

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

Buyouts, Modifications, and Pooling Restrictions

At the end of August, nearly 1.2 million loans—representing 10.5% of Ginnie Mae’s single-family MBS portfolio—were delinquent or in foreclosure. Most delinquent borrowers elected forbearance plans available under the Coronavirus Aid, Relief, and Economic Security (CARES) Act. The CARES Act allows borrowers to defer monthly principal and insurance (P&I) as well as tax and insurance (T&I) payments for up to one year.

Other Ginnie Mae stakeholders are also experiencing financial uncertainty as a result of CARES Act forbearance. Issuers, for example, have the obligation to advance timely P&I and T&I on their loans, regardless of delinquency. They must also absorb the high operational cost of providing loss mitigation to 1.2 million borrowers.

Ginnie Mae MBS investors are also affected by the CARES Act. Their concern is largely about the scale and timing of involuntary prepayments. As investors examine data for insights about future security performance, they may encounter difficulties in modeling prepayments. Modeling challenges are exacerbated by the fact that most bonds are valued at a premium (e.g., a price of 105, or 5% above par). As a result, any surge in involuntary prepayments, which occur at the par price, will have a negative effect on investment returns. These concerns have become widespread, with some security holders expecting that Ginnie Mae securities will exhibit unfavorable performance relative to those of the GSEs because of higher prepayments. These concerns have been driven by two factors differentiating Ginnie Mae MBS from UMBS:

- I. The option allowing Issuers to buy out seriously delinquent loans at par (specifically, the remaining loan balance plus accrued interest), and
- II. The expectation that the re-default rate of loan modifications in Ginnie Mae MBS is will be higher than those of the GSEs.

Prepayment concerns have already resulted in a decline of Ginnie Mae price spreads to conventional securities, though as the situation plays out other factors may limit the impact.

Optional Buyouts

The optional buyout, which is a long-standing feature of the Ginnie Mae MBS program, is designed to offer Issuers the ability to manage the requirement to advance P&I on delinquent loans by removing such loans from the pool. A confluence of pandemic-driven factors – higher MBS prices, higher delinquencies, and changing loss mitigation tactics -- have led to an increase in total buyouts, though uncertainty about how the various possibilities will play out makes performance scenarios difficult to model.

One aspect of this is the capital impact. Repurchases of optional buyouts require capital far above that of advancing timely P&I payments to security holders. Although depository issuers have access to near-zero cost of funds, non-depository Issuers must access capital through Early Buy Out lines or EBOs, or warehouse EBO sub-limits, which generally bear interest rates at 2.50 – 3.50% range depending upon the Issuer’s financial strength and have haircuts of 5-15%. The latter requires non-bank issuers to post their available capital for the amount of the difference. As such, the optional buyout is not without risk because Ginnie Mae has imposed restrictions on the re-pooling of reperforming loans in [APM 20-07](#).

This APM requires such loans to demonstrate six months of timely P&I installments for MBS eligibility. It also restricts pooling to a custom MBS pool type “RG”—which is not TBA eligible. The pricing of these RG pools is expected to be significantly less than TBA counterparts. Moreover, Ginnie Mae regularly monitors prepayments and may impose restrictions on issuers whose rates differ substantially from other issuers with comparable pools.

To date, non-depository issuers have exercised the buyout option much less frequently than depository issuers. There are a number of factors that contribute to this, including:

- the uncertainty of timing and scale of 1) forbearance maturities and 2) the related exit paths, (i.e. partial claims, modifications and foreclosures);
- funding cost and capital required for EBO lines,
- the risk of carrying a large number of non-performing loans

Additionally, the optional buyout trend of depository Issuers has declined since the June peak.

Loan buyout data (see Table 1) clearly show the changing rate at which issuers have been removing loans from securitized pools. Table 1 also shows the distribution of loans liquidated from Ginnie Mae pools for various reasons. In March and April of this year, only 6 percent of all liquidations were delinquent loans. The vast majority (92 percent) were refinance payoffs. Buyout activity subsequently doubled to 12 percent in May and then nearly tripled to 34 percent in June – dominated by the buyout activity of two depositories. The total number liquidations (regardless of reason) increased from over 210,000 loans in March to nearly 390,000 in June, with an increasing share for delinquent buyouts. Ginnie Mae’s new policy to restrict repooling became effective July 1st, 2020.

HIGHLIGHTS

Table 1: Distribution of Ginnie Mae Loan Bought out of Pools

Distribution of Removed Loans from Ginnie Pools					
	Loan Count	Mortgagor Payoff	Repurchase of delinquent loan	Loss mitigation	Other
January 2019	84,957	76%	18%	5%	1%
January 2020	185,509	86%	11%	3%	1%
February 2020	183,926	87%	10%	2%	1%
March 2020	210,680	92%	6%	2%	1%
April 2020	225,709	92%	6%	2%	0%
May 2020	246,989	86%	12%	2%	0%
June 2020	389,616	64%	34%	2%	0%
July 2020	351,977	75%	22%	2%	0%
August 2020	317,182	83%	14%	3%	0%

Source: Urban Institute calculations from Ginnie Mae data.

Modifications

The redefault rate of modifications during the Global Financial Crises was unexpectedly high. The initial modifications then had a redefault rate between 30 to 40% within 18 months of the effective date. Investors, aware of this history, are concerned that current modifications will see the same results. But that might not necessarily be the case. Today, FHA and other agencies have more enhanced home retention options, which were vastly improved during the Global Financial Crises. These retention options, combined with the historically low interest rates, can facilitate more significant P&I payment reductions than were available during the Global Financial Crises. This is an important factor in determining home retention success rates. We may experience lower re-default rates than current expectations as a result.

As Table 1 shows, in July repurchases represented a smaller share (22%) of all liquidations compared to June's 34 percent. The favorable trend continued in August when the repurchase share dropped further to 14 percent—slightly above the level in May. The number of total liquidations also declined, falling to about 317,000 in August. Although August numbers are elevated compared to March and April, this trend is encouraging for security investors. Note that loss mitigation share of buyouts has remained stable in the 2 to 3 percent range this year. This number may remain low for the next several months as struggling borrowers may simply opt to extend forbearance up to the full 12 months. This should help keep modification-driven buyouts low, a positive for prepayments. Although prepayments continue to remain elevated because of strong refinance activity amid all-time low rates, pooling restrictions, and the risk of carrying optional buyouts should help ensure this activity stays within the bounds of what is appropriate for homeowners and the federal programs. Recent price stability of Ginnie Mae securities relative to intermediate credit (page 10) as well as favorable hedged yields relative to JPY (page 8) and Euro (page 9) suggest investor confidence in Ginnie Mae MBS remains intact.

Summary

Investors are concerned about the deteriorating performance of Ginnie Mae MBS and the impact of optional buyouts. Prepayment modeling has become difficult because of the scale of forbearances, the existence of the optional buyout, and insufficient data to confidently predict borrower reinstatement paths. To date the data suggests that the optional buyout is not as heavily utilized as feared among non-bank issuers, which service approximately 76% of the forborne loan population. September and October reporting will provide servicers and investors new data on borrower forbearance elections. Each month Ginnie Mae discloses supplemental loan level forbearance data to assist our market-makers and investors with improving their predictive models.

Disclosure:

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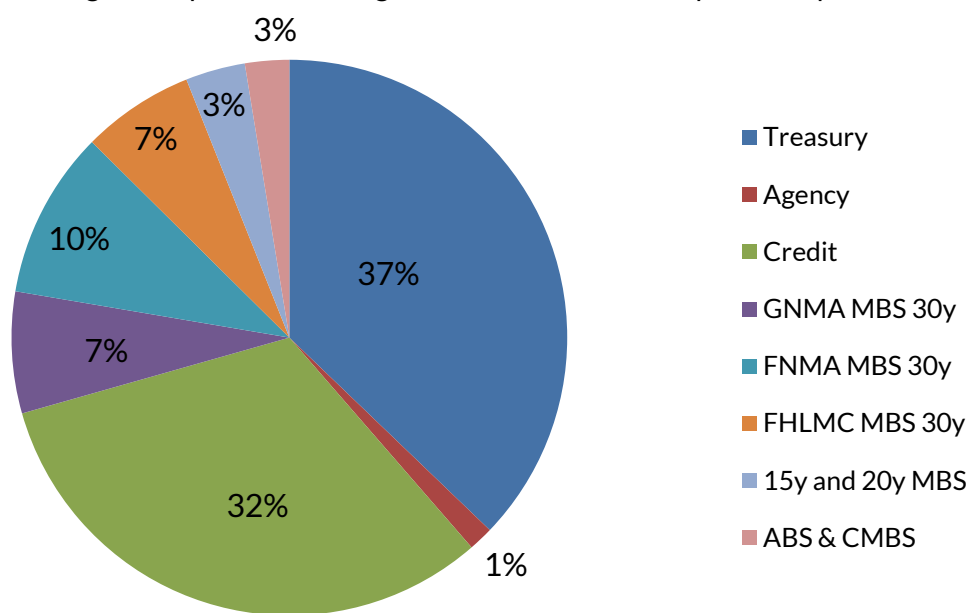
Highlights this month:

- Monthly delinquency data has begun to show the impact of the COVID-19 pandemic; serious delinquency rates spiked several fold from Q1 to Q2 2020 (page 13).
- With private capital pulling back significantly because of the COVID-19 recession, the federal government is once again playing the dominant role in the mortgage market. Over 85 percent of originations in Q2 2020 were federally-backed (page 19).
- The two largest holders of Ginnie Mae MSR are now non-banks (Lakeview and Penny Mac); non-banks now hold 74 percent of all Ginnie Mae MSR (page 42).
- In Q2, 2020, banks and thrifts increased their holdings by over 4%; GSE pass-throughs and agency CMOs were the categories accounting for the bulk of the net additions (page 53).

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

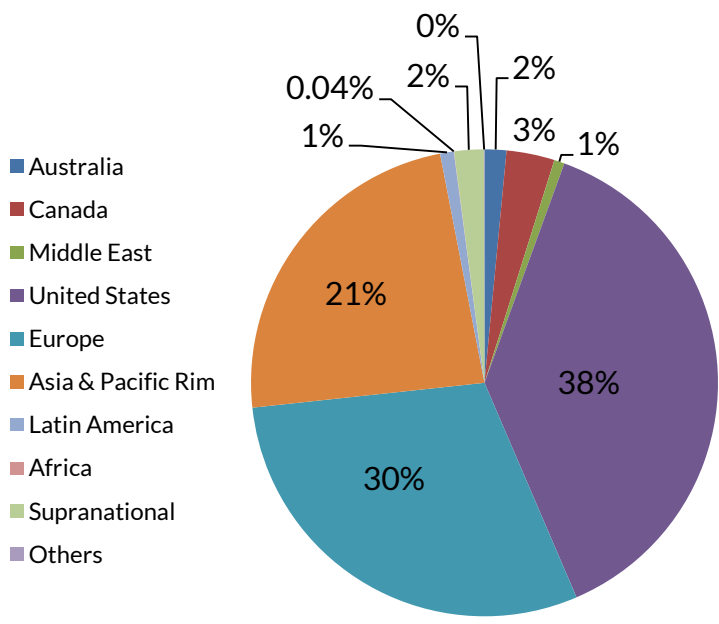
US MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) comprise 27 percent of the Barclays US Aggregate Index- less than either the US Treasury share (37 percent) or the US Credit share (32 percent). Fannie Mae 30-year MBS accounts for 10 percent of the overall index, the largest MBS component, while Ginnie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

Barclays US Aggregate Index



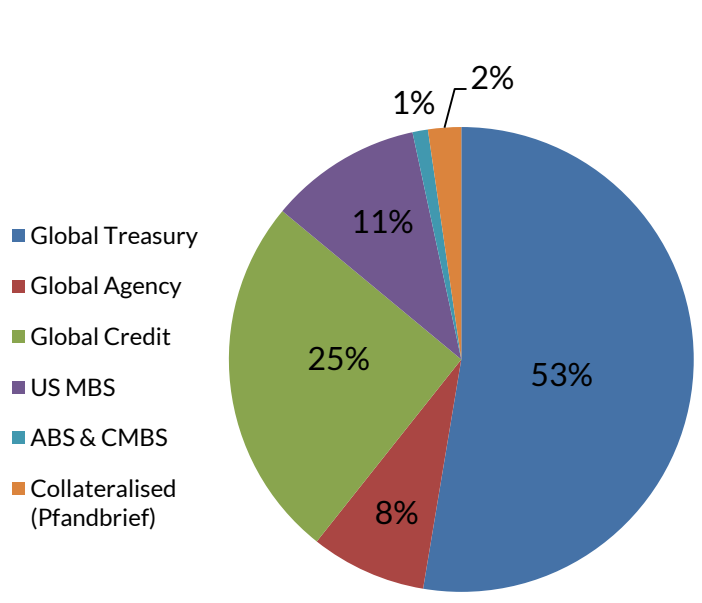
Sources: Bloomberg and State Street Global Advisors. Note: Data as of June 2020. Note: Numbers in chart may not add to 100 percent due to rounding.

Barclays Global Aggregate Index by Country



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

Barclays Global Aggregate Index by Sector

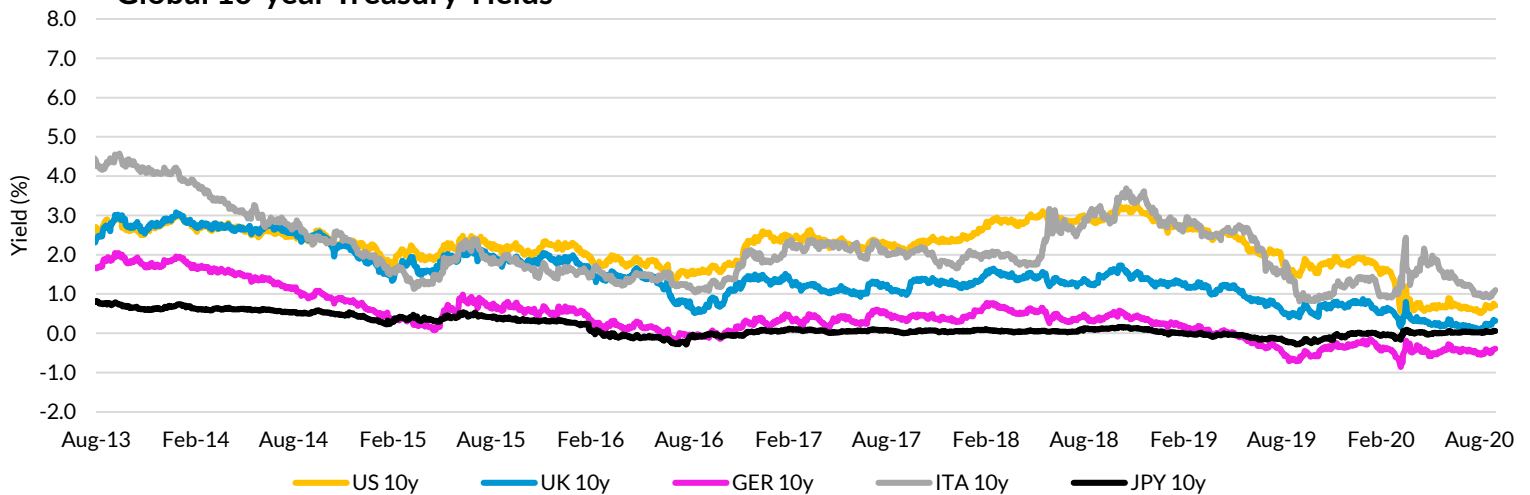


Sources: Bloomberg and State Street Global Advisors. Note: Data as of June 2020.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

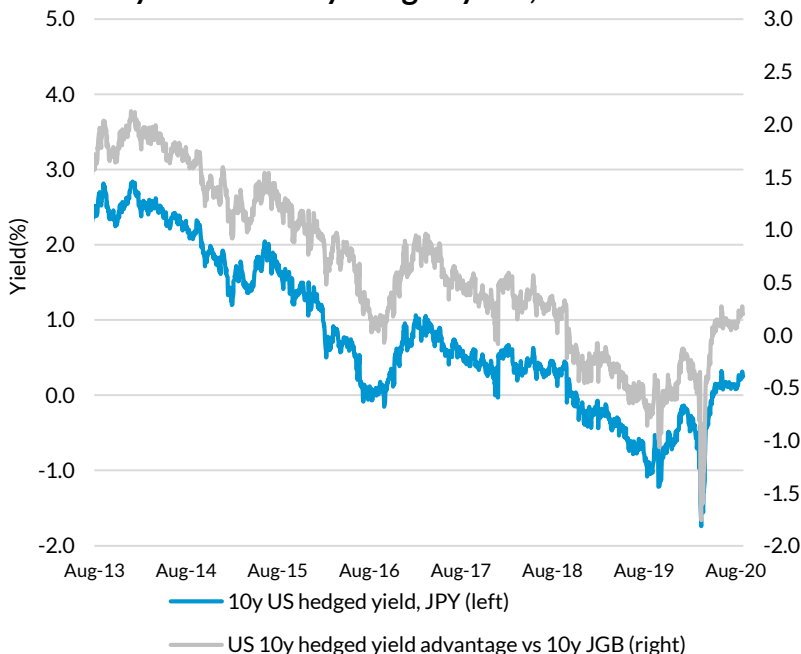
After experiencing COVID-19 related volatility in March and April of this year, government bond yields across the globe stabilized. In August 2020, the yield on the 10-year treasury rose by 18 bps to 0.70 percent. The yield on the Italian 10-year note, which is the highest in the developed world, increased by 8 bps to 1.09 percent. The yield on the UK 10-year bond rebounded by 21 bps to 0.31 percent, the Japanese 10-year government bond yield grew slightly by 3 bps to 0.05 percent, and the German 10-year yield grew by 13 bps to negative 0.40 percent in August. At the end of August, the hedged yield differential between the 10-year Treasury and the 10-year JGB stood at 20 bps, an increase of 14 bps since July 2020. The hedged yield differential between the 10-year Treasury and the 10-year Bund stood at 32 bps, an increase of 4 bp since the end of July 2020.

Global 10-year Treasury Yields



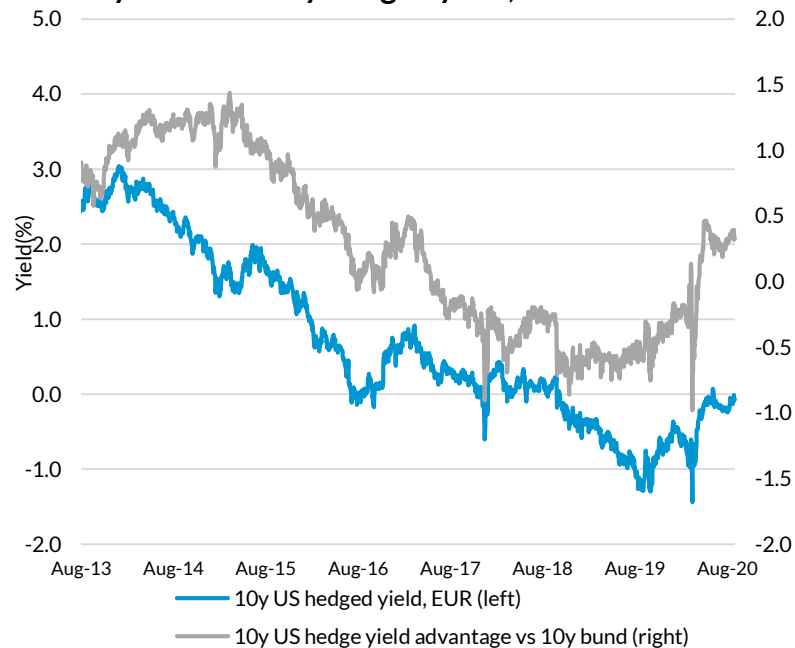
Sources: Bloomberg and State Street Global Advisors. Note: Data as of August 2020.

10yr US Treasury hedged yield, JPY



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

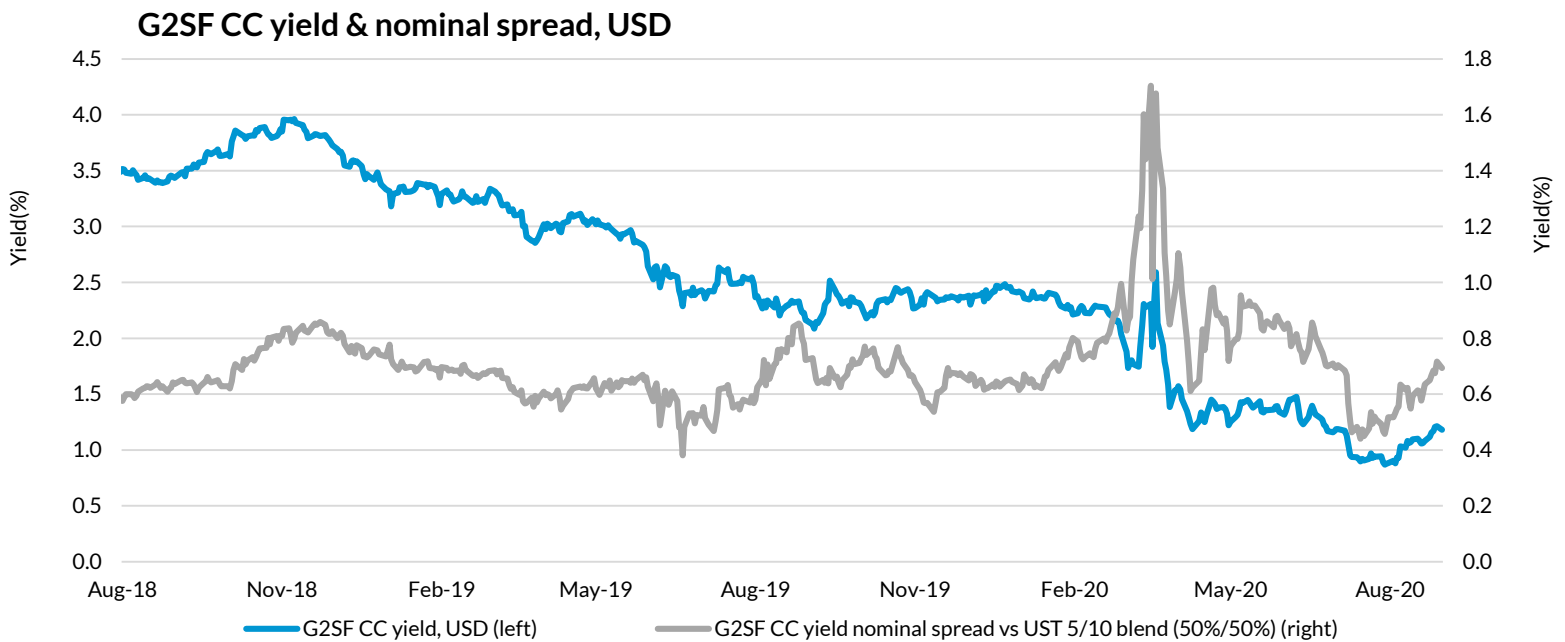
10yr US Treasury hedged yield, EUR



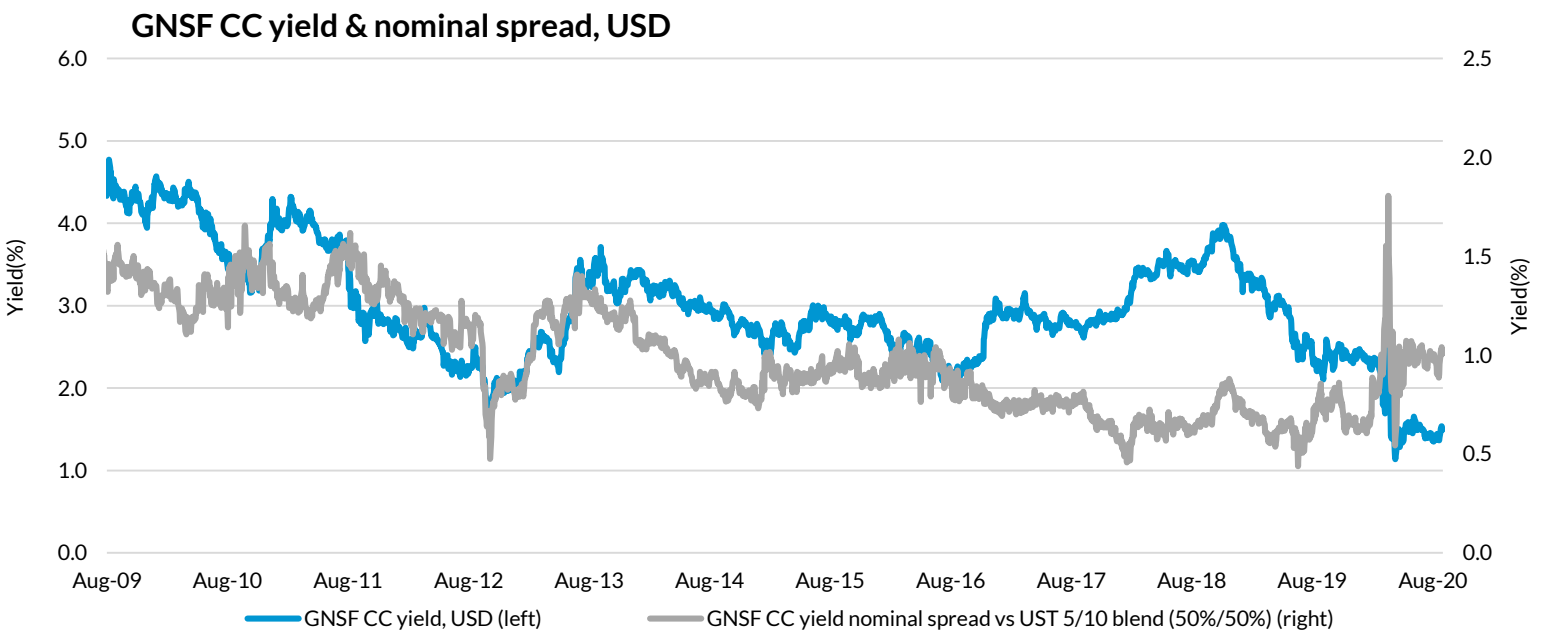
Sources: Bloomberg and State Street Global Advisors
Note: Data as of August 2020.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

Nominal yields rose in August 2020, with GNMA II yields increasing 30 bps to 1.18 percent and GNMA I yields up 13 bps to 1.49 percent. At the end of August, current coupon Ginnie Mae securities outyielded their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 69 bps on the G2SF and 101 bps on the GNSF, an increase of 18 and 1 bp respectively since last month.



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

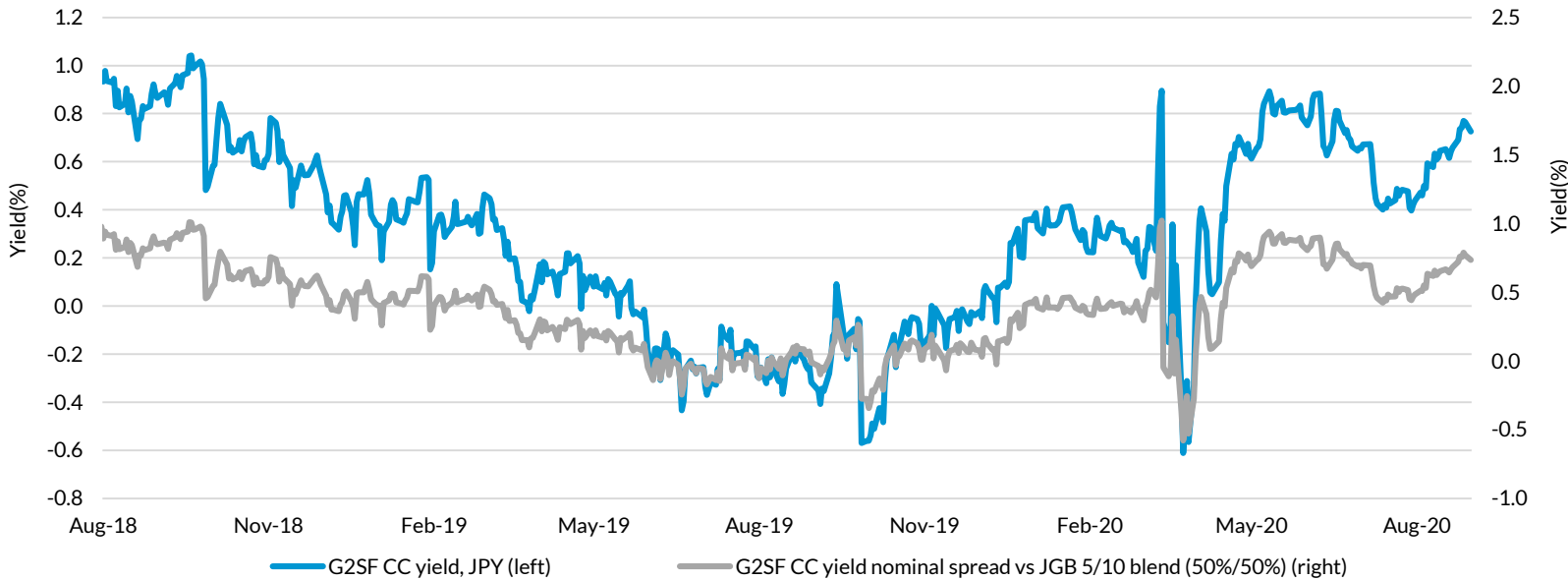


Sources: Bloomberg and State Street Global Advisors. Note: Data as of August 2020.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

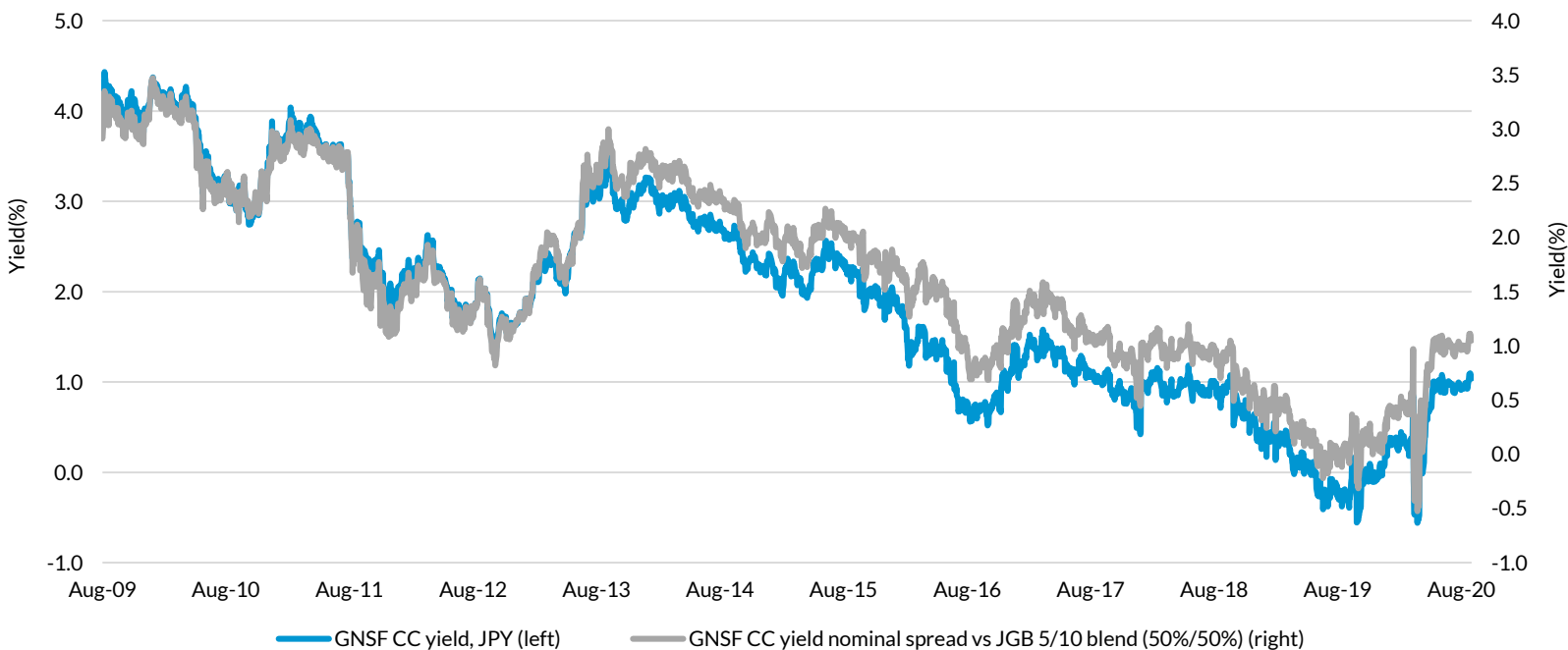
If Ginnie Mae securities are hedged into Japanese Yen, they look favorable on a yield basis versus the JGB 5/10 blend at the end of August. More precisely, hedged into Japanese yen, the G2SF and GNSF have a 73 and 105 bp yield versus the JGB 5/10 blend. This represents a 25 and 9 bp widening for G2SF and GNSF, respectively, since the end of July 2020.

G2SF CC yield & nominal spread, JPY



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

GNSF CC yield & nominal spread, JPY

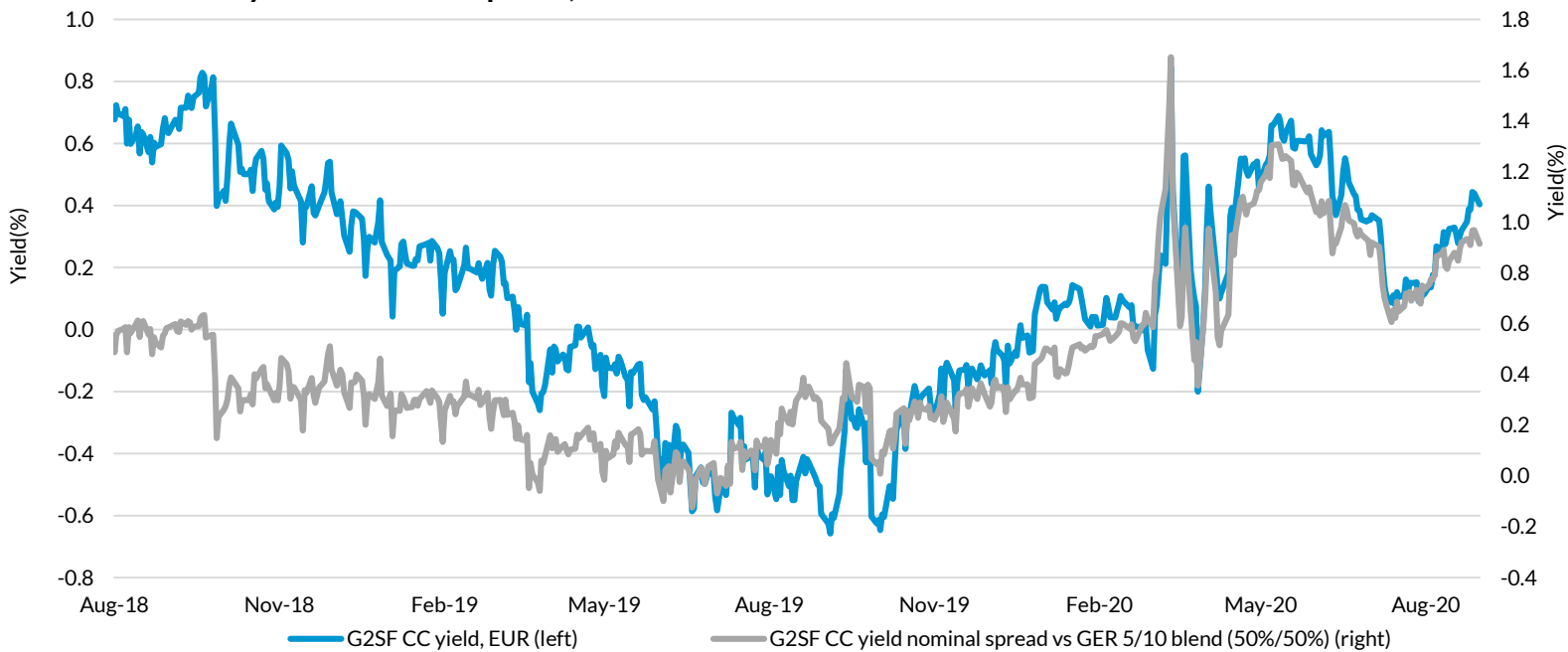


Sources: Bloomberg and State Street Global Advisors. Note: Data as of August 2020.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

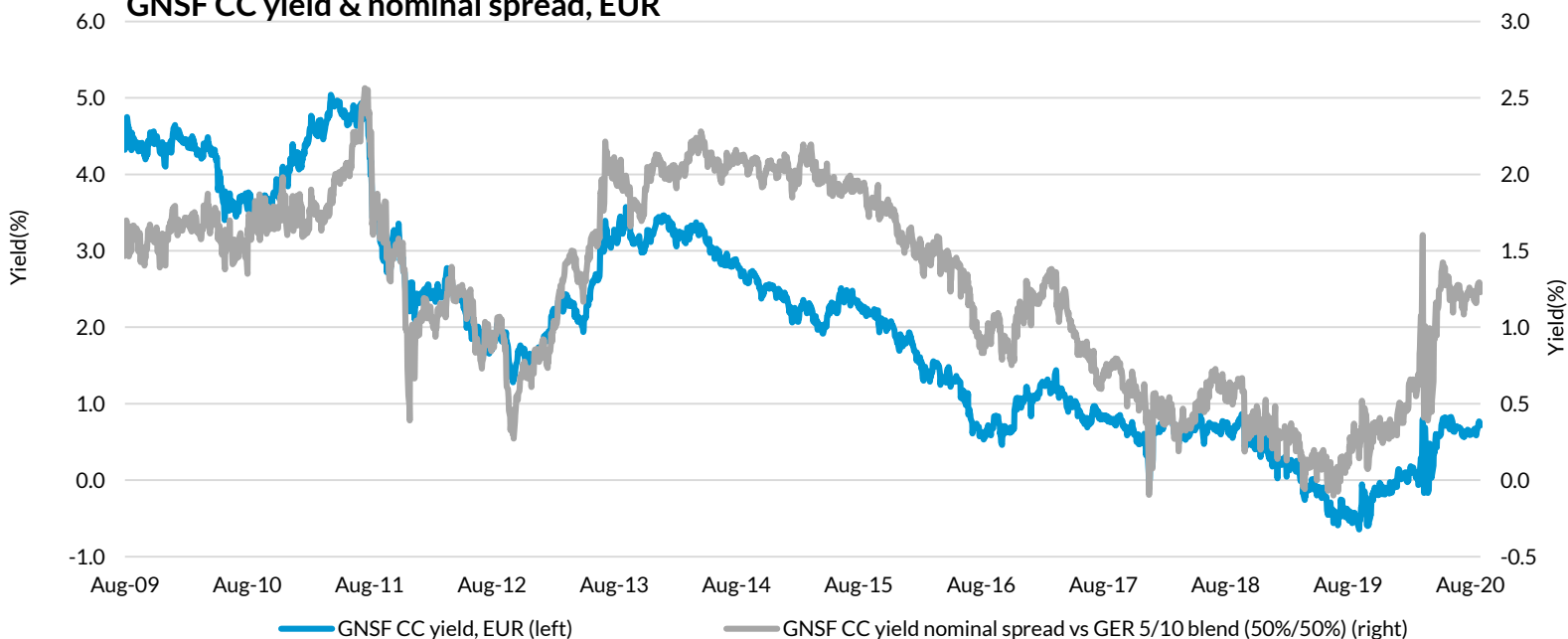
If Ginnie Mae securities are hedged into Euros, they look favorable on a yield basis versus the German 5/10 Blend. The figures below show that at the end of August, the current coupon G2SF and GNSF hedged into euros have a 92 and 123 bp higher yield than the average of the German 5/10, respectively. This represents a 18 and 2 bp increase for the G2SF and GNSF, respectively, since the end of last month.

G2SF CC yield & nominal spread, EUR



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

GNSF CC yield & nominal spread, EUR

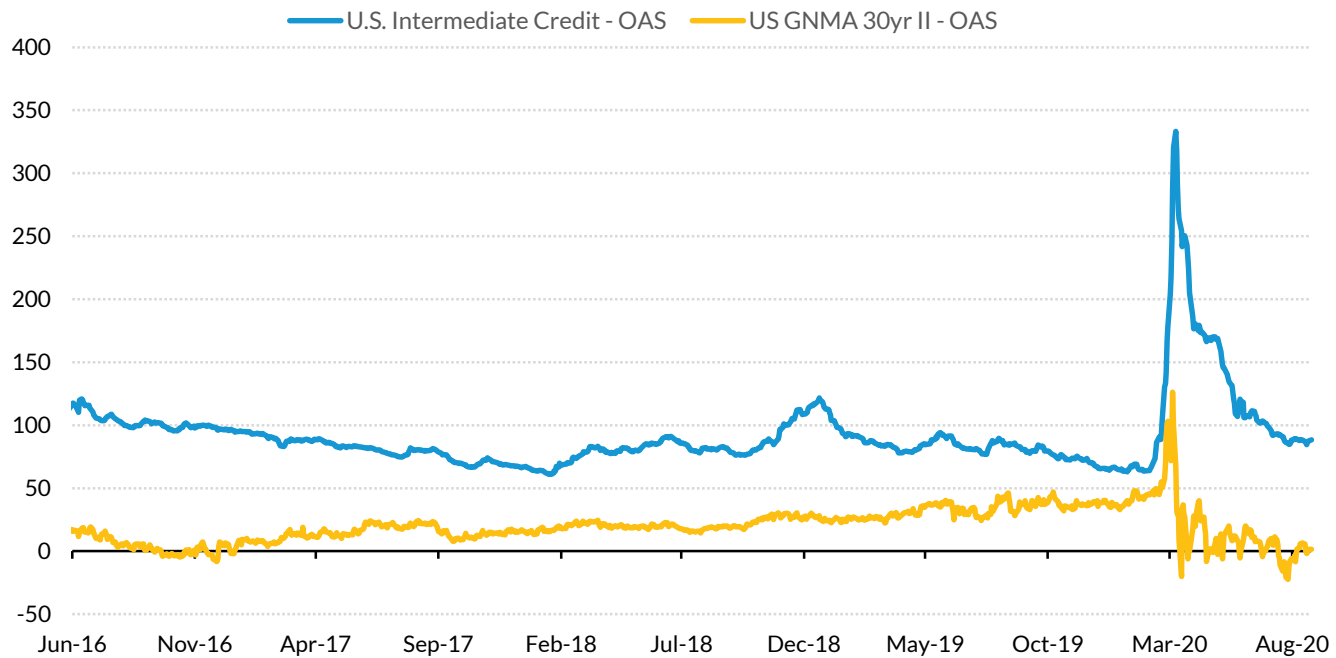


Sources: Bloomberg and State Street Global Advisors. Note: Data as of August 2020.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

After tightening steadily from mid-2016 to Jan 2020, the spread between US Intermediate Credit and GNMA II 30 year OAS skyrocketed in Feb 2020 in response to the COVID-19 panic. This was followed by substantial tightening over the period March-August 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 August 2020 at 87 basis points in comparison to 21 basis points at the end of Jan, reflecting heightened investor concern about corporate credit risk.

G2 30 MBS versus Intermediate Credit



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

Spread between Intermediate credit and 30-year GNMA MBS OAS

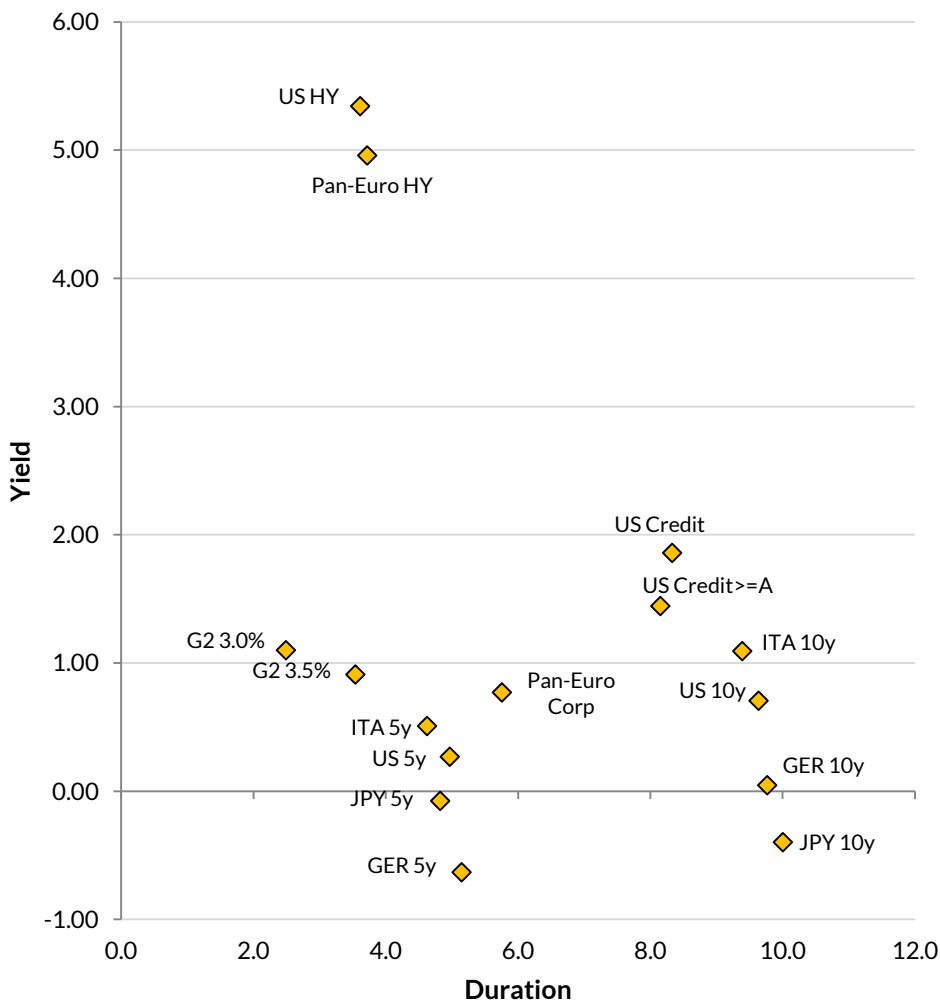


Sources: State Street Global Advisors. Note: Data as of August 2020.

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	0.27
US 10y	9.6	0.71
GNMA II 3.0%	3.5	0.91
GNMA II 3.5%	2.5	1.10
JPY 5y	4.8	-0.08
JPY 10y	9.8	0.05
GER 5y	5.1	-0.63
GER 10y	10.0	-0.40
ITA 5y	4.6	0.51
ITA 10y	9.4	1.09
US credit	8.3	1.86
US credit >= A	8.1	1.44
US HY	3.6	5.34
Pan-Euro Corp	5.8	0.77
Pan-Euro HY	3.7	4.96

Sources: Bloomberg and State Street Global Advisors. Note: Yields are in base currency of security and unhedged. Data as of August 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	0.57	0.65	0.05	0.47	0.10
3 year	0.28	0.43	0.54	0.22	0.43	0.23
5 year	0.24	0.33	0.52	0.20	0.55	0.31
10 year	0.24	0.26	0.44	0.33	0.58	0.54

Average Excess Return (Per Month)						
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield*	Pan Euro High Yield*
1 year	0.25	0.51	0.58	0.11	0.40	0.15
3 year	0.15	0.30	0.41	0.28	0.30	0.29
5 year	0.15	0.23	0.42	0.26	0.46	0.37
10 year	0.19	0.21	0.39	0.36	0.53	0.56

Standard Deviation						
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield*	Pan Euro High Yield*
1 year	0.54	1.41	3.01	2.74	4.25	4.75
3 year	0.66	1.24	1.97	1.64	2.62	2.84
5 year	0.60	1.13	1.66	1.43	2.32	2.40
10 year	0.64	1.05	1.45	1.38	2.04	2.04

Sharpe Ratio						
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield*	Pan Euro High Yield*
1 year	0.46	0.36	0.19	0.04	0.09	0.03
3 year	0.23	0.24	0.21	0.17	0.12	0.10
5 year	0.24	0.21	0.26	0.18	0.20	0.15
10 year	0.30	0.20	0.27	0.26	0.26	0.28

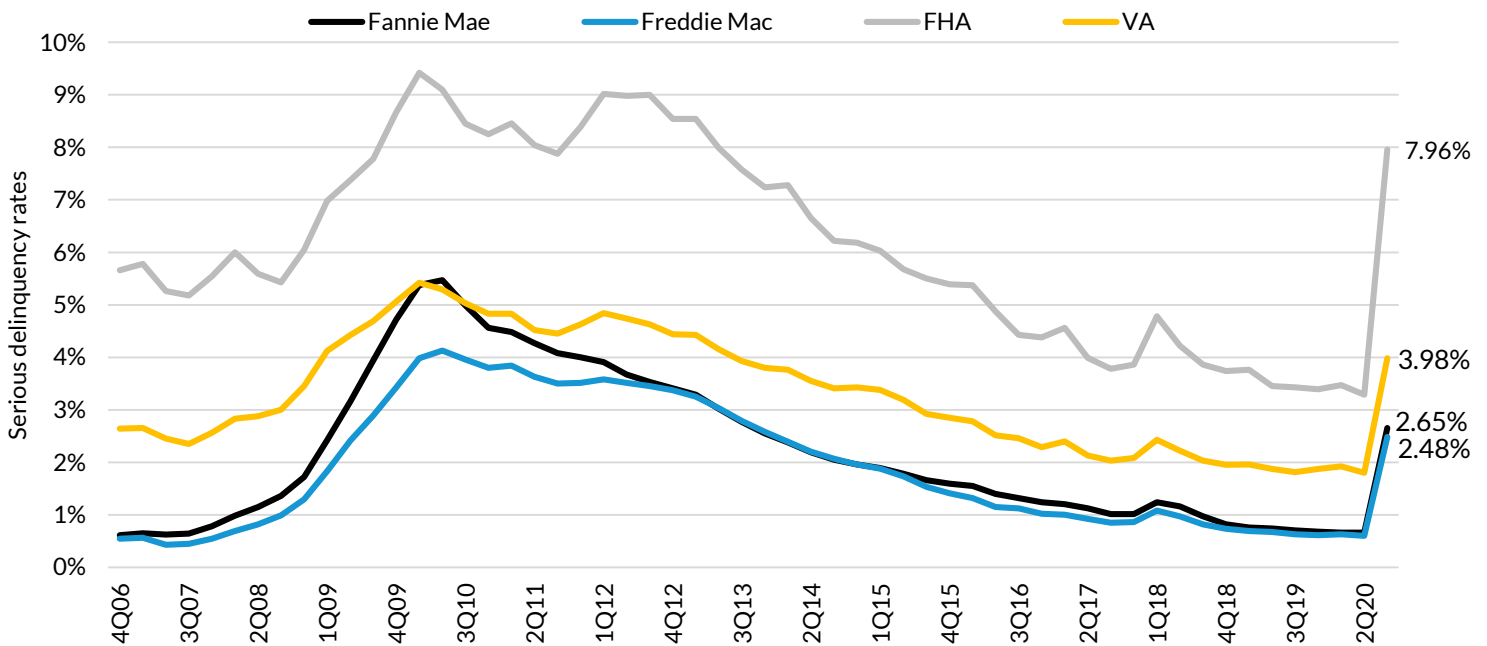
*Assumes 2% capitalization max per issuer on high yield indices

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

State of the US Housing Market

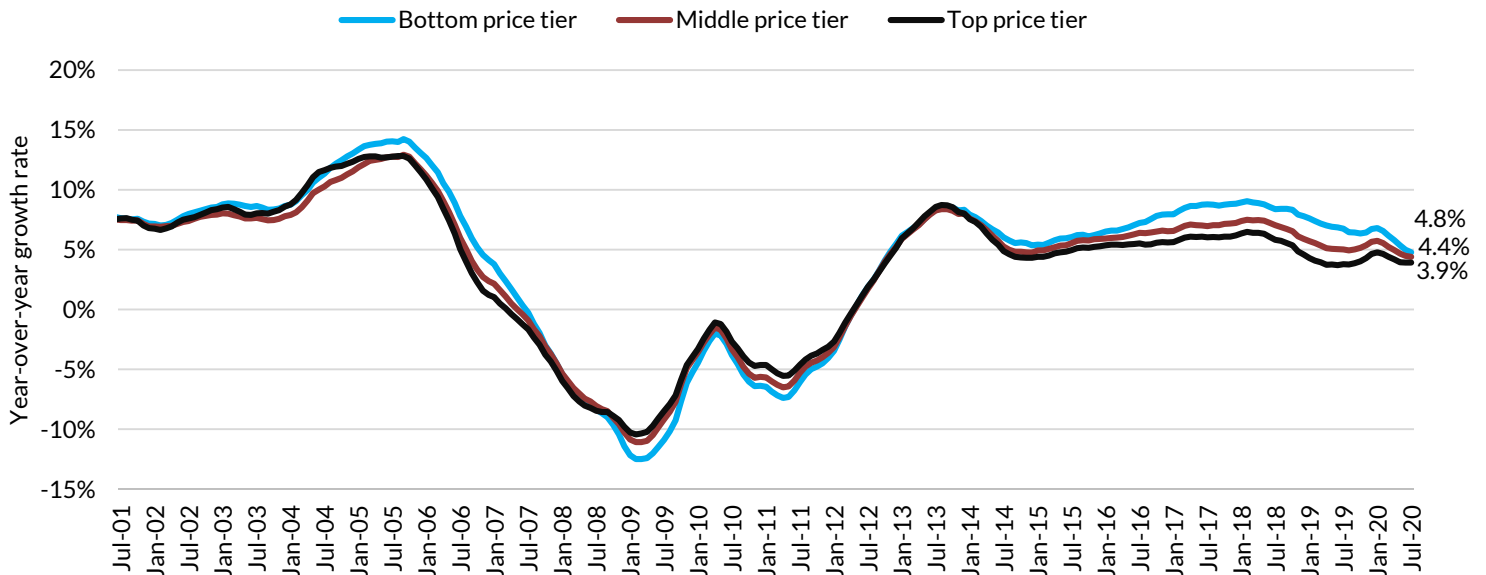
Serious delinquency rates for single-family GSE loans, FHA loans and VA loans spiked in Q2 2020, reflecting the impact of the COVID-19 pandemic. These delinquency numbers include loans in COVID-19 forbearance. The bottom chart shows nationwide house prices for the bottom, middle and the top quintiles 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 4.8 percent for 12 months ended July 2020, higher than the 3.9 percent for the top end of the market. Year-over-year price growth in July was lower than June for the bottom and middle price tiers, and remained the same for the top price tier.

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 July 2020.

State of the US Housing Market

Nationally, nominal home prices have increased by 59.8 percent since the trough, and now exceed their pre-crisis peak valuation on a nominal basis by 19.4 percent. The picture is very different across states, with many states well in excess of the prior peak, while Connecticut remains 10.1 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%	59.8%	3.9%	19.4%
Alabama	36.1%	-15.4%	36.8%	4.7%	15.7%
Alaska	69.5%	-3.0%	26.9%	2.6%	23.0%
Arizona	109.9%	-47.8%	91.6%	6.3%	0.0%
Arkansas	41.4%	-9.8%	28.6%	3.2%	16.0%
California	154.8%	-43.3%	97.6%	3.8%	12.0%
Colorado	40.3%	-12.9%	86.9%	3.6%	62.8%
Connecticut	92.2%	-24.7%	19.3%	2.3%	-10.1%
Delaware	94.6%	-23.5%	35.0%	4.7%	3.3%
District of Columbia	174.5%	-13.7%	61.4%	4.9%	39.3%
Florida	128.3%	-46.8%	79.1%	5.3%	-4.8%
Georgia	38.4%	-31.4%	71.2%	4.0%	17.5%
Hawaii	162.7%	-22.5%	55.7%	4.1%	20.7%
Idaho	71.8%	-28.7%	100.9%	8.6%	43.3%
Illinois	61.6%	-34.4%	42.0%	1.0%	-6.9%
Indiana	21.6%	-8.0%	41.0%	3.7%	29.7%
Iowa	28.2%	-4.7%	30.1%	2.1%	24.0%
Kansas	34.6%	-9.2%	46.5%	3.1%	33.0%
Kentucky	29.6%	-7.5%	36.5%	2.9%	26.3%
Louisiana	48.7%	-5.1%	26.4%	2.5%	20.0%
Maine	82.1%	-12.3%	44.8%	4.2%	26.9%
Maryland	129.2%	-28.6%	31.2%	2.7%	-6.3%
Massachusetts	92.4%	-22.4%	60.6%	3.3%	24.6%
Michigan	23.9%	-39.3%	82.7%	2.5%	10.8%
Minnesota	66.4%	-27.7%	61.8%	3.3%	17.0%
Mississippi	41.0%	-13.8%	32.9%	4.8%	14.5%
Missouri	42.6%	-15.3%	41.3%	3.5%	19.7%
Montana	82.2%	-11.2%	58.3%	4.5%	40.6%
Nebraska	26.7%	-6.6%	46.8%	2.9%	37.1%
Nevada	126.9%	-59.0%	128.7%	3.8%	-6.3%
New Hampshire	90.7%	-23.1%	47.8%	4.6%	13.6%
New Jersey	117.7%	-28.0%	31.7%	3.1%	-5.1%
New Mexico	66.8%	-16.4%	32.3%	6.7%	10.6%
New York	98.4%	-15.3%	46.9%	4.2%	24.5%
North Carolina	40.6%	-15.8%	42.3%	4.3%	19.9%
North Dakota	53.5%	-3.9%	57.7%	2.8%	51.6%
Ohio	21.1%	-18.3%	42.5%	3.5%	16.5%
Oklahoma	37.4%	-2.5%	24.7%	4.6%	21.6%
Oregon	81.9%	-28.1%	86.5%	3.9%	34.2%
Pennsylvania	70.1%	-11.7%	29.0%	2.3%	13.9%
Rhode Island	130.6%	-34.2%	60.9%	6.5%	5.9%
South Carolina	45.0%	-19.4%	40.9%	4.3%	13.6%
South Dakota	45.3%	-4.0%	47.9%	1.8%	42.0%
Tennessee	35.0%	-11.9%	52.0%	4.8%	33.9%
Texas	33.5%	-5.8%	56.9%	3.7%	47.8%
Utah	54.8%	-22.1%	85.5%	5.8%	44.5%
Vermont	83.5%	-7.5%	40.4%	5.3%	29.9%
Virginia	99.6%	-22.7%	32.1%	3.8%	2.1%
Washington	85.1%	-28.7%	98.3%	6.0%	41.4%
West Virginia	42.4%	-6.5%	29.9%	4.3%	21.4%
Wisconsin	44.9%	-16.3%	40.2%	1.6%	17.3%
Wyoming	77.4%	-5.7%	36.1%	5.0%	28.4%

Sources: Black Knight and Urban Institute. Note: HPI data as of July 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 07/2020, the latest HPI data period.

State of the US Housing Market

Ginnie Mae MBS constitute 27.2 percent of outstanding agency issuance by loan balance and 29.5 percent of new issuance over the past year. However, the Ginnie Mae share varies widely across states, with the share of outstanding (by loan balance) as low as 13.2 percent in the District of Columbia and as high as 47.9 percent in Mississippi. In general, the Ginnie Mae share is higher in states with lower home prices.

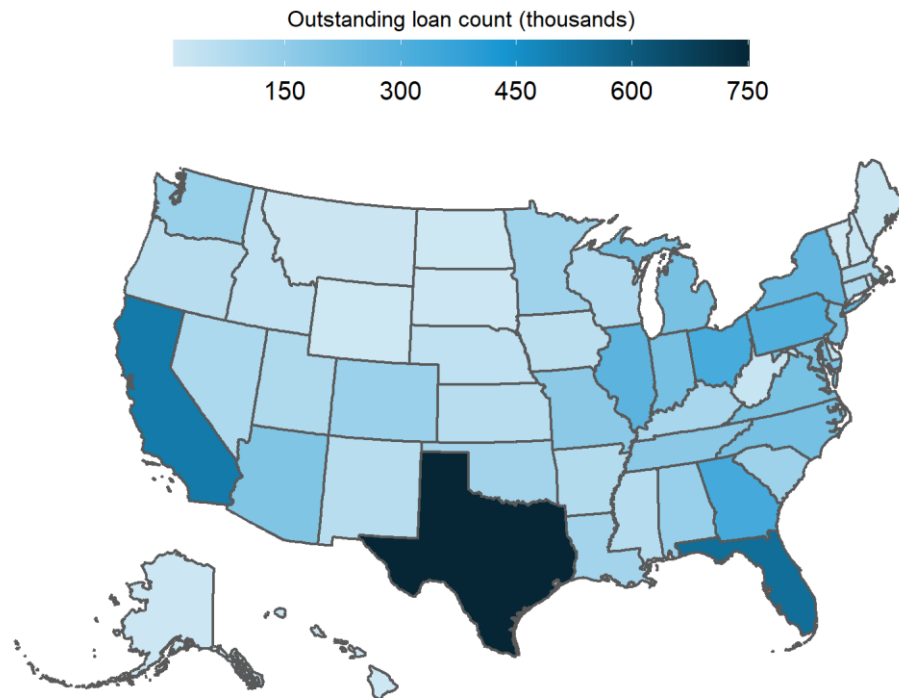
State	Agency Issuance (past 1 year)				Agency Outstanding			
	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)
National	29.5%	2,581,876	249.7	271.9	27.2%	11,376,676	165.0	195.5
Alabama	41.9%	46,699	190.4	214.9	41.5%	239,105	128.8	156.7
Alaska	51.9%	7,830	307.2	276.2	47.8%	38,221	231.2	203.4
Arizona	30.1%	97,803	244.3	251.5	26.1%	315,583	167.9	188.8
Arkansas	39.8%	24,862	162.5	193.5	41.3%	140,361	111.3	141.6
California	23.0%	242,380	389.0	382.6	17.7%	776,713	269.6	279.2
Colorado	28.7%	80,884	327.7	316.7	23.2%	236,906	226.4	238.6
Connecticut	29.1%	20,581	234.3	257.0	27.4%	109,662	181.3	190.7
Delaware	36.0%	11,441	236.9	253.4	33.5%	52,496	179.8	188.2
District of Columbia	16.2%	2,181	480.6	427.8	13.2%	9,730	300.2	313.1
Florida	39.4%	219,682	239.3	238.7	32.7%	855,959	170.0	178.3
Georgia	37.8%	116,883	212.1	243.6	35.1%	518,787	145.1	176.7
Hawaii	44.5%	10,976	550.9	437.4	26.8%	32,267	383.0	323.7
Idaho	28.1%	20,405	246.5	243.5	26.7%	78,575	160.5	180.5
Illinois	21.3%	72,608	198.9	232.0	22.4%	371,865	140.6	164.1
Indiana	31.9%	61,890	166.6	187.4	33.6%	306,234	111.8	131.5
Iowa	20.7%	16,468	168.4	193.5	23.1%	87,162	114.5	136.0
Kansas	30.2%	19,140	178.3	208.0	32.3%	105,066	120.0	143.9
Kentucky	34.8%	34,347	172.6	195.1	36.0%	170,061	121.6	137.4
Louisiana	39.4%	36,582	189.6	222.5	39.3%	191,094	137.4	162.9
Maine	29.8%	9,284	207.7	231.0	29.1%	40,962	152.8	166.8
Maryland	40.5%	71,985	315.8	308.4	35.4%	303,773	229.9	224.0
Massachusetts	18.5%	32,083	326.9	332.9	16.9%	123,847	239.9	238.6
Michigan	20.2%	60,090	169.5	200.6	22.4%	306,208	114.1	139.6
Minnesota	19.8%	37,546	226.0	243.6	20.6%	186,363	157.1	177.5
Mississippi	47.9%	21,693	173.0	197.9	47.9%	117,442	121.2	145.3
Missouri	29.2%	52,740	176.0	204.8	31.6%	265,956	120.8	143.8
Montana	27.6%	8,434	247.4	251.5	25.7%	36,617	170.7	185.4
Nebraska	28.8%	13,628	191.8	198.7	29.9%	73,243	123.7	141.9
Nevada	37.1%	44,995	281.8	264.8	30.0%	141,725	193.7	201.5
New Hampshire	27.5%	10,866	262.9	258.4	25.9%	44,653	194.8	188.0
New Jersey	25.3%	53,551	280.4	308.3	24.3%	247,432	210.2	224.7
New Mexico	40.3%	17,884	206.1	218.4	39.6%	99,028	141.4	157.3
New York	23.1%	48,892	275.2	307.3	23.1%	331,325	186.7	219.7
North Carolina	33.1%	96,839	211.6	239.8	30.4%	435,012	142.4	172.8
North Dakota	24.0%	3,790	235.2	230.4	23.3%	16,947	167.8	170.9
Ohio	30.3%	81,784	166.1	185.7	32.3%	453,958	112.4	130.9
Oklahoma	43.2%	31,892	175.4	197.4	45.0%	197,629	119.9	143.8
Oregon	25.1%	36,003	292.3	292.7	20.4%	126,399	204.1	217.9
Pennsylvania	28.7%	70,970	189.2	227.4	30.0%	417,649	135.7	161.6
Rhode Island	32.1%	8,591	258.3	255.1	30.7%	37,112	191.9	189.2
South Carolina	38.8%	56,980	213.0	227.2	34.3%	232,357	148.7	166.8
South Dakota	29.4%	6,847	203.4	216.0	32.0%	31,093	144.1	157.1
Tennessee	36.1%	65,930	214.9	237.4	35.3%	297,894	140.8	172.8
Texas	34.5%	223,938	227.7	248.0	32.4%	1,097,052	146.2	182.1
Utah	22.3%	36,702	284.1	286.9	22.1%	122,742	197.7	222.7
Vermont	23.4%	2,583	212.3	228.2	19.6%	12,891	164.4	161.3
Virginia	41.1%	106,268	311.9	312.1	36.8%	453,501	218.1	223.5
Washington	27.3%	78,020	331.0	336.6	23.3%	269,730	224.7	244.0
West Virginia	48.3%	11,221	176.1	180.2	44.2%	56,393	126.3	129.8
Wisconsin	18.2%	29,808	191.8	208.6	18.2%	136,854	133.6	146.3
Wyoming	38.2%	6,397	238.7	246.0	36.4%	27,042	177.7	182.1

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

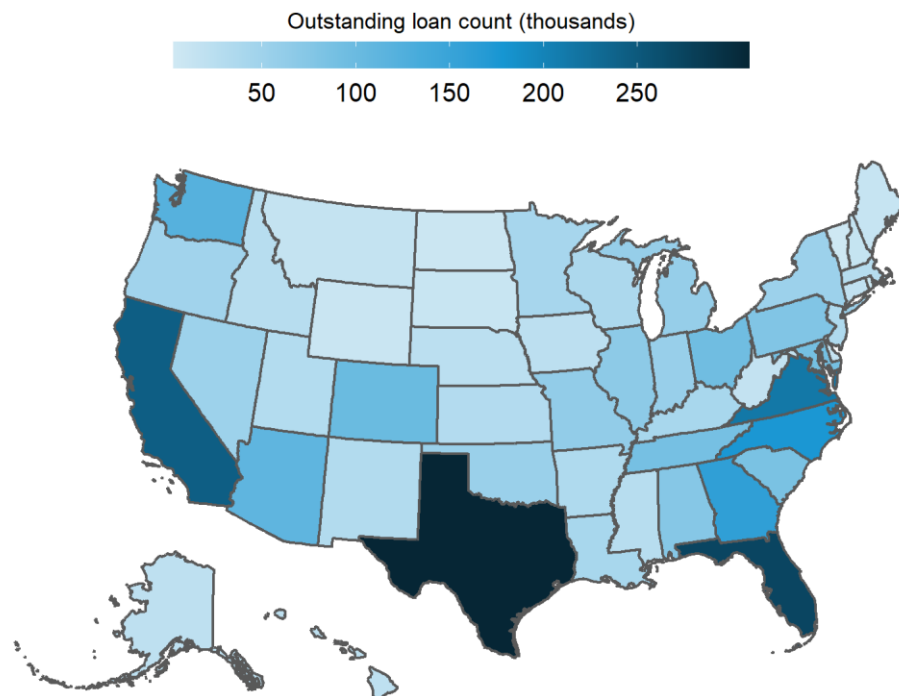
FHA and VA Outstanding Loan Count

Texas, Florida, and California are the top 3 states for FHA and VA lending as measured by the number of loans outstanding. As of July 2020, TX has 750,000 million FHA and 310,000 VA loans outstanding, FL had 550,000 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 13th for number of FHA loans outstanding.

FHA Outstanding Loan Count by State



VA Outstanding Loan Count by State

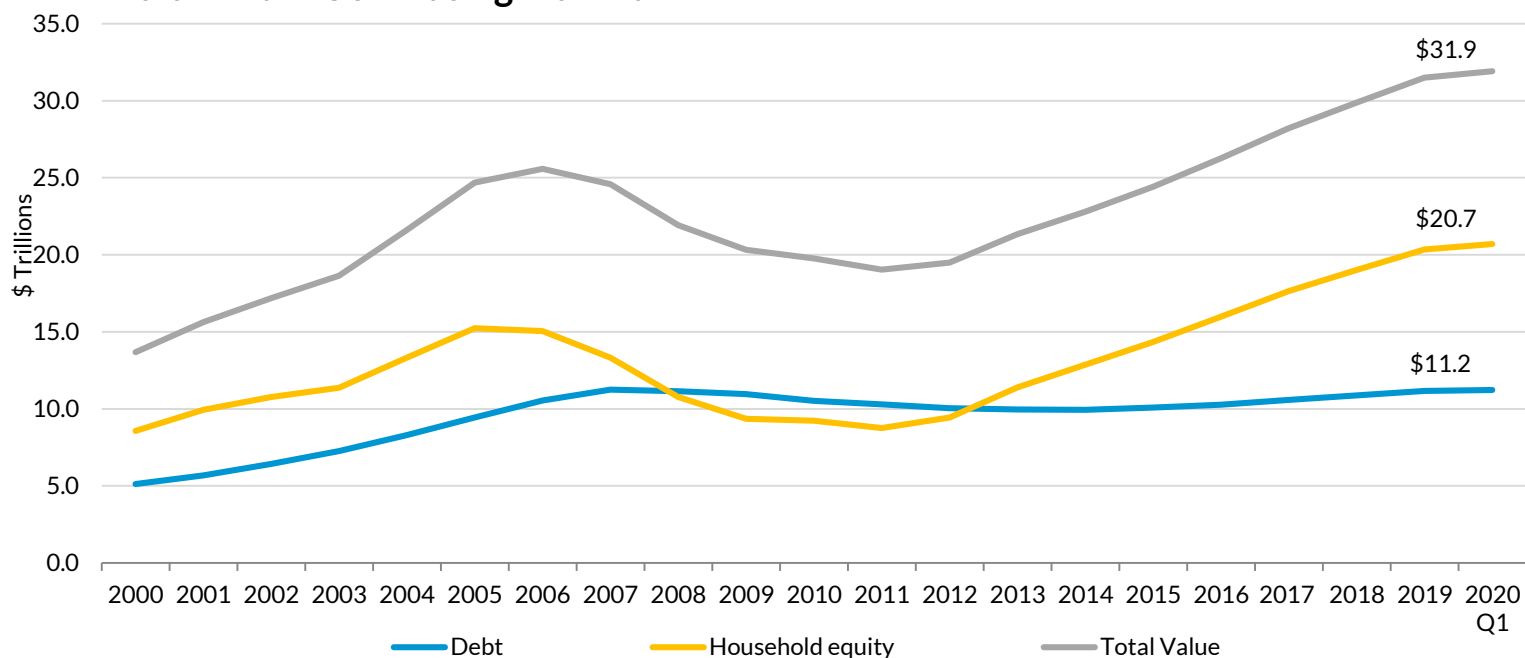


Sources: eMBS and Urban Institute. Note: Ginnie Mae outstanding share are based on loan balance as of July 2020.

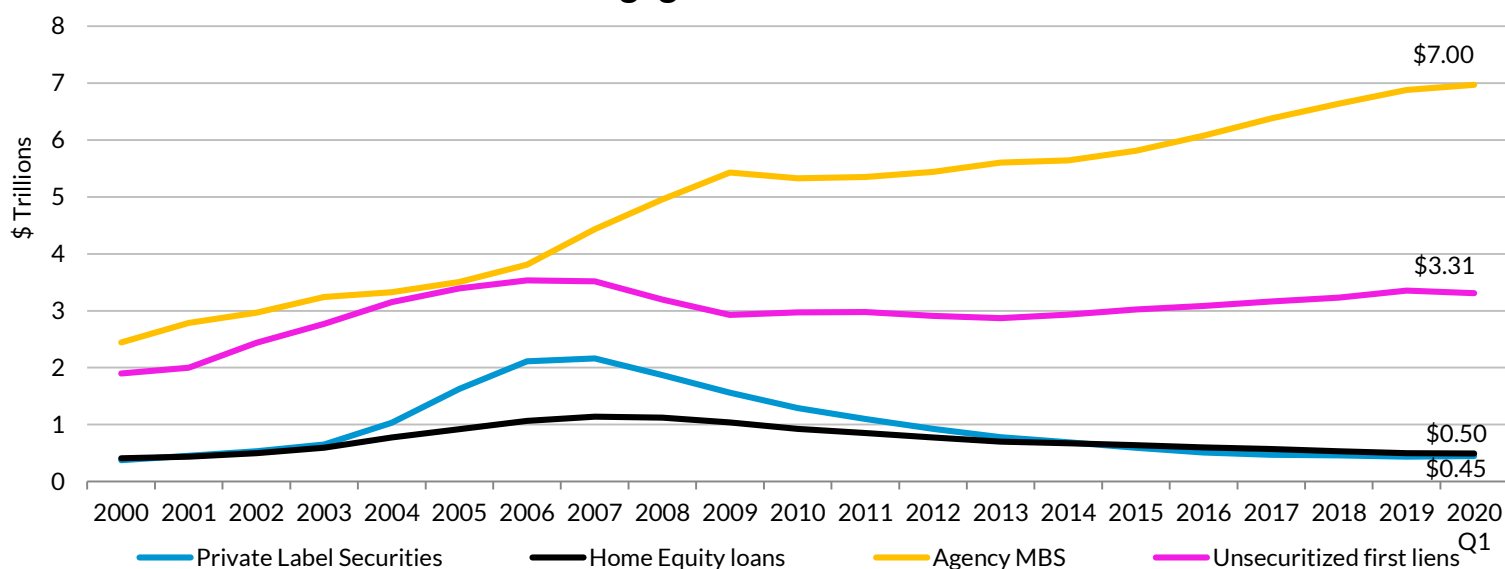
State of the US Housing Market

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

Value of the US Housing Market



Size of the US Residential Mortgage Market



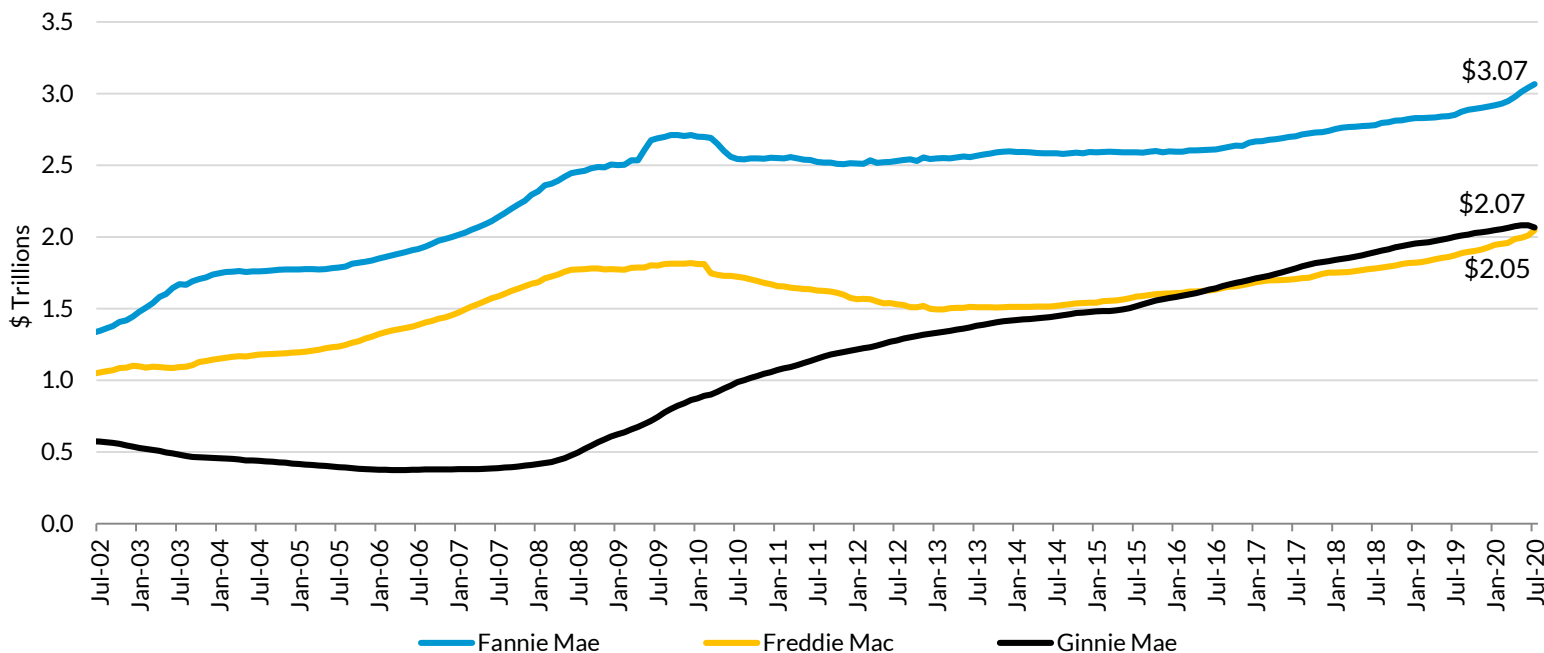
Sources: Federal Reserve Flow of Funds, eMBS and Urban Institute. Last updated July 2020.

Note Top: Single family includes 1-4 family mortgages. The home equity number is grossed up from Fed totals to include the value of households and the non-financial business sector. Note Bottom: Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, credit unions and other financial companies.

State of the US Housing Market

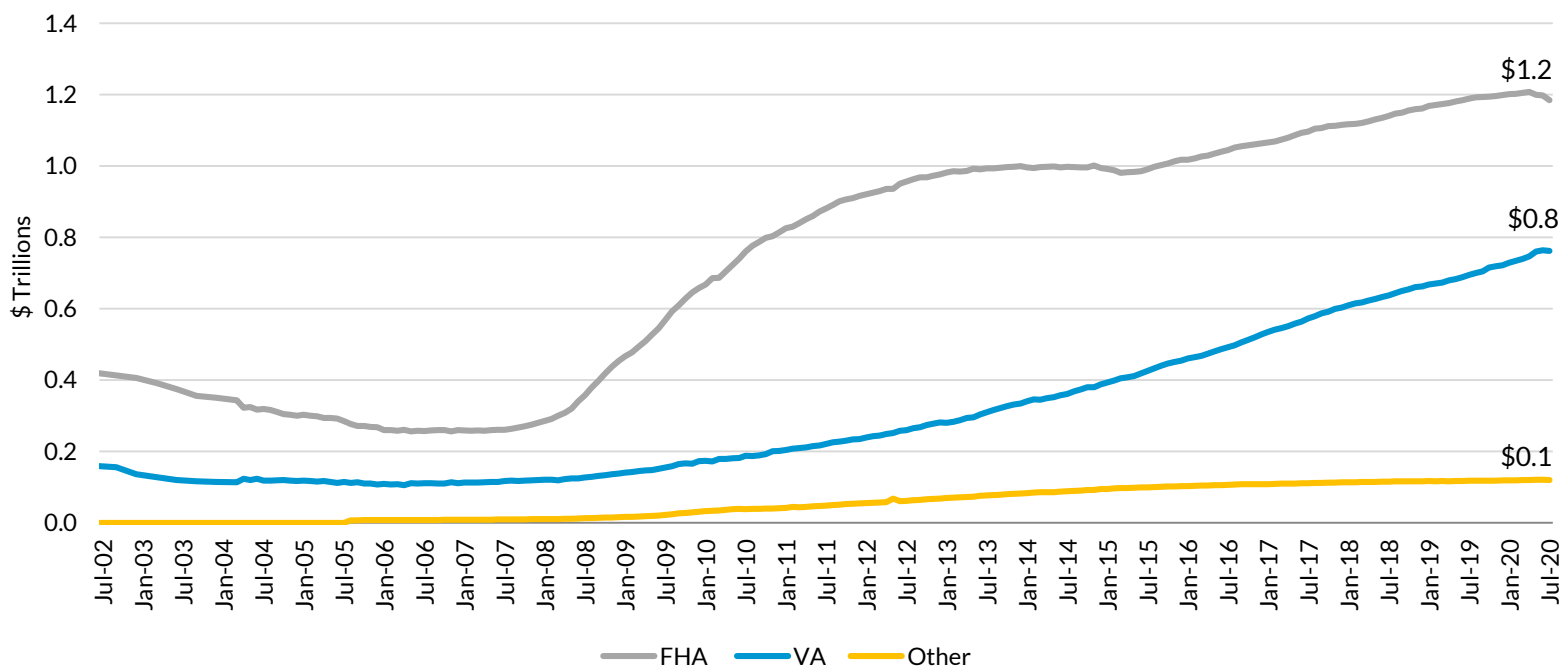
As of July 2020, outstanding securities in the agency market totaled \$7.18 trillion: 42.7 percent Fannie Mae, 28.5 percent Freddie Mac, and 28.8 percent Ginnie Mae MBS. Ginnie Mae has more outstandings than Freddie Mac. Within the Ginnie Mae market, both FHA and VA have grown very rapidly since 2009. FHA comprises 57.3 percent of total Ginnie Mae MBS outstanding, while VA comprises 36.9 percent.

Outstanding Agency Mortgage-Backed Securities



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

Outstanding Ginnie Mae Mortgage-Backed Securities

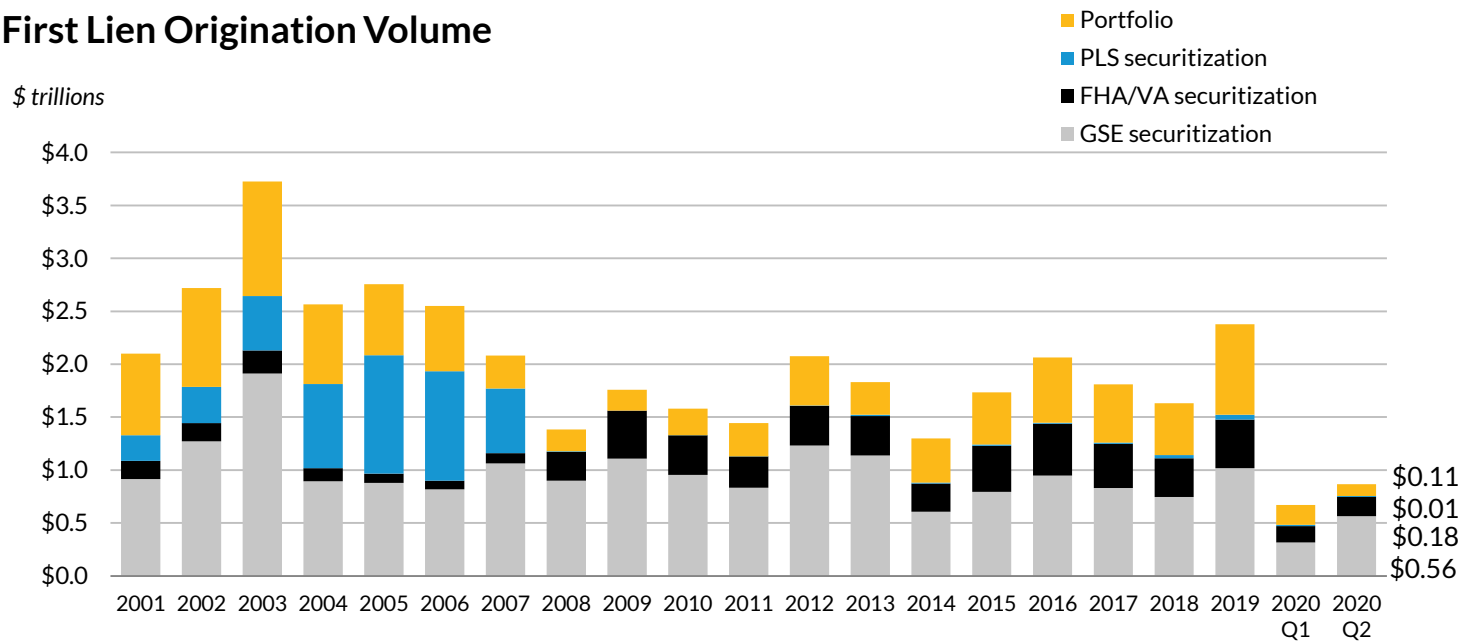


Sources: eMBS and Urban Institute. Note: Data as of July 2020.

State of the US Housing Market

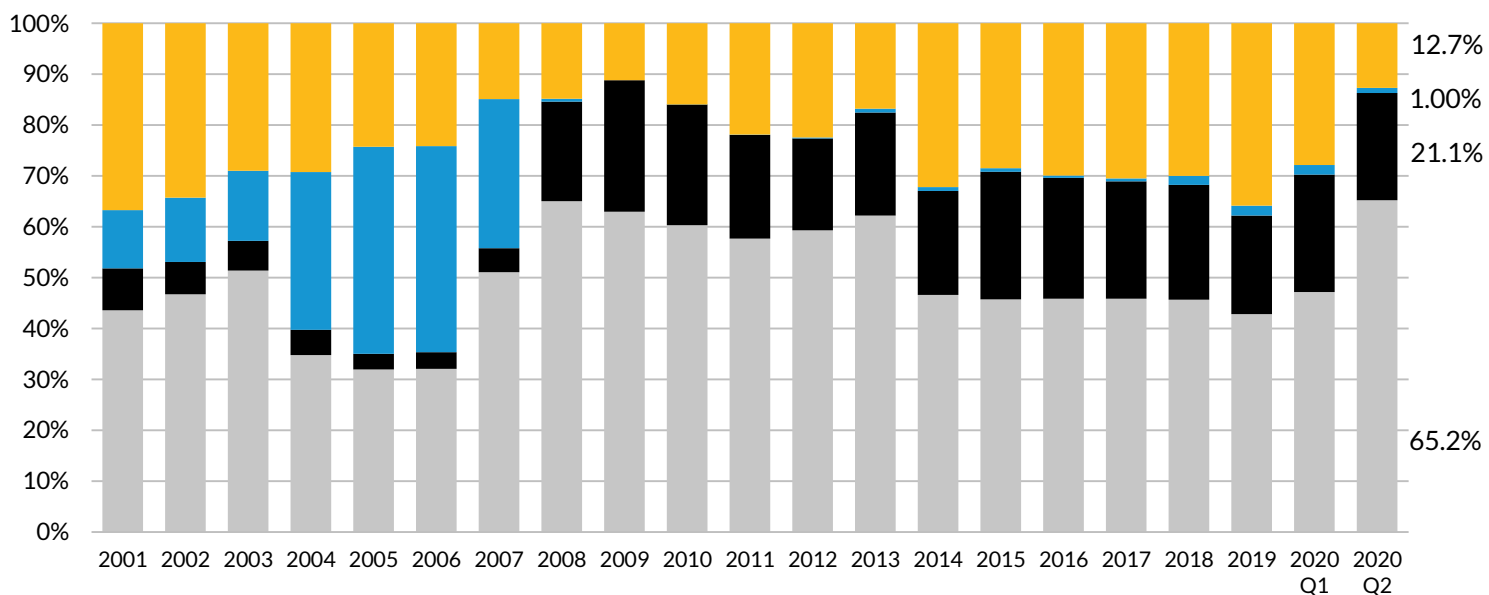
In the second quarter of 2020, first lien originations totaled \$865 billion, up from the Q2 2019 volume of \$565 billion. The share of portfolio originations was 12.7 percent in Q2 2020, a significant decline from the 42.1 percent share in the same period 2019. The Q2 2020 GSE share was up significantly 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 seven months of 2020 was \$1.52 trillion, nearly as much as 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 115.6 percent. Ginnie Mae gross issuance was up by 66.8 percent and GSE gross issuance was up by 140.7 percent. Within the Ginnie Mae market, FHA was up by 34.2 percent and VA origination was up by 111.8 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	\$657.4	\$465.4	\$1,122.8	\$400.3	\$1,523.1
2020 % Change YOY	148.8%	130.0%	140.7%	66.8%	115.6%
2020 Ann.	\$1,127.0	\$797.7	\$1,924.8	\$686.3	\$2,611.0

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	\$179.0	\$209.3	\$12.0	\$400.3
2020 % Change YOY	34.2%	111.8%	53.8%	66.8%
2020 Ann.	\$306.9	\$358.7	\$20.6	\$686.3

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 July 2020.

US Agency Market, Originations

2019 was a robust year for net agency issuance, with \$293.5 billion of net new supply, 32.6 percent of this by Ginnie Mae. This trend continued into the first seven months of 2020, with net agency issuance totaling \$301.9 billion, up 116.2 percent compared with the same period of 2019. Ginnie Mae net issuance was \$26.1 billion, comprising 8.6 percent of total agency net issuance. Ginnie Mae net issuance in the first seven months of 2020 was comprised of 152.5 percent VA, 5.1 percent other and -57.7 percent FHA.

Agency Net Issuance					
Issuance Year	Fannie Mae	Freddie Mac	GSE Total	Ginnie Mae	Total
2000	\$92.0	\$67.8	\$159.8	\$29.3	\$189.1
2001	\$216.6	\$151.8	\$368.4	-\$9.9	\$358.5
2002	\$218.9	\$138.3	\$357.2	-\$51.2	\$306.1
2003	\$293.7	\$41.1	\$334.9	-\$77.6	\$257.3
2004	\$32.3	\$50.2	\$82.5	-\$40.1	\$42.4
2005	\$62.5	\$111.7	\$174.2	-\$42.2	\$132.0
2006	\$164.3	\$149.3	\$313.6	\$0.2	\$313.8
2007	\$296.1	\$218.8	\$514.9	\$30.9	\$545.7
2008	\$213.0	\$101.8	\$314.8	\$196.4	\$511.3
2009	\$208.1	\$42.5	\$250.6	\$257.4	\$508.0
2010	-\$156.4	-\$146.8	-\$303.2	\$198.3	-\$105.0
2011	-\$32.6	-\$95.8	-\$128.4	\$149.6	\$21.2
2012	\$32.9	-\$75.3	-\$42.4	\$119.1	\$76.8
2013	\$53.5	\$11.8	\$65.3	\$89.6	\$154.9
2014	-\$4.0	\$30.0	\$26.0	\$61.6	\$87.7
2015	\$3.5	\$65.0	\$68.4	\$97.3	\$172.5
2016	\$60.5	\$66.8	\$127.4	\$126.1	\$261.6
2017	\$83.7	\$77.0	\$160.7	\$132.3	\$293.0
2018	\$81.9	\$67.6	\$149.4	\$112.0	\$261.5
2019	\$87.4	\$110.3	\$197.8	\$95.7	\$293.5
2020 YTD	\$155.5	\$120.4	\$275.9	\$26.1	\$301.9
2020 % Change YOY	420.5%	128.3%	234.0%	-54.3%	116.2%
2020 Ann.	\$266.5	\$206.4	\$472.9	\$44.7	\$517.6

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	-\$15.0	\$39.8	\$1.3	\$26.1
2020 % Change YOY	-158.2%	30.4%	76.7%	-54.3%
2020 Ann.	-\$25.8	\$68.2	\$2.3	\$44.7

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 July 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 July 2020 gross agency issuance of \$233.1 billion was significantly higher than the same month in 2019, continuing a trend of record setting monthly issuance since April 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	\$59.5	\$233.1	\$23.4	\$38.0	-\$15.5	\$61.4

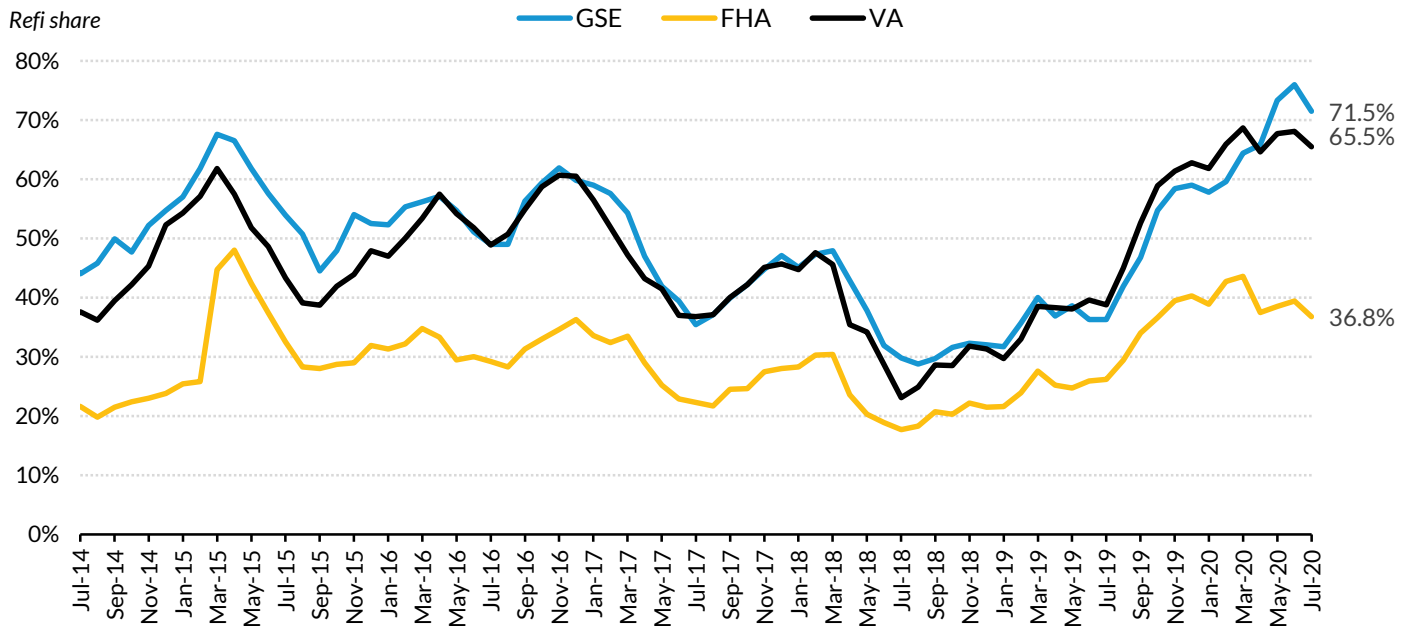
Sources: eMBS and Urban Institute.

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 July 2020.

US Agency Market, Originations

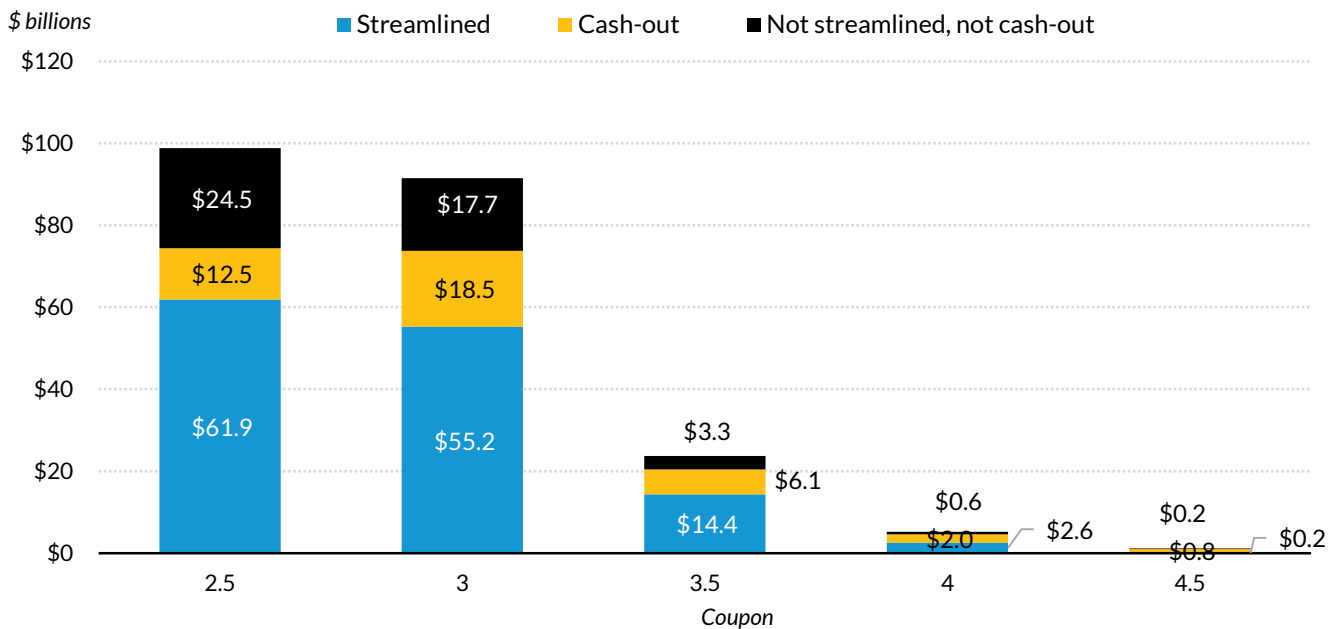
The FHA refinance share stood at 36.8 percent in July 2020, below the 71.5 percent refi share for GSE originations and the 65.5 percent share for the VA. Refinances as a share of all originations grew during 2019 and early 2020 as interest rates fell. Refinances have stabilized at high levels, as interest 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 July 2020.

Ginnie Mae Refinance Issuance by Type: 2020 YTD

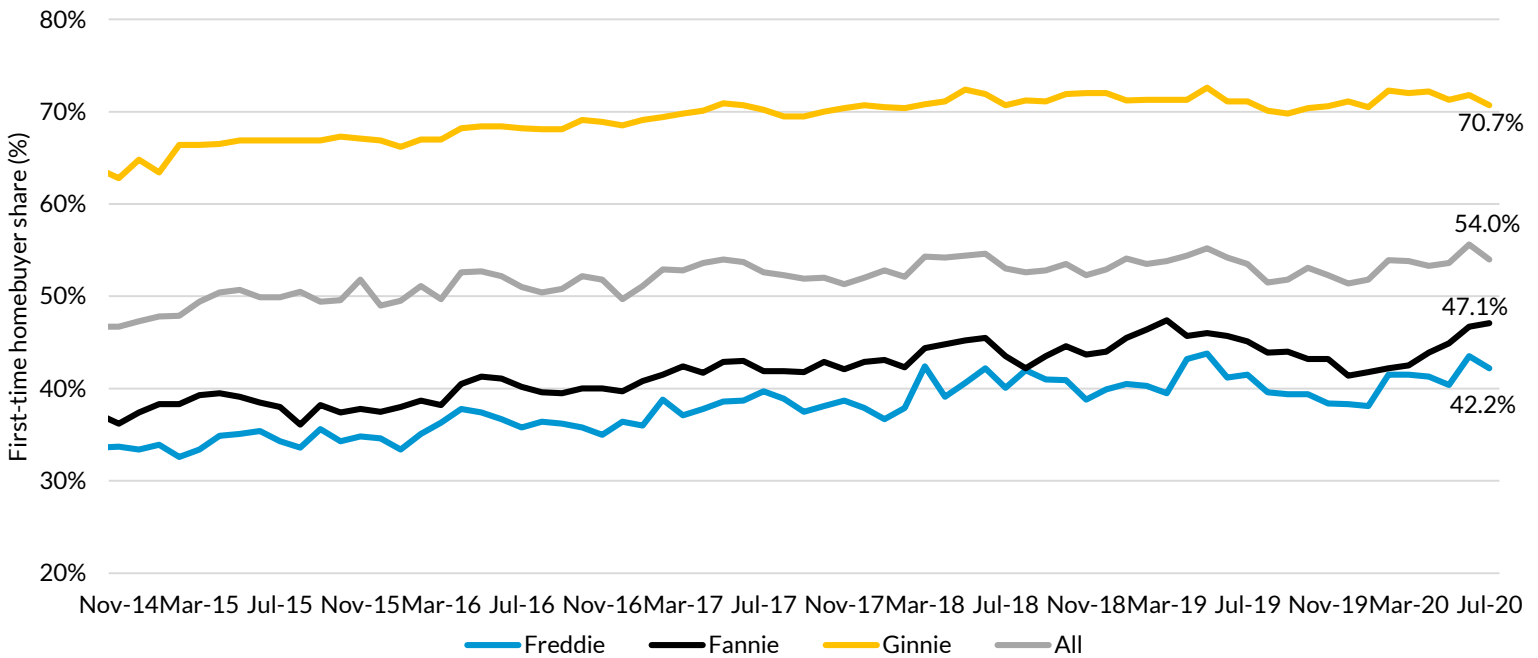


Sources: eMBS and Urban Institute. Note: Based on at-issuance balance. Data as of July 2020.

Credit Box

The first time homebuyer share of Ginnie Mae purchase loans was 70.7 percent in July 2020, down slightly from 71.1 percent in July 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 47.1 percent and 42.2 percent of Fannie Mae and Freddie Mac purchase originations, respectively. The bottom table shows that based on mortgages originated in July 2020, the average first-time homebuyer was more likely than an average repeat buyer to take out a smaller loan, have a lower credit score, a much higher LTV, a similar DTI, and pay a slightly higher rate.

First Time Homebuyer Share: Purchase Only Loans



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

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$)	283,332	311,616	269,575	300,366	236,169	291,008	257,319	301,677
Credit Score	749.0	760.8	746.6	757.2	687.5	707.7	720.3	745.6
LTV (%)	87.9	80.4	89.1	80.4	97.2	96.3	92.5	84.5
DTI (%)	33.9	35.1	34.6	35.7	41.1	41.8	37.4	37.1
Loan Rate (%)	3.3	3.3	3.3	3.3	3.4	3.3	3.4	3.3

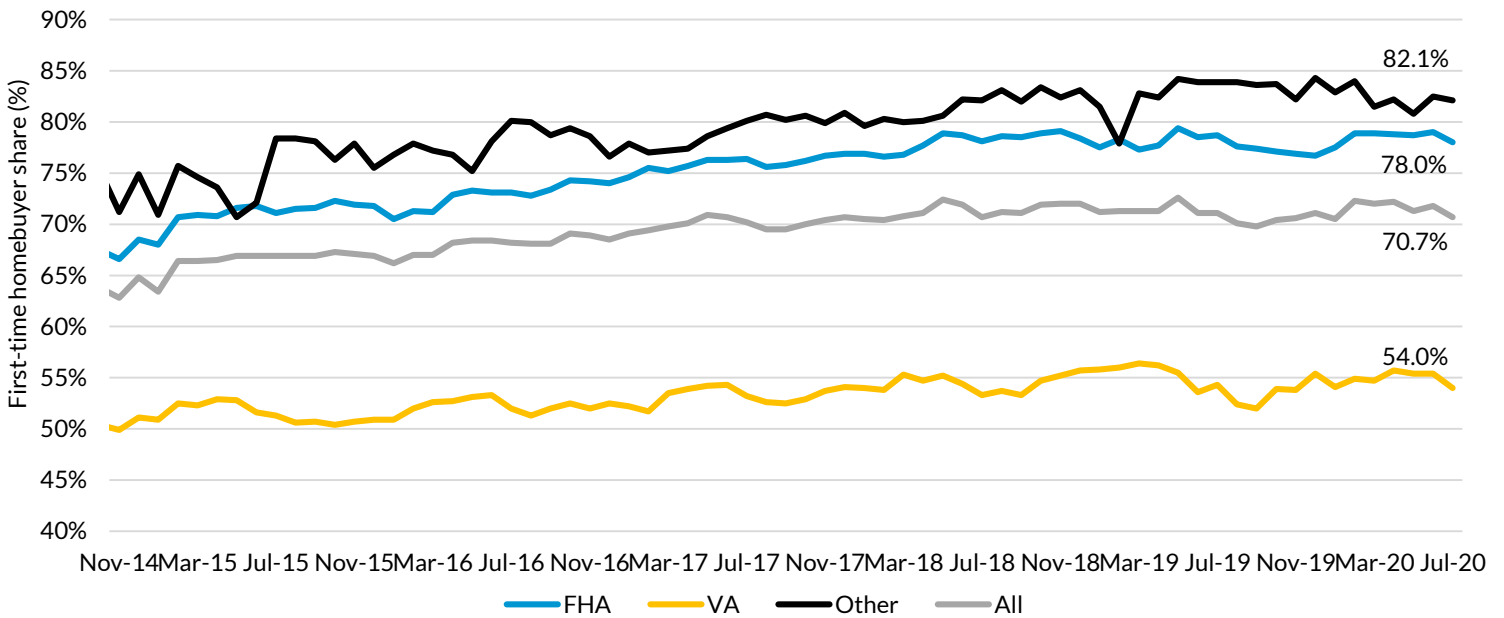
Sources: eMBS and Urban Institute.

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 July 2020.

Credit Box

Within the Ginnie Mae purchase market, 78.0 percent of FHA loans, 54.0 percent of VA loans and 82.1 percent of other loans represent financing for first-time home buyers in July 2020. The bottom table shows that based on mortgages originated in July 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 July 2020.

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$)	225,954	243,890	292,174	344,768	168,190	179,999	236,169	291,008
Credit Score	677.4	680.3	709.4	732.1	699.8	704.9	687.5	707.7
LTV (%)	95.7	94.6	99.9	97.5	99.6	99.2	97.2	96.3
DTI (%)	42.5	43.4	39.8	41.0	35.1	34.5	41.1	41.8
Loan Rate (%)	3.5	3.5	3.2	3.1	3.3	3.4	3.4	3.3

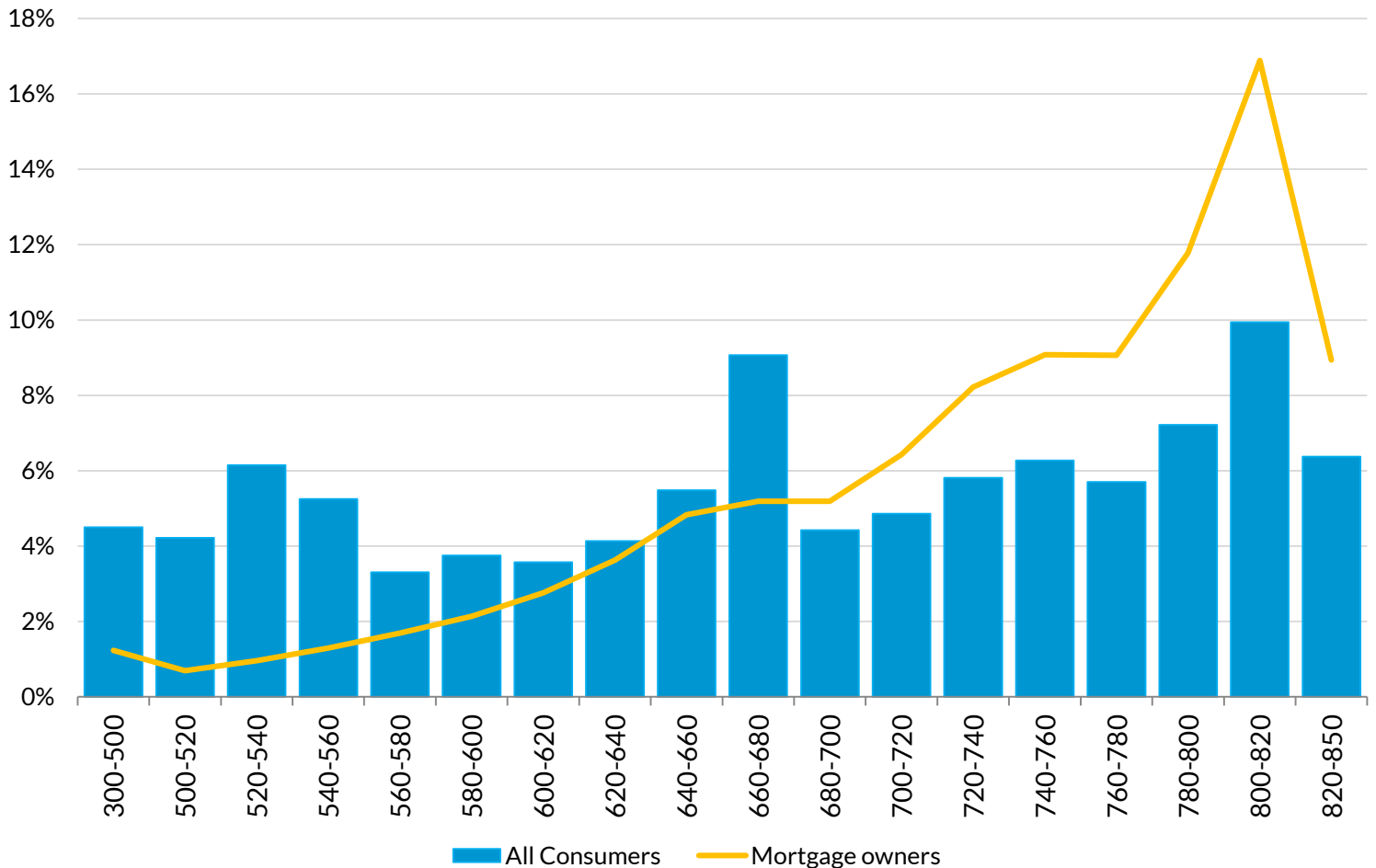
Sources: eMBS and Urban Institute. Note: Data as of June 2020. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront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

July 2020 Credit Box at a Glance

In July 2020, the median Ginnie Mae FICO score was 693 versus 769 for both Fannie Mae and Freddie Mac. Note that the FICO score for the 10th percentile was 635 for Ginnie Mae, versus 700 for Fannie Mae and 701 for Freddie Mac. Within the Ginnie Mae market, FHA loans have a median FICO score of 672, VA loans have a median FICO score of 731 and other loans have a median FICO score of 696.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	356,109	654	715	741	780	799	733
Fannie	134,432	693	733	760	793	802	753
Freddie	98,283	698	729	764	790	803	757
Ginnie	123,394	634	654	684	729	773	693

Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	659,852	689	728	768	793	806	756
Fannie	311,982	702	738	772	795	807	762
Freddie	272,530	702	735	770	793	806	761
Ginnie	75,340	640	669	713	765	795	714

All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	1,015,961	673	715	760	789	804	748
Fannie	446,414	700	733	769	793	806	760
Freddie	370,813	701	733	769	792	805	760
Ginnie	198,734	635	659	693	745	785	701

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	123,394	634	654	684	729	773	693
FHA	72,949	628	647	671	703	741	678
VA	39,534	644	673	720	770	796	720
Other	10,911	646	664	695	733	765	701

Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	75,340	640	669	713	765	795	714
FHA	23,481	620	645	673	704	744	675
VA	50,985	655	691	738	779	800	731
Other	874	653	674	711	750	780	712

All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	198,734	635	659	693	745	785	701
FHA	96,430	627	647	672	704	742	677
VA	90,519	649	682	731	776	798	726
Other	11,785	646	665	696	735	767	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 July 2020.

July 2020 Credit Box at a Glance

In July 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, 92 percent for Freddie and 95 percent for Fannie. Within the Ginnie Mae market, the median LTV was 96.5 for FHA, 96.8 for VA and 101.0 for other programs.

Purchase LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	356,752	75.0	80.0	95.0	96.5	100.0	88.3
Fannie	134,338	67.0	80.0	90.0	95.0	97.0	84.1
Freddie	98,312	67.0	80.0	85.0	95.0	95.0	83.2
Ginnie	124,102	94.8	96.5	96.5	100.0	101.0	96.9
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	697,409	46.0	59.0	71.2	80.0	91.4	69.4
Fannie	311,987	43.0	55.0	68.0	77.0	83.0	65.3
Freddie	272,556	45.0	58.0	70.0	78.0	84.0	66.4
Ginnie	112,866	71.4	81.8	91.4	97.4	100.0	88.0
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	1,054,161	50.0	64.0	79.0	92.8	96.6	75.8
Fannie	446,325	46.0	60.0	74.0	80.0	95.0	71.0
Freddie	370,868	48.0	60.0	74.0	80.0	92.0	70.9
Ginnie	236,968	79.7	90.0	96.5	98.9	100.7	92.7
Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	124,102	94.8	96.5	96.5	100.0	101.0	96.9
FHA	73,541	94.8	96.5	96.5	96.5	96.5	95.5
VA	39,609	95.0	100.0	100.0	101.7	102.3	98.8
Other	10,952	96.5	99.5	101.0	101.0	101.0	99.5
Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	112,866	71.4	81.8	91.4	97.4	100.0	88.0
FHA	40,343	76.2	82.2	92.7	96.8	98.0	88.9
VA	71,586	68.9	81.4	90.2	98.1	100.5	87.5
Other	937	79.1	90.4	98.0	100.7	101.5	93.6
All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	236,968	79.7	90.0	96.5	98.9	100.7	92.7
FHA	113,884	82.0	94.1	96.5	96.5	96.9	93.1
VA	111,195	74.0	86.0	96.8	100.0	102.3	91.5
Other	11,889	95.3	99.2	101.0	101.0	101.0	99.0

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 July 2020.

July 2020 Credit Box at a Glance

In July 2020, the median Ginnie Mae debt-to-income ratio (DTI) was 41.4 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 43.4 percent, versus 39.6 percent for VA and 35.6 percent for other lending programs.

Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	356,470	23.0	30.0	38.0	44.0	49.0	37.0
Fannie	134,498	22.0	28.0	36.0	43.0	46.0	35.0
Freddie	98,312	21.0	28.0	36.0	42.0	46.0	34.5
Ginnie	123,660	28.5	35.0	42.0	48.3	53.4	41.3

Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	970,276	20.0	27.0	35.0	42.0	47.0	34.2
Fannie	446,483	19.0	26.0	34.0	41.0	46.0	33.1
Freddie	370,860	20.0	26.0	34.0	41.0	45.0	33.0
Ginnie	152,933	27.1	34.0	41.4	48.0	53.3	40.6

All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	970,276	20.0	27.0	35.0	42.0	47.0	34.2
Fannie	446,483	19.0	26.0	34.0	41.0	46.0	33.1
Freddie	370,860	20.0	26.0	34.0	41.0	45.0	33.0
Ginnie	152,933	27.1	34.0	41.4	48.0	53.3	40.6

Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	123,660	28.5	35.0	42.0	48.3	53.4	41.3
FHA	73,517	30.4	37.0	43.7	49.4	54.0	42.7
VA	39,283	26.8	33.5	40.9	47.6	53.1	40.4
Other	10,860	25.4	30.5	35.9	40.2	43.2	35.0

Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	29,273	21.9	29.9	37.9	46.2	52.4	37.5
FHA	13,215	26.1	33.1	41.3	48.4	53.7	40.3
VA	15,473	20.0	27.3	35.0	43.8	50.7	35.5
Other	585	14.6	20.2	27.6	36.0	40.8	28.0

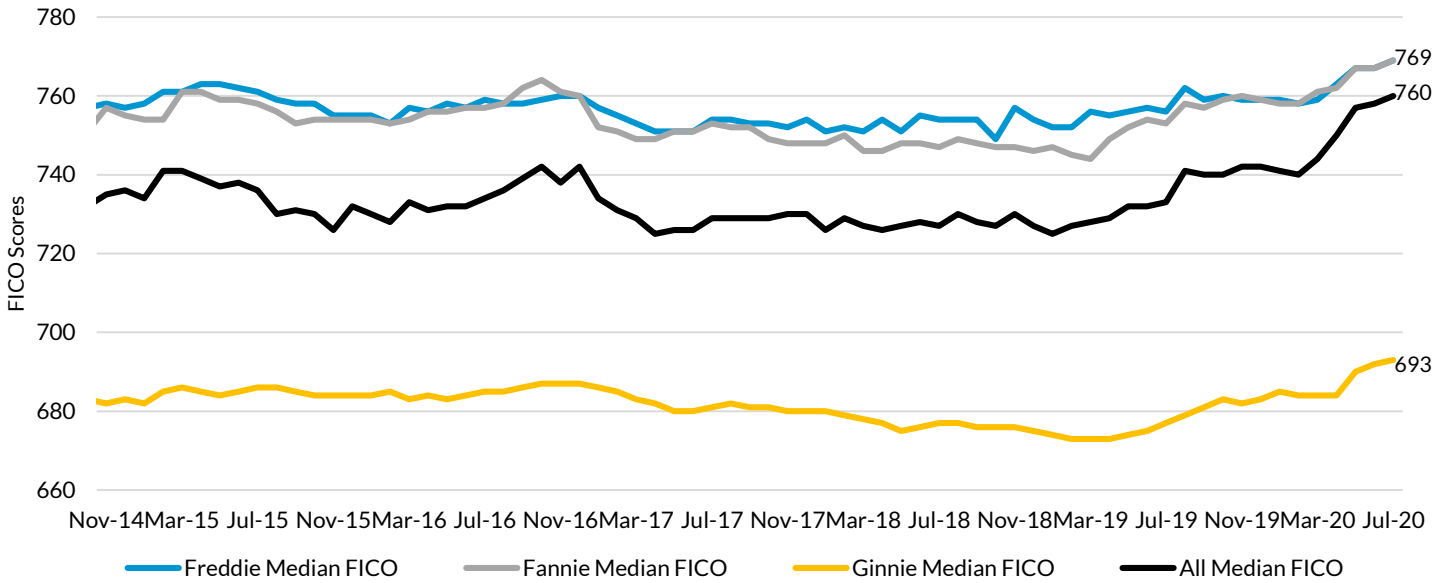
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	152,933	27.1	34.0	41.4	48.0	53.3	40.6
FHA	86,732	29.7	36.4	43.4	49.3	53.9	42.4
VA	54,756	24.5	31.8	39.6	46.8	52.6	39.0
Other	11,445	24.5	30.0	35.6	40.1	43.2	34.6

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 July 2020.

Credit Box: Historical

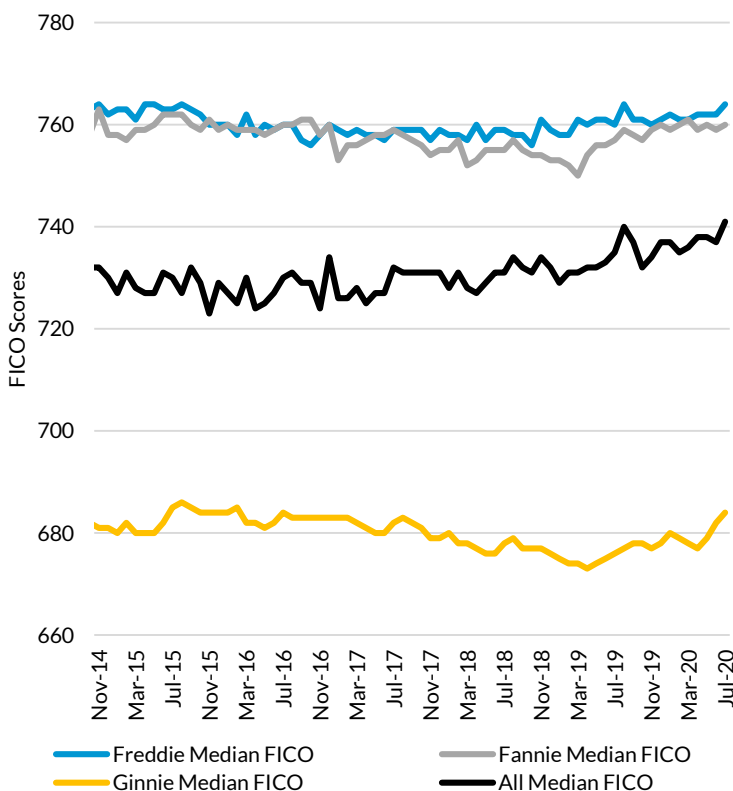
The median FICO score for all agency loans originated in July 2020 was 760, up considerably since the start of last year, owing to the refinance wave, which higher FICO borrowers take advantage of with greater frequency. In addition, the increases in refinance activity have been much more dramatic at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



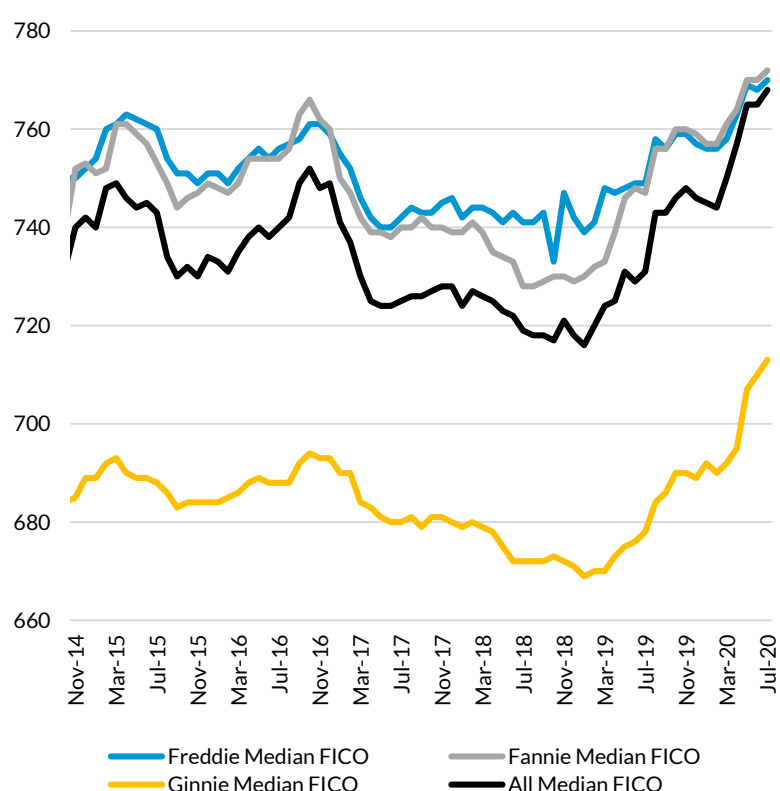
Sources: eMBS and Urban Institute. Note: Data as of July 2020.

FICO Scores for Purchase Loans



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

FICO Scores for Refinance Loans

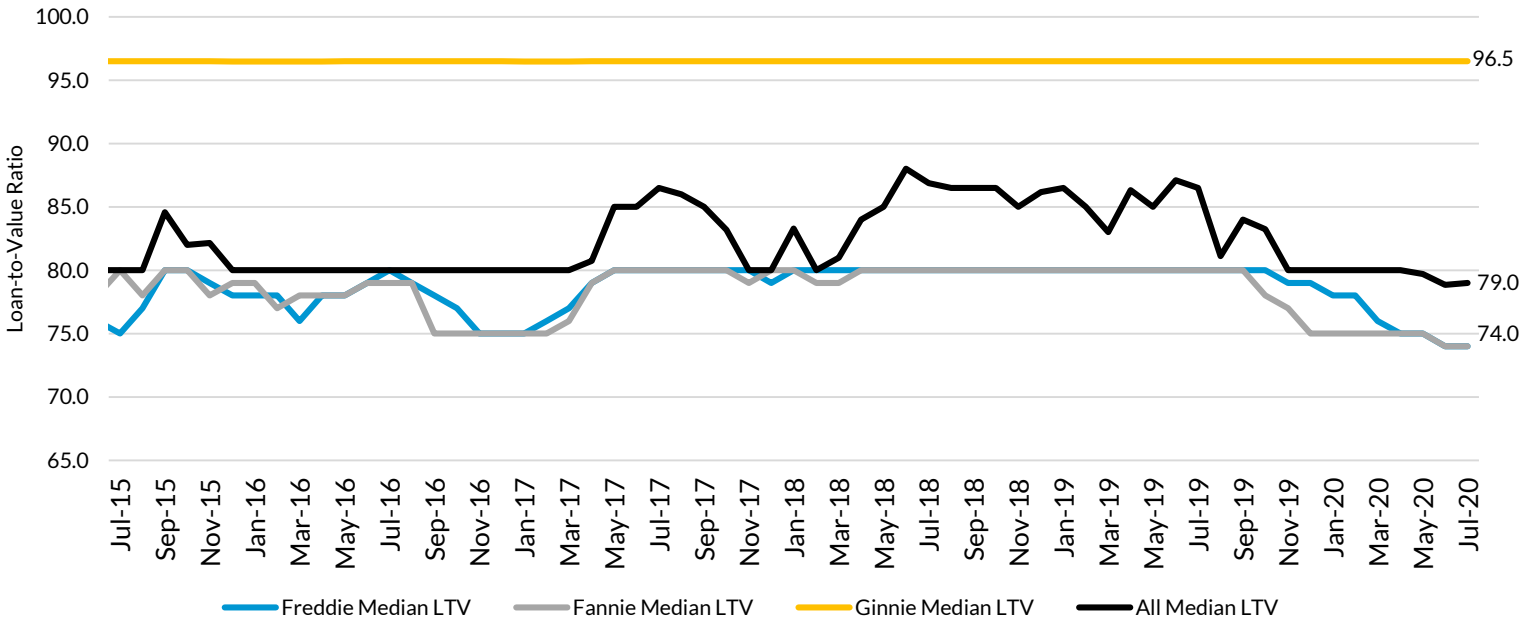


Sources: eMBS and Urban Institute. Note: Data as of July 2020.

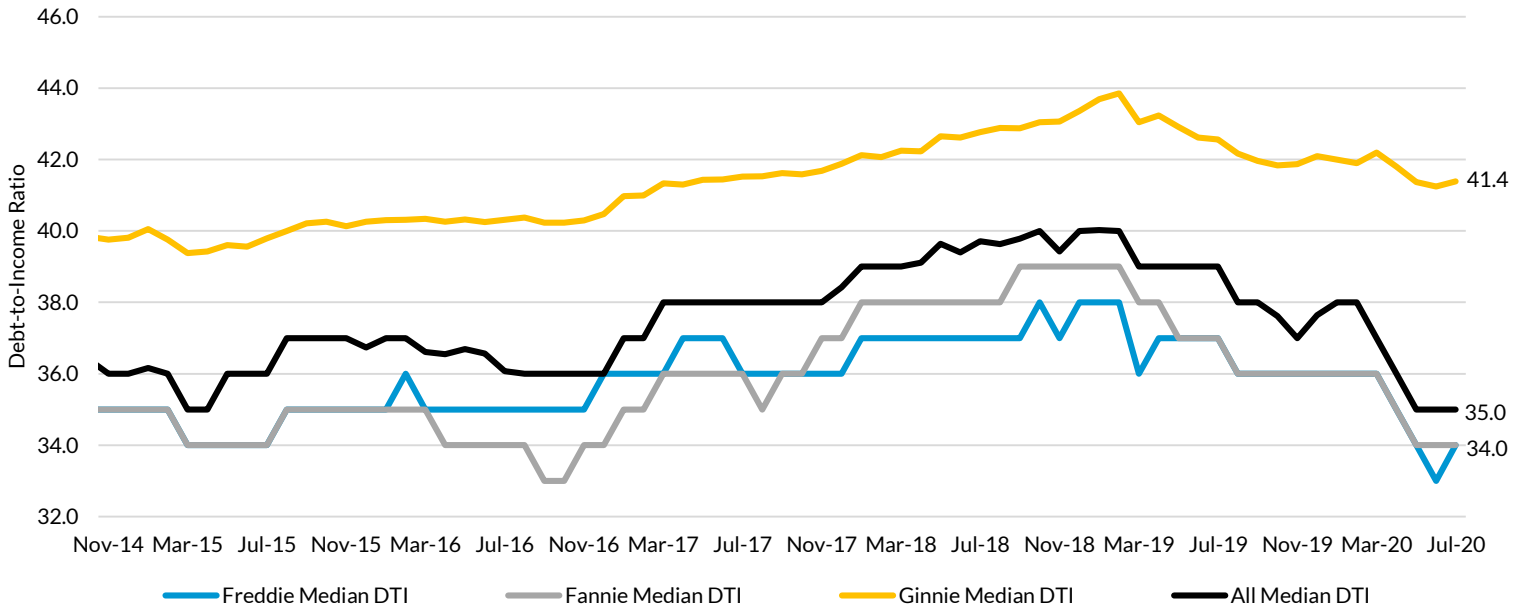
Credit Box: Historical

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.

LTV Ratio for All Loans



DTI Ratio for All Loans

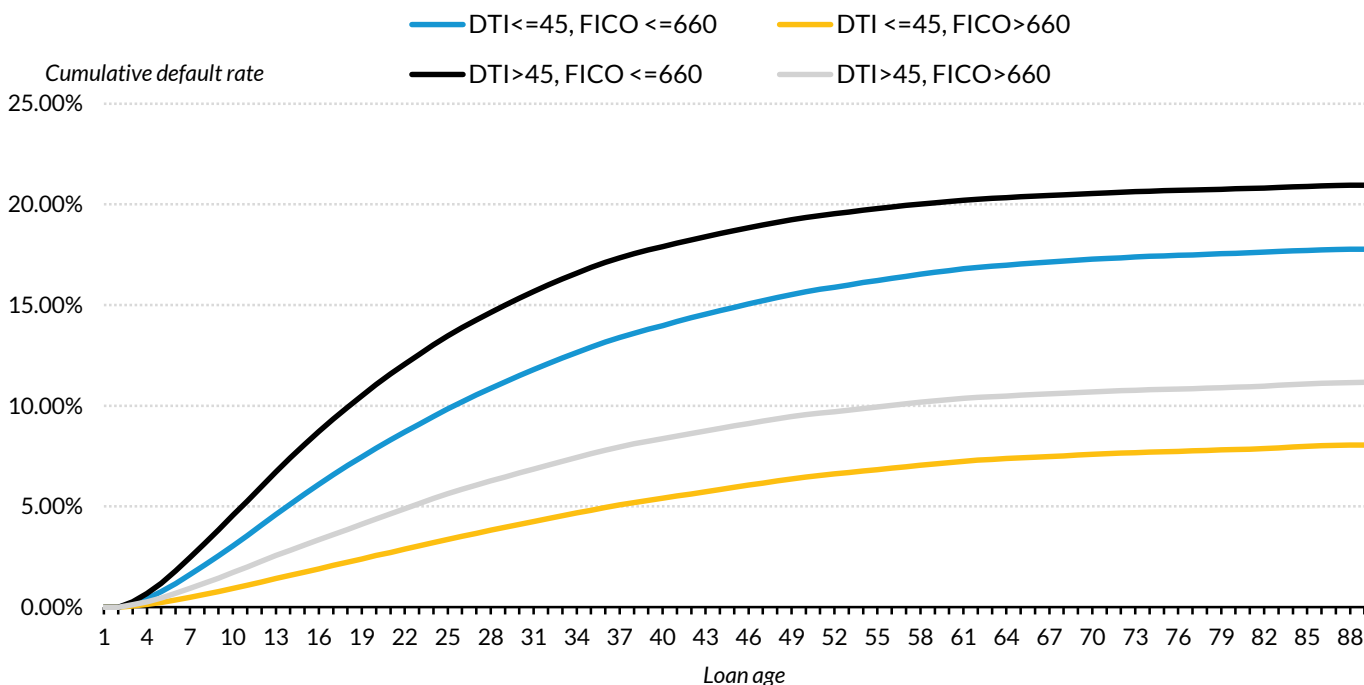


Sources: eMBS and Urban Institute. Note: In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting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

Credit Box: Historical

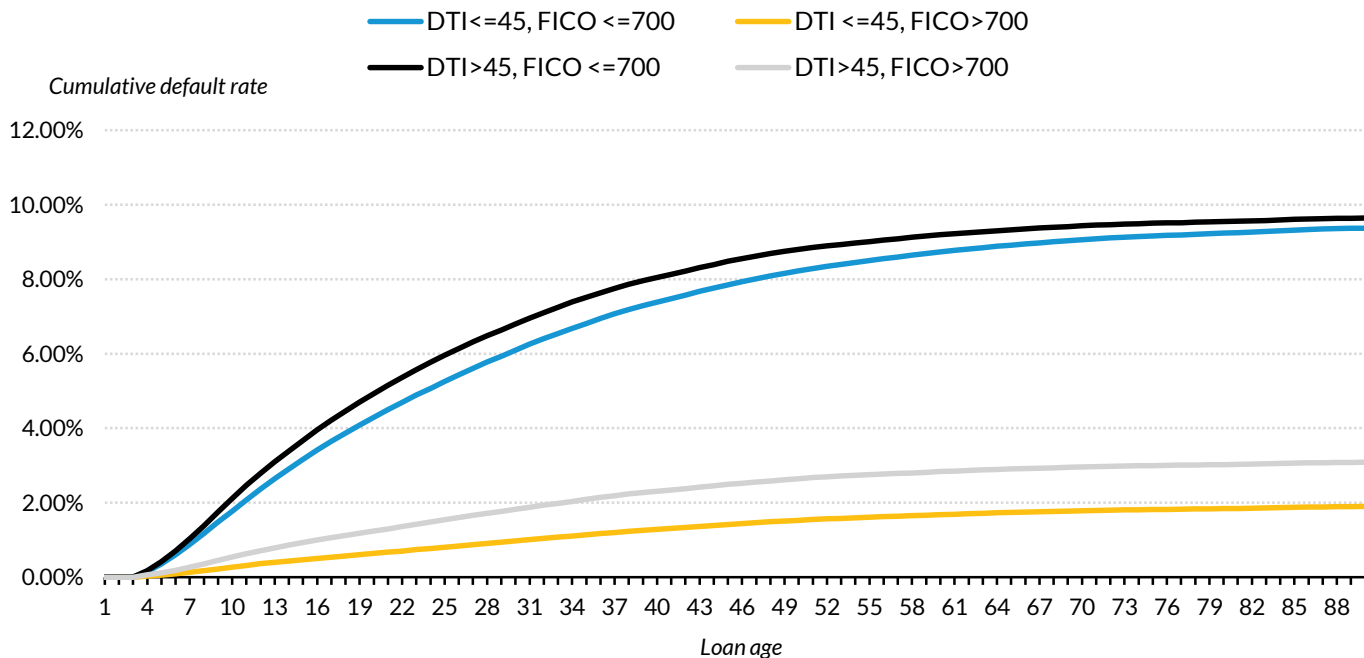
DTI is a much weaker predictor of performance than FICO score. The top chart shows FHA borrowers with higher DTIs do default more than those with lower DTIs, but the differences are modest, as evidenced by the fact that the black line is very close to the blue line and the grey line is not that much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

VA Cumulative Default Rate by DTI and FICO



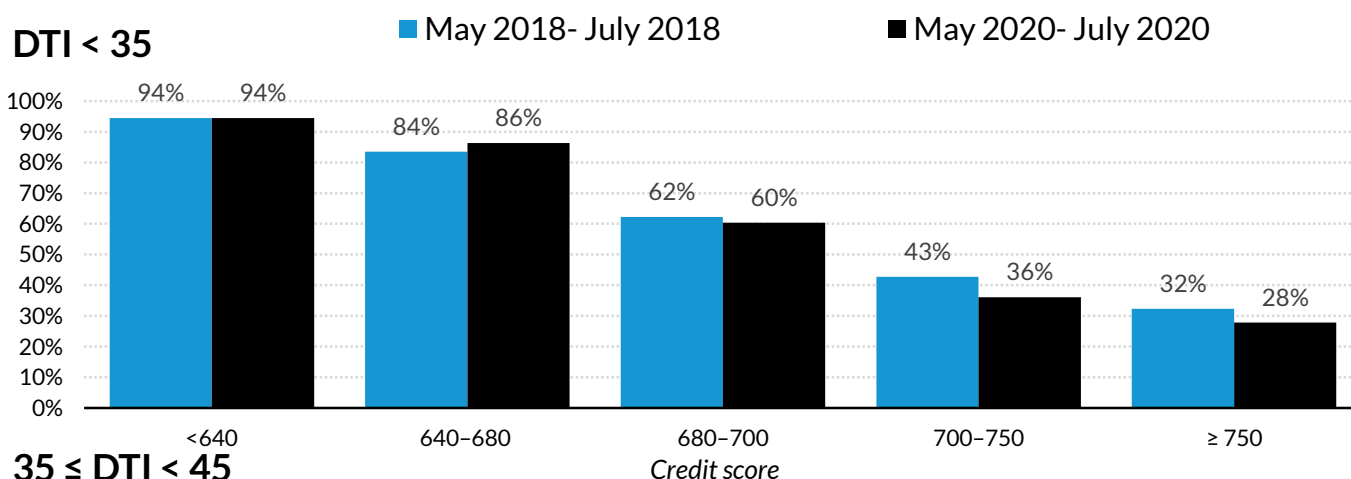
Sources: eMBS and Urban Institute. Note: Defaults = 180 days delinquent. Data as of July 2020.

Credit Box: Historical

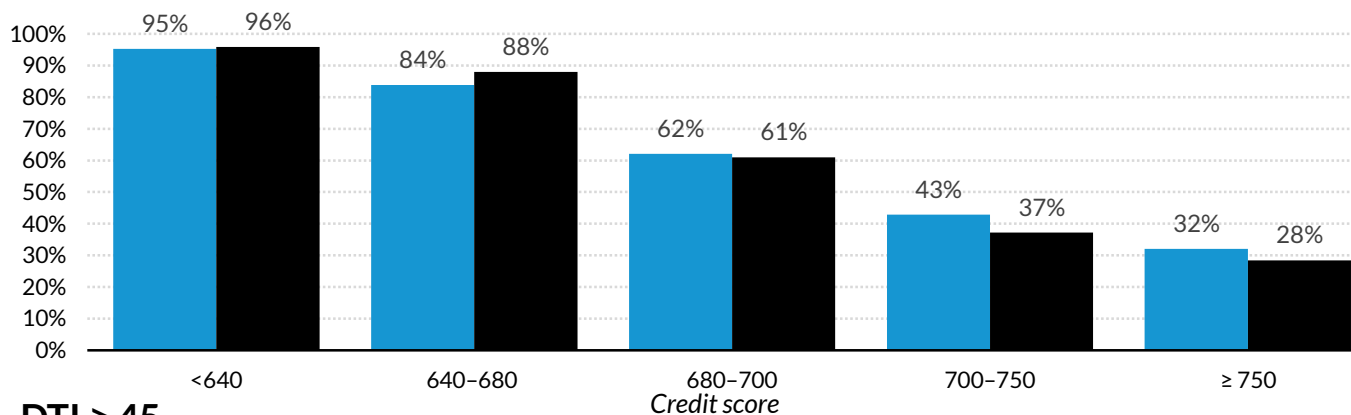
This table shows Ginnie Mae's share of agency high-LTV lending by DTI and FICO. In each DTI bucket, Ginnie Mae's share is more concentrated in lower FICO scores than in higher FICO scores. In May 2020- July 2020, Ginnie Mae accounted for 94 percent of agency issuance for DTIs under 35 and FICOs below 640, compared to just 28 percent for DTIs below 35 and FICO 750 and higher. The Ginnie/GSE split in the 35-45 DTI bucket looks a lot like the below 35 percent DTI bucket. In May 2020- July 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 87 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 of 680 or higher for DTIs less than 45 (the less than 35 and the 35-45 buckets).

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

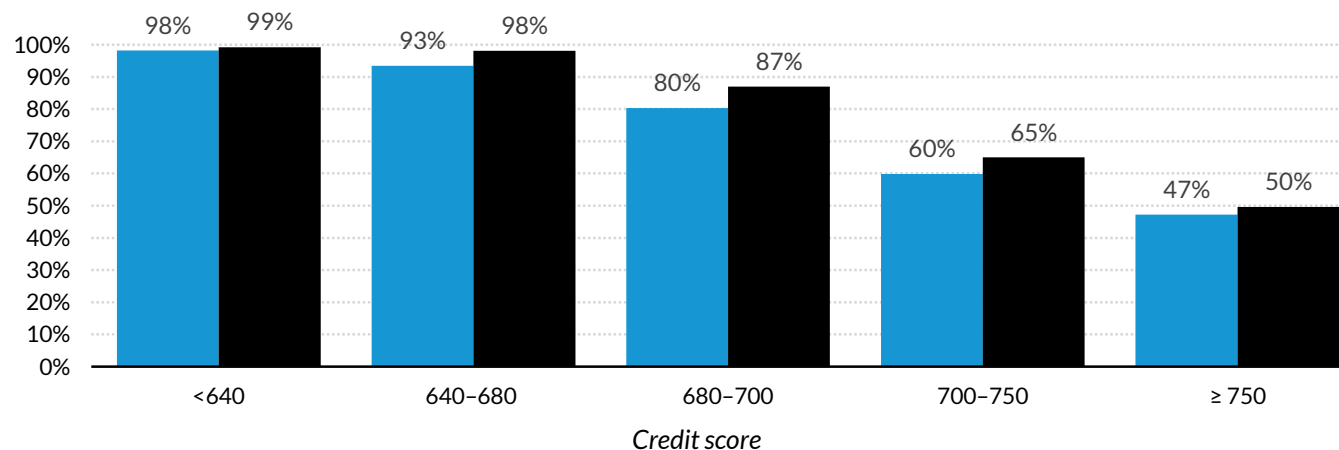
DTI < 35



35 ≤ DTI < 45



DTI ≥ 45



Sources: eMBS and Urban Institute.

High LTV Loans: Ginnie Mae vs. GSEs

Ginnie Mae dominates high-LTV lending, with 71.8 percent of its issuances in the May 2020- July 2020 period having LTVs of 95 or above, compared to 10.1 percent for the GSEs. The GSEs have decreased their high-LTV lending share from 21.5 percent in May 2018- July 2018. Ginnie Mae's high-LTV lending is also down, but by less than the GSE share, over the same period from 72.9 percent. The share of high-LTV agency loans going to highest FICO borrowers (i.e. above 750) has increased from the May 2018-July 2018 period to the May 2020-July 2020 period, as has the share of lower DTI borrowers (below 35).

Share of Loans with LTV ≥ 95

	Ginnie Mae	GSE	All
May 2018- July 2018	72.9%	21.5%	38.7%
May 2020- July 2020	71.8%	10.1%	20.0%

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

May 2018-July 2018

DTI	FICO					All
	<640	640-680	680-700	700-750	≥ 750	
< 35	2.9%	4.8%	2.6%	6.9%	8.7%	25.9%
35 -45	5.5%	9.1%	4.8%	11.0%	9.7%	40.1%
≥ 45	4.9%	9.1%	4.3%	9.2%	6.5%	34.0%
All	13.3%	23.0%	11.7%	27.0%	24.9%	100.0%

May 2020-July 2020

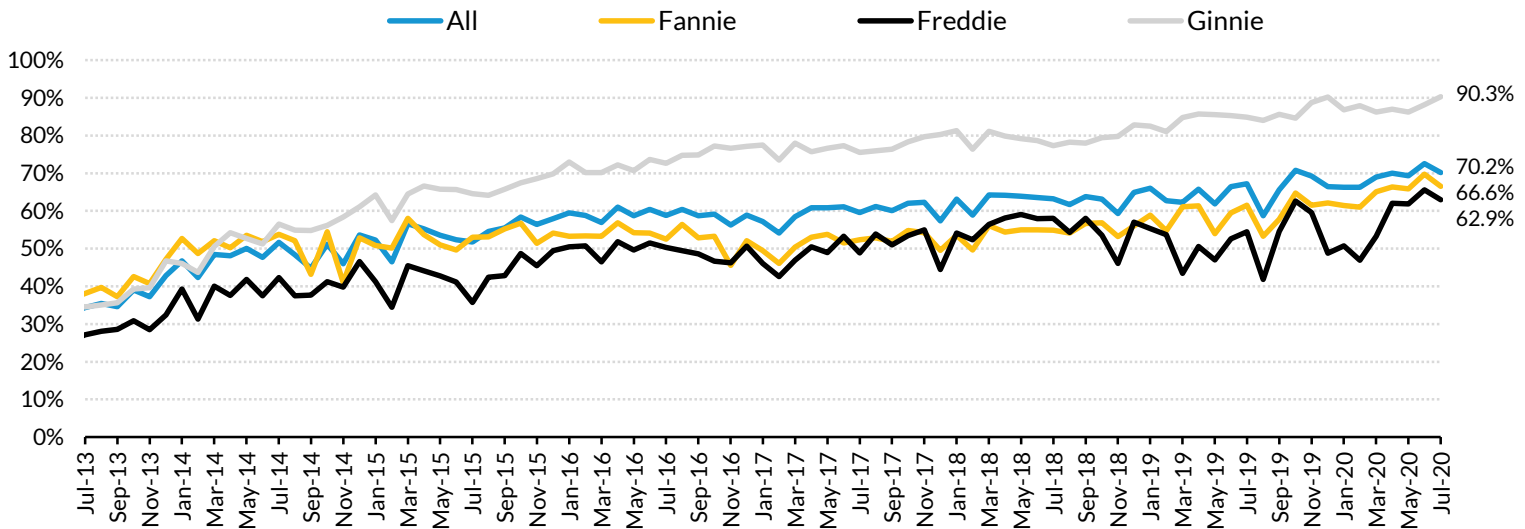
DTI	FICO					All
	<640	640-680	680-700	700-750	≥ 750	
< 35	2.1%	4.7%	2.8%	8.8%	12.6%	31.0%
35 -45	3.6%	8.6%	4.8%	12.7%	12.1%	41.9%
≥ 45	2.9%	7.2%	3.6%	7.6%	5.8%	27.1%
All	8.6%	20.6%	11.2%	29.0%	30.6%	100.0%

Sources: eMBS and Urban Institute.

Nonbank Originators

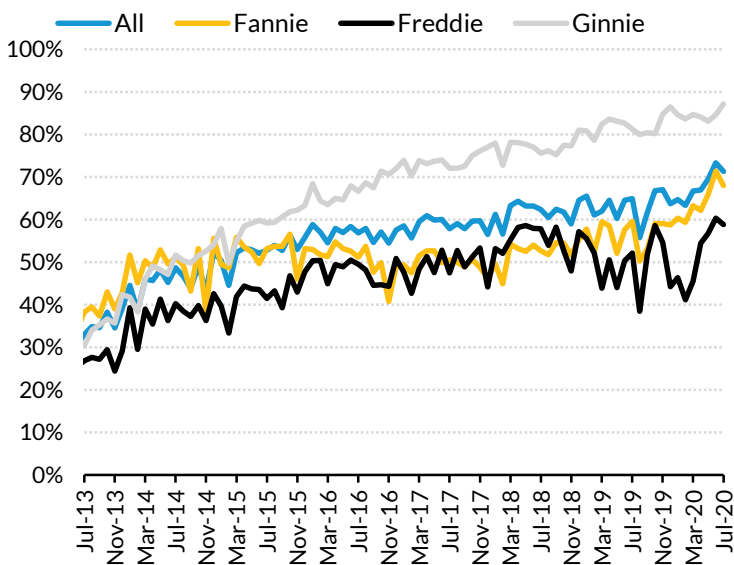
The nonbank origination share has been rising steadily for all three agencies since 2013. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at 90.3 percent in July 2020, a new record high. Freddie's nonbank share fell to 62.9 percent, while Fannie's nonbank share fell to 66.6 percent in July (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

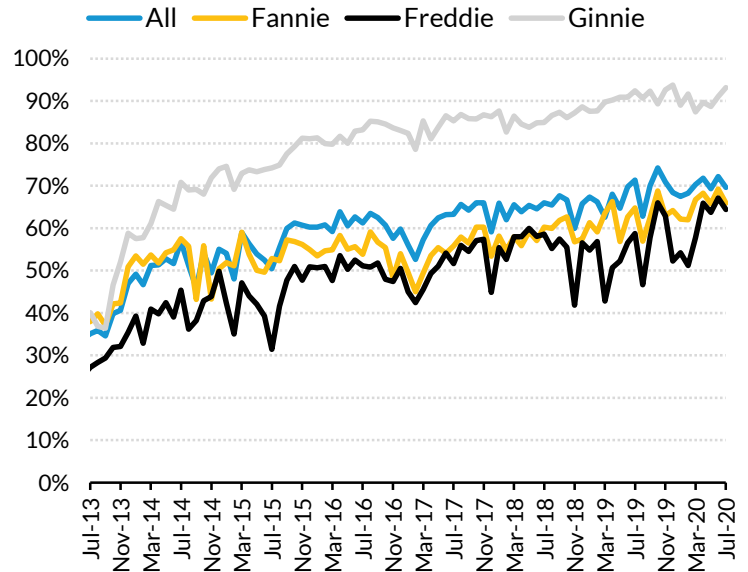


Sources: eMBS and Urban Institute
 Note: Data as of July 2020.

Nonbank Origination Share: Purchase Loans



Nonbank Origination Share: Refinance Loans

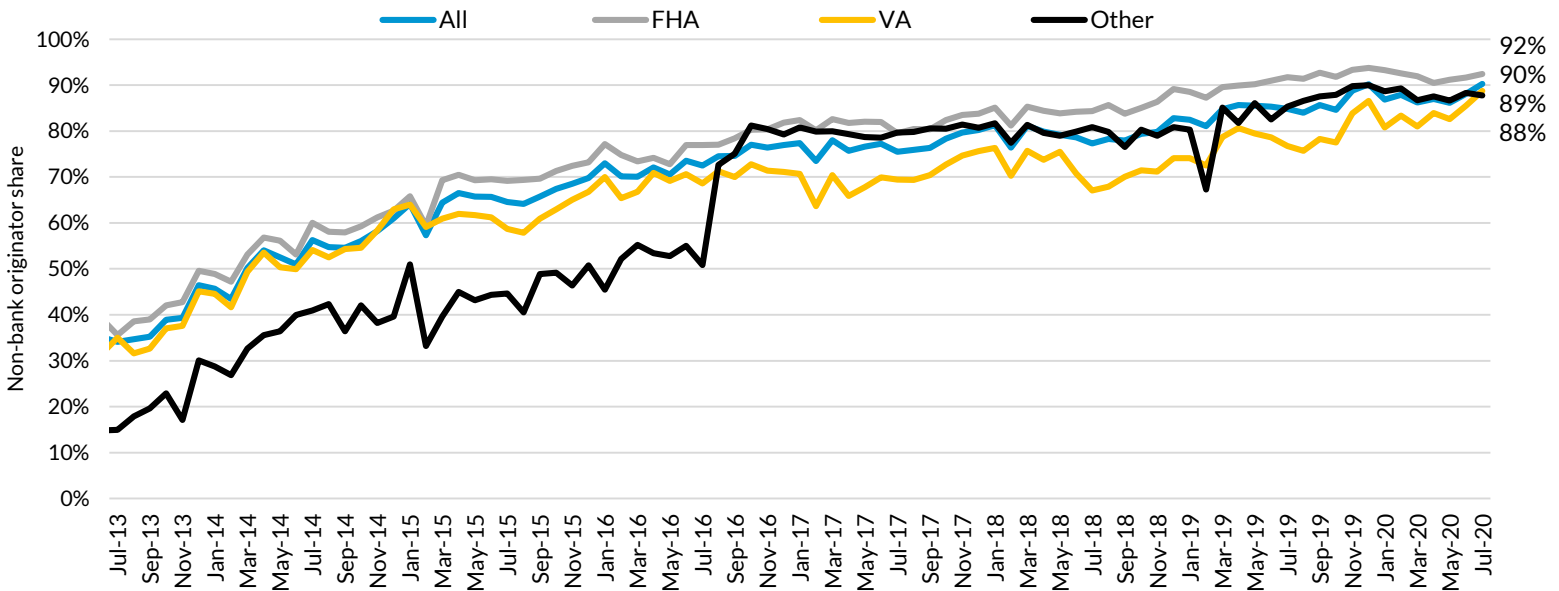


Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of July 2020.

Ginnie Mae Nonbank Originators

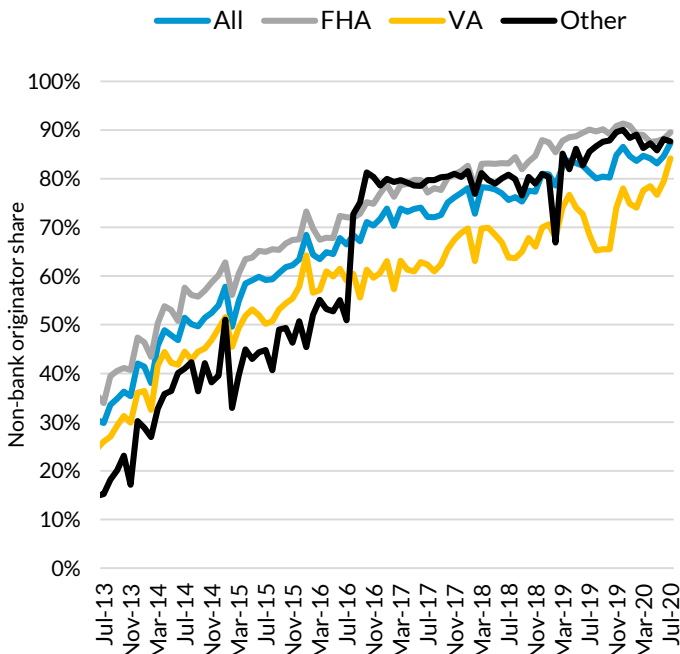
In July 2020, Ginnie Mae's nonbank share rose slightly to 90.3 percent. The nonbank originator share for FHA grew slightly to 92.4 percent in July, compared to 91.7 percent the previous month. The nonbank originator share for VA was higher than last month at 88.7 percent and the nonbank originator share for other loans, which can fluctuate quite a bit month to month, rose to 87.7 percent.

Ginnie Mae Nonbank Originator Share: All Loans

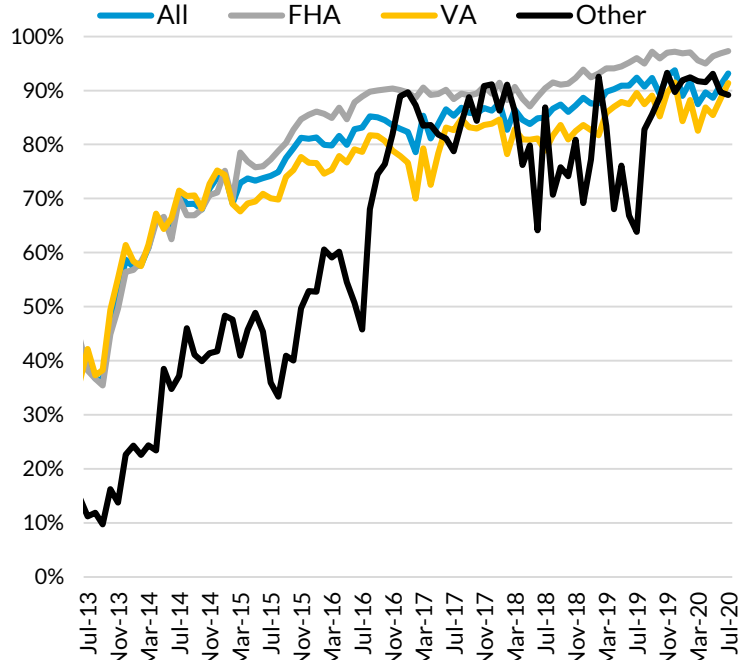


Sources: eMBS and Urban Institute
 Note: Data as of July 2020.

Ginnie Mae Nonbank Share: Purchase Loans



Ginnie Mae Nonbank Share: Refinance Loans

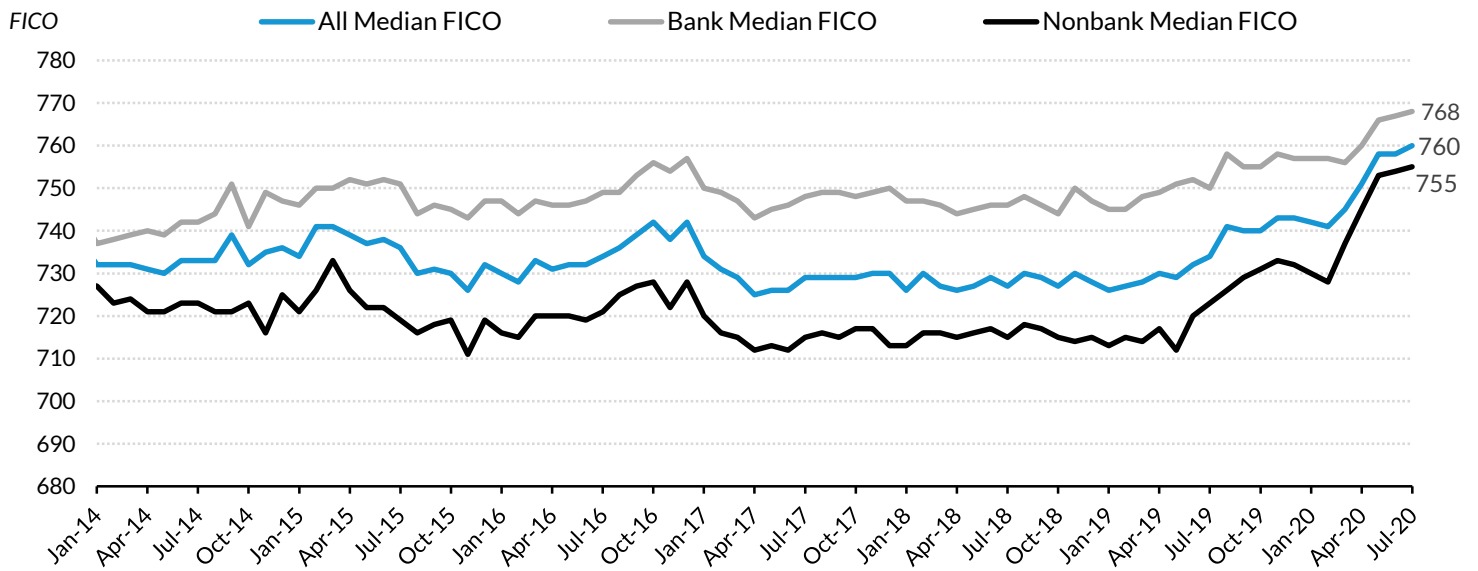


Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of July 2020.

Nonbank Credit Box

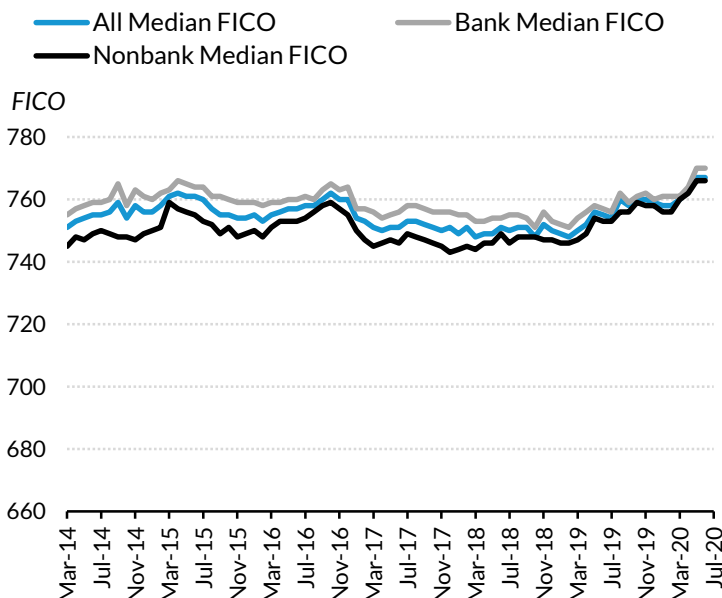
Nonbank originators have played a key role in opening up access to credit. FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, where the differentials between banks and non-banks are small, FICO scores for both have increased since early 2014. The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

Agency FICO: Bank vs. Nonbank



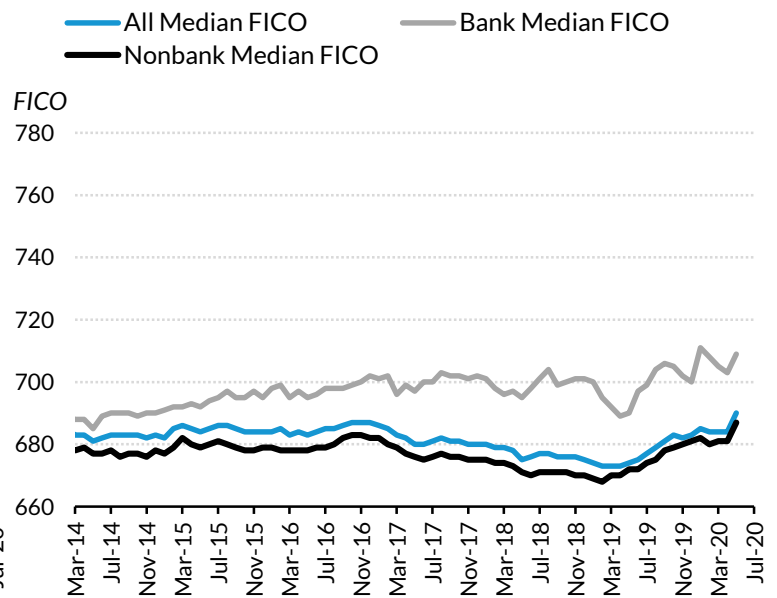
Sources: eMBS and Urban Institute. Note: Data as of July 2020.

GSE FICO: Bank vs. Nonbank



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

Ginnie Mae FICO: Bank vs. Nonbank

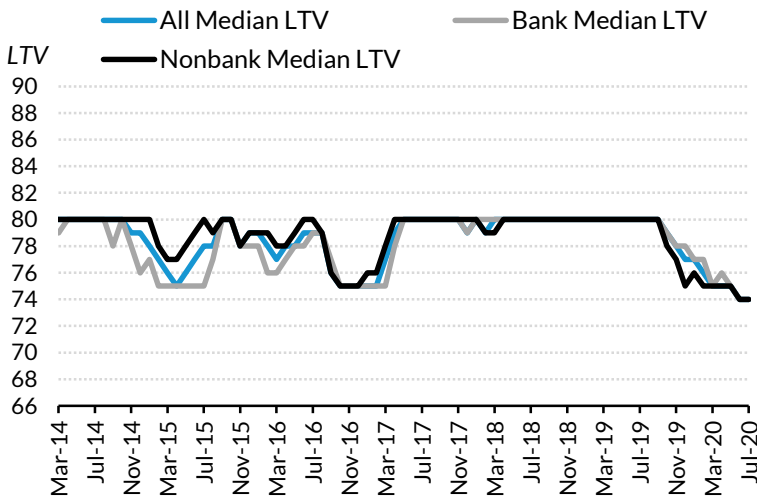


Sources: eMBS and Urban Institute. Note: Data as of July 2020.

Nonbank Credit Box

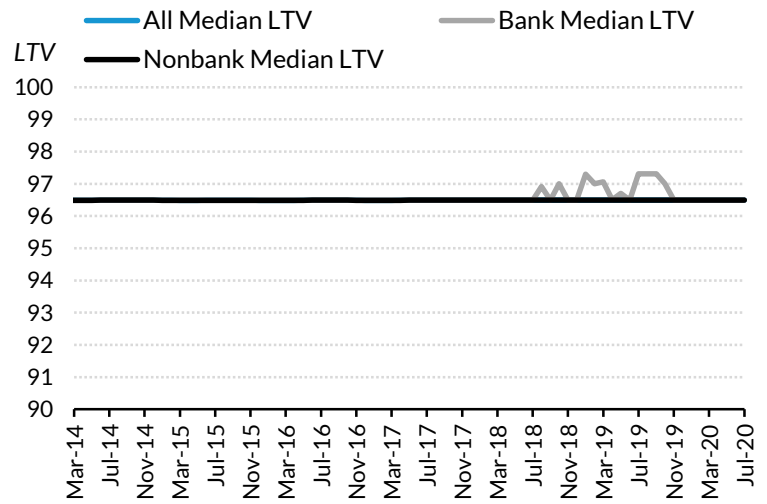
The median LTVs for nonbank and bank originations are comparable, while the median DTI for nonbank loans is higher than for bank loans, indicating that nonbanks are more accommodating in both this and the FICO dimension. Between early 2017 and early 2019, there was a substantial increase in DTIs; over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



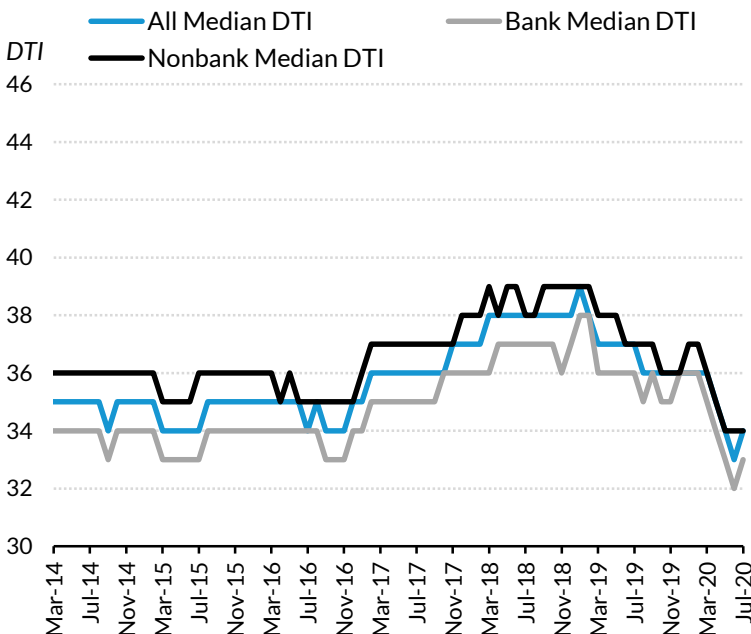
Sources: eMBS and Urban Institute. Note: Data as of July 2020.

Ginnie Mae LTV: Bank vs. Nonbank



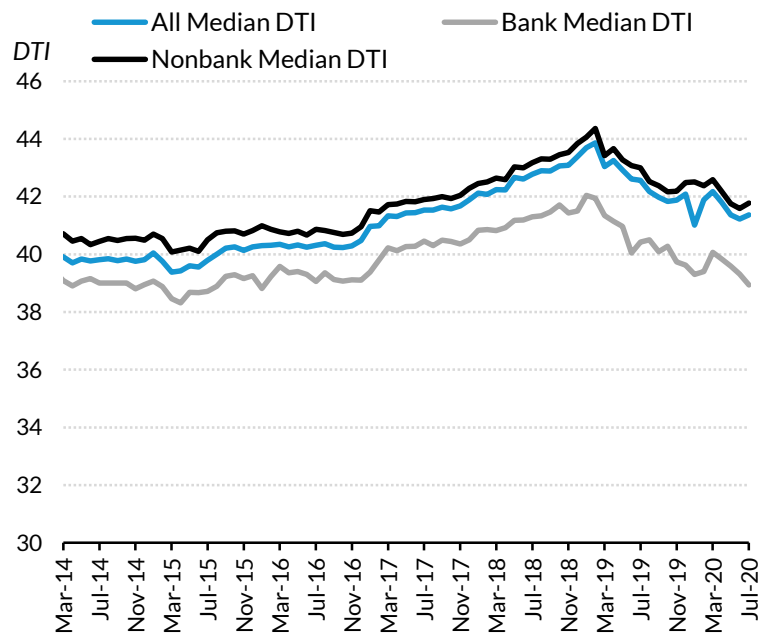
Sources: eMBS and Urban Institute. Note: Data as of July 2020.

GSE DTI: Bank vs. Nonbank



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

Ginnie Mae DTI: Bank vs. Nonbank

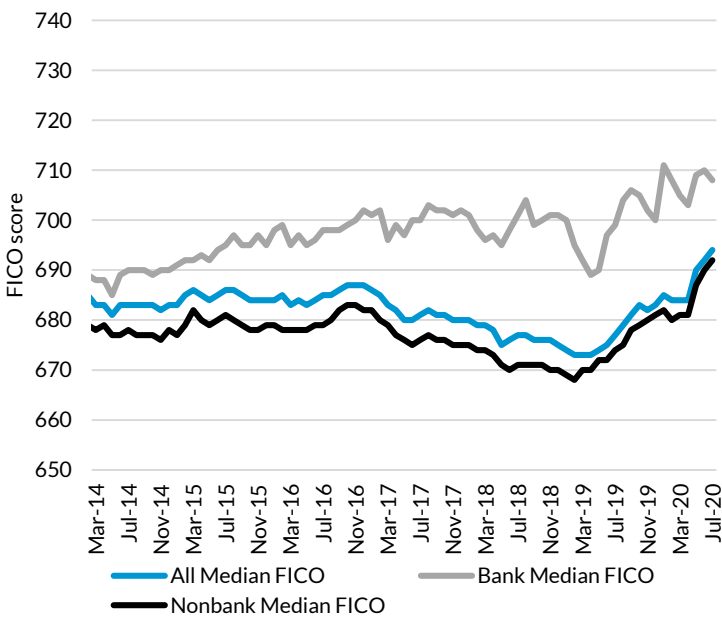


Sources: eMBS and Urban Institute. Note: Data as of July 2020.

Ginnie Mae Nonbank Originators: Credit Box

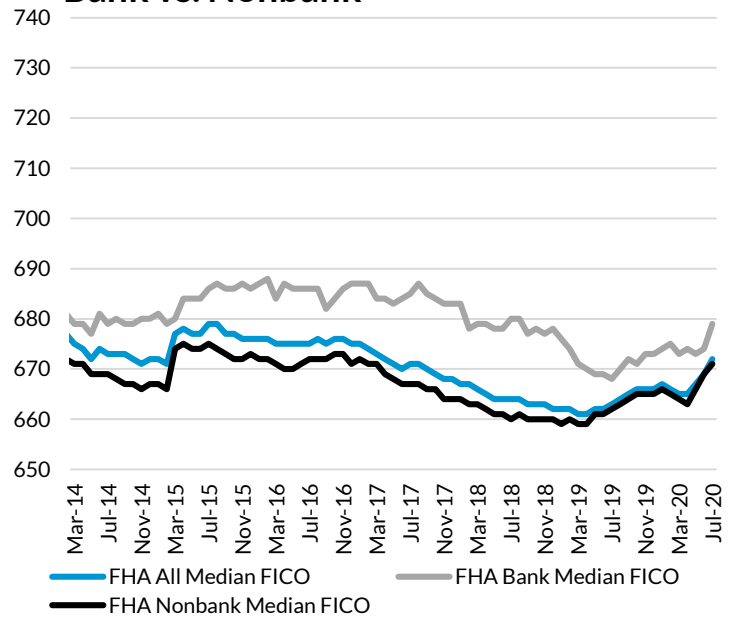
The median FICO score for Ginnie Mae nonbank originators climbed in July 2020, while the median FICO score for bank originators fell slightly. Bank FICOs are 16 points above non-banks. The gap between banks and non-banks is very apparent for FHA and VA lending.

Ginnie Mae FICO Scores: Bank vs. Nonbank



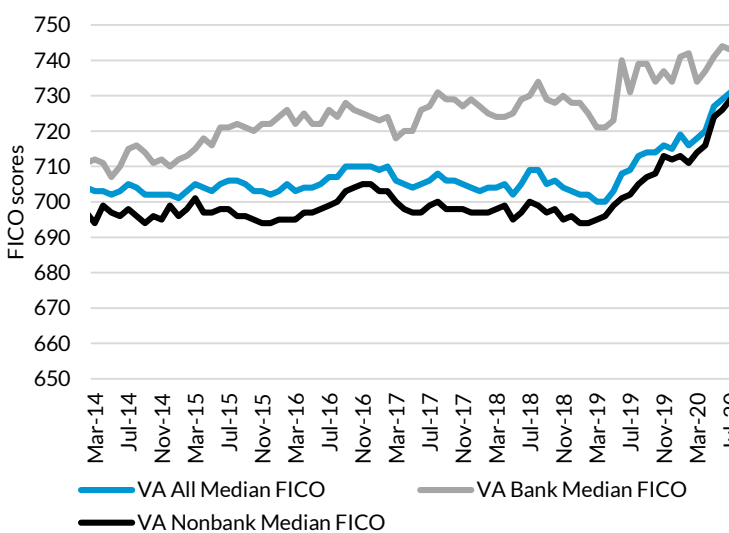
Sources: eMBS and Urban Institute Note: Data as of July 2020.

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



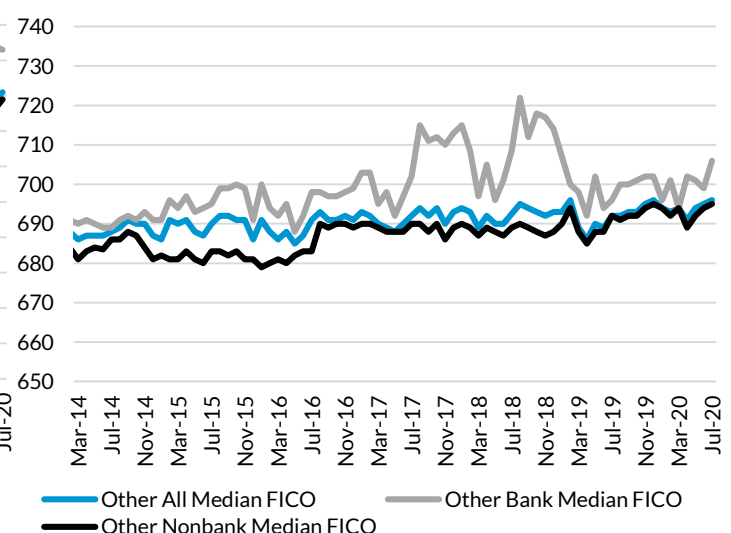
Sources: eMBS and Urban Institute Note: Data as of July 2020.

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



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

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

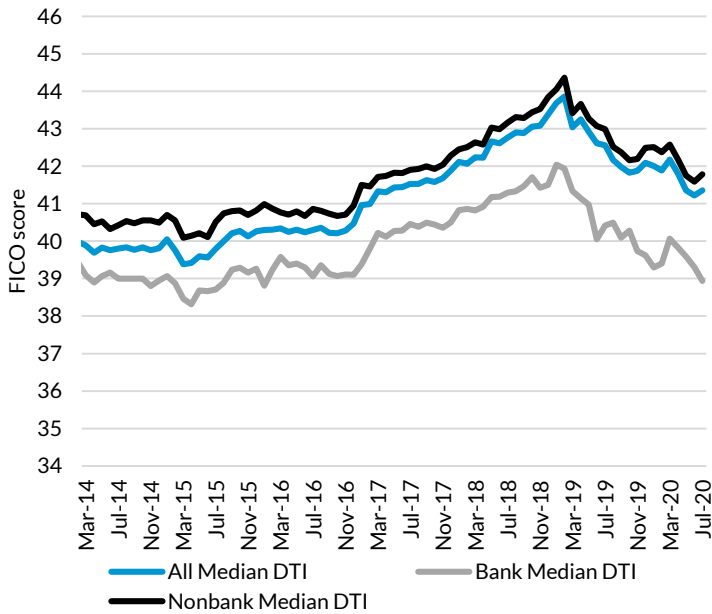


Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of July 2020.

Ginnie Mae Nonbank Originators: Credit Box

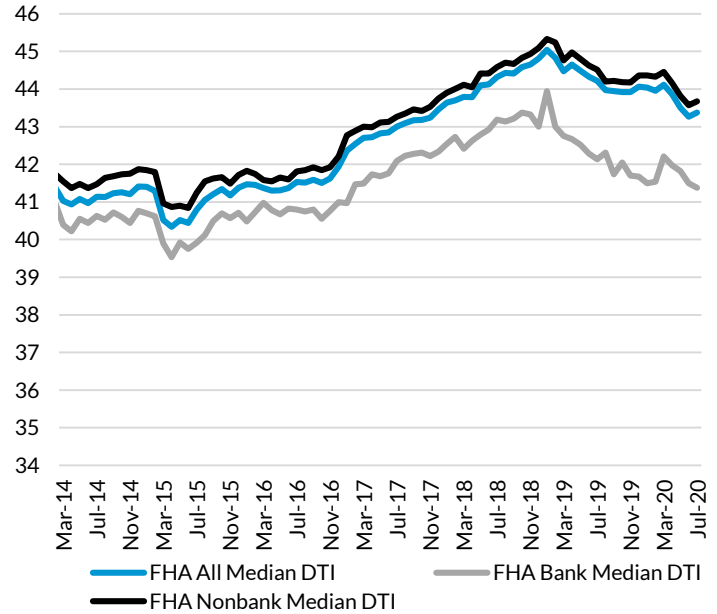
An analysis of borrowers' DTI ratios for bank versus non-bank originators indicates that the former have a lower median DTI. The DTIs for FHA and VA borrowers experienced notable increases during 2017 and 2018 for both banks and nonbank originators, while the Other origination DTIs stayed relatively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



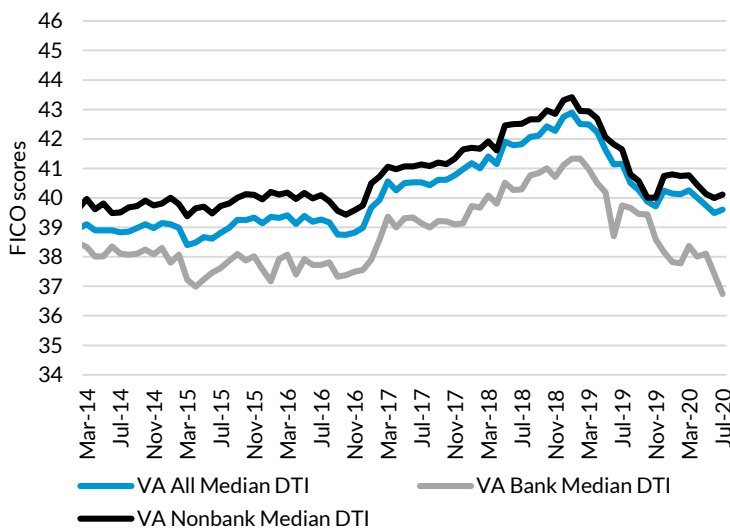
Sources: eMBS and Urban Institute Note: Data as of July 2020.

Ginnie Mae FHA DTI: Bank vs. Nonbank



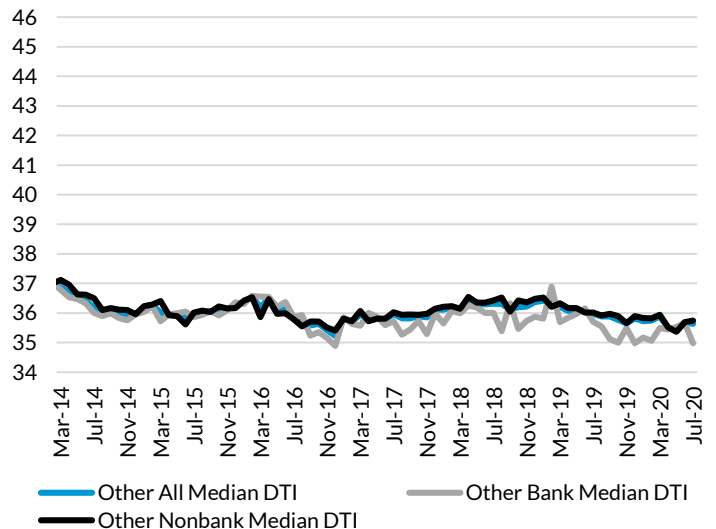
Sources: eMBS and Urban Institute Note: Data as of July 2020.

Ginnie Mae VA DTI: Bank vs. Nonbank



Sources: eMBS and Urban Institute Note: Data as of July 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 July 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 July 2020, over half (52.2 percent) of the Ginnie Mae MSR s are owned by the top six firms. The top 30 firms collectively own 85.4 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

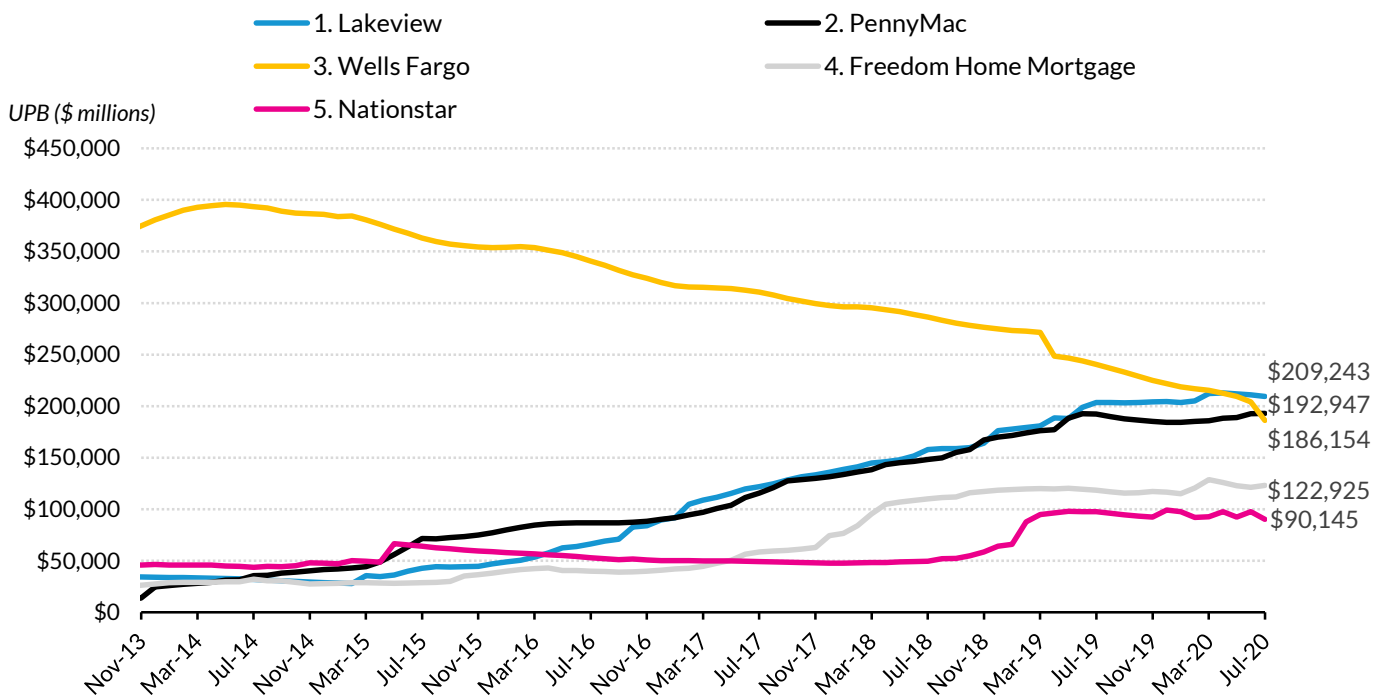
Rank	MSR Holder	UPB (\$ millions)	Share	Cumulative Share
1	Lakeview	\$209,243	12.6%	12.6%
2	PennyMac	\$192,947	11.6%	24.1%
3	Wells Fargo	\$186,154	11.2%	35.3%
4	Freedom Home Mortgage	\$122,925	7.4%	42.7%
5	Nationstar	\$97,684	5.4%	48.1%
6	Quicken Loans	\$68,767	4.1%	52.2%
7	US Bank	\$52,602	3.2%	55.4%
8	Newrez	\$51,662	3.1%	58.5%
9	Carrington Mortgage	\$45,185	2.7%	61.2%
10	USAA Federal Savings Bank	\$39,163	2.4%	63.5%
11	Caliber Home Loans	\$39,032	2.3%	65.9%
12	Truist Bank	\$30,467	1.8%	67.7%
13	Navy Federal Credit Union	\$29,191	1.8%	69.5%
14	Amerihome Mortgage	\$27,818	1.7%	71.1%
15	Home Point Financial Corporation	\$22,178	1.3%	72.5%
16	The Money Source	\$20,875	1.3%	73.7%
17	Midfirst Bank	\$18,505	1.1%	74.8%
18	JP Morgan Chase	\$18,391	1.1%	75.9%
19	Loan Depot	\$17,911	1.1%	77.0%
20	Guild Mortgage	\$16,283	1.0%	78.0%
21	M&T Bank	\$15,946	1.0%	78.9%
22	Roundpoint Mortgage	\$15,238	0.9%	79.8%
23	Citizens Bank	\$13,771	0.8%	80.7%
24	PHH Mortgage	\$13,653	0.8%	81.5%
25	Planet Home Lending	\$12,089	0.7%	82.2%
26	Flagstar Bank	\$11,336	0.7%	82.9%
27	Pingora	\$11,029	0.7%	83.6%
28	Shore Financial	\$10,824	0.6%	84.2%
29	Fifth Third Bank	\$9,823	0.6%	84.8%
30	Bank of America	\$9,620	0.6%	85.4%

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

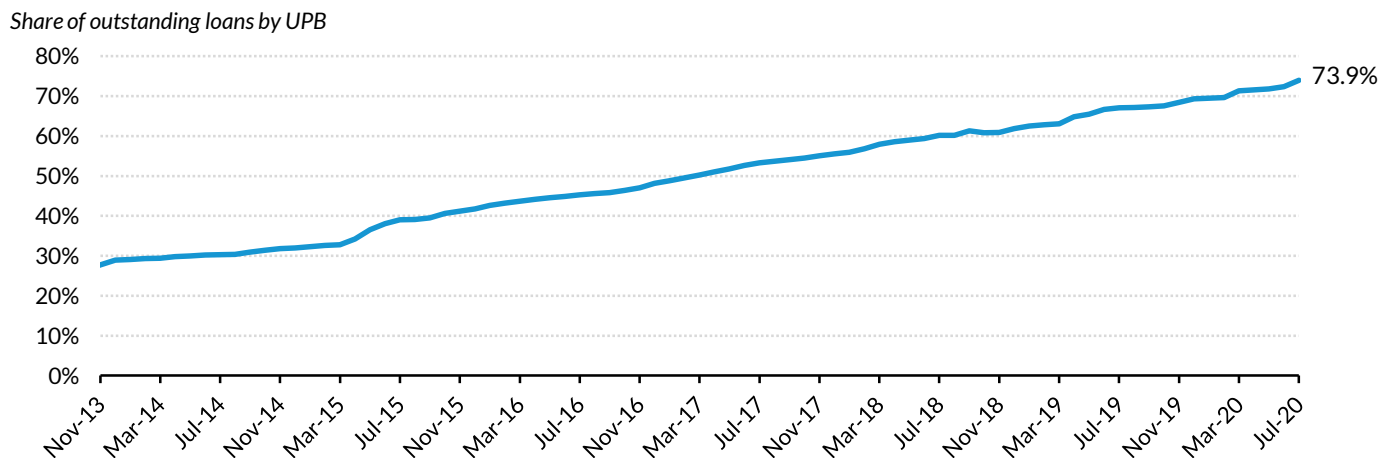
Holders of Ginnie Mae MSR

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 July 2020, Wells Fargo's holdings of MSR dove to \$186.2 billion, below the \$209.2 and \$192.9 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 \$123 billion and \$90 billion respectively as of July 2020. Nonbanks collectively owned servicing rights for 73.9 percent of all outstanding unpaid principal balance guaranteed by Ginnie Mae in July 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

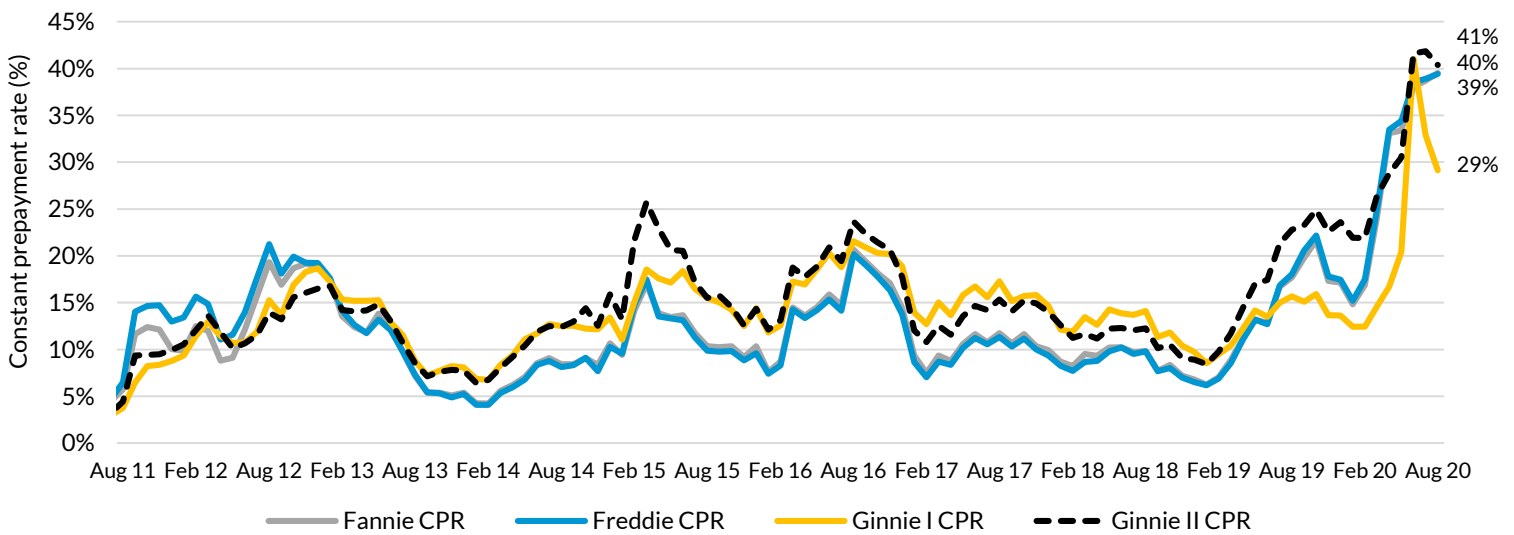


Sources: eMBS and Urban Institute. Note: Data as of July 2020.

Prepayments

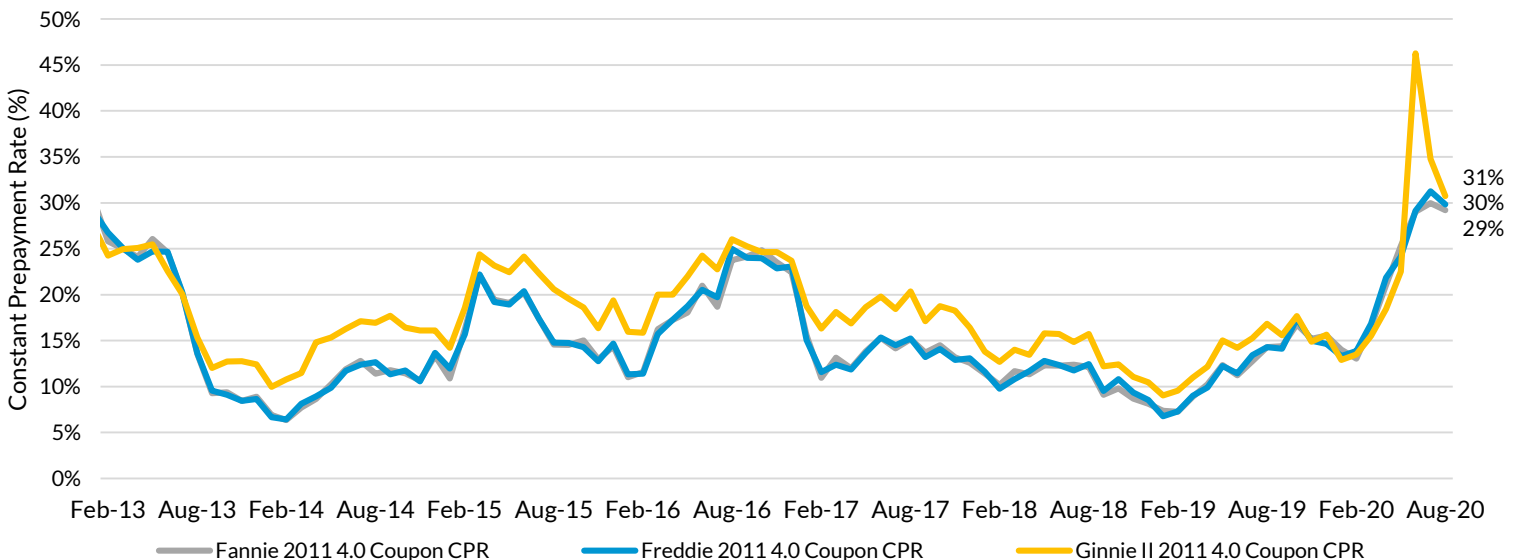
While prepayment speeds on all securities have risen since early 2019, the speed increase has been especially dramatic in 2020, with speeds on both Ginnie II and GSE securities rising rapidly due to a sharp drop in rates. At this point, the speeds on GSE securities have largely converged with those on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

2011 Issued 4.0 Coupon CPR

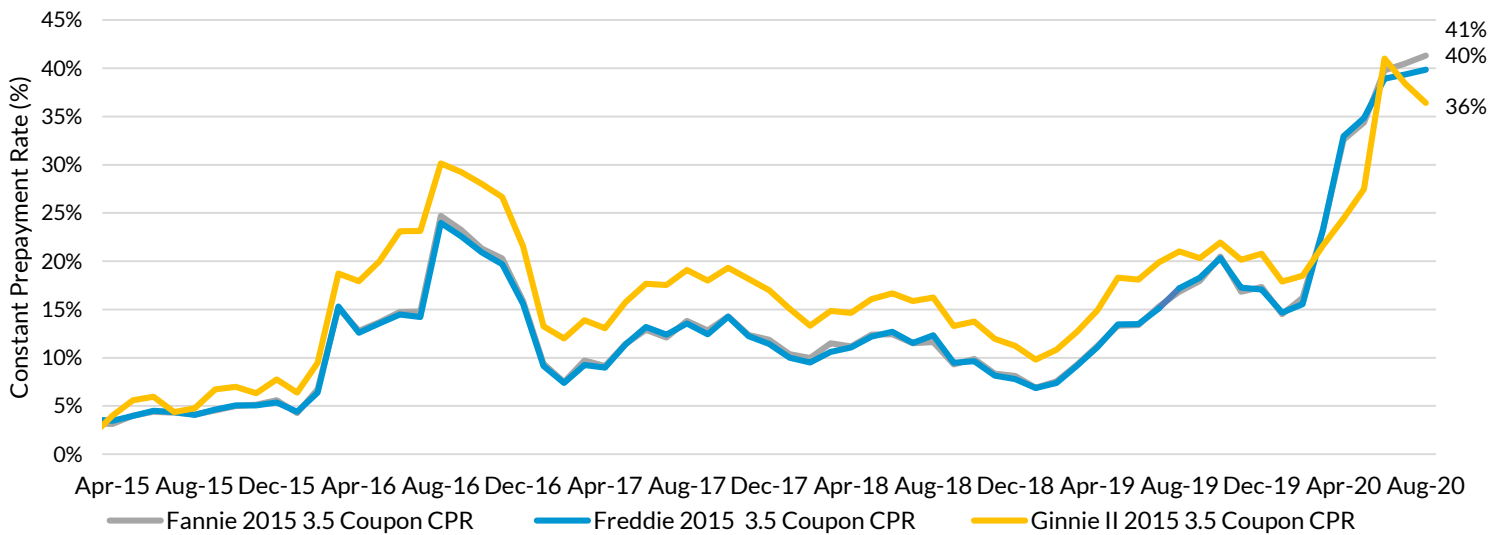


Sources: Credit Suisse and Urban Institute. Note: Data as of August 2020.

Prepayments

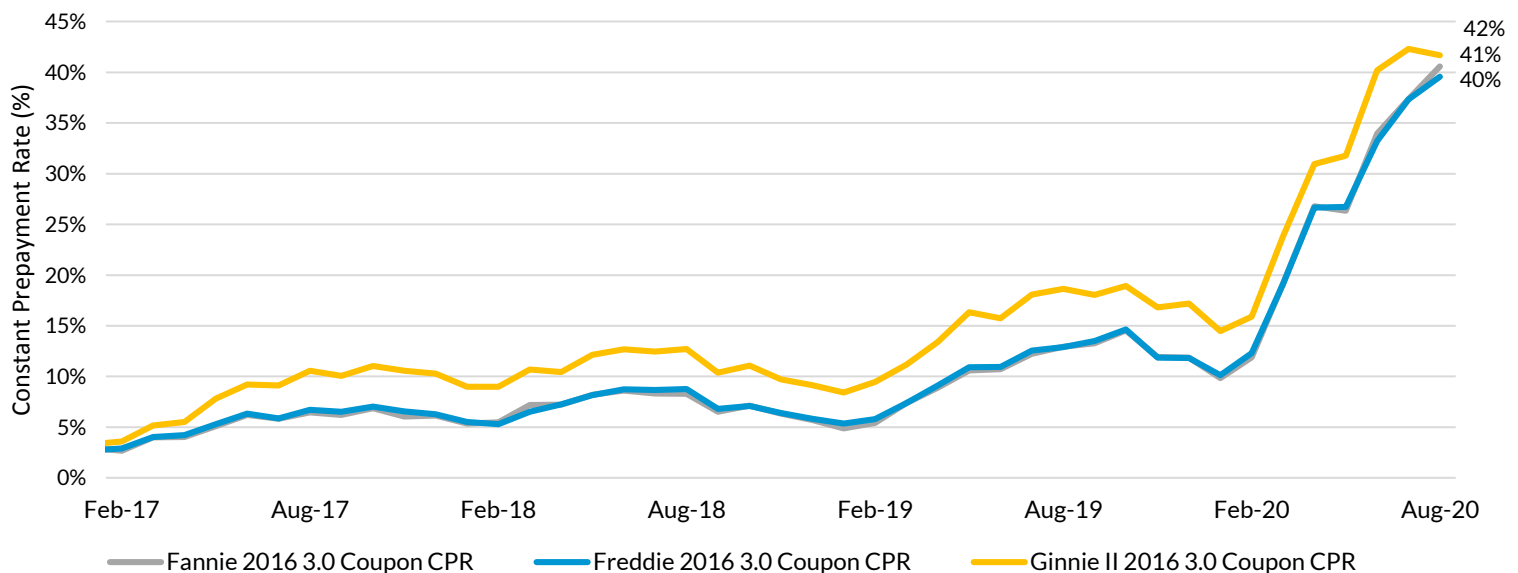
Speeds on the 2015 3.5s and the 2016 3.0s, the largest coupon cohorts of those vintage years, have been increasing since early 2019.; the speed increases have been especially dramatic in 2020 due to a sharp drop in rates, with speeds on both Ginnie II and GSE securities rising rapidly. The speeds on 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 faster than 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 August 2020.

2016 Issued 3.0 Coupon CPR

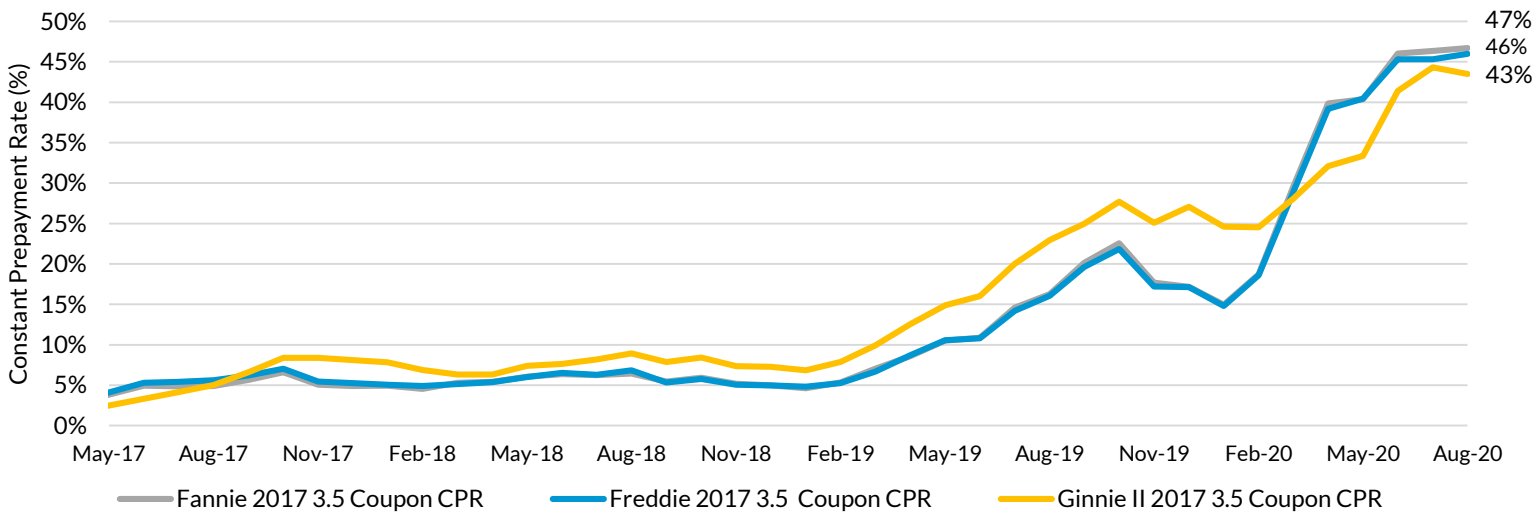


Sources: Credit Suisse and Urban Institute. Note: Data as of August 2020.

Prepayments

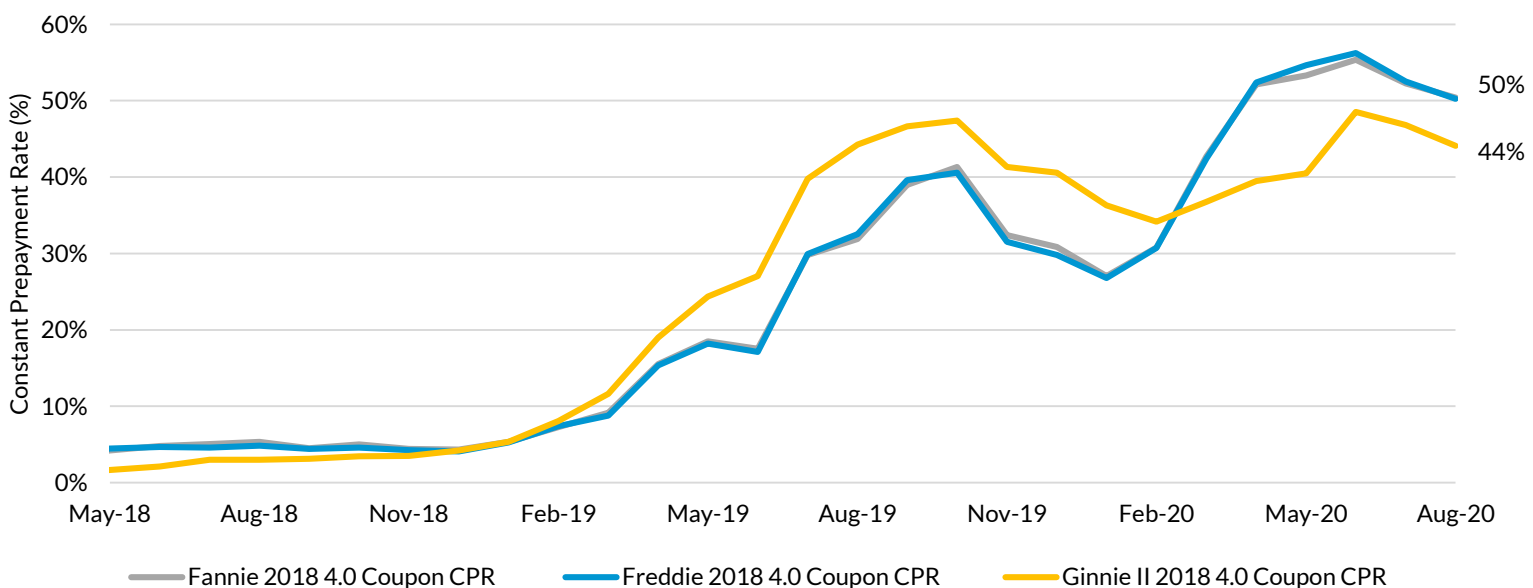
The charts below show the behavior of the 2017-issued 3.5s and the 2018-issued 4.0s, the largest coupon cohorts of those vintage years. Despite slower seasoning, 2017 Ginnie II 3.5s were prepaying faster than their conventional counterparts from late 2017 to March 2020, due primarily to fast VA prepayment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

2018 Issued 4.0 Coupon CPR



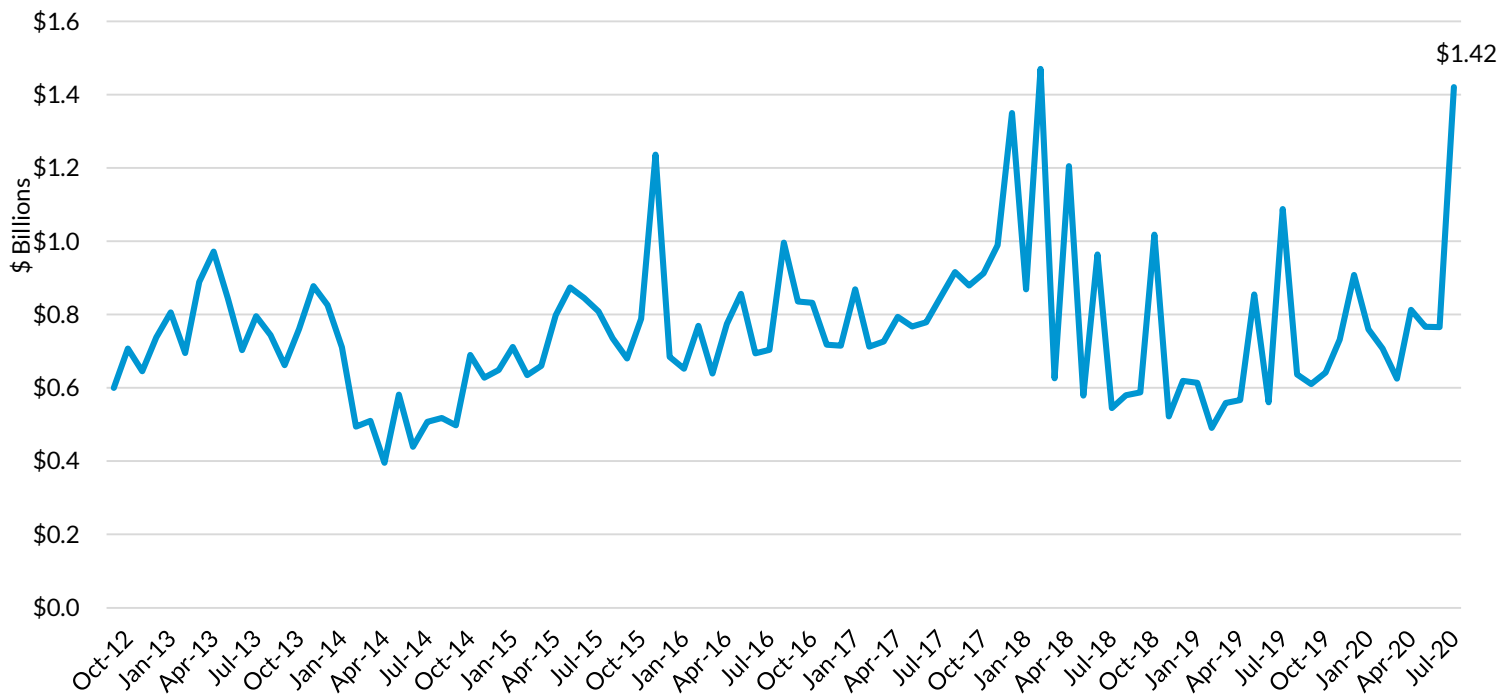
Sources: Credit Suisse and Urban Institute. Note: Data as of August 2020.

Other Ginnie Mae Programs

Reverse Mortgage Volumes

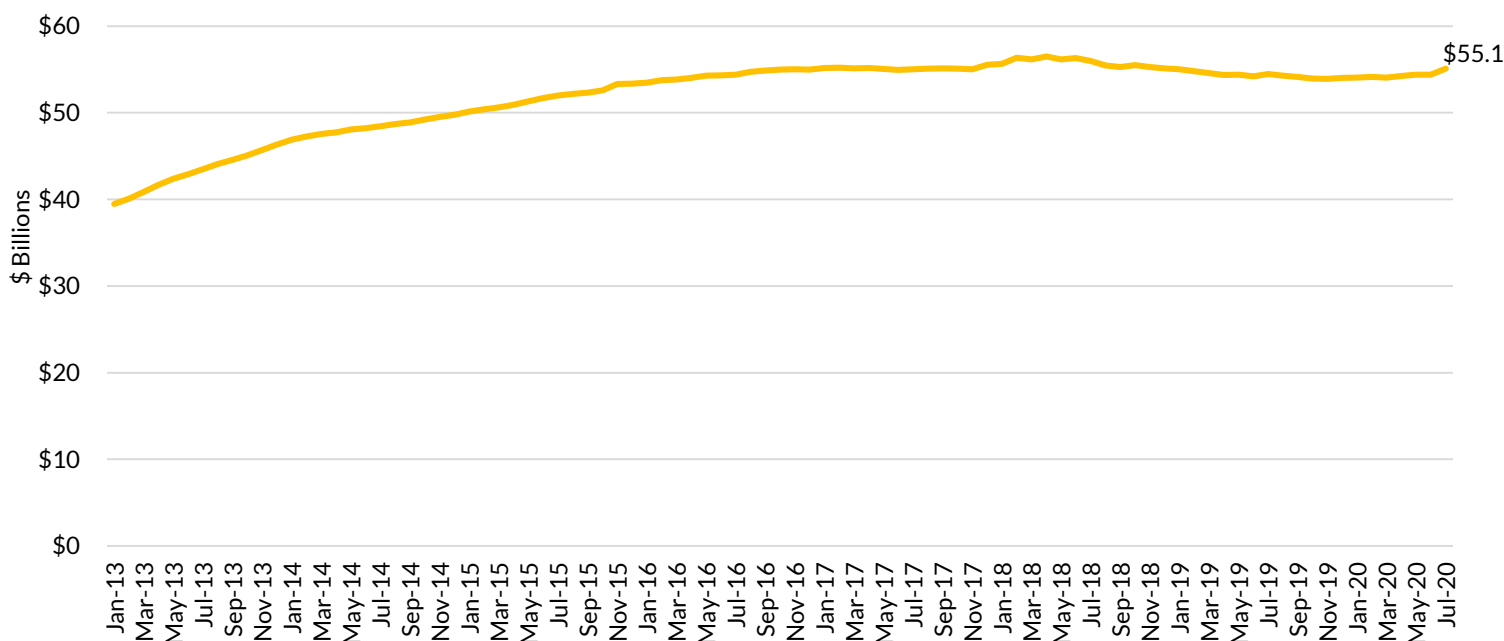
Ginnie Mae reverse mortgage issuance has been volatile over the past two years, but has been generally declining since early 2018 largely due to the implementation of the new, lower principal limit factors. July was an exception, with issuance growing to \$1.42 billion. In July 2020, outstanding reverse mortgage securities totaled \$55.1 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 July 2020.

HMBS Outstanding



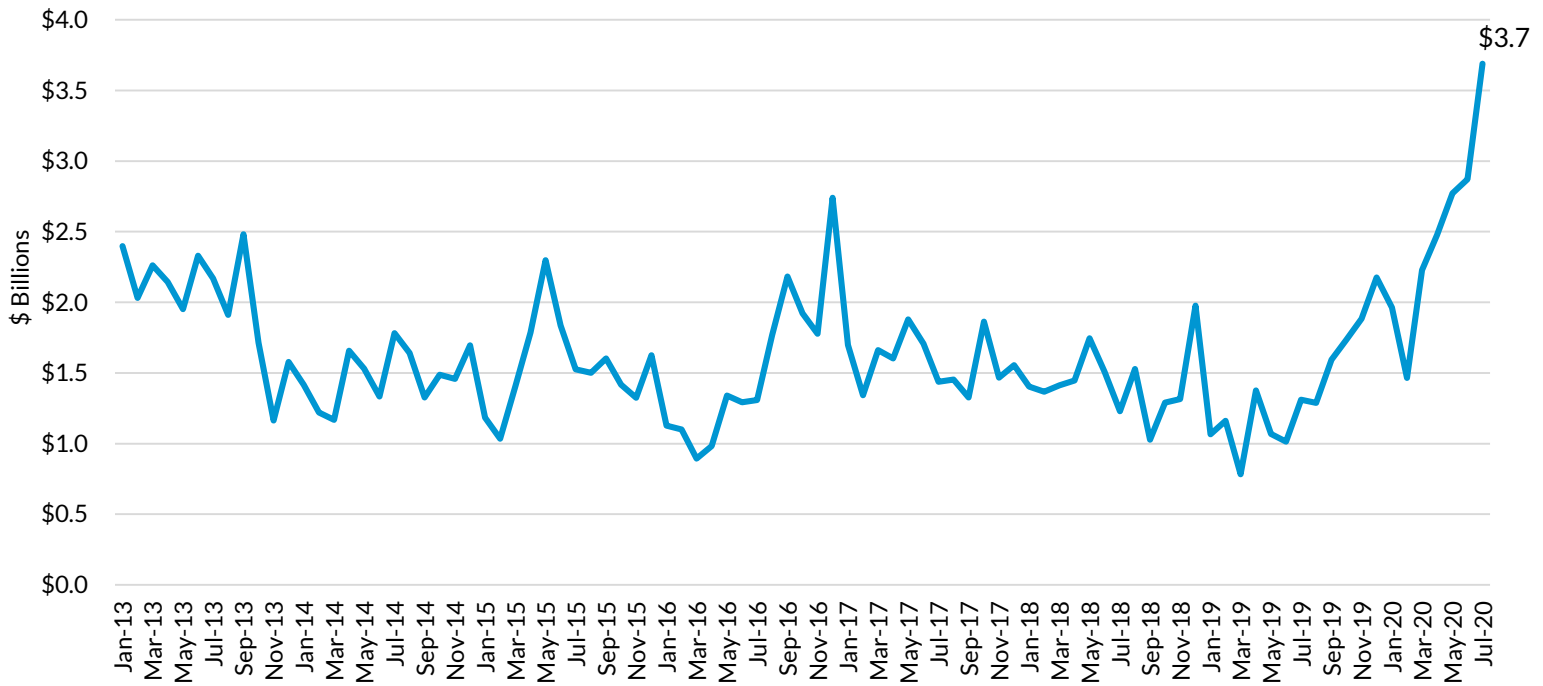
Sources: Ginnie Mae and Urban Institute. Note: Data as of July 2020.

Other Ginnie Mae Programs

Multifamily Market

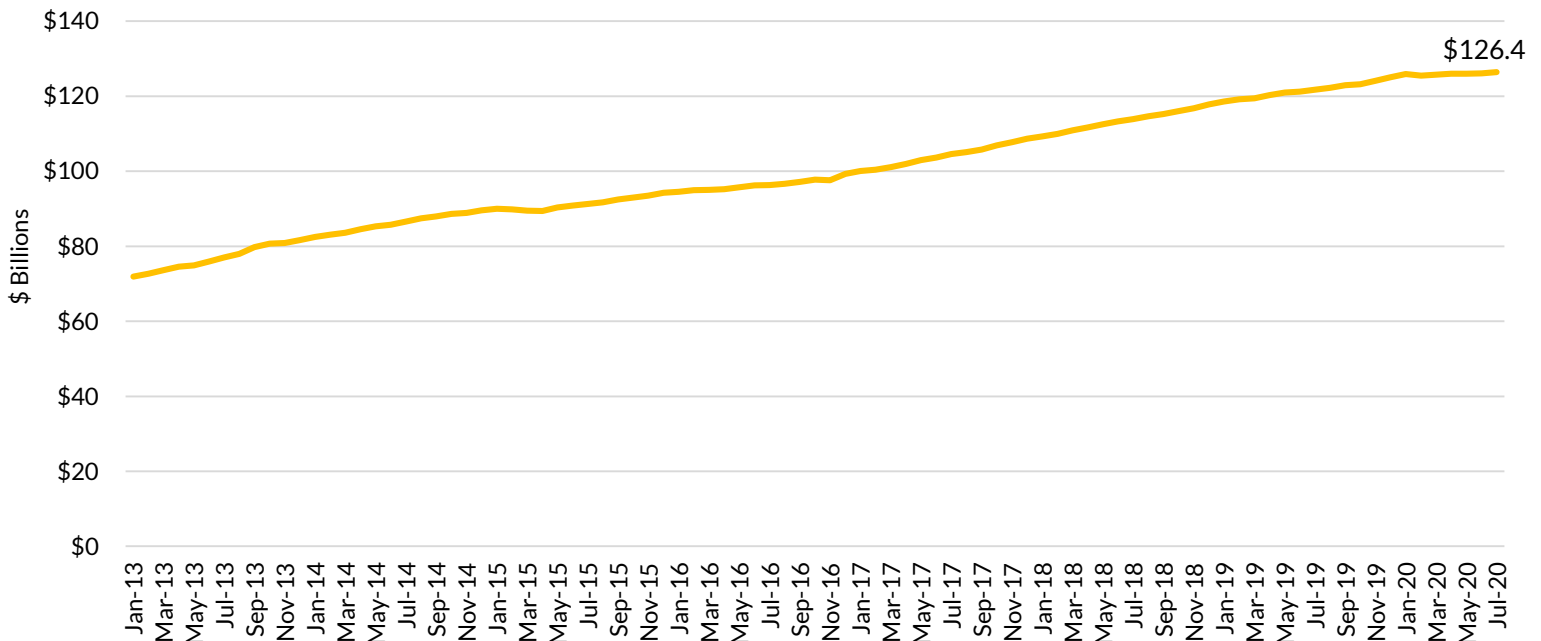
Ginnie Mae multifamily issuance volume in July 2020 totaled \$3.7 billion, the third consecutive month of increase from the prior month. Outstanding multifamily securities totaled \$126.4 billion as of the seventh month of 2020.

Ginnie Mae Multifamily MBS Issuance



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

Ginnie Mae Multifamily MBS Outstanding

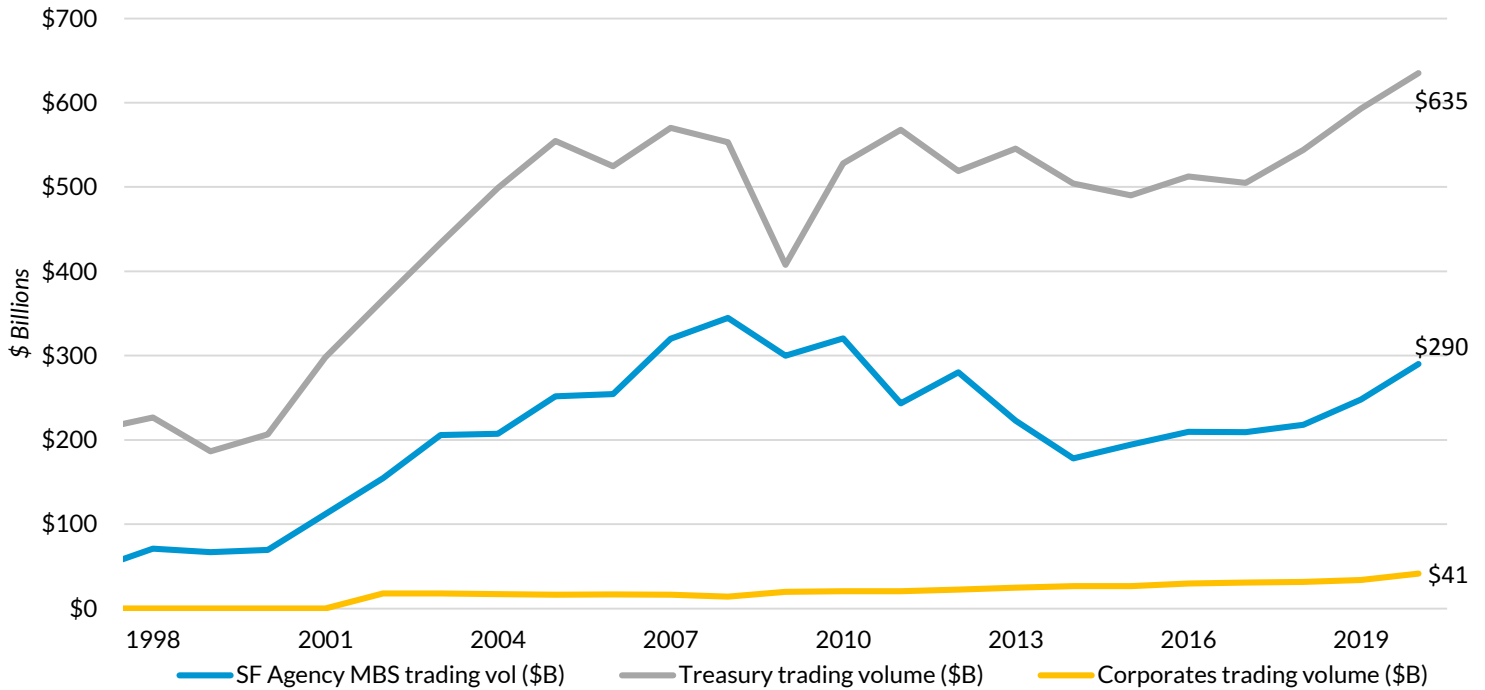


Sources: Ginnie Mae and Urban Institute. Note: Data as of July 2020.

Market Conditions

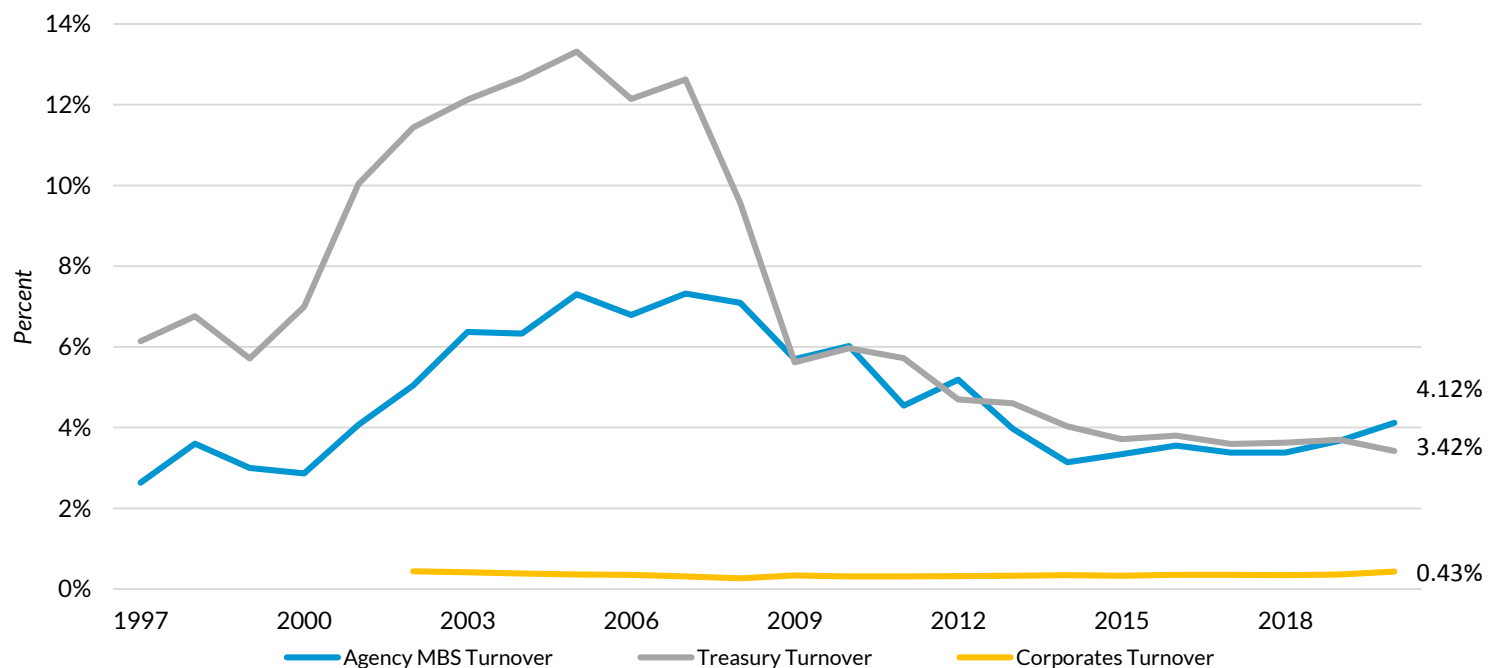
Agency MBS trading volume is \$290 billion/day on average for the first seven months of 2020, more robust than in the 2014-2019 period, but still below the pre-crisis peak of \$345 billion in 2008. Average daily trading volume for Treasuries now exceed the pre-crisis peak. Agency MBS turnover in 2020 YTD (through July) has also been higher than the 2014-2019 period; in 2020, average daily MBS turnover was 4.12 percent, above the 2019 average of 3.67 percent. Note that agency MBS turnover in the first seven 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 July 2020.

Average Daily Turnover by Sector

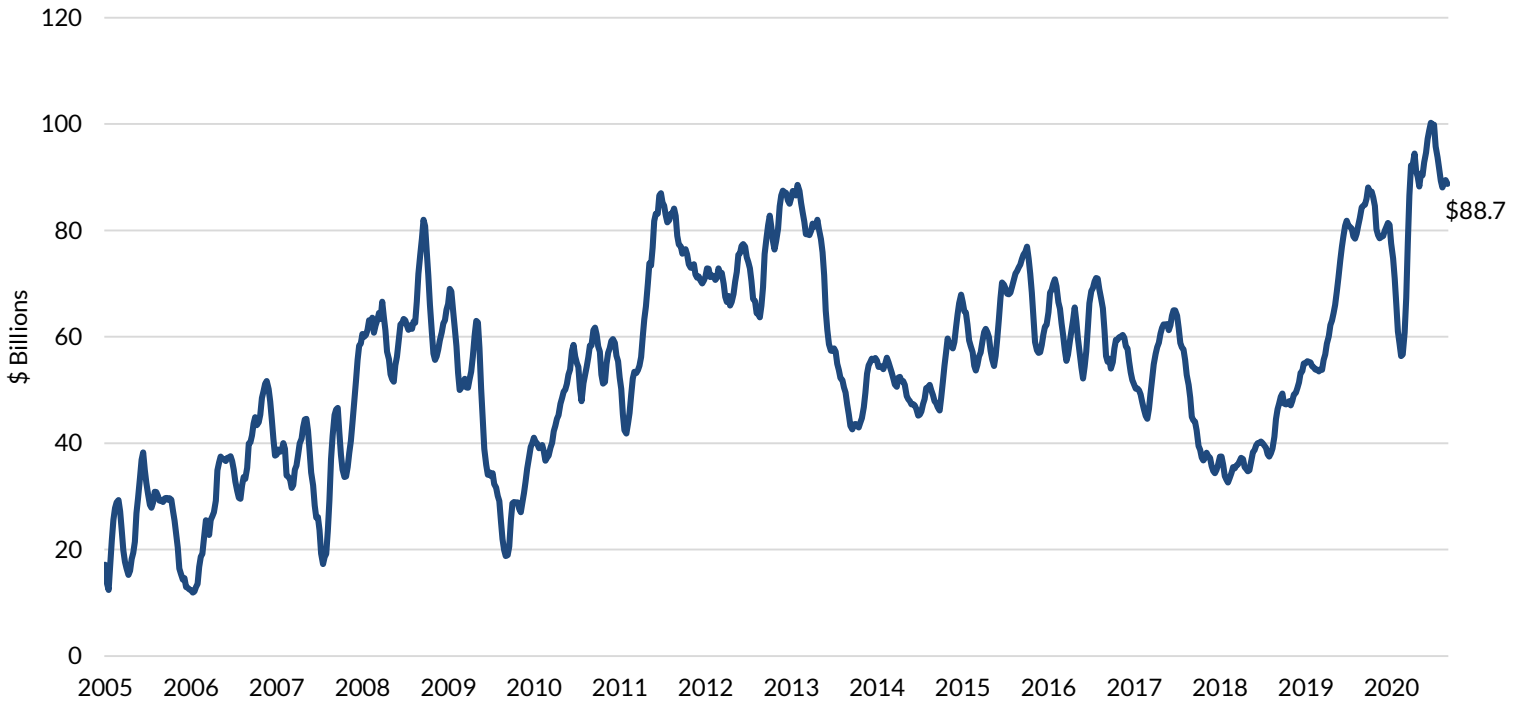


Sources: SIFMA and Urban Institute. Note: Data as of July 2020.

Market Conditions

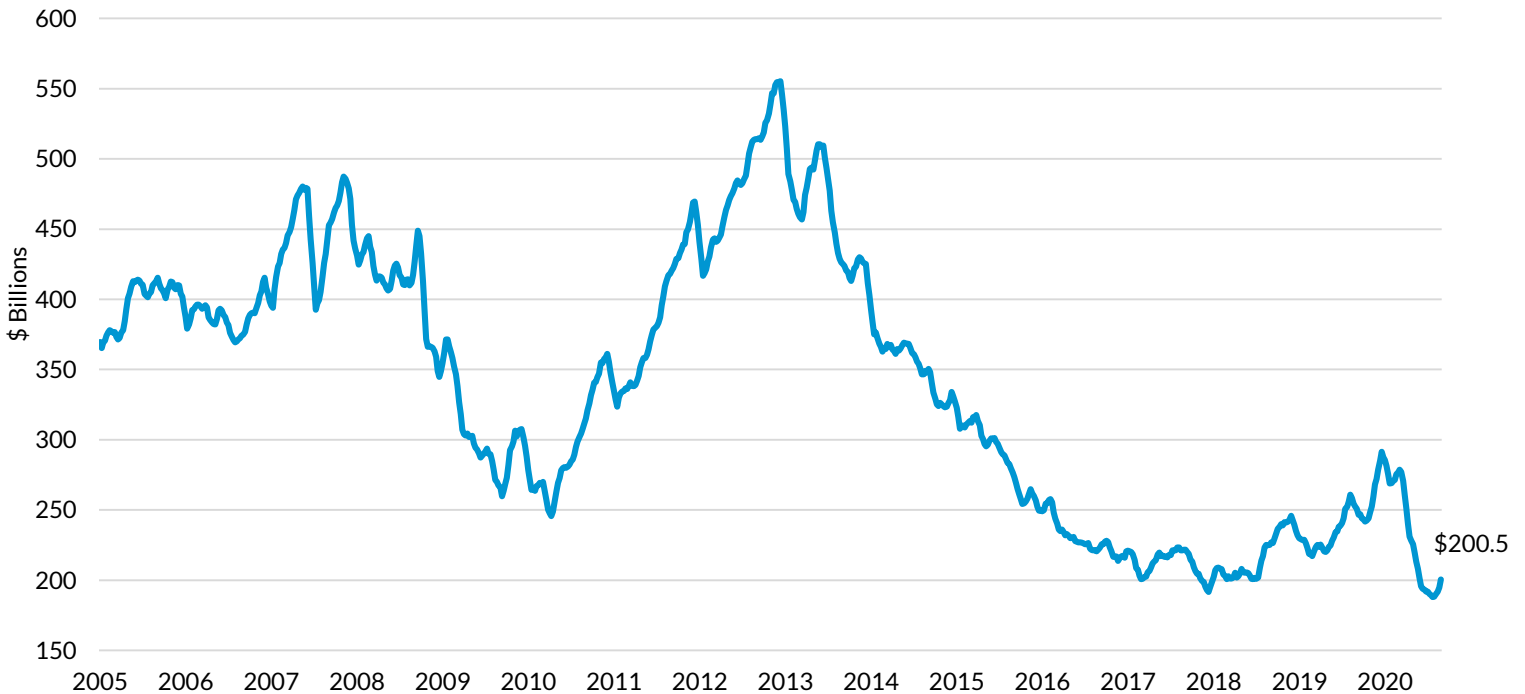
Dealer net positions are at a post-crisis high; they now exceed their pre-crisis levels. By contrast, dealer gross positions have fallen dramatically. The volume of repurchase activity is as low as it has been since 2005. The large decline through time reflects banks cutting back on lower margin businesses.

Dealer Net Positions: Federal Agency and GSE MBS



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

Repo Volume: Securities In



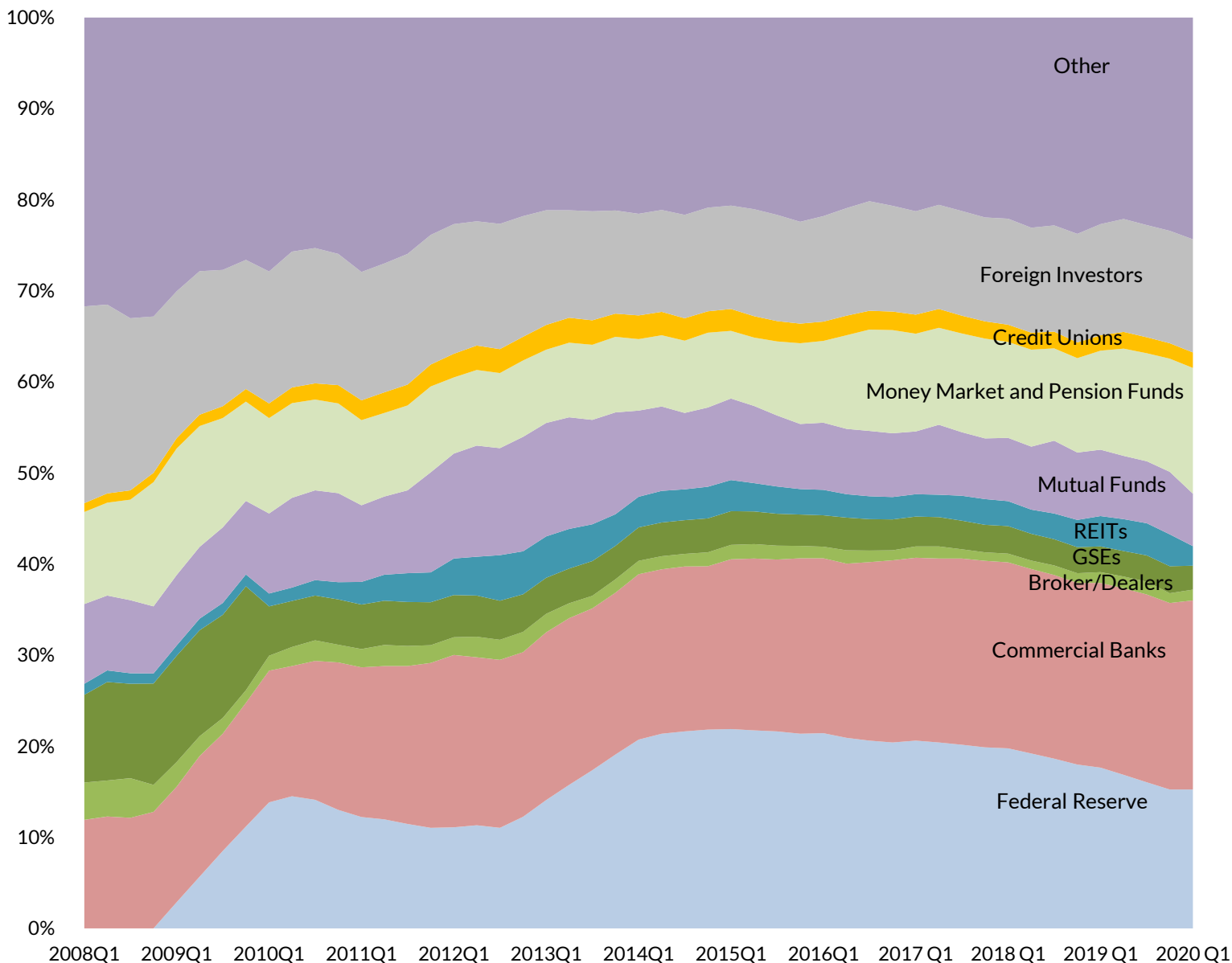
Sources: Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute. Note: Data as of August 2020.

MBS Ownership

The largest holders of agency debt (Agency MBS + Agency notes and bonds) include the Federal Reserve (15 percent), commercial banks (21 percent), foreign investors (12 percent), and money market & pension funds (14 percent). The broker/dealer and GSE shares are a fraction of what they once were.

Who owns Total Agency Debt?

Share of Total Agency Debt by Owner

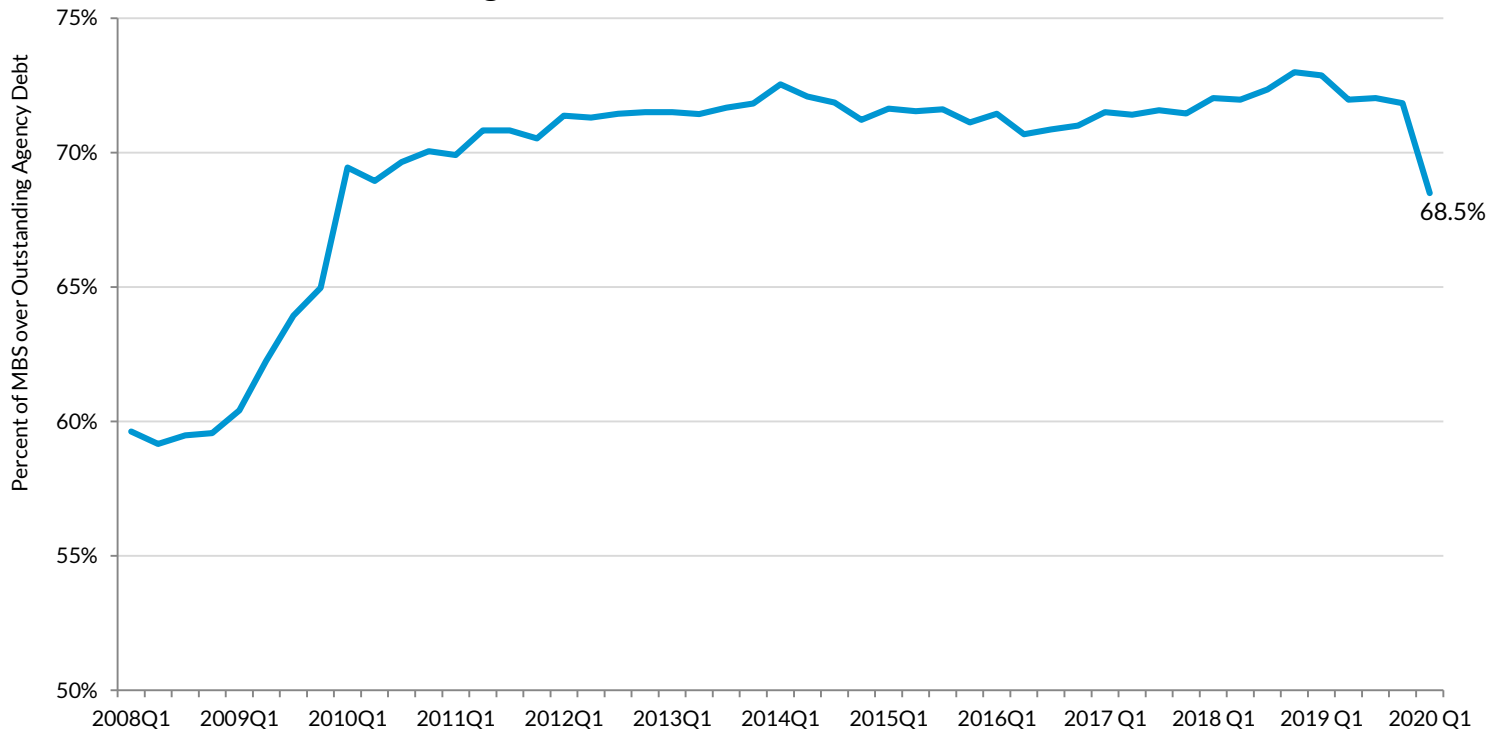


Sources: Federal Reserve Flow of Funds and Urban Institute. **Note:** The "other" category includes primarily life insurance companies, state and local govts, households, and nonprofits. Data as of Q1 2020.

MBS Ownership

As Fannie and Freddie reduce the size of their retained portfolio post 2008, fewer agency notes and bonds were required to fund that activity. As a result, the MBS share of total agency debt increased over time. Commercial banks are now the largest holders of Agency MBS. Out of their \$2.3 trillion in holdings as of the end of August 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 Q1 2020.

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Jul-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug 5	Aug 12	Aug 19	Aug 26
Largest 25 Domestic Banks	1462.9	1532.7	1,541.5	1587.7	1624.7	1623.9	1619.7	1653.2	1705.1	1688.1	1719.3	1724.0
Small Domestic Banks	506.2	535.4	538.6	546.3	549.5	549.7	559.5	568.7	577.9	576.9	579.5	579.6
Foreign Related Banks	29.0	38.2	39.7	43.4	45.6	42.9	43.3	43.0	44.5	44.4	41.3	40.9
Total, Seasonally Adjusted	1998.1	2106.3	578.3	2177.4	2219.8	2216.5	2222.5	2264.9	2327.5	2309.4	2340.1	2344.5

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 August 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

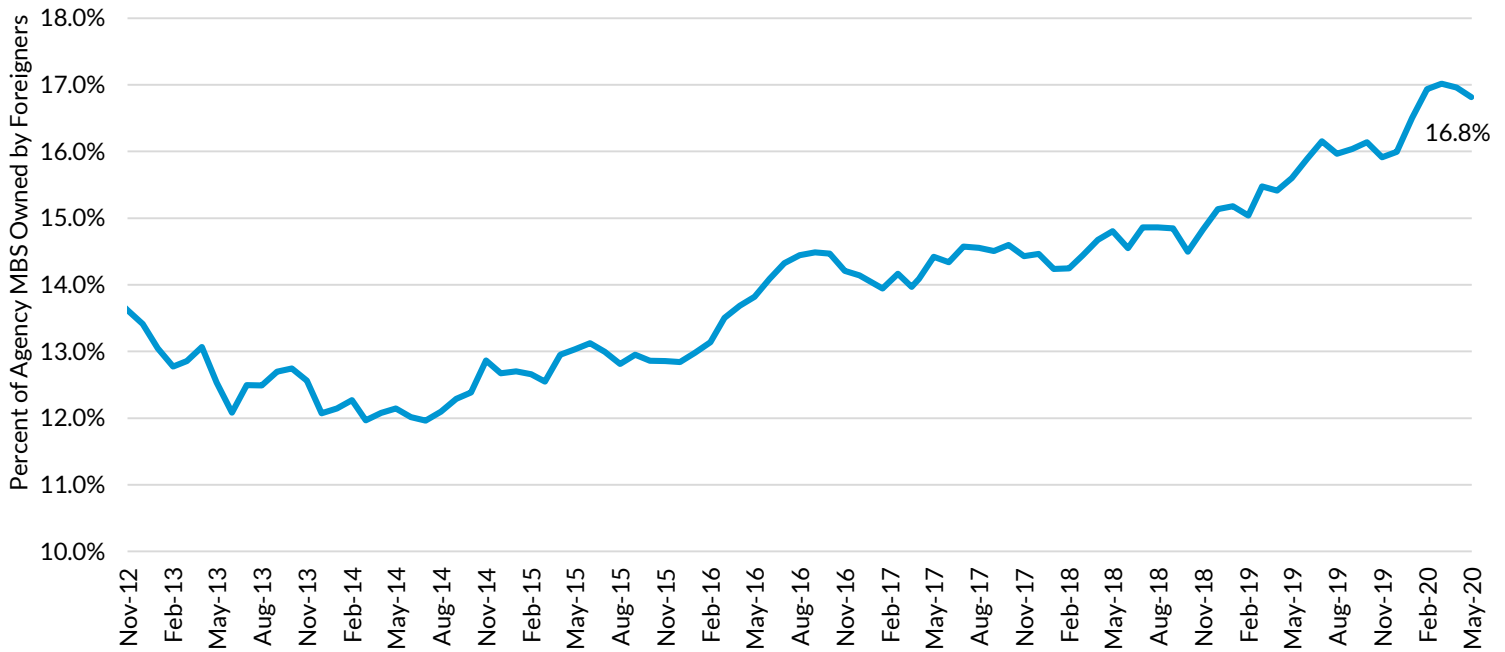
Top Bank & Thrift Residential MBS Investors		Total (\$MM)	GSE PT (\$MM)	GNMA PT (\$MM)	Agency REMIC (\$MM)	Non-Agency (\$MM)	Market Share
1	Bank of America Corporation	\$335,366.0	\$191,632.0	\$130,226.0	\$13,209.0	\$299.0	15.30
2	Wells Fargo & Company	\$251,111.0	\$174,271.0	\$68,543.0	\$7,756.0	\$541.0	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

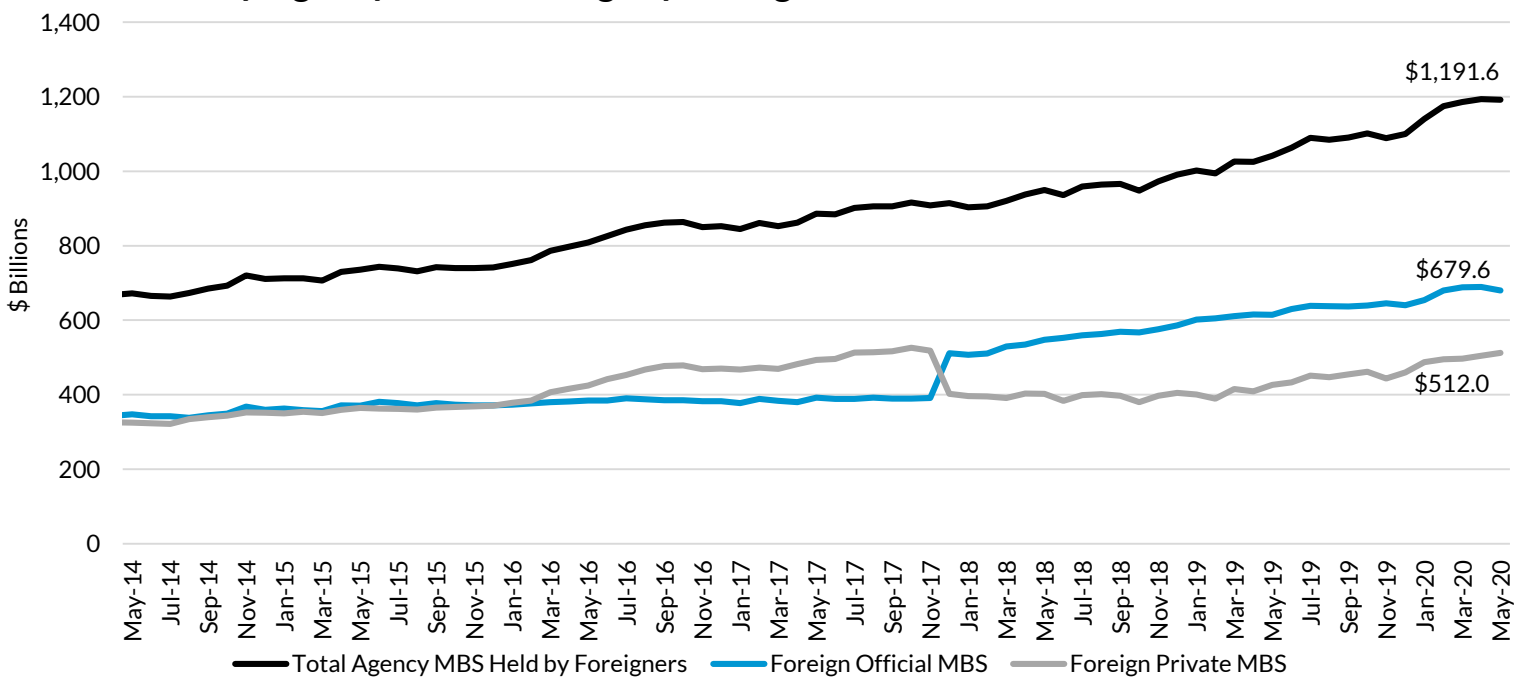
Foreign investors held 16.8 percent of agency MBS in May 2020, up from a low of 12.0 percent in July 2014. For the month of May 2020, this represents \$1.19 trillion in Agency MBS, \$512 billion held by foreign private institutions and \$680 billion held by foreign institutions.

Foreign Share of Agency MBS



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

Monthly Agency MBS Holdings by Foreigners



Sources: Treasury International Capital (TIC) and Urban Institute. Note: Data as of May 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 May 2020, we estimate China has increased their agency MBS holdings by \$24.8 billion, Japan has increased their holdings by \$14.8 billion and Taiwan has increased their holdings by \$2.7 billion.

Agency MBS+ Agency Debt

Country	Level of Holdings (\$Millions)*						Change in Holdings (\$Millions)*				
	Jun-19	Sep-19	Dec-19	Mar-20	Apr-20	May-20	Q3 2019	Q4 2019	Q1 2020	Apr-2020	May-20
Japan	297,016	311,047	305,332	322,155	319,986	311,657	14,031	-5,715	16,823	-2,169	-10,498
Taiwan	265,524	263,018	261,740	269,133	271,397	268,117	-2,506	-1,278	7,393	2,264	-1,016
China	227,357	233,783	231,753	260,479	253,983	250,321	6,426	-2,030	28,726	-6,496	-10,158
Luxembourg	47,646	46,641	39,015	36,789	36,597	34,959	-1,005	-7,626	-2,226	-192	-1,830
Ireland	45,829	41,367	38,731	26,131	27,295	26,587	-4,462	-2,636	-12,600	1,164	456
South Korea	42,879	41,485	40,810	40,964	40,435	39,794	-1,394	-675	154	-529	-1,170
Cayman Islands	34,967	29,540	31,827	27,154	30,568	34,624	-5,427	2,287	-4,673	3,414	7,470
Bermuda	29,365	29,184	33,897	27,790	27,073	27,838	-181	4,713	-6,107	-717	48
Netherlands	14,074	10,549	10,902	10,886	12,805	12,807	-3,525	353	-16	1,919	1,921
Malaysia	12,167	15,585	16,600	21,399	20,702	20,562	3,418	1,015	4,799	-697	-837
Rest of world	128,142	135,515	152,489	202,143	213,392	226,678	7,373	16,974	49,654	11,249	24,535
Total	1,144,971	1,157,714	1,163,096	1,245,023	1,254,233	1,253,944	12,743	5,382	81,927	9,210	8,921

Agency MBS Only (Estimates)

Country	Level of Holdings (\$Millions)*						Change in Holdings (\$Millions)*				
	Jun-19	Sep-19	Dec-19	Mar-20	Apr-20	May-20	Q3 2019	Q4 2019	Q1 2020	Apr-2020	May-20
Japan	293,662	307,738	302,212	319,241	317,000	308,499	14,076	-5,526	16,823	-2,240	-10,742
Taiwan	265,234	262,732	261,470	268,881	271,139	267,908	-2,502	-1,262	7,393	2,258	-973
China	221,738	228,240	226,526	255,596	248,981	246,531	6,502	-1,714	28,726	-6,615	-9,066
Luxembourg	43,978	43,023	35,603	33,602	33,332	32,874	-955	-7,420	-2,226	-270	-728
Ireland	37,674	33,322	31,145	19,045	20,036	18,649	-4,352	-2,177	-12,600	991	-396
South Korea	34,969	33,682	33,452	34,091	33,394	30,098	-1,287	-230	154	-697	-3,993
Cayman Islands	29,896	24,538	27,110	22,748	26,054	28,764	-5,358	2,572	-4,673	3,306	6,016
Bermuda	26,394	26,253	31,133	25,208	24,428	25,279	-141	4,880	-6,107	-780	70
Netherlands	13,904	10,381	10,744	10,738	12,654	12,314	-3,523	363	-16	1,915	1,576
Malaysia	11,881	15,303	16,334	21,150	20,447	20,217	3,422	1,031	4,799	-703	-934
Rest of world	97,585	105,371	124,063	175,591	186,192	200,450	7,786	18,692	49,654	10,601	24,859
Total	1,076,916	1,090,579	1,099,788	1,185,887	1,193,654	1,191,580	13,663	9,209	81,927	7,767	5,693

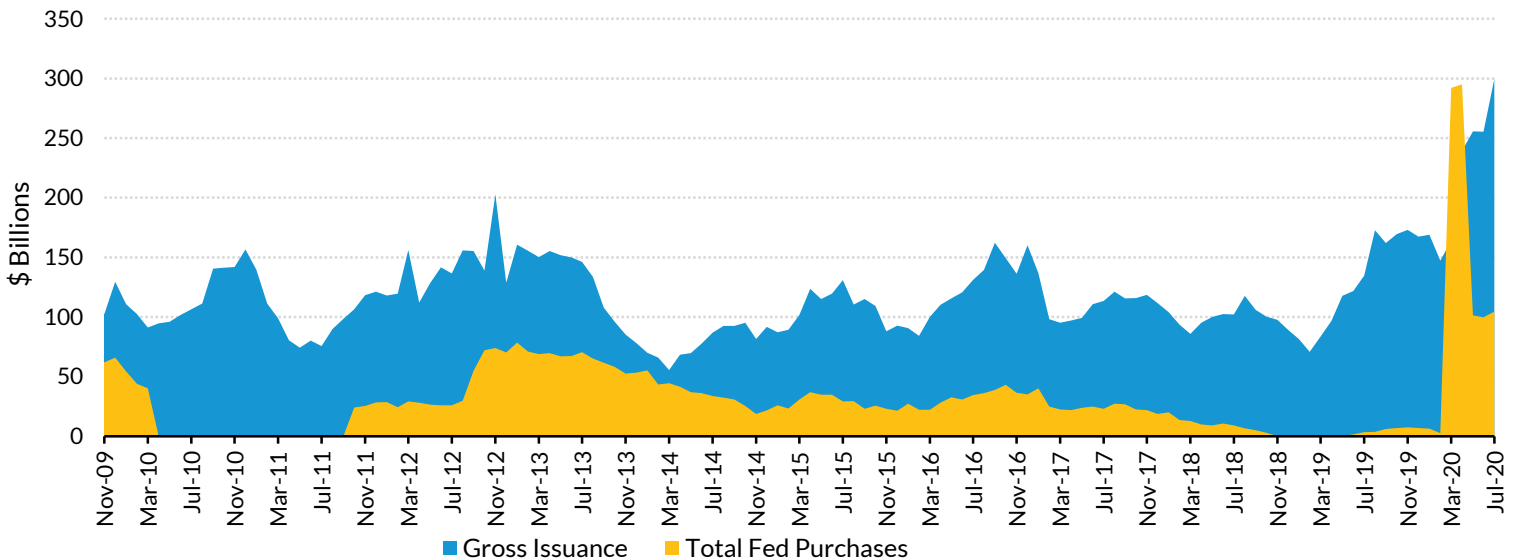
Sources :Treasury International Capital (TIC) and Urban Institute.

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 May 2020.

MBS Ownership

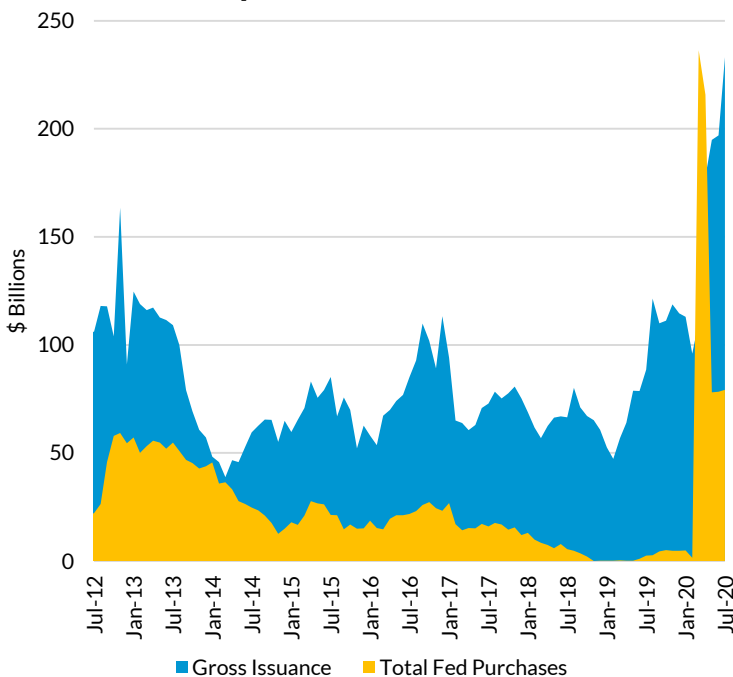
On March 23, 2020, in response to the market dislocations caused by the coronavirus pandemic, the Fed announced they would purchase Treasuries and agency MBS in an amount necessary to support smooth functioning markets. In March the Fed bought \$292.2 billion in agency MBS, and April clocked in at \$295.1 billion, the largest two months of mortgage purchases ever; and well over 100 percent of gross issuance for each of those two months. After slowing in May and June, purchases grew slightly in July to \$104.6 billion, 34.9 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



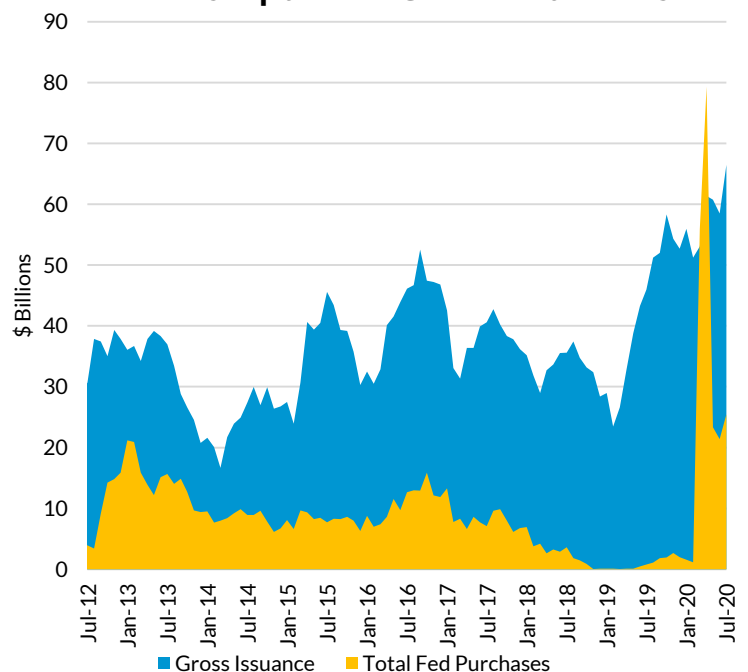
Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of July 2020.

Fed Absorption of GSE MBS



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

Fed Absorption of Ginnie Mae MBS



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

Disclosures:

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