Global Markets Analysis Report

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

JUN
2020

GinnieMae
Our Guaranty Matters

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

CONTENTS

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS
Barclays US Aggregate and Global Indices 5
Global 10-year treasury yields 6
Ginnie Mae yields and yield spreads—USD, JPY, Euro 7-9
Ginnie Mae yield spreads - Intermediate Credit 10
MBS yield per duration 11
Total return and Sharpe Ratios 12

State of the US Housing Market
Serious delinquency rates 13
National HPI, HPI by state 13-14
Ginnie Mae Agency issuance and Agency outstanding by state 15
FHA and VA Outstanding Loan Count Maps 16
Size and value of the US Residential housing and mortgage markets 17
Outstanding Agency MBS 18
Origination volume over time 19

US Agency Market, Originations
Agency Gross and Net Issuance 20-22
Purchase versus refi: Refi Issuance Breakdown 23

Credit Box
First time home buyer share—purchase only loans 24-25
FICO score distribution 26
Credit box at a glance (FICO, LTV, DTI) 27-29
Historical credit box (FICO, LTV,DTI) 30-31
Cumulative Default Rates: FHA and VA 32
High LTV credit box 33-34

Ginnie Mae Nonbank Originators
Nonbank originator share (All, Purchase, Refi) 35-36
Bank vs. nonbank originators historical credit box, Ginnie Mae vs. GSE (FICO, LTV, DTI) 37-40

Holders of Ginnie Mae Mortgage Servicing Rights
Top Holders of Ginnie Mae MSR 41-42
Non-bank Holders of Ginnie Mae MSR 42

Prepayments
Aggregate 43
Select coupon/origination year cohorts 44-46

Other Ginnie Mae Programs
HMBS 47
Multifamily 48

Market Conditions-Agency MBS
Average daily trading volume and turnover by sector 49
Dealer net positions, repo volume 50

MBS Ownership
Ownership breakdown of total agency debt 51
MBS share of total agency debt and commercial bank ownership of MBS 52
Bank and Thrift Residential MBS Holdings 53
Foreign ownership of MBS 54-55
Fed Ownership of MBS 56

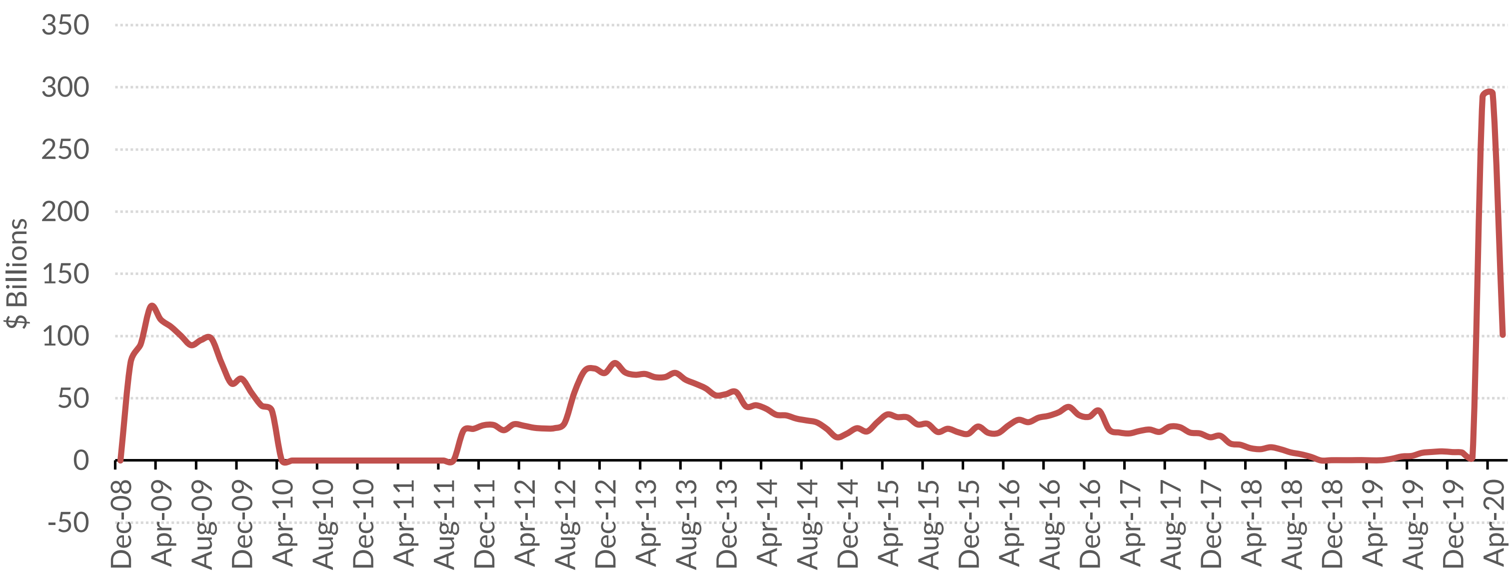
HIGHLIGHTS

A Closer Look at Federal Reserve's Purchases of Agency MBS

On March 23, 2020, in response to the market panic caused by the COVID-19 pandemic, the Federal Reserve announced it would purchase US Treasury securities and agency mortgage-backed securities (MBS) in any amount necessary to support smooth functioning of financial markets. This was in response to the dramatic widening of the spread between the 10-year treasury and MBS yields in early March 2020. At one point, this spread had widened to approximately 170 basis points, the highest level since the 2008 collapse of the housing market.

The Fed's response was swift and unprecedented in scale and impact on the MBS market. It purchased $292.2 billion in agency MBS in March. This was followed by another $295.1 billion in April, which is the single largest month of MBS purchases ever by the Fed. In May 2020, the Fed bought another $101 billion. During the Great Recession, the Fed's largest monthly purchase was $124 billion in March 2009. In just the first 3 months of the COVID shock, the Fed purchased nearly $690 billion in agency MBS. This compares to $296 billion from Jan to March 2009 at the beginning of the Great Recession (Figure 1.)

Figure 1: Fed's Monthly Purchases of agency MBS



Source: eMBS and Urban Institute. **Note**: Data as of May 2020

More insights can be obtained by looking at the composition of what the Fed purchased. This data is released by the Federal Reserve Bank of New York. Since the Federal Reserve intervention is designed to ensure the flow of credit to the agency mortgage market, it generally aims to purchase a mix of securities not too different from current production. The tables in figure 2 show the distribution of Fed's purchases for the three-month period (from March to May) by coupon and the distribution of gross issuances over the same period. The top panel shows Ginnie Mae distributions and the bottom panel covers GSEs. The last column shows dollar volumes corresponding to each row

It is clear from this table that Fed's purchases over this period were largely reflective of new issuances. For instance, 36.8 percent of Ginnie issuances were in the 2.5 percent coupon, consistent with 32.7 percent of Fed's purchases of the same coupon. GNMA 3.0 and 3.5 percent coupons tell a similar story. Having said that, there are a couple of interesting observations: the share of Fed's purchases in the 4 percent coupon (9.7 percent) was well above the 2.7 share of gross issuances. Also, the Fed did not purchase any 2.0 and 4.5 GNMA coupons despite some issuance.

HIGHLIGHTS

Figure 2: Fed's Purchases and Gross Issuances of GNMA & GSE MBS, Mar-May 2020

Ginnie Mae

	Coupons up to 2.0%	GN 2.5	GN 3.0	GN 3.5	GN 4.0	4.5% and above	$ Volume
Fed Purchase Distribution	0.0%	32.7%	39.8%	17.7%	9.7%	0.0%	$158.6B
Gross Issuance Distribution	0.1%	36.8%	41.2%	13.6%	5.6%	2.7%	$172B
$ Volume of Fed Purchases (B)	$0.0	$51.9	$63.2	$28.1	$15.4	$0.0	$158.6B

GSEs

	Coupons up to 2.0	GSE 2.5	GSE 3.0	GSE 3.5	GSE 4.0	4.5% and above	$ Volume
Fed Purchase Distribution	5.6%	37.3%	31.8%	12.4%	10.6%	2.3%	$530.1B
Gross Issuance Distribution	13.0%	54.7%	23.9%	5.4%	2.1%	0.9%	$474B
$ Volume of Fed Purchases (B)	$29.7	$197.6	$168.6	$65.8	$56.1	$12.3	$530.1

Source: Urban Institute Calculations based on New York Fed Data

The bottom panel of figure 1 shows the same detail for GSEs. 81.5 percent of GSEs' March to May issuance was in the 2.5, 3.0, and 3.5 percent coupons, highly comparable to the 84 percent share of Fed's purchases in the same coupons. Like Ginnie Mae, the share of Fed's purchases in higher GSE coupons (3.5 and above) exceeded the share of gross issuances in those coupons. But unlike Ginnie, the Fed did purchase some 2.0 and 4.5 percent GSE coupons.

The impact of Fed's purchases on rates was substantial. During the three months from March to May, the Fed purchased more securities ($690 B) than in the five-month period from Jan to May 2009 ($517B) at the start of Great Recession. Earlier this month, the New York Fed announced plans to increase its holdings of agency MBS at the current pace, about $40 billion per month. These purchases have played a critical role in stabilizing the agency market. The spread between current coupon MBS and 10-year Treasury has tightened. Currently it stands at 70 basis points, well below the 103 bps average from 2000 to 2020.

Highlights this month:

- Home price appreciation remained robust in April, at around 5%; this reflects a marginal slowing since February (page 13).

- April 2020 gross agency issuance was $239.3 billion, well above the April 2019 level of $96.8 billion, as lower rates gave borrowers a stronger incentive to refinance (page 22).

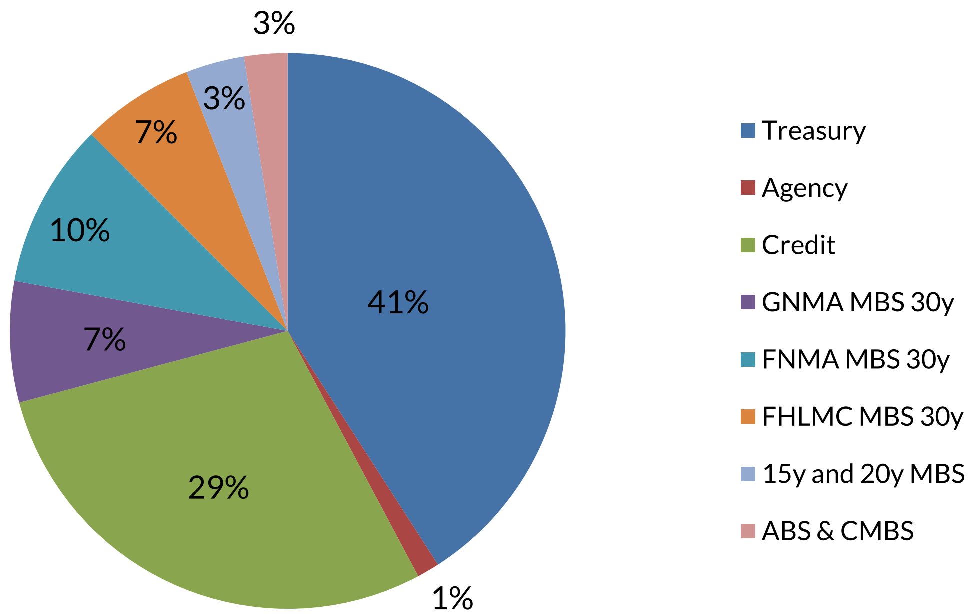
- In April 2020, median FICO score for agency mortgages reached 750, the highest level since at least 2014, driven primarily by rising FICO scores for refinances and to a lesser extent purchases (page 30).

- In April 2020, Lakeview became the largest holder of Ginnie Mae MSRs. This the first time a nonbank issuer has topped the list (page 41).

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

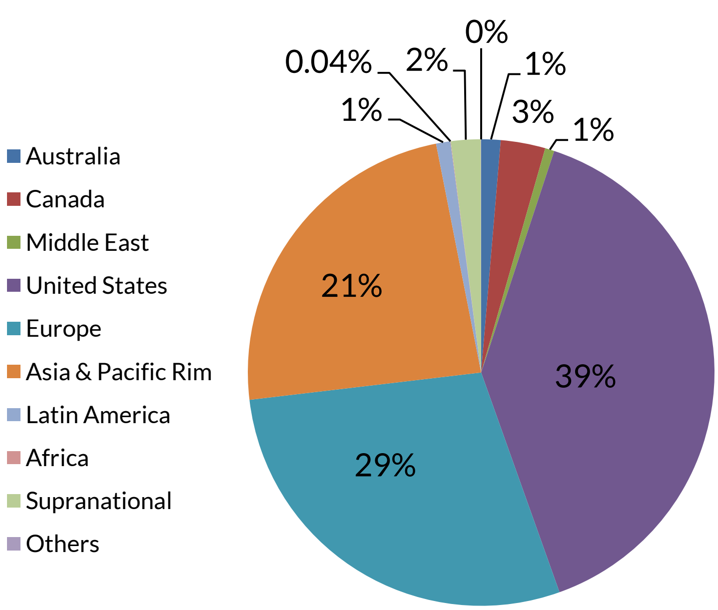
US MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) comprise 27 percent of the Barclays US Aggregate Index- less than either the US Treasury share (41 percent) or the US Credit share (29 percent). Fannie Mae 30-year MBS accounts for 10 percent of the overall index, the largest MBS component, while Ginnie 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 39 percent of the global total. US MBS comprises 11 percent of the global aggregate.

Barclays US Aggregate Index



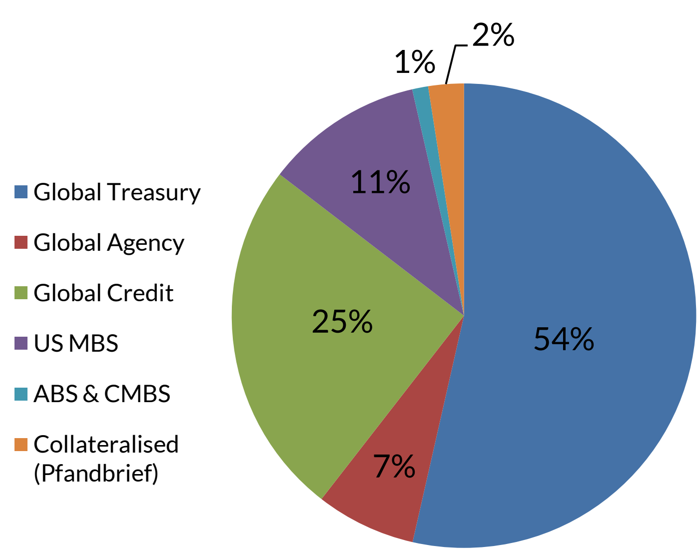
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of March 2020.*
Note*: Numbers in chart may not add to 100 percent due to rounding.*

Barclays Global Aggregate Index by Country



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

Barclays Global Aggregate Index by Sector

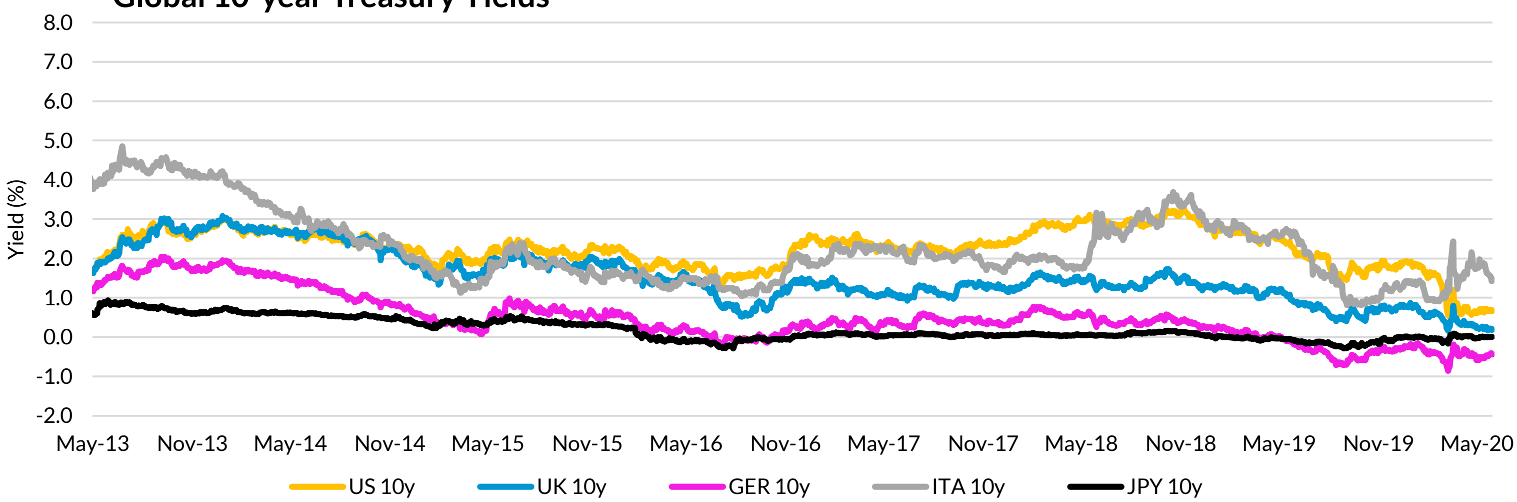


Sources: *Bloomberg and State Street Global Advisors*
Note*: Data as of March 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

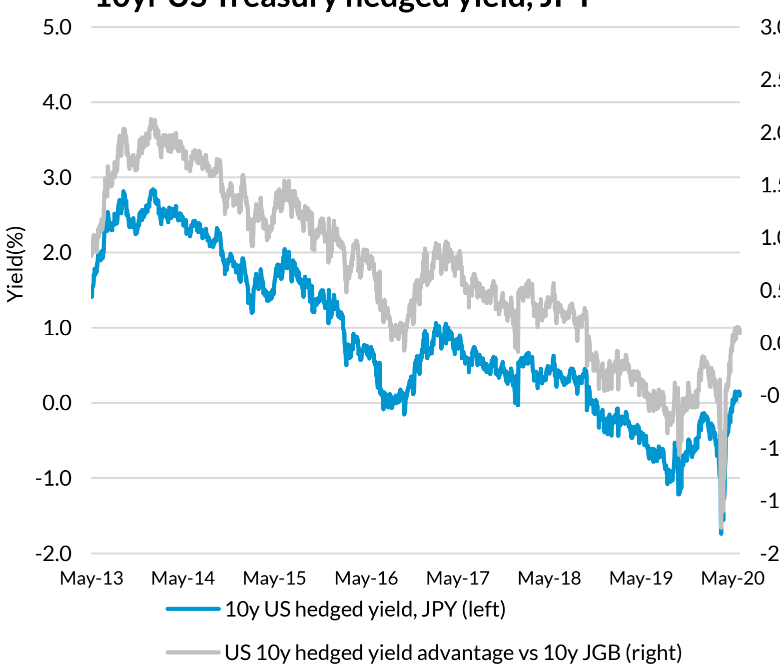
After experiencing COVID-19 related volatility in March and April of this year, government bond yields across the globe stabalized. In May 2020, the yield on the 10-year treasury grew ever so slightly by 1 bp to 0.65 percent. After widening from the pack in March and April, the Italian 10-year note yield fell by 29 basis points in May to 1.48 percent. The yield on the UK 10-year bond fell by 5 bps to 0.18 percent, the Japanese 10-year government bond yield increased by 4 bps to 0.01 percent, and the German 10-year yield was up by 14 bps to -0.45 percent in May. At the end of May, the hedged yield differential between the 10-year Treasury and the 10-year JGB stood at 9 bps, an increase of 2 bps since April 2020. The hedged yield differential between the 10-year Treasury and the 10-year Bund stood at 32 bps, a decrease of 13 bps since the end of April 2020.

Global 10-year Treasury Yields



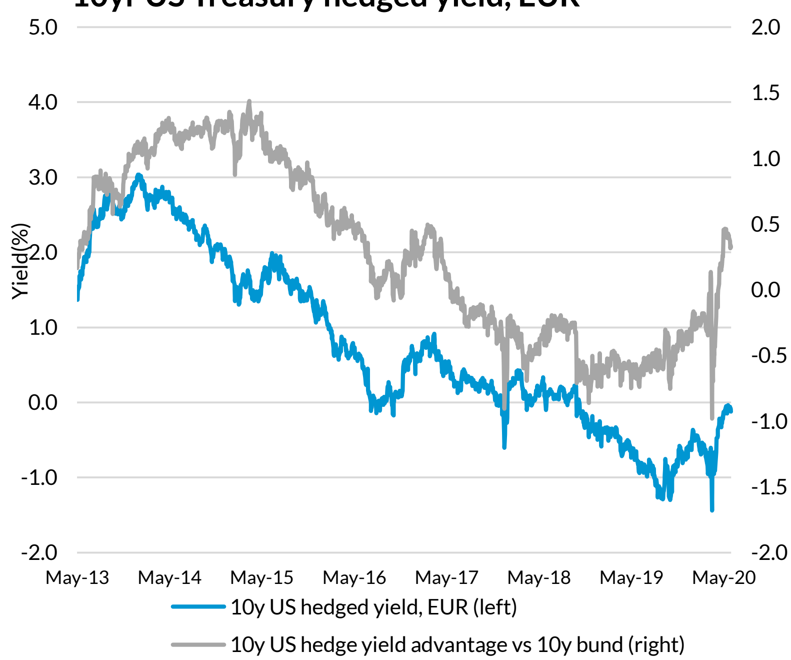
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of May 2020.*

10yr US Treasury hedged yield, JPY



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

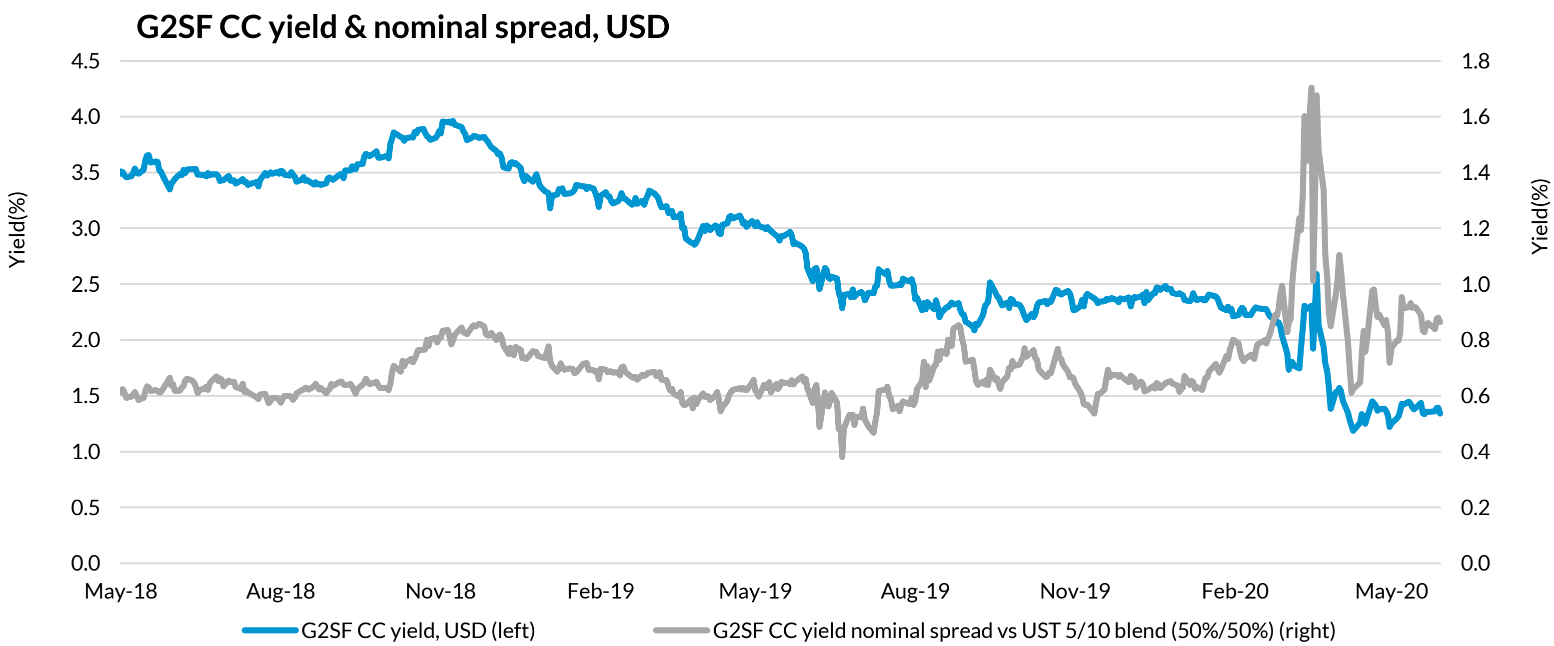
10yr US Treasury hedged yield, EUR



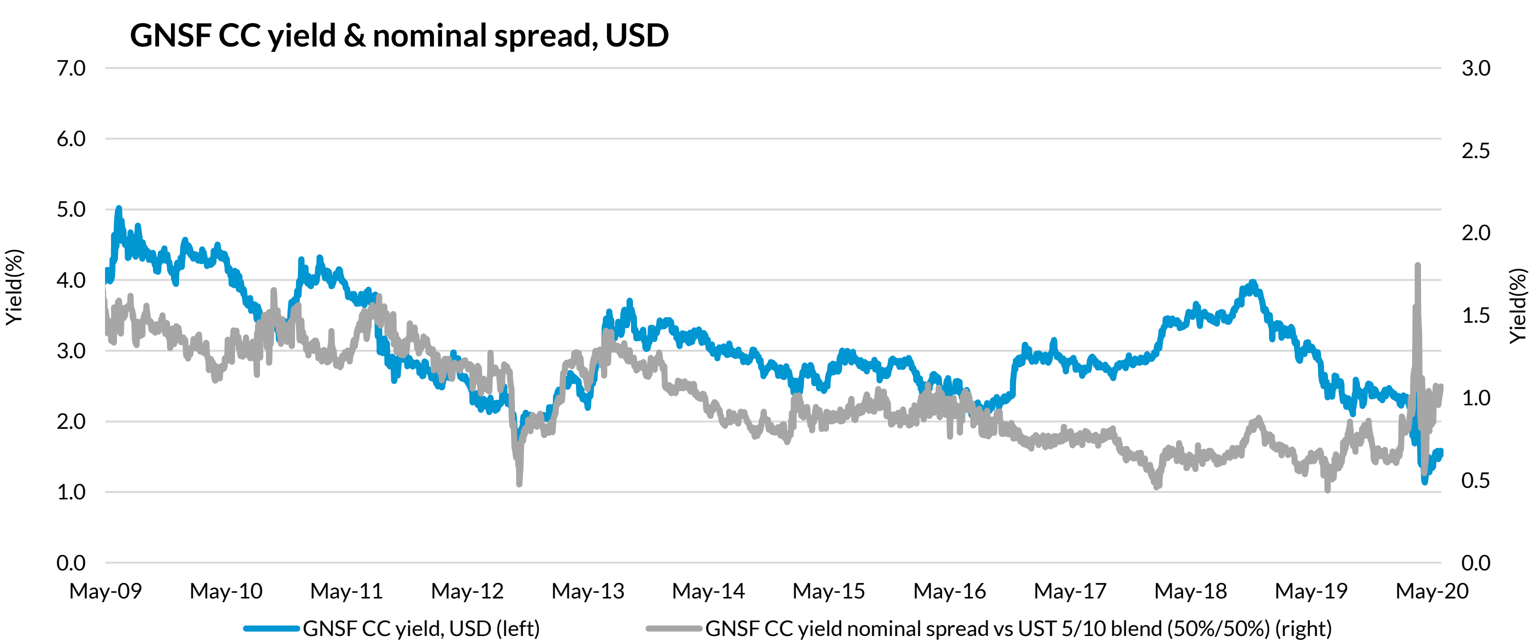
Sources: *Bloomberg and State Street Global Advisors*
Note: *Data as of May 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

Nominal yields rose in May 2020, with GNMA II yields up 12 bps to 1.34% and GNMA I yields climbing 20 bps to 1.54% respectively. At the end of May, current coupon Ginnie Mae securities outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 86 bps on the G2SF and 106 bps on the GNSF, an increase of 14 and 22 bps respectively since last month.



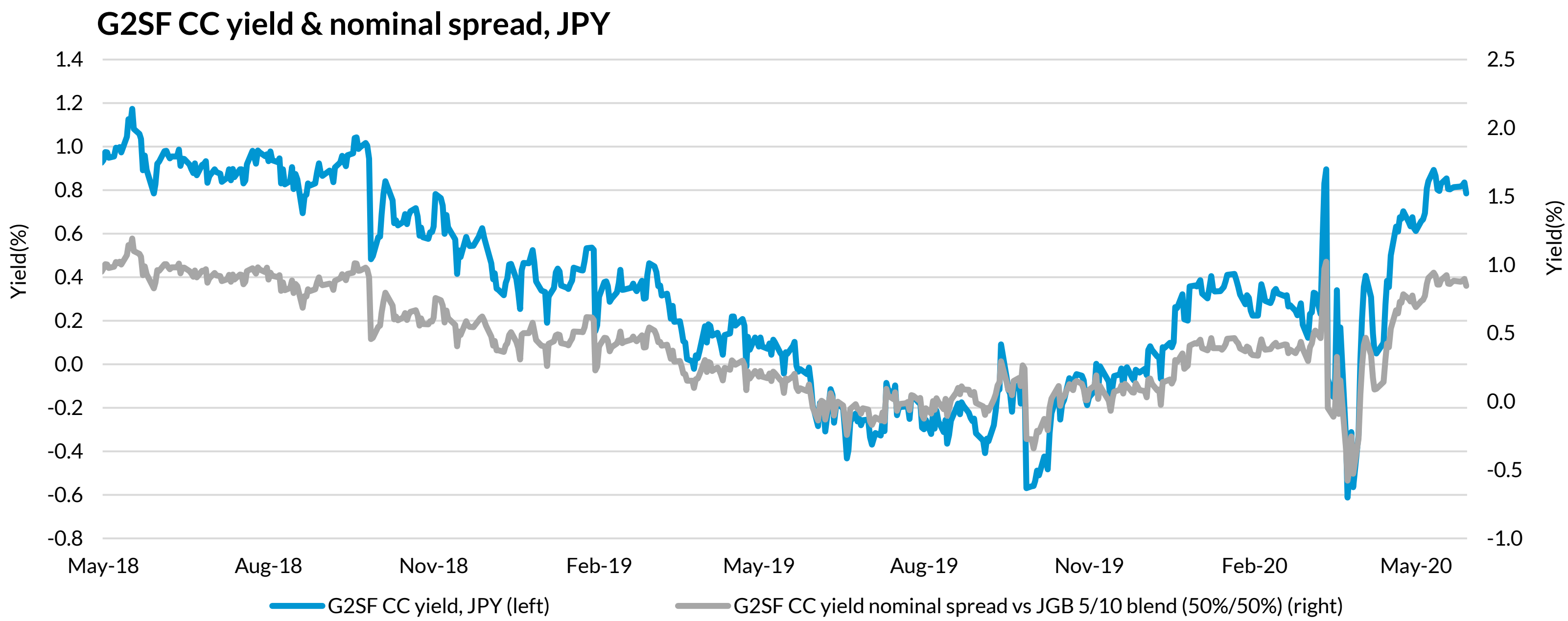
Sources: *Bloomberg and State Street Global Advisors.* ***Note****: Data as of May 2020.*



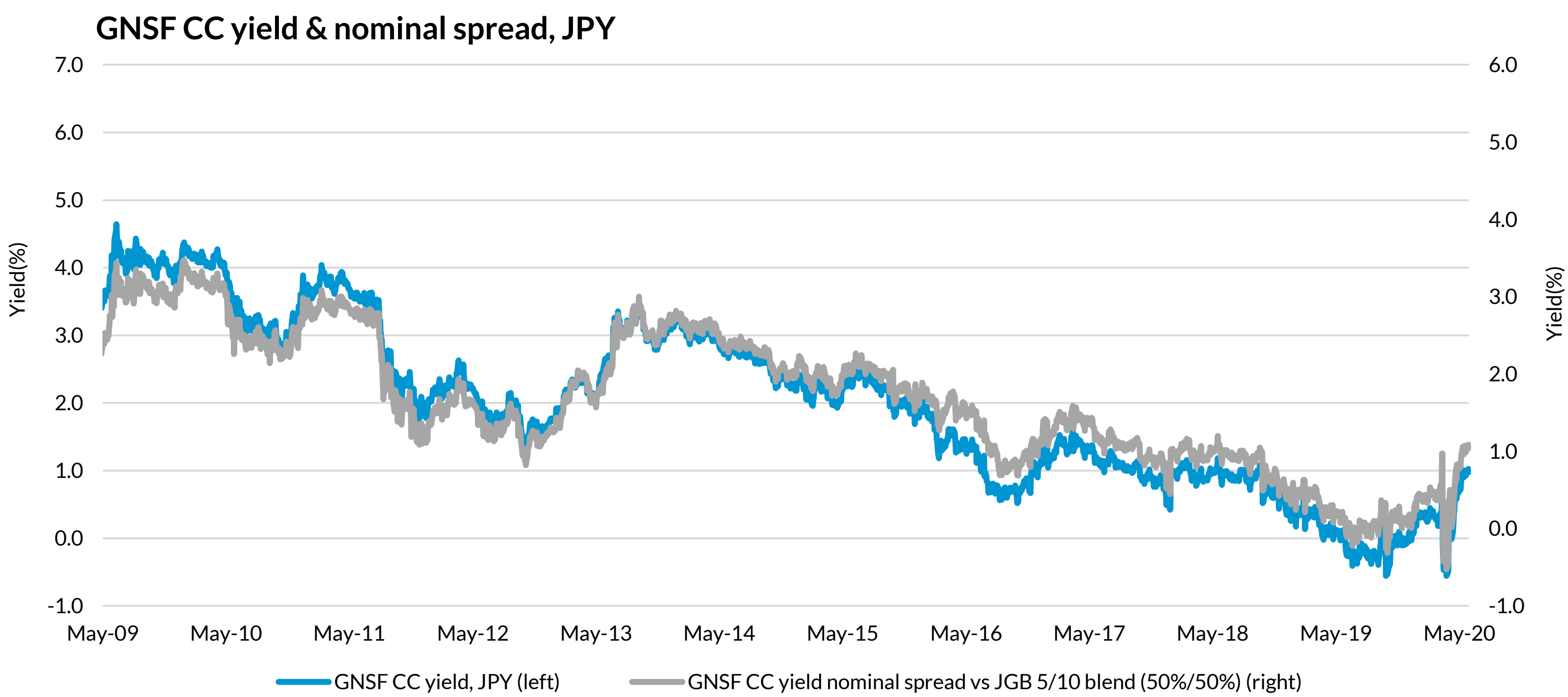
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of May 2020.*

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 May. More precisely, hedged into Japanese yen, the G2SF and GNSF have a 84 and 104 bp yield versus the JGB 5/10 blend. This represents a 13 and 21 bp widening for G2SF and GNSF, respectively, since the end of April 2020.



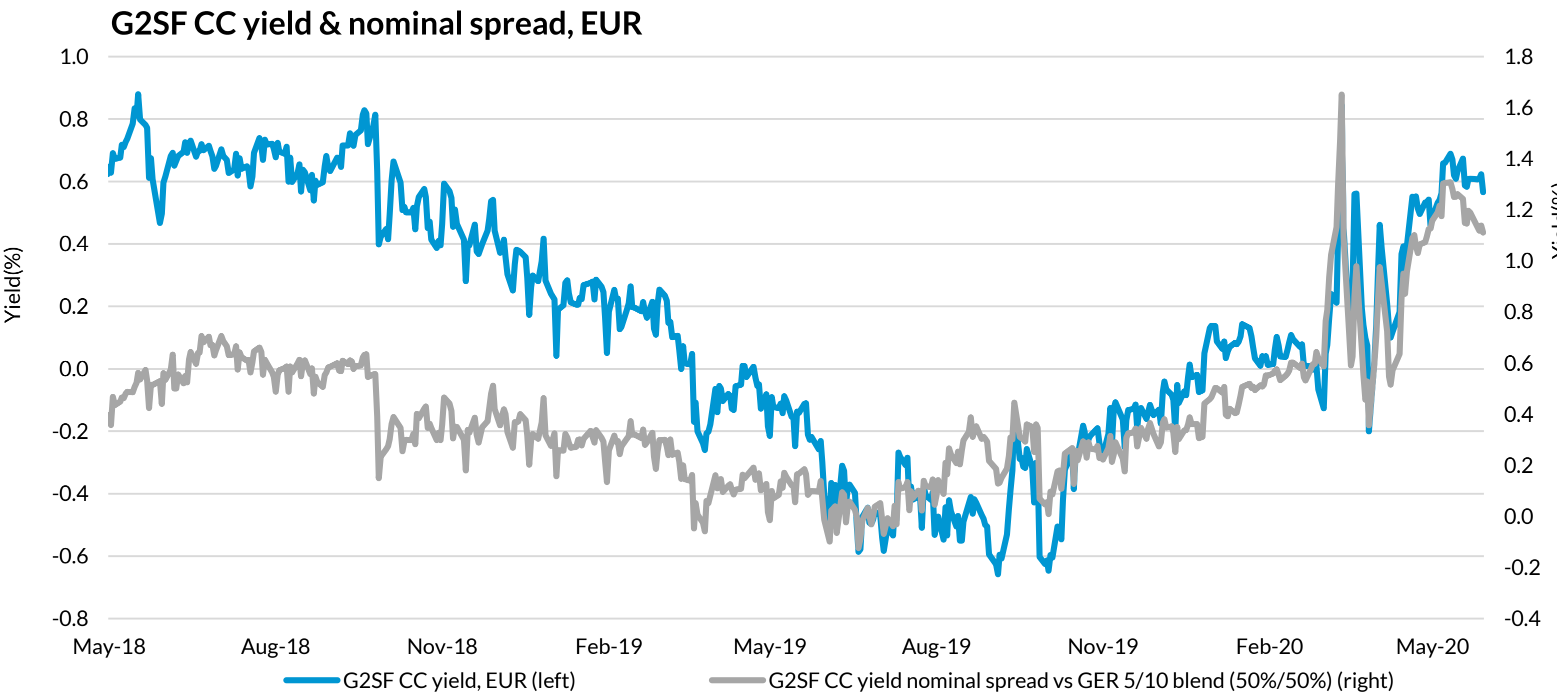
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of May 2020.*



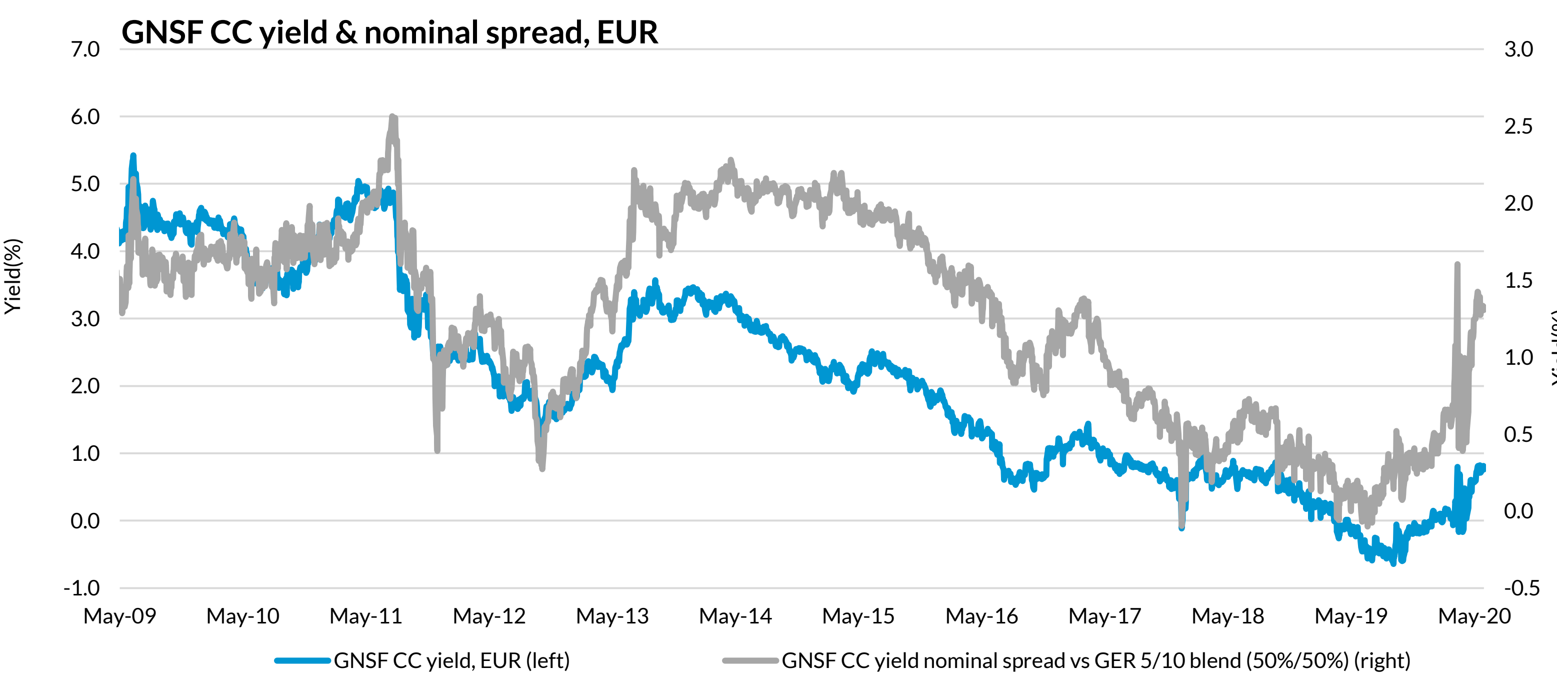
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of May 2020.*

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 May, the current coupon G2SF and GNSF hedged into euros have a 111 and 131 bp higher yield than the average of the German 5/10, respectively. This represents an 2 bp decrease for the G2SF and a 6 bp increase for the GNSF since the end of April 2020.



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

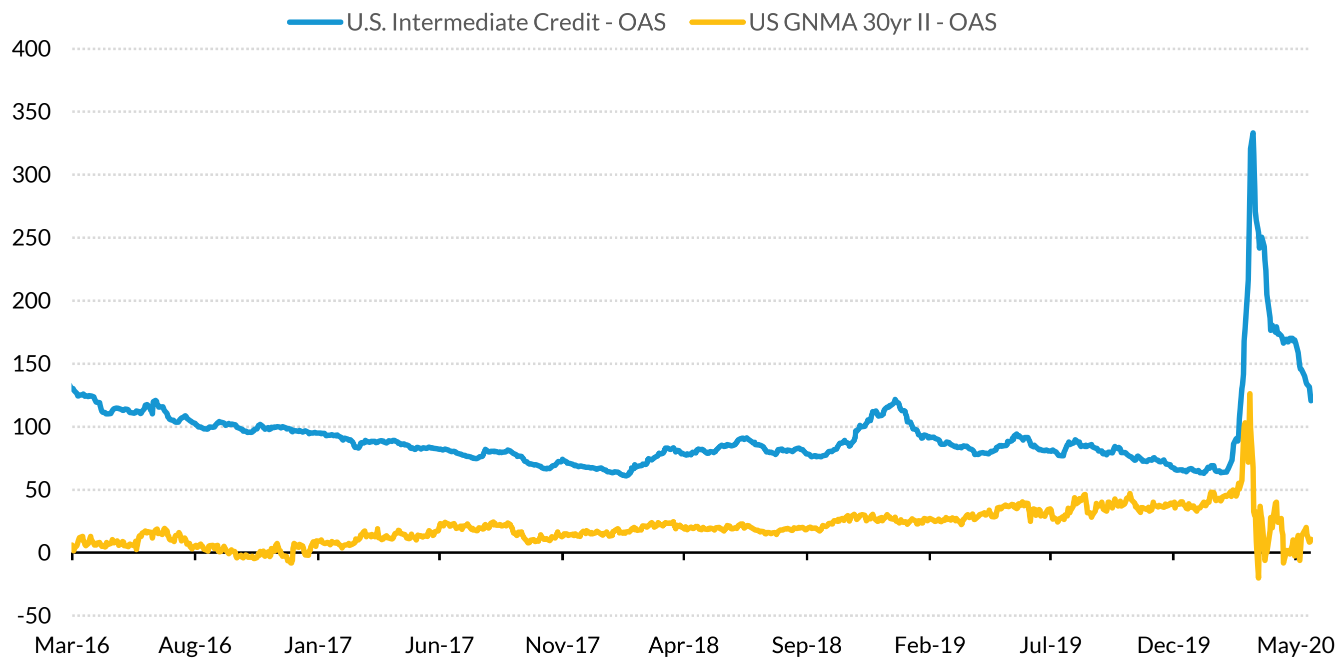


Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of May 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

After tightening steadily from early 2016 to Jan 2020, the spread between US Intermediate Credit and GNMA II 30 year OAS skyrocketed in Feb 2020 in response to the COVID-19 panic. This was followed by substantial tightening over the period March-May 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 May 2020 at 110 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 May 2020.*

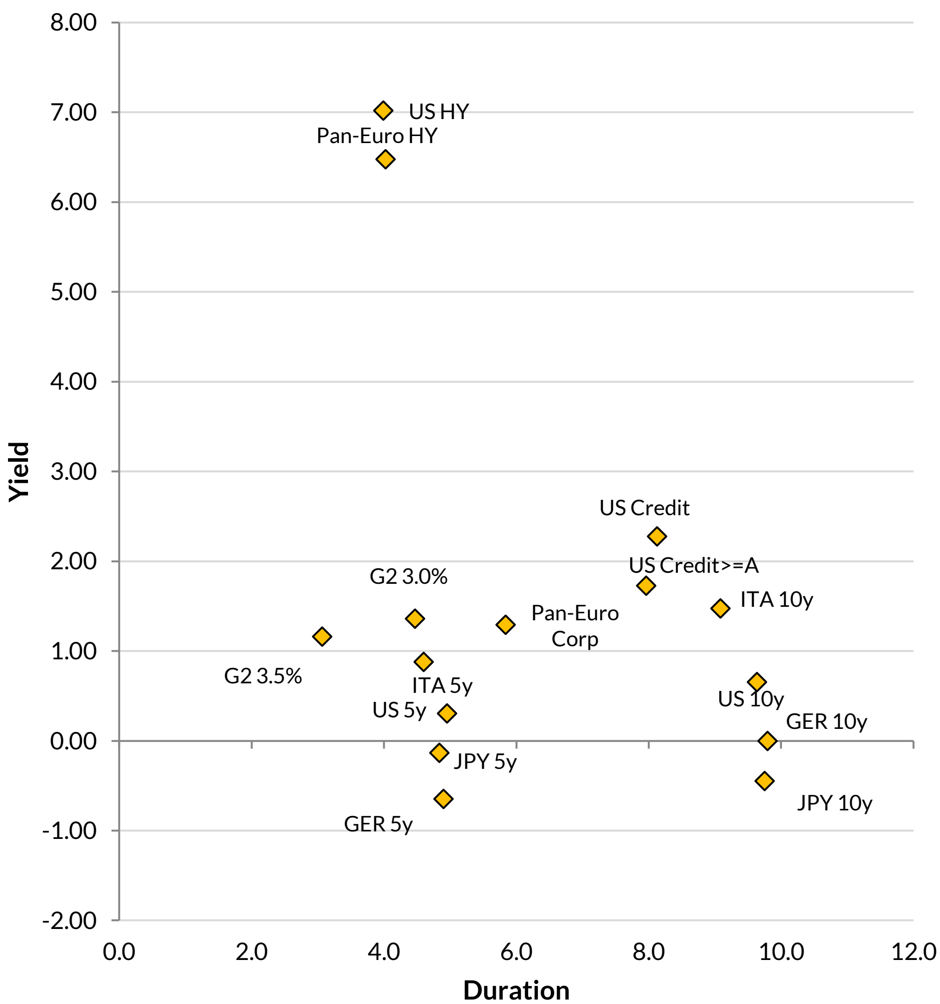
Spread between Intermediate credit and 30-year GNMA MBS OAS

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

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

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

Yield versus duration



Security	Duration	Yield
US 5y	5.0	0.30
US 10y	9.6	0.65
GNMA II 3.0%	4.5	1.36
GNMA II 3.5%	3.1	1.16
JPY 5y	4.8	-0.13
JPY 10y	9.8	0.00
GER 5y	4.9	-0.65
GER 10y	9.8	-0.45
ITA 5y	4.6	0.88
ITA 10y	9.1	1.47
US credit	8.1	2.28
US credit >= A	8.0	1.73
US HY	4.0	7.02
Pan-Euro Corp	5.8	1.29
Pan-Euro HY	4.0	6.47

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

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

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

	Average Return (Per Month)					
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield*	Pan Euro High Yield*
1 year	0.52	0.91	0.84	0.10	0.19	-0.05
3 year	0.30	0.45	0.48	0.13	0.28	0.10
5 year	0.24	0.32	0.42	0.12	0.38	0.20
10 year	0.26	0.30	0.46	0.34	0.56	0.55

	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	0.41	0.81	0.73	0.15	0.08	0.00
3 year	0.17	0.32	0.35	0.18	0.15	0.16
5 year	0.15	0.23	0.33	0.17	0.29	0.25
10 year	0.22	0.25	0.41	0.37	0.51	0.57

	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	0.50	1.53	2.94	2.74	4.06	4.71
3 year	0.67	1.22	1.87	1.62	2.51	2.80
5 year	0.61	1.13	1.62	1.46	2.28	2.40
10 year	0.65	1.06	1.44	1.39	2.02	2.02

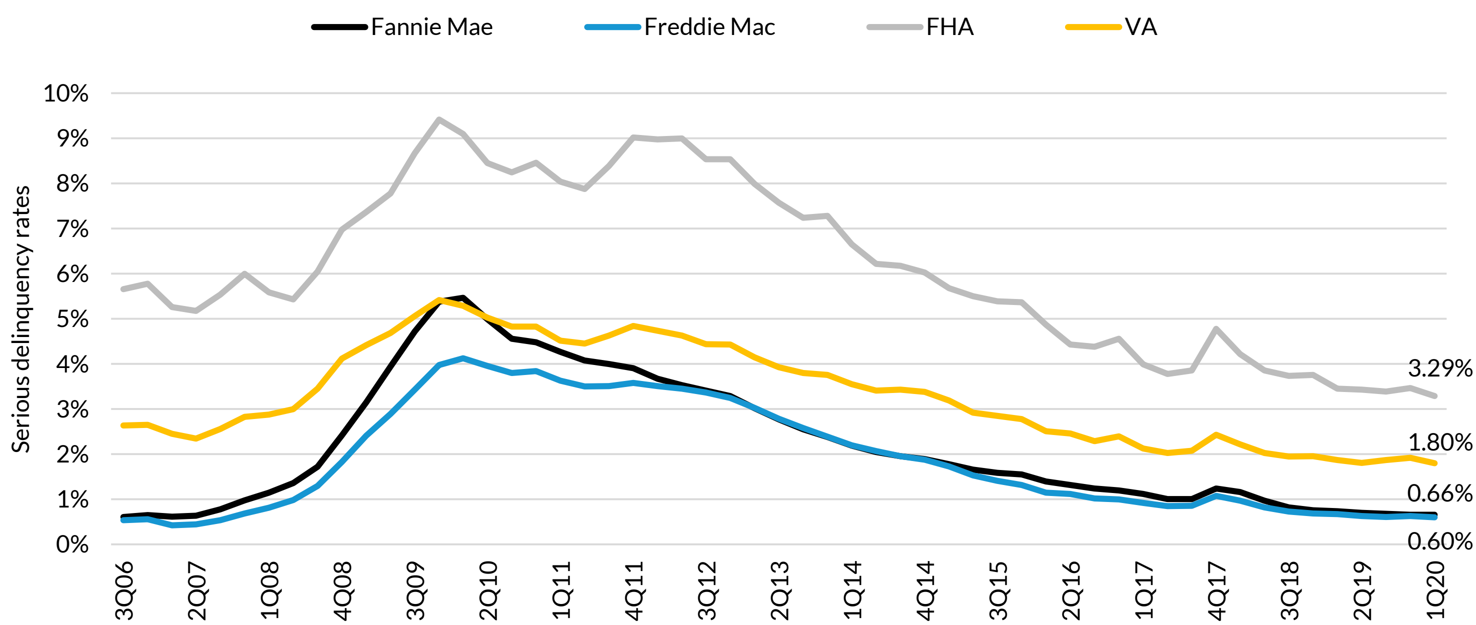
	Sharpe Ratio					
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield	Pan Euro High Yield*
1 year	0.82	0.53	0.25	0.06	0.02	0.00
3 year	0.25	0.26	0.19	0.11	0.06	0.06
5 year	0.25	0.21	0.20	0.12	0.12	0.10
10 year	0.33	0.24	0.28	0.26	0.25	0.28

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

State of the US Housing Market

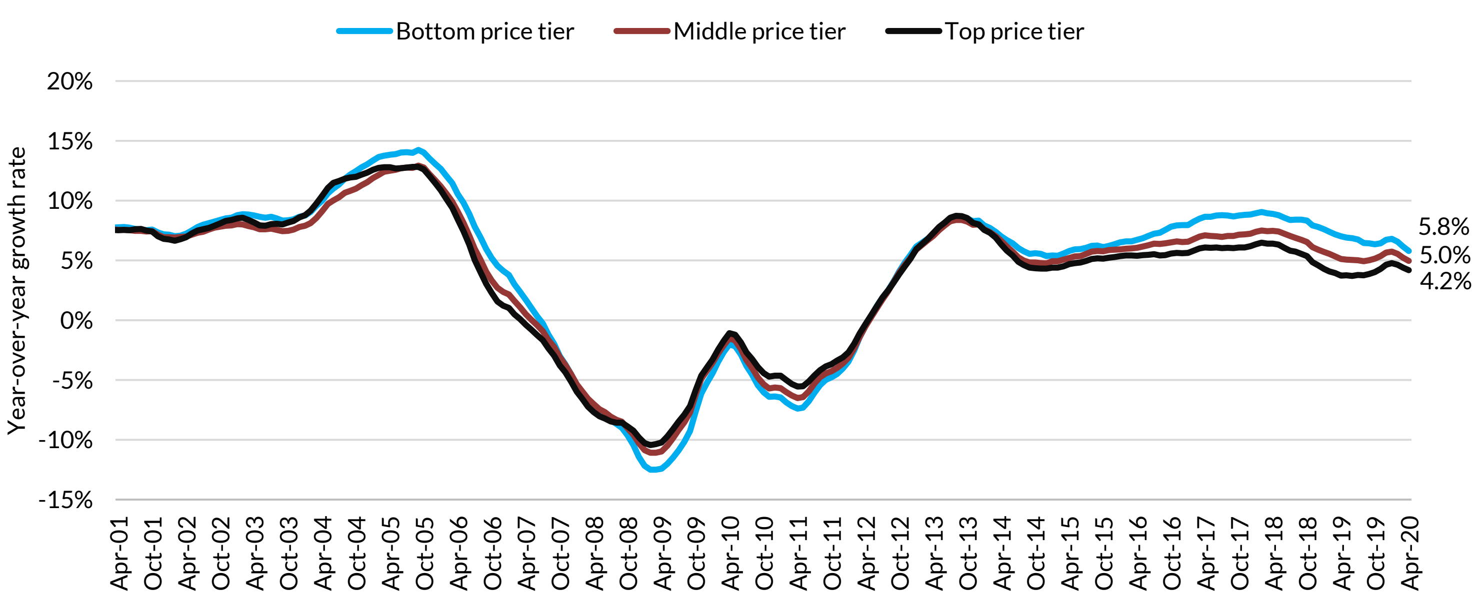
Serious delinquency rates for single-family GSE loans, FHA loans and VA loans all decreased in Q1 2020. GSE delinquencies remain just above their 2006-2007 level, while FHA and VA delinquencies (which are higher than their GSE counterparts) are well below 2006-2007 levels. The bottom chart shows nationwide house prices for the bottom, middle and the top quintiles by price. House prices have risen most at the lower end of the market where Ginnie Mae plays a major role. Prices at the lower end of the market rose by 5.8 percent for 12 months ended April 2020, much higher than the 4.2 percent for the top end of the market. Year-over-year price growth in April was lower than March for all price tiers.

Serious Delinquency Rates: Single-Family Loans



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

National Year-Over-Year HPI Growth



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

State of the US Housing Market

Nationally, nominal home prices have increased by 57.8 percent since the trough, and now exceed their pre-crisis peak valuation on a nominal basis by 17.7 percent. The picture is very different across states, with many states well in excess of the prior peak, while Connecticut remains 11.9 percent below peak level.

	HPI Changes				
State	2000 to Peak	Peak to Trough	Trough to Current	YOY	Current HPI % Above Peak
National	75.2%	-25.4%	57.8%	4.2%	17.7%
Alabama	35.9%	-15.2%	34.7%	5.6%	14.3%
Alaska	69.5%	-3.0%	25.1%	2.7%	21.3%
Arizona	109.9%	-47.9%	89.5%	6.8%	-1.3%
Arkansas	41.5%	-9.8%	26.8%	3.3%	14.4%
California	154.9%	-43.3%	95.8%	3.8%	11.0%
Colorado	40.3%	-12.9%	84.6%	3.9%	60.9%
Connecticut	92.2%	-24.7%	17.0%	2.4%	-11.9%
Delaware	95.0%	-23.5%	33.1%	4.9%	1.9%
District of Columbia	174.7%	-13.7%	60.4%	3.6%	38.5%
Florida	128.4%	-46.9%	76.7%	5.4%	-6.1%
Georgia	38.4%	-31.5%	69.6%	4.5%	16.2%
Hawaii	163.1%	-22.6%	54.4%	3.4%	19.6%
Idaho	71.8%	-28.7%	96.7%	10.6%	40.2%
Illinois	61.6%	-34.4%	39.9%	0.7%	-8.2%
Indiana	21.5%	-7.8%	38.9%	5.3%	28.1%
Iowa	28.3%	-4.7%	27.9%	2.8%	22.0%
Kansas	34.6%	-9.2%	44.2%	3.6%	30.9%
Kentucky	29.5%	-7.7%	34.6%	3.8%	24.3%
Louisiana	48.8%	-5.1%	25.0%	2.4%	18.6%
Maine	82.1%	-12.4%	41.1%	5.2%	23.6%
Maryland	129.3%	-28.6%	29.5%	2.4%	-7.6%
Massachusetts	92.3%	-22.6%	58.6%	3.7%	22.8%
Michigan	23.8%	-39.4%	79.8%	3.0%	9.0%
Minnesota	66.4%	-27.8%	58.9%	3.5%	14.8%
Mississippi	41.0%	-13.7%	29.5%	3.7%	11.7%
Missouri	42.6%	-15.3%	39.1%	4.5%	17.9%
Montana	82.3%	-11.3%	54.9%	5.3%	37.5%
Nebraska	26.7%	-6.6%	44.6%	3.6%	35.0%
Nevada	127.0%	-59.1%	126.0%	2.8%	-7.5%
New Hampshire	90.7%	-23.2%	44.6%	5.6%	11.1%
New Jersey	117.9%	-28.0%	29.7%	3.3%	-6.6%
New Mexico	67.1%	-16.4%	30.4%	7.6%	8.9%
New York	98.3%	-15.2%	43.9%	4.3%	22.0%
North Carolina	40.7%	-15.7%	40.6%	4.7%	18.5%
North Dakota	53.1%	-3.9%	56.2%	3.7%	50.2%
Ohio	21.1%	-18.4%	40.2%	4.4%	14.4%
Oklahoma	37.4%	-2.4%	23.0%	4.7%	20.0%
Oregon	81.9%	-28.1%	84.3%	4.2%	32.6%
Pennsylvania	70.2%	-11.7%	26.9%	2.8%	12.1%
Rhode Island	130.8%	-34.3%	57.5%	7.3%	3.5%
South Carolina	44.9%	-19.5%	39.4%	4.9%	12.2%
South Dakota	45.1%	-4.0%	49.2%	3.6%	43.3%
Tennessee	35.0%	-11.8%	49.4%	5.8%	31.7%
Texas	33.5%	-5.8%	54.9%	3.9%	45.9%
Utah	54.7%	-22.1%	82.6%	6.6%	42.3%
Vermont	83.5%	-7.5%	37.9%	7.1%	27.6%
Virginia	99.6%	-22.8%	30.9%	3.9%	1.1%
Washington	85.2%	-28.7%	96.5%	6.1%	40.0%
West Virginia	42.4%	-6.5%	28.1%	3.7%	19.7%
Wisconsin	44.6%	-16.3%	37.8%	2.8%	15.3%
Wyoming	77.4%	-5.7%	33.9%	5.6%	26.2%

Sources: *Black Knight and Urban Institute.* ***Note:*** *HPI data as of April 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 04/2020, the latest HPI data period.*

State of the US Housing Market

Ginnie Mae MBS constitute 28.4 percent of outstanding agency issuance by loan balance and 32.7 percent of new issuance over the past year. However, the Ginnie Mae share varies widely across states, with the share of outstanding (by loan balance) as low as 14.2 percent in the District of Columbia and as high as 49.7 percent in Alaska. In general, the Ginnie Mae share is higher in states with lower home prices.

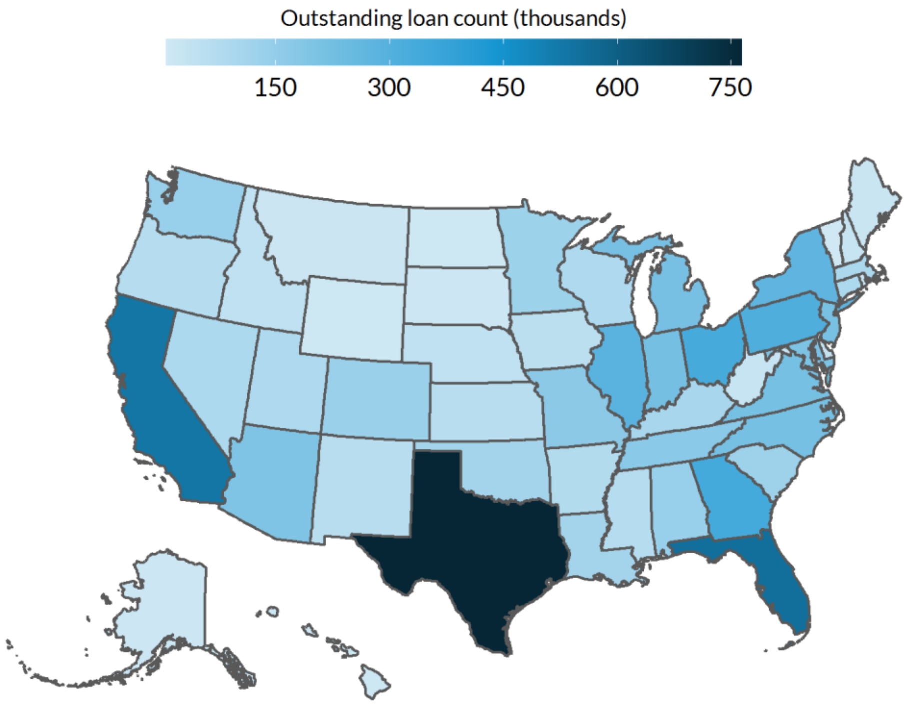
	Agency Issuance (past 1 year)				Agency Outstanding			
State	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)
National	32.7%	2,370,899	244.4	263.7	28.4%	11,527,236	164.6	192.0
Alabama	45.1%	42,441	184.7	206.4	43.0%	240,311	128.9	153.8
Alaska	54.2%	6,799	300.6	269.5	49.7%	38,973	232.2	200.6
Arizona	32.9%	88,208	240.0	245.5	27.6%	321,503	166.7	184.7
Arkansas	43.0%	22,888	158.5	185.4	42.7%	141,078	111.4	139.3
California	26.4%	221,187	384.2	376.3	18.5%	793,651	267.4	273.8
Colorado	32.2%	74,635	323.3	312.0	24.0%	240,283	223.3	233.0
Connecticut	31.9%	19,161	228.9	248.7	28.4%	111,568	182.0	188.9
Delaware	39.2%	10,503	233.5	247.0	34.4%	52,852	179.5	186.2
District of Columbia	17.6%	1,895	461.9	414.6	14.2%	10,070	301.2	307.8
Florida	41.7%	203,851	234.4	230.5	33.6%	856,582	168.6	175.5
Georgia	41.0%	107,373	208.1	235.7	36.4%	524,318	144.5	173.5
Hawaii	45.3%	9,273	539.1	428.8	28.1%	32,245	385.8	320.4
Idaho	31.6%	18,982	240.6	238.2	28.2%	79,968	158.6	175.1
Illinois	24.5%	67,730	195.2	224.2	23.4%	378,012	140.7	161.5
Indiana	35.8%	57,662	162.8	180.9	35.1%	310,851	111.6	128.7
Iowa	24.5%	15,346	164.2	186.6	24.4%	88,198	114.4	132.7
Kansas	34.4%	17,929	173.5	200.1	34.0%	106,961	120.5	140.6
Kentucky	38.5%	32,040	167.9	188.1	37.2%	171,105	121.7	134.7
Louisiana	43.9%	34,119	185.5	213.3	40.6%	192,127	137.5	160.2
Maine	33.8%	8,636	204.9	224.2	30.3%	41,609	152.6	163.5
Maryland	43.9%	64,348	309.2	299.5	36.9%	309,219	230.5	221.2
Massachusetts	21.9%	30,200	322.1	325.3	17.6%	126,240	238.1	233.7
Michigan	23.3%	56,914	166.7	194.7	23.2%	312,145	113.7	137.3
Minnesota	23.1%	34,551	222.1	237.1	21.8%	192,010	156.7	173.8
Mississippi	51.2%	20,108	168.7	190.1	49.1%	117,772	121.1	143.3
Missouri	32.9%	48,854	172.1	197.5	33.1%	269,078	121.0	140.9
Montana	30.8%	7,504	242.6	245.4	27.2%	37,299	170.5	181.3
Nebraska	32.5%	12,497	186.5	190.8	31.3%	74,675	123.5	139.0
Nevada	39.2%	41,011	278.5	260.0	31.2%	144,399	191.7	198.2
New Hampshire	31.2%	10,116	259.0	252.1	26.9%	45,547	194.4	184.6
New Jersey	28.7%	50,228	276.9	299.4	25.4%	253,489	209.8	221.6
New Mexico	42.8%	16,693	201.5	212.2	40.5%	99,635	141.0	155.2
New York	24.7%	48,061	270.7	302.2	23.8%	341,031	187.1	218.3
North Carolina	35.4%	87,249	206.3	232.1	31.6%	437,962	142.1	169.7
North Dakota	28.2%	3,344	229.4	228.1	24.8%	17,146	168.2	167.6
Ohio	33.5%	76,450	162.0	178.1	33.7%	460,051	112.5	128.4
Oklahoma	45.9%	29,976	170.7	190.4	46.3%	199,073	120.0	141.7
Oregon	28.6%	33,198	288.3	288.1	21.2%	128,281	202.0	213.4
Pennsylvania	31.5%	67,949	184.9	219.0	30.8%	424,610	135.9	160.0
Rhode Island	36.4%	8,003	253.8	247.9	31.9%	37,711	190.5	185.6
South Carolina	41.3%	51,716	207.8	219.0	35.5%	232,741	148.3	163.7
South Dakota	35.0%	6,269	197.8	208.7	34.0%	31,508	143.9	152.5
Tennessee	39.5%	60,712	209.9	229.2	36.8%	301,024	140.4	168.9
Texas	36.1%	200,266	222.6	240.2	33.6%	1,106,650	145.0	178.9
Utah	26.0%	34,189	279.7	284.3	23.6%	127,067	194.9	216.8
Vermont	25.8%	2,455	208.6	222.8	19.8%	13,118	164.5	159.9
Virginia	44.6%	93,605	302.4	301.0	38.5%	457,688	220.1	219.7
Washington	30.7%	70,914	326.4	330.3	24.6%	274,715	222.5	237.6
West Virginia	50.9%	10,334	171.3	173.0	44.9%	56,143	126.4	128.2
Wisconsin	21.2%	26,834	188.7	202.3	19.4%	139,574	133.8	142.9
Wyoming	41.5%	5,693	233.4	240.7	37.9%	27,370	177.5	178.9

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

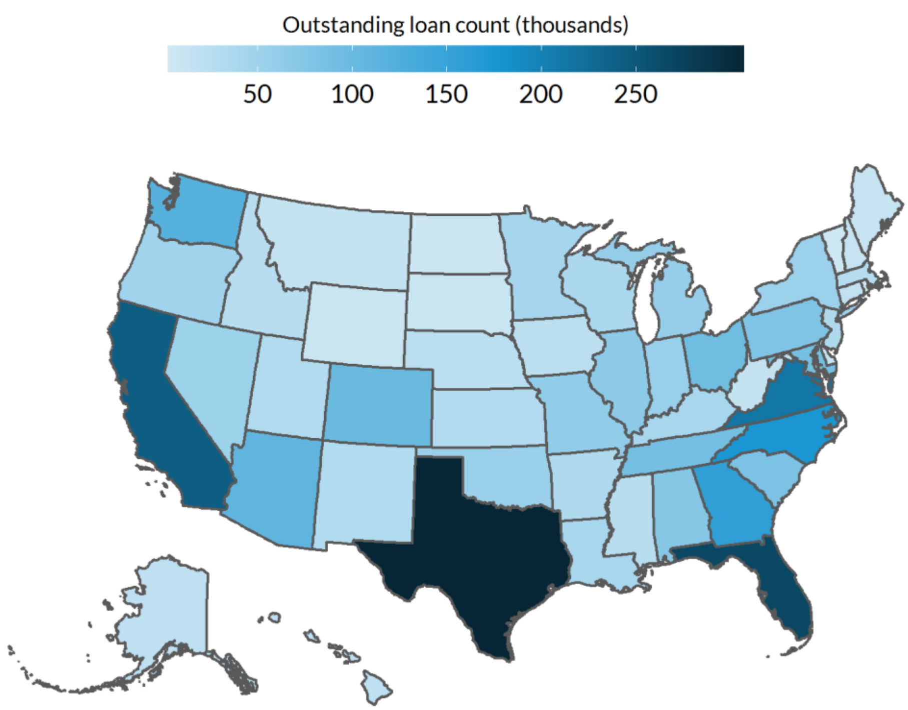
FHA and VA Outstanding Loan Count

Texas , Florida, and California are the top 3 states for FHA and VA lending as measured by the number of loans outstanding. As of April 2020, TX has 760,000 million FHA and 310,000 VA loans outstanding, FL had 550,000 FHA and 270,000 VA loans outstanding, and CA had 530,000 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

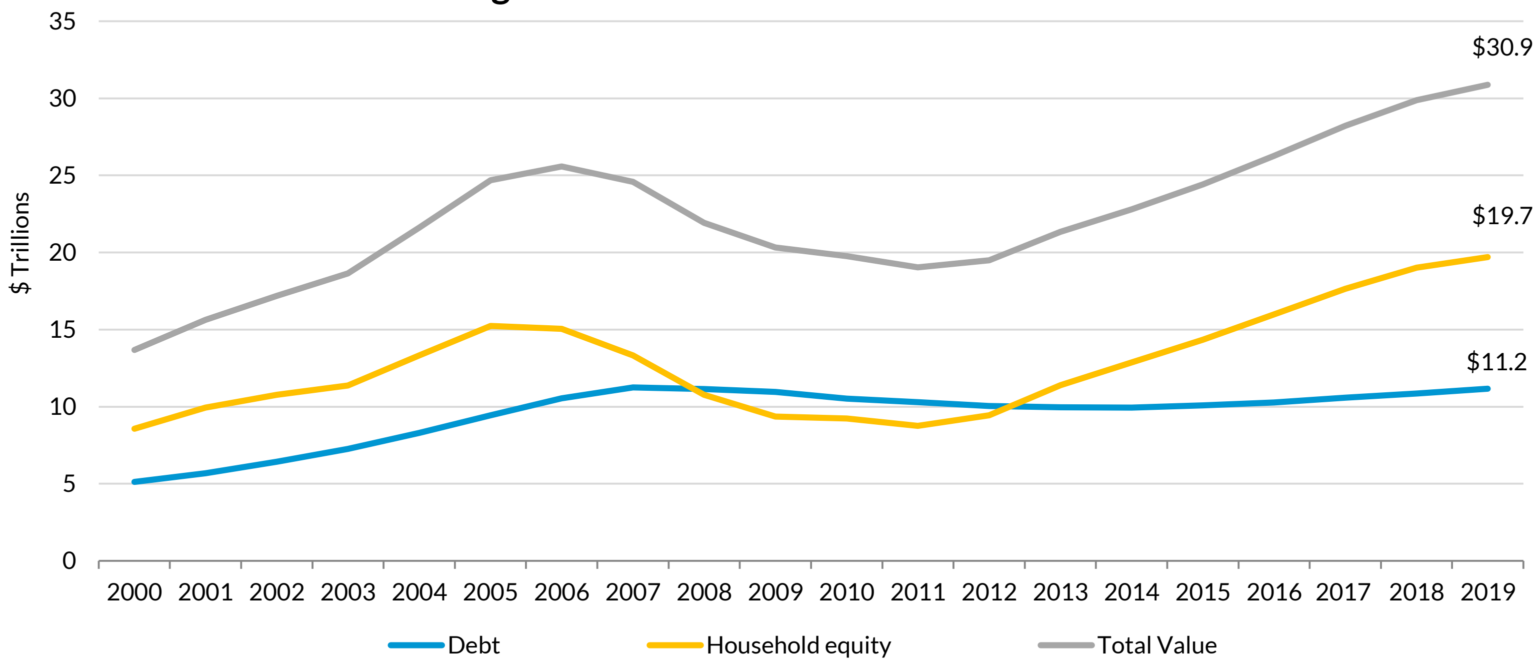


Sources: *eMBS and Urban Institute.* ***Note:*** *Ginnie Mae outstanding share are based on loan balance as of April 2020.*

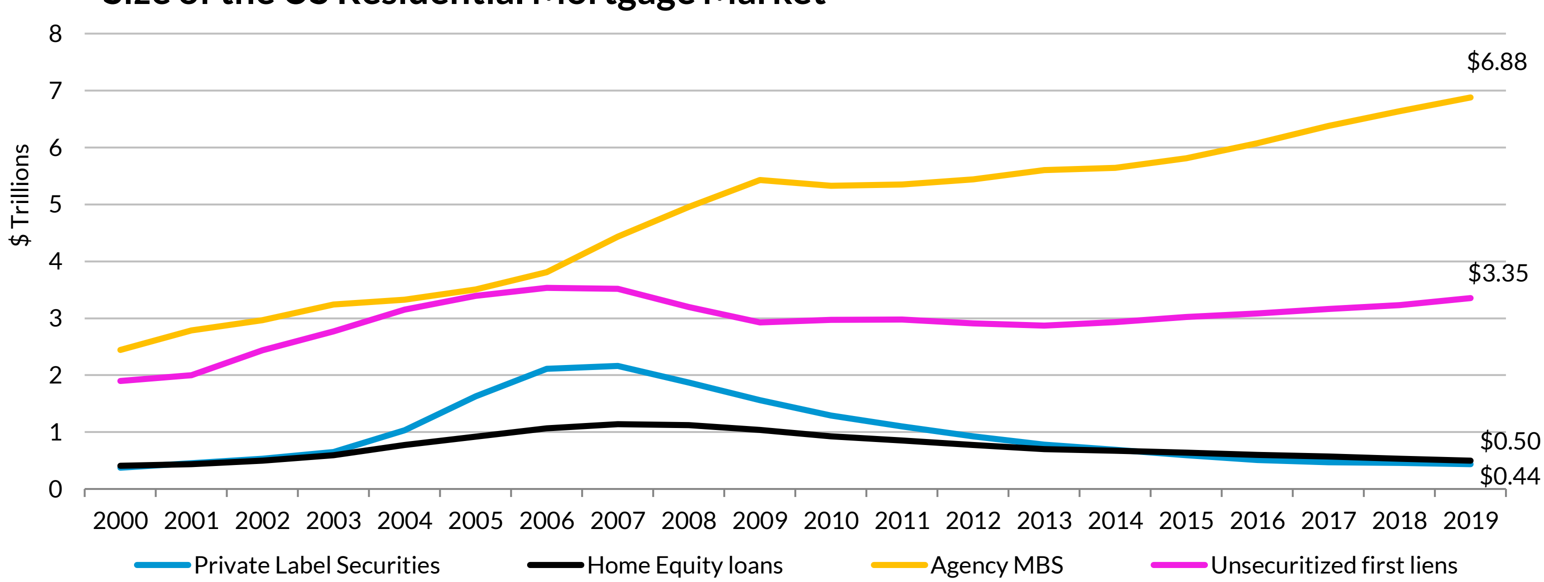
State of the US Housing Market

The Federal Reserve's Flow of Funds report has indicated a gradually increasing total value of the housing market driven by growing home equity since 2012, and Q4 2019 was no different. Total mortgage debt outstanding and household equity were up slightly from Q3 2019 to $11.2 and $19.7 trillion in Q4 2019, bringing the total value of the housing market to $30.9 trillion as of the year's end. The market is now 20.8 percent higher than the pre-crisis peak in 2006. Agency MBS account for 61.6 percent of the total mortgage debt outstanding, private-label securities make up 4.0 percent, and unsecuritized first liens make up 30.0 percent. Second liens comprise the remaining 4.5 percent of the total.

Value of the US Housing Market



Size of the US Residential Mortgage Market

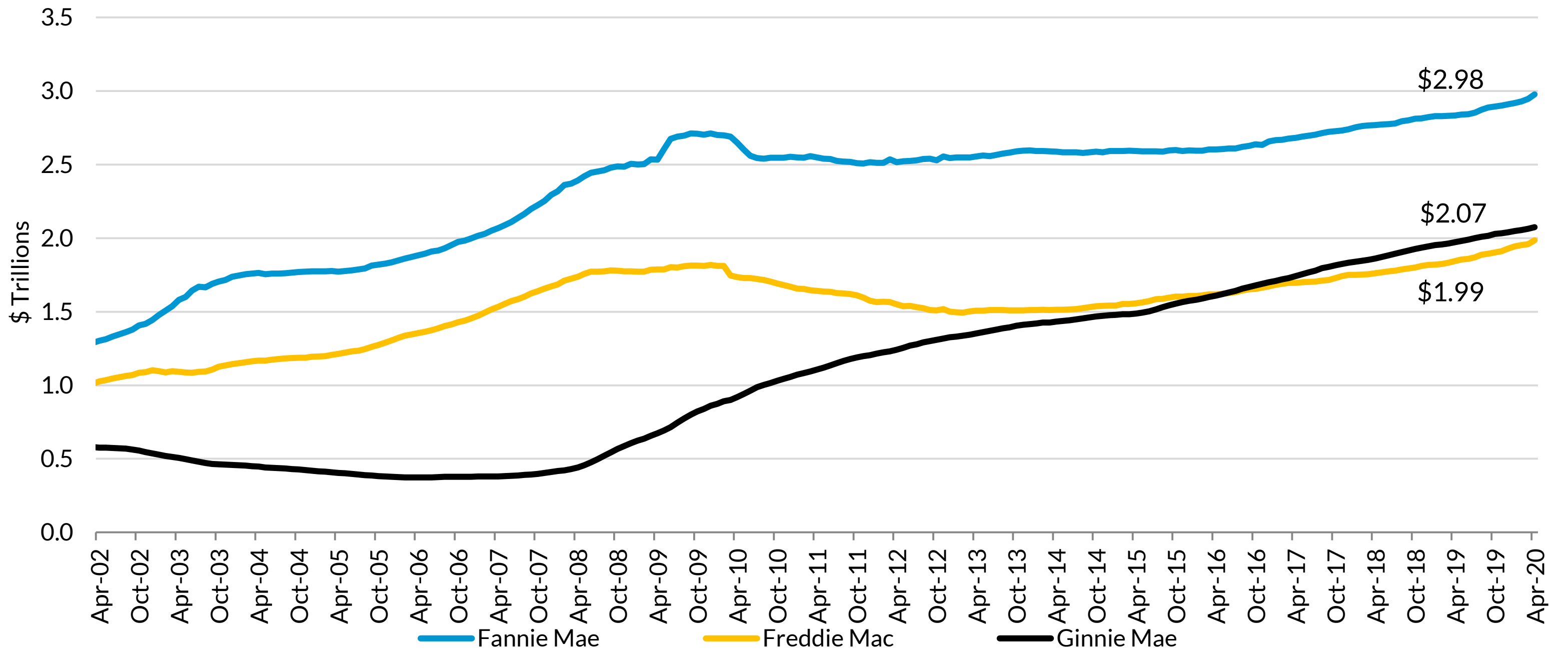


Sources: *Federal Reserve Flow of Funds, eMBS and Urban Institute. Last updated April 2020.*
Note Top: *Single family includes 1-4 family mortgages. The home equity number is grossed up from Fed totals to include the value of households and the non-financial business sector.* **Note Bottom**: *Unsecuritized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

State of the US Housing Market

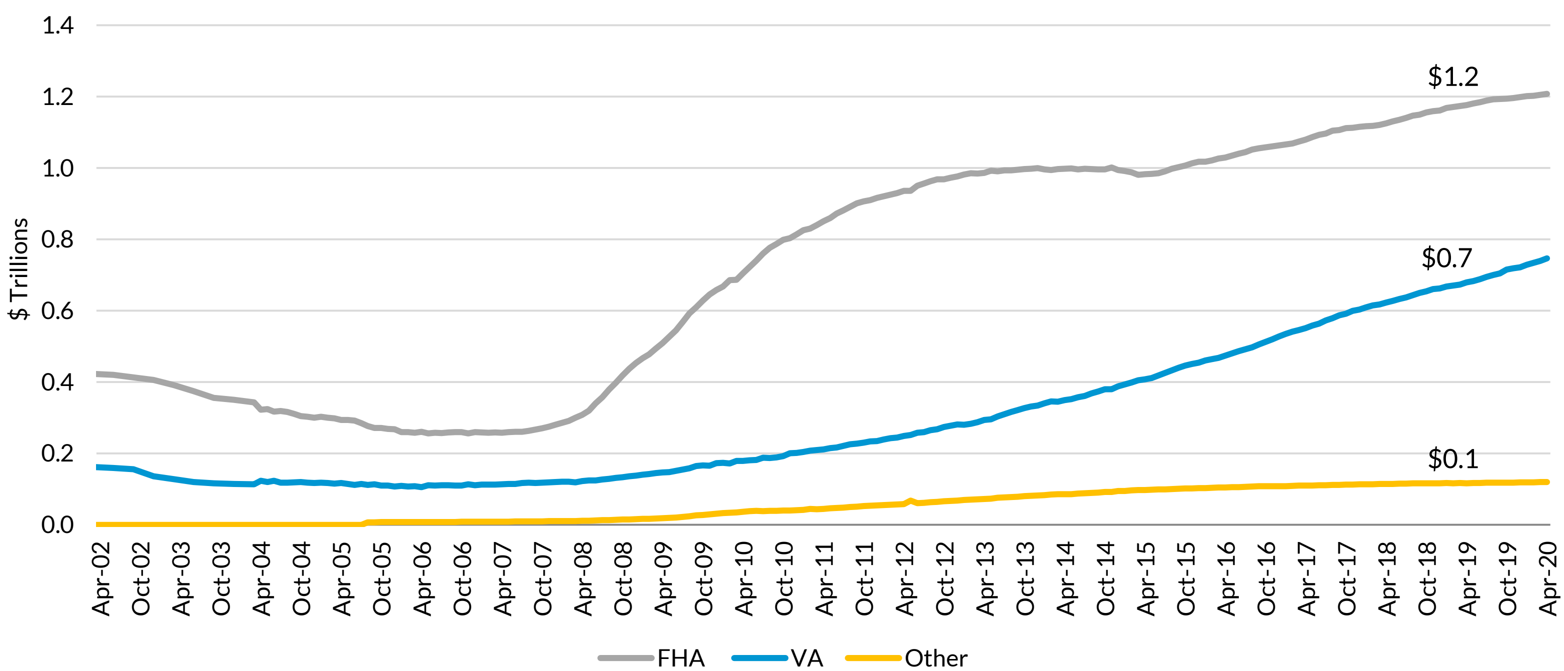
As of April 2020, outstanding securities in the agency market totaled $7.04 trillion: 42.3 percent Fannie Mae, 28.2 percent Freddie Mac, and 29.5 percent Ginnie Mae MBS. Ginnie Mae has more outstandings than Freddie Mac. Within the Ginnie Mae market, both FHA and VA have grown very rapidly since 2009. FHA comprises 58.2 percent of total Ginnie Mae MBS outstanding, while VA comprises 36.0 percent.

Outstanding Agency Mortgage-Backed Securities



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

Outstanding Ginnie Mae Mortgage-Backed Securities

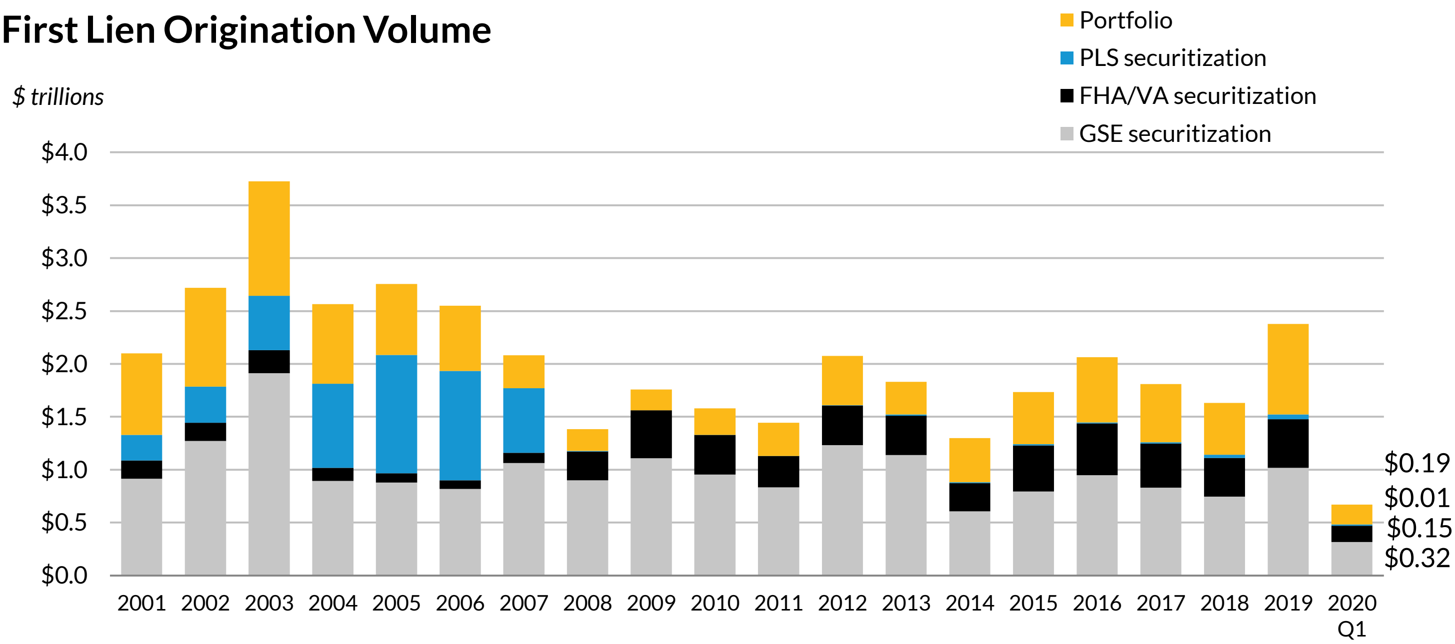


Sources: *eMBS and Urban Institute.* **Note:** *Data as of April 2020.*

State of the US Housing Market

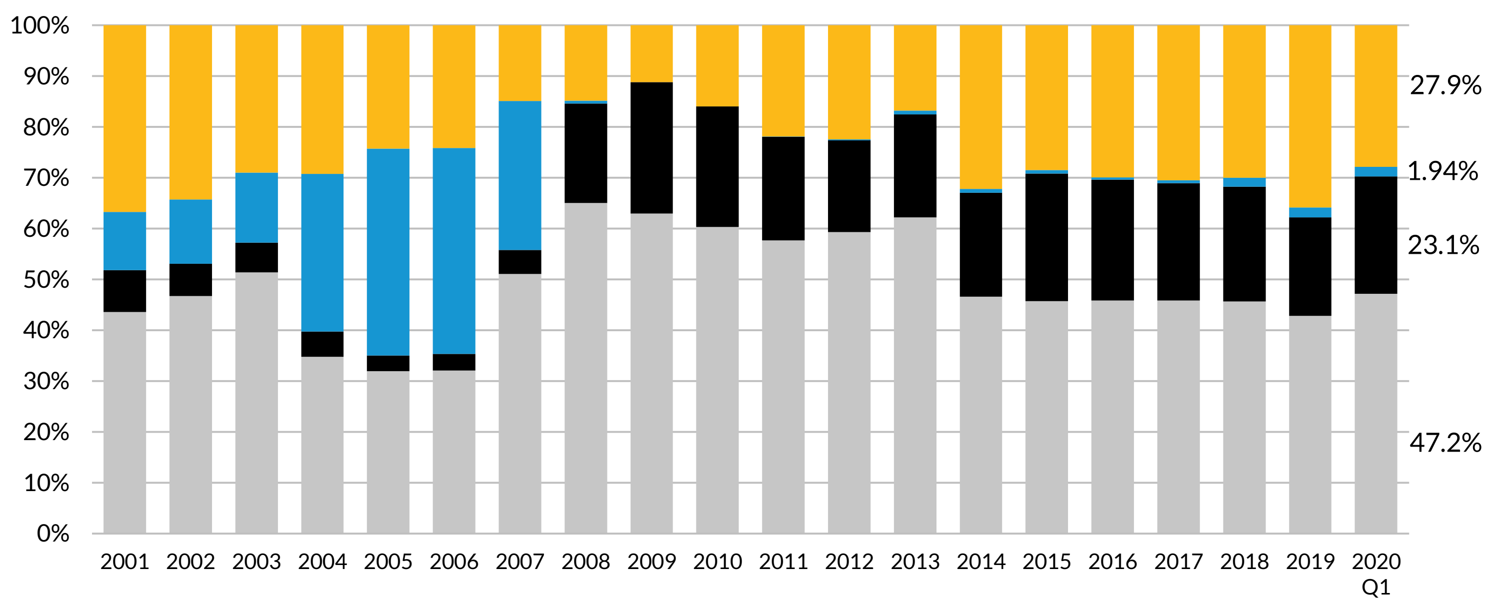
In the first quarter of 2020, first lien originations totaled $670 billion, up from the Q1 2019 volume of $355 billion. The share of portfolio originations was 27.9 percent in Q1 2020, a significant decline from the 37.3 percent share in the same period 2019. The Q1 2020 GSE share stands at 47.2 percent, up from 39.6 percent in Q1 2019. The FHA/VA share grew to 23.1 percent, compared to 21.0 percent last year. Private-label securitization currently tallies 1.94 percent, down from 2.9 percent one year ago, and a fraction of its share in the pre-bubble years.

First Lien Origination Volume



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

First Lien Origination Share



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

US Agency Market, Originations

Despite the rise in portfolio origination, agency gross issuance was a robust $1.55 trillion in 2019, the strongest year for agency gross issuance since 2013. This reflected primarily strong borrower incentives to refinance, further buoyed by improved home purchase affordability. And this strong issuance trend continued through the first four months of 2020, with gross issuance of $719.4 billion, up 116.4 percent from the same period in 2019. Ginnie Mae gross issuance was up by 98.0 percent and GSE gross issuance was up by 125.7 percent. Within the Ginnie Mae market, FHA was up by 66.0 percent and VA origination was up by 144.4 percent.

Agency Gross Issuance					
Issuance Year	Fannie Mae	Freddie Mac	GSE Total	Ginnie Mae	Total
2000	$202.8	$157.9	$360.6	$102.2	$462.8
2001	$506.9	$378.2	$885.1	$171.5	$1,056.6
2002	$710.0	$529.0	$1,238.9	$169.0	$1,407.9
2003	$1,174.4	$700.5	$1,874.9	$213.1	$2,088.0
2004	$517.5	$355.2	$872.6	$119.2	$991.9
2005	$514.1	$379.9	$894.0	$81.4	$975.3
2006	$500.2	$352.9	$853.0	$76.7	$929.7
2007	$633.0	$433.3	$1,066.2	$94.9	$1,161.1
2008	$562.7	$348.7	$911.4	$267.6	$1,179.0
2009	$817.1	$462.9	$1,280.0	$451.3	$1,731.3
2010	$626.6	$377.0	$1,003.5	$390.7	$1,394.3
2011	$578.2	$301.2	$879.3	$315.3	$1,194.7
2012	$847.6	$441.3	$1,288.8	$405.0	$1,693.8
2013	$749.9	$426.7	$1,176.6	$393.6	$1,570.2
2014	$392.9	$258.0	$650.9	$296.3	$947.2
2015	$493.9	$351.9	$845.7	$436.3	$1,282.0
2016	$600.5	$391.1	$991.6	$508.2	$1,499.8
2017	$531.3	$345.9	$877.3	$455.6	$1,332.9
2018	$480.9	$314.1	$795.0	$400.6	$1,195.3
2019	$597.4	$445.2	$1,042.6	$508.6	$1,551.2
2020 YTD	$289.3	$208.6	$497.8	$221.6	$719.4
2020 % Change YOY	134.5%	114.6%	125.7%	98.0%	116.4%
2020 Ann.	$867.8	$625.7	$1,493.5	$664.9	$2,158.3

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	$105.1	$110.1	$6.4	$221.6
2020 % Change YOY	66.0%	144.4%	79.7%	98.0%
2020 Ann.	$315.4	$330.2	$19.2	$664.9

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 April 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 Ginnie Mae. This trend continued into the fourth month of 2020, with net agency issuance totaling $159.8 billion, up 146.3 percent compared with the first four months of 2019. Ginnie Mae net issuance was $34.7 billion, comprising 21.7 percent of total agency net issuance. Ginnie Mae net issuance in the first four months of 2020 was comprised of 70.3 percent VA and 25.6 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	$66.9	$58.3	$125.1	$34.7	$159.8
2020 % Change YOY	550.5%	116.8%	236.8%	25.1%	146.3%
2020 Ann.	$200.6	$174.8	$375.4	$104.0	$479.4

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	$8.9	$24.4	$1.4	$34.7
2020 % Change YOY	-29.9%	59.4%	-708.8%	25.1%
2020 Ann.	$26.6	$73.1	$4.3	$104.0

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 April 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 April 2020 gross agency issuance of $239.3 billion is the highest single month since this data has been available, as lower rates gave borrowers a stronger incentive to refinance, contributing to a sharp increase.

Monthly Agency Issuance

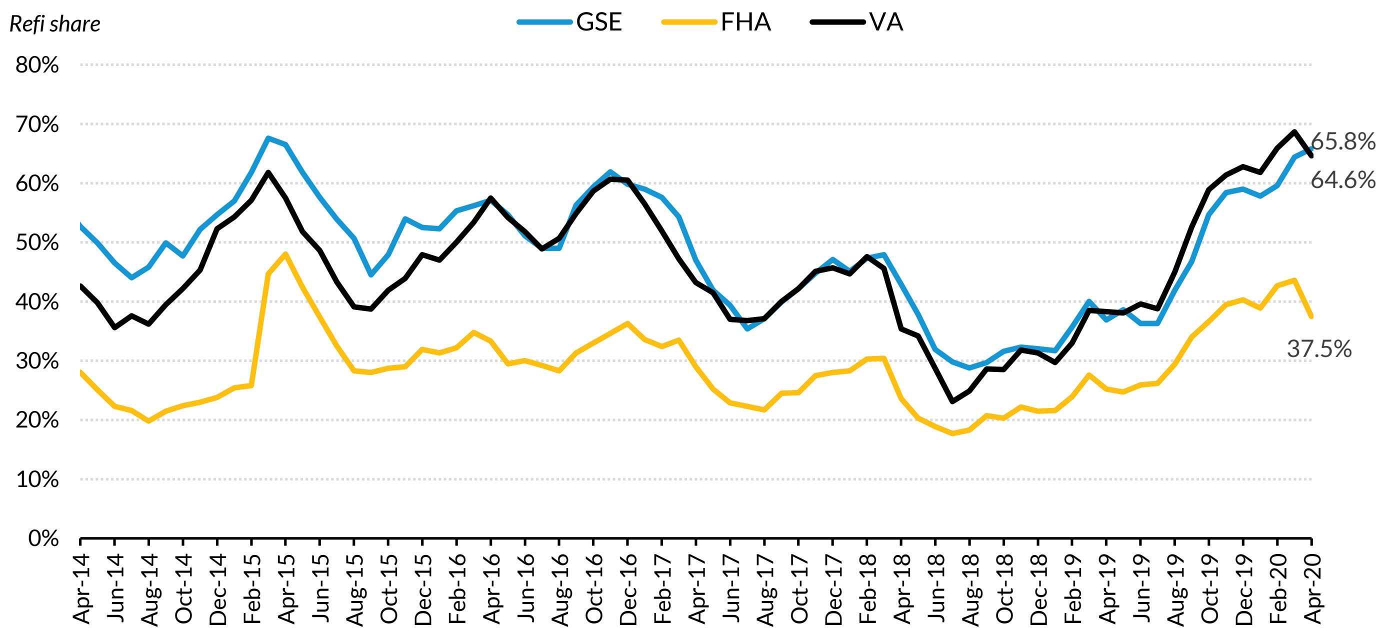
	Gross Issuance				Net Issuance			
Date	Fannie Mae	Freddie Mac	Ginnie Mae	Total	Fannie Mae	Freddie Mac	Ginnie Mae	Total
Jan-17	$55.6	$38.5	$42.6	$136.6	$8.5	$10.7	$10.3	$29.5
Feb-17	$37.6	$27.4	$33.1	$98.1	$2.5	$6.5	$9.4	$18.5
Mar-17	$39.5	$24.4	$31.3	$95.2	$9.7	$6.2	$9.7	$25.6
Apr-17	$39.3	$21.2	$36.4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

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 April 2020.*

US Agency Market, Originations

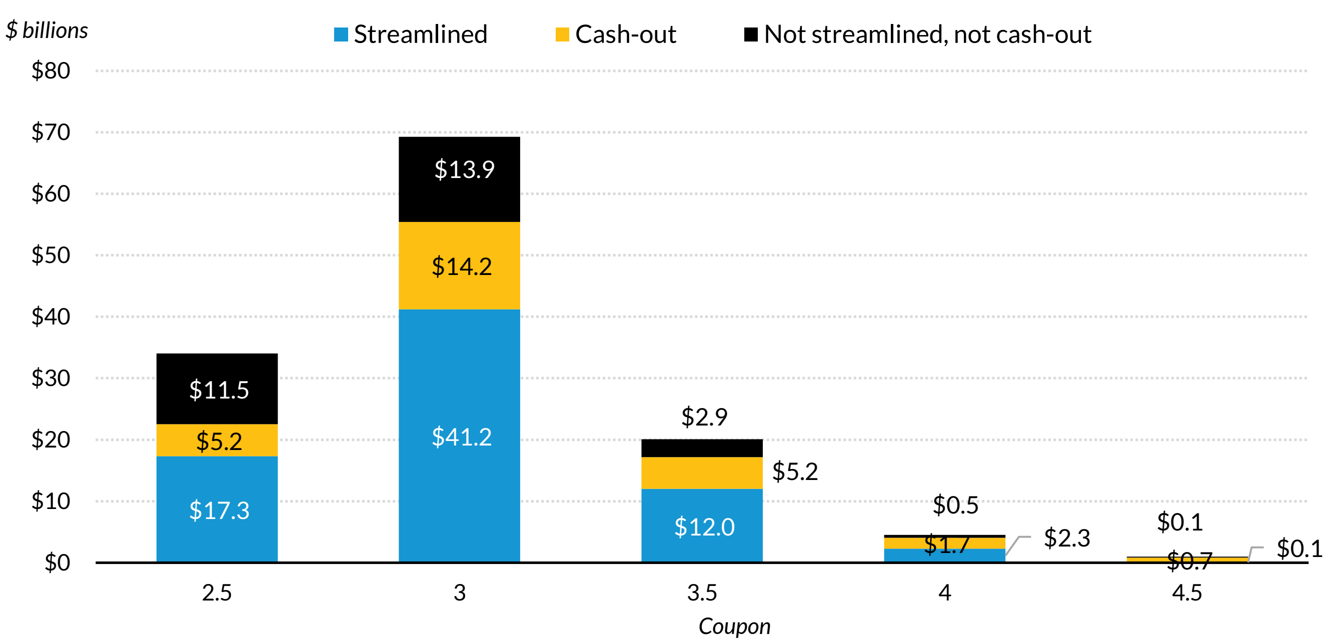
The FHA refinance share stood at 37.5 percent in April 2020, below the 65.8 percent refi share for GSE originations and the 64.6 percent share for the VA. Refinances as a share of all originations grew during most of 2019 as interest rates were low. They grew through the first three months of 2020, as rates dropped further, but fell for FHA and VA lending in April. 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 April 2020.*

Ginnie Mae Refinance Issuance by Type: 2020 YTD

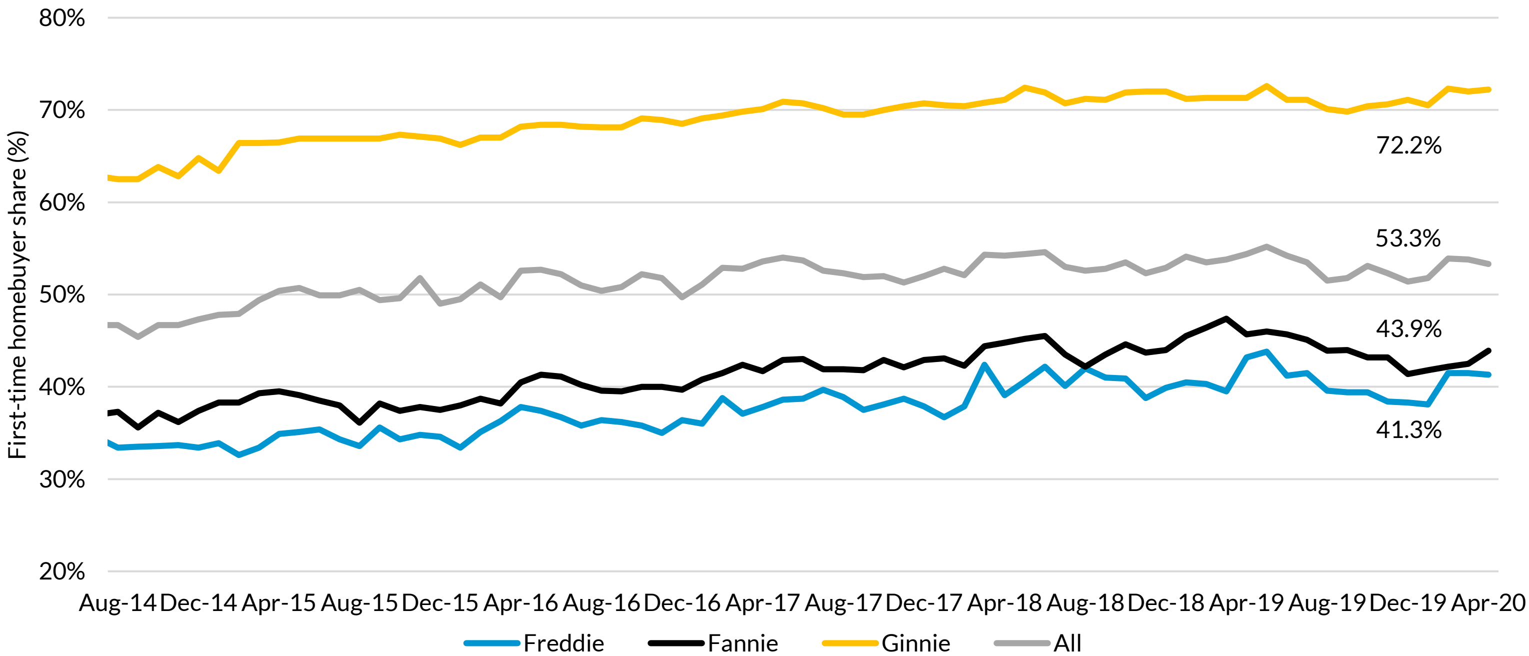


Sources: *eMBS and Urban Institute.*
Note: *Based on at-issuance balance. Data as of April 2020.*

Credit Box

The first time homebuyer share of Ginnie Mae purchase loans was 72.2 percent in April 2020, down slightly from its historical high in May 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 43.9 percent and 41.3 percent of Fannie Mae and Freddie Mac purchase originations respectively. The bottom table shows that based on mortgages originated in April 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 April 2020.*

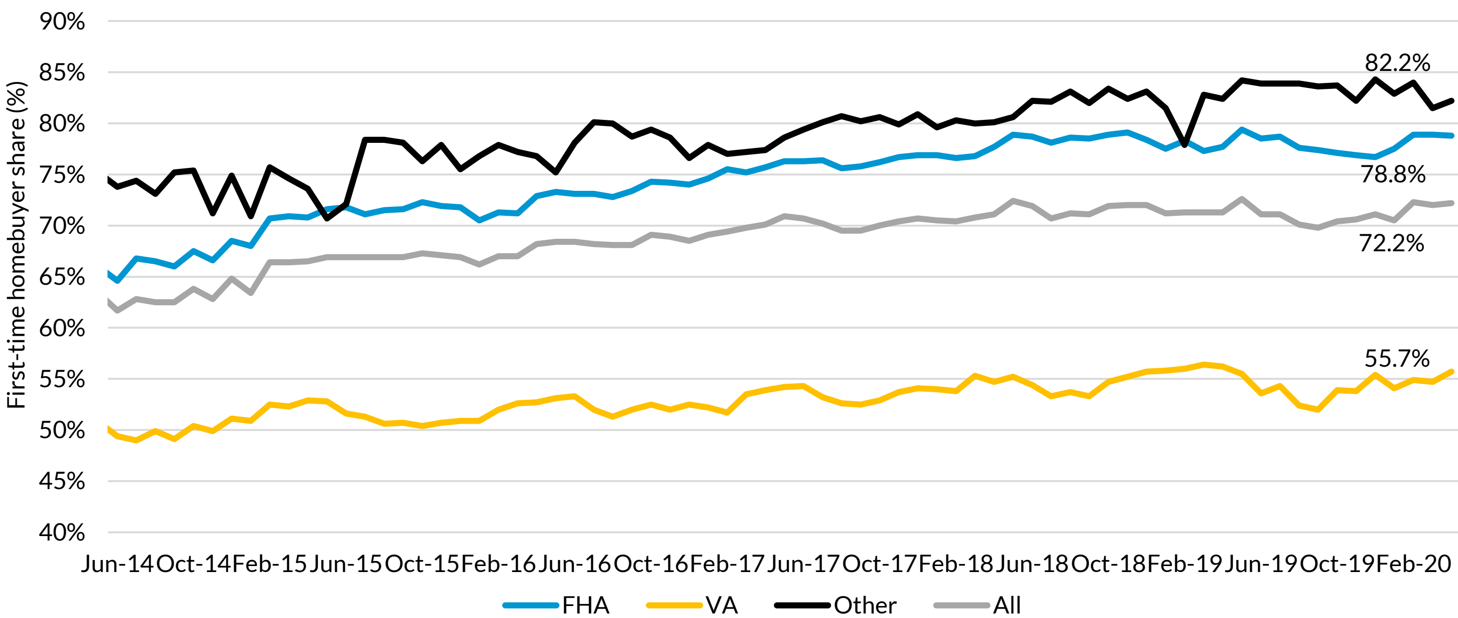
	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	267,958	291,504	265,193	285,228	223,029	278,101	245,549	285,858
Credit Score	744.4	755.7	746.8	757.1	679.7	701.2	713.6	741.9
LTV (%)	88.3	80.1	87.1	80.1	97.0	95.7	92.2	84.2
DTI (%)	34.7	36.2	34.5	35.9	41.3	42.4	37.8	37.7
Loan Rate (%)	3.7	3.6	3.7	3.6	3.8	3.6	3.7	3.6

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 April 2020.*

Credit Box

Within the Ginnie Mae purchase market, 78.8 percent of FHA loans, 55.7 percent of VA loans and 82.2 percent of other loans represent financing for first-time home buyers in April 2020. The bottom table shows that based on mortgages originated in April 2020, the average first-time homebuyer was more likely than an average repeat buyer to take out a smaller loan, have a lower credit score, higher LTV, similar DTI and pay a higher rate.

First Time Homebuyer Share: Ginnie Mae Breakdown



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

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	217,879	237,778	266,363	330,327	160,063	171,913	223,029	278,101
Credit Score	670.5	673.4	699.4	728.4	694.4	698.1	679.7	701.2
LTV (%)	95.6	94.0	99.9	97.0	99.3	98.8	97.0	95.7
DTI (%)	42.8	44.1	40.0	41.6	34.9	35.6	41.3	42.4
Loan Rate (%)	3.9	3.8	3.5	3.4	3.7	3.8	3.8	3.6

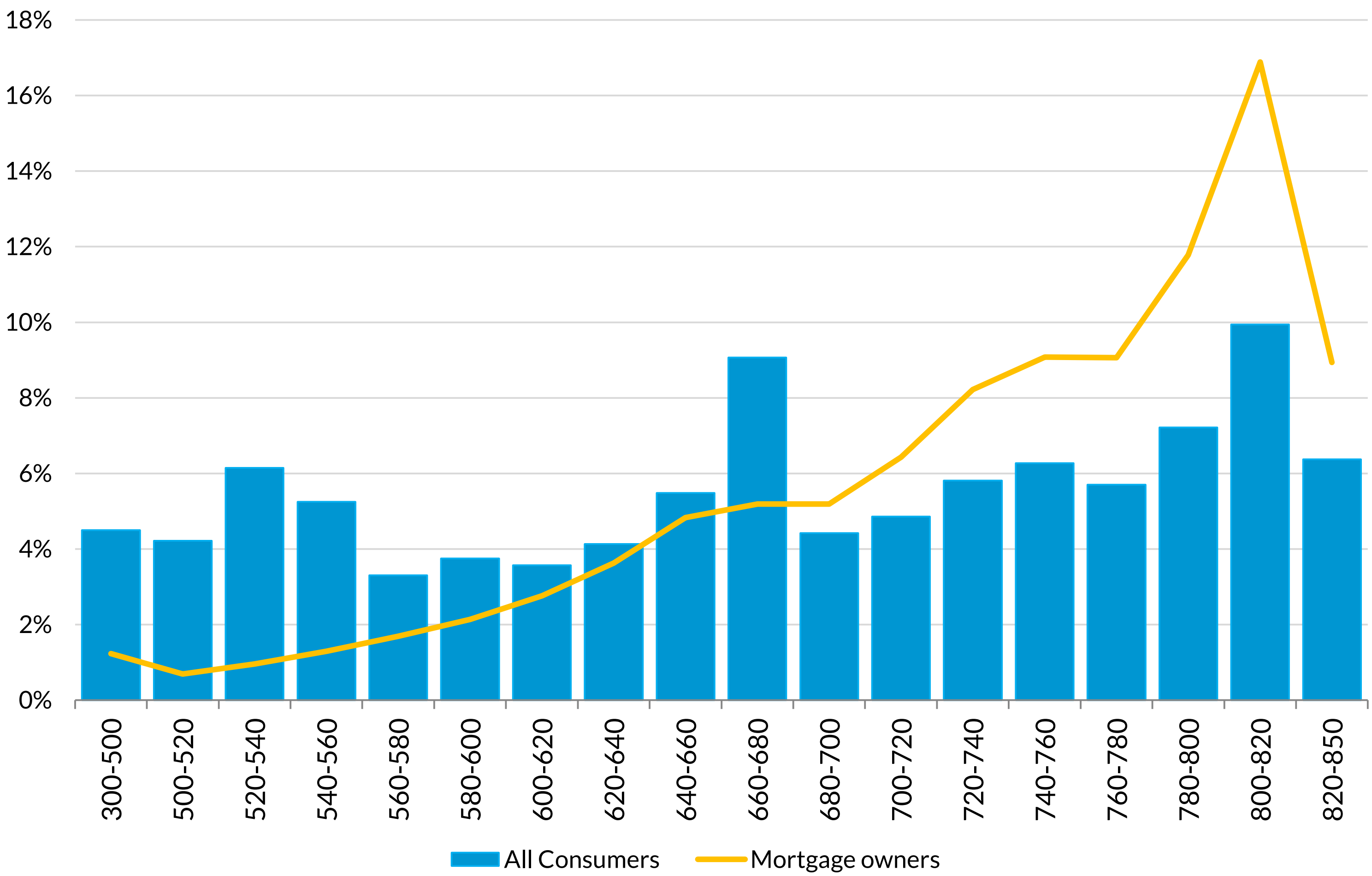
Sources: *eMBS and Urban Institute.* **Note**: *Data as of April 2020. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed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

Credit Box

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

FICO Score Distribution: Mortgage Owners vs All Consumers

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



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

April 2020 Credit Box at a Glance

In April 2020, the median Ginnie Mae FICO score was 684 versus 762 for Fannie Mae and 763 for Freddie Mac. Note that the FICO score for the 10th percentile was 622 for Ginnie Mae, versus 691 for Fannie Mae and 692 for Freddie Mac. Within the Ginnie Mae market, FHA loans have a median FICO score of 665, VA loans have a median FICO score of 720 and other loans have a median FICO score of 691.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	333,065	645	686	738	778	798	729
Fannie	119,105	691	723	759	787	801	752
Freddie	94,886	693	726	762	788	802	754
Ginnie	119,074	622	644	677	725	770	686
Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	493,760	672	712	757	786	802	745
Fannie	238,826	692	727	764	789	803	755
Freddie	172,336	691	726	763	789	803	754
Ginnie	82,598	624	655	695	750	786	700
All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	826,825	659	702	750	783	800	739
Fannie	357,931	691	725	762	788	802	754
Freddie	267,222	692	726	763	789	802	754
Ginnie	201,672	622	648	684	735	779	691

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	119,074	622	644	677	725	770	686
FHA	72,275	615	638	665	700	740	671
VA	35,789	630	661	714	766	794	712
Other	11,010	638	657	690	731	765	695
Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	82,598	624	655	695	750	786	700
FHA	31,479	609	637	664	696	733	667
VA	50,311	641	676	724	771	795	720
Other	808	641	668	702	745	778	706
All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	201,672	622	648	684	735	779	691
FHA	103,754	614	637	665	699	739	670
VA	86,100	635	670	720	769	795	717
Other	11,818	638	658	691	731	766	696

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 April 2020.*

April 2020 Credit Box at a Glance

In April 2020, the median loan-to-value ratio (LTV) was 96.5 percent for Ginnie Mae, 75 percent for Fannie Mae and 76 percent for Freddie Mac. The 90th percentile was 101.0 percent for Ginnie Mae, and 95 percent for both Freddie and Fannie. Within the Ginnie Mae market, the median LTV was 96.5 for FHA, 98.0 for VA and 100.9 for other programs.

Purchase LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	333,470	73.0	80.0	95.0	96.5	100.0	87.7
Fannie	119,013	65.0	80.0	85.0	95.0	97.0	83.1
Freddie	94,970	65.0	80.0	80.0	95.0	95.0	82.3
Ginnie	119,487	94.0	96.5	96.5	100.0	101.0	96.6
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	513,746	48.0	60.0	74.0	81.4	94.0	71.7
Fannie	238,833	46.0	59.0	70.0	79.0	85.0	67.6
Freddie	172,596	45.0	59.0	71.0	79.0	83.0	67.6
Ginnie	102,317	71.4	81.4	91.2	97.9	100.0	88.0
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	847,216	53.0	69.0	80.0	95.0	97.0	78.0
Fannie	357,846	49.0	62.0	75.0	84.0	95.0	72.8
Freddie	267,566	49.0	64.0	75.0	80.0	95.0	72.8
Ginnie	221,804	79.7	90.0	96.5	99.1	101.0	92.7

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	119,487	94.0	96.5	96.5	100.0	101.0	96.6
FHA	72,549	93.7	96.5	96.5	96.5	96.5	95.2
VA	35,881	93.4	100.0	100.0	102.3	103.0	98.6
Other	11,057	95.3	99.2	101.0	101.0	101.0	99.2
Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	102,317	71.4	81.4	91.2	97.9	100.0	88.0
FHA	40,031	73.1	81.4	91.1	97.1	98.3	87.4
VA	61,457	70.0	82.2	91.0	99.0	100.9	88.3
Other	829	84.5	93.4	99.0	101.0	102.0	95.5
All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	221,804	79.7	90.0	96.5	99.1	101.0	92.7
FHA	112,580	81.4	92.9	96.5	96.5	97.3	92.5
VA	97,338	75.2	87.3	98.0	100.0	102.3	92.1
Other	11,886	94.5	98.9	100.9	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 April 2020.*

April 2020 Credit Box at a Glance

In April 2020, the median Ginnie Mae debt-to-income ratio (DTI) was 41.8 percent, considerably higher than the 35.0 percent median DTI for both Freddie Mac and Fannie Mae. The 90th percentile for Ginnie Mae was 54.0 percent, also much higher than the 46.0 percent DTI for Fannie Mae and Freddie Mac, respectively. Within the Ginnie Mae market, the median FHA DTI ratio was 43.9 percent, versus 40.0 percent for VA and 35.5 percent for other lending programs.

Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	333,206	24.0	31.0	38.7	45.0	49.2	37.5
Fannie	119,189	22.0	29.0	37.0	43.0	47.0	35.4
Freddie	94,969	22.0	28.0	36.0	43.0	47.0	35.1
Ginnie	119,048	28.5	35.1	42.2	48.9	54.0	41.6
Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	449,637	20.0	27.0	35.0	42.0	47.0	34.1
Fannie	238,821	20.0	26.0	34.0	42.0	46.0	33.5
Freddie	172,585	20.0	26.0	34.0	42.0	46.0	33.7
Ginnie	38,231	24.6	32.0	40.1	48.2	54.0	39.5
All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	782,843	22.0	28.0	36.0	43.0	48.0	35.6
Fannie	358,010	21.0	27.0	35.0	42.0	46.0	34.2
Freddie	267,554	21.0	27.0	35.0	42.0	46.0	34.2
Ginnie	157,279	27.6	34.2	41.8	48.7	54.0	41.1

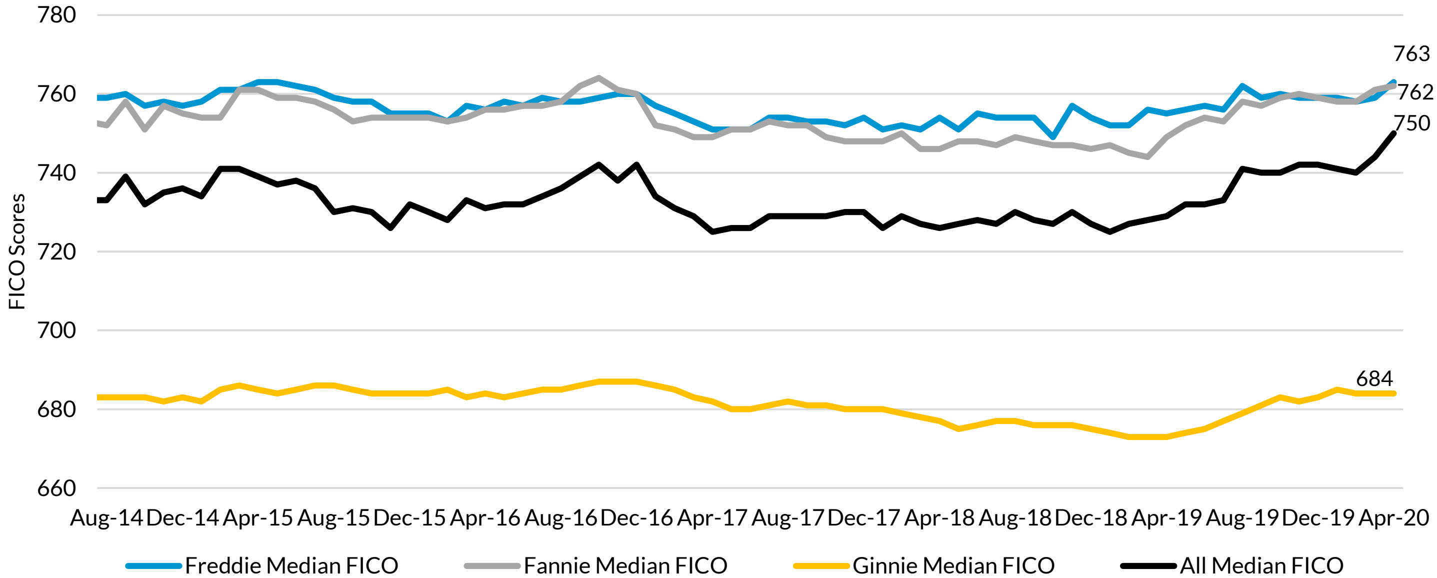
Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	119,048	28.5	35.1	42.2	48.9	54.0	41.6
FHA	72,519	30.4	37.1	44.0	50.0	54.5	43.0
VA	35,520	26.8	33.6	41.1	48.3	54.0	40.7
Other	11,009	25.7	30.6	35.8	40.0	43.0	35.0
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	38,231	24.6	32.0	40.1	48.2	54.0	39.5
FHA	19,277	27.7	34.5	43.0	49.9	54.6	41.7
VA	18,393	22.7	30.0	37.1	45.8	52.7	37.5
Other	561	13.7	19.2	27.8	35.2	41.0	27.8
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	157,279	27.6	34.2	41.8	48.7	54.0	41.1
FHA	91,796	29.8	36.6	43.9	50.0	54.5	42.8
VA	53,913	25.3	32.0	40.0	47.6	53.6	39.6
Other	11,570	25.0	30.2	35.5	40.0	42.9	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 April 2020.*

Credit Box: Historical

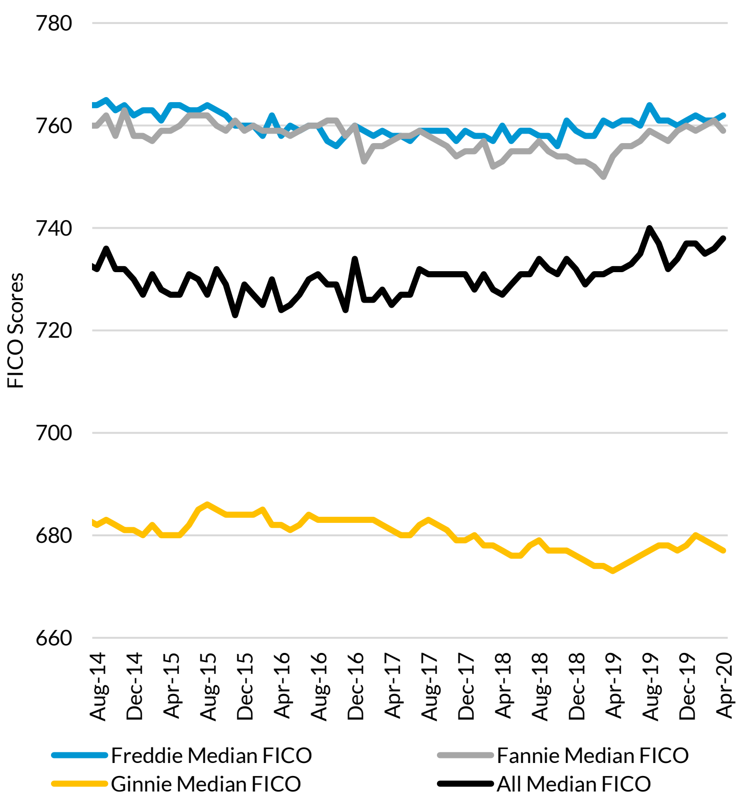
The median FICO score for all agency loans originated in April 2020 was 750, up considerably since the start of last year, owing to the refinance wave, which higher FICO borrowers take advantage of with greater frequency. In addition, the increases in refinance activity have been much more dramatic at 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



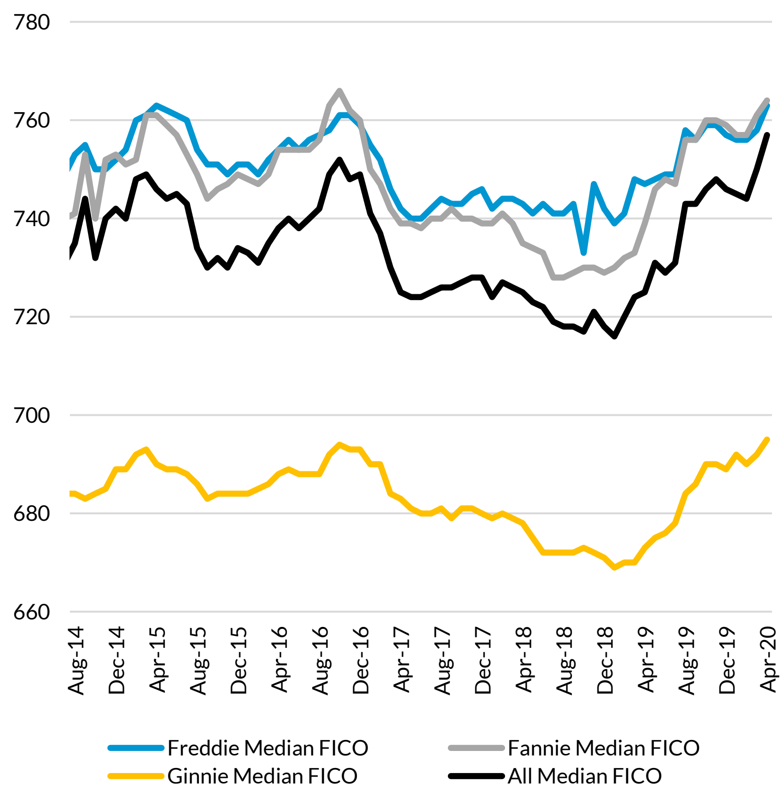
Sources: *eMBS and Urban Institute.* **Note**: *Data as of April 2020.*

FICO Scores for Purchase Loans



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

FICO Scores for Refinance Loans

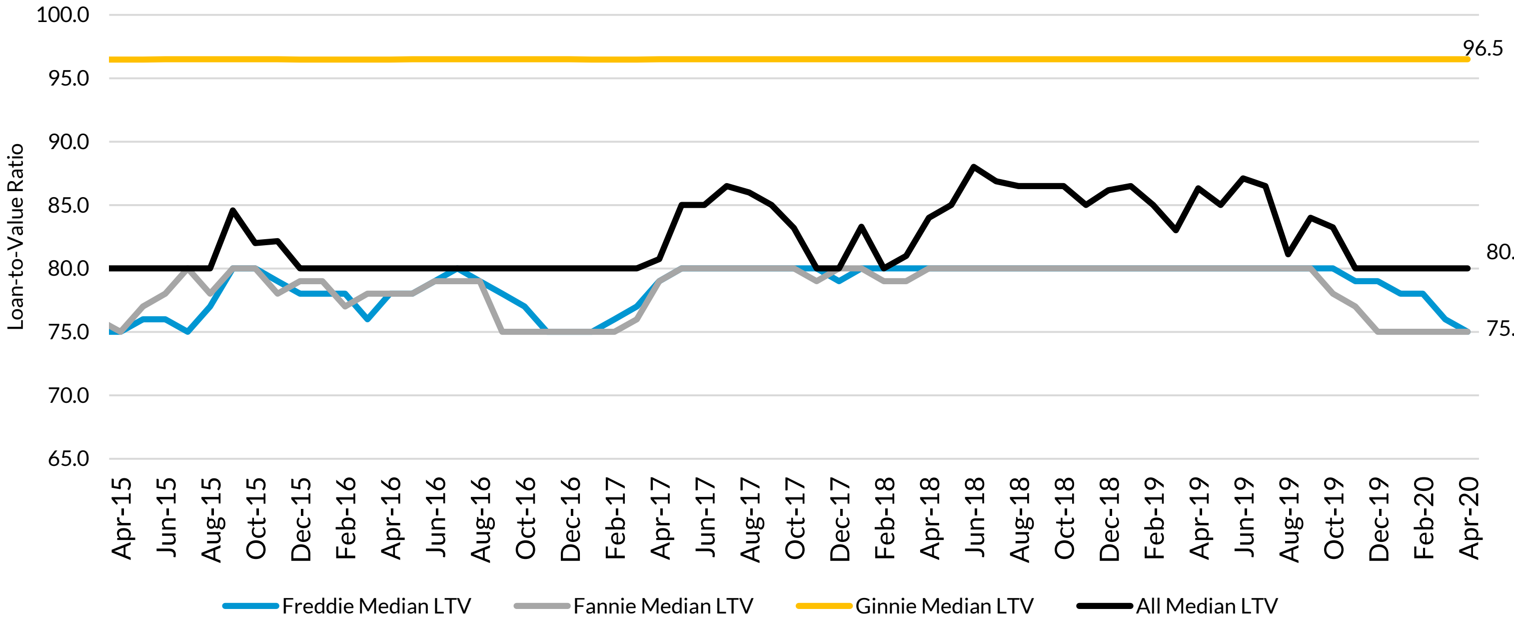


Sources: *eMBS and Urban Institute.* **Note:** *Data as of April 2020.*

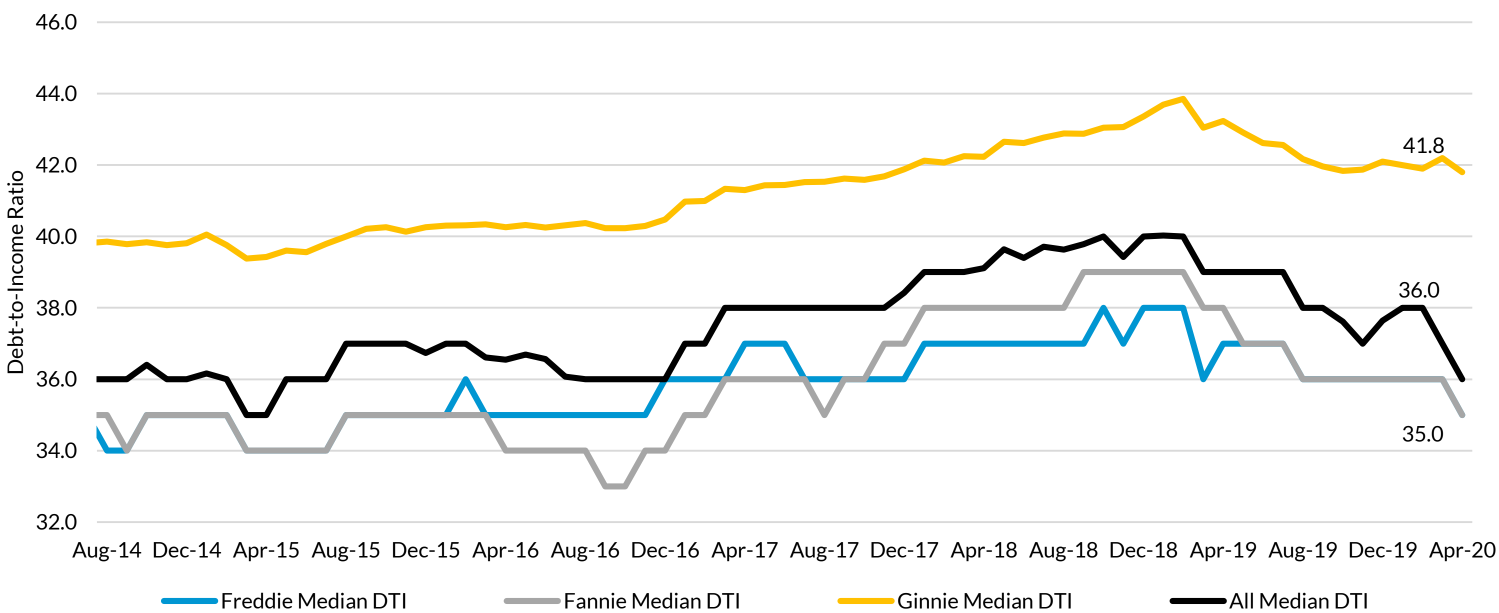
Credit Box: Historical

Median LTVs for Ginnie Mae loans have historically been at 96.5 percent, much higher than the 75–80 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

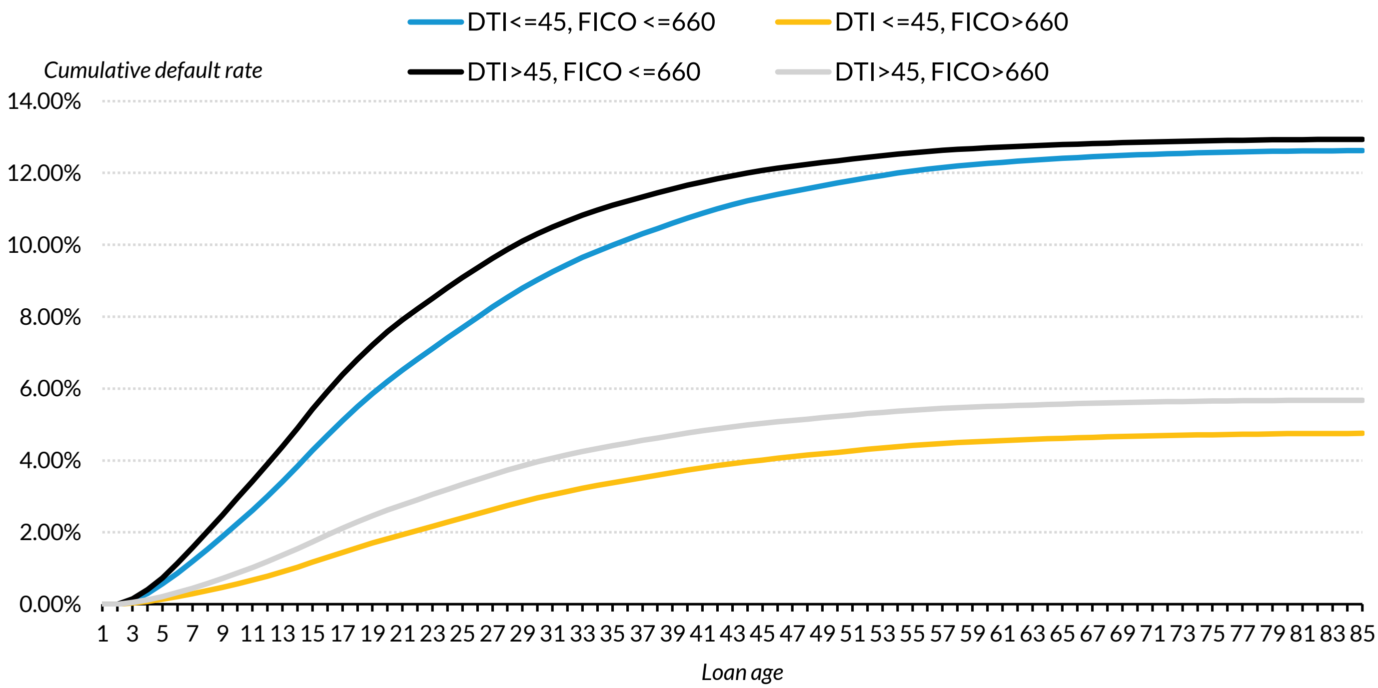


Sources: *eMBS and Urban Institute.* **Note:** *In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium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

Credit Box: Historical

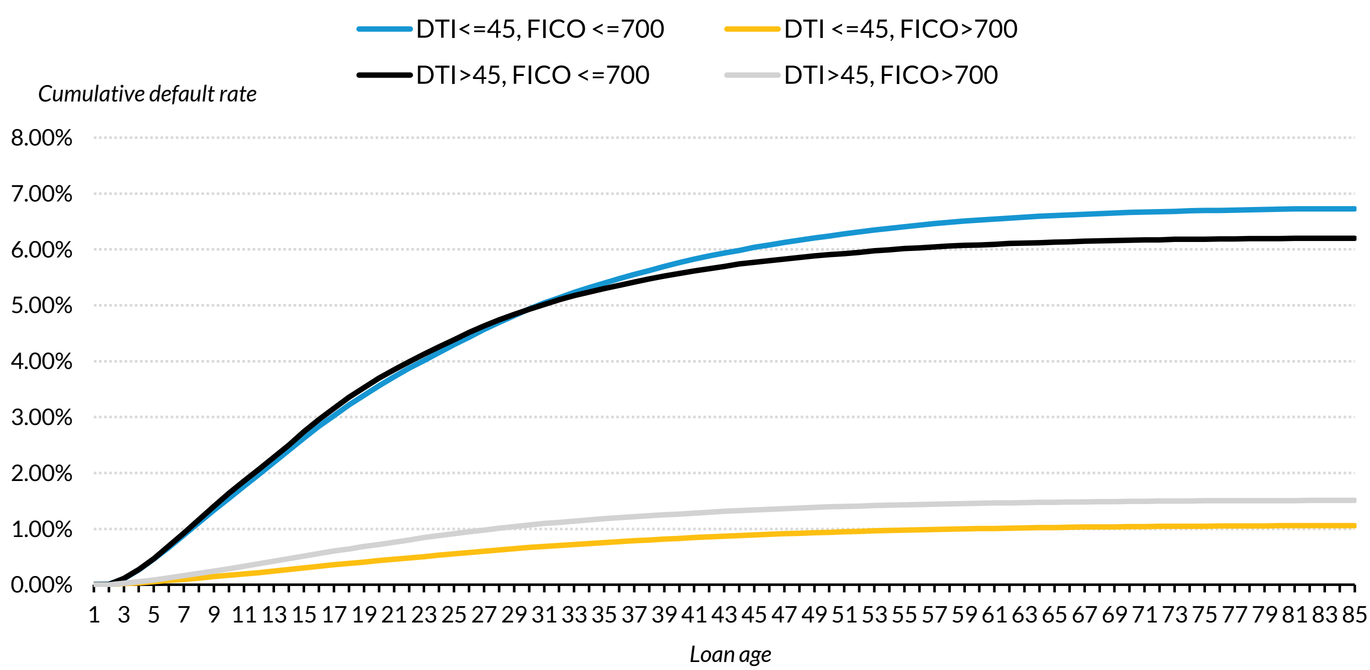
DTI is a much weaker predictor of performance than FICO score. The top chart shows FHA borrowers with higher DTIs do default more than those with lower DTIs, but the differences are modest, as evidenced by the fact that the black line is very close to the blue line and the grey line is not that much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

VA Cumulative Default Rate by DTI and FICO

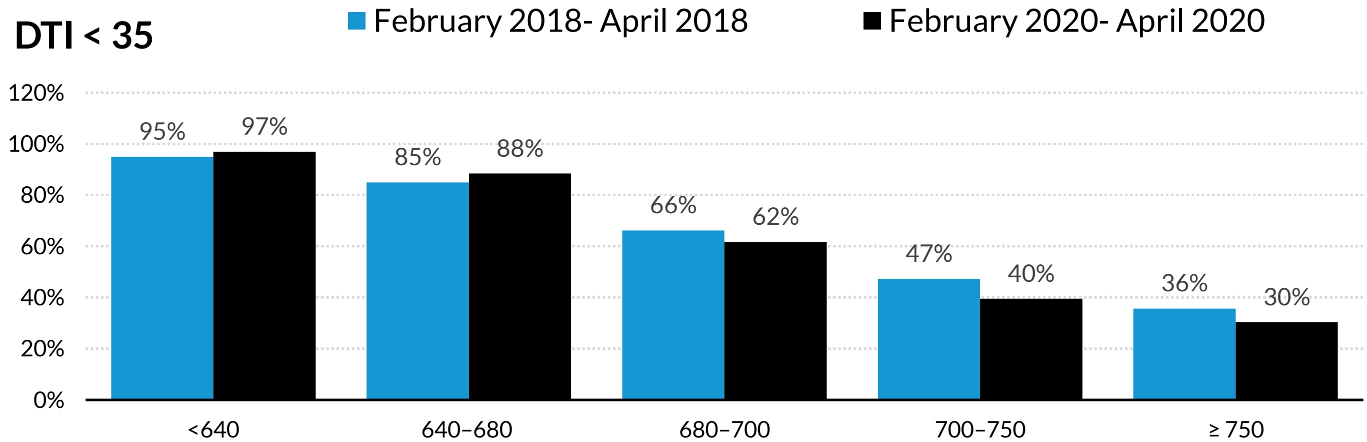


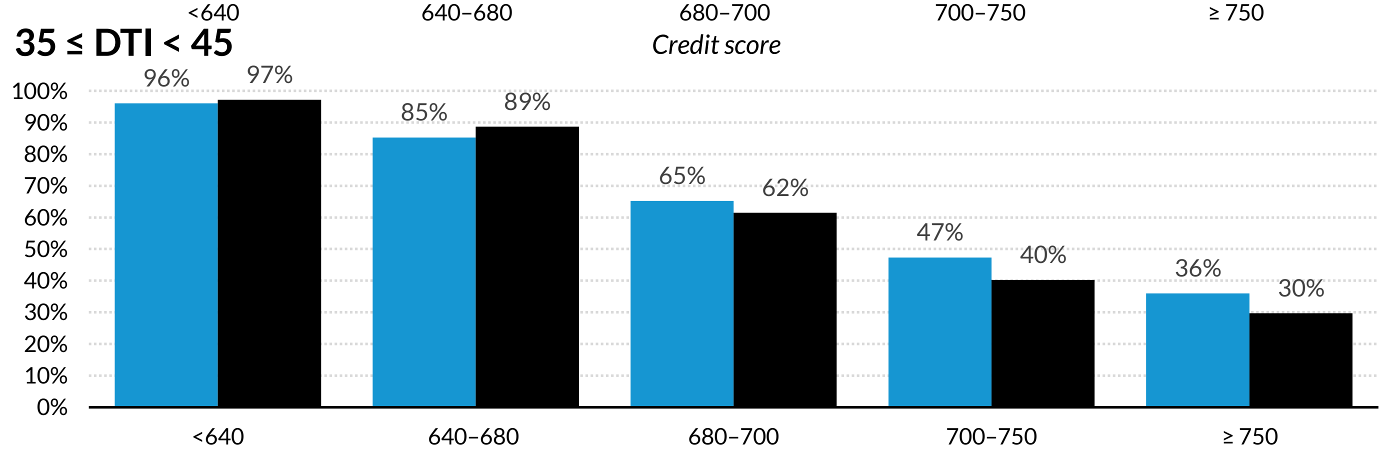
Sources: *eMBS and Urban Institute.* **Note:** Defaults = 180 days delinquent. *Data as of April 2020.*

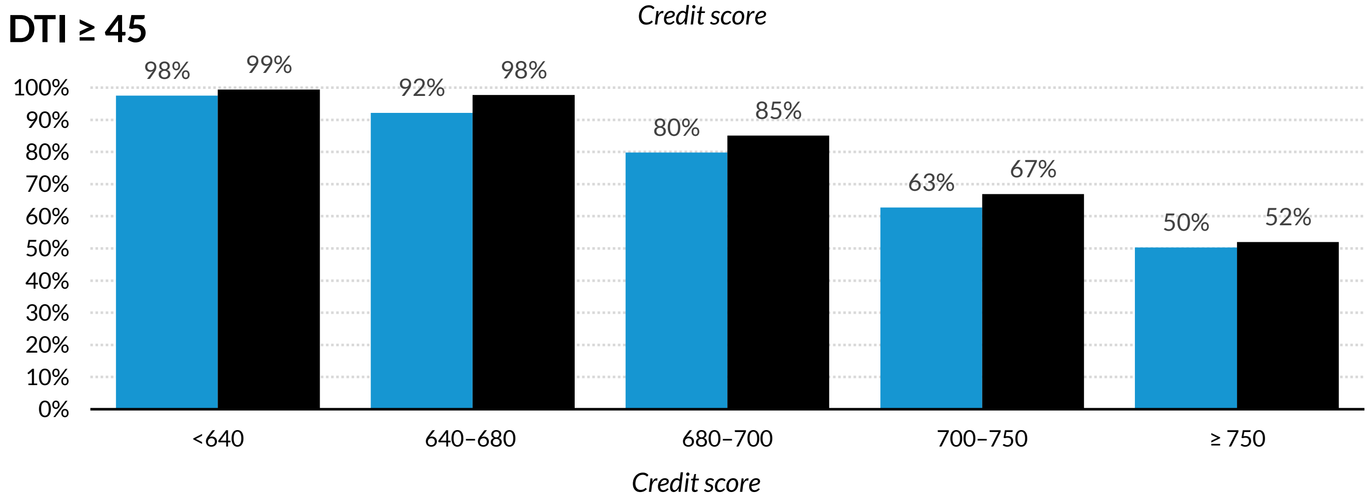
Credit Box: Historical

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 February 2020- April 2020, Ginnie Mae accounted for 97 percent of agency issuance for DTIs under 35 and FICOs below 640, compared to just 30 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 February 2020– April 2020, Ginnie Mae's share of issuance was higher for DTIs of 45 and above, as compared with the two lower DTI buckets. Ginnie Mae share of loans with a DTI of 45 and above and a FICO of 680-700 was 85 percent; it was 62 percent for the same FICO in the lower DTI buckets. Comparing this period to 2 years earlier, it is clear the GSEs have stepped up their higher LTV lending for borrowers with FICOs of 680 or higher in the two lower DTI buckets.

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







Sources: *eMBS and Urban Institute.*

High LTV Loans: Ginnie Mae vs. GSEs

Ginnie Mae dominates high-LTV lending, with 67.0 percent of its issuances in the February 2020- April 2020 period having LTVs of 95 or above, compared to 12.3 percent for the GSEs. The GSEs have decreased their high-LTV lending share from 17.1 percent in February 2018– April 2018. Ginnie Mae's high-LTV lending is also down, but by less than the GSE share, over the same period from 68.5 percent. The share of high-LTV agency loans going to highest FICO borrowers (i.e. above 750) has increased from the February 2018-April 2018 period to the February 2020-April 2020 period, as has the share of lower DTI borrowers (below 35).

Share of Loans with LTV ≥ 95

	Ginnie Mae	GSE	All
February 2018- April 2018	68.5%	17.1%	33.6%
February 2020- April 2020	67.0%	12.3%	24.8%

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

February 2018-April 2018

	FICO					
DTI	<640	640–680	680–700	700–750	≥ 750	All
< 35	2.9%	5.1%	2.8%	7.1%	8.7%	26.7%
35 –45	5.5%	9.5%	4.9%	11.0%	9.3%	40.1%
≥ 45	4.7%	9.0%	4.4%	9.0%	6.2%	33.3%
All	13.0%	23.6%	12.0%	27.1%	24.2%	100.0%

February 2020-April 2020

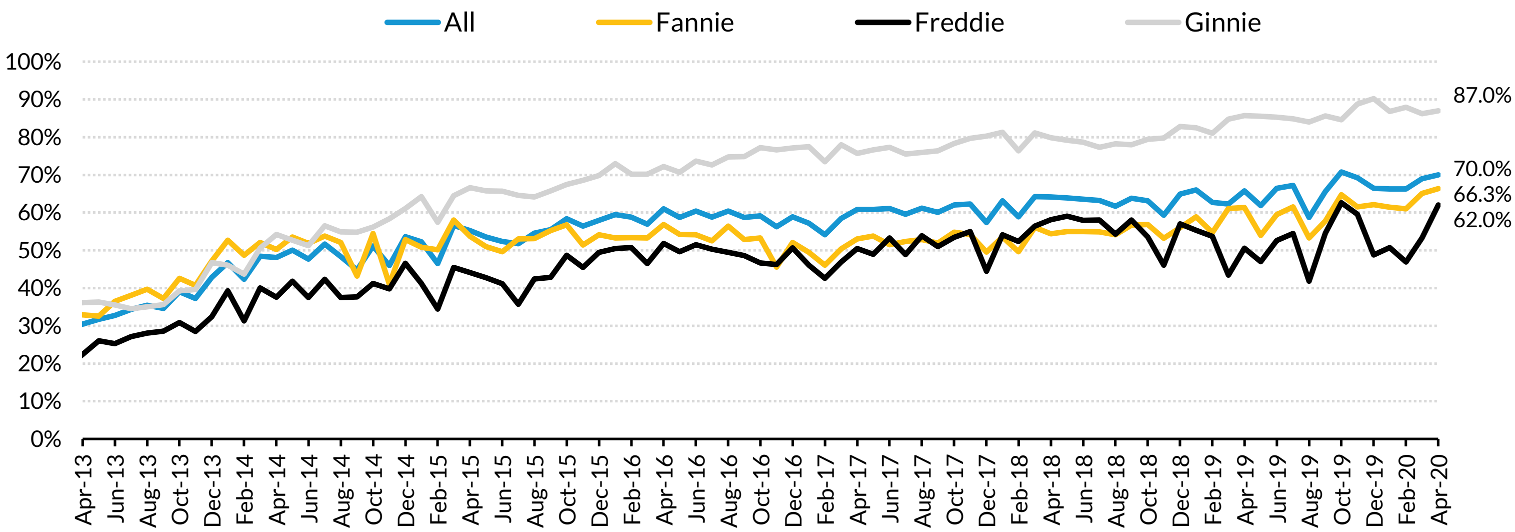
	FICO					
DTI	<640	640–680	680–700	700–750	≥ 750	All
< 35	2.8%	4.7%	2.7%	8.0%	10.9%	29.1%
35 –45	5.0%	8.1%	4.6%	11.9%	11.2%	40.8%
≥ 45	4.5%	7.7%	3.7%	8.1%	6.2%	30.2%
All	12.3%	20.4%	11.1%	28.0%	28.3%	100.0%

Sources: *eMBS and Urban Institute.*

Nonbank Originators

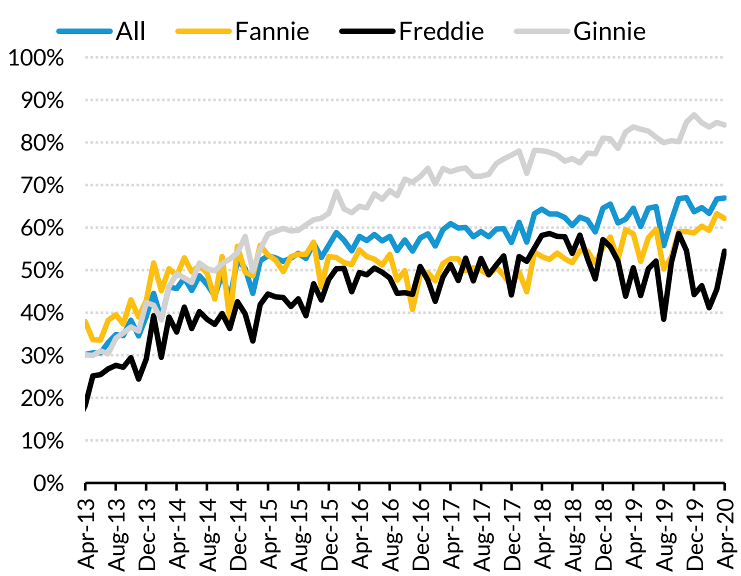
The nonbank origination share has been rising steadily for all three agencies since 2013. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at 87.0 percent in April 2020, down from a record high of 90.2 percent at the end of 2019. Freddie's nonbank share grew to 62.0 percent, while Fannie's nonbank rose more gradually to 66.3 percent in April (note that these numbers can be volatile on a month-to-month basis). Ginnie Mae, Fannie Mae and Freddie Mac all have higher nonbank origination shares for refi activity than for purchase activity. Freddie Mac's nonbank share is the lowest among the three agencies for both purchase and refinance loans.

Nonbank Origination Share: All Loans

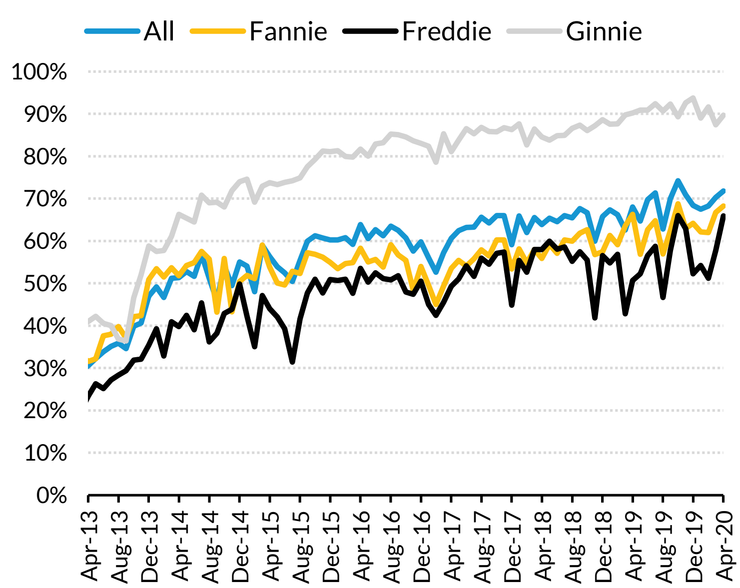


Sources: *eMBS and Urban Institute*
Note: *Data as of April 2020.*

Nonbank Origination Share: Purchase Loans



Nonbank Origination Share: Refinance Loans

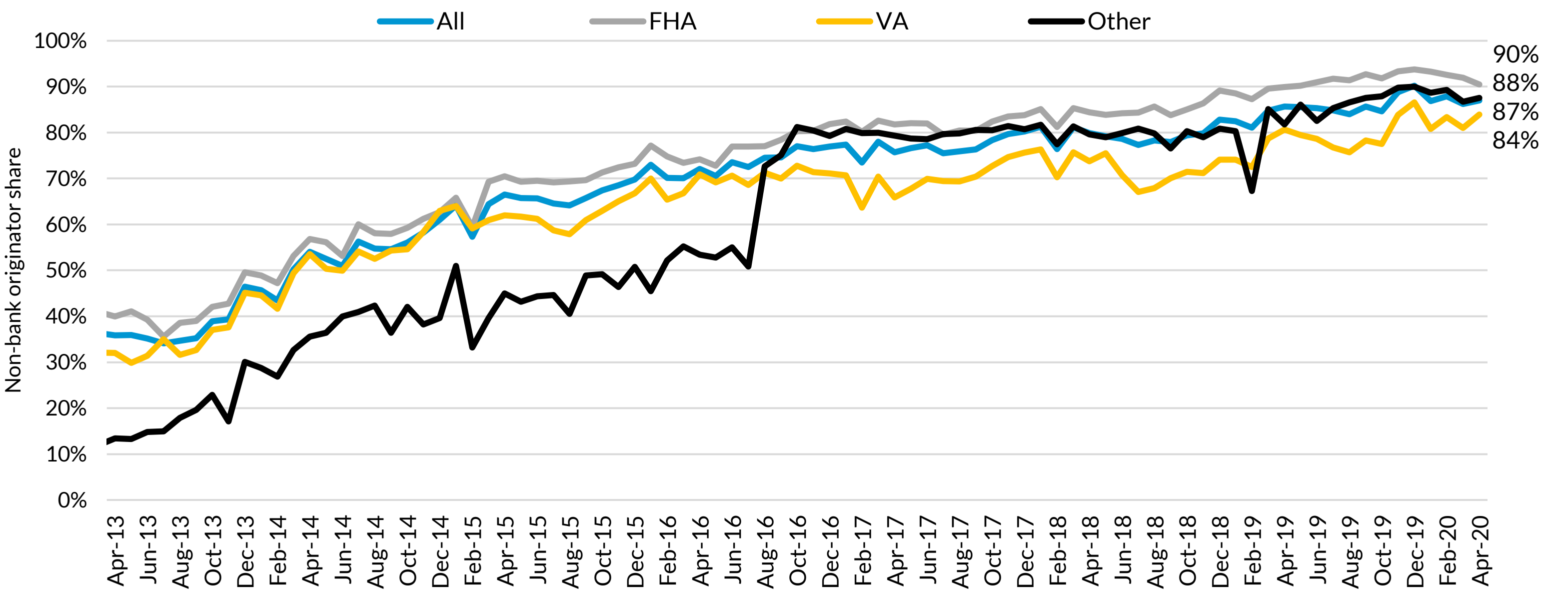


Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of April 2020.*

Ginnie Mae Nonbank Originators

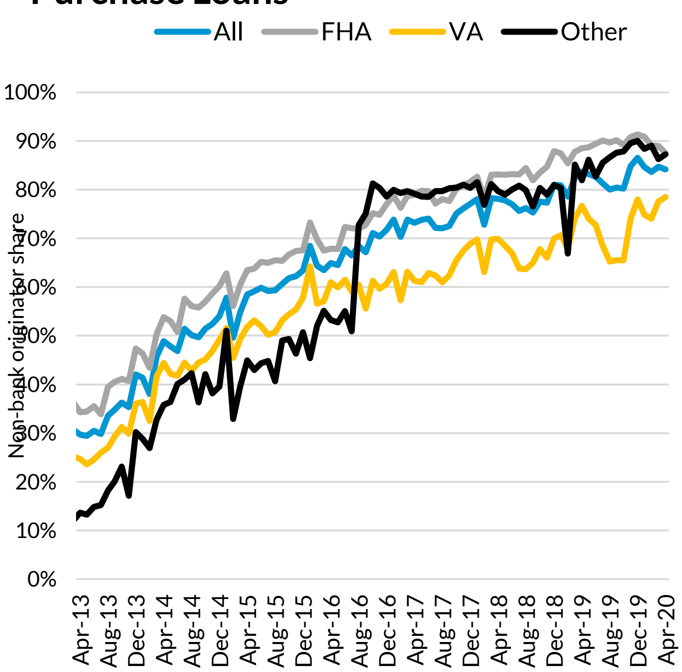
In April 2020, Ginnie Mae's nonbank share grew slightly to 87.0 percent. The nonbank originator share for FHA fell slightly to 90.5 percent in April, compared to 91.9 percent previous month. The nonbank originator share for VA was higher than last month at 84 percent and the nonbank originator share for other loans, which can fluctuate quite a bit month to month, fell to 88 percent.

Ginnie Mae Nonbank Originator Share: All Loans

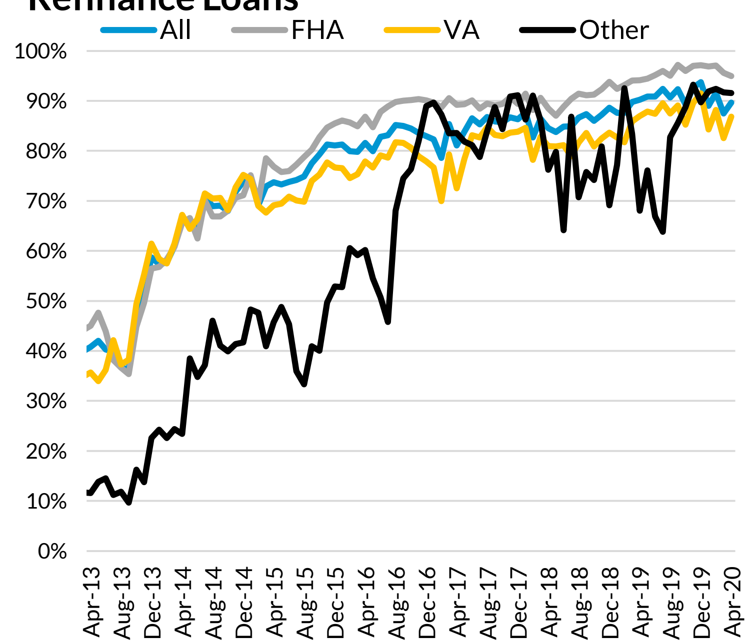


Sources: *eMBS and Urban Institute*
Note: *Data as of April 2020.*

Ginnie Mae Nonbank Share: Purchase Loans



Ginnie Mae Nonbank Share: Refinance Loans

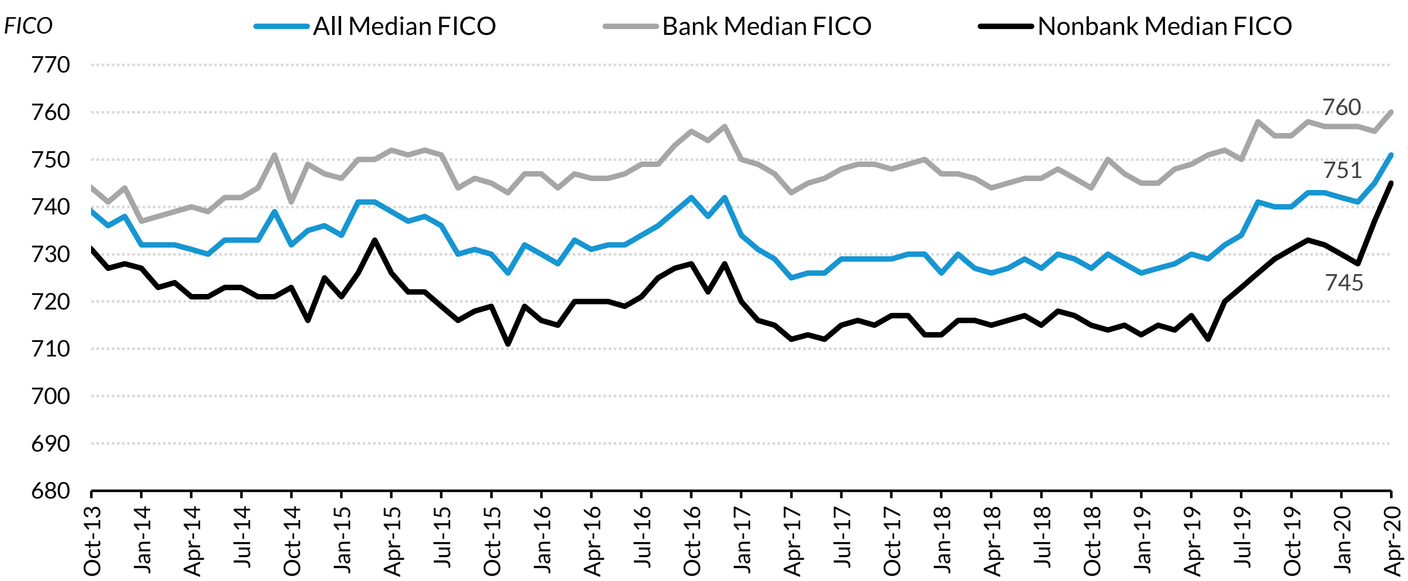


Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of April 2020.*

Nonbank Credit Box

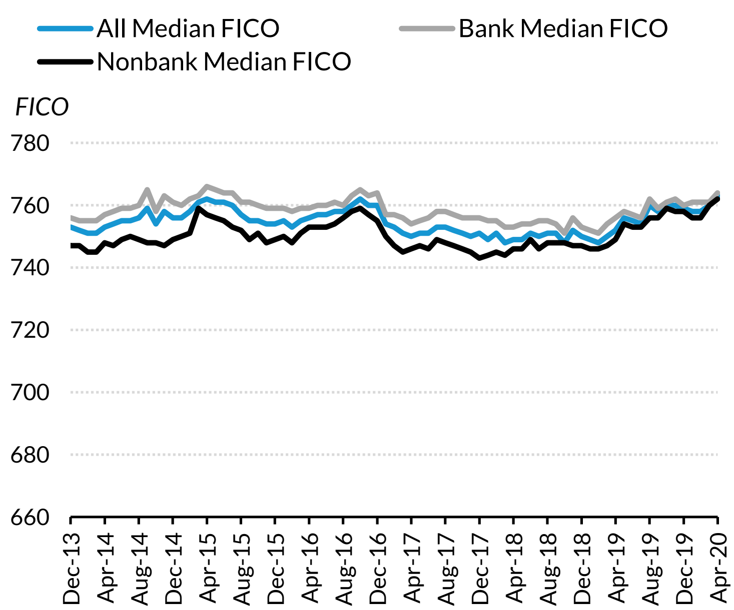
Nonbank originators have played a key role in opening up access to credit. FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, where the differentials between banks and non-banks are small, FICO scores for both have increased since early 2014. The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

Agency FICO: Bank vs. Nonbank



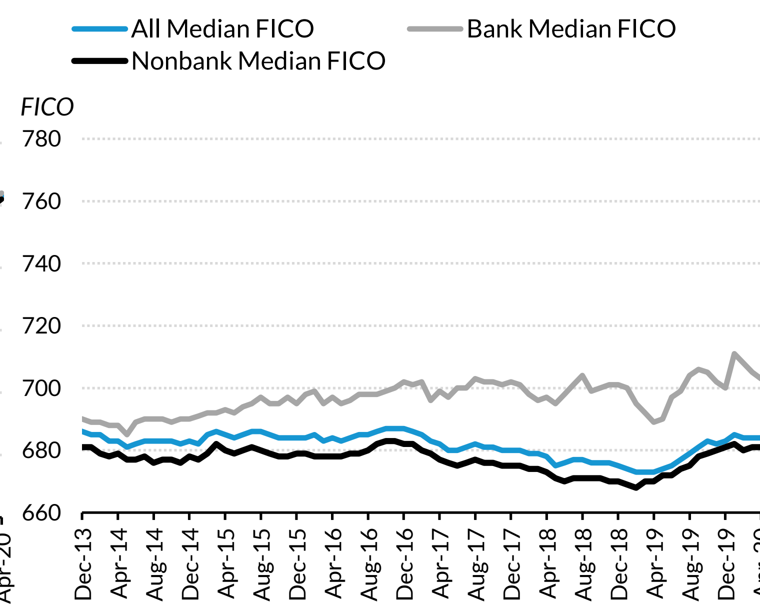
Sources: *eMBS and Urban Institute.* **Note:** *Data as of April 2020.*

GSE FICO: Bank vs. Nonbank



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

Ginnie Mae FICO: Bank vs. Nonbank

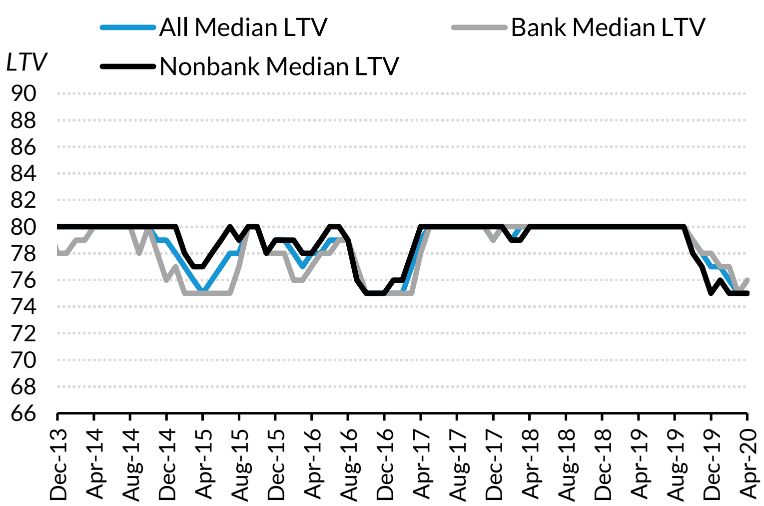


Sources: *eMBS and Urban Institute.*
Note: *Data as of April 2020.*

Nonbank Credit Box

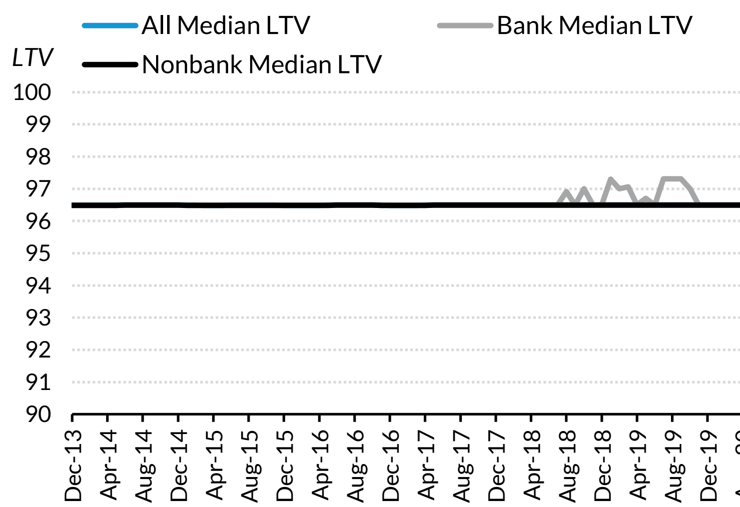
The median LTVs for nonbank and bank originations are comparable, while the median DTI for nonbank loans is higher than for bank loans, indicating that nonbanks are more accommodating in both this and the FICO dimension. Between early 2017 and early 2019, there was a substantial increase in DTIs, which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



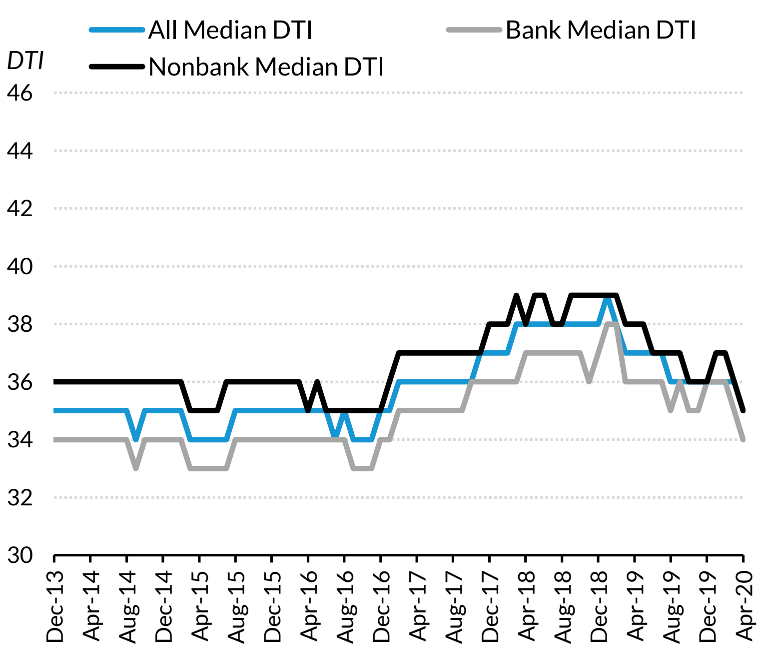
Sources: *eMBS and Urban Institute.* **Note:** *Data as of April 2020.*

Ginnie Mae LTV: Bank vs. Nonbank



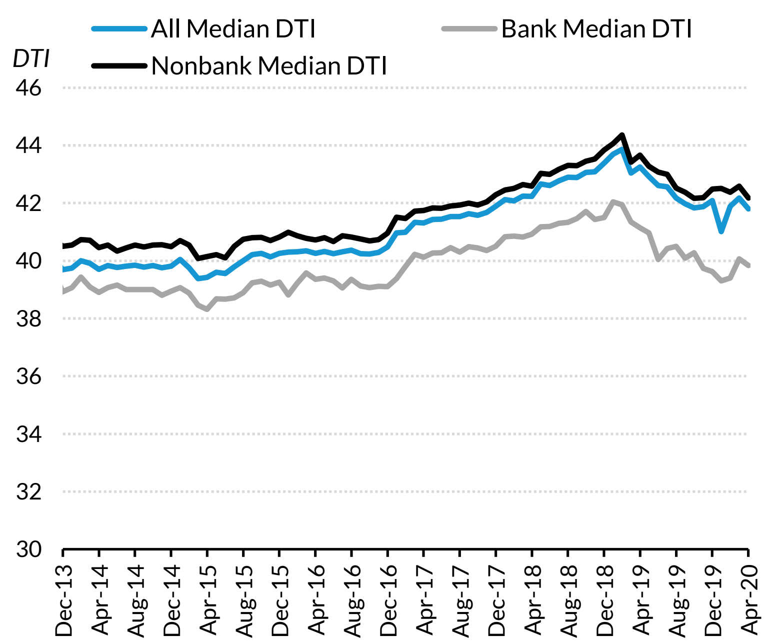
Sources: *eMBS and Urban Institute.* **Note:** *Data as of April 2020.*

GSE DTI: Bank vs. Nonbank



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

Ginnie Mae DTI: Bank vs. Nonbank

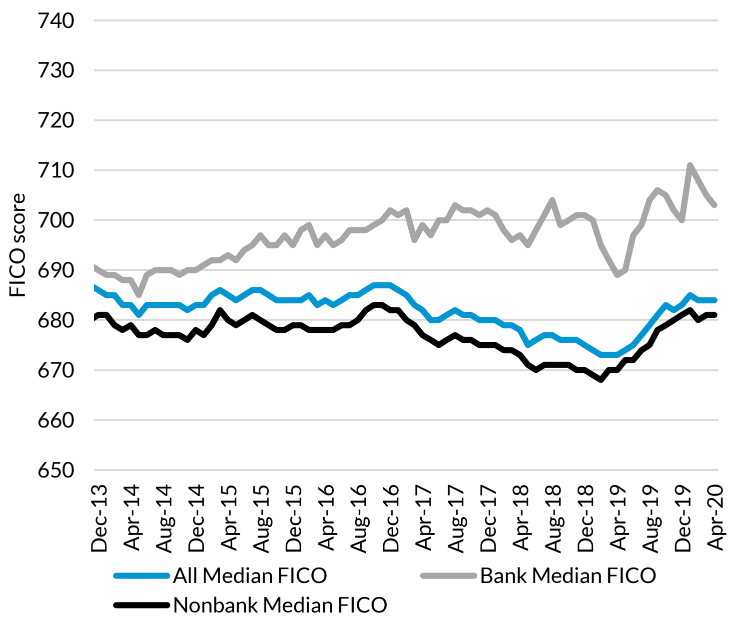


Sources: *eMBS and Urban Institute.* **Note:** *Data as of April 2020.*

Ginnie Mae Nonbank Originators: Credit Box

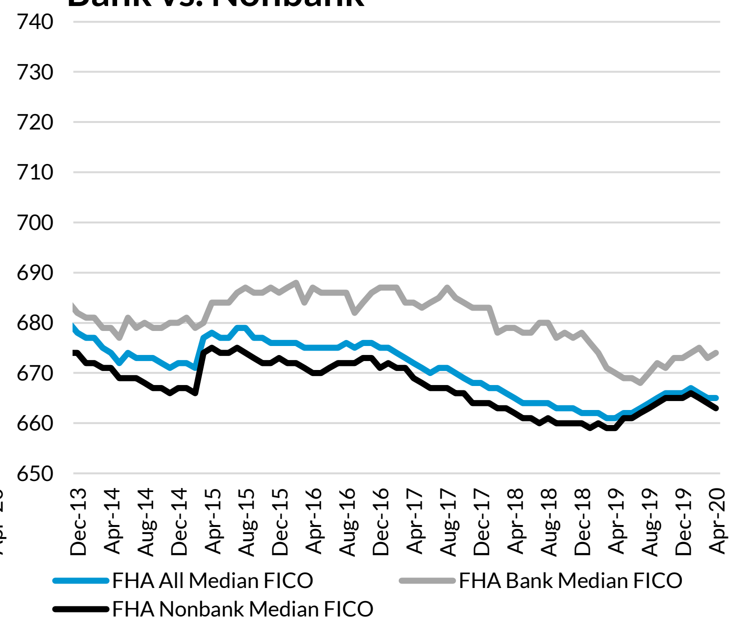
The median FICO score for Ginnie Mae bank originators fell in April 2020; however bank FICOs remain 22 points above non-banks. The gap between banks and non-banks is very apparent for FHA and VA lending.

Ginnie Mae FICO Scores: Bank vs. Nonbank



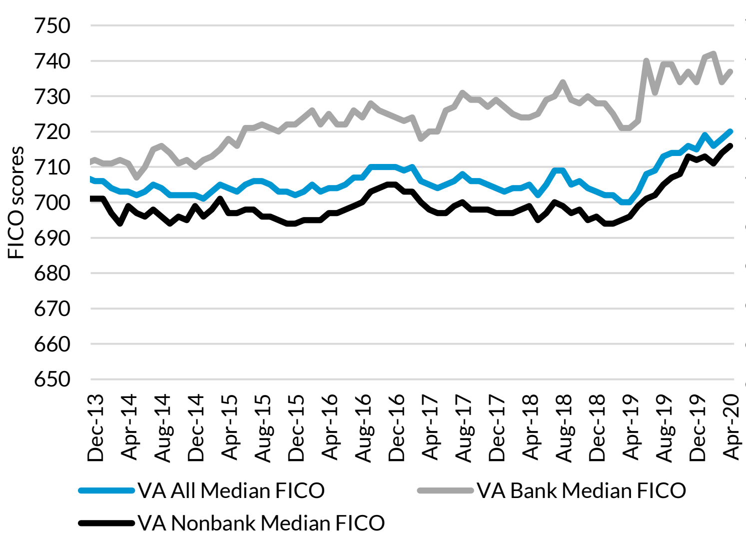
Sources: *eMBS and Urban Institute* **Note:** *Data as of April 2020.*

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



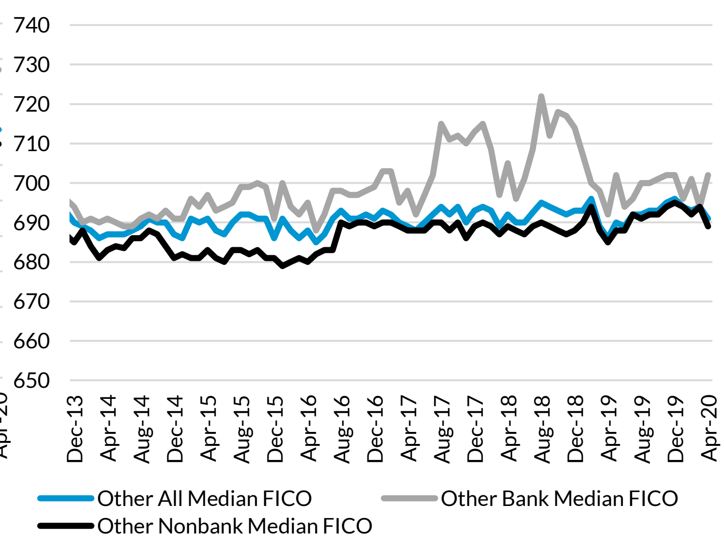
Sources: *eMBS and Urban Institute* **Note:** *Data as of April 2020.*

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



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

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

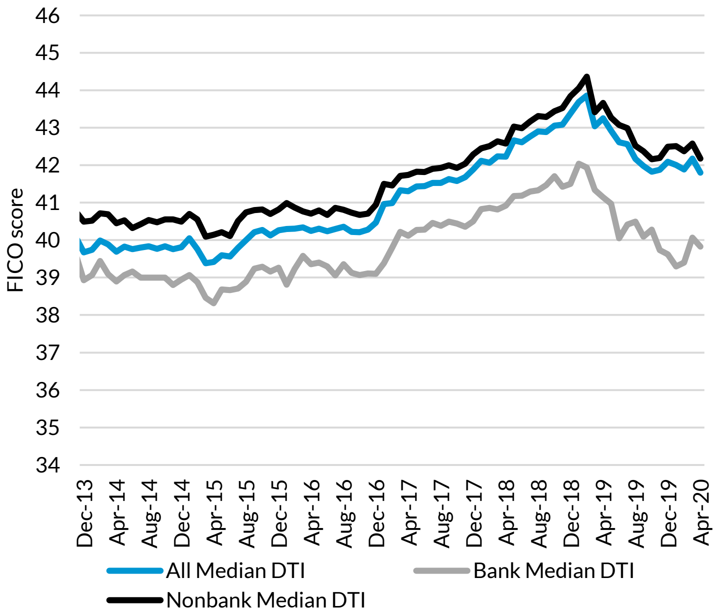


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of April 2020.*

Ginnie Mae Nonbank Originators: Credit Box

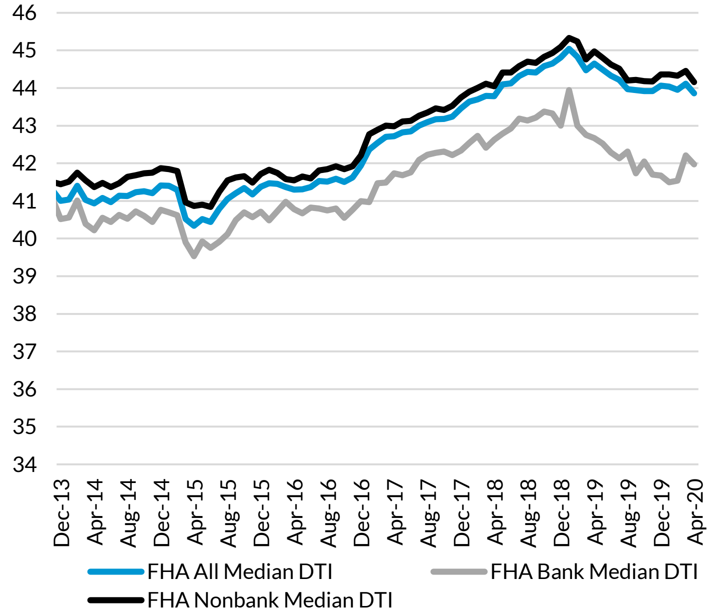
An analysis of borrowers' DTI ratios for bank versus non-bank originators indicates that the former have a lower median DTI. The DTIs for FHA and VA borrowers experienced notable increases during 2017 and 2018 for both banks and nonbank originators, while the Other origination DTIs stayed relatively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



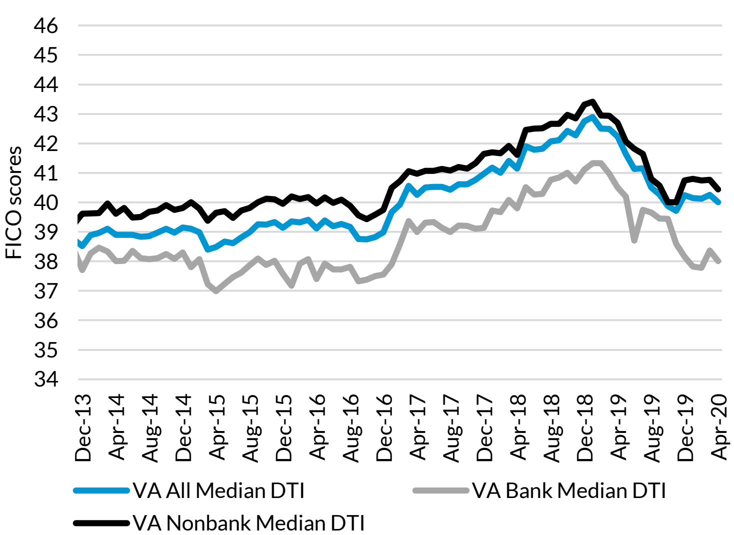
Sources: *eMBS and Urban Institute* **Note:** *Data as of April 2020.*

Ginnie Mae FHA DTI: Bank vs. Nonbank



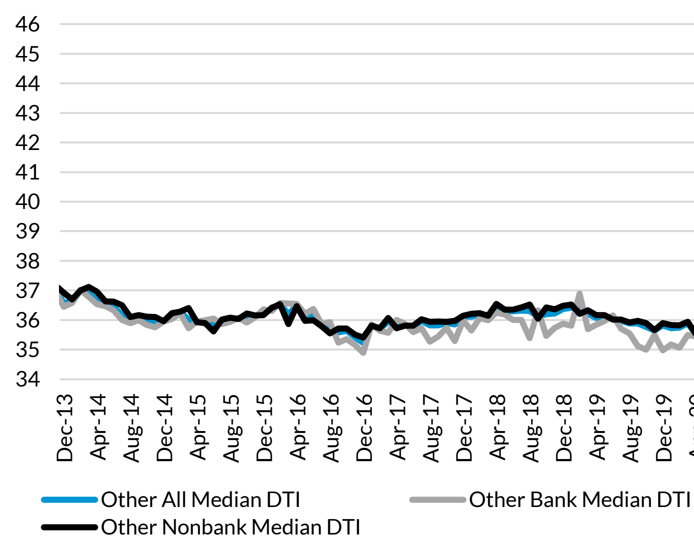
Sources: *eMBS and Urban Institute* **Note:** *Data as of April 2020.*

Ginnie Mae VA DTI: Bank vs. Nonbank



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

Holders of Ginnie Mae MSRs

This table shows 30 largest owners of mortgage servicing rights (MSR) by UPB for Ginnie Mae securitizations. As of April 2020, over half (52.8 percent) of the Ginnie Mae MSRs 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 (MSRs), by UPB

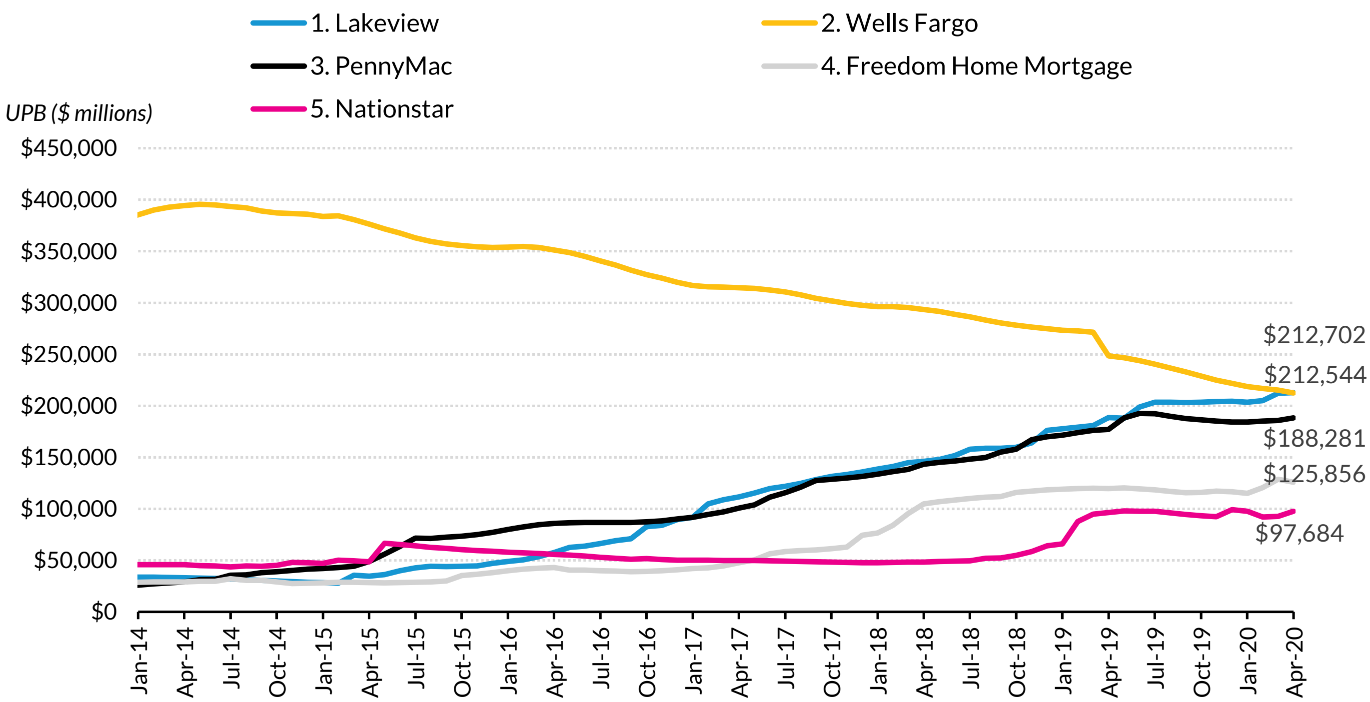
Rank	MSR Holder	UPB ($ millions)	Share	Cumulative Share
1	Lakeview	$212,702	12.5%	12.5%
2	Wells Fargo	$212,544	12.5%	25.1%
3	PennyMac	$188,281	11.1%	36.1%
4	Freedom Home Mortgage	$125,856	7.4%	43.6%
5	Nationstar	$97,684	5.5%	49.0%
6	Quicken Loans	$63,785	3.8%	52.8%
7	US Bank	$57,435	3.4%	56.2%
8	Carrington Mortgage	$47,465	2.8%	59.0%
9	Newrez	$47,363	2.8%	61.8%
10	USAA Federal Savings Bank	$39,426	2.3%	64.1%
11	Truist Bank	$32,427	1.9%	66.0%
12	Caliber Home Loans	$32,347	1.9%	67.9%
13	Navy Federal Credit Union	$29,234	1.7%	69.6%
14	Amerihome Mortgage	$25,491	1.5%	71.1%
15	The Money Source	$21,362	1.3%	72.4%
16	JP Morgan Chase	$20,106	1.2%	73.6%
17	Home Point Financial Corporation	$20,025	1.2%	74.7%
18	Midfirst Bank	$19,762	1.2%	75.9%
19	M&T Bank	$17,747	1.0%	77.0%
20	Roundpoint	$16,554	1.0%	77.9%
21	Loan Depot	$16,383	1.0%	78.9%
22	Guild Mortgage	$16,070	0.9%	79.8%
23	PHH Mortgage	$14,437	0.9%	80.7%
24	Citizens Bank	$13,407	0.8%	81.5%
25	Flagstar Bank	$12,459	0.7%	82.2%
26	Pingora	$11,951	0.7%	82.9%
27	Planet Home Lending	$11,411	0.7%	83.6%
28	Fifth Third Bank	$10,293	0.6%	84.2%
29	Bank of America	$10,250	0.6%	84.8%
30	New American	$9,907	0.6%	85.4%

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

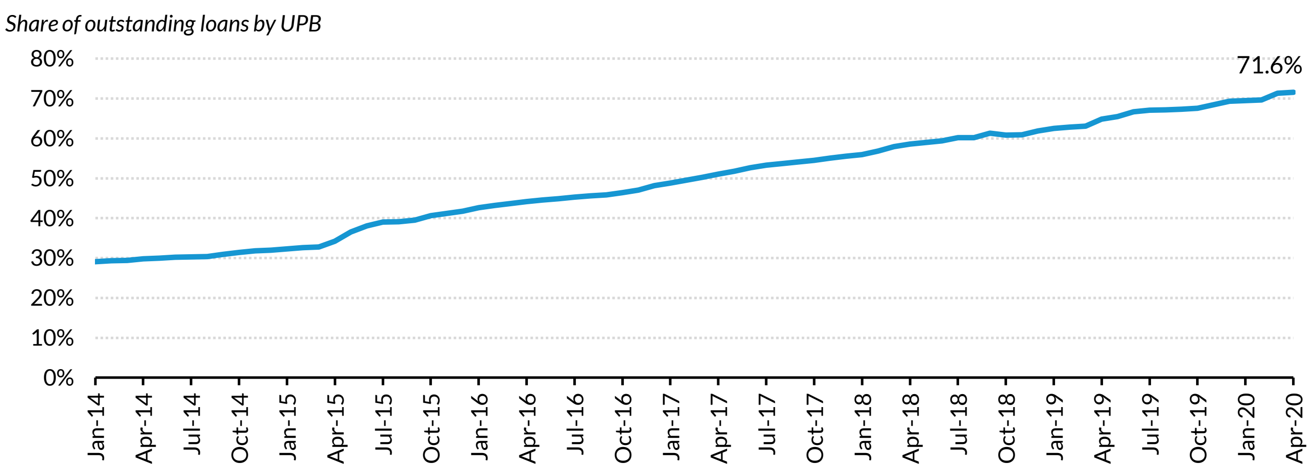
Holders of Ginnie Mae MSRs

The composition of the largest owners of Ginnie Mae MSR has evolved quite a bit over time. In December 2013, Wells Fargo and JP Morgan Chase were the two largest owners of Ginnie Mae MSRs, holding $375 billion and $139 billion in servicing UPB respectively. In April 2020, Wells Fargo's holdings of MSRs fell to $212.5 billion, putting it below the $212.7 billion held by Lakeview (a nonbank). PennyMac, Freedom Home Mortgage, and Nationstar (all nonbanks) make up the remainder of the top five largest holders of MSRs, owning $188 billion, $126 billion, and $98 billion respectively as of April 2020. Nonbanks collectively owned servicing rights for 71.6 percent of all outstanding unpaid principal balance guaranteed by Ginnie Mae in April 2020. In December 2013, the nonbank share was much smaller at 27.7 percent.

Top 5 MSR Holders: Outstanding Ginnie Mae Loans by UPB



Share of Ginnie Mae MSRs held by Nonbanks

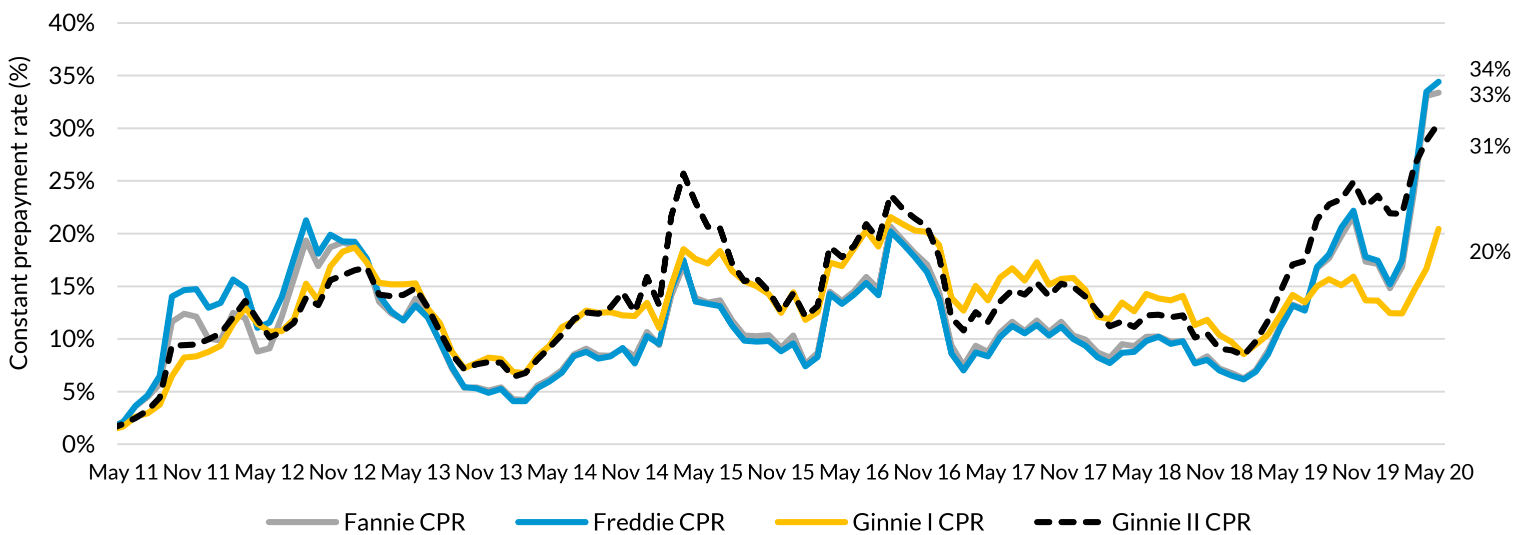


Sources: *eMBS and Urban Institute.* **Note:** *Data as of April 2020.*

Prepayments

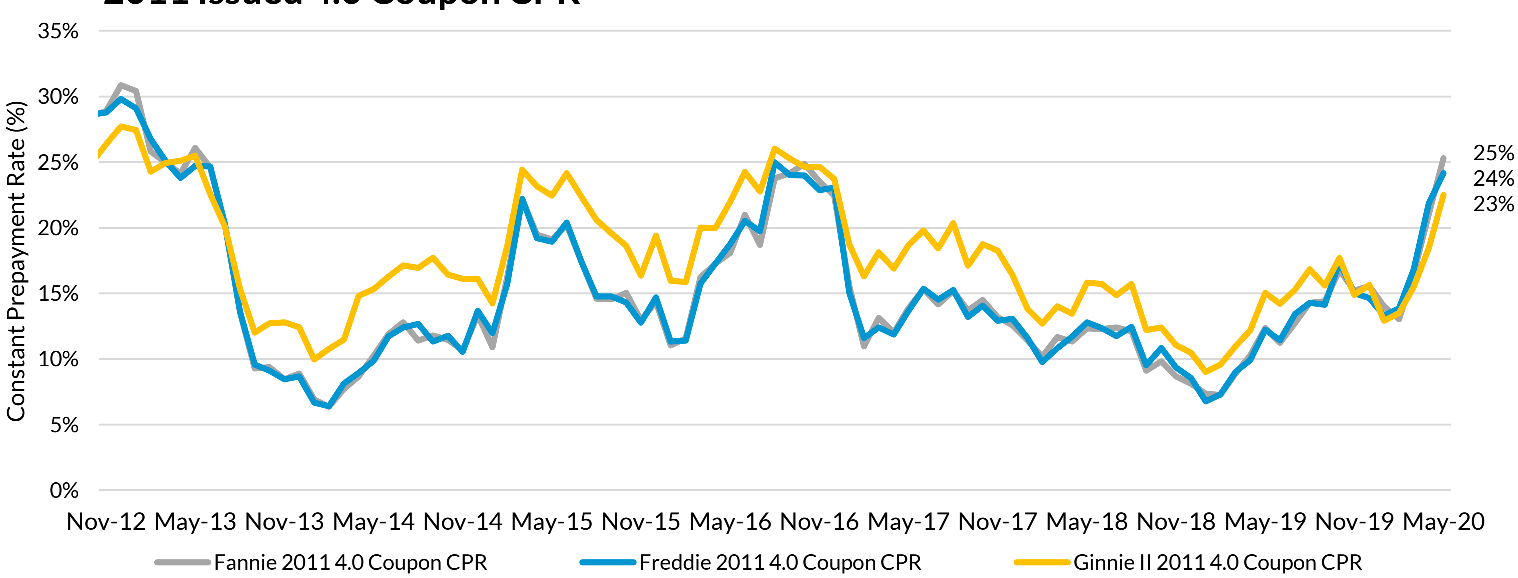
While prepayment speeds on all securities have risen since early 2019, the speed increase has been especially dramatic in early 2020. Note that aggregate Ginnie II speeds were lower than on GSE securities for the first time since early-2013. This reflected the sharp drop in interest rates as a result of the pandemic; GSE borrowers were more responsive to refinancing opportunities than their Ginnie Mae counterparts. 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 May 2020.*

2011 Issued 4.0 Coupon CPR

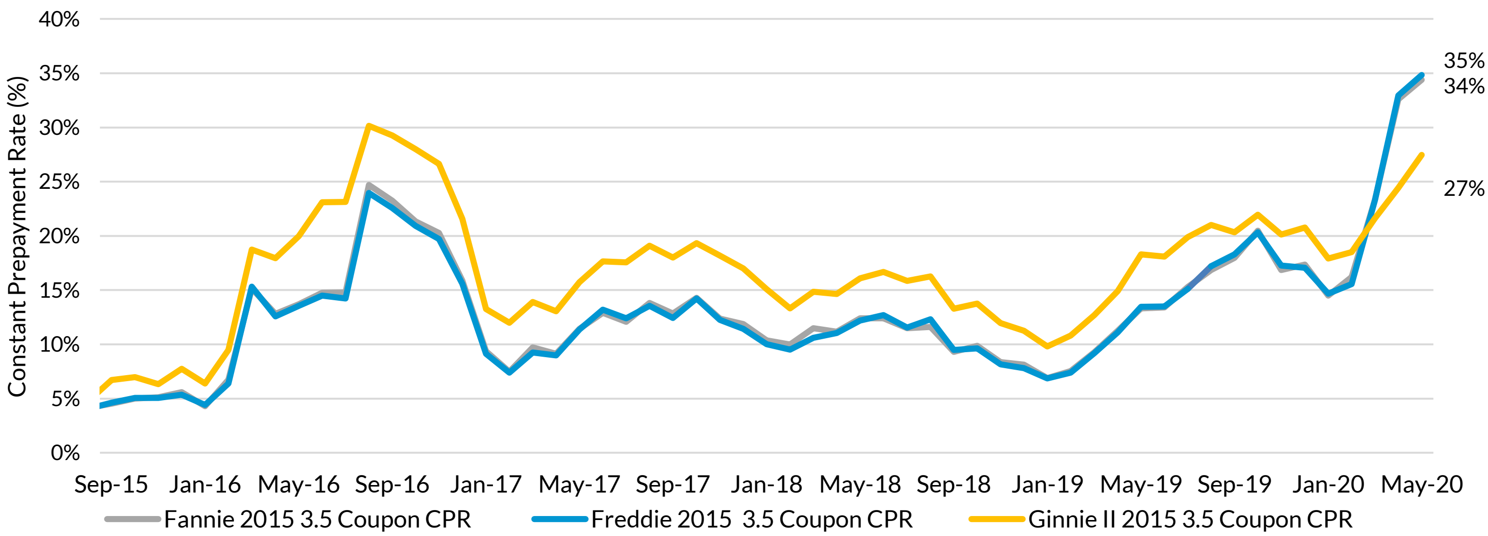


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of May 2020.*

Prepayments

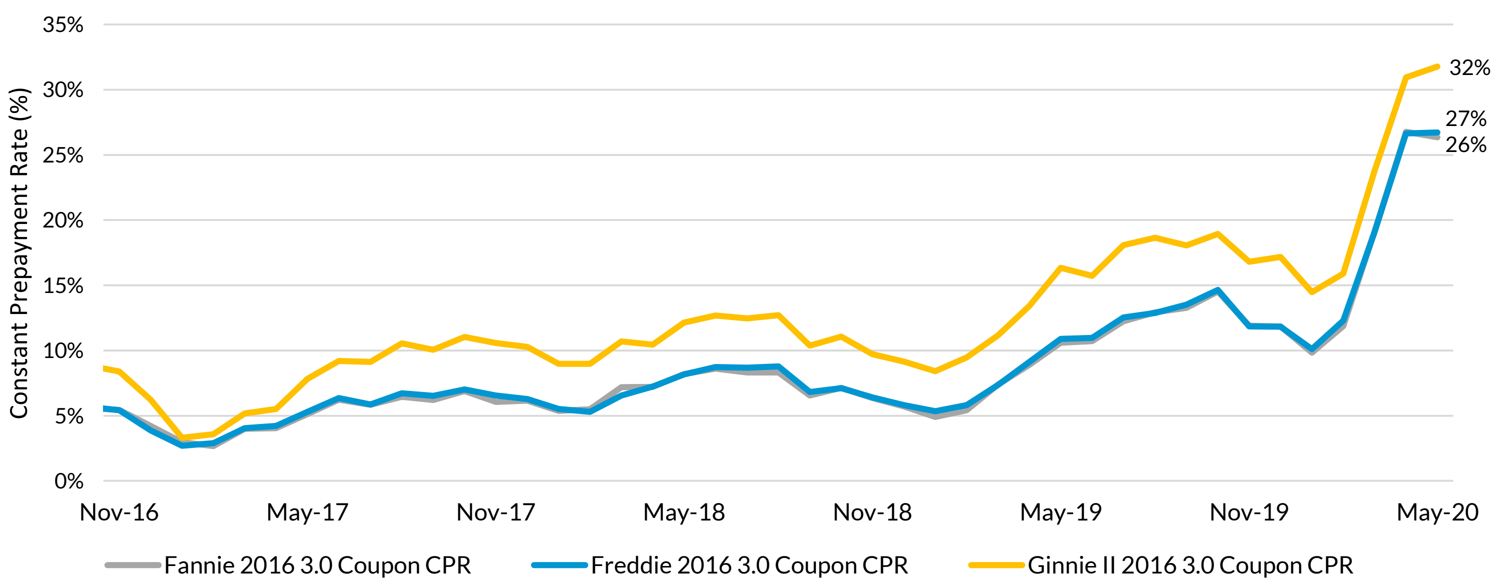
Speeds on the 2015 3.5s and the 2016 3.0s, the largest coupon cohorts of those vintage years, have been increasing since early 2019. The increase has been especially dramatic for GSE securities in early 2020 due to a sharp drop in rates. Ginnie Mae securities have historically prepaid faster than their conventional counterparts. However in April and May 2020, the 2015 Ginnie 3.5s were slower than their conventional counterparts for the first time in years. The faster historical speeds on the GinnieMae cohorts reflect the fact that 2015 and 2016 Ginnie originations consist of a large component of VA loans, which prepay faster than either FHA or GSE loans. The FHA streamlined programs are likely another contributor to the historically faster speeds.

2015 Issued 3.5 Coupon CPR



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

2016 Issued 3.0 Coupon CPR

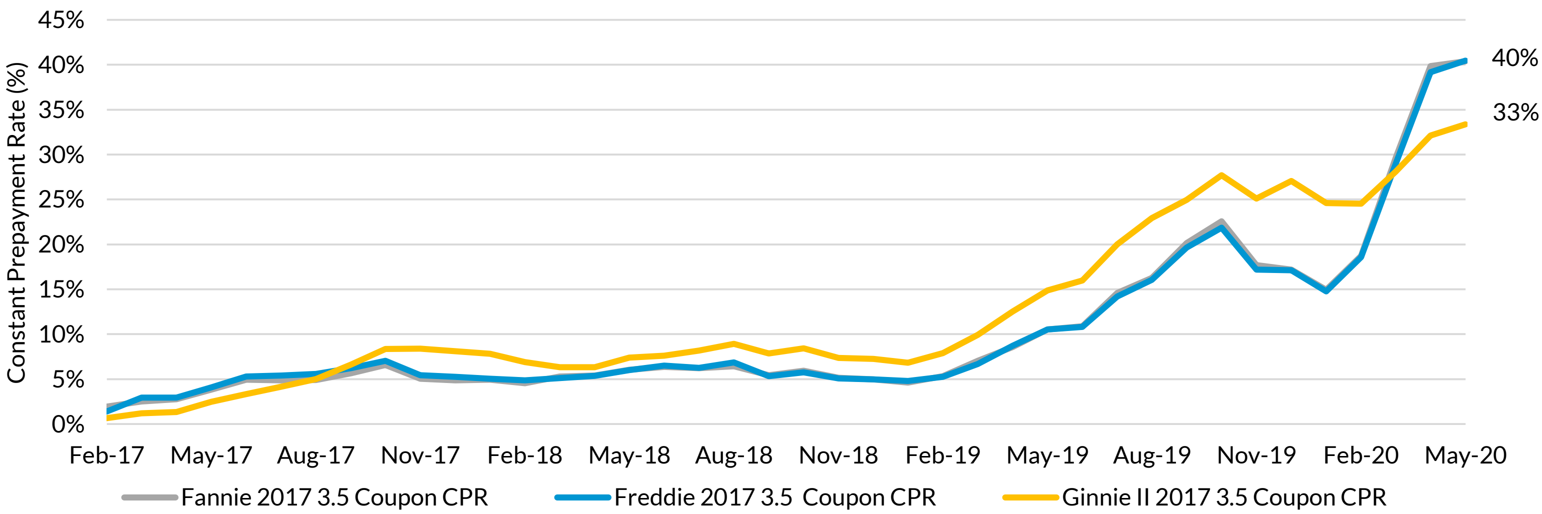


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of May 2020.*

Prepayments

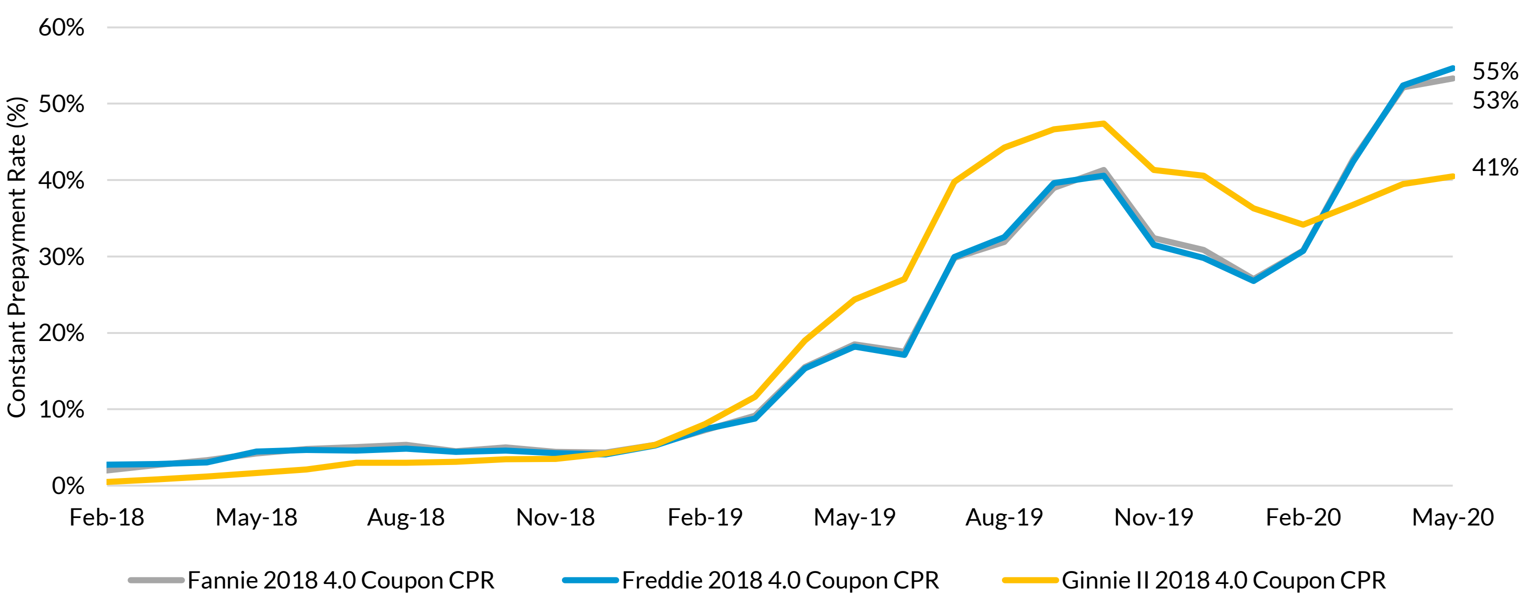
Ginnie Mae securities season more slowly than their conventional counterparts; they generally have lower prepayment in the early months but are more interest rate responsive thereafter. The charts below show the behavior of the 2017-issued 3.5s and the 2018-issued 4.0s, the largest coupon cohorts of 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 May 2020.*

2018 Issued 4.0 Coupon CPR

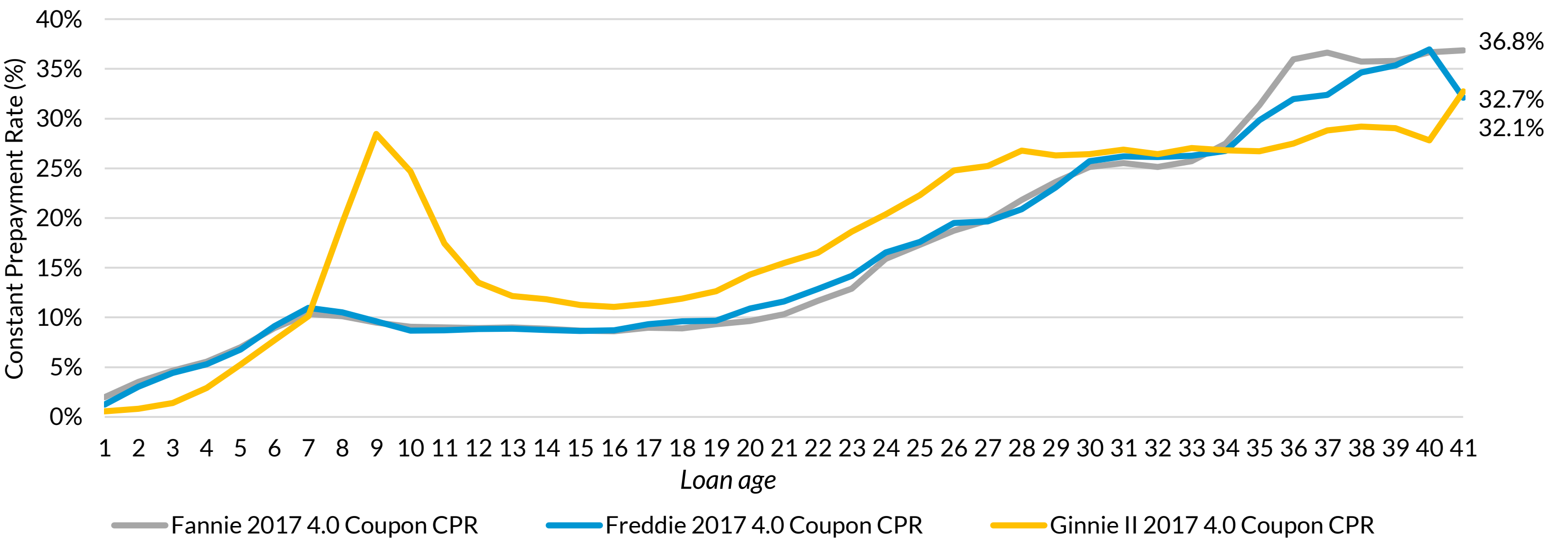


Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of May 2020.*

Prepayments

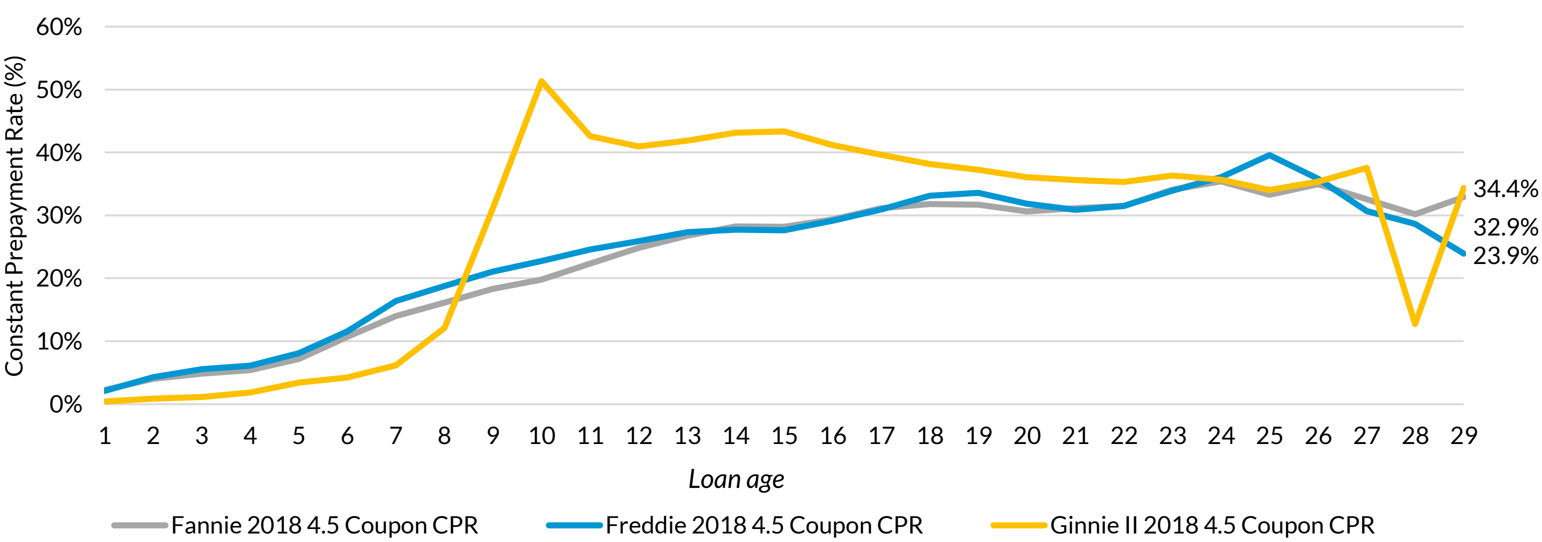
The charts below show the prepayment speeds by loan age for 2017 Ginnie II 4.0s and 2018 Ginnie II 4.5s—the cohorts 50 basis points above the largest coupon cohort for those years. Prepayment speeds on the 2017 Ginnie II 4.0s jumped up sharply at the 7-9 month loan age, reflecting abuse of the VA Streamlined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

2017 Issued 4.0 Coupon CPR, by Loan Age



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

2018 Issued 4.5 Coupon CPR, by Loan Age

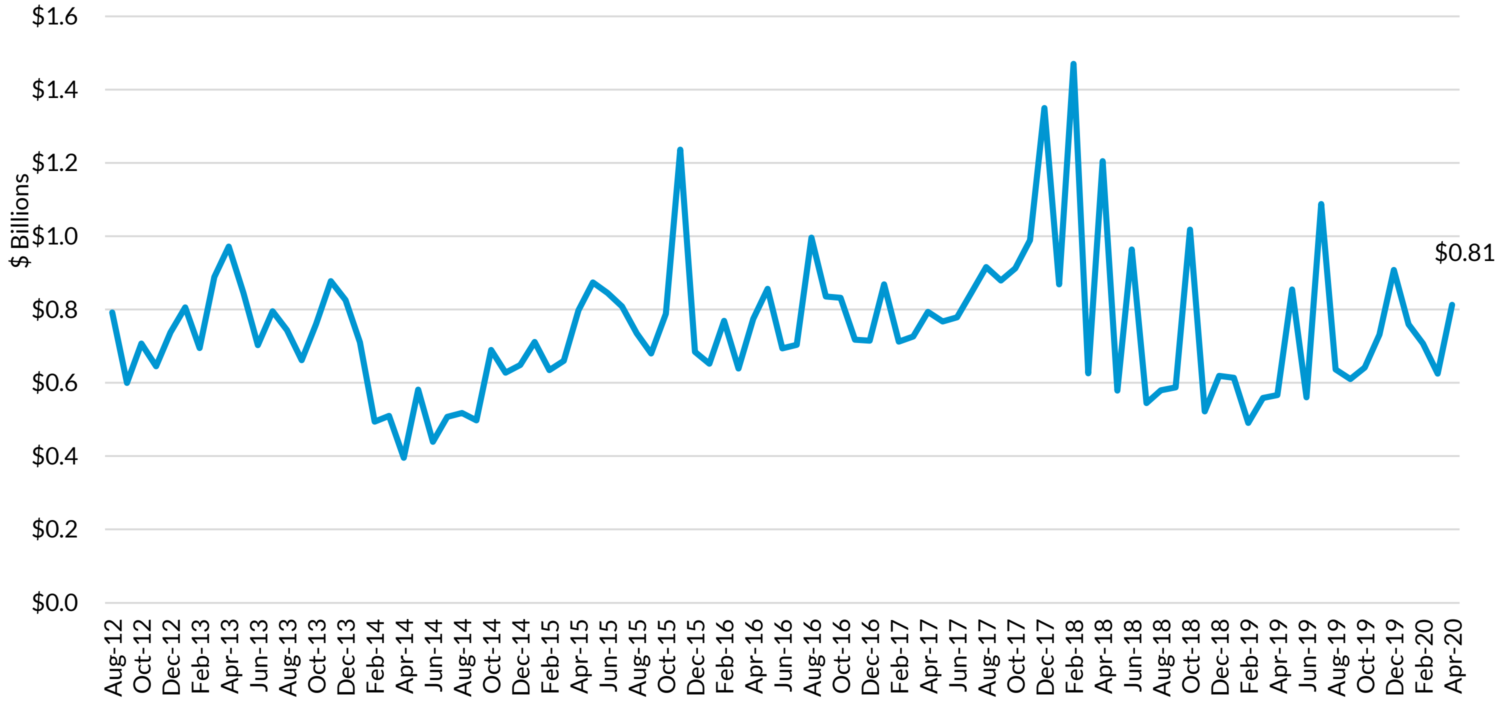


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of May 2020..*

Other Ginnie Mae Programs
Reverse Mortgage Volumes

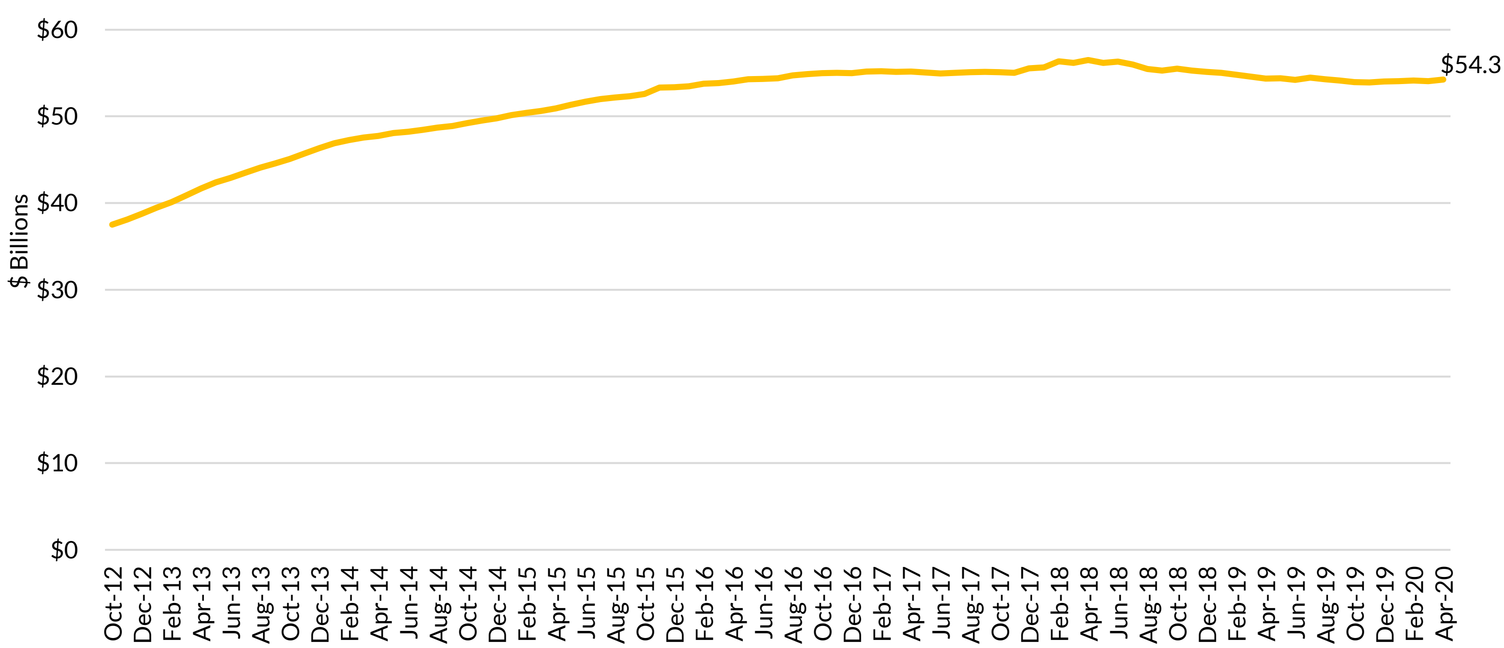
Ginnie Mae reverse mortgage issuance has been volatile in recent months; after falling consecutively in August and September 2019, volume rose to $0.91 billion in December 2019 but fell in the first three months of 2020. However issuance rebounded in April 2020, growing to $0.81 billion. Issuance has been generally declining since early 2018 largely due to the implementation of the new, lower principal limit factors. In April 2020, outstanding reverse mortgage securities totaled $54.1 billion, lower compared to recent past, reflecting a lower volume of new issuances relative to paydowns.

HMBS Issuance Volume



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

HMBS Outstanding

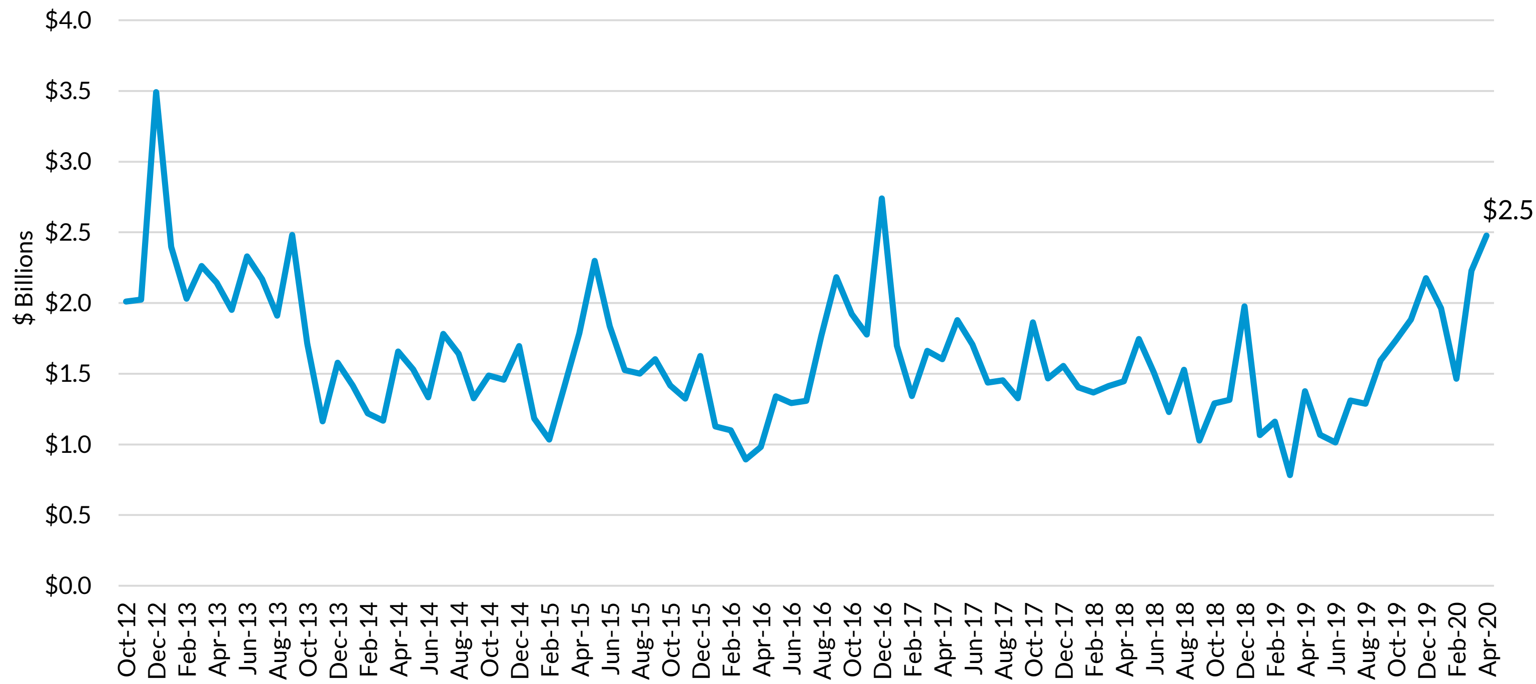


Sources: *Ginnie Mae and Urban Institute.* ***Note:*** *Data as of April 2020.*

Other Ginnie Mae Programs Multifamily Market

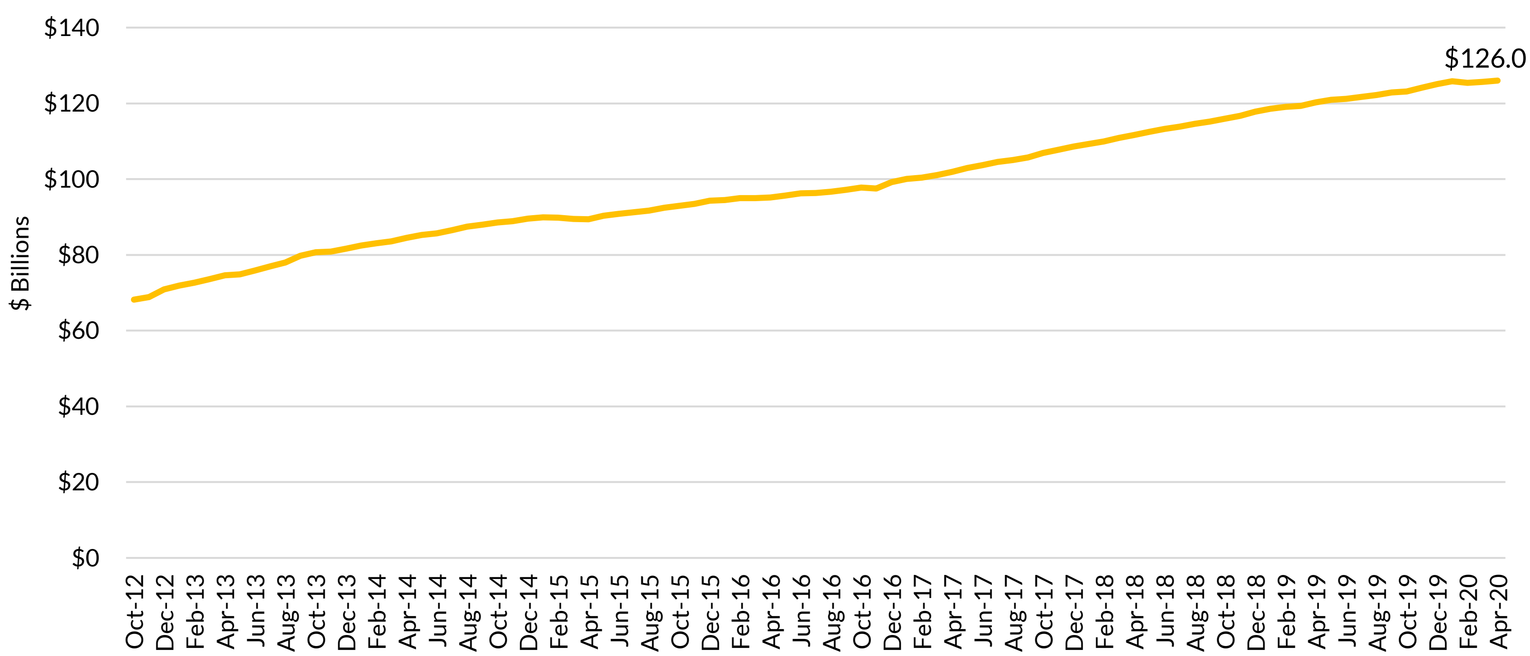
Ginnie Mae multifamily issuance volume in April 2020 totaled $2.5 billion, a second consecutive increase from the prior month. Outstanding multifamily securities totaled $126.0 billion as of the fourth month of 2020.

Ginnie Mae Multifamily MBS Issuance



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

Ginnie Mae Multifamily MBS Outstanding

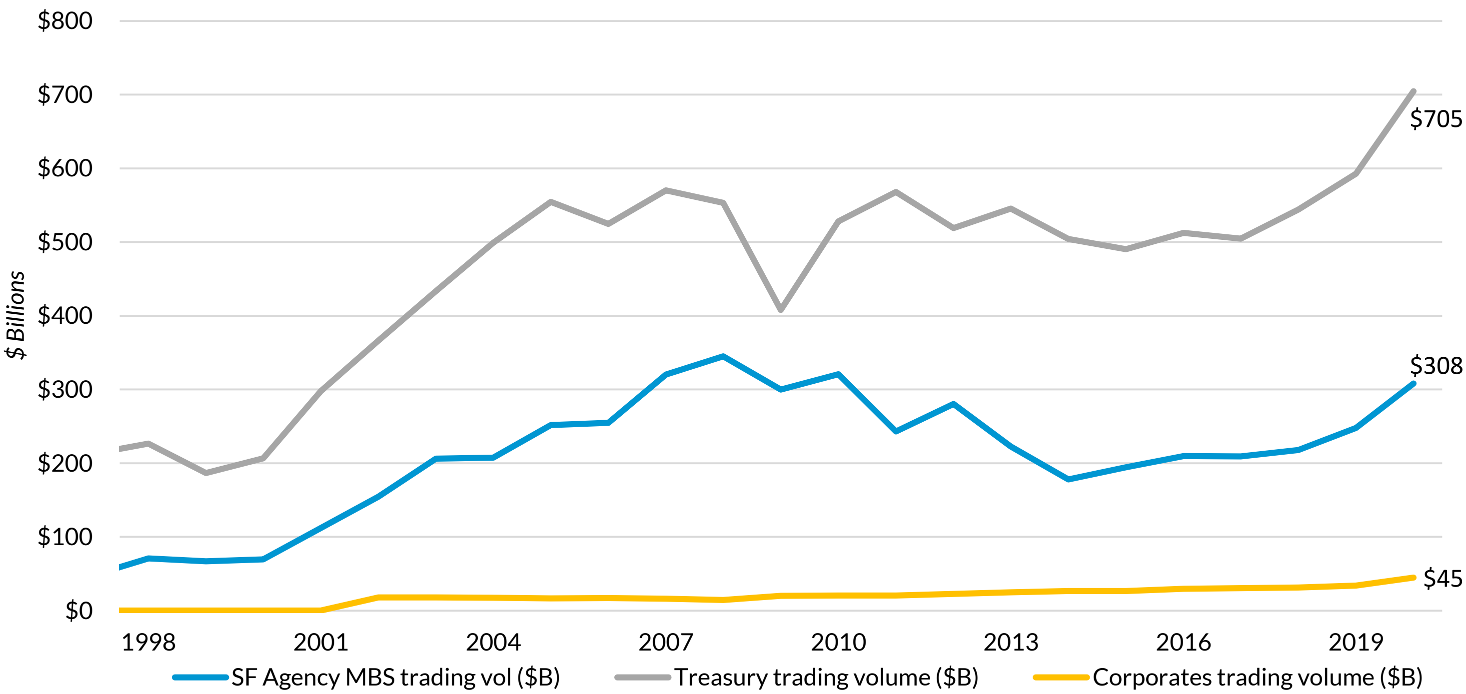


Sources: *Ginnie Mae and Urban Institute.* ***Note****: Data as of April 2020.*

Market Conditions

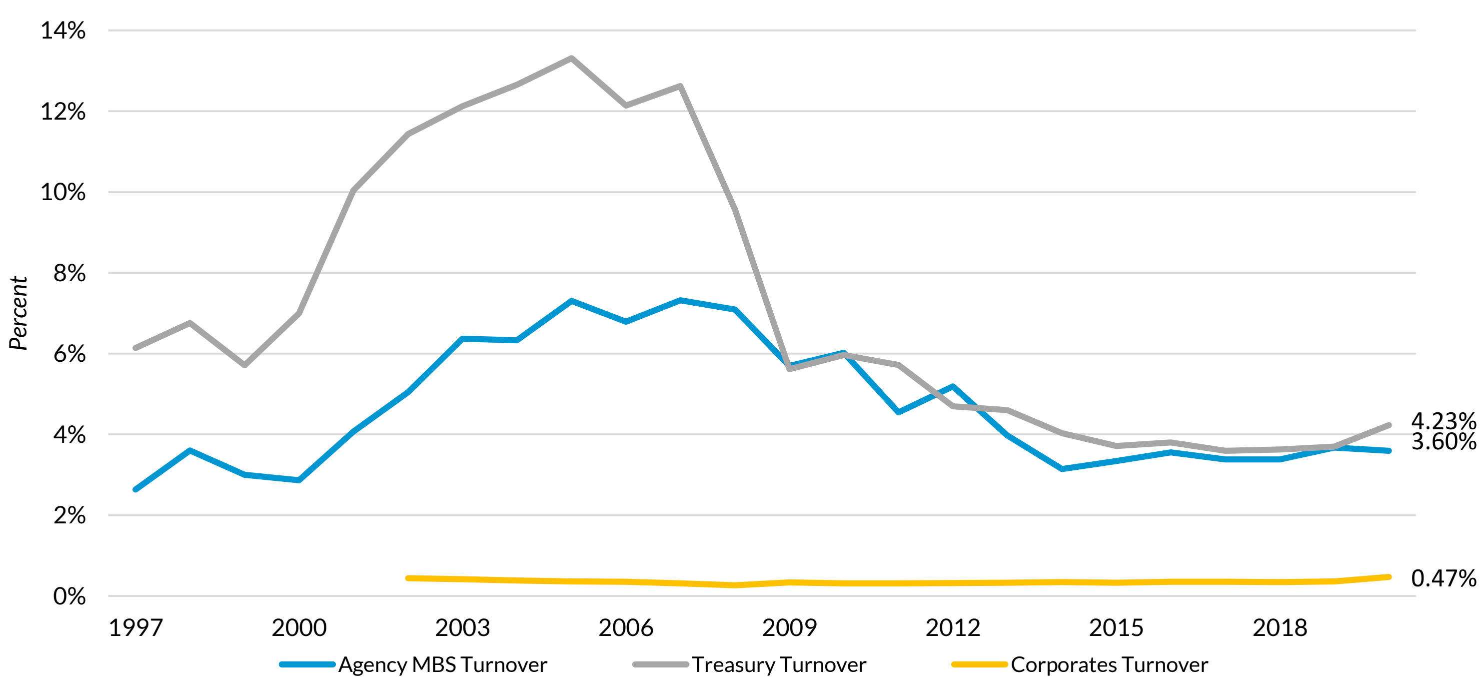
Agency MBS trading volume is $308 billion/day on average for the first four months of 2020, more robust than in the 2014-2019 period, but still below the pre-crisis peak of $345 billion in 2008. Average daily trading volume for Treasuries now exceed the pre-crisis peak. Agency MBS turnover in 2020 YTD (through April) has also been higher than the 2014-2019 period; in 2020, average daily MBS turnover was 4.23 percent, above the 2019 average of 3.67 percent. Note that agency MBS turnover in the first four 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 April 2020.*

Average Daily Turnover by Sector

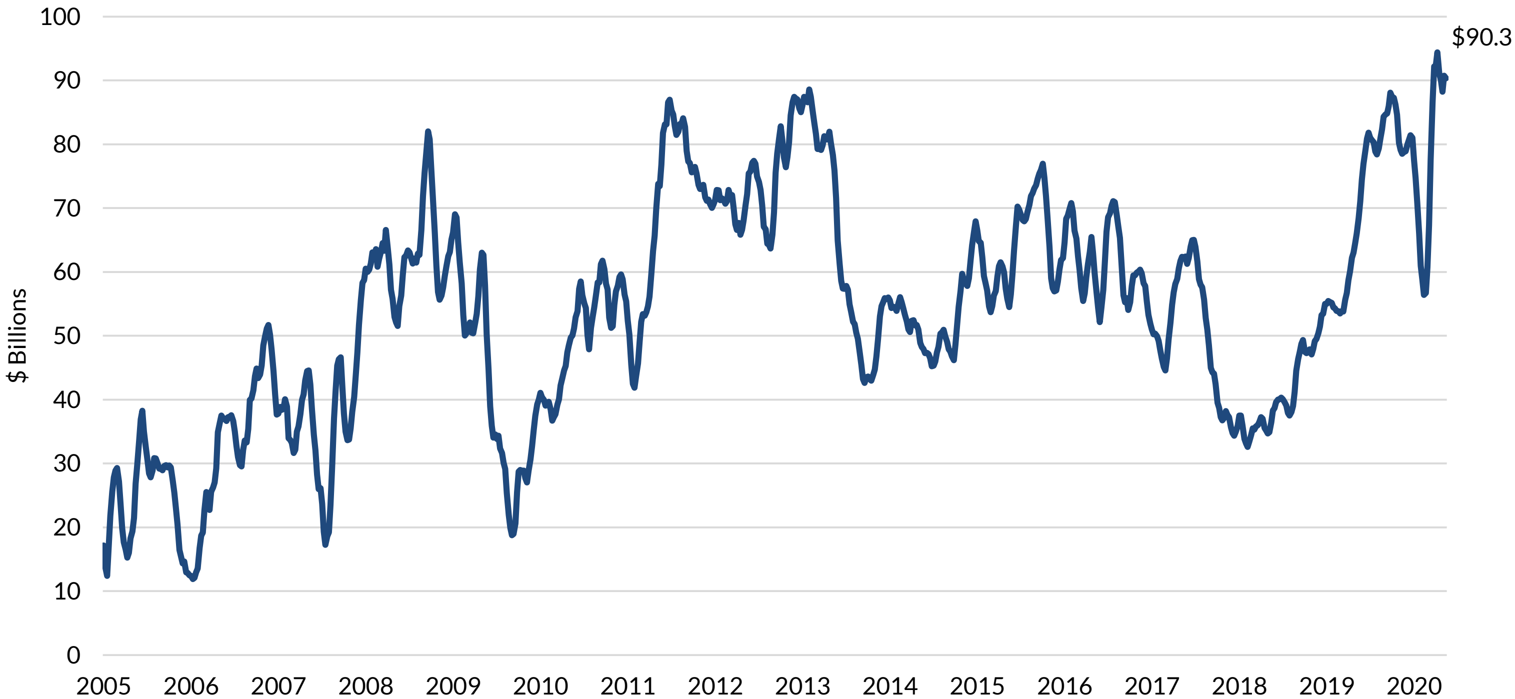


Sources: *SIFMA and Urban Institute.* ***Note:*** *Data as of April 2020.*

Market Conditions

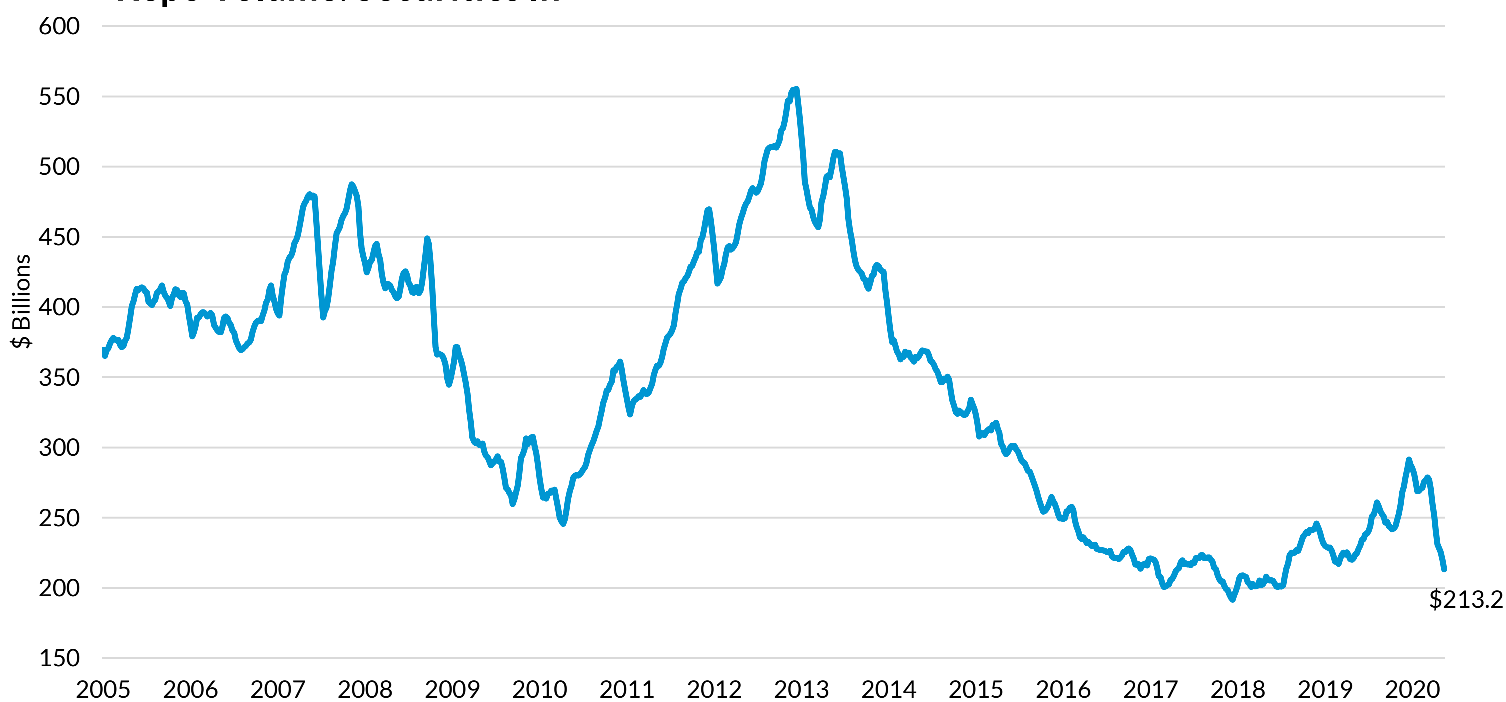
Dealer net positions are near their post-crisis high. By contrast, dealer gross positions have fallen dramatically. The volume of repurchase activity is up from the near 13-year low in 2017. The large decline through time reflects banks cutting back on lower margin businesses.

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 April 2020.*

Repo Volume: Securities In

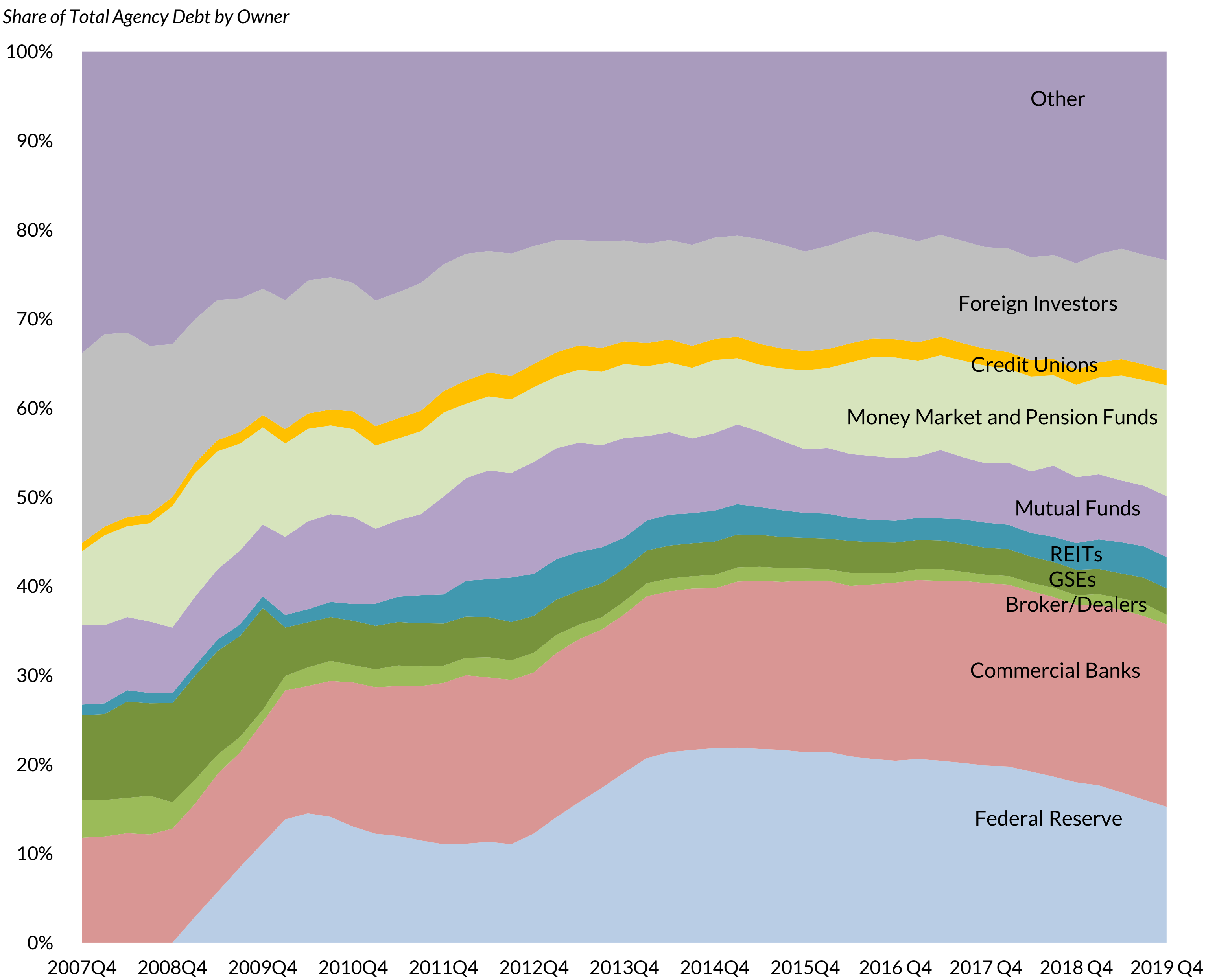


Sources: *Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute.* **Note:** *Data as of April 2020.*

MBS Ownership

The largest holders of agency debt (Agency MBS + Agency notes and bonds) include the Federal Reserve (15 percent), commercial banks (20 percent) and foreign investors (12 percent). The broker/dealer and GSE shares are a fraction of what they once were.

Who owns Total Agency Debt?

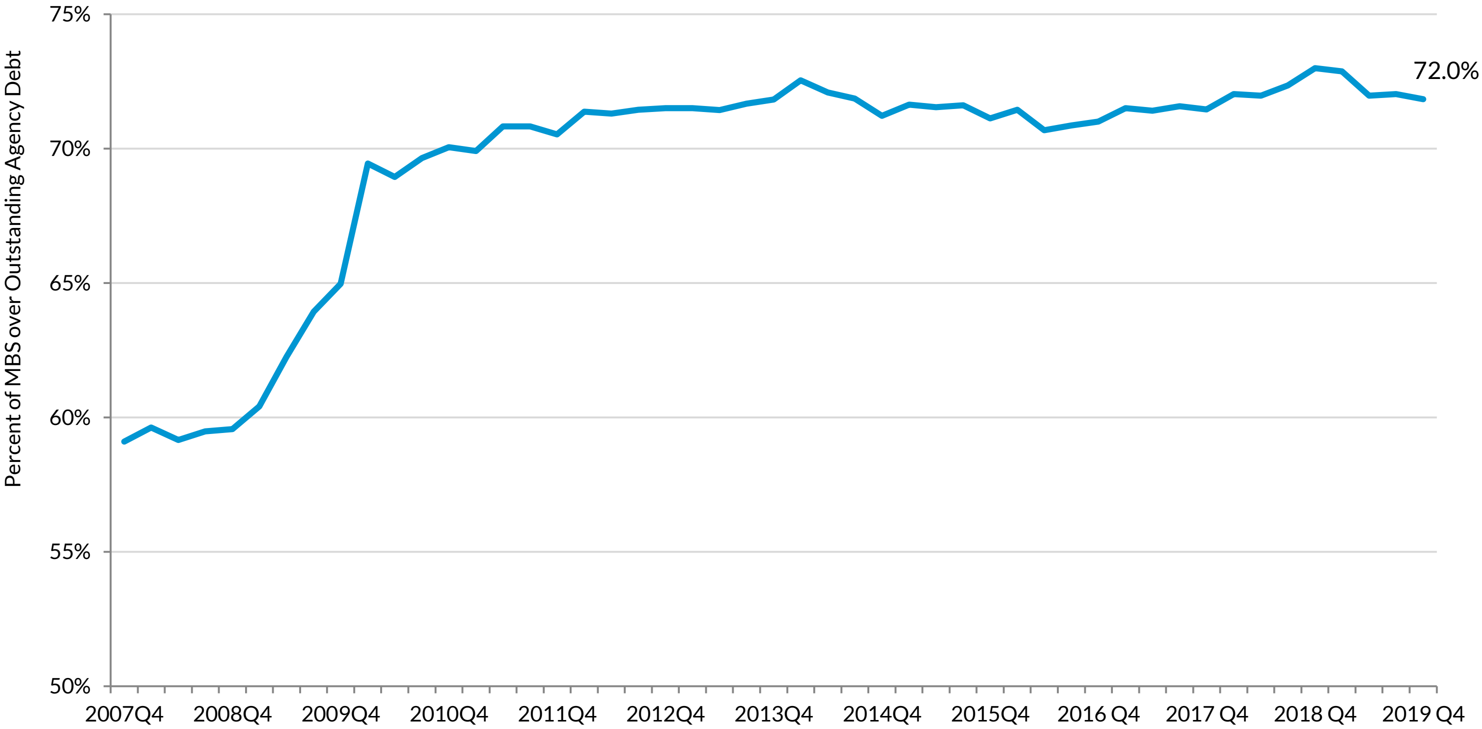


Sources: *Federal Reserve Flow of Funds and Urban Institute.* ***Note:*** *The "other" category includes primarily life insurance companies, state and local govts, households, and nonprofits. Data as of Q4 2019.*

MBS Ownership

As Fannie and Freddie reduce the size of their retained portfolio, fewer agency notes and bonds are required to fund that activity, hence the MBS share of total agency debt increases. As of Q4 2019, the MBS share of total agency debt stood at 72.0 percent. Commercial banks are now the largest holders of Agency MBS. Out of their $2.2 trillion in holdings as of the end of April 2020, $1.6 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***: *Data as of Q4 2019.*

`	Commercial Bank Holdings ($Billions)								Week Ending			
	Apr-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May 6	May 13	May 20	May 27
Largest 25 Domestic Banks	1437.6	1509.8	1529.2	1509.7	1528.9	1538.6	1588.3	1629.3	1647.9	1616.7	1619.3	1629.2
Small Domestic Banks	494.0	516.4	521.1	531.3	535.9	539.3	547.6	550.2	549.7	549.5	548.4	547.9
Foreign Related Banks	26.5	37.1	37.6	37.8	38.3	39.3	44.4	46.5	46.2	42.2	43.5	43.6
Total, Seasonally Adjusted	1958.1	2063.3	2087.9	2078.8	2103.1	2117.2	2180.3	2226.0	2243.8	2208.4	2211.2	2220.7

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

MBS Ownership

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

Bank and Thrift Residential MBS Holdings

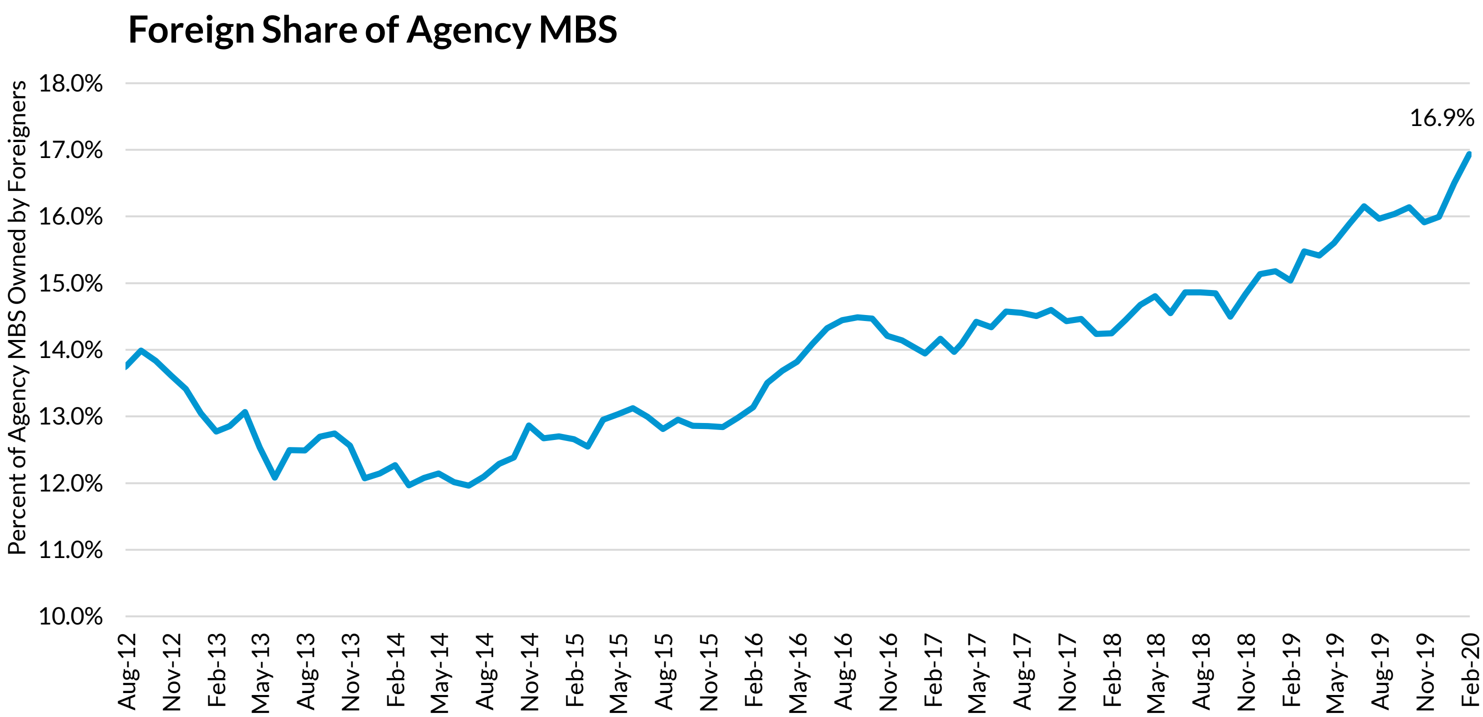
	All Banks & Thrifts ($Billions)						
	Total	Agency MBS PT	GSE PT	GNMA PT	Agency CMO	Private MBS PT	Private CMO
2000	$683.90	$392.85	$234.01	$84.26	$198.04	$21.57	$71.43
2001	$810.50	$459.78	$270.59	$109.53	$236.91	$37.62	$76.18
2002	$912.36	$557.43	$376.11	$101.46	$244.98	$20.08	$89.88
2003	$982.08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

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

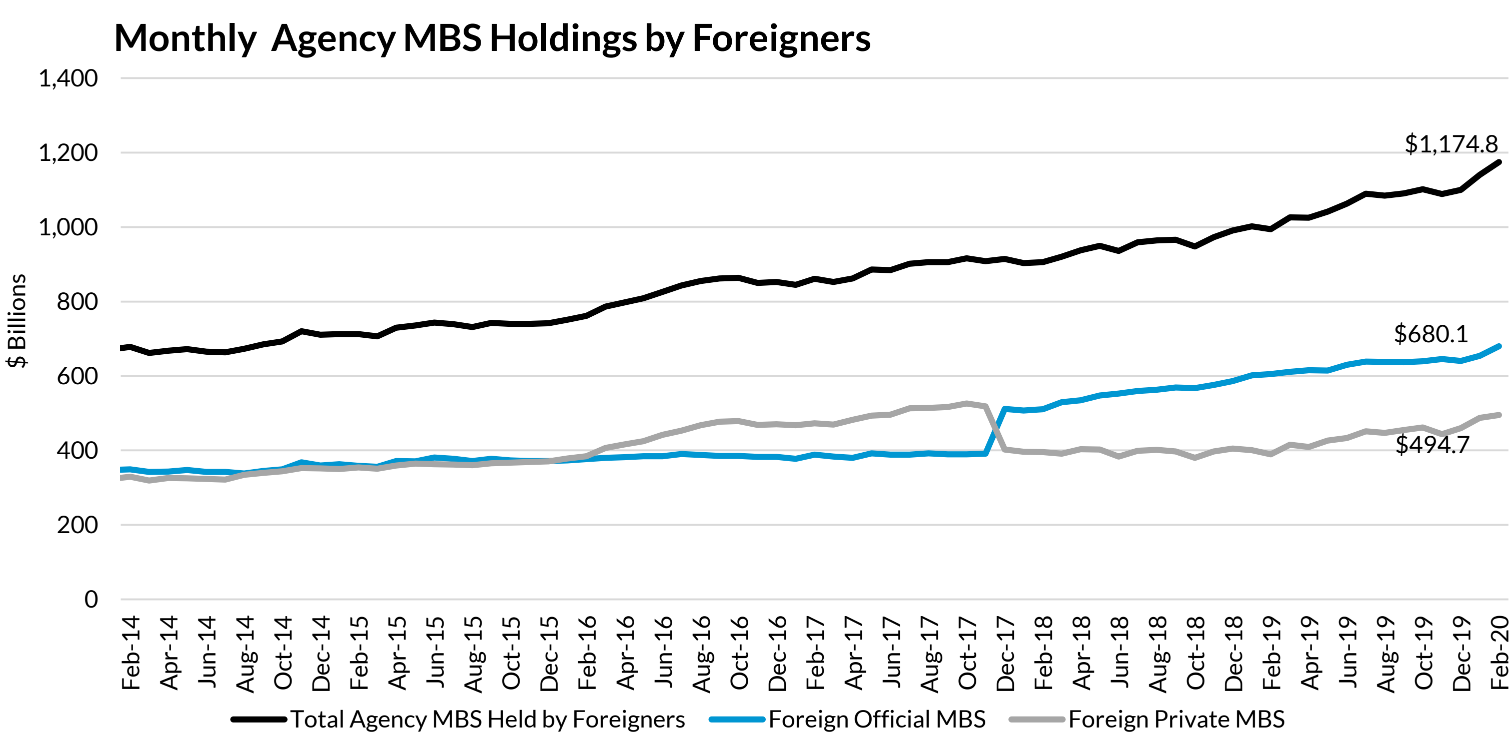
Sources: *Inside Mortgage Finance and Urban Institute.* ***Note:*** *Data as of Q1 2020.*

MBS Ownership

Foreign investors held 16.9 percent of agency MBS in February 2020, up from a low of 12.0 percent in July 2014. For the month of February 2020, this represents $1.17 trillion in Agency MBS, $495 billion held by foreign private institutions and $680 billion held by foreign institutions.



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



***Sources**: Treasury International Capital (TIC) and Urban Institute. **Note**: Data as of February 2020. In December 2017, there was a data correction that moved about $120 billion from privately held U.S. agency bonds to officially held U.S. agency bonds; this resulted in a series break at December 2017 in the split between the portion held by foreign private and the portion held by foreign official.*

MBS Ownership

The largest foreign holders of Agency MBS are Japan, Taiwan, and China; these three comprise over 70 percent of all foreign holdings. Between June 2019 and February 2020, we estimate China has increased their agency MBS holdings by $28.9 billion, Japan has increased their holdings by $14.0 billion and Taiwan has increased their holdings by $0.73 billion.

Agency MBS+ Agency Debt

Country	Level of Holdings ($Millions)*					Change in Holdings ($Millions)*			
	Jun-19	Sep-19	Dec-19	Jan-20	Feb-20	Q3 2019	Q4 2019	Jan-20	Feb-20
Japan	297,016	311,047	305,329	305,662	310,619	14,031	-5,718	333	4,957
Taiwan	265,524	263,018	261,740	263,586	266,227	-2,506	-1,278	1,846	2,641
China	227,357	233,778	231,742	239,880	255,670	6,421	-2,036	8,138	15,790
Ireland	45,829	41,370	38,648	38,446	37,981	-4,459	-2,722	-202	-465
Luxembourg	47,646	46,633	39,004	39,349	42,386	-1,013	-7,629	345	3,037
South Korea	42,879	41,468	40,698	40,411	41,381	-1,411	-770	-287	970
Bermuda	29,365	29,184	33,897	28,133	28,990	-181	4,713	-5,764	857
Cayman Islands	34,967	29,432	31,036	31,292	32,285	-5,535	1,604	256	993
Malaysia	12,167	15,585	16,600	16,586	20,334	3,418	1,015	-14	3,748
Netherlands	14,074	10,548	10,902	10,875	10,830	-3,526	354	-27	-45
Rest of World	128,142	135,292	151,959	185,722	188,869	7,150	16,667	33,763	3,147
Total	1,144,971	1,157,355	1,161,555	1,199,942	1,235,572	12,384	4,200	38,387	35,630

Agency MBS Only (Estimates)

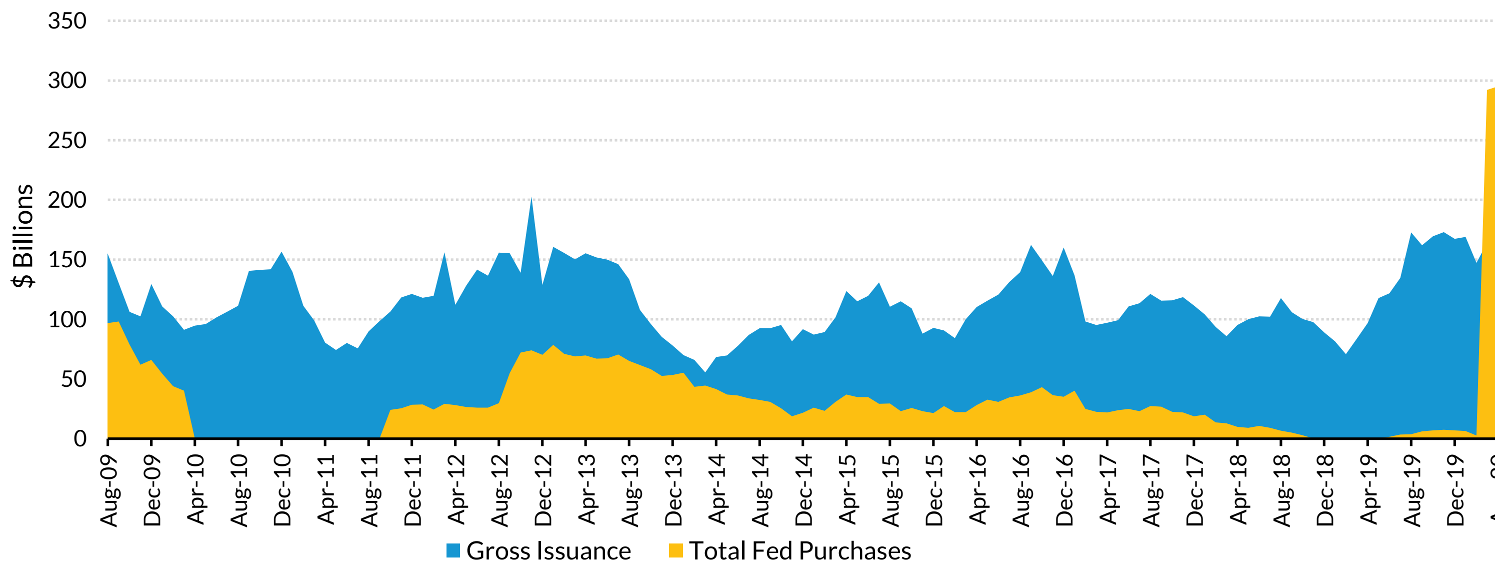
Country	Level of Holdings ($Millions)*					Change in Holdings ($Millions)*			
	Jun-19	Sep-19	Dec-19	Jan-20	Feb-20	Q3 2019	Q4 2019	Jan-20	Feb-20
Japan	293,662	307,756	302,285	302,750	307,625	14,094	-5,471	465	4,875
Taiwan	265,234	262,733	261,477	263,334	265,968	-2,501	-1,257	1,857	2,634
China	221,738	228,265	226,642	235,001	250,654	6,527	-1,622	8,359	15,653
Ireland	37,674	33,368	31,246	31,365	30,701	-4,306	-2,122	119	-664
Luxembourg	43,978	43,034	35,675	36,164	39,112	-944	-7,359	489	2,948
South Korea	34,969	33,707	33,519	33,543	34,320	-1,262	-188	24	777
Bermuda	26,394	26,269	31,201	25,553	26,338	-125	4,932	-5,647	785
Cayman Islands	29,896	24,456	26,434	26,889	27,758	-5,440	1,977	455	869
Malaysia	11,881	15,304	16,340	16,338	20,079	3,423	1,036	-3	3,741
Netherlands	13,904	10,381	10,748	10,727	10,678	-3,523	367	-20	-49
Rest of World	97,585	105,309	124,225	159,189	161,592	7,724	18,916	34,964	2,402
Total	1,076,916	1,090,579	1,099,788	1,140,850	1,174,821	13,663	9,209	41,062	33,971

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 February 2020.*

MBS Ownership

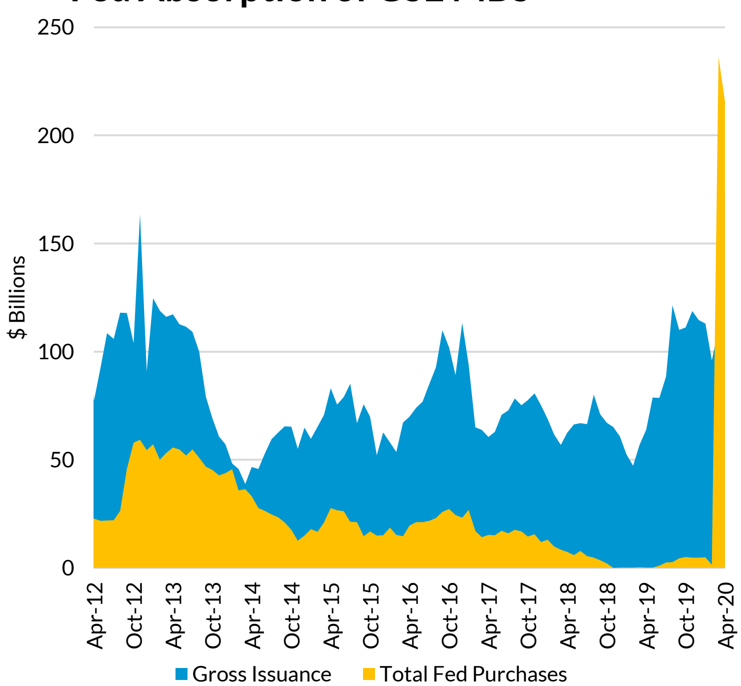
On March 23, 2020, in response to the market dislocations caused by the coronavirus pandemic, the Fed announced they would purchase Treasuries and agency MBS in an amount necessary to support smooth functioning markets. In March, the Fed bought $292.2 in agency MBS, and April clocked in at $295.1 billion, the largest single month of purchases ever, constituting 123.2 percent of gross issuance. Prior to this, the Fed was winding down its MBS portfolio. From Oct 2014 to Sep 2017, the Fed ended its Great Recession era MBS purchase program, but was reinvesting funds from mortgages and agency debt into the mortgage market, absorbing 20-30 percent of agency gross issuance. The portfolio wind down started in October 2017, with the Fed allowing a pre-established amount of MBS to run off each month. From Oct 2017 to Sep 2018, the Fed was still reinvesting, but by less than the prepayments and repayments. In Oct 2018, the amount of MBS permitted to run off each month hit the $20 billion cap, leading to very small purchase volume between Q4 2018 and February 2020.

Total Fed Absorption



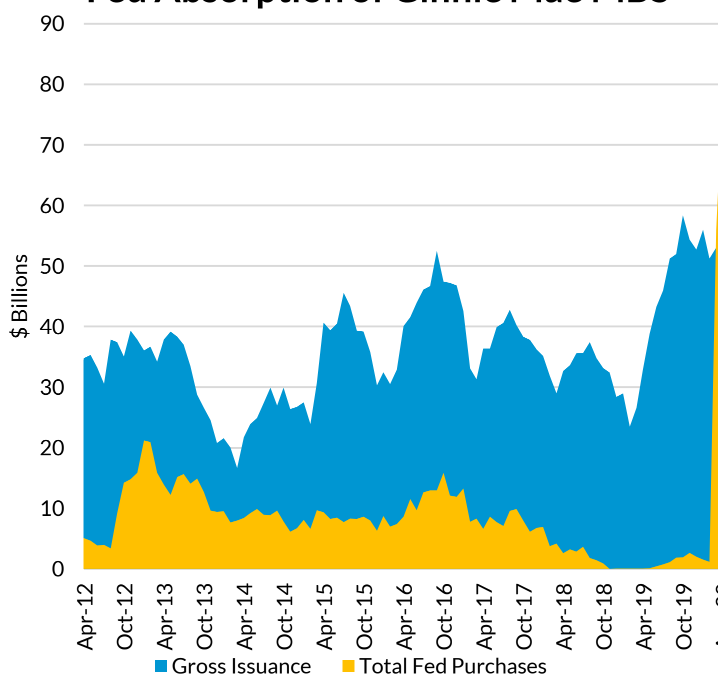
Sources: *eMBS, Federal Reserve Bank of New York and Urban Institute.* ***Note:*** *Data as of April 2020.*

Fed Absorption of GSE MBS



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

Fed Absorption of Ginnie Mae MBS



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

Disclosures