Global Markets Analysis Report

A MONTHLY PUBLICATION OF GINNIE MAE'S
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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

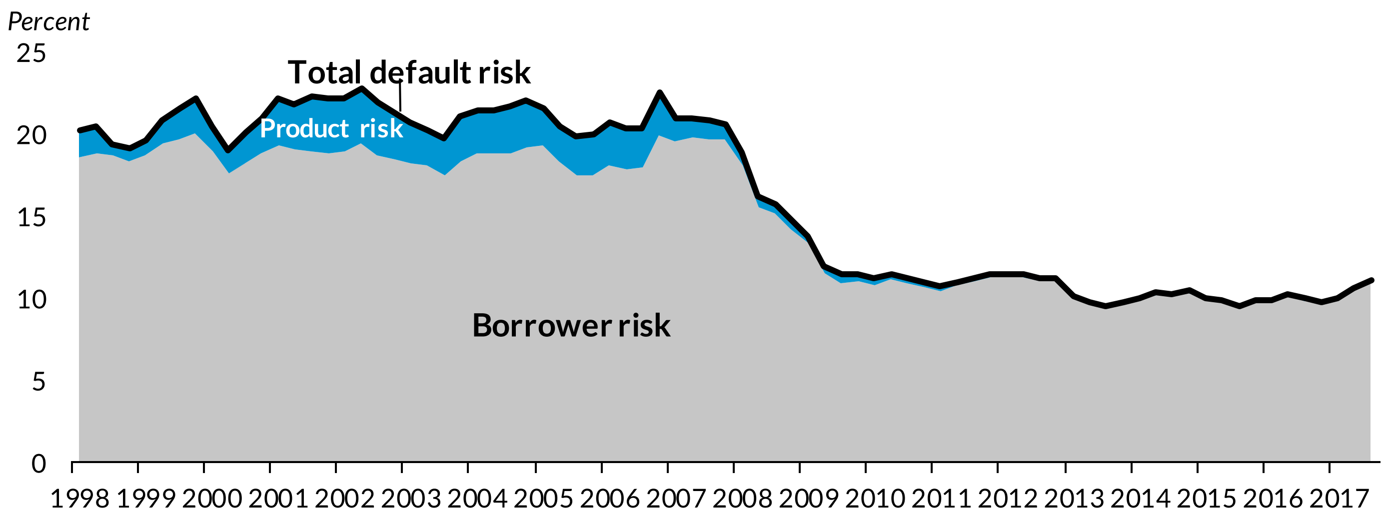
HIGHLIGHTS

Improvement in credit availability for government loans

We are seeing the signs of a much needed easing of credit availability. The Urban Institute's recently released Housing Credit Availability Index (HCAI) for Q3 2017 showed that overall mortgage credit, while still very tight, continued to improve modestly. The overall HCAI expanded from 5.06 to 5.57 percent, still less than half of the 12 percent in 2001-2003, a period of reasonable credit standards. The bulk of this increase was driven by substantial improvement in credit availability for government loans (FHA, VA and USDA-insured).

The HCAI measures credit availability by tracking the ex-ante probability of serious delinquency for mortgages being originated in any given quarter, for government and conventional channels separately, and in aggregate. In Q3 2017, the HCAI index for government channel increased to the highest level since 2012.

Default Risk Taken by the Government Channel



Sources: eMBS, Corelogic, HMDA, IMF, and Urban Institute.
Note: Default is defined as 90 days or more delinquent at any point. *Last updated January 2018.*

Two factors seem to be driving this improvement – a very modest relaxation in purchase FICO scores for government loans (see page 27) and a bigger relaxation in the debt-to-income ratios (see page 29). This improvement in what is otherwise an extremely tight credit environment is critical in enabling homeownership for responsible low- and moderate-income families. Improvements in government credit availability are also positive for Ginnie Mae MBS investors as they benefit from both improved liquidity and the fact the lower credit borrowers prepay more slowly in a rally.

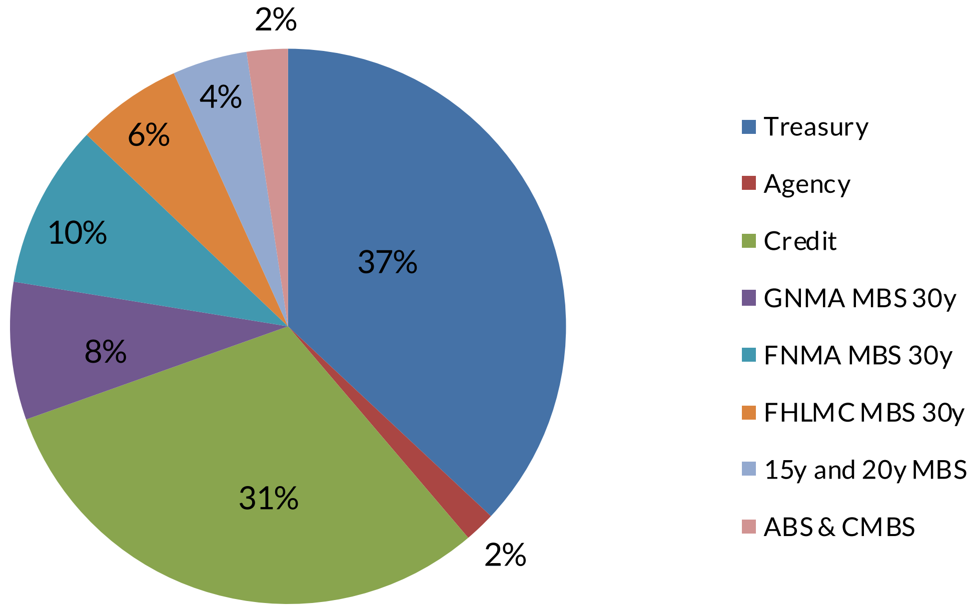
***Highlights this month*:**

- Despite the Federal Reserve portfolio unwind, current coupon Ginnie Mae MBS spreads relative to Treasuries continued to tighten by 1-6 bps (page 6).
- First lien originations in first three quarters of 2017 was down 9 percent year-over-year (page 16).
- DTIs for all loans, particularly Ginnie Mae loans have been rising (page 29).
- The non-bank originator share of both FHA and VA originations reached historical high levels in November 2017 (page 30).

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

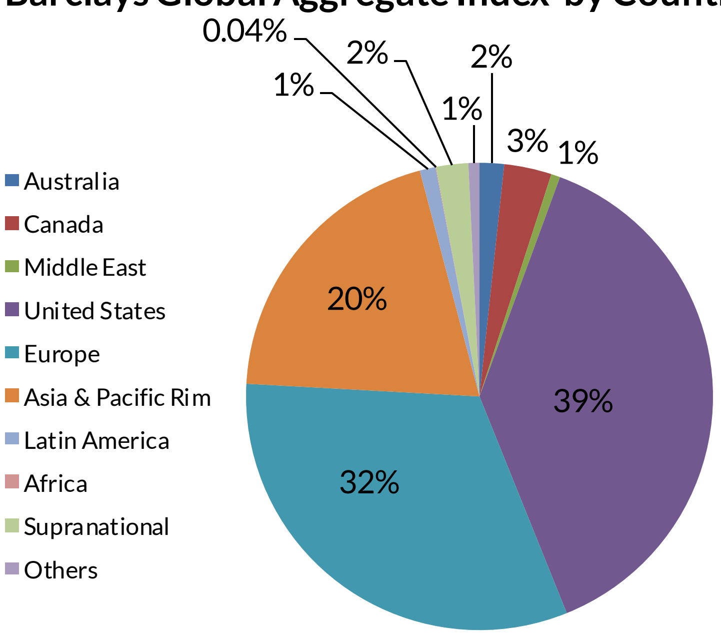
US MBS comprise 28 percent of the Barclays US Aggregate Index -- slightly less than either the US Treasury share (37%) or the US Credit share (31%). Fannie Mae 30-year MBS comprises the largest percent of US MBS (10%), while Ginnie Mae 30-year MBS and Freddie Mac 30-year MBS comprise 8 percent and 6 percent of the market, respectively. Mortgages with terms of 15 and 20 years comprise the balance (4%) of the US MBS share. US securities are the largest single contributor to the Barclays Global Aggregate, accounting for 39 percent of the global total. US MBS comprises 11 percent of the global aggregate.

Barclays US Aggregate Index



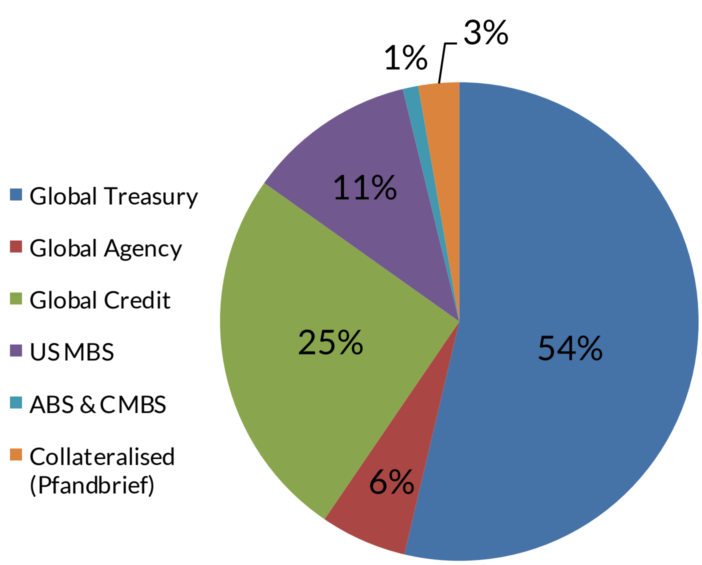
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of December 2017*

Barclays Global Aggregate Index by Country



Sources: *Bloomberg and State Street Global Advisors.*
Note: *Data as of December 2017*

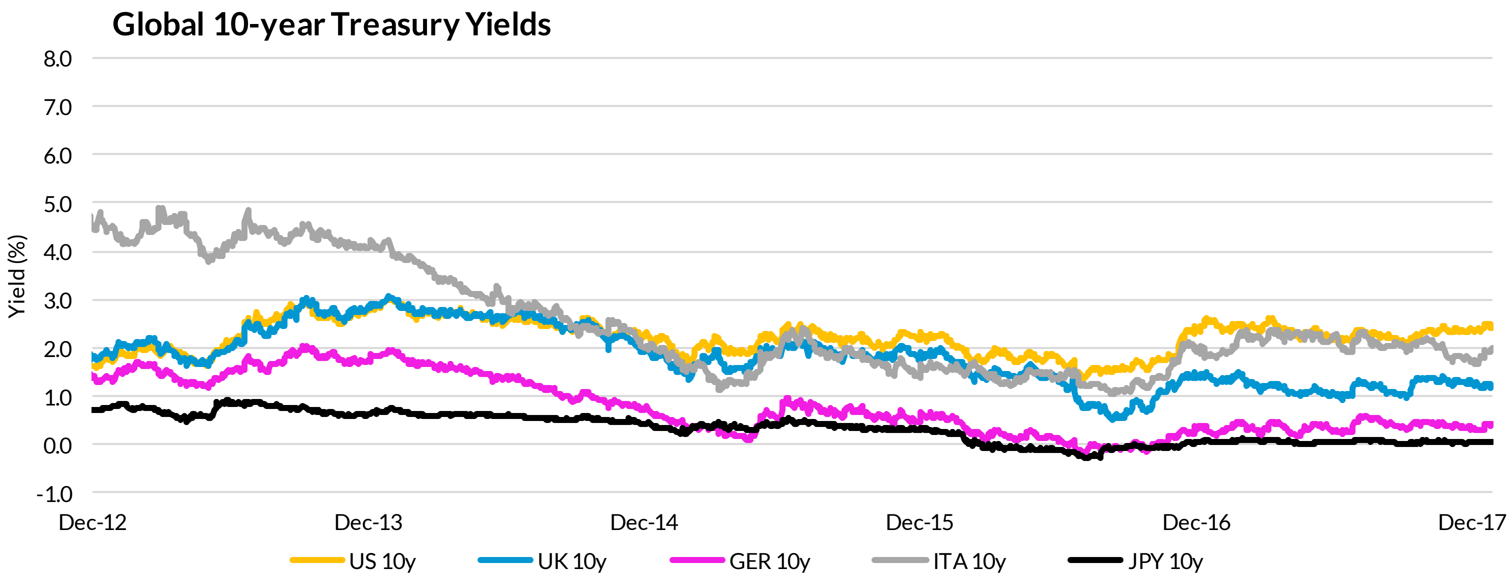
Barclays Global Aggregate Index by Sector



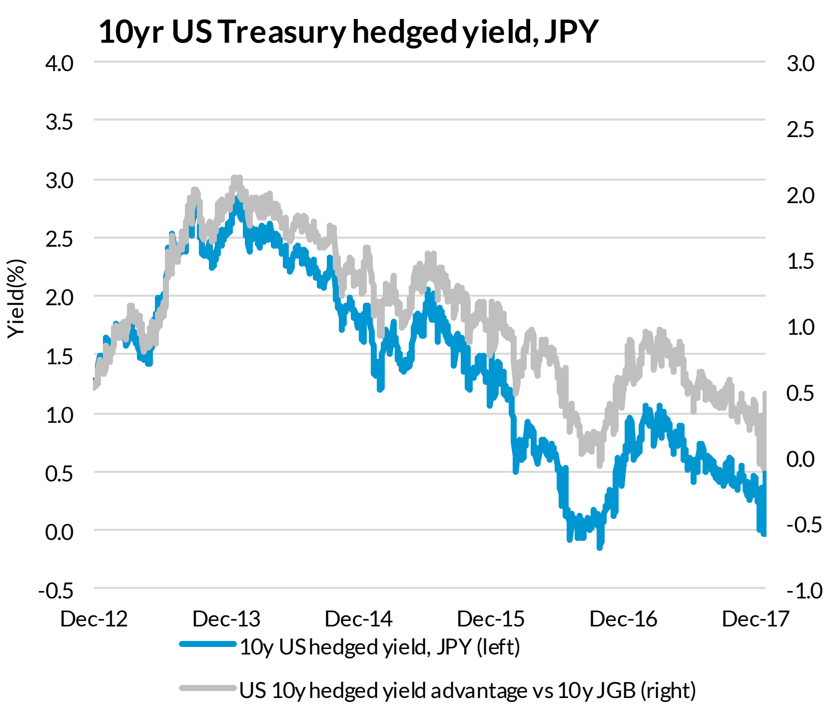
Sources: *Bloomberg and State Street Global Advisors*
Note: *Data as of December 2017*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

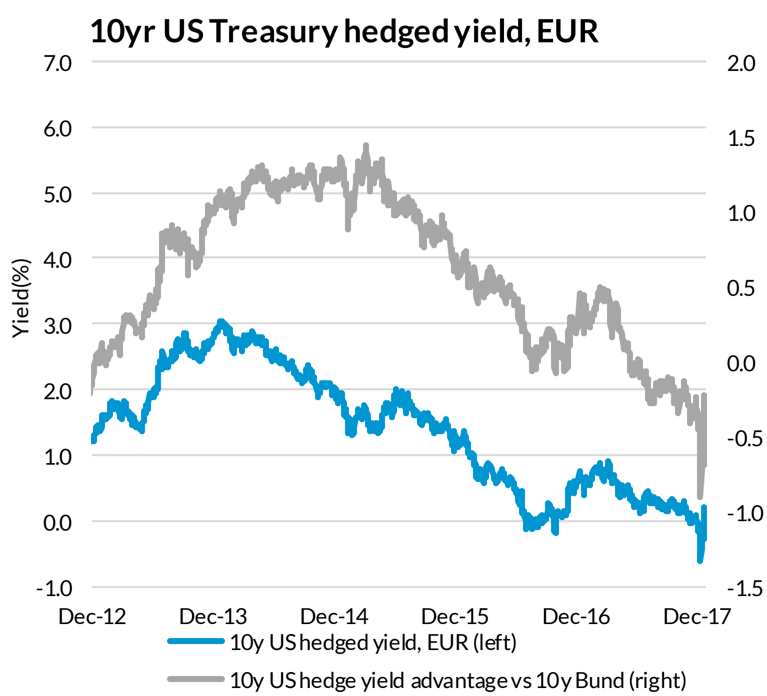
US Treasury interest rates, as measured by the 10-year note, are currently the highest in the developed world. The US 10-year Treasury note stayed steady at 2.41 percent this month. Italy, Germany and Japan increased, and now stand at 2.02, 0.43 and 0.05 percent, respectively. Interest rates for UK, on the other hand, went down from 1.33 to 1.19 percent. If the Treasury notes are hedged into foreign currencies, 10-year US Treasury yields are 50 basis points (bps) above 10-year JGBs, and 18 bps above 10-year Bunds. The hedged yield difference between the 10-year Treasuries and JGBs is now 46 bps, while the hedged yield differential between the 10-year Treasuries and Bunds now stands at -24 bps.



Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of December 2017*



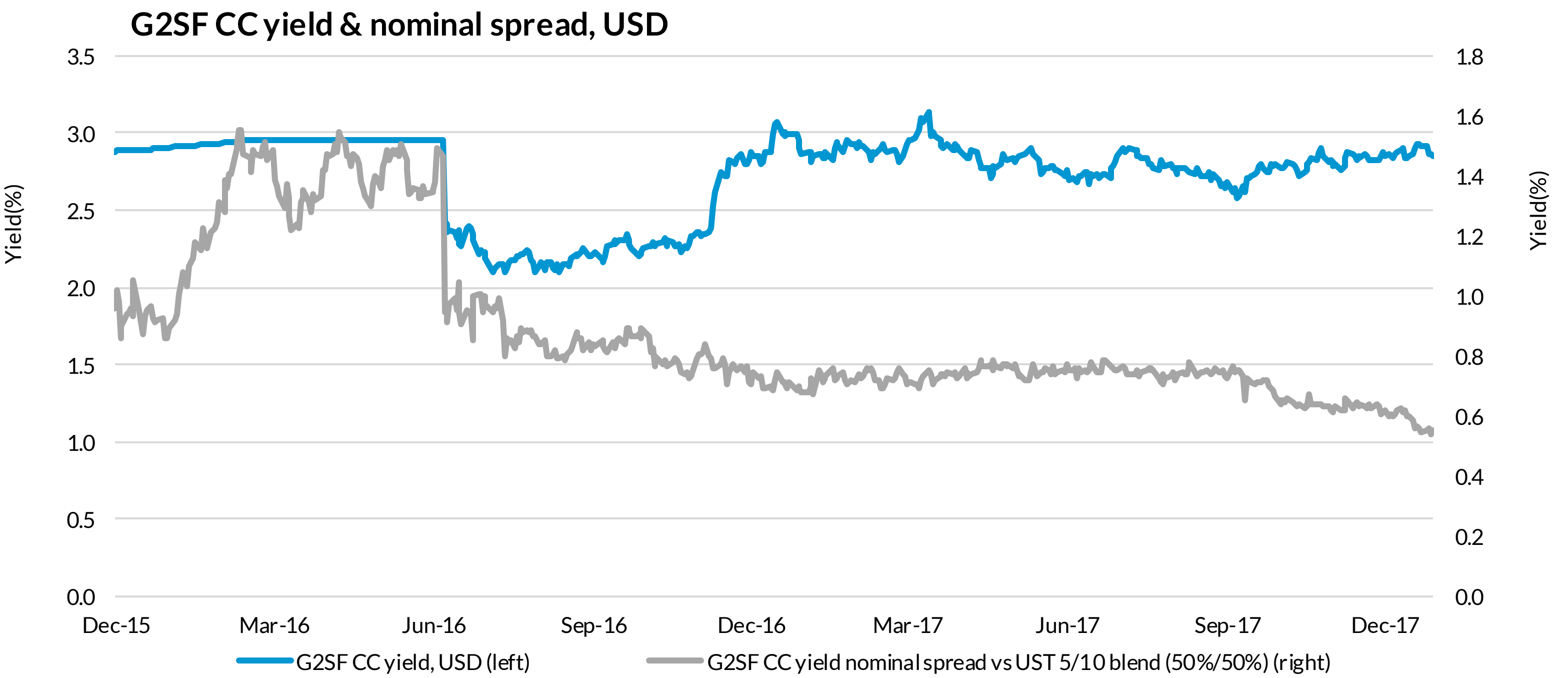
Sources: *Bloomberg and State Street Global Advisors.*
Note: *Data as of December 2017*



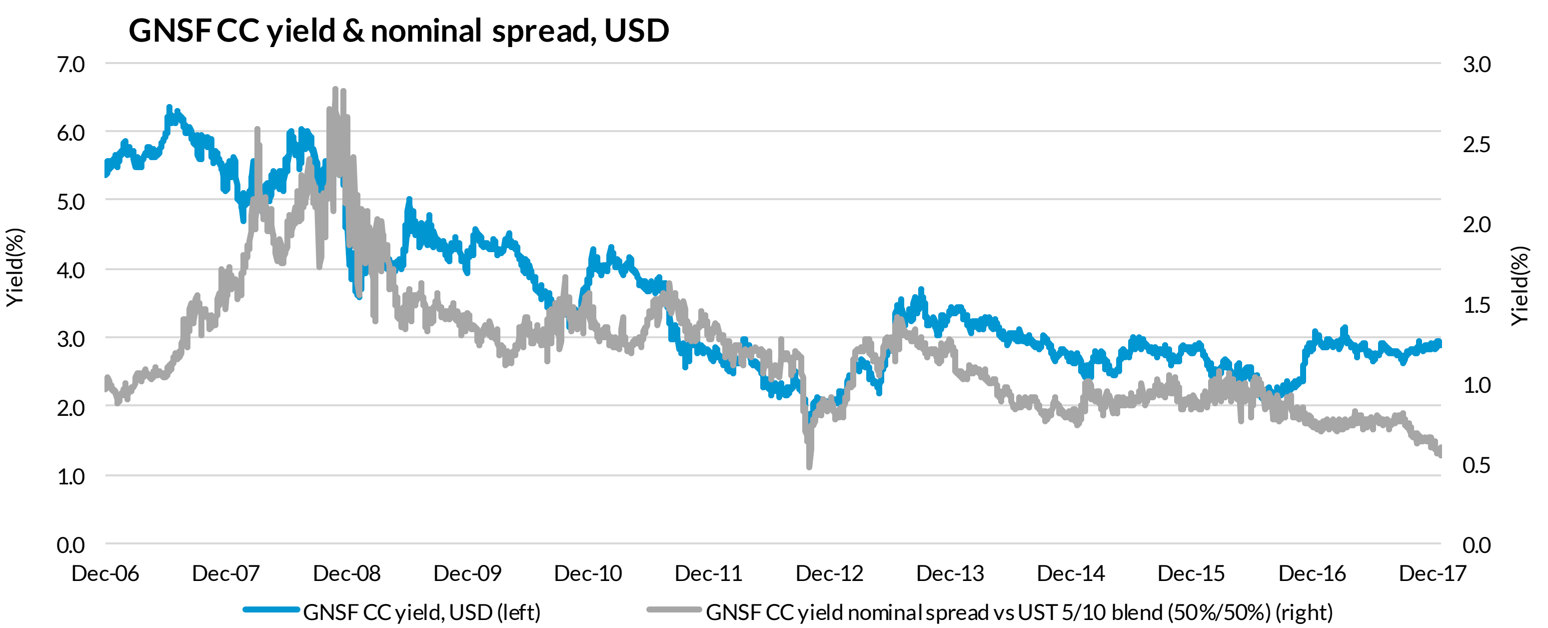
Sources: *Bloomberg and State Street Global Advisors*
Note: *Data as of December 2017*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

Despite the Fed shrinking its investments in MBS and Treasuries since October 2017, the nominal yield spread on current coupon GNMA II and GNMA I securities continued to tighten by 6 bps and 1 bps, respectively in December 2017. Current coupon Ginnie Mae securities currently outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 55 and 59 bps on G2SF and GNSF, respectively.



Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of December 2017*

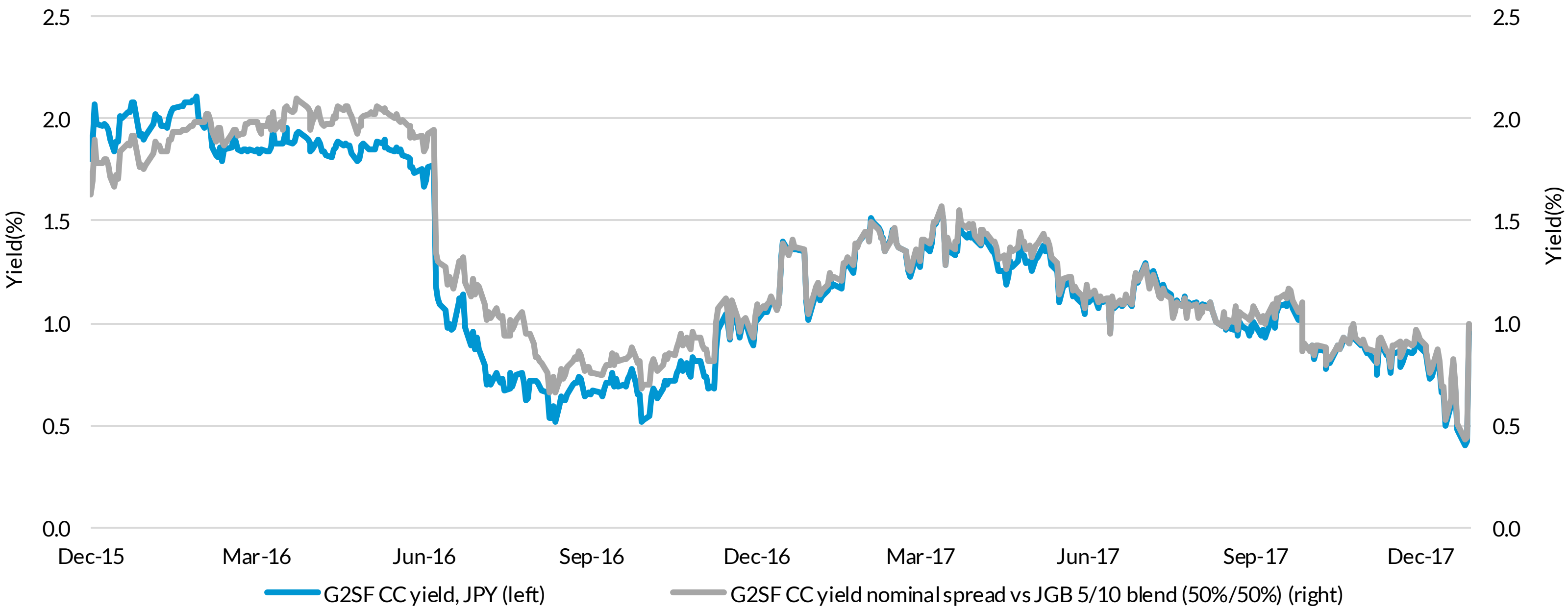


Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of December 2017*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

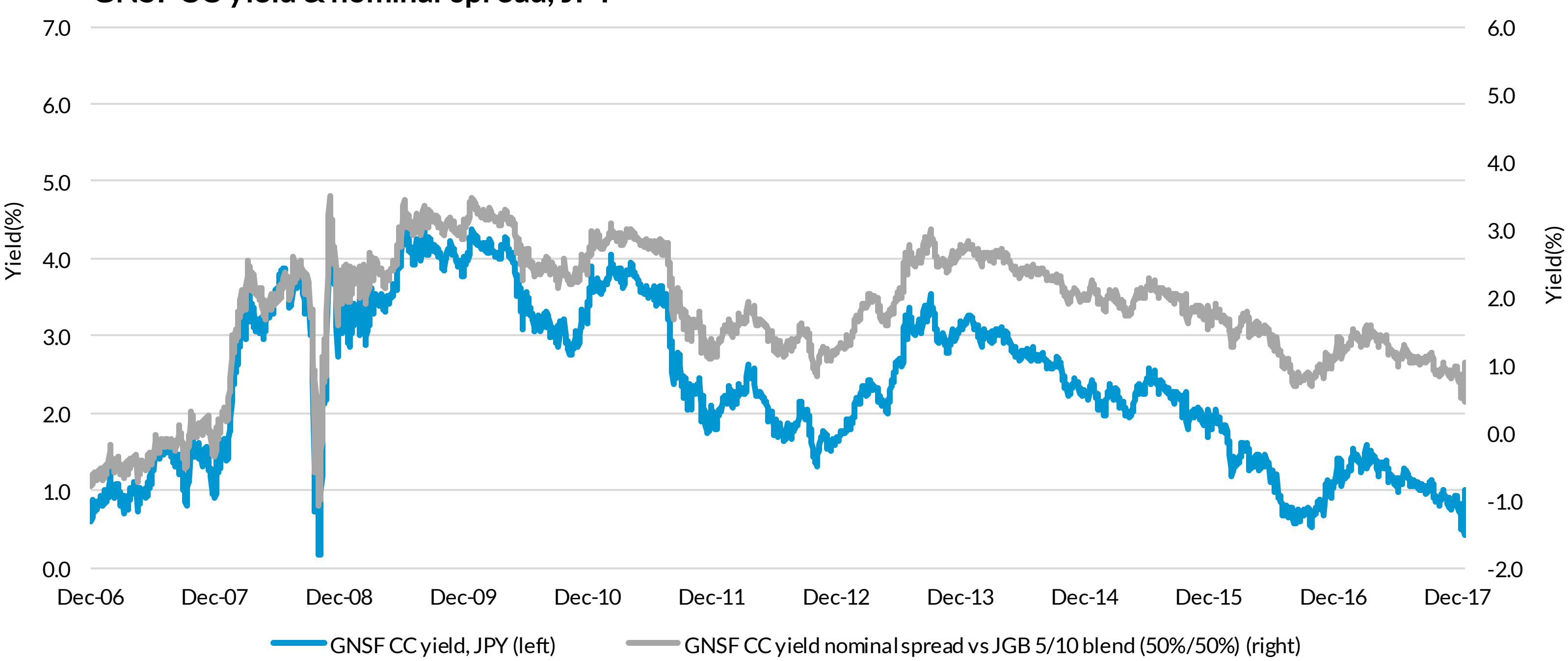
If Ginnie Mae securities are hedged into foreign currencies, they look attractive on a yield basis versus many sovereign alternatives. The figures show that current coupon G2SF and GNSF hedged into Japanese yen yield more than the JGB 5/10 blend by 98 and 102 bps, respectively.

G2SF CC yield & nominal spread, JPY



Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of December 2017*

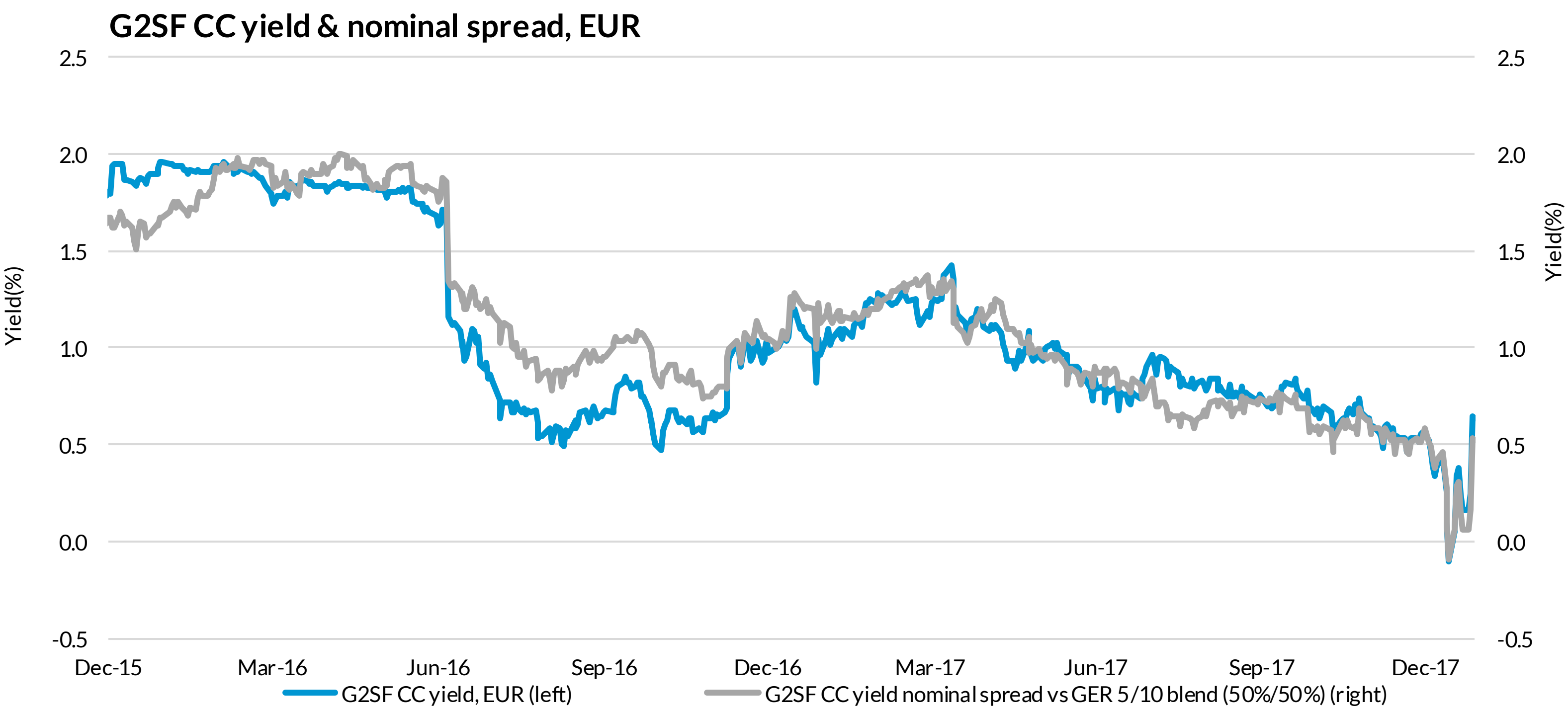
GNSF CC yield & nominal spread, JPY



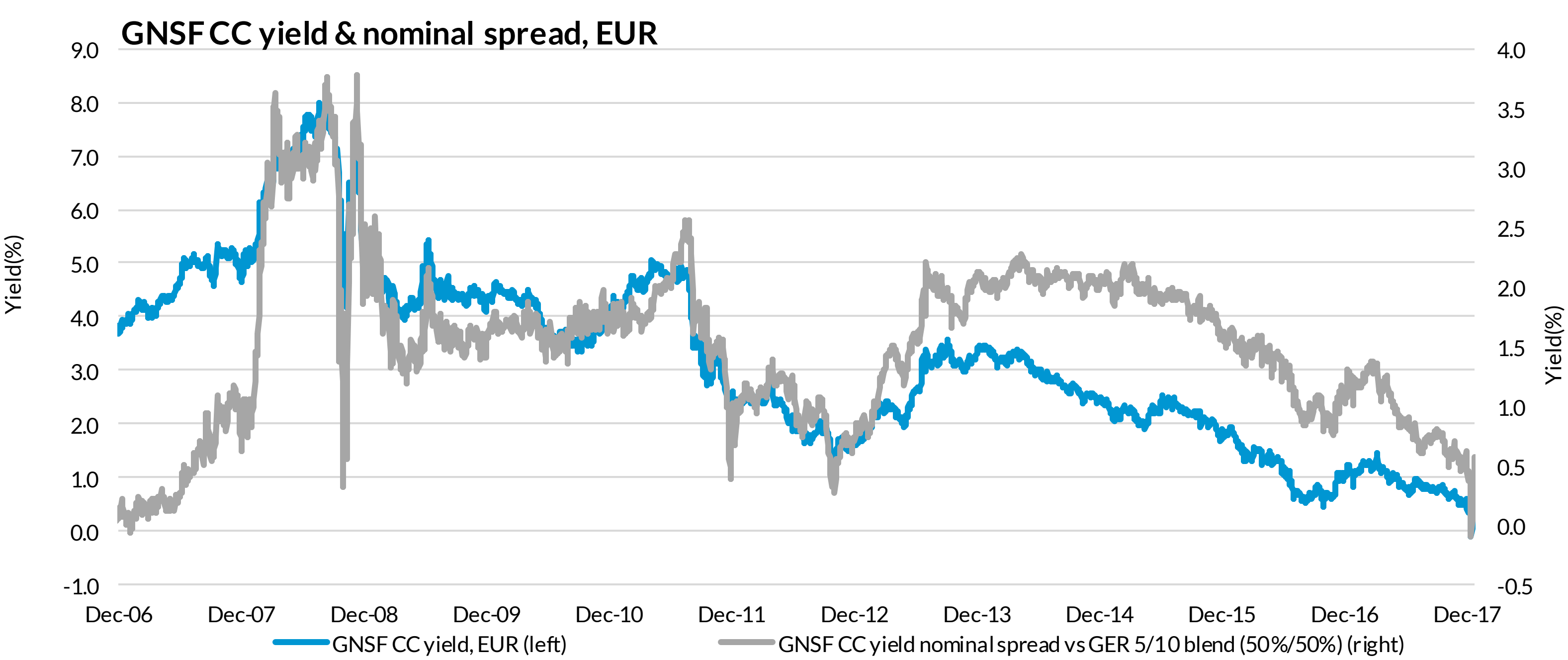
Sources: *Bloomberg and State Street Global Advisors.* ***Note:*** *Data as of December 2017*

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 52 and 57 bps, respectively.



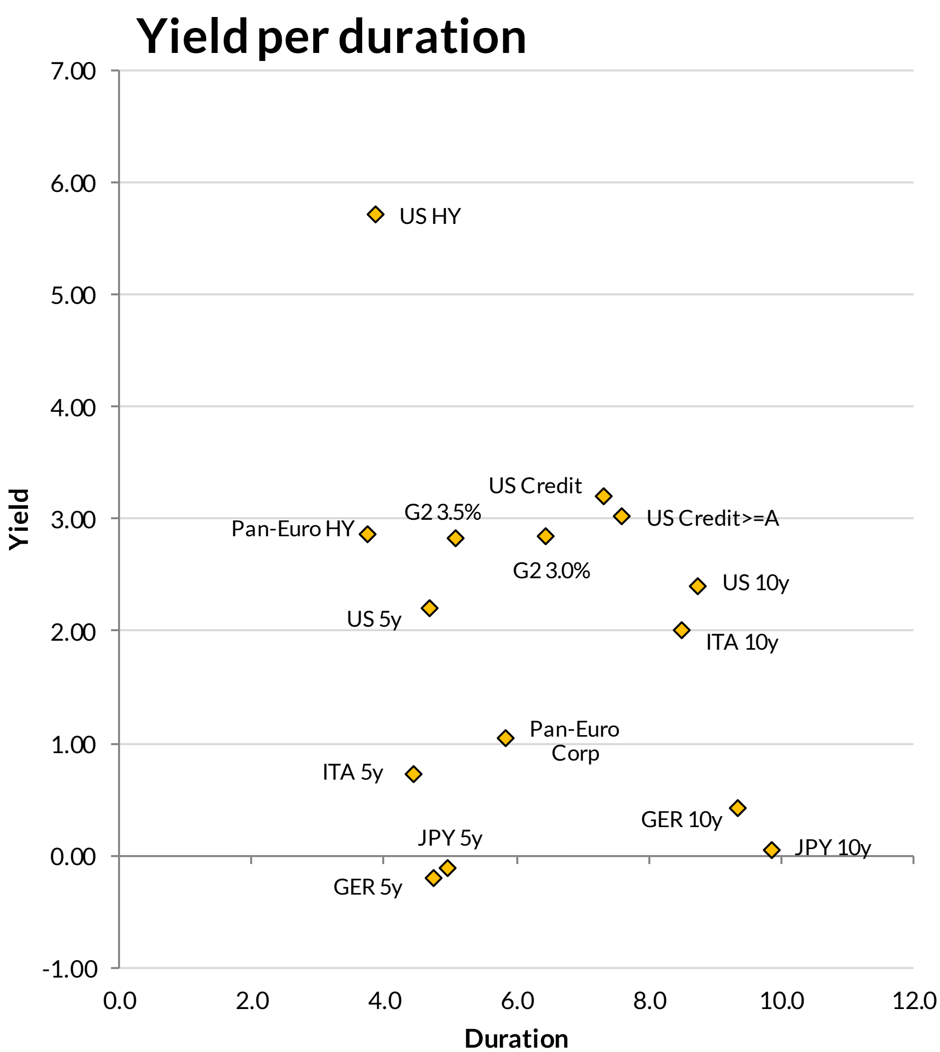
***Sources:** Bloomberg and State Street Global Advisors. **Note:** Data as of December 2017*



***Sources:** Bloomberg and State Street Global Advisors. **Note:** Data as of December 2017*

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

US MBS yields are about the same or higher than most securities with the same or longer durations. The only security class with significantly more yield is the US high yield index, where interest rate risk does not fully capture the volatility of the high yield asset class. Investors are unable to match the yield on Ginnie Mae securities, while preserving the full government guarantee, even if they extend their duration significantly.



Security	Duration	Yield
US 5y	4.7	2.21
US 10y	8.7	2.41
GNMA II 3%	6.5	2.85
GNMA II 3.5%	5.1	2.82
JPY 5y	5.0	-0.11
JPY 10y	9.9	0.04
GER 5y	4.7	-0.21
GER 10y	9.3	0.42
ITA 5y	4.4	0.73
ITA 10y	8.5	2.01
US credit	7.3	3.20
US credit >= A	7.6	3.03
US HY	3.9	5.72
Pan-Euro corp	5.8	1.04
Pan-Euro HY	3.8	2.9

Sources: *Bloomberg and State Street Global Advisors.* ***Note****: Yields are in base currency of security and unhedged.*
Data as of December 2017.

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

The average return on the Ginnie Mae index over the past decade has been in line with 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	0.15	0.19	0.52	0.16	0.61	0.51
3 year	0.13	0.12	0.33	0.17	0.53	0.43
5 year	0.14	0.11	0.29	0.31	0.48	0.53
10 year	0.32	0.28	0.47	0.39	0.70	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	0.08	0.11	0.44	0.23	0.53	0.58
3 year	0.10	0.08	0.29	0.23	0.49	0.49
5 year	0.12	0.09	0.27	0.34	0.46	0.56
10 year	0.29	0.25	0.45	0.37	0.67	0.77

	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	0.36	0.51	0.52	0.72	0.64	0.62
3 year	0.46	0.99	1.13	1.14	1.63	1.45
5 year	0.66	0.90	1.15	1.11	1.50	1.28
10 year	0.75	1.20	1.75	1.44	3.02	3.60

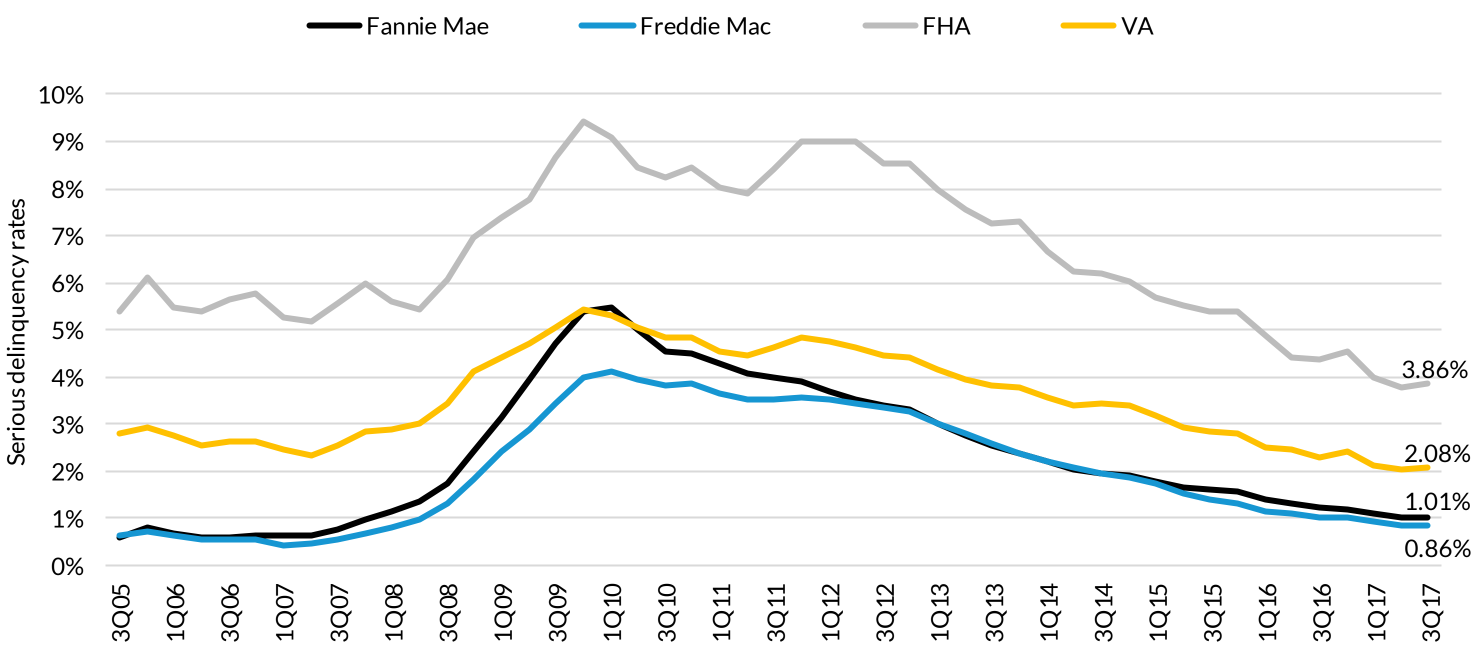
	Sharpe Ratio					
Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield	Pan Euro High Yield*
1 year	0.21	0.22	0.85	0.32	0.83	0.93
3 year	0.21	0.09	0.26	0.20	0.30	0.34
5 year	0.18	0.10	0.23	0.30	0.31	0.44
10 year	0.39	0.21	0.26	0.26	0.22	0.21

**Assumes 2% capitalization max per issuer on high yield indices*
***Sources:** Barclays Indices, Bloomberg and State Street Global Advisors* ***Note:** Data as of December 2017.*

State of the US Housing Market

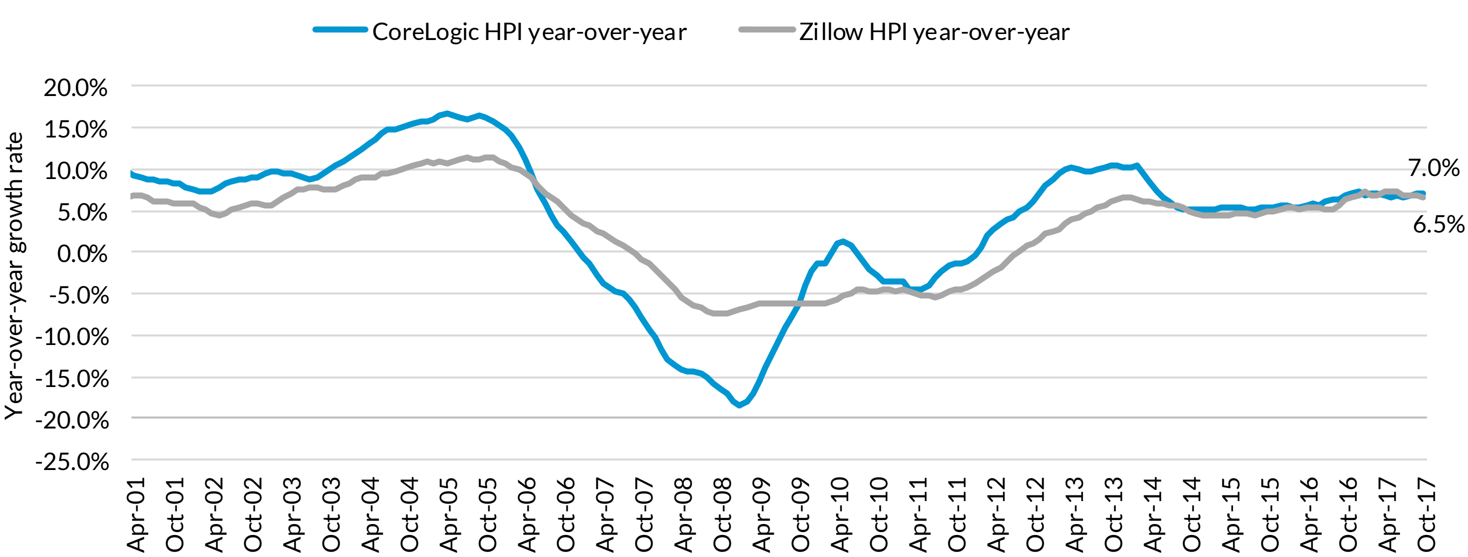
Serious delinquencies for GSE single-family loans remained flat. After their decline in the past two quarters, both FHA and VA delinquencies edged up to 3.86 and 2.08 percent in Q3 2017, reflecting primarily seasonal factors. GSE delinquencies remain high relative to 2005-2007, while FHA and VA delinquencies (which are higher than their GSE counterparts) are at levels lower than 2005-2007. Home price changes turned positive in 2012, and continue to increase approximately 7 percent per year, as measured by both CoreLogic and Zillow.

Serious Delinquency Rates: Single-Family Loans



Sources: *Fannie Mae, Freddie Mac, MBA Delinquency Survey and Urban Institute.*
Note: *Serious delinquency is defined as 90 days or more past due or in the foreclosure process. Data as of Q3 2017.*

National Year-Over-Year HPI Growth



Sources: *CoreLogic, Zillow, and Urban Institute.* ***Note:*** *Data as of October 2017.*

State of the US Housing Market

Nationally, the nominal home prices have improved by 51.0 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 31.2 percent below peak levels and Florida is 20.6 percent below peak levels.

	HPI Changes				
State	2000 to Peak	Peak to Trough	Trough to Current	YOY	Current HPI % Below Peak
National	93.7%	-33.2%	51.0%	7.0%	-0.8%
Alabama	46.5%	-20.7%	24.3%	5.4%	1.5%
Alaska	68.7%	-9.3%	18.9%	2.8%	-7.2%
Arizona	121.5%	-50.5%	68.5%	6.2%	19.9%
Arkansas	39.5%	-7.7%	16.5%	4.6%	-7.1%
California	149.0%	-42.5%	76.0%	7.6%	-1.3%
Colorado	40.4%	-13.8%	65.7%	8.2%	-30.1%
Connecticut	79.5%	-24.9%	9.5%	2.5%	21.6%
Delaware	90.3%	-23.9%	21.3%	4.1%	8.3%
District of Columbia	150.5%	-10.4%	37.0%	2.4%	-18.4%
Florida	149.2%	-49.7%	64.6%	6.1%	20.6%
Georgia	40.4%	-30.8%	53.5%	6.2%	-6.0%
Hawaii	152.7%	-20.5%	49.6%	8.1%	-15.8%
Idaho	85.7%	-40.9%	72.5%	9.0%	-2.1%
Illinois	60.0%	-32.6%	31.2%	3.7%	13.0%
Indiana	24.3%	-16.4%	28.8%	4.7%	-7.1%
Iowa	25.5%	-4.8%	21.7%	4.0%	-13.7%
Kansas	33.3%	-14.0%	26.9%	3.2%	-8.4%
Kentucky	26.9%	-8.9%	23.5%	5.8%	-11.1%
Louisiana	58.6%	-7.5%	24.6%	5.3%	-13.2%
Maine	92.5%	-16.6%	34.9%	5.6%	-11.7%
Maryland	137.7%	-31.2%	21.3%	3.3%	19.7%
Massachusetts	81.8%	-21.3%	39.5%	6.8%	-9.0%
Michigan	26.1%	-43.3%	76.3%	8.2%	-0.1%
Minnesota	69.7%	-28.2%	43.9%	6.0%	-3.3%
Mississippi	35.4%	-18.7%	19.7%	3.8%	2.3%
Missouri	46.2%	-22.2%	31.6%	5.9%	-2.3%
Montana	80.2%	-16.7%	37.0%	5.1%	-12.4%
Nebraska	25.2%	-5.3%	27.4%	5.5%	-17.1%
Nevada	129.0%	-59.9%	90.1%	10.1%	31.2%
New Hampshire	82.5%	-23.9%	31.5%	5.9%	-0.2%
New Jersey	109.5%	-26.4%	16.8%	2.6%	16.3%
New Mexico	64.4%	-26.5%	19.9%	2.1%	13.5%
New York	102.1%	-13.9%	31.2%	5.9%	-11.5%
North Carolina	39.7%	-14.6%	28.2%	5.3%	-8.7%
North Dakota	49.4%	-2.0%	53.3%	7.1%	-33.4%
Ohio	22.2%	-20.5%	32.2%	5.6%	-4.9%
Oklahoma	35.7%	-3.2%	15.7%	2.3%	-10.8%
Oregon	87.5%	-29.3%	67.9%	8.1%	-15.8%
Pennsylvania	71.7%	-12.9%	16.5%	3.4%	-1.5%
Rhode Island	131.0%	-34.3%	33.2%	7.5%	14.1%
South Carolina	61.4%	-22.1%	32.7%	4.9%	-3.3%
South Dakota	37.3%	-3.5%	35.7%	7.5%	-23.7%
Tennessee	41.2%	-13.4%	37.0%	6.3%	-15.8%
Texas	39.4%	-13.2%	48.1%	5.5%	-22.2%
Utah	64.8%	-31.7%	63.7%	10.1%	-10.6%
Vermont	81.5%	-9.1%	15.4%	4.9%	-4.7%
Virginia	135.1%	-30.6%	30.1%	2.9%	10.7%
Washington	90.2%	-28.1%	68.6%	12.5%	-17.5%
West Virginia	82.0%	-27.7%	21.8%	0.4%	12.7%
Wisconsin	48.7%	-17.2%	28.0%	6.5%	-5.6%
Wyoming	75.6%	-14.5%	28.4%	2.2%	-8.9%

Sources: *CoreLogic and Urban Institute.* ***Note:*** *HPI data as of October 2017. 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 10/2017, the latest HPI data period.*

State of the US Housing Market

Ginnie Mae loans constitute 32.7 percent of outstanding agency issuance by loan balance, 33.8 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 17.9 percent in the District of Columbia and as high as 53.0 percent in Mississippi. In general, the Ginnie Mae share is higher in states with lower home prices.

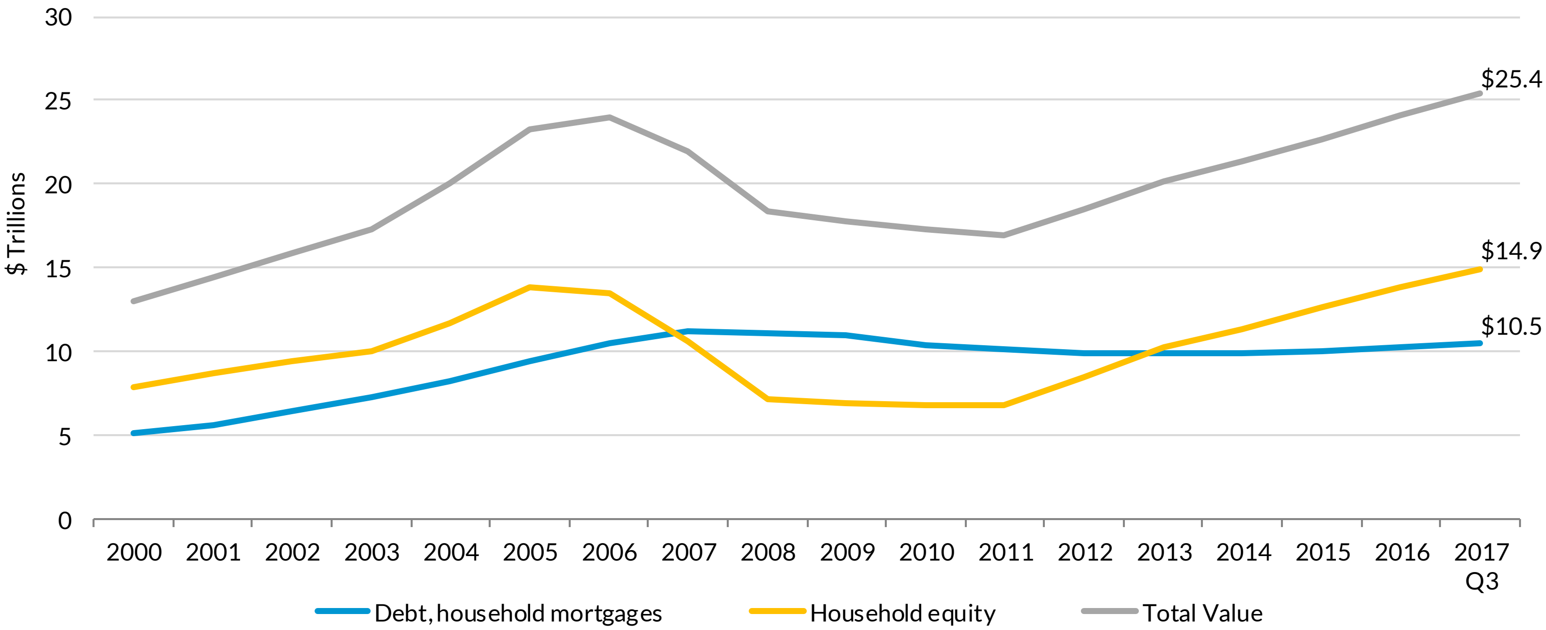
State	Agency Issuance (past 1 year)			Agency Outstanding		
	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)
National	33.8%	210.9	227.2	32.7%	177.0	207.2
Alabama	45.7%	158.5	179.6	47.5%	141.3	168.1
Alaska	52.9%	278.0	242.2	52.3%	255.0	227.4
Arizona	35.8%	203.0	207.2	35.2%	174.5	189.7
Arkansas	43.6%	140.5	165.7	47.3%	122.0	152.4
California	28.0%	335.9	319.5	22.6%	282.5	290.7
Colorado	32.9%	268.1	259.0	31.1%	225.5	234.7
Connecticut	31.6%	214.4	227.5	30.0%	203.3	218.1
Delaware	39.3%	212.1	220.2	37.8%	197.7	207.2
District of Columbia	17.6%	402.2	355.4	17.9%	323.4	332.1
Florida	39.5%	203.5	199.6	37.2%	171.3	183.6
Georgia	41.6%	178.6	203.4	41.3%	153.5	185.3
Hawaii	38.6%	479.3	369.8	31.9%	414.3	343.6
Idaho	35.7%	186.8	191.2	35.8%	161.1	173.9
Illinois	25.9%	176.4	199.2	25.5%	154.9	182.9
Indiana	39.8%	138.6	154.8	40.1%	121.3	141.0
Iowa	25.9%	143.1	162.8	27.3%	124.6	148.1
Kansas	36.3%	151.4	173.4	37.5%	132.1	156.4
Kentucky	41.1%	146.5	165.1	40.6%	132.6	149.6
Louisiana	43.2%	168.1	189.1	44.2%	150.1	176.8
Maine	35.7%	180.3	195.1	33.3%	165.8	180.0
Maryland	44.6%	281.0	263.2	40.3%	251.4	246.4
Massachusetts	23.3%	282.2	276.2	19.9%	251.9	254.1
Michigan	26.4%	142.7	166.9	27.2%	122.8	150.8
Minnesota	25.6%	192.6	205.1	26.1%	169.1	189.5
Mississippi	50.7%	149.2	168.5	53.0%	131.4	157.2
Missouri	36.3%	149.1	171.0	37.0%	132.1	155.4
Montana	31.6%	208.5	209.0	32.2%	181.5	190.7
Nebraska	31.8%	159.0	168.1	36.1%	134.4	152.8
Nevada	41.7%	227.2	217.0	41.3%	194.5	196.3
New Hampshire	32.7%	225.3	219.3	30.6%	207.7	201.2
New Jersey	29.7%	248.1	263.3	28.5%	232.3	248.2
New Mexico	44.1%	175.5	183.8	44.4%	155.8	172.2
New York	26.8%	239.9	264.3	26.9%	204.0	241.8
North Carolina	35.2%	176.0	199.0	36.5%	154.1	183.8
North Dakota	28.3%	206.3	202.8	27.4%	179.0	184.5
Ohio	36.9%	139.3	155.6	38.2%	124.7	143.7
Oklahoma	47.0%	150.1	168.8	50.6%	130.7	156.4
Oregon	27.6%	242.1	247.5	26.1%	207.6	219.5
Pennsylvania	34.0%	166.6	192.2	34.3%	151.6	180.2
Rhode Island	37.3%	217.7	214.4	34.4%	199.3	202.5
South Carolina	40.6%	179.3	190.1	39.6%	157.2	176.7
South Dakota	36.9%	173.2	181.0	37.4%	153.9	164.1
Tennessee	41.7%	174.8	194.6	43.5%	149.1	177.1
Texas	35.8%	189.4	209.3	39.1%	151.6	190.0
Utah	31.6%	225.8	237.8	32.7%	199.3	216.5
Vermont	22.8%	193.9	192.7	20.1%	181.0	182.0
Virginia	45.4%	272.6	261.2	42.2%	242.3	243.8
Washington	32.1%	268.5	269.2	31.0%	230.3	241.4
West Virginia	48.3%	153.5	154.6	46.3%	138.4	146.5
Wisconsin	23.1%	162.8	174.0	22.0%	146.2	160.3
Wyoming	41.8%	209.8	207.2	42.1%	192.6	194.5

Sources: *eMBS and Urban Institute.* ***Note:*** *Ginnie Mae share are based on loan balance as of October 2017.*

State of the US Housing Market

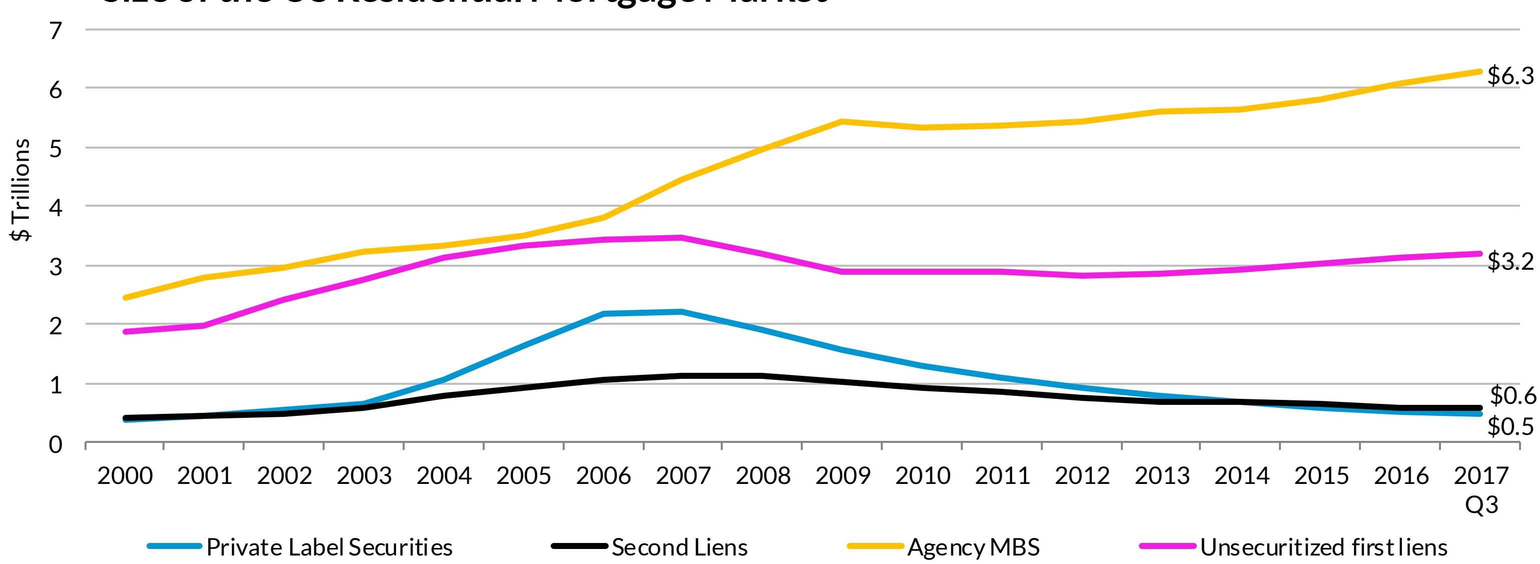
The Federal Reserve's Flow of Funds report has consistently indicated an increasing total value of the housing market driven by growing household equity since 2012, and 2017 Q3 was no different. While total debt and mortgages was stable at $10.5 trillion, household equity reached a new high of $14.9 trillion, bringing the total value of the housing market to $25.4 trillion, surpassing the pre-crisis peak of $23.9 trillion in 2006. Agency MBS make up 59.7 percent of the total mortgage market, private-label securities make up 4.6 percent, and unsecuritized first liens at the GSEs, commercial banks, savings institutions, and credit unions make up 30.2 percent. Second liens comprise the remaining 5.5 percent of the total.

Value of the US Housing Market



Sources: *Federal Reserve Flow of Funds and Urban Institute. Data as of Q3 2017.*

Size of the US Residential Mortgage Market

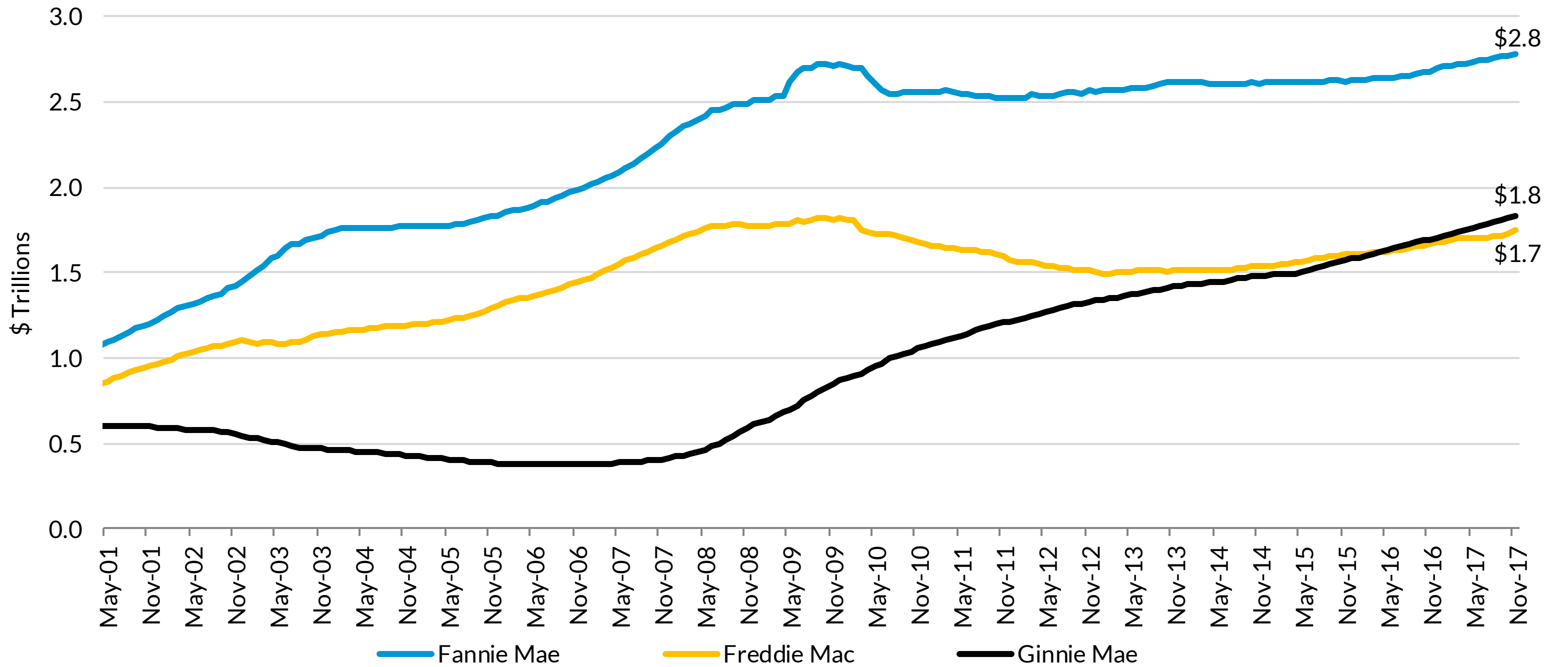


Sources: *Federal Reserve Flow of Funds, Inside Mortgage Finance, Fannie Mae, Freddie Mac, eMBS and Urban Institute.*
Note: *Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, and credit unions. Data as of Q3 2017.*

State of the US Housing Market

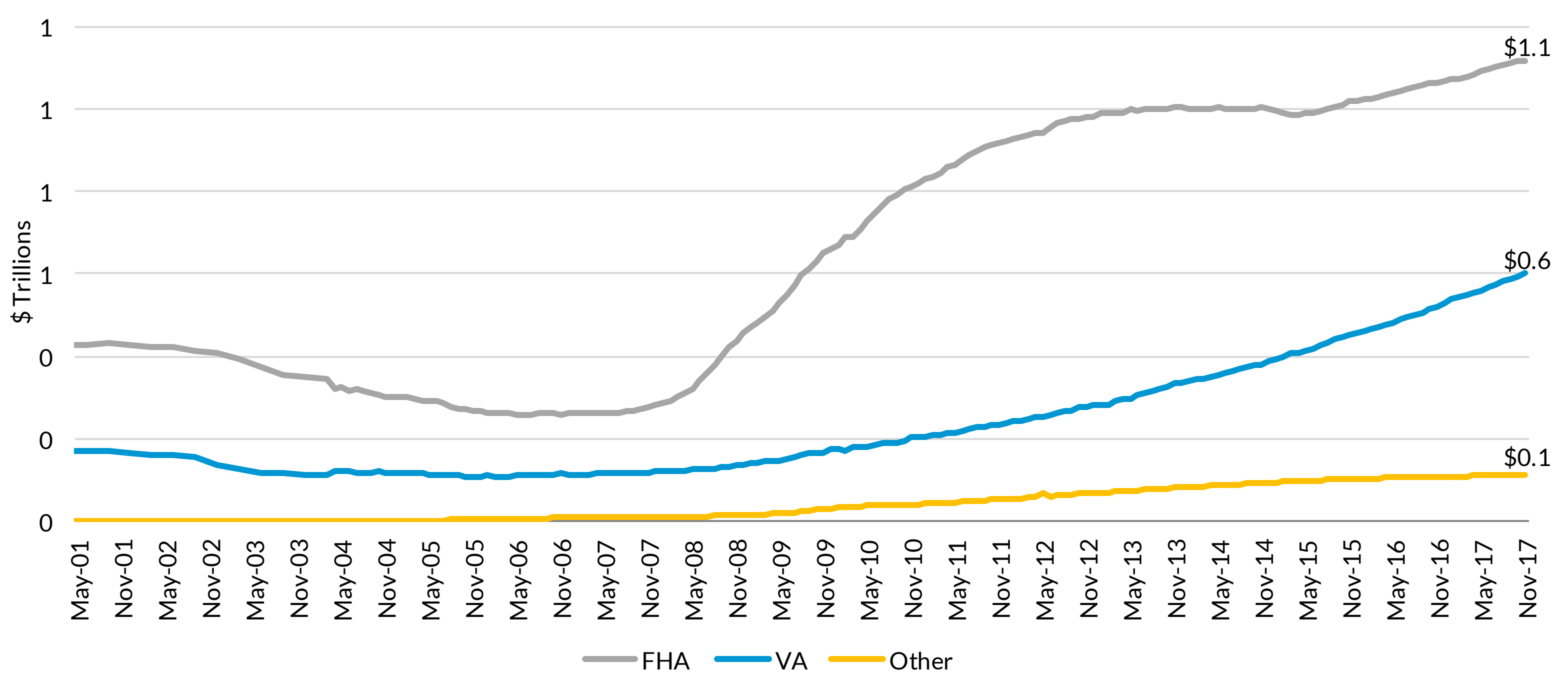
As of November 2017, outstanding securities in the agency market totaled $6.35 trillion and were 43.7 percent Fannie Mae, 27.4 percent Freddie Mac, and 28.8 percent Ginnie Mae. Ginnie Mae now has more outstandings than Freddie Mac. Within the Ginnie Mae market, VA has been growing very rapidly --comprising 32.8 percent of total Ginnie Mae outstandings.

Outstanding Agency Mortgage-Backed Securities



Sources: *eMBS and Urban Institute* **Note:** *Data as of November 2017*

Outstanding Ginnie Mae Mortgage-Backed Securities

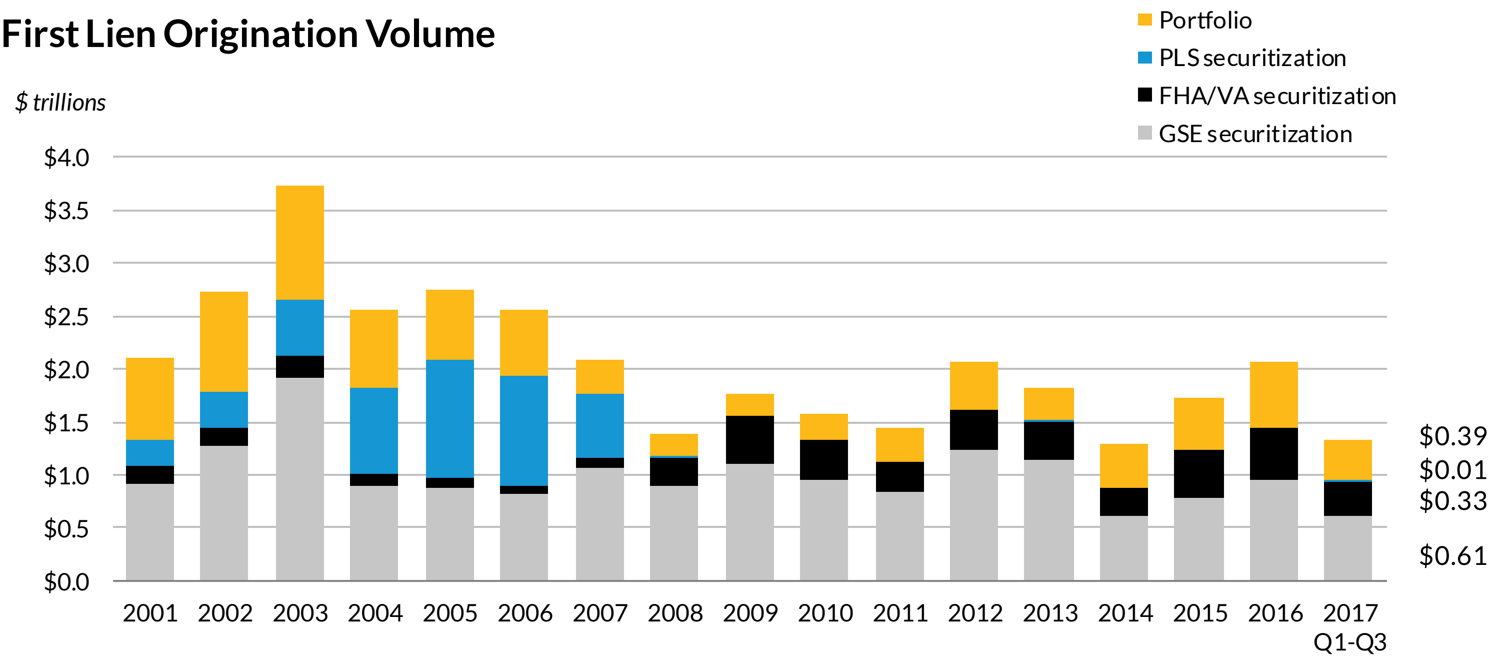


Sources: *eMBS and Urban Institute.* **Note:** *Data as of November 2017*

State of the US Housing Market

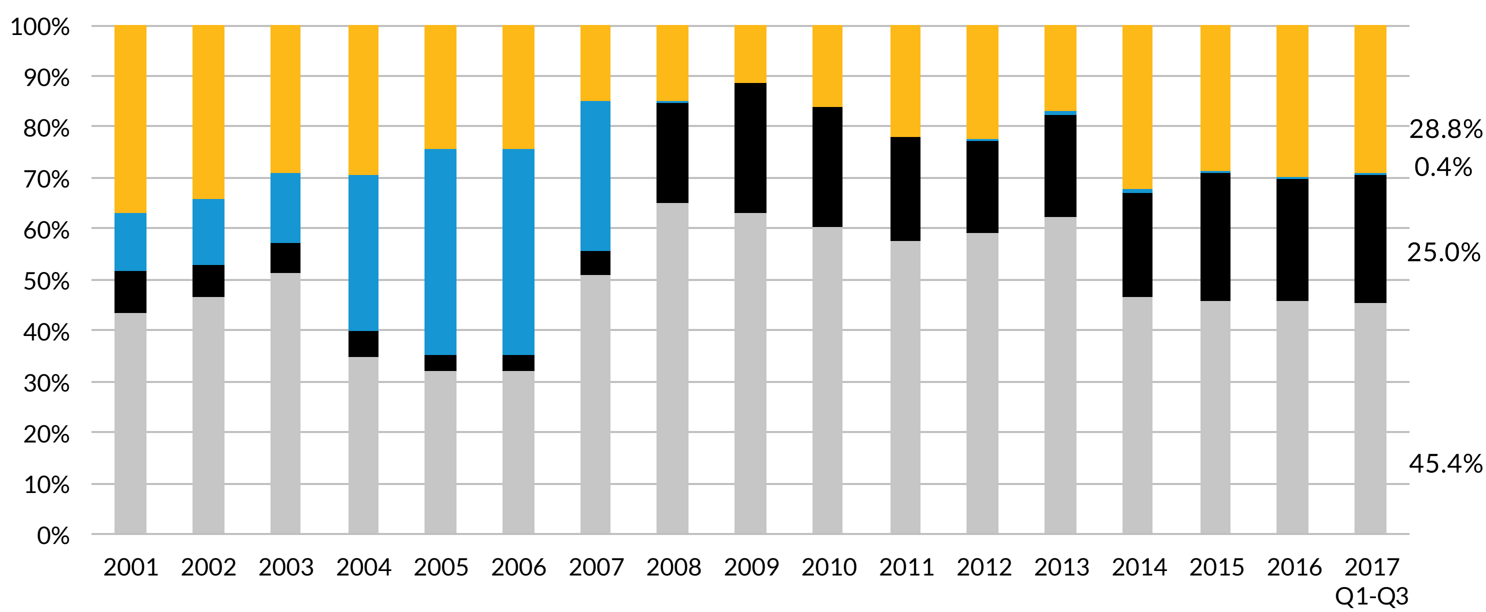
After a record origination year in 2016 ($2.1 trillion), the highest since the great recession, first lien originations totaled $1.3 trillion in the first three quarters of 2017. It was down 9 percent from the same period last year, mostly due to the elevated interest rates. The share of portfolio originations was 29 percent, down slightly from 30 percent in 2016. The GSE share stayed at about 45 percent. The FHA/VA share was slightly up: 25 percent for the first three quarters of 2017 versus 24 percent in 2016. Origination of private-label securities was well under 1 percent in both periods.

First Lien Origination Volume



Sources: *Inside Mortgage Finance and Urban Institute.* **Note:** *Data as of Q3 2017.*

First Lien Origination Share



Sources: *Inside Mortgage Finance and Urban Institute.* **Note:** *Data as of Q3 2017.*

US Agency Market, Originations

Agency gross issuance totaled $1,221 billion in the first eleven months of 2017, down by 9 percent from the same period in 2016. Ginnie Mae issuance was down by 9.1 percent and GSE gross issuance was down by 8.7 percent. Within the Ginnie Mae market, FHA is down by 7.4 percent and VA origination is down by 12.7 percent. As a result of higher rates, originations for 2017 are down substantially compared to 2016.

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 YTD	$486.1	$315.9	$802.0	$419.5	$1,221.4
2017 YTD %Change YOY	-7.9%	-9.9%	-8.7%	-9.1%	-8.8%
2017 Ann.	$530.3	$344.6	$874.9	$457.6	$1,332.5

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 YTD	$238.2	$162.5	$18.7	$419.4
2017 YTD %Change YOY	-7.4%	-12.7%	4.0%	-9.1%
2017 Ann.	$259.9	$177.2	$20.4	$457.5

Sources: *eMBS and Urban Institute (top and bottom).*
Note : *Dollar amounts are in billions. Annualized figure based on data from November 2017. "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 November 2017.*

US Agency Market, Originations

Agency net issuance totaled $275.7 billion for the first eleven months of 2017, up 27.5 percent over the same period in 2016. Ginnie Mae net issuance was $125.0 billion, comprising 45 percent of total agency net issuance. Note that Ginnie Mae net issuance is up 9.2 percent versus the same time in 2016. Ginnie Mae net issuance is comprised of 57.9 percent VA issuance, 38.5 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 YTD	$80.6	$70.1	$150.7	$125.0	$275.7
2017 YTD %Change YOY	77.7%	24.1%	48.0%	9.2%	27.5%
2017 Ann.	$88.0	$76.4	$164.4	$136.4	$300.8

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 YTD	$48.1	$72.3	$4.6	$125.0
2017 YTD %Change YOY	12.1%	10.2%	-22.5%	9.2%
2017 (Ann.)	$52.5	$78.9	$5.0	$136.4

Sources*: eMBS and Urban Institute (top and bottom)*

Note : *Dollar amounts are in billions. Annualized figure based on data from November 2017. "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 November 2017.*

US Agency Market, Originations

Agency gross issuance totaled $118.5 billion in November 2017, up slightly from $116 billion of issuance in October 2017. Since March 2017, monthly agency gross issuance has been lower than in the same period in 2016, reflecting higher mortgage rates.

Monthly Agency Issuance

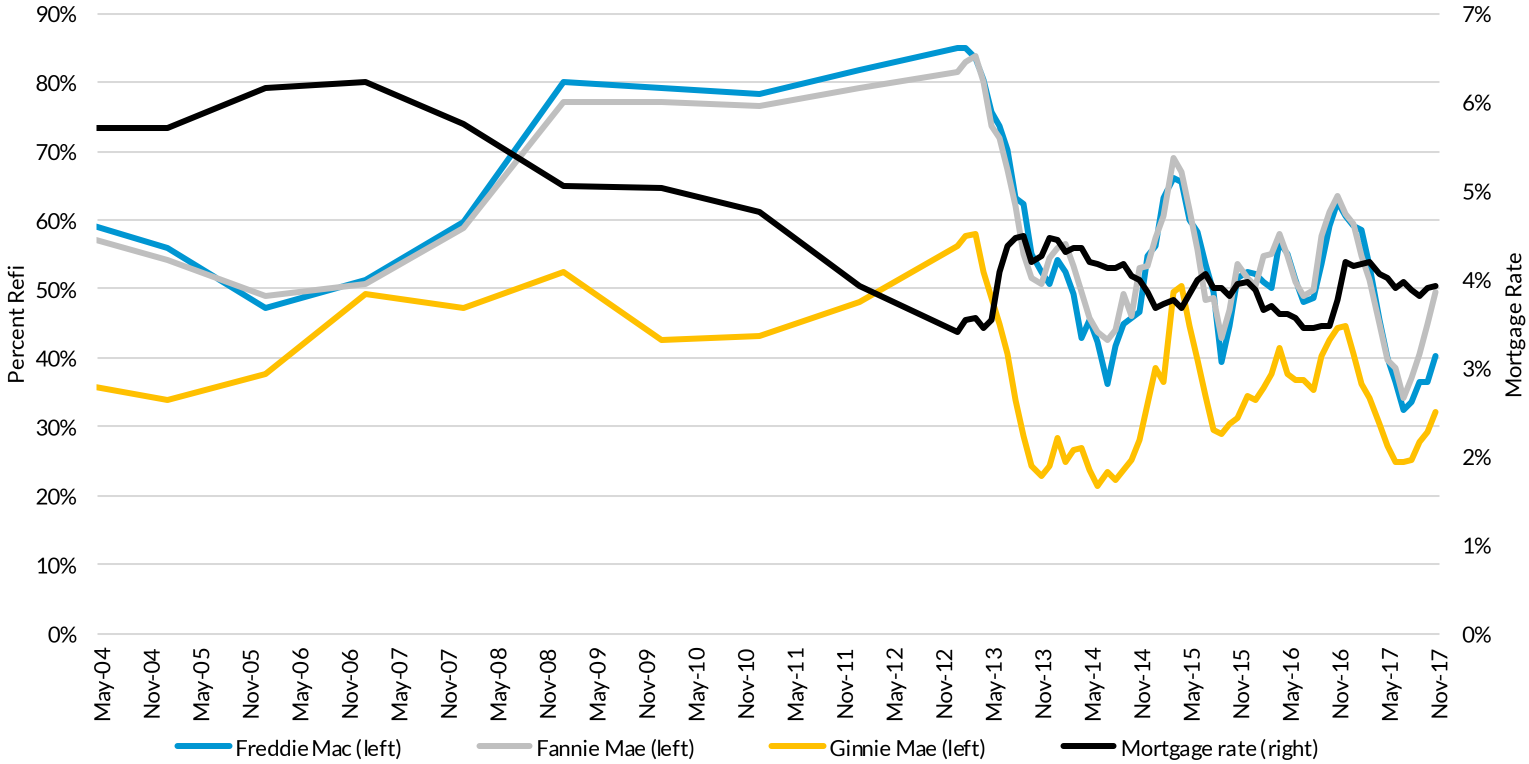
	Gross Issuance			Net Issuance		
Date	Fannie Mae	Freddie Mac	Ginnie Mae	Fannie Mae	Freddie Mac	Ginnie Mae
Jan-14	$28.2	$20.0	$21.6	-$4.9	$0.5	$4.9
Feb-14	$27.9	$17.9	$20.1	-$0.2	$1.2	$5.2
Mar-14	$24.1	$14.7	$16.7	-$2.3	-$0.9	$1.9
Apr-14	$28.0	$18.7	$21.7	-$1.9	$1.2	$5.2
May-14	$27.7	$18.1	$23.9	-$3.7	$0.0	$4.9
Jun-14	$32.1	$20.7	$24.9	-$0.4	$1.8	$4.5
Jul-14	$36.3	$23.2	$27.4	$0.6	$2.6	$5.4
Aug-14	$34.2	$28.4	$30.0	-$2.7	$7.4	$7.9
Sep-14	$39.6	$25.9	$27.0	$4.8	$5.6	$5.2
Oct-14	$39.5	$25.8	$29.9	$4.3	$6.2	$8.4
Nov-14	$32.0	$23.1	$26.4	-$3.0	$2.7	$4.2
Dec-14	$43.3	$21.6	$26.7	$9.9	$1.8	$4.1
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

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 November 2017.*

US Agency Market, Originations

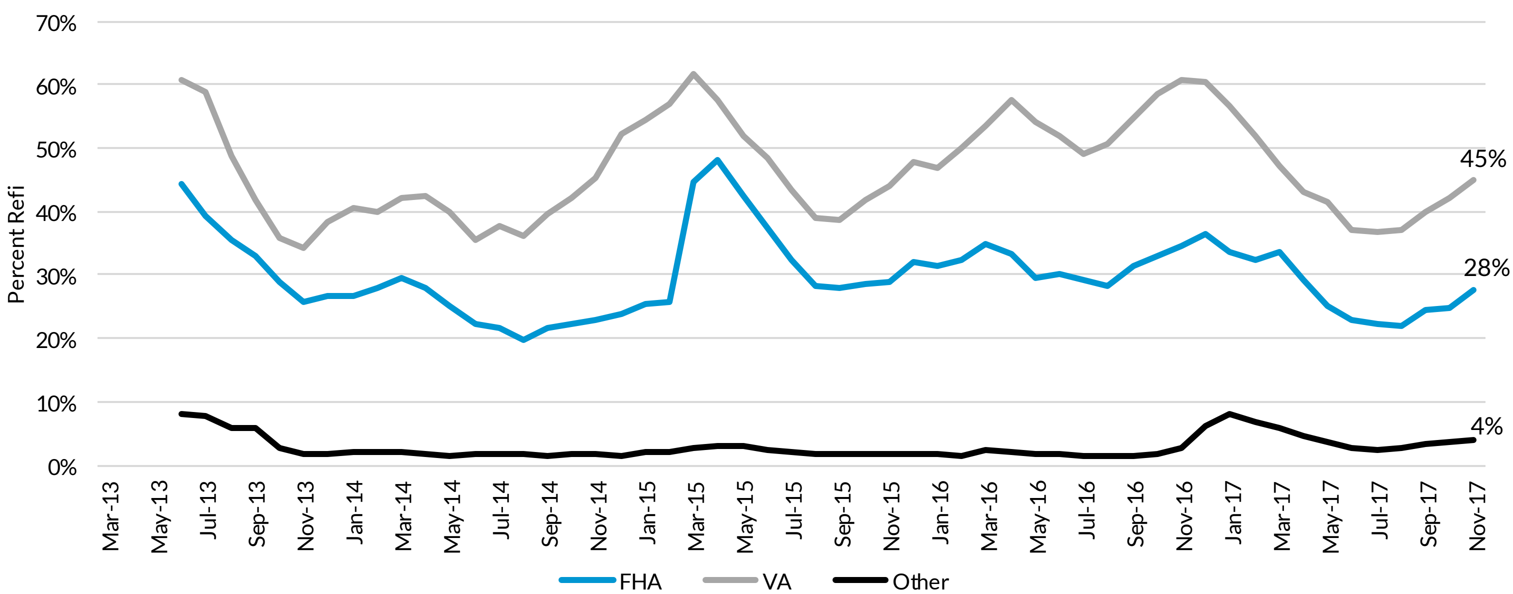
The Ginnie Mae refi share stood at 32 percent in November 2017, below the 40 and 50 percent shares for Fannie Mae and Freddie Mac, respectively. Within Ginnie Mae, VA had the highest refi share at 45 percent in November 2017, followed by FHA's 28 percent refi share.

Percent Refi at Issuance



Sources: *eMBS and Urban Institute.* **Note**: *Based on at-issuance balance. Data as of November 2017.*

Percent Refi at Issuance: Ginnie Mae Breakdown

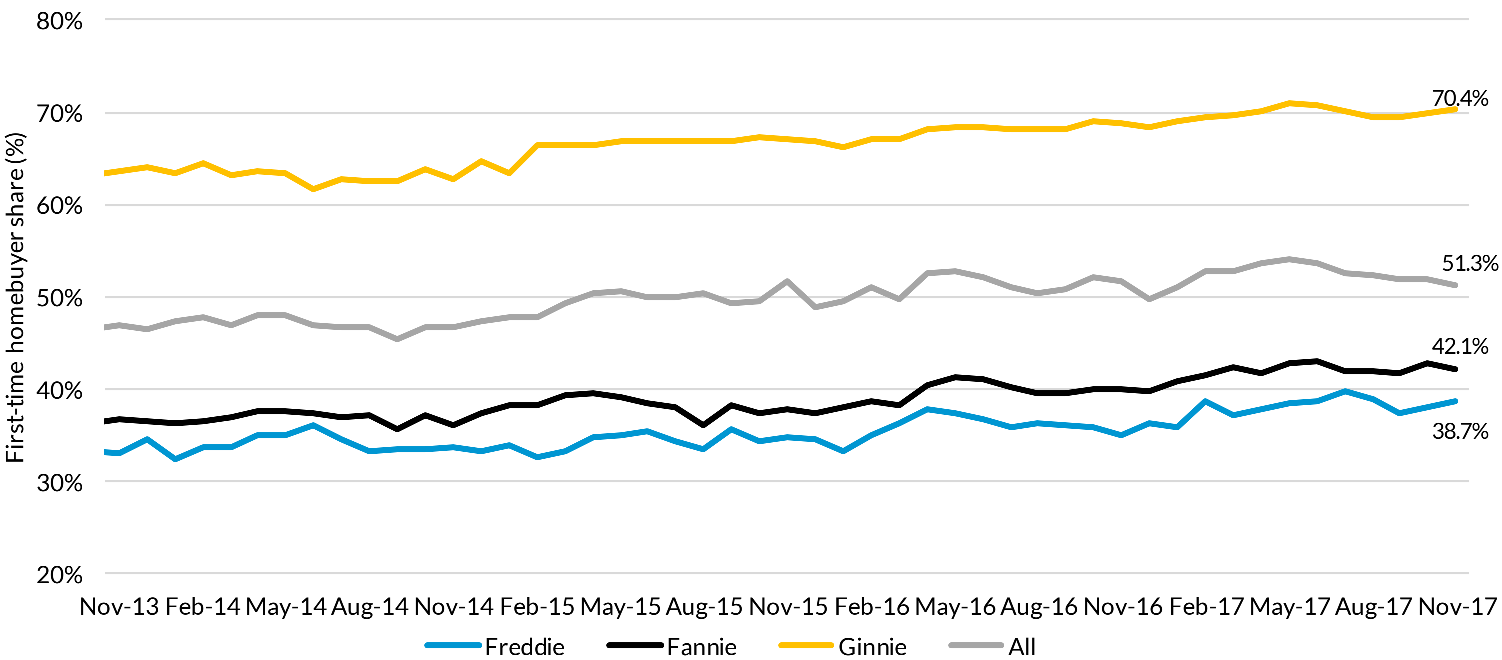


Sources: *eMBS and Urban Institute.*
Note: *Based on at-issuance balance. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of November 2017.*

Credit Box

First time homebuyers are important to the Ginnie Mae market, comprising 70 percent of purchase originations, compared to Fannie and Freddie's respective 42 percent and 39 percent share of the first-time homebuyer market. The bottom table shows that based on mortgages originated in November 2017, 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 November 2017.*

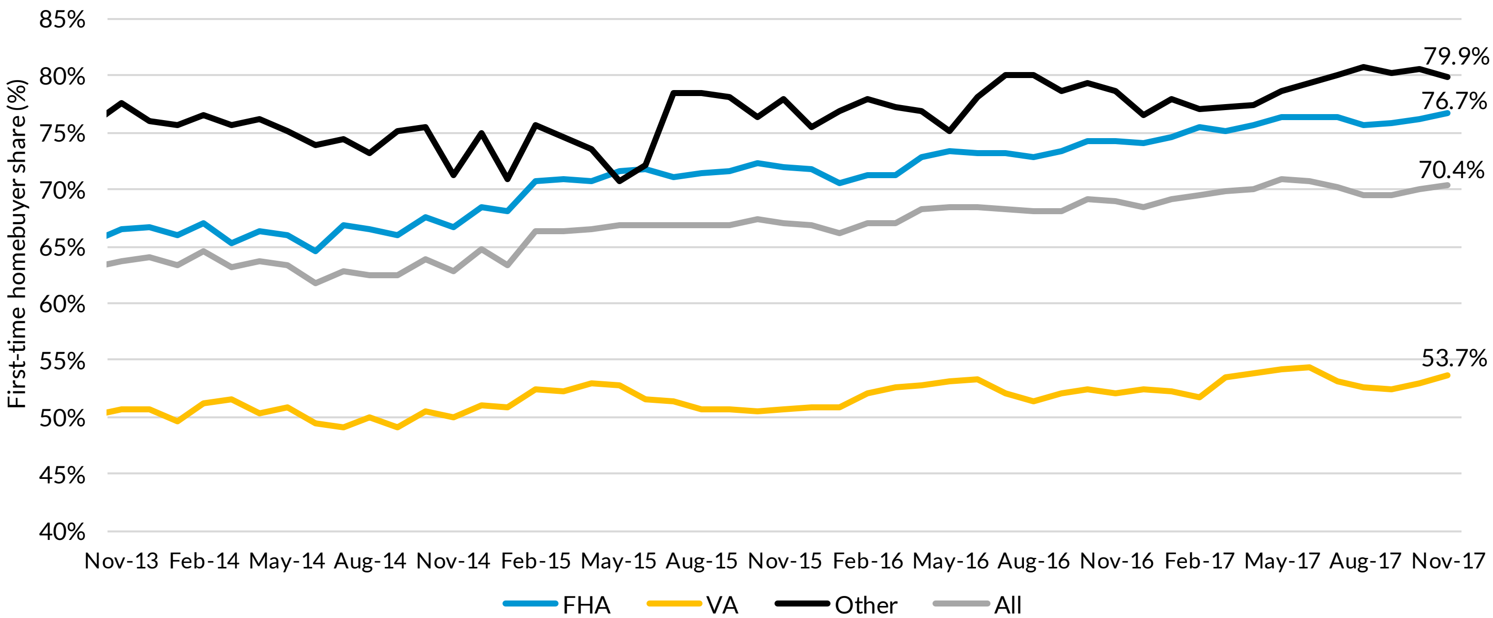
	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($Thousands)	223,368	249,264	221,435	252,104	201,996	247,164	212,173	249,672
Credit Score	739.8	753.1	734.7	753.0	681.2	701.0	709.2	739.0
LTV (%)	87.2	79.6	87.5	78.1	96.8	95.5	92.1	83.4
DTI (%)	34.9	35.7	35.7	35.9	40.9	41.8	38.1	37.4
Loan Rate (%)	4.16	4.03	4.18	4.00	4.13	3.99	4.15	4.01

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 November 2017.*

Credit Box

Within the Ginnie Mae purchase market, 77 percent of FHA loans, 54 percent of VA loans and 80 percent of other loans represent financing for first time home buyers. The bottom table shows that based on mortgages originated in November 2017, 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 November 2017.*

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount ($ Thousands)	199,692	219,479	238,387	289,717	142,960	156,854	201,996	247,164
Credit Score	673.4	678.2	698.2	725.9	694.4	696.8	681.2	701.0
LTV (%)	95.5	94.1	99.8	96.5	99.2	99.3	96.8	95.5
DTI (%)	42.2	43.2	39.9	41.2	34.9	35.5	40.9	41.8
Loan Rate (%)	4.20	4.13	3.97	3.83	4.05	4.11	4.13	3.99

Sources: *eMBS and Urban Institute.* **Note**: *Data as of November 2017. "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.*

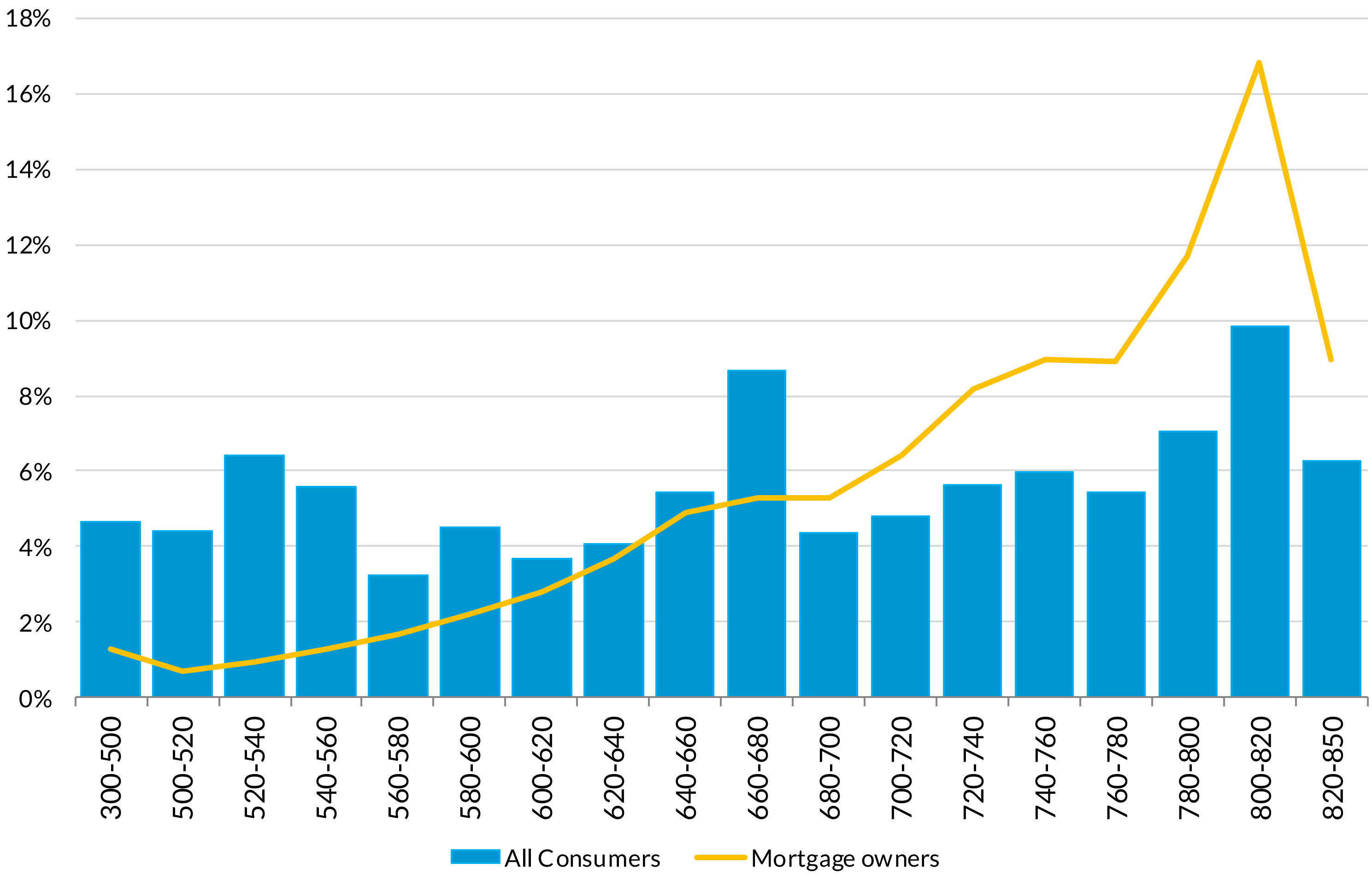
Credit Box

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.*

November 2017 Credit Box at a Glance

In November 2017, the median Ginnie Mae FICO score was 680 versus 748 for Fannie and 752 for Freddie. Note that the FICO score for the 10th percentile was 622 for Ginnie Mae, versus 669 for Fannie and 680 for Freddie. Within the Ginnie Mae market, FHA loans have a median FICO score of 668, VA loans have a median FICO score of 705 and other loans have a median FICO score of 690.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	300,654	645	681	731	776	798	726
Fannie	94,879	679	712	754	786	802	746
Freddie	96,041	685	718	757	787	802	749
Ginnie	109,734	624	647	679	724	769	687
Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	201,421	646	683	728	772	796	724
Fannie	87,620	661	695	740	779	799	734
Freddie	67,461	670	703	745	780	799	739
Ginnie	46,340	615	645	681	724	768	684
All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	502,075	645	682	730	774	797	725
Fannie	182,499	669	704	748	783	801	740
Freddie	163,502	680	711	752	784	801	745
Ginnie	156,074	622	646	680	724	769	686

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	109,734	624	647	679	724	769	687
FHA	67,368	620	641	668	704	743	675
VA	31,784	632	662	710	763	793	711
Other	10,582	640	658	689	730	765	695
Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	46,340	615	645	681	724	768	684
FHA	23,084	602	633	664	699	738	666
VA	22,906	630	661	700	747	783	702
Other	350	619	659	700	742	781	697
All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	156,074	622	646	680	724	769	686
FHA	90,452	616	640	668	702	742	672
VA	54,690	632	662	705	756	789	707
Other	10,932	640	658	690	730	765	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 November 2017.*

November 2017 Credit Box at a Glance

In November 2017, the median loan-to-value ratio (LTV) was 96.5 percent for Ginnie Mae, and 79-80 percent for Fannie Mae and Freddie Mac. The 10th percentile was 81.5 percent for Ginnie Mae and 49-51 percent for the GSEs. 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	301,002	70.0	80.0	94.8	96.5	100.0	87.2
Fannie	94,733	62.0	79.0	80.0	95.0	97.0	81.8
Freddie	96,296	63.0	79.0	80.0	95.0	95.0	81.8
Ginnie	109,973	92.9	96.5	96.5	100.0	101.9	96.4
Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	204,793	46.0	61.0	75.0	81.0	93.0	71.3
Fannie	87,627	43.0	57.0	70.0	79.0	80.0	66.1
Freddie	67,616	43.0	58.0	71.0	79.0	80.0	66.8
Ginnie	49,550	69.1	81.4	86.5	97.1	100.0	86.4
All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	505,795	56.0	73.0	80.0	95.0	97.4	80.7
Fannie	182,360	49.0	65.0	79.0	86.0	95.0	74.3
Freddie	163,912	51.0	68.0	80.0	90.0	95.0	75.6
Ginnie	159,523	81.5	91.2	96.5	100.0	101.0	93.3

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	109,973	92.9	96.5	96.5	100.0	101.9	96.4
FHA	67,497	93.1	96.5	96.5	96.5	96.5	95.1
VA	31,834	91.1	100.0	100.0	102.2	103.3	98.3
Other	10,642	95.4	99.1	101.0	101.0	101.0	99.2
Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	49,550	69.1	81.4	86.5	97.1	100.0	86.4
FHA	23,897	67.9	80.1	86.5	88.4	97.2	83.3
VA	25,239	70.1	83.4	93.0	100.0	101.8	89.2
Other	414	77.0	87.5	97.7	100.8	101.7	92.8
All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	159,523	81.5	91.2	96.5	100.0	101.0	93.3
FHA	91,394	82.3	89.9	96.5	96.5	96.5	92.0
VA	57,073	78.9	90.7	100.0	100.0	103.0	94.3
Other	11,056	94.7	98.9	101.0	101.0	101.0	99.0

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 November 2017.*

November 2017 Credit Box at a Glance

In November 2017, the median Ginnie Mae debt-to-income ratio (DTI) was 41.7 percent, considerably higher than the 36-37 percent median DTIs for Fannie Mae and Freddie Mac. The 90th percentile for Ginnie Mae was 53.4 percent, also much higher than the 47.0 percent DTIs for the GSEs. Within the Ginnie Mae market, the median FHA DTI ratio was 43.2 percent, versus 40.8 percent for VA and 35.9 percent for other lending programs.

Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	300,892	24.0	31.0	38.8	44.9	49.0	37.5
Fannie	94,994	22.0	29.0	37.0	43.0	47.0	35.6
Freddie	96,292	22.0	29.0	36.0	43.0	47.0	35.2
Ginnie	109,606	28.2	34.8	41.8	48.3	53.5	41.2
Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	188,632	22.0	29.0	37.0	44.0	48.4	36.3
Fannie	86,296	22.0	28.0	37.0	44.0	48.0	35.5
Freddie	66,687	21.0	28.0	36.0	43.0	47.0	35.1
Ginnie	35,649	25.7	33.0	41.2	48.0	53.1	40.1
All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	489,524	23.0	30.0	38.0	44.3	49.0	37.0
Fannie	181,290	22.0	29.0	37.0	43.0	47.0	35.6
Freddie	162,979	22.0	28.0	36.0	43.0	47.0	35.2
Ginnie	145,255	27.6	34.4	41.7	48.2	53.4	40.9

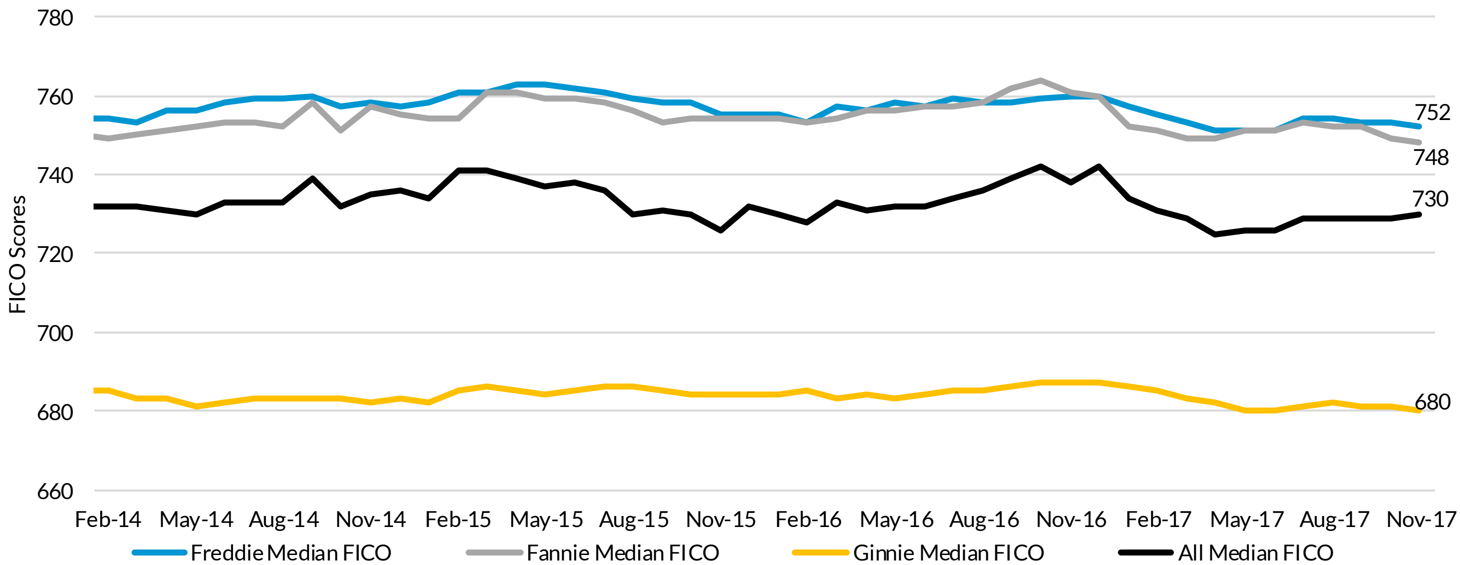
Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	109,606	28.2	34.8	41.8	48.3	53.5	41.2
FHA	67,477	29.6	36.4	43.4	49.5	54.1	42.4
VA	31,607	26.9	33.7	41.1	47.7	53.1	40.5
Other	10,522	25.7	30.6	35.9	40.1	43.0	35.0
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	35,649	25.7	33.0	41.2	48.0	53.1	40.1
FHA	18,461	27.1	34.3	42.4	48.7	53.6	41.1
VA	16,851	24.5	31.9	40.1	47.1	52.5	39.2
Other	337	18.6	25.6	32.6	39.5	44.2	32.5
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	145,255	27.6	34.4	41.7	48.2	53.4	40.9
FHA	85,938	29.0	36.0	43.2	49.3	54.0	42.1
VA	48,458	26.0	33.1	40.8	47.5	53.0	40.0
Other	10,859	25.4	30.5	35.9	40.1	43.0	34.9

Sources: *eMBS and Urban Institute.* **Note**: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of November 2017.*

Credit Box: Historical

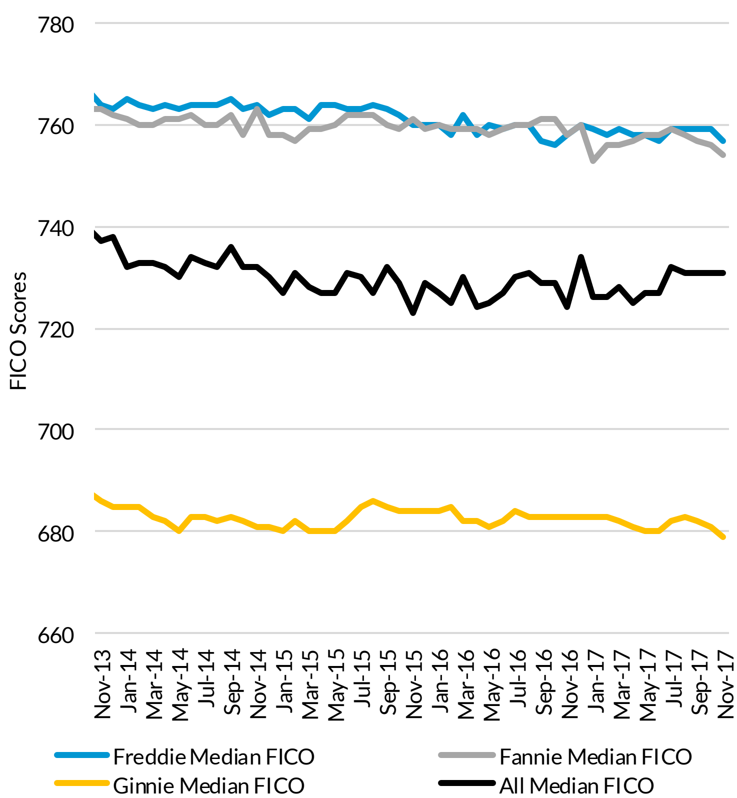
The median FICO score for all agency MBS originated in November now stands at 730, stable since last month. The figures clearly show that the median FICO score for Ginnie Mae borrowers has always been considerably lower than for GSE borrowers. The difference between Ginnie Mae and GSE borrowers is wider in purchase loans than in refi loans.

FICO Scores for All Loans



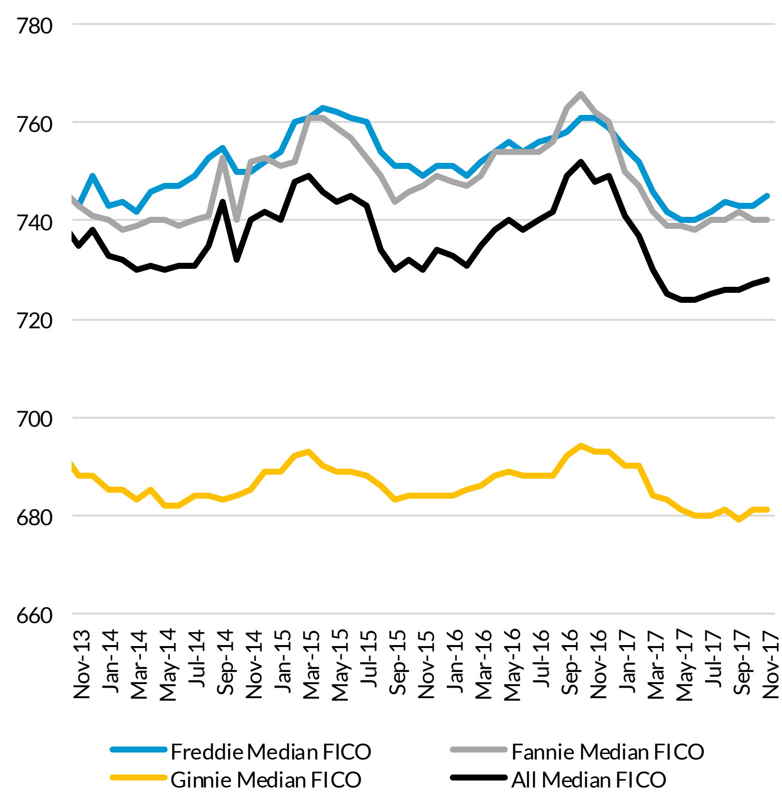
Sources: *eMBS and Urban Institute.* **Note:** *Data as of November 2017*

FICO Scores for Purchase Loans



Sources: *eMBS and Urban Institute.* **Note:** *Data as of November 2017*

FICO Scores for Refinance Loans

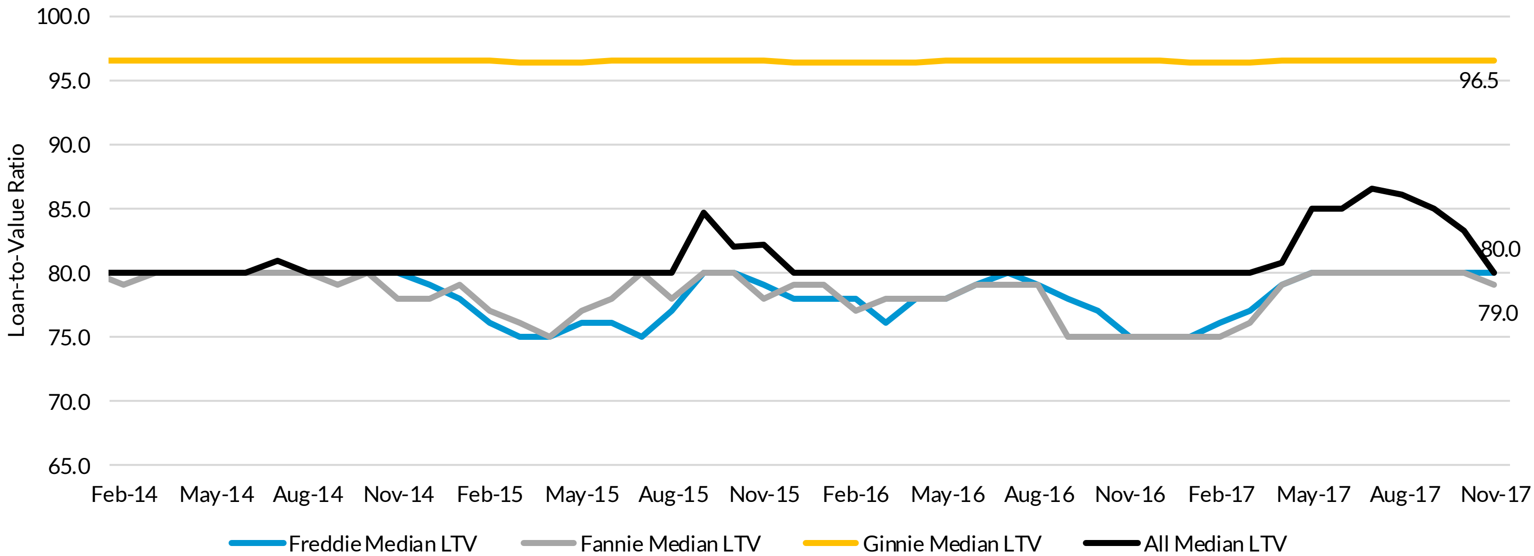


Sources: *eMBS and Urban Institute.* **Note:** *Data as of November 2017*

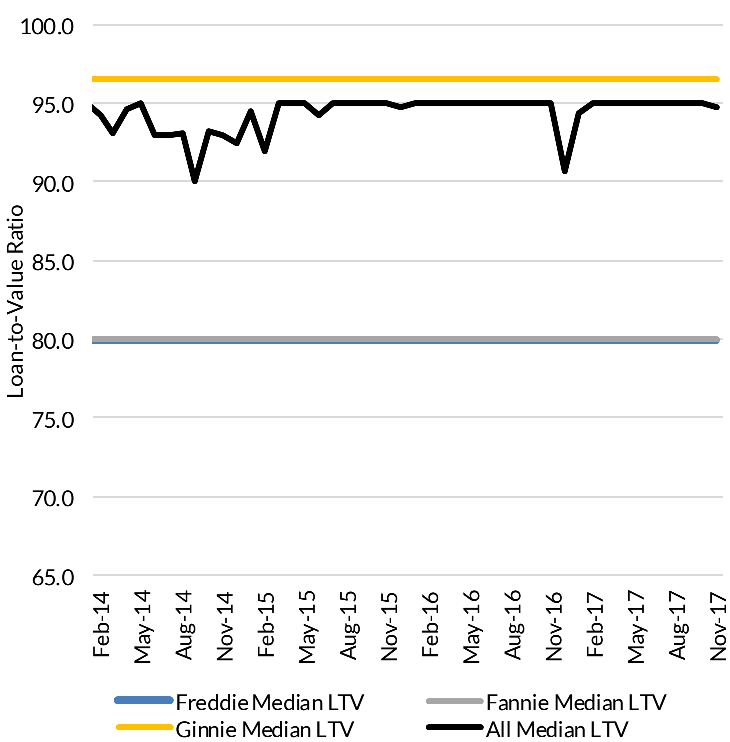
Credit Box: Historical

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

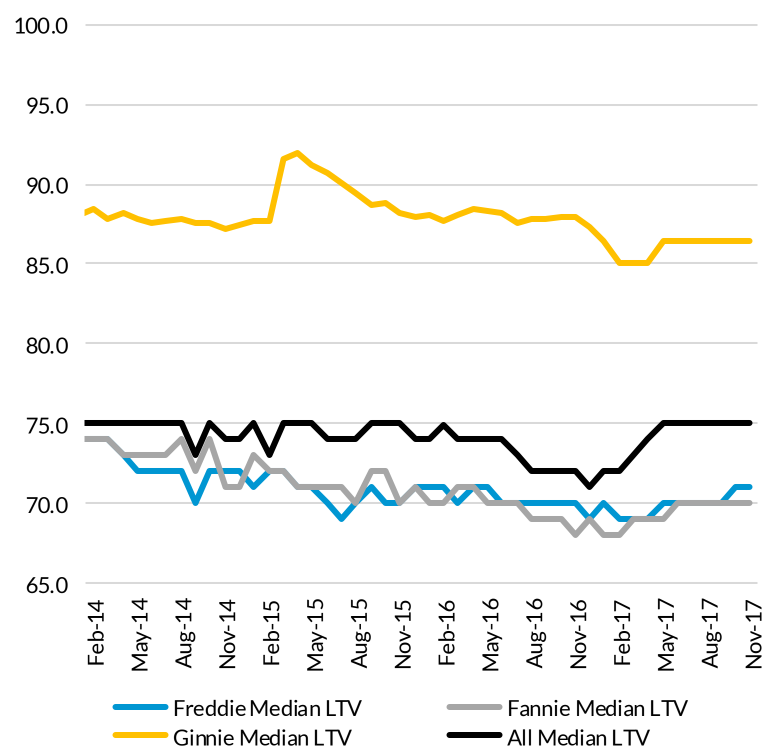
LTV Ratio for All Loans



LTV Ratio for Purchase Loans



LTV Ratio for Refinance Loans

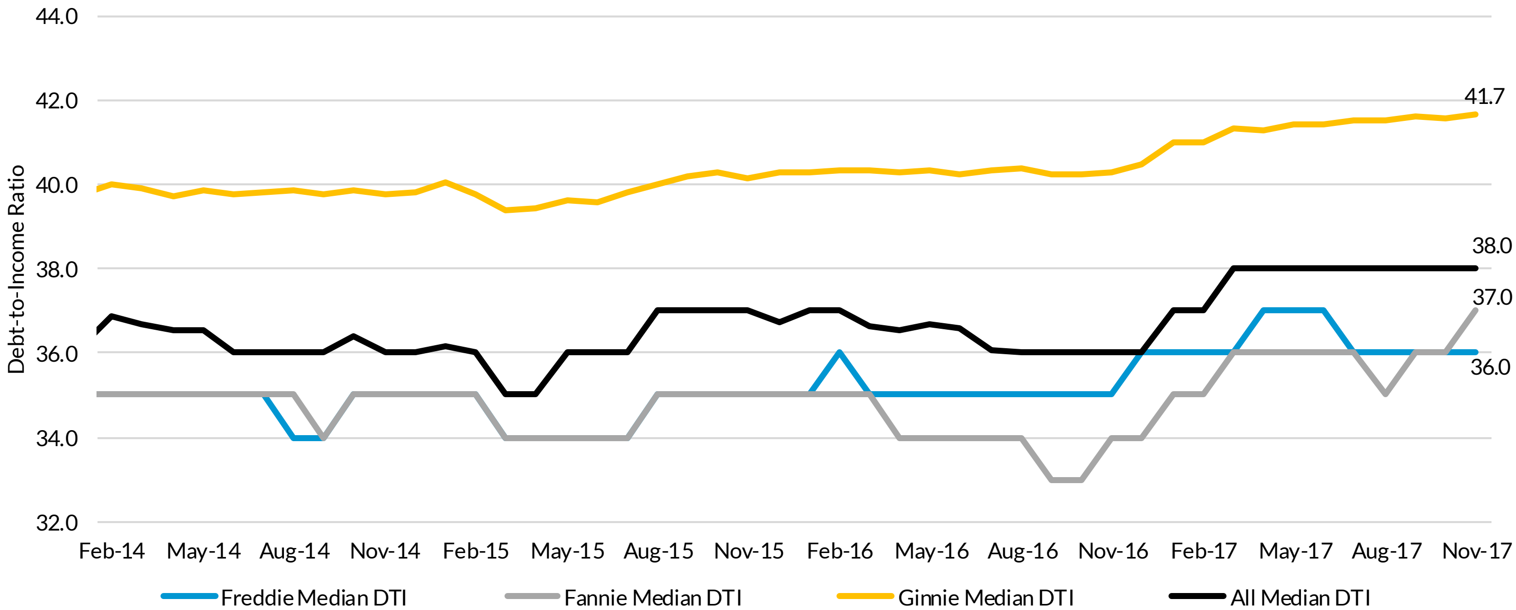


Sources: *eMBS and Urban Institute.* **Note:** *In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium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

Credit Box: Historical

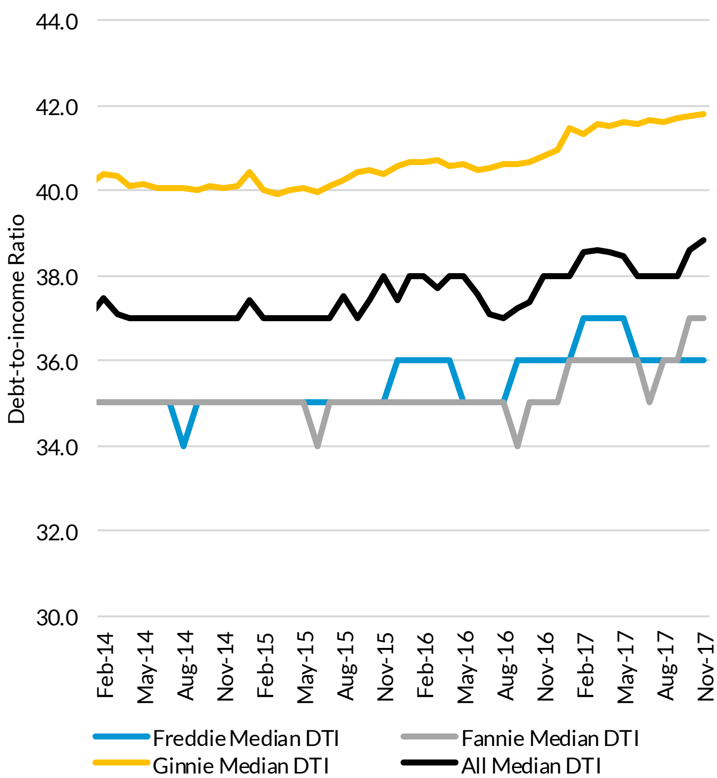
Median debt-to-income ratios on Ginnie Mae loans have historically been in the low 40s, considerably higher than the 37-38 percent DTIs for the GSEs. DTIs have been inching up this past year for both Ginnie Mae and GSE loans, with the movement more pronounced for Ginnie Mae loans.

DTI Ratio for All Loans



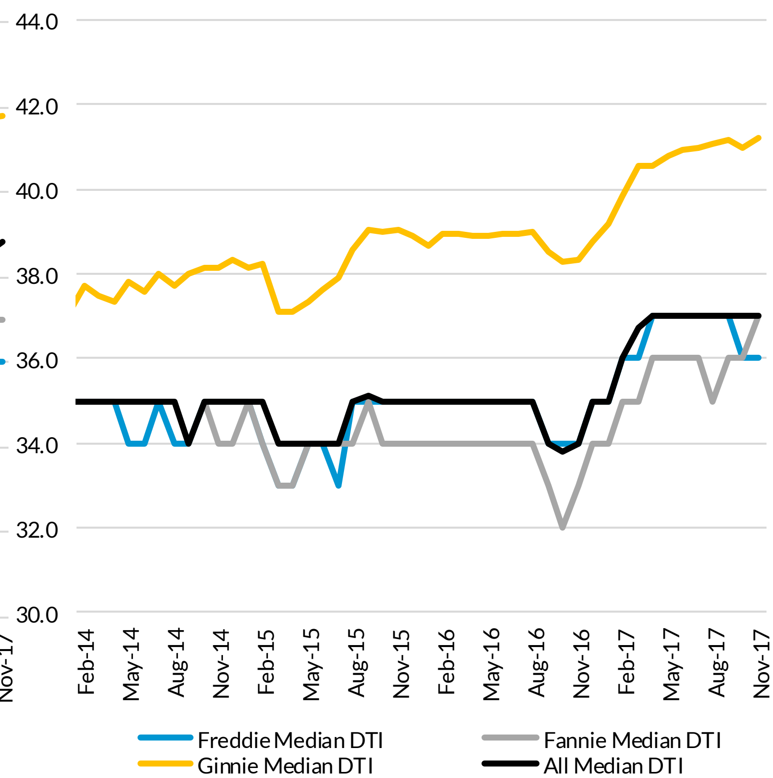
Sources: *eMBS and Urban Institute.* **Note:** *Data as of November 2017*

DTI Ratio for Purchase Loans



Sources: *eMBS and Urban Institute.*
Note: *Data as of November 2017*

DTI Ratio for Refinance Loans

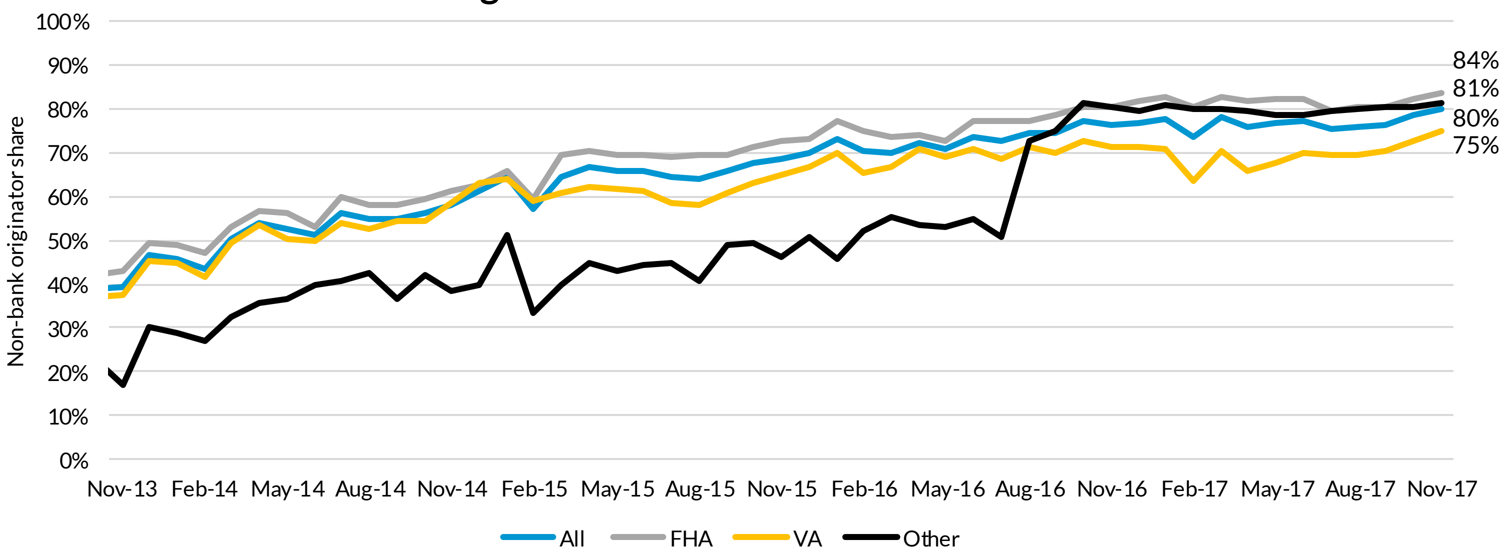


Sources: *eMBS and Urban Institute.*
Note: *Data as of November 2017*

Ginnie Mae Non-bank Originators

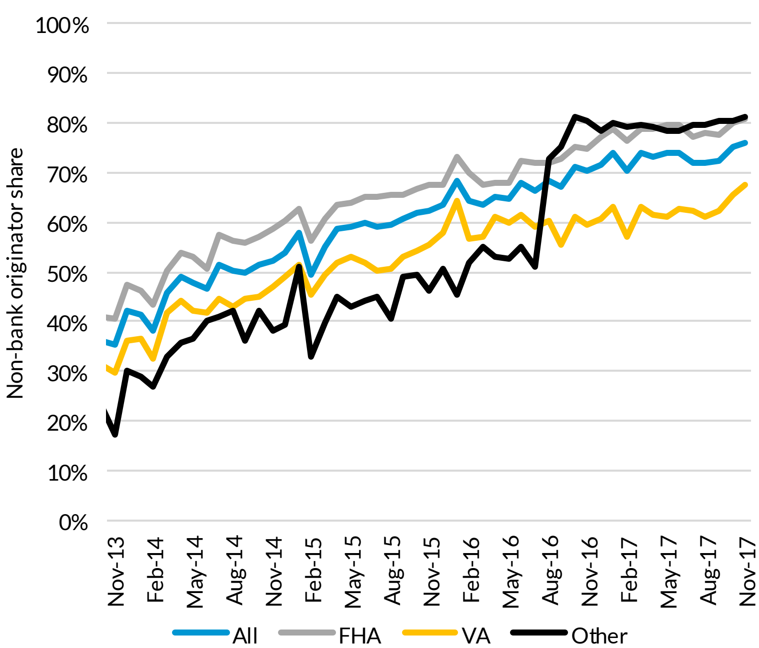
The non-bank originator share of Ginnie Mae originations increased to 80 percent in November 2017, the highest level in recent history. The non-bank share of VA issuance rose to 75 percent in November, while the non-bank share of FHA issuance edged up to 84 percent and Other issuance was flat at 81 percent.

Ginnie Mae Non-bank Originator Share: All Loans



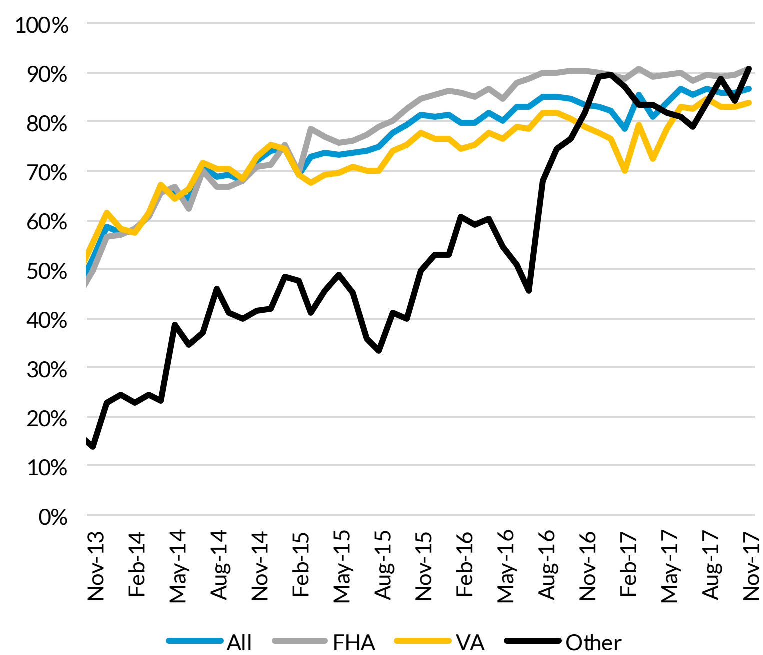
Sources: *eMBS and Urban Institute.* **Note:** *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of November 2017.*

Ginnie Mae Non-bank Share: Purchase Loans



Sources: *eMBS and Urban Institute*
Note: *Data as of November 2017.*

Ginnie Mae Non-bank Share: Refi Loans



Sources: *eMBS and Urban Institute*
Note: *Data as of November 2017.*

Ginnie Mae Non-bank Originators: November 2017 Credit Box

An analysis of recent origination suggests that non-bank originators have considerably lower median borrower FICO scores than do bank originators. Overall, the median Ginnie Mae FICO score is 680-- it is 701 for bank borrowers versus 675 for non-bank borrowers. For FHA borrowers, the median FICO score for bank originators is 683 versus 664 for non-banks. For VA borrowers, the median FICO score for bank originators is 727 versus 698 for non-banks. For "Other" loans, the median FICO score for bank originators is 710 versus 686 for non-banks.

All Ginnie Mae FICO							
	Number of Loans	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	154,852	622	646	680	724	769	686
Bank	32,294	641	664	701	752	787	707
Non-Bank	122,558	620	643	675	716	761	681
FHA Ginnie Mae FICO							
	Number of Loans	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	89,643	616	640	668	703	742	672
Bank	15,891	636	656	683	722	761	690
Non-Bank	73,752	612	636	664	698	736	668
VA Ginnie Mae FICO							
	Number of Loans	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	54,384	632	662	705	756	789	707
Bank	14,321	646	678	727	776	798	725
Non-Bank	40,063	627	657	698	747	784	701
Other Ginnie Mae FICO							
	Number of Loans	**P10**	**P25**	**Median**	**P75**	**P90**	**Mean**
All	10,825	640	658	690	730	765	695
Bank	2,082	644	667	710	755	780	709
Non-Bank	8,743	639	656	686	724	758	692

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 November 2017.*

Ginnie Mae Non-bank Originators: November 2017 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. Mean LTVs for banks are actually marginally higher than their non-bank counterparts.

All Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	158,312	81.4	91.1	96.5	100.0	101.0	93.3
Bank	32,444	84.0	94.5	96.5	100.0	101.4	94.2
Non-Bank	125,868	81.1	90.0	96.5	99.2	101.0	93.0
FHA Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	90,585	82.3	89.9	96.5	96.5	96.5	92.0
Bank	16,024	86.1	94.8	96.5	96.5	97.3	93.5
Non-Bank	74,561	81.4	88.1	96.5	96.5	96.5	91.7
VA Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	56,778	78.9	90.6	100.0	100.0	103.0	94.3
Bank	14,328	78.8	91.3	100.0	100.0	103.0	94.2
Non-Bank	42,450	78.9	90.4	100.0	100.8	102.8	94.3
Other Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	10,949	94.7	98.9	101.0	101.0	101.0	99.0
Bank	2,092	96.8	100.0	101.0	102.0	102.0	100.0
Non-Bank	8,857	94.3	98.6	100.7	101.0	101.0	98.7

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 November 2017.*

Ginnie Mae Non-bank Originators: November 2017 Credit Box

An analysis of the borrowers' DTI ratios for bank versus non-bank originators indicates the former are more conservative. That is, the median DTI ratio for bank originators is 40.4, versus 42.0 for non-banks.

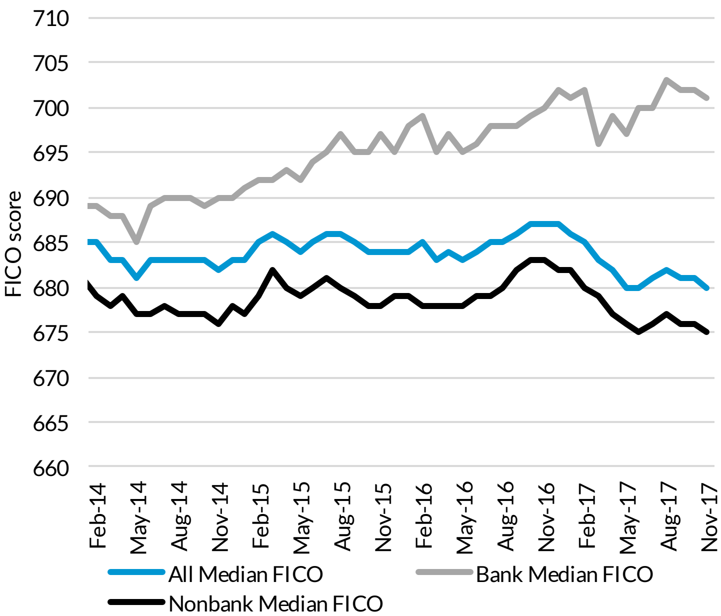
All Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	144,038	27.6	34.4	41.7	48.2	53.4	40.9
Bank	31,059	26.2	33.0	40.4	46.5	52.1	39.6
Non-Bank	112,979	28.0	34.8	42.0	48.6	53.6	41.3
FHA Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	85,130	29.0	36.0	43.2	49.3	54.0	42.1
Bank	15,450	28.3	35.2	42.2	47.8	53.0	41.2
Non-Bank	69,680	29.2	36.2	43.5	49.6	54.1	42.4
VA Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	48,156	26.0	33.0	40.8	47.5	53.0	40.0
Bank	13,592	24.3	31.3	39.1	46.0	51.6	38.5
Non-Bank	34,564	26.8	33.8	41.3	48.0	53.3	40.6
Other Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	10,752	25.4	30.5	35.9	40.1	43.0	35.0
Bank	2,017	24.7	29.8	35.3	40.1	43.4	34.6
Non-Bank	8,735	25.7	30.7	36.0	40.1	43.0	35.0

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 November 2017.*

Ginnie Mae Nonbank Originators: Historical Credit Box

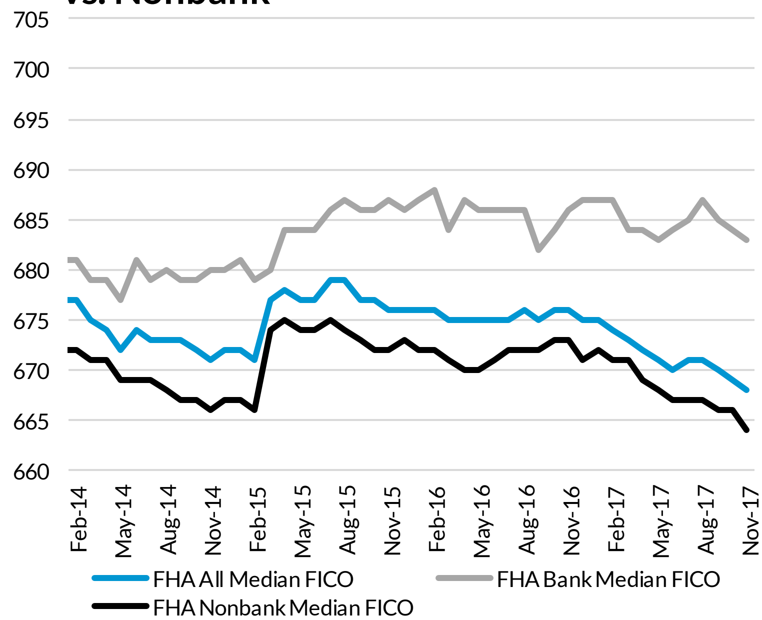
The FICO scores for both Ginnie Mae bank and nonbank originators remained constant in November. The spread in the FICO scores between banks and non-banks remains at their widest level since the data became available in 2013.

Ginnie Mae FICO Scores: Bank vs. Nonbank



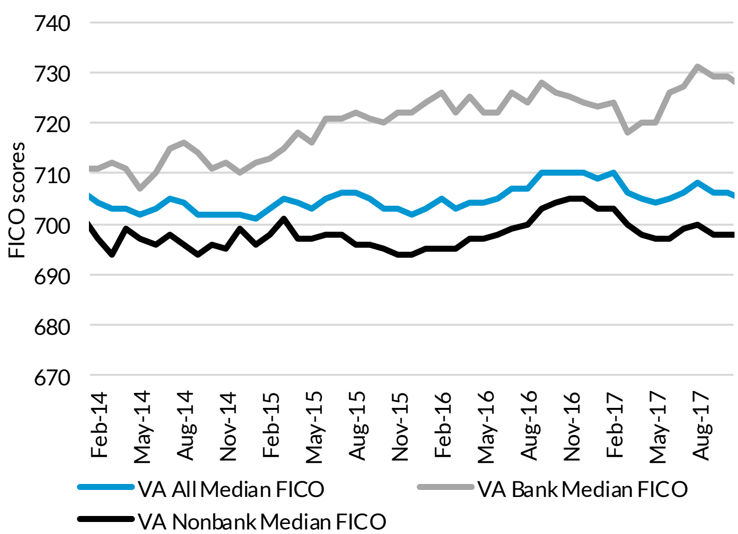
Sources: *eMBS and Urban Institute* **Note:** *Data as of November 2017*

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



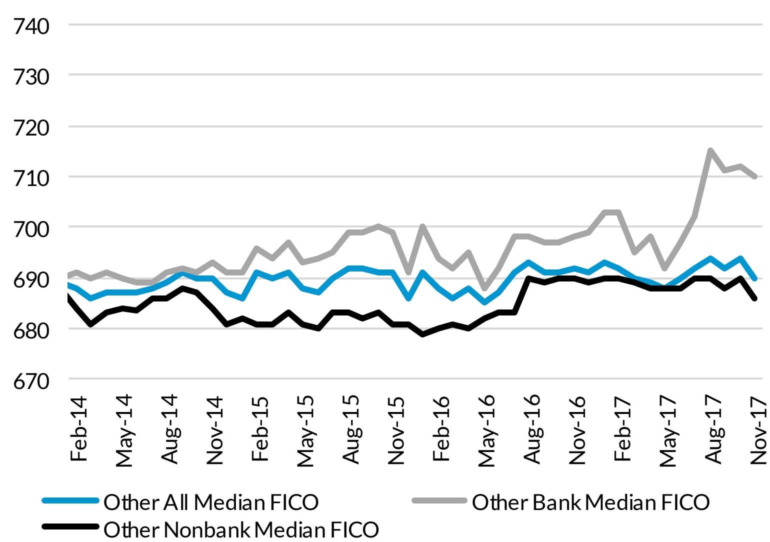
Sources: *eMBS and Urban Institute* **Note:** *Data as of November 2017*

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



Sources: *eMBS and Urban Institute*
Note: *Data as of November 2017*

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

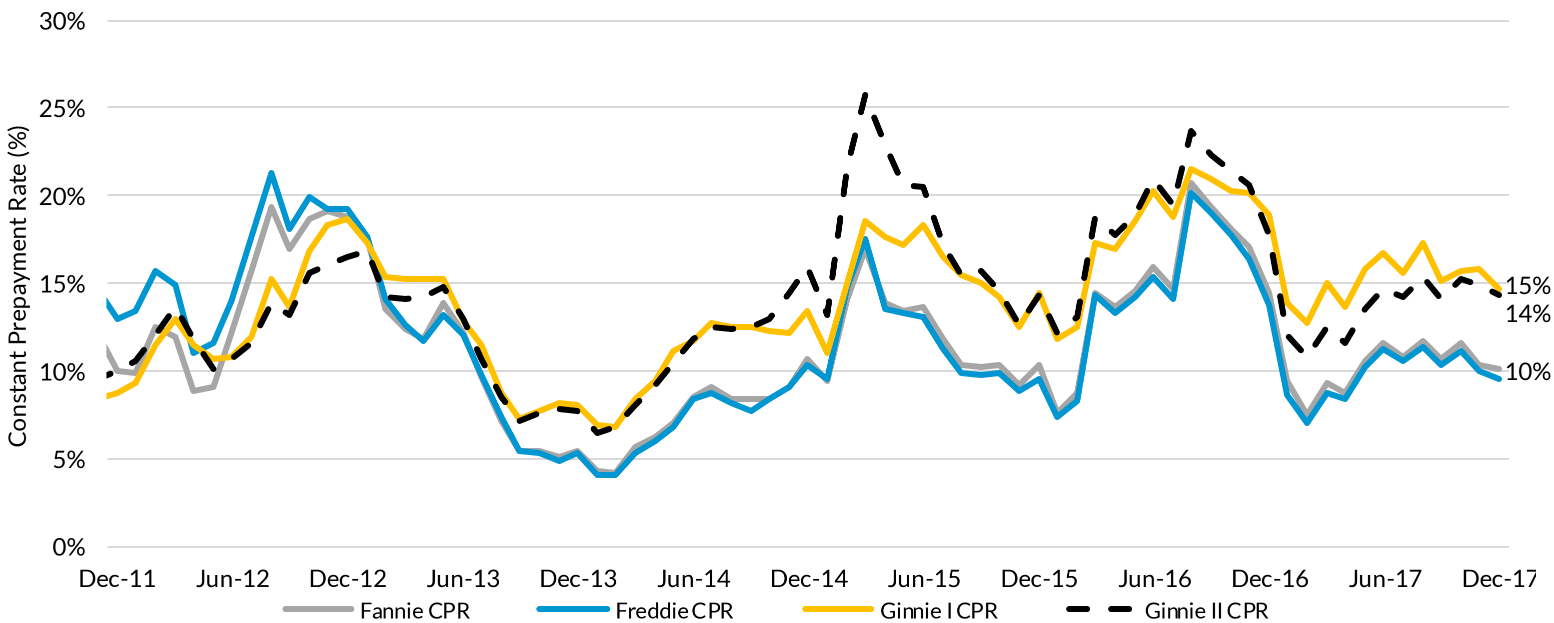


Sources: *eMBS and Urban Institute*
Note: *"Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development.*
Data as of November 2017.

Prepayments

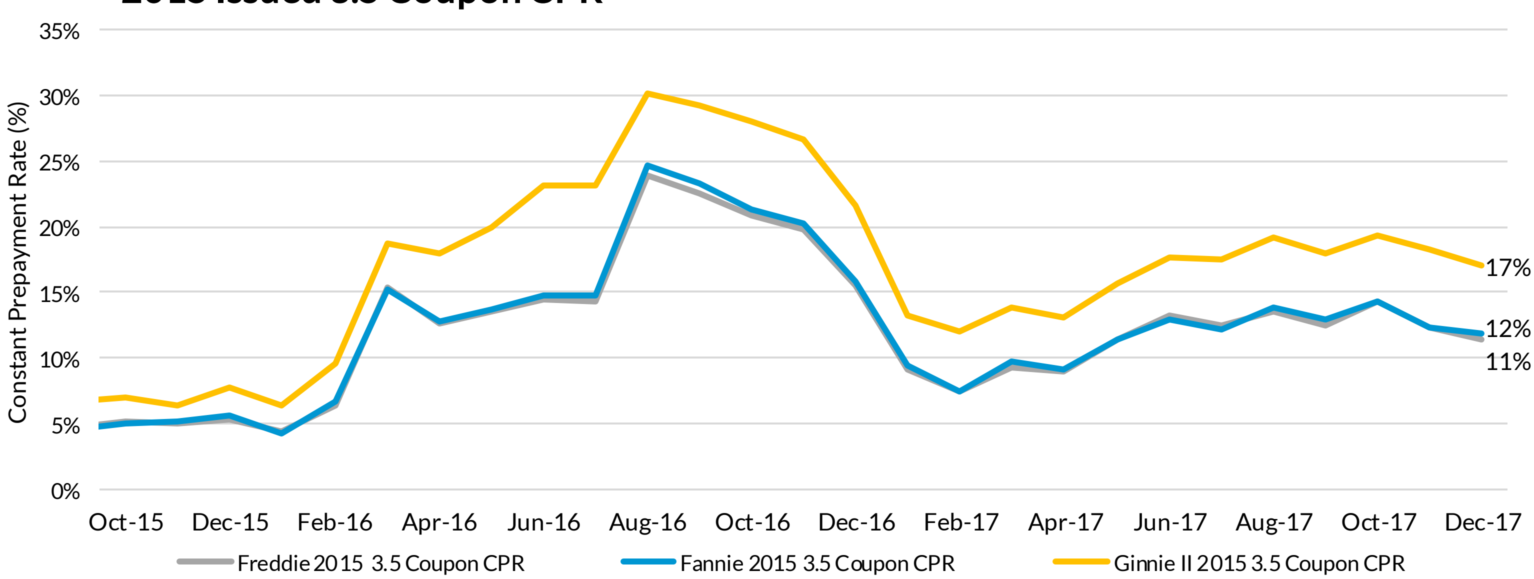
Prepayments on Ginnie Mae securities were lower than on GSE securities from 2011 through mid-2013, but have been higher since. These differences hold across all coupon buckets. The differences are especially pronounced on more recent production. These increased Ginnie speeds reflect the growing share 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. In 2017, 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.

Aggregate Prepayments



Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of December 2017*

2015 Issued 3.5 Coupon CPR

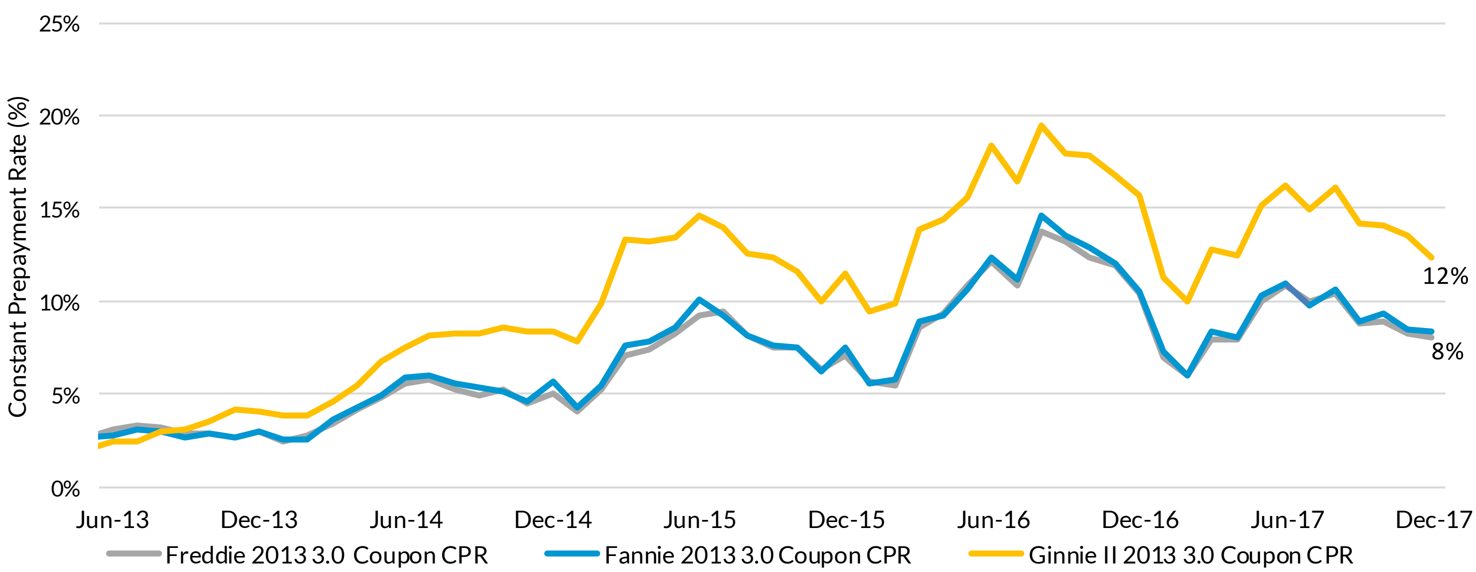


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of December 2017*

Prepayments

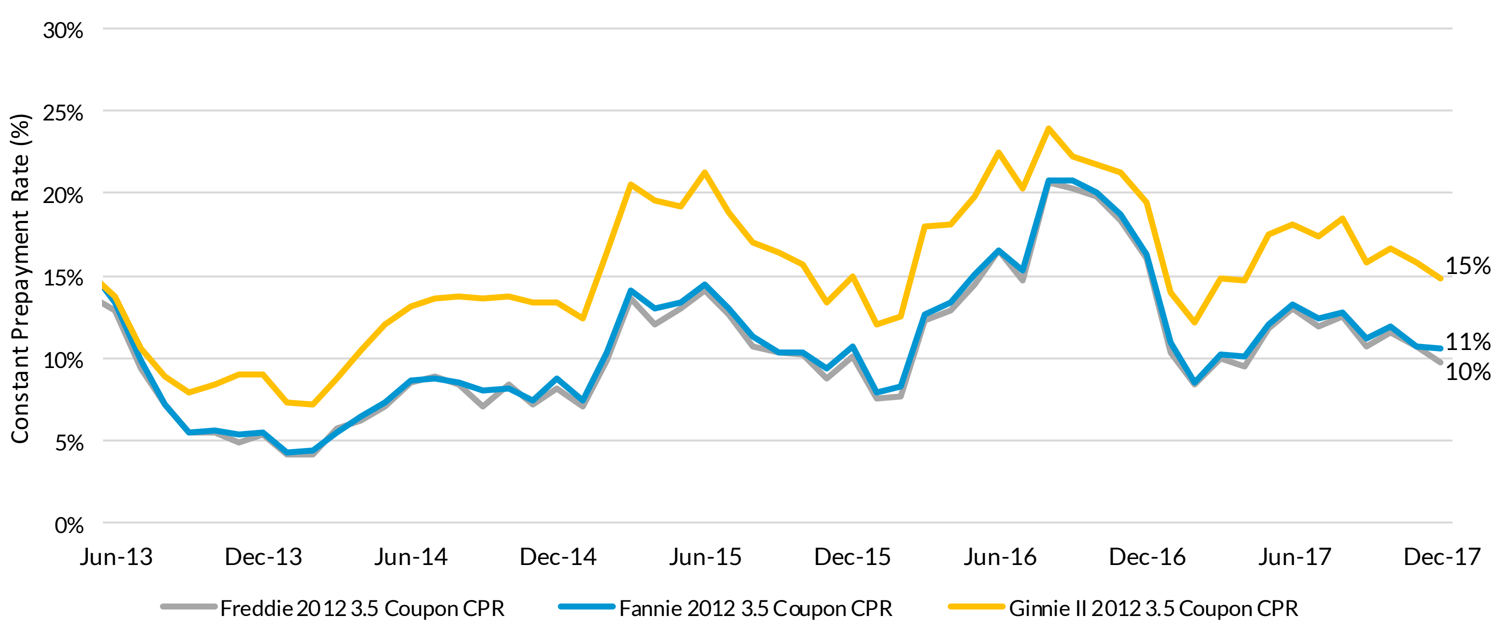
The 2013 Ginnie II 3.0s are prepaying faster than their conventional counterparts. 2012 Ginnie II 3.5s have been faster since mid-2013. The differences accelerated in 2015—potentially due to the FHA mortgage insurance premium (MIP) cut. In January 2015 FHA lowered its MIPs from 135 basis points per annum 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. In 2017, 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.

2013 Issued 3.0 Coupon CPR



Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of December 2017*

2012 Issued 3.5 Coupon CPR

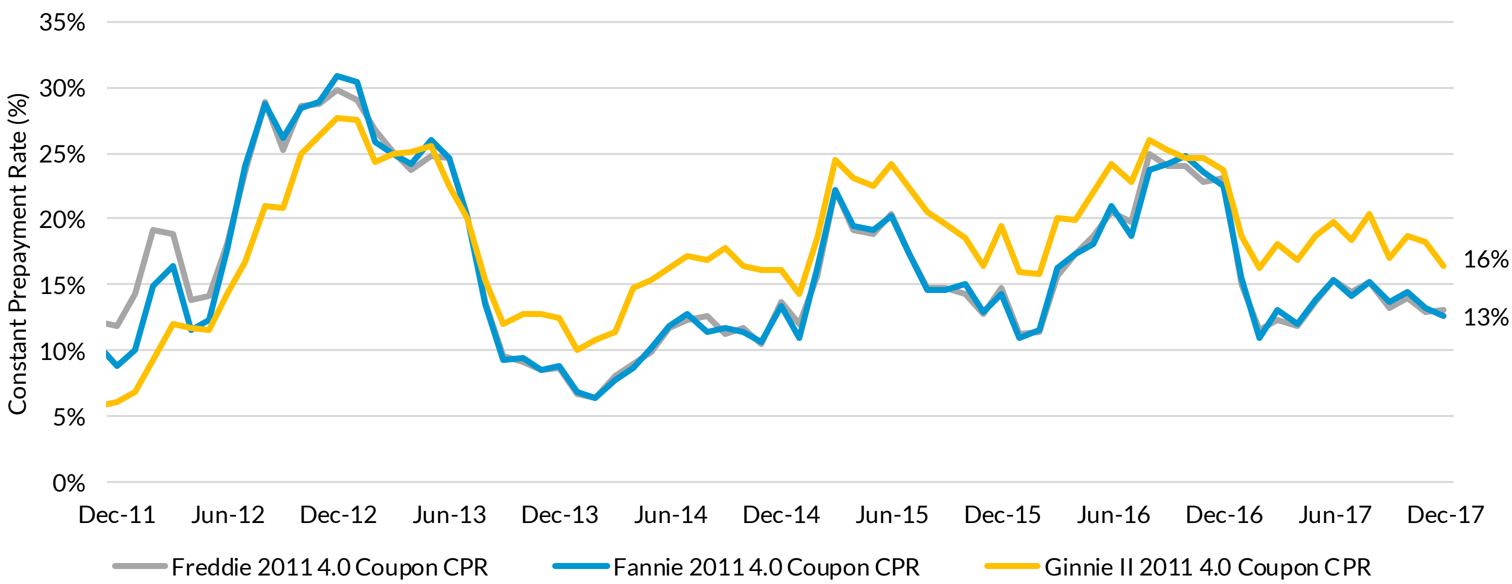


Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of December 2017*

Prepayments

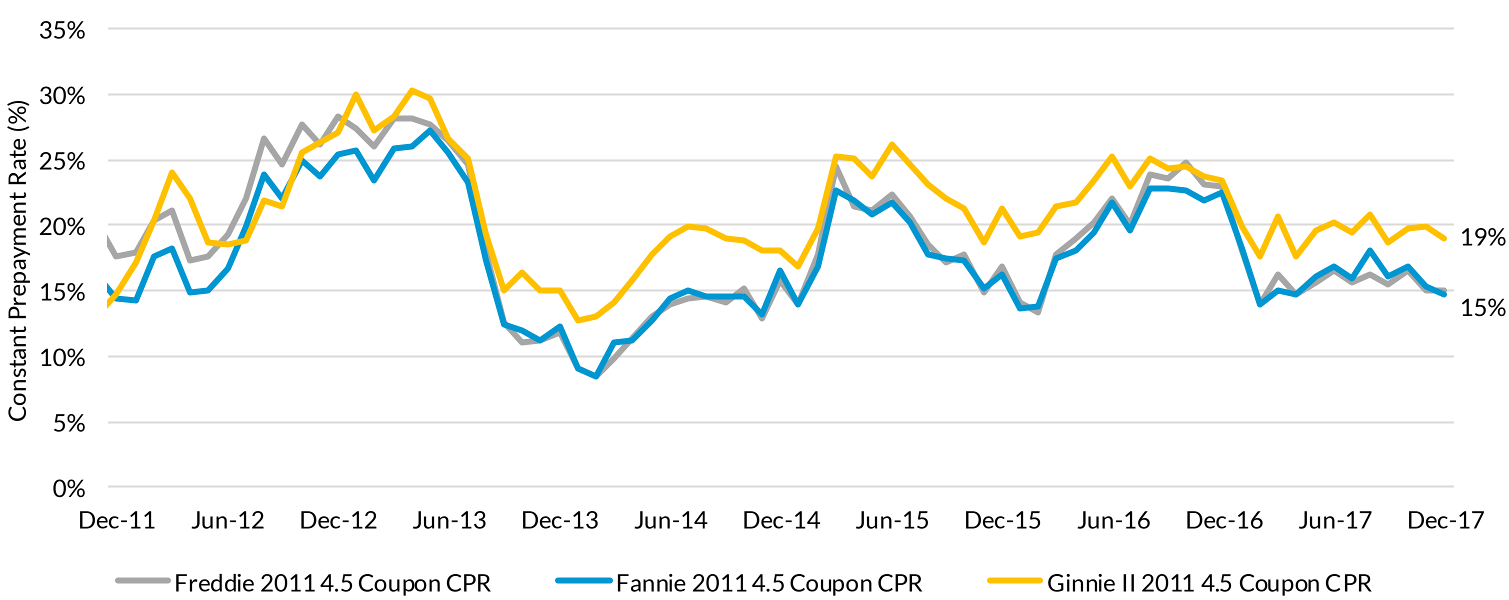
The 2011 Ginnie II 4.0s and 4.5s have been prepaying faster than their conventional counterparts since late 2013. Faster VA mortgage prepays plus simplifications to the FHA streamlined programs in 2013 are likely contributors to the faster speeds. However, as mortgage rates rose sharply since November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

2011 Issued 4.0 Coupon CPR



Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of December 2017*

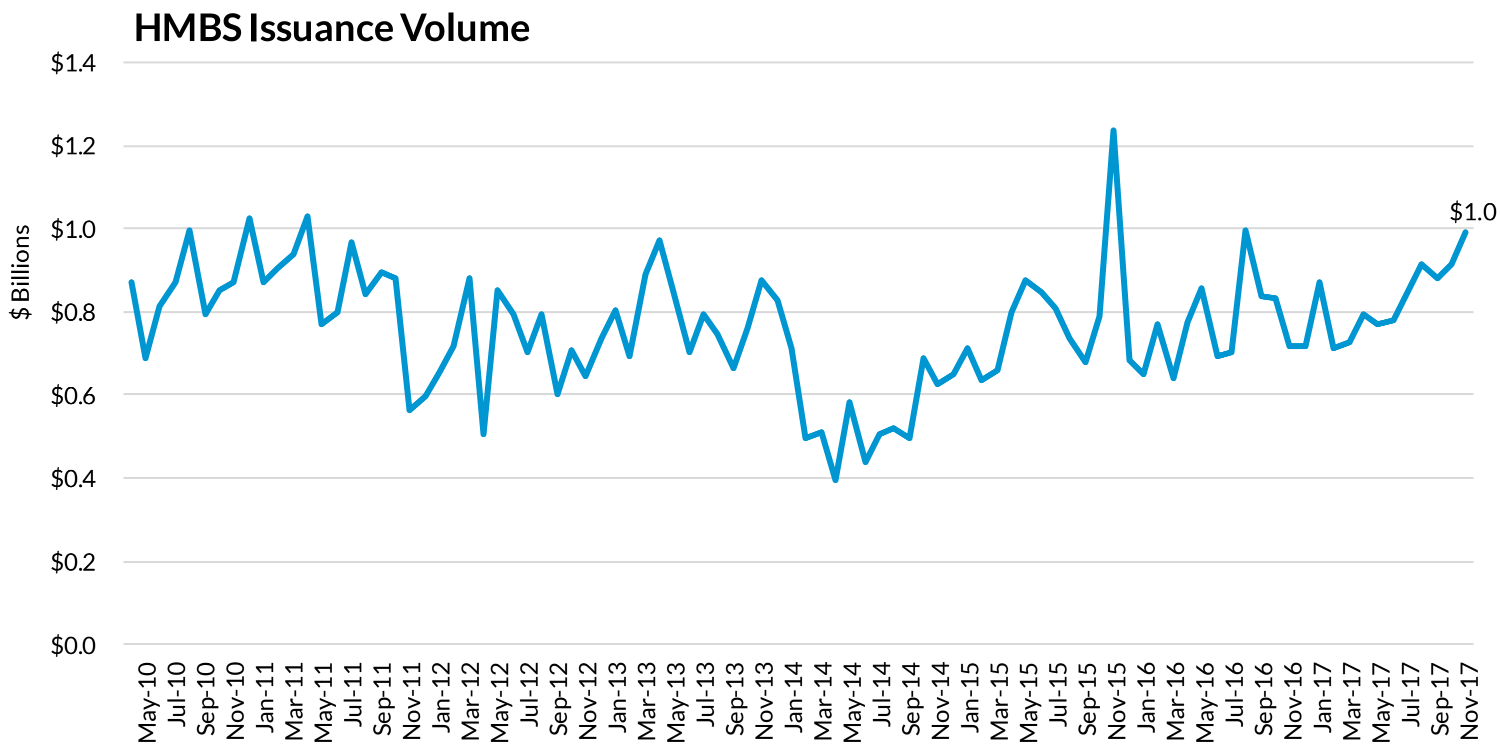
2011 Issued 4.5 Coupon CPR



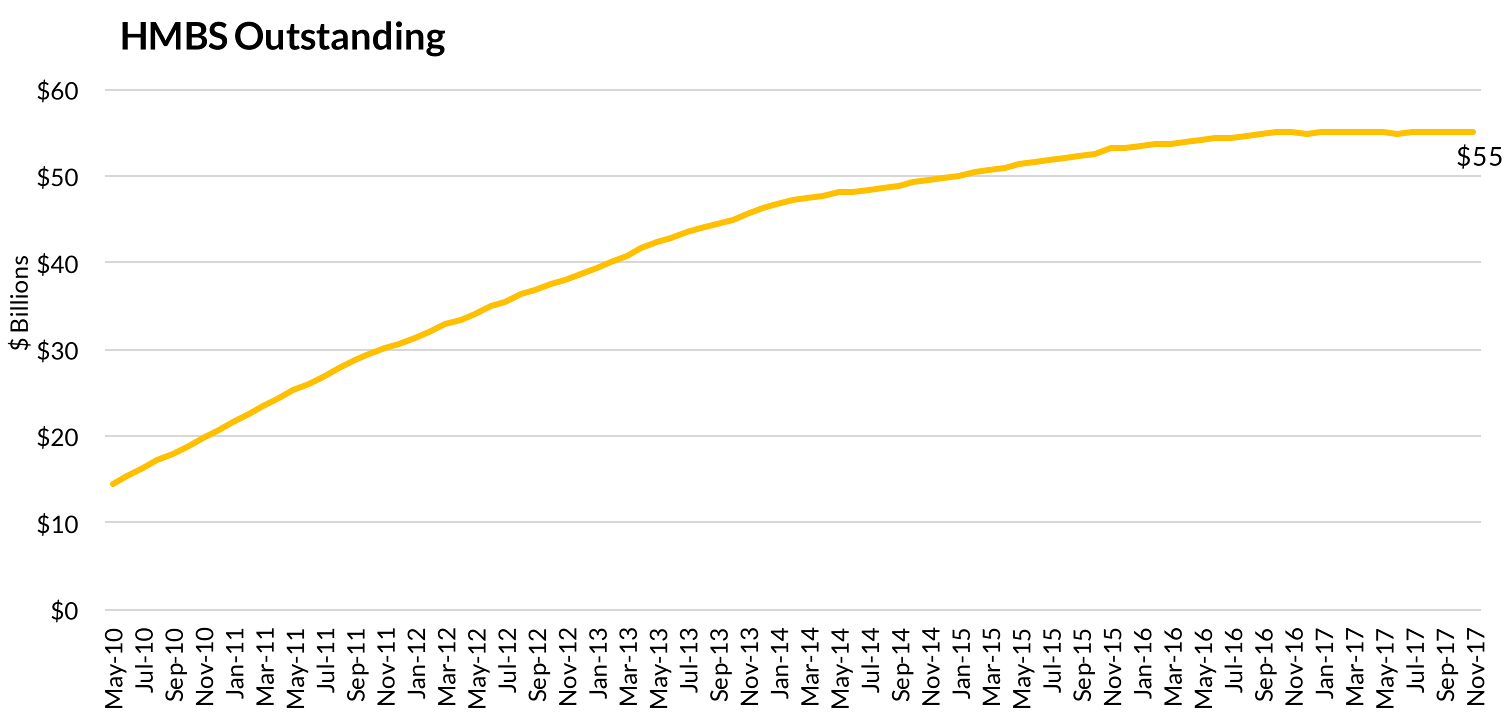
Sources: *Credit Suisse and Urban Institute*. **Note:** *Data as of December 2017*

Other Ginnie Mae Programs Reverse Mortgage Volumes

Ginnie Mae reverse mortgage volumes remain steady, with issuance of $1.0 billion in November. Outstanding securities totaled $55.0 billion in November.



Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of November 2017*

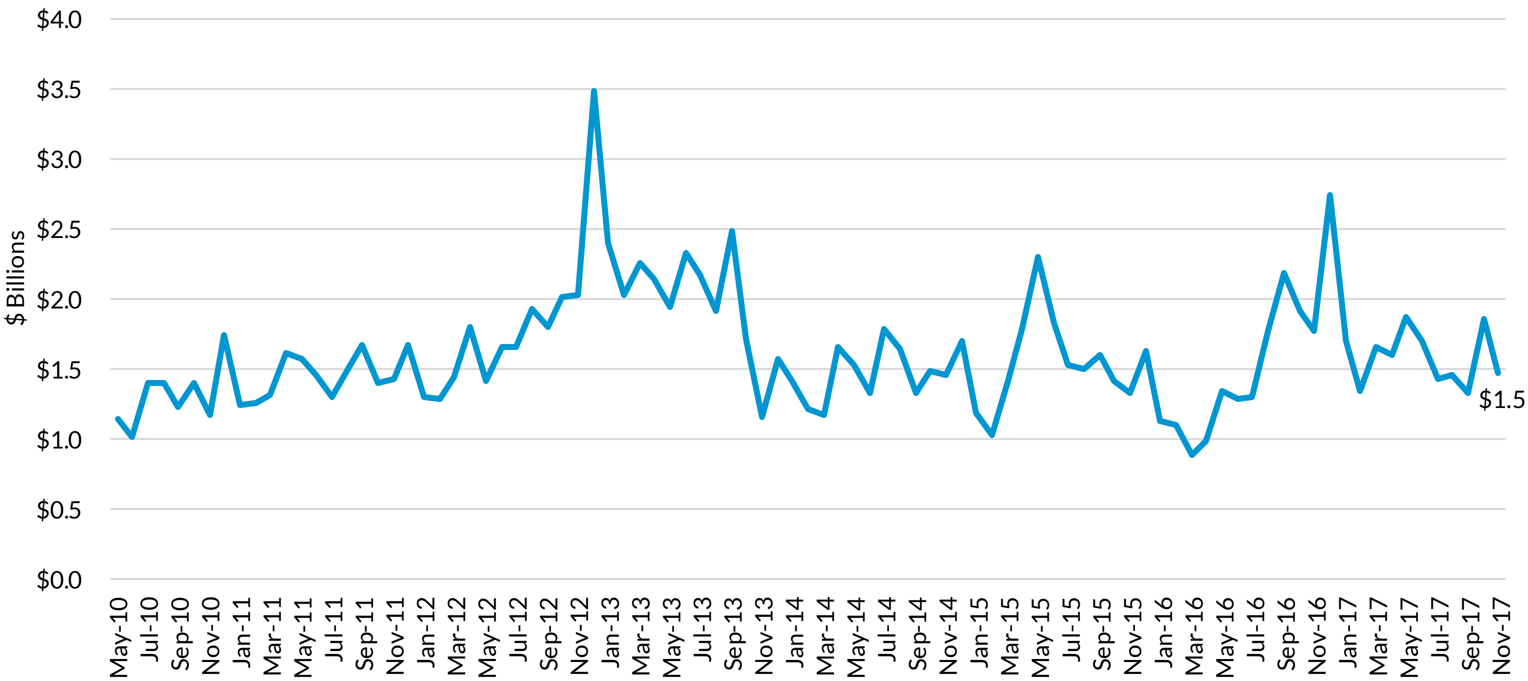


Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of November 2017*

Other Ginnie Mae Programs Multifamily Market

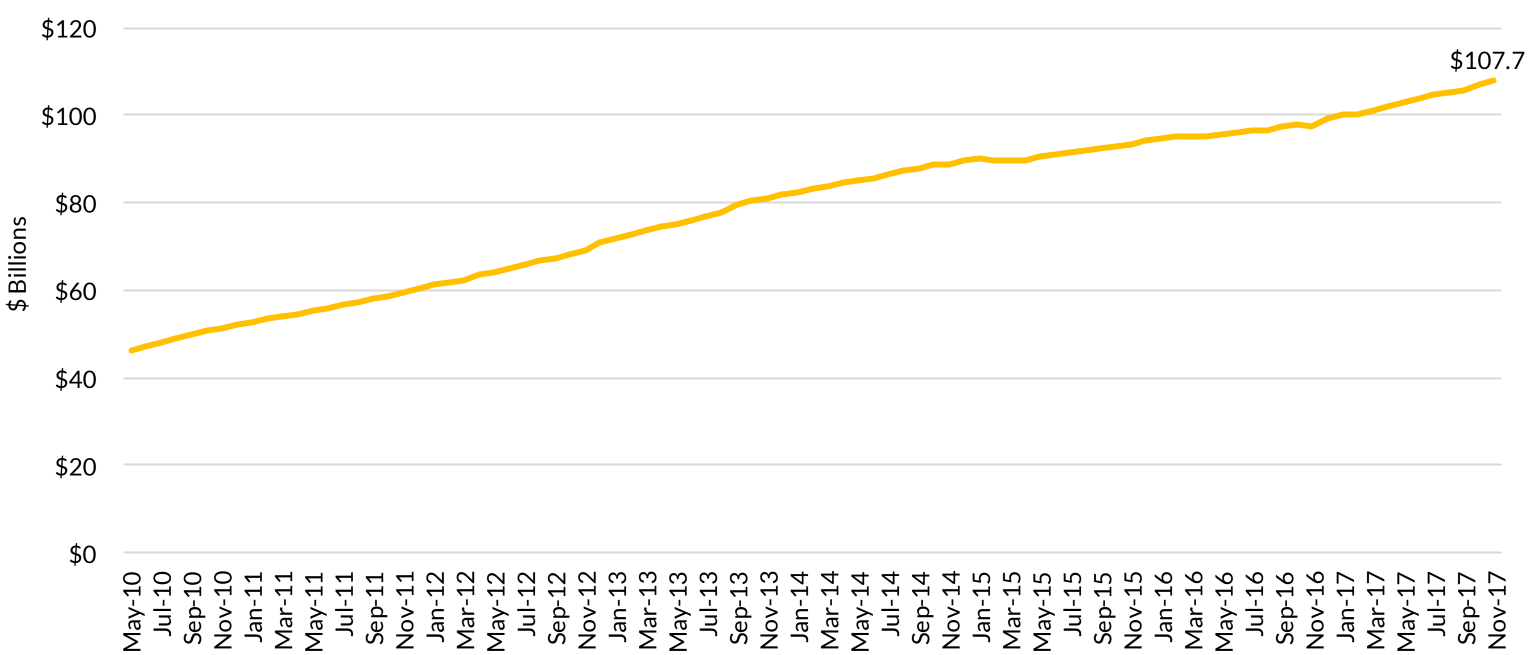
Ginnie Mae multifamily issuance volumes in November totaled $1.5 billion. Outstanding multifamily securities totaled $107.7 billion in November.

Ginnie Mae Multifamily MBS Issuance



Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of November 2017.*

Ginnie Mae Multifamily MBS Outstanding

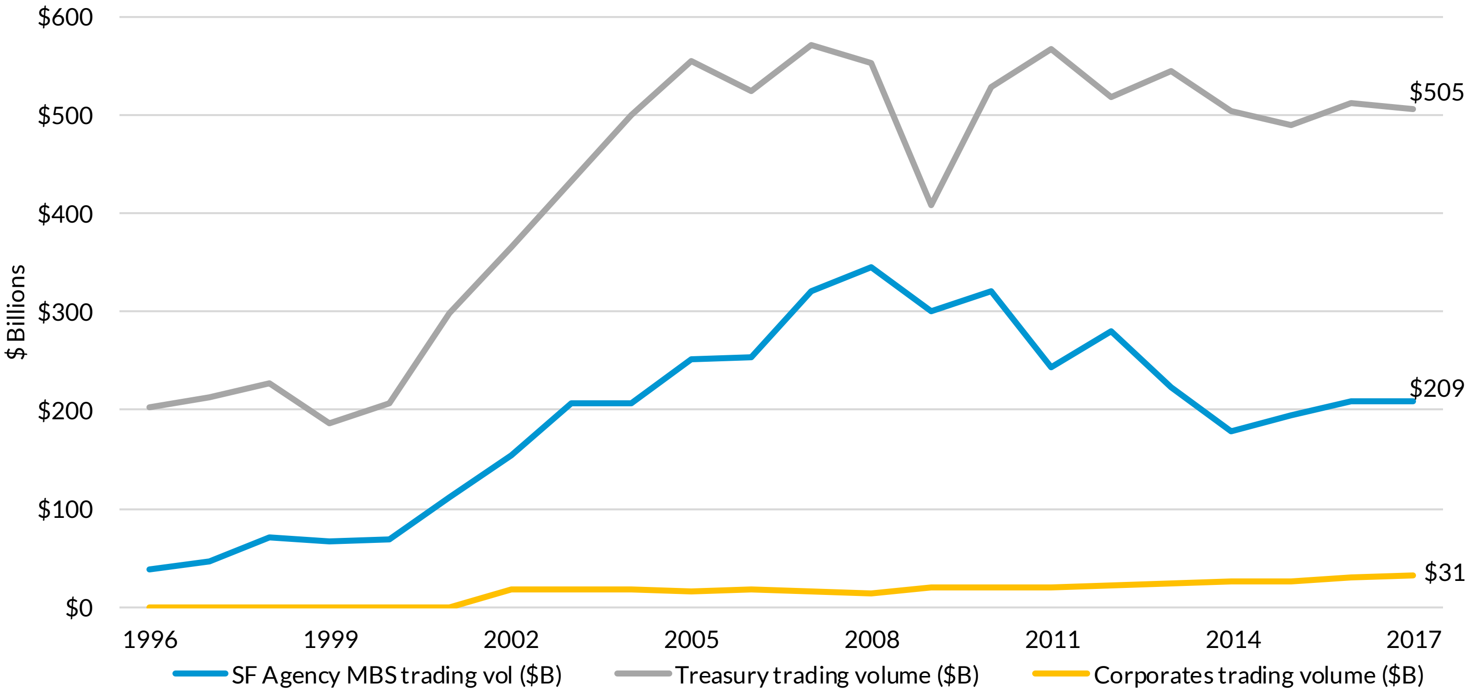


Sources: *Ginnie Mae and Urban Institute.* **Note**: *Data as of November 2017*

Market Conditions

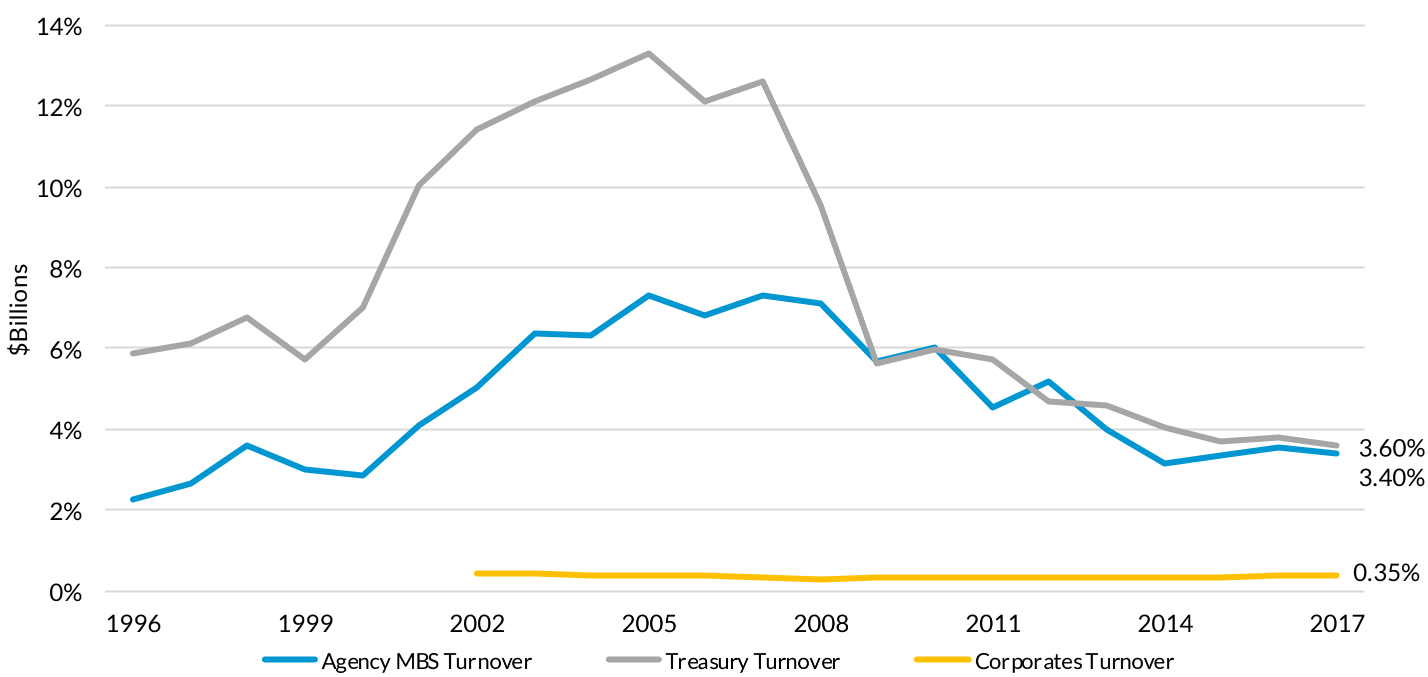
Agency MBS trading volume in 2017 has been slightly more robust than in the 2014-2015 period, and on par with 2016. Agency MBS turnover, however, has been lower in 2017 than in 2016; in 2017, daily MBS turnover was 3.40 percent versus 3.55 percent in 2016. Note that average daily Treasury turnover is also down dramatically from its 2005 peak. Corporate turnover is miniscule relative to either Agency MBS or Treasury turnover.

Average Daily Fixed Income Trading Volume by Sector



Sources: *SIFMA and Urban Institute.* ***Note:*** *Data as of December 2017*

Average Daily Turnover by Sector



Sources: *SIFMA and Urban Institute.* ***Note:*** *Data as of December 2017*

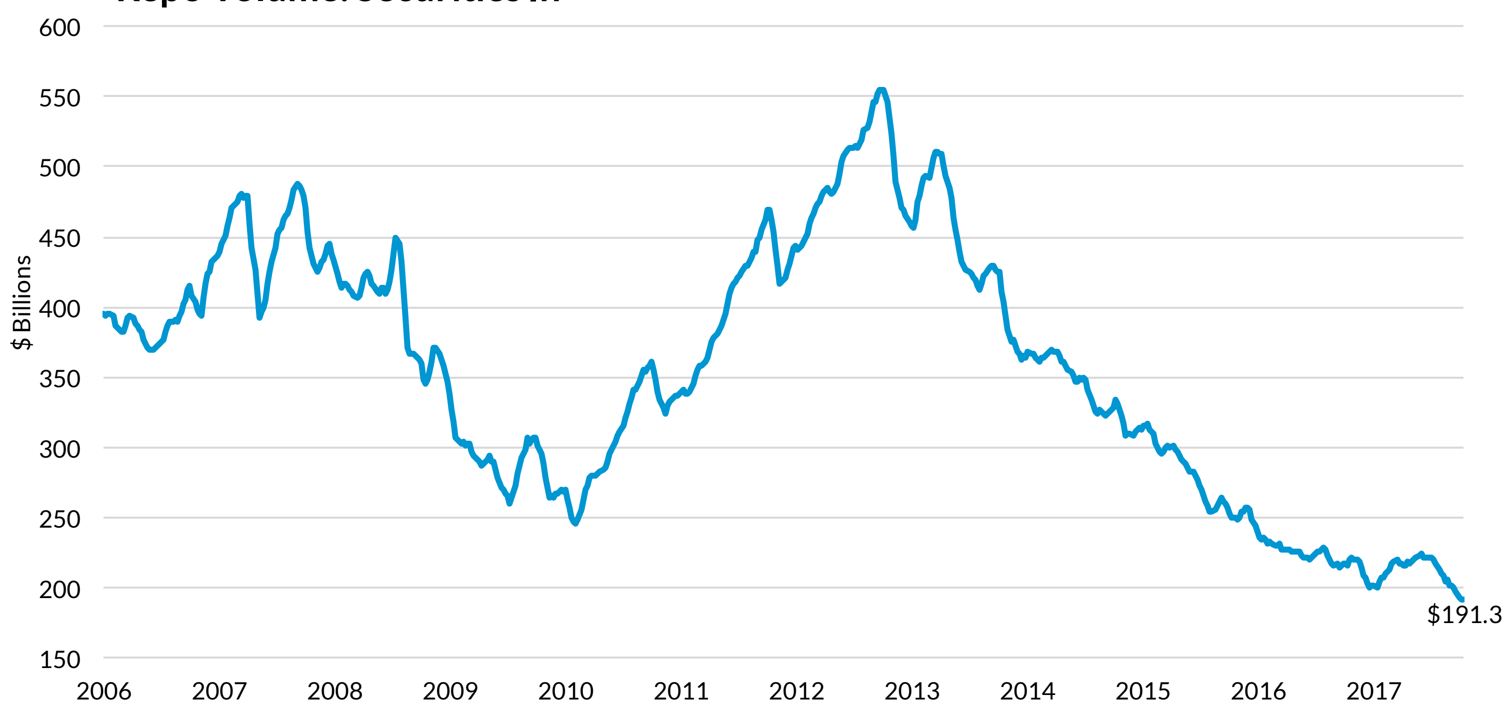
Market Conditions

Dealer net positions in Agency MBS are now at the very lower end of the recent range, although gross positions may well be down more. The volume of repurchase activity is down sharply. 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 December 2017*

Repo Volume: Securities In

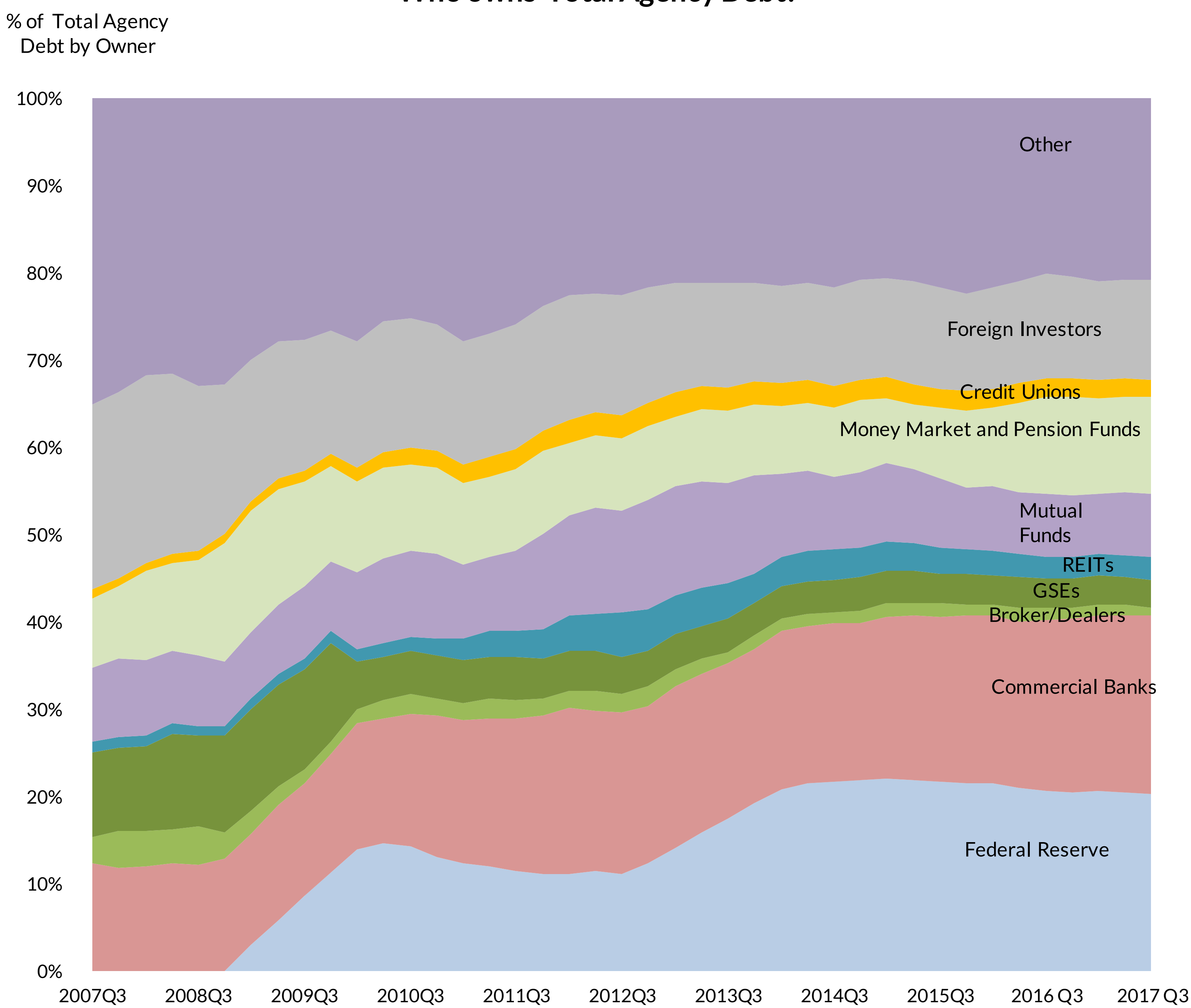


Sources: *Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute.* **Note:** *Data as of December 2017*

MBS Ownership

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

Who owns Total Agency Debt?

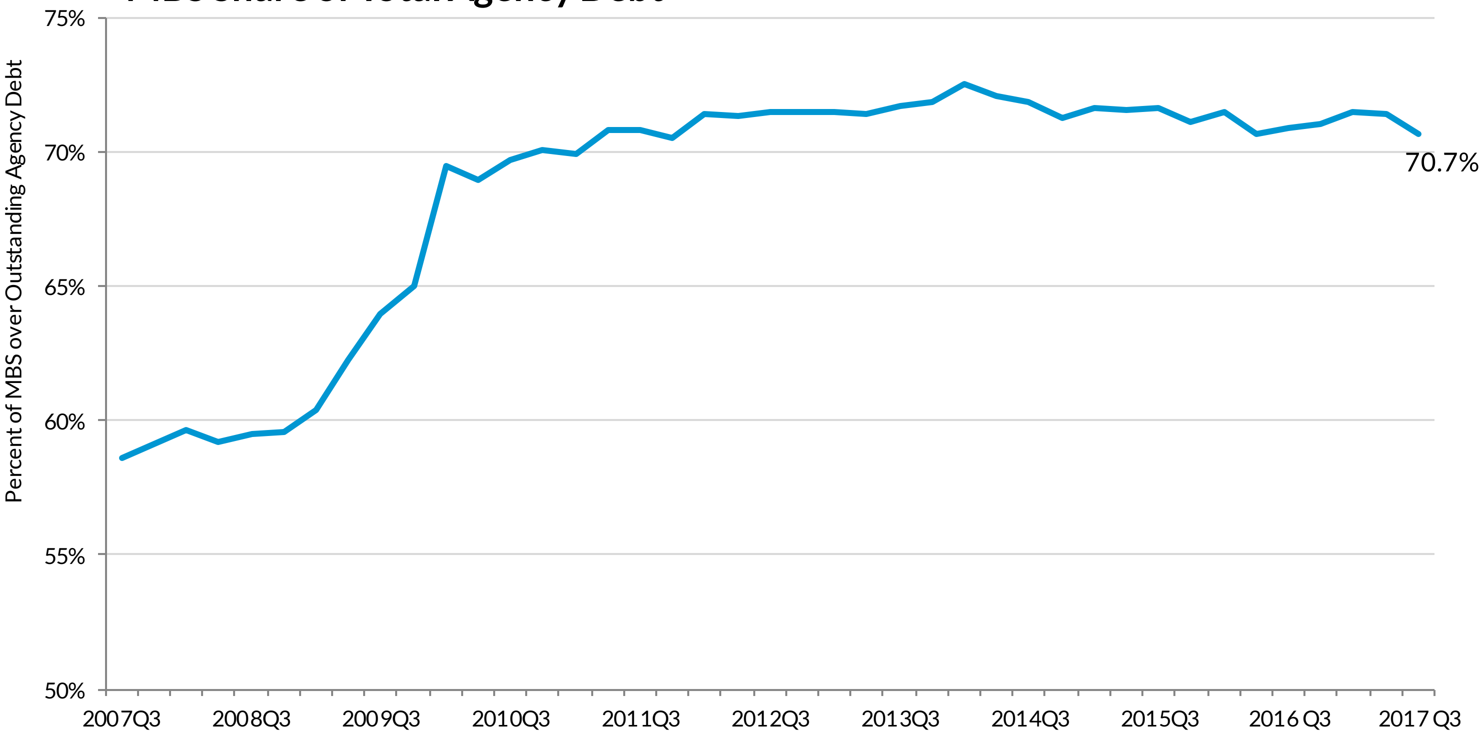


Sources: *Federal Reserve Flow of Funds and Urban Institute.* **Note:** *Data as of Q3 2017.*

MBS Ownership

As Fannie and Freddie reduce the size of their retained portfolio, fewer agency notes and bonds are required to fund that activity, hence the MBS share of total agency debt increases. For Q3 2017, the MBS share of total agency debt stood at 70.7 percent. Commercial banks are now the largest holders of Agency MBS. Out of their $1.8 trillion in holdings as of the end of December 2017, $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 Q3 2017.*

	Commercial Bank Holdings ($Billions)								Week Ending			
	Nov-16	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec 6	Dec 13	Dec 20	Dec 27
Largest Domestic Banks	1217	1257.4	1272.4	1284.6	1288.9	1297.4	1307.1	1311.1	1320.3	1314.1	1317.1	1318.5
Small Domestic Banks	451.4	467	468.5	471.5	474.5	477.2	478.1	477.3	477.2	478.2	476	475.6
Foreign Related Banks	14.1	12.1	12.5	12.4	12.8	12.1	12.3	19.4	38.2	37.1	39.5	39.8
Total, Seasonally Adjusted	1682.5	1736.5	1753.4	1768.5	1776.2	1786.7	1797.5	1807.8	1835.7	1829.4	1832.6	1833.9

Sources: *Federal Reserve Bank and Urban Institute.* ***Note***: *Data as of December 2017*

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 $351.9 billion in Ginnie Mae pass-throughs. There are another $418.1 billion in Agency CMOs. Non-agency holdings total $56.1 billion. Ginnie Mae pass-throughs have been the fastest growing sector in the past 2 years. Bank and thrift holdings of MBS are concentrated, with the top 20 holders accounting for 70 percent of the total, and the top 5 holders accounting for 44 percent of the total.

Bank and Thrift Residential MBS Holdings

	All Banks & Thrifts ($Billions)						
	Total	Agency MBS	GSE PT	GNMA PT	Agency CMO	Private MBS	Private CMO
2000	$683.90	$392.85	$234.01	$84.26	$198.04	$21.57	$71.43
2001	$810.50	$459.78	$270.59	$109.53	$236.91	$37.62	$76.18
2002	$912.36	$557.43	$376.11	$101.46	$244.98	$20.08	$89.88
2003	$982.08	$619.02	$461.72	$75.11	$236.81	$19.40	$106.86
2004	$1,113.89	$724.61	$572.40	$49.33	$208.18	$20.55	$160.55
2005	$1,139.68	$708.64	$566.81	$35.92	$190.70	$29.09	$211.25
2006	$1,207.09	$742.28	$628.52	$31.13	$179.21	$42.32	$243.28
2007	$1,236.00	$678.24	$559.75	$31.58	$174.27	$26.26	$357.24
2008	$1,299.76	$820.12	$638.78	$100.36	$207.66	$12.93	$259.04
2009	$1,345.74	$854.40	$629.19	$155.00	$271.17	$7.53	$212.64
2010	$1,433.38	$847.13	$600.80	$163.13	$397.30	$7.34	$181.61
2011	$1,566.88	$917.10	$627.37	$214.81	$478.82	$3.28	$167.70
2012	$1,578.86	$953.76	$707.87	$242.54	$469.27	$17.16	$138.67
2013	$1,506.60	$933.73	$705.97	$231.93	$432.60	$26.11	$114.15
1Q14	$1,574.44	$1,029.68	$713.50	$232.44	$500.09	$27.08	$104.97
2Q14	$1,526.12	$951.82	$717.27	$232.75	$445.17	$24.72	$104.41
3Q14	$1,534.59	$951.99	$725.96	$226.03	$447.46	$21.89	$113.24
4Q14	$1,539.32	$964.16	$733.71	$230.45	$449.90	$20.33	$104.94
1Q15	$1,579.21	$1,012.26	$767.71	$244.55	$455.47	$17.70	$93.78
2Q15	$1,583.22	$1,032.26	$784.22	$248.05	$445.91	$16.47	$88.57
3Q15	$1,608.44	$1,064.67	$805.05	$259.62	$447.01	$13.60	$83.16
4Q15	$1,643.56	$1,115.40	$823.10	$292.30	$445.39	$11.14	$71.63
1Q16	$1,660.58	$1,133.29	$833.25	$300.04	$448.63	$10.27	$68.39
2Q 16	$1,684.33	$1,169.67	$867.64	$302.03	$440.25	$9.11	$65.29
3Q16	$1,732.36	$1,227.52	$924.81	$302.71	$435.77	$7.90	$61.17
4Q16	$1,736.93	$1,254.13	$930.67	$323.46	$419.80	$7.40	$55.60
1Q17	$1,762.38	$1,280.63	$950.72	$329.91	$419.34	$7.03	$55.39
2Q17	$1,798.66	$1,320.59	$985.12	$335.47	$417.89	$6.38	$53.79
3Q17	$1,838.93	$1,364.75	$1,012.89	$351.86	$418.08	$5.65	$50.45

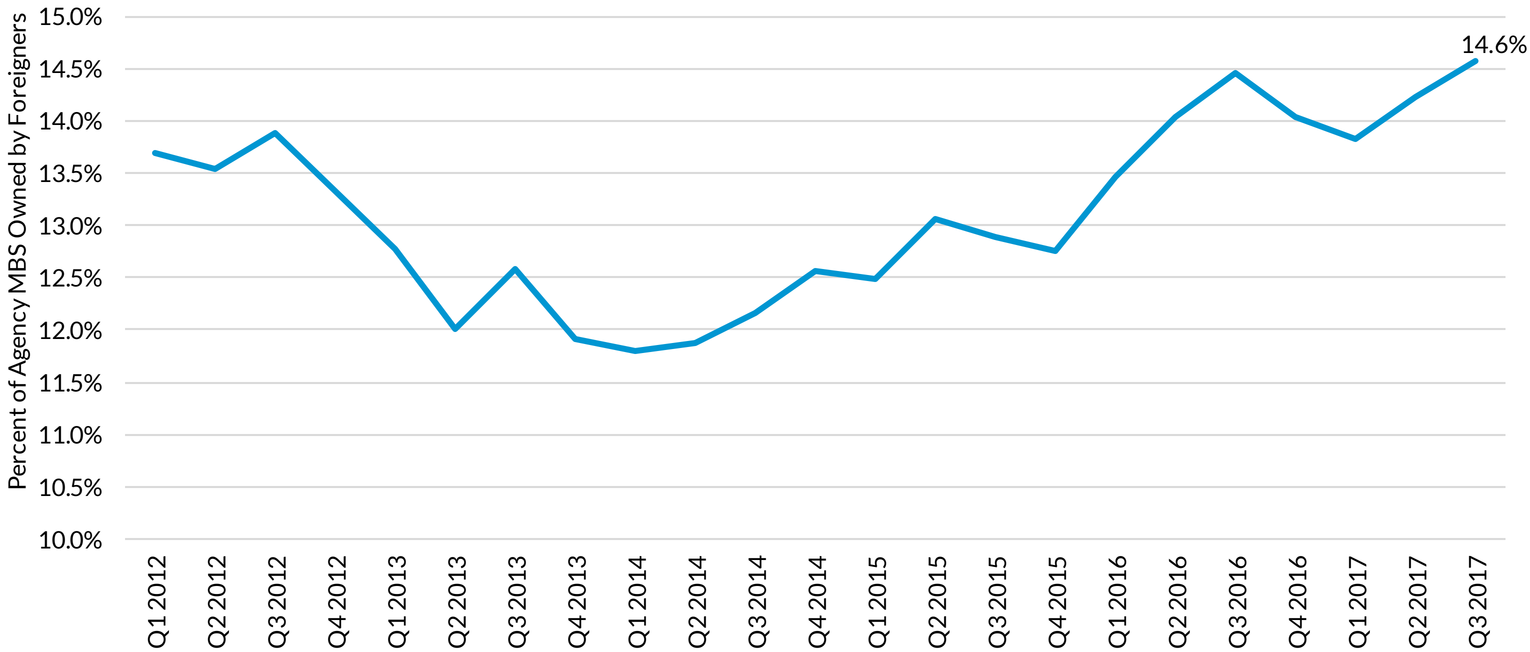
	Top Bank & Thrift Residential MBS Investors	Total ($MM)	GSE PT ($MM)	GNMA PT ($MM)	Agency REMIC ($MM)	Non-Agency ($MM)	Market Share
1	Bank of America Corporation	$323,833	$189,098	$120,870	$13,317	$548	17.60%
2	Wells Fargo & Company	$236,485	$189,928	$35,691	$4,683	$6,184	12.90%
3	JP Morgan Chase & Co.	$107,090	$71,767	$23,434	$497	$11,392	5.80%
4	U S. Bancorp.	$77,867	$33,491	$10,859	$33,516	$1	4.20%
5	Charles Schwab Bank	$68,072	$40,328	$12,454	$15,290	$0	3.70%
6	Citigroup Inc.	$67,005	$50,868	$1,693	$9,508	$4,936	3.60%
7	Capital One Financial Corporation	$52,701	$17,613	$11,747	$22,075	$1,265	2.90%
8	Bank of New York Mellon Corp.	$52,005	$31,031	$2,146	$16,722	$2,106	2.80%
9	PNC Bank, National Association	$42,494	$31,655	$4,557	$3,156	$3,125	2.30%
10	Branch Banking and Trust Company	$36,678	$11,847	$5,850	$20,373	$608	2.10%
11	State Street Bank and Trust Company	$30,004	$4,141	$6,432	$10,336	$9,096	1.60%
12	Morgan Stanley	$25,382	$9,996	$7,793	$7,593	$0	1.40%
13	KeyBank National Association	$25,189	$944	$1,197	$23,048	$0	1.40%
14	E*TRADE Bank	$23,235	$13,673	$3,703	$5,854	$0	1.30%
15	SunTrust Bank	$23,089	$11,976	$11,050	$0	$62	1.30%
16	HSBC Banks USA, National Association	$21,865	$5,525	$7,982	$8,354	$5	1.20%
17	MUFG Union Bank, National Association	$18,848	$6,175	$5,447	$6,675	$551	1.00%
18	Regions Bank	$18,550	$11,258	$5,154	$2,135	$3	1.00%
19	Ally Bank	$16,252	$8,871	$2,816	$2,440	$2,125	0.90%
20	Fifth Third Bank	$15,933	$3,539	$3,879	$8,515	$0	0.90%
	Total Top 20	**$1,282,576**	**$743,723**	**$284,753**	**$214,088**	**$42,008**	**69.90%**

Sources: *Inside Mortgage Finance and Urban Institute.* **Note:** *Data as of Q3 2017*

MBS Ownership

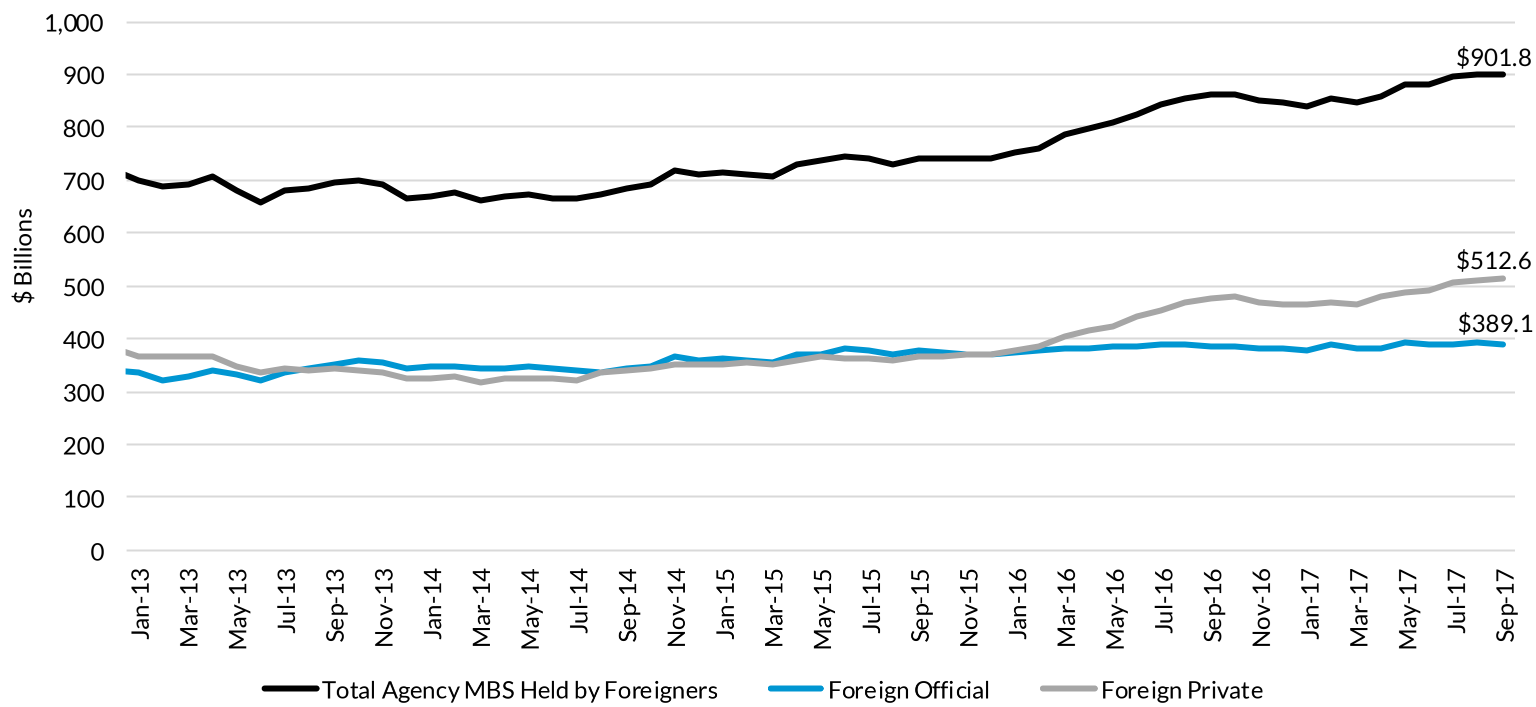
Foreign investors hold 14.6 percent of agency MBS, up from the lows in 2013. For the month of September, this represents $901.8 billion in agency MBS, $389.1 billion held by foreign official institutions and $512.6 billion held by foreign private investors.

Foreign Share of Agency MBS



Sources: *SIFMA and Treasury International Capital (TIC).* ***Note***: *Data as of Q3 2017.*

Monthly Agency MBS Holdings by Foreigners



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

MBS Ownership

The largest foreign holders of Agency MBS are Taiwan, China and Japan; these three regions comprise around 70 percent of all foreign holdings. Since June of 2016, we estimate Taiwan and Japan have expanded their holdings while China has contracted. For the first three quarters of 2017, we estimate Japan and Taiwan have each added more than $25 billion in agency MBS.

Agency MBS+ Agency Debt

	Level of Holdings ($Millions)*						Change in Holdings ($Millions)*				
Country	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017
Taiwan	207,164	208,352	204,005	212,707	227,236	229,030	1,188	-4,347	8,702	14,529	1,794
China	195,933	191,743	184,151	187,664	183,396	177,580	-4,190	-7,592	3,513	-4,268	-5,816
Japan	197,101	222,116	220,644	214,838	227,721	244,163	25,015	-1,472	-5,806	12,883	16,442
Ireland	47,635	48,307	47,065	46,178	45,353	46,393	672	-1,242	-887	-825	1,040
South Korea	50,323	50,072	49,000	44,349	46,577	47,581	-251	-1,072	-4,651	2,228	1,004
Luxembourg	32,164	32,549	35,352	29,014	29,229	29,788	385	2,803	-6,338	215	559
Bermuda	28,402	28,714	27,624	26,960	26,793	27,088	312	-1,090	-664	-167	295
Cayman Islands	31,076	30,686	30,186	29,014	28,763	29,014	-390	-500	-1,172	-251	251
Switzerland	16,240	20,638	15,626	16,244	17,591	18,667	4,398	-5,012	618	1,347	1,076
Netherlands	12,459	10,536	10,326	11,018	12,039	12,576	-1,923	-210	692	1,021	537
Rest of World	148,288	140,716	140,625	126,439	128,428	124,664	-7,572	-91	-14,186	1,989	-3,764
Total	954,326	984,429	964,604	944,425	973,126	986,544	30,103	-19,825	-20,179	28,701	13,418

Agency MBS Only (Estimates)

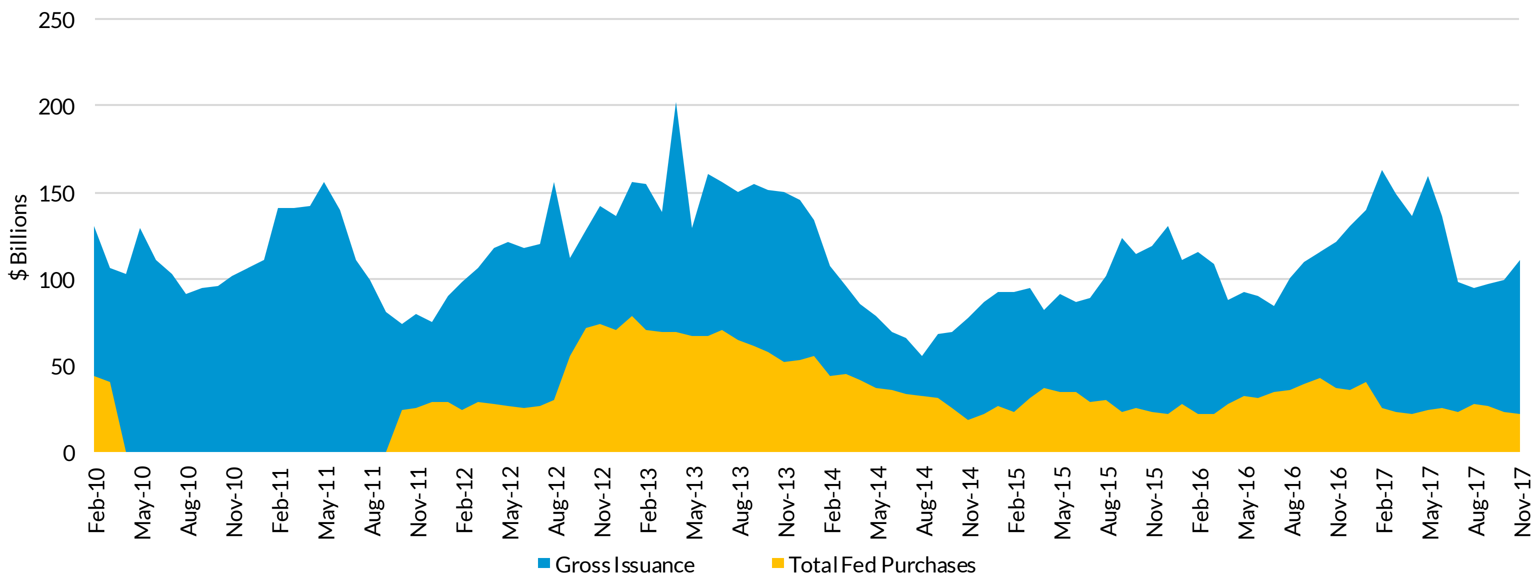
	Level of Holdings ($Millions)*						Change in Holdings ($Millions)*				
Country	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017
Taiwan	206,954	208,142	203,807	212,540	227,077	228,885	1,188	-4,335	8,734	14,536	1,808
China	186,993	185,881	178,556	183,103	178,934	173,422	-1,112	-7,325	4,547	-4,169	-5,512
Japan	185,034	213,615	212,661	208,162	221,447	238,602	28,581	-954	-4,499	13,285	17,155
Ireland	37,695	39,142	38,405	38,910	38,381	40,054	1,447	-737	505	-530	1,673
South Korea	34,173	34,726	34,505	32,126	34,905	36,966	553	-221	-2,379	2,779	2,061
Luxembourg	27,187	28,094	31,198	25,455	25,821	26,689	907	3,104	-5,744	366	868
Bermuda	23,994	24,767	23,888	23,825	23,786	24,351	773	-879	-63	-39	565
Cayman Islands	22,815	22,918	22,851	22,847	22,855	23,637	103	-67	-3	8	782
Switzerland	11,717	16,446	11,596	12,873	14,380	15,755	4,729	-4,850	1,277	1,507	1,375
Netherlands	11,471	9,717	9,553	10,383	11,442	12,036	-1,754	-165	830	1,059	595
Rest of World	83,560	78,246	81,668	76,757	80,909	81,369	-5,314	3,422	-4,910	4,152	460
Total	831,593	861,694	848,688	846,981	879,935	901,766	30,101	-13,006	-1,707	32,954	21,831

***Sources** :Treasury International Capital (TIC) and Urban Institute.*
Note: *calculated based on June 2016 report with amount asset backed per country. Revised to include Top 10 holders of MBS listed as of June 2016. Monthly data as of September 2017.

MBS Ownership

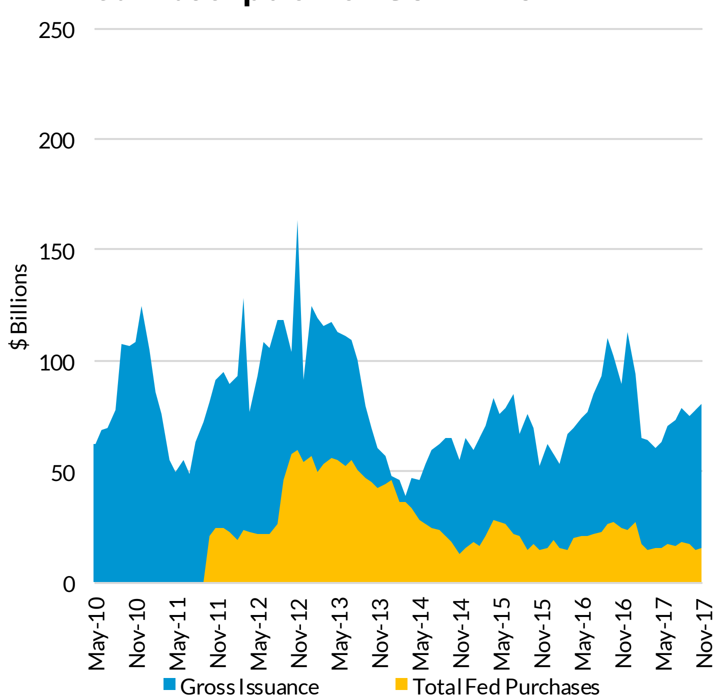
The Fed has begun to wind down their portfolio, and we are beginning to see the effects in slower absorption rates. During the period October 2014-September 2017, the Fed had ended its purchase program, but was reinvesting funds from mortgages and agency debt into the mortgage market, absorbing 20-30 percent of agency gross issuance. With the wind down, which started in October 2017, the Fed will continue to reinvest, but by less than their run off. In November, total Fed purchased decreased to $21.8 billion, yielding a Fed absorption rate of 18.4 percent, the lowest in the past 5 years. The Fed absorbed 16.3 percent of Ginnie Mae issuance and 19.3 percent of GSE issuance.

Total Fed Absorption



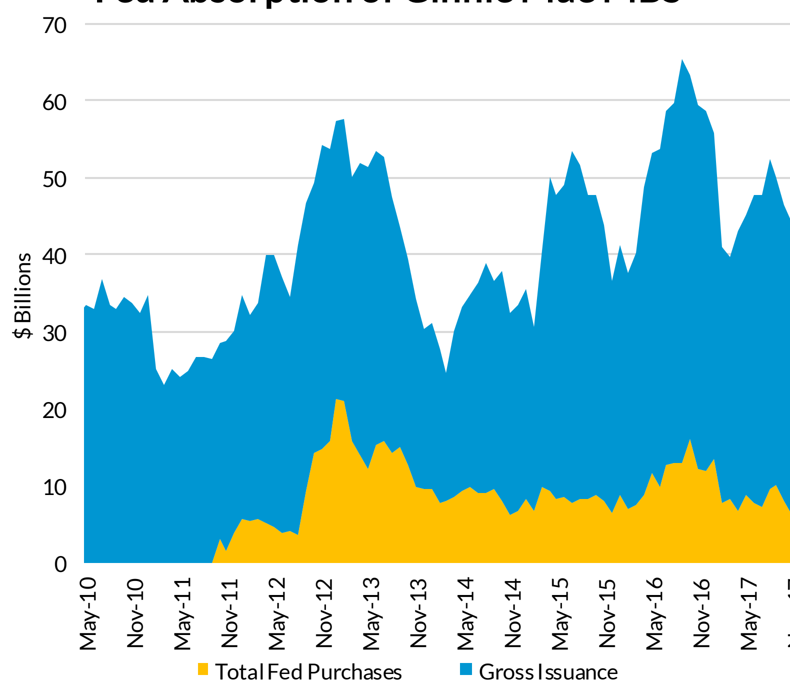
Sources: *eMBS, Federal Reserve Bank of New York and Urban Institute.* ***Note:*** *Data as of November 2017.*

Fed Absorption of GSE MBS



Sources: *eMBS, Federal Reserve Bank of New York and Urban Institute.* ***Note:*** *Data as of November 2017.*

Fed Absorption of Ginnie Mae MBS



Sources: *eMBS, Federal Reserve Bank of New York and Urban Institute.* ***Note:*** *Data as of November 2017.*

Tracking Code: 1995376.1.1.GBL.INST
Expiration Date: 1/31/2019

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