums have provided much needed relief to impacted households and cushioned the impact of the crisis.

Demand for housing continues to remain very strong given the acute shortage of housing supply. When the pandemic started in March, home purchases fell sharply as the country locked down. As shown in Figure 1, in March and April 2020, the Mortgage Bankers Association Weekly Applications Index fell well below its corresponding levels in 2019 and 2018. Prior to March, it was running above previous years. Home purchase activity has come back very strongly since May however, with purchase applications presently running well above 2019 and 2020 levels.

Figure 1: MBA Purchase Applications Index



Source: Mortgage Bankers Association (MBA) Weekly Mortgage Applications Survey. Data as of June 2020.

There are a few reasons that might explain why home purchase activity is strong. Chief among them is the sharp decline in mortgage rates since the start of the pandemic. The Federal Reserve lowered its benchmark funds rate to near zero levels since March 15, 2020. Accordingly, mortgage rates have followed, falling from over 3.5 percent in mid-March to well under 3 percent today, according to Freddie Mac's Primary Mortgage Market Survey. This has led to improved payment affordability for those looking to buy. That is, many borrowers who may have been priced out of the market previously have reentered the market.

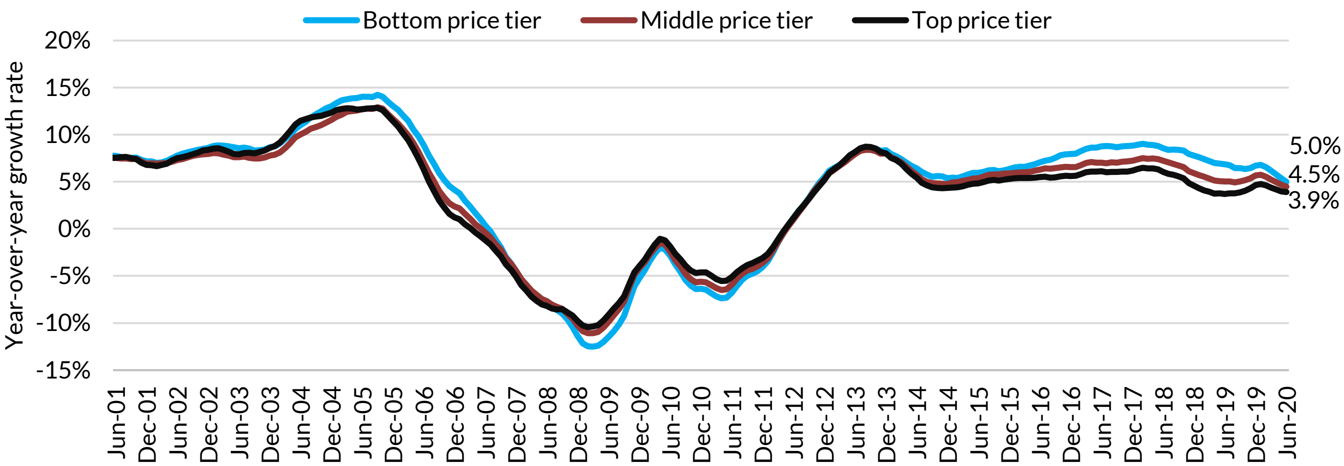
HIGHLIGHTS

Other factors are also at play. To some degree, the surge in purchase applications reflects pent up demand from March and April. Many of these households returned to the market in substantial numbers after May as lockdowns were lifted, pushing purchase activity higher.

Lastly, the pandemic has also forced many households to rethink their long-term housing situation. With remote work arrangements and school closures, many households find themselves in sudden need of extra space; others are choosing to move out of densely populated cities with higher rates of infection to less crowded suburban locations.

Figure 2: House Price Appreciation

National Year-Over-Year HPI Growth



Sources: *Black Knight and Urban Institute.* ***Note:*** *Black Knight divides home prices in each region into quintiles; this figure shows the performance of the bottom, middle and top quintile data as of June 2020.*

The strength of the housing market is also seen in the house price appreciation data. Nationwide, in June 2020, the year-over-year increase in house prices was 5 percent for homes in the bottom quintile and 3.9 percent for homes in the top quintile (Figure 2.) This largely reflects historic supply demand imbalance caused by strong housing demand from millennials and anemic levels of construction activity, aided by continued low interest rates.

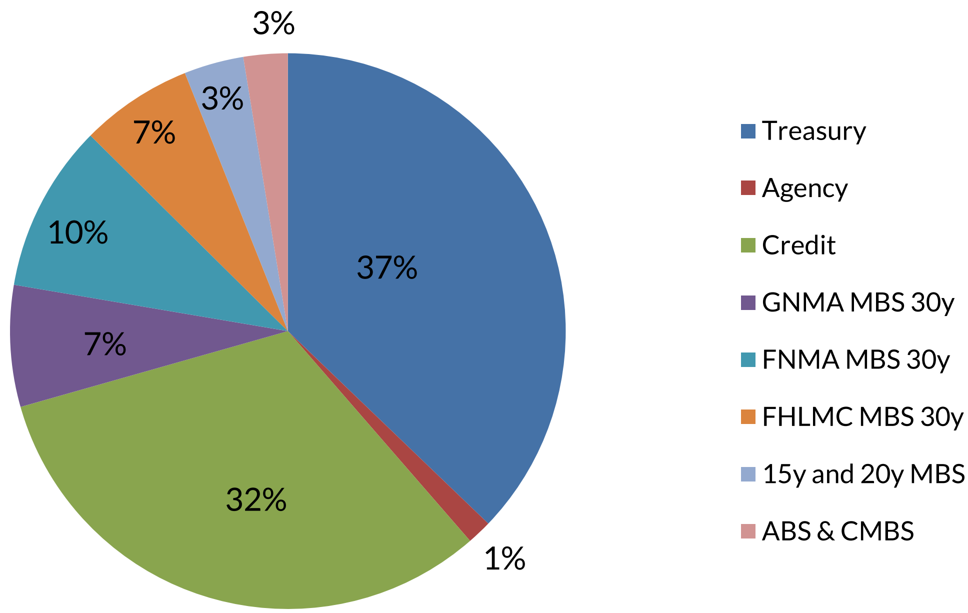
***Highlights this month*:**

- According to the Federal Reserve's Flow of Funds, total agency MBS outstanding surpassed $7 trillion in Q1 2020 for the first time (page 13).
- 86 percent of all first lien originations in Q2 2020 were federally-backed, compared to 70 percent in Q1, reflecting sharp pullback in portfolio lending due to the pandemic (page 19).
- Agency gross issuance in the first half of 2020 was up 115 percent compared to first half of 2019; it is on track to surpass the 2019 full year origination volume of $1.55 trillion, and if present trends continue will be the highest year agency origination year in the 21st century (page 20).

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

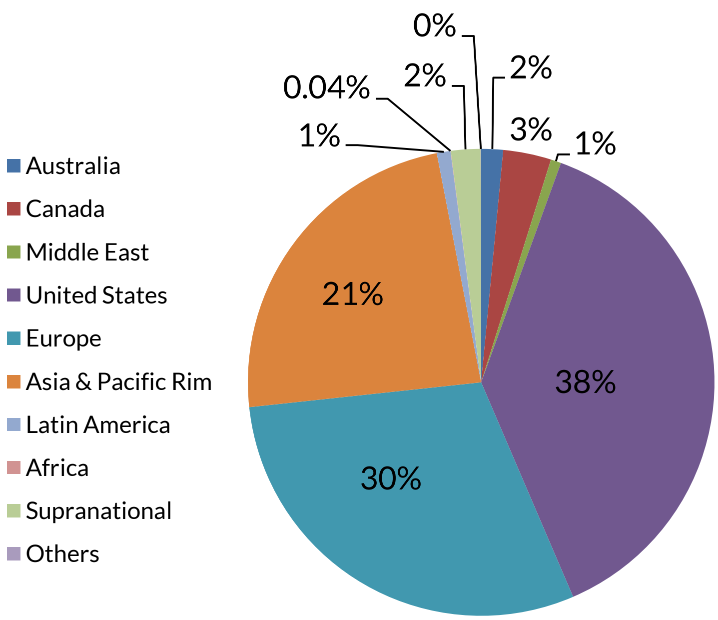
US MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) comprise 27 percent of the Barclays US Aggregate Index- less than either the US Treasury share (37 percent) or the US Credit share (32 percent). Fannie Mae 30-year MBS accounts for 10 percent of the overall index, the largest MBS component, while Ginnie Mae 30-year MBS and Freddie Mac 30-year MBS both comprise 7 of the market. Mortgages with terms of 15 and 20 years comprise the remaining balance (3 percent) of the Barclays US Aggregate Index. US securities are the single largest contributor to the Barclays Global Aggregate, accounting for 38 percent of the global total. US MBS comprises 11 percent of the global aggregate.

Barclays US Aggregate Index



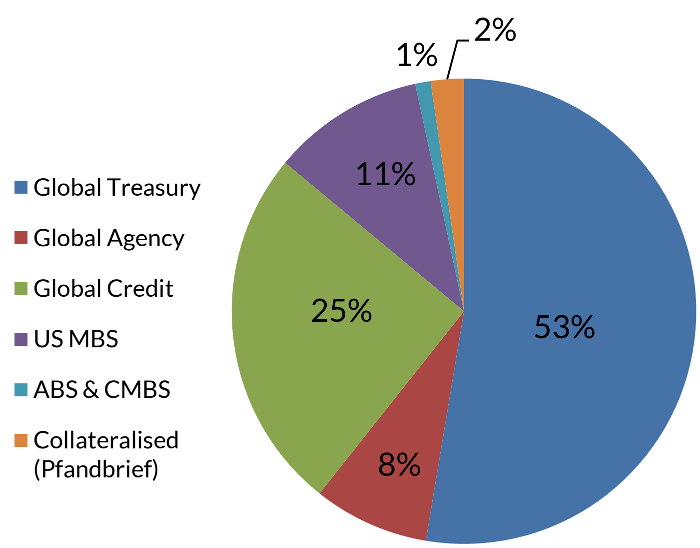
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of June 2020.*
Note*: Numbers in chart may not add to 100 percent due to rounding.*

Barclays Global Aggregate Index by Country



Sources: *Bloomberg and State Street Global Advisors.*
Note: *Data as of June 2020.*

Barclays Global Aggregate Index by Sector

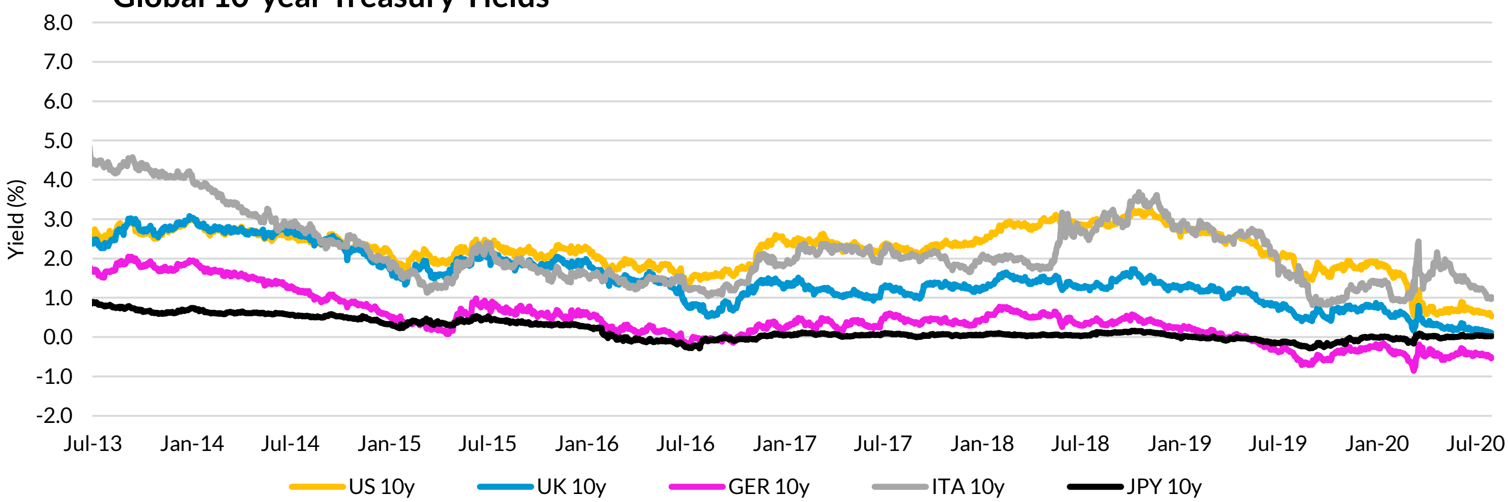


Sources: *Bloomberg and State Street Global Advisors*
Note*: Data as of June 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

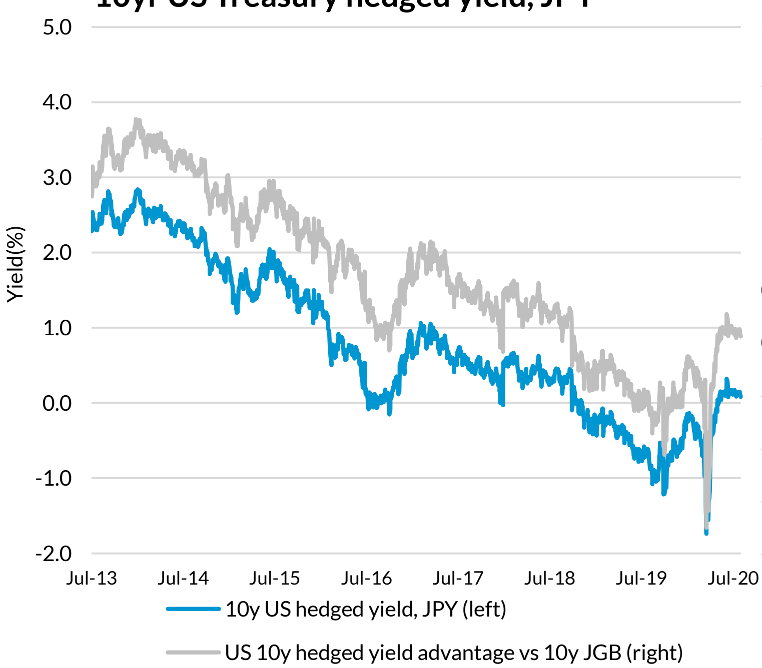
After experiencing COVID-19 related volatility in March and April of this year, government bond yields across the globe stabilized. In July 2020, the yield on the 10-year treasury fell by 13 bps to 0.53 percent. The yield on the Italian 10-year note, which is the highest in the developed world, fell 25 bps in July to 1.01 percent. The yield on the UK 10-year bond fell by 7 bps to 0.10 percent, the Japanese 10-year government bond yield fell ever so slightly by 1 bp to 0.02 percent, and the German 10-year yield dropped by 7 bps to negative 0.52 percent in July. At the end of July, the hedged yield differential between the 10-year Treasury and the 10-year JGB stood at 6 bps, a decrease of 5 bps since June 2020. The hedged yield differential between the 10-year Treasury and the 10-year Bund stood at 28 bps, a decline of 1 bp since the end of June 2020.

Global 10-year Treasury Yields



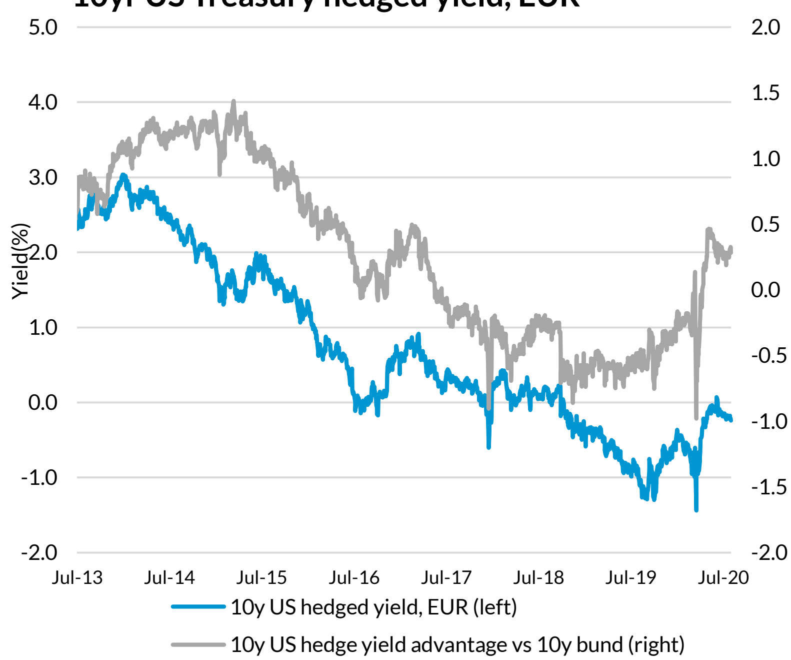
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of July 2020.*

10yr US Treasury hedged yield, JPY



Sources: *Bloomberg and State Street Global Advisors.*
Note: *Data as of July 2020.*

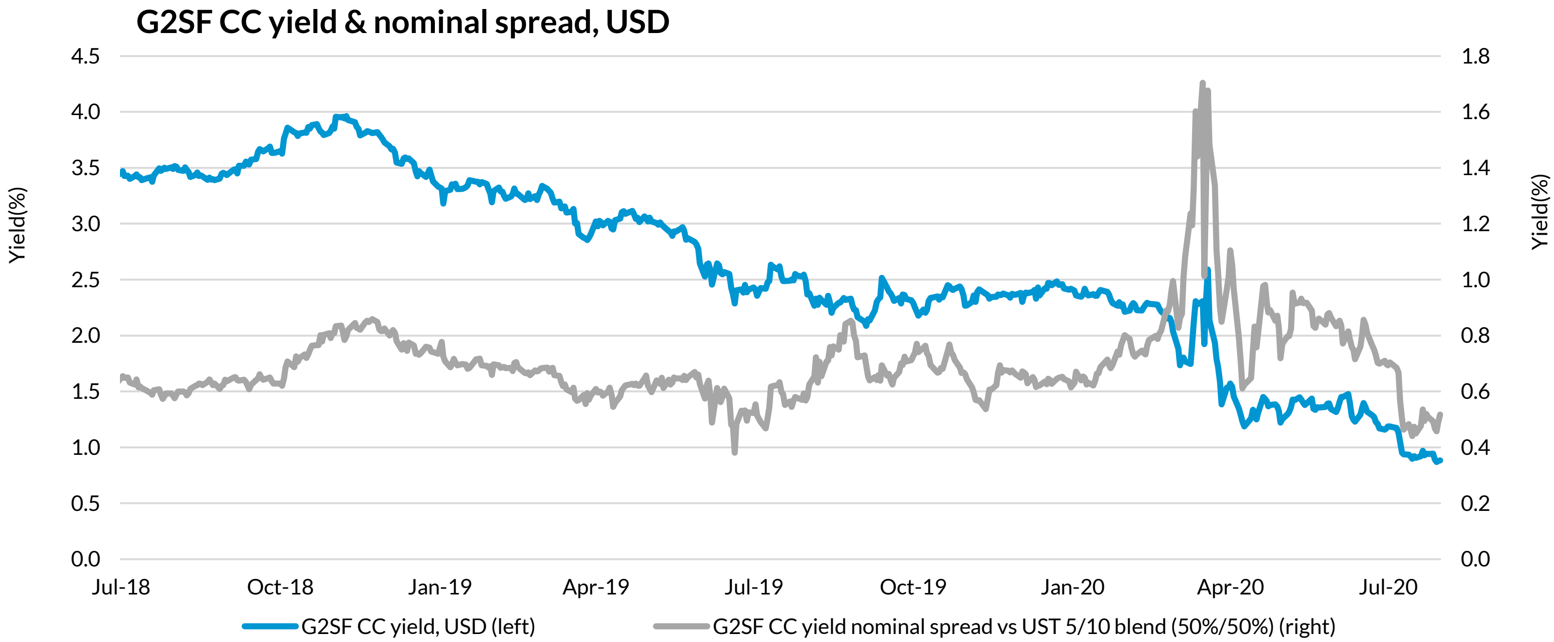
10yr US Treasury hedged yield, EUR



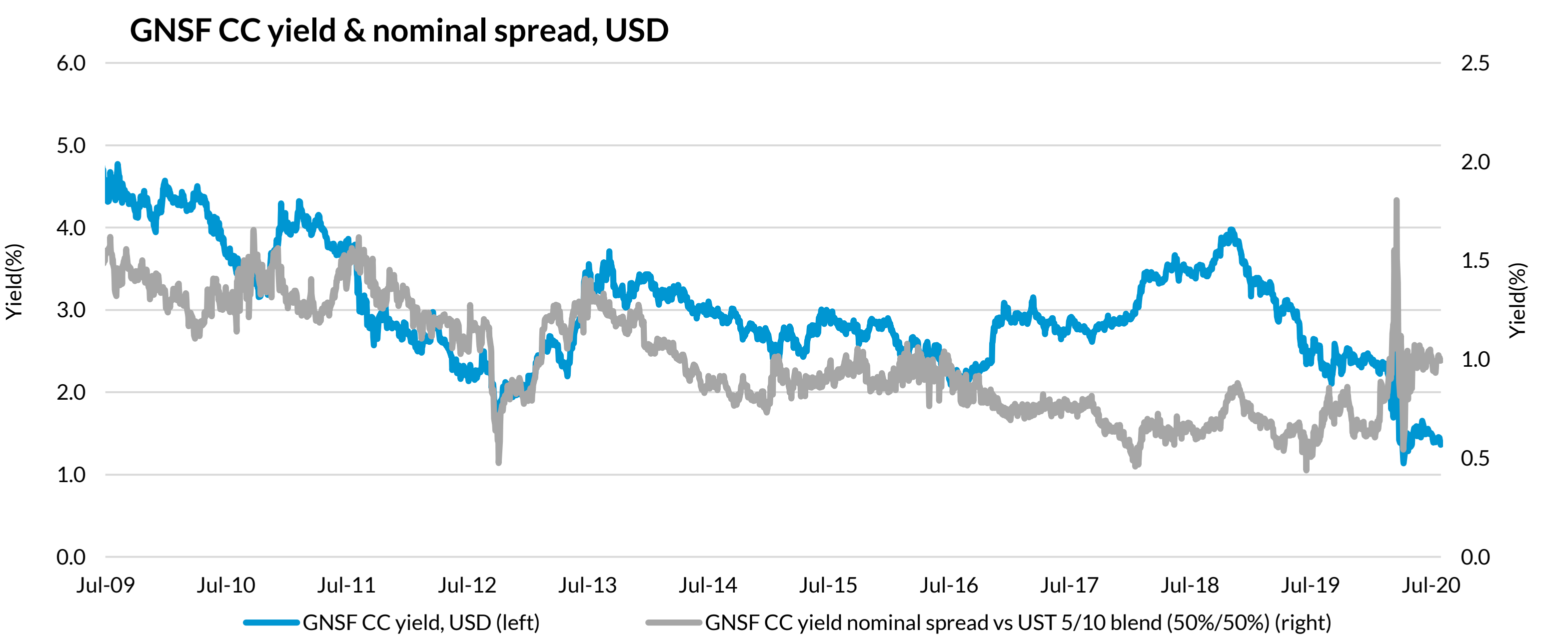
Sources: *Bloomberg and State Street Global Advisors*
Note*: Data as of July 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

Nominal yields fell in July 2020, with GNMA II yields falling 29 bps to 0.88% and GNMA I yields down 13 bps to 1.36% respectively. At the end of July, current coupon Ginnie Mae securities outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 52 bps on the G2SF and 99 bps on the GNSF, a decrease of 18 and 3 bps respectively since last month.



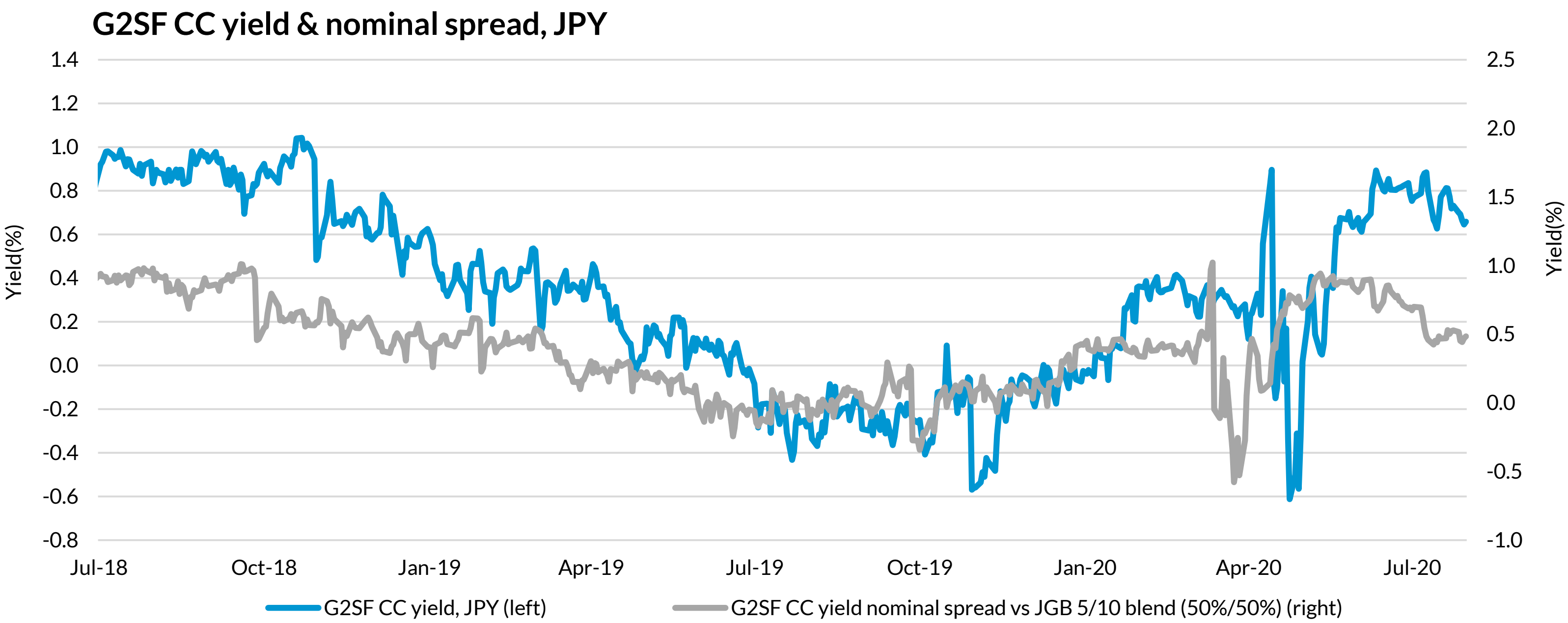
Sources: *Bloomberg and State Street Global Advisors.* ***Note****: Data as of July 2020.*



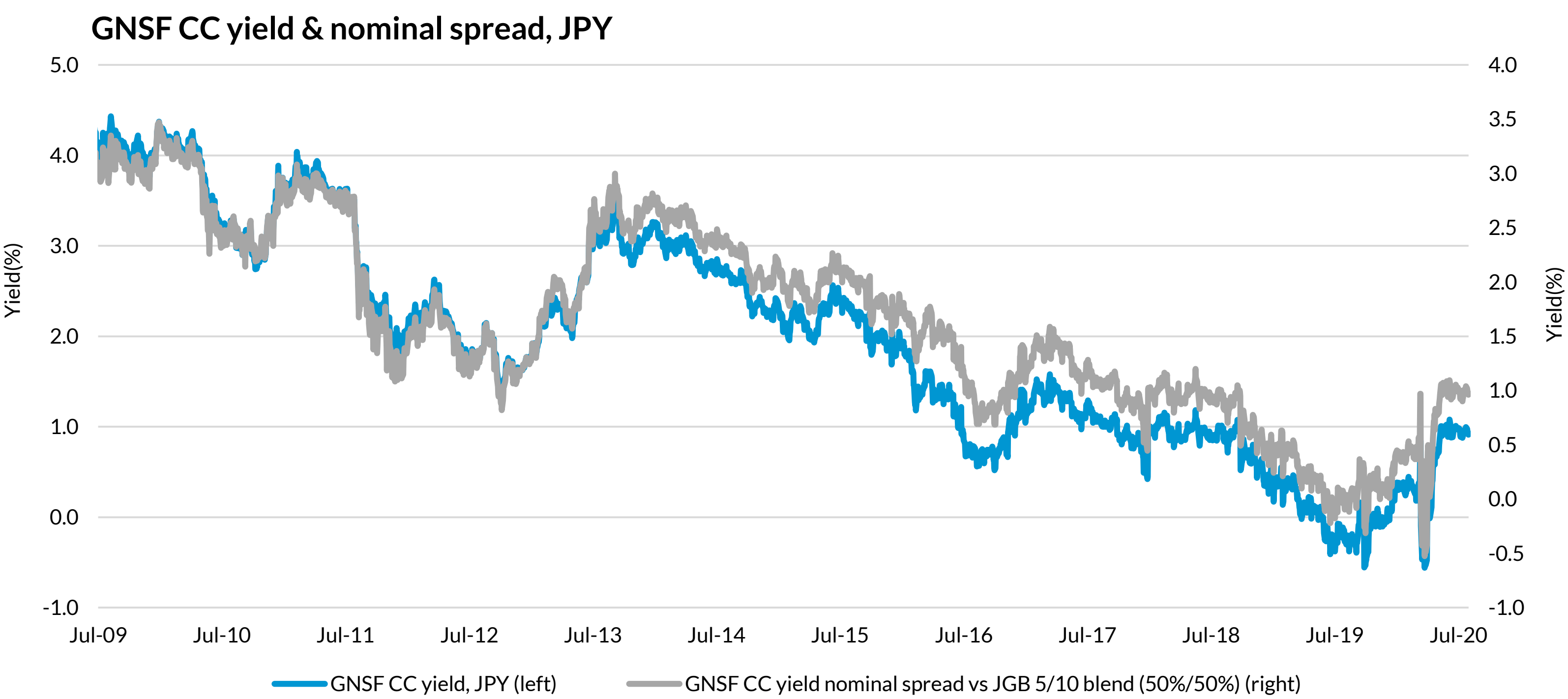
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of July 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

If Ginnie Mae securities are hedged into Japanese Yen, they look favorable on a yield basis versus the JGB 5/10 blend at the end of July. More precisely, hedged into Japanese yen, the G2SF and GNSF have a 48 and 96 bp yield versus the JGB 5/10 blend. This represents a 21 and 5 bp tightening for G2SF and GNSF, respectively, since the end of June 2020.



Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of July 2020.*

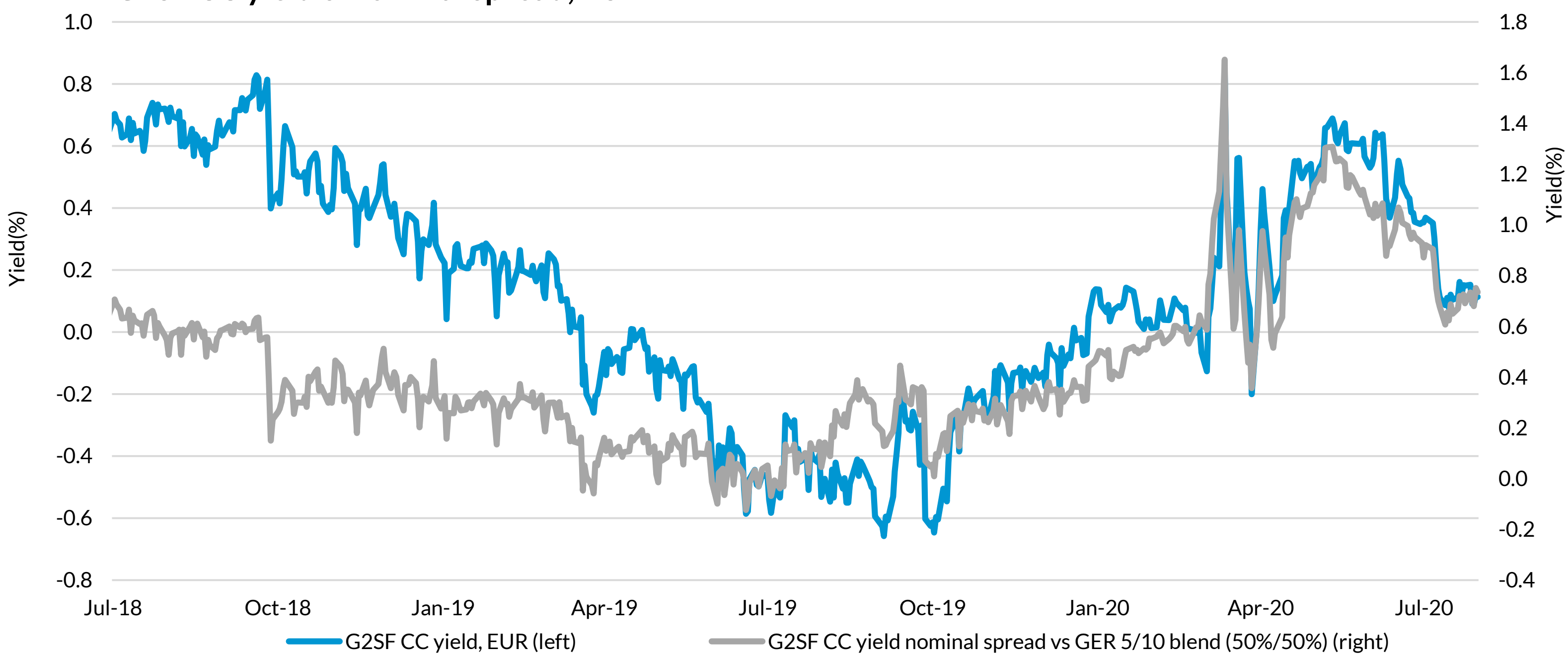


Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of July 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

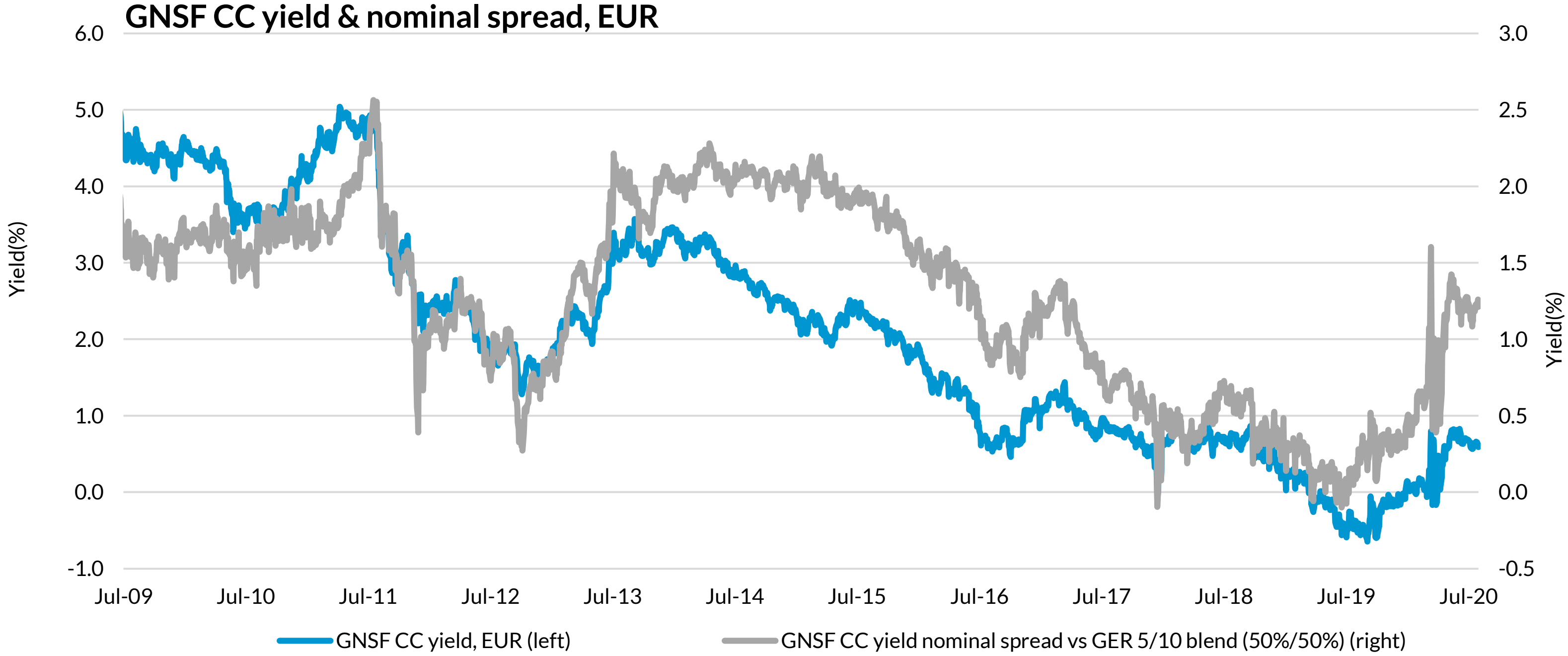
If Ginnie Mae securities are hedged into Euros, they look favorable on a yield basis versus the German 5/10 Blend. The figures below show that at the end of July, the current coupon G2SF and GNSF hedged into euros have a 74 and 121 bp higher yield than the average of the German 5/10, respectively. This represents a 19 and 4 bp decrease for the G2SF and GNSF, respectively, since the end of June 2020.

G2SF CC yield & nominal spread, EUR



***Sources:** Bloomberg and State Street Global Advisors. **Note:** Data as of July 2020.*

GNSF CC yield & nominal spread, EUR

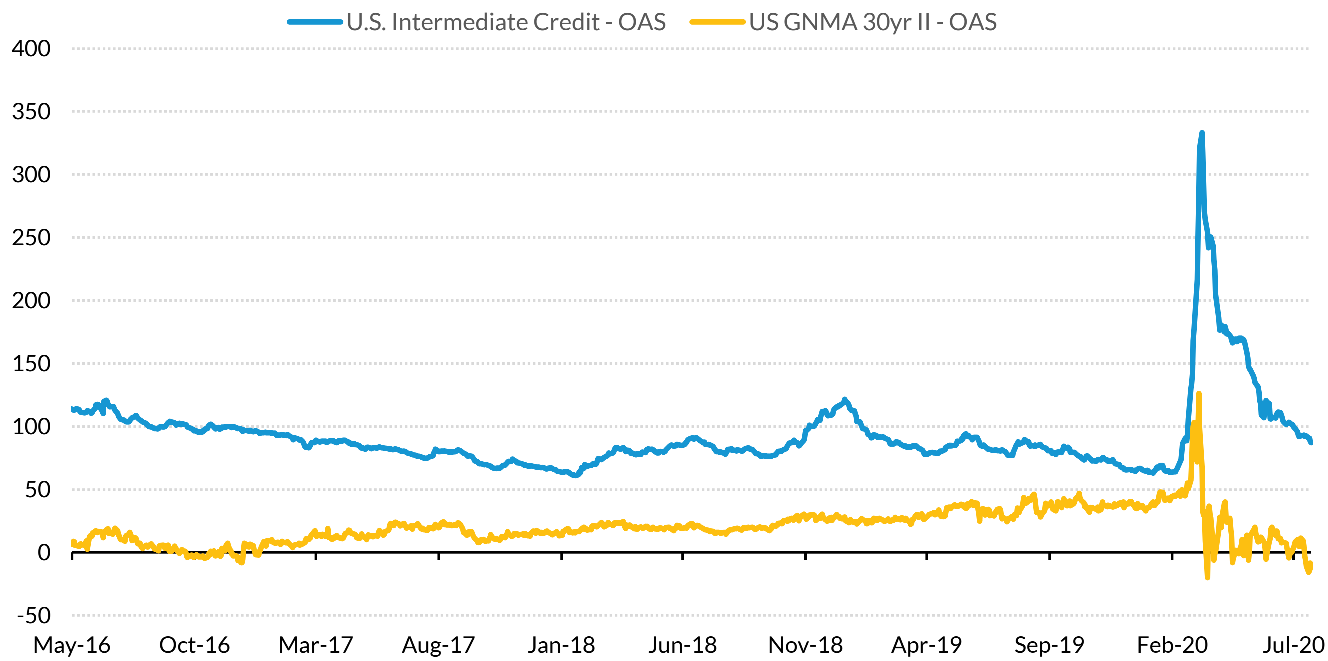


***Sources:** Bloomberg and State Street Global Advisors. **Note:** Data as of July 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

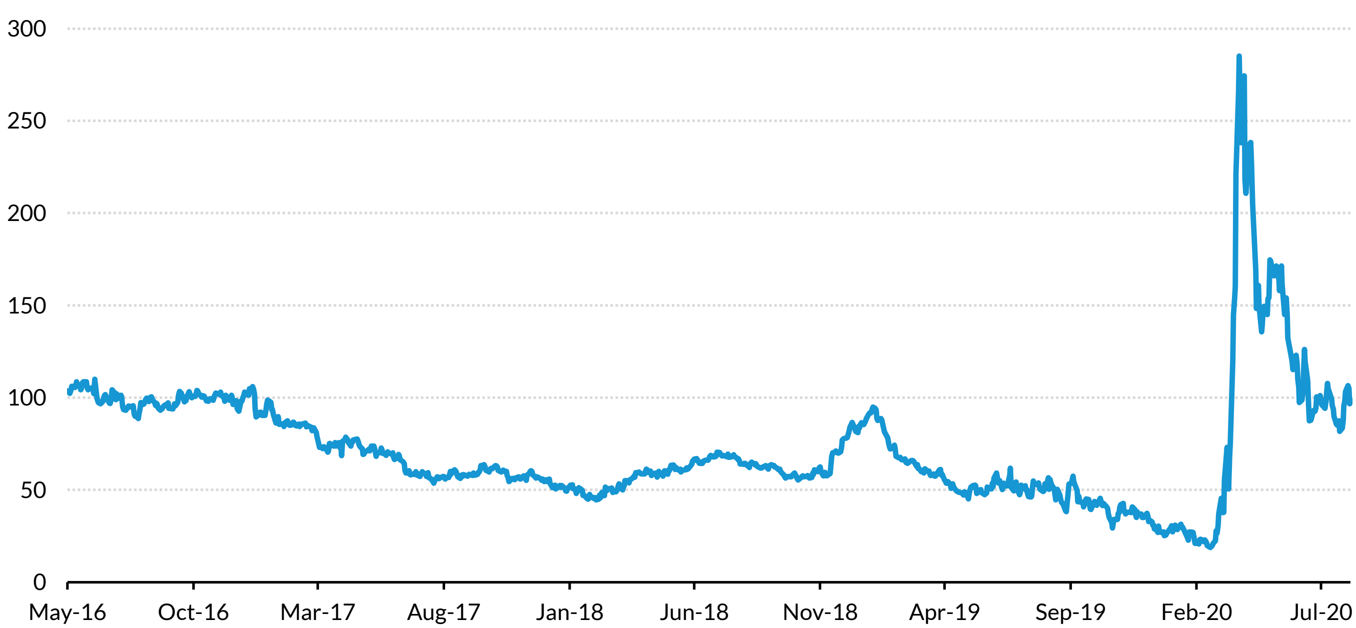
After tightening steadily from early 2016 to Jan 2020, the spread between US Intermediate Credit and GNMA II 30 year OAS skyrocketed in Feb 2020 in response to the COVID-19 panic. This was followed by substantial tightening over the period March-July 2020. The OAS on intermediate credit partially recovered from its enormous widening early in the year, while the Ginnie Mae II 30-year fell to multi-year lows. Despite this tightening, the spread between the two remains much elevated, ending July 2020 at 99 basis points in comparison to 21 basis points at the end of Jan, reflecting heightened investor concern about corporate credit risk.

G2 30 MBS versus Intermediate Credit



Sources: *State Street Global Advisors.* ***Note:*** *Data as of July 2020.*

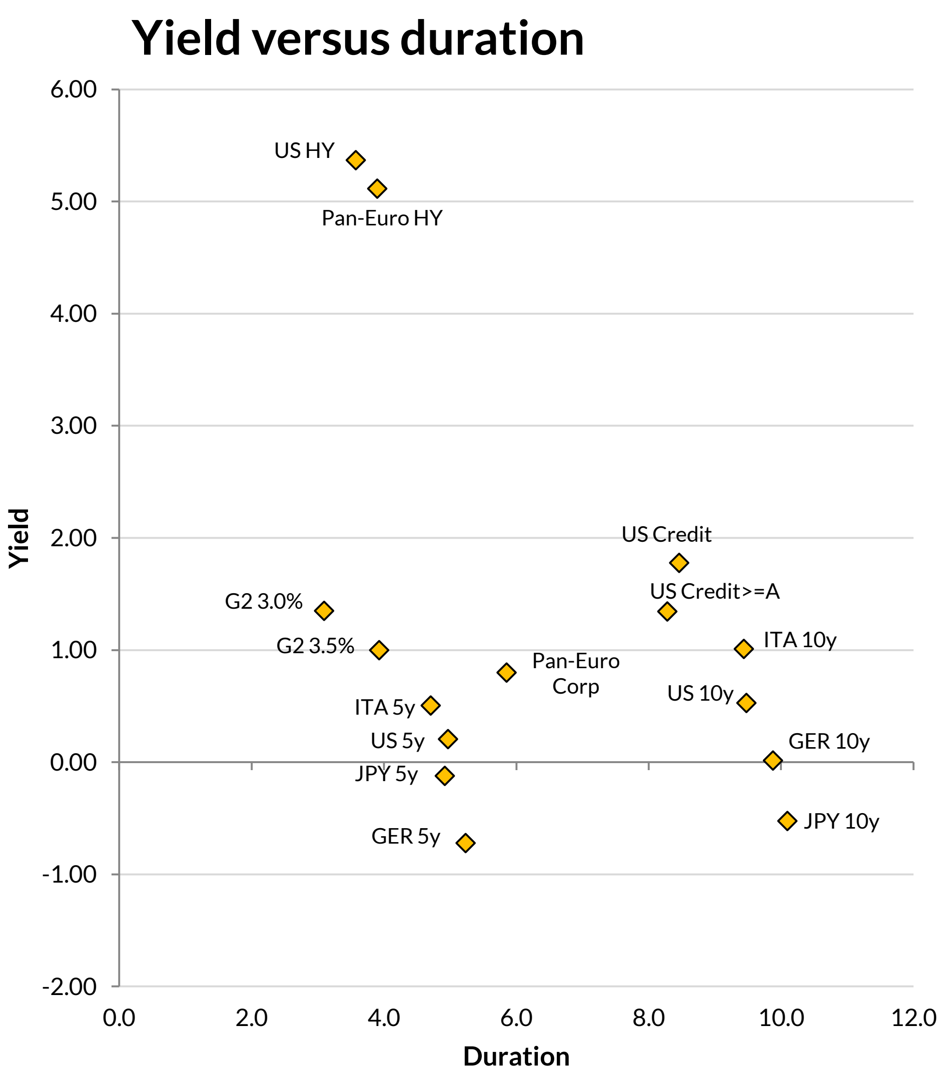
Spread between Intermediate credit and 30-year GNMA MBS OAS



Sources: *State Street Global Advisors.* ***Note:*** *Data as of July 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

US MBS yields are about the same or higher than most government securities with the same or longer durations. The only asset class with significantly more yields are the US and Pan-Euro high yield and credit indices. Duration, a measure of sensitivity to interest rate changes, does not fully capture the volatility of the high yield asset classes, as there is a large credit component, which has moved front and center in light of COVID-19.



Security	Duration	Yield
US 5y	5.0	0.21
US 10y	9.5	0.53
GNMA II 3.0%	3.9	1.00
GNMA II 3.5%	3.1	1.35
JPY 5y	4.9	-0.12
JPY 10y	9.9	0.01
GER 5y	5.2	-0.72
GER 10y	10.1	-0.53
ITA 5y	4.7	0.51
ITA 10y	9.4	1.01
US credit	8.5	1.78
US credit >= A	8.3	1.34
US HY	3.6	5.37
Pan-Euro Corp	5.9	0.80
Pan-Euro HY	3.9	5.12

***Sources:** Bloomberg and State Street Global Advisors. **Note**: Yields are in base currency of security and unhedged. Data as of July 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

The average return on the Ginnie Mae index over the past decade is less than other indices. However, the standard deviation of the Ginnie Mae index is the lowest of any sector, as it has the least price volatility over a 1, 3, 5 and 10 year horizon. The result: The Sharpe Ratio, or excess return per unit of risk for the Ginnie Mae index is highest among all indices over a 10-year horizon and second only to US treasury over a 1 and 3 year horizon.

	Average Return (Per Month)					
Time Period	**US MBS Ginnie Mae**	**US Treasury**	**US Credit Corp**	**Pan Euro Credit Corp**	**US High Yield***	**Pan Euro High Yield***
1 year	0.39	0.95	1.02	0.12	0.42	0.04
3 year	0.30	0.49	0.60	0.22	0.40	0.19
5 year	0.24	0.34	0.53	0.18	0.50	0.26
10 year	0.24	0.29	0.47	0.35	0.57	0.54

	Average Excess Return (Per Month)					
Time Period	**US MBS Ginnie Mae**	**US Treasury**	**US Credit Corp**	**Pan Euro Credit Corp**	**US High Yield***	**Pan Euro High Yield***
1 year	0.31	0.87	0.95	0.17	0.34	0.09
3 year	0.16	0.36	0.47	0.28	0.27	0.24
5 year	0.15	0.25	0.44	0.23	0.41	0.32
10 year	0.19	0.24	0.42	0.38	0.52	0.56

	Standard Deviation					
Time Period	**US MBS Ginnie Mae**	**US Treasury**	**US Credit Corp**	**Pan Euro Credit Corp**	**US High Yield***	**Pan Euro High Yield***
1 year	0.55	1.51	3.02	2.75	4.24	4.73
3 year	0.66	1.22	1.95	1.64	2.62	2.83
5 year	0.60	1.12	1.65	1.45	2.34	2.41
10 year	0.64	1.06	1.45	1.39	2.04	2.04

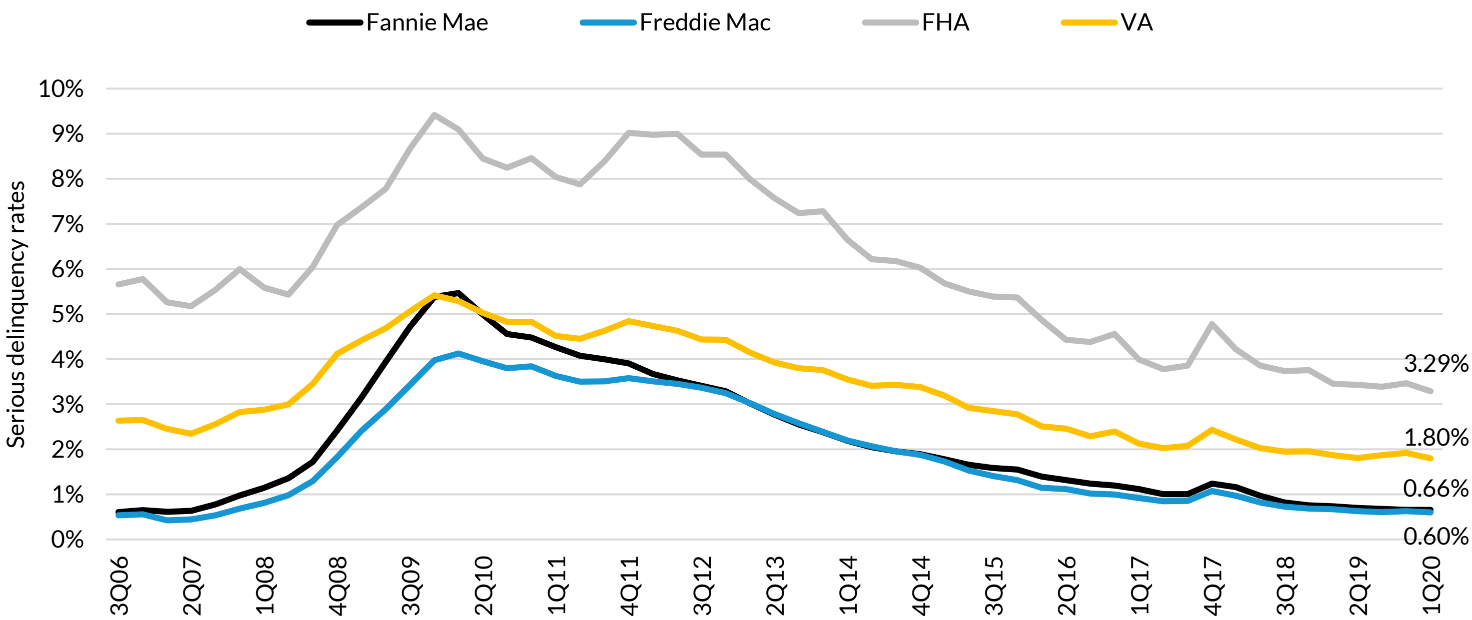
	Sharpe Ratio					
Time Period	**US MBS Ginnie Mae**	**US Treasury**	**US Credit Corp**	**Pan Euro Credit Corp**	**US High Yield**	**Pan Euro High Yield***
1 year	0.57	0.58	0.31	0.06	0.08	0.02
3 year	0.25	0.29	0.24	0.17	0.10	0.09
5 year	0.24	0.23	0.27	0.16	0.18	0.13
10 year	0.30	0.23	0.29	0.27	0.26	0.28

**Assumes 2% capitalization max per issuer on high yield indices*
***Sources:** Barclays Indices, Bloomberg and State Street Global Advisors* ***Note:** Data as of July 2020.*

State of the US Housing Market

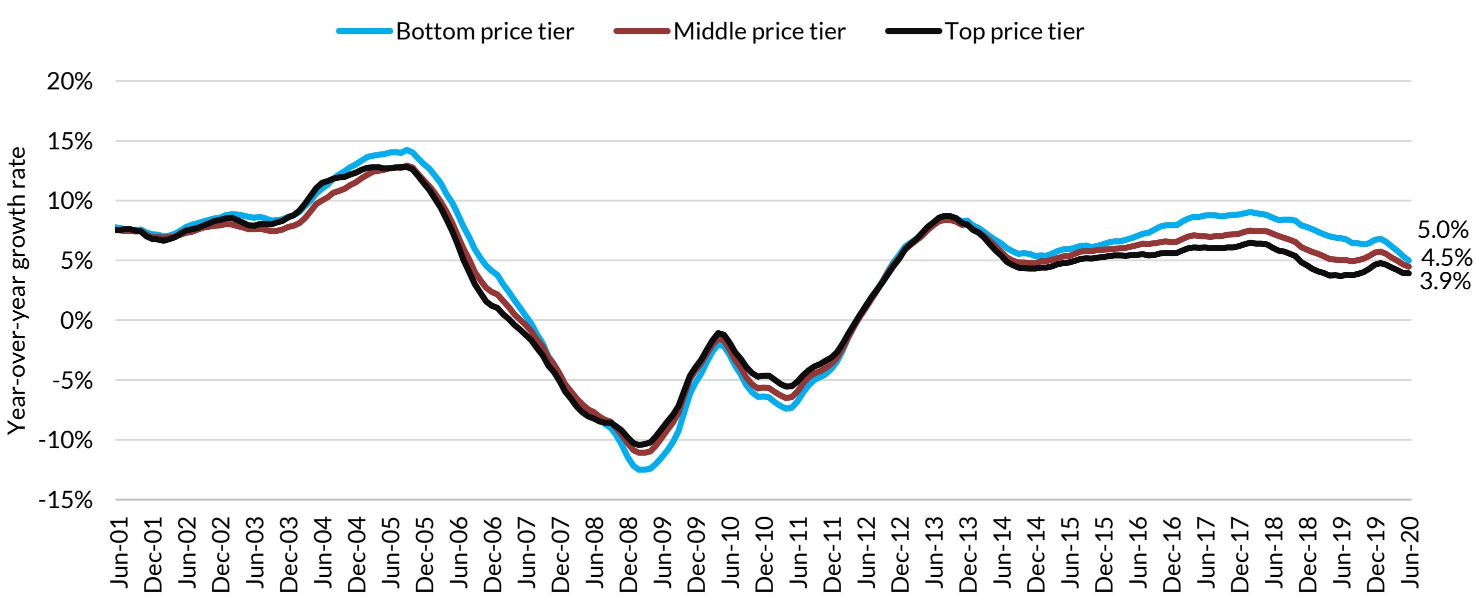
Serious delinquency rates for single-family GSE loans, FHA loans and VA loans all decreased in Q1 2020; the impact of COVID-19 will not be evident until Q2 numbers are released. In Q1, GSE delinquencies remained above their 2006-2007 level, while FHA and VA delinquencies (which are higher than their GSE counterparts) are well below 2006-2007 levels. The bottom chart shows nationwide house prices for the bottom, middle and the top quintiles by price. House prices have risen most at the lower end of the market where Ginnie Mae plays a major role. Prices at the lower end of the market rose by 5.0 percent for 12 months ended June 2020, much higher than the 3.9 percent for the top end of the market. Year-over-year price growth in June was lower than May for all price tiers.

Serious Delinquency Rates: Single-Family Loans



Sources: *Fannie Mae, Freddie Mac, MBA Delinquency Survey and Urban Institute.*
Note: *Serious delinquency is defined as 90 days or more past due or in the foreclosure process. Data as of Q1 2020.*

National Year-Over-Year HPI Growth



Sources: *Black Knight and Urban Institute.* ***Note:*** *Black Knight divides home prices in each region into quintiles; this figure shows the performance of the bottom, middle and top quintiles. Data as of June 2020.*

State of the US Housing Market

Nationally, nominal home prices have increased by 59.5 percent since the trough, and now exceed their pre-crisis peak valuation on a nominal basis by 19.2 percent. The picture is very different across states, with many states well in excess of the prior peak, while Connecticut remains 10.3 percent below peak level.

State	2000 to Peak	Peak to Trough	Trough to Current	HPI Changes YOY	Current HPI % Above Peak
National	75.1%	-25.3%	59.5%	3.9%	19.2%
Alabama	36.0%	-15.3%	36.3%	4.8%	15.5%
Alaska	69.6%	-3.0%	26.7%	2.5%	22.9%
Arizona	109.9%	-47.8%	91.5%	6.5%	-0.1%
Arkansas	41.5%	-9.8%	28.1%	3.2%	15.6%
California	154.9%	-43.3%	97.4%	3.9%	11.9%
Colorado	40.3%	-12.9%	86.6%	3.6%	62.6%
Connecticut	92.3%	-24.6%	19.0%	2.2%	-10.3%
Delaware	94.7%	-23.5%	34.6%	4.7%	3.0%
District of Columbia	174.7%	-13.6%	61.8%	4.4%	39.7%
Florida	128.4%	-46.8%	78.7%	5.3%	-5.0%
Georgia	38.4%	-31.4%	70.9%	4.0%	17.3%
Hawaii	163.4%	-22.5%	55.6%	3.9%	20.6%
Idaho	71.8%	-28.7%	100.0%	9.2%	42.5%
Illinois	61.6%	-34.4%	41.9%	0.7%	-7.0%
Indiana	21.6%	-8.0%	40.6%	4.0%	29.3%
Iowa	28.2%	-4.7%	29.5%	1.9%	23.5%
Kansas	34.6%	-9.2%	45.9%	3.3%	32.5%
Kentucky	29.7%	-7.5%	36.0%	3.0%	25.8%
Louisiana	48.7%	-5.1%	26.0%	2.4%	19.7%
Maine	82.1%	-12.3%	44.1%	4.9%	26.3%
Maryland	129.3%	-28.6%	31.0%	2.4%	-6.5%
Massachusetts	92.4%	-22.4%	60.3%	3.4%	24.4%
Michigan	23.8%	-39.4%	83.0%	2.3%	11.0%
Minnesota	66.5%	-27.7%	61.7%	3.1%	16.9%
Mississippi	41.0%	-13.8%	32.3%	4.5%	14.1%
Missouri	42.6%	-15.3%	41.0%	3.5%	19.4%
Montana	82.2%	-11.2%	57.7%	4.7%	40.0%
Nebraska	26.7%	-6.6%	46.6%	3.0%	36.8%
Nevada	127.0%	-59.1%	128.1%	3.4%	-6.6%
New Hampshire	90.7%	-23.1%	47.1%	4.8%	13.1%
New Jersey	117.9%	-28.0%	31.3%	3.0%	-5.5%
New Mexico	66.8%	-16.4%	32.0%	6.9%	10.4%
New York	98.3%	-15.2%	45.9%	4.2%	23.7%
North Carolina	40.6%	-15.8%	42.2%	4.3%	19.8%
North Dakota	53.4%	-3.8%	57.9%	3.0%	51.8%
Ohio	21.2%	-18.3%	42.5%	3.5%	16.4%
Oklahoma	37.4%	-2.5%	24.2%	4.5%	21.1%
Oregon	81.9%	-28.0%	86.6%	3.9%	34.3%
Pennsylvania	70.1%	-11.7%	28.8%	2.3%	13.7%
Rhode Island	130.7%	-34.2%	60.1%	6.7%	5.4%
South Carolina	45.0%	-19.4%	40.6%	4.4%	13.3%
South Dakota	45.3%	-4.0%	47.4%	1.5%	41.6%
Tennessee	35.0%	-11.9%	51.4%	4.9%	33.4%
Texas	33.5%	-5.8%	56.5%	3.7%	47.4%
Utah	54.8%	-22.1%	84.9%	5.8%	44.1%
Vermont	83.5%	-7.5%	40.1%	5.8%	29.6%
Virginia	99.6%	-22.8%	32.1%	3.5%	2.0%
Washington	85.1%	-28.7%	98.5%	6.0%	41.5%
West Virginia	42.4%	-6.5%	29.1%	4.1%	20.6%
Wisconsin	44.9%	-16.3%	40.5%	2.0%	17.5%
Wyoming	77.4%	-5.7%	35.4%	5.0%	27.7%

Sources: *Black Knight and Urban Institute.* ***Note:*** *HPI data as of June 2020. Negative sign indicates that state is above earlier peak. Peak refers to the month when HPI reached the highest level for each state/US during the housing boom period, ranging from 09/2005 to 09/2008. Trough represents the month when HPI fell to the lowest level for each state/US after the housing bust, ranging from 01/2009 to 03/2012. Current is 06/2020, the latest HPI data period.*

State of the US Housing Market

Ginnie Mae MBS constitute 27.8 percent of outstanding agency issuance by loan balance and 30.7 percent of new issuance over the past year. However, the Ginnie Mae share varies widely across states, with the share of outstanding (by loan balance) as low as 13.7 percent in the District of Columbia and as high as 49.1 percent in Alaska. In general, the Ginnie Mae share is higher in states with lower home prices.

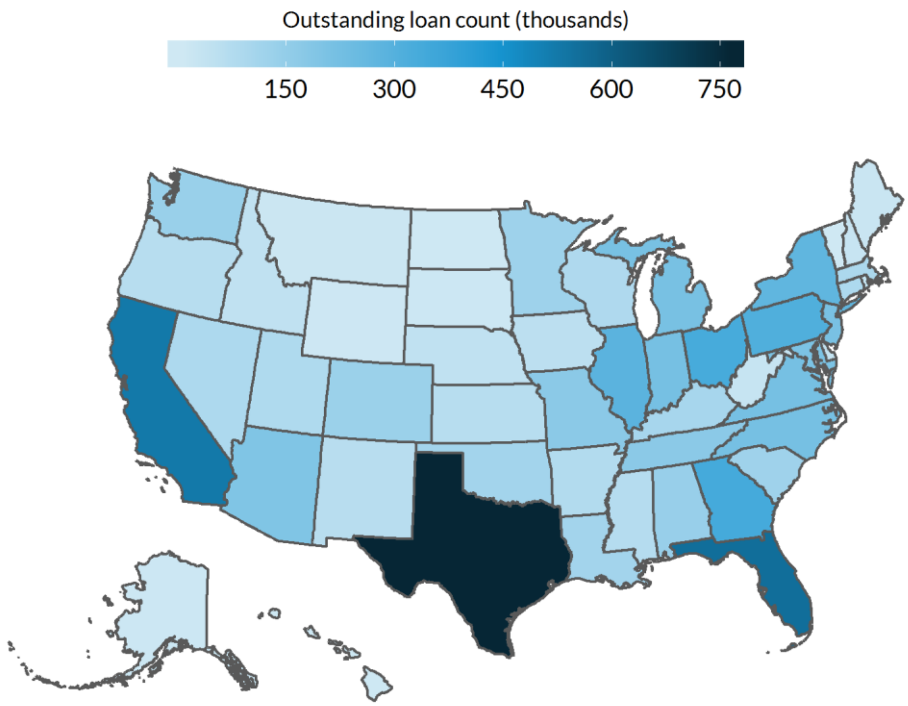
	Agency Issuance (past 1 year)				Agency Outstanding			
State	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)
National	30.7%	2,536,093	248.3	270.0	27.8%	11,512,265	164.9	194.0
Alabama	43.0%	45,586	188.8	212.7	42.2%	240,841	128.9	155.6
Alaska	52.8%	7,402	304.9	273.6	49.1%	38,926	231.9	201.7
Arizona	31.1%	95,615	243.1	250.3	26.9%	319,767	167.4	187.0
Arkansas	40.8%	24,130	161.6	191.4	42.1%	141,391	111.4	140.7
California	24.4%	239,016	388.2	381.7	18.1%	788,042	268.3	277.0
Colorado	29.9%	79,594	326.9	316.4	23.7%	239,700	225.3	236.1
Connecticut	30.3%	20,364	232.3	254.6	28.1%	111,544	181.7	189.7
Delaware	37.0%	11,208	235.6	251.7	34.1%	53,029	179.7	187.4
District of Columbia	16.9%	2,131	475.6	424.4	13.7%	9,964	300.1	310.8
Florida	40.3%	216,347	237.8	236.4	33.2%	862,611	169.3	177.1
Georgia	39.0%	114,701	211.1	242.1	35.8%	524,522	144.8	175.2
Hawaii	44.9%	10,494	547.2	435.9	27.4%	32,456	383.4	322.3
Idaho	29.3%	20,112	244.9	242.6	27.3%	79,198	159.8	178.5
Illinois	22.4%	71,885	197.9	230.8	23.1%	377,564	140.7	162.9
Indiana	33.4%	61,182	165.3	185.7	34.4%	309,620	111.8	130.3
Iowa	22.2%	16,277	167.1	191.4	23.7%	88,018	114.5	134.9
Kansas	31.7%	18,891	176.6	206.4	33.2%	106,343	120.3	142.5
Kentucky	36.2%	33,972	171.4	193.5	36.6%	171,303	121.6	136.3
Louisiana	41.1%	36,063	188.3	220.6	40.1%	192,849	137.6	161.8
Maine	31.3%	9,182	206.8	230.0	29.8%	41,475	152.8	165.5
Maryland	41.8%	70,475	314.2	306.4	36.3%	308,617	230.0	222.8
Massachusetts	19.7%	31,943	325.6	331.6	17.3%	125,423	239.3	236.5
Michigan	21.3%	59,964	168.9	199.4	22.9%	309,934	114.0	138.5
Minnesota	21.0%	36,762	224.7	242.4	21.3%	190,050	157.1	176.0
Mississippi	49.2%	21,287	171.3	196.0	48.5%	118,253	121.2	144.5
Missouri	30.5%	51,955	174.6	203.5	32.3%	268,554	120.8	142.7
Montana	28.9%	8,195	245.3	250.2	26.6%	37,092	170.8	183.5
Nebraska	30.3%	13,378	190.2	196.3	30.7%	74,272	123.5	140.5
Nevada	37.7%	43,882	280.9	263.5	30.7%	144,180	193.0	200.2
New Hampshire	28.8%	10,711	262.0	256.8	26.4%	45,172	194.5	186.5
New Jersey	26.5%	53,002	279.5	305.9	25.0%	252,597	210.1	223.4
New Mexico	41.3%	17,588	205.0	216.6	40.2%	99,757	141.3	156.3
New York	24.1%	49,323	273.7	305.5	23.6%	338,965	187.4	219.2
North Carolina	33.8%	94,120	210.2	238.3	31.1%	439,147	142.3	171.4
North Dakota	25.4%	3,644	234.4	229.4	24.1%	17,072	167.8	169.4
Ohio	31.6%	80,689	164.9	183.5	33.0%	458,686	112.4	129.8
Oklahoma	44.2%	31,207	173.5	195.7	45.7%	199,103	119.9	142.8
Oregon	26.4%	35,366	291.5	291.7	20.8%	127,693	203.4	216.0
Pennsylvania	29.7%	71,215	187.8	225.3	30.6%	423,790	135.8	160.8
Rhode Island	33.8%	8,635	256.4	253.6	31.3%	37,539	191.4	187.7
South Carolina	39.8%	55,781	211.4	225.4	34.9%	233,575	148.4	165.5
South Dakota	31.3%	6,703	201.5	214.7	33.0%	31,295	144.1	155.1
Tennessee	37.4%	64,747	213.6	235.4	36.0%	300,715	140.7	171.3
Texas	35.2%	217,220	226.3	246.1	33.1%	1,109,968	145.5	180.7
Utah	23.4%	36,307	282.9	286.5	22.8%	124,771	196.8	220.5
Vermont	25.2%	2,612	211.6	226.6	19.9%	13,076	164.3	160.3
Virginia	42.4%	102,923	309.7	309.2	37.6%	458,436	218.6	221.8
Washington	28.5%	75,950	330.2	335.6	23.9%	272,898	223.7	241.3
West Virginia	49.5%	11,023	174.2	178.2	44.7%	56,559	126.3	129.0
Wisconsin	19.3%	29,132	191.0	207.4	18.8%	138,596	133.7	144.9
Wyoming	39.6%	6,202	237.0	246.0	37.2%	27,317	177.4	180.6

***Sources:** eMBS and Urban Institute. **Note:** Ginnie Mae outstanding share are based on loan balance as of June 2020. Ginnie Mae issuance is based on the last 12 months, from June 2019 to June 2020.`*

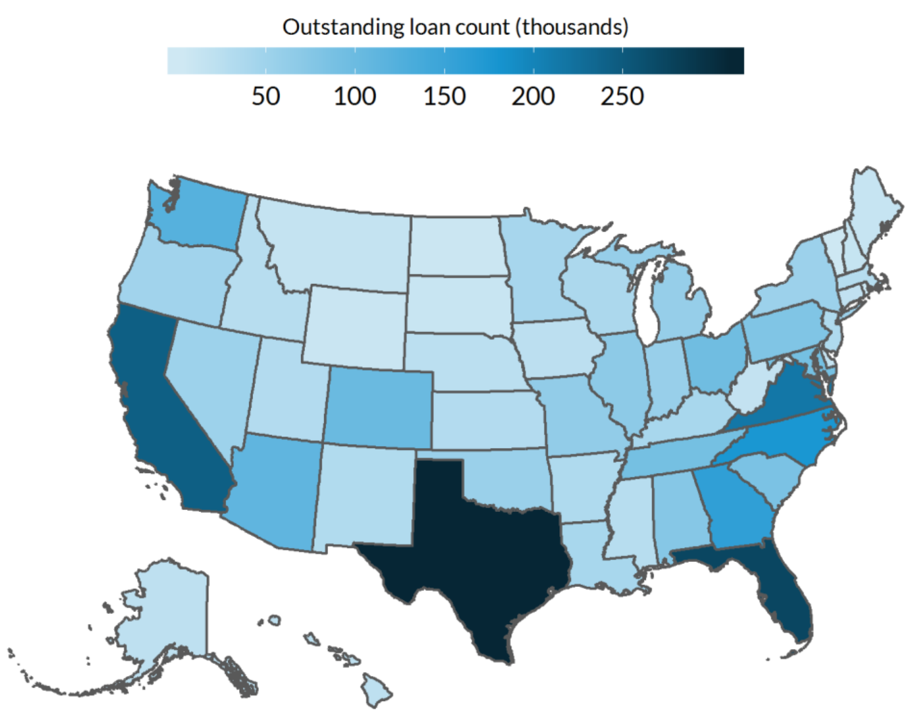
FHA and VA Outstanding Loan Count

Texas , Florida, and California are the top 3 states for FHA and VA lending as measured by the number of loans outstanding. As of June 2020, TX has 760,000 million FHA and 310,000 VA loans outstanding, FL had 550,000 FHA and 270,000 VA loans outstanding, and CA had 520,000 FHA and 240,000 VA loans outstanding. Virginia ranks 4th for number of VA loans outstanding and 13th for number of FHA loans outstanding.

FHA Outstanding Loan Count by State



VA Outstanding Loan Count by State

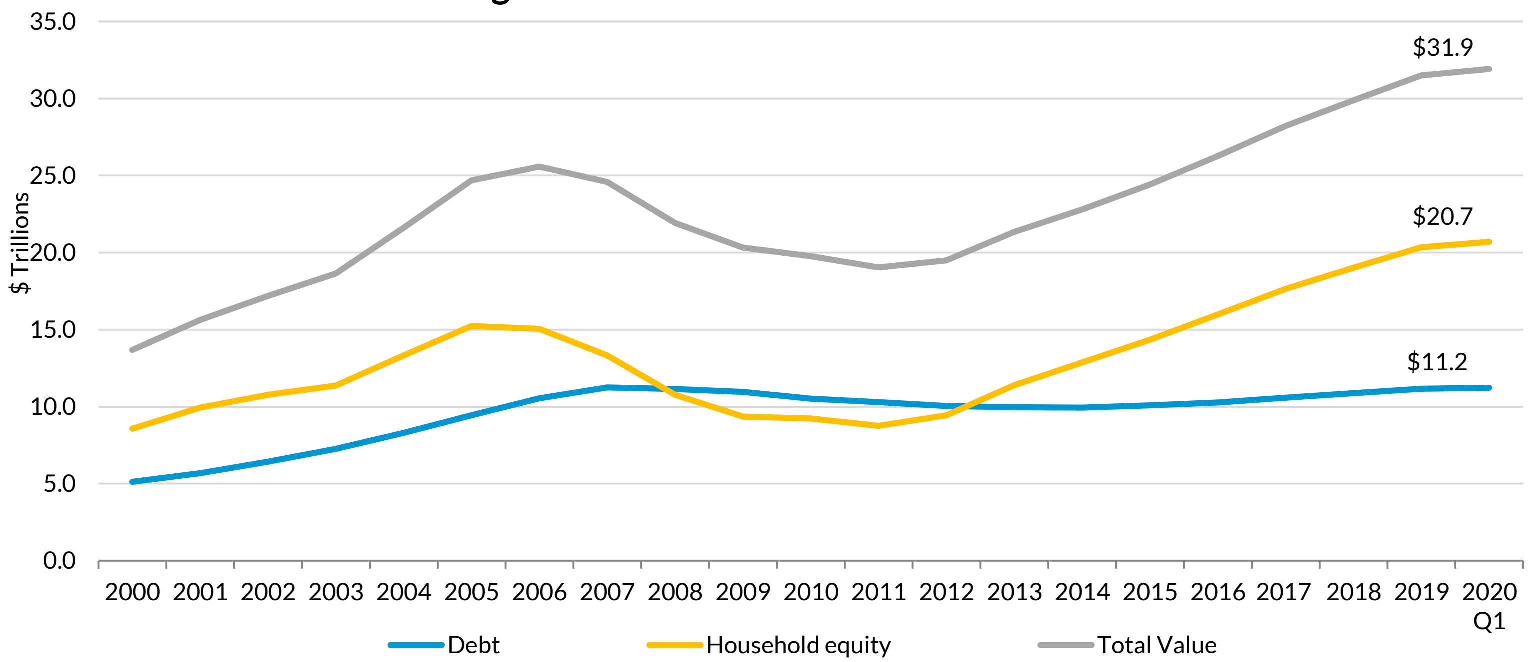


Sources: *eMBS and Urban Institute.* ***Note:*** *Ginnie Mae outstanding share are based on loan balance as of June 2020.*

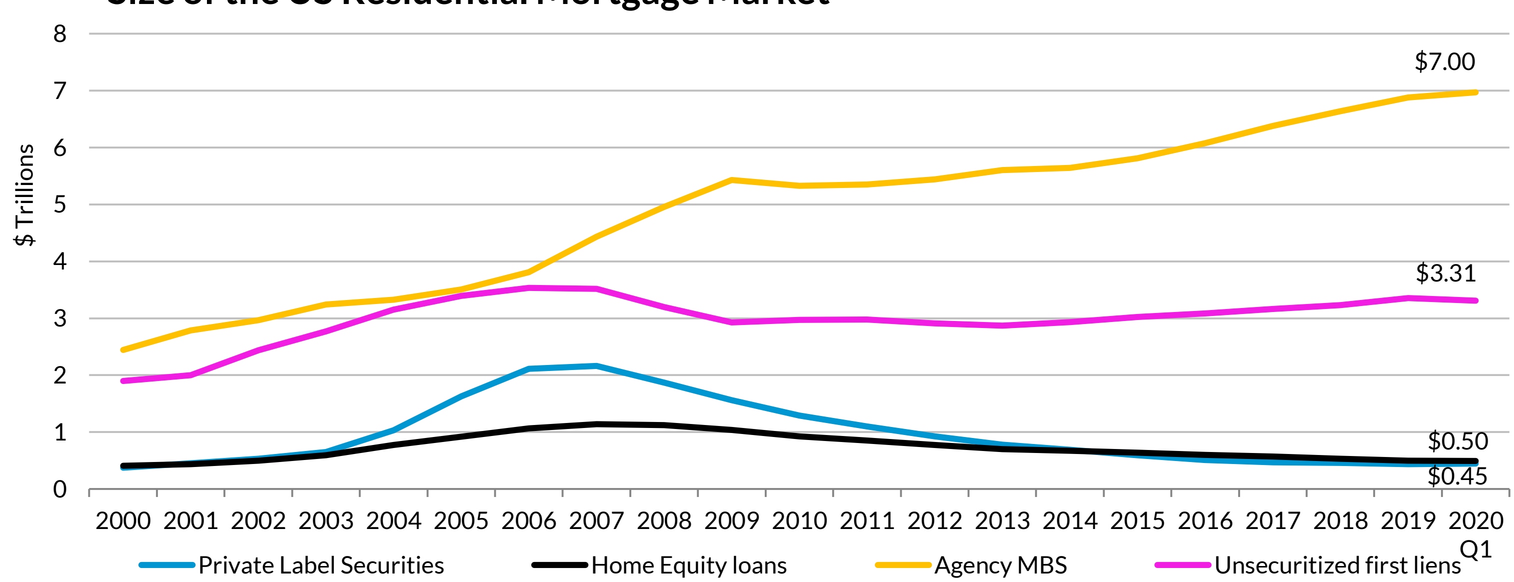
State of the US Housing Market

The Federal Reserve's Flow of Fund Report has indicated a gradually increasing total value of the housing market, driven primarily by growing home equity since 2012. The Q1 2020 numbers show that while mortgage debt outstanding was steady this quarter at $11.2 trillion, total home equity grew slightly from $20.3 trillion in Q4 2019 to $20.7 trillion in the first quarter of 2020, bringing the total value of the housing market to $31.9 trillion, 24.8 percent higher than the pre-crisis peak in 2006. Agency MBS account for 62.1 percent of the total mortgage debt outstanding, private-label securities make up 4.0 percent, and unsecuritized first liens make up 30.0 percent. Home equity loans comprise the remaining 4.4 percent of the total.

Value of the US Housing Market



Size of the US Residential Mortgage Market

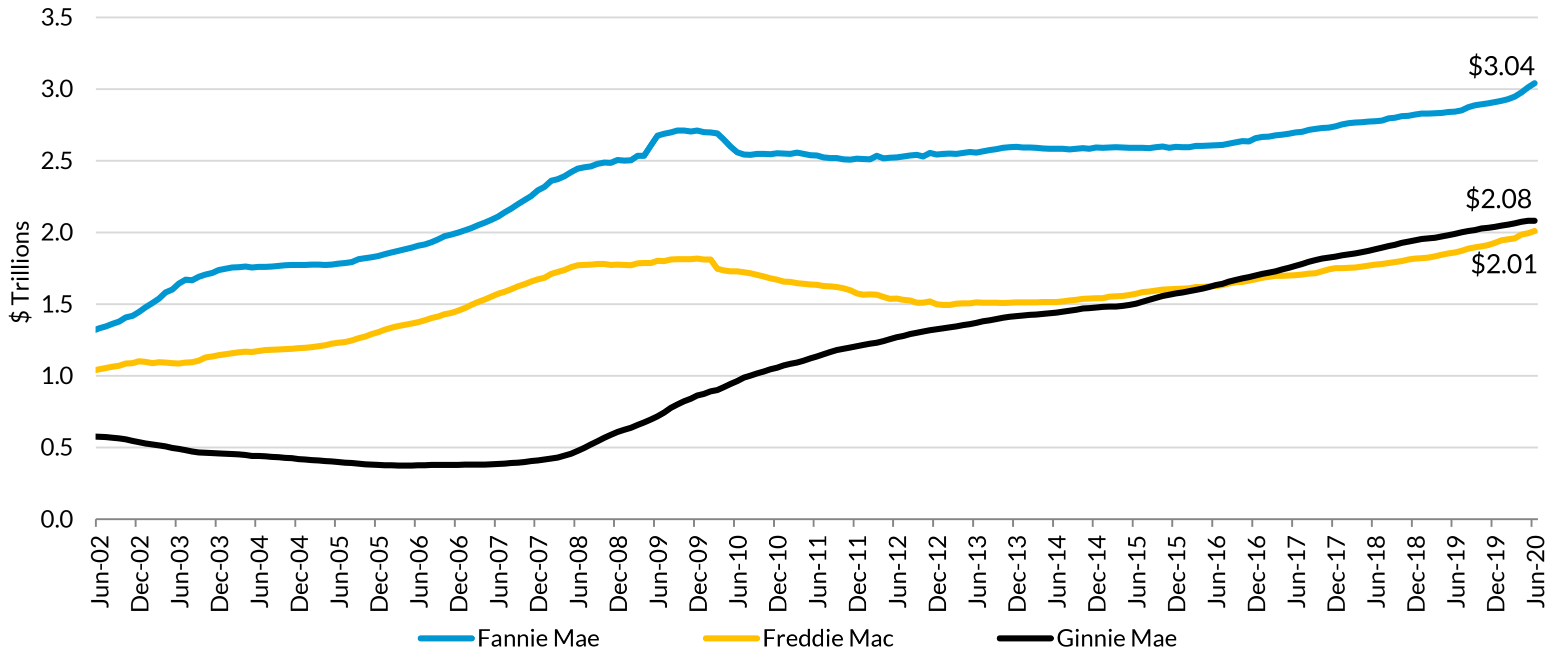


Sources: *Federal Reserve Flow of Funds, eMBS and Urban Institute. Last updated July 2020.*
Note Top: *Single family includes 1-4 family mortgages. The home equity number is grossed up from Fed totals to include the value of households and the non-financial business sector.* **Note Bottom**: *Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, credit unions and other financial companies.*

State of the US Housing Market

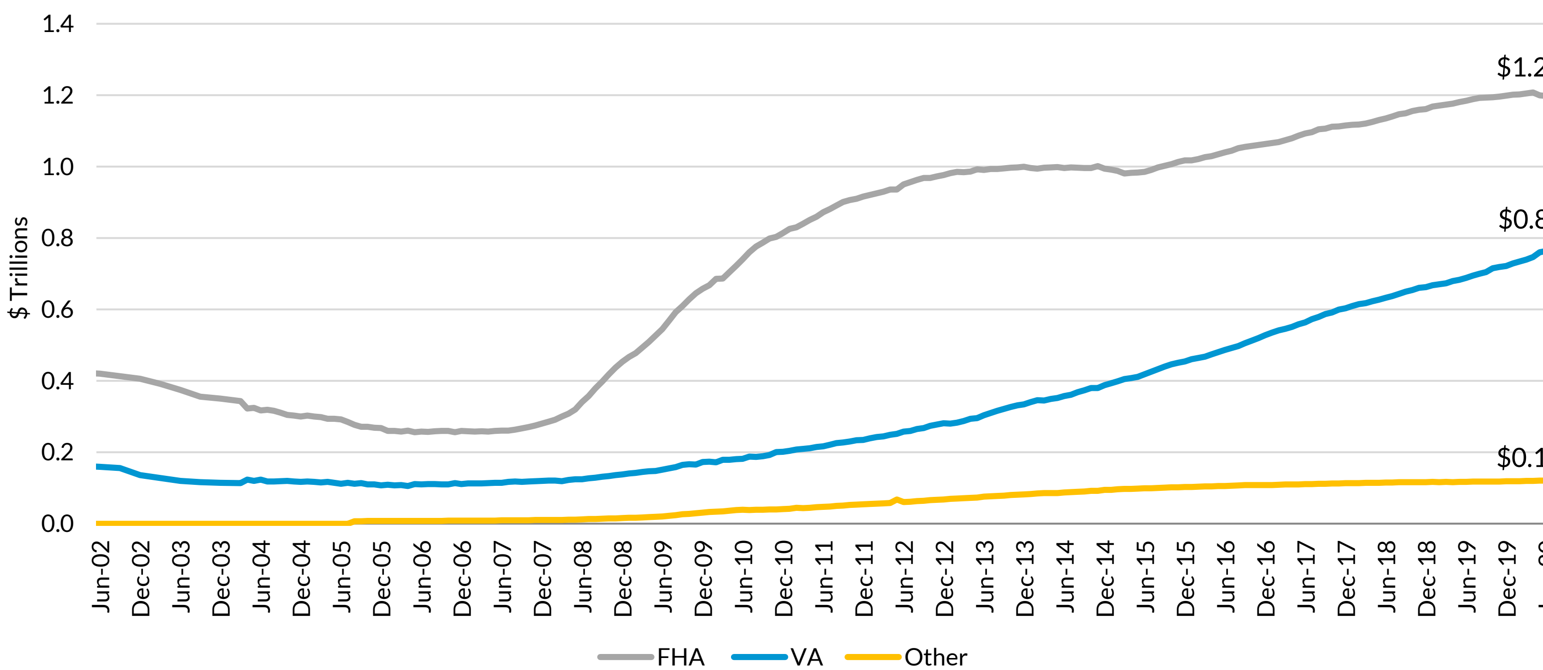
As of June 2020, outstanding securities in the agency market totaled $7.13 trillion: 42.6 percent Fannie Mae, 28.2 percent Freddie Mac, and 29.2 percent Ginnie Mae MBS. Ginnie Mae has more outstandings than Freddie Mac. Within the Ginnie Mae market, both FHA and VA have grown very rapidly since 2009. FHA comprises 57.5 percent of total Ginnie Mae MBS outstanding, while VA comprises 37.0 percent.

Outstanding Agency Mortgage-Backed Securities



Sources: *eMBS and Urban Institute* **Note:** *Data as of June 2020.*

Outstanding Ginnie Mae Mortgage-Backed Securities

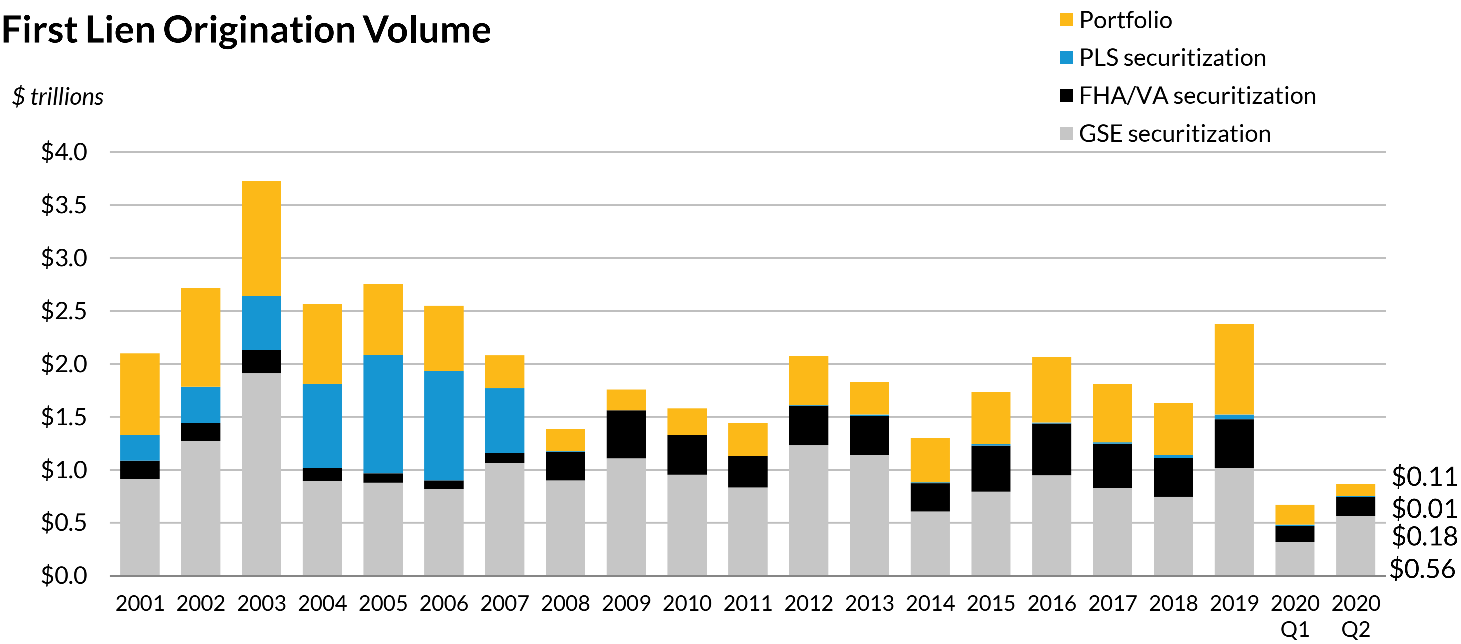


Sources: *eMBS and Urban Institute.* **Note:** *Data as of June 2020.*

State of the US Housing Market

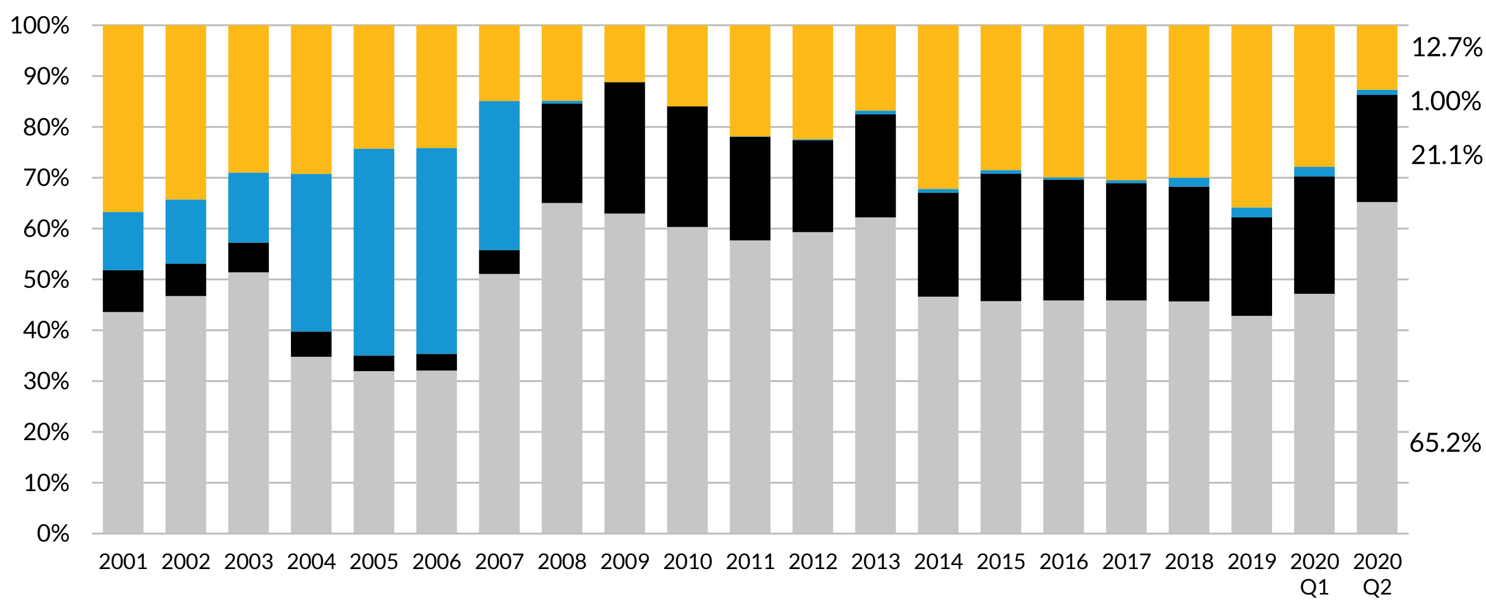
In the second quarter of 2020, first lien originations totaled $865 billion, up from the Q2 2019 volume of $565 billion. The share of portfolio originations was 12.7 percent in Q2 2020, a significant decline from the 42.1 percent share in the same period 2019. The Q2 2020 GSE share was up significantly at 65.2 percent, compared to 38.6 percent in Q2 2019. The FHA/VA share grew to 21.1 percent, also up compared to 17.5 percent last year. Private-label securitization currently tallies 1.0 percent, down from 1.6 percent one year ago, and a fraction of its share in the pre-bubble years. The sharp decline of the portfolio and private label channels in Q2 reflected COVID-19 generated market liquidity issues, which made it difficult to originate mortgages in channels without government support. The sharp increase in the GSE share reflected the huge amount of refinances done through this channel.

First Lien Origination Volume



Sources: *Inside Mortgage Finance and Urban Institute.* **Note:** *Data as of Q2 2020.*

First Lien Origination Share



Sources: *Inside Mortgage Finance and Urban Institute.* **Note:** *Data as of Q2 2020.*

US Agency Market, Originations

Agency gross issuance in the first half of 2020 was $1.23 trillion and is easily on track to surpass the 2019 full year volume of $1.55 trillion, and if current trends continue, 2020 will be the highest agency origination year in the 21st century. While rates were low in 2019, they fell even more in 2020, pushing home purchase volumes higher and refinances through the roof. Compared to the first half of 2019, agency gross issuance was up 115.1 percent. Ginnie Mae gross issuance was up by 75.7 percent and GSE gross issuance was up by 135.4 percent. Within the Ginnie Mae market, FHA was up by 41.4 percent and VA origination was up by 124.4 percent.

Agency Gross Issuance					
Issuance Year	Fannie Mae	Freddie Mac	GSE Total	Ginnie Mae	Total
2000	$202.8	$157.9	$360.6	$102.2	$462.8
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	$1,195.3
2019	$597.4	$445.2	$1,042.6	$508.6	$1,551.2
2020 YTD	$532.5	$357.3	$889.7	$340.9	$1,230.6
2020 % Change YOY	150.6%	115.9%	135.4%	75.7%	115.1%
2020 Ann.	$1,064.9	$714.5	$1,779.4	$681.7	$2,461.1

Ginnie Mae Breakdown: Agency Gross Issuance				
Issuance Year	FHA	VA	Other	Total
2000	$80.2	$18.8	$3.2	$102.2
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 YTD	$154.2	$176.5	$10.1	$340.9
2020 % Change YOY	41.4%	124.4%	59.5%	75.7%
2020 Ann.	$370.1	$423.6	$24.3	$818.1

Sources: *eMBS and Urban Institute (top and bottom).*
Note : *Dollar amounts are in billions. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of June 2020.*

US Agency Market, Originations

2019 was a robust year for net agency issuance, with $293.5 billion of net new supply, 32.6 percent of this by Ginnie Mae. This trend continued into the first half of 2020, with net agency issuance totaling $256.0 billion, up 137.9 percent compared with the first half of 2019. Ginnie Mae net issuance was $41.6 billion, comprising 16.3 percent of total agency net issuance. Ginnie Mae net issuance in the first half of 2020 was comprised of 99.5 percent VA, 4.4 percent other and -3.9 percent FHA.

Agency Net Issuance

Issuance Year	Fannie Mae	Freddie Mac	GSE Total	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	$172.5
2016	$60.5	$66.8	$127.4	$126.1	$261.6
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	$197.8	$95.7	$293.5
2020 YTD	$132.1	$82.4	$214.4	$41.6	$256.0
2020 % Change YOY	597.9%	93.1%	248.3%	-9.7%	137.9%
2020 Ann.	$264.1	$164.7	$428.9	$83.2	$512.1

Ginnie Mae Breakdown: Net Issuance

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	$131.3
2018	$49.2	$61.2	$3.5	$113.9
2019	$35.9	$58.0	$1.9	$95.7
2020 YTD	-$1.6	$41.4	$1.8	$41.6
2020 % Change YOY	-107.7%	68.3%	401.8%	-9.7%
2020 Ann.	-$3.9	$99.4	$4.4	$99.9

Sources: *eMBS and Urban Institute.* **Note :** *Dollar amounts are in billions. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of June 2020.*

US Agency Market, Originations

Agency gross issuance moves inversely to interest rates, generally declining as interest rates rise, increasing when interest rates fall, but the seasonal trend is also very strong. This table allows for a comparison with the same month in previous years. The June 2020 gross agency issuance of $255.4 billion is the second highest gross issuance month since this data has been available (May 2020 was the highest), as lower rates gave borrowers a stronger incentive to refinance, contributing to a sharp increase.

Monthly Agency Issuance

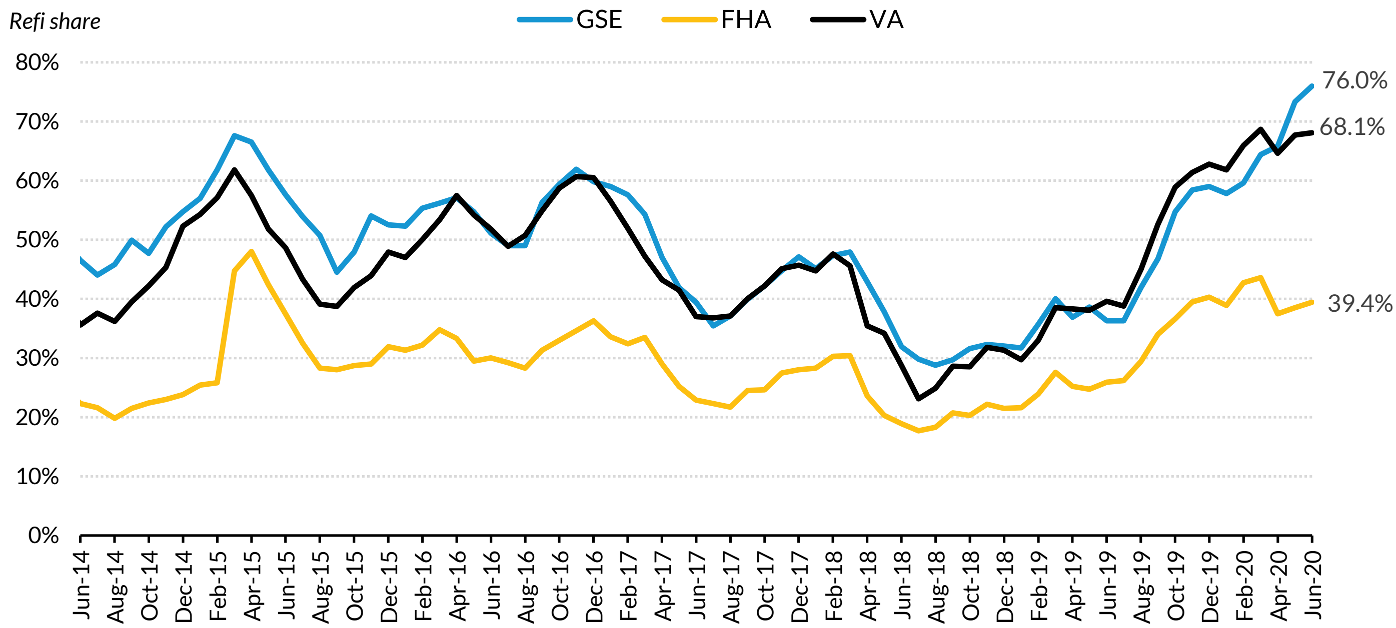
	Gross Issuance				Net Issuance			
Date	Fannie Mae	Freddie Mac	Ginnie Mae	Total	Fannie Mae	Freddie Mac	Ginnie Mae	Total
Jan-17	$55.6	$38.5	$42.6	$136.6	$8.5	$10.7	$10.3	$29.5
Feb-17	$37.6	$27.4	$33.1	$98.1	$2.5	$6.5	$9.4	$18.5
Mar-17	$39.5	$24.4	$31.3	$95.2	$9.7	$6.2	$9.7	$25.6
Apr-17	$39.3	$21.2	$36.4	$97.0	$3.3	$0.4	$11.7	$15.4
May-17	$40.3	$22.6	$36.4	$99.3	$7.7	$2.7	$13.3	$23.8
Jun-17	$45.7	$25.1	$39.9	$110.7	$7.9	$2.4	$13.3	$23.5
Jul-17	$45.3	$27.6	$40.6	$113.5	$5.6	$3.5	$12.3	$21.5
Aug-17	$49.1	$29.3	$42.8	$121.1	$12.0	$6.7	$15.4	$34.1
Sep-17	$47.3	$27.9	$40.2	$115.5	$7.7	$3.8	$10.6	$22.0
Oct-17	$42.9	$34.6	$38.4	$115.9	$5.5	$12.5	$11.0	$28.9
Nov-17	$43.5	$37.2	$37.8	$118.5	$3.9	$13.6	$8.3	$25.8
Dec-17	$45.3	$30.0	$36.2	$111.5	$9.2	$8.1	$7.0	$24.4
Jan-18	$47.4	$21.4	$35.2	$104.0	$12.1	$0.2	$7.7	$20.0
Feb-18	$40.3	$21.5	$31.9	$93.7	$8.3	$2.2	$7.1	$17.6
Mar-18	$35.6	$21.3	$29.0	$85.9	$4.9	$3.0	$6.3	$14.1
Apr-18	$36.3	$26.2	$32.7	$95.2	$1.7	$6.0	$8.8	$16.5
May-18	$38.9	$27.5	$33.7	$100.1	$5.1	$7.2	$10.5	$22.8
Jun-18	$38.2	$28.8	$35.6	$102.5	$2.5	$6.8	$10.3	$19.6
Jul-18	$40.3	$26.2	$35.6	$102.1	$4.2	$3.7	$10.4	$18.3
Aug-18	$50.4	$29.9	$37.5	$117.8	$15.8	$7.9	$12.5	$36.1
Sep-18	$41.8	$30.1	$34.8	$106.6	$5.9	$6.2	$9.0	$21.1
Oct-18	$39.8	$27.4	$33.2	$100.3	$9.7	$7.1	$11.4	$28.2
Nov-18	$35.1	$30.1	$32.4	$97.6	$3.6	$11.0	$9.8	$24.4
Dec-18	$36.9	$23.9	$28.4	$89.1	$8.2	$6.4	$8.2	$22.8
Jan-19	$33.3	$19.2	$29.0	$81.6	$5.9	$2.5	$9.2	$17.6
Feb-19	$27.3	$19.9	$23.5	$70.7	$1.4	$3.4	$4.6	$9.3
Mar-19	$29.6	$27.3	$26.6	$83.5	$1.8	$10.3	$5.6	$17.6
Apr-19	$33.1	$30.8	$32.9	$96.8	$1.3	$10.8	$8.3	$20.4
May-19	$44.5	$34.3	$38.8	$117.6	$6.7	$9.8	$9.4	$26.0
Jun-19	$44.6	$34.0	$43.3	$121.9	$1.9	$5.9	$9.0	$16.8
Jul-19	$51.7	$36.9	$45.9	$134.5	$10.9	$10.1	$11.0	$32.0
Aug-19	$71.1	$50.4	$51.2	$172.6	$20.8	$17.1	$8.7	$46.6
Sep-19	$67.1	$43.0	$52.0	$162.1	$14.1	$7.5	$6.5	$28.0
Oct-19	$65.0	$46.2	$58.4	$169.6	$7.4	$7.1	$11.9	$26.5
Nov-19	$68.1	$50.7	$54.3	$173.1	$5.2	$8.6	$4.1	$18.0
Dec-19	$62.1	$52.5	$52.7	$167.3	$10.1	$17.3	$7.4	$34.7
Jan-20	$61.7	$51.4	$56.0	$169.0	$9.1	$16.5	$8.6	$34.2
Feb-20	$56.5	$39.5	$51.2	$147.2	$9.4	$7.9	$7.1	$24.4
Mar-20	$69.5	$41.1	$53.0	$163.9	$17.9	$6.3	$8.8	$33.0
Apr-20	$101.6	$76.3	$61.4	$239.3	$30.5	$27.5	$10.2	$68.2
May-20	$124.3	$70.6	$60.8	$255.7	$35.2	$8.2	$5.7	$49.1
Jun-20	$118.9	$78.1	$58.5	$255.4	$30.0	$15.9	$1.3	$47.2

Sources: *eMBS and Urban Institute.*
Note : *Dollar amounts are in billions. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of June 2020.*

US Agency Market, Originations

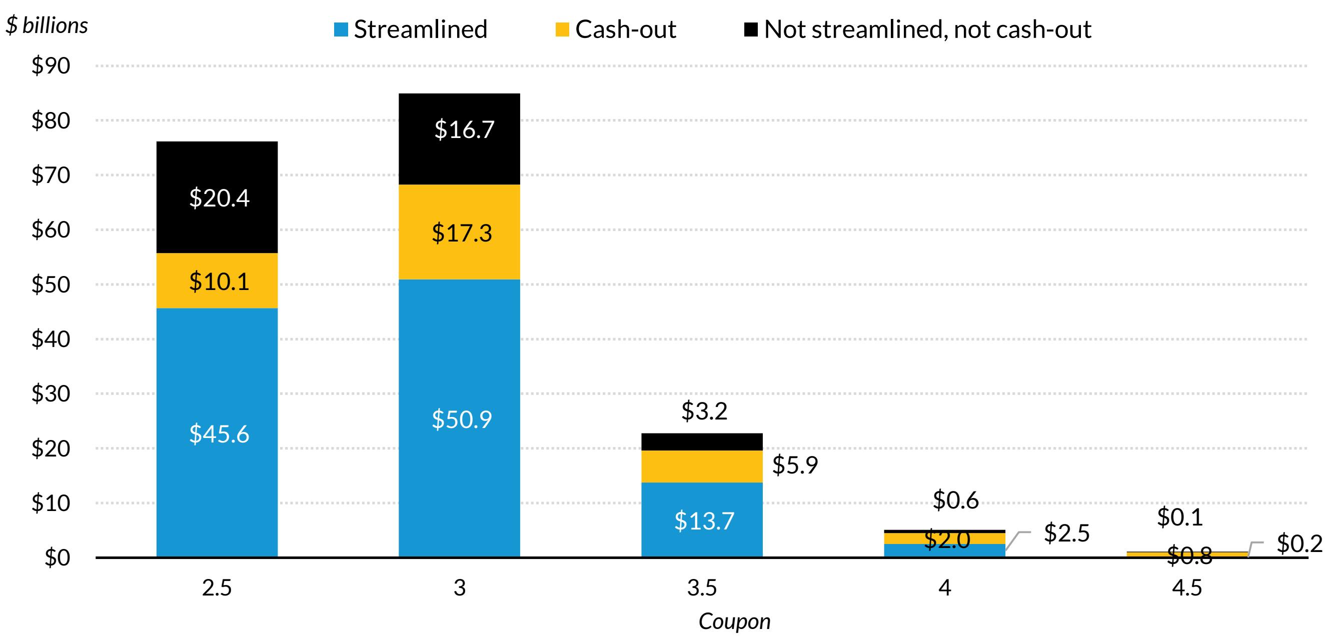
The FHA refinance share stood at 39.4 percent in June 2020, below the 76.0 percent refi share for GSE originations and the 68.1 percent share for the VA. Refinances as a share of all originations grew during most of 2019 as interest rates were low. The refinance share grew through the first three months of 2020, as rates dropped further, but have since stabilized for FHA and VA lending, while rising sharply for conventional mortgages. The bottom section shows that nearly all of 2020 YTD Ginnie Mae refinances, predominantly streamlined, were securitized in lower coupon pools. Cash-out refinances are typically securitized in higher coupons, but their volume has fallen sharply in recent months due to restrictions Ginnie Mae put in place in late 2019, to combat the

Percent Refi at Issuance



Sources: *eMBS and Urban Institute.* **Note**: *Based on at-issuance balance. Data as of June 2020.*

Ginnie Mae Refinance Issuance by Type: 2020 YTD

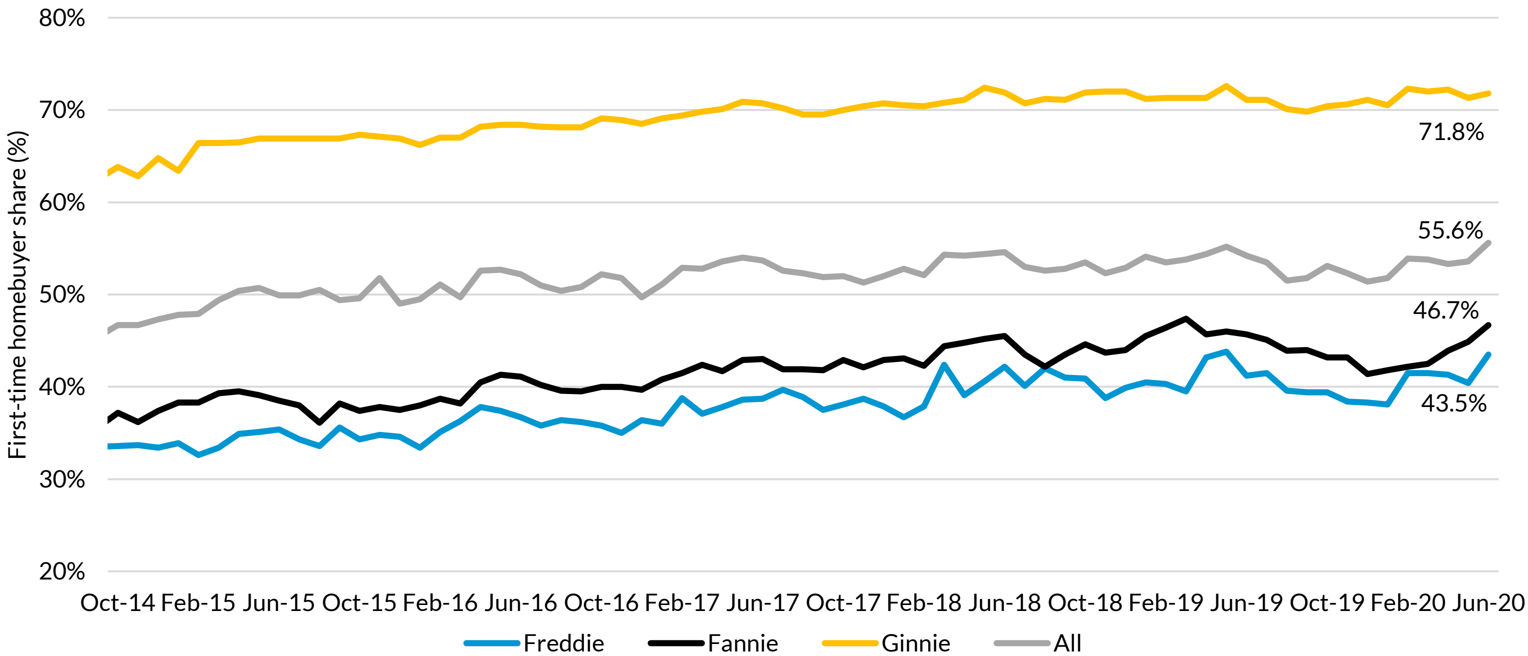


Sources: *eMBS and Urban Institute.*
Note: *Based on at-issuance balance. Data as of June 2020.*

Credit Box

The first time homebuyer share of Ginnie Mae purchase loans was 71.8 percent in June 2020, up slightly from 71.1 percent in June 2019. First time homebuyers comprise a significantly higher share of the Ginnie Mae purchase market than of the GSE purchase market, with first time homebuyers accounting for 46.7 percent and 43.5 percent of Fannie Mae and Freddie Mac purchase originations respectively. The bottom table shows that based on mortgages originated in June 2020, the average first-time homebuyer was more likely than an average repeat buyer to take out a smaller loan, have a lower credit score, a much higher LTV, a similar DTI, and pay a slightly higher rate.

First Time Homebuyer Share: Purchase Only Loans



Sources: *eMBS and Urban Institute.* **Note**: *Data as of June 2020.*

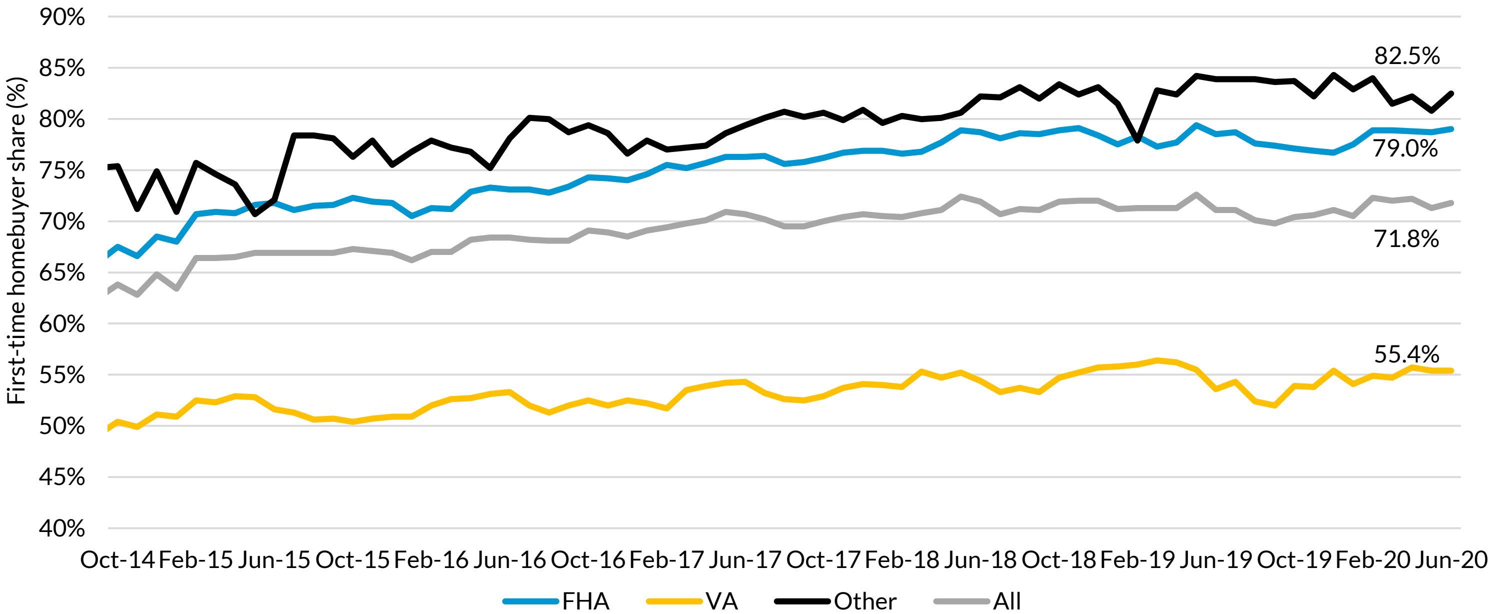
	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	266,215	295,729	266,946	289,630	230,503	285,558	248,597	291,103
Credit Score	744.6	756.3	747.2	759.1	684.7	706.3	715.5	742.9
LTV (%)	89.0	80.7	88.3	80.1	97.1	96.3	92.9	85.0
DTI (%)	34.6	35.7	34.3	35.2	41.0	41.9	37.7	37.3
Loan Rate (%)	3.5	3.4	3.4	3.4	3.5	3.4	3.5	3.4

Sources: *eMBS and Urban Institute.*
Note: *In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting 169 bps from this new issuer-reported LTV. Data as of June 2020.*

Credit Box

Within the Ginnie Mae purchase market, 79.0 percent of FHA loans, 55.4 percent of VA loans and 82.5 percent of other loans represent financing for first-time home buyers in June 2020. The bottom table shows that based on mortgages originated in May 2020, the average first-time homebuyer was more likely than an average repeat buyer to take out a smaller loan, have a lower credit score, higher LTV, similar DTI and pay a higher rate.

First Time Homebuyer Share: Ginnie Mae Breakdown



Sources: *eMBS and Urban Institute.* **Note**: *Includes only purchase loans. Data as of June 2020.*

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	220,948	240,729	283,364	336,587	165,220	176,363	230,503	285,558
Credit Score	674.3	678.3	706.2	730.6	697.6	702.2	684.7	706.3
LTV (%)	95.7	94.5	99.8	97.4	99.3	99.4	97.1	96.3
DTI (%)	42.4	43.5	39.9	41.1	35.1	35.8	41.0	41.9
Loan Rate (%)	3.6	3.5	3.3	3.2	3.4	3.5	3.5	3.4

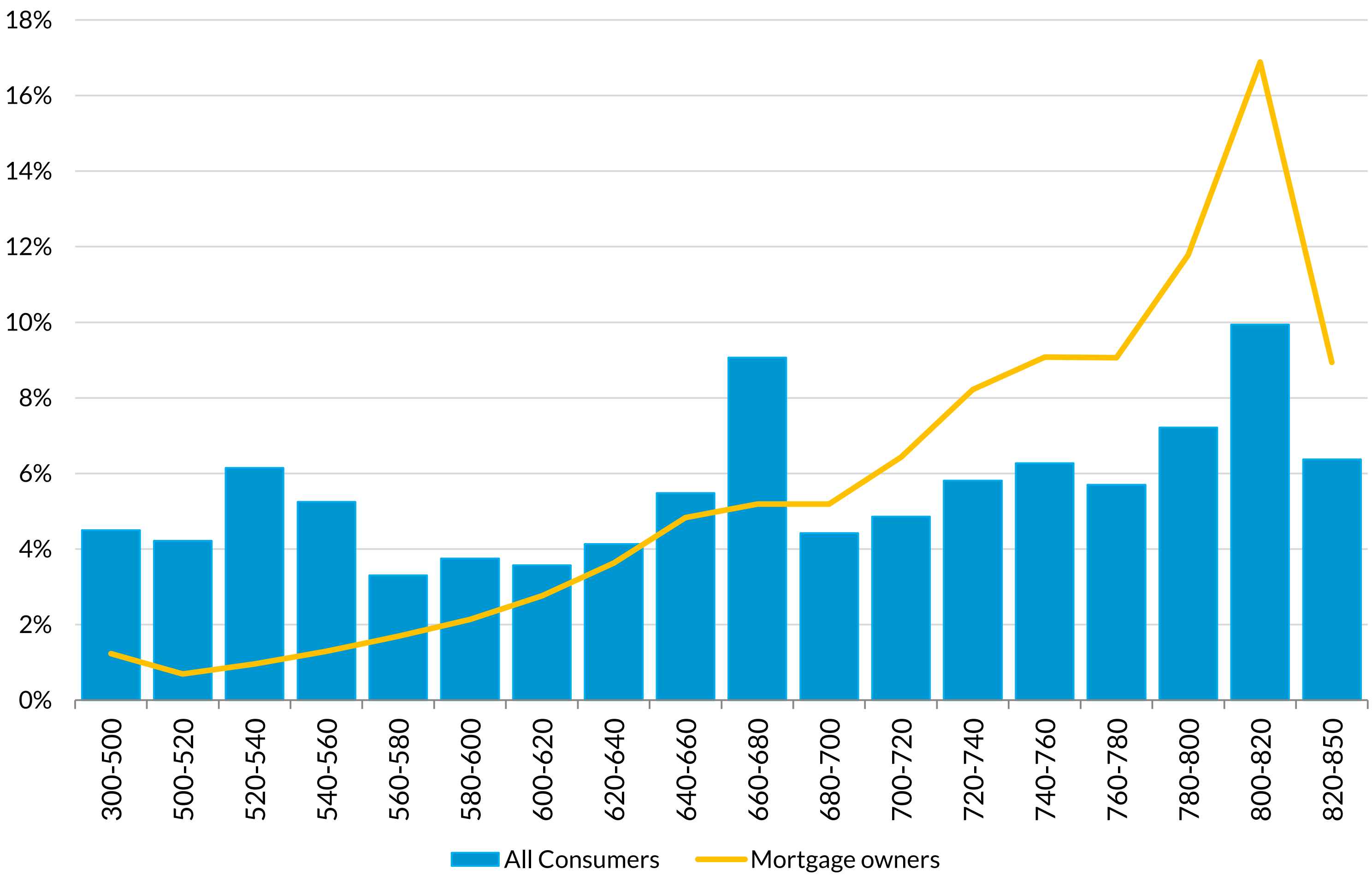
Sources: *eMBS and Urban Institute.* **Note**: *Data as of June 2020. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting 169 bps from this new issuer-reported LTV.*

Credit Box

Consumers who have a mortgage are concentrated at the high end of the general credit score spectrum. The top table shows that the median FICO score for all consumers (682) is equal to the 25th percentile of those with a mortgage (682).

FICO Score Distribution: Mortgage Owners vs All Consumers

All Consumers- Percentiles								
Minimum	P5	P10	P25	P50	P75	P90	P95	Maximum
300	503	524	587	682	774	813	822	839
Mortgage Owners- Percentiles								
Minimum	P5	P10	P25	P50	P75	P90	P95	Maximum
300	570	615	682	752	801	818	824	839



Sources: *Credit Bureau Data and Urban Institute.*
Note: *Data as of August 2017.*

June 2020 Credit Box at a Glance

In June 2020, the median Ginnie Mae FICO score was 692 versus 767 for both Fannie Mae and Freddie Mac. Note that the FICO score for the 10th percentile was 632 for Ginnie Mae, versus 699 for Fannie Mae and 697 for Freddie Mac. Within the Ginnie Mae market, FHA loans have a median FICO score of 669, VA loans have a median FICO score of 729 and other loans have a median FICO score of 695.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	269,820	649	713	737	777	798	729
Fannie	103,347	691	732	759	791	801	752
Freddie	63,137	696	727	762	788	802	755
Ginnie	103,336	629	651	682	728	772	691
Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	601,711	687	725	765	791	804	754
Fannie	314,910	701	736	770	793	805	761
Freddie	213,468	698	732	768	791	804	759
Ginnie	73,333	638	667	710	763	793	711
All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	871,531	670	713	758	788	803	746
Fannie	418,257	699	732	767	791	804	758
Freddie	276,605	697	731	767	791	804	758
Ginnie	176,669	632	656	692	744	784	699

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	103,336	629	651	682	728	772	691
FHA	60,499	625	645	669	701	739	675
VA	33,291	640	669	718	768	794	717
Other	9,546	644	662	693	732	765	698
Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	73,333	638	667	710	763	793	711
FHA	23,249	619	644	671	702	742	674
VA	49,040	653	689	736	777	799	729
Other	1,044	658	673	709	751	780	712
All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	176,669	632	656	692	744	784	699
FHA	83,748	623	644	669	701	740	675
VA	82,331	646	680	729	774	797	724
Other	10,590	645	663	695	734	767	700

Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of June 2020.*

June 2020 Credit Box at a Glance

In June 2020, the median loan-to-value ratio (LTV) was 96.5 percent for Ginnie Mae and 74 percent for both Fannie Mae and Freddie Mac. The 90th percentile was 100.5 percent for Ginnie Mae, 92 percent for Freddie and 95 percent for Fannie. Within the Ginnie Mae market, the median LTV was 96.5 for FHA, 96.4 for VA and 100.9 for other programs.

Purchase LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	270,687	75.0	80.0	95.0	96.5	100.0	88.8
Fannie	103,218	68.0	80.0	90.0	95.0	97.0	84.2
Freddie	63,160	66.0	80.0	85.0	95.0	95.0	83.2
Ginnie	104,309	94.8	96.5	96.5	100.0	101.0	96.9
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	635,151	47.0	59.3	73.0	80.0	92.0	70.2
Fannie	314,934	44.0	57.0	69.0	78.0	84.0	66.3
Freddie	213,479	45.0	58.0	70.0	79.0	84.0	66.9
Ginnie	106,738	71.9	81.8	91.2	97.4	100.0	88.1
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	905,838	50.0	64.0	78.8	92.0	96.6	75.8
Fannie	418,152	47.0	60.0	74.0	80.0	95.0	70.7
Freddie	276,639	47.0	60.0	74.0	80.0	92.0	70.7
Ginnie	211,047	79.5	89.9	96.5	98.8	100.5	92.4

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	104,309	94.8	96.5	96.5	100.0	101.0	96.9
FHA	61,322	94.8	96.5	96.5	96.5	96.5	95.5
VA	33,412	95.0	100.0	100.0	100.0	102.3	98.8
Other	9,575	95.9	99.2	101.0	101.0	101.0	99.3
Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	106,738	71.9	81.8	91.2	97.4	100.0	88.1
FHA	37,485	76.3	81.7	92.5	96.8	98.1	88.8
VA	68,133	69.4	81.8	90.1	98.0	100.5	87.6
Other	1,120	77.9	89.1	97.7	100.6	101.5	93.2
All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	211,047	79.5	89.9	96.5	98.8	100.5	92.4
FHA	98,807	81.4	93.3	96.5	96.5	97.1	92.9
VA	101,545	74.0	85.8	96.4	100.0	102.2	91.3
Other	10,695	94.1	98.9	100.9	101.0	101.0	98.7

Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting 169 bps from this new issuer-reported LTV. Data as of June 2020.*

June 2020 Credit Box at a Glance

In June 2020, the median Ginnie Mae debt-to-income ratio (DTI) was 41.2 percent, considerably higher than the 34.0 and 33.0 percent median DTI for Freddie Mac and Fannie Mae, respectively. The 90th percentile for Ginnie Mae was 53.4 percent, also much higher than the 46.0 and 45.0 percent DTI for Fannie Mae and Freddie Mac, respectively. Within the Ginnie Mae market, the median FHA DTI ratio was 43.3 percent, versus 39.5 percent for VA and 35.7 percent for other lending programs.

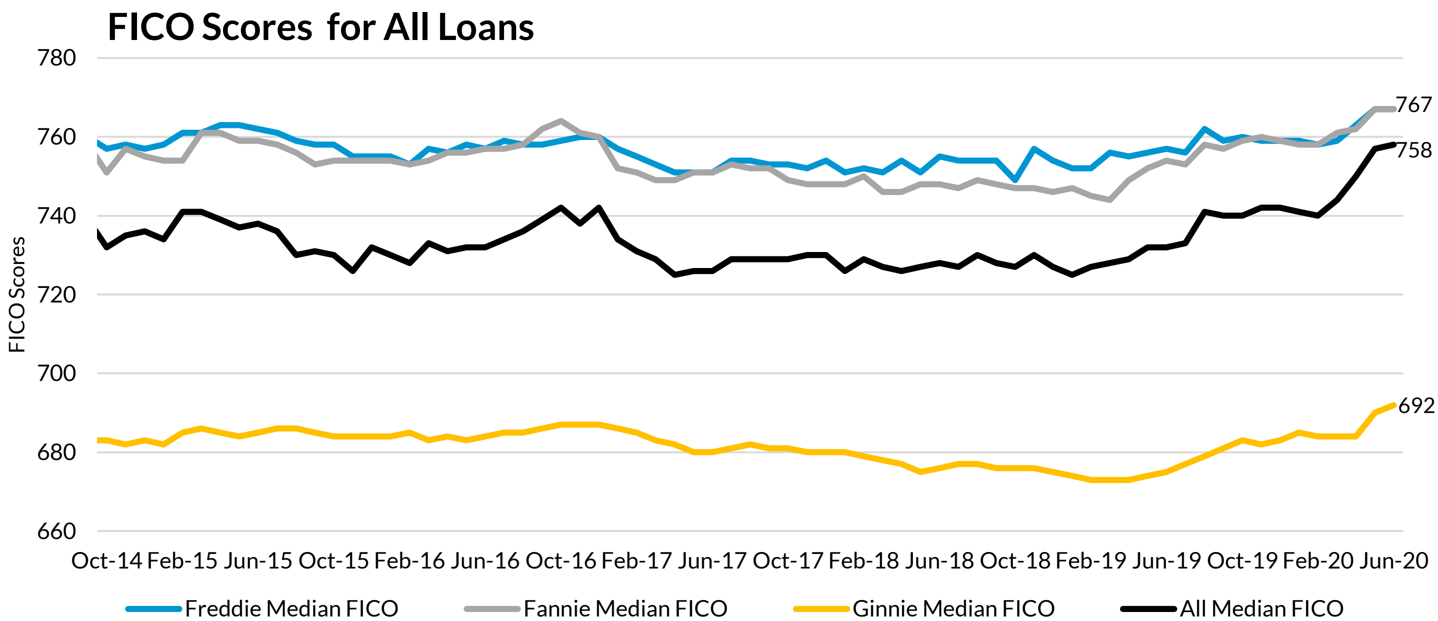
Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	270,454	24.0	30.8	38.3	44.5	49.0	37.4
Fannie	103,364	22.0	28.0	36.0	43.0	46.0	35.1
Freddie	63,160	21.0	28.0	36.0	42.0	46.0	34.7
Ginnie	103,930	28.3	35.0	41.9	48.3	53.5	41.2
Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	558,471	19.0	25.0	33.0	41.0	46.0	32.6
Fannie	314,865	19.0	25.0	33.0	40.0	45.0	32.3
Freddie	213,475	19.0	25.0	33.0	40.0	45.0	32.4
Ginnie	30,131	22.4	30.1	38.5	46.5	52.9	38.0
All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	828,925	20.0	27.0	35.0	42.0	47.0	34.2
Fannie	418,229	19.0	26.0	34.0	41.0	46.0	33.0
Freddie	276,635	19.0	26.0	33.0	41.0	45.0	32.9
Ginnie	134,061	26.9	33.9	41.2	47.9	53.4	40.5

Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	103,930	28.3	35.0	41.9	48.3	53.5	41.2
FHA	61,290	30.1	36.9	43.5	49.4	54.0	42.6
VA	33,091	26.6	33.4	40.9	47.8	53.4	40.4
Other	9,549	25.9	31.0	36.0	40.2	43.1	35.2
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	30,131	22.4	30.1	38.5	46.5	52.9	38.0
FHA	13,541	26.6	33.4	41.8	48.8	53.9	40.7
VA	15,923	20.3	28.1	35.5	44.3	51.4	36.0
Other	667	14.9	20.9	28.6	36.6	41.9	28.7
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	134,061	26.9	33.9	41.2	47.9	53.4	40.5
FHA	74,831	29.4	36.3	43.3	49.3	54.0	42.3
VA	49,014	24.3	31.8	39.5	46.9	52.9	39.0
Other	10,216	24.9	30.4	35.7	40.1	43.1	34.8

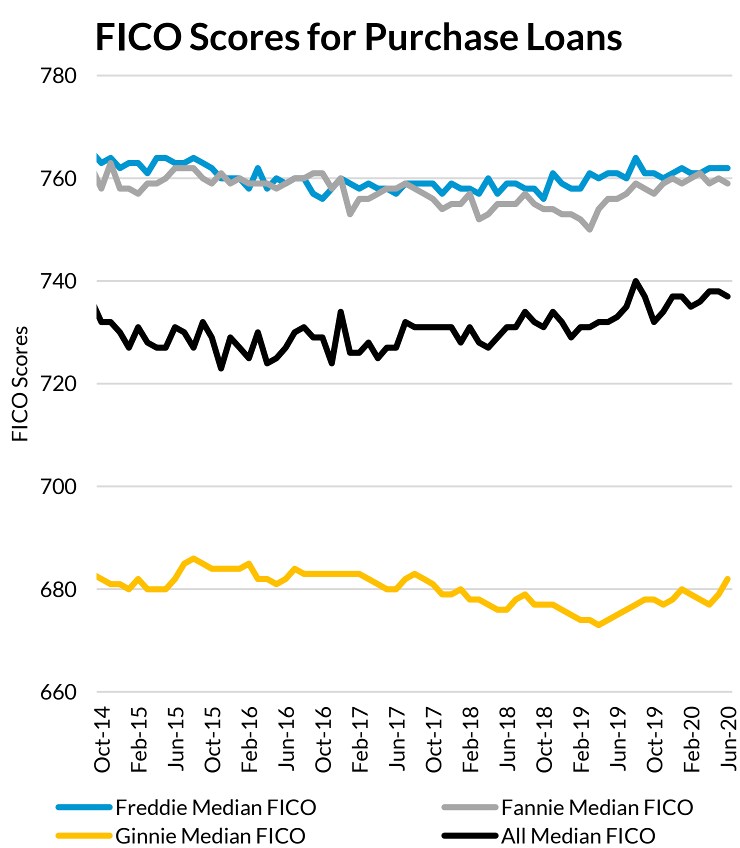
Sources: *eMBS and Urban Institute.* **Note**: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of June 2020.*

Credit Box: Historical

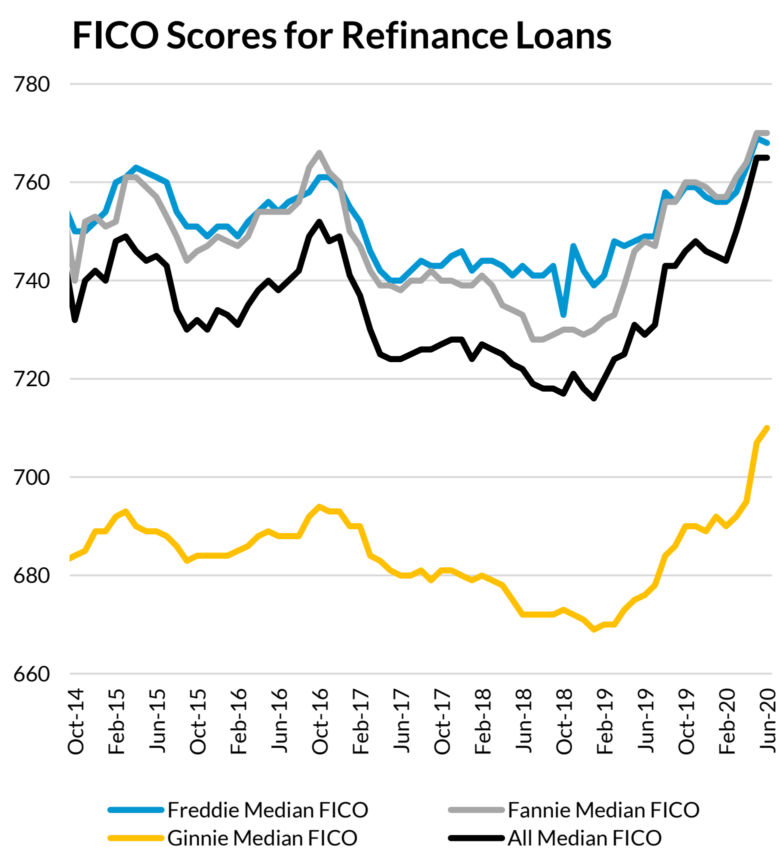
The median FICO score for all agency loans originated in June 2020 was 758, up considerably since the start of last year, owing to the refinance wave, which higher FICO borrowers take advantage of with greater frequency. In addition, the increases in refinance activity have been much more dramatic at the GSEs than at Ginnie Mae, shifting the composition toward higher FICO scores borrowers. Note since early 2019, the median FICO scores for Fannie, Freddie and Ginnie borrowers have moved up for both purchase and refinance loans. The difference between Ginnie Mae and GSE borrower FICOs is slightly wider for purchase loans than for refi loans.



Sources: *eMBS and Urban Institute.* **Note**: *Data as of June 2020.*



Sources: *eMBS and Urban Institute.* **Note:** *Data as of June 2020.*

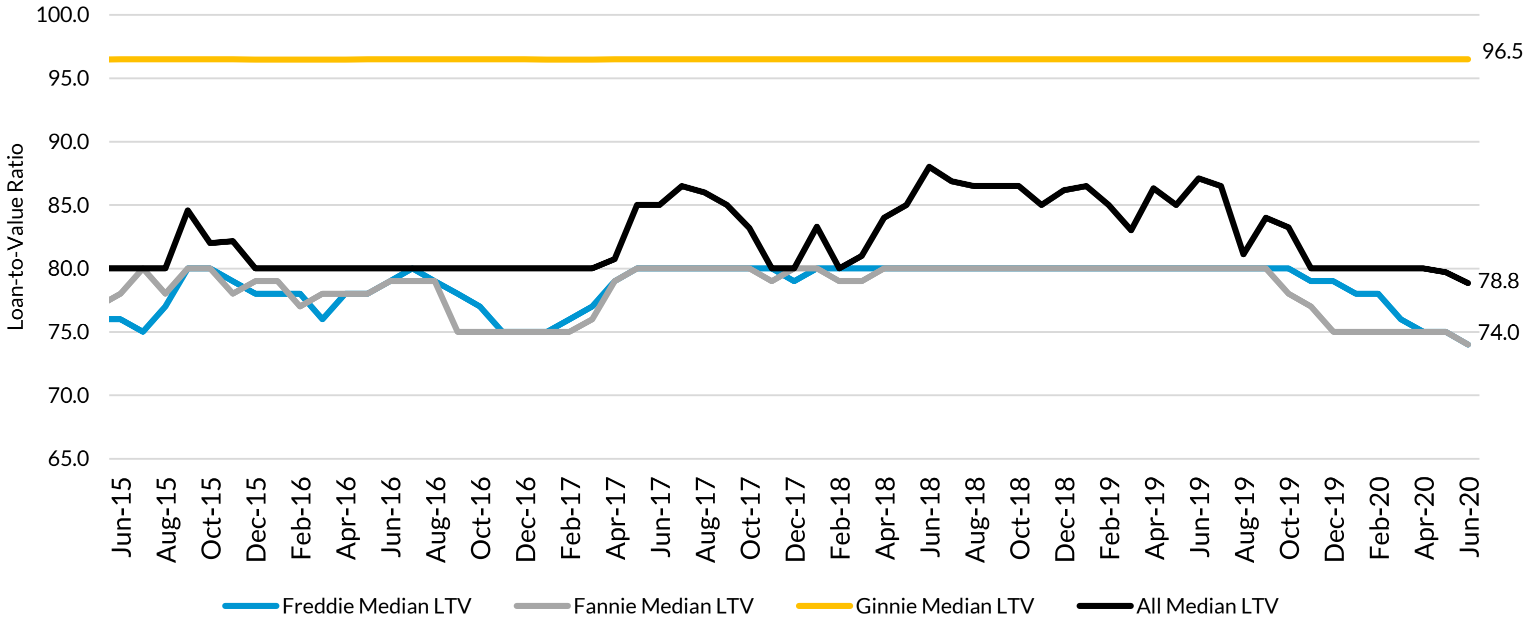


Sources: *eMBS and Urban Institute.* **Note:** *Data as of June 2020.*

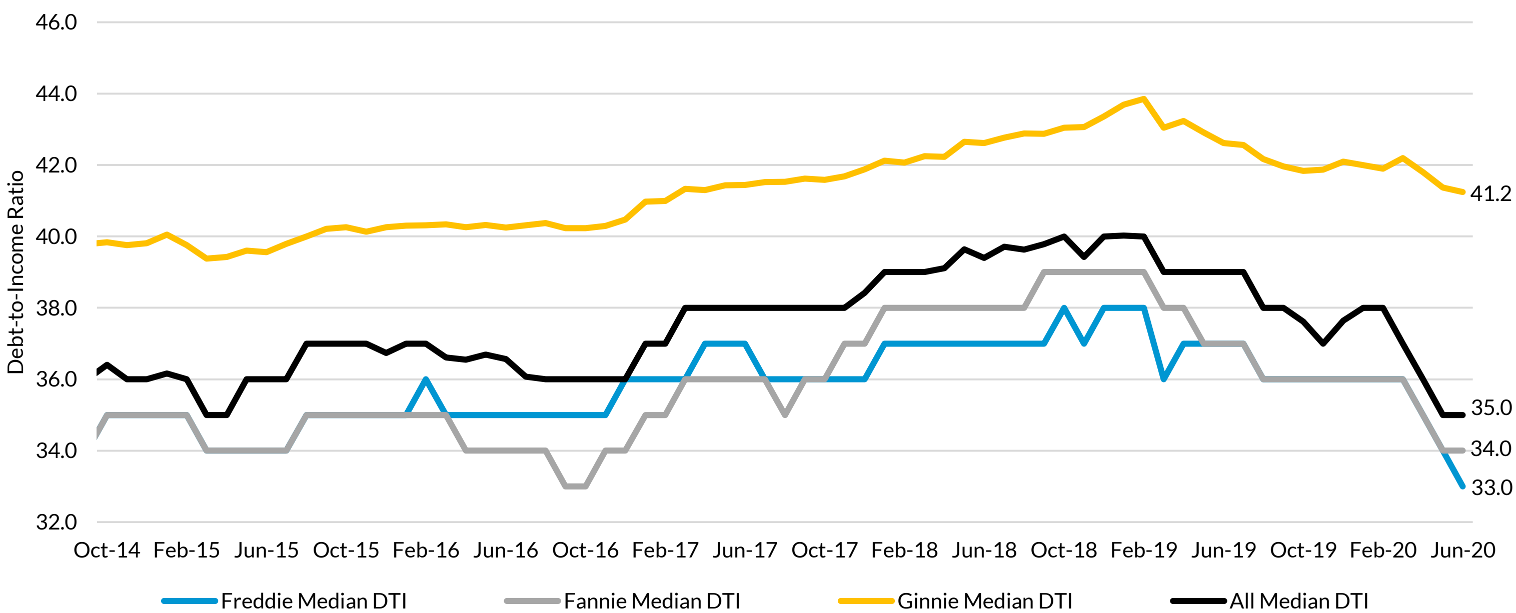
Credit Box: Historical

Median LTVs for Ginnie Mae loans have historically been at 96.5 percent, much higher than the 74–78.8 LTVs for the GSEs. Median debt-to-income ratios for Ginnie Mae loans have historically been in the low 40s, considerably higher than for the GSEs. DTIs increased in the 2017-2018 period for both Ginnie Mae and GSE loans, with the movement more pronounced for Ginnie Mae. Increases in DTI are very typical in an environment of rising interest rates and rising home prices. All three agencies witnessed measurable declines in DTI, beginning in early 2019, driven by lower interest rates.

LTV Ratio for All Loans



DTI Ratio for All Loans

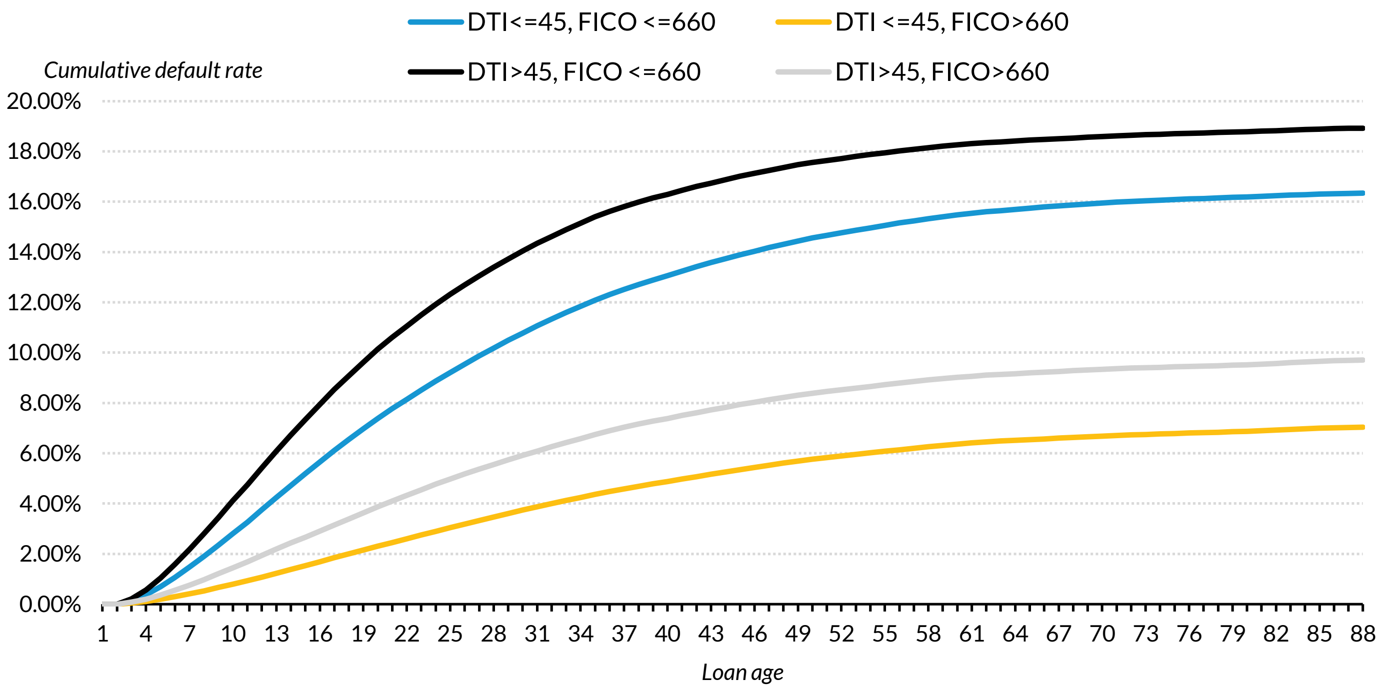


Sources: *eMBS and Urban Institute.* **Note:** *In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting 169 bps from this new issuer-reported LTV. Sources and note apply to all three graphs. Data as of June 2020.*

Credit Box: Historical

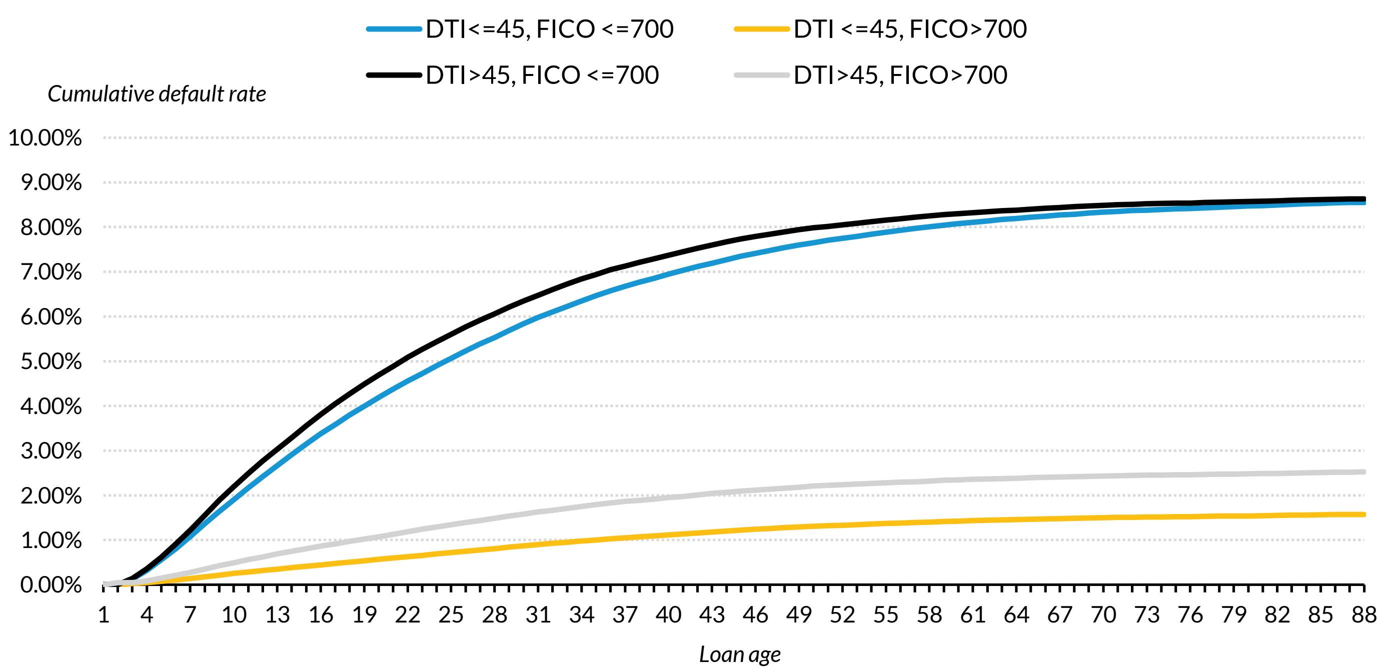
DTI is a much weaker predictor of performance than FICO score. The top chart shows FHA borrowers with higher DTIs do default more than those with lower DTIs, but the differences are modest, as evidenced by the fact that the black line is very close to the blue line and the grey line is not that much above the yellow line. By contrast, FICO makes a much larger difference, as can be seen by comparing the blue line to the yellow line or the black line to the gray line. And low DTI/low FICO borrowers default much less than high DTI/high FICO borrowers, as can be seen by comparing the blue line to the gray line. The bottom chart, for VA borrowers illustrates the same point; DTI is a much weaker predictor of loan performance than credit score.

FHA Cumulative Default Rate by DTI and FICO



Sources: *eMBS and Urban Institute*. **Note:** Defaults = 180 days delinquent. *Data as of June 2020.*

VA Cumulative Default Rate by DTI and FICO

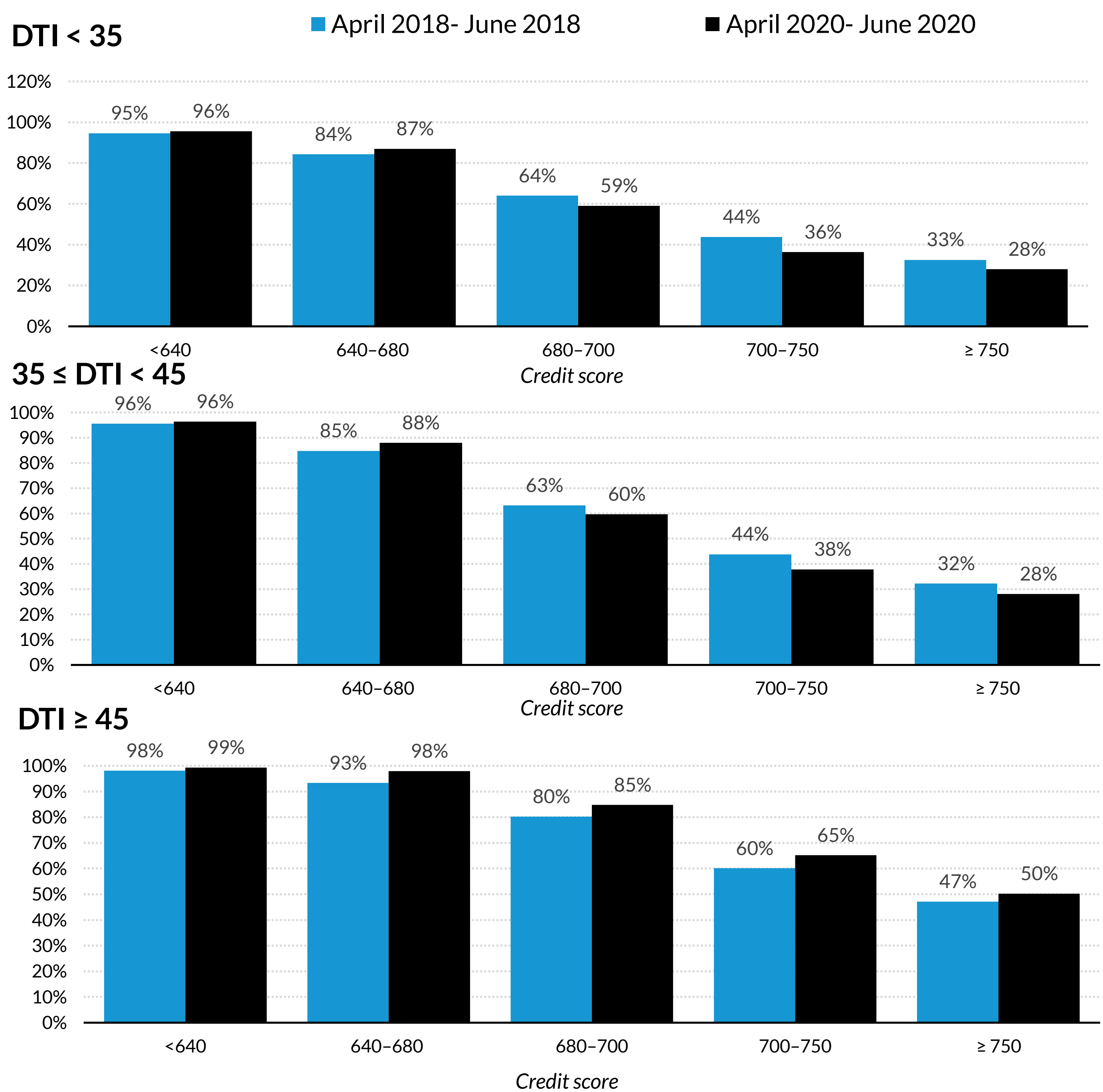


Sources: *eMBS and Urban Institute*. **Note:** Defaults = 180 days delinquent. *Data as of June 2020.*

Credit Box: Historical

This table shows Ginnie Mae's share of agency high-LTV lending by DTI and FICO. In each DTI bucket, Ginnie Mae's share is more concentrated in lower FICO scores than in higher FICO scores. In April 2020- June 2020, Ginnie Mae accounted for 96 percent of agency issuance for DTIs under 35 and FICOs below 640, compared to just 28 percent for DTIs below 35 and FICO 750 and higher. The Ginnie/GSE split in the 35-45 DTI bucket looks a lot like the below 35 percent DTI bucket. In April 2020– June 2020, Ginnie Mae's share of issuance was higher for DTIs of 45 and above, as compared with the two lower DTI buckets. Ginnie Mae share of loans with a DTI of 45 and above and a FICO of 680-700 was 85 percent; it was between 59-60 percent for the same FICO in the lower DTI buckets. Comparing this period to 2 years earlier, it is clear the GSEs have stepped up their higher LTV lending for borrowers with FICOs of 680 or higher for DTIs less than 45 (the less than 35 and the 35-45 buckets).

Ginnie Mae Share of Agency Market by DTI and FICO for Loans with LTV ≥ 95



Sources: *eMBS and Urban Institute.*

High LTV Loans: Ginnie Mae vs. GSEs

Ginnie Mae dominates high-LTV lending, with 70.1 percent of its issuances in the April 2020- June 2020 period having LTVs of 95 or above, compared to 10.5 percent for the GSEs. The GSEs have decreased their high-LTV lending share from 20.6 percent in April 2018– June 2018. Ginnie Mae's high-LTV lending is also down, but by less than the GSE share, over the same period from 72.1 percent. The share of high-LTV agency loans going to highest FICO borrowers (i.e. above 750) has increased from the April 2018-June 2018 period to the April 2020-June 2020 period, as has the share of lower DTI borrowers (below 35).

Share of Loans with LTV ≥ 95

	Ginnie Mae	GSE	All
April 2018- June 2018	72.1%	20.6%	37.8%
April 2020- June 2020	70.1%	10.5%	20.9%

Agency Market Share by DTI and FICO for Loans with LTV ≥ 95

April 2018-June 2018

	FICO					
DTI	<640	640–680	680–700	700–750	≥ 750	All
< 35	2.9%	4.9%	2.6%	6.9%	8.6%	26.0%
35 –45	5.6%	9.3%	4.8%	10.9%	9.5%	40.0%
≥ 45	4.9%	9.2%	4.4%	9.2%	6.4%	34.0%
All	13.4%	23.3%	11.8%	27.0%	24.5%	100.0%

April 2020-June 2020

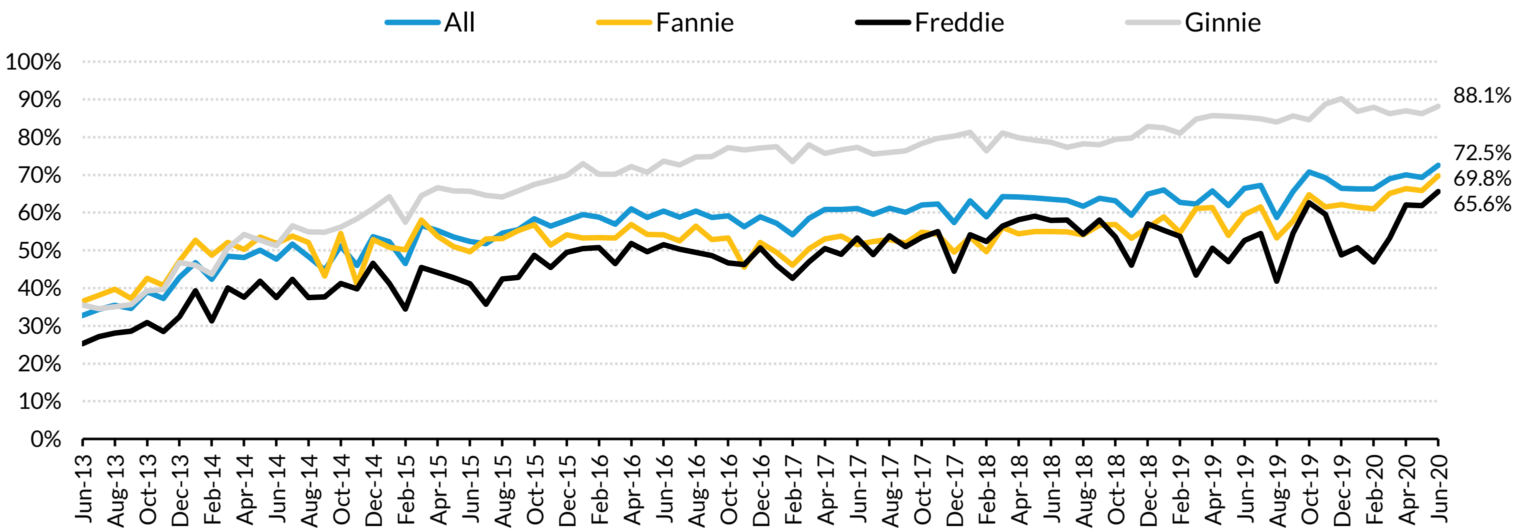
	FICO					
DTI	<640	640–680	680–700	700–750	≥ 750	All
< 35	2.5%	4.7%	2.8%	8.6%	12.2%	30.8%
35 –45	4.4%	8.3%	4.7%	12.2%	11.7%	41.3%
≥ 45	3.6%	7.2%	3.6%	7.6%	5.9%	27.9%
All	10.4%	20.3%	11.1%	28.5%	29.8%	100.0%

Sources: *eMBS and Urban Institute.*

Nonbank Originators

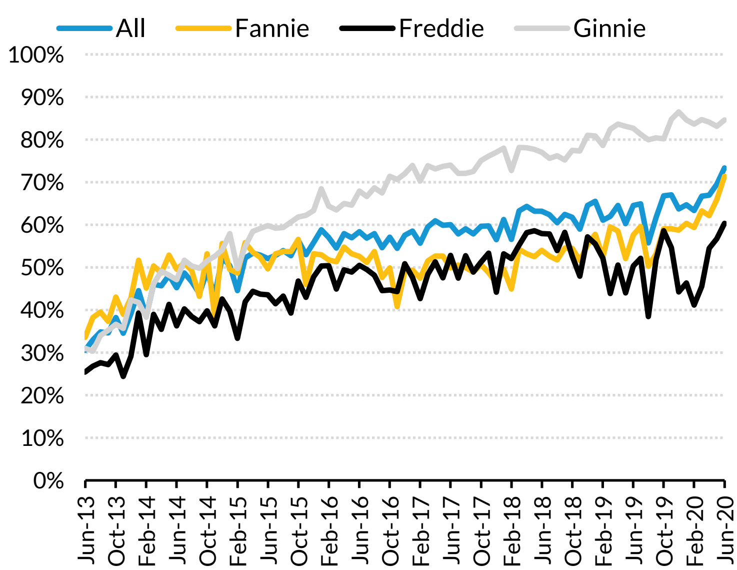
The nonbank origination share has been rising steadily for all three agencies since 2013. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at 88.1 percent in June 2020, down from a record high of 90.2 percent at the end of 2019. Freddie's nonbank share rose to 65.6 percent, while Fannie's nonbank share rose to 69.8 percent in June (note that these numbers can be volatile on a month-to-month basis). Ginnie Mae, Fannie Mae and Freddie Mac all have higher nonbank origination shares for refi activity than for purchase activity. Freddie Mac's nonbank share is the lowest among the three agencies for both purchase and refinance loans.

Nonbank Origination Share: All Loans

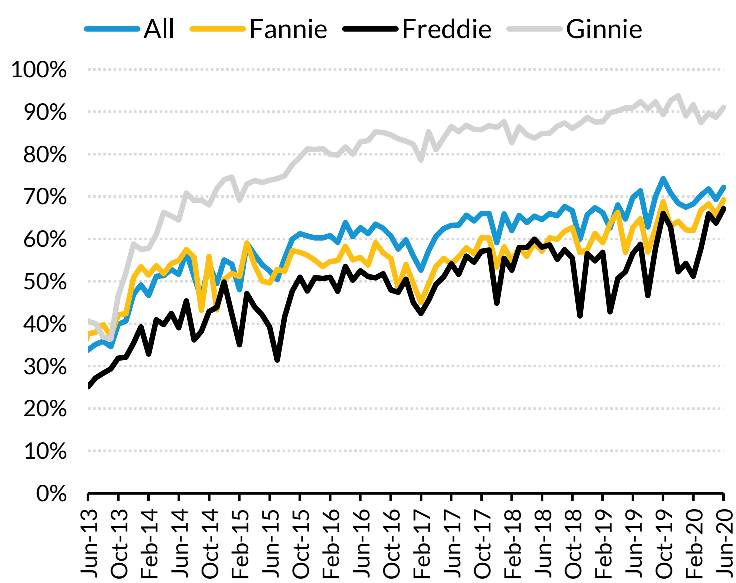


Sources: *eMBS and Urban Institute*
Note: *Data as of June 2020.*

Nonbank Origination Share: Purchase Loans



Nonbank Origination Share: Refinance Loans

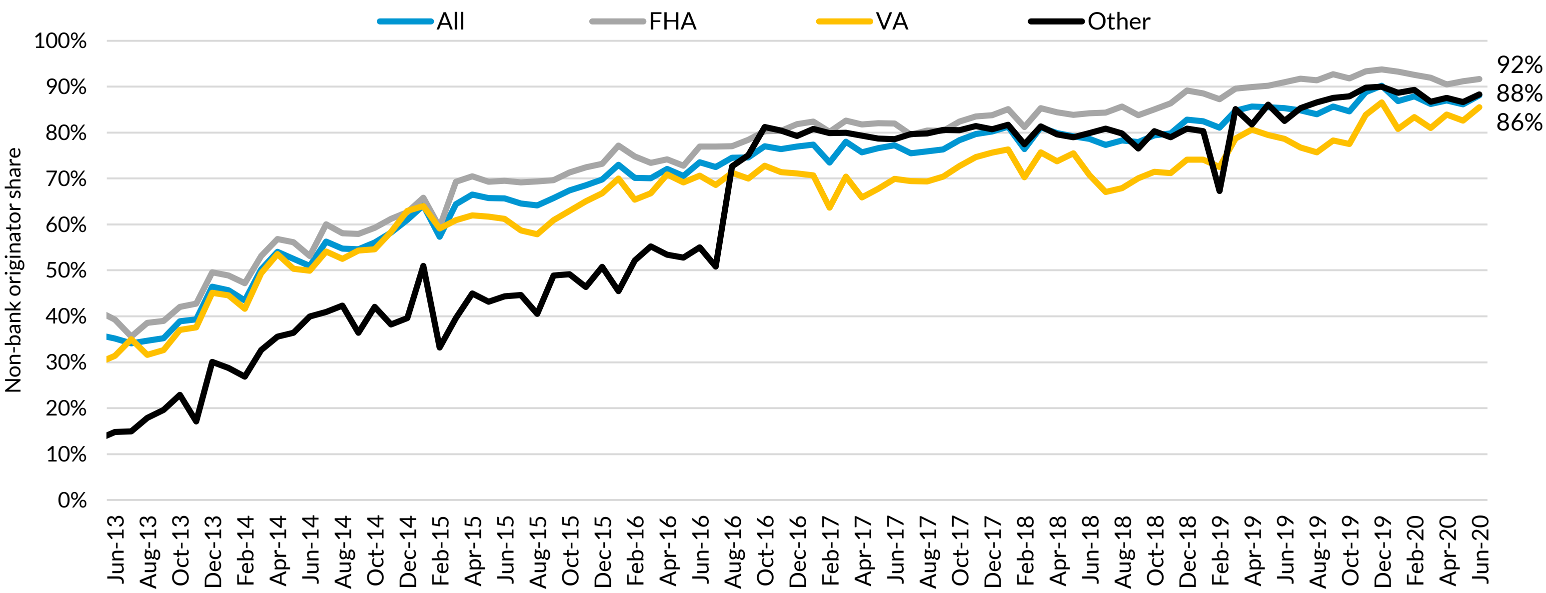


Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of June 2020.*

Ginnie Mae Nonbank Originators

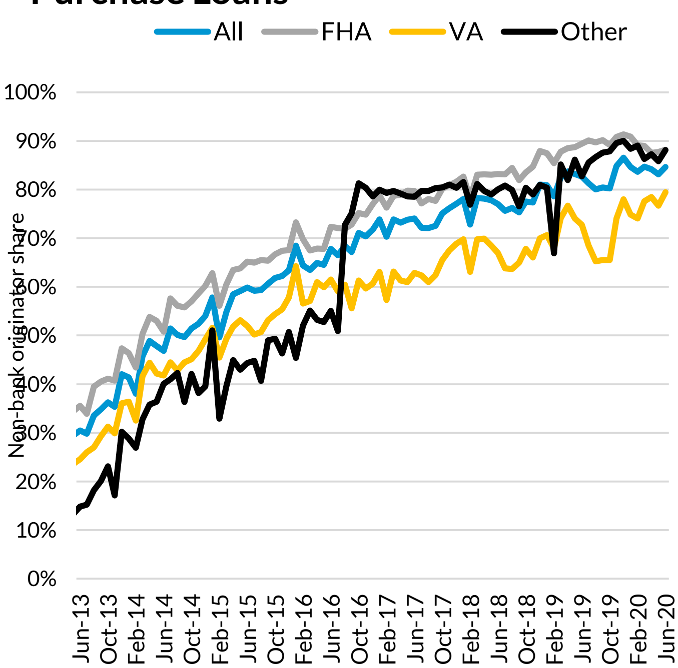
In June 2020, Ginnie Mae's nonbank share rose slightly to 88.1 percent. The nonbank originator share for FHA grew slightly to 91.7 percent in June, compared to 91.2 percent the previous month. The nonbank originator share for VA was higher than last month at 85.5 percent and the nonbank originator share for other loans, which can fluctuate quite a bit month to month, rose to 88.3 percent.

Ginnie Mae Nonbank Originator Share: All Loans

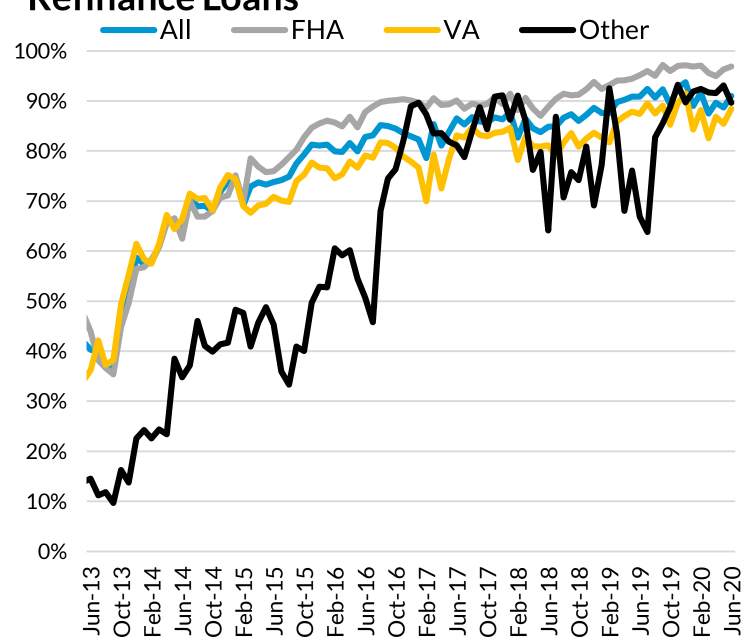


Sources: *eMBS and Urban Institute*
Note: *Data as of June 2020.*

Ginnie Mae Nonbank Share: Purchase Loans



Ginnie Mae Nonbank Share: Refinance Loans

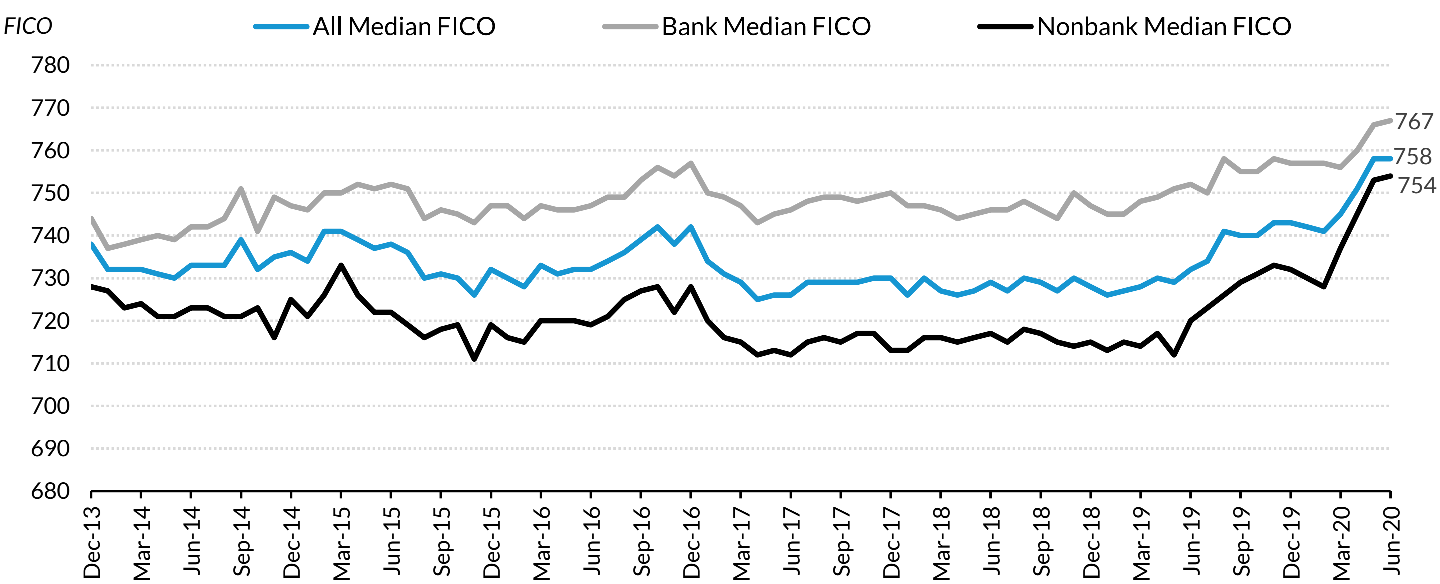


Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of June 2020.*

Nonbank Credit Box

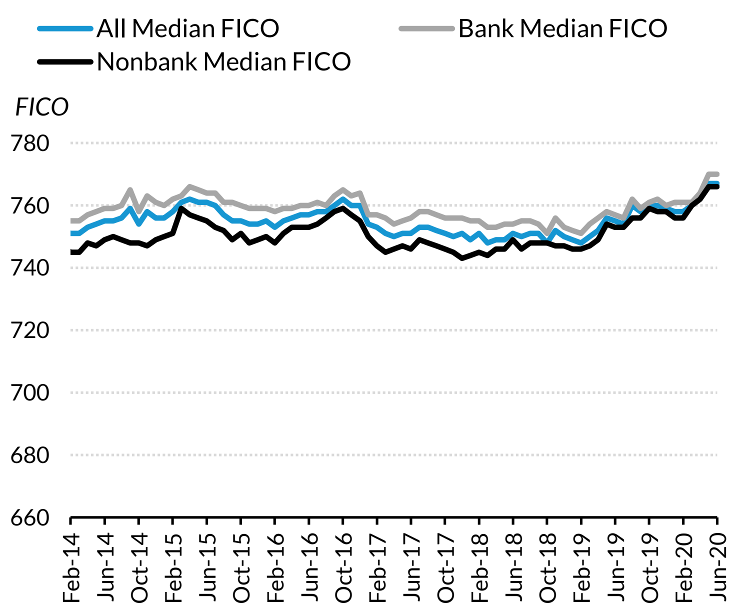
Nonbank originators have played a key role in opening up access to credit. FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, where the differentials between banks and non-banks are small, FICO scores for both have increased since early 2014. The sharp rise in bank and non-bank FICOs reflects an increase in GSE refinance activity, producing a shift in their business mix toward higher FICO activities. Within the Ginnie Mae space, FICO scores for bank originations are much higher since early 2014 while nonbank FICOs have are up considerably less. This largely reflects the sharp cut-back in FHA lending by many banks.

Agency FICO: Bank vs. Nonbank



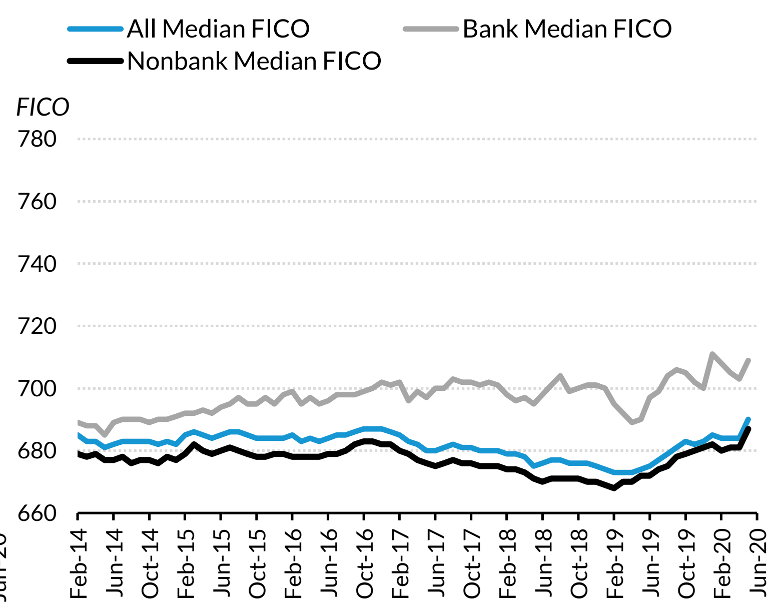
Sources: *eMBS and Urban Institute.* **Note:** *Data as of June 2020.*

GSE FICO: Bank vs. Nonbank



Sources: *eMBS and Urban Institute.*
Note: *Data as of June 2020.*

Ginnie Mae FICO: Bank vs. Nonbank

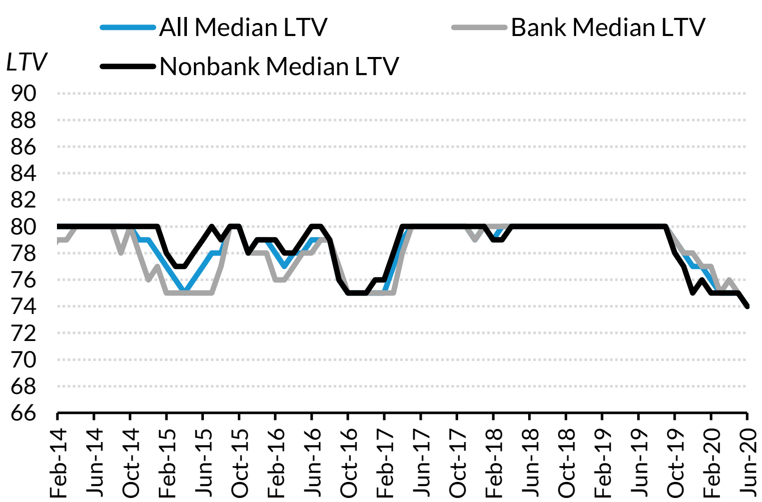


Sources: *eMBS and Urban Institute.*
Note: *Data as of June 2020.*

Nonbank Credit Box

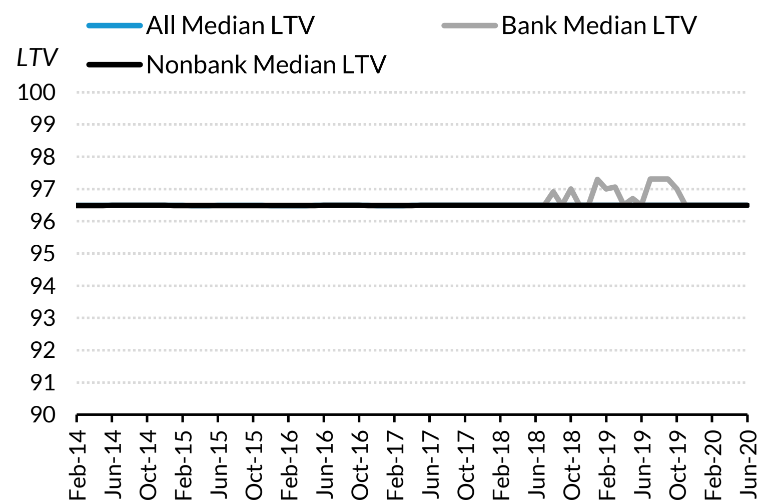
The median LTVs for nonbank and bank originations are comparable, while the median DTI for nonbank loans is higher than for bank loans, indicating that nonbanks are more accommodating in both this and the FICO dimension. Between early 2017 and early 2019, there was a substantial increase in DTIs; over the subsequent months, this has mostly reversed in the Ginnie Mae space, and more than completely reversed for the GSEs, leaving GSE DTIs lower than they have been at any point in the last 7 years. This is true for both Ginnie Mae and the GSEs, for banks and nonbanks. As interest rates increased, DTIs rose, because borrower payments were driven up relative to incomes. With the fall in interest rates in 2019 and 2020, DTIs have dropped.

GSE LTV: Bank vs. Nonbank



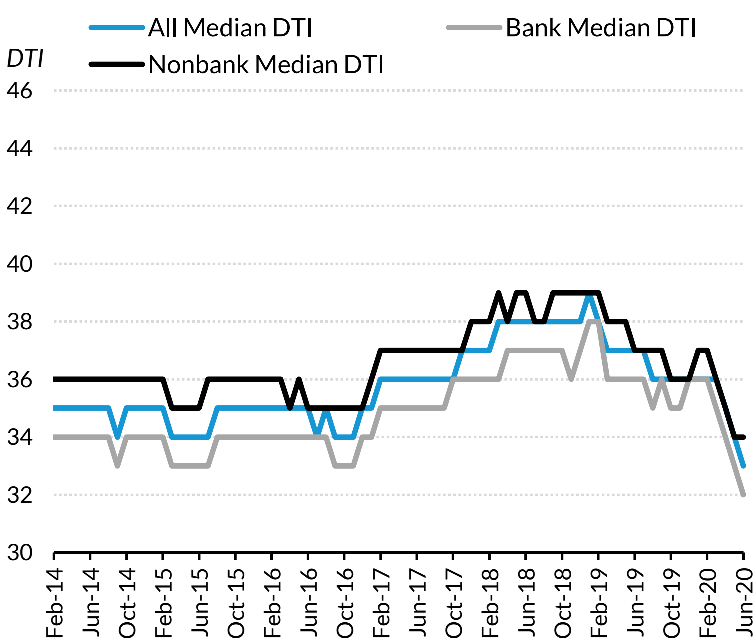
Sources: *eMBS and Urban Institute.* **Note**: *Data as of June 2020.*

Ginnie Mae LTV: Bank vs. Nonbank



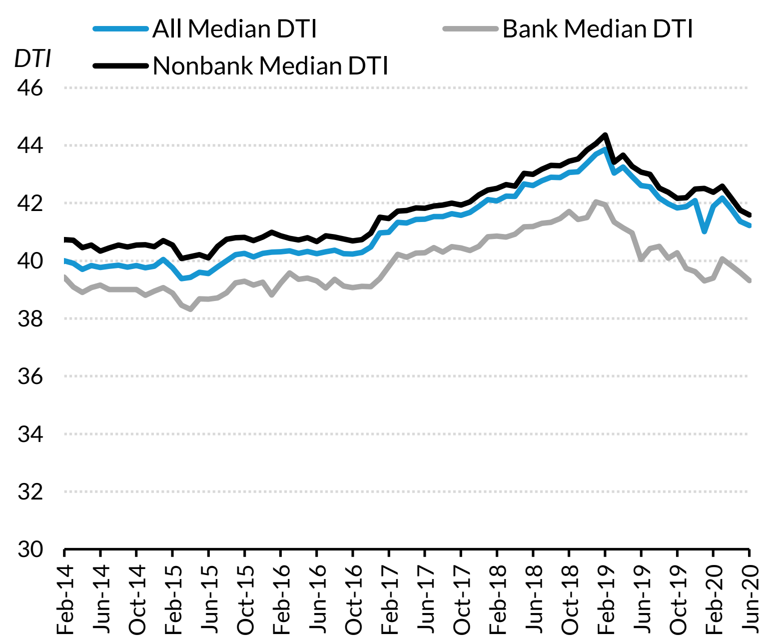
Sources: *eMBS and Urban Institute.* **Note**: *Data as of June 2020.*

GSE DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute.* **Note**: *Data as of June 2020.*

Ginnie Mae DTI: Bank vs. Nonbank

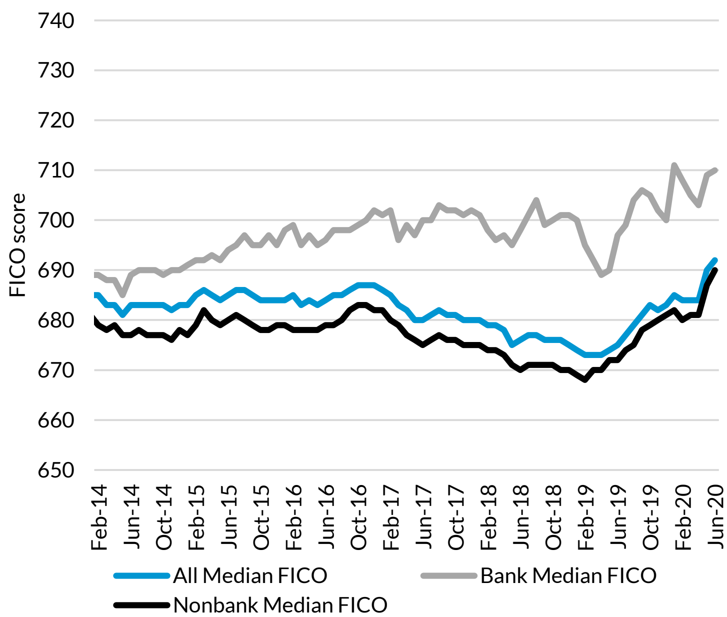


Sources: *eMBS and Urban Institute.* **Note**: *Data as of June 2020.*

Ginnie Mae Nonbank Originators: Credit Box

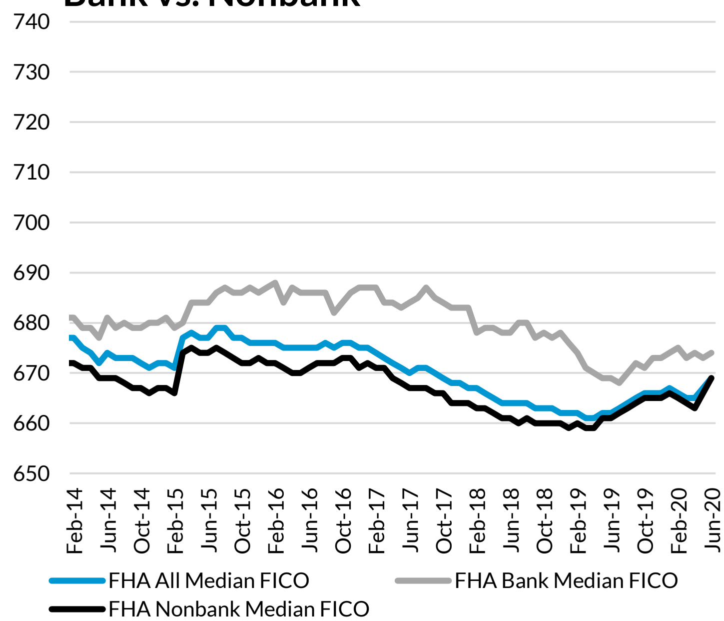
The median FICO score for Ginnie Mae bank and nonbank originators climbed in June 2020; however bank FICOs remain 20 points above non-banks. The gap between banks and non-banks is very apparent for FHA and VA lending.

Ginnie Mae FICO Scores: Bank vs. Nonbank



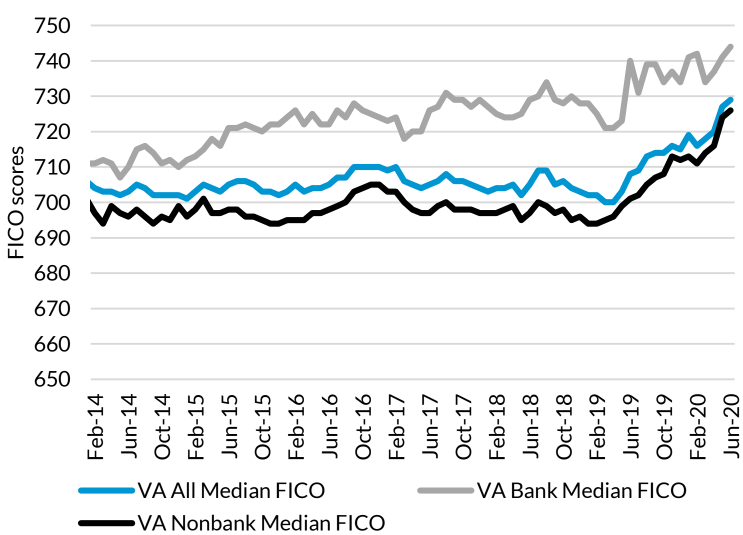
Sources: *eMBS and Urban Institute* **Note:** *Data as of June 2020.*

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



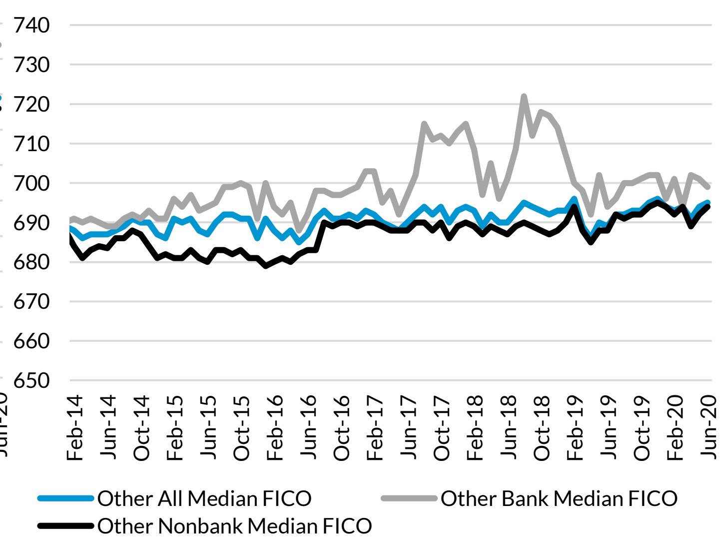
Sources: *eMBS and Urban Institute* **Note:** *Data as of June 2020.*

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *Data as of June 2020.*

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

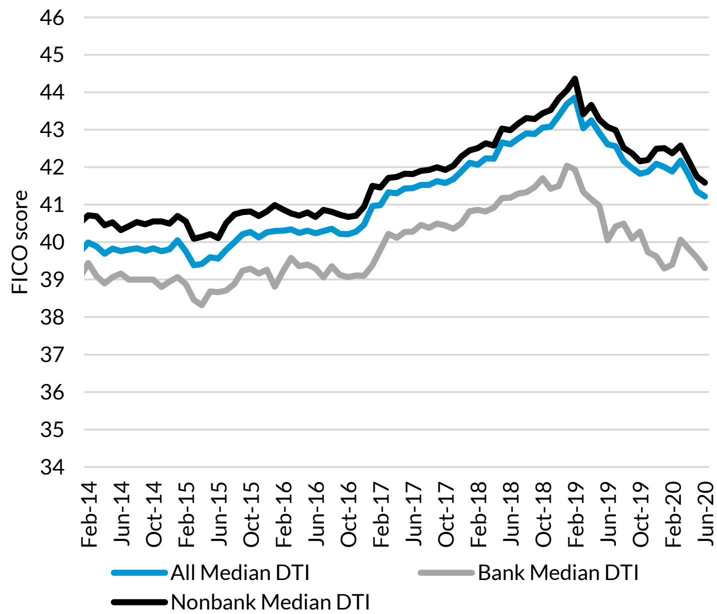


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of June 2020.*

Ginnie Mae Nonbank Originators: Credit Box

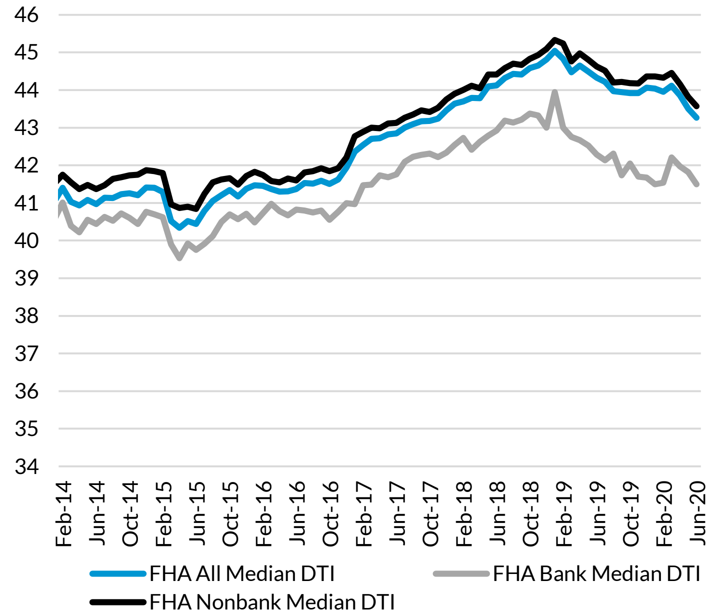
An analysis of borrowers' DTI ratios for bank versus non-bank originators indicates that the former have a lower median DTI. The DTIs for FHA and VA borrowers experienced notable increases during 2017 and 2018 for both banks and nonbank originators, while the Other origination DTIs stayed relatively flat. Rising DTIs are expected in a rising rate environment. After peaking in January 2019, Ginnie DTIs have reverted to 2017 levels, as rates have declined.

Ginnie Mae DTI: Bank vs. Nonbank



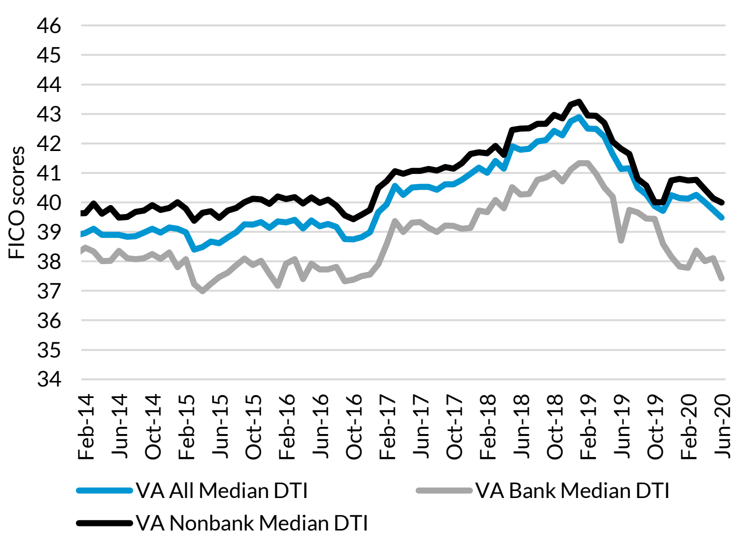
Sources: *eMBS and Urban Institute* **Note:** *Data as of June 2020.*

Ginnie Mae FHA DTI: Bank vs. Nonbank



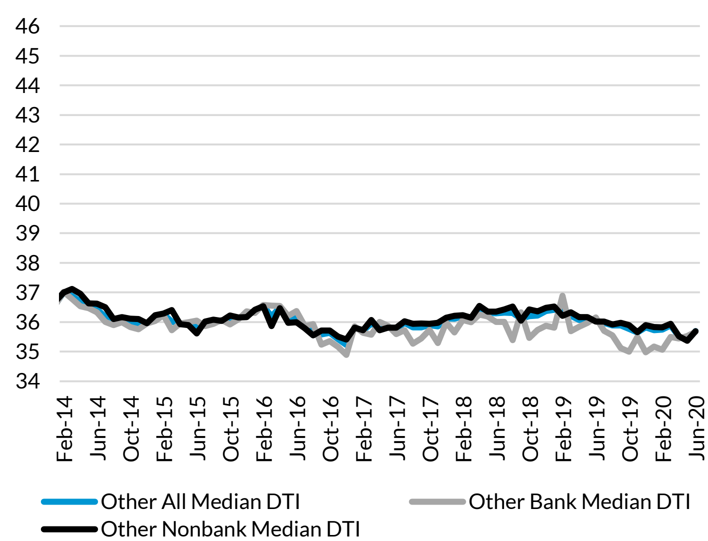
Sources: *eMBS and Urban Institute* **Note:** *Data as of June 2020.*

Ginnie Mae VA DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *Data as of June 2020.*

Ginnie Mae Other DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of June 2020.*

Holders of Ginnie Mae MSRs

This table shows 30 largest owners of mortgage servicing rights (MSR) by UPB for Ginnie Mae securitizations. As of June 2020, over half (52.5 percent) of the Ginnie Mae MSRs are owned by the top six firms. The top 30 firms collectively own 85.3 percent. Eighteen of these 30 are non-depositories, the remaining 12 are depository institutions.

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

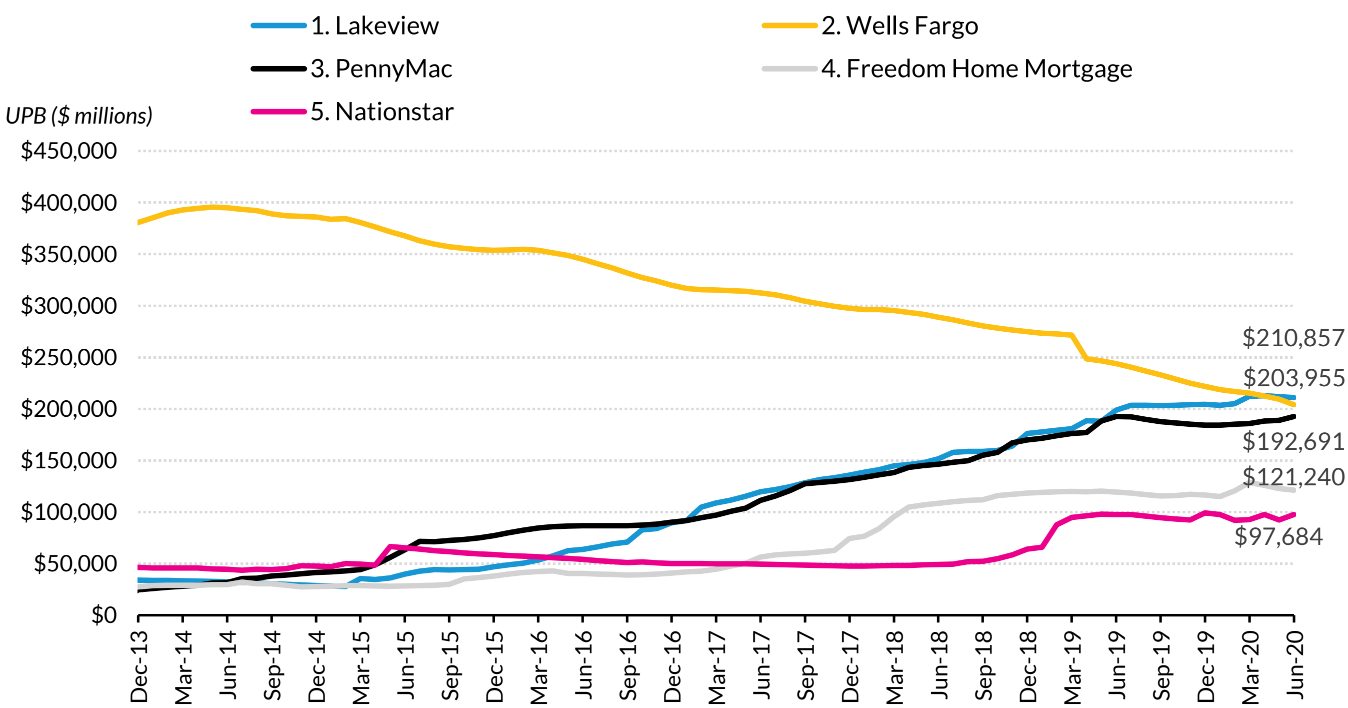
Rank	MSR Holder	UPB ($ millions)	Share	Cumulative Share
1	**Lakeview**	$210,857	12.5%	12.5%
2	**Wells Fargo**	$203,955	12.1%	24.5%
3	**PennyMac**	$192,691	11.4%	35.9%
4	**Freedom Home Mortgage**	$121,240	7.2%	43.1%
5	**Nationstar**	$97,684	5.4%	48.5%
6	**Quicken Loans**	$67,450	4.0%	52.5%
7	**US Bank**	$56,146	3.3%	55.8%
8	**Newrez**	$51,830	3.1%	58.8%
9	**Carrington Mortgage**	$46,522	2.7%	61.6%
10	**USAA Federal Savings Bank**	$38,822	2.3%	63.9%
11	**Caliber Home Loans**	$36,460	2.2%	66.0%
12	**Truist Bank**	$31,163	1.8%	67.9%
13	**Navy Federal Credit Union**	$29,062	1.7%	69.6%
14	**Amerihome Mortgage**	$27,216	1.6%	71.2%
15	**Home Point Financial Corporation**	$21,394	1.3%	72.5%
16	**The Money Source**	$21,071	1.2%	73.7%
17	**JP Morgan Chase**	$19,330	1.1%	74.9%
18	**Midfirst Bank**	$19,085	1.1%	76.0%
19	**Loan Depot**	$17,216	1.0%	77.0%
20	**M&T Bank**	$16,827	1.0%	78.0%
21	**Guild Mortgage**	$16,299	1.0%	79.0%
22	**Roundpoint Mortgage**	$15,673	0.9%	79.9%
23	**PHH Mortgage**	$13,934	0.8%	80.7%
24	**Citizens Bank**	$13,745	0.8%	81.5%
25	**Planet Home Lending**	$11,865	0.7%	82.2%
26	**Flagstar Bank**	$11,693	0.7%	82.9%
27	**Pingora**	$11,388	0.7%	83.6%
28	**Fifth Third Bank**	$10,006	0.6%	84.2%
29	**Bank of America**	$9,817	0.6%	84.8%
30	**New American**	$9,772	0.6%	85.3%

Sources: *eMBS and Urban Institute.* **Note:** *Data as of June 2020.*

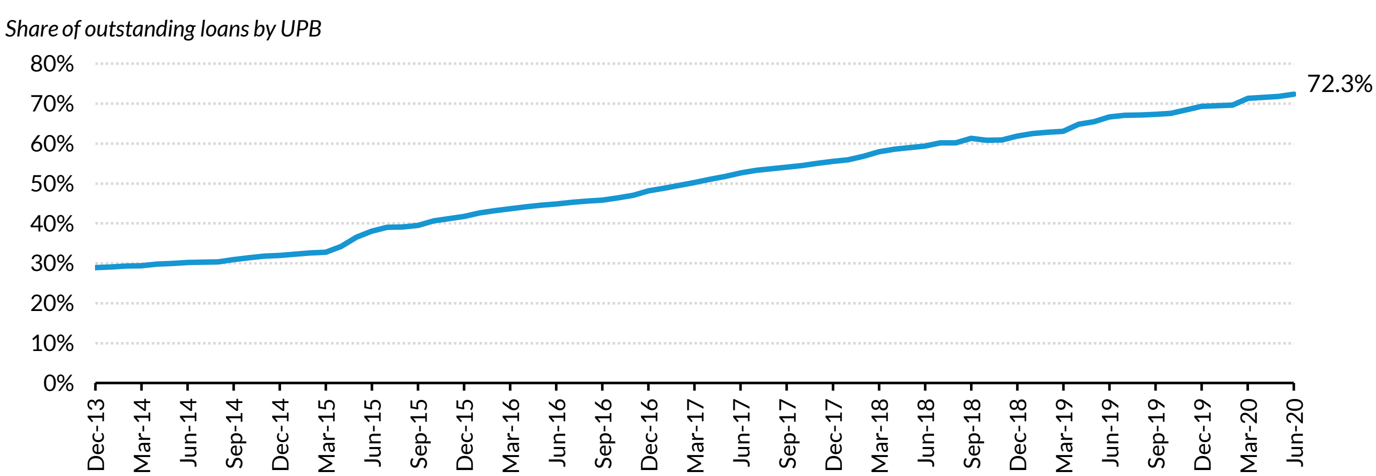
Holders of Ginnie Mae MSRs

The composition of the largest owners of Ginnie Mae MSR has evolved quite a bit over time. In December 2013, Wells Fargo and JP Morgan Chase were the two largest owners of Ginnie Mae MSRs, holding $375 billion and $139 billion in servicing UPB respectively. In June 2020, Wells Fargo's holdings of MSRs fell to $204.0 billion, below the $210.9 billion held by Lakeview (a nonbank). PennyMac, Freedom Home Mortgage, and Nationstar (all nonbanks) make up the remainder of the top five largest holders of MSRs, owning $193 billion, $121 billion, and $98 billion respectively as of June 2020. Nonbanks collectively owned servicing rights for 72.3 percent of all outstanding unpaid principal balance guaranteed by Ginnie Mae in June 2020. In December 2013, the nonbank share was much smaller at 27.7 percent.

Top 5 MSR Holders: Outstanding Ginnie Mae Loans by UPB



Share of Ginnie Mae MSRs held by Nonbanks

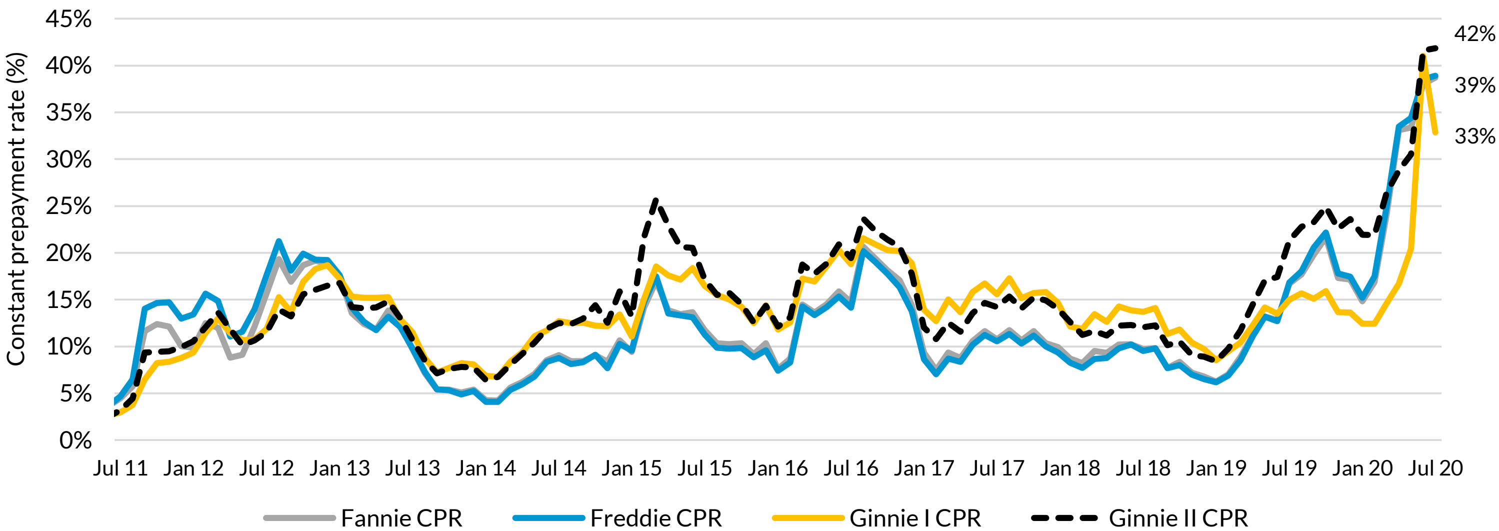


Sources: *eMBS and Urban Institute.* **Note:** *Data as of June 2020.*

Prepayments

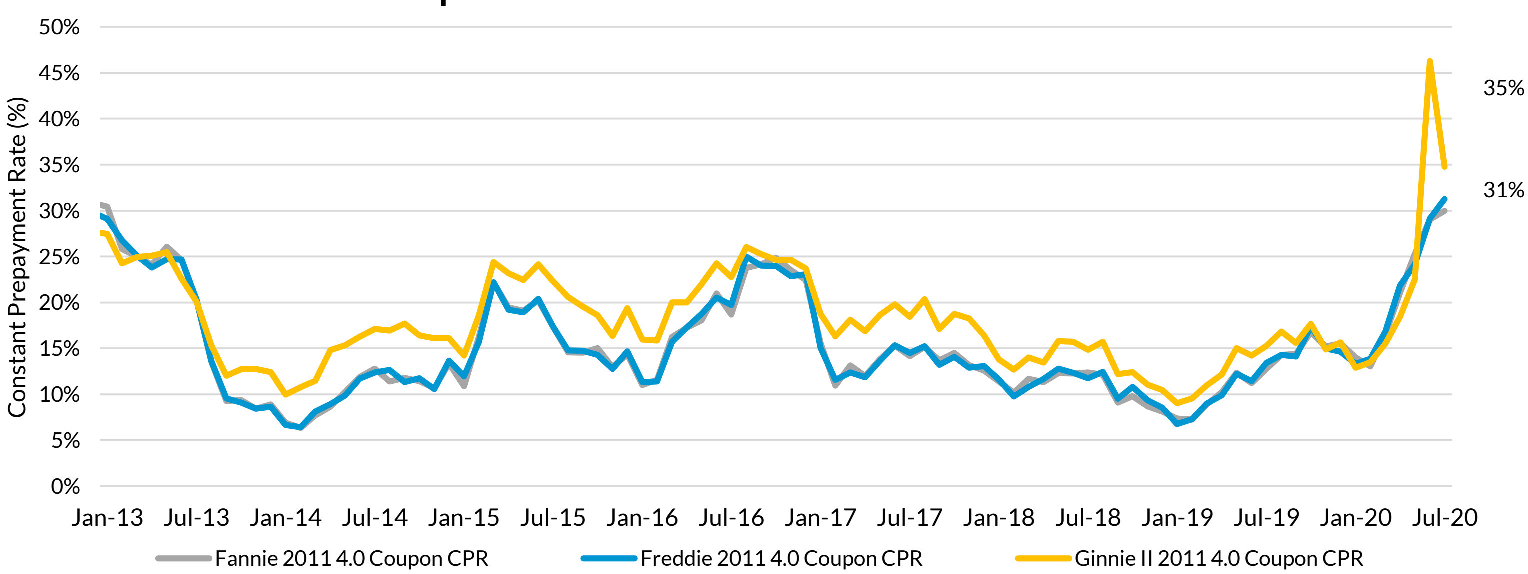
While prepayment speeds on all securities have risen since early 2019, the speed increase has been especially dramatic in 2020, with speeds on both Ginnie II and GSE securities rising rapidly due to a sharp drop in rates. At this point, the speeds on GSE securities have largely converged with those on Ginnie II securities, as the former have ramped up more quickly in the last few months. The faster Ginnie speeds from 2013-early 2020 reflected the growing share of VA loans, which tend to prepay faster than either FHA or GSE loans. In addition, FHA puts fewer restrictions on streamlined refinances, and some of the upfront mortgage insurance premium can also be applied to the refinanced loan.

Aggregate Prepayments



Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of July 2020.*

2011 Issued 4.0 Coupon CPR

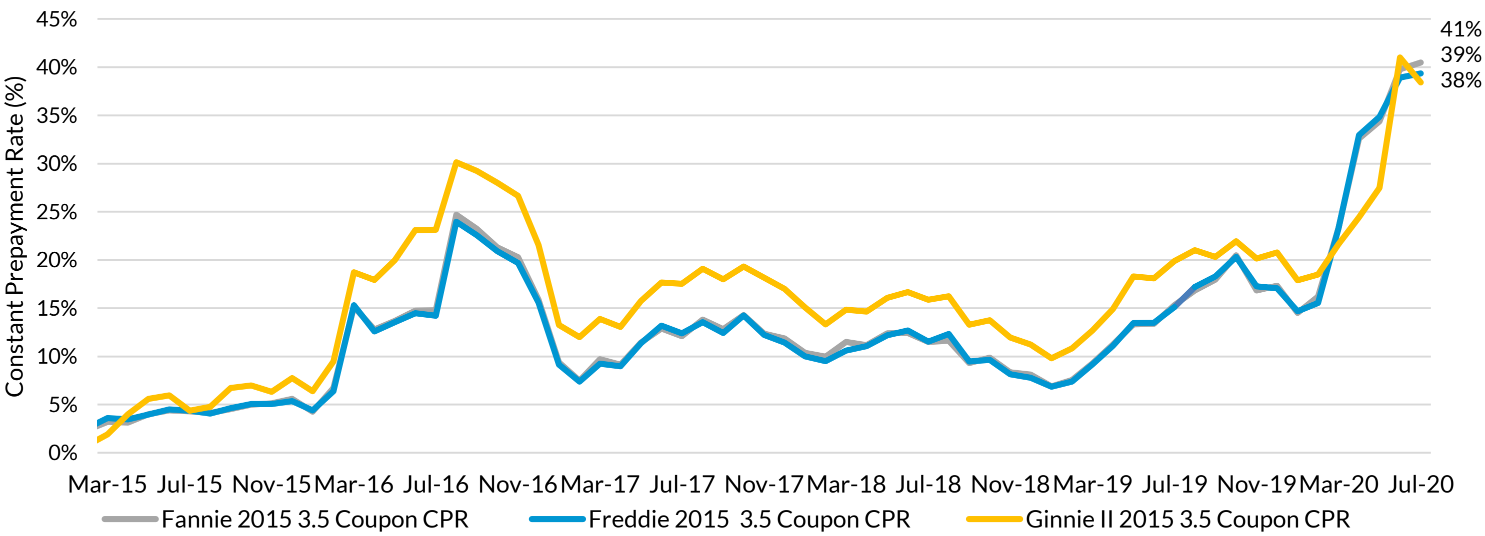


Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of July 2020.*

Prepayments

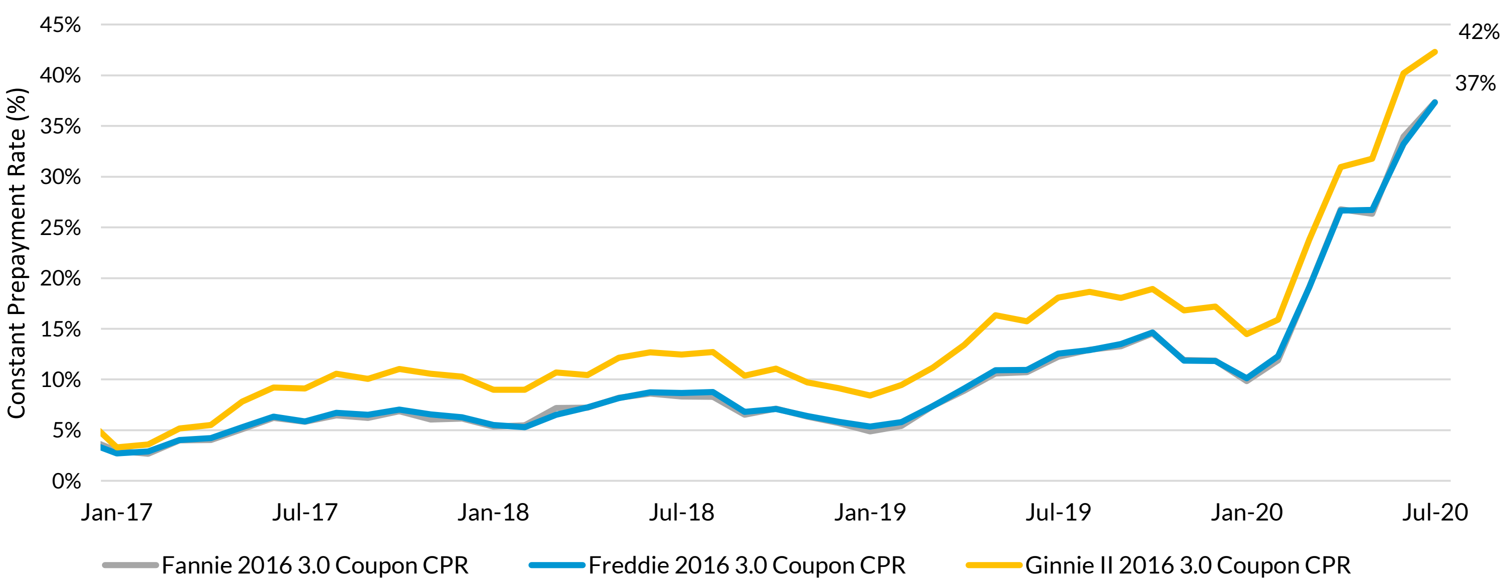
Speeds on the 2015 3.5s and the 2016 3.0s, the largest coupon cohorts of those vintage years, have been increasing since early 2019.; the speed increases have been especially dramatic in 2020 due to a sharp drop in rates, with speeds on both Ginnie II and GSE securities rising rapidly. The speeds on the 2015-issued Ginnie 3.5s have largely converged with their conventional counterparts, although the speeds on the 2016-issued Ginnie Mae 3.0s remain faster than their conventional counterparts. The faster historical speeds on the GinnieMae cohorts reflect the fact that 2015 and 2016 Ginnie originations consist of a large component of VA loans, which prepay faster than either FHA or GSE loans. The FHA streamlined programs are likely another contributor to the historically faster speeds.

2015 Issued 3.5 Coupon CPR



Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of July 2020.*

2016 Issued 3.0 Coupon CPR

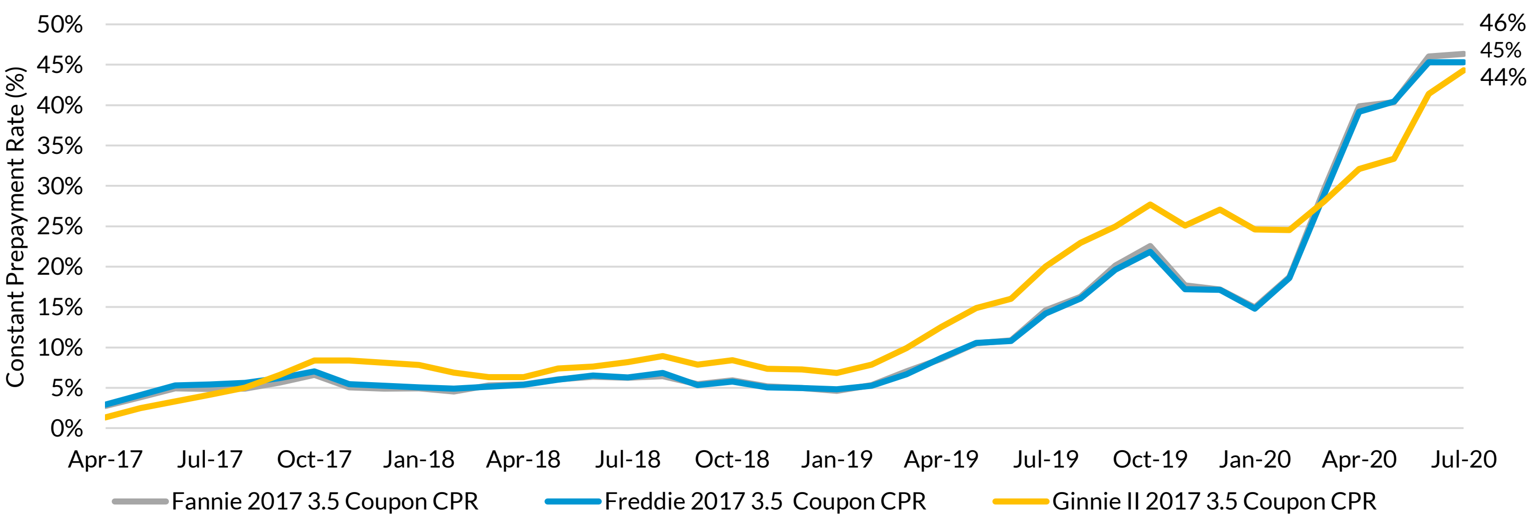


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of July 2020.*

Prepayments

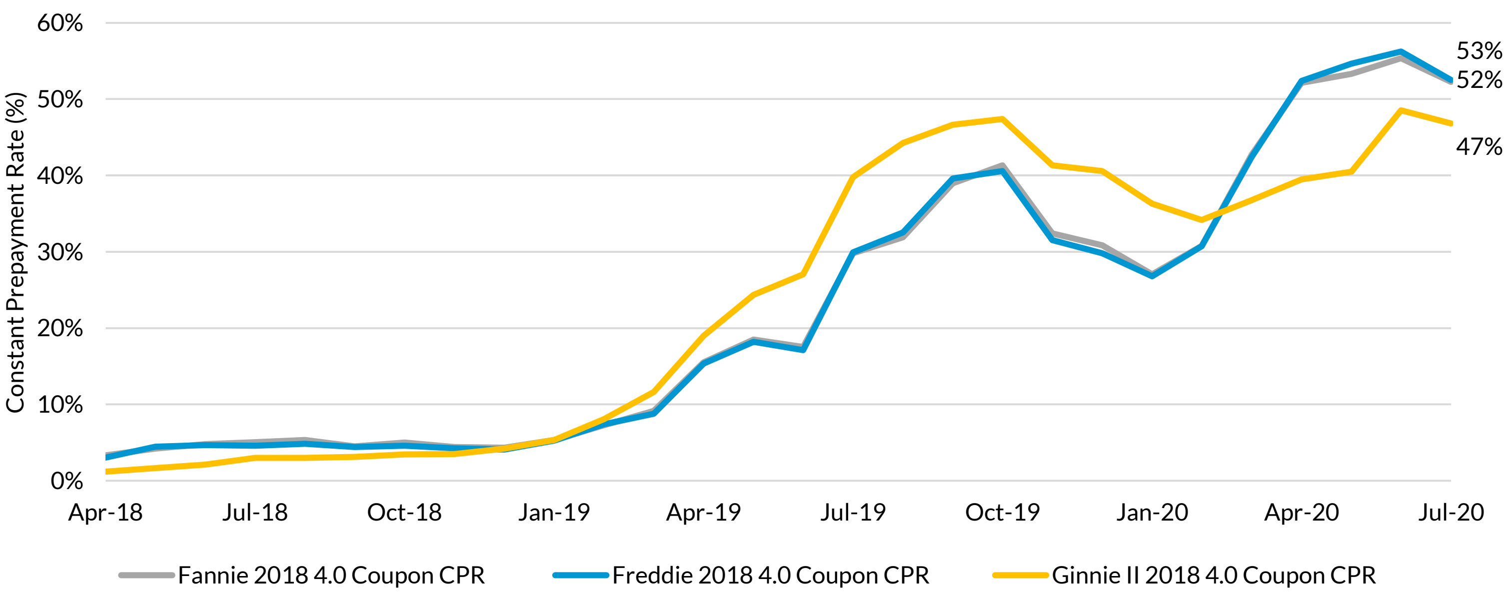
The charts below show the behavior of the 2017-issued 3.5s and the 2018-issued 4.0s, the largest coupon cohorts of those vintage years. Despite slower seasoning, 2017 Ginnie II 3.5s were prepaying faster than their conventional counterparts from late 2017 to March 2020, due primarily to fast VA prepayment speeds. Similarly, the 2018 Ginnie II 4.0s prepaid more slowly than their conventional counterparts until January of 2019. In 2019, speeds of 2018 4.0s and 2017 3.5s accelerated, and Ginnie II speeds accelerated more than their conventional counterparts. However, in early 2020 conventional speeds accelerated more than Ginnie speeds. Since March 2020, conventional speeds have exceeded those of the Ginnie cohorts.

2017 Issued 3.5 Coupon CPR



Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of July 2020.*

2018 Issued 4.0 Coupon CPR

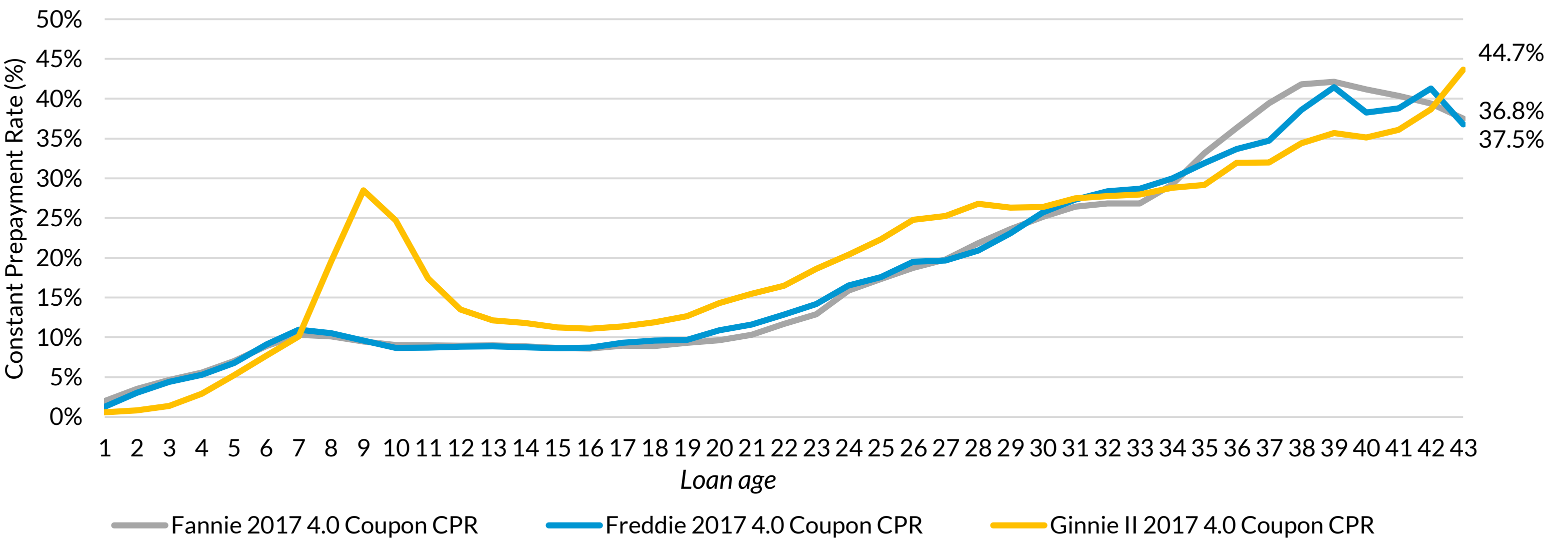


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of July 2020.*

Prepayments

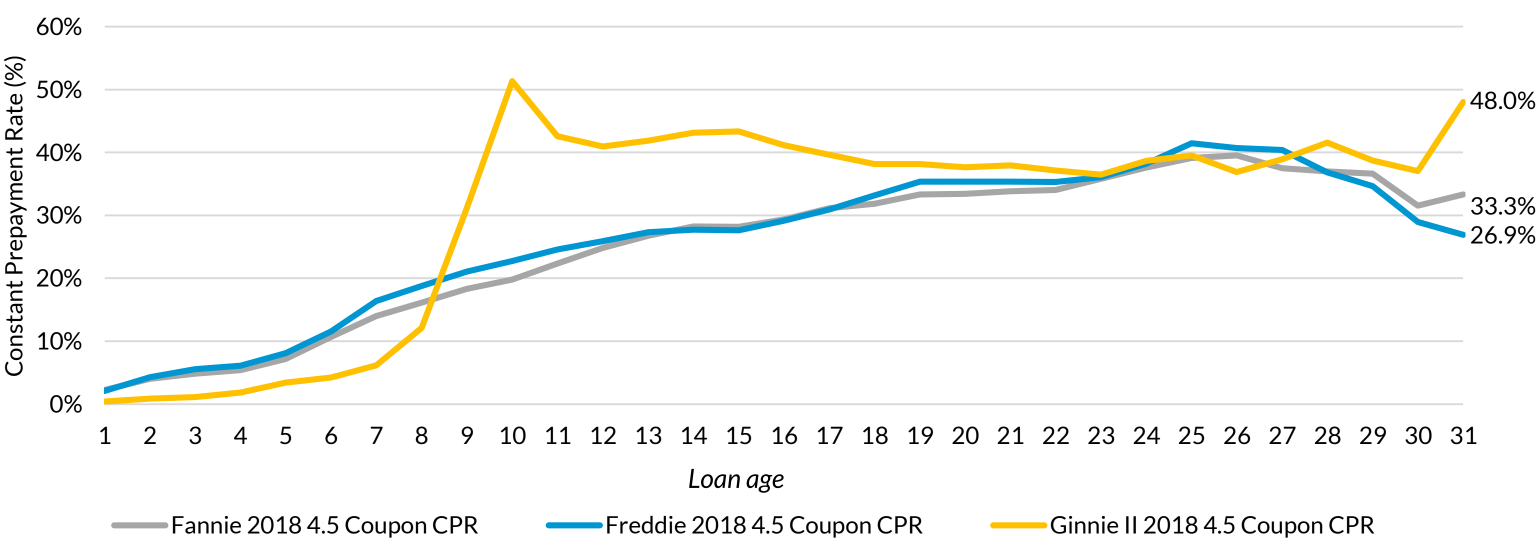
The charts below show the prepayment speeds by loan age for 2017 Ginnie II 4.0s and 2018 Ginnie II 4.5s—the cohorts 50 basis points above the largest coupon cohort for those years. Prepayment speeds on the 2017 Ginnie II 4.0s jumped up sharply at the 7-9 month loan age, reflecting abuse of the VA Streamlined Refi program (IRRRL). The 2018 Ginnie II 4.5s do not show increased speeds until the 9-10 month point; reflecting both the effect of lower rates and the actions taken by both Ginnie Mae and the VA in H1 2018 to curb this abuse. Ginnie Mae actions have included suspending a few servicers whose VA prepayment speeds are especially high from selling VA loans into Ginnie Mae II securities, as well as rewriting the pooling requirements so that if loans that do not meet the seasoning requirement are refinanced, the new loan is ineligible for securitization. Ginnie's latest action on this front became effective for securities issued on or after Nov 1 2019. It bars the securitization of over 90% LTV cash-out refinances into Ginnie I and Ginnie II pools (custom pools excepted). In addition, VA has implemented a net tangible benefit test, requiring the lender to show the borrower has obtained a benefit from the refinance. The recent experience of these cohorts indicates that, as a result of the cumulative actions taken in response to "churning" plus the acceleration of speeds in the conventional market in response to lower rates, Ginnie Mae and conventional speeds on 2017 issues 4.0s and 2018 4.5 have largely converged for mortgages 36 and 24 months old, respectively.

2017 Issued 4.0 Coupon CPR, by Loan Age



Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of July 2020.*

2018 Issued 4.5 Coupon CPR, by Loan Age

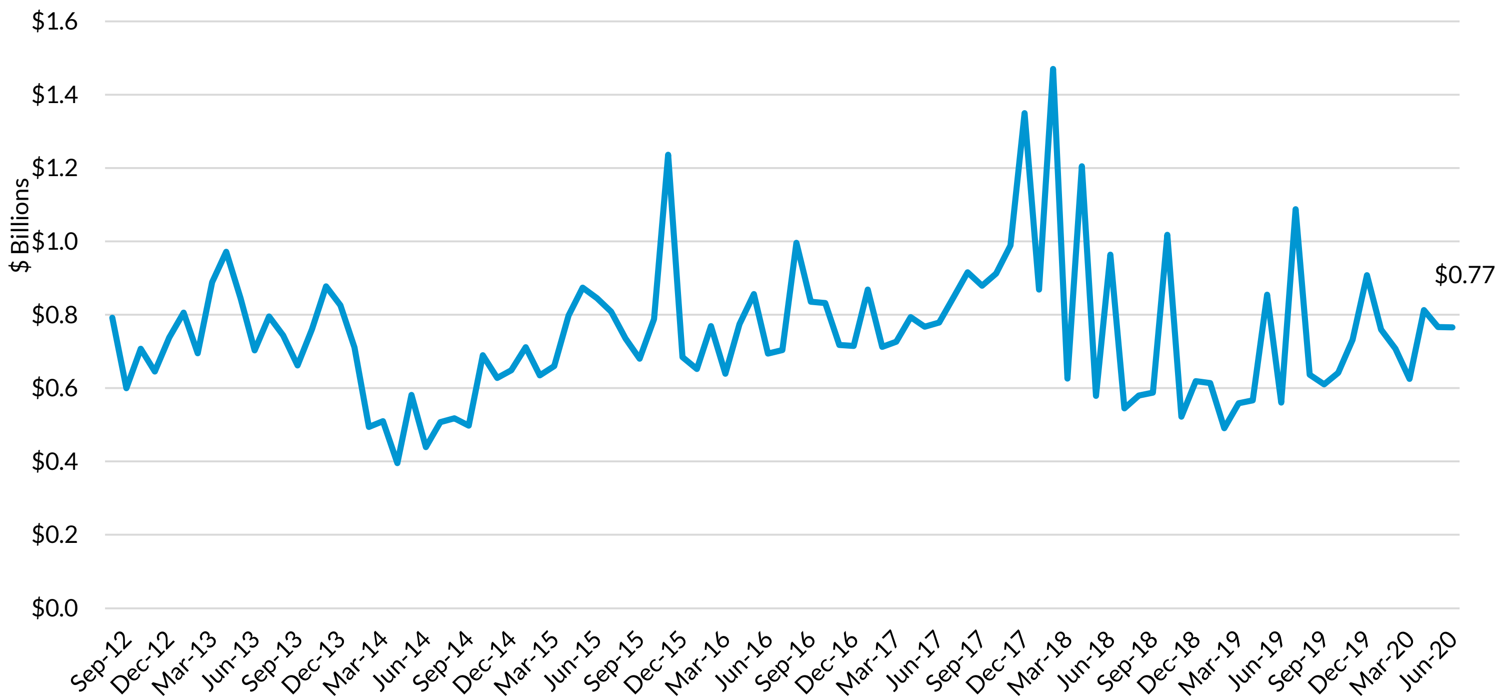


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of July 2020.*

Other Ginnie Mae Programs Reverse Mortgage Volumes

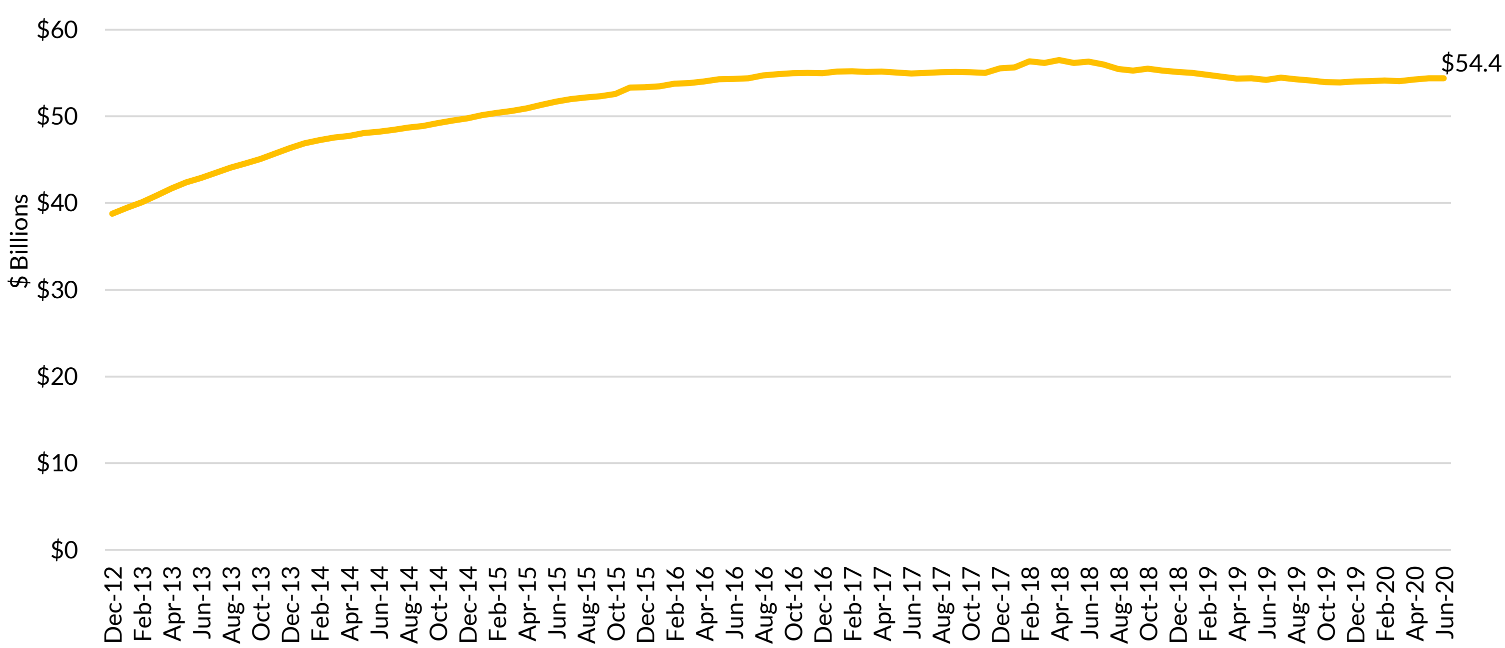
Ginnie Mae reverse mortgage issuance has been volatile over the past two years, but has been generally declining since early 2018 largely due to the implementation of the new, lower principal limit factors. June was no exception, with issuance falling to $0.77 billion. In June 2020, outstanding reverse mortgage securities totaled $54.4 billion, lower compared to recent past, reflecting a lower volume of new issuances relative to paydowns.

HMBS Issuance Volume



Sources: *Ginnie Mae and Urban Institute.* ***Note:*** *Data as of June 2020.*

HMBS Outstanding

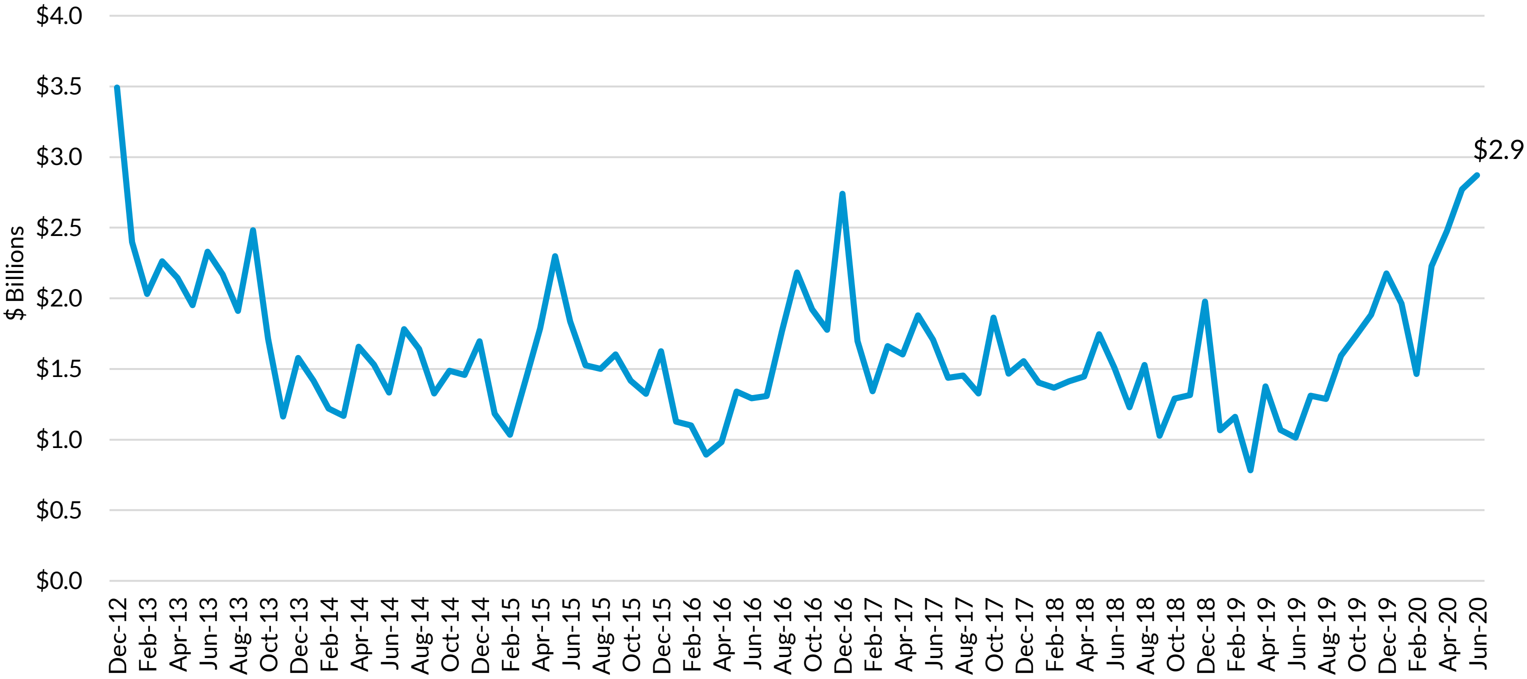


Sources: *Ginnie Mae and Urban Institute.* ***Note:*** *Data as of June 2020.*

Other Ginnie Mae Programs Multifamily Market

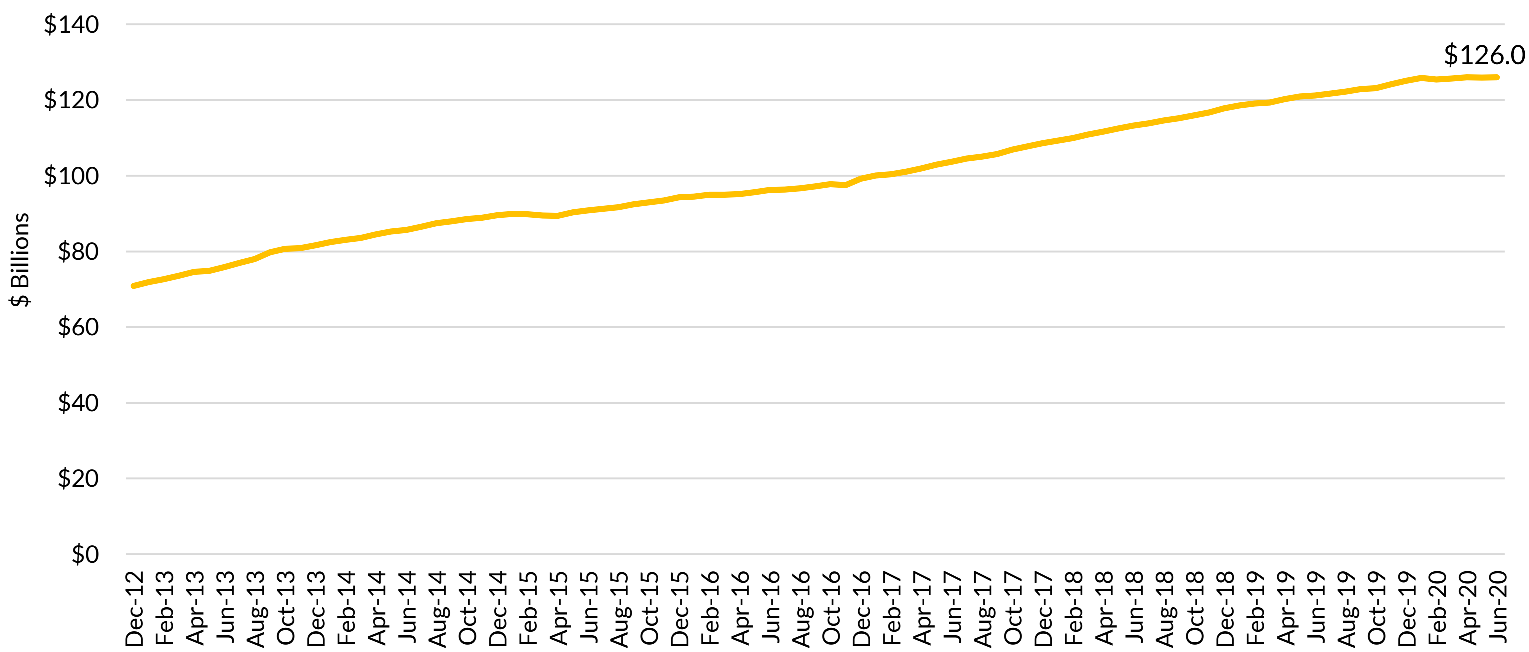
Ginnie Mae multifamily issuance volume in June 2020 totaled $2.9 billion, the third consecutive month of increase from the prior month. Outstanding multifamily securities totaled $126.0 billion as of the end of the first half of 2020.

Ginnie Mae Multifamily MBS Issuance



Sources: *Ginnie Mae and Urban Institute.* ***Note****: Data as of June 2020.*

Ginnie Mae Multifamily MBS Outstanding

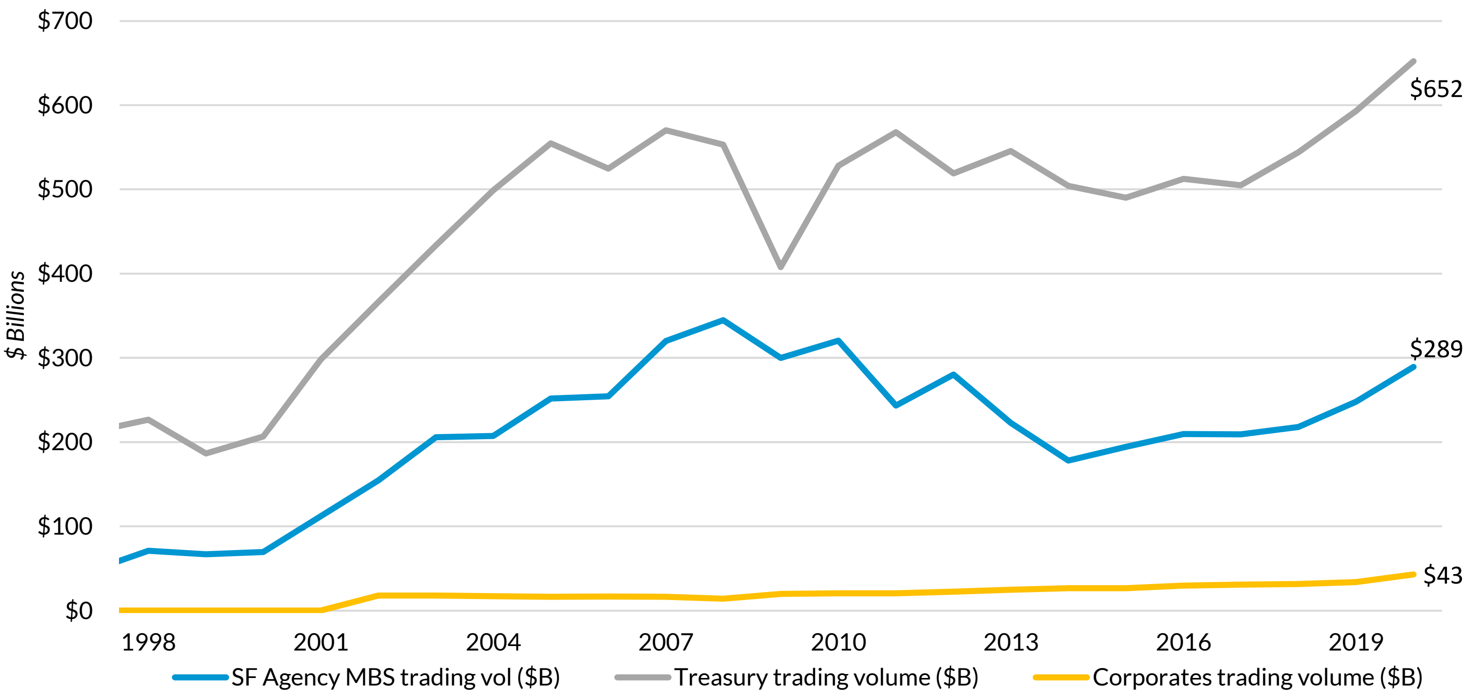


Sources: *Ginnie Mae and Urban Institute.* ***Note****: Data as of June 2020.*

Market Conditions

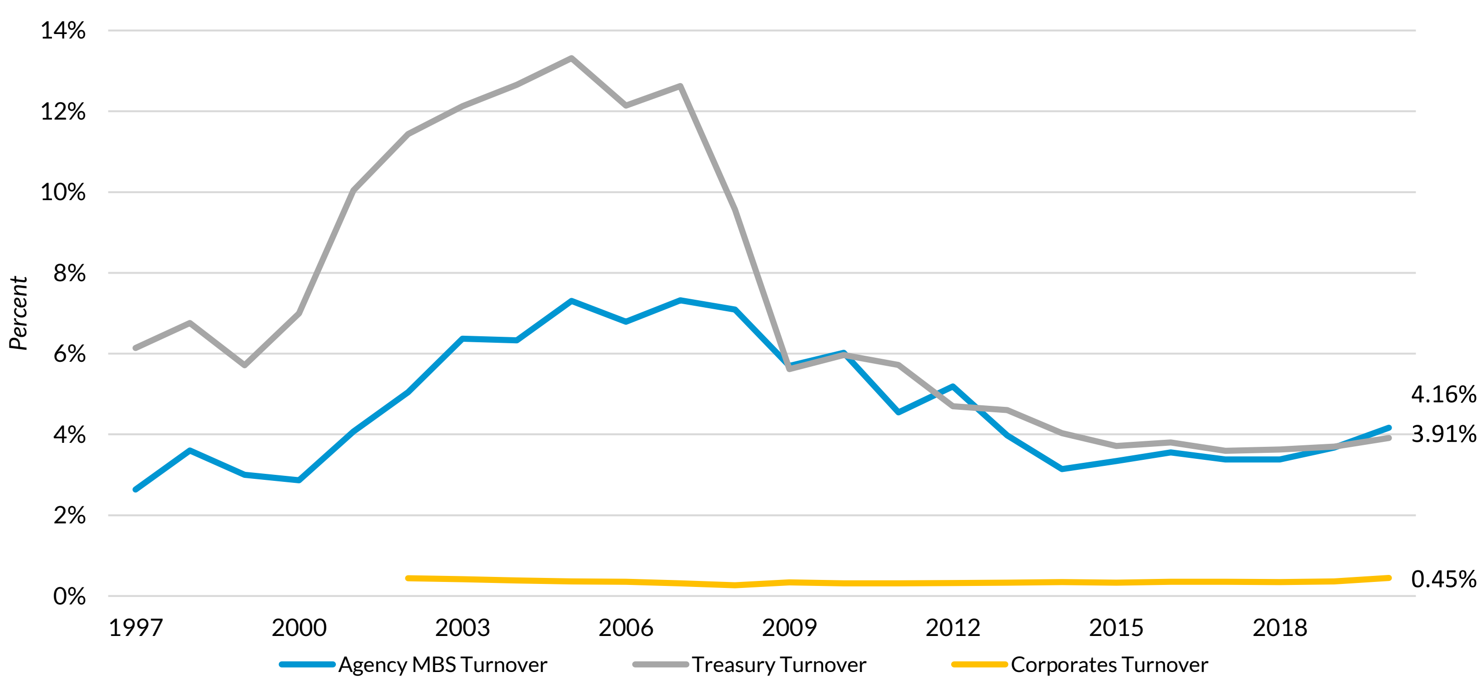
Agency MBS trading volume is $289 billion/day on average for the first half of 2020, more robust than in the 2014-2019 period, but still below the pre-crisis peak of $345 billion in 2008. Average daily trading volume for Treasuries now exceed the pre-crisis peak. Agency MBS turnover in 2020 YTD (through June) has also been higher than the 2014-2019 period; in 2020, average daily MBS turnover was 4.16 percent, above the 2019 average of 3.67 percent. Note that agency MBS turnover in the first half of 2020 has been higher than US Treasury turnover, a rare occurrence. Both average daily mortgage and Treasury turnover are down from their pre-crisis peaks. Corporate turnover is miniscule relative to either Agency MBS or Treasury turnover.

Average Daily Fixed Income Trading Volume by Sector



Sources: *SIFMA and Urban Institute.* ***Note:*** *Data as of June 2020.*

Average Daily Turnover by Sector

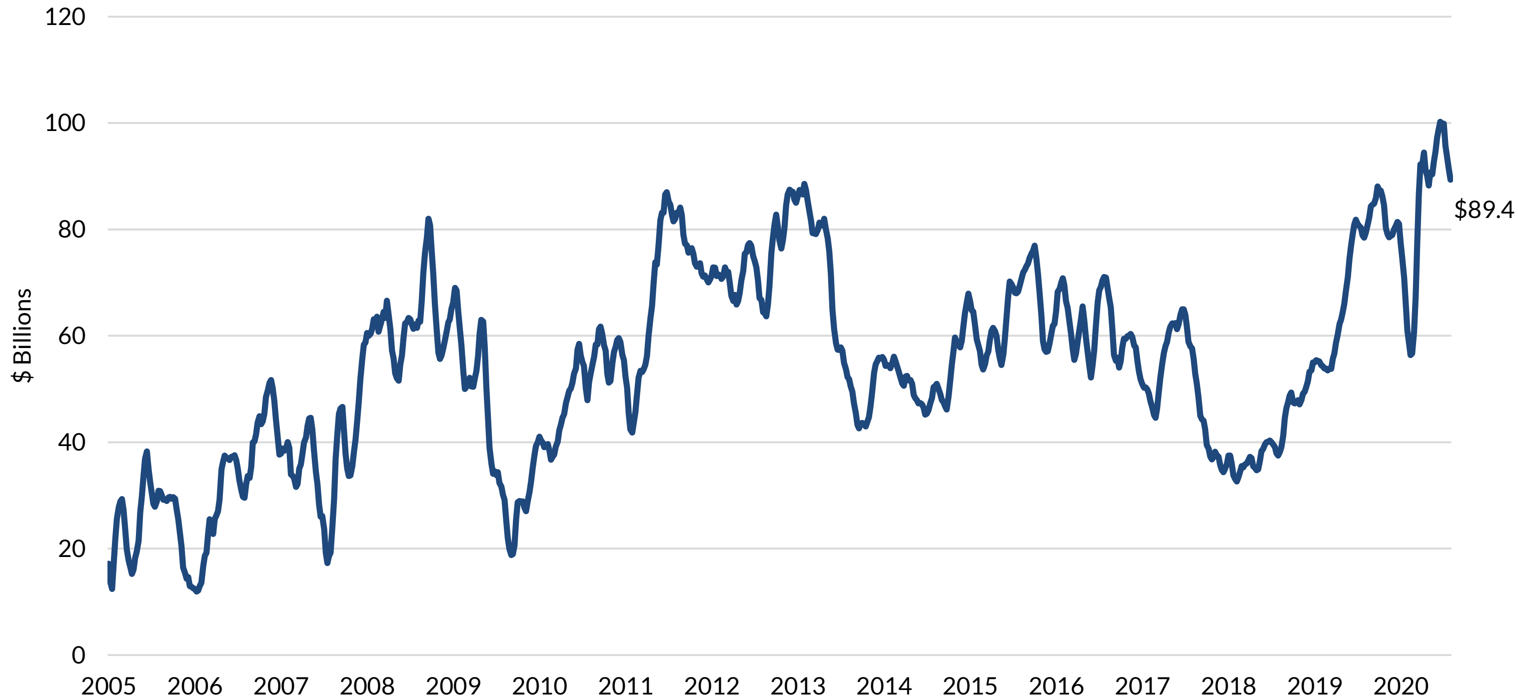


Sources: *SIFMA and Urban Institute.* ***Note:*** *Data as of June 2020.*

Market Conditions

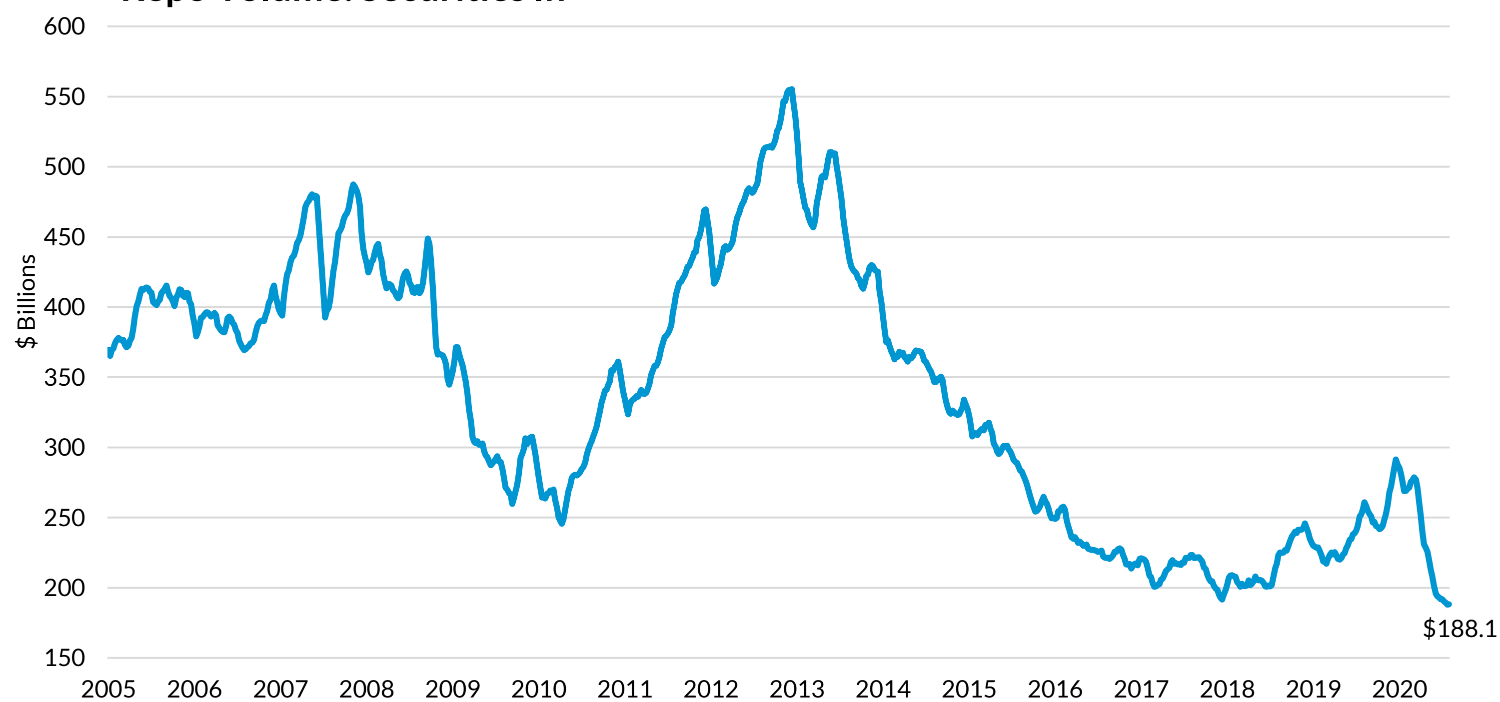
Dealer net positions are at a post-crisis high; they now exceed their pre-crisis levels. By contrast, dealer gross positions have fallen dramatically. The volume of repurchase activity is as low as it has been since 2005. The large decline through time reflects banks cutting back on lower margin businesses.

Dealer Net Positions: Federal Agency and GSE MBS



Sources: *Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute.* ***Note:*** *Data as of July 2020.*

Repo Volume: Securities In

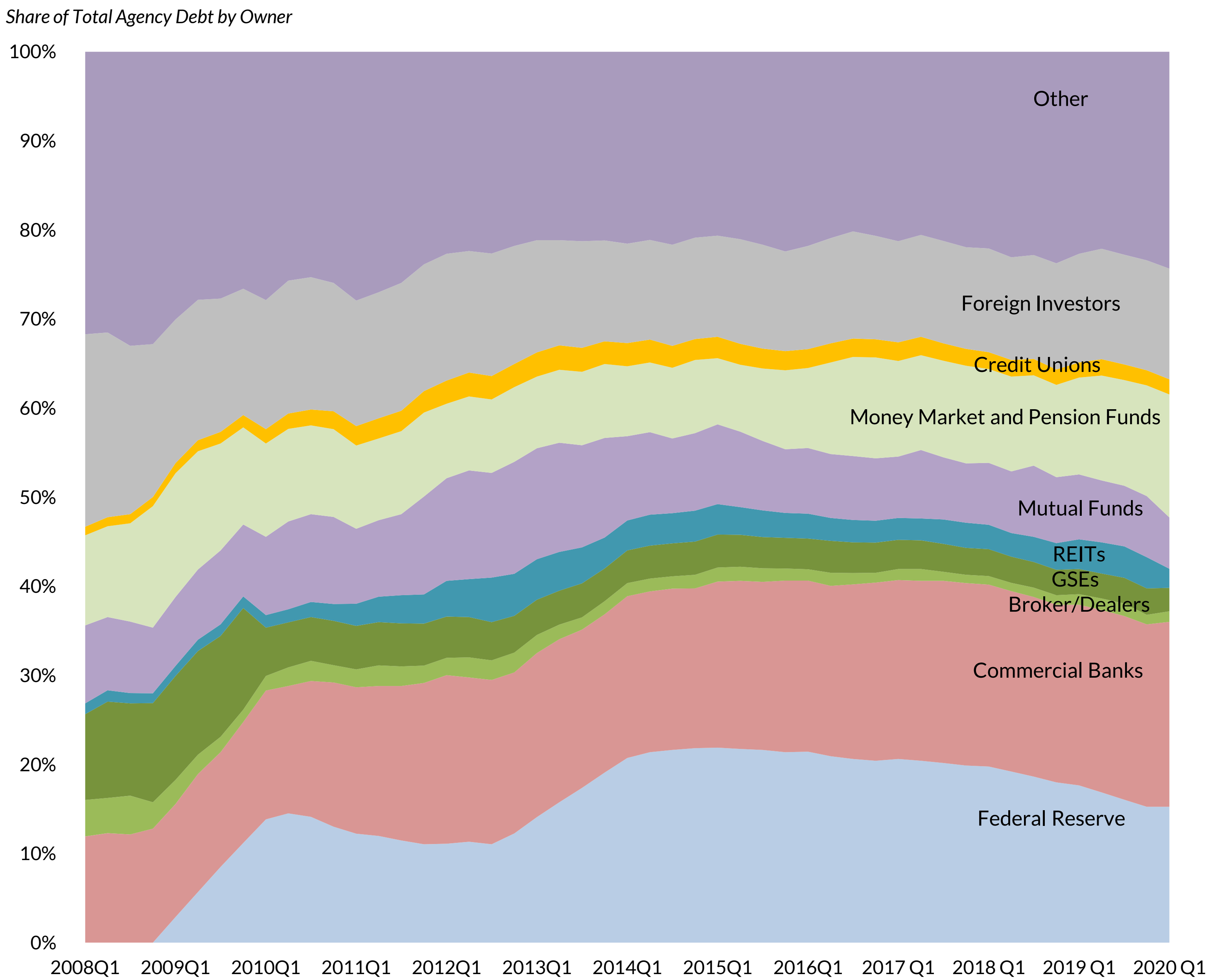


Sources: *Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute.* ***Note:*** *Data as of July 2020.*

MBS Ownership

The largest holders of agency debt (Agency MBS + Agency notes and bonds) include the Federal Reserve (15 percent), commercial banks (21 percent) and foreign money market funds & pension funds (14 percent). The broker/dealer and GSE shares are a fraction of what they once were.

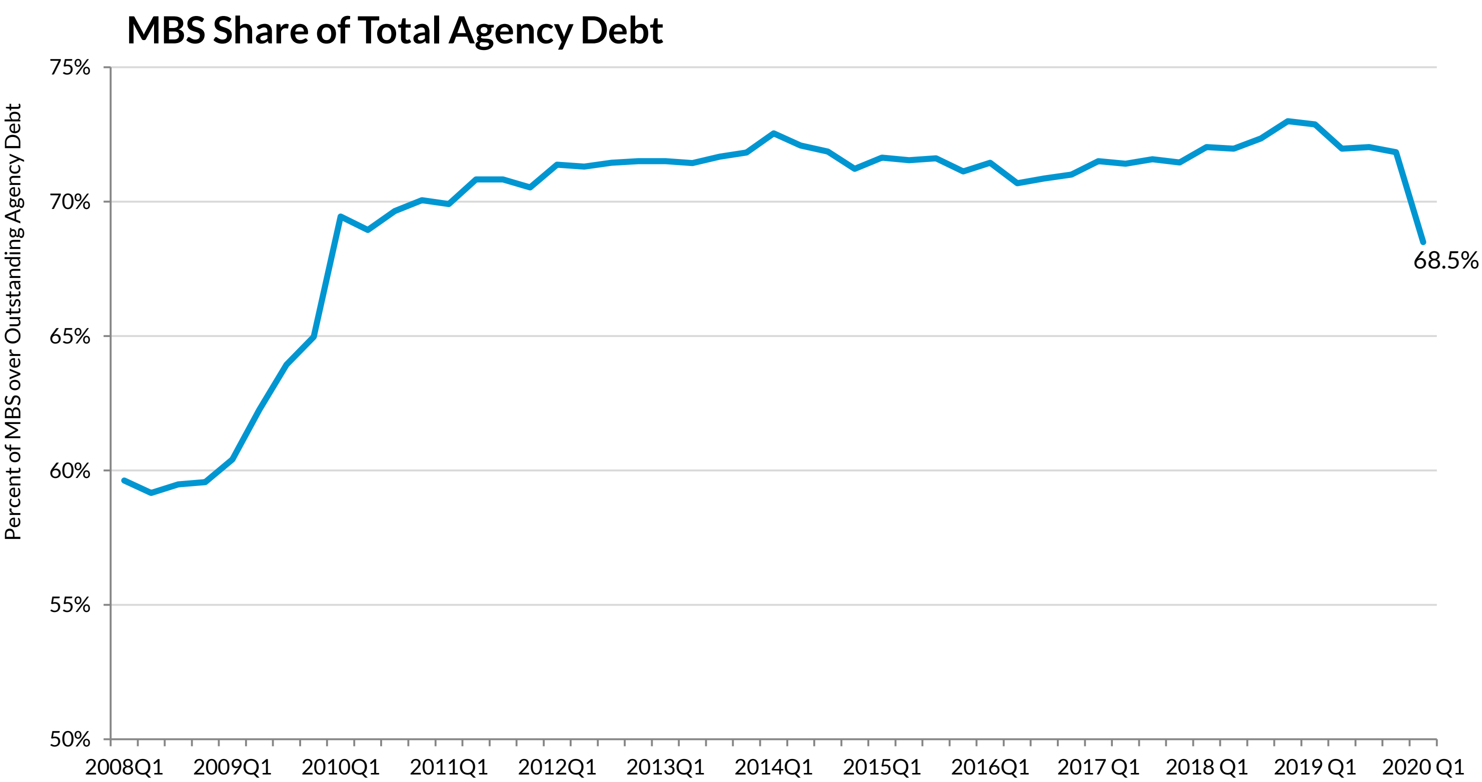
Who owns Total Agency Debt?



Sources: *Federal Reserve Flow of Funds and Urban Institute.* ***Note:*** *The "other" category includes primarily life insurance companies, state and local govts, households, and nonprofits. Data as of Q1 2020.*

MBS Ownership

As Fannie and Freddie reduce the size of their retained portfolio post 2008, fewer agency notes and bonds were required to fund that activity. As a result, the MBS share of total agency debt increased over time. Commercial banks are now the largest holders of Agency MBS. Out of their $2.3 trillion in holdings as of the end of July 2020, $1.7 trillion was held by the top 25 domestic banks.



***Sources**: Federal Reserve Flow of Funds and Urban Institute. **Note**: The MBS share of agency debt unexpectedly dropped in Q1 2020 due to a higher than usual, $400 billion discrepancy between agency assets and liabilities, as reported by Fed flow of funds. Data as of Q1 2020.*

`	Commercial Bank Holdings ($Billions)								Week Ending			
	Jun-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul 8	Jul 15	Jul 22	Jul 29
Largest 25 Domestic Banks	1458.4	1511.8	1532.7	1,541.5	1587.7	1624.7	1623.9	1619.7	1611.9	1652.3	1662.4	1673.6
Small Domestic Banks	501.0	532.0	535.4	538.6	546.3	549.5	549.7	559.5	564.9	566.3	570.1	570.3
Foreign Related Banks	27.9	39.5	38.2	39.7	43.4	45.6	42.9	43.3	41.7	41.6	44.1	44.2
Total, Seasonally Adjusted	1987.3	2083.3	2106.3	578.3	2177.4	2219.8	2216.5	2222.5	2218.5	2260.2	2276.6	2288.1

***Sources**: Federal Reserve Bank and Urban Institute. **Note**: Small domestic banks includes all domestically chartered commercial banks not included in the top 25. Data as of July 2020.*

MBS Ownership

Out of the $2.1 trillion in MBS holdings at banks and thrifts as of Q1 2020, $1.6 trillion was agency pass-throughs: $1.2 trillion in GSE pass-throughs and $448 billion in Ginnie Mae pass-throughs. Another $444 billion was agency CMOs, while non-agency holdings totaled $42 billion. In Q1, 2020, MBS holdings at banks and thrifts increased for the sixth consecutive quarter. The increase was driven by both GSE and Ginnie Mae pass-throughs, with GSEs contributing the most.

Bank and Thrift Residential MBS Holdings

	All Banks & Thrifts ($Billions)						
	Total	Agency MBS PT	GSE PT	GNMA PT	Agency CMO	Private MBS PT	Private CMO
2000	$683.90	$392.85	$234.01	$84.26	$198.04	$21.57	$71.43
2001	$810.50	$459.78	$270.59	$109.53	$236.91	$37.62	$76.18
2002	$912.36	$557.43	$376.11	$101.46	$244.98	$20.08	$89.88
2003	$982.08	$619.02	$461.72	$75.11	$236.81	$19.40	$106.86
2004	$1,113.89	$724.61	$572.40	$49.33	$208.18	$20.55	$160.55
2005	$1,139.68	$708.64	$566.81	$35.92	$190.70	$29.09	$211.25
2006	$1,207.09	$742.28	$628.52	$31.13	$179.21	$42.32	$243.28
2007	$1,236.00	$678.24	$559.75	$31.58	$174.27	$26.26	$357.24
2008	$1,299.76	$820.12	$638.78	$100.36	$207.66	$12.93	$259.04
2009	$1,345.74	$854.40	$629.19	$155.00	$271.17	$7.53	$212.64
2010	$1,433.38	$847.13	$600.80	$163.13	$397.30	$7.34	$181.61
2011	$1,566.88	$917.10	$627.37	$214.81	$478.82	$3.28	$167.70
2012	$1,578.86	$953.76	$707.87	$242.54	$469.27	$17.16	$138.67
2013	$1,506.60	$933.73	$705.97	$231.93	$432.60	$26.11	$114.15
2014	$1,539.32	$964.16	$733.71	$230.45	$449.90	$20.33	$104.94
2015	$1,643.56	$1,115.40	$823.10	$292.30	$445.39	$11.14	$71.63
2016	$1,736.93	$1,254.13	$930.67	$323.46	$419.80	$7.40	$55.60
1Q17	$1,762.38	$1,280.63	$950.72	$329.91	$419.34	$7.03	$55.39
2Q17	$1,798.66	$1,320.59	$985.12	$335.47	$417.89	$6.38	$53.79
3Q17	$1,838.93	$1,364.75	$1,012.89	$351.86	$418.08	$5.65	$50.45
4Q17	$1,844.15	$1,378.53	$1,010.83	$367.70	$413.97	$4.63	$47.01
1Q18	$1,809.98	$1,352.28	$991.57	$360.71	$412.37	$3.92	$41.37
2Q18	$1,806.58	$1,345.80	$976.92	$368.88	$414.41	$7.45	$38.92
3Q18	$1,794.39	$1,339.72	$966.52	$373.21	$416.20	$2.42	$36.04
4Q18	$1,814.97	$1,361.00	$980.56	$380.43	$419.59	$2.69	$34.69
1Q19	$1,844.99	$1,385.10	$1,001.61	$383.49	$422.18	$3.06	$34.65
2Q19	$1,907.13	$1,445.91	$1,037.93	$407.97	$421.56	$2.90	$36.76
3Q19	$1,975.78	$1,506.92	$1,079.82	$427.10	$428.69	$4.74	$35.44
4Q19	$1,985.38	$1,516.26	$1,089.41	$426.85	$428.99	$4.62	$35.52
1Q20	$2,107.66	$1,621.00	$1,173.36	$448.34	$443.73	$4.65	$37.56

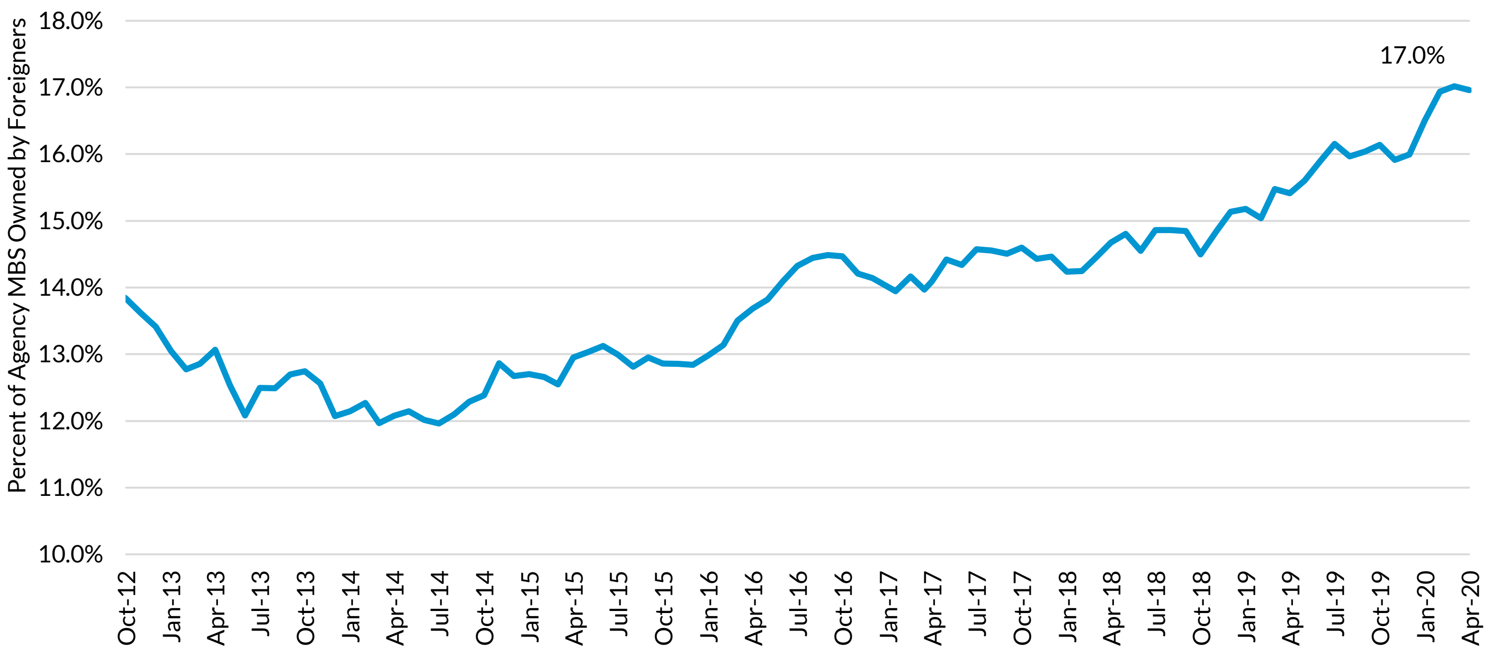
	Top Bank & Thrift Residential MBS Investors	Total ($MM)	GSE PT ($MM)	GNMA PT ($MM)	Agency REMIC ($MM)	Non-Agency ($MM)	Market Share
1	Bank of America Corporation	$335,750.0	$194,646.0	$130,682.0	$10,091.0	$331.0	15.9%
2	Wells Fargo & Company	$266,444.0	$191,354.0	$66,340.0	$7,974.0	$776.0	12.6%
3	JP Morgan Chase & Co.	$196,384.0	$121,504.0	$59,194.0	$243.0	$15,443.0	9.3%
4	Charles Schwab Bank	$94,398.0	$58,319.0	$17,859.0	$18,220.0	$0.0	4.5%
5	U S. Bancorp.	$93,918.2	$54,633.0	$23,047.1	$16,237.6	$0.6	4.5%
6	Citigroup Inc.	$82,239.0	$69,418.0	$4,520.0	$6,450.0	$1,851.0	3.9%
7	Truist Bank	$72,028.0	$23,559.0	$20,895.0	$27,276.0	$298.0	3.4%
8	Capital One Financial Corporation	$65,121.8	$26,905.3	$14,199.2	$23,352.8	$664.5	3.1%
9	Bank of New York Mellon Corp.	$58,618.0	$37,536.0	$4,620.0	$14,914.0	$1,548.0	2.8%
10	PNC Bank, National Association	$54,282.2	$44,217.0	$6,230.8	$2,191.9	$1,642.6	2.6%
11	State Street Bank and Trust Company	$42,531.8	$23,818.0	$9,702.0	$6,809.8	$2,202.0	2.0%
12	Morgan Stanley	$29,812.0	$18,305.0	$6,128.0	$5,379.0	$0.0	1.4%
13	HSBC Banks USA, National Association	$28,639.7	$6,528.6	$13,382.6	$8,726.3	$2.2	1.4%
14	Ally Bank	$24,855.0	$15,601.0	$2,294.0	$4,075.0	$2,885.0	1.2%
15	E*TRADE Bank	$24,479.4	$11,640.3	$4,065.9	$8,773.2	$0.0	1.2%
16	TD Bank	$22,299.7	$1,794.6	$183.0	$20,060.2	$261.9	1.1%
17	Citizens Bank	$22,267.9	$11,694.3	$3,911.9	$6,050.4	$611.3	1.1%
18	KeyBank National Association	$19,504.8	$1,307.7	$640.1	$17,556.9	$0.0	0.9%
19	USAA Federal Savings Bank	$19,026.0	$16,621.0	$2,278.3	$126.7	$0.0	0.9%
20	Regions Bank	$17,168.0	$11,484.0	$3,257.0	$2,426.0	$1.0	0.80%
	Total Top 20	**$1,569,768**	**$940,886**	**$393,430**	**$206,934**	**$28,518**	**73.81%**

Sources: *Inside Mortgage Finance and Urban Institute.* ***Note:*** *Data as of Q1 2020.*

MBS Ownership

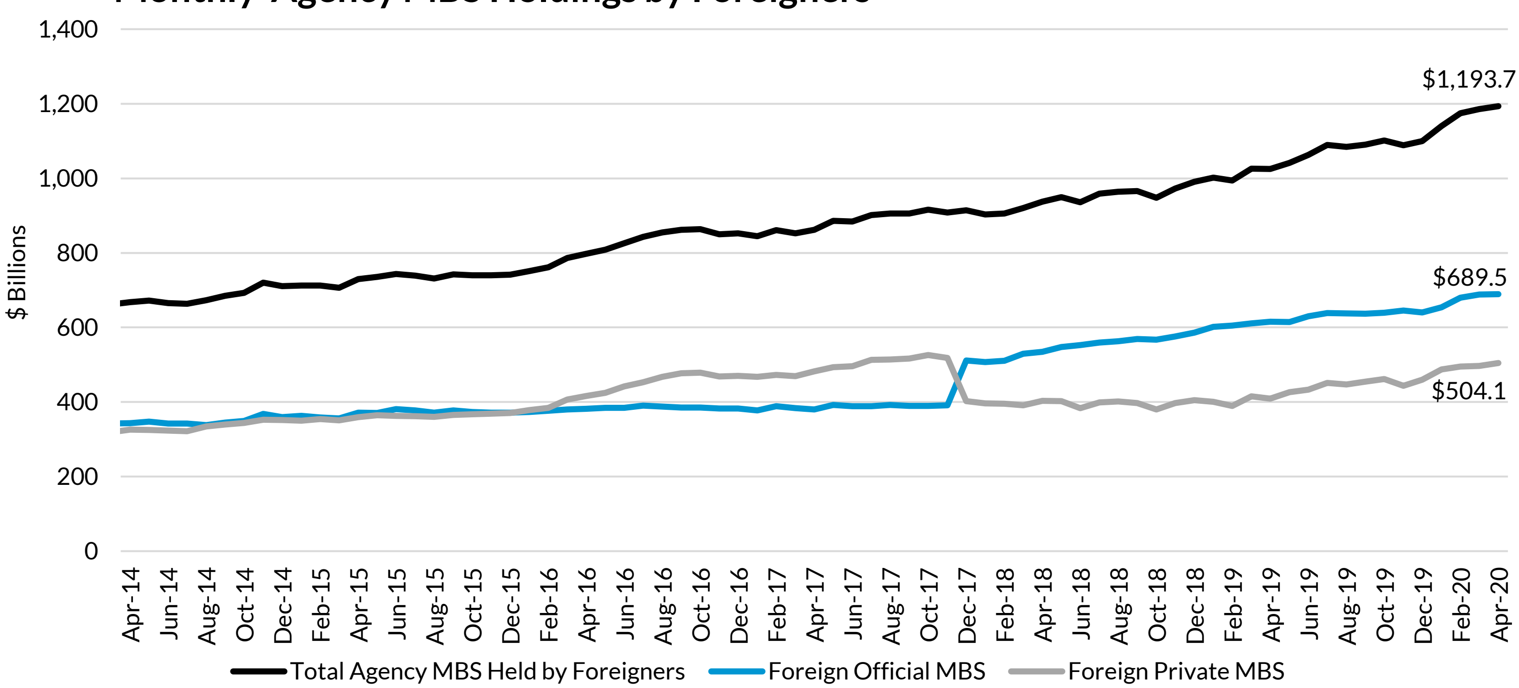
Foreign investors held 17.0 percent of agency MBS in April 2020, up from a low of 12.0 percent in July 2014. For the month of April 2020, this represents $1.19 trillion in Agency MBS, $504 billion held by foreign private institutions and $690 billion held by foreign institutions.

Foreign Share of Agency MBS



***Sources**: SIFMA and Treasury International Capital (TIC). **Note**: Data as of March 2020.*

Monthly Agency MBS Holdings by Foreigners



***Sources**: Treasury International Capital (TIC) and Urban Institute. **Note**: Data as of March 2020. 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.*

MBS Ownership

The largest foreign holders of Agency MBS are Japan, Taiwan, and China; these three comprise over 70 percent of all foreign holdings. Between June 2019 and April 2020, we estimate China has increased their agency MBS holdings by $27.2 billion, Japan has increased their holdings by $23.3 billion and Taiwan has increased their holdings by $5.9 billion.

Agency MBS+ Agency Debt

	Level of Holdings ($Millions)*					Change in Holdings ($Millions)*			
Country	Jun-19	Sep-19	Dec-19	Mar-20	Apr-20	Q3 2019	Q4 2019	Q1 2020	Apr-2020
Japan	297,016	311,047	305,332	322,155	319,986	14,031	-5,715	16,823	-2,169
Taiwan	265,524	263,018	261,740	269,133	271,397	-2,506	-1,278	7,393	2,264
China	227,357	233,783	231,753	260,479	253,983	6,426	-2,030	28,726	-6,496
Luxembourg	47,646	46,641	39,015	36,789	36,597	-1,005	-7,626	-2,226	-192
Ireland	45,829	41,367	38,731	26,131	27,295	-4,462	-2,636	-12,600	1,164
South Korea	42,879	41,485	40,810	40,964	40,435	-1,394	-675	154	-529
Cayman Islands	34,967	29,540	31,827	27,154	30,568	-5,427	2,287	-4,673	3,414
Bermuda	29,365	29,184	33,897	27,790	27,073	-181	4,713	-6,107	-717
Netherlands	14,074	10,549	10,902	10,886	12,805	-3,525	353	-16	1,919
Malaysia	12,167	15,585	16,600	21,399	20,702	3,418	1,015	4,799	-697
Rest of world	128,142	135,515	152,489	202,143	213,392	7,373	16,974	49,654	11,249
Total	1,144,971	1,157,714	1,163,096	1,245,023	1,254,233	12,743	5,382	81,927	9,210

Agency MBS Only (Estimates)

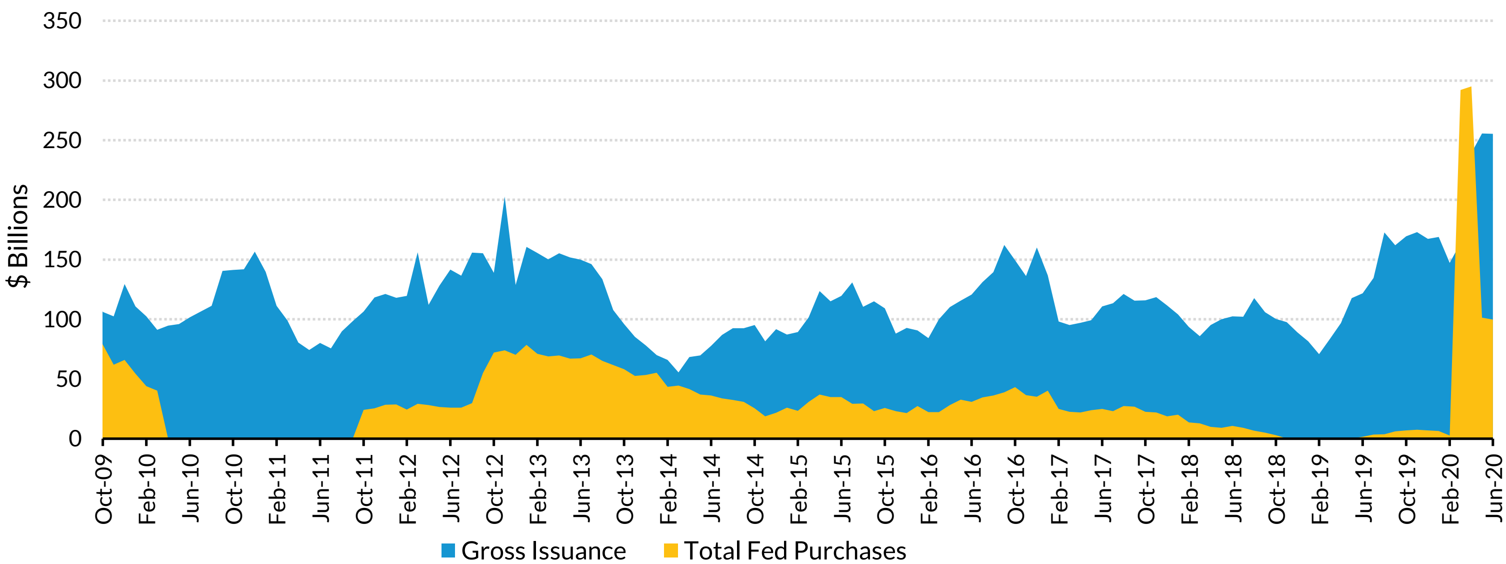
	Level of Holdings ($Millions)*					Change in Holdings ($Millions)*			
Country	Jun-19	Sep-19	Dec-19	Mar-20	Apr-20	Q3 2019	Q4 2019	Q1 2020	Apr-2020
Japan	293,662	307,738	302,212	319,241	317,000	14,076	-5,526	16,823	-2,240
Taiwan	265,234	262,732	261,470	268,881	271,139	-2,502	-1,262	7,393	2,258
China	221,738	228,240	226,526	255,596	248,981	6,502	-1,714	28,726	-6,615
Luxembourg	43,978	43,023	35,603	33,602	33,332	-955	-7,420	-2,226	-270
Ireland	37,674	33,322	31,145	19,045	20,036	-4,352	-2,177	-12,600	991
South Korea	34,969	33,682	33,452	34,091	33,394	-1,287	-230	154	-697
Cayman Islands	29,896	24,538	27,110	22,748	26,054	-5,358	2,572	-4,673	3,306
Bermuda	26,394	26,253	31,133	25,208	24,428	-141	4,880	-6,107	-780
Netherlands	13,904	10,381	10,744	10,738	12,654	-3,523	363	-16	1,915
Malaysia	11,881	15,303	16,334	21,150	20,447	3,422	1,031	4,799	-703
Rest of world	97,585	105,371	124,063	175,591	186,192	7,786	18,692	49,654	10,601
Total	1,076,916	1,090,579	1,099,788	1,185,887	1,193,654	13,663	9,209	81,927	7,767

Sources *:Treasury International Capital (TIC) and Urban Institute.*
Note: **calculated based on June 2018 report with amount asset backed per country. Revised to include Top 10 holders of MBS listed as of June 2018. Monthly data as of April 2020.*

MBS Ownership

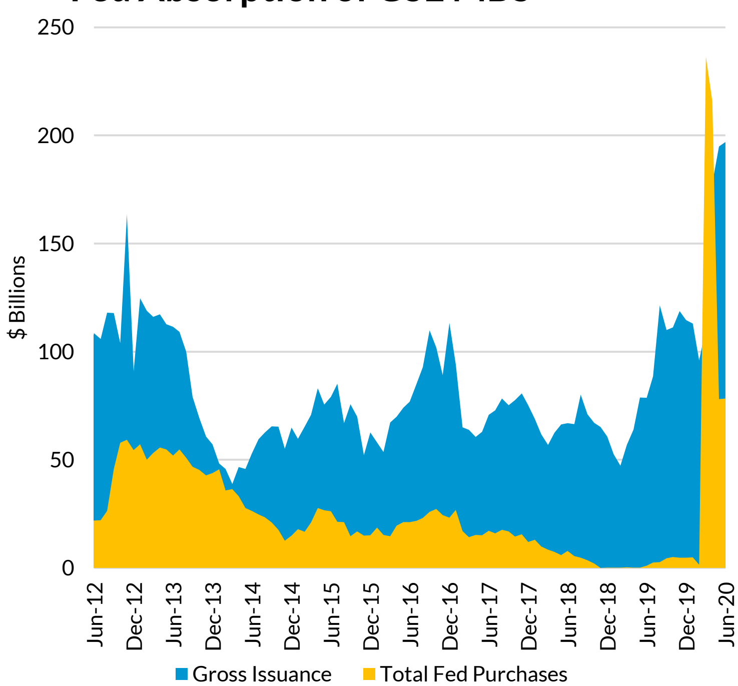
On March 23, 2020, in response to the market dislocations caused by the coronavirus pandemic, the Fed announced they would purchase Treasuries and agency MBS in an amount necessary to support smooth functioning markets. In March the Fed bought $292.2 billion in agency MBS, and April clocked in at $295.1 billion, the largest two months of mortgage purchases ever; and well over 100 percent of gross issuance for each of those two months. After slowing in May, purchases remained steady in June at $99.8 billion, 39.1 percent of monthly issuance, still sizeable from a historical perspective. Prior to the COVID-19 intervention, the Fed was winding down its MBS portfolio from its 2014 prior peak.

Total Fed Absorption



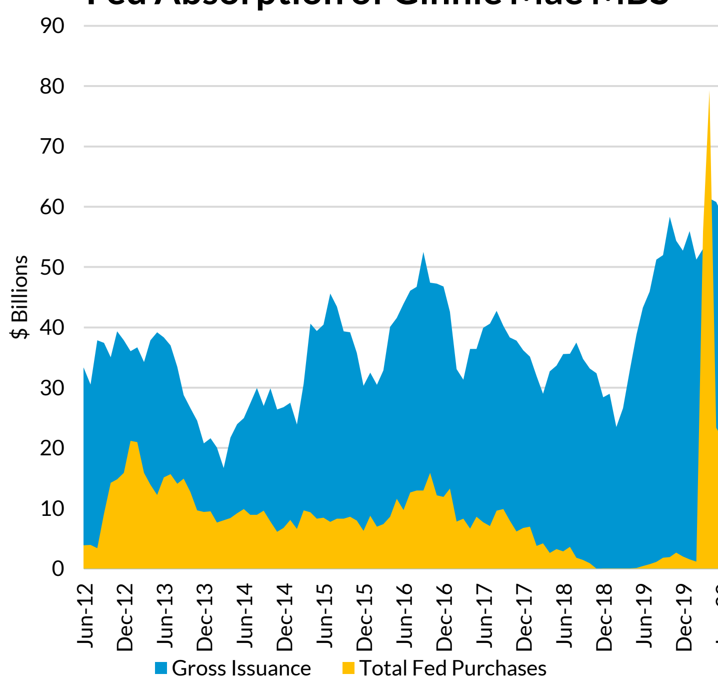
Sources: *eMBS, Federal Reserve Bank of New York and Urban Institute.* ***Note:*** *Data as of June 2020.*

Fed Absorption of GSE MBS



Sources: *eMBS, Federal Reserve Bank of New York and Urban Institute.* ***Note:*** *Data as of June 2020.*

Fed Absorption of Ginnie Mae MBS



Sources: *eMBS, Federal Reserve Bank of New York and Urban Institute.*
Note: *Data as of June 2020.*