Global Markets Analysis Report

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

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Ginnie Mae
Our Guaranty Matters

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

CONTENTS

HIGHLIGHTS

The increase in first time homebuyers is likely to continue

Page 21 shows the first-time homebuyer (FTHB) share of purchase loans by agency (Fannie Mae, Freddie Mac and Ginnie Mae.) The FTHB share has trended higher in post-recession in part because more FTHBs have entered the market, but also because repeat buying activity remains low by historical standards. Falling house prices during the recession deprived millions of homeowners from accumulating equity, which was the traditional vehicle for trading up from a starter home. But with strong house price appreciation in recent years, will we see more repeat buying activity?

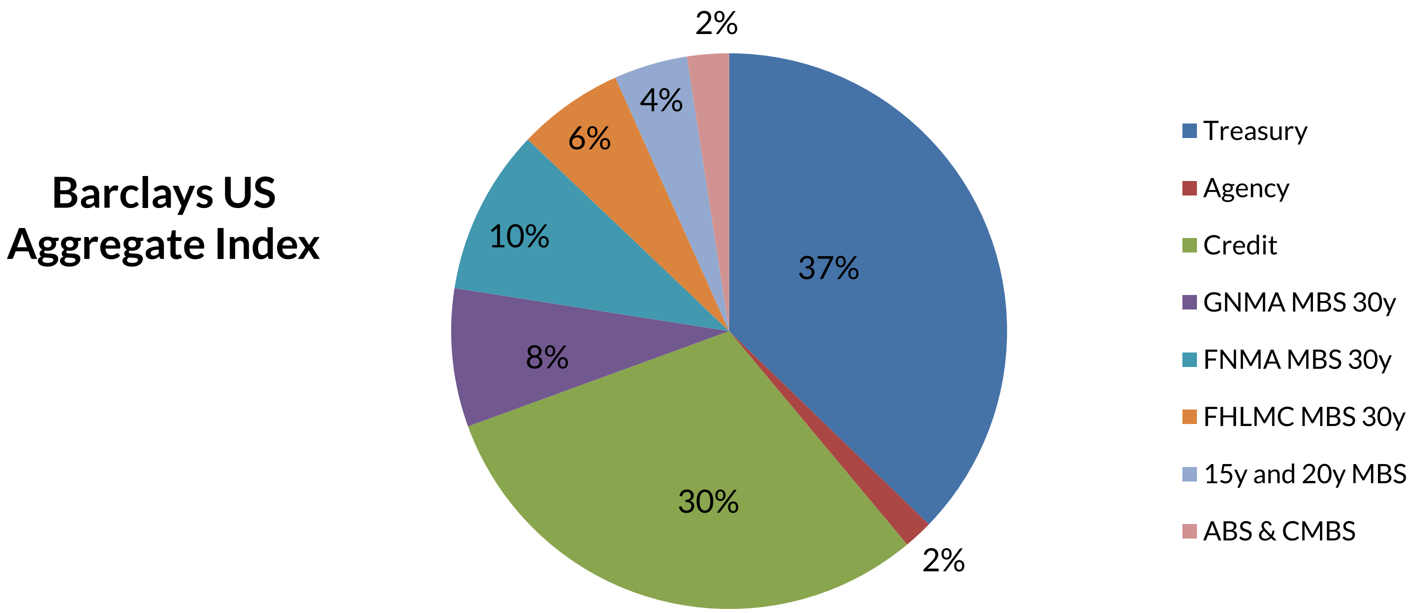
Likely not. Although homeowners have more equity today than during the recession, most of them also have ultra-low rate mortgages they locked-in during the recession, when rates were persistently low (well under 4 percent for a 30 year fixed rate mortgage) for an extended period of time. Today, rates are well above 4.5 percent. If these households were to trade up, they would need to give up the lower rate in exchange for a much higher one. And the more rates rise in the coming months, the bigger this difference will become and the more interest trade up buyers will have to pay. As a result, many homebuyers will stay in their existing homes. This would continue to dampen repeat buying volumes and keep pushing the FTHB share higher. The impact of this dynamic on Ginnie Mae issuances should be minimal because the vast majority of borrowers served by Ginnie Mae (over 70 percent) are FTHBs, in comparison to about 43 percent FTHB share for the GSEs.

***Highlights this month*:**

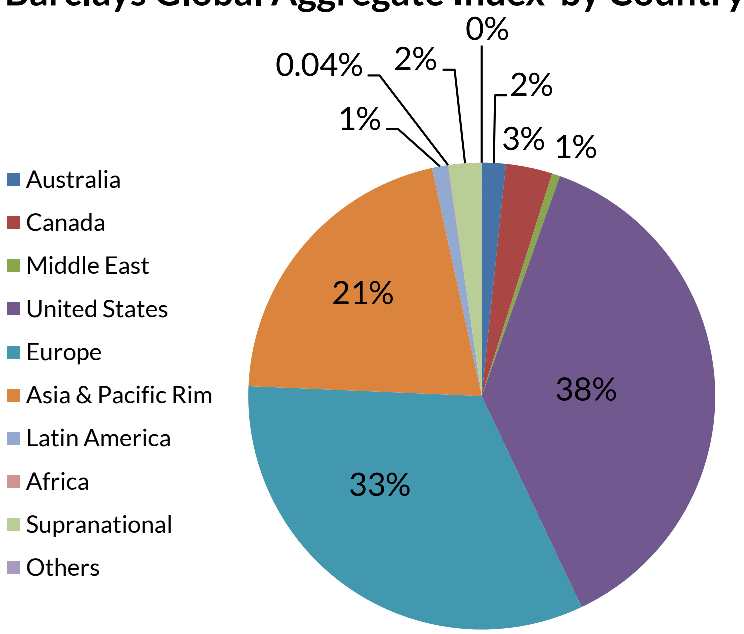
- With the drop in German bund yield, US MBS looks more attractive versus Bund in May 2018 (page 8).
- Serious delinquency rates resumed the decline for all agencies in Q1 2018 after last quarter's uptick (page 11).
- The total value of the US Housing Market continued to rise in Q1 2018, driven by a $538 billion increase in household equity (page 14).
- Agency refinance shares declined sharply in April, as interest rates remained high and purchase activity picked up in spring (page 20).
- Fed absorption of gross issuance dropped to new historical low in April 2018, as Fed's MBS taper size increased from $4 to $8 billion (page 49).

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.



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



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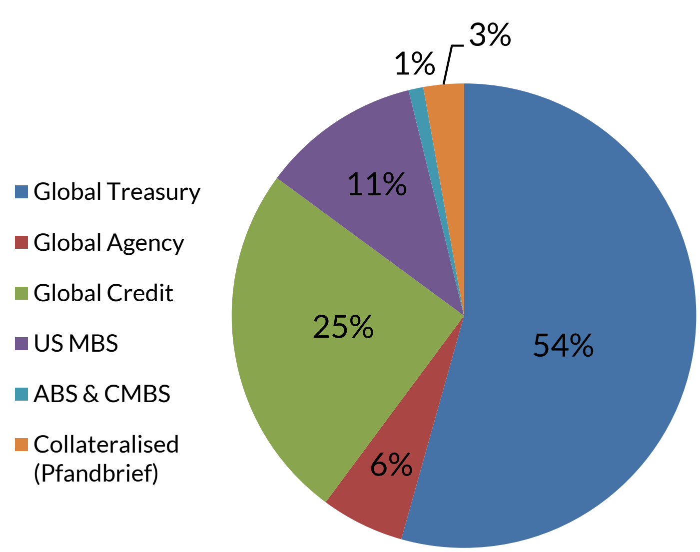
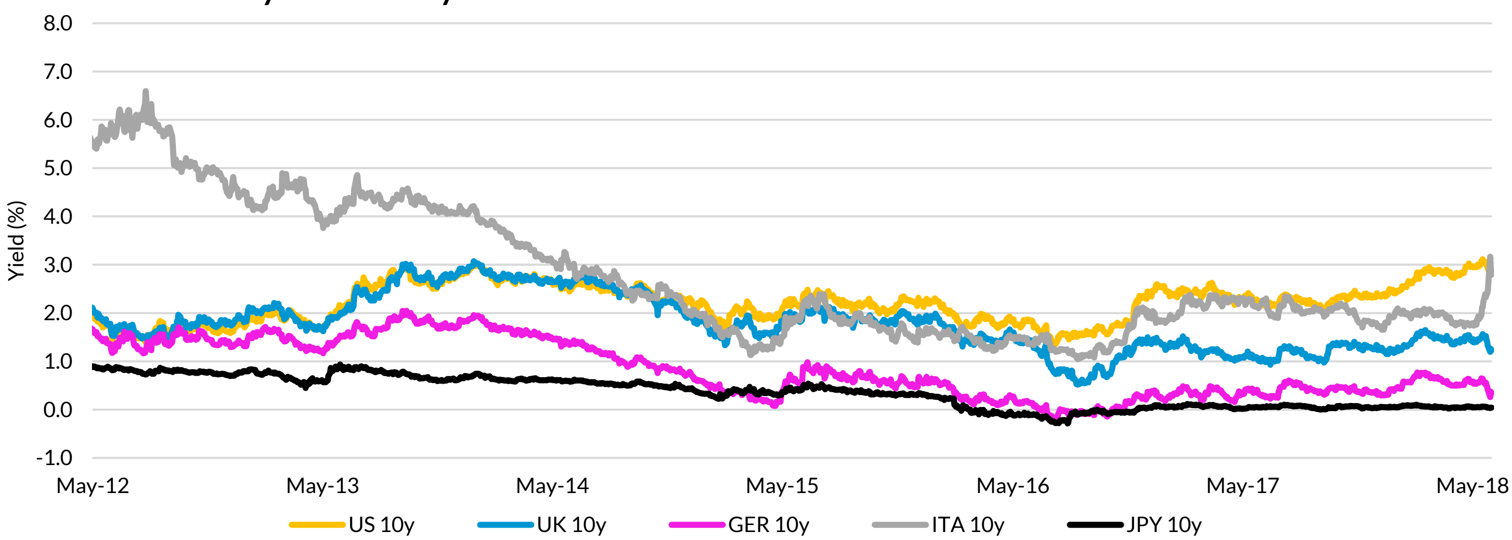


Sources: *Bloomberg and State Street Global Advisors*
Note: *Data as of March 2018.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

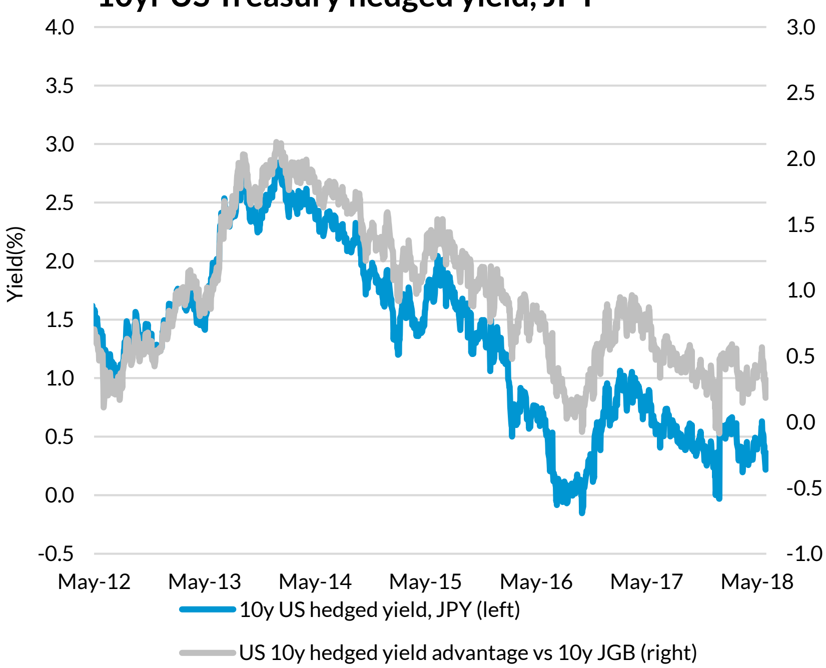
US Treasury interest rates, as measured by the 10-year note, continue to be the highest in the developed world. The US 10-year Treasury note decreased slightly to 2.86 percent this month. Interest rates in the UK, Germany, and Japan all decreased to 1.23, 0.34, and 0.04 percent, respectively, while interest rates in Italy increased sharply to 2.79 percent due to the political risks associated with its general election. If Treasury notes are hedged into foreign currencies, 10-year US Treasury yields are 36 basis points (bps) in JPY, and 4 bps in EUR. The hedged yield difference between the 10-year Treasuries and JGBs narrowed to 32 bps, while the hedged yield difference between the 10-year Treasuries and Bunds narrowed to -31 bps.

Global 10-year Treasury Yields



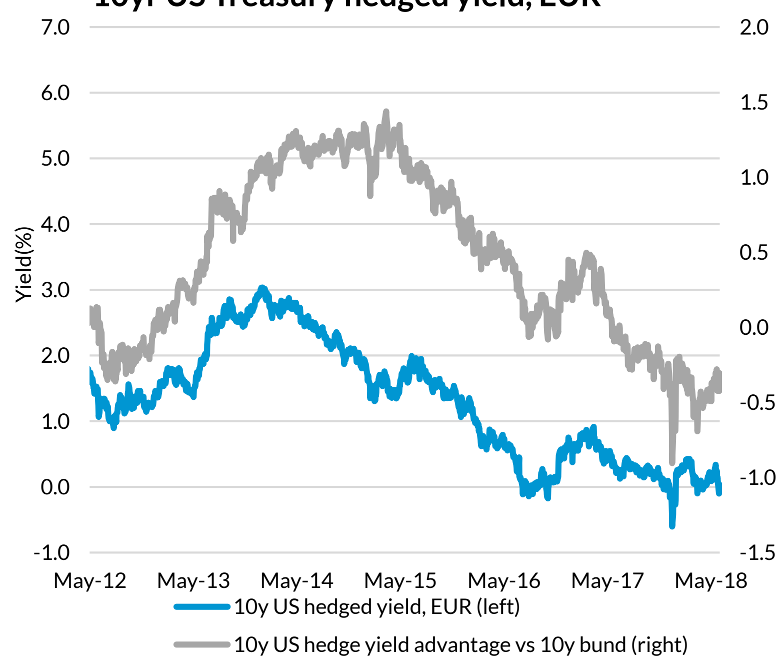
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of May 2018.*

10yr US Treasury hedged yield, JPY



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

10yr US Treasury hedged yield, EUR

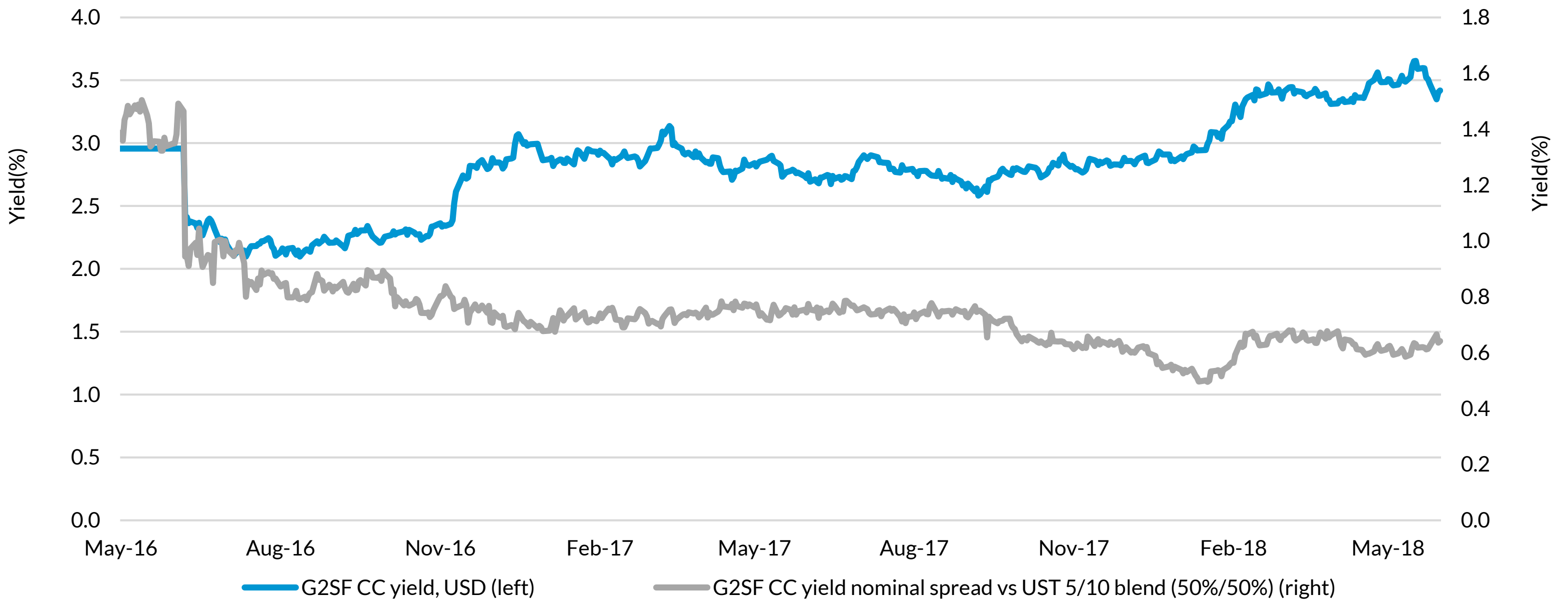


Sources: *Bloomberg and State Street Global Advisors*
Note*: Data as of May 2018.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

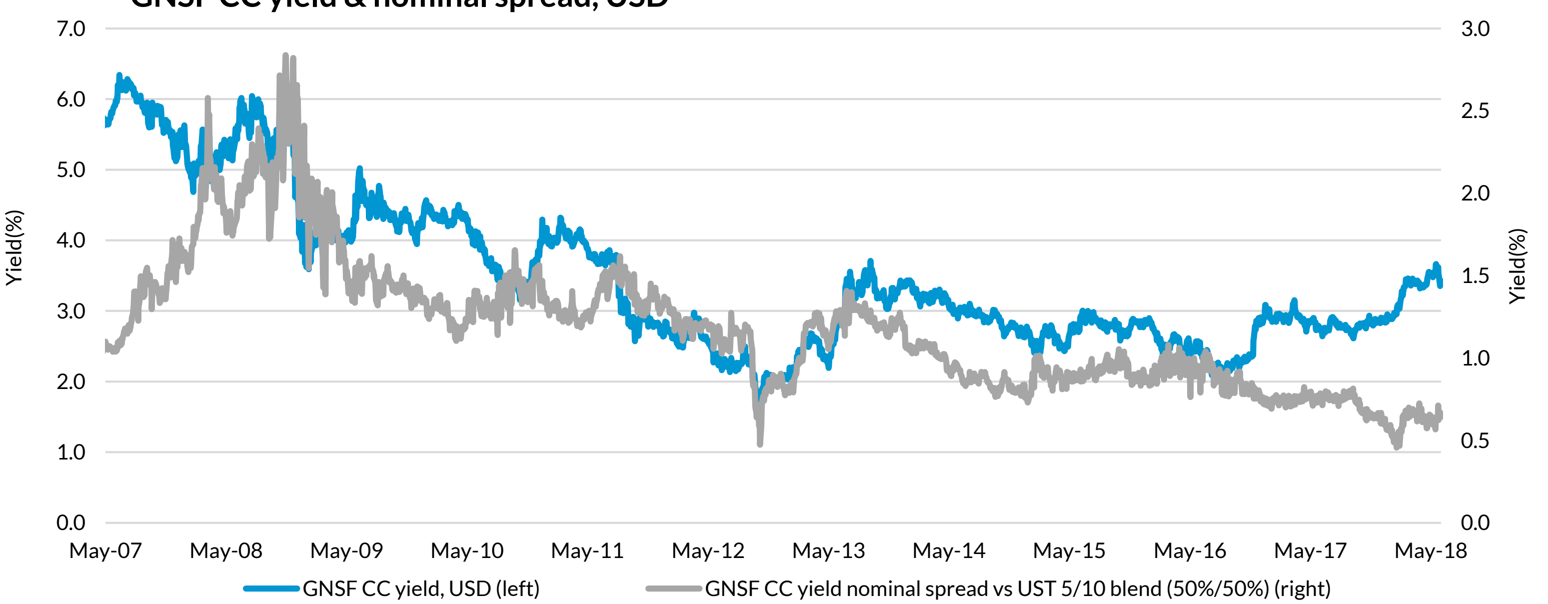
The nominal yield on current coupon GNMA II and GNMA I securities decreased slightly in May 2018. Current coupon Ginnie Mae securities outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 64 and 65 bps on G2SF and GNSF, respectively, which is slightly higher than in April.

G2SF CC yield & nominal spread, USD



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

GNSF CC yield & nominal spread, USD

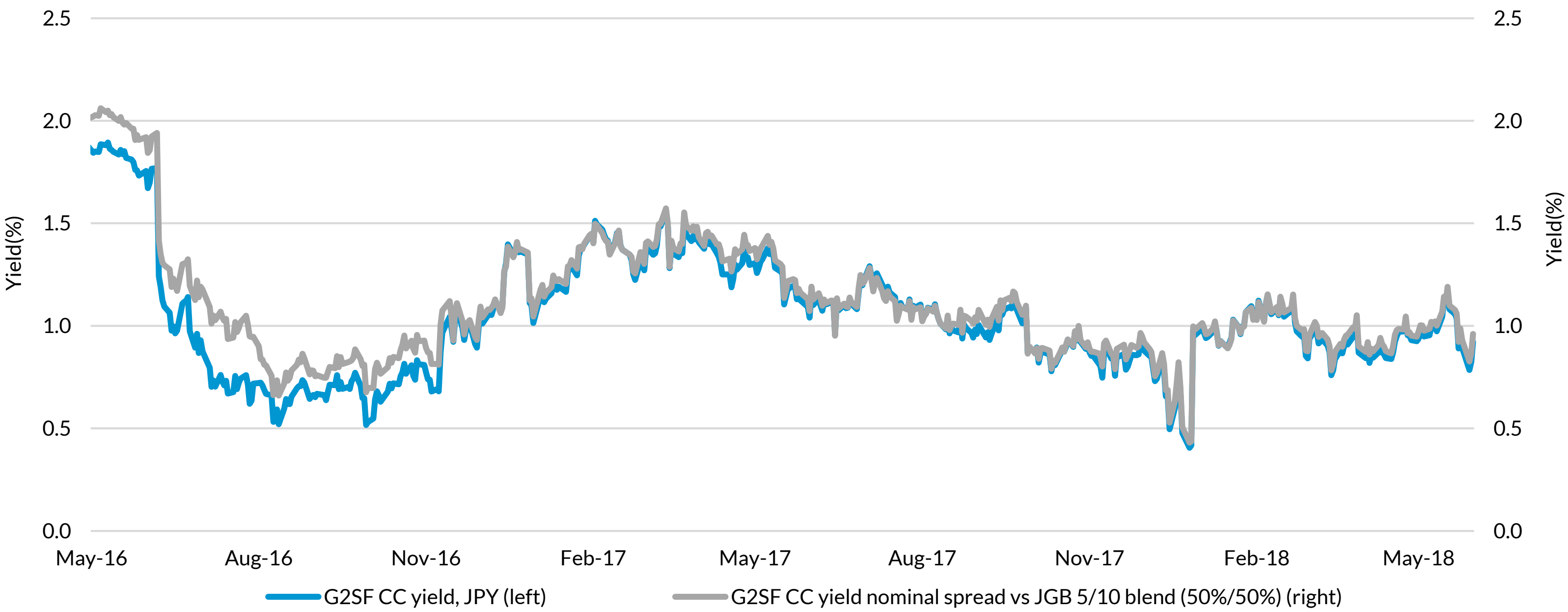


Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of May 2018.*

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 96 and 97 bps, respectively. These latest spreads are relatively consistent with April levels.

G2SF CC yield & nominal spread, JPY



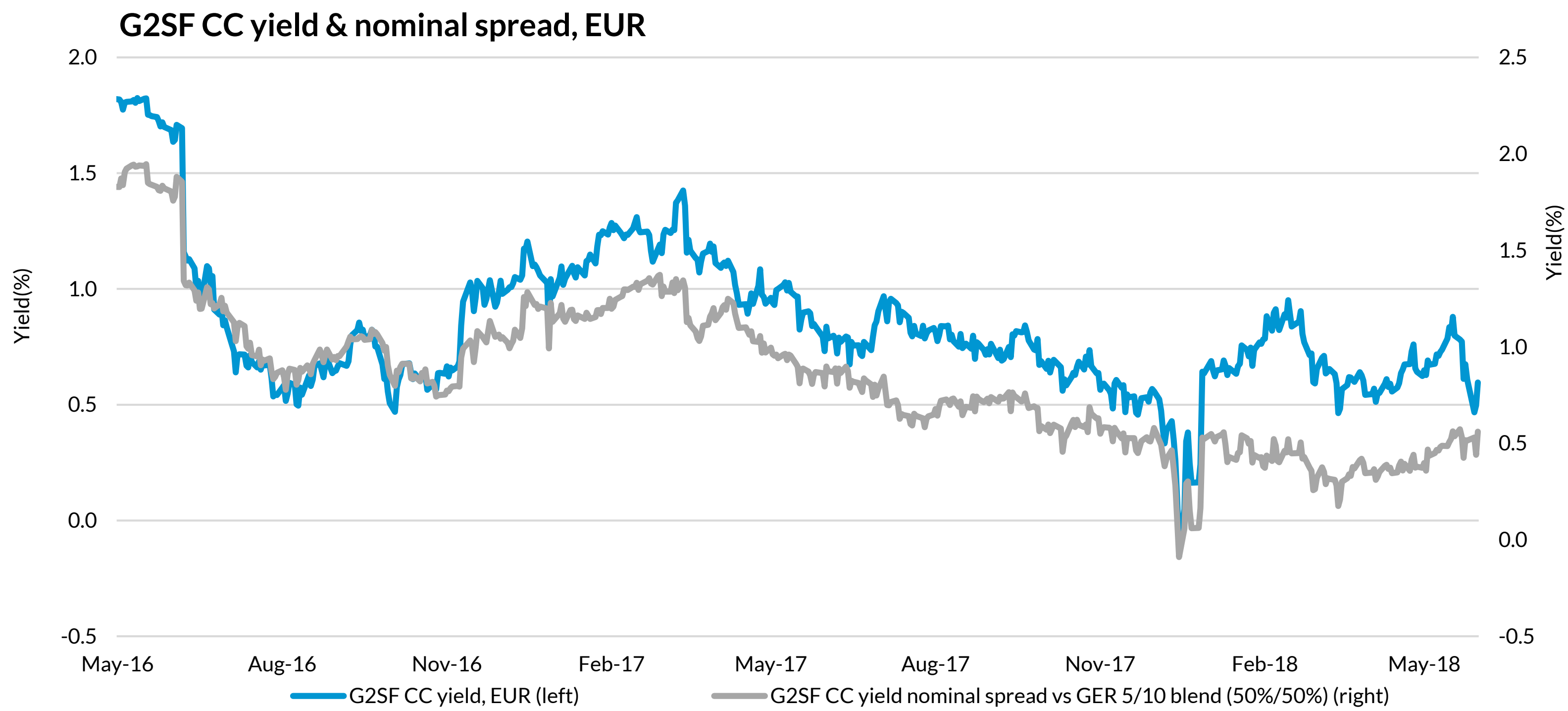
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of May 2018.*

GNSF CC yield & nominal spread, JPY

Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of May 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 56 and 57 bps, respectively. These latest spreads represent a 16-19 basis point widening from April levels.



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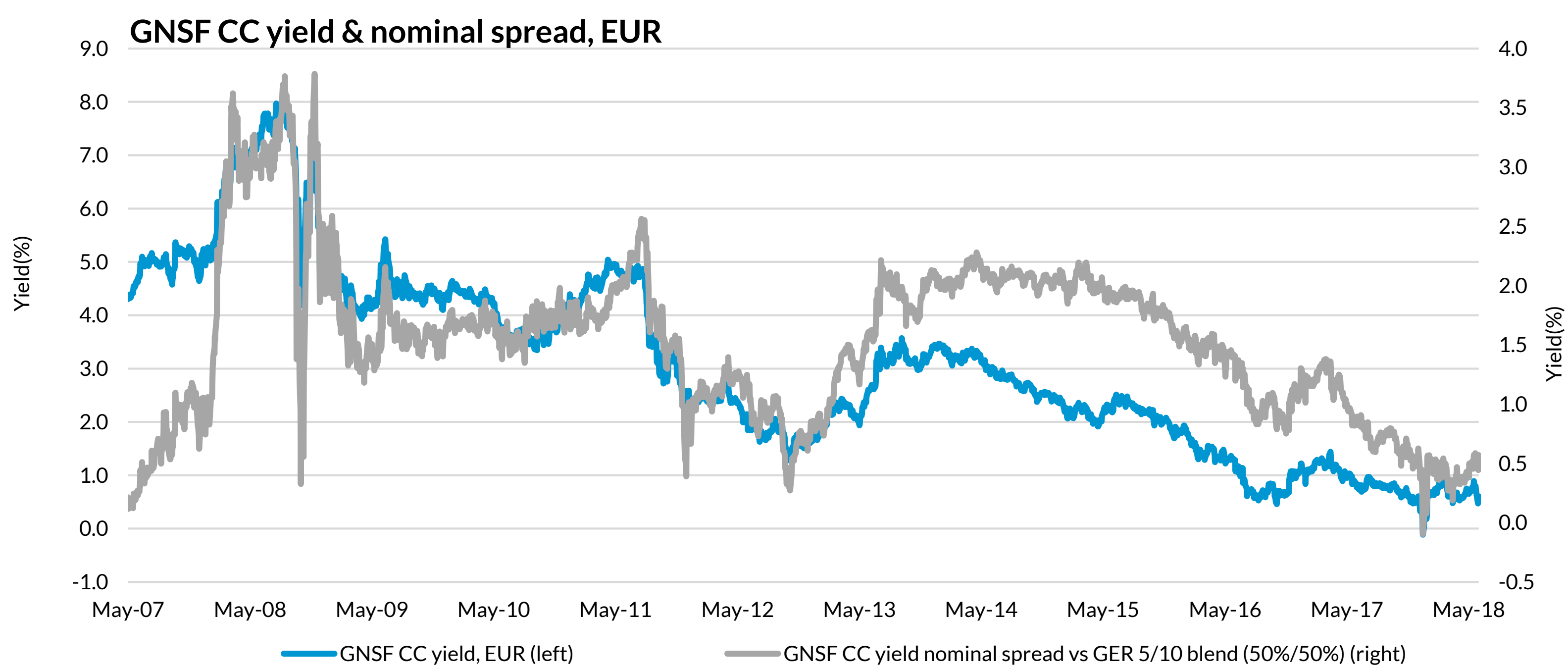
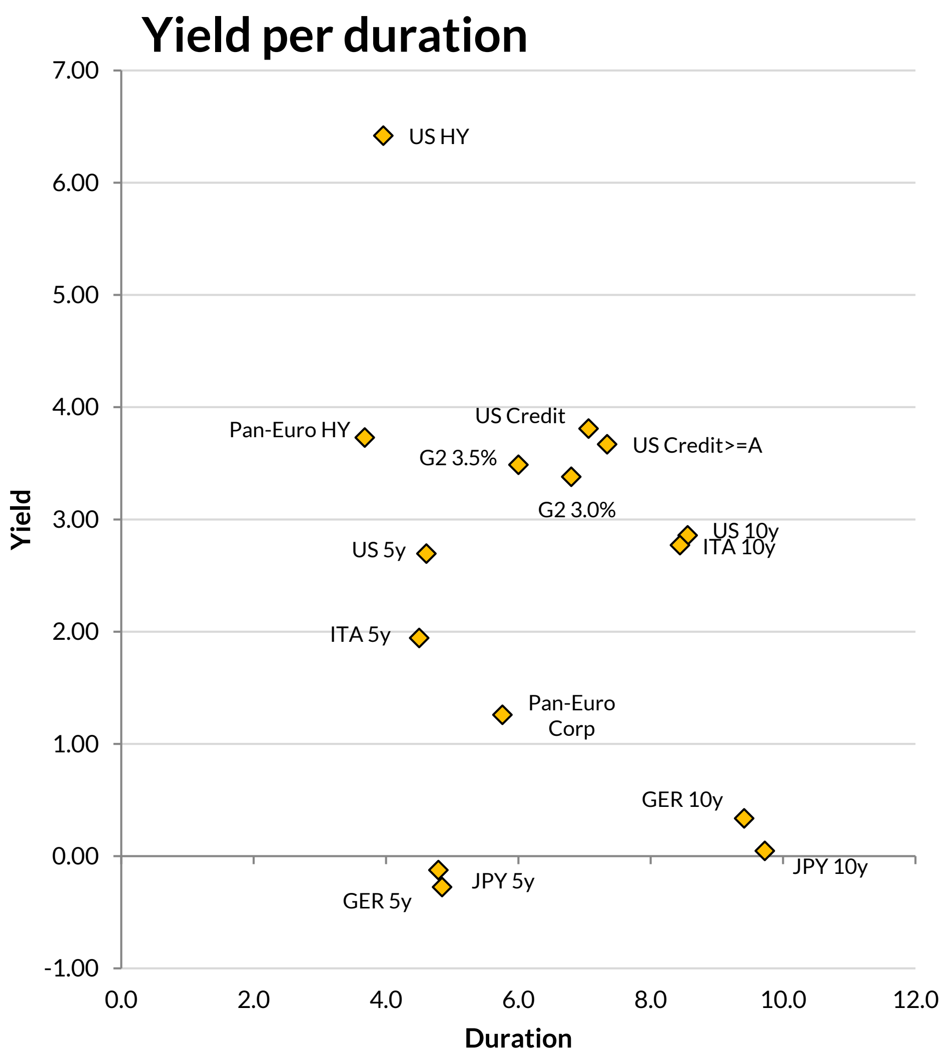


Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of May 2018.*

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	2.70
US 10y	8.6	2.86
GNMA II 3%	6.8	3.38
GNMA II 3.5%	6.0	3.49
JPY 5y	4.8	-0.12
JPY 10y	9.7	0.05
GER 5y	4.8	-0.27
GER 10y	9.4	0.34
ITA 5y	4.5	1.94
ITA 10y	8.4	2.77
US credit	7.1	3.81
US credit >= A	7.3	3.67
US HY	4.0	6.42
Pan-Euro Corp	5.8	1.26
Pan-Euro HY	3.7	3.73

***Sources:** Bloomberg and State Street Global Advisors. **Note**: Yields are in base currency of security and unhedged.*
Data as of May 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	-0.04	-0.07	0.01	0.01	0.20	0.12
3 year	0.08	0.06	0.22	0.08	0.41	0.27
5 year	0.15	0.11	0.26	0.28	0.41	0.45
10 year	0.29	0.26	0.45	0.41	0.68	0.79

	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	-0.15	-0.18	-0.10	0.08	0.08	0.19
3 year	0.03	0.01	0.17	0.13	0.36	0.32
5 year	0.12	0.07	0.22	0.32	0.38	0.49
10 year	0.27	0.23	0.43	0.40	0.66	0.79

	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	0.79	0.81	0.45	0.60	0.75
3 year	0.55	0.92	1.09	1.02	1.61	1.42
5 year	0.63	0.91	1.13	1.03	1.50	1.27
10 year	0.76	1.18	1.75	1.40	3.00	3.52

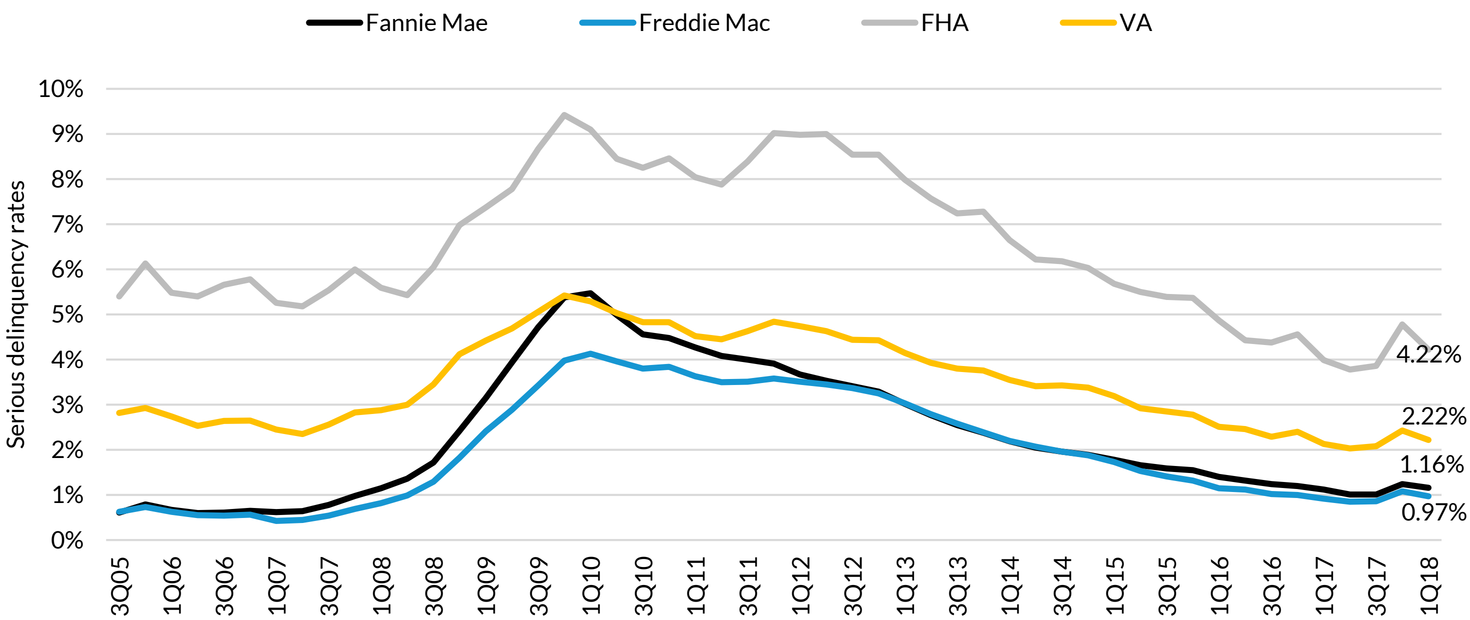
	Sharpe Ratio					
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield	Pan Euro High Yield*
1 year	-0.25	-0.23	-0.13	0.17	0.14	0.25
3 year	0.06	0.01	0.15	0.13	0.22	0.23
5 year	0.19	0.08	0.20	0.31	0.25	0.39
10 year	0.36	0.20	0.24	0.29	0.22	0.22

**Assumes 2% capitalization max per issuer on high yield indices*
***Sources:** Barclays Indices, Bloomberg and State Street Global Advisors* ***Note:** Data as of May 2018.*

State of the US Housing Market

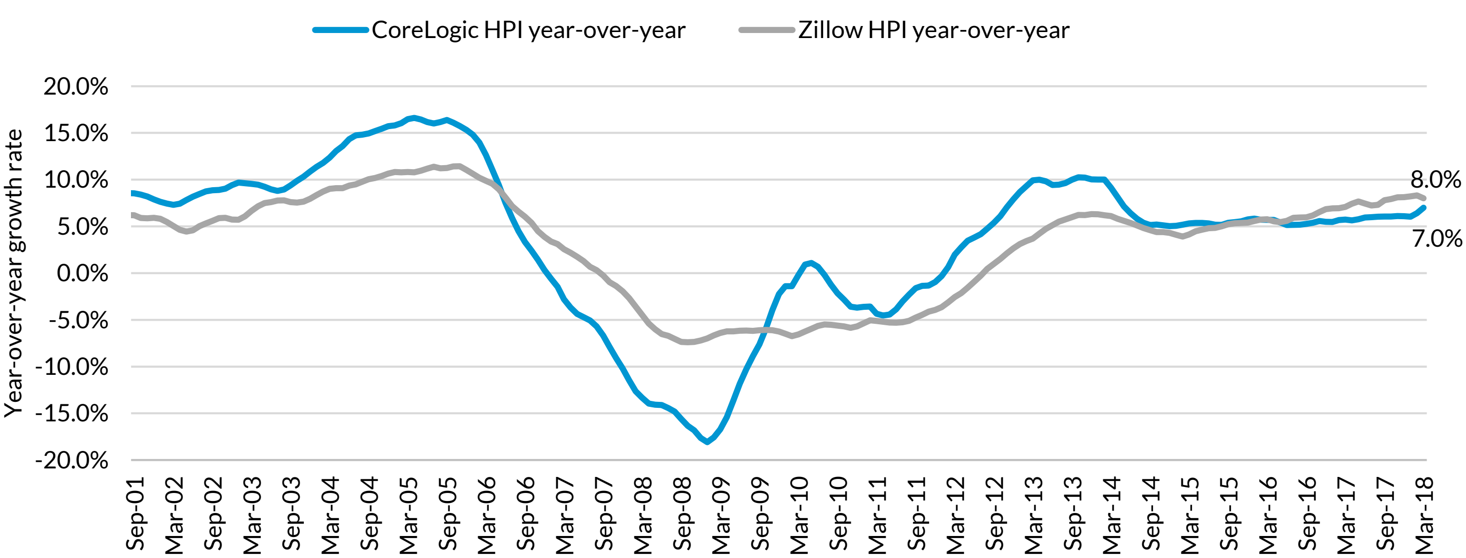
Serious delinquencies for single-family GSE loans, FHA loans, and VA loans declined in Q1 2018, after last quarter's seasonal and hurricane-related uptick. The delinquency rates for FHA and VA went down to 4.22 percent and 2.22 percent, respectively, and delinquency rates for Fannie Mae and Freddie Mac went down to 1.16 and 0.97 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 continues to increase approximately 7-8 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 Q1 2018.*

National Year-Over-Year HPI Growth



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

State of the US Housing Market

Nationally, the nominal home prices have improved by 54.0 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 24.8 percent below peak levels and Connecticut is 22.7 percent below peak levels.

State	HPI Changes 2000 to Peak	Peak to Trough	Trough to Current	YOY	Current HPI % Below Peak
National	93.7%	-33.2%	54.0%	7.0%	-2.9%
Alabama	45.7%	-19.9%	24.5%	4.6%	0.3%
Alaska	68.9%	-9.4%	17.9%	1.7%	-6.4%
Arizona	121.5%	-50.5%	73.1%	6.9%	16.7%
Arkansas	39.6%	-7.6%	17.1%	4.5%	-7.6%
California	149.0%	-42.4%	82.5%	8.9%	-4.8%
Colorado	40.4%	-13.7%	71.7%	8.5%	-32.5%
Connecticut	79.5%	-24.9%	8.4%	2.6%	22.7%
Delaware	90.3%	-23.8%	19.9%	2.7%	9.5%
District of Columbia	150.5%	-10.4%	38.5%	1.4%	-19.6%
Florida	149.2%	-49.6%	68.4%	5.9%	17.8%
Georgia	40.5%	-30.7%	55.9%	5.9%	-7.3%
Hawaii	152.0%	-20.9%	48.1%	6.1%	-14.6%
Idaho	85.4%	-40.8%	81.0%	12.3%	-6.6%
Illinois	59.9%	-32.5%	30.1%	2.6%	14.0%
Indiana	24.4%	-16.4%	30.8%	6.1%	-8.5%
Iowa	25.5%	-4.9%	21.2%	3.6%	-13.3%
Kansas	33.2%	-14.0%	28.3%	4.7%	-9.3%
Kentucky	27.0%	-8.9%	24.8%	5.9%	-12.0%
Louisiana	58.8%	-7.5%	26.5%	5.5%	-14.7%
Maine	92.2%	-19.3%	33.4%	4.9%	-9.9%
Maryland	137.7%	-31.1%	21.2%	3.2%	19.7%
Massachusetts	81.7%	-21.2%	41.5%	6.0%	-10.4%
Michigan	26.2%	-43.2%	77.8%	7.2%	-1.2%
Minnesota	69.7%	-28.1%	45.4%	6.5%	-4.3%
Mississippi	34.2%	-18.3%	23.0%	6.0%	0.8%
Missouri	46.2%	-22.3%	34.8%	7.6%	-4.6%
Montana	80.0%	-16.6%	42.0%	8.5%	-15.7%
Nebraska	25.3%	-5.3%	28.8%	5.1%	-18.0%
Nevada	129.0%	-59.9%	99.7%	12.6%	24.8%
New Hampshire	82.6%	-23.8%	31.6%	4.4%	-0.2%
New Jersey	109.6%	-26.4%	16.1%	3.8%	17.0%
New Mexico	64.3%	-26.4%	22.1%	4.8%	11.4%
New York	101.9%	-13.9%	32.3%	5.8%	-12.2%
North Carolina	39.8%	-14.6%	29.7%	4.7%	-9.7%
North Dakota	50.5%	-1.9%	51.8%	7.1%	-32.9%
Ohio	22.2%	-20.4%	33.0%	6.8%	-5.6%
Oklahoma	35.8%	-3.1%	15.4%	1.9%	-10.6%
Oregon	87.5%	-29.3%	71.6%	7.2%	-17.7%
Pennsylvania	71.7%	-12.9%	16.6%	4.1%	-1.5%
Rhode Island	131.0%	-34.2%	36.1%	8.7%	11.7%
South Carolina	61.5%	-22.2%	34.5%	5.2%	-4.6%
South Dakota	37.3%	-3.4%	31.8%	2.0%	-21.3%
Tennessee	41.3%	-13.2%	40.0%	7.1%	-17.7%
Texas	39.4%	-13.2%	50.9%	5.8%	-23.7%
Utah	64.8%	-31.7%	71.3%	11.2%	-14.6%
Vermont	81.6%	-9.1%	13.0%	2.1%	-2.5%
Virginia	135.1%	-30.6%	30.8%	2.9%	10.0%
Washington	90.2%	-28.1%	77.6%	12.6%	-21.7%
West Virginia	81.1%	-26.9%	23.9%	2.5%	10.5%
Wisconsin	48.6%	-17.2%	27.3%	5.9%	-5.1%
Wyoming	75.5%	-14.5%	25.9%	0.4%	-6.7%

Sources: *CoreLogic and Urban Institute.* ***Note:*** *HPI data as of March 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 03/2018, the latest HPI data period.*

State of the US Housing Market

Ginnie Mae loans constitute 32.1 percent of outstanding agency issuance by loan balance, 34.3 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 17.4 percent in the District of Columbia and as high as 52.2 percent in Mississippi. In general, the Ginnie Mae share is higher in states with lower home prices.

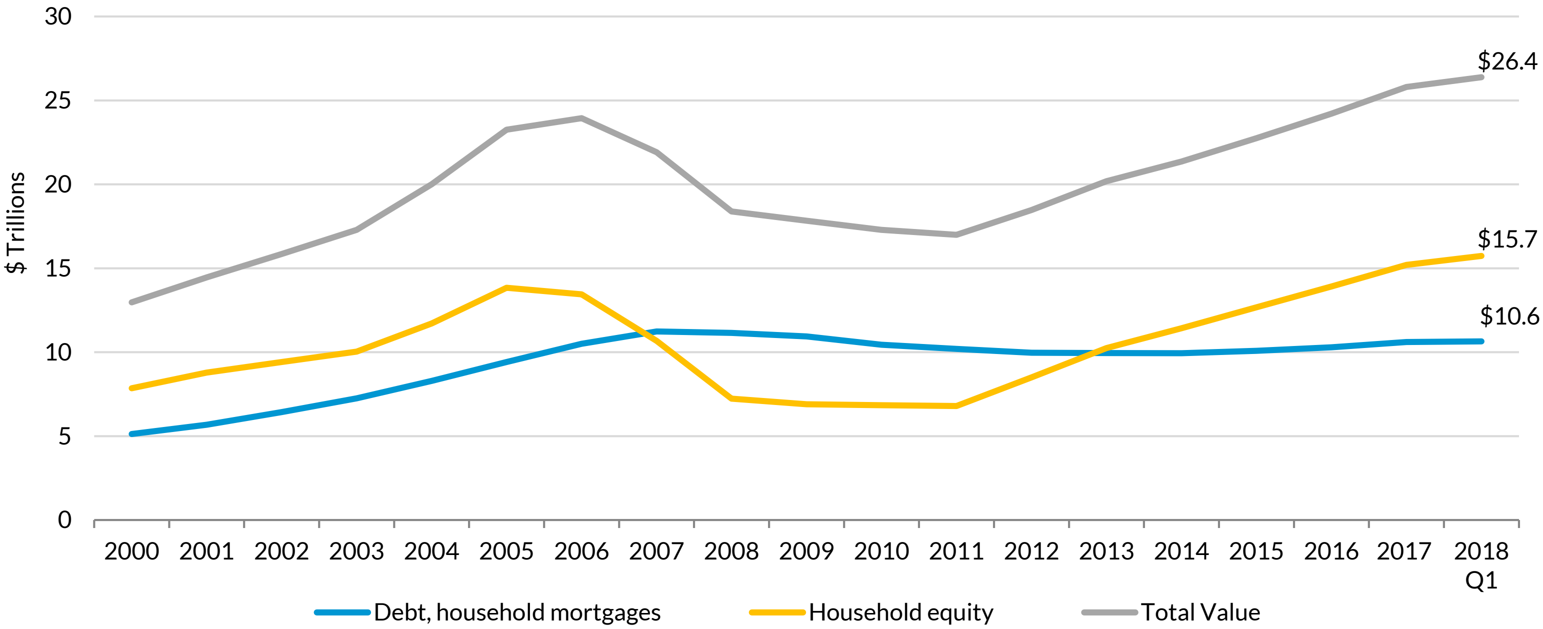
State	Agency Issuance (past 1 year)			Agency Outstanding		
	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)
National	34.3%	212.4	228.5	32.1%	179.2	209.4
Alabama	45.9%	159.4	181.7	46.9%	142.5	169.4
Alaska	53.0%	280.6	244.7	51.9%	256.9	229.2
Arizona	34.9%	206.8	212.4	34.2%	177.1	192.5
Arkansas	44.6%	140.9	166.5	46.6%	123.2	153.8
California	28.4%	342.1	326.3	22.1%	286.8	294.1
Colorado	33.5%	277.8	268.4	30.1%	230.6	239.0
Connecticut	33.0%	214.3	226.3	29.8%	203.8	218.4
Delaware	39.9%	211.8	222.2	37.3%	198.9	208.7
District of Columbia	18.0%	402.9	354.5	17.4%	329.1	334.1
Florida	39.5%	207.8	203.9	36.4%	174.7	186.0
Georgia	42.1%	182.0	205.6	40.7%	155.6	187.3
Hawaii	40.0%	491.4	381.4	31.8%	421.1	347.7
Idaho	34.9%	192.6	197.2	34.7%	163.8	177.1
Illinois	27.1%	176.5	198.0	25.2%	156.0	183.8
Indiana	40.2%	140.2	155.5	39.4%	122.4	142.4
Iowa	27.0%	144.0	162.3	26.8%	125.8	149.6
Kansas	37.5%	154.0	174.7	36.9%	133.4	157.9
Kentucky	41.0%	148.2	166.0	40.0%	133.5	151.0
Louisiana	43.8%	168.6	192.9	43.4%	151.3	178.4
Maine	36.5%	182.3	197.5	33.0%	167.2	181.6
Maryland	45.1%	281.1	262.4	39.9%	253.6	247.9
Massachusetts	24.6%	287.6	280.4	19.7%	254.5	256.3
Michigan	26.6%	144.4	167.7	26.5%	124.0	152.3
Minnesota	26.3%	195.1	207.5	25.5%	170.7	191.2
Mississippi	51.3%	151.1	170.0	52.2%	132.7	158.7
Missouri	36.9%	150.1	171.5	36.4%	133.1	157.0
Montana	32.5%	212.1	214.7	31.5%	183.9	193.2
Nebraska	32.4%	160.4	169.6	35.2%	135.9	154.6
Nevada	39.3%	236.1	226.5	39.7%	198.4	200.8
New Hampshire	32.8%	229.8	222.6	30.1%	209.5	203.3
New Jersey	30.7%	248.3	263.3	28.1%	233.1	249.5
New Mexico	44.3%	177.0	185.9	44.0%	157.0	173.4
New York	27.4%	240.6	264.8	26.4%	206.1	243.9
North Carolina	35.4%	178.2	199.6	35.8%	155.6	185.3
North Dakota	29.4%	209.1	204.4	26.8%	181.3	187.0
Ohio	37.1%	140.9	156.3	37.6%	125.5	144.7
Oklahoma	47.5%	150.7	170.0	49.9%	131.9	157.7
Oregon	28.3%	250.0	254.0	25.4%	211.3	223.2
Pennsylvania	34.5%	166.6	192.2	33.7%	152.4	181.2
Rhode Island	38.9%	223.3	218.1	34.2%	201.6	203.7
South Carolina	40.9%	181.8	191.6	39.0%	159.1	178.2
South Dakota	37.6%	173.7	182.4	36.9%	155.4	166.3
Tennessee	41.8%	179.1	198.8	42.6%	151.1	179.5
Texas	35.8%	194.2	212.4	38.1%	154.5	192.6
Utah	30.8%	233.4	244.7	31.3%	202.5	220.5
Vermont	23.5%	193.1	195.9	19.9%	181.8	183.1
Virginia	46.1%	268.6	257.8	41.9%	243.9	244.7
Washington	31.9%	278.4	281.1	30.0%	234.1	246.0
West Virginia	48.9%	154.4	154.6	46.0%	139.3	147.1
Wisconsin	24.1%	164.7	174.7	21.6%	147.3	161.5
Wyoming	42.6%	210.3	208.1	41.5%	194.0	196.0

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

State of the US Housing Market

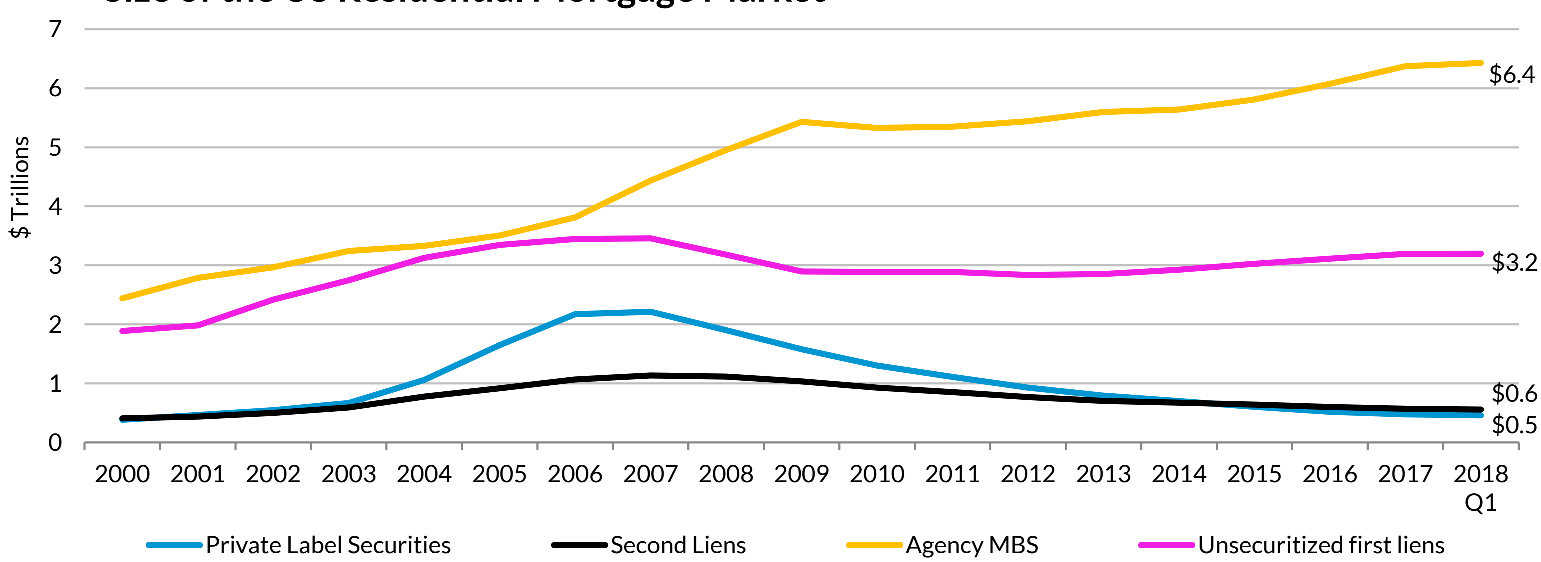
The Federal Reserve's Flow of Funds report has consistently indicated an increasing total value of the housing market driven by growing household equity since 2012, and 2018 Q1 was no different. While total debt and mortgages was stable at $10.6 trillion, household equity reached a new high of $15.7 trillion, bringing the total value of the housing market to $26.4 trillion, 10 percent higher than the pre-crisis peak in 2006. Agency MBS make up 59.3 percent of the total mortgage market, private-label securities make up 4.9 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 5.7 percent of the total.

Value of the US Housing Market



Sources: *Federal Reserve Flow of Funds and Urban Institute. Data as of Q1 2018.*

Size of the US Residential Mortgage Market

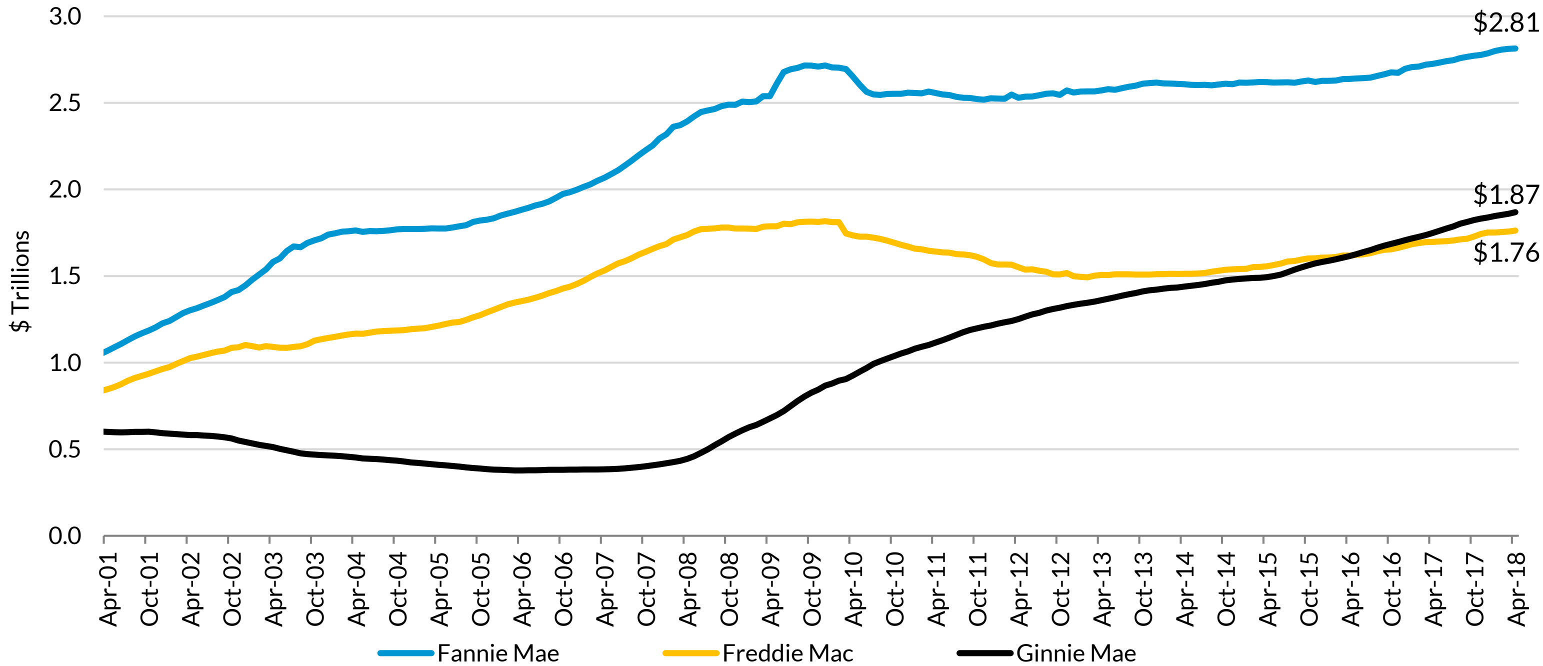


Sources: *Federal Reserve Flow of Funds, Inside Mortgage Finance, Fannie Mae, Freddie Mac, eMBS and Urban Institute.*
Note: *Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, and credit unions. Data as of Q1 2018.*

State of the US Housing Market

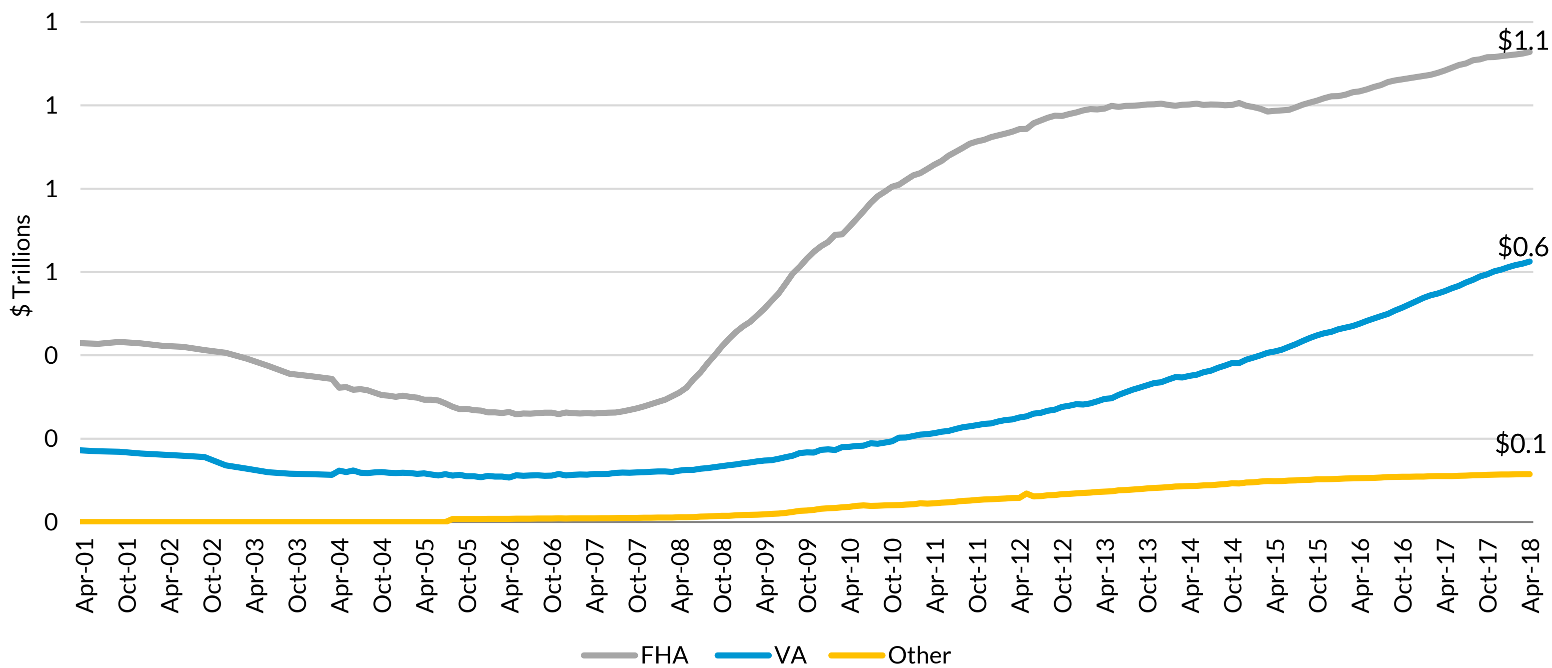
As of April 2018, outstanding securities in the agency market totaled $6.45 trillion and were 43.7 percent Fannie Mae, 27.4 percent Freddie Mac, and 29.0 percent Ginnie Mae. Ginnie Mae has more outstandings than Freddie Mac. Within the Ginnie Mae market, VA has been growing very rapidly--comprising 33.5 percent of total Ginnie Mae outstandings.

Outstanding Agency Mortgage-Backed Securities



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

Outstanding Ginnie Mae Mortgage-Backed Securities

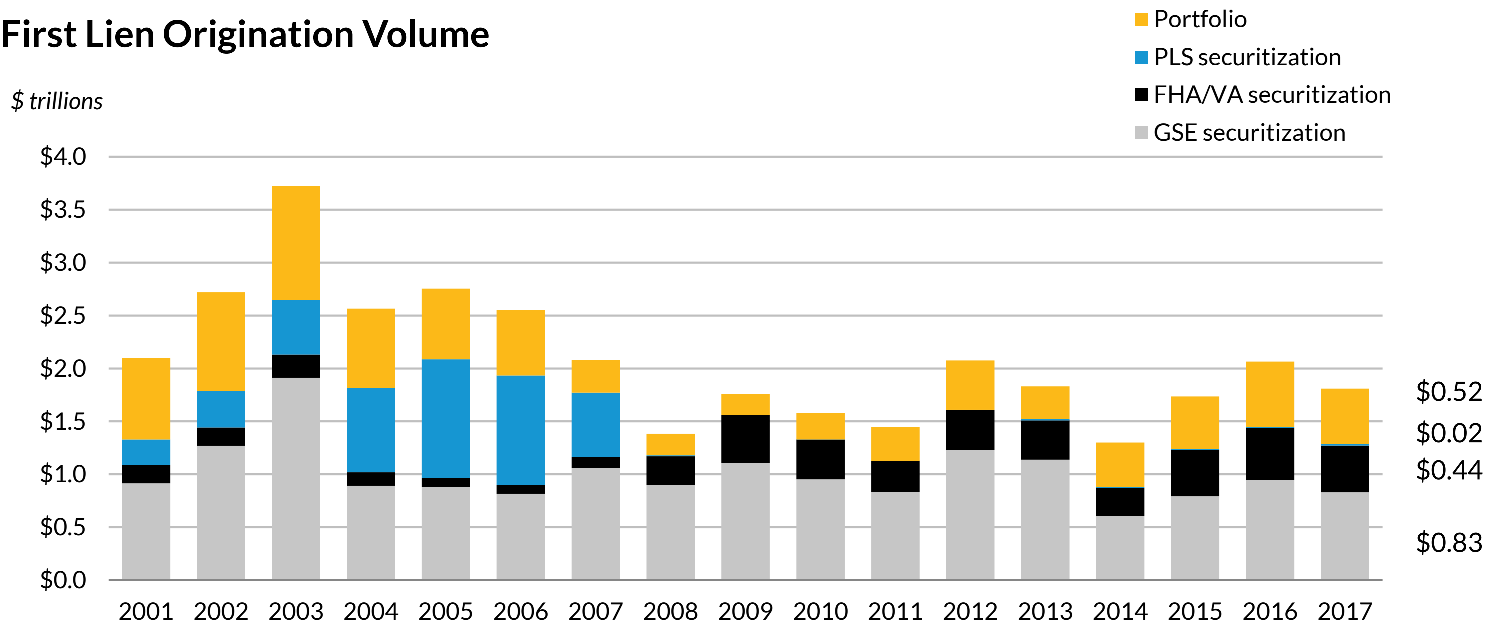


Sources: *eMBS and Urban Institute.* **Note:** *Data as of April 2018.*

State of the US Housing Market

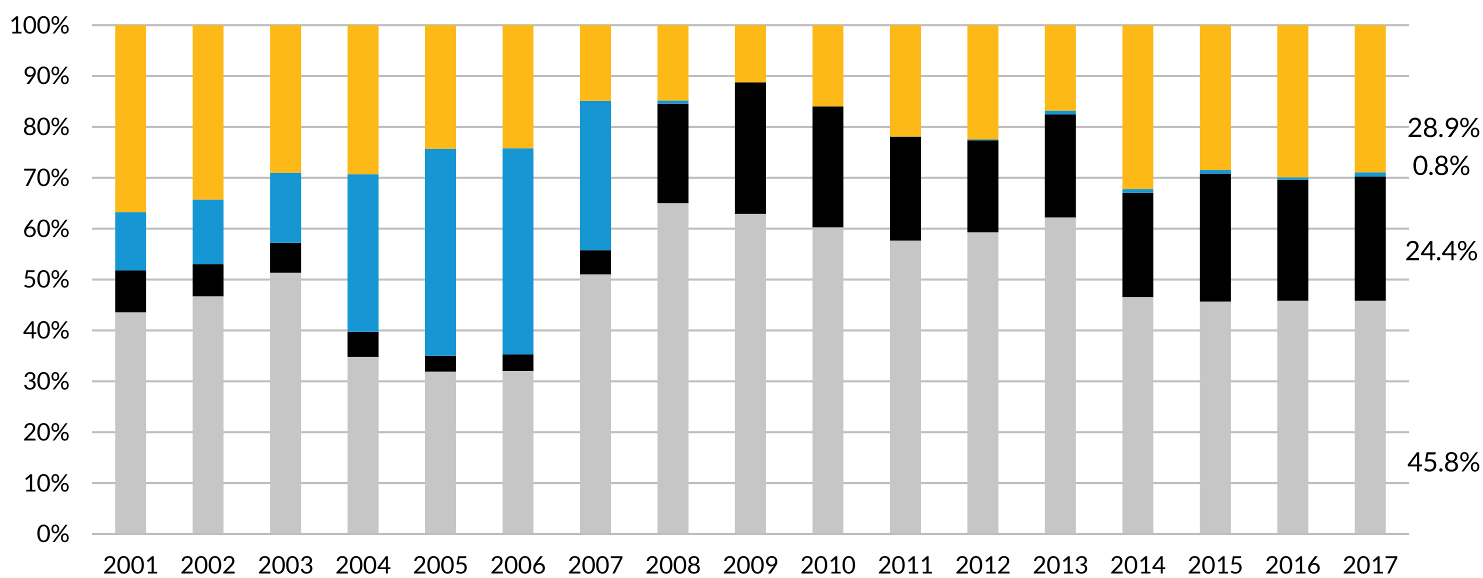
After a record high origination year in 2016 ($2.1 trillion), the first lien originations totaled $1.8 trillion in 2017, down 14 percent from 2016, mostly due to elevated interest rates. The portfolio origination share was 29 percent, the GSE share was 46 percent, and the FHA/VA share was 24 percent, 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 $378.7 billion in the first four months of 2018, down by 11.3 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 11.8 percent. Within the Ginnie Mae market, FHA is down by 16.6 percent and VA origination is up by 0.2 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	$159.6	$90.4	$249.9	$128.8	$378.7
2018 % Change YOY	-7.2%	-18.9%	-11.8%	-10.2%	-11.3%
2018 Ann.	$478.7	$271.1	$749.8	$386.3	$1,136.1

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	$68.8	$54.6	$5.4	$128.8
2018 % Change YOY	-16.6%	0.2%	-15.7%	-10.2%
2018 Ann.	$206.4	$163.7	$16.2	$386.3

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 April 2018.*

US Agency Market, Originations

Agency net issuance totaled $68.8 billion in the first four months of 2018, down 27.2 percent compared to 2017. Ginnie Mae net issuance was $30.1 billion, comprising 43.8 percent of total agency net issuance. Note that Ginnie Mae net issuance is down 26.8 percent compared to the first four months of 2017. Ginnie Mae net issuance in 2018 is comprised of 64.0 percent VA issuance, 32.8 percent FHA issuance and 3.4 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	$27.0	$11.7	$38.7	$30.1	$68.8
2018 %Change YOY	-5.6%	-52.6%	-27.4%	-26.8%	-27.2%
2018 Ann.	$81.0	$35.1	$116.1	$90.2	$206.3

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	$9.9	$19.2	$1.0	$30.1
2018 %Change YOY	-37.4%	-19.8%	-28.7%	-26.8%
2018 Ann.	$29.6	$57.6	$3.0	$90.2

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 April 2018.*

US Agency Market, Originations

Agency gross issuance totaled $95.2 billion in April 2018, up slightly from $85.9 billion of issuance in March 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

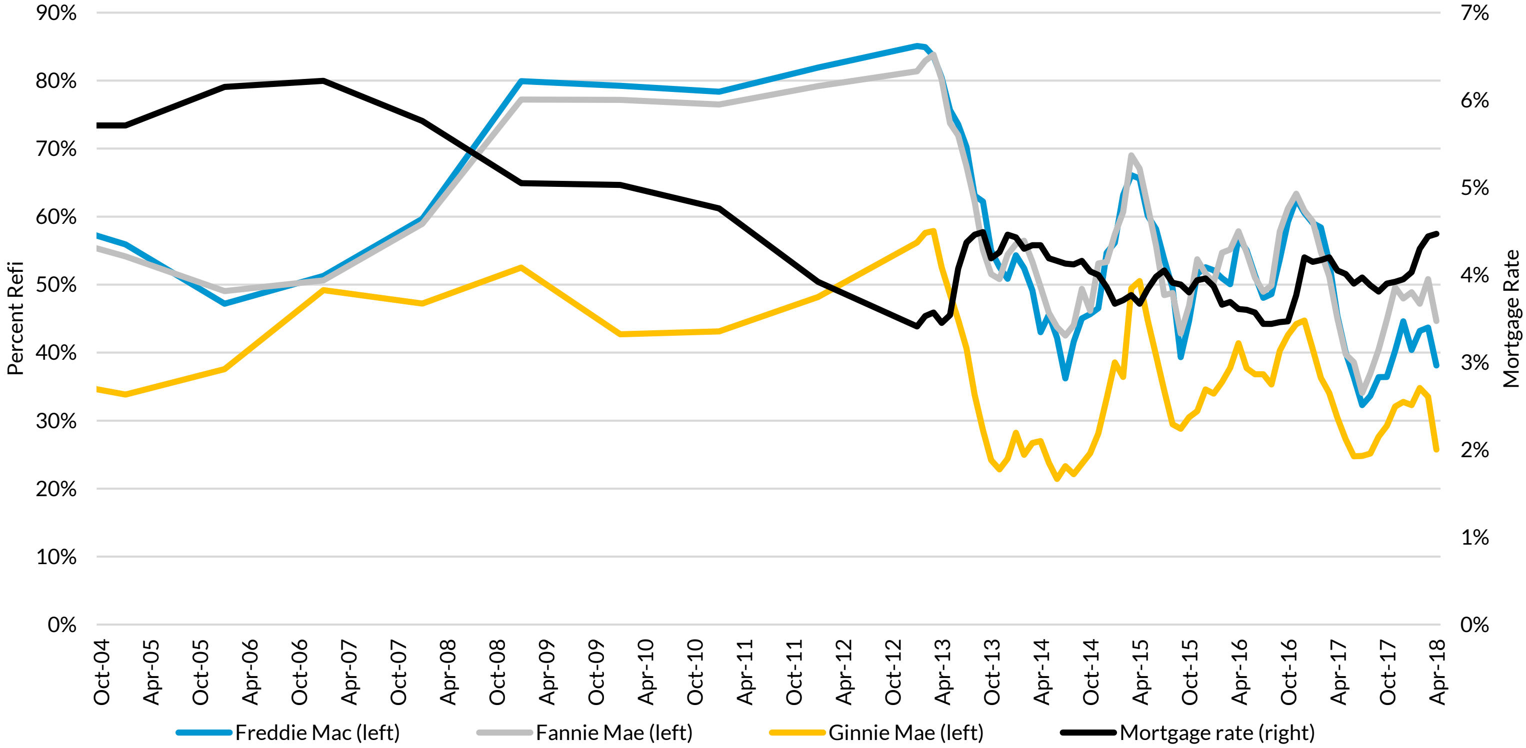
	Gross Issuance			Net Issuance		
Date	Fannie Mae	Freddie Mac	Ginnie Mae	Fannie Mae	Freddie Mac	Ginnie Mae
Jan-15	$36.8	$22.9	$27.5	-$1.2	$0.8	$2.5
Feb-15	$35.4	$29.9	$23.9	$1.5	$10.1	$2.9
Mar-15	$44.8	$26.0	$30.7	$3.1	$1.1	$0.6
Apr-15	$49.3	$33.8	$40.6	-$1.2	$3.8	$4.3
May-15	$42.4	$33.2	$39.4	-$2.9	$6.6	$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
Apr-18	$36.3	$26.2	$32.7	$1.71	$6.1	$9.1

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 April 2018.*

US Agency Market, Originations

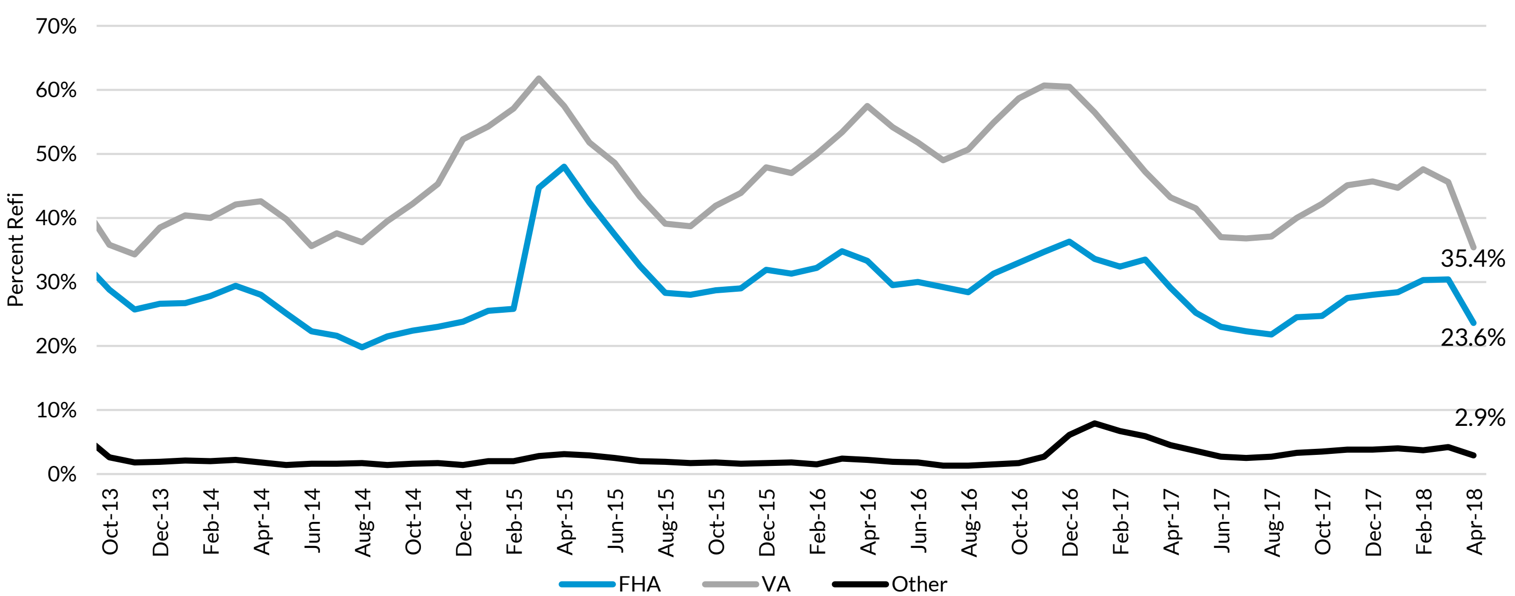
The Ginnie Mae refi share stood at 26 percent in April 2018, below the 45 and 38 percent shares for Fannie Mae and Freddie Mac, respectively. Within Ginnie Mae, VA had the highest refi share at 35.4 percent in April 2018, followed by FHA's 23.6 percent refi share. In April, the refinance share declined sharply for all agencies. This is a result of increasing interest rates and the end of the winter lull in purchase activity that keeps the refi share up in the winter months. Loans sold into agency pools in April are based on February and March home sales.

Percent Refi at Issuance



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

Percent Refi at Issuance: Ginnie Mae Breakdown

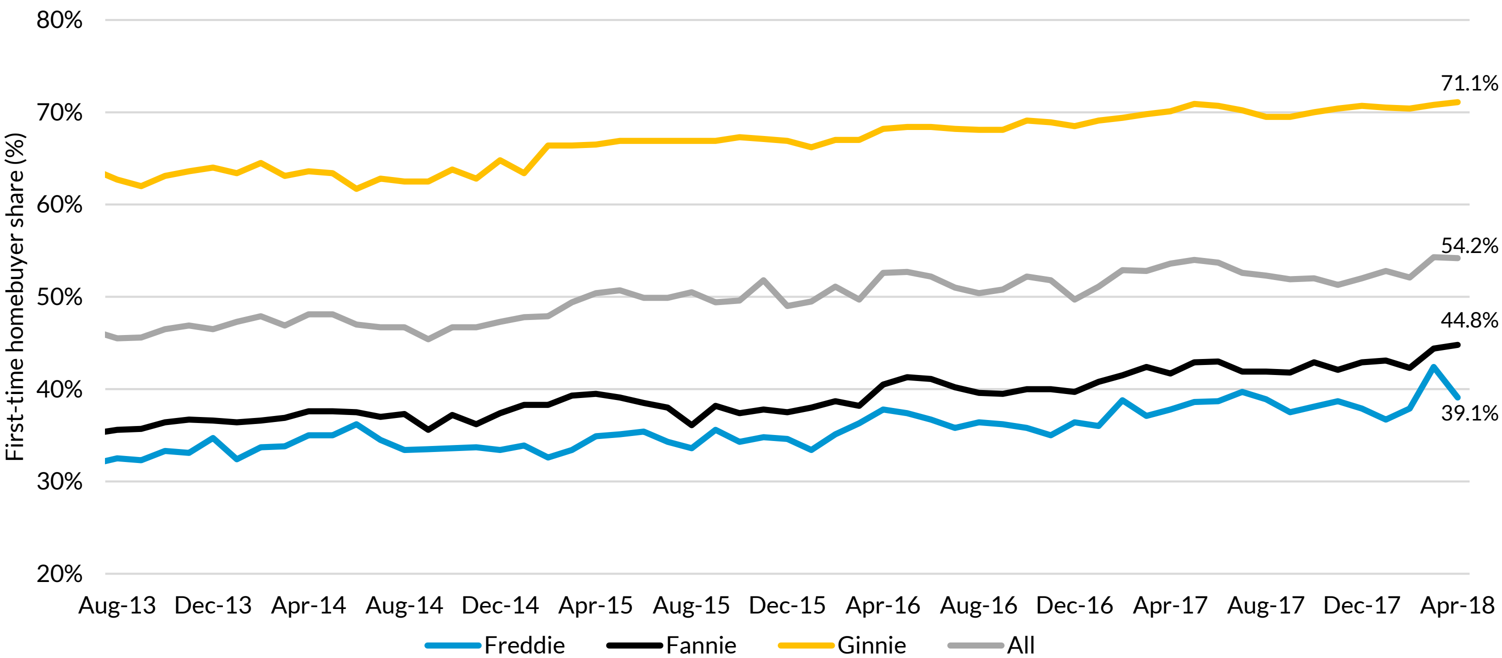


Sources: *eMBS and Urban Institute.*
Note: *Based on at-issuance balance. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of April 2018.*

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 45 percent and 39 percent share of the first-time homebuyer market. The bottom table shows that based on mortgages originated in April 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 April 2018.*

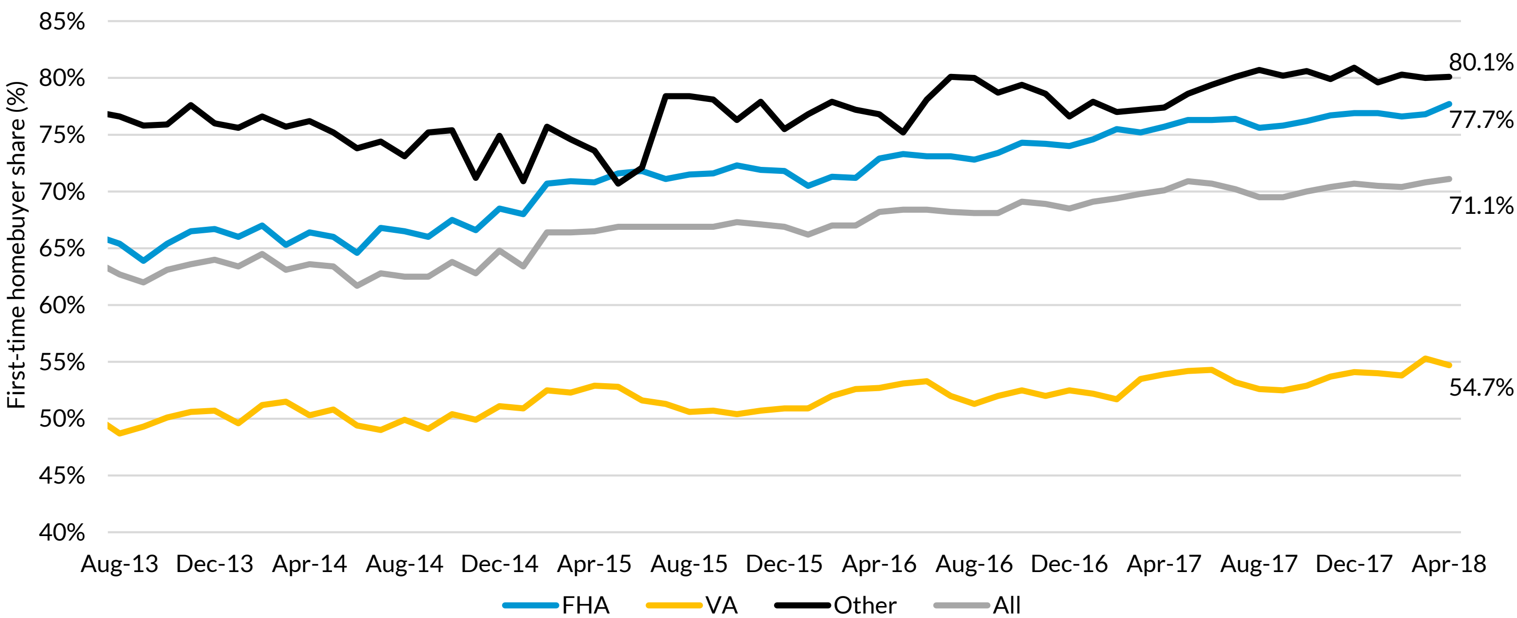
	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	227,008	255,965	242,089	261,229	201,486	247,129	215,977	254,945
Credit Score	734.5	751.4	742.6	756.2	679.4	700.2	706.0	736.7
LTV (%)	87.7	78.8	85.9	79.0	96.9	95.8	92.4	84.2
DTI (%)	36.7	37.0	35.3	36.4	41.5	42.5	39.1	38.5
Loan Rate (%)	4.59	4.43	4.45	4.39	4.58	4.43	4.56	4.41

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 April 2018.*

Credit Box

Within the Ginnie Mae purchase market, 78 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 April 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 April 2018.*

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	197,450	218,474	239,630	288,482	142,202	154,919	201,486	247,129
Credit Score	670.4	674.5	698.8	726.9	695.1	694.7	679.4	700.2
LTV (%)	95.6	94.2	99.9	96.9	99.5	99.6	96.9	95.8
DTI (%)	42.7	43.7	40.7	42.0	35.5	36.2	41.5	42.5
Loan Rate (%)	4.65	4.58	4.42	4.26	4.47	4.50	4.58	4.43

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

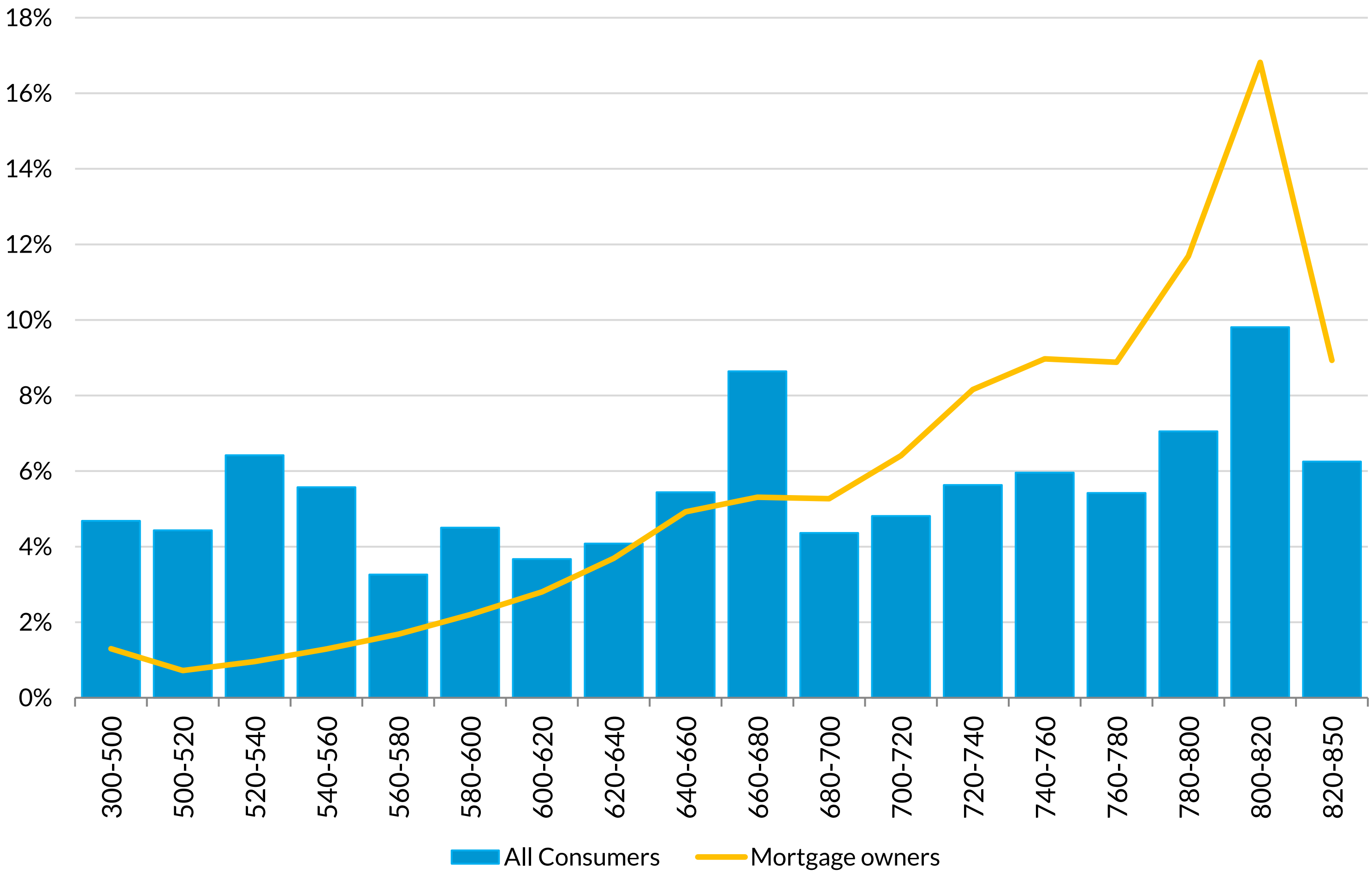
Credit Box

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.*

April 2018 Credit Box at a Glance

In April2018, the median Ginnie Mae FICO score was 677 versus 746 for Fannie and 754 for Freddie. Note that the FICO score for the 10th percentile was 621 for Ginnie Mae, versus 665 for Fannie and 682 for Freddie. Within the Ginnie Mae market, FHA loans have a median FICO score of 665, VA loans have a median FICO score of 705 and other loans have a median FICO score of 692.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	244,677	641	676	727	773	796	722
Fannie	77,135	677	713	753	784	801	745
Freddie	65,699	691	723	760	787	801	752
Ginnie	101,843	623	645	677	722	769	685
Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	140,243	642	680	725	769	795	721
Fannie	62,591	654	691	735	775	797	730
Freddie	44,843	671	703	743	778	798	738
Ginnie	32,809	609	641	678	720	762	681
All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	384,920	641	677	726	772	796	722
Fannie	139,726	665	702	746	781	799	738
Freddie	110,542	682	714	754	784	801	746
Ginnie	134,652	621	644	677	721	767	684

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	101,843	623	645	677	722	769	685
FHA	62,376	618	639	666	700	738	671
VA	30,300	632	662	711	764	793	712
Other	9,167	639	658	691	731	765	695
Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	32,809	609	641	678	720	762	681
FHA	17,876	600	631	663	698	736	665
VA	14,745	626	657	697	743	779	699
Other	188	612	662	716	756	798	705
All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	134,652	621	644	677	721	767	684
FHA	80,252	614	638	665	700	738	670
VA	45,045	630	660	705	758	790	707
Other	9,355	639	658	692	731	766	695

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 April 2018.*

April 2018 Credit Box at a Glance

In April 2018, the median loan-to-value ratio (LTV) was 96.5 percent for Ginnie Mae, 80 percent for Fannie Mae, and 80 percent for Freddie Mac. The 10th percentile was 82.7 percent for Ginnie Mae, and 48-49 percent for Fannie Mae and Freddie Mac. Within the Ginnie Mae market, the median LTV was 96.5 for FHA, 100.0 for VA and 101.0 for other programs.

Purchase LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	243,370	72.0	80.0	95.0	96.5	100.0	87.9
Fannie	77,024	63.0	79.0	80.0	95.0	97.0	82.4
Freddie	65,746	61.0	75.0	80.0	95.0	95.0	81.1
Ginnie	100,600	93.5	96.5	96.5	100.0	102.0	96.6
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	142,346	43.0	59.0	73.4	80.0	90.5	69.7
Fannie	62,601	39.0	54.0	68.0	77.0	80.0	64.2
Freddie	44,896	40.0	56.0	70.0	79.0	80.0	65.2
Ginnie	34,849	67.3	80.5	86.5	95.9	100.0	85.3
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	385,716	55.0	73.0	84.0	96.5	98.5	81.2
Fannie	139,625	48.0	64.0	80.0	90.0	95.0	74.2
Freddie	110,642	49.0	67.0	80.0	88.0	95.0	74.6
Ginnie	135,449	82.7	93.0	96.5	100.0	101.0	93.7

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	100,600	93.5	96.5	96.5	100.0	102.0	96.6
FHA	62,489	93.4	96.5	96.5	96.5	96.5	95.3
VA	28,899	92.0	100.0	100.0	102.2	103.3	98.6
Other	9,212	95.7	99.3	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	34,849	67.3	80.5	86.5	95.9	100.0	85.3
FHA	18,322	66.8	79.3	86.5	86.5	96.1	82.4
VA	16,258	67.7	82.2	92.2	100.0	102.2	88.5
Other	269	77.0	83.2	91.9	99.8	103.0	90.1
All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	135,449	82.7	93.0	96.5	100.0	101.0	93.7
FHA	80,811	83.1	91.0	96.5	96.5	96.5	92.3
VA	45,157	80.0	92.7	100.0	101.2	103.3	95.0
Other	9,481	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 April 2018.*

April 2018 Credit Box at a Glance

In April 2018, the median Ginnie Mae debt-to-income ratio (DTI) was 42.2 percent, considerably higher than the 37-38 percent median DTIs for Fannie Mae and Freddie Mac. The 90th percentile for Ginnie Mae was 54.0 percent, also much higher than the 48 .0 percent DTIs for the GSEs. Within the Ginnie Mae market, the median FHA DTI ratio was 43.8 percent, versus 41.2 percent for VA and 36.5 percent for other lending programs.

Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	244,711	25.0	32.0	40.0	46.0	50.0	38.5
Fannie	77,188	23.0	30.0	38.0	44.0	48.0	36.6
Freddie	65,746	22.0	29.0	37.0	44.0	48.0	35.7
Ginnie	101,777	29.1	35.6	42.3	48.9	54.0	41.8
Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	134,291	23.0	30.0	38.8	45.0	49.0	37.3
Fannie	61,596	22.0	29.0	38.0	45.0	49.0	36.5
Freddie	44,377	22.0	29.0	37.0	44.0	48.0	35.8
Ginnie	28,318	26.8	34.3	42.1	48.8	54.0	41.1
All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	379,002	24.0	31.0	39.1	45.7	49.8	38.1
Fannie	138,784	23.0	30.0	38.0	45.0	48.0	36.6
Freddie	110,123	22.0	29.0	37.0	44.0	48.0	35.8
Ginnie	130,095	28.6	35.3	42.2	48.9	54.0	41.6

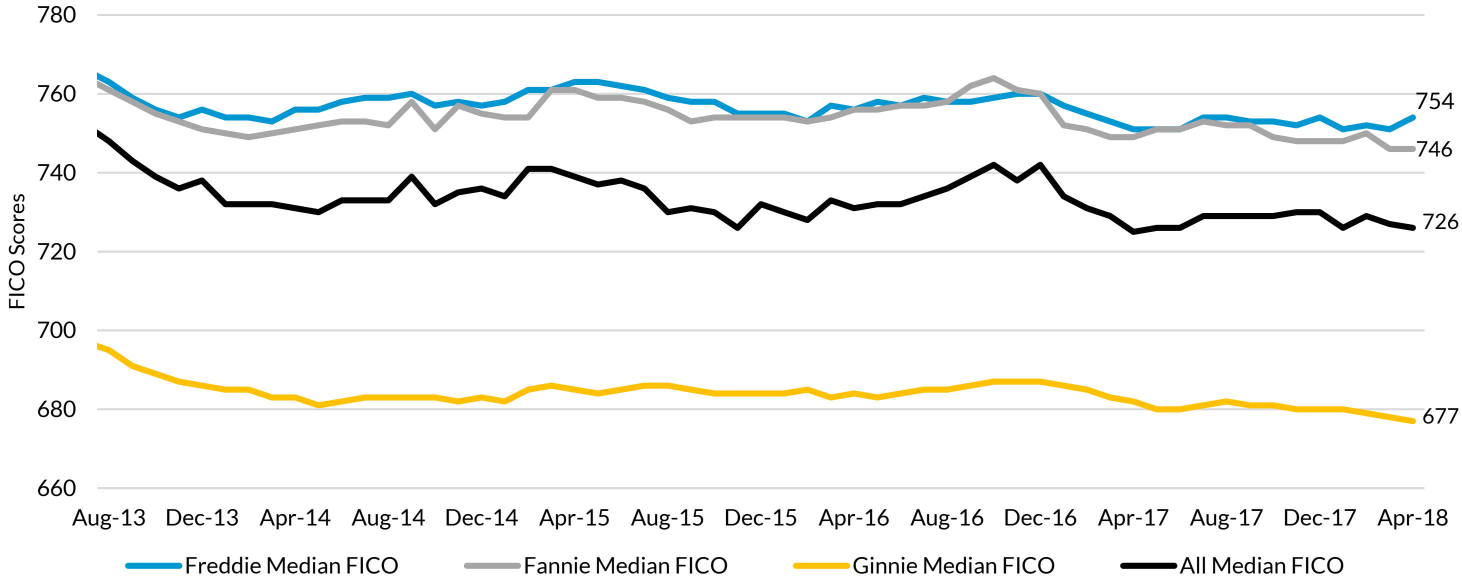
Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	101,777	29.1	35.6	42.3	48.9	54.0	41.8
FHA	62,506	30.2	36.9	43.9	49.9	54.5	42.9
VA	30,167	28.2	35.1	41.2	48.3	53.7	41.3
Other	9,104	26.6	31.5	36.5	40.4	43.3	35.6
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	28,318	26.8	34.3	42.1	48.8	54.0	41.1
FHA	15,669	27.8	35.2	43.1	49.3	54.3	41.8
VA	12,478	25.9	33.2	41.0	48.0	53.5	40.3
Other	171	18.1	23.2	31.4	38.5	42.7	31.0
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	130,095	28.6	35.3	42.2	48.9	54.0	41.6
FHA	78,175	29.7	36.6	43.8	49.8	54.4	42.7
VA	42,645	27.5	34.5	41.2	48.2	53.6	41.0
Other	9,275	26.4	31.4	36.5	40.4	43.3	35.5

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 April 2018.*

Credit Box: Historical

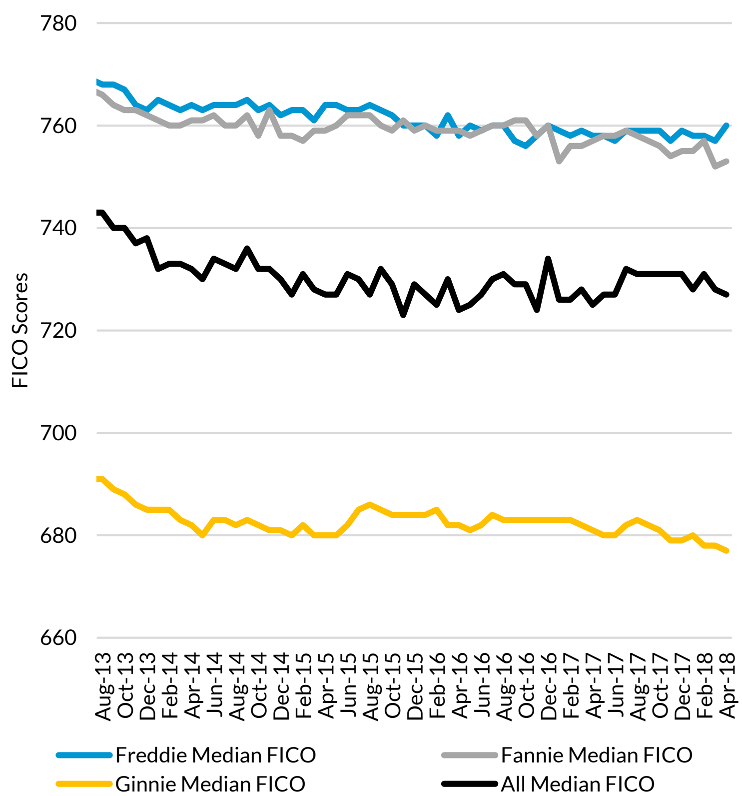
The median FICO score for all agency MBS originated in April now stands at 726, slightly lower than last month. The figures clearly show that the median FICO score for Ginnie Mae borrowers has always been considerably lower than for GSE borrowers. The difference between Ginnie Mae and GSE borrowers is wider in purchase loans than in refi loans.

FICO Scores for All Loans



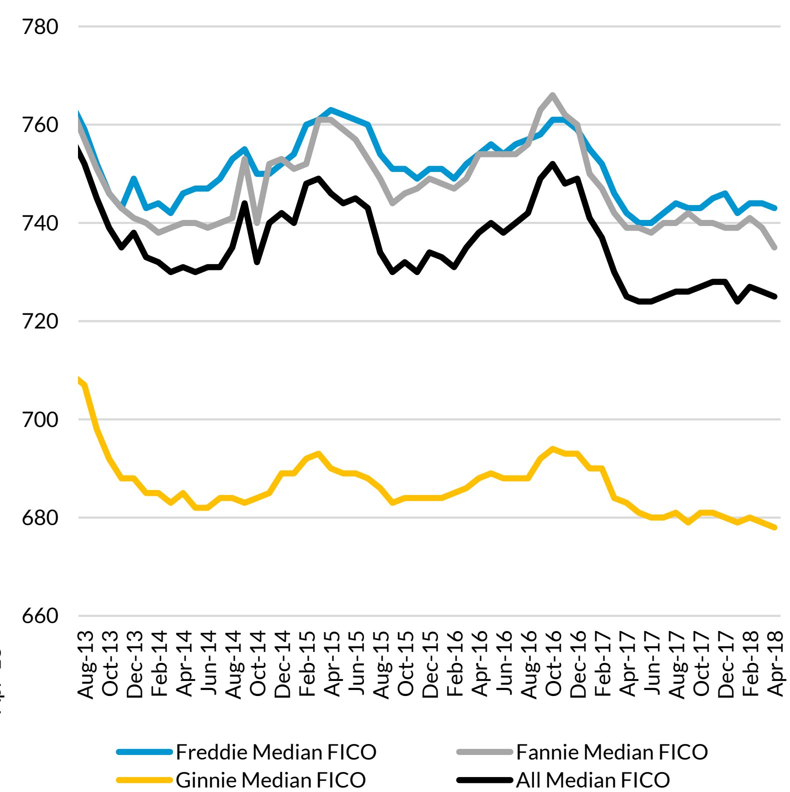
Sources: *eMBS and Urban Institute.* **Note**: *Data as of April 2018.*

FICO Scores for Purchase Loans



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

FICO Scores for Refinance Loans

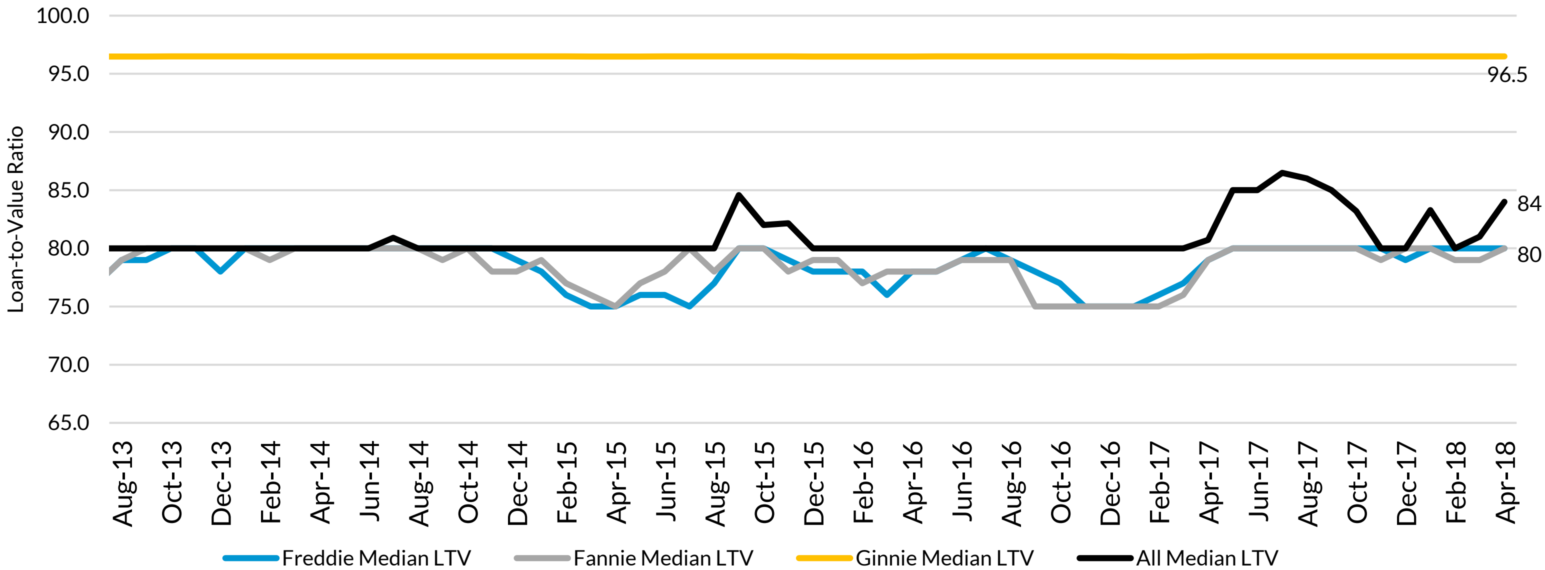


Sources: *eMBS and Urban Institute.* **Note:** *Data as of April 2018.*

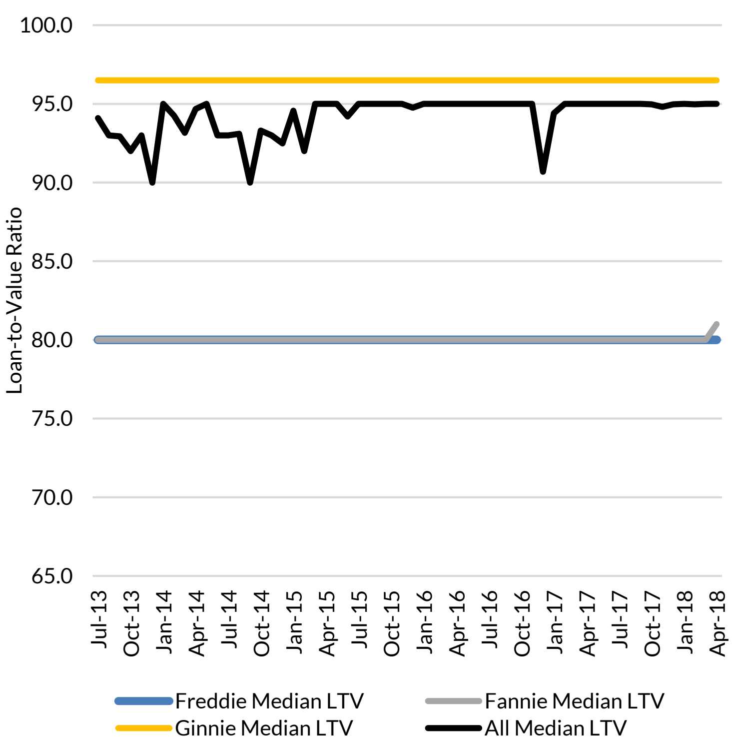
Credit Box: Historical

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

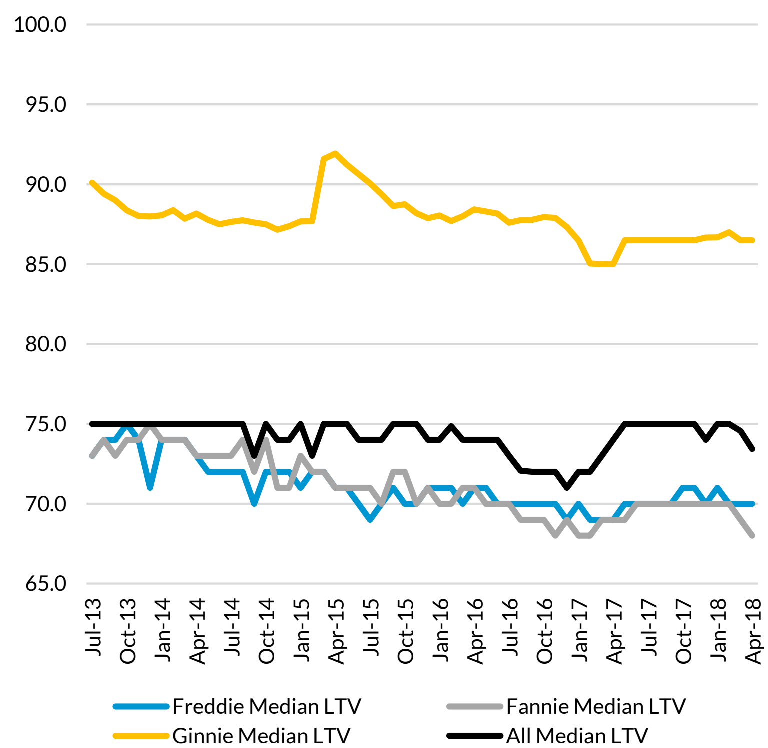
LTV Ratio for All Loans



LTV Ratio for Purchase Loans



LTV Ratio for Refinance Loans

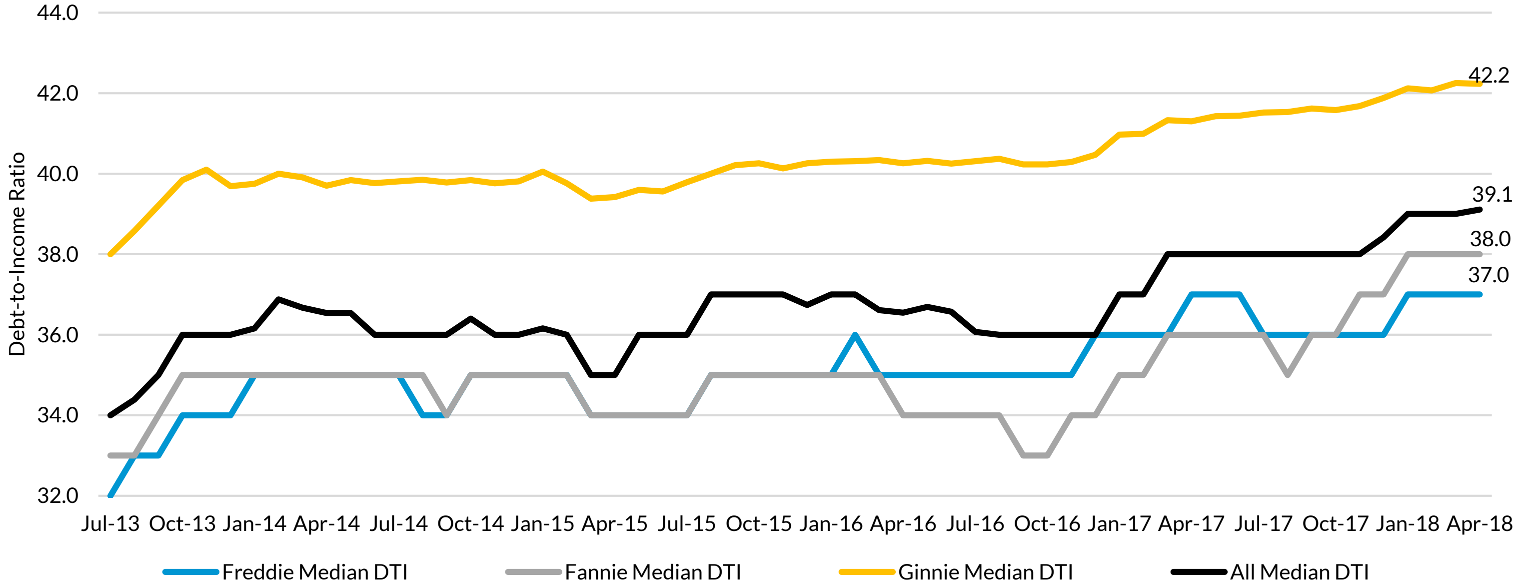


Sources: *eMBS and Urban Institute.* **Note:** *In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium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

Credit Box: Historical

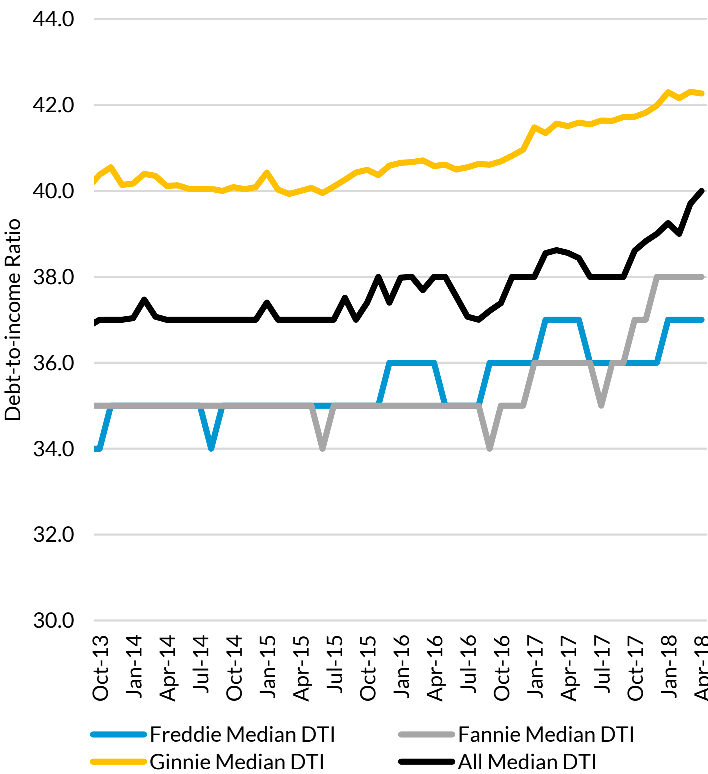
Median debt-to-income ratios on Ginnie Mae loans have historically been in the low 40s, considerably higher than that of the GSEs. DTIs have been inching up over the past year for both Ginnie Mae and GSE loans, with the movement more pronounced for Ginnie Mae loans. Increases in DTIs are very typical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



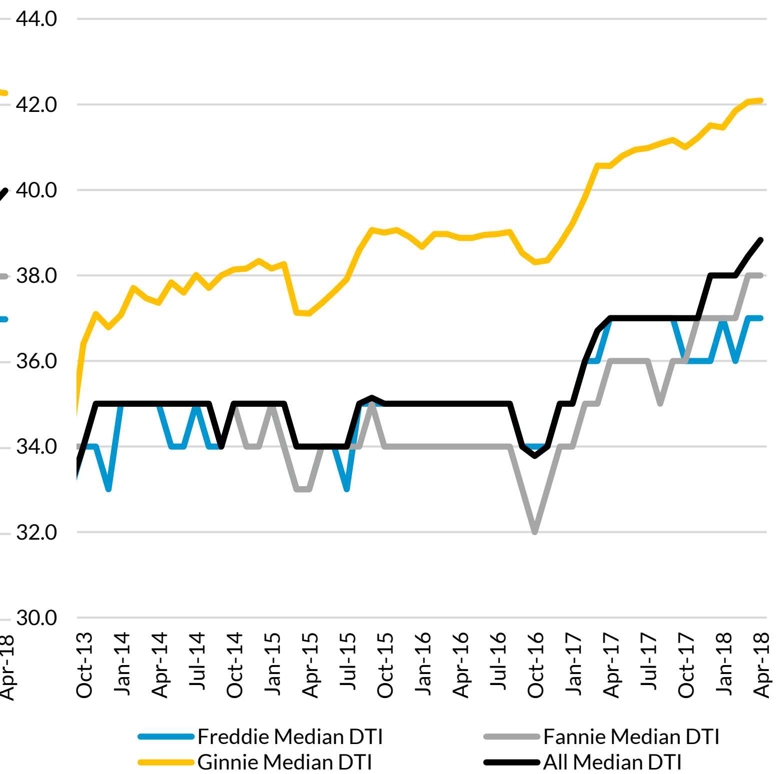
Sources: *eMBS and Urban Institute.* **Note:** *Data as of April 2018.*

DTI Ratio for Purchase Loans



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

DTI Ratio for Refinance Loans

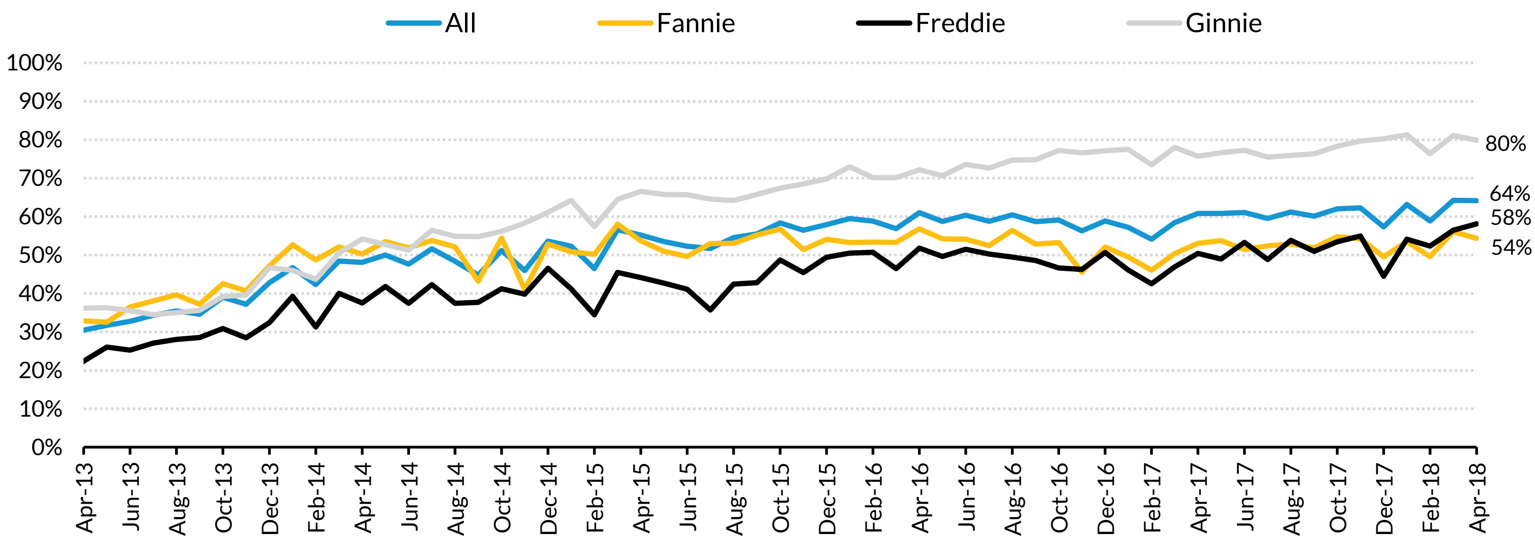


Sources: *eMBS and Urban Institute.*
Note: *Data as of April 2018.*

Nonbank Originators

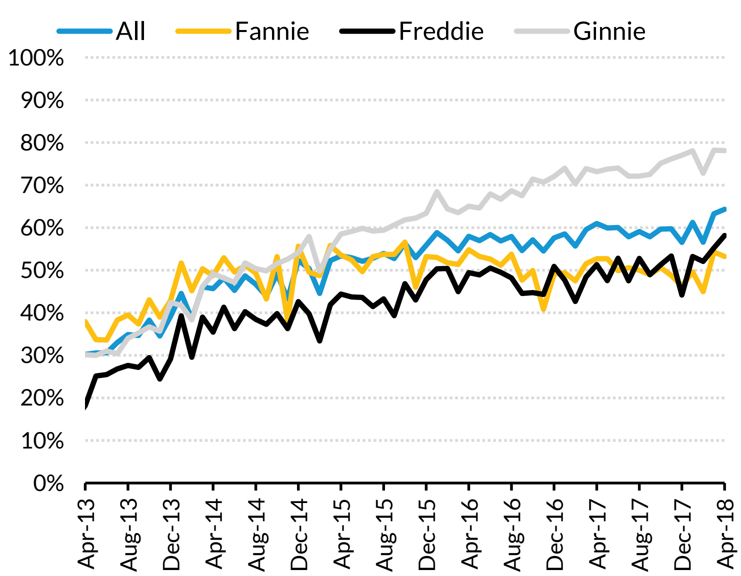
The nonbank origination share has been generally increasing since 2013. In April 2018, the Ginnie Mae nonbank originator share stood at 80 percent. Nonbank originator shares for Freddie Mac reached new historical highs, now standing at around 58 percent, while nonbank originator shares for Fannie Mae dipped slightly to 54 percent. For Ginnie Mae, the non-bank refi share was higher than the non-bank purchase share. The differences were more modest for the GSEs.

Nonbank Origination Share: All Loans

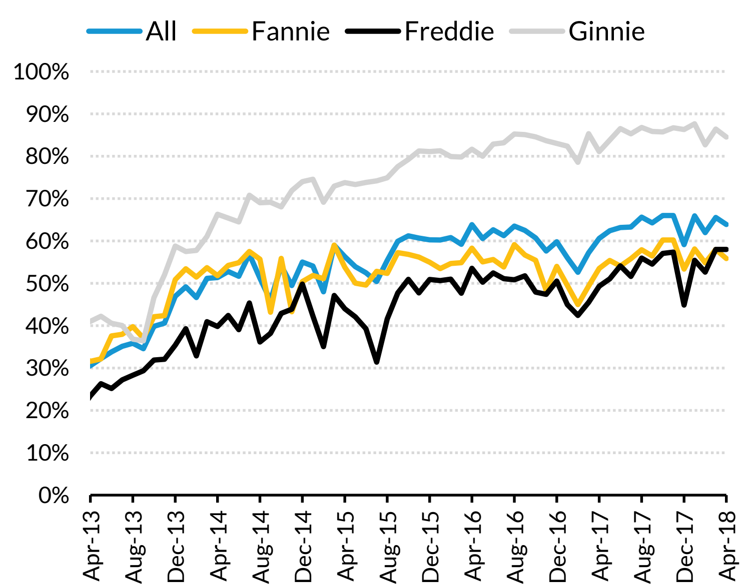


Sources: *eMBS and Urban Institute*
Note: *Data as of April 2018.*

Nonbank Origination Share: Purchase Loans



Nonbank Origination Share: Refinance Loans

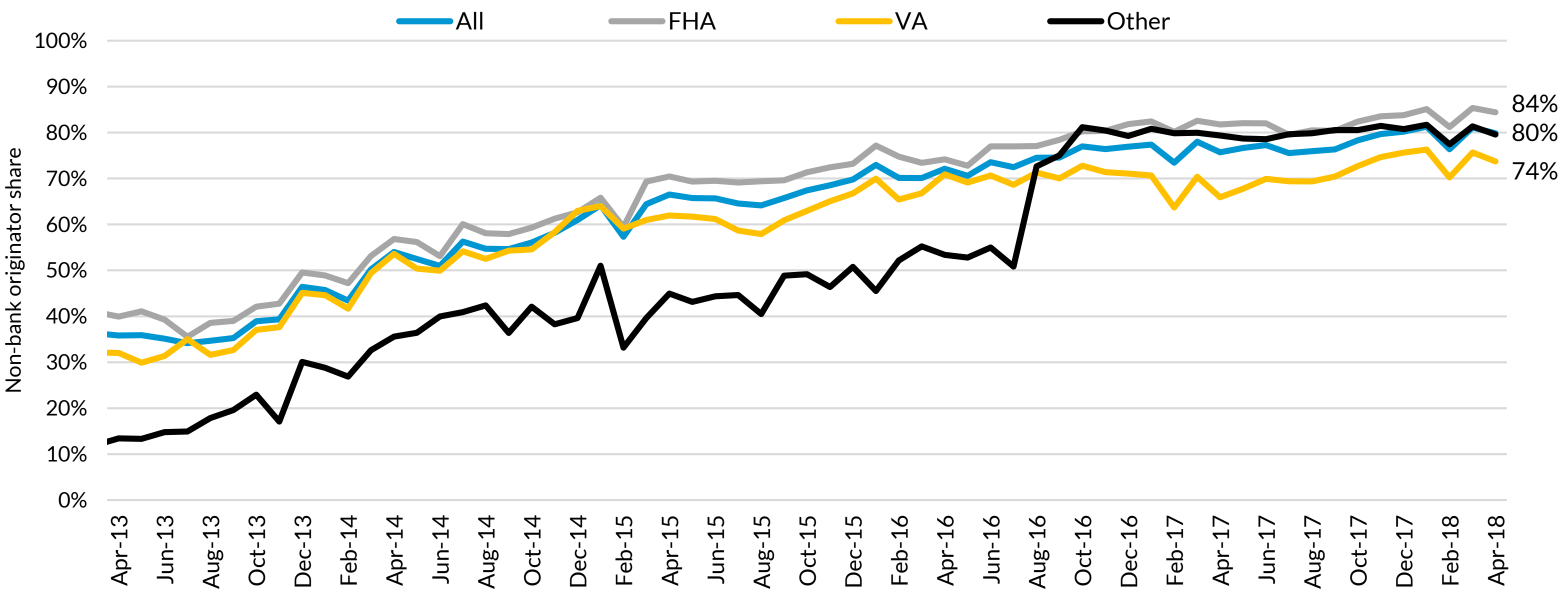


Sources: *eMBS and Urban Institute.* **Note: "***Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of April 2018.*

Ginnie Mae Nonbank Originators

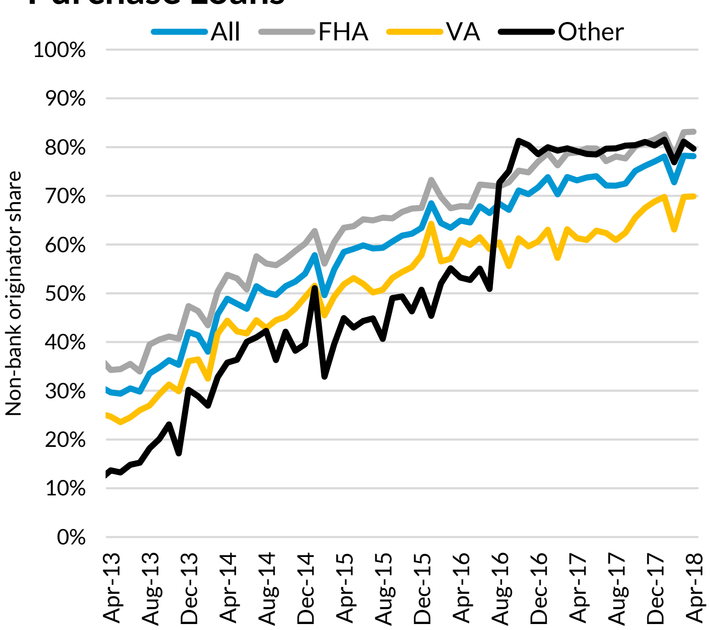
In April 2018, Ginnie Mae's nonbank share dipped slightly to 80 percent. Nonbank originator shares for FHA, VA, and Other issuance also came down slightly to 84, 74, and 80 percent, respectively. The nonbank originator share is higher for refinance loans than for purchase loans across all channels.

Ginnie Mae Nonbank Originator Share: All Loans

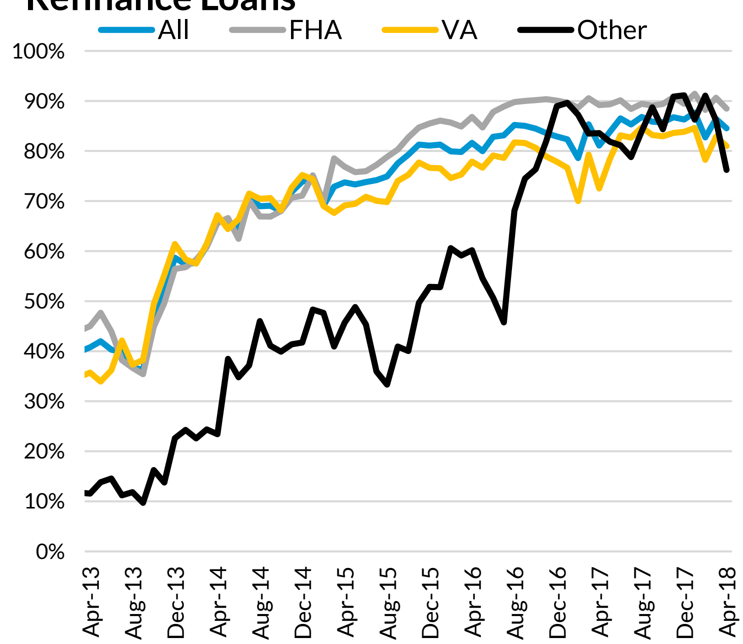


Sources: *eMBS and Urban Institute*
Note: *Data as of April 2018.*

Ginnie Mae Nonbank Share: Purchase Loans



Ginnie Mae Nonbank Share: Refinance Loans

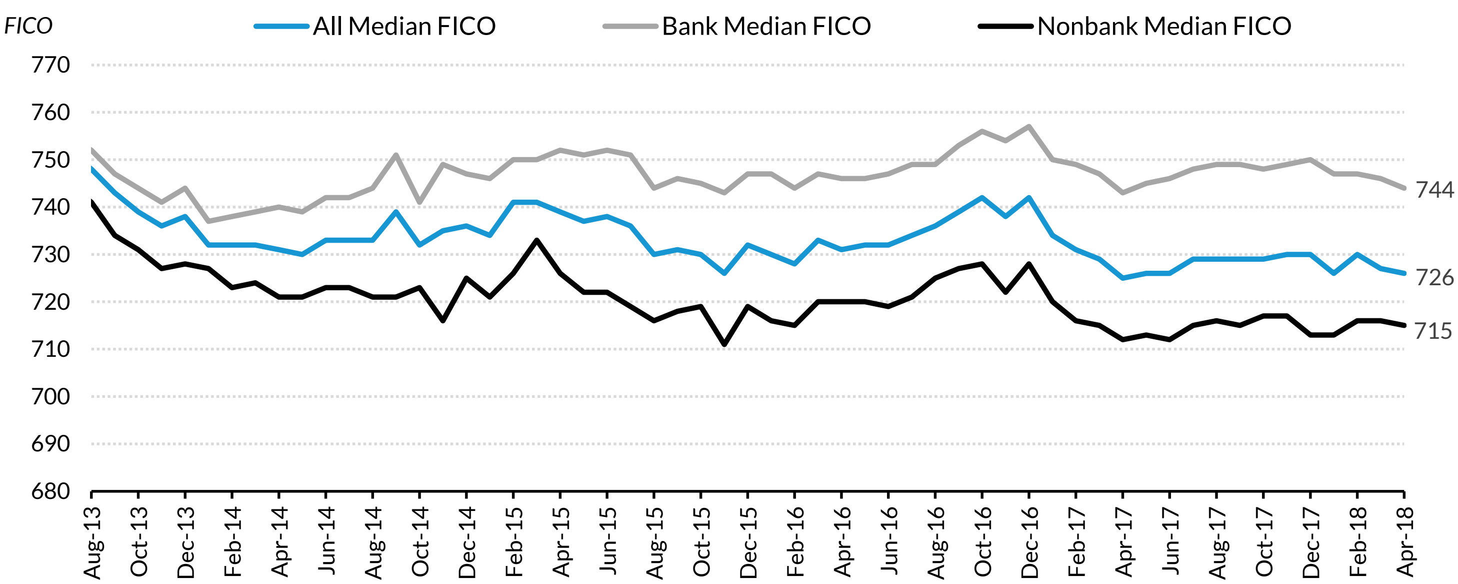


Sources: *eMBS and Urban Institute.* **Note: "***Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of April 2018.*

Nonbank Credit Box

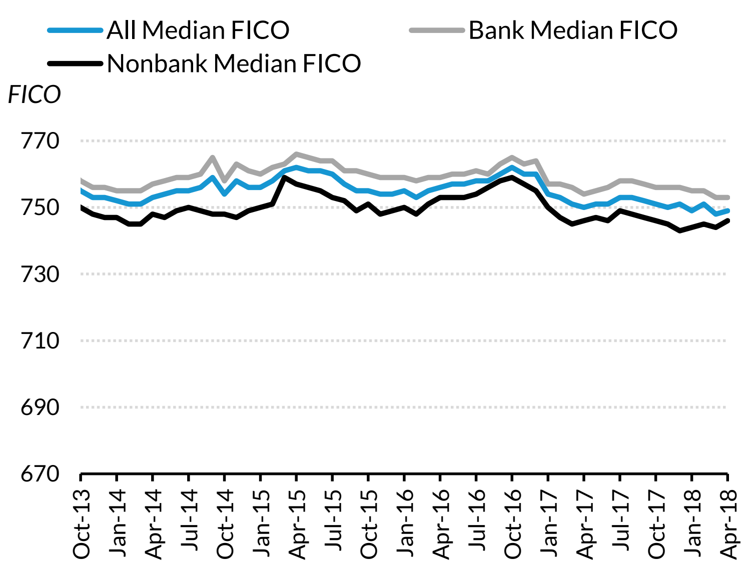
Nonbank originators have played a key role in opening up access to credit. The median GSE and the median Ginnie Mae FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, both bank and nonbank FICOs have declined since 2014 with a further relaxation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



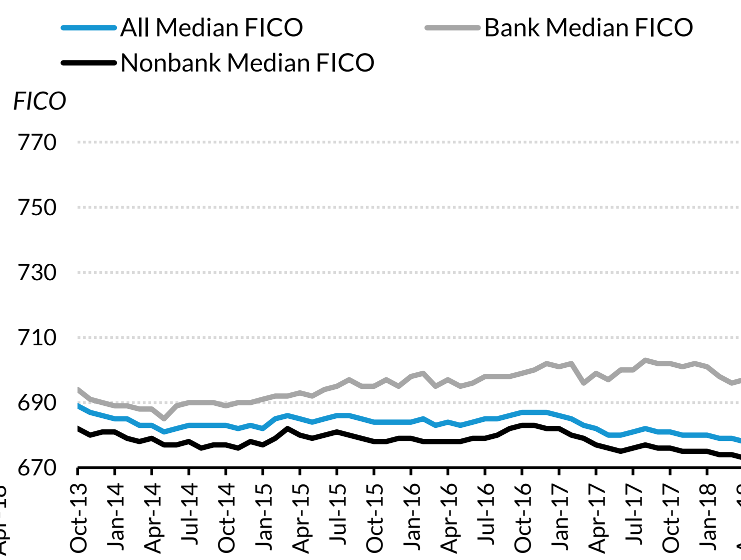
Sources: *eMBS and Urban Institute.* **Note**: *Data as of April 2018.*

GSE FICO: Bank vs. Nonbank



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

Ginnie Mae FICO: Bank vs. Nonbank

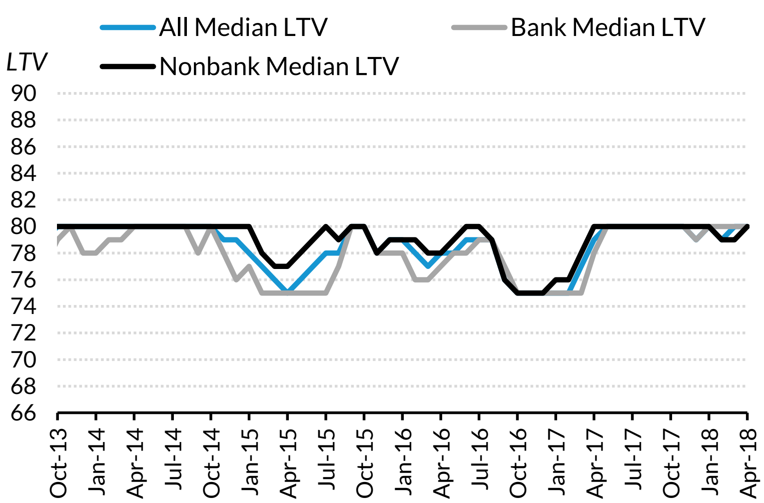


Sources: *eMBS and Urban Institute.*
Note: *Data as of April 2018.*

Nonbank Credit Box

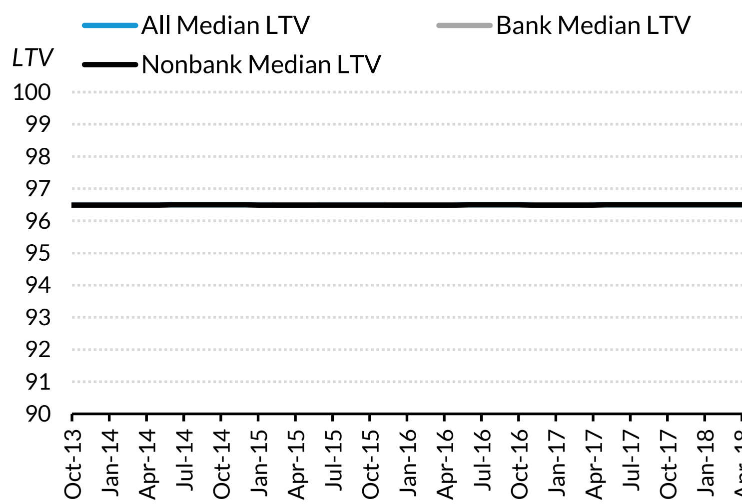
The median LTV ratios for loans originated by nonbanks are similar to that of their bank counterparts, while the median DTIs for nonbank loans are higher, indicating that nonbanks are more accommodating in this as well as in the FICO dimension. Note that since early 2017, there has been a measurable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



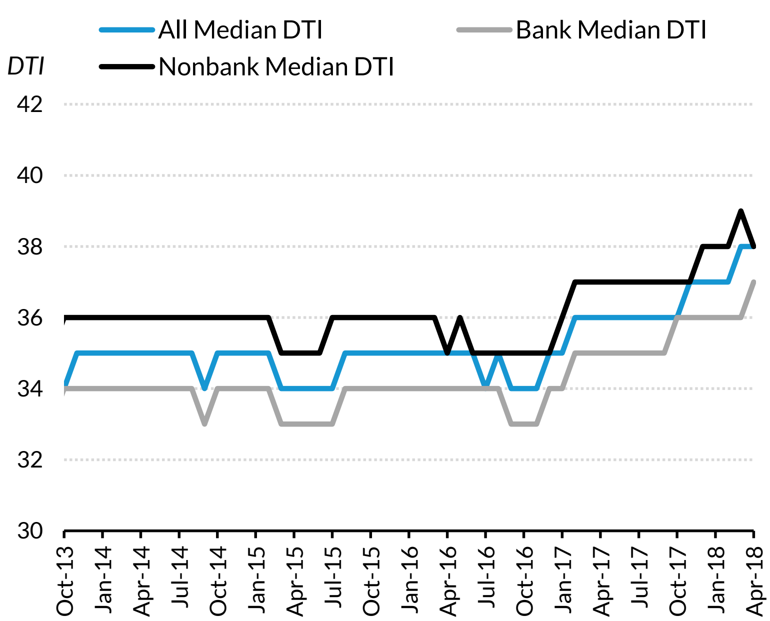
Sources: *eMBS and Urban Institute.* **Note**: *Data as of April 2018.*

Ginnie Mae LTV: Bank vs. Nonbank



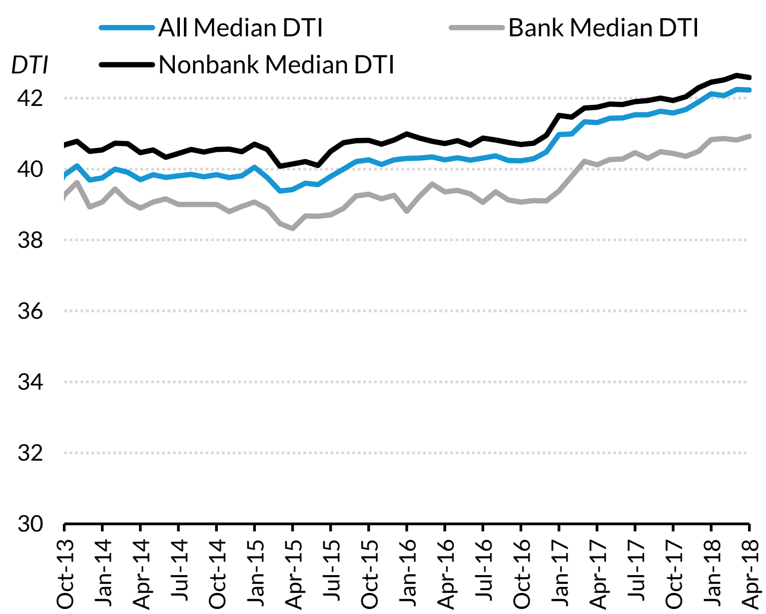
Sources: *eMBS and Urban Institute.* **Note**: *Data as of April 2018.*

GSE DTI: Bank vs. Nonbank



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

Ginnie Mae DTI: Bank vs. Nonbank

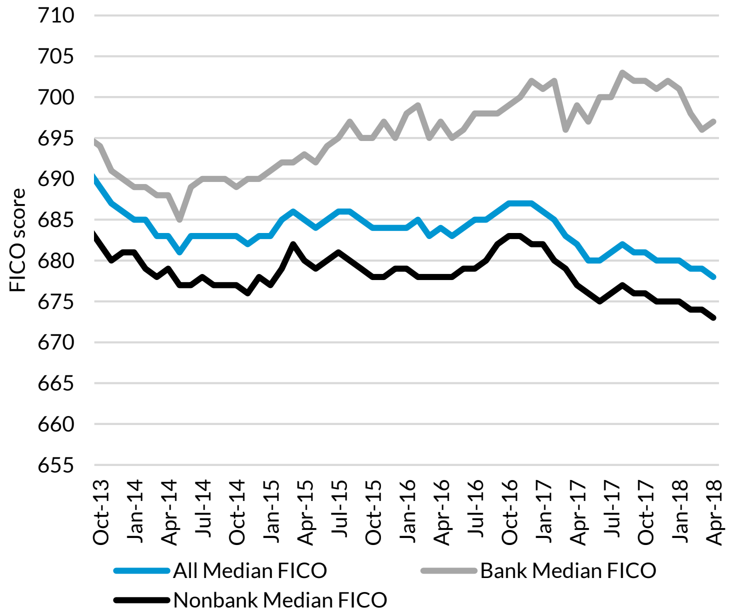


Sources: *eMBS and Urban Institute.* **Note**: *Data as of April 2018.*

Ginnie Mae Nonbank Originators: Credit Box

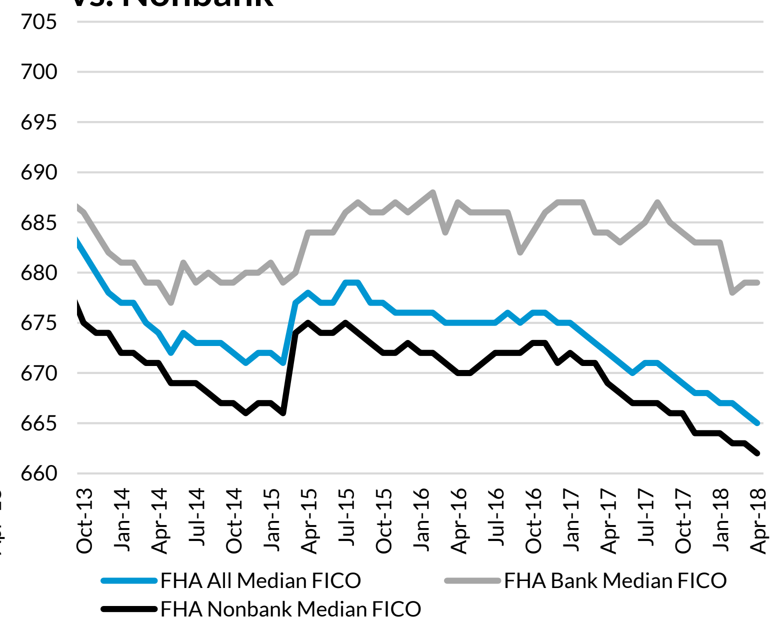
The FICO scores for Ginnie Mae bank originators increased in April 2018, while the FICO scores for Ginnie Mae nonbank originators declined. The spread in the FICO scores between banks and non-banks narrowed slightly, but remains close to their widest level since the data became available in 2013. The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



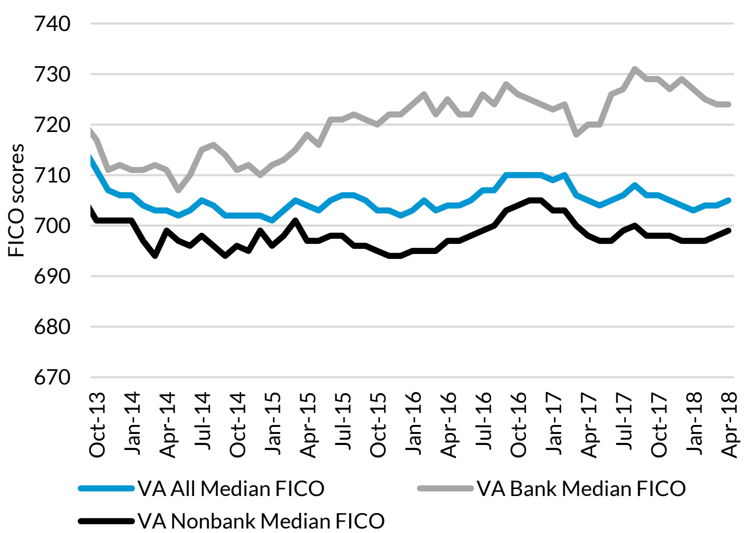
Sources: *eMBS and Urban Institute* **Note:** *Data as of April 2018*

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



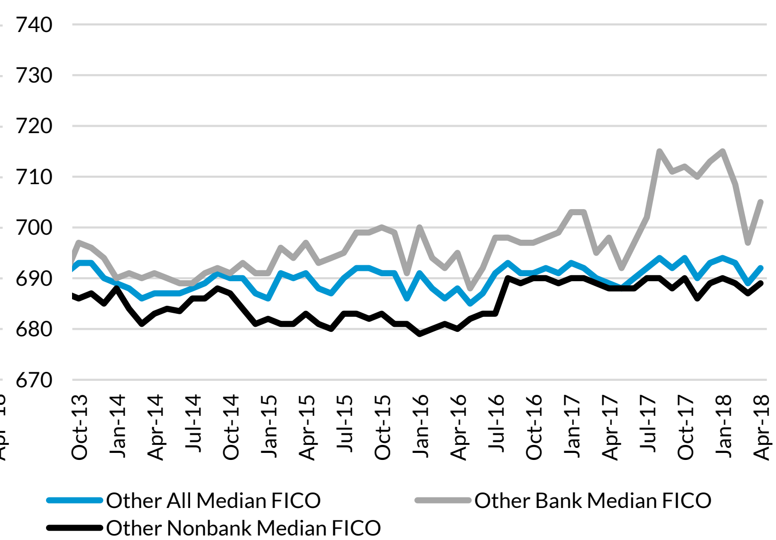
Sources: *eMBS and Urban Institute* **Note:** *Data as of April 2018*

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *Data as of April 2018*

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

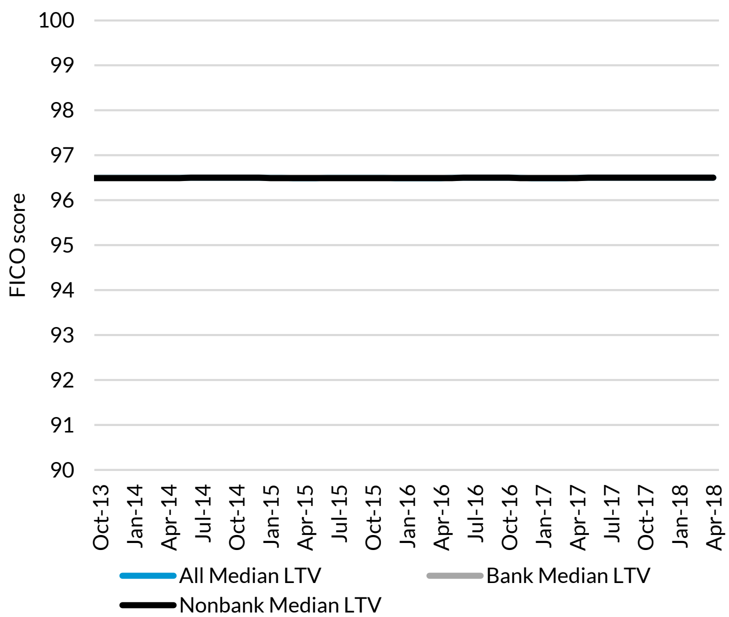


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of April 2018*

Ginnie Mae Nonbank Originators: Credit Box

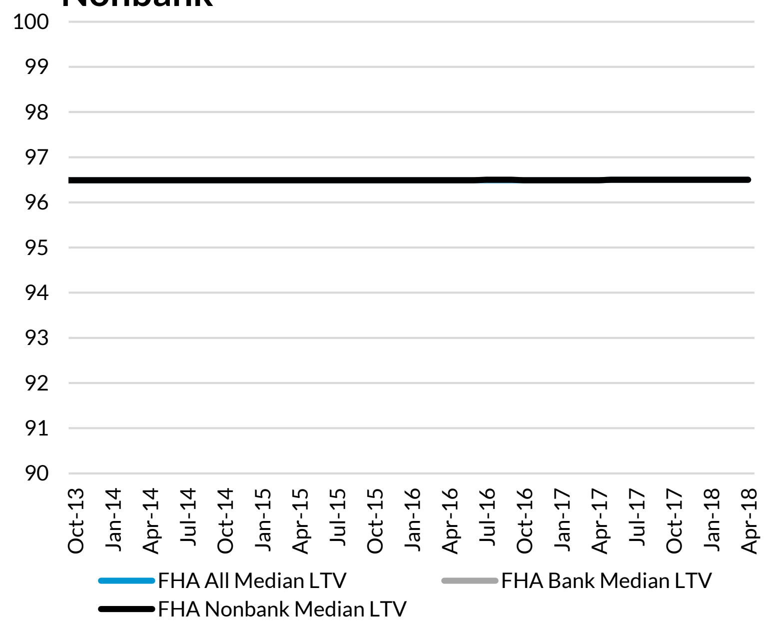
An analysis of the loans backing Ginnie Mae origination indicates that there are virtually no difference in median LTV ratios between bank originated loans and non-bank originated loans.

Ginnie Mae LTV: Bank vs. Nonbank



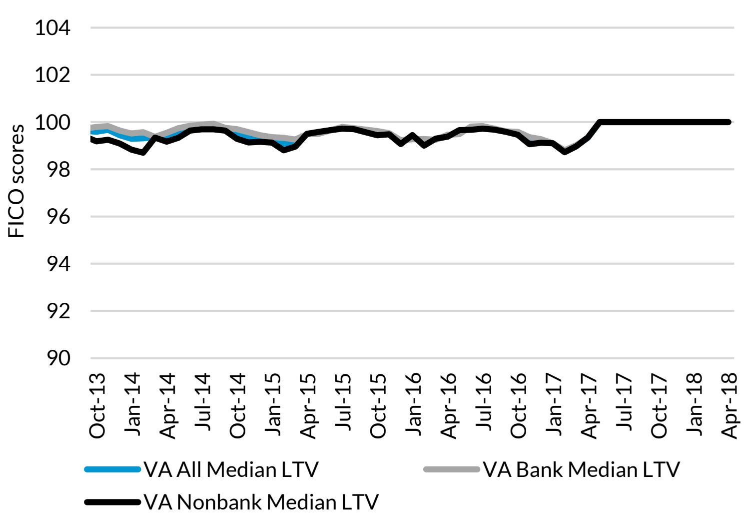
Sources: *eMBS and Urban Institute* **Note:** *Data as of April 2018*

Ginnie Mae FHA LTV: Bank vs. Nonbank



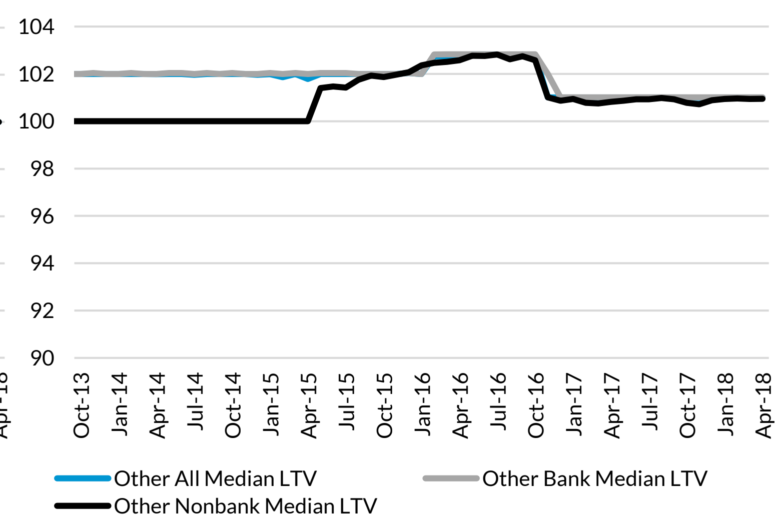
Sources: *eMBS and Urban Institute* **Note:** *Data as of April 2018*

Ginnie Mae VA LTV: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *Data as of April 2018*

Ginnie Mae Other LTV: Bank vs. Nonbank

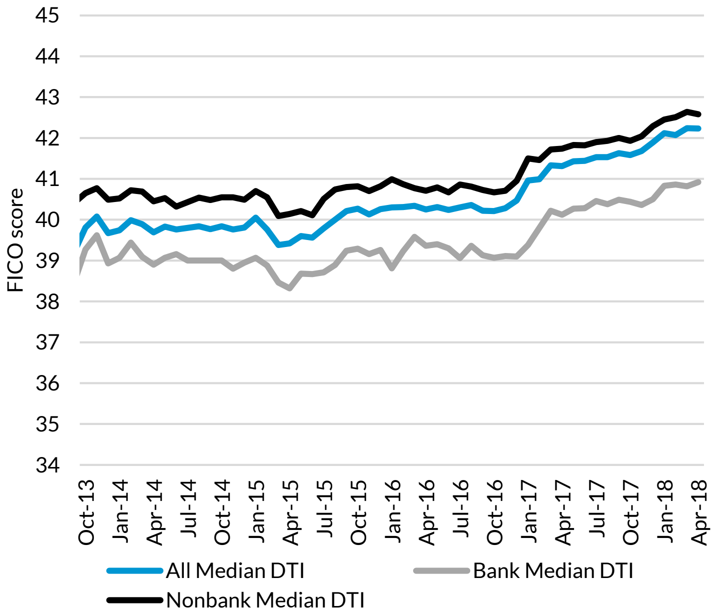


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of April 2018.*

Ginnie Mae Nonbank Originators: Credit Box

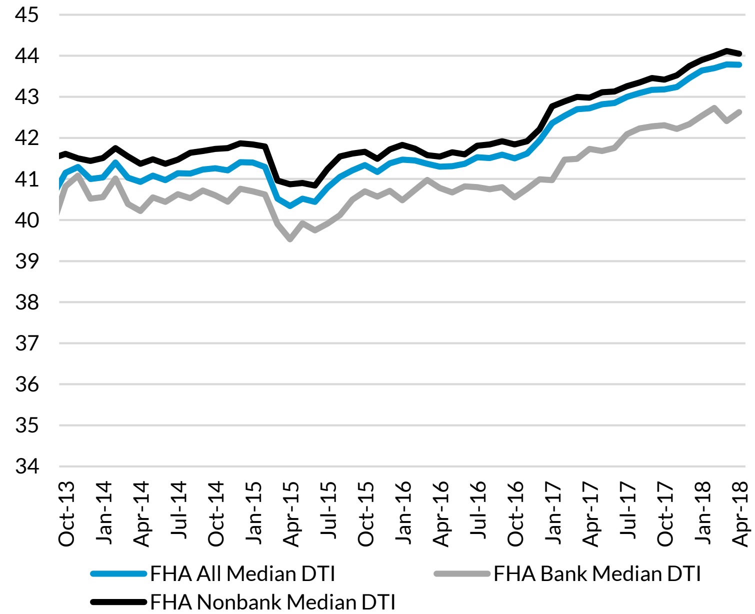
An analysis of borrowers' DTI ratios for bank versus non-bank originators indicates that the former are more conservative. The DTIs for FHA and VA loans experienced notable increases since early 2017 for both bank and nonbank originations, while the Other originations' DTIs stayed relatively flat. Rising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

Ginnie Mae DTI: Bank vs. Nonbank



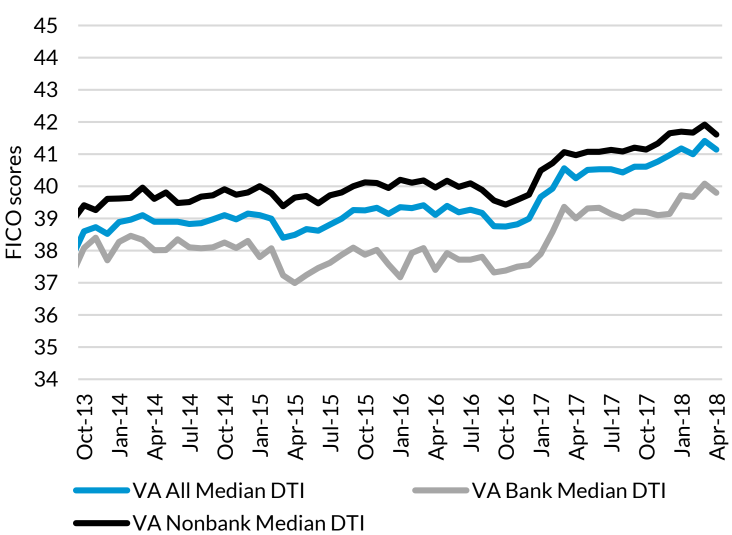
Sources: *eMBS and Urban Institute* **Note:** *Data as of April 2018*

Ginnie Mae FHA DTI: Bank vs. Nonbank



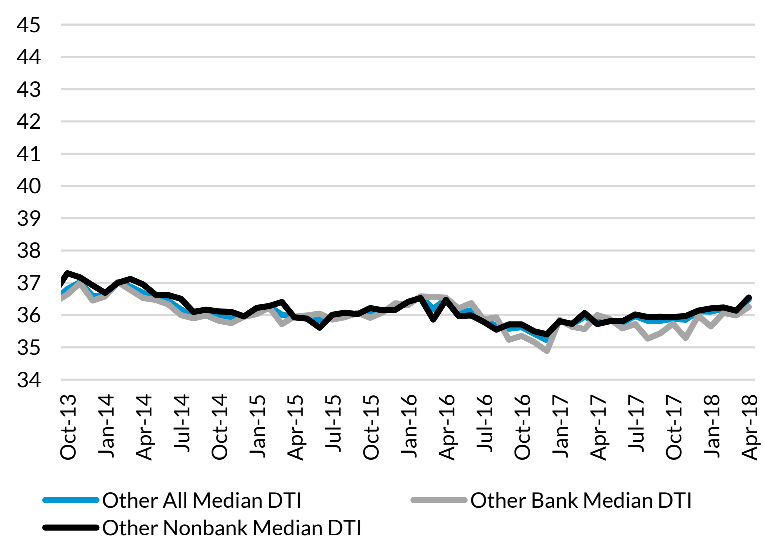
Sources: *eMBS and Urban Institute* **Note:** *Data as of April 2018*

Ginnie Mae VA DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *Data as of April 2018*

Ginnie Mae Other DTI: Bank vs. Nonbank

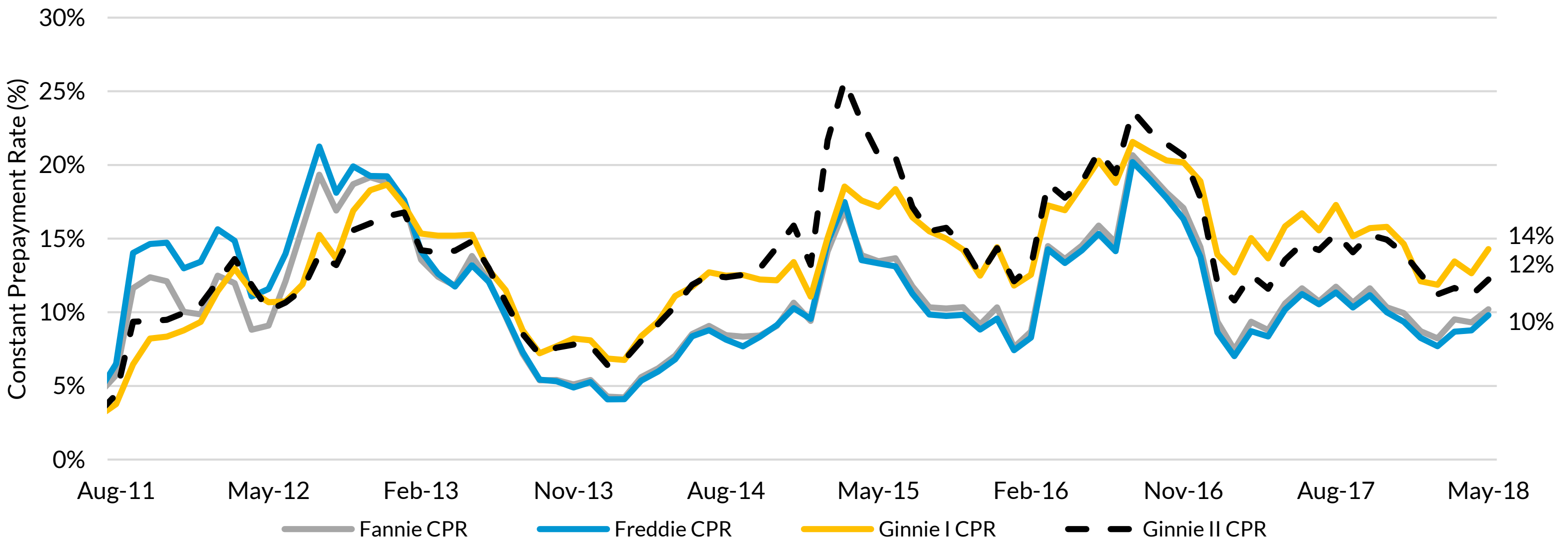


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of April 2018*

Prepayments

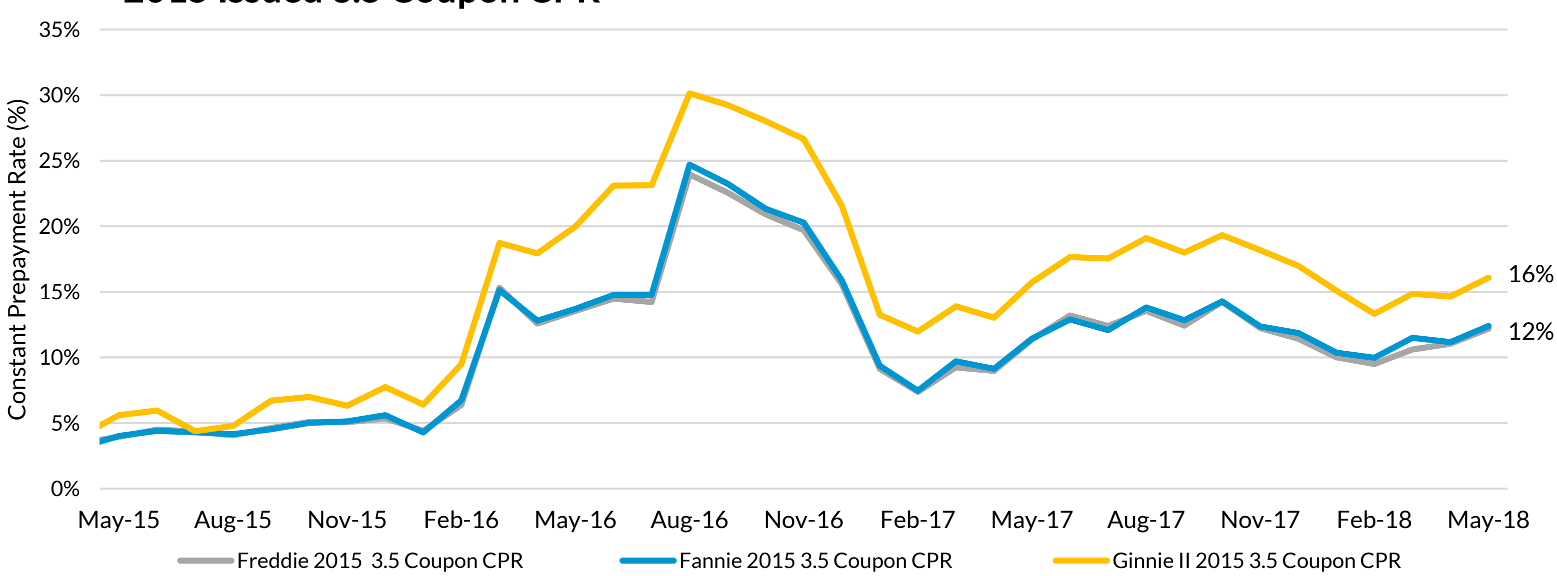
Prepayments on Ginnie Mae securities were lower than on GSE securities from 2011 through mid-2013, but have been higher since. These differences hold across all coupon buckets. The differences are especially pronounced on more recent production. These increased Ginnie speeds reflect the growing share 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 May 2018.*

2015 Issued 3.5 Coupon CPR

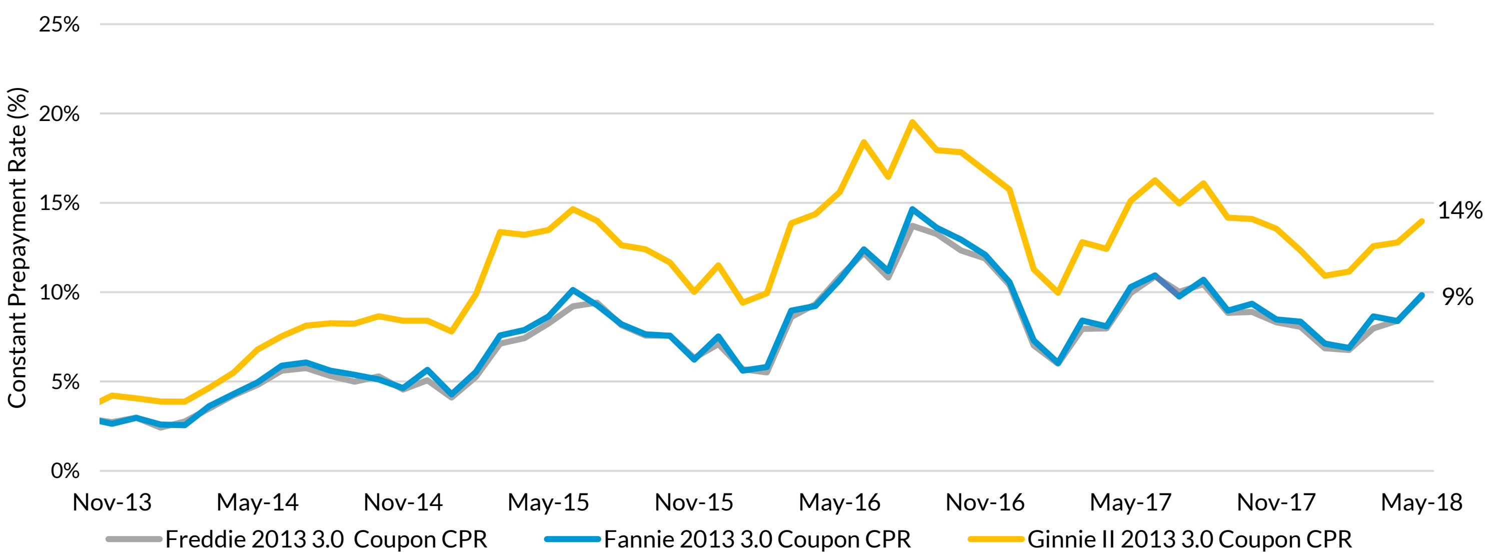


Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of May 2018.*

Prepayments

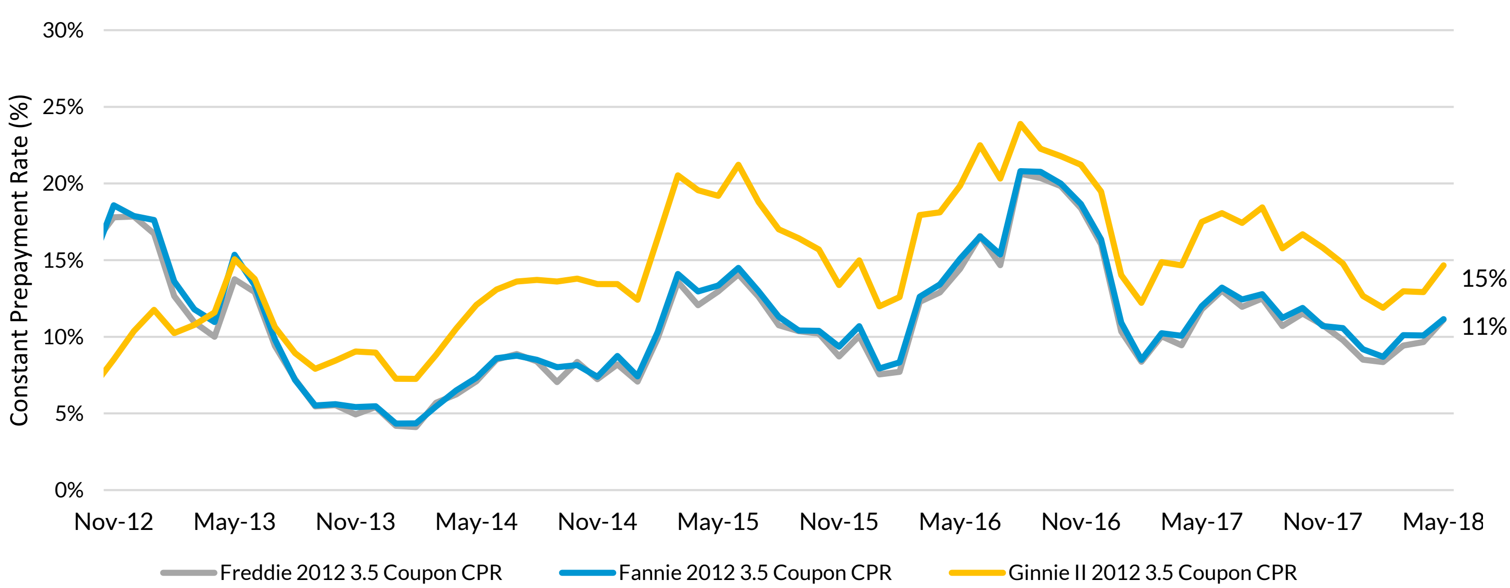
The 2013 Ginnie II 3.0s are prepaying faster than their conventional counterparts. 2012 Ginnie II 3.5s have been faster since mid-2013. The differences accelerated in 2015—potentially due to the FHA mortgage insurance premium (MIP) cut. In January 2015 FHA lowered its MIPs from 135 basis points per annum 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



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

2012 Issued 3.5 Coupon CPR

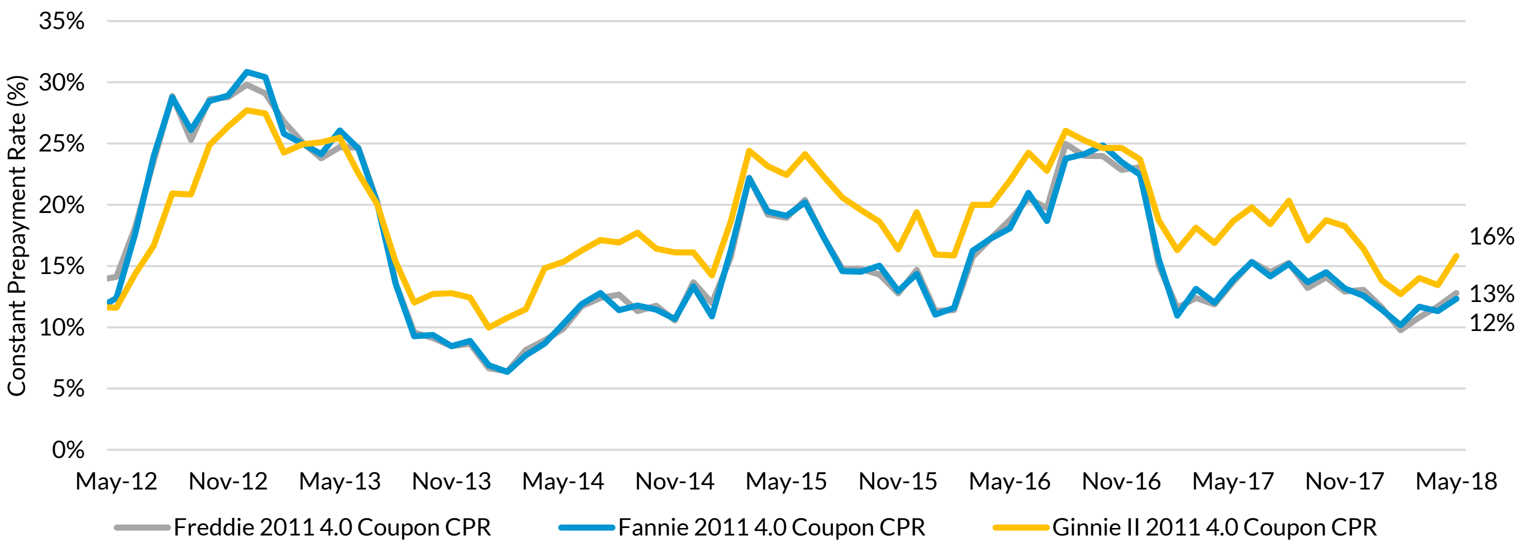


Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of May 2018.*

Prepayments

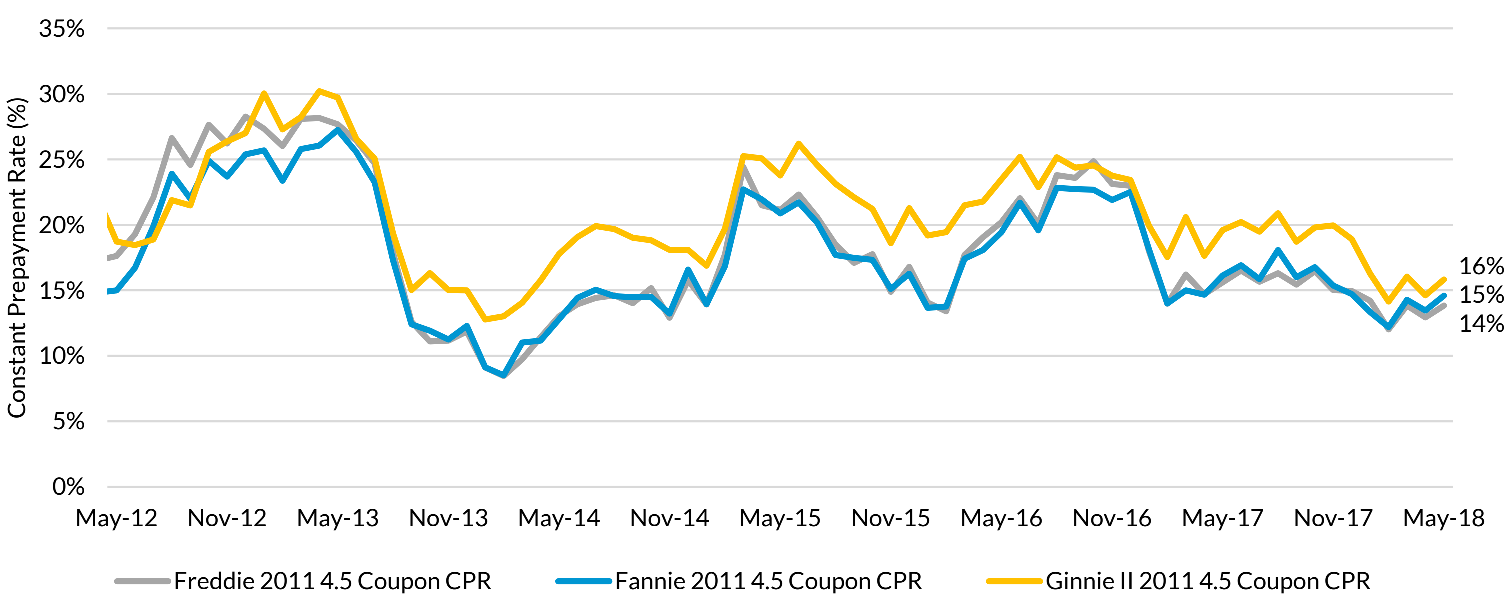
The 2011 Ginnie II 4.0s and 4.5s have been prepaying faster than their conventional counterparts since late 2013. Faster VA mortgage prepays plus simplifications to the FHA streamlined programs in 2013 are likely contributors to the faster speeds. However, as mortgage rates rose sharply since November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

2011 Issued 4.0 Coupon CPR



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

2011 Issued 4.5 Coupon CPR

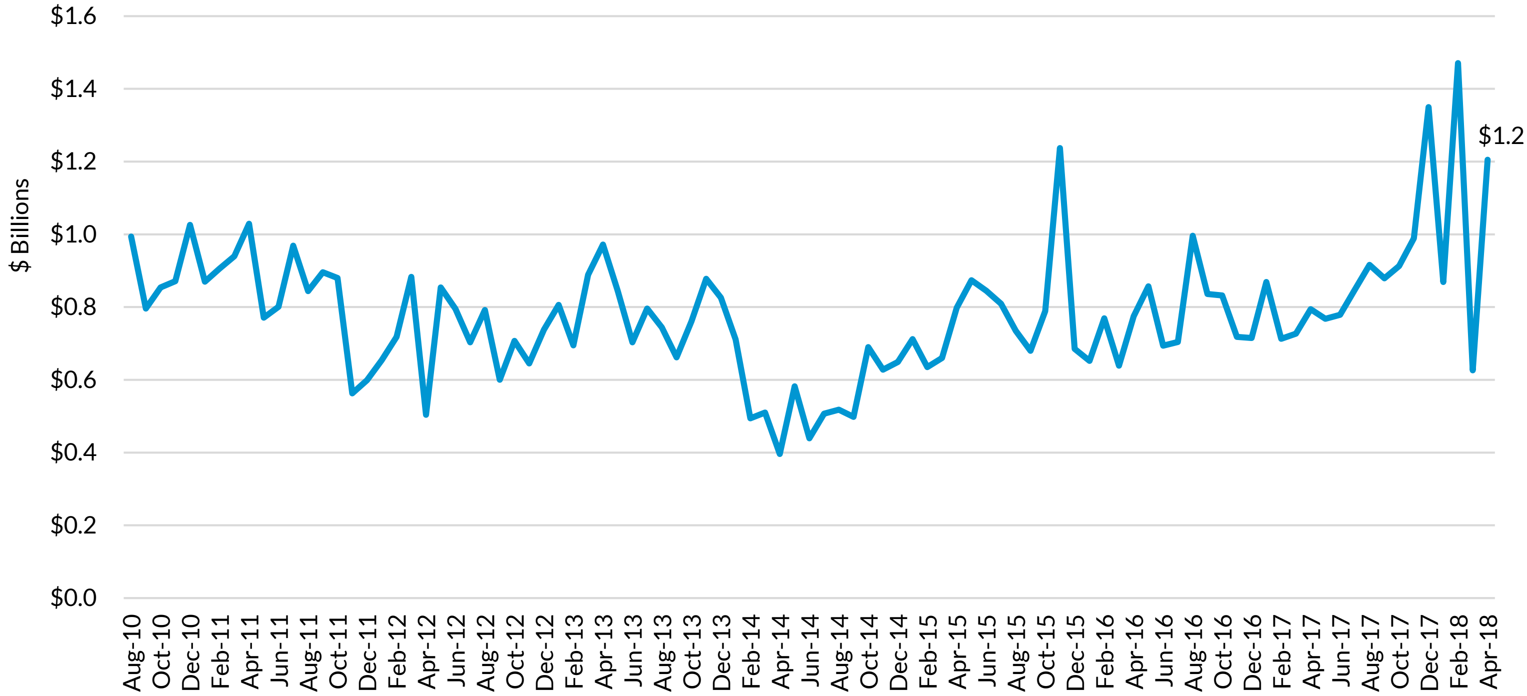


Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of May 2018.*

Other Ginnie Mae Programs Reverse Mortgage Volumes

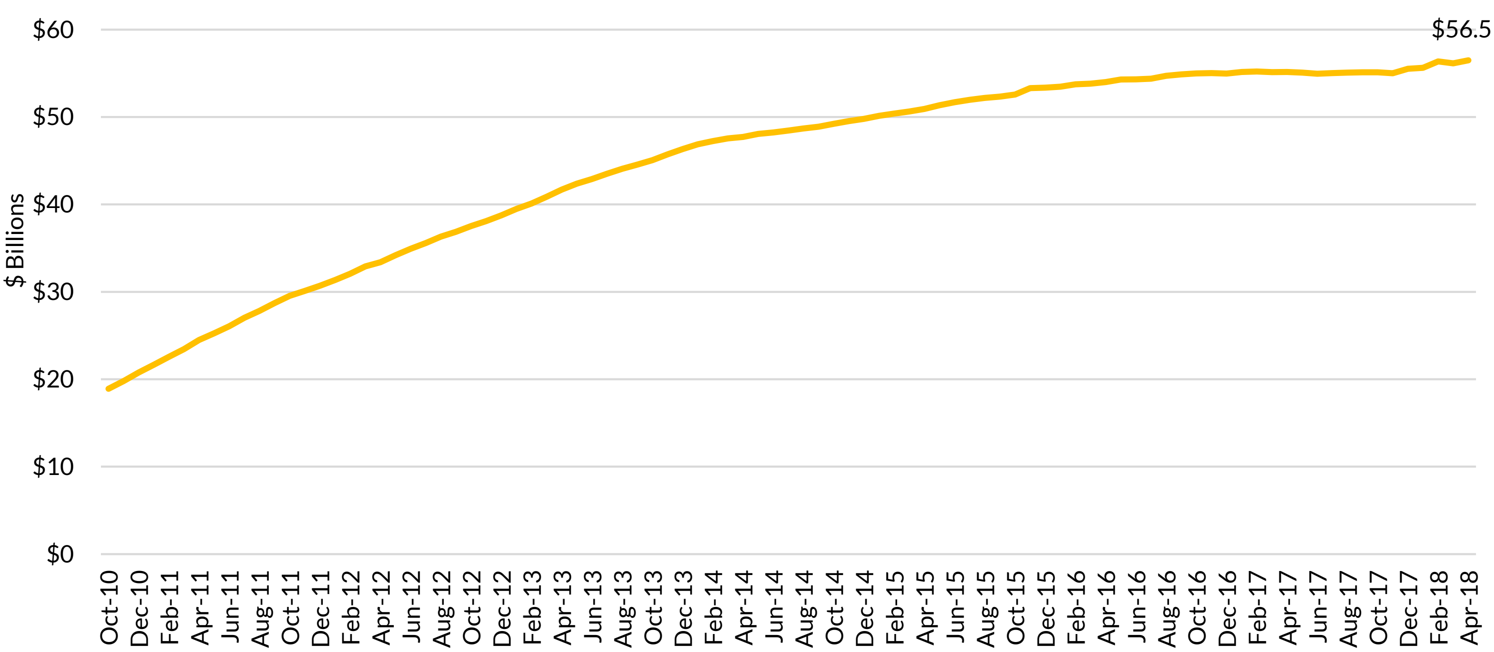
Ginnie Mae reverse mortgage issuance went up in April 2018, after declining sharply in March. The choppiness the past few months was largely due to the implementation of the new, lower principal limit factors that went into effect in March 2018. In April 2018, reverse mortgage issuance stood at $1.2 billion, and outstanding securities totaled $56.5 billion.

HMBS Issuance Volume



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

HMBS Outstanding

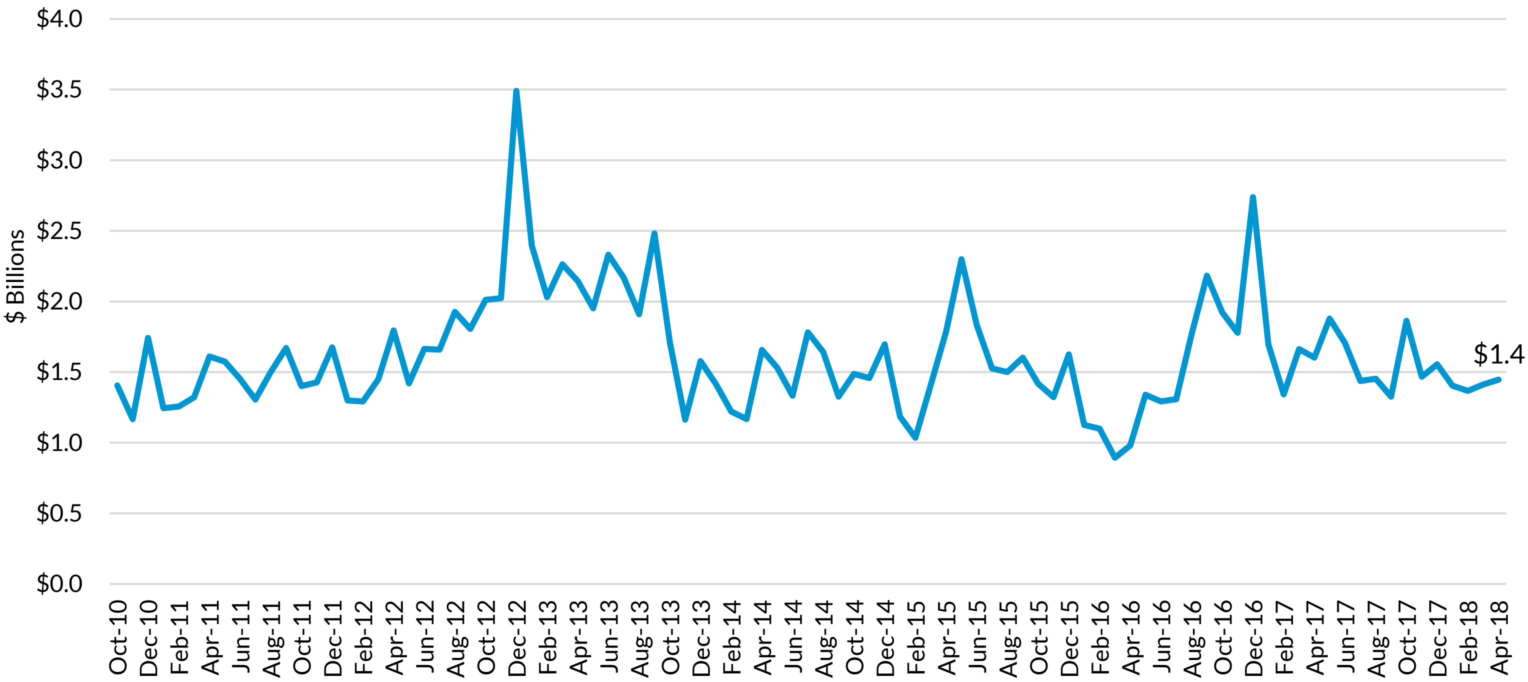


Sources: *Ginnie Mae and Urban Institute.* **Note:** *Data as of April 2018.*

Other Ginnie Mae Programs Multifamily Market

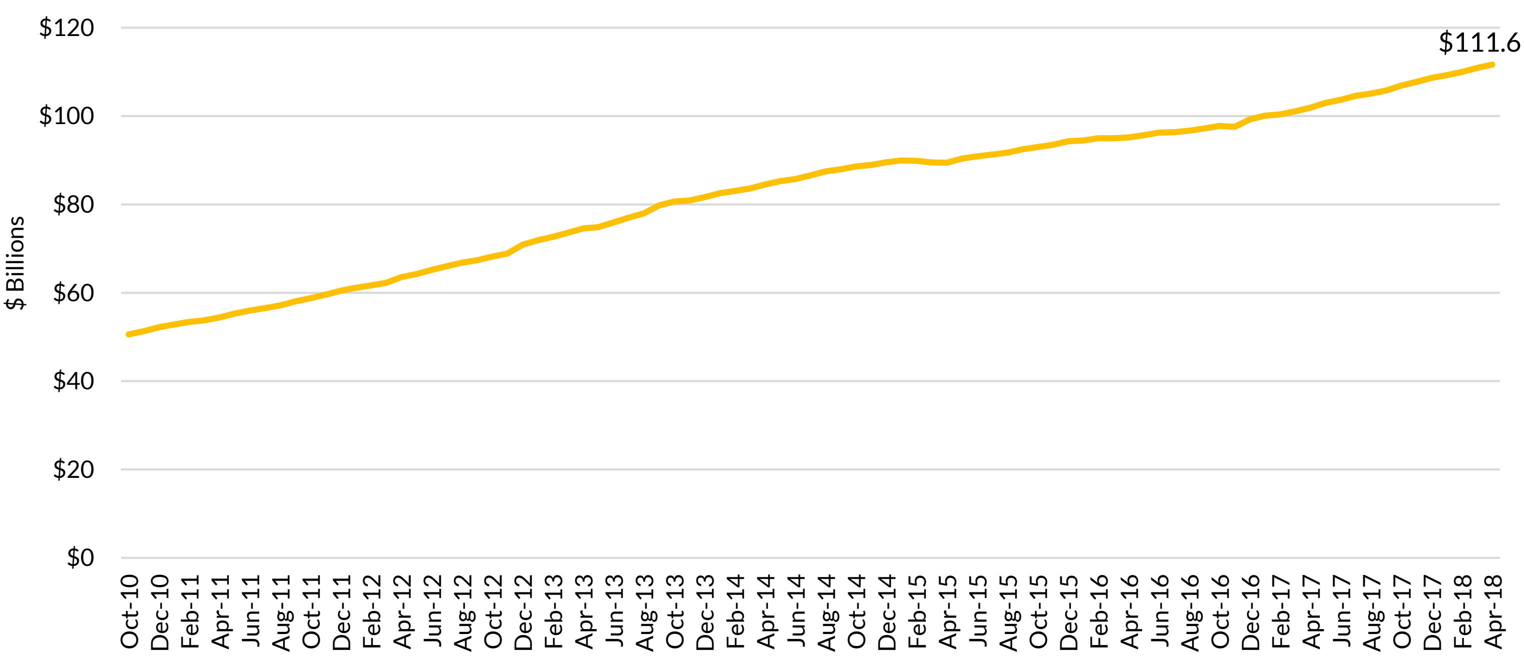
Ginnie Mae multifamily issuance volumes in April totaled $1.4 billion. Outstanding multifamily securities totaled $111.6 billion in April.

Ginnie Mae Multifamily MBS Issuance



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

Ginnie Mae Multifamily MBS Outstanding

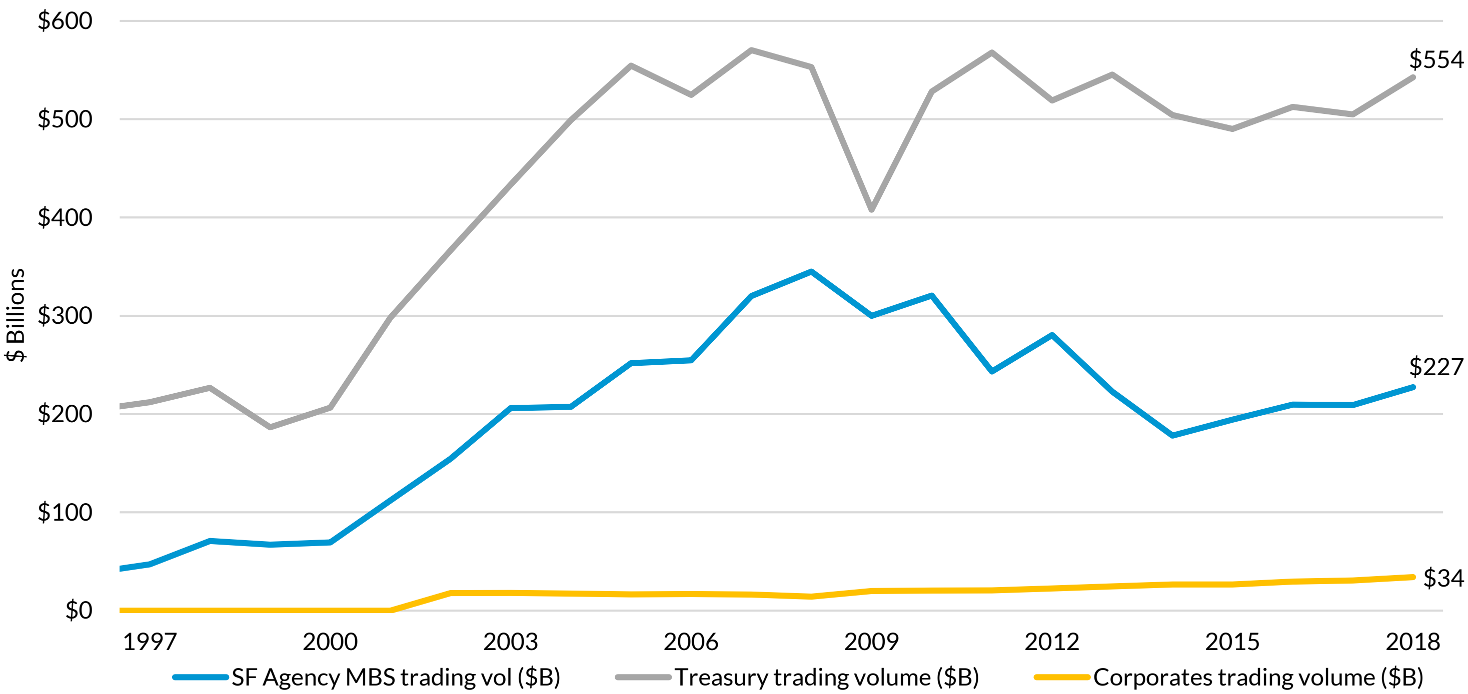


Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of April 2018.*

Market Conditions

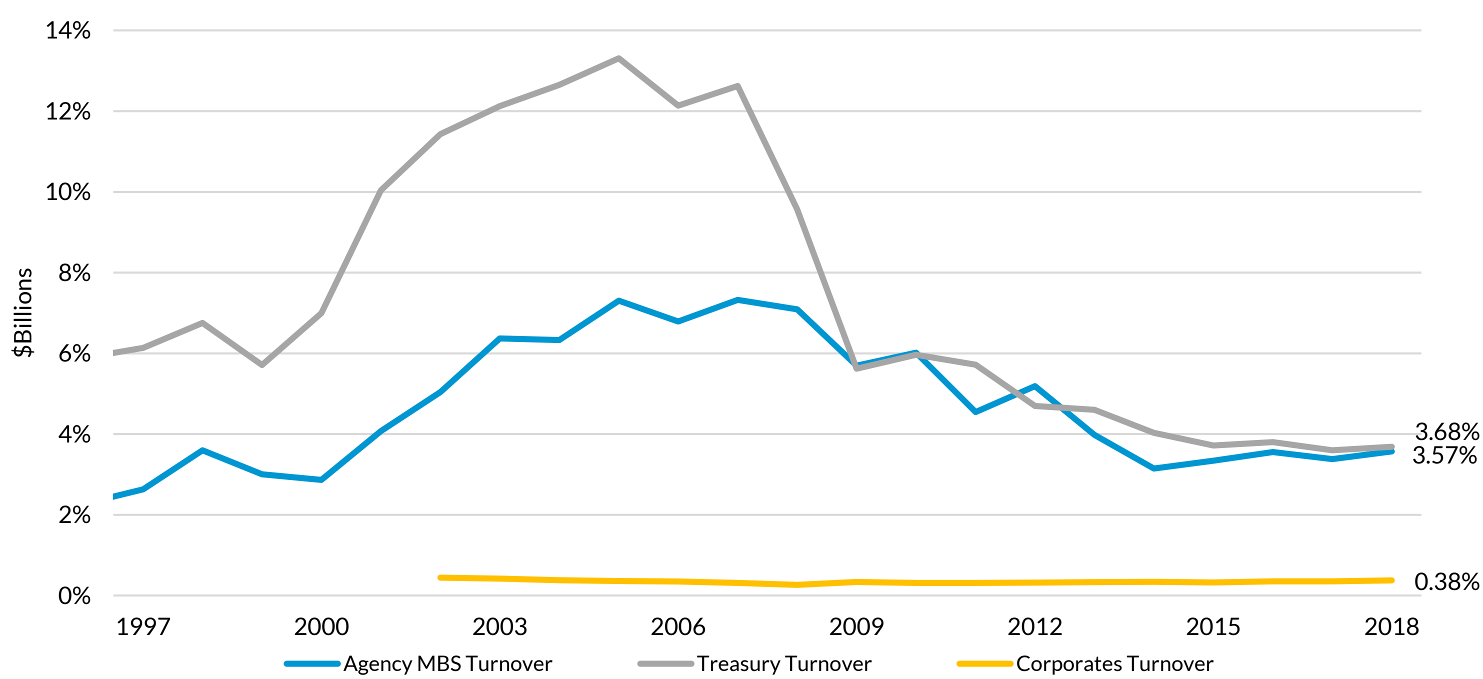
Agency MBS trading volume was $227 billion/day in May 2018; slightly more robust than in the 2014-2017 period. Agency MBS turnover has also been higher in 2018 than in the 2014-2017 period; in the first five months of 2018, average daily MBS turnover was 3.57 percent versus 3.38 percent in 2017. Both 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 May 2018.*

Average Daily Turnover by Sector

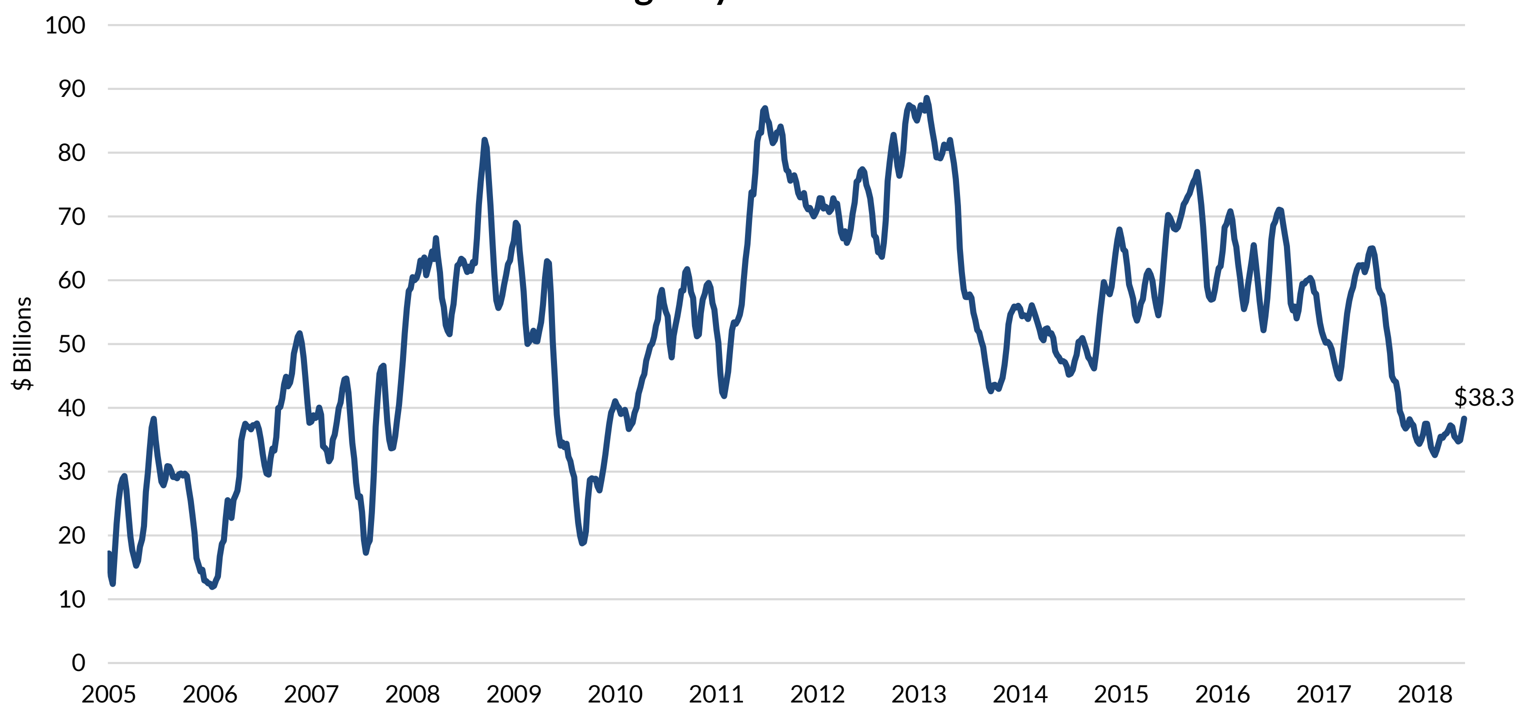


Sources: *SIFMA and Urban Institute.* ***Note:*** *Data as of May 2018.*

Market Conditions

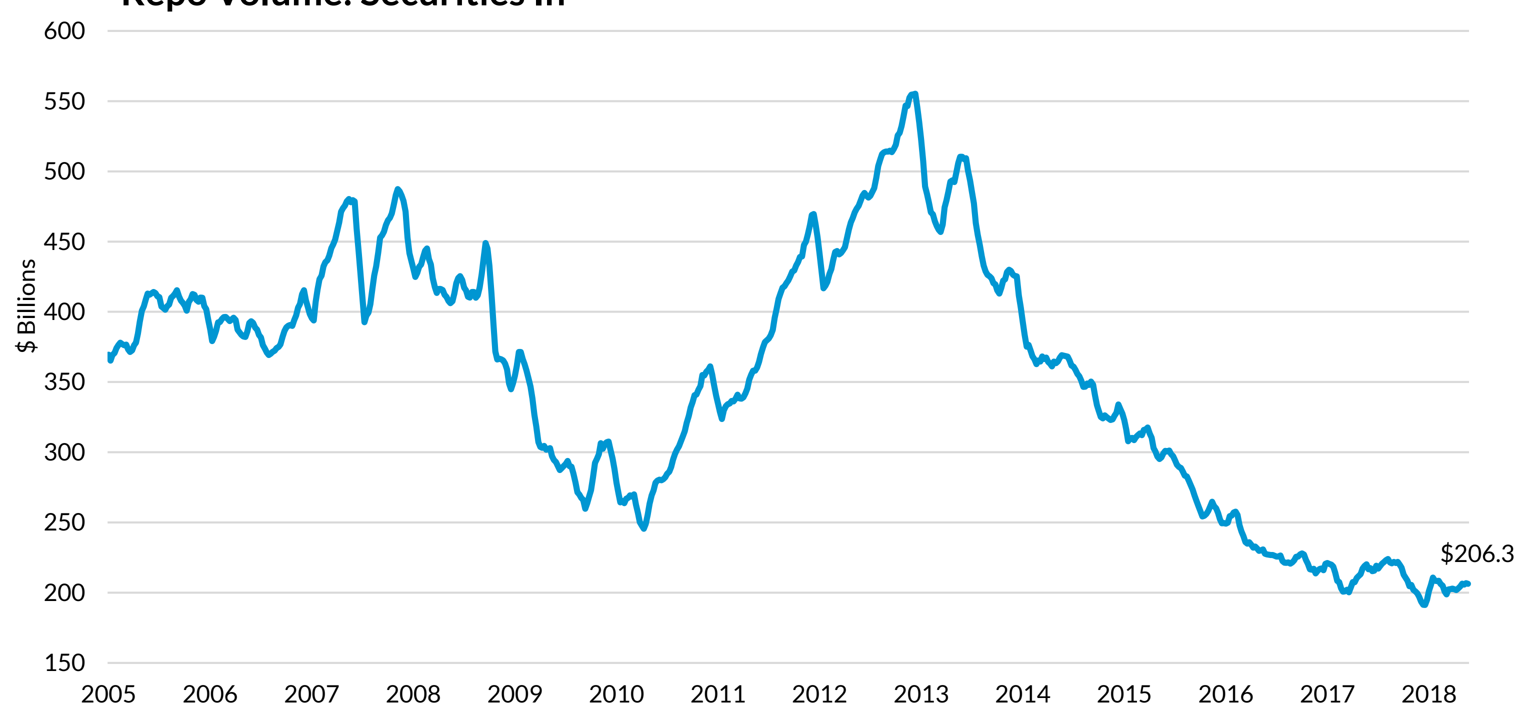
Dealer net positions in agency MBS are now at the very lower end of the recent range, although gross positions are likely down more. The volume of repurchase activity is near its lowest level in 13 years. This reflects banks cutting back on lower margin businesses.

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 May 2018.*

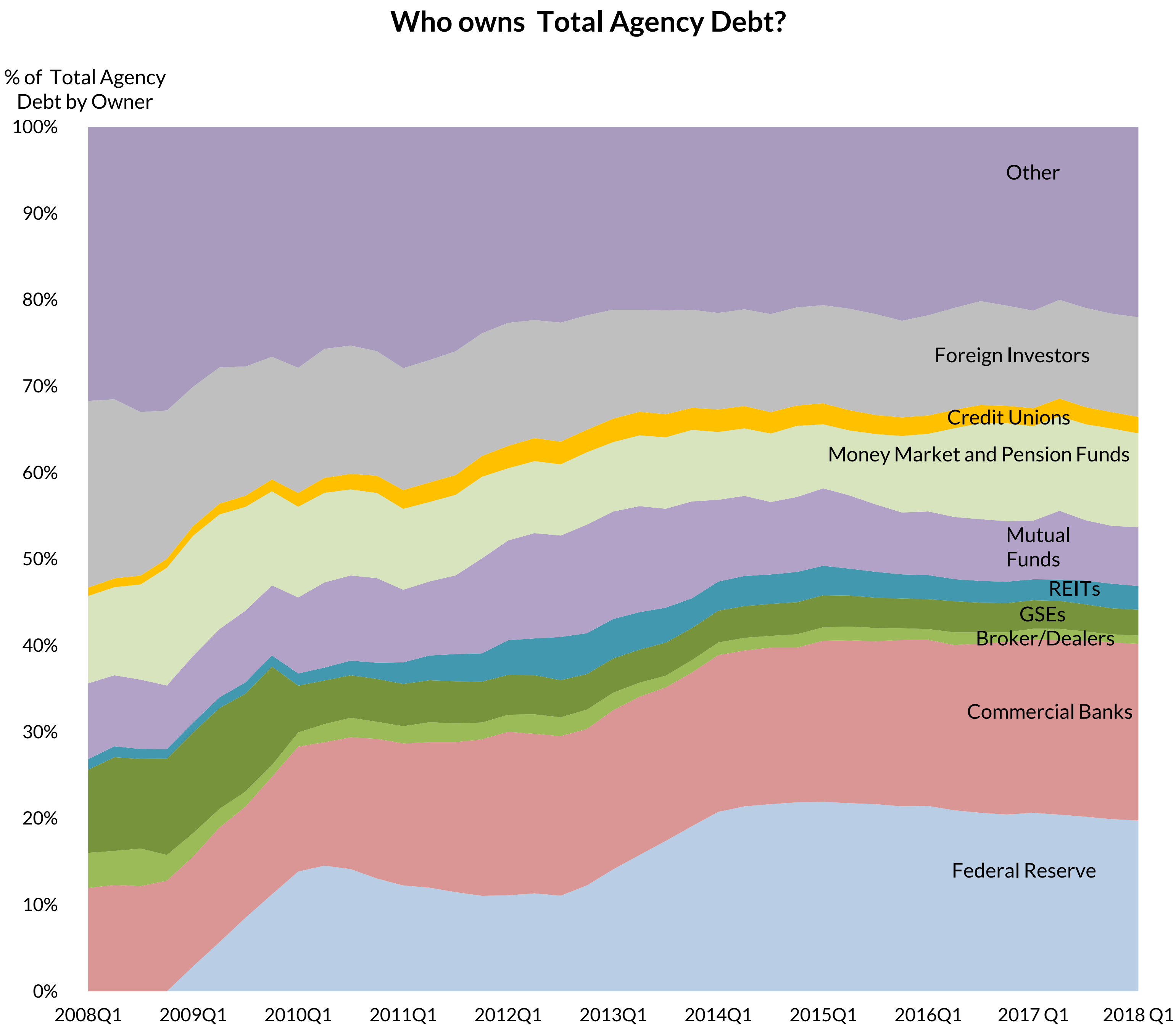
Repo Volume: Securities In



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

MBS Ownership

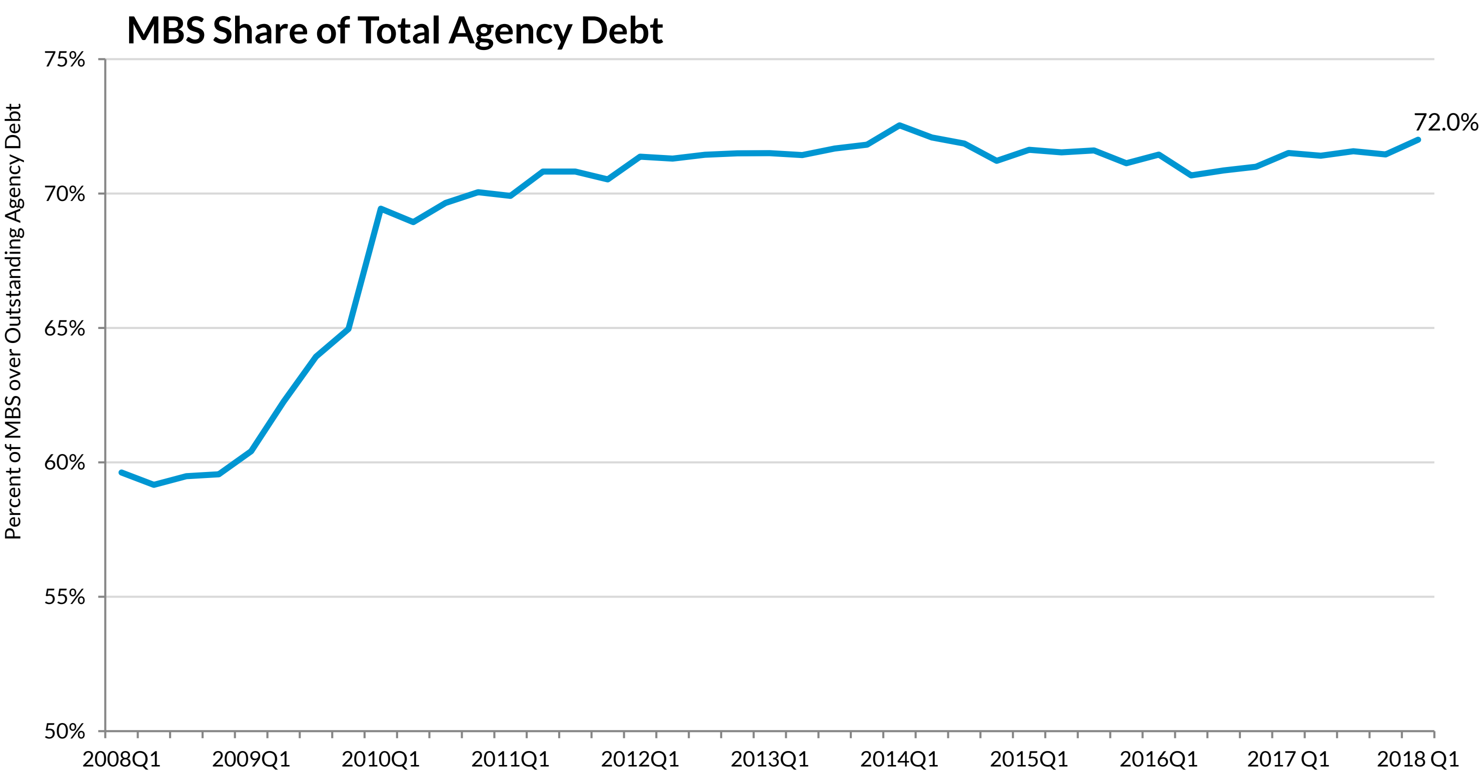
The largest holders of agency debt (Agency MBS + Agency notes and bonds) include the Federal Reserve (20 percent), commercial banks (20 percent) and foreign investors (12 percent). The broker/dealer and GSE shares are a fraction of what they once were.



Sources: *Federal Reserve Flow of Funds and Urban Institute.* **Note**: *Data as of Q1 2018.*

MBS Ownership

As Fannie and Freddie reduce the size of their retained portfolio, fewer agency notes and bonds are required to fund that activity, hence the MBS share of total agency debt increases. For Q1 2018, the MBS share of total agency debt stood at 72.0 percent. Commercial banks are now the largest holders of Agency MBS. Out of their $1.8 trillion in holdings as of the end of May 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 Q1 2018.*

	Commercial Bank Holdings ($Billions)								Week Ending			
	Apr-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May 9	May 16	May 23	May 30
Largest Domestic Banks	1,231.2	1,292.1	1,295.5	1,303.2	1,295.2	1,282.3	1,286.6	1,286.4	1,290.2	1,293.9	1,300.0	1,303.2
Small Domestic Banks	464.8	478.3	478.0	478.2	479.2	478.6	476.8	480.7	478.2	479.6	481.4	479.9
Foreign Related Banks	14.0	12.3	17.6	35.3	33.1	31.9	32.5	33.7	30.9	30.3	30.1	30.6
Total, Seasonally Adjusted	1,710.0	1,782.7	1,791.1	1,816.7	1,807.5	1,792.8	1,795.9	1,800.8	1,799.3	1,803.8	1,811.5	1,813.7

***Sources**: Federal Reserve Bank and Urban Institute. **Note**: Data as of May 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 $360.7 billion in Ginnie Mae pass-throughs. There are another $412.4 billion in Agency CMOs. Non-agency holdings total $45.3 billion. Ginnie Mae pass-throughs have been the fastest growing sector in the past 2 years. MBS holdings at banks and thrifts declined slightly in Q1 2018, although over the past 2 years, the growth has been quite strong, with Ginnie pass-throughs the fastest growing sector.

Bank and Thrift Residential MBS Holdings

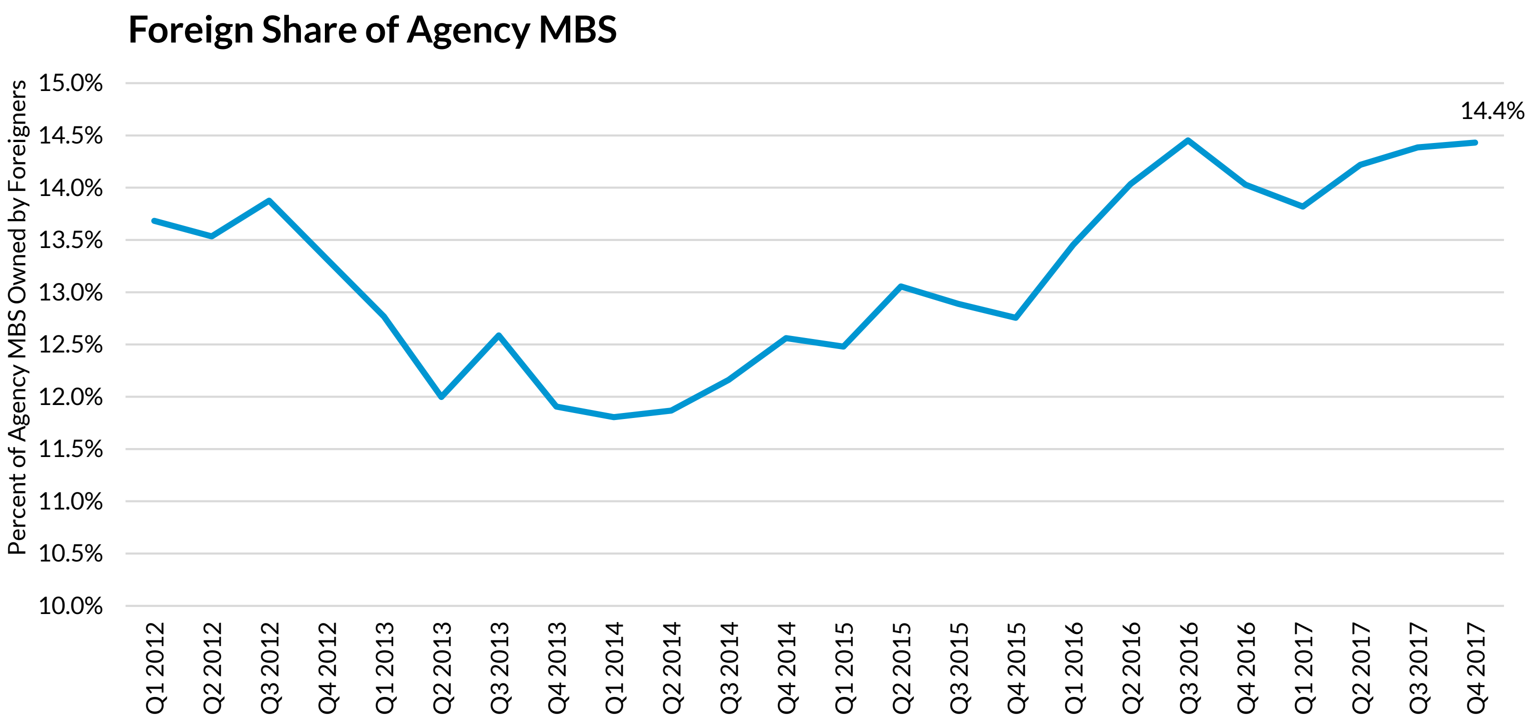
	All Banks & Thrifts ($Billions)						
	Total	Agency MBS	GSE PT	GNMA PT	Agency CMO	Private MBS	Private CMO
2000	$683.90	$392.85	$234.01	$84.26	$198.04	$21.57	$71.43
2001	$810.50	$459.78	$270.59	$109.53	$236.91	$37.62	$76.18
2002	$912.36	$557.43	$376.11	$101.46	$244.98	$20.08	$89.88
2003	$982.08	$619.02	$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
2015	$1,643.56	$1,115.40	$823.10	$292.30	$445.39	$11.14	$71.63
1Q16	$1,660.58	$1,133.29	$833.25	$300.04	$448.63	$10.27	$68.39
2Q 16	$1,684.33	$1,169.67	$867.64	$302.03	$440.25	$9.11	$65.29
3Q16	$1,732.36	$1,227.52	$924.81	$302.71	$435.77	$7.90	$61.17
4Q16	$1,736.93	$1,254.13	$930.67	$323.46	$419.80	$7.40	$55.60
1Q17	$1,762.38	$1,280.63	$950.72	$329.91	$419.34	$7.03	$55.39
2Q17	$1,798.66	$1,320.59	$985.12	$335.47	$417.89	$6.38	$53.79
3Q17	$1,838.93	$1,364.75	$1,012.89	$351.86	$418.08	$5.65	$50.45
4Q17	$1,844.15	$1,378.53	$1,010.83	$367.70	$413.97	$4.63	$47.01
1Q18	$1,809.98	$1,352.28	$991.57	$360.71	$412.37	$3.92	$41.37

	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	$308,503	$179,430	$115,594	$13,187	$292	17.00%
2	Wells Fargo & Company	$238,554	$181,671	$48,097	$4,517	$4,269	13.20%
3	JP Morgan Chase & Co.	$97,801	$59,735	$27,066	$397	$10,603	5.40%
4	U S. Bancorp.	$76,594	$35,012	$12,490	$29,091	$1	4.20%
5	Charles Schwab Bank	$73,074	$43,574	$11,650	$17,850	$0	4.00%
6	Citigroup Inc.	$58,153	$43,410	$1,522	$9,051	$4,170	3.20%
7	Capital One Financial Corporation	$54,663	$17,339	$13,837	$22,337	$1,149	3.00%
8	Bank of New York Mellon Corp.	$50,822	$30,439	$1,872	$16,767	$1,744	2.80%
9	PNC Bank, National Association	$43,169	$33,176	$4,508	$2,683	$2,801	2.40%
10	Branch Banking and Trust Company	$39,124	$13,200	$6,517	$18,829	$578	2.20%
11	State Street Bank and Trust Company	$29,674	$10,079	$5,902	$9,478	$4,215	1.60%
12	E*TRADE Bank	$24,153	$13,087	$4,723	$6,343	$0	1.30%
13	KeyBank National Association	$24,067	$827	$1,052	$22,187	$0	1.30%
14	Morgan Stanley	$23,004	$9,133	$7,235	$6,636	$0	1.30%
15	SunTrust Bank	$22,490	$11,513	$10,920	$0	$56	1.20%
16	HSBC Banks USA, National Association	$21,641	$5,590	$7,464	$8,584	$3	1.20%
17	Regions Bank	$18,111	$10,922	$4,747	$2,439	$3	1.00%
18	MUFG Union Bank, National Association	$17,628	$5,845	$4,826	$6,264	$693	1.00%
19	Ally Bank	$17,147	$9,798	$2,877	$2,251	$2,221	0.90%
20	The Northern Trust Company	$16,506	$9,054	$1	$7,419	$32	0.90%
	Total Top 20	**$1,254,875**	**$722,832**	**$292,901**	**$206,312**	**$32,831**	**69.10%**

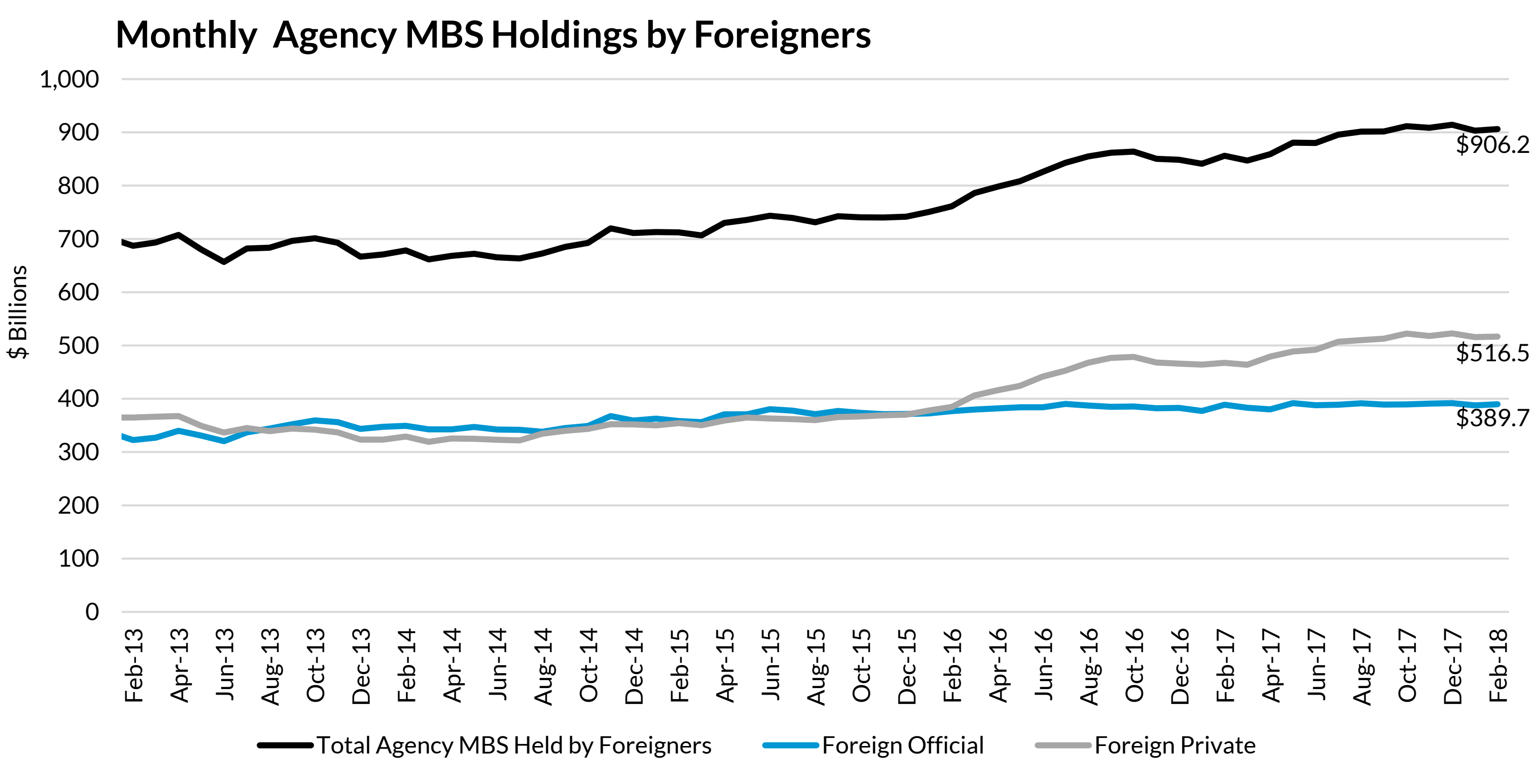
Sources: *Inside Mortgage Finance and Urban Institute.* ***Note:*** *Data as of Q1 2018.*

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 February 2018, this represents $906.2 billion in Agency MBS; $389.7 billion held by foreign official institutions and $516.5 billion held by foreign private investors.



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



Sources: *Treasury International Capital (TIC) and Urban Institute.* ***Note***: *Data as of February 2018.*

MBS Ownership

The largest foreign holders of Agency MBS are Taiwan, Japan and China; these three comprise around 70 percent of all foreign holdings. Since June of 2017 we estimate Japan and Taiwan have expanded their holdings, while China has contracted their holdings. We estimate Japan and Taiwan have each added 10-20 billion in agency MBS between June 2017 and February 2018.

Agency MBS+ Agency Debt

	Level of Holdings ($Millions)*					Change in Holdings ($Millions)*			
Country	Jun-17	Sep-17	Dec-17	Jan-18	Feb-18	Q3 2017	Q4 2017	Jan-18	Feb-18
Taiwan	227,195	229,030	234,234	234,050	238,091	1,835	5,204	-184	4,041
Japan	228,466	244,261	241,067	246,949	248,938	15,795	-3,194	5,882	1,989
China	183,393	177,580	170,702	166,241	163,179	-5,813	-6,878	-4,461	-3,062
South Korea	46,791	47,581	45,467	44,734	44,111	790	-2,114	-733	-623
Ireland	44,229	46,648	51,525	49,747	49,777	2,419	4,877	-1,778	30
Luxembourg	31,289	33,026	37,575	33,989	39,848	1,737	4,549	-3,586	5,859
Cayman Islands	32,682	29,016	28,374	28,312	29,419	-3,666	-642	-62	1,107
Bermuda	26,767	27,125	28,904	29,077	28,505	358	1,779	173	-572
Switzerland	17,312	18,675	16,794	17,046	15,891	1,363	-1,881	252	-1,155
Malaysia	12,365	13,162	12,751	12,443	12,165	797	-411	-308	-278
Rest of World	129,723	124,357	125,465	121,837	123,357	-5,366	1,108	-3,628	1,520
Total	980,212	990,461	992,858	984,425	993,281	10,249	2,397	-8,433	8,856

Agency MBS Only (Estimates)

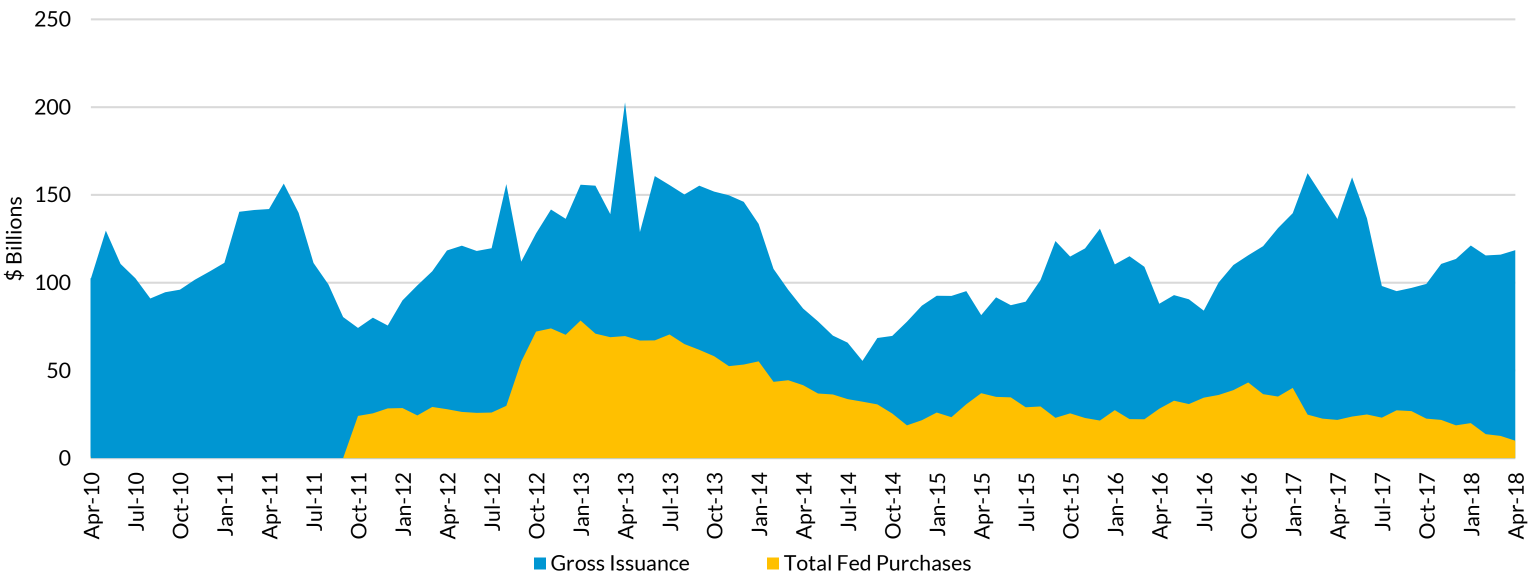
	Level of Holdings ($Millions)*					Change in Holdings ($Millions)*			
Country	Jun-17	Sep-17	Dec-17	Jan-18	Feb-18	Q3 2017	Q4 2017	Jan-18	Feb-18
Taiwan	227,073	228,914	234,127	233,939	237,972	1,841	5,213	-188	4,033
Japan	221,528	237,689	234,985	240,648	242,190	16,161	-2,704	5,664	1,542
China	177,546	172,042	165,576	160,931	157,492	-5,504	-6,465	-4,645	-3,439
South Korea	33,891	35,362	34,158	33,019	31,565	1,471	-1,204	-1,139	-1,454
Ireland	33,663	36,640	42,262	40,152	39,501	2,977	5,623	-2,111	-651
Luxembourg	28,314	30,208	34,967	31,287	36,955	1,894	4,759	-3,680	5,667
Cayman Islands	24,897	21,642	21,549	21,242	21,847	-3,255	-93	-307	605
Bermuda	23,156	23,705	25,738	25,798	24,993	549	2,034	59	-805
Switzerland	13,867	15,412	13,774	13,917	12,540	1,545	-1,638	144	-1,377
Malaysia	11,905	12,726	12,348	12,025	11,718	821	-379	-322	-308
Rest of World	94,872	91,345	94,913	90,188	89,462	-3,527	3,567	-4,725	-726
Total	890,712	905,684	914,397	903,147	906,235	14,972	8,713	-11,250	3,088

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 February 2018.

MBS Ownership

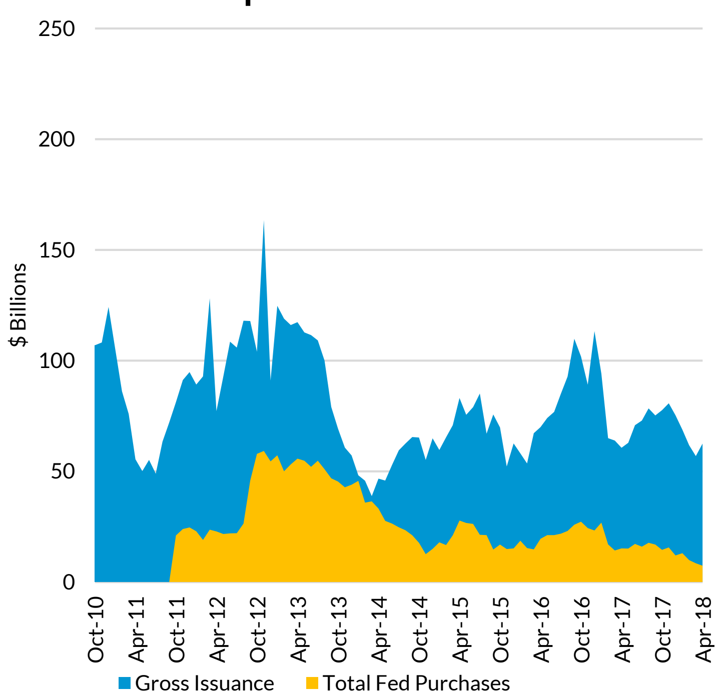
The Fed has begun to wind down their portfolio, and we are beginning to see the effects in slower absorption rates. During the period October 2014-September 2017, the Fed had ended its purchase program, but was reinvesting funds from mortgages and agency debt into the mortgage market, absorbing 20-30 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 April 2018, total Fed purchases decreased to $10.0 billion, yielding Fed absorption of gross issuance of 10.5 percent, the lowest level since the Fed began its MBS purchase program, as the size of the MBS taper increased from $4 to $8 billion this month. The Fed absorbed 7.9 percent of Ginnie Mae issuance and 11.8 percent of GSE issuance, respectively.

Total Fed Absorption



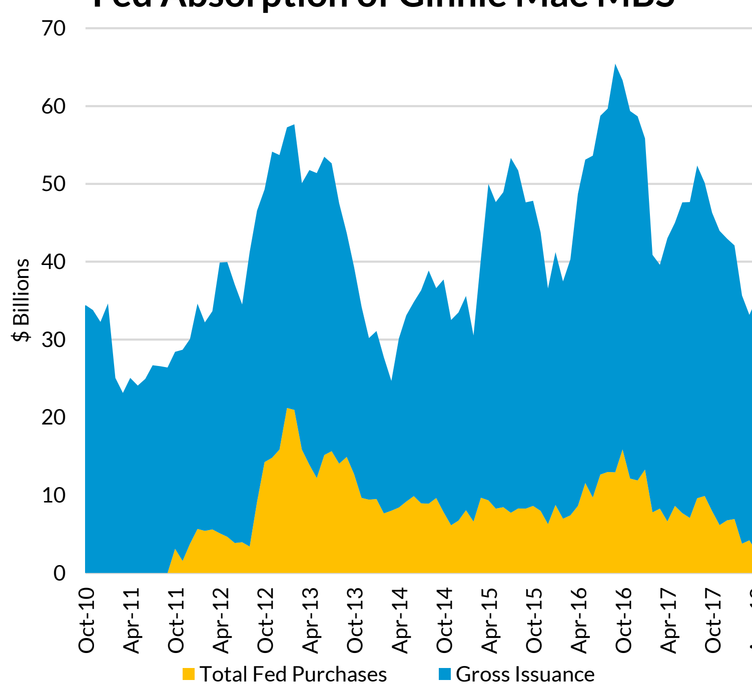
***Sources**: eMBS, Federal Reserve Bank of New York and Urban Institute.* ***Note:** Data as of April 2018.*

Fed Absorption of GSE MBS



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

Fed Absorption of Ginnie Mae MBS



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

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