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

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HIGHLIGHTS

Ginnie Mae Announced their Strategic Plan through 2020

Ginnie Mae has recently published their strategic plan through 2020, the 50th anniversary of the issuance of Ginnie Mae's first mortgage backed security (MBS). The U.S. housing finance systems has changed dramatically over the past decade, requiring Ginnie Mae to evolve in order to continue to play its critical role of funding government mortgages that provide credit to many borrowers who might have otherwise had difficulty obtaining financing. This group includes first time homebuyers, minority borrowers, low-and-moderate-income borrowers, veteran borrowers, rural borrowers, and borrowers with lower down-payments.

The strategic plan has three main pillars:

- Modernizing the MBS program and platform
- Enhancing the management of counterparty risk
- Demonstrating the ability to innovate

Ginnie Mae doesn't directly issue MBS, but provides the platform and program for the issuers to fulfill the mission. Thus, Ginnie Mae is putting steps into place to streamline and enhance the user experience, adopt the data standards set out by the Mortgage Industry Standards Maintenance Organization (MISMO) and modernize the IT infrastructure. Ginnie Mae is also committed to developing the capabilities to securitize digital mortgages.

As nonbank originators play an increasingly larger role in the Ginnie Mae market (nonbanks were 79 percent of Ginnie Mae origination in May, as demonstrated on page 30 of this publication), and operate with a wider credit box (pages 31-35), Ginnie Mae is stepping up its efforts to manage counterparty risk. This includes additional standards for leverage and financing, new acceptable risk parameters, as well as potentially limiting exposure to weaker counterparties. Counteracting counterparty risk requires ensuring liquidity. Ginnie Mae is exploring whether they can change the way advances to Ginnie Mae are handled to make it easier to finance the servicing asset in the event of a servicer failure. Ginnie Mae is also evaluating how a broader range of market participants could own servicing assets, bringing more capital into the system.

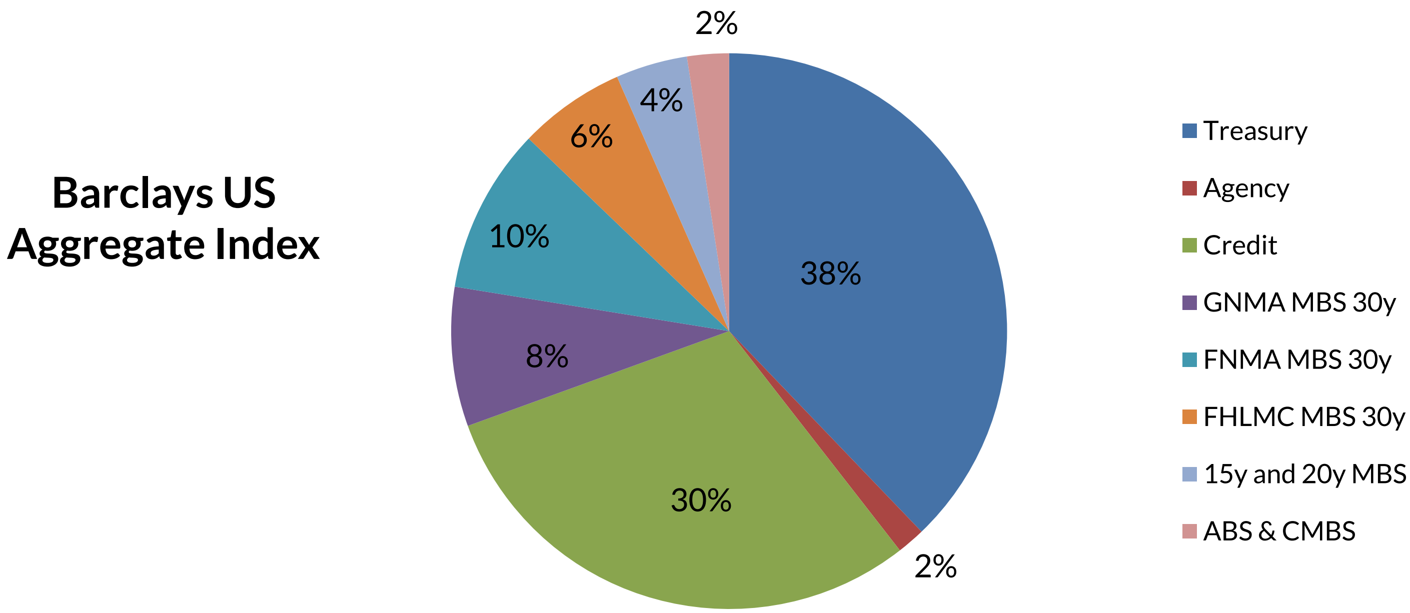
Finally, Ginnie Mae wants a focus on innovation, which means testing new ideas for responding to market needs. Ginnie Mae is exploring three possible initiatives (1) the feasibility of introducing loan level servicing transfers, (2) a pilot to transfer some the government's credit risk exposure, and (3) development of a whole loan sale or securitization vehicle for loans acquired from institutions that have failed, and had their Mortgage Servicing Rights extinguished. Read the full report here.

***Highlights this month*:**

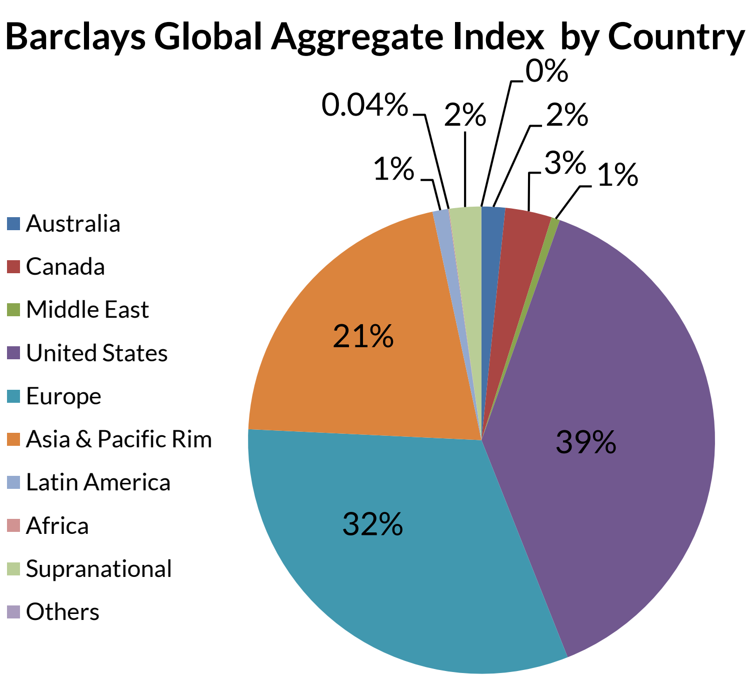
- With the drop in the German bund yield, and slight increase in the yield on Ginnie Mae MBS, Ginnie Mae MBS hedged into euros now outyield bunds by a wider margin than was previously the case (page 8).
- First lien originations in Q1 2018 were down 16 percent year-over-year, mostly due to higher interest rates (page 16).
- The first-time homebuyer share of Ginnie Mae purchase loans reached the highest level in recent history in May 2018 (page 21).
- Ginnie Mae median FICO scores have been declining since early 2017 (pages 27 and 34).
- Fed absorption of gross agency issuance dropped to new low in May 2018; this is the lowest level since September of 2011, just before the Fed embarked on its second mortgage purchase program (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 (38%) 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 remaining balance (4%) of the US MBS share. US securities are the largest single contributor to the Barclays Global Aggregate, accounting for 39 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 June 2018.*



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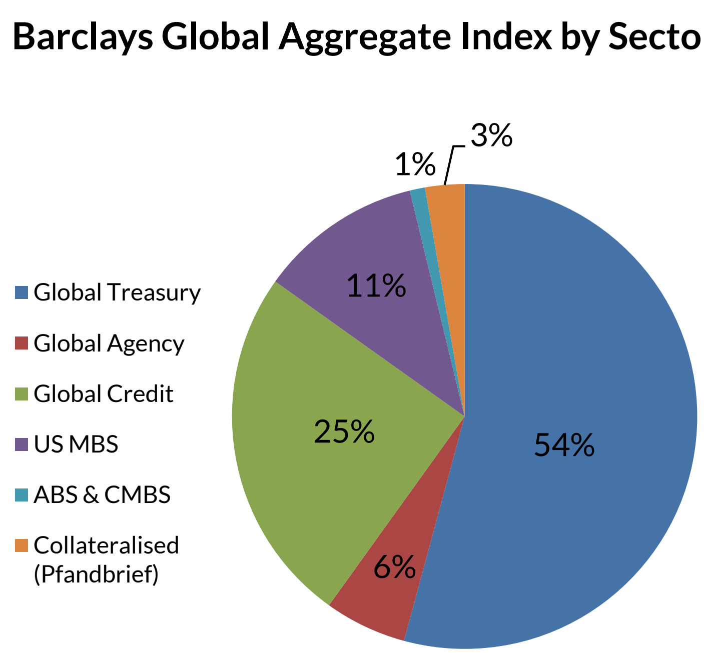
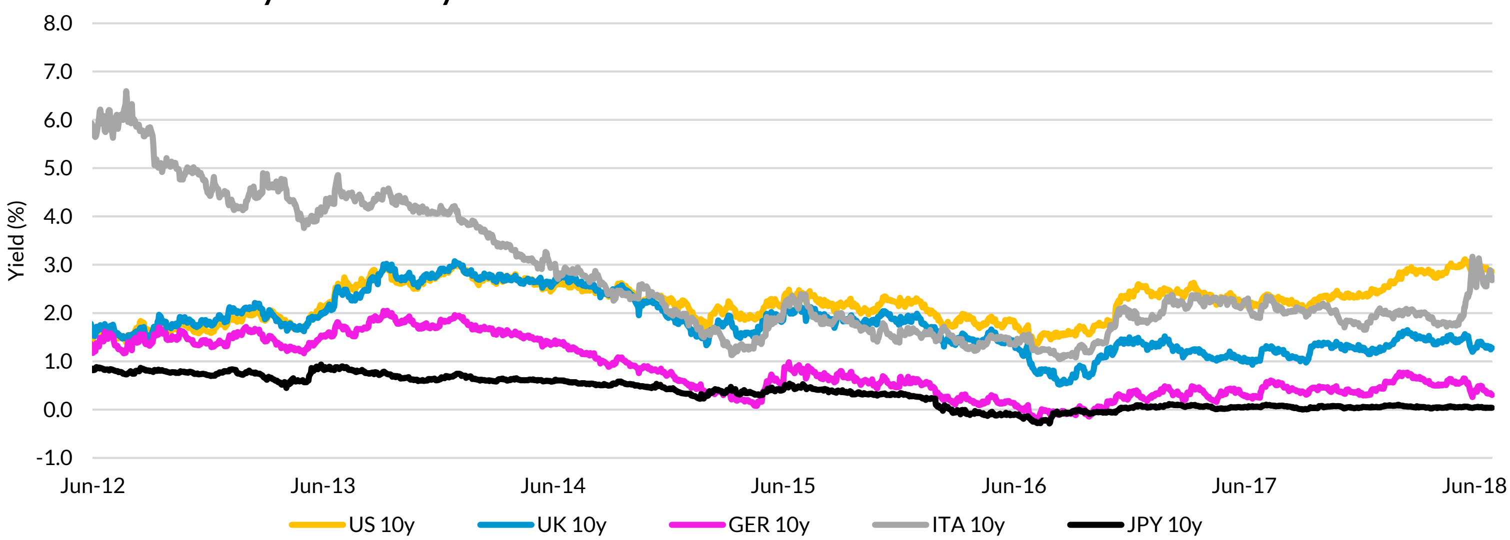


Sources: *Bloomberg and State Street Global Advisors*
Note: *Data as of June 2018.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

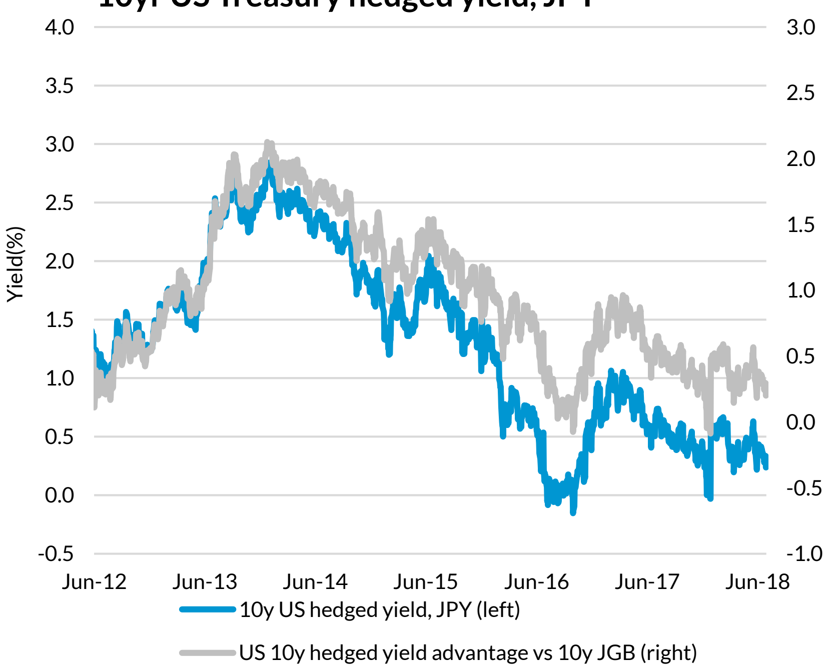
US Treasury interest rates, as measured by the 10-year note, continue to be the highest in the developed world. The US 10-year Treasury note remained flat at 2.86 percent this month. Interest rates in Germany, Japan, and Italy all decreased to 0.30, 2.68, and 0.04, respectively, while interest rates in the UK increased to 1.28. If Treasury notes are hedged into foreign currencies, 10-year US Treasury yields are 29 basis points (bps) in JPY, and 8 bps in EUR. The hedged yield difference between the 10-year Treasuries and JGBs narrowed to 25 bps, and the hedged yield difference between the 10-year Treasuries and Bunds narrowed to -22 bps.

Global 10-year Treasury Yields



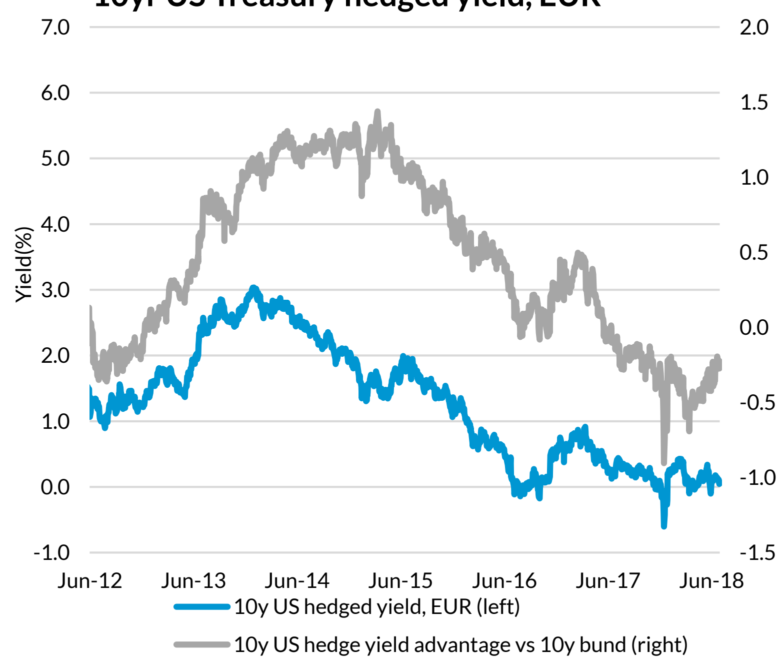
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of June 2018.*

10yr US Treasury hedged yield, JPY



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

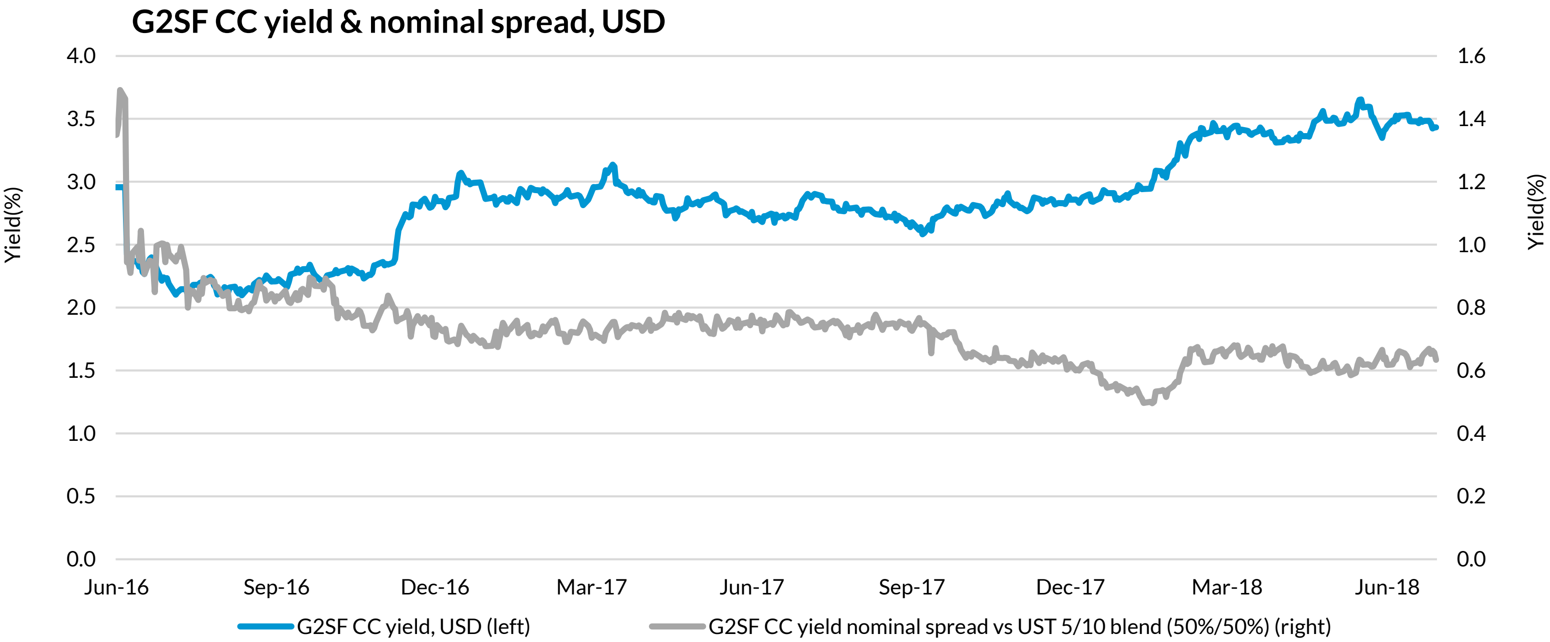
10yr US Treasury hedged yield, EUR



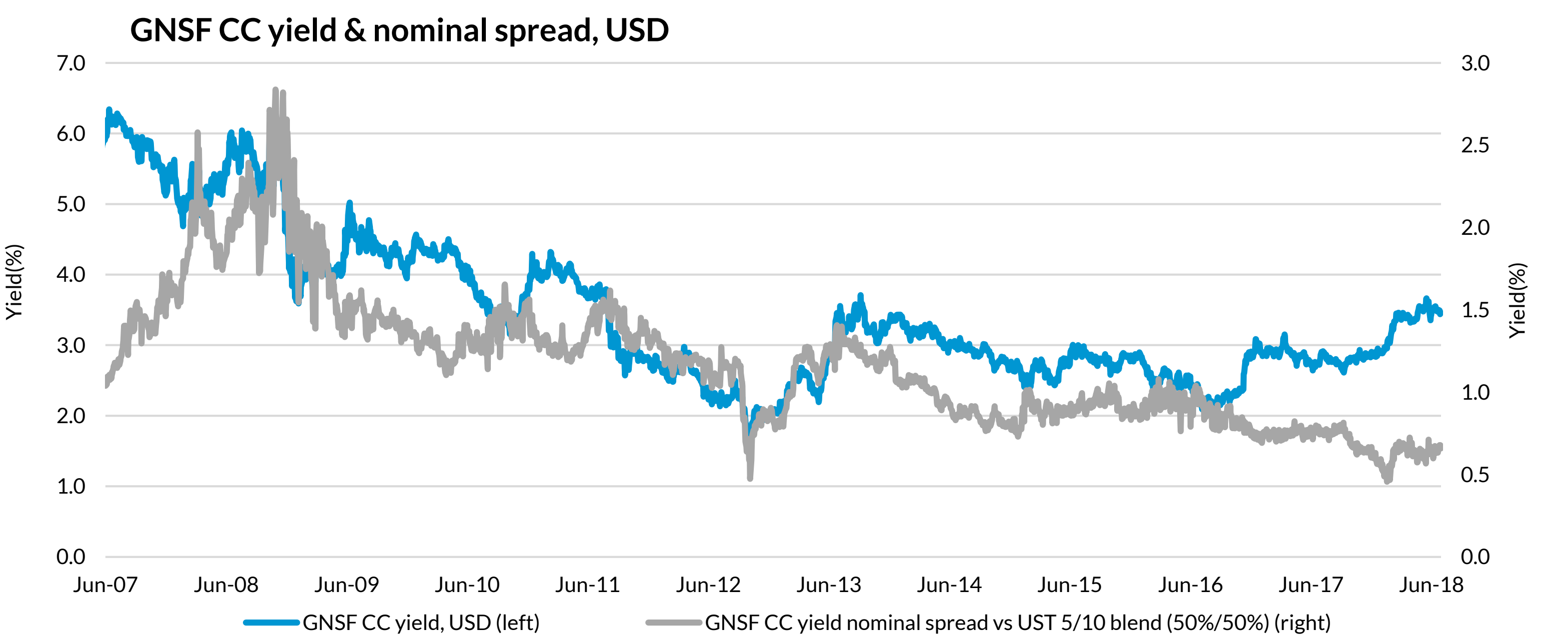
Sources: *Bloomberg and State Street Global Advisors*
Note*: Data as of June 2018.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

The nominal yield on both the current coupon GNMA II and GNMA I securities increased slightly in June 2018. Current coupon Ginnie Mae securities outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 63 and 66 bps on G2SF and GNSF, respectively; this is very similar to their May levels.



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

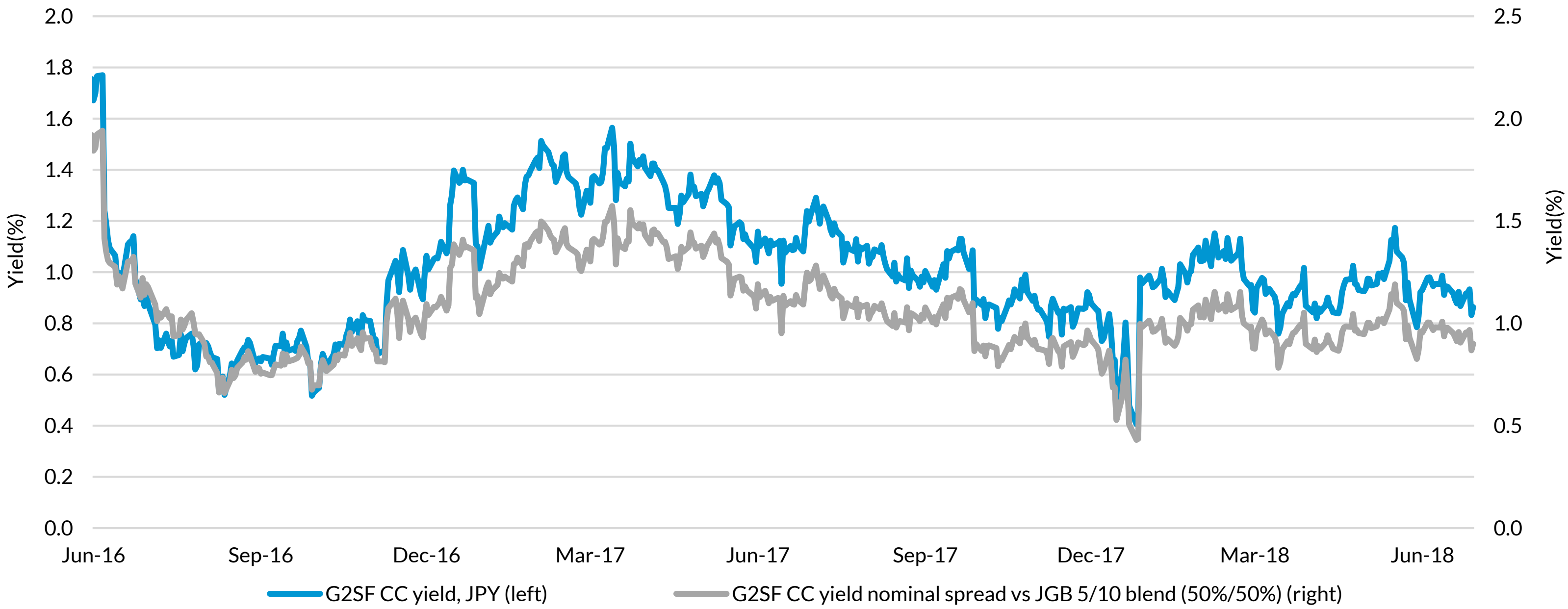


Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of June 2018.*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

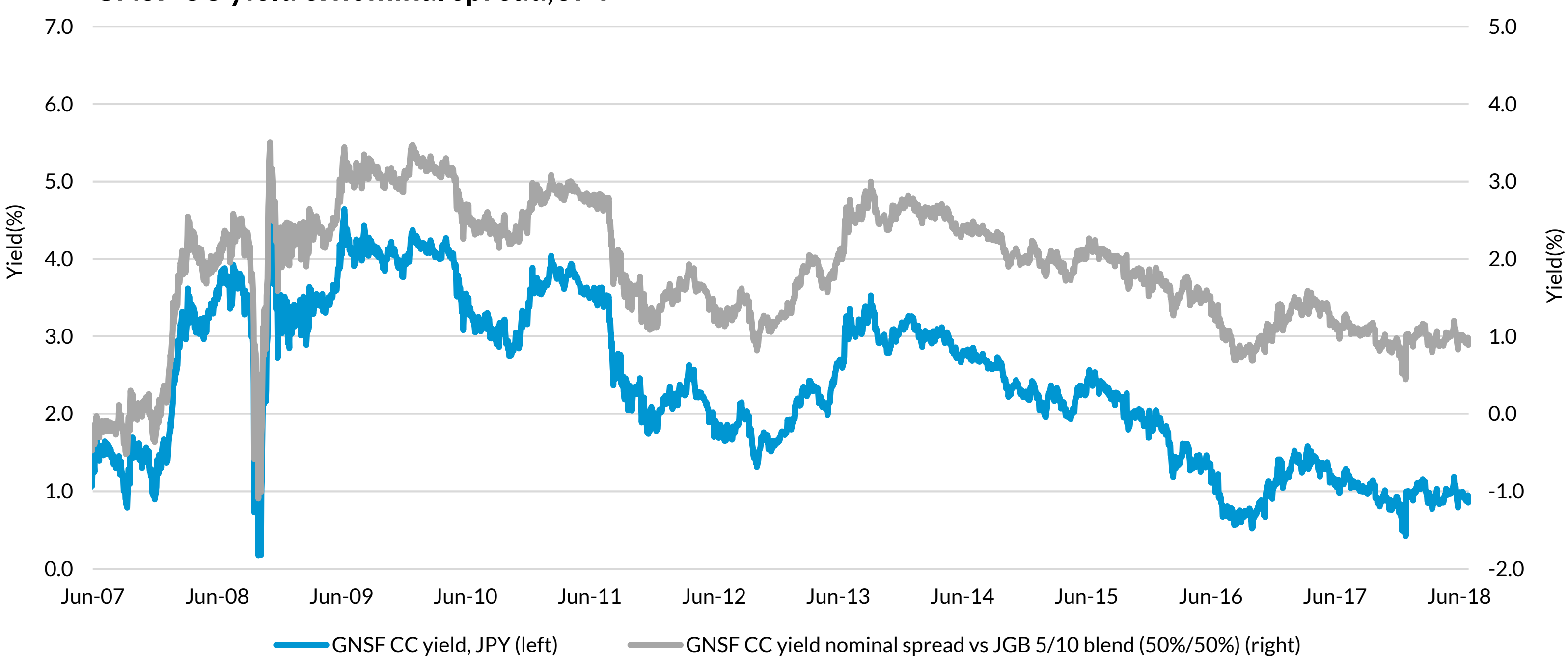
If Ginnie Mae securities are hedged into foreign currencies, they look attractive on a yield basis versus many sovereign alternatives. The figures show that current coupon G2SF and GNSF hedged into Japanese yen yield more than the JGB 5/10 blend by 90 and 92 bps, respectively. These latest spreads have tightened compared to May values.

G2SF CC yield & nominal spread, JPY



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

GNSF CC yield & nominal spread, JPY



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

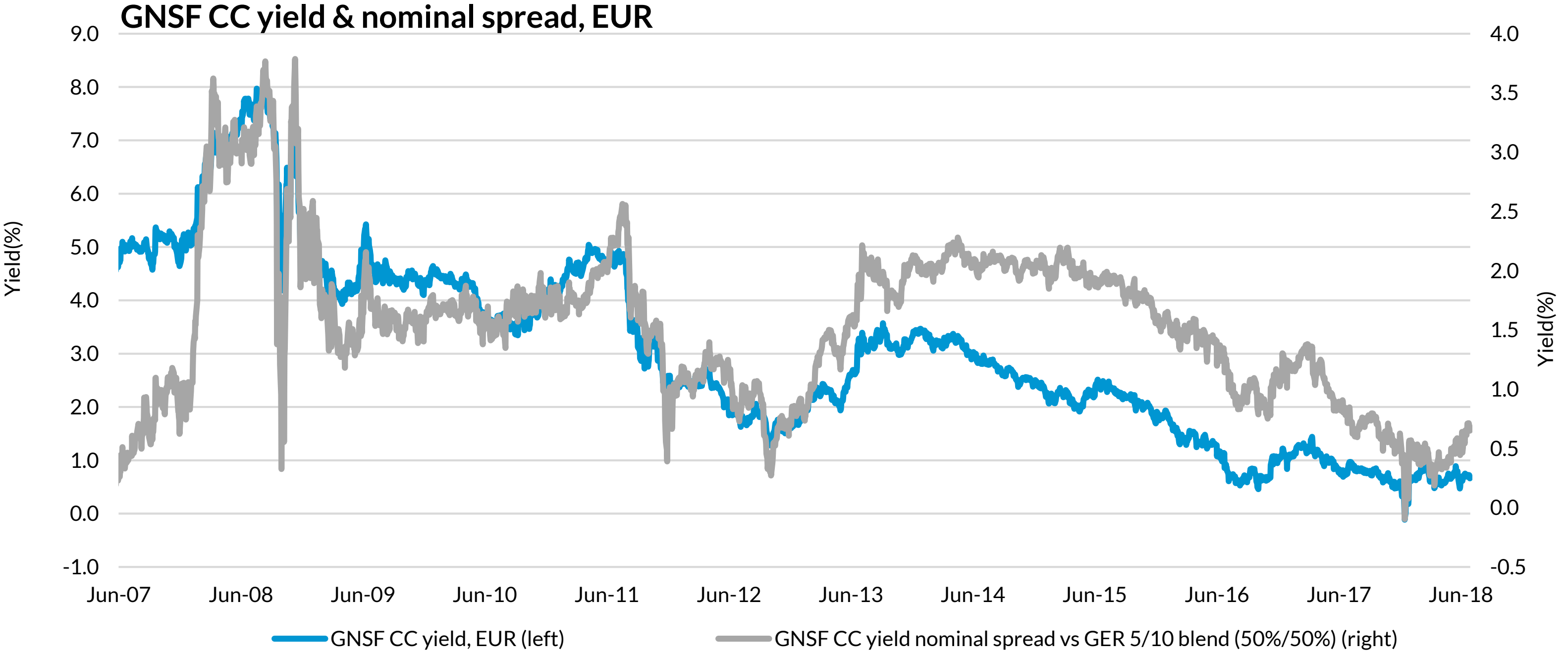
Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

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 65 and 67 bps, respectively. These latest spreads represent a 9-10 basis point widening from May levels.

G2SF CC yield & nominal spread, EUR

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

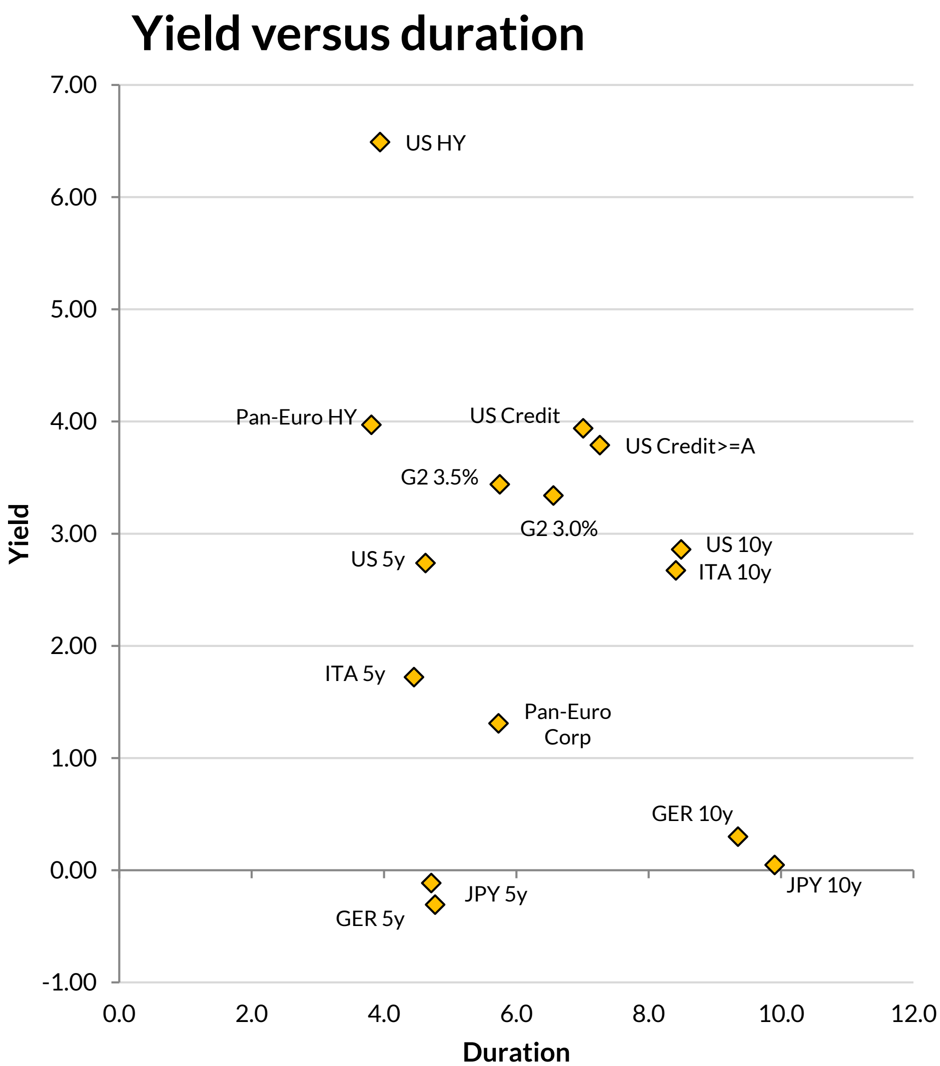
GNSF CC yield & nominal spread, EUR



Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of June 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 duration, a measure of sensitivity to interest rate changes, does not fully capture the volatility of the high yield asset class. Investors are unable to match the yield on Ginnie Mae securities, while preserving the full government guarantee, even if they extend their duration significantly.



Security	Duration	Yield
US 5y	4.6	2.74
US 10y	8.5	2.86
GNMA II 3%	6.6	3.34
GNMA II 3.5%	5.8	3.44
JPY 5y	4.7	-0.11
JPY 10y	9.9	0.05
GER 5y	4.8	-0.31
GER 10y	9.3	0.30
ITA 5y	4.5	1.72
ITA 10y	8.4	2.67
US credit	7.0	3.94
US credit >= A	7.3	3.79
US HY	3.9	6.49
Pan-Euro Corp	5.7	1.31
Pan-Euro HY	3.8	3.97

***Sources:** Bloomberg and State Street Global Advisors.* ***Note**:* *Yields are in base currency of security and unhedged.* *Data as of June 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	0.01	-0.05	-0.07	0.06	0.22	0.07
3 year	0.11	0.09	0.26	0.12	0.46	0.29
5 year	0.17	0.13	0.29	0.32	0.46	0.48
10 year	0.29	0.25	0.45	0.42	0.71	0.82

	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	-0.11	-0.17	-0.18	0.12	0.10	0.14
3 year	0.05	0.03	0.20	0.18	0.40	0.35
5 year	0.14	0.09	0.26	0.35	0.42	0.52
10 year	0.27	0.23	0.43	0.42	0.68	0.82

	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	0.58	0.79	0.82	0.39	0.60	0.77
3 year	0.53	0.91	1.04	0.97	1.58	1.40
5 year	0.61	0.90	1.07	0.97	1.45	1.23
10 year	0.76	1.18	1.75	1.38	2.99	3.49

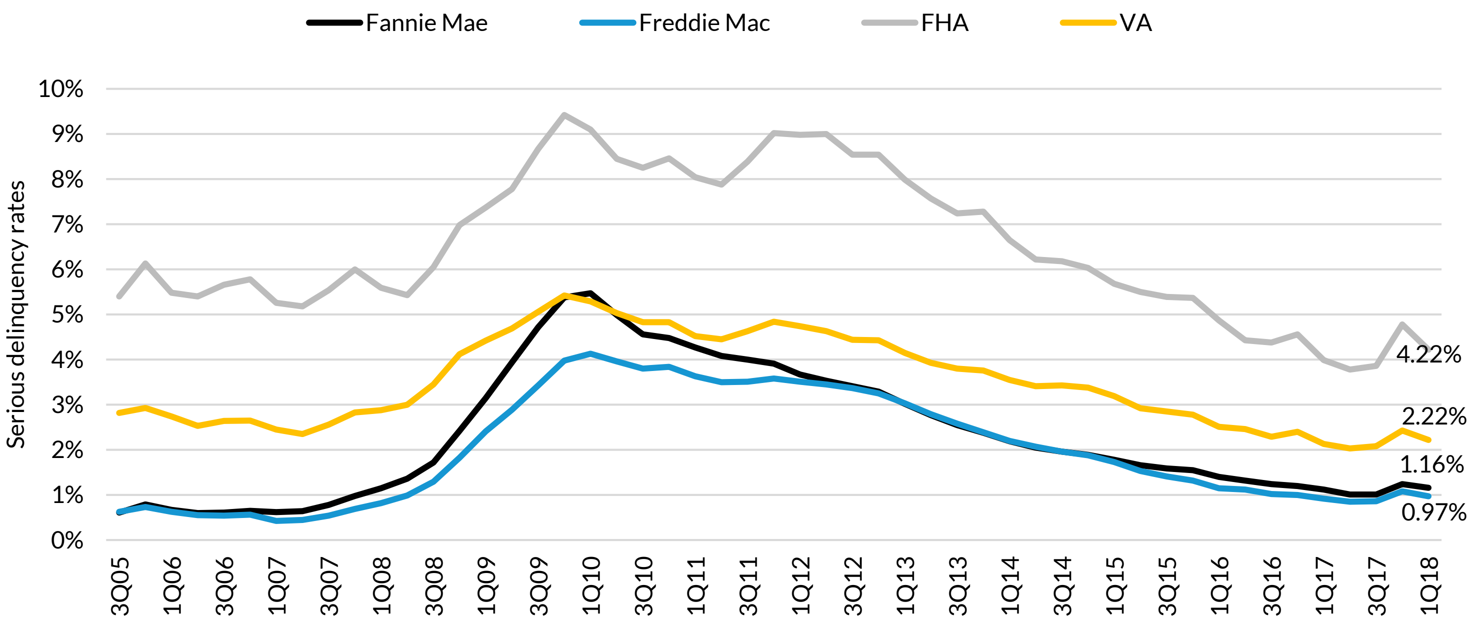
	Sharpe Ratio					
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield	Pan Euro High Yield*
1 year	-0.18	-0.22	-0.22	0.32	0.17	0.18
3 year	0.09	0.03	0.19	0.18	0.26	0.25
5 year	0.23	0.10	0.24	0.36	0.29	0.42
10 year	0.36	0.19	0.24	0.30	0.23	0.24

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

State of the US Housing Market

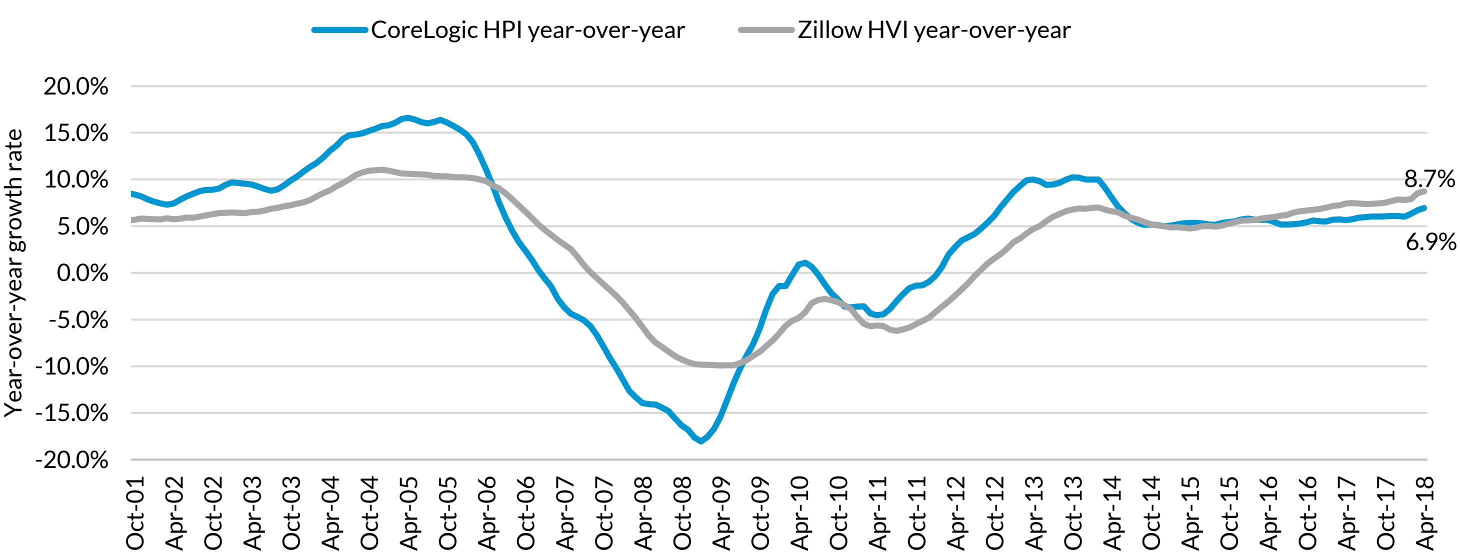
Serious delinquencies for single-family GSE loans, FHA loans, and VA loans declined in Q1 2018, after last quarter's seasonal and hurricane-related uptick. The delinquency rates for FHA and VA went down to 4.22 percent and 2.22 percent, respectively, and delinquency rates for Fannie Mae and Freddie Mac 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 7-9 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 April 2018.*

State of the US Housing Market

Nationally, nominal home prices have improved by 55.4 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 (as indicated by the negative numbers), while Nevada is 23.7 percent below peak levels and Connecticut is 22.3 percent below peak levels.

	HPI Changes				
State	2000 to Peak	Peak to Trough	Trough to Current	YOY	Current HPI % Below Peak
National	93.8%	-33.1%	55.4%	6.9%	-3.7%
Alabama	45.8%	-19.9%	25.5%	3.9%	-0.5%
Alaska	68.9%	-9.4%	19.4%	2.8%	-7.6%
Arizona	121.5%	-50.5%	74.4%	6.9%	15.8%
Arkansas	39.8%	-7.5%	16.9%	3.4%	-7.5%
California	148.9%	-42.4%	84.4%	8.9%	-5.8%
Colorado	40.5%	-13.7%	73.9%	8.7%	-33.4%
Connecticut	79.6%	-24.8%	8.7%	1.8%	22.3%
Delaware	90.3%	-23.7%	20.9%	3.7%	8.4%
District of Columbia	150.5%	-10.2%	40.2%	2.0%	-20.5%
Florida	149.1%	-49.6%	69.3%	5.8%	17.1%
Georgia	40.4%	-30.8%	58.0%	5.8%	-8.5%
Hawaii	152.0%	-20.9%	48.1%	5.5%	-14.6%
Idaho	85.3%	-40.8%	83.8%	12.4%	-8.1%
Illinois	59.9%	-32.5%	31.9%	2.9%	12.4%
Indiana	24.4%	-16.4%	32.6%	6.3%	-9.8%
Iowa	25.5%	-4.8%	21.6%	3.3%	-13.6%
Kansas	33.2%	-14.1%	32.2%	6.3%	-11.9%
Kentucky	27.0%	-8.9%	25.7%	5.2%	-12.7%
Louisiana	59.1%	-7.4%	22.9%	1.3%	-12.1%
Maine	91.8%	-16.5%	38.2%	9.0%	-13.3%
Maryland	137.7%	-31.1%	22.0%	3.1%	18.9%
Massachusetts	81.7%	-21.1%	44.0%	6.3%	-12.0%
Michigan	26.2%	-43.1%	79.8%	7.5%	-2.3%
Minnesota	69.7%	-28.1%	48.0%	6.7%	-6.0%
Mississippi	34.5%	-19.3%	21.4%	3.7%	2.1%
Missouri	46.2%	-22.2%	35.6%	6.6%	-5.2%
Montana	79.9%	-16.5%	43.0%	8.0%	-16.3%
Nebraska	25.3%	-5.2%	29.2%	4.5%	-18.3%
Nevada	129.1%	-59.9%	101.4%	12.2%	23.7%
New Hampshire	82.8%	-23.8%	32.6%	4.2%	-1.0%
New Jersey	109.5%	-26.4%	17.0%	3.5%	16.1%
New Mexico	64.4%	-26.4%	24.5%	5.4%	9.2%
New York	101.7%	-13.9%	31.9%	5.6%	-11.9%
North Carolina	39.8%	-14.5%	30.8%	4.6%	-10.5%
North Dakota	50.5%	-1.8%	53.6%	7.7%	-33.7%
Ohio	22.2%	-20.3%	34.7%	7.1%	-6.8%
Oklahoma	35.9%	-3.1%	16.3%	2.1%	-11.3%
Oregon	87.6%	-29.2%	73.5%	7.0%	-18.6%
Pennsylvania	71.7%	-12.9%	17.3%	3.6%	-2.1%
Rhode Island	130.9%	-34.2%	37.2%	9.1%	10.8%
South Carolina	61.9%	-22.1%	35.5%	5.3%	-5.2%
South Dakota	37.0%	-3.6%	33.1%	2.7%	-22.1%
Tennessee	41.3%	-13.2%	41.6%	7.2%	-18.6%
Texas	39.5%	-13.1%	51.3%	5.0%	-23.9%
Utah	64.7%	-31.6%	74.4%	11.5%	-16.1%
Vermont	81.7%	-9.4%	13.7%	3.2%	-2.9%
Virginia	135.0%	-30.5%	31.8%	2.3%	9.2%
Washington	90.3%	-28.1%	81.5%	12.8%	-23.4%
West Virginia	81.0%	-26.9%	25.4%	2.8%	9.1%
Wisconsin	48.5%	-17.3%	29.6%	5.8%	-6.7%
Wyoming	76.0%	-14.9%	29.0%	3.4%	-8.9%

Sources: *CoreLogic and Urban Institute.* ***Note:*** *HPI data as of April 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 04/2018, the latest HPI data period.*

State of the US Housing Market

Ginnie Mae loans constitute 32.2 percent of outstanding agency issuance by loan balance, 34.0 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 52.3 percent in Mississippi. In general, the Ginnie Mae share is higher in states with lower home prices.

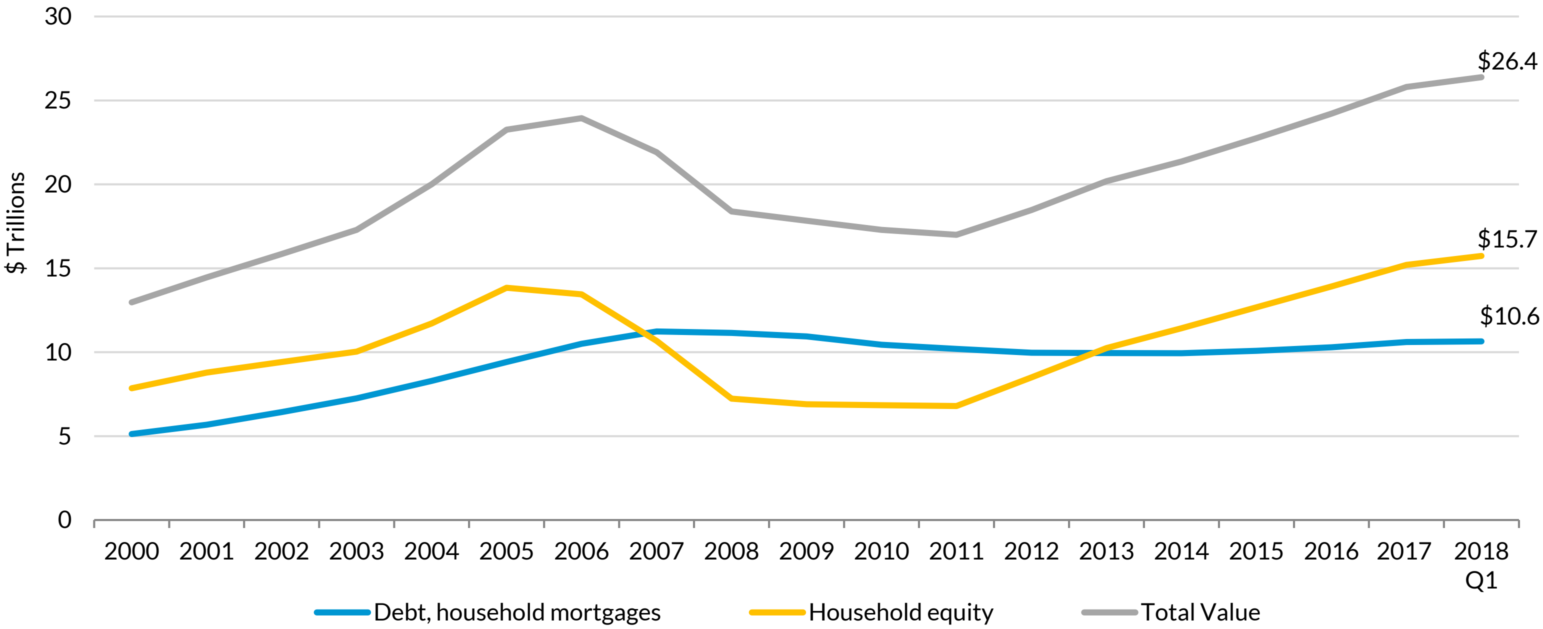
State	Agency Issuance (past 1 year)			Agency Outstanding		
	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)
National	34.0%	213.1	229.2	32.2%	179.6	209.4
Alabama	45.5%	160.1	182.1	47.1%	142.7	169.4
Alaska	52.3%	281.9	245.3	52.0%	257.2	229.2
Arizona	34.5%	207.8	213.1	34.4%	177.7	192.5
Arkansas	44.6%	141.5	167.0	46.7%	123.4	153.8
California	28.0%	343.3	327.3	22.2%	287.7	294.1
Colorado	33.2%	279.5	270.1	30.2%	231.8	239.0
Connecticut	32.6%	214.3	226.5	29.9%	203.9	218.4
Delaware	39.7%	212.1	223.1	37.5%	199.0	208.7
District of Columbia	17.8%	407.0	355.9	17.4%	330.0	334.1
Florida	39.2%	208.8	204.9	36.7%	175.5	186.0
Georgia	41.6%	182.8	206.2	40.8%	156.0	187.3
Hawaii	40.0%	492.6	383.2	31.9%	422.0	347.7
Idaho	34.7%	194.2	198.5	34.9%	164.4	177.1
Illinois	26.9%	177.0	198.4	25.3%	156.2	183.8
Indiana	39.9%	140.8	156.2	39.5%	122.6	142.4
Iowa	26.9%	144.5	162.4	26.9%	126.0	149.6
Kansas	37.2%	154.5	175.4	37.0%	133.6	157.9
Kentucky	40.7%	149.1	166.2	40.1%	133.8	151.0
Louisiana	43.3%	169.0	193.6	43.5%	151.5	178.4
Maine	36.2%	182.5	198.0	33.1%	167.4	181.6
Maryland	44.7%	282.1	263.4	40.1%	253.9	247.9
Massachusetts	24.3%	288.8	280.5	19.8%	254.9	256.3
Michigan	26.3%	144.9	168.3	26.6%	124.2	152.3
Minnesota	25.9%	195.5	208.3	25.5%	171.0	191.2
Mississippi	51.1%	151.3	170.4	52.3%	132.9	158.7
Missouri	36.6%	150.5	172.0	36.5%	133.3	157.0
Montana	32.2%	213.3	215.4	31.6%	184.4	193.2
Nebraska	32.2%	160.8	169.9	35.3%	136.2	154.6
Nevada	38.4%	238.1	227.6	39.8%	199.3	200.8
New Hampshire	32.6%	230.9	223.1	30.2%	209.7	203.3
New Jersey	30.2%	248.6	263.9	28.2%	233.2	249.5
New Mexico	44.0%	178.0	186.9	44.1%	157.3	173.4
New York	27.1%	241.0	266.1	26.4%	206.5	243.9
North Carolina	35.2%	179.1	200.4	35.9%	155.9	185.3
North Dakota	28.4%	210.0	205.8	26.9%	181.8	187.0
Ohio	36.8%	141.2	156.8	37.7%	125.6	144.7
Oklahoma	47.2%	151.1	170.3	50.0%	132.2	157.7
Oregon	28.1%	251.2	255.0	25.5%	212.1	223.2
Pennsylvania	34.2%	167.1	192.8	33.8%	152.5	181.2
Rhode Island	38.6%	224.0	217.7	34.3%	202.0	203.7
South Carolina	40.6%	182.2	192.0	39.2%	159.5	178.2
South Dakota	37.7%	174.8	182.8	37.0%	155.8	166.3
Tennessee	41.5%	180.3	199.7	42.7%	151.6	179.5
Texas	35.8%	195.2	213.1	38.2%	155.2	192.6
Utah	30.4%	234.9	245.3	31.3%	203.3	220.5
Vermont	23.3%	193.6	196.3	20.0%	181.9	183.1
Virginia	45.8%	269.5	258.2	42.0%	244.2	244.7
Washington	31.4%	280.2	282.8	30.1%	234.8	246.0
West Virginia	49.0%	154.5	155.2	46.1%	139.4	147.1
Wisconsin	23.8%	164.9	174.9	21.7%	147.5	161.5
Wyoming	42.0%	211.2	209.2	41.5%	194.3	196.0

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

State of the US Housing Market

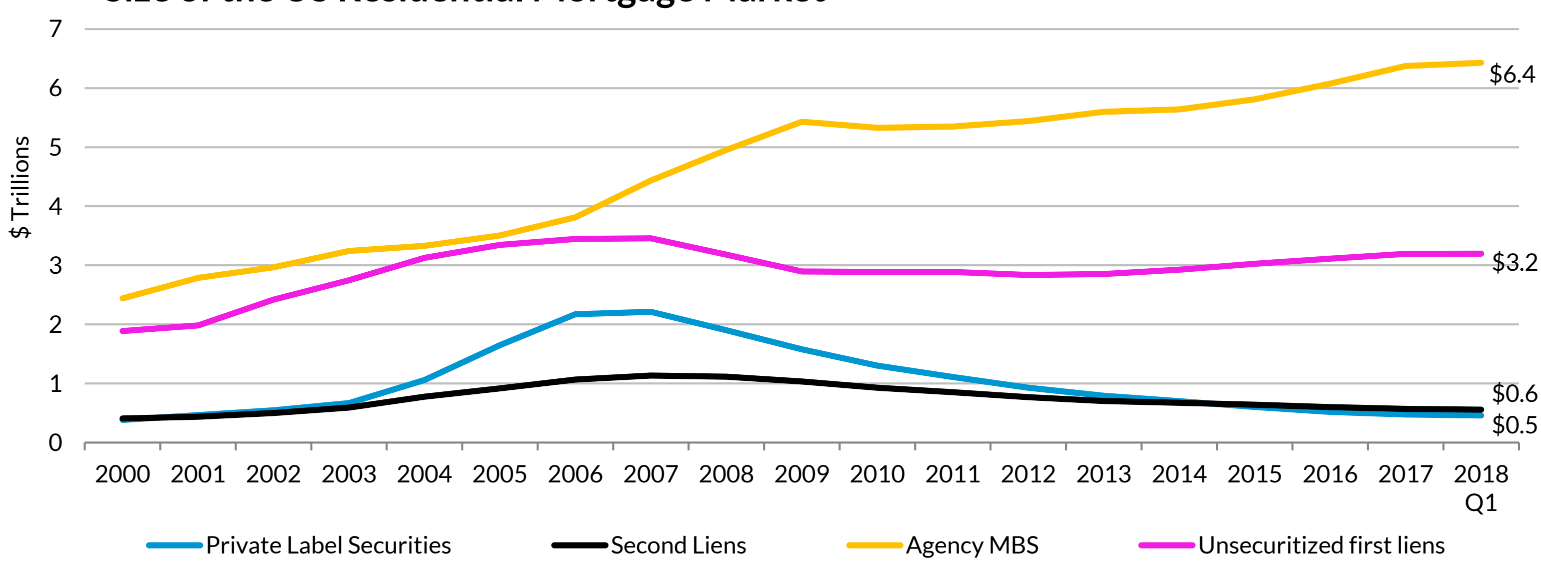
The Federal Reserve's Flow of Funds report has consistently indicated an increasing total value of the housing market driven by growing household equity since 2012, and 2018 Q1 was no different. While total debt and mortgages was stable at $10.6 trillion, household equity reached a new high of $15.7 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

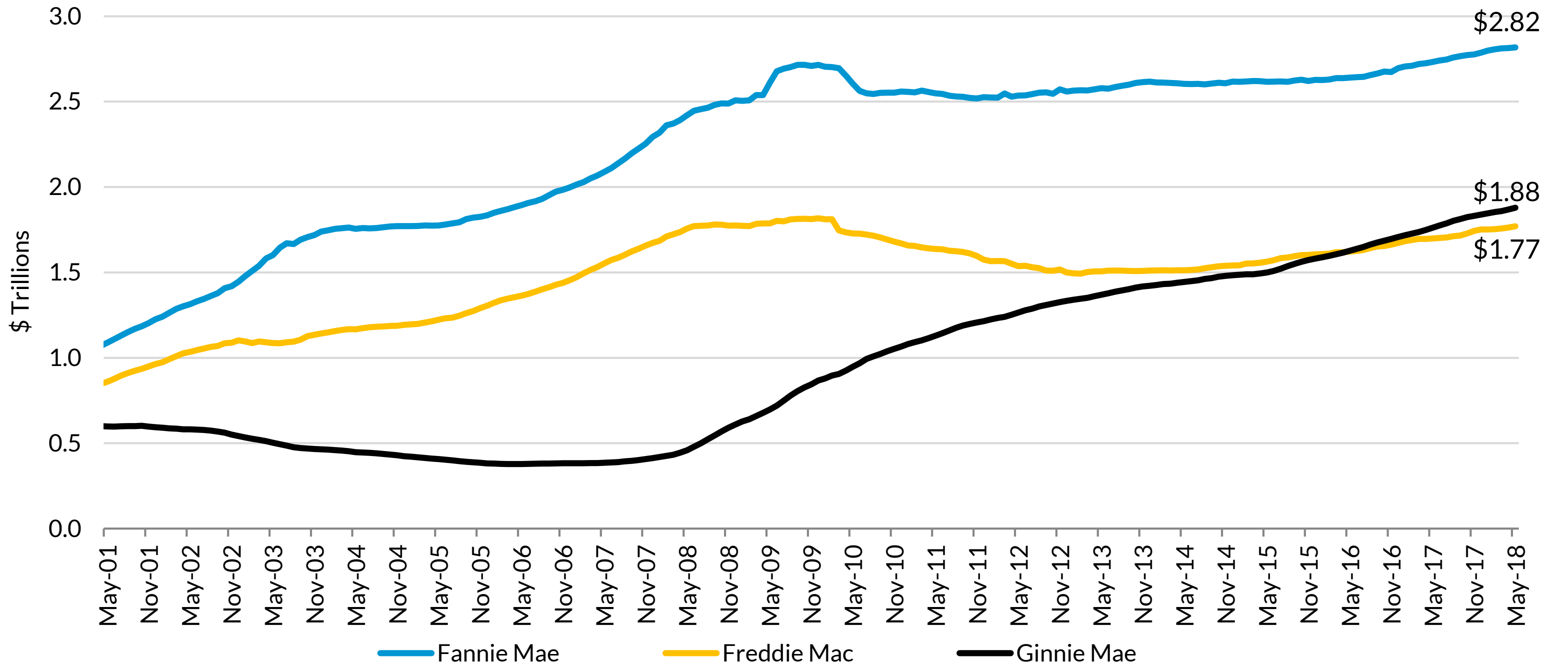


Sources: *Federal Reserve Flow of Funds, Inside Mortgage Finance, Fannie Mae, Freddie Mac, eMBS and Urban Institute.*
Note: *Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, and credit unions. Data as of Q1 2018.*

State of the US Housing Market

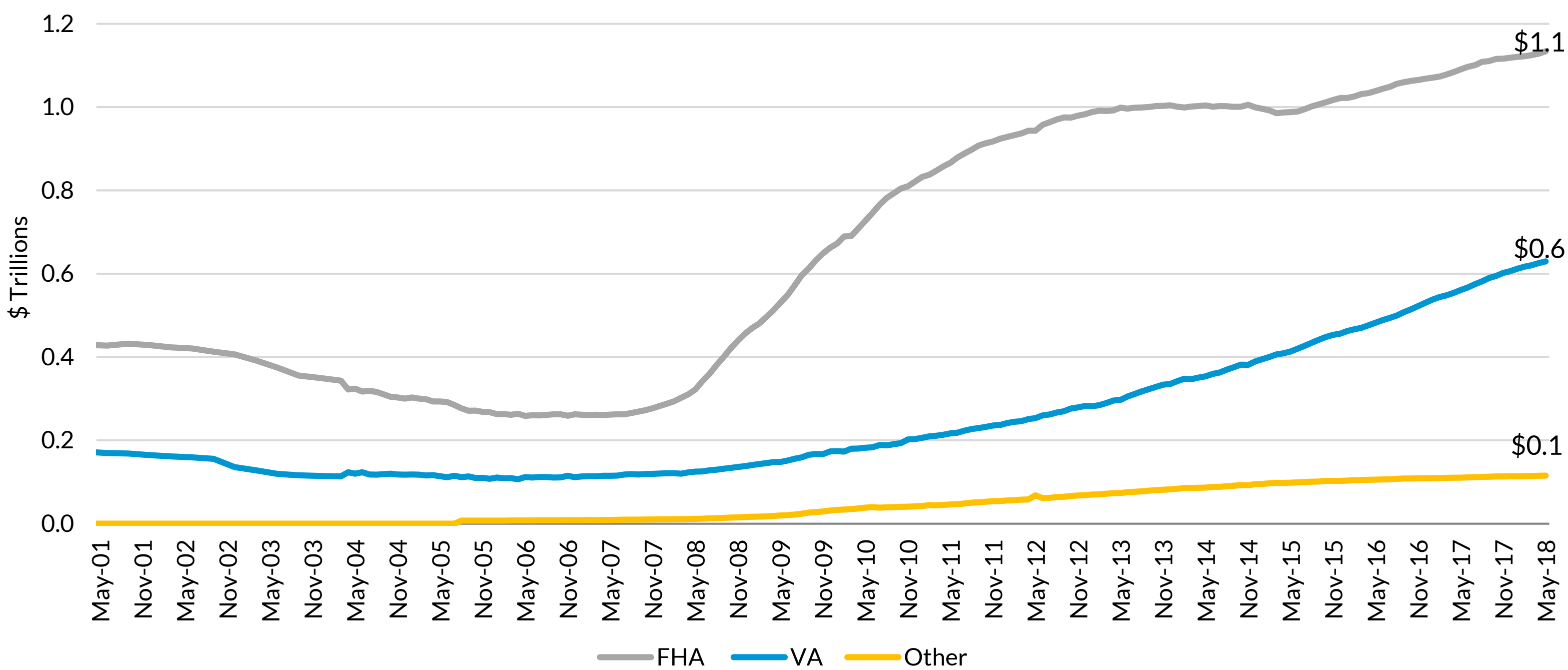
As of May 2018, outstanding securities in the agency market totaled $6.47 trillion and were 43.6 percent Fannie Mae, 27.4 percent Freddie Mac, and 29.1 percent Ginnie Mae. Ginnie Mae has more outstandings than Freddie Mac. Within the Ginnie Mae market, VA has been growing very rapidly, and now comprises 33.5 percent of total Ginnie Mae outstandings.

Outstanding Agency Mortgage-Backed Securities



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

Outstanding Ginnie Mae Mortgage-Backed Securities

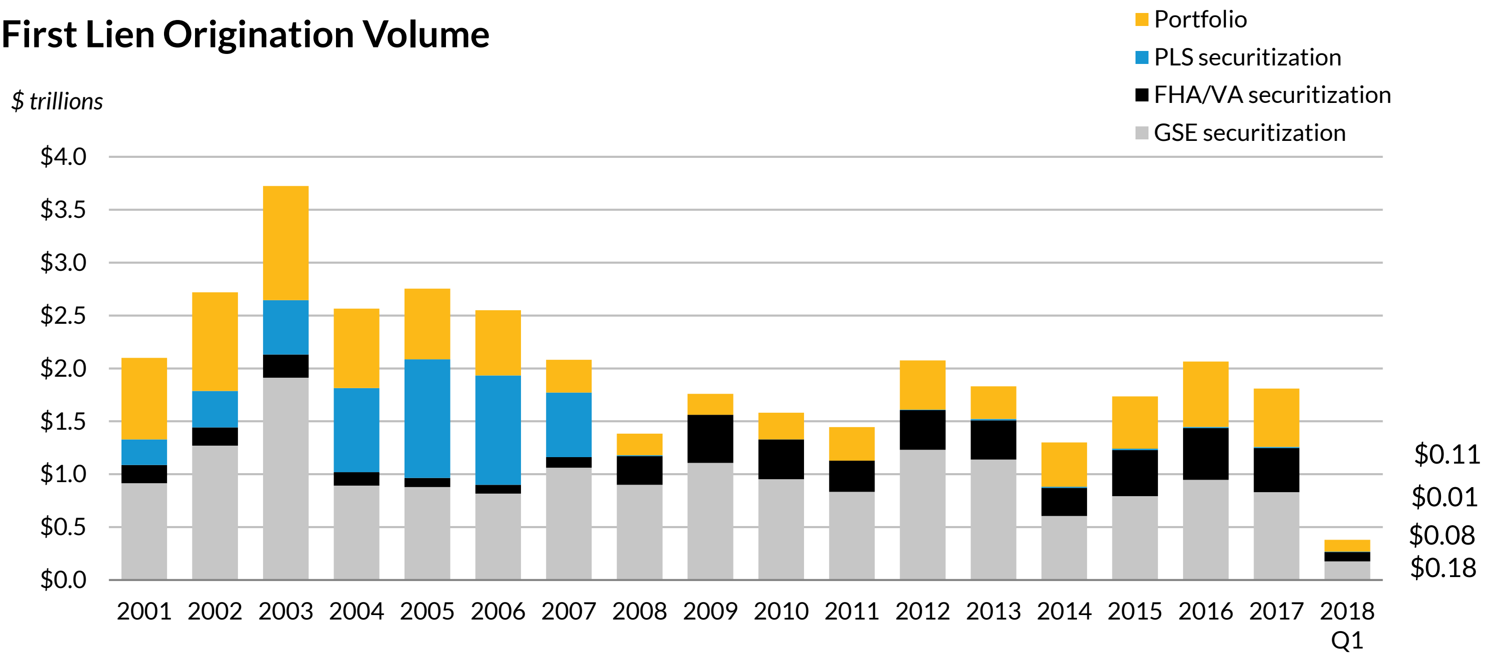


Sources: *eMBS and Urban Institute.* **Note:** *Data as of May 2018.*

State of the US Housing Market

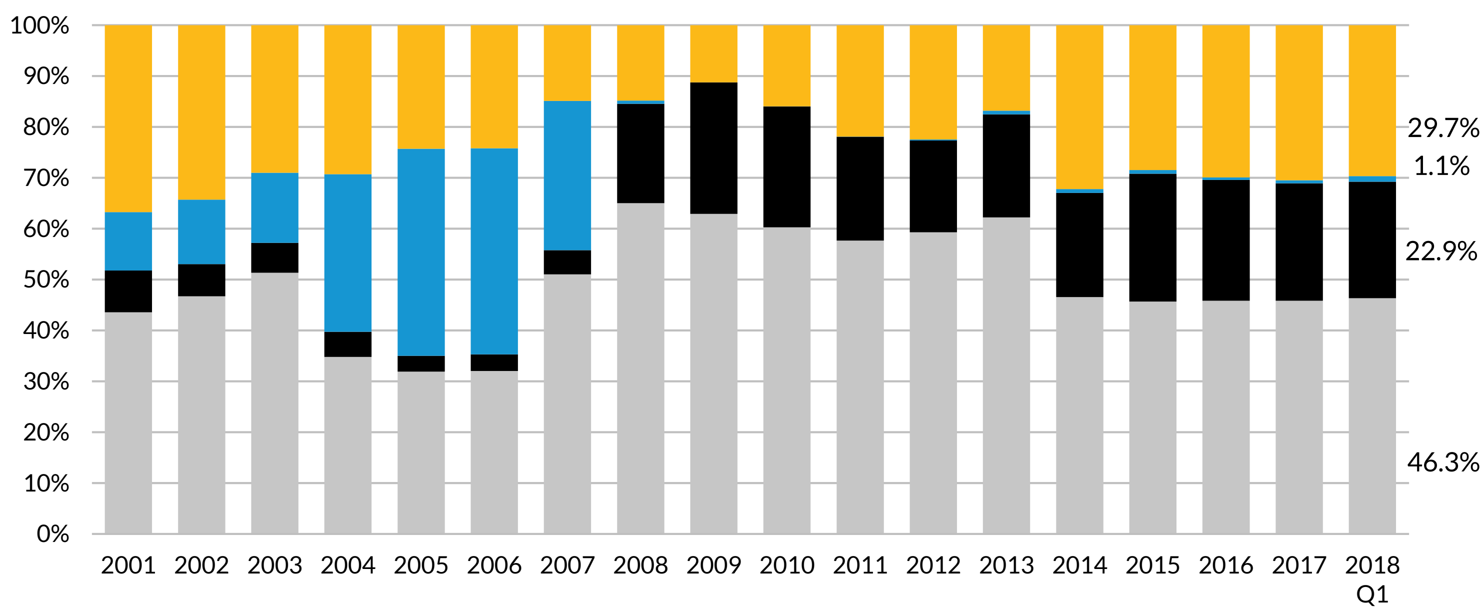
First lien originations totaled $380 billion in Q1 2018, down 16 percent from the first quarter of 2017, mostly due to high interest rates. The portfolio originations share was 28 percent, the GSE share was around 46 percent, and the FHA/VA share was around 23 percent, all consistent with 2017 shares. Origination of private-label securities was under just over 1 percent, slightly higher than the 2017 share.

First Lien Origination Volume



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

First Lien Origination Share



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

US Agency Market, Originations

Agency gross issuance totaled $478.7 billion in the first five months of 2018, down by 9.0 percent compared to the same time period in 2017. Ginnie Mae gross issuance was down by 9.7 percent and GSE gross issuance was down by 8.7 percent. Within the Ginnie Mae market, FHA is down by 15.7 percent and VA origination is up by 0.3 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	$198.5	$117.8	$316.3	$162.4	$478.7
2018 % Change YOY	-6.5%	-12.1%	-8.7%	-9.7%	-9.0%
2018 Ann.	$476.4	$282.8	$759.2	$389.8	$1,149.0

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	$87.8	$67.8	$6.7	$162.4
2018 % Change YOY	-15.7%	0.3%	-15.4%	-9.7%
2018 Ann.	$210.8	$162.8	$16.2	$389.8

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 May 2018.*

US Agency Market, Originations

Agency net issuance totaled $91.2 billion in the first five months of 2018, down 22.7 percent compared to 2017. Ginnie Mae net issuance was $40.7 billion, comprising 43.8 percent of total agency net issuance. Note that Ginnie Mae net issuance is down 25.0 percent compared to the first five months of 2017. Ginnie Mae net issuance in 2018 is comprised of 59.2 percent VA issuance, 37.1 percent FHA issuance and 3.7 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	$31.5	$18.9	$56.6	$40.7	$91.2
2018 %Change YOY	-12.8%	-31.1%	-20.7%	-25.0%	-22.7%
2018 Ann.	$75.7	$45.5	$135.8	$97.7	$218.9

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	$15.1	$24.1	$1.5	$40.7
2018 %Change YOY	-33.5%	-20.3%	15.1%	-25.0%
2018 Ann.	$36.3	$57.9	$3.5	$97.7

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 May 2018.*

US Agency Market, Originations

Agency gross issuance totaled $100.1 billion in May 2018, up slightly from $95.2 billion of issuance in April 2018, a seasonal effect. May 2018 levels were very much in line with May 2017 levels.

Monthly Agency Issuance

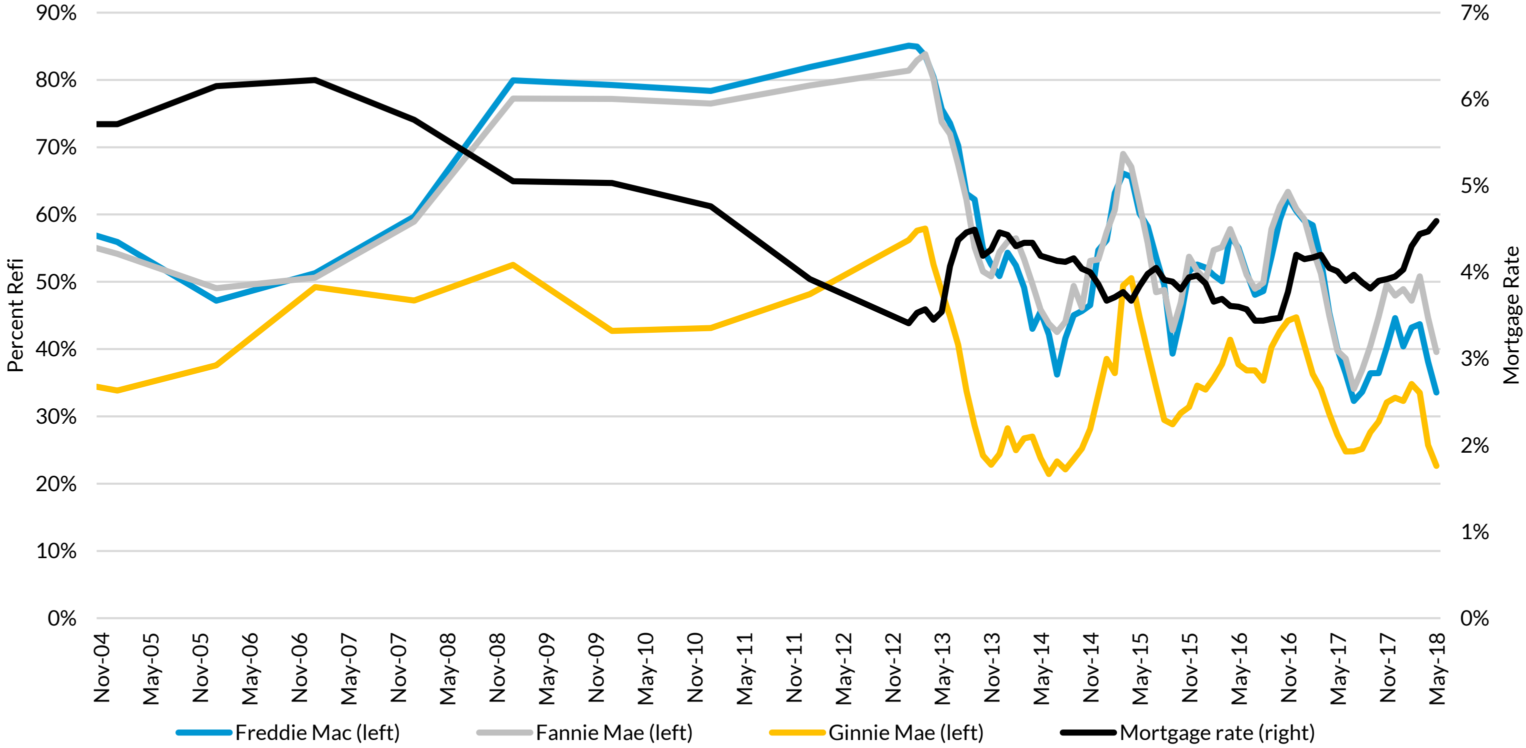
	Gross Issuance			Net Issuance		
Date	Fannie Mae	Freddie Mac	Ginnie Mae	Fannie Mae	Freddie Mac	Ginnie Mae
Jan-15	$36.8	$22.9	$27.5	-$1.2	$0.8	$2.5
Feb-15	$35.4	$29.9	$23.9	$1.5	$10.1	$2.9
Mar-15	$44.8	$26.0	$30.7	$3.1	$1.1	$0.6
Apr-15	$49.3	$33.8	$40.6	-$1.2	$3.8	$4.3
May-15	$42.4	$33.2	$39.4	-$2.9	$6.6	$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
May-18	$38.9	$27.5	$33.7	$4.5	$7.2	$10.6

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 May 2018.*

US Agency Market, Originations

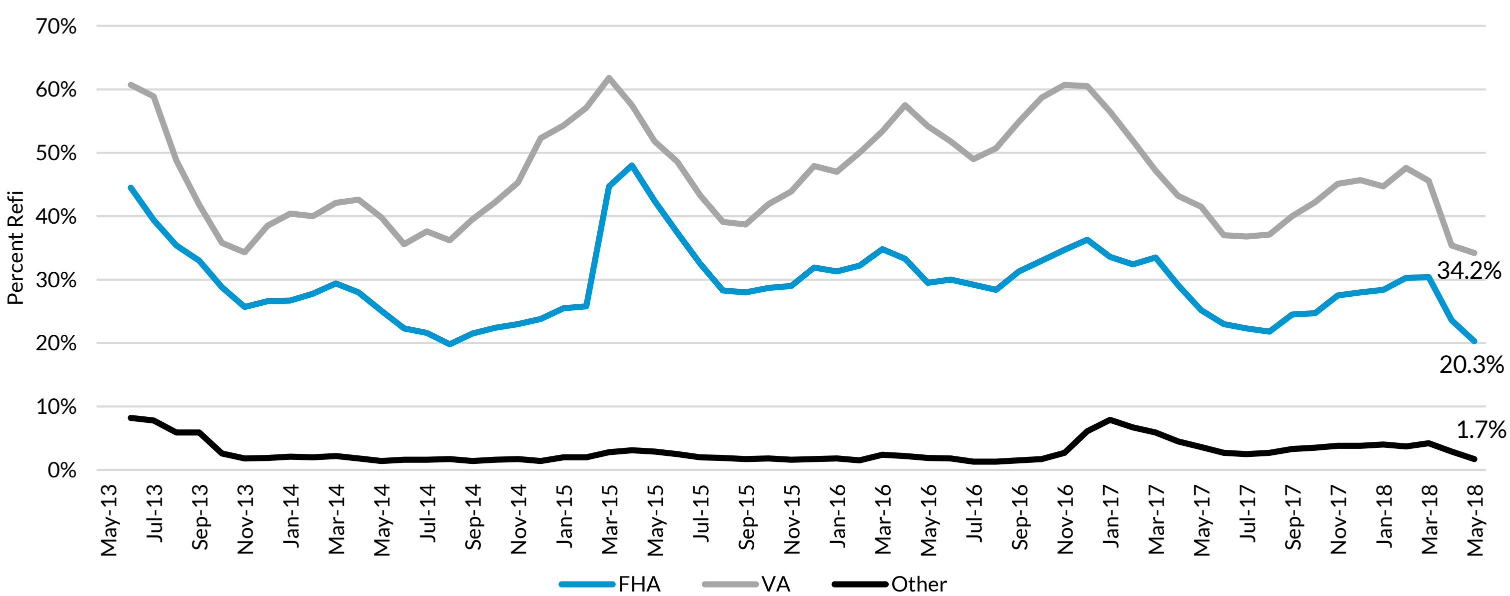
The Ginnie Mae refi share stood at 23 percent in May 2018, below the 40 and 34 percent shares for Fannie Mae and Freddie Mac, respectively. Within Ginnie Mae, VA had the highest refi share at 34.2 percent in May 2018, followed by FHA's 20.3 percent refi share. In May, the refinance share continued to sharply for all agencies. This is a result of increasing interest rates and the spring uptick in purchase activity. Loans sold into agency pools in May are based on March and April home sales.

Percent Refi at Issuance



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

Percent Refi at Issuance: Ginnie Mae Breakdown

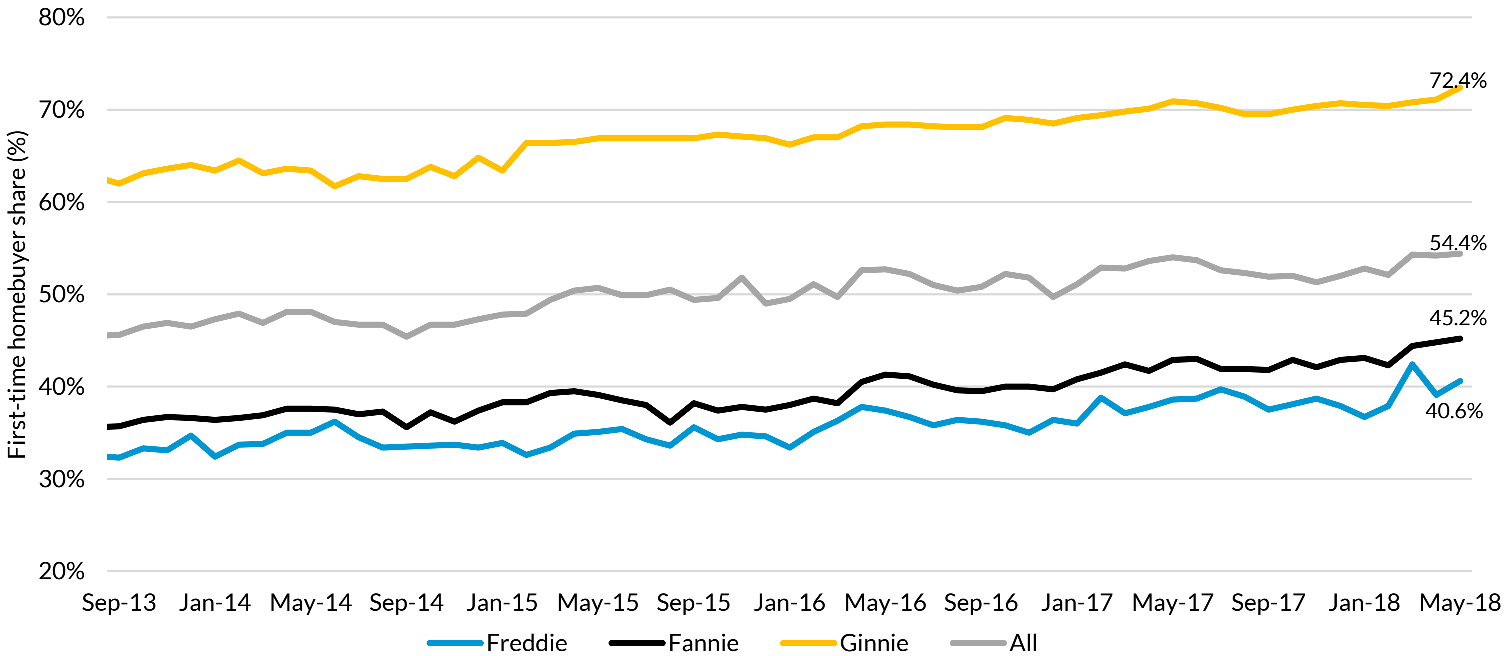


Sources: *eMBS and Urban Institute.*
Note: *Based on at-issuance balance. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of May 2018.*

Credit Box

The first time homebuyer share reached a new high in the Ginnie Mae market, comprising 72.4 percent of all purchase activity. First time homebuyers comprise a significantly higher share of the Ginnie Mae purchase market than of the GSE purchase market, with first time homebuyers accounting for 45.2 percent and 40.6 percent of Fannie and Freddie purchase originations, respectively. The bottom table shows that based on mortgages originated in May 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 May 2018.*

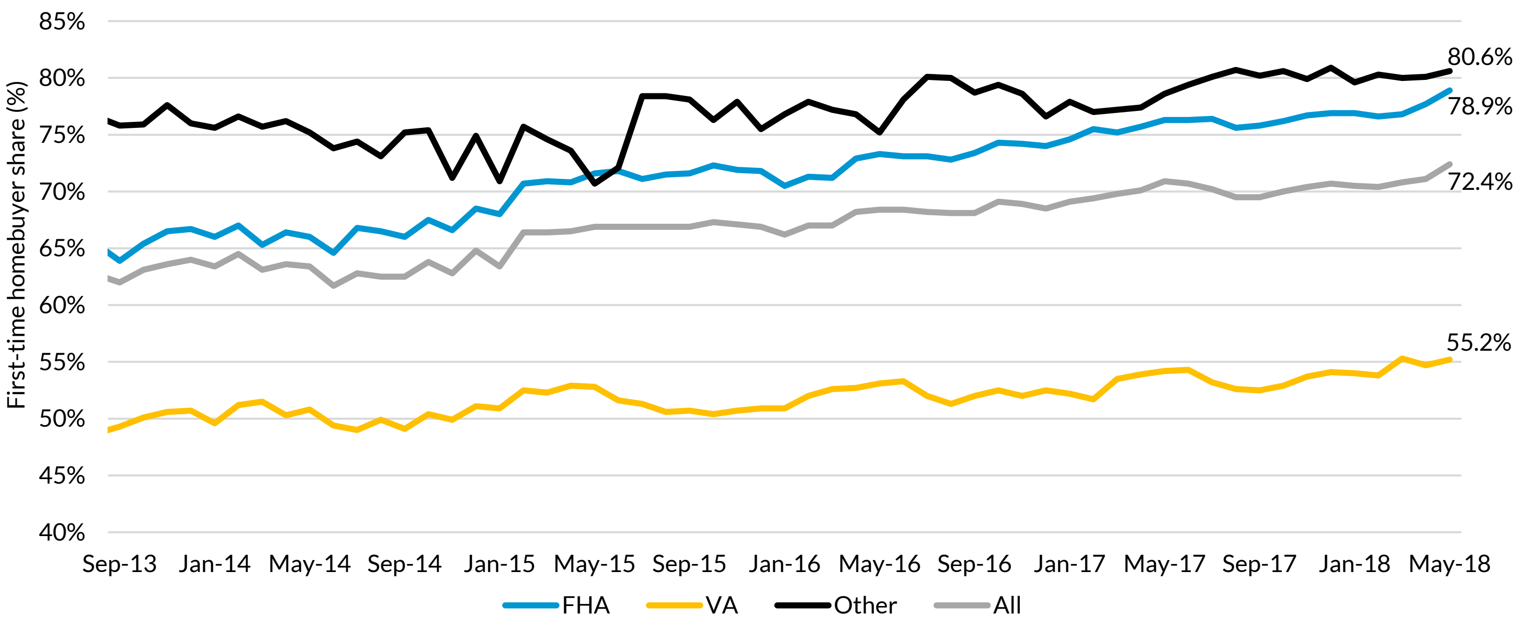
	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	233,547	263,053	233,498	252,179	202,117	251,292	217,436	256,097
Credit Score	737.2	753.8	741.0	753.6	678.0	699.0	707.7	738.2
LTV (%)	88.1	79.4	86.9	80.0	96.9	95.7	92.4	84.2
DTI (%)	36.8	37.1	35.6	36.5	41.8	42.7	39.1	38.5
Loan Rate (%)	4.7	4.6	4.6	4.6	4.7	4.6	4.7	4.6

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 May 2018.*

Credit Box

Within the Ginnie Mae purchase market, 78.9 percent of FHA loans, 55.2 percent of VA loans and 80.6 percent of other loans represent financing for first time home buyers. The bottom table shows that based on mortgages originated in May 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 May 2018.*

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($)	198,198	222,354	243,090	295,872	142,769	152,019	202,117	251,292
Credit Score	669.6	675.0	697.1	725.3	694.4	691.3	678.0	699.0
LTV (%)	95.6	94.2	99.9	96.7	99.4	99.7	96.9	95.7
DTI (%)	43.0	44.0	41.0	42.3	35.3	36.1	41.8	42.7
Loan Rate (%)	4.8	4.7	4.6	4.4	4.6	4.6	4.7	4.6

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

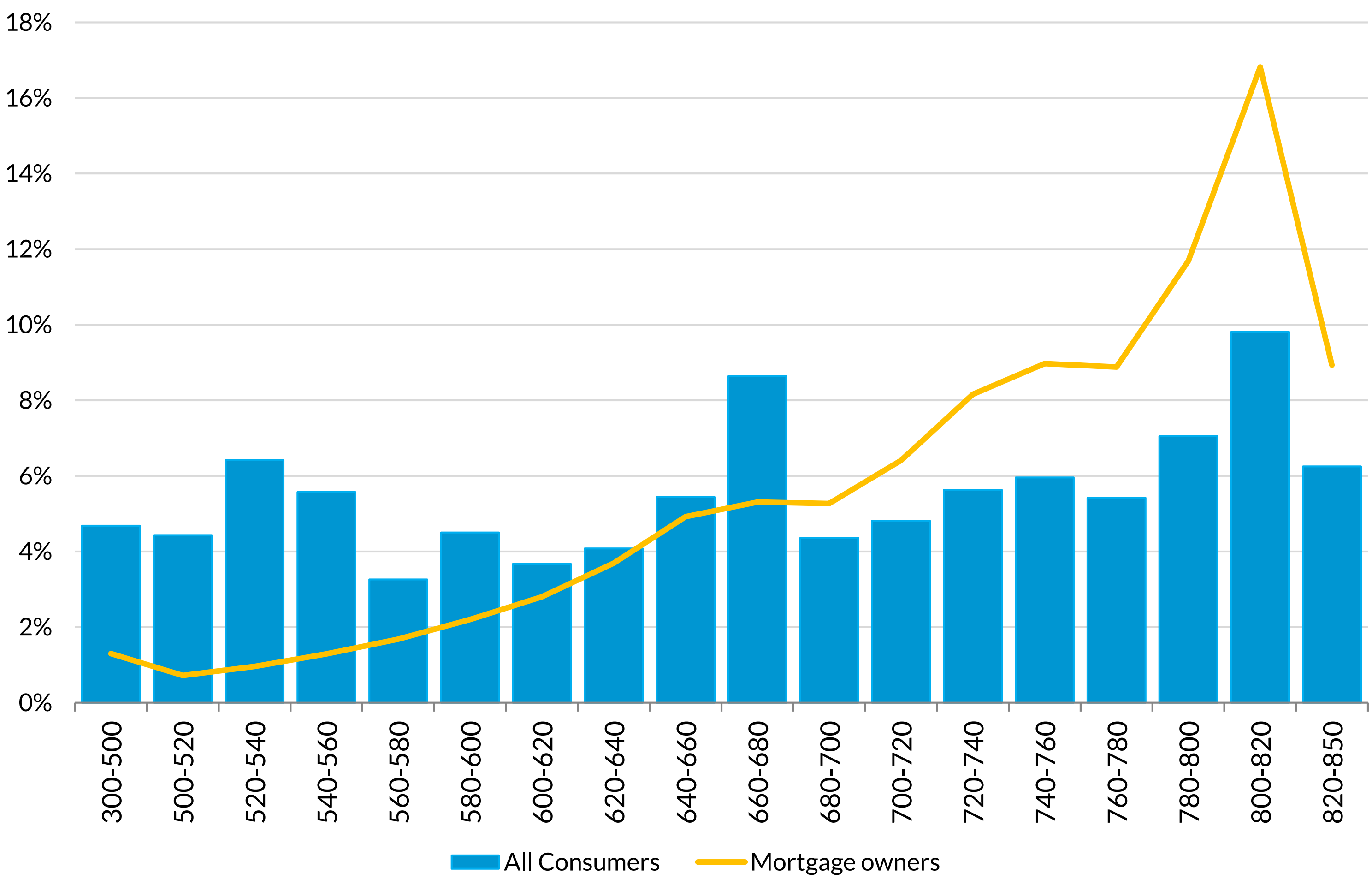
Credit Box

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.*

May 2018 Credit Box at a Glance

In May 2018, the median Ginnie Mae FICO score was 675 versus 748 for Fannie and 751 for Freddie. Note that the FICO score for the 10th percentile was 620 for Ginnie Mae, versus 669 for Fannie and 681 for Freddie. Within the Ginnie Mae market, FHA loans have a median FICO score of 664, VA loans have a median FICO score of 702 and other loans have a median FICO score of 690.

Purchase FICO							
	Number of Loans	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	286,511	642	678	729	774	797	724
Fannie	99,157	681	716	755	785	801	747
Freddie	77,118	688	719	757	786	801	750
Ginnie	110,236	623	645	676	719	765	684
Refi FICO							
	Number of Loans	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	138,569	643	679	723	768	794	720
Fannie	63,783	657	691	734	774	797	730
Freddie	43,296	669	701	741	776	798	736
Ginnie	31,490	607	639	675	718	762	679
All FICO							
	Number of Loans	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	425,080	642	679	727	772	796	723
Fannie	162,940	669	705	748	782	800	741
Freddie	120,414	681	712	751	783	801	745
Ginnie	141,726	620	644	675	719	765	683

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	110,236	623	645	676	719	765	684
FHA	69,191	618	639	665	699	737	671
VA	30,936	631	660	708	761	792	710
Other	10,109	639	658	690	729	764	694
Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	31,490	607	639	675	718	762	679
FHA	16,595	599	629	661	697	737	664
VA	14,764	621	652	693	739	778	695
Other	131	601	649	689	740	773	689
All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	141,726	620	644	675	719	765	683
FHA	85,786	614	637	664	698	737	669
VA	45,700	628	658	702	755	789	705
Other	10,240	639	658	690	729	764	694

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 May 2018.*

May 2018 Credit Box at a Glance

In May 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 83.8 percent for Ginnie Mae, and 50-51 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	286,883	73.0	80.0	95.0	96.5	100.0	87.9
Fannie	99,269	65.0	80.0	85.0	95.0	97.0	82.9
Freddie	77,154	64.0	79.0	80.0	95.0	95.0	82.0
Ginnie	110,460	93.7	96.5	96.5	100.0	102.0	96.6
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	139,896	44.0	59.0	74.0	80.0	90.0	69.8
Fannie	63,805	40.0	55.0	69.0	78.0	80.0	65.0
Freddie	43,311	40.0	56.0	70.0	78.0	80.0	65.2
Ginnie	32,780	67.5	80.5	86.5	96.3	100.0	85.4
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	426,779	57.0	75.0	85.0	96.5	98.1	82.0
Fannie	163,074	50.0	68.0	80.0	90.0	95.0	75.9
Freddie	120,465	51.0	69.0	80.0	90.0	95.0	76.0
Ginnie	143,240	83.8	94.6	96.5	100.0	101.0	94.0

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	110,460	93.7	96.5	96.5	100.0	102.0	96.6
FHA	69,318	94.0	96.5	96.5	96.5	96.5	95.3
VA	30,985	91.7	100.0	100.0	102.2	103.3	98.5
Other	10,157	95.5	99.2	101.0	101.0	102.0	99.5
Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	32,780	67.5	80.5	86.5	96.3	100.0	85.4
FHA	16,835	67.0	79.0	86.5	86.5	95.5	82.1
VA	15,777	67.9	82.5	92.9	100.0	102.2	88.8
Other	168	77.1	86.3	94.1	100.6	104.0	91.5
All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	143,240	83.8	94.6	96.5	100.0	101.0	94.0
FHA	86,153	84.3	93.6	96.5	96.5	96.5	92.7
VA	46,762	80.6	93.5	100.0	102.0	103.3	95.2
Other	10,325	95.1	99.2	101.0	101.0	102.0	99.3

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

May 2018 Credit Box at a Glance

In May 2018, the median Ginnie Mae debt-to-income ratio (DTI) was 42.7 percent, considerably higher than the 37-38 percent median DTIs for Fannie Mae and Freddie Mac. The 90th percentile for Ginnie Mae was 54.1 percent, also much higher than the 48 .0 percent DTIs for the GSEs. Within the Ginnie Mae market, the median FHA DTI ratio was 44.1 percent, versus 41.9 percent for VA and 36.3 percent for other lending programs.

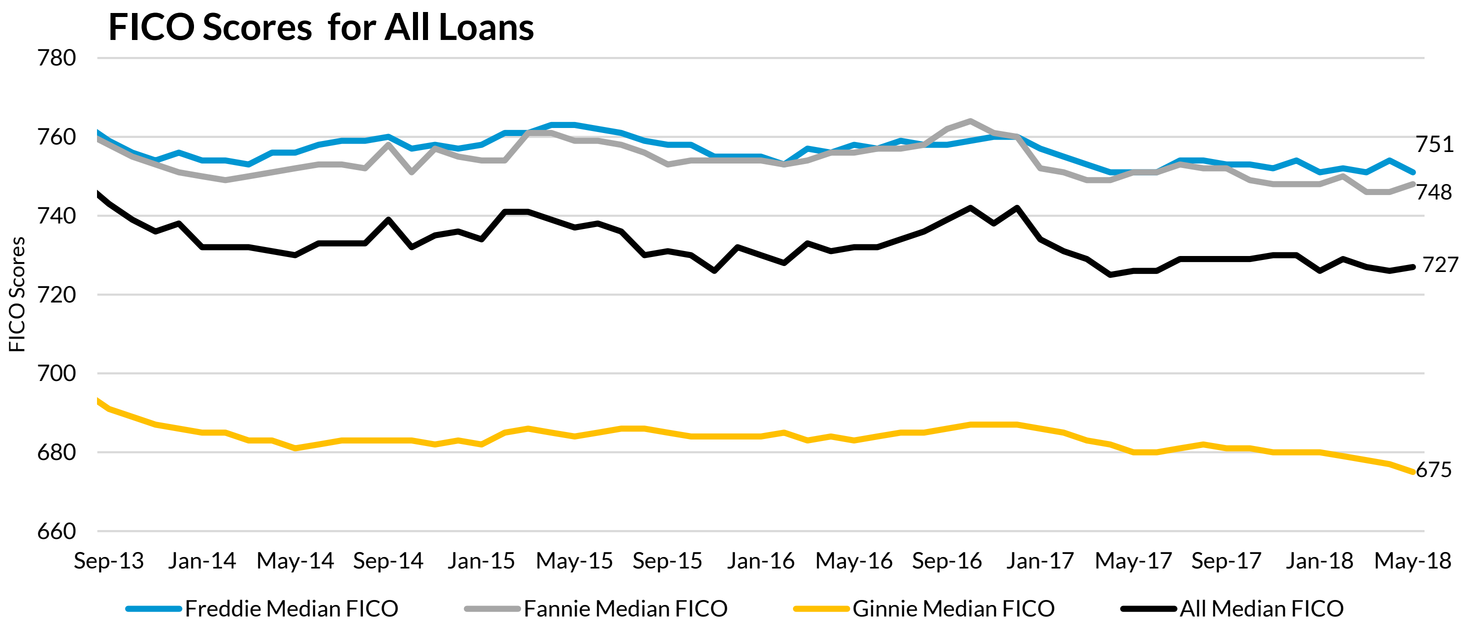
Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	286,446	25.0	32.0	40.0	46.0	50.0	38.6
Fannie	99,268	23.0	30.0	38.0	45.0	48.0	36.8
Freddie	77,153	23.0	29.0	37.0	44.0	48.0	35.9
Ginnie	110,025	29.2	35.7	42.7	49.2	54.1	42.0
Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	133,689	23.0	31.0	39.0	45.0	49.0	37.6
Fannie	63,025	23.0	30.0	39.0	45.0	49.0	37.1
Freddie	42,850	22.0	29.0	37.0	44.0	48.0	35.9
Ginnie	27,814	26.9	34.5	42.4	49.1	54.0	41.3
All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	420,135	24.0	31.8	39.6	46.0	49.8	38.3
Fannie	162,293	23.0	30.0	38.0	45.0	48.0	36.9
Freddie	120,003	22.0	29.0	37.0	44.0	48.0	35.9
Ginnie	137,839	28.8	35.5	42.7	49.1	54.1	41.9

Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	110,025	29.2	35.7	42.7	49.2	54.1	42.0
FHA	69,334	30.6	37.3	44.2	50.1	54.5	43.2
VA	30,737	28.1	35.0	42.2	48.8	54.1	41.6
Other	9,954	26.4	31.4	36.4	40.3	43.2	35.4
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	27,814	26.9	34.5	42.4	49.1	54.0	41.3
FHA	14,900	28.2	35.9	43.5	49.6	54.3	42.1
VA	12,792	25.6	33.2	41.1	48.1	53.6	40.3
Other	122	19.8	26.1	33.7	39.7	45.3	32.8
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	137,839	28.8	35.5	42.7	49.1	54.1	41.9
FHA	84,234	30.1	37.0	44.1	50.0	54.5	43.0
VA	43,529	27.3	34.4	41.9	48.6	54.0	41.2
Other	10,076	26.4	31.3	36.3	40.3	43.2	35.4

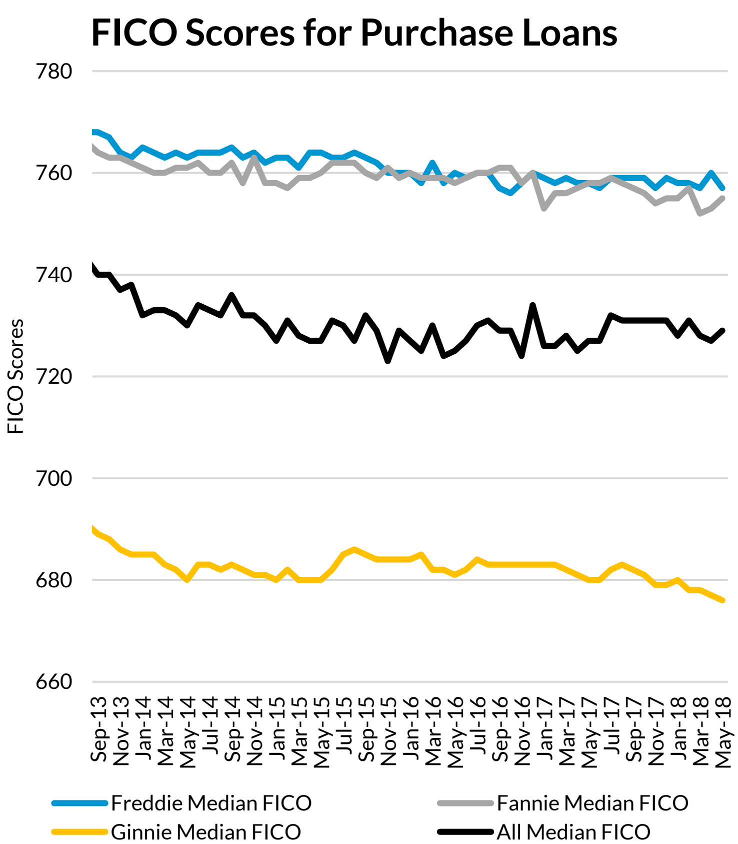
Sources: *eMBS and Urban Institute.* **Note**: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of May 2018.*

Credit Box: Historical

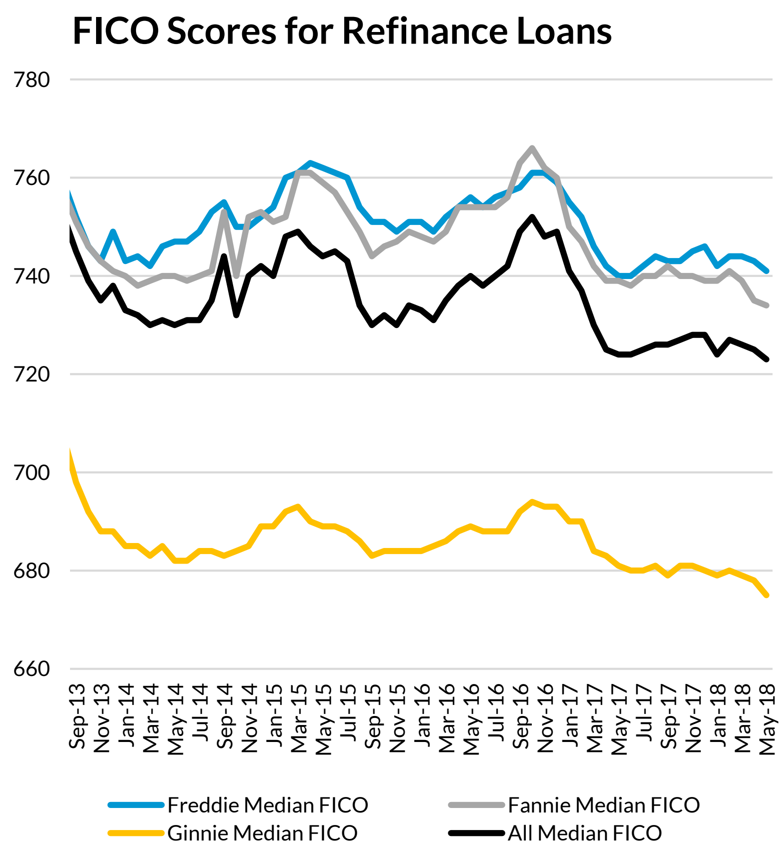
The median FICO score for all agency MBS originated in May now stands at 727, slightly higher than last month. The figures clearly show that the median FICO score for Ginnie Mae borrowers has always been considerably lower than for GSE borrowers. The difference between Ginnie Mae and GSE borrowers is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



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



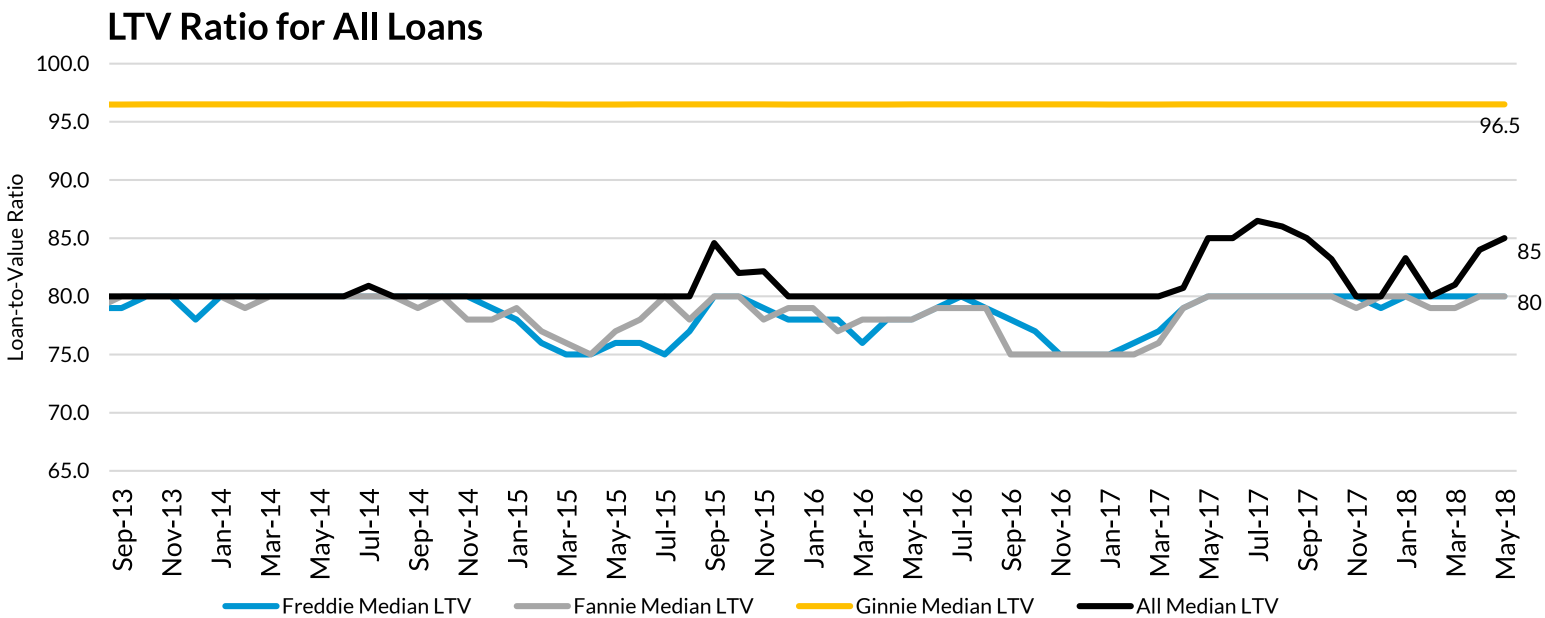
Sources: *eMBS and Urban Institute.* **Note:** *Data as of May 2018.*

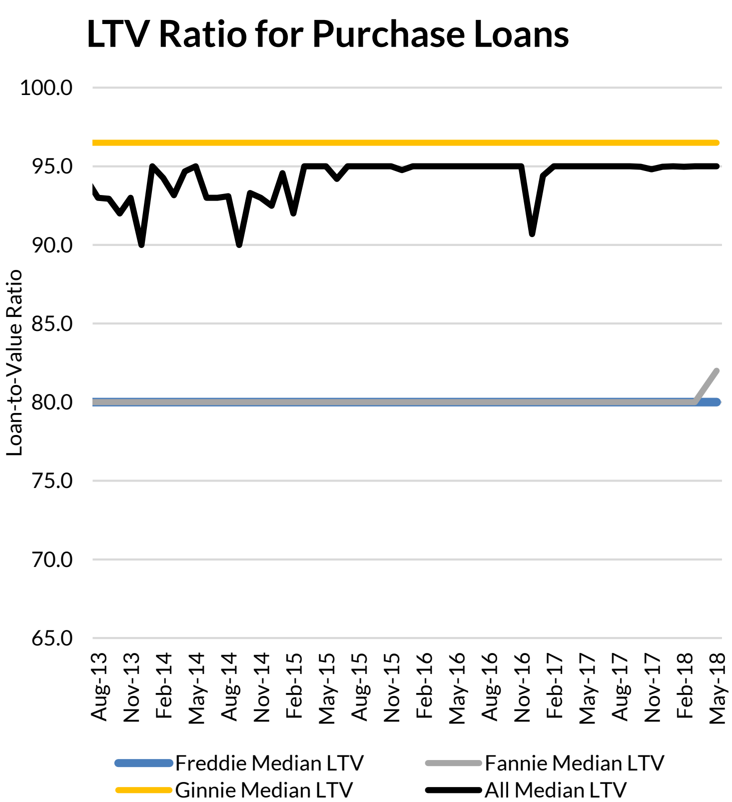


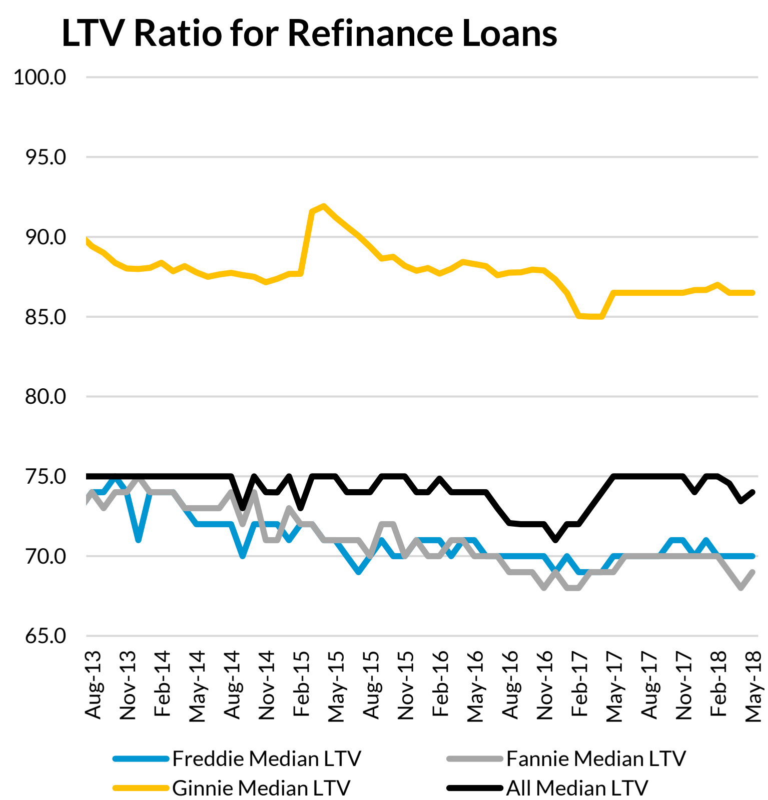
Sources: *eMBS and Urban Institute.* **Note:** *Data as of May 2018.*

Credit Box: Historical

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





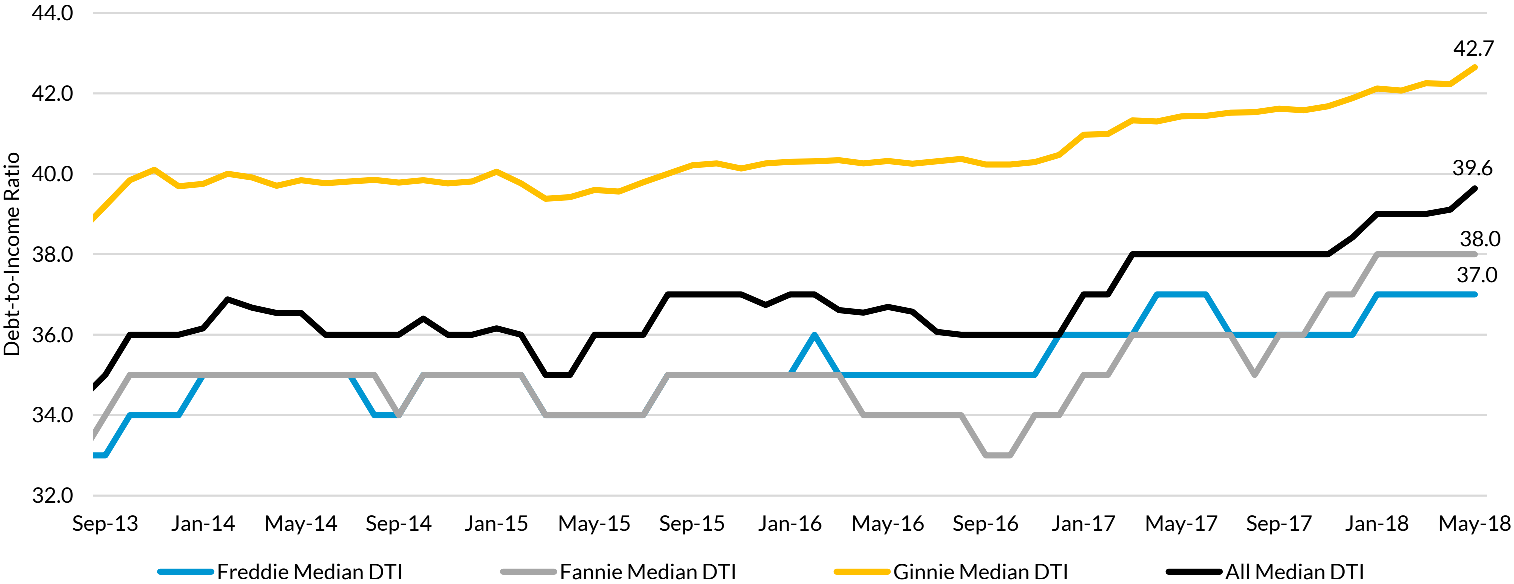


Sources: *eMBS and Urban Institute.* **Note:** *In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium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

Credit Box: Historical

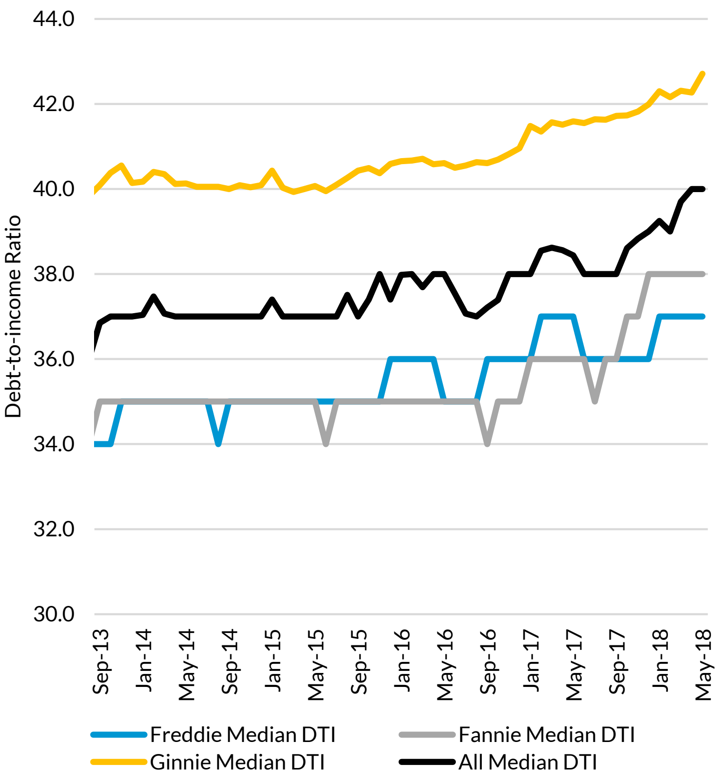
Median debt-to-income ratios on Ginnie Mae loans have historically been in the low 40s, considerably higher than that of the GSEs. DTIs have been inching up over the past year for both Ginnie Mae and GSE loans, with the movement more pronounced for Ginnie Mae loans. Increases in DTIs are very typical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



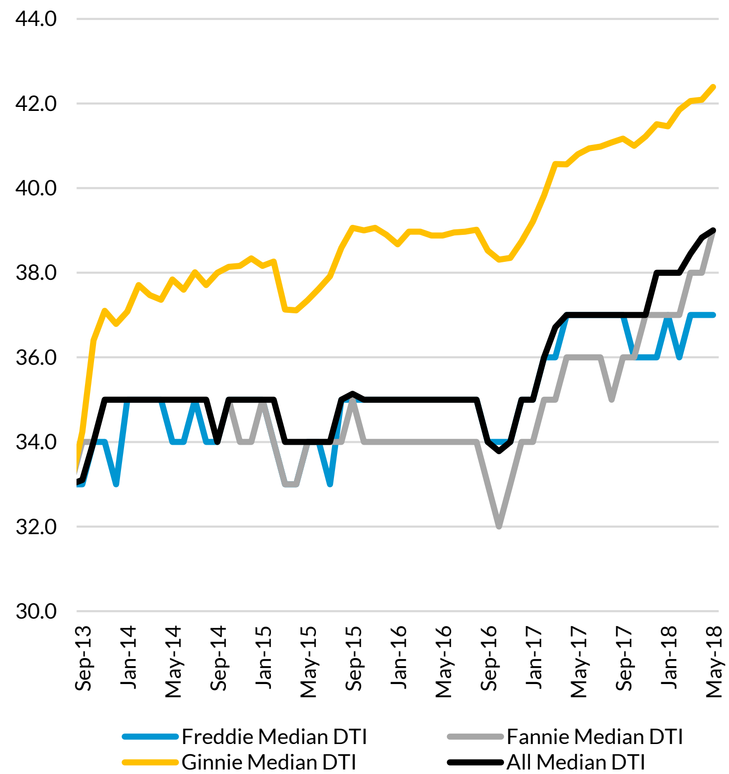
Sources: *eMBS and Urban Institute.* **Note:** *Data as of May 2018.*

DTI Ratio for Purchase Loans



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

DTI Ratio for Refinance Loans

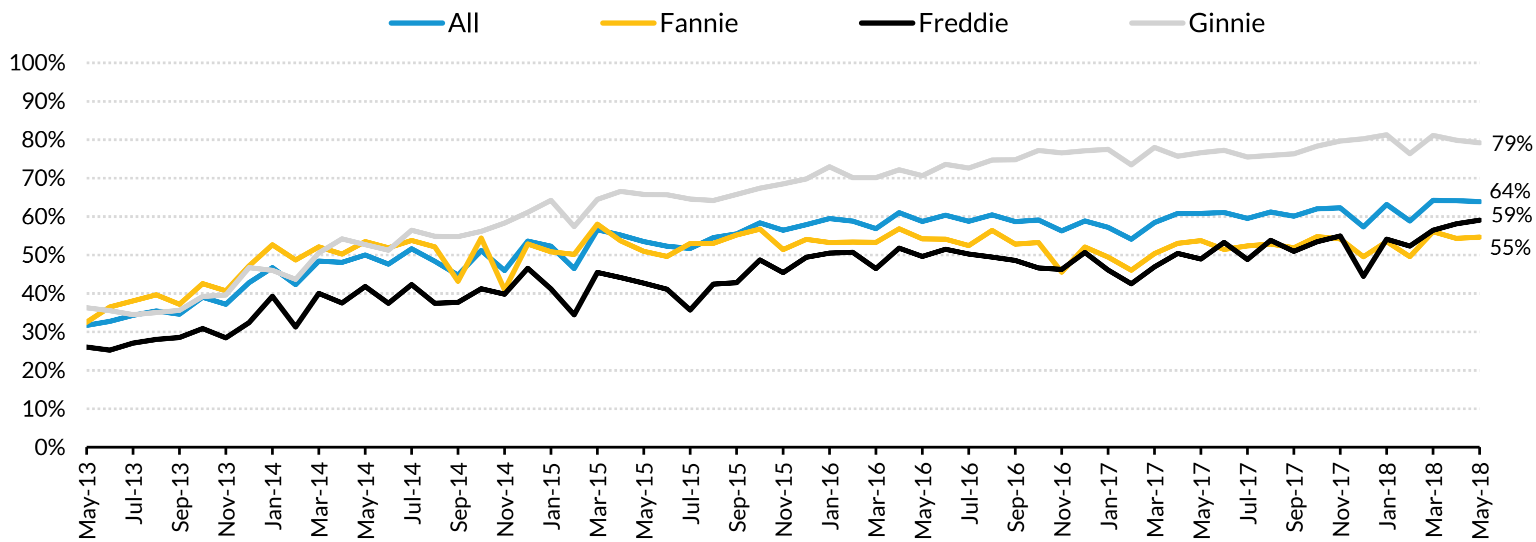


Sources: *eMBS and Urban Institute.*
Note: *Data as of May 2018.*

Nonbank Originators

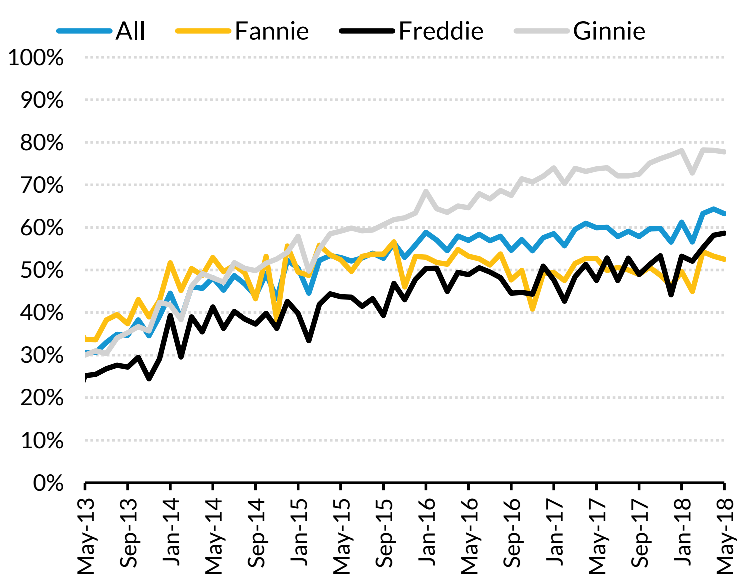
The nonbank origination share has been generally increasing since 2013. In May 2018, the Ginnie Mae nonbank originator share stood at 79 percent. Nonbank originator shares for Freddie Mac reached new historical highs, now standing at around 59 percent. The nonbank originator share for Fannie Mae increased slightly to 55 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

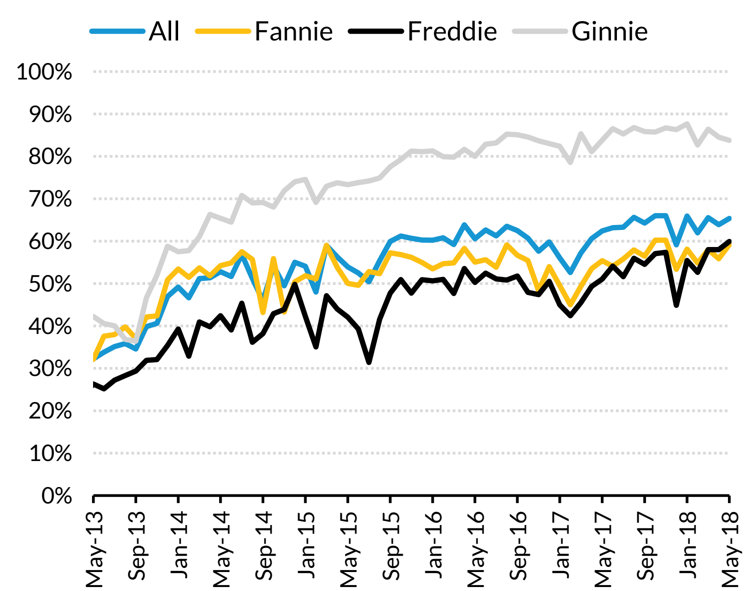


Sources: *eMBS and Urban Institute*
Note: *Data as of May 2018.*

Nonbank Origination Share: Purchase Loans



Nonbank Origination Share: Refinance Loans

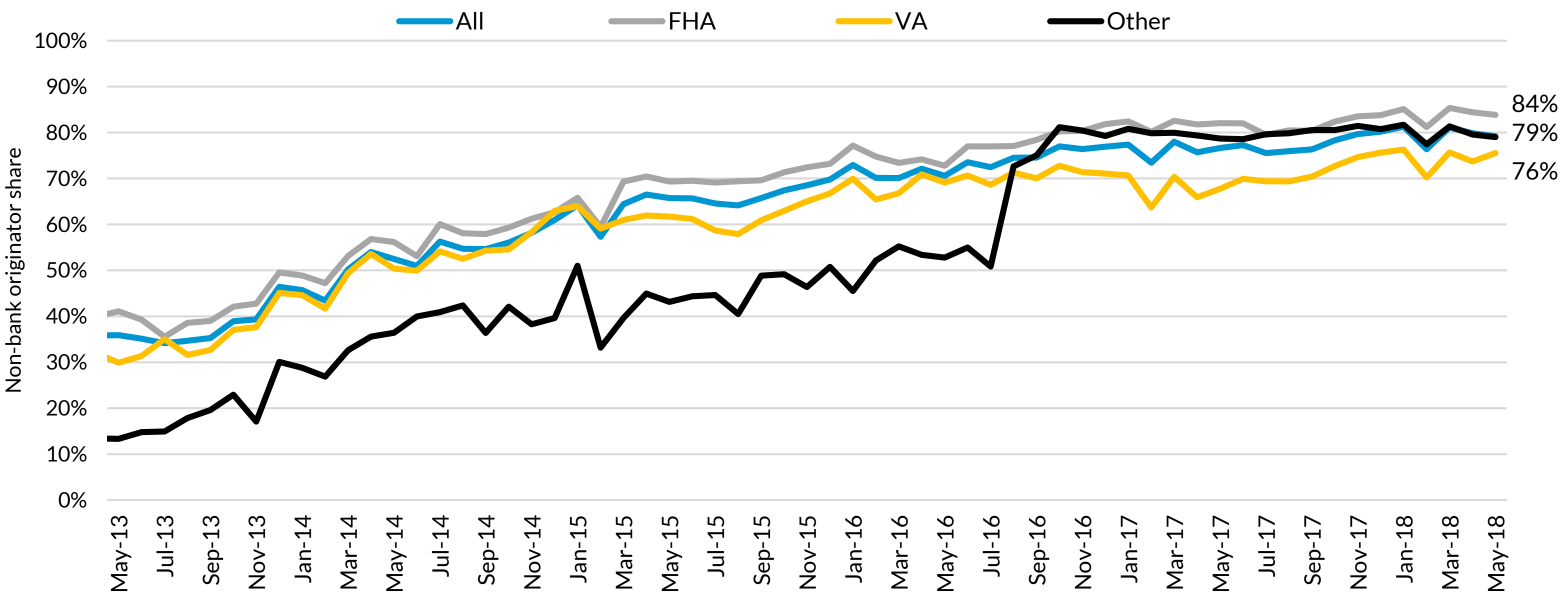


Sources: *eMBS and Urban Institute.* **Note: "***Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of May 2018.*

Ginnie Mae Nonbank Originators

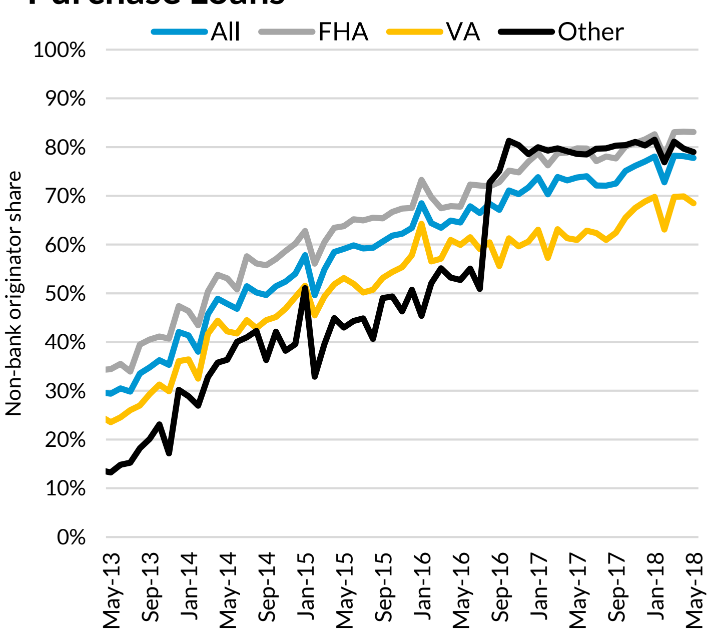
In May 2018, Ginnie Mae's nonbank share dipped slightly to 79 percent. Nonbank originator shares for FHA remained flat at 84 percent, while the Other issuance share dipped slightly to 79 percent. The VA nonbank originator share saw a modest increase to 76 percent. The nonbank originator share is higher for refinance loans than for purchase loans across all channels.

Ginnie Mae Nonbank Originator Share: All Loans

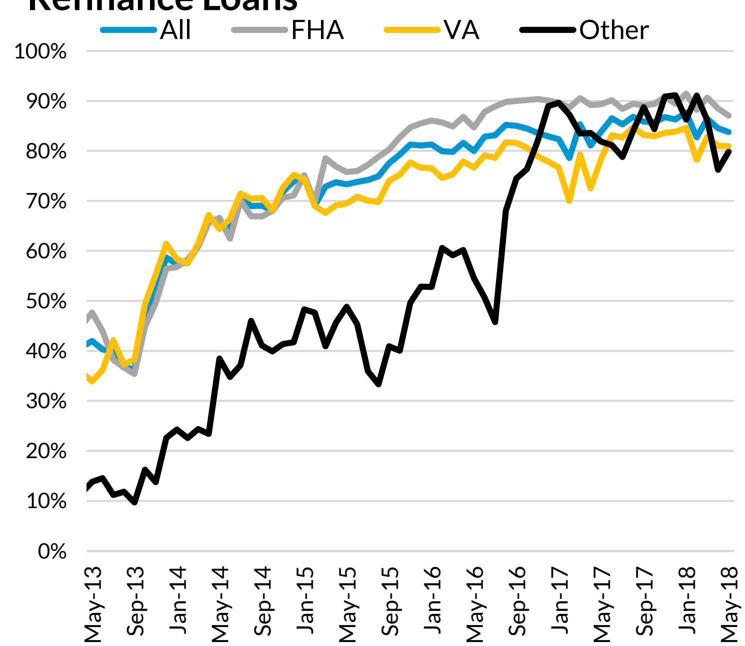


Sources: *eMBS and Urban Institute*
Note: *Data as of May 2018.*

Ginnie Mae Nonbank Share: Purchase Loans



Ginnie Mae Nonbank Share: Refinance Loans

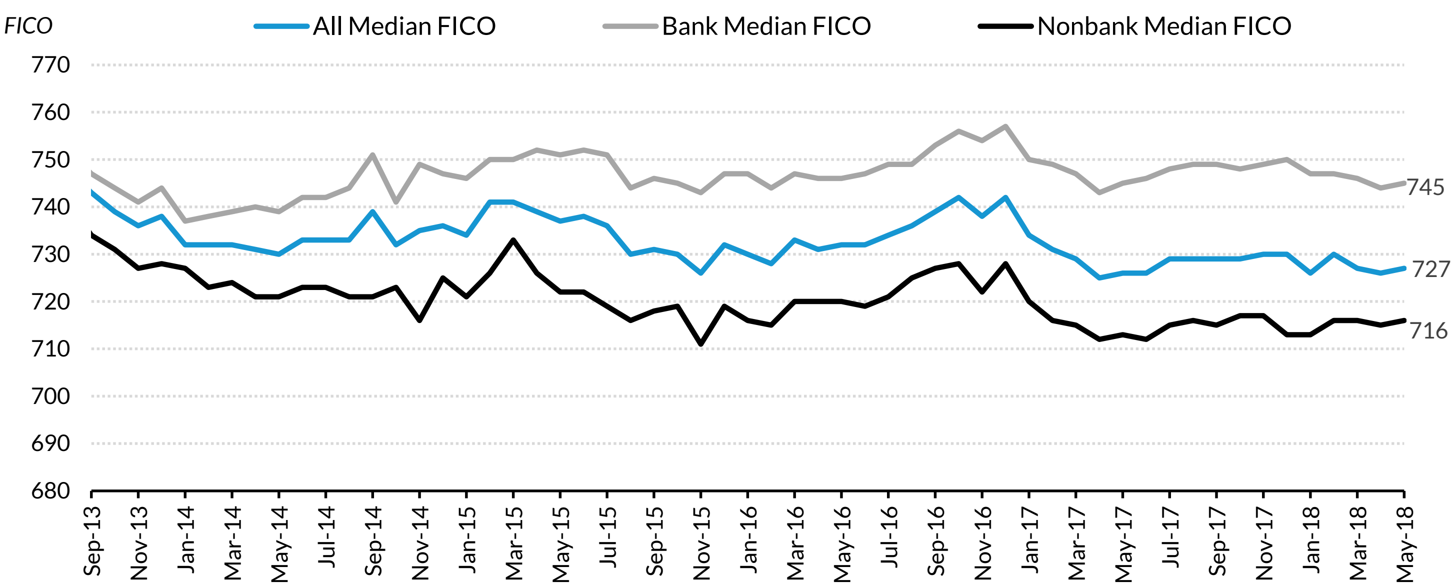


Sources: *eMBS and Urban Institute.* **Note: "***Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of May 2018.*

Nonbank Credit Box

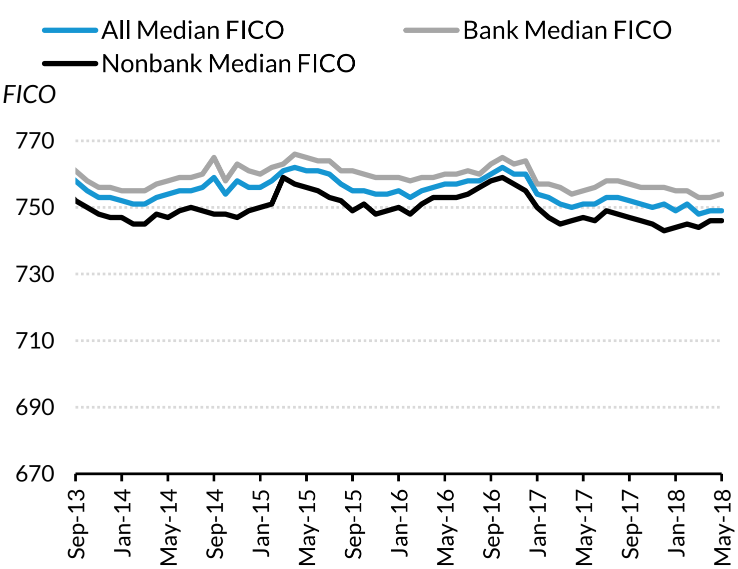
Nonbank originators have played a key role in opening up access to credit. The median GSE and the median Ginnie Mae FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, both bank and nonbank FICOs have declined since 2014 with a further relaxation 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. The FICO scores for both Ginnie Mae bank and nonbank originators have been declining in 2018.

Agency FICO: Bank vs. Nonbank



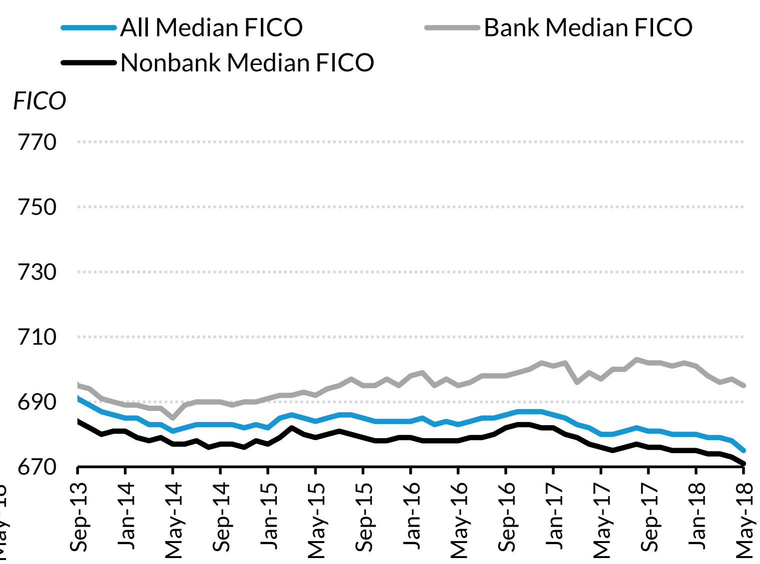
Sources: *eMBS and Urban Institute.* ***Note****: Data as of May 2018.*

GSE FICO: Bank vs. Nonbank



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

Ginnie Mae FICO: Bank vs. Nonbank

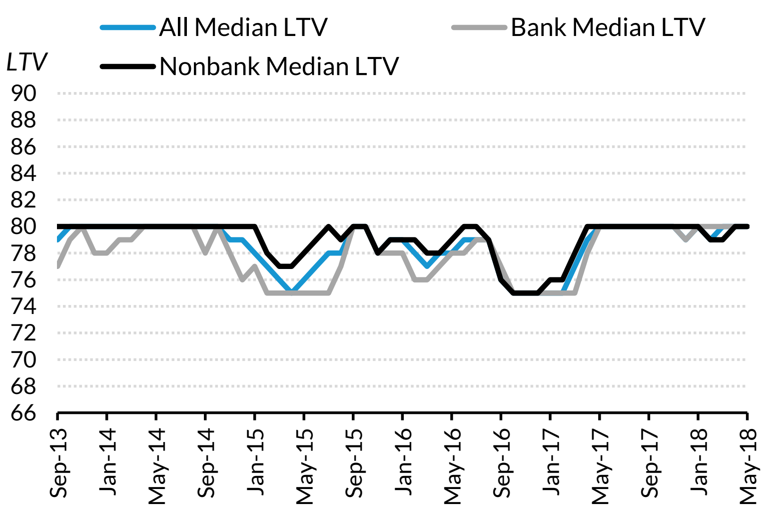


Sources: *eMBS and Urban Institute.*
Note*: Data as of May 2018.*

Nonbank Credit Box

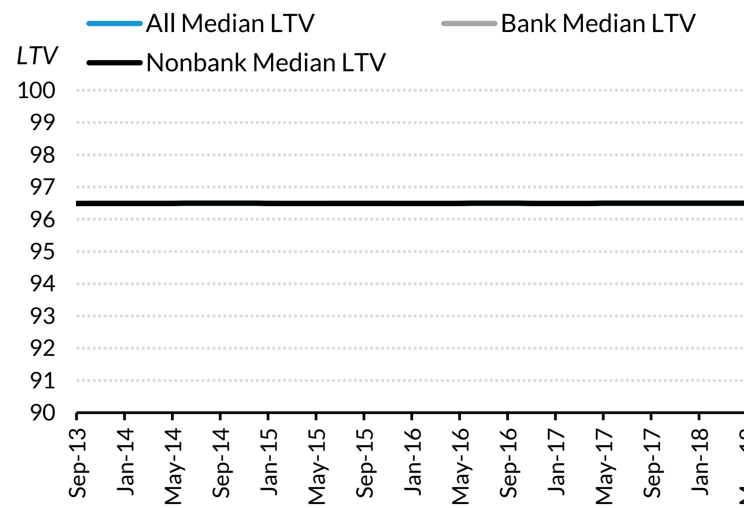
The median LTV ratios for loans originated by nonbanks are similar to that of their bank counterparts, while the median DTIs for nonbank loans are higher, indicating that nonbanks are more accommodating in this as well as in the FICO dimension. Note that since early 2017, there has been a measurable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



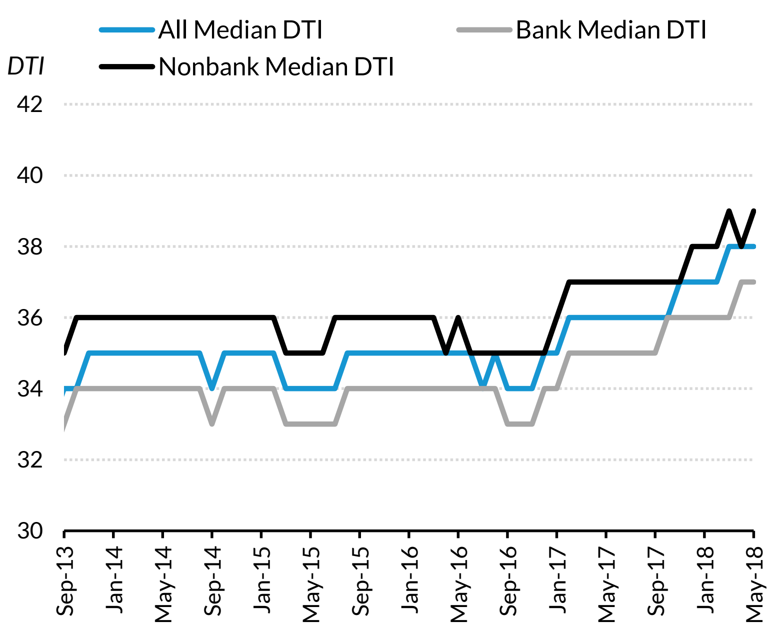
Sources: *eMBS and Urban Institute.* **Note**: *Data as of May 2018.*

Ginnie Mae LTV: Bank vs. Nonbank



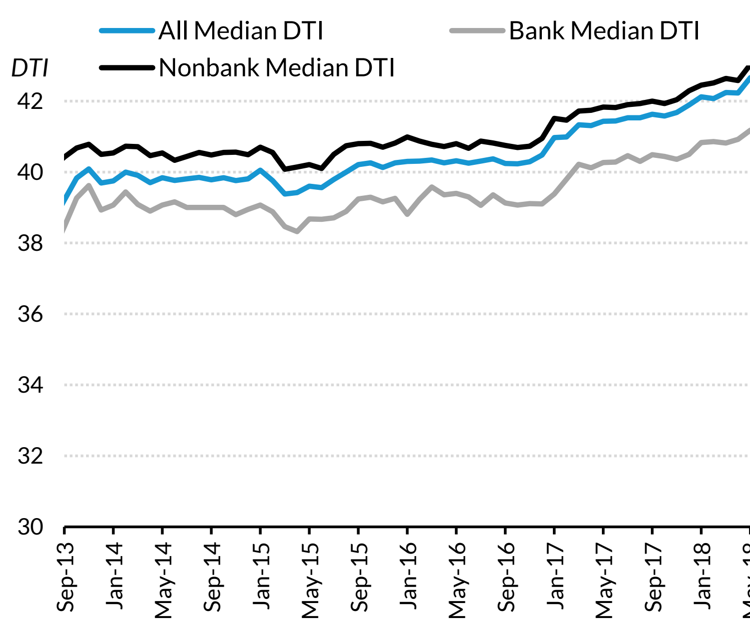
Sources: *eMBS and Urban Institute.* **Note**: *Data as of May 2018.*

GSE DTI: Bank vs. Nonbank



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

Ginnie Mae DTI: Bank vs. Nonbank

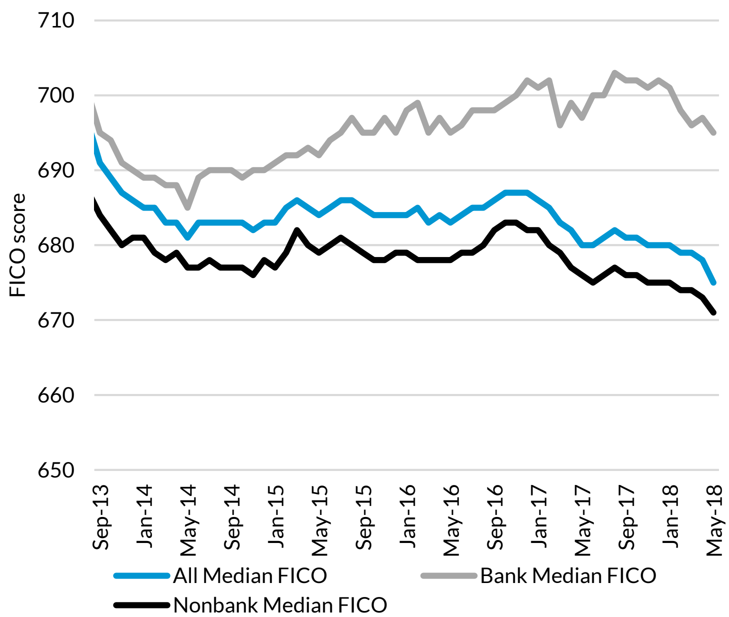


Sources: *eMBS and Urban Institute.* **Note**: *Data as of May 2018.*

Ginnie Mae Nonbank Originators: Credit Box

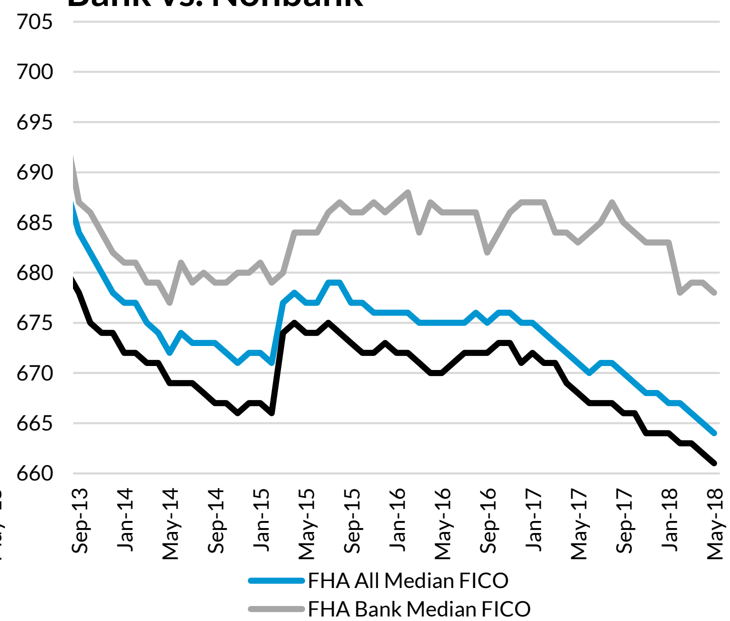
The FICO scores for both Ginnie Mae bank and nonbank originators decreased in May 2018. The spread in the FICO scores between banks and non-banks remains close to their widest level since the data became available in 2013. The gap between banks and non-banks is very apparent in all programs backing Ginnie Mae securities: FHA, VA, and Other.

Ginnie Mae FICO Scores: Bank vs. Nonbank



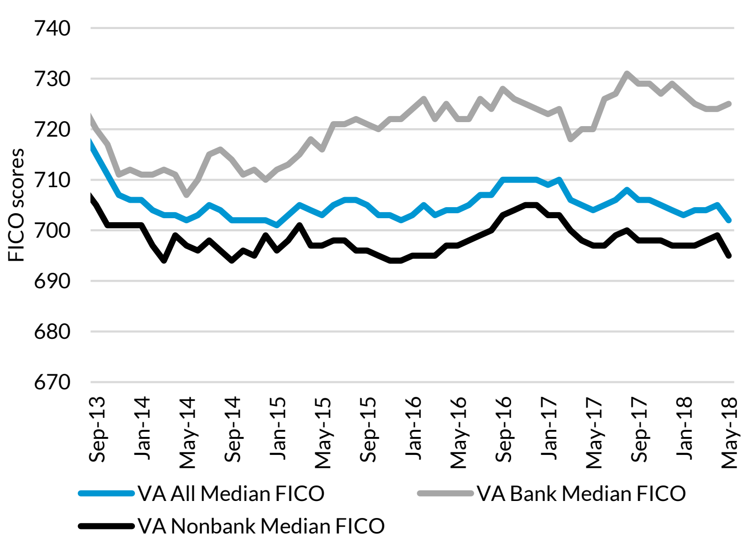
Sources: *eMBS and Urban Institute* **Note:** *Data as of May 2018*

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



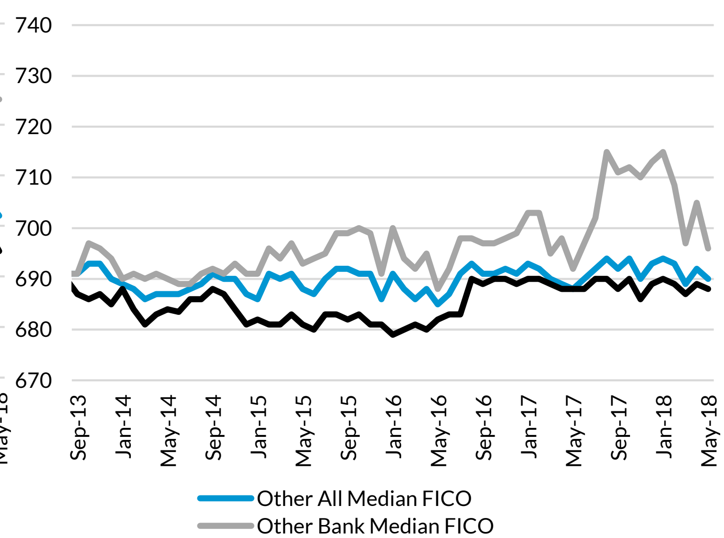
Sources: *eMBS and Urban Institute* **Note:** *Data as of May 2018*

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



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

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

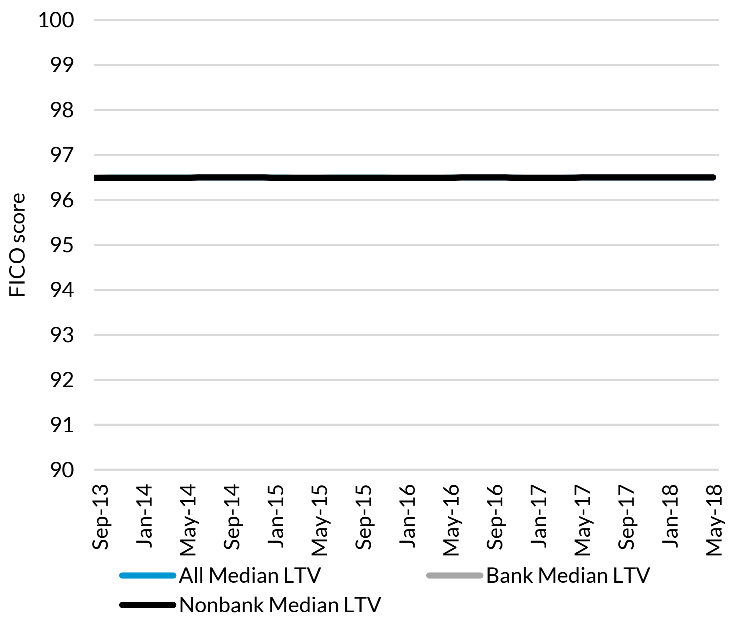


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of May 2018*

Ginnie Mae Nonbank Originators: Credit Box

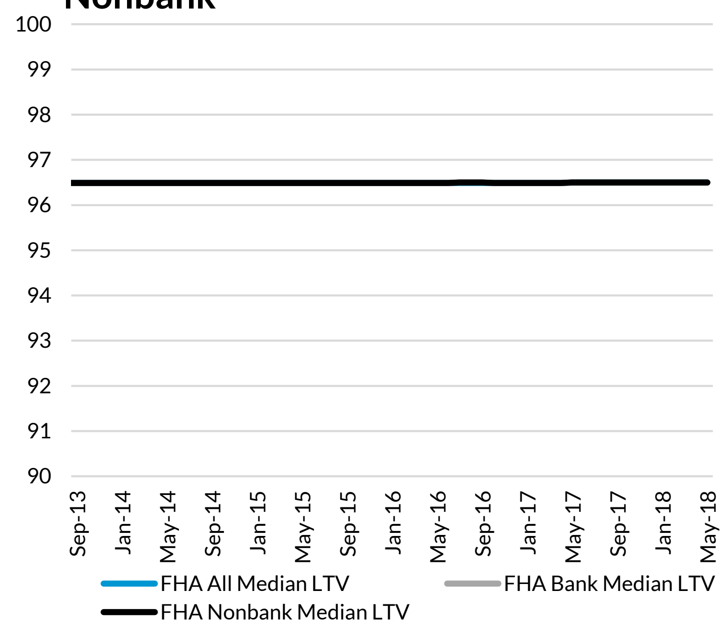
An analysis of the loans backing Ginnie Mae origination indicates that there are virtually no differences in median LTV ratios between bank originated loans and non-bank originated loans.

Ginnie Mae LTV: Bank vs. Nonbank



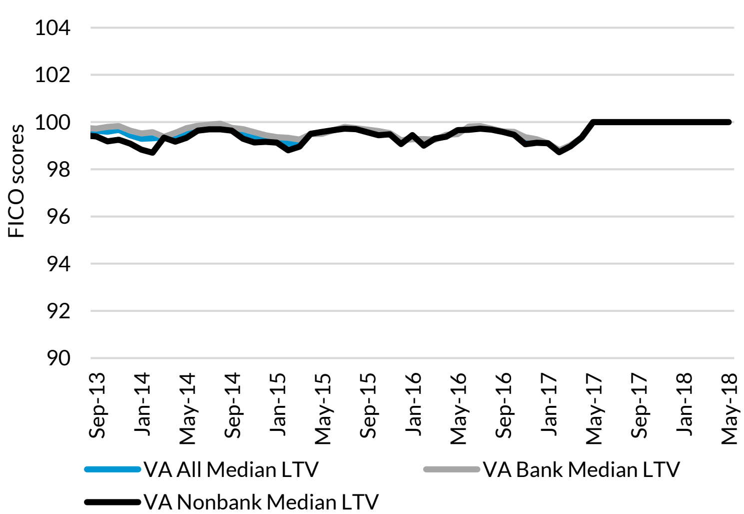
Sources: *eMBS and Urban Institute* **Note:** *Data as of May 2018*

Ginnie Mae FHA LTV: Bank vs. Nonbank



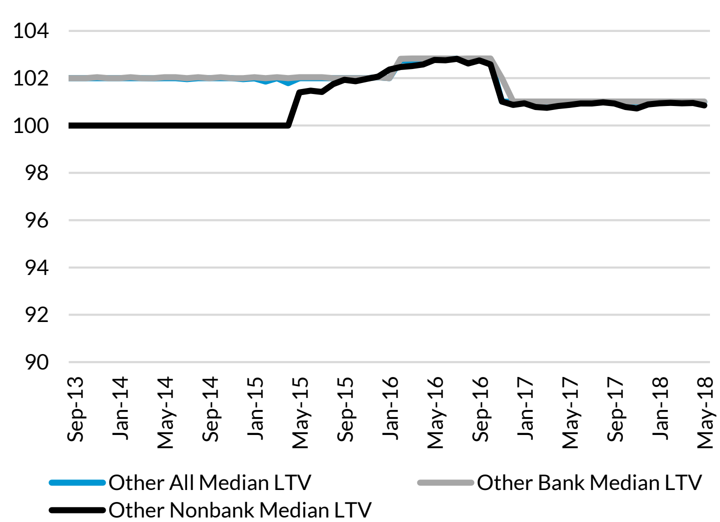
Sources: *eMBS and Urban Institute* **Note:** *Data as of May 2018*

Ginnie Mae VA LTV: Bank vs. Nonbank



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

Ginnie Mae Other LTV: Bank vs. Nonbank

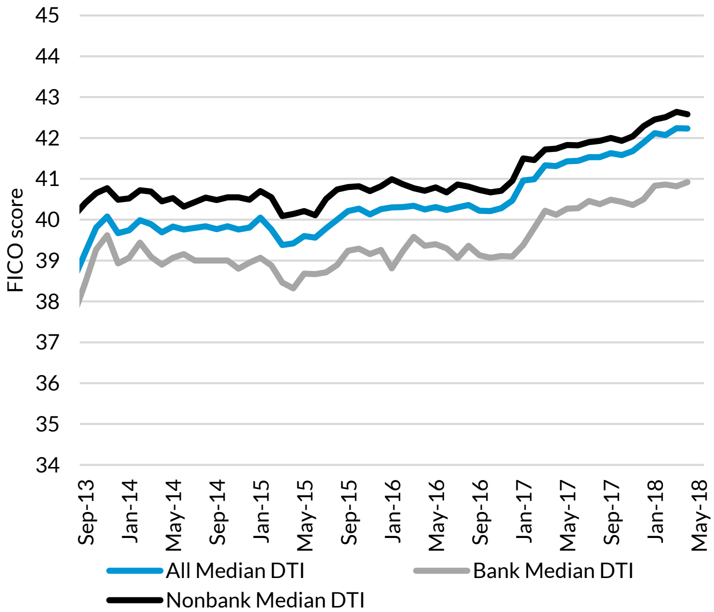


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of May 2018.*

Ginnie Mae Nonbank Originators: Credit Box

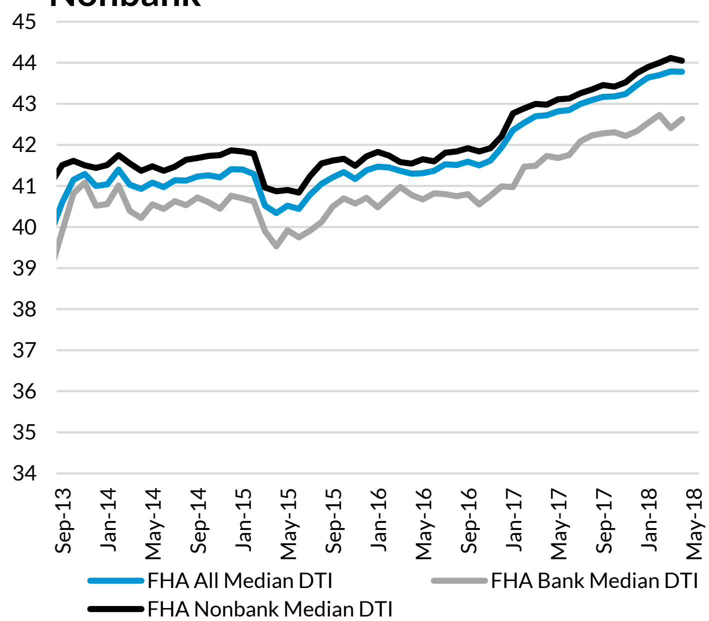
An analysis of borrowers' DTI ratios for bank versus non-bank originators indicates that the former are more conservative. The DTIs for FHA and VA loans experienced notable increases since early 2017 for both bank and nonbank originations, while the Other originations' DTIs stayed relatively flat. Rising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

Ginnie Mae DTI: Bank vs. Nonbank



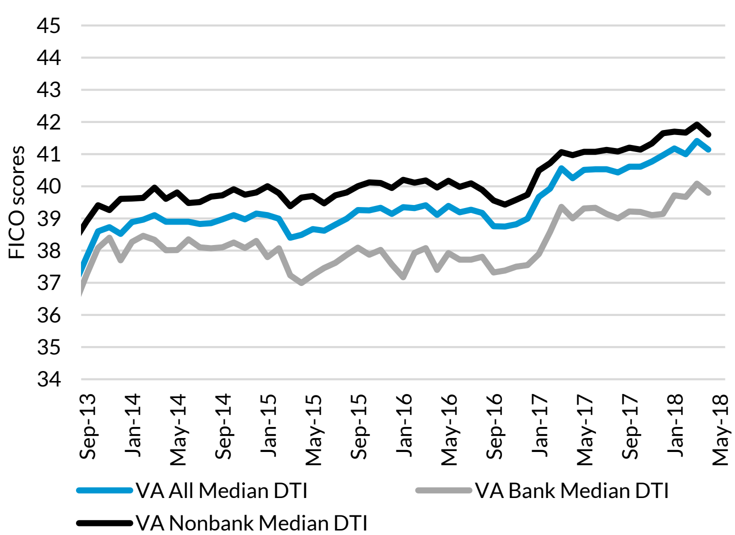
Sources: *eMBS and Urban Institute* **Note:** *Data as of May 2018*

Ginnie Mae FHA DTI: Bank vs. Nonbank



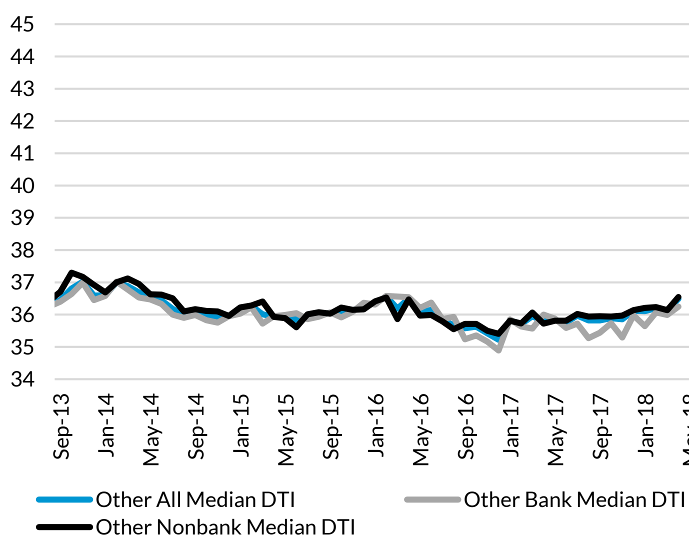
Sources: *eMBS and Urban Institute* **Note:** *Data as of May 2018*

Ginnie Mae VA DTI: Bank vs. Nonbank



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

Ginnie Mae Other DTI: Bank vs. Nonbank

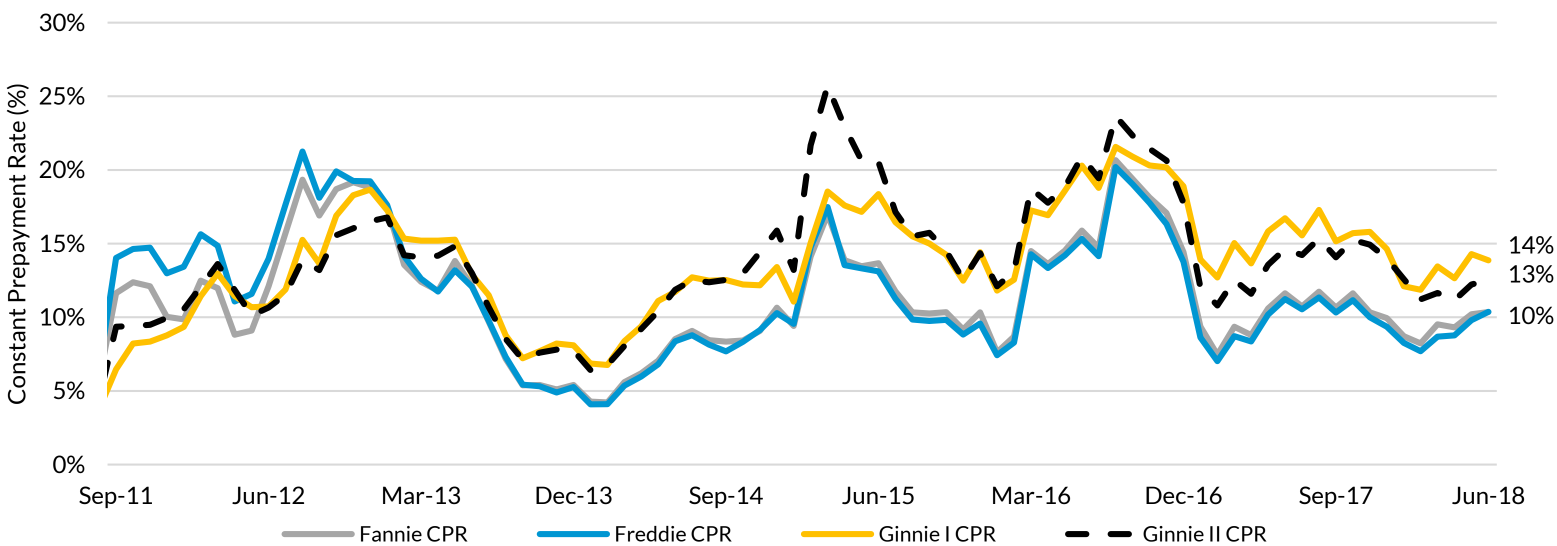


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of May 2018*

Prepayments

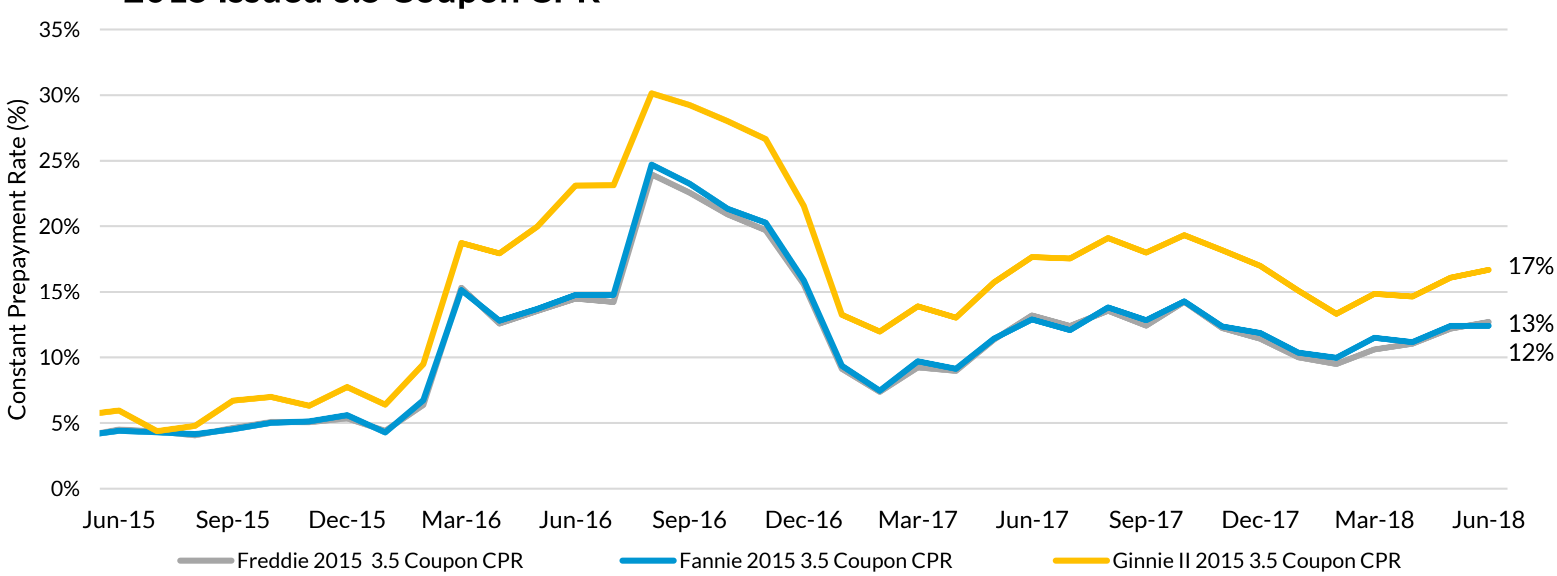
Prepayments on Ginnie Mae securities were lower than on GSE securities from 2011 through mid-2013, but have been higher since. These differences hold across all coupon buckets. The differences are especially pronounced on more recent production. These increased Ginnie speeds reflect the growing share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

2015 Issued 3.5 Coupon CPR

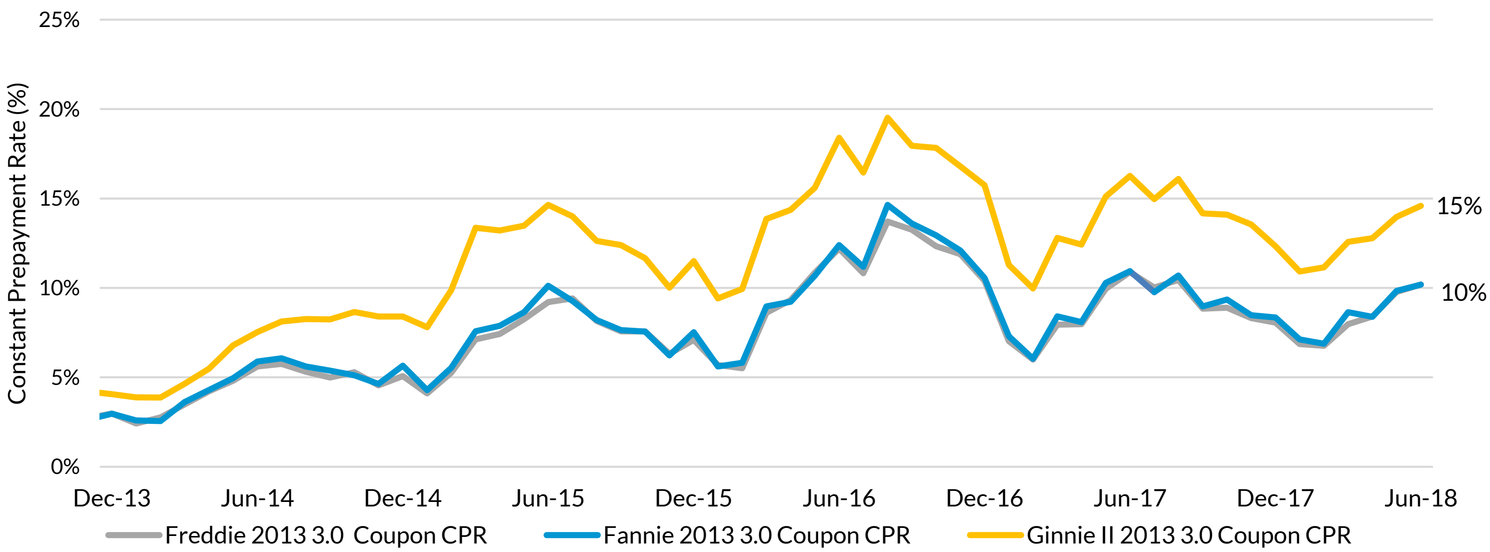


Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of June 2018.*

Prepayments

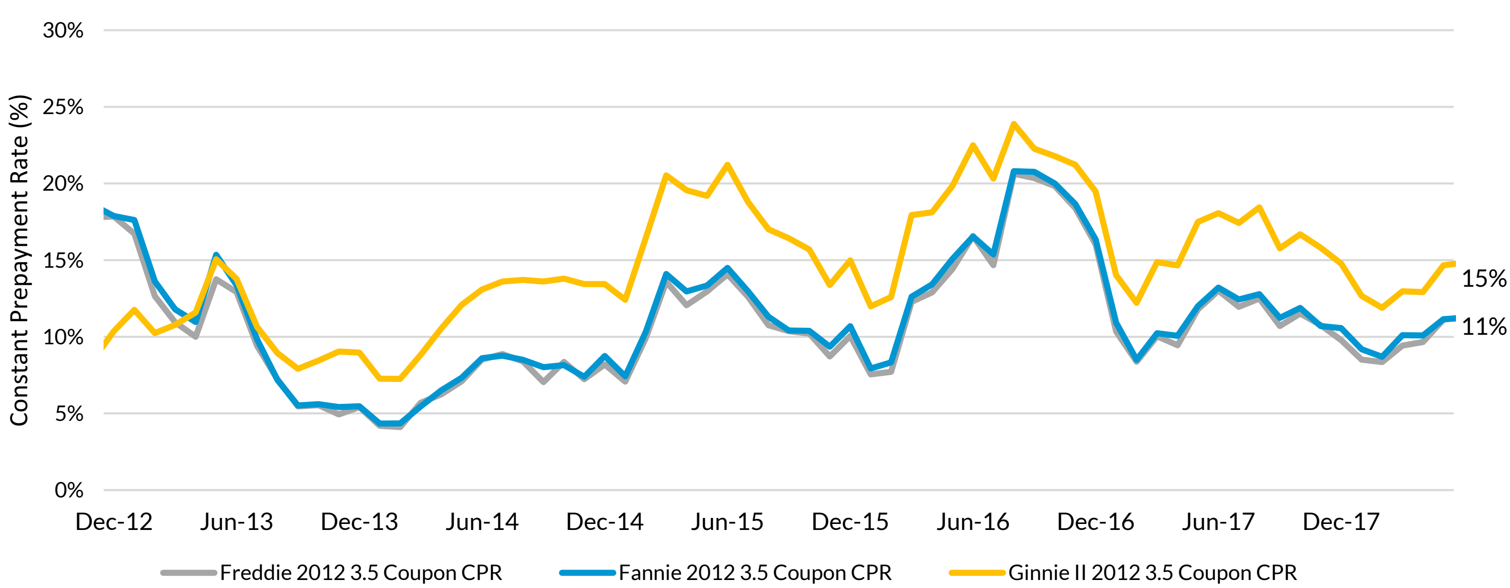
The 2013 Ginnie II 3.0s are prepaying faster than their conventional counterparts. 2012 Ginnie II 3.5s have been faster since mid-2013. The differences accelerated in 2015—potentially due to the FHA mortgage insurance premium (MIP) cut. In January 2015, FHA lowered its MIPs from 135 basis points per 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 June 2018.*

2012 Issued 3.5 Coupon CPR

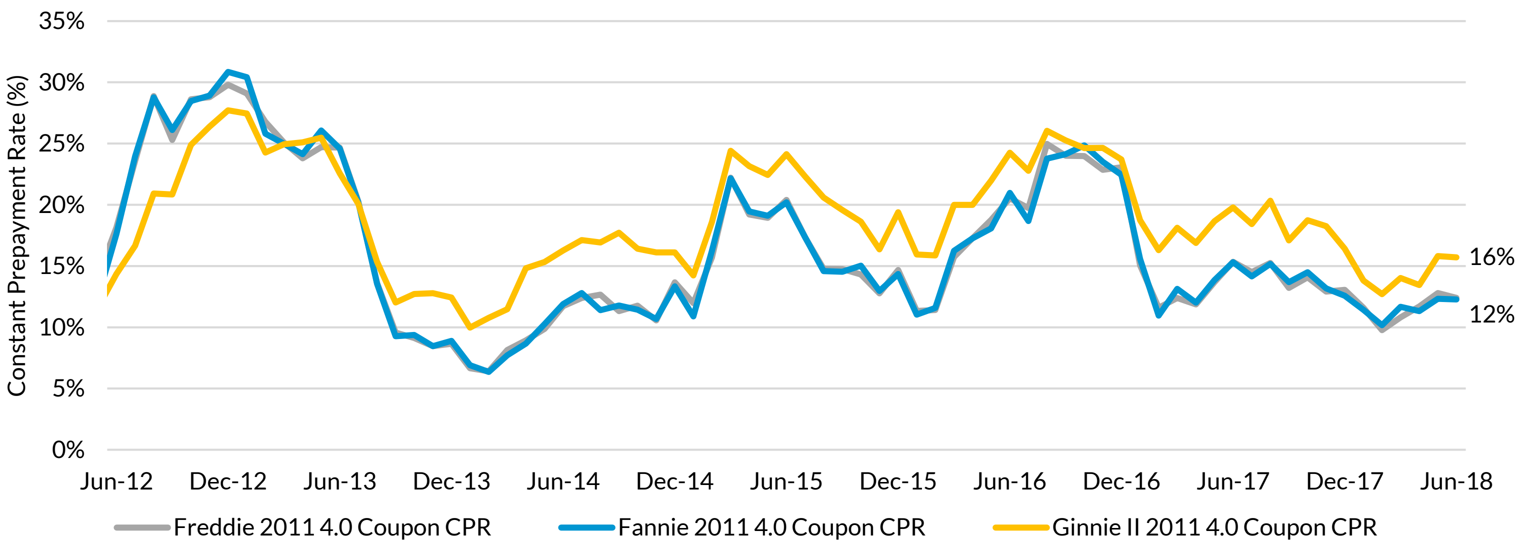


Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of June 2018.*

Prepayments

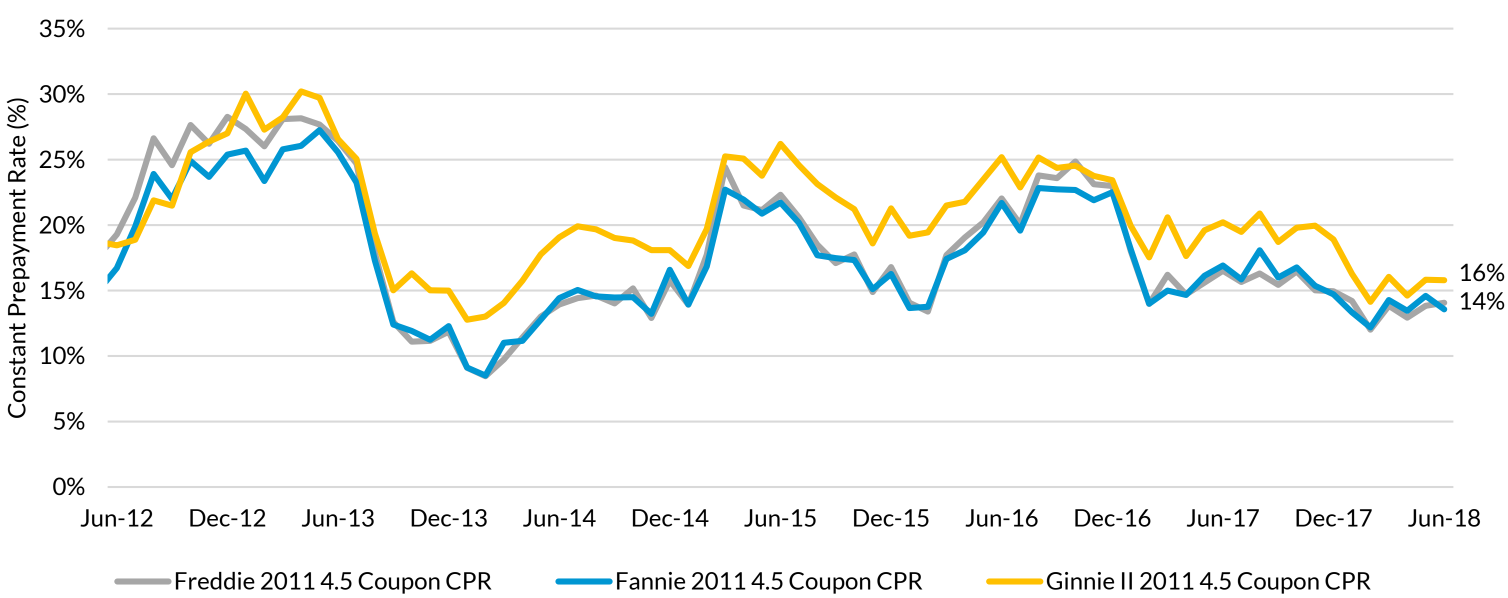
The 2011 Ginnie II 4.0s and 4.5s have been prepaying faster than their conventional counterparts since late 2013. Faster VA mortgage prepays plus simplifications to the FHA streamlined programs in 2013 are likely contributors to the faster speeds. However, as mortgage rates rose sharply since November 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. Note that recent month speeds on both the Ginnie Mae II 4 and 4.5% coupons are well below same month 2017 speeds.

2011 Issued 4.0 Coupon CPR



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

2011 Issued 4.5 Coupon CPR

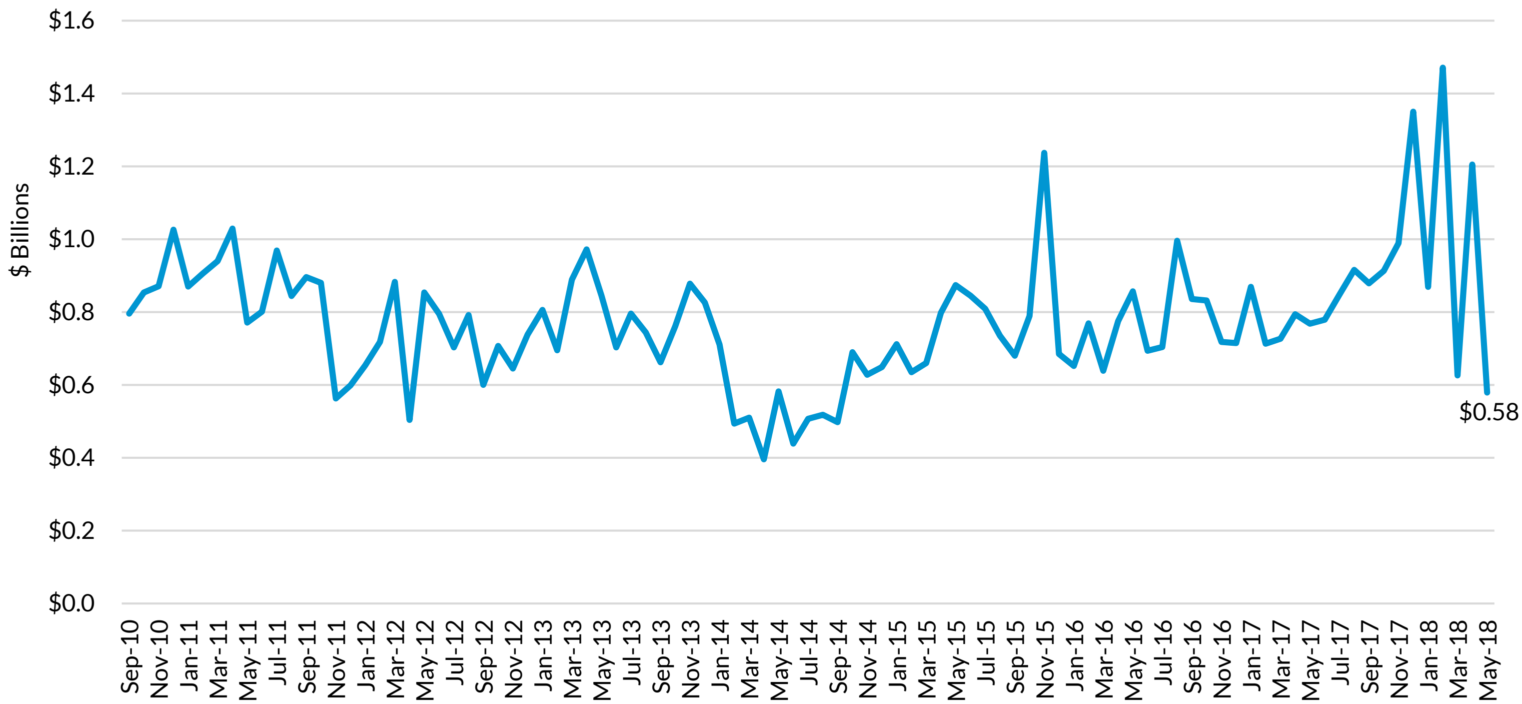


Sources: *Credit Suisse and Urban Institute.* **Note:** *Data as of June 2018.*

Other Ginnie Mae Programs
Reverse Mortgage Volumes

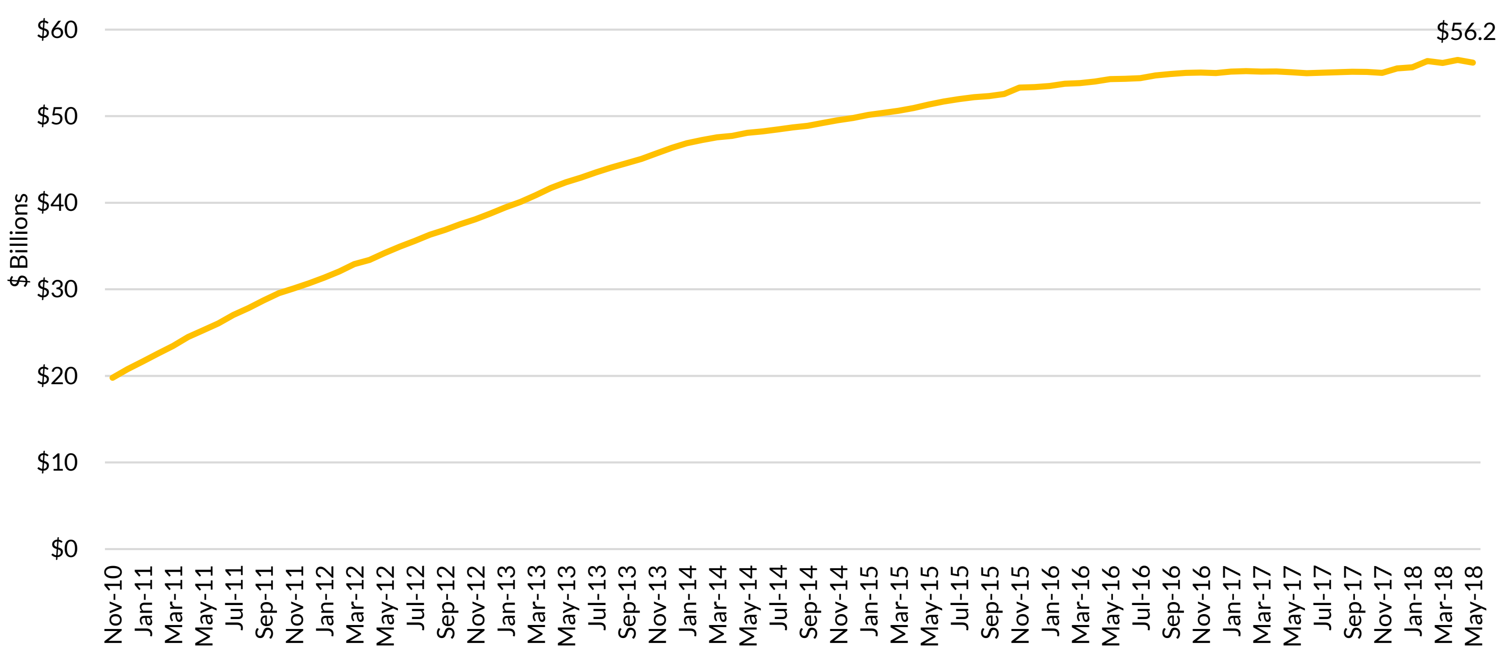
Ginnie Mae reverse mortgage issuance saw another sharp decline in May 2018. The choppiness the past few months was largely due to the implementation of the new, lower principal limit factors that went into effect in March 2018. In May 2018, reverse mortgage issuance stood at $0.58 billion, and outstanding securities totaled $56.2 billion.

HMBS Issuance Volume



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

HMBS Outstanding

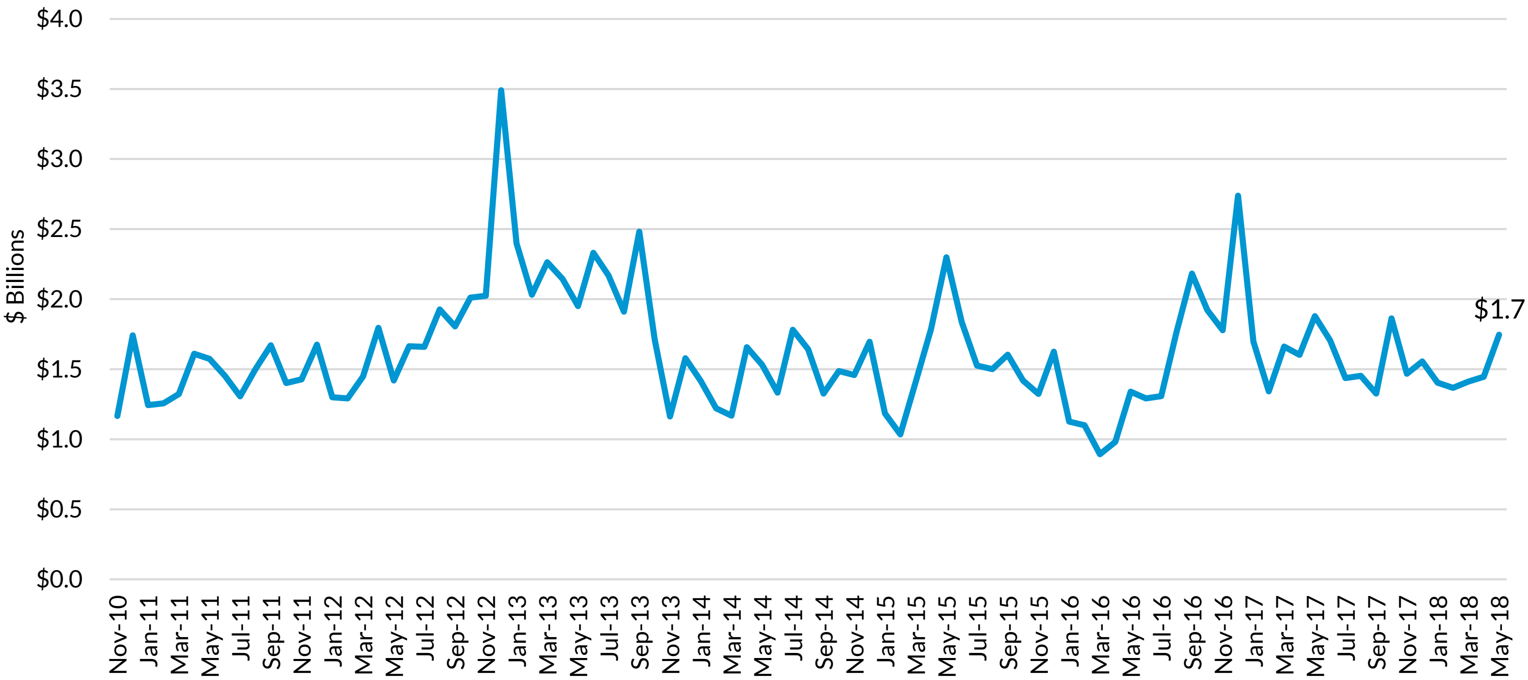


Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of May 2018.*

Other Ginnie Mae Programs Multifamily Market

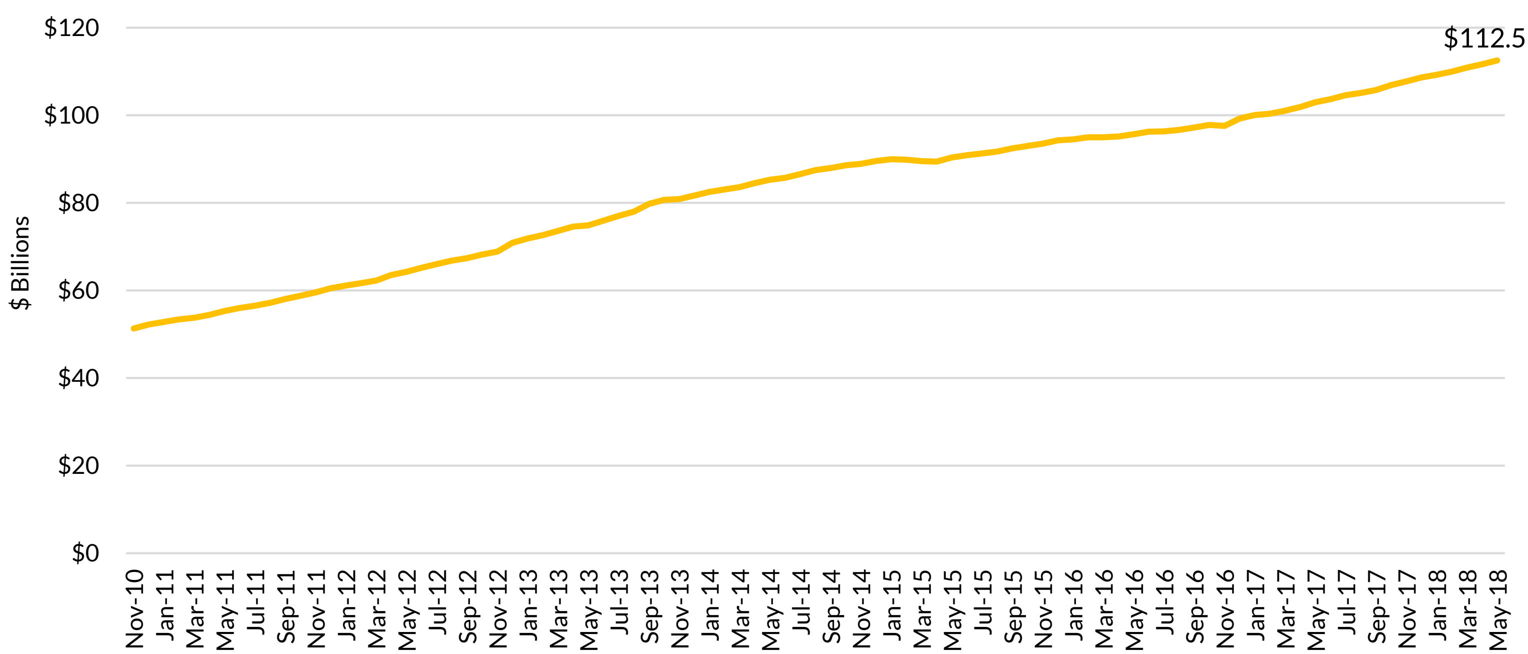
Ginnie Mae multifamily issuance volumes in April totaled $1.7 billion. Outstanding multifamily securities totaled $112.5 billion in April.

Ginnie Mae Multifamily MBS Issuance



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

Ginnie Mae Multifamily MBS Outstanding

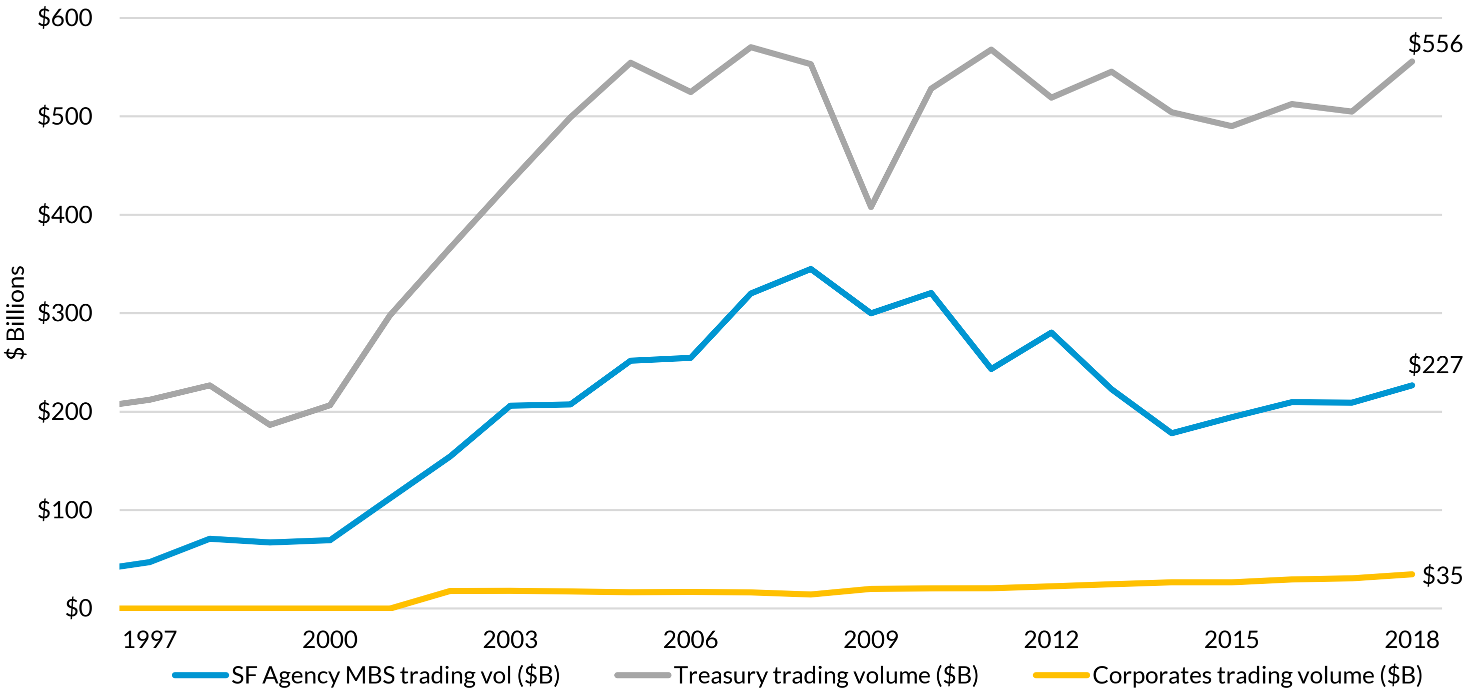


Sources: *Ginnie Mae and Urban Institute.* ***Note***: *Data as of May 2018.*

Market Conditions

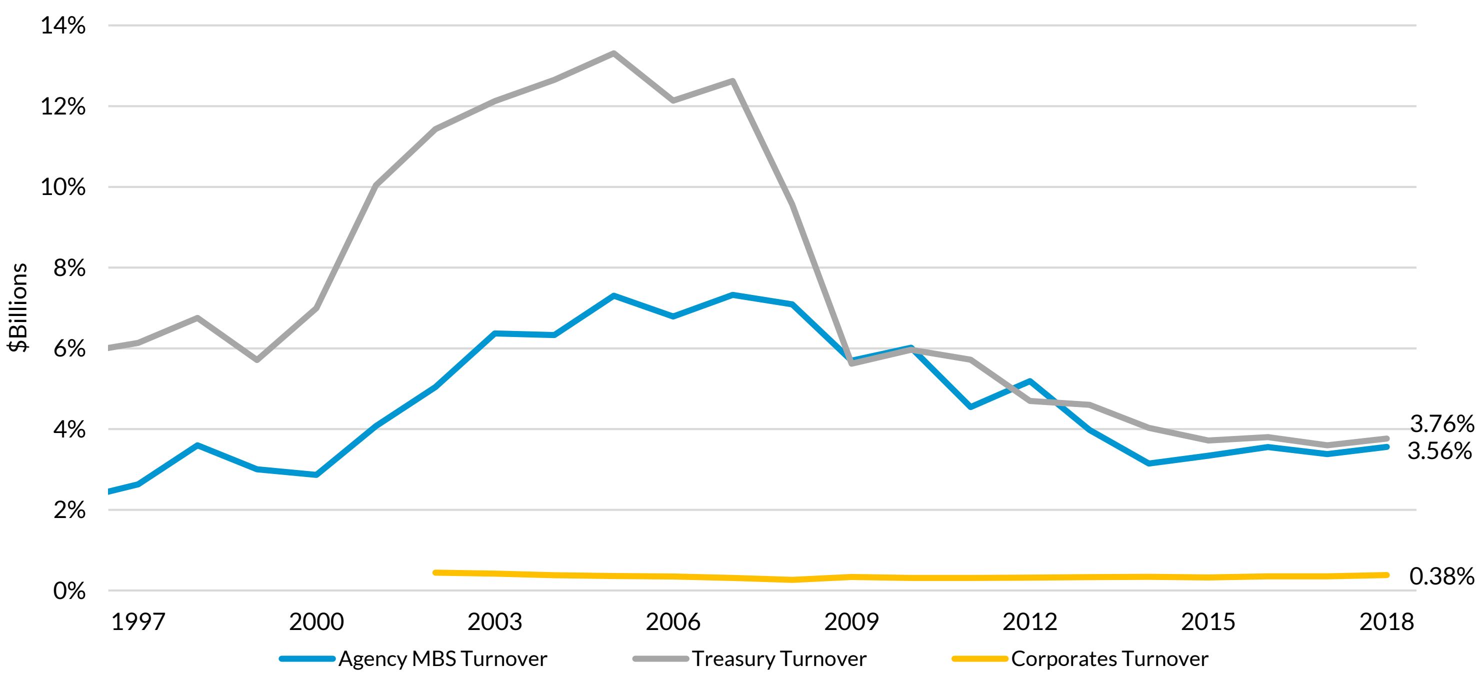
Agency MBS trading volume was $227 billion/day in June 2018; slightly more robust than in the 2014-2017 period. Agency MBS turnover has also been higher in 2018 than in the 2014-2017 period; in the first five months of 2018, average daily MBS turnover was 3.56 percent versus 3.38 percent in 2017. Both 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 June 2018.*

Average Daily Turnover by Sector

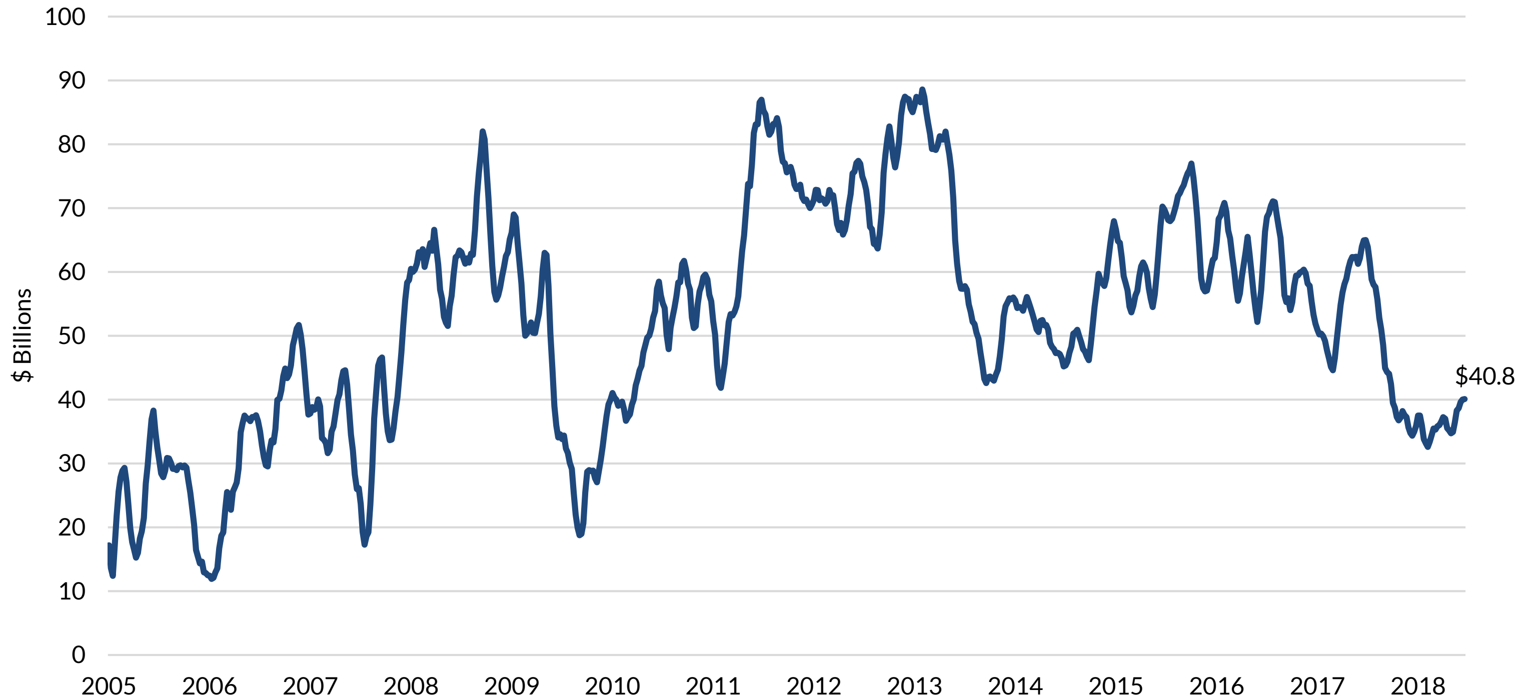


Sources: *SIFMA and Urban Institute.* ***Note:*** *Data as of June 2018.*

Market Conditions

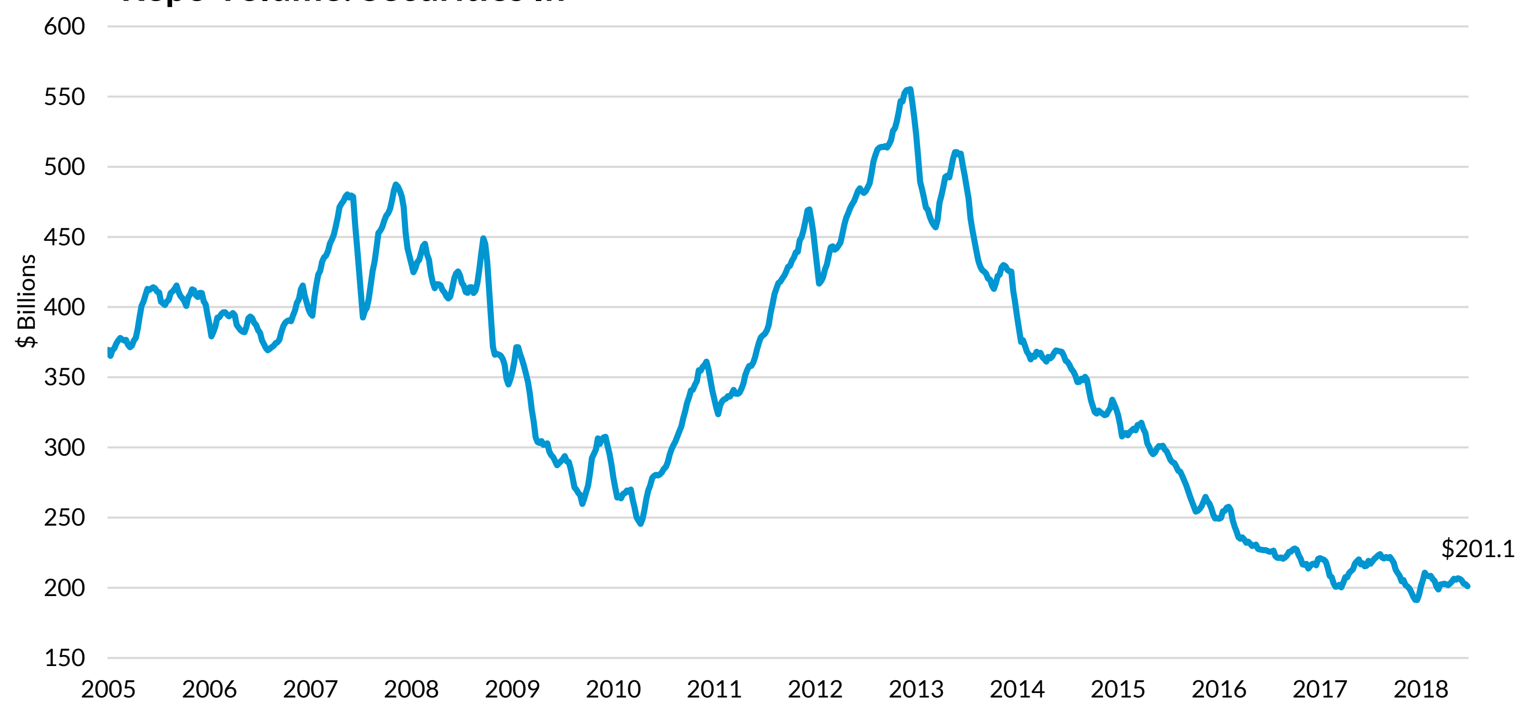
Dealer net positions in agency MBS are now at the lower end of the recent range, although gross positions are likely down more. The volume of repurchase activity is near its lowest level in 13 years. This reflects banks cutting back on lower margin businesses.

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 June 2018.*

Repo Volume: Securities In

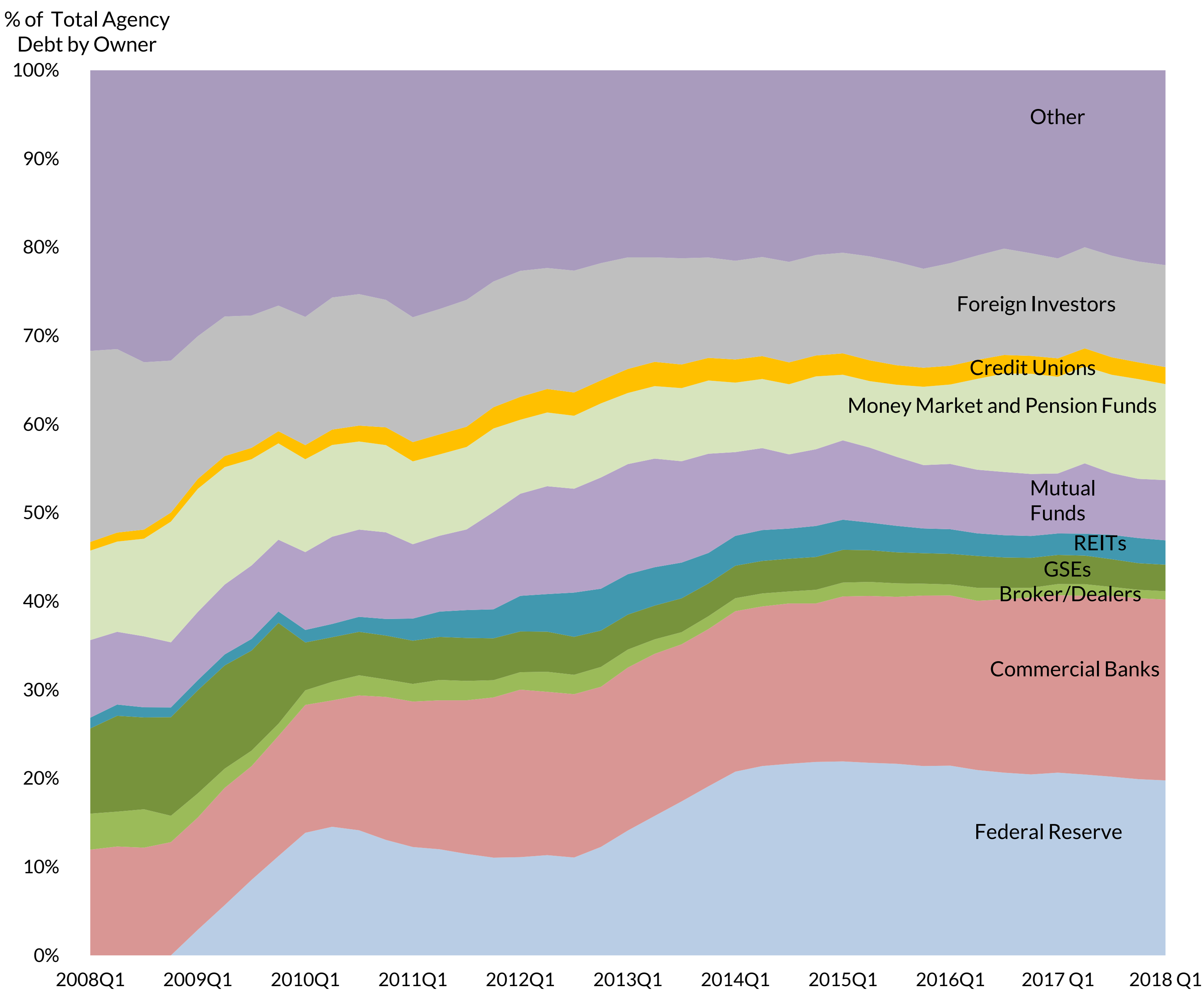


Sources: *Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute.* **Note:** *Data as of June 2018.*

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.

Who owns Total Agency Debt?

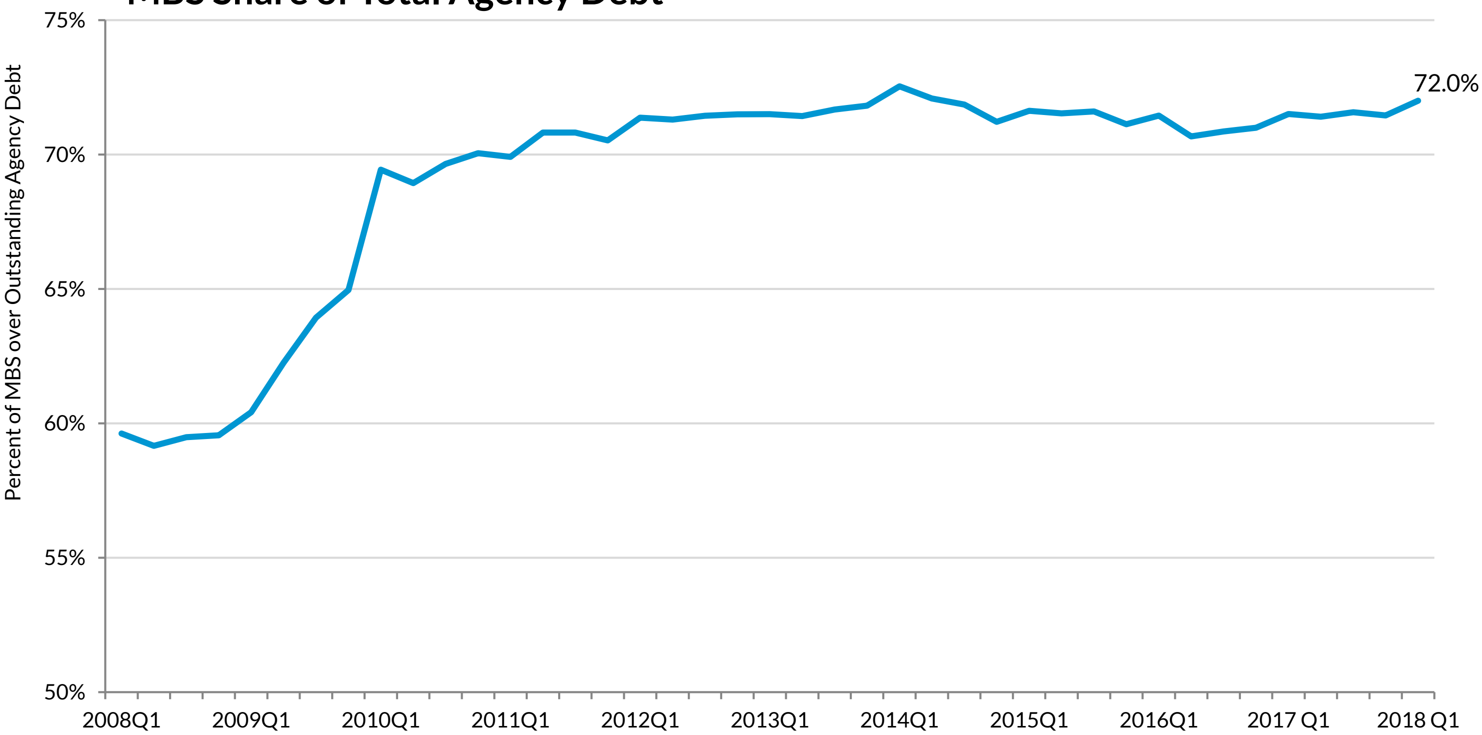


Sources: *Federal Reserve Flow of Funds and Urban Institute.* **Note***: Data as of Q1 2018.*

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 June 2018, $1.3 trillion of it was held by the top 25 domestic banks.

MBS Share of Total Agency Debt



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

	Commercial Bank Holdings ($Billions)								Week Ending			
	May-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	June 6	June 13	June 20	June 27
Largest Domestic Banks	1,249.9	1,295.7	1,302.9	1,294.6	1,281.7	1,285.2	1,286.7	1,297.1	1,301.4	1,303.9	1,314.6	1,326.2
Small Domestic Banks	467.4	478.2	478.6	479.1	478.5	477.2	480.0	479.2	481.2	482.4	481.3	482.6
Foreign Related Banks	11.3	17.7	35.2	33.2	32.1	33.7	33.8	30.8	30.2	34.4	35.7	30.8
Total, Seasonally Adjusted	1,728.6	1,791.6	1,816.7	1,806.9	1,792.3	1,796.1	1,800.5	1,807.1	1,812.8	1,820.7	1,831.6	1,839.6

***Sources**: Federal Reserve Bank and Urban Institute. **Note**: Data as of June 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

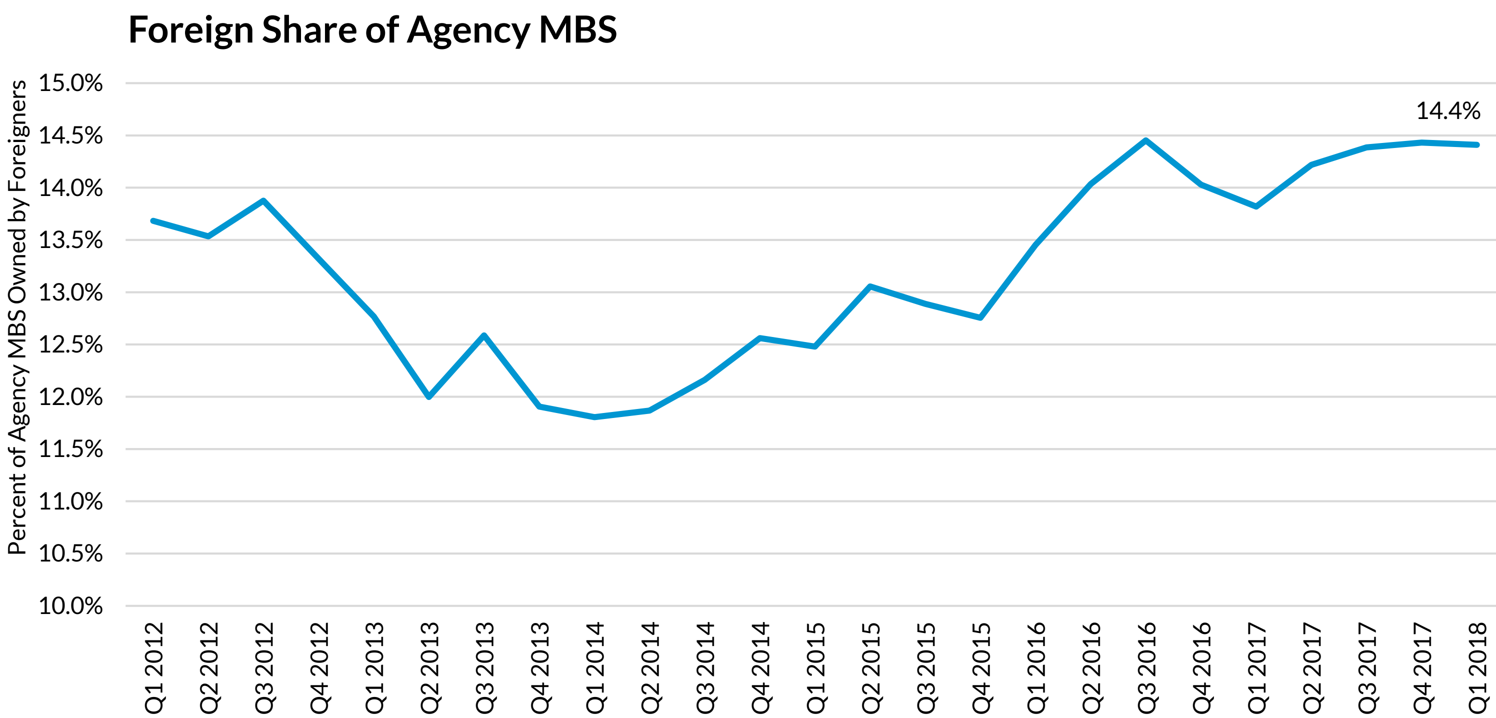
	All Banks & Thrifts ($Billions)						
	Total	Agency MBS	GSE PT	GNMA PT	Agency CMO	Private MBS	Private CMO
2000	$683.90	$392.85	$234.01	$84.26	$198.04	$21.57	$71.43
2001	$810.50	$459.78	$270.59	$109.53	$236.91	$37.62	$76.18
2002	$912.36	$557.43	$376.11	$101.46	$244.98	$20.08	$89.88
2003	$982.08	$619.02	$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%**

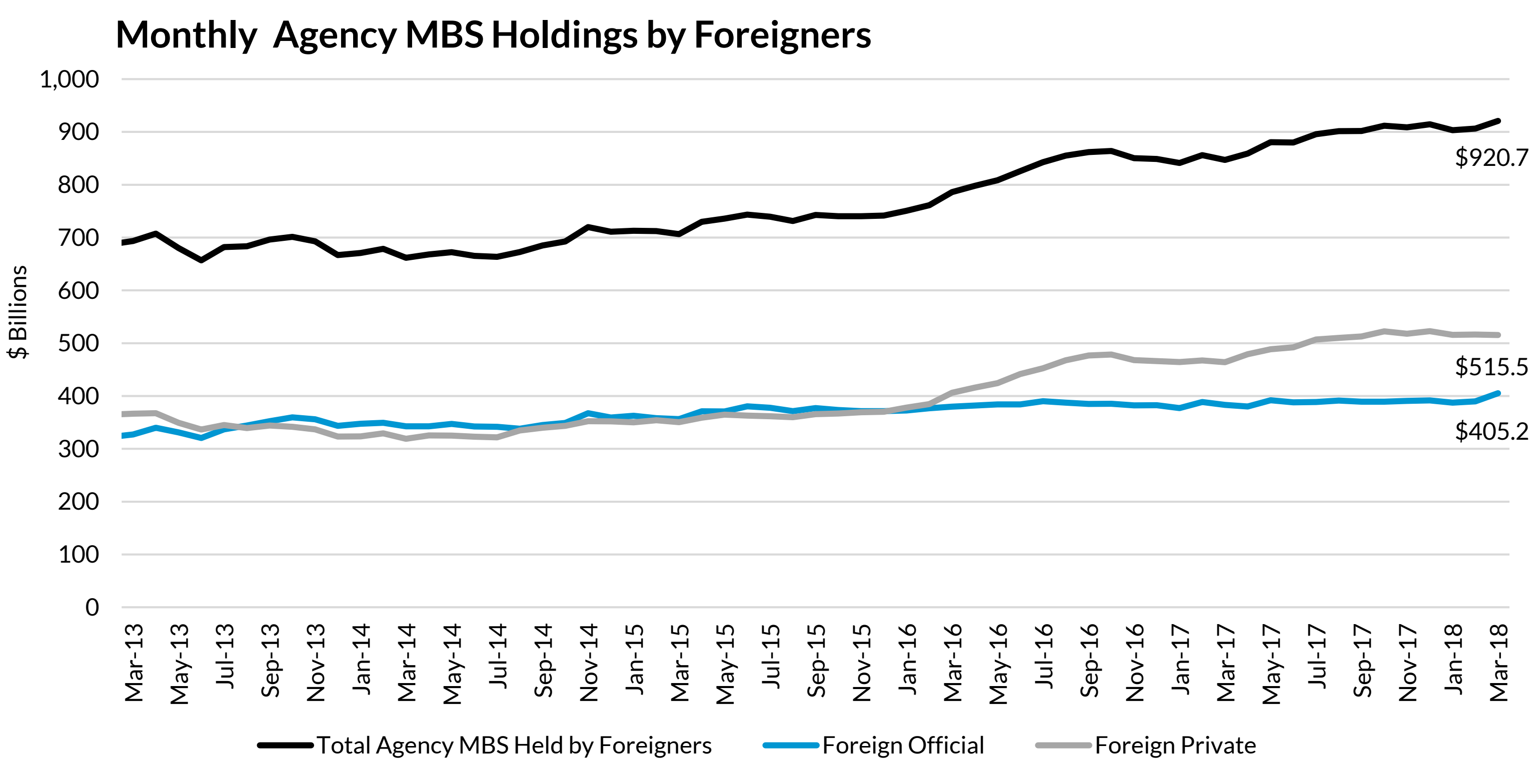
Sources: *Inside Mortgage Finance and Urban Institute.* ***Note:*** *Data as of Q1 2018.*

MBS Ownership

Foreign investors held 14.4 percent of agency MBS in Q1 2018, up sharply from the lows in 2013. For the month of March 2018, this represents $920.7 billion in Agency MBS; $405.2 billion held by foreign official institutions and $515.5 billion held by foreign private investors.



Sources: *SIFMA and Treasury International Capital (TIC).* ***Note***: *Data as of Q1 2017.*



Sources: *Treasury International Capital (TIC) and Urban Institute.* ***Note***: *Data as of March 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 around $18 billion in agency MBS between June 2017 and March 2018.

Agency MBS+ Agency Debt

	Level of Holdings ($Millions)*				Change in Holdings ($Millions)*		
Country	Jun-17	Sep-17	Dec-17	Mar-18	Q3 2017	Q4 2017	Q1 2018
Taiwan	227,195	229,030	234,234	245,182	1,835	5,204	10,948
Japan	228,466	244,261	241,067	246,344	15,795	-3,194	5,277
China	183,393	177,580	170,702	173,169	-5,813	-6,878	2,467
South Korea	46,791	47,581	45,467	44,099	790	-2,114	-1,368
Ireland	44,229	46,648	51,525	49,164	2,419	4,877	-2,361
Luxembourg	31,289	33,026	37,575	39,336	1,737	4,549	1,761
Cayman Islands	32,682	29,016	28,374	29,026	-3,666	-642	652
Bermuda	26,767	27,125	28,904	28,055	358	1,779	-849
Switzerland	17,312	18,675	16,794	13,063	1,363	-1,881	-3,731
Malaysia	12,365	13,162	12,751	12,139	797	-411	-612
Rest of World	129,723	124,357	125,465	124,266	-5,366	1,108	-1,199
Total	980,212	990,461	992,858	1,003,843	10,249	2,397	10,985

Agency MBS Only (Estimates)

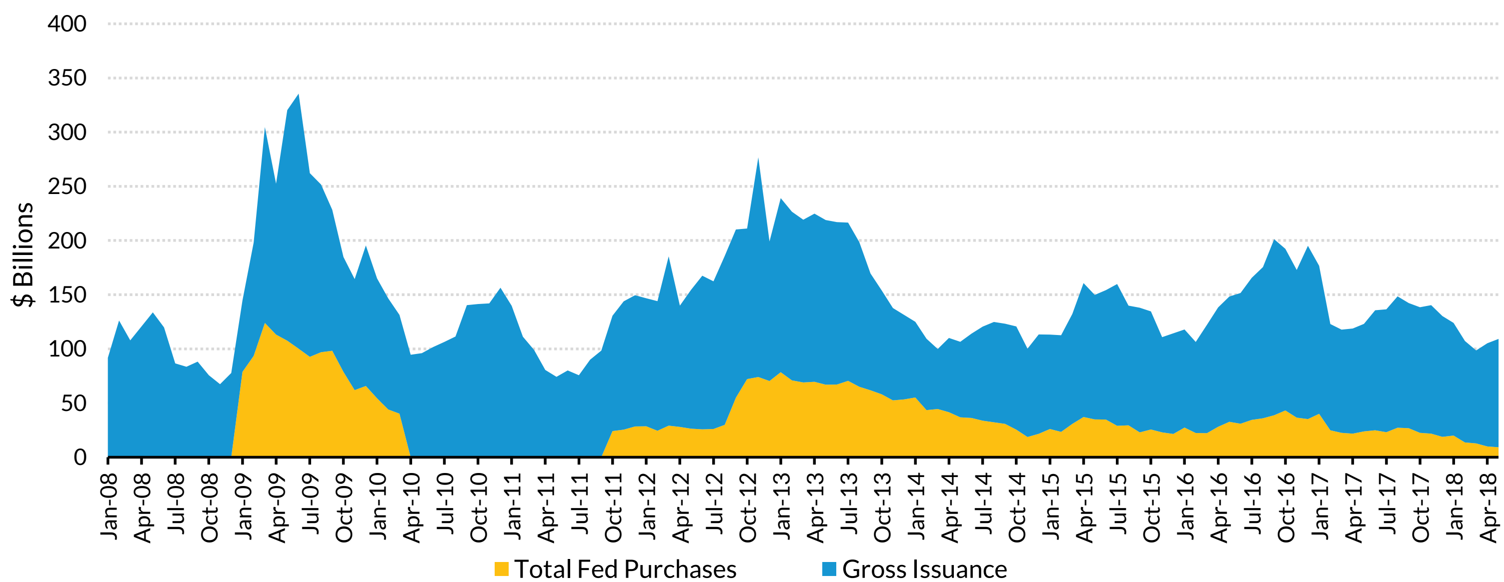
	Level of Holdings ($Millions)*				Change in Holdings ($Millions)*		
Country	Jun-17	Sep-17	Dec-17	Mar-18	Q3 2017	Q4 2017	Q1 2018
Taiwan	227,073	228,914	234,127	245,049	1,841	5,213	10,922
Japan	221,528	237,689	234,985	238,777	16,161	-2,704	3,793
China	177,546	172,042	165,576	166,792	-5,504	-6,465	1,216
South Korea	33,891	35,362	34,158	30,030	1,471	-1,204	-4,128
Ireland	33,663	36,640	42,262	37,641	2,977	5,623	-4,621
Luxembourg	28,314	30,208	34,967	36,091	1,894	4,759	1,125
Cayman Islands	24,897	21,642	21,549	20,536	-3,255	-93	-1,013
Bermuda	23,156	23,705	25,738	24,117	549	2,034	-1,622
Switzerland	13,867	15,412	13,774	9,306	1,545	-1,638	-4,468
Malaysia	11,905	12,726	12,348	11,637	821	-379	-710
Rest of World	94,872	91,345	94,913	86,258	-3,527	3,567	-8,655
Total	890,712	905,684	914,397	906,235	14,972	8,713	-8,162

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 March 2018.

MBS Ownership

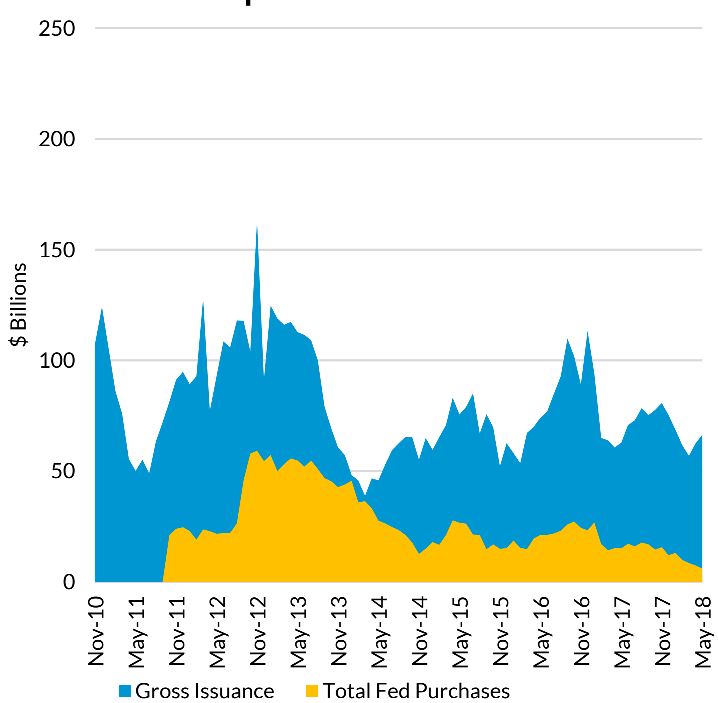
The Fed has begun to wind down their portfolio, and we are beginning to see the effects in slower absorption rates. During the period October 2014-September 2017, the Fed had ended its purchase program, but was reinvesting funds from mortgages and agency debt into the mortgage market, absorbing 20-30 percent of agency gross issuance. With the wind down started in October 2017, the Fed will continue to reinvest, but by less than their run off. In May 2018, total Fed purchases decreased to $9.1 billion, yielding Fed absorption of gross issuance of 9.1 percent, the lowest level since the Fed began its second mortgage purchase program. The Fed absorbed 9.7 percent of Ginnie Mae issuance and 8.9 percent of GSE issuance, respectively.

Total Fed Absorption



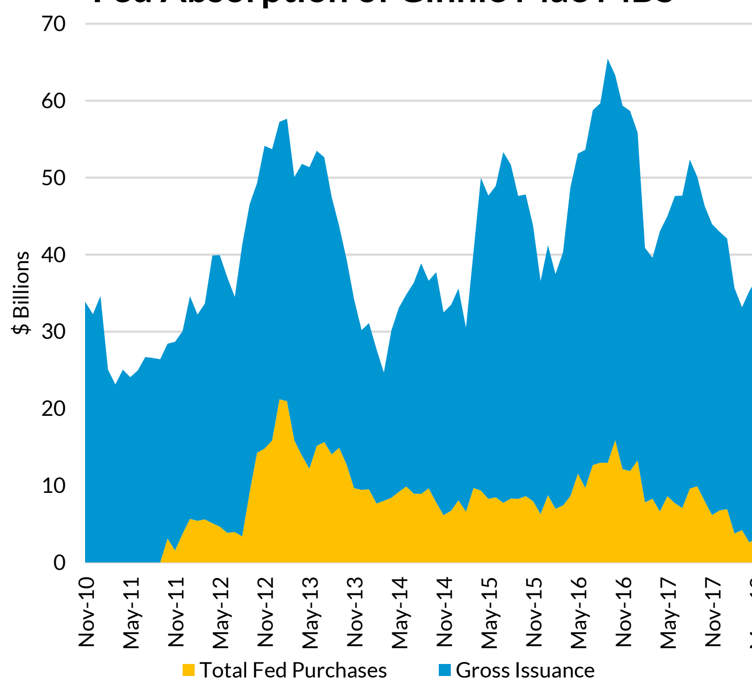
Sources: *eMBS, Federal Reserve Bank of New York and Urban Institute.* ***Note:*** *Data as of May 2018.*

Fed Absorption of GSE MBS



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

Fed Absorption of Ginnie Mae MBS



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

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