

Global Markets Analysis Report

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



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

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HIGHLIGHTS

New Data on High-LTV Agency Lending Market

This month we are introducing two new pages providing more detail on Ginnie Mae's role in the high-LTV (LTV \geq 95) and lower FICO lending markets. Ginnie Mae executes its mission by providing its explicit full faith and credit US Government guarantee on the securitization of loans guaranteed by the FHA, VA and USDA. The Ginnie Mae guaranty makes these securities highly liquid and desirable to domestic and international investors. Their investments in turn provide the lending capital to sustain affordable homeownership.

Page 30 shows Ginnie Mae's share of agency high-LTV lending by DTI and FICO, comparing Q4 2018 to Q4 2016. These two snapshots in time show how Ginnie's market shares have evolved over time. The charts show market shares separately for three DTI buckets: DTI $<$ 35%, 35 \leq DTI $<$ 45, and DTI \geq 45.

New data on the subsequent page (page 31) provides additional insight on the high-LTV lending market by comparing Ginnie Mae to the GSEs. Overall Ginnie Mae still has the commanding share of the high-LTV lending market, with 70.5 percent of its Q4 2018 issuances with LTVs above 95%, compared for 21.4 percent for GSE issuances. The GSEs have increased the high-LTV share of their issuances from 11.7 percent in Q4 2016, while Ginnie Mae has seen a slight decline from 72.5 percent over the same period.

The bottom table on the same page shows that the share of high-DTI (\geq 45 percent) lending has increased over the two-year period across all FICO buckets – in total from 24.6% in Q4 2016 to 35 percent in Q4 2018. This is a direct result of higher interest rates and higher house prices, both of which increase the monthly mortgage payment and the DTI ratio. Moving forward we will update these pages on a quarterly basis.

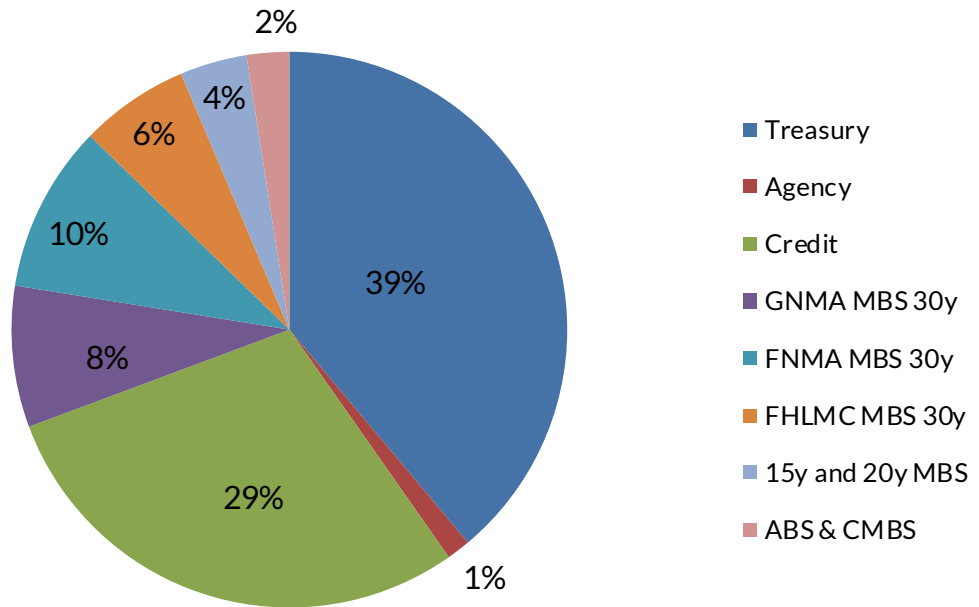
Highlights this month:

- Year-over-year home price appreciation slowed to 5.1% this month, the lowest level since mid-2015 (page 11).
- Agency gross issuance totaled \$1.195 trillion in 2018, the lowest level since 2015 (page 17).
- Median DTI for Ginnie Mae issuances reached a new peak of 43.4% in December 2018 (page 29), led by increase in median non-bank DTI (page 38).
- A new analysis of the credit box shows that Ginnie Mae captures most low-FICO lending, and compared the market share of high-LTV lending over time (pages 30-31).

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

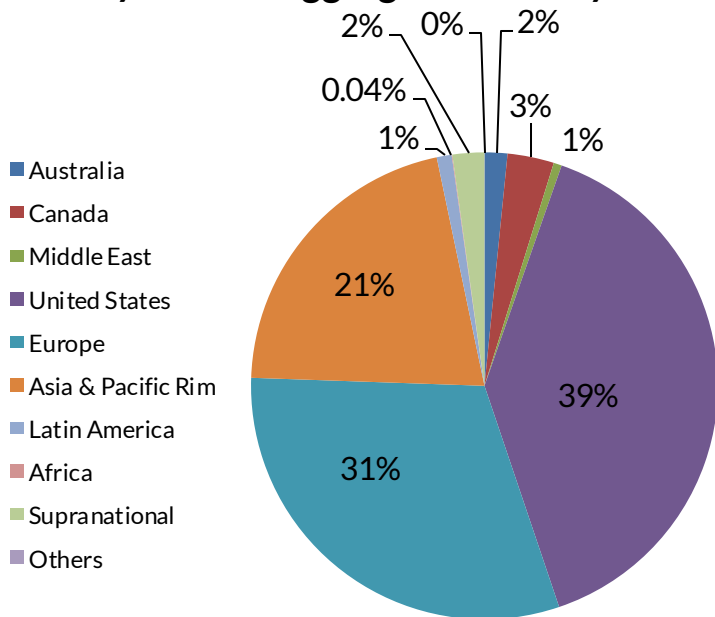
US MBS comprise 28 percent of the Barclays US Aggregate Index - less than either the US Treasury share (39%) or the US Credit share (29%). Fannie Mae 30-year MBS comprises the largest percent of US MBS (10%), while Ginnie Mae 30-year MBS and Freddie Mac 30-year MBS comprise 8 percent and 6 percent of the market, respectively. Mortgages with terms of 15 and 20 years comprise the remaining balance (4%) of the US MBS share. US securities are the single largest contributor to the Barclays Global Aggregate, accounting for 39 percent of the global total. US MBS comprises 12 percent of the global aggregate.

Barclays US Aggregate Index



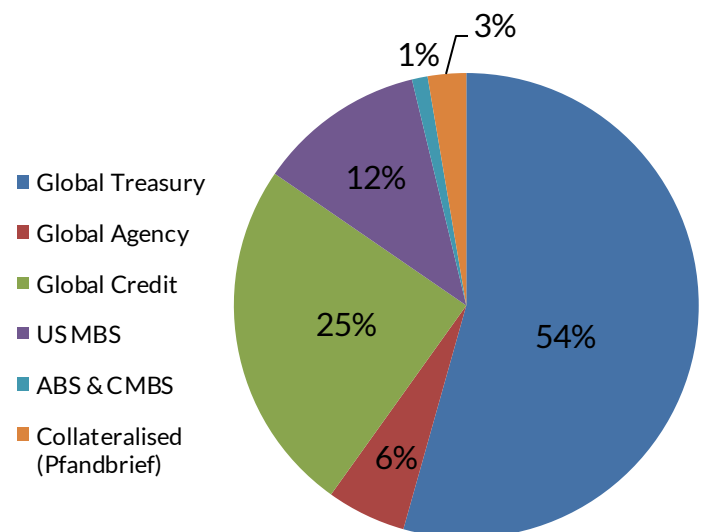
Sources: Bloomberg and State Street Global Advisors. Note: Data as of December 2018.

Barclays Global Aggregate Index by Country



Sources: Bloomberg and State Street Global Advisors. Note: Data as of December 2018.

Barclays Global Aggregate Index by Sector

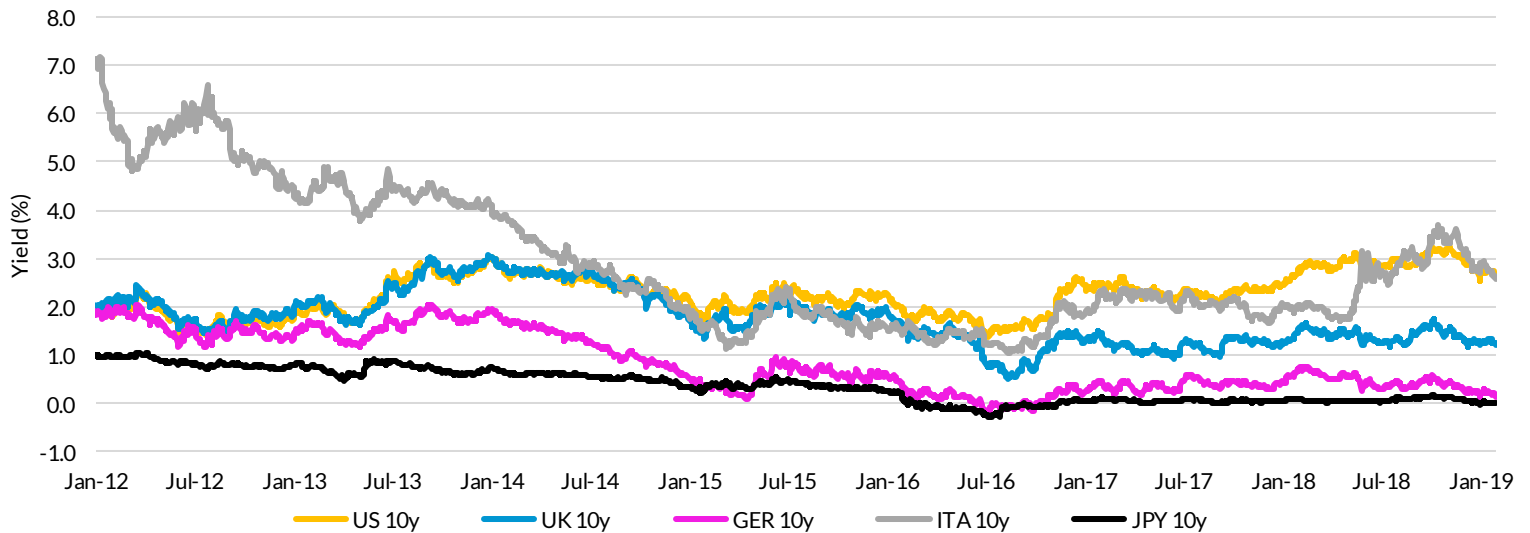


Sources: Bloomberg and State Street Global Advisors. Note: Data as of December 2018.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

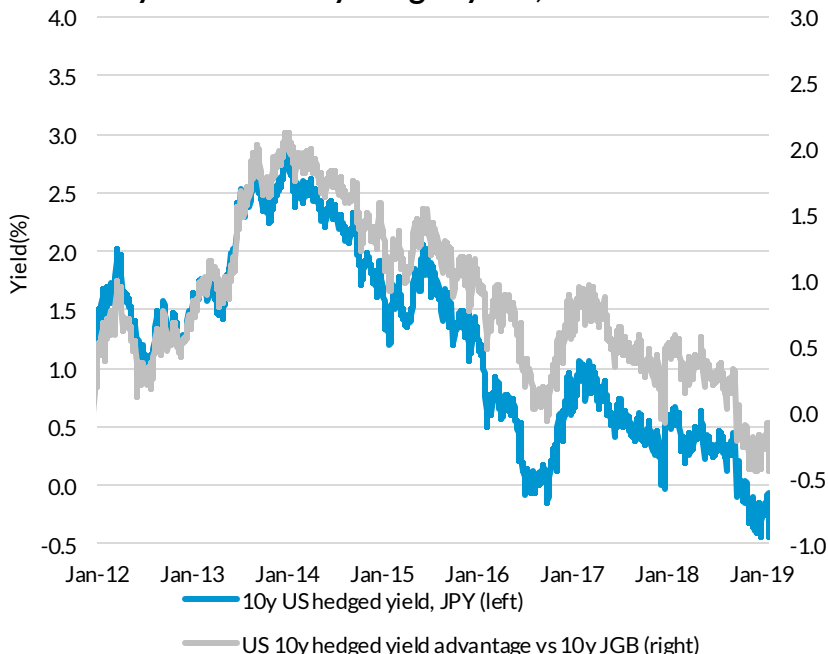
US 10-year Treasury yields have generally been the highest in the developed world over the past few years, but since August 2018, have been neck-in-neck with Italy. In January 2019, yield on the US 10-year note fell to 2.63%, slightly above the 2.59% for the Italian 10-year note, while 10-year government bond yields in UK, Germany, and Japan fell to 1.22%, 0.15%, and 0.01% respectively. Since Q3 2017, due to a large increase in the cost of currency hedging, US 10-year Treasury yields hedged into foreign currency dropped sharply. Consequently, the hedged yield differential between the 10-year Treasury and foreign 10-year government bonds, specifically JGBs and Bunds, now stand at -39 bps and -66 bps, respectively.

Global 10-year Treasury Yields



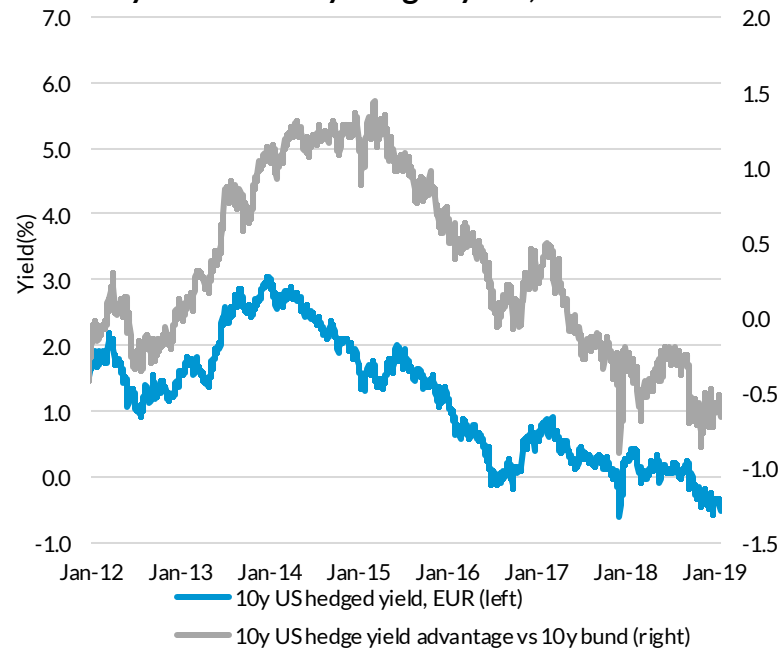
Sources: Bloomberg and State Street Global Advisors. Note: Data as of January 2019.

10yr US Treasury hedged yield, JPY



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

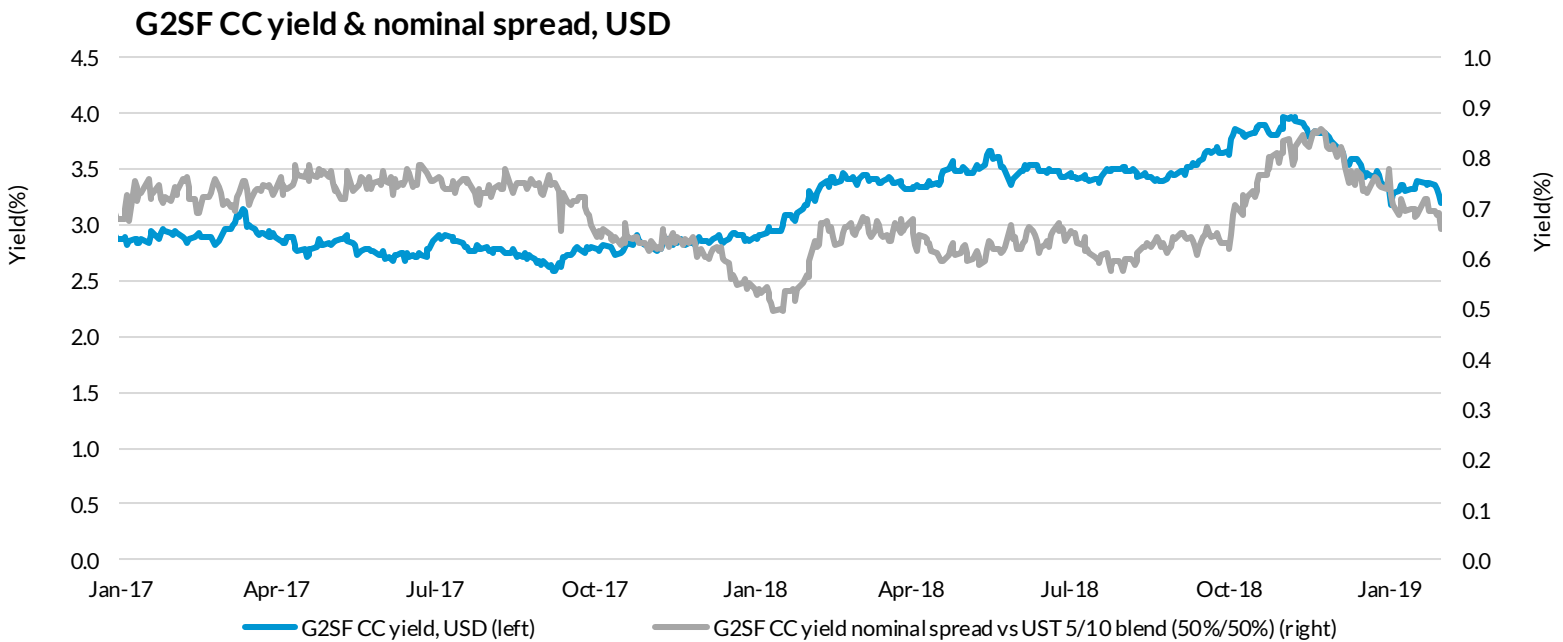
10yr US Treasury hedged yield, EUR



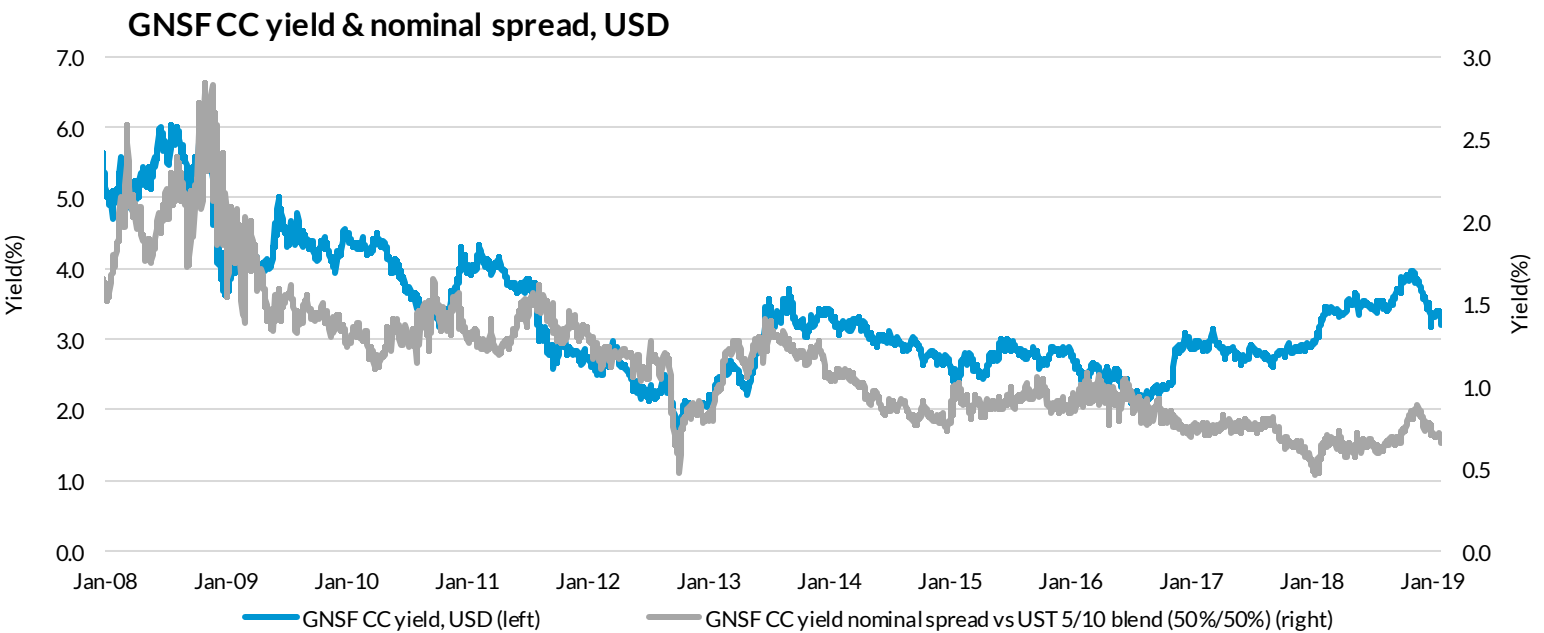
Sources: Bloomberg and State Street Global Advisors. Note: Data as of January 2019.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

The nominal yield on both the current coupon GNMA II and GNMA I securities decreased in January 2018. Current coupon Ginnie Mae securities outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 66 and 65 bps on G2SF and GNSF, respectively, an 8-9 point tightening since Dec end, and 17 to 20 point tightening since Nov end. Prior to November, spreads had widened for 2 to 3 months.



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

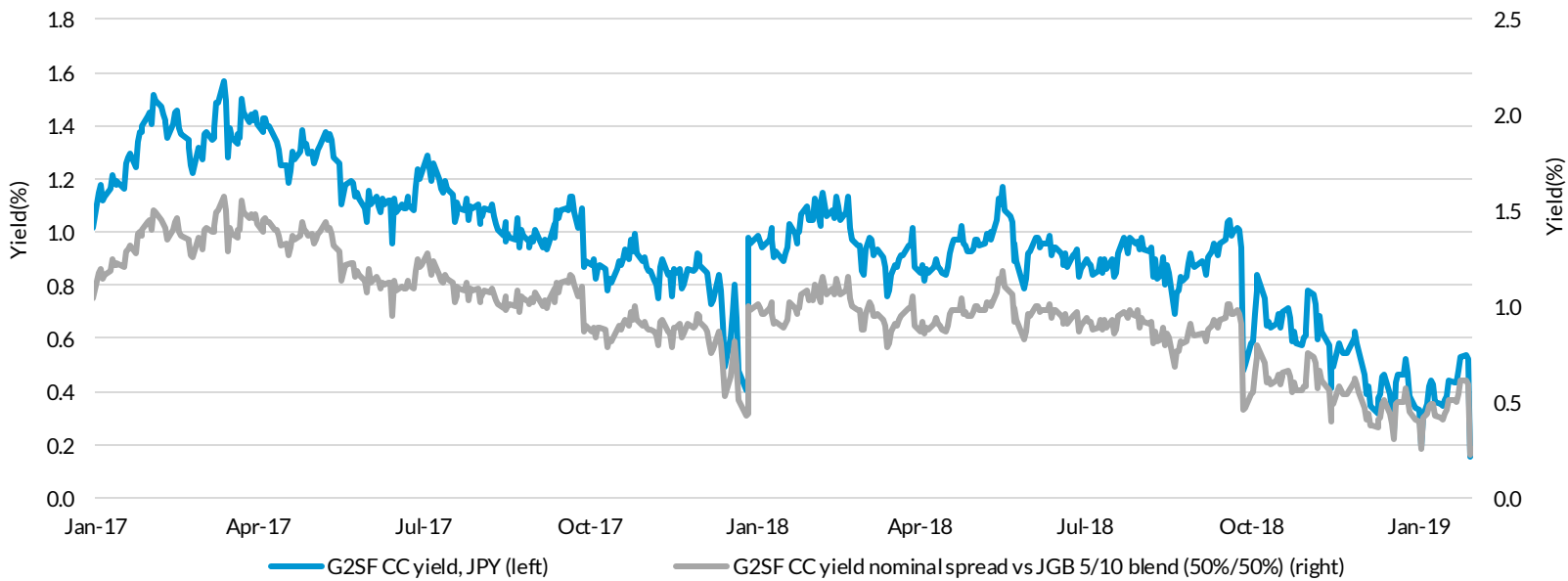


Sources: Bloomberg and State Street Global Advisors. Note: Data as of January 2019.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

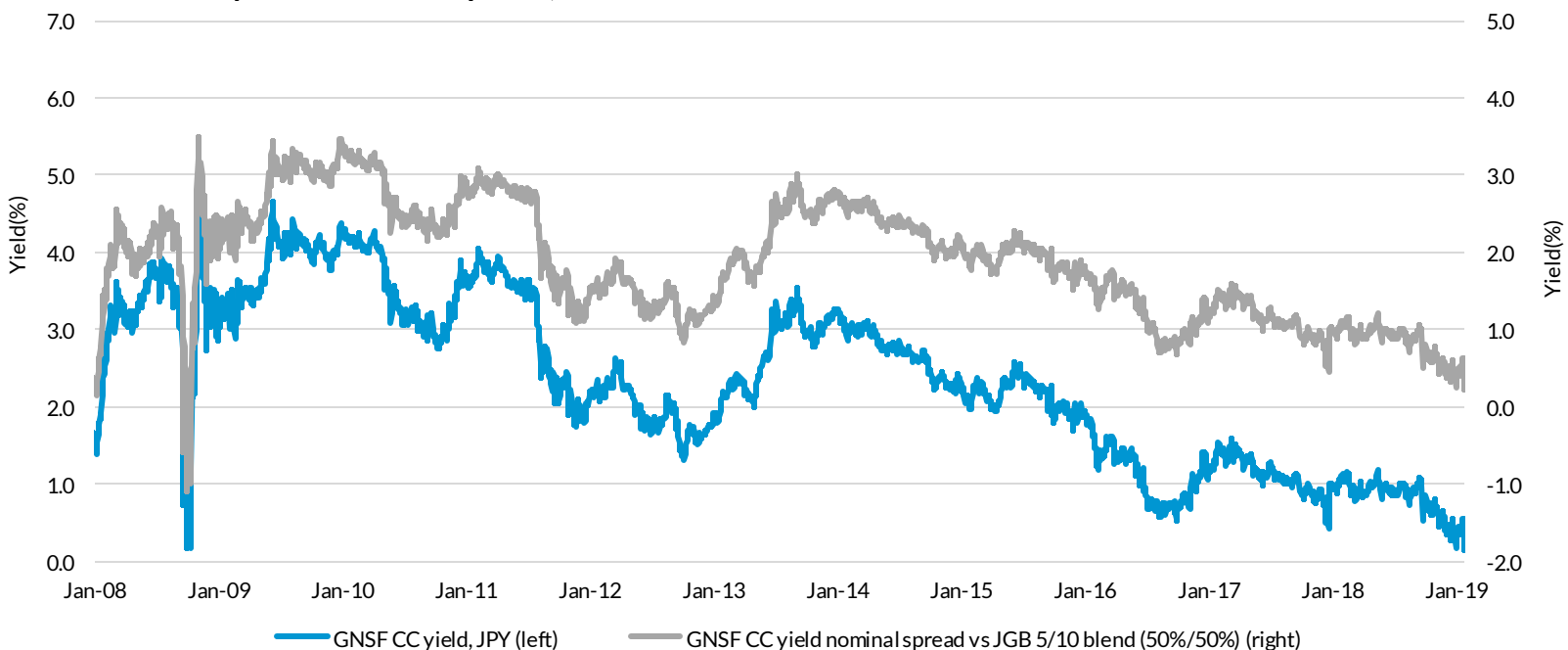
If Ginnie Mae securities are hedged into foreign currencies, they look attractive on a yield basis versus many sovereign alternatives. The figures show that current coupon G2SF and GNSF hedged into Japanese yen outyield the JGB 5/10 blend by 25 bps at the end of January, less than the 41 bps at the end of December 2018, reflecting the spread tightening in the mortgage market.

G2SF CC yield & nominal spread, JPY



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

GNSF CC yield & nominal spread, JPY

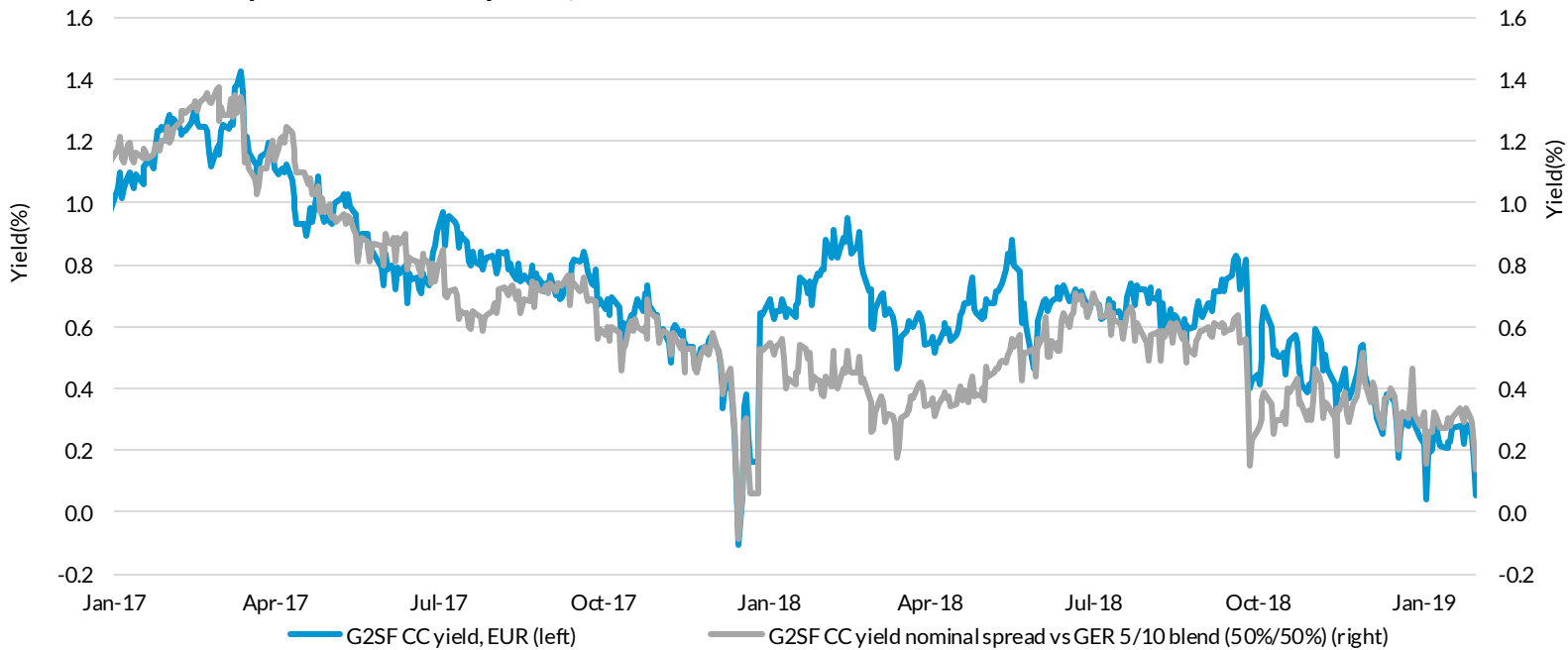


Sources: Bloomberg and State Street Global Advisors. Note: Data as of January 2019.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

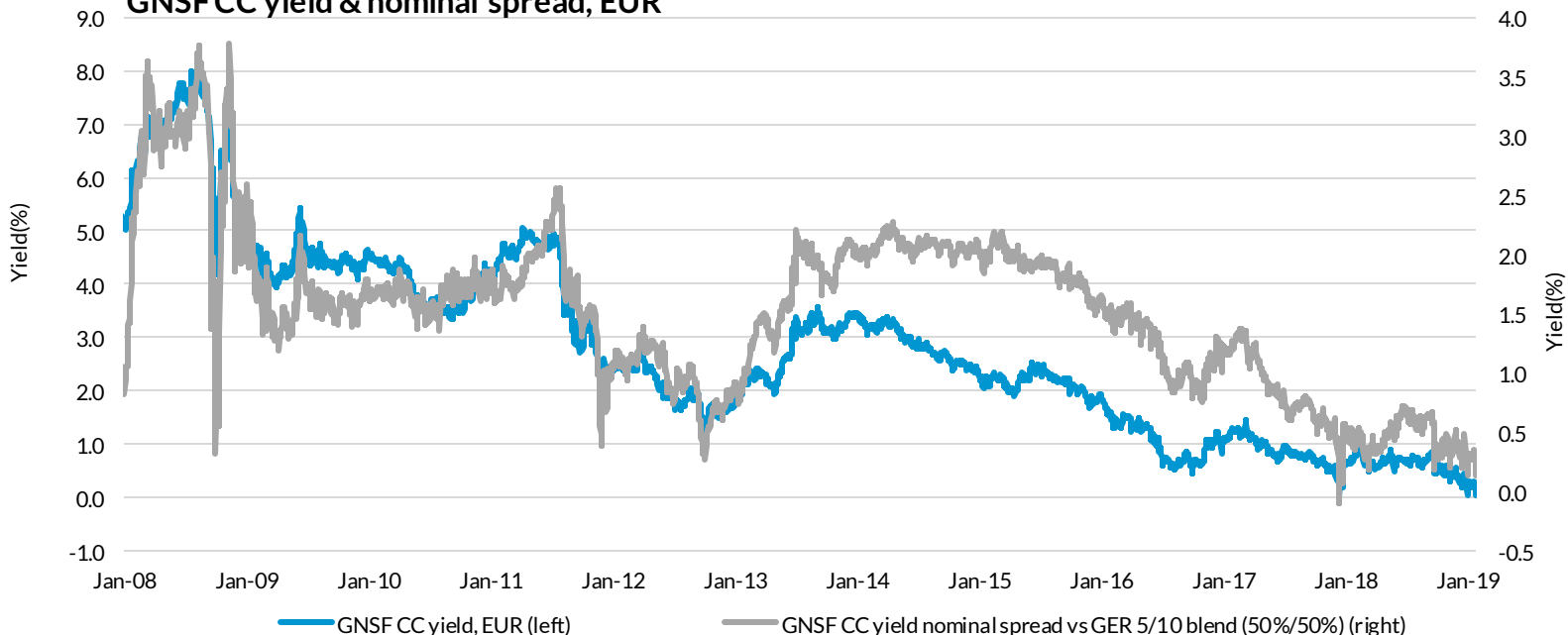
If Ginnie Mae securities are hedged into foreign currencies, they look attractive on a yield basis versus sovereign alternatives. The figures show that, current coupon G2SF and GNSF hedged into euros outyield the average of the German 5/10 blend by 13 bps at the end of January, less than the 28 bps at the end of December 2018, reflecting the spread tightening in the mortgage market.

G2SF CC yield & nominal spread, EUR



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

GNSFCC yield & nominal spread, EUR

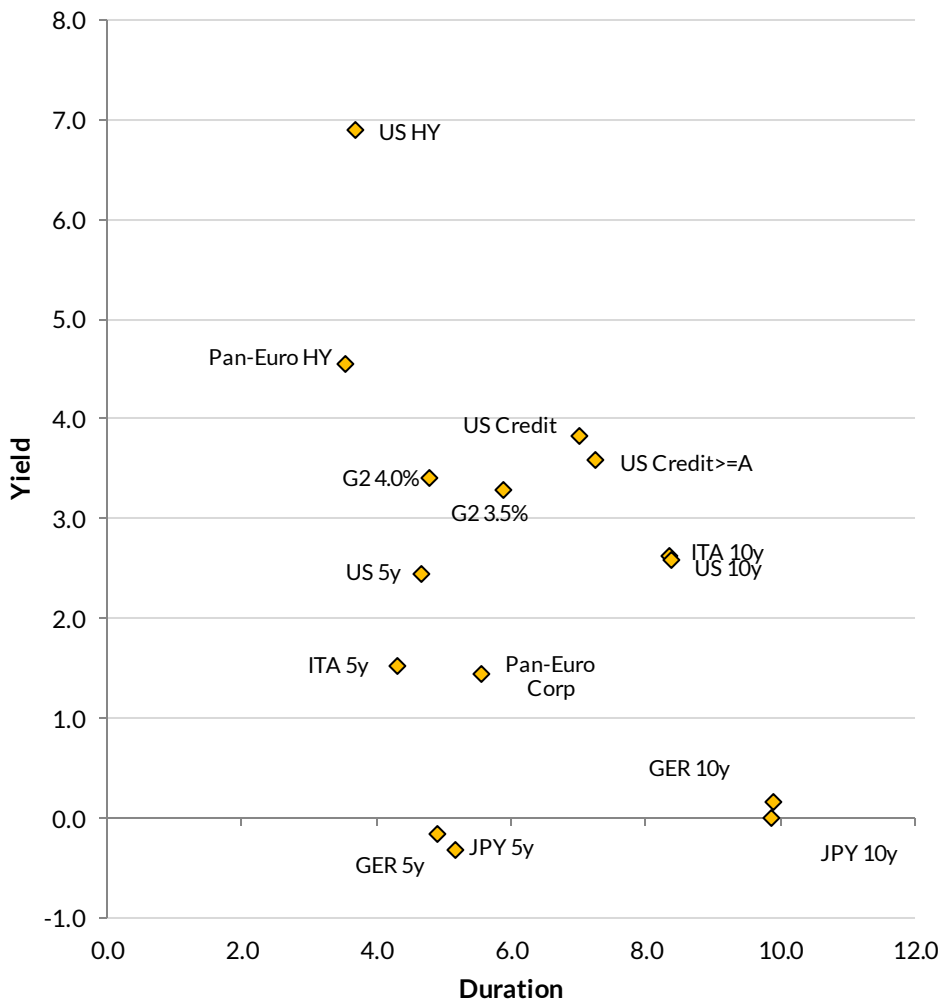


Sources: Bloomberg and State Street Global Advisors. Note: Data as of January 2019.

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 security class with significantly more yield is the US high yield index, where duration, a measure of sensitivity to interest rate changes, does not fully capture the volatility of the high yield asset class. Investors are unable to match the yield on Ginnie Mae securities, while preserving the full government guarantee, even if they extend their duration significantly.

Yield versus duration



Security	Duration	Yield
US 5y	4.7	2.4
US 10y	8.3	2.6
GNMA II 4.0%	4.8	3.4
GNMA II 3.5%	5.9	3.3
JPY 5y	4.9	-0.2
JPY 10y	9.9	0.0
GER 5y	5.2	-0.3
GER 10y	9.9	0.1
ITA 5y	4.3	1.5
ITA 10y	8.4	2.6
US credit	7.0	3.8
US credit >= A	7.2	3.6
USHY	3.7	6.9
Pan-Euro Corp	5.6	1.4
Pan-Euro HY	3.5	4.6

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

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

The average return on the Ginnie Mae index over the past decade has been slightly higher than the US Treasury index, but lower than many alternatives, including the US Investment-Grade Corporate and US and European High Yield indices. However, the standard deviation of the Ginnie Mae index is the lowest of any sector, as it has the least price volatility over a 3, 5 and 10 year horizon. The result: the Sharpe Ratio or excess return per unit of risk for the US mortgage market is comparable to US and European investment grade credit; it is higher than US Treasuries.

Average Return (Per Month)

Time Period	USMBS Ginnie Mae	USTreasury	USCredit Corp	Pan Euro Credit Corp	USHigh Yield*	Pan Euro High Yield*
1 year	0.25	0.23	0.07	0.02	0.16	-0.14
3 year	0.12	0.07	0.33	0.14	0.76	0.37
5 year	0.18	0.15	0.28	0.25	0.39	0.34
10 year	0.27	0.20	0.50	0.48	0.89	1.04

Average Excess Return (Per Month)

Time Period	USMBS Ginnie Mae	USTreasury	USCredit Corp	Pan Euro Credit Corp	USHigh Yield*	Pan Euro High Yield*
1 year	0.08	0.06	-0.10	0.08	-0.01	-0.08
3 year	0.02	-0.02	0.24	0.21	0.67	0.44
5 year	0.12	0.10	0.23	0.30	0.33	0.38
10 year	0.24	0.17	0.47	0.49	0.86	1.06

Standard Deviation

Time Period	USMBS Ginnie Mae	USTreasury	USCredit Corp	Pan Euro Credit Corp	USHigh Yield*	Pan Euro High Yield*
1 year	0.79	0.93	1.16	0.60	1.70	1.23
3 year	0.61	0.92	1.13	0.79	1.47	1.22
5 year	0.58	0.92	1.10	0.97	1.57	1.28
10 year	0.69	1.02	1.31	1.25	2.18	2.76

Sharpe Ratio

Time Period	USMBS Ginnie Mae	USTreasury	USCredit Corp	Pan Euro Credit Corp	USHigh Yield	Pan Euro High Yield*
1 year	0.10	0.06	-0.09	0.13	-0.01	-0.06
3 year	0.04	-0.02	0.21	0.26	0.46	0.36
5 year	0.21	0.11	0.21	0.31	0.21	0.30
10 year	0.35	0.17	0.36	0.39	0.39	0.38

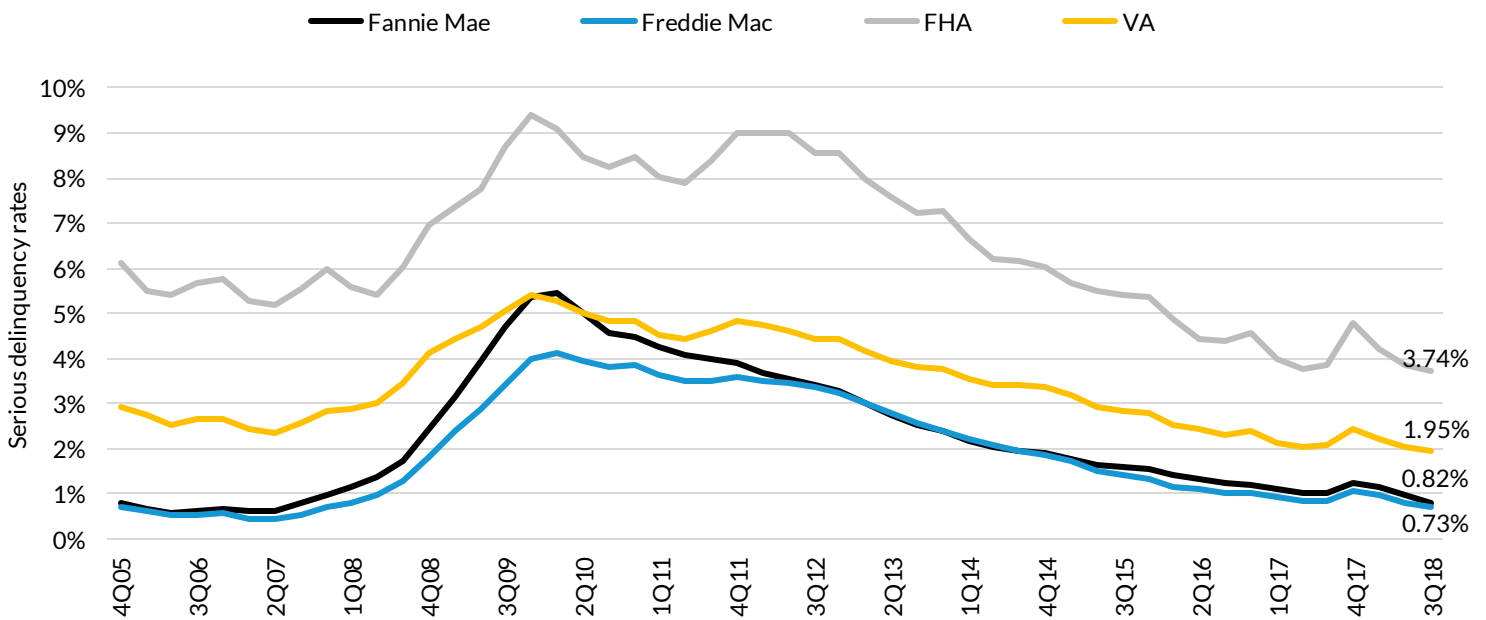
*Assumes 2% capitalization max per issuer on high yield indices

Sources: Barclays Indices, Bloomberg and State Street Global Advisors Note: Data as of January 2019.

State of the US Housing Market

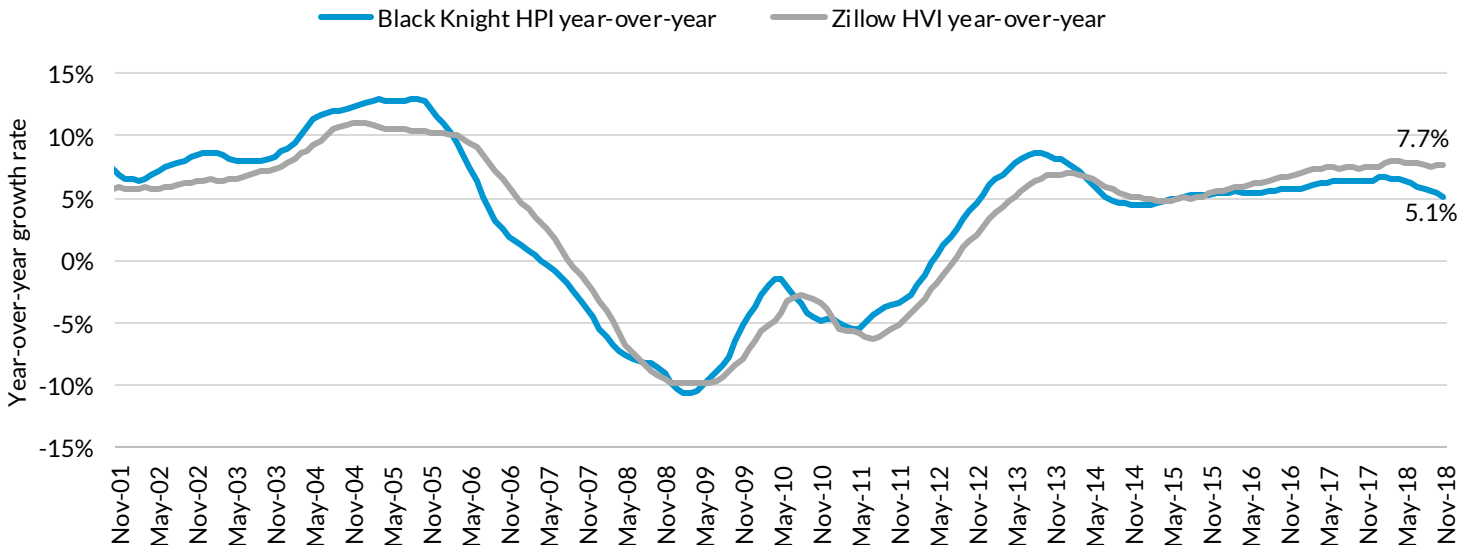
Serious delinquencies for single-family GSE loans, FHA loans, and VA loans continued to decline in Q3 2018 to levels equal to, or lower than before the hurricane related uptick in Q4 2017. GSE delinquencies remain high relative to 2006-2007, while FHA and VA delinquencies (which are higher than their GSE counterparts) are at levels lower than 2006-2007. After touching 6.5 percent in early 2018, year-over-year house price appreciation has slowed slightly in recent months to 5.1 percent in November 2018, per Black Knight repeat sales index.

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 Q3 2018.

National Year-Over-Year HPI Growth



Sources: Black Knight, Zillow, and Urban Institute. Note: Data as of November 2018.

State of the US Housing Market

Nationally, nominal home prices have increased by 48.8 percent since the trough, and now exceed their pre-crisis peak valuation on a nominal basis by 10.7 percent. However, the picture is very different for different states, with many states well in excess of the prior peak, while a number of states remain more than 10% below peak levels: Maryland is 11.0% below, Nevada is 11.3% below, Florida is 11.3% below and Connecticut is 15.3% below.

State	HPI Changes			YOY	Current HPI % Above Peak
	2000 to Peak	Peak to Trough	Trough to Current		
National	75.9%	-25.6%	48.8%	5.1%	10.7%
Alabama	44.0%	-15.2%	25.0%	6.1%	6.0%
Alaska	69.4%	-3.1%	18.6%	1.6%	14.9%
Arizona	110.2%	-48.0%	73.7%	7.1%	-9.7%
Arkansas	41.9%	-10.5%	21.8%	3.7%	9.0%
California	155.9%	-43.4%	83.6%	3.6%	4.0%
Colorado	40.1%	-12.7%	72.4%	6.5%	50.5%
Connecticut	92.6%	-24.7%	12.5%	1.9%	-15.3%
Delaware	94.3%	-23.5%	25.9%	2.8%	-3.7%
District of Columbia	175.1%	-13.3%	50.7%	3.3%	30.7%
Florida	129.3%	-47.0%	67.3%	6.1%	-11.3%
Georgia	38.4%	-32.1%	60.0%	7.5%	8.6%
Hawaii	162.1%	-22.0%	45.8%	1.6%	13.7%
Idaho	71.5%	-28.4%	70.1%	12.2%	21.8%
Illinois	61.7%	-34.6%	36.2%	2.8%	-10.9%
Indiana	21.3%	-7.6%	30.1%	5.9%	20.3%
Iowa	28.3%	-5.0%	24.1%	4.4%	18.0%
Kansas	34.6%	-9.3%	37.1%	6.7%	24.4%
Kentucky	29.8%	-7.6%	29.9%	4.4%	20.0%
Louisiana	48.8%	-5.3%	20.5%	0.8%	14.1%
Maine	82.6%	-12.5%	32.5%	5.9%	16.0%
Maryland	129.6%	-28.3%	24.1%	2.9%	-11.0%
Massachusetts	92.9%	-23.0%	50.8%	5.4%	16.2%
Michigan	24.1%	-39.6%	68.1%	5.7%	1.5%
Minnesota	66.4%	-27.6%	48.9%	5.5%	7.8%
Mississippi	41.1%	-13.6%	23.4%	6.5%	6.6%
Missouri	42.7%	-14.7%	26.5%	4.6%	7.9%
Montana	81.9%	-10.5%	46.2%	5.3%	30.8%
Nebraska	26.3%	-6.6%	36.2%	5.2%	27.2%
Nevada	127.1%	-59.4%	118.4%	12.6%	-11.3%
New Hampshire	91.0%	-23.8%	36.9%	6.2%	4.3%
New Jersey	118.3%	-27.7%	26.3%	5.3%	-8.7%
New Mexico	66.9%	-16.1%	18.1%	3.3%	-1.0%
New York	99.1%	-15.2%	39.0%	6.8%	17.9%
North Carolina	40.4%	-15.5%	31.2%	5.6%	10.9%
North Dakota	53.9%	-4.0%	53.7%	2.5%	47.6%
Ohio	21.3%	-18.3%	30.7%	5.6%	6.8%
Oklahoma	37.4%	-2.3%	16.2%	2.5%	13.5%
Oregon	82.4%	-27.8%	70.9%	5.4%	23.4%
Pennsylvania	70.5%	-11.6%	21.6%	4.8%	7.5%
Rhode Island	131.1%	-34.5%	47.1%	6.7%	-3.6%
South Carolina	45.1%	-19.3%	30.3%	5.0%	5.2%
South Dakota	45.2%	-4.2%	43.8%	9.4%	37.7%
Tennessee	35.4%	-11.9%	37.7%	5.4%	21.3%
Texas	33.3%	-5.8%	47.1%	4.2%	38.6%
Utah	54.4%	-21.8%	66.1%	9.9%	29.9%
Vermont	83.4%	-7.4%	28.8%	6.9%	19.3%
Virginia	99.5%	-22.7%	22.1%	2.8%	-5.6%
Washington	85.6%	-28.5%	76.5%	6.9%	26.2%
West Virginia	43.1%	-6.0%	19.3%	6.0%	12.1%
Wisconsin	45.0%	-16.4%	30.8%	6.5%	9.3%
Wyoming	77.9%	-6.9%	25.5%	3.5%	16.8%

Sources: Black Knight and Urban Institute. Note: HPI data as of November 2018. 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 11/2018, the latest HPI data period.

State of the US Housing Market

Ginnie Mae MBS constitute 30.2 percent of outstanding agency issuance by loan balance and 33.1 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 16.1 percent in the District of Columbia and as high as 51.1 percent in Alaska. In general, the Ginnie Mae share is higher in states with lower home prices.

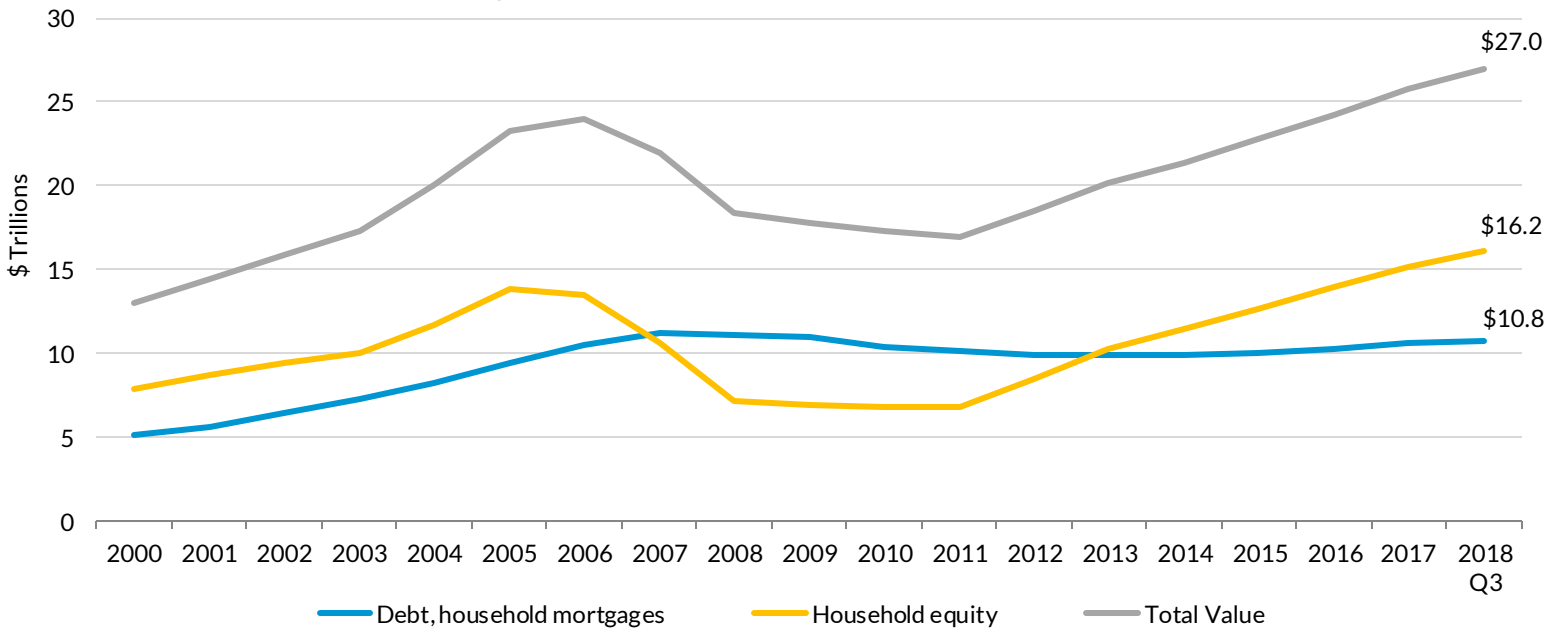
State	Agency Issuance (past 1 year)			Agency Outstanding		
	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)
National	33.1%	216.1	232.0	30.2%	163.7	187.7
Alabama	44.2%	163.9	186.7	44.6%	127.9	151.3
Alaska	51.9%	285.1	249.1	51.1%	233.0	199.2
Arizona	32.2%	215.5	218.6	31.5%	164.7	177.0
Arkansas	43.6%	144.8	169.6	44.1%	110.0	137.0
California	27.1%	350.9	333.4	20.9%	268.3	267.2
Colorado	31.5%	292.1	280.5	27.0%	216.2	222.9
Connecticut	32.2%	216.6	227.8	29.0%	183.4	189.7
Delaware	37.6%	215.6	226.3	35.9%	180.3	184.3
District of Columbia	18.1%	419.7	359.3	16.1%	299.4	302.7
Florida	40.3%	210.9	210.2	34.4%	162.3	169.1
Georgia	39.9%	187.9	211.3	38.2%	141.6	168.8
Hawaii	38.1%	496.3	395.1	30.4%	390.4	315.3
Idaho	32.1%	205.6	210.0	31.6%	152.0	164.3
Illinois	26.6%	178.9	199.2	24.1%	141.0	161.2
Indiana	38.2%	144.2	160.1	37.3%	110.5	125.7
Iowa	27.1%	147.2	163.7	25.3%	113.4	131.4
Kansas	36.3%	156.4	176.8	35.1%	119.8	138.9
Kentucky	39.6%	151.9	168.0	38.5%	121.3	132.3
Louisiana	42.1%	171.4	194.7	41.4%	136.7	158.8
Maine	35.2%	186.9	203.9	31.7%	152.7	160.2
Maryland	43.7%	285.3	265.9	38.9%	232.1	219.2
Massachusetts	24.2%	296.1	285.0	18.9%	235.2	228.1
Michigan	25.5%	148.5	170.2	24.9%	112.8	134.5
Minnesota	24.1%	200.7	213.5	23.7%	155.5	170.4
Mississippi	50.1%	154.5	174.0	49.9%	119.2	141.6
Missouri	35.2%	153.5	174.3	34.4%	120.3	139.0
Montana	30.3%	220.7	224.0	29.2%	168.5	175.7
Nebraska	32.1%	166.3	173.3	32.6%	121.6	137.8
Nevada	34.1%	251.8	236.6	35.5%	185.3	188.6
New Hampshire	31.6%	238.6	227.8	28.6%	192.6	180.9
New Jersey	29.8%	252.0	266.1	27.0%	211.3	219.4
New Mexico	42.4%	181.9	189.2	42.2%	140.9	152.8
New York	26.3%	248.1	270.0	25.2%	185.6	213.7
North Carolina	34.1%	184.3	206.6	33.6%	140.6	165.5
North Dakota	28.9%	214.0	206.0	25.5%	166.5	166.3
Ohio	35.3%	144.6	157.7	35.6%	112.3	126.5
Oklahoma	45.4%	154.8	173.7	47.6%	118.2	139.8
Oregon	26.9%	261.3	262.6	23.3%	197.1	205.9
Pennsylvania	32.7%	168.4	195.1	32.2%	136.7	158.6
Rhode Island	38.2%	232.7	225.5	32.9%	186.1	182.4
South Carolina	39.5%	186.7	196.2	37.0%	146.0	160.0
South Dakota	36.9%	178.3	188.1	34.8%	142.5	149.6
Tennessee	40.1%	186.3	204.6	39.6%	137.5	162.9
Texas	34.9%	198.6	217.5	35.4%	140.0	174.0
Utah	28.6%	247.4	256.6	28.0%	188.8	205.1
Vermont	22.2%	191.4	199.4	19.4%	165.9	160.2
Virginia	45.1%	271.3	260.2	40.6%	222.7	216.9
Washington	29.9%	291.8	293.4	27.4%	217.0	226.7
West Virginia	48.9%	156.0	154.7	45.1%	126.2	127.4
Wisconsin	22.4%	168.9	178.0	20.5%	133.9	141.8
Wyoming	41.1%	215.4	215.1	39.6%	177.3	176.0

Sources: eMBS and Urban Institute. Note: Ginnie Mae share are based on loan balance as of December 2018.

State of the US Housing Market

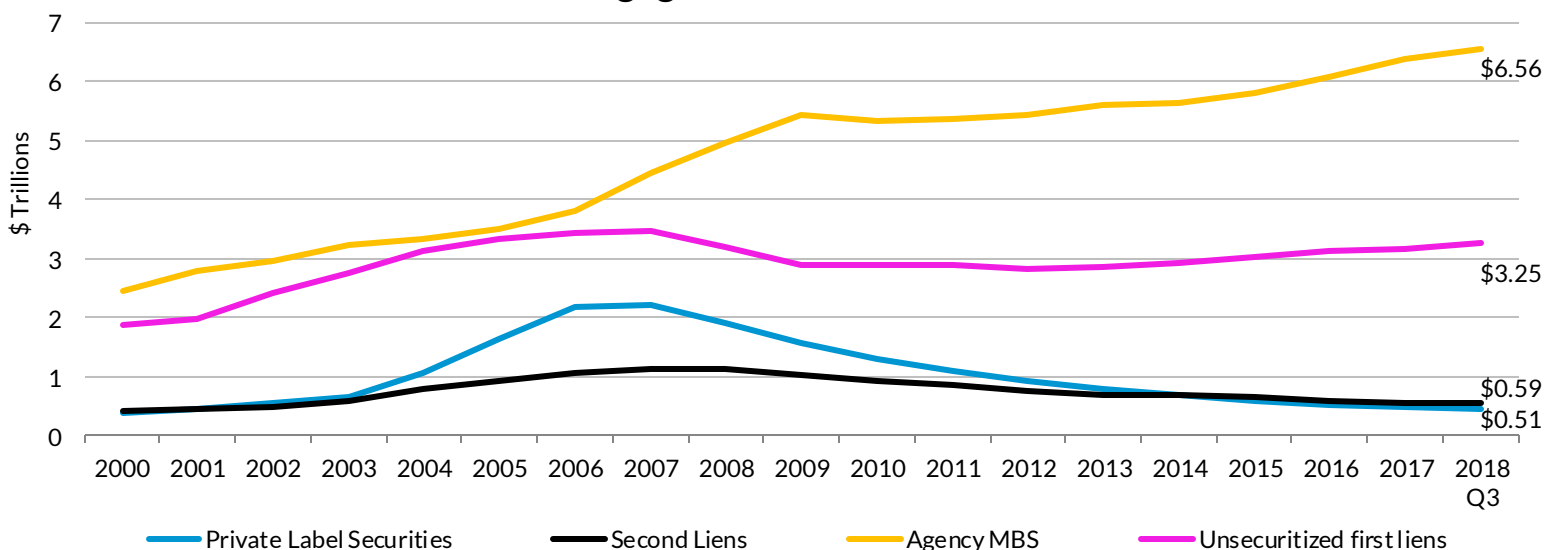
The Federal Reserve's Flow of Funds report has consistently indicated an increasing total value of the housing market driven by growing household equity since 2012, and 2018 Q3 was no different. While total mortgage debt outstanding increased slightly to \$10.8 trillion, household equity reached a new high of \$16.2 trillion, bringing the total value of the housing market to \$27.0 trillion, 11 percent higher than the pre-crisis peak in 2006. Agency MBS make up 60.7 percent of the total mortgage market, private-label securities make up 4.2 percent, and unsecuritized first liens at the GSEs, commercial banks, savings institutions, and credit unions make up 30.1 percent. Second liens comprise the remaining 5.0 percent of the total.

Value of the US Housing Market



Sources: Federal Reserve Flow of Funds and Urban Institute. Data as of Q3 2018.

Size of the US Residential Mortgage Market



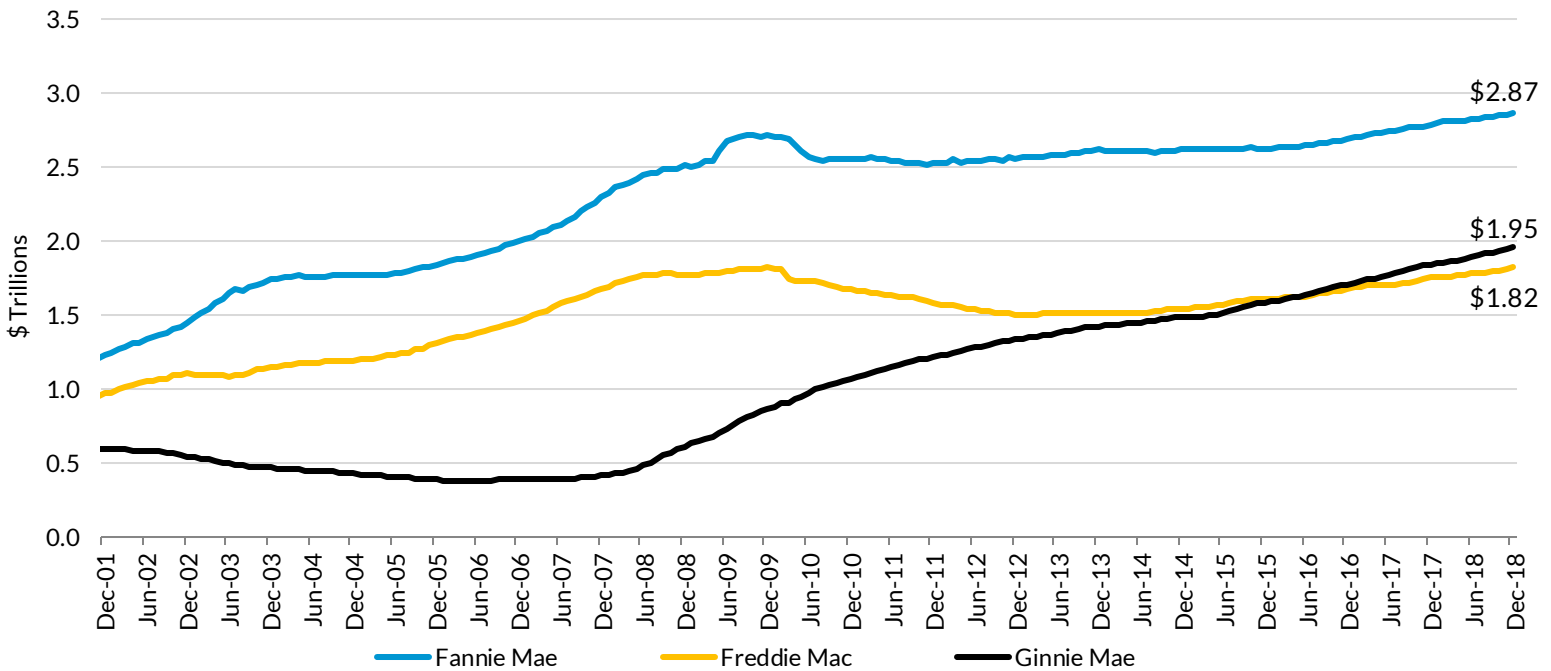
Sources: Federal Reserve Flow of Funds, Inside Mortgage Finance, Fannie Mae, Freddie Mac, eMBS and Urban Institute.

Note: Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, and credit unions. Data as of Q3 2018.

State of the US Housing Market

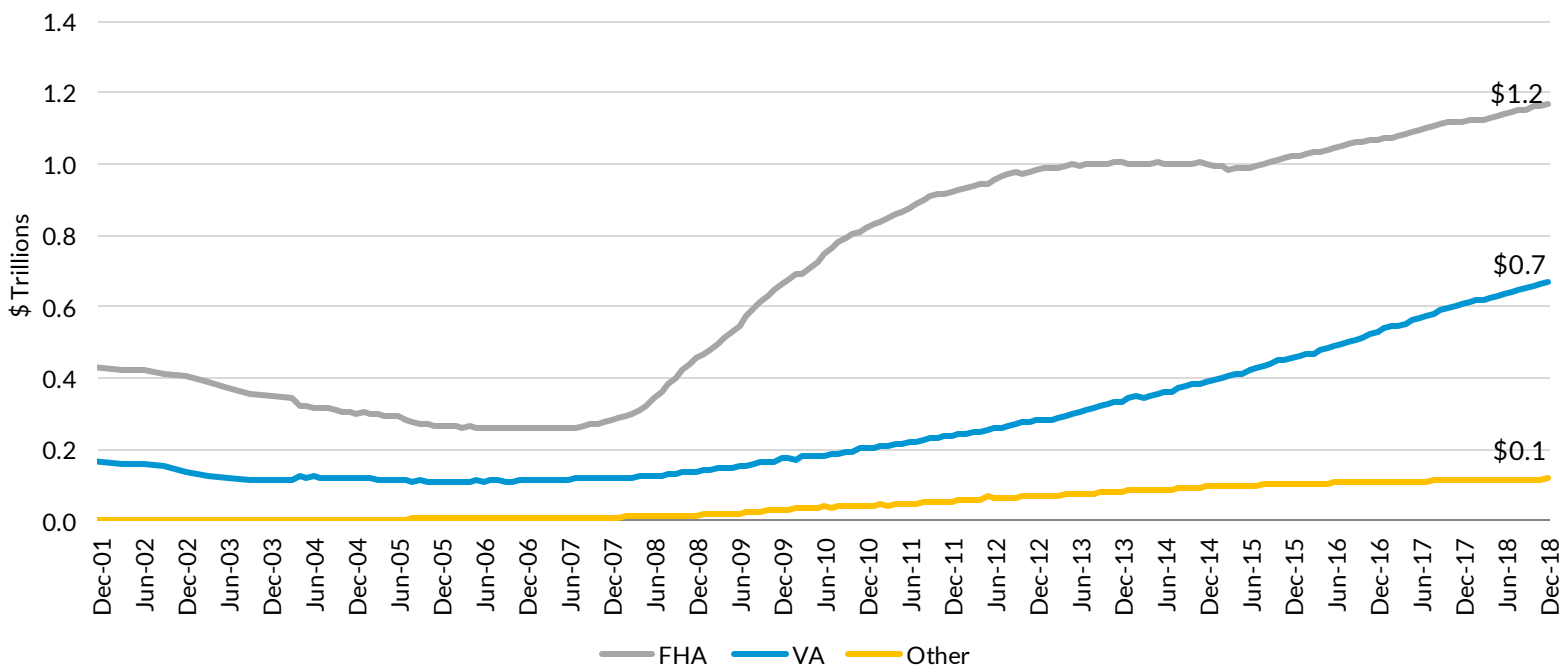
As of December 2018, outstanding securities in the agency market totaled \$6.64 trillion and were 43.2 percent Fannie Mae, 27.4 percent Freddie Mac, and 29.4 percent Ginnie Mae. Ginnie Mae has more outstandings than Freddie Mac. Within the Ginnie Mae market, both FHA and VA have grown very rapidly post-crisis. FHA comprises 59.8 percent of total Ginnie Mae outstanding, while VA comprises 34.2 percent.

Outstanding Agency Mortgage-Backed Securities



Sources: eMBS and Urban Institute Note: Data as of December 2018.

Outstanding Ginnie Mae Mortgage-Backed Securities

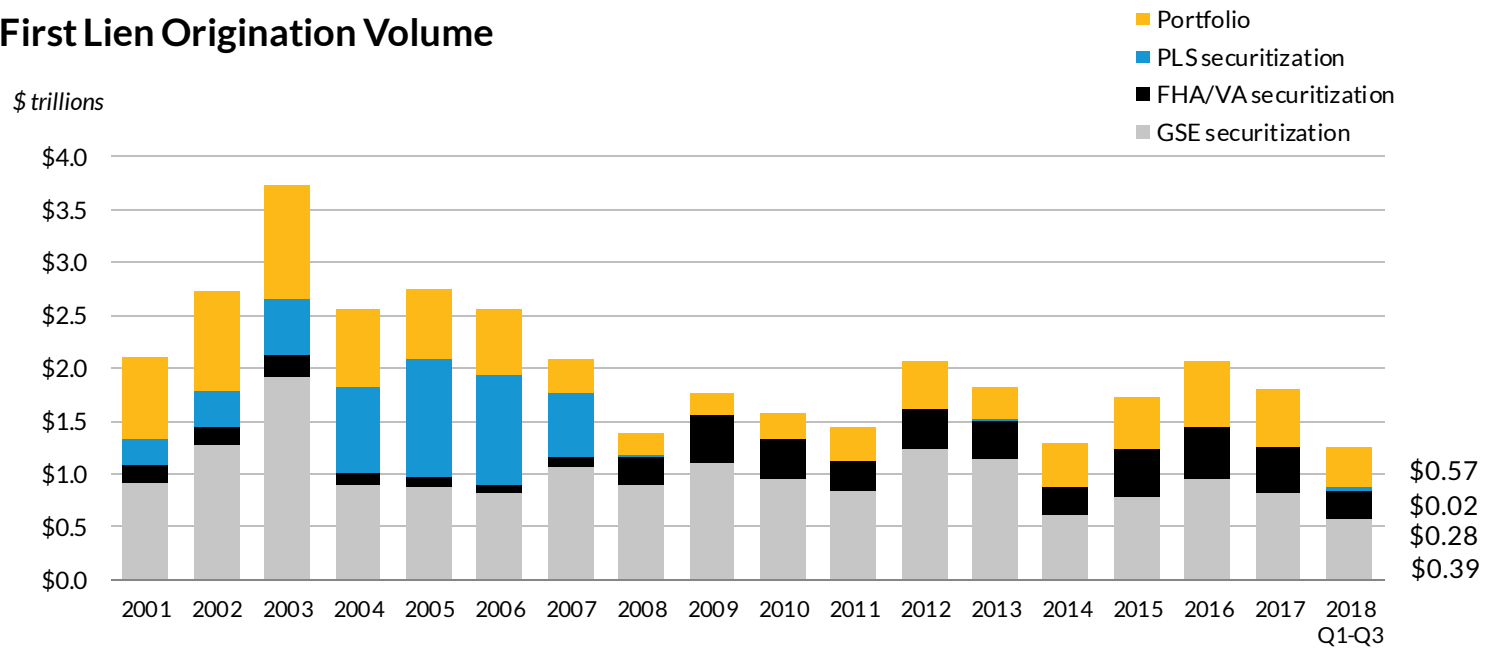


Sources: eMBS and Urban Institute. Note: Data as of December 2018.

State of the US Housing Market

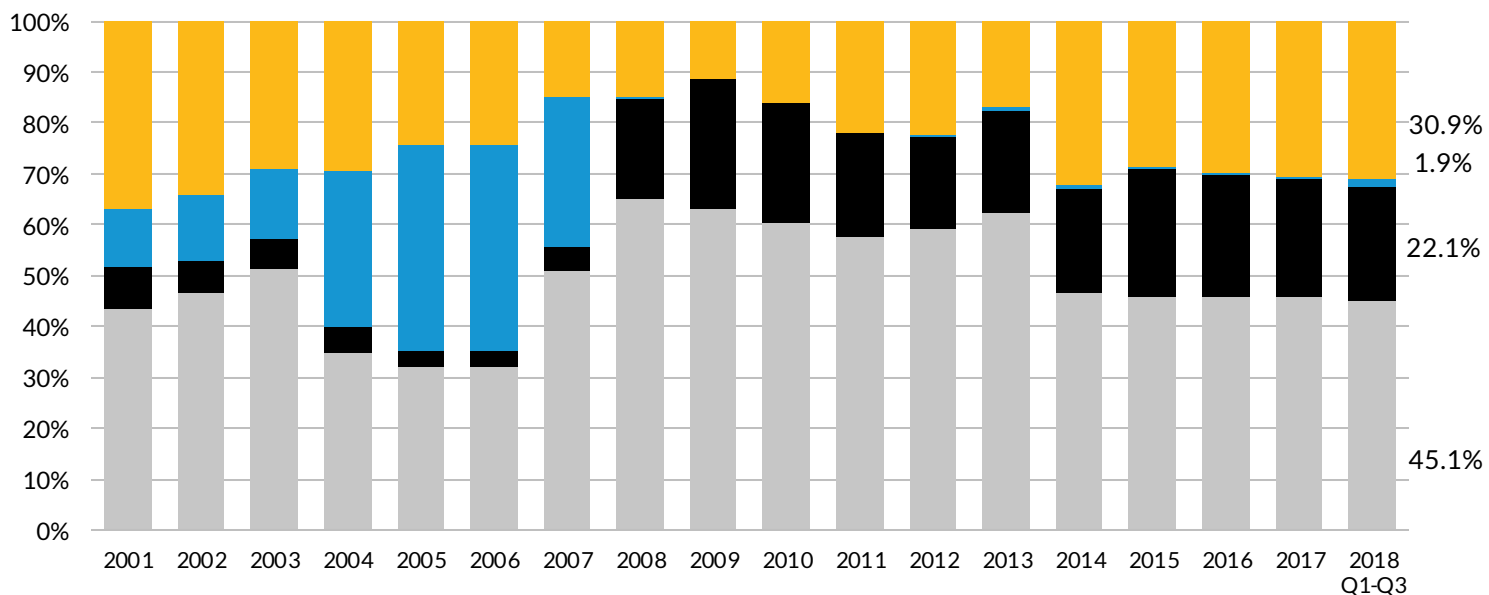
First lien originations totaled \$1.26 trillion in the first three quarters of 2018, down slightly from the same period in 2017, as higher interest rates curtailed refinance activity. The share of bank portfolio originations was 31 percent in the first three quarters of 2018, up from 30 percent in 2017. The GSE share was around 45 percent, down from 46 percent in 2017. The FHA/VA share was slightly down: 22 percent for the first three quarters of 2018 versus 23 percent in 2017. Private-label securities comprised under 2 percent of originations, higher than the 2017 share of 0.6 percent.

First Lien Origination Volume



Sources: Inside Mortgage Finance and Urban Institute. Note: Data as of Q3 2018.

First Lien Origination Share



Sources: Inside Mortgage Finance and Urban Institute. Note: Data as of Q3 2018.

US Agency Market, Originations

Agency gross issuance totaled \$1.195 trillion in 2018, down 10.3 percent compared to 2017. Ginnie Mae gross issuance was down by 12.1 percent and GSE gross issuance was down by 9.4 percent. Within the Ginnie Mae market, FHA was down by 13.6 percent and VA origination was down by 9.5 percent. The broad decline in origination volume is the result of higher interest rates curtailing refinance volume.

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
2018 % Change YOY	-9.5%	-9.2%	-9.4%	-12.1%	-10.3%

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 YTD	\$222.6	\$160.8	\$17.2	\$400.6
2018 % Change YOY	-13.6%	-9.5%	-14.9%	-12.1%

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 December 2018.

US Agency Market, Originations

Agency net issuance totaled \$261.6 billion in 2018, down 12.7 percent compared to 2017. Ginnie Mae net issuance was \$113.9 billion, comprising 43.4 percent of total agency net issuance. Note that Ginnie Mae net issuance in 2018 was down 13.3 percent year over year. Ginnie Mae net issuance in 2018 comprised of 53.7 percent VA, 43.2 percent FHA and 3.1 percent other.

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
2018 % Change YOY	-12.0%	-12.6%	-12.3%	-13.3%	-12.7%

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
2018 % Change YOY	-3.0%	-19.1%	-28.5%	-13.3%

Sources: eMBS and Urban Institute (top and bottom)

Note : Dollar amounts are in billions. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of December 2018.

US Agency Market, Originations

Agency gross issuance has been generally declining as rates have risen, but the seasonal trend is very strong. This table allows for a comparison with the same month in previous years. December 2018 gross agency issuance of \$89.1 billion is below the December 2017 level of \$111.5 billion.

Monthly Agency Issuance

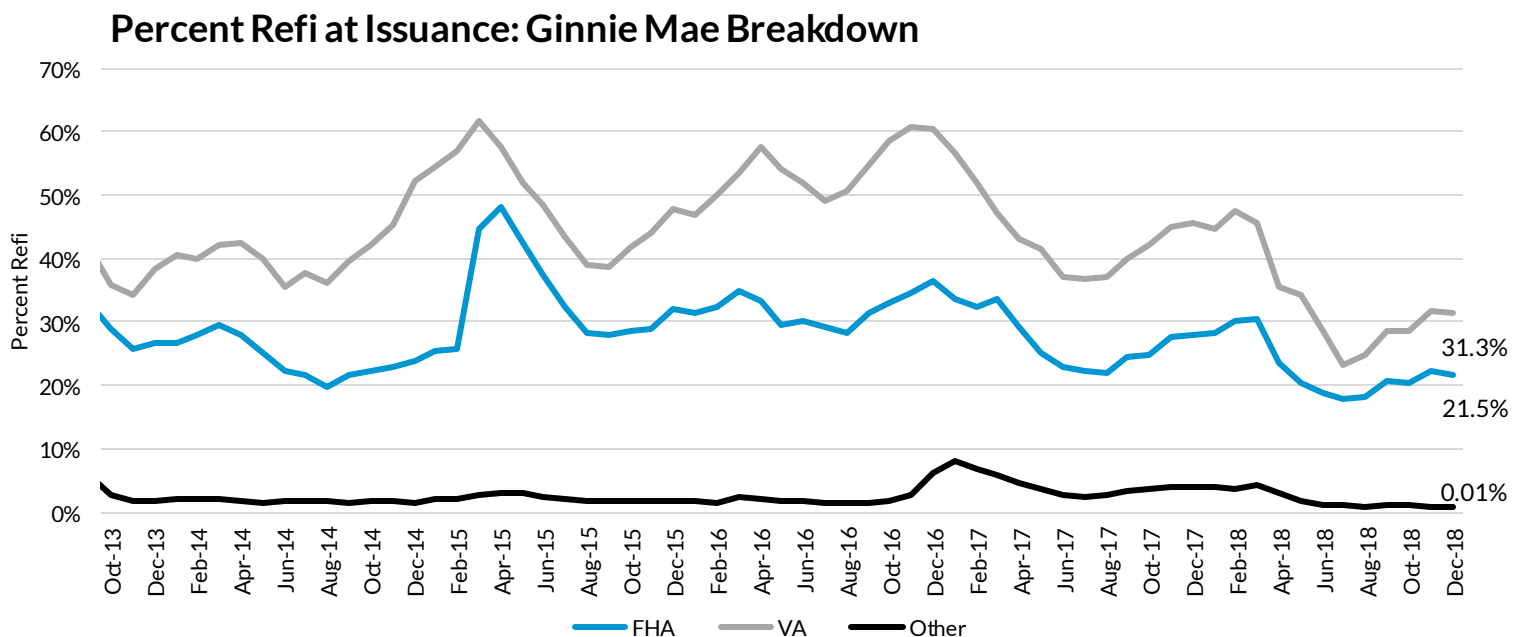
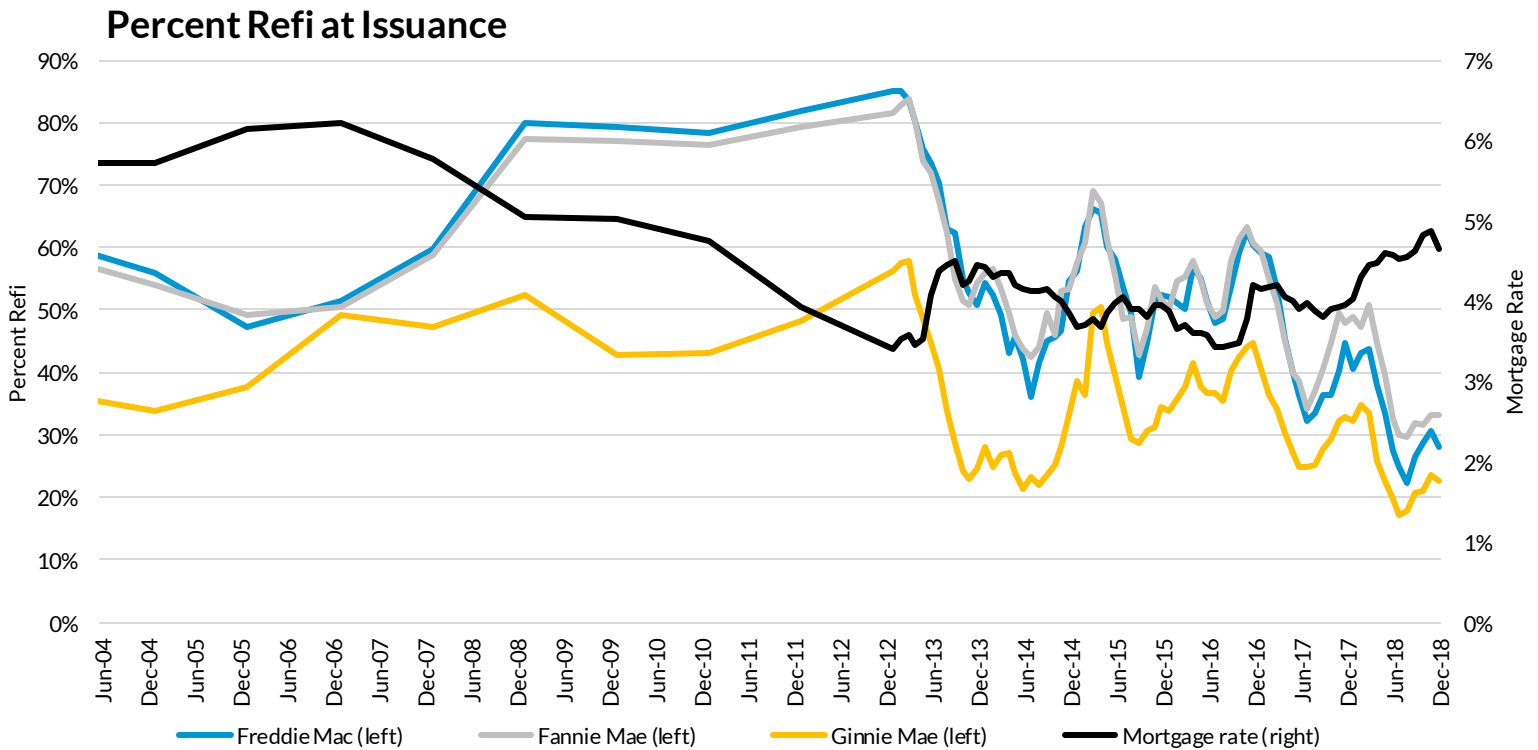
Date	Gross Issuance				Net Issuance			
	Fannie Mae	Freddie Mac	Ginnie Mae	Total	Fannie Mae	Freddie Mac	Ginnie Mae	Total
Jan-16	\$35.6	\$22.5	\$32.5	\$90.6	-\$0.6	\$1.0	\$7.3	\$7.8
Feb-16	\$32.4	\$21.2	\$30.5	\$84.1	\$2.4	\$3.1	\$8.4	\$13.9
Mar-16	\$39.7	\$27.5	\$32.9	\$100.1	\$7.9	\$8.2	\$9.6	\$25.8
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	\$12.8	\$20.6
Feb-18	\$40.3	\$21.5	\$31.9	\$93.7	\$8.0	\$2.3	\$10.2	\$17.4
Mar-18	\$35.6	\$21.3	\$29.0	\$85.9	\$4.9	\$3.0	\$7.9	\$14.0
Apr-18	\$36.3	\$26.2	\$32.7	\$95.2	\$1.7	\$6.1	\$7.8	\$16.8
May-18	\$38.9	\$27.5	\$33.7	\$100.1	\$4.5	\$7.2	\$11.8	\$22.4
Jun-18	\$38.2	\$28.8	\$35.6	\$102.5	\$2.2	\$6.8	\$9.0	\$19.5
Jul-18	\$40.3	\$26.2	\$35.6	\$102.1	\$4.2	\$3.7	\$7.9	\$18.6
Aug-18	\$50.4	\$29.9	\$37.5	\$117.8	\$14.9	\$7.9	\$22.8	\$35.6
Sep-18	\$41.8	\$30.1	\$34.8	\$106.6	\$5.7	\$6.2	\$11.9	\$21.0
Oct-18	\$39.8	\$27.4	\$33.2	\$100.3	\$10.1	\$7.6	\$17.7	\$29.7
Nov-18	\$35.1	\$30.1	\$32.4	\$97.6	\$2.6	\$10.8	\$13.3	\$22.9
Dec-18	\$36.9	\$23.9	\$28.4	\$89.1	\$8.2	\$6.4	\$14.6	\$23.0

Sources: eMBS and Urban Institute.

Note : Dollar amounts are in billions. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of December 2018.

US Agency Market, Originations

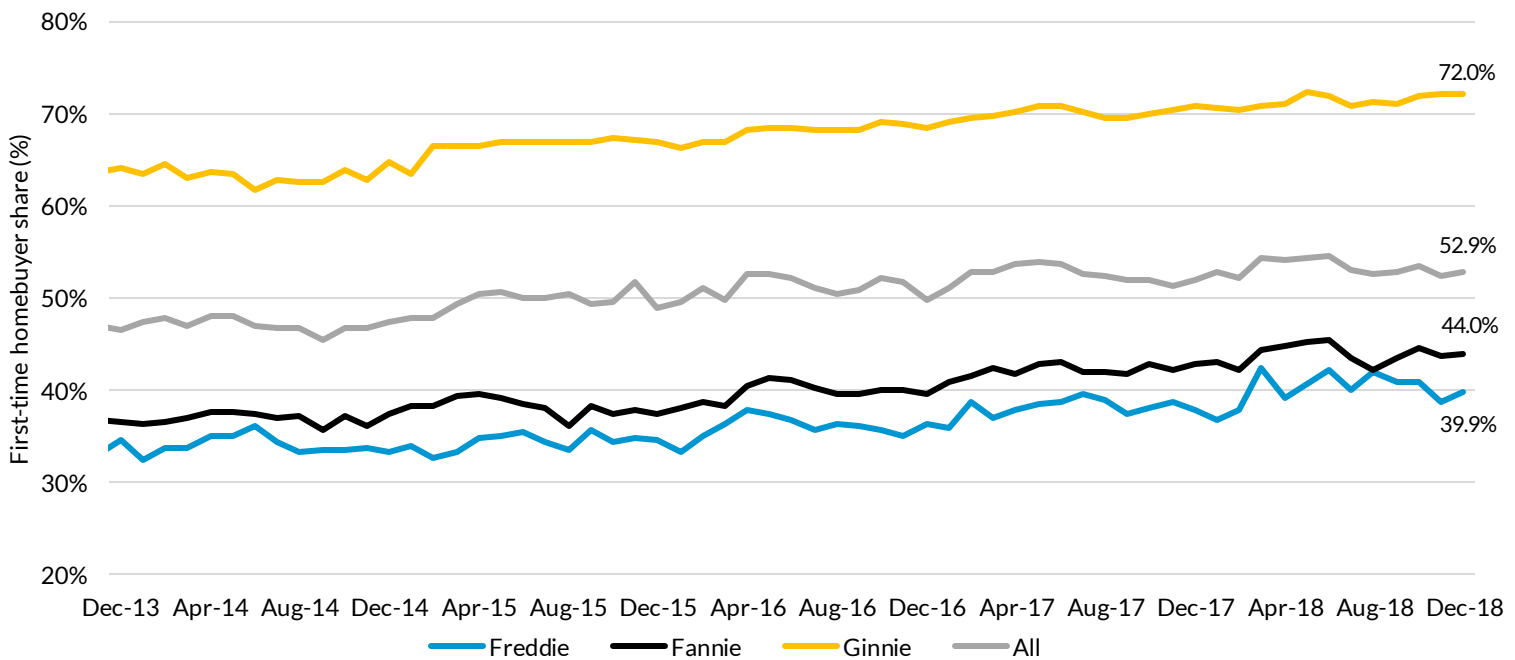
The Ginnie Mae refi share stood at 23 percent in December 2018, below the 28 and 33 percent shares for Fannie Mae and Freddie Mac, respectively. Within Ginnie Mae, VA had the highest refi share at 31 percent in December 2018, followed by FHA's 22 percent. In the spring and summer of 2018, refi share for all agencies fell sharply due to rising interest rates and seasonal upticks in purchase activity. The refi share stabilized after the summer surge in purchase activity ended.



Credit Box

The first time homebuyer share of Ginnie Mae purchase loans remained at 72.0 percent in December 2018, just below the 72.4% historical high reached in May 2018. 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 39.9 percent of Fannie and Freddie purchase originations respectively. The bottom table shows that based on mortgages originated in December 2018, the average first-time homebuyer was more likely than an average repeat buyer to take out a smaller loan and have a lower credit score, a much higher LTV and a similar DTI, thus requiring a higher interest rate.

First Time Homebuyer Share: Purchase Only Loans



Sources: eMBS and Urban Institute. Note: Data as of December 2018.

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$)	230,158	249,244	230,238	257,839	205,966	250,940	218,310	253,035
Credit Score	741.2	756.2	735.2	752.3	678.6	699.9	708.7	740.1
LTV (%)	86.5	78.3	88.1	79.3	96.8	95.1	92.0	83.0
DTI (%)	36.3	36.9	37.0	37.4	42.4	43.2	39.5	38.7
Loan Rate (%)	5.0	4.9	5.1	4.9	5.1	4.9	5.1	4.9

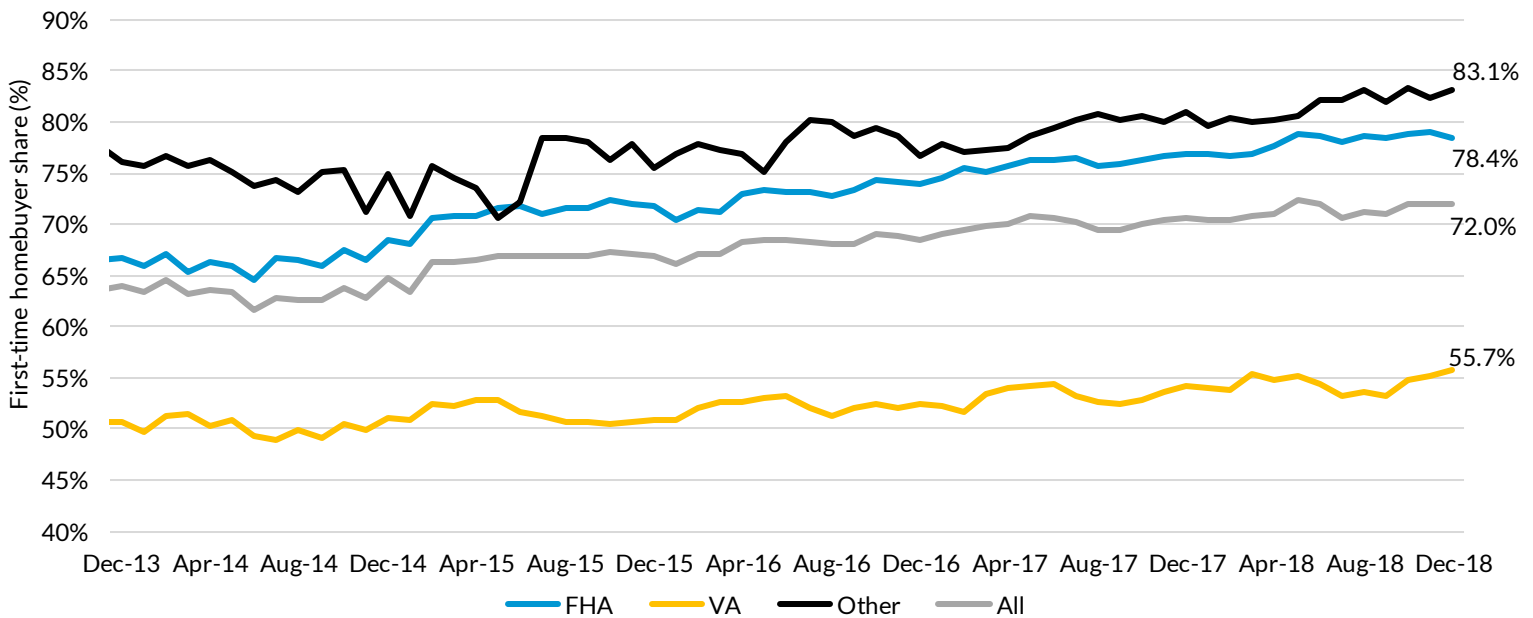
Sources: eMBS and Urban Institute.

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 December 2018.

Credit Box

Within the Ginnie Mae purchase market, 78.4 percent of FHA loans, 55.7 percent of VA loans and 83.1 percent of other loans represent financing for first time home buyers in December 2018. The bottom table shows that based on mortgages originated in December 2018, the average first-time homebuyer was more likely than an average repeat buyer to take out a smaller loan and have a lower credit score, and similar LTVs and DTIs, thus requiring a higher interest rate.

First Time Homebuyer Share: Ginnie Mae Purchase Only Loans Breakdown by Source



Sources: eMBS and Urban Institute. Note: Data as of December 2018.

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$)	204,111	219,621	240,008	293,052	140,540	155,186	205,966	250,940
Credit Score	669.3	672.3	698.0	727.5	695.0	701.4	678.6	699.9
LTV (%)	95.5	93.7	99.7	96.0	99.1	98.8	96.8	95.1
DTI (%)	43.7	44.5	41.6	42.8	35.2	35.9	42.4	43.2
Loan Rate (%)	5.1	5.1	4.9	4.8	5.0	5.0	5.1	4.9

Sources: eMBS and Urban Institute. Note: Data as of December 2018. "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.

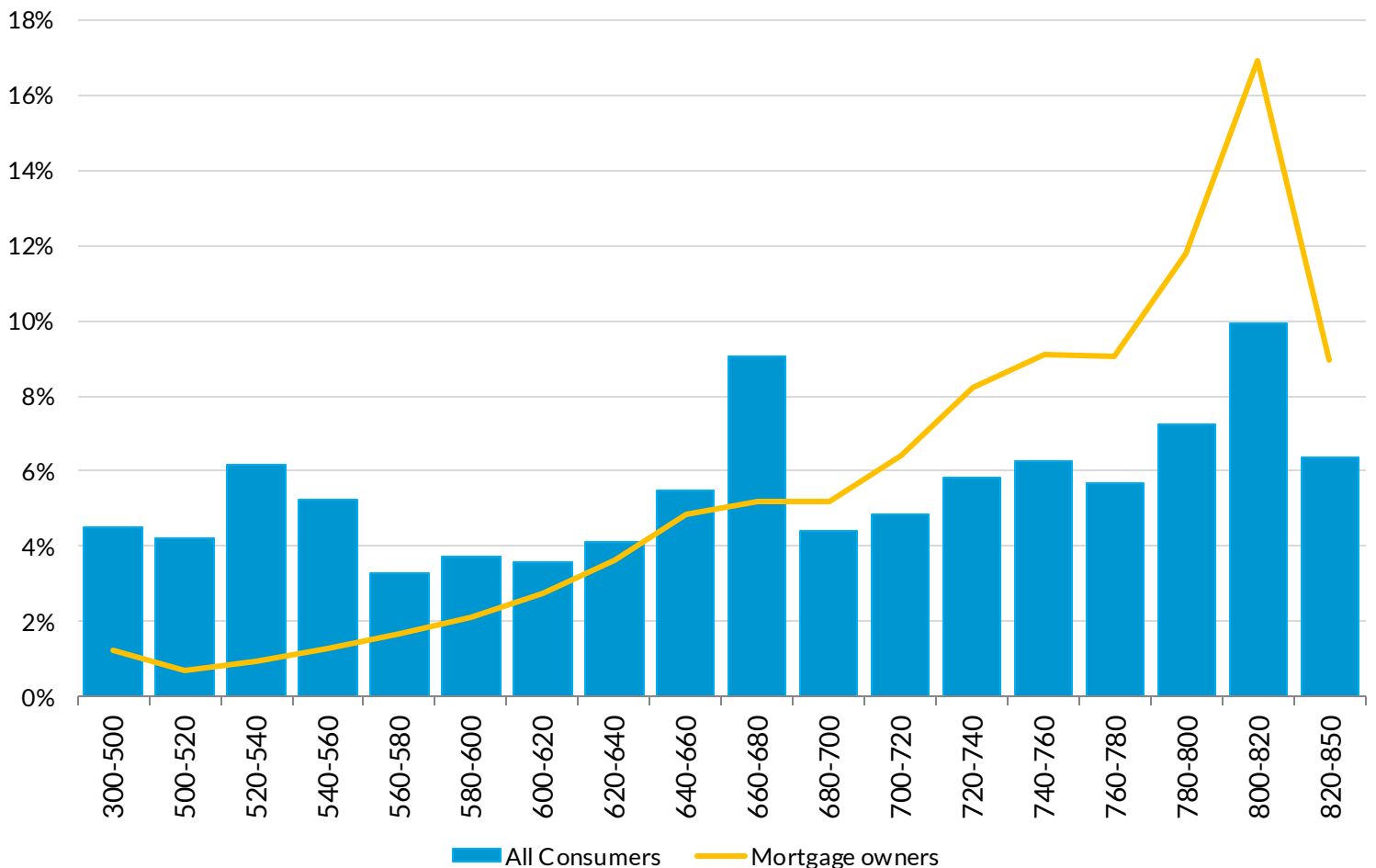
Credit Box

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.

December 2018 Credit Box at a Glance

In December 2018, the median Ginnie Mae FICO score was 675 versus 746 for Fannie and 754 for Freddie. Note that the FICO score for the 10th percentile was 618 for Ginnie Mae, versus 669 for Fannie and 681 for Freddie. Within the Ginnie Mae market, FHA loans have a median FICO score of 663, VA loans have a median FICO score of 703 and other loans have a median FICO score of 693.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	257,189	643	681	732	775	797	725
Fannie	91,468	680	713	753	784	801	746
Freddie	73,073	689	721	759	787	802	751
Ginnie	92,648	621	644	676	722	769	685
Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	105,231	638	674	718	764	792	716
Fannie	44,966	655	688	729	771	795	727
Freddie	32,428	666	701	742	776	798	736
Ginnie	27,837	604	635	671	711	754	674
All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	362,420	642	679	727	772	796	722
Fannie	136,434	669	704	746	781	799	740
Freddie	105,501	681	714	754	784	801	747
Ginnie	120,485	618	642	675	719	766	682

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	92,648	621	644	676	722	769	685
FHA	56,833	614	637	664	699	738	670
VA	27,710	630	660	710	765	793	711
Other	8,105	637	658	693	732	766	696

Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	27,837	604	635	671	711	754	674
FHA	15,286	595	626	657	691	726	659
VA	12,494	622	652	692	735	772	692
Other	57	601	654	691	734	760	689

All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	120,485	618	642	675	719	766	682
FHA	72,119	610	635	663	697	736	668
VA	40,204	628	658	703	756	790	705
Other	8,162	637	658	693	732	766	696

Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of December 2018.

December 2018 Credit Box at a Glance

In December 2018, the median loan-to-value ratio (LTV) was 96.5 percent for Ginnie Mae, and 80 percent for both Fannie Mae and Freddie Mac. The 90th percentile was 101 percent for Ginnie Mae, and 95-96 percent for Fannie Mae and Freddie Mac. 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	257,548	70.0	80.0	95.0	96.5	100.0	87.1
Fannie	91,568	64.0	80.0	85.0	95.0	97.0	82.7
Freddie	73,118	60.0	75.0	80.0	95.0	95.0	81.0
Ginnie	92,862	92.2	96.5	96.5	100.0	102.0	96.3

Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	105,336	43.0	59.0	74.0	80.0	90.0	69.8
Fannie	44,950	39.0	55.0	69.0	77.0	80.0	64.2
Freddie	32,432	39.0	54.0	69.0	78.0	80.0	64.7
Ginnie	27,954	66.2	79.9	86.5	95.2	100.0	84.6

All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	362,884	57.0	75.0	86.2	96.5	97.5	82.1
Fannie	136,518	50.0	69.0	80.0	90.0	96.0	76.6
Freddie	105,550	50.0	68.0	80.0	90.0	95.0	76.0
Ginnie	120,816	82.5	93.3	96.5	100.0	101.0	93.6

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	92,862	92.2	96.5	96.5	100.0	102.0	96.3
FHA	56,946	92.7	96.5	96.5	96.5	96.5	95.1
VA	27,757	90.5	100.0	100.0	102.2	103.1	98.0
Other	8,159	94.7	98.9	101.0	101.0	101.0	99.0

Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	27,954	66.2	79.9	86.5	95.2	100.0	84.6
FHA	15,310	64.4	77.9	86.0	86.5	90.9	80.8
VA	12,582	68.7	83.3	94.0	100.0	101.0	89.2
Other	62	59.5	74.0	82.9	89.1	95.4	79.7

All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	120,816	82.5	93.3	96.5	100.0	101.0	93.6
FHA	72,256	82.3	89.9	96.5	96.5	96.5	92.1
VA	40,339	81.0	94.4	100.0	100.4	103.0	95.3
Other	8,221	94.3	98.8	101.0	101.0	101.0	98.9

Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting 169 bps from this new issuer-reported LTV. Data as of December 2018.

December 2018 Credit Box at a Glance

In December 2018, the median Ginnie Mae debt-to-income ratio (DTI) was 43.4 percent, considerably higher than the 38-39 percent median DTI for Fannie Mae and Freddie Mac. The 90th percentile for Ginnie Mae was 54.6 percent, also much higher than the 48 percent DTI for the GSEs. Within the Ginnie Mae market, the median FHA DTI ratio was 44.8 percent, versus 42.7 percent for VA and 36.4 percent for other lending programs.

Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	257,225	25.0	32.1	40.0	46.0	50.0	38.9
Fannie	91,565	24.0	31.0	39.0	45.0	48.0	37.0
Freddie	73,110	23.0	30.0	38.0	44.0	48.0	36.4
Ginnie	92,550	29.7	36.3	43.3	49.8	54.7	42.6

Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	103,172	24.0	31.3	40.0	46.0	49.5	38.2
Fannie	44,558	24.0	31.0	40.0	46.0	49.0	37.8
Freddie	32,180	22.0	29.0	37.0	43.0	47.0	35.7
Ginnie	26,434	28.2	35.6	43.5	49.6	54.4	42.2

All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	360,397	25.0	32.0	40.0	46.0	50.0	38.7
Fannie	136,123	24.0	31.0	39.0	45.0	48.0	37.3
Freddie	105,290	23.0	30.0	38.0	44.0	48.0	36.2
Ginnie	118,984	29.4	36.1	43.4	49.7	54.6	42.5

Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	92,550	29.7	36.3	43.3	49.8	54.7	42.6
FHA	56,944	31.3	38.2	44.9	50.9	54.9	43.9
VA	27,510	28.5	35.3	42.8	49.4	54.9	42.1
Other	8,096	26.3	31.2	36.4	40.2	42.9	35.3

Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	26,434	28.2	35.6	43.5	49.6	54.4	42.2
FHA	14,465	29.0	36.2	44.2	49.8	54.4	42.6
VA	11,923	27.4	34.8	42.6	49.2	54.4	41.7
Other	46	15.5	25.9	33.1	37.5	39.9	30.9

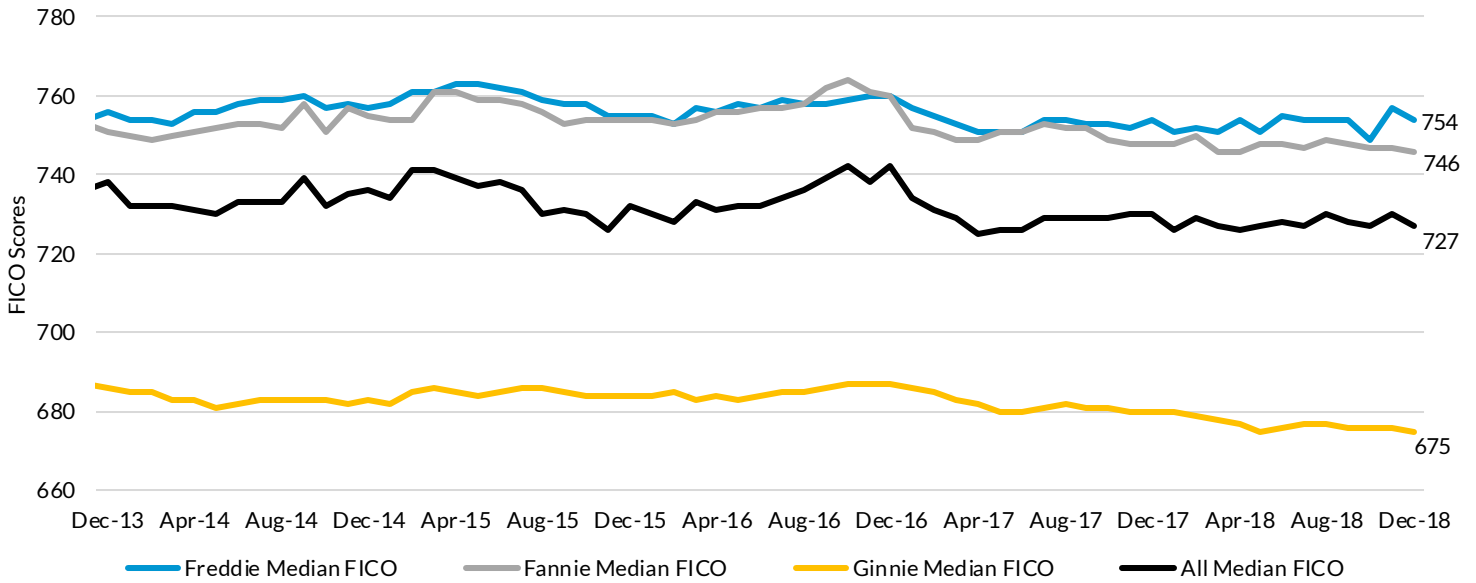
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	118,984	29.4	36.1	43.4	49.7	54.6	42.5
FHA	71,409	30.8	37.8	44.8	50.6	54.9	43.6
VA	39,433	28.2	35.2	42.7	49.3	54.7	42.0
Other	8,142	26.3	31.2	36.4	40.2	42.9	35.3

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 December 2018.

Credit Box: Historical

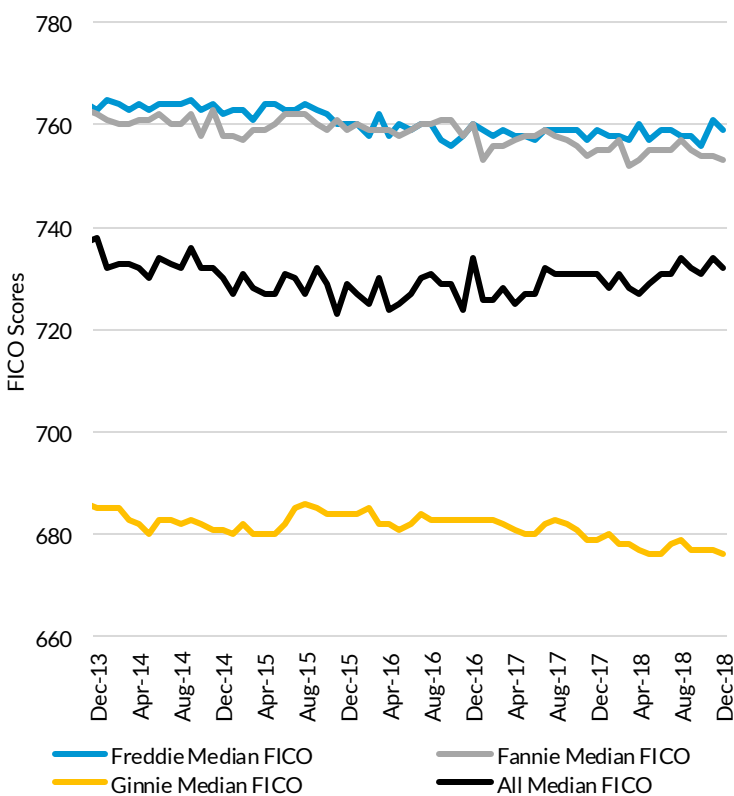
The median FICO score for all agency MBS originated in December was 727, slightly lower than in November. The figures show that the median FICO score for Ginnie Mae borrowers has always been considerably lower than for GSE borrowers. The difference between Ginnie Mae and GSE borrowers is wider in purchase loans than in refi loans.

FICO Scores for All Loans



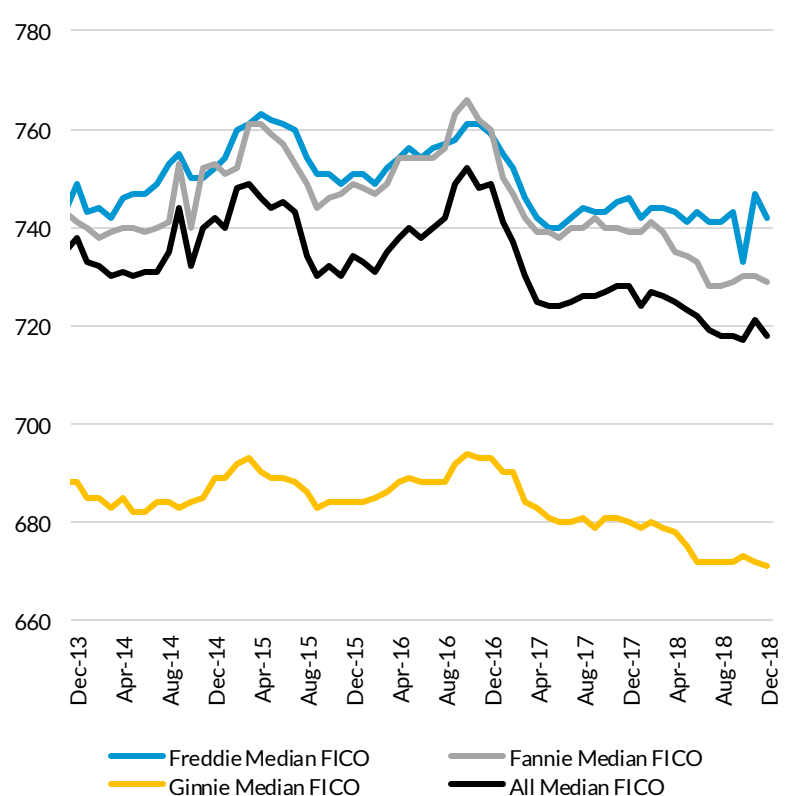
Sources: eMBS and Urban Institute. Note: Data as of December 2018.

FICO Scores for Purchase Loans



Sources: eMBS and Urban Institute. Note: Data as of December 2018.

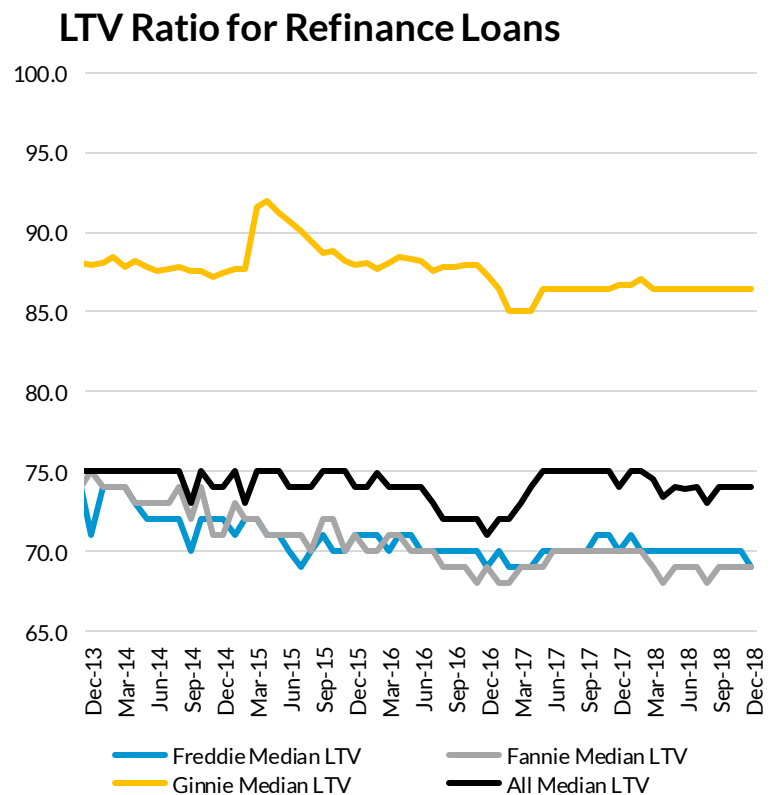
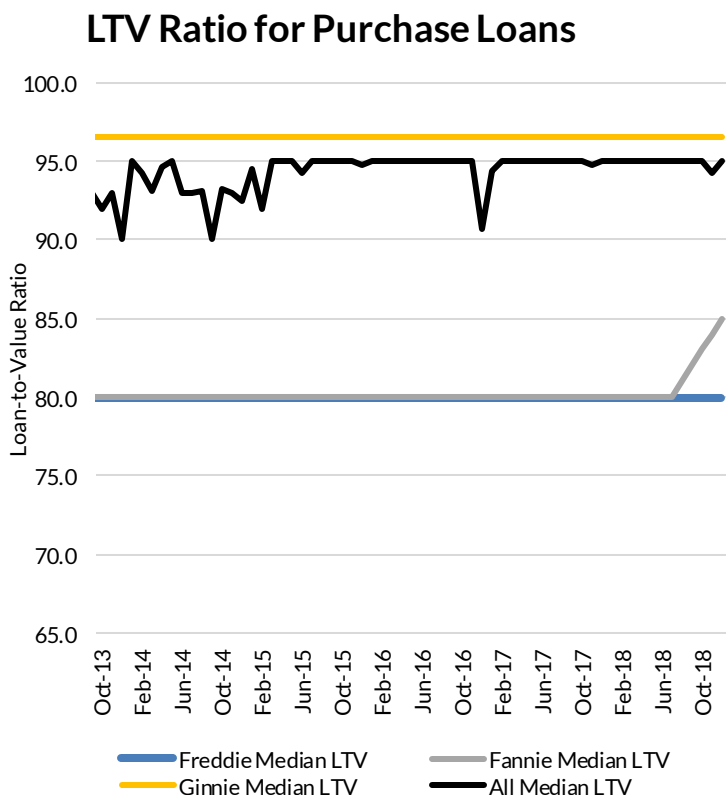
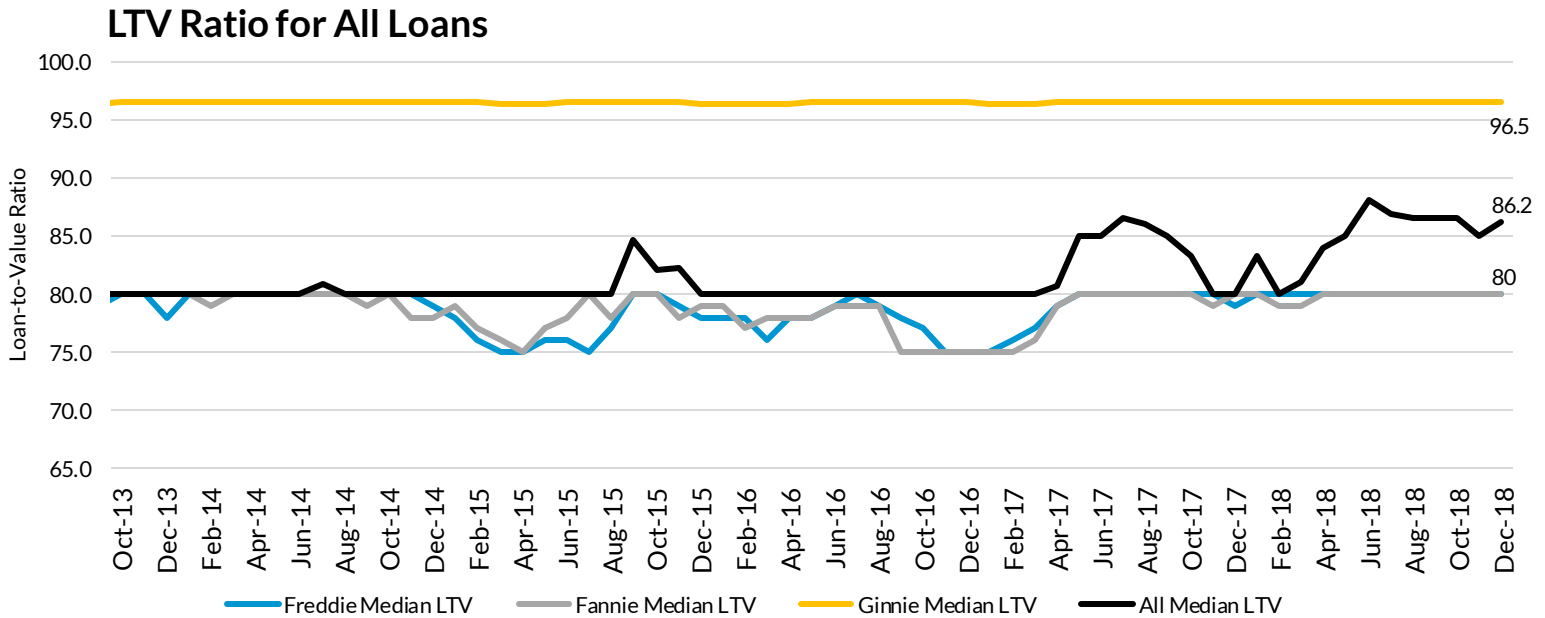
FICO Scores for Refinance Loans



Sources: eMBS and Urban Institute. Note: Data as of December 2018.

Credit Box: Historical

Median LTVs for Ginnie Mae loans have historically been at 96.5 percent, much higher than the 80 percent LTVs for the GSEs. Through time, both Ginnie Mae and GSE refinances have LTVs about 6-12 points lower than their purchase counterparts.

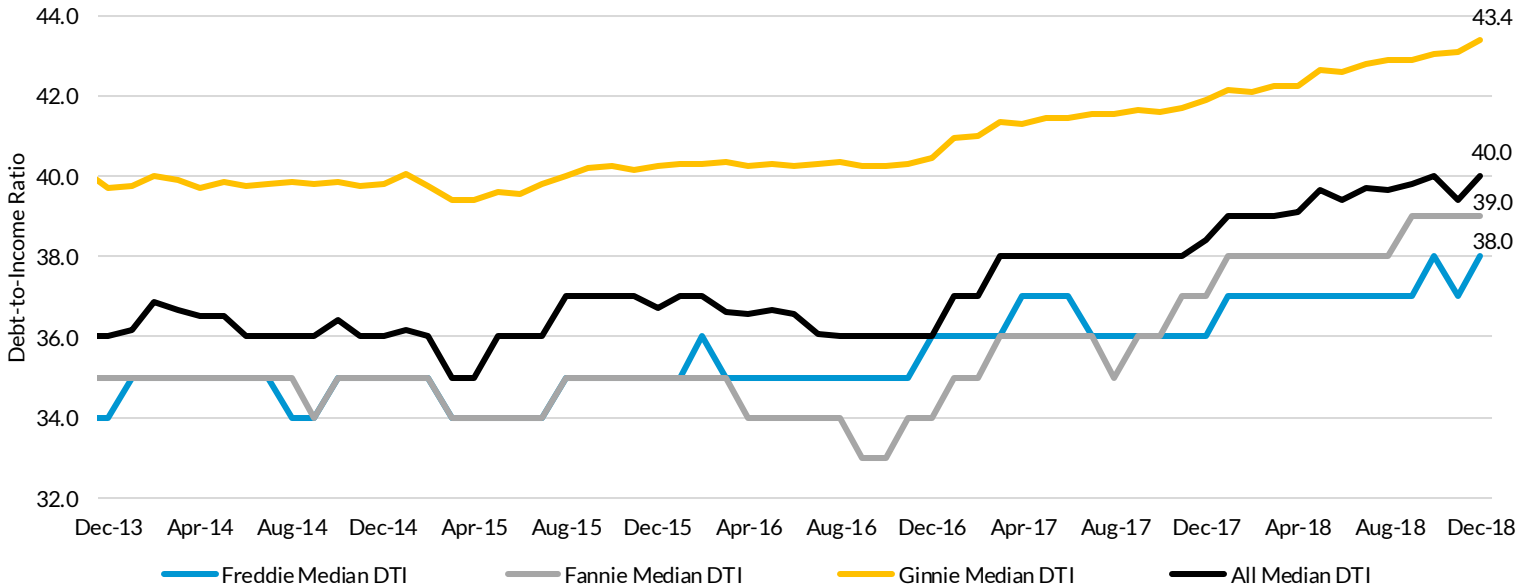


Sources: eMBS and Urban Institute. Note: In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting 169 bps from this new issuer-reported LTV. Sources and note apply to all three graphs. Data as of December 2018.

Credit Box: Historical

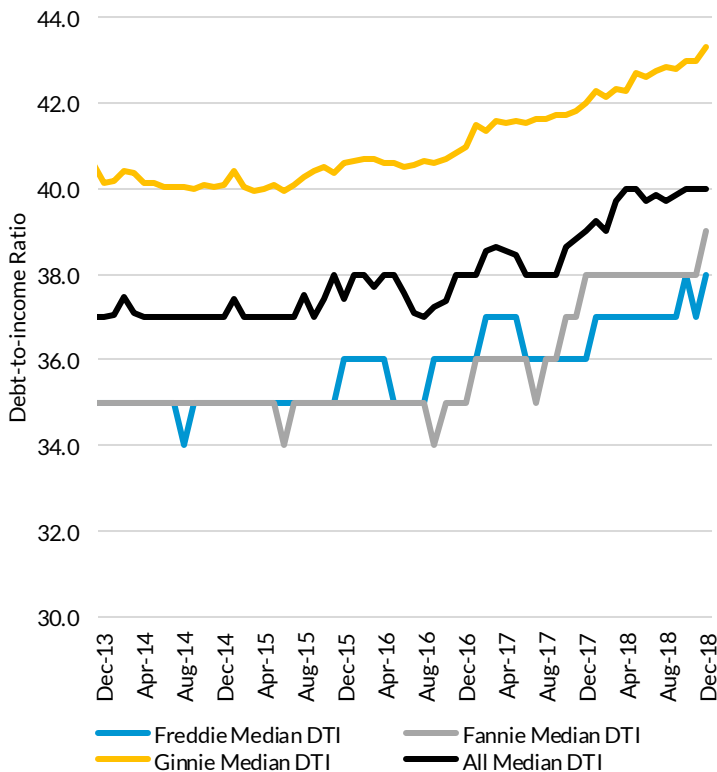
Median debt-to-income ratios on Ginnie Mae loans have historically been in the low 40s, considerably higher than for the GSEs. DTIs have been inching up over the past eighteen months for both Ginnie Mae and GSE loans, with the movement more pronounced for Ginnie Mae. Increases in DTIs are very typical in the current environment of rising interest rates and rising home prices, both of which increase the monthly mortgage payment.

DTI Ratio for All Loans



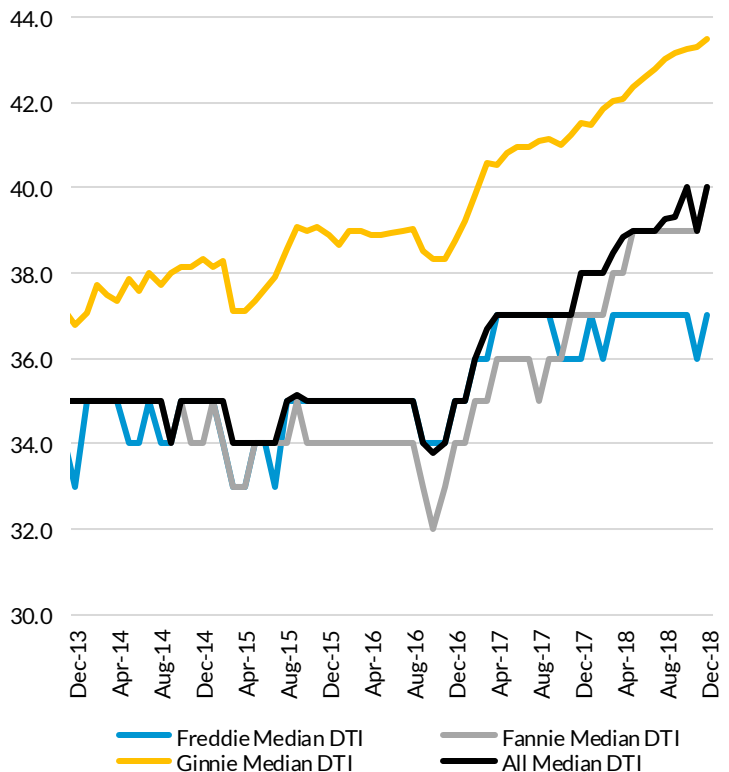
Sources: eMBS and Urban Institute. Note: Data as of December 2018.

DTI Ratio for Purchase Loans



Sources: eMBS and Urban Institute. Note: Data as of December 2018.

DTI Ratio for Refinance Loans



Sources: eMBS and Urban Institute. Note: Data as of December 2018.

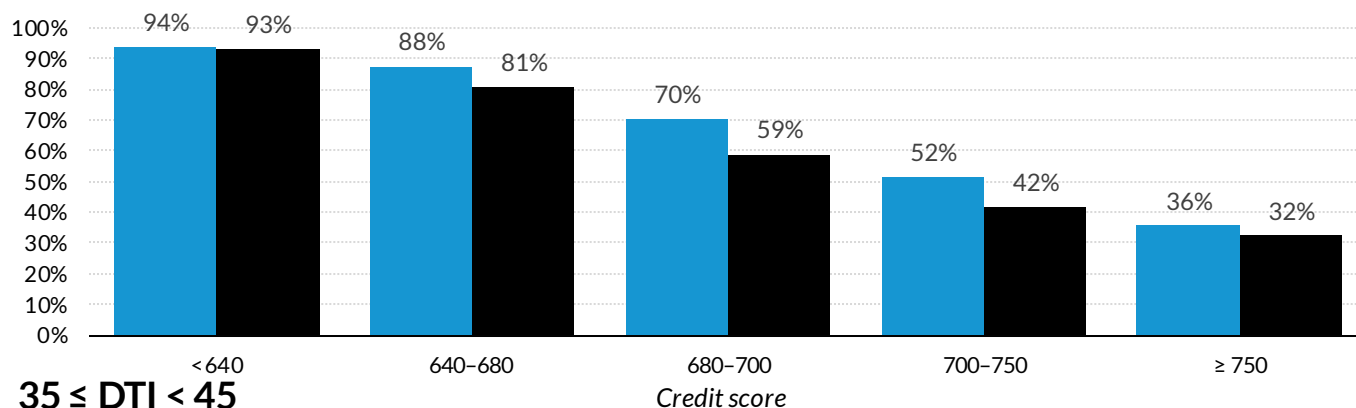
Credit Box: Historical

This table shows Ginnie Mae's share of agency high LTV lending by credit score and FICO. In each DTI bucket, Ginnie Mae's share is more concentrated in the lower FICO scores than in the higher FICO scores. For example in Q4, 2018, Ginnie Mae accounted for 93% of agency issuance for DTIs less than 35 and FICO scores below 640, compared to just 32 percent for loans with a DTI below 35 and FICO scores of 750 and higher. The Ginnie Mae/GSE split in the 35-45 DTI bucket looks a lot like the lower DTI bucket. Ginnie Mae's share of issuance was higher for DTIs of 45 and above, as compared with the two lower DTI buckets. For example the Ginnie Mae share of loans with a DTI of 45 and above and a FICO of 680-700 was 79 percent; it was 57-59 percent for the same FICO in the lower DTI buckets. In comparing Q4 2018 to 2 years earlier, it is clear that the GSEs have stepped up their higher LTV lending in all but the lowest FICO buckets; taking market share from Ginnie Mae.

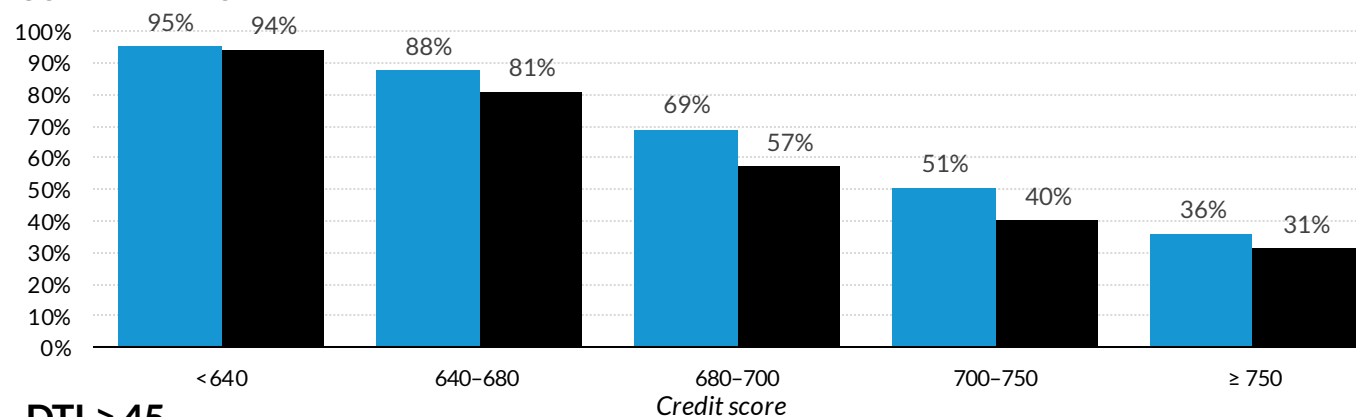
Ginnie Mae Share of Agency Market by DTI and FICO for Loans with LTV ≥ 95

DTI < 35

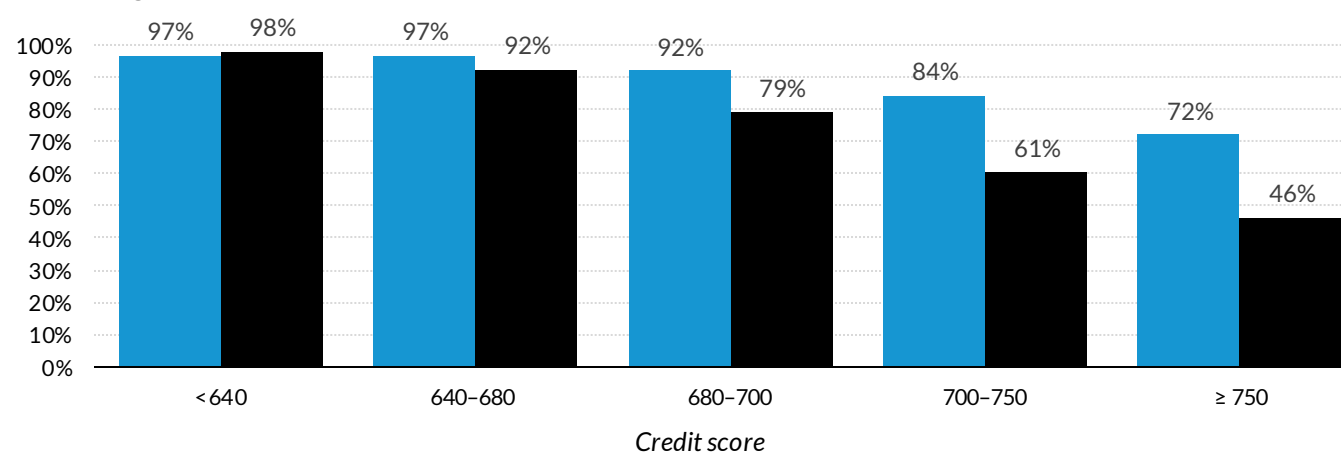
■ Q4 2016 ■ Q4 2018



35 ≤ DTI < 45



DTI ≥ 45



Sources: eMBS and Urban Institute.

High LTV Loans: Ginnie Mae vs. GSEs

Ginnie Mae dominates high-LTV lending, with 70.5 percent of Q4 2018 issuance having LTVs of 95 or above, compared to 21.4 percent for the GSEs. The GSEs have increased their high-LTV lending share from 11.7 percent in Q4 2016, while Ginnie Mae has seen a slight decline, down from 72.5 percent in Q4 2016. As home price appreciation and interest rates have increased from Q4 2016 to Q4 2018, the share of high-DTI lending (loans with DTI \geq 45) has increased across the FICO spectrum.

Share of Loans with LTV \geq 95

	Ginnie Mae	GSE	All
2016 Q4	72.5%	11.7%	27.6%
2018 Q4	70.5%	21.4%	37.5%

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

2016 Q4

DTI	FICO					All
	<640	640-680	680-700	700-750	\geq 750	
< 35	3.2%	6.6%	3.6%	8.6%	10.4%	32.4%
35-45	5.2%	10.4%	5.5%	12.1%	10.0%	43.1%
\geq 45	3.0%	7.6%	3.6%	6.4%	4.0%	24.6%
All	11.4%	24.5%	12.7%	27.1%	24.4%	100.0%

2018 Q4

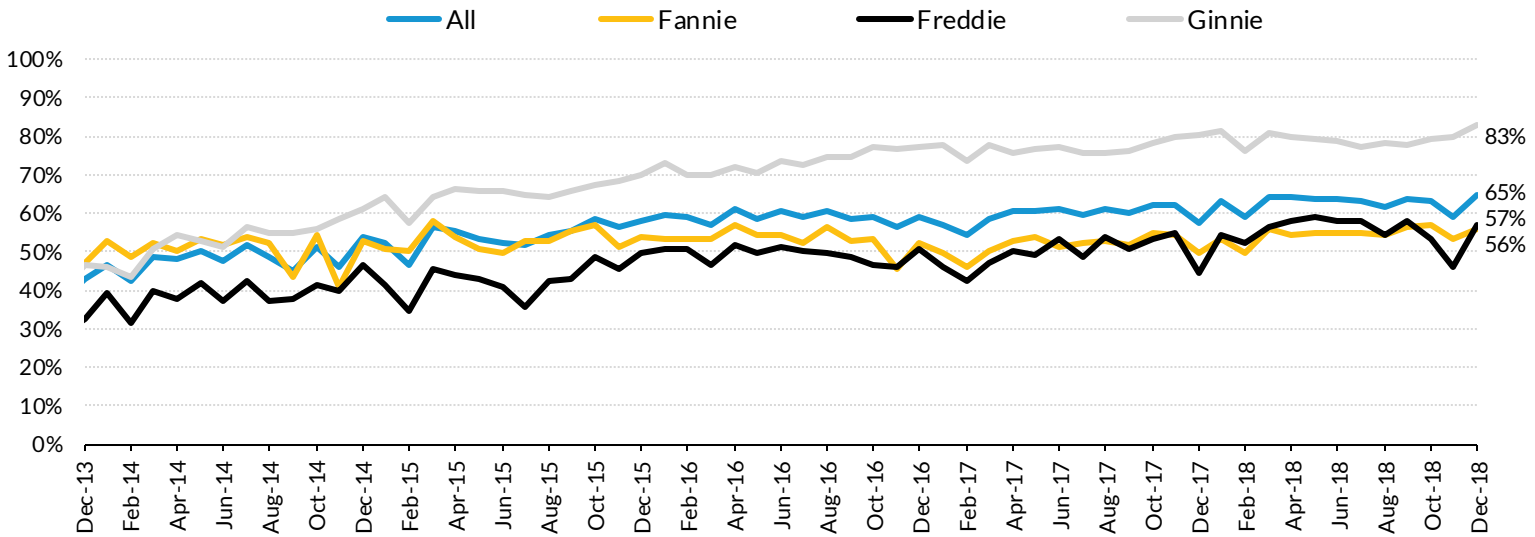
DTI	FICO					All
	<640	640-680	680-700	700-750	\geq 750	
< 35	2.8%	4.5%	2.5%	6.5%	8.4%	24.7%
35-45	5.4%	8.9%	4.8%	11.3%	10.0%	40.3%
\geq 45	5.2%	9.0%	4.5%	9.5%	6.9%	35.0%
All	13.3%	22.4%	11.8%	27.3%	25.3%	100.0%

Sources: eMBS and Urban Institute.

Nonbank Originators

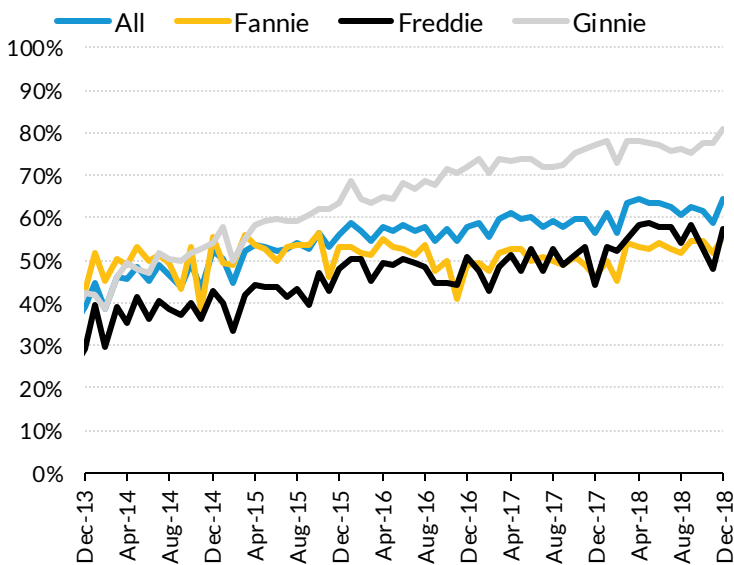
The nonbank origination share has been generally increasing since 2013. In December 2018, the Ginnie Mae nonbank originator share hit a new high of 83 percent, considerably higher than the GSEs' 56-57 percent nonbank origination share. For Ginnie Mae, the nonbank share for refis was higher than the nonbank share for purchases. The differences were more modest for the GSEs.

Nonbank Origination Share: All Loans

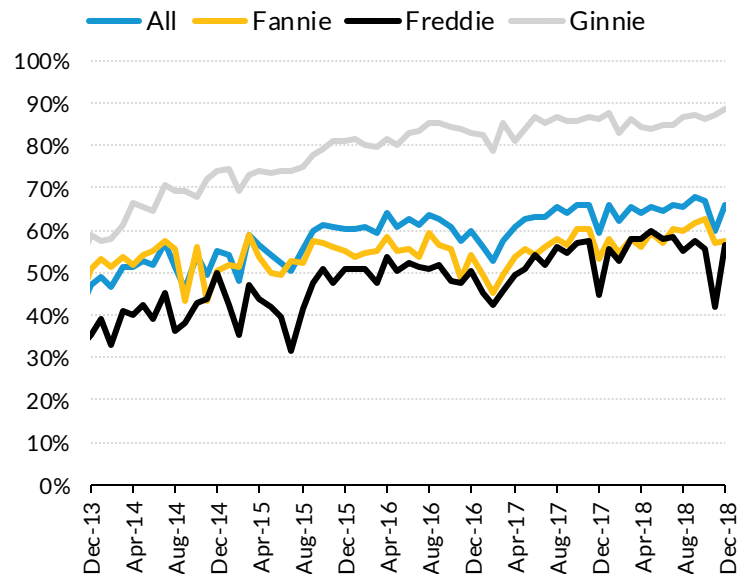


Sources: eMBS and Urban Institute
Note: Data as of December 2018.

Nonbank Origination Share: Purchase Loans



Nonbank Origination Share: Refinance Loans

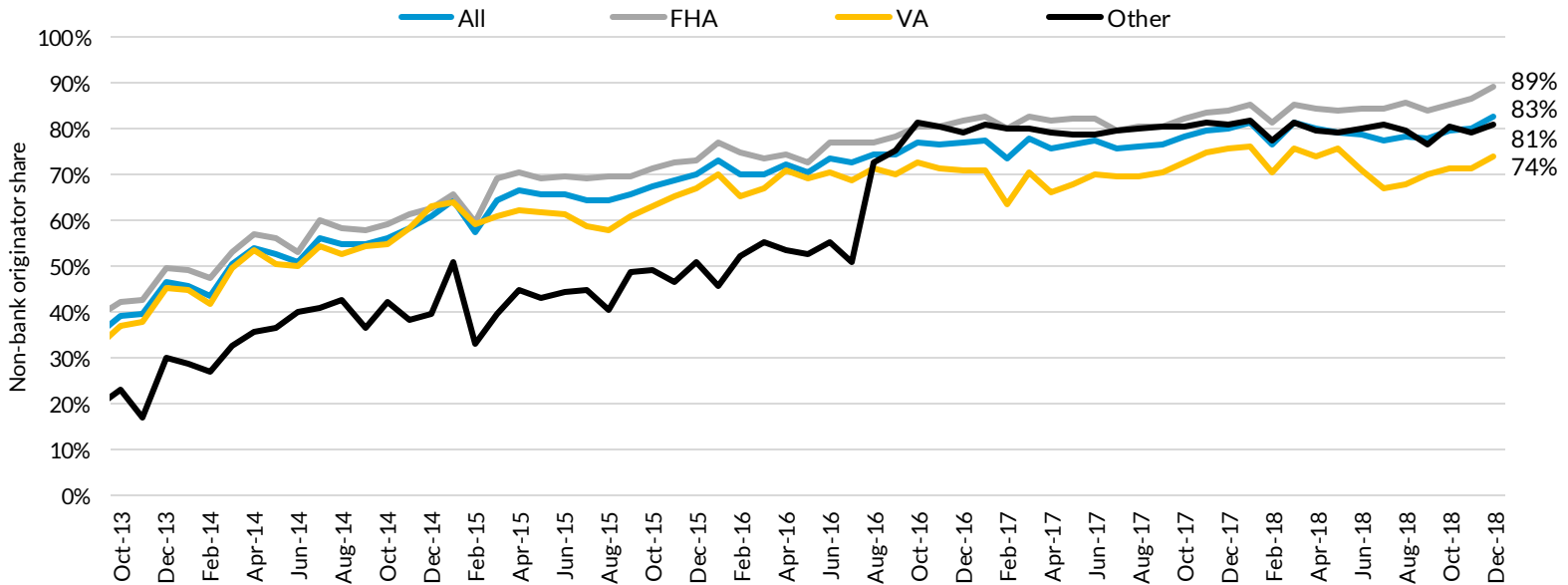


Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of December 2018.

Ginnie Mae Nonbank Originators

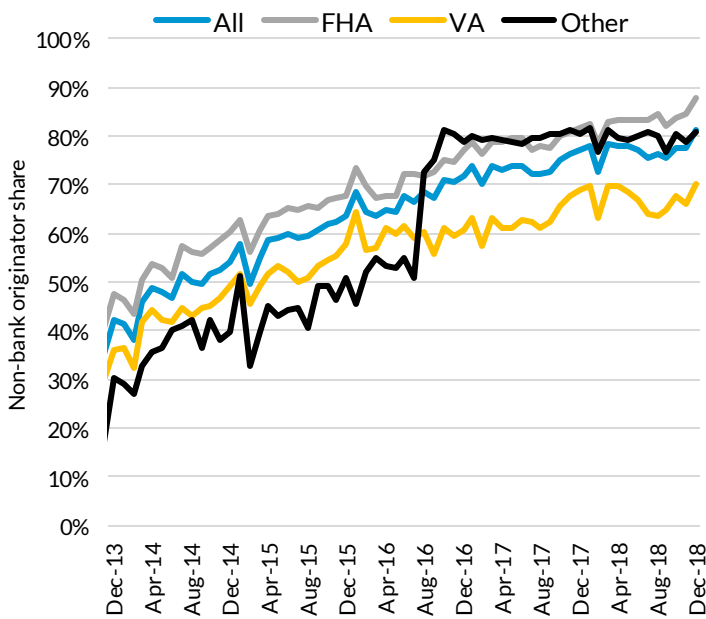
In December 2018, Ginnie Mae's nonbank share hit a new high of 83 percent. The nonbank originator share for FHA increased to 89 percent, also a new historical high. The nonbank originator share for VA rose to 74 percent, and the nonbank originator share for other loans increased to 81 percent.

Ginnie Mae Nonbank Originator Share: All Loans

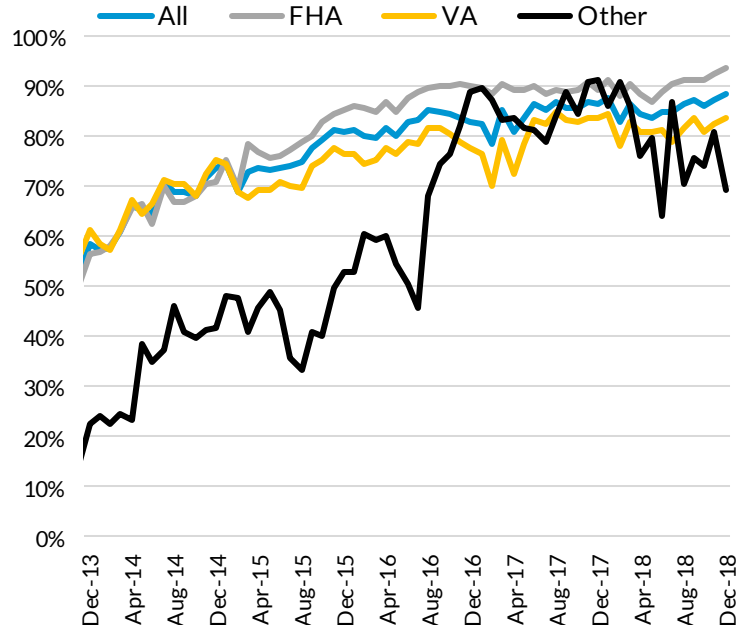


Sources: eMBS and Urban Institute
 Note: Data as of December 2018.

Ginnie Mae Nonbank Share: Purchase Loans



Ginnie Mae Nonbank Share: Refinance Loans

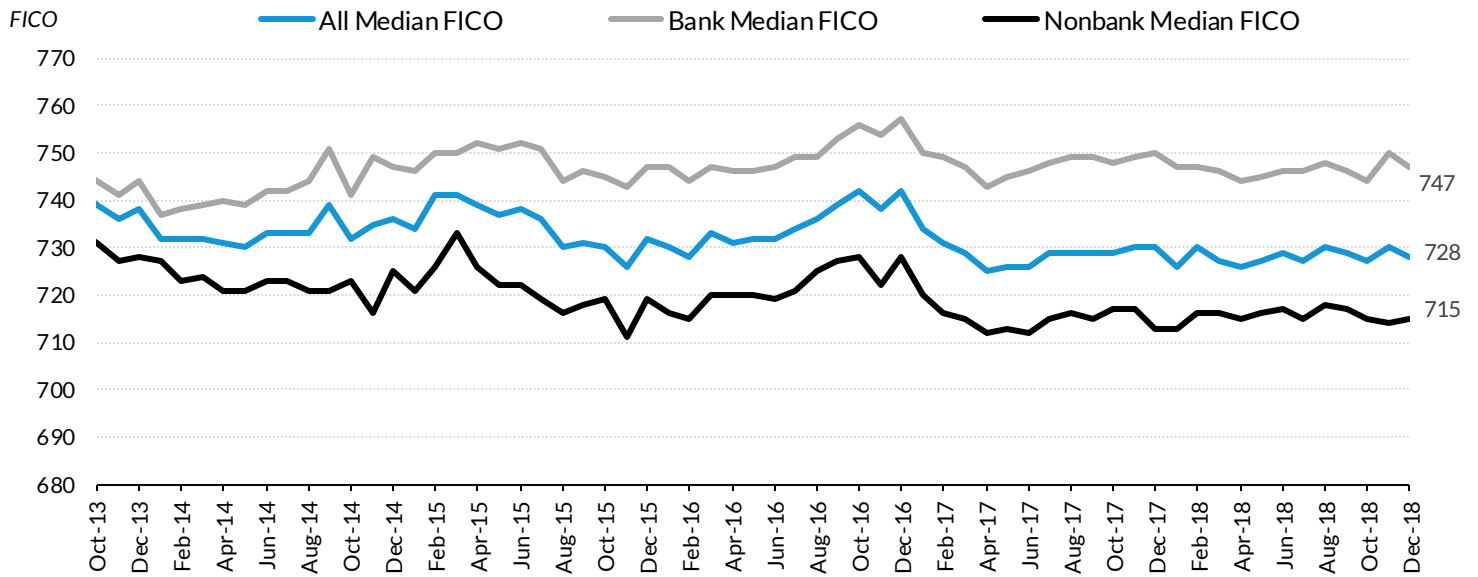


Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of December 2018.

Nonbank Credit Box

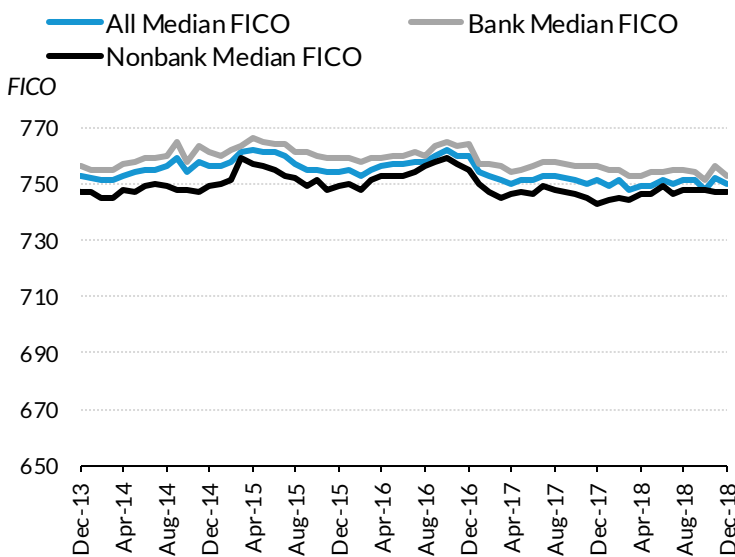
Nonbank originators have played a key role in opening up access to credit. The median GSE and the median Ginnie Mae FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, both bank and nonbank FICOs have declined since 2014 with a further relaxation in FICOs since early 2017. In contrast, within the Ginnie Mae space, FICO scores for bank originations have increased since 2014 while nonbank FICOs have declined. This largely reflects the sharp cut-back in FHA lending by many banks.

Agency FICO: Bank vs. Nonbank



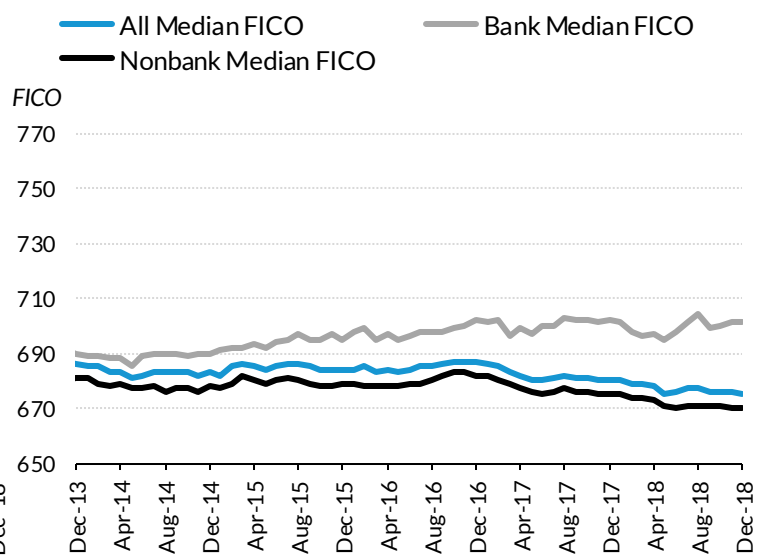
Sources: eMBS and Urban Institute. Note: Data as of December 2018.

GSE FICO: Bank vs. Nonbank



Sources: eMBS and Urban Institute. Note: Data as of December 2018.

Ginnie Mae FICO: Bank vs. Nonbank

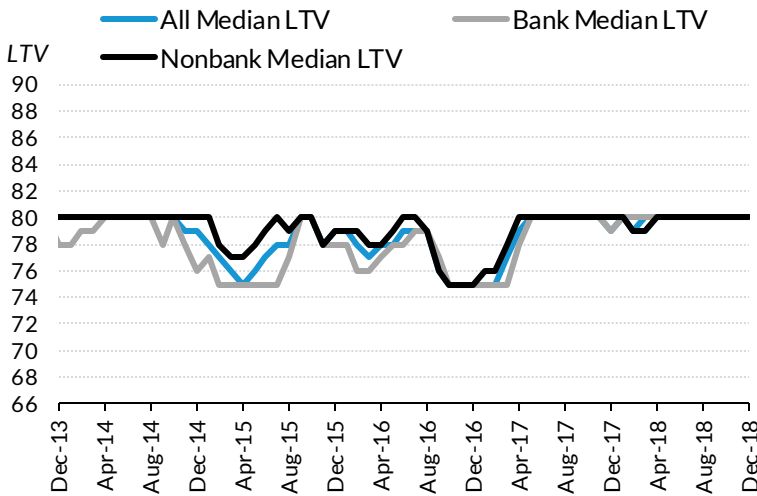


Sources: eMBS and Urban Institute. Note: Data as of December 2018.

Nonbank Credit Box

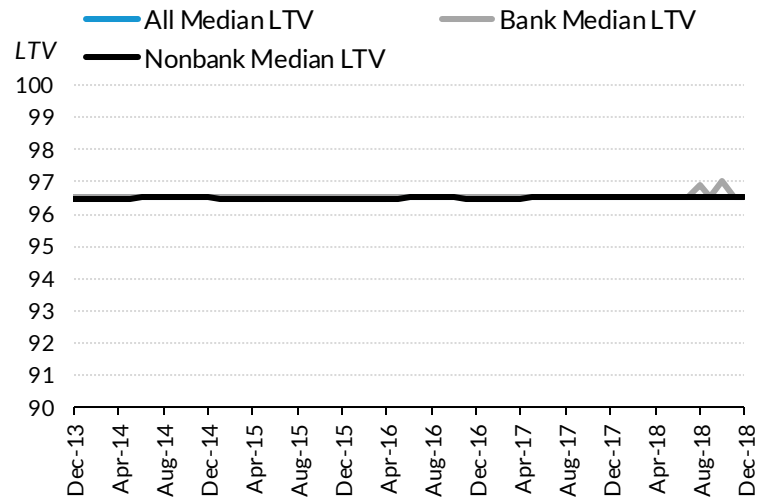
The median LTV ratios for loans originated by nonbanks are similar to that of their bank counterparts, while the median DTIs for nonbank loans are higher, indicating that nonbanks are more accommodating in this dimension as well as in the FICO dimension. Note that since early 2017, there has been a measurable increase in DTIs. This is true for both bank and non-bank originations. Rising DTIs are to be expected amid rising rates and strong house price appreciation.

GSE LTV: Bank vs. Nonbank



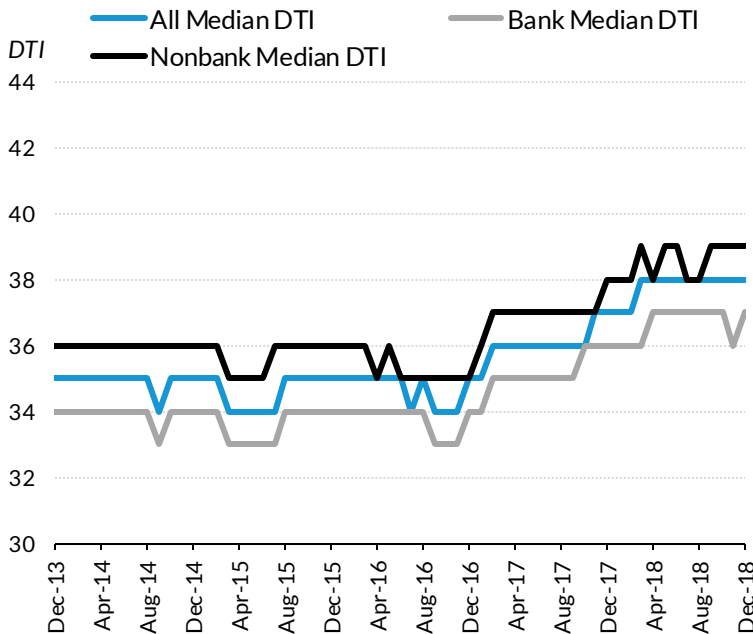
Sources: eMBS and Urban Institute. Note: Data as of December 2018.

Ginnie Mae LTV: Bank vs. Nonbank



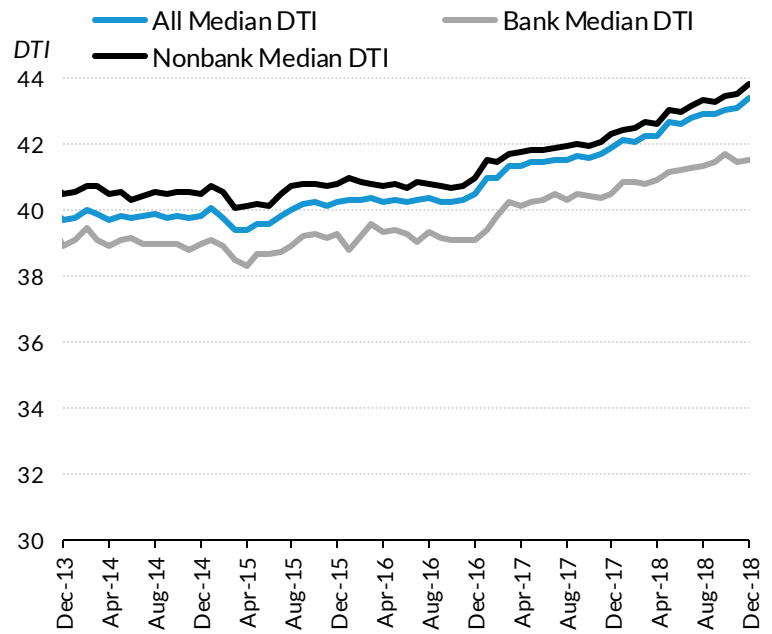
Sources: eMBS and Urban Institute. Note: Data as of December 2018.

GSE DTI: Bank vs. Nonbank



Sources: eMBS and Urban Institute. Note: Data as of December 2018.

Ginnie Mae DTI: Bank vs. Nonbank

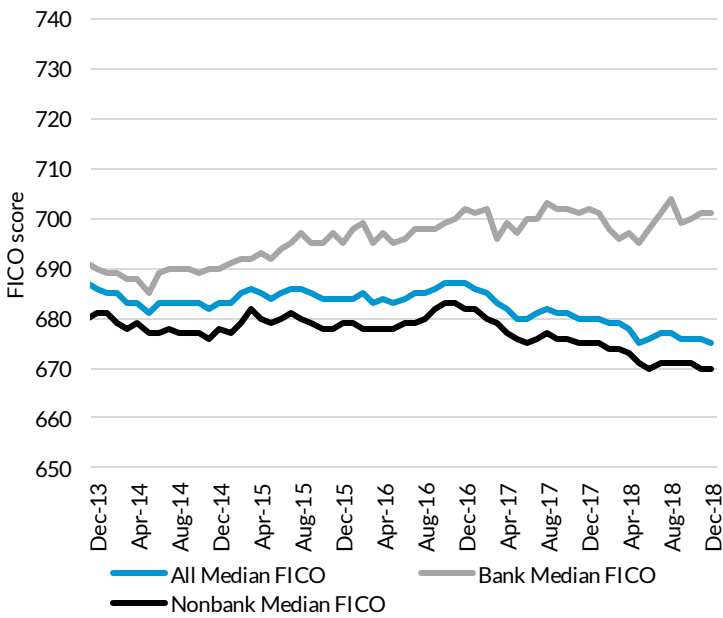


Sources: eMBS and Urban Institute. Note: Data as of December 2018.

Ginnie Mae Nonbank Originators: Credit Box

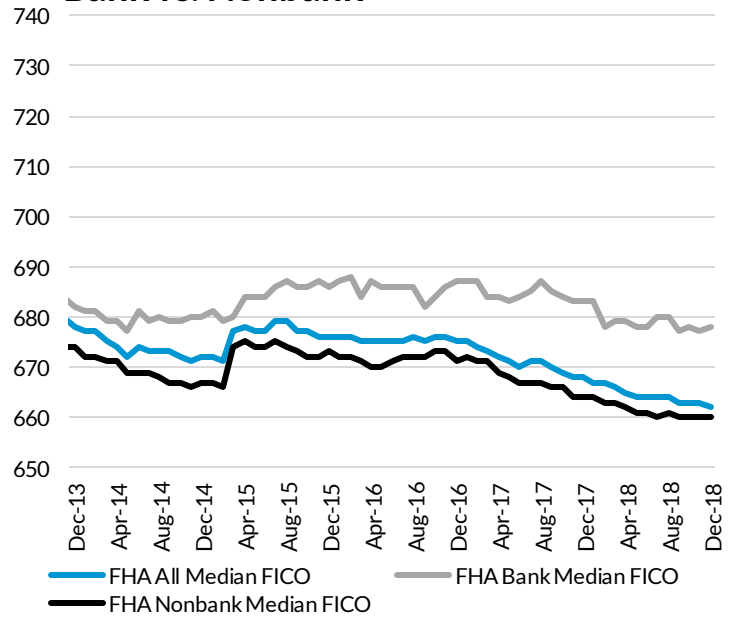
The FICO scores for Ginnie Mae bank and nonbank originators remained flat in December 2018. The spread in the FICO scores between banks and non-banks remains at their widest level since 2013. The gap between banks and non-banks is very apparent in all programs backing Ginnie Mae securities: FHA, VA, and Other.

Ginnie Mae FICO Scores: Bank vs. Nonbank



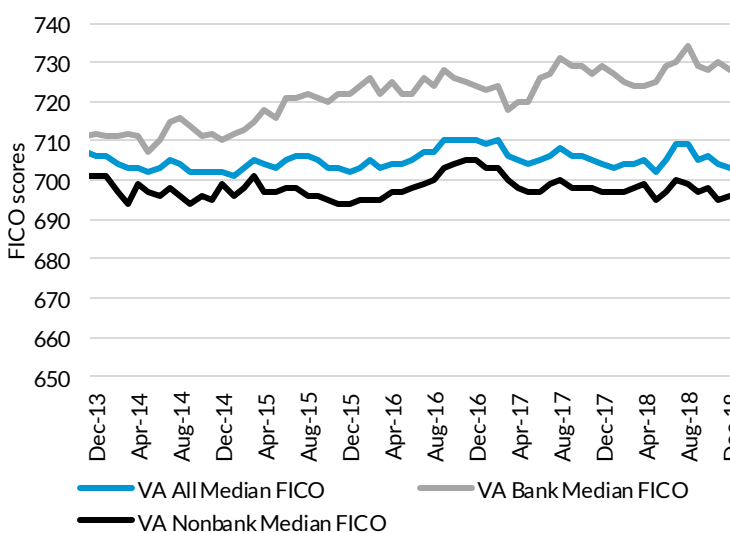
Sources: eMBS and Urban Institute Note: Data as of December 2018.

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



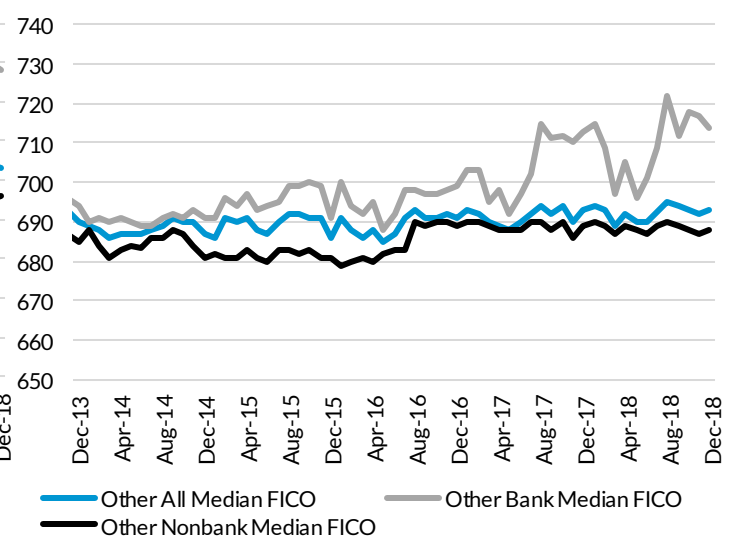
Sources: eMBS and Urban Institute Note: Data as of December 2018.

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



Sources: eMBS and Urban Institute Note: Data as of December 2018.

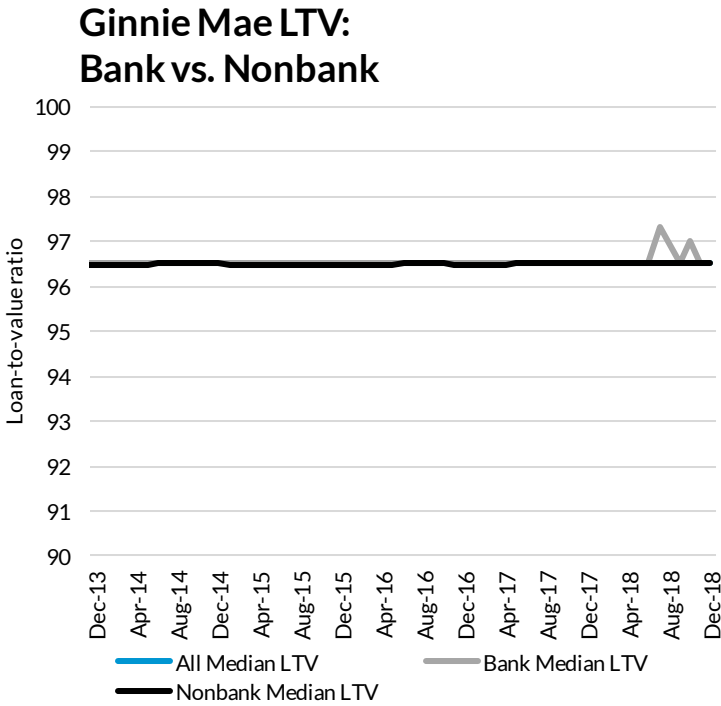
Ginnie Mae Other FICO Scores: Bank vs. Nonbank



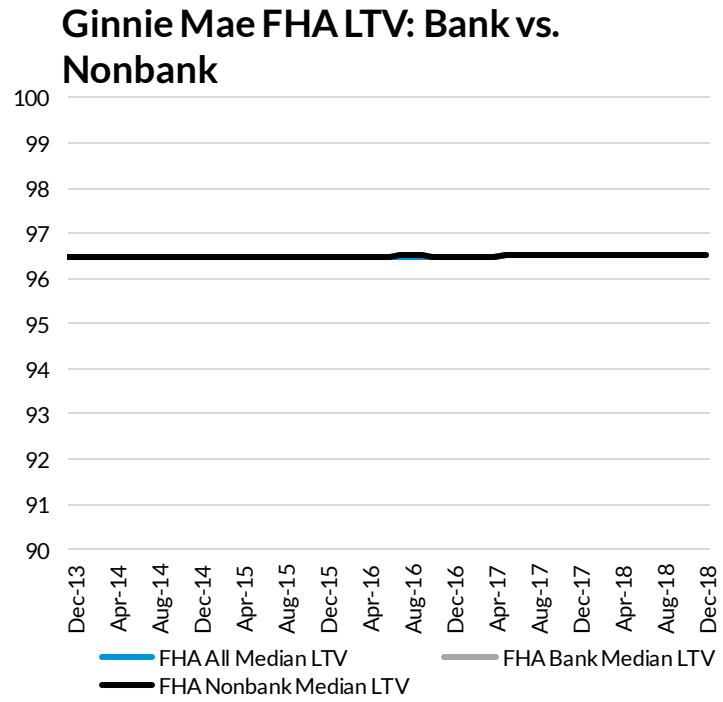
Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of December 2018.

Ginnie Mae Nonbank Originators: Credit Box

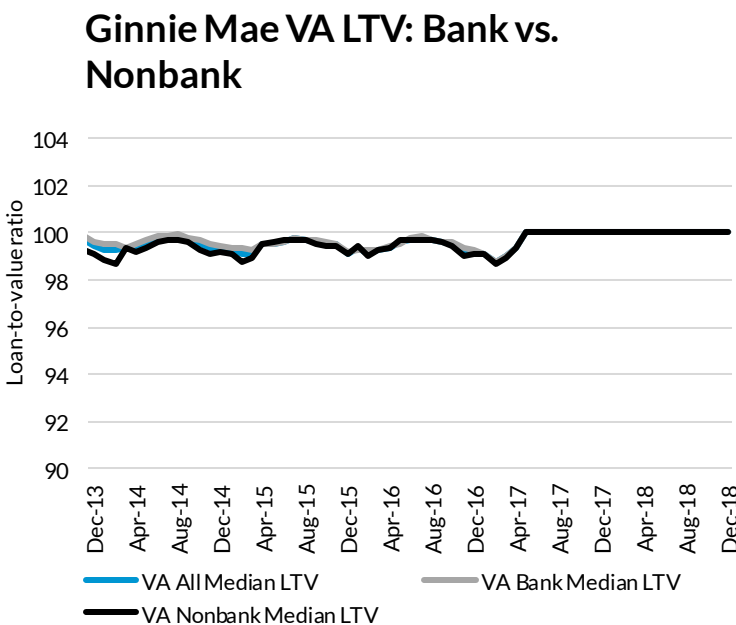
An analysis of the loans backing Ginnie Mae origination indicates that there are virtually no differences in median LTV ratios between bank originated loans and non-bank originated loans.



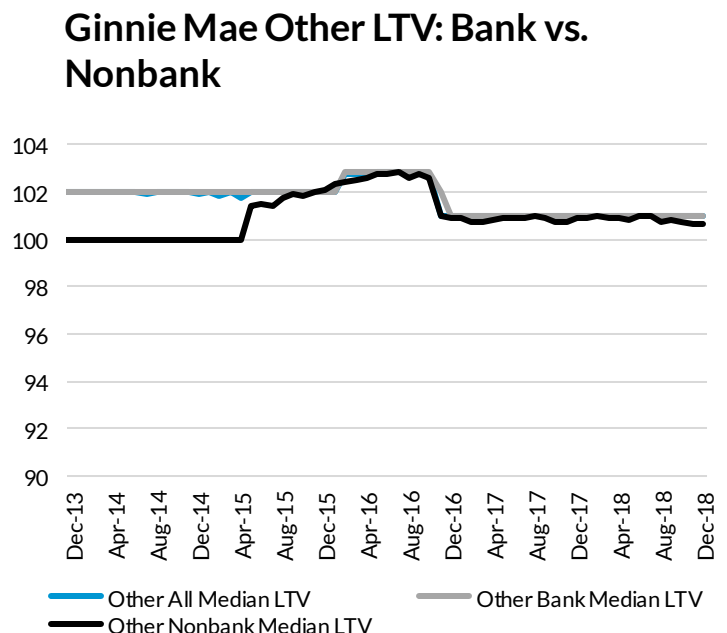
Sources: eMBS and Urban Institute Note: Data as of December 2018.



Sources: eMBS and Urban Institute Note: Data as of December 2018.



Sources: eMBS and Urban Institute Note: Data as of December 2018.

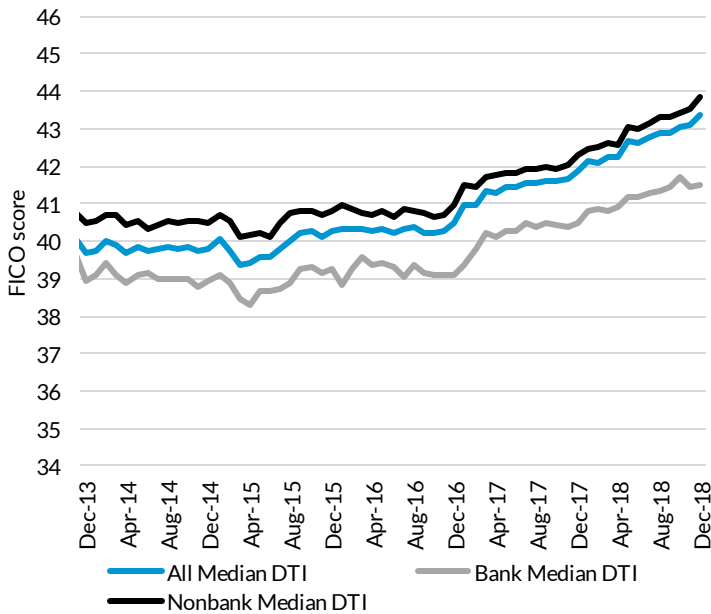


Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of December 2018.

Ginnie Mae Nonbank Originators: Credit Box

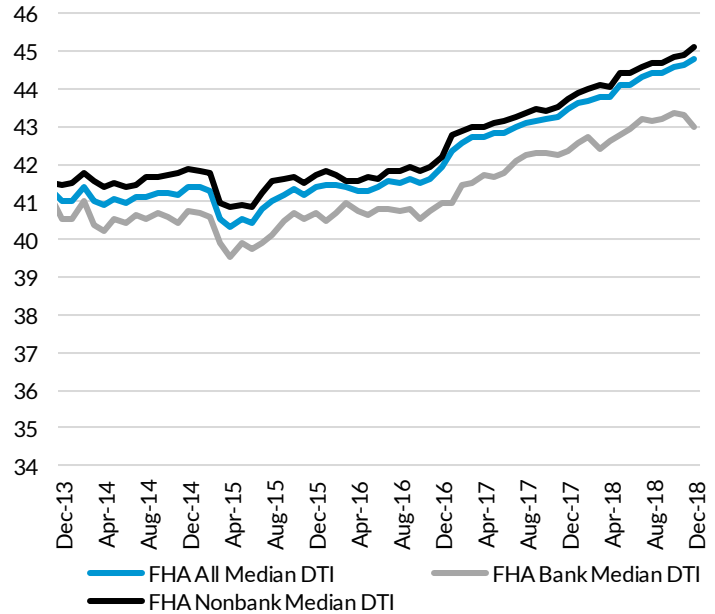
An analysis of borrowers' DTI ratios for bank versus non-bank originators indicates that the former have a lower median DTI. The DTIs for FHA and VA loans experienced notable increases since early 2017 for both bank and nonbank originations, while the Other origination DTIs stayed relatively flat. Rising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

Ginnie Mae DTI: Bank vs. Nonbank



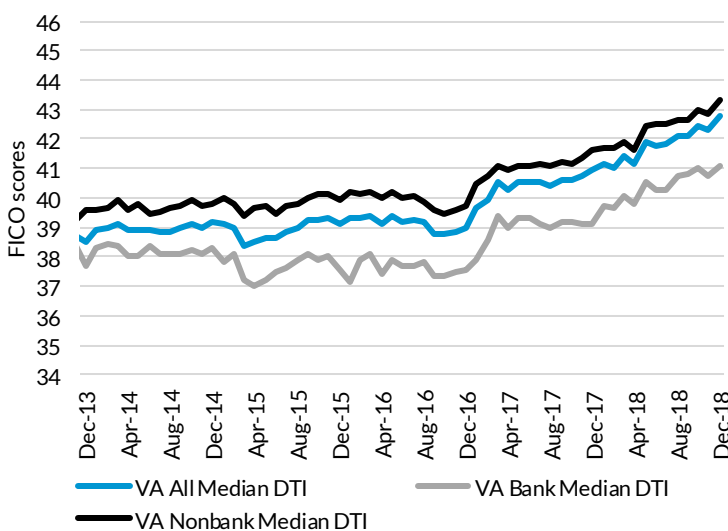
Sources: eMBS and Urban Institute Note: Data as of December 2018.

Ginnie Mae FHA DTI: Bank vs. Nonbank



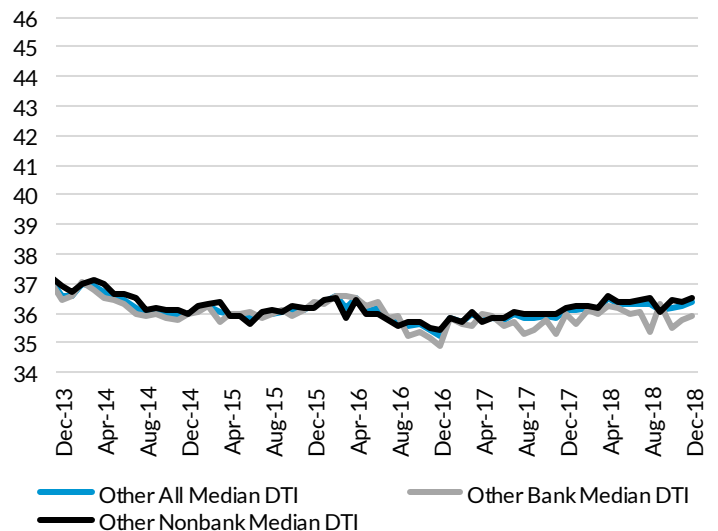
Sources: eMBS and Urban Institute Note: Data as of December 2018.

Ginnie Mae VA DTI: Bank vs. Nonbank



Sources: eMBS and Urban Institute Note: Data as of December 2018.

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 December 2018.

Holders of Ginnie Mae MSR s

This table shows 30 largest owners of mortgage servicing rights (MSR) by UPB for Ginnie Mae securitizations. As of December 2018, over half (51.2 percent) of outstanding Ginnie Mae MSR s were owned by the top six firms. The top 30 firms collectively own 84.3 percent. Eighteen out of these 30 are non-depositories, while the remaining 12 are depositories.

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

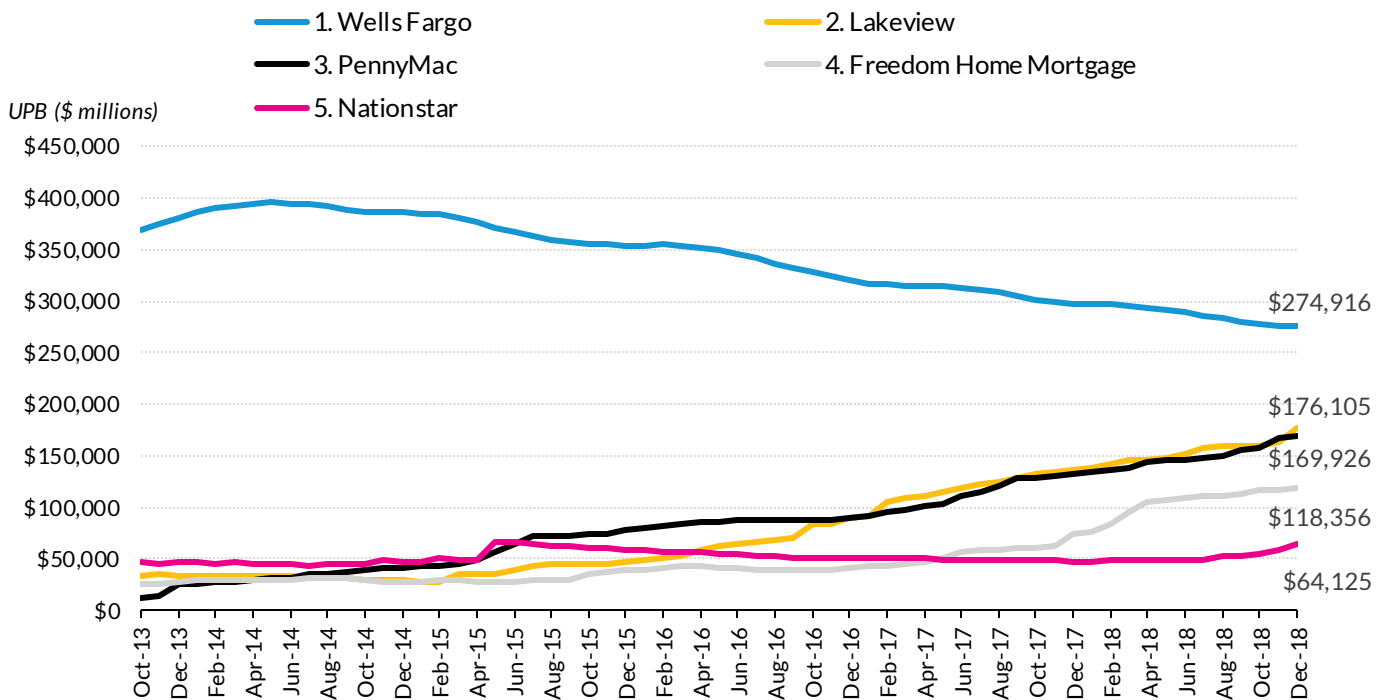
Rank	MSR Holder	UPB (\$ millions)	Share	Cumulative Share
1	Wells Fargo	\$274,916	16.3%	16.3%
2	Lakeview	\$176,105	10.4%	26.7%
3	PennyMac	\$169,926	10.0%	36.7%
4	Freedom Home Mortgage	\$118,356	7.0%	43.7%
5	Nationstar	\$64,125	3.8%	47.5%
6	Quicken Loans	\$63,148	3.7%	51.2%
7	US Bank	\$60,646	3.6%	54.8%
8	JPMorgan Chase	\$57,313	3.4%	58.2%
9	Carrington Home Mortgage	\$43,871	2.6%	60.8%
10	Caliber Home Loans	\$42,358	2.5%	63.3%
11	USAA Federal Savings Bank	\$35,805	2.1%	65.4%
12	New Penn Financial	\$28,546	1.7%	67.1%
13	Midfirst	\$24,757	1.5%	68.6%
14	Navy Federal Credit Union	\$22,762	1.3%	69.9%
15	The Money Source	\$19,392	1.1%	71.1%
16	Pacific Union Financial	\$19,387	1.1%	72.2%
17	Ditech Financial	\$18,744	1.1%	73.3%
18	Amerihome Mortgage	\$17,727	1.0%	74.4%
19	Suntrust	\$17,564	1.0%	75.4%
20	Home Point Financial	\$16,325	1.0%	76.4%
21	Branch Banking and Trust	\$16,074	1.0%	77.3%
22	Loan Depot	\$15,756	0.9%	78.3%
23	Pingora	\$15,239	0.9%	79.2%
24	Guild Mortgage	\$15,120	0.9%	80.1%
25	Ocwen	\$13,577	0.8%	80.9%
26	Bank of America	\$12,717	0.8%	81.6%
27	Roundpoint	\$11,261	0.7%	82.3%
28	PNC	\$11,242	0.7%	83.0%
29	Citizens Bank	\$11,173	0.7%	83.6%
30	Flagstar Bank	\$10,814	0.6%	84.3%

Sources: eMBS and Urban Institute. Note: Data as of December 2018.

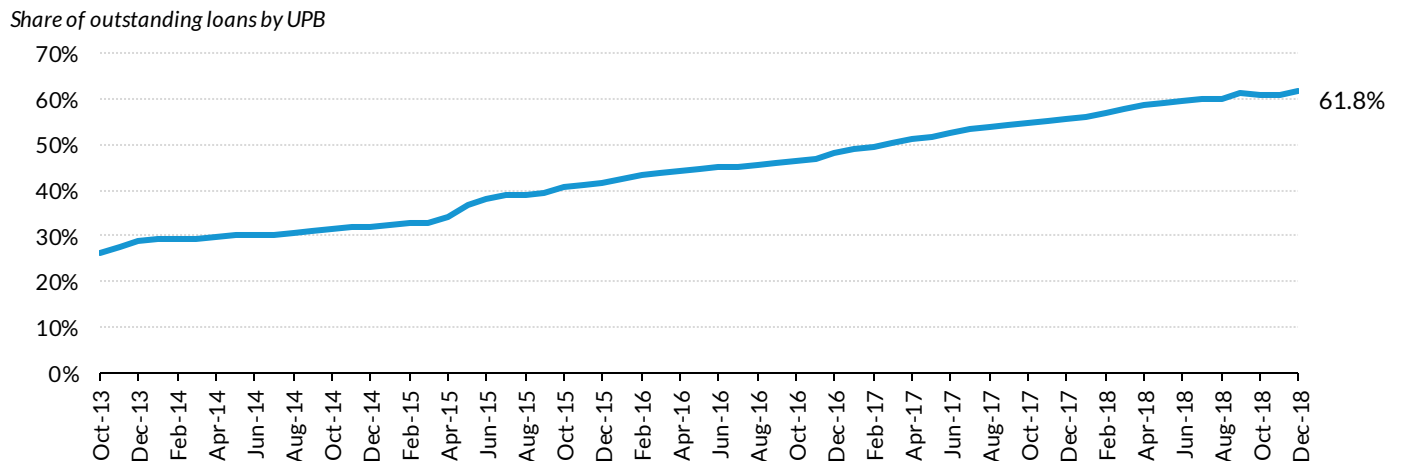
Holders of Ginnie Mae MSR

The composition of the largest owners of Ginnie Mae MSR has evolved quite a bit over time. In December 2013, Wells Fargo and JP Morgan Chase were the two largest owners of Ginnie Mae MSRs, holding \$375 billion and \$139 billion in servicing UPB respectively. Although Wells Fargo is still the largest player, its portfolio has shrunk to \$278 billion. Lakeview, PennyMac, Freedom Home Mortgage, and Nationstar (all nonbanks) make up the remainder of the top five largest holders of MSRs, owning \$160 billion, \$158 billion, \$116 billion, and \$64 billion respectively as of December 2018. JPMorgan Chase is no longer in the top five. As of December 2018, nonbanks collectively owned servicing rights for 61.8 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



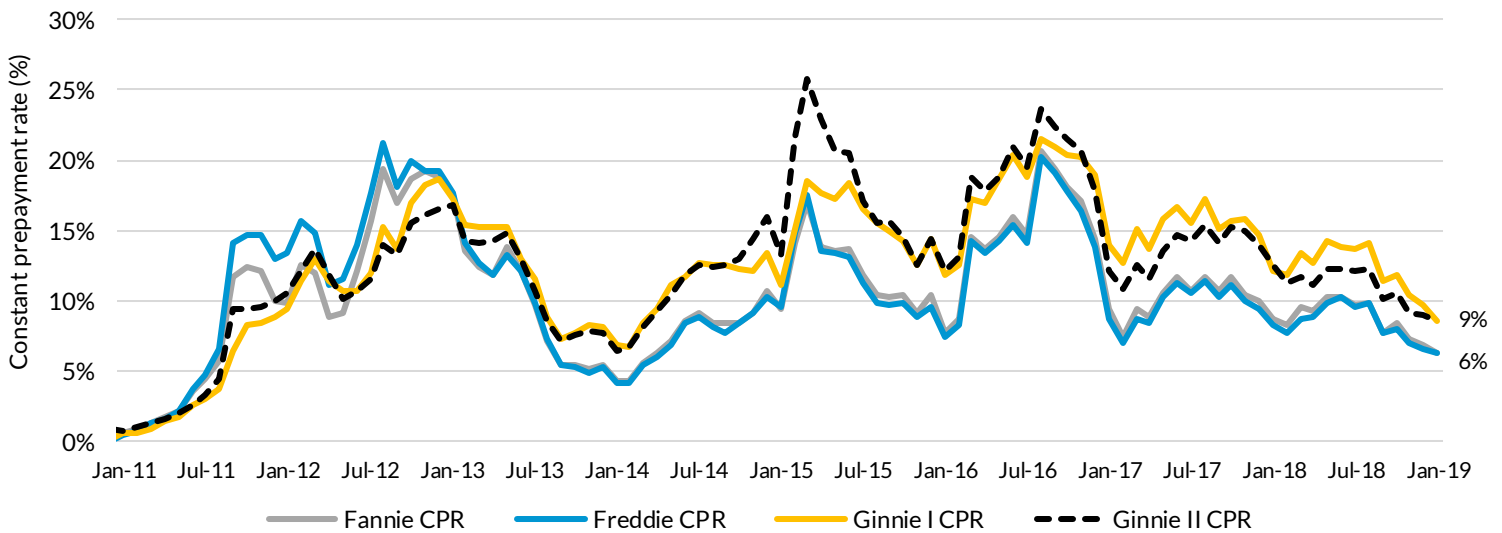
Sources: eMBS and Urban Institute. Note: Data as of December 2018.

Prepayments

Prepayments on Ginnie Mae securities were lower than on GSE securities from 2011 through mid-2013, but have been higher since. These increased Ginnie speeds reflect the growing share of VA loans, which 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. Moreover, both FHA and VA permit refinancing of existing mortgages after 6 months, while the GSEs do not allow refinancing for a year.

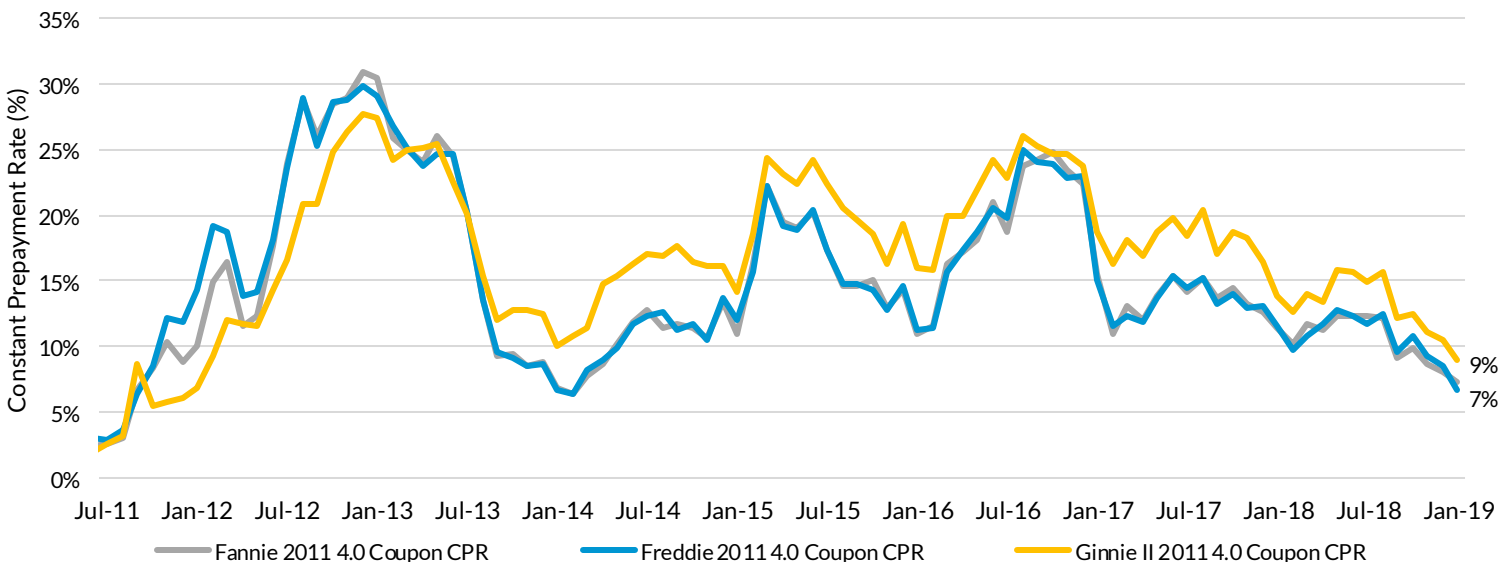
With the increase in interest rates since November 2016, the prepayment speeds for all agencies have slowed down considerably. Over the past 18 months, with the bulk of the mortgage universe finding it non-economical to refinance, the small month to month variation in speeds reflects seasonality, changes in day count and changes in rates. With mortgage rates well above 4%, we expect prepayments to remain at low.

Aggregate Prepayments



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

2011 Issued 4.0 Coupon CPR



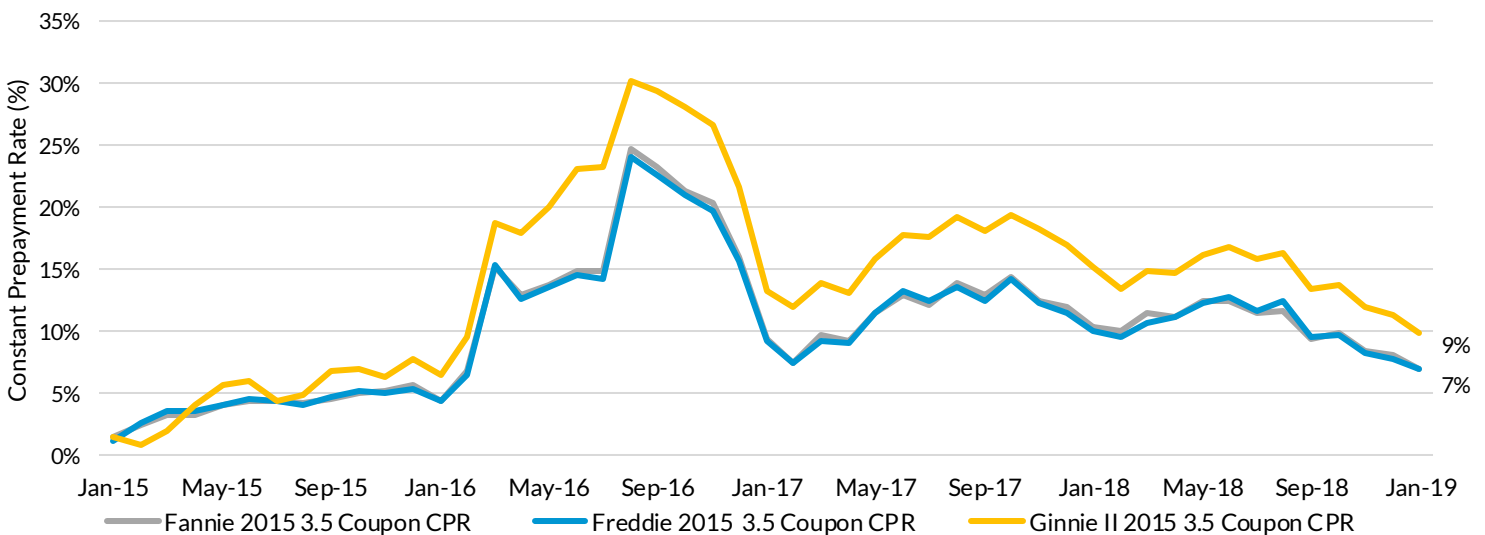
Sources: Credit Suisse and Urban Institute. Note: Data as of January 2019.

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.

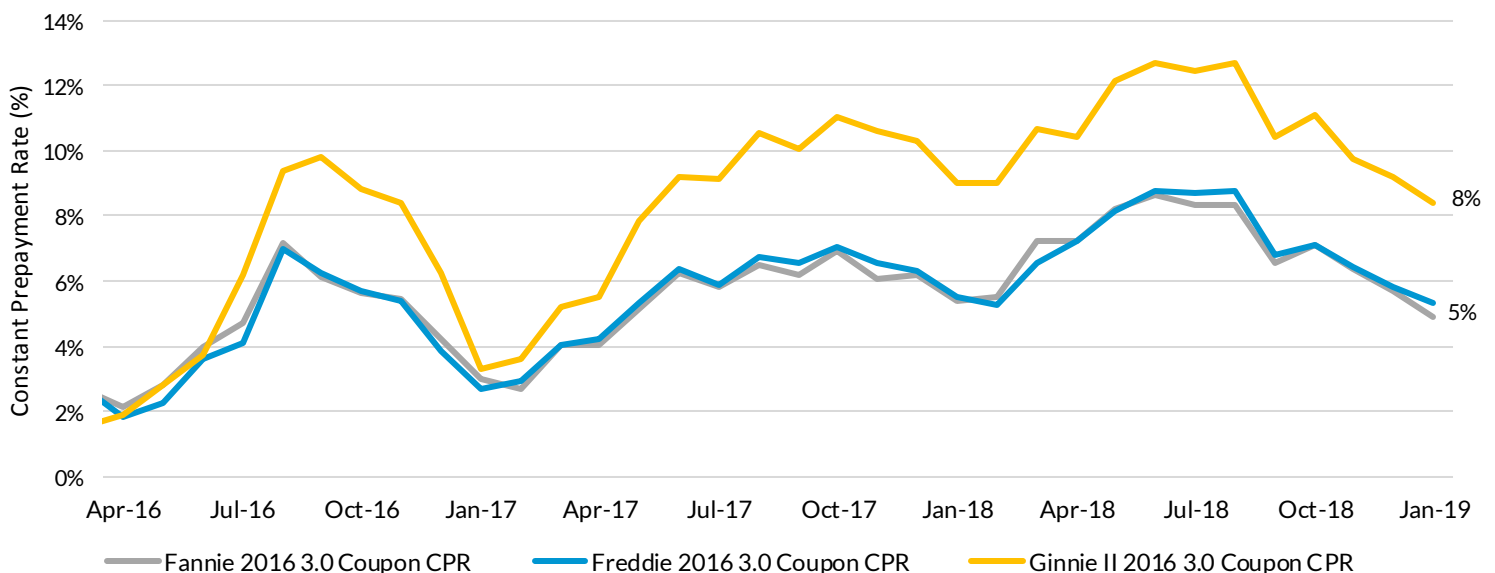
After a sharp mortgage rate rise in November 2016, the prepayment speeds of Ginnie Mae and conventional loans both fell dramatically. Over the past year, with the bulk of the mortgage universe finding it non-economic to refinance, the muted month to month variations in speeds reflect seasonality, changes in day count and changes in mortgage interest rates. With mortgage rates substantially above 4%, we would expect prepayments in the coming months to stay at low levels.

2015 Issued 3.5 Coupon CPR



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

2016 Issued 3.0 Coupon CPR

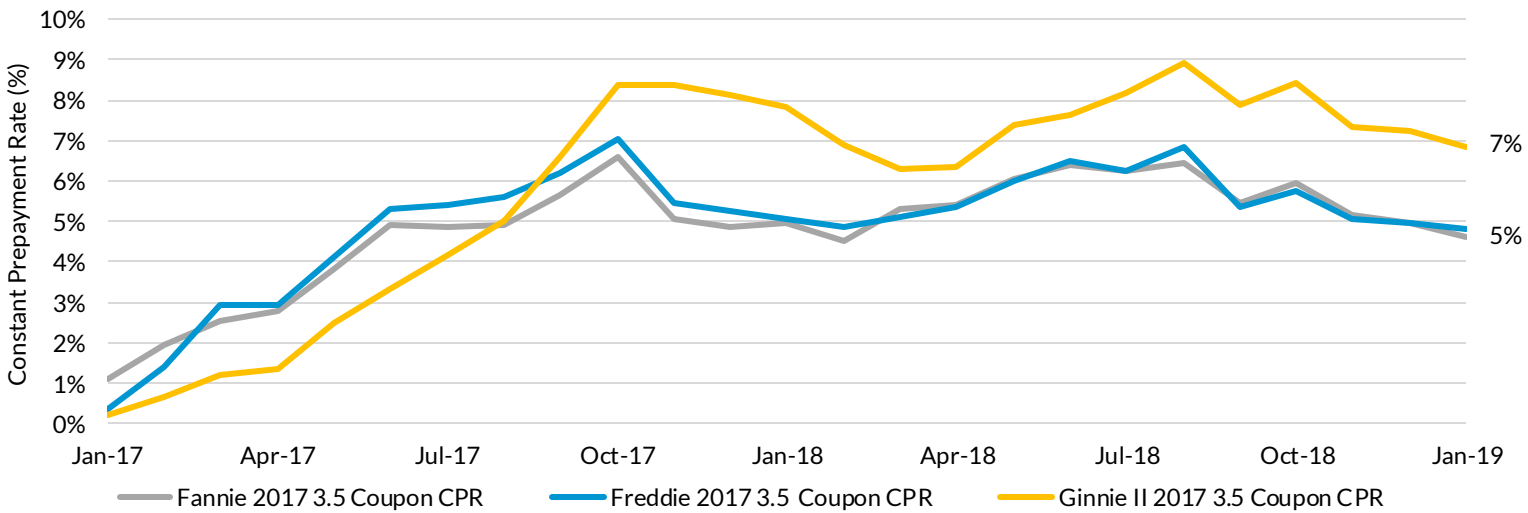


Sources: Credit Suisse and Urban Institute. Note: Data as of January 2019.

Prepayments

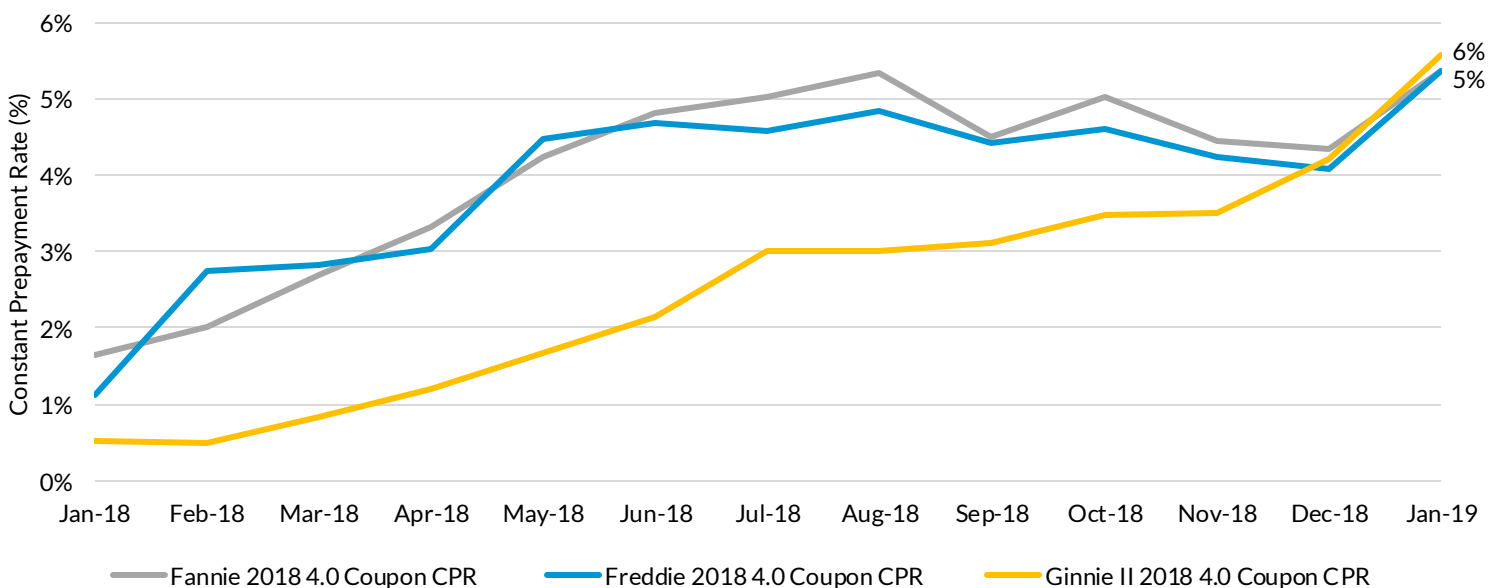
Ginnie Mae securities season more slowly than their conventional counterparts; they generally have lower prepayments in the early months. The charts below show the behavior of the 2017-issued 3.5s and the 2018-issued 4.0s, the largest coupon cohorts of those vintage years. Despite slower seasoning, 2017 Ginnie II 3.5s have been prepaying faster than their conventional counterparts since late 2017, due primarily to fast VA prepayment speeds. In comparison, the 2018 Ginnie II 4.0s have, for the most part, prepaid slower than their conventional counterparts. Speeds picked up for all 2018 4.0s towards the end of 2018 and in Jan 2019, likely driven by falling mortgage rates since November.

2017 Issued 3.5 Coupon CPR



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

2018 Issued 4.0 Coupon CPR

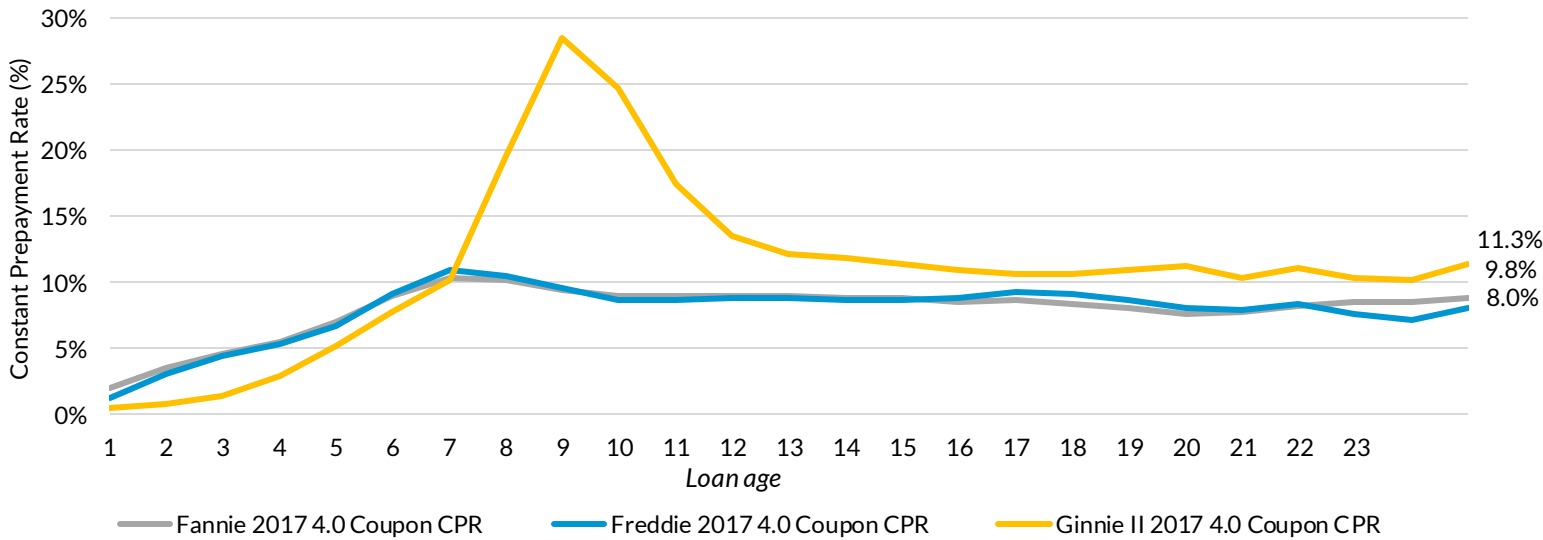


Sources: Credit Suisse and Urban Institute. Note: Data as of January 2019.

Prepayments

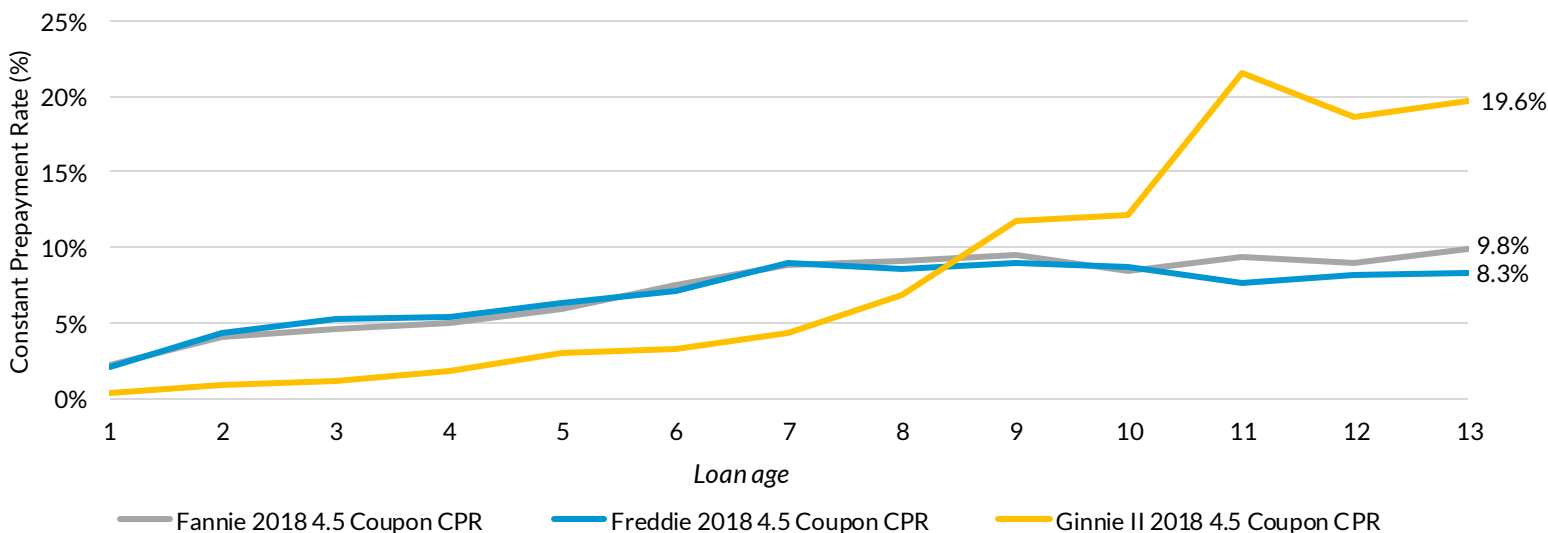
The charts below show the prepayment speeds by loan age for 2017 Ginnie II 4.0s and 2018 Ginnie II 4.5s—the cohorts 50 basis points above the largest coupon cohort for those years. Prepayment speeds on the 2017 Ginnie II 4.0s jumped up sharply at the 7-9 month loan age, reflecting abuse of the VA Streamlined Refi program (IRRRL). The 2018 Ginnie II 4.5s do not show increased speeds until the 11-13 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. In addition, VA has implemented a net tangible benefit test, requiring the lender to show the borrower has obtained a benefit from the refinance.

2017 Issued 4.0 Coupon CPR, by Loan Age



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

2018 Issued 4.5 Coupon CPR, by Loan Age



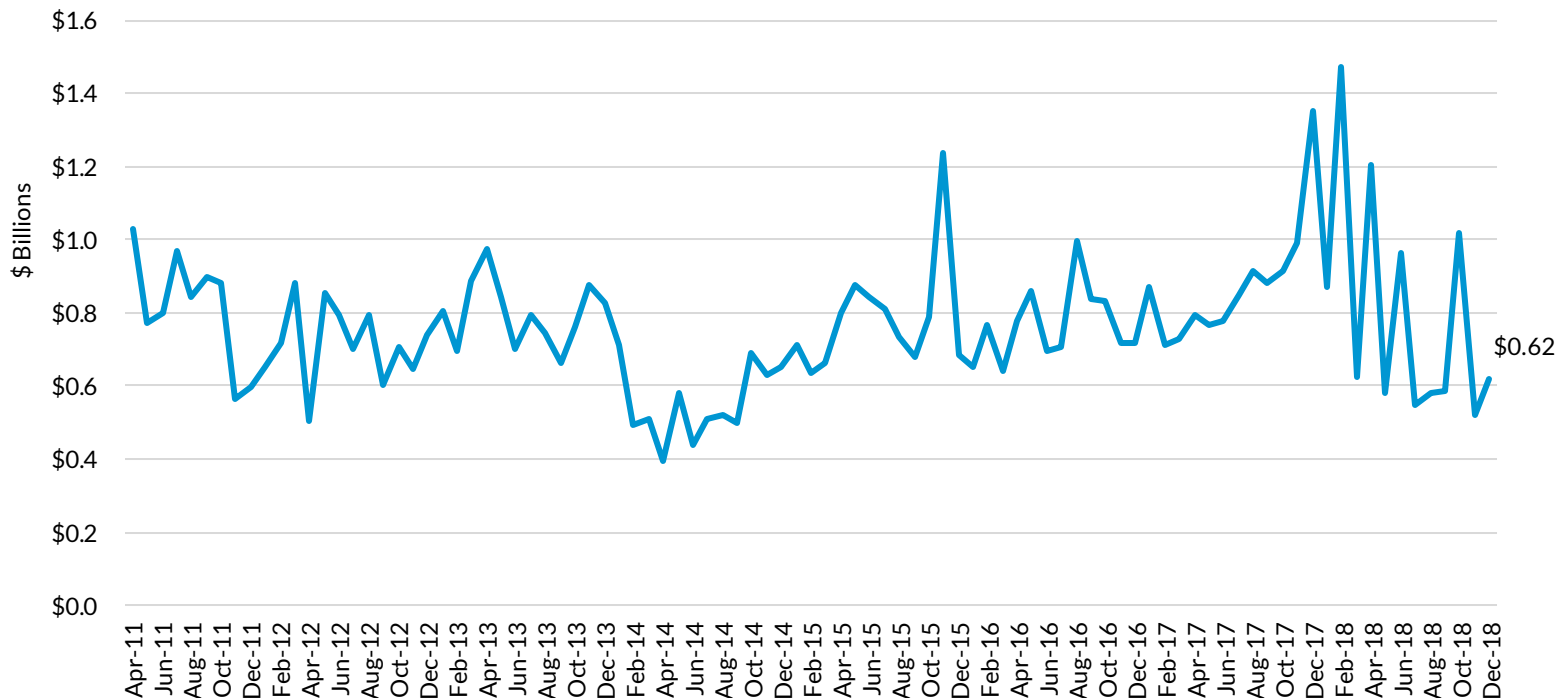
Sources: Credit Suisse and Urban Institute. Note: Data as of January 2019.

Other Ginnie Mae Programs

Reverse Mortgage Volumes

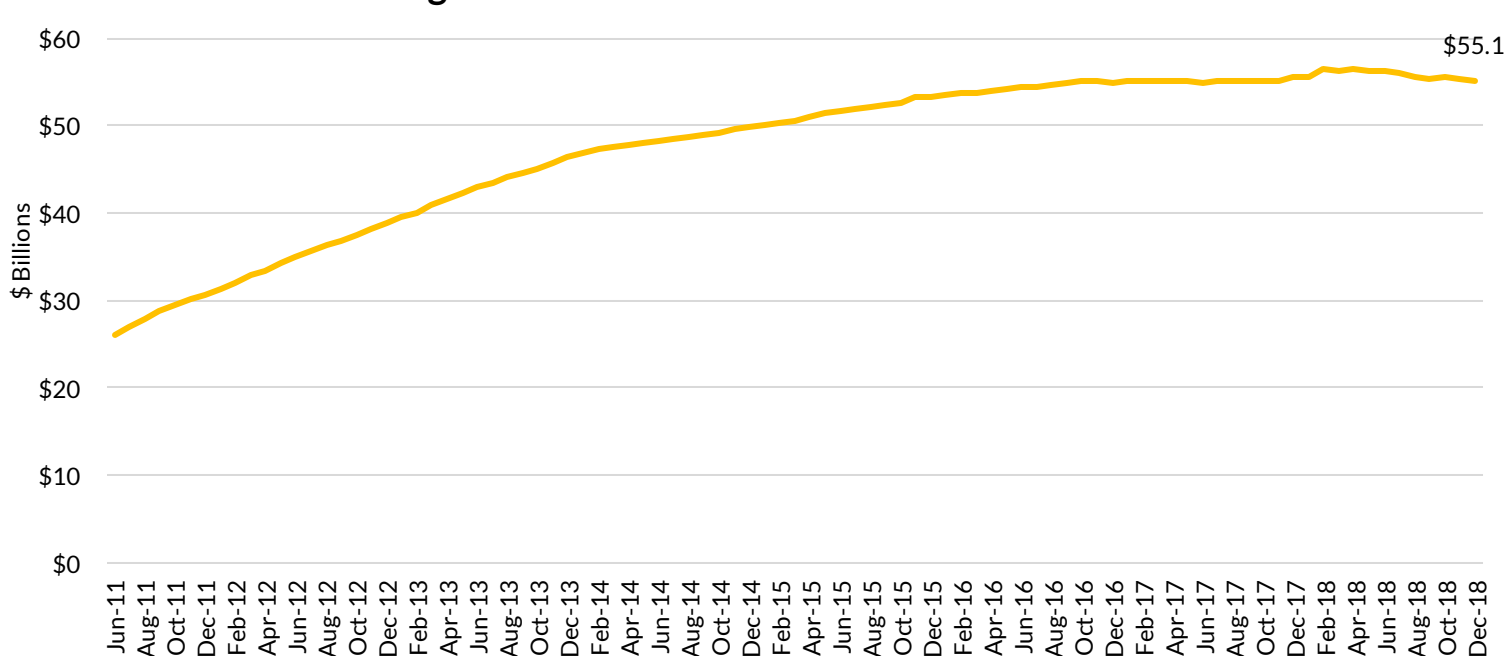
Ginnie Mae reverse mortgage issuance has been volatile in recent months. The December 2018 volume increased slightly to \$0.62 billion, near the lower end of the range in recent years. Issuance has been declining since early 2018 largely due to the implementation of the new, lower principal limit factors. In December 2018, outstanding reverse mortgage securities totaled \$55.1 billion.

HMBS Issuance Volume



Sources: Ginnie Mae and Urban Institute. Note: Data as of December 2018.

HMBS Outstanding



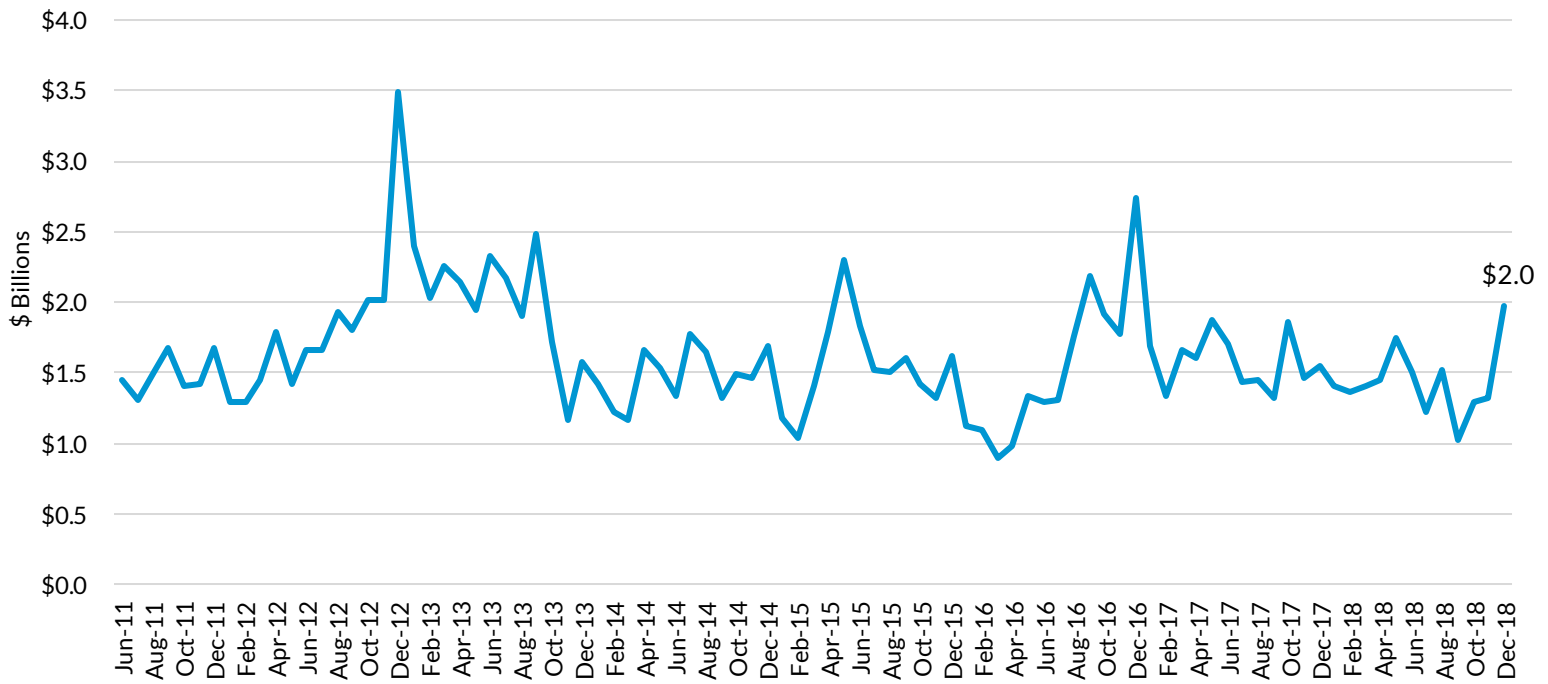
Sources: Ginnie Mae and Urban Institute. Note: Data as of December 2018.

Other Ginnie Mae Programs

Multifamily Market

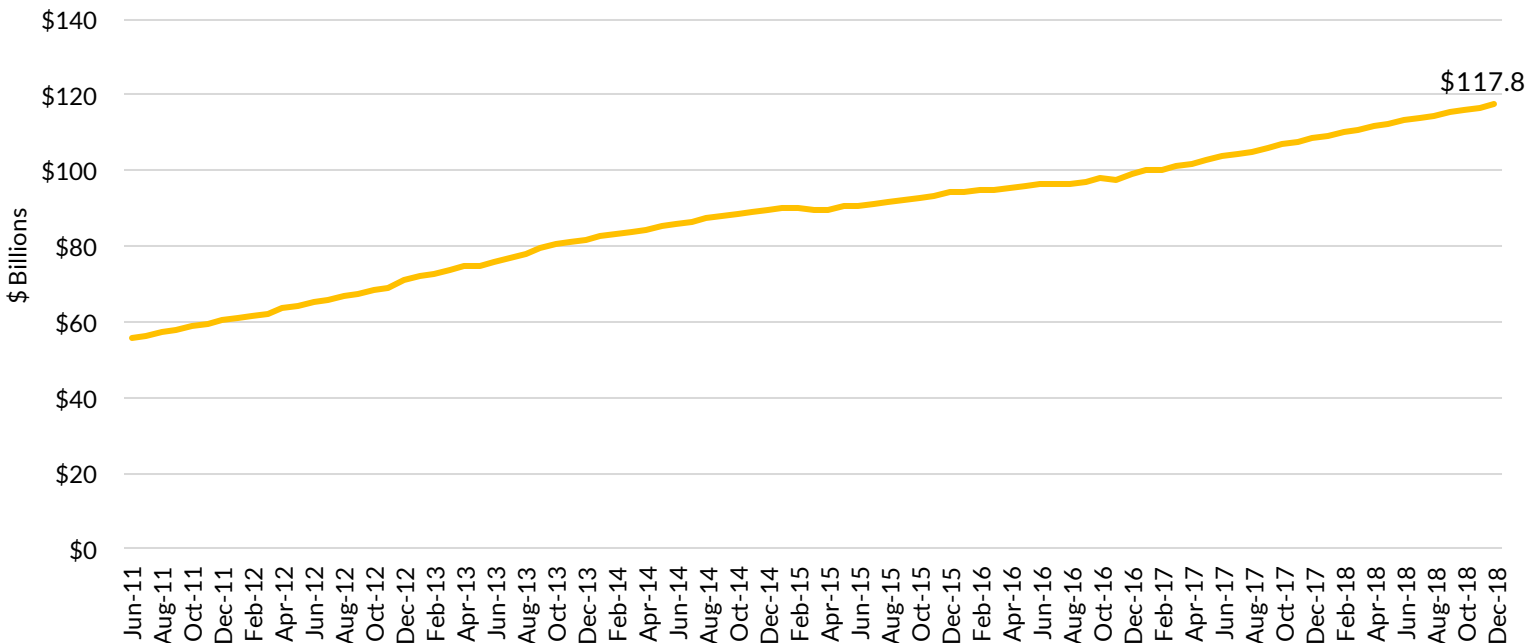
Ginnie Mae multifamily issuance volume in December 2018 totaled \$2.0 billion, on par with average issuance levels over the past 18 months. Outstanding multifamily securities totaled \$117.8 billion in December.

Ginnie Mae Multifamily MBS Issuance



Sources: Ginnie Mae and Urban Institute. Note: Data as of December 2018.

Ginnie Mae Multifamily MBS Outstanding

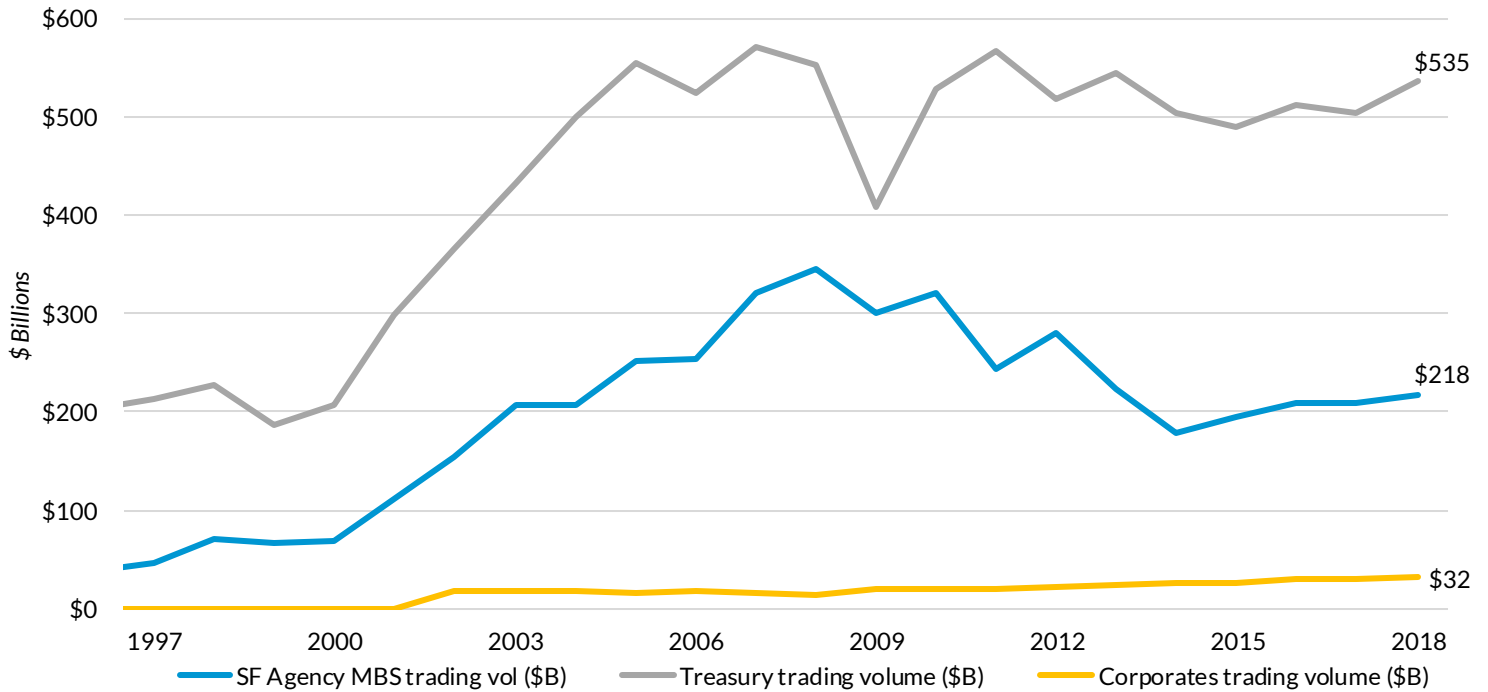


Sources: Ginnie Mae and Urban Institute. Note: Data as of December 2018.

Market Conditions

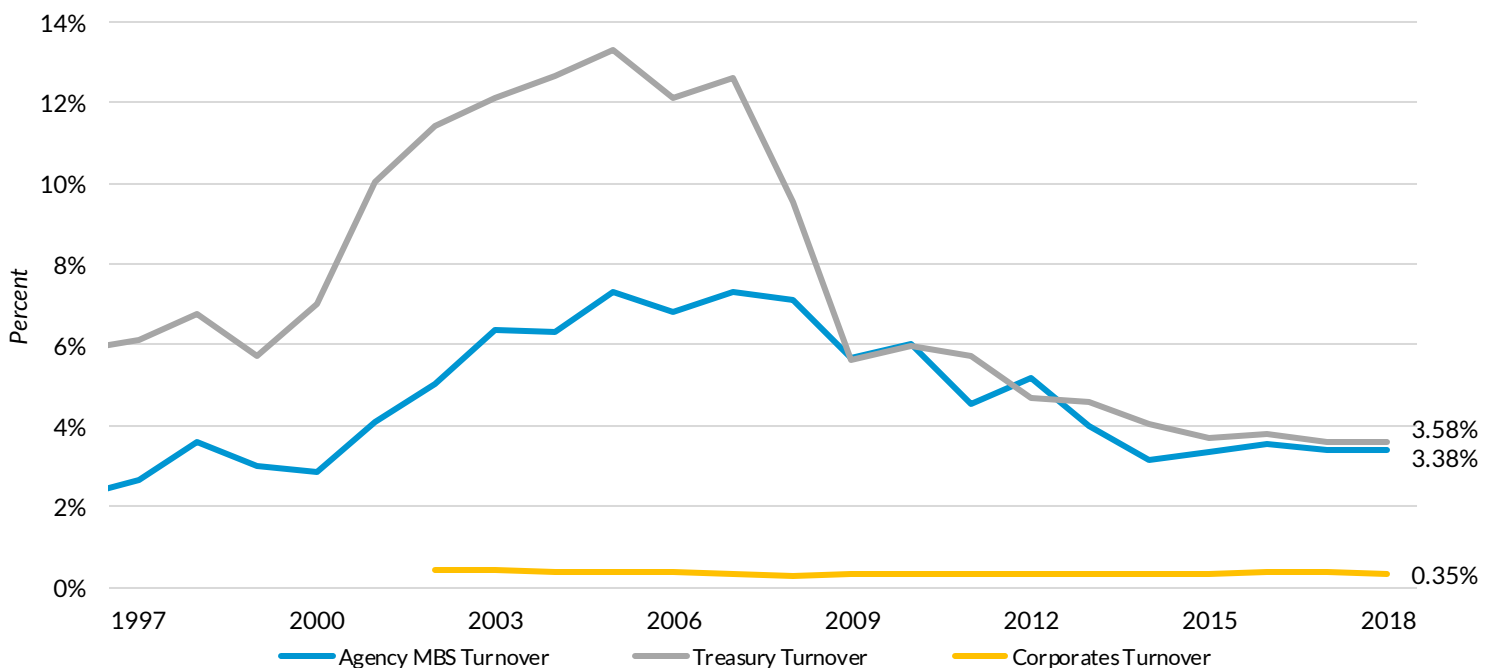
Agency MBS trading volume was \$218 billion/day on average in 2018; slightly more robust than in the 2014-2017 period. Agency MBS turnover in 2018 was on par with the 2014-2017 period; in 2018, averagedaily MBS turnover was 3.38 percent, the same level as in 2017. Both averagedaily mortgage and Treasury 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 December 2018.

Average Daily Turnover by Sector

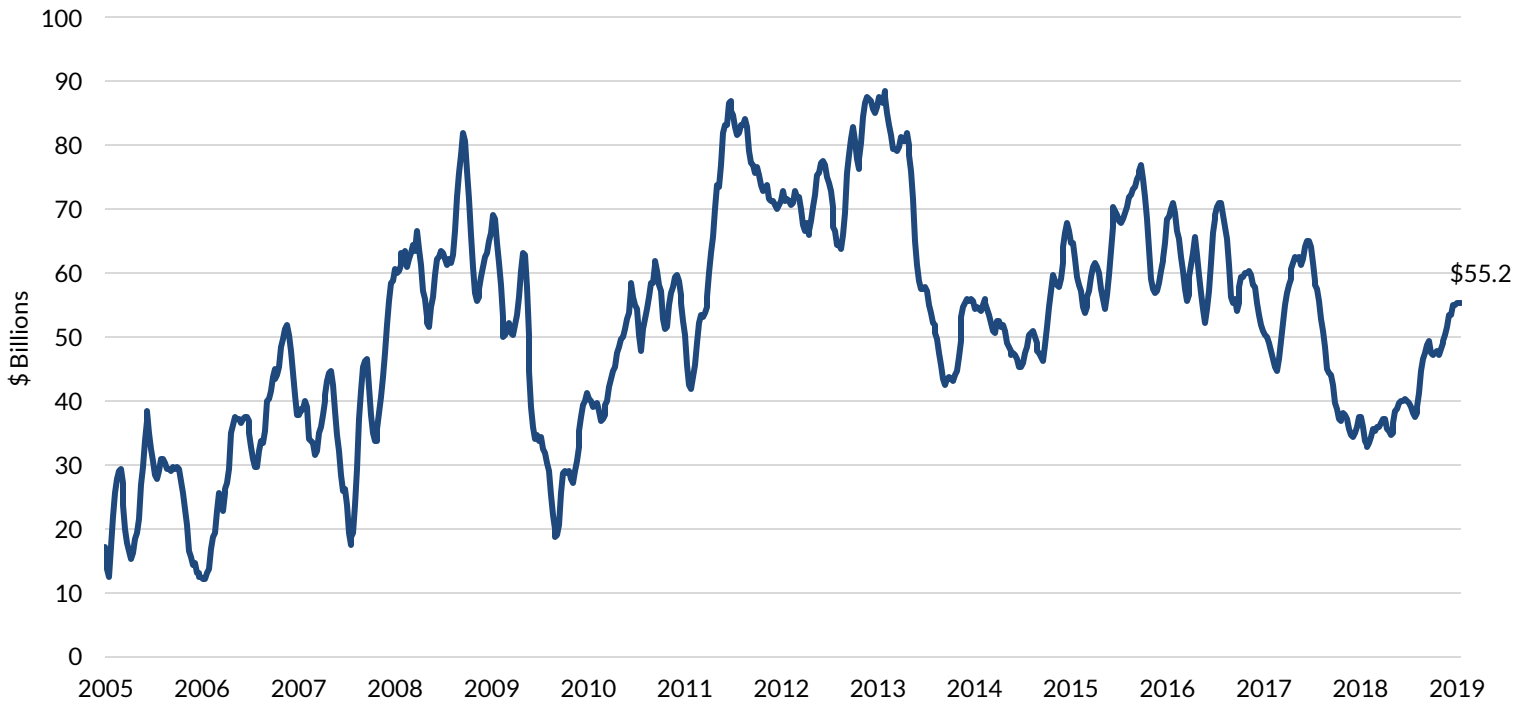


Sources: SIFMA and Urban Institute. Note: Data as of December 2018.

Market Conditions

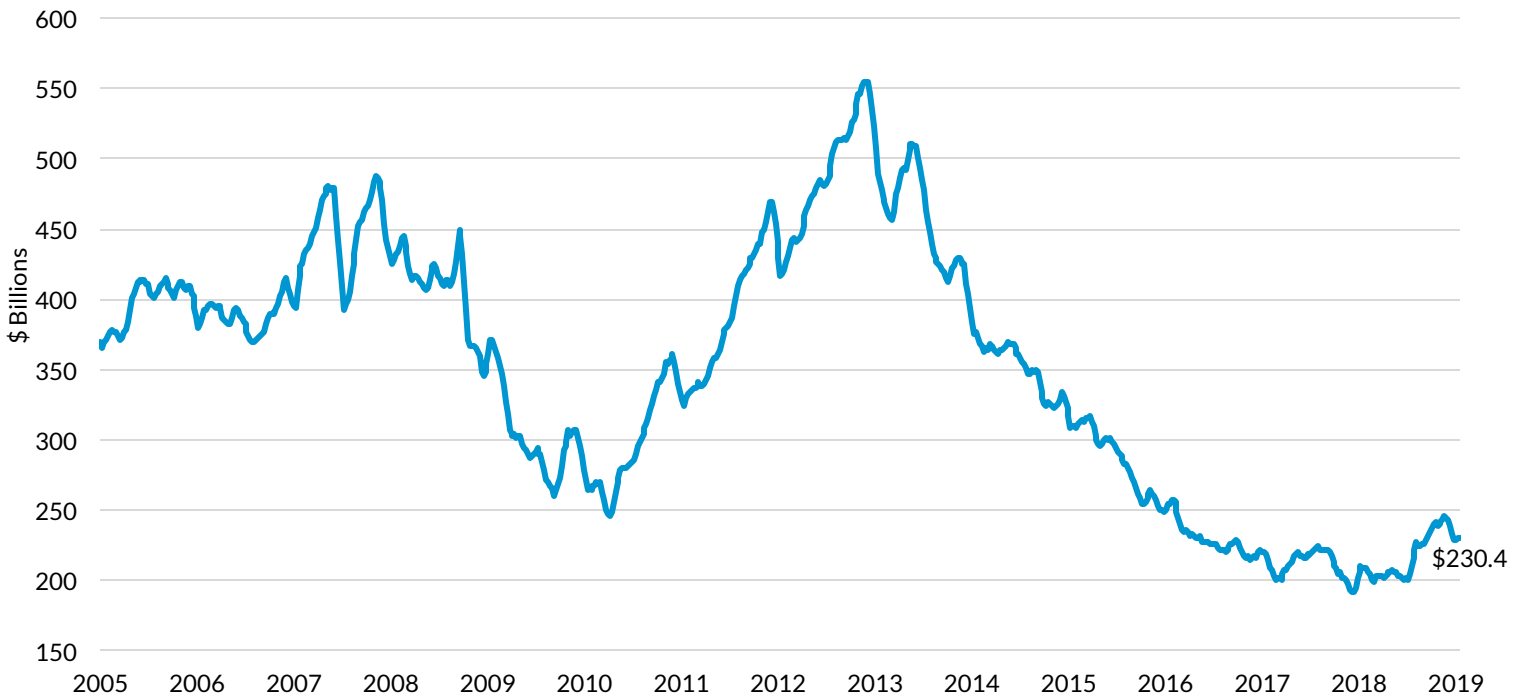
Dealer net positions in agency MBS are down from the 2012-2013 time period, but remain within historic ranges. Gross dealer positions are likely to have fallen more than net positions. The volume of repurchase activity is up slightly from the near 13-year low in 2017. The large decline through time reflects 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 January 2019.

Repo Volume: Securities In



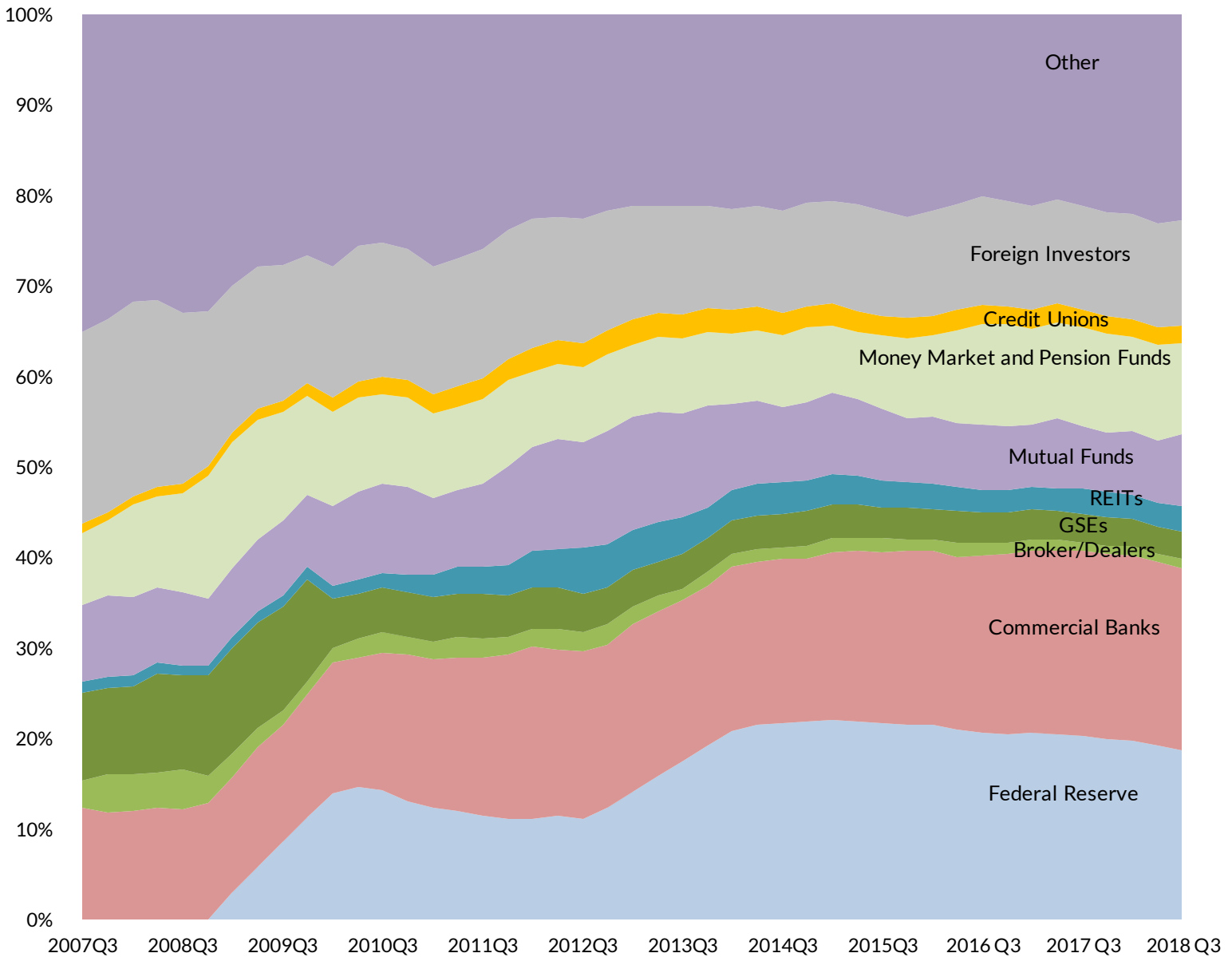
Sources: Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute. Note: Data as of January 2019.

MBS Ownership

The largest holders of agency debt (Agency MBS + Agency notes and bonds) include the Federal Reserve (19 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?

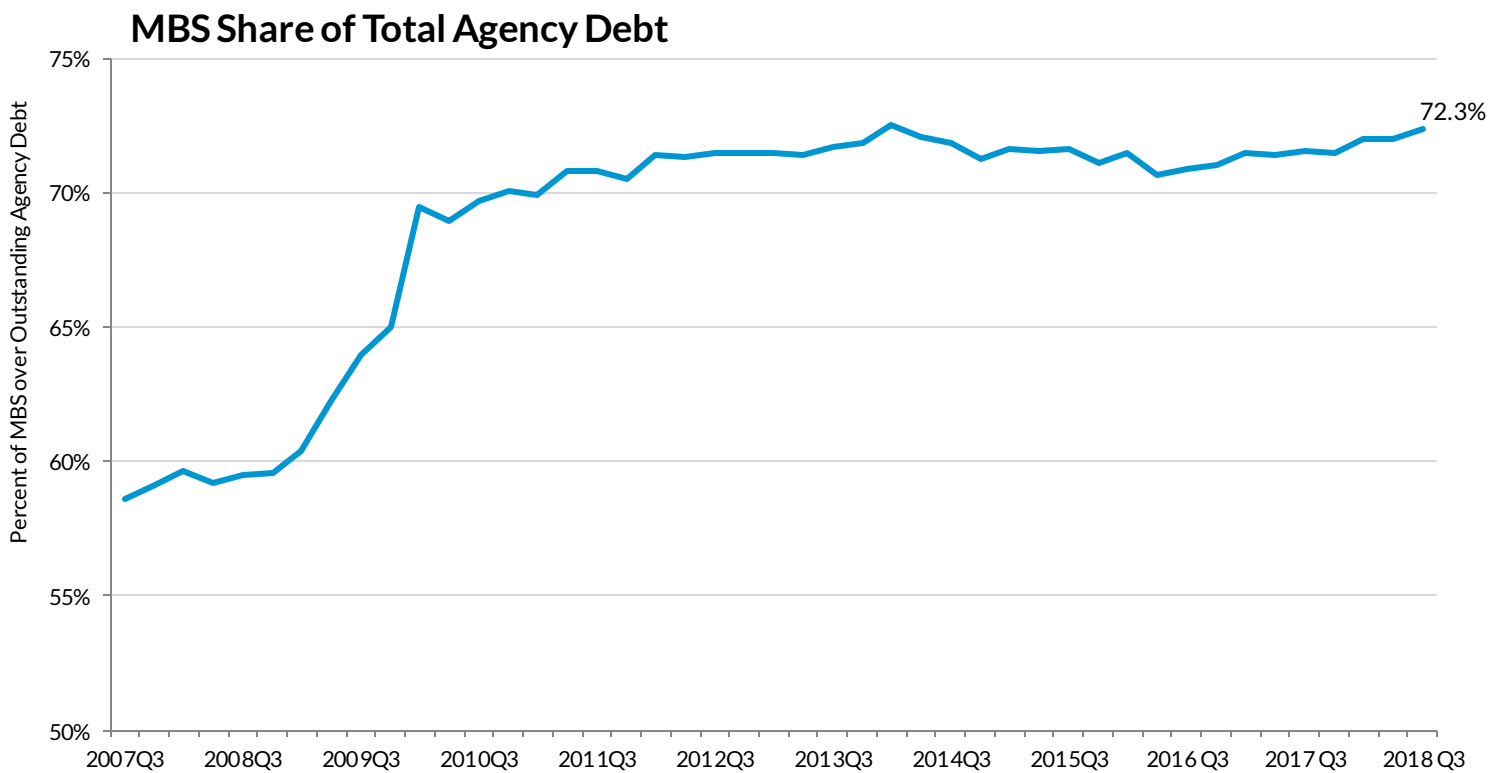
Share of Total Agency Debt by Owner



Sources: Federal Reserve Flow of Funds and Urban Institute. Note: Data as of Q3 2018.

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 Q3 2018, the MBS share of total agency debt stood at 72.3 percent. Commercial banks are now the largest holders of Agency MBS. Out of their \$1.9 trillion in holdings as of the end of January 2019, \$1.4 trillion was held by the top 25 domestic banks.



Sources: Federal Reserve Flow of Funds and Urban Institute. Note: Data as of Q3 2018.

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Dec-17	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan 9	Jan 16	Jan 23	Jan 30
Largest Domestic Banks	1,292.6	1,297.9	1,304.3	1,307.4	1,306.9	1,307.5	1,323.9	1,355.2	1,368.9	1,398.8	1,391.0	1,392.8
Small Domestic Banks	490.0	493.5	495.0	494.8	495.4	494.0	491.8	493.1	496.6	499.4	501.4	501.8
Foreign Related Banks	36.4	31.3	27.4	24.4	22.3	23.0	23.9	30.0	28.6	29.2	26.0	24.2
Total, Seasonally Adjusted	1,819.0	1,822.7	1,826.7	1,826.6	1,824.6	1,824.5	1,839.6	1,878.3	1,894.1	1,927.4	1,918.4	1,918.8

Sources: Federal Reserve Bank and Urban Institute. Note: Data as of January 2019.

MBS Ownership

Out of the \$1.8 trillion in MBS holdings at banks and thrifts as of Q3 2018, \$1.3 trillion was agency pass-through: \$966.52 trillion in GSE pass-throughs and \$373.21 billion in Ginnie Mae pass-throughs. Another \$416.2 billion was agency CMOs, while non-agency holdings totaled \$36.4 billion. MBS holdings at banks and thrifts have been declining since the end of 2017; although Ginnie Mae pass-through holdings are up from Q4 2017 to Q3 2018.

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
2Q16	\$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

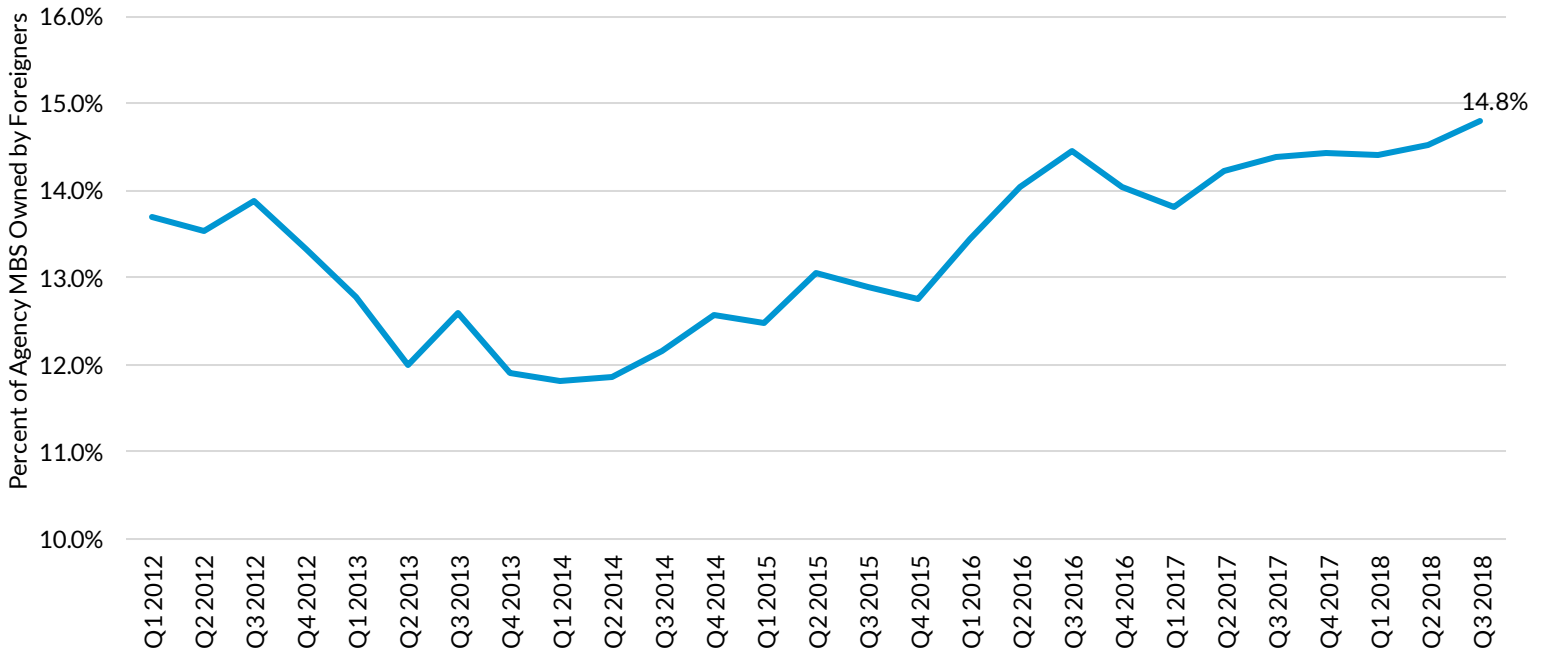
Top Bank & Thrift Residential MBS Investors		Total (\$MM)	GSE PT (\$MM)	GNMA PT (\$MM)	Agency REMIC (\$MM)	Non-Agency (\$MM)	Market Share
1	Bank of America Corporation	\$318,433	\$187,152	\$119,313	\$11,841	\$127	17.7%
2	Wells Fargo & Company	\$236,391	\$168,041	\$61,465	\$3,960	\$2,925	13.2%
3	JP Morgan Chase & Co.	\$91,305	\$57,256	\$24,510	\$322	\$9,217	5.1%
4	U.S. Bancorp.	\$77,495	\$37,076	\$14,024	\$29,393	\$1	4.3%
5	Charles Schwab Bank	\$76,747	\$45,538	\$12,196	\$19,013	\$0	4.3%
6	Capital One Financial Corporation	\$64,680	\$27,444	\$14,344	\$21,872	\$1,021	3.6%
7	Citigroup Inc.	\$61,064	\$45,878	\$4,304	\$7,952	\$2,930	3.4%
8	Bank of New York Mellon Corp.	\$51,071	\$30,503	\$1,786	\$17,255	\$1,527	2.8%
9	PNC Bank, National Association	\$45,857	\$36,539	\$3,910	\$2,902	\$2,507	2.6%
10	Branch Banking and Trust Company	\$37,221	\$12,259	\$5,969	\$18,464	\$529	2.1%
11	State Street Bank and Trust Company	\$35,541	\$12,242	\$11,503	\$8,354	\$3,433	2.0%
12	E*TRADE Bank	\$24,257	\$11,179	\$4,244	\$8,833	\$0	1.4%
13	HSBC Banks USA, National Association	\$23,548	\$7,169	\$6,442	\$9,935	\$3	1.3%
14	KeyBank National Association	\$23,269	\$1,213	\$934	\$21,122	\$0	1.3%
15	SunTrust Bank	\$22,435	\$11,721	\$10,714	\$0	\$0	1.3%
16	Morgan Stanley	\$22,029	\$9,355	\$6,606	\$6,068	\$0	1.2%
17	Ally Bank	\$18,686	\$10,332	\$3,176	\$2,759	\$2,419	1.0%
18	The Northern Trust Company	\$18,593	\$7,892	\$27	\$10,633	\$41	1.0%
19	MUFG Union Bank	\$17,581	\$5,933	\$4,052	\$6,735	\$862	1.0%
20	Regions Bank	\$17,533	\$10,359	\$4,384	\$2,788	\$2	1.0%
	Total Top 20	\$1,283,736	\$735,081	\$313,902	\$210,201	\$27,542	71.6%

Sources: Inside Mortgage Finance and Urban Institute. Note: Data as of Q3 2018.

MBS Ownership

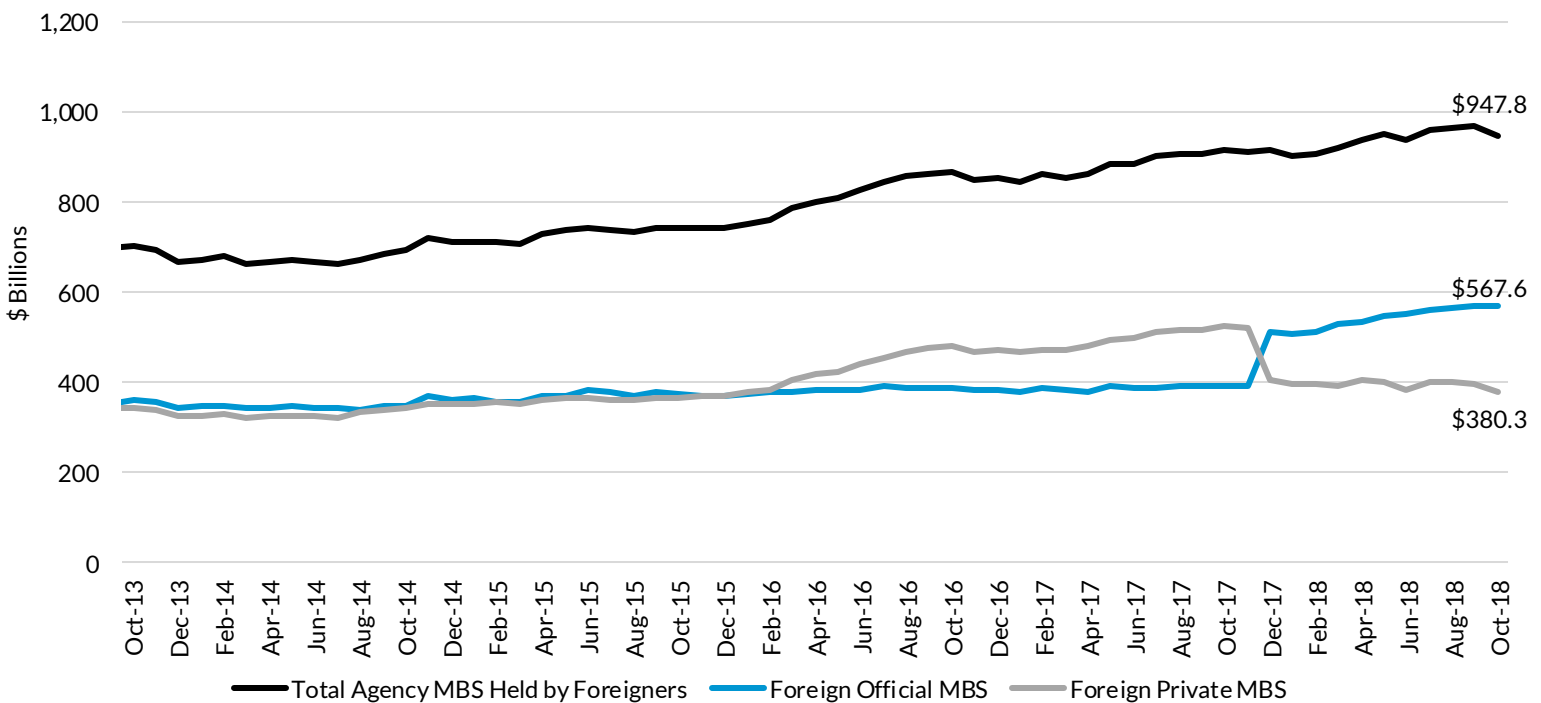
Foreign investors held 14.8 percent of agency MBS in Q3 2018, up from a low of 11.8 percent in Q1 2014. For the month of October 2018, this represents \$947.8 billion in Agency MBS; \$380.3 billion held by foreign private institutions and \$567.6 billion held by foreign official investors.

Foreign Share of Agency MBS



Sources: SIFMA and Treasury International Capital (TIC). Note: Data as of Q3 2018.

Monthly Agency MBS Holdings by Foreigners



Sources: Treasury International Capital (TIC) and Urban Institute. Note: Data as of October 2018. 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 Taiwan, Japan and China; these three comprise around 70 percent of all foreign holdings. Since December 2017, the three increased their holdings by 17.4 billion, 1.7 billion, and 16.9 billion, respectively.

Agency MBS+ Agency Debt

Country	Level of Holdings (\$Millions)*							Change in Holdings (\$Millions)*					
	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Oct-18	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Oct-18
Taiwan	227,195	229,030	234,234	245,182	249,451	250,639	251,635	1,835	5,204	10,948	4,269	1,188	996
Japan	228,466	244,261	241,067	246,344	248,837	254,511	242,722	15,795	-3,194	5,277	2,493	5,674	-11,789
China	183,393	177,580	170,702	173,169	180,820	190,203	187,622	-5,813	-6,878	2,467	7,651	9,383	-2,581
South Korea	46,791	47,581	45,467	44,099	44,167	43,944	43,080	790	-2,114	-1,368	68	-223	-864
Ireland	44,229	46,648	51,525	49,164	47,662	48,220	47,819	2,419	4,877	-2,361	-1,502	558	-401
Luxembourg	31,289	33,026	37,575	39,336	37,111	38,800	39,360	1,737	4,549	1,761	-2,225	1,689	560
Cayman Islands	32,682	29,016	28,374	29,026	29,760	31,638	31,959	-3,666	-642	652	734	1,878	321
Bermuda	26,767	27,125	28,904	28,055	27,350	27,610	27,607	358	1,779	-849	-705	260	-3
Switzerland	17,312	18,675	16,794	13,063	11,813	11,908	11,643	1,363	-1,881	-3,731	-1,250	95	-265
Malaysia	12,365	13,162	12,751	12,139	12,754	12,874	12,661	797	-411	-612	615	120	-213
Rest of World	129,723	124,357	125,465	124,266	122,885	129,082	125,176	-5,366	1,108	-1,199	-1,381	6,197	-3,906
Total	980,212	990,461	992,858	1,003,843	1,012,610	1,039,429	1,021,284	10,249	2,397	10,985	8,767	26,819	-18,145

Agency MBS Only (Estimates)

Country	Level of Holdings (\$Millions)*							Change in Holdings (\$Millions)*					
	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Oct-18	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Oct-18
Taiwan	227,073	228,914	234,127	245,069	249,349	250,539	251,535	1,841	5,213	10,942	4,280	16,412	996
Japan	221,528	237,689	234,985	239,898	243,028	248,842	237,027	16,161	-2,704	4,914	3,129	13,857	-11,815
China	177,546	172,042	165,576	167,737	175,924	185,425	182,823	-5,504	-6,465	2,161	8,187	19,849	-2,603
South Korea	33,891	35,362	34,158	32,114	33,365	33,403	32,491	1,471	-1,204	-2,044	1,251	-755	-912
Ireland	33,663	36,640	42,262	39,348	38,815	39,586	39,146	2,977	5,623	-2,914	-533	-2,676	-440
Luxembourg	28,314	30,208	34,967	36,572	34,620	36,369	36,918	1,894	4,759	1,605	-1,952	1,402	549
Cayman Islands	24,897	21,642	21,549	21,793	23,241	25,277	25,569	-3,255	-93	244	1,448	3,727	292
Bermuda	23,156	23,705	25,738	24,700	24,326	24,659	24,643	549	2,034	-1,038	-374	-1,079	-16
Switzerland	13,867	15,412	13,774	9,862	8,928	9,093	8,815	1,545	-1,638	-3,911	-934	-4,681	-278
Malaysia	11,905	12,726	12,348	11,712	12,369	12,498	12,283	821	-379	-636	657	150	-215
Rest of World	94,872	91,345	94,913	91,888	93,703	100,604	96,569	-3,527	3,567	-3,024	1,815	5,692	-4,035
Total	890,712	905,684	914,397	920,694	937,669	966,296	947,820	14,972	8,713	6,297	16,975	51,899	-18,476

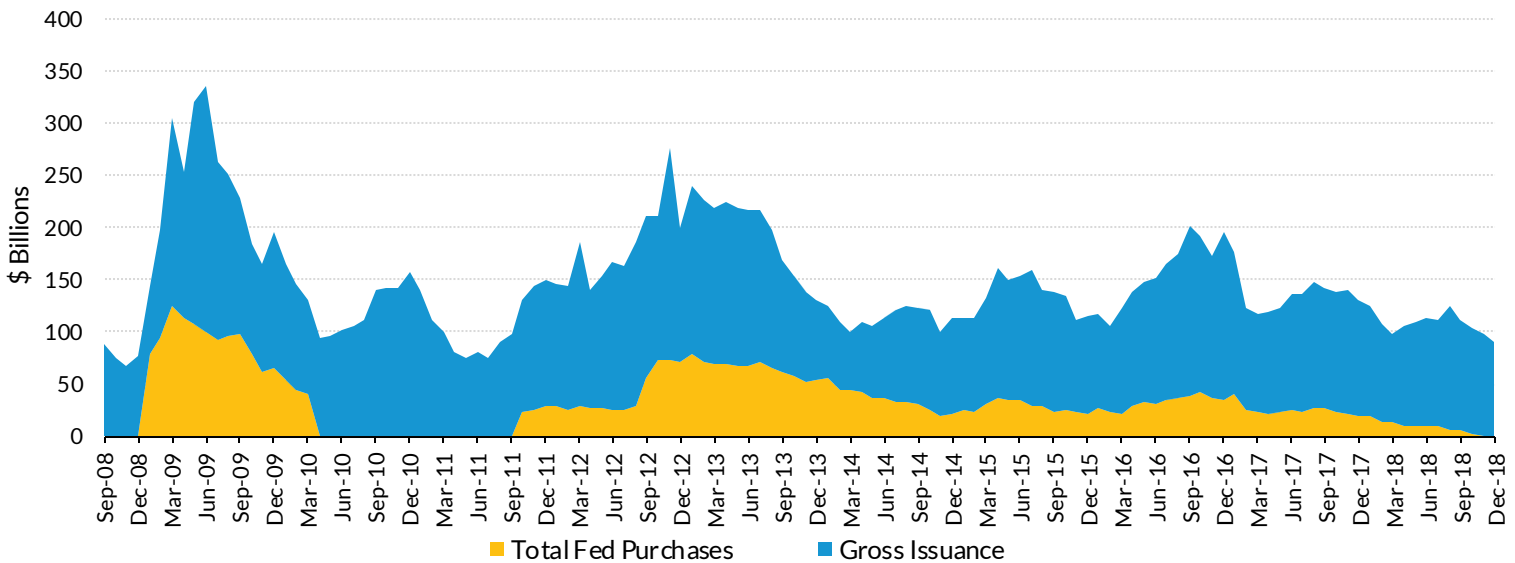
Sources : Treasury International Capital (TIC) and Urban Institute.

Note: *calculated based on June 2017 report with amount asset backed per country. Revised to include Top 10 holders of MBS listed as of June 2017. Monthly data as of October 2018.

MBS Ownership

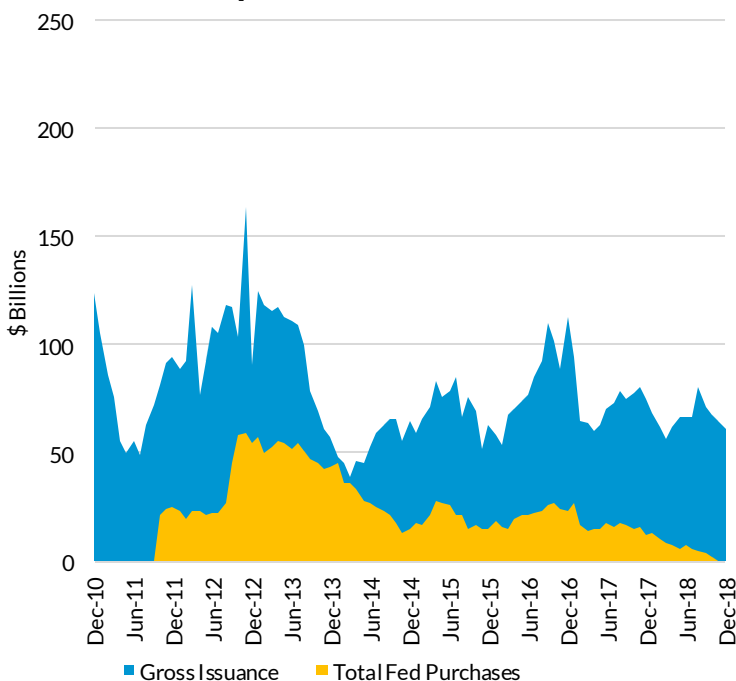
The Federal Reserve is actively winding down its mortgage portfolio, absorbing very little new issuance. During the period October 2014-September 2017, the Fed ended its purchase program, but was reinvesting proceeds from mortgage and agency debt into the mortgage market, absorbing 20-30 percent of agency 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 is 0.3 percent.

Total Fed Absorption



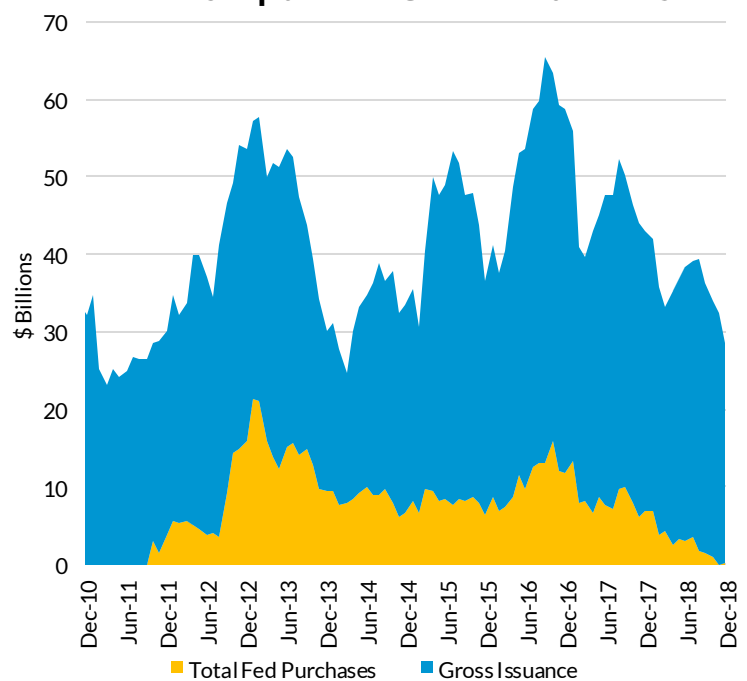
Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of December 2018.

Fed Absorption of GSE MBS



Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of December 2018.

Fed Absorption of Ginnie Mae MBS



Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of December 2018.

All the information contained in this document is as of date Indicated unless otherwise noted. The information provided does not constitute investment advice and it should not be relied on as such. All information has been obtained from sources believed to be reliable, but its accuracy is not guaranteed. The views expressed in this material are the views of the staff of the Urban Institute's Housing Finance Policy Center and State Street Global Advisors as of February 19, 2019 and are subject to change based on market and other conditions. The views should not be attributed to the Urban Institute, its trustees, or its funders. This document contains certain statements that may be deemed forward-looking statements. Please note that any such statements are not guarantees of any future performance and actual results or developments may differ materially from those projected.

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