

Global Markets Analysis Report

A MONTHLY PUBLICATION OF GINNIE MAE'S
OFFICE OF CAPITAL MARKETS



PREPARED FOR GINNIE MAE
BY STATE STREET GLOBAL ADVISORS
URBAN INSTITUTE, HOUSING FINANCE POLICY CENTER

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HIGHLIGHTS

Re-default expectations in the COVID-19 era

The Global Financial Crisis that started in 2008 resulted in steep house price declines, tens of millions of mortgage defaults, and subsequent loan modifications to try to keep struggling borrowers in their homes. Given the severe and sustained nature of the Global Financial Crisis, many borrowers found their loan modifications to be unsustainable, resulting in high re-default rates and prepayments for security holders. Ginnie Mae issuers have the authority to pull seriously delinquent loans out of mortgage pools. Thus, high default or re-default rates can increase involuntary prepayments. Given millions of borrowers are in COVID-19 forbearances today, a key question facing MBS investors is whether the COVID-19 re-default experience will be different from the Global Financial Crisis.

Future re-default experience will, in large part, depend on the future course of the broader economy and the job market. However, we would expect re-default rates to remain below Global Financial Crisis levels for several reasons.

The pandemic is different from the Global Financial Crisis: Following 2008, we witnessed severe house price declines, negative equity, and a flood of defaults. House price declines were accompanied by a swift run-up in job losses and long-term unemployment. Borrowers were not only unable to make payments, but also unable to exit their mortgages by selling their homes, forcing them to re-default. The unemployment rate peaked at 10 percent in late 2009. In the pandemic the rate peaked at 14.7 percent early on but stands at 7.9 percent today.

Americans today have record levels of home equity. The ratio of total mortgage debt outstanding to the value of the US housing stock is at a record-low 35 percent, compared with 54 percent on the eve of the Global Financial Crisis. Large equity buffers, helped by continued house price growth even during the pandemic, give struggling homeowners the option to sell and move out rather than default. Note that the average loan age for currently delinquent FHA loans is about 4 years. The national house price appreciation over the last 4 years, i.e. from Aug 2016 to Aug 2020 was 21 percent. This suggests that delinquent FHA borrowers who purchased homes with a 3.5 percent down payment, on average, have an equity buffer of 24 percent.

Improved loss mitigation toolkit – The mortgage market was not prepared for the Global Financial Crisis. Before 2008, short-term assistance programs such as repayment and modification plans were available but neither codified or standardized; and they often capitalized delinquent interest and fees into the mortgage balance, limiting payment relief. Lack of standard terms meant programs could not be deployed quickly and on a large scale.

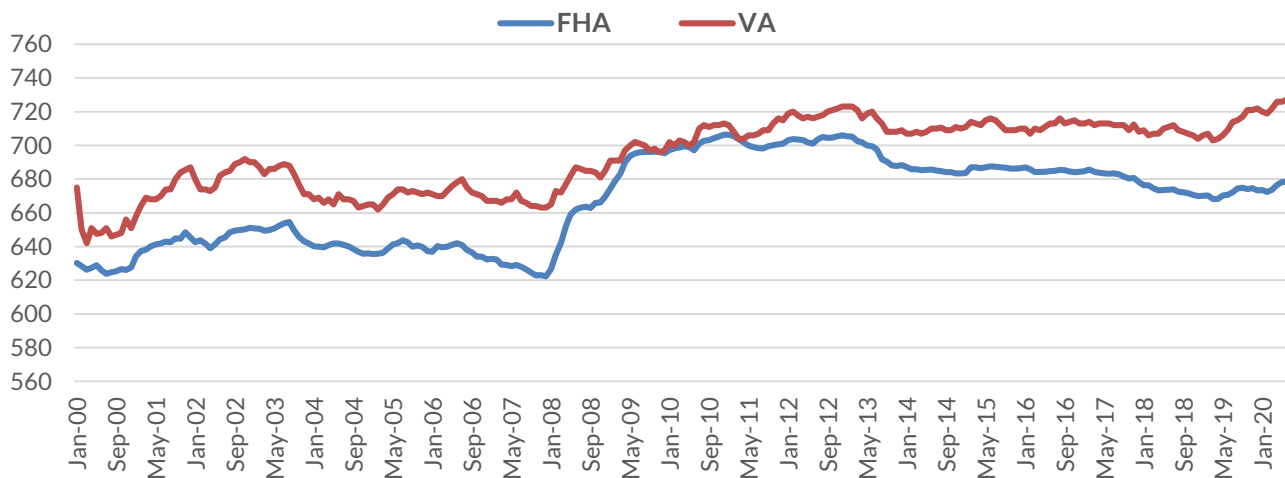
While many crisis-era standard programs have now expired, FHA's implementation of HAMP (FHA-HAMP) continues. In addition, during the pandemic the FHA moved swiftly, announcing the COVID-19 National Emergency Standalone Partial Claim program in April of this year. This will allow borrowers to receive a partial claim modification at the end of their forbearance. When combined with rate reduction and/or term extension available under FHA-HAMP, and deployed at scale, it will provide meaningful payment reduction opportunities to struggling borrowers. FHA loans comprise 74 percent of Ginnie Mae's COVID-19 Forbearance population.

Plummeting mortgage rates have already cut payments for many – The steep decline in rates in 2020 has created a large opportunity for borrowers to reduce their monthly payment by refinancing. An FHA borrower with a 4 percent mortgage rate and a \$250,000 loan balance will see a P&I reduction of 12 percent solely by refinancing to the prevailing rate of 3.125 percent. If the same borrower were to obtain FHA partial claim equal to 15 percent of the defaulted UPB, they would reduce their monthly P&I payment by 25 percent. Note, this is well in excess of the 20 percent payment reduction loan modification programs typically target. Also, FHA allows partial claim up to a maximum of 30 percent. Thus, in the example above, the borrower would still have room to receive an even bigger payment reduction if needed. The combination of low rates and FHA partial claim is a very powerful loss mitigation tool in the current environment.

HIGHLIGHTS

Much higher quality book of business going into the pandemic – The dramatic tightening of credit post-2008 has led to a much higher quality book of business compared to when we entered the Global Financial Crisis. For FHA loans, the median FICO score for pre-2008 originations ranged from 620 to 650. For post-2009 originations it has ranged from 670 to 700, or 40 to 50 points higher (See Figure 1.) The difference between pre- and post-2008 VA loans tells a very similar story, i.e. dramatic improvement in FICO scores. This is supported by the fact that the vast majority of borrowers in forbearance, 87 percent, were current just prior to the pandemic. Also note that in addition to higher FICO scores for VA borrowers, VA lending represents a much larger share of Ginnie Mae market today. These factors put Ginnie Mae’s overall book of business in a much stronger credit position compared to on the eve of the Global Financial Crisis.

Figure 1: Median Origination FICO Scores for FHA and VA



Source: Urban Institute Calculations using Black Knight McDash

Many of the factors outlined above can change, especially house prices. Falling house prices and potential loss of home equity would make it harder to keep modifications sustainable. However, increases in house prices during the pandemic coupled with a historic shortage of housing supply makes it unlikely that prices will fall or fall by much. On balance, this analysis suggests that post-pandemic re-default activity may be much benign compared to the last housing crisis.

Disclosure:

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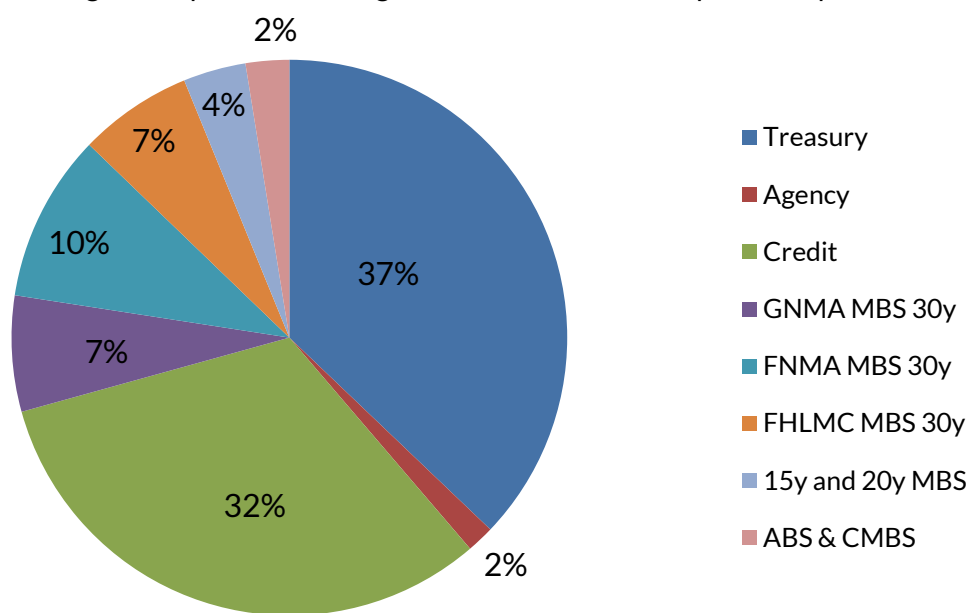
Highlights this month:

- Home prices have turned up for the 12-month period ending August 2020, the first upturn since COVID-19 hit (page 13).
- The net increase in Ginnie Mae outstanding is far smaller than their GSE counterparts; this reflects negative net FHA issuance (page 21).
- The Ginnie Mae nonbank origination share reached a record high of 91.4 percent in August 2020 (page 35).
- The Federal Reserve’s share of agency debt increased from 15 percent in the first quarter of 2020 to 20 percent in the second quarter due to substantial purchases of MBS in response to the COVID-19 crisis (page 51).
- Agency MBS held by foreigners in June 2020 (\$1.16 trillion), while up on a year-over-year basis, has declined slightly since March 2020, possibly reflecting increased MBS absorption by the Fed (Page 54).

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

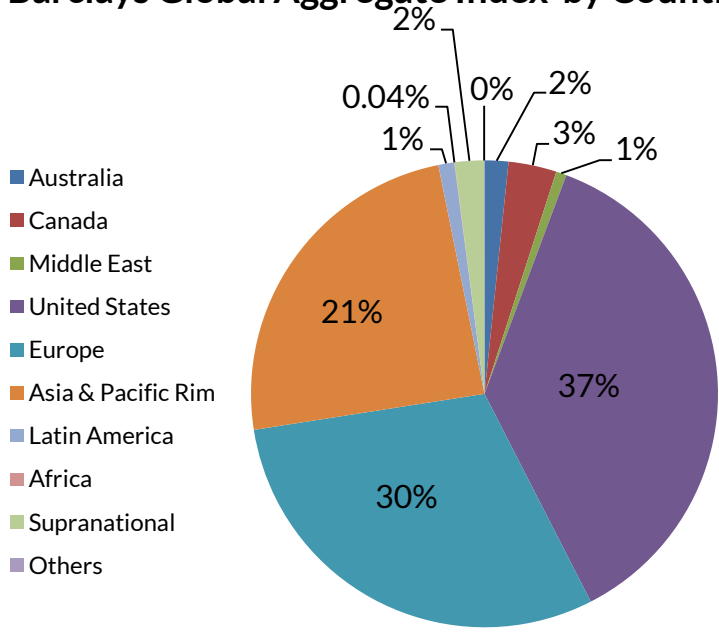
US MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) comprise 28 percent of the Barclays US Aggregate Index—less than either the US Treasury share (37 percent) or the US Credit share (32 percent). Fannie Mae 30-year MBS accounts for 10 percent of the overall index, the largest MBS component, while Ginnie Mae 30-year MBS and Freddie Mac 30-year MBS both comprise 7 percent of the market. Mortgages with terms of 15 and 20 years comprise the remaining balance (4 percent) of the Barclays US Aggregate Index. US securities are the single largest contributor to the Barclays Global Aggregate, accounting for 37 percent of the global total. US MBS comprises 10 percent of the global aggregate.

Barclays US Aggregate Index



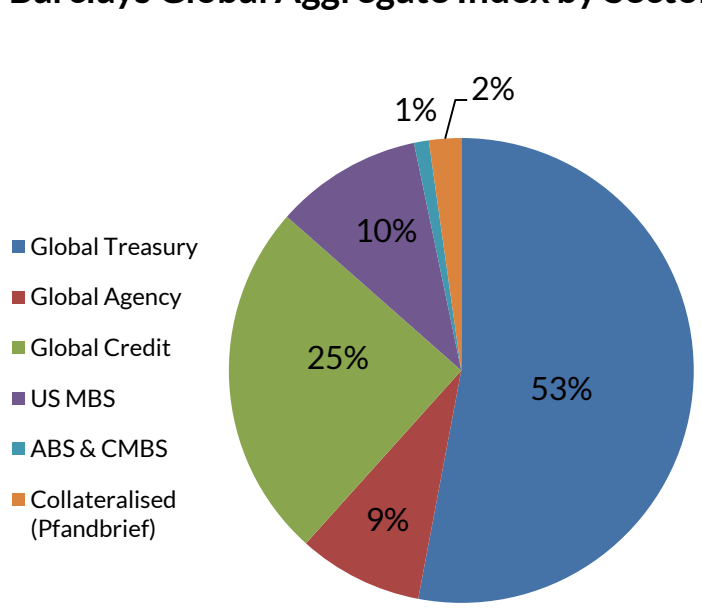
Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2020. Note: Numbers in chart may not add to 100 percent due to rounding.

Barclays Global Aggregate Index by Country



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

Barclays Global Aggregate Index by Sector

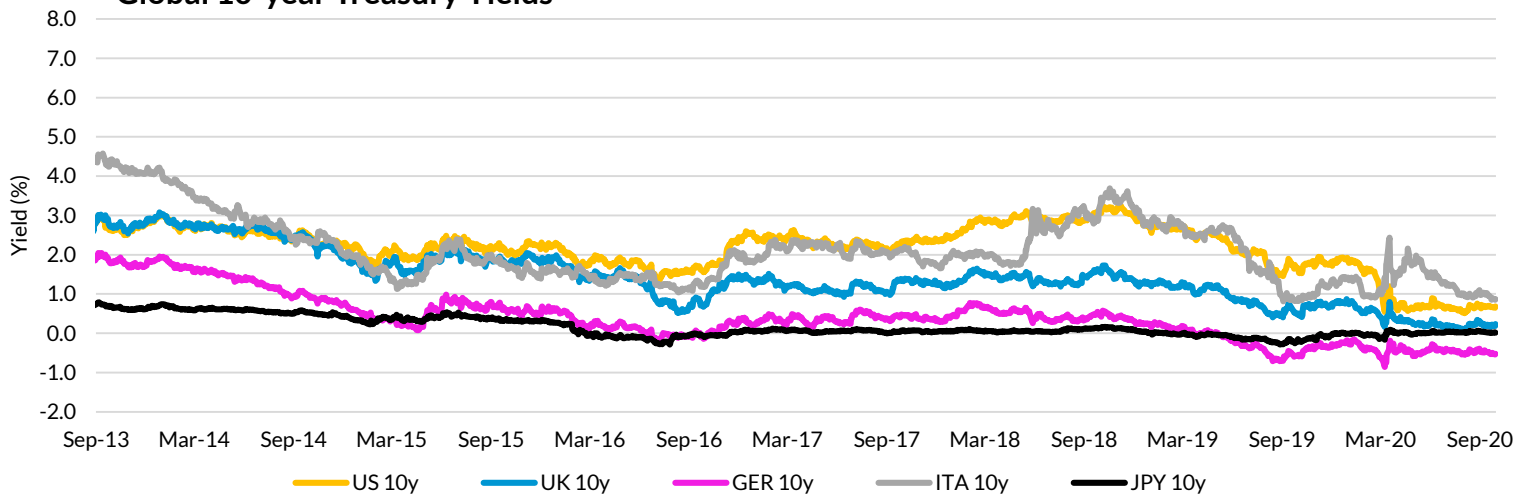


Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2020.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

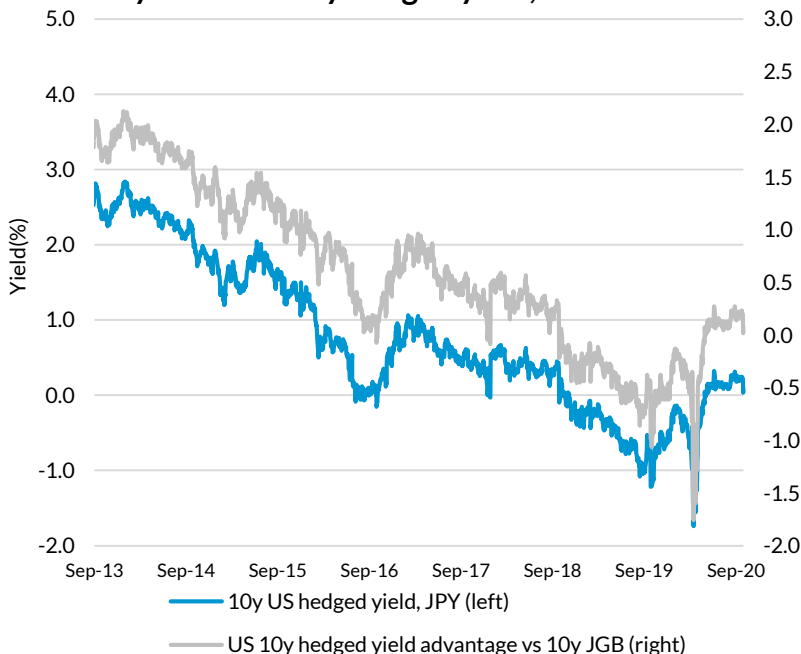
After experiencing COVID-19 related volatility in March and April of this year, government bond yields across the globe stabilized. Yields fell across the board in September 2020, with the yield on the 10-year treasury declining by 2 bps to 0.68 percent. The yield on the Italian 10-year note, which is the highest in the developed world, dropped by 23 bps to 0.87 percent. The yield on the UK 10-year bond fell by 8 bps to 0.23 percent, the Japanese 10-year government bond yield fell by 4 bps to 0.02 percent, and the German 10-year yield fell by 13 bps to negative 0.52 percent in September. At the end of September, the hedged yield differential between the 10-year Treasury and the 10-year JGB stood at 8 bps, a tightening of 12 bps since August 2020. The hedged yield differential between the 10-year Treasury and the 10-year Bund stood at 30 bps, a tightening of 2 bps since the end of August 2020.

Global 10-year Treasury Yields



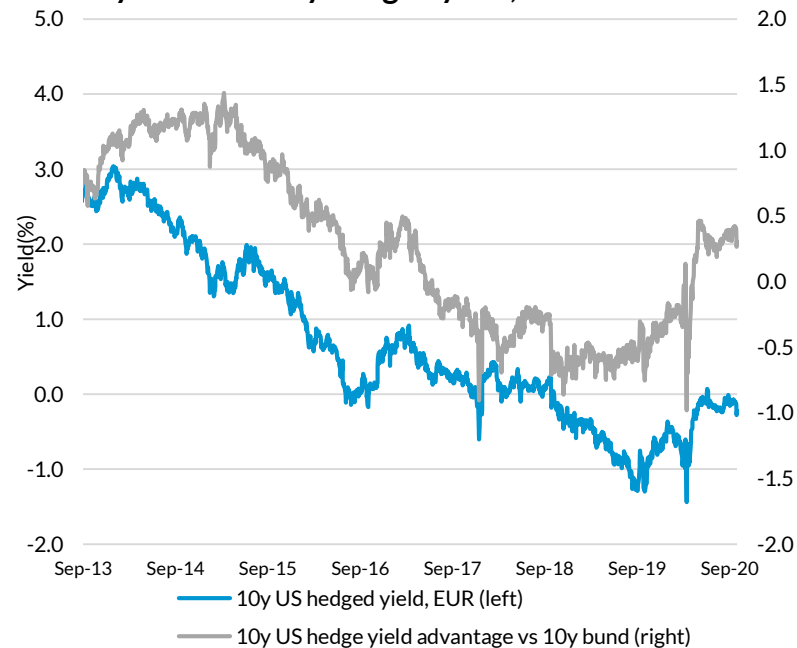
Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2020.

10yr US Treasury hedged yield, JPY



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

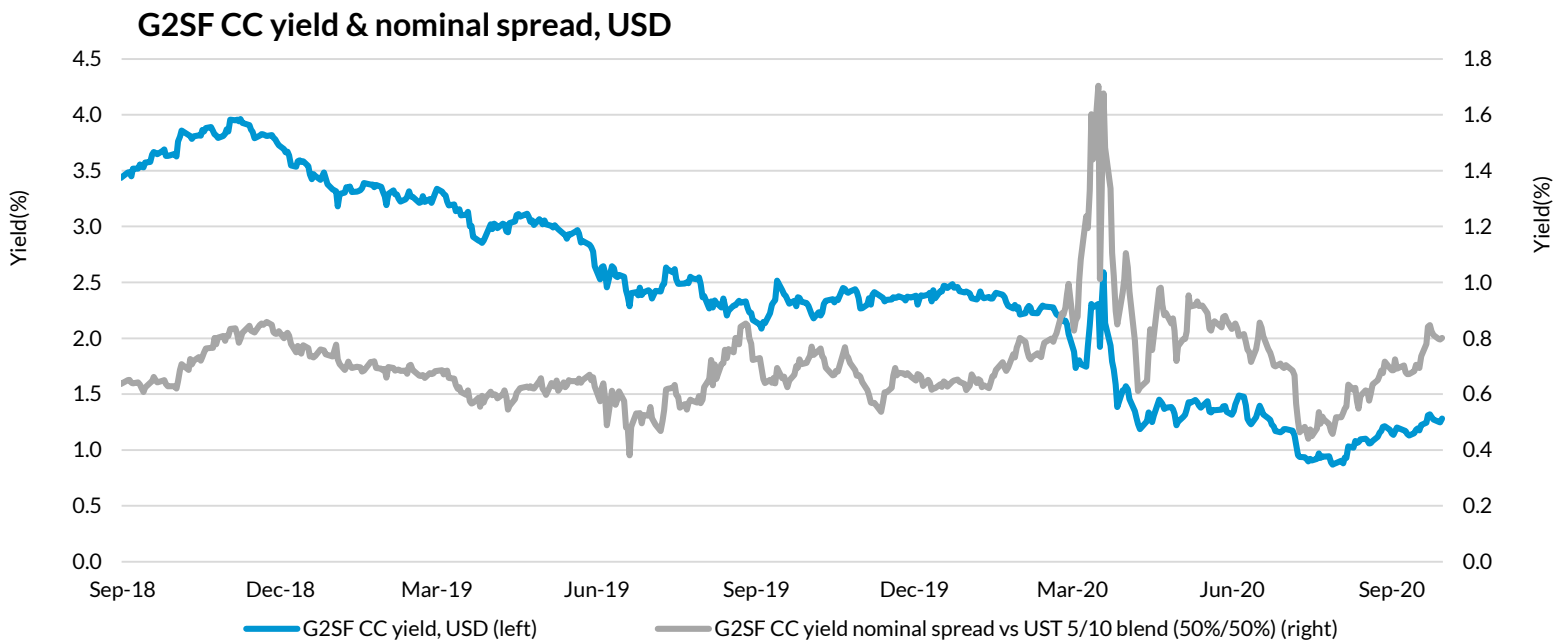
10yr US Treasury hedged yield, EUR



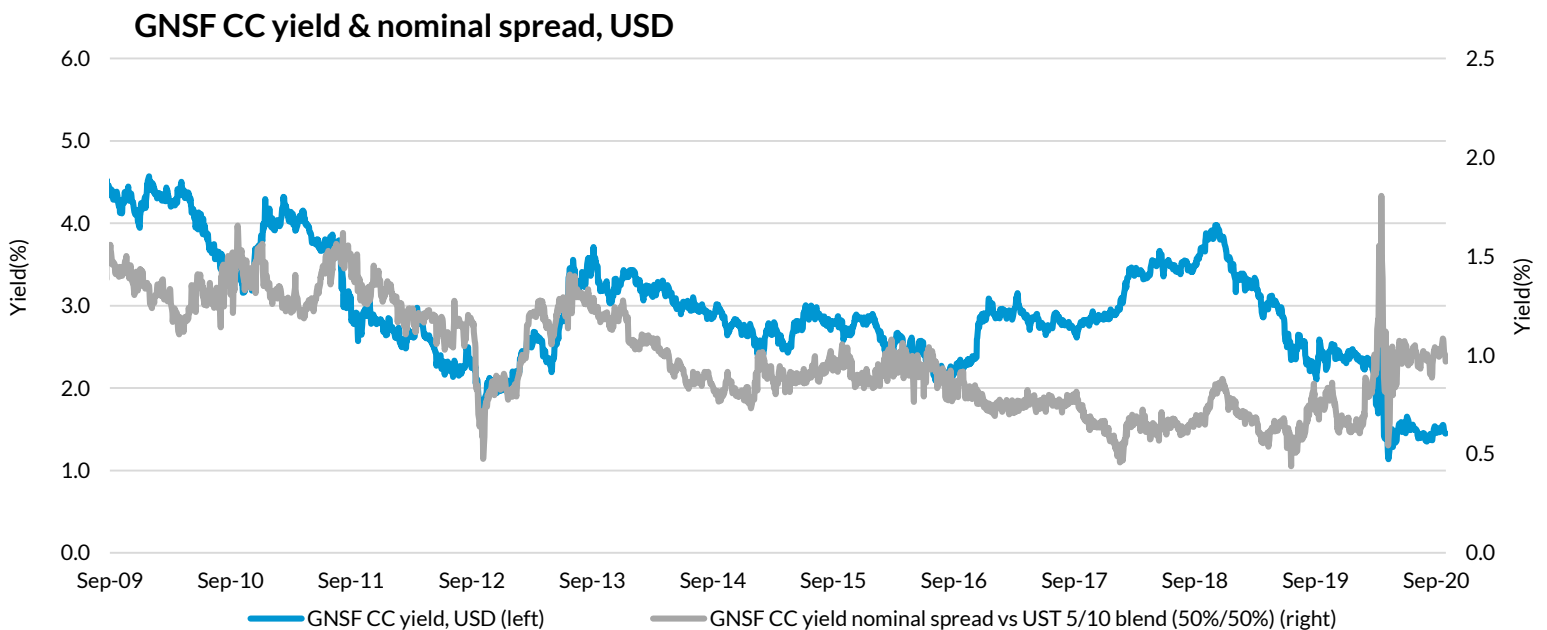
Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2020.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

Nominal yields diverged in September 2020, with GNMA II yields increasing 10 bps to 1.28 percent and GNMA I yields down 4 bps to 1.45 percent. At the end of September, current coupon Ginnie Mae securities outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 80 bps on the G2SF and 97 bps on the GNSF, an increase of 11 and decrease of 4 bps, respectively, since last month.



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

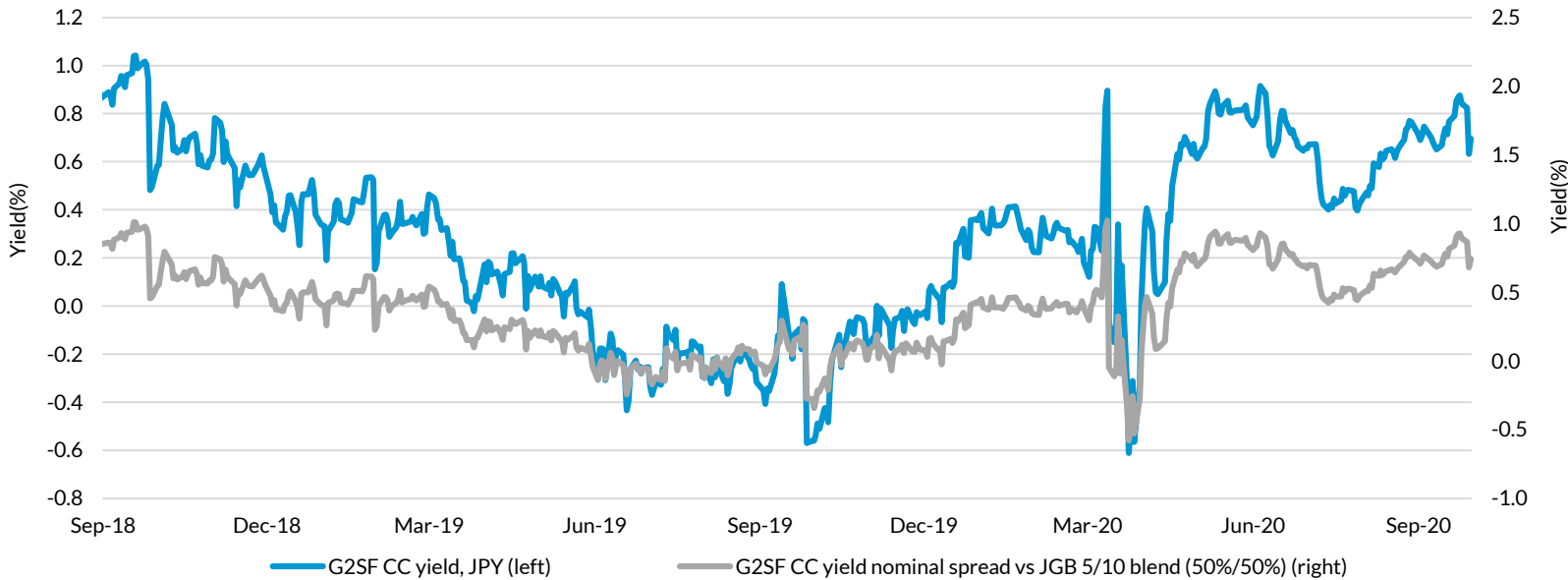


Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2020.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

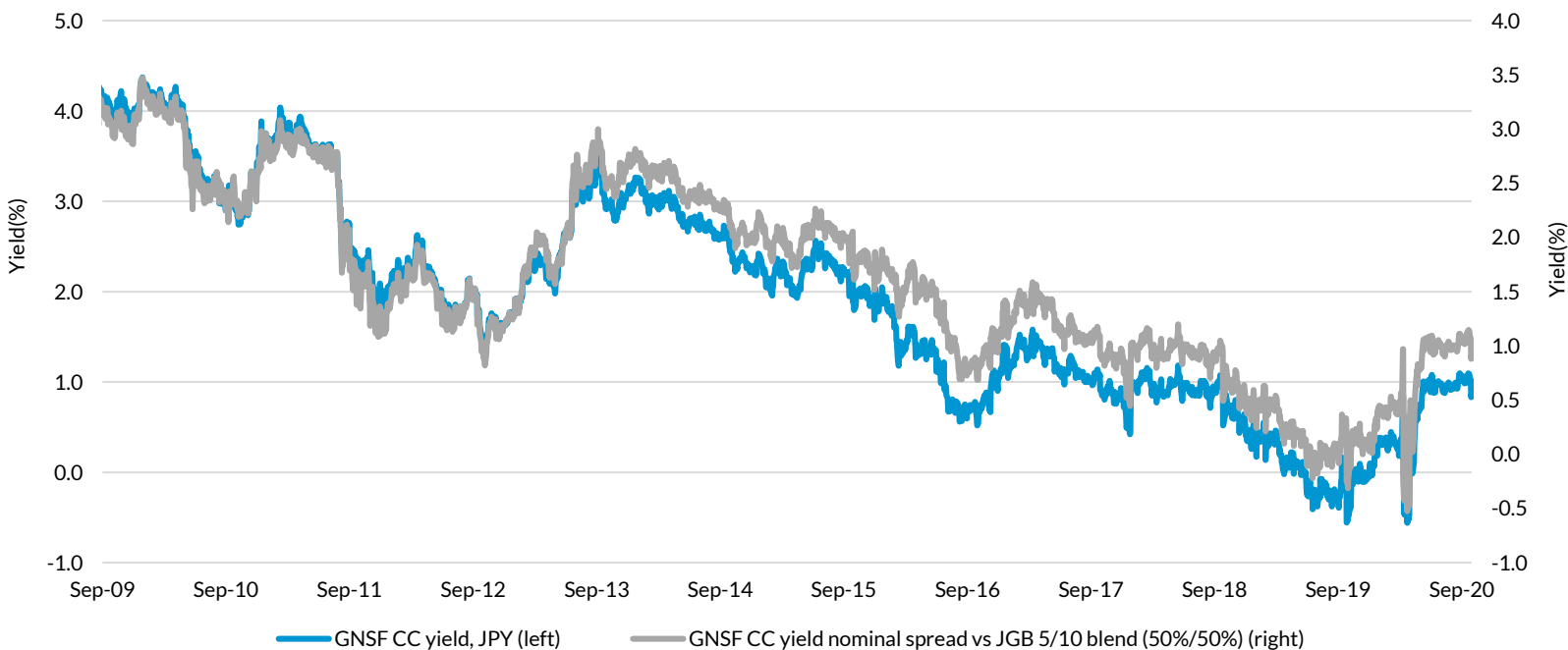
If Ginnie Mae securities are hedged into Japanese Yen, they look favorable on a yield basis versus the JGB 5/10 blend at the end of September. More precisely, hedged into Japanese yen, the G2SF and GNSF have a 74 and 91 bp yield versus the JGB 5/10 blend. This represents a 1 bp widening for G2SF and a 14 bp tightening for GNSF since the end of August 2020.

G2SF CC yield & nominal spread, JPY



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

GNSF CC yield & nominal spread, JPY

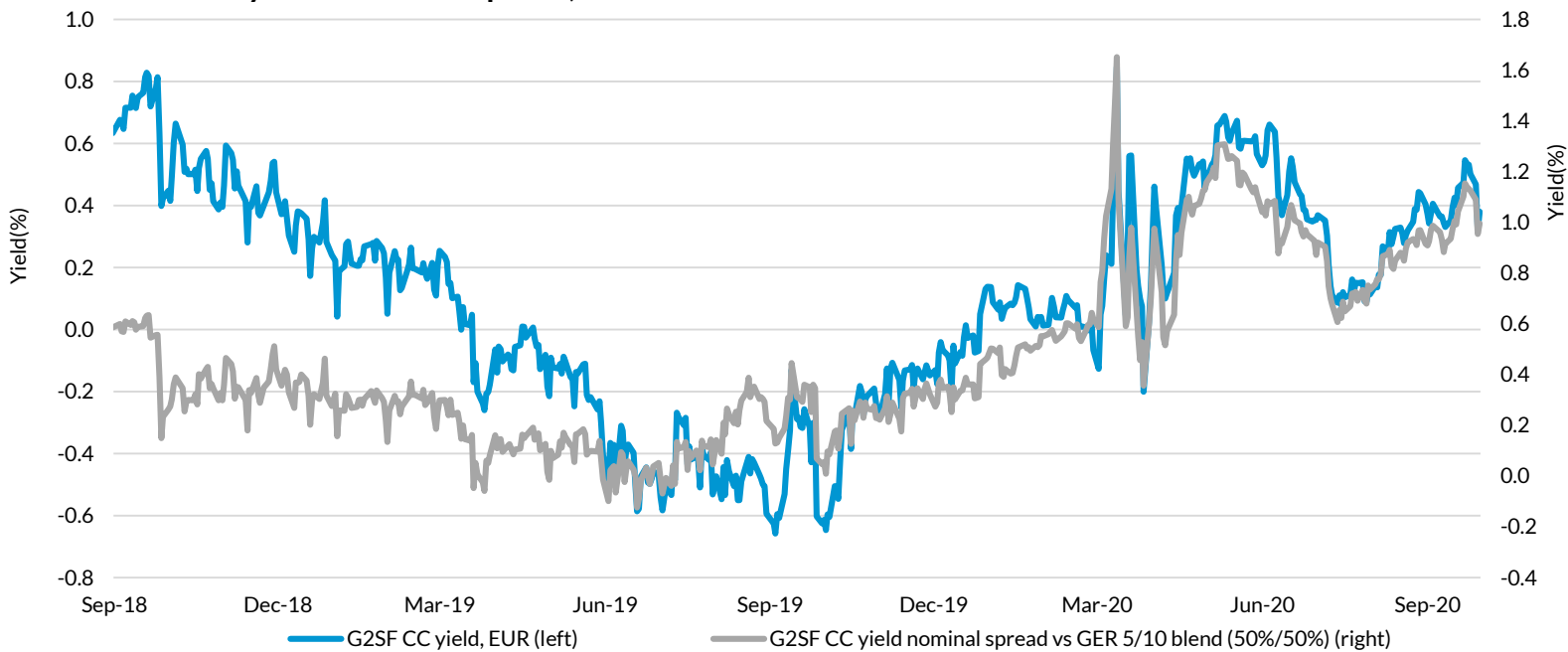


Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2020.

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 September, the current coupon G2SF and GNSF hedged into euros have a 100 and 116 bp higher yield than the average of the German 5/10, respectively. This represents an 8 bp widening for the G2SF and a 7 bp tightening for the GNSF since the end of last month.

G2SF CC yield & nominal spread, EUR



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

GNSF CC yield & nominal spread, EUR

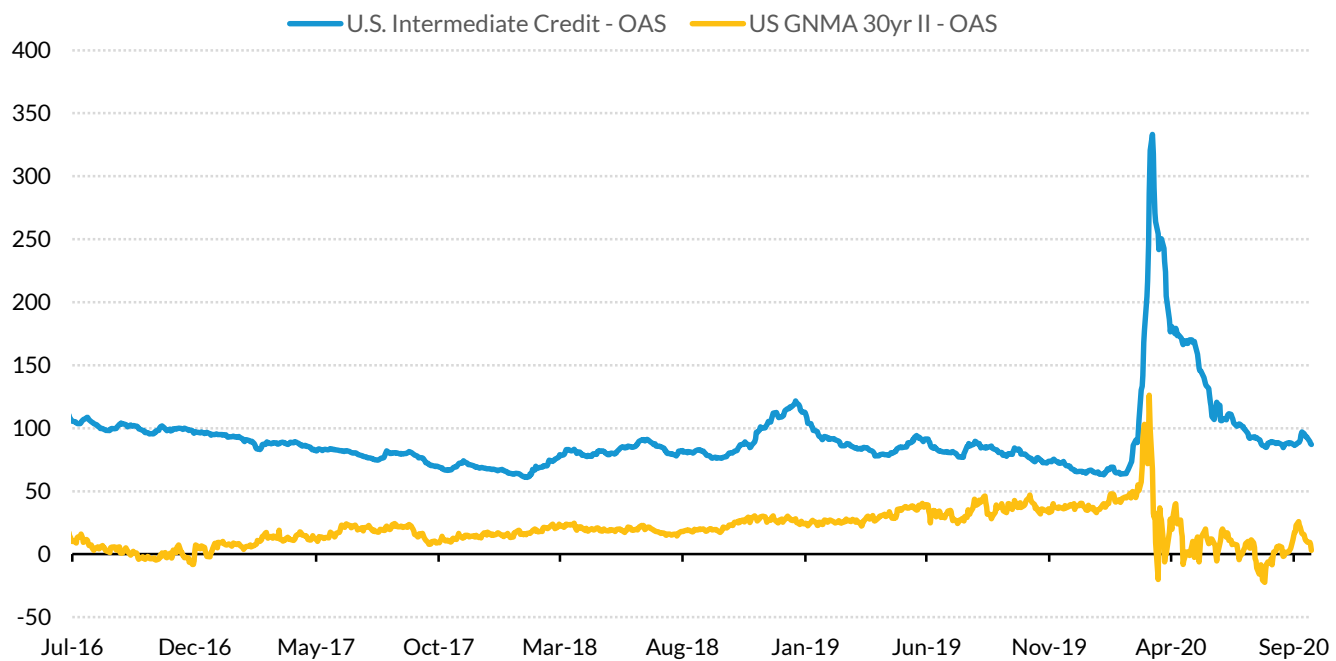


Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2020.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

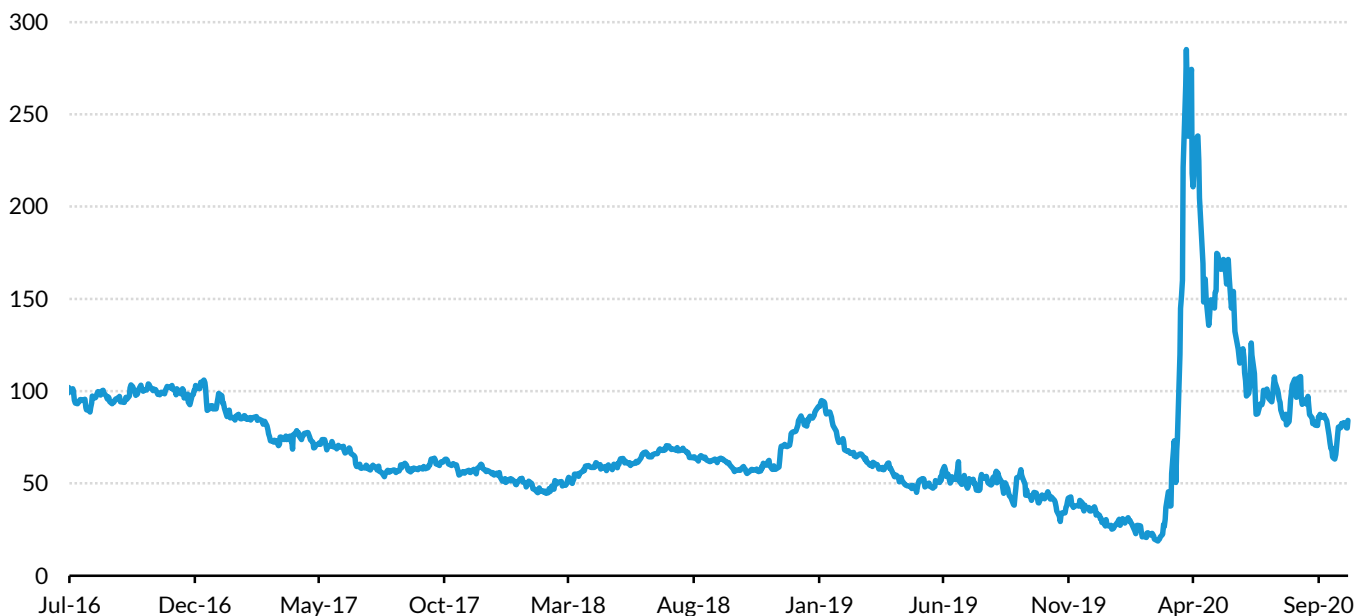
After tightening steadily from mid-2016 to January 2020, the spread between US Intermediate Credit and GNMA II 30 year OAS skyrocketed in February 2020 in response to the COVID-19 panic. This was followed by substantial tightening over the period of March-September 2020. The OAS on intermediate credit 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 September 2020 at 82 basis points in comparison to 21 basis points at the end of January, reflecting heightened investor concern about corporate credit risk.

G2 30 MBS versus Intermediate Credit



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

Spread between Intermediate credit and 30-year GNMA MBS OAS

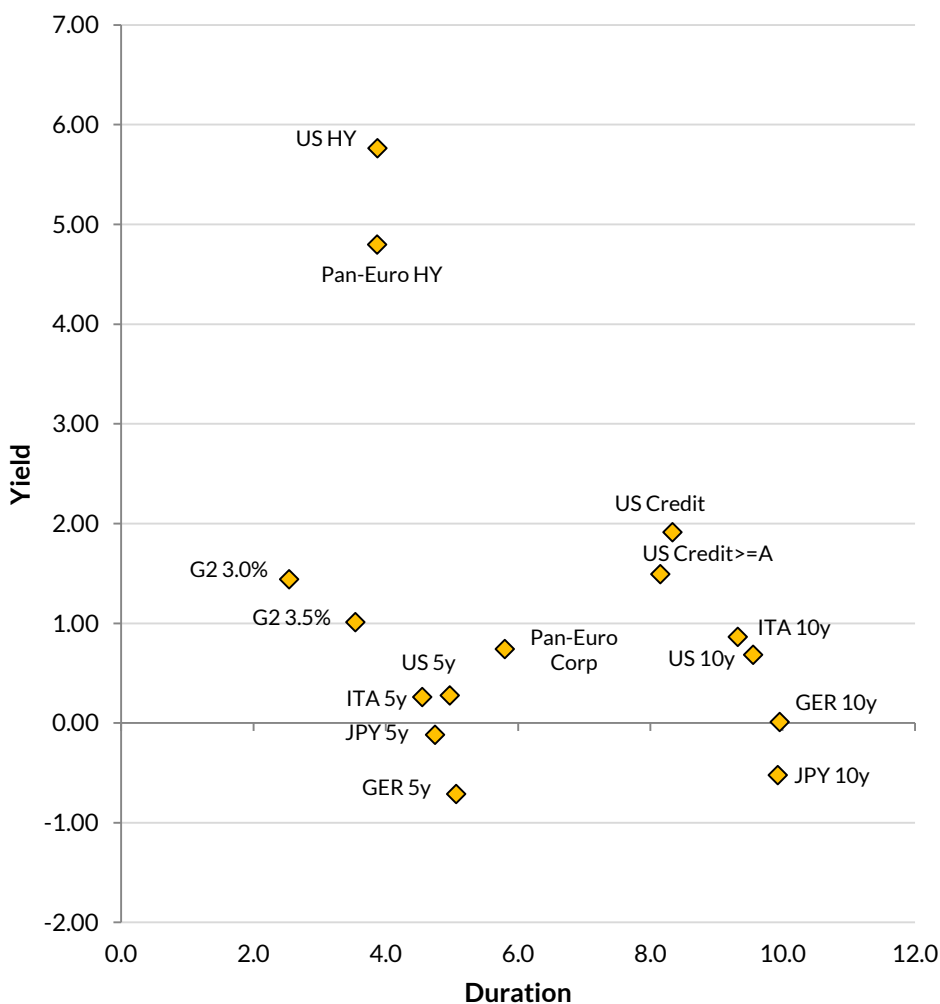


Sources: State Street Global Advisors. Note: Data as of September 2020.

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 classes with significantly more yield 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.

Yield versus duration



Security	Duration	Yield
US 5y	5.0	0.28
US 10y	9.6	0.69
GNMA II 3.0%	3.5	1.01
GNMA II 3.5%	2.5	1.44
JPY 5y	4.7	-0.12
JPY 10y	10.0	0.01
GER 5y	5.1	-0.71
GER 10y	9.9	-0.52
ITA 5y	4.6	0.26
ITA 10y	9.3	0.87
US credit	8.3	1.91
US credit >= A	8.1	1.49
US HY	3.9	5.77
Pan-Euro Corp	5.8	0.74
Pan-Euro HY	3.9	4.80

Sources: Bloomberg and State Street Global Advisors. Note: Yields are in base currency of security and unhedged. Data as of September 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 asset classes over 1 and 10-year horizons and second highest over 3 and 5-year horizons.

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	0.32	0.65	0.68	0.08	0.35	0.02
3 year	0.28	0.45	0.54	0.21	0.38	0.18
5 year	0.23	0.31	0.50	0.22	0.58	0.34
10 year	0.24	0.26	0.43	0.34	0.54	0.51

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	0.26	0.60	0.62	0.13	0.30	0.07
3 year	0.15	0.33	0.41	0.27	0.25	0.24
5 year	0.14	0.22	0.41	0.28	0.48	0.39
10 year	0.19	0.22	0.38	0.37	0.50	0.54

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	0.54	1.33	2.99	2.74	4.27	4.75
3 year	0.66	1.22	1.97	1.64	2.63	2.84
5 year	0.60	1.13	1.66	1.42	2.30	2.39
10 year	0.64	1.05	1.46	1.37	2.03	2.03

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	0.49	0.45	0.21	0.05	0.07	0.02
3 year	0.23	0.27	0.21	0.16	0.10	0.08
5 year	0.23	0.20	0.24	0.19	0.21	0.16
10 year	0.30	0.21	0.26	0.27	0.24	0.26

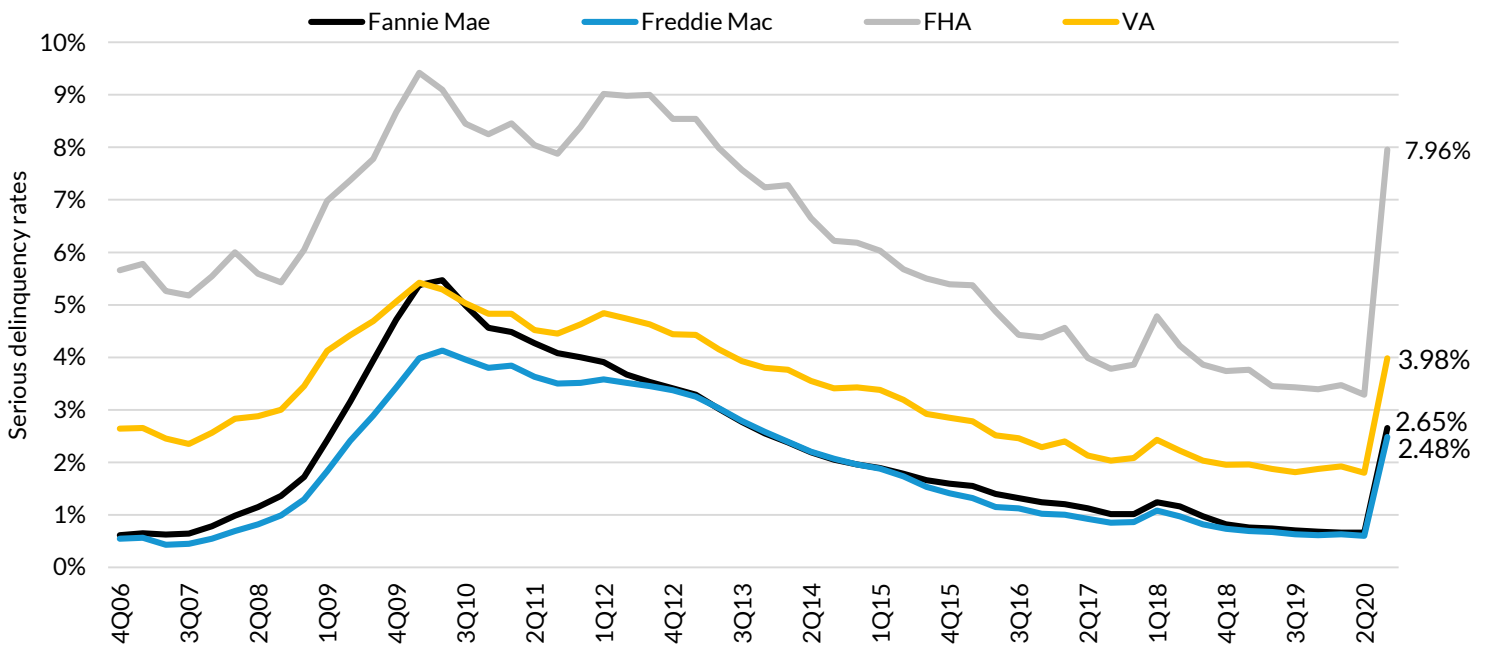
*Assumes 2% capitalization max per issuer on high yield indices

Sources: Barclays Indices, Bloomberg and State Street Global Advisors Note: Data as of September 2020.

State of the US Housing Market

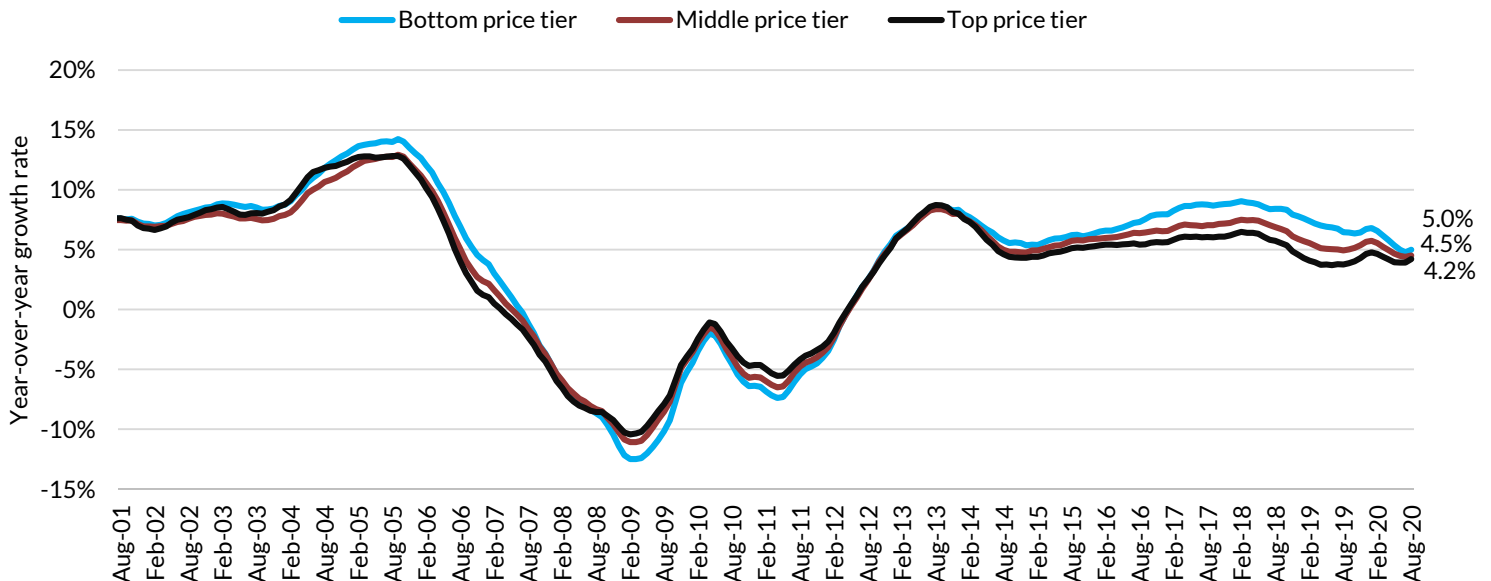
Serious delinquency rates for single-family GSE loans, FHA loans and VA loans spiked in Q2 2020, reflecting the impact of the COVID-19 pandemic. These delinquency numbers include loans in COVID-19 forbearance. The bottom chart shows nationwide house prices for the bottom, middle and the top quintiles 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 August 2020, higher than the 4.2 percent for the top end of the market. Year-over-year price growth in August was higher than in July 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 Q2 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 August 2020.

State of the US Housing Market

Nationally, nominal home prices have increased by 59.9 percent since the trough, and now exceed their pre-crisis peak valuation on a nominal basis by 19.5 percent. The picture is very different across states, with many states well in excess of the prior peak, while Connecticut remains 10.2 percent below peak level.

State	2000 to Peak	Peak to Trough	Trough to Current	HPI Changes	
				YOY	Current HPI % Above Peak
National	75.0%	-25.3%	59.9%	4.0%	19.5%
Alabama	36.1%	-15.4%	36.8%	4.6%	15.8%
Alaska	69.5%	-3.0%	26.9%	2.7%	23.1%
Arizona	109.9%	-47.8%	92.2%	6.1%	0.3%
Arkansas	41.4%	-9.8%	28.8%	3.3%	16.2%
California	154.8%	-43.3%	97.7%	3.9%	12.0%
Colorado	40.3%	-12.9%	87.7%	4.3%	63.5%
Connecticut	92.2%	-24.7%	19.2%	2.5%	-10.2%
Delaware	94.6%	-23.5%	35.2%	4.6%	3.5%
District of Columbia	174.5%	-13.7%	61.6%	5.1%	39.5%
Florida	128.3%	-46.8%	79.2%	5.5%	-4.7%
Georgia	38.4%	-31.4%	71.1%	3.9%	17.4%
Hawaii	162.7%	-22.5%	56.2%	4.1%	21.1%
Idaho	71.8%	-28.7%	101.0%	8.1%	43.4%
Illinois	61.6%	-34.4%	41.8%	1.3%	-7.0%
Indiana	21.6%	-8.0%	41.2%	3.5%	29.9%
Iowa	28.2%	-4.7%	30.5%	2.0%	24.4%
Kansas	34.6%	-9.2%	47.0%	2.9%	33.5%
Kentucky	29.6%	-7.5%	36.4%	3.1%	26.2%
Louisiana	48.7%	-5.1%	26.4%	2.7%	20.0%
Maine	82.1%	-12.3%	45.4%	3.4%	27.5%
Maryland	129.2%	-28.6%	31.1%	3.0%	-6.4%
Massachusetts	92.4%	-22.4%	60.7%	3.4%	24.6%
Michigan	23.9%	-39.3%	82.7%	2.7%	10.8%
Minnesota	66.4%	-27.7%	61.9%	3.4%	17.0%
Mississippi	41.0%	-13.8%	33.3%	5.0%	14.9%
Missouri	42.6%	-15.3%	41.8%	3.9%	20.1%
Montana	82.2%	-11.2%	59.1%	4.9%	41.3%
Nebraska	26.7%	-6.6%	46.8%	3.0%	37.1%
Nevada	126.9%	-59.0%	129.2%	4.0%	-6.1%
New Hampshire	90.7%	-23.1%	48.1%	4.6%	13.8%
New Jersey	117.7%	-28.0%	32.1%	3.2%	-4.9%
New Mexico	66.8%	-16.4%	32.8%	6.8%	11.0%
New York	98.4%	-15.3%	47.4%	4.2%	24.9%
North Carolina	40.6%	-15.8%	42.4%	4.3%	20.0%
North Dakota	53.5%	-3.9%	58.0%	2.9%	51.9%
Ohio	21.1%	-18.3%	42.4%	3.5%	16.3%
Oklahoma	37.4%	-2.5%	24.8%	4.6%	21.7%
Oregon	81.9%	-28.1%	87.2%	4.0%	34.7%
Pennsylvania	70.1%	-11.7%	28.9%	2.5%	13.9%
Rhode Island	130.6%	-34.2%	61.2%	6.2%	6.1%
South Carolina	45.0%	-19.4%	41.0%	4.3%	13.7%
South Dakota	45.3%	-4.0%	48.3%	2.1%	42.5%
Tennessee	35.0%	-11.9%	52.1%	4.7%	34.0%
Texas	33.5%	-5.8%	56.9%	3.9%	47.8%
Utah	54.8%	-22.1%	85.6%	5.7%	44.6%
Vermont	83.5%	-7.5%	40.9%	4.9%	30.4%
Virginia	99.6%	-22.7%	32.1%	3.9%	2.1%
Washington	85.1%	-28.7%	98.1%	6.1%	41.3%
West Virginia	42.4%	-6.5%	30.0%	3.9%	21.5%
Wisconsin	44.9%	-16.3%	40.2%	1.6%	17.3%
Wyoming	77.4%	-5.7%	36.8%	5.3%	29.0%

Sources: Black Knight and Urban Institute. Note: HPI data as of August 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 08/2020, the latest HPI data period.

State of the US Housing Market

Ginnie Mae MBS constitute 26.5 percent of outstanding agency issuance by loan balance and 28.3 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 12.6 percent in the District of Columbia and as high as 47.3 percent in Mississippi. In general, the Ginnie Mae share is higher in states with lower home prices.

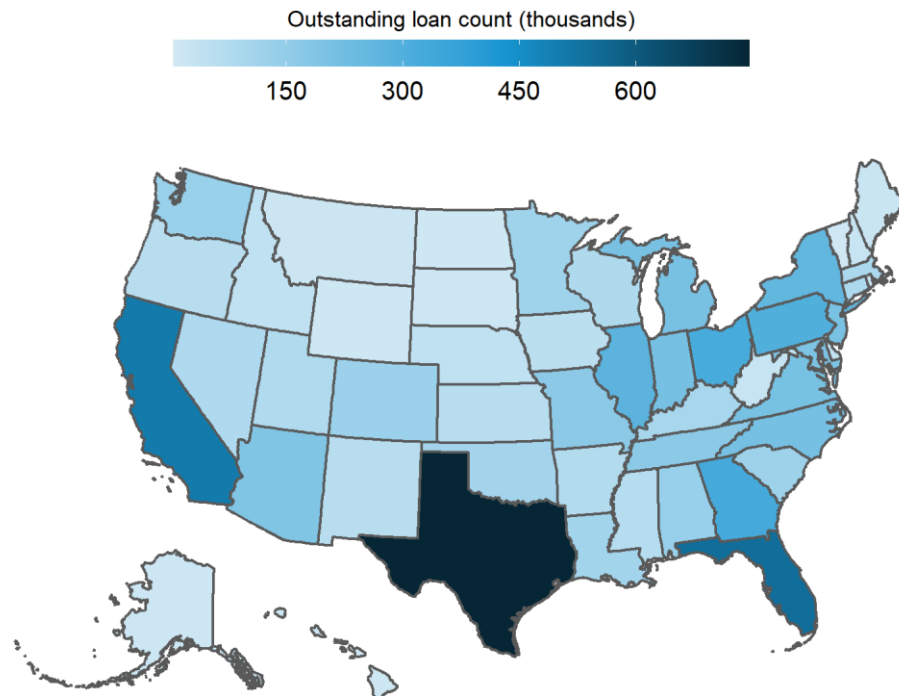
State	Agency Issuance (past 1 year)				Agency Outstanding			
	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)
National	28.3%	2,648,743	251.0	274.4	26.5%	11,301,474	164.9	197.0
Alabama	41.0%	48,170	192.2	217.1	40.8%	238,419	128.6	157.7
Alaska	50.3%	8,185	309.0	278.1	46.5%	37,931	230.5	205.1
Arizona	29.1%	100,355	245.7	253.4	25.4%	313,164	167.9	190.3
Arkansas	38.8%	25,655	164.0	195.6	40.5%	139,862	111.1	142.7
California	21.6%	247,704	389.6	383.8	17.1%	769,302	269.3	281.6
Colorado	27.5%	82,837	328.9	318.4	22.6%	235,545	227.0	240.5
Connecticut	27.8%	21,029	235.2	259.7	26.8%	108,932	181.0	191.7
Delaware	35.0%	11,777	238.1	255.2	33.0%	52,379	179.7	189.3
District of Columbia	15.6%	2,286	484.8	430.6	12.6%	9,613	298.9	316.0
Florida	38.6%	225,439	240.7	241.3	32.0%	853,520	170.3	179.7
Georgia	36.7%	120,596	213.6	246.3	34.3%	515,969	145.2	178.1
Hawaii	43.9%	11,563	552.2	439.7	26.3%	32,265	382.4	324.9
Idaho	27.0%	20,825	248.8	245.1	26.0%	77,957	160.9	182.5
Illinois	20.1%	73,815	199.8	234.0	21.9%	368,714	140.3	165.0
Indiana	30.4%	63,018	167.7	189.1	32.8%	303,501	111.7	132.7
Iowa	19.5%	16,697	169.8	194.9	22.5%	86,622	114.3	137.0
Kansas	28.9%	19,681	179.7	209.9	31.4%	104,142	119.7	145.3
Kentucky	33.7%	35,123	174.0	196.9	35.2%	169,158	121.4	138.5
Louisiana	38.1%	37,960	190.8	225.4	38.6%	190,557	137.3	163.8
Maine	28.4%	9,448	208.8	232.6	28.5%	40,781	152.9	168.3
Maryland	39.1%	74,251	317.8	311.3	34.6%	301,041	229.6	225.5
Massachusetts	17.4%	32,510	327.9	335.0	16.5%	122,774	240.0	240.6
Michigan	19.2%	60,440	170.1	201.9	21.9%	303,552	114.1	140.7
Minnesota	18.8%	38,423	226.9	245.2	19.9%	183,924	156.9	178.8
Mississippi	46.9%	22,137	174.0	200.1	47.3%	117,282	121.1	146.1
Missouri	28.0%	53,916	177.1	206.7	30.9%	264,094	120.6	144.9
Montana	26.4%	8,692	248.7	253.4	24.9%	36,411	170.6	187.1
Nebraska	27.3%	13,942	192.9	201.1	29.0%	72,467	123.4	143.2
Nevada	36.3%	46,191	282.8	266.6	29.3%	140,750	194.3	202.8
New Hampshire	26.2%	11,100	263.2	260.4	25.3%	44,284	194.9	189.5
New Jersey	24.0%	54,317	281.0	310.9	23.7%	245,045	210.1	226.4
New Mexico	39.0%	18,324	207.3	220.7	39.0%	98,697	141.4	158.2
New York	22.2%	48,715	276.4	309.1	22.6%	327,883	186.5	220.9
North Carolina	31.9%	99,898	213.0	242.5	29.6%	432,940	142.3	174.2
North Dakota	23.0%	3,987	234.9	231.6	22.6%	16,818	167.1	171.8
Ohio	29.1%	83,520	167.1	187.9	31.6%	450,012	112.2	132.0
Oklahoma	42.4%	33,183	177.1	200.1	44.2%	196,718	119.7	144.6
Oregon	24.0%	36,947	293.1	294.4	19.9%	125,736	204.4	219.6
Pennsylvania	27.4%	70,994	190.1	230.1	29.3%	414,438	135.4	162.8
Rhode Island	30.9%	8,762	259.5	257.2	30.1%	36,880	192.0	190.4
South Carolina	37.6%	58,826	214.7	229.9	33.5%	231,823	148.6	168.1
South Dakota	27.6%	7,086	205.1	217.4	30.9%	30,884	143.6	158.8
Tennessee	34.9%	67,598	216.4	239.7	34.4%	296,084	140.8	174.3
Texas	33.7%	234,145	228.9	251.0	31.5%	1,091,068	146.4	183.7
Utah	21.2%	37,369	285.4	287.8	21.4%	121,411	198.2	224.4
Vermont	22.0%	2,624	213.6	230.0	19.2%	12,799	164.2	162.1
Virginia	39.8%	110,672	314.0	315.2	35.7%	450,977	216.8	225.1
Washington	26.0%	79,721	332.2	338.8	22.6%	267,645	224.8	246.7
West Virginia	46.6%	11,352	177.3	182.7	43.6%	56,220	126.0	130.6
Wisconsin	17.0%	30,324	192.6	209.7	17.7%	135,617	133.4	147.5
Wyoming	36.8%	6,614	239.2	247.2	35.5%	26,867	177.3	183.3

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

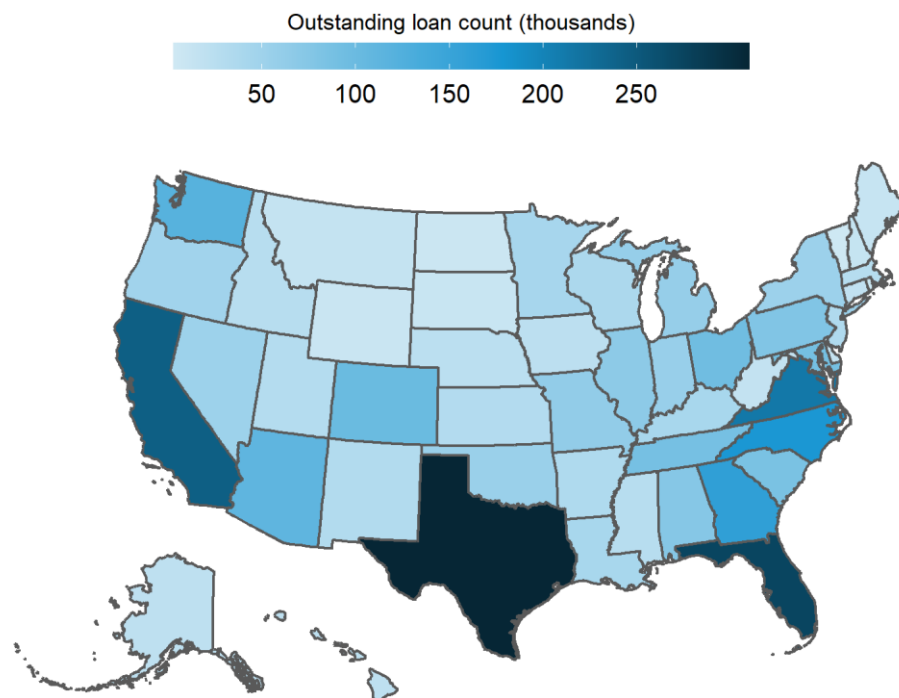
FHA and VA Outstanding Loan Count

Texas, Florida, and California are the top 3 states for FHA and VA lending as measured by the number of loans outstanding. As of August 2020, TX has 750,000 FHA and 310,000 VA loans outstanding, FL had 540,000 FHA and 270,000 VA loans outstanding, and CA had 510,000 FHA and 240,000 VA loans outstanding. Virginia ranks 4th for number of VA loans outstanding and 11th for number of FHA loans outstanding.

FHA Outstanding Loan Count by State



VA Outstanding Loan Count by State

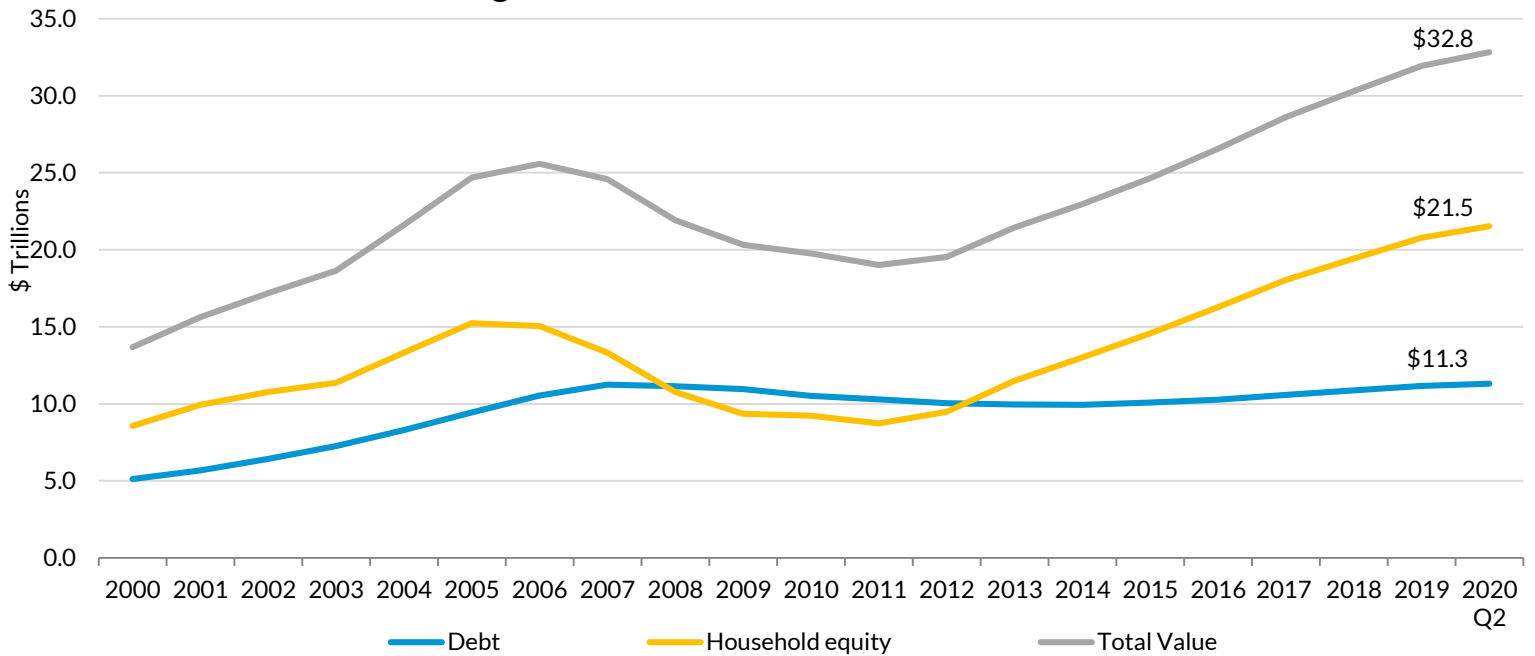


Sources: eMBS and Urban Institute. Note: Ginnie Mae outstanding share are based on loan balance as of August 2020.

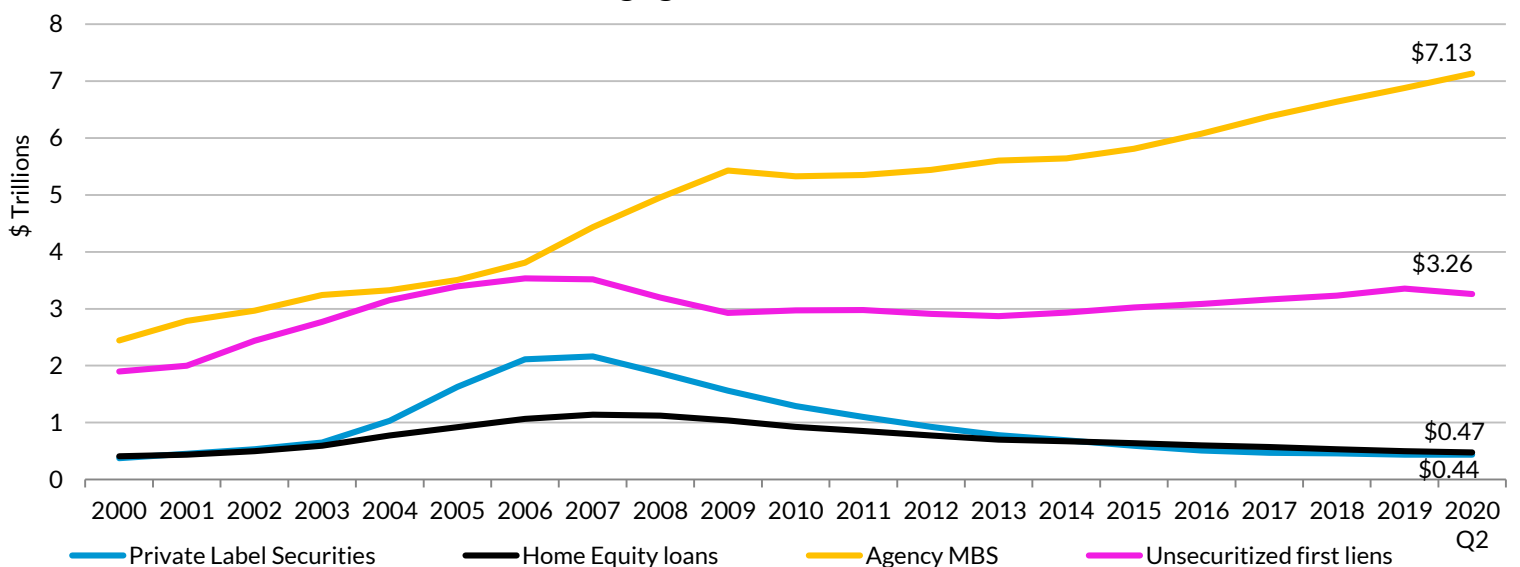
State of the US Housing Market

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 Q2 2020 numbers show that while mortgage debt outstanding remained steady at \$11.3 trillion, total home equity grew slightly from \$21.1 trillion in Q1 2020 to \$21.5 trillion in the second quarter of 2020, bringing the total value of the housing market to \$32.8 trillion, 28.4 percent higher than the pre-crisis peak in 2006. Agency MBS account for 63.1 percent of the total mortgage debt outstanding, private-label securities make up 3.9 percent, and unsecuritized first liens make up 28.8 percent. Home equity loans comprise the remaining 4.2 percent of the total.

Value of the US Housing Market



Size of the US Residential Mortgage Market



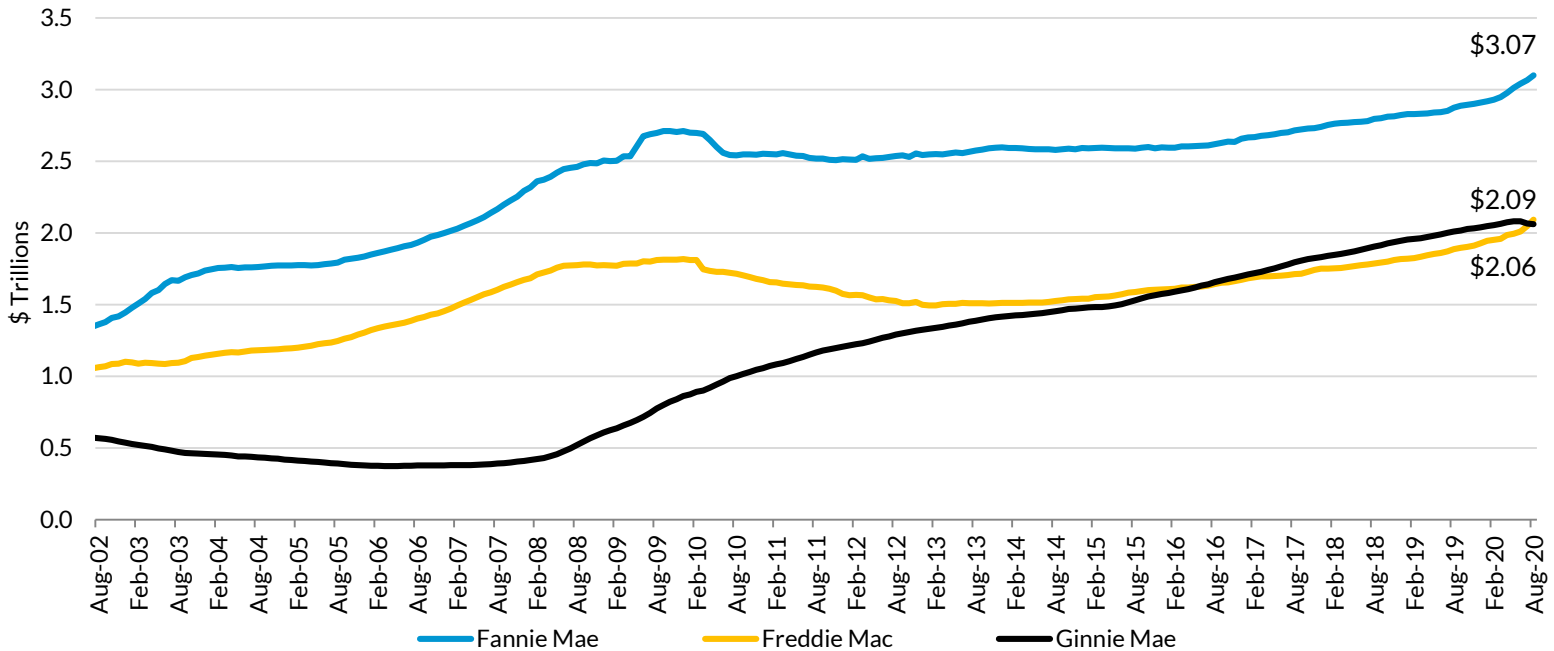
Sources: Federal Reserve Flow of Funds, eMBS and Urban Institute. Last updated September 2020.

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

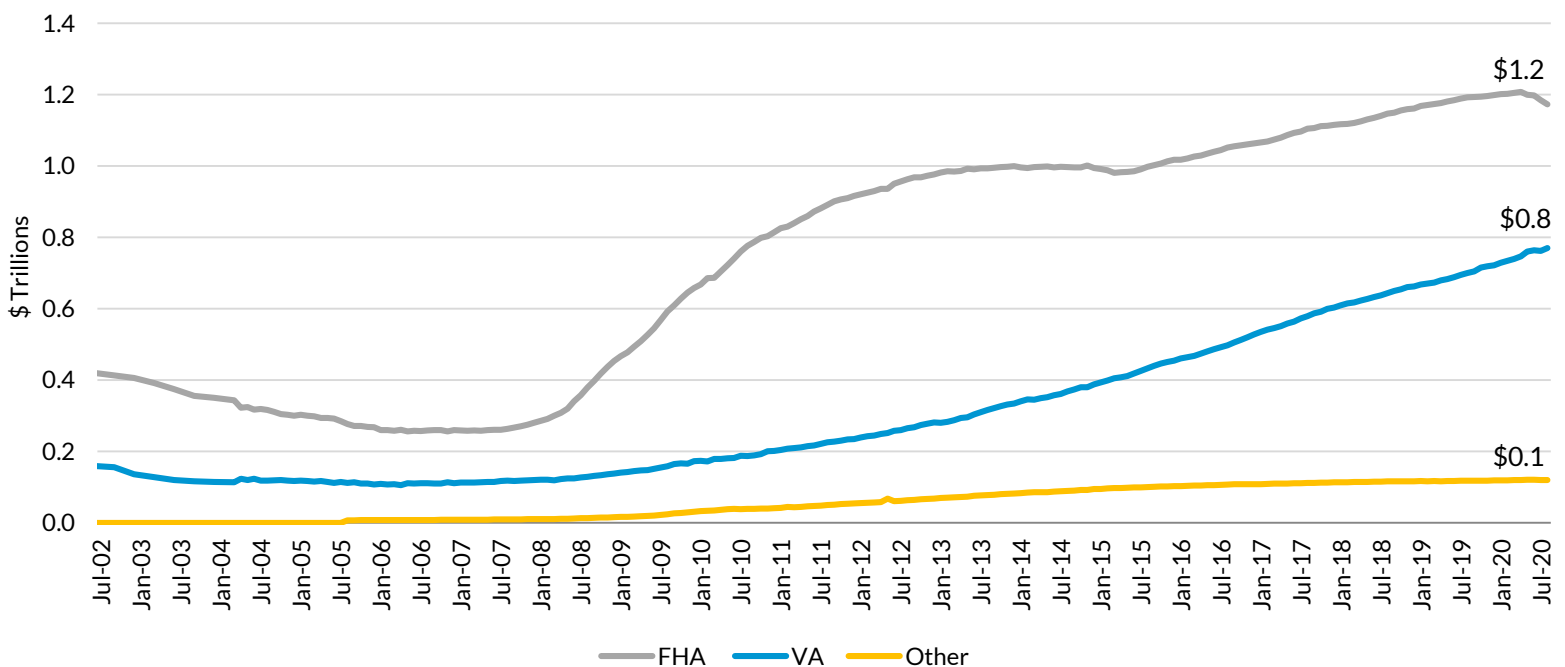
As of August 2020, outstanding securities in the agency market totaled \$7.25 trillion: 42.7 percent Fannie Mae, 28.8 percent Freddie Mac, and 28.4 percent Ginnie Mae MBS. Freddie's outstanding volume in August 2020 was greater than Ginnie Mae for the first time since June 2016. Within the Ginnie Mae market, both FHA and VA have grown very rapidly since 2009, although since May 2020, FHA has contracted. FHA comprises 56.9 percent of total Ginnie Mae MBS outstanding, while VA comprises 37.3 percent.

Outstanding Agency Mortgage-Backed Securities



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

Outstanding Ginnie Mae Mortgage-Backed Securities

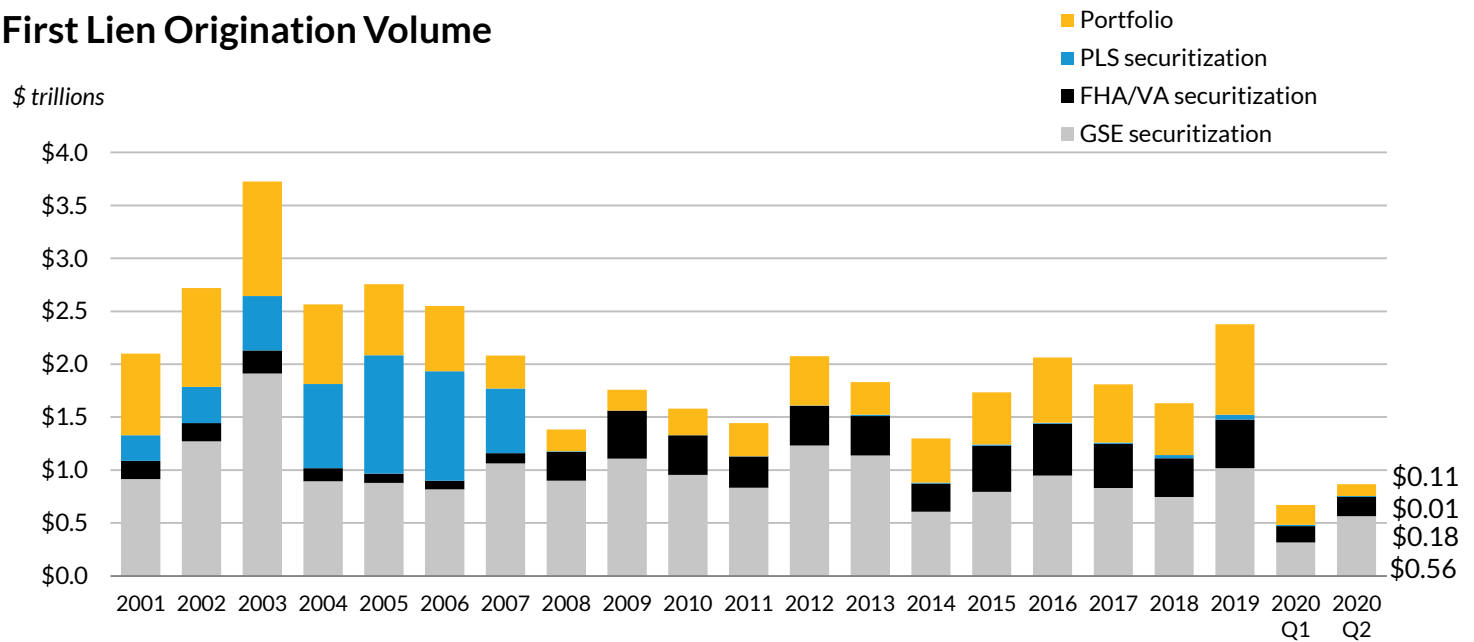


Sources: eMBS and Urban Institute. Note: Data as of August 2020.

State of the US Housing Market

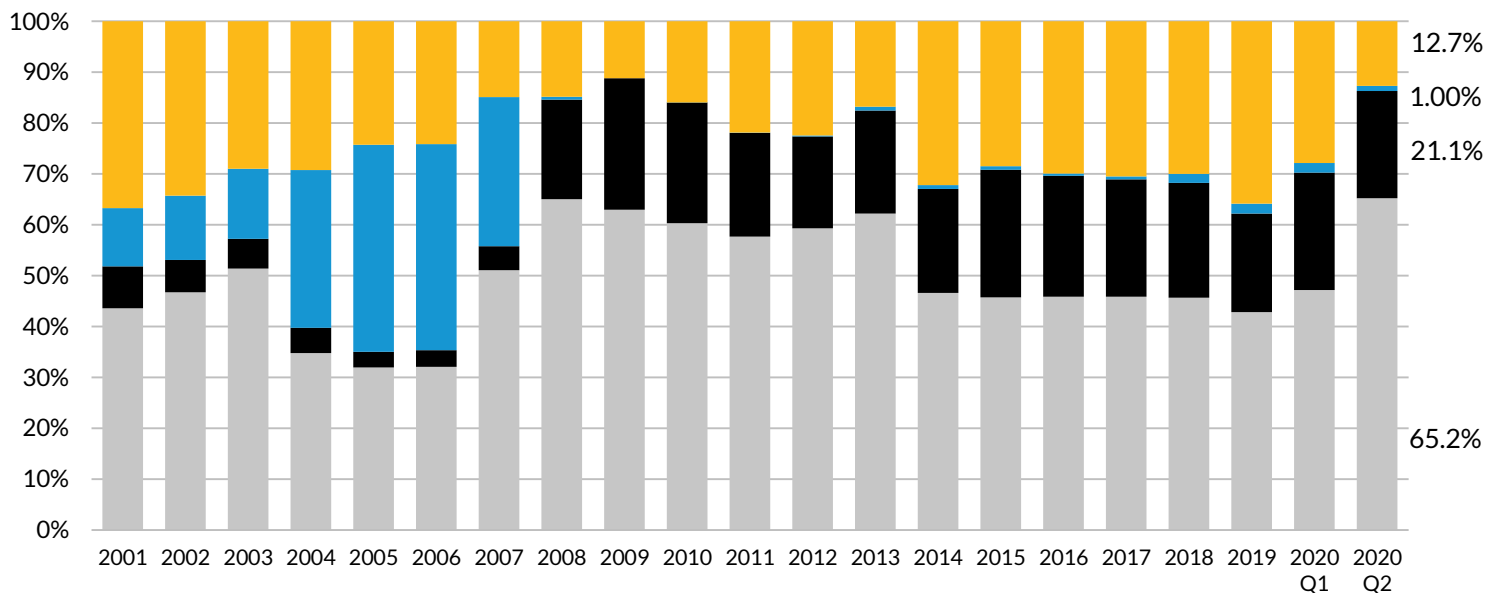
In the second quarter of 2020, first lien originations totaled \$865 billion, up from the Q2 2019 volume of \$565 billion. The share of portfolio originations was 12.7 percent in Q2 2020, a significant decline from the 42.1 percent share in the same period 2019. The Q2 2020 GSE share was up significantly 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 eight months of 2020 was \$1.85 trillion, greater than the 2019 full year volume of \$1.55 trillion. 2020 is well on track to 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 same period of 2019, agency gross issuance was up 111.0 percent. Ginnie Mae gross issuance was up by 65.1 percent and GSE gross issuance was up by 133.7 percent. Within the Ginnie Mae market, FHA was up by 31.9 percent and VA origination was up by 109.8 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	\$795.1	\$579.0	\$1,374.1	\$480.9	\$1,854.9
2020 % Change YOY	137.2%	129.1%	133.7%	65.1%	111.0%
2020 Ann.	\$1,192.6	\$868.5	\$2,061.1	\$721.3	\$2,782.4

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	\$211.6	\$254.5	\$14.8	\$480.9
2020 % Change YOY	31.9%	109.8%	57.0%	65.1%
2020 Ann.	\$317.4	\$381.7	\$22.2	\$721.3

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 August 2020.

US Agency Market, Originations

The first eight months of 2020 have been very robust for agency net issuance, with \$375.4 billion of net new supply, up 101.5 percent compared with the same period of 2019. 2020 YTD Ginnie Mae net issuance is \$22.0 billion, comprising 5.9 percent of total agency net issuance. This is down substantially from 2019 levels, reflecting a contraction in FHA securities outstanding.

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	\$189.7	\$163.8	\$353.5	\$22.0	\$375.4
2020 % Change YOY	274.2%	134.6%	193.3%	-66.6%	101.5%
2020 Ann.	\$284.5	\$245.7	\$530.2	\$32.9	\$563.2

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	-\$26.6	\$47.9	\$0.7	\$22.0
2020 % Change YOY	-191.6%	34.4%	-33.2%	-66.6%
2020 Ann.	-\$39.9	\$71.8	\$1.1	\$32.9

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 August 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 August 2020 gross agency issuance of \$324.8 billion was significantly higher than the same month in 2019, and the highest since we have tracked issuance, as lower rates gave borrowers a stronger incentive to refinance.

Monthly Agency Issuance

Date	Gross Issuance				Net Issuance			
	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
Jul-20	\$125.0	\$108.1	\$66.5	\$299.5	\$23.4	\$38.0	-\$15.5	\$45.9
Aug-20	\$137.6	\$113.6	\$73.6	\$324.8	\$34.2	\$43.4	-\$4.1	\$73.5

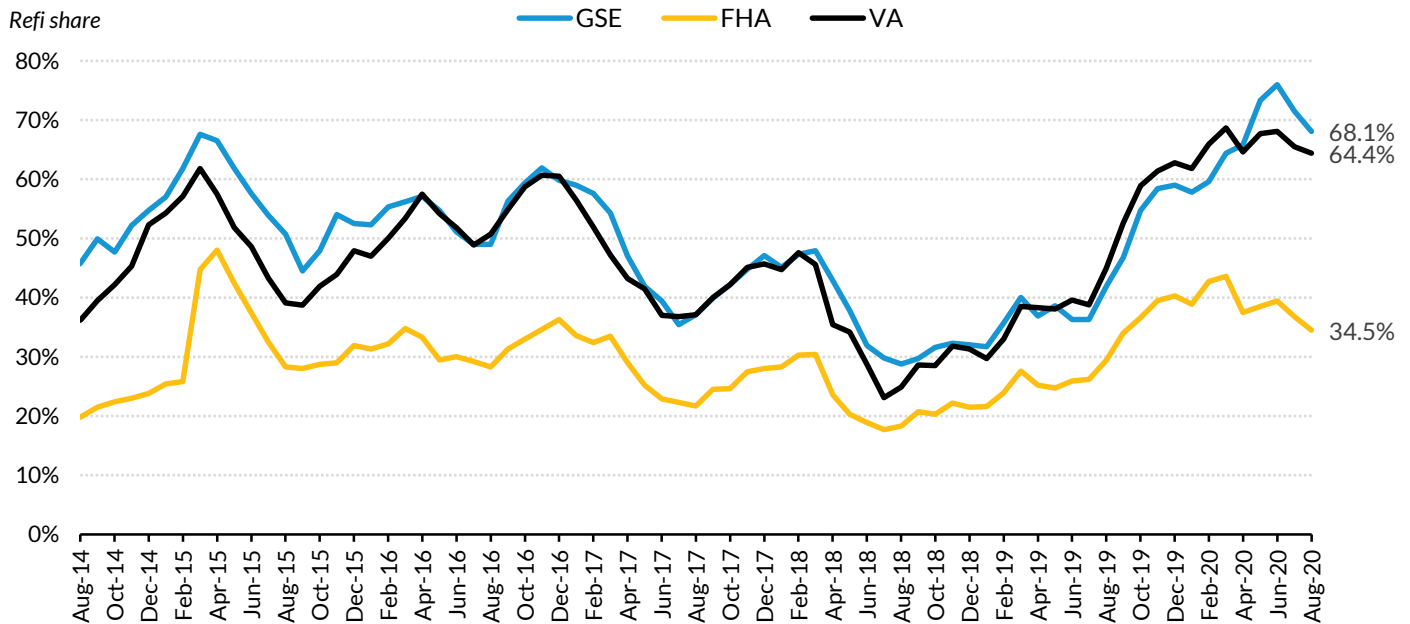
Sources: eMBS and Urban Institute.

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 August 2020.

US Agency Market, Originations

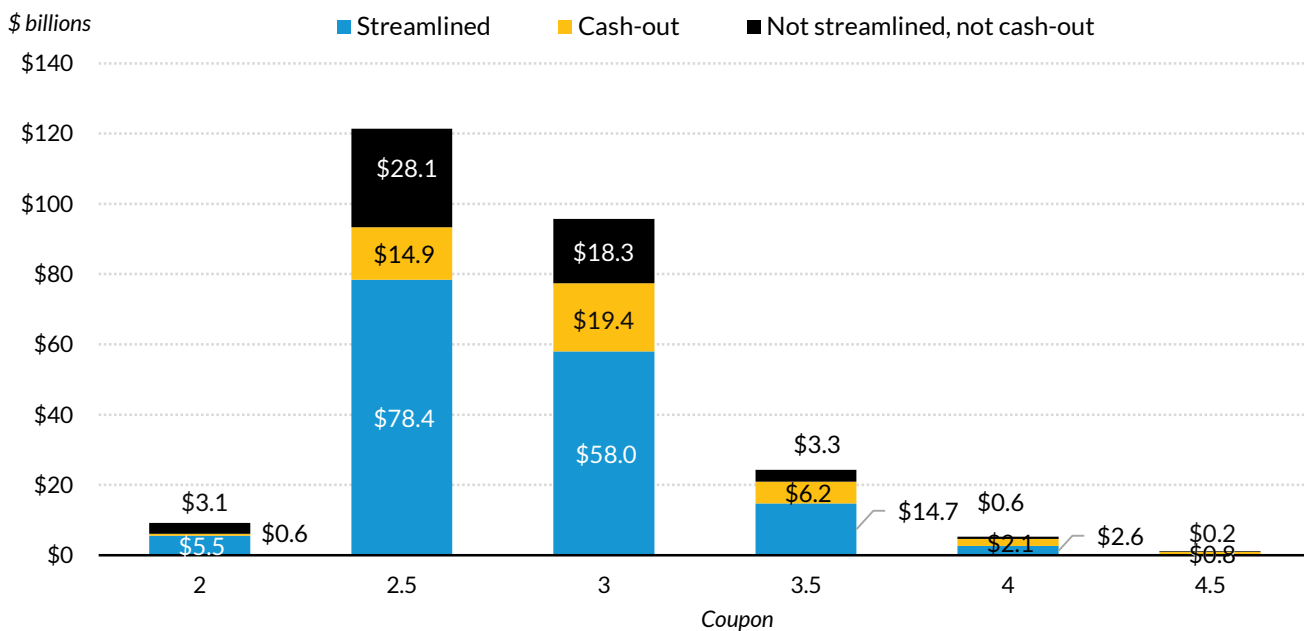
The FHA refinance share stood at 34.5 percent in August 2020, below the 68.1 percent refi share for GSE originations and the 64.4 percent share for the VA. Refinances as a share of all originations grew during 2019 and early 2020 as interest rates fell. Refinances have declined slightly from their peaks but remain at high levels, as interest rates have stabilized at generational lows. 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 “churning” problem.

Percent Refi at Issuance



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

Ginnie Mae Refinance Issuance by Type: 2020 YTD

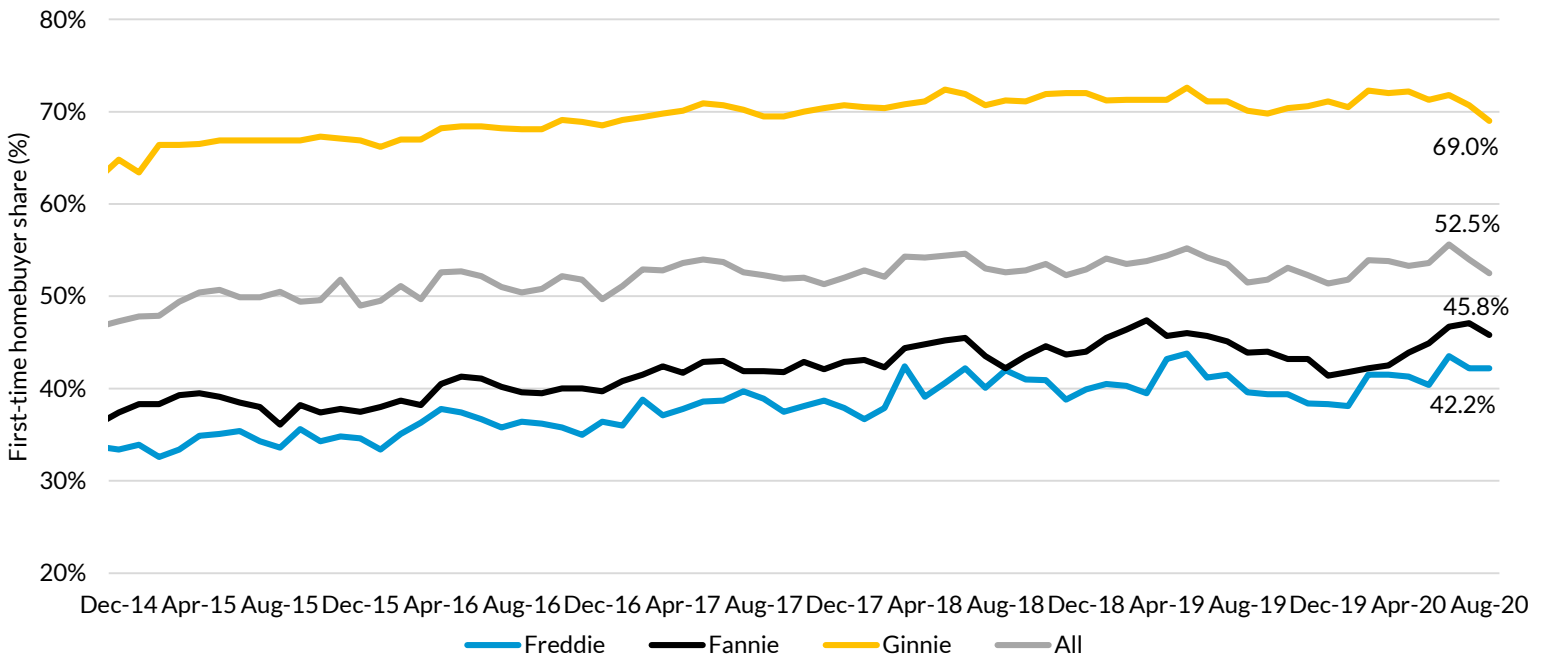


Sources: eMBS and Urban Institute. Note: Based on at-issuance balance. Data as of August 2020.

Credit Box

The first time homebuyer share of Ginnie Mae purchase loans was 69.0 percent in August 2020, down slightly from 70.1 percent in August 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 45.8 percent and 42.2 percent of Fannie Mae and Freddie Mac purchase originations, respectively. The bottom table shows that based on mortgages originated in August 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 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 August 2020.

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$)	286,104	310,270	270,066	297,680	240,707	298,029	260,885	302,015
Credit Score	748.6	759.4	747.1	757.6	690.1	709.1	722.5	745.6
LTV (%)	88.0	80.4	88.3	79.5	97.1	96.2	92.1	84.1
DTI (%)	34.1	35.1	34.4	35.6	41.2	41.6	37.3	37.0
Loan Rate (%)	3.2	3.1	3.2	3.1	3.3	3.2	3.2	3.2

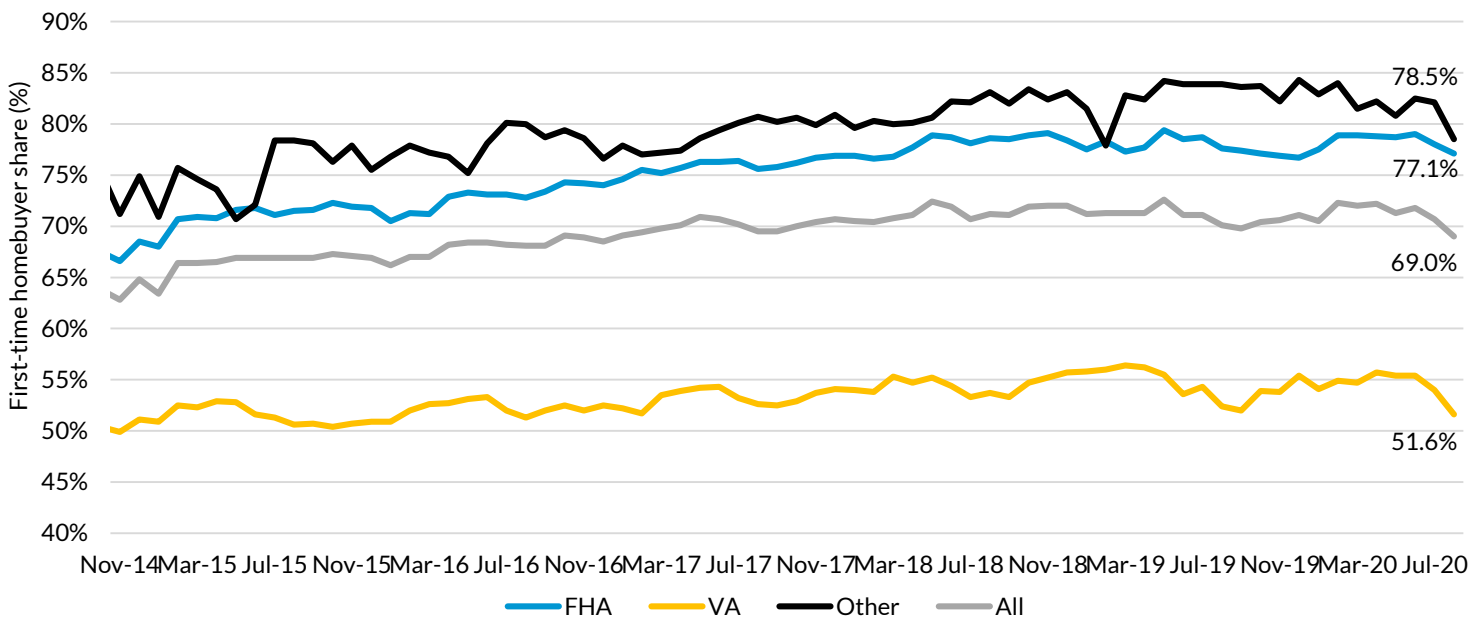
Sources: eMBS and Urban Institute.

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 August 2020.

Credit Box

Within the Ginnie Mae purchase market, 77.1 percent of FHA loans, 51.6 percent of VA loans and 78.5 percent of other loans represent financing for first-time home buyers in August 2020. The bottom table shows that based on mortgages originated in August 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 slightly higher rate.

First Time Homebuyer Share: Ginnie Mae Breakdown



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

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$)	230,464	249,919	297,398	353,782	172,867	180,730	240,707	298,029
Credit Score	679.2	680.2	714.5	734.6	701.0	701.3	690.1	709.1
LTV (%)	95.8	94.5	99.6	97.2	99.5	99.1	97.1	96.2
DTI (%)	42.7	43.6	39.5	40.7	35.1	35.1	41.2	41.6
Loan Rate (%)	3.4	3.3	3.1	3.0	3.2	3.4	3.3	3.2

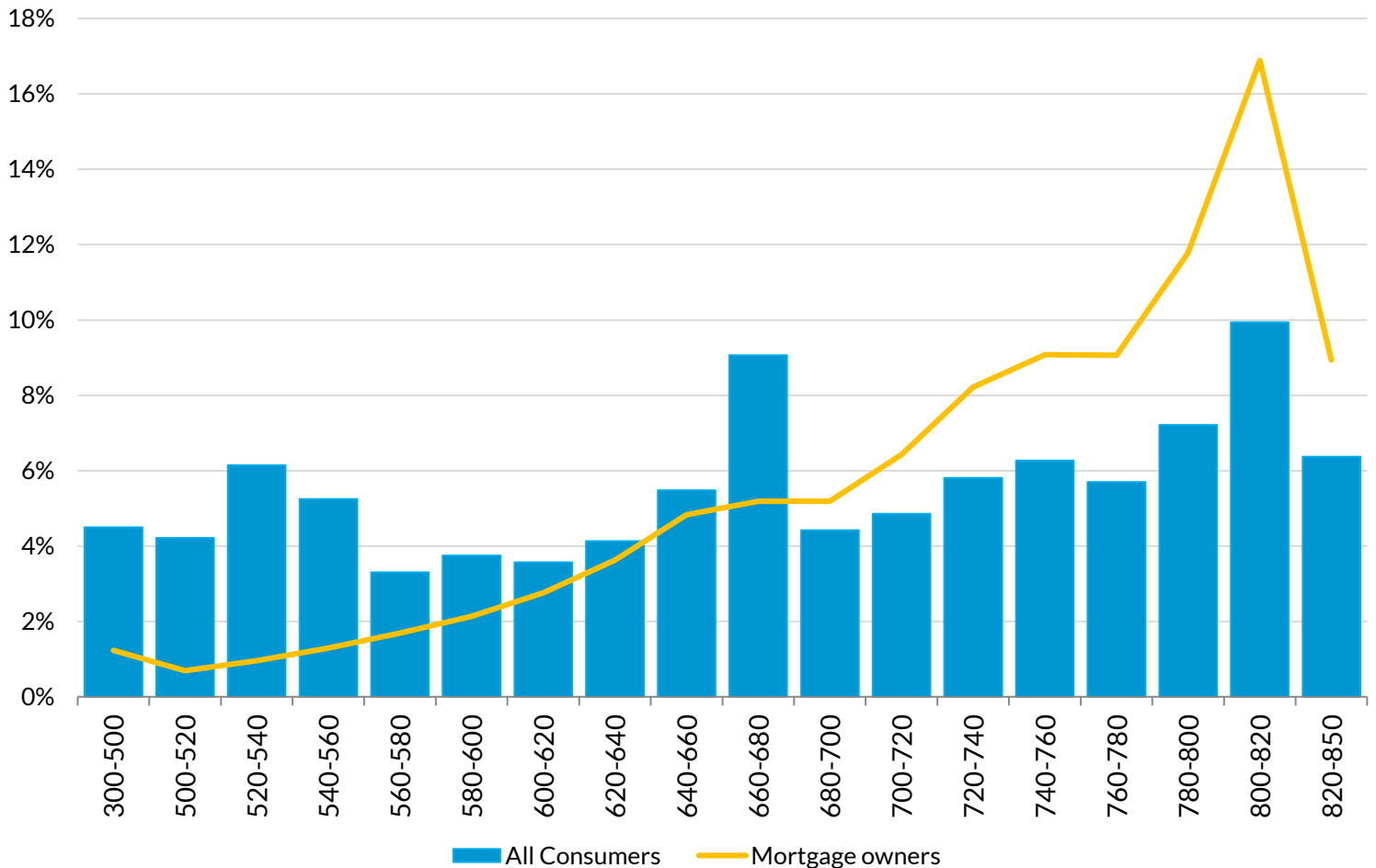
Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance 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 August 2020.

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.

August 2020 Credit Box at a Glance

In August 2020, the median Ginnie Mae FICO score was 697 versus 770 for Fannie Mae and 769 Freddie Mac. Note that the FICO score for the 10th percentile was 638 for Ginnie Mae, versus 700 for Fannie Mae and 697 for Freddie Mac. Within the Ginnie Mae market, FHA loans have a median FICO score of 673, VA loans have a median FICO score of 735 and other loans have a median FICO score of 698.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	419,918	657	714	743	782	800	735
Fannie	158,959	693	734	762	794	803	754
Freddie	120,976	694	727	764	790	803	756
Ginnie	139,983	635	656	687	733	777	696

Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	682,206	688	728	769	794	807	757
Fannie	327,452	703	740	774	796	808	764
Freddie	269,850	698	734	771	794	807	761
Ginnie	84,904	642	674	718	770	797	718

All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	1,102,124	673	714	760	790	804	749
Fannie	486,411	700	734	770	794	807	761
Freddie	390,826	697	732	769	793	806	759
Ginnie	224,887	638	661	697	750	788	704

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	139,983	635	656	687	733	777	696
FHA	81,532	629	648	673	705	742	679
VA	45,576	648	678	727	773	797	724
Other	12,875	646	665	696	734	767	701

Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	84,904	642	674	718	770	797	718
FHA	23,070	621	647	675	706	747	677
VA	60,819	657	693	741	781	802	734
Other	1,015	650	674	713	754	780	708

All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	224,887	638	661	697	750	788	704
FHA	104,602	628	648	673	705	743	679
VA	106,395	652	687	735	778	800	730
Other	13,890	646	665	698	735	769	702

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 August 2020.

August 2020 Credit Box at a Glance

In August 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 100.7 percent for Ginnie Mae and 95 percent for both Freddie and Fannie. Within the Ginnie Mae market, the median LTV was 96.5 for FHA, 96.6 for VA and 101.0 for other programs.

Purchase LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	420,468	73.0	80.0	95.0	96.5	100.0	87.7
Fannie	158,909	66.0	80.0	85.0	95.0	97.0	83.1
Freddie	121,015	66.0	80.0	85.0	95.0	95.0	83.1
Ginnie	140,544	94.8	96.5	96.5	100.0	101.0	96.8
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	718,075	45.0	58.0	70.0	80.0	91.3	68.8
Fannie	327,466	42.0	55.0	67.0	76.0	80.0	64.6
Freddie	269,859	44.0	56.0	69.0	77.0	83.0	65.5
Ginnie	120,750	70.6	81.5	91.0	97.2	99.9	87.7
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	1,138,543	50.0	64.0	79.0	93.4	96.6	75.8
Fannie	486,375	46.0	59.0	74.0	80.0	95.0	70.6
Freddie	390,874	47.0	60.0	74.0	80.0	95.0	71.0
Ginnie	261,294	79.6	90.0	96.5	99.0	100.7	92.6
Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	140,544	94.8	96.5	96.5	100.0	101.0	96.8
FHA	82,008	94.8	96.5	96.5	96.5	96.5	95.5
VA	45,617	93.0	100.0	100.0	100.0	102.3	98.5
Other	12,919	96.4	99.3	101.0	101.0	101.0	99.4
Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	120,750	70.6	81.5	91.0	97.2	99.9	87.7
FHA	40,683	76.8	82.9	92.7	96.7	98.0	89.0
VA	79,018	67.6	80.7	90.0	97.9	100.5	87.0
Other	1,049	75.1	87.6	96.6	100.1	101.3	92.0
All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	261,294	79.6	90.0	96.5	99.0	100.7	92.6
FHA	122,691	83.5	94.4	96.5	96.5	96.6	93.3
VA	124,635	73.1	85.3	96.6	100.0	102.3	91.2
Other	13,968	94.9	99.1	101.0	101.0	101.0	98.9

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 August 2020.

August 2020 Credit Box at a Glance

In August 2020, the median Ginnie Mae debt-to-income ratio (DTI) was 41.5 percent, considerably higher than the 34.0 percent median DTI for both Freddie Mac and Fannie Mae. The 90th percentile for Ginnie Mae was 53.3 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 43.7 percent, versus 39.4 percent for VA and 35.7 percent for other lending programs.

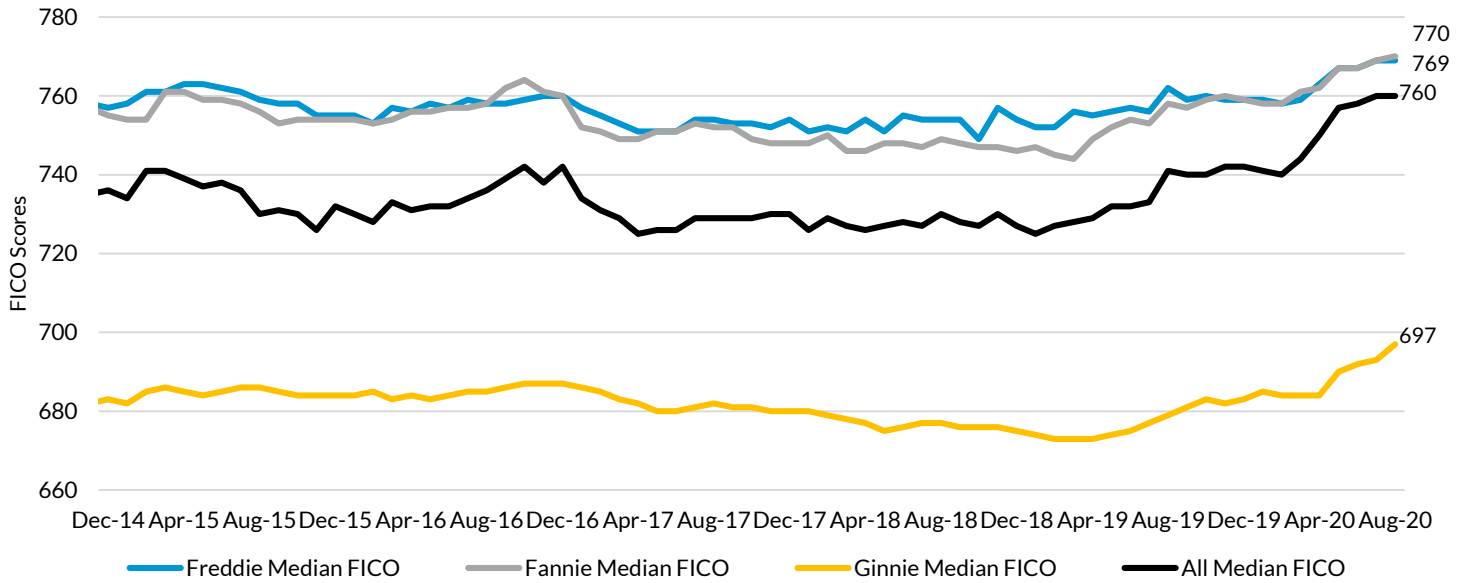
Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	420,063	23.0	30.0	38.0	44.0	49.0	36.9
Fannie	159,020	21.0	28.0	36.0	43.0	46.0	34.9
Freddie	121,014	21.0	28.0	36.0	42.0	46.0	34.5
Ginnie	140,029	28.3	35.0	42.0	48.3	53.5	41.3
Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	624,576	19.0	25.0	33.0	41.0	45.0	32.5
Fannie	327,408	19.0	25.0	32.0	40.0	45.0	32.2
Freddie	269,849	19.0	25.0	33.0	40.0	45.0	32.4
Ginnie	27,319	22.0	30.0	37.6	46.0	52.3	37.4
All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	1,044,639	20.0	27.0	35.0	42.0	47.0	34.3
Fannie	486,428	19.0	26.0	34.0	41.0	46.0	33.1
Freddie	390,863	20.0	26.0	34.0	41.0	45.0	33.0
Ginnie	167,348	27.2	34.1	41.5	48.0	53.3	40.7
Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	140,029	28.3	35.0	42.0	48.3	53.5	41.3
FHA	81,924	30.7	37.3	43.9	49.6	54.1	42.9
VA	45,224	26.2	33.0	40.6	47.5	53.2	40.1
Other	12,881	25.6	30.7	36.0	40.3	43.2	35.1
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	27,319	22.0	30.0	37.6	46.0	52.3	37.4
FHA	11,924	26.3	33.1	41.5	48.6	53.6	40.5
VA	14,720	20.3	27.8	35.0	43.5	50.3	35.4
Other	675	12.8	19.0	28.3	34.9	40.9	27.7
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	167,348	27.2	34.1	41.5	48.0	53.3	40.7
FHA	93,848	30.1	36.8	43.7	49.5	54.0	42.6
VA	59,944	24.5	31.8	39.4	46.7	52.6	38.9
Other	13,556	24.8	30.2	35.7	40.2	43.1	34.7

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. Data as of August 2020.

Credit Box: Historical

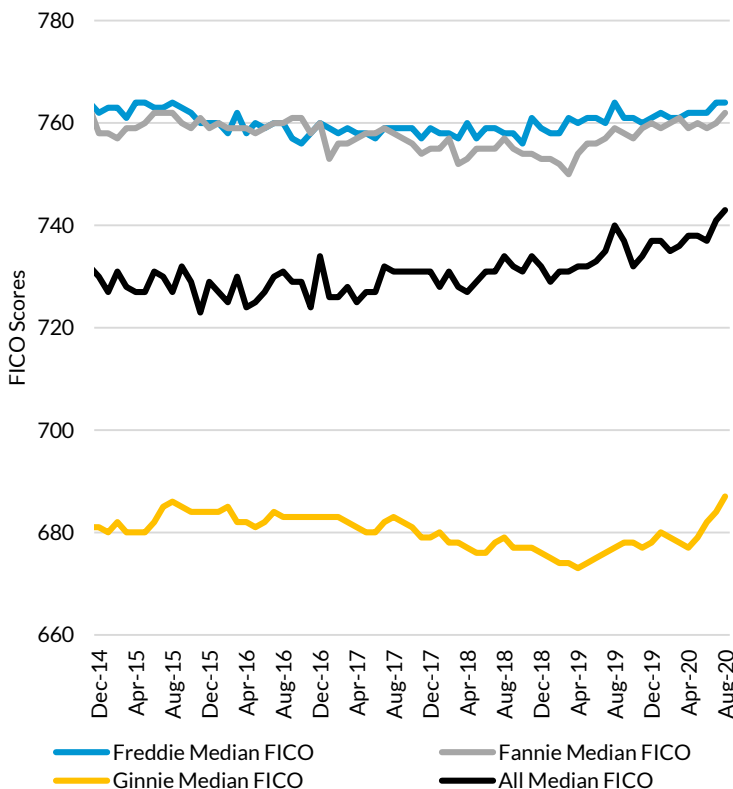
The median FICO score for all agency loans originated in August 2020 was 760, up considerably since the start of last year, owing to the refinance wave, which higher FICO borrowers take advantage of with greater frequency. In addition, the increases in refinance activity have been much more dramatic 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.

FICO Scores for All Loans



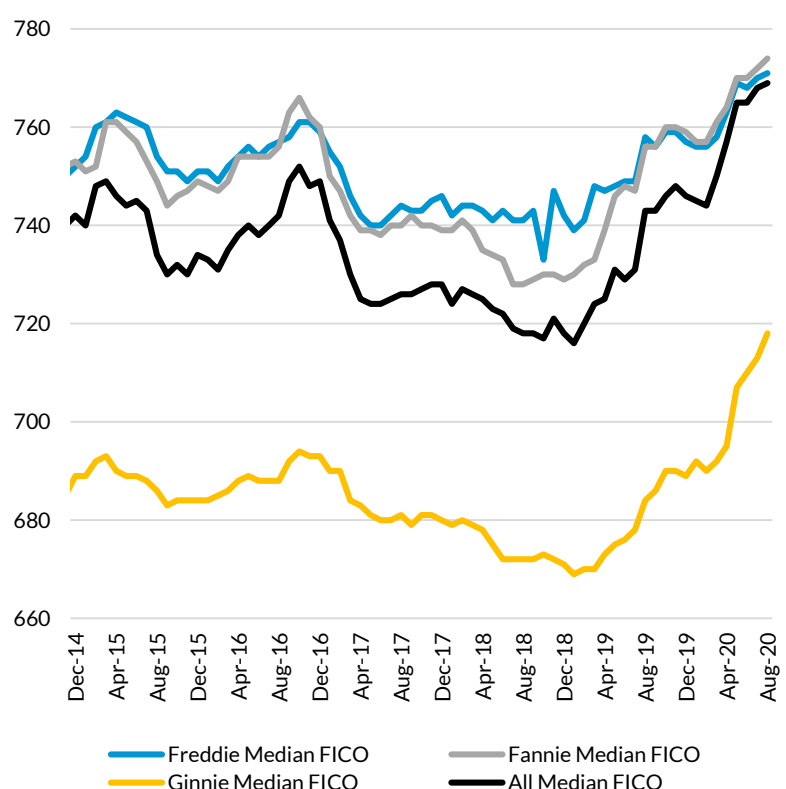
Sources: eMBS and Urban Institute. Note: Data as of August 2020.

FICO Scores for Purchase Loans



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

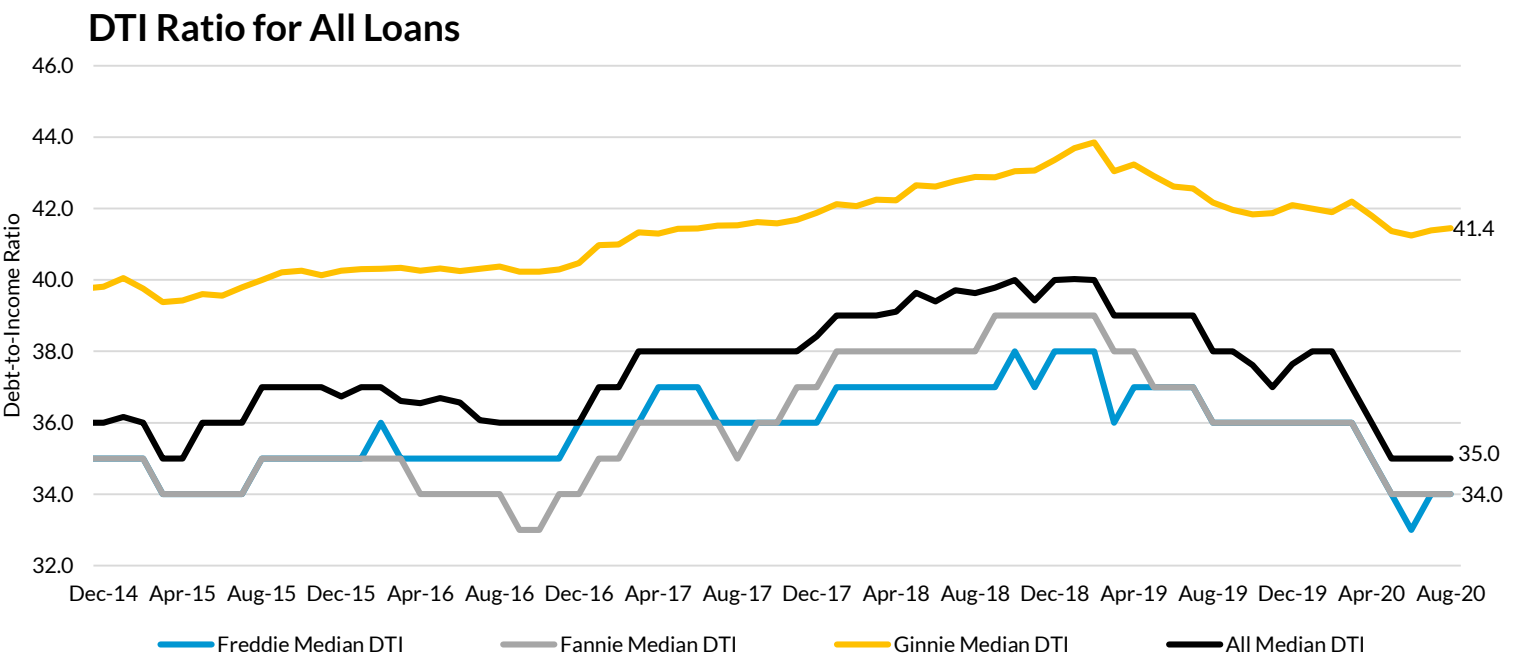
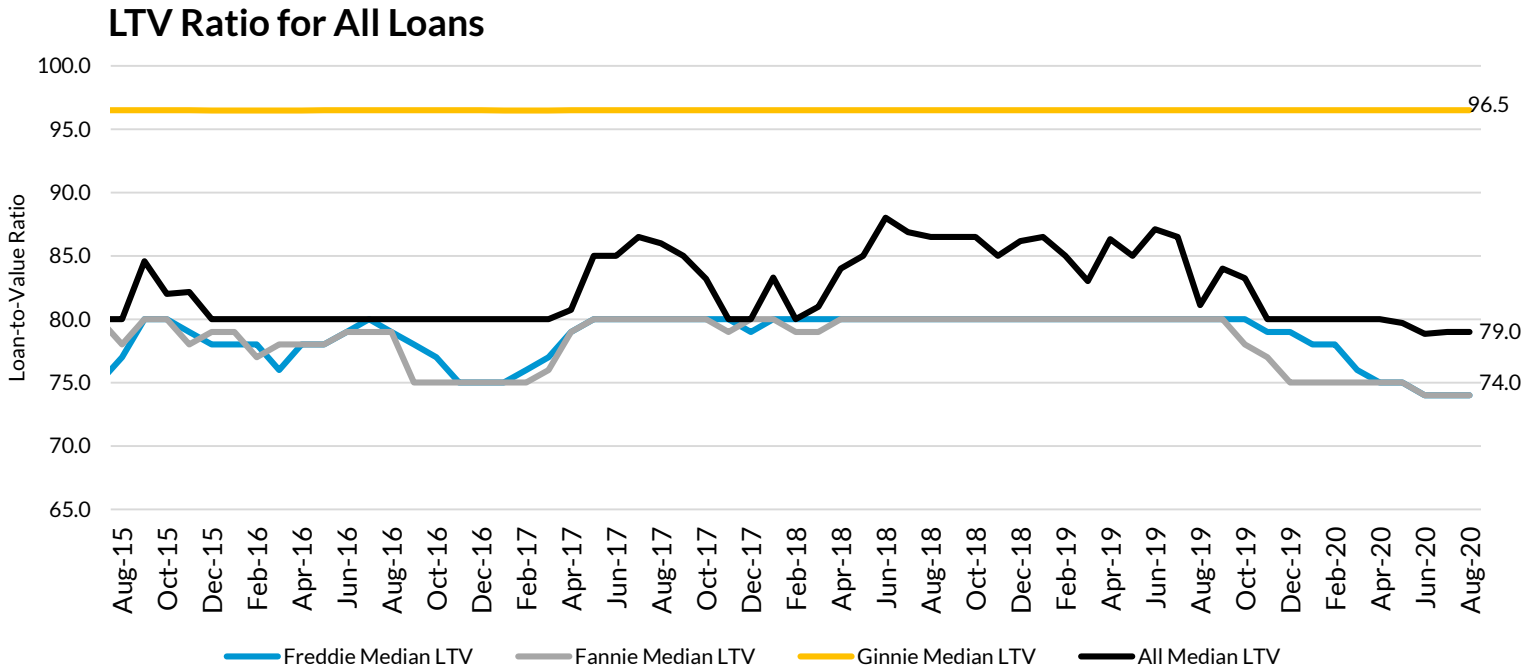
FICO Scores for Refinance Loans



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

Credit Box: Historical

Median LTVs for Ginnie Mae loans have historically been at 96.5 percent, much higher than the 74–80 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.

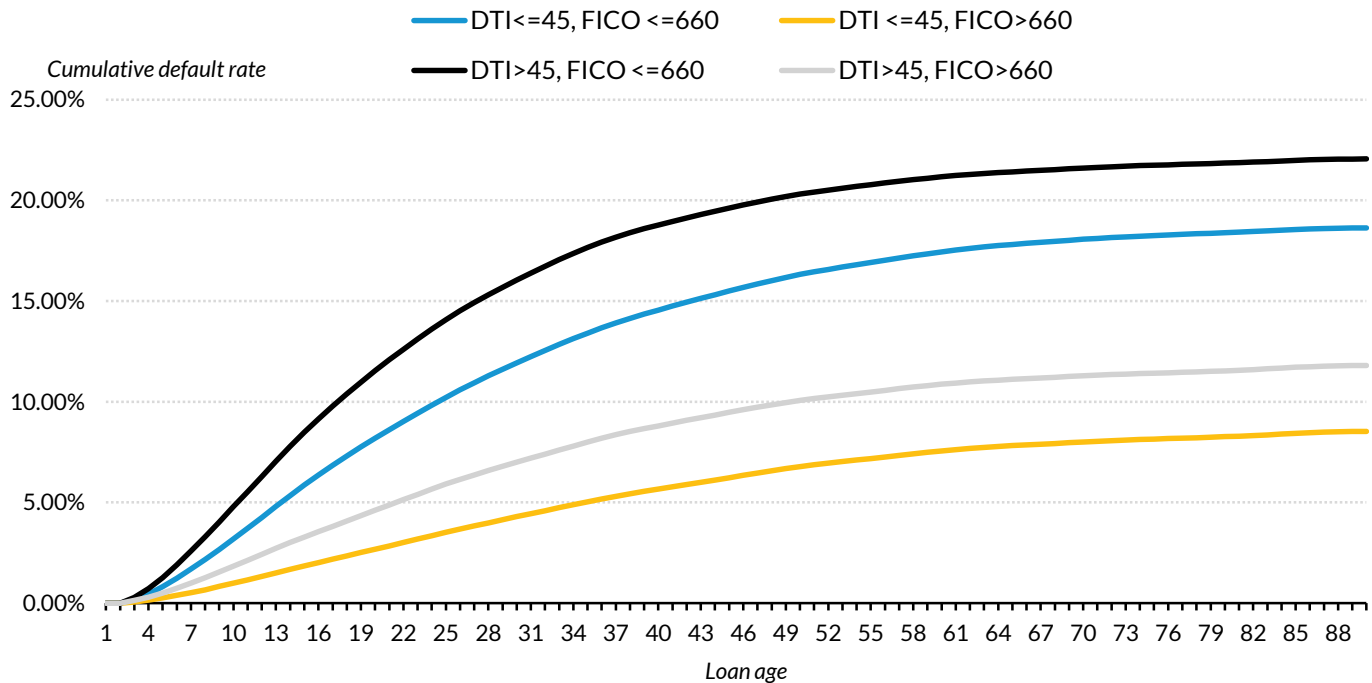


Sources: eMBS and Urban Institute. Note: In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting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

Credit Box: Historical

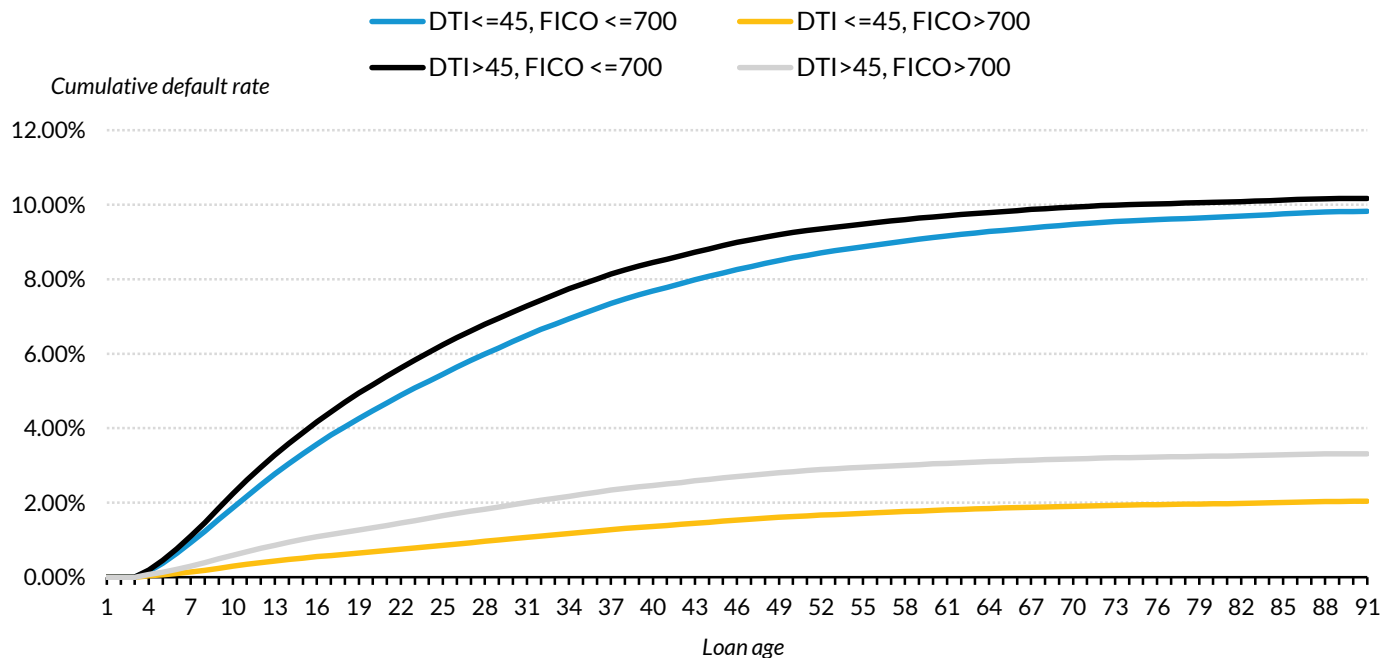
DTI is a much weaker predictor of performance than FICO score. The top chart shows FHA borrowers with higher DTIs do default more than those with lower DTIs, but the differences are modest, as evidenced by the fact that the black line is very close to the blue line and the grey line is not that much 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 August 2020.

VA Cumulative Default Rate by DTI and FICO



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

Credit Box: Historical

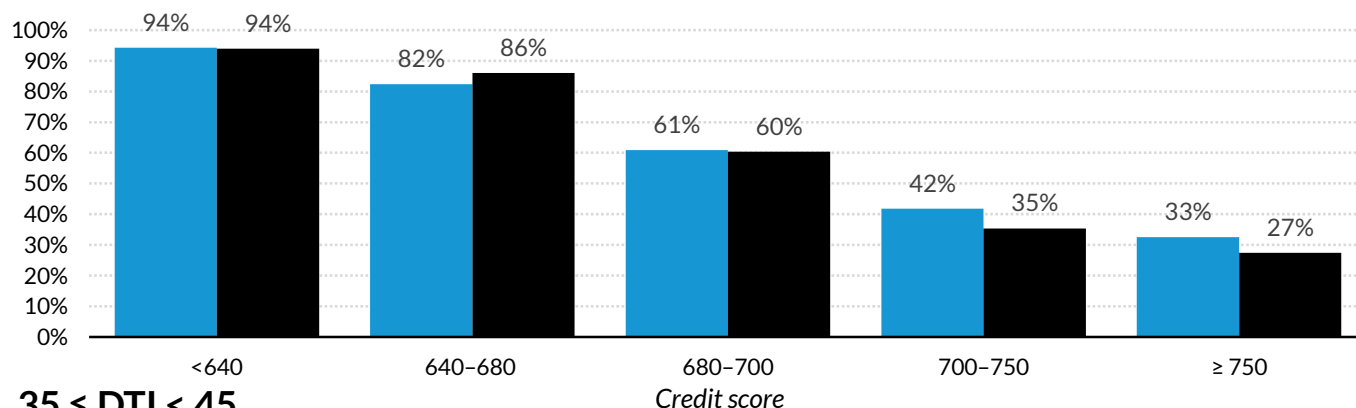
This table shows Ginnie Mae's share of agency high-LTV lending by DTI and FICO. In each DTI bucket, Ginnie Mae's share is more concentrated in lower FICO scores than in higher FICO scores. In June 2020- September 2020, Ginnie Mae accounted for 94 percent of agency issuance for DTIs under 35 and FICOs below 640, compared to just 27 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 June 2020- September 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 89 percent; it was between 60-61 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 FICO's of 700 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

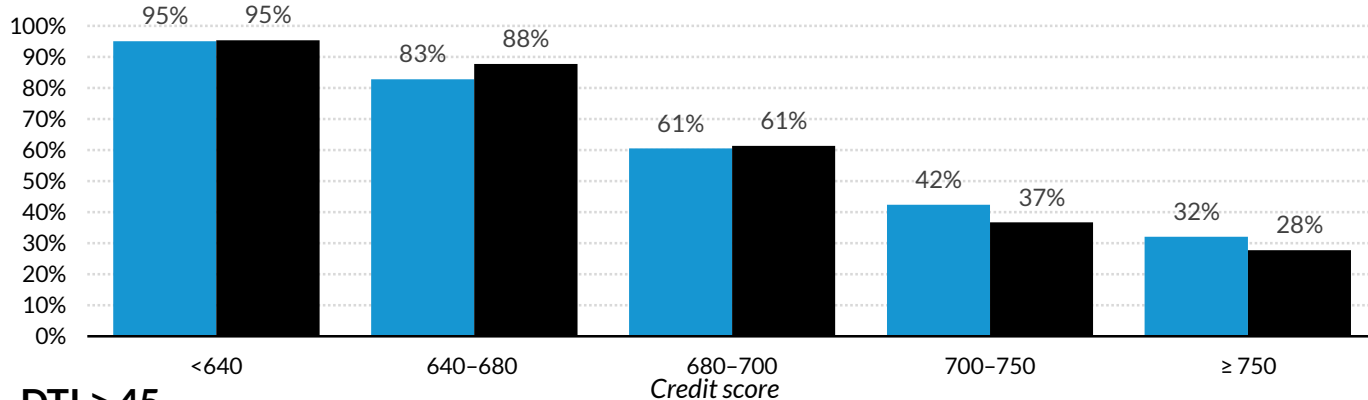
DTI < 35

■ June 2018- September 2018

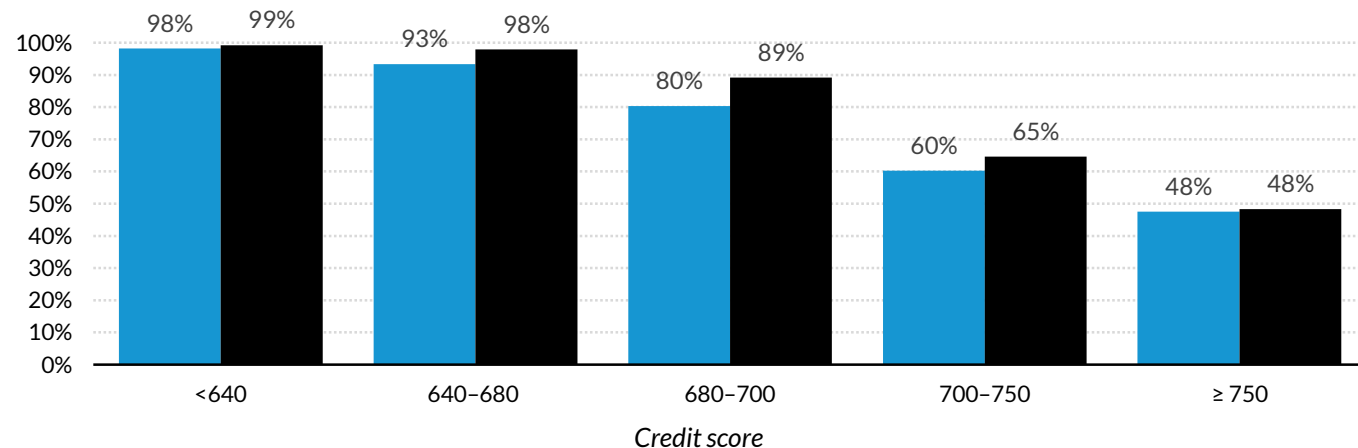
■ June 2020- September 2020



35 ≤ DTI < 45



DTI ≥ 45



Sources: eMBS and Urban Institute.

High LTV Loans: Ginnie Mae vs. GSEs

Ginnie Mae dominates high-LTV lending, with 73.6 percent of its issuances in the June 2020- September 2020 period having LTVs of 95 or above, compared to 10.7 percent for the GSEs. The GSEs have decreased their high-LTV lending share from 22.1 percent in June 2018- September 2018. Ginnie Mae's high-LTV lending has grown over the same period from 73.0 percent. The share of high-LTV agency loans going to highest FICO borrowers (i.e. above 750) has increased from the June 2018-September 2018 period to the June 2020-September 2020 period, as has the share of lower DTI borrowers (below 35).

Share of Loans with LTV ≥ 95

	Ginnie Mae	GSE	All
June 2018- September 2018	73.0%	22.1%	39.1%
June 2020- September 2020	73.6%	10.7%	20.6%

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

June 2018-September 2018

DTI	FICO					All
	<640	640-680	680-700	700-750	≥ 750	
< 35	2.8%	4.7%	2.6%	6.9%	8.9%	25.9%
35 -45	5.4%	9.0%	4.8%	11.2%	9.9%	40.2%
≥ 45	4.8%	8.9%	4.3%	9.2%	6.6%	33.9%
All	13.0%	22.6%	11.7%	27.2%	25.5%	100.0%

June 2020-September 2020

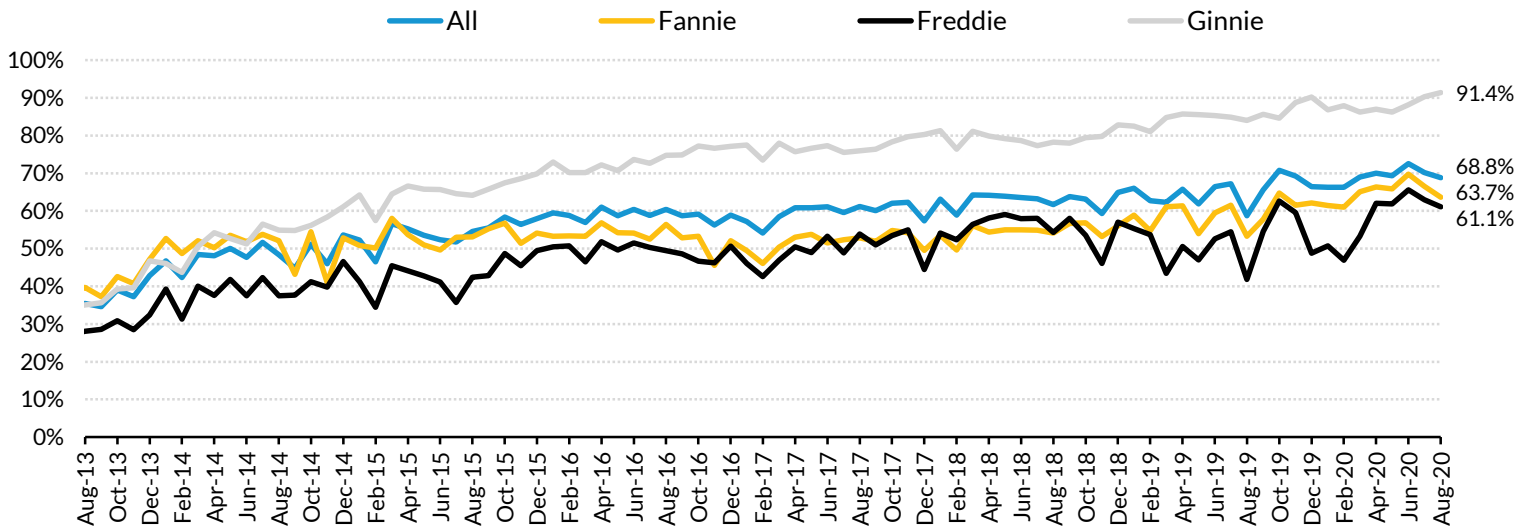
DTI	FICO					All
	<640	640-680	680-700	700-750	≥ 750	
< 35	1.7%	4.7%	2.9%	8.8%	13.0%	31.0%
35 -45	3.0%	8.7%	5.0%	13.1%	12.6%	42.4%
≥ 45	2.4%	7.1%	3.5%	7.6%	6.0%	26.6%
All	7.1%	20.5%	11.4%	29.5%	31.6%	100.0%

Sources: eMBS and Urban Institute.

Nonbank Originators

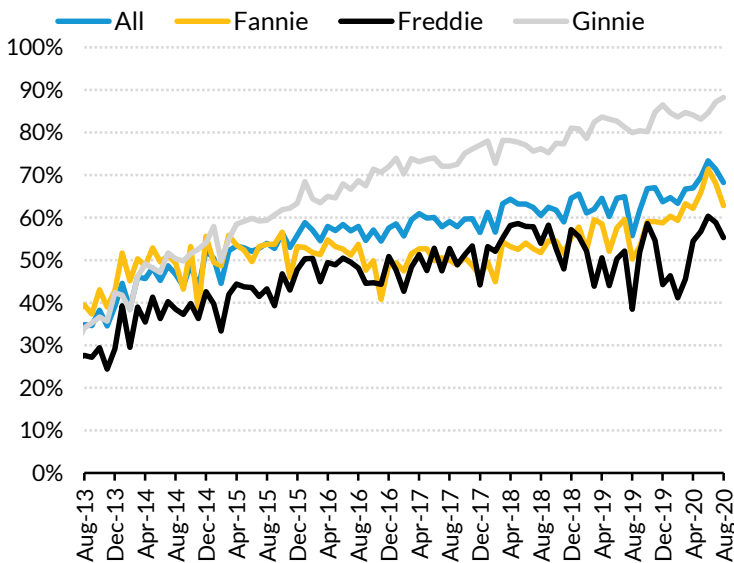
The nonbank origination share has been rising steadily for all three agencies since 2013. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at 91.4 percent in August 2020, a new record high. Freddie's nonbank share fell to 61.1 percent, while Fannie's nonbank share fell to 63.7 percent in August (note that these numbers can be volatile on a month-to-month basis). Ginnie Mae and Freddie Mac have higher nonbank origination shares for refi activity than for purchase activity; Fannie Mae has a higher share 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

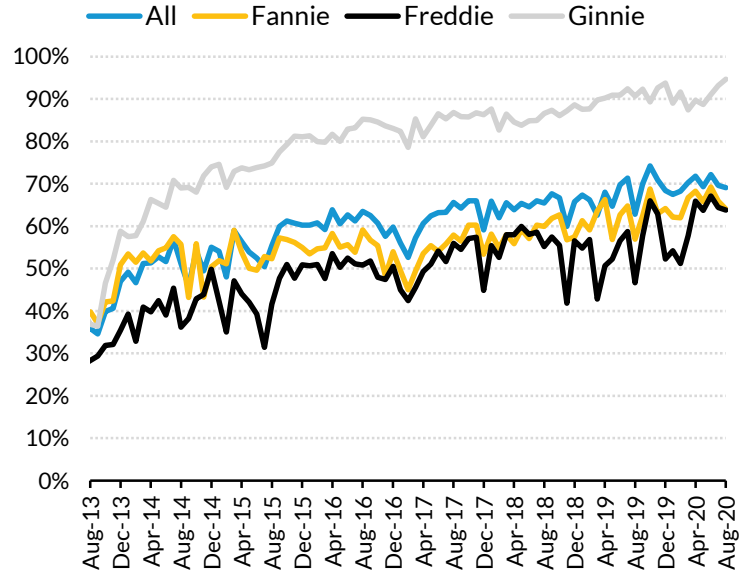


Sources: eMBS and Urban Institute
 Note: Data as of August 2020.

Nonbank Origination Share: Purchase Loans



Nonbank Origination Share: Refinance Loans

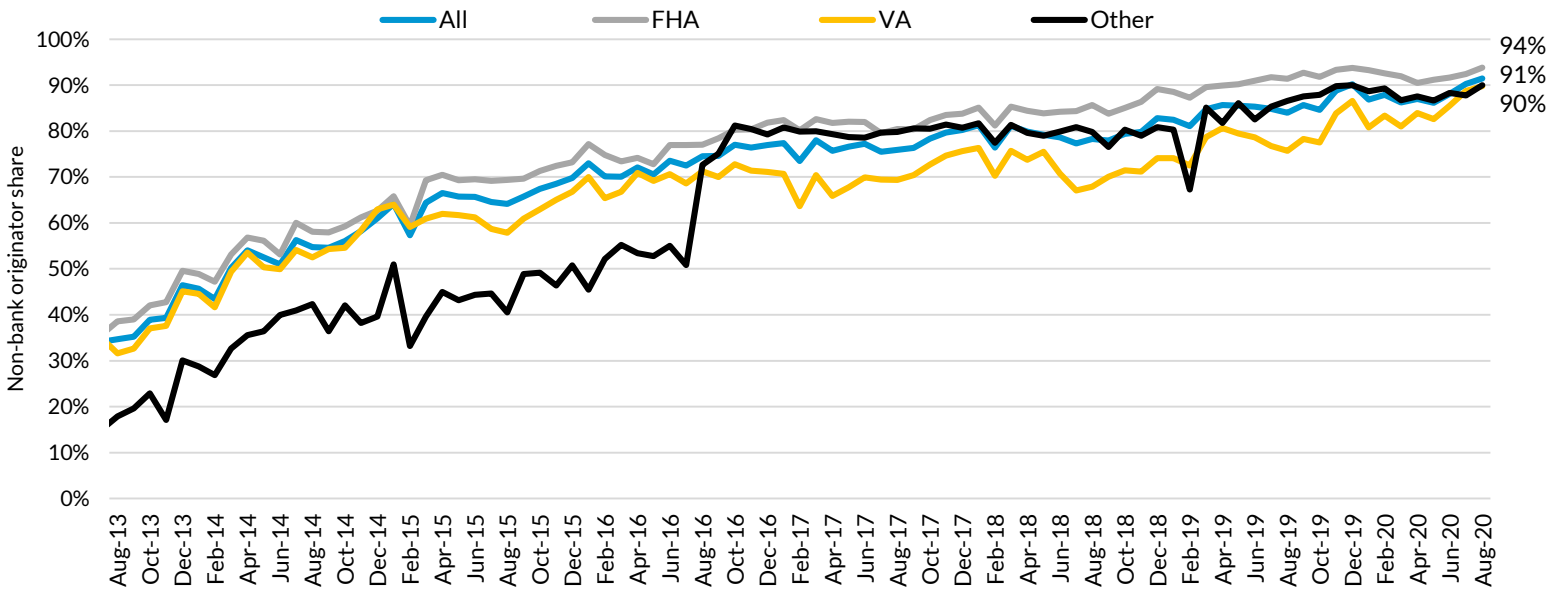


Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of August 2020.

Ginnie Mae Nonbank Originators

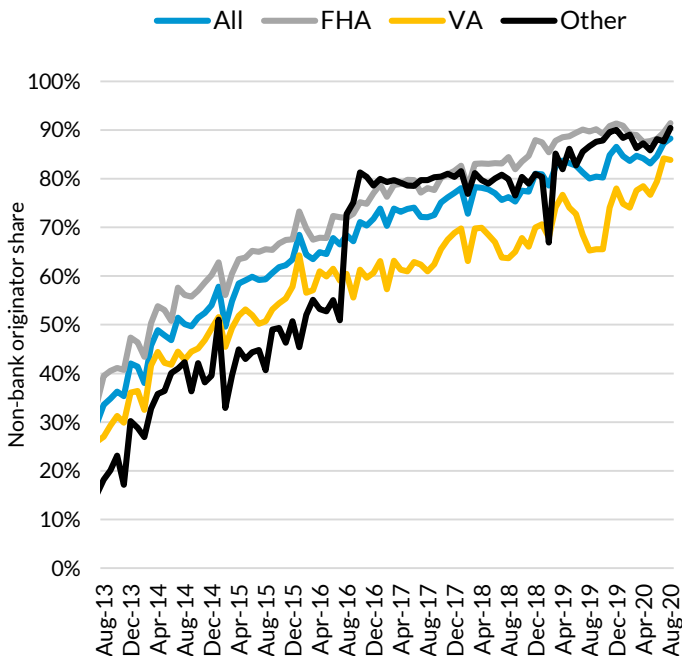
In August 2020, Ginnie Mae's nonbank share rose to 91.4 percent. The nonbank originator share for FHA grew slightly to 93.8 percent in August, compared to 92.4 percent the previous month. The nonbank originator share for VA was higher than last month at 89.8 percent and the nonbank originator share for other loans, which can fluctuate quite a bit month to month, rose to 89.9 percent.

Ginnie Mae Nonbank Originator Share: All Loans

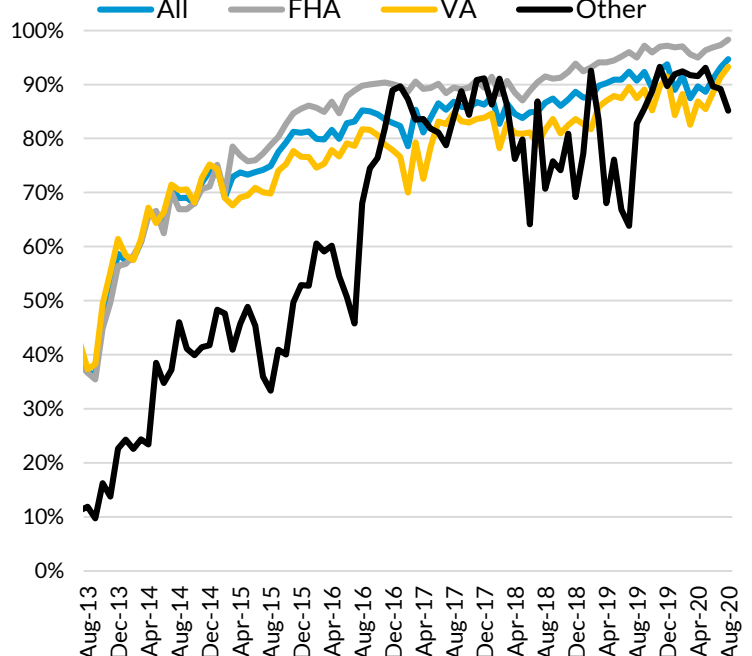


Sources: eMBS and Urban Institute
 Note: Data as of August 2020.

Ginnie Mae Nonbank Share: Purchase Loans



Ginnie Mae Nonbank Share: Refinance Loans

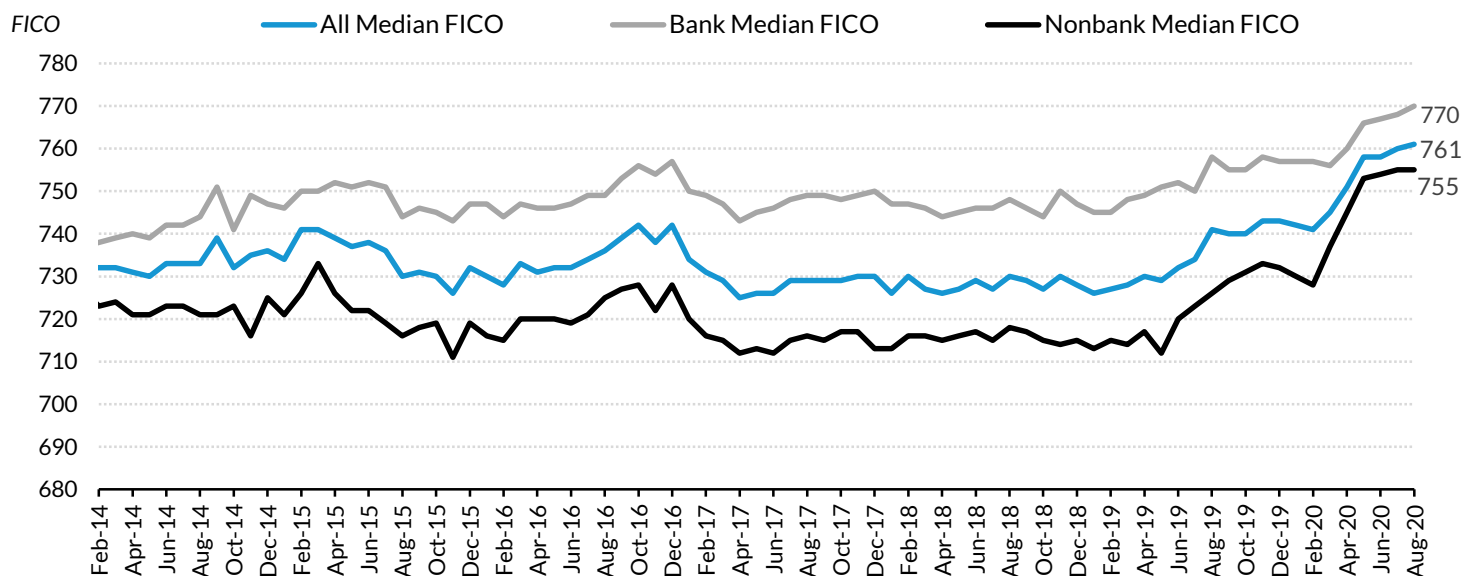


Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of August 2020.

Nonbank Credit Box

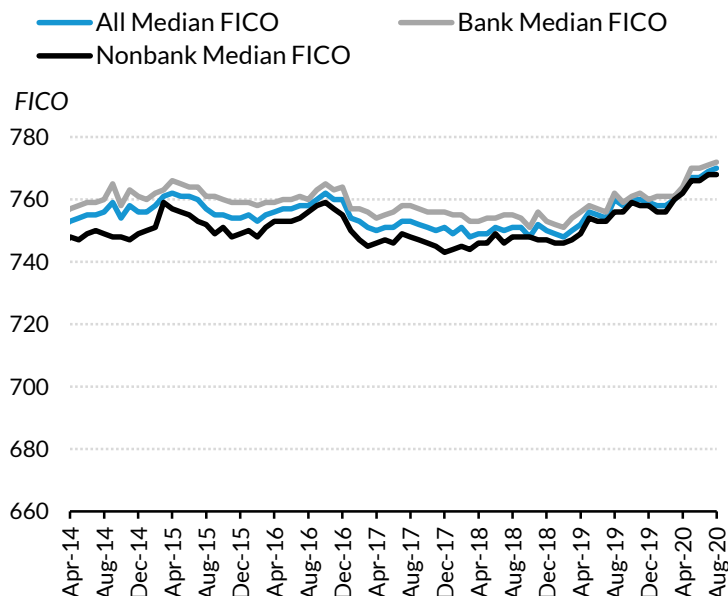
Nonbank originators have played a key role in opening up access to credit. FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, where the differentials between banks and non-banks are small, FICO scores for both have increased since early 2014. The 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 are up somewhat less. This reflects both the sharp cut-back in FHA lending by many banks, and increased refi activity for higher FICO borrowers.

Agency FICO: Bank vs. Nonbank



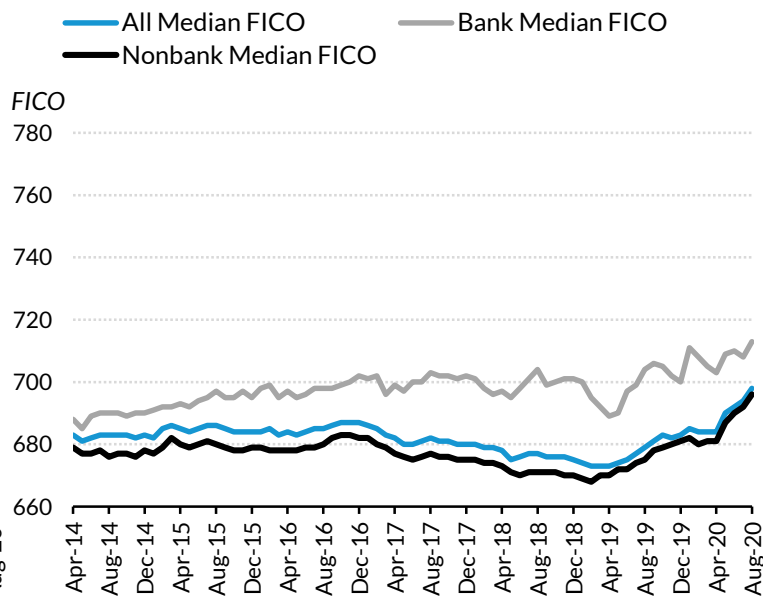
Sources: eMBS and Urban Institute. Note: Data as of August 2020.

GSE FICO: Bank vs. Nonbank



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

Ginnie Mae FICO: Bank vs. Nonbank

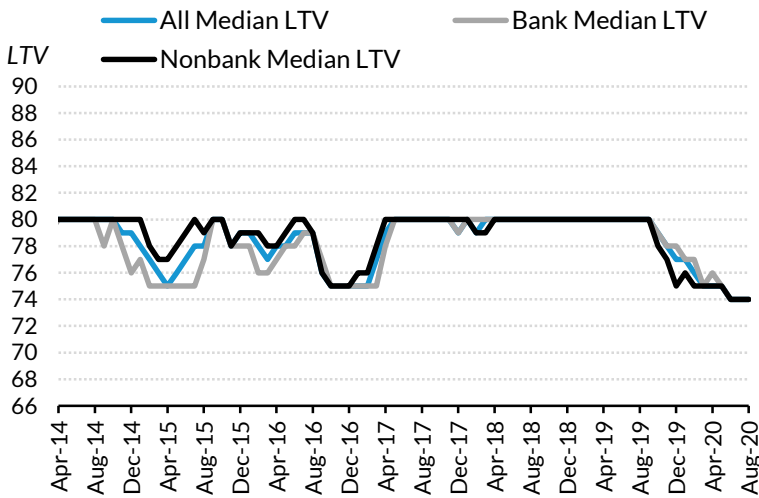


Sources: eMBS and Urban Institute. Note: Data as of August 2020.

Nonbank Credit Box

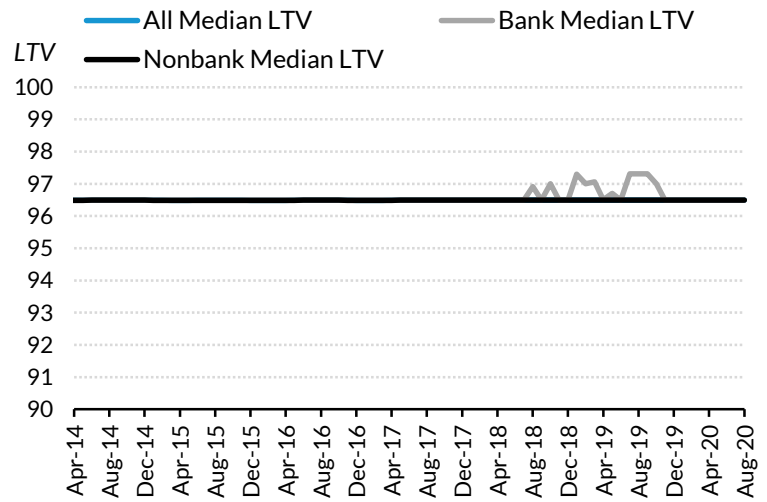
The median LTVs for nonbank and bank originations are comparable, while the median DTI for nonbank loans is higher than for bank loans, indicating that nonbanks are more accommodating in both this and the FICO dimension. Between early 2017 and early 2019, there was a substantial increase in DTIs; over 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



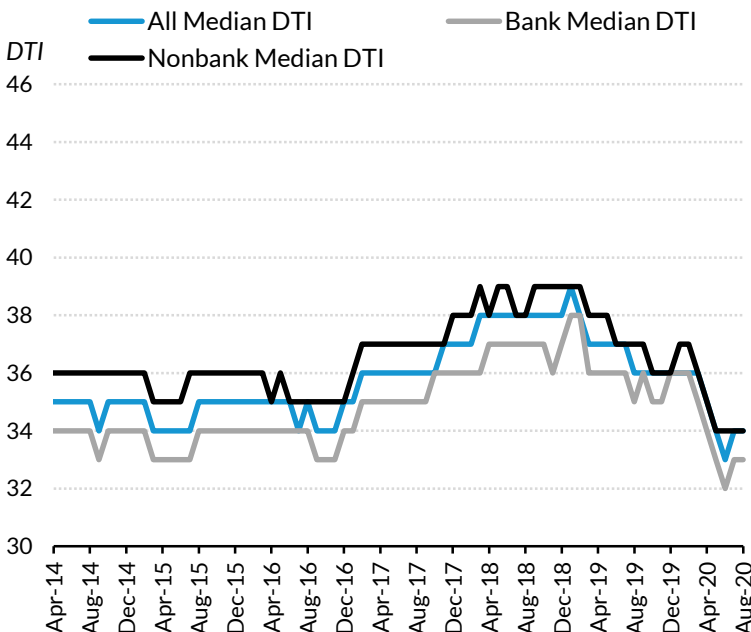
Sources: eMBS and Urban Institute. Note: Data as of August 2020.

Ginnie Mae LTV: Bank vs. Nonbank



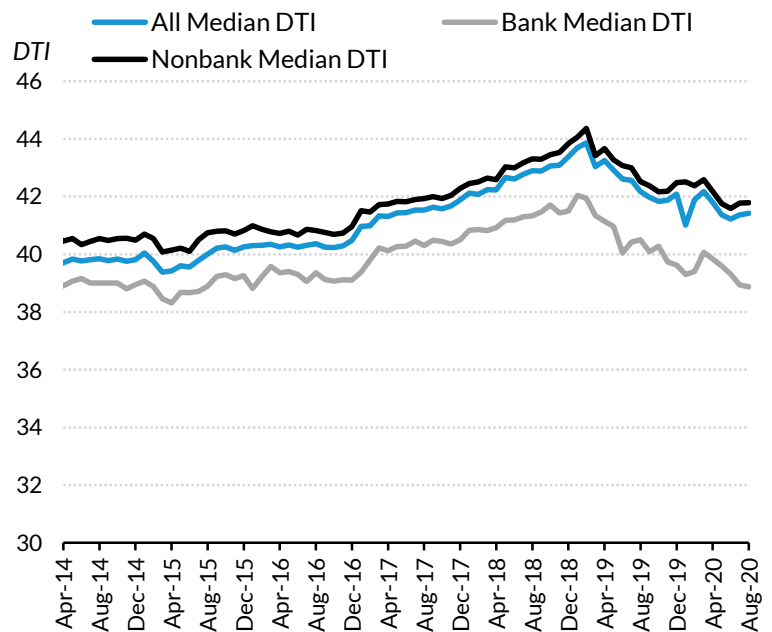
Sources: eMBS and Urban Institute. Note: Data as of August 2020.

GSE DTI: Bank vs. Nonbank



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

Ginnie Mae DTI: Bank vs. Nonbank

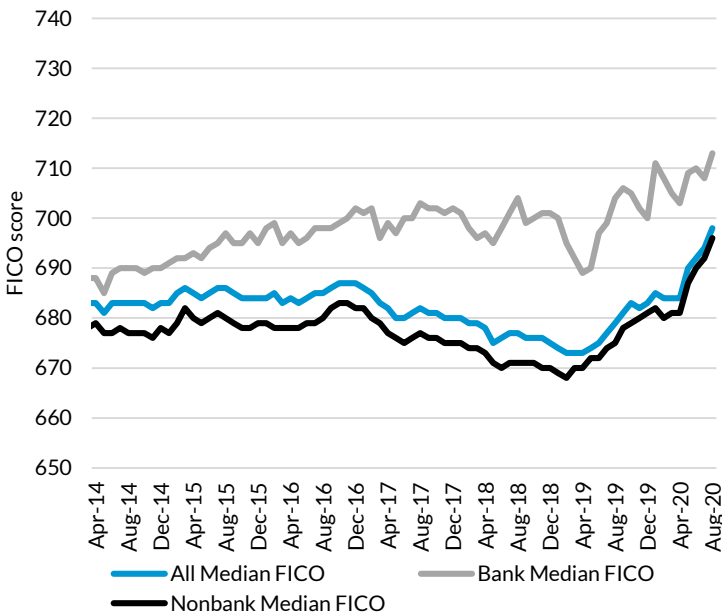


Sources: eMBS and Urban Institute. Note: Data as of August 2020.

Ginnie Mae Nonbank Originators: Credit Box

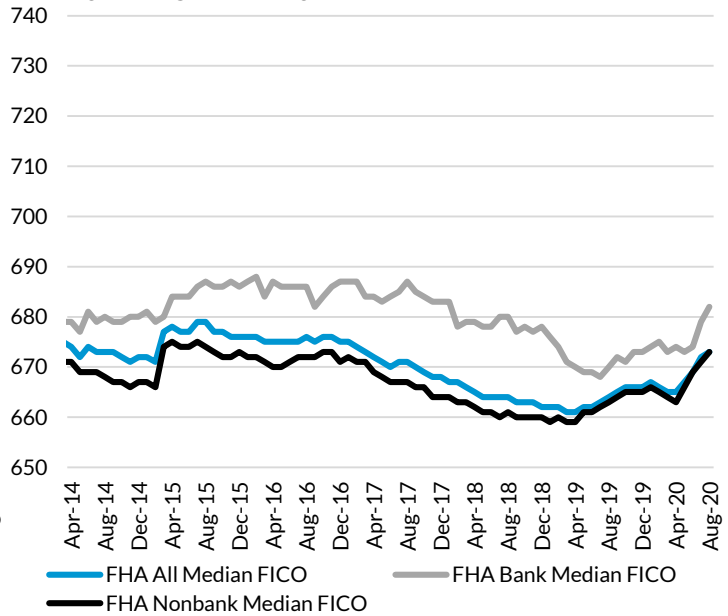
The median FICO score for Ginnie Mae nonbank originators climbed in August 2020. Bank FICOs are 17 points above non-banks. The gap between banks and non-banks is very apparent for all categories of government lending.

Ginnie Mae FICO Scores: Bank vs. Nonbank



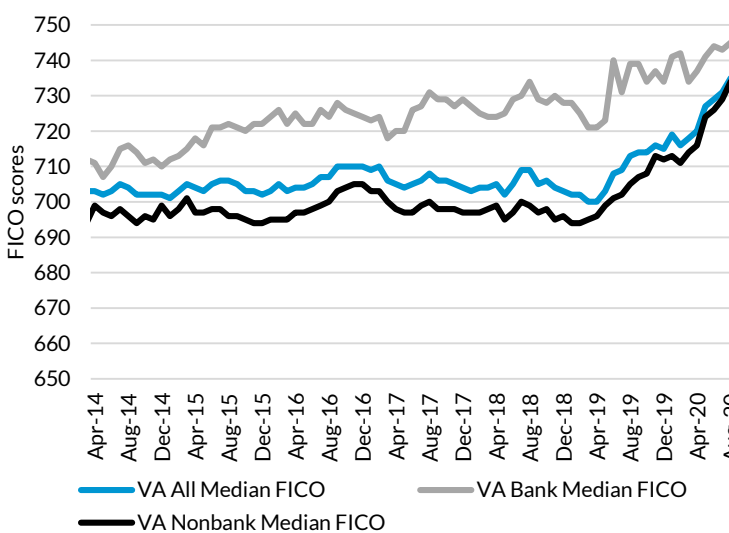
Sources: eMBS and Urban Institute Note: Data as of August 2020.

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



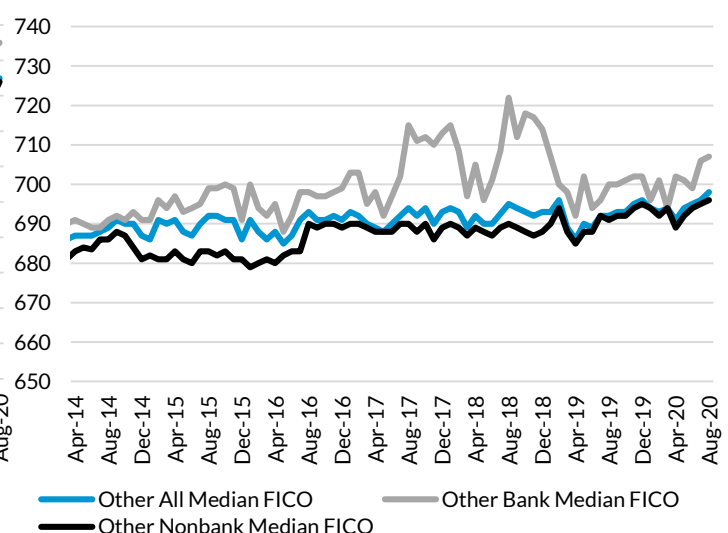
Sources: eMBS and Urban Institute Note: Data as of August 2020.

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



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

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

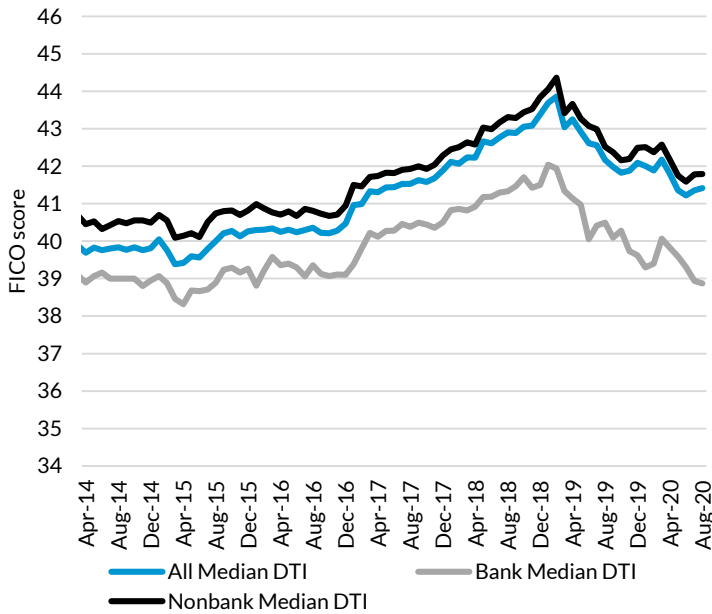


Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of August 2020.

Ginnie Mae Nonbank Originators: Credit Box

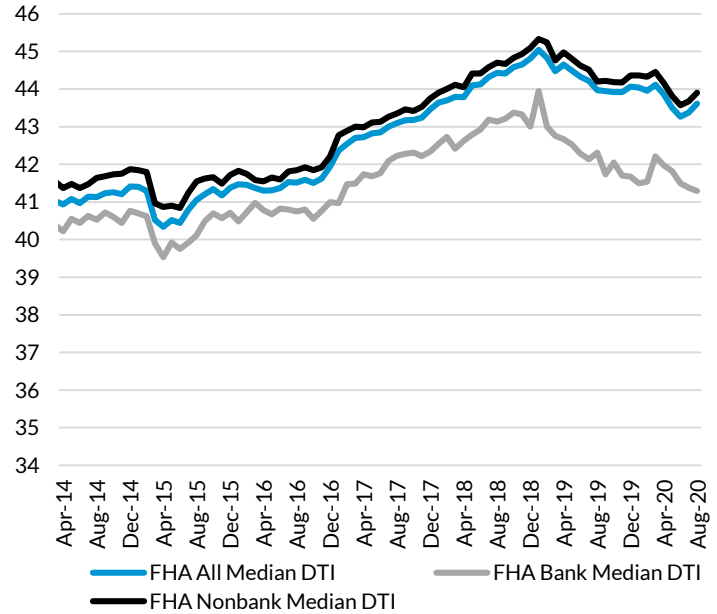
An analysis of borrowers' DTI ratios for bank versus non-bank originators indicates that the former have a lower median DTI. The DTIs for FHA and VA borrowers experienced notable increases during 2017 and 2018 for both banks and nonbank originators, while the Other origination DTIs stayed relatively 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



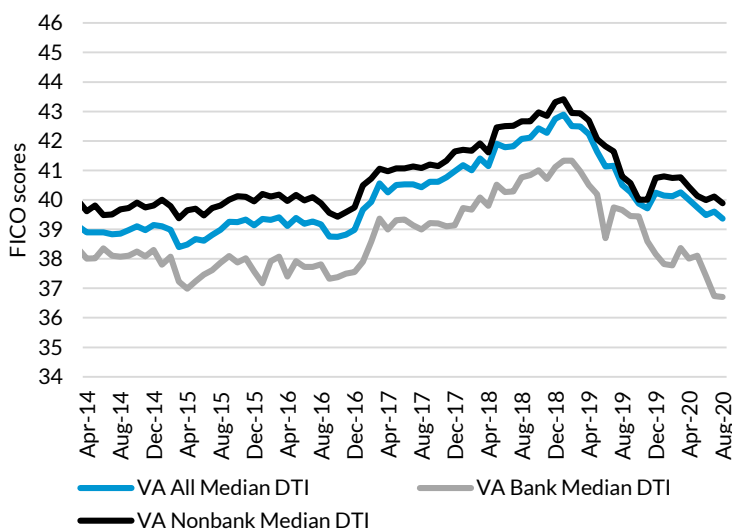
Sources: eMBS and Urban Institute Note: Data as of August 2020.

Ginnie Mae FHA DTI: Bank vs. Nonbank



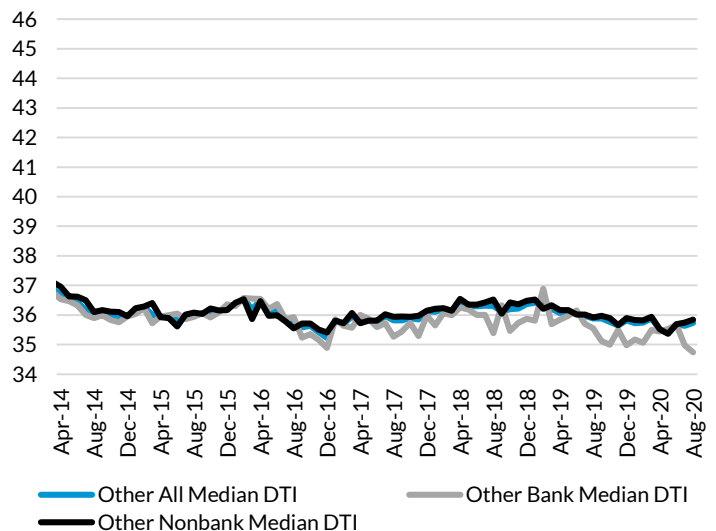
Sources: eMBS and Urban Institute Note: Data as of August 2020.

Ginnie Mae VA DTI: Bank vs. Nonbank



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

Holders of Ginnie Mae MSR s

This table shows 30 largest owners of mortgage servicing rights (MSR) by UPB for Ginnie Mae securitizations. As of August 2020, over half (51.9 percent) of the Ginnie Mae MSR s 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 (MSR s), by UPB

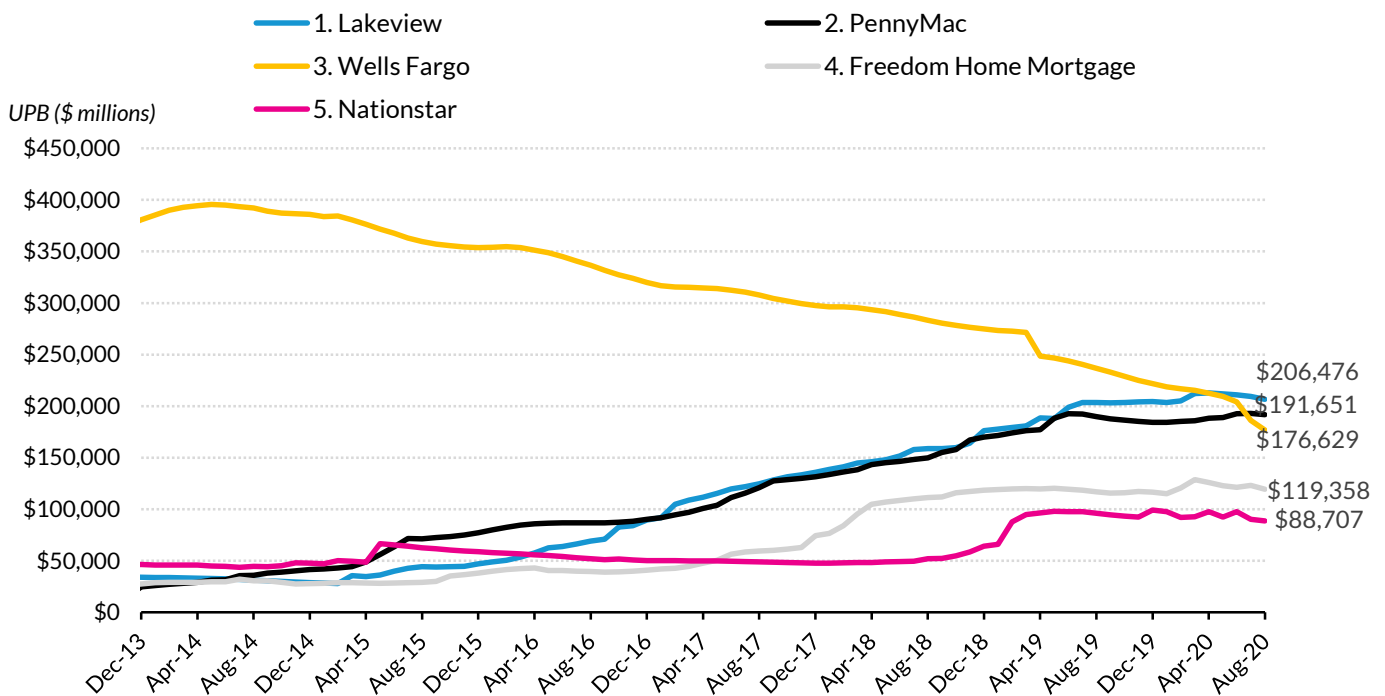
Rank	MSR Holder	UPB (\$ millions)	Share	Cumulative Share
1	Lakeview	\$206,476	12.6%	12.6%
2	PennyMac	\$191,651	11.7%	24.3%
3	Wells Fargo	\$176,629	10.8%	35.0%
4	Freedom Home Mortgage	\$119,358	7.3%	42.3%
5	Nationstar	\$97,684	5.4%	47.7%
6	Quicken Loans	\$69,561	4.2%	51.9%
7	Newrez	\$51,709	3.2%	55.1%
8	US Bank	\$50,368	3.1%	58.2%
9	Carrington Mortgage	\$44,085	2.7%	60.8%
10	Caliber Home Loans	\$39,835	2.4%	63.3%
11	USAA Federal Savings Bank	\$39,064	2.4%	65.7%
12	Truist Bank	\$29,775	1.8%	67.5%
13	Navy Federal Credit Union	\$28,710	1.7%	69.2%
14	Amerihome Mortgage	\$28,012	1.7%	70.9%
15	Home Point Financial Corporation	\$22,676	1.4%	72.3%
16	The Money Source	\$20,644	1.3%	73.6%
17	Loan Depot	\$18,239	1.1%	74.7%
18	JP Morgan Chase	\$17,734	1.1%	75.8%
19	Midfirst Bank	\$17,152	1.0%	76.8%
20	Guild Mortgage	\$16,255	1.0%	77.8%
21	M&T Bank	\$14,896	0.9%	78.7%
22	Roundpoint Mortgage	\$14,736	0.9%	79.6%
23	Citizens Bank	\$13,693	0.8%	80.4%
24	PHH Mortgage	\$13,365	0.8%	81.3%
25	Shore Financial	\$13,238	0.8%	82.1%
26	Planet Home Lending	\$12,246	0.7%	82.8%
27	Flagstar Bank	\$10,987	0.7%	83.5%
28	Pingora	\$10,674	0.7%	84.1%
29	Fifth Third Bank	\$9,632	0.6%	84.7%
30	Bank of America	\$9,395	0.6%	85.3%

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

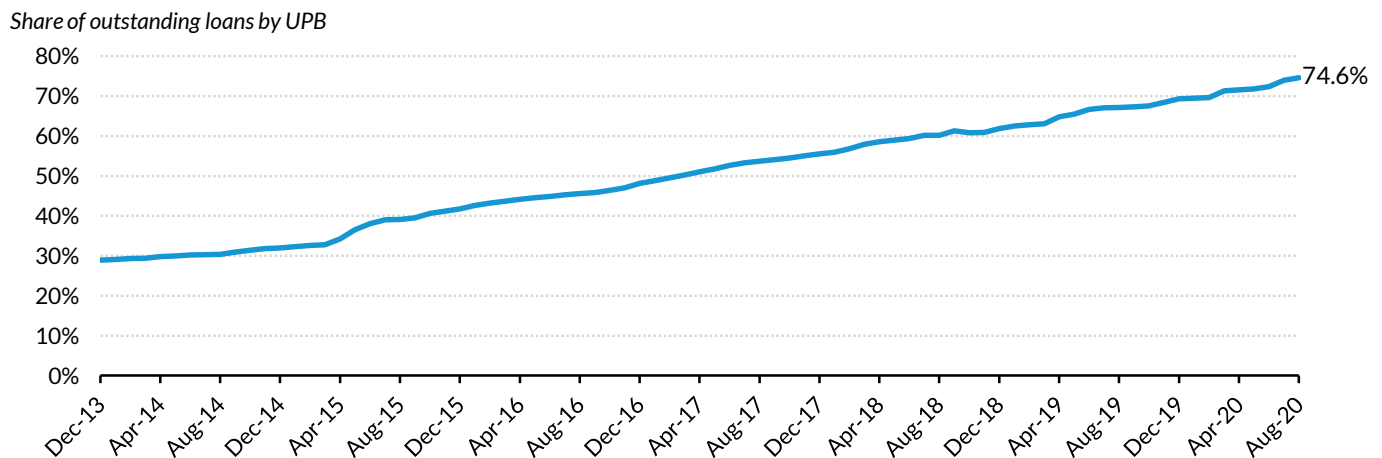
Holders of Ginnie Mae MSR

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 MSR, holding \$375 billion and \$139 billion in servicing UPB respectively. In August 2020, Wells Fargo's holdings of MSR dipped to \$176.6 billion, below the \$206.5 and \$191.7 billion held by Lakeview and PennyMac, respectively (both nonbanks). Freedom Home Mortgage and Nationstar (both nonbanks) make up the remainder of the top five largest holders of MSR, owning \$119 billion and \$89 billion respectively as of August 2020. Nonbanks collectively owned servicing rights for 74.6 percent of all outstanding unpaid principal balance guaranteed by Ginnie Mae in August 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 MSR held by Nonbanks

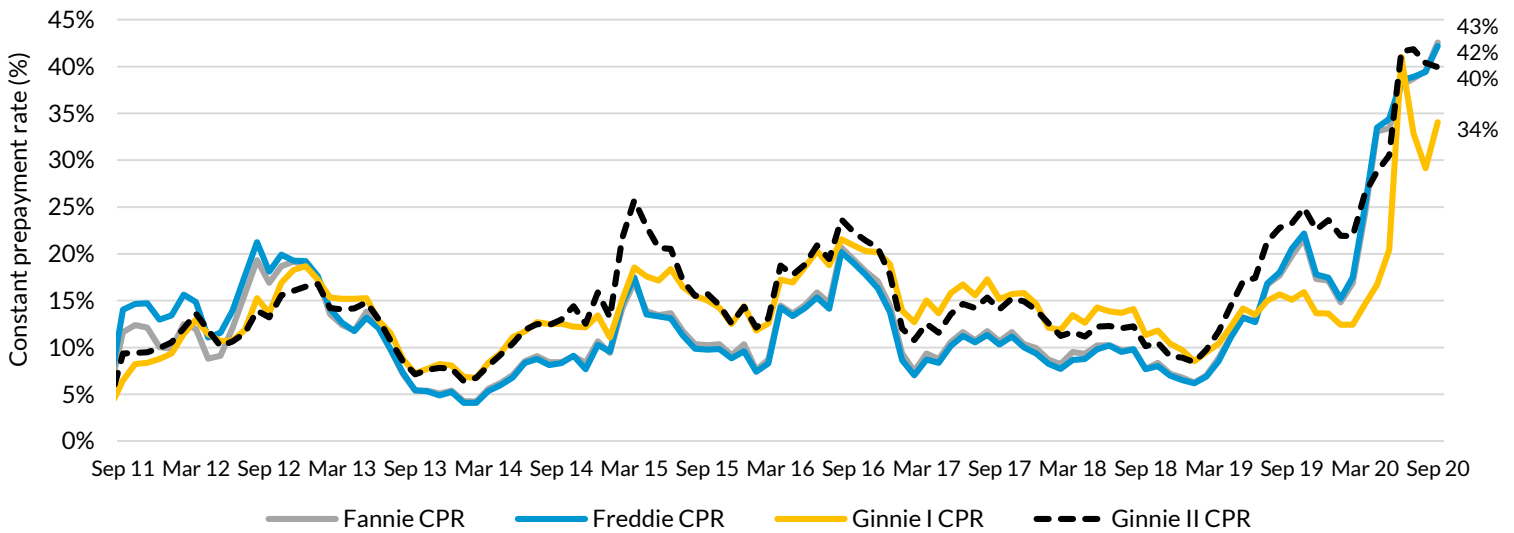


Sources: eMBS and Urban Institute. Note: Data as of August 2020.

Prepayments

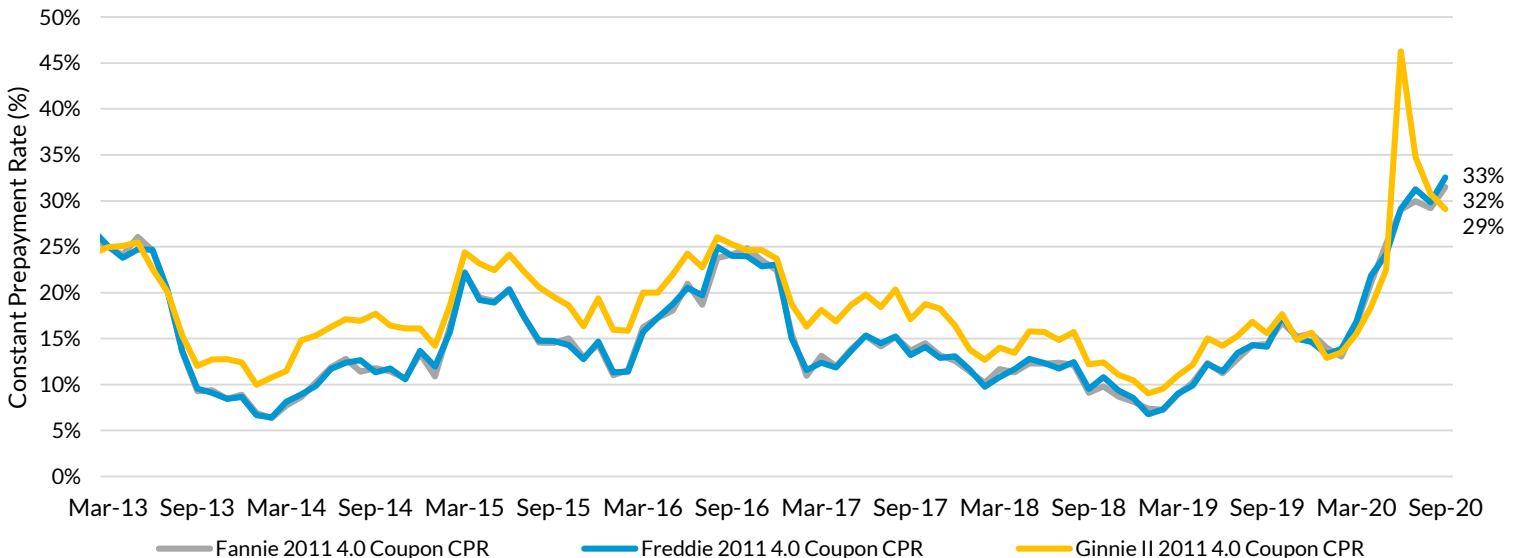
While prepayment speeds on all securities have risen since early 2019, the speed increase has been especially dramatic in 2020, with speeds on both Ginnie II and GSE securities rising rapidly due to a sharp drop in rates. At this point, the speeds on GSE securities have largely converged with those on 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 September 2020.

2011 Issued 4.0 Coupon CPR

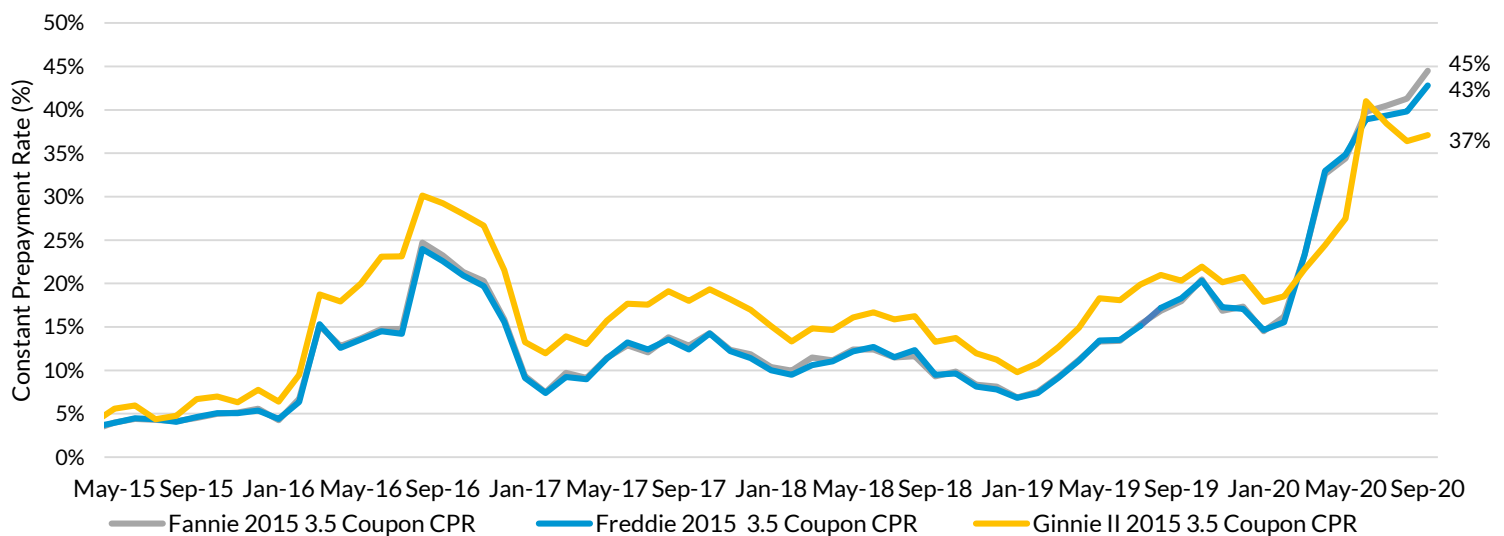


Sources: Credit Suisse and Urban Institute. Note: Data as of September 2020.

Prepayments

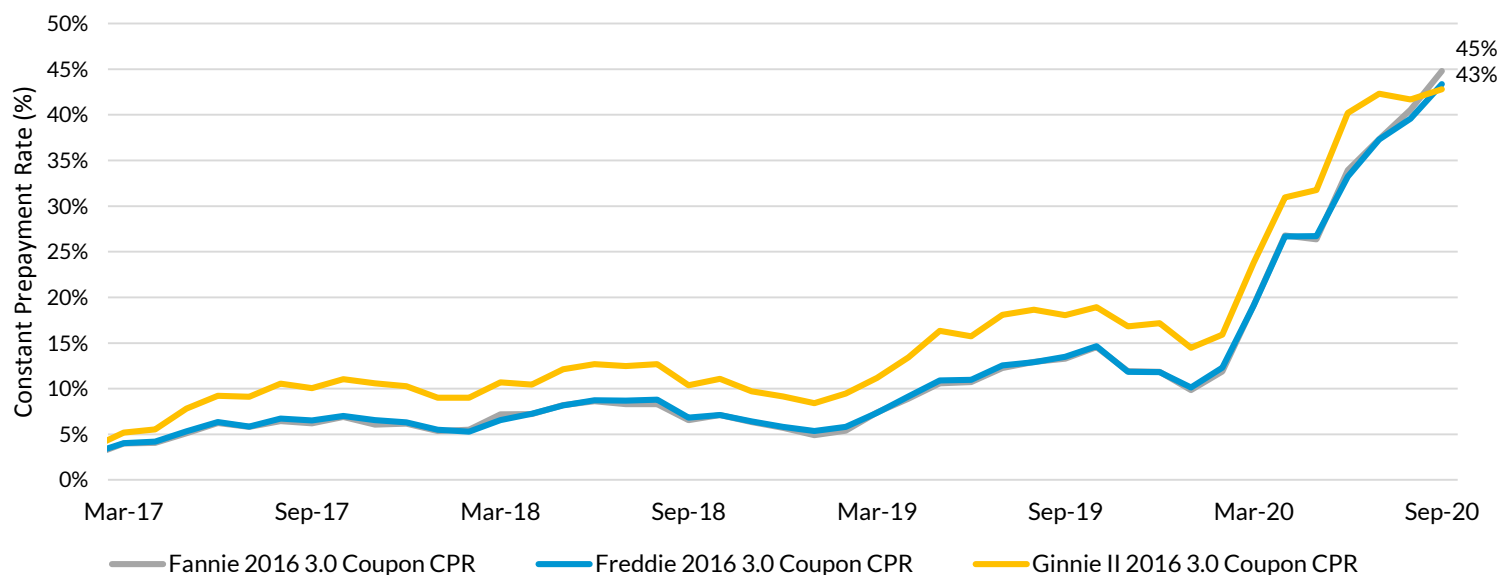
Speeds on the 2015 3.5s and the 2016 3.0s, the largest coupon cohorts of those vintage years, have been increasing since early 2019.; the speed increases have been especially dramatic in 2020 due to a sharp drop in rates, with speeds on both Ginnie II and GSE securities rising rapidly. The speeds on the 2015-issued Ginnie 3.5s fell slightly below their conventional counterparts in August 2020, although the speeds on the 2016-issued Ginnie Mae 3.0s remain very comparable to their conventional counterparts. The faster historical speeds on the Ginnie Mae 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 September 2020.

2016 Issued 3.0 Coupon CPR

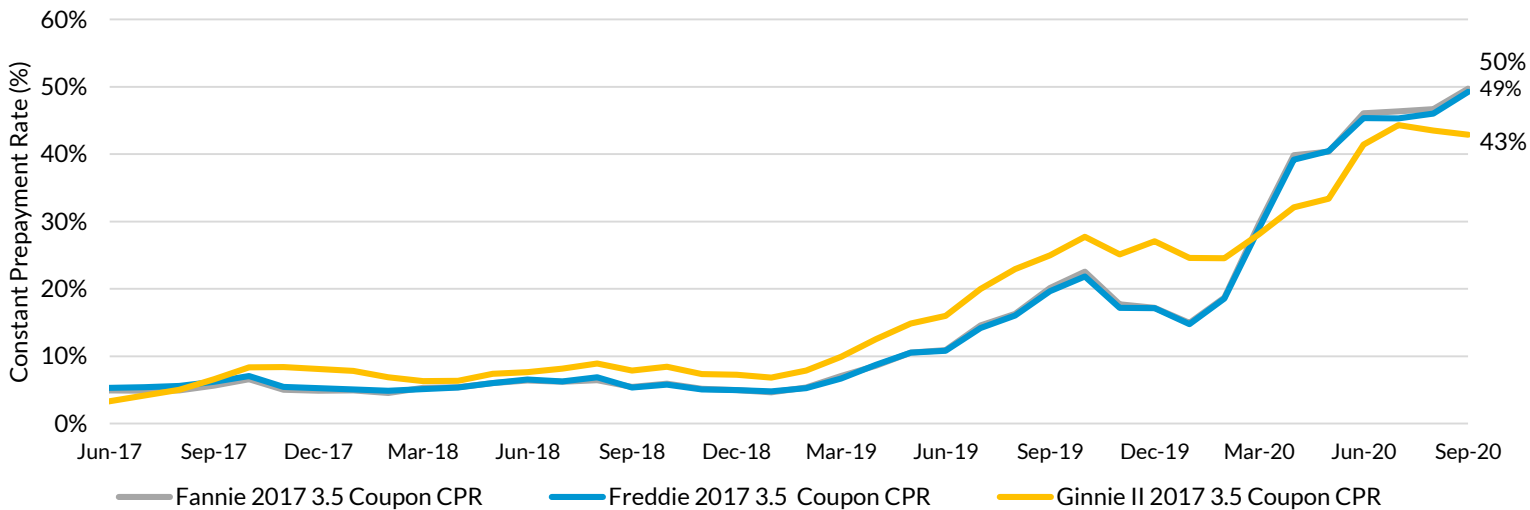


Sources: Credit Suisse and Urban Institute. Note: Data as of September 2020.

Prepayments

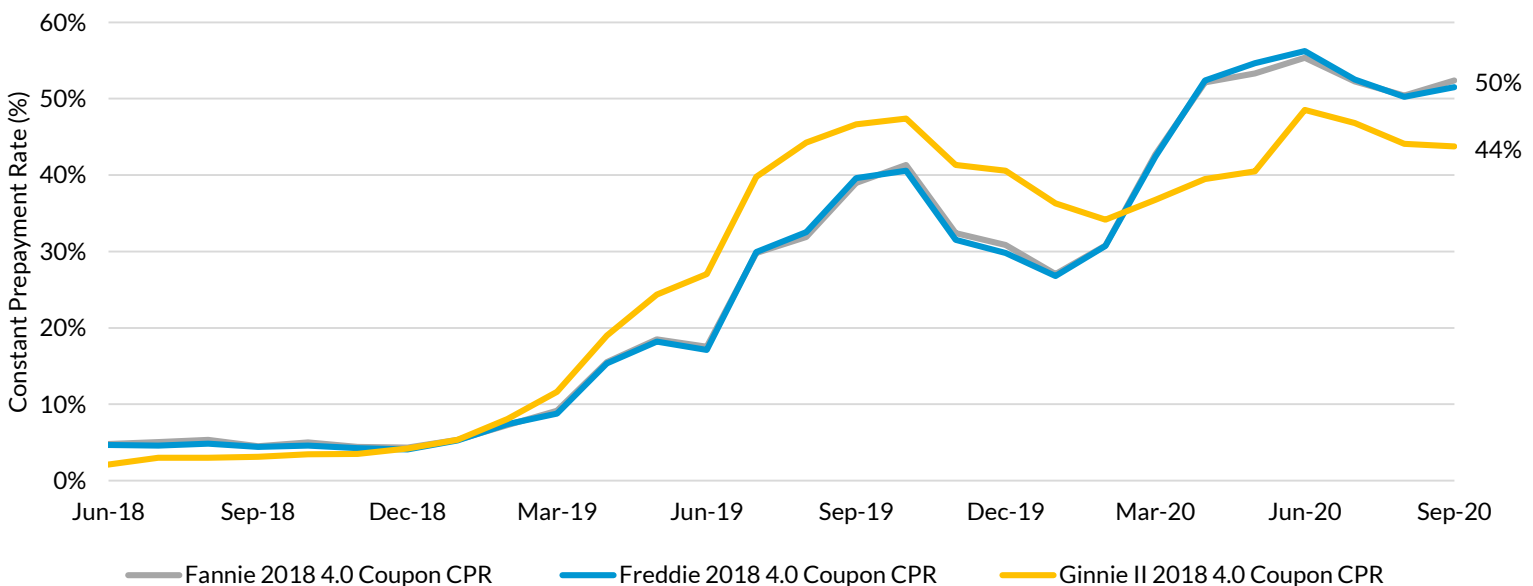
The charts below show the behavior of the 2017-issued 3.5s and the 2018-issued 4.0s, the largest coupon cohorts of those vintage years. Despite slower seasoning, 2017 Ginnie II 3.5s were prepaying faster than their conventional counterparts from late 2017 to March 2020, due primarily to fast VA prepayment 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 September 2020.

2018 Issued 4.0 Coupon CPR

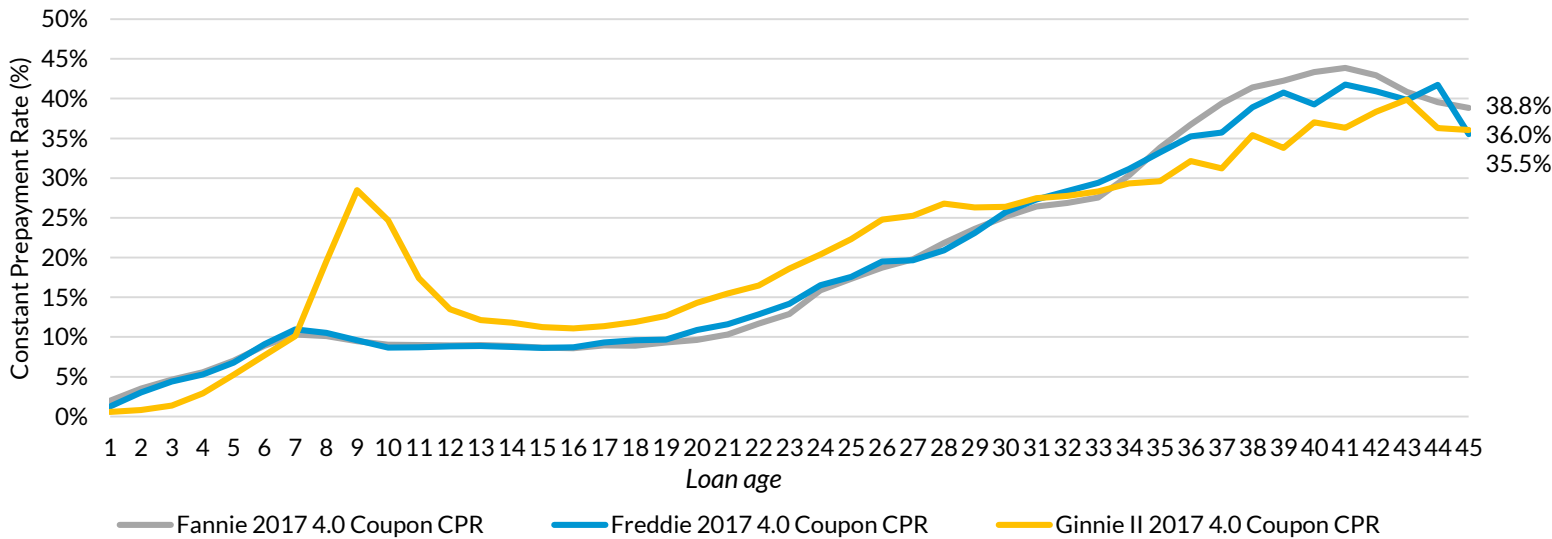


Sources: Credit Suisse and Urban Institute. Note: Data as of September 2020.

Prepayments

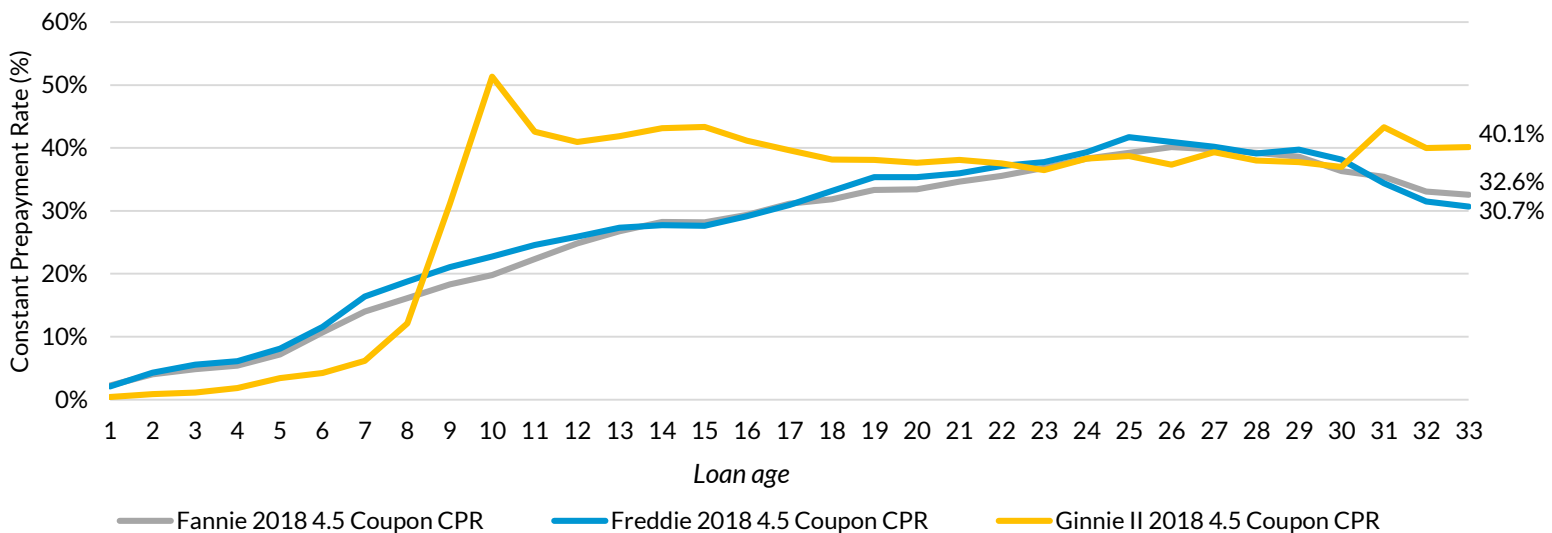
The charts below show the prepayment speeds by loan age for 2017 Ginnie II 4.0s and 2018 Ginnie II 4.5s—the cohorts 50 basis points above the largest coupon cohort for those years. Prepayment speeds on the 2017 Ginnie II 4.0s jumped up sharply at the 7-9 month loan age, reflecting abuse of the VA Streamlined 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 42 and 30 months old, respectively.

2017 Issued 4.0 Coupon CPR, by Loan Age



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

2018 Issued 4.5 Coupon CPR, by Loan Age



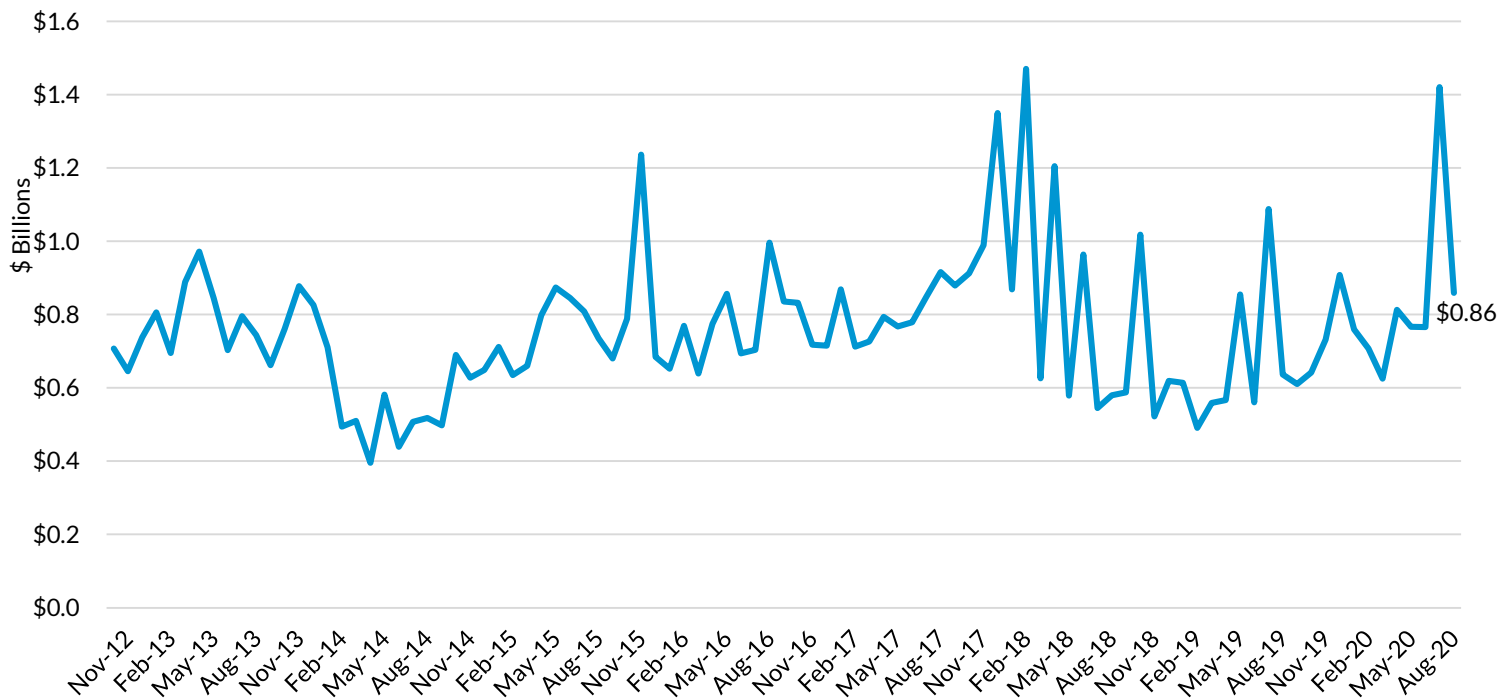
Sources: Credit Suisse and Urban Institute. Note: Data as of September 2020.

Other Ginnie Mae Programs

Reverse Mortgage Volumes

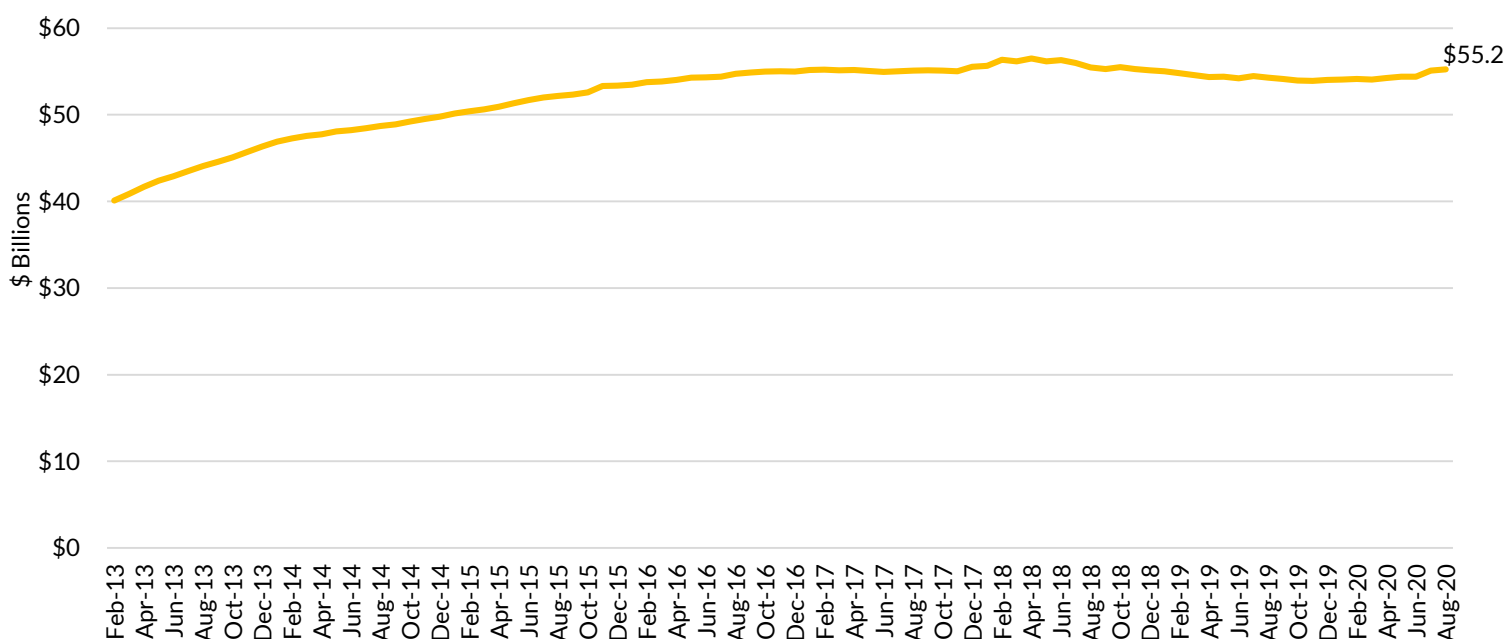
Ginnie Mae reverse mortgage issuance has been volatile over the past two years, but has been generally declining since early 2018 largely due to the implementation of the new, lower principal limit factors. August continued the trend, with issuance dropping to \$0.86 billion. In August 2020, outstanding reverse mortgage securities totaled \$55.2 billion, up slightly from last month, reflecting a higher volume of new issuances relative to paydowns.

HMBS Issuance Volume



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

HMBS Outstanding



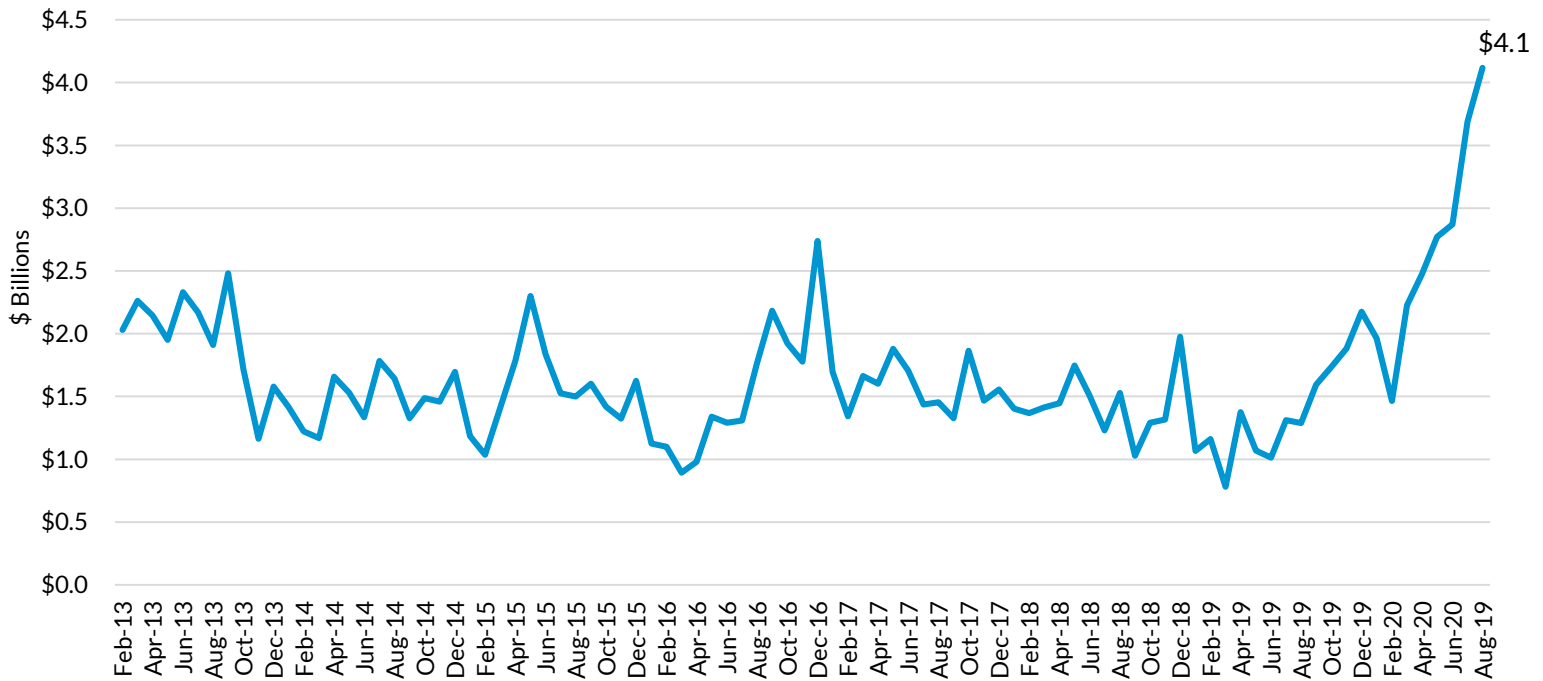
Sources: Ginnie Mae and Urban Institute. Note: Data as of August 2020.

Other Ginnie Mae Programs

Multifamily Market

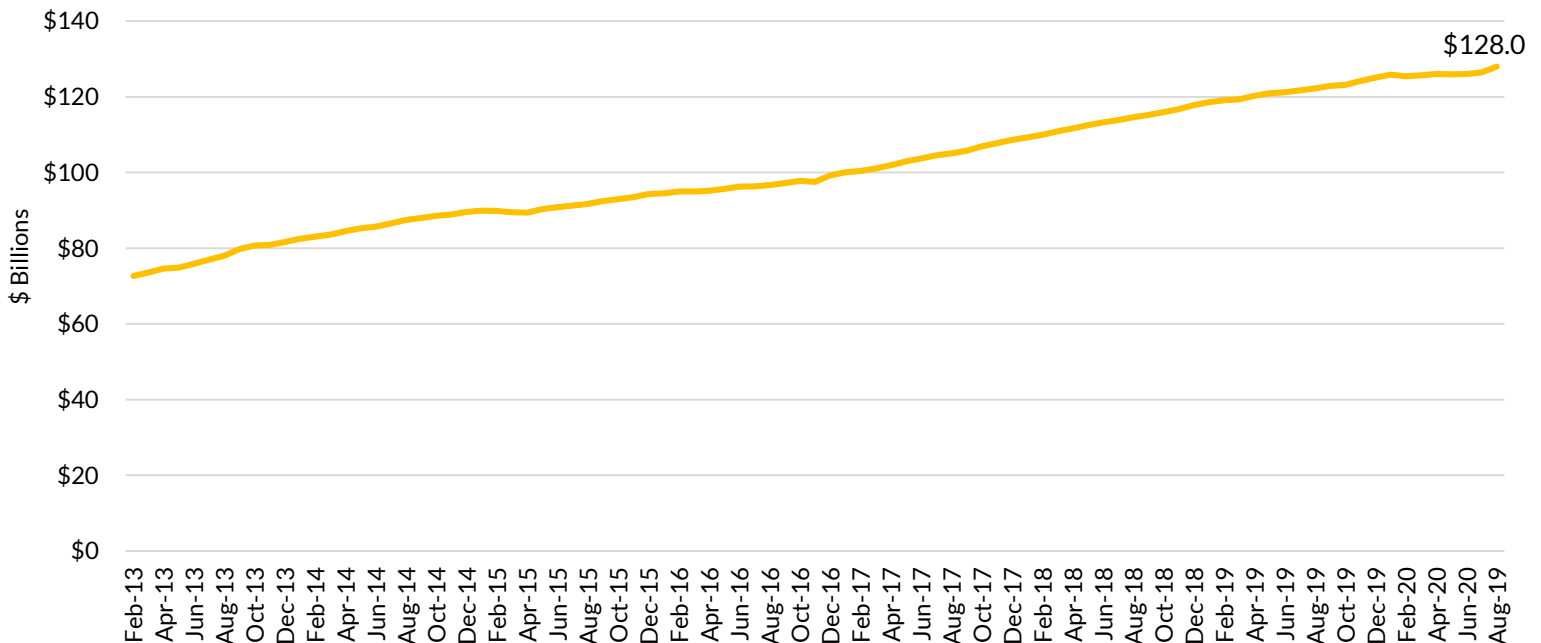
Ginnie Mae multifamily issuance volume in August 2020 totaled \$4.1 billion, the fourth consecutive month of increase from the prior month, and the highest single month of issuance in the last 8 years. Outstanding multifamily securities totaled \$128.0 billion as of the eight month of 2020.

Ginnie Mae Multifamily MBS Issuance



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

Ginnie Mae Multifamily MBS Outstanding

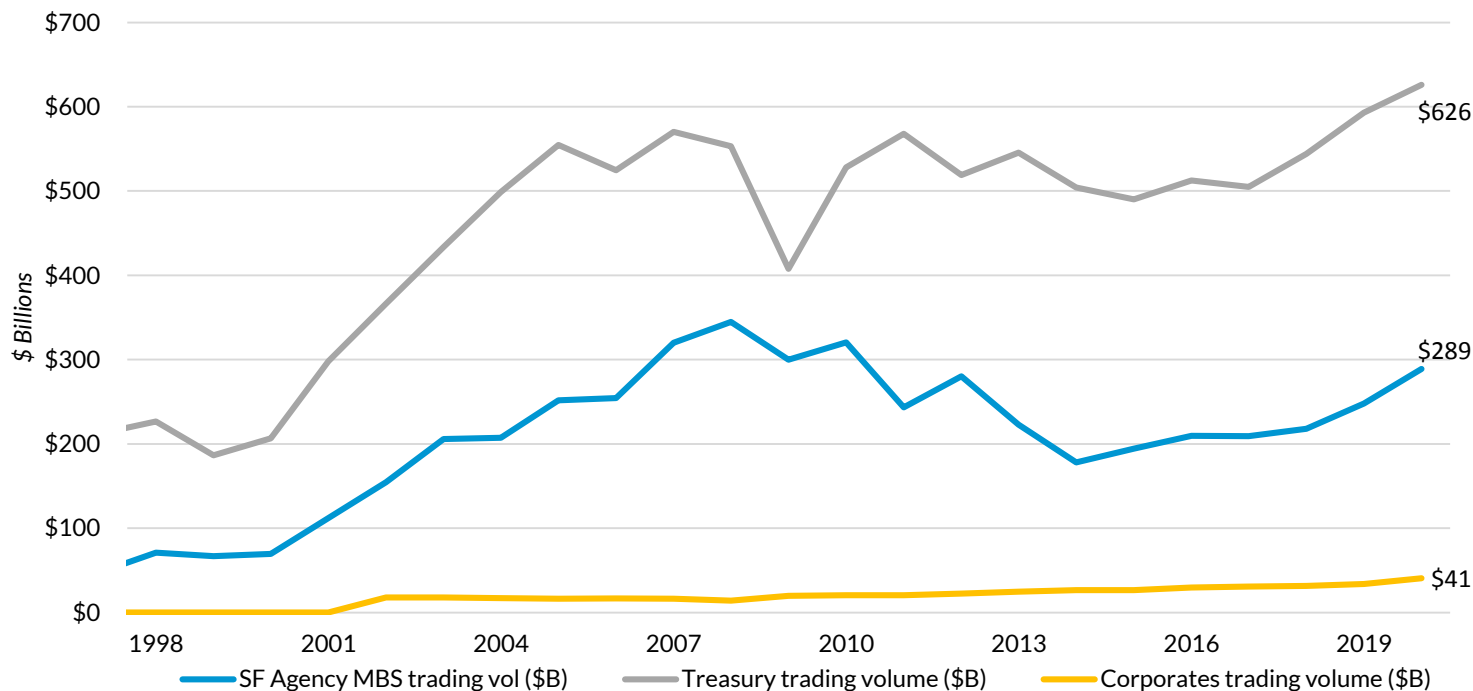


Sources: Ginnie Mae and Urban Institute. Note: Data as of August 2020.

Market Conditions

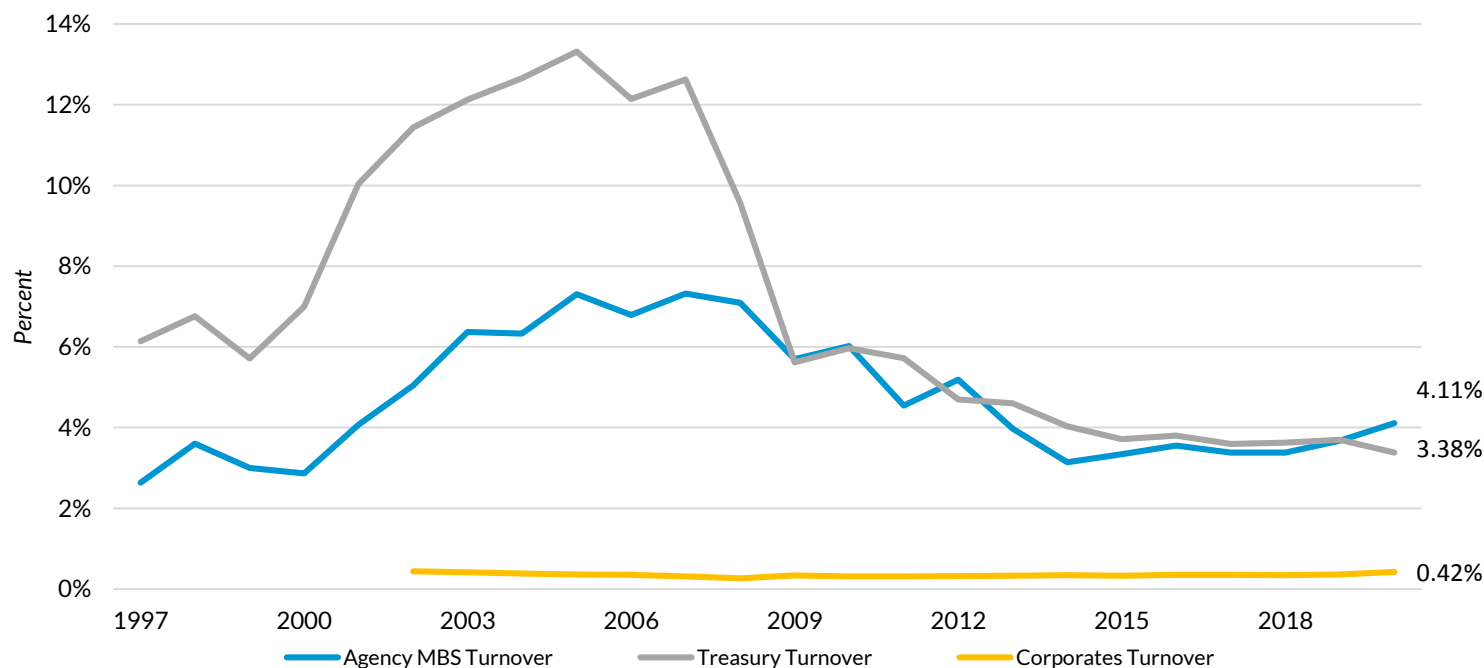
Agency MBS trading volume is \$289 billion/day on average for the first eight months of 2020, more robust than in the 2014-2019 period, but still below the pre-crisis peak of \$345 billion in 2008. Average daily trading volume for Treasuries now exceed the pre-crisis peak. Agency MBS turnover in 2020 YTD (through August) has also been higher than the 2014-2019 period; in 2020, average daily MBS turnover was 4.11 percent, above the 2019 average of 3.67 percent. Note that agency MBS turnover in the first eight months 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 September 2020.

Average Daily Turnover by Sector

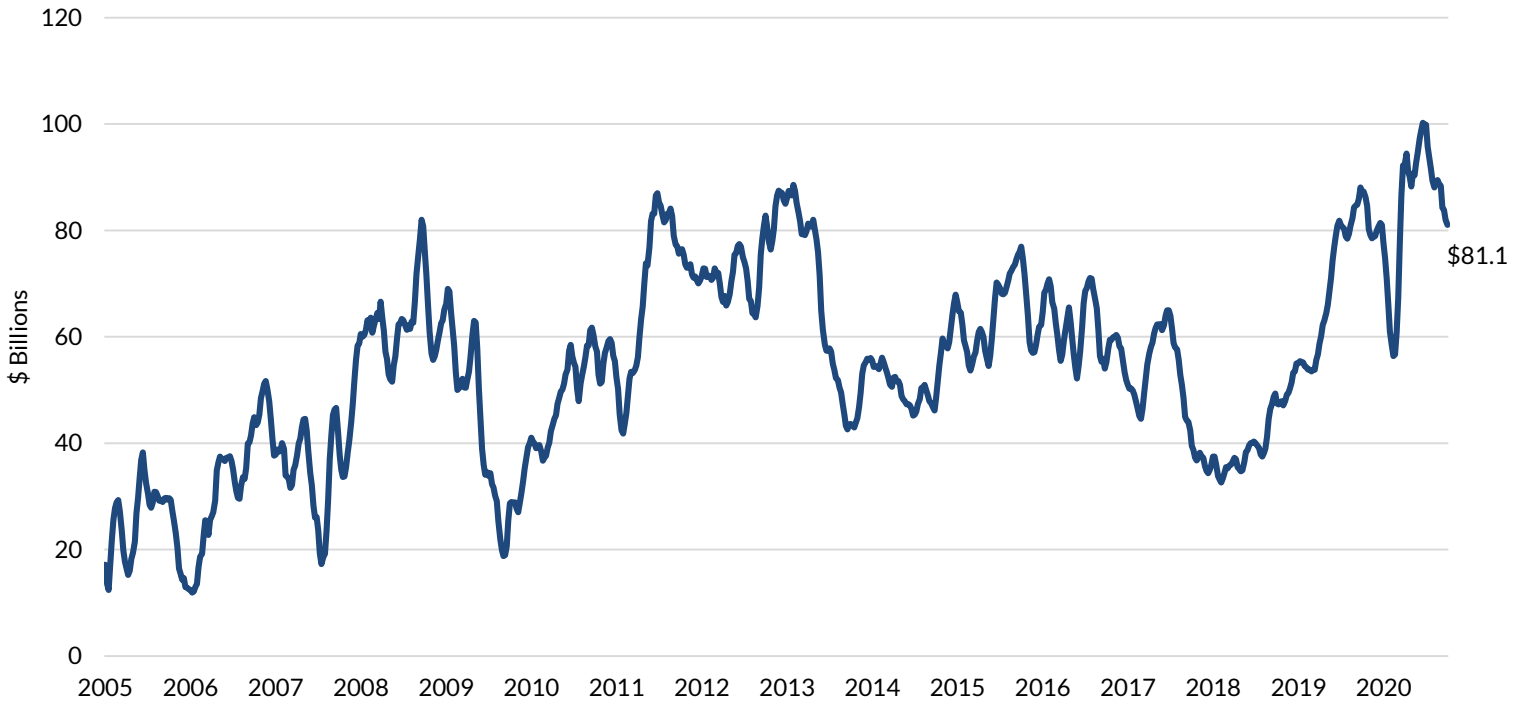


Sources: SIFMA and Urban Institute. Note: Data as of September 2020.

Market Conditions

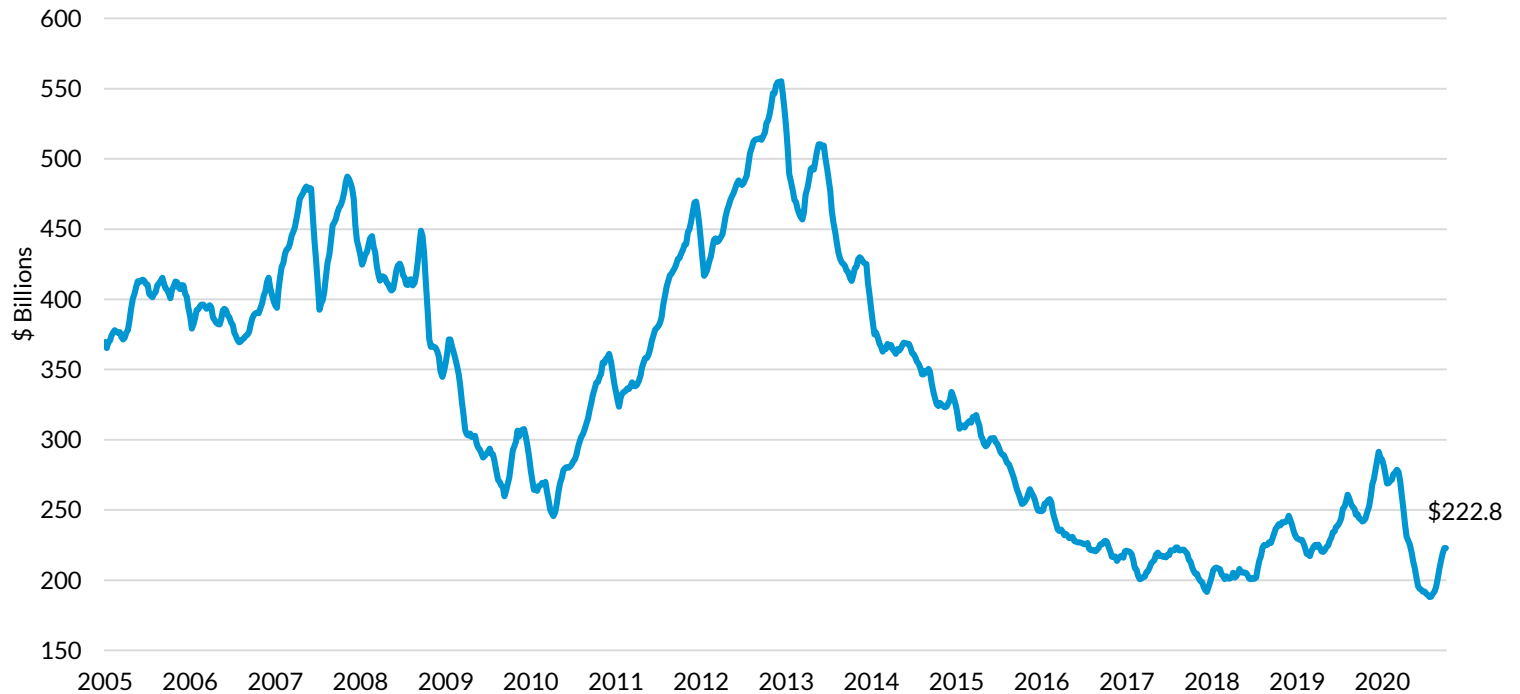
Dealer net positions are at the higher end of their post-crisis range, and very close to their pre-crisis highs. By contrast, dealer gross positions have fallen dramatically. The volume of repurchase activity is at the lower end of the post-crisis range, and much lower than pre-crisis levels. The large 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 September 2020.

Repo Volume: Securities In



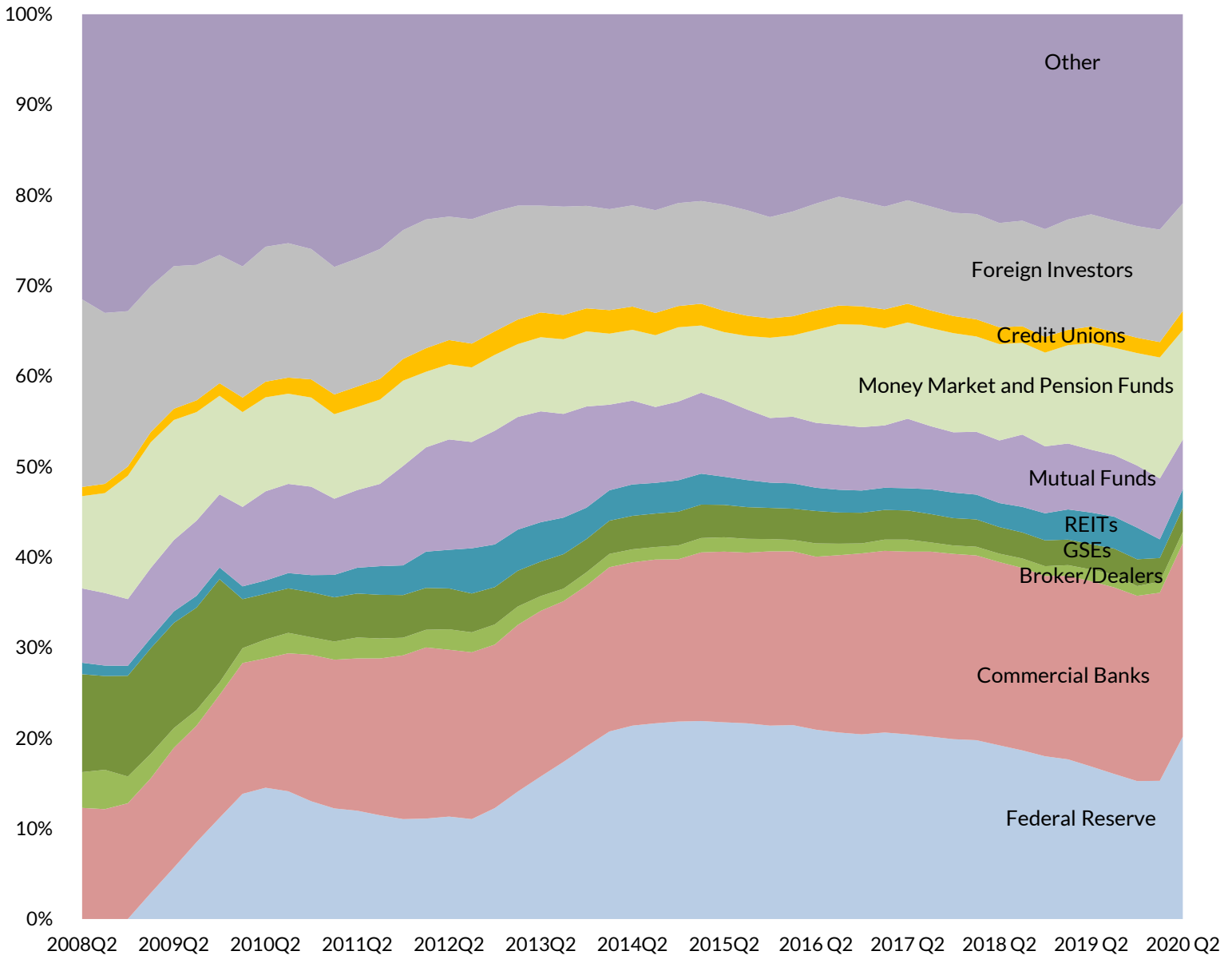
Sources: Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute. Note: Data as of September 2020.

MBS Ownership

The largest holders of agency debt (Agency MBS + Agency notes and bonds) include the Federal Reserve (20 percent), commercial banks (21 percent), foreign investors (12 percent), and money market & pension funds (12 percent). The broker/dealer and GSE shares are a fraction of what they once were. The Federal Reserve's share increased from 15 percent in the first quarter of 2020 to 20 percent in the second quarter due to substantial purchases of MBS in response to the COVID-19 crisis.

Who owns Total Agency Debt?

Share of Total Agency Debt by Owner

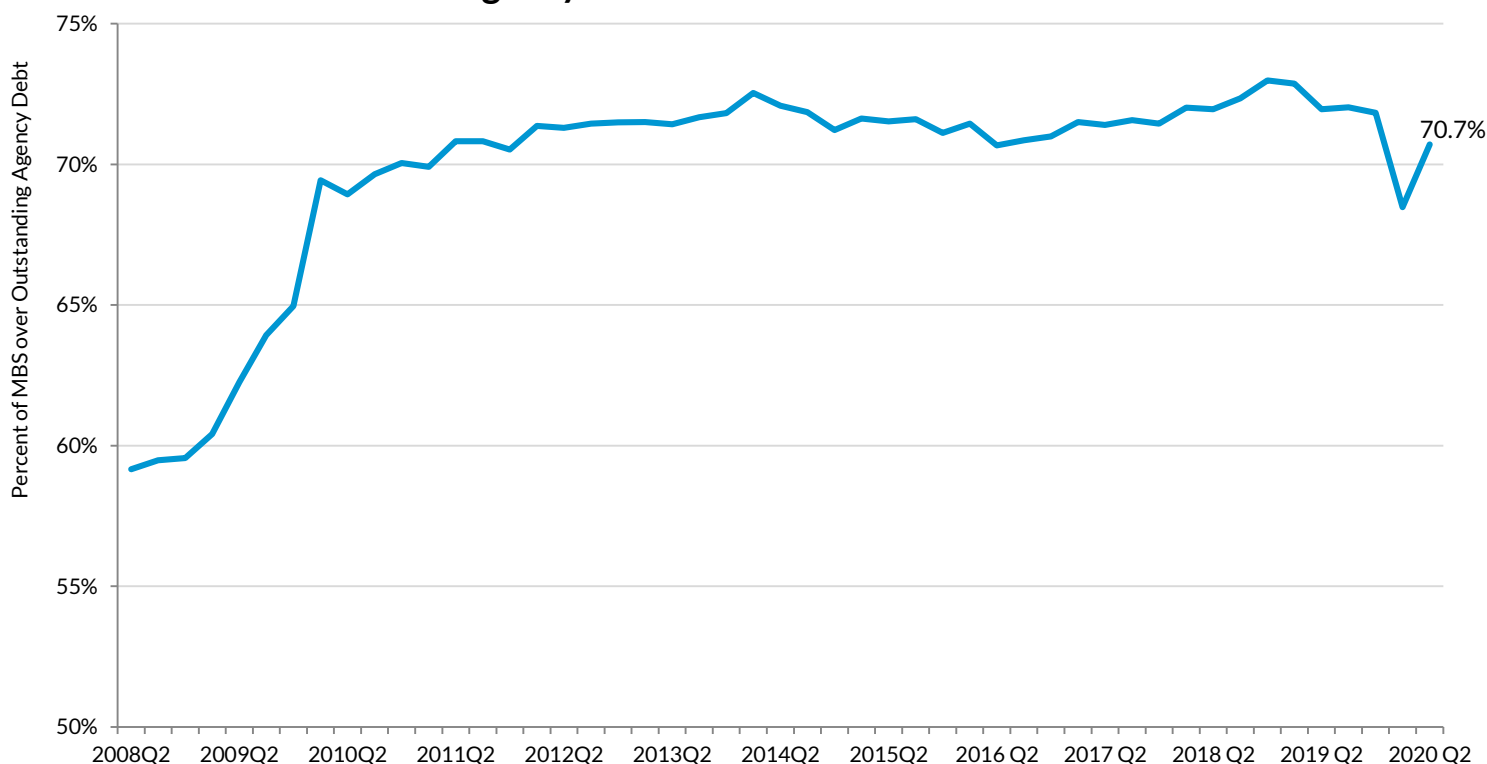


Sources: Federal Reserve Flow of Funds and Urban Institute. Note: The "other" category includes primarily life insurance companies, state and local govts, households, and nonprofits. Data as of Q2 2020.

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 September 2020, \$1.7 trillion was held by the top 25 domestic banks.

MBS Share of Total Agency Debt



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 Q2 2020.

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Aug-19	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep 2	Sep 9	Sep 16	Sep 23
Largest 25 Domestic Banks	1473.7	1547.8	1597.0	1637.9	1636.7	1630.5	1662.0	1716.5	1736.3	1709.6	1695.1	1694.7
Small Domestic Banks	500.6	532.8	538.6	541.1	543.0	551.8	559.7	570.6	575.9	575.5	577.1	583.0
Foreign Related Banks	33.3	40.0	43.9	46.1	43.5	43.7	43.2	41.5	39.6	39.6	38.5	40.0
Total, Seasonally Adjusted	2007.6	2120.6	2179.5	2225.1	2223.2	2226.0	2264.9	2328.6	2351.8	2324.7	2310.7	2317.7

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 September 2020.

MBS Ownership

Out of the \$2.2 trillion in MBS holdings at banks and thrifts as of Q2 2020, \$1.7 trillion was agency pass-throughs: \$1.2 trillion in GSE pass-throughs and \$441 billion in Ginnie Mae pass-throughs. Another \$478 billion was agency CMOs, while non-agency holdings totaled \$47 billion. In Q2, 2020, MBS holdings at banks and thrifts increased for the seventh consecutive quarter. The increase was driven by both GSE pass-throughs and agency CMO holdings, with the increase in GSE pass-throughs making the larger contribution.

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
2Q20	\$2,195.19	\$1,669.93	\$1,228.87	\$441.06	\$478.11	\$5.00	\$42.14

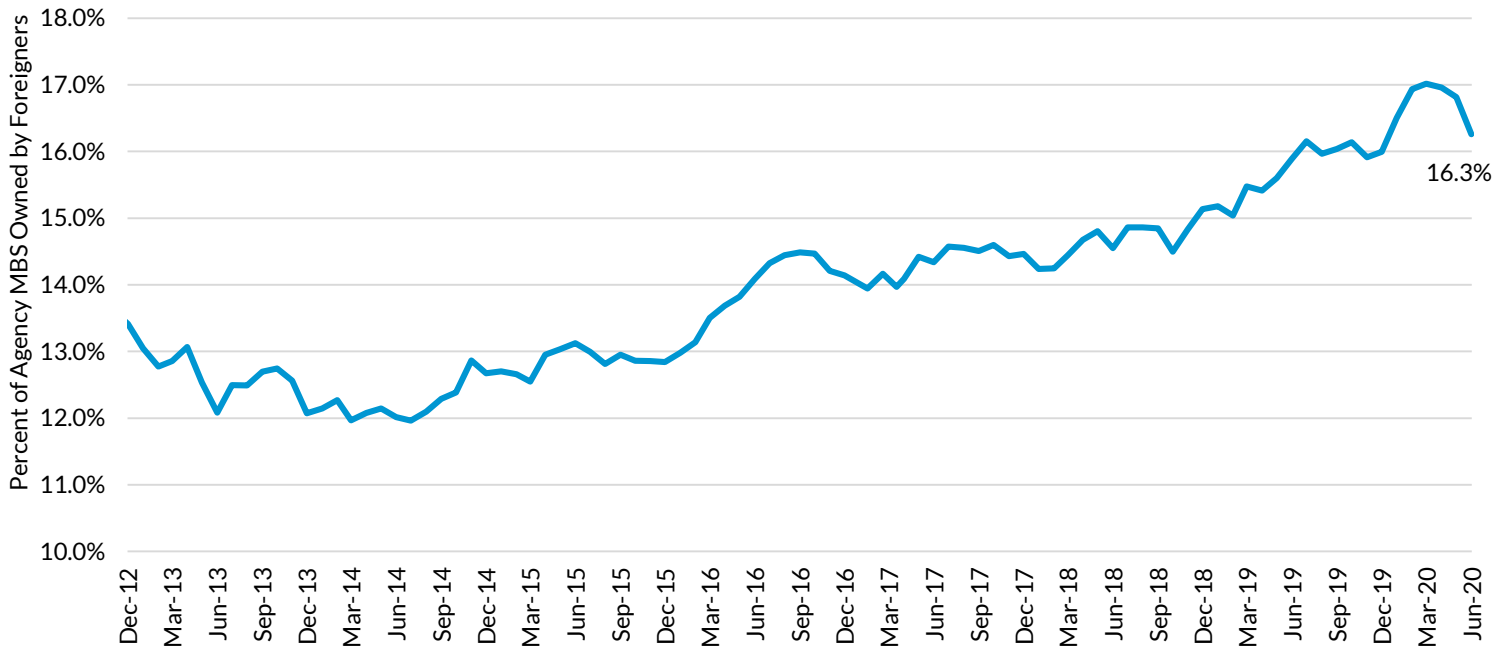
Top Bank & Thrift Residential MBS Investors		Total (\$MM)	GSE PT (\$MM)	GNMA PT (\$MM)	Agency REMIC (\$MM)	Non-Agency (\$MM)	Market Share
1	Bank of America Corporation	\$335,366.0	\$191,632.0	\$130,226.0	\$13,209.0	\$299.0	15.30
2	Wells Fargo & Company	\$251,111.0	\$174,271.0	\$68,543.0	\$7,756.0	\$541.0	11.40
3	JP Morgan Chase & Co.	\$214,143.0	\$132,514.0	\$63,132.0	\$228.0	\$18,269.0	9.80
4	Charles Schwab Bank	\$132,419.0	\$74,363.0	\$17,109.0	\$40,947.0	\$0.0	6.00
5	U.S. Bancorp.	\$96,324.6	\$62,461.2	\$18,365.2	\$15,497.5	\$0.6	4.40
6	Citigroup Inc.	\$86,684.0	\$75,645.0	\$3,298.0	\$5,971.0	\$1,770.0	3.90
7	Truist Bank	\$71,526.0	\$25,581.0	\$19,903.0	\$26,042.0	\$0.0	3.30
8	Capital One Financial Corporation	\$71,357.3	\$33,774.1	\$13,105.7	\$23,806.7	\$670.9	3.30
9	Bank of New York Mellon Corp.	\$62,069.0	\$42,127.0	\$4,314.0	\$13,957.0	\$1,671.0	2.80
10	PNC Bank, National Association	\$59,170.5	\$48,983.4	\$6,516.4	\$1,988.7	\$1,682.0	2.70
11	State Street Bank and Trust Company	\$42,060.6	\$22,424.0	\$8,975.0	\$8,431.6	\$2,230.0	1.90
12	Morgan Stanley	\$33,078.0	\$19,228.0	\$5,754.0	\$8,096.0	\$0.0	1.50
13	HSBC Banks USA, National Association	\$27,422.7	\$6,792.2	\$11,409.5	\$9,218.7	\$2.2	1.20
14	TD Bank	\$25,549.8	\$1,699.1	\$176.5	\$23,437.3	\$236.9	1.20
15	E*TRADE Bank	\$24,784.5	\$12,280.2	\$3,988.5	\$8,515.7	\$0.0	1.10
16	Ally Bank	\$23,701.0	\$15,008.0	\$2035.0	\$3,293.0	\$3365.0	1.10
17	USAA Federal Savings Bank	\$23,163.0	\$19,278.5	\$2,623.6	\$1,260.9	\$0.0	1.10
18	Citizens Bank	\$21,301.8	\$11,358.1	\$3600.9	\$5,756.4	\$586.5	1.00
19	KeyBank National Association	\$18,805.1	\$1,229.1	\$591.7	\$16984.3	\$0.0	0.90
20	Silicon Valley Bank	\$18,739.9	\$13,893.4	\$158.5	\$4,687.9	\$0.0	0.90
	Total Top 20	\$1,638,777	\$984,542	\$383,826	\$239,085	\$31,324	74.80%

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

MBS Ownership

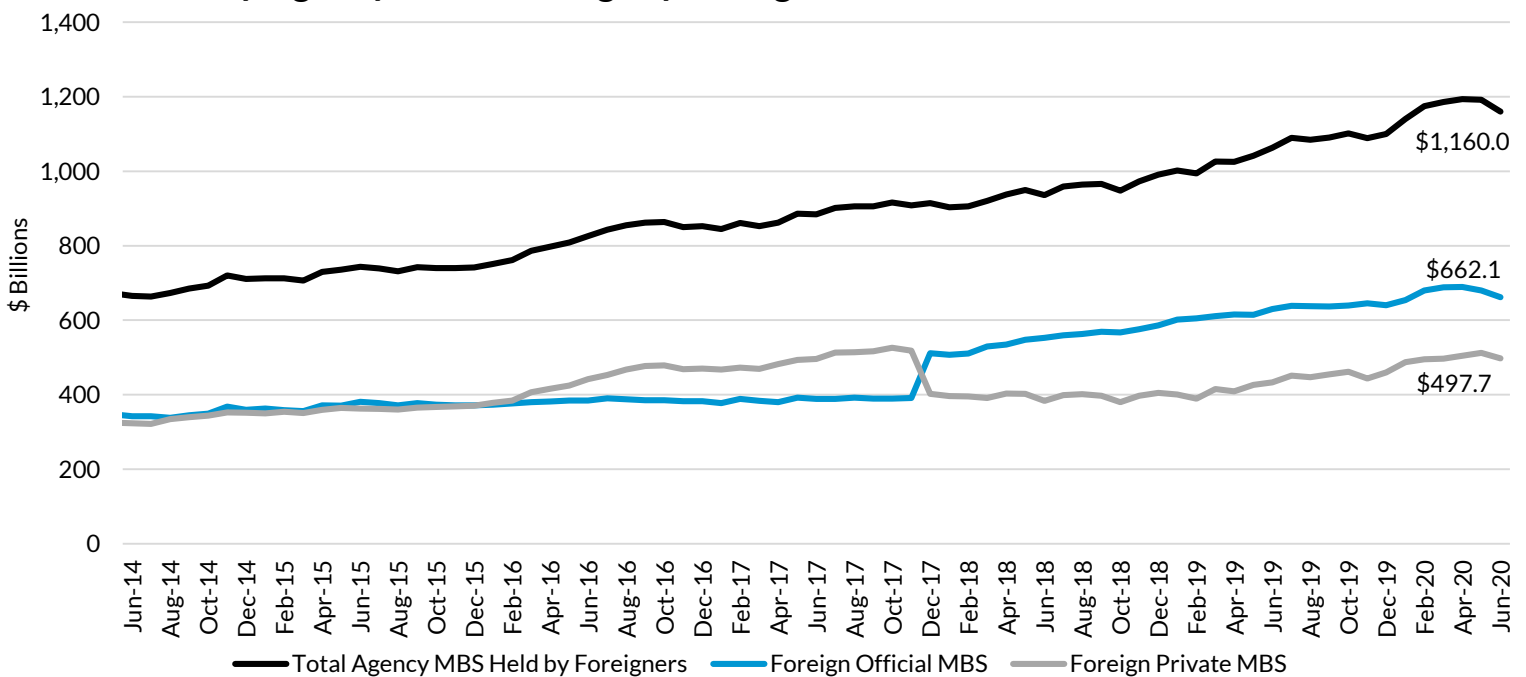
Foreign investors held 16.3 percent of agency MBS in June 2020, up from a low of 12.0 percent in July 2014. For the month of June 2020, this represents \$1.16 trillion in Agency MBS, \$498 billion held by foreign private institutions and \$662 billion held by foreign institutions. This represents a \$33.8 billion drop in Agency MBS from the peak in April 2020.

Foreign Share of Agency MBS



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

Monthly Agency MBS Holdings by Foreigners



Sources: Treasury International Capital (TIC) and Urban Institute. Note: Data as of June 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 just under 70 percent of all foreign holdings. Between June 2019 and June 2020, we estimate that both China and Japan have increased their agency MBS holdings by \$13.3 billion and Taiwan has increased their holdings by \$2.5 billion. All three countries have experienced declines since March.

Agency MBS+ Agency Debt

Country	Level of Holdings (\$Millions)*					Change in Holdings (\$Millions)*			
	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Q3 2019	Q4 2019	Q1 2020	Q2 2020
Japan	297,016	311,047	305,332	322,155	310,268	14,031	-5,715	16,823	-11,887
Taiwan	265,524	263,018	261,740	269,133	267,918	-2,506	-1,278	7,393	-1,215
China	227,357	233,783	231,753	260,479	239,045	6,426	-2,030	28,726	-21,434
Luxembourg	47,646	46,641	39,015	36,789	42,389	-1,005	-7,626	-2,226	5,600
Ireland	45,829	41,367	38,731	26,131	29,399	-4,462	-2,636	-12,600	3,268
South Korea	42,879	41,485	40,810	40,964	38,891	-1,394	-675	154	-2,073
Cayman Islands	34,967	29,540	31,827	27,154	34,564	-5,427	2,287	-4,673	7,410
Bermuda	29,365	29,184	33,897	27,790	27,790	-181	4,713	-6,107	0
Netherlands	14,074	10,549	10,902	10,886	13,255	-3,525	353	-16	2,369
Malaysia	12,167	15,585	16,600	21,399	20,390	3,418	1,015	4,799	-1,009
Rest of world	128,142	135,515	152,489	202,143	201,165	7,373	16,974	49,654	-978
Total	1,144,971	1,157,714	1,163,096	1,245,023	1,225,074	12,743	5,382	81,927	-19,949

Agency MBS Only (Estimates)

Country	Level of Holdings (\$Millions)*					Change in Holdings (\$Millions)*			
	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Q3 2019	Q4 2019	Q1 2020	Q2 2020
Japan	293,662	307,738	302,212	319,241	306,963	14,076	-5,526	16,823	-12,278
Taiwan	265,234	262,732	261,470	268,881	267,700	-2,502	-1,262	7,393	-1,181
China	221,738	228,240	226,526	255,596	235,078	6,502	-1,714	28,726	-20,518
Luxembourg	43,978	43,023	35,603	33,602	40,207	-955	-7,420	-2,226	6,605
Ireland	37,674	33,322	31,145	19,045	21,091	-4,352	-2,177	-12,600	2,047
South Korea	34,969	33,682	33,452	34,091	28,743	-1,287	-230	154	-5,347
Cayman Islands	29,896	24,538	27,110	22,748	28,431	-5,358	2,572	-4,673	5,684
Bermuda	26,394	26,253	31,133	25,208	25,111	-141	4,880	-6,107	-97
Netherlands	13,904	10,381	10,744	10,738	12,739	-3,523	363	-16	2,001
Malaysia	11,881	15,303	16,334	21,150	20,028	3,422	1,031	4,799	-1,122
Rest of world	97,585	105,371	124,063	175,591	173,716	7,786	18,692	49,654	-1,874
Total	1,076,916	1,090,579	1,099,788	1,185,887	1,159,808	13,663	9,209	81,927	-26,079

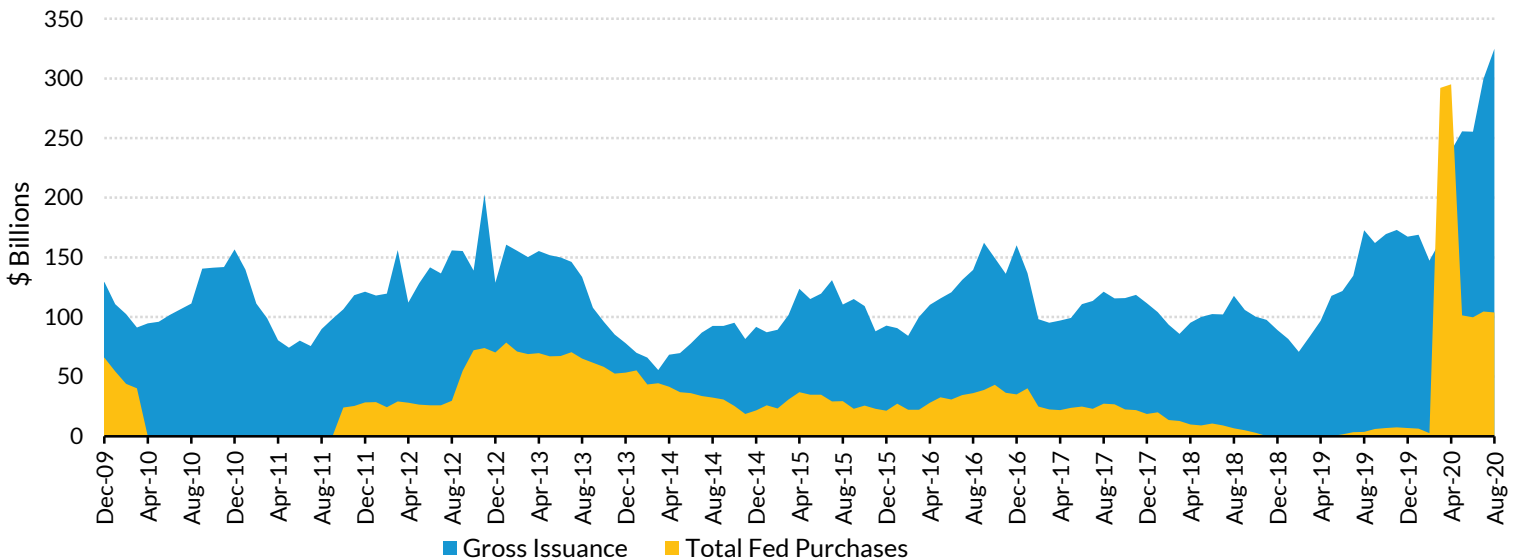
Sources :Treasury International Capital (TIC) and Urban Institute.

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 June 2020.

MBS Ownership

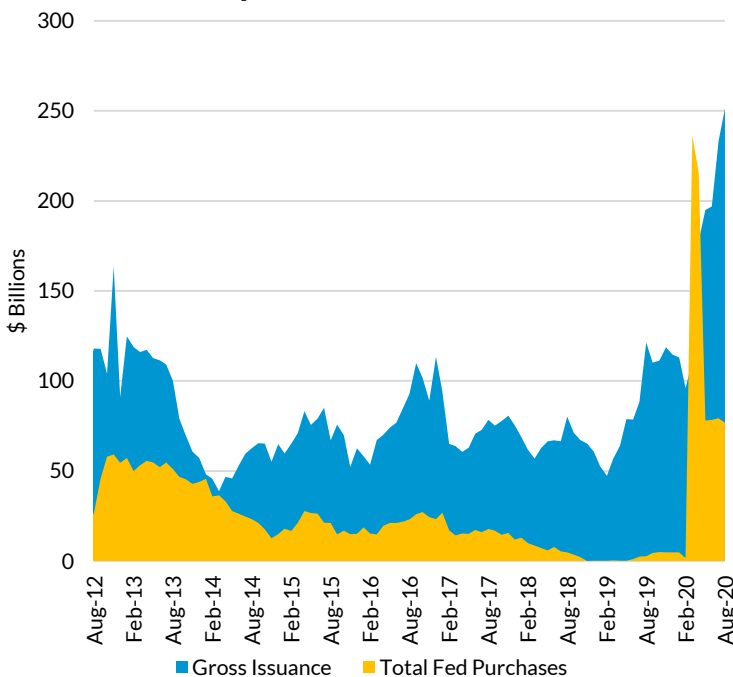
On March 23, 2020, in response to the market dislocations caused by the coronavirus pandemic, the Fed announced they would purchase Treasuries and agency MBS in an amount necessary to support smooth functioning markets. In March the Fed bought \$292.2 billion in agency MBS, and April clocked in at \$295.1 billion, the largest two months of mortgage purchases ever; and well over 100 percent of gross issuance for each of those two months. After the market stabilized, the Fed slowed its purchases to around \$100 - \$104 billion per month in May, June, July, and August. Fed purchases in August were \$102.8 billion, 32 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



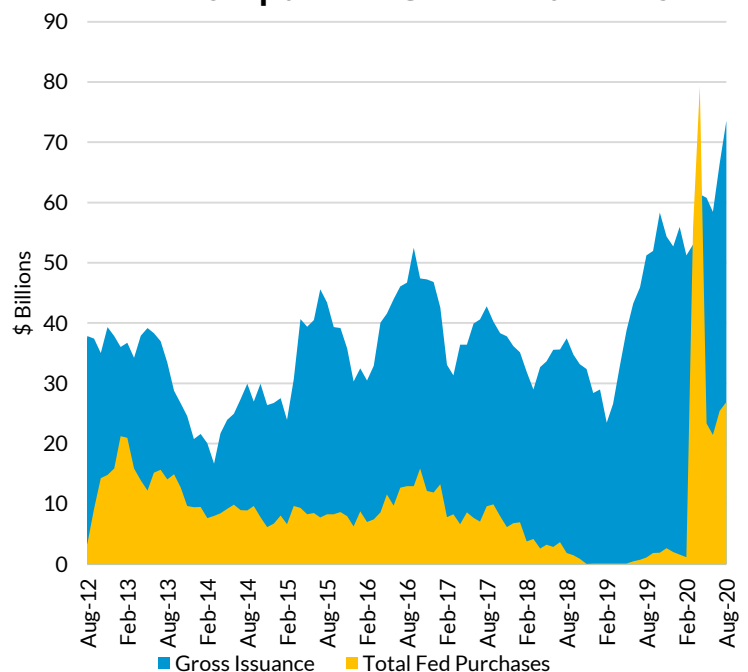
Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of August 2020.

Fed Absorption of GSE MBS



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

Fed Absorption of Ginnie Mae MBS



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

Disclosures:

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