Global Markets Analysis Report

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OFFICE OF CAPITAL MARKETS

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Ginnie Mae
Our Guaranty Matters

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

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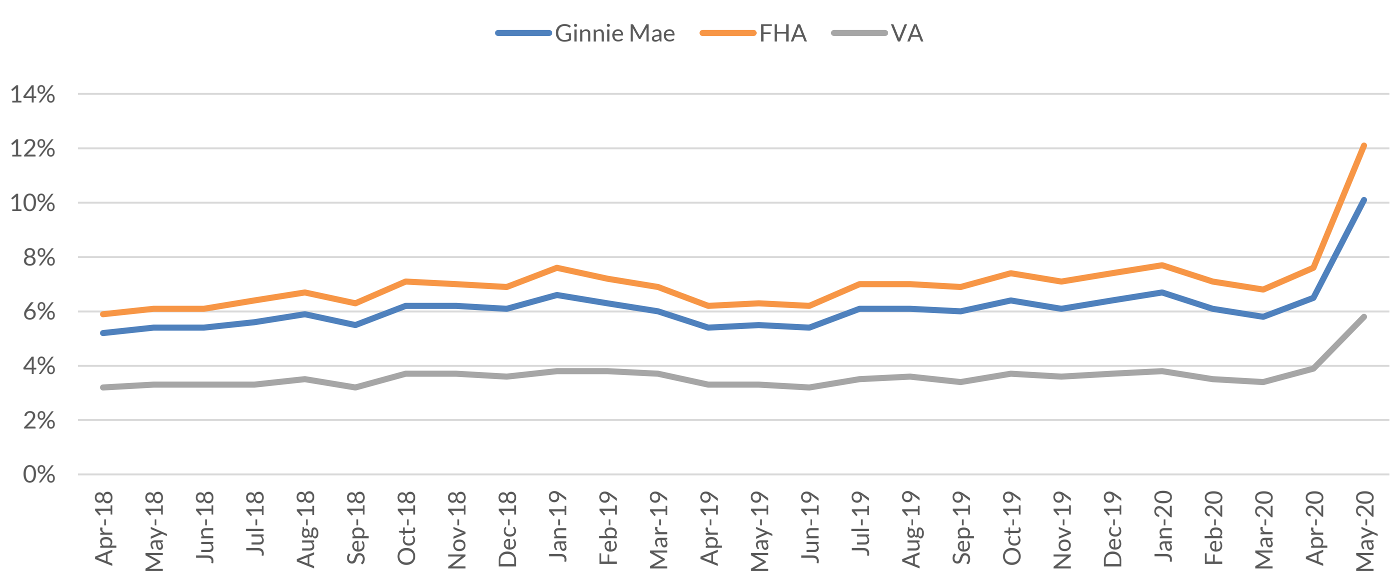
HIGHLIGHTS

Introduction

As the COVID-19 crisis has intensified, over 36 million Americans have lost their jobs and the US unemployment rate now stands at close to 15 percent. Although the Federal mortgage agencies, such as Department of Housing and Urban Development (HUD,) Ginnie Mae, Fannie Mae and Freddie Mac intervened swiftly to minimize financial disruption, millions of impacted households have already fallen behind on their mortgage payment. In addition, under the recently enacted CARES Act, borrowers with federal mortgages have the right to obtain payment forbearance up to 12 months provided they are impacted by COVID-19. Newly available delinquency data allow us to get an early read into the impact of COVID-19 on Ginnie Mae mortgage delinquencies.

Figure 1: Percentage of loans 30 days or more delinquent (D30+)



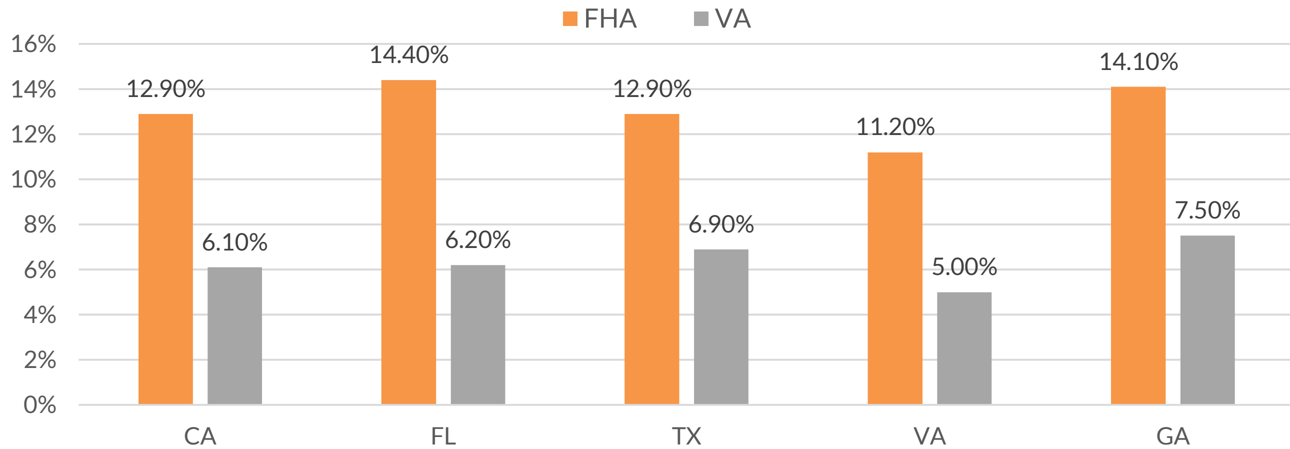
Source: Urban Institute calculations based on eMBS data. Data as of April 2020

Figure 1 above shows the monthly share of FHA and VA loans pooled in Ginnie Mae MBS that were 30 days or more delinquent. During the 2-year period preceding COVID-19, this share generally fluctuated between 5.5 and 6.5 percent for all loans backed by Ginnie Mae. In April 2020, delinquency rate almost doubled to over 10 percent. FHA mortgages account for $1.3 trillion, or 63 percent of the total $2 trillion in Ginnie Mae-guaranteed unpaid principal balance outstanding. Given its focus on serving first-time homebuyers and low- and moderate-income households, FHA-insured loans experienced a much greater rise in delinquencies, from around 7 percent in March to over 12 percent in April.

The nationwide reach of the COVID-19 pandemic suggests that the spike in delinquencies would be seen across states. Figure 2 shows FHA's and VA's D30+ rate as of April 2020 in 5 states with the largest number of Ginnie loans outstanding – i.e. CA, FL, TX, VA and GA. Together, these states account for 33 percent of all Ginnie Mae loans, thus wielding an outsized influence on the overall credit performance of Ginnie Mae loans.

HIGHLIGHTS

Figure 2: Percentage of loans 30 days or more delinquent (D30+) in April 2020, by State



Source: Urban Institute calculations based on eMBS data. Data as of April 2020

In the FHA space, as of April end, FL had the highest D30+ rate (14.4 percent) among these five states, followed by GA (14.1%,) TX and CA (both 12.9%,) and VA (11.2%.) In each of these states, the D30+ rate was about 1.5 to 2 times the level in March, reflecting the sweeping magnitude of this crisis.

The D30+ rate for VA-guaranteed loans was much lower than FHA loans before the COVID crisis, but it also increased substantially in April. At 7.5 percent, GA's D30+ rate was the highest among the five states, followed by TX (6.9%,) FL (6.2%,) CA (6.1%,) and VA (5.0%.) These delinquency numbers reflect not just the scale of household distress caused by the crisis, but also the widespread and streamlined availability of COVID-19 federal forbearance.

Under the CARES Act, borrowers have the right to receive up to a total of 12-month forbearance by stating their hardship to the servicer. Borrowers also may elect to exit forbearance at any time. In the coming months, as the US economy gradually opens, it will be critical to examine what share of currently delinquent borrowers will resume making their monthly payments. Ginnie Mae has begun the process of collecting supplemental loan level data related to forbearance which will be shared in monthly disclosures.

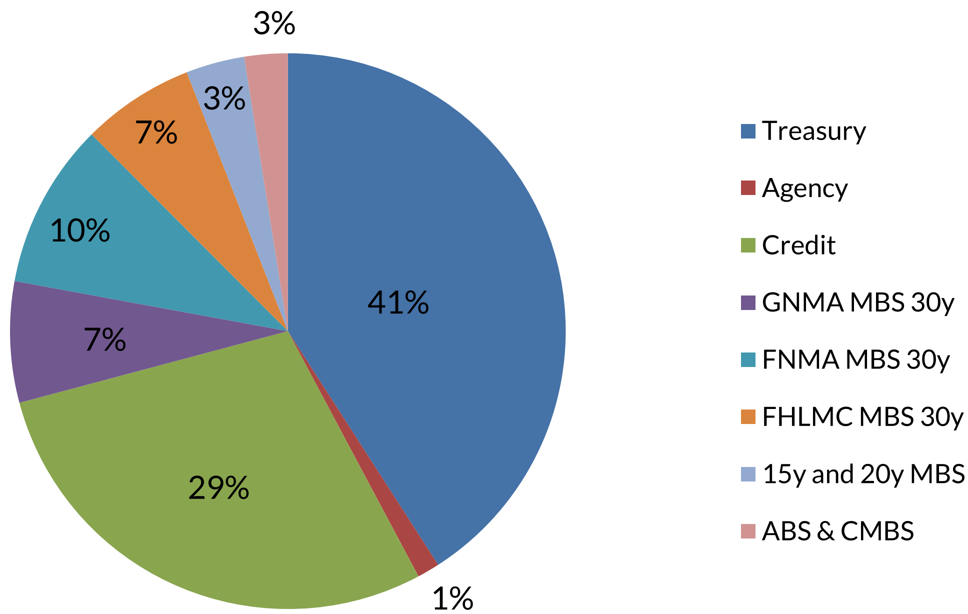
***Highlights this month*:**

- In the first quarter of 2020, first lien originations totaled $670 billion, up from the Q1 2019 volume of $355 billion (page 19).
- Median FICO score for agency originations increased from 741 in Feb to 745 in March 2020, driven by increases in GSE FICOs even as Ginnie Mae median FICO remained unchanged (page 37).
- In April 2020, aggregate prepayments for Fannie and Freddie MBS exceeded those for Ginnie Mae II securities for the first time since 2013 (page 43).
- Agency MBS held by foreign investors increased in Jan 2020, driven by growth in both private and official holdings (page 54).

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

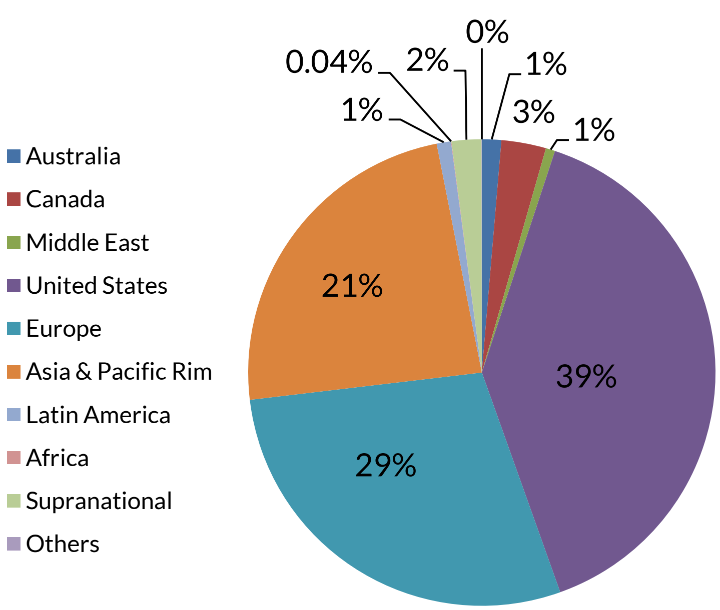
US MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) comprise 27 percent of the Barclays US Aggregate Index- less than either the US Treasury share (41 percent) or the US Credit share (29 percent). Fannie Mae 30-year MBS accounts for 10 percent of the overall index, the largest MBS component, while Ginnie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



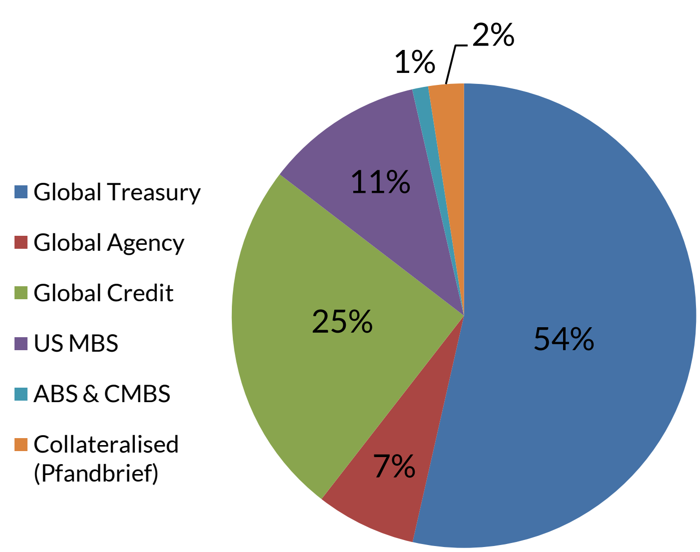
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of March 2020.*
Note*: Numbers in chart may not add to 100 percent due to rounding.*

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

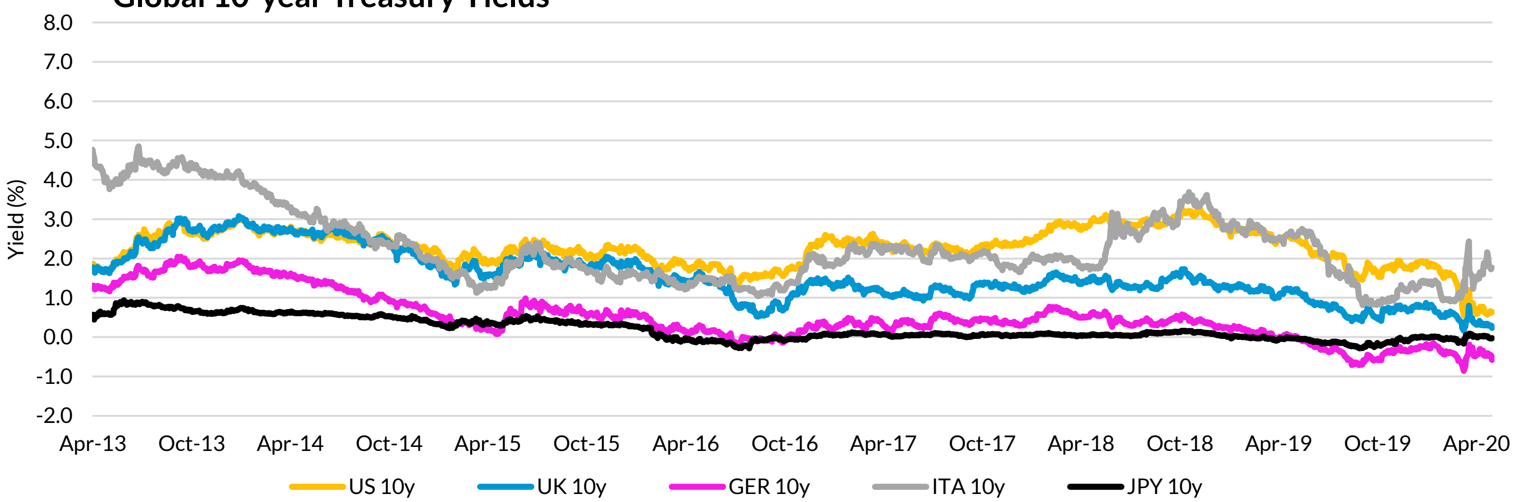


Sources: *Bloomberg and State Street Global Advisors*
Note*: Data as of March 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

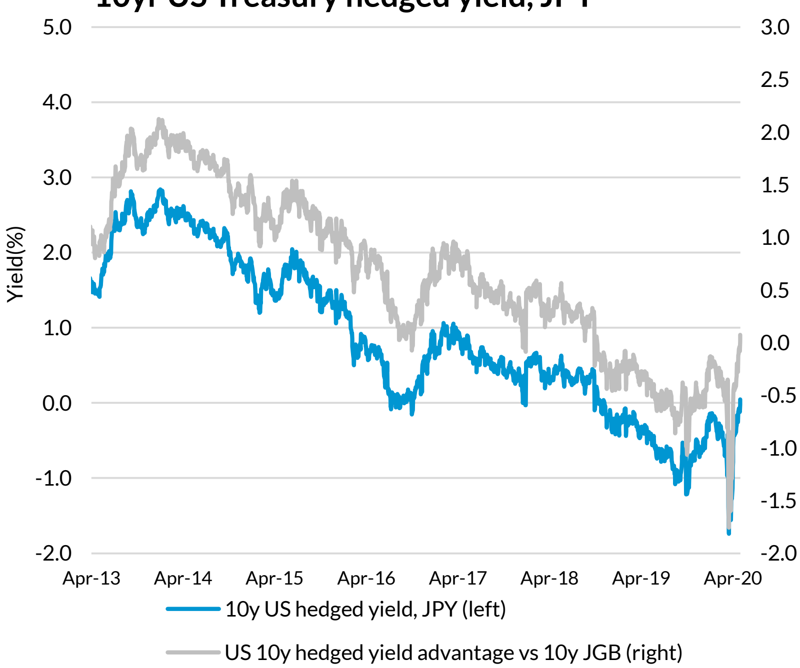
Government bond yields across the globe experienced significant volatility in the beginning of Q2 2020 in response to the economic impact of the COVID-19 shock. In April 2020, the yield on the 10-year treasury fell by 3 bps to 0.64 percent. After exceeding the yield on the US 10-year treasury in March, the Italian 10-year note yield increased by another 24 basis points in April to 1.76 percent. The yield on the UK 10-year bond fell by 13 bps to 0.23 percent, the Japanese 10-year government bond yield decreased by 5 bps to -0.03 percent, and the German 10-year yield was down by 12 bps to -0.59 percent in April. At the end of April, the hedged yield differential between the 10-year Treasury and the 10-year JGB stood at 0.07 bps, an increase of 95 bps since March 2020. The hedged yield differential between the 10-year Treasury and the 10-year Bund stood at 0.46 bps, an increase of 71 bps since the end of March 2020.

Global 10-year Treasury Yields



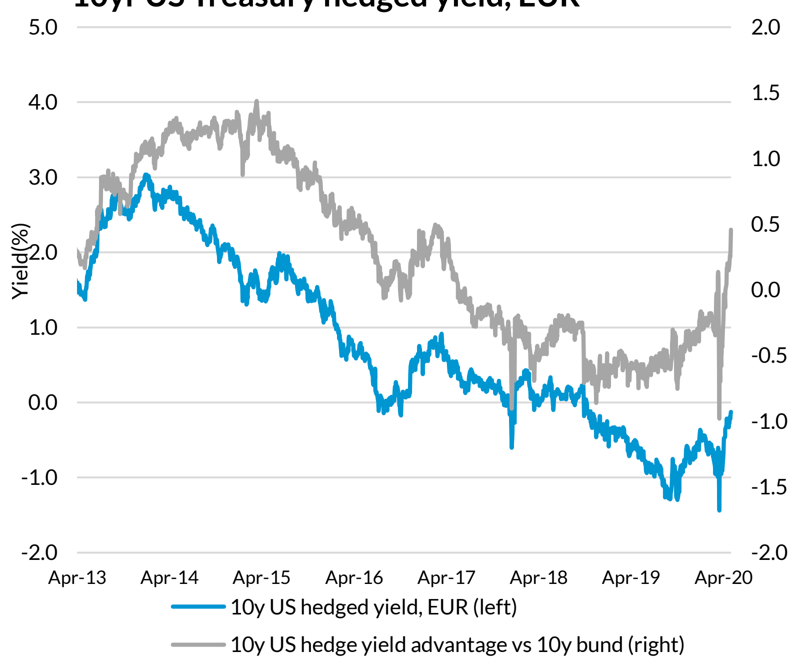
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of April 2020.*

10yr US Treasury hedged yield, JPY



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

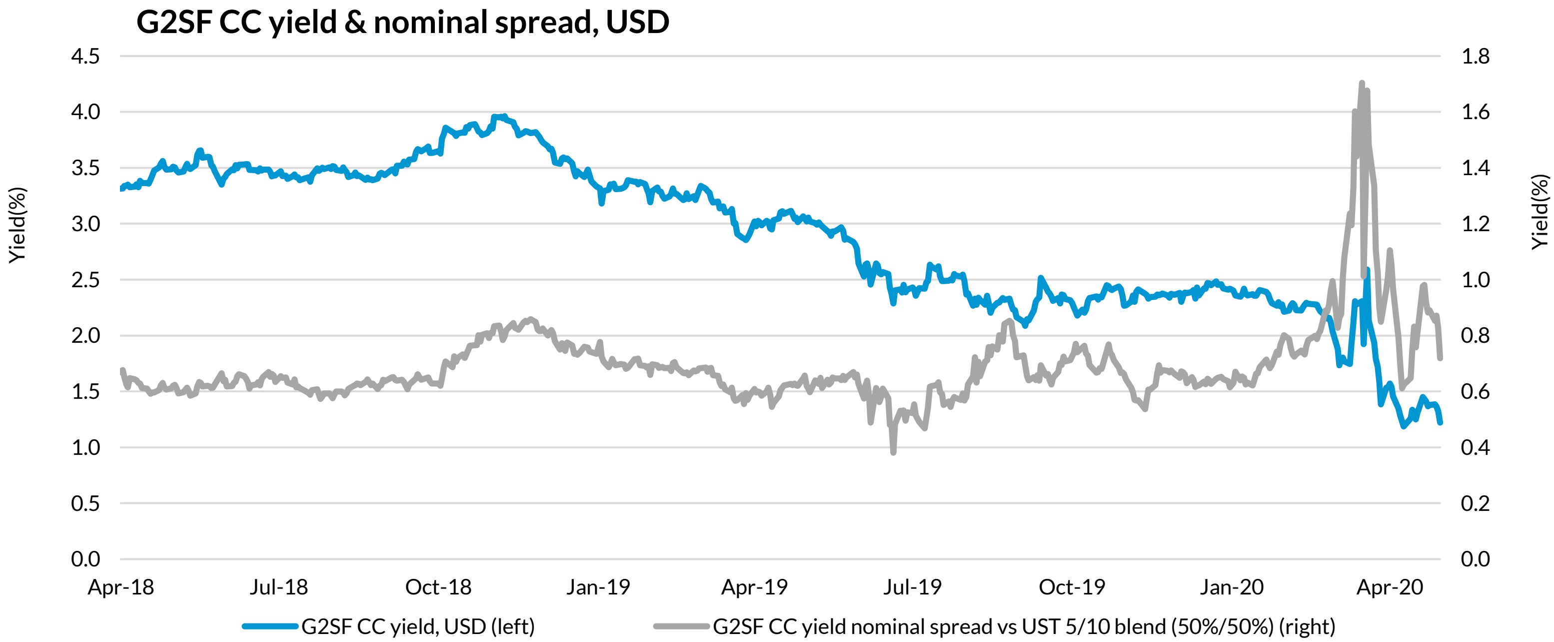
10yr US Treasury hedged yield, EUR



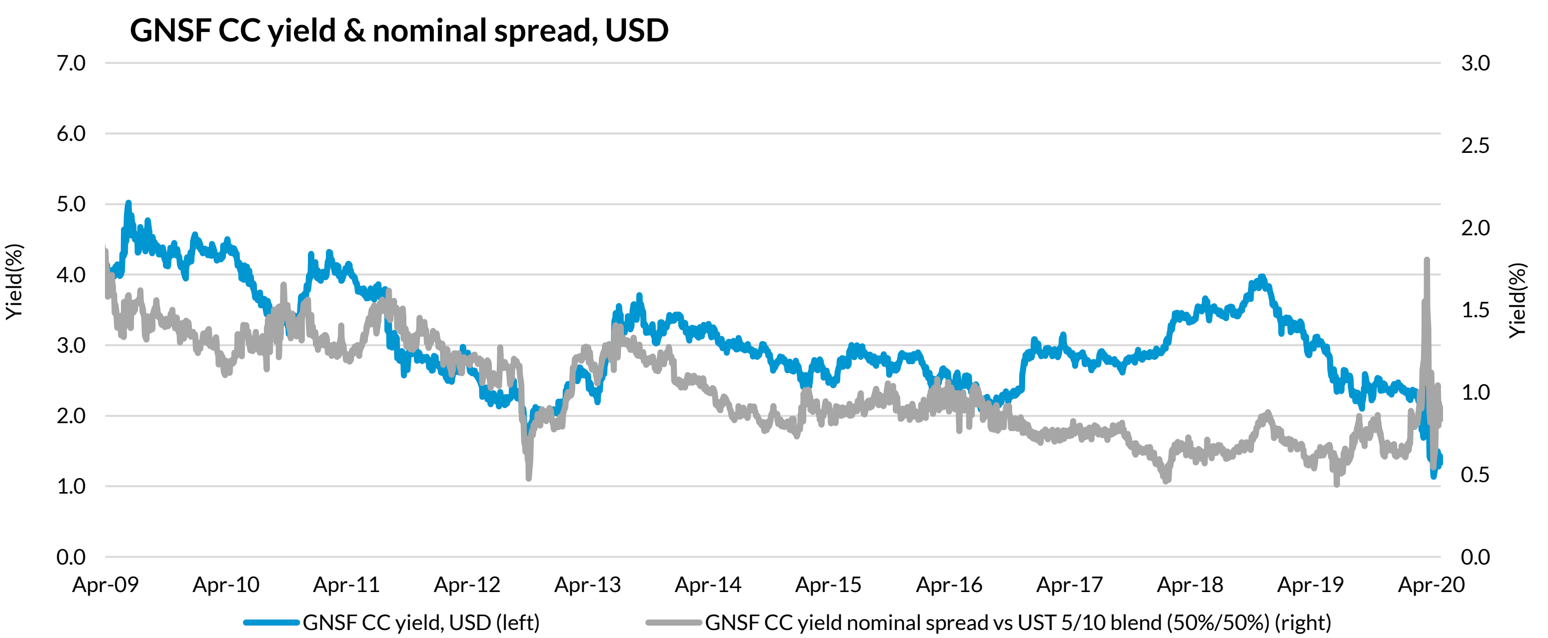
Sources: *Bloomberg and State Street Global Advisors*
Note*: Data as of April 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

Nominal yields fell in April 2020, with GNMA II yields declining 32 bps to 1.22% and GNMA I yields declining 13 bps to 1.34% respectively. The spread between agency mortgages and U.S. Treasuries fell throughout the month as the Federal Reserve purchase of Agency MBS continued. At the end of April, current coupon Ginnie Mae securities outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 72 bps on the G2SF and 84 bps on the GNSF, a decrease of 29 and 10 bps respectively since last month.



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

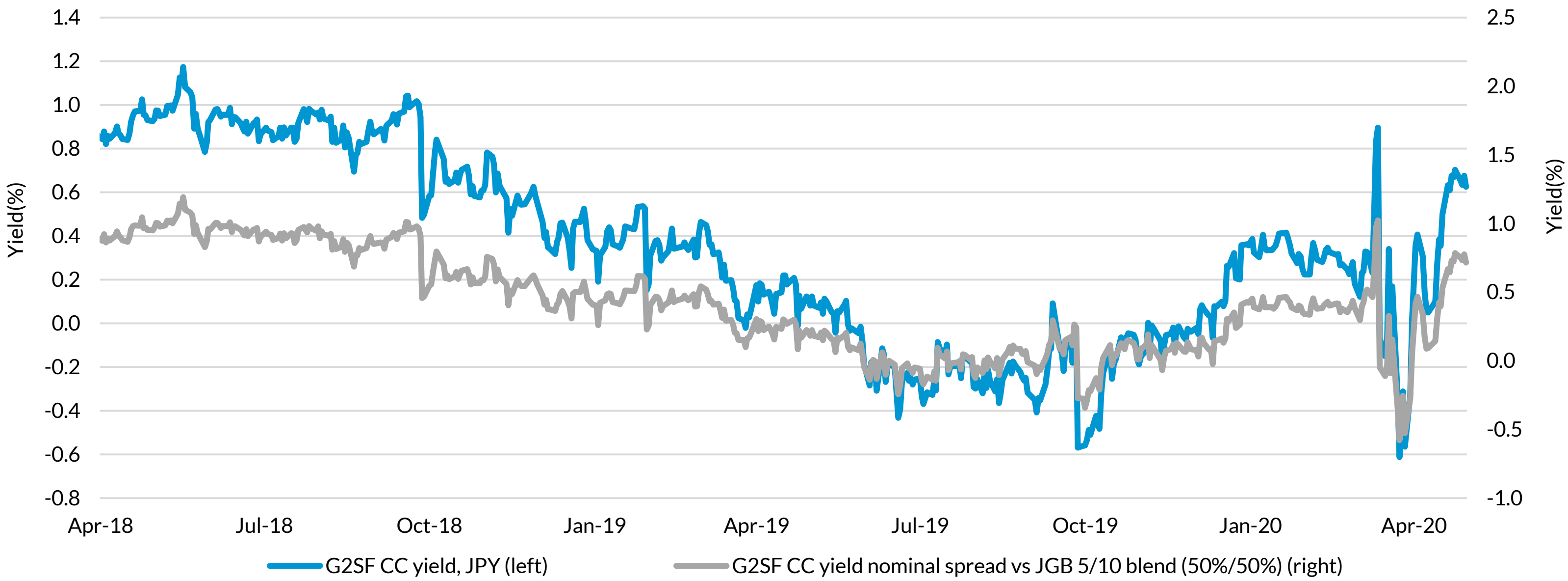


Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of April 2020.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

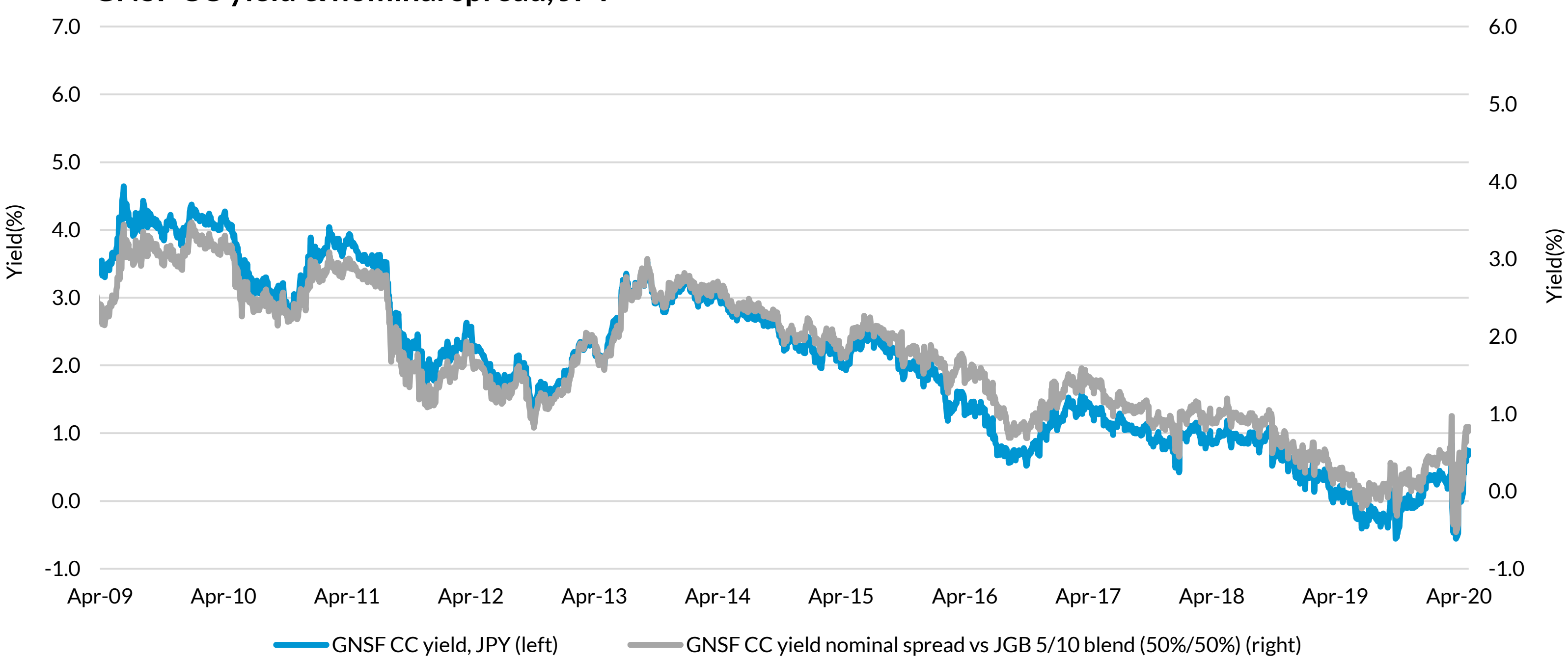
If Ginnie Mae securities are hedged into Japanese Yen, they look favorable on a yield basis versus the JGB 5/10 blend at the end of April. More precisely, hedged into Japanese yen, the G2SF and GNSF have a 72 and 83 bp yield versus the JGB 5/10 blend. This represents a 66 and 85 bp widening for G2SF and GNSF, respectively, since the end of March 2020.

G2SF CC yield & nominal spread, JPY



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

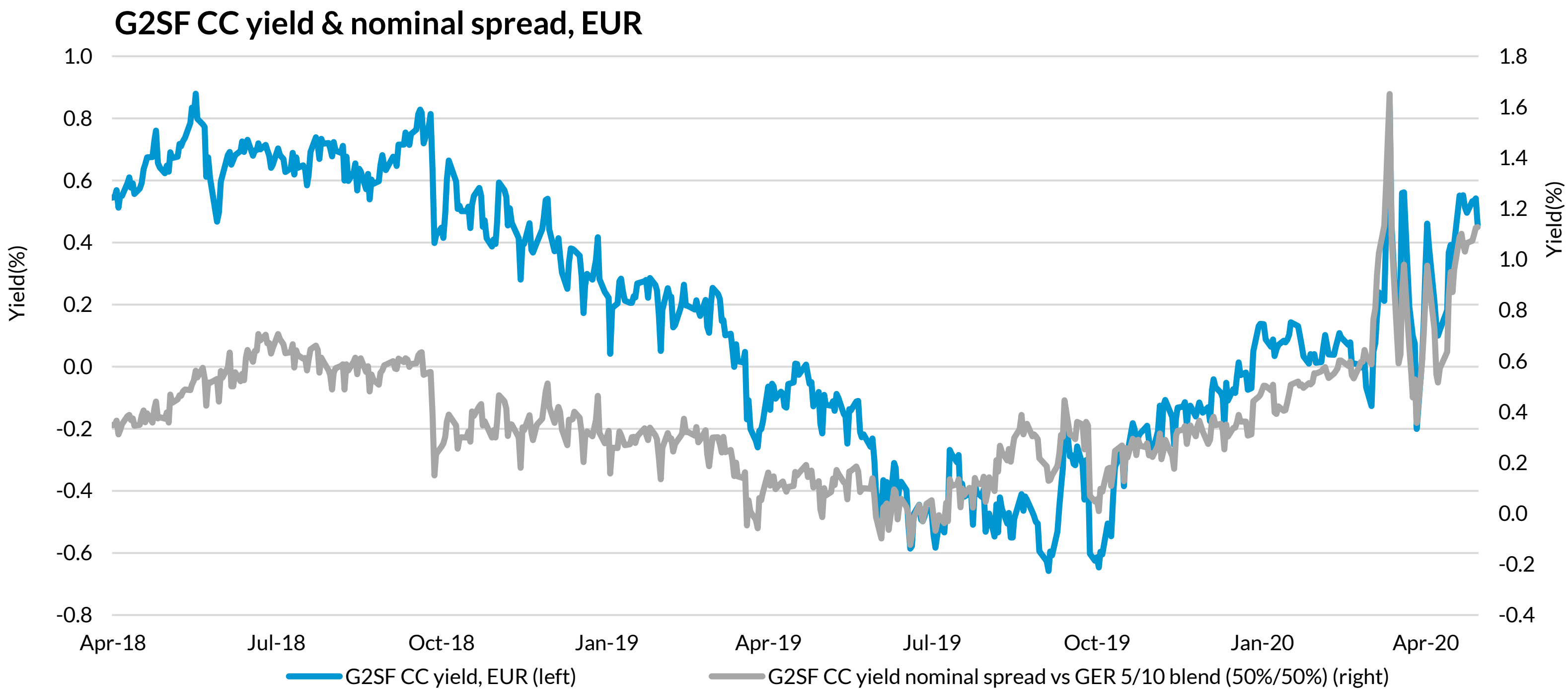
GNSF CC yield & nominal spread, JPY



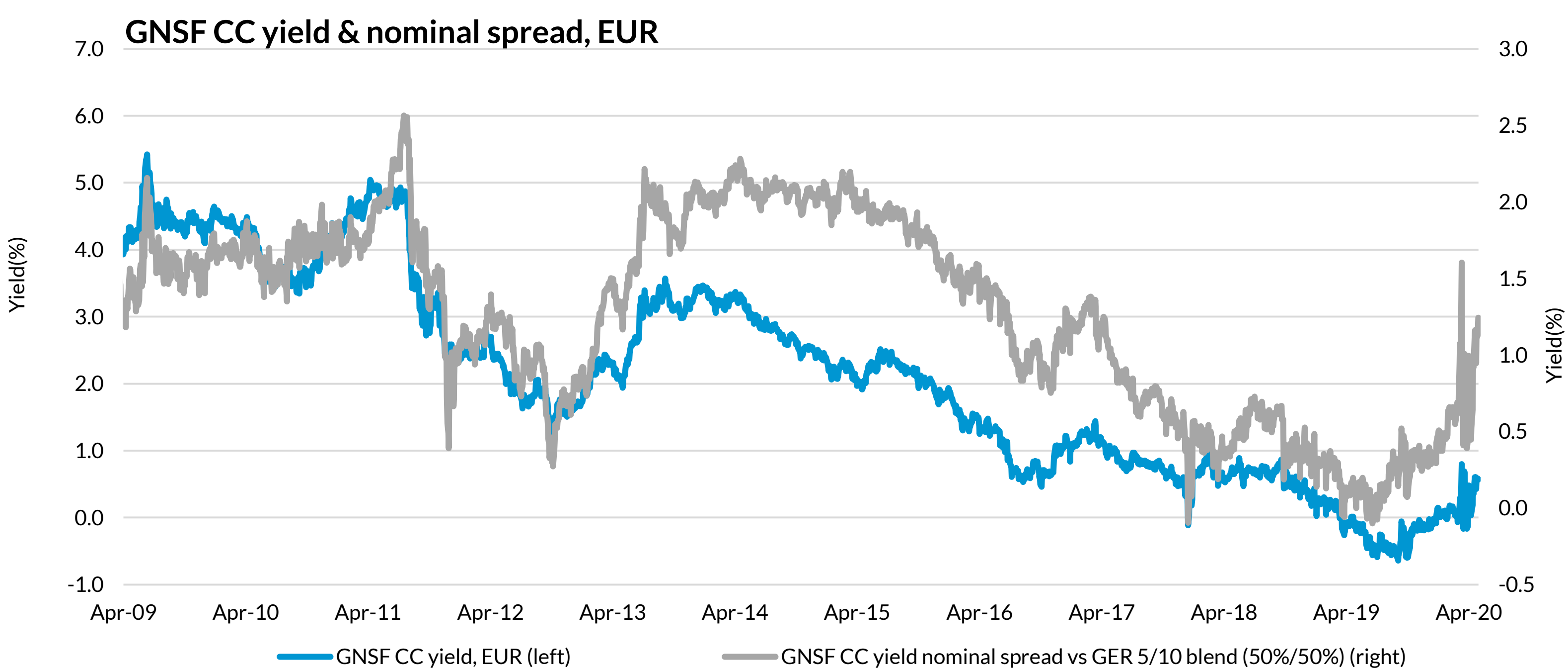
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of April 2020.*

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 April, the current coupon G2SF and GNSF hedged into euros have a 113 and 124 bp higher yield than the average of the German 5/10, respectively. This represents an 42 bp increase for the G2SF and a 61 bp increase for the GNSF since the end of March 2020.



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

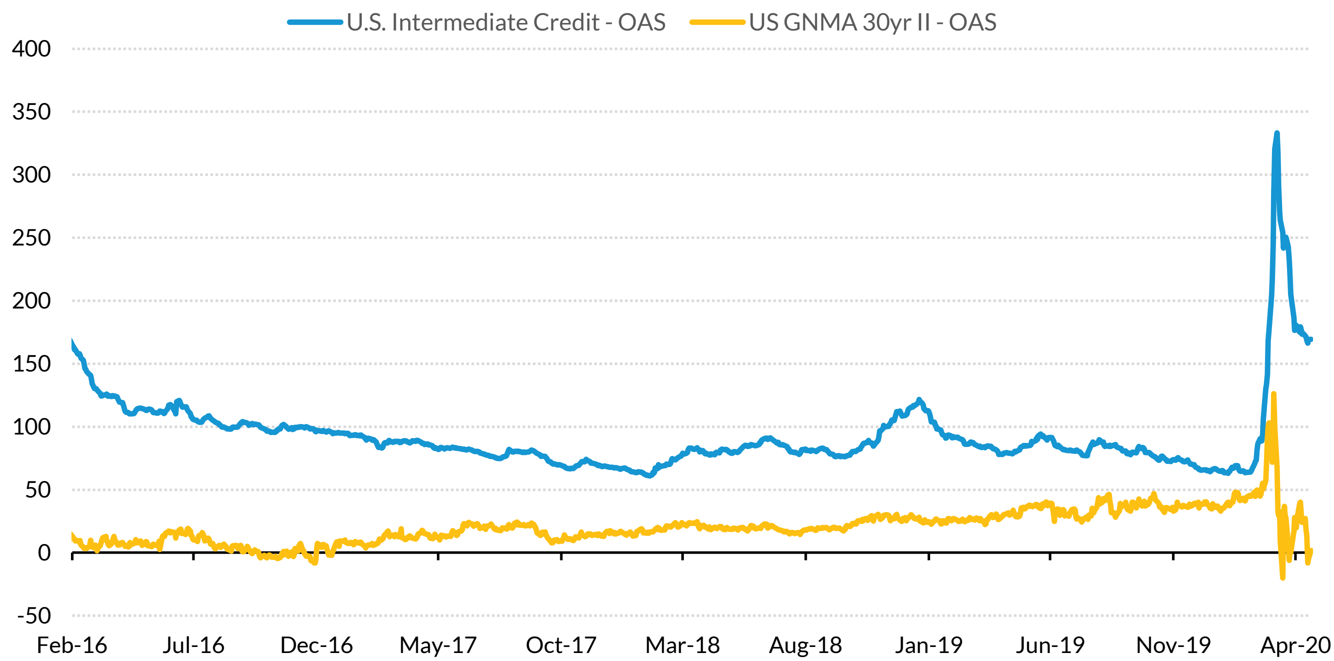


***Sources:** Bloomberg and State Street Global Advisors. **Note:** Data as of April 2020.*

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 March and April. 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 drop, the spread between the two remains much elevated, ending April 2020 at 175 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 April 2020.*

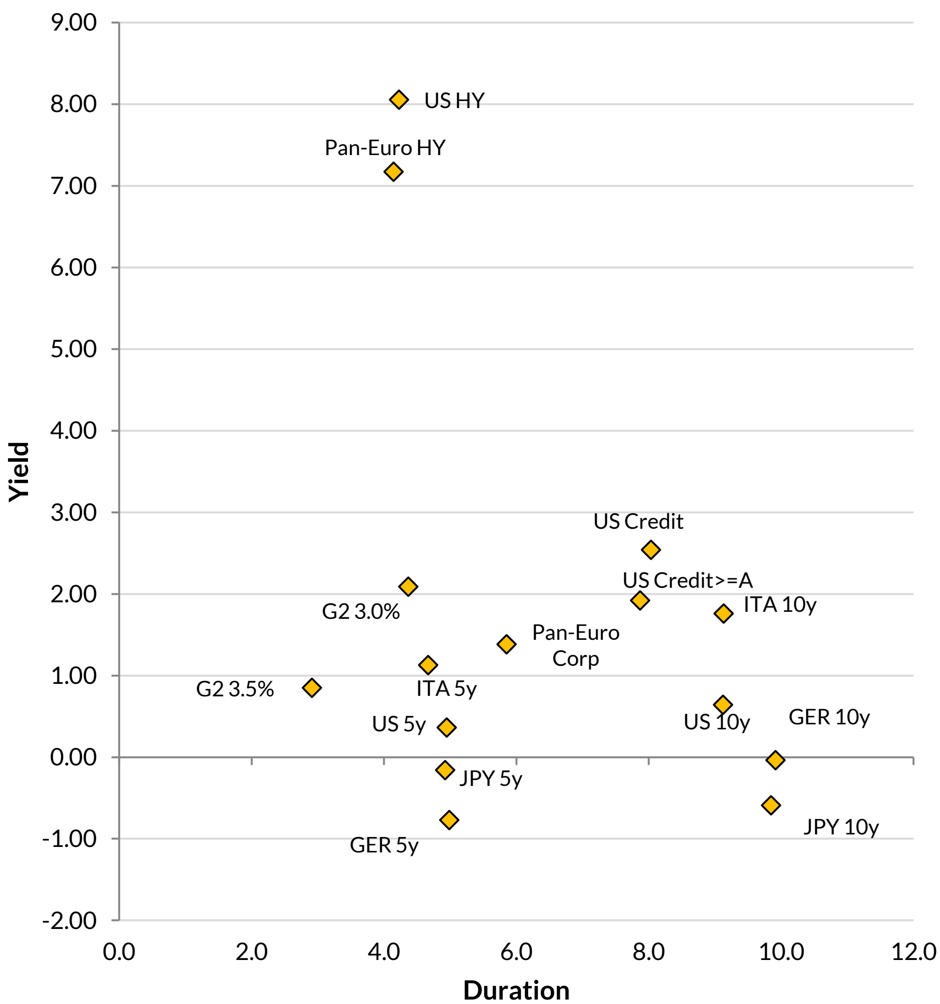
Spread between Intermediate credit and 30-year GNMA MBS OAS

Sources: *State Street Global Advisors.* ***Note:*** *Data as of April 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	4.9	0.36
US 10y	9.1	0.64
GNMA II 3.0%	4.4	2.09
GNMA II 3.5%	2.9	0.85
JPY 5y	4.9	-0.16
JPY 10y	9.9	-0.04
GER 5y	5.0	-0.77
GER 10y	9.8	-0.59
ITA 5y	4.7	1.13
ITA 10y	9.1	1.76
US credit	8.0	2.54
US credit >= A	7.9	1.92
US HY	4.2	8.05
Pan-Euro Corp	5.9	1.38
Pan-Euro HY	4.1	7.17

Sources: *Bloomberg and State Street Global Advisors.* ***Note****: Yields are in base currency of security and unhedged. Data as of April 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	0.61	1.13	0.83	0.09	-0.27	-0.38
3 year	0.32	0.48	0.47	0.13	0.18	0.05
5 year	0.24	0.32	0.39	0.13	0.31	0.16
10 year	0.27	0.32	0.44	0.35	0.50	0.49

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	0.49	1.01	0.71	0.14	-0.40	-0.33
3 year	0.18	0.34	0.34	0.19	0.05	0.11
5 year	0.15	0.23	0.29	0.18	0.22	0.22
10 year	0.23	0.27	0.39	0.37	0.45	0.52

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	0.52	1.53	2.94	2.74	3.84	4.67
3 year	0.67	1.21	1.86	1.62	2.41	2.77
5 year	0.61	1.13	1.62	1.46	2.22	2.38
10 year	0.66	1.07	1.44	1.39	2.03	2.03

Sharpe Ratio

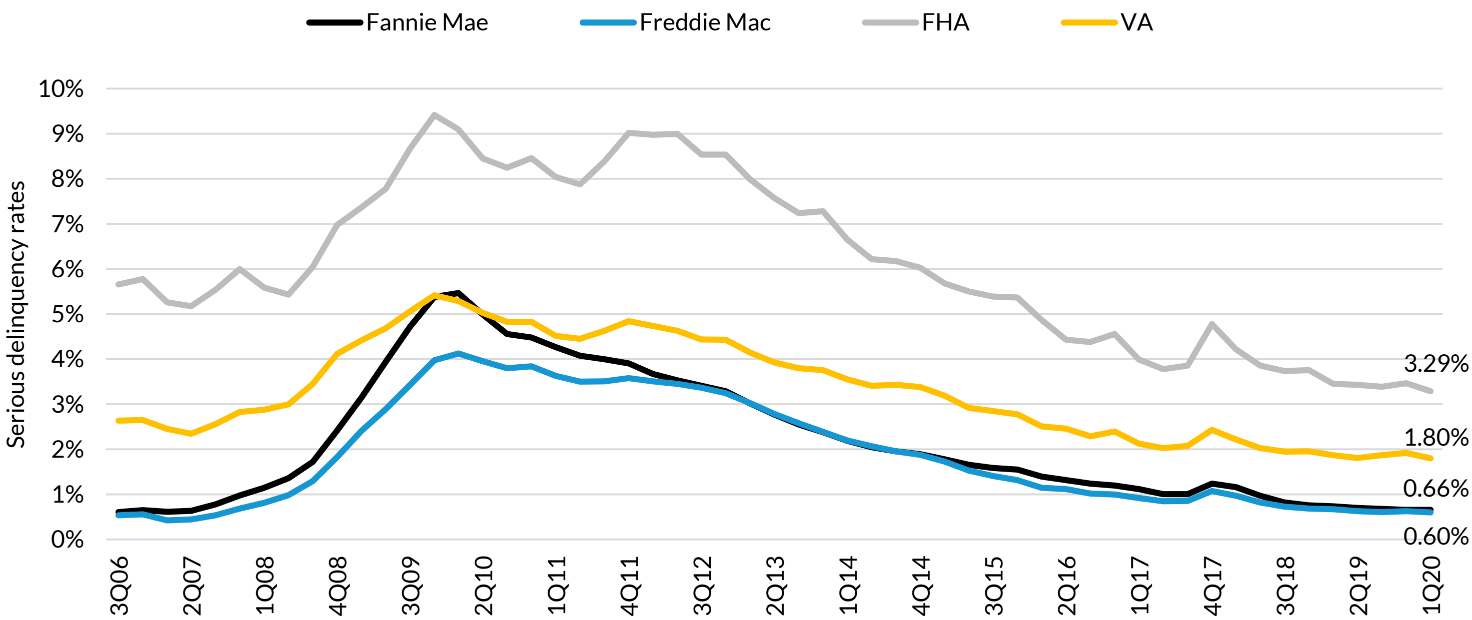
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield	Pan Euro High Yield*
1 year	0.94	0.66	0.24	0.05	-0.10	-0.07
3 year	0.27	0.28	0.18	0.12	0.02	0.04
5 year	0.24	0.21	0.18	0.12	0.10	0.09
10 year	0.34	0.25	0.27	0.27	0.22	0.26

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

State of the US Housing Market

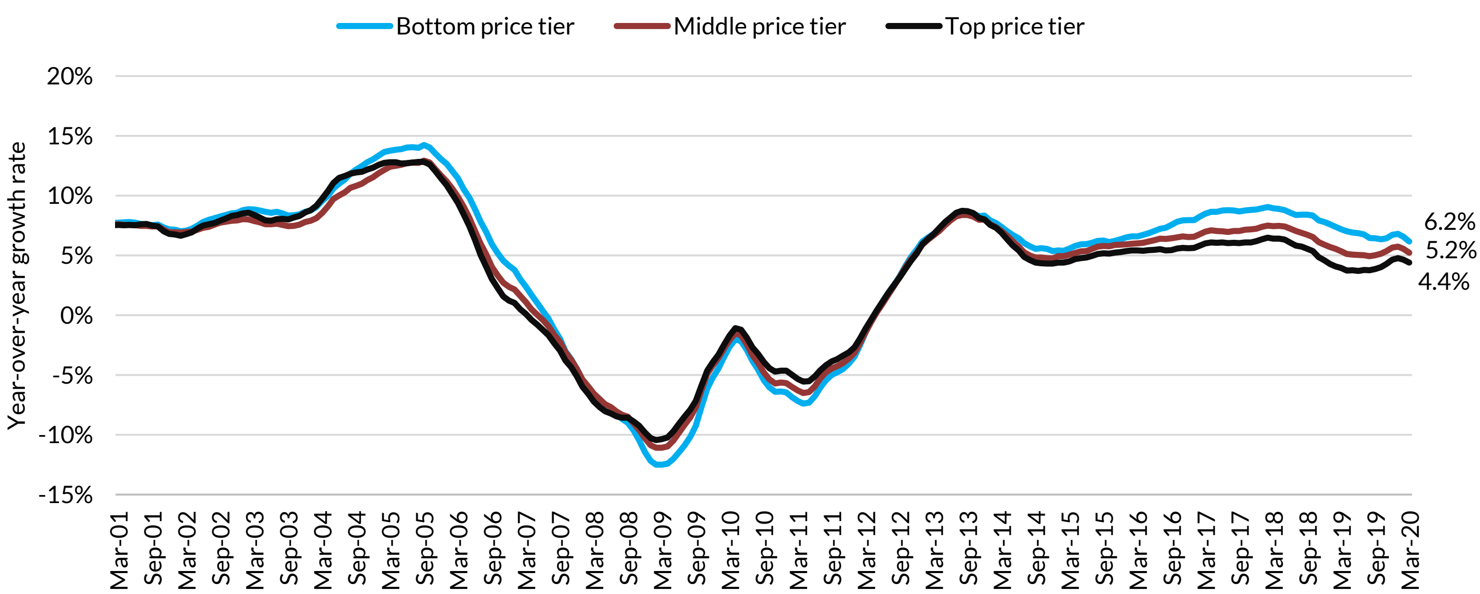
Serious delinquency rates for single-family GSE loans, FHA loans and VA loans all decreased in Q1 2020. GSE delinquencies remain just above their 2006-2007 level, while FHA and VA delinquencies (which are higher than their GSE counterparts) are well below 2006-2007 levels. The bottom chart shows nationwide 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 6.2 percent for 12 months ended March 2020, much higher than the 4.4 percent for the top end of the market. Year-over-year price growth in March was lower than February 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 March 2020.*

State of the US Housing Market

Nationally, nominal home prices have increased by 56.7 percent since the trough, and now exceed their pre-crisis peak valuation on a nominal basis by 16.9 percent. The picture is very different across states, with many states well in excess of the prior peak, while Connecticut remains 12.8 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%	56.7%	4.4%	16.9%
Alabama	35.9%	-15.2%	34.0%	5.7%	13.6%
Alaska	69.4%	-3.0%	24.1%	3.0%	20.4%
Arizona	109.9%	-47.9%	88.3%	7.2%	-1.9%
Arkansas	41.5%	-9.7%	26.1%	3.5%	13.9%
California	154.9%	-43.3%	94.4%	4.0%	10.2%
Colorado	40.3%	-12.9%	83.4%	4.1%	59.8%
Connecticut	92.2%	-24.7%	16.0%	2.6%	-12.6%
Delaware	95.0%	-23.6%	32.3%	5.0%	1.1%
District of Columbia	174.7%	-13.7%	59.2%	3.5%	37.5%
Florida	128.5%	-46.9%	75.8%	5.2%	-6.6%
Georgia	38.4%	-31.5%	68.5%	4.9%	15.4%
Hawaii	163.1%	-22.5%	52.7%	2.9%	18.3%
Idaho	71.5%	-28.6%	94.4%	11.3%	38.8%
Illinois	61.6%	-34.4%	38.8%	0.9%	-8.9%
Indiana	21.5%	-7.8%	38.2%	5.6%	27.4%
Iowa	28.3%	-4.7%	27.3%	3.2%	21.3%
Kansas	34.6%	-9.2%	43.7%	4.3%	30.5%
Kentucky	29.7%	-7.6%	33.7%	4.2%	23.5%
Louisiana	48.7%	-5.1%	24.3%	2.4%	17.9%
Maine	82.1%	-12.4%	40.6%	6.2%	23.2%
Maryland	129.3%	-28.6%	28.2%	2.7%	-8.5%
Massachusetts	92.3%	-22.9%	57.8%	4.2%	21.6%
Michigan	23.8%	-39.4%	78.2%	3.3%	7.9%
Minnesota	66.4%	-27.8%	57.5%	3.9%	13.8%
Mississippi	41.0%	-13.7%	29.1%	4.7%	11.4%
Missouri	42.6%	-15.2%	38.1%	4.9%	17.0%
Montana	82.3%	-11.2%	54.1%	5.9%	36.8%
Nebraska	26.7%	-6.6%	43.6%	3.8%	34.1%
Nevada	126.8%	-59.1%	124.5%	3.0%	-8.1%
New Hampshire	90.7%	-23.6%	44.7%	6.2%	10.4%
New Jersey	117.8%	-28.0%	28.6%	3.3%	-7.4%
New Mexico	67.0%	-16.5%	29.1%	7.8%	7.9%
New York	98.2%	-15.2%	43.5%	4.3%	21.7%
North Carolina	40.7%	-15.7%	39.8%	5.0%	17.8%
North Dakota	53.1%	-3.8%	57.6%	3.8%	51.6%
Ohio	21.1%	-18.4%	39.0%	5.1%	13.4%
Oklahoma	37.5%	-2.4%	22.3%	4.8%	19.3%
Oregon	82.0%	-28.1%	82.4%	4.7%	31.2%
Pennsylvania	70.1%	-11.7%	26.1%	3.3%	11.4%
Rhode Island	130.7%	-34.6%	56.9%	7.4%	2.6%
South Carolina	45.0%	-19.5%	38.6%	5.1%	11.6%
South Dakota	45.1%	-4.0%	48.7%	4.4%	42.8%
Tennessee	35.0%	-11.8%	48.5%	6.2%	31.0%
Texas	33.5%	-5.8%	53.7%	3.9%	44.8%
Utah	54.8%	-22.0%	81.0%	7.1%	41.1%
Vermont	83.5%	-7.5%	36.9%	7.4%	26.7%
Virginia	99.6%	-22.8%	30.0%	4.0%	0.3%
Washington	85.2%	-28.7%	94.0%	6.7%	38.2%
West Virginia	42.4%	-6.5%	27.6%	3.3%	19.2%
Wisconsin	44.7%	-16.3%	36.9%	3.4%	14.5%
Wyoming	77.4%	-5.7%	33.3%	6.4%	25.7%

Sources: *Black Knight and Urban Institute.* ***Note:*** *HPI data as of February 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 02/2020, the latest HPI data period.*

State of the US Housing Market

Ginnie Mae MBS constitute 28.5 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 14.3 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.

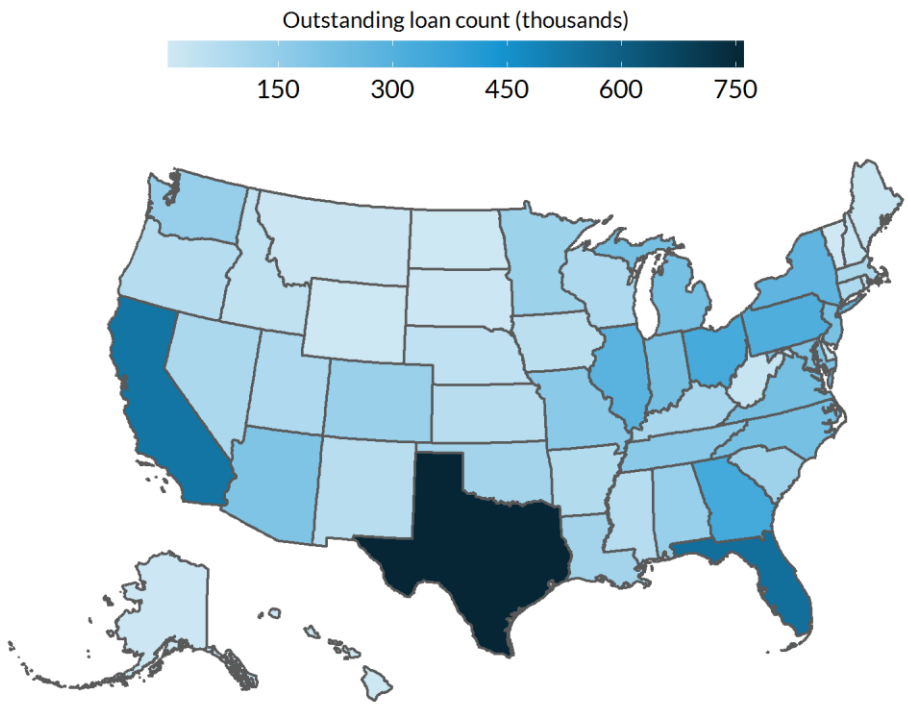
	Agency Issuance (past 1 year)				Agency Outstanding			
State	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)	GNMA Share	GNMA Loan Count	GNMA Avg. Loan Size (000)	GSE Avg. Loan Size (000)
National	32.7%	2,281,009	242.4	262.1	28.5%	11,496,356	164.2	191.2
Alabama	45.0%	41,069	183.3	205.8	43.1%	239,346	128.7	153.6
Alaska	54.2%	6,534	300.5	268.4	49.7%	39,037	231.9	200.5
Arizona	32.9%	84,244	238.7	244.2	27.9%	320,987	166.1	183.5
Arkansas	43.0%	22,282	157.3	185.0	42.7%	140,468	111.3	139.2
California	26.5%	210,106	382.3	374.5	18.7%	793,464	266.5	272.3
Colorado	32.3%	71,409	321.8	310.8	24.1%	240,415	221.9	231.7
Connecticut	31.8%	18,467	228.0	247.8	28.4%	111,187	182.0	189.0
Delaware	39.1%	10,066	232.6	246.3	34.4%	52,671	179.1	185.8
District of Columbia	17.5%	1,799	459.6	412.7	14.3%	10,066	300.6	307.0
Florida	41.4%	197,097	232.5	229.3	33.8%	850,848	167.9	174.5
Georgia	41.0%	103,578	206.6	234.4	36.6%	522,069	144.1	172.8
Hawaii	45.1%	8,707	536.8	427.4	28.0%	32,095	384.3	319.8
Idaho	31.6%	18,309	239.3	236.9	28.3%	80,035	157.3	174.1
Illinois	24.5%	65,363	194.2	223.0	23.4%	377,026	140.5	161.3
Indiana	35.9%	55,846	161.7	180.2	35.2%	310,290	111.3	128.5
Iowa	24.5%	14,920	162.7	185.7	24.1%	88,087	114.0	133.1
Kansas	34.5%	17,462	172.2	198.8	33.9%	106,860	120.3	140.5
Kentucky	38.7%	31,171	166.8	187.2	37.2%	170,629	121.5	134.6
Louisiana	43.7%	33,007	184.2	212.2	40.6%	191,054	137.3	160.1
Maine	33.7%	8,238	204.1	222.5	30.2%	41,504	152.2	163.1
Maryland	43.8%	61,206	307.4	298.3	37.0%	308,541	230.4	220.9
Massachusetts	21.9%	28,837	320.9	323.8	17.7%	126,292	237.4	232.9
Michigan	23.5%	55,100	165.5	193.7	23.3%	312,142	113.5	136.9
Minnesota	23.2%	33,469	221.2	236.0	21.8%	192,231	156.3	173.5
Mississippi	51.2%	19,535	167.6	189.1	49.0%	117,157	120.8	143.3
Missouri	32.9%	47,298	170.6	196.6	33.0%	268,615	120.8	140.9
Montana	30.7%	7,150	242.2	244.4	27.2%	37,200	170.1	180.8
Nebraska	32.5%	12,146	185.5	190.3	31.0%	74,632	123.0	139.2
Nevada	38.8%	38,918	277.2	259.0	31.3%	144,276	190.5	197.4
New Hampshire	31.1%	9,750	258.0	251.1	26.9%	45,603	194.0	184.3
New Jersey	28.5%	48,126	275.4	298.4	25.4%	252,783	209.6	221.2
New Mexico	42.8%	15,985	200.9	211.1	40.6%	99,479	140.8	154.8
New York	24.3%	46,781	268.9	302.2	23.8%	340,517	186.8	217.7
North Carolina	35.4%	84,067	204.6	230.9	31.8%	436,173	141.8	169.1
North Dakota	27.9%	3,171	229.1	226.7	24.5%	17,028	167.4	168.6
Ohio	33.6%	74,429	160.7	177.1	33.7%	459,066	112.3	128.2
Oklahoma	45.9%	29,406	169.3	189.7	46.3%	198,489	119.7	141.7
Oregon	28.7%	31,799	287.2	286.4	21.3%	128,435	201.1	212.4
Pennsylvania	31.5%	65,878	183.7	217.8	30.8%	423,349	135.8	159.9
Rhode Island	36.3%	7,626	253.3	247.3	31.9%	37,639	190.0	185.3
South Carolina	41.0%	49,610	206.4	217.9	35.6%	231,215	147.9	163.4
South Dakota	35.3%	6,045	197.5	207.9	33.8%	31,481	143.6	152.4
Tennessee	39.6%	58,768	208.6	227.8	37.0%	300,350	140.0	168.3
Texas	35.9%	192,502	221.0	238.7	33.8%	1,100,462	144.6	178.4
Utah	26.3%	32,752	278.3	282.9	24.0%	127,856	193.7	214.9
Vermont	25.8%	2,390	207.2	221.9	19.6%	13,067	164.3	160.3
Virginia	44.3%	89,225	299.8	299.4	38.7%	456,826	220.0	219.2
Washington	30.8%	68,104	324.9	328.7	24.6%	274,781	221.4	236.3
West Virginia	51.0%	10,069	169.9	172.1	44.9%	55,807	126.1	127.9
Wisconsin	21.1%	25,723	187.6	201.2	19.2%	139,416	133.5	143.0
Wyoming	41.4%	5,470	232.4	239.5	37.8%	27,310	177.3	179.0

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

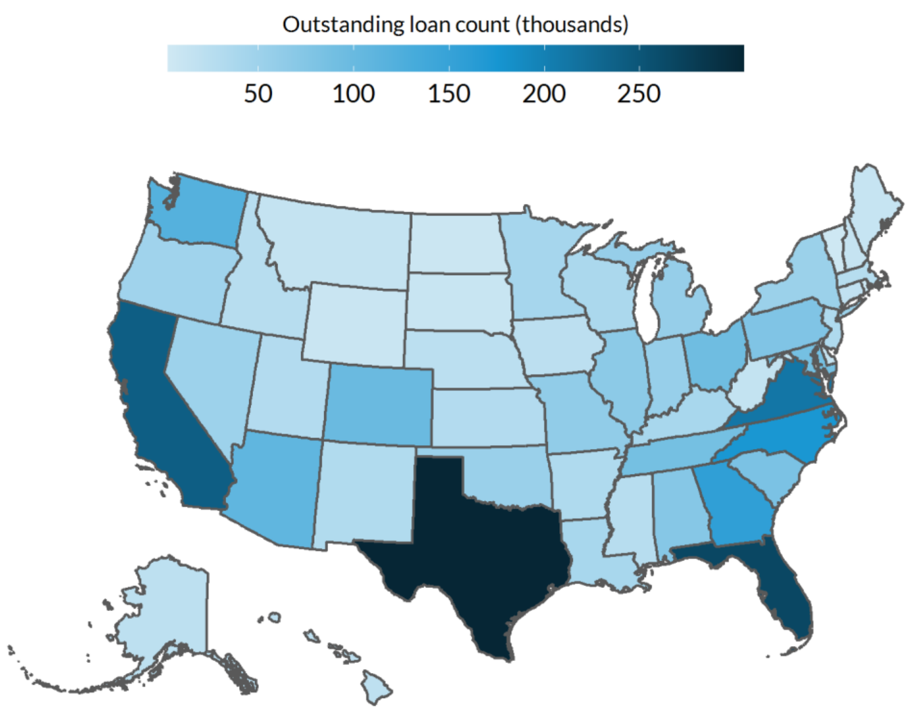
FHA and VA Outstanding Loan Count

Texas , Florida, and California are the top 3 states for FHA and VA lending as measured by the number of loans outstanding. As of March 2020, TX has 760,000 million FHA and 300,000 VA loans outstanding, FL had 550,000 FHA and 260,000 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

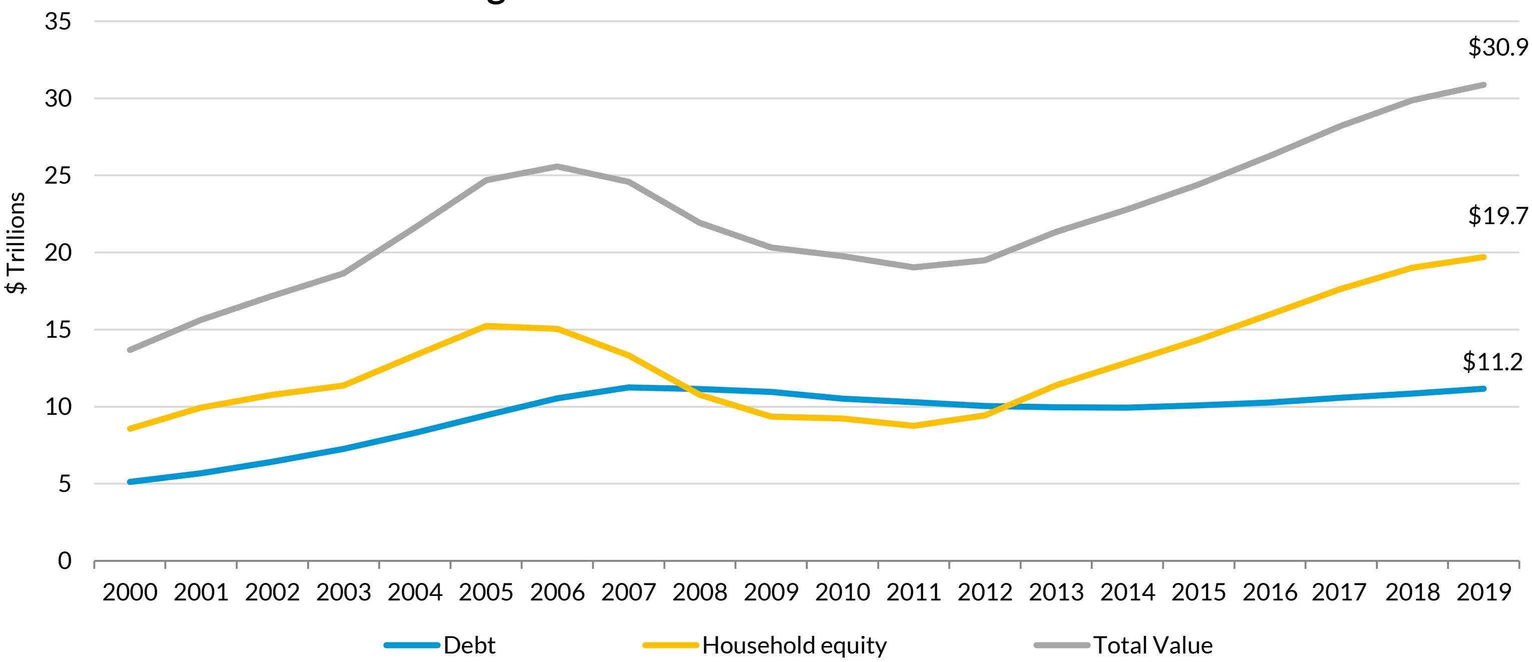


Sources: *eMBS and Urban Institute.* ***Note:*** *Ginnie Mae outstanding share are based on loan balance as of March 2020.*

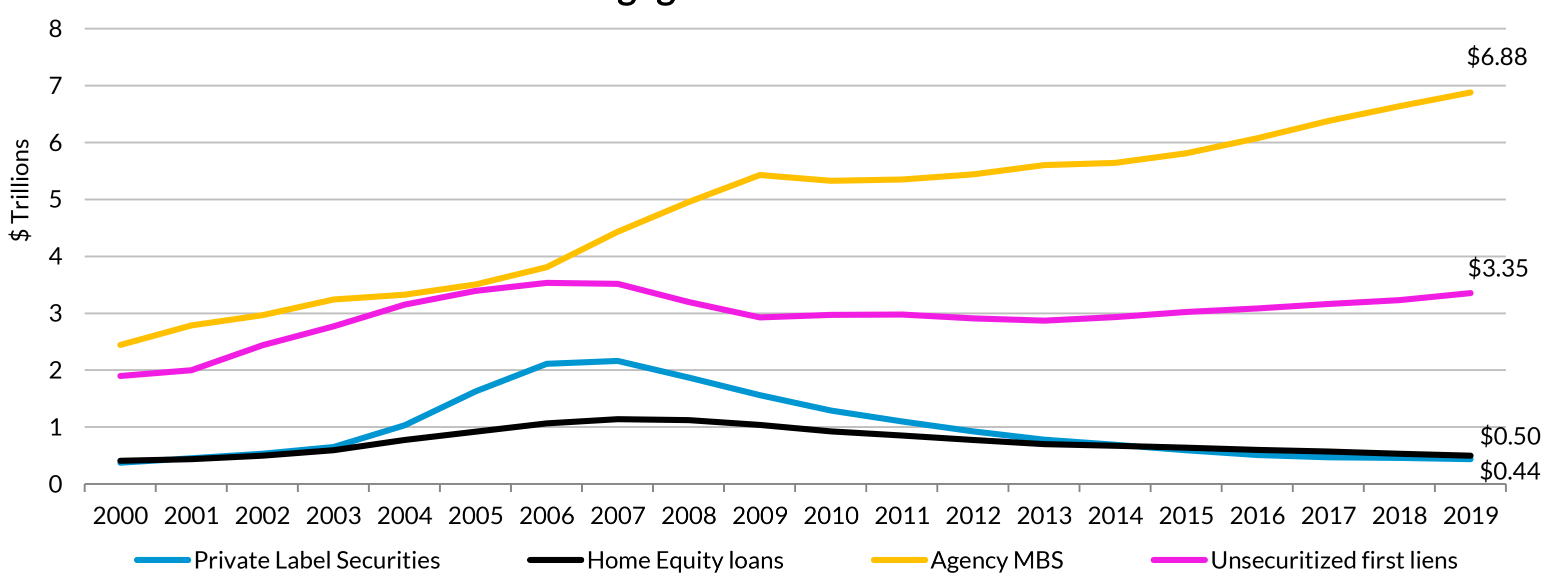
State of the US Housing Market

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

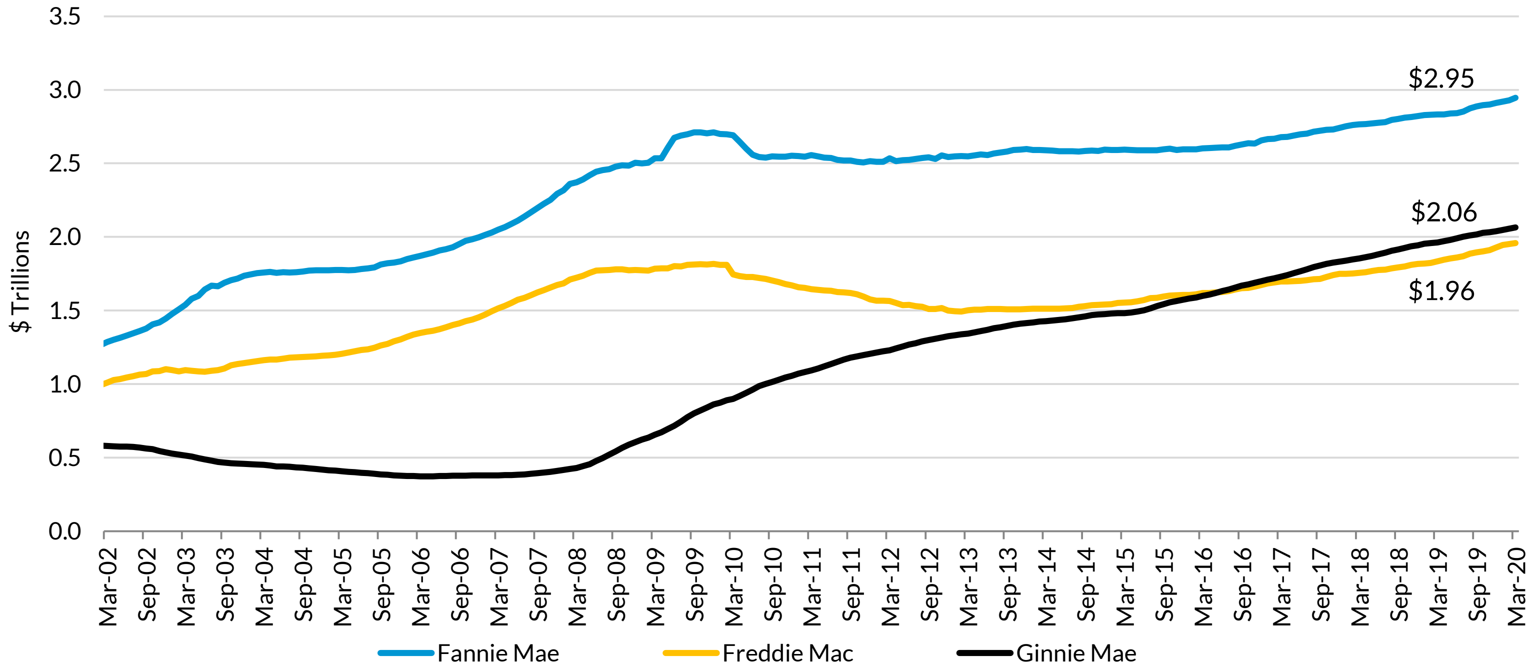


Sources: *Federal Reserve Flow of Funds, eMBS and Urban Institute. Last updated April 2020.*
Note Top: *Single family includes 1-4 family mortgages. The home equity number is grossed up from Fed totals to include the value of households and the non-financial business sector.* **Note Bottom**: *Unsecuritized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

State of the US Housing Market

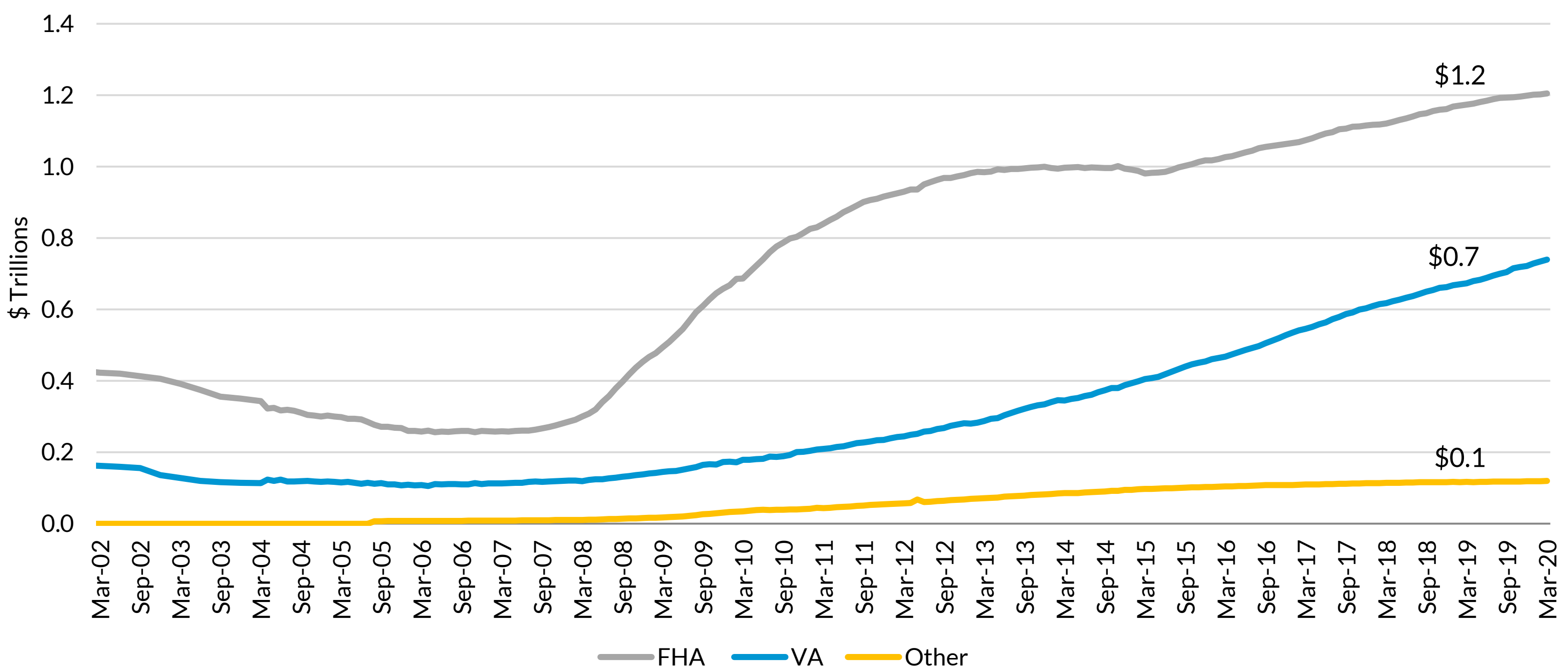
As of March 2020, outstanding securities in the agency market totaled $6.97 trillion: 42.3 percent Fannie Mae, 28.1 percent Freddie Mac, and 29.6 percent Ginnie Mae MBS. Ginnie Mae has more outstandings than Freddie Mac. Within the Ginnie Mae market, both FHA and VA have grown very rapidly since 2009. FHA comprises 58.4 percent of total Ginnie Mae MBS outstanding, while VA comprises 35.8 percent.

Outstanding Agency Mortgage-Backed Securities



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

Outstanding Ginnie Mae Mortgage-Backed Securities

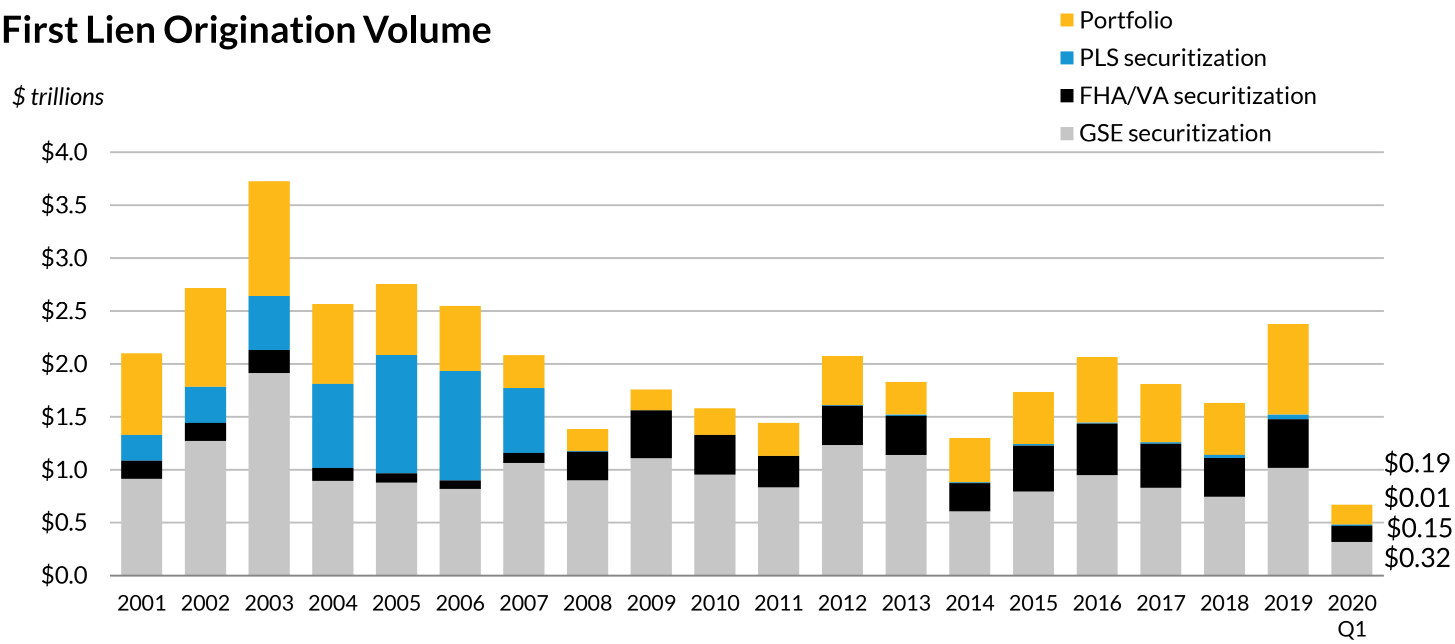


Sources: *eMBS and Urban Institute.* **Note:** *Data as of March 2020.*

State of the US Housing Market

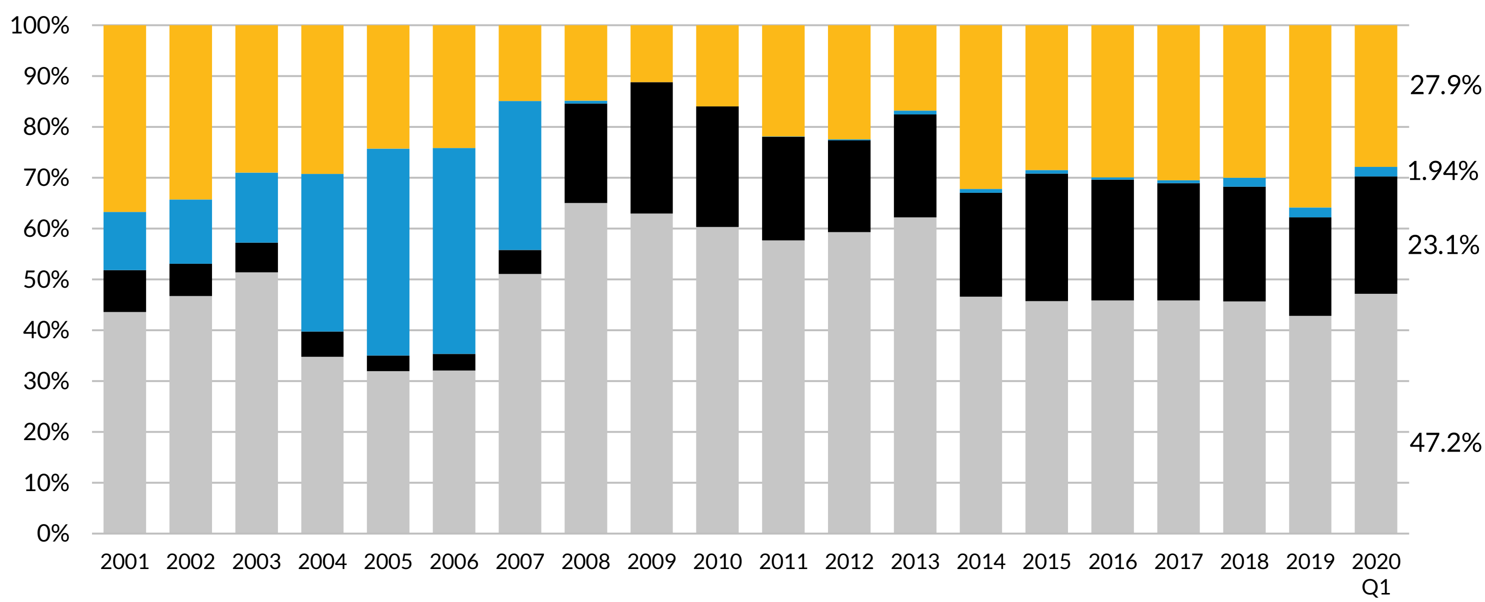
In the first quarter of 2020, first lien originations totaled $670 billion, up from the Q1 2019 volume of $355 billion. The share of portfolio originations was 27.9 percent in Q1 2020, a significant decline from the 37.3 percent share in the same period 2019. The Q1 2020 GSE share stands at 47.2 percent, 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 continues through the first three months of 2020, with gross issuance of $480.1 billion, up 103.7 percent from the same period in 2019. Ginnie Mae gross issuance was up by 102.6 percent and GSE gross issuance was up by 104.2 percent. Within the Ginnie Mae market, FHA was up by 69.4 percent and VA origination was up by 153.9 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	$187.7	$132.3	$319.9	$160.2	$480.1
2020 % Change YOY	107.9%	99.2%	104.2%	102.6%	103.7%
2020 Ann.	$750.6	$529.0	$1,279.6	$640.9	$1,920.6

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	$77.4	$78.3	$4.6	$160.2
2020 % Change YOY	69.4%	153.9%	78.1%	102.6%
2020 Ann.	$309.6	$313.1	$18.2	$640.9

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 March 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 continues into the third month of 2020, with net agency issuance totaling $91.6 billion, up 105.7 percent compared with the first three months of 2019. Ginnie Mae net issuance was $24.5 billion, comprising 31.2 percent of total agency net issuance. Ginnie Mae net issuance in the first three months of 2020 was comprised of 72.1 percent VA and 24.4 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	$36.4	$30.7	$67.1	$24.5	$91.6
2020 % Change YOY	304.1%	90.7%	167.2%	26.2%	105.7%
2020 Ann.	$145.4	$123.0	$268.4	$97.9	$366.4

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	$6.0	$17.7	$0.8	$24.5
2020 % Change YOY	-40.4%	89.5%	1153.9%	26.2%
2020 Ann.	$23.9	$70.6	$3.4	$97.9

Sources: *eMBS and Urban Institute.* **Note :** *Dollar amounts are in billions. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of March 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 March 2020 gross agency issuance of $163.9 billion is well above the March 2019 level of $83.5 billion, as lower rates gave borrowers a stronger incentive to refinance, contributing to a sharp increase in refinancing volume.

Monthly Agency Issuance

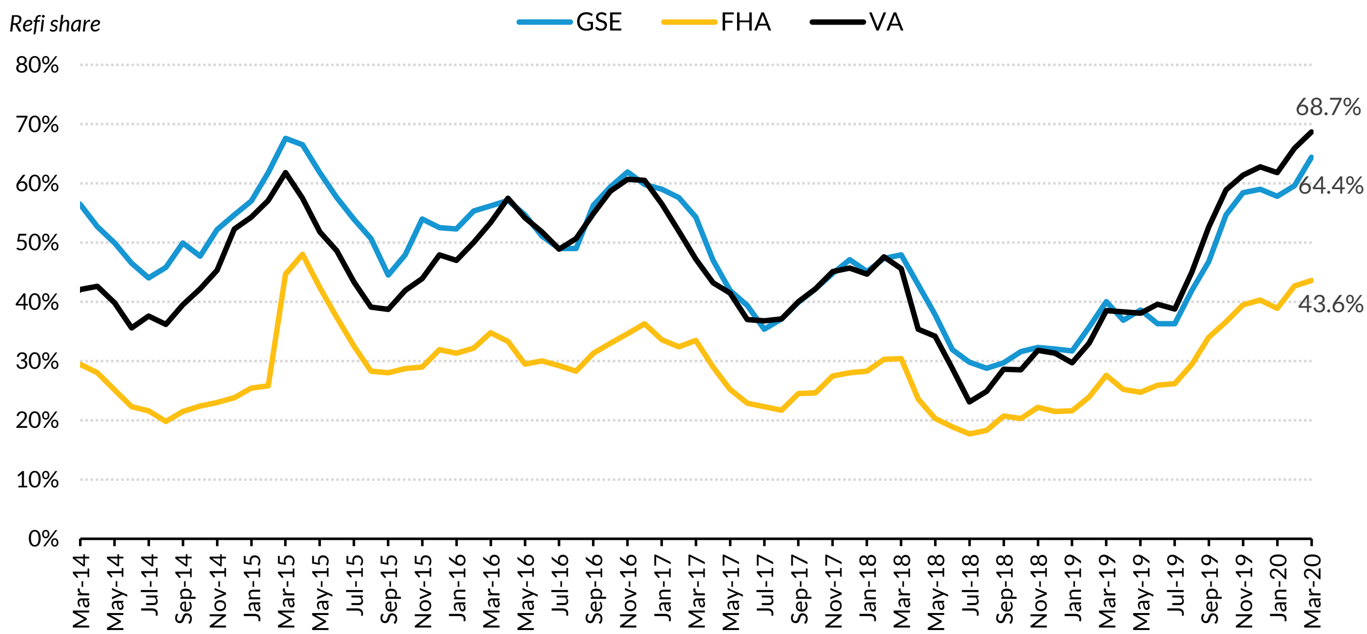
	Gross Issuance				Net Issuance			
Date	Fannie Mae	Freddie Mac	Ginnie Mae	Total	Fannie Mae	Freddie Mac	Ginnie Mae	Total
Jan-17	$55.6	$38.5	$42.6	$136.6	$8.5	$10.7	$10.3	$29.5
Feb-17	$37.6	$27.4	$33.1	$98.1	$2.5	$6.5	$9.4	$18.5
Mar-17	$39.5	$24.4	$31.3	$95.2	$9.7	$6.2	$9.7	$25.6
Apr-17	$39.3	$21.2	$36.4	$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

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 March 2020.*

US Agency Market, Originations

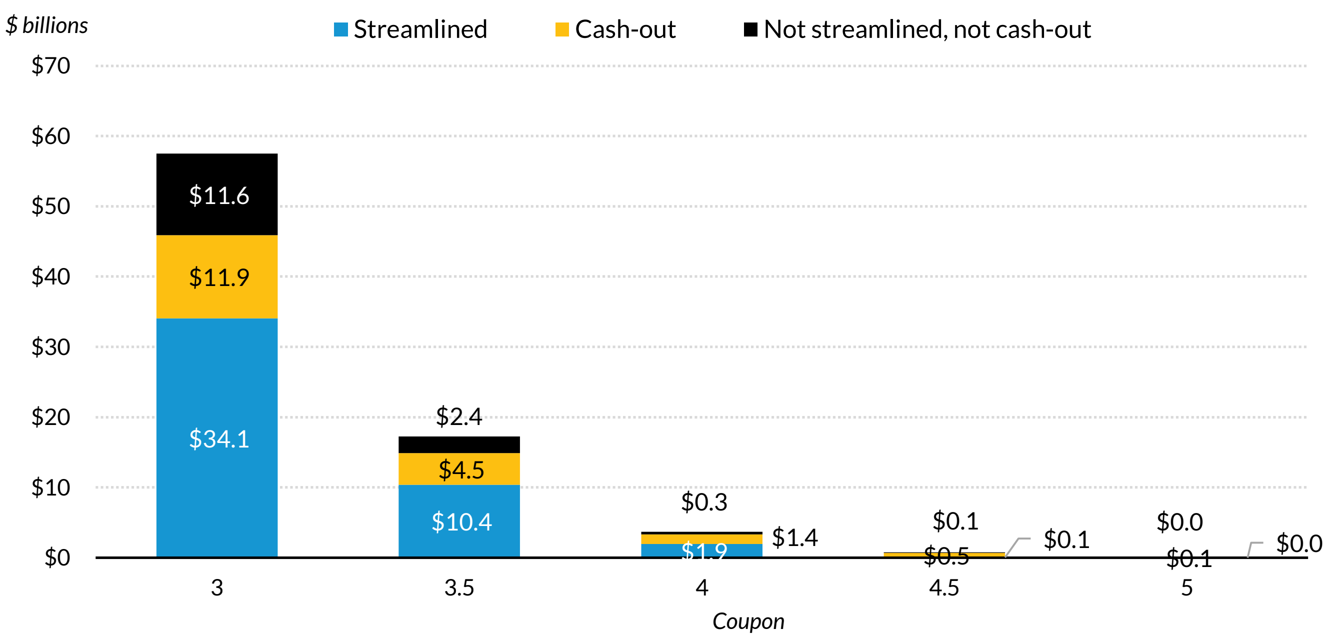
The FHA refinance share stood at 43.6 percent in March 2020, below the 64.4 percent refi share for GSE originations and the 68.7 percent share for the VA. Refinances as a share of all originations grew during most of 2019 as interest rates were low. They continue to grow into 2020 as rates drop further. 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 March 2020.*

Ginnie Mae Refinance Issuance by Type: 2020 YTD

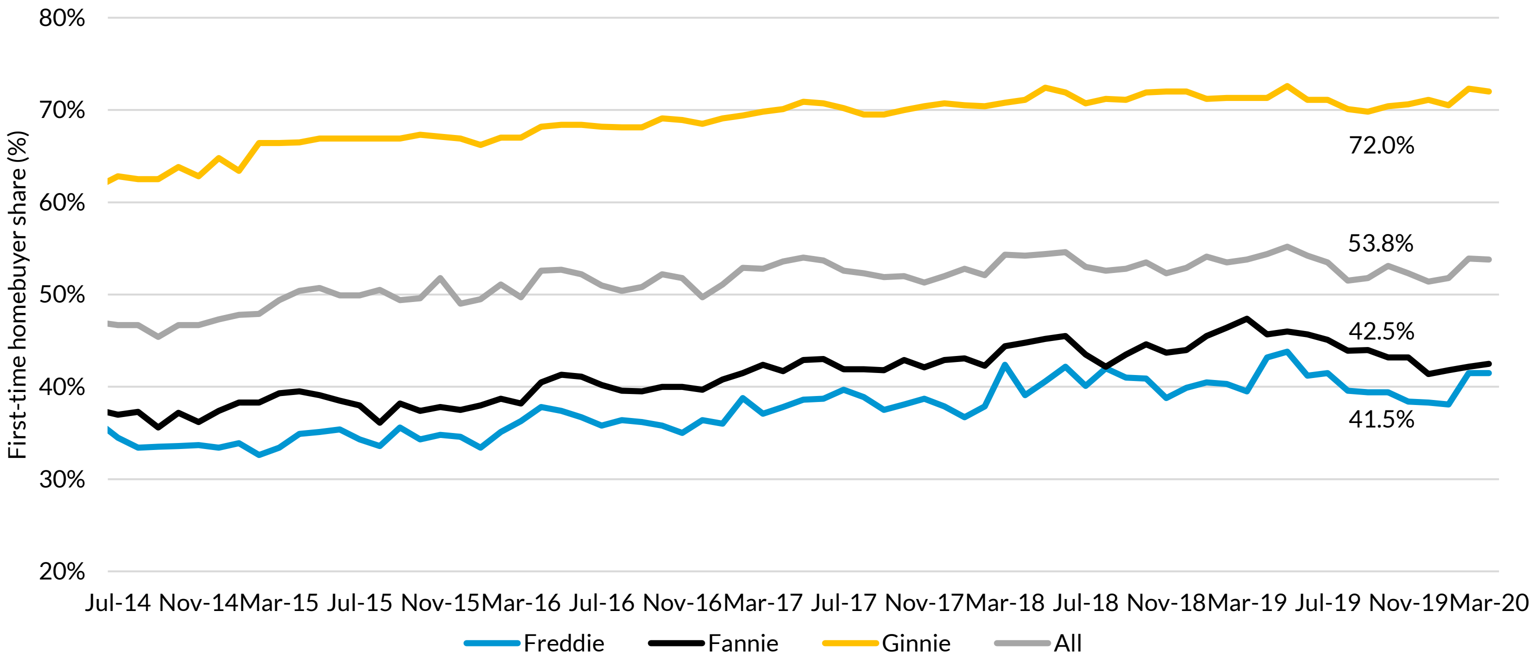


Sources: *eMBS and Urban Institute.*
Note: *Based on at-issuance balance. Data as of March 2020.*

Credit Box

The first time homebuyer share of Ginnie Mae purchase loans was 72.0 percent in March 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 42.5 percent and 41.5 percent of Fannie Mae and Freddie Mac purchase originations respectively. The bottom table shows that based on mortgages originated in March 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 March 2020.*

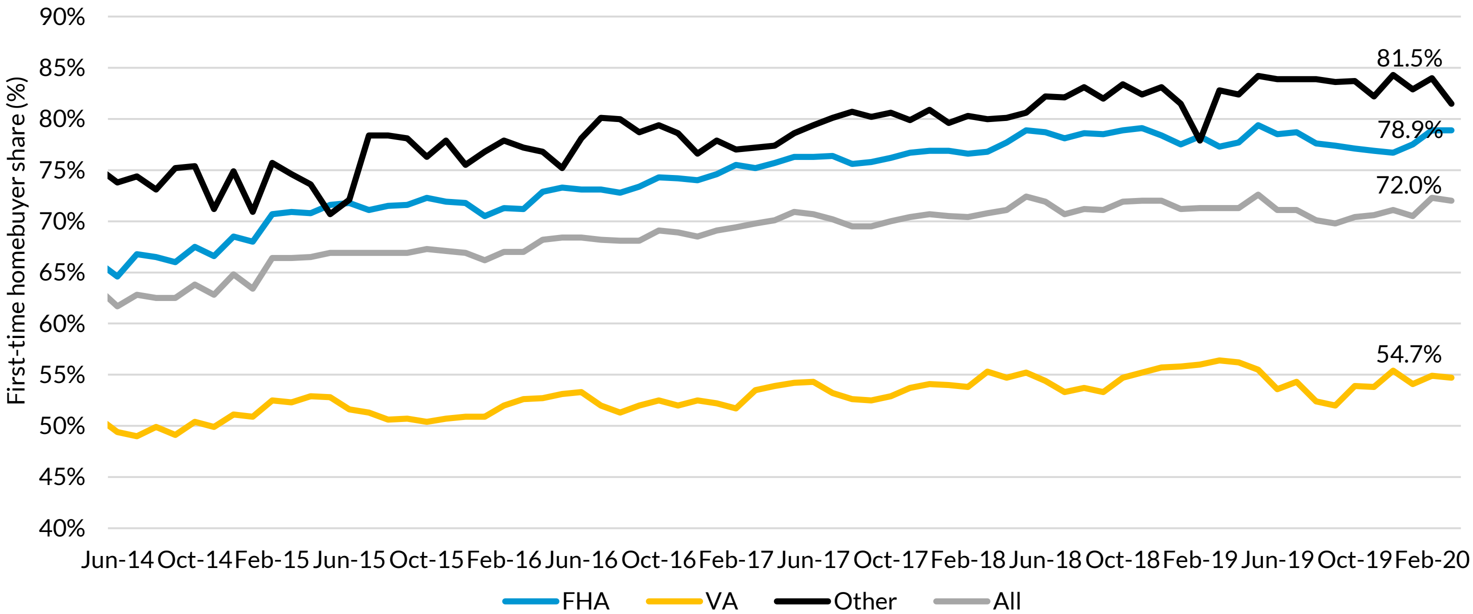
	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	264,837	291,845	249,942	270,882	228,947	279,299	243,031	281,946
Credit Score	744.8	757.4	746.0	758.0	679.7	701.2	710.8	741.0
LTV (%)	87.2	79.7	87.2	79.9	96.8	95.6	92.3	84.4
DTI (%)	34.9	36.2	35.0	36.3	41.7	42.7	38.5	38.2
Loan Rate (%)	3.8	3.8	3.9	3.8	3.9	3.7	3.9	3.8

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 March 2020.*

Credit Box

Within the Ginnie Mae purchase market, 78.9 percent of FHA loans, 54.7 percent of VA loans and 81.5 percent of other loans represent financing for first-time home buyers in March 2020. The bottom table shows that based on mortgages originated in February 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 March 2020.*

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	224,493	244,225	273,355	327,254	159,007	167,386	228,947	279,299
Credit Score	670.5	673.3	700.3	728.7	695.6	700.7	679.7	701.2
LTV (%)	95.4	94.0	99.9	96.7	99.2	99.0	96.8	95.6
DTI (%)	43.1	44.4	40.5	41.9	35.0	36.0	41.7	42.7
Loan Rate (%)	4.0	3.9	3.7	3.5	3.8	3.9	3.9	3.7

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

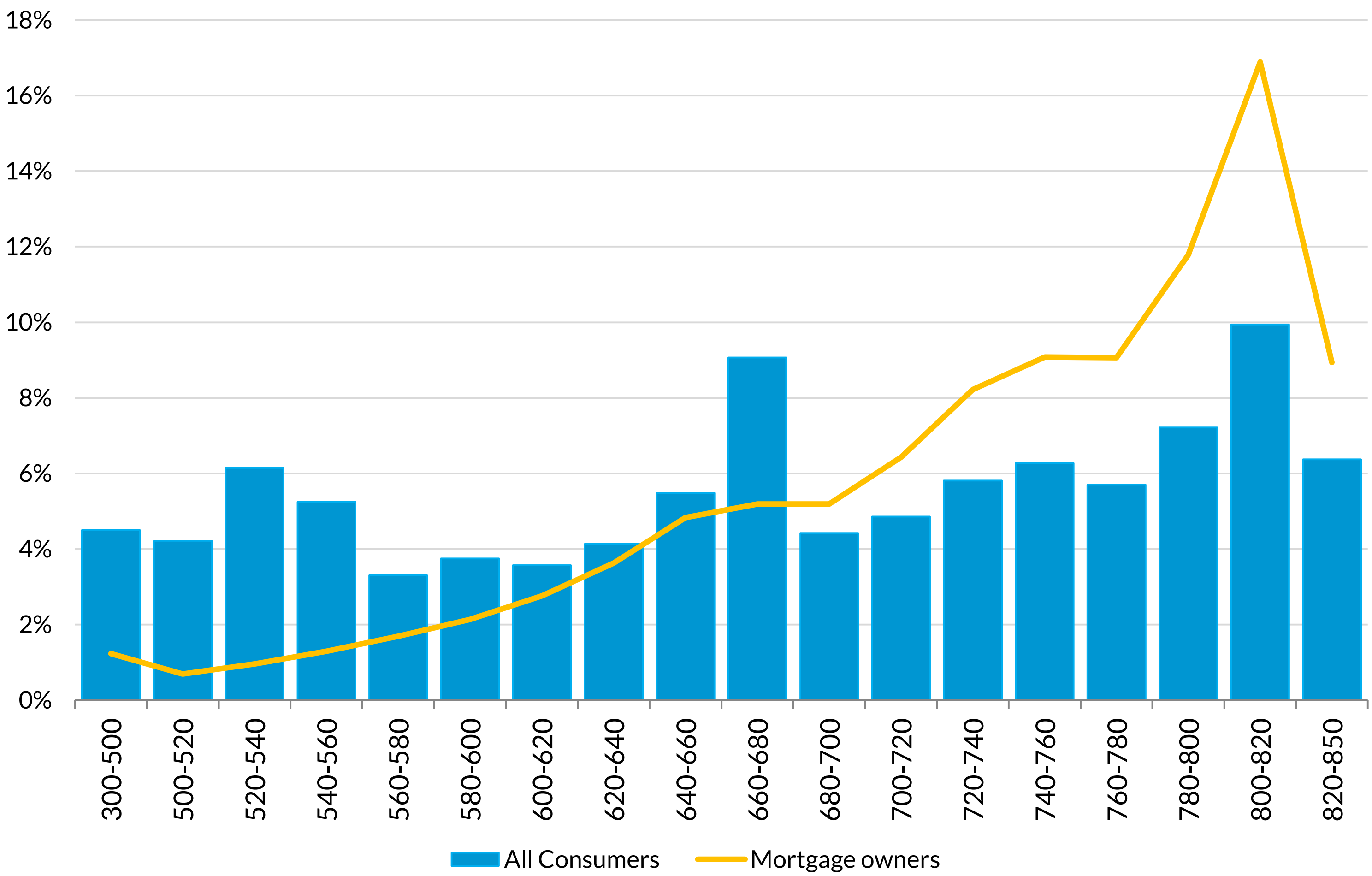
Credit Box

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.*

March 2020 Credit Box at a Glance

In March 2020, the median Ginnie Mae FICO score was 684 versus 761 for Fannie Mae and 759 for Freddie Mac. Note that the FICO score for the 10th percentile was 621 for Ginnie Mae, versus 691 for Fannie Mae and 690 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 718 and other loans have a median FICO score of 694.

Purchase FICO

	Number of Loans	P10	P25	Median	P75	P90	Mean
All	231,966	642	683	736	777	797	727
Fannie	81,655	693	725	761	787	801	753
Freddie	59,104	694	725	761	788	802	754
Ginnie	91,207	621	644	678	726	771	686

Refi FICO

	Number of Loans	P10	P25	Median	P75	P90	Mean
All	333,816	662	704	750	782	800	739
Fannie	160,814	691	724	761	787	802	753
Freddie	94,917	687	720	758	786	801	750
Ginnie	78,085	622	653	692	745	783	697

All FICO

	Number of Loans	P10	P25	Median	P75	P90	Mean
All	565,782	652	695	744	780	799	734
Fannie	242,469	691	724	761	787	802	753
Freddie	154,021	690	722	759	787	801	751
Ginnie	169,292	621	647	684	735	778	691

Purchase FICO: Ginnie Mae Breakdown By Source

	Number of Loans	P10	P25	Median	P75	P90	Mean
All	91,207	621	644	678	726	771	686
FHA	56,423	614	637	666	701	741	671
VA	26,850	631	662	714	766	794	713
Other	7,934	637	658	693	734	767	697

Refi FICO: Ginnie Mae Breakdown By Source

	Number of Loans	P10	P25	Median	P75	P90	Mean
All	78,085	622	653	692	745	783	697
FHA	31,114	608	636	664	696	734	667
VA	46,370	637	673	720	767	793	716
Other	601	643	670	709	751	779	708

All FICO: Ginnie Mae Breakdown By Source

	Number of Loans	P10	P25	Median	P75	P90	Mean
All	169,292	621	647	684	735	778	691
FHA	87,537	612	637	665	699	739	670
VA	73,220	634	669	718	767	794	715
Other	8,535	637	659	694	735	768	697

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 March 2020.*

March 2020 Credit Box at a Glance

In March 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, 97.8 for VA and 101.0 for other programs.

Purchase LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	232,275	74.0	80.0	95.0	96.5	100.0	87.9
Fannie	81,723	65.0	79.0	80.0	95.0	97.0	82.3
Freddie	59,145	65.0	80.0	80.0	95.0	95.0	82.4
Ginnie	91,407	93.0	96.5	96.5	100.0	102.0	96.5
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	351,498	48.0	62.0	75.0	85.0	96.4	72.9
Fannie	160,816	44.0	58.0	70.0	79.0	85.0	67.0
Freddie	94,927	45.0	59.0	71.0	79.0	82.0	67.4
Ginnie	95,755	71.7	81.4	91.8	98.1	100.0	88.3
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	583,773	53.6	70.0	80.0	95.0	97.5	78.9
Fannie	242,539	48.0	62.0	75.0	81.0	95.0	72.2
Freddie	154,072	49.0	65.0	76.0	82.0	95.0	73.2
Ginnie	187,162	79.0	89.6	96.5	98.8	101.0	92.3

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	91,407	93.0	96.5	96.5	100.0	102.0	96.5
FHA	56,533	92.8	96.5	96.5	96.5	96.5	95.1
VA	26,898	91.5	100.0	100.0	102.3	103.3	98.4
Other	7,976	95.4	99.1	101.0	101.0	101.7	99.2
Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	95,755	71.7	81.4	91.8	98.1	100.0	88.3
FHA	39,840	73.2	81.4	90.9	97.2	98.4	87.4
VA	55,264	70.3	82.7	92.2	99.4	101.1	88.8
Other	651	82.8	93.2	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	187,162	79.0	89.6	96.5	98.8	101.0	92.3
FHA	96,373	80.9	90.2	96.5	96.5	97.4	91.9
VA	82,162	74.9	87.3	97.8	100.0	102.3	92.0
Other	8,627	94.5	98.9	101.0	101.0	101.7	98.9

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

March 2020 Credit Box at a Glance

In March 2020, the median Ginnie Mae debt-to-income ratio (DTI) was 42.2 percent, considerably higher than the 36.0 percent median DTI for both Freddie Mac and Fannie Mae. The 90th percentile for Ginnie Mae was 54.3 percent, also much higher than the 47.0 percent DTI for Fannie Mae and Freddie Mac, respectively. Within the Ginnie Mae market, the median FHA DTI ratio was 44.1 percent, versus 40.3 percent for VA and 35.9 percent for other lending programs.

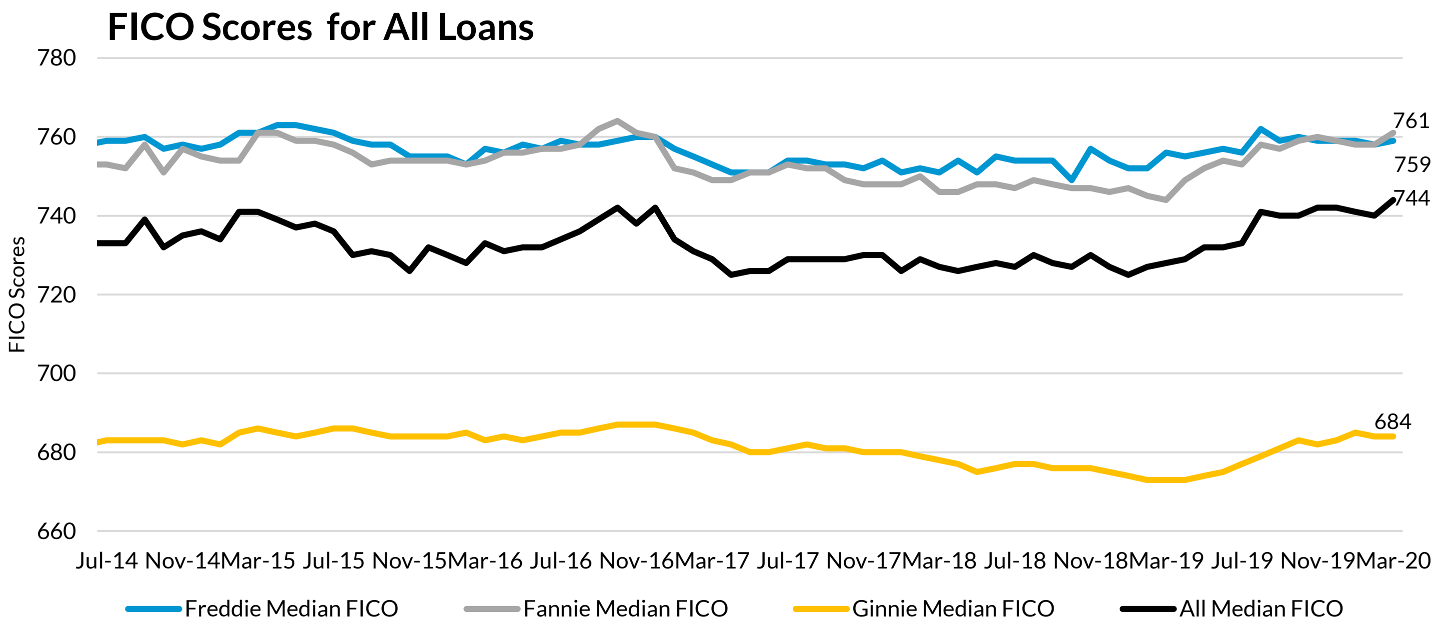
Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	231,925	24.0	31.0	39.0	45.0	50.0	38.1
Fannie	81,714	22.0	29.0	37.0	43.0	47.0	35.5
Freddie	59,142	22.0	29.0	37.0	43.0	47.0	35.6
Ginnie	91,069	28.9	35.6	42.7	49.3	54.3	42.0
Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	292,754	21.0	28.0	36.0	43.0	47.1	35.1
Fannie	160,756	21.0	27.0	35.0	42.0	46.0	34.3
Freddie	94,920	21.0	27.0	35.0	42.0	46.0	34.5
Ginnie	37,078	24.9	32.0	40.6	48.5	54.2	39.8
All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	524,679	22.0	29.0	37.0	44.0	49.0	36.4
Fannie	242,470	21.0	28.0	36.0	43.0	47.0	34.7
Freddie	154,062	21.0	28.0	36.0	43.0	47.0	34.9
Ginnie	128,147	27.8	34.6	42.2	49.1	54.3	41.4

Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	91,069	28.9	35.6	42.7	49.3	54.3	42.0
FHA	56,503	30.8	37.6	44.4	50.4	54.7	43.4
VA	26,644	27.0	34.0	41.7	48.6	54.1	41.1
Other	7,922	25.9	30.9	36.1	40.2	43.1	35.2
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	37,078	24.9	32.0	40.6	48.5	54.2	39.8
FHA	19,003	27.7	34.7	43.3	50.0	54.6	41.9
VA	17,629	22.8	30.5	37.7	46.3	53.1	37.9
Other	446	14.6	20.9	30.2	37.0	42.4	29.3
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	128,147	27.8	34.6	42.2	49.1	54.3	41.4
FHA	75,506	30.0	36.9	44.1	50.3	54.7	43.0
VA	44,273	25.2	32.0	40.3	47.8	53.8	39.8
Other	8,368	25.2	30.5	35.9	40.1	43.1	34.9

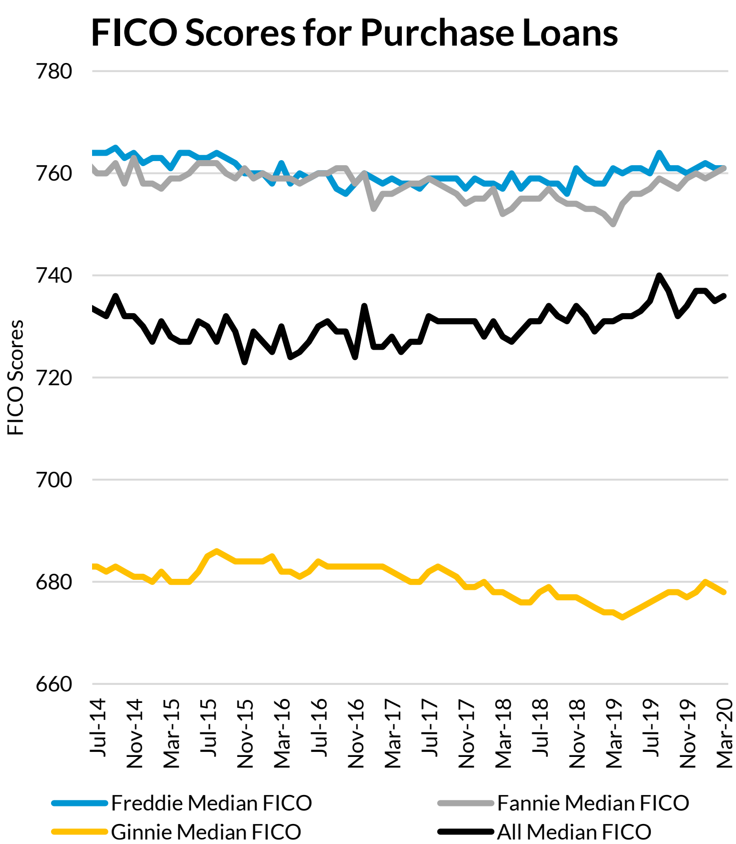
Sources: *eMBS and Urban Institute.* **Note**: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of March 2020.*

Credit Box: Historical

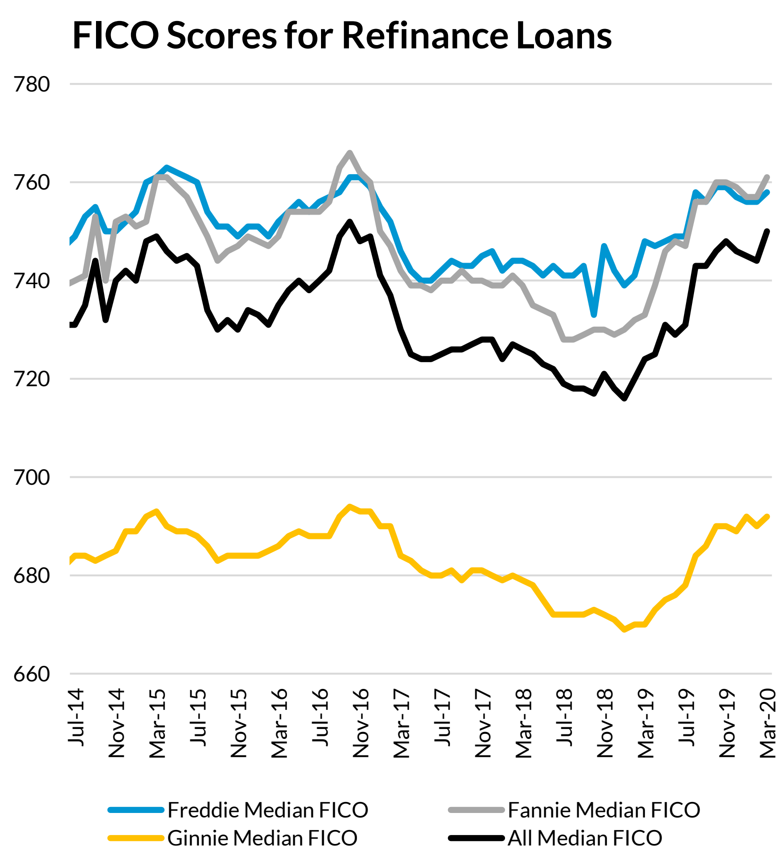
The median FICO score for all agency loans originated in March 2020 was 744, up considerably since the start of last year, owing to the refinance wave, which higher FICO borrowers take advantage of with greater frequency. The figures show that the median FICO score for Ginnie Mae borrowers has always been considerably lower than for GSE borrowers. Since early 2019, the median FICO scores for Fannie, Freddie and Ginnie borrowers have moved up for both purchase and refinance loans. The difference between Ginnie Mae and GSE borrower FICOs is slightly wider for purchase loans than for refi loans.



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



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

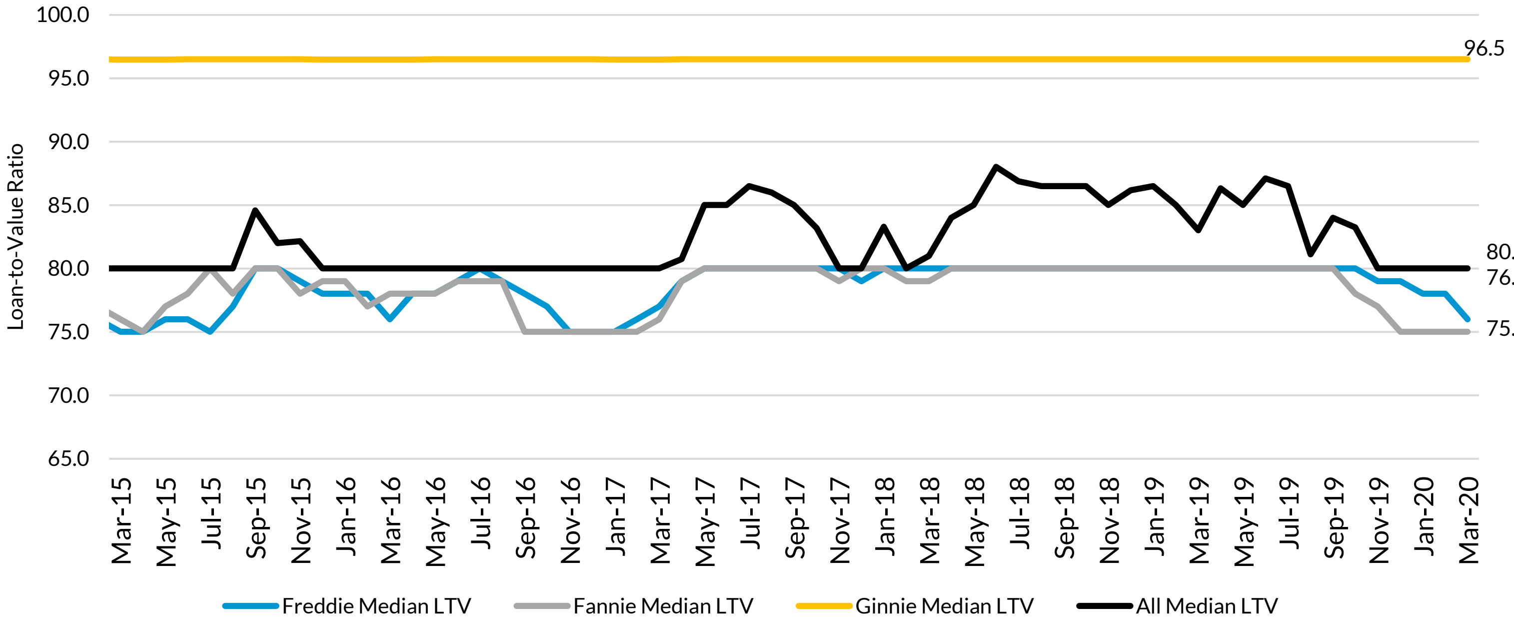


Sources: *eMBS and Urban Institute.* **Note:** *Data as of March 2020.*

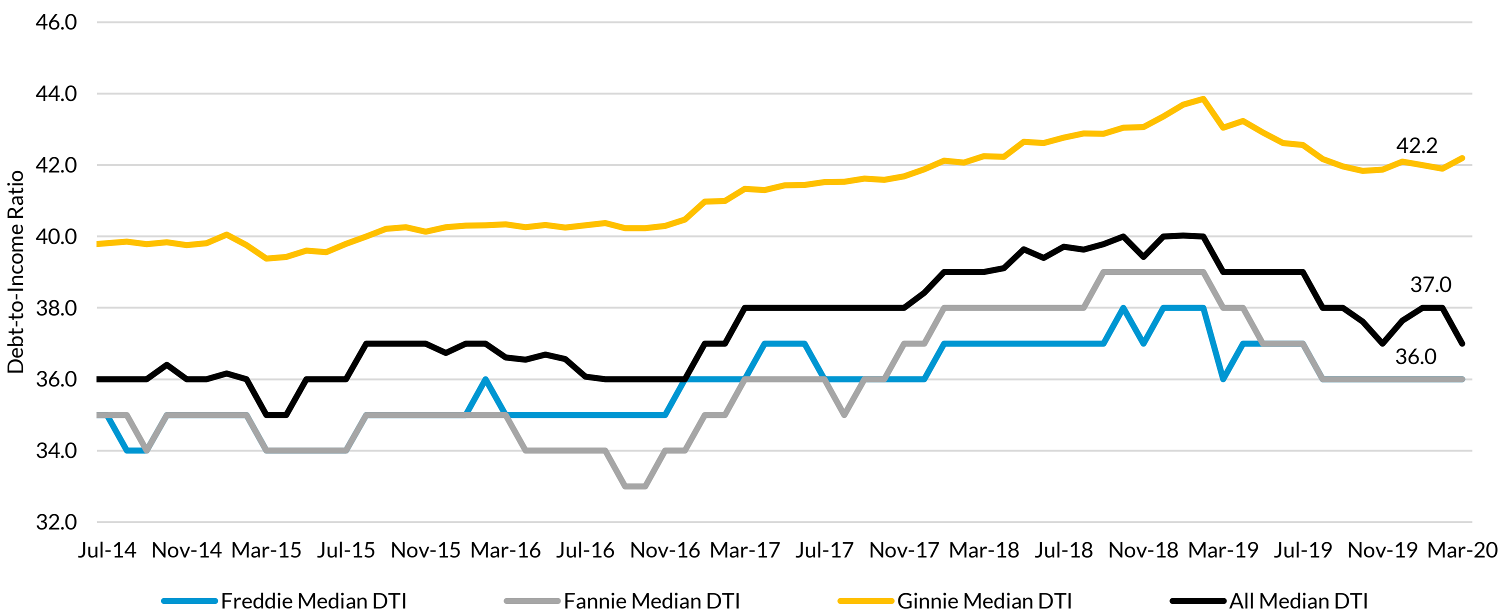
Credit Box: Historical

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

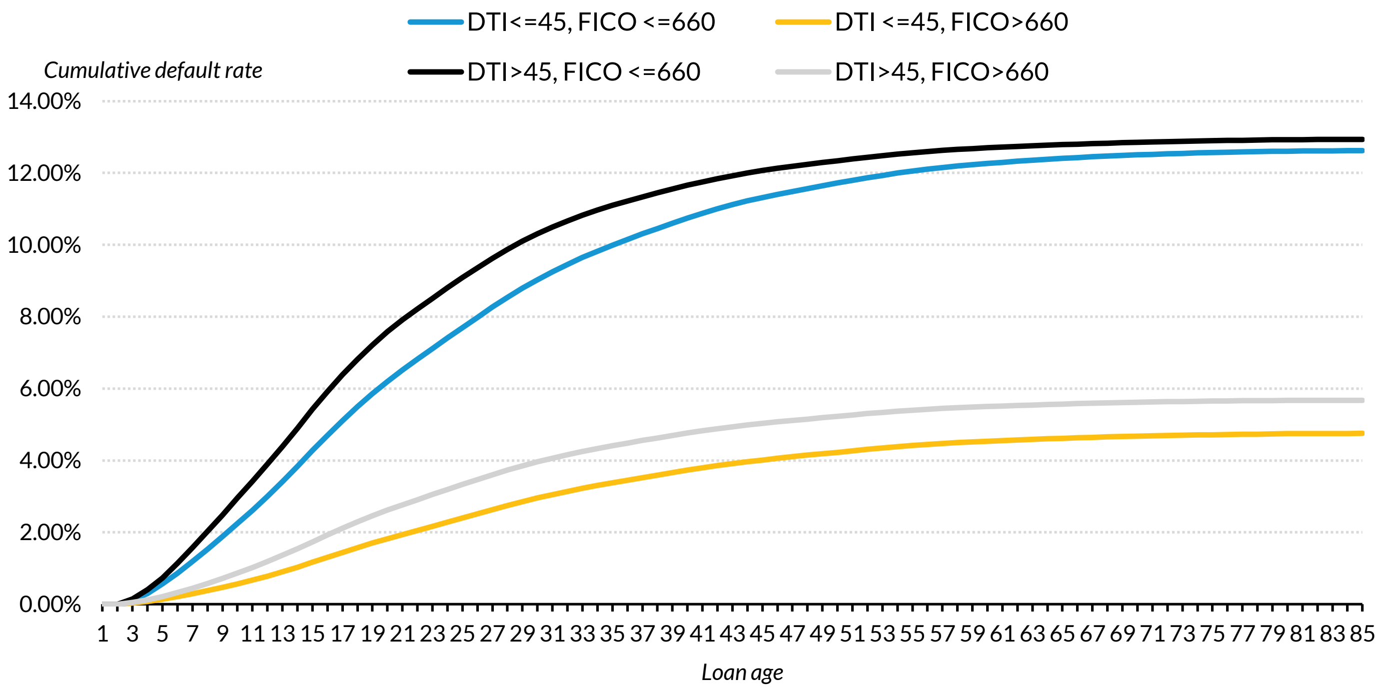


Sources: *eMBS and Urban Institute.* **Note:** *In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium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

Credit Box: Historical

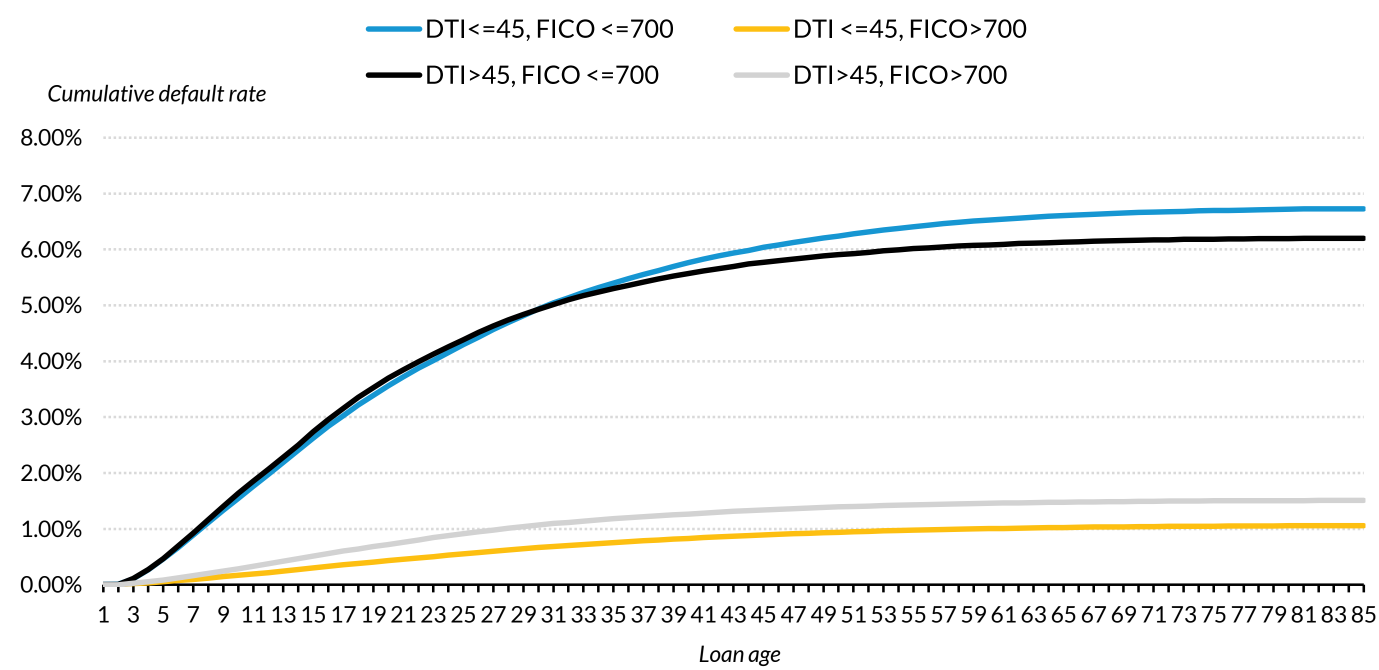
DTI is a much weaker predictor of performance than FICO score. The top chart shows FHA borrowers with higher DTIs do default more than those with lower DTIs, but the differences are modest, as evidenced by the fact that the black line is very close to the blue line and the grey line is not that much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

VA Cumulative Default Rate by DTI and FICO

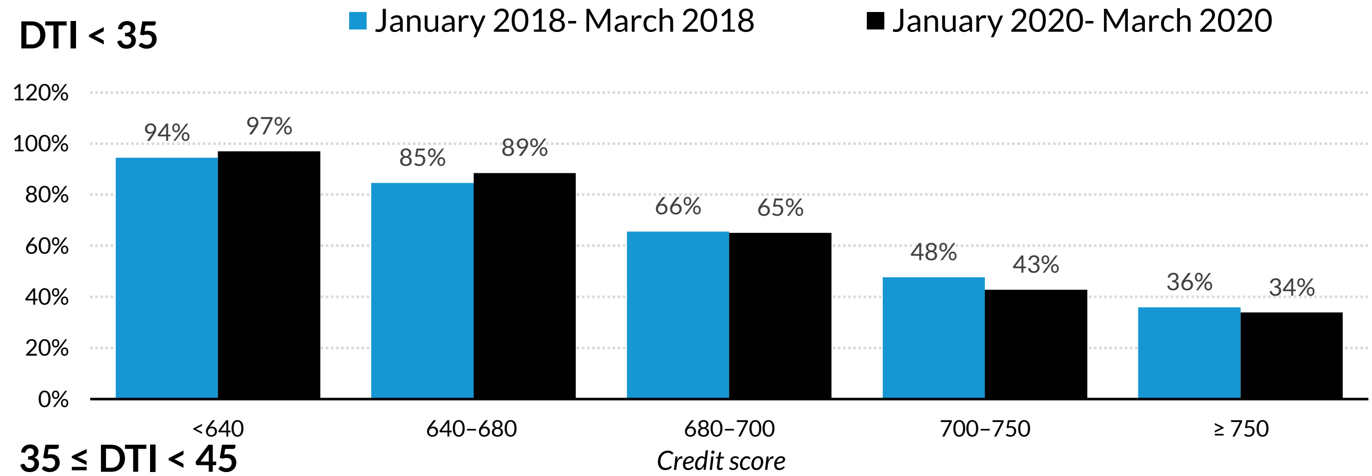


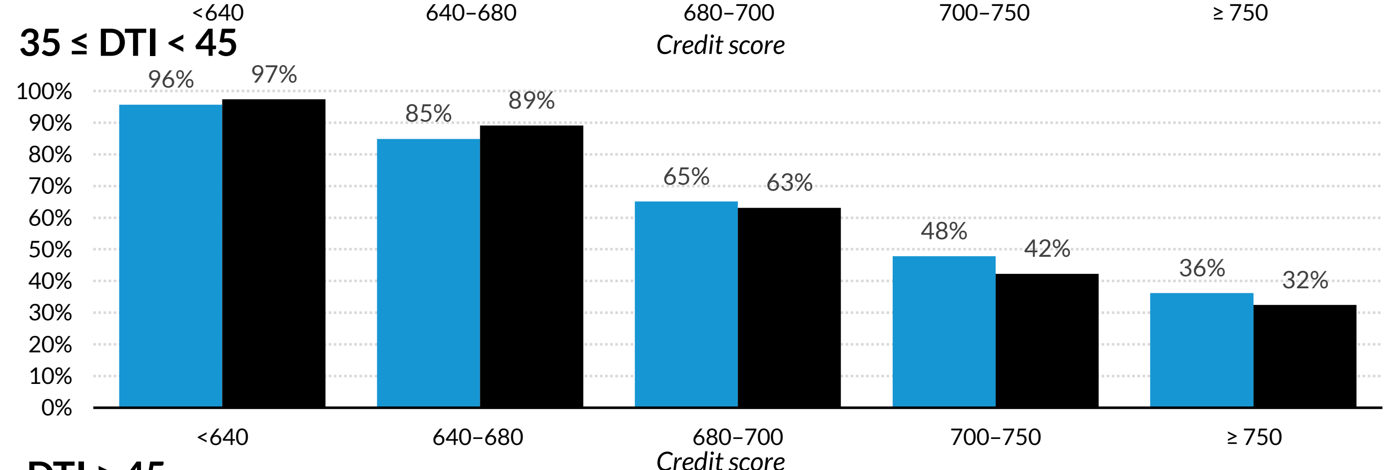
Sources: *eMBS and Urban Institute.* **Note:** Defaults = 180 days delinquent. *Data as of March 2020.*

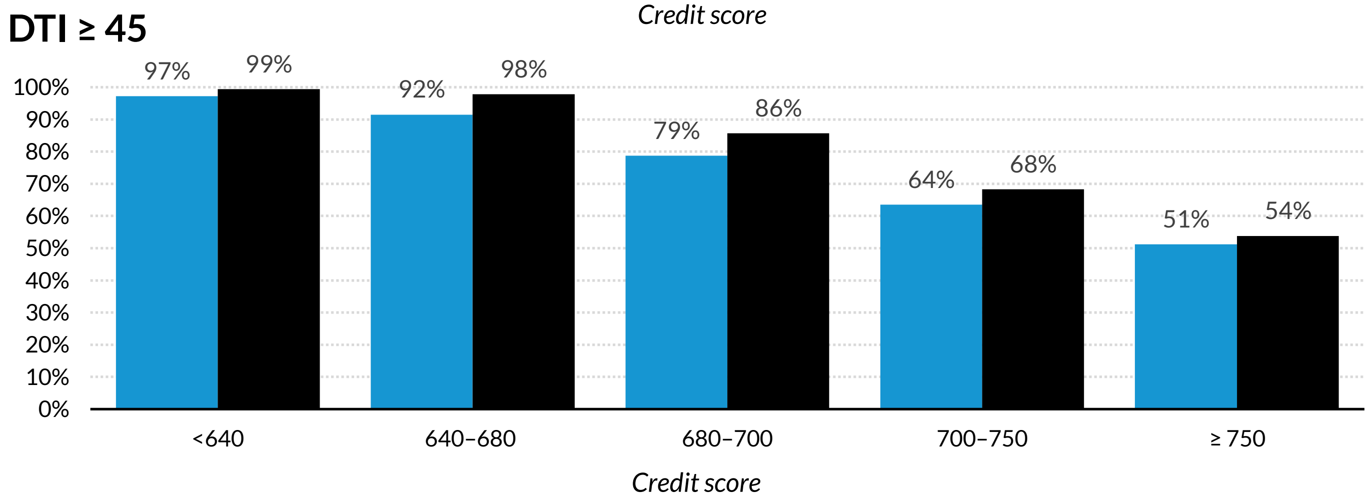
Credit Box: Historical

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 the first three months of 2020, Ginnie Mae accounted for 97 percent of agency issuance for DTIs under 35 and FICOs below 640, compared to just 34 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 January 2020– March 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 86 percent; it was 63-65 percent for the same FICO in the lower DTI buckets. Comparing this period to 2 years earlier, it is clear the GSEs have marginally 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 65.9 percent of its issuances in the January 2020-March 2020 period having LTVs of 95 or above, compared to 12.8 percent for the GSEs. The GSEs have decreased their high-LTV lending share from 16.8 percent in January 2018–March 2018. Ginnie Mae's high-LTV lending is also down, but by less than the GSE share, over the same period from 67.6 percent. The share of high-LTV agency loans going to highest FICO borrowers (i.e. above 750) has increased from the January 2018-March 2018 period to the January 2020-March 2020 period. The distribution by DTI looks similar across the two three month periods.

Share of Loans with LTV ≥ 95

	Ginnie Mae	GSE	All
January 2018- March 2018	67.6%	16.8%	33.0%
January 2020- March 2020	65.9%	12.8%	26.4%

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

January 2018-March 2018

	FICO					
DTI	<640	640–680	680–700	700–750	≥ 750	All
< 35	2.8%	5.2%	2.9%	7.3%	8.9%	27.1%
35 –45	5.3%	9.5%	4.9%	11.1%	9.4%	40.3%
≥ 45	4.5%	8.8%	4.4%	8.9%	6.1%	32.6%
All	12.7%	23.5%	12.2%	27.2%	24.5%	100.0%

January 2020-March 2020

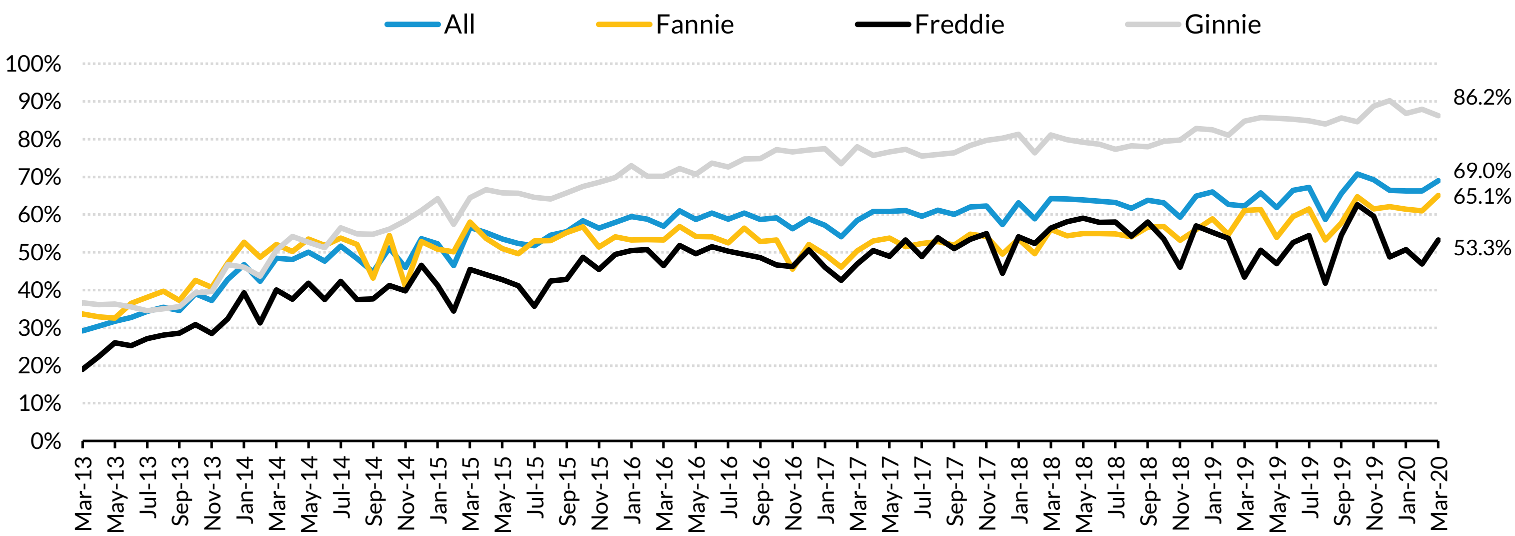
	FICO					
DTI	<640	640–680	680–700	700–750	≥ 750	All
< 35	2.8%	4.7%	2.7%	7.6%	10.4%	28.1%
35 –45	5.0%	8.3%	4.7%	11.7%	10.9%	40.7%
≥ 45	4.6%	7.9%	3.9%	8.4%	6.4%	31.3%
All	12.4%	20.9%	11.2%	27.7%	27.7%	100.0%

Sources: *eMBS and Urban Institute.*

Nonbank Originators

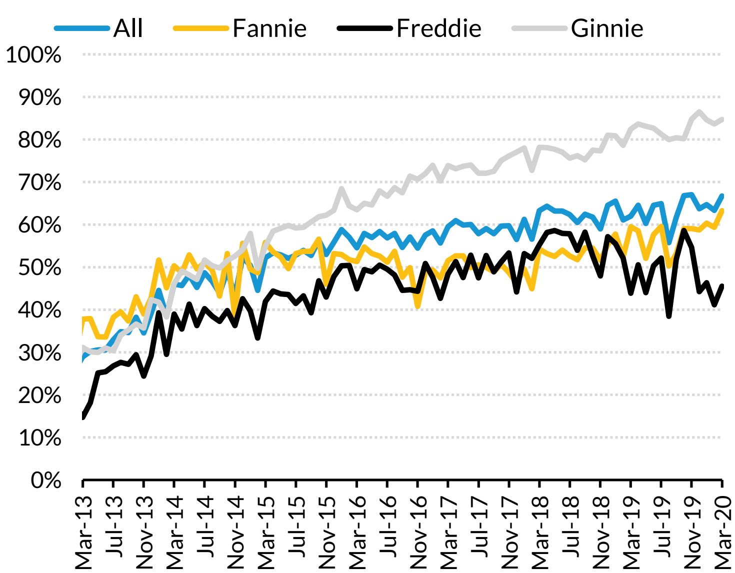
The nonbank origination share has been rising steadily for all three agencies since 2013. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at 86.2 percent in March 2020, down from a record high of 90.2 percent at the end of 2019. Freddie's nonbank share grew to 53.3 percent, while Fannie's nonbank rose more gradually to 65.1 percent in March (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

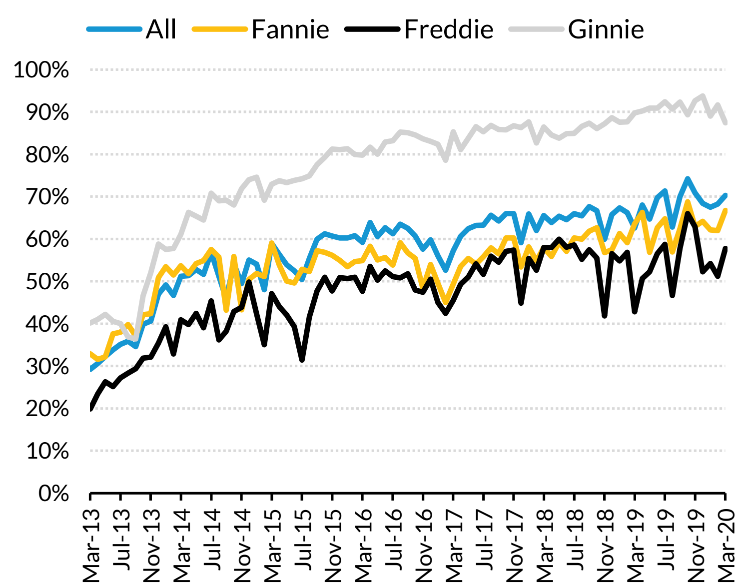


Sources: *eMBS and Urban Institute*
Note: *Data as of March 2020.*

Nonbank Origination Share: Purchase Loans



Nonbank Origination Share: Refinance Loans

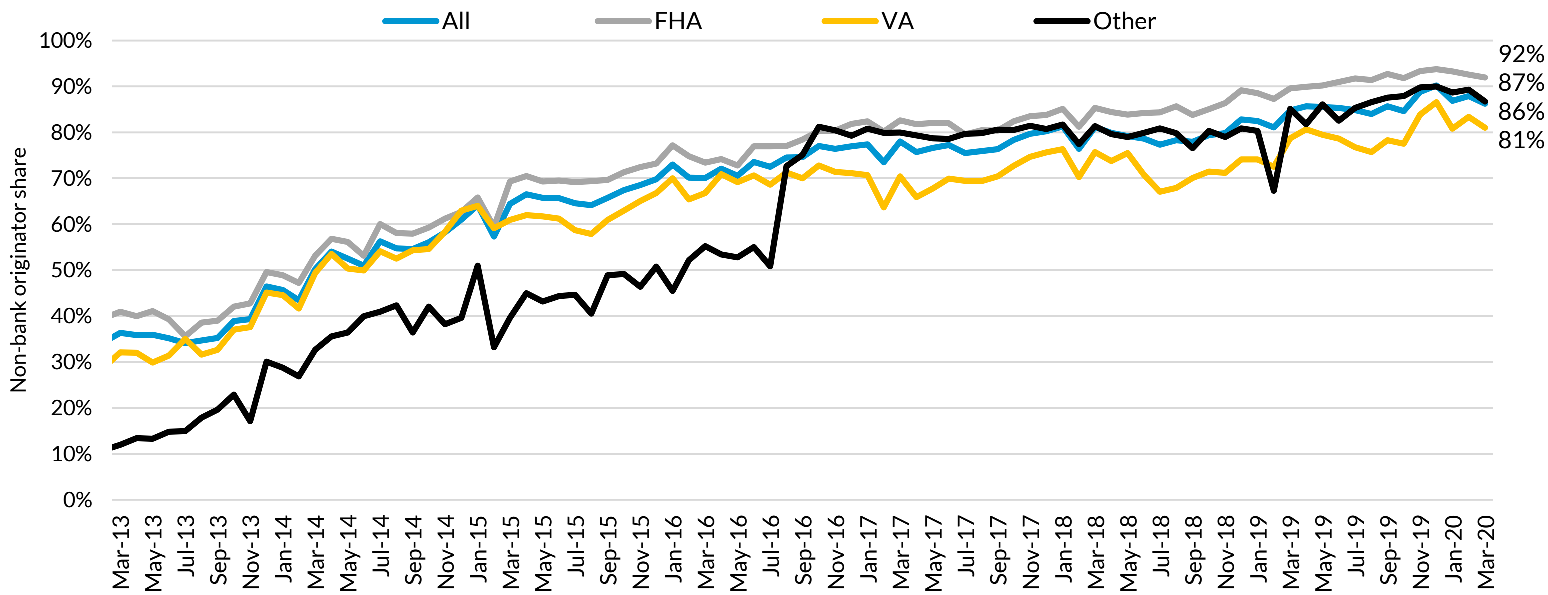


Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of March 2020.*

Ginnie Mae Nonbank Originators

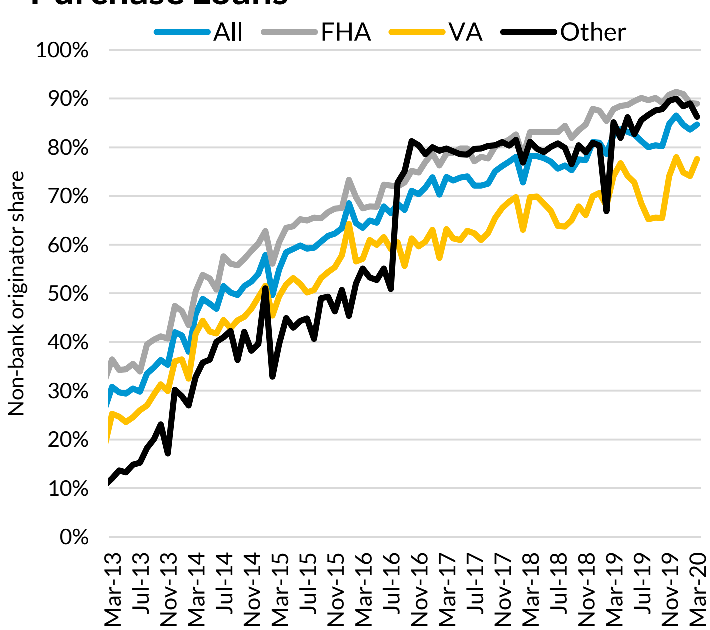
In March 2020, Ginnie Mae's nonbank share fell to 86.2 percent. The nonbank originator share for FHA fell slightly to 92 percent in March, compared to 92.6 percent previous month. . The nonbank originator share for VA was lower than last month at 81 percent and the nonbank originator share for other loans, which can fluctuate quite a bit month to month, fell to 87 percent.

Ginnie Mae Nonbank Originator Share: All Loans

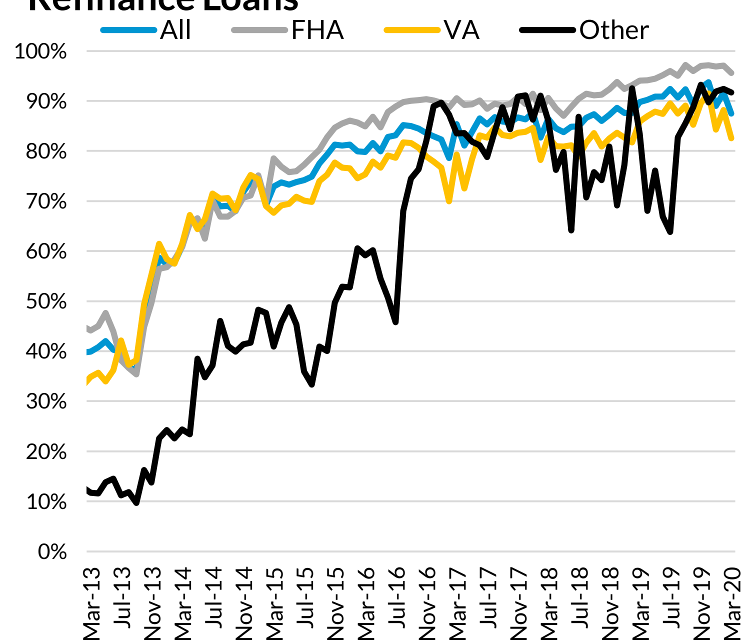


Sources: *eMBS and Urban Institute*
Note: *Data as of March 2020.*

Ginnie Mae Nonbank Share: Purchase Loans



Ginnie Mae Nonbank Share: Refinance Loans

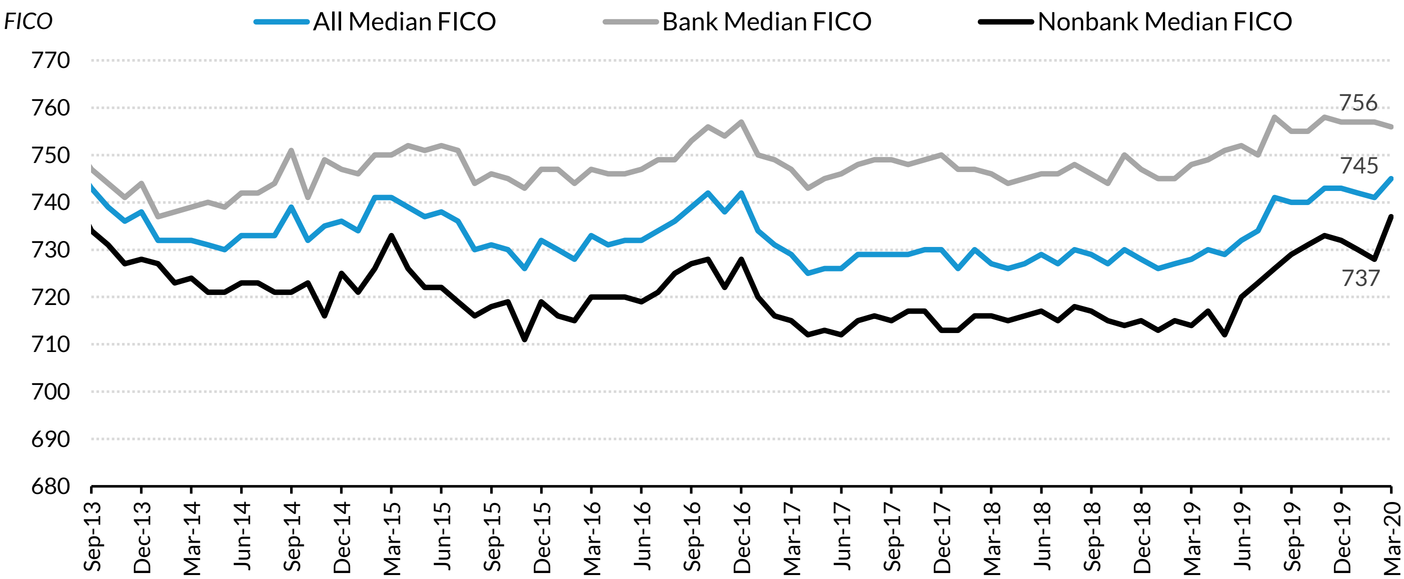


Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of March 2020.*

Nonbank Credit Box

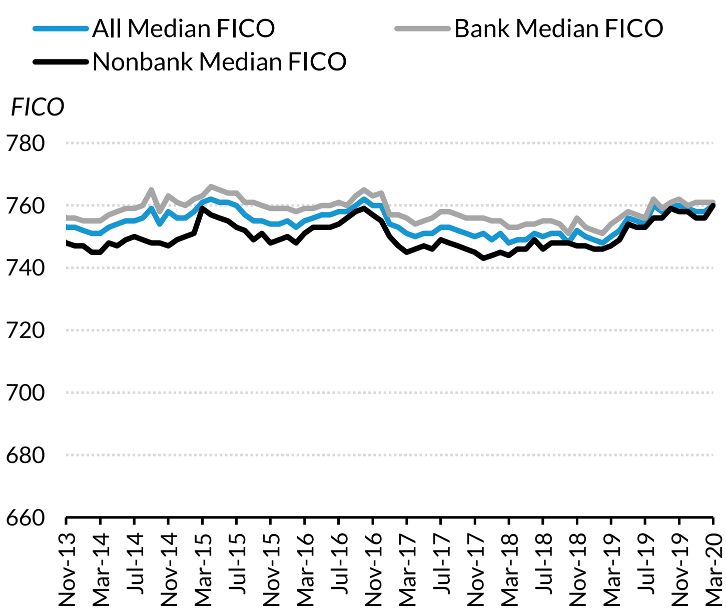
Nonbank originators have played a key role in opening up access to credit. The median GSE and the median Ginnie Mae FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, both bank and nonbank FICOs have increased since early 2014. In contrast, within 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



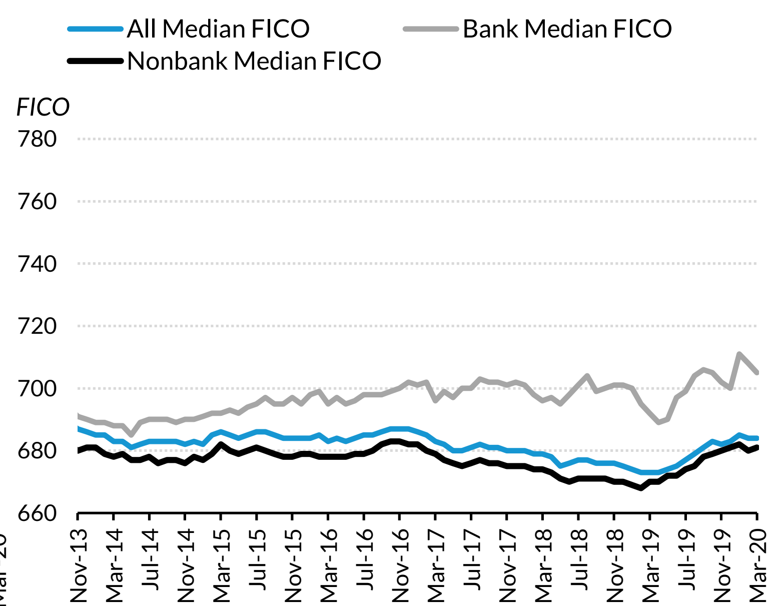
Sources: *eMBS and Urban Institute.* ***Note:*** *Data as of March 2020.*

GSE FICO: Bank vs. Nonbank



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

Ginnie Mae FICO: Bank vs. Nonbank

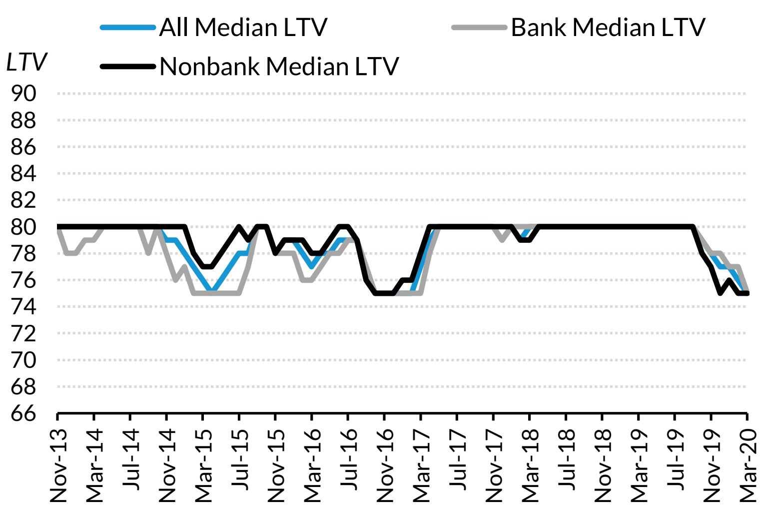


Sources: *eMBS and Urban Institute.*
Note: *Data as of March 2020.*

Nonbank Credit Box

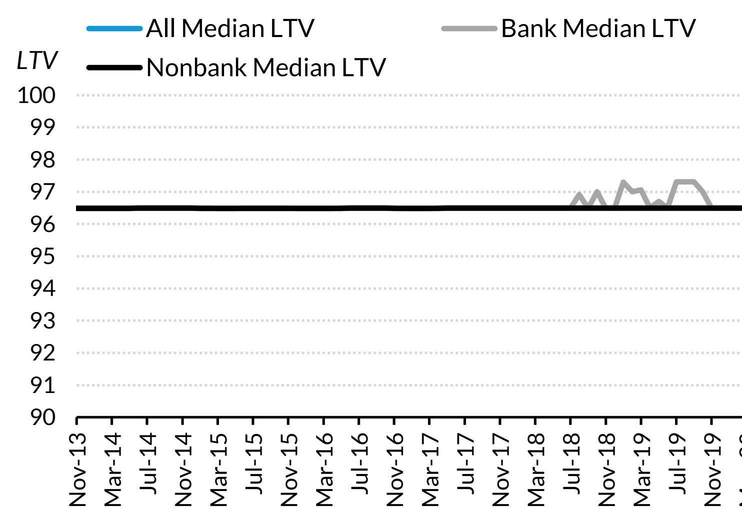
The median LTVs for nonbank and bank originations are comparable, while the median DTI for nonbank loans is higher than for bank loans, indicating that nonbanks are more accommodating in both this and the FICO dimension. Between early 2017 and early 2019, there was a substantial increase in DTIs, which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



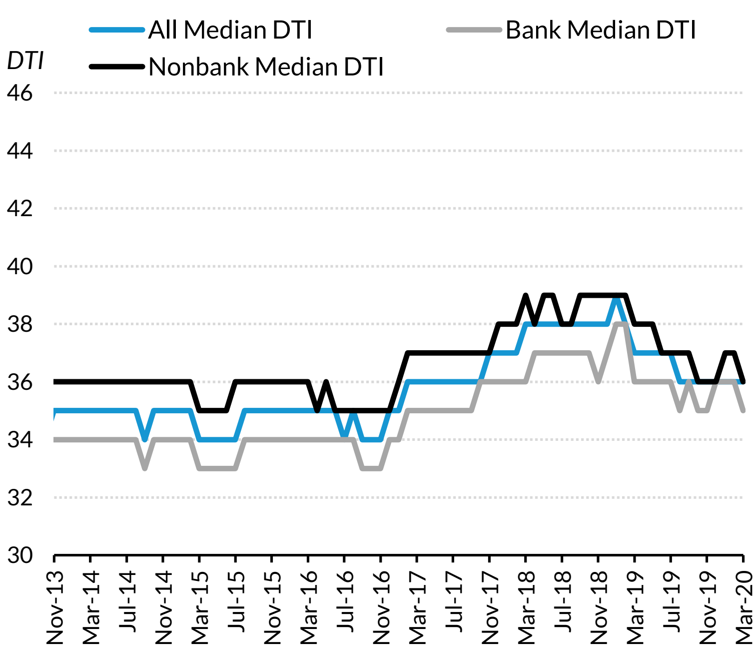
Sources: *eMBS and Urban Institute.* ***Note:*** *Data as of March 2020.*

Ginnie Mae LTV: Bank vs. Nonbank



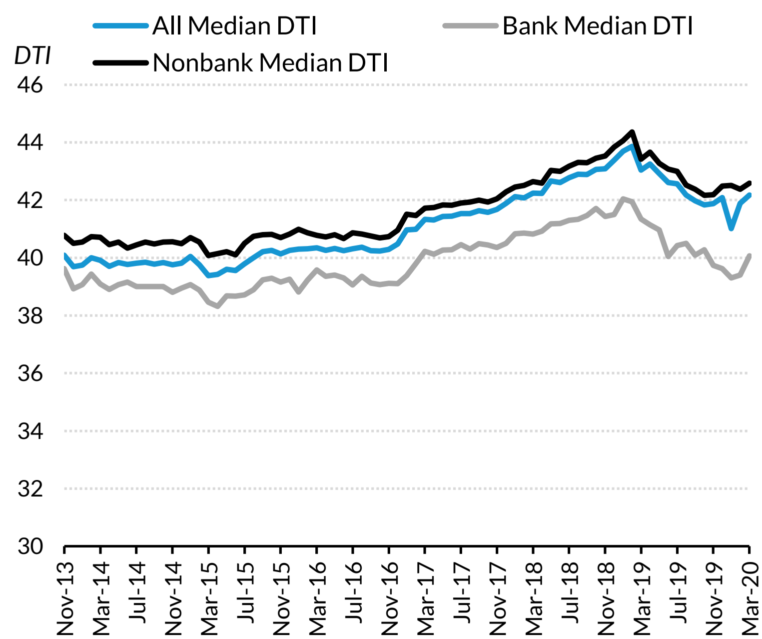
Sources: *eMBS and Urban Institute.* ***Note:*** *Data as of March 2020.*

GSE DTI: Bank vs. Nonbank



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

Ginnie Mae DTI: Bank vs. Nonbank

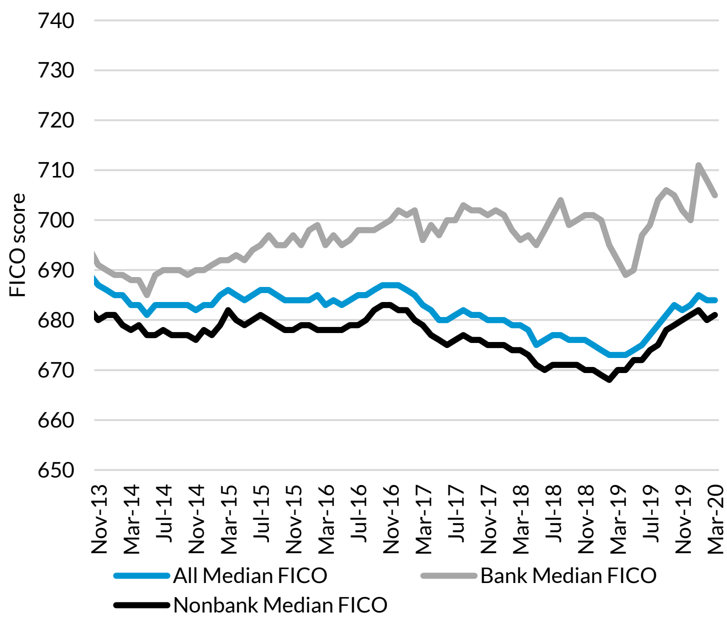


Sources: *eMBS and Urban Institute.* ***Note:*** *Data as of March 2020.*

Ginnie Mae Nonbank Originators: Credit Box

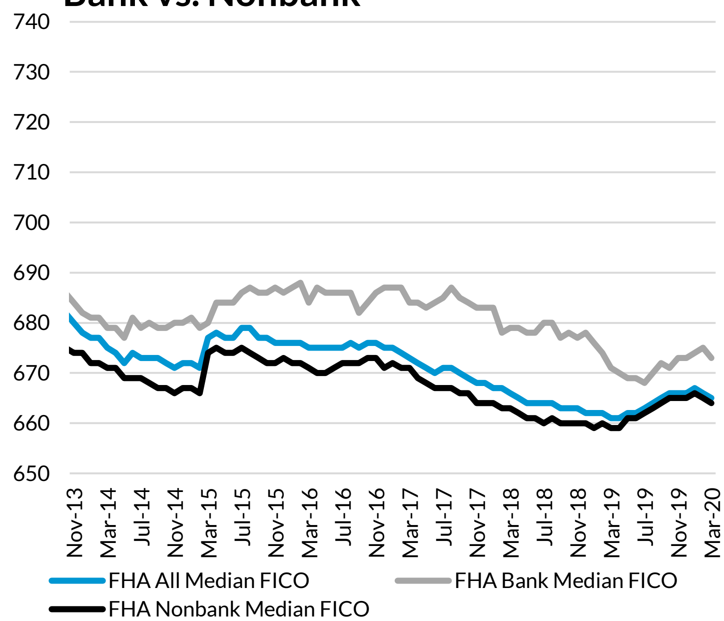
The median FICO score for Ginnie Mae bank originators fell in March 2020; however bank FICOs remain 24 points above non-banks. The gap between banks and non-banks is very apparent for FHA and VA lending.

Ginnie Mae FICO Scores: Bank vs. Nonbank



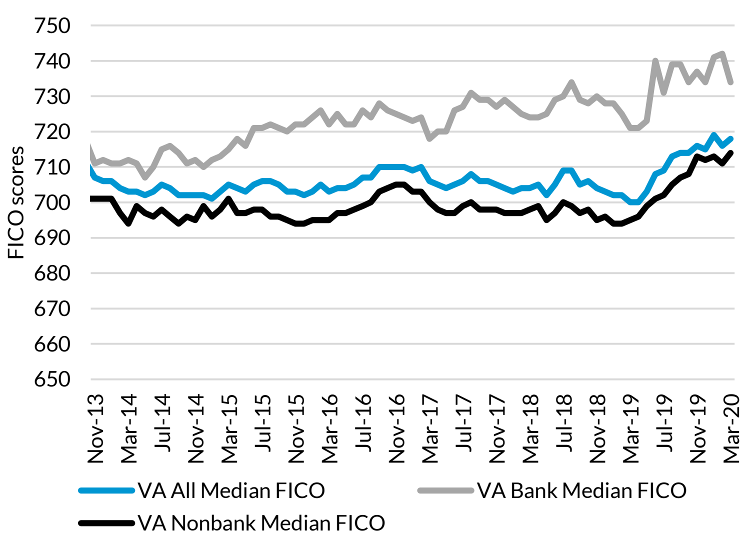
Sources: *eMBS and Urban Institute* **Note:** *Data as of March 2020.*

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



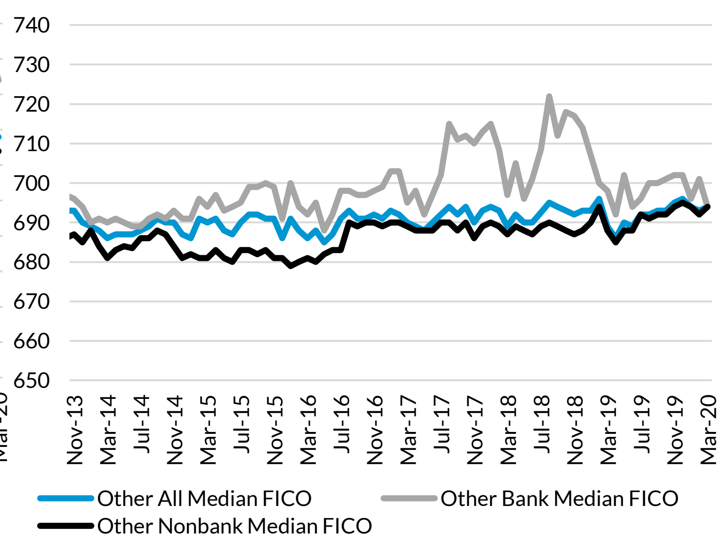
Sources: *eMBS and Urban Institute* **Note:** *Data as of March 2020.*

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



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

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

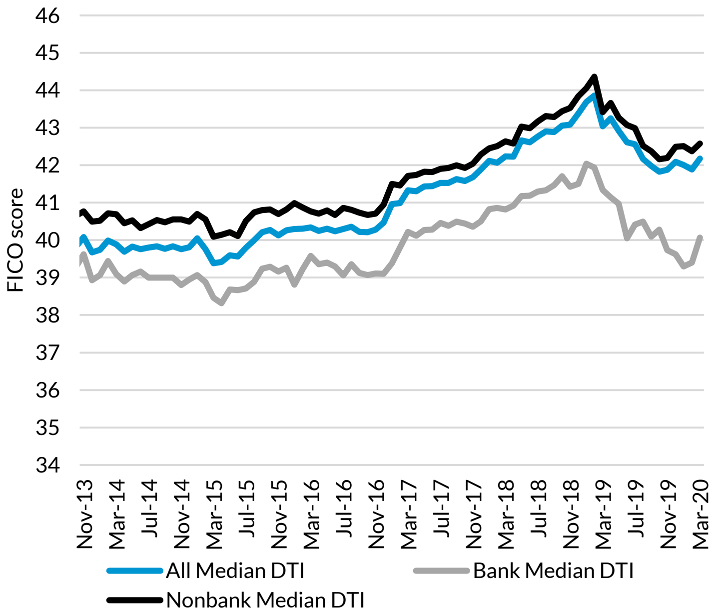


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of March 2020.*

Ginnie Mae Nonbank Originators: Credit Box

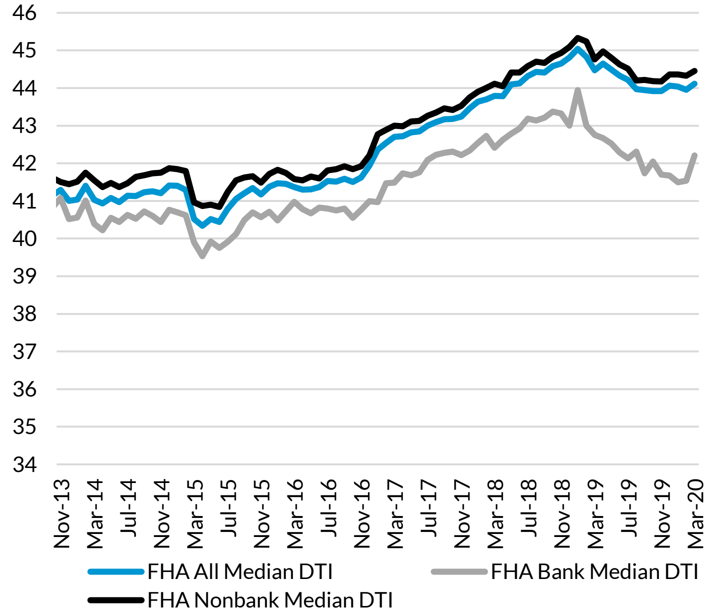
An analysis of borrowers' DTI ratios for bank versus non-bank originators indicates that the former have a lower median DTI. The DTIs for FHA and VA borrowers experienced notable increases during 2017 and 2018 for both banks and nonbank originators, while the Other origination DTIs stayed relatively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



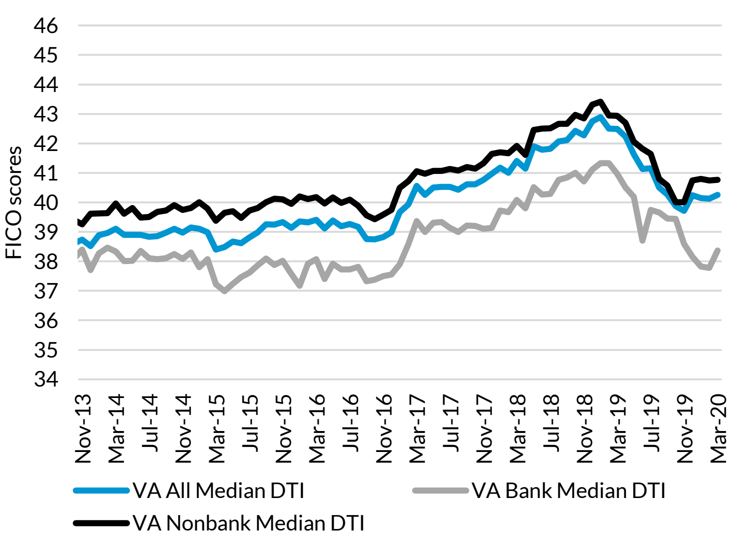
Sources: *eMBS and Urban Institute* **Note:** *Data as of March 2020.*

Ginnie Mae FHA DTI: Bank vs. Nonbank



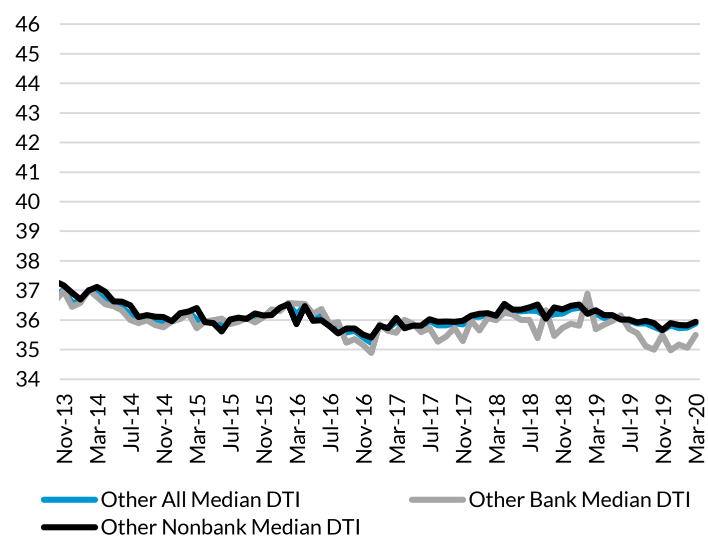
Sources: *eMBS and Urban Institute* **Note:** *Data as of March 2020.*

Ginnie Mae VA DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *Data as of March 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 March 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 March 2020, over half (53.1 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

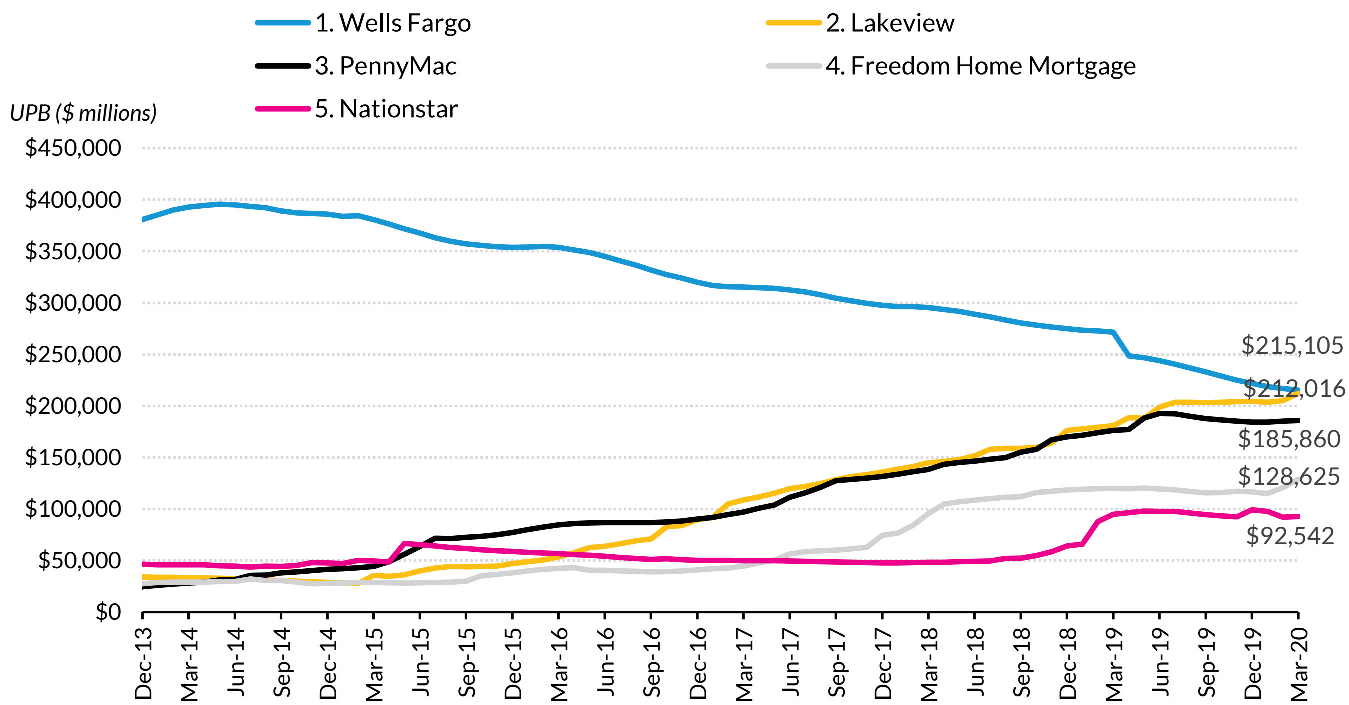
Rank	MSR Holder	UPB ($ millions)	Share	Cumulative Share
1	Wells Fargo	$215,105	12.7%	12.7%
2	Lakeview	$212,016	12.5%	25.3%
3	PennyMac	$185,860	11.0%	36.3%
4	Freedom Home Mortgage	$128,625	7.6%	43.9%
5	Nationstar	$97,684	5.5%	49.4%
6	Quicken Loans	$62,619	3.7%	53.1%
7	US Bank	$57,449	3.4%	56.5%
8	Carrington Mortgage	$47,888	2.8%	59.3%
9	Newrez	$44,774	2.6%	61.9%
10	USAA Federal Savings Bank	$38,614	2.3%	64.2%
11	Truist Bank	$32,288	1.9%	66.1%
12	Caliber Home Loans	$30,358	1.8%	67.9%
13	Navy Federal Credit Union	$28,966	1.7%	69.7%
14	Amerihome Mortgage	$24,878	1.5%	71.1%
15	The Money Source	$21,470	1.3%	72.4%
16	JP Morgan Chase	$20,401	1.2%	73.6%
17	Midfirst Bank	$20,017	1.2%	74.8%
18	Home Point Financial Corporation	$19,489	1.2%	75.9%
19	M&T Bank	$17,930	1.1%	77.0%
20	Roundpoint	$16,957	1.0%	78.0%
21	Loan Depot	$15,973	0.9%	78.9%
22	Guild Mortgage	$15,856	0.9%	79.9%
23	Flagstar Bank	$13,445	0.8%	80.7%
24	Citizens Bank	$13,285	0.8%	81.5%
25	PHH Mortgage	$13,176	0.8%	82.2%
26	Pingora	$12,190	0.7%	83.0%
27	Planet Home Lending	$11,078	0.7%	83.6%
28	Fifth Third Bank	$10,423	0.6%	84.2%
29	Bank of America	$10,417	0.6%	84.9%
30	PNC Bank	$9,938	0.6%	85.4%

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

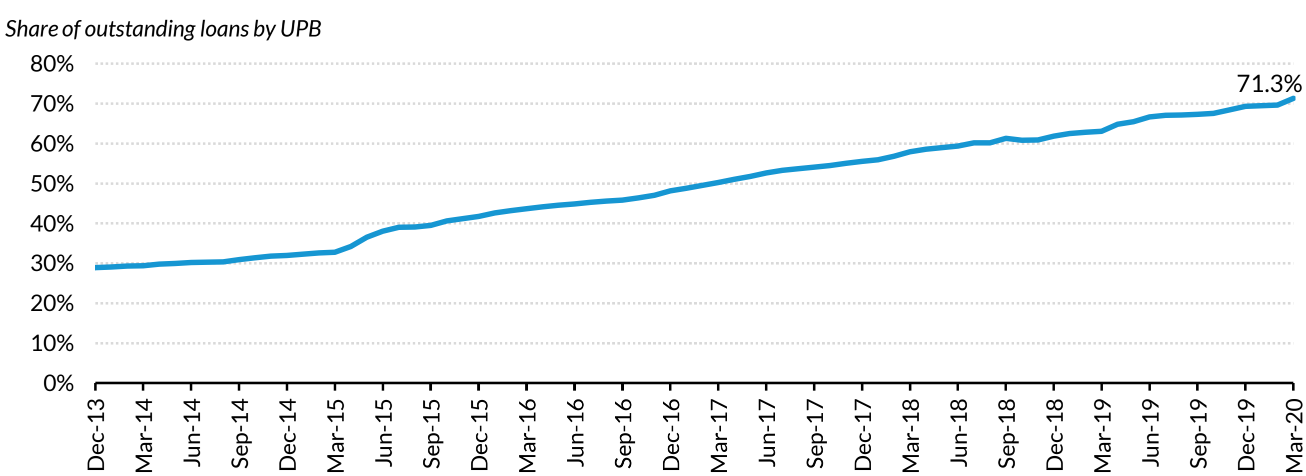
Holders of Ginnie Mae MSRs

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. Although Wells Fargo is still the largest player, its portfolio has shrunk to $215 billion. Lakeview, PennyMac, Freedom Home Mortgage, and Nationstar (all nonbanks) make up the remainder of the top five largest holders of MSRs, owning $212 billion, $186 billion, $129 billion, and $93 billion respectively as of March 2020. As of March 2020, nonbanks collectively owned servicing rights for 71.3 percent of all outstanding unpaid principal balance guaranteed by Ginnie Mae. 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

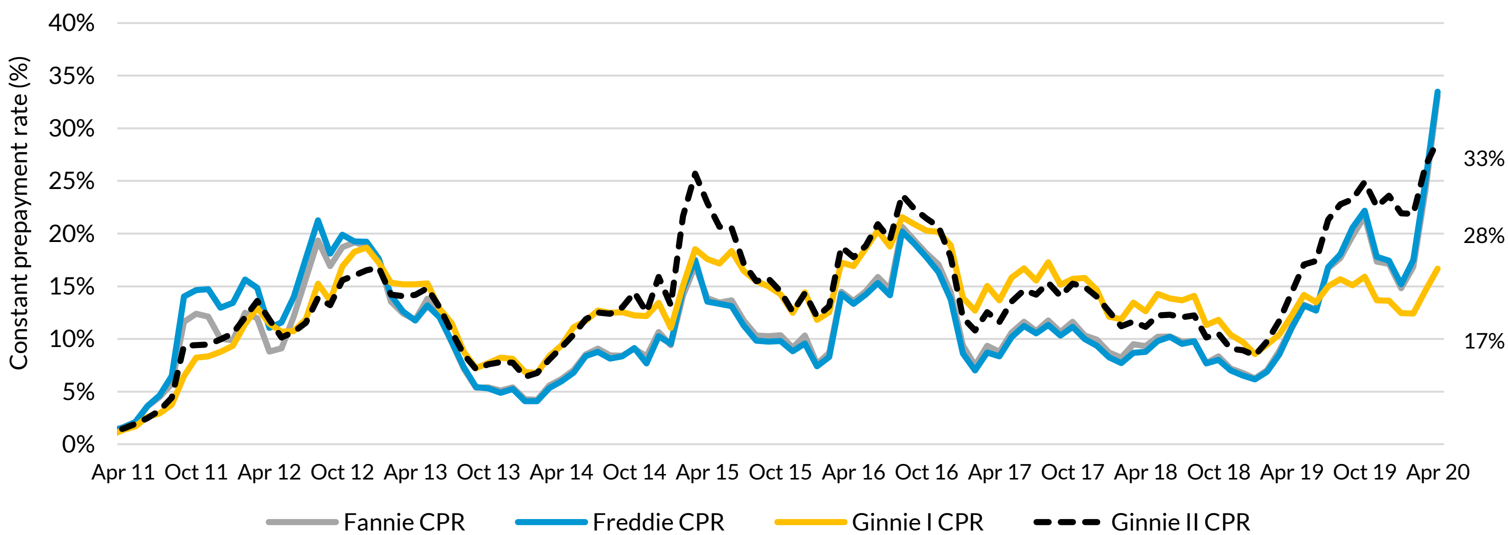


Sources: *eMBS and Urban Institute.* **Note:** *Data as of March 2020.*

Prepayments

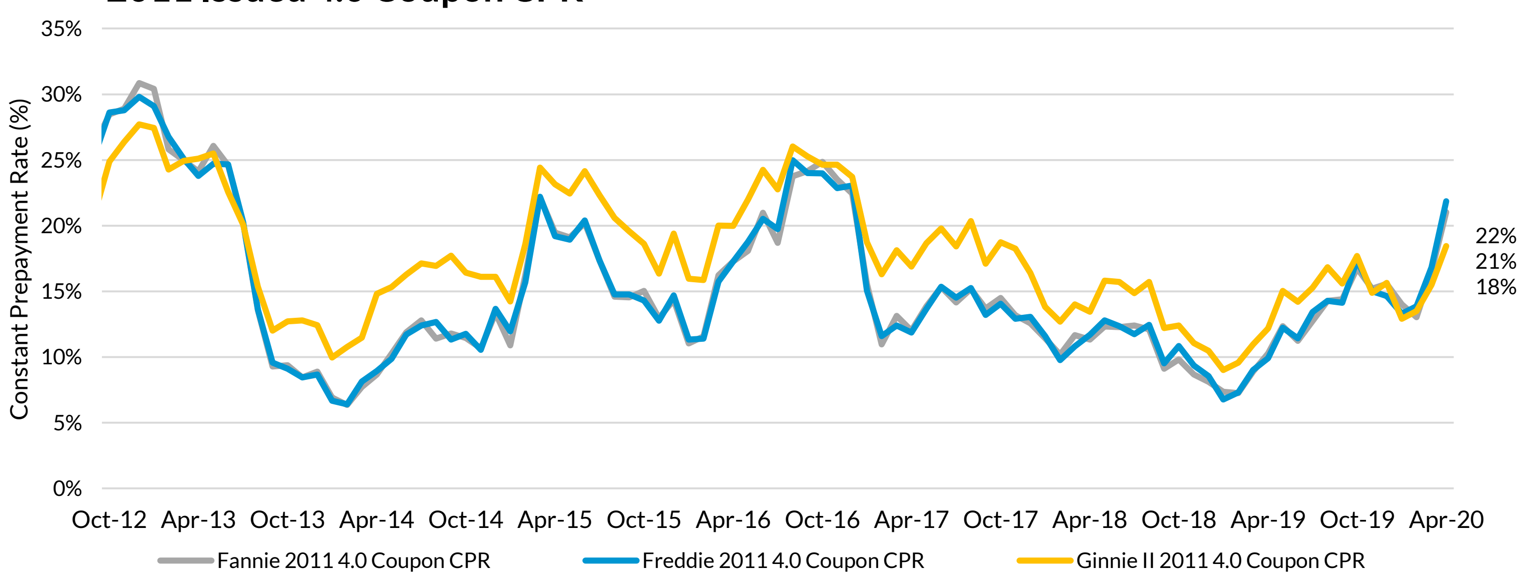
While prepayment speeds on all securities have risen since early 2019, the speed increase has been especially dramatic in early 2020. Note that aggregate Ginnie II speeds were lower than on GSE securities for the first time since early-2013. This reflected the sharp drop in interest rates as a result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

2011 Issued 4.0 Coupon CPR

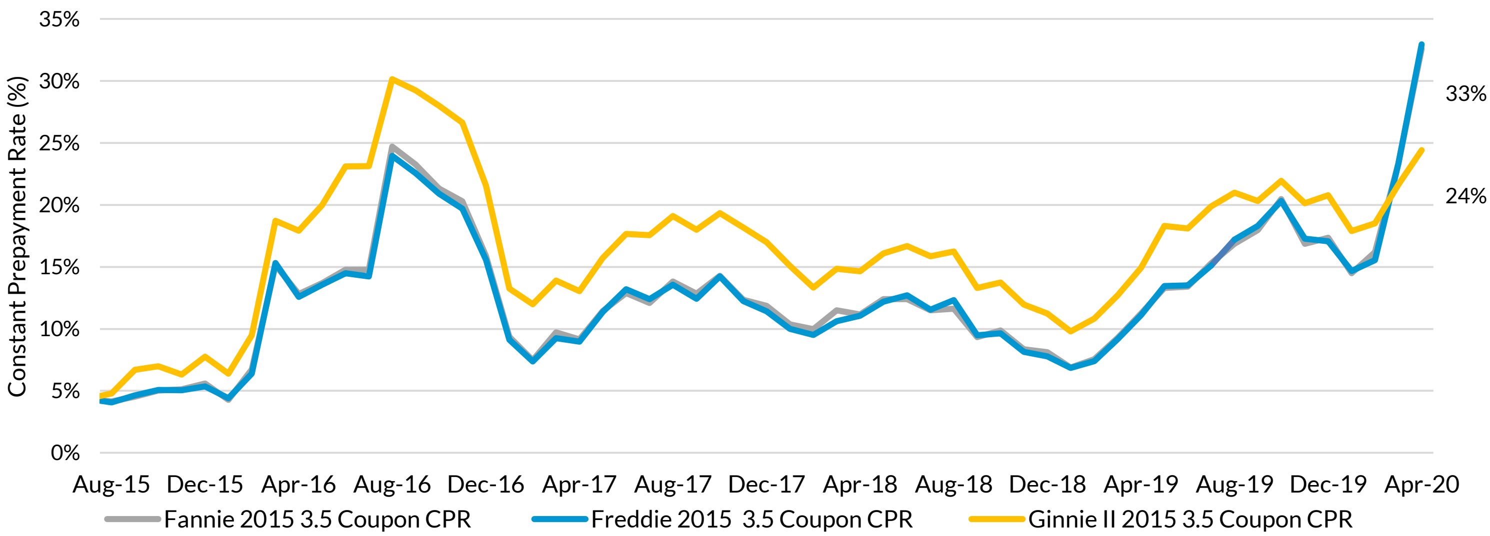


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of April 2020.*

Prepayments

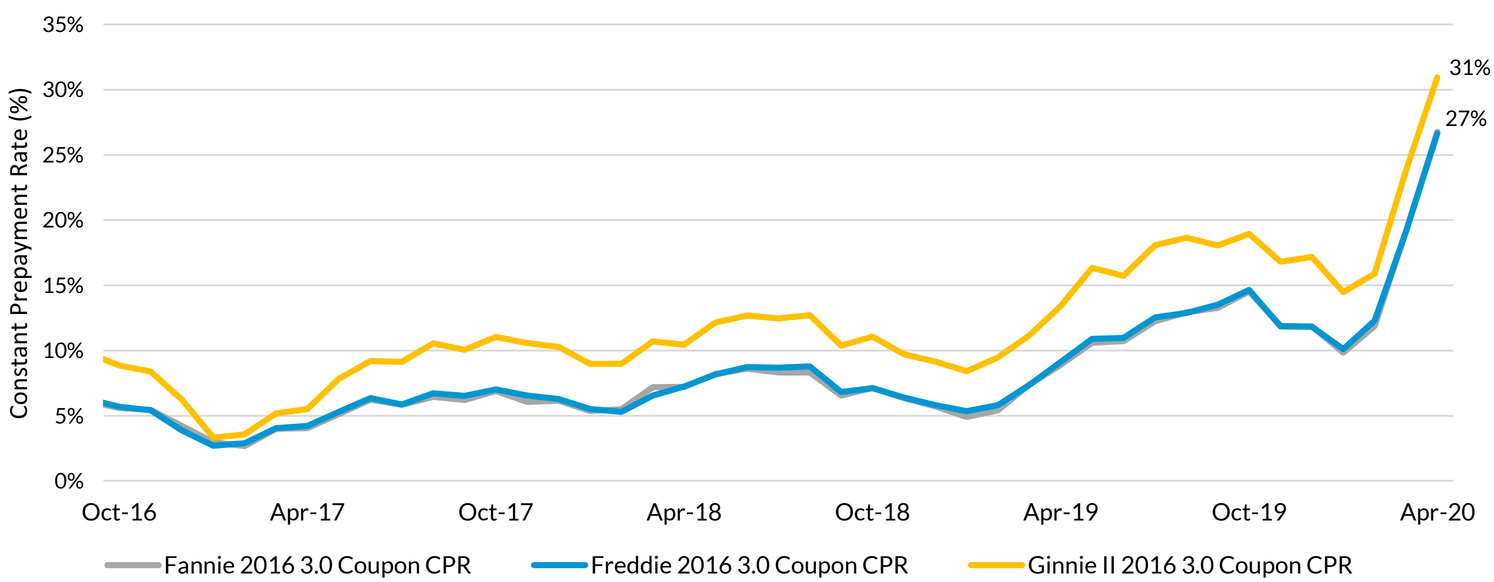
Speeds on the 2015 Ginnie II 3.5s and the 2016 Ginnie II 3.0s, the largest coupon cohorts of those vintage years, have been increasing since early 2019. The increase has been especially dramatic for GSE securities in early 2020 due to a sharp drop in rates. Ginnie Mae securities have historically prepaid faster than their conventional counterparts. However in April 2020, the 2015 3.5s Ginnies were slower for the first time in years. The faster historical speeds on the Ginnie Mae cohorts reflect the fact that 2015 and 2016 Ginnie originations are more heavily VA loans than the 2011 origination shown on the preceding page. VA loans prepay faster than either FHA or GSE loans. The FHA streamlined programs are likely another contributor to the faster speeds.

2015 Issued 3.5 Coupon CPR



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

2016 Issued 3.0 Coupon CPR

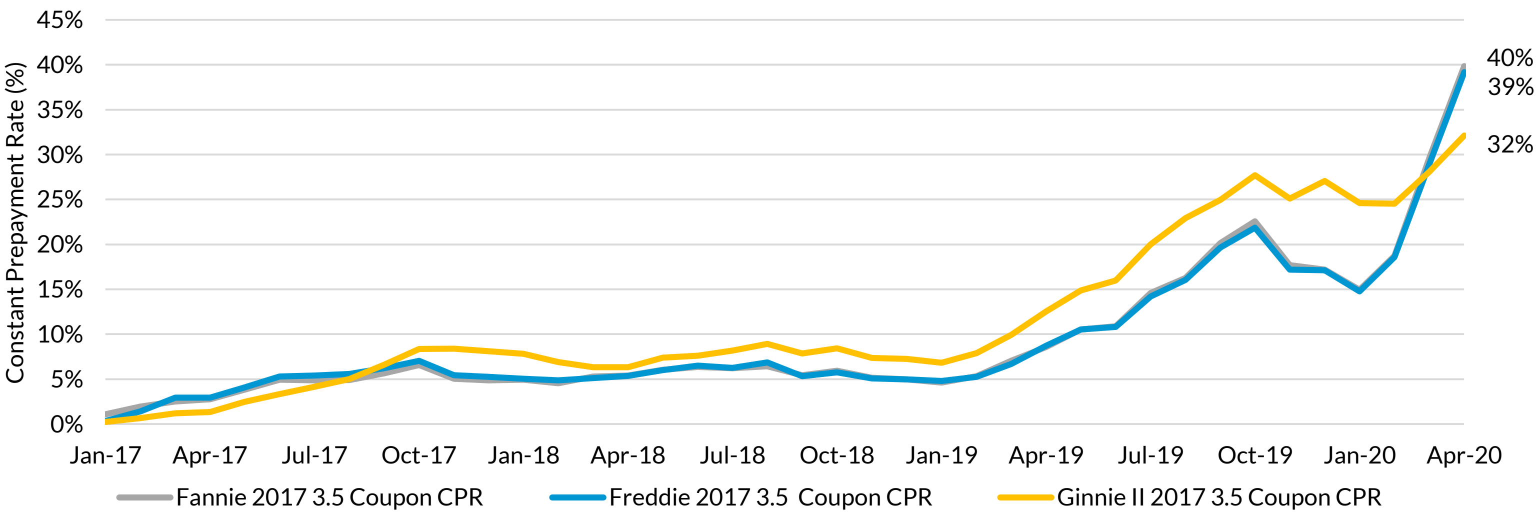


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of April 2020.*

Prepayments

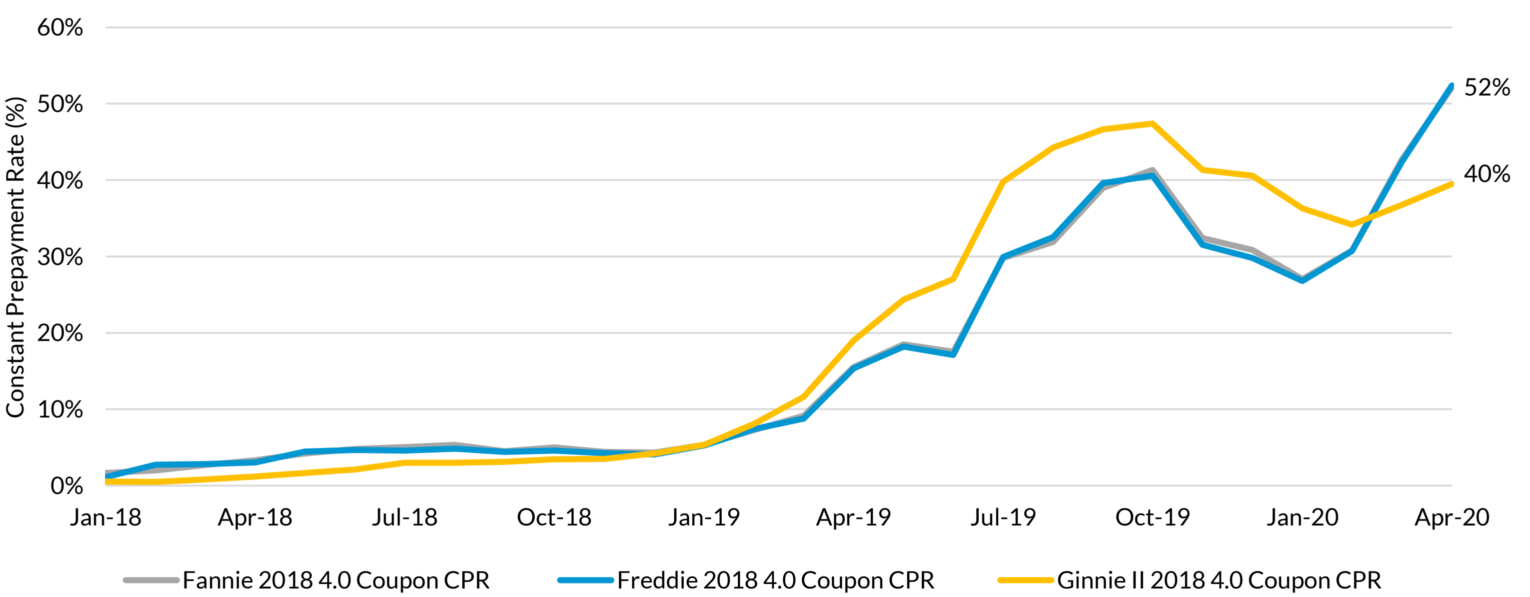
Ginnie Mae securities season more slowly than their conventional counterparts; they generally have lower prepayment in the early months but are more interest rate responsive thereafter. The charts below show the behavior of the 2017-issued 3.5s and the 2018-issued 4.0s, the largest coupon cohorts of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

2018 Issued 4.0 Coupon CPR

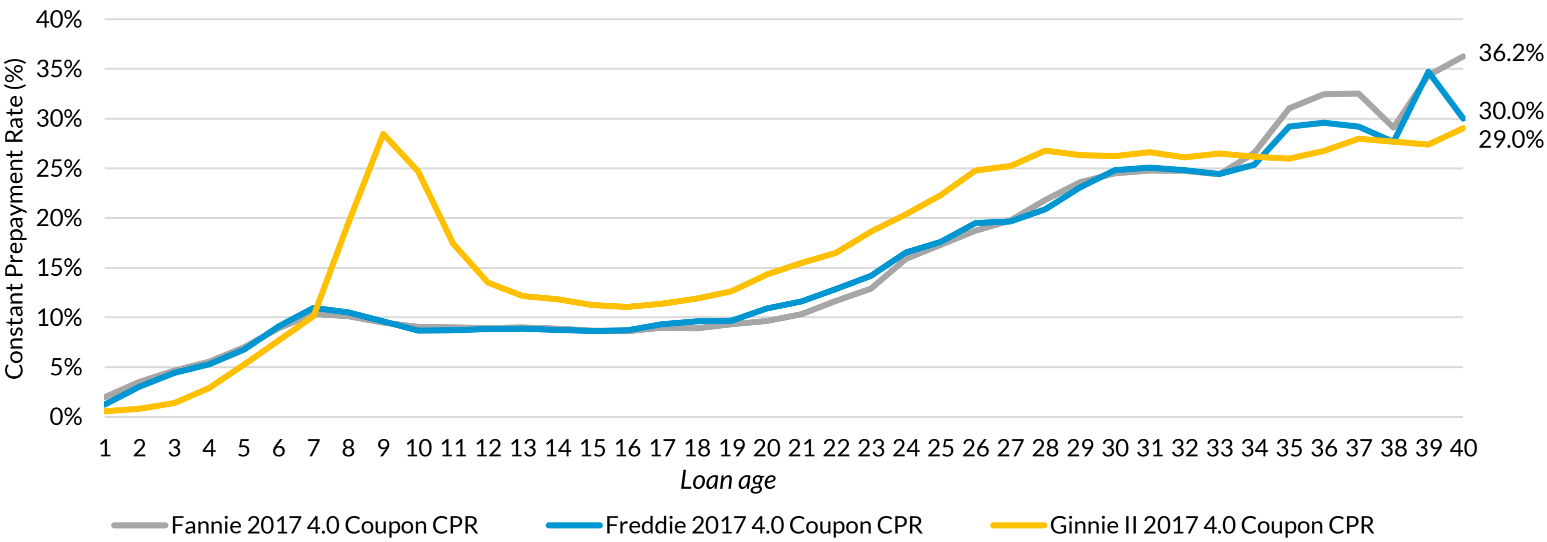


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of April 2020.*

Prepayments

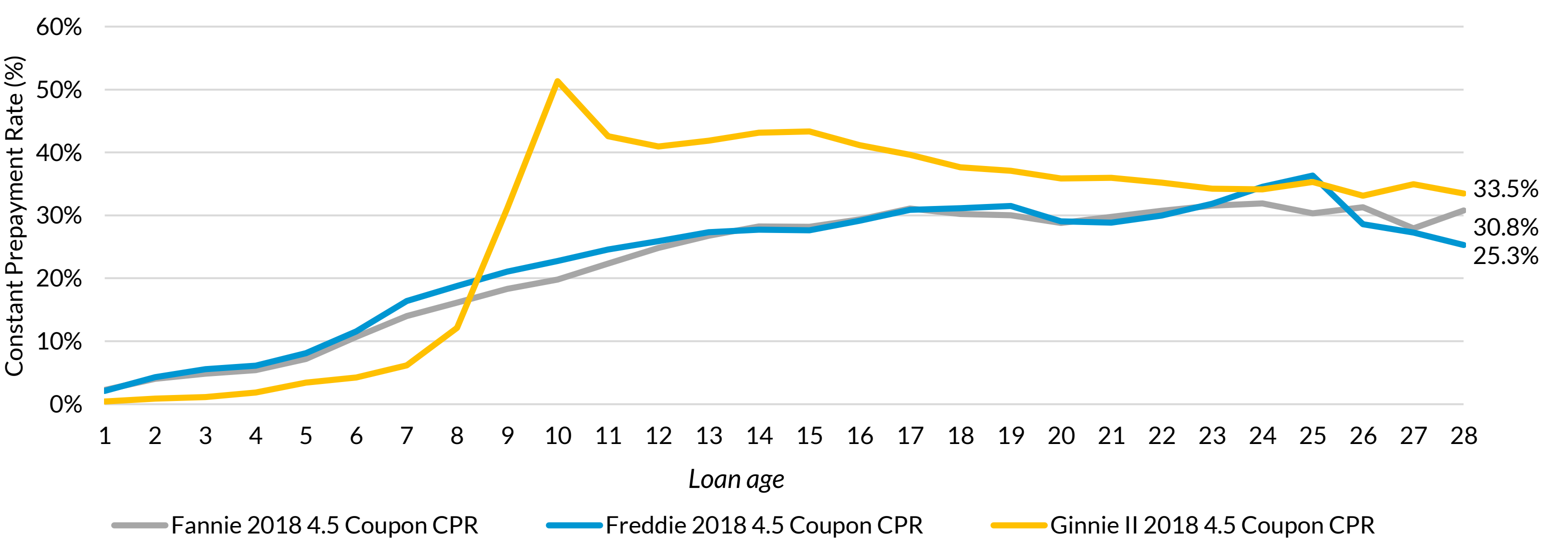
The charts below show the prepayment speeds by loan age for 2017 Ginnie II 4.0s and 2018 Ginnie II 4.5s—the cohorts 50 basis points above the largest coupon cohort for those years. Prepayment speeds on the 2017 Ginnie II 4.0s jumped up sharply at the 7-9 month loan age, reflecting abuse of the VA Streamlined 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 April 2020.*

2018 Issued 4.5 Coupon CPR, by Loan Age

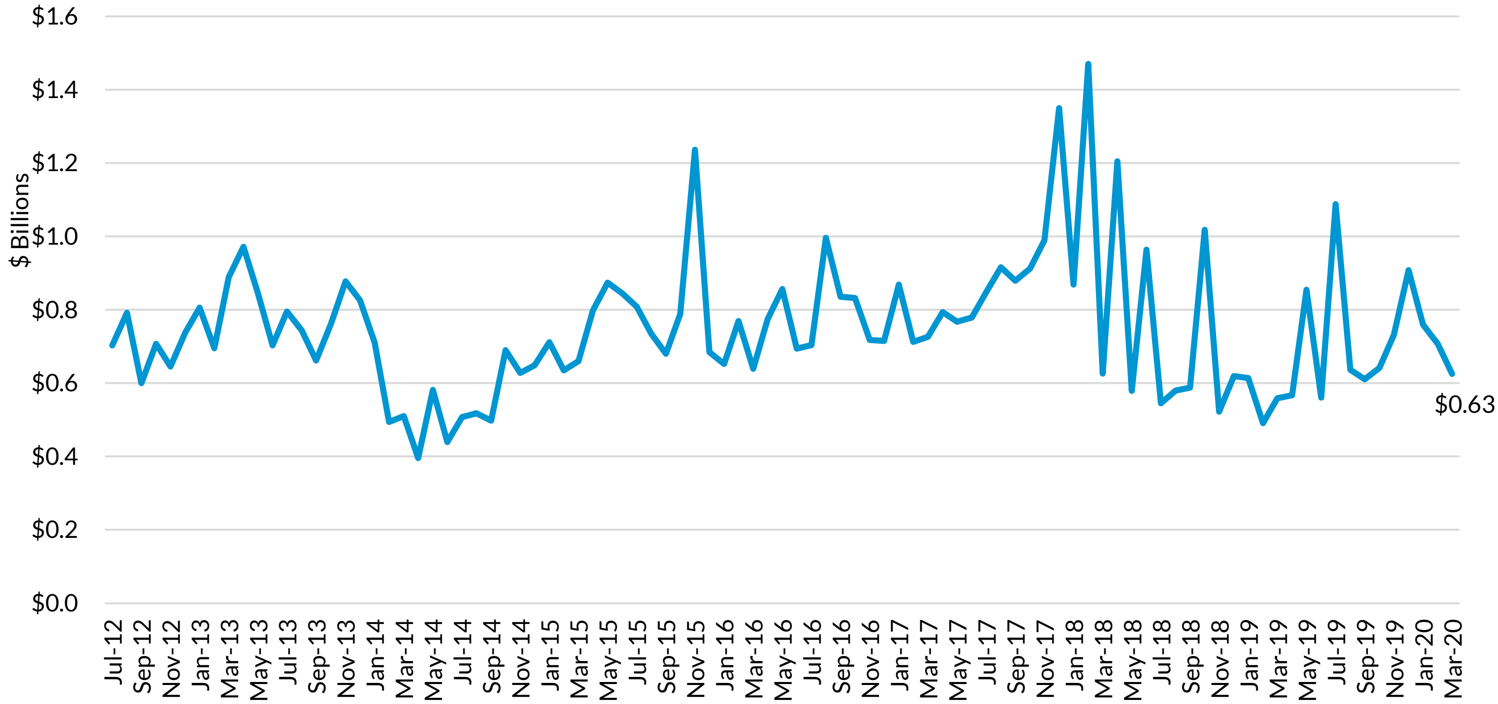


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of April 2020..*

Other Ginnie Mae Programs Reverse Mortgage Volumes

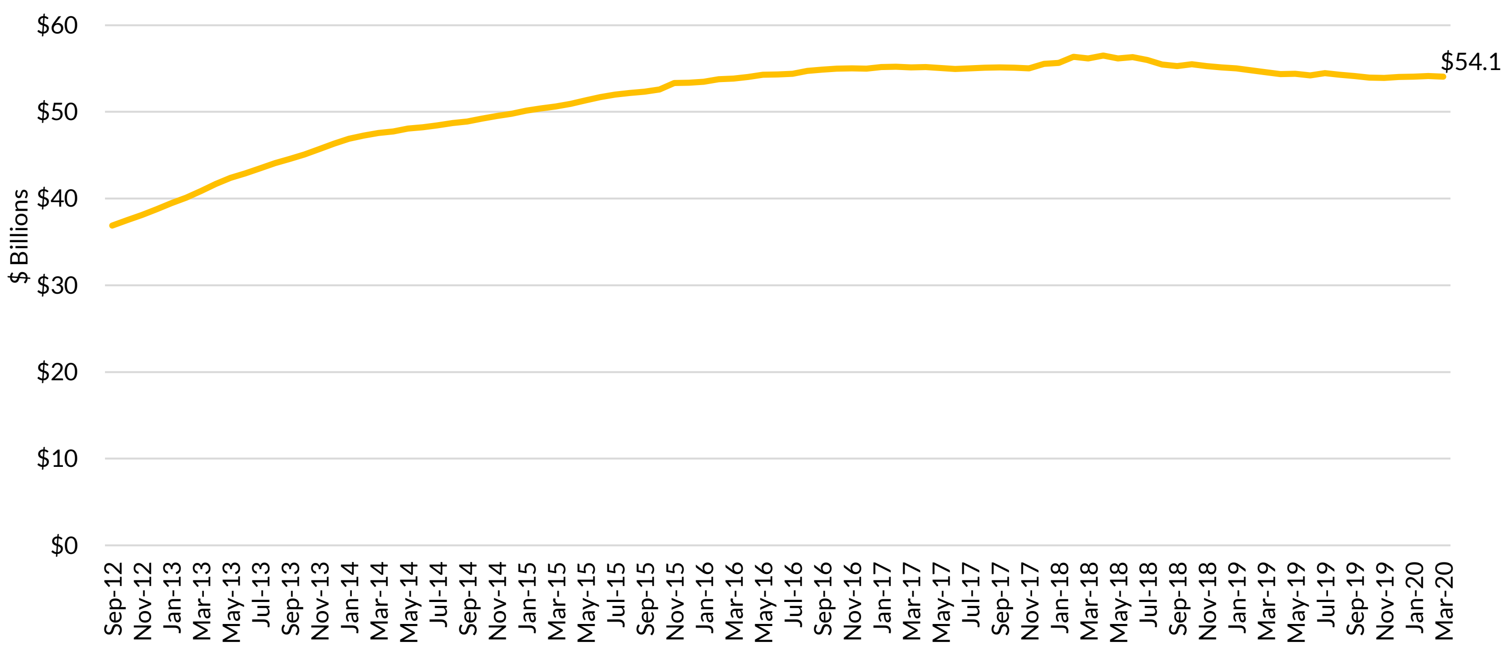
Ginnie Mae reverse mortgage issuance has been volatile in recent months; after falling consecutively in August and September 2019, volume rose to $0.91 billion in December 2019 but it has fallen in the first three months of 2020 to $0.63 billion. Issuance has been generally declining since early 2018 largely due to the implementation of the new, lower principal limit factors. In March 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 March 2020.*

HMBS Outstanding

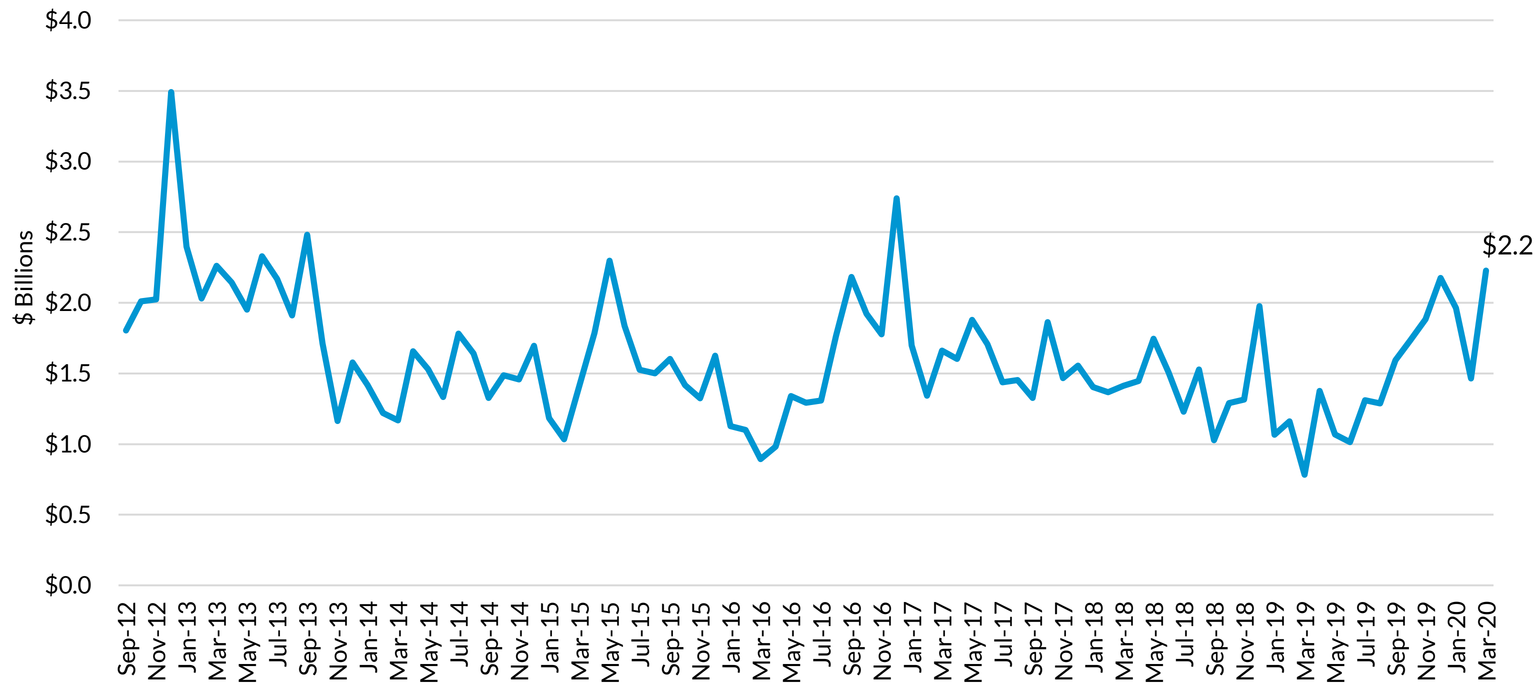


Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of March 2020.*

Other Ginnie Mae Programs Multifamily Market

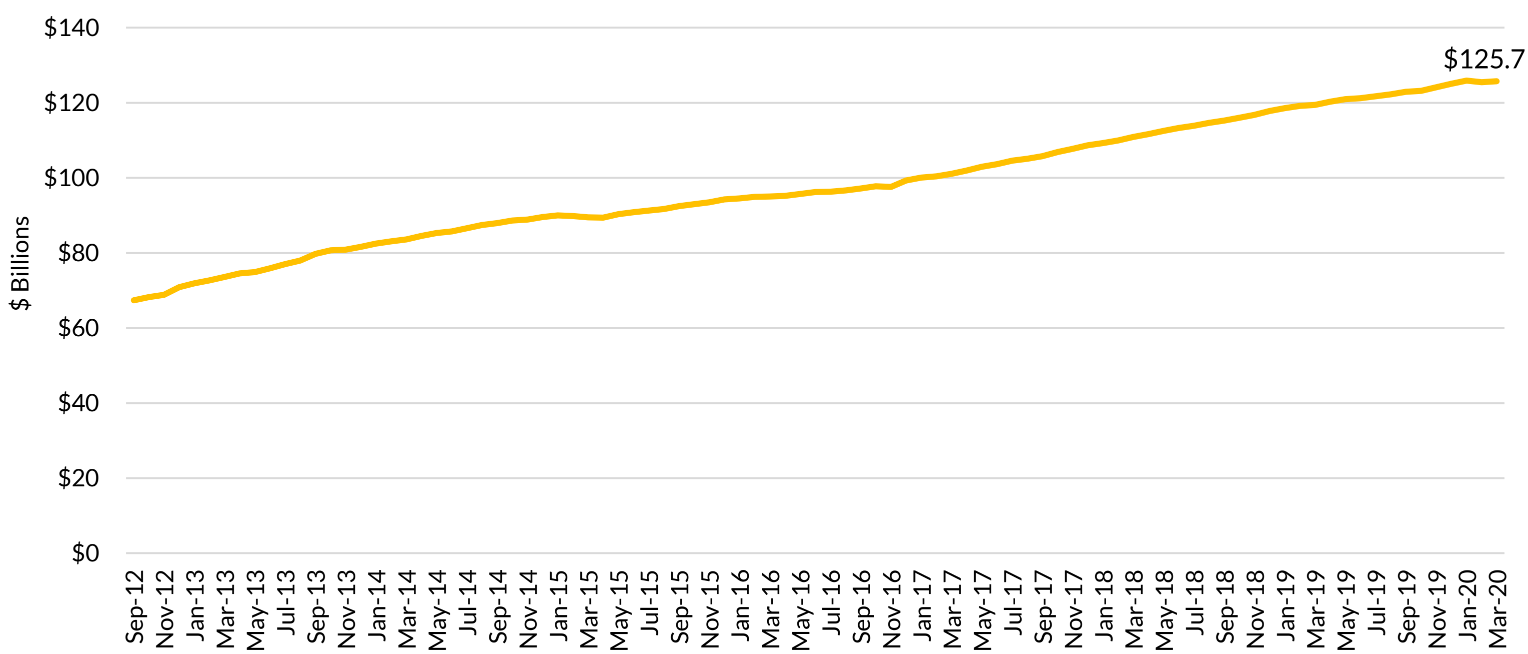
Ginnie Mae multifamily issuance volume in March 2020 totaled $2.2 billion, an increase from the past month. Outstanding multifamily securities totaled $125.7 billion as of the third month of 2020.

Ginnie Mae Multifamily MBS Issuance



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

Ginnie Mae Multifamily MBS Outstanding

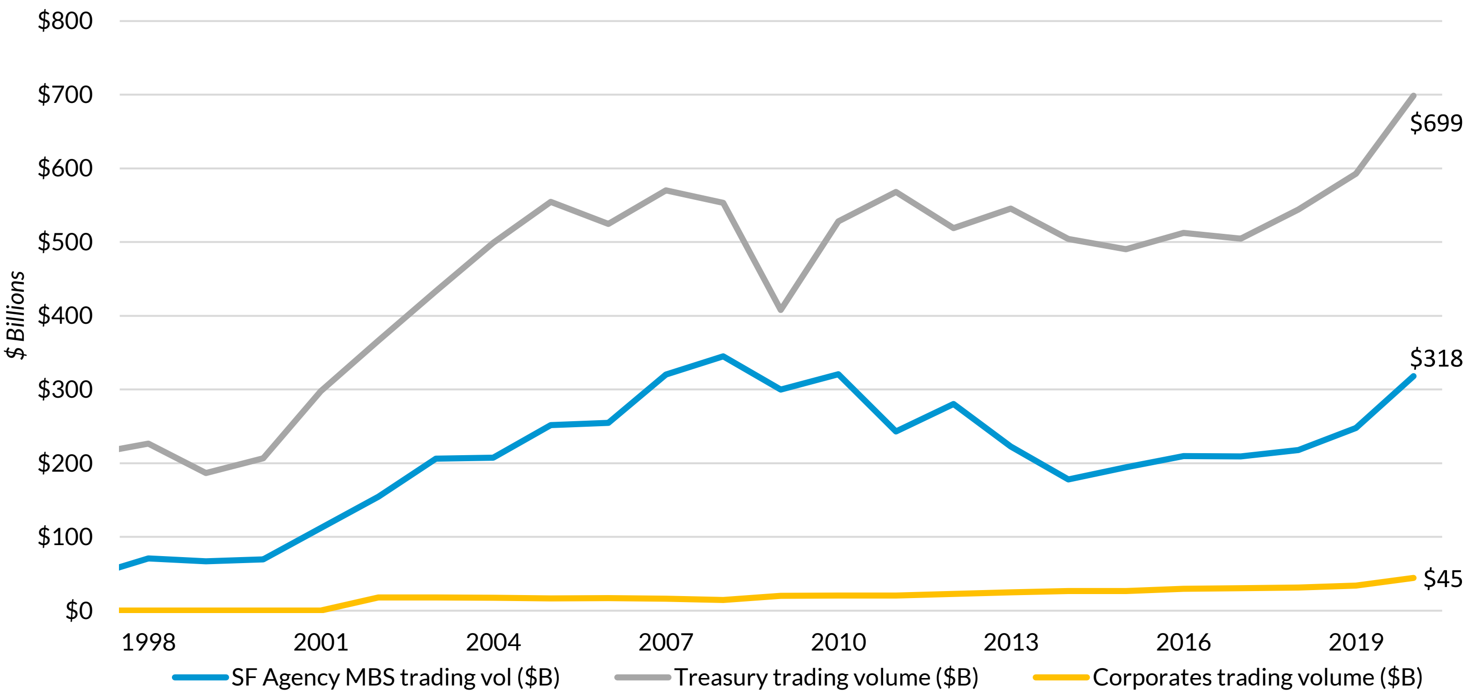


Sources: *Ginnie Mae and Urban Institute.* ***Note****: Data as of March 2020.*

Market Conditions

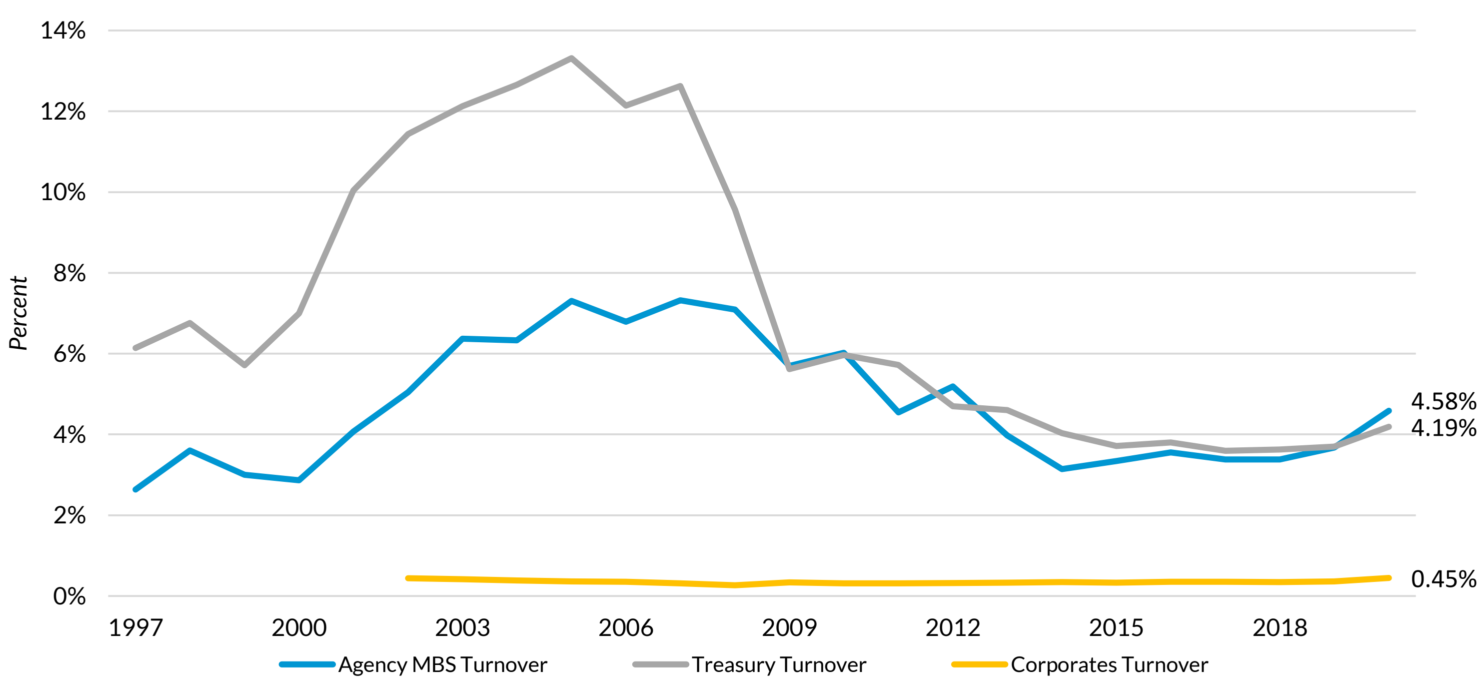
Agency MBS trading volume is $318 billion/day on average in March 2020, more robust than in the 2014-2019 period, but still below the pre-crisis peak of $345 billion in 2008. Average daily trading volume for Treasuries now exceed the pre-crisis peak. Agency MBS turnover in 2020 YTD also has been higher than the 2014-2019 period; in 2020, average daily MBS turnover was 4.58 percent, above the 2019 average of 3.67 percent. Note that agency MBS turnover in the first three 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 March 2020.*

Average Daily Turnover by Sector

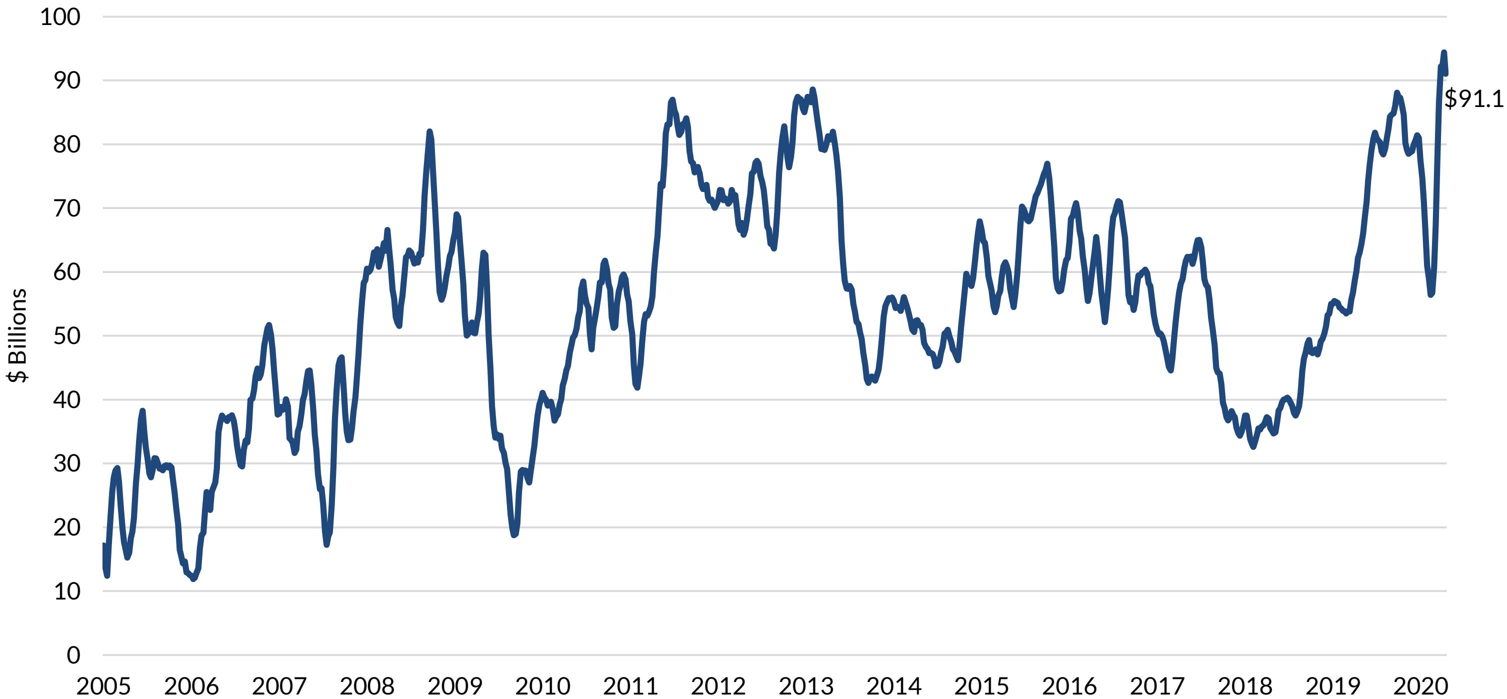


Sources: *SIFMA and Urban Institute.* ***Note:*** *Data as of March 2020.*

Market Conditions

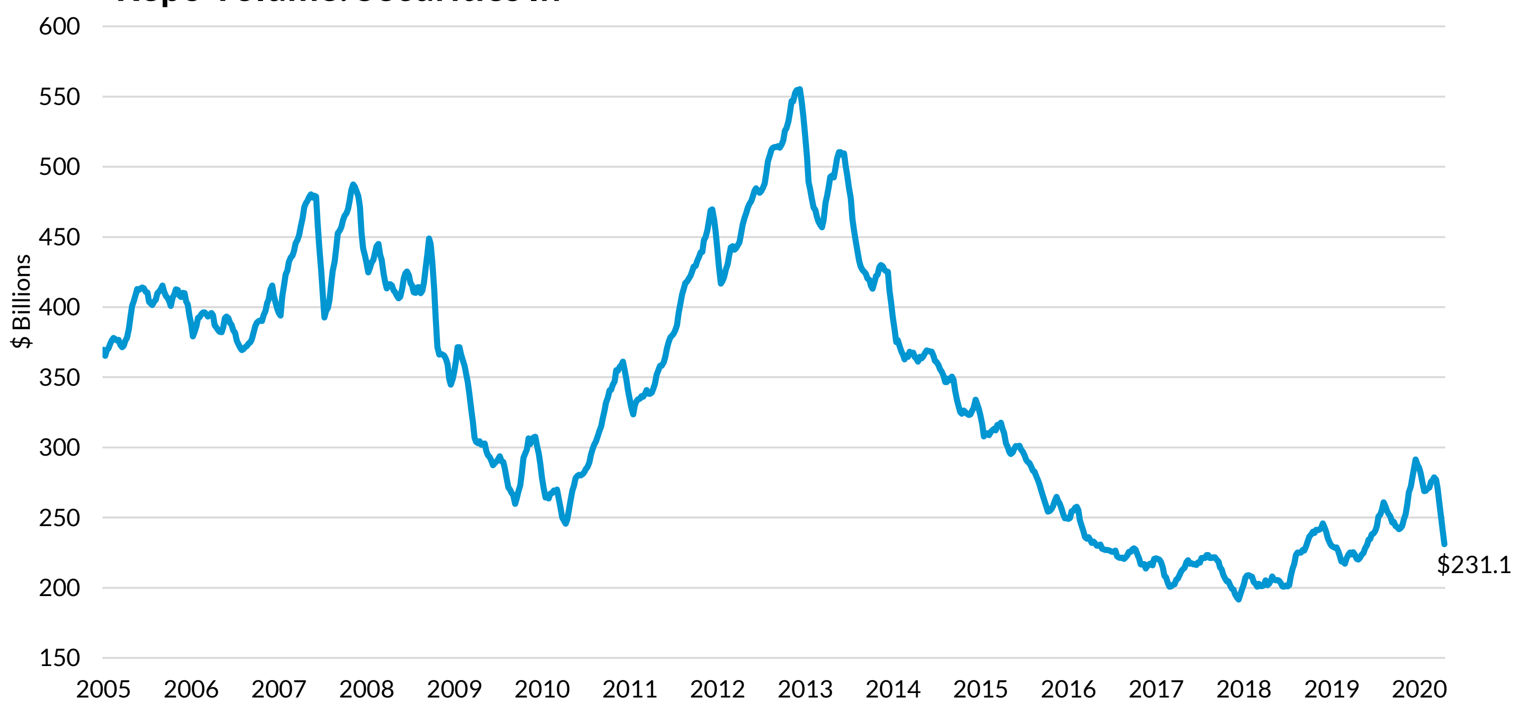
Dealer net positions are near their post-crisis high. By contrast, dealer gross positions have fallen dramatically. The volume of repurchase activity is up from the near 13-year low in 2017. The large decline through time reflects banks cutting back on lower margin businesses.

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

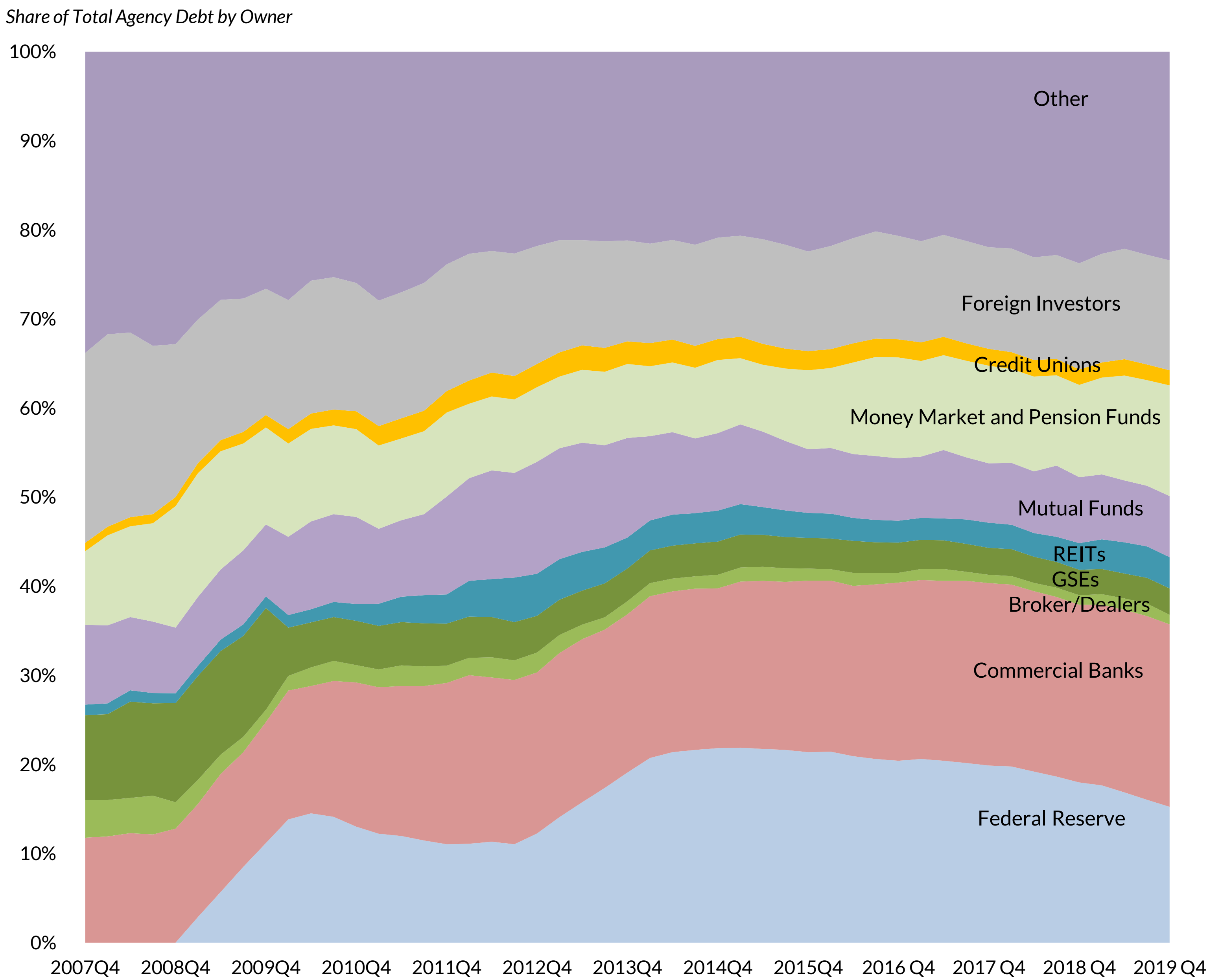


Sources: *Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute.* **Note:** *Data as of April 2020.*

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?

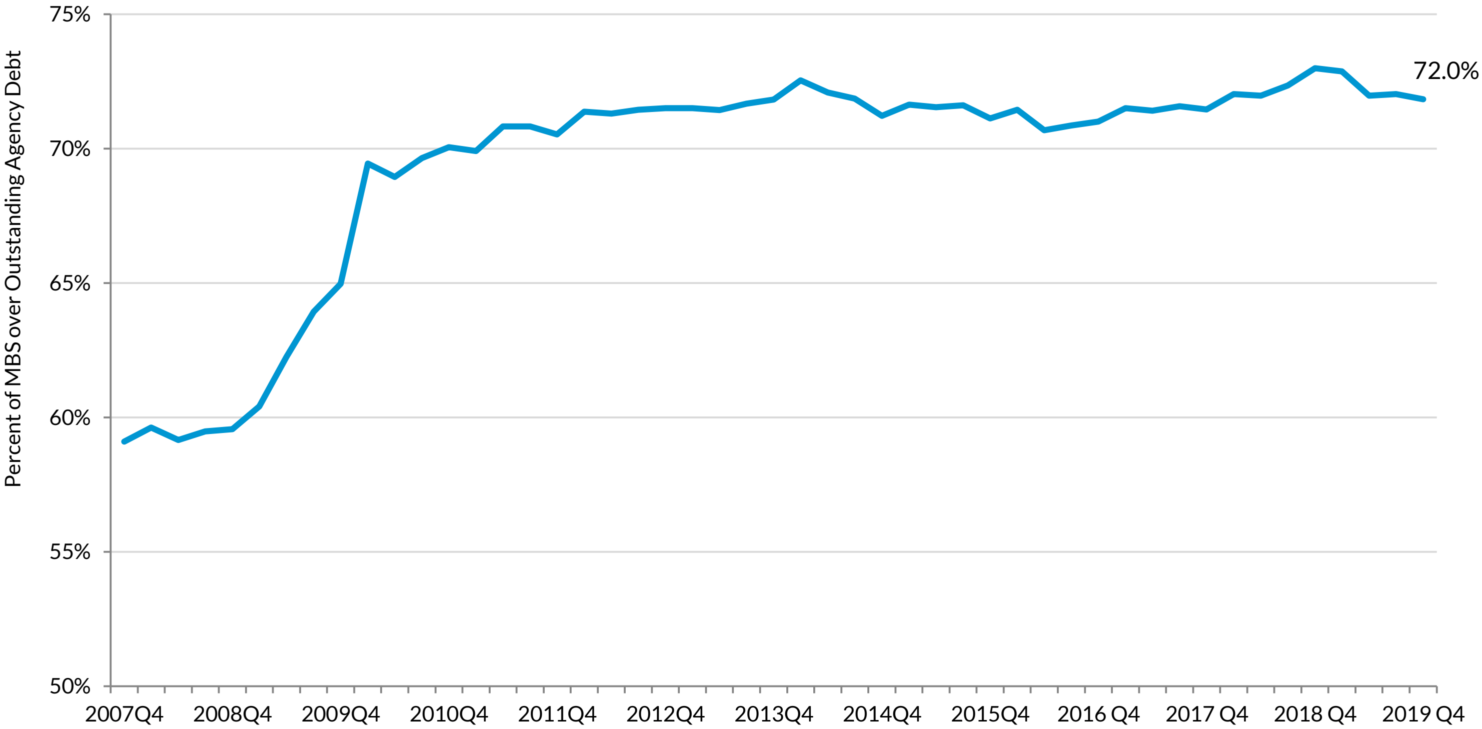


Sources: *Federal Reserve Flow of Funds and Urban Institute.* ***Note:*** *The "other" category includes primarily life insurance companies, state and local govts, households, and nonprofits. Data as of Q4 2019.*

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			
	Mar-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr 1	Apr 8	Apr 15	Apr 22
Largest 25 Domestic Banks	1,418.8	1,495.7	1,509.8	1,529.2	1,509.7	1,528.9	1,538.4	1,587.6	1,625.1	1,608.1	1,618.8	1,637.0
Small Domestic Banks	488.8	511.9	516.4	521.1	531.3	535.9	539.3	547.3	555.3	554.8	547.8	546.8
Foreign Related Banks	25.8	35.0	37.1	37.6	37.8	38.3	39.3	44.4	47.0	47.9	45.6	46.5
Total, Seasonally Adjusted	1,933.4	2,042.6	2,063.3	2,087.9	2,078.8	2,103.1	2,117.0	2,179.3	2,227.4	2,210.8	2,212.2	2,230.3

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 April 2020.*

MBS Ownership

Out of the $2.0 trillion in MBS holdings at banks and thrifts as of Q4 2019, $1.5 trillion was agency pass-throughs: $1.1 trillion in GSE pass-throughs and $427 billion in Ginnie Mae pass-throughs. Another $429 billion was agency CMOs, while non-agency holdings totaled $40 billion. In Q4, 2019, MBS holding at banks and thrifts increased for the fifth consecutive quarter, although the increase was smaller than in the previous 4 quarters. The increase was almost entirely in GSE pass-throughs, Ginnie Mae pass-through holdings were flat.

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

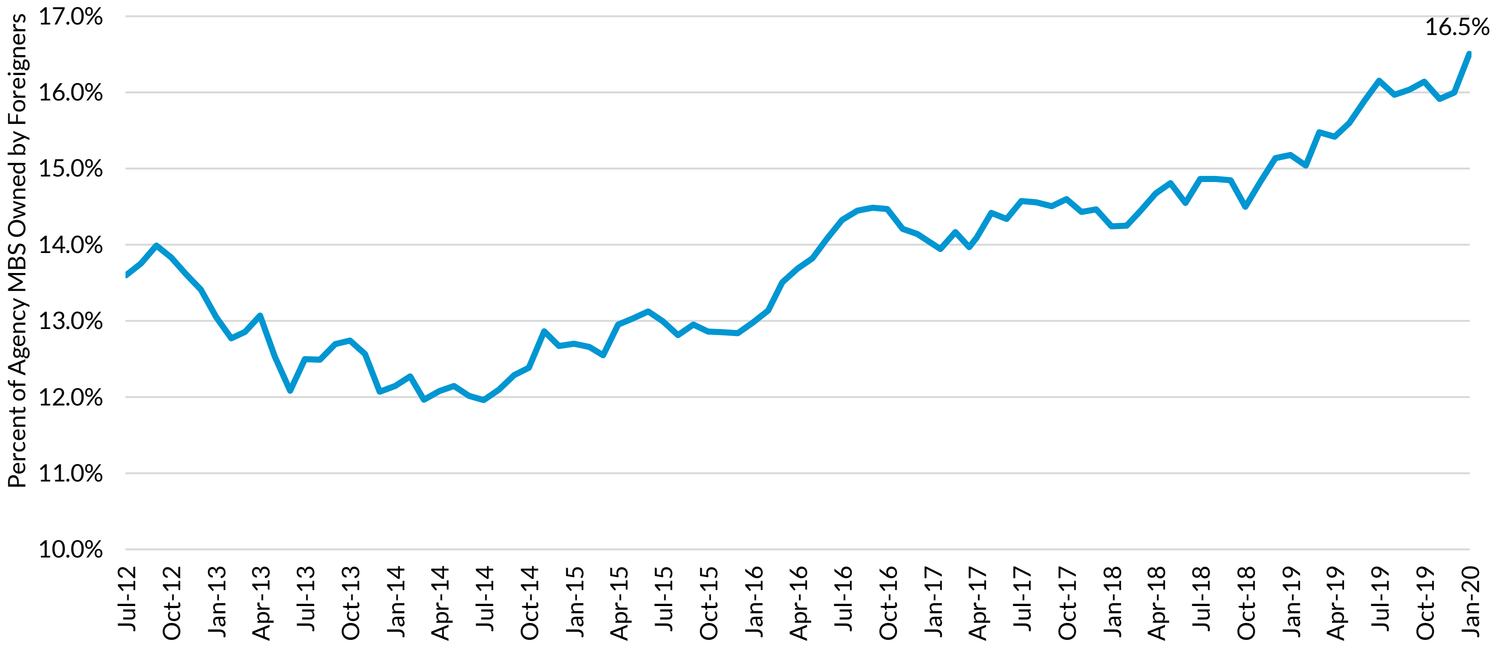
	Top Bank & Thrift Residential MBS Investors	Total ($MM)	GSE PT ($MM)	GNMA PT ($MM)	Agency REMIC ($MM)	Non-Agency ($MM)	Market Share
1	Bank of America Corporation	$331,072	$188,861	$131,989	$10,134	$88	16.7%
2	Wells Fargo & Company	$252,535	$182,814	$65,936	$2,958	$827	12.7%
3	JP Morgan Chase & Co.	$143,485	$93,693	$36,597	$205	$12,990	7.2%
4	U S. Bancorp.	$93,914	$43,762	$29,495	$20,657	$1	4.7%
5	Charles Schwab Bank	$89,040	$52,065	$19,196	$17,779	$0	4.5%
6	Citigroup Inc.	$72,342	$61,511	$2,433	$6,564	$1,834	3.6%
7	Truist Bank	$68,581	$23,908	$18,243	$26,062	$368	3.5%
8	Capital One Financial Corporation	$63,600	$25,739	$14,676	$22,424	$761	3.2%
9	Bank of New York Mellon Corp.	$55,954	$34,758	$4,184	$15,696	$1,316	2.8%
10	PNC Bank, National Association	$52,962	$45,959	$2,748	$2,301	$1,953	2.7%
11	State Street Bank and Trust Company	$42,248	$22,722	$10,143	$6,799	$2,584	2.1%
12	HSBC Bank USA, National Association	$26,171	$5,054	$13,017	$8,098	$2	1.3%
13	Ally Bank	$24,631	$15,300	$2,211	$4,340	$2,780	1.2%
14	Morgan Stanley	$24,014	$13,923	$6,029	$4,062	$0	1.2%
15	E*TRADE Bank	$21,952	$10,470	$3,212	$8,270	$0	1.1%
16	USAA Federal Savings Bank	$20,933	$17,662	$2,420	$851	$0	1.1%
17	Citizens Bank, National Association	$20,763	$10,416	$4,050	$5,635	$662	1.0%
18	KeyBank National Association	$20,577	$1,469	$660	$18,449	$0	1.0%
19	TD Bank	$18,203	$1,858	$184	$15,854	$306	0.9%
20	Regions Bank	$16,248	$10,623	$3,310	$2,314	$1	0.8%
	Total Top 20	**$1,459,225**	**$862,567**	**$370,733**	**$199,451**	**$26,474**	**73.3%**

Sources: *Inside Mortgage Finance and Urban Institute.* ***Note:*** *Data as of Q4 2019.*

MBS Ownership

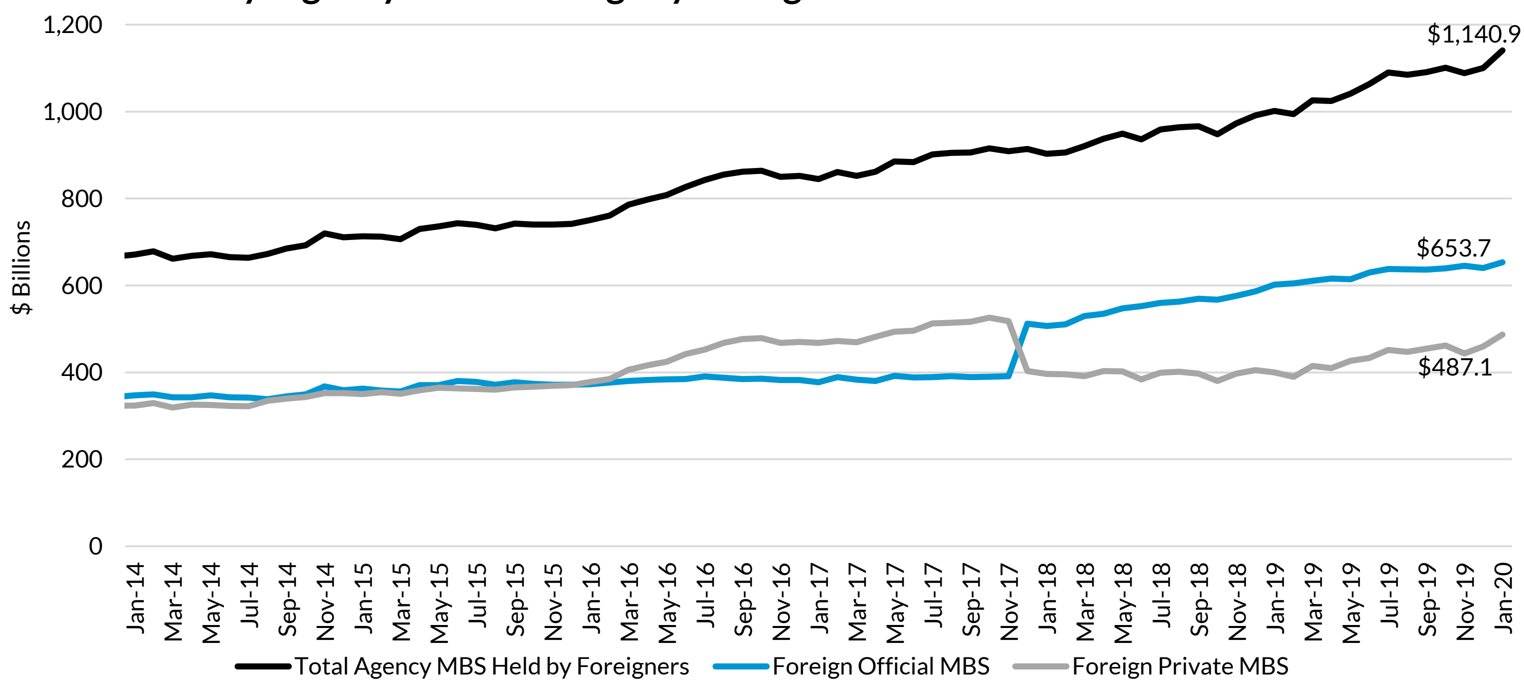
Foreign investors held 16.5 percent of agency MBS in January 2020, up from a low of 12.0 percent in July 2014. For the month of January 2020, this represents $1.14 trillion in Agency MBS, $487 billion held by foreign private institutions and $654 billion held by foreign institutions.

Foreign Share of Agency MBS



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

Monthly Agency MBS Holdings by Foreigners



***Sources**: Treasury International Capital (TIC) and Urban Institute. **Note**: Data as of January 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 2018 and January 2020, we estimate China has increased their agency MBS holdings by $59.9 billion, Japan has increased their holdings by $48.7 billion and Taiwan has increased their holdings by $13.6 billion.

Agency MBS+ Agency Debt

	Level of Holdings ($Millions)*								Change in Holdings ($Millions)*						
Country	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19	Jan-20	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Jan-20
Japan	257,547	254,511	271,999	284,322	296,445	311,043	305,327	305,662	-3,036	17,488	12,323	12,123	14,598	-5,716	333
Taiwan	250,009	250,639	261,262	265,992	265,520	263,011	261,740	263,586	630	10,623	4,730	-472	-2,509	-1,271	1,846
China	180,635	190,203	188,921	208,540	227,312	233,778	231,742	239,880	9,568	-1,282	19,619	18,772	6,466	-2,036	8,138
Ireland	46,817	48,220	48,020	46,623	44,850	41,374	38,633	38,446	1,403	-200	-1,397	-1,773	-3,476	-2,741	-202
Luxembourg	36,372	38,800	50,869	44,561	46,328	46,606	38,977	39,349	2,428	12,069	-6,308	1,767	278	-7,629	345
South Korea	44,039	43,944	44,794	42,604	42,669	41,309	40,542	40,411	-95	850	-2,190	65	-1,360	-767	-287
Bermuda	27,866	27,610	28,777	28,450	29,286	29,183	33,897	28,133	-256	1,167	-327	836	-103	4,714	-5,764
Cayman Islands	31,017	31,638	31,398	30,374	30,819	29,432	31,036	31,292	621	-240	-1,024	445	-1,387	1,604	256
Malaysia	12,710	12,874	12,671	12,395	12,108	15,585	16,600	16,586	164	-203	-276	-287	3,477	1,015	-14
Netherlands	11,995	12,229	9,601	9,400	13,548	10,546	10,898	10,875	234	-2,628	-201	4,148	-3,002	352	-27
Rest of World	125,197	128,807	128,323	130,053	128,049	135,460	152,136	185,722	3,610	-484	1,730	-2,004	7,411	16,676	33,763
Total	1,024,200	1,039,475	1,076,635	1,103,314	1,136,934	1,157,327	1,161,528	1,199,942	15,275	37,160	26,679	33,620	20,393	4,201	38,387

Agency MBS Only (Estimates)

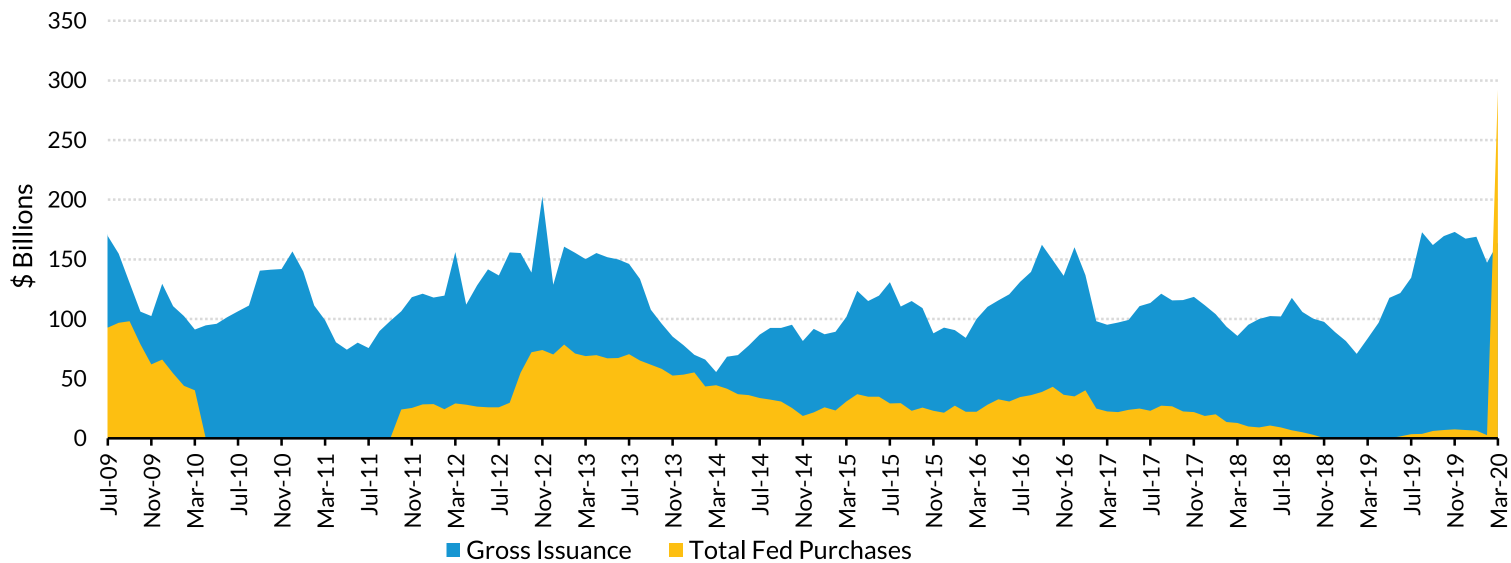
	Level of Holdings ($Millions)*								Change in Holdings ($Millions)*						
Country	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19	Jan-20	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Jan-20
Japan	253,972	250,851	268,150	280,394	293,081	307,665	302,201	302,669	-3,121	17,299	12,244	12,687	14,584	-5,464	468
Taiwan	249,773	250,397	261,008	265,733	265,268	262,795	261,533	263,388	624	10,611	4,725	-464	-2,474	-1,261	1,855
China	176,345	185,811	184,302	203,827	223,160	229,720	227,988	236,289	9,466	-1,509	19,525	19,334	6,559	-1,732	8,301
Ireland	37,832	39,021	38,346	36,751	35,858	32,870	30,786	30,924	1,189	-676	-1,594	-893	-2,988	-2,084	138
Luxembourg	34,012	36,384	48,328	41,967	45,567	44,400	36,939	37,373	2,372	11,944	-6,361	3,600	-1,166	-7,462	434
South Korea	33,064	32,708	32,977	30,546	32,031	31,086	31,094	31,223	-356	269	-2,431	1,485	-945	9	129
Bermuda	24,969	24,644	25,658	25,267	26,316	26,443	31,362	25,708	-325	1,014	-391	1,049	127	4,919	-5,654
Cayman Islands	24,384	24,847	24,256	23,086	24,436	23,157	25,232	25,739	463	-591	-1,170	1,349	-1,279	2,075	507
Malaysia	12,319	12,474	12,250	11,965	11,729	15,215	16,258	16,259	155	-224	-285	-236	3,486	1,043	1
Netherlands	11,437	11,658	9,000	8,787	13,010	10,020	10,414	10,408	221	-2,658	-213	4,223	-2,990	394	-6
Rest of World	95,510	98,414	96,359	97,440	98,964	107,208	125,982	160,870	2,904	-2,056	1,082	1,524	8,244	18,774	34,888
Total	953,612	967,209	1,000,632	1,025,763	1,069,421	1,090,579	1,099,788	1,140,850	13,597	33,423	25,131	43,658	21,158	9,209	41,062

***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 January 2020.*

MBS Ownership

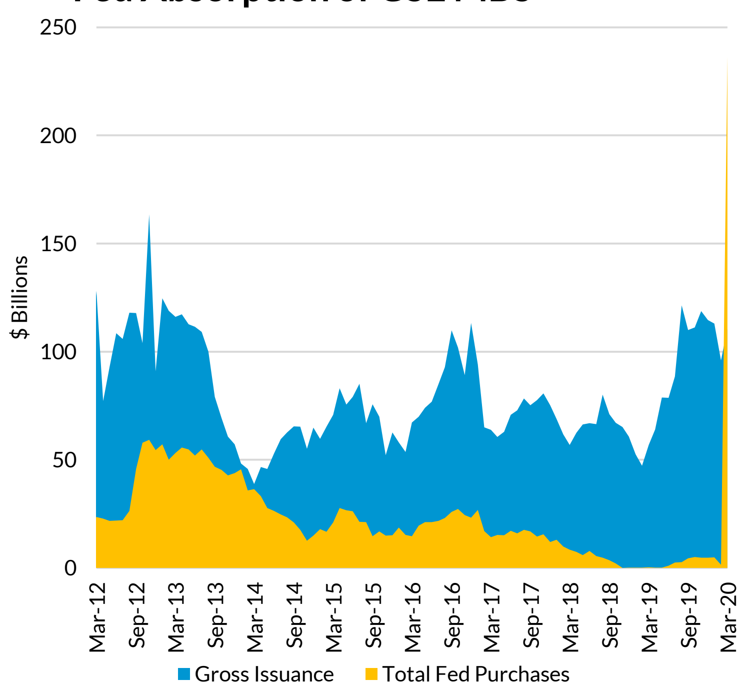
On March 23, 2020, in response to the market dislocations caused by the coronavirus pandemic, the Fed announced they would purchase Treasuries and agency MBS in an amount necessary to support smooth functioning markets. This resulted in the largest single month of Fed purchases ever—in March 2020, the Fed purchased a total or $292.2 billion, corresponding to a Fed absorption of gross issuance of 178.2 percent. 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



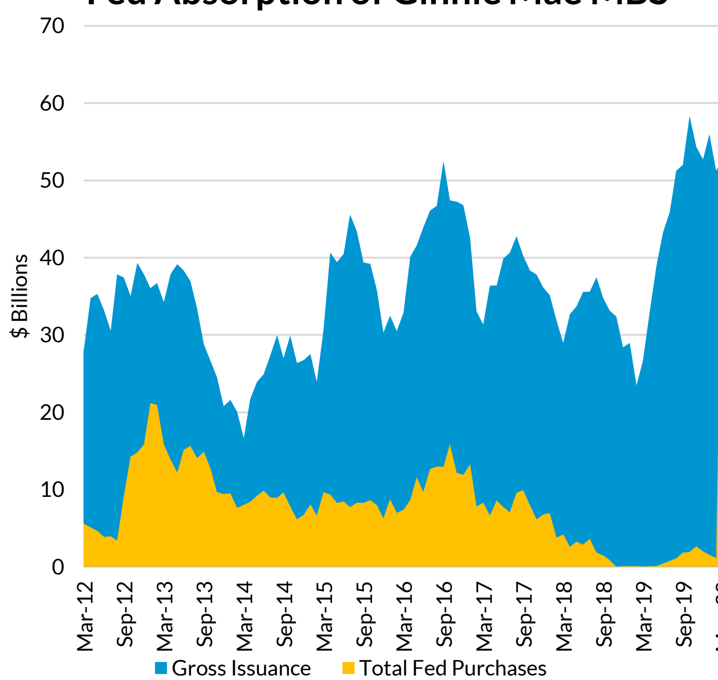
Sources: *eMBS, Federal Reserve Bank of New York and Urban Institute.* ***Note:*** *Data as of March 2020.*

Fed Absorption of GSE MBS



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

Fed Absorption of Ginnie Mae MBS



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

Disclosures