

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

CONTENTS

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

Barclays US Aggregate and Global Indices	4
Global 10-year treasury yields	5
Ginnie Mae yields and yield spreads—USD, JPY, Euro	6-8
MBS yield per duration	9
Total return and Sharpe Ratios	10

State of the US housing Market

Serious delinquency rates	11
National HPI	11
HPI by state	12
Ginnie Mae Agency issuance and Agency outstanding by state	13
Size and value of the US Residential housing and mortgage markets	14
Outstanding Agency MBS	15
Origination volume over time	16

US Agency Market, Originations

Annual Agency Gross Issuance	17
Annual Agency Net Issuance	18
Monthly Agency Issuance	19
Purchase versus refi: Percent Refi at Issuance	20

Credit Box

First time home buyer share—purchase only loans	21
First time home buyer share— Ginnie Mae purchase only loans	22
FICO score distribution	23
Credit box at a glance (FICO, LTV, DTI)	24-26
Historical credit box (FICO, LTV,DTI)	27-29

Ginnie Mae Nonbank Originators

Nonbank originator share (All, Purchase, Refi)	30
Bank vs. nonbank originators historical credit box, Ginnie Mae vs. GSE (FICO, LTV, DTI)	31-32
Bank vs. nonbank originators historical credit box, Ginnie Mae breakdown (FICO, LTV, DTI)	33-35

Prepayments

Aggregate	36
Select coupon/origination year cohorts	37-38

Other Ginnie Mae Programs

HMBS	39
Multifamily	40

Market Conditions-Agency MBS

Average daily trading volume and turnover by sector	41
Dealer net positions, repo volume	42

MBS Ownership

Ownership breakdown of total agency debt	43
MBS share of total agency debt and commercial bank ownership of MBS	44
Bank and Thrift Residential MBS Holdings	45
Foreign ownership of MBS	46-47
Fed Ownership of MBS	48

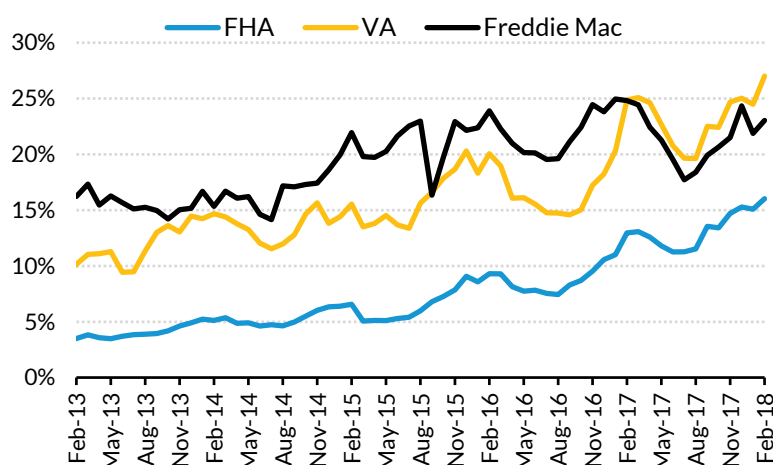
HIGHLIGHTS

What will happen to cash-out refinances as rates rise?

One direct and expected result of rising rates is the decline in refinances whose purpose is to reduce the monthly payment. As the volume of these “rate refinances” goes down, the share of cash-out refinances increases even if the volume doesn’t. In general, when rates are low, the primary goal of refinancing is to reduce the monthly payment. Cash-out share tends to be low during such periods. But when rates are high, borrowers have no incentive to refinance for rate reasons. Those who still do tend to be driven more by their desire to cash-out, giving the cash-out share a boost.

A closer look at the data confirms this is indeed happening right now. The chart below shows that the share of monthly issuances backed by cash-out refinances for FHA, VA and Freddie Mac has increased, as rate refis have dwindled. But some of the increase in the cash-out share is also driven by an increase in the absolute volume of cash-outs (table) as house prices have appreciated. According to Freddie Mac’s [latest quarterly refinance report](#), the median appreciation of Freddie Mac refinanced properties touched 16 percent in Q4 2017, the highest level since 2008.

Cash-out share of issuances (%)



Cash-out volume (\$ billions)

	FHA	VA	Freddie Mac
2013	\$8.1	\$14.0	\$67.2
2014	\$7.2	\$14.6	\$41.6
2015	\$14.8	\$23.4	\$72.2
2016	\$22.3	\$33.0	\$83.7
2017	\$30.0	\$38.3	\$75.1

Will cash-out activity continue to climb? There will always be cash-out activity, but borrowers with ultra-low rate mortgages are unlikely to give those up by doing a cash-out refinance at a higher rate. Instead they will find home equity loans much cheaper. We expect this to act as a limiting factor for the growth of cash out volumes even though the cash-out share is likely to increase as rate refi’s dwindle further.

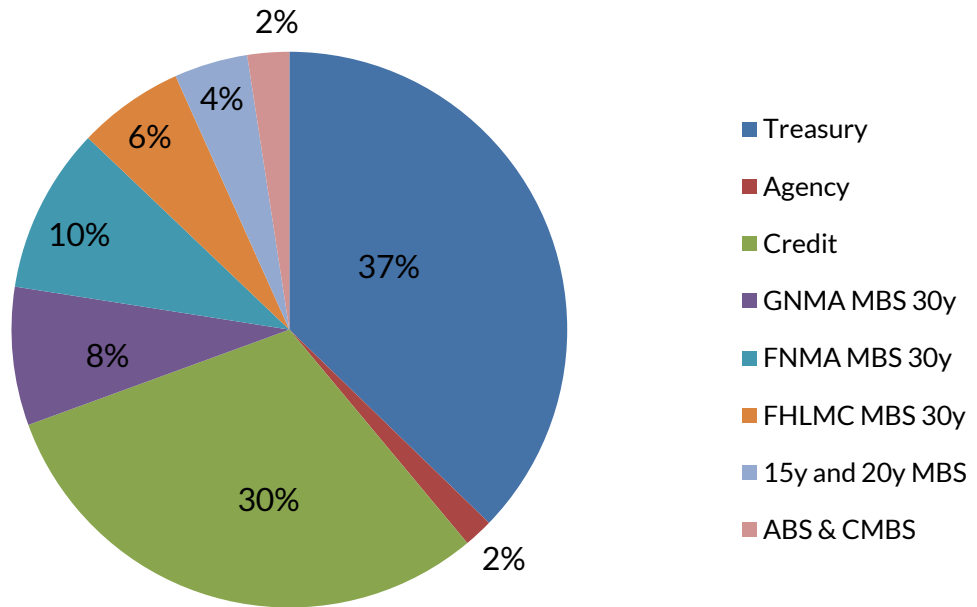
Highlights this month:

- While Treasury and Ginnie Mae MBS yields both declined slightly in March 2018, current coupon Ginnie Mae MBS spreads relative to Treasuries stayed relatively stable (pages 5 and 6).
- First lien originations in 2017 were down 14 percent year-over-year (page 8).
- The FICO scores for both Ginnie Mae bank and nonbank originators declined in February, with the banks dropping more than the nonbanks (page 34).
- Ginnie Mae reverse mortgage issuance increased sharply to \$1.5 billion in February 2018, the highest level in recent history (page 40).
- While Q4, 2017 MBS holdings of banks and thrifts were fairly constant, these entities increased their holdings of Ginnie Mae pass-throughs (page 46).

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

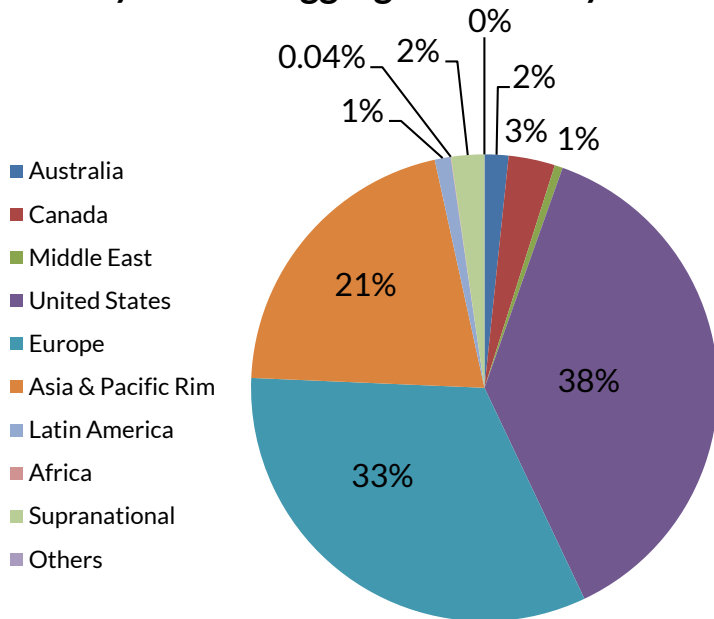
US MBS comprise 28 percent of the Barclays US Aggregate Index-- slightly less than either the US Treasury share (37%) or the US Credit share (31%). Fannie Mae 30-year MBS comprises the largest percent of US MBS (10%), while Ginnie Mae 30-year MBS and Freddie Mac 30-year MBS comprise 8 percent and 6 percent of the market, respectively. Mortgages with terms of 15 and 20 years comprise the balance (4%) of the US MBS share. US securities are the largest single contributor to the Barclays Global Aggregate, accounting for 38 percent of the global total. US MBS comprises 11 percent of the global aggregate.

Barclays US Aggregate Index



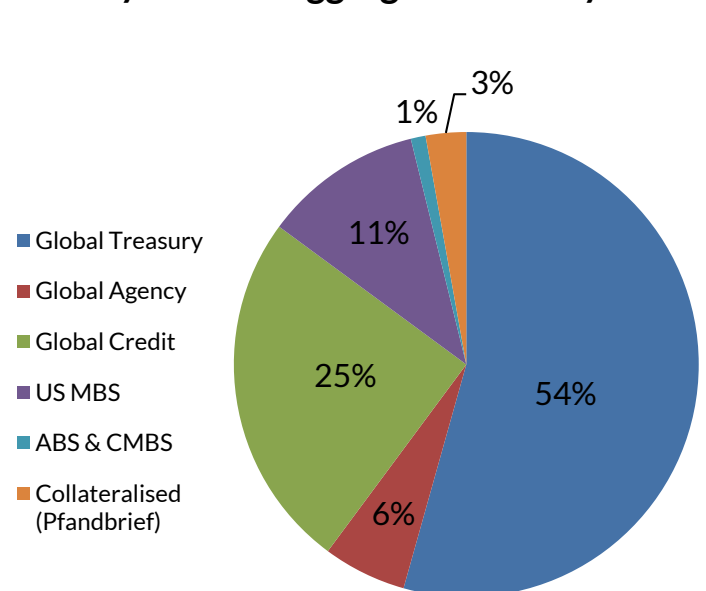
Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2018.

Barclays Global Aggregate Index by Country



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

Barclays Global Aggregate Index by Sector

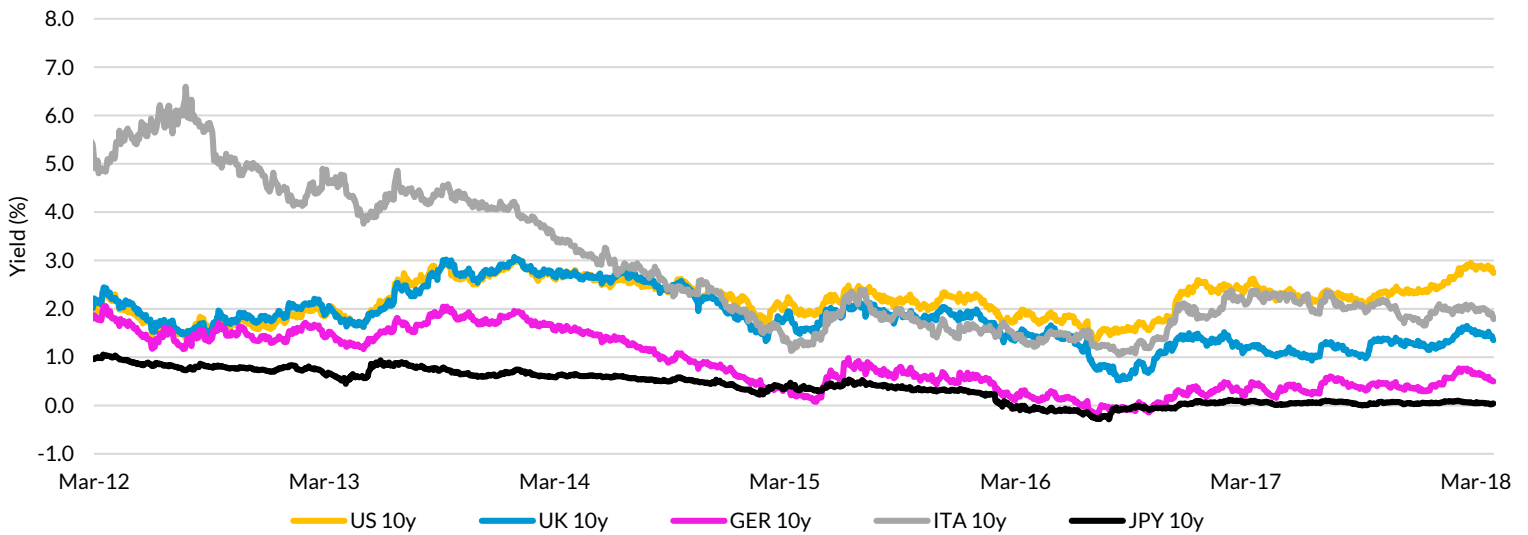


Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2018.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

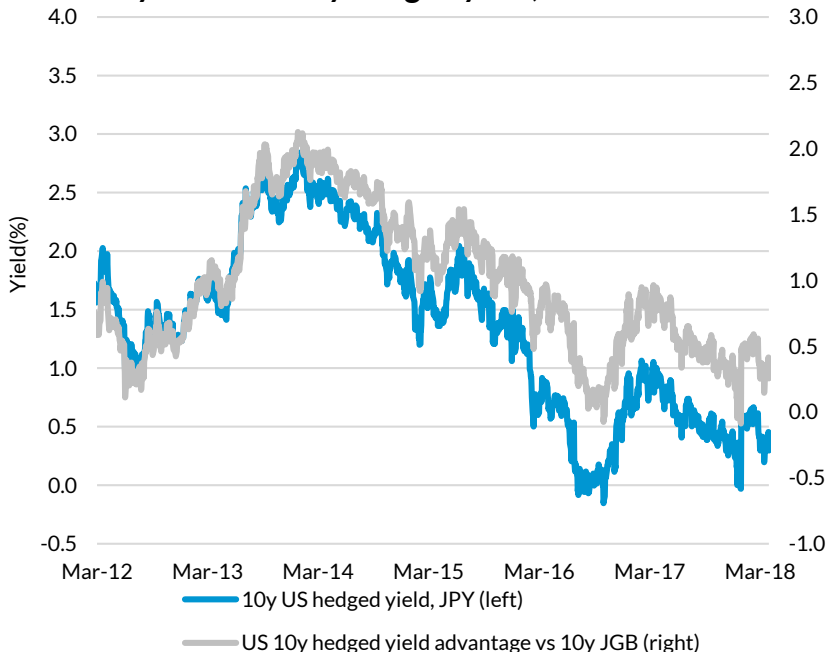
US Treasury interest rates, as measured by the 10-year note, continue to be the highest in the developed world. The US 10-year Treasury note dipped slightly to 2.74 percent this month. Interest rates in the UK, Germany, Italy and Japan all declined slightly to 1.35, 0.50, 1.79, and 0.04 percent, respectively. If Treasury notes are hedged into foreign currencies, 10-year US Treasury yields are 30 basis points (bps) in JPY, and -3 bps in EUR. The hedged yield difference between the 10-year Treasuries and JGBs is stayed constant at 26 bps, while the hedged yield difference between the 10-year Treasuries and Bunds narrowed to -53 bps.

Global 10-year Treasury Yields



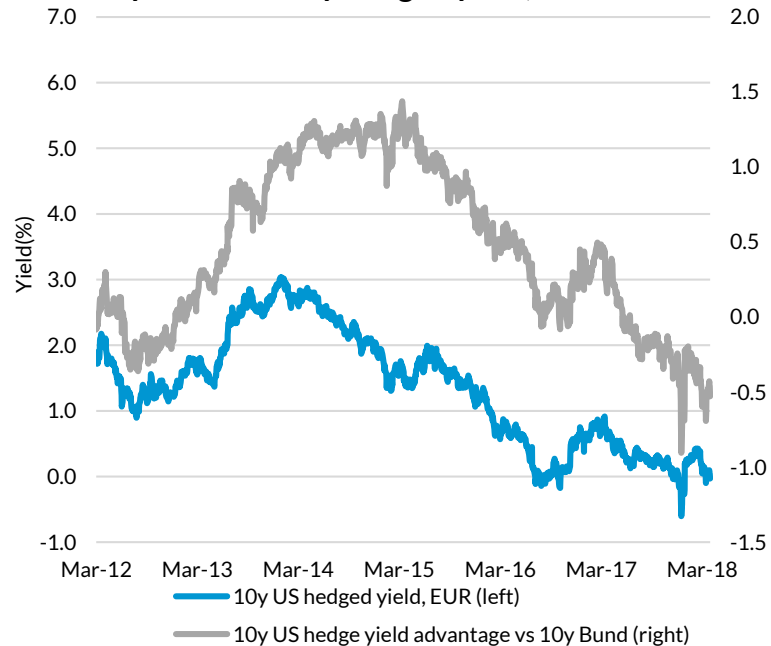
Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2018.

10yr US Treasury hedged yield, JPY



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

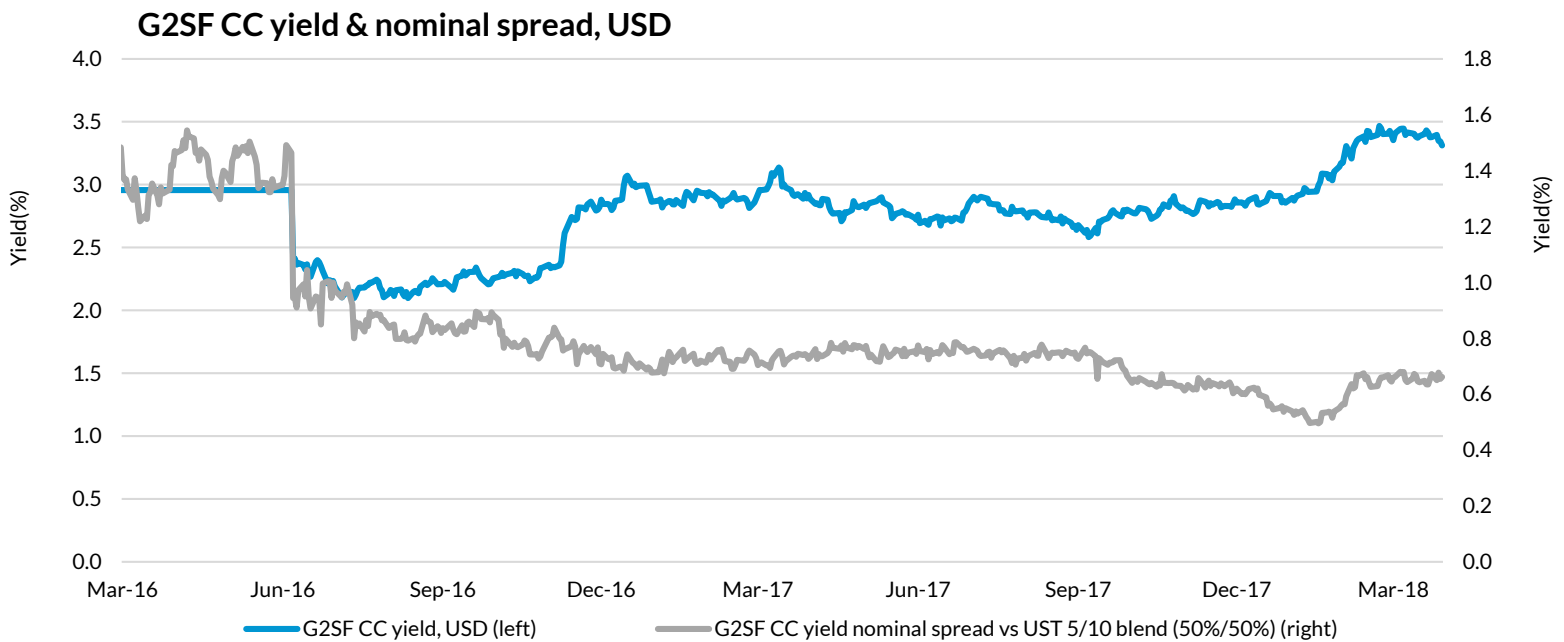
10yr US Treasury hedged yield, EUR



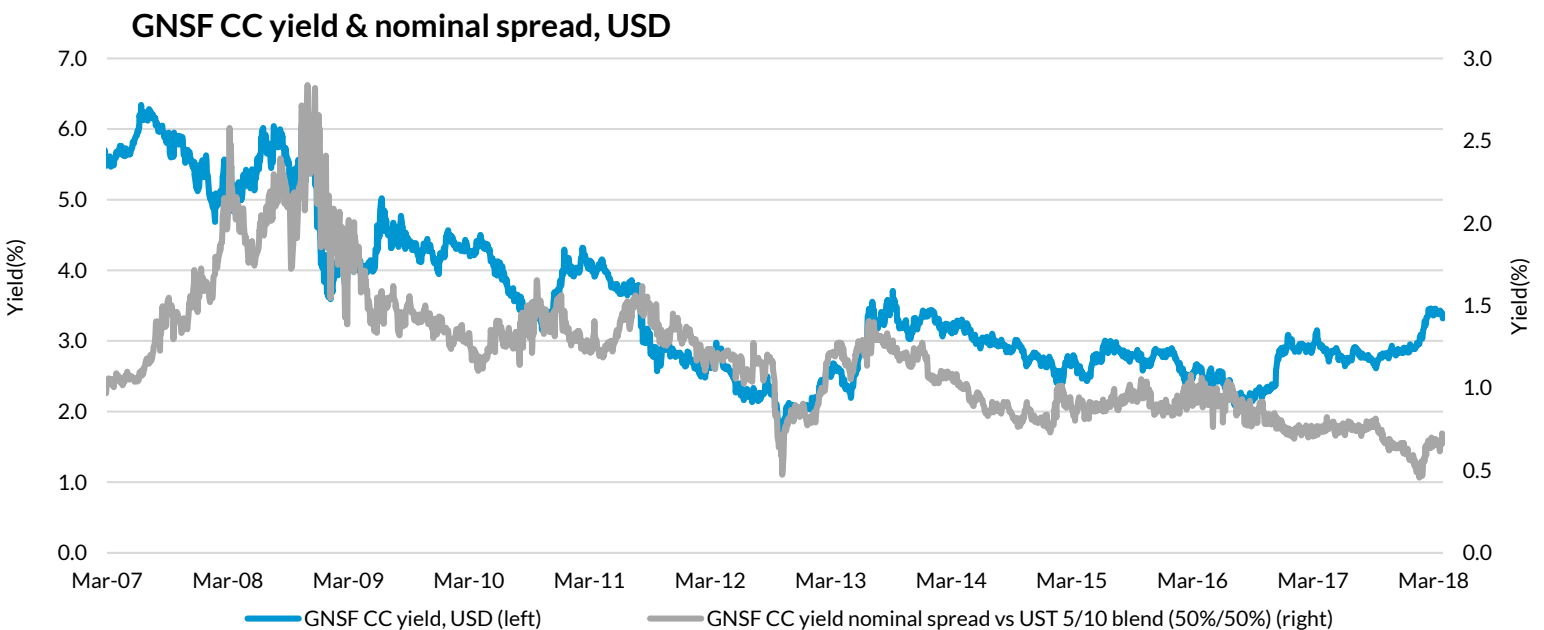
Sources: Bloomberg and State Street Global Advisors
Note: Data as of March 2018.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

The nominal yield spread on current coupon GNMA II and GNMA I securities decreased slightly in March 2018. Current coupon Ginnie Mae securities outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 66 and 67 bps on G2SF and GNSF, respectively, which is relatively consistent with February levels.



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

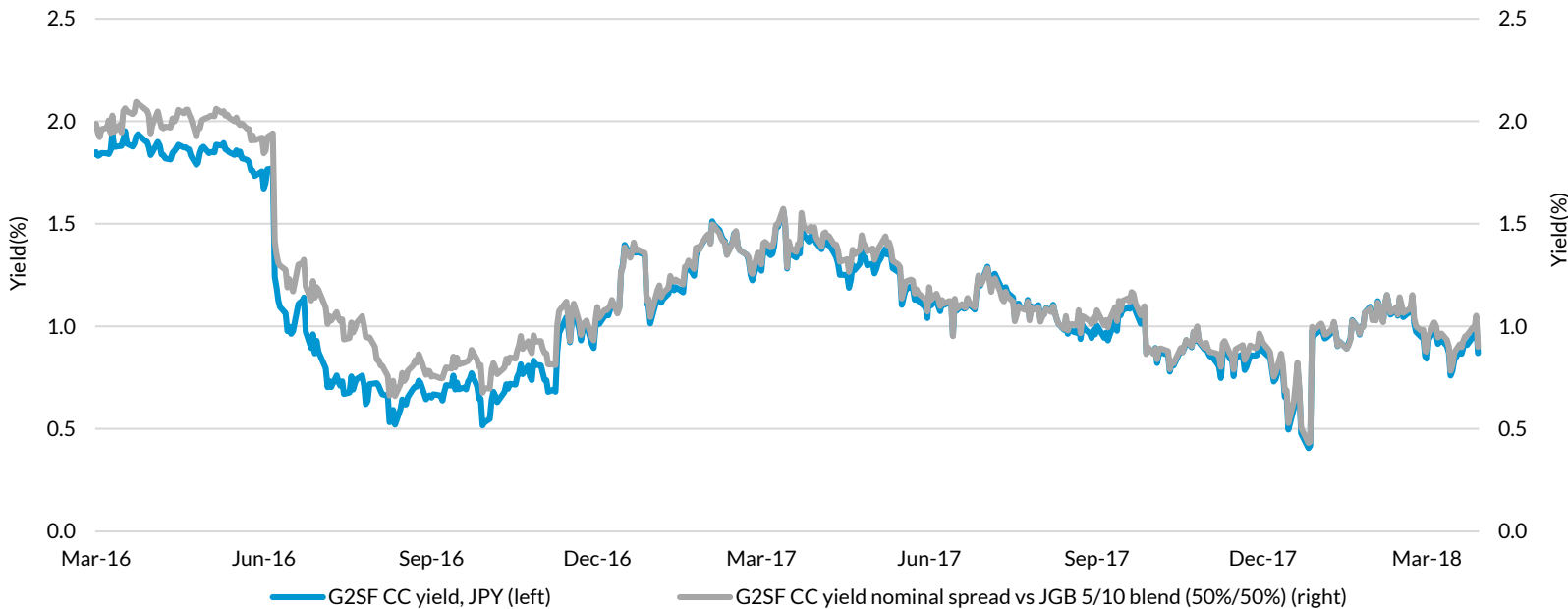


Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2018.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

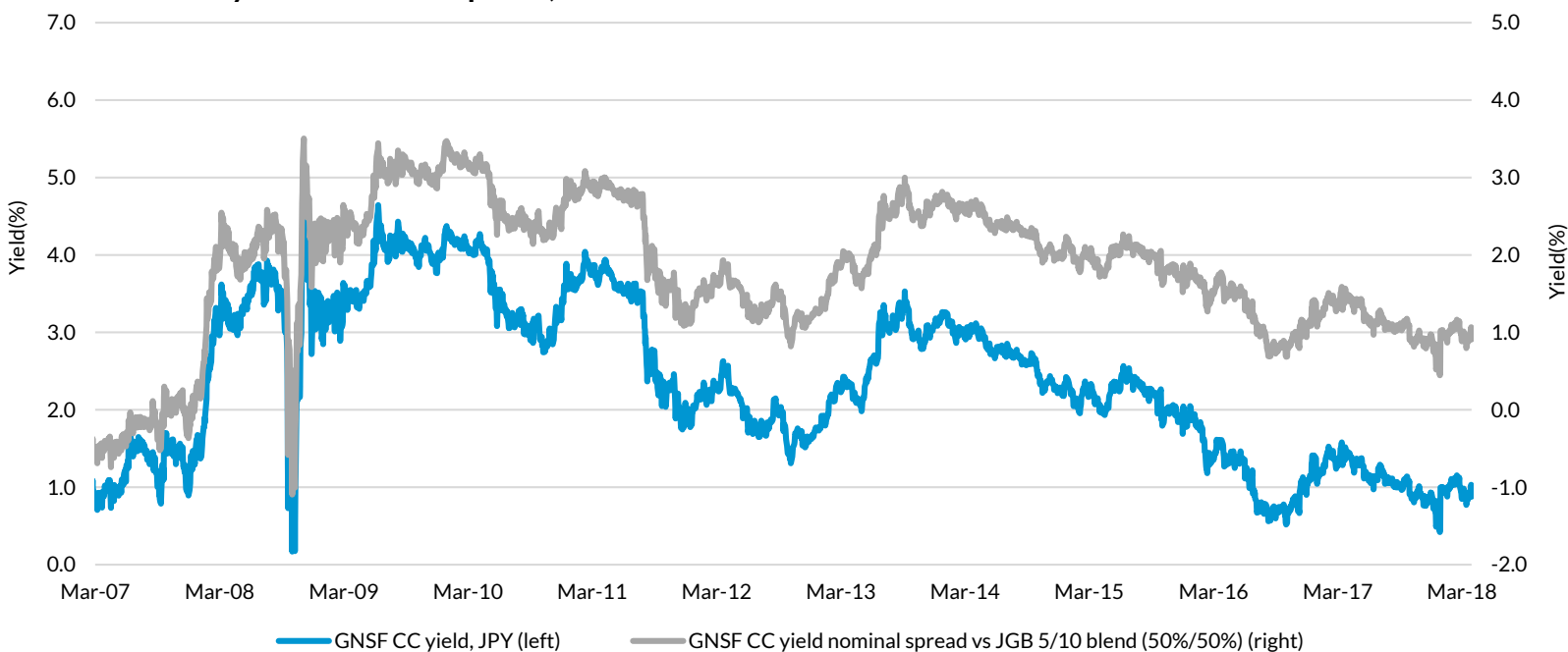
If Ginnie Mae securities are hedged into foreign currencies, they look attractive on a yield basis versus many sovereign alternatives. The figures show that current coupon G2SF and GNSF hedged into Japanese yen yield more than the JGB 5/10 blend by 90 and 91 bps, respectively.

G2SF CC yield & nominal spread, JPY



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

GNSF CC yield & nominal spread, JPY



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

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

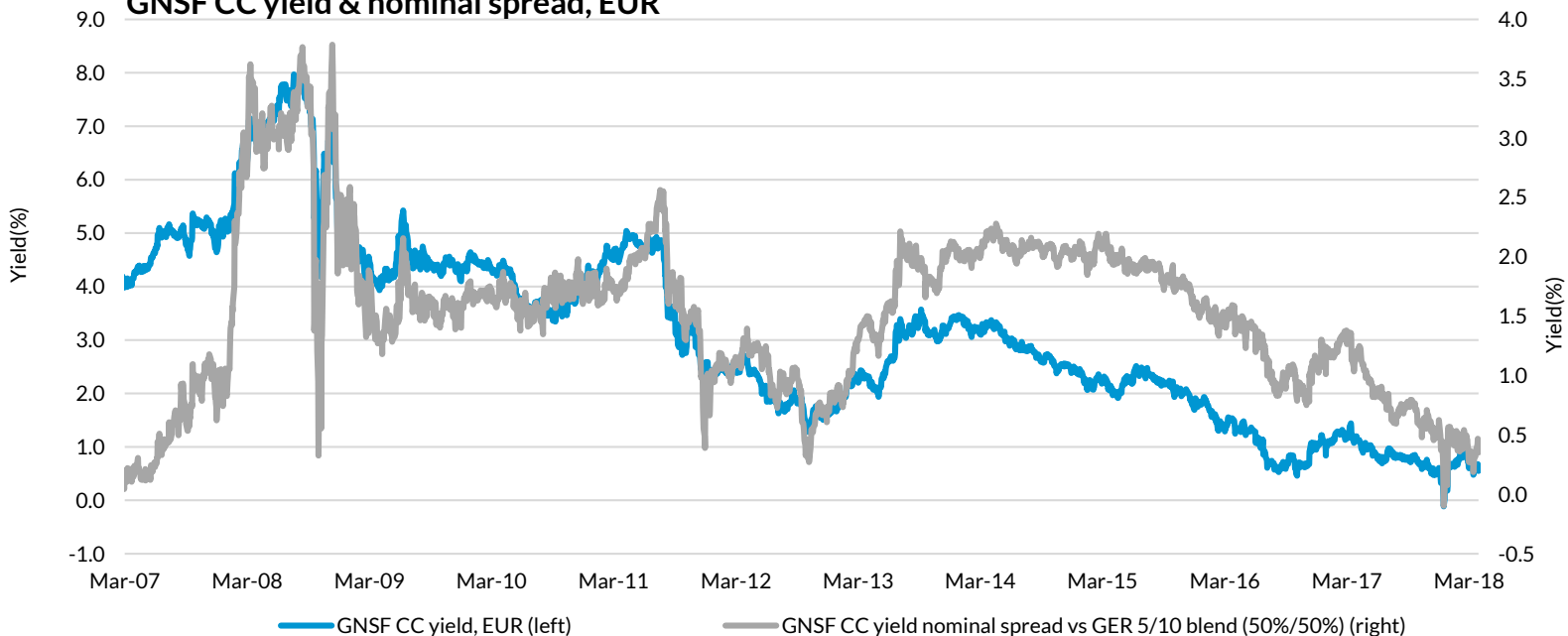
If Ginnie Mae securities are hedged into foreign currencies, they look attractive on a yield basis versus sovereign alternatives. The figures show that current coupon G2SF and GNSF hedged into euros yield more than the average of the German 5/10 blend by 34 and 35 bps, respectively. These latest spreads represent a 7-8 basis point widening from February levels.

G2SF CC yield & nominal spread, EUR



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

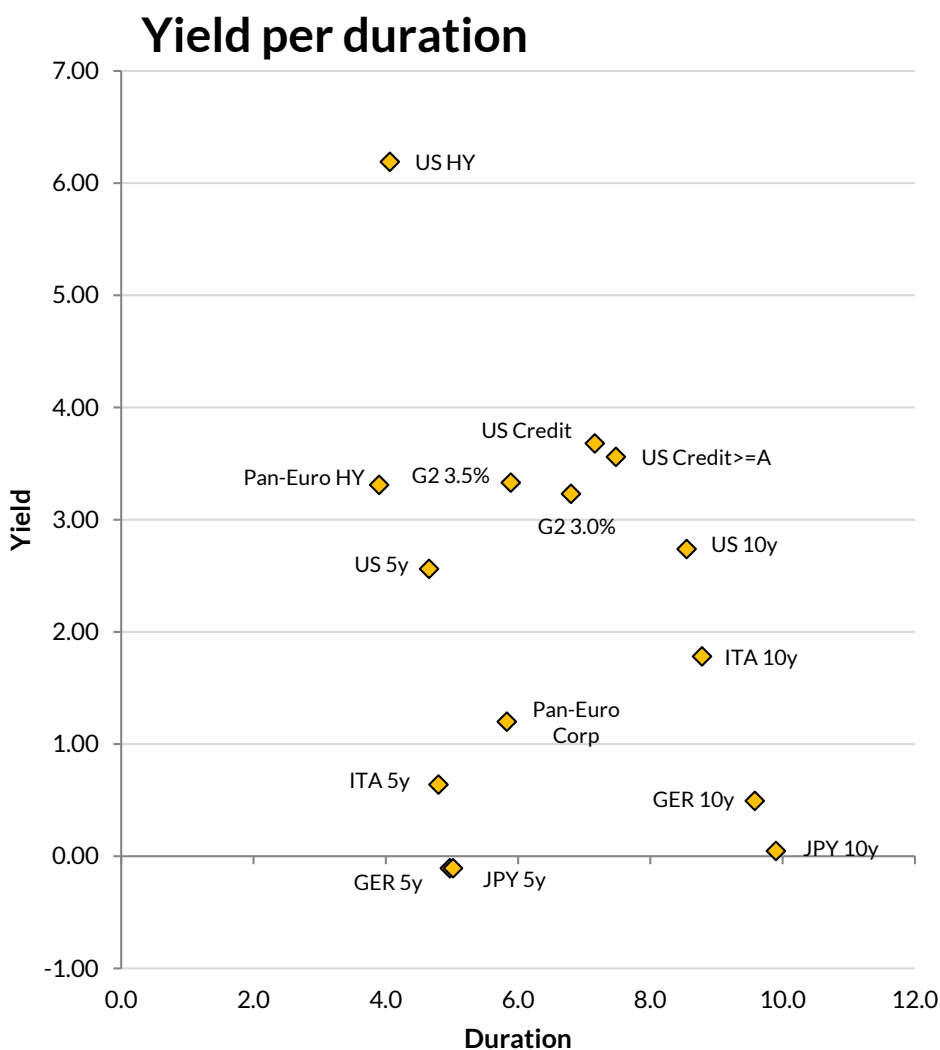
GNSF CC yield & nominal spread, EUR



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

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 interest rate risk 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.



Security	Duration	Yield
US 5y	4.7	2.56
US 10y	8.5	2.74
GNMA II 3%	6.8	3.23
GNMA II 3.5%	5.9	3.33
JPY 5y	5.0	-0.11
JPY 10y	9.9	0.05
GER 5y	5.0	-0.11
GER 10y	9.6	0.49
ITA 5y	4.8	0.64
ITA 10y	8.8	1.78
US credit	7.2	3.68
US credit >= A	7.5	3.56
US HY	4.1	6.19
Pan-Euro Corp	5.8	1.20
Pan-Euro HY	3.9	3.31

Sources: Bloomberg and State Street Global Advisors. Note: Yields are in base currency of security and unhedged. Data as of March 2018.

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. The result: the excess return per unit of risk for the mortgage market is the highest of any market over the past decade, as measured by the Sharpe Ratio.

Average Return (Per Month)

Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield*	Pan Euro High Yield*
1 year	0.02	0.04	0.23	0.08	0.31	0.32
3 year	0.08	0.04	0.20	0.06	0.44	0.30
5 year	0.12	0.09	0.26	0.30	0.42	0.51
10 year	0.29	0.23	0.46	0.42	0.71	0.85

Average Excess Return (Per Month)

Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield*	Pan Euro High Yield*
1 year	-0.07	-0.06	0.13	0.15	0.22	0.39
3 year	0.03	-0.01	0.15	0.11	0.39	0.36
5 year	0.10	0.06	0.23	0.34	0.39	0.54
10 year	0.26	0.21	0.43	0.40	0.69	0.84

Standard Deviation

Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield*	Pan Euro High Yield*
1 year	0.60	0.76	0.85	0.51	0.67	0.68
3 year	0.53	0.91	1.08	1.03	1.62	1.40
5 year	0.69	0.93	1.18	1.05	1.52	1.28
10 year	0.76	1.19	1.75	1.40	3.02	3.54

Sharpe Ratio

Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield	Pan Euro High Yield*
1 year	-0.12	-0.08	0.15	0.29	0.32	0.57
3 year	0.06	-0.01	0.14	0.11	0.24	0.25
5 year	0.14	0.07	0.19	0.32	0.26	0.42
10 year	0.34	0.17	0.25	0.29	0.23	0.24

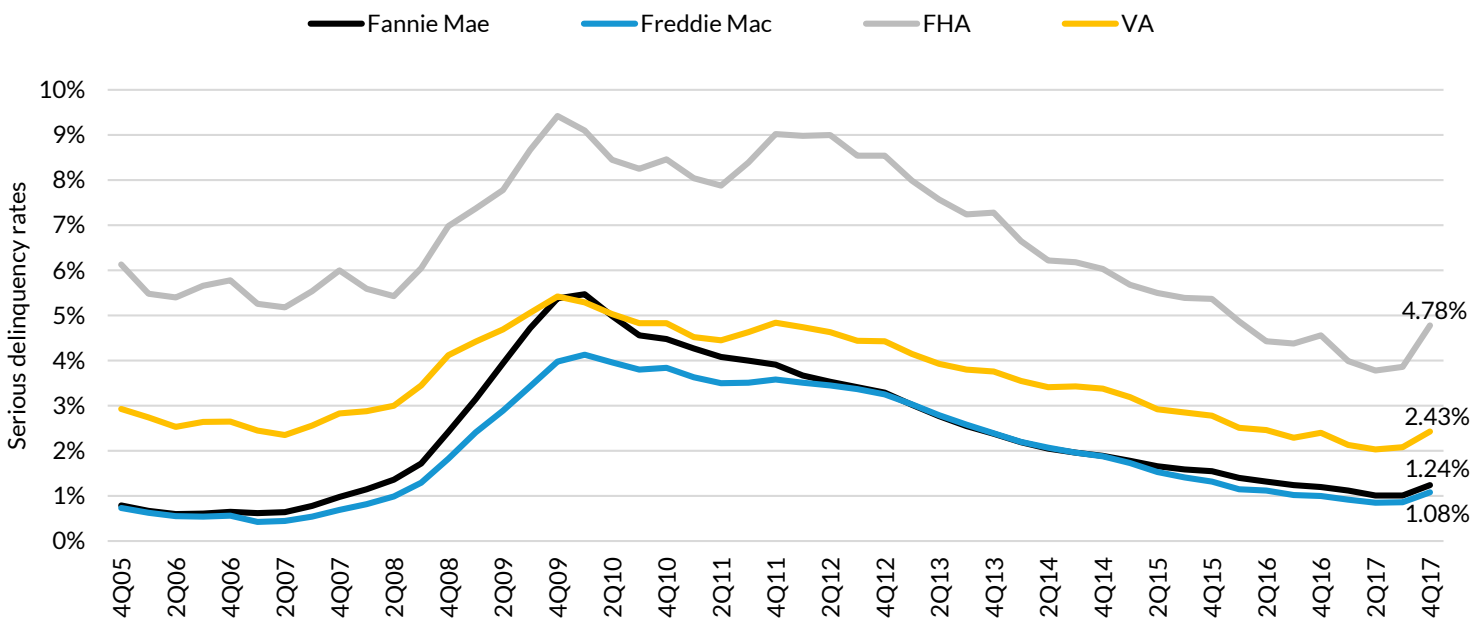
*Assumes 2% capitalization max per issuer on high yield indices

Sources: Barclays Indices, Bloomberg and State Street Global Advisors Note: Data as of March 2018.

State of the US Housing Market

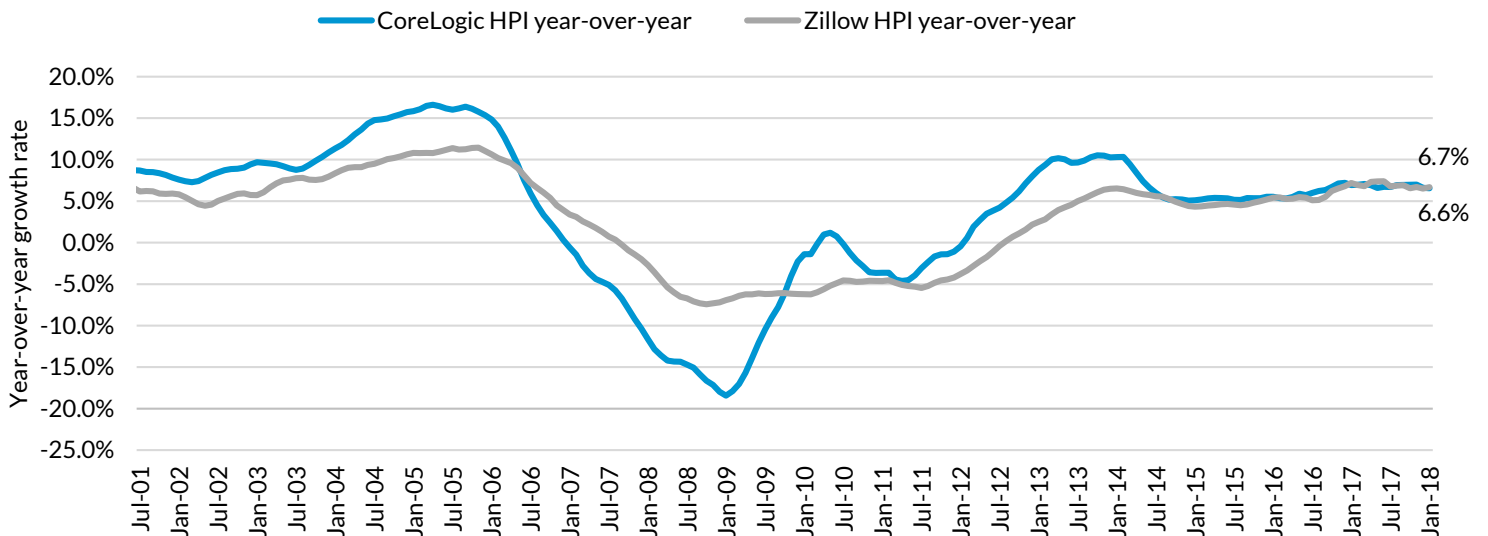
Serious delinquencies for single-family GSE loans, FHA loans, and VA loans edged up in the fourth quarter of 2017, partly due to seasonal factors, but mostly due to the impact of hurricanes Harvey, Irma and Maria. The delinquency rates for FHA and VA went up to 4.78 percent and 2.43 percent, respectively, while delinquency rates for Fannie Mae and Freddie Mac went up to 1.24 and 1.08 percent, respectively. GSE delinquencies remain high relative to 2005-2007, while FHA and VA delinquencies (which are higher than their GSE counterparts) are at levels lower than 2005-2007. Home price changes turned positive in 2012, and continue to increase approximately 6.6-6.7 percent per year, as measured by both CoreLogic and Zillow.

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 Q4 2017.

National Year-Over-Year HPI Growth



Sources: CoreLogic, Zillow, and Urban Institute. Note: Data as of January 2018.

State of the US Housing Market

Nationally, the nominal home prices have improved by 51.3 percent since the trough, and have exceeded their pre-crisis peak valuation. However, the picture is very different for different states, with many states well in excess of the prior peak, while Nevada is 28.2 percent below peak levels and Connecticut is 22.9 percent below peak levels.

State	HPI Changes			YOY	Current HPI % Below Peak
	2000 to Peak	Peak to Trough	Trough to Current		
National	93.7%	-33.2%	51.3%	6.6%	-1.1%
Alabama	45.7%	-19.9%	23.3%	5.1%	1.2%
Alaska	68.9%	-9.4%	16.7%	0.7%	-5.4%
Arizona	121.5%	-50.5%	70.6%	6.4%	18.4%
Arkansas	39.6%	-7.6%	15.7%	4.0%	-6.5%
California	149.0%	-42.4%	78.6%	8.3%	-2.7%
Colorado	40.4%	-13.7%	68.0%	8.3%	-31.0%
Connecticut	79.5%	-24.9%	8.3%	1.7%	22.9%
Delaware	90.3%	-23.8%	17.3%	0.7%	11.8%
District of Columbia	150.5%	-10.4%	38.2%	1.5%	-19.3%
Florida	149.2%	-49.6%	66.4%	5.6%	19.3%
Georgia	40.5%	-30.7%	55.1%	6.5%	-6.8%
Hawaii	152.0%	-20.9%	45.0%	4.1%	-12.9%
Idaho	85.4%	-40.8%	74.7%	10.3%	-3.3%
Illinois	59.9%	-32.5%	30.5%	3.7%	13.6%
Indiana	24.4%	-16.4%	29.4%	5.8%	-7.5%
Iowa	25.5%	-4.9%	20.5%	3.7%	-12.7%
Kansas	33.2%	-14.0%	27.3%	5.1%	-8.6%
Kentucky	27.0%	-8.9%	23.4%	5.6%	-11.0%
Louisiana	58.8%	-7.5%	25.7%	6.0%	-14.1%
Maine	92.2%	-19.3%	33.6%	8.1%	-6.8%
Maryland	137.7%	-31.1%	20.8%	3.4%	20.1%
Massachusetts	81.7%	-21.2%	40.5%	6.1%	-9.7%
Michigan	26.2%	-43.2%	76.0%	7.3%	-0.1%
Minnesota	69.7%	-28.1%	43.3%	6.0%	-2.9%
Mississippi	34.2%	-18.3%	19.6%	3.3%	2.4%
Missouri	46.2%	-22.3%	30.6%	4.8%	-1.5%
Montana	80.0%	-16.6%	41.4%	8.4%	-15.1%
Nebraska	25.3%	-5.3%	27.0%	5.4%	-16.9%
Nevada	129.0%	-59.9%	94.4%	11.3%	28.2%
New Hampshire	82.6%	-23.8%	30.3%	5.0%	0.7%
New Jersey	109.6%	-26.4%	15.2%	2.2%	17.9%
New Mexico	64.3%	-26.4%	20.4%	4.3%	12.9%
New York	101.9%	-13.9%	31.9%	5.7%	-12.0%
North Carolina	39.8%	-14.6%	29.0%	5.5%	-9.2%
North Dakota	50.5%	-1.9%	50.2%	5.5%	-32.1%
Ohio	22.2%	-20.4%	32.4%	6.2%	-5.2%
Oklahoma	35.8%	-3.1%	15.0%	2.0%	-10.3%
Oregon	87.5%	-29.3%	68.1%	6.8%	-15.9%
Pennsylvania	71.7%	-12.9%	16.0%	3.5%	-1.0%
Rhode Island	131.0%	-34.2%	33.9%	8.4%	13.4%
South Carolina	61.5%	-22.2%	34.2%	5.5%	-4.3%
South Dakota	37.3%	-3.4%	39.1%	9.2%	-25.6%
Tennessee	41.3%	-13.2%	38.1%	6.5%	-16.6%
Texas	39.4%	-13.2%	48.9%	5.6%	-22.7%
Utah	64.8%	-31.7%	65.8%	10.8%	-11.7%
Vermont	81.6%	-9.1%	15.3%	4.1%	-4.4%
Virginia	135.1%	-30.6%	29.7%	2.6%	11.0%
Washington	90.2%	-28.1%	70.4%	12.1%	-18.4%
West Virginia	81.1%	-26.9%	24.1%	2.3%	10.1%
Wisconsin	48.6%	-17.2%	26.7%	5.8%	-4.7%
Wyoming	75.5%	-14.5%	25.7%	1.7%	-6.8%

Sources: CoreLogic and Urban Institute. Note: HPI data as of January 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 01/2018, the latest HPI data period.

State of the US Housing Market

Ginnie Mae loans constitute 32.3 percent of outstanding agency issuance by loan balance, 34.2 percent of the issuance over the past year. However, the Ginnie Mae share varies widely across states, with the share of outstandings (as measured by loan balance) as low as 17.6 percent in the District of Columbia and as high as 52.5 percent in Mississippi. In general, the Ginnie Mae share is higher in states with lower home prices.

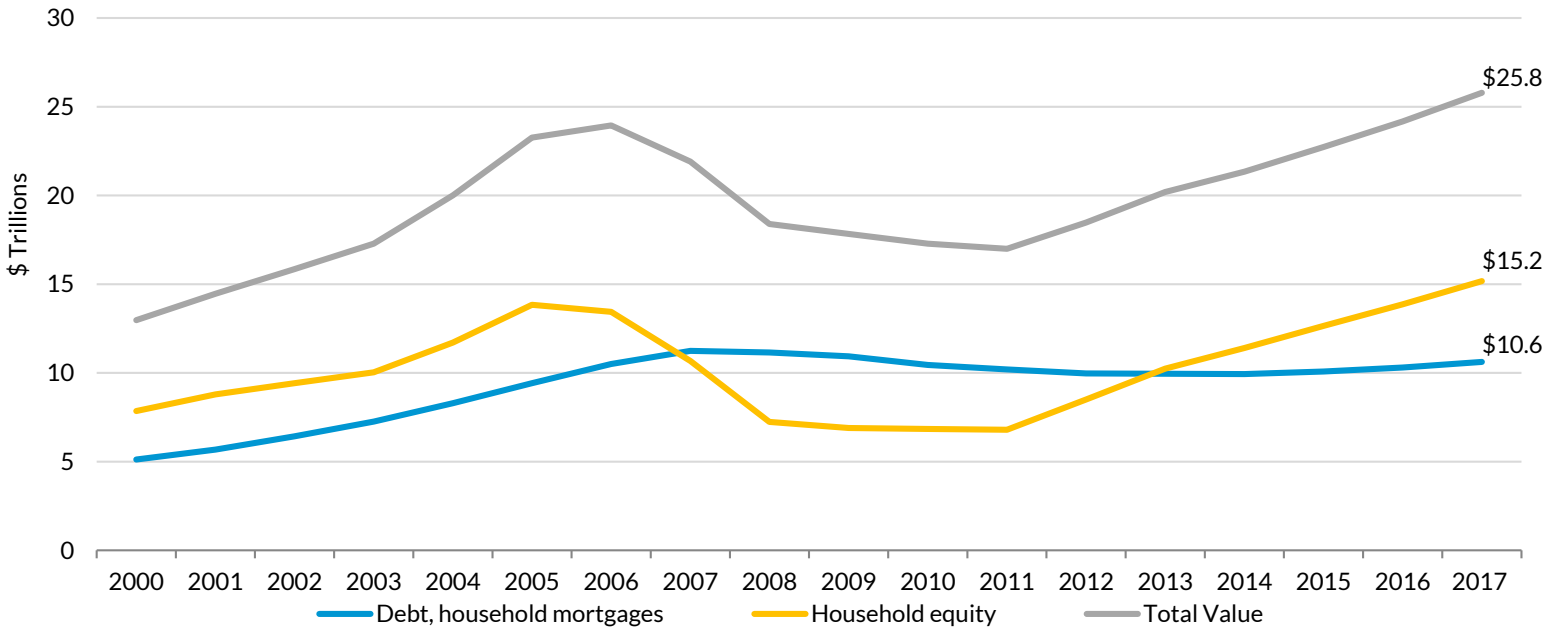
State	Agency Issuance (past 1 year)			Agency Outstanding		
	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)
National	34.2%	210.8	226.6	32.3%	178.4	208.4
Alabama	45.9%	158.2	179.6	47.2%	142.0	168.7
Alaska	53.5%	279.1	242.1	52.2%	256.3	228.4
Arizona	35.0%	204.7	209.7	34.7%	176.2	191.1
Arkansas	44.6%	140.2	165.5	46.9%	122.8	153.1
California	28.4%	338.7	321.9	22.3%	285.2	292.5
Colorado	33.5%	274.3	263.8	30.5%	228.8	237.0
Connecticut	32.4%	214.0	225.5	29.9%	203.6	218.4
Delaware	39.9%	211.1	220.2	37.6%	198.5	208.0
District of Columbia	18.0%	397.6	352.0	17.6%	327.1	333.2
Florida	39.4%	206.0	201.6	36.6%	173.5	184.8
Georgia	42.0%	180.1	203.6	41.0%	154.8	186.4
Hawaii	39.8%	487.4	375.7	32.0%	419.1	345.9
Idaho	35.2%	190.3	194.8	35.2%	162.8	175.7
Illinois	26.8%	175.7	196.8	25.3%	155.6	183.4
Indiana	40.1%	138.9	154.4	39.7%	122.0	141.7
Iowa	27.1%	143.4	161.3	27.0%	125.4	149.0
Kansas	37.4%	152.6	173.5	37.1%	132.9	157.2
Kentucky	41.3%	147.2	164.7	40.2%	133.2	150.4
Louisiana	44.0%	168.0	190.5	43.8%	150.9	177.5
Maine	36.5%	181.8	196.1	33.2%	166.8	180.9
Maryland	44.8%	279.7	261.3	40.1%	252.7	247.3
Massachusetts	24.4%	285.9	277.1	19.8%	253.7	255.5
Michigan	26.6%	143.2	166.8	26.8%	123.6	151.7
Minnesota	26.3%	193.7	205.6	25.7%	170.2	190.5
Mississippi	51.1%	150.1	168.8	52.5%	132.2	158.0
Missouri	36.9%	149.3	170.0	36.6%	132.7	156.3
Montana	32.3%	210.1	212.8	31.8%	183.0	192.1
Nebraska	32.3%	159.0	168.2	35.5%	135.4	153.9
Nevada	40.0%	232.6	223.1	40.5%	197.0	198.6
New Hampshire	32.7%	227.1	220.6	30.3%	208.9	202.6
New Jersey	30.6%	247.4	262.0	28.3%	232.8	249.1
New Mexico	44.4%	176.0	184.9	44.2%	156.6	172.9
New York	27.0%	240.3	265.1	26.6%	205.4	242.9
North Carolina	35.5%	176.5	198.4	36.1%	155.1	184.6
North Dakota	29.7%	208.2	203.8	27.2%	180.7	185.8
Ohio	37.2%	140.0	155.5	37.8%	125.2	144.3
Oklahoma	47.9%	150.5	168.7	50.3%	131.5	157.1
Oregon	28.1%	246.8	250.8	25.7%	210.0	221.5
Pennsylvania	34.6%	165.9	191.3	34.0%	152.1	180.8
Rhode Island	38.4%	220.2	215.8	34.3%	200.7	203.3
South Carolina	40.8%	180.2	190.2	39.3%	158.4	177.4
South Dakota	37.5%	172.8	181.7	37.1%	155.0	165.4
Tennessee	41.6%	176.9	196.3	43.0%	150.4	178.4
Texas	35.7%	192.1	210.8	38.4%	153.5	191.4
Utah	31.4%	230.6	241.9	31.9%	201.3	218.7
Vermont	23.4%	191.9	194.0	20.0%	181.6	182.6
Virginia	45.6%	268.5	257.6	42.0%	243.4	244.4
Washington	32.2%	274.5	276.0	30.4%	232.7	243.9
West Virginia	48.7%	152.8	154.2	46.1%	139.0	146.8
Wisconsin	24.0%	163.3	173.7	21.7%	146.9	161.0
Wyoming	42.4%	209.0	207.9	41.7%	193.5	195.4

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

State of the US Housing Market

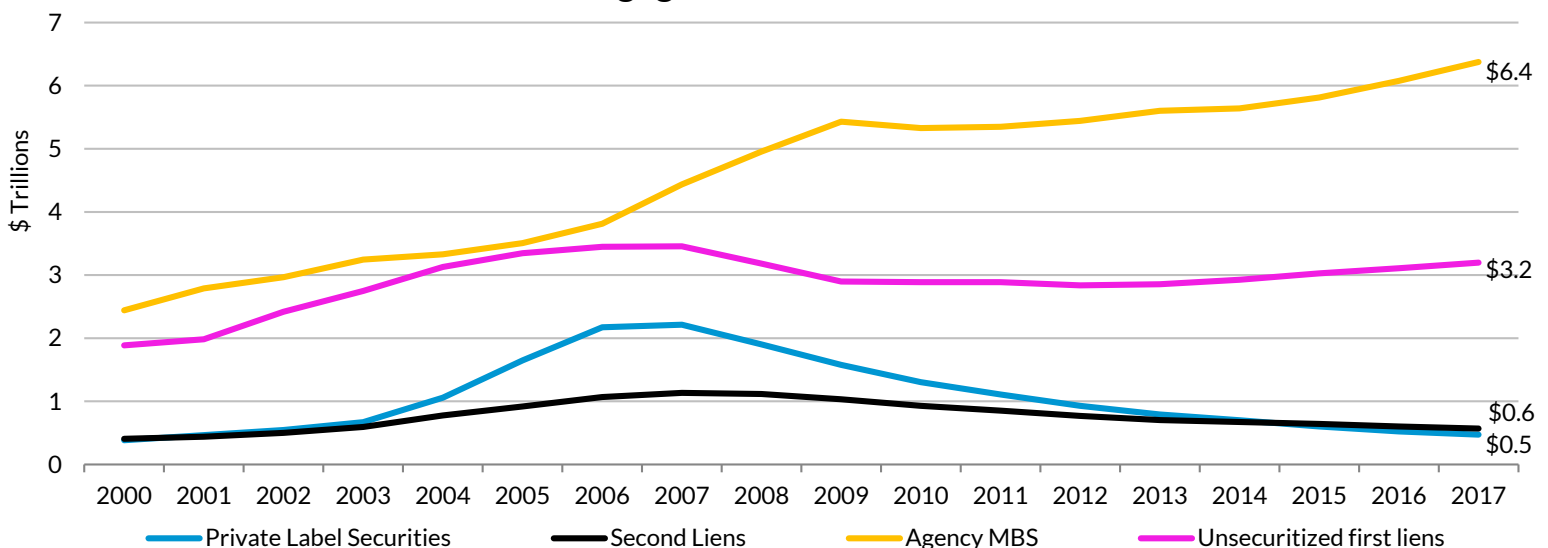
The Federal Reserve's Flow of Funds report has consistently indicated an increasing total value of the housing market driven by growing household equity since 2012, and 2017 Q4 was no different. While total debt and mortgages was stable at \$10.6 trillion, household equity reached a new high of \$15.2 trillion, bringing the total value of the housing market to \$25.8 trillion, surpassing the pre-crisis peak of \$23.9 trillion in 2006. Agency MBS make up 60.1 percent of the total mortgage market, private-label securities make up 4.5 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 5.4 percent of the total.

Value of the US Housing Market



Sources: Federal Reserve Flow of Funds and Urban Institute. Data as of Q4 2017.

Size of the US Residential Mortgage Market



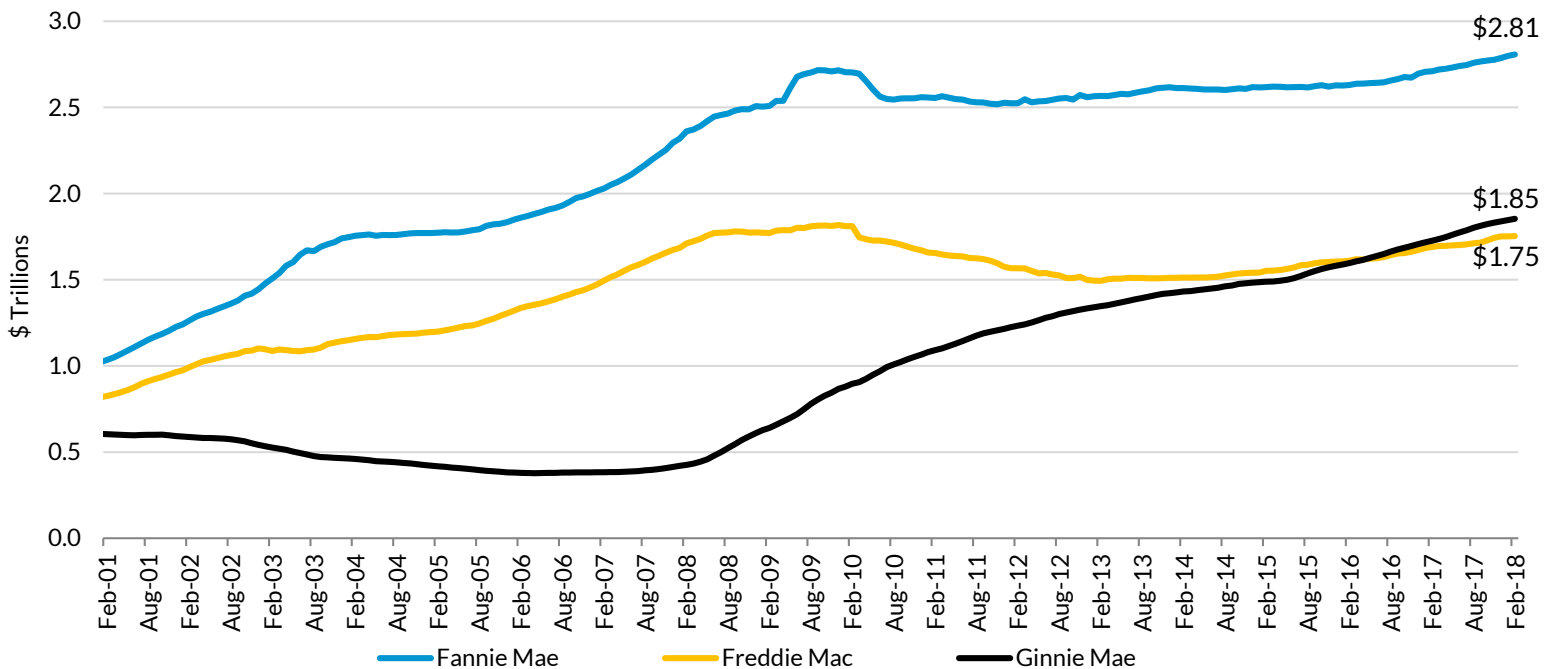
Sources: Federal Reserve Flow of Funds, Inside Mortgage Finance, Fannie Mae, Freddie Mac, eMBS and Urban Institute.

Note: Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, and credit unions. Data as of Q4 2017.

State of the US Housing Market

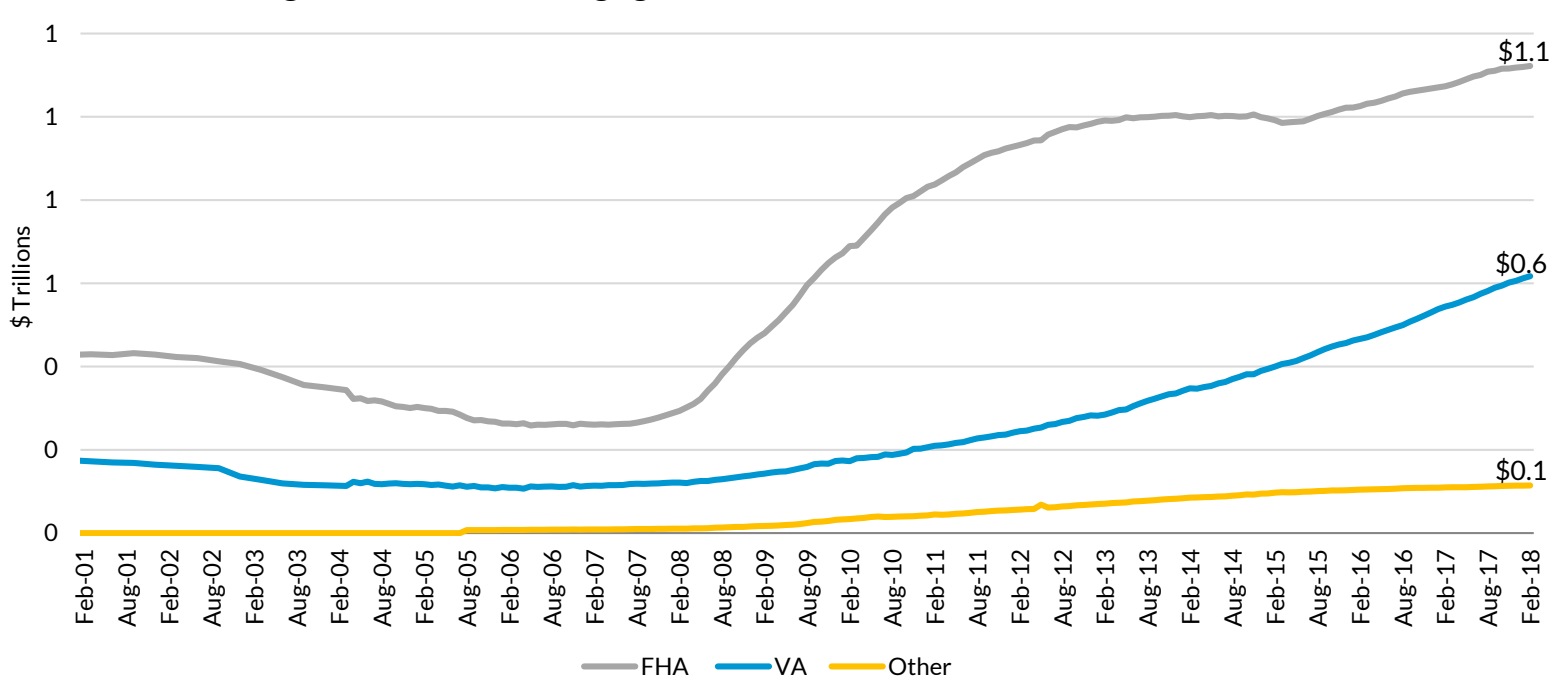
As of February 2018, outstanding securities in the agency market totaled \$6.41 trillion and were 43.8 percent Fannie Mae, 27.3 percent Freddie Mac, and 28.9 percent Ginnie Mae. Ginnie Mae has more outstandings than Freddie Mac. Within the Ginnie Mae market, VA has been growing very rapidly--comprising 33.3 percent of total Ginnie Mae outstandings.

Outstanding Agency Mortgage-Backed Securities



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

Outstanding Ginnie Mae Mortgage-Backed Securities

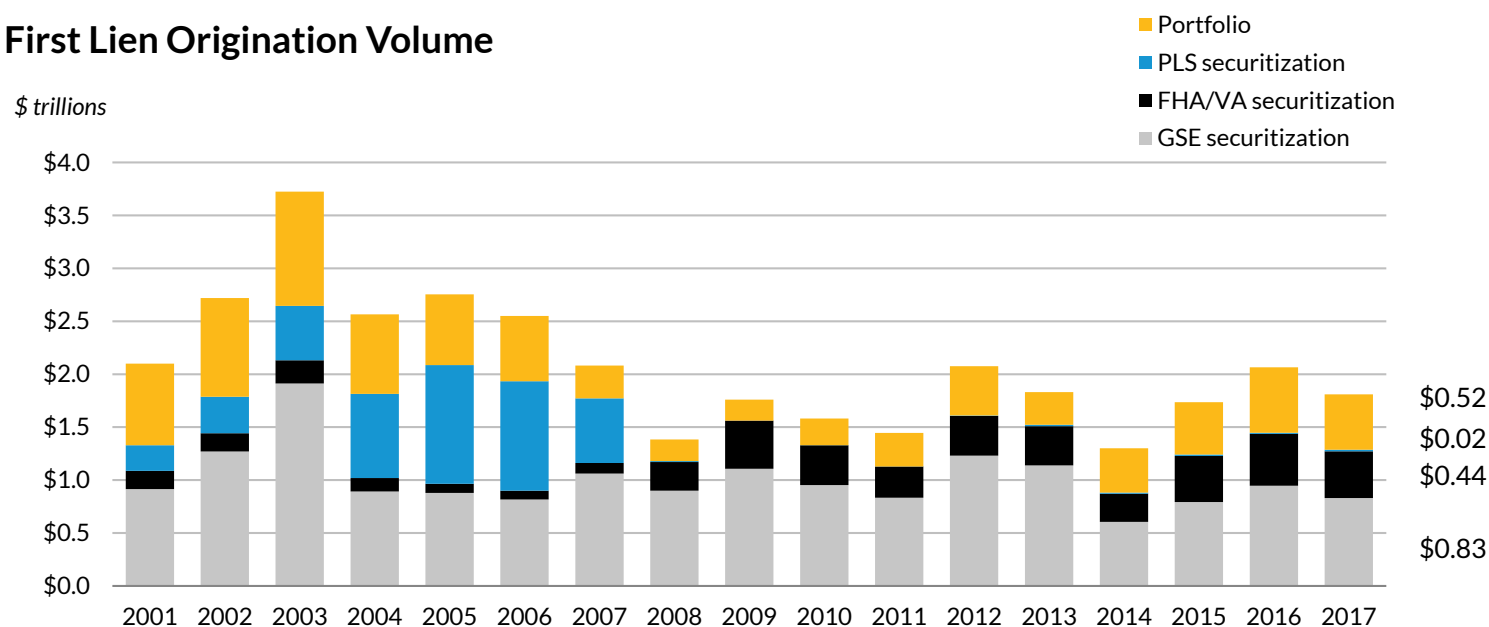


Sources: eMBS and Urban Institute. Note: Data as of February 2018.

State of the US Housing Market

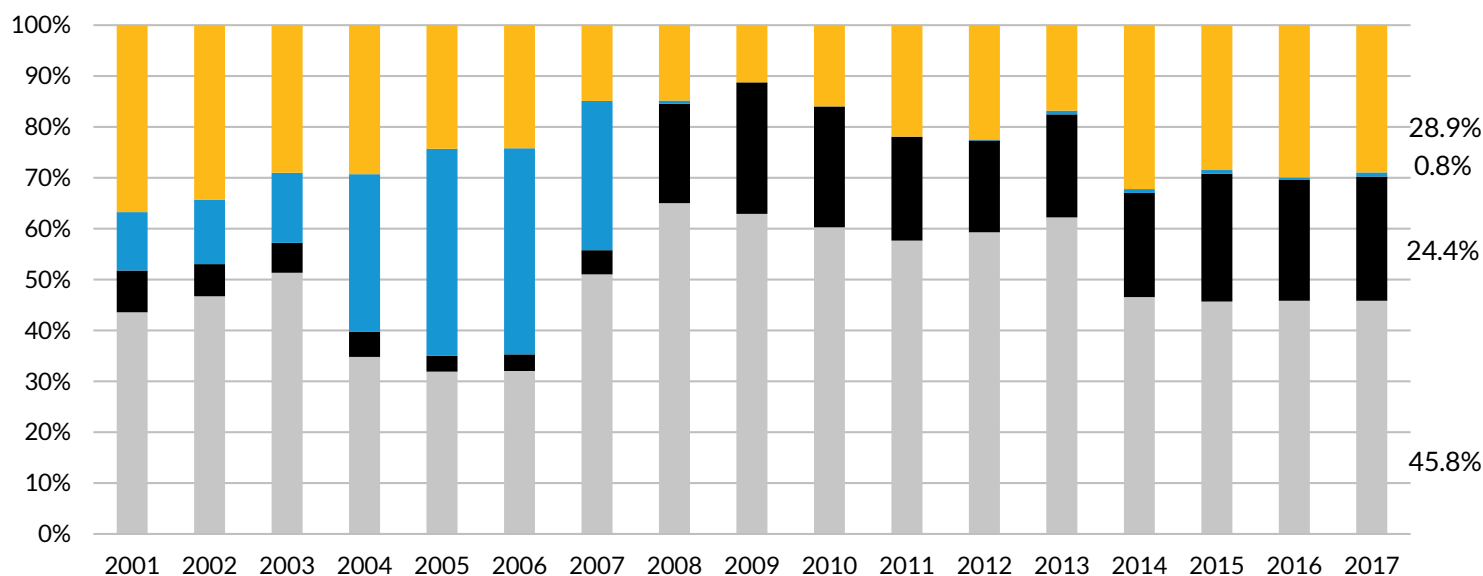
After a record high origination year in 2016 (\$2.1 trillion), the first lien originations totaled \$1.8 trillion in 2017, down 14 percent from 2016, mostly due to elevated interest rates. The portfolio originations share was 29 percent, the GSE share was 46 percent, and the FHA/VA share was 24 percent, all relatively consistent with 2016 shares. Origination of private-label securities was under 1 percent in both years.

First Lien Origination Volume



Sources: Inside Mortgage Finance and Urban Institute. Note: Data as of Q4 2017.

First Lien Origination Share



Sources: Inside Mortgage Finance and Urban Institute. Note: Data as of Q4 2017.

US Agency Market, Originations

Agency gross issuance totaled \$197.6 billion in the first two months of 2018, down by 15.8 percent compared to the same time period in 2017. Ginnie Mae gross issuance was down by 11.4 percent and GSE gross issuance was down by 17.9 percent. Within the Ginnie Mae market, FHA is down by 15.9 percent and VA origination is down by 4.2 percent. The decline in origination volume is the result of higher interest rates.

Agency Gross Issuance					
Issuance Year	Fannie Mae	Freddie Mac	GSE Total	Ginnie Mae	Total Agency
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 YTD	\$87.7	\$42.9	\$130.6	\$67.1	\$197.6
2018 % Change YOY	-5.9%	-34.8%	-17.9%	-11.4%	-15.8%
2018 Ann.	\$525.9	\$257.5	\$783.4	\$402.3	\$1,185.7

Ginnie Mae Breakdown: Agency Gross Issuance				
Issuance Year	FHA	VA	Other	Total Agency
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	\$35.2	\$29.1	\$2.8	\$67.1
2018 % Change YOY	-15.9%	-4.2%	-19.1%	-11.4%
2018 Ann.	\$211.4	\$174.3	\$16.6	\$402.3

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 February 2018.

US Agency Market, Originations

Agency net issuance totaled \$38.3 billion in the first two months of 2018, down 25.4 percent compared to 2017. Ginnie Mae net issuance was \$14.9 billion, comprising 40.0 percent of total agency net issuance. Note that Ginnie Mae net issuance is down 24.2 percent compared to the first two months of 2017. Ginnie Mae net issuance in 2018 is comprised of 73.4 percent VA issuance, 23.8 percent FHA issuance and 2.8 percent other issuance.

Agency Net Issuance					
Issuance Year	Fannie Mae	Freddie Mac	GSE Total	Ginnie Mae	Total Agency
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 YTD	\$20.4	\$2.6	\$23.0	\$14.9	\$38.3
2018 %Change YOY	52.0%	-85.3%	-26.1%	-24.2%	-25.4%
2018 Ann.	\$122.4	\$15.7	\$138.1	\$61.3	\$227.7

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 YTD	\$3.5	\$11.0	\$0.4	\$14.9
2018 %Change YOY	-29.3%	-21.8%	-36.3%	-24.2%
2018 Ann.	\$21.3	\$65.8	\$2.5	\$89.6

Sources: eMBS and Urban Institute (top and bottom)

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

US Agency Market, Originations

Agency gross issuance totaled \$93.7 billion in February 2018, down slightly from \$104.0 billion of issuance in January 2018. Since March 2017, monthly agency gross issuance has been lower than in the same period of the previous year, reflecting higher mortgage rates.

Monthly Agency Issuance

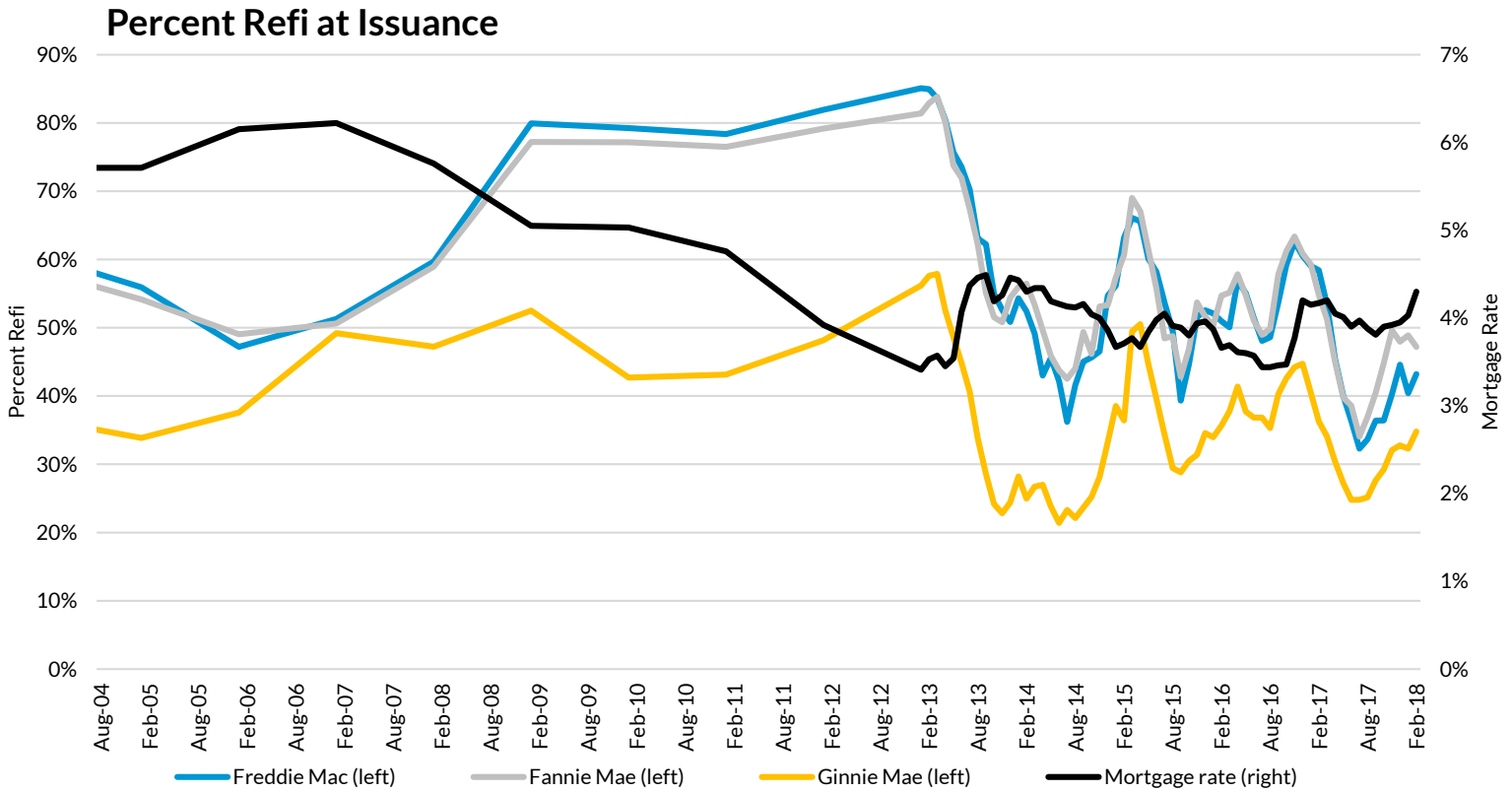
Date	Gross Issuance			Net Issuance		
	Fannie Mae	Freddie Mac	Ginnie Mae	Fannie Mae	Freddie Mac	Ginnie Mae
Jan-15	\$36.8	\$22.9	\$27.5	-\$1.2	\$0.8	\$2.5
Feb-15	\$35.4	\$29.9	\$23.9	\$1.5	\$10.1	\$2.9
Mar-15	\$44.8	\$26.0	\$30.7	\$3.1	\$1.1	\$0.6
Apr-15	\$49.3	\$33.8	\$40.6	-\$1.2	\$3.8	\$4.3
May-15	\$42.4	\$33.2	\$39.4	-\$2.9	\$6.6	\$5.8
Jun-15	\$44.6	\$34.4	\$40.5	\$0.8	\$8.3	\$9.1
Jul-15	\$46.0	\$39.2	\$45.6	\$1.0	\$12.3	\$13.3
Aug-15	\$39.4	\$27.6	\$43.4	-\$2.2	\$3.1	\$14.9
Sep-15	\$45.3	\$30.4	\$39.4	\$7.6	\$7.9	\$12.7
Oct-15	\$41.5	\$28.4	\$39.2	\$4.8	\$6.4	\$12.4
Nov-15	\$28.8	\$23.3	\$35.8	-\$8.1	\$1.3	\$10.6
Dec-15	\$39.7	\$22.8	\$30.3	\$7.1	\$3.2	\$8.2
Jan-16	\$35.6	\$22.5	\$32.5	-\$0.6	\$1.0	\$7.3
Feb-16	\$32.4	\$21.2	\$30.5	\$2.4	\$3.1	\$8.4
Mar-16	\$39.7	\$27.5	\$32.9	\$7.9	\$8.2	\$9.6
Apr-16	\$43.8	\$26.2	\$40.1	\$0.8	-\$0.2	\$8.8
May-16	\$44.2	\$29.9	\$41.6	\$2.4	\$4.4	\$11.4
Jun-16	\$46.7	\$30.1	\$43.9	\$2.7	\$3.0	\$11.9
Jul-16	\$49.8	\$35.3	\$46.1	\$2.3	\$6.3	\$10.8
Aug-16	\$54.9	\$37.9	\$46.7	\$10.4	\$11.0	\$13.8
Sep-16	\$65.8	\$44.0	\$52.5	\$8.7	\$9.0	\$12.5
Oct-16	\$66.0	\$35.9	\$47.4	\$11.8	\$2.7	\$9.3
Nov-16	\$48.8	\$40.2	\$47.2	-\$3.5	\$7.9	\$10.3
Dec-16	\$72.7	\$40.5	\$46.8	\$23.3	\$10.4	\$10.8
Jan-17	\$55.6	\$38.5	\$42.6	\$10.3	\$10.7	\$10.3
Feb-17	\$37.6	\$27.4	\$33.1	\$3.1	\$6.5	\$9.2
Mar-17	\$39.5	\$24.4	\$31.3	\$10.3	\$6.2	\$9.6
Apr-17	\$39.3	\$21.2	\$36.4	\$4.8	\$0.4	\$11.7
May-17	\$40.3	\$22.6	\$36.4	\$7.6	\$2.7	\$13.1
Jun-17	\$45.7	\$25.1	\$39.9	\$8.3	\$2.4	\$13.2
Jul-17	\$45.3	\$27.6	\$40.6	\$5.8	\$3.5	\$12.1
Aug-17	\$49.1	\$29.3	\$42.8	\$12.0	\$6.7	\$15.6
Sep-17	\$47.3	\$27.9	\$40.2	\$7.4	\$3.8	\$10.5
Oct-17	\$42.9	\$34.6	\$38.4	\$6.4	\$12.5	\$10.7
Nov-17	\$43.5	\$37.2	\$37.8	\$4.6	\$13.6	\$8.2
Dec-17	\$45.3	\$30.0	\$36.2	\$9.6	\$8.2	\$6.8
Jan-18	\$47.4	\$21.4	\$35.2	\$12.4	\$0.3	\$7.8
Feb-18	\$40.3	\$21.5	\$31.9	\$8.0	\$2.3	\$7.1

Sources: eMBS and Urban Institute.

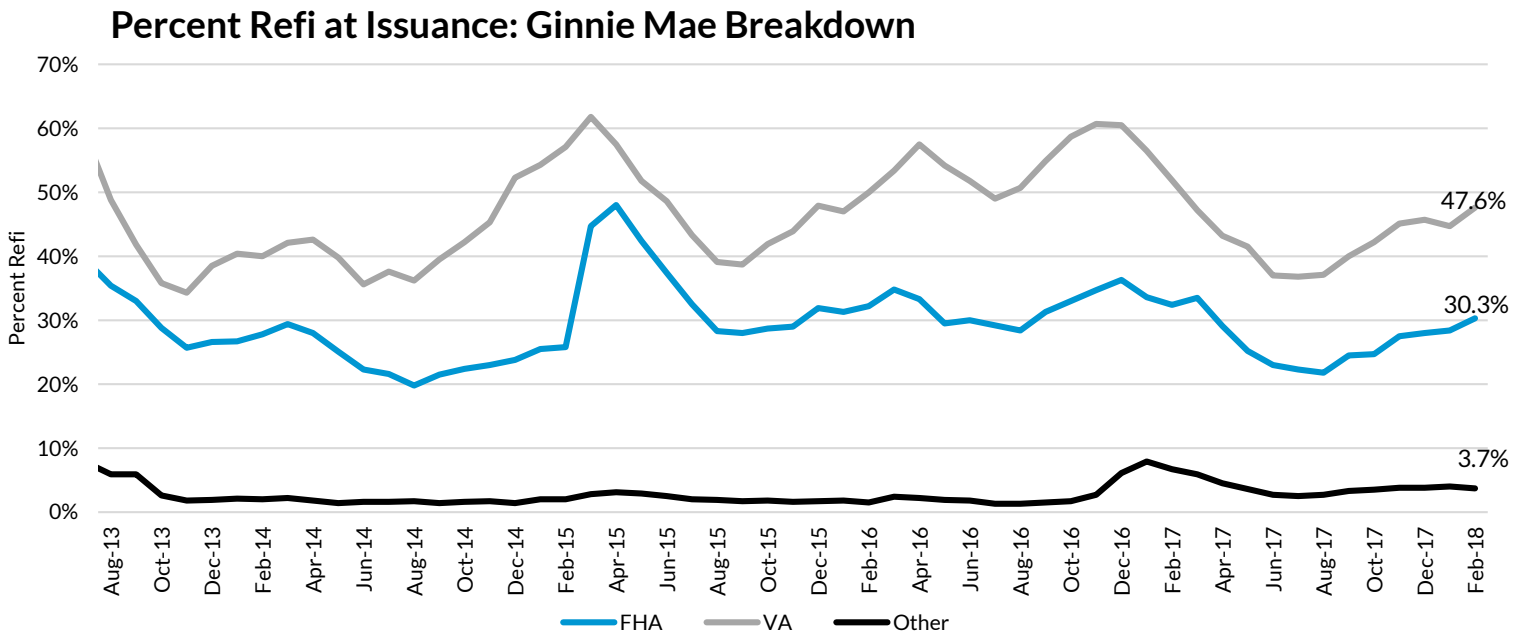
Note: Dollar amounts are in billions. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of February 2018.

US Agency Market, Originations

The Ginnie Mae refi share stood at 35 percent in February 2018, below the 47 and 43 percent shares for Fannie Mae and Freddie Mac, respectively. Within Ginnie Mae, VA had the highest refi share at 47.6 percent in February 2018, followed by FHA's 30.3 percent refi share.



Sources: eMBS and Urban Institute. Note: Based on at-issuance balance. Data as of February 2018.



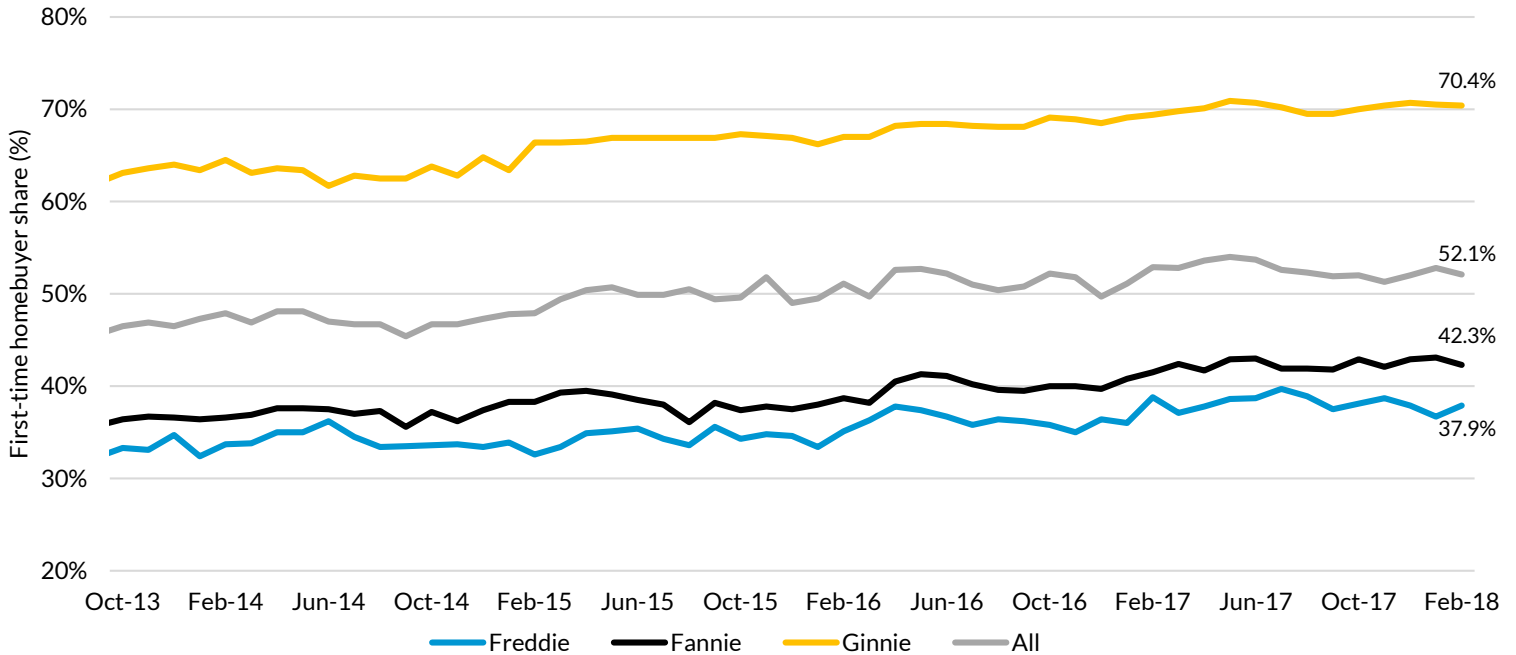
Sources: eMBS and Urban Institute.

Note: Based on at-issuance balance. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of February 2018.

Credit Box

First time homebuyers are important to the Ginnie Mae market, comprising 70 percent of purchase originations, compared to Fannie and Freddie's respective 42 percent and 38 percent share of the first-time homebuyer market. The bottom table shows that based on mortgages originated in February 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 February 2018.

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$)	228,448	258,852	240,558	260,745	202,013	246,967	216,693	255,851
Credit Score	737.3	755.3	740.0	753.9	680.7	700.6	708.4	738.8
LTV (%)	87.5	78.9	86.4	79.2	96.9	95.6	92.2	83.9
DTI (%)	36.3	36.6	35.3	36.1	41.2	42.2	38.7	38.1
Loan Rate (%)	4.26	4.09	4.19	4.09	4.24	4.11	4.24	4.10

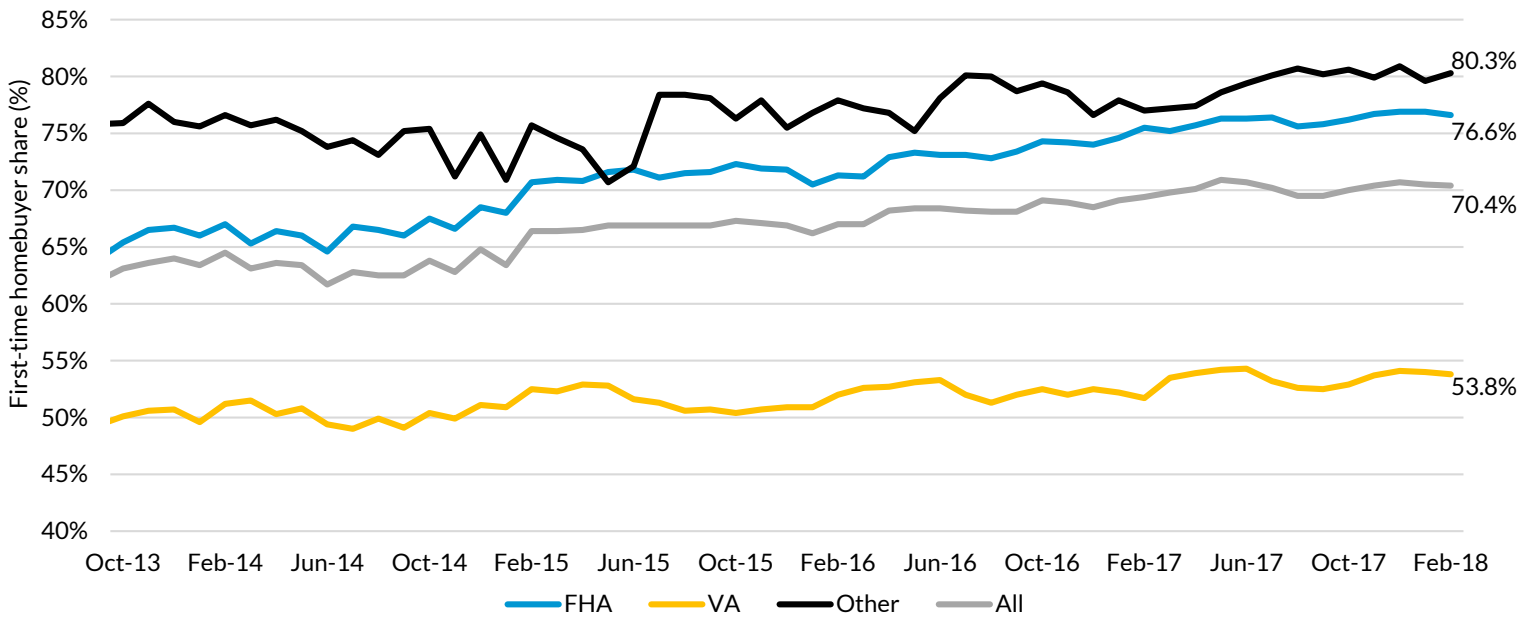
Sources: eMBS and Urban Institute.

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 February 2018.

Credit Box

Within the Ginnie Mae purchase market, 77 percent of FHA loans, 54 percent of VA loans and 80 percent of other loans represent financing for first time home buyers. The bottom table shows that based on mortgages originated in February 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 February 2018.

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$)	199,866	219,014	238,068	290,216	143,478	155,892	202,013	246,967
Credit Score	672.6	676.9	697.9	726.4	695.3	698.8	680.7	700.6
LTV (%)	95.5	94.2	99.8	96.6	99.4	99.6	96.9	95.6
DTI (%)	42.5	43.6	40.2	41.5	35.2	35.8	41.2	42.2
Loan Rate (%)	4.32	4.27	4.07	3.93	4.10	4.19	4.24	4.11

Sources: eMBS and Urban Institute. Note: Data as of February 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.

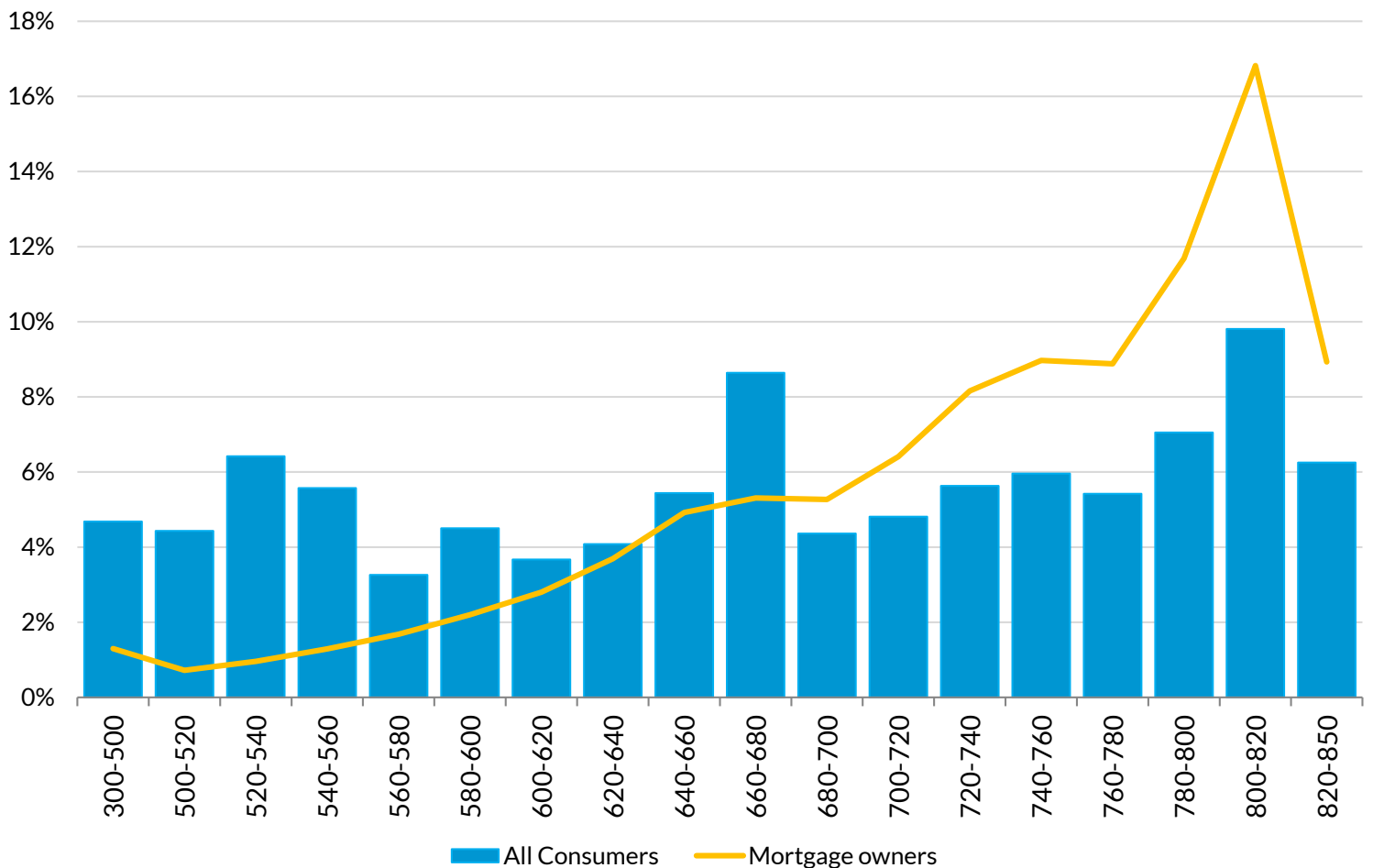
Credit Box

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 (676) is lower than the 25th percentile of those with a mortgage (680).

FICO Score Distribution: Mortgage Owners vs All Consumers

All Consumers- Percentiles								
Minimum	P5	P10	P25	P50	P75	P90	P95	Maximum
300	502	524	583	676	772	813	822	839

Mortgage Owners- Percentiles								
Minimum	P5	P10	P25	P50	P75	P90	P95	Maximum
308	569	613	680	751	801	818	824	839



Sources: Credit Bureau Data and Urban Institute.
 Note: Data as of August 2016.

February 2018 Credit Box at a Glance

In February 2018, the median Ginnie Mae FICO score was 679 versus 750 for Fannie and 752 for Freddie. Note that the FICO score for the 10th percentile was 621 for Ginnie Mae, versus 672 for Fannie and 679 for Freddie. Within the Ginnie Mae market, FHA loans have a median FICO score of 667, VA loans have a median FICO score of 704 and other loans have a median FICO score of 692.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	225,036	644	680	731	775	797	725
Fannie	88,356	683	717	757	786	801	748
Freddie	50,239	686	719	758	787	801	750
Ginnie	86,441	623	646	678	724	770	687

Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	165,047	645	683	727	771	796	723
Fannie	82,649	664	700	741	778	799	736
Freddie	41,743	669	702	744	779	799	738
Ginnie	40,655	613	644	680	723	767	683

All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	390,083	644	681	729	774	797	724
Fannie	171,005	672	708	750	783	800	742
Freddie	91,982	679	711	752	784	801	745
Ginnie	127,096	621	646	679	723	769	686

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	86,441	623	646	678	724	770	687
FHA	53,085	620	641	668	703	742	674
VA	24,948	631	662	710	764	793	711
Other	8,408	640	659	692	732	766	696

Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	40,655	613	644	680	723	767	683
FHA	20,617	602	632	664	698	737	666
VA	19,794	629	660	699	746	782	701
Other	244	614	656	695	745	771	693

All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	127,096	621	646	679	723	769	686
FHA	73,702	614	639	667	702	740	671
VA	44,742	630	660	704	756	789	707
Other	8,652	640	659	692	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 February 2018.

February 2018 Credit Box at a Glance

In February 2018, the median loan-to-value ratio (LTV) was 96.5 percent for Ginnie Mae, 80 percent for Fannie Mae, and 79 percent for Freddie Mac. The 10th percentile was 81.1 percent for Ginnie Mae, 49 percent for Fannie Mae, and 50 percent for 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	225,341	72.0	80.0	95.0	96.5	100.0	87.4
Fannie	88,441	64.0	79.0	80.0	95.0	97.0	82.1
Freddie	50,286	63.0	75.0	80.0	95.0	95.0	81.2
Ginnie	86,614	93.0	96.5	96.5	100.0	102.0	96.5
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	168,314	45.0	60.0	75.0	82.1	94.2	71.2
Fannie	82,659	41.0	56.0	70.0	79.0	80.0	65.5
Freddie	41,744	42.0	57.0	70.0	79.0	80.0	66.1
Ginnie	43,911	68.9	81.7	87.0	97.9	100.0	86.7
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	393,655	55.0	72.0	80.0	95.9	98.0	80.5
Fannie	171,100	49.0	65.0	79.0	87.0	95.0	74.1
Freddie	92,030	50.0	66.0	80.0	85.0	95.0	74.3
Ginnie	130,525	81.1	90.5	96.5	100.0	101.0	93.2
Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	86,614	93.0	96.5	96.5	100.0	102.0	96.5
FHA	53,181	92.9	96.5	96.5	96.5	96.5	95.2
VA	24,986	91.4	100.0	100.0	102.2	103.3	98.3
Other	8,447	95.6	99.2	101.0	101.0	102.0	99.5
Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	43,911	68.9	81.7	87.0	97.9	100.0	86.7
FHA	21,626	68.0	80.6	86.5	90.2	98.1	83.8
VA	21,958	69.5	83.6	93.7	100.0	102.2	89.4
Other	327	78.8	88.7	97.2	101.5	103.3	93.3
All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	130,525	81.1	90.5	96.5	100.0	101.0	93.2
FHA	74,807	81.6	88.7	96.5	96.5	96.5	91.9
VA	46,944	78.2	90.8	100.0	100.0	103.0	94.2
Other	8,774	94.8	99.2	101.0	101.0	102.0	99.2

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 February 2018.

February 2018 Credit Box at a Glance

In February 2018, the median Ginnie Mae debt-to-income ratio (DTI) was 42.1 percent, considerably higher than the 37-38 percent median DTIs for Fannie Mae and Freddie Mac. The 90th percentile for Ginnie Mae was 53.8 percent, also much higher than the 47-48 percent DTIs for the GSEs. Within the Ginnie Mae market, the median FHA DTI ratio was 43.7 percent, versus 41.0 percent for VA and 36.2 percent for other lending programs.

Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	225,004	24.0	31.3	39.0	45.2	49.8	38.1
Fannie	88,437	23.0	30.0	38.0	44.0	48.0	36.3
Freddie	50,285	22.0	29.0	37.0	43.0	47.0	35.6
Ginnie	86,282	28.5	35.1	42.2	48.6	53.8	41.5

Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	153,992	22.0	30.0	38.0	45.0	49.0	36.8
Fannie	81,672	22.0	29.0	37.0	44.0	48.0	36.1
Freddie	41,122	21.0	28.0	36.0	43.0	47.0	35.2
Ginnie	31,198	26.4	33.8	41.9	48.6	53.6	40.8

All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	378,996	23.4	31.0	39.0	45.0	49.0	37.6
Fannie	170,109	22.0	29.0	38.0	44.0	48.0	36.2
Freddie	91,407	22.0	29.0	37.0	43.0	47.0	35.4
Ginnie	117,480	27.9	34.9	42.1	48.6	53.8	41.3

Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	86,282	28.5	35.1	42.2	48.6	53.8	41.5
FHA	53,160	29.9	36.8	43.8	49.8	54.4	42.8
VA	24,793	26.9	34.0	41.3	48.1	53.6	40.8
Other	8,329	26.1	31.0	36.2	40.3	43.1	35.3

Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	31,198	26.4	33.8	41.9	48.6	53.6	40.8
FHA	16,217	28.0	35.3	43.2	49.4	54.0	41.8
VA	14,741	25.3	32.4	40.5	47.6	52.8	39.7
Other	240	18.3	24.5	33.4	40.3	46.4	32.9

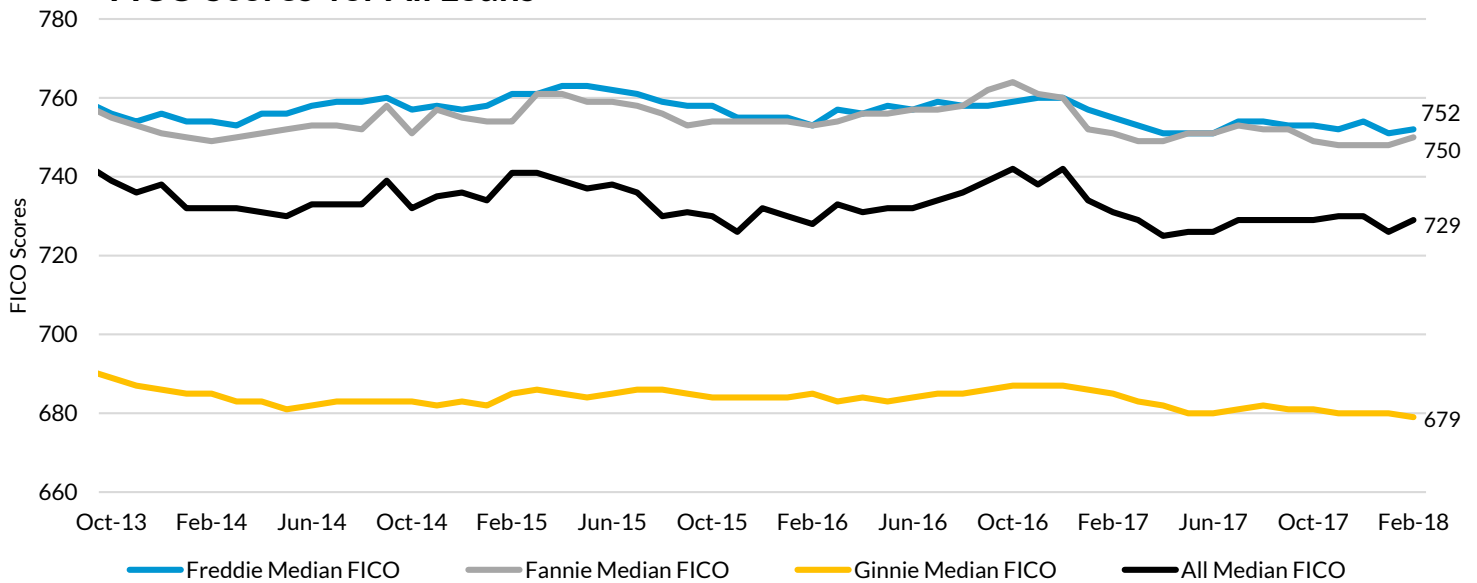
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	117,480	27.9	34.9	42.1	48.6	53.8	41.3
FHA	69,377	29.4	36.5	43.7	49.7	54.3	42.5
VA	39,534	26.3	33.4	41.0	47.9	53.3	40.4
Other	8,569	25.8	30.9	36.2	40.3	43.2	35.3

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 February 2018.

Credit Box: Historical

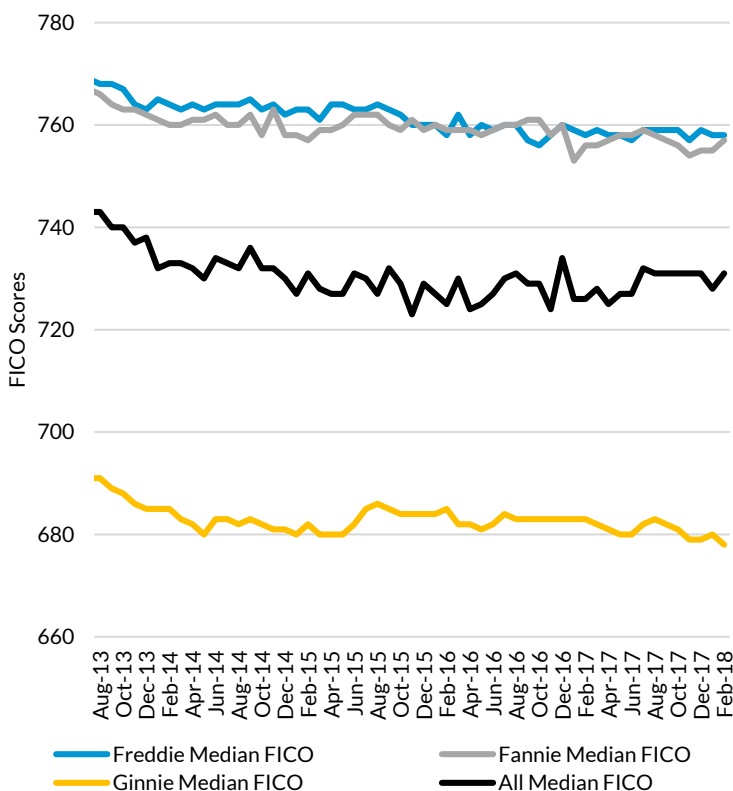
The median FICO score for all agency MBS originated in February now stands at 729, slightly higher than last month. The figures clearly show that the median FICO score for Ginnie Mae borrowers has always been considerably lower than for GSE borrowers. The difference between Ginnie Mae and GSE borrowers is wider in purchase loans than in refi loans.

FICO Scores for All Loans



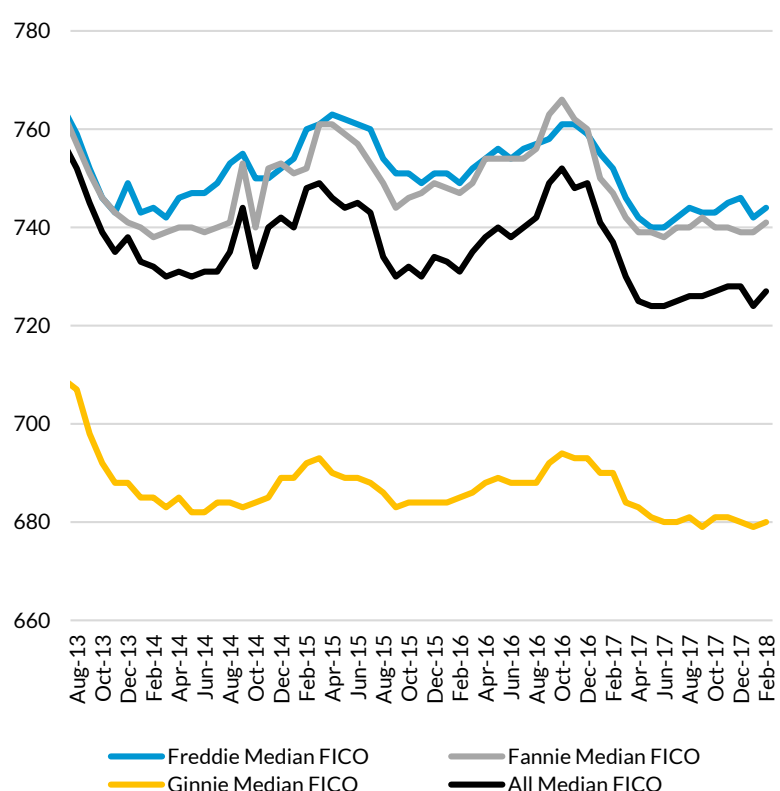
Sources: eMBS and Urban Institute. Note: Data as of February 2018.

FICO Scores for Purchase Loans



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

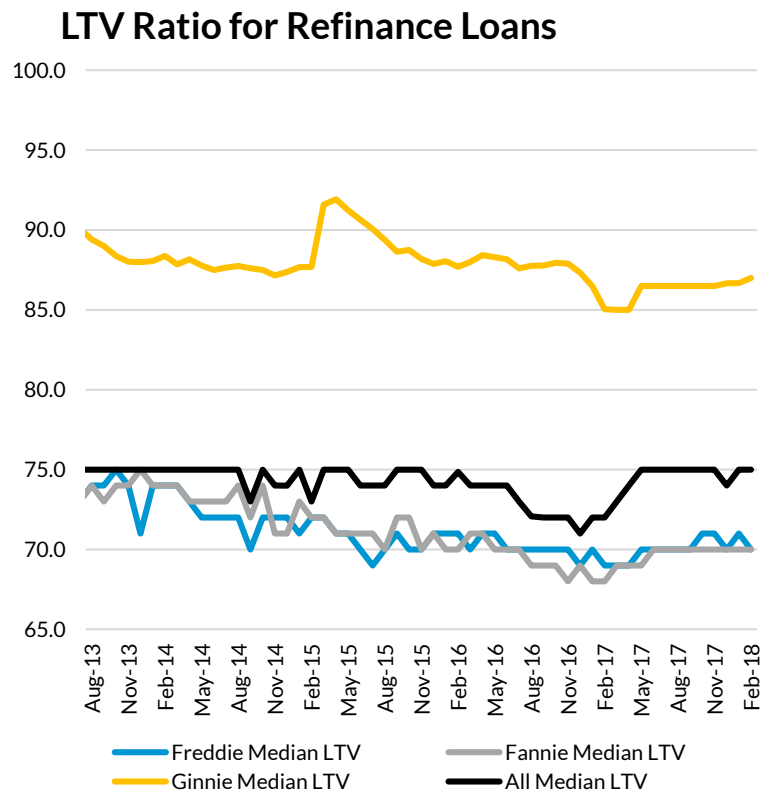
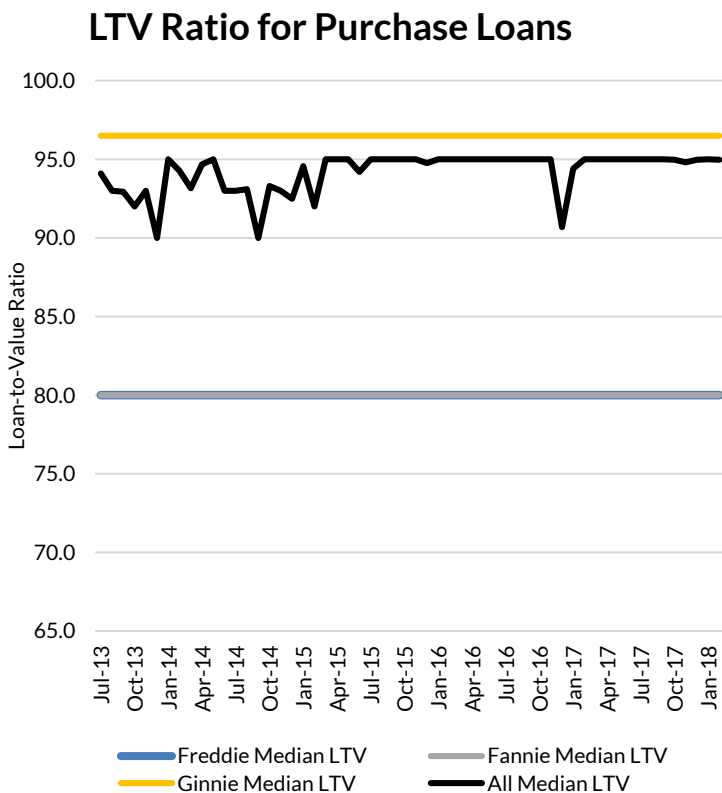
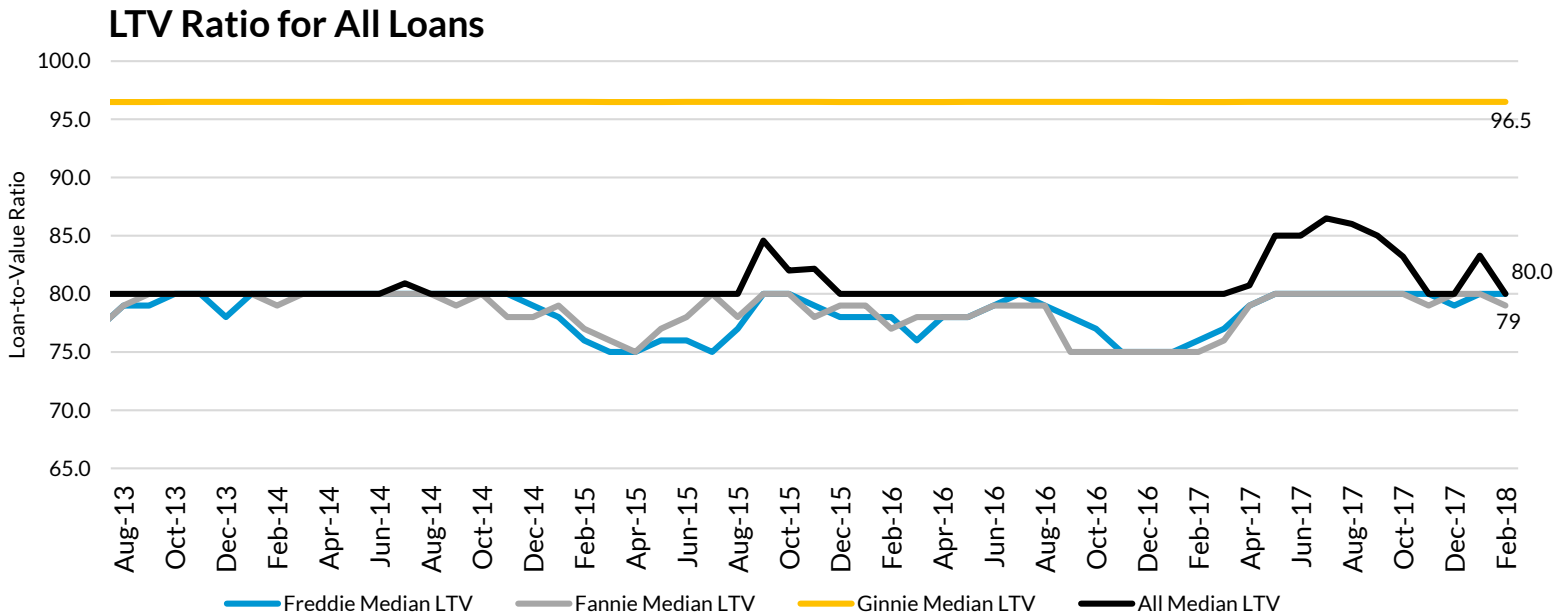
FICO Scores for Refinance Loans



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

Credit Box: Historical

Median LTVs for Ginnie Mae loans have historically been at 96.5 percent, much higher than the 75-80 percent LTVs for the GSEs. Through time, both Ginnie Mae and GSE refinances have LTVs about 10 points lower than their purchase counterparts.

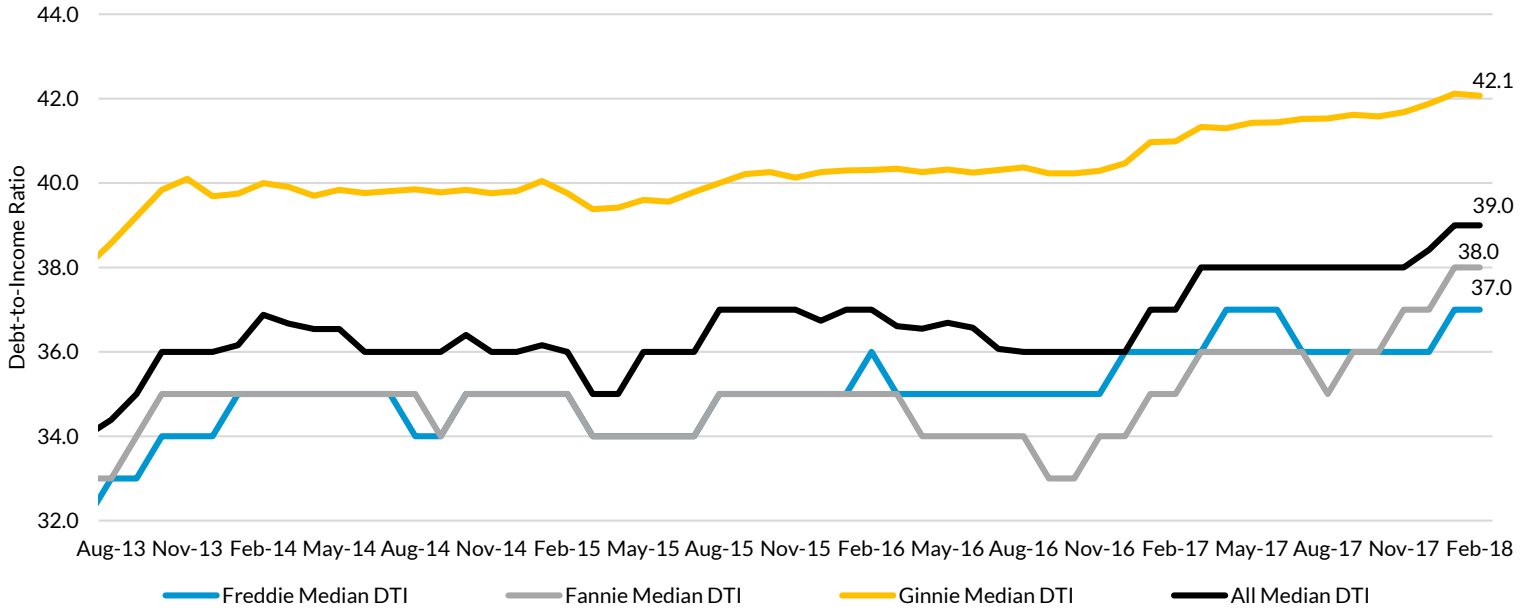


Sources: eMBS and Urban Institute. Note: In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting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

Credit Box: Historical

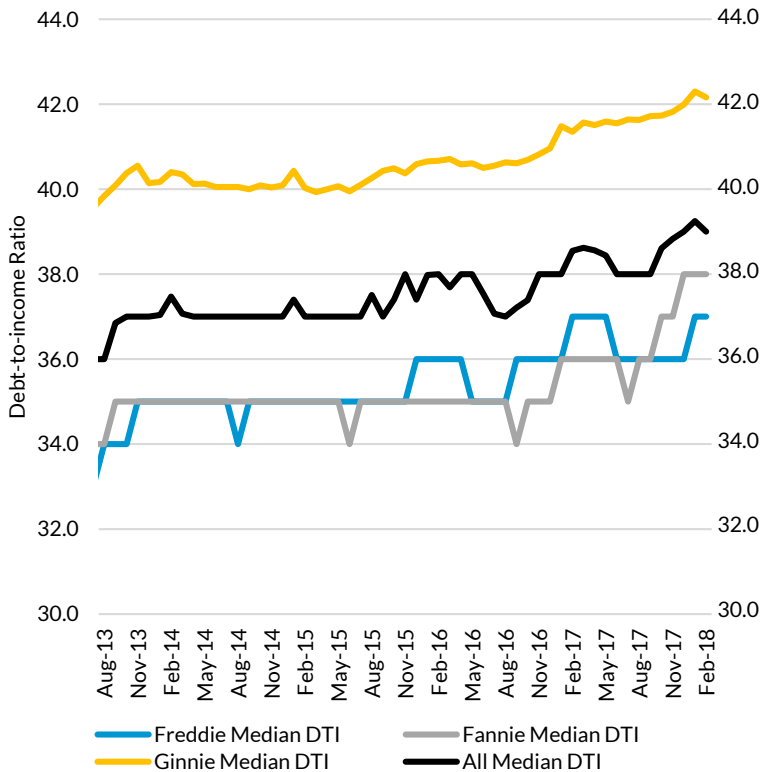
Median debt-to-income ratios on Ginnie Mae loans have historically been in the low 40s, considerably higher than the GSEs. DTIs have been inching up over the past year for both Ginnie Mae and GSE loans, with the movement more pronounced for Ginnie Mae loans.

DTI Ratio for All Loans



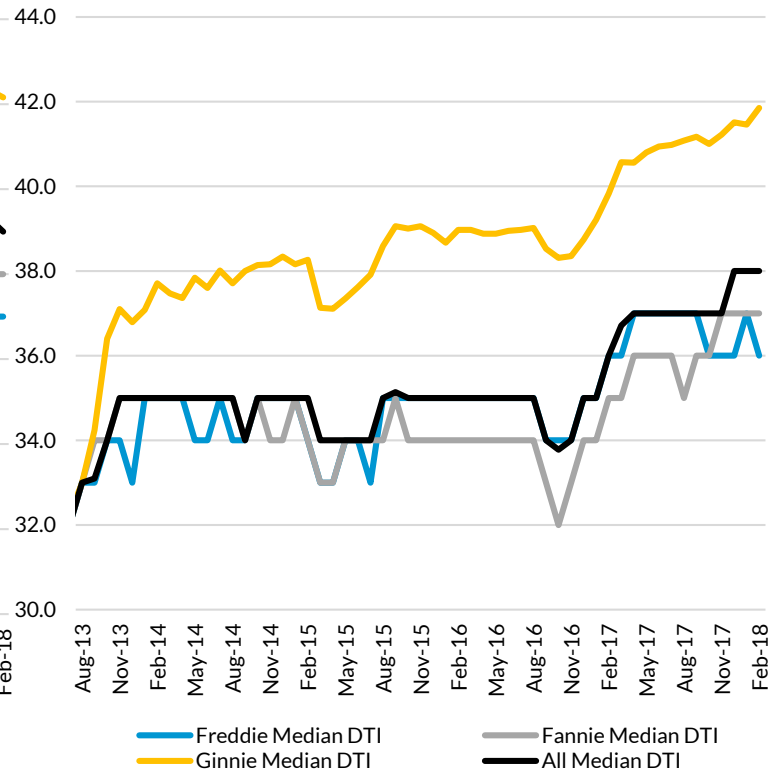
Sources: eMBS and Urban Institute. Note: Data as of February 2018.

DTI Ratio for Purchase Loans



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

DTI Ratio for Refinance Loans

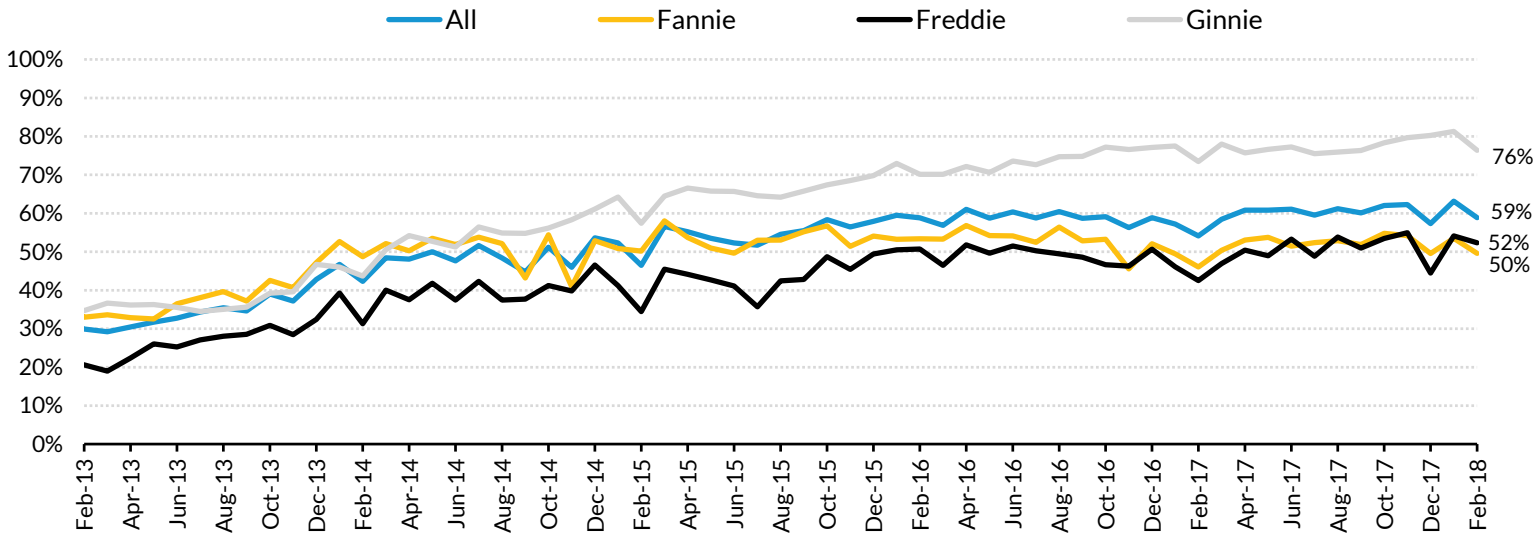


Sources: eMBS and Urban Institute. Note: Data as of February 2018.

Non-bank Originators

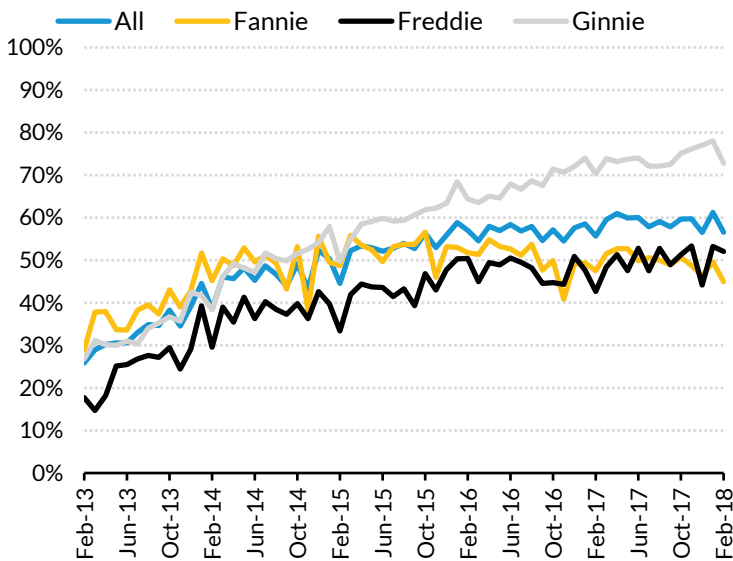
The nonbank origination share has increased for all three agencies since 2013. In February 2018, this trend was interrupted, with Ginnie Mae's nonbank share declining to 76.4 percent. Nonbank originator shares for Freddie Mac and Fannie Mae both remained near the historic highs reached in November 2017, standing at 52.3 and 49.6 percent, respectively. For Ginnie Mae, the non-bank refi share was considerably higher than the non-bank purchase share. The differences were more modest for the GSEs.

Nonbank Origination Share: All Loans

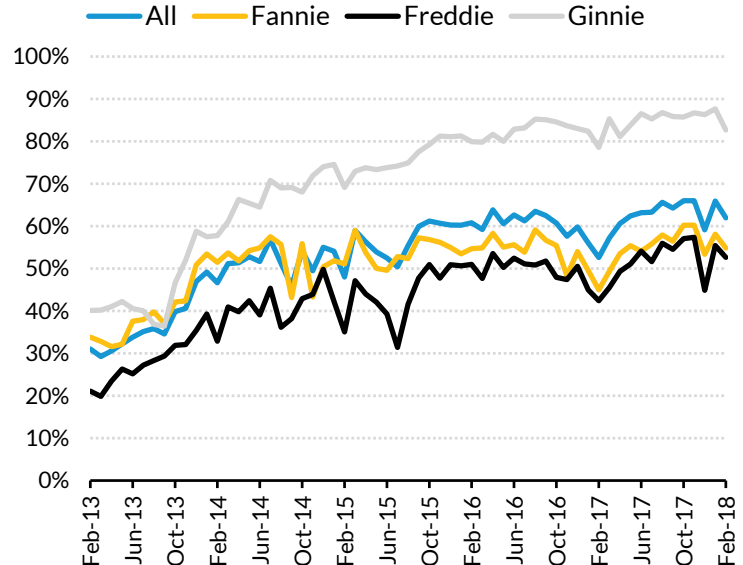


Sources: eMBS and Urban Institute
 Note: Data as of February 2018.

Nonbank Origination Share: Purchase Loans



Nonbank Origination Share: Refinance Loans

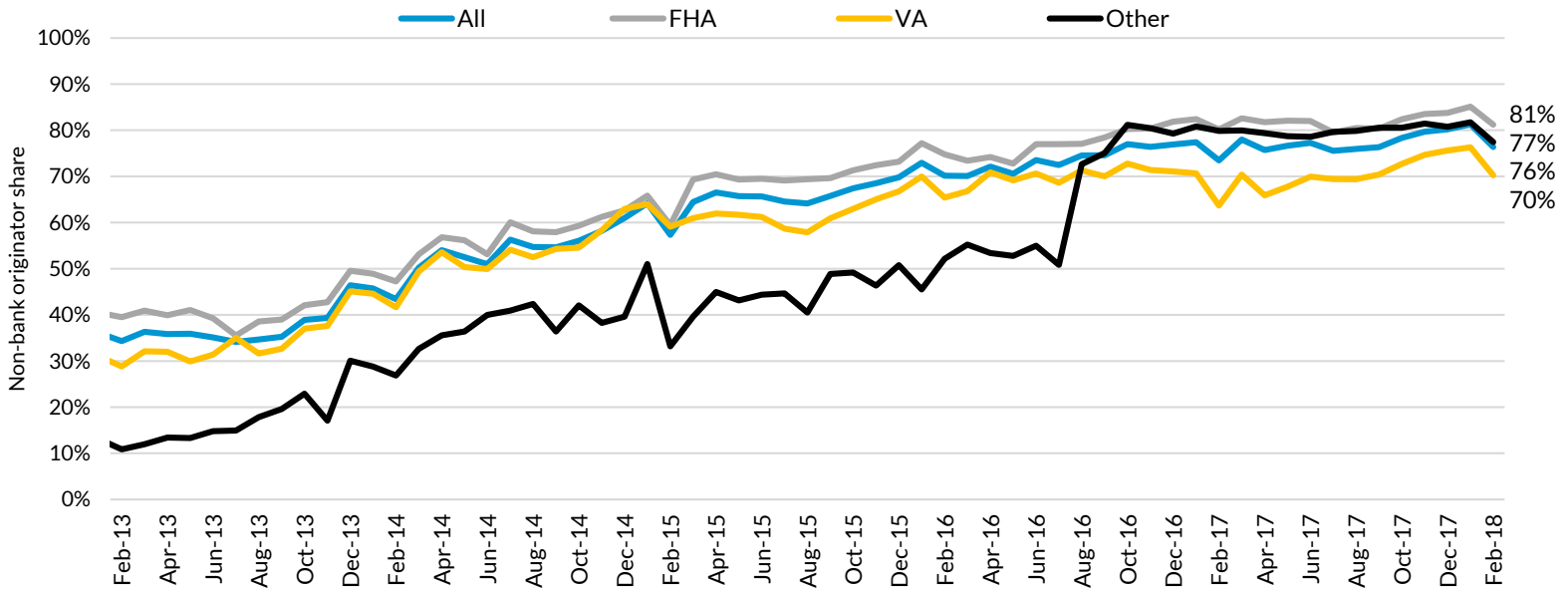


Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of February 2018.

Ginnie Mae Non-bank Originators

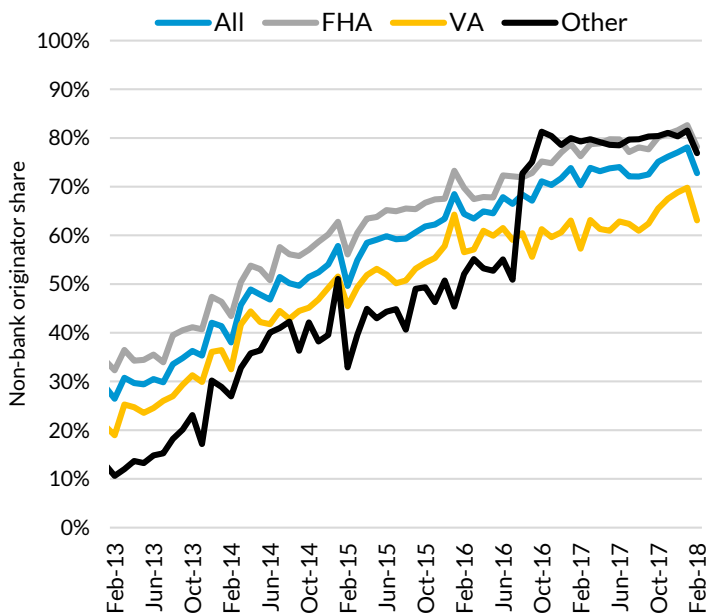
In February 2018, Ginnie Mae's nonbank share declined to 76 percent. Nonbank originator shares for FHA, VA, and Other issuance all declined to 81, 70, and 77 percent, respectively. The nonbank originator share is higher for refinance loans than for purchase loans across all channels.

Ginnie Mae Non-bank Originator Share: All Loans

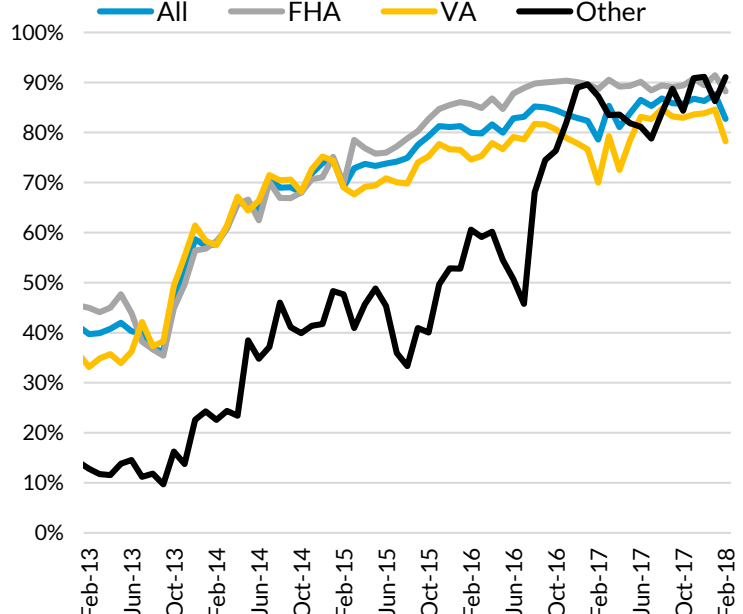


Sources: eMBS and Urban Institute
 Note: Data as of February 2018.

Ginnie Mae Non-bank Share: Purchase Loans



Ginnie Mae Non-bank Share: Refinance Loans

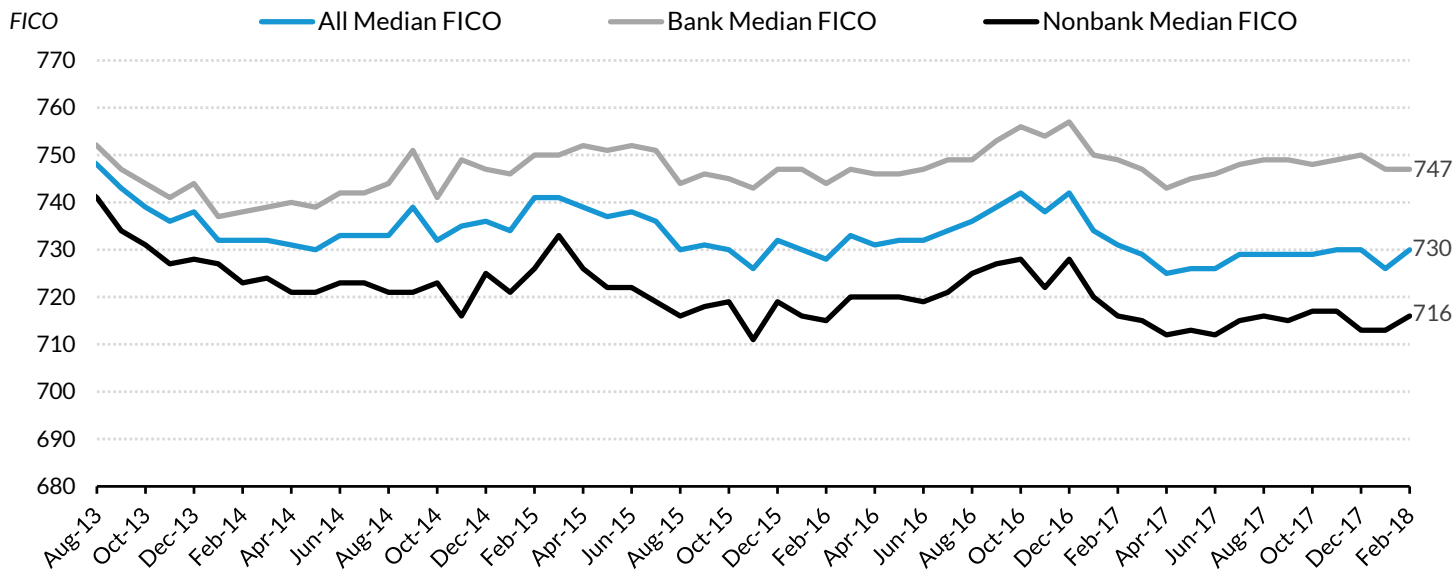


Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of February 2018.

Nonbank Credit Box

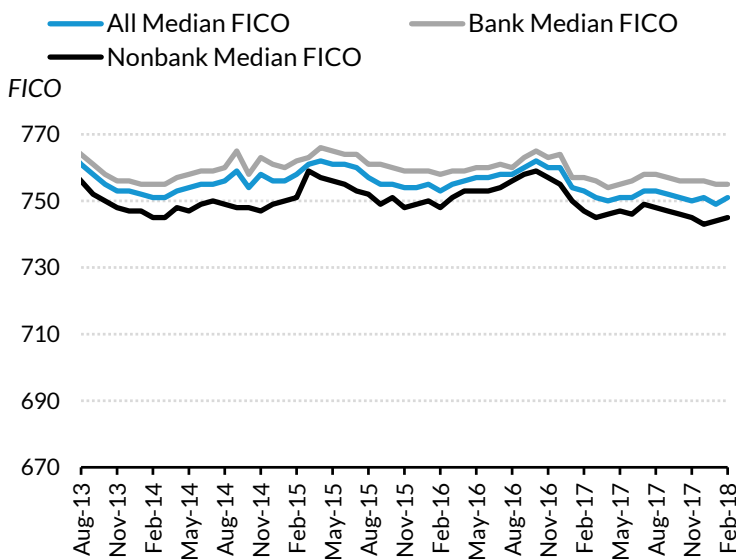
Nonbank originators have played a key role in opening up access to credit. The median GSE and the median Ginnie Mae FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, both bank and nonbank FICOs have declined since 2014 with a further relaxation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



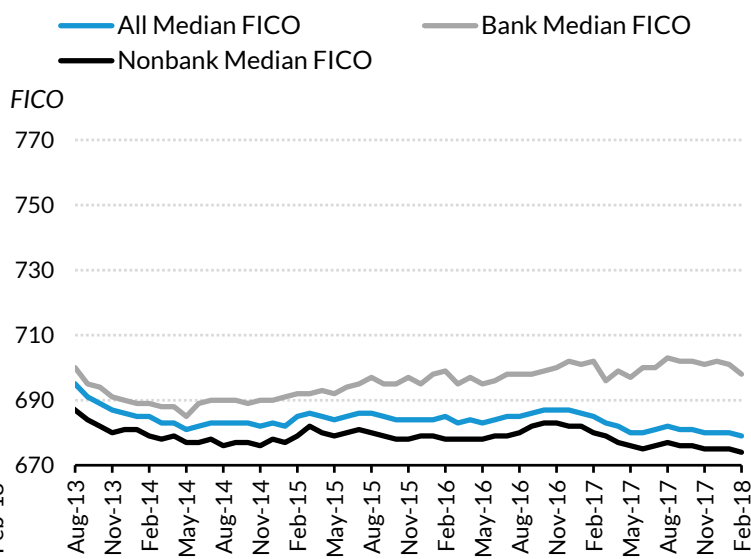
Sources: eMBS and Urban Institute. Note: Data as of February 2018.

GSE FICO: Bank vs. Nonbank



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

Ginnie Mae FICO: Bank vs. Nonbank

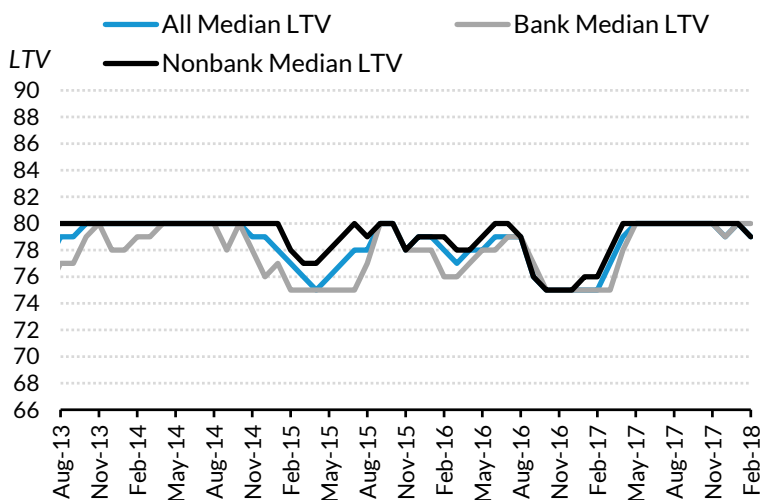


Sources: eMBS and Urban Institute. Note: Data as of February 2018.

Nonbank Credit Box

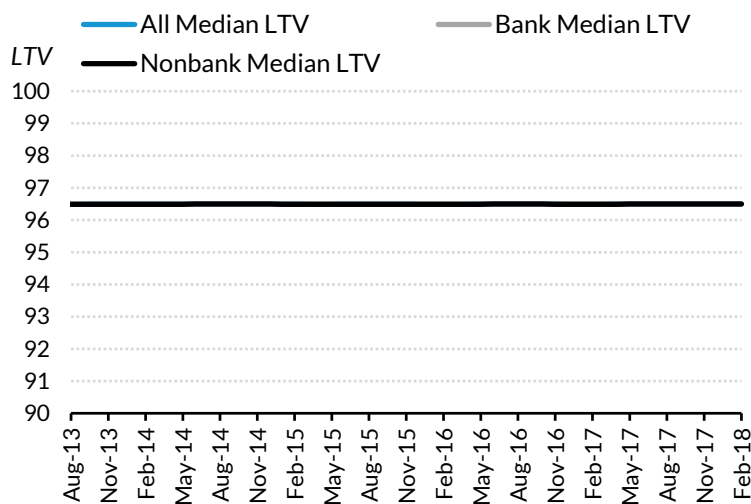
The median LTV ratios for loans originated by nonbanks are similar to their bank counterparts, while the median DTIs for nonbank loans are higher, indicating that nonbanks are more accommodating in this as well as in the FICO dimension. Note that since early 2017, there has been a measurable increase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

GSE LTV: Bank vs. Nonbank



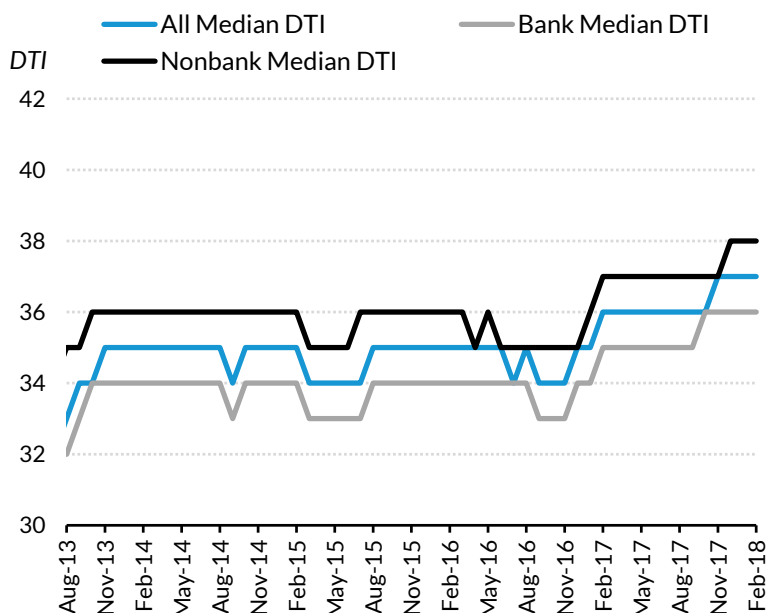
Sources: eMBS and Urban Institute. Note: Data as of February 2018.

Ginnie Mae LTV: Bank vs. Nonbank



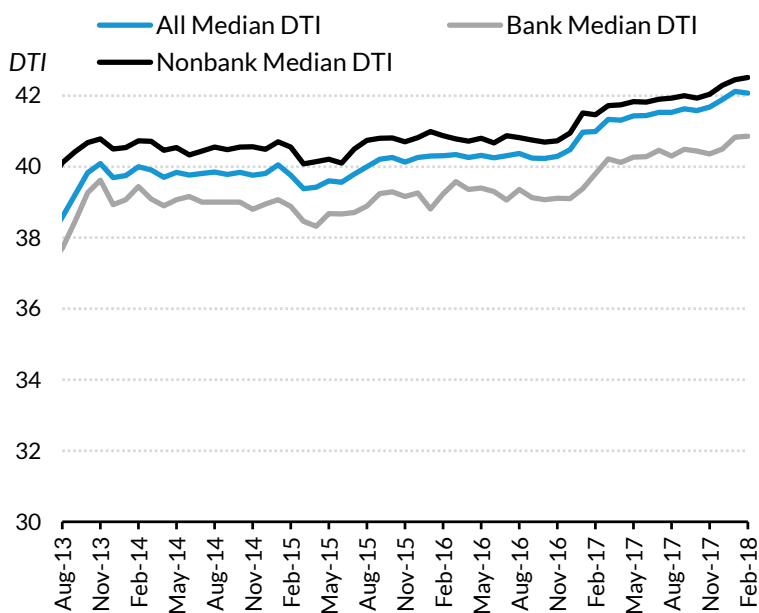
Sources: eMBS and Urban Institute. Note: Data as of February 2018.

GSE DTI: Bank vs. Nonbank



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

Ginnie Mae DTI: Bank vs. Nonbank

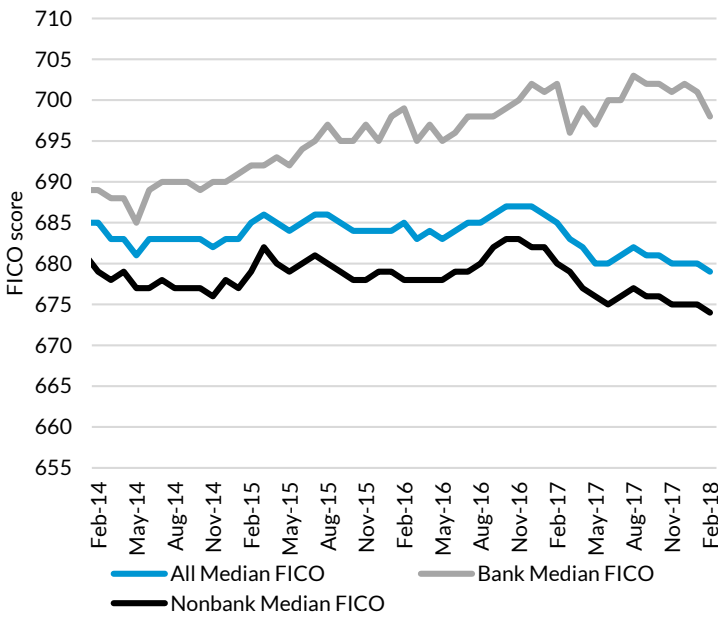


Sources: eMBS and Urban Institute. Note: Data as of February 2018.

Ginnie Mae Nonbank Originators: Credit Box

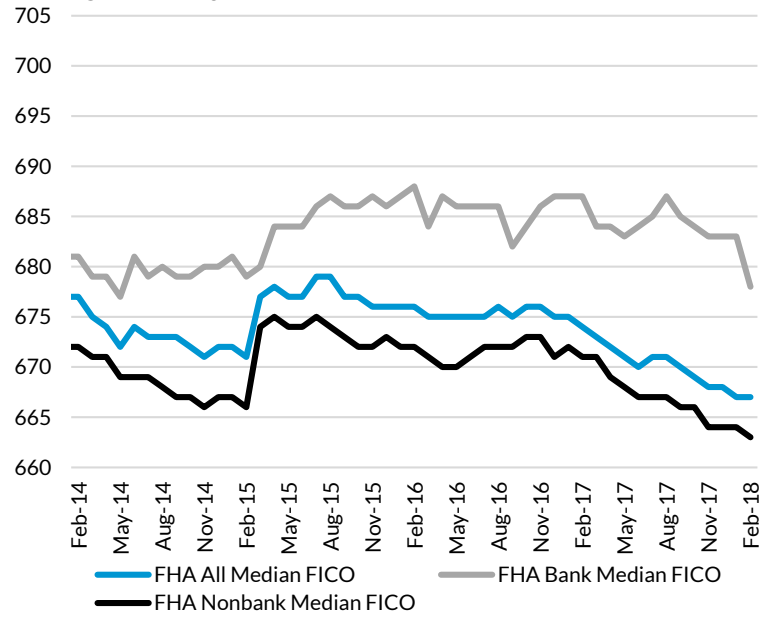
The FICO scores for both Ginnie Mae bank and nonbank originators declined in February, with the banks dropping more than the nonbanks. The spread in the FICO scores between banks and non-banks narrowed slightly, but remains close to their widest level since the data became available in 2013. The gap 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



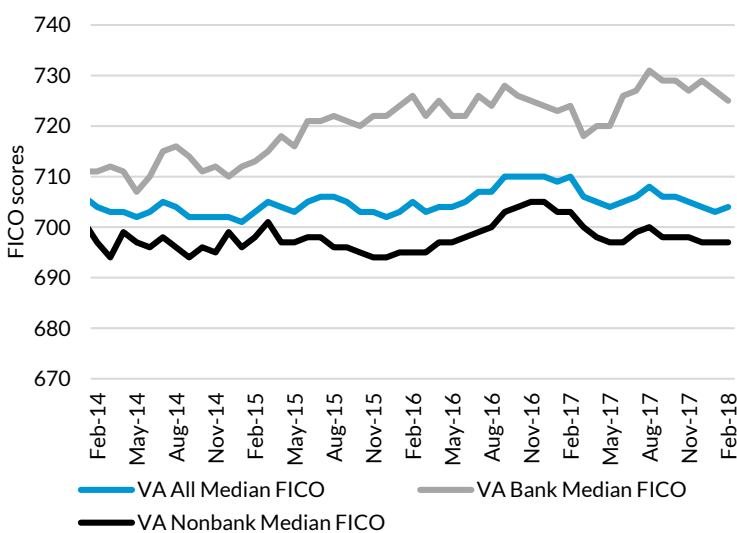
Sources: eMBS and Urban Institute Note: Data as of February 2018

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



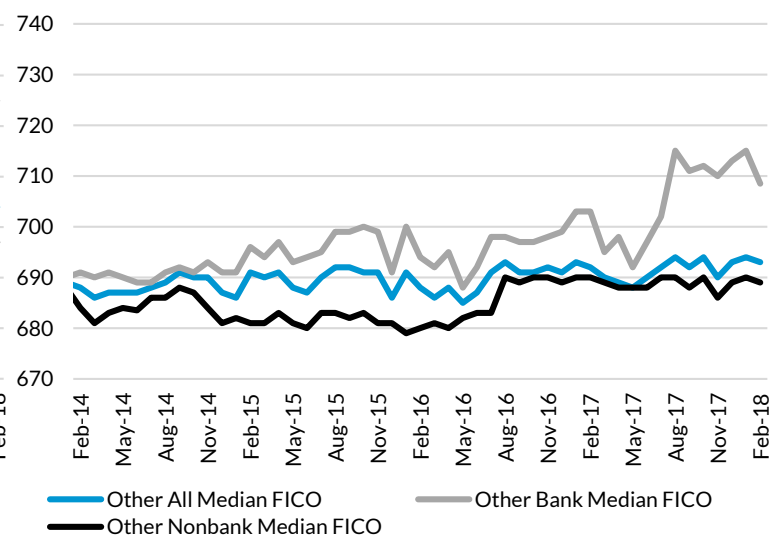
Sources: eMBS and Urban Institute Note: Data as of February 2018

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



Sources: eMBS and Urban Institute Note: Data as of February 2018

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

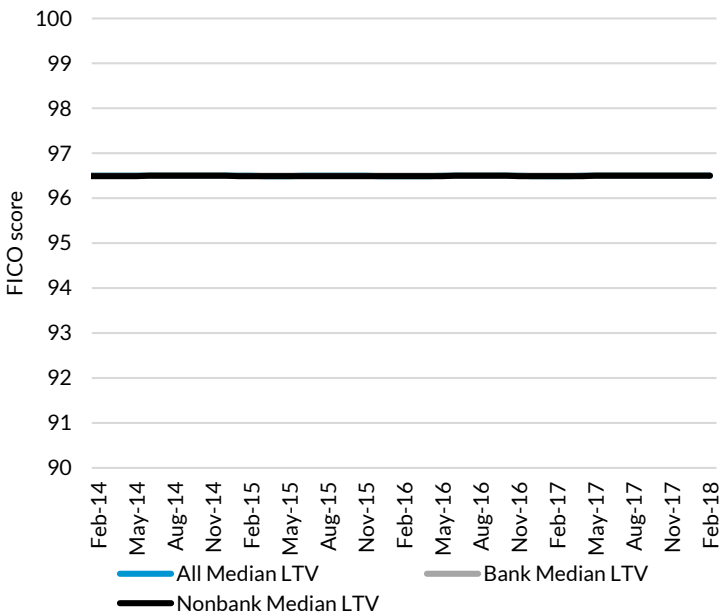


Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of February 2018

Ginnie Mae Nonbank Originators: Credit Box

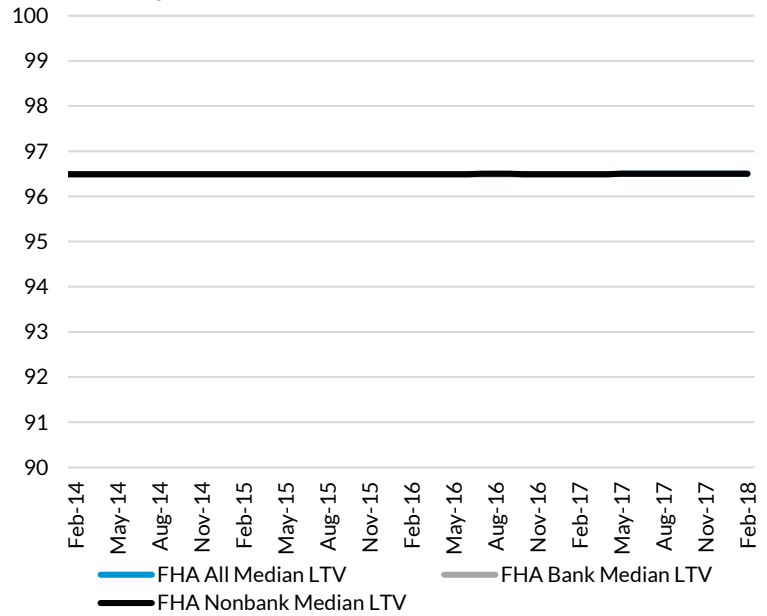
An analysis of the loans backing Ginnie Mae origination indicates that there are virtually no difference in median LTV ratios between bank originated loans and non-bank originated loans.

Ginnie Mae LTV: Bank vs. Nonbank



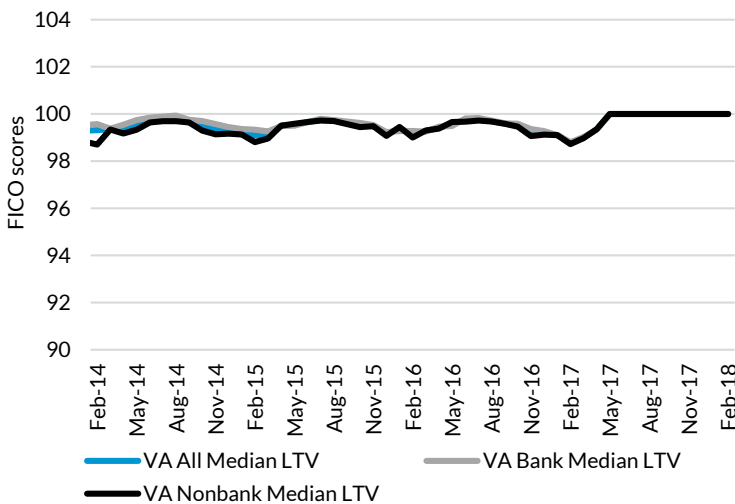
Sources: eMBS and Urban Institute Note: Data as of February 2018

Ginnie Mae FHA LTV: Bank vs. Nonbank



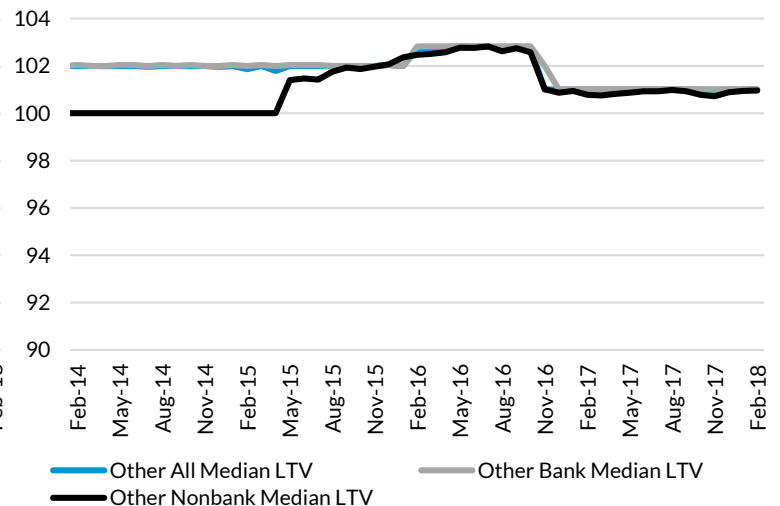
Sources: eMBS and Urban Institute Note: Data as of February 2018

Ginnie Mae VA LTV: Bank vs. Nonbank



Sources: eMBS and Urban Institute Note: Data as of February 2018

Ginnie Mae Other LTV: Bank vs. Nonbank

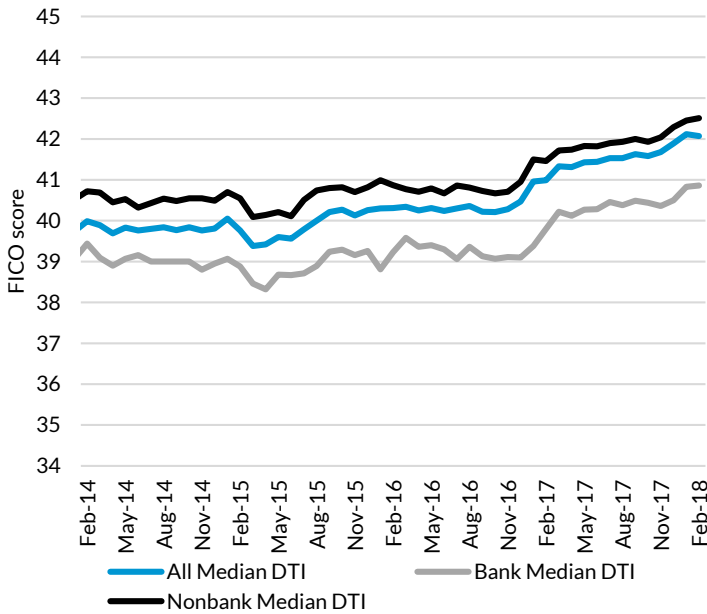


Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of February 2018.

Ginnie Mae Nonbank Originators: Credit Box

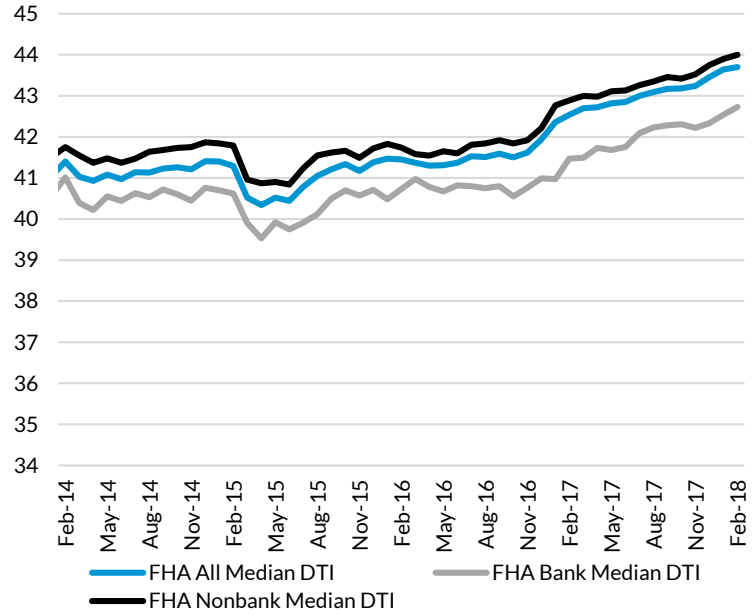
An analysis of the borrowers' DTI ratios for bank versus non-bank originators indicates that the former are more conservative. The DTIs for FHA and VA loans experienced notable increases since early 2017 for both bank and nonbank originations, while the Other originations' DTIs stayed relatively flat.

Ginnie Mae DTI: Bank vs. Nonbank



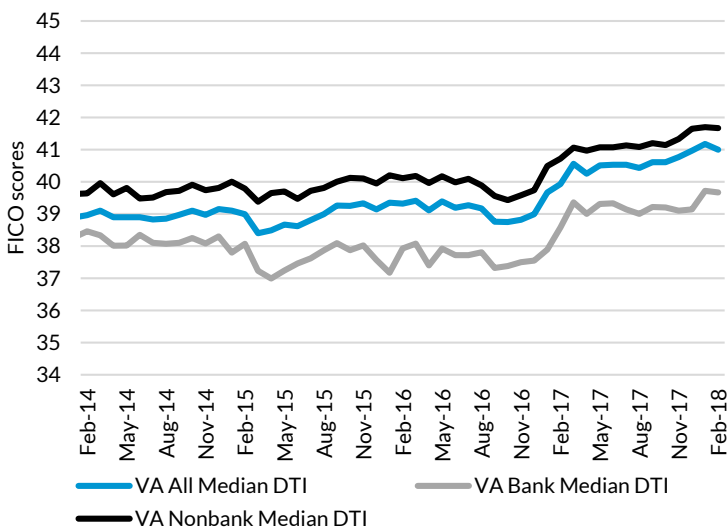
Sources: eMBS and Urban Institute Note: Data as of February 2018

Ginnie Mae FHA DTI: Bank vs. Nonbank



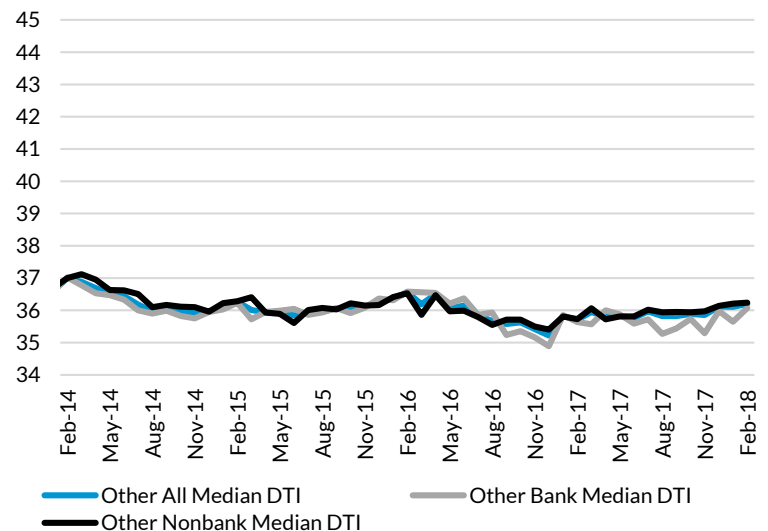
Sources: eMBS and Urban Institute Note: Data as of February 2018

Ginnie Mae VA DTI: Bank vs. Nonbank



Sources: eMBS and Urban Institute Note: Data as of February 2018

Ginnie Mae Other DTI: Bank vs. Nonbank

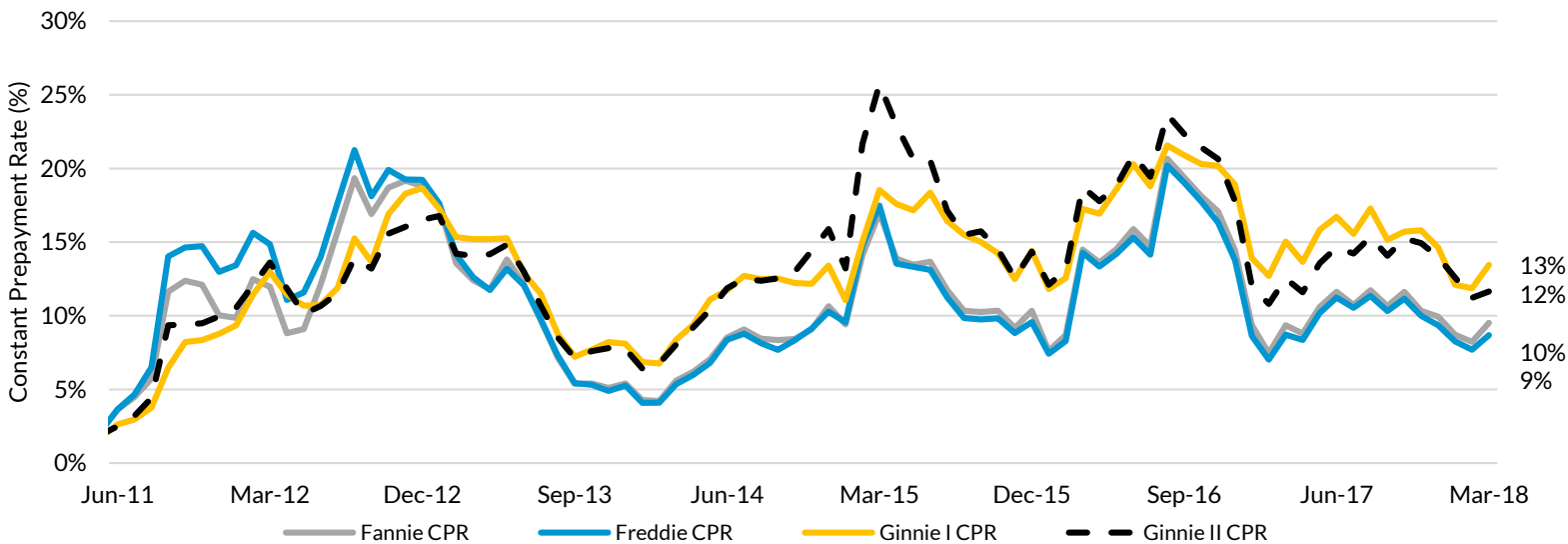


Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of February 2018

Prepayments

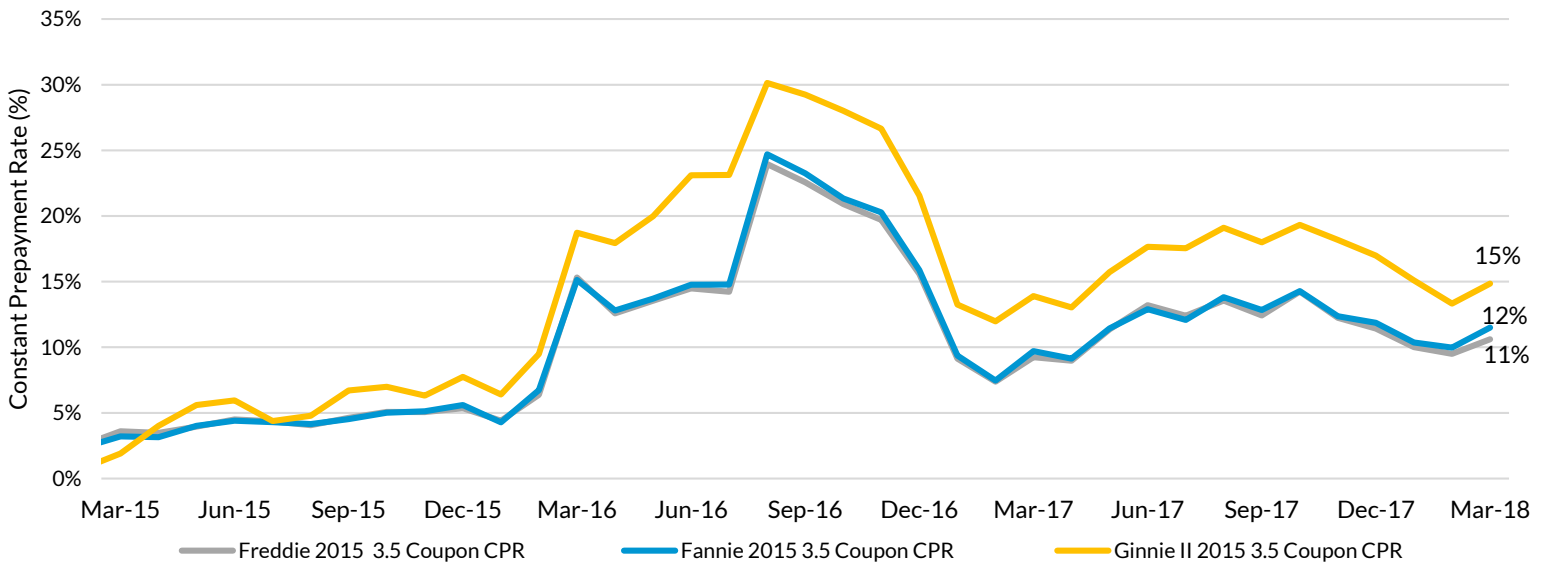
Prepayments on Ginnie Mae securities were lower than on GSE securities from 2011 through mid-2013, but have been higher since. These differences hold across all coupon buckets. The differences are especially pronounced on more recent production. These increased Ginnie speeds reflect the growing share of VA loans, which prepay at faster speeds than either FHA or GSE loans. This also reflects the fact that FHA streamlined refinances apply to a wide range of borrowers and unlike GSE streamlined 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 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 rates. With mortgage rates substantially above 4%, we would expect prepayment speeds in the coming months to be more muted than the same month in 2017.

Aggregate Prepayments



Sources: Credit Suisse and Urban Institute. Note: Data as of February 2018.

2015 Issued 3.5 Coupon CPR

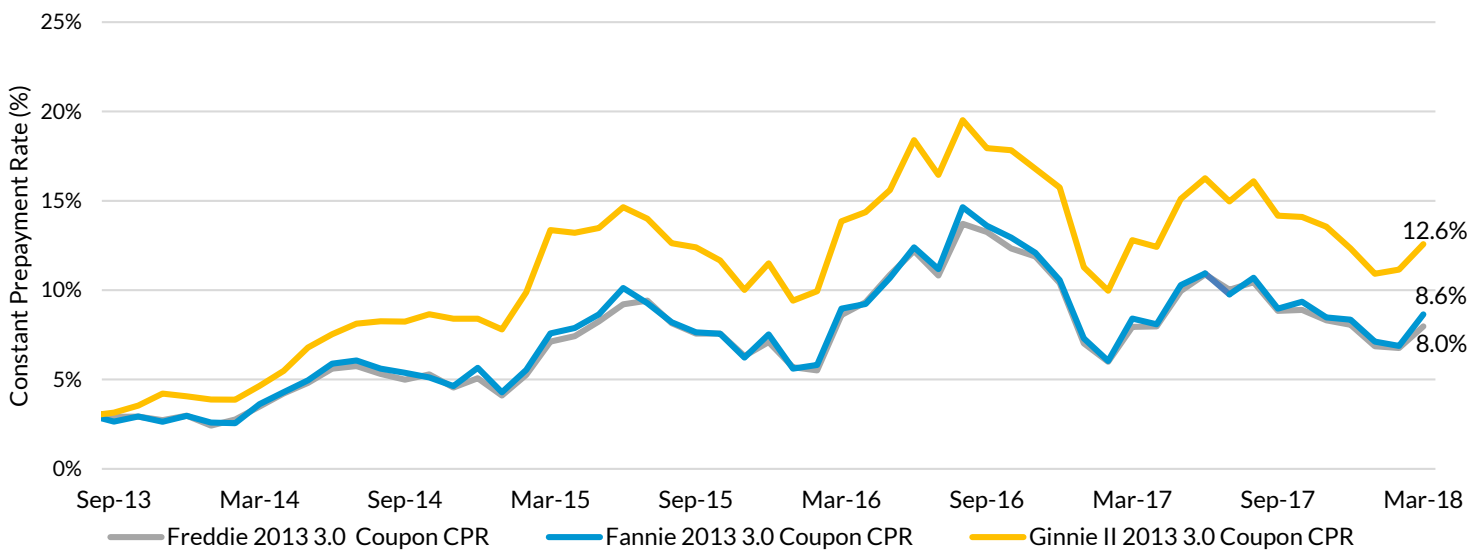


Sources: Credit Suisse and Urban Institute. Note: Data as of March 2018.

Prepayments

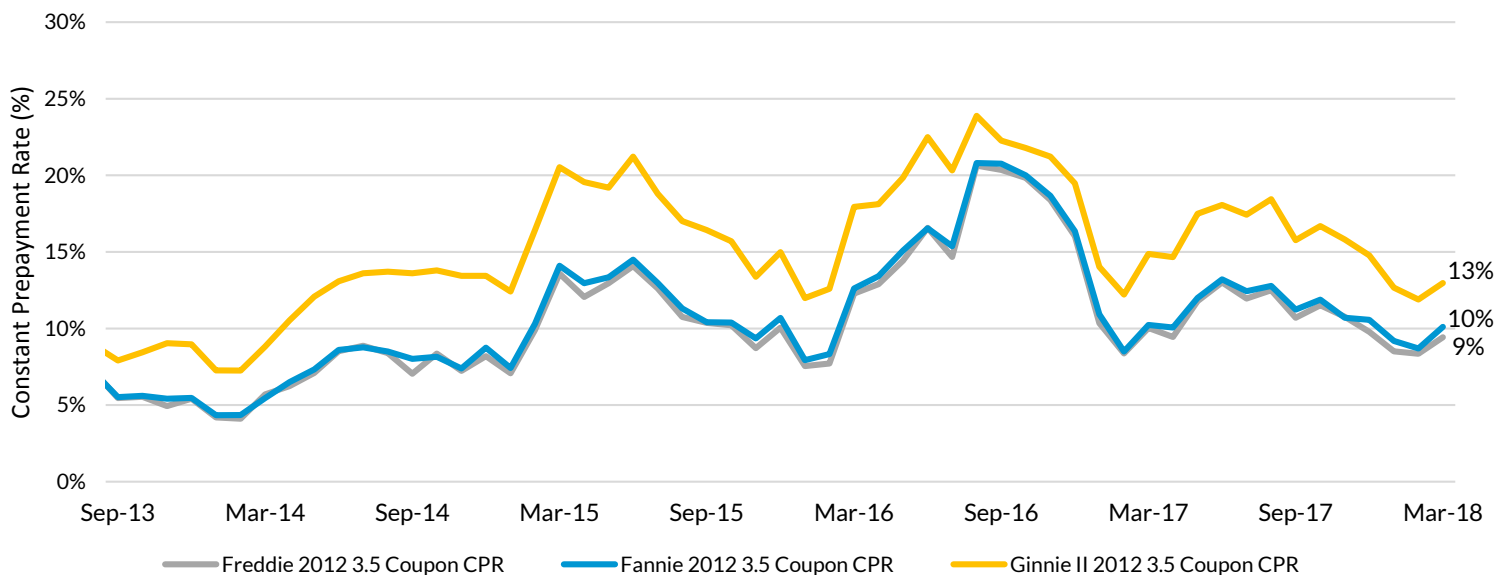
The 2013 Ginnie II 3.0s are prepaying faster than their conventional counterparts. 2012 Ginnie II 3.5s have been faster since mid-2013. The differences accelerated in 2015—potentially due to the FHA mortgage insurance premium (MIP) cut. In January 2015 FHA lowered its MIPs from 135 basis points per annum to 85 basis points per annum; this gives 2012 and 2013 FHA mortgages taken out with MIPs of 125-135 bps a 40-50 basis point rate incentive that conventional mortgages do not have. GSE guarantee fees have gone up over that same period, creating a disincentive for conventional loans. Moreover, recent originations are more heavily VA loans, which are more prepayment responsive than either FHA or Conventional loans. After a sharp mortgage rate rise in November 2016, the prepayment speeds of Ginnie 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 prepayment speeds in the coming months to be more muted than the same month in 2017.

2013 Issued 3.0 Coupon CPR



Sources: Credit Suisse and Urban Institute. Note: Data as of March 2018.

2012 Issued 3.5 Coupon CPR

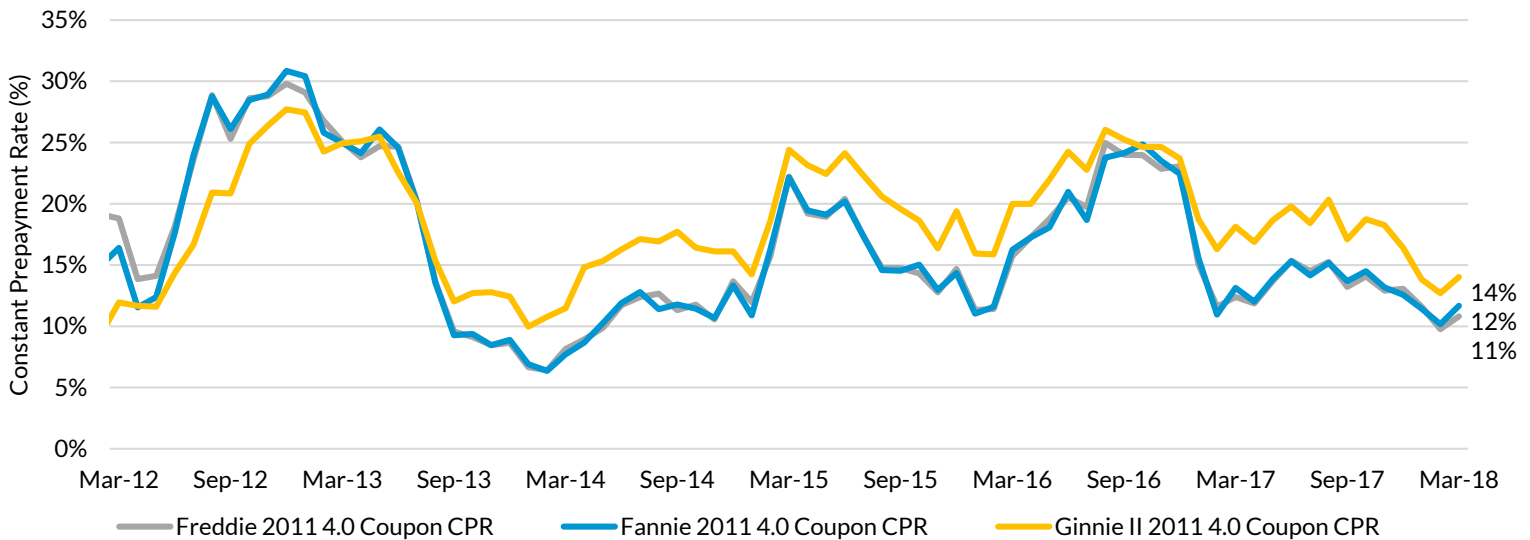


Sources: Credit Suisse and Urban Institute. Note: Data as of March 2018.

Prepayments

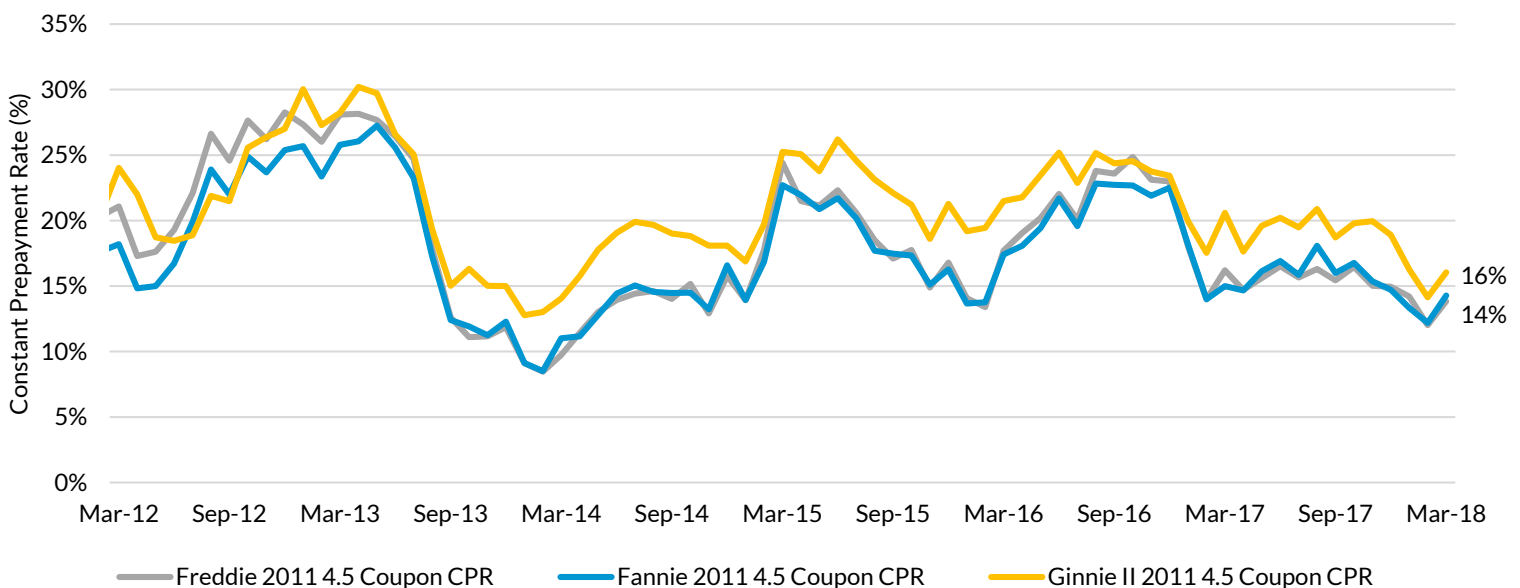
The 2011 Ginnie II 4.0s and 4.5s have been prepaying faster than their conventional counterparts since late 2013. Faster VA mortgage prepays plus simplifications to the FHA streamlined programs in 2013 are likely contributors to the faster speeds. However, as mortgage rates rose sharply since November 2016, the speeds for all agencies have slowed down considerably. 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 prepayment speeds in the coming months to be more muted than the same month in 2017.

2011 Issued 4.0 Coupon CPR



Sources: Credit Suisse and Urban Institute. Note: Data as of March 2018.

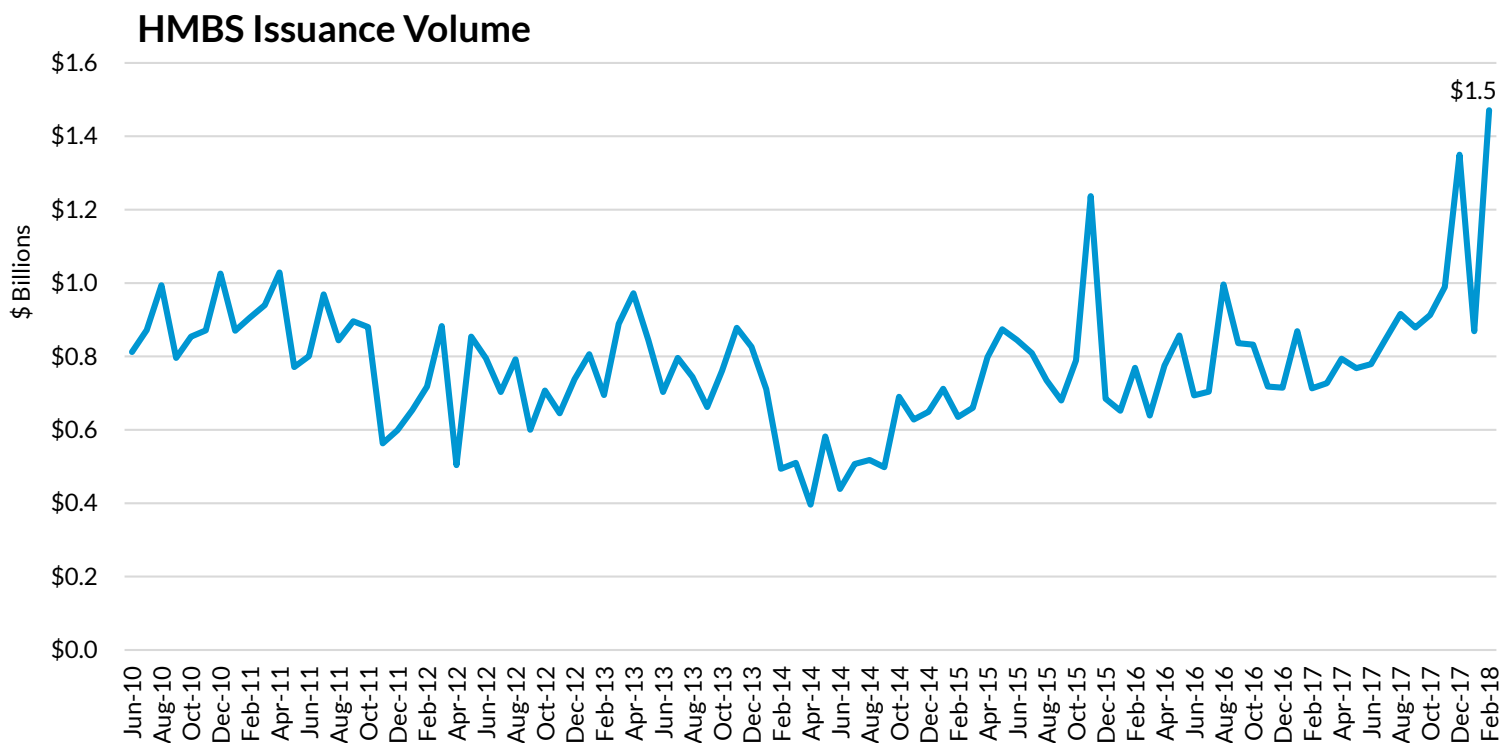
2011 Issued 4.5 Coupon CPR



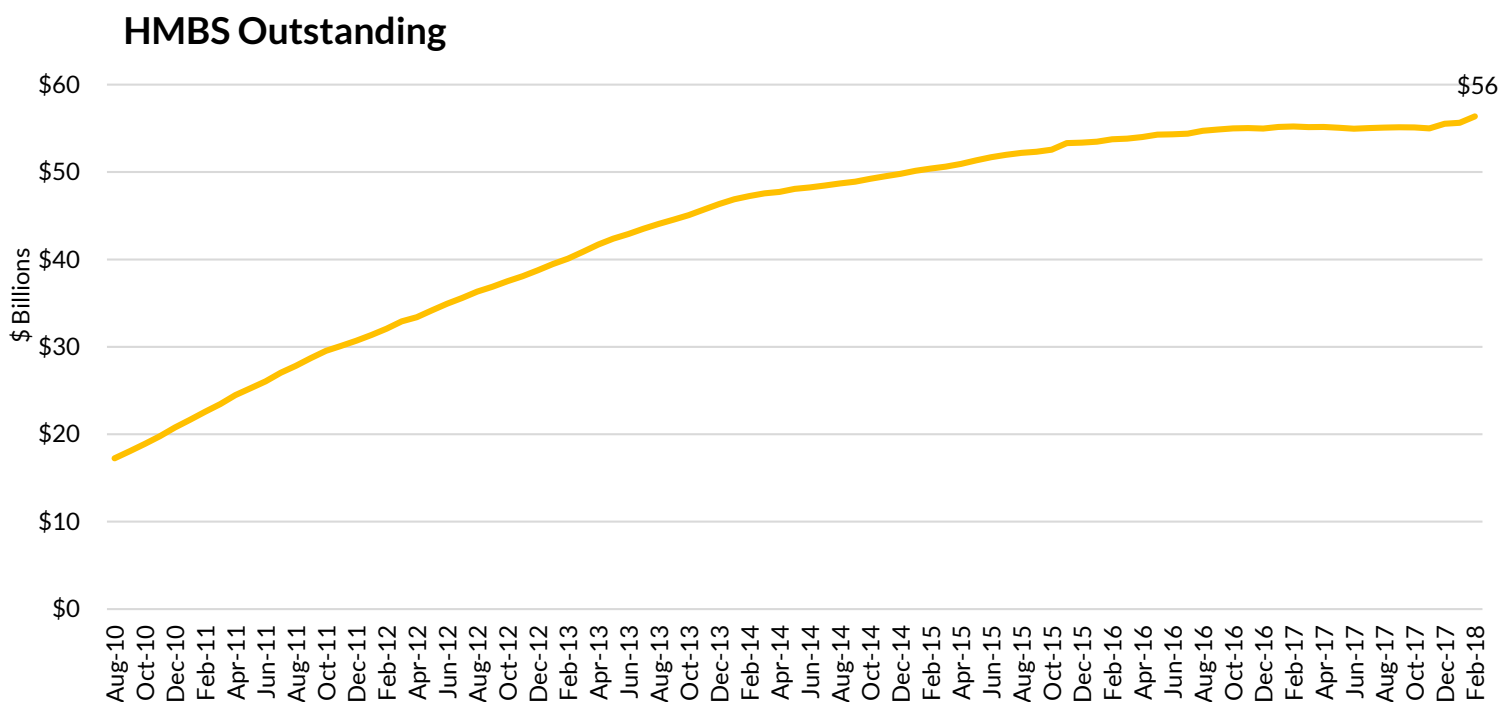
Sources: Credit Suisse and Urban Institute. Note: Data as of March 2018.

Other Ginnie Mae Programs Reverse Mortgage Volumes

Ginnie Mae reverse mortgage issuance increased sharply, with issuance of \$1.5 billion in February. Outstanding securities totaled \$56.4 billion in February.



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



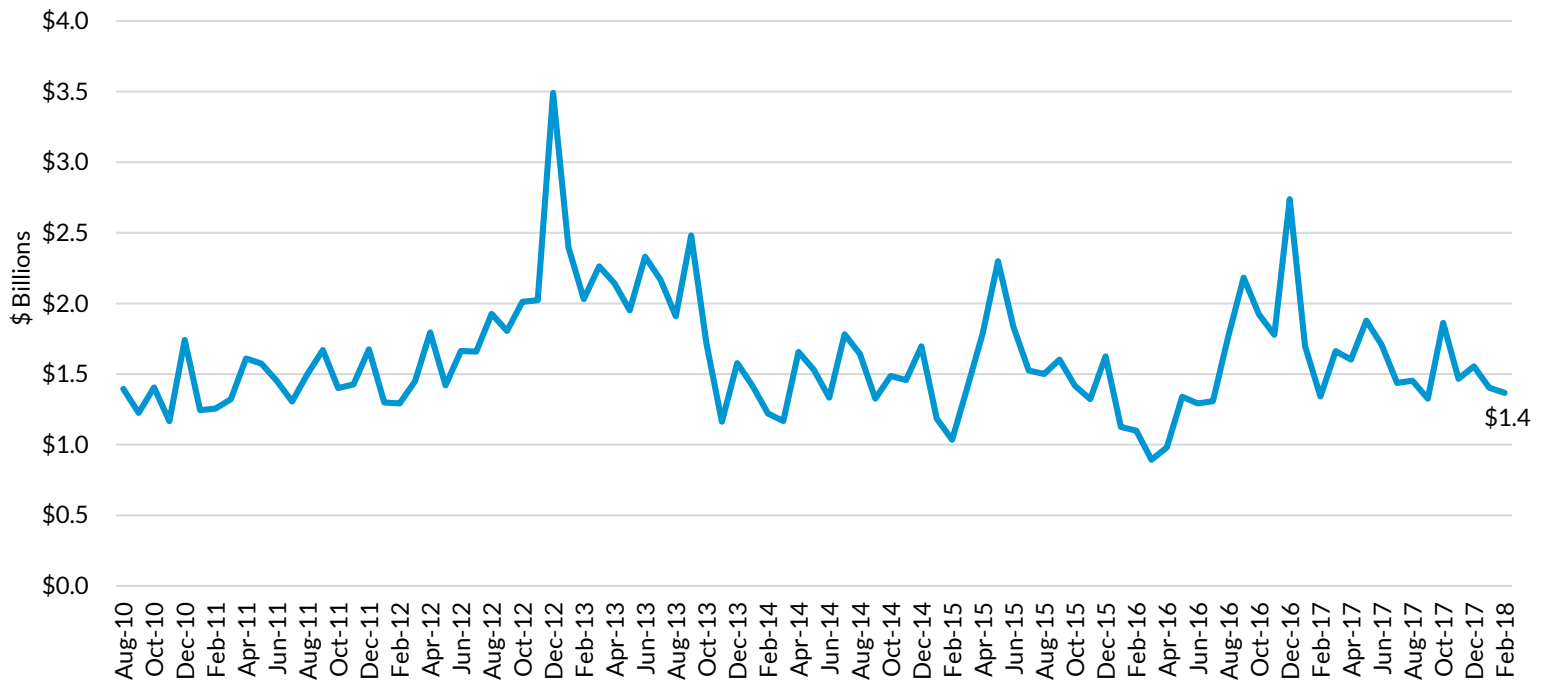
Sources: Ginnie Mae and Urban Institute. Note: Data as of February 2018.

Other Ginnie Mae Programs

Multifamily Market

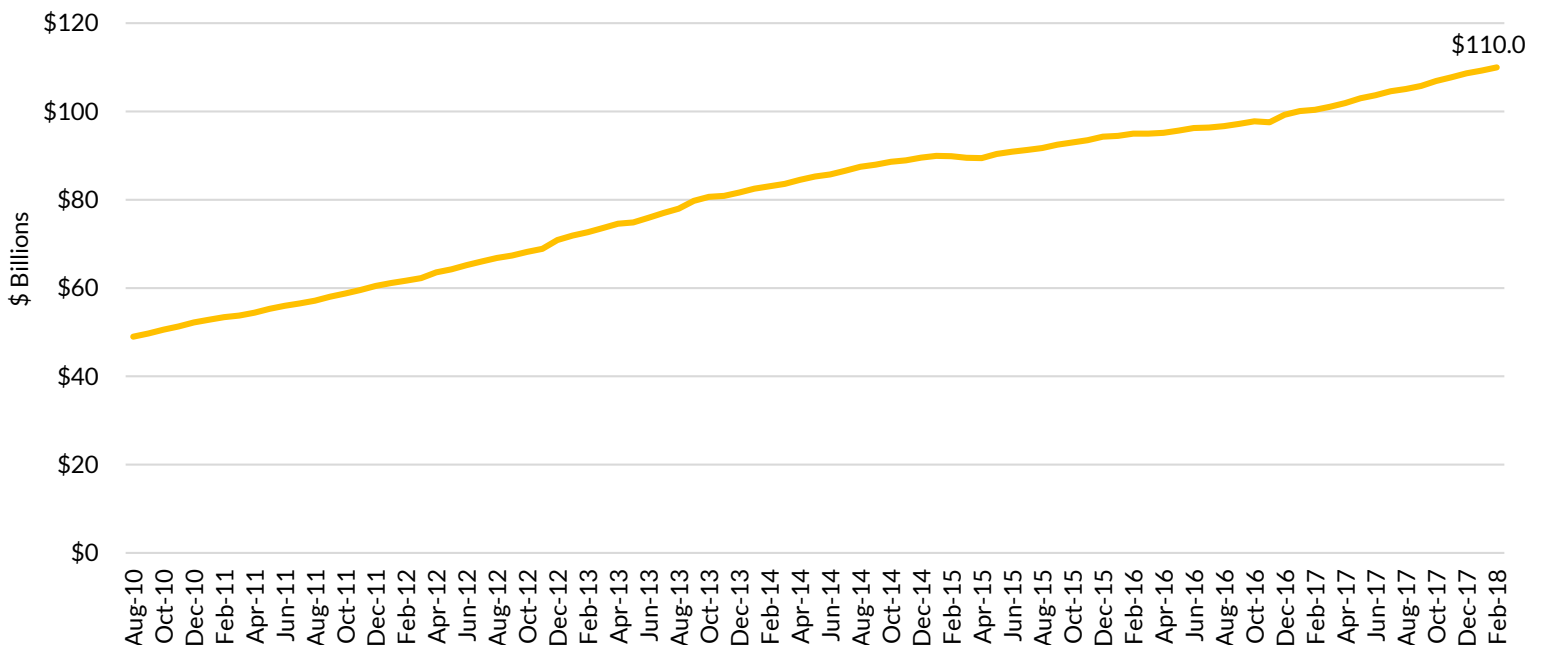
Ginnie Mae multifamily issuance volumes in February totaled \$1.4 billion. Outstanding multifamily securities totaled \$110.0 billion in February.

Ginnie Mae Multifamily MBS Issuance



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

Ginnie Mae Multifamily MBS Outstanding

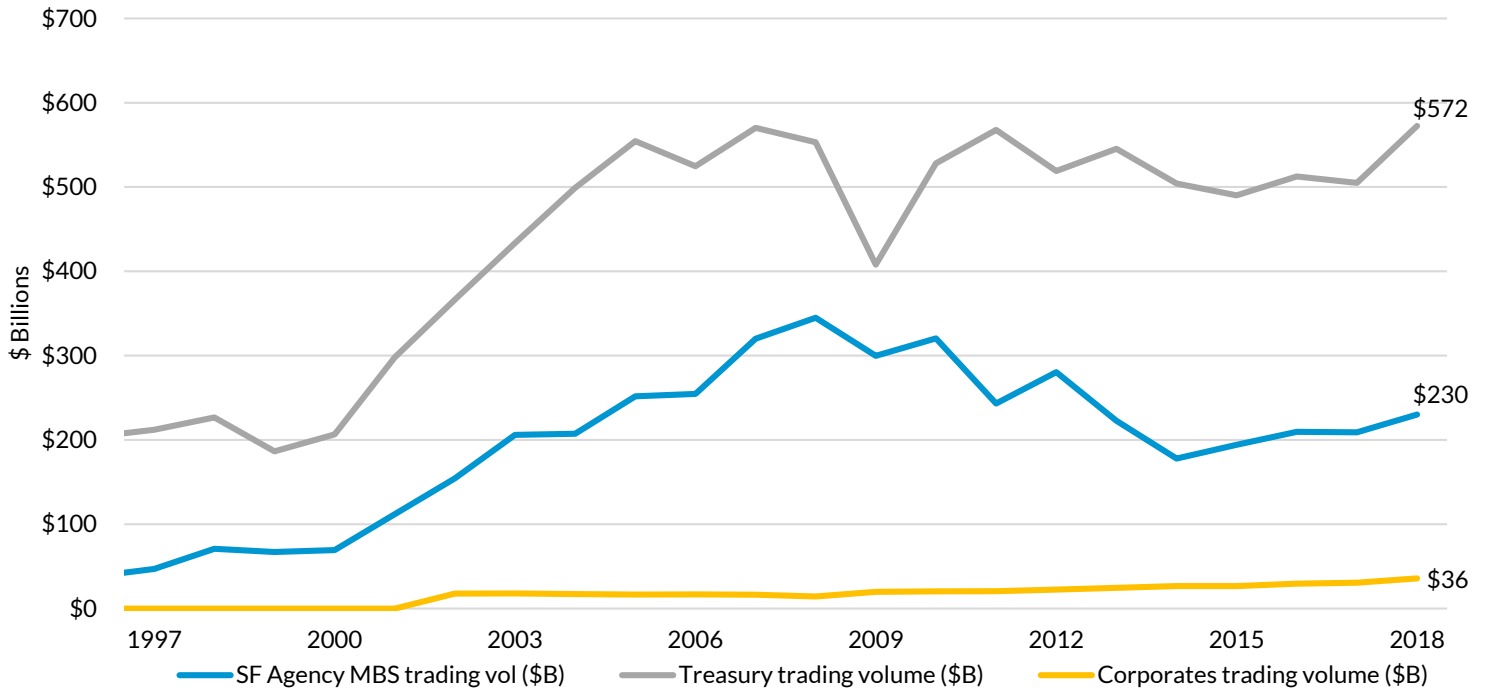


Sources: Ginnie Mae and Urban Institute. Note: Data as of February 2018.

Market Conditions

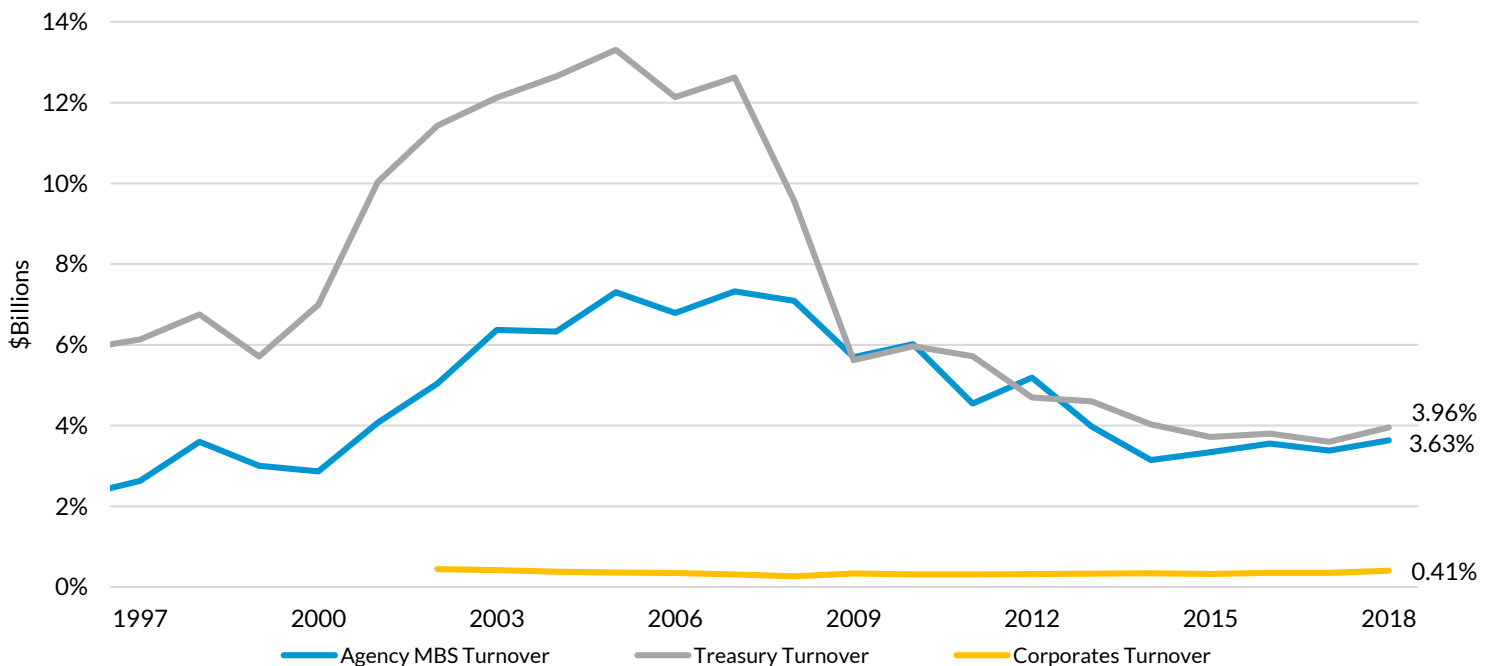
Agency MBS trading volume in February 2018 has been slightly more robust than in the 2014-2017 period. Agency MBS turnover has also been higher in 2018 than in the 2014-2017 period; in the first two months of 2018, average daily MBS turnover was 3.63 percent versus 3.36 percent in 2017. Both average daily mortgage and Treasury turnover are down dramatically from their pre-crisis peaks. Corporate turnover is miniscule relative to either Agency MBS or Treasury turnover.

Average Daily Fixed Income Trading Volume by Sector



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

Average Daily Turnover by Sector

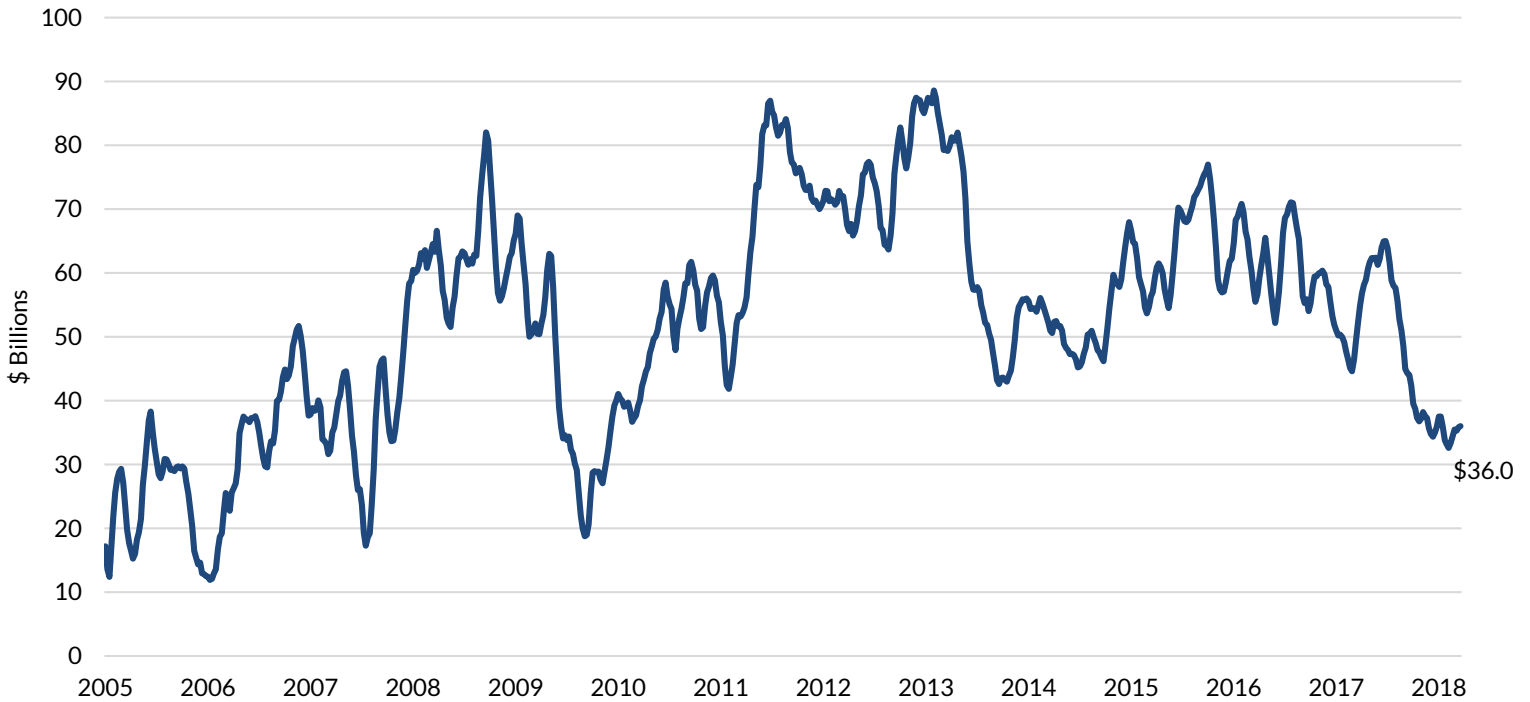


Sources: SIFMA and Urban Institute. Note: Data as of March 2018.

Market Conditions

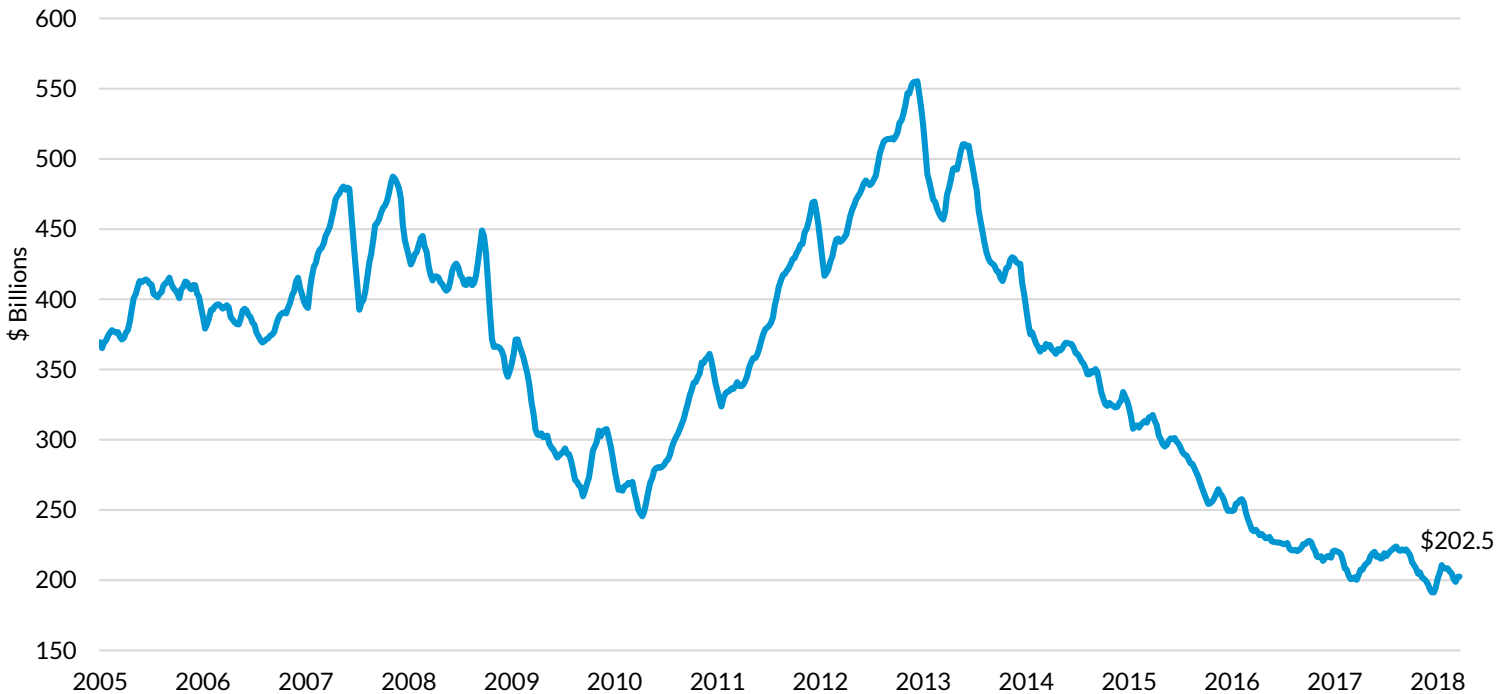
Dealer net positions in Agency MBS are now at the very lower end of the recent range, although gross positions are likely down more. The volume of repurchase activity is near its lowest level in 13 years. This reflects banks cutting back on lower margin businesses.

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 March 2018.

Repo Volume: Securities In



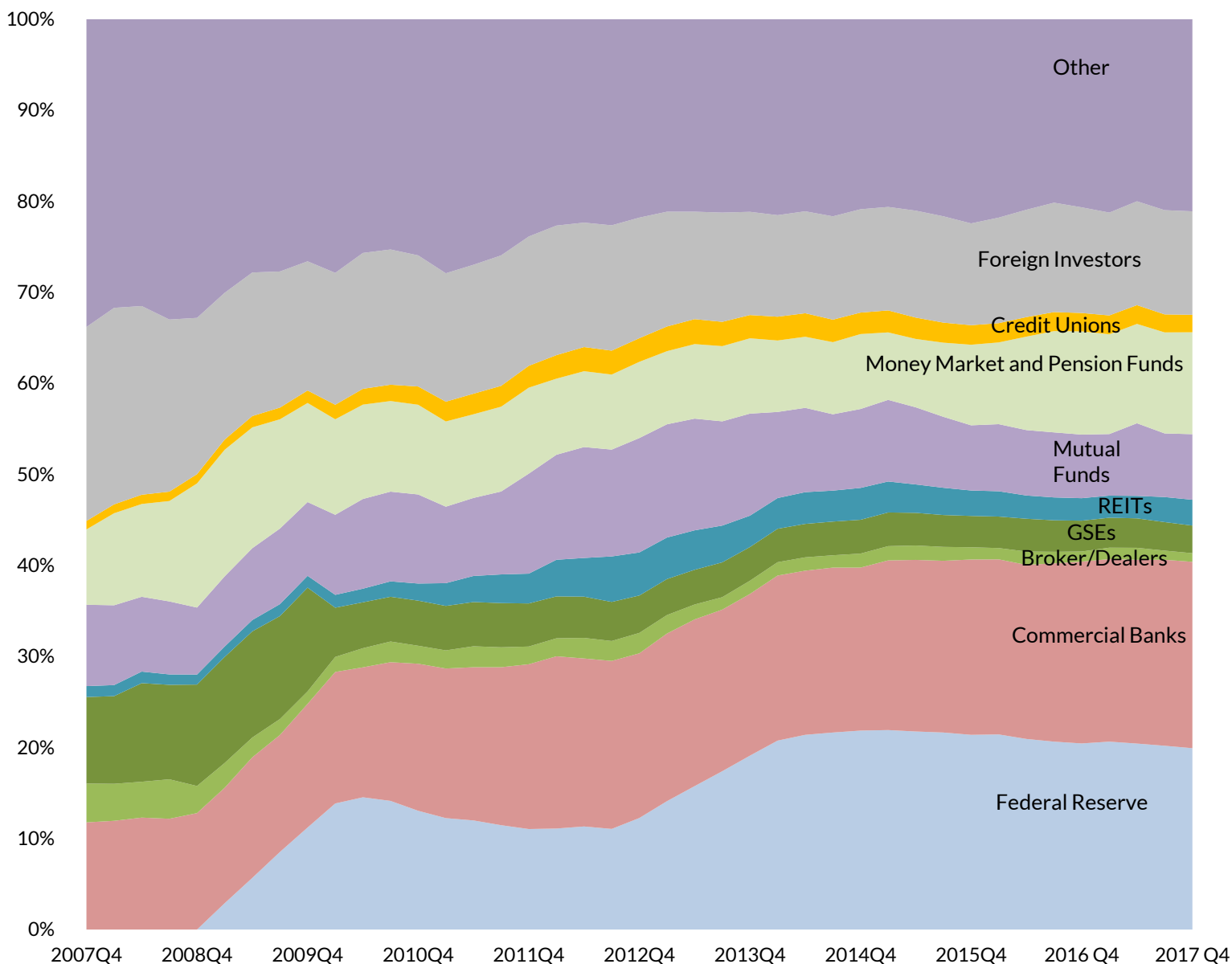
Sources: Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute. Note: Data as of March 2018.

MBS Ownership

The largest holders of agency debt (Agency MBS + Agency notes and bonds) include the Federal Reserve (20 percent), commercial banks (20 percent) and foreign investors (11 percent). The broker/dealer and GSE shares are a fraction of what they once were.

Who owns Total Agency Debt?

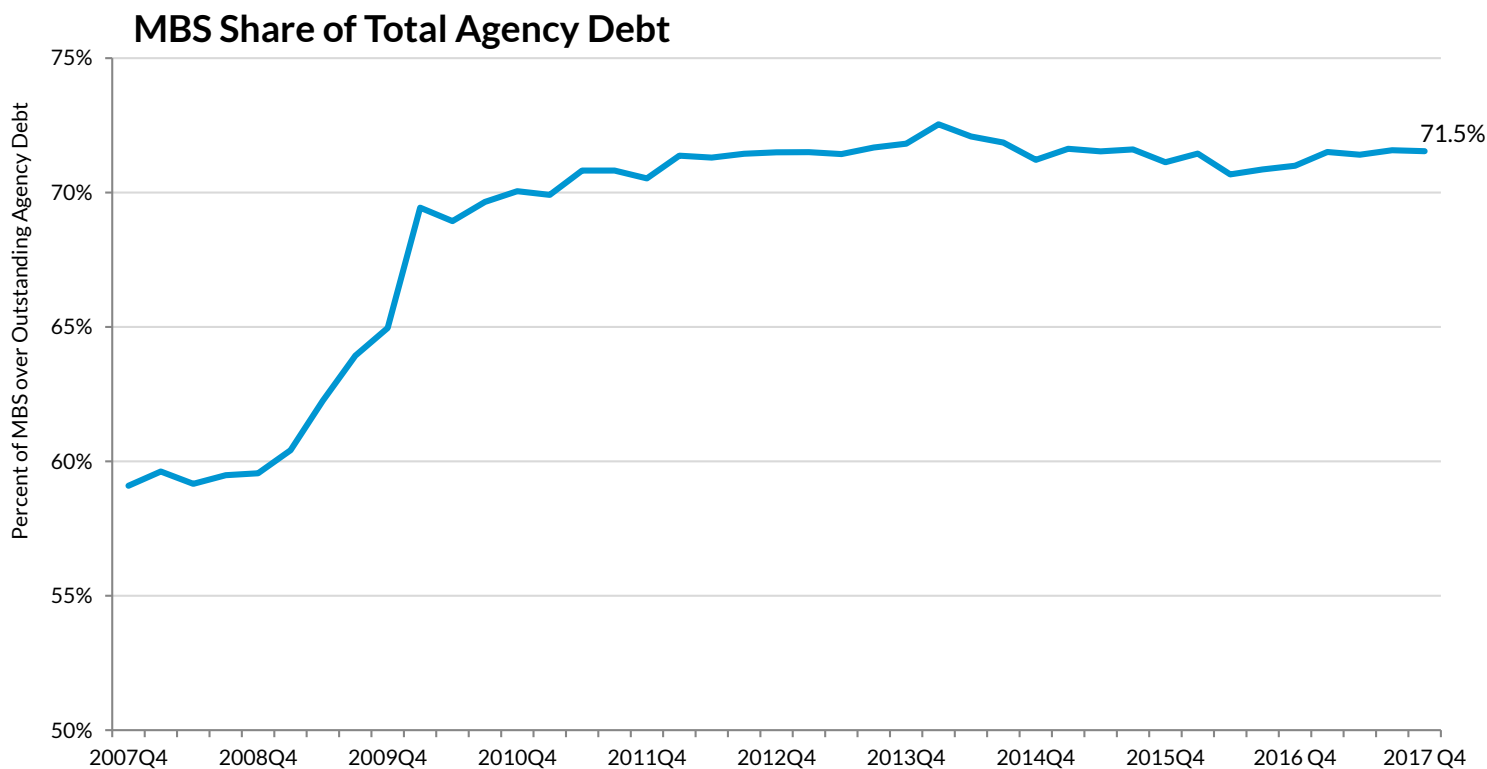
% of Total Agency Debt by Owner



Sources: Federal Reserve Flow of Funds and Urban Institute. Note: Data as of Q4 2017.

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. For Q4 2017, the MBS share of total agency debt stood at 71.5 percent. Commercial banks are now the largest holders of Agency MBS. Out of their \$1.8 trillion in holdings as of the end of March 2018, \$1.3 trillion of it was held by the top 25 domestic banks.



Sources: Federal Reserve Flow of Funds and Urban Institute. Note: Data as of Q4 2017.

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Mar-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Mar 7	Mar 14	Mar 21	Mar 28
Largest Domestic Banks	1,221.9	1,277.3	1,284.4	1,292.2	1,295.5	1,303.1	1,294.9	1,282.0	1,281.7	1,287.6	1,285.4	1,290.5
Small Domestic Banks	459.9	474.4	476.7	478.3	478.0	478.1	478.1	477.7	475.8	476.0	475.0	476.1
Foreign Related Banks	13.6	12.3	11.4	12.3	17.6	35.3	33.1	31.9	31.5	30.9	33.3	33.8
Total, Seasonally Adjusted	1,695.4	1,764.0	1,772.5	1,782.8	1,791.1	1,816.5	1,806.1	1,791.6	1,789.0	1,794.5	1,793.7	1,800.4

Sources: Federal Reserve Bank and Urban Institute. Note: Data as of March 2018.

MBS Ownership

Out of the \$1.8 trillion in MBS holdings at banks and thrifts, \$1.4 trillion is in agency pass-through form: \$1.0 trillion in GSE pass-throughs and \$367.7 billion in Ginnie Mae pass-throughs. There are another \$414.0 billion in Agency CMOs. Non-agency holdings total \$51.6 billion. Ginnie Mae pass-throughs have been the fastest growing sector in the past 2 years. Bank and thrift holdings of MBS are concentrated, with the top 20 holders accounting for 70 percent of the total, and the top 5 holders accounting for 44 percent of the total.

Bank and Thrift Residential MBS Holdings

	All Banks & Thrifts (\$Billions)						
	Total	Agency MBS	GSE PT	GNMA PT	Agency CMO	Private MBS	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
1Q15	\$1,579.21	\$1,012.26	\$767.71	\$244.55	\$455.47	\$17.70	\$93.78
2Q15	\$1,583.22	\$1,032.26	\$784.22	\$248.05	\$445.91	\$16.47	\$88.57
3Q15	\$1,608.44	\$1,064.67	\$805.05	\$259.62	\$447.01	\$13.60	\$83.16
4Q15	\$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

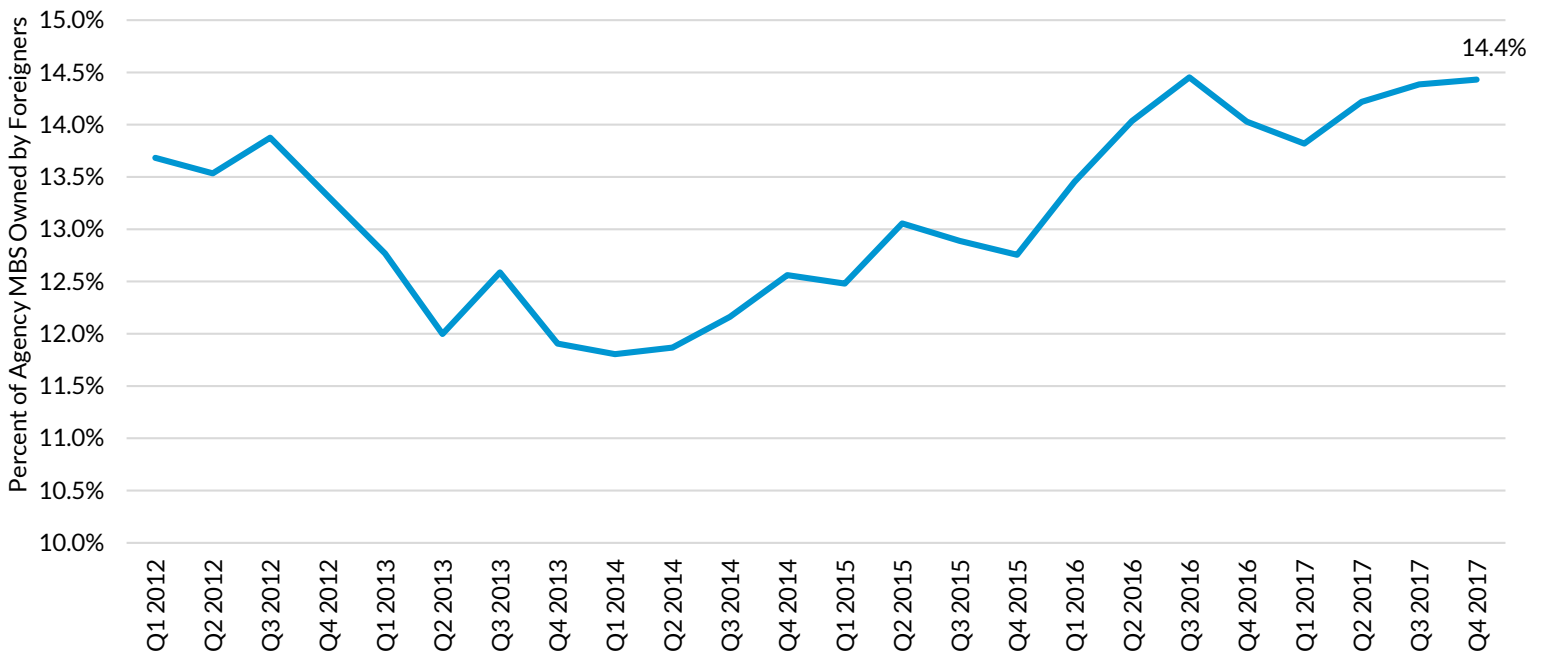
Top Bank & Thrift Residential MBS Investors		Total (\$MM)	GSE PT (\$MM)	GNMA PT (\$MM)	Agency REMIC (\$MM)	Non-Agency (\$MM)	Market Share
1	Bank of America Corporation	\$321,906	\$186,789	\$120,912	\$13,894	\$311	17.50%
2	Wells Fargo & Company	\$241,474	\$189,469	\$46,265	\$4,339	\$4,401	13.10%
3	JP Morgan Chase & Co.	\$105,529	\$64,181	\$29,813	\$444	\$11,091	5.70%
4	U.S. Bancorp.	\$76,390	\$33,528	\$11,328	\$31,533	\$1	4.10%
5	Charles Schwab Bank	\$73,417	\$43,800	\$12,098	\$17,519	\$0	4.00%
6	Citigroup Inc.	\$66,380	\$50,986	\$1,616	\$9,119	\$4,659	3.60%
7	Capital One Financial Corporation	\$52,282	\$17,114	\$11,750	\$22,210	\$1,208	2.80%
8	Bank of New York Mellon Corp.	\$51,583	\$31,132	\$2,048	\$16,551	\$1,852	2.80%
9	PNC Bank, National Association	\$42,869	\$32,095	\$4,934	\$2,909	\$2,931	2.30%
10	Branch Banking and Trust Company	\$39,544	\$12,953	\$6,883	\$19,132	\$576	2.10%
11	State Street Bank and Trust Company	\$33,314	\$8,919	\$5,970	\$10,092	\$8,334	1.80%
12	KeyBank National Association	\$24,501	\$886	\$1,124	\$22,491	\$0	1.30%
13	Morgan Stanley	\$23,783	\$9,628	\$7,440	\$6,715	\$0	1.30%
14	E*TRADE Bank	\$23,718	\$13,568	\$3,906	\$6,244	\$0	1.30%
15	SunTrust Bank	\$22,677	\$11,754	\$10,864	\$0	\$59	1.20%
16	HSBC Banks USA, National Association	\$21,336	\$5,651	\$7,542	\$8,139	\$3	1.20%
17	Regions Bank	\$18,448	\$11,176	\$4,992	\$2,277	\$3	1.00%
18	MUFG Union Bank, National Association	\$17,628	\$5,845	\$4,826	\$6,264	\$693	1.00%
19	Ally Bank	\$16,581	\$9,127	\$2,787	\$2,347	\$2,320	0.90%
20	The Northern Trust Company	\$15,728	\$9,521	\$2,787	\$2,347	\$2,320	0.90%
	Total Top 20	\$1,289,086	\$748,121	\$299,883	\$204,566	\$40,762	69.90%

Sources: Inside Mortgage Finance and Urban Institute. Note: Data as of Q4 2017

MBS Ownership

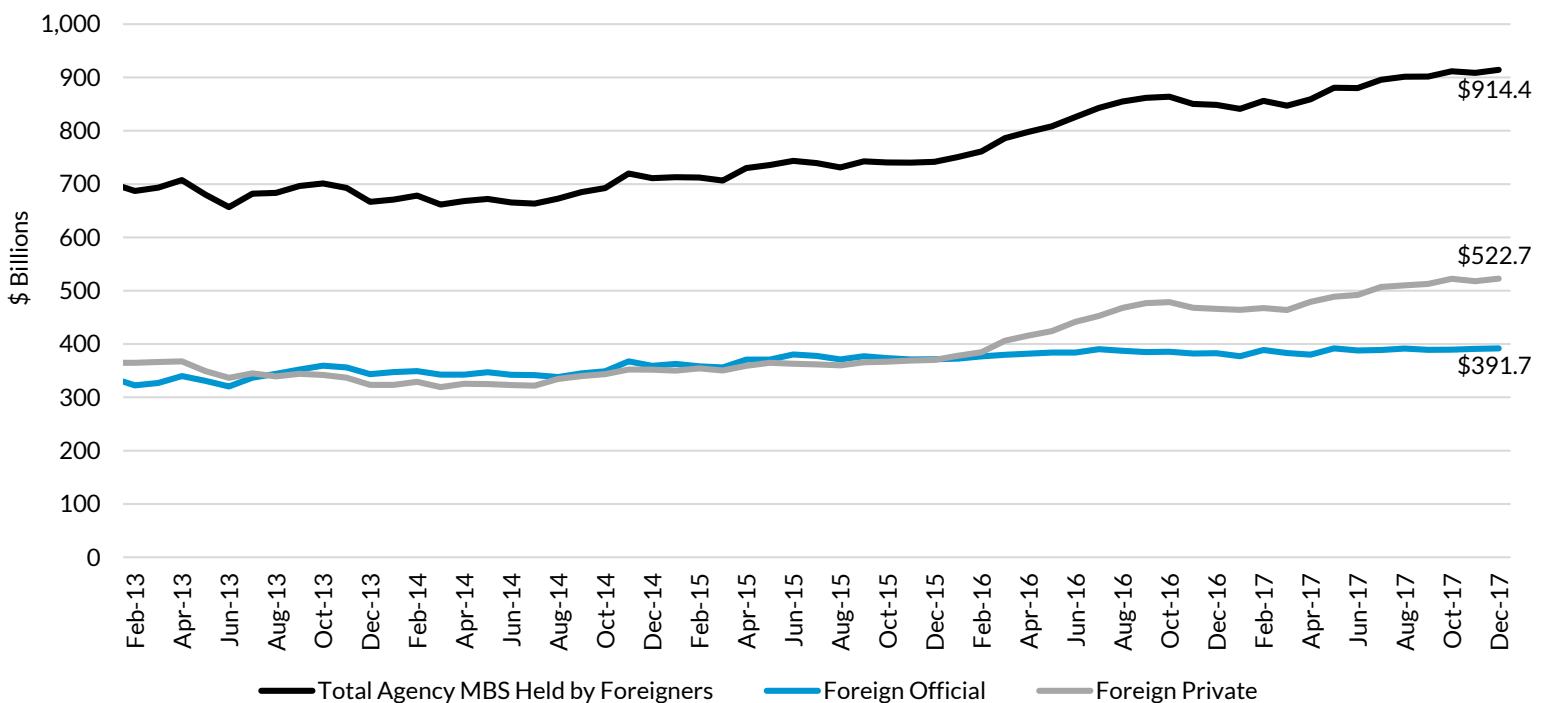
Foreign investors hold 14.4 percent of agency MBS, up from the lows in 2013. For the month of December, this represents \$914.4 billion in Agency MBS, \$391.7 billion held by foreign official institutions and \$522.7 billion held by foreign private investors.

Foreign Share of Agency MBS



Sources: SIFMA and Treasury International Capital (TIC). Note: Data as of Q4 2017.

Monthly Agency MBS Holdings by Foreigners



Sources: Treasury International Capital (TIC) and Urban Institute. Note: Data as of December 2017.

MBS Ownership

The largest foreign holders of Agency MBS are Taiwan, China and Japan; these three regions comprise around 70 percent of all foreign holdings. Since June of 2016, we estimate Taiwan and Japan have expanded their holdings while China has contracted. In 2017, we estimate Japan and Taiwan have each added more than \$23 billion in agency MBS.

Agency MBS+ Agency Debt

Country	Level of Holdings (\$Millions)*							Change in Holdings (\$Millions)*					
	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017
Taiwan	207,164	208,352	204,005	212,707	227,236	229,030	234,234	1,188	-4,347	8,702	14,529	1,794	5,204
China	195,933	191,743	184,151	187,664	183,396	177,580	170,702	-4,190	-7,592	3,513	-4,268	-5,816	-6,878
Japan	197,101	222,116	220,644	214,838	227,721	244,163	241,067	25,015	-1,472	-5,806	12,883	16,442	-3,096
Ireland	47,635	48,307	47,065	46,178	45,353	46,393	51,525	672	-1,242	-887	-825	1,040	5,132
South Korea	50,323	50,072	49,000	44,349	46,577	47,581	45,467	-251	-1,072	-4,651	2,228	1,004	-2,114
Luxembourg	31,592	33,631	38,545	33,700	32,680	32,997	37,575	2,039	4,914	-4,845	-1,020	317	4,578
Bermuda	28,402	28,714	27,624	26,960	26,793	27,088	28,904	312	-1,090	-664	-167	295	1,816
Cayman Islands	31,076	30,686	30,186	29,014	28,763	29,014	28,374	-390	-500	-1,172	-251	251	-640
Switzerland	16,240	20,638	15,626	16,244	17,591	18,667	16,794	4,398	-5,012	618	1,347	1,076	-1,873
Netherlands	12,459	10,536	10,326	11,018	12,039	12,576	12,294	-1,923	-210	692	1,021	537	-282
Rest of World	148,860	139,634	137,432	121,753	124,977	121,455	125,922	-9,226	-2,202	-15,679	3,224	-3,522	4,467
Total	954,326	984,429	964,604	944,425	973,126	986,544	992,858	30,103	-19,825	-20,179	28,701	13,418	6,314

Agency MBS Only (Estimates)

Country	Level of Holdings (\$Millions)*							Change in Holdings (\$Millions)*					
	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017
Taiwan	206,954	208,142	203,807	212,540	227,077	228,885	234,100	1,188	-4,335	8,734	14,536	1,808	5,215
China	186,993	185,881	178,556	183,103	178,934	173,422	166,779	-1,112	-7,325	4,547	-4,169	-5,512	-6,643
Japan	185,034	213,615	212,661	208,162	221,447	238,602	235,884	28,581	-954	-4,499	13,285	17,155	-2,718
Ireland	37,695	39,142	38,405	38,910	38,381	40,054	45,711	1,447	-737	505	-530	1,673	5,658
South Korea	34,173	34,726	34,505	32,126	34,905	36,966	35,620	553	-221	-2,379	2,779	2,061	-1,346
Luxembourg	27,187	29,766	34,981	30,658	29,750	30,329	35,153	2,579	5,215	-4,323	-908	579	4,824
Bermuda	23,994	24,767	23,888	23,825	23,786	24,351	26,390	773	-879	-63	-39	565	2,039
Cayman Islands	22,815	22,918	22,851	22,847	22,855	23,637	23,391	103	-67	-3	8	782	-247
Switzerland	11,717	16,446	11,596	12,873	14,380	15,755	14,079	4,729	-4,850	1,277	1,507	1,375	-1,676
Netherlands	11,471	9,717	9,553	10,383	11,442	12,036	11,791	-1,754	-165	830	1,059	595	-245
Rest of World	83,560	76,575	77,885	71,554	76,980	77,729	85,499	-6,985	1,311	-6,331	5,426	749	7,770
Total	831,593	861,694	848,688	846,981	879,935	901,766	914,397	30,101	-13,006	-1,707	32,954	21,831	12,631

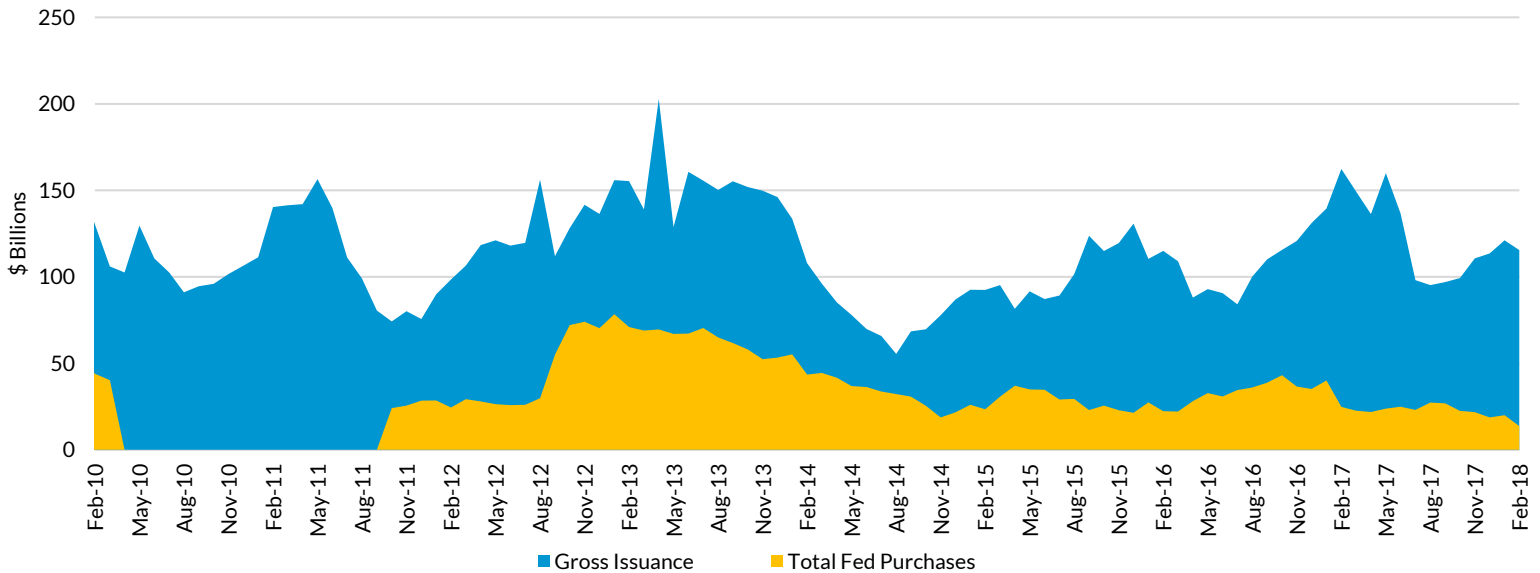
Sources: Treasury International Capital (TIC) and Urban Institute.

Note: *calculated based on June 2016 report with amount asset backed per country. Revised to include Top 10 holders of MBS listed as of June 2016. Monthly data as of December 2017.

MBS Ownership

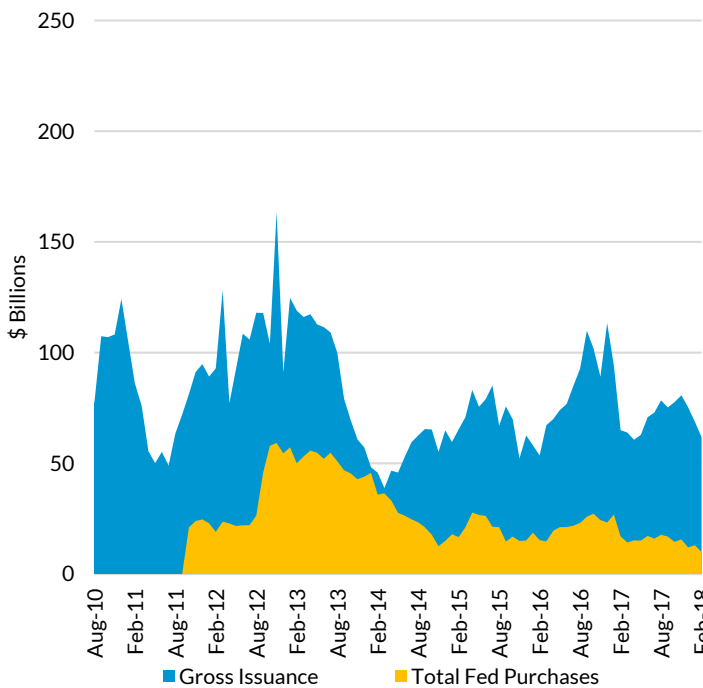
The Fed has begun to wind down their portfolio, and we are beginning to see the effects in slower absorption rates. During the period October 2014-September 2017, the Fed had ended its purchase program, but was reinvesting funds from mortgages and agency debt into the mortgage market, absorbing 20-30 percent of agency gross issuance. With the wind down, which started in October 2017, the Fed will continue to reinvest, but by less than their run off. In February 2018, total Fed purchases decreased to \$13.7 billion, yielding Fed absorption of gross issuance of 14.6 percent, a new historical low. The Fed absorbed 11.8 percent of Ginnie Mae issuance and 16.0 percent of GSE issuance, respectively.

Total Fed Absorption



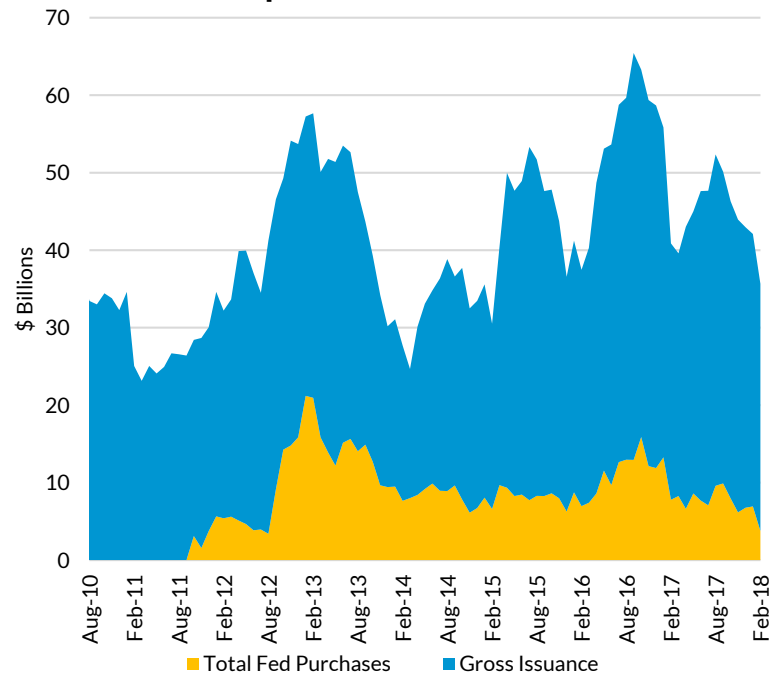
Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of February 2018.

Fed Absorption of GSE MBS



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

Fed Absorption of Ginnie Mae MBS



Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of February 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 Urban Institute and State Street Global Advisors as of April 12, 2018 and are subject to change based on market and other conditions. 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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Expiration Date: 4/30/2019

[Internal Tracking Code and Expiration Date to be removed upon providing this document to Ginnie Mae]