

# 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

## Key insight from latest data on foreign ownership of agency MBS

The US Department of Treasury just released latest annual data (as of June 2017) on foreign ownership of agency mortgage-backed securities (see page 48). This data reports cross-border securities investment flows between U.S. and foreign entities as of June every year and covers a wide range of securities in addition to MBS. While this dataset does not provide breakout at the agency level (Fannie Mae versus Freddie Mac versus Ginnie Mae), it is very useful in understanding broader trends in the foreign ownership of MBS, including key changes from previous year.

What were the big changes from June 2016 to June 2017? First, the foreign share of total agency MBS outstanding inched up slightly, from 14.1 percent in June 2016 to 14.4% in June 2017. The absolute volume of foreign-owned MBS increased from \$831 billion to \$890 billion. Both Taiwan and Japan increased their ownership shares, with Japan growing more (from 22.3% to 24.9%) than Taiwan (from 24.9% to 25.5%). Still, Taiwan continued to remain the single largest foreign owner of agency MBS. China's role continued to shrink both, by volume (from \$187B to \$177B), and by share (22.5% to 19.9%) of total foreign owned. Taiwan, Japan and China, the three largest foreign owners of agency MBS held 70.3 percent of all foreign owned MBS as of June 2017, up slightly from 69.6 percent the previous year. Asia's share of foreign owned MBS increased by 0.6 percent (78.5% to 79.1%), while Europe's share declined from 12.8 to 12.6 percent.

Among the top 15 foreign owners, the countries that saw the largest growth in ownership volume from a year ago were UK (30.5%), Malaysia (26.2%), Japan (19.7%), and Hong Kong (18.9%). The countries that witnessed the largest declines were Saudi Arabia (-31.5%), Canada (-16.6%), Ireland (-10.7%), and China (-5%).

Despite some volatility of ownership among smaller players, broader patterns in the foreign share and the role of the biggest countries remain consistent with previous years. In the coming months, we will release a more comprehensive report on the foreign ownership of agency MBS using the newly available data.

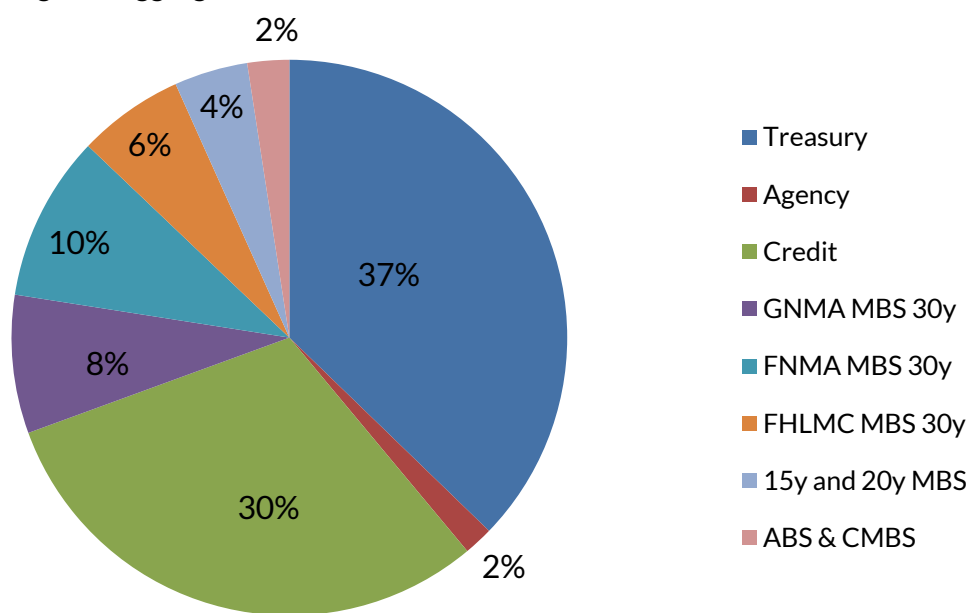
## **Highlights this month:**

- While Treasury and Ginnie Mae MBS yields both edged up in April 2018, current coupon Ginnie Mae MBS spreads relative to Treasuries narrowed slightly (Pages 5-6).
- US MBS hedged into Japanese yen have increased their yield advantage versus the JGB, and US MBS hedged into euro have increased their yield advantage versus the bund in April 2018 (Pages 7-8).
- First time homebuyer shares turned higher for GSEs in Q1 2018, while remaining flat for Ginnie Mae (Page 21).
- The nonbank origination shares for Ginnie Mae, Fannie Mae, and Freddie Mac reached historical highs in March 2018 (Page 30).
- Ginnie Mae HMBS Issuance volume dropped to the lowest level since Q3 2014 (Page 40).
- Annual foreign holdings data released this month shows Taiwan, Japan and China still have the lion's share of foreign MBS holdings (Page 48).

# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

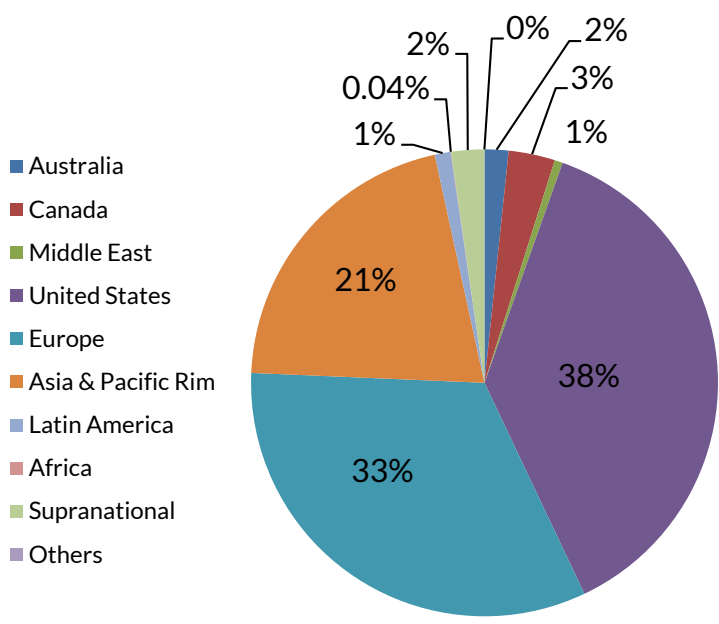
US MBS comprise 28 percent of the Barclays US Aggregate Index-- slightly less than either the US Treasury share (37%) or the US Credit share (30%). Fannie Mae 30-year MBS comprises the largest percent of US MBS (10%), while Ginnie Mae 30-year MBS and Freddie Mac 30-year MBS comprise 8 percent and 6 percent 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**



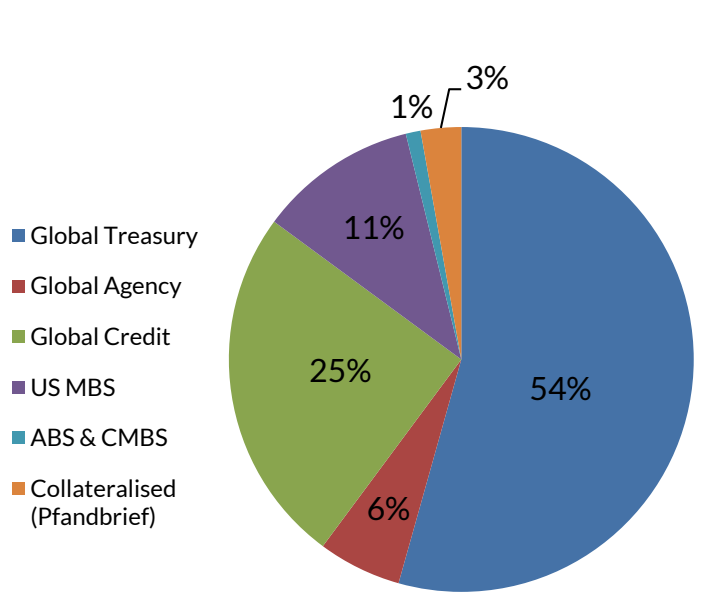
Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2018.

**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**

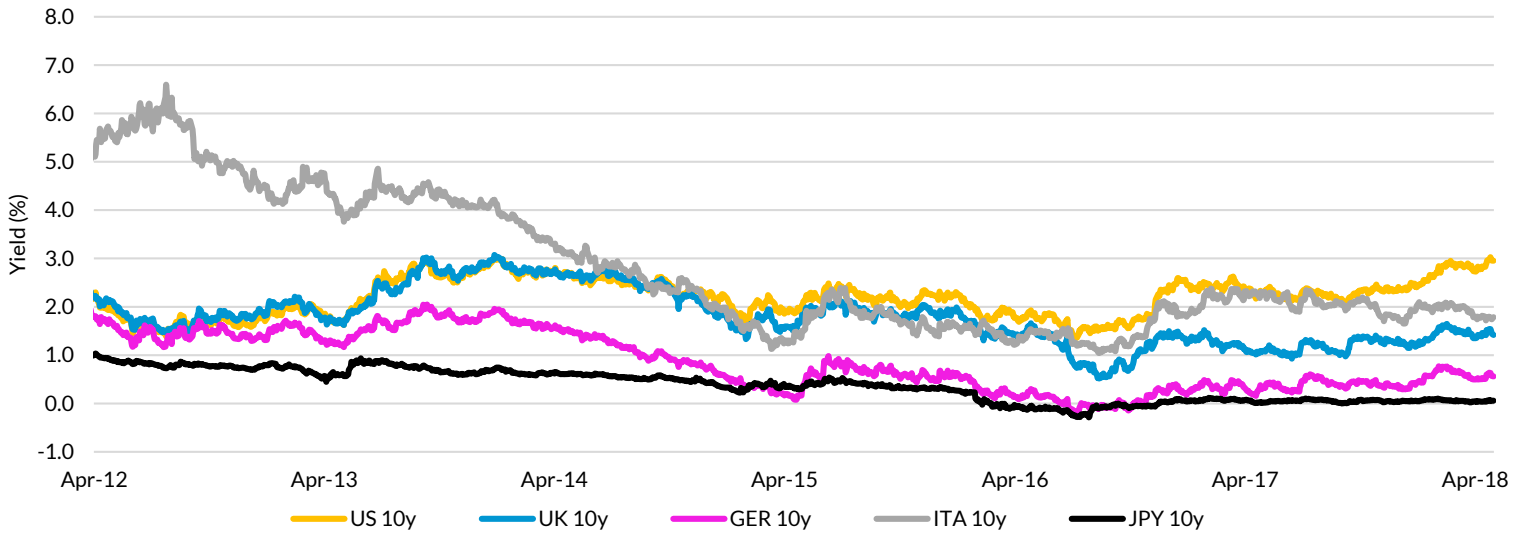


Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2018.

# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

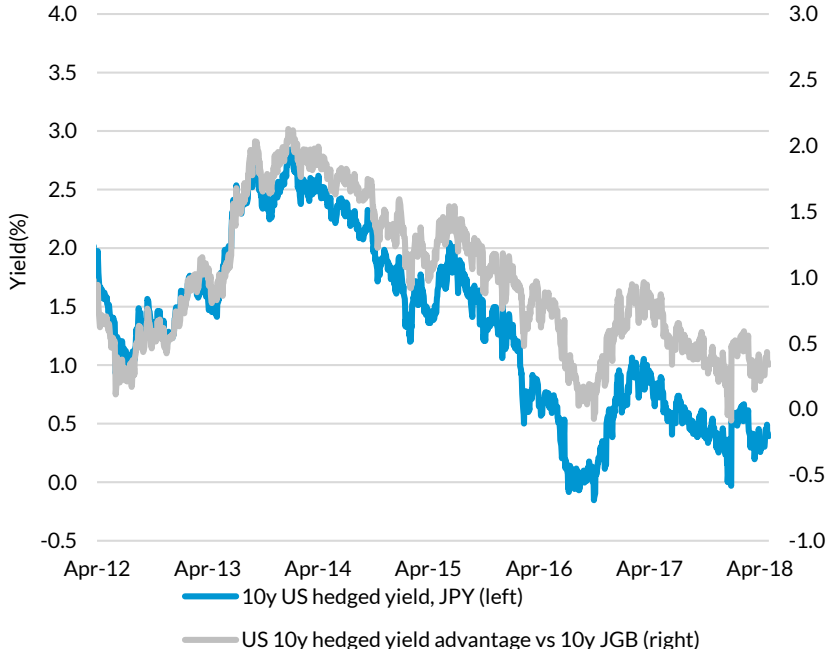
US Treasury interest rates, as measured by the 10-year note, continue to be the highest in the developed world. The US 10-year Treasury note increased to 2.95 percent this month. Interest rates in the UK, Germany, and Japan all increased to 1.42, 0.56, and 0.06 percent, respectively, while interest rates in Italy remained flat at 1.79 percent. If Treasury notes are hedged into foreign currencies, 10-year US Treasury yields are 39 basis points (bps) in JPY, and 9 bps in EUR. The hedged yield difference between the 10-year Treasuries and JGBs increased to 34 bps, while the hedged yield difference between the 10-year Treasuries and Bunds narrowed to -47 bps.

### Global 10-year Treasury Yields



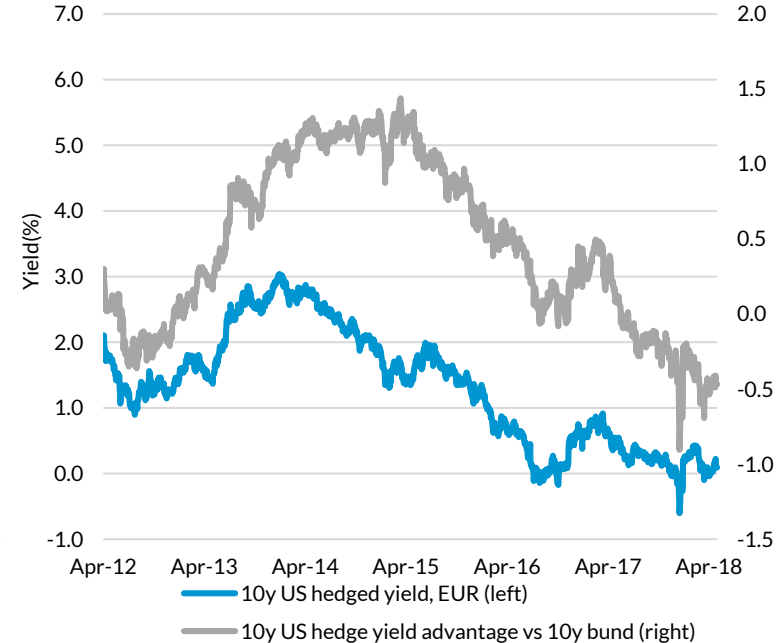
Sources: Bloomberg and State Street Global Advisors. Note: Data as of April 2018.

### 10yr US Treasury hedged yield, JPY



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

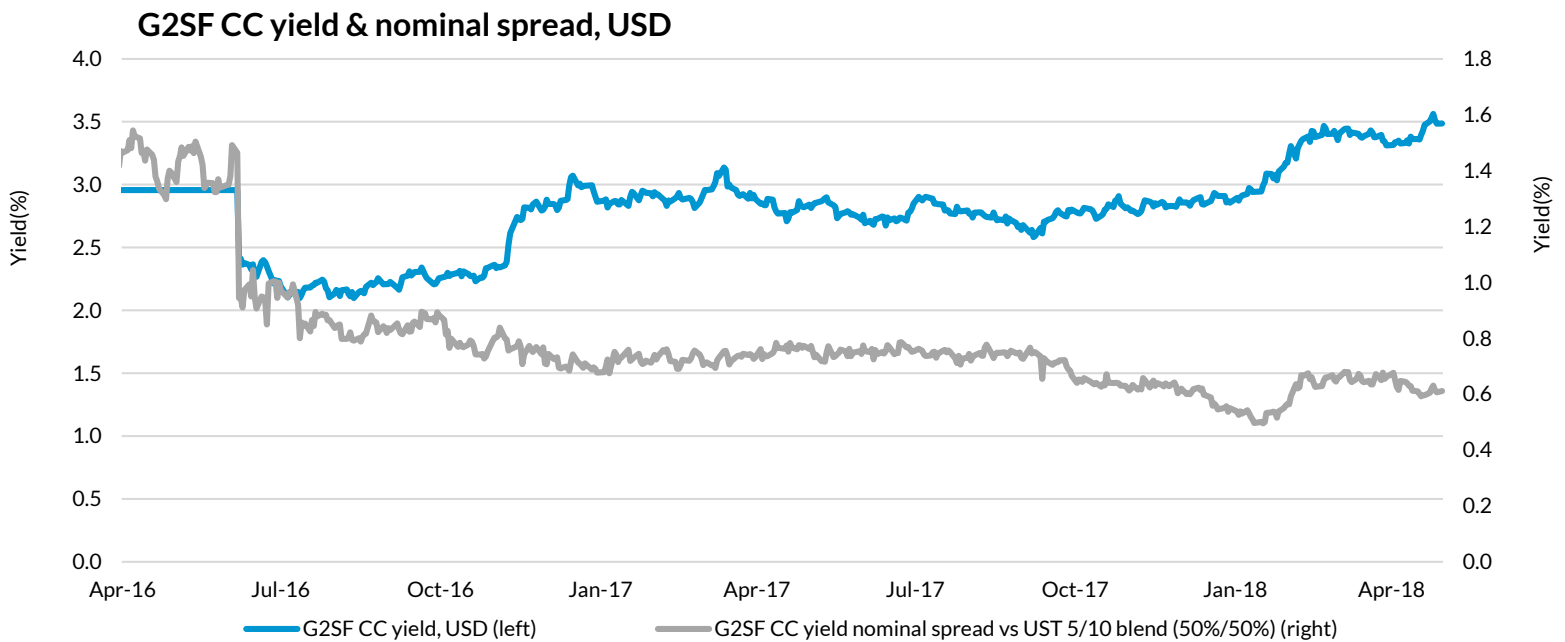
### 10yr US Treasury hedged yield, EUR



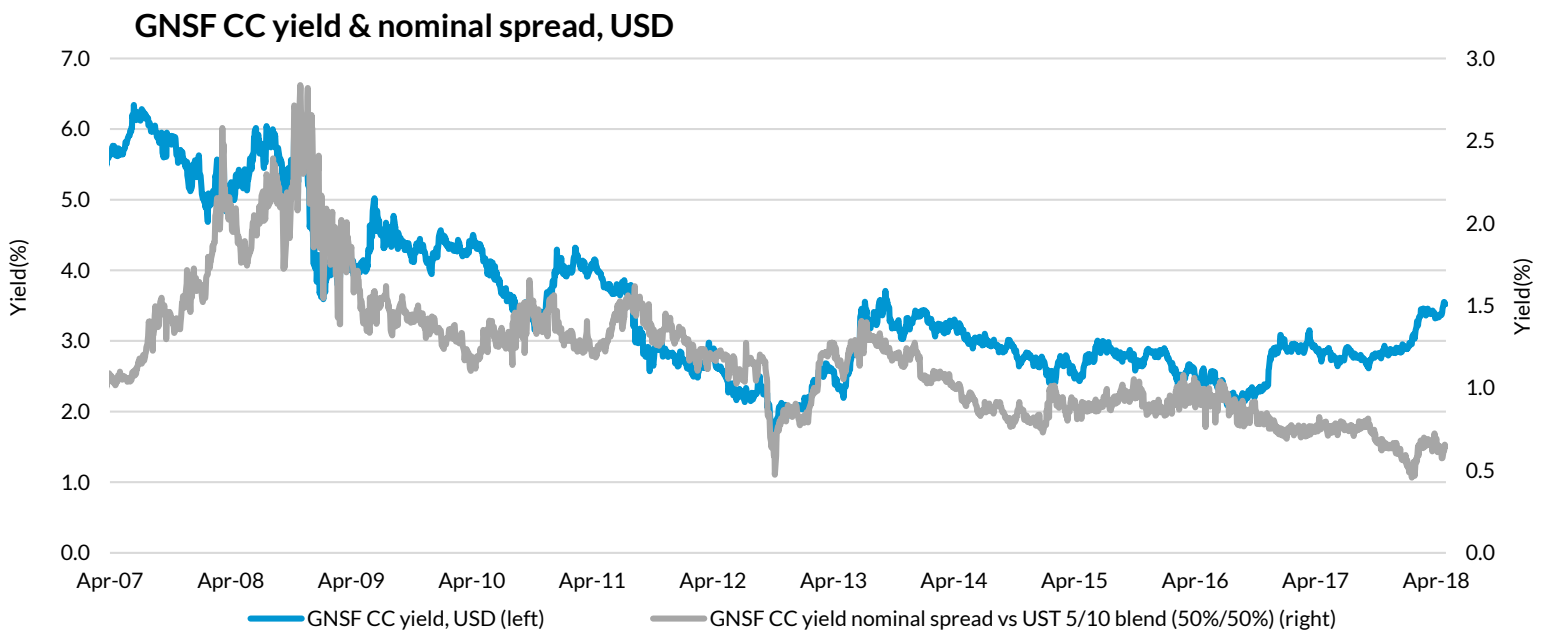
Sources: Bloomberg and State Street Global Advisors. Note: Data as of April 2018.

# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

The nominal yield spread on current coupon GNMA II and GNMA I securities increased slightly in April 2018. Current coupon Ginnie Mae securities outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 61 and 64 bps on G2SF and GNSF, respectively, which is slightly lower than in March.



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

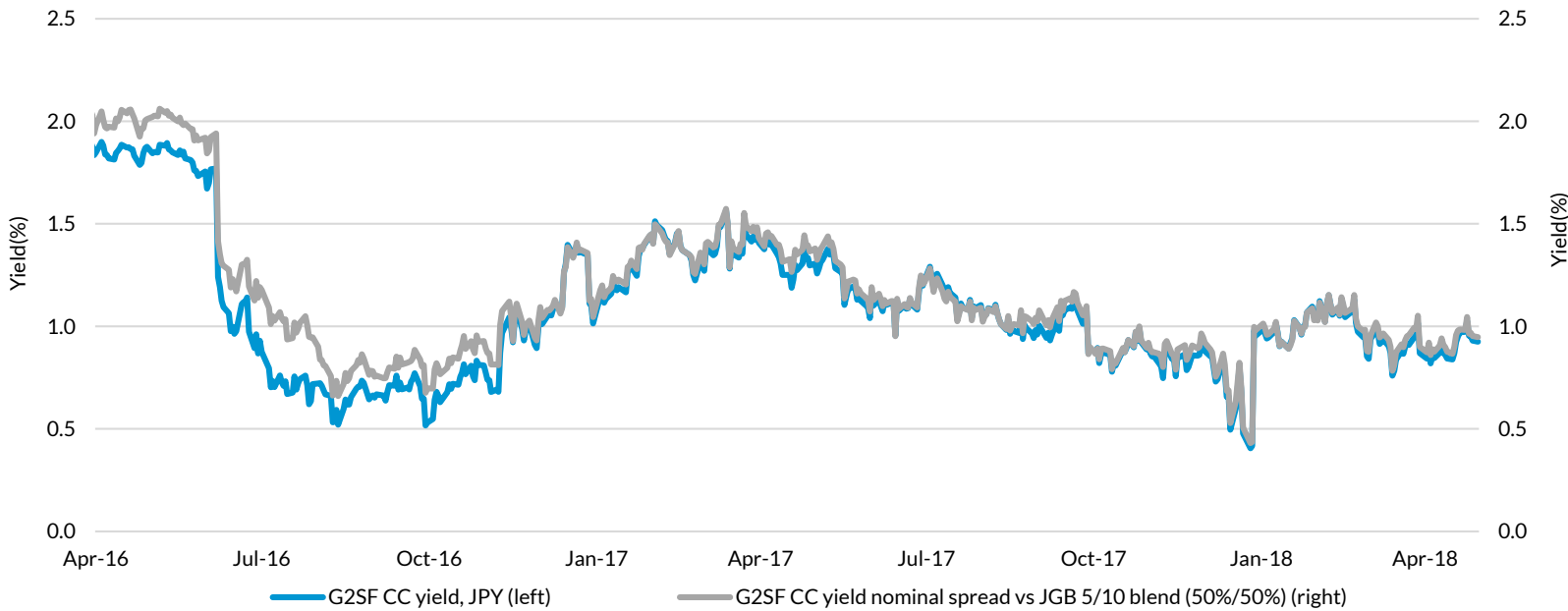


Sources: Bloomberg and State Street Global Advisors. Note: Data as of April 2018.

# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

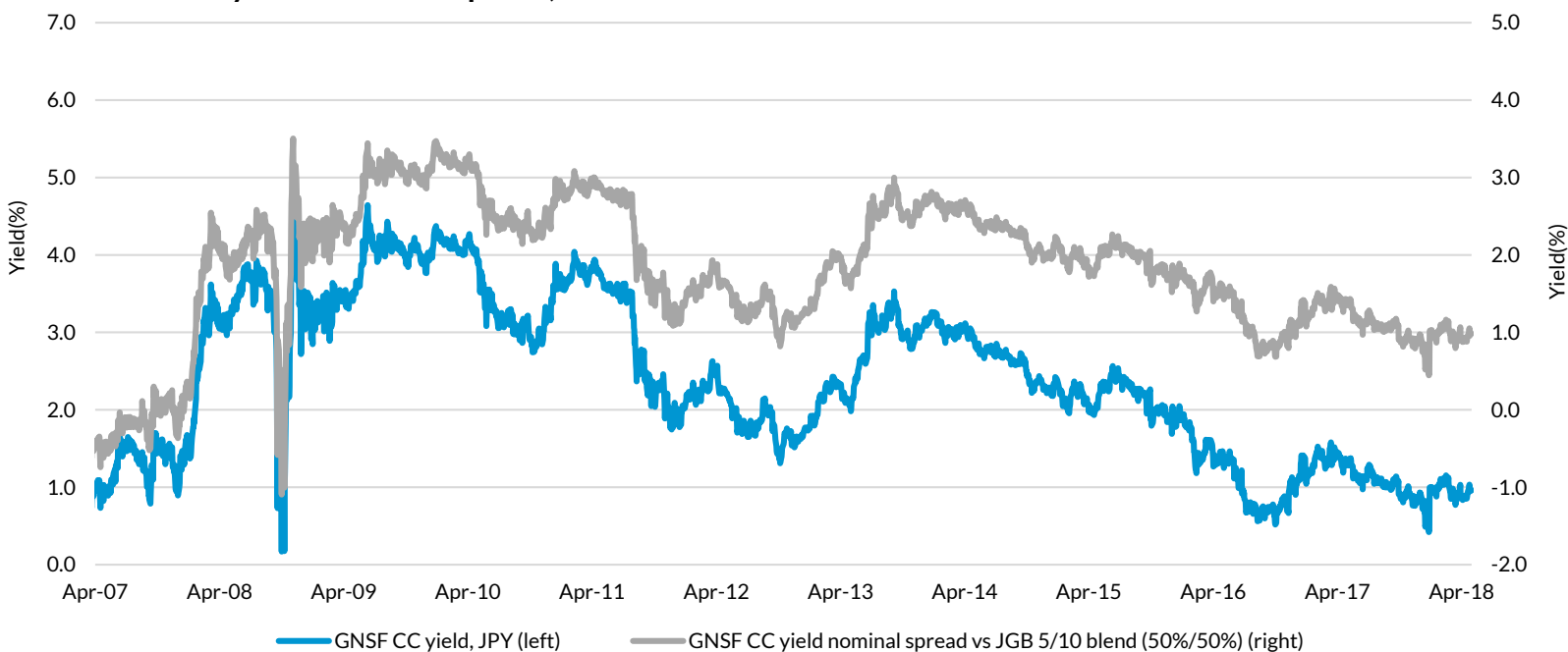
If Ginnie Mae securities are hedged into foreign currencies, they look attractive on a yield basis versus many sovereign alternatives. The figures show that current coupon G2SF and GNSF hedged into Japanese yen yield more than the JGB 5/10 blend by 95 and 98 bps, respectively. These latest spreads represent a 5-7 basis point widening from March levels.

## G2SF CC yield & nominal spread, JPY



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

## GNSF CC yield & nominal spread, JPY



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



# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

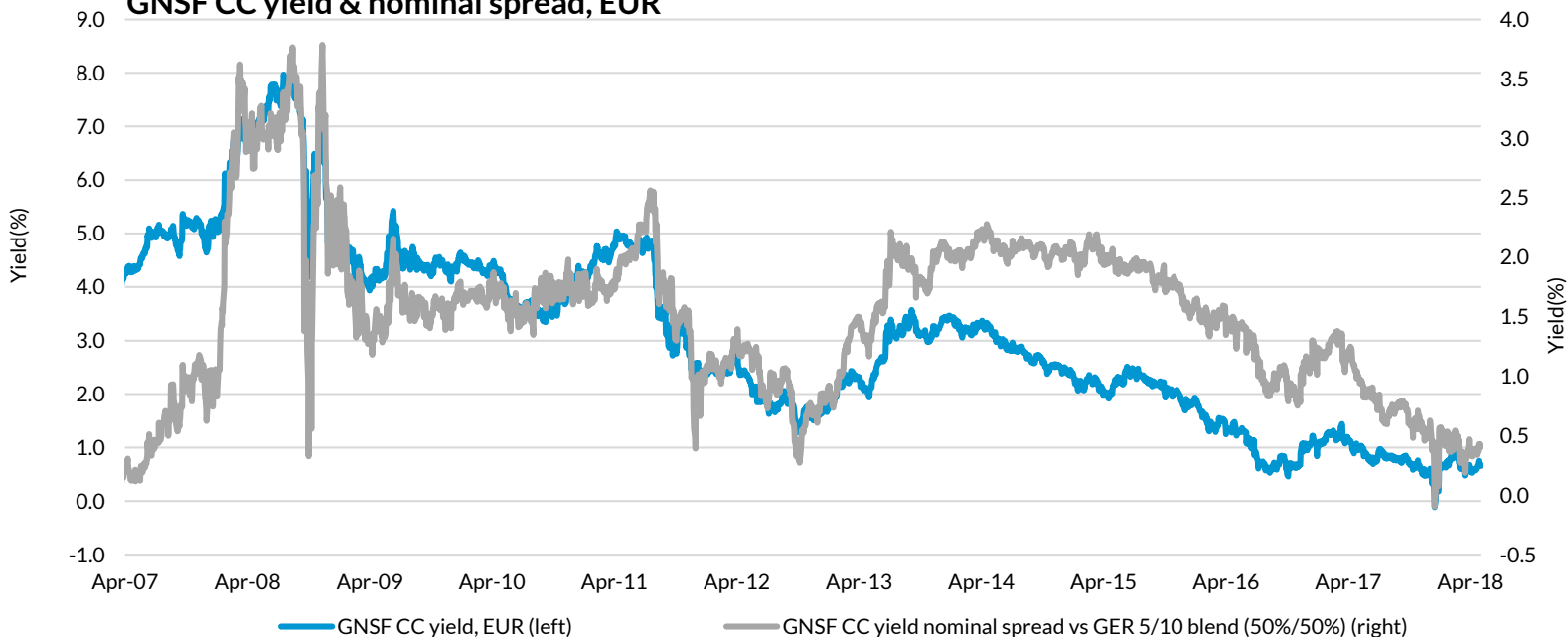
If Ginnie Mae securities are hedged into foreign currencies, they look attractive on a yield basis versus sovereign alternatives. The figures show that current coupon G2SF and GNSF hedged into euros yield more than the average of the German 5/10 blend by 37 and 41 bps, respectively. These latest spreads represent a 3-6 basis point widening from March levels.

**G2SF CC yield & nominal spread, EUR**



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

**GNSF CC yield & nominal spread, EUR**

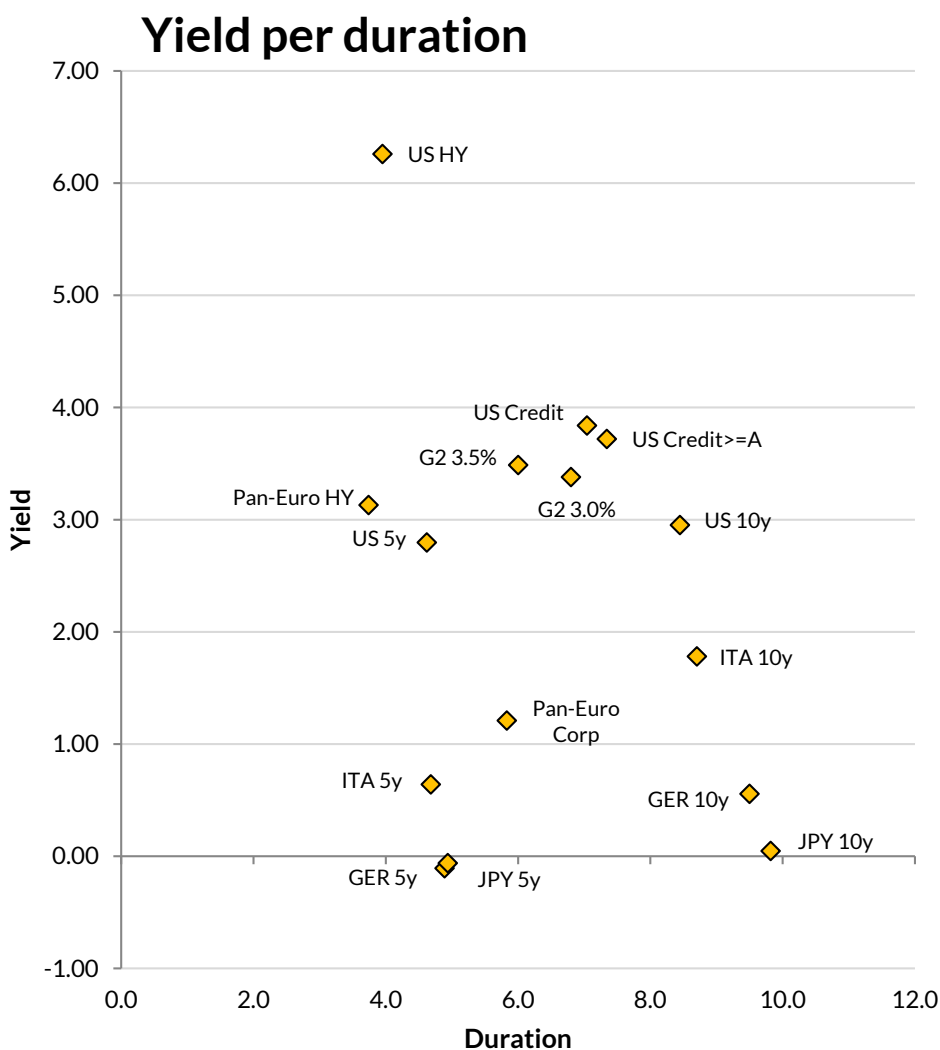


Sources: Bloomberg and State Street Global Advisors. Note: Data as of April 2018.



# 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	4.6	2.80
US 10y	8.4	2.95
GNMA II 3%	6.8	3.38
GNMA II 3.5%	6.0	3.49
JPY 5y	4.9	-0.11
JPY 10y	9.8	0.05
GER 5y	4.9	-0.06
GER 10y	9.5	0.56
ITA 5y	4.7	0.64
ITA 10y	8.7	1.78
US credit	7.0	3.84
US credit >= A	7.3	3.72
US HY	4.0	6.26
Pan-Euro Corp	5.8	1.21
Pan-Euro HY	3.7	3.13

Sources: Bloomberg and State Street Global Advisors. Note: Yields are in base currency of security and unhedged. Data as of April 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	-0.05	-0.09	0.06	0.01	0.27	0.26
3 year	0.06	0.03	0.19	0.08	0.42	0.31
5 year	0.11	0.06	0.21	0.27	0.40	0.47
10 year	0.28	0.24	0.44	0.41	0.69	0.81

## 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	-0.16	-0.19	-0.05	0.08	0.17	0.33
3 year	0.01	-0.02	0.14	0.14	0.37	0.37
5 year	0.08	0.03	0.18	0.31	0.37	0.51
10 year	0.26	0.22	0.42	0.40	0.66	0.80

## 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	0.59	0.77	0.87	0.45	0.63	0.61
3 year	0.54	0.92	1.09	1.02	1.61	1.40
5 year	0.69	0.93	1.18	1.03	1.50	1.25
10 year	0.76	1.18	1.76	1.40	3.00	3.52

## 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	-0.26	-0.25	-0.05	0.17	0.27	0.54
3 year	0.02	-0.02	0.13	0.14	0.23	0.26
5 year	0.11	0.04	0.15	0.30	0.25	0.41
10 year	0.34	0.18	0.24	0.28	0.22	0.23

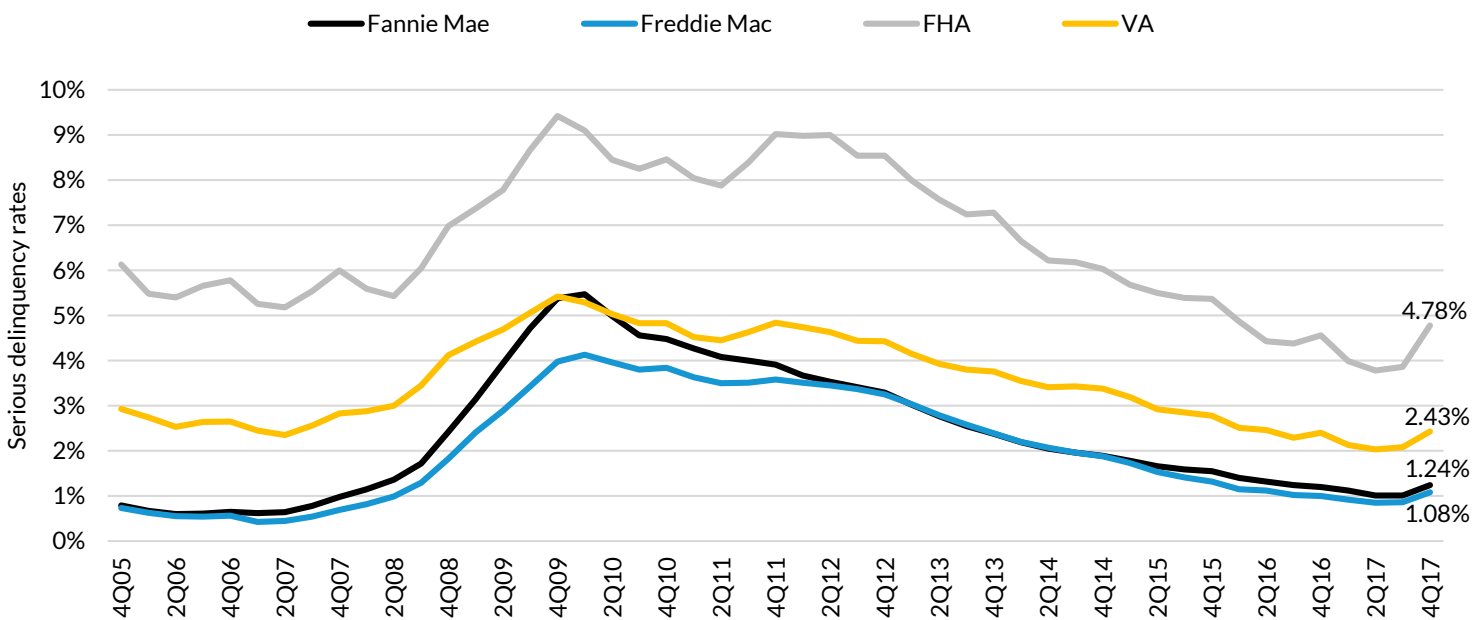
\*Assumes 2% capitalization max per issuer on high yield indices

Sources: Barclays Indices, Bloomberg and State Street Global Advisors Note: Data as of April 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 6.7-7.6 percent per year, as measured by both CoreLogic and Zillow.

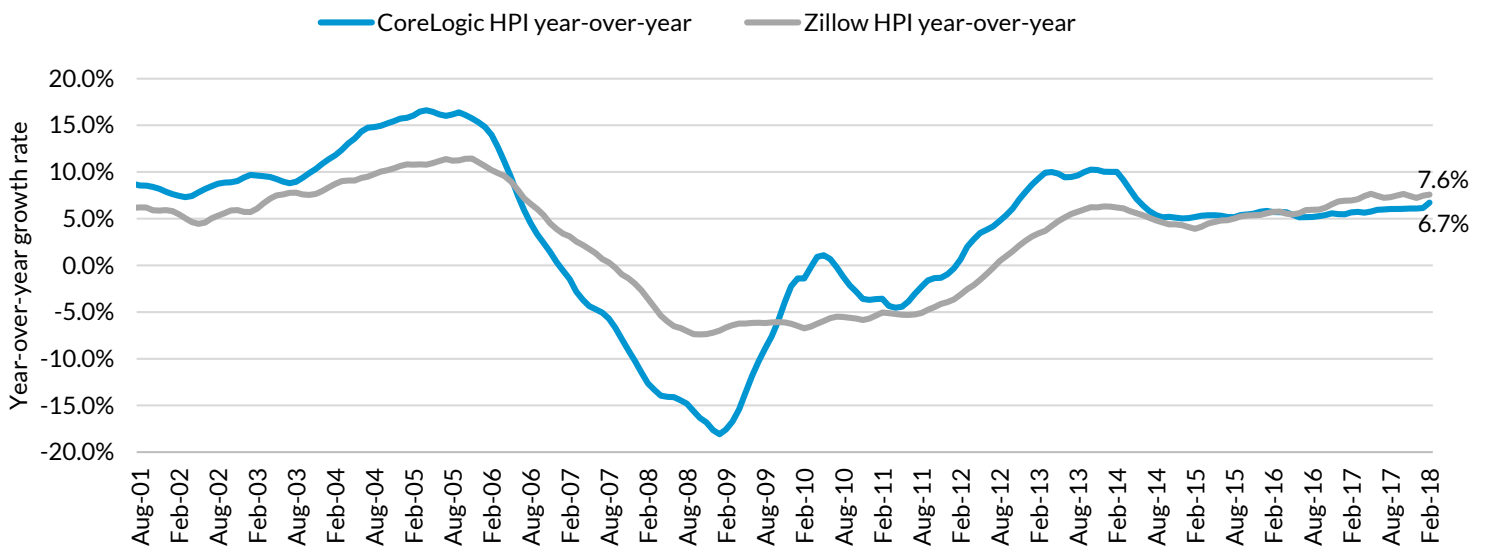
## Serious Delinquency Rates: Single-Family Loans



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 February 2018.

# State of the US Housing Market

Nationally, the nominal home prices have improved by 52.2 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 26.8 percent below peak levels and Connecticut is 22.6 percent below peak levels.

State	HPI Changes			YOY	Current HPI % Below Peak
	2000 to Peak	Peak to Trough	Trough to Current		
<b>National</b>	93.7%	-33.2%	52.2%	6.7%	-1.7%
Alabama	45.7%	-19.9%	23.2%	5.1%	1.4%
Alaska	68.9%	-9.4%	17.5%	2.2%	-6.1%
Arizona	121.5%	-50.5%	71.7%	6.7%	17.7%
Arkansas	39.6%	-7.6%	15.8%	4.4%	-6.5%
California	149.0%	-42.4%	79.8%	8.4%	-3.4%
Colorado	40.4%	-13.7%	69.6%	8.4%	-31.6%
Connecticut	79.5%	-24.9%	8.4%	2.7%	22.6%
Delaware	90.3%	-23.8%	17.6%	0.6%	11.6%
District of Columbia	150.5%	-10.4%	37.7%	1.3%	-19.2%
Florida	149.2%	-49.6%	67.4%	5.7%	18.5%
Georgia	40.5%	-30.7%	55.6%	6.5%	-7.1%
Hawaii	152.0%	-20.9%	45.7%	4.2%	-13.2%
Idaho	85.4%	-40.8%	77.8%	11.2%	-4.9%
Illinois	59.9%	-32.5%	29.5%	3.0%	14.4%
Indiana	24.4%	-16.4%	29.5%	6.0%	-7.6%
Iowa	25.5%	-4.9%	20.4%	3.7%	-12.7%
Kansas	33.2%	-14.0%	28.7%	6.7%	-9.5%
Kentucky	27.0%	-8.9%	23.4%	5.5%	-11.0%
Louisiana	58.8%	-7.5%	25.7%	5.4%	-14.1%
Maine	92.2%	-19.3%	32.1%	6.7%	-5.6%
Maryland	137.7%	-31.1%	20.7%	3.2%	20.2%
Massachusetts	81.7%	-21.2%	40.8%	6.5%	-9.9%
Michigan	26.2%	-43.2%	76.0%	7.2%	-0.1%
Minnesota	69.7%	-28.1%	43.3%	6.0%	-2.9%
Mississippi	34.2%	-18.3%	20.6%	4.4%	1.5%
Missouri	46.2%	-22.3%	31.9%	6.3%	-2.5%
Montana	80.0%	-16.6%	41.0%	9.0%	-15.0%
Nebraska	25.3%	-5.3%	28.6%	6.5%	-17.9%
Nevada	129.0%	-59.9%	96.5%	12.2%	26.8%
New Hampshire	82.6%	-23.8%	30.8%	4.6%	0.3%
New Jersey	109.6%	-26.4%	14.7%	2.1%	18.4%
New Mexico	64.3%	-26.4%	20.6%	4.0%	12.7%
New York	101.9%	-13.9%	31.5%	5.1%	-11.7%
North Carolina	39.8%	-14.6%	29.0%	5.2%	-9.3%
North Dakota	50.5%	-1.9%	47.5%	4.4%	-30.9%
Ohio	22.2%	-20.4%	32.3%	6.5%	-5.1%
Oklahoma	35.8%	-3.1%	14.8%	1.9%	-10.1%
Oregon	87.5%	-29.3%	69.0%	7.0%	-16.4%
Pennsylvania	71.7%	-12.9%	16.2%	3.9%	-1.2%
Rhode Island	131.0%	-34.2%	36.0%	9.6%	11.8%
South Carolina	61.5%	-22.2%	34.2%	5.3%	-4.3%
South Dakota	37.3%	-3.4%	30.8%	2.9%	-20.7%
Tennessee	41.3%	-13.2%	38.8%	6.9%	-17.0%
Texas	39.4%	-13.2%	49.5%	5.4%	-23.0%
Utah	64.8%	-31.7%	67.8%	11.1%	-12.7%
Vermont	81.6%	-9.1%	15.0%	4.2%	-4.3%
Virginia	135.1%	-30.6%	30.0%	2.6%	10.7%
Washington	90.2%	-28.1%	73.4%	12.5%	-19.7%
West Virginia	81.1%	-26.9%	23.2%	1.5%	11.1%
Wisconsin	48.6%	-17.2%	26.5%	5.9%	-4.4%
Wyoming	75.5%	-14.5%	23.9%	1.1%	-5.2%

Sources: CoreLogic and Urban Institute. Note: HPI data as of February 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 02/2018, 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 17.5 percent in the District of Columbia and as high as 52.4 percent in Mississippi. In general, the Ginnie Mae share is higher in states with lower home prices.

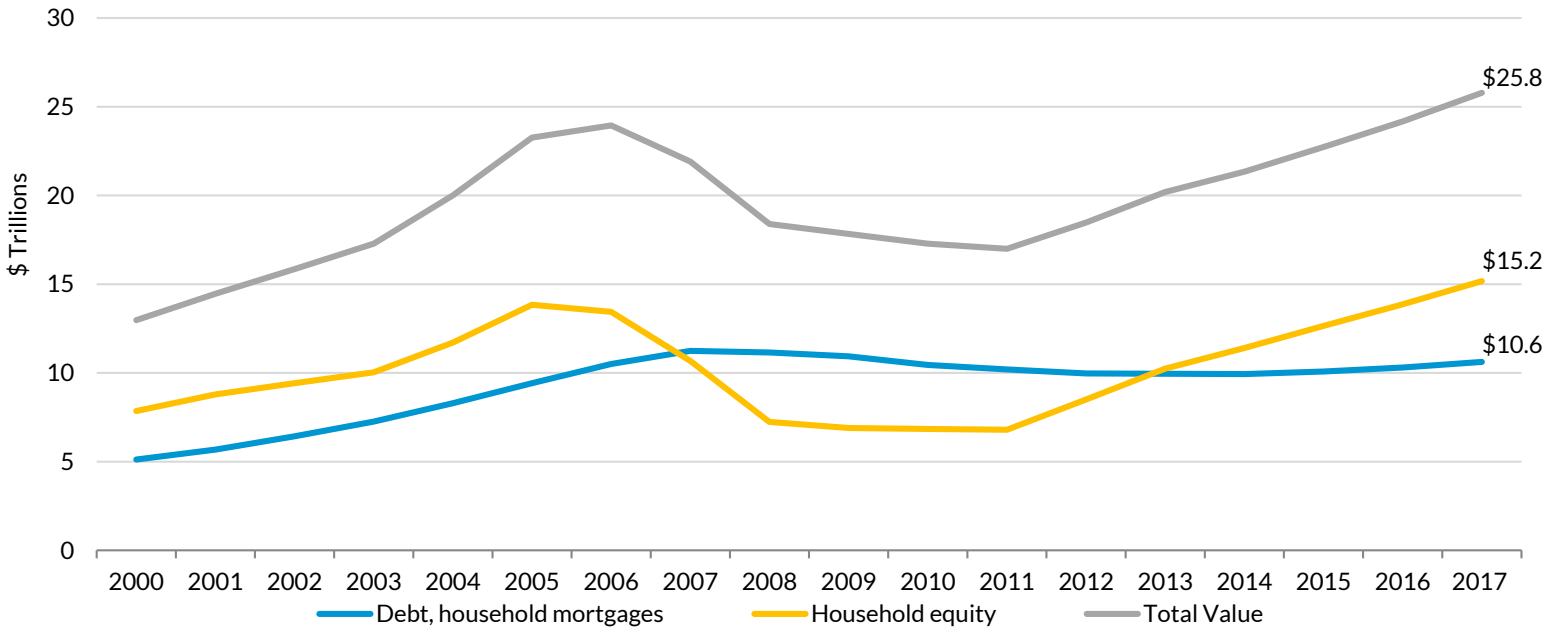
State	Agency Issuance (past 1 year)			Agency Outstanding		
	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)
<b>National</b>	<b>34.2%</b>	<b>211.6</b>	<b>227.8</b>	<b>32.3%</b>	<b>178.8</b>	<b>208.7</b>
Alabama	45.8%	158.6	180.8	47.1%	142.2	169.0
Alaska	53.2%	280.1	243.7	52.1%	256.6	228.6
Arizona	34.9%	205.7	211.1	34.6%	176.7	191.5
Arkansas	44.6%	140.7	166.0	46.8%	123.0	153.3
California	28.4%	340.3	324.4	22.3%	286.0	293.1
Colorado	33.5%	276.0	266.5	30.4%	229.8	237.7
Connecticut	32.5%	214.0	226.0	29.9%	203.7	218.4
Delaware	39.7%	211.5	221.2	37.5%	198.7	208.3
District of Columbia	18.0%	399.1	354.2	17.5%	328.3	333.6
Florida	39.4%	207.0	202.9	36.6%	174.2	185.2
Georgia	41.9%	181.0	204.9	40.9%	155.2	186.7
Hawaii	39.6%	489.4	378.7	31.9%	420.0	346.6
Idaho	34.9%	191.5	196.1	35.0%	163.3	176.1
Illinois	26.9%	176.1	197.6	25.2%	155.8	183.5
Indiana	40.1%	139.4	154.9	39.6%	122.2	141.9
Iowa	27.0%	143.7	161.9	26.9%	125.6	149.2
Kansas	37.3%	153.2	174.0	37.0%	133.2	157.5
Kentucky	41.1%	147.7	165.8	40.1%	133.4	150.6
Louisiana	43.8%	168.3	192.0	43.7%	151.1	177.8
Maine	36.3%	181.7	197.6	33.1%	167.0	181.2
Maryland	44.9%	280.4	262.2	40.1%	253.2	247.6
Massachusetts	24.5%	286.7	279.1	19.8%	254.1	255.9
Michigan	26.5%	143.8	167.2	26.7%	123.8	151.9
Minnesota	26.2%	194.4	206.8	25.6%	170.5	190.7
Mississippi	51.0%	150.7	169.4	52.4%	132.5	158.3
Missouri	36.8%	149.5	171.1	36.5%	132.9	156.5
Montana	32.4%	211.2	213.8	31.7%	183.5	192.5
Nebraska	32.2%	159.5	169.1	35.4%	135.7	154.1
Nevada	39.7%	234.4	225.0	40.3%	197.7	199.3
New Hampshire	32.7%	228.7	221.4	30.2%	209.2	202.9
New Jersey	30.6%	247.8	263.0	28.2%	232.9	249.3
New Mexico	44.2%	176.3	185.4	44.2%	156.8	173.0
New York	27.1%	240.7	265.7	26.5%	205.8	243.3
North Carolina	35.5%	177.2	199.4	36.0%	155.4	184.8
North Dakota	29.3%	208.6	204.3	27.1%	181.0	186.2
Ohio	37.2%	140.5	155.7	37.7%	125.4	144.4
Oklahoma	47.4%	150.5	169.4	50.1%	131.7	157.3
Oregon	28.1%	248.3	252.4	25.6%	210.7	222.1
Pennsylvania	34.5%	166.0	191.8	33.9%	152.3	180.9
Rhode Island	38.5%	221.7	217.1	34.3%	201.2	203.6
South Carolina	40.9%	180.9	191.4	39.3%	158.8	177.7
South Dakota	37.5%	173.1	182.5	37.0%	155.2	165.7
Tennessee	41.8%	178.0	197.8	42.9%	150.8	178.8
Texas	35.8%	193.2	211.8	38.3%	154.0	191.8
Utah	30.9%	232.1	243.6	31.6%	201.9	219.3
Vermont	23.3%	192.7	194.6	20.0%	181.8	182.7
Virginia	45.6%	268.7	258.8	42.0%	243.7	244.6
Washington	31.9%	275.9	278.8	30.3%	233.3	244.6
West Virginia	48.8%	153.7	154.9	46.0%	139.1	147.0
Wisconsin	24.0%	164.1	174.4	21.7%	147.1	161.2
Wyoming	42.4%	209.5	207.9	41.7%	193.8	195.4

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

# State of the US Housing Market

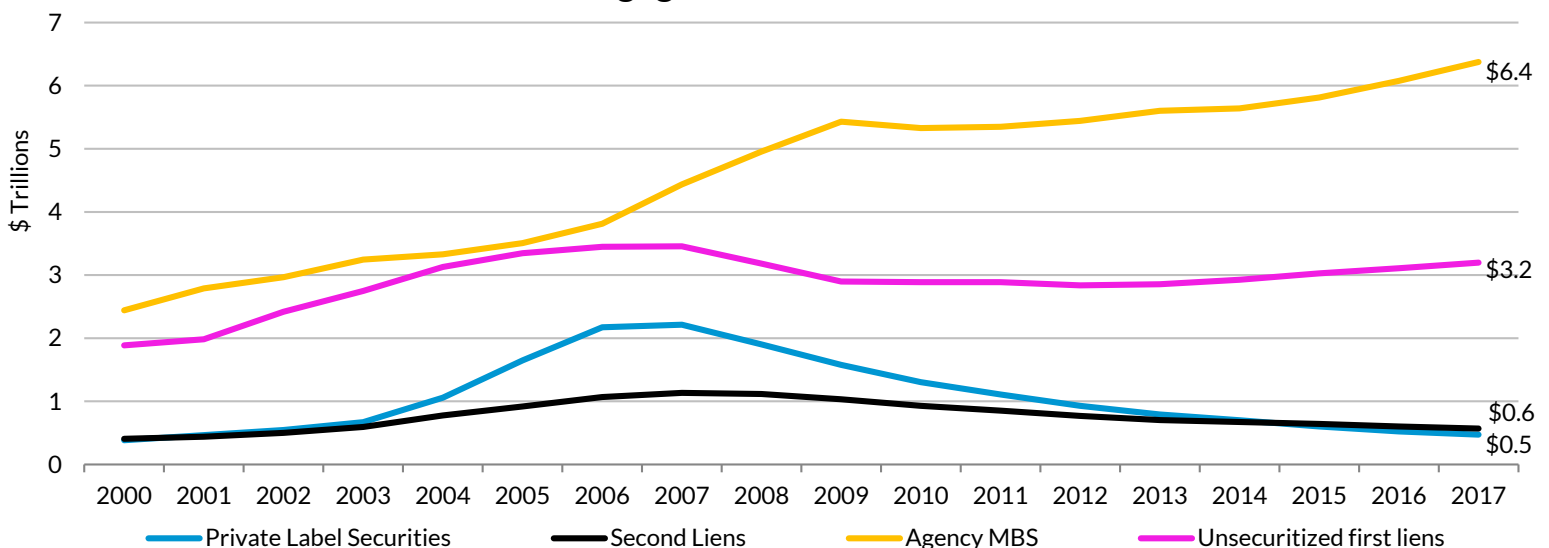
The Federal Reserve's Flow of Funds report has consistently indicated an increasing total value of the housing market driven by growing household equity since 2012, and 2017 Q4 was no different. While total debt and mortgages was stable at \$10.6 trillion, household equity reached a new high of \$15.2 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 unsecured 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



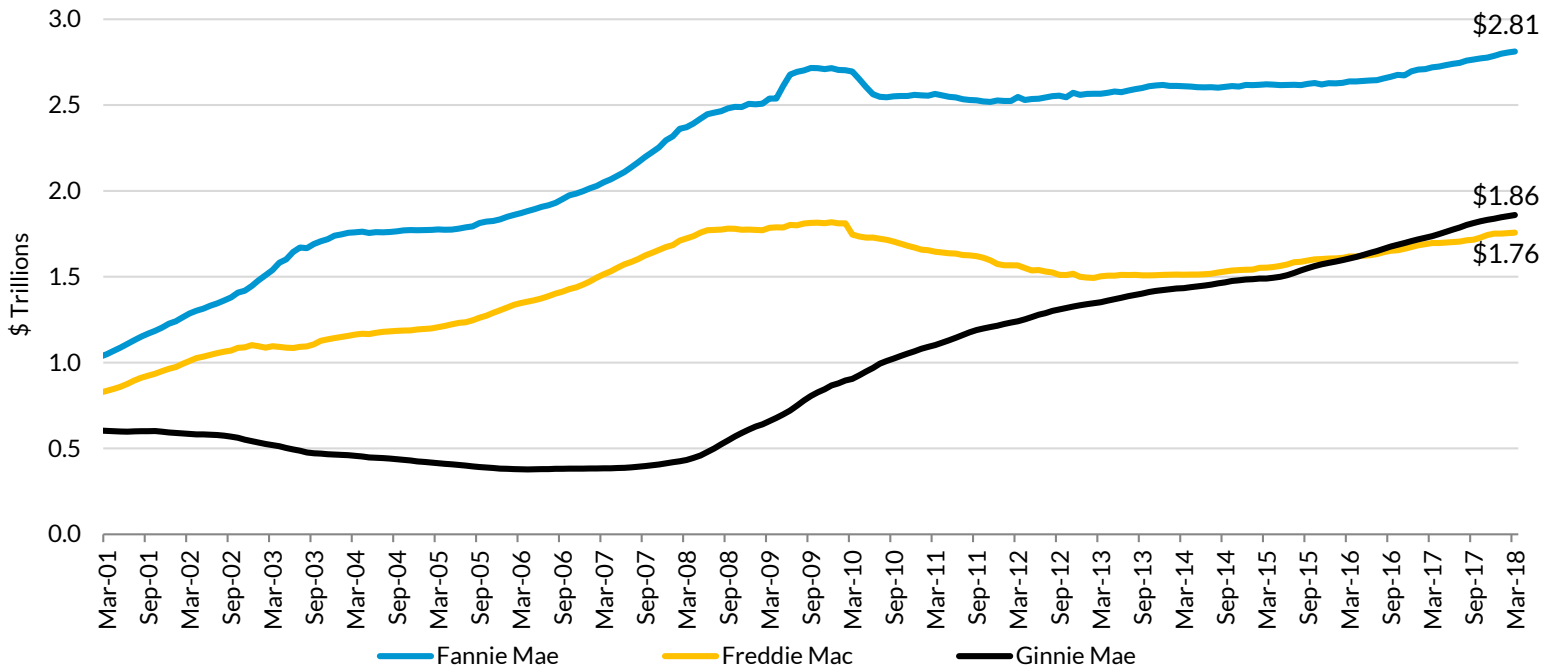
Sources: Federal Reserve Flow of Funds, Inside Mortgage Finance, Fannie Mae, Freddie Mac, eMBS and Urban Institute.

Note: Unsecured 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

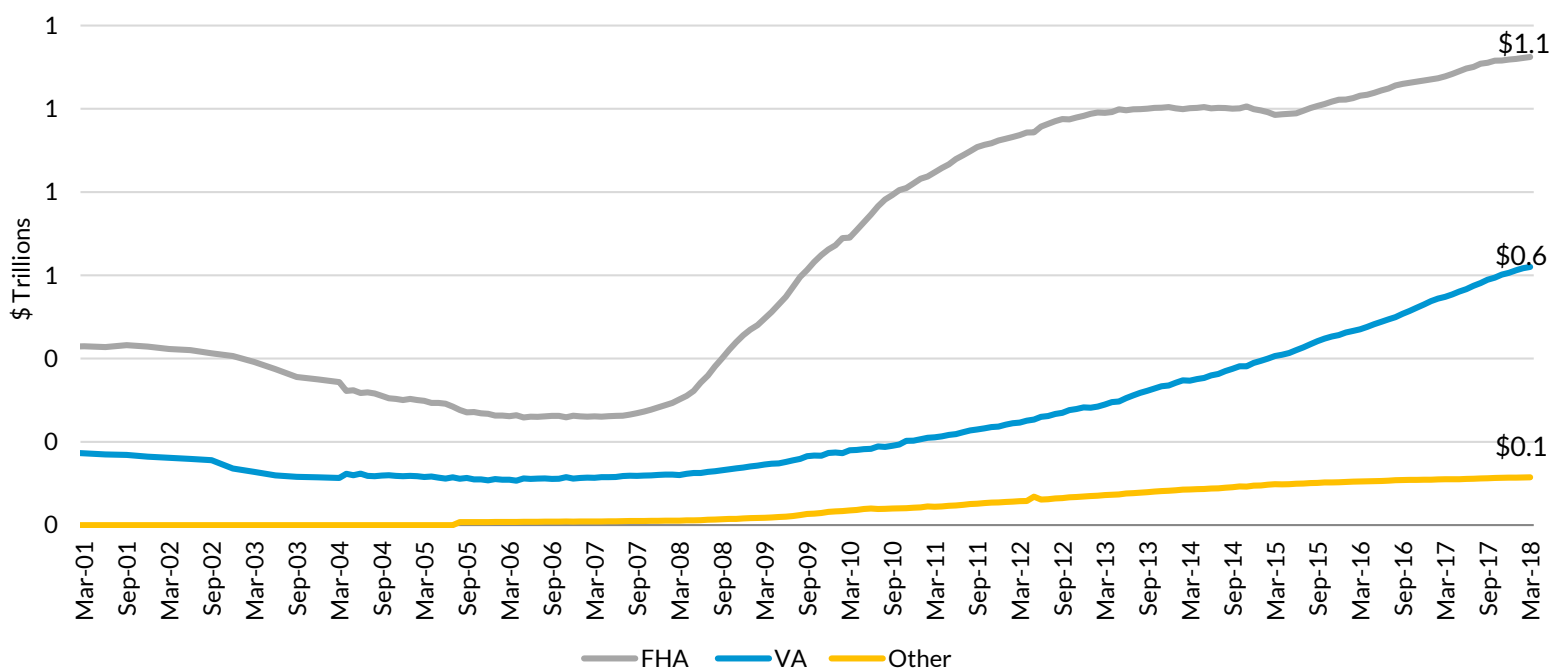
As of March 2018, outstanding securities in the agency market totaled \$6.43 trillion and were 43.7 percent Fannie Mae, 27.3 percent Freddie Mac, and 28.9 percent Ginnie Mae. Ginnie Mae has more outstandings than Freddie Mac. Within the Ginnie Mae market, VA has been growing very rapidly--comprising 33.4 percent of total Ginnie Mae outstandings.

## Outstanding Agency Mortgage-Backed Securities



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

## Outstanding Ginnie Mae Mortgage-Backed Securities



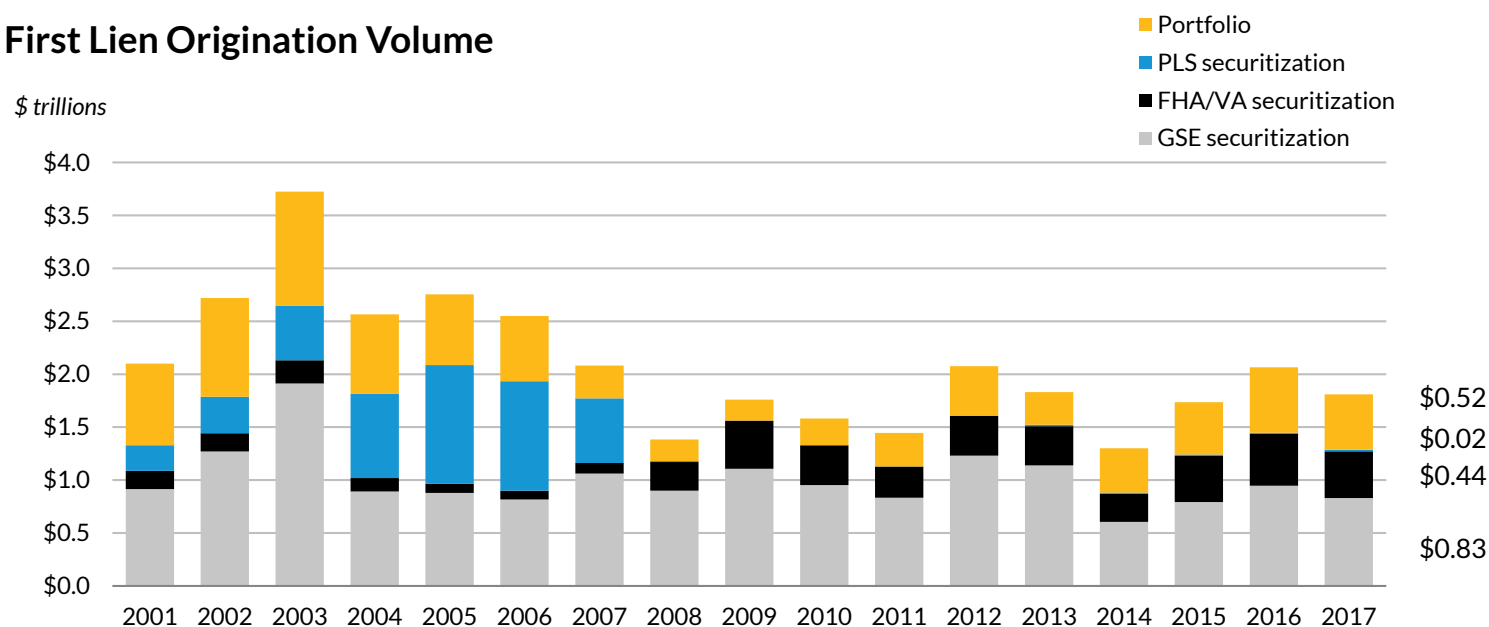
Sources: eMBS and Urban Institute. Note: Data as of March 2018.



# State of the US Housing Market

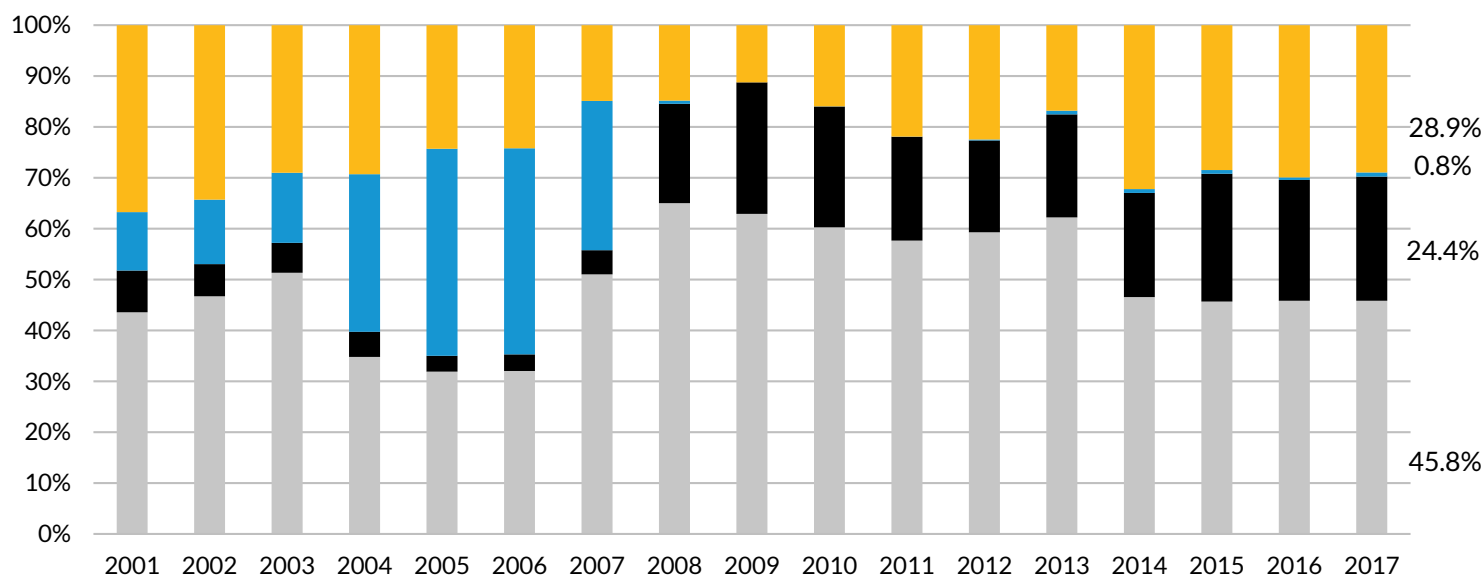
After a record high origination year in 2016 (\$2.1 trillion), the first lien originations totaled \$1.8 trillion in 2017, down 14 percent from 2016, mostly due to elevated interest rates. The portfolio originations share was 29 percent, the GSE share was 46 percent, and the FHA/VA share was 24 percent, 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 \$283.5 billion in the first quarter of 2018, down by 14.1 percent compared to the same time period in 2017. Ginnie Mae gross issuance was down by 10.2 percent and GSE gross issuance was down by 15.9 percent. Within the Ginnie Mae market, FHA is down by 16.1 percent and VA origination is down by 0.8 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	\$123.3	\$64.2	\$187.5	\$96.0	\$283.5
2018 % Change YOY	-7.1%	-28.9%	-15.9%	-10.2%	-14.1%
2018 Ann.	\$493.2	\$256.7	\$749.8	\$384.1	\$1,133.9

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	\$51.0	\$41.0	\$4.0	\$96.0
2018 % Change YOY	-16.1%	-0.8%	-17.3%	-10.2%
2018 Ann.	\$204.0	\$164.1	\$16.0	\$384.1

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 March 2018.

# US Agency Market, Originations

Agency net issuance totaled \$51.9 billion in the first three months of 2018, down 32.7 percent compared to 2017. Ginnie Mae net issuance was \$21.0 billion, comprising 40.5 percent of total agency net issuance. Note that Ginnie Mae net issuance is down 28.3 percent compared to the first three months of 2017. Ginnie Mae net issuance in 2018 is comprised of 68.0 percent VA issuance, 28.5 percent FHA issuance and 3.5 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	\$25.3	\$5.6	\$30.9	\$21.0	\$51.9
2018 %Change YOY	6.4%	-76.6%	-35.3%	-28.3%	-32.7%
2018 Ann.	\$101.1	\$22.5	\$123.6	\$84.1	\$207.7

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	\$6.0	\$14.3	\$0.7	\$21.0
2018 %Change YOY	-39.9%	-21.7%	-31.6%	-28.3%
2018 Ann.	\$24.0	\$57.2	\$2.9	\$84.1

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 March 2018.

# US Agency Market, Originations

Agency gross issuance totaled \$85.9 billion in March 2018, down slightly from \$93.7 billion of issuance in February 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

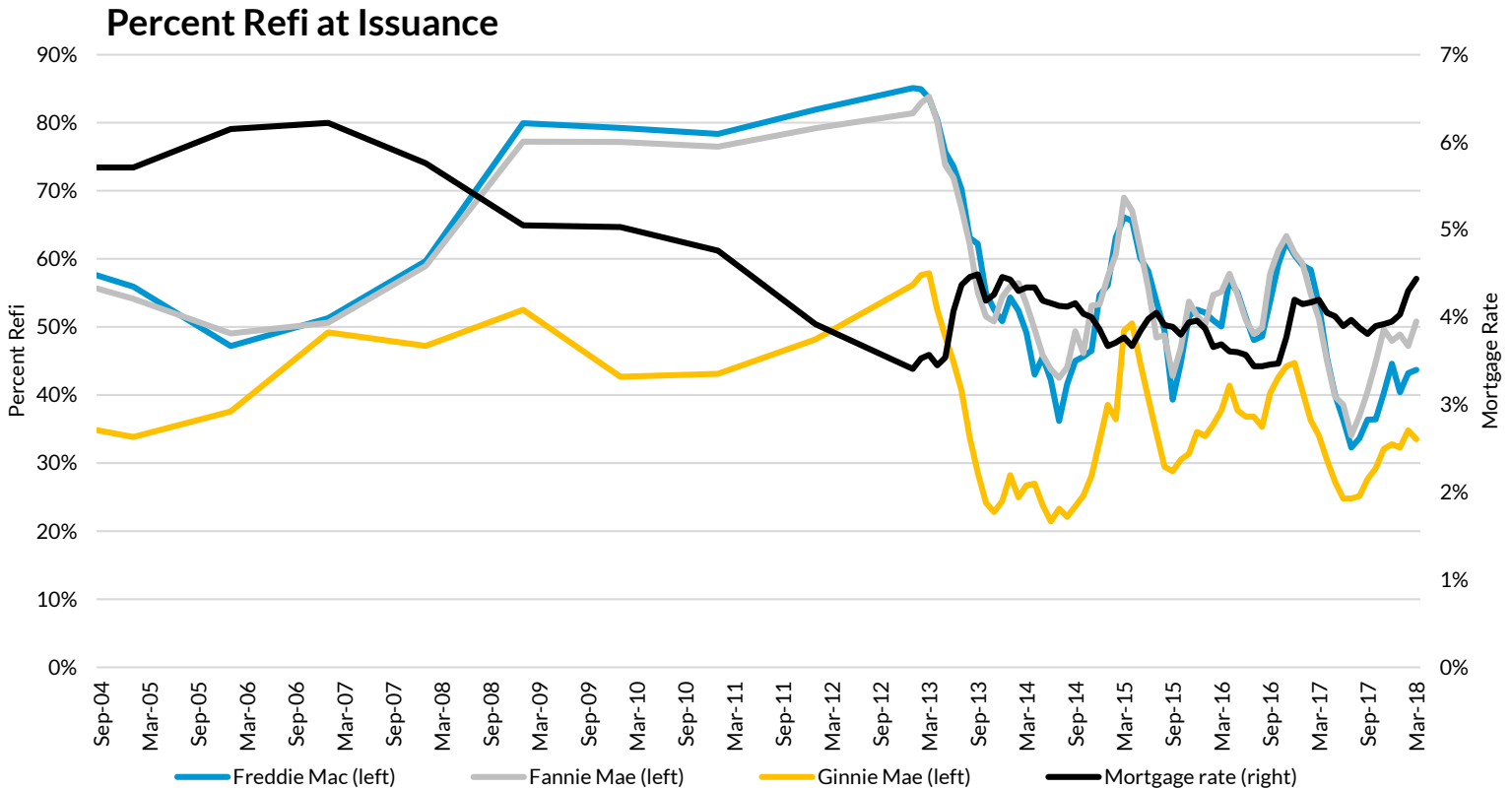
Date	Gross Issuance			Net Issuance		
	Fannie Mae	Freddie Mac	Ginnie Mae	Fannie Mae	Freddie Mac	Ginnie Mae
Jan-15	\$36.8	\$22.9	\$27.5	-\$1.2	\$0.8	\$2.5
Feb-15	\$35.4	\$29.9	\$23.9	\$1.5	\$10.1	\$2.9
Mar-15	\$44.8	\$26.0	\$30.7	\$3.1	\$1.1	\$0.6
Apr-15	\$49.3	\$33.8	\$40.6	-\$1.2	\$3.8	\$4.3
May-15	\$42.4	\$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
Mar-18	\$35.6	\$21.3	\$29.0	\$4.9	\$3.0	\$6.1

Sources: eMBS and Urban Institute.

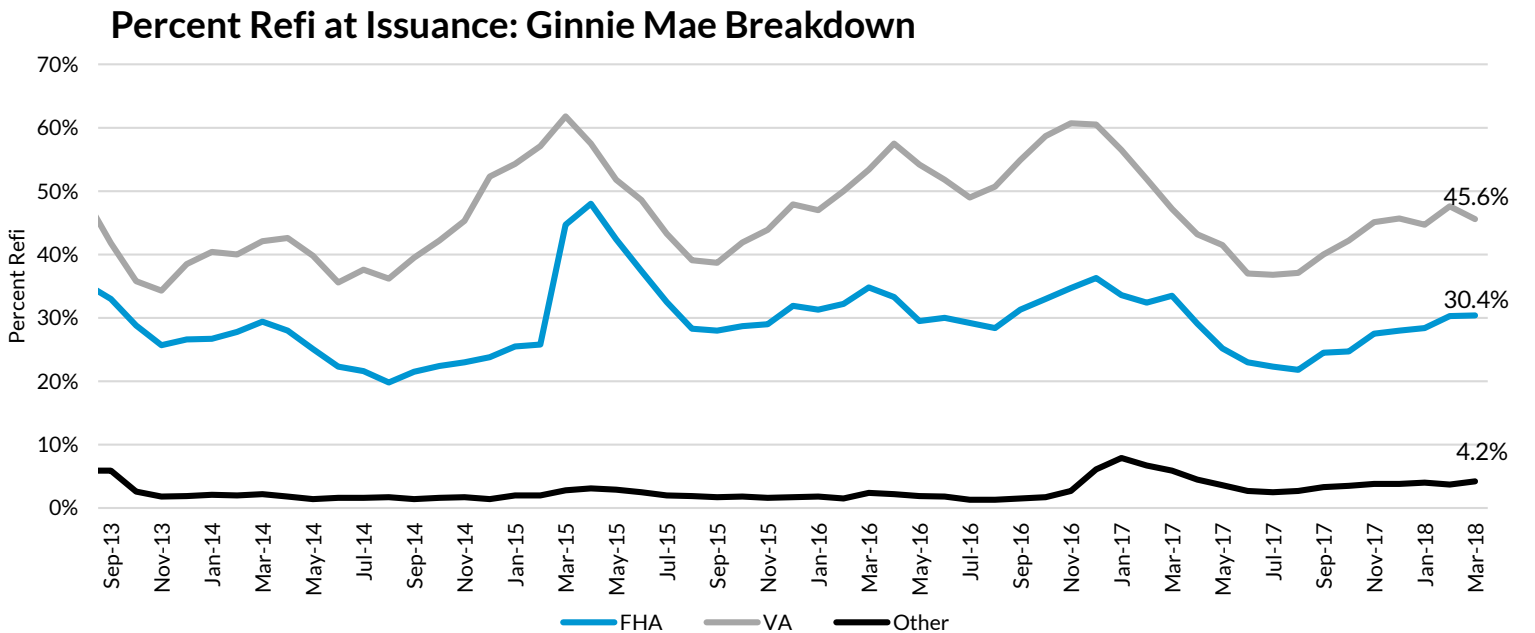
Note: Dollar amounts are in billions. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of March 2018.

# US Agency Market, Originations

The Ginnie Mae refi share stood at 34 percent in March 2018, below the 51 and 44 percent shares for Fannie Mae and Freddie Mac, respectively. Within Ginnie Mae, VA had the highest refi share at 45.6 percent in March 2018, followed by FHA's 30.4 percent refi share.



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



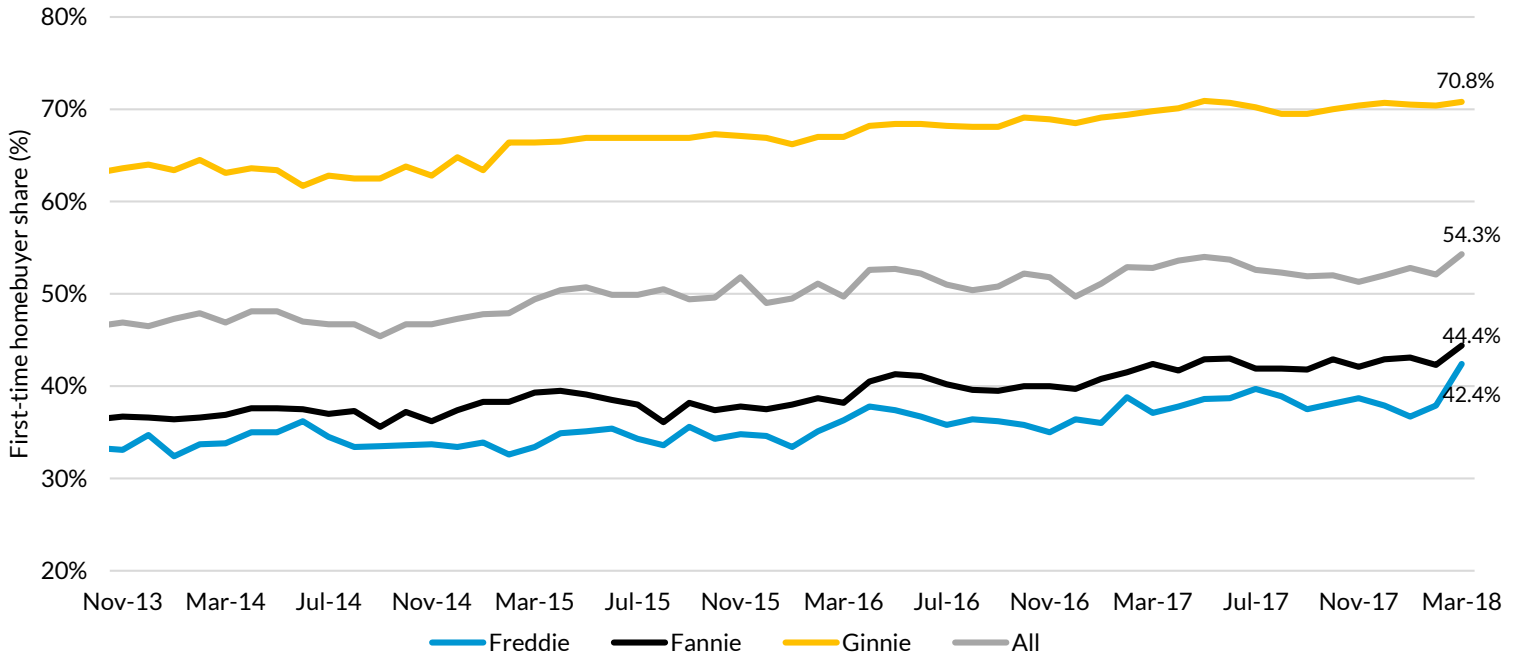
Sources: eMBS and Urban Institute.

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 March 2018.

# Credit Box

First time homebuyers are important to the Ginnie Mae market, comprising 71 percent of purchase originations, compared to Fannie and Freddie’s respective 44 percent and 42 percent share of the first-time homebuyer market. The bottom table shows that based on mortgages originated in March 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 March 2018.

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$)	229,329	257,972	237,003	259,339	203,030	246,352	222,660	256,537
Credit Score	735.0	751.3	741.5	755.1	680.1	699.8	718.5	744.0
LTV (%)	87.8	79.4	86.9	79.3	96.9	95.7	90.6	82.1
DTI (%)	36.7	37.1	35.2	36.4	41.4	42.4	37.9	37.7
Loan Rate (%)	4.51	4.34	4.40	4.32	4.35	4.22	4.42	4.31

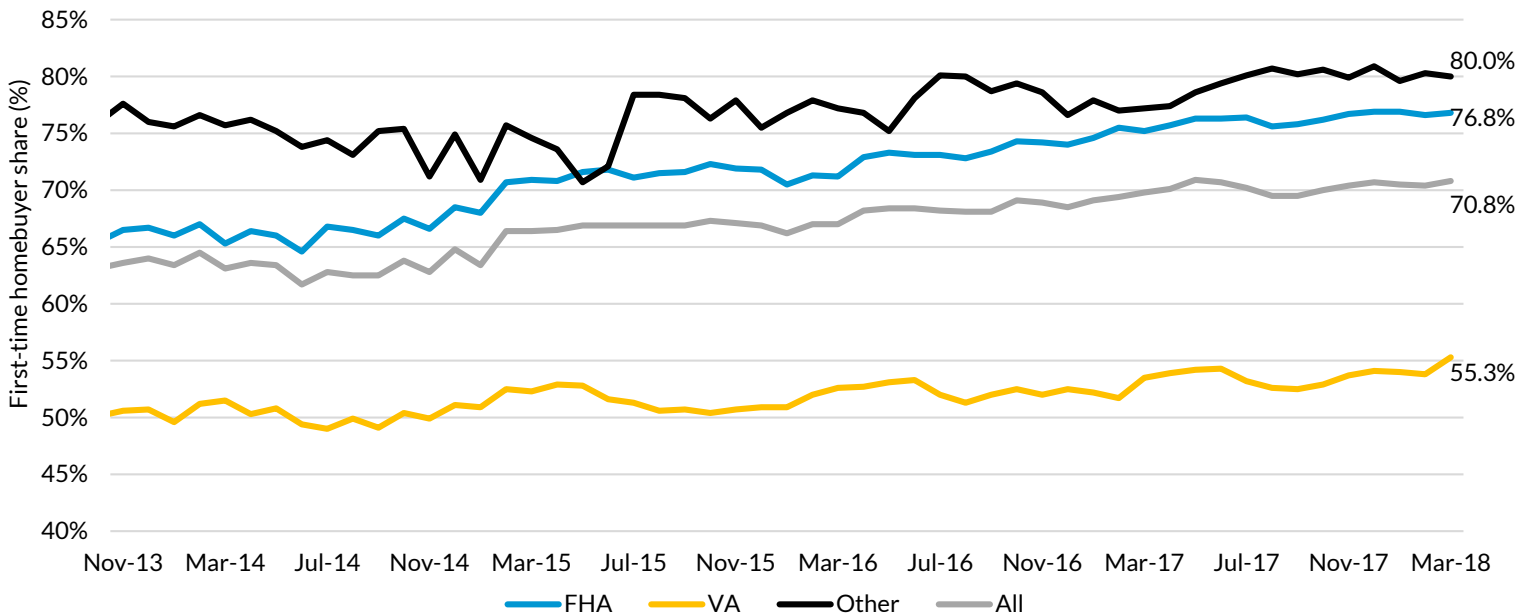
Sources: eMBS and Urban Institute.

Note: In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting 169 bps from this new issuer-reported LTV. Data as of March 2018.

# Credit Box

Within the Ginnie Mae purchase market, 77 percent of FHA loans, 55 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 March 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 March 2018.

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$)	200,211	218,470	242,293	290,735	139,729	154,517	203,030	246,352
Credit Score	671.6	677.5	698.2	725.0	693.4	693.2	680.1	699.8
LTV (%)	95.5	94.1	99.9	96.7	99.2	99.4	96.9	95.7
DTI (%)	42.7	43.6	40.6	41.9	35.2	35.8	41.4	42.4
Loan Rate (%)	4.43	4.37	4.18	4.05	4.23	4.31	4.35	4.22

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



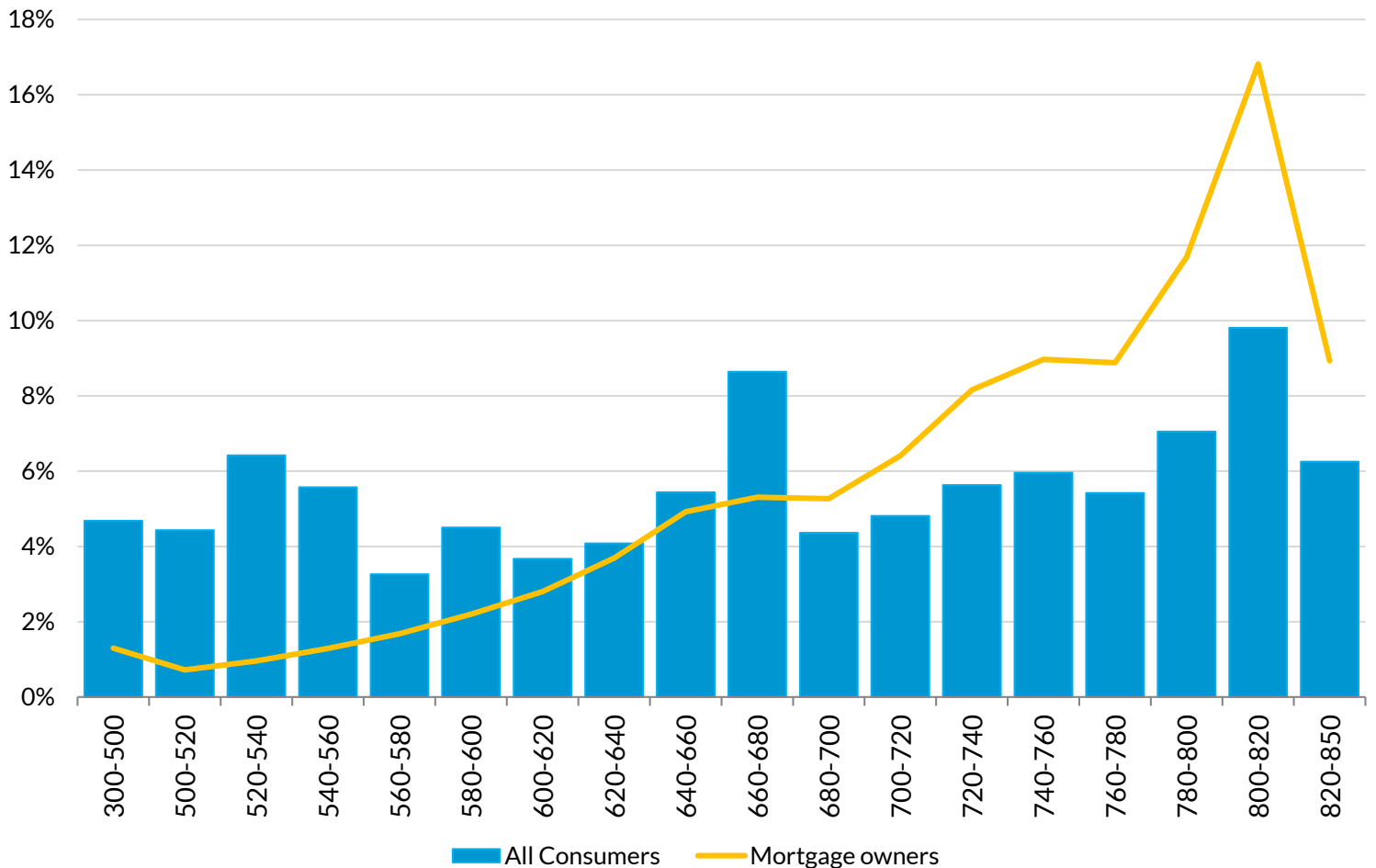
# Credit Box

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.

# March 2018 Credit Box at a Glance

In March 2018, the median Ginnie Mae FICO score was 678 versus 746 for Fannie and 751 for Freddie. Note that the FICO score for the 10<sup>th</sup> percentile was 621 for Ginnie Mae, versus 670 for Fannie and 679 for Freddie. Within the Ginnie Mae market, FHA loans have a median FICO score of 666, VA loans have a median FICO score of 704 and other loans have a median FICO score of 689.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	206,280	643	679	728	773	796	723
Fannie	75,110	681	713	752	784	800	745
Freddie	50,314	686	718	757	786	801	749
Ginnie	80,856	623	646	678	722	768	686
Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	151,911	645	682	726	770	795	723
Fannie	74,111	663	697	739	777	798	734
Freddie	41,101	669	702	744	779	799	738
Ginnie	36,699	612	643	679	721	766	682
All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	358,191	644	680	727	772	796	723
Fannie	149,221	670	705	746	780	799	740
Freddie	91,415	679	710	751	783	800	744
Ginnie	117,555	621	645	678	722	767	685

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	80,856	623	646	678	722	768	686
FHA	49,417	620	641	667	702	741	673
VA	23,498	632	662	709	761	792	710
Other	7,941	639	657	689	729	763	693

Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	36,699	612	643	679	721	766	682
FHA	19,214	601	632	664	699	738	666
VA	17,240	628	659	698	745	780	700
Other	245	617	645	690	733	769	686

All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	117,555	621	645	678	722	767	685
FHA	68,631	614	639	666	701	740	671
VA	40,738	630	661	704	755	788	706
Other	8,186	639	656	689	729	763	693

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

# March 2018 Credit Box at a Glance

In March 2018, the median loan-to-value ratio (LTV) was 96.5 percent for Ginnie Mae, 79 percent for Fannie Mae, and 80 percent for Freddie Mac. The 10<sup>th</sup> percentile was 81.2 percent for Ginnie Mae, and 49.0 percent for both 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	206,625	74.0	80.0	95.0	96.5	100.0	88.1
Fannie	75,173	66.0	80.0	80.0	95.0	97.0	82.9
Freddie	50,387	64.0	79.0	80.0	95.0	97.0	82.4
Ginnie	81,065	93.2	96.5	96.5	100.0	102.1	96.5
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	155,064	45.0	60.0	74.6	81.6	93.5	70.8
Fannie	74,127	41.0	56.0	69.0	78.0	80.0	65.4
Freddie	41,106	41.0	56.0	70.0	79.0	80.0	65.6
Ginnie	39,831	68.6	81.4	86.5	97.5	100.0	86.3
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	361,689	55.0	72.0	81.0	96.5	98.6	80.7
Fannie	149,300	49.0	65.0	79.0	89.0	95.0	74.2
Freddie	91,493	49.0	66.0	80.0	90.0	95.0	74.9
Ginnie	120,896	81.2	90.3	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	81,065	93.2	96.5	96.5	100.0	102.1	96.5
FHA	49,534	93.2	96.5	96.5	96.5	96.5	95.2
VA	23,549	92.0	100.0	100.0	102.2	103.3	98.5
Other	7,982	95.0	99.1	101.0	101.0	102.0	99.2
Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	39,831	68.6	81.4	86.5	97.5	100.0	86.3
FHA	20,257	68.1	80.3	86.5	88.1	97.8	83.4
VA	19,228	69.0	83.1	93.5	100.0	101.9	89.2
Other	346	77.0	85.6	95.3	101.5	103.1	92.1
All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	120,896	81.2	90.3	96.5	100.0	101.0	93.2
FHA	69,791	81.4	87.8	96.5	96.5	96.5	91.8
VA	42,777	79.0	91.1	100.0	100.1	103.0	94.3
Other	8,328	94.0	98.9	101.0	101.0	102.0	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 March 2018.

# March 2018 Credit Box at a Glance

In March 2018, the median Ginnie Mae debt-to-income ratio (DTI) was 42.3 percent, considerably higher than the 37-38 percent median DTIs for Fannie Mae and Freddie Mac. The 90<sup>th</sup> percentile for Ginnie Mae was 53.9 percent, also much higher than the 47-48 percent DTIs for the GSEs. Within the Ginnie Mae market, the median FHA DTI ratio was 43.8 percent, versus 41.4 percent for VA and 36.1 percent for other lending programs.

Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	206,341	25.0	32.0	39.7	45.9	50.0	38.4
Fannie	75,171	23.0	30.0	38.0	44.0	48.0	36.8
Freddie	50,385	22.0	29.0	37.0	43.0	47.0	35.6
Ginnie	80,785	28.8	35.2	42.3	48.9	53.9	41.7

Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	143,600	23.0	30.0	38.5	45.0	49.0	37.2
Fannie	73,212	22.0	29.0	38.0	45.0	48.0	36.5
Freddie	40,529	22.0	29.0	37.0	44.0	48.0	35.7
Ginnie	29,859	26.5	34.0	42.1	48.6	53.7	40.9

All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	349,941	24.0	31.0	39.0	45.2	49.3	37.9
Fannie	148,383	23.0	30.0	38.0	45.0	48.0	36.6
Freddie	90,914	22.0	29.0	37.0	43.0	47.0	35.7
Ginnie	110,644	28.2	35.0	42.3	48.8	53.9	41.4

Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	80,785	28.8	35.2	42.3	48.9	53.9	41.7
FHA	49,522	30.1	36.9	43.9	49.9	54.5	42.9
VA	23,386	27.7	34.5	41.8	48.5	53.7	41.2
Other	7,877	26.0	31.2	36.2	40.2	43.2	35.3

Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	29,859	26.5	34.0	42.1	48.6	53.7	40.9
FHA	15,889	28.0	35.5	43.3	49.4	54.1	41.9
VA	13,724	25.3	32.5	40.8	47.6	53.1	39.9
Other	246	17.8	24.3	31.8	38.9	46.1	32.3

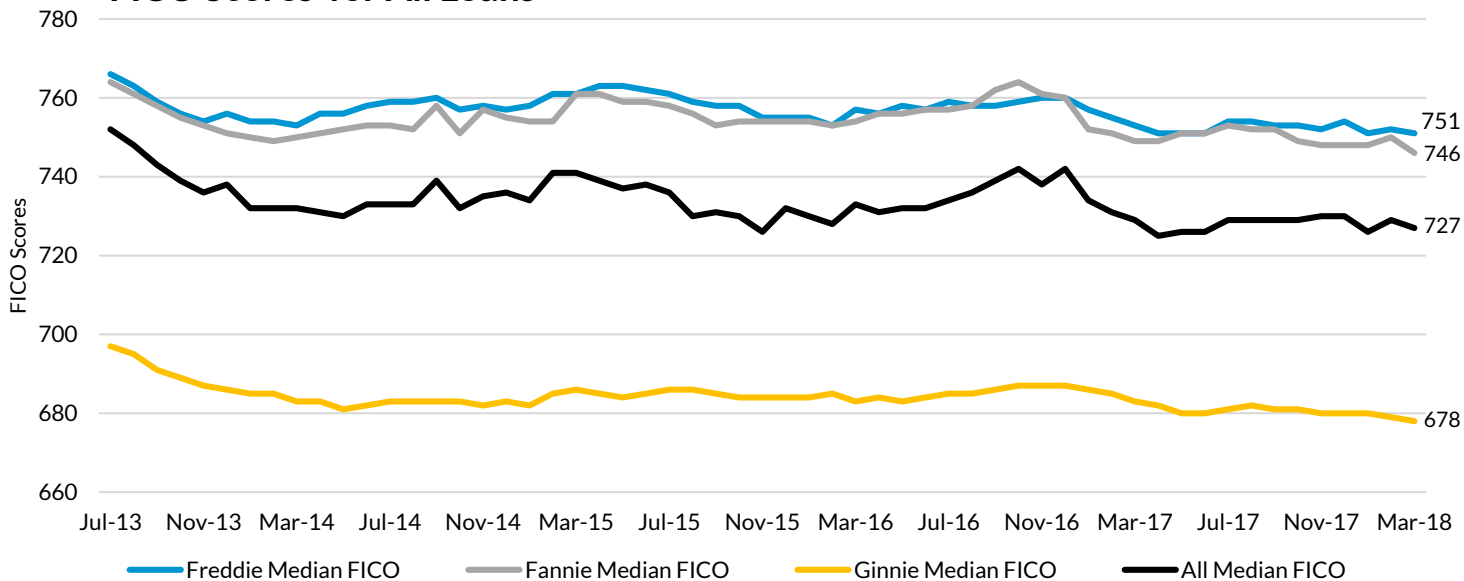
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	110,644	28.2	35.0	42.3	48.8	53.9	41.4
FHA	65,411	29.6	36.6	43.8	49.8	54.4	42.6
VA	37,110	26.7	33.8	41.4	48.1	53.5	40.7
Other	8,123	25.7	31.0	36.1	40.2	43.2	35.2

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. Data as of March 2018.

# Credit Box: Historical

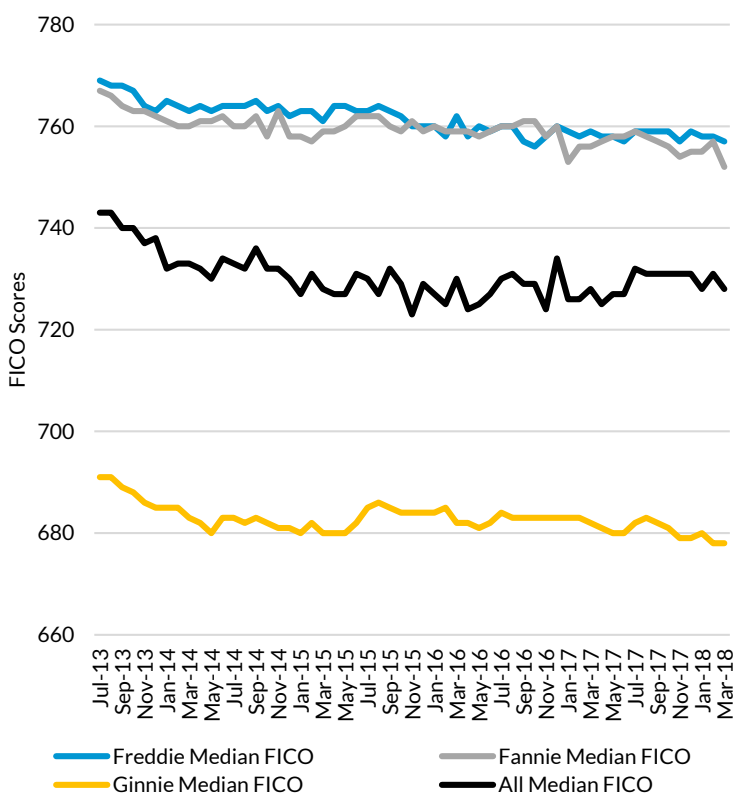
The median FICO score for all agency MBS originated in March now stands at 727, slightly lower than last month. The figures clearly show that the median FICO score for Ginnie Mae borrowers has always been considerably lower than for GSE borrowers. The difference between Ginnie Mae and GSE borrowers is wider in purchase loans than in refi loans.

## FICO Scores for All Loans



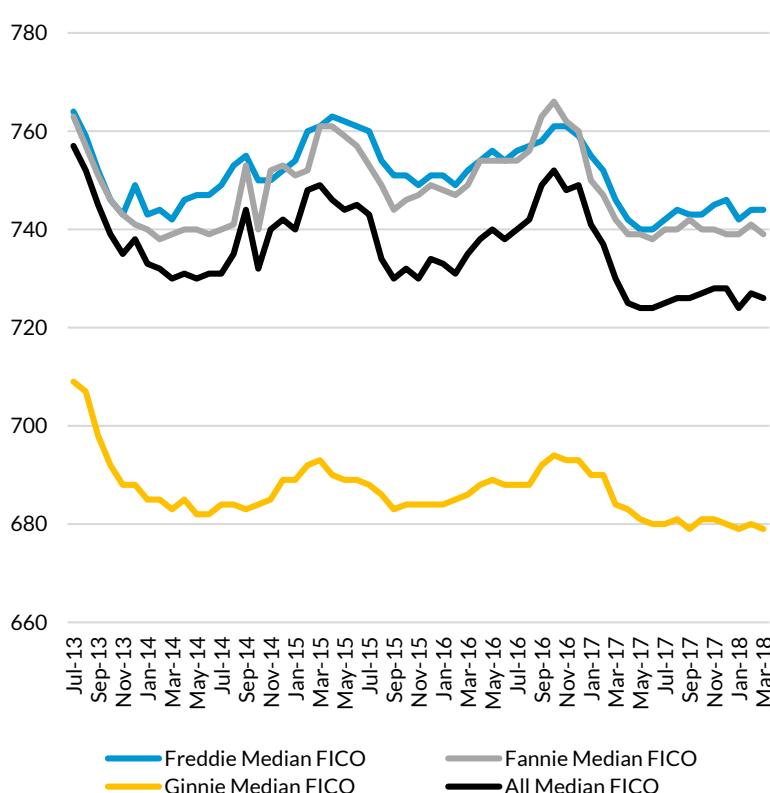
Sources: eMBS and Urban Institute. Note: Data as of March 2018.

## FICO Scores for Purchase Loans



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

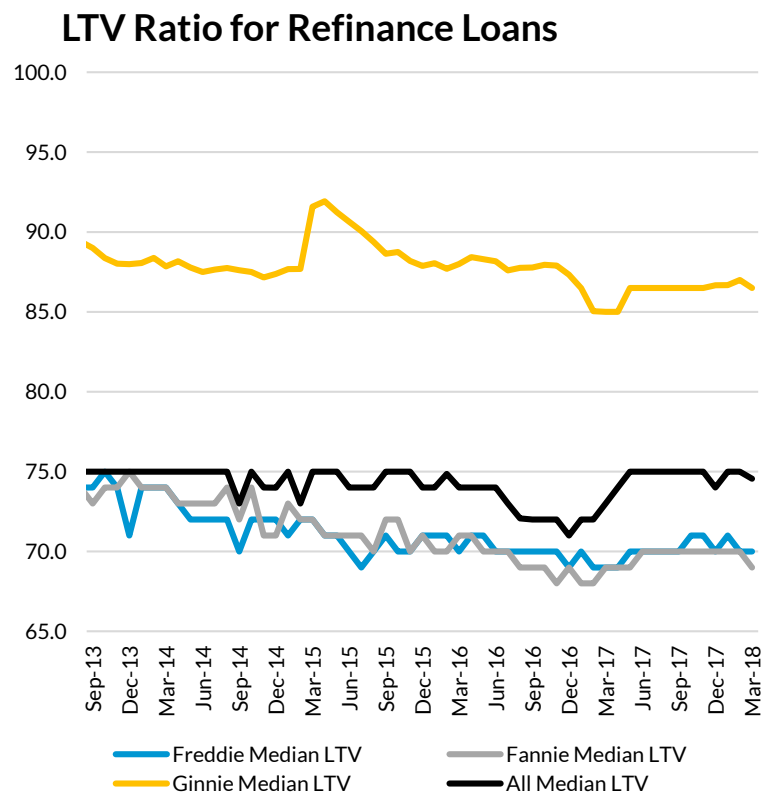
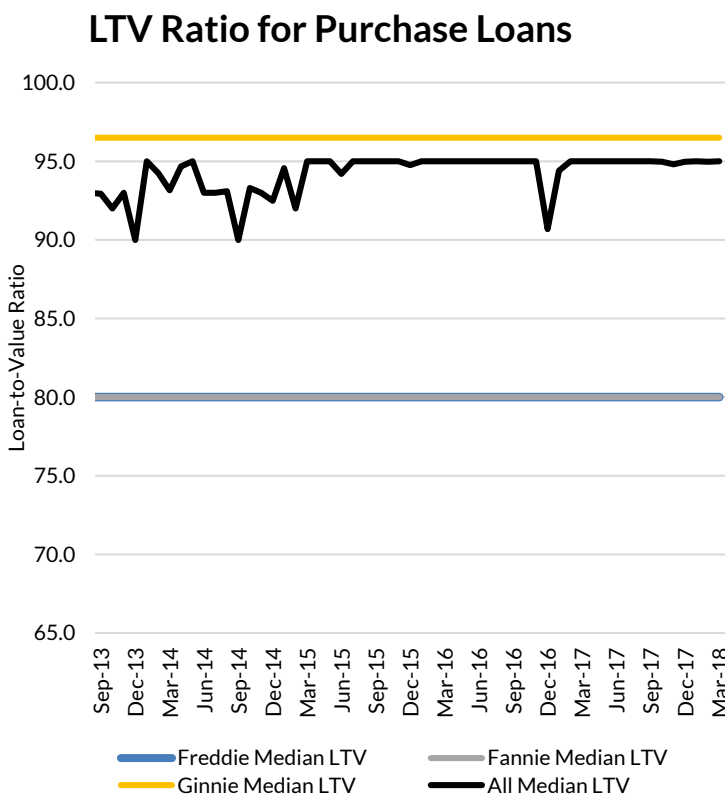
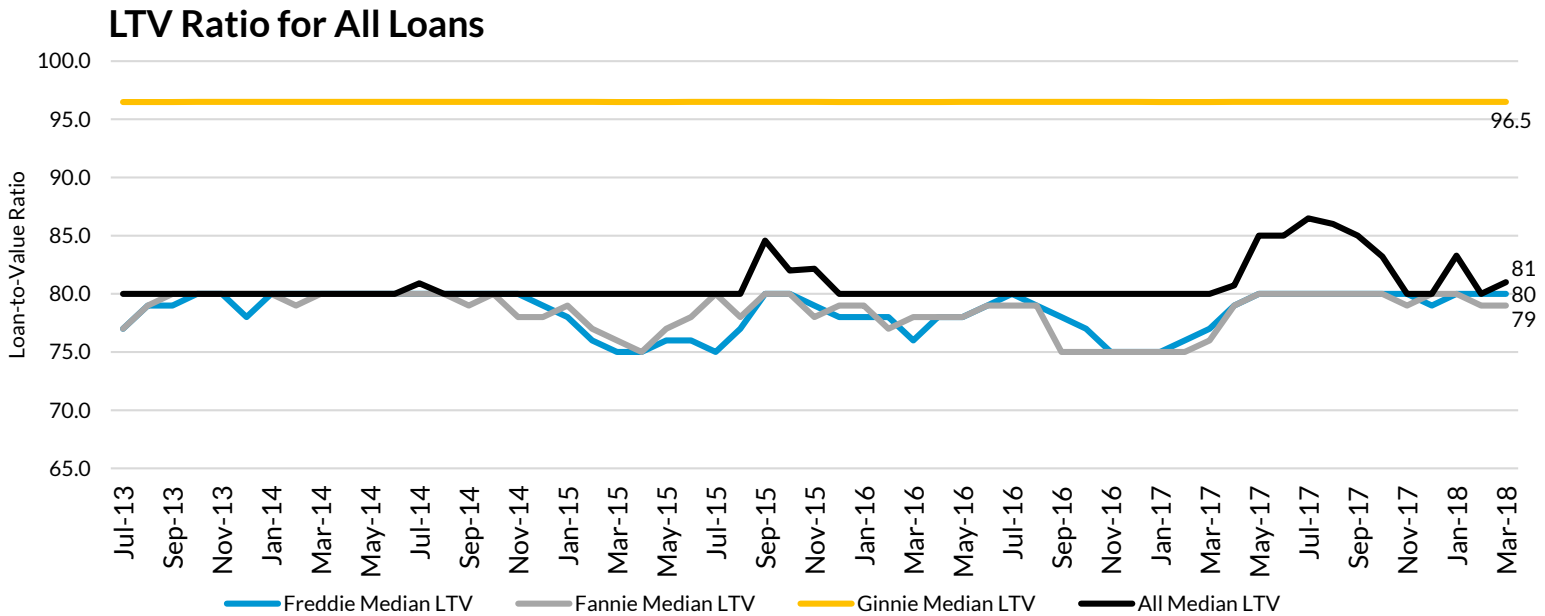
## FICO Scores for Refinance Loans



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

# Credit Box: Historical

Median LTVs for Ginnie Mae loans have historically been at 96.5 percent, much higher than the 75-81 percent LTVs for the GSEs. Through time, both Ginnie Mae and GSE refinances have LTVs about 6-10 points lower than their purchase counterparts.

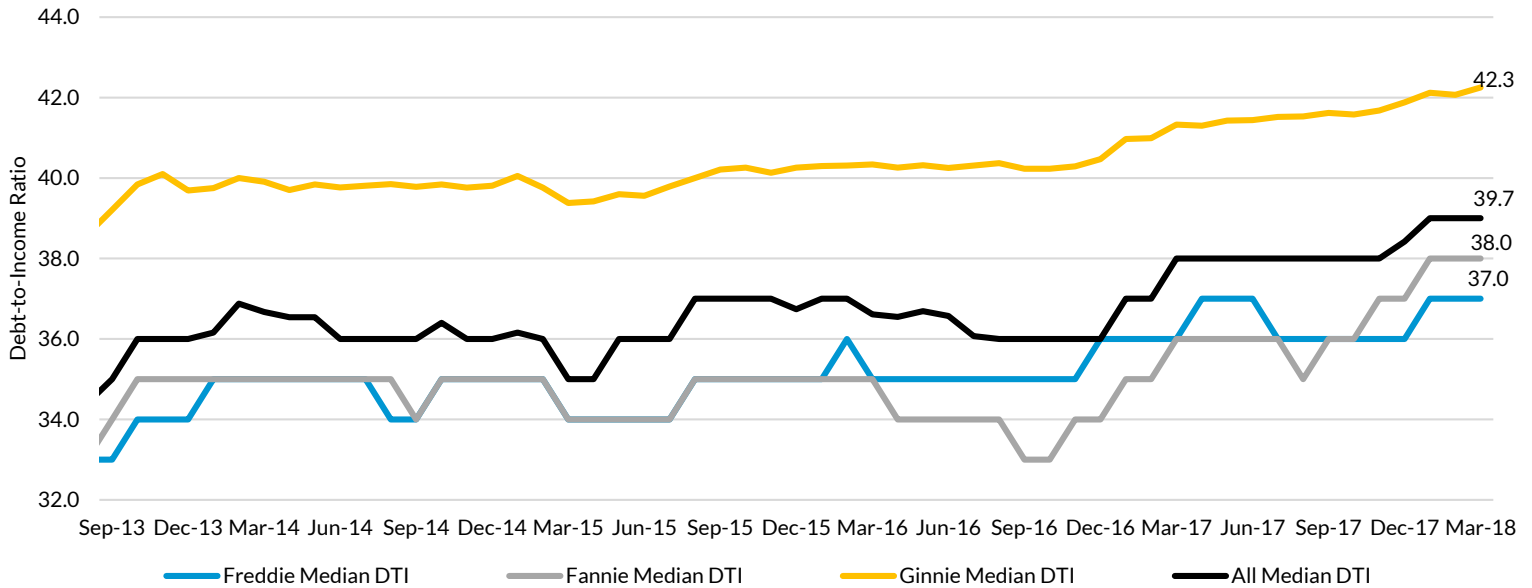


Sources: eMBS and Urban Institute. Note: In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting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

# Credit Box: Historical

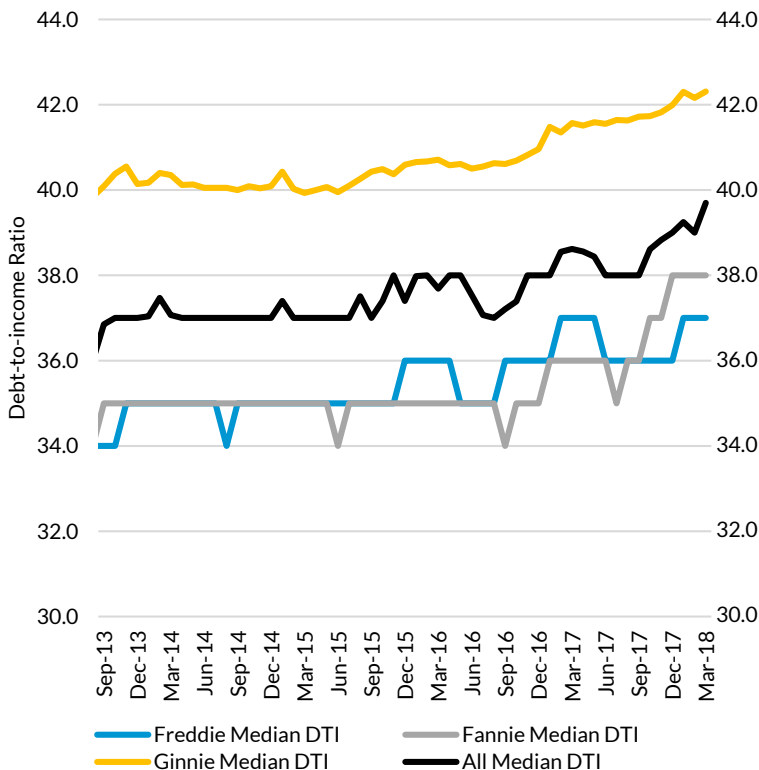
Median debt-to-income ratios on Ginnie Mae loans have historically been in the low 40s, considerably higher than that of the GSEs. DTIs have been inching up over the past year for both Ginnie Mae and GSE loans, with the movement more pronounced for Ginnie Mae loans. Increases in DTIs are very typical during periods in which interest rates are rising. Rising interest rates are usually accompanied by rising home prices, leaving borrowers with sharply higher monthly payments. This is usually accompanied by sharp decreases in refinancing activity, making lenders more apt to work a bit harder to get a loan approved for a marginal borrower.

## DTI Ratio for All Loans



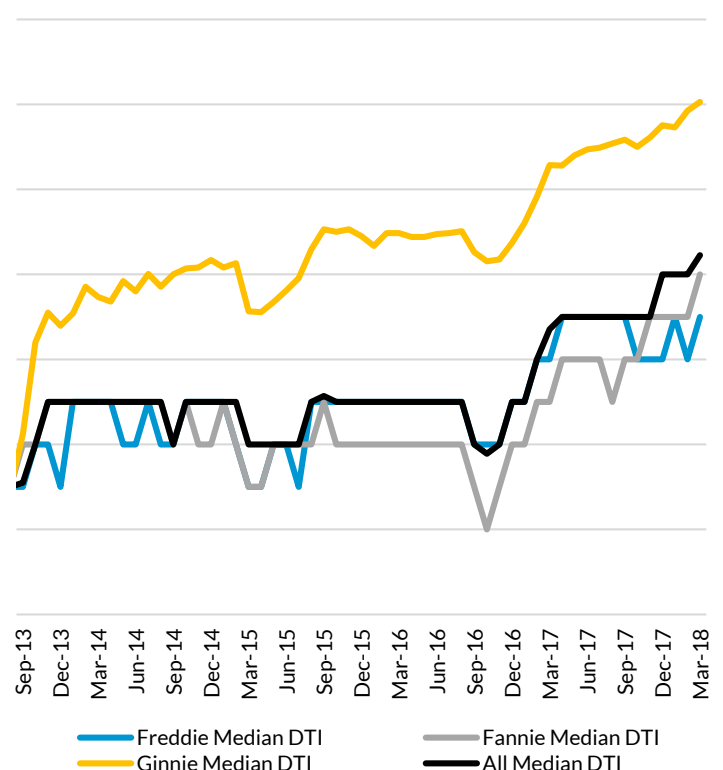
Sources: eMBS and Urban Institute. Note: Data as of March 2018.

## DTI Ratio for Purchase Loans



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

## DTI Ratio for Refinance Loans



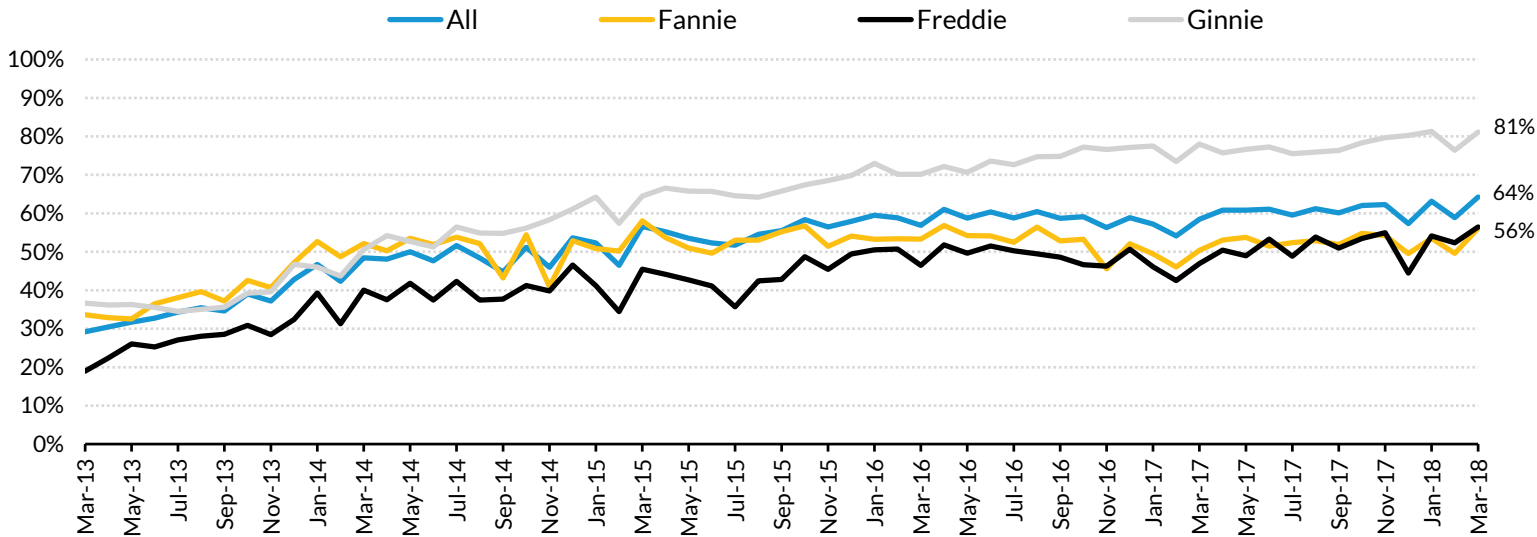
Sources: eMBS and Urban Institute. Note: Data as of March 2018.



# Non-bank Originators

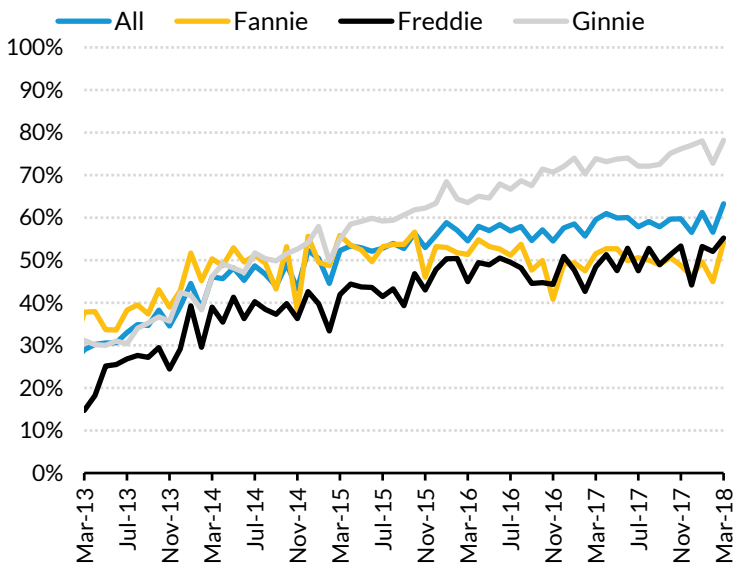
The nonbank origination share has been increasing since 2013. After dipping last month, the Ginnie Mae nonbank originator share rose back up to 81.1 percent, a historical high previously achieved in January 2018. Nonbank originator shares for Fannie Mae and Freddie Mac each reached new historical highs, both now standing around 56 percent. 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

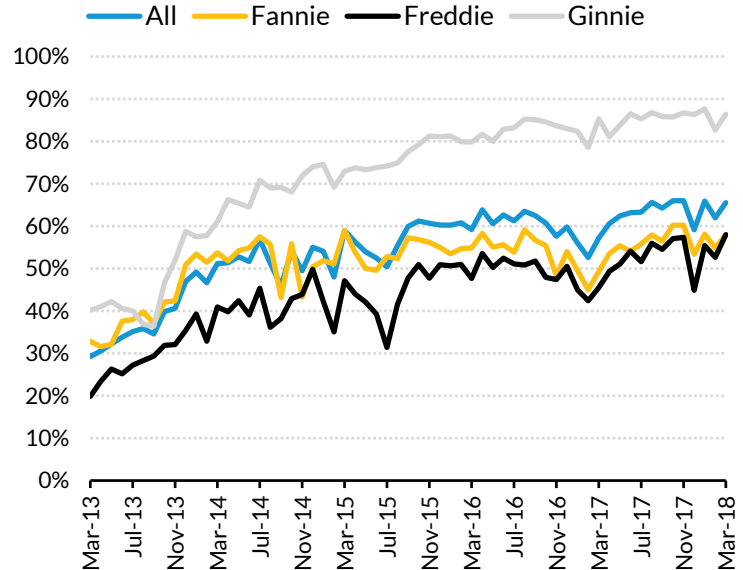


Sources: eMBS and Urban Institute  
 Note: Data as of March 2018.

## Nonbank Origination Share: Purchase Loans



## Nonbank Origination Share: Refinance Loans

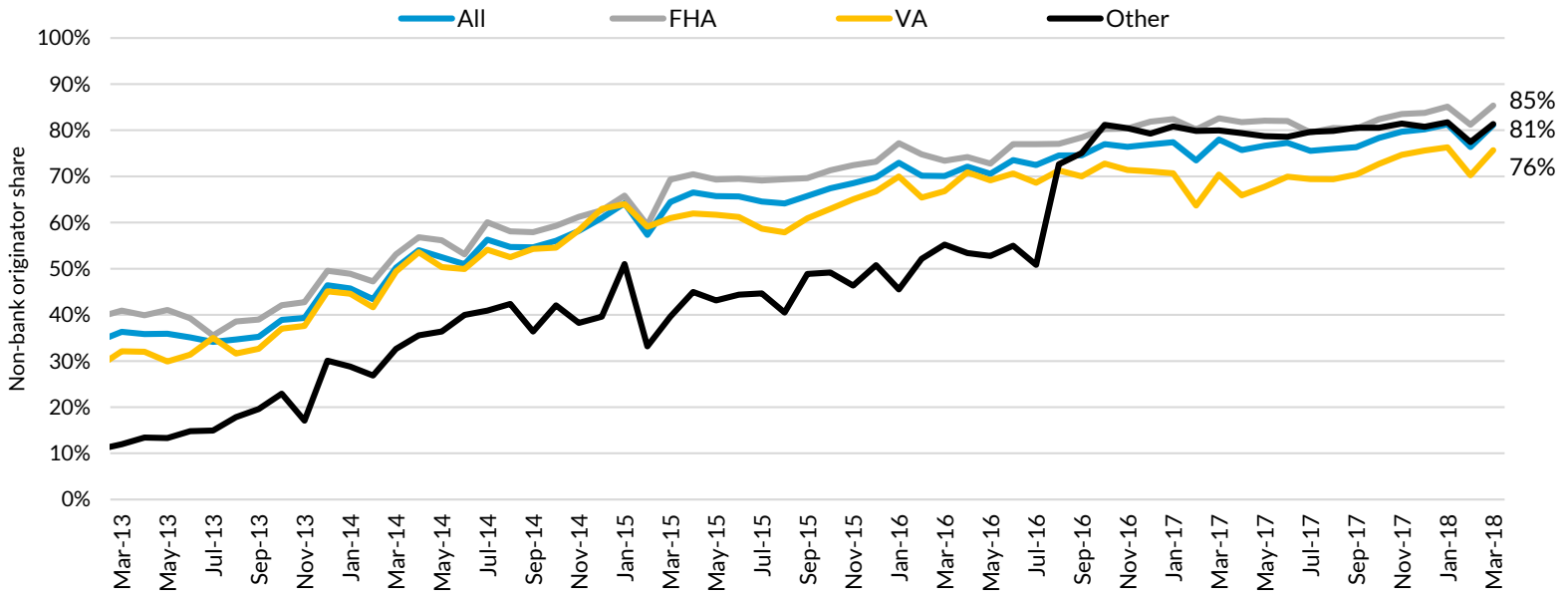


Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of March 2018.

# Ginnie Mae Non-bank Originators

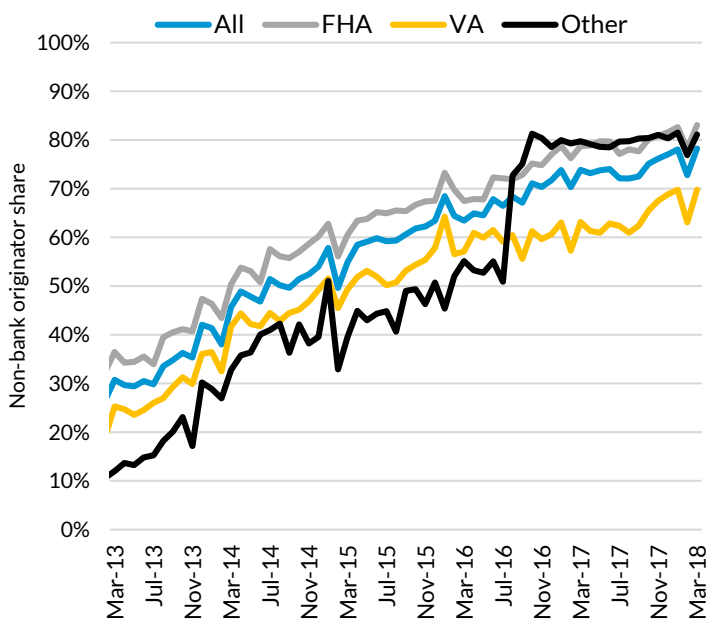
In March 2018, Ginnie Mae's nonbank share increased to 81 percent. Nonbank originator shares for FHA, VA, and Other issuance all increased to 85, 76, and 81 percent, respectively. The nonbank originator share is higher for refinance loans than for purchase loans across all channels.

## Ginnie Mae Non-bank Originator Share: All Loans

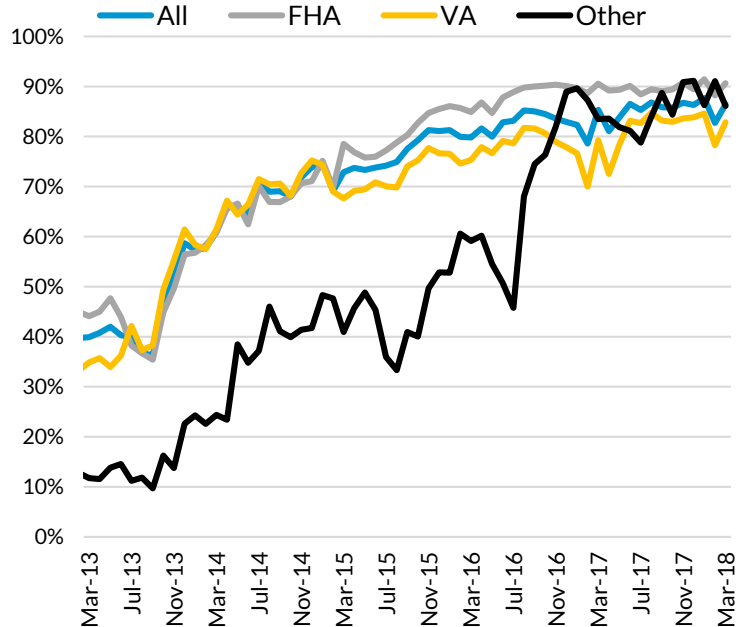


Sources: eMBS and Urban Institute  
 Note: Data as of March 2018.

## Ginnie Mae Non-bank Share: Purchase Loans



## Ginnie Mae Non-bank Share: Refinance Loans

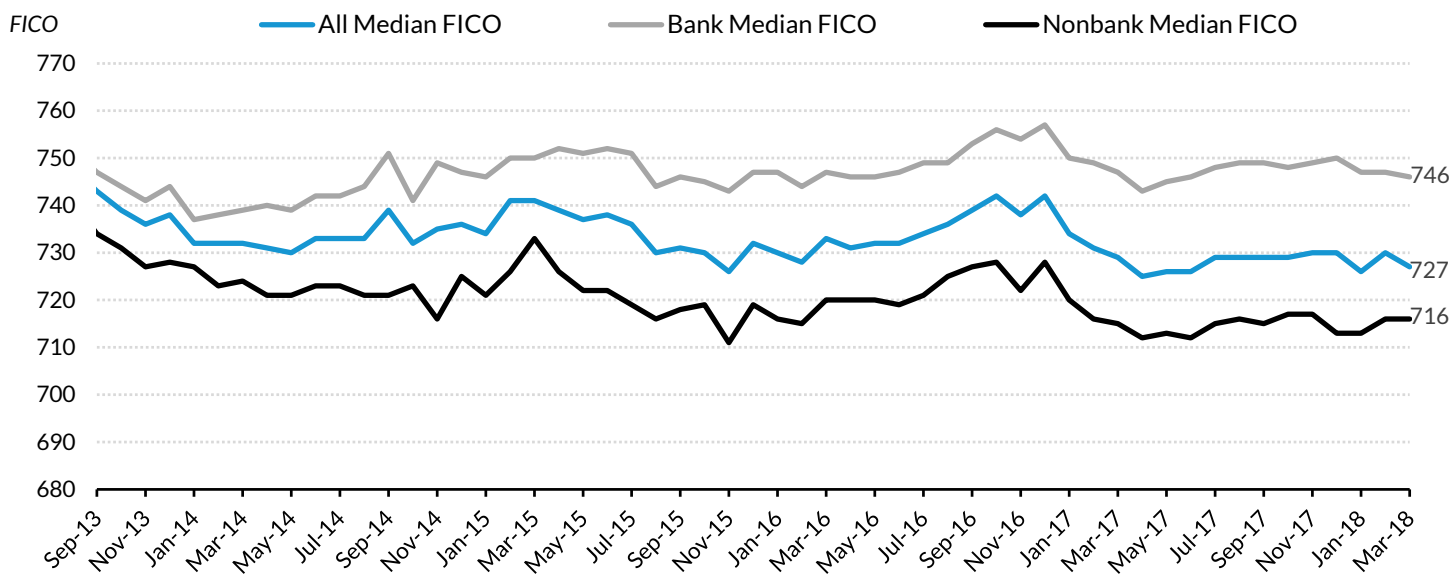


Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of March 2018.

# Nonbank Credit Box

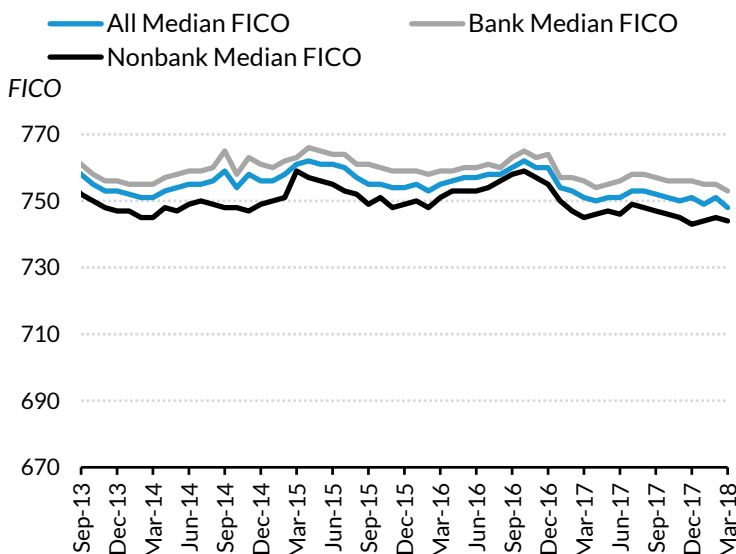
Nonbank originators have played a key role in opening up access to credit. The median GSE and the median Ginnie Mae FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, both bank and nonbank FICOs have declined since 2014 with a further relaxation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



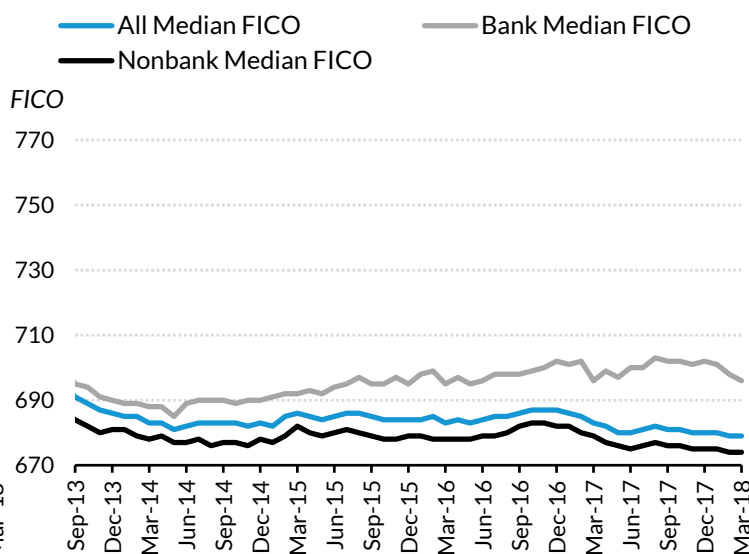
Sources: eMBS and Urban Institute. Note: Data as of March 2018.

## GSE FICO: Bank vs. Nonbank



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

## Ginnie Mae FICO: Bank vs. Nonbank

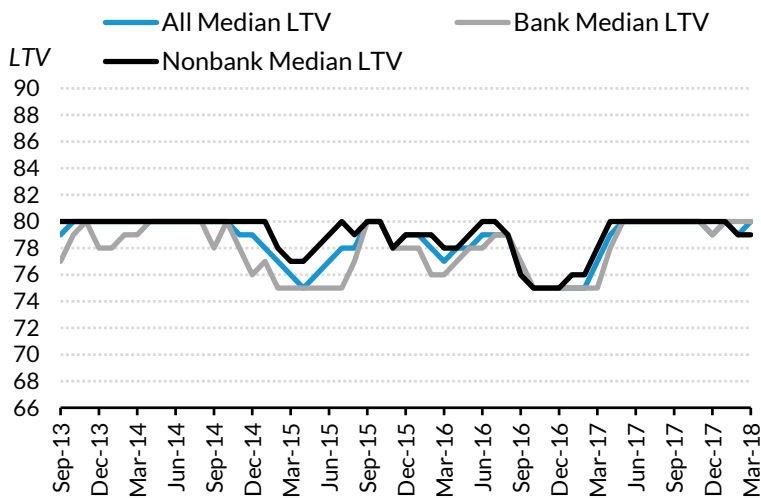


Sources: eMBS and Urban Institute. Note: Data as of March 2018.

# Nonbank Credit Box

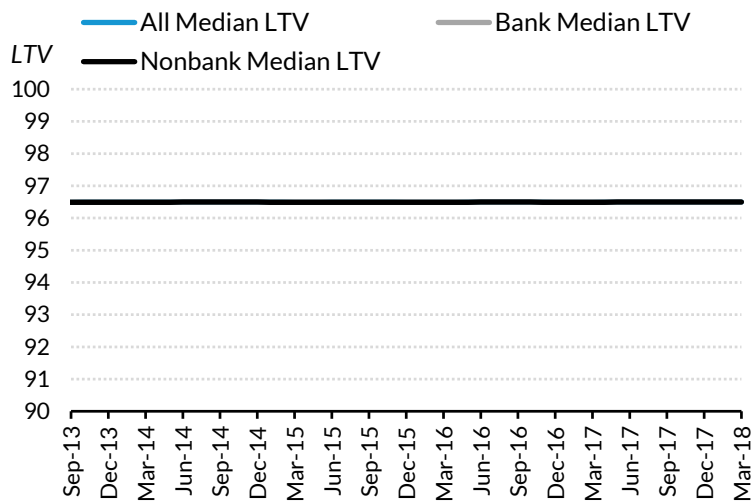
The median LTV ratios for loans originated by nonbanks are similar to that of their bank counterparts, while the median DTIs for nonbank loans are higher, indicating that nonbanks are more accommodating in this as well as in the FICO dimension. Note that since early 2017, there has been a measurable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

## GSE LTV: Bank vs. Nonbank



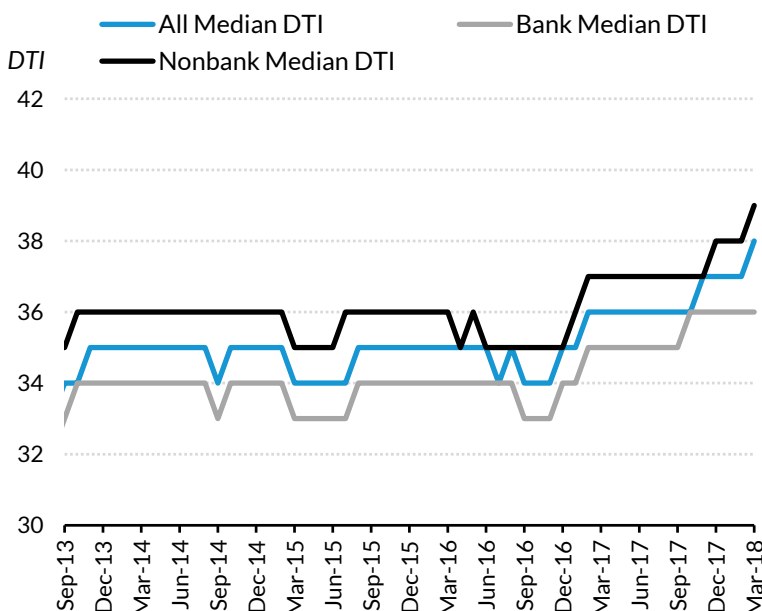
Sources: eMBS and Urban Institute. Note: Data as of March 2018.

## Ginnie Mae LTV: Bank vs. Nonbank



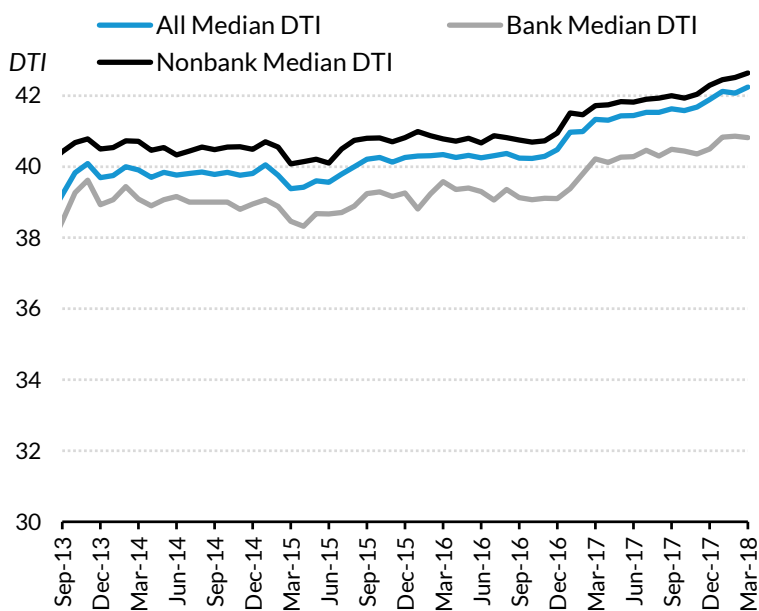
Sources: eMBS and Urban Institute. Note: Data as of March 2018.

## GSE DTI: Bank vs. Nonbank



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

## Ginnie Mae DTI: Bank vs. Nonbank

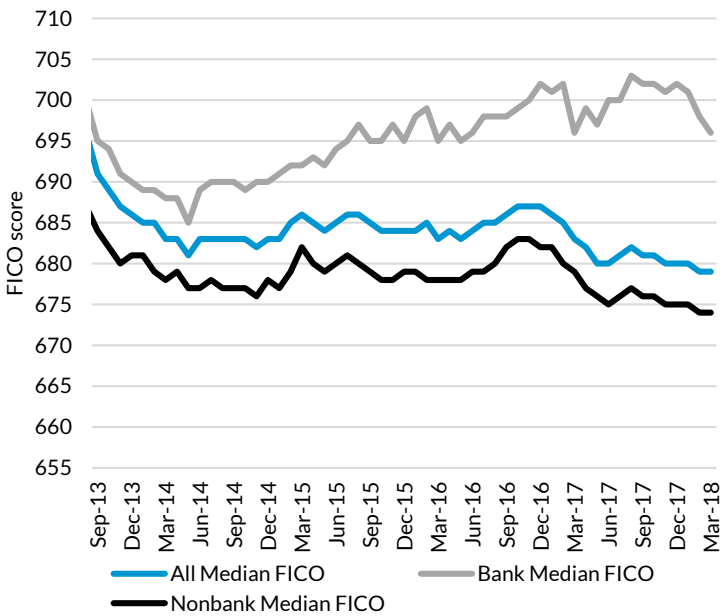


Sources: eMBS and Urban Institute. Note: Data as of March 2018.

# Ginnie Mae Nonbank Originators: Credit Box

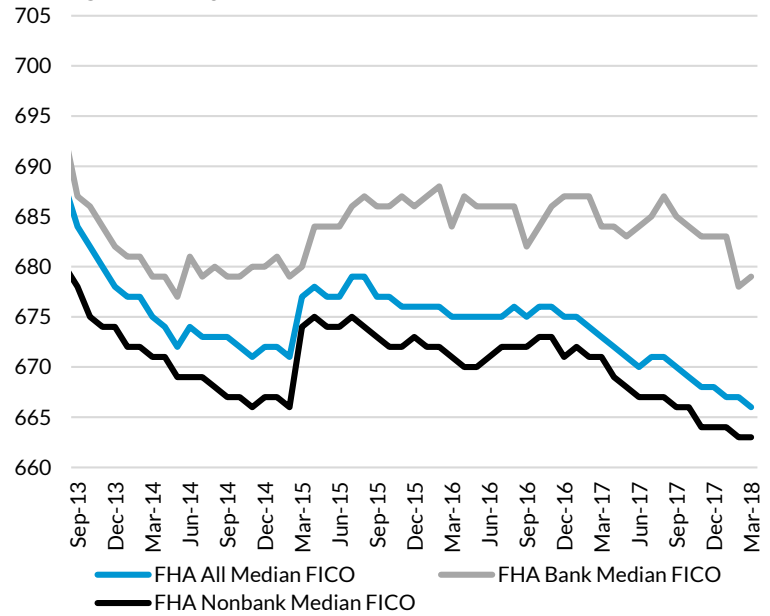
The FICO scores for Ginnie Mae bank originators declined in March 2018, while the FICO scores for Ginnie Mae nonbank originators remained flat. The spread in the FICO scores between banks and non-banks narrowed slightly, but remains close to their widest level since the data became available in 2013. 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



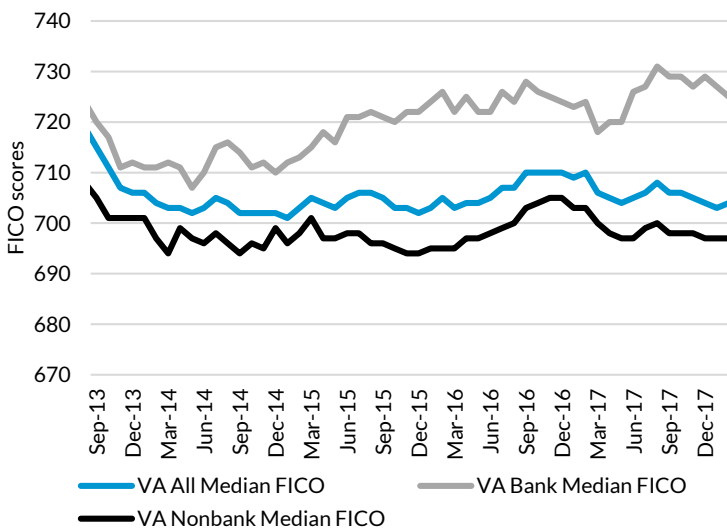
Sources: eMBS and Urban Institute Note: Data as of March 2018

### Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



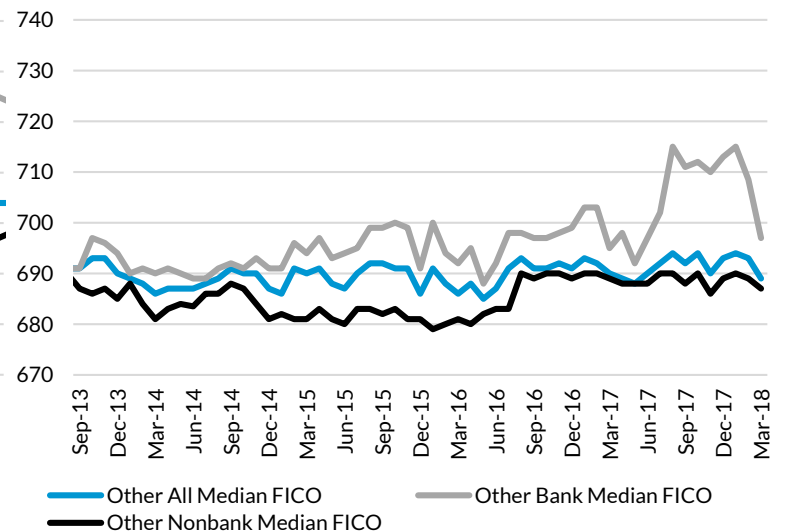
Sources: eMBS and Urban Institute Note: Data as of March 2018

### Ginnie Mae VA FICO Scores: Bank vs. Nonbank



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

### Ginnie Mae Other FICO Scores: Bank vs. Nonbank

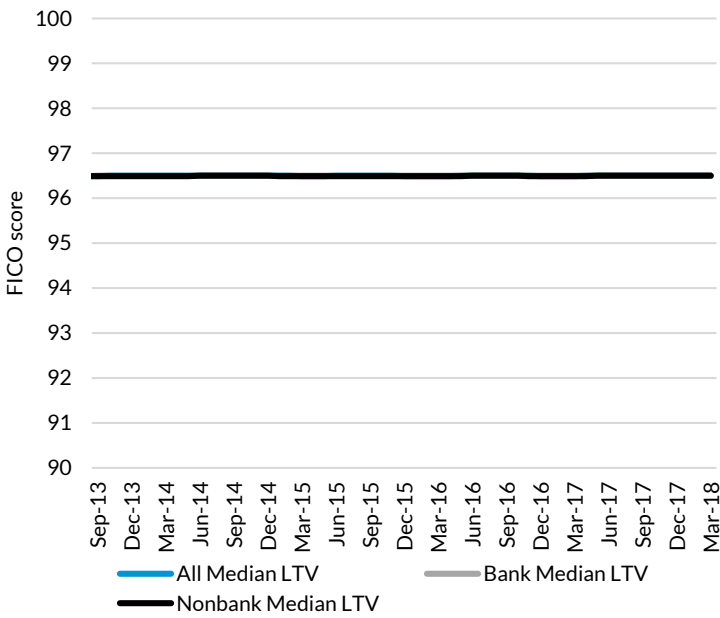


Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of March 2018

# Ginnie Mae Nonbank Originators: Credit Box

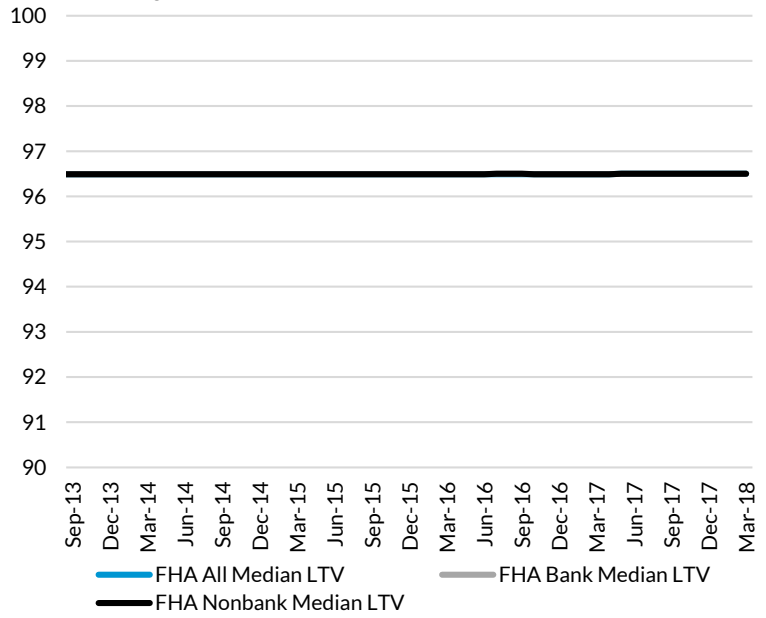
An analysis of the loans backing Ginnie Mae origination indicates that there are virtually no difference in median LTV ratios between bank originated loans and non-bank originated loans.

### Ginnie Mae LTV: Bank vs. Nonbank



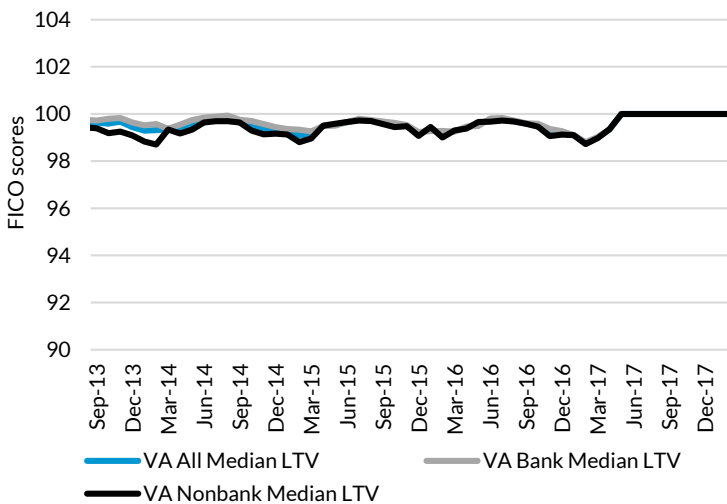
Sources: eMBS and Urban Institute Note: Data as of March 2018

### Ginnie Mae FHA LTV: Bank vs. Nonbank



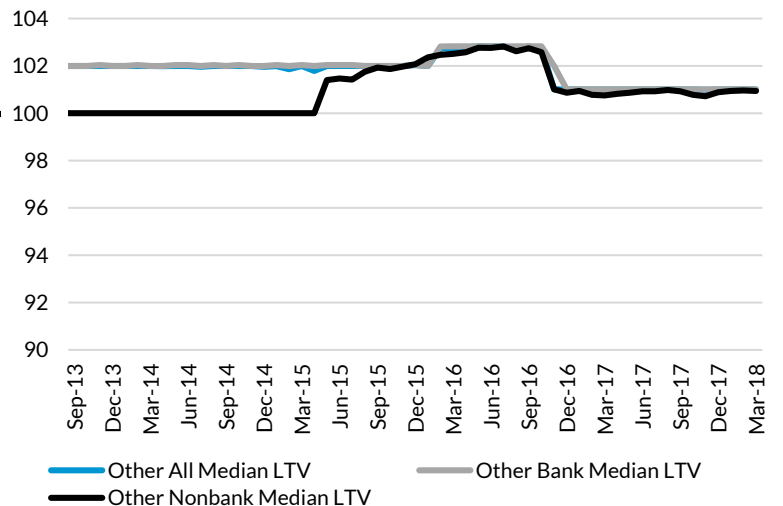
Sources: eMBS and Urban Institute Note: Data as of March 2018

### Ginnie Mae VA LTV: Bank vs. Nonbank



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

### Ginnie Mae Other LTV: Bank vs. Nonbank

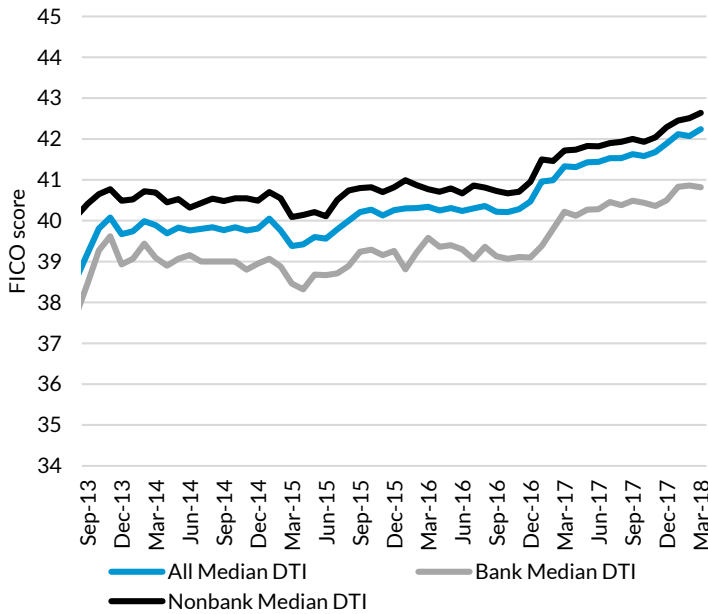


Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of March 2018.

# Ginnie Mae Nonbank Originators: Credit Box

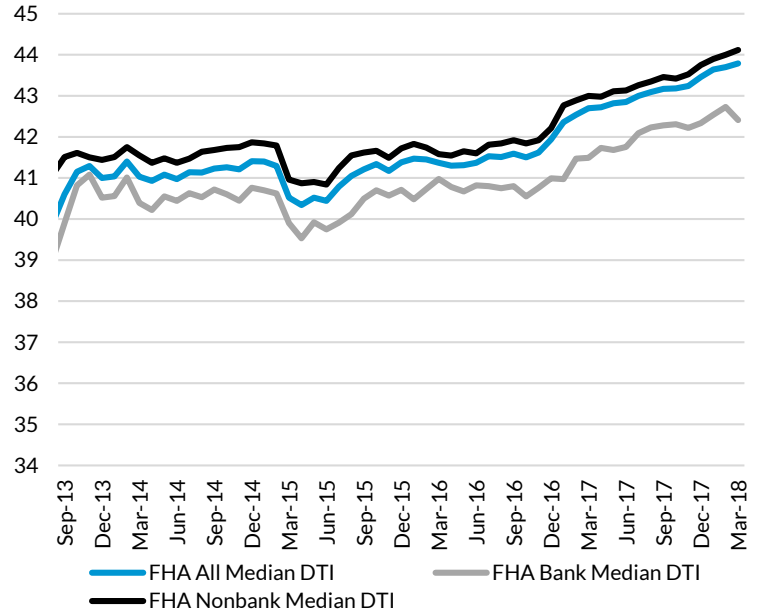
An analysis of borrowers' DTI ratios for bank versus non-bank originators indicates that the former are more conservative. The DTIs for FHA and VA loans experienced notable increases since early 2017 for both bank and nonbank originations, while the Other originations' DTIs stayed relatively flat. Rising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

### Ginnie Mae DTI: Bank vs. Nonbank



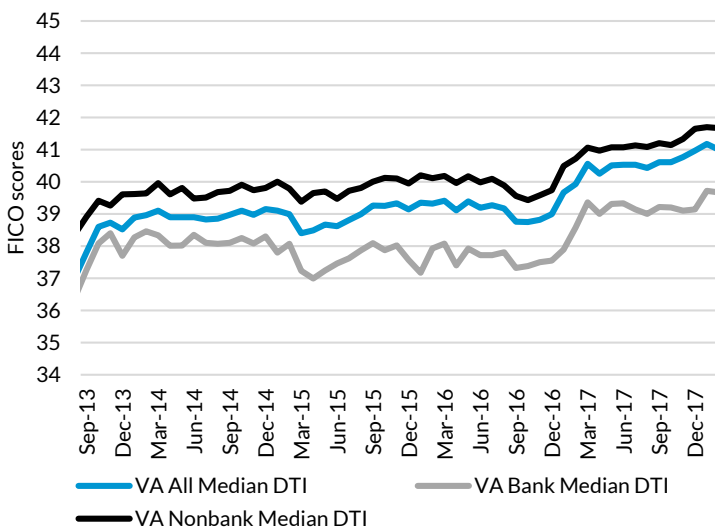
Sources: eMBS and Urban Institute Note: Data as of March 2018

### Ginnie Mae FHA DTI: Bank vs. Nonbank



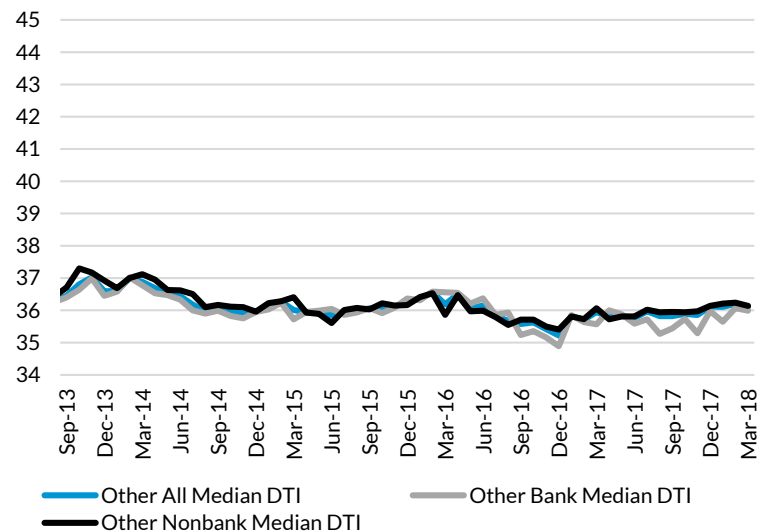
Sources: eMBS and Urban Institute Note: Data as of March 2018

### Ginnie Mae VA DTI: Bank vs. Nonbank



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

### Ginnie Mae Other DTI: Bank vs. Nonbank



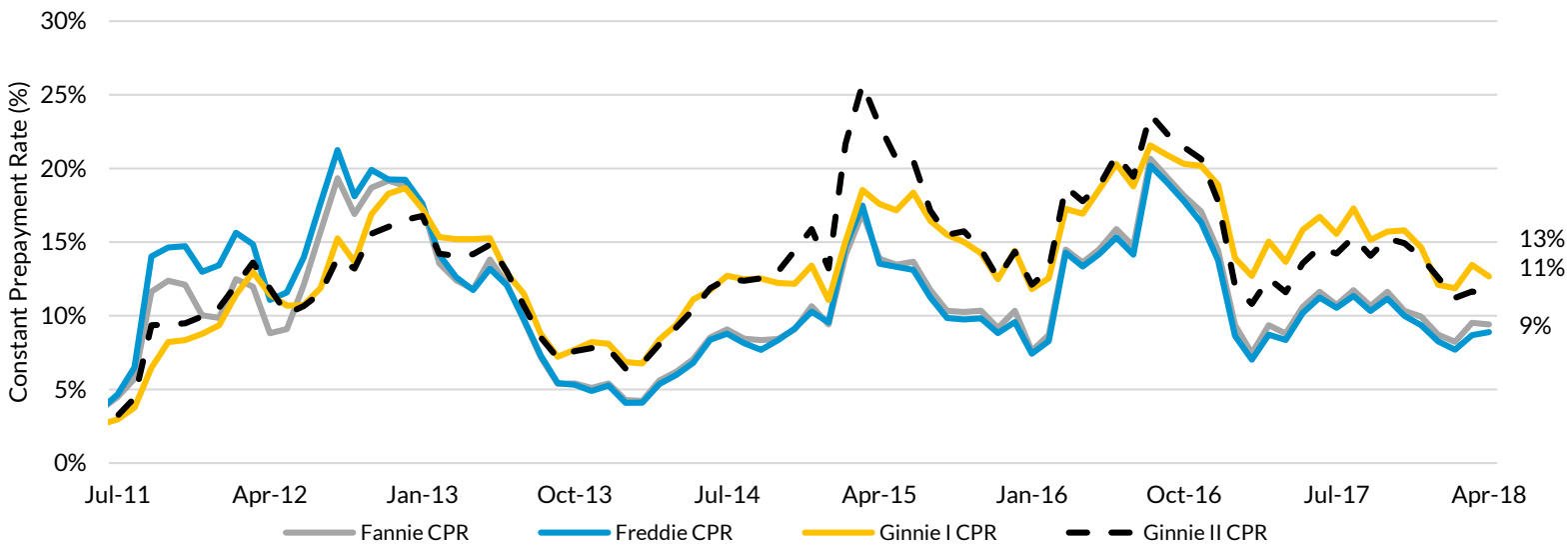
Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of March 2018



# Prepayments

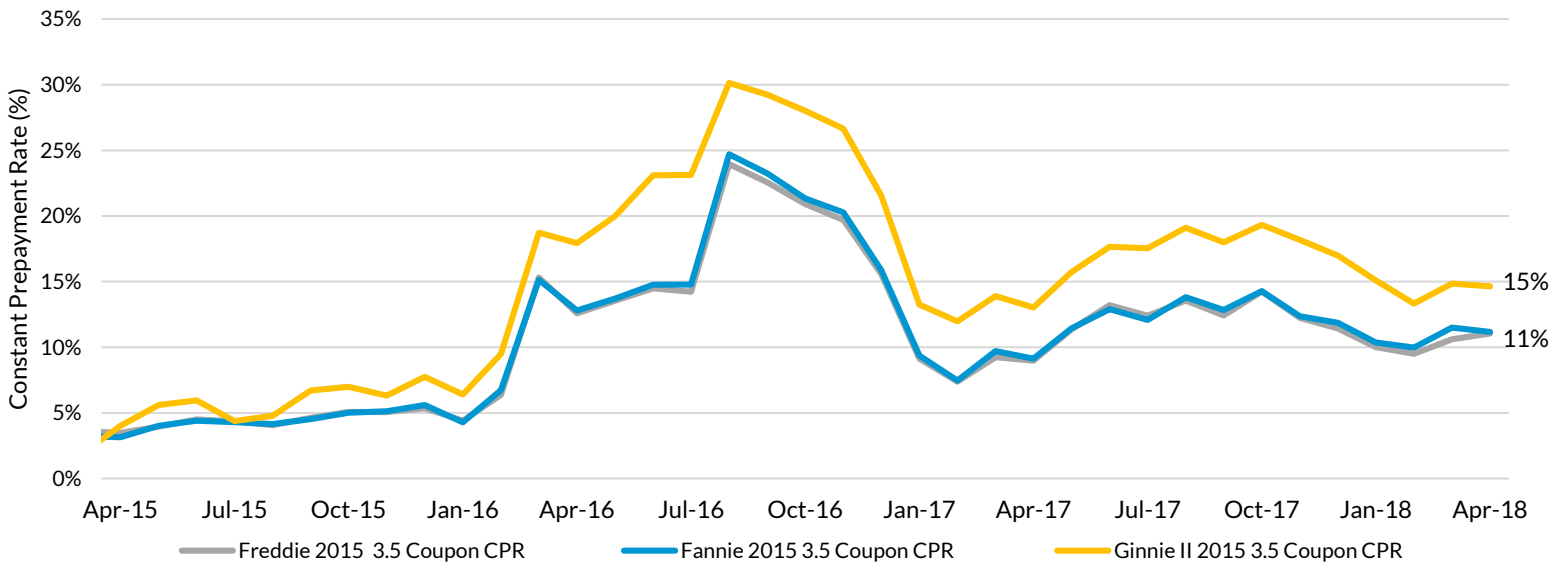
Prepayments on Ginnie Mae securities were lower than on GSE securities from 2011 through mid-2013, but have been higher since. These differences hold across all coupon buckets. The differences are especially pronounced on more recent production. These increased Ginnie speeds reflect the growing share 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 prepayments in the coming months to stay muted.

## Aggregate Prepayments



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

## 2015 Issued 3.5 Coupon CPR

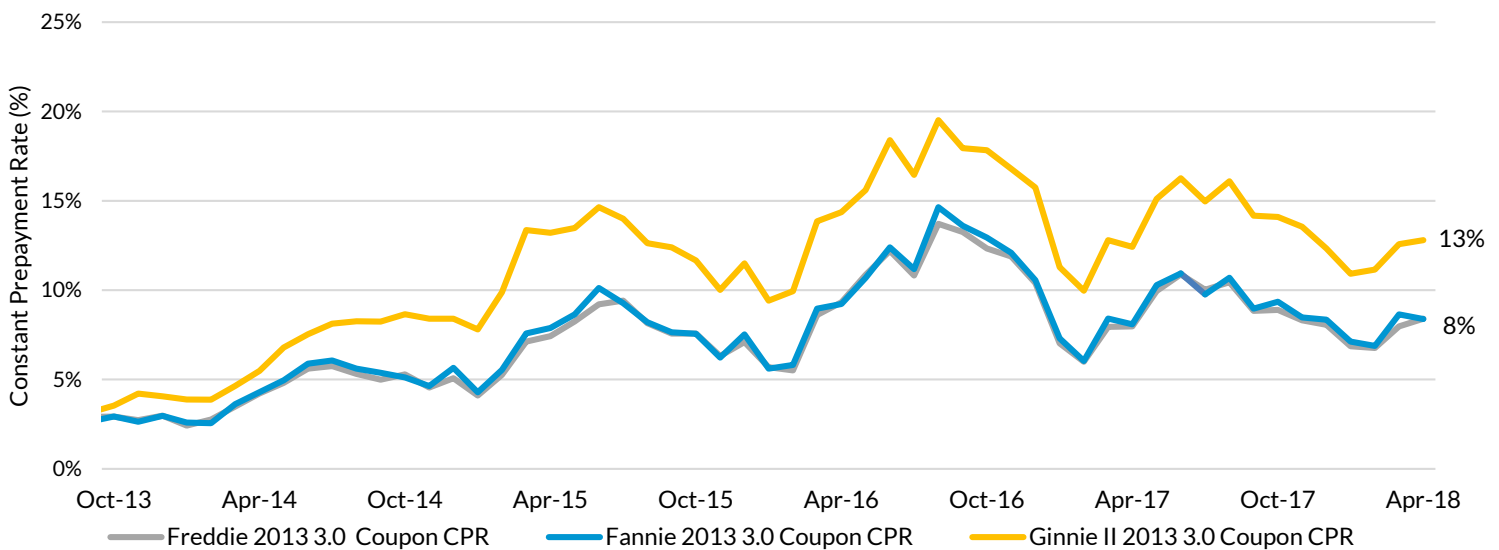


Sources: Credit Suisse and Urban Institute. Note: Data as of April 2018.

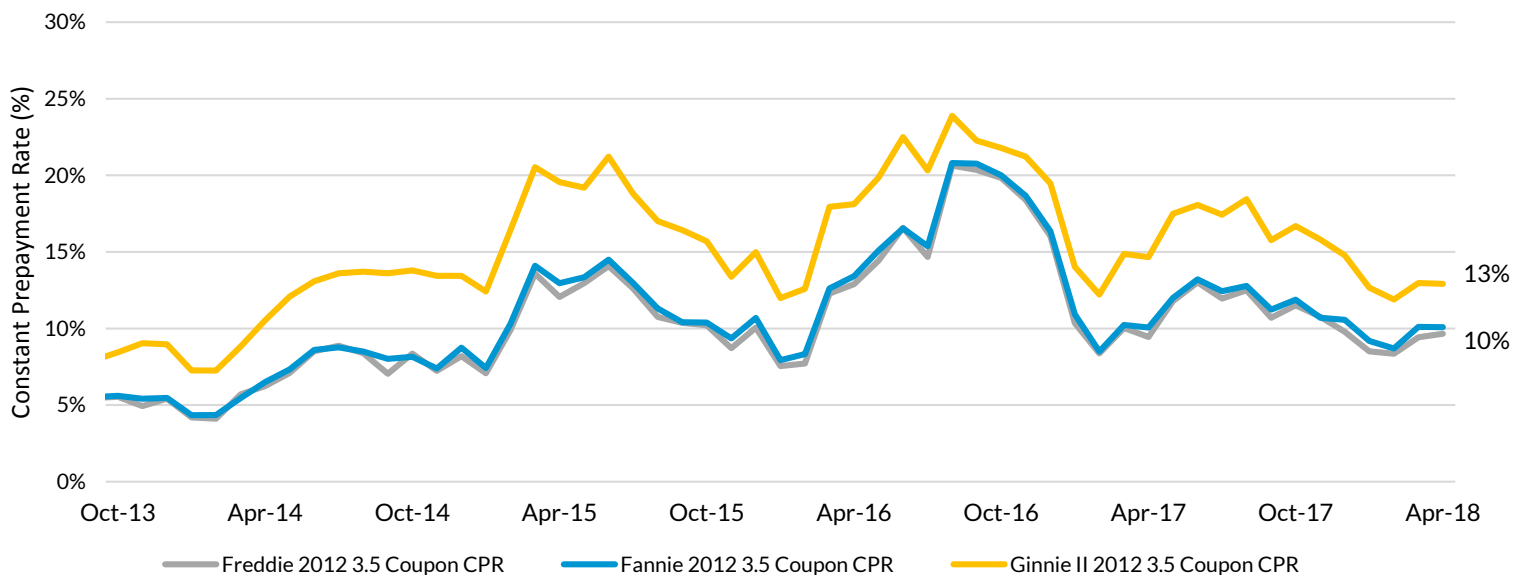
# Prepayments

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 prepayments in the coming months to stay muted.

## 2013 Issued 3.0 Coupon CPR



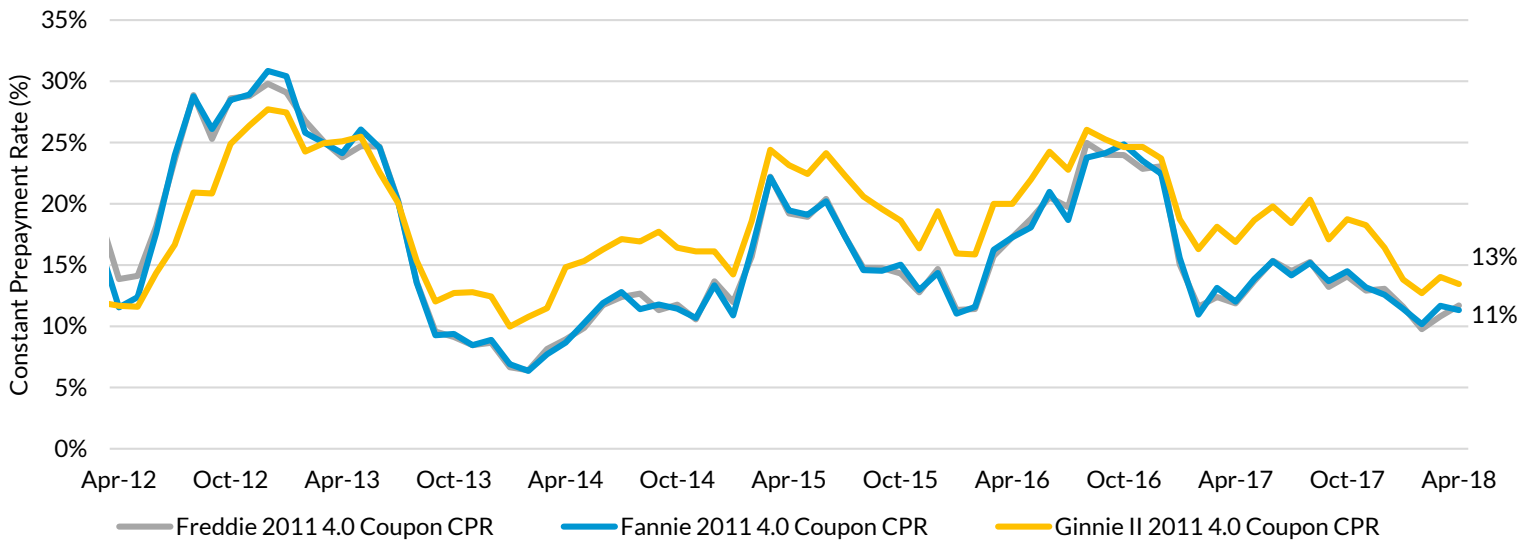
## 2012 Issued 3.5 Coupon CPR



# Prepayments

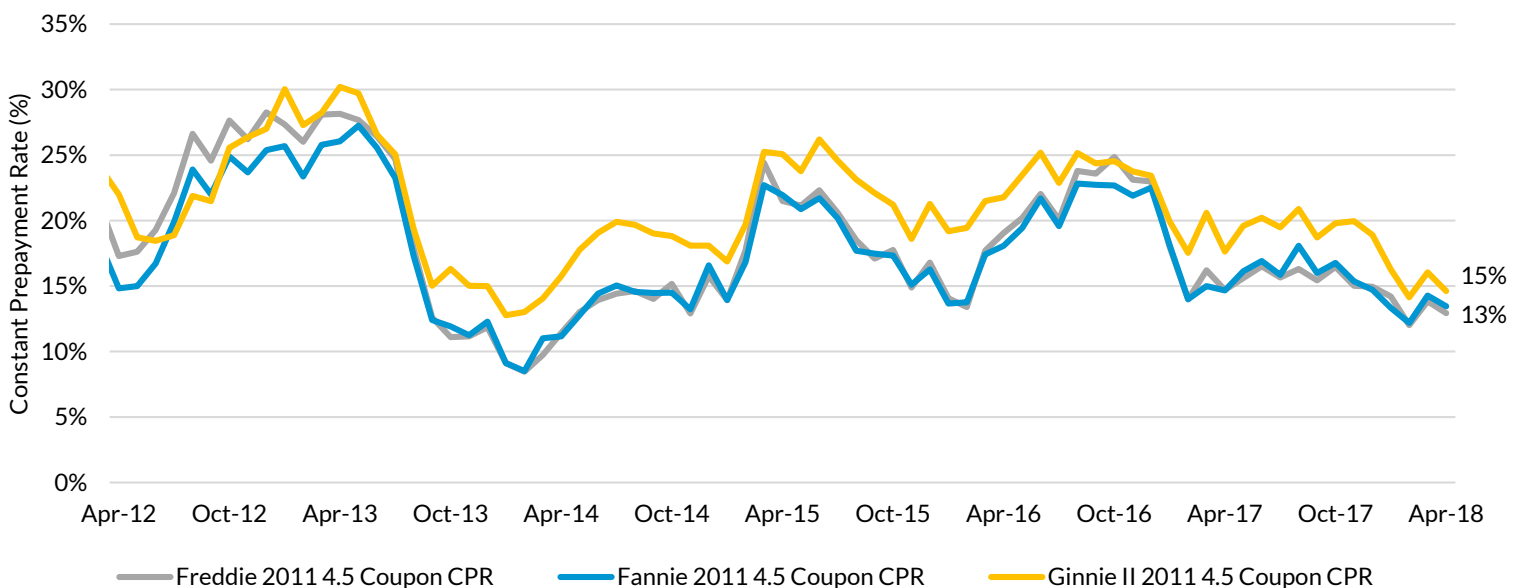
The 2011 Ginnie II 4.0s and 4.5s have been prepaying faster than their conventional counterparts since late 2013. Faster VA mortgage prepays plus simplifications to the FHA streamlined programs in 2013 are likely contributors to the faster speeds. However, as mortgage rates rose sharply since November 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 prepayments in the coming months to stay muted.

## 2011 Issued 4.0 Coupon CPR



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

## 2011 Issued 4.5 Coupon CPR



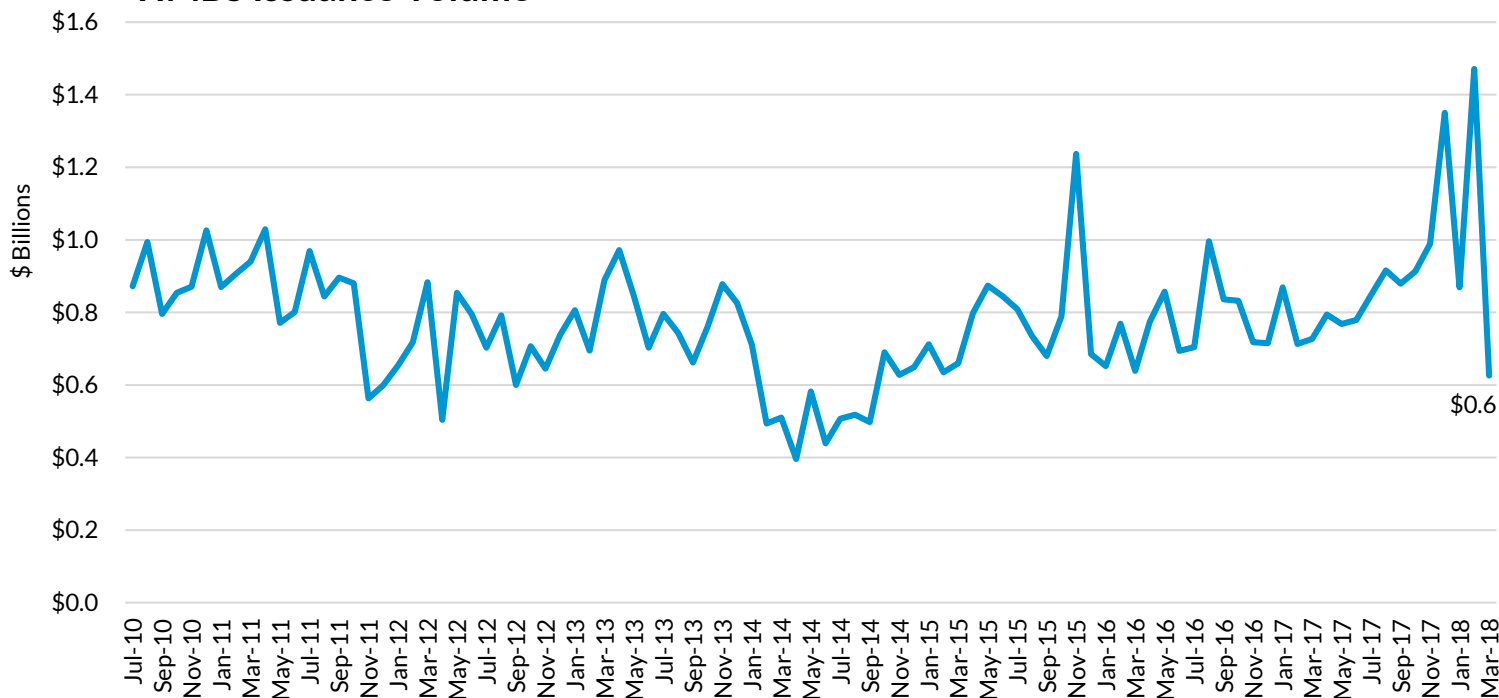
Sources: Credit Suisse and Urban Institute. Note: Data as of April 2018.

# Other Ginnie Mae Programs

## Reverse Mortgage Volumes

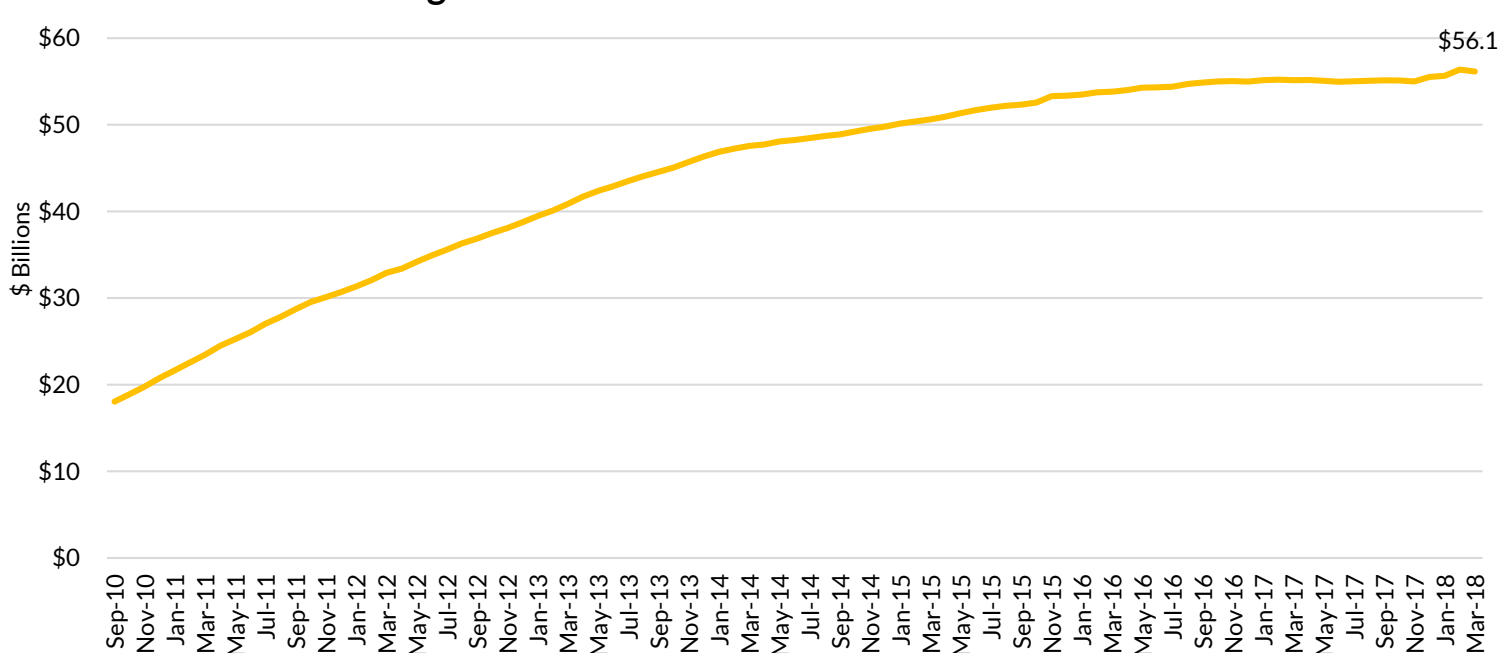
Ginnie Mae reverse mortgage issuance declined sharply, with issuance at \$0.6 billion in March. Outstanding securities totaled \$56.1 billion in March. The March 2018 decline in issuances reflects the new, lower HECM Principal Limit Factors that went into effect in October 2017, resulting in lower origination volumes. The issuance spikes in January and February 2018 were likely caused by borrowers rushing to close their HECM loans prior to the new rules taking effect.

### HMBS Issuance Volume



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

### HMBS Outstanding



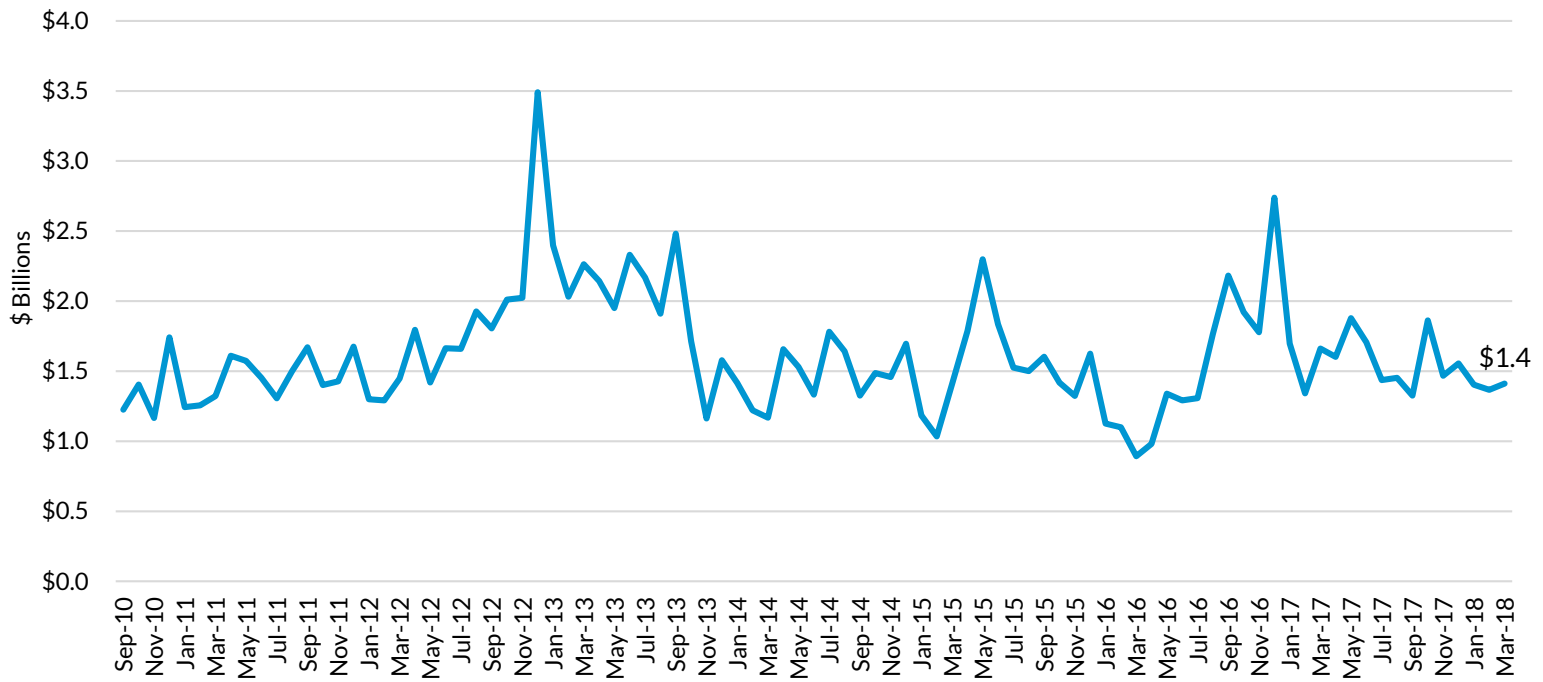
Sources: Ginnie Mae and Urban Institute. Note: Data as of March 2018.

# Other Ginnie Mae Programs

## Multifamily Market

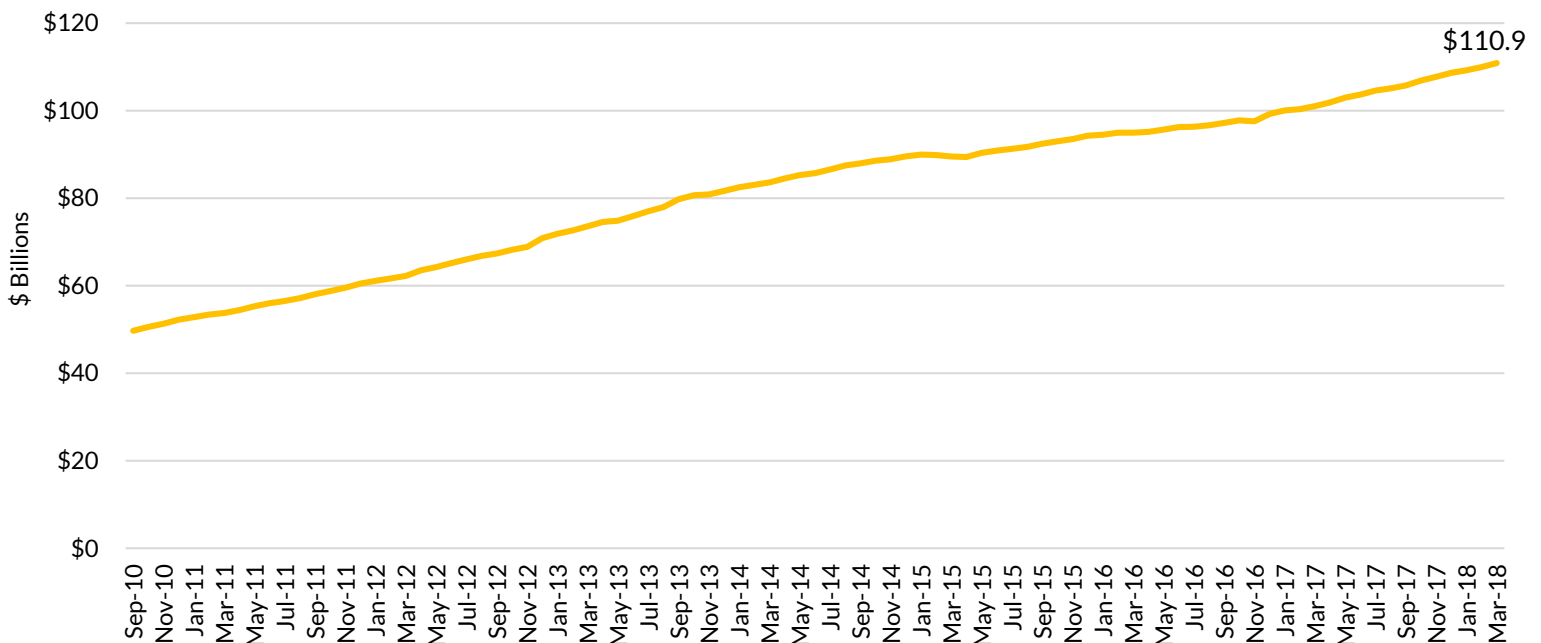
Ginnie Mae multifamily issuance volumes in March totaled \$1.4 billion. Outstanding multifamily securities totaled \$110.9 billion in March.

### Ginnie Mae Multifamily MBS Issuance



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

### Ginnie Mae Multifamily MBS Outstanding

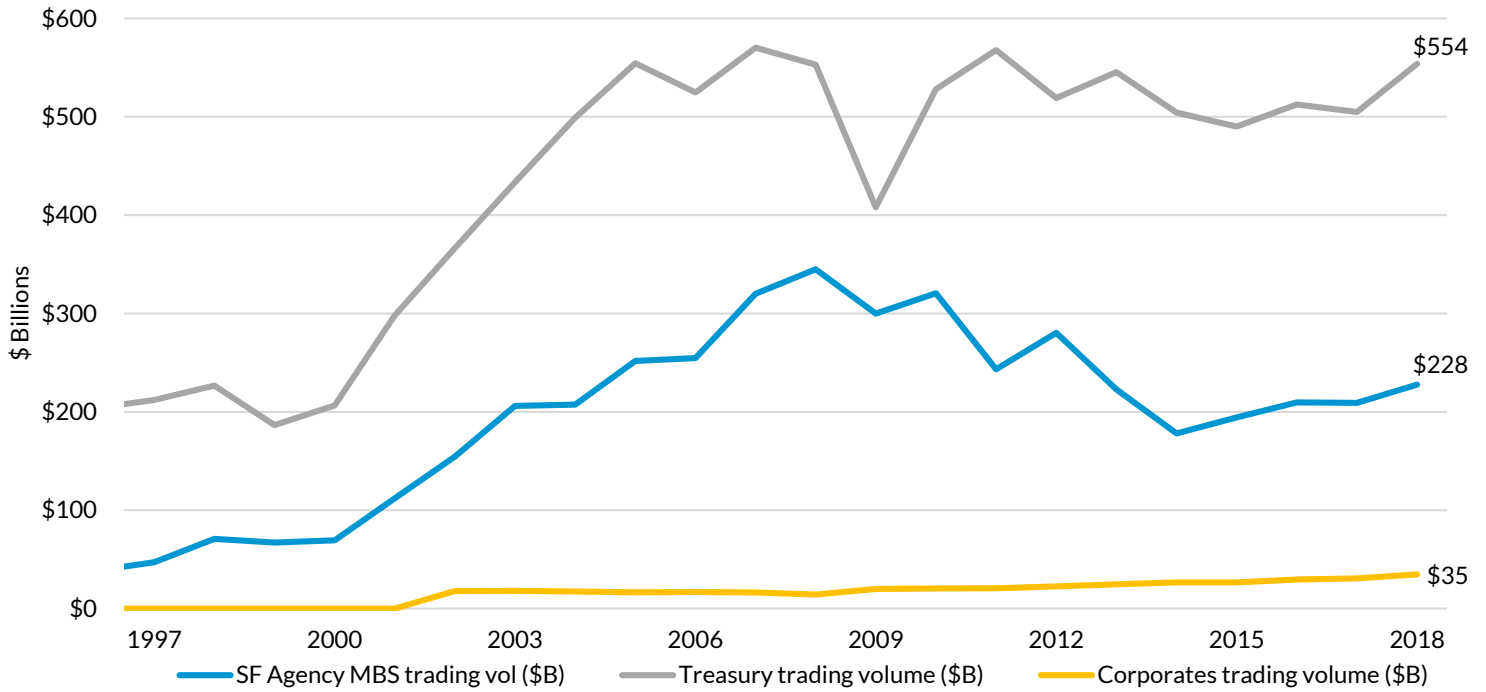


Sources: Ginnie Mae and Urban Institute. Note: Data as of March 2018.

# Market Conditions

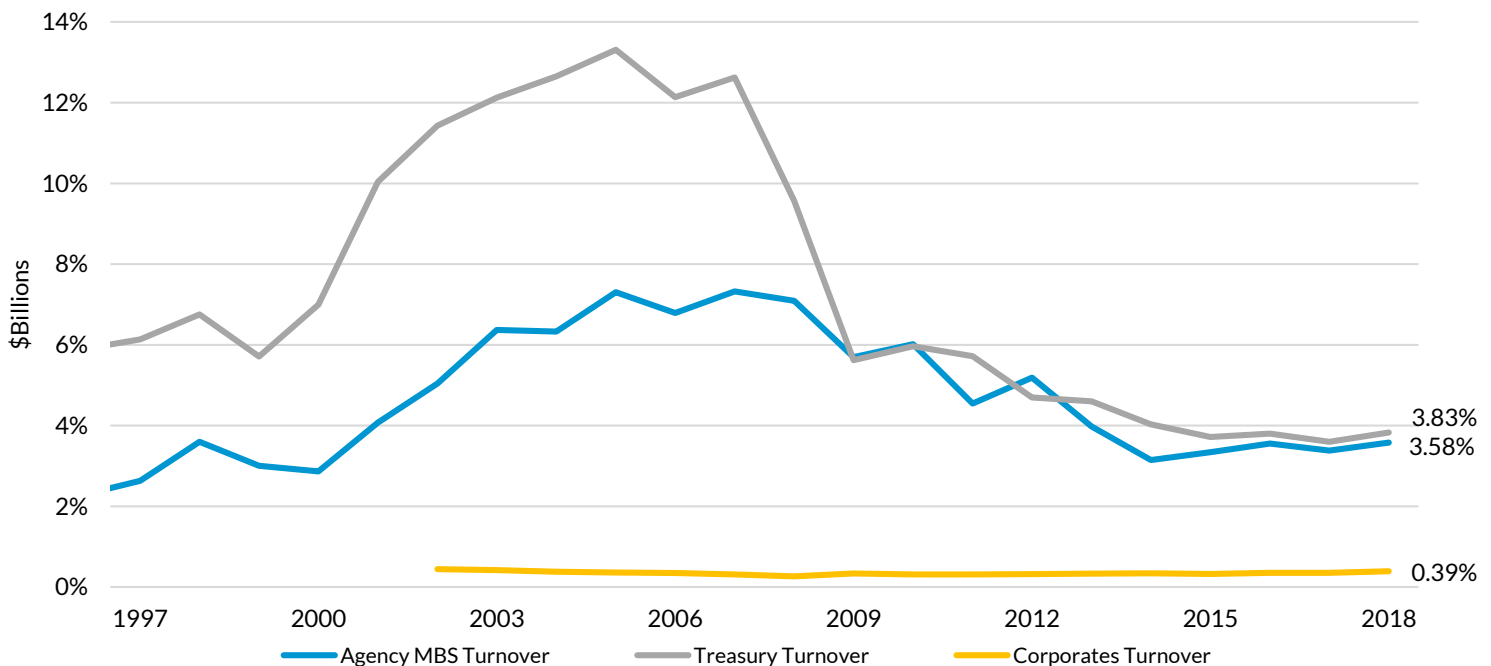
Agency MBS trading volume in March 2018 has been slightly more robust than in the 2014-2017 period. Agency MBS turnover has also been higher in 2018 than in the 2014-2017 period; in the first three months of 2018, average daily MBS turnover was 3.58 percent versus 3.38 percent in 2017. Both average daily 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 April 2018.

## Average Daily Turnover by Sector

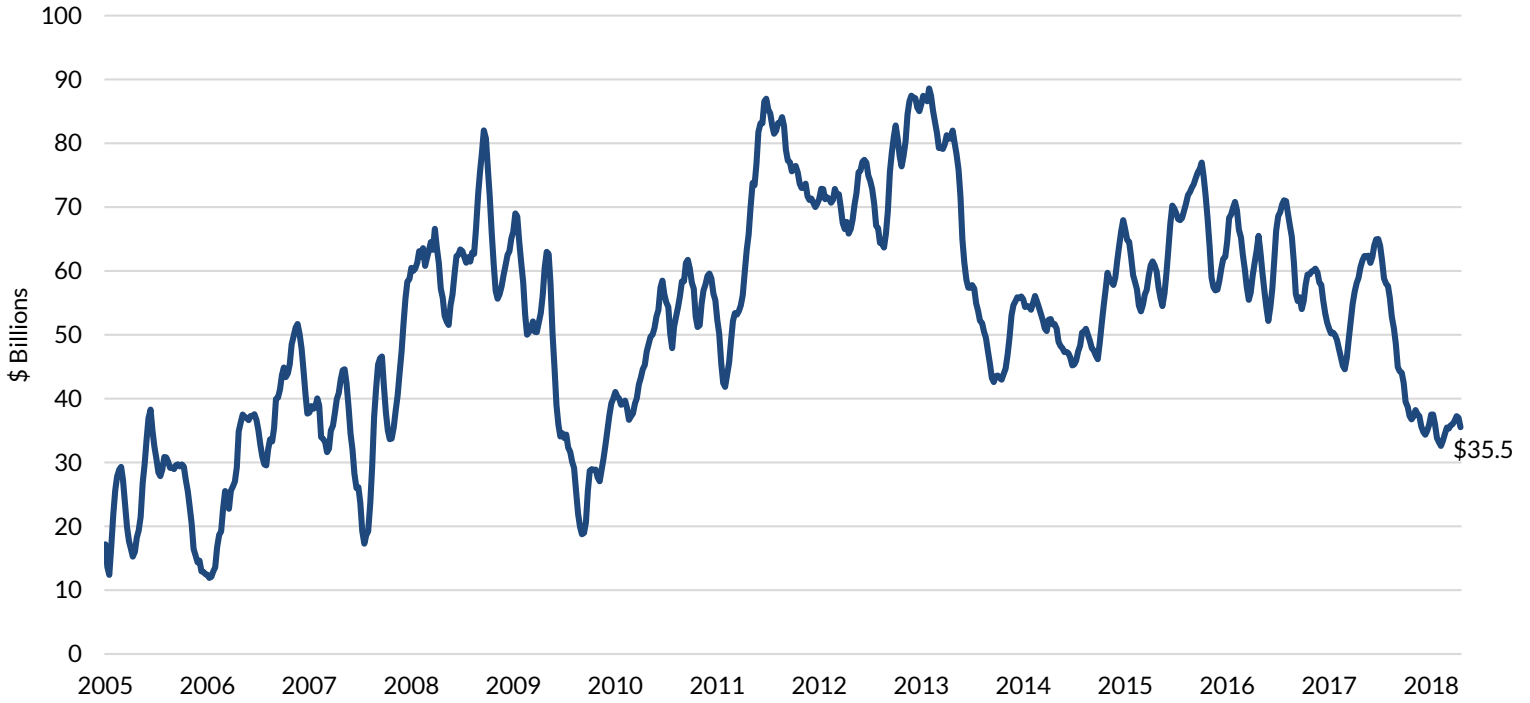


Sources: SIFMA and Urban Institute. Note: Data as of April 2018.

# Market Conditions

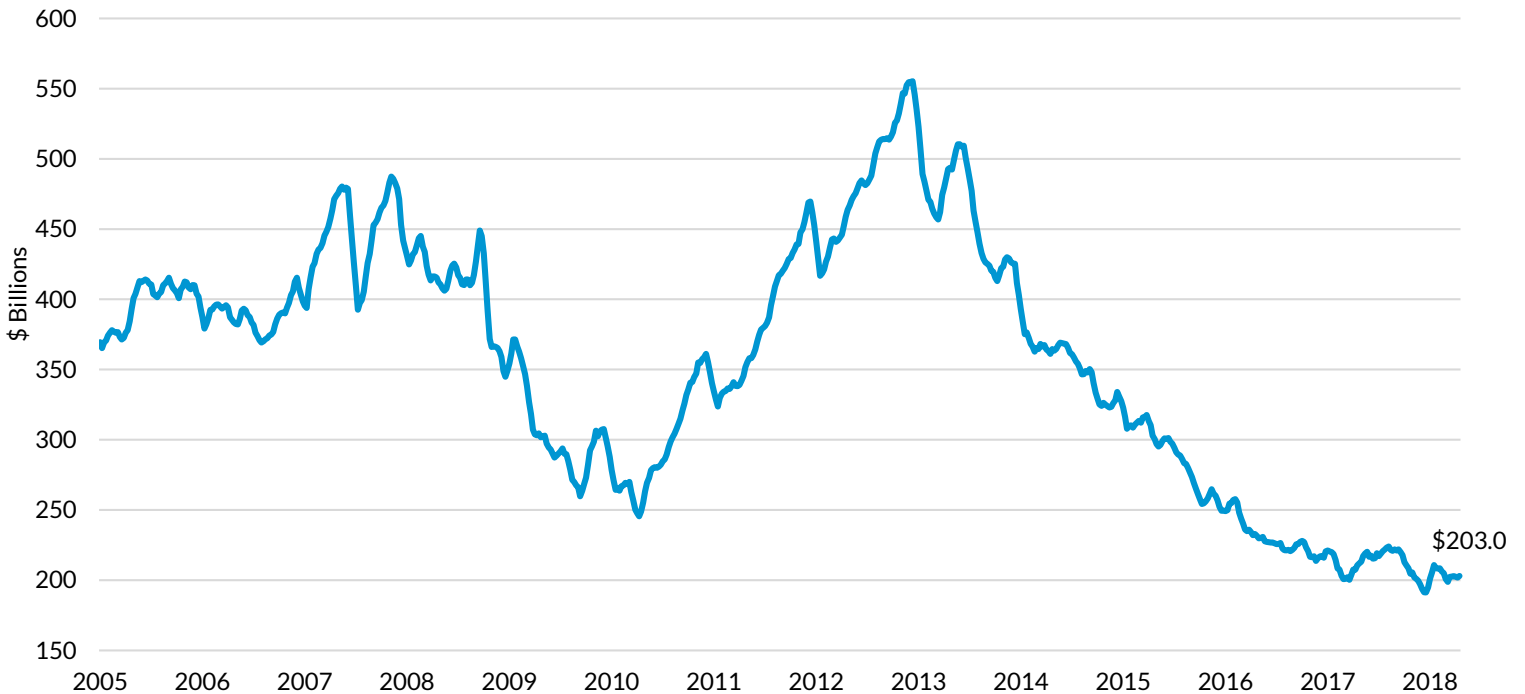
Dealer net positions in agency MBS are now at the very lower end of the recent range, although gross positions are likely down more. The volume of repurchase activity is near its lowest level in 13 years. This reflects banks cutting back on lower margin businesses.

### 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 April 2018.

### Repo Volume: Securities In



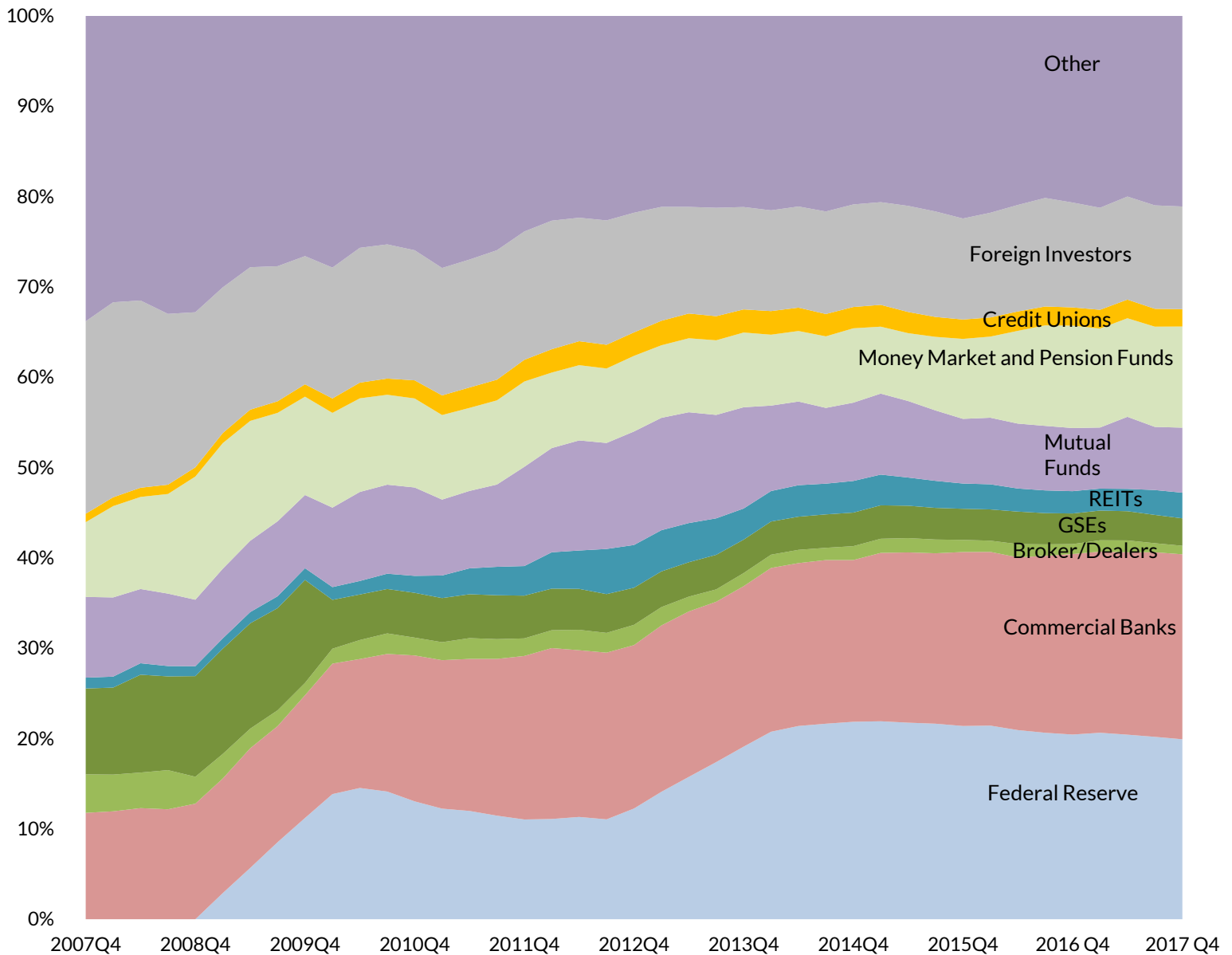
Sources: Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute. Note: Data as of April 2018.

# 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

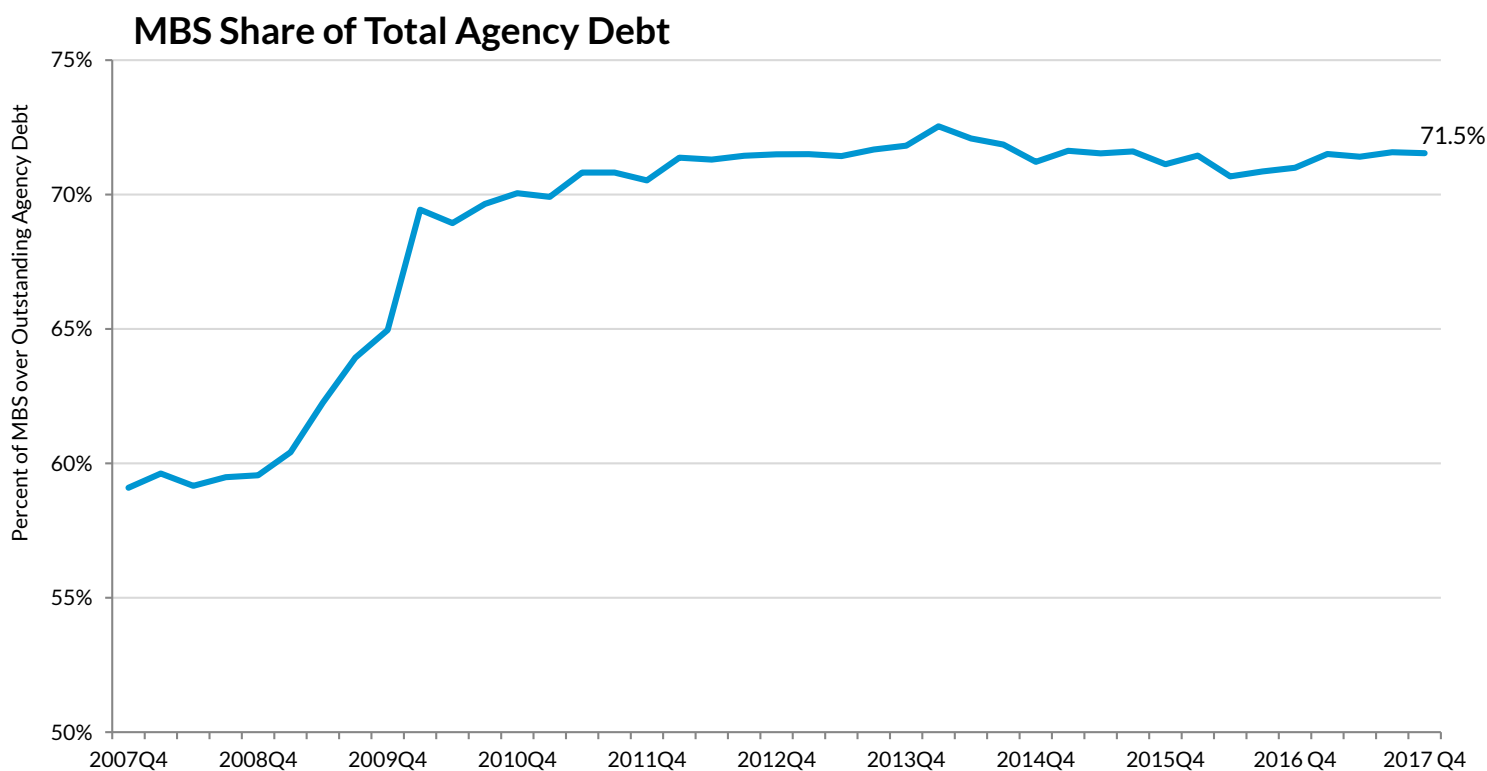


Sources: Federal Reserve Flow of Funds and Urban Institute. Note: Data as of Q4 2017.



# 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 April 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	Apr 4	Apr 11	Apr 18	Apr 25
Largest Domestic Banks	1,227.9	1,284.4	1,292.1	1,295.5	1,303.2	1,295.2	1,282.3	1,286.6	1,286.3	1,283.8	1,288.3	1,286.9
Small Domestic Banks	462.2	476.7	478.3	478.0	478.2	479.2	478.6	476.8	478.9	479.6	480.4	482.9
Foreign Related Banks	13.1	11.4	12.3	17.6	35.3	33.1	31.9	32.5	33.8	33.5	34.8	33.7
Total, Seasonally Adjusted	1,703.2	1,772.5	1,782.7	1,791.1	1,816.7	1,807.5	1,792.8	1,795.9	1,799.0	1,796.9	1,803.5	1,803.5

Sources: Federal Reserve Bank and Urban Institute. Note: Data as of April 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
2Q 16	\$1,684.33	\$1,169.67	\$867.64	\$302.03	\$440.25	\$9.11	\$65.29
3Q16	\$1,732.36	\$1,227.52	\$924.81	\$302.71	\$435.77	\$7.90	\$61.17
4Q16	\$1,736.93	\$1,254.13	\$930.67	\$323.46	\$419.80	\$7.40	\$55.60
1Q17	\$1,762.38	\$1,280.63	\$950.72	\$329.91	\$419.34	\$7.03	\$55.39
2Q17	\$1,798.66	\$1,320.59	\$985.12	\$335.47	\$417.89	\$6.38	\$53.79
3Q17	\$1,838.93	\$1,364.75	\$1,012.89	\$351.86	\$418.08	\$5.65	\$50.45
4Q17	\$1,844.15	\$1,378.53	\$1,010.83	\$367.70	\$413.97	\$4.63	\$47.01

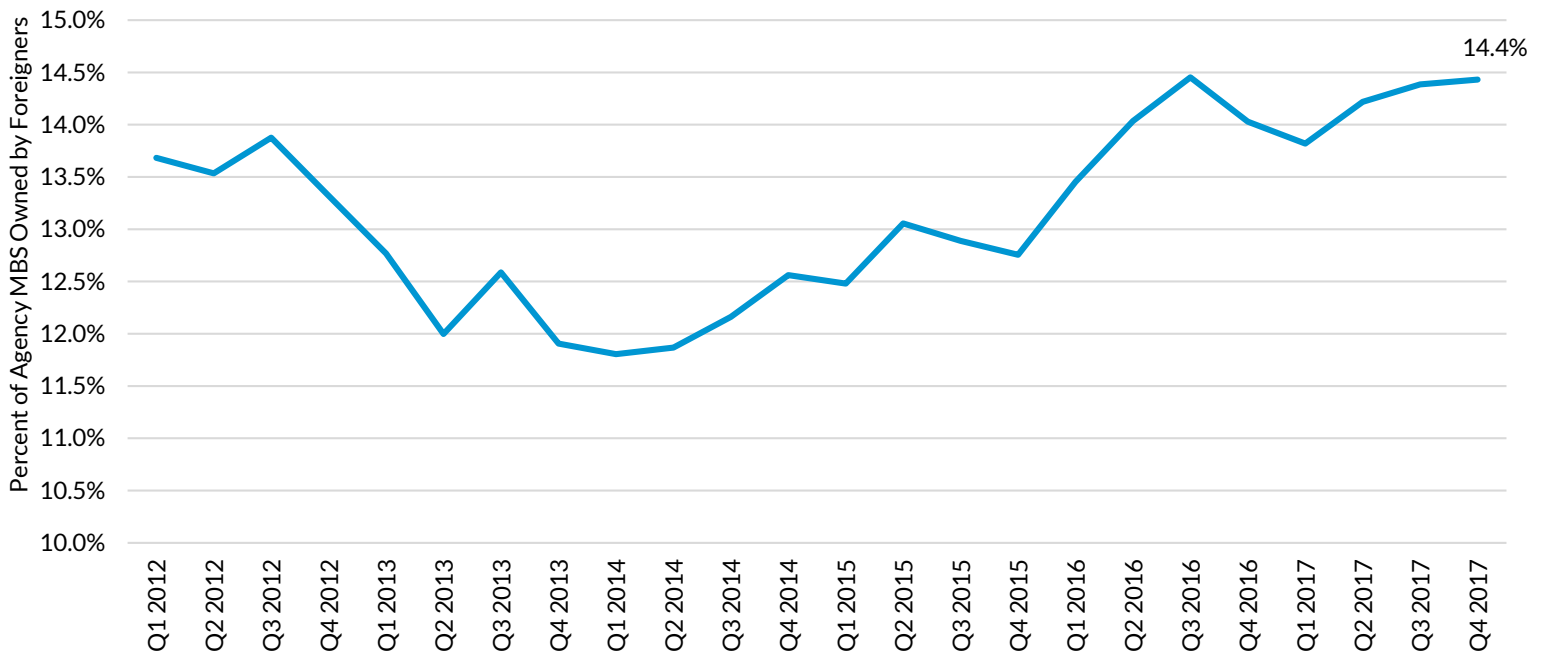
Top Bank & Thrift Residential MBS Investors		Total (\$MM)	GSE PT (\$MM)	GNMA PT (\$MM)	Agency REMIC (\$MM)	Non-Agency (\$MM)	Market Share
1	Bank of America Corporation	\$321,906	\$186,789	\$120,912	\$13,894	\$311	17.50%
2	Wells Fargo & Company	\$241,474	\$189,469	\$46,265	\$4,339	\$4,401	13.10%
3	JP 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%
	<b>Total Top 20</b>	<b>\$1,289,086</b>	<b>\$748,121</b>	<b>\$299,883</b>	<b>\$204,566</b>	<b>\$40,762</b>	<b>69.90%</b>

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

# MBS Ownership

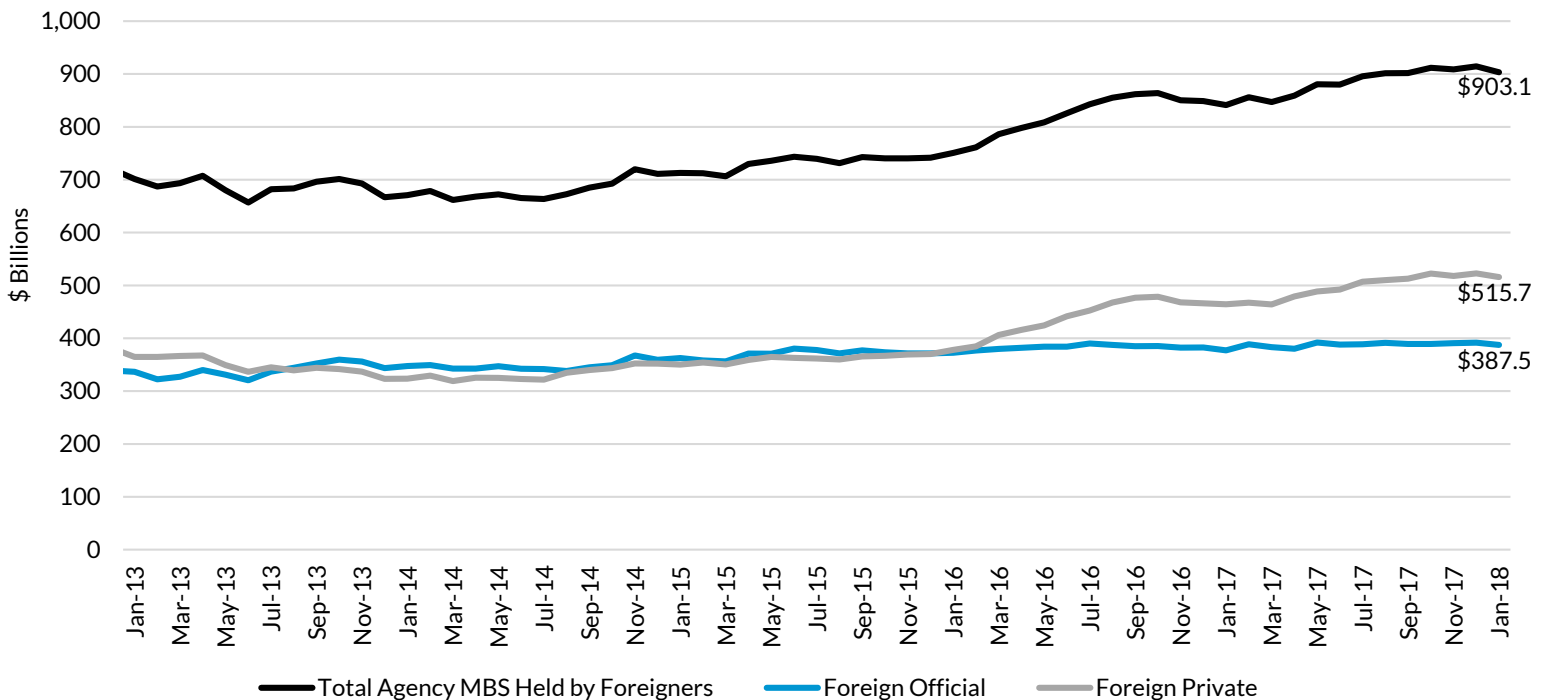
Foreign investors held 14.4 percent of agency MBS in Q4 2017, up sharply from the lows in 2013. For the month of January, this represents \$903.1 billion in Agency MBS; \$387.5 billion held by foreign official institutions and \$515.7 billion held by foreign private investors.

## 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 January 2018.

# MBS Ownership

The largest foreign holders of Agency MBS are Taiwan, Japan and China; these three regions comprise around 70 percent of all foreign holdings. Since June of 2017, we estimate Japan has expanded their holdings while China and Taiwan have contracted their holdings. We estimate Japan and Taiwan have each added approximately \$6 billion in agency MBS between June 2017 and January 2018.

## Agency MBS+ Agency Debt

Country	Level of Holdings (\$Millions)*				Change in Holdings (\$Millions)*		
	Jun-17	Sep-17	Dec-17	Jan-18	Q3 2017	Q4 2017	Jan-18
Taiwan	227,195	229,030	234,234	234,050	1,835	5,204	-184
Japan	228,466	244,261	241,067	246,949	15,795	-3,194	5,882
China	183,393	177,580	170,702	166,241	-5,813	-6,878	-4,461
South Korea	46,791	47,581	45,467	44,734	790	-2,114	-733
Ireland	44,229	46,648	51,525	49,747	2,419	4,877	-1,778
Luxembourg	31,289	33,026	37,575	33,989	1,737	4,549	-3,586
Cayman Islands	32,682	29,016	28,374	28,312	-3,666	-642	-62
Bermuda	26,767	27,125	28,904	29,077	358	1,779	173
Switzerland	17,312	18,675	16,794	17,046	1,363	-1,881	252
Malaysia	12,365	13,162	12,751	12,443	797	-411	-308
Rest of World	129,723	124,357	125,465	121,837	-5,366	1,108	-3,628
<b>Total</b>	<b>980,212</b>	<b>990,461</b>	<b>992,858</b>	<b>984,425</b>	<b>10,249</b>	<b>2,397</b>	<b>-8,433</b>

## Agency MBS Only (Estimates)

Country	Level of Holdings (\$Millions)*				Change in Holdings (\$Millions)*		
	Jun-17	Sep-17	Dec-17	Jan-18	Q3 2017	Q4 2017	Jan-18
Taiwan	227,073	228,914	234,127	233,939	1,841	5,213	-188
Japan	221,528	237,689	234,985	240,648	16,161	-2,704	5,664
China	177,546	172,042	165,576	160,931	-5,504	-6,465	-4,645
South Korea	33,891	35,362	34,158	33,019	1,471	-1,204	-1,139
Ireland	33,663	36,640	42,262	40,152	2,977	5,623	-2,111
Luxembourg	28,314	30,208	34,967	31,287	1,894	4,759	-3,680
Cayman Islands	24,897	21,642	21,549	21,242	-3,255	-93	-307
Bermuda	23,156	23,705	25,738	25,798	549	2,034	59
Switzerland	13,867	15,412	13,774	13,917	1,545	-1,638	144
Malaysia	11,905	12,726	12,348	12,025	821	-379	-322
Rest of World	94,872	91,345	94,913	90,188	-3,527	3,567	-4,725
<b>Total</b>	<b>890,712</b>	<b>905,684</b>	<b>914,397</b>	<b>903,147</b>	<b>14,972</b>	<b>8,713</b>	<b>-11,250</b>

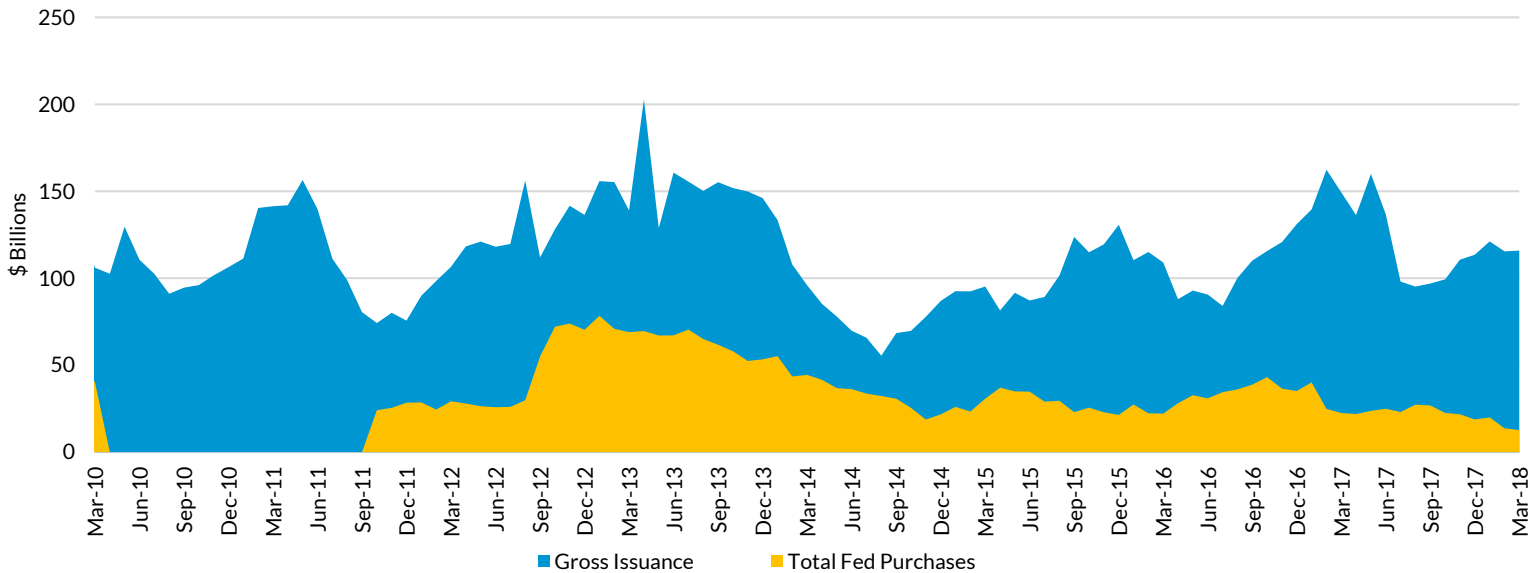
Sources: Treasury International Capital (TIC) and Urban Institute.

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 January 2018.

# MBS Ownership

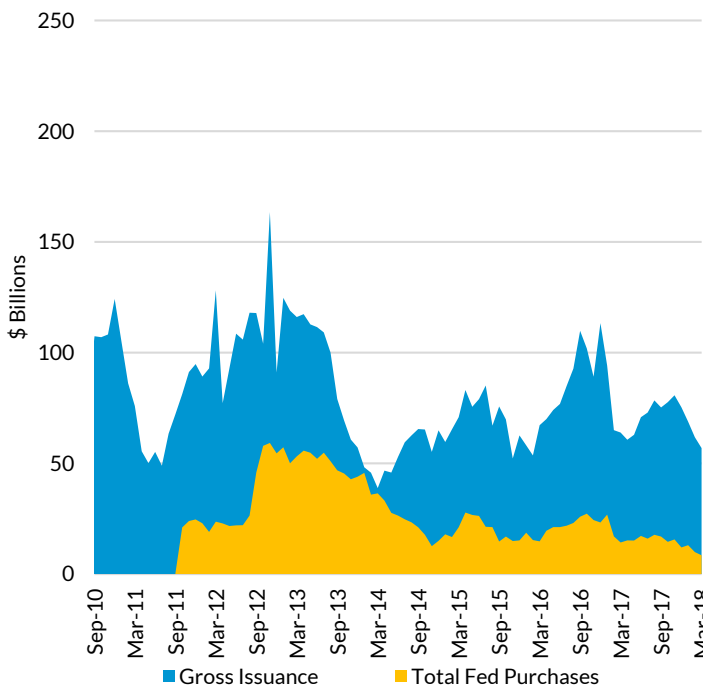
The Fed has begun to wind down their portfolio, and we are beginning to see the effects in slower absorption rates. During the period October 2014-September 2017, the Fed had ended its purchase program, but was reinvesting funds from mortgages and agency debt into the mortgage market, absorbing 20-30 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 March 2018, total Fed purchases decreased to \$12.7 billion, yielding Fed absorption of gross issuance of 14.8 percent. The Fed absorbed 14.5 percent of Ginnie Mae issuance and 14.9 percent of GSE issuance, respectively.

## Total Fed Absorption



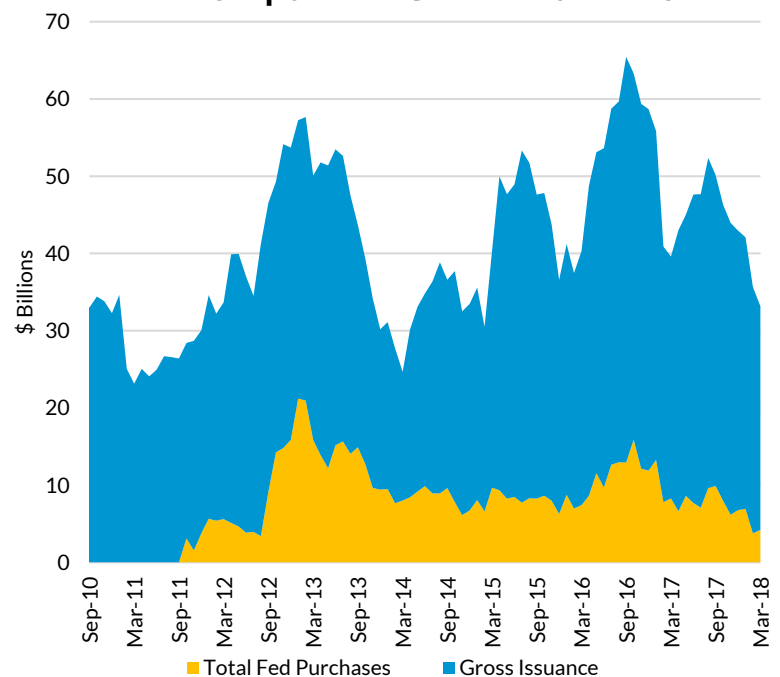
Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of March 2018.

## Fed Absorption of GSE MBS



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

## Fed Absorption of Ginnie Mae MBS



Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of March 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 May 15, 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: 5/31/2019

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