Global Markets Analysis Report

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

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Our Guaranty Matters

PREPARED FOR GINNIE MAE
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HIGHLIGHTS

Who does Ginnie Mae serve? Evidence from latest data.

In August, the Consumer Financial Protection Bureau (CFPB) announced the release of the 2018 Home Mortgage Disclosure Act (HMDA) data. The HMDA dataset includes a wide variety of borrower, loan and product information for residential loans originated during the 2018 calendar year. One especially useful data point available in HMDA is borrower annual household income. This data allows us to compare the income distribution of borrowers served by Ginnie Mae to those served by the GSEs.

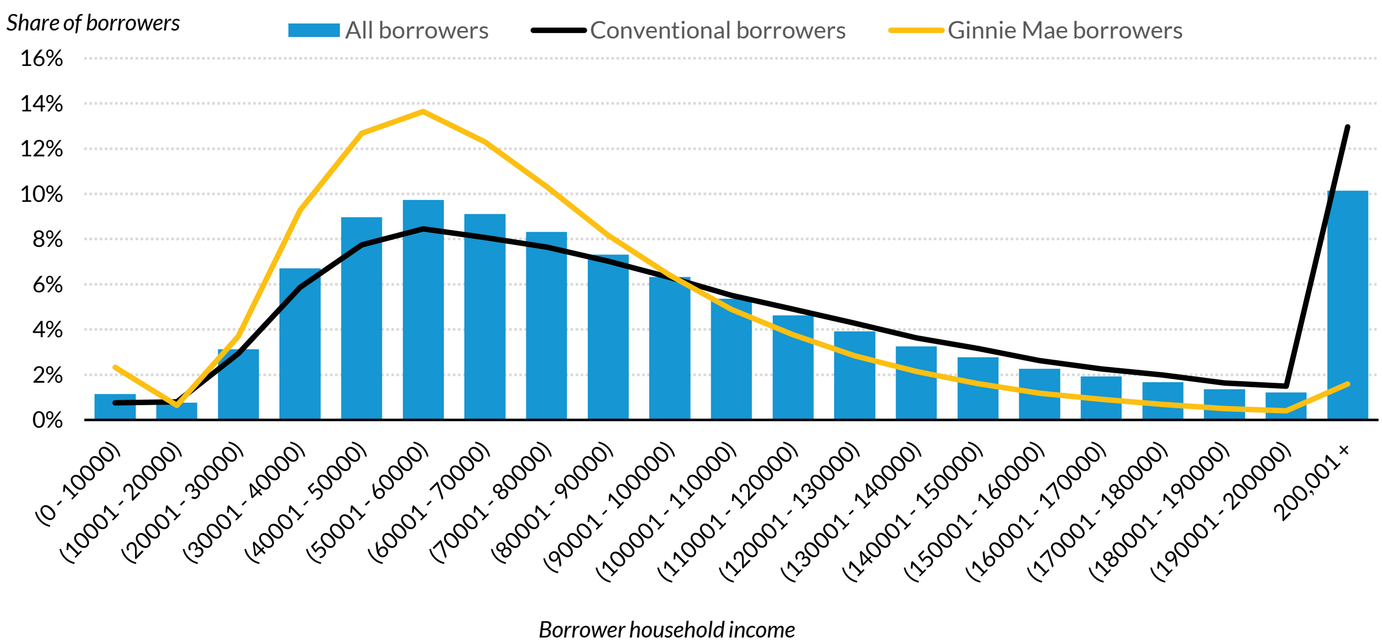
Figure 1 shows the 2018 household income distribution for three borrower populations:

i. Government borrowers: those who obtained a Federal Housing Administration (FHA), Veteran Affairs (VA) or a US Department of Agriculture Rural Housing (USDA/RHS) loan (Collectively Ginnie Mae borrowers);

ii. Conventional borrowers: those who obtained mortgages guaranteed by Fannie Mae or Freddie Mac, held privately in bank portfolios, securitized as private-label, or owned by other private investors; and

iii. All borrowers: Government and Conventional borrowers combined.

Figure 1: Distribution of 2018 Borrower Household Income: Conventional, Ginnie Mae, and All Borrowers



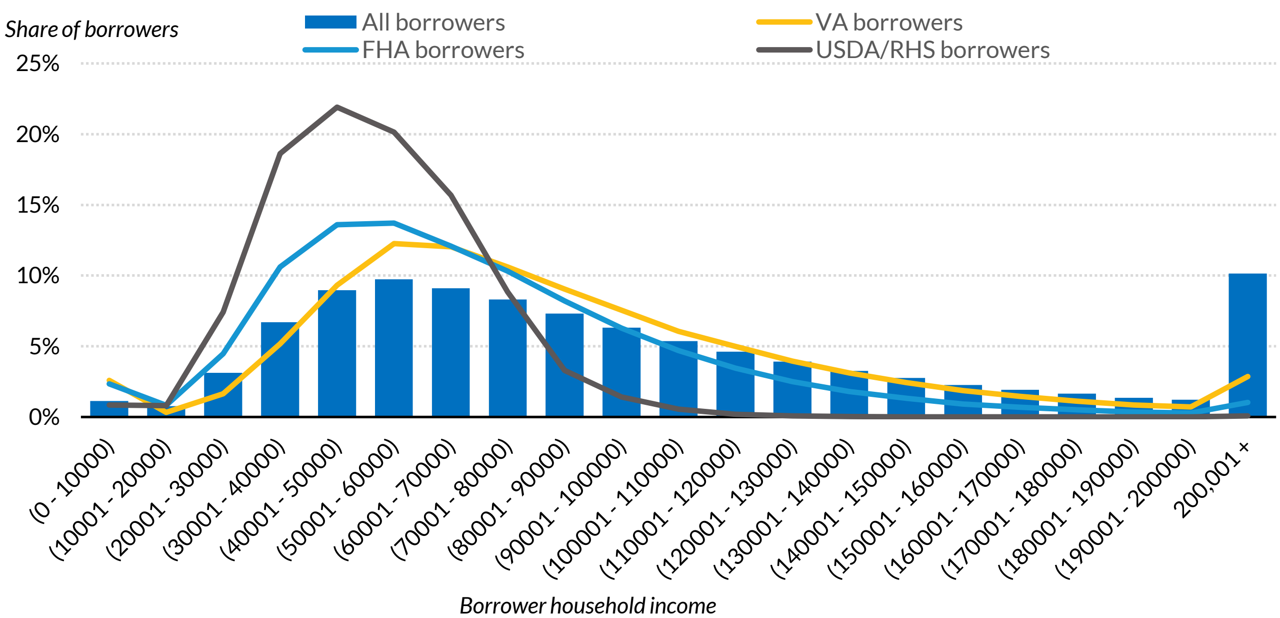
Source: Home Mortgage Disclosure Act 2018.

The graph demonstrates the significant differences between the government and conventional borrower base. In 2018, over half (54 percent) of Ginnie Mae borrowers (yellow line) had annual incomes at or under $70,000 compared to 34 percent for conventional loans (black line); about 28 percent of Ginnie Mae borrowers had annual incomes under $50,000 compared to 18 percent for conventional. When we look at the blue bars, which represent all 2018 borrowers reported by HMDA, only 40 percent had annual incomes up to $70,000, and only 20 percent had incomes up to $50,000. This shows that incomes of Ginnie Mae borrowers are much more concentrated in the low-to-moderate end of the income spectrum than conventional lending. In addition, as shown on page 27 of this publication, FICO scores of Ginnie Mae borrowers tend to be lower, while, as shown on page 30, debt-to-income ratios tend to be higher than those of borrowers who obtain conventional financing through Fannie Mae or Freddie Mac. Ginnie Mae thus serves as the vehicle through which low- and moderate-income borrowers obtain home financing.

HIGHLIGHTS

Further insights can be gleaned from HMDA data by analyzing income distributions of FHA, VA and USDA borrowers separately. This is shown in Figure 2 along with the income distribution for all borrowers. The USDA serves a much higher proportion of lower income households than FHA or VA. In 2018, about 85 percent of USDA borrowers had annual incomes at or below $70,000 and half had incomes up to $50,000. According to the U.S. Census Bureau, the 2018 median income was around $63,000. Thus, more than half of USDA's 2018 lending was to households earning less than the US median household income.

Figure 2: Distribution of 2018 Borrower Household Income: FHA, VA, and USDA vs. All Borrowers



Source: Home Mortgage Disclosure Act 2018.

The incomes of 2018 FHA borrowers were higher than those of USDA borrowers but still skewed toward the lower end of the spectrum. About a third of FHA borrowers had incomes up to $50,000 and about 60 percent had incomes up to $70,000, in comparison to 20 and 43 percent respectively for VA borrowers. This income distribution of VA borrowers resembles the distribution of all borrowers much more than FHA or USDA, likely reflecting the positive impact of a stable job, steady income and other benefits provided by the VA.

Investors can assess Ginnie Mae MBS pool compositions of FHA, VA, and Rural Housing concentration using our Pool SEARCH function at GinnieMae.gov.

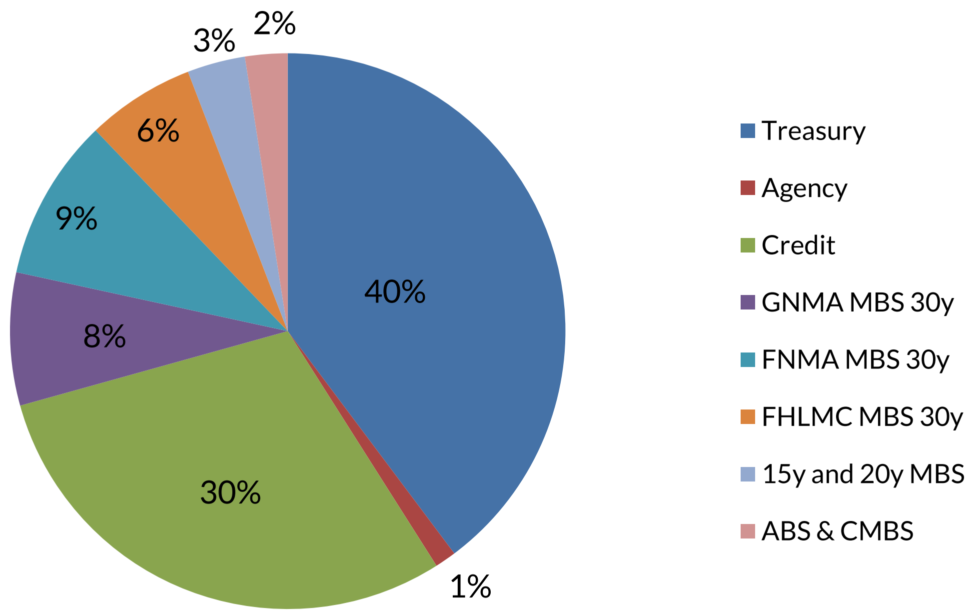
Highlights this month:

- After slowing from 6.5% in spring of 2018 to 3.5% in spring of 2019, annual house price appreciation resumed its upward trend, touching 3.8% in August 2019 (page 12).
- First lien originations totaled $1.62 trillion through the first three quarters of 2019, up from $1.26 trillion at the same point in 2018 (page 17).
- In September 2019, over a third of FHA's and half of VA's originations were refinance loans, the highest levels since early 2017, driven by continued low mortgage rates (page 21).
- Amidst a strong refinance wave, which higher FICO borrowers take advantage of with greater frequency, agency FICO scores have risen considerably (page 28).

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

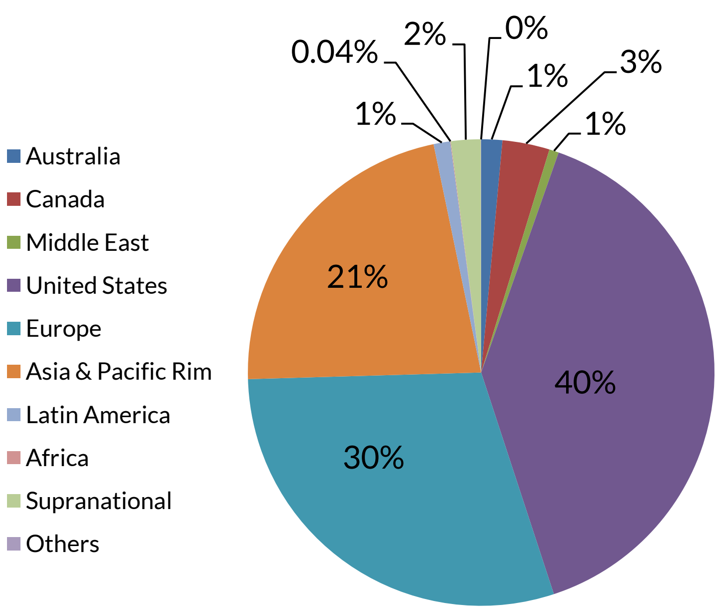
US MBS (Ginnie Mae, Fannie Mae, and Freddie Mac) comprise 27 percent of the Barclays US Aggregate Index- less than either the US Treasury share (40 percent) or the US Credit share (30 percent). Fannie Mae 30-year MBS comprises the largest percent of US MBS (9 percent), while Ginnie Mae 30-year MBS and Freddie Mac 30-year MBS comprise 8 percent and 6 percent of the market, respectively. Mortgages with terms of 15 and 20 years comprise the remaining balance (3 percent) of the US MBS share. US securities are the single largest contributor to the Barclays Global Aggregate, accounting for 40 percent of the global total. US MBS comprises 11 percent of the global aggregate.

Barclays US Aggregate Index



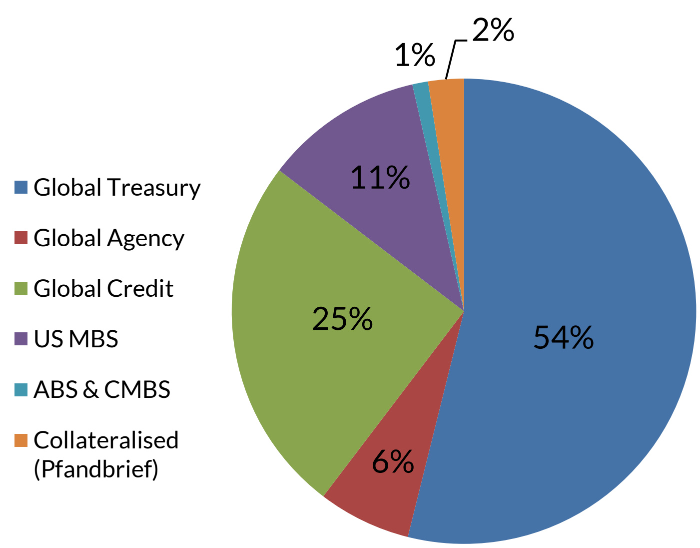
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of September 2019.*
Note*: Numbers in chart may not add to 100 percent due to rounding.*

Barclays Global Aggregate Index by Country



Sources: *Bloomberg and State Street Global Advisors.*
Note: *Data as of September 2019.*

Barclays Global Aggregate Index by Sector

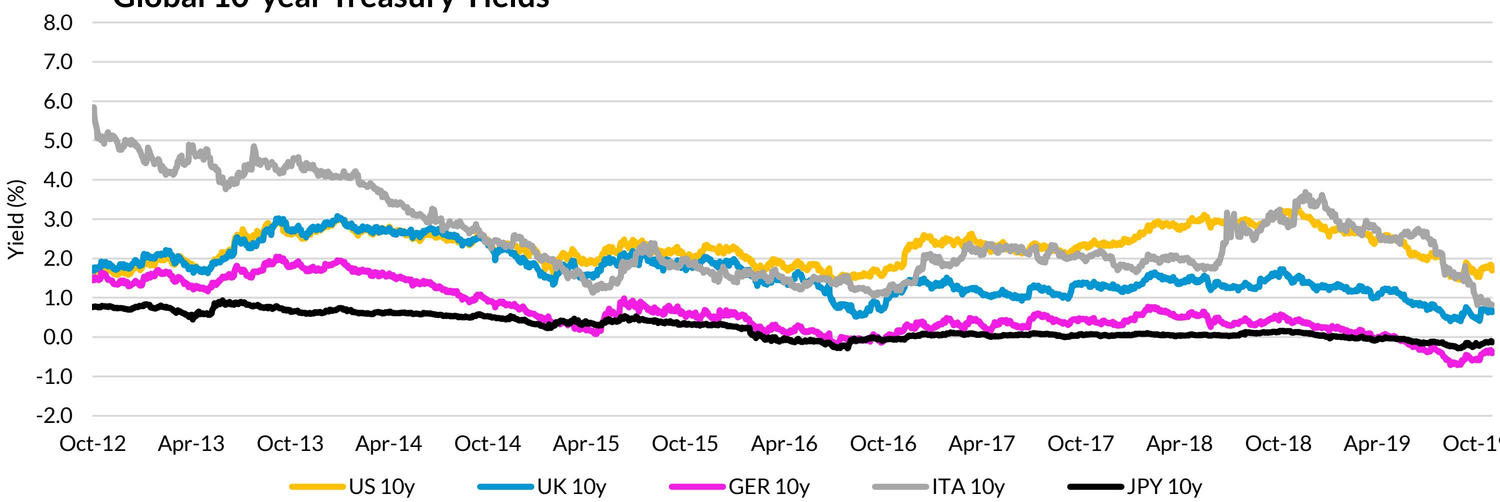


Sources: *Bloomberg and State Street Global Advisors*
Note*: Data as of September 2019.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

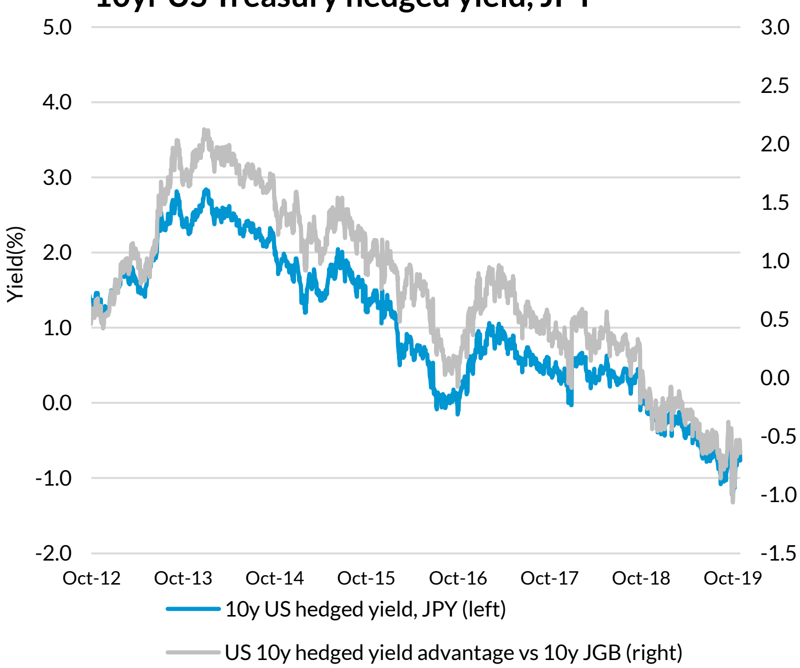
With weakness in recent economic data and worries about tariffs and trade wars, yields on government bonds have dropped across the globe over the course of 2019. The yield on the US 10-year treasury increased 3 bps in October to 1.69 percent, however, it is down 93 bps YTD. Despite being down on the year, US treasury yield remained the highest in the developed world. This is followed by yields on the Italian 10-year note, down 22 basis points in October to 0.82 percent, the UK 10-year bond, up 14 bps to 0.63 percent, German 10 year, up 16 bps to -0.41 percent, and the Japanese 10 year government bond, which rose by 8 basis points to -0.13 percent over the course of October. At the end of October, the hedged yield differential between the 10-year Treasury and the 10-year JGB stood at -63 bps, an increase of 37 bps since September. The hedged yield differential between the 10-year Treasury and the 10-year Bund stands at -45 bps, an increase of 26 bps since the end of September.

Global 10-year Treasury Yields



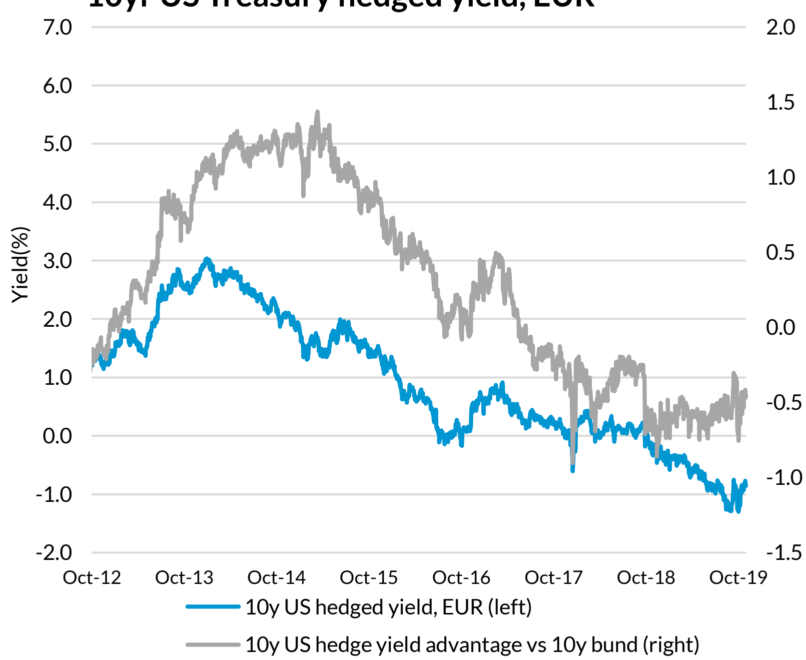
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of October 2019.*

10yr US Treasury hedged yield, JPY



Sources: *Bloomberg and State Street Global Advisors.*
Note: *Data as of October 2019.*

10yr US Treasury hedged yield, EUR

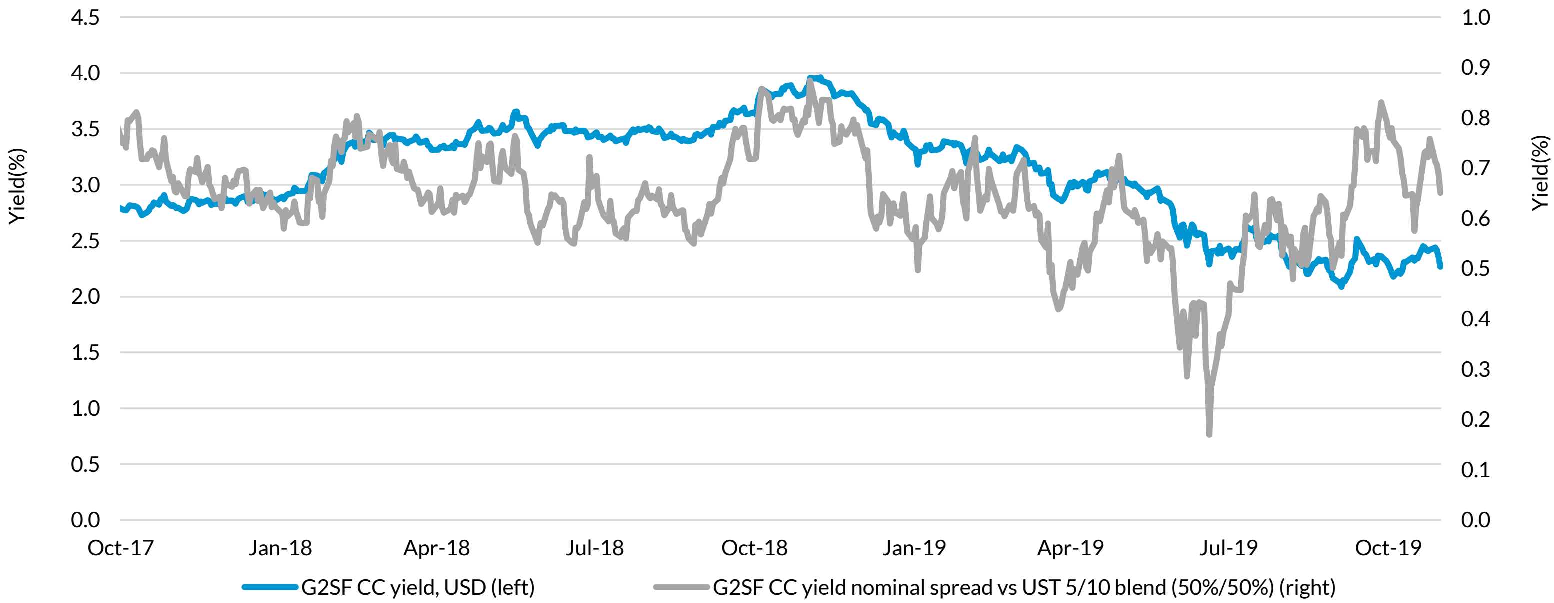


Sources: *Bloomberg and State Street Global Advisors*
Note*: Data as of October 2019.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

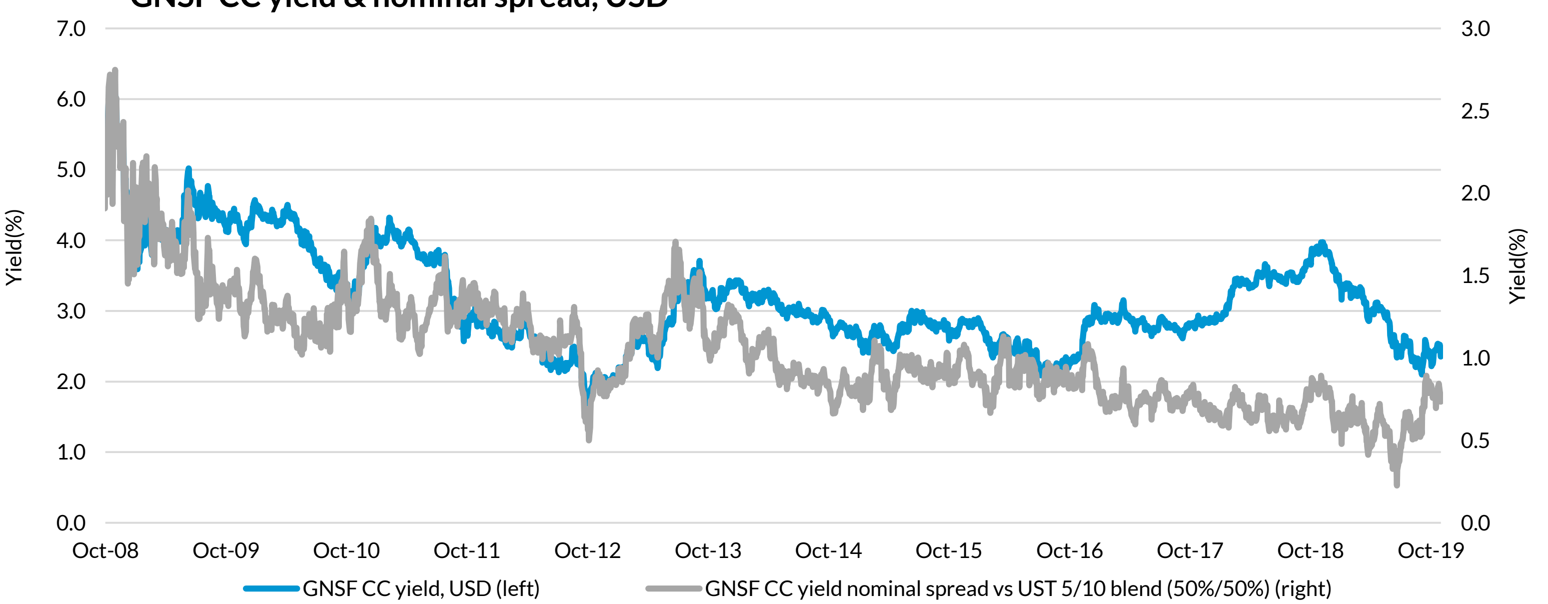
Nominal yields were largely unchanged in October 2019, with GNMA II yields marginally lower and GNMA I yields marginally higher. Current coupon Ginnie Mae securities outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 65 and 73 bps on G2SF and GNSF, respectively, a tightening of 14 and 8 bps since last month.

G2SF CC yield & nominal spread, USD



***Sources:** Bloomberg and State Street Global Advisors.* ***Note**: Data as of October 2019.*

GNSF CC yield & nominal spread, USD

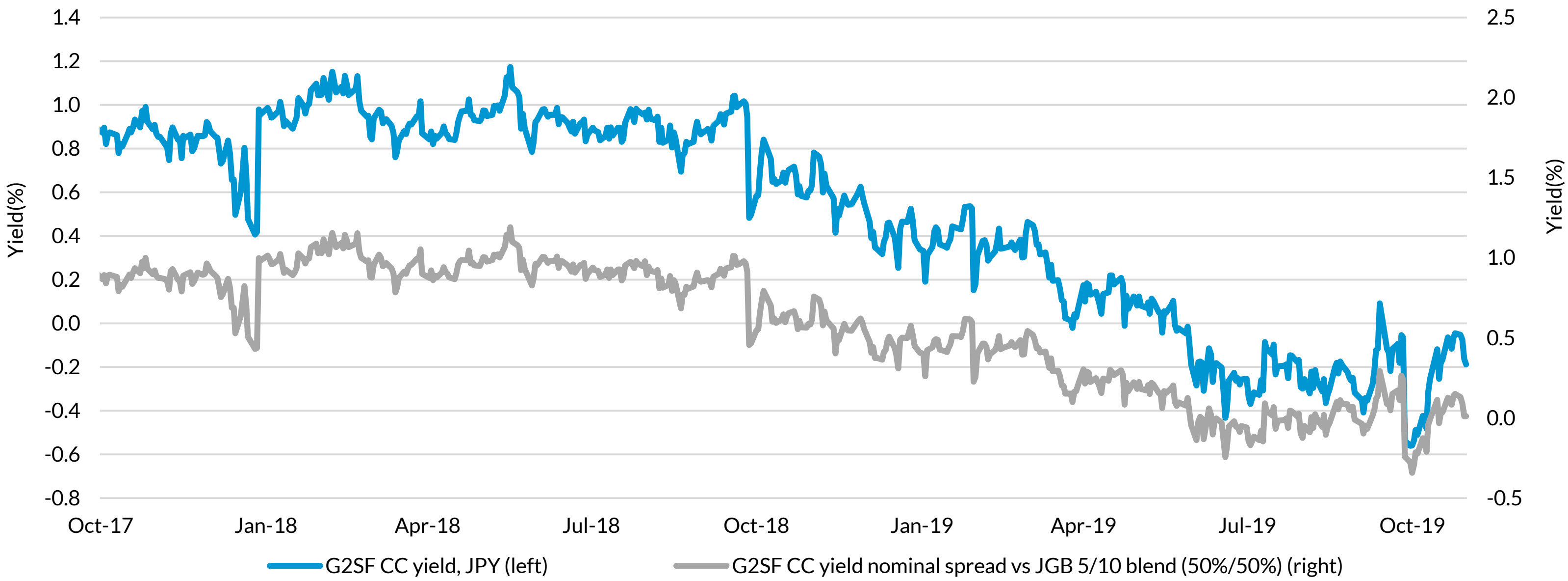


***Sources:** Bloomberg and State Street Global Advisors.* ***Note:** Data as of October 2019.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

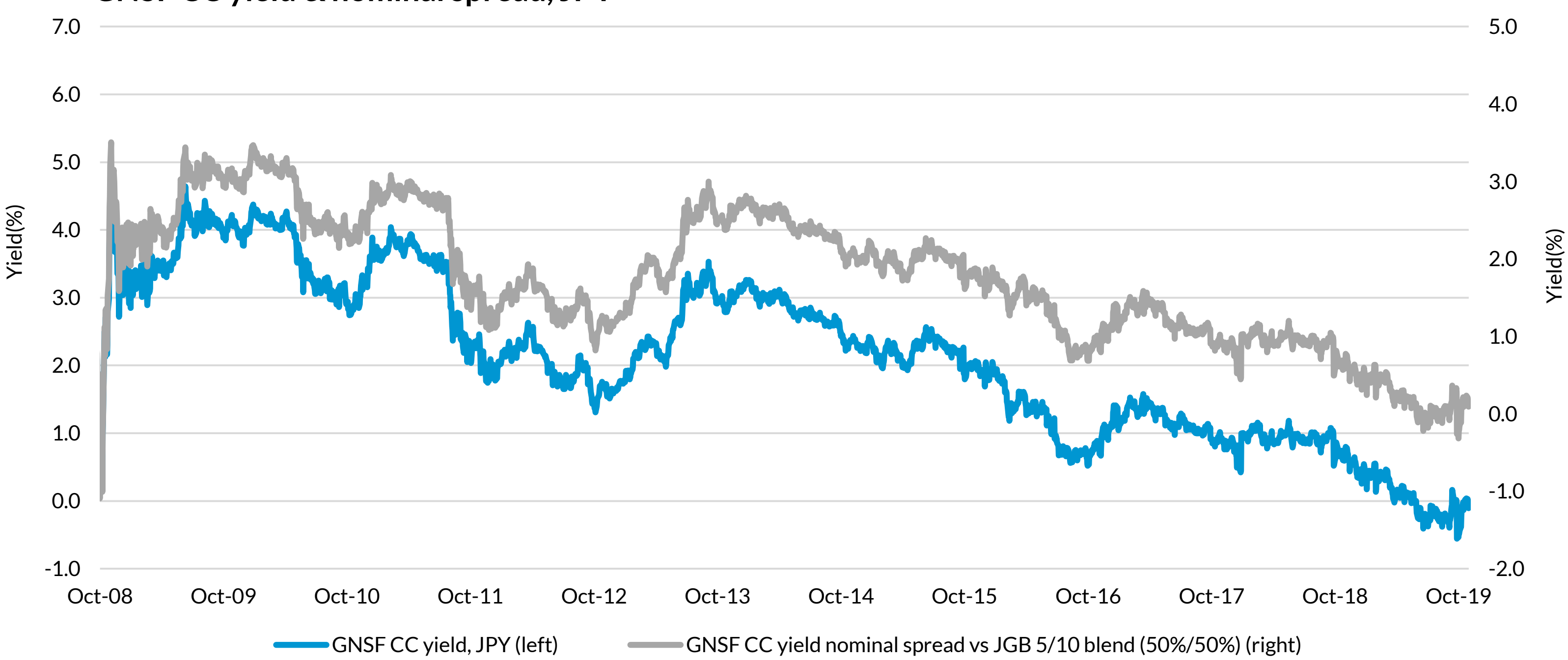
If Ginnie Mae securities are hedged into Japanese Yen, they look fair on a yield basis versus the JGB 5/10 blend. More precisely, the G2SF hedged into Japanese yen has a yield of 1 bp versus the JGB 5/10 blend, while the GNSF hedged into Japanese yen has a yield of 9 bps versus the JGB 5/10 spread. This represents a increase of 29 and 34 bps. respectively, since the end of September.

G2SF CC yield & nominal spread, JPY



Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of October 2019.*

GNSF CC yield & nominal spread, JPY

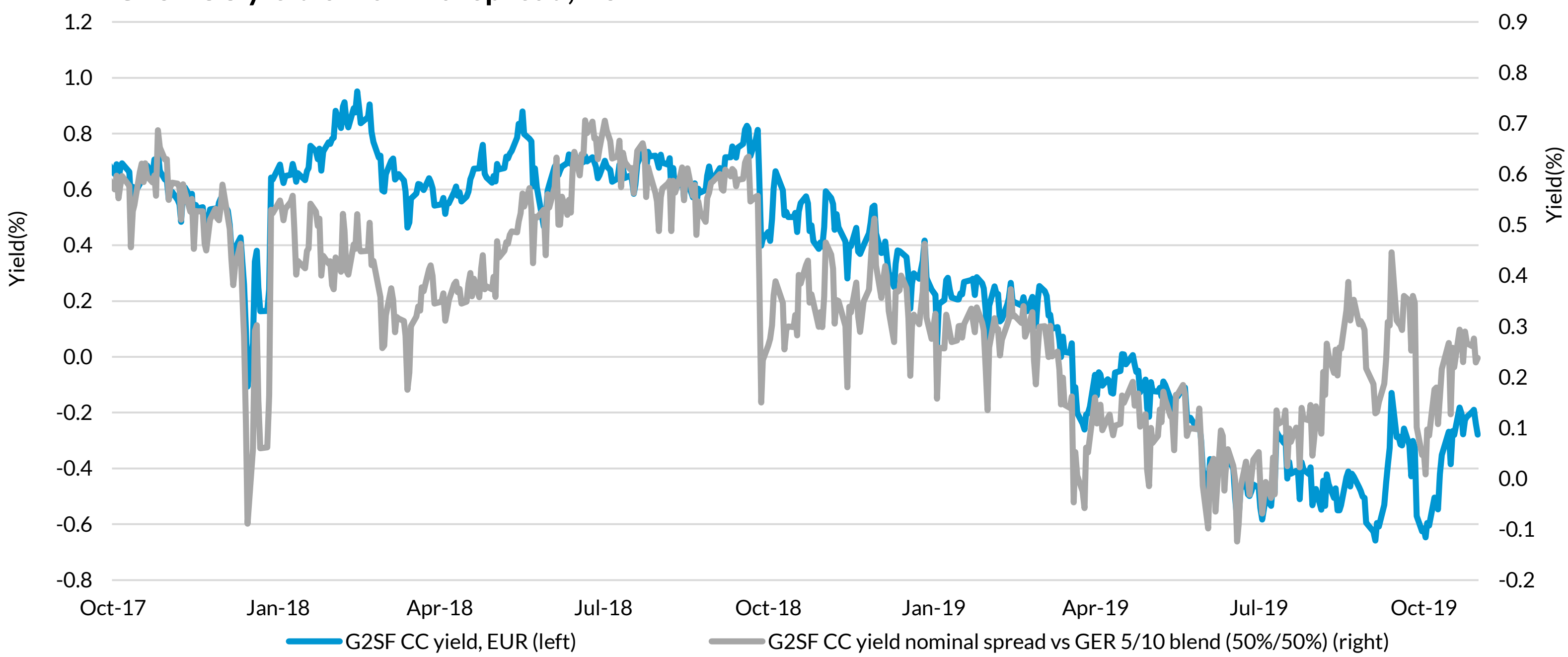


Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of October 2019.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

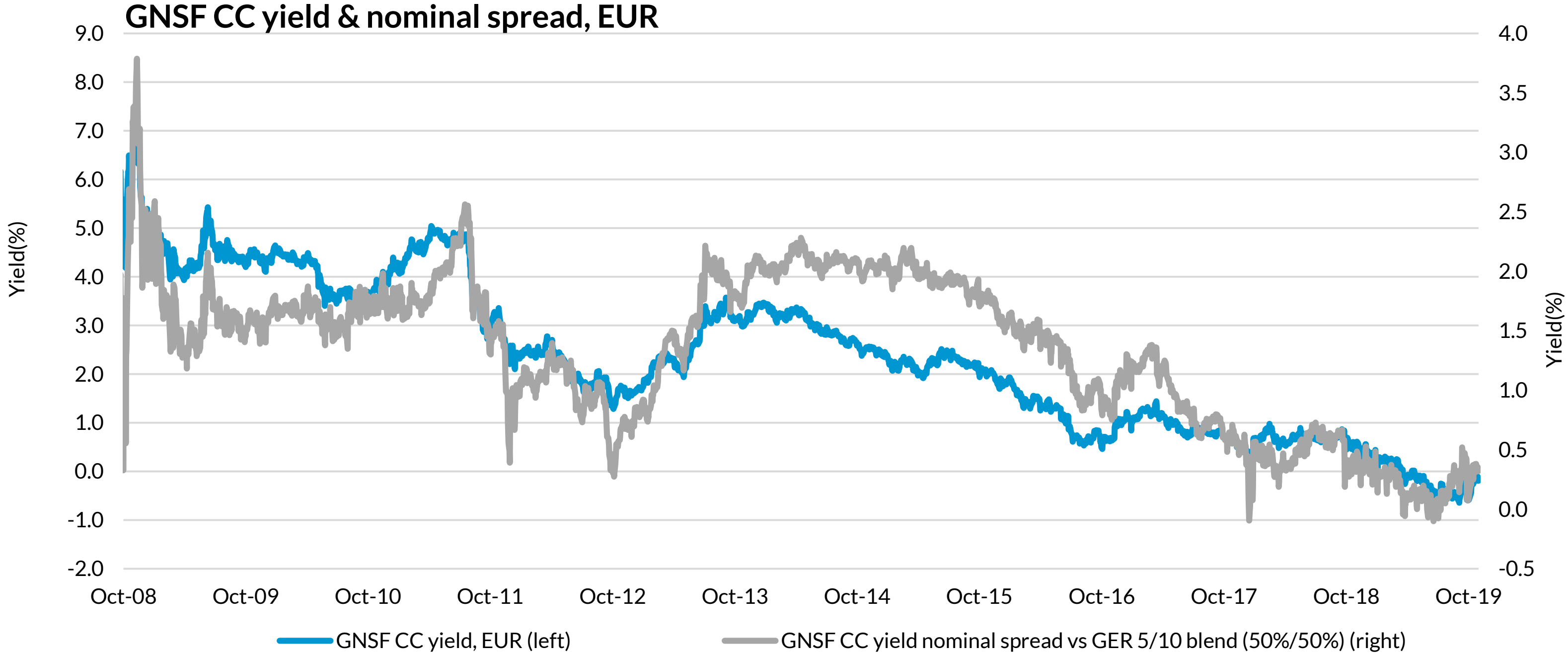
If Ginnie Mae securities are hedged into Euros, they look favorable on a yield basis versus the German 5/10 Blend. The figures below show that at the end of October, the current coupon G2SF has a 24 bp higher yield than the average of the German 5/10 blend, while the GNSF hedged into euros has a spread to the German 5/10 blend of 32 bps. This represents a 19 and 25 bp increase, respectively, since the end of September.

G2SF CC yield & nominal spread, EUR



Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of October 2019.*

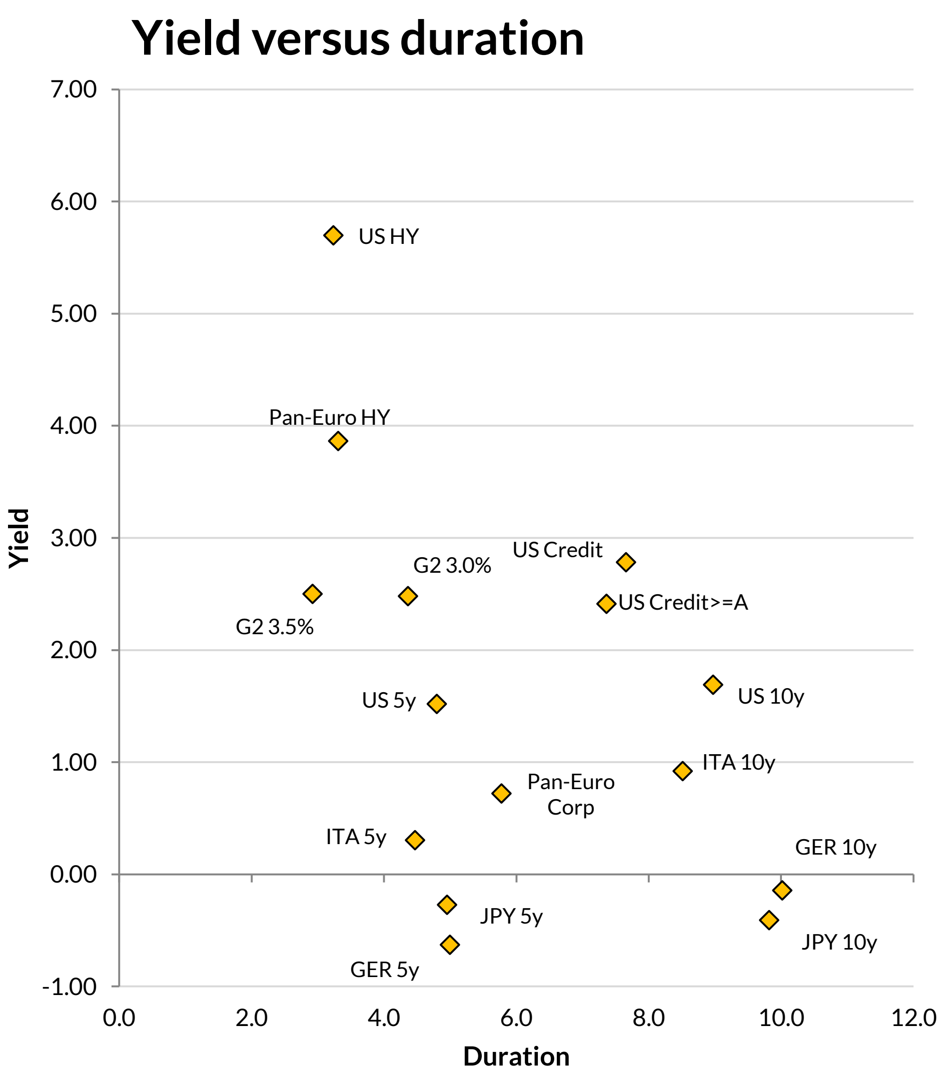
GNSF CC yield & nominal spread, EUR



Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of October 2019.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

US MBS yields are about the same or higher than most securities with the same or longer durations. The only asset class with significantly more yield is the US high yield index. 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.



Security	Duration	Yield
US 5y	4.8	1.52
US 10y	9.0	1.69
GNMA II 3.0%	4.4	2.48
GNMA II 3.5%	2.9	2.50
JPY 5y	5.0	-0.27
JPY 10y	10.0	-0.14
GER 5y	5.0	-0.63
GER 10y	9.8	-0.41
ITA 5y	4.5	0.31
ITA 10y	8.5	0.92
US credit	7.7	2.78
US credit >= A	7.4	2.41
US HY	3.2	5.70
Pan-Euro Corp	5.8	0.72
Pan-Euro HY	3.3	3.87

Sources: *Bloomberg and State Street Global Advisors.* ***Note****: Yields are in base currency of security and unhedged. Data as of October 2019.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

The average return on the Ginnie Mae index over the past decade is equal to the US Treasury index. 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 over the 10-year horizon is only marginally lower than most of the corporate indices, although a good bit higher than the US Treasury Index.

	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	0.59	0.84	1.03	0.58	0.53	0.45
3 year	0.18	0.19	0.37	0.19	0.50	0.39
5 year	0.21	0.24	0.39	0.24	0.45	0.37
10 year	0.26	0.26	0.46	0.42	0.65	0.69

	Average Excess Return (Per Month)					
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield*	Pan Euro High Yield*
1 year	0.41	0.66	0.85	0.63	0.35	0.51
3 year	0.05	0.06	0.25	0.25	0.37	0.45
5 year	0.13	0.16	0.31	0.29	0.37	0.42
10 year	0.22	0.21	0.42	0.44	0.61	0.71

	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	0.73	1.34	1.42	0.83	1.85	1.52
3 year	0.67	1.12	1.19	0.78	1.19	1.05
5 year	0.58	1.06	1.18	0.98	1.54	1.34
10 year	0.68	1.05	1.19	1.14	1.69	1.69

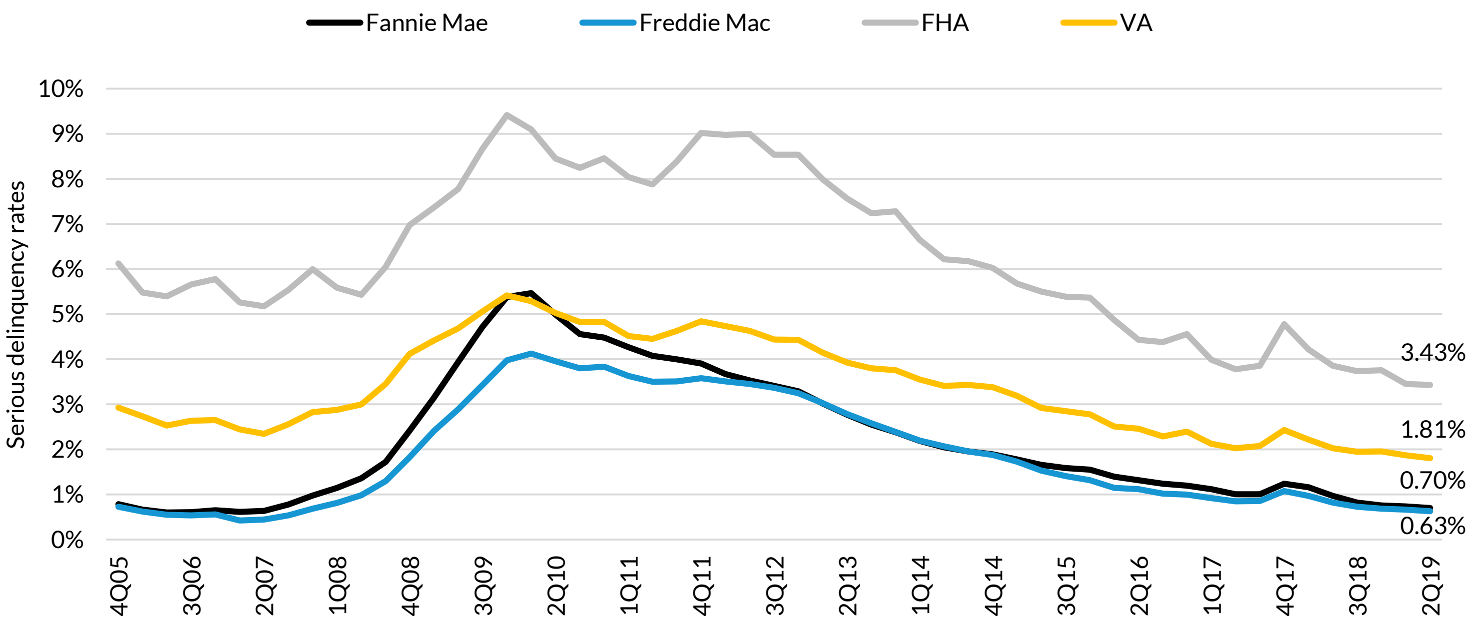
	Sharpe Ratio					
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield	Pan Euro High Yield*
1 year	0.57	0.49	0.60	0.76	0.19	0.33
3 year	0.07	0.06	0.21	0.32	0.31	0.43
5 year	0.22	0.15	0.26	0.30	0.24	0.31
10 year	0.32	0.20	0.35	0.38	0.36	0.42

**Assumes 2% capitalization max per issuer on high yield indices*
***Sources:** Barclays Indices, Bloomberg and State Street Global Advisors* ***Note:** Data as of September 2019.*

State of the US Housing Market

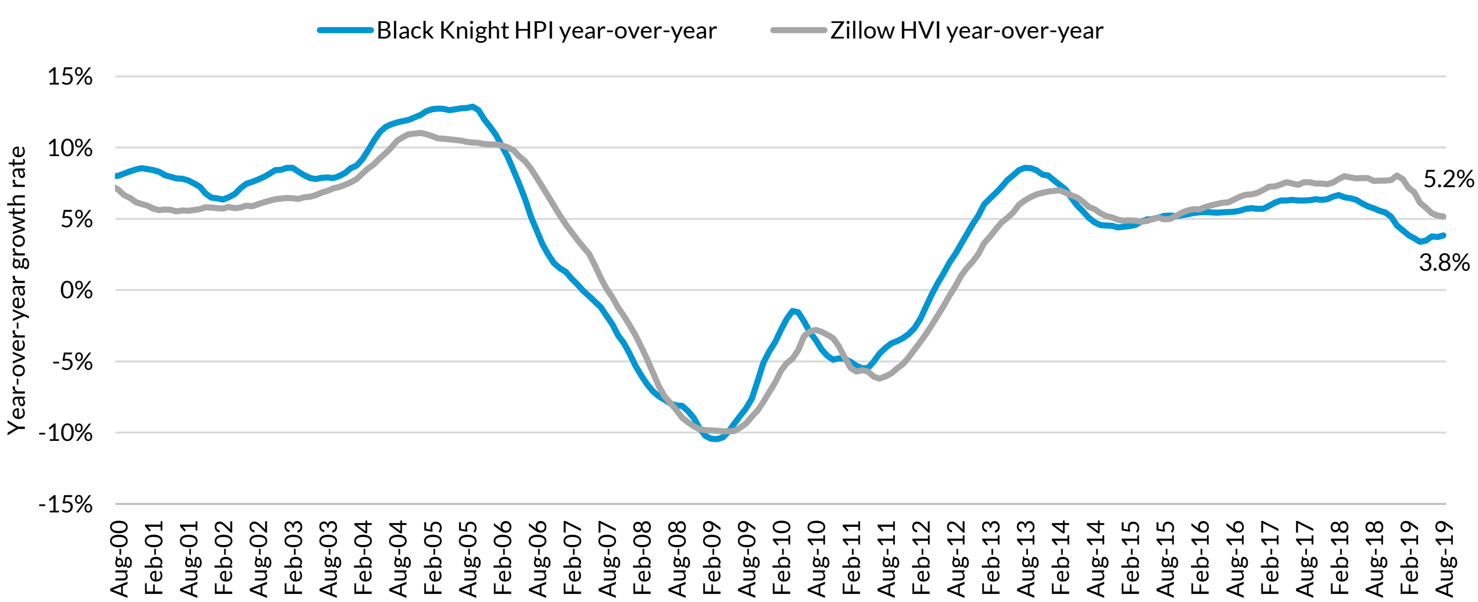
Serious delinquencies rates for single-family GSE loans, FHA loans, and VA loans continued to decline in Q2 2019. GSE delinquencies remain slightly higher relative to 2006-2007, while FHA and VA delinquencies (which are higher than their GSE counterparts) are well below 2006-2007 levels. After slowing appreciably from 6.5 percent in early 2018 to 3.4 percent in April 2019, home price appreciation, as measured by Black Knight, has resumed its upward trend. The Zillow indices, which tend to lag, do not yet reflect this uptick.

Serious Delinquency Rates: Single-Family Loans



Sources: *Fannie Mae, Freddie Mac, MBA Delinquency Survey and Urban Institute.*
Note: *Serious delinquency is defined as 90 days or more past due or in the foreclosure process. Data as of Q2 2019.*

National Year-Over-Year HPI Growth



Sources: *Black Knight, Zillow, and Urban Institute.* ***Note:*** *Data as of August 2019.*

State of the US Housing Market

Nationally, nominal home prices have increased by 54.5 percent since the trough, and now exceed their pre-crisis peak valuation on a nominal basis by 15.2 percent. The picture is very different across states, with many states well in excess of the prior peak, while a few states remain 9 percent or more below peak levels: Connecticut (11.8% below), Maryland (9.0% below), Nevada (9.5% below), and Florida (9.6% below).

	HPI Changes				
State	2000 to Peak	Peak to Trough	Trough to Current	YOY	Current HPI % Above Peak
National	75.5%	-25.5%	54.5%	3.8%	15.2%
Alabama	43.9%	-14.9%	32.2%	6.2%	12.5%
Alaska	69.6%	-3.1%	24.1%	2.5%	20.3%
Arizona	110.1%	-47.9%	81.7%	6.0%	-5.4%
Arkansas	41.6%	-10.4%	26.3%	3.8%	13.2%
California	155.1%	-43.3%	90.0%	1.7%	7.7%
Colorado	40.3%	-12.8%	80.4%	4.4%	57.3%
Connecticut	92.4%	-24.6%	16.9%	2.6%	-11.8%
Delaware	95.2%	-23.8%	28.2%	2.1%	-2.3%
District of Columbia	175.4%	-13.6%	53.6%	1.3%	32.7%
Florida	129.0%	-47.0%	70.6%	3.6%	-9.6%
Georgia	38.2%	-31.9%	66.8%	5.6%	13.6%
Hawaii	161.5%	-22.3%	51.3%	2.6%	17.5%
Idaho	71.8%	-28.6%	85.2%	10.9%	32.2%
Illinois	61.6%	-34.5%	41.1%	2.4%	-7.6%
Indiana	21.2%	-7.7%	37.3%	6.3%	26.7%
Iowa	28.4%	-4.8%	29.1%	4.3%	22.8%
Kansas	34.7%	-9.2%	42.2%	5.6%	29.1%
Kentucky	29.5%	-7.7%	31.8%	4.5%	21.7%
Louisiana	48.7%	-5.0%	23.5%	2.7%	17.3%
Maine	82.1%	-12.5%	37.8%	5.3%	20.6%
Maryland	129.3%	-28.6%	27.5%	1.6%	-9.0%
Massachusetts	92.5%	-22.8%	56.2%	3.9%	20.6%
Michigan	24.1%	-39.6%	78.8%	4.4%	8.0%
Minnesota	66.4%	-27.7%	57.4%	4.6%	13.9%
Mississippi	41.1%	-13.7%	26.6%	2.9%	9.3%
Missouri	42.8%	-14.8%	38.3%	8.7%	17.9%
Montana	80.8%	-10.9%	53.3%	6.0%	36.6%
Nebraska	26.6%	-6.6%	43.0%	4.5%	33.5%
Nevada	127.0%	-59.2%	121.9%	2.6%	-9.5%
New Hampshire	90.6%	-23.6%	43.6%	5.6%	9.7%
New Jersey	117.9%	-27.8%	28.7%	2.7%	-7.2%
New Mexico	67.0%	-16.2%	24.4%	5.4%	4.3%
New York	98.4%	-15.1%	42.8%	3.6%	21.2%
North Carolina	40.6%	-15.7%	37.3%	5.2%	15.8%
North Dakota	54.0%	-3.8%	55.3%	1.7%	49.5%
Ohio	21.2%	-18.4%	37.8%	5.2%	12.5%
Oklahoma	37.4%	-2.4%	19.4%	3.1%	16.5%
Oregon	82.4%	-28.0%	80.2%	4.3%	29.7%
Pennsylvania	70.1%	-11.6%	26.4%	4.0%	11.7%
Rhode Island	130.9%	-34.5%	51.9%	4.9%	-0.4%
South Carolina	44.7%	-19.2%	35.5%	4.3%	9.5%
South Dakota	45.0%	-3.9%	47.1%	3.9%	41.3%
Tennessee	35.2%	-11.8%	46.2%	6.5%	28.9%
Texas	33.3%	-5.7%	50.9%	2.8%	42.3%
Utah	54.6%	-21.8%	74.7%	6.4%	36.6%
Vermont	83.5%	-7.5%	34.4%	6.1%	24.3%
Virginia	99.5%	-22.7%	28.0%	4.1%	-1.1%
Washington	85.4%	-28.7%	87.1%	4.4%	33.5%
West Virginia	42.9%	-6.5%	24.5%	2.1%	16.5%
Wisconsin	44.7%	-16.2%	39.9%	6.4%	17.3%
Wyoming	77.4%	-5.6%	29.6%	5.1%	22.4%

Sources: *Black Knight and Urban Institute.* ***Note:*** *HPI data as of August 2019. Negative sign indicates that state is above earlier peak. Peak refers to the month when HPI reached the highest level for each state/US during the housing boom period, ranging from 09/2005 to 09/2008. Trough represents the month when HPI fell to the lowest level for each state/US after the housing bust, ranging from 01/2009 to 03/2012. Current is 08/2019, the latest HPI data period.*

State of the US Housing Market

Ginnie Mae MBS constitute 29.4 percent of outstanding agency issuance by loan balance and 32.8 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 15.2 percent in the District of Columbia and as high as 50.3 percent in Alaska. In general, the Ginnie Mae share is higher in states with lower home prices.

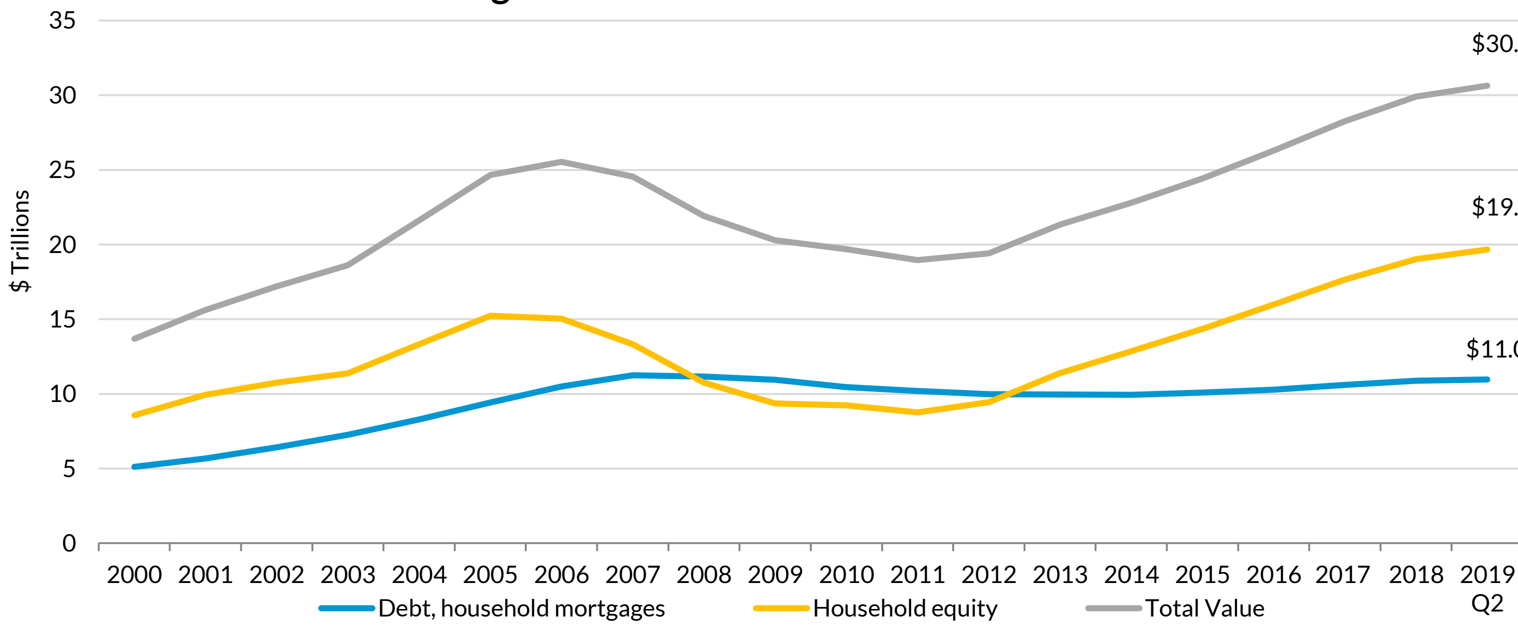
State	Agency Issuance (past 1 year)			Agency Outstanding		
	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)
National	32.8%	227.1	243.9	29.4%	164.0	189.0
Alabama	43.9%	172.3	193.7	43.8%	128.3	152.3
Alaska	50.9%	289.8	258.7	50.3%	232.1	199.6
Arizona	32.2%	228.1	231.8	29.7%	165.2	179.7
Arkansas	42.8%	149.1	175.4	43.3%	110.6	138.0
California	27.6%	367.3	354.5	19.9%	266.6	268.4
Colorado	32.2%	309.5	297.9	25.5%	218.9	226.9
Connecticut	31.2%	220.7	236.2	28.8%	182.6	189.1
Delaware	37.7%	223.0	234.4	35.5%	179.8	184.5
District of Columbia	17.8%	433.9	381.5	15.2%	300.6	304.1
Florida	39.3%	220.5	218.4	34.2%	165.8	172.0
Georgia	40.2%	196.4	221.1	37.4%	143.1	170.8
Hawaii	41.1%	511.7	411.2	29.2%	385.4	316.6
Idaho	32.6%	223.7	222.8	30.2%	154.7	168.6
Illinois	25.5%	184.0	209.2	23.8%	140.9	161.0
Indiana	36.6%	151.9	168.4	36.4%	111.1	127.0
Iowa	26.4%	152.4	172.0	24.9%	113.8	131.6
Kansas	35.4%	162.7	185.4	34.4%	119.9	139.6
Kentucky	39.0%	157.6	176.2	37.9%	121.3	133.4
Louisiana	42.8%	176.7	200.1	41.0%	136.9	159.1
Maine	34.2%	192.8	211.7	31.4%	152.6	161.3
Maryland	43.2%	293.6	279.3	38.2%	231.4	219.4
Massachusetts	23.3%	308.6	303.0	18.6%	236.6	229.6
Michigan	24.6%	156.3	181.2	24.3%	113.5	135.5
Minnesota	23.7%	211.1	224.3	22.9%	156.2	171.8
Mississippi	50.5%	160.5	180.1	49.5%	120.1	142.1
Missouri	34.6%	161.0	183.1	33.8%	120.6	139.6
Montana	29.5%	229.1	233.3	28.3%	169.7	178.1
Nebraska	32.7%	175.1	180.6	31.9%	122.6	138.4
Nevada	36.4%	268.0	249.0	33.2%	187.8	193.2
New Hampshire	31.4%	247.7	237.7	28.0%	193.1	182.2
New Jersey	28.7%	263.2	280.5	26.4%	210.4	219.7
New Mexico	41.9%	189.2	198.9	41.6%	141.0	153.4
New York	24.1%	255.5	287.0	24.5%	187.1	216.4
North Carolina	34.5%	192.9	217.8	32.7%	141.2	167.0
North Dakota	30.0%	218.6	211.5	25.3%	167.3	166.9
Ohio	33.7%	151.0	165.6	34.7%	112.4	127.3
Oklahoma	44.9%	161.0	180.3	46.7%	119.0	140.8
Oregon	28.1%	275.8	274.1	22.4%	199.1	208.8
Pennsylvania	31.5%	173.3	203.9	31.6%	136.3	159.1
Rhode Island	38.5%	242.5	234.6	32.8%	188.2	183.3
South Carolina	39.6%	195.9	205.9	36.3%	147.1	161.6
South Dakota	37.5%	184.7	194.1	34.8%	143.2	150.3
Tennessee	39.5%	196.7	214.0	38.3%	138.9	165.5
Texas	34.0%	208.6	225.8	34.4%	142.9	176.3
Utah	27.2%	265.5	273.0	26.0%	191.1	209.9
Vermont	23.3%	195.4	210.4	19.7%	164.6	160.0
Virginia	43.8%	282.4	276.9	39.8%	221.0	217.6
Washington	31.3%	310.4	309.4	26.1%	218.8	230.6
West Virginia	49.4%	160.7	162.6	45.2%	126.3	127.5
Wisconsin	21.7%	178.3	188.4	19.9%	133.6	142.1
Wyoming	41.3%	224.1	225.2	38.9%	177.6	177.0

Sources: *eMBS and Urban Institute.* ***Note:*** *Ginnie Mae outstanding share are based on loan balance as of September 2019. Ginnie Mae issuance is based on the last 12 months, from September 2018 to September 2019.*

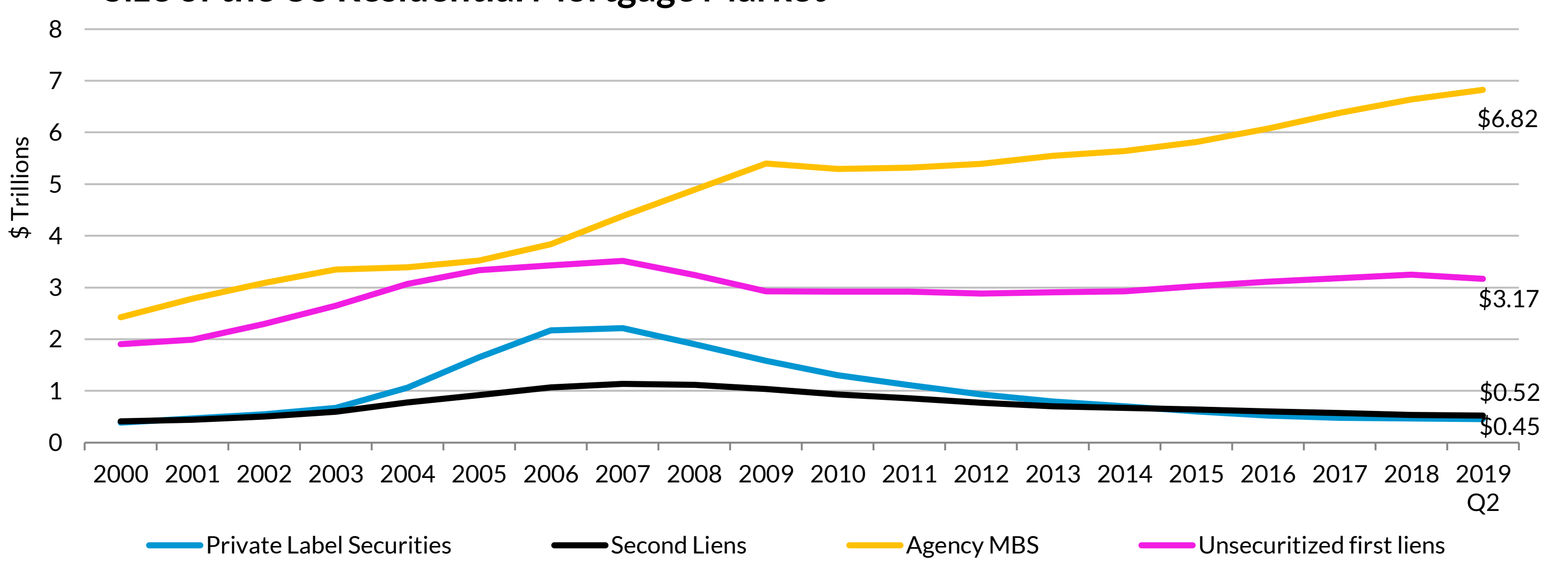
State of the US Housing Market

The Federal Reserve's Flow of Funds report has indicated a gradually increasing total value of the housing market driven by growing household equity since 2012, and 2Q 2019 was no different. While total mortgage debt outstanding was steady at $11.0 trillion, household equity grew from $19.6 trillion in Q1 2019 to $19.7 trillion in Q2 2019, bringing the total value of the housing market to $30.6 trillion, 20.0 percent higher than the pre-crisis peak in 2006. Agency MBS account for 62.2 percent of the total mortgage debt outstanding, private-label securities make up 4.1 percent, and unsecuritized first liens make up 28.9 percent. Second liens comprise the remaining 4.7 percent of the total.

Value of the US Housing Market



Size of the US Residential Mortgage Market

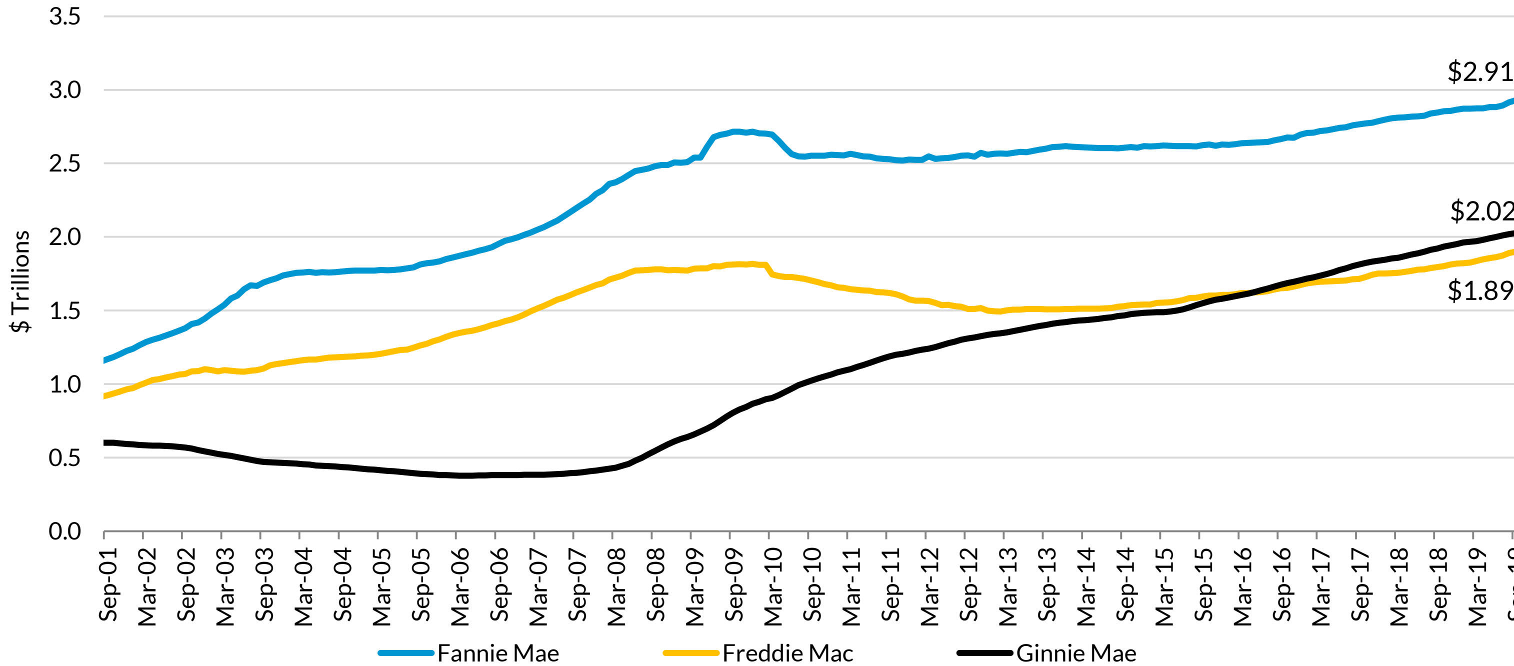


Sources: *Federal Reserve Flow of Funds, Inside Mortgage Finance, eMBS and Urban Institute.*
Note: *Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, and credit unions.*

State of the US Housing Market

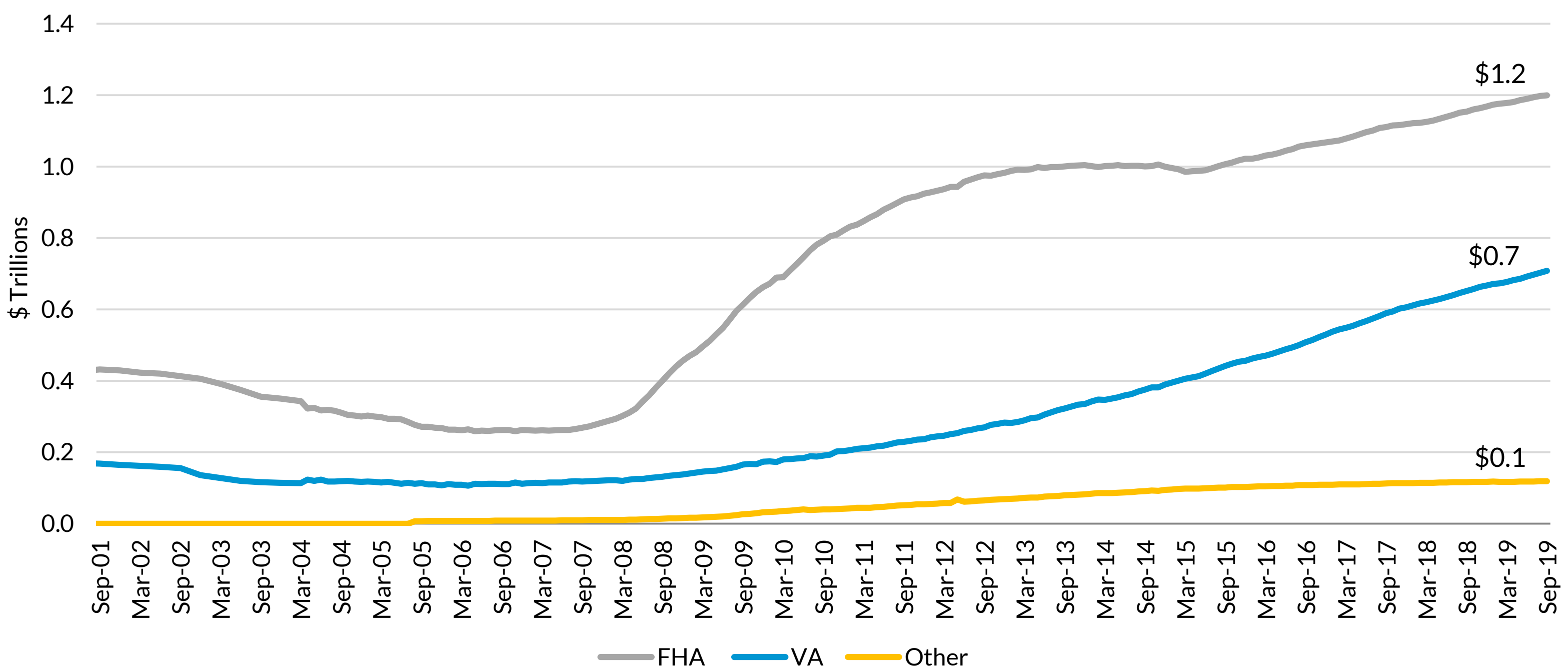
As of September 2019, outstanding securities in the agency market totaled $6.85 trillion: 42.7 percent Fannie Mae, 27.7 percent Freddie Mac, and 29.6 percent Ginnie Mae MBS. Ginnie Mae has more outstandings than Freddie Mac. Within the Ginnie Mae market, both FHA and VA have grown very rapidly post-crisis. FHA comprises 59.3 percent of total Ginnie Mae MBS outstanding, while VA comprises 35.0 percent.

Outstanding Agency Mortgage-Backed Securities



Sources: *eMBS and Urban Institute* **Note:** *Data as of September 2019.*

Outstanding Ginnie Mae Mortgage-Backed Securities

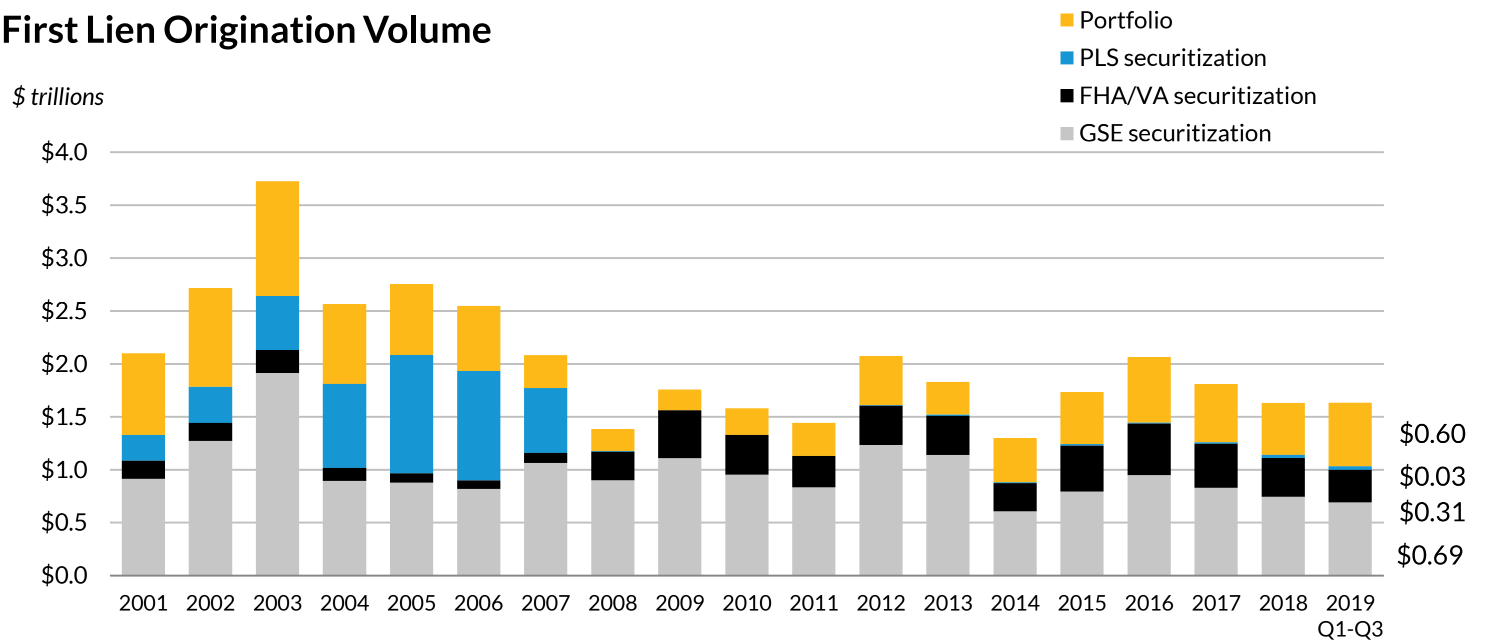


Sources: *eMBS and Urban Institute.* **Note:** *Data as of September 2019.*

State of the US Housing Market

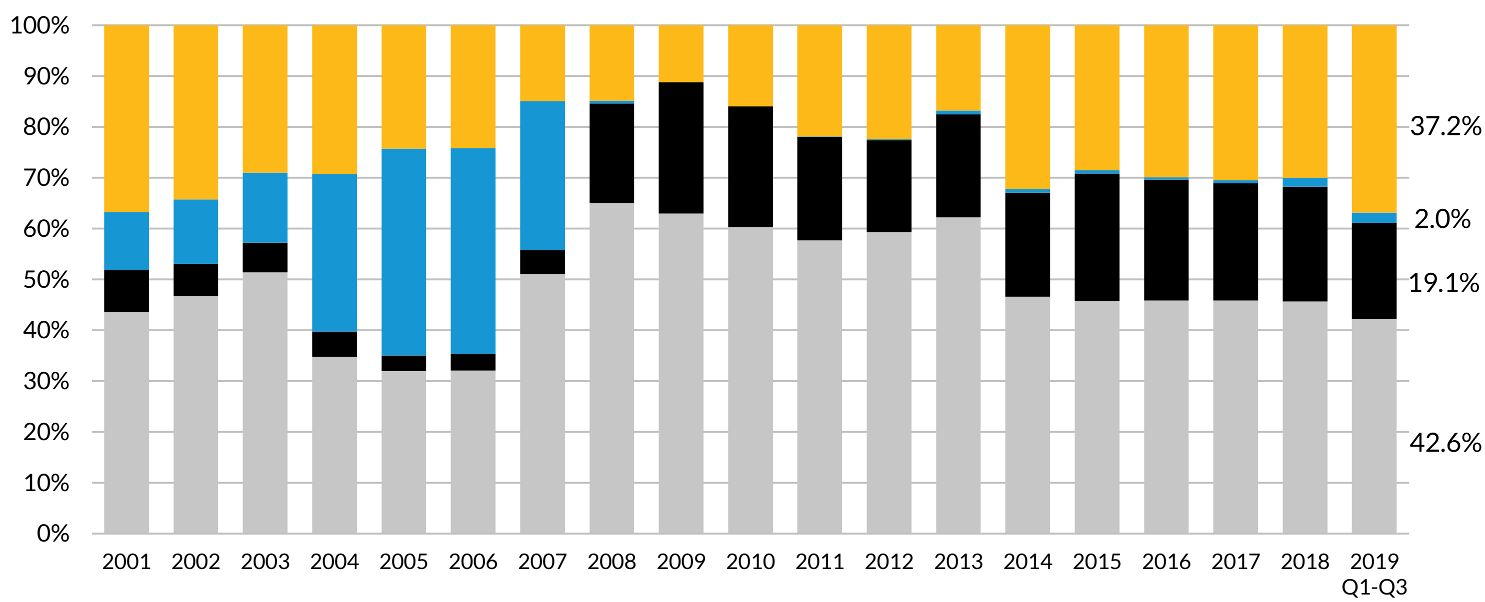
In the first three quarters of 2019, first lien originations totaled $1.62 trillion, up from $1.26 trillion at the same point in 2018. The share of portfolio originations was 37.2 percent through Q3 2019, up significantly from 30.9 percent in the same period of 2018. The GSE share was down at 42.6 percent, compared to 45.1 percent in the first three quarters of 2018. The FHA/VA share fell slightly, at 19.1 percent compared to 22.1 percent in the same period last year. Private-label securitization at 2.0 percent maintained the same share as one year ago, but remains 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 Q3 2019.*

First Lien Origination Share



Sources: *Inside Mortgage Finance and Urban Institute.* ***Note:*** *Data as of Q3 2019.*

US Agency Market, Originations

Agency gross issuance was $1,041.2 billion in the first nine months of 2019, up 14.6 percent compared to the same period in 2018. Ginnie Mae gross issuance was up by 11.9 percent and GSE gross issuance was up by 16.0 percent. Within the Ginnie Mae market, FHA was up by 9.9 percent and VA origination was up by 17.6 percent. While origination volumes were lower in January and February, a favorable rate environment has led to an increase in issuance year-over-year.

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 YTD	$402.3	$295.7	$698.0	$343.2	$1,041.2
2019 YTD % Change YOY	9.0%	27.0%	16.0%	11.9%	14.6%
2019 Ann.	$536.4	$394.3	$930.7	$457.6	$1,388.3

Ginnie Mae Breakdown: Agency Gross Issuance				
Issuance Year	FHA	VA	Other	Total
2000	$80.2	$18.8	$3.2	$102.2
2001	$133.8	$34.7	$3.1	$171.5
2002	$128.6	$37.9	$2.5	$169.0
2003	$147.9	$62.7	$2.5	$213.1
2004	$85.0	$31.8	$2.5	$119.2
2005	$55.7	$23.5	$2.1	$81.4
2006	$51.2	$23.2	$2.3	$76.7
2007	$67.7	$24.2	$3.0	$94.9
2008	$221.7	$39.0	$6.9	$267.6
2009	$359.9	$74.6	$16.8	$451.3
2010	$304.9	$70.6	$15.3	$390.7
2011	$216.1	$82.3	$16.9	$315.3
2012	$253.4	$131.3	$20.3	$405.0
2013	$239.2	$132.2	$22.2	$393.6
2014	$163.9	$111.4	$21.0	$296.3
2015	$261.5	$155.6	$19.2	$436.3
2016	$281.8	$206.5	$19.9	$508.2
2017	$257.6	$177.8	$20.2	$455.6
2018	$222.6	$160.8	$17.2	$400.6
2019 YTD	$186.9	$145.2	$11.1	$343.2
2019 YTD % Change YOY	9.9%	17.6%	-15.4%	11.9%
2019 Ann.	$249.2	$193.7	$14.8	$457.6

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 September 2019.*

US Agency Market, Originations

Agency net issuance totaled $214.7 billion in the first nine months of 2019, up 15.4 percent compared to the same period in 2018. Ginnie Mae net issuance was $73.6 billion, comprising 34.3 percent of total agency net issuance. Ginnie Mae net issuance was down 12.1 percent compared to the same period in 2018, while GSE net issuance was up 38 percent over the same period. Ginnie Mae net issuance in the first nine months of 2019 was comprised of 56.0 percent VA and 42.2 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	$57.5	$11.6	$69.1	$87.9	$157.0
2014	$0.5	$30.0	$30.5	$61.6	$92.1
2015	$10.2	$65.0	$75.1	$97.3	$172.5
2016	$68.6	$66.8	$135.5	$125.3	$260.8
2017	$90.2	$78.2	$168.5	$131.3	$299.7
2018	$79.4	$68.4	$147.7	$113.9	$261.6
2019 YTD	$61.6	$79.5	$141.1	$73.6	$214.7
2019 YTD % Change YOY	5.1%	82.3%	38.0%	-12.1%	15.4%
2019 Ann.	$82.1	$106.0	$188.1	$98.1	$286.2

Ginnie Mae Breakdown: Net Issuance

Issuance Year	FHA	VA	Other	Total
2000	$29.0	$0.3	$0.0	$29.3
2001	$0.7	-$10.6	$0.0	-$9.9
2002	-$22.5	-$28.7	$0.0	-$51.2
2003	-$56.5	-$21.1	$0.0	-$77.6
2004	-$45.2	$5.1	$0.0	-$40.1
2005	-$37.3	-$12.1	$7.2	-$42.2
2006	-$4.7	$3.8	$1.2	$0.2
2007	$20.2	$8.7	$2.0	$30.9
2008	$173.3	$17.7	$5.4	$196.4
2009	$206.4	$35.1	$15.8	$257.4
2010	$158.6	$29.6	$10.0	$198.3
2011	$102.8	$34.0	$12.8	$149.6
2012	$58.9	$45.9	$14.3	$119.1
2013	$20.7	$53.3	$13.9	$87.9
2014	-$4.8	$53.9	$12.5	$61.6
2015	$22.5	$66.9	$7.9	$97.3
2016	$45.6	$73.2	$6.0	$124.9
2017	$50.1	$76.1	$5.0	$131.3
2018	$49.2	$61.2	$3.5	$113.9
2019 YTD	$31.0	$41.3	$1.3	$73.6
2019 YTD % Change YOY	-10.9%	-11.0%	-49.2%	-12.1%
2019 Ann.	$41.4	$55.0	$1.8	$98.1

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 September 2019.*

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. In 2019, January and February were lower than 2018, March was about the same, while April through September have been much higher, benefitting from the decline in interest rates. The September 2019 gross agency issuance of $162.1 billion is well above the September 2018 level of $106.6 billion.

Monthly Agency Issuance

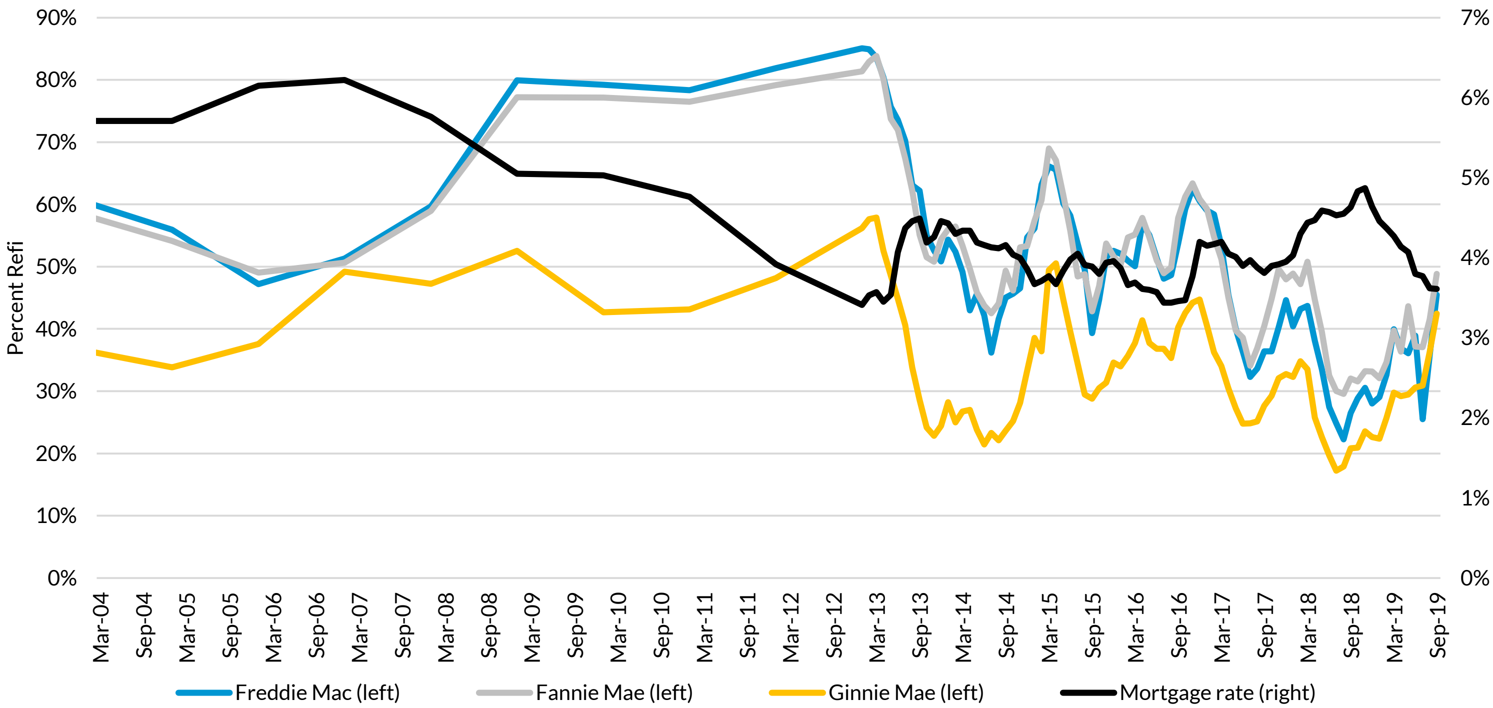
	Gross Issuance				Net Issuance			
Date	Fannie Mae	Freddie Mac	Ginnie Mae	Total	Fannie Mae	Freddie Mac	Ginnie Mae	Total
Jan-16	$35.6	$22.5	$32.5	$90.6	-$0.6	$1.0	$7.3	$7.8
Feb-16	$32.4	$21.2	$30.5	$84.1	$2.4	$3.1	$8.4	$13.9
Mar-16	$39.7	$27.5	$32.9	$100.1	$7.9	$8.2	$9.6	$25.8
Apr-16	$43.8	$26.2	$40.1	$110.1	$0.8	-$0.2	$8.8	$9.4
May-16	$44.2	$29.9	$41.6	$115.6	$2.4	$4.4	$11.4	$18.3
Jun-16	$46.7	$30.1	$43.9	$120.8	$2.7	$3.0	$11.9	$17.7
Jul-16	$49.8	$35.3	$46.1	$131.1	$2.3	$6.3	$10.8	$19.4
Aug-16	$54.9	$37.9	$46.7	$139.5	$10.4	$11.0	$13.8	$35.2
Sep-16	$65.8	$44.0	$52.5	$162.4	$8.7	$9.0	$12.5	$30.2
Oct-16	$66.0	$35.9	$47.4	$149.3	$11.8	$2.7	$9.3	$24.5
Nov-16	$48.8	$40.2	$47.2	$136.3	-$3.5	$7.9	$10.3	$14.8
Dec-16	$72.7	$40.5	$46.8	$160.0	$23.3	$10.4	$10.8	$44.6
Jan-17	$55.6	$38.5	$42.6	$136.6	$10.3	$10.7	$10.3	$31.9
Feb-17	$37.6	$27.4	$33.1	$98.1	$3.1	$6.5	$9.2	$18.9
Mar-17	$39.5	$24.4	$31.3	$95.2	$10.3	$6.2	$9.6	$26.3
Apr-17	$39.3	$21.2	$36.4	$97.0	$4.8	$0.4	$11.7	$17.3
May-17	$40.3	$22.6	$36.4	$99.3	$7.6	$2.7	$13.1	$23.6
Jun-17	$45.7	$25.1	$39.9	$110.7	$8.3	$2.4	$13.2	$24.1
Jul-17	$45.3	$27.6	$40.6	$113.5	$5.8	$3.5	$12.1	$21.5
Aug-17	$49.1	$29.3	$42.8	$121.1	$12.0	$6.7	$15.6	$33.9
Sep-17	$47.3	$27.9	$40.2	$115.5	$7.4	$3.8	$10.5	$21.7
Oct-17	$42.9	$34.6	$38.4	$115.9	$6.4	$12.5	$10.7	$29.6
Nov-17	$43.5	$37.2	$37.8	$118.5	$4.6	$13.6	$8.2	$26.4
Dec-17	$45.3	$30.0	$36.2	$111.5	$9.6	$8.2	$6.8	$24.6
Jan-18	$47.4	$21.4	$35.2	$104.0	$12.4	$0.3	$7.8	$20.6
Feb-18	$40.3	$21.5	$31.9	$93.7	$8.0	$2.3	$7.1	$17.4
Mar-18	$35.6	$21.3	$29.0	$85.9	$4.9	$3.0	$6.1	$14.0
Apr-18	$36.3	$26.2	$32.7	$95.2	$1.7	$6.1	$9.1	$16.8
May-18	$38.9	$27.5	$33.7	$100.1	$4.5	$7.2	$10.6	$22.4
Jun-18	$38.2	$28.8	$35.6	$102.5	$2.2	$6.8	$10.5	$19.5
Jul-18	$40.3	$26.2	$35.6	$102.1	$4.2	$3.7	$10.7	$18.6
Aug-18	$50.4	$29.9	$37.5	$117.8	$14.9	$7.9	$12.8	$35.6
Sep-18	$41.8	$30.1	$34.8	$106.6	$5.7	$6.2	$9.1	$21.0
Oct-18	$39.8	$27.4	$33.2	$100.3	$10.1	$7.6	$12.1	$29.7
Nov-18	$35.1	$30.1	$32.4	$97.6	$2.6	$10.8	$9.6	$22.9
Dec-18	$36.9	$23.9	$28.4	$89.1	$8.2	$6.4	$8.4	$23.0
Jan-19	$33.3	$19.2	$29.0	$81.6	$5.5	$2.5	$9.5	$17.5
Feb-19	$27.3	$19.9	$23.5	$70.7	$1.2	$3.6	$4.6	$9.5
Mar-19	$29.6	$27.3	$26.6	$83.5	$1.9	$10.3	$5.8	$18.0
Apr-19	$33.1	$30.8	$32.9	$96.8	$0.6	$11.0	$8.5	$20.1
May-19	$44.5	$34.3	$38.8	$117.6	$7.0	$10.3	$9.4	$26.7
Jun-19	$44.6	$34.0	$43.3	$121.9	$1.6	$6.2	$9.2	$16.9
Jul-19	$51.7	$36.9	$45.9	$134.5	$10.3	$10.3	$10.8	$31.4
Aug-19	$71.1	$50.4	$51.2	$172.6	$20.4	$17.5	$8.9	$46.8
Sep-19	$67.1	$43.0	$52.0	$162.1	$13.0	$7.9	$6.9	$27.8

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 September 2019.*

US Agency Market, Originations

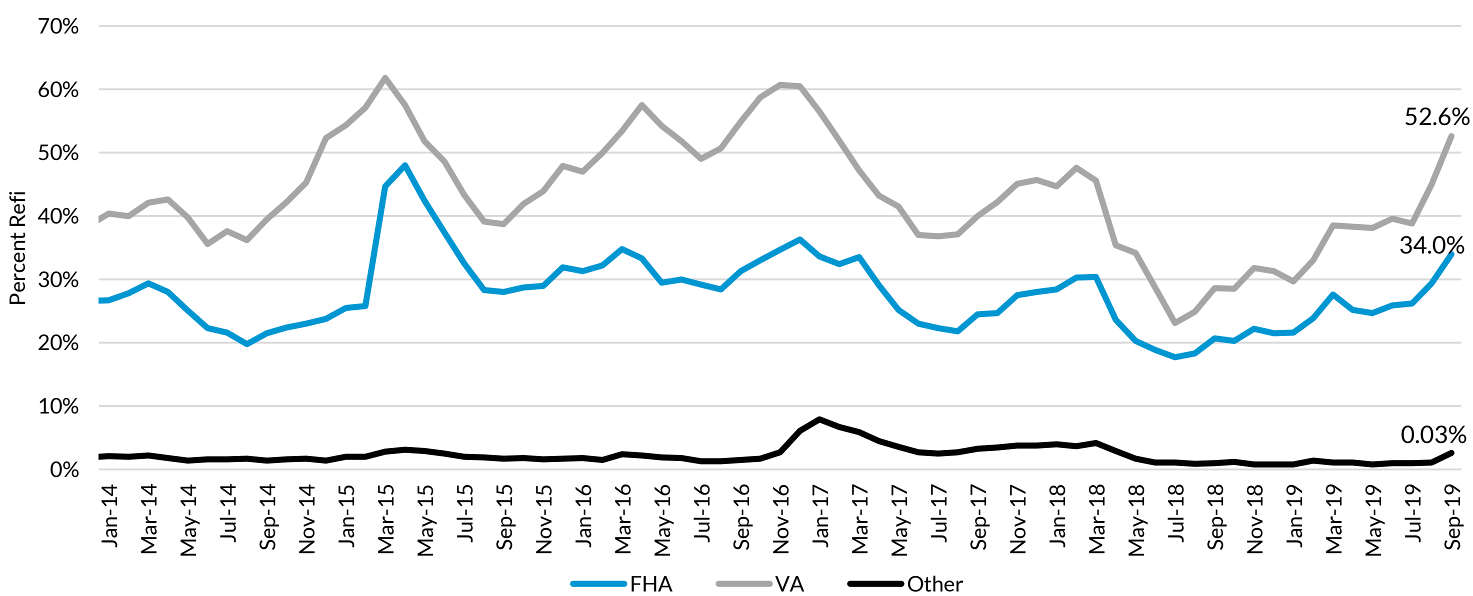
The Ginnie Mae refi share stood at 42.4 percent in September 2019, below the Freddie Mac and Fannie Mae shares of 45.5 and 48.9 respectively. Within the Ginnie Mae market, VA had the highest refi share at 52.6%; the refi share for FHA was 34.0 percent. The refi share has steadily ticked up in 2019 as rates have fallen.

Percent Refi at Issuance



Sources: *eMBS and Urban Institute.* **Note**: *Based on at-issuance balance. Data as of September 2019.*

Percent Refi at Issuance: Ginnie Mae Breakdown

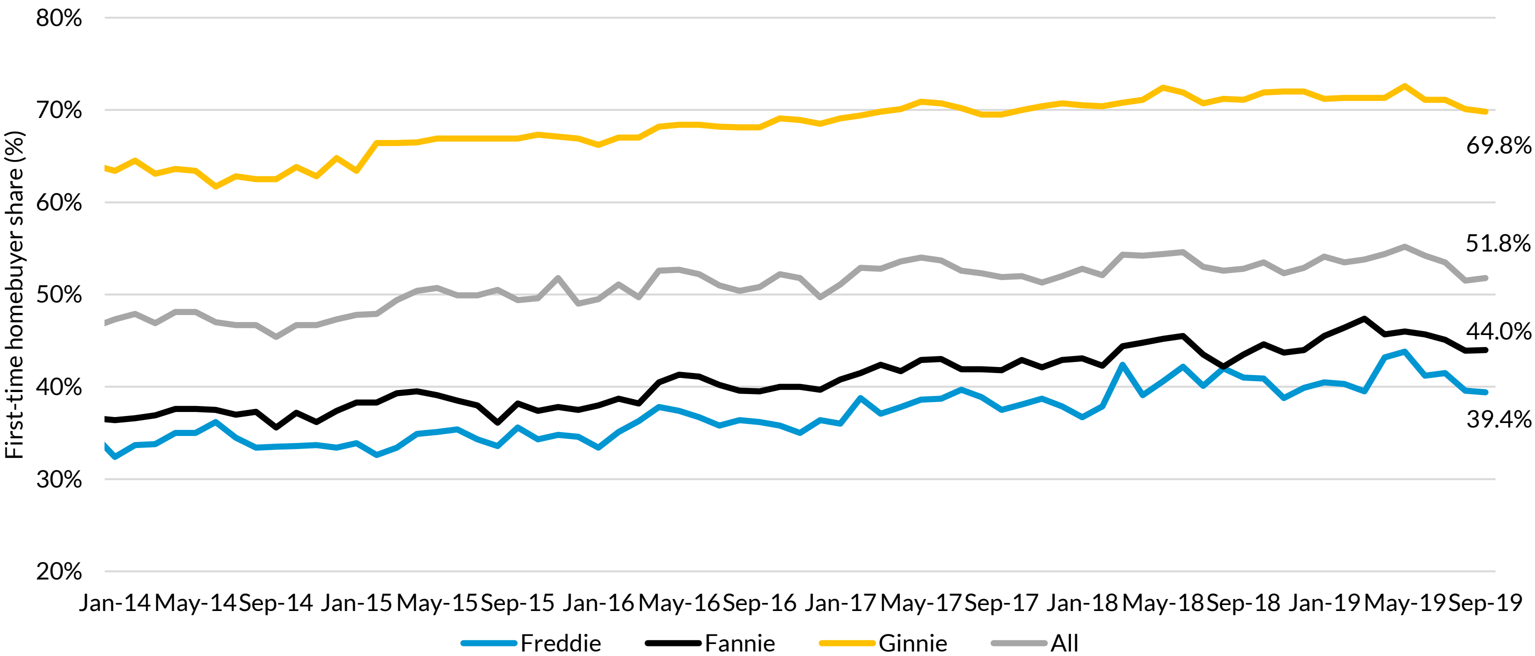


Sources: *eMBS and Urban Institute.*
Note: *Based on at-issuance balance. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of September 2019.*

Credit Box

The first time homebuyer share of Ginnie Mae purchase loans was 69.8 percent in September 2019, down slightly from its historical high in May; increased refinance activity amidst lower rates makes originators less willing to work with that marginal applicant, who is more apt to be a first time home buyer. 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 44.0 percent and 39.4 percent of Fannie Mae and Freddie Mac purchase originations respectively. The bottom table shows that based on mortgages originated in September 2019, 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 and similar DTI and pay a higher rate.

First Time Homebuyer Share: Purchase Only Loans



Sources: *eMBS and Urban Institute.* **Note**: *Data as of September 2019.*

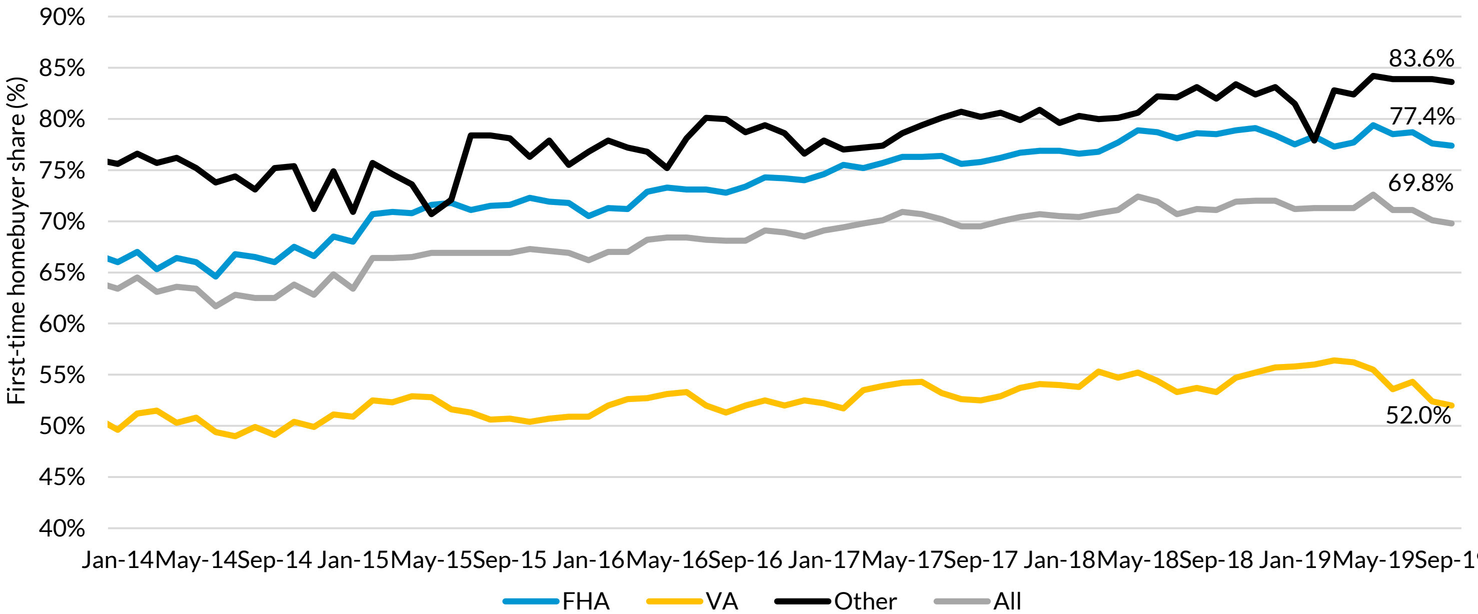
	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	257,832	286,910	244,799	267,444	222,531	273,269	238,364	276,971
Credit Score	741.2	755.0	744.7	758.5	680.1	702.3	713.0	742.4
LTV (%)	88.3	79.5	87.1	79.4	96.9	95.3	92.1	83.6
DTI (%)	35.7	36.4	34.9	35.8	41.4	42.3	38.2	37.7
Loan Rate (%)	4.1	4.0	4.0	4.0	4.1	3.9	4.1	3.9

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 September 2019.*

Credit Box

Within the Ginnie Mae purchase market, 77.4 percent of FHA loans, 52.0 percent of VA loans and 83.6 percent of other loans represent financing for first-time home buyers in September 2019. The bottom table shows that based on mortgages originated in September 2019, 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 September 2019.*

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	218,645	236,806	263,878	314,043	150,753	173,154	222,531	273,269
Credit Score	669.8	670.7	701.6	729.6	695.8	704.0	680.1	702.3
LTV (%)	95.5	93.8	99.6	96.3	99.2	99.1	96.9	95.3
DTI (%)	42.9	43.8	40.1	41.6	34.8	35.6	41.4	42.3
Loan Rate (%)	4.2	4.1	3.9	3.7	4.0	4.0	4.1	3.9

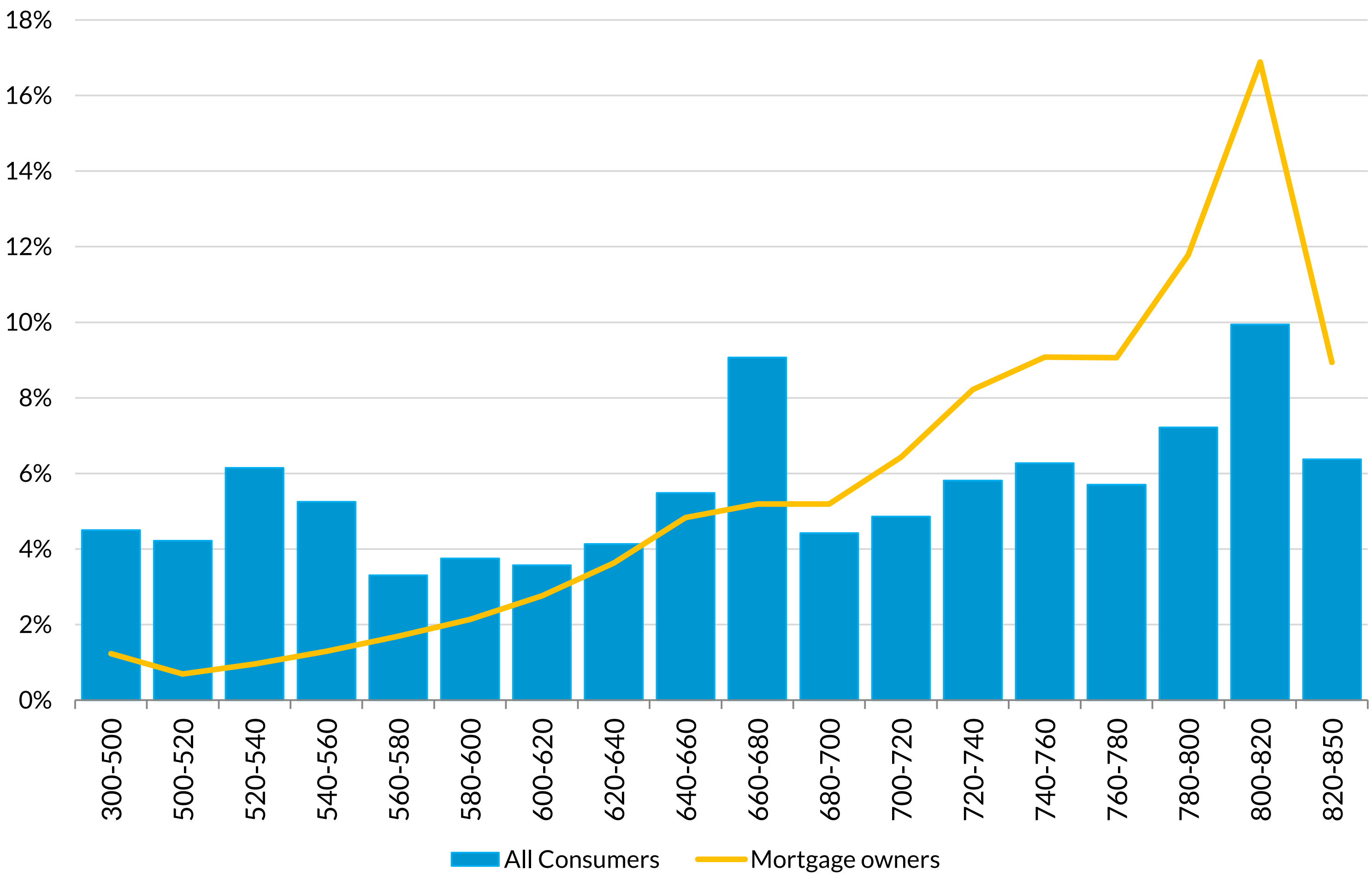
Sources: *eMBS and Urban Institute.* **Note**: *Data as of September 2019. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the 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.*

September 2019 Credit Box at a Glance

In September 2019, the median Ginnie Mae FICO score was 681 versus 757 for Fannie Mae and 759 for Freddie Mac. Note that the FICO score for the 10th percentile was 621 for Ginnie Mae, versus 686 for Fannie Mae and 689 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 714 and other loans have a median FICO score of 693.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	335,839	646	686	737	778	798	729
Fannie	124,934	687	720	758	786	801	750
Freddie	92,939	693	725	761	788	802	754
Ginnie	117,966	622	645	678	726	772	687
Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	259,289	655	695	743	778	798	733
Fannie	118,681	685	717	756	784	801	748
Freddie	72,788	685	718	756	784	800	748
Ginnie	67,820	620	649	686	733	775	690
All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	595,128	649	690	740	778	798	731
Fannie	243,615	686	719	757	785	801	749
Freddie	165,727	689	722	759	786	801	751
Ginnie	185,786	621	647	681	729	774	688

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	117,966	622	645	678	726	772	687
FHA	70,061	615	638	665	698	737	670
VA	37,889	631	665	718	769	795	715
Other	10,016	640	659	693	733	766	697
Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	67,820	620	649	686	733	775	690
FHA	31,602	607	637	666	699	735	668
VA	35,961	633	667	710	759	788	709
Other	257	642	670	702	743	776	701
All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	185,786	621	647	681	729	774	688
FHA	101,663	613	638	665	698	736	669
VA	73,850	632	666	714	764	792	712
Other	10,273	640	660	693	733	766	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 September 2019.*

September 2019 Credit Box at a Glance

In September 2019, the median loan-to-value ratio (LTV) was 96.5 percent for Ginnie Mae, and 80 percent for Fannie Mae and Freddie Mac. The 90th percentile was 101 percent for Ginnie Mae and 95 percent for Freddie and 97 percent for Fannie. Within the Ginnie Mae market, the median LTV was 96.5 for FHA, 100.0 for VA and 101.0 for other programs.

Purchase LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	336,252	71.0	80.0	95.0	96.5	100.0	87.4
Fannie	125,040	64.0	80.0	85.0	95.0	97.0	82.9
Freddie	92,986	63.0	80.0	80.0	95.0	95.0	82.0
Ginnie	118,226	92.4	96.5	96.5	100.0	101.0	96.4
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	265,830	50.0	64.0	76.0	86.5	97.0	74.1
Fannie	118,687	45.0	59.0	71.0	80.0	85.0	67.7
Freddie	72,800	46.0	60.0	73.0	80.0	85.0	68.7
Ginnie	74,343	74.9	85.0	92.4	98.6	100.0	89.5
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	602,082	57.0	74.0	84.0	96.4	98.2	81.5
Fannie	243,727	51.0	67.0	80.0	90.0	95.0	75.5
Freddie	165,786	52.0	69.0	80.0	90.0	95.0	76.2
Ginnie	192,569	82.6	92.0	96.5	100.0	101.0	93.7

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	118,226	92.4	96.5	96.5	100.0	101.0	96.4
FHA	70,203	92.9	96.5	96.5	96.5	96.5	95.1
VA	37,948	90.7	100.0	100.0	102.2	102.8	98.0
Other	10,075	95.2	99.0	101.0	101.0	101.0	99.1
Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	74,343	74.9	85.0	92.4	98.6	100.0	89.5
FHA	33,984	73.5	83.2	86.5	96.5	98.2	86.6
VA	40,088	76.3	87.4	96.6	100.0	101.1	91.9
Other	271	77.6	86.3	98.5	101.4	102.0	92.9
All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	192,569	82.6	92.0	96.5	100.0	101.0	93.7
FHA	104,187	83.0	89.9	96.5	96.5	96.5	92.3
VA	78,036	81.1	92.5	100.0	100.0	102.2	94.9
Other	10,346	94.8	98.9	101.0	101.0	101.0	99.0

Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting 169 bps from this new issuer-reported LTV. Data as of September 2019.*

September 2019 Credit Box at a Glance

In September 2019, the median Ginnie Mae debt-to-income ratio (DTI) was 42.0 percent, considerably higher than the 36.0 percent median DTI for both Freddie Mac and Fannie Mae. The 90th percentile for Ginnie Mae was 54.1 percent, also much higher than the 47.0 percent DTI for Fannie Mae and Freddie Mac. Within the Ginnie Mae market, the median FHA DTI ratio was 43.9 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	335,796	24.0	31.0	39.0	45.0	49.4	37.8
Fannie	125,033	22.0	29.0	37.0	44.0	48.0	35.9
Freddie	92,984	22.0	29.0	37.0	43.0	47.0	35.3
Ginnie	117,779	28.5	35.2	42.3	49.0	54.2	41.7
Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	232,533	22.0	28.0	36.0	43.0	48.0	35.5
Fannie	118,671	21.0	28.0	35.0	42.0	46.0	34.5
Freddie	72,797	21.0	28.0	36.0	42.0	46.0	34.6
Ginnie	41,065	24.6	32.0	40.8	48.5	54.0	39.8
All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	568,329	23.0	30.0	38.0	44.0	49.0	36.8
Fannie	243,704	22.0	28.0	36.0	43.0	47.0	35.2
Freddie	165,781	22.0	28.0	36.0	43.0	47.0	35.0
Ginnie	158,844	27.5	34.4	42.0	48.9	54.1	41.2

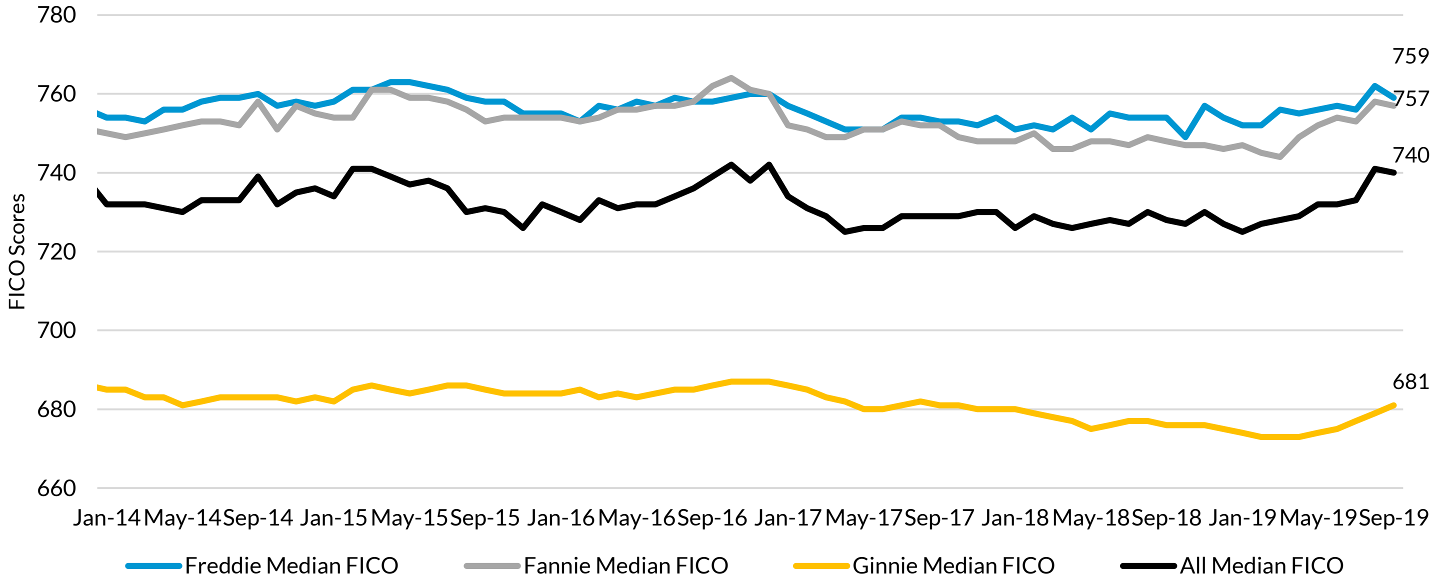
Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	117,779	28.5	35.2	42.3	49.0	54.2	41.7
FHA	70,185	30.5	37.2	44.1	50.2	54.6	43.1
VA	37,579	26.7	33.7	41.3	48.3	54.1	40.8
Other	10,015	25.6	30.5	36.0	40.1	42.8	34.9
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	41,065	24.6	32.0	40.8	48.5	54.0	39.8
FHA	21,965	28.6	35.2	43.3	50.0	54.7	42.1
VA	18,892	21.1	29.7	37.8	46.1	52.3	37.3
Other	208	15.8	20.3	28.3	36.6	41.1	28.7
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	158,844	27.5	34.4	42.0	48.9	54.1	41.2
FHA	92,150	30.0	36.7	43.9	50.1	54.6	42.9
VA	56,471	24.8	32.0	40.3	47.7	53.5	39.6
Other	10,223	25.3	30.3	35.9	40.0	42.8	34.8

Sources: *eMBS and Urban Institute.* **Note**: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of September 2019.*

Credit Box: Historical

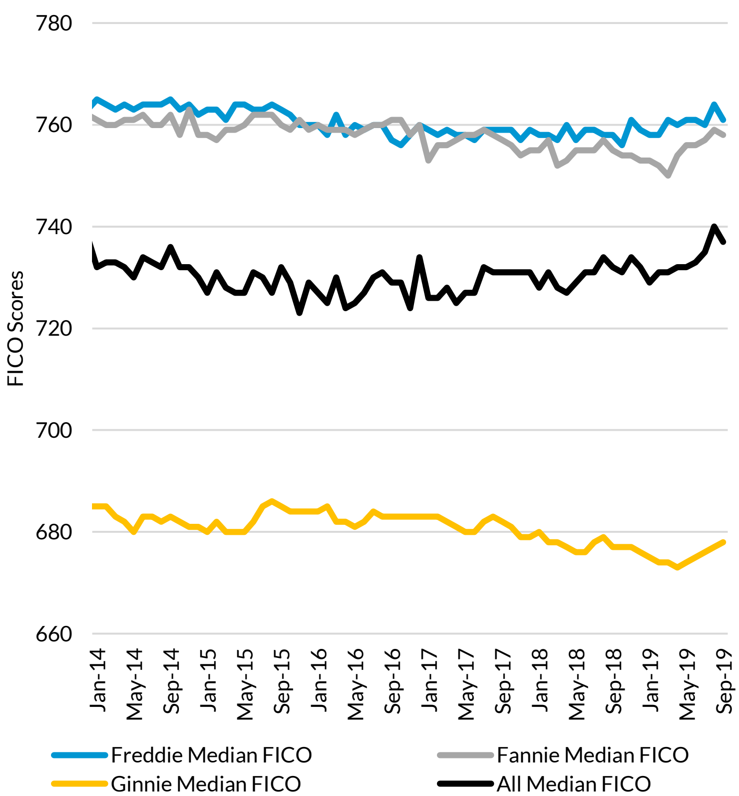
The median FICO score for all agency loans originated in September 2019 was 740, down slightly from 741 last month, but up considerably on the year, owing to the refinance wave, which higher FICO borrowers take advantage of with greater frequency. The figures show that the median FICO score for Ginnie 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.

FICO Scores for All Loans



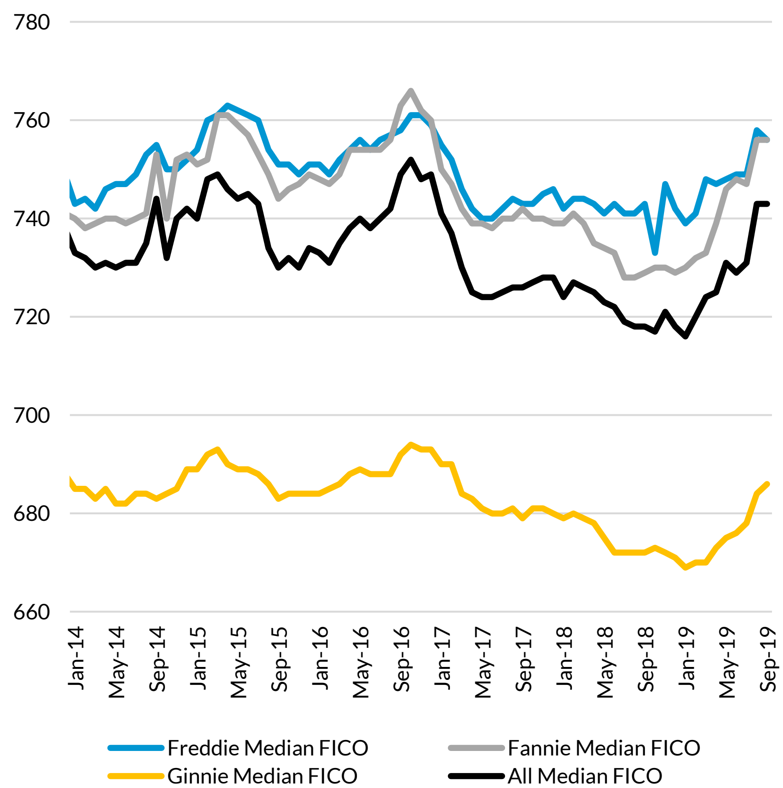
Sources: *eMBS and Urban Institute.* **Note:** *Data as of September 2019.*

FICO Scores for Purchase Loans



Sources: *eMBS and Urban Institute.* **Note:** *Data as of September 2019.*

FICO Scores for Refinance Loans

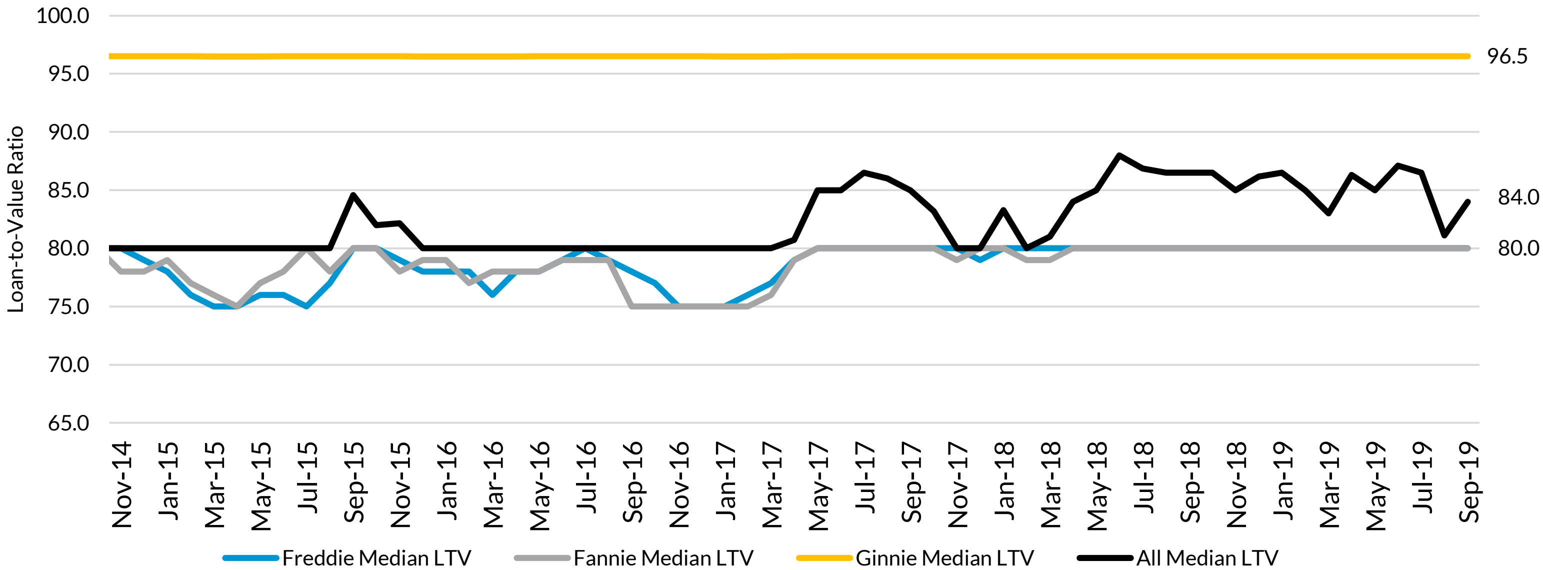


Sources: *eMBS and Urban Institute.* **Note:** *Data as of September 2019.*

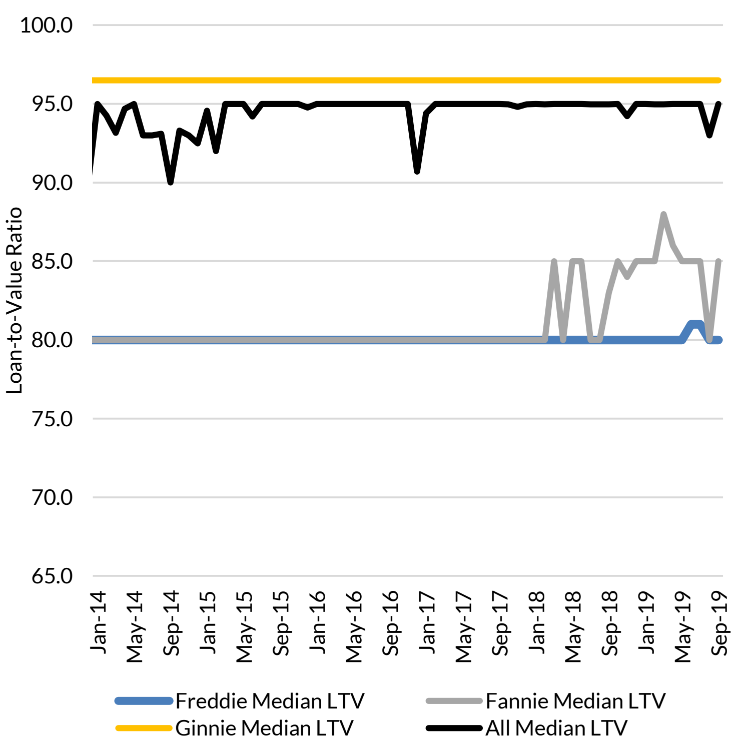
Credit Box: Historical

Median LTVs for Ginnie Mae loans have historically been at 96.5 percent, much higher than the 80 – 84 LTVs for the GSEs. Through time, both Ginnie Mae and GSE refinances have LTVs about 4-20 points lower than their purchase counterparts.

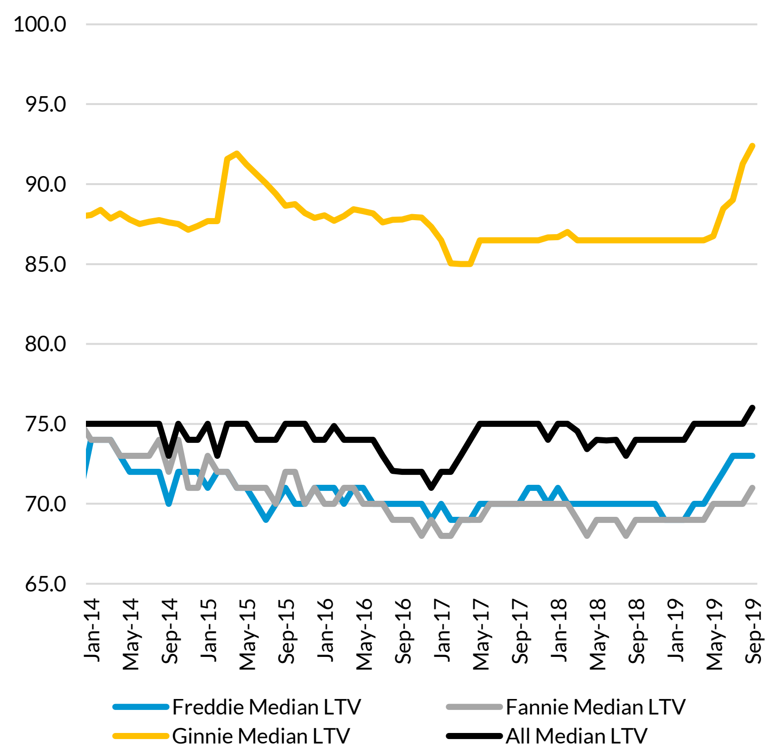
LTV Ratio for All Loans



LTV Ratio for Purchase Loans



LTV Ratio for Refinance Loans

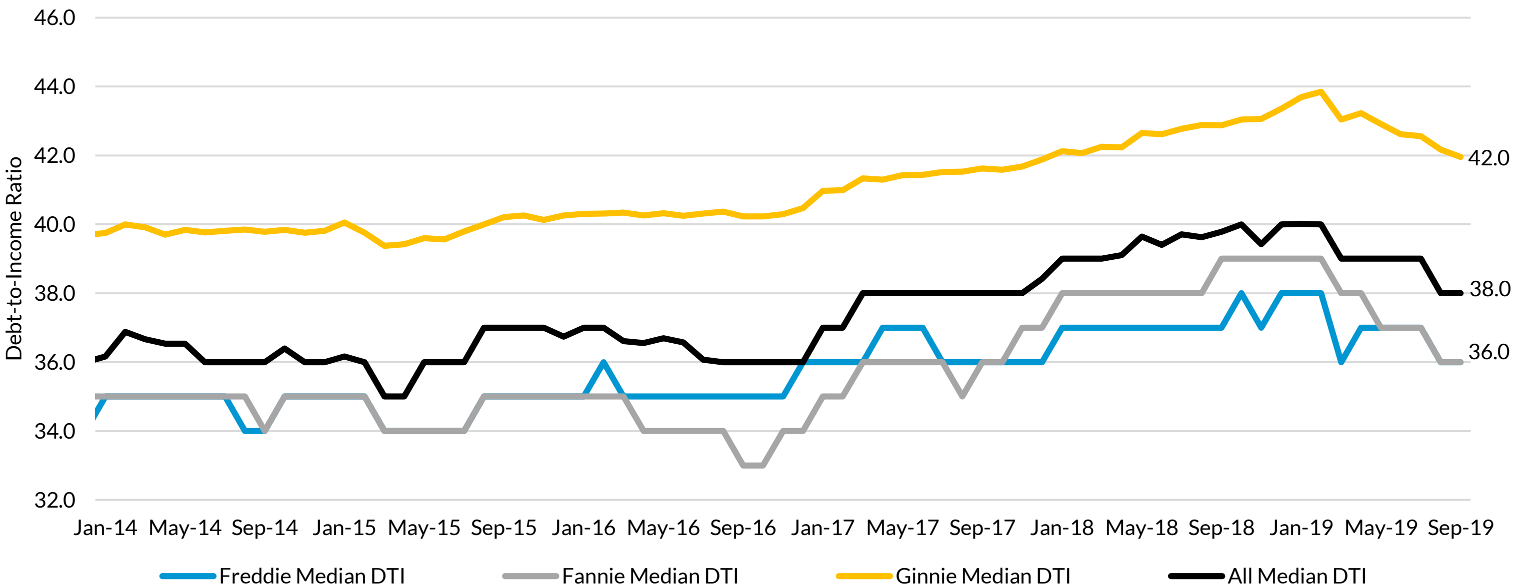


Sources: *eMBS and Urban Institute.* **Note:** *In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting 169 bps from this new issuer-reported LTV. Sources and note apply to all three graphs. Data as of September 2019.*

Credit Box: Historical

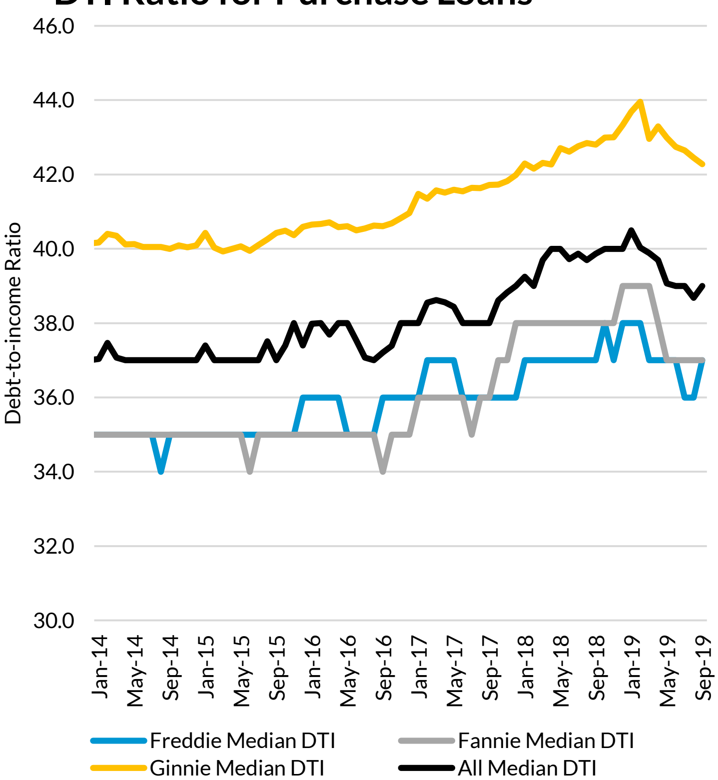
Median debt-to-income ratios on Ginnie Mae loans have historically been in the low 40s, considerably higher than for the GSEs. DTIs increased in the 2017-2018 period for both Ginnie Mae and GSE loans, with the movement more pronounced for Ginnie Mae. Increases in DTI are very typical in an environment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

DTI Ratio for All Loans



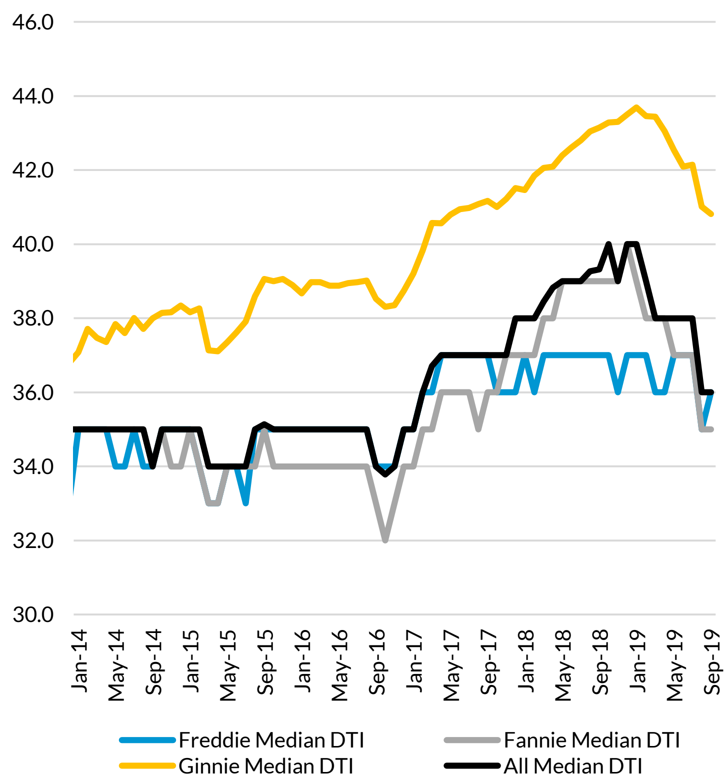
Sources: *eMBS and Urban Institute.* **Note:** *Data as of September 2019.*

DTI Ratio for Purchase Loans



Sources: *eMBS and Urban Institute.*
Note: *Data as of September 2019.*

DTI Ratio for Refinance Loans

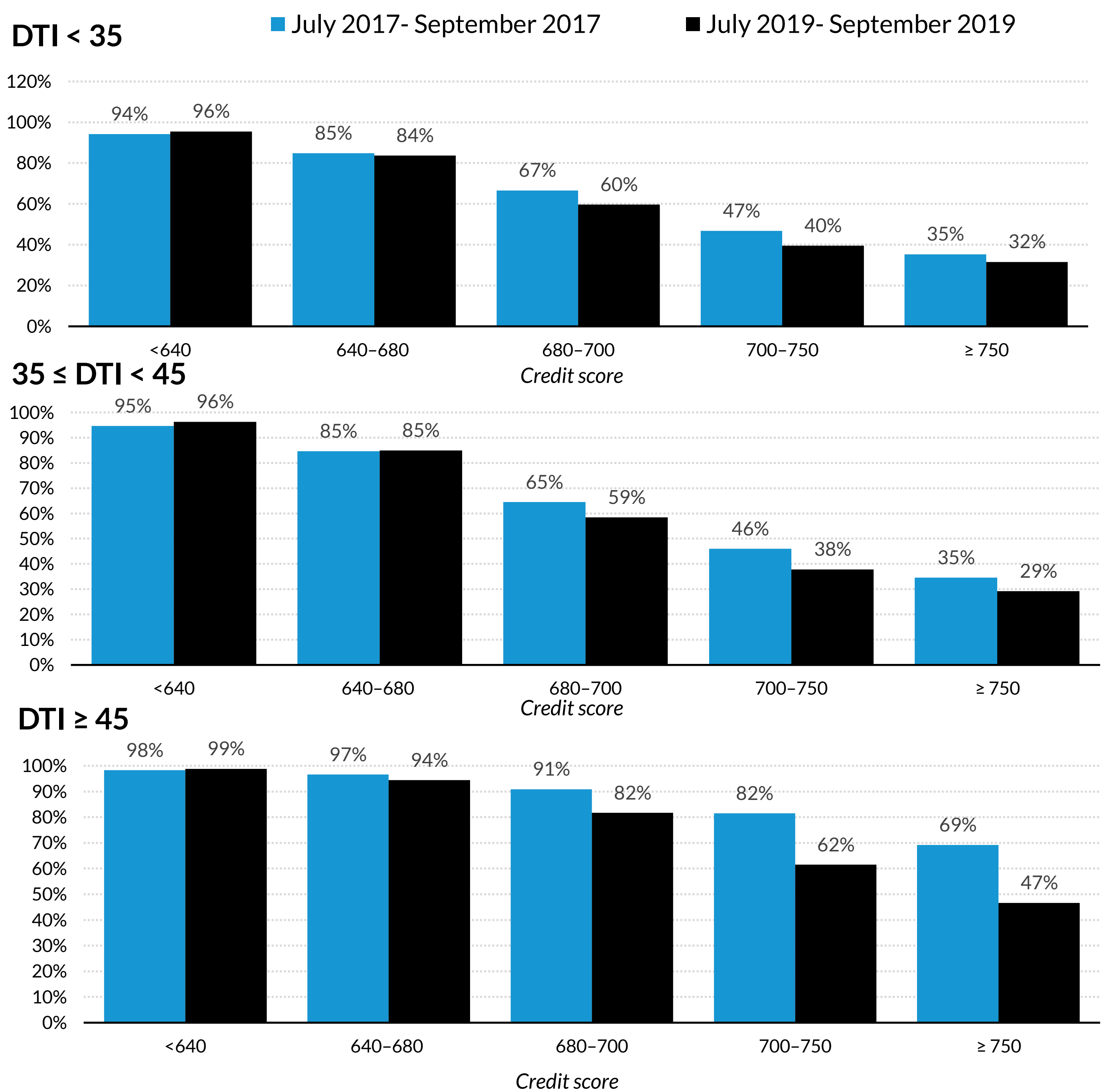


Sources: *eMBS and Urban Institute.*
Note: *Data as of September 2019.*

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 July 2019–September 2019, Ginnie Mae accounted for 96 percent of agency issuance for DTIs under 35 and FICOs below 640, compared to just 32 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 July 2019– September 2019, 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 82 percent; it was 59-60 percent for the same FICO in the lower DTI buckets. Comparing this period to 2 years earlier, it is clear that GSEs have stepped up their higher LTV lending in all but the lowest FICO buckets, taking market share from Ginnie Mae.

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



Sources: *eMBS and Urban Institute.*

High LTV Loans: Ginnie Mae vs. GSEs

Ginnie Mae dominates high-LTV lending, with 70.3 percent of its issuances in the July 2019-September 2019 period having LTVs of 95 or above, compared to 18.9 percent for the GSEs. The GSEs have increased their high-LTV lending share from 18.8 percent in July 2017−September 2017. Ginnie Mae's high-LTV lending is down just slightly over the same period from 71.3 percent. As home prices have increased, the share of high-DTI lending (loans with DTI ≥ 45) has increased across the FICO spectrum.

Share of Loans with LTV ≥ 95

	Ginnie Mae	GSE	All
July 2017- September 2017	71.3%	18.8%	36.8%
July 2019- September 2019	70.3%	18.9%	33.7%

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

July 2017-September 2017

	FICO					
DTI	<640	640–680	680–700	700–750	≥ 750	All
< 35	2.9%	5.6%	3.2%	8.2%	10.2%	30.0%
35 –45	5.1%	9.9%	5.3%	12.4%	10.6%	43.3%
≥ 45	3.7%	8.0%	3.8%	6.8%	4.4%	26.7%
All	11.7%	23.4%	12.3%	27.4%	25.2%	100.0%

July 2019-September 2019

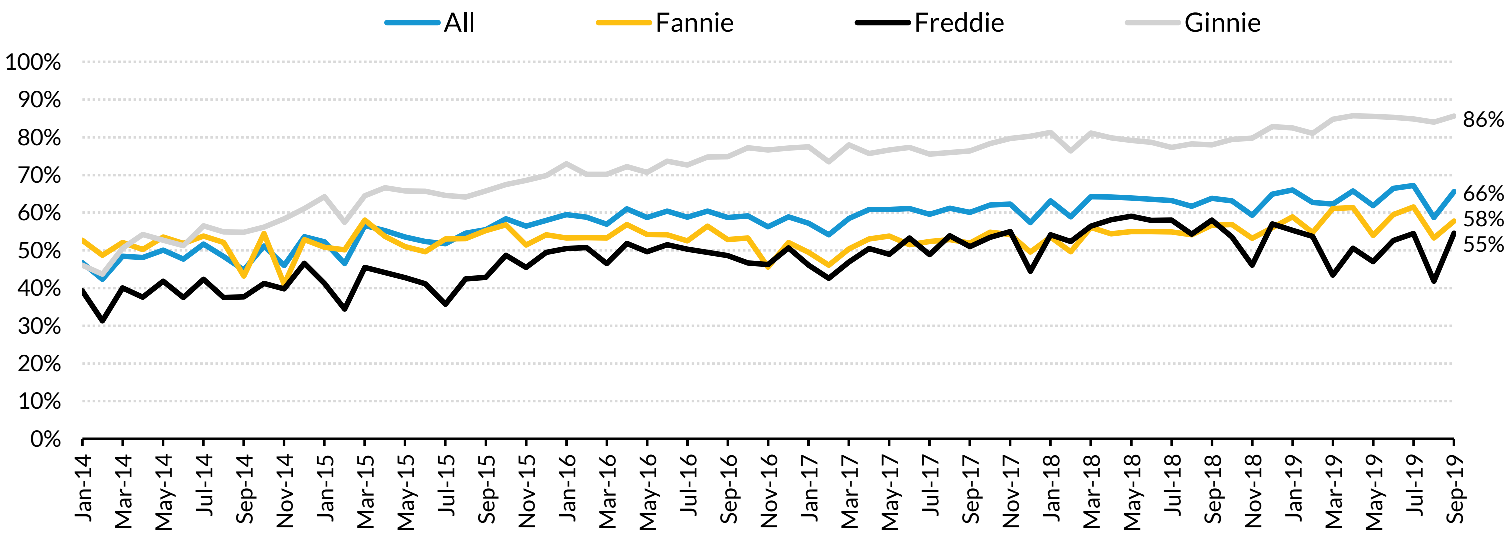
	FICO					
DTI	<640	640–680	680–700	700–750	≥ 750	All
< 35	2.9%	4.7%	2.7%	7.7%	10.6%	28.5%
35 –45	5.0%	8.4%	4.6%	11.6%	10.8%	40.4%
≥ 45	4.5%	8.0%	3.9%	8.4%	6.4%	31.1%
All	12.4%	21.0%	11.2%	27.7%	27.8%	100.0%

***Sources:** eMBS and Urban Institute.*

Nonbank Originators

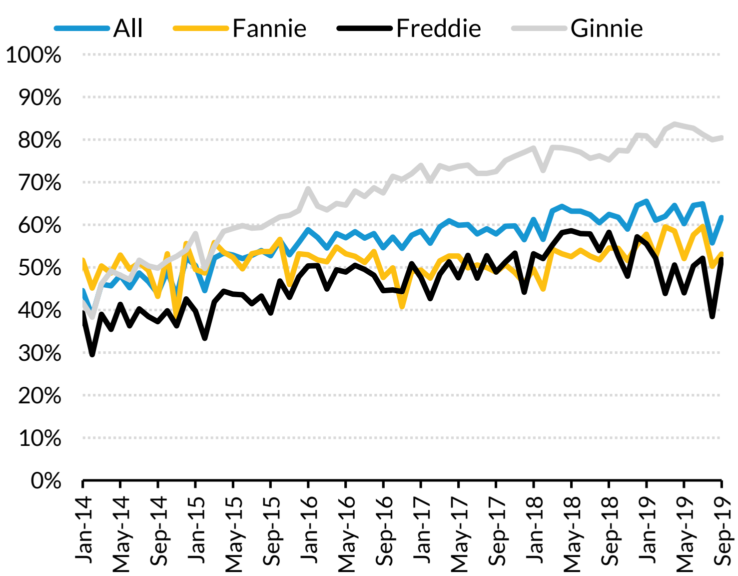
The nonbank origination share has been rising steadily for all three agencies since 2013. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at its record high of 86 percent in September 2019. Freddie and Fannie's nonbank shares both rose in September, to 58 and 55 percent respectively (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

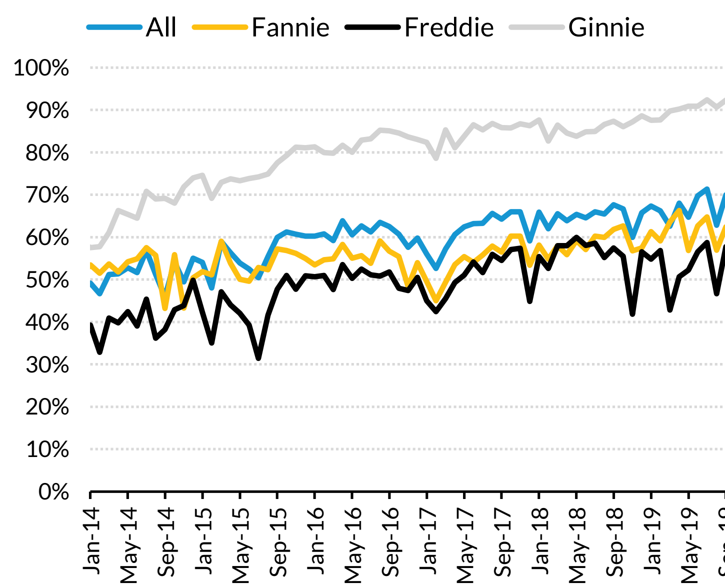


Sources: *eMBS and Urban Institute*
Note: *Data as of September 2019.*

Nonbank Origination Share: Purchase Loans



Nonbank Origination Share: Refinance Loans

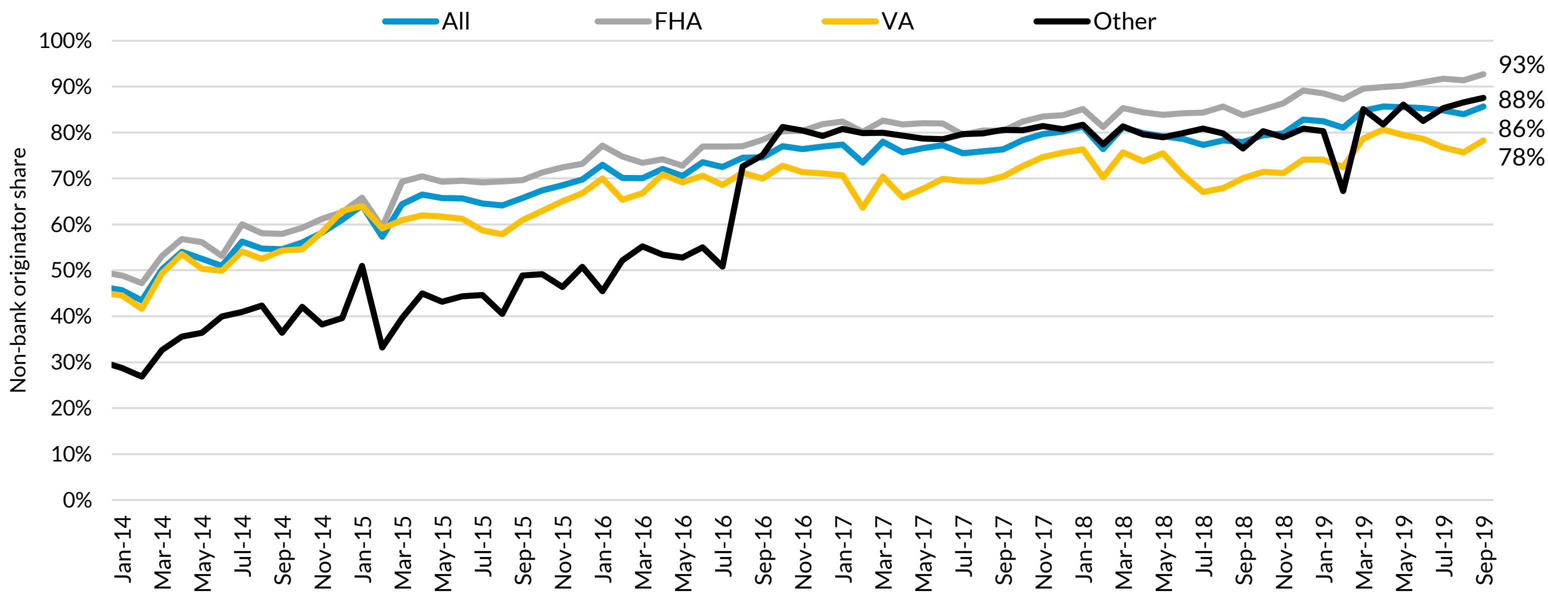


Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of September 2019.*

Ginnie Mae Nonbank Originators

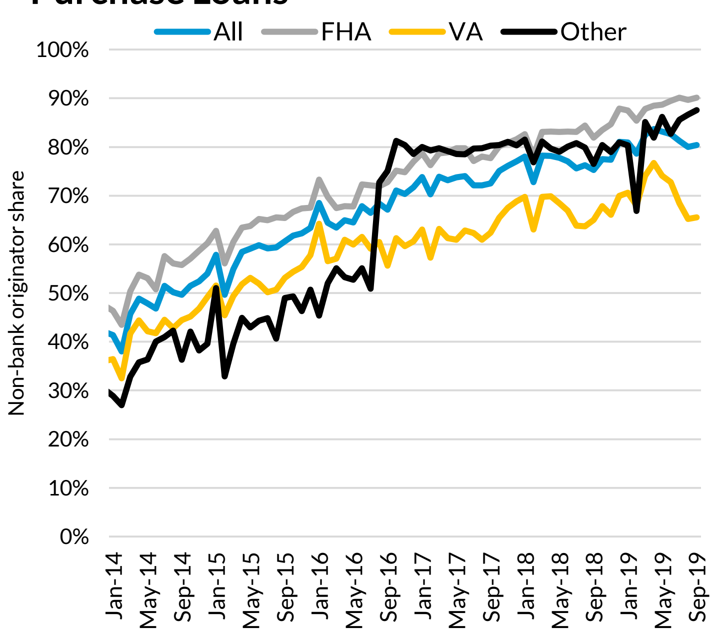
In September 2019, Ginnie Mae's nonbank share grew slightly to 86 percent. The nonbank originator share for FHA rose, reaching a historical high of 93 percent in September. The nonbank originator share for VA was 78 percent, and the nonbank originator share for other loans, which can fluctuate quite a bit month to month, increased to 88 percent.

Ginnie Mae Nonbank Originator Share: All Loans

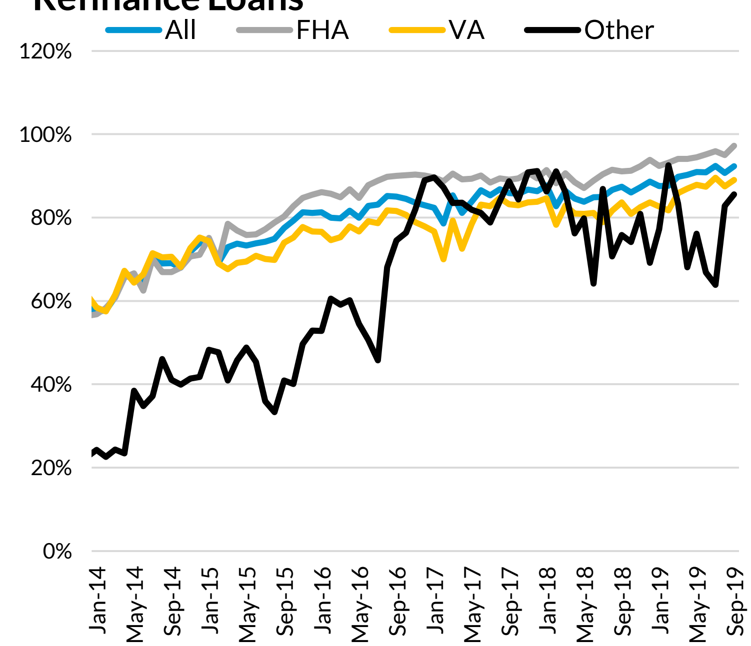


Sources: *eMBS and Urban Institute*
Note: *Data as of September 2019.*

Ginnie Mae Nonbank Share: Purchase Loans



Ginnie Mae Nonbank Share: Refinance Loans

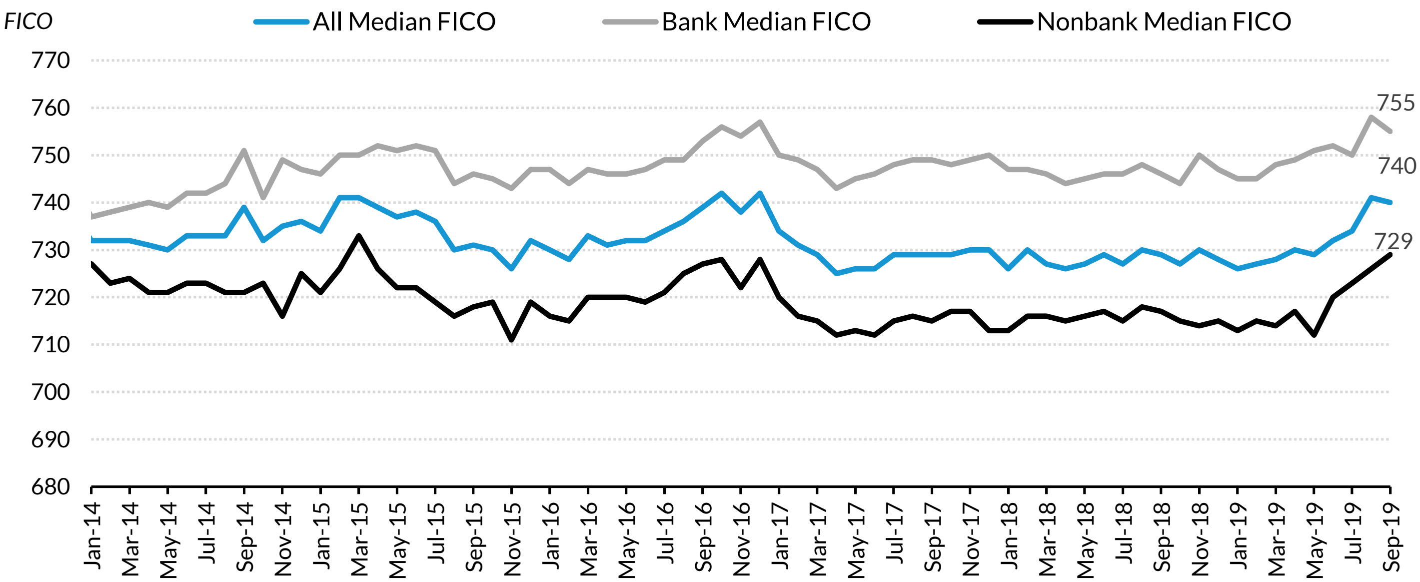


Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of September 2019.*

Nonbank Credit Box

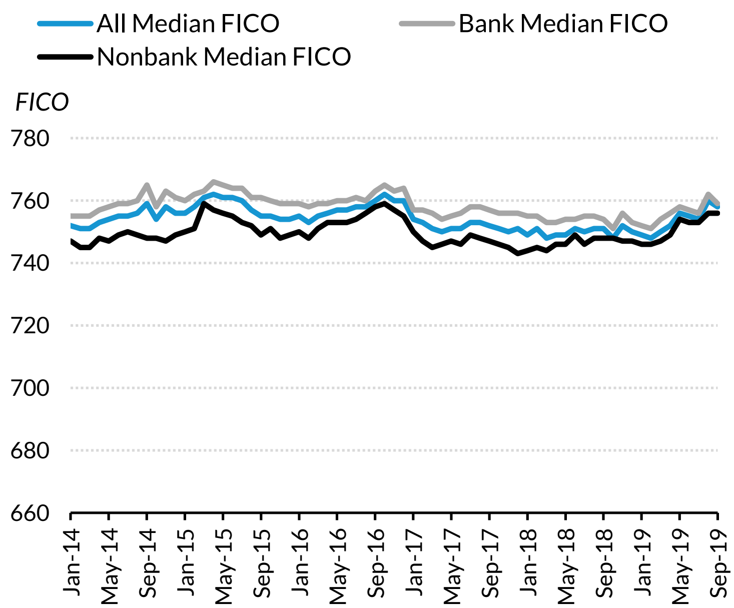
Nonbank originators have played a key role in opening up access to credit. The median GSE and the median Ginnie Mae FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, both bank and nonbank FICOs have increased slightly since 2014. In contrast, within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



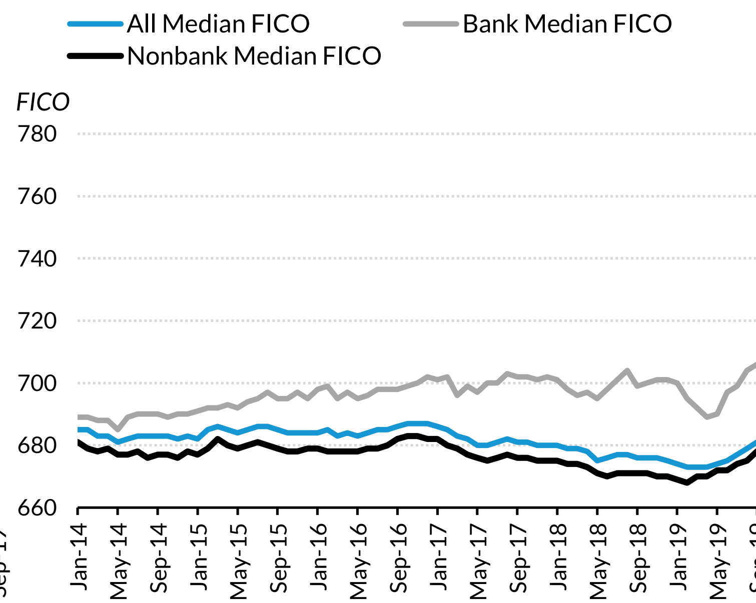
Sources: *eMBS and Urban Institute.* **Note**: *Data as of September 2019.*

GSE FICO: Bank vs. Nonbank



Sources: *eMBS and Urban Institute.*
Note: *Data as of September 2019.*

Ginnie Mae FICO: Bank vs. Nonbank

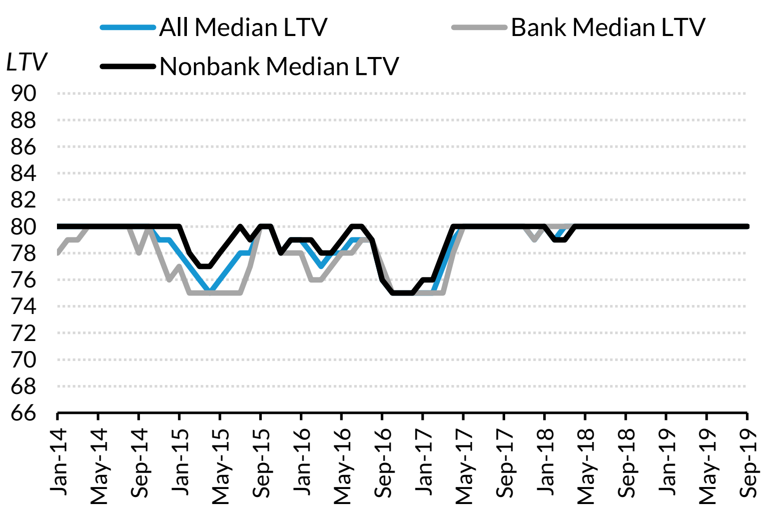


Sources: *eMBS and Urban Institute.*
Note: *Data as of September 2019.*

Nonbank Credit Box

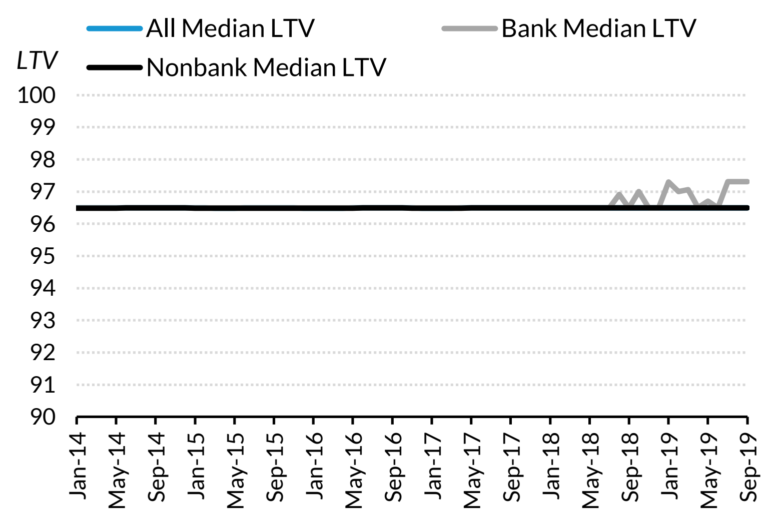
The median LTVs for nonbank and bank originations are comparable, while the median DTI for nonbank loans is higher than for bank loans, indicating that nonbanks are more accommodating in both this and the FICO dimension. Since early 2017, there has been a substantial increase in DTIs, which has partially reversed over the course of 2019. 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, DTIs have dropped.

GSE LTV: Bank vs. Nonbank



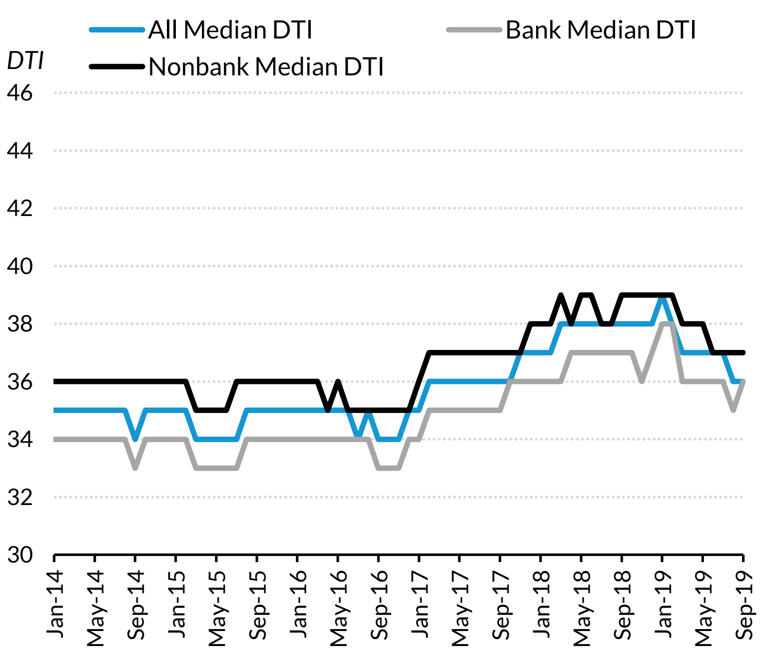
Sources: *eMBS and Urban Institute.* **Note**: *Data as of September 2019.*

Ginnie Mae LTV: Bank vs. Nonbank



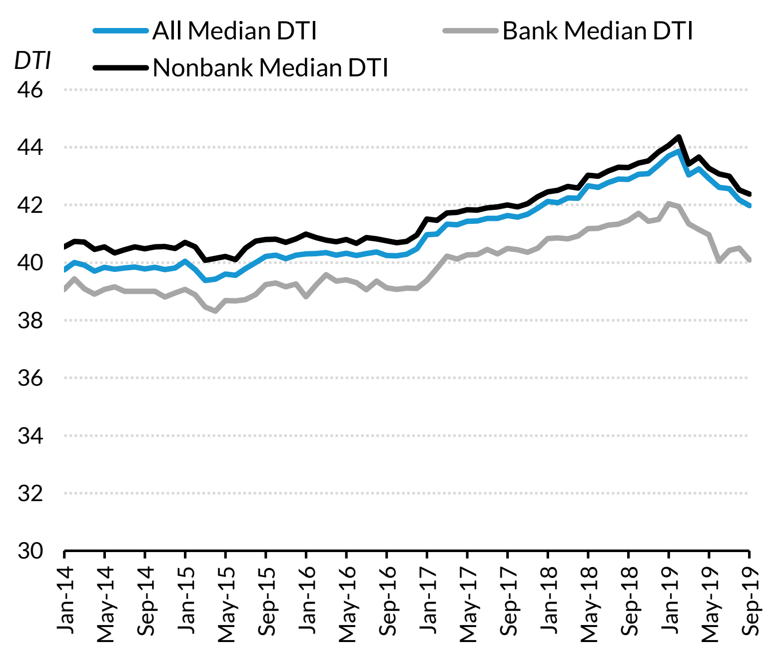
Sources: *eMBS and Urban Institute.* **Note**: *Data as of September 2019.*

GSE DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute.* **Note**: *Data as of September 2019.*

Ginnie Mae DTI: Bank vs. Nonbank

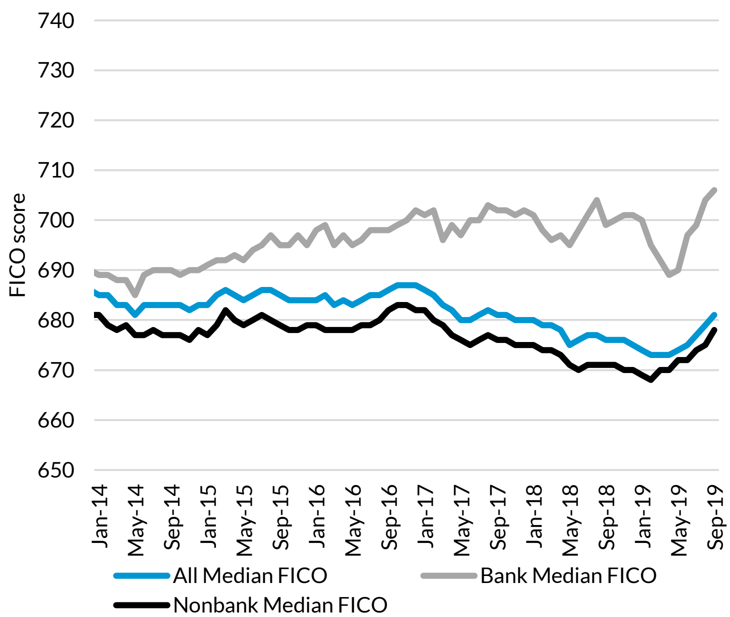


Sources: *eMBS and Urban Institute.* **Note**: *Data as of September 2019.*

Ginnie Mae Nonbank Originators: Credit Box

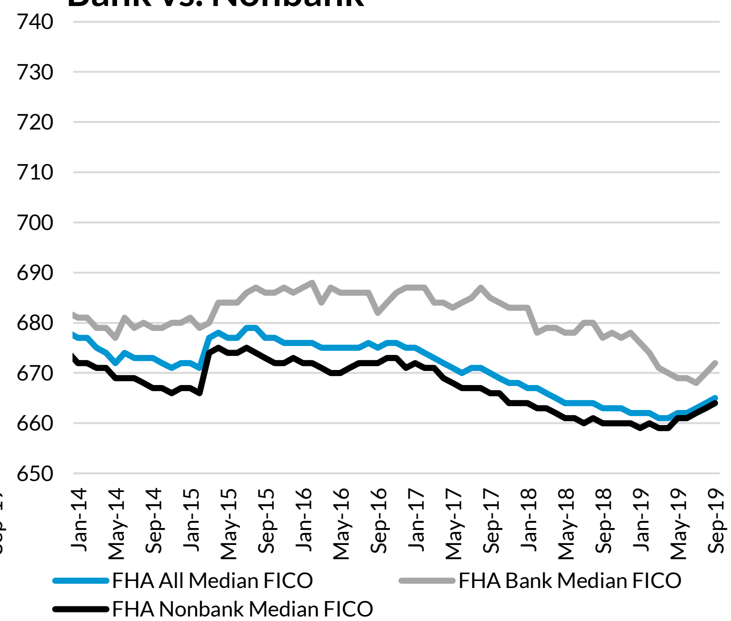
The FICO scores for both Ginnie Mae nonbank and bank originators increased in September 2019. FICO spreads between banks and nonbanks have generally increased since 2013. The gap between banks and non-banks is very apparent in all programs backing Ginnie Mae securities: FHA, VA, and Other.

Ginnie Mae FICO Scores: Bank vs. Nonbank



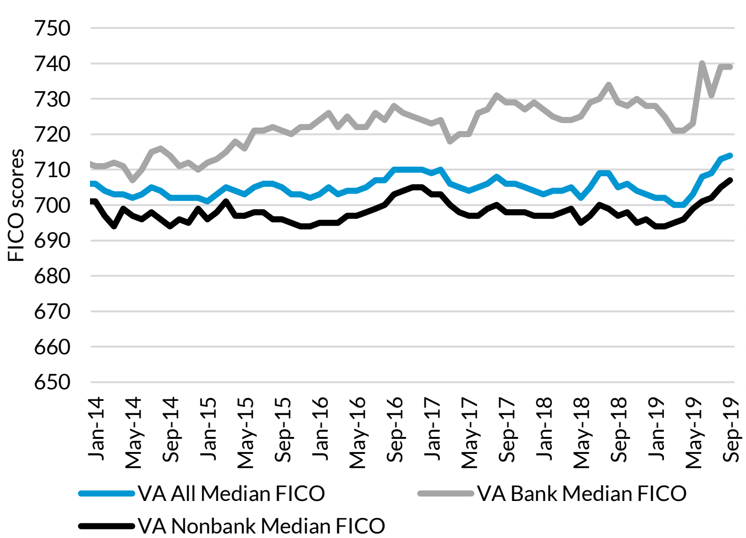
Sources: *eMBS and Urban Institute* **Note:** *Data as of September 2019.*

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



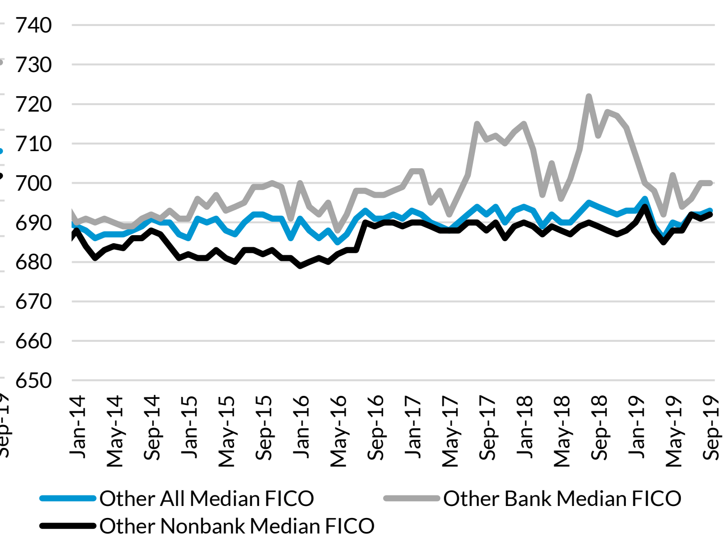
Sources: *eMBS and Urban Institute* **Note:** *Data as of September 2019.*

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *Data as of September 2019.*

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

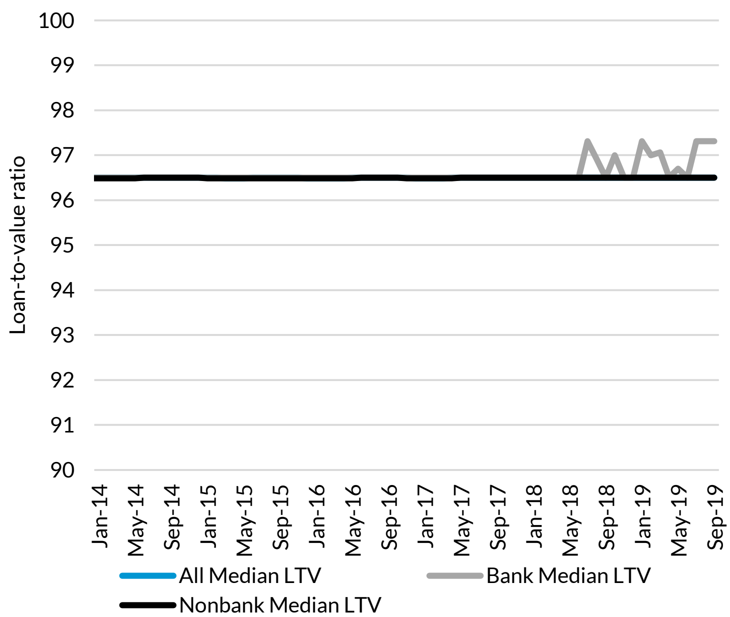


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of September 2019.*

Ginnie Mae Nonbank Originators: Credit Box

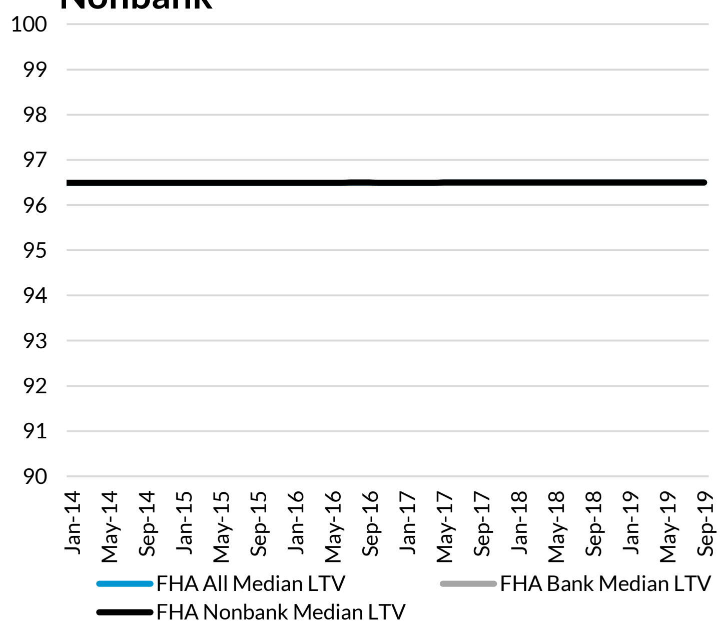
An analysis of the loans backing Ginnie Mae origination indicates that there are virtually no differences in median LTV ratios between bank originated loans and nonbank originated loans.

Ginnie Mae LTV: Bank vs. Nonbank



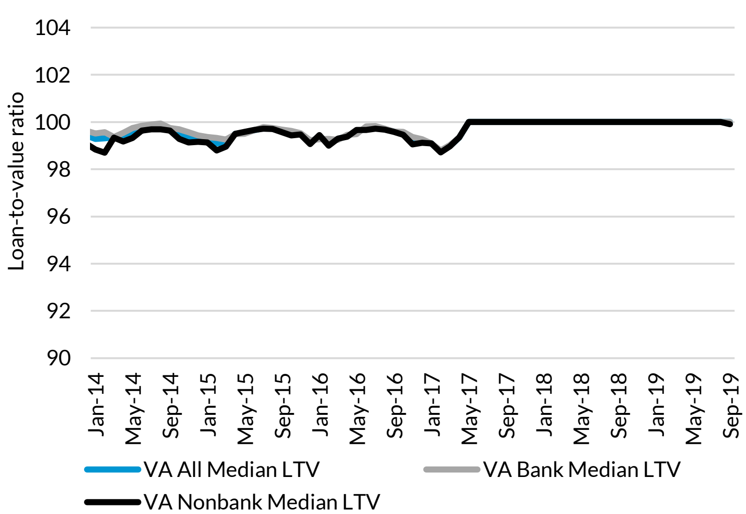
Sources: *eMBS and Urban Institute* **Note:** *Data as of September 2019.*

Ginnie Mae FHA LTV: Bank vs. Nonbank



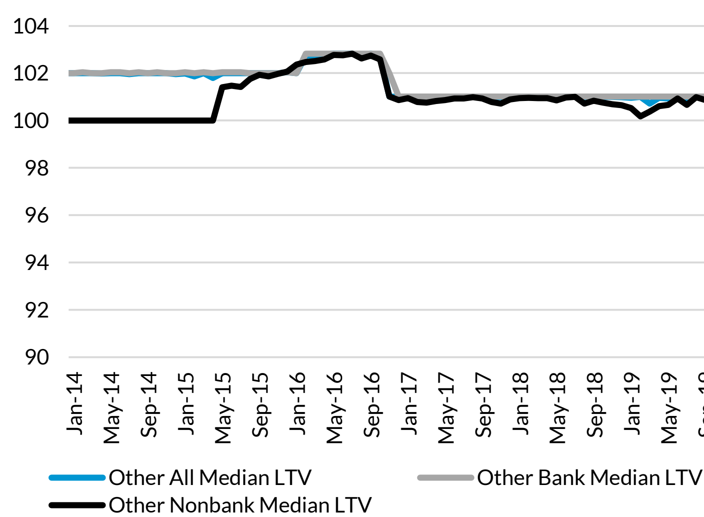
Sources: *eMBS and Urban Institute* **Note:** *Data as of September 2019.*

Ginnie Mae VA LTV: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *Data as of September 2019.*

Ginnie Mae Other LTV: Bank vs. Nonbank

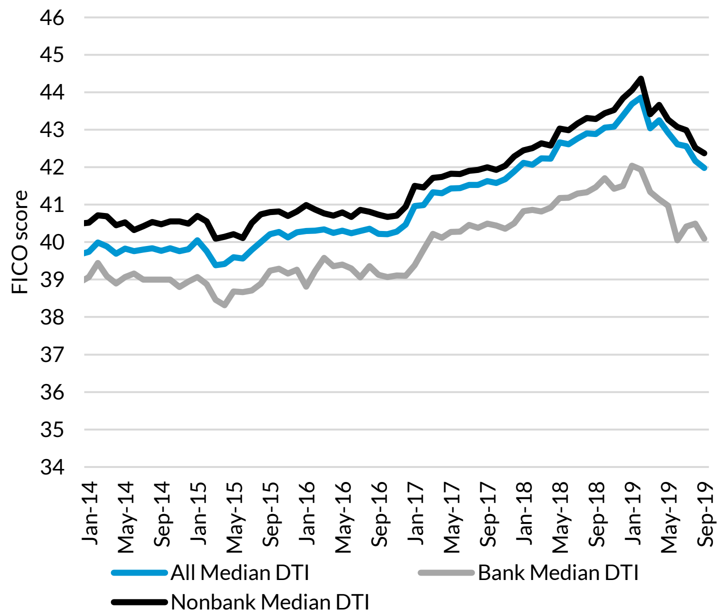


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of September 2019.*

Ginnie Mae Nonbank Originators: Credit Box

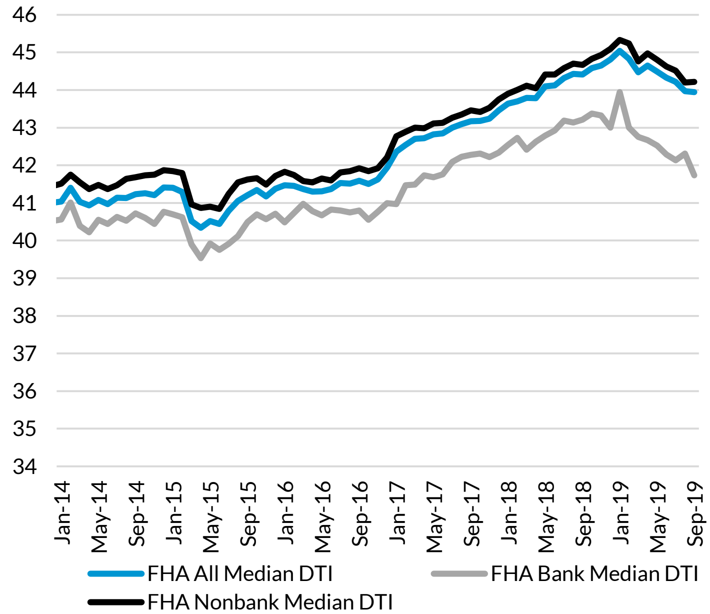
An analysis of borrowers' DTI ratios for bank versus non-bank originators indicates that the former have a lower median DTI. The DTIs for FHA and VA loans experienced notable increases since early 2017 for both bank and nonbank originations, while the Other origination DTIs stayed relatively flat. Rising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

Ginnie Mae DTI: Bank vs. Nonbank



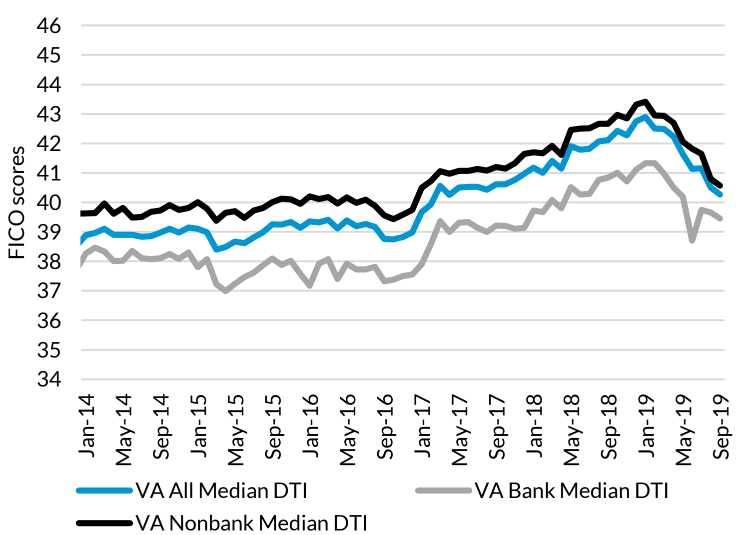
Sources: *eMBS and Urban Institute* **Note:** *Data as of September 2019.*

Ginnie Mae FHA DTI: Bank vs. Nonbank



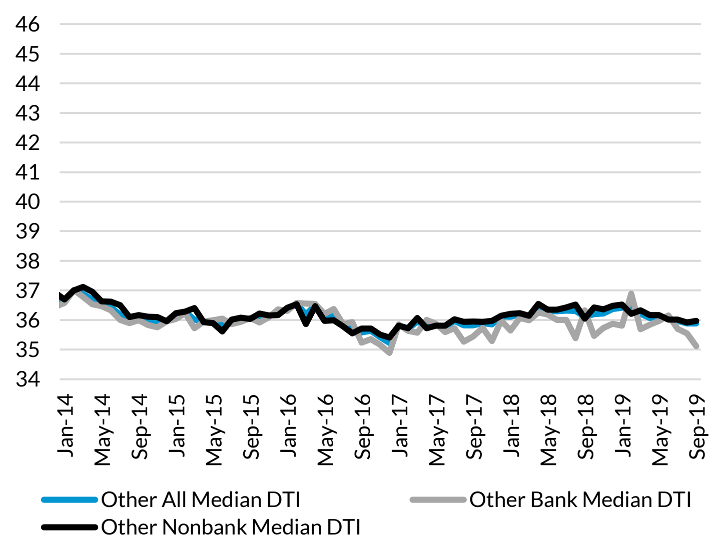
Sources: *eMBS and Urban Institute* **Note:** *Data as of September 2019.*

Ginnie Mae VA DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *Data as of September 2019.*

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 September 2019.*

Holders of Ginnie Mae MSRs

This table shows 30 largest owners of mortgage servicing rights (MSR) by UPB for Ginnie Mae securitizations. As of September 2019, over half (52.8 percent) of the Ginnie Mae MSRs are owned by the top six firms. The top 30 firms collectively own 85.3 percent. Seventeen of these 30 are non-depositories, the remaining 13 are depository institutions.

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

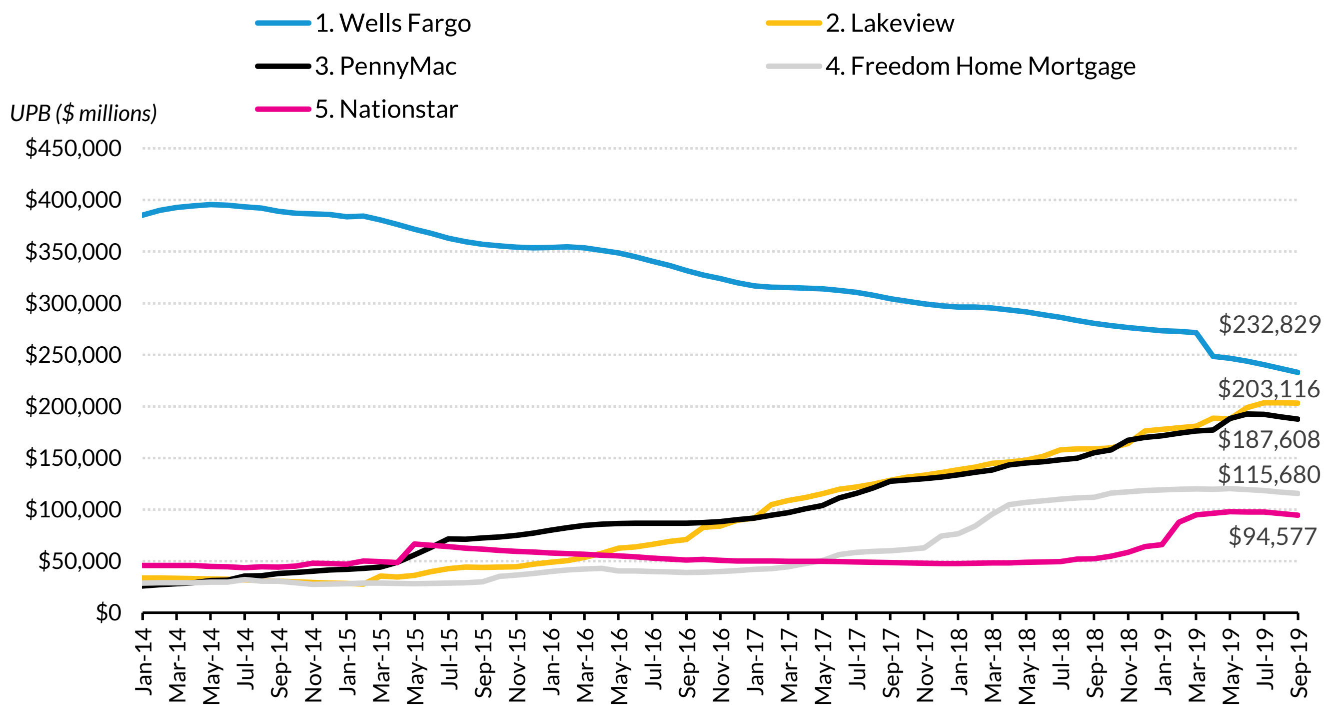
Rank	MSR Holder	UPB ($ millions)	Share	Cumulative Share
1	Wells Fargo	$232,829	13.7%	13.7%
2	Lakeview	$203,116	11.9%	25.6%
3	PennyMac	$187,608	11.0%	36.6%
4	Freedom Home Mortgage	$115,680	6.8%	43.4%
5	Nationstar	$97,684	5.6%	49.0%
6	Quicken Loans	$65,662	3.9%	52.8%
7	US Bank	$58,789	3.5%	56.3%
8	JPMorgan Chase	$42,871	2.5%	58.8%
9	Carrington Home Mortgage	$41,202	2.4%	61.2%
10	USAA Federal Savings Bank	$37,419	2.2%	63.4%
11	Caliber Home Loans	$35,510	2.1%	65.5%
12	Navy Federal Credit Union	$26,270	1.5%	67.0%
13	Newrez	$26,246	1.5%	68.6%
14	Amerihome Mortgage	$25,246	1.5%	70.1%
15	The Money Source	$22,282	1.3%	71.4%
16	Midfirst Bank	$21,728	1.3%	72.6%
17	M&T Bank	$19,666	1.2%	73.8%
18	Roundpoint	$18,223	1.1%	74.9%
19	Suntrust	$18,204	1.1%	75.9%
20	Ditech Financial	$17,973	1.1%	77.0%
21	Home Point Financial	$17,443	1.0%	78.0%
22	Guild Mortgage	$15,646	0.9%	78.9%
23	Branch Banking and Trust	$15,598	0.9%	79.9%
24	Loan Depot	$15,113	0.9%	80.7%
25	PHH Mortgage	$14,318	0.8%	81.6%
26	Flagstar Bank	$13,961	0.8%	82.4%
27	Pingora	$13,413	0.8%	83.2%
28	Citizens Bank	$12,521	0.7%	83.9%
29	Bank of America	$11,359	0.7%	84.6%
30	Fifth Third Bank	$11,275	0.7%	85.3%

Sources: *eMBS and Urban Institute*. **Note:** *Data as of September 2019.*

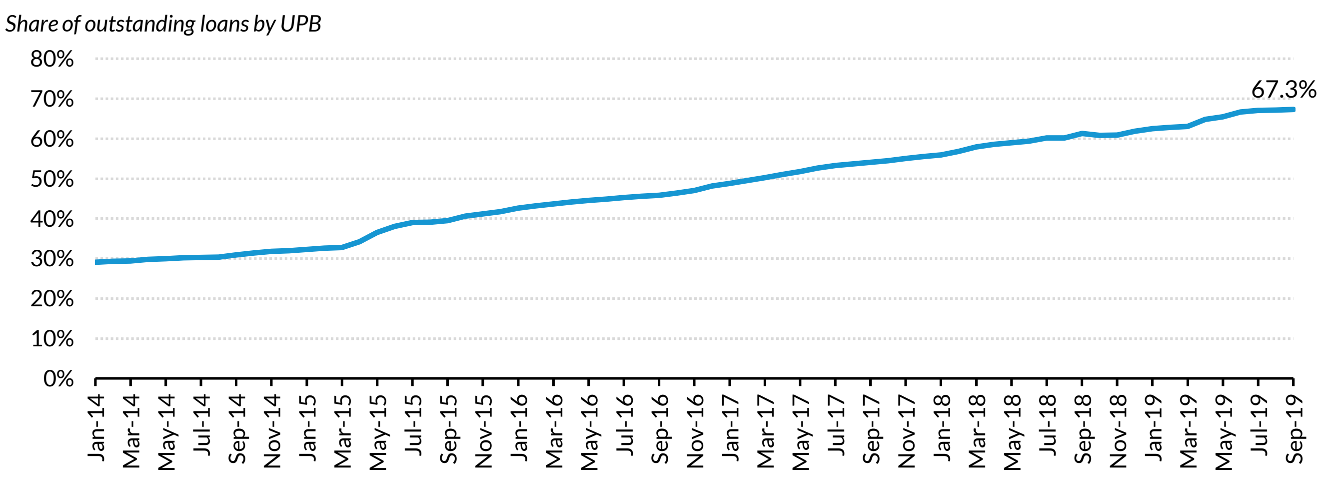
Holders of Ginnie Mae MSRs

The composition of the largest owners of Ginnie Mae MSR has evolved quite a bit over time. In November 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 $230 billion. Lakeview, PennyMac, Freedom Home Mortgage, and Nationstar (all nonbanks) make up the remainder of the top five largest holders of MSRs, owning $203 billion, $188 billion, $116 billion, and $95 billion respectively as of September 2019. As of September 2019, nonbanks collectively owned servicing rights for 67.3 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



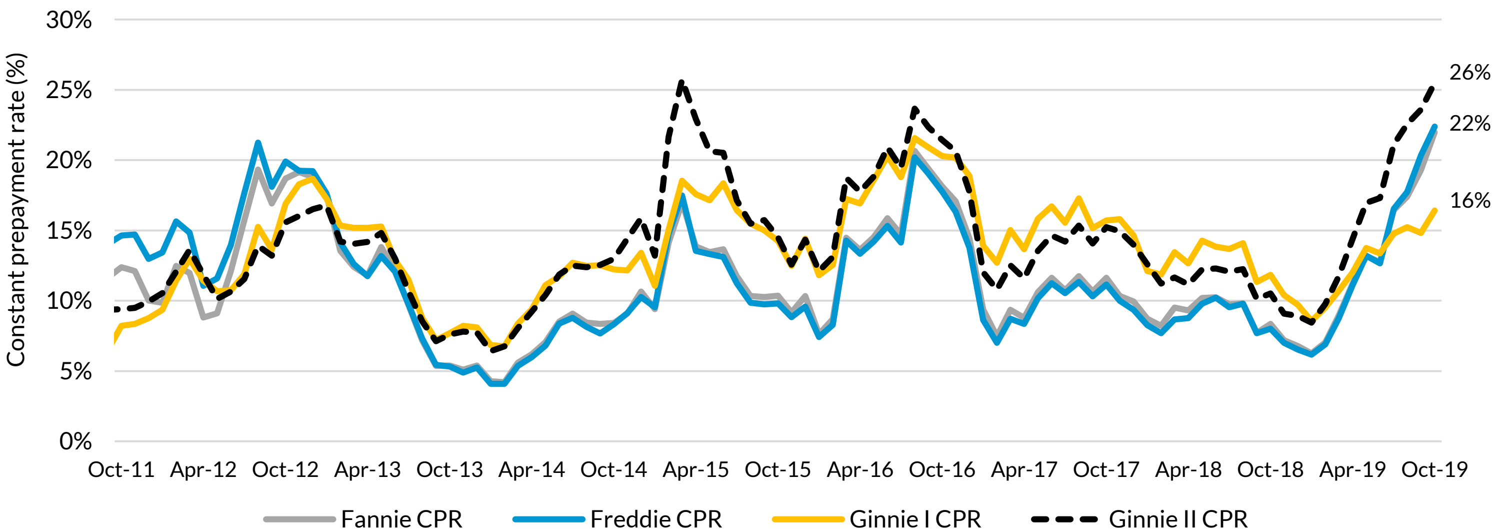
Sources: *eMBS and Urban Institute.* **Note:** *Data as of September 2019.*

Prepayments

Prepayments on Ginnie Mae securities were lower than on GSE securities from 2011 through early-2013, but have been higher since. These increased Ginnie speeds reflect 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 unlike GSE streamline refinances, requires no credit report and no appraisal. Some of the upfront mortgage insurance premium can also be applied to the refinanced loan.

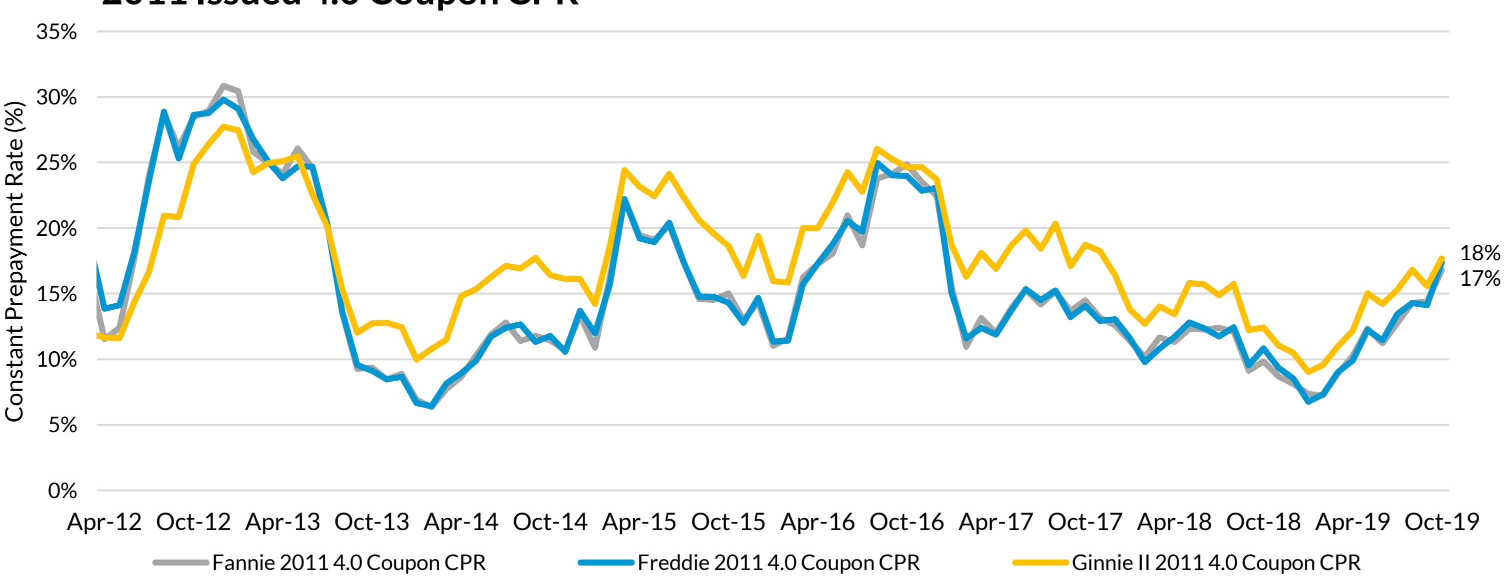
From late 2016 to later 2018, as interest rates increased, the bulk of the mortgage universe found it non-economic to refinance and the prepayment speeds for all agency MBS slowed substantially. The small month-to-month variation in speeds reflected primarily seasonality and changes in day count. With the drop in rates beginning in late 2018 and persisting through 2019, we have seen a notable pick up in prepayment activity. This activity level is rate dependent; If rates drop further, speeds are likely to increase. However, the seasonal patterns suggest, in the absence of rate movements, a slightly decrease in speeds in the months ahead.

Aggregate Prepayments



Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of October 2019.*

2011 Issued 4.0 Coupon CPR



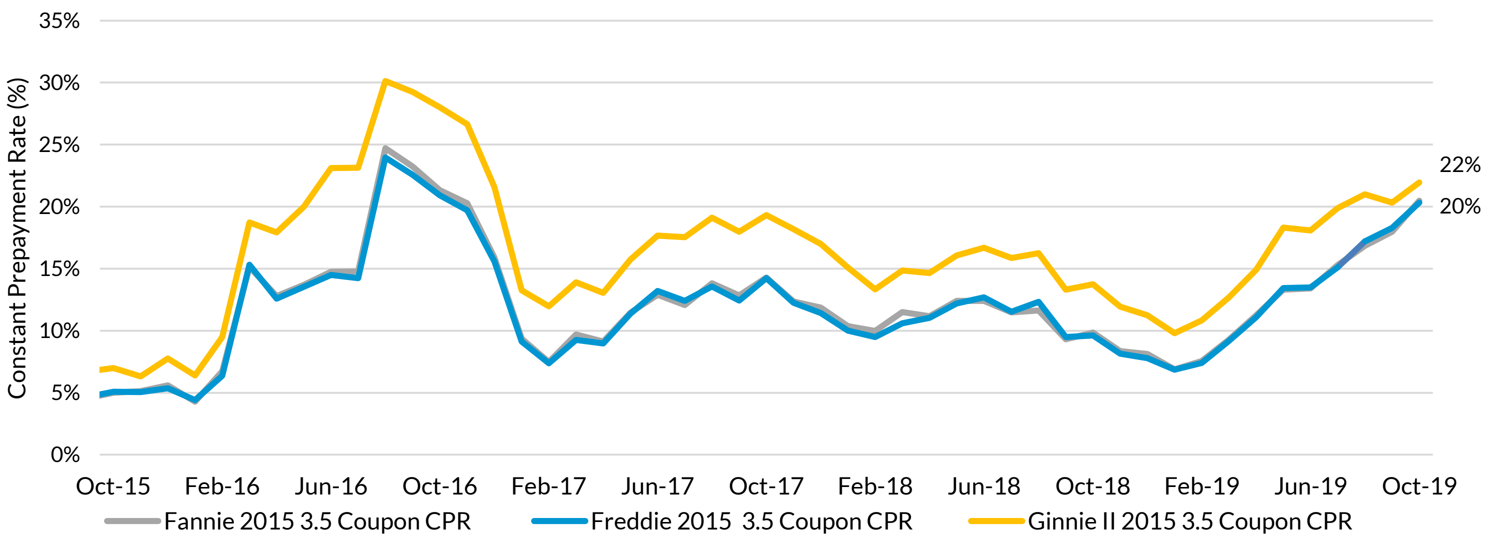
Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of October 2019.*

Prepayments

The 2015 Ginnie II 3.5s and the 2016 Ginnie II 3.0s, the largest coupon cohorts of those vintage years, have prepaid consistently faster than their conventional counterparts. 2015 and 2016 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.

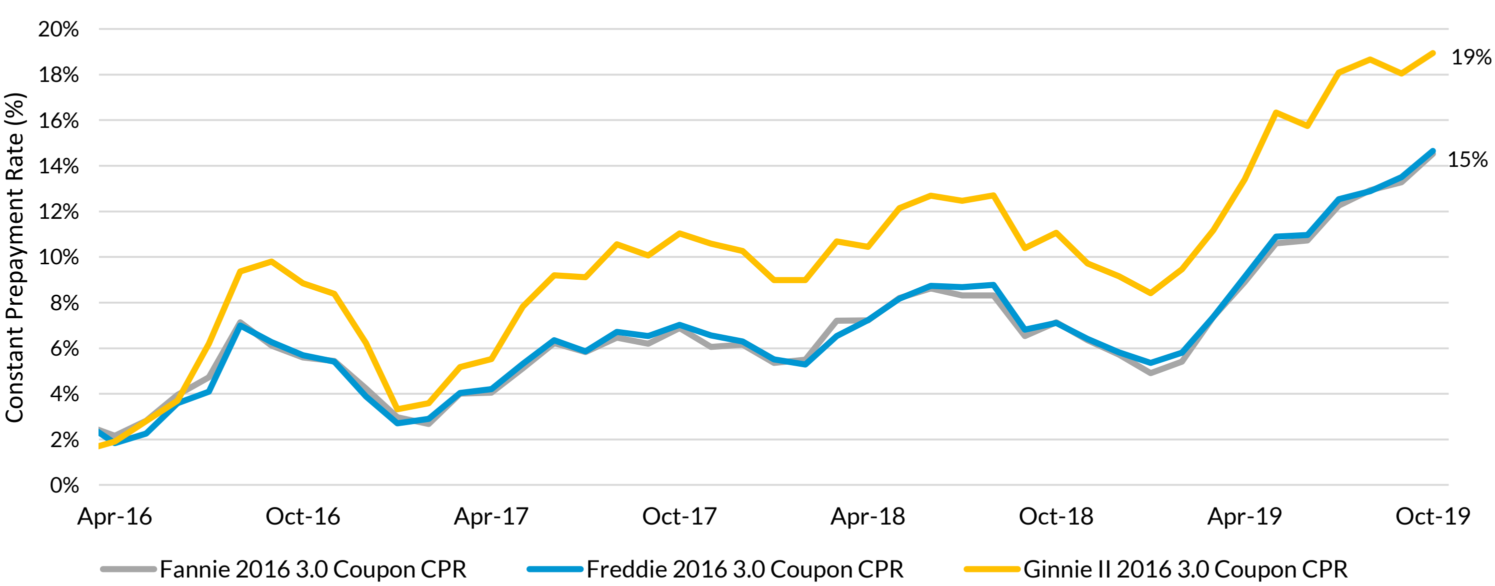
With the increase in interest rates over the 2 year period beginning in November 2016, the prepayment speeds for all agency MBS had slowed. From late 2016 to late 2018, with the bulk of the mortgage universe finding it non-economic to refinance, the muted month to month variations in speeds reflected seasonality, changes in day count and changes in mortgage interest rates. With the drop in rates beginning in late 2018 and persisting through 2019, we have seen a notable pick up in prepayment activity. This activity level is rate dependent; If rates drop further, speeds are likely to increase. However, the seasonal patterns suggest, in the absence of rate movements, a slightly decrease in speeds in the months ahead.

2015 Issued 3.5 Coupon CPR



Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of October 2019.*

2016 Issued 3.0 Coupon CPR

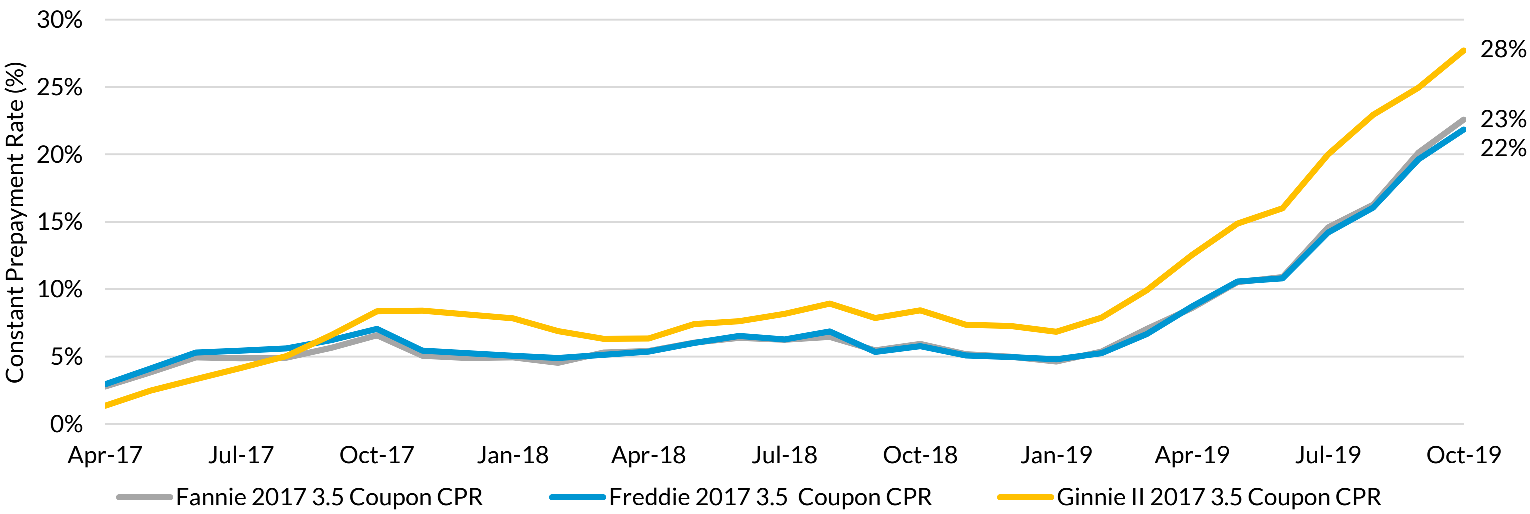


Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of October 2019.*

Prepayments

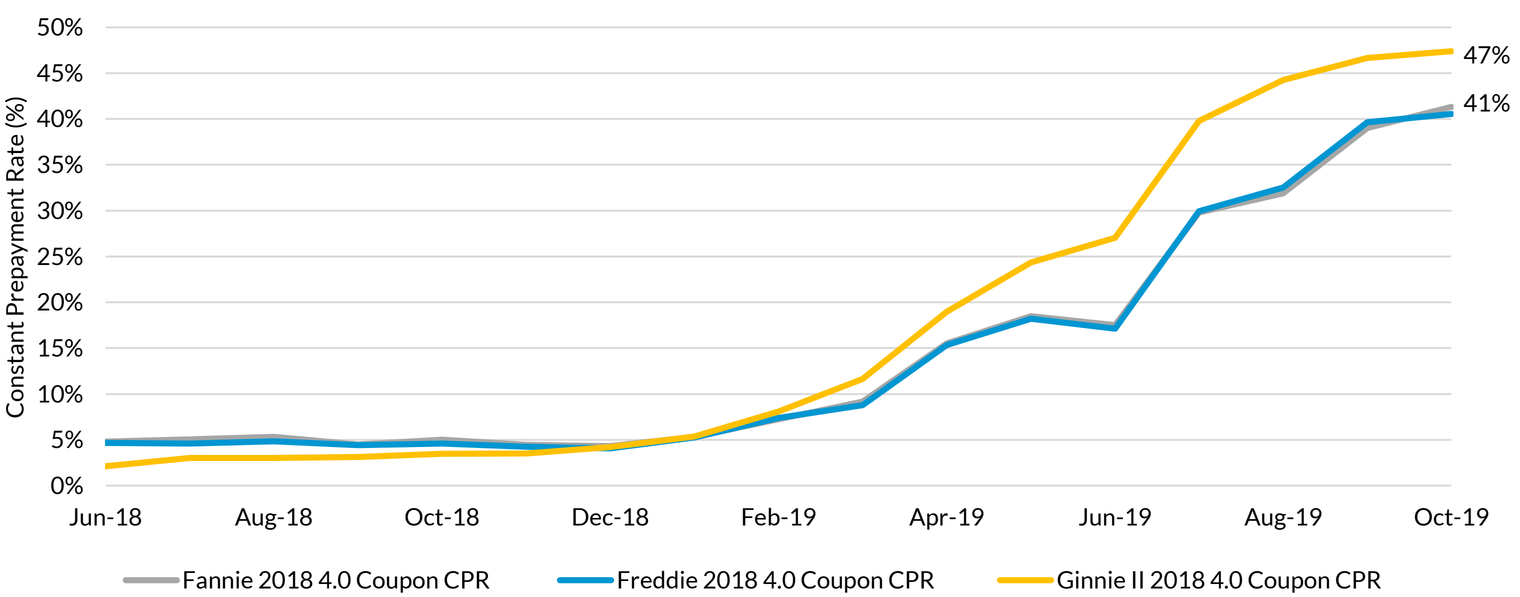
Ginnie Mae securities season more slowly than their conventional counterparts; they generally have lower prepayment in the early months but are more interest rate responsive thereafter. The charts below show the behavior of the 2017-issued 3.5s and the 2018-issued 4.0s, the largest coupon cohorts of those vintage years. Despite slower seasoning, 2017 Ginnie II 3.5s have been prepaying faster than their conventional counterparts since late 2017, 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 all 2018 4.0s have accelerated, and Ginnie II speeds have accelerated more than their conventional counterparts.

2017 Issued 3.5 Coupon CPR



Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of October 2019.*

2018 Issued 4.0 Coupon CPR

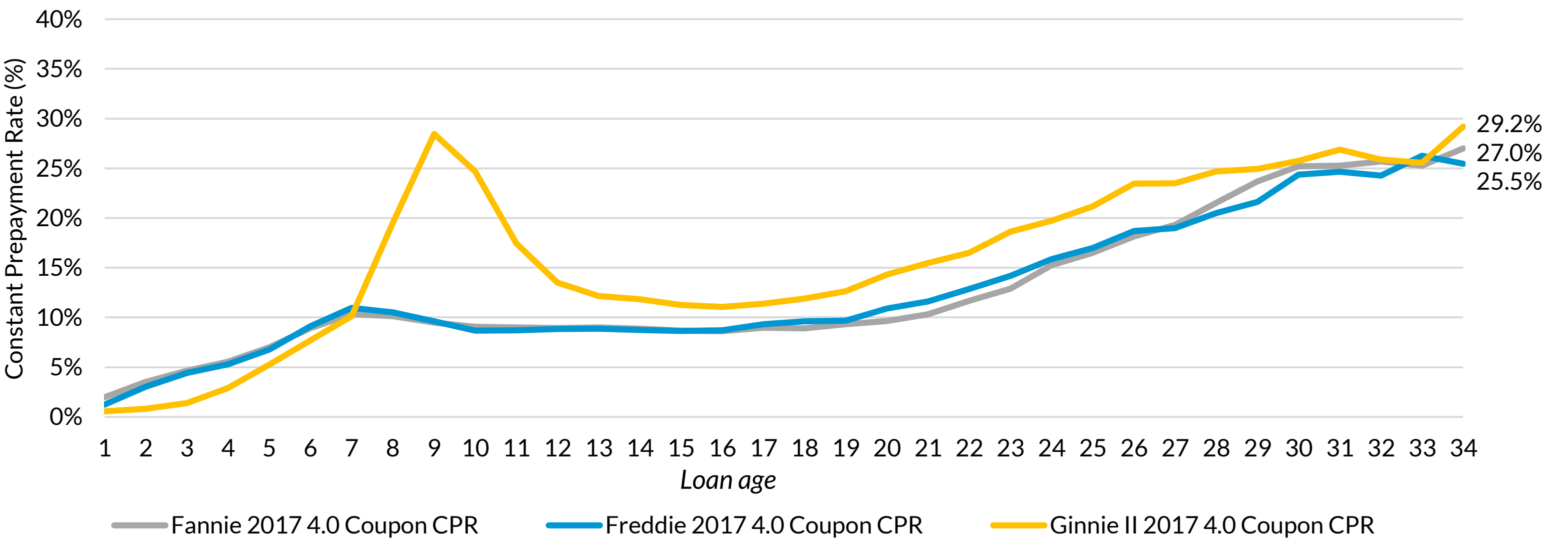


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of October 2019.*

Prepayments

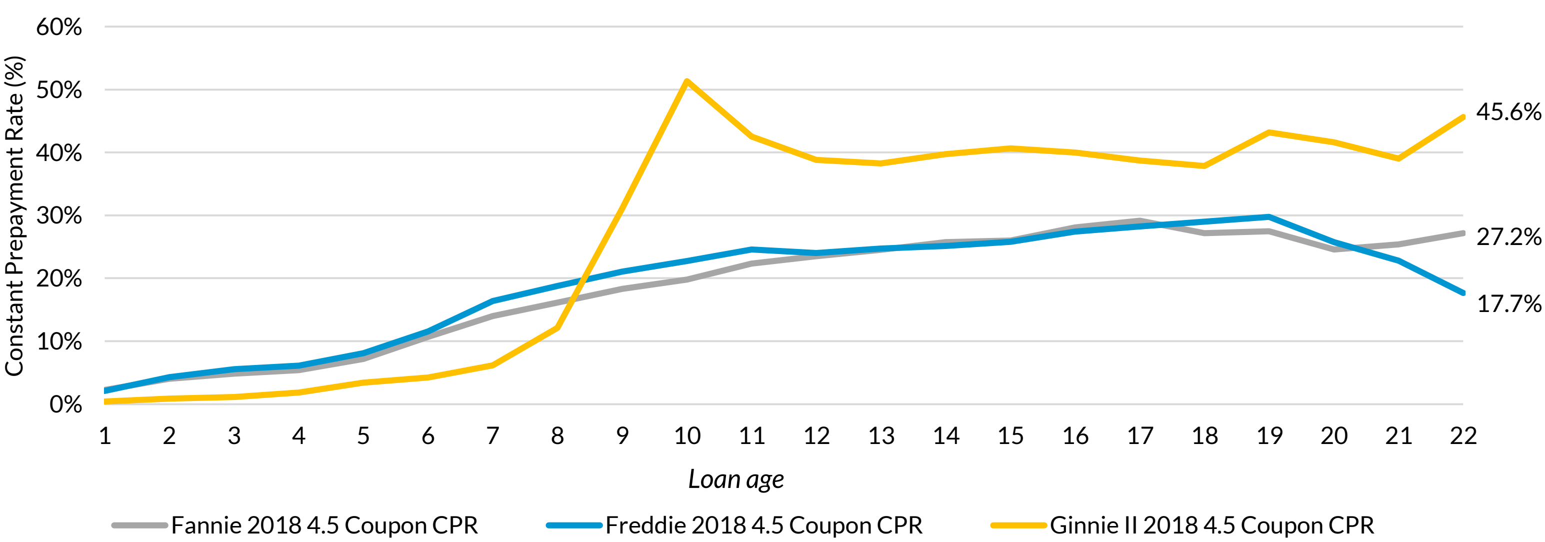
The charts below show the prepayment speeds by loan age for 2017 Ginnie II 4.0s and 2018 Ginnie II 4.5s—the cohorts 50 basis points above the largest coupon cohort for those years. Prepayment speeds on the 2017 Ginnie II 4.0s jumped up sharply at the 7-9 month loan age, reflecting abuse of the VA Streamlined 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. Even so, the recent experience of the 2018 Ginnie II 4.5s indicates they are much more responsive to interest rate changes than conventional mortgages.

2017 Issued 4.0 Coupon CPR, by Loan Age



Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of October 2019.*

2018 Issued 4.5 Coupon CPR, by Loan Age

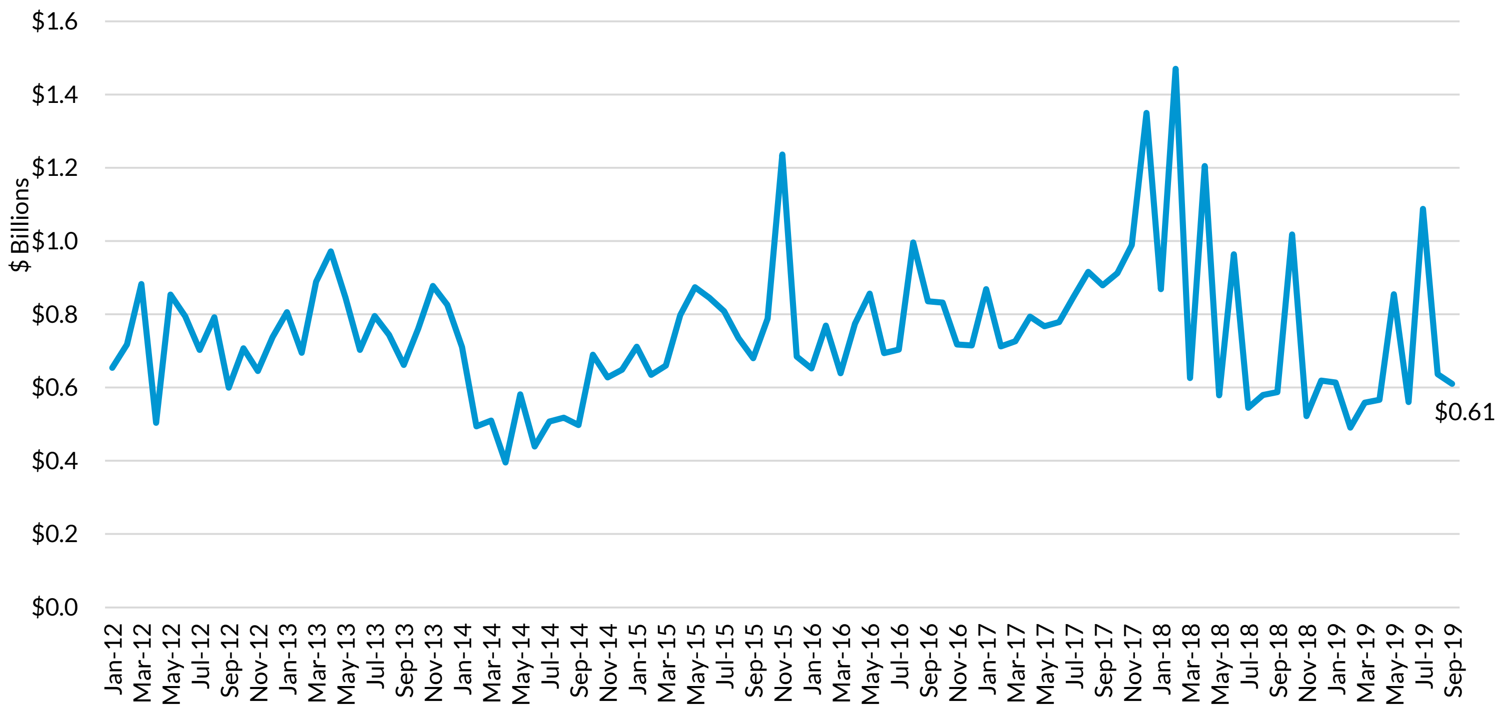


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of October 2019.*

Other Ginnie Mae Programs Reverse Mortgage Volumes

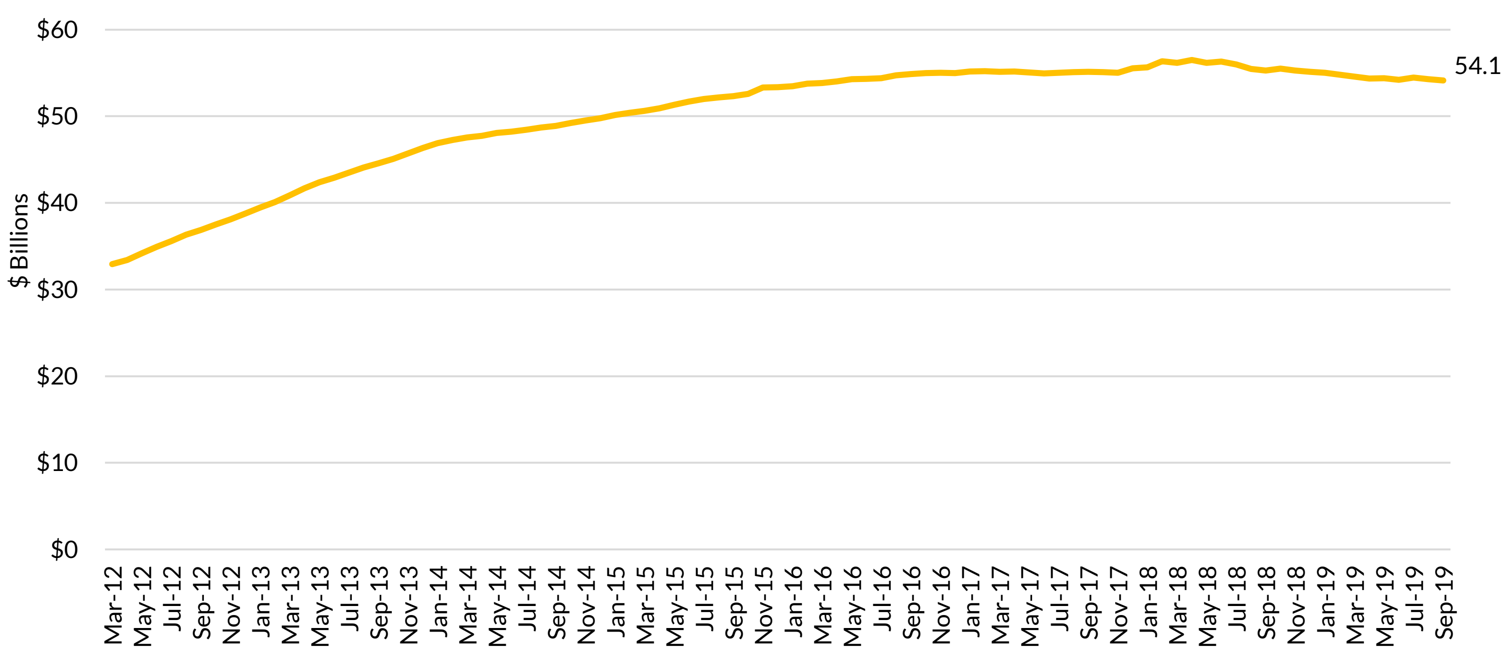
Ginnie Mae reverse mortgage issuance has been volatile in recent months; after increasing in July, volume has fallen consecutively in August and September 2019 to $0.61 billion. Issuance has been declining since early 2018 largely due to the implementation of the new, lower principal limit factors. In September 2019, outstanding reverse mortgage securities totaled $54.1 billion, lower compared to recent past, reflecting a lower volume of new issuances.

HMBS Issuance Volume



Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of September 2019.*

HMBS Outstanding

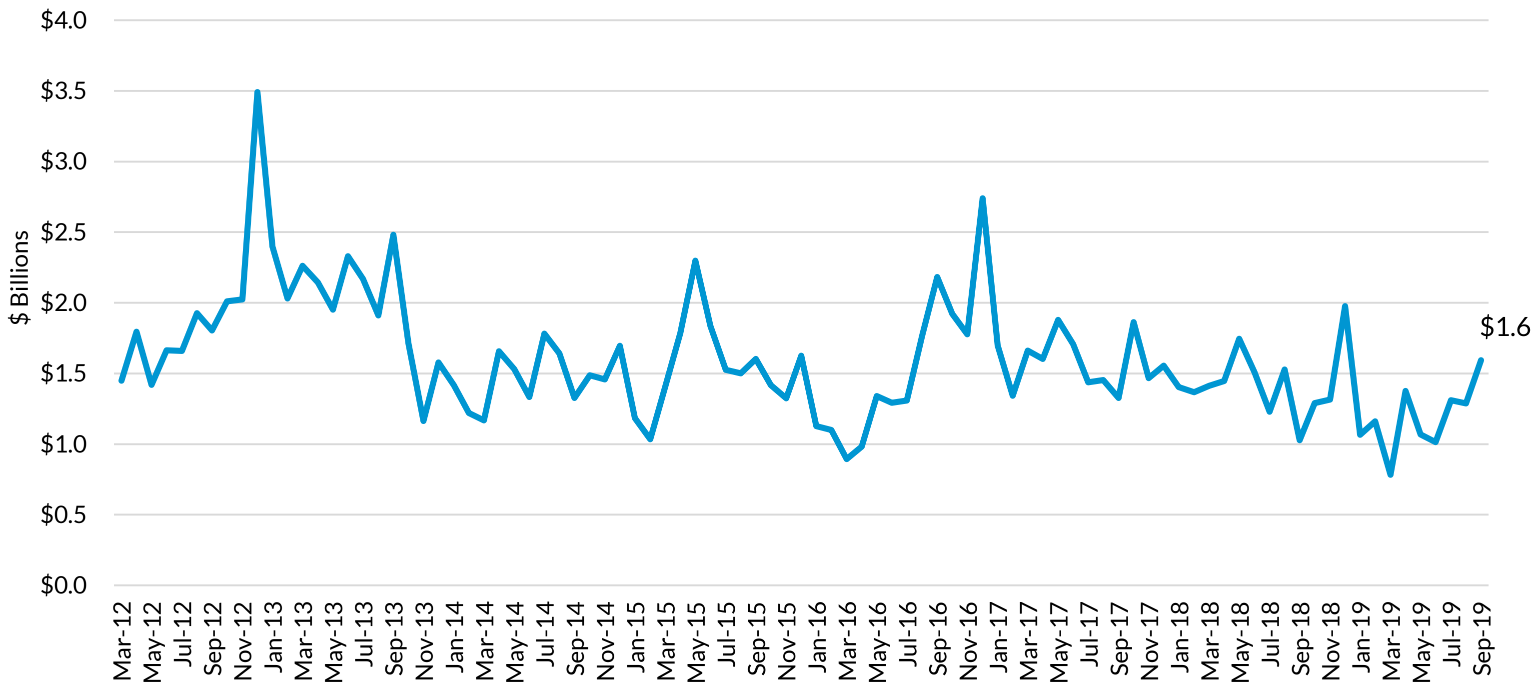


Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of September 2019.*

Other Ginnie Mae Programs Multifamily Market

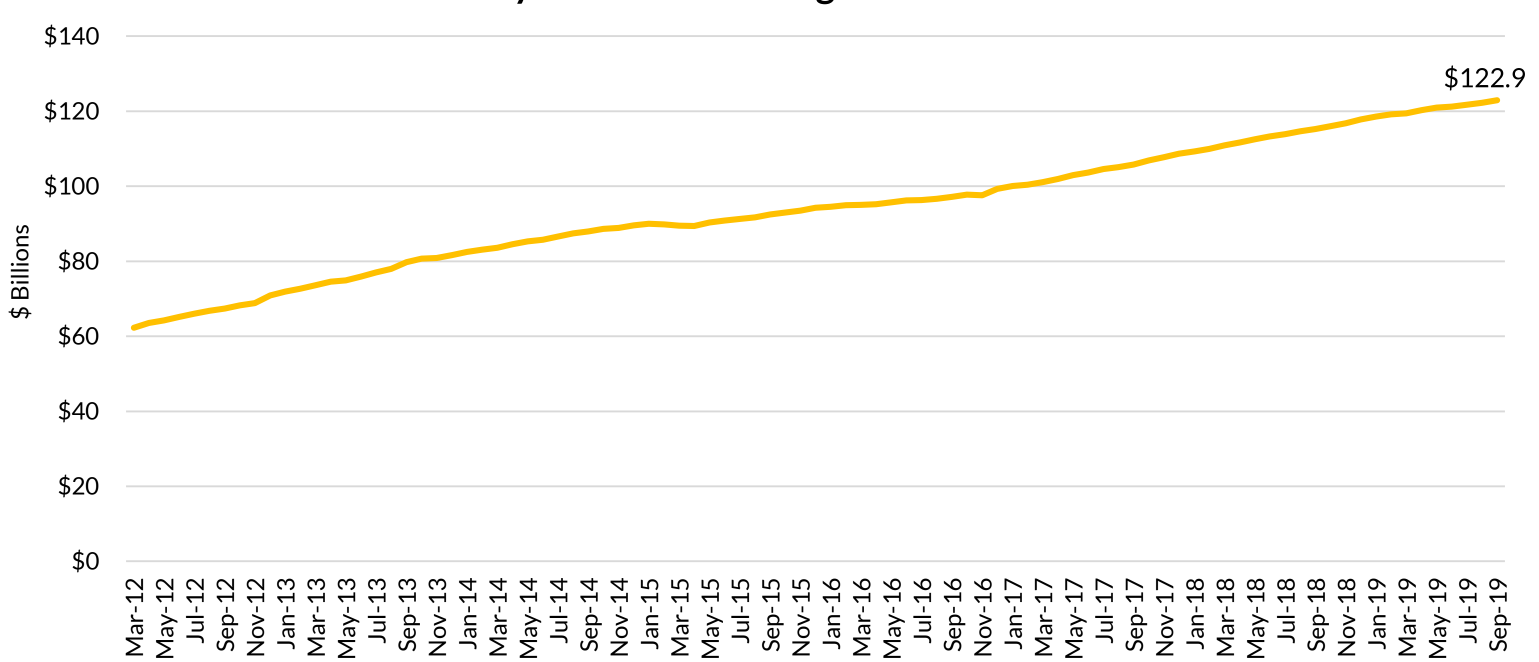
Ginnie Mae multifamily issuance volume in September 2019 totaled $1.6 billion, an increase from the past month but below average issuance levels over the past 18 months. Outstanding multifamily securities totaled $122.9 billion in September.

Ginnie Mae Multifamily MBS Issuance



Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of September 2019.*

Ginnie Mae Multifamily MBS Outstanding

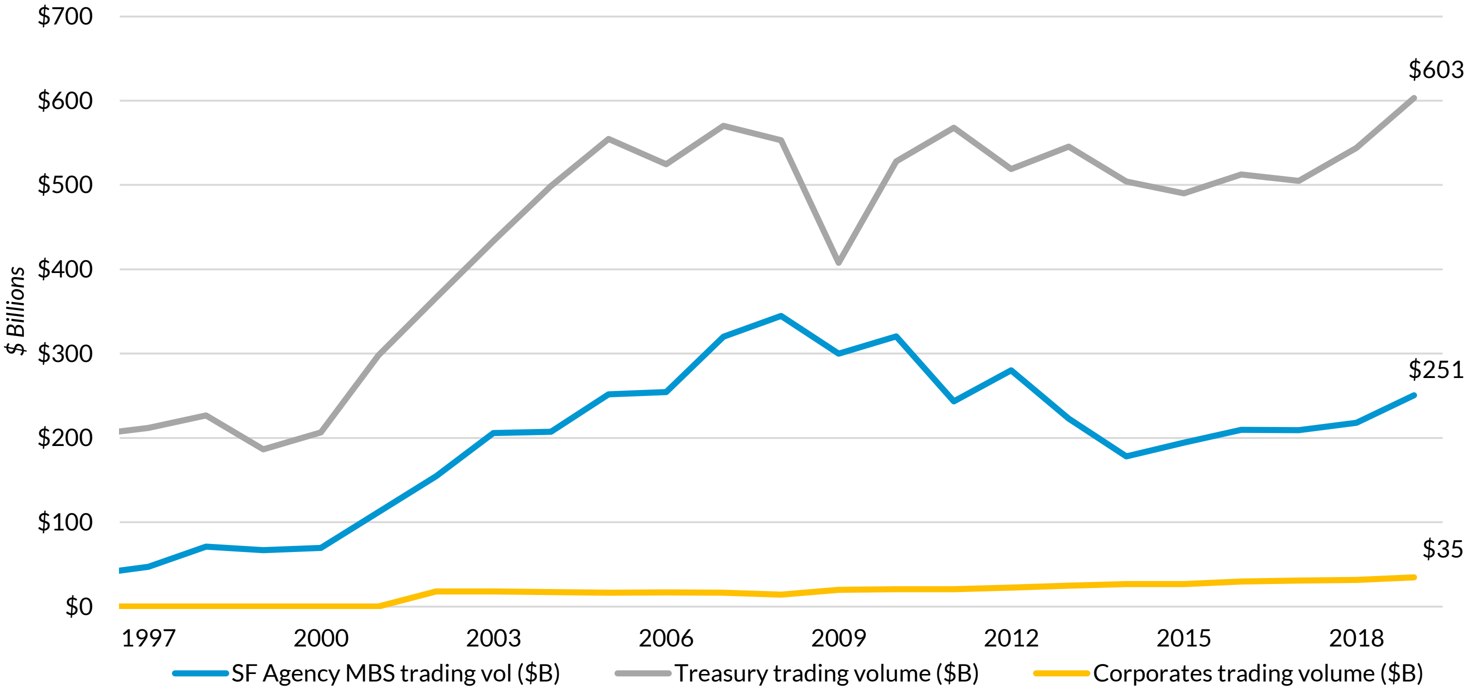


Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of September 2019.*

Market Conditions

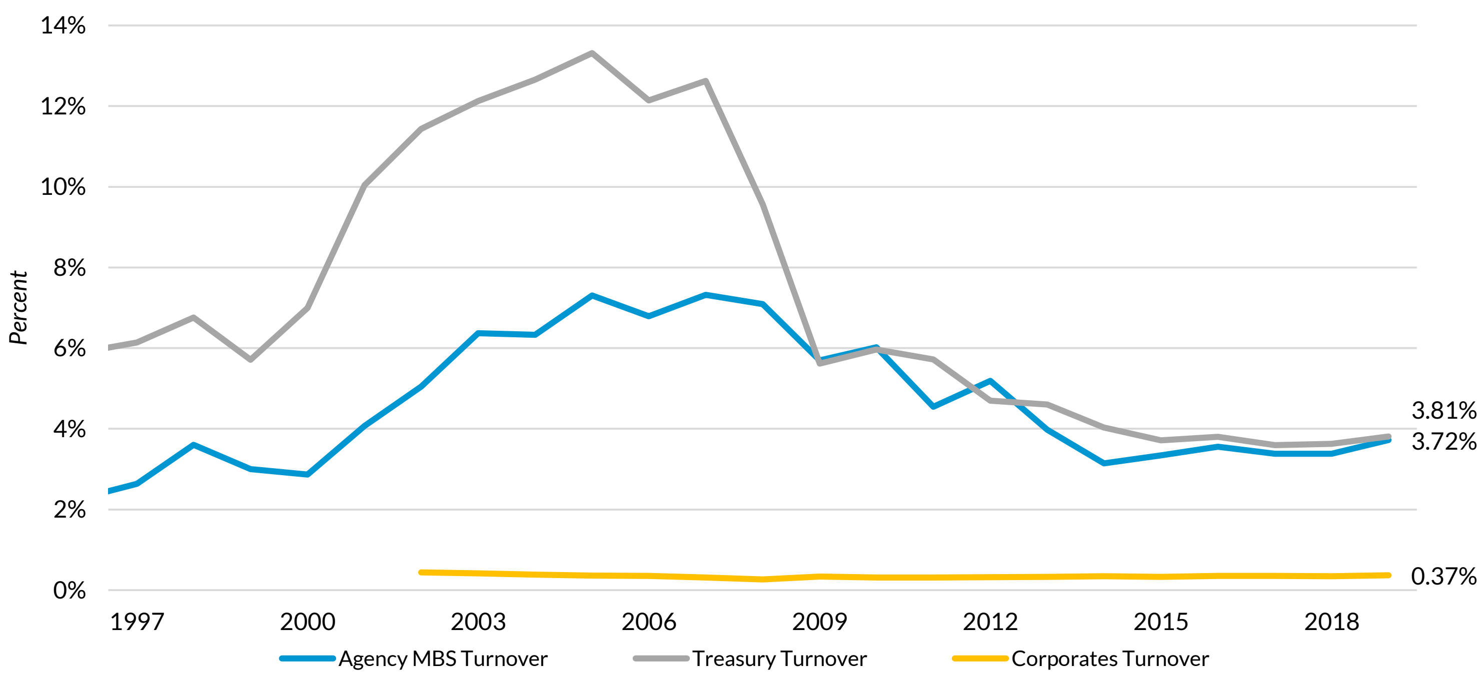
Agency MBS trading volume was $251 billion/day on average 2019 YTD, more robust than in the 2014-2018 period, but well below the pre-crisis peak of $345 billion in 2008. In contrast, average daily trading volume for Treasuries now exceeds the pre-crisis peak. Agency MBS turnover in 2019 YTD also has been slightly higher than the 2014-2018 period; in the first nine months of 2019, average daily MBS turnover was 3.72 percent, above the 2018 average of 3.39 percent. 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 October 2019.*

Average Daily Turnover by Sector

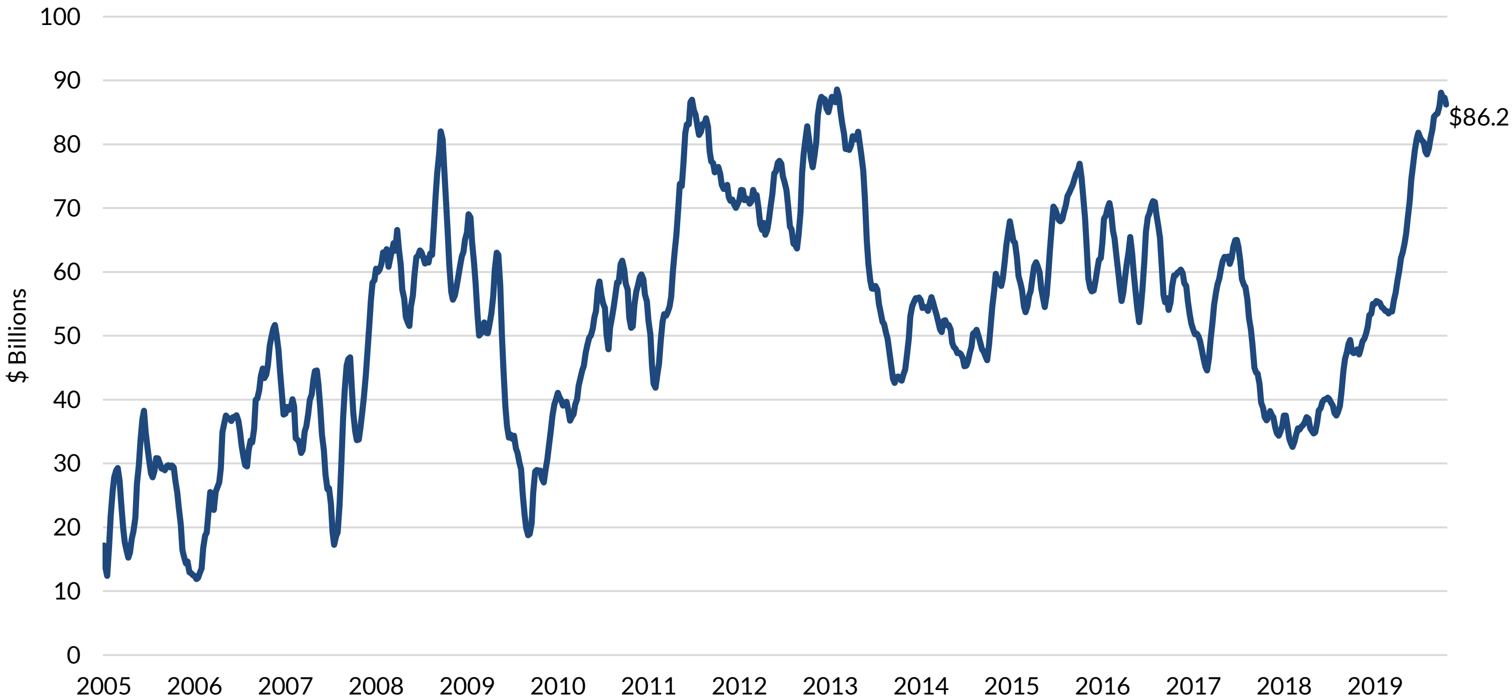


Sources: *SIFMA and Urban Institute.* ***Note:*** *Data as of October 2019.*

Market Conditions

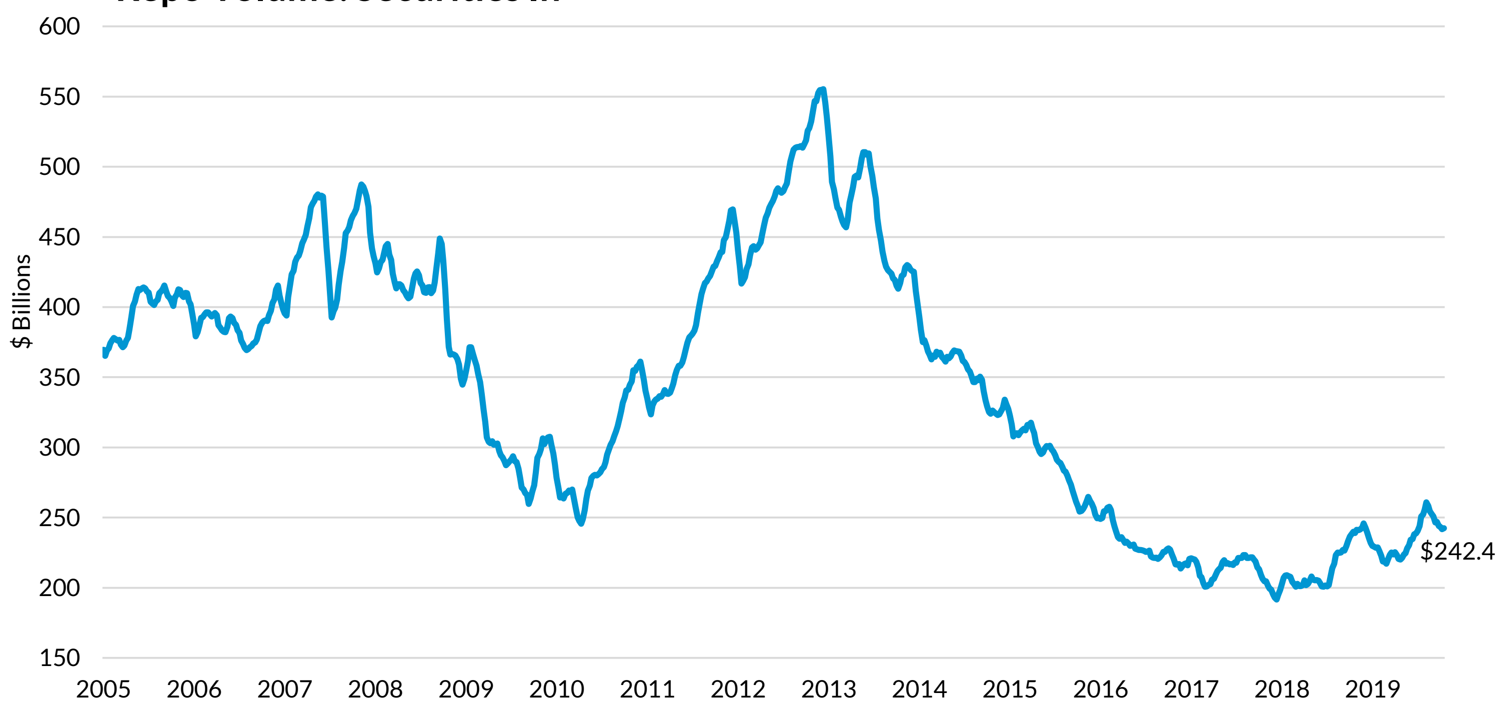
Dealer net positions are near their post-crisis highs. By contrast, dealer gross positions have fallen dramatically. The volume of repurchase activity is up from the near 13-year low in 2017. The large decline through time reflects banks cutting back on lower margin businesses.

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 October 2019.*

Repo Volume: Securities In

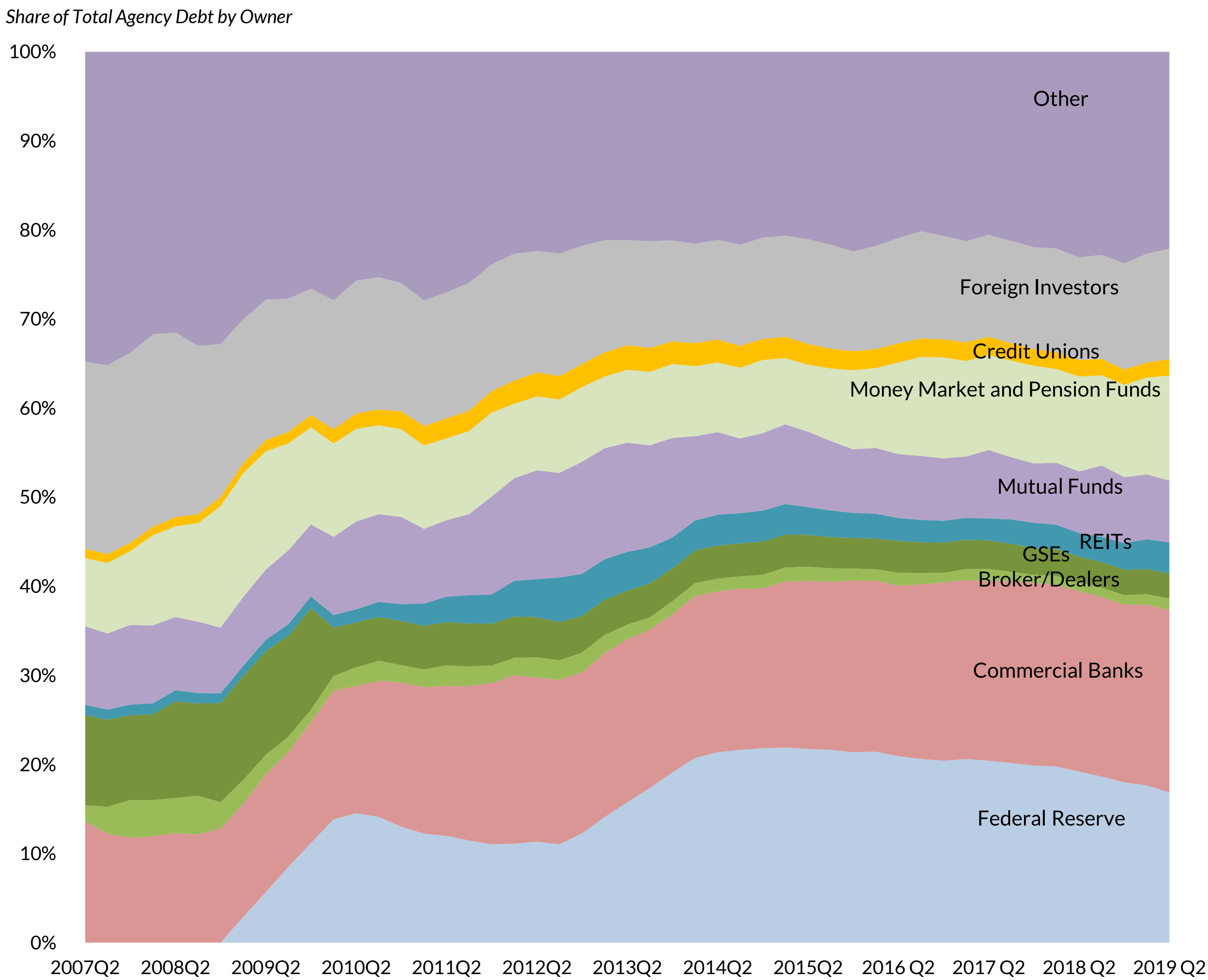


Sources: *Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute.* **Note:** *Data as of October 2019.*

MBS Ownership

The largest holders of agency debt (Agency MBS + Agency notes and bonds) include the Federal Reserve (17 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?

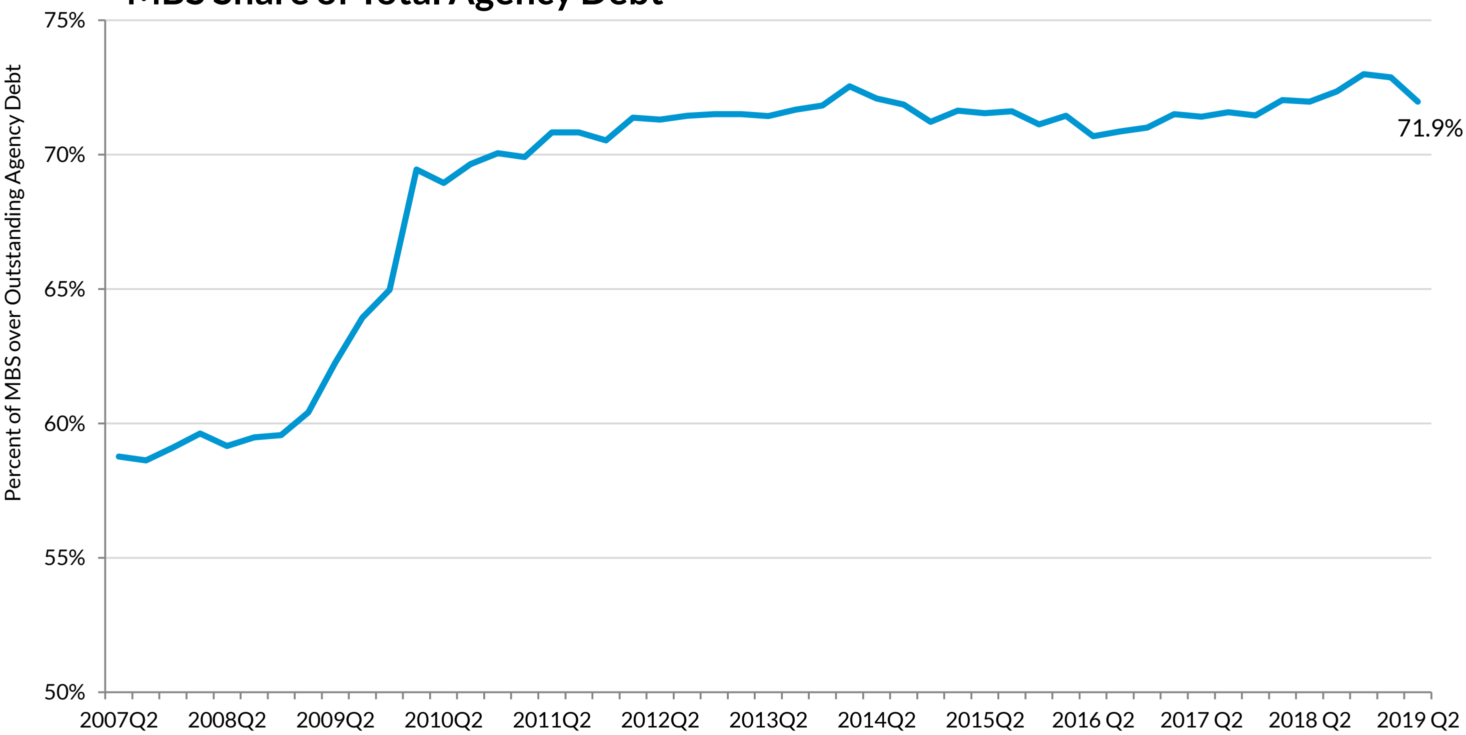


Sources: *Federal Reserve Flow of Funds and Urban Institute.* ***Note:*** *The "other" category includes primarily life insurance companies, state and local govts, households, and nonprofits. Data as of Q2 2019.*

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 Q2 2019, the MBS share of total agency debt stood at 71.9 percent. Commercial banks are now the largest holders of Agency MBS. Out of their $2.1 trillion in holdings as of the end of October 2019, $1.5 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 Q2 2019.*

	Commercial Bank Holdings ($Billions)								Week Ending			
	Sep-18	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct 2	Oct 9	Oct 16	Oct 23
Largest 25 Domestic Banks	1,319.2	1,412.8	1,431.0	1,434.2	1,452.0	1,455.0	1,465.0	1,491.5	1,502.9	1,501.3	1,504.7	1,506.5
Small Domestic Banks	485.2	495.7	501.0	502.4	506.6	512.1	513.0	518.1	521.2	522.1	521.9	524.9
Foreign Related Banks	22.9	26.5	26.6	29.0	27.7	28.3	33.1	35.3	38.2	38.0	37.3	37.9
Total, Seasonally Adjusted	1,827.3	1,935.0	1,958.6	1,965.6	1,986.3	1,995.4	2,011.1	2,044.9	2,062.3	2,061.4	2,063.9	2,069.3

***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 October 2019.*

MBS Ownership

Out of the $1.9 trillion in MBS holdings at banks and thrifts as of Q2 2019, $1.4 trillion was agency pass-throughs: $1.0 trillion in GSE pass-throughs and $408 billion in Ginnie Mae pass-throughs. Another $422 billion was agency CMOs, while non-agency holdings totaled $40 billion. MBS holdings at banks and thrifts increased for the third quarter in a row in Q2 2019. This increase was broad based, coming from Ginnie Mae and GSE pass-throughs, agency CMOs as well as non-agency holdings.

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
1Q16	$1,660.58	$1,133.29	$833.25	$300.04	$448.63	$10.27	$68.39
2Q 16	$1,684.33	$1,169.67	$867.64	$302.03	$440.25	$9.11	$65.29
3Q16	$1,732.36	$1,227.52	$924.81	$302.71	$435.77	$7.90	$61.17
4Q16	$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

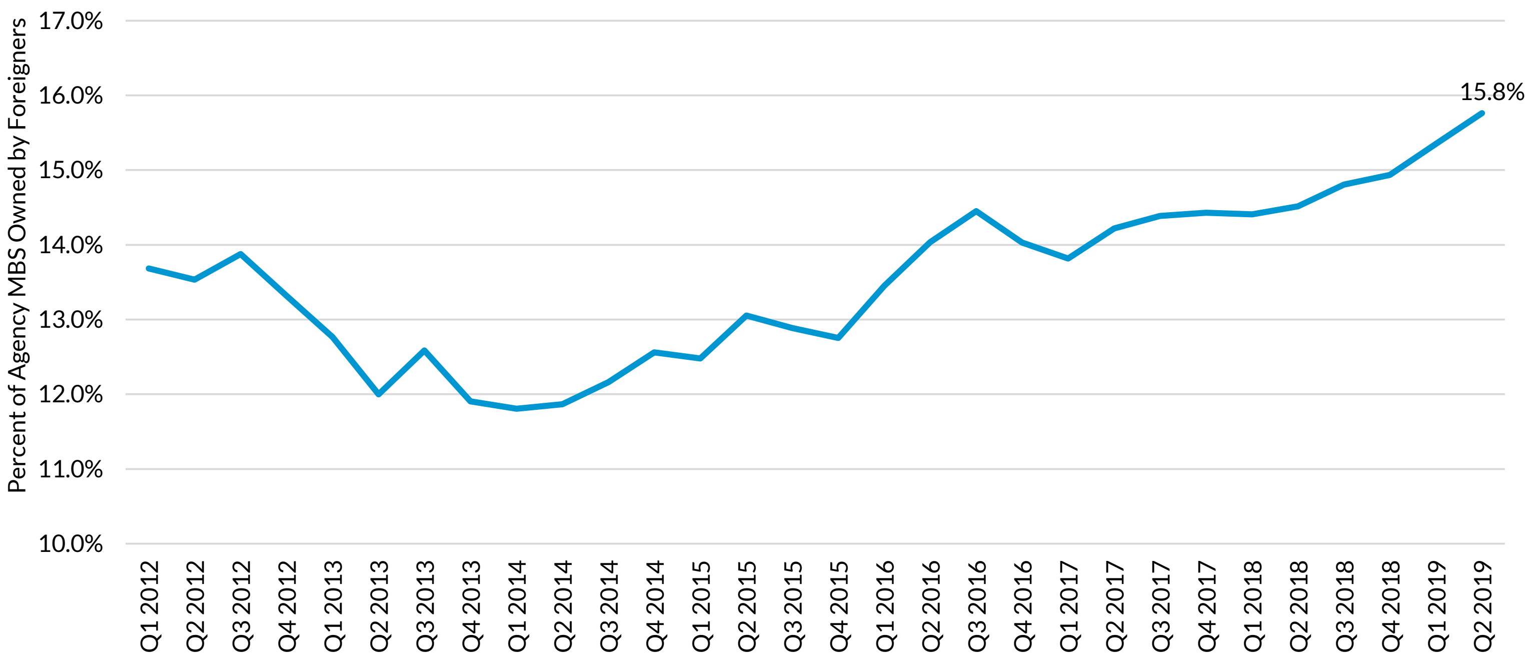
	Top Bank & Thrift Residential MBS Investors	Total ($MM)	GSE PT ($MM)	GNMA PT ($MM)	Agency REMIC ($MM)	Non-Agency ($MM)	Market Share
1	Bank of America Corporation	$321,350	$189,813	$120,254	$11,182	$101	16.8%
2	Wells Fargo & Company	$242,666	$170,698	$67,268	$3,437	$1,263	12.7%
3	JP Morgan Chase & Co.	$122,486	$77,351	$32,145	$250	$12,740	6.4%
4	U S. Bancorp.	$86,589	$40,367	$23,172	$23,050	$1	4.5%
5	Charles Schwab Bank	$85,873	$50,421	$16,665	$18,787	$0	4.5%
6	Capital One Financial Corporation	$66,636	$53,951	$3,427	$7,099	$2,159	3.5%
7	Citigroup Inc.	$66,505	$28,528	$14,430	$22,657	$890	3.5%
8	Bank of New York Mellon Corp.	$54,168	$31,612	$3,769	$17,473	$1,314	2.8%
9	PNC Bank, National Association	$51,679	$43,569	$3,437	$2,467	$2,208	2.7%
10	Branch Banking and Trust Company	$41,845	$19,522	$12,602	$7,084	$2,637	2.2%
11	State Street Bank and Trust Company	$39,065	$13,582	$5,882	$19,219	$382	2.1%
12	E*TRADE Bank	$26,428	$14,621	$7,586	$4,221	$0	1.4%
13	HSBC Banks USA, National Association	$26,110	$6,683	$9,981	$9,444	$2	1.4%
14	KeyBank National Association	$23,235	$11,550	$11,224	$462	$0	1.2%
15	SunTrust Bank	$22,534	$1,683	$836	$20,015	$0	1.2%
16	Morgan Stanley	$22,399	$13,594	$2,537	$3,462	$2,806	1.2%
17	Ally Bank	$21,975	$10,778	$5,785	$4,517	$895	1.2%
18	The Northern Trust Company	$21,969	$9,897	$3,365	$8,707	$0	1.2%
19	MUFG Union Bank	$17,558	$11,200	$3,843	$2,513	$2	0.9%
20	Regions Bank	$16,871	$5,293	$3,517	$7,140	$921	0.8%
	Total Top 20	**$1,377,942**	**$804,712**	**$351,724**	**$193,185**	**$28,321**	**72.2%**

Sources: *Inside Mortgage Finance and Urban Institute.* ***Note:*** *Data as of Q2 2019.*

MBS Ownership

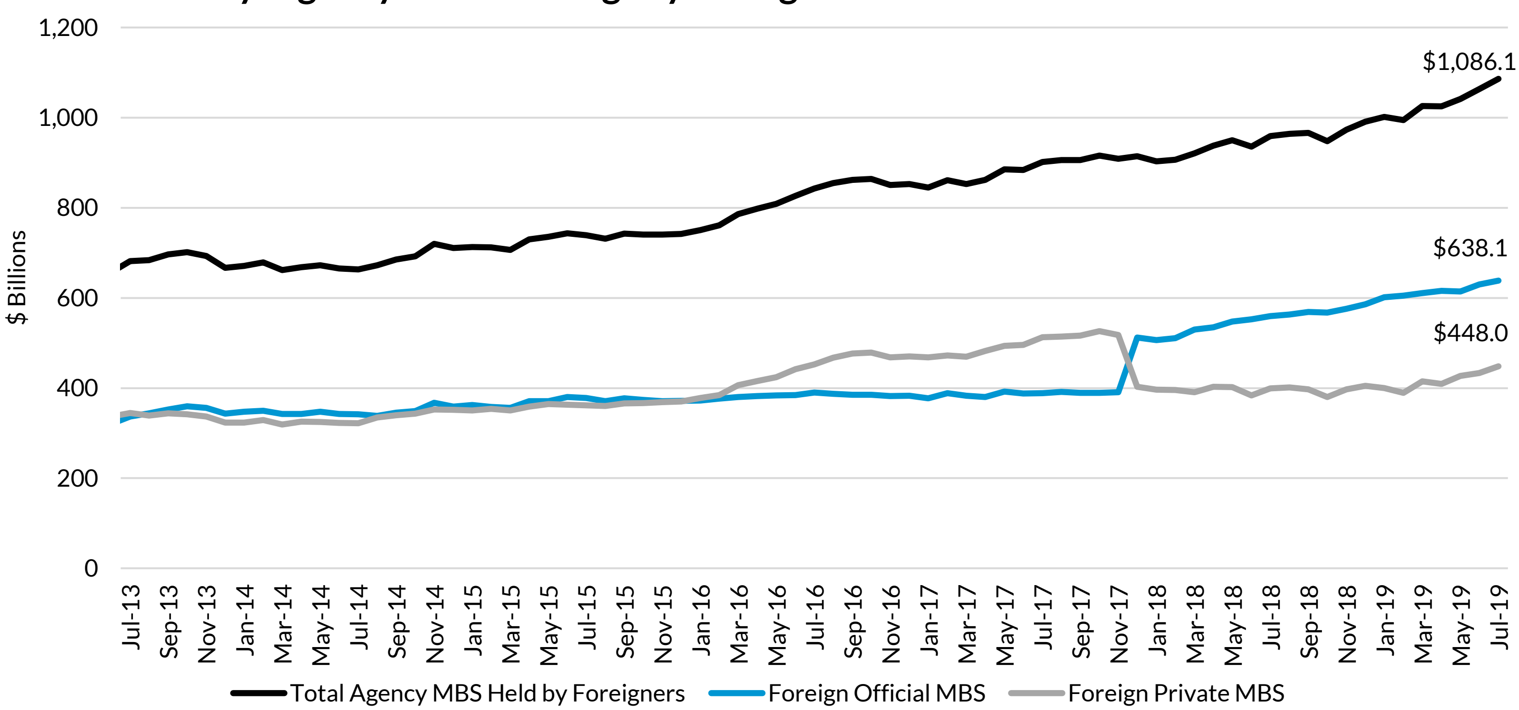
Foreign investors held 15.8 percent of agency MBS in Q2 2019, up from a low of 11.8 percent in Q1 2014. For the month of July 2019, this represents $1.09 trillion in Agency MBS, $448.0 billion held by foreign private institutions and $638.1 billion held by foreign institutions.

Foreign Share of Agency MBS



Sources*: SIFMA and Treasury International Capital (TIC).* ***Note****: Data as of Q2 2019.*

Monthly Agency MBS Holdings by Foreigners



Sources*: Treasury International Capital (TIC) and Urban Institute.* ***Note****: Data as of July 2019. 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 July 2019, we estimate China has increased their agency MBS holdings by $54.8 billion, Japan has increased their holdings by $49.3 billion and Taiwan has increased their holdings by $13.4 billion.

Agency MBS+ Agency Debt

	Level of Holdings ($Millions)*						Change in Holdings ($Millions)*				
Country	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Jul-19	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Jul-19
Japan	257,547	254,511	271,999	284,322	296,445	306,913	-3,036	17,488	12,323	12,123	10,468
Taiwan	250,009	250,639	261,262	265,992	265,520	263,462	630	10,623	4,730	-472	-2,058
China	180,635	190,203	188,921	208,540	227,312	235,487	9,568	-1,282	19,619	18,772	8,175
Ireland	46,817	48,220	48,045	46,623	44,979	43,940	1,403	-175	-1,422	-1,644	-1,039
Luxembourg	36,372	38,800	50,869	44,561	45,144	45,039	2,428	12,069	-6,308	583	-105
South Korea	44,039	43,944	44,794	42,604	42,669	42,597	-95	850	-2,190	65	-72
Bermuda	27,866	27,610	28,651	28,535	29,377	29,254	-256	1,041	-116	842	-123
Cayman Islands	31,017	31,638	31,405	30,374	30,885	31,043	621	-233	-1,031	511	158
Malaysia	12,710	12,874	12,671	12,395	12,108	12,851	164	-203	-276	-287	743
Netherlands	11,995	12,229	9,601	9,400	13,548	13,180	234	-2,628	-201	4,148	-368
Rest of World	125,197	128,807	129,345	129,987	128,056	133,972	3,610	538	642	-1,931	5,916
Total	1,024,200	1,039,475	1,077,563	1,103,333	1,136,043	1,157,738	15,275	38,088	25,770	32,710	21,695

Agency MBS Only (Estimates)

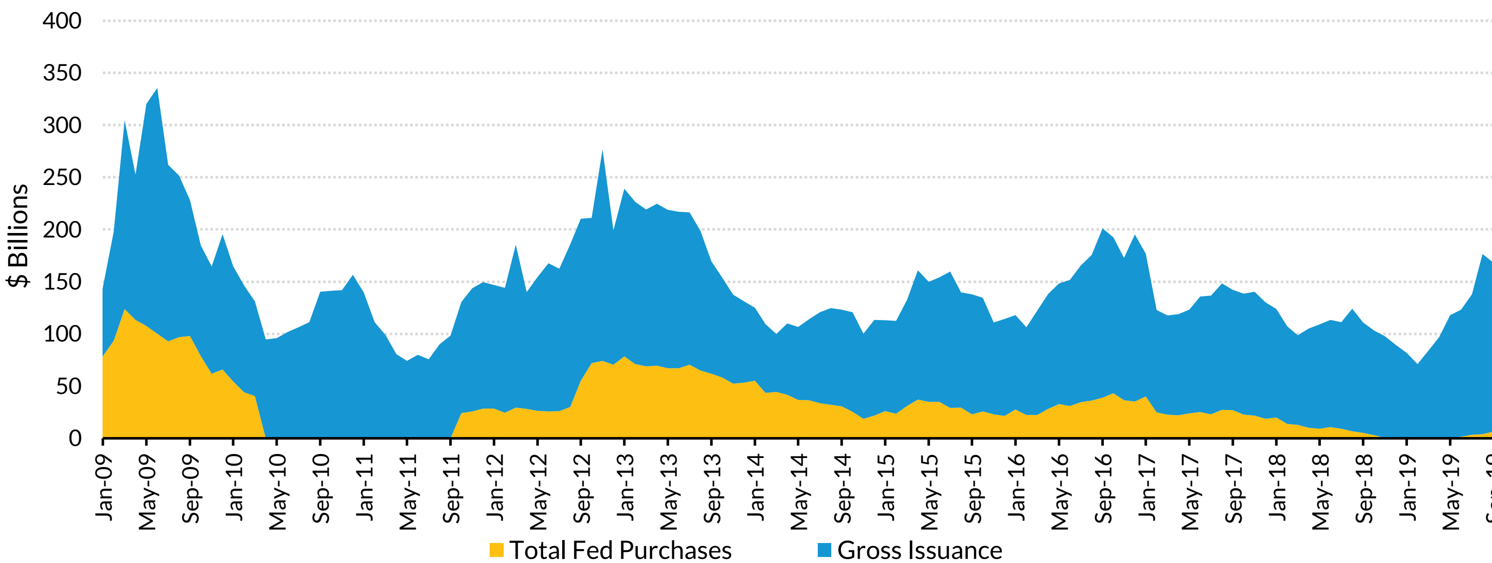
	Level of Holdings ($Millions)*						Change in Holdings ($Millions)*				
Country	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Jul-19	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Jul-19
Japan	253,972	250,851	268,119	280,394	292,762	303,284	-3,121	17,268	12,275	12,368	10,522
Taiwan	249,773	250,397	261,006	265,733	265,277	263,222	624	10,608	4,727	-456	-2,054
China	176,345	185,811	184,265	203,827	222,893	231,132	9,466	-1,546	19,562	19,066	8,239
Ireland	37,832	39,021	38,293	36,751	35,723	34,819	1,189	-729	-1,542	-1,028	-904
Luxembourg	34,012	36,384	48,307	41,968	42,713	42,643	2,372	11,924	-6,339	745	-70
South Korea	33,064	32,708	32,882	30,546	31,363	31,456	-356	174	-2,336	817	93
Bermuda	24,969	24,644	25,507	25,352	26,393	26,313	-325	863	-155	1,040	-79
Cayman Islands	24,384	24,847	24,206	23,086	24,052	24,309	463	-642	-1,119	965	258
Malaysia	12,319	12,474	12,247	11,965	11,705	12,454	155	-227	-281	-260	749
Netherlands	11,437	11,658	8,995	8,787	12,973	12,614	221	-2,662	-208	4,186	-360
Rest of World	95,510	98,414	97,123	97,370	97,473	103,835	2,904	-1,291	247	103	6,362
Total	953,612	967,209	1,000,948	1,025,779	1,063,325	1,086,080	13,597	33,739	24,831	37,546	22,755

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 July 2019.*

MBS Ownership

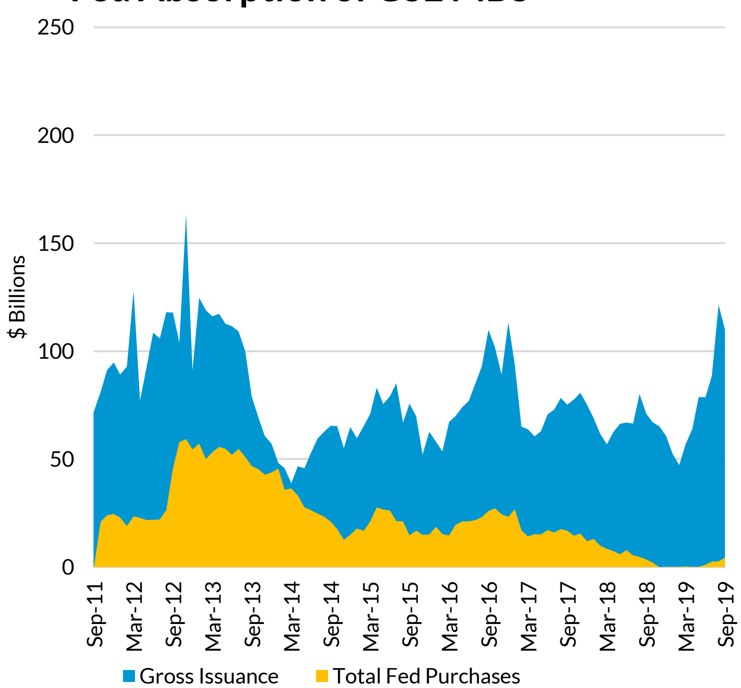
The Federal Reserve is actively winding down its mortgage portfolio; MBS purchases are very low. During the period October 2014-September 2017, the Fed ended its purchase program, but was reinvesting proceeds from mortgage and agency debt into the mortgage market, absorbing 20-30 percent of agency gross issuance. In October 2017, the Fed began to taper their mortgage holdings, initially letting securities run off at the rate of $4 billion per month in Q4, 2017; $8 billion per month in Q1, 2018; $12 billion per month in Q2; $16 billion per month in Q3; and $20 billion per month in Q4, 2018 and thereafter. With the Fed now at its maximum taper, Fed absorption of gross issuance was 3.82 percent in September.

Total Fed Absorption



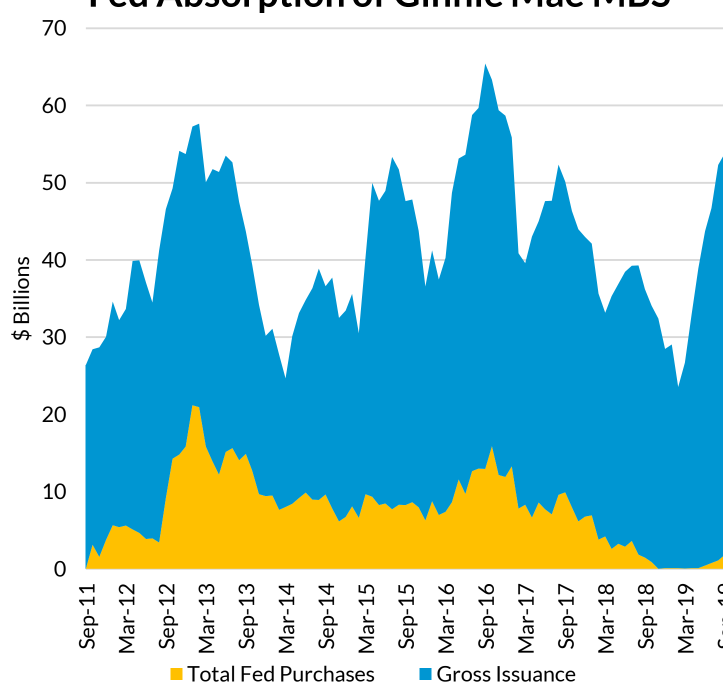
***Sources**: eMBS, Federal Reserve Bank of New York and Urban Institute. **Note:** Data as of September 2019.*

Fed Absorption of GSE MBS



***Sources**: eMBS, Federal Reserve Bank of New York and Urban Institute. **Note:** Data as of September 2019.*

Fed Absorption of Ginnie Mae MBS



***Sources**: eMBS, Federal Reserve Bank of New York and Urban Institute. **Note**: Data as of September 2019.*

Disclosures

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