

# Global Markets Analysis Report

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



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

# CONTENTS

## **Relative Attractiveness of US Fixed Income and Ginnie Mae MBS**

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

## **State of the US housing Market**

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

## **US Agency Market, Originations**

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

## **Credit Box**

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

## **Ginnie Mae Nonbank Originators**

Nonbank originator share (All, Purchase, Refi)	30
Bank vs. nonbank originators credit box at a glance (FICO, LTV, DTI)	31-33
Bank vs. nonbank originators historical credit box (FICO)	34

## **Prepayments**

Aggregate	35
Select coupon/origination year cohorts	36-37

## **Other Ginnie Mae Programs**

HMBS	38
Multifamily	39

## **Market Conditions-Agency MBS**

Average daily trading volume and turnover by sector	40
Dealer net positions, repo volume	41

## **MBS Ownership**

Ownership breakdown of total agency debt	42
MBS share of total agency debt and commercial bank ownership of MBS	43
Bank and Thrift Residential MBS Holdings	44
Foreign ownership of MBS	45-46
Fed Ownership of MBS	47

# HIGHLIGHTS

## Increase in Conventional and FHA Loan Limits

On November 28th, the Federal Housing Finance Agency announced the 2018 maximum conforming loan limits for mortgages backed by Fannie Mae and Freddie Mac; this limit will increase by the rate of home price appreciation, as calculated by the FHFA. For most of the US, this limit will rise to \$453,100 in 2018, an increase of 6.8 percent from the current conventional loan limit of \$424,100. In certain high cost areas (those areas those in which 115 percent of the area median home price exceeds the loan limit), the limit will rise to the lesser of 115 percent of the area median home price, or the cap of \$679,650 (150 percent of the loan limit).

Following closely on the heels of FHFA's announcement, On December 7, the FHA also announced an increase in its 2018 loan limits. FHA is required by HERA to set loan limits at 115 percent of the area median home price, with a cap (100 percent of the GSE high cost limit) and a floor (65% of the GSE limit). With this change, which is effective Jan 1st 2018, FHA's cap will increase from \$636,150 to \$679,650 while the floor will increase from \$275,665 to \$294,515. VA does not limit the loan amount. Rather, the GSE loan limit is the maximum the VA will guarantee for a borrower with a full entitlement and no down payment. A VA borrower can technically borrow more, but will then be only partially insured and still subject to Ginnie Mae loan limit.

Given the recent increase in house prices across the nation, the coming increases in 2018 loan limits will allow roughly the same portion of borrowers to secure government-backed financing as had been the case in the past. A failure to increase FHA loan limits in line with home prices would have represented a contraction of the FHA footprint; and would have been felt significantly and disproportionately in areas of higher housing costs where the limits are more likely binding than in areas using the floor. In addition, areas with higher costs tend to be counties with a larger population and mortgage market. For example, based on the 2018 loan limits and fiscal year 2017 endorsements, 82 percent of counties were at the floor, but this represents 47 percent of endorsements and only 35 percent of the total loan amount. By contrast, only 2.3 percent of the counties were at the ceiling, but this represents 9 percent of the endorsements and 16 percent of the endorsed amount.

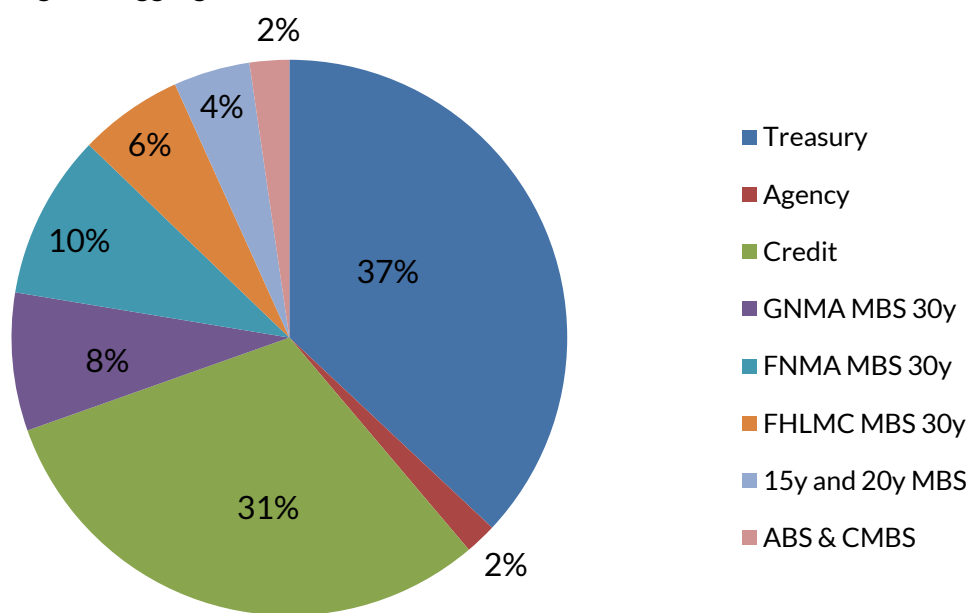
### ***Highlights this month:***

- Treasury and Ginnie Mae MBS yields both continued to edge up in November, while current coupon Ginnie Mae MBS spreads relative to Treasuries tightened by 1-4 bps (Pages 5 and 6).
- GSE serious delinquencies remained flat in Q3 2017, while FHA and VA delinquencies edged up, reflecting primarily seasonal factors (Page 11).
- The total value of the US Housing Market continued to rise in Q3 2017, driven by a \$260 billion increase in household equity (Page 14).
- The non-bank originator share of Ginnie Mae originations increased to a historical high of 78 percent in October 2017 (Page 30).
- Fed absorption of gross issuance dropped to a five year low in October, the starting month of Fed's balance sheet reduction plan (Page 47).

# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

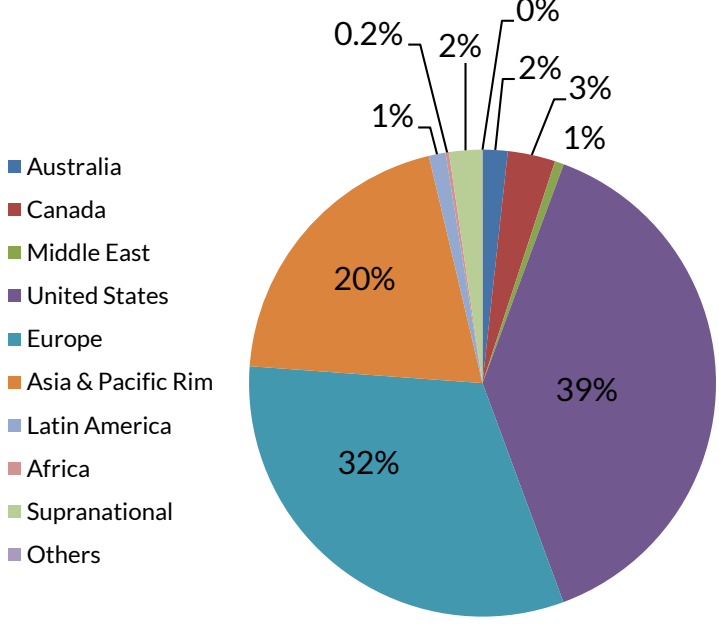
US MBS comprise 28 percent of the Barclays US Aggregate Index-- slightly less than either the US Treasury share (37%) or the US Credit share (31%). Fannie Mae 30-year MBS comprises the largest percent of US MBS (10%), while Ginnie Mae 30-year MBS and Freddie Mac 30-year MBS comprise 8 percent and 6 percent 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**



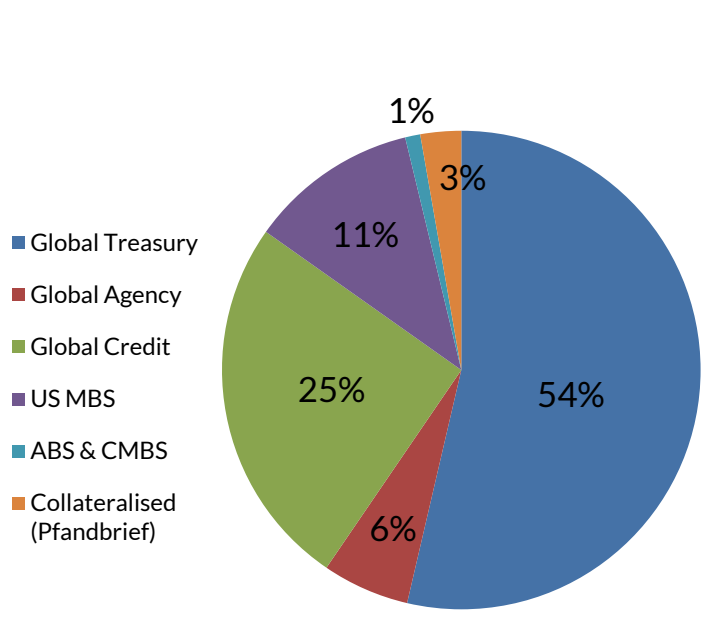
Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2017

**Barclays Global Aggregate Index by Country**



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

**Barclays Global Aggregate Index by Sector**

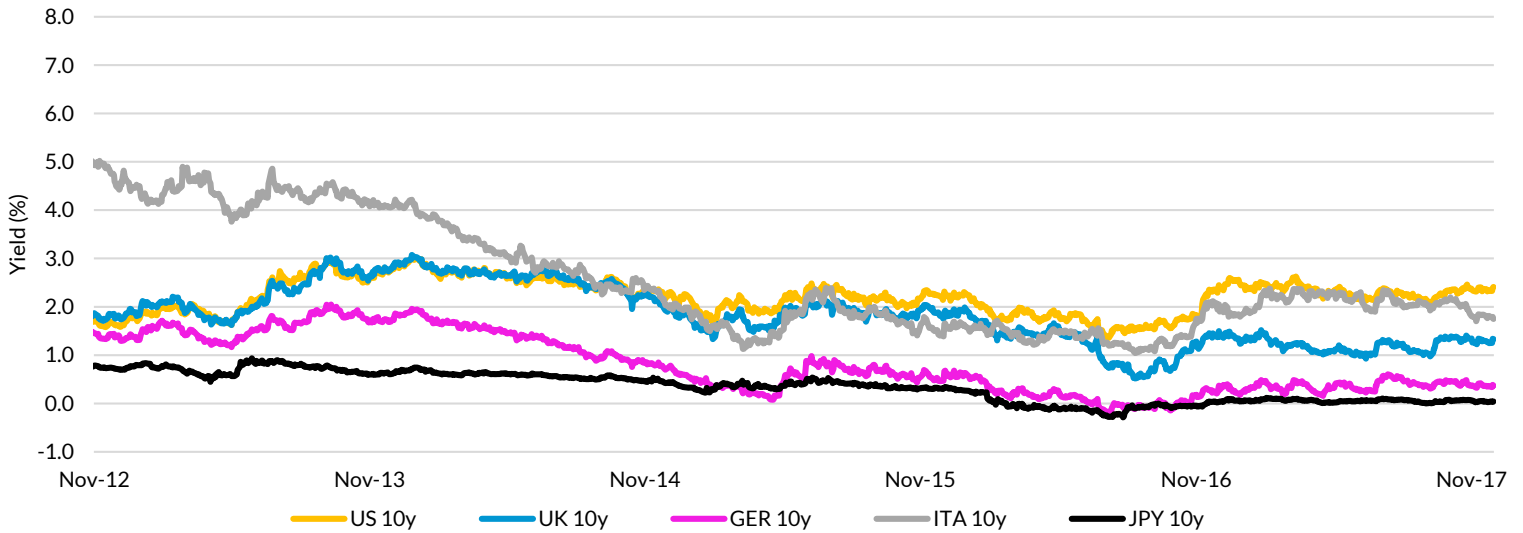


Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2017

# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

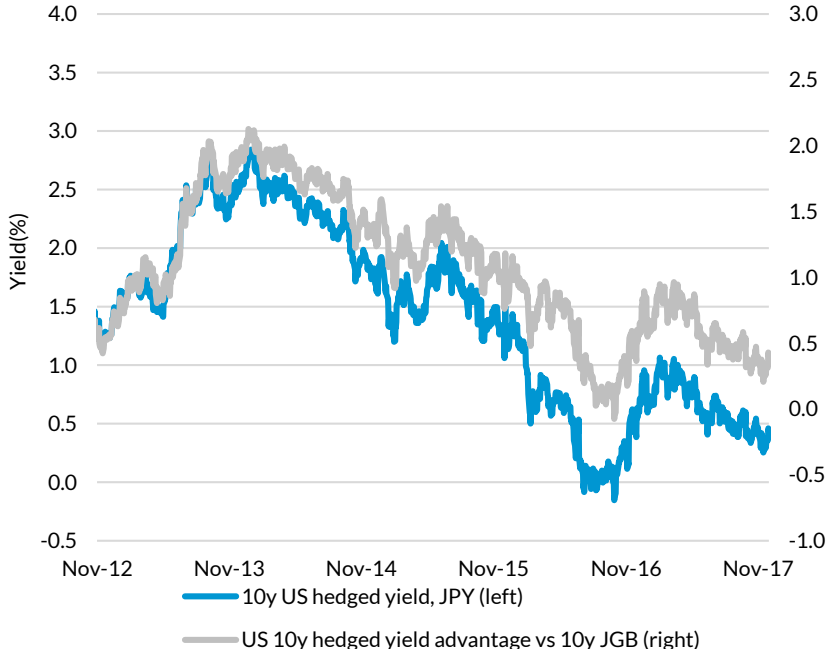
US Treasury interest rates, as measured by the 10-year note, are currently the highest in the developed world. The US 10-year Treasury note was at 2.38 percent in October, and has edged up to 2.41 percent this month. Interest rates for Italy declined for the second consecutive month to 1.75 percent. Interest rates for Germany, UK and Japan stayed stable at 1.33, 0.37 and 0.04 percent, respectively. If the Treasury notes are hedged into foreign currencies, 10-year US Treasury yields are 40 basis points (bps) above 10-year JGBs, and 27 bps below 10-year Bunds. The hedged yield difference between the 10-year Treasuries and JGBs is now 40 bps, while the hedged yield differential between the 10-year Treasuries and Bunds now stands at -27 bps.

### Global 10-year Treasury Yields



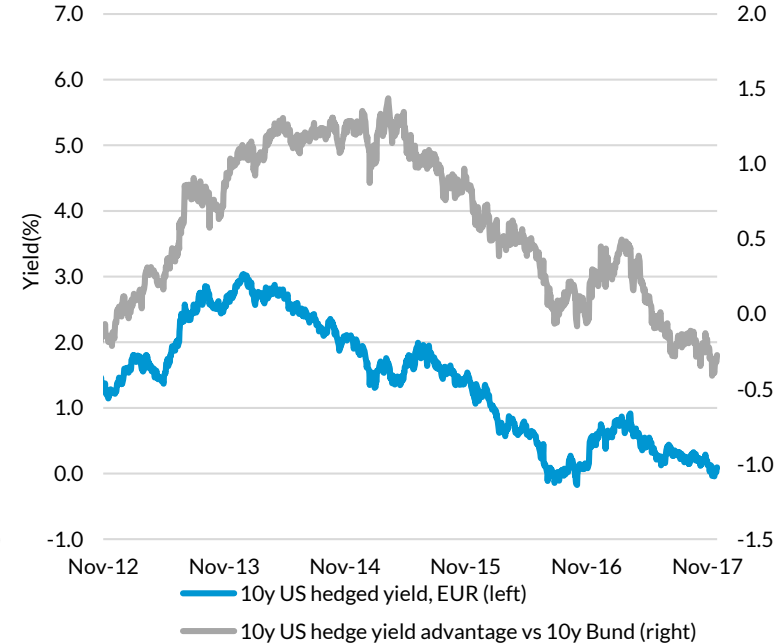
Sources: Bloomberg and State Street Global Advisors. Note: Data as of November 2017

### 10yr US Treasury hedged yield, JPY



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

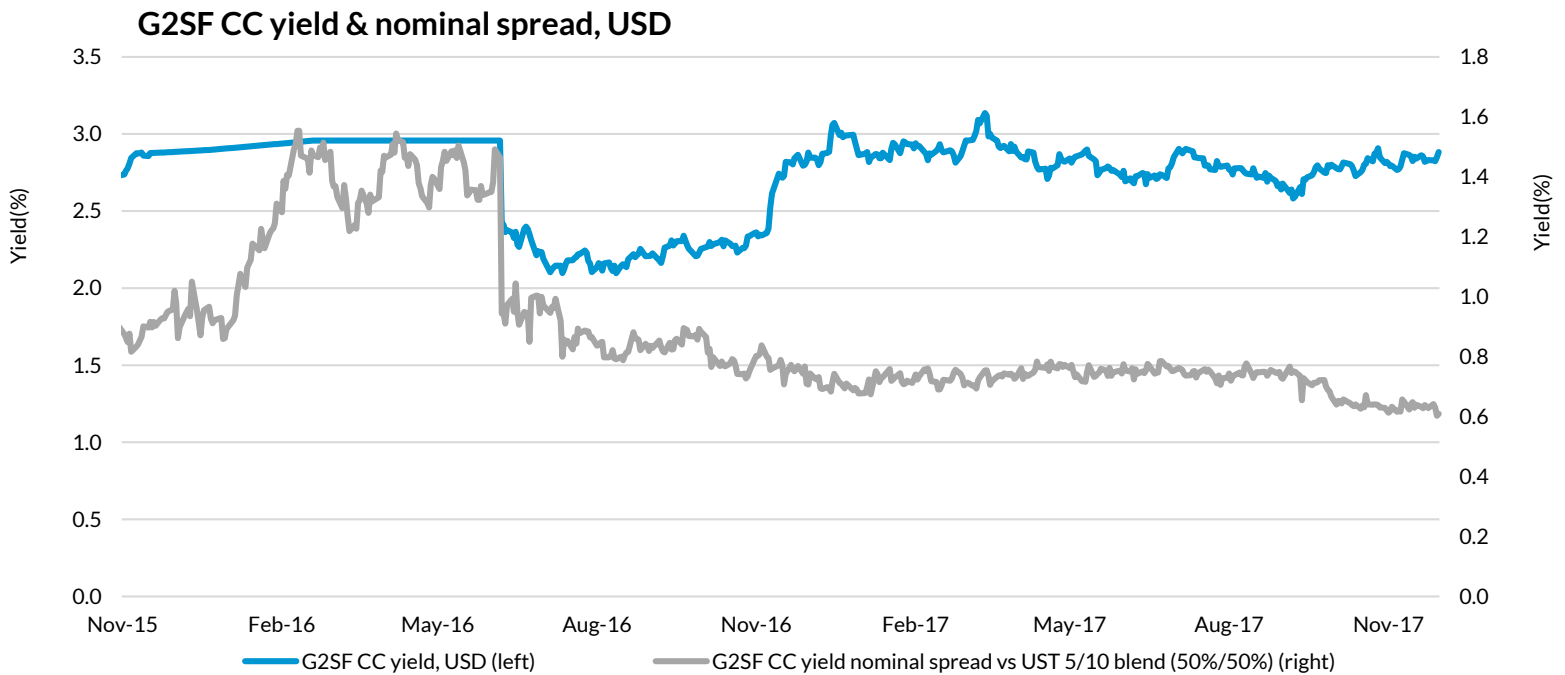
### 10yr US Treasury hedged yield, EUR



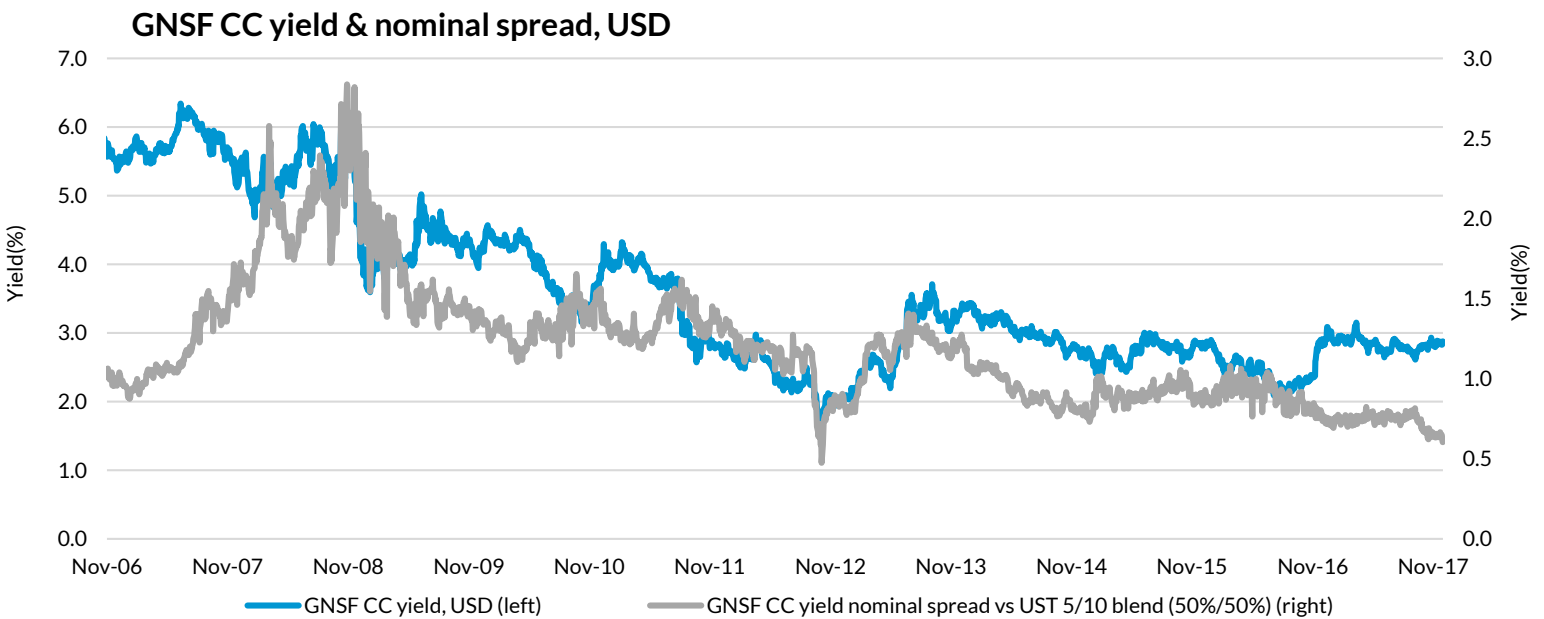
Sources: Bloomberg and State Street Global Advisors  
Note: Data as of November 2017

# Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

With the Fed shrinking its investments in MBS and Treasuries since October 2017, nominal yield spreads on current coupon GNMA II and GNMA I securities continued to tighten by 1 bp and 4 bps, respectively in November 2017. Current coupon Ginnie Mae securities currently outyield their Treasury counterparts (relative to the average of 5- and 10-year Treasury yields) by 61 and 60 bps on G2SF and GNSF, respectively.



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

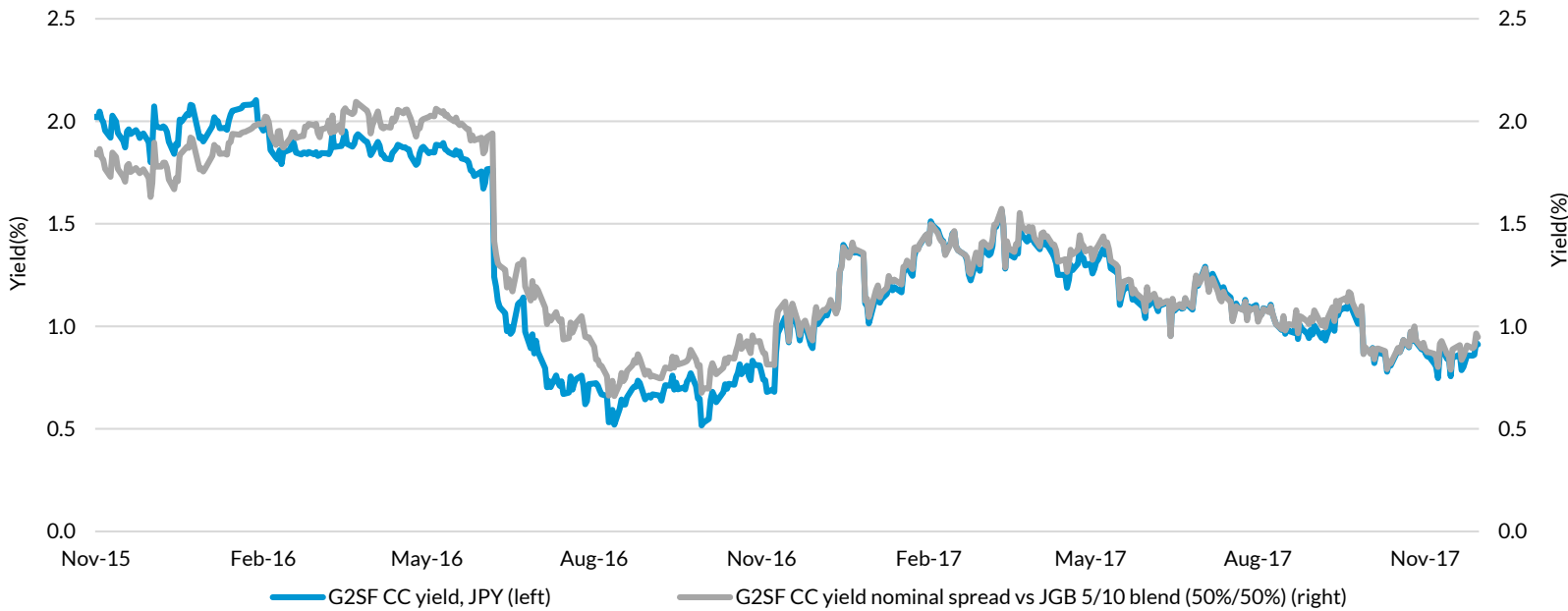


Sources: Bloomberg and State Street Global Advisors. Note: Data as of November 2017

# 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 95 and 94 bps, respectively.

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



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

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

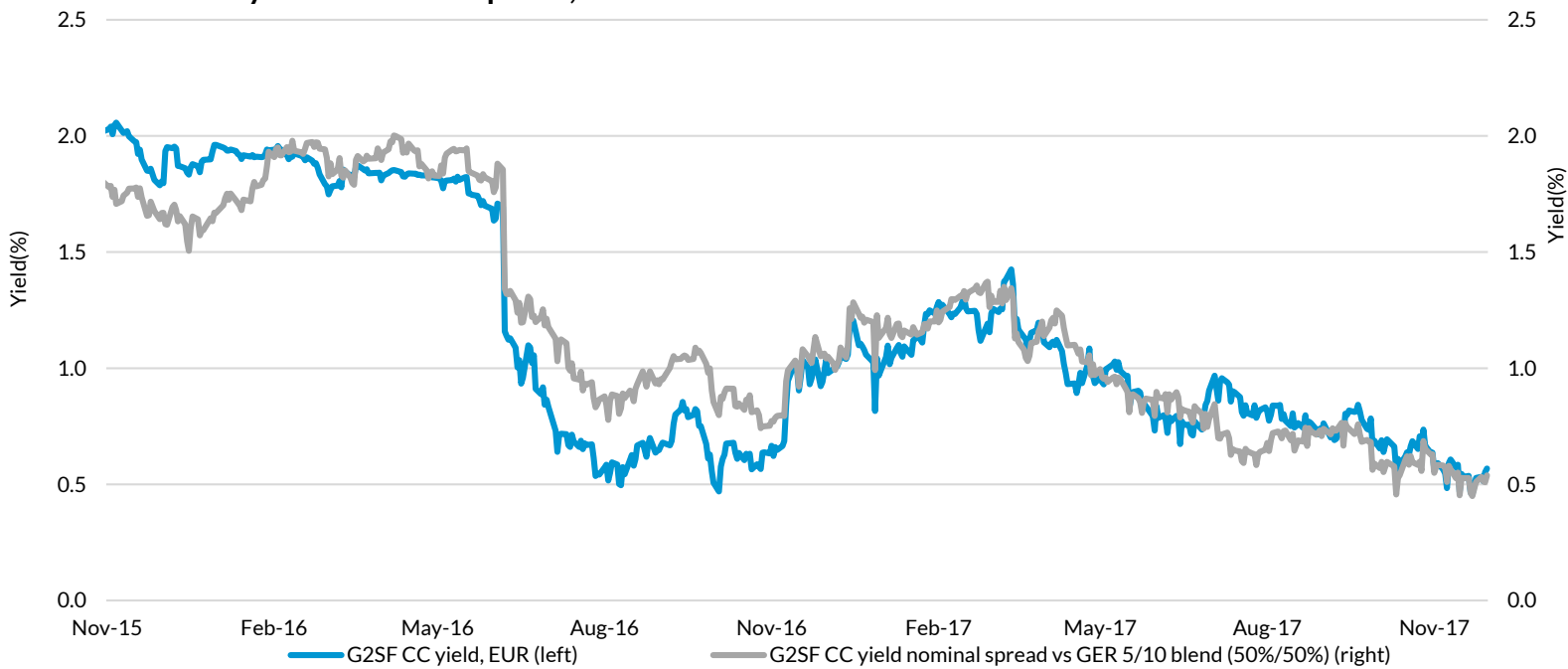


Sources: Bloomberg and State Street Global Advisors. Note: Data as of November 2017

# 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 54 and 53 bps, respectively.

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



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

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

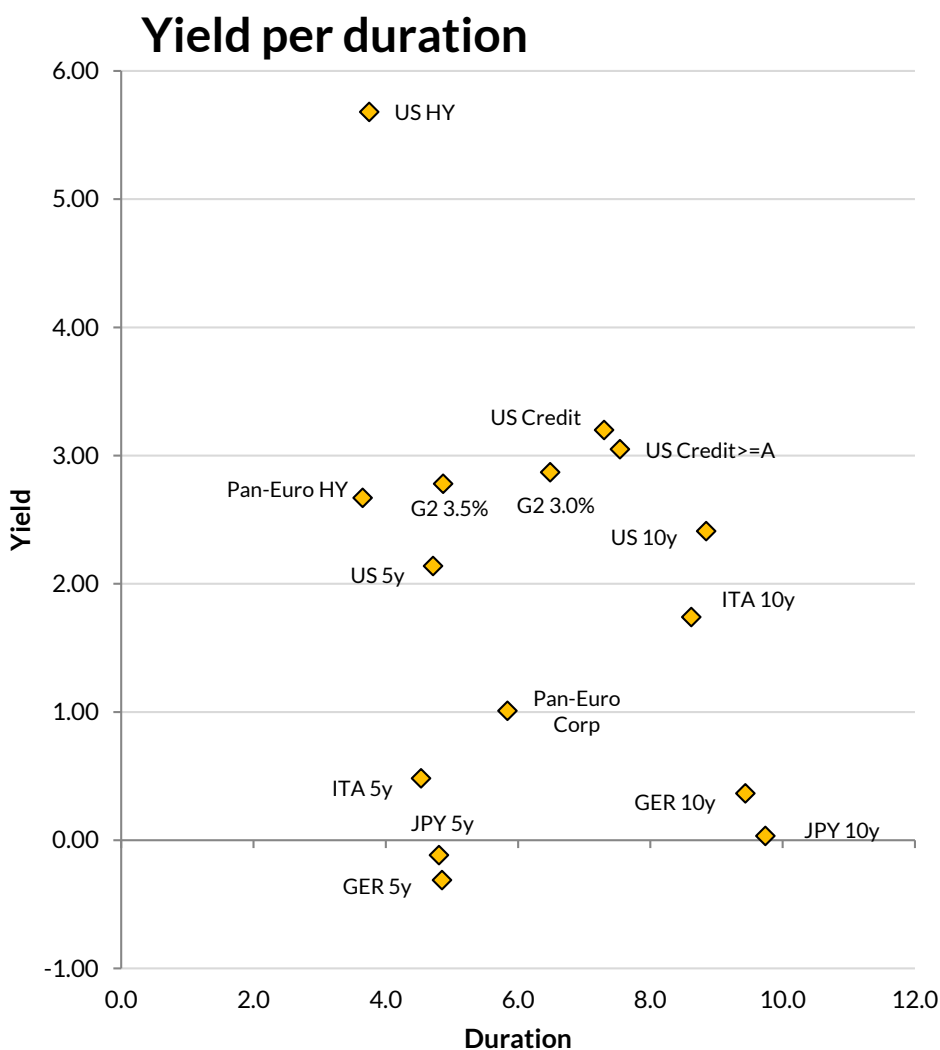


Sources: Bloomberg and State Street Global Advisors. Note: Data as of November 2017



# 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	2.14
US 10y	8.8	2.41
GNMA II 3%	6.5	2.87
GNMA II 3.5%	4.9	2.78
JPY 5y	4.8	-0.12
JPY 10y	9.7	0.03
GER 5y	4.9	-0.31
GER 10y	9.4	0.37
ITA 5y	4.5	0.48
ITA 10y	8.6	1.74
US credit	7.3	3.20
US credit >= A	7.5	3.05
US HY	3.8	5.68
Pan-Euro corp	5.8	1.01
Pan-Euro HY	3.7	2.7

Sources: Bloomberg and State Street Global Advisors. Note: Yields are in base currency of security and unhedged. Data as of November 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	0.13	0.16	0.50	0.24	0.74	0.67
3 year	0.13	0.12	0.30	0.21	0.48	0.45
5 year	0.14	0.10	0.28	0.32	0.50	0.57
10 year	0.32	0.28	0.47	0.38	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	0.06	0.08	0.43	0.31	0.66	0.74
3 year	0.10	0.08	0.27	0.26	0.45	0.50
5 year	0.12	0.08	0.26	0.35	0.48	0.60
10 year	0.29	0.25	0.44	0.36	0.67	0.76

## 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	0.52	0.51	0.74	0.72	0.70
3 year	0.46	0.99	1.13	1.15	1.66	1.45
5 year	0.66	0.91	1.15	1.11	1.51	1.29
10 year	0.75	1.20	1.75	1.45	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	0.17	0.16	0.84	0.42	0.92	1.06
3 year	0.21	0.08	0.24	0.23	0.27	0.34
5 year	0.18	0.08	0.22	0.32	0.32	0.47
10 year	0.39	0.21	0.25	0.25	0.22	0.21

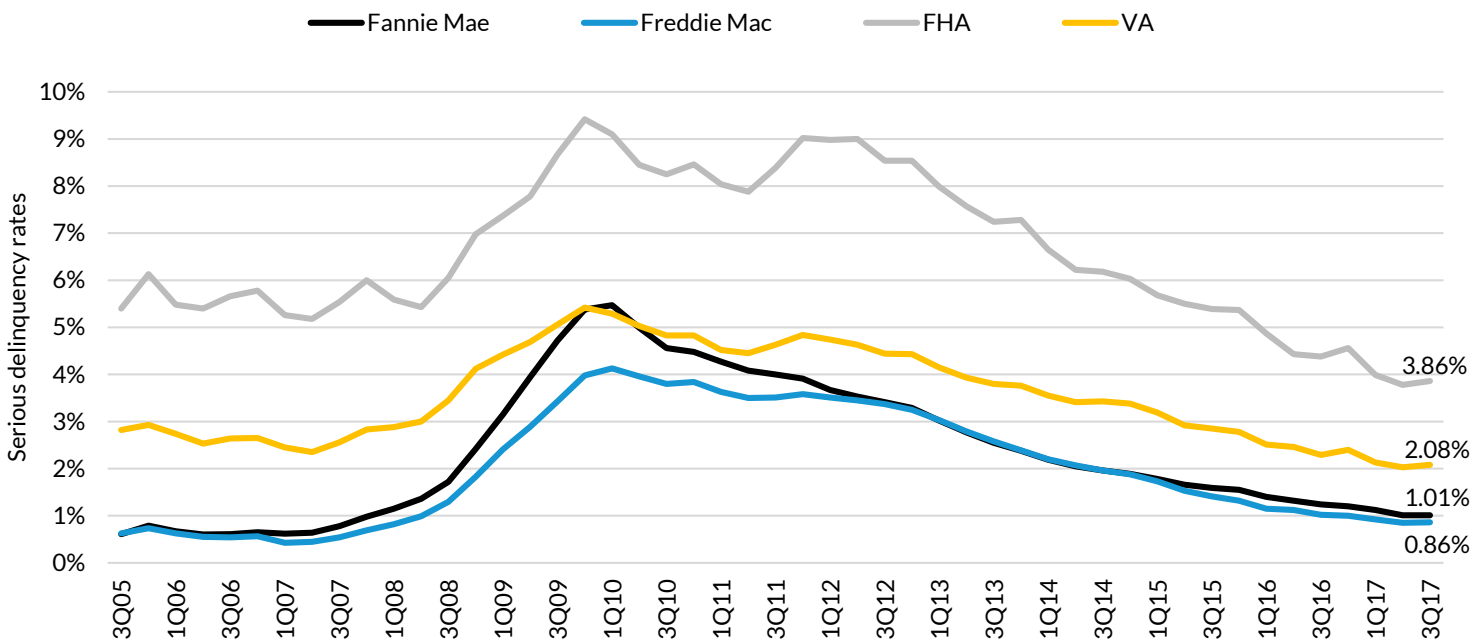
\*Assumes 2% capitalization max per issuer on high yield indices

Sources: Barclays Indices, Bloomberg and State Street Global Advisors Note: Data as of November 2017.

# State of the US Housing Market

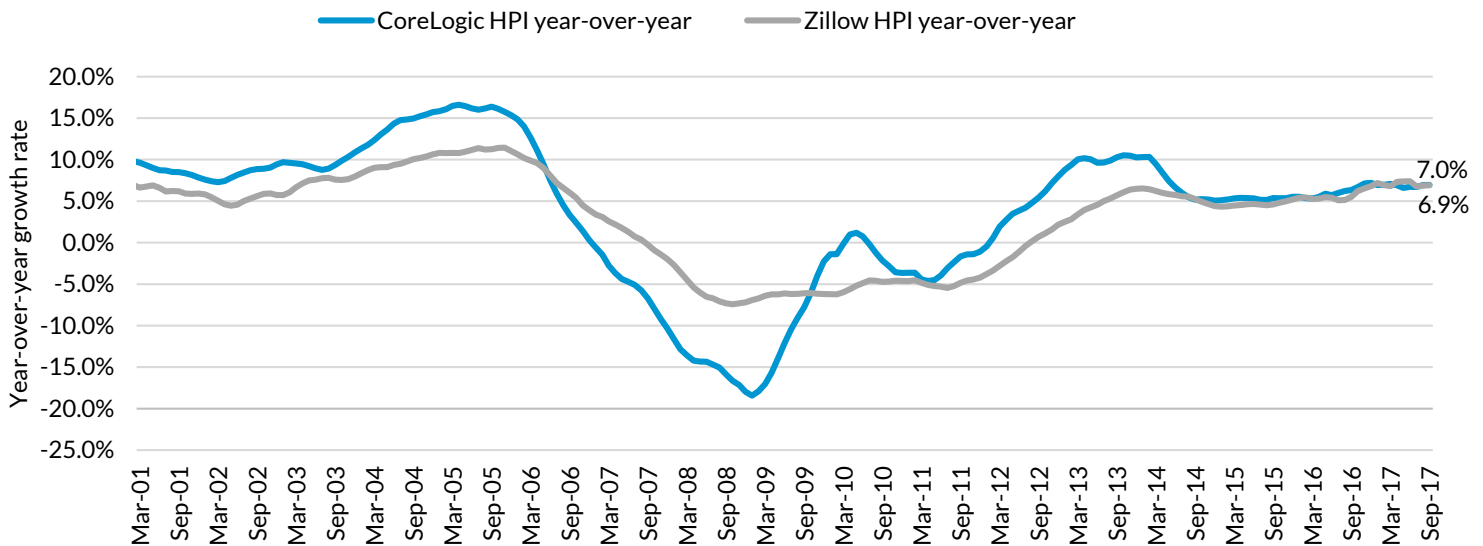
Serious delinquencies for GSE single-family loans remained flat. After their decline in the past two quarters, both FHA and VA delinquencies edged up to 3.86 and 2.08 percent in Q3 2017, reflecting primarily seasonal factors. GSE delinquencies remain high relative to 2005-2007, while FHA and VA delinquencies (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 September 2017.

# State of the US Housing Market

Nationally, the nominal home prices have improved by 50.5 percent since the trough, and have exceeded peak valuation. However, the picture is very different for different states, with many states well in excess of the prior peak, while Nevada is 32.6 percent below peak levels and Florida is 21.2 percent below peak levels.

State	HPI Changes			YOY	Current HPI % Below Peak
	2000 to Peak	Peak to Trough	Trough to Current		
<b>National</b>	93.7%	-33.2%	50.5%	7.0%	-0.5%
Alabama	46.5%	-20.7%	23.7%	4.8%	2.0%
Alaska	68.7%	-9.3%	18.4%	2.2%	-6.8%
Arizona	121.5%	-50.5%	67.6%	6.1%	20.6%
Arkansas	39.5%	-7.7%	15.4%	3.7%	-6.1%
California	149.0%	-42.5%	74.9%	7.3%	-0.7%
Colorado	40.4%	-13.8%	65.1%	8.2%	-29.8%
Connecticut	79.5%	-24.9%	9.9%	2.0%	21.1%
Delaware	90.3%	-23.9%	19.8%	2.5%	9.7%
District of Columbia	150.5%	-10.4%	38.1%	3.5%	-19.1%
Florida	149.2%	-49.7%	63.9%	6.2%	21.2%
Georgia	40.4%	-30.8%	53.1%	6.3%	-5.6%
Hawaii	152.7%	-20.5%	47.9%	7.9%	-14.9%
Idaho	85.7%	-40.9%	71.7%	8.9%	-1.4%
Illinois	60.0%	-32.6%	31.8%	4.0%	12.6%
Indiana	24.3%	-16.4%	28.4%	4.6%	-6.8%
Iowa	25.5%	-4.8%	21.9%	4.5%	-13.9%
Kansas	33.3%	-14.0%	26.4%	3.3%	-8.1%
Kentucky	26.9%	-8.9%	23.4%	5.9%	-11.1%
Louisiana	58.6%	-7.5%	24.2%	5.1%	-12.9%
Maine	92.5%	-16.6%	36.9%	7.5%	-12.5%
Maryland	137.7%	-31.2%	21.6%	3.2%	19.4%
Massachusetts	81.8%	-21.3%	39.8%	6.9%	-9.1%
Michigan	26.1%	-43.3%	76.3%	8.2%	0.0%
Minnesota	69.7%	-28.2%	43.7%	6.1%	-3.1%
Mississippi	35.4%	-18.7%	19.1%	3.2%	3.3%
Missouri	46.2%	-22.2%	32.0%	6.0%	-2.6%
Montana	80.2%	-16.7%	37.4%	5.9%	-12.6%
Nebraska	25.2%	-5.3%	27.5%	5.2%	-17.1%
Nevada	129.0%	-59.9%	88.1%	9.5%	32.6%
New Hampshire	82.5%	-23.9%	31.5%	5.6%	-0.1%
New Jersey	109.5%	-26.4%	17.7%	2.8%	15.4%
New Mexico	64.4%	-26.5%	20.5%	2.9%	13.0%
New York	102.1%	-13.9%	32.0%	6.2%	-12.0%
North Carolina	39.7%	-14.6%	27.7%	5.1%	-8.3%
North Dakota	49.4%	-2.0%	51.0%	5.4%	-32.4%
Ohio	22.2%	-20.5%	31.7%	5.0%	-4.5%
Oklahoma	35.7%	-3.2%	15.5%	2.1%	-10.6%
Oregon	87.5%	-29.3%	68.4%	8.8%	-16.0%
Pennsylvania	71.7%	-12.9%	16.9%	3.4%	-1.9%
Rhode Island	131.0%	-34.3%	32.5%	6.3%	15.0%
South Carolina	61.4%	-22.1%	32.7%	5.5%	-3.2%
South Dakota	37.3%	-3.5%	34.8%	7.4%	-23.2%
Tennessee	41.2%	-13.4%	36.6%	6.5%	-15.5%
Texas	39.4%	-13.2%	48.1%	5.6%	-22.2%
Utah	64.8%	-31.7%	63.8%	10.5%	-10.6%
Vermont	81.5%	-9.1%	14.9%	5.1%	-4.3%
Virginia	135.1%	-30.6%	30.3%	3.2%	10.5%
Washington	90.2%	-28.1%	68.0%	12.5%	-17.2%
West Virginia	82.0%	-27.7%	20.0%	-0.3%	15.3%
Wisconsin	48.7%	-17.2%	27.5%	5.9%	-5.3%
Wyoming	75.6%	-14.5%	28.6%	2.4%	-9.1%

Sources: CoreLogic and Urban Institute. Note: HPI data as of September 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 09/2017, the latest HPI data period.

# State of the US Housing Market

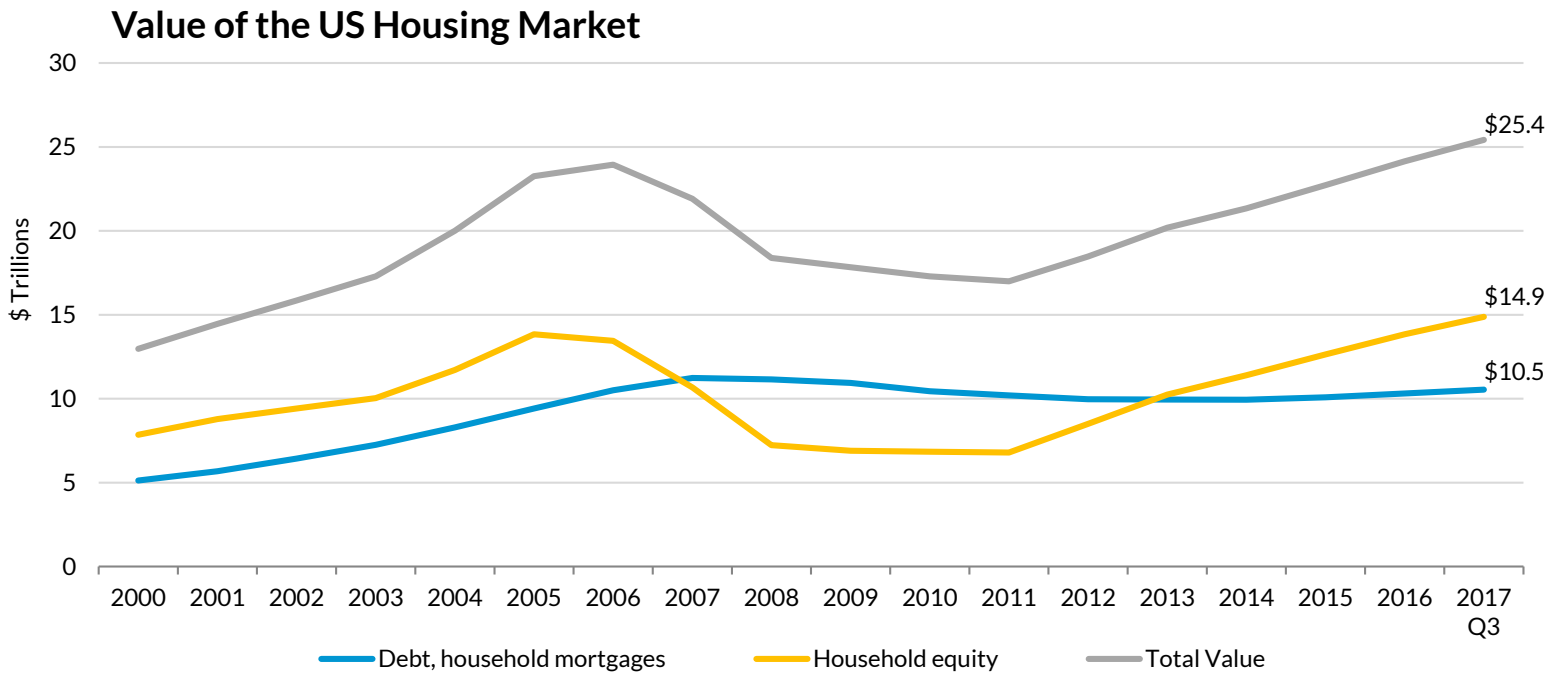
Ginnie Mae loans constitute 32.8 percent of outstanding agency issuance by loan balance, 33.7 percent of the issuance over the past year. However, the Ginnie Mae share varies widely across states, with the share of outstandings (as measured by loan balance) as low as 17.9 percent in the District of Columbia 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)
<b>National</b>	<b>33.7%</b>	<b>210.9</b>	<b>227.2</b>	<b>32.8%</b>	<b>176.5</b>	<b>206.9</b>
Alabama	45.7%	158.5	179.6	47.6%	141.1	167.9
Alaska	52.8%	278.0	242.2	52.3%	254.6	227.1
Arizona	36.0%	203.0	207.2	35.3%	173.9	189.2
Arkansas	43.4%	140.5	165.7	47.4%	121.8	152.2
California	27.6%	335.9	319.5	22.6%	281.4	290.1
Colorado	32.8%	268.1	259.0	31.2%	224.3	234.0
Connecticut	31.3%	214.4	227.5	30.0%	203.1	217.8
Delaware	39.4%	212.1	220.2	37.8%	197.4	207.0
District of Columbia	17.6%	402.2	355.4	17.9%	322.8	331.7
Florida	39.5%	203.5	199.6	37.1%	170.7	183.2
Georgia	41.5%	178.6	203.4	41.4%	153.1	184.9
Hawaii	38.8%	479.3	369.8	31.9%	412.6	342.9
Idaho	35.7%	186.8	191.2	35.9%	160.4	173.4
Illinois	25.5%	176.4	199.2	25.5%	154.6	182.7
Indiana	39.6%	138.6	154.8	40.2%	121.0	140.8
Iowa	25.3%	143.1	162.8	27.4%	124.3	147.9
Kansas	35.7%	151.4	173.4	37.5%	131.8	156.1
Kentucky	41.0%	146.5	165.1	40.7%	132.4	149.3
Louisiana	43.3%	168.1	189.1	44.3%	149.9	176.4
Maine	35.6%	180.3	195.1	33.3%	165.5	179.7
Maryland	44.6%	281.0	263.2	40.3%	250.8	246.1
Massachusetts	22.7%	282.2	276.2	19.9%	251.0	253.7
Michigan	26.3%	142.7	166.9	27.3%	122.5	150.5
Minnesota	25.6%	192.6	205.1	26.2%	168.6	189.1
Mississippi	50.4%	149.2	168.5	53.0%	131.1	157.1
Missouri	35.9%	149.1	171.0	37.1%	131.8	155.2
Montana	31.5%	208.5	209.0	32.3%	180.9	190.2
Nebraska	31.5%	159.0	168.1	36.2%	134.0	152.6
Nevada	42.2%	227.2	217.0	41.5%	193.6	195.5
New Hampshire	32.5%	225.3	219.3	30.7%	207.3	200.8
New Jersey	29.7%	248.1	263.3	28.5%	232.0	247.8
New Mexico	44.3%	175.5	183.8	44.5%	155.6	172.0
New York	26.9%	239.9	264.3	26.9%	203.6	241.4
North Carolina	35.1%	176.0	199.0	36.6%	153.7	183.5
North Dakota	28.2%	206.3	202.8	27.3%	178.4	184.1
Ohio	36.9%	139.3	155.6	38.4%	124.5	143.5
Oklahoma	46.8%	150.1	168.8	50.7%	130.4	156.1
Oregon	27.6%	242.1	247.5	26.2%	206.8	218.8
Pennsylvania	34.0%	166.6	192.2	34.3%	151.4	180.0
Rhode Island	36.9%	217.7	214.4	34.4%	198.7	202.1
South Carolina	40.5%	179.3	190.1	39.6%	156.8	176.4
South Dakota	36.8%	173.2	181.0	37.5%	153.6	163.7
Tennessee	41.8%	174.8	194.6	43.7%	148.6	176.7
Texas	36.0%	189.4	209.3	39.3%	150.9	189.5
Utah	31.6%	225.8	237.8	32.8%	198.4	215.9
Vermont	23.0%	193.9	192.7	20.0%	180.8	181.8
Virginia	45.3%	272.6	261.2	42.3%	241.8	243.5
Washington	32.1%	268.5	269.2	31.1%	229.3	240.5
West Virginia	48.4%	153.5	154.6	46.3%	138.2	146.3
Wisconsin	22.5%	162.8	174.0	22.0%	145.9	160.1
Wyoming	41.9%	209.8	207.2	42.1%	192.3	194.2

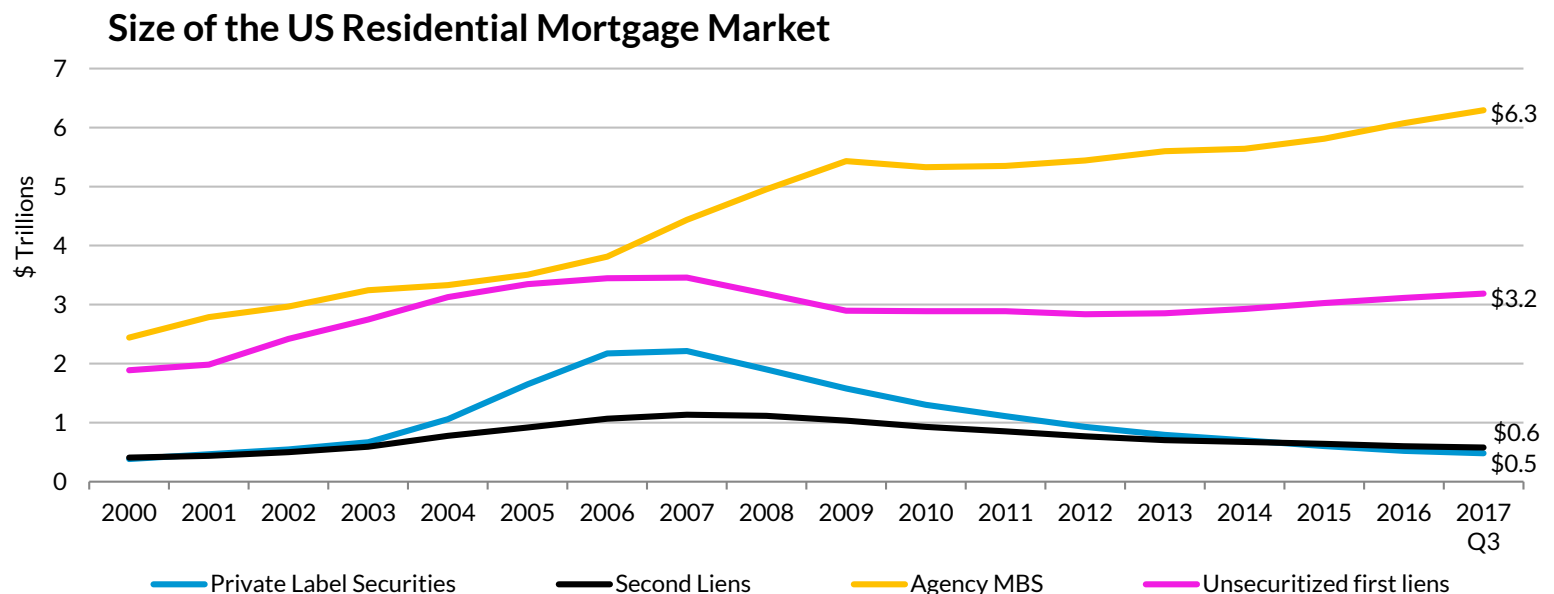
Sources: eMBS and Urban Institute. Note: Ginnie Mae share are based on loan balance as of September 2017.

# 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 unsecured 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.



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



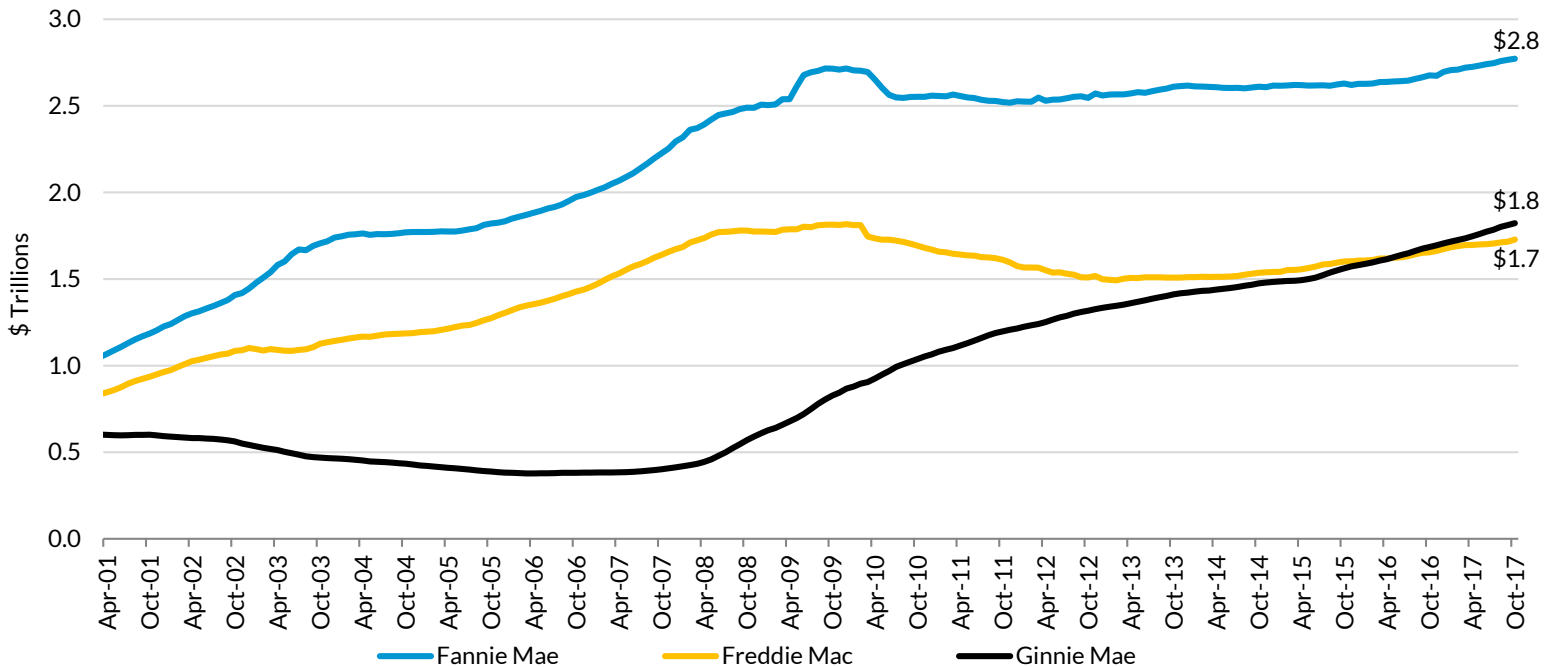
Sources: Federal Reserve Flow of Funds, Inside Mortgage Finance, Fannie Mae, Freddie Mac, eMBS and Urban Institute.

Note: Unsecured first liens includes loans held by commercial banks, GSEs, savings institutions, and credit unions. Data as of Q3 2017.

# State of the US Housing Market

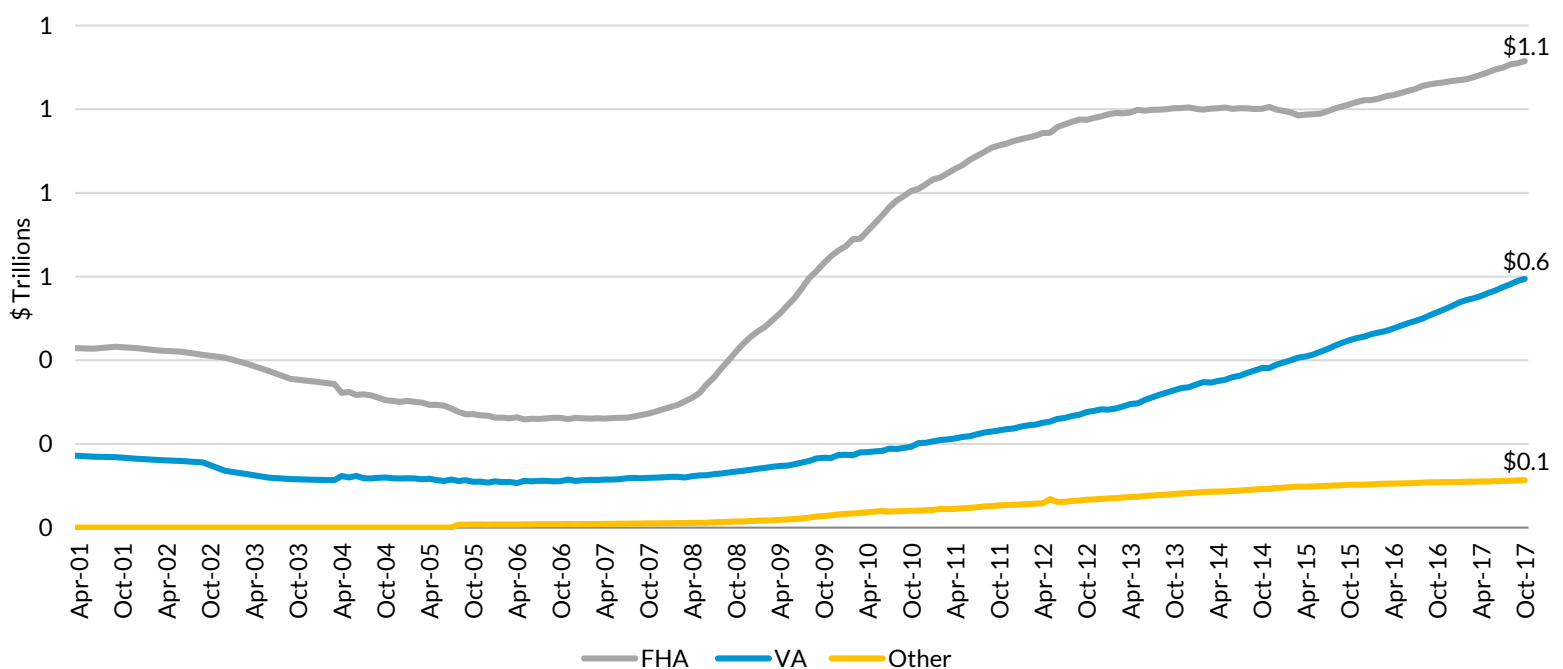
As of October 2017, outstanding securities in the agency market totaled \$6.32 trillion and were 43.8 percent Fannie Mae, 27.3 percent Freddie Mac, and 28.8 percent Ginnie Mae. Ginnie Mae now has more outstandings than Freddie Mac. Within the Ginnie Mae market, VA has been growing very rapidly--comprising 32.6 percent of total Ginnie Mae outstandings.

## Outstanding Agency Mortgage-Backed Securities



Sources: eMBS and Urban Institute Note: Data as of October 2017

## Outstanding Ginnie Mae Mortgage-Backed Securities

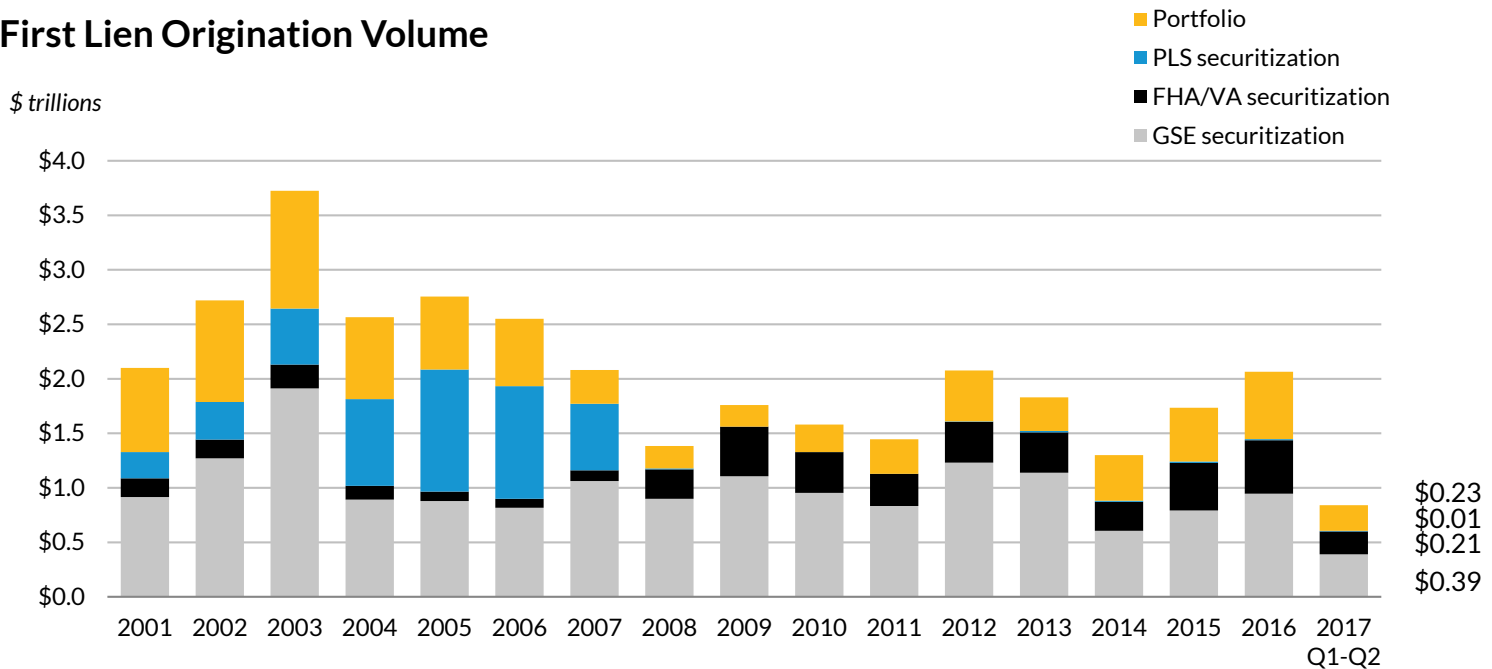


Sources: eMBS and Urban Institute. Note: Data as of October 2017

# State of the US Housing Market

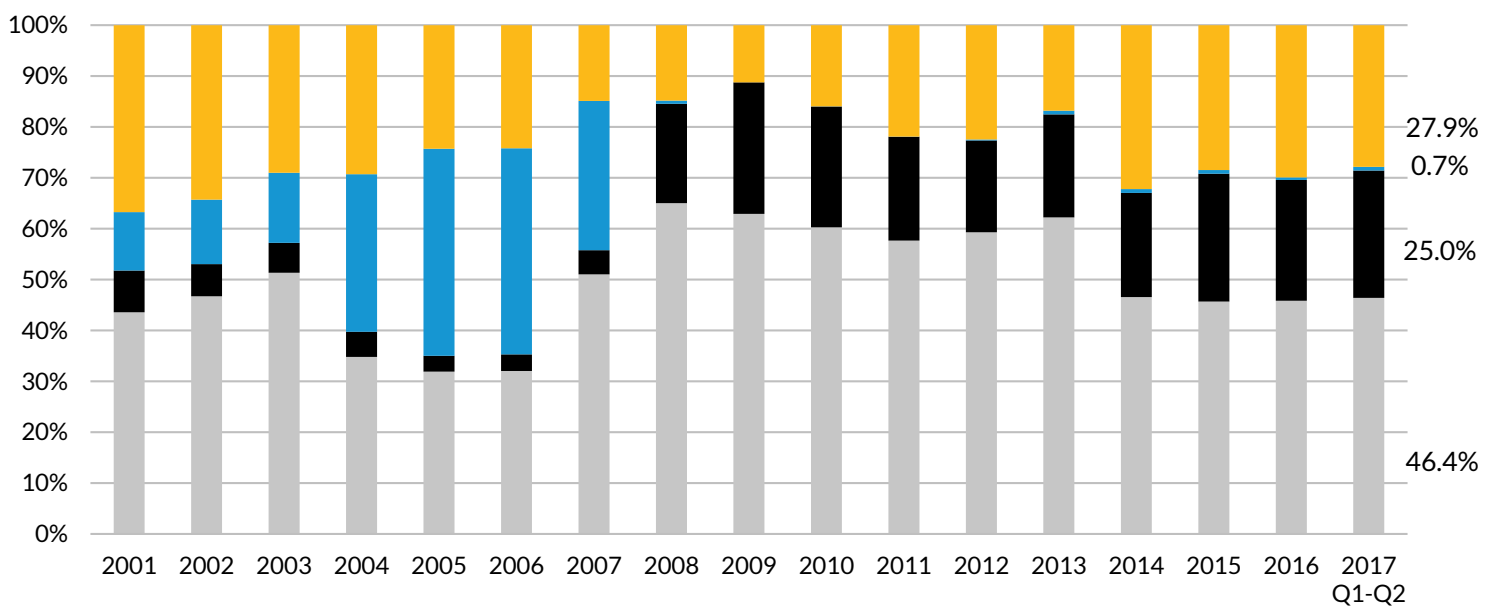
After a record origination year in 2016 (\$2.1 trillion), the highest since the great recession, first lien originations totaled \$840 billion in the first half of 2017, down 6 percent from the same period last year, mostly due to the elevated interest rates. The share of portfolio originations was 28 percent, down slightly from 30 percent in 2016. The GSE share stayed at about 46 percent. The FHA/VA share was slightly up: 25 percent for the first half 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 Q2 2017.

## First Lien Origination Share



Sources: Inside Mortgage Finance and Urban Institute. Note: Data as of Q2 2017.



# US Agency Market, Originations

Agency gross issuance totaled \$1,103 billion in the first ten months of 2017, a 8.4 percent decrease from the same period last year. Ginnie Mae issuance was down by 7.9 percent and GSE gross issuance was down by 8.6 percent. Within the Ginnie Mae market, FHA is down by 6.0 percent and VA origination is down by 11.7 percent. As a result of higher rates, originations for 2017 are expected to be 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	\$442.6	\$278.7	\$721.3	\$381.7	\$1,102.9
2017 YTD %Change YOY	-7.6%	-10.2%	-8.6%	-7.9%	-8.4%
2017 Ann.	\$531.1	\$334.4	\$865.5	\$458.0	\$1,323.5

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	\$218.2	\$146.4	\$17.1	\$381.6
2017 YTD %Change YOY	-6.0%	-11.7%	4.8%	-7.9%
2017 Ann.	\$261.8	\$175.6	\$20.5	\$457.9

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

Note: Dollar amounts are in billions. Annualized figure based on data from October 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 October 2017.

# US Agency Market, Originations

Agency net issuance totaled \$247.9 billion for the first ten months of 2017, up 23.0 percent over the same period last year. Ginnie Mae net issuance was \$116.5 billion, comprising 47.0 percent of total agency net issuance. Note that Ginnie Mae net issuance is up 11.9 percent versus the same time last year. Ginnie Mae net issuance is comprised of 55.6 percent VA issuance, 40.6 percent FHA issuance and 3.8 percent other issuance.

Agency Net Issuance					
Issuance Year	Fannie Mae	Freddie Mac	GSE Total	Ginnie Mae	Total Agency
2000	\$92.0	\$67.8	\$159.8	\$29.3	\$189.1
2001	\$216.6	\$151.8	\$368.4	-\$9.9	\$358.5
2002	\$218.9	\$138.3	\$357.2	-\$51.2	\$306.1
2003	\$293.7	\$41.1	\$334.9	-\$77.6	\$257.3
2004	\$32.3	\$50.2	\$82.5	-\$40.1	\$42.4
2005	\$62.5	\$111.7	\$174.2	-\$42.2	\$132.0
2006	\$164.3	\$149.3	\$313.6	\$0.2	\$313.8
2007	\$296.1	\$218.8	\$514.9	\$30.9	\$545.7
2008	\$213.0	\$101.8	\$314.8	\$196.4	\$511.3
2009	\$208.1	\$42.5	\$250.6	\$257.4	\$508.0
2010	-\$156.4	-\$146.8	-\$303.2	\$198.3	-\$105.0
2011	-\$32.6	-\$95.8	-\$128.4	\$149.6	\$21.2
2012	\$32.9	-\$75.3	-\$42.4	\$119.1	\$76.8
2013	\$57.5	\$11.6	\$69.1	\$87.9	\$157.0
2014	\$0.5	\$30.0	\$30.5	\$61.6	\$92.1
2015	\$10.2	\$65.0	\$75.1	\$97.3	\$172.5
2016	\$68.6	\$66.8	\$135.5	\$125.3	\$260.8
2017 YTD	\$76.1	\$55.3	\$139.6	\$116.5	\$247.9
2017 YTD %Change YOY	55.7%	13.9%	43.2%	11.9%	23.0%
2017 Ann.	\$91.3	\$66.4	\$152.2	\$139.8	\$297.5

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	\$47.3	\$64.8	\$4.4	\$116.5
2017 YTD %Change YOY	16.9%	11.6%	-21.3%	11.9%
2017 (Ann.)	\$56.8	\$77.7	\$5.3	\$139.8

Sources: eMBS and Urban Institute (top and bottom)

Note: Dollar amounts are in billions. Annualized figure based on data from October 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 October 2017.

# US Agency Market, Originations

Agency gross issuance totaled 116.0 billion in October 2017, up slightly from 115.5 billion of issuance in September 2017. Monthly agency gross issuance is down year-over-year since March 2017, due to elevated mortgage rates. Less dependent on refinances, the Ginnie Mae share has increased from 29 percent to 35 percent in the first ten months of 2017.

## Monthly Agency Issuance

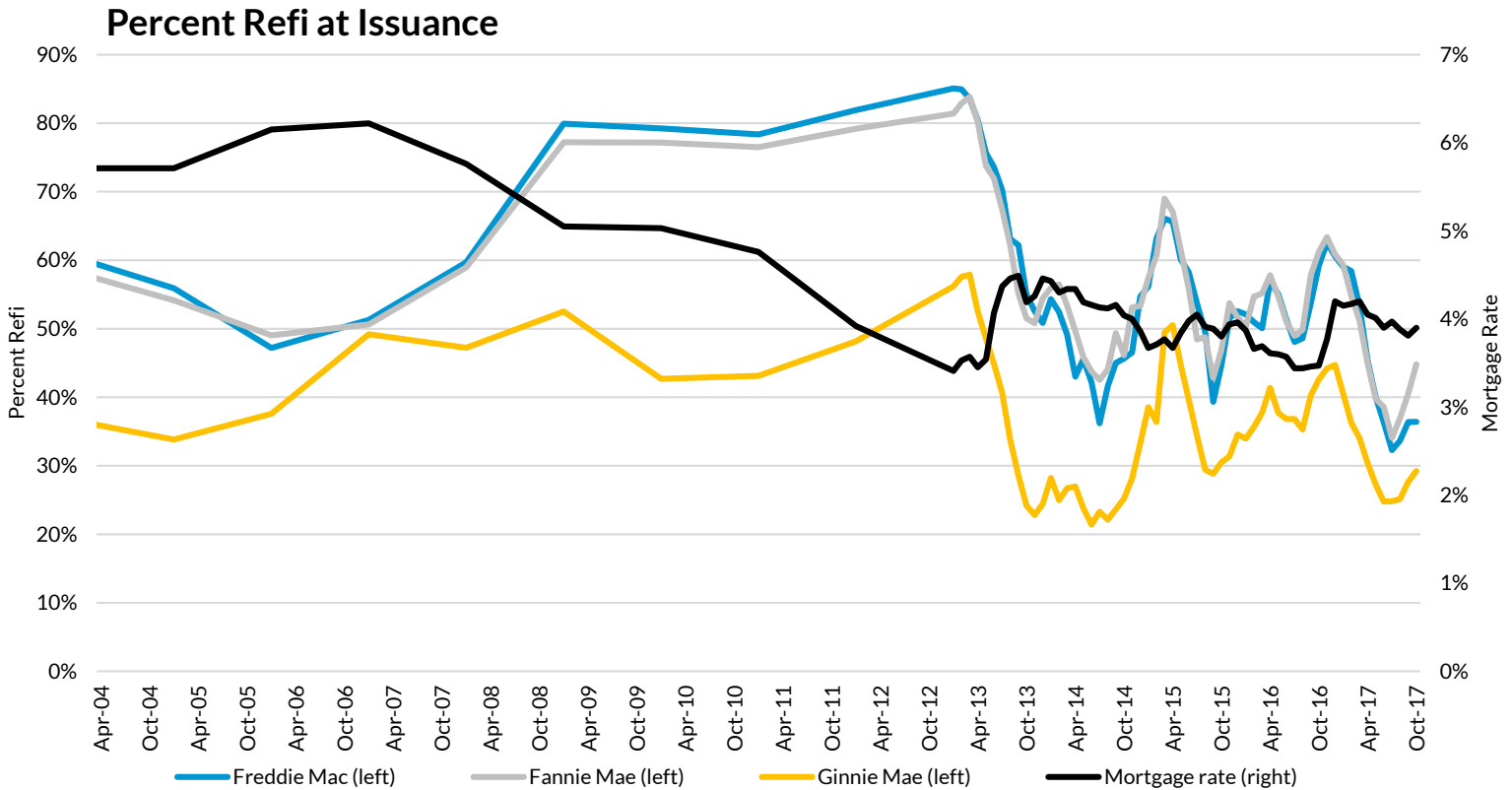
Date	Gross Issuance			Net Issuance		
	Fannie Mae	Freddie Mac	Ginnie Mae	Fannie Mae	Freddie Mac	Ginnie Mae
Jan-14	\$28.2	\$20.0	\$21.6	-\$4.9	\$0.5	\$4.9
Feb-14	\$27.9	\$17.9	\$20.1	-\$0.2	\$1.2	\$5.2
Mar-14	\$24.1	\$14.7	\$16.7	-\$2.3	-\$0.9	\$1.9
Apr-14	\$28.0	\$18.7	\$21.7	-\$1.9	\$1.2	\$5.2
May-14	\$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	\$11.0

Sources: eMBS and Urban Institute.

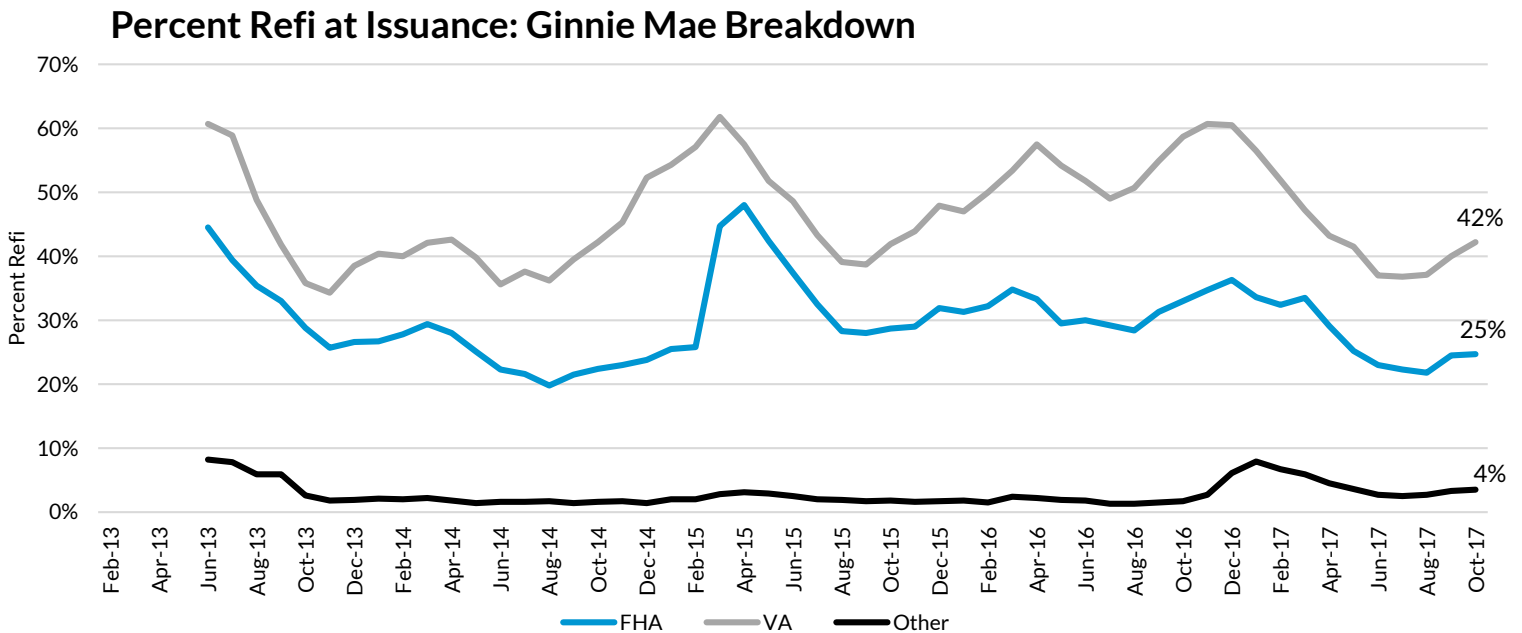
Note: Dollar amounts are in billions. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of October 2017.

# US Agency Market, Originations

The Ginnie Mae refi share stood at 29 percent in October 2017, below the 36 and 45 percent shares for Fannie Mae and Freddie Mac, respectively. Within Ginnie Mae, VA had the highest refi share at 42 percent in October 2017, followed by FHA's 25 percent refi share.



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



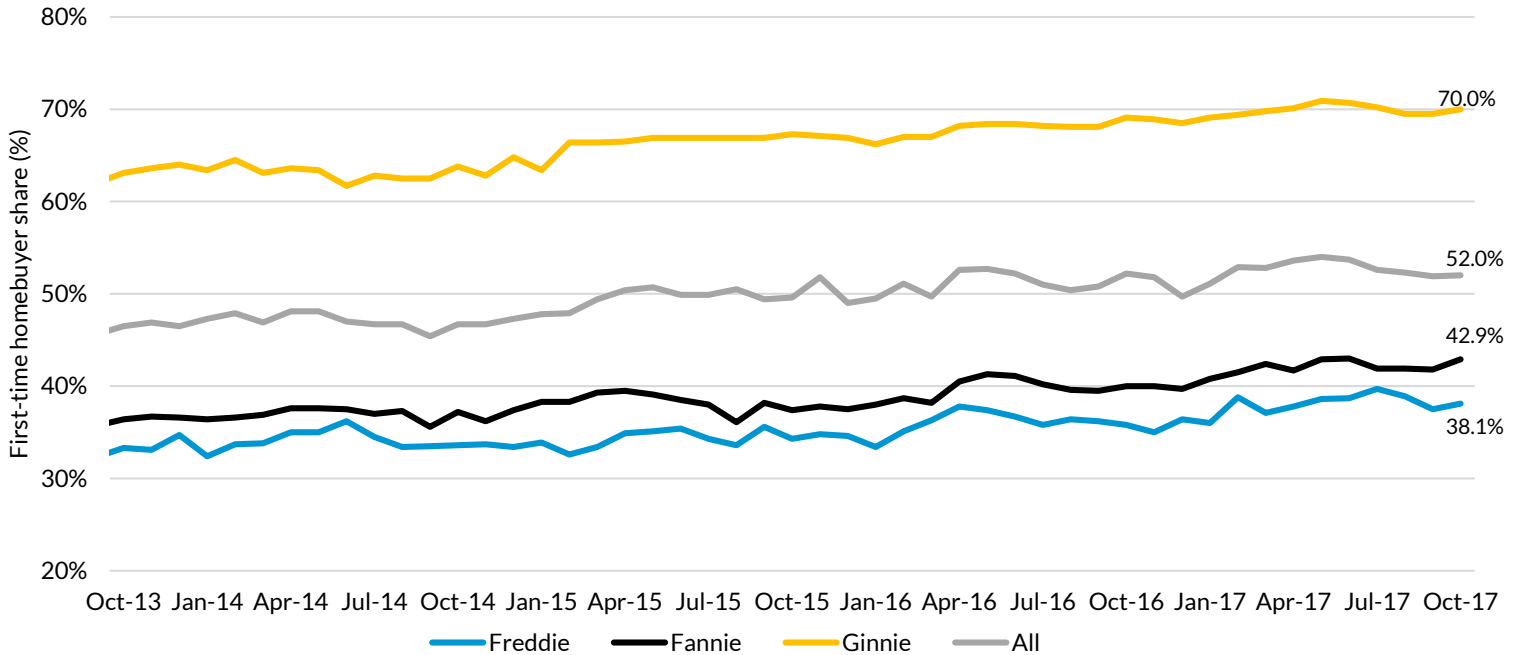
Sources: eMBS and Urban Institute.

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 October 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 43 percent and 38 percent share of the first-time homebuyer market. The bottom table shows that based on mortgages originated in October 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 October 2017.

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$Thousands)	239,241	257,568	222,891	250,594	200,809	248,367	214,820	252,419
Credit Score	741.6	754.3	737.1	753.3	682.4	703.0	709.7	739.0
LTV (%)	86.4	79.6	87.8	78.6	96.8	95.5	92.2	83.9
DTI (%)	34.8	35.6	35.3	35.6	40.8	41.8	38.1	37.4
Loan Rate (%)	4.15	4.07	4.20	4.05	4.15	4.01	4.16	4.04

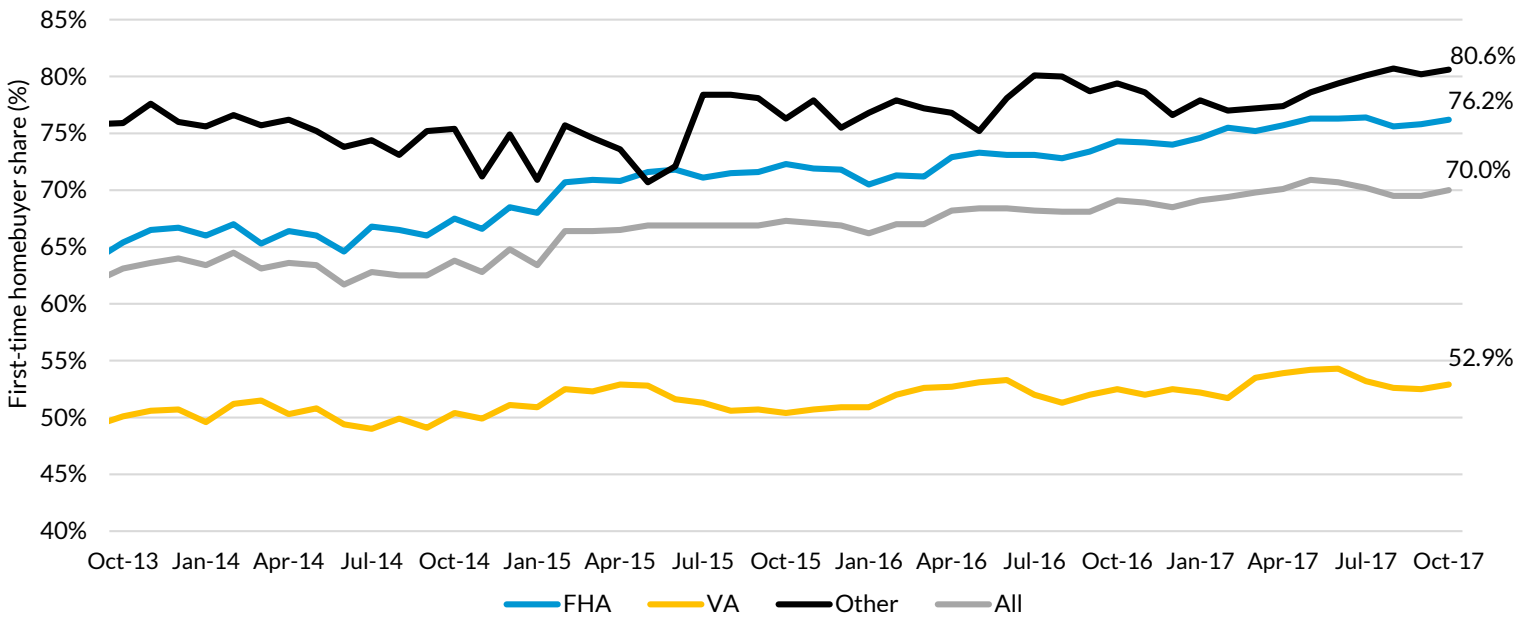
Sources: eMBS and Urban Institute.

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 October 2017.

# Credit Box

Within the Ginnie Mae purchase market, 76 percent of FHA loans, 53 percent of VA loans and 81 percent of other loans represent financing for first time home buyers. The bottom table shows that based on mortgages originated in October 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 October 2017.

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$ Thousands)	199,085	221,216	237,225	290,783	142,355	161,611	200,809	248,367
Credit Score	674.8	681.3	698.7	726.9	696.9	702.6	682.4	703.0
LTV (%)	95.5	94.0	99.8	96.5	99.2	99.5	96.8	95.5
DTI (%)	42.2	43.2	39.8	41.0	34.8	35.7	40.8	41.8
Loan Rate (%)	4.21	4.14	3.99	3.86	4.08	4.06	4.15	4.01

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

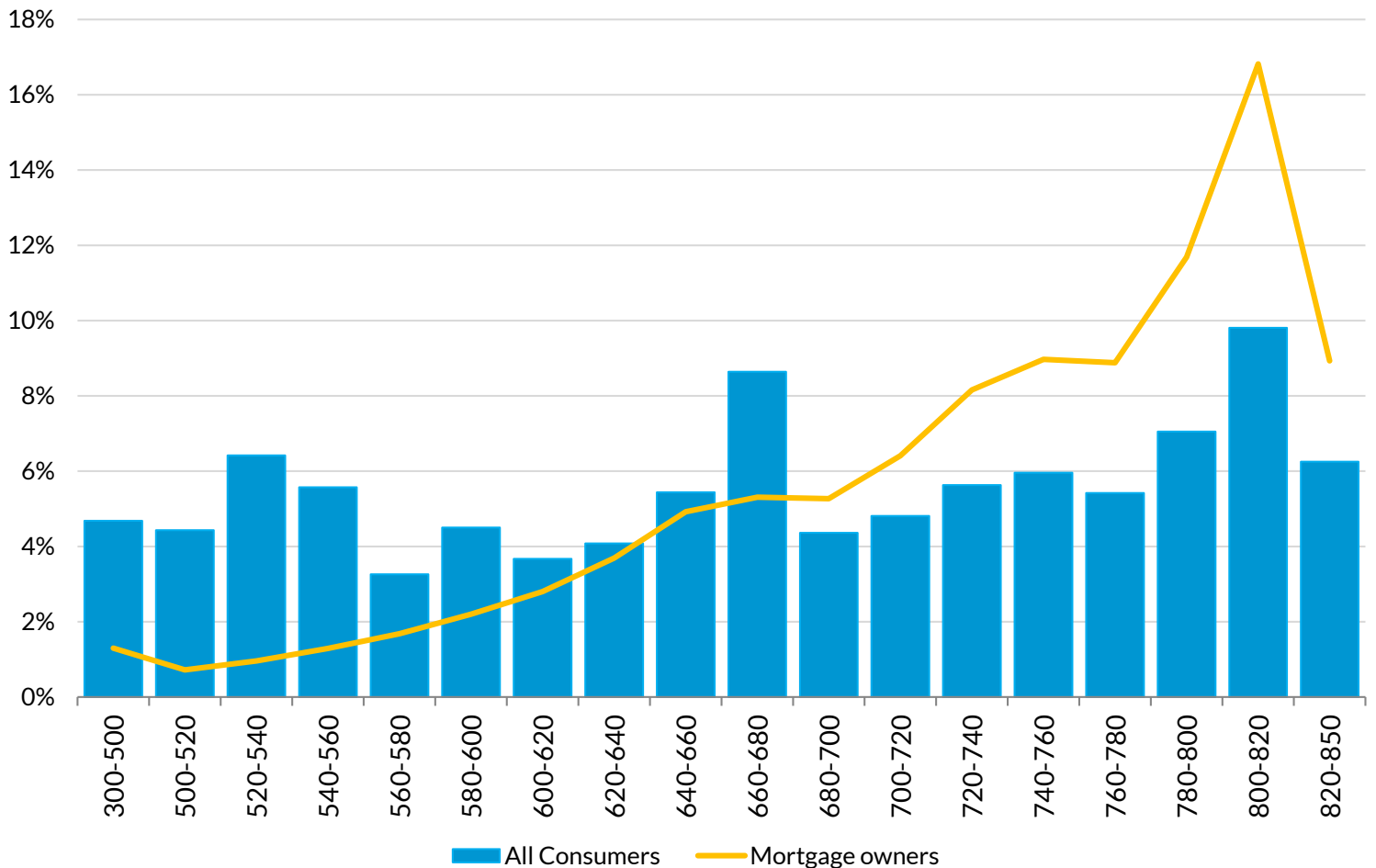
# Credit Box

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.

# October 2017 Credit Box at a Glance

In October 2017, the median Ginnie Mae FICO score was 681 versus 749 for Fannie and 753 for Freddie. Note that the FICO score for the 10<sup>th</sup> percentile was 624 for Ginnie Mae, versus 670 for Fannie and 680 for Freddie. Within the Ginnie Mae market, FHA loans have a median FICO score of 669, VA loans have a median FICO score of 706 and other loans have a median FICO score of 694.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	304,337	645	681	731	775	797	726
Fannie	100,732	680	715	756	786	801	747
Freddie	86,326	687	720	759	787	802	751
Ginnie	117,279	626	648	681	725	770	689
Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	179,389	645	682	727	772	796	723
Fannie	79,681	661	696	740	779	799	734
Freddie	56,666	668	702	743	778	799	737
Ginnie	43,042	616	645	681	724	768	685
All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	483,726	645	682	729	774	797	725
Fannie	180,413	670	706	749	783	801	742
Freddie	142,992	680	712	753	784	801	745
Ginnie	160,321	624	647	681	725	769	688

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	117,279	626	648	681	725	770	689
FHA	72,542	622	643	670	706	744	676
VA	33,214	634	663	710	764	793	712
Other	11,523	642	661	694	733	767	698

Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	43,042	616	645	681	724	768	685
FHA	21,478	603	634	664	700	739	667
VA	21,210	631	662	700	747	784	703
Other	354	617	656	691	742	777	692

All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	160,321	624	647	681	725	769	688
FHA	94,020	619	641	669	705	743	674
VA	54,424	633	663	706	757	790	708
Other	11,877	642	661	694	733	767	698

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 October 2017.



# October 2017 Credit Box at a Glance

In October 2017, the median loan-to-value ratio (LTV) was 96.5 percent for Ginnie Mae, and 80.0 percent for Fannie Mae and Freddie Mac. The 10<sup>th</sup> percentile was 82.5 percent for Ginnie Mae and 50-51 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	304,795	72.0	80.0	95.0	96.5	100.0	87.5
Fannie	100,839	63.0	80.0	80.0	95.0	97.0	82.2
Freddie	86,418	63.0	79.0	80.0	95.0	95.0	81.5
Ginnie	117,538	93.0	96.5	96.5	100.0	101.0	96.4

Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	182,262	46.0	61.0	75.0	82.0	93.0	71.5
Fannie	79,700	43.0	57.0	70.0	79.0	80.0	66.3
Freddie	56,730	43.0	58.0	71.0	80.0	80.0	66.8
Ginnie	45,832	69.0	81.4	86.5	96.9	100.0	86.3

All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	487,057	57.0	74.0	83.2	96.5	97.7	81.5
Fannie	180,539	50.0	67.0	80.0	90.0	95.0	75.2
Freddie	143,148	51.0	68.0	80.0	90.0	95.0	75.7
Ginnie	163,370	82.5	92.6	96.5	100.0	101.0	93.6

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	117,538	93.0	96.5	96.5	100.0	101.0	96.4
FHA	72,689	93.3	96.5	96.5	96.5	96.5	95.1
VA	33,273	91.1	100.0	100.0	102.2	103.0	98.2
Other	11,576	95.4	99.1	101.0	101.0	101.0	99.3

Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	45,832	69.0	81.4	86.5	96.9	100.0	86.3
FHA	22,118	67.6	80.0	86.5	88.6	96.9	83.1
VA	23,308	70.0	83.0	92.8	100.0	102.0	89.2
Other	406	77.0	83.6	94.0	100.3	101.1	90.7

All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	163,370	82.5	92.6	96.5	100.0	101.0	93.6
FHA	94,807	83.3	91.5	96.5	96.5	96.5	92.3
VA	56,581	79.8	91.1	100.0	100.0	102.7	94.5
Other	11,982	94.6	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 October 2017.

# October 2017 Credit Box at a Glance

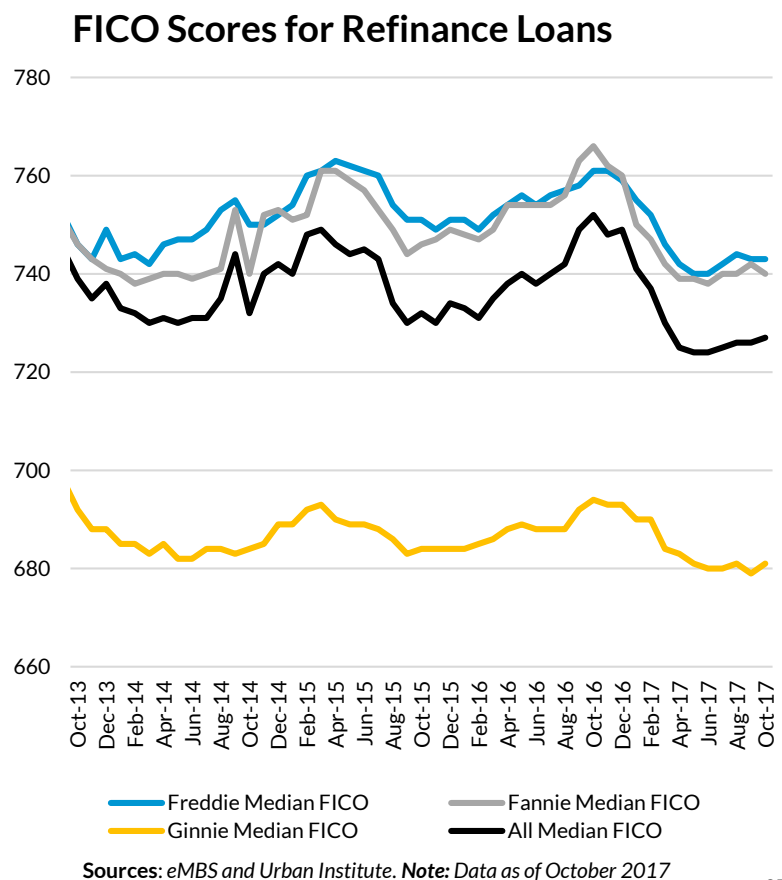
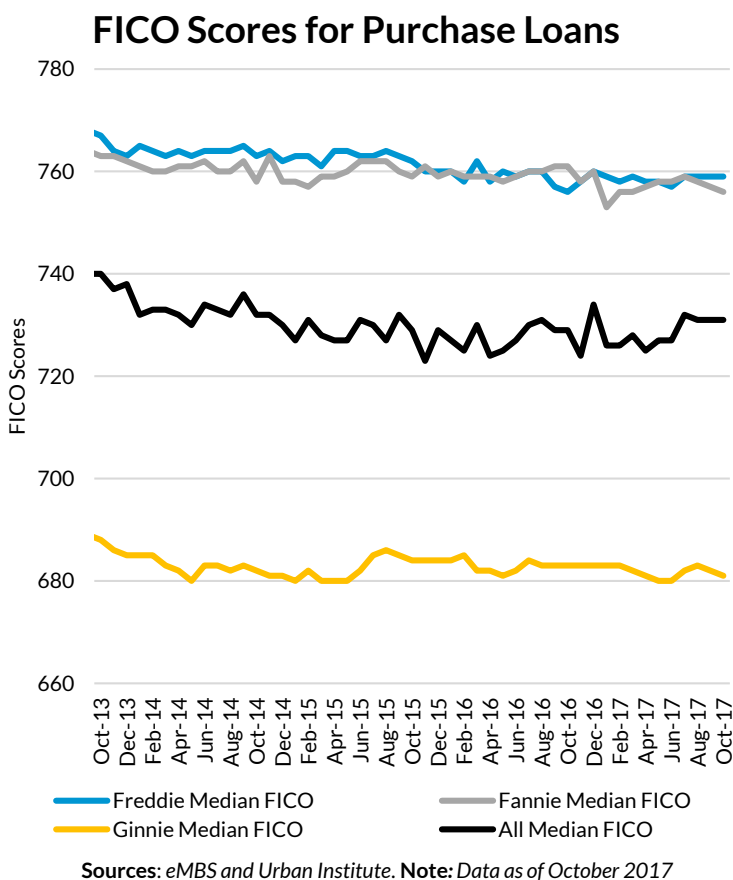
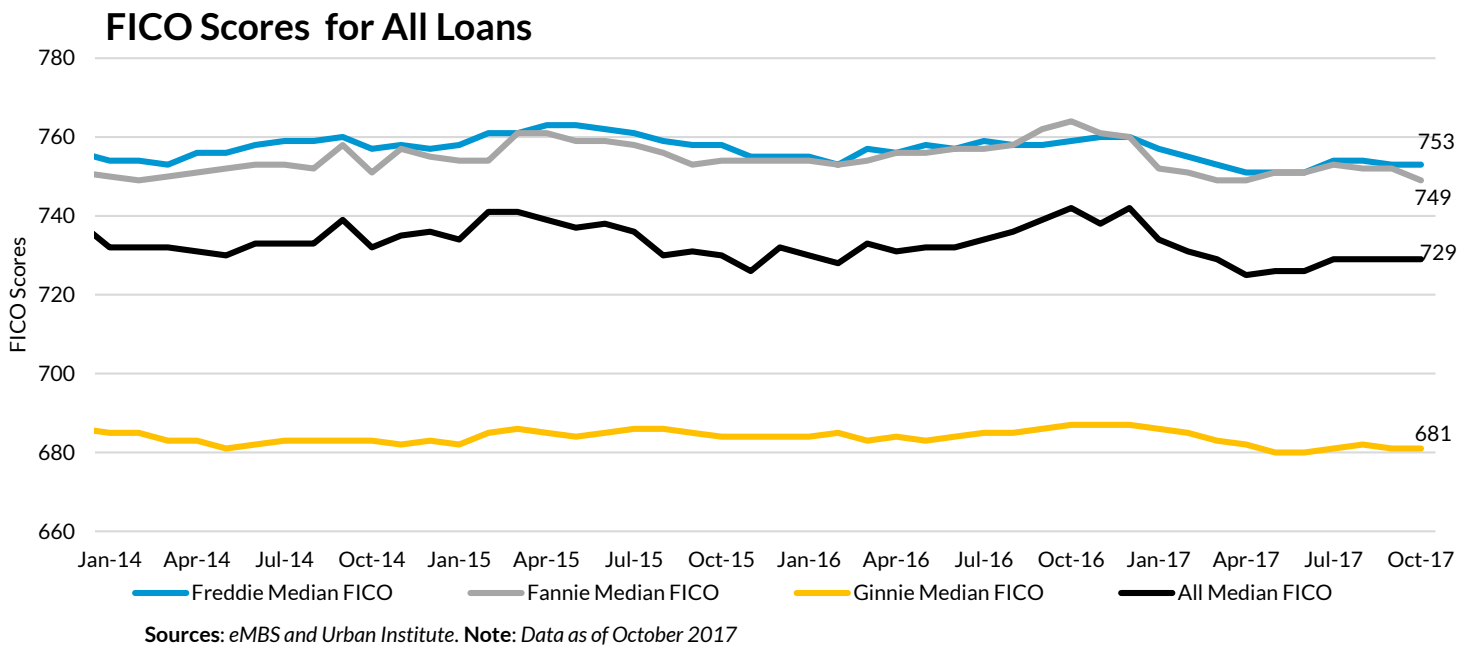
In October 2017, the median Ginnie Mae debt-to-income ratio (DTI) was 41.6 percent, considerably higher than the 36.0 percent median DTIs for Fannie Mae and Freddie Mac. The 90<sup>th</sup> percentile for Ginnie Mae was 53.3 percent, also much higher than the 46-47 percent DTIs for the GSEs. Within the Ginnie Mae market, the median FHA DTI ratio was 43.2 percent, versus 40.6 percent for VA and 35.9 percent for other lending programs.

Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	304,339	24.0	31.0	38.6	44.5	49.0	37.5
Fannie	100,837	22.0	29.0	37.0	43.0	46.0	35.3
Freddie	86,389	22.0	28.0	36.0	43.0	46.0	35.1
Ginnie	117,113	28.2	34.7	41.7	48.3	53.5	41.1
Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	167,327	22.0	29.0	37.0	44.0	48.0	36.2
Fannie	78,442	22.0	28.0	36.0	43.0	47.0	35.3
Freddie	55,769	21.0	28.0	36.0	43.0	47.0	35.1
Ginnie	33,116	25.5	32.9	41.0	47.8	52.9	40.0
All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	471,666	23.0	30.0	38.0	44.0	49.0	37.0
Fannie	179,279	22.0	29.0	36.0	43.0	47.0	35.3
Freddie	142,158	22.0	28.0	36.0	43.0	46.0	35.1
Ginnie	150,229	27.6	34.4	41.6	48.2	53.3	40.9
Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	117,113	28.2	34.7	41.7	48.3	53.5	41.1
FHA	72,650	29.7	36.4	43.4	49.5	54.1	42.4
VA	32,992	26.9	33.6	40.9	47.7	52.9	40.4
Other	11,471	25.5	30.4	36.0	40.2	43.1	35.0
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	33,116	25.5	32.9	41.0	47.8	52.9	40.0
FHA	17,530	26.9	34.2	42.2	48.6	53.3	40.9
VA	15,299	24.2	31.6	39.9	46.9	52.5	39.0
Other	287	19.6	25.9	33.7	39.4	45.2	32.9
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	150,229	27.6	34.4	41.6	48.2	53.3	40.9
FHA	90,180	29.1	36.0	43.2	49.3	54.0	42.1
VA	48,291	26.0	33.0	40.6	47.4	52.8	39.9
Other	11,758	25.4	30.3	35.9	40.1	43.1	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 October 2017.

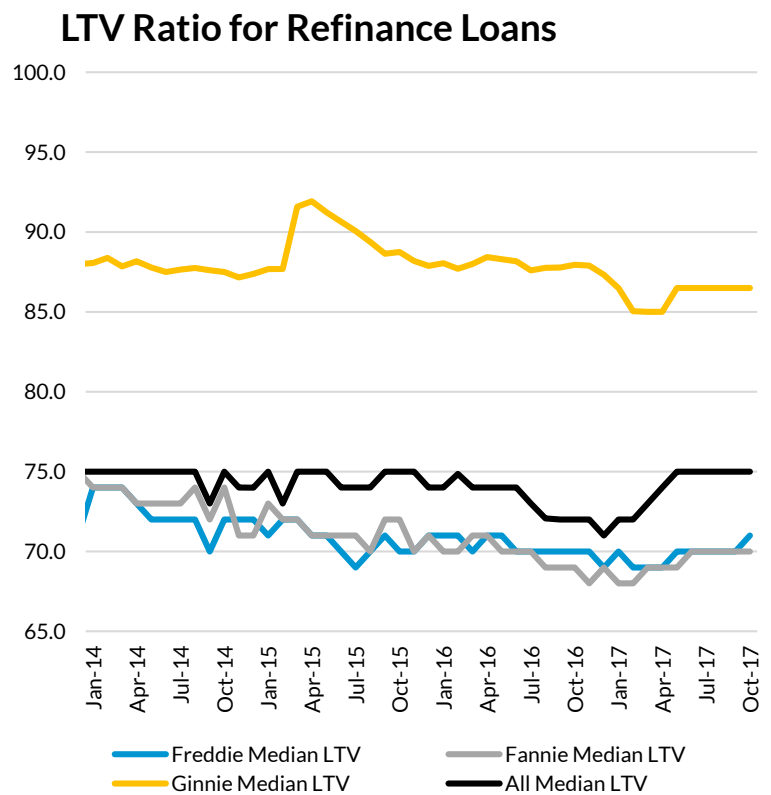
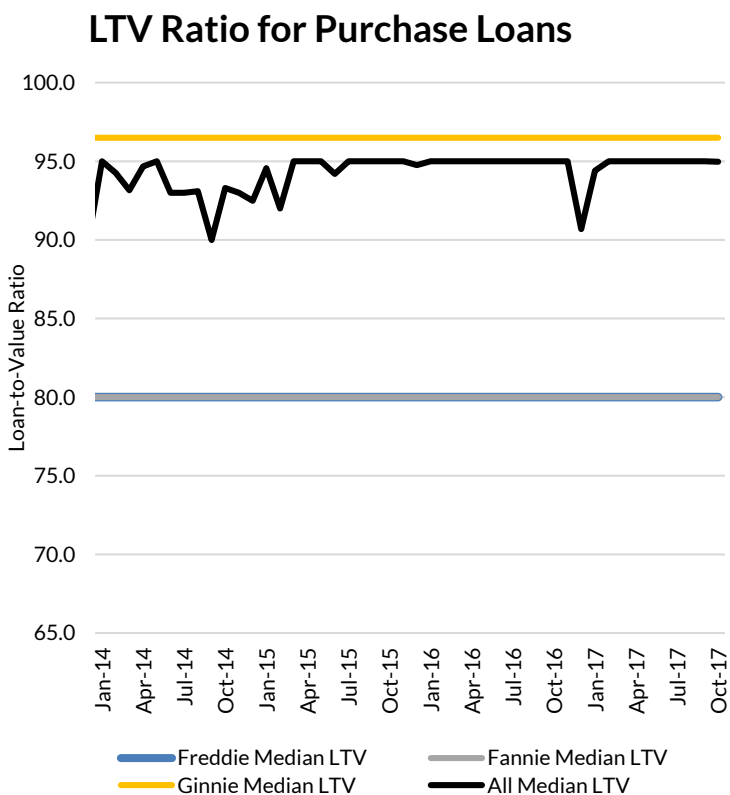
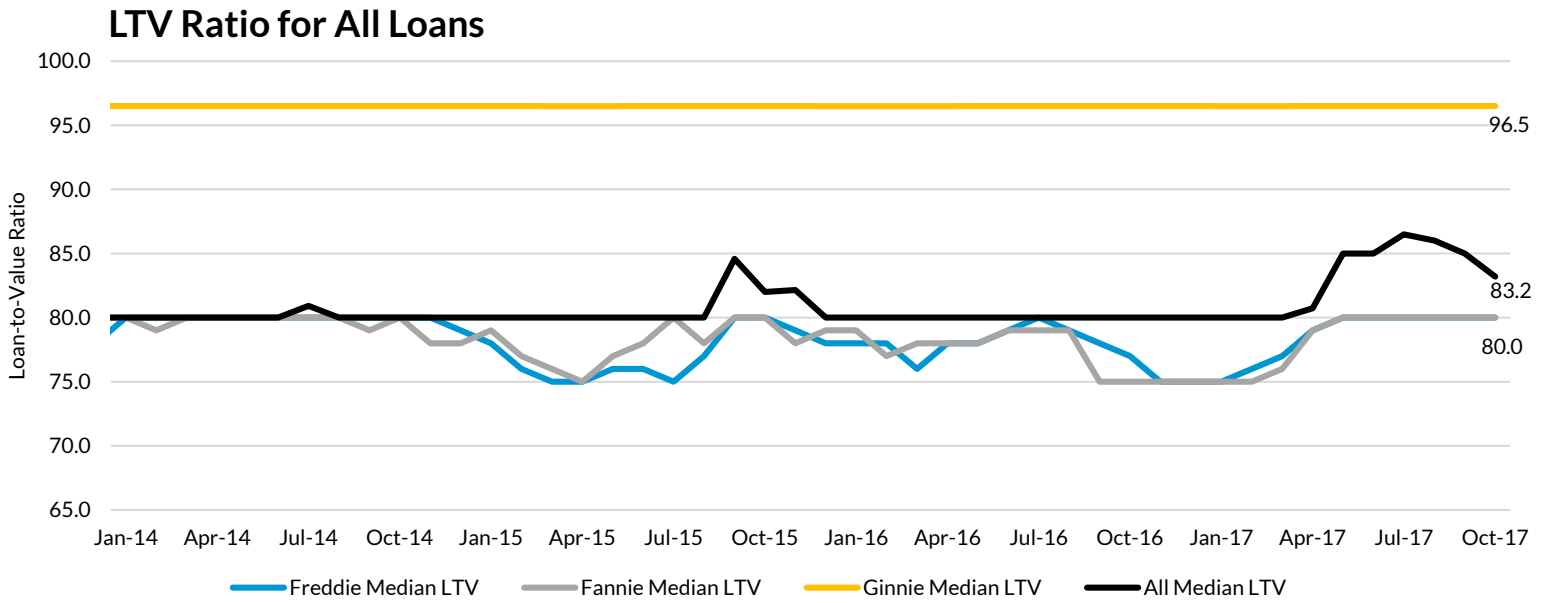
# Credit Box: Historical

The median FICO score for all agency MBS originated in October now stands at 729, 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.



# Credit Box: Historical

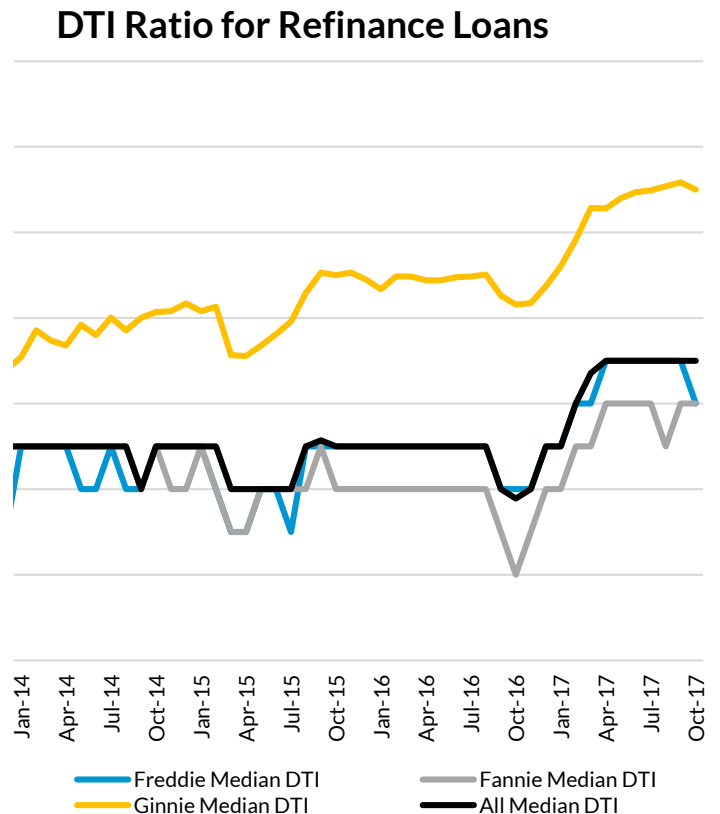
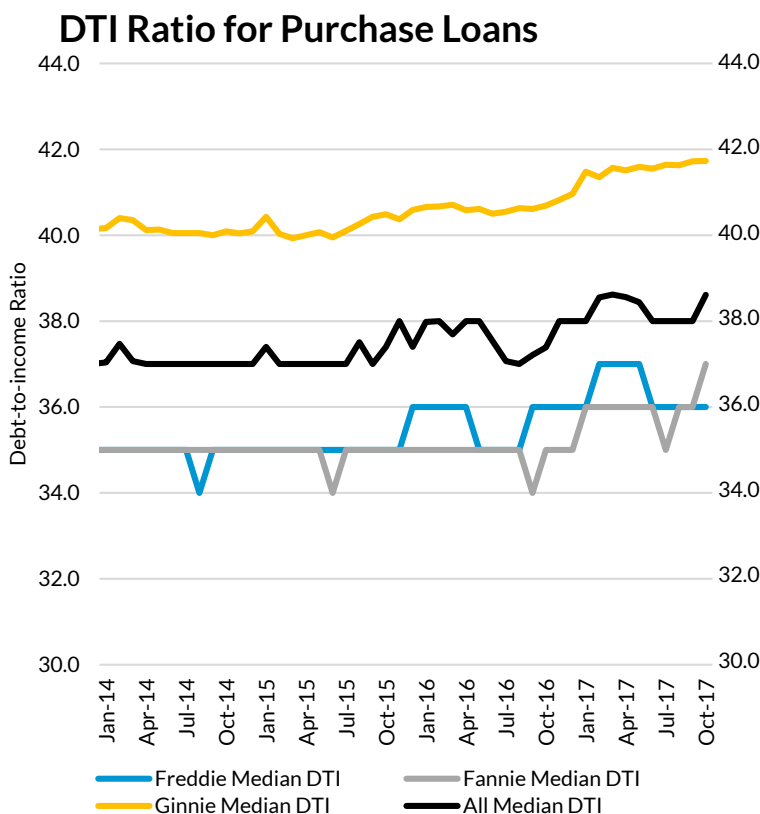
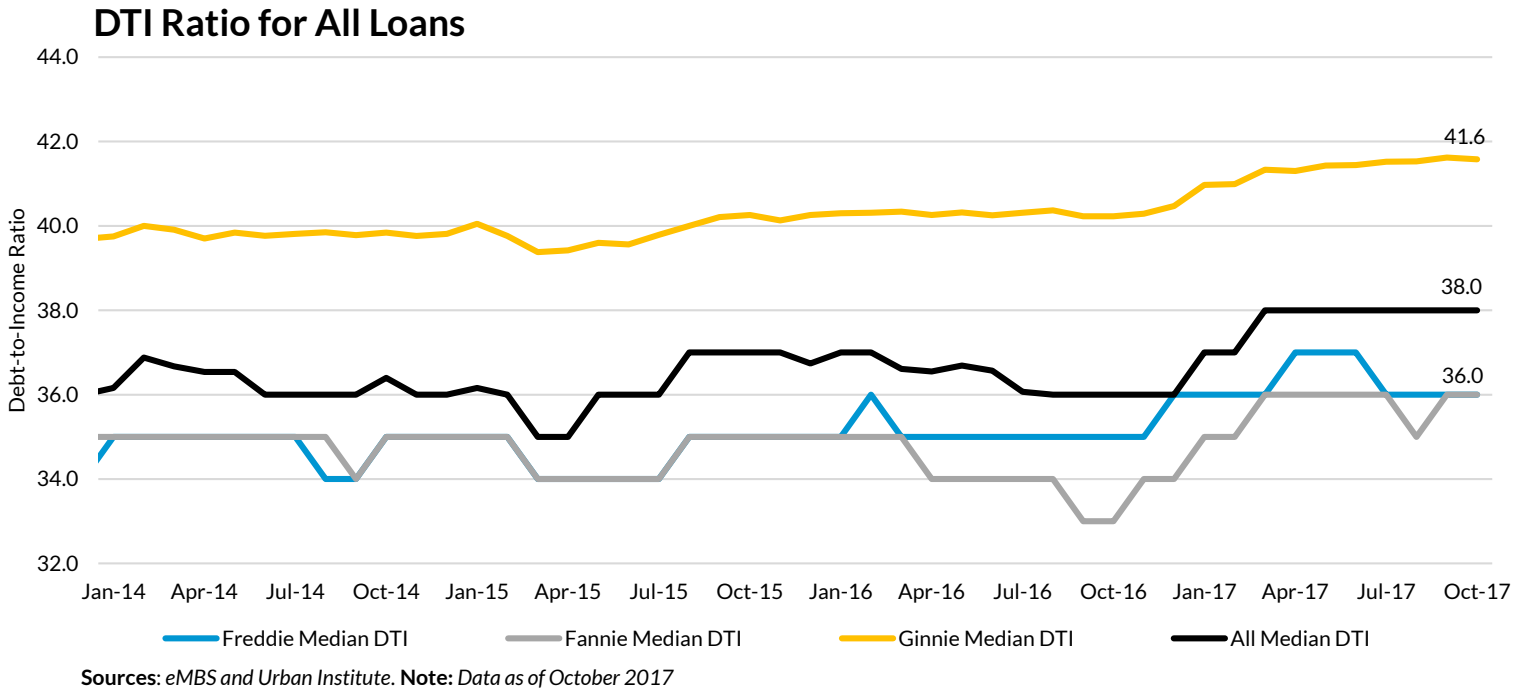
Median LTVs for Ginnie Mae loans have historically been at 96.5 percent, much higher than the 75-80 percent average for the GSEs. Through time, both Ginnie Mae and GSE refinances have LTVs about 10 points lower than their purchase counterparts.



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 October 2017.

# Credit Box: Historical

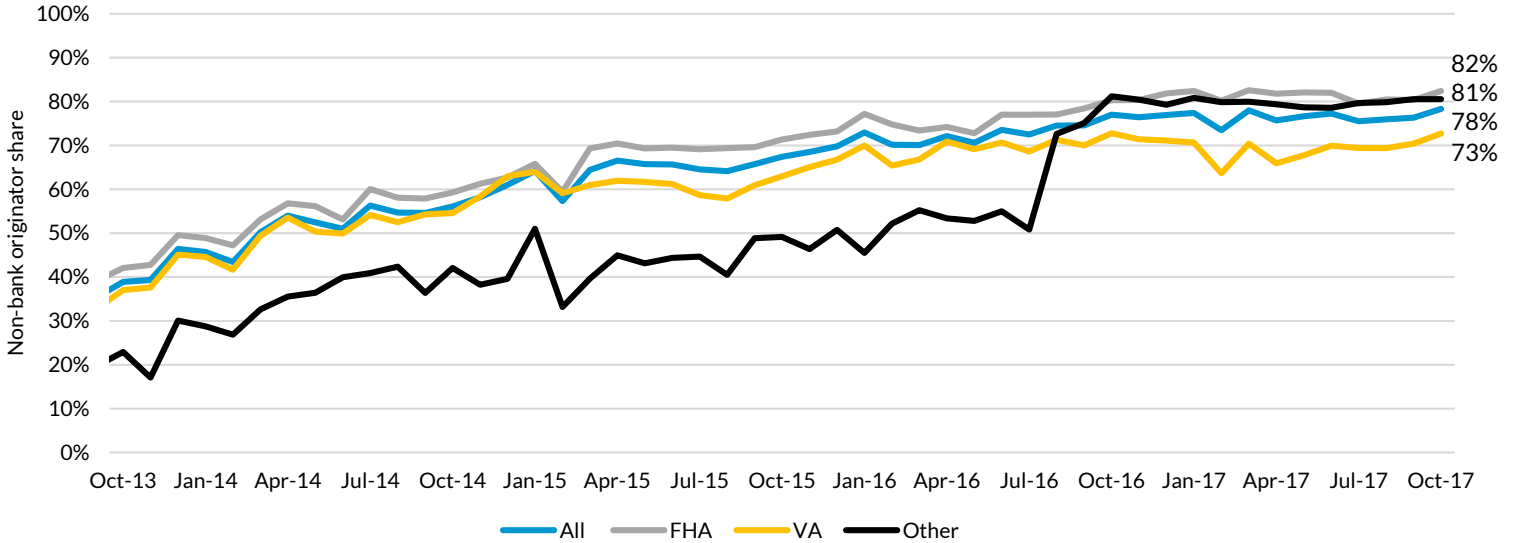
Median debt-to-income ratios on Ginnie Mae loans have historically been in the low 40s, considerably higher than the 35-36 percent DTIs for the GSEs. The DTIs for refinance loans have historically been much lower than for purchase loans, but the DTIs for refinance loans have been creeping up sharply since November 2016, and started to stabilize in recent months.



# Ginnie Mae Non-bank Originators

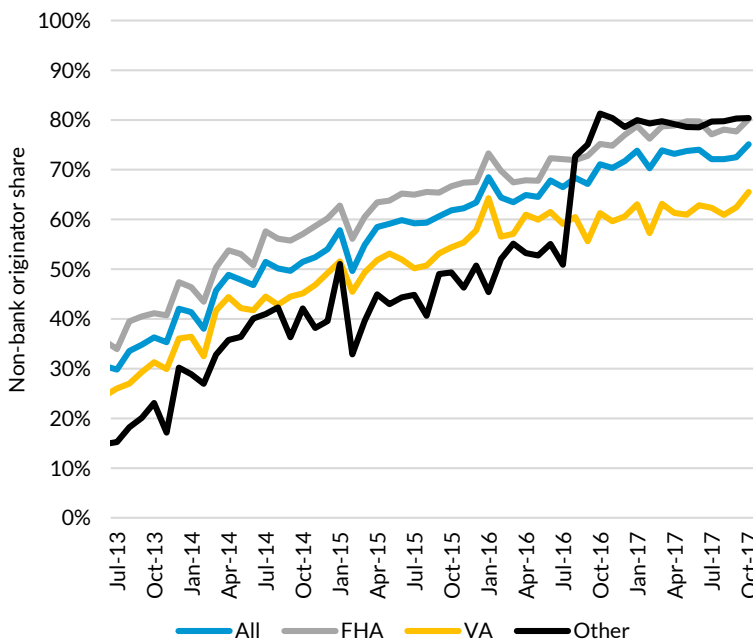
The non-bank originator share of Ginnie Mae originations increased to 78 percent in October 2017, the highest level in recent history. The non-bank share of VA issuance rose to 73 percent in October, while the non-bank share of FHA issuance edged up to 82 percent and Other issuance was flat at 81 percent.

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



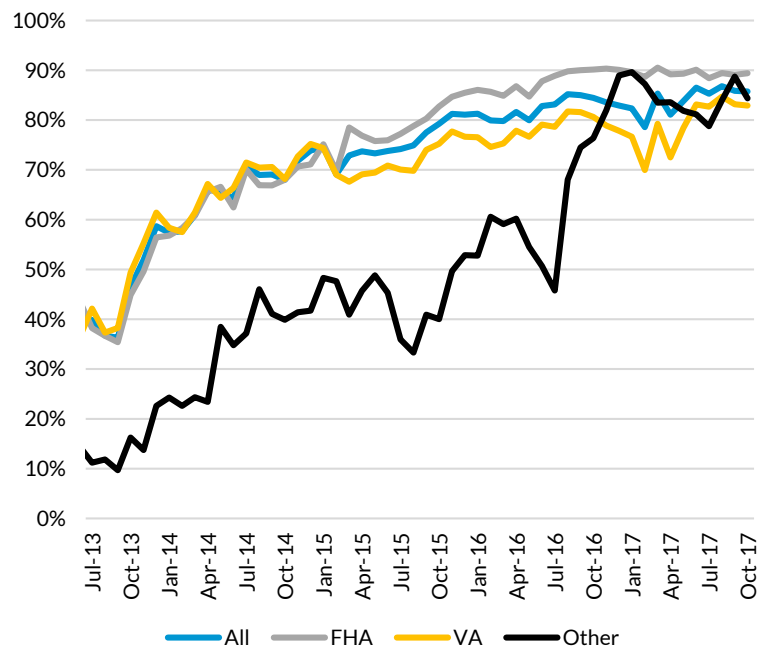
Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of October 2017.

## Ginnie Mae Non-bank Share: Purchase Loans



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

## Ginnie Mae Non-bank Share: Refi Loans



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

# Ginnie Mae Non-bank Originators: October 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 681-- it is 702 for bank borrowers versus 676 for non-bank borrowers. For FHA borrowers, the median FICO score for bank originators is 684 versus 666 for non-banks. For VA borrowers, the median FICO score for bank originators is 729 versus 698 for non-banks. For “Other” loans, the median FICO score for bank originators is 712 versus 690 for non-banks.

All Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	159,501	624	647	681	725	769	688
Bank	34,351	642	665	702	752	788	707
Non-Bank	125,150	621	644	676	717	761	682
FHA Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	93,484	619	641	669	705	743	674
Bank	16,900	639	658	684	722	759	691
Non-Bank	76,584	615	637	666	700	738	671
VA Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	54,218	633	663	706	757	790	708
Bank	15,089	646	678	729	777	798	725
Non-Bank	39,129	628	658	698	748	784	702
Other Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	11,799	642	661	694	733	767	698
Bank	2,362	645	670	712	757	786	711
Non-Bank	9,437	641	659	690	727	760	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 October 2017.

# Ginnie Mae Non-bank Originators: October 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	162,546	82.4	92.5	96.5	100.0	101.0	93.6
Bank	34,647	84.8	94.8	96.5	100.0	101.3	94.5
Non-Bank	127,899	82.0	91.5	96.5	99.0	101.0	93.3
FHA Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	94,269	83.3	91.4	96.5	96.5	96.5	92.3
Bank	17,093	86.5	94.8	96.5	96.5	97.3	93.8
Non-Bank	77,176	82.2	89.9	96.5	96.5	96.5	92.0
VA Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	56,374	79.8	91.1	100.0	100.0	102.7	94.5
Bank	15,136	80.0	92.0	100.0	100.0	102.4	94.5
Non-Bank	41,238	79.7	90.9	100.0	101.0	102.9	94.5
Other Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	11,903	94.6	98.9	101.0	101.0	101.0	99.0
Bank	2,418	95.5	100.1	101.0	101.9	102.0	99.5
Non-Bank	9,485	94.5	98.7	100.8	101.0	101.0	98.8

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 October 2017.



# Ginnie Mae Non-bank Originators: October 2017 Credit Box

An analysis of the borrowers' DTI ratios for bank versus non-bank originators indicates the former are very slightly more conservative. That is, the median DTI ratio for bank originators is 40.4, versus 41.9 for non-banks.

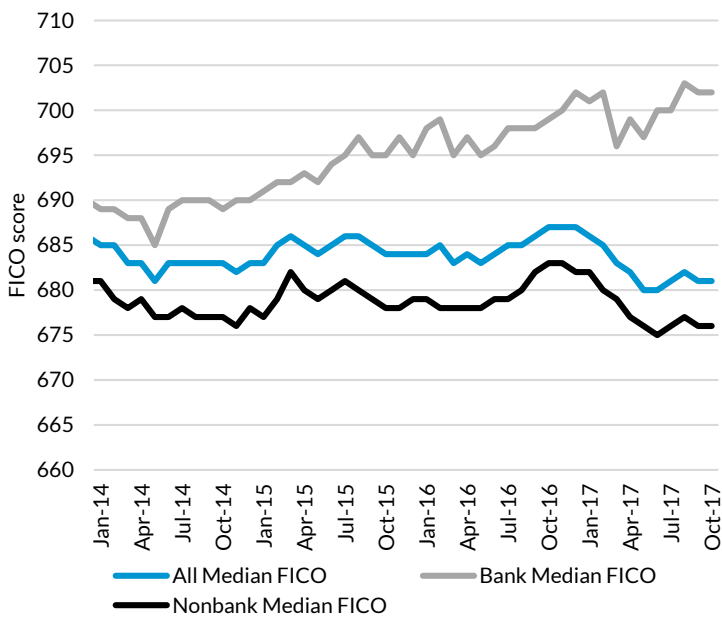
All Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	149,414	27.6	34.4	41.6	48.2	53.4	40.9
Bank	33,368	26.2	33.1	40.4	46.8	52.5	39.7
Non-Bank	116,046	28.0	34.7	41.9	48.5	53.6	41.2
FHA Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	89,646	29.1	36.0	43.2	49.3	54.0	42.1
Bank	16,720	28.5	35.4	42.3	48.2	53.3	41.3
Non-Bank	72,926	29.3	36.1	43.4	49.5	54.1	42.3
VA Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	48,089	26.0	33.0	40.6	47.4	52.8	39.9
Bank	14,362	24.3	31.3	39.2	46.2	52.0	38.6
Non-Bank	33,727	26.8	33.7	41.1	47.9	53.0	40.5
Other Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	11,679	25.4	30.3	35.9	40.1	43.2	34.9
Bank	2,286	25.3	29.9	35.7	40.3	43.3	34.8
Non-Bank	9,393	25.4	30.3	35.9	40.1	43.1	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 October 2017.

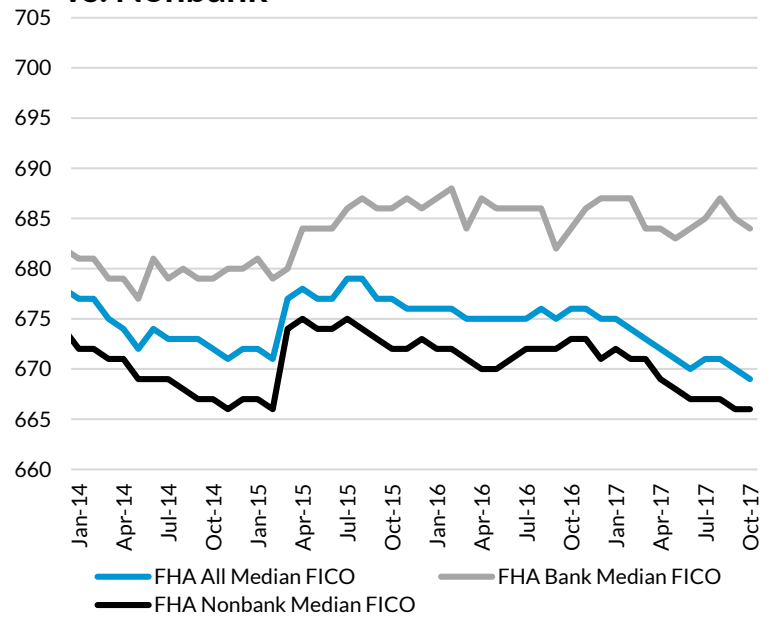
# Ginnie Mae Nonbank Originators: Historical Credit Box

The FICO scores for both Ginnie Mae bank and nonbank originators remained constant in October. 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



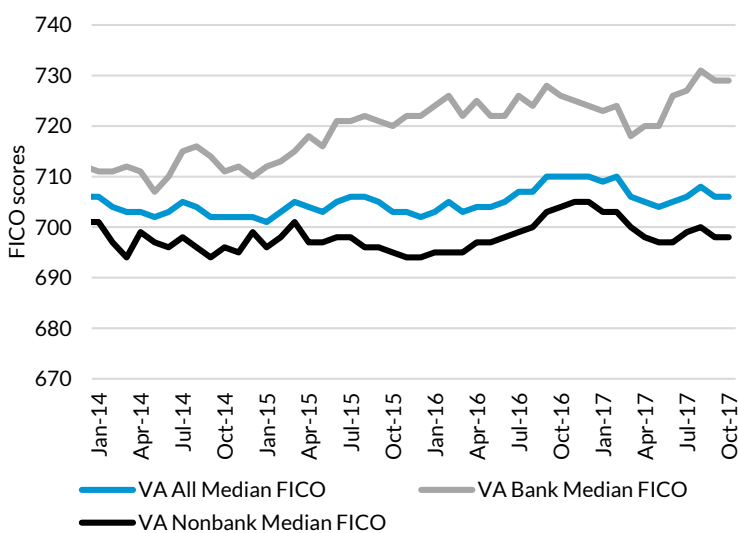
### Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



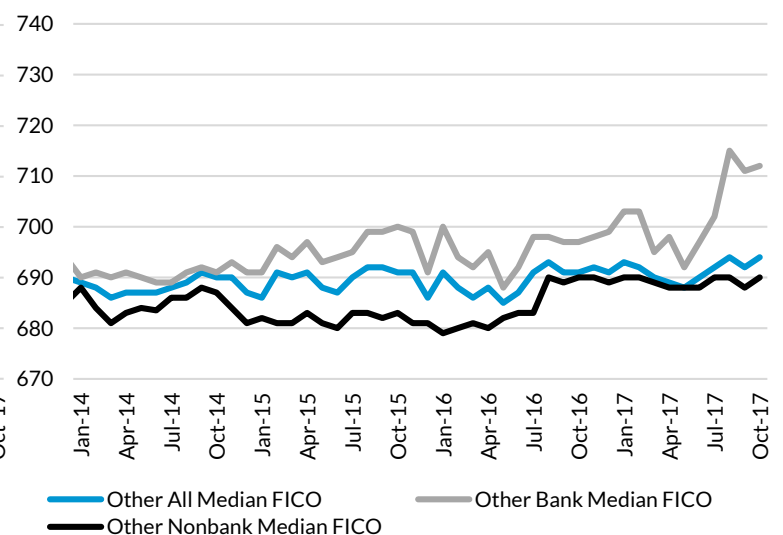
Sources: eMBS and Urban Institute Note: Data as of October 2017

Sources: eMBS and Urban Institute Note: Data as of October 2017

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



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



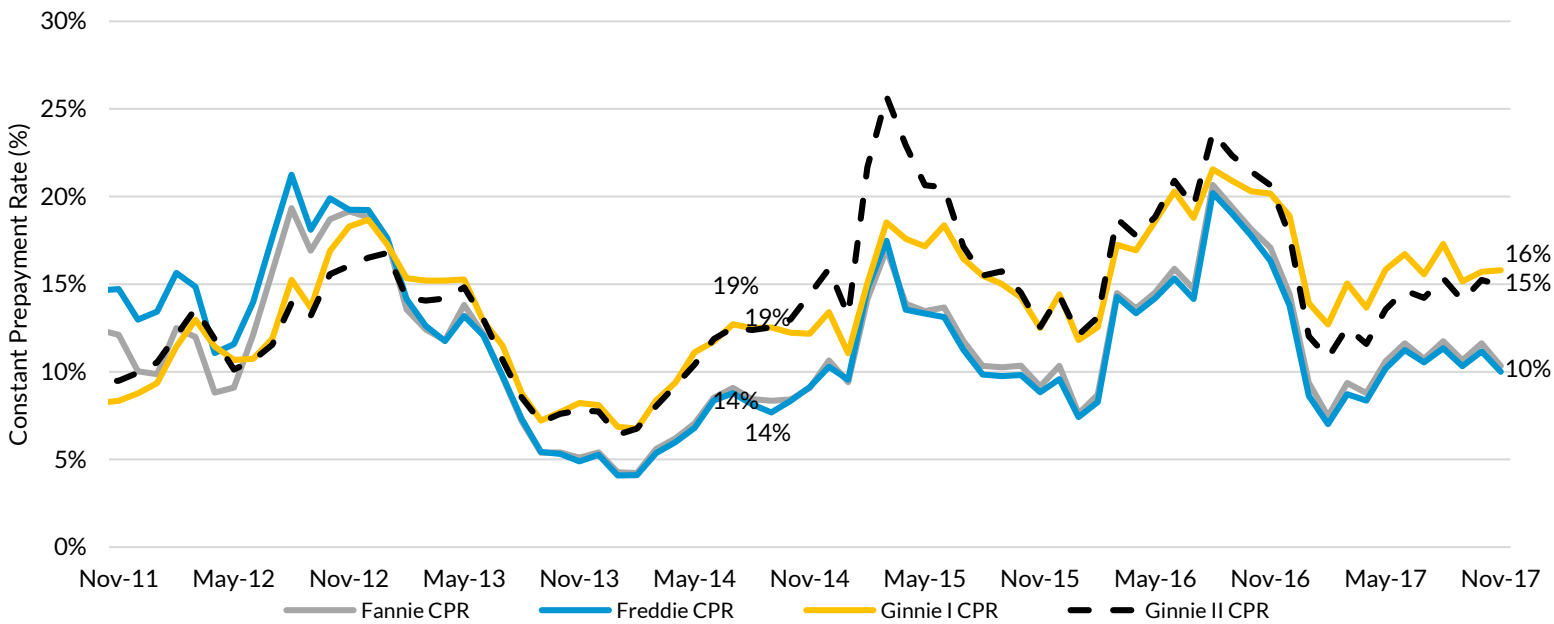
Sources: eMBS and Urban Institute Note: Data as of October 2017

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 October 2017.

# Prepayments

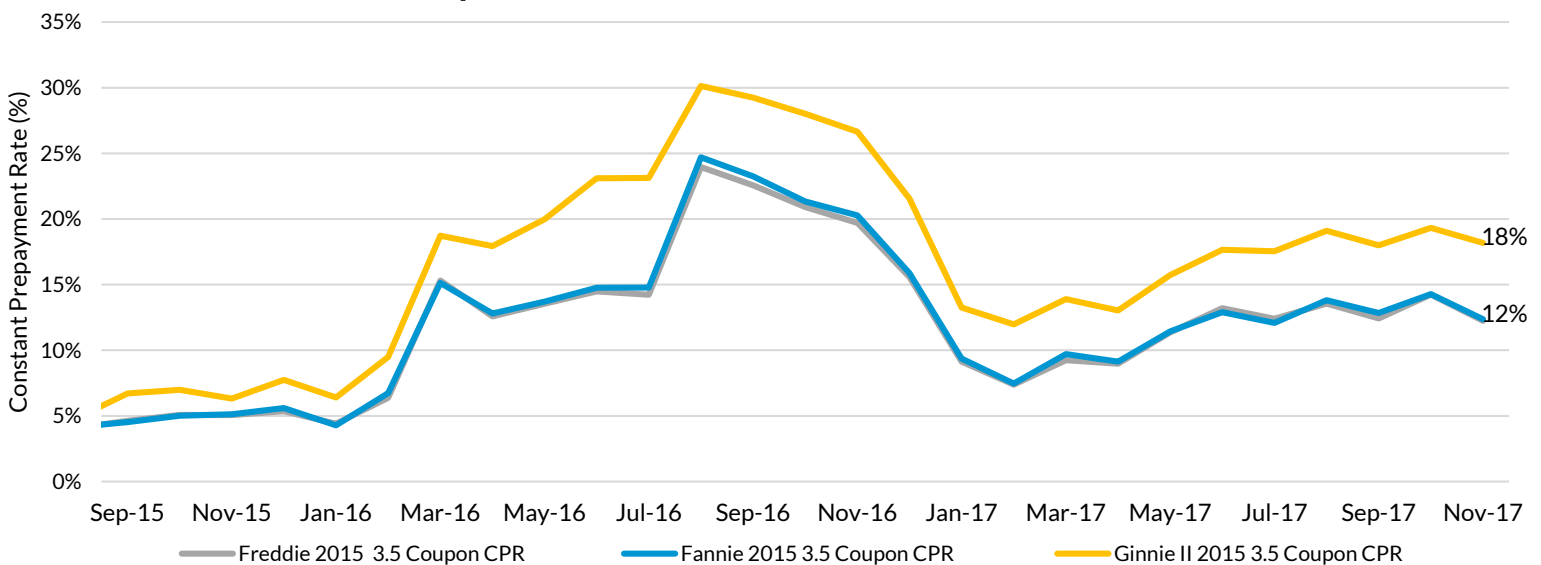
Prepayments on Ginnie Mae securities were lower than on GSE securities from 2011 through mid-2013, but have been higher since. These differences hold across all coupon buckets. The differences are especially pronounced on more recent production. These increased Ginnie speeds reflect the growing share of VA loans, which prepay at faster speeds than FHA 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, FHA permits 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 November 2017

## 2015 Issued 3.5 Coupon CPR

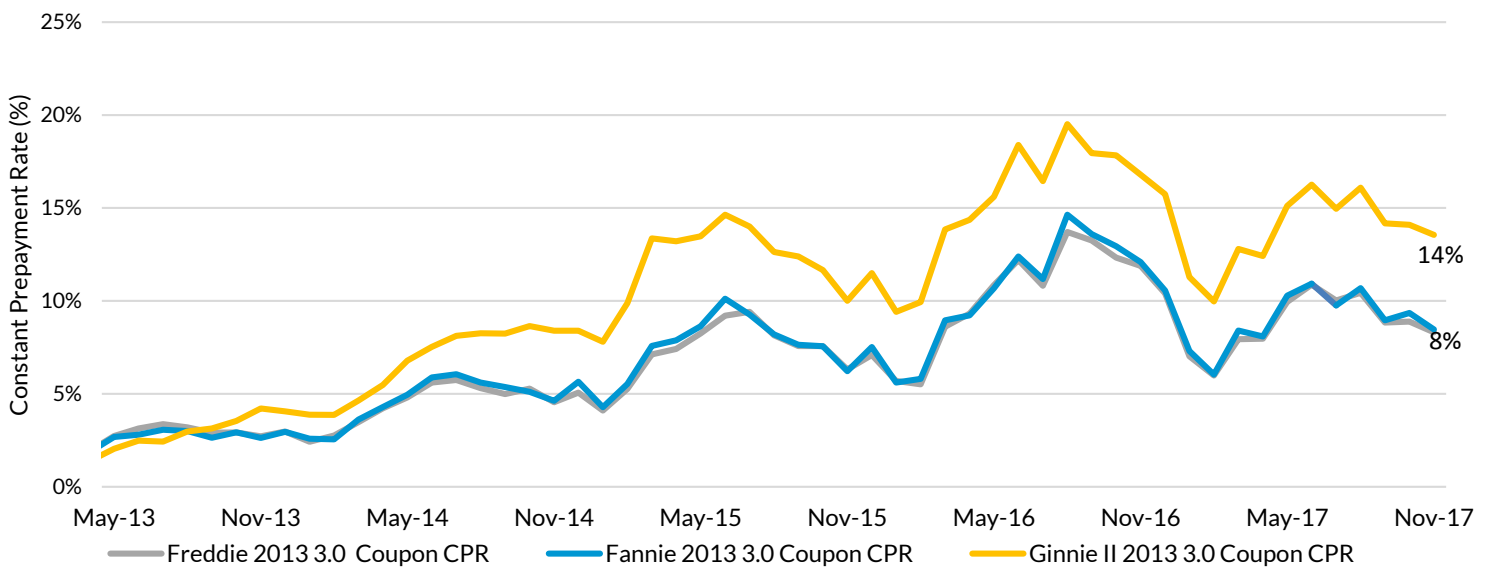


Sources: Credit Suisse and Urban Institute. Note: Data as of November 2017

# Prepayments

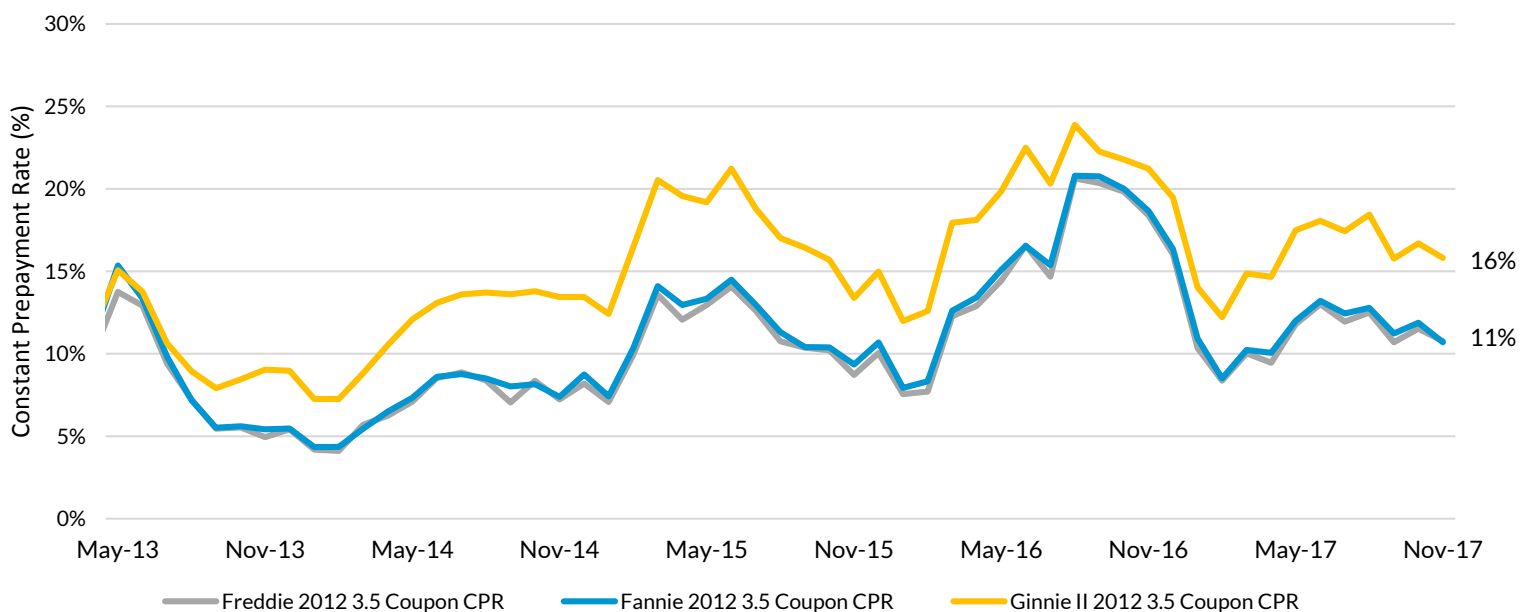
The 2013 Ginnie II 3.0s are prepaying faster than their conventional counterparts. 2012 Ginnie II 3.5s have been faster since mid-2013. The differences accelerated in 2015—potentially due to the FHA mortgage insurance premium (MIP) cut. In January 2015 FHA lowered its MIPs from 135 basis points per annum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

## 2012 Issued 3.5 Coupon CPR

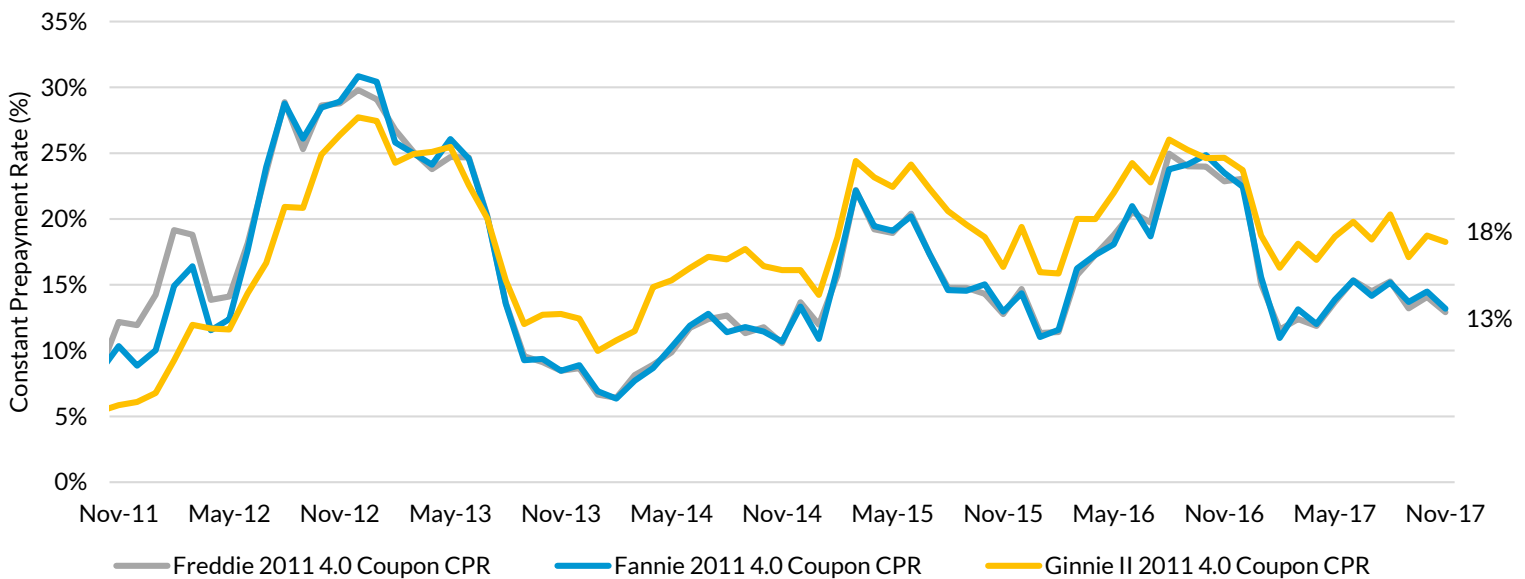


Sources: Credit Suisse and Urban Institute. Note: Data as of November 2017

# Prepayments

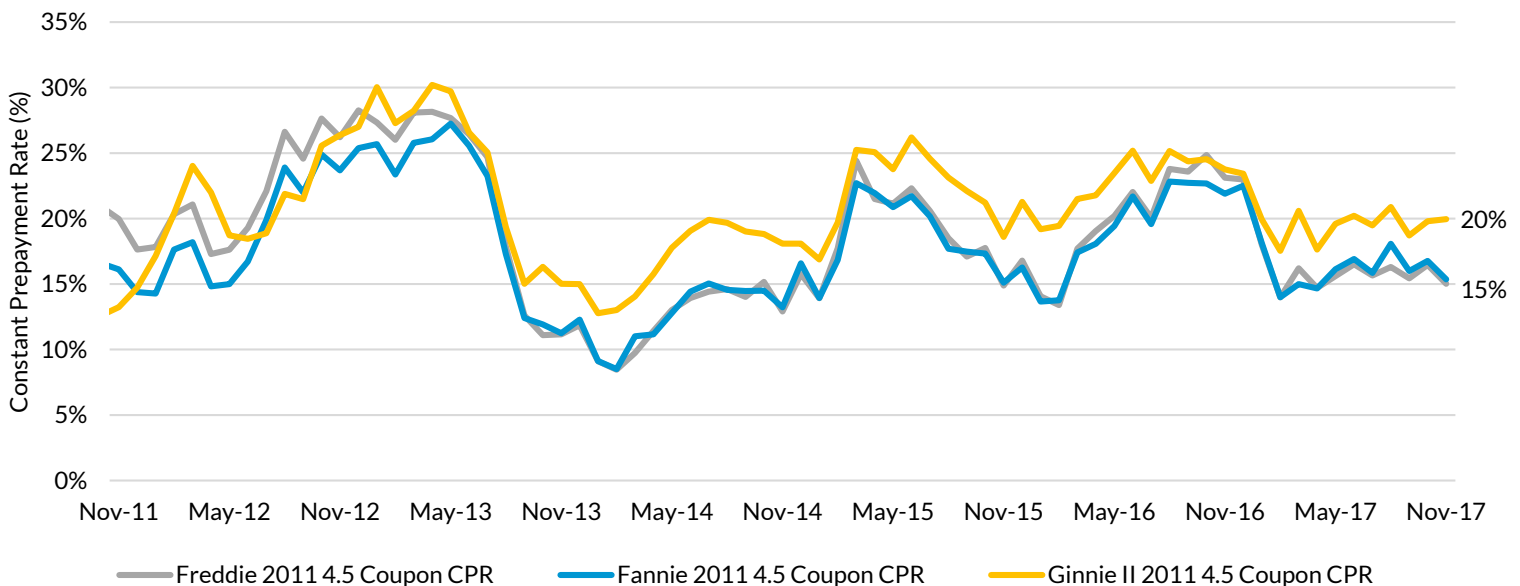
The 2011 Ginnie II 4.0s and 4.5s have been prepaying faster than their conventional counterparts since late 2013. Faster VA mortgage prepays plus simplifications to the FHA streamlined programs in 2013 are likely contributors to the faster speeds. However, as mortgage rates rose sharply since November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

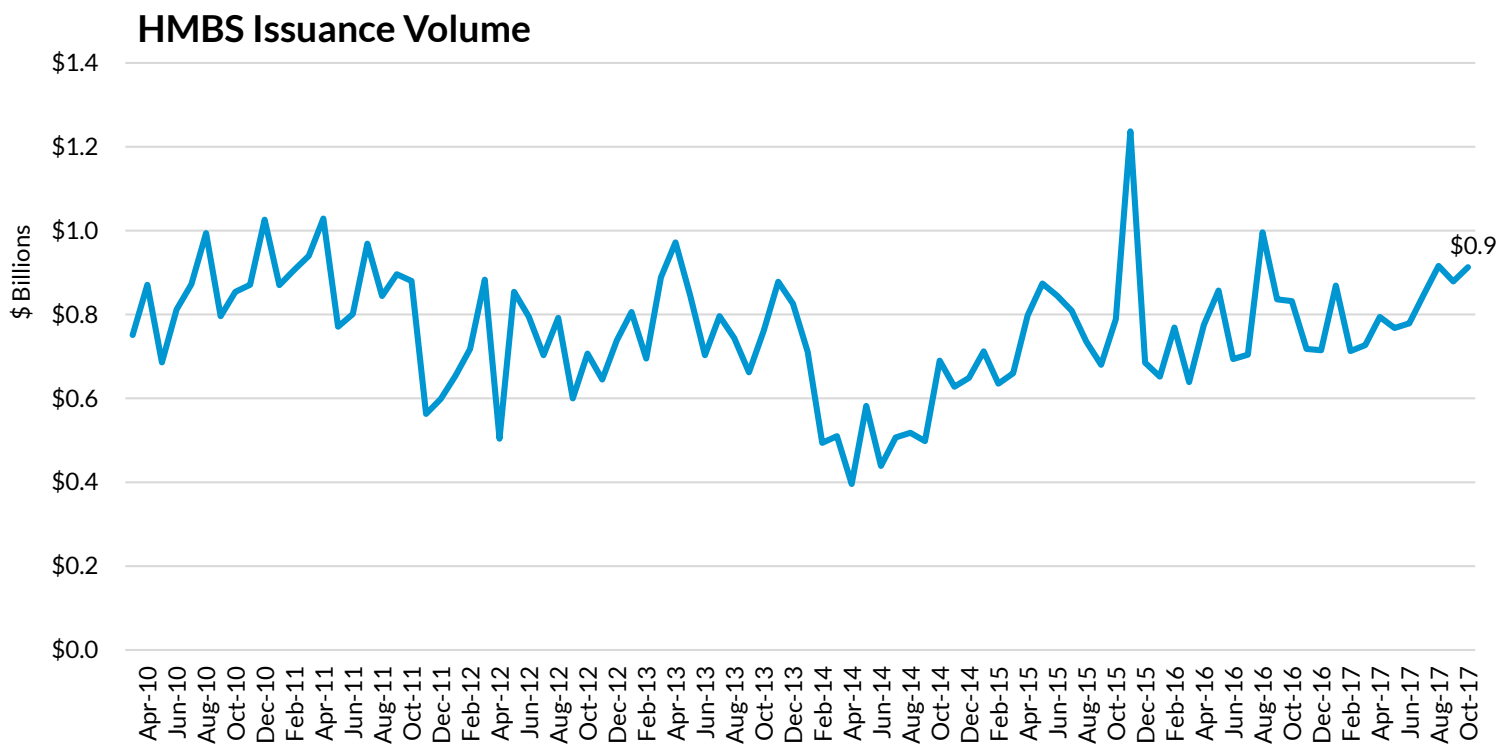
## 2011 Issued 4.5 Coupon CPR



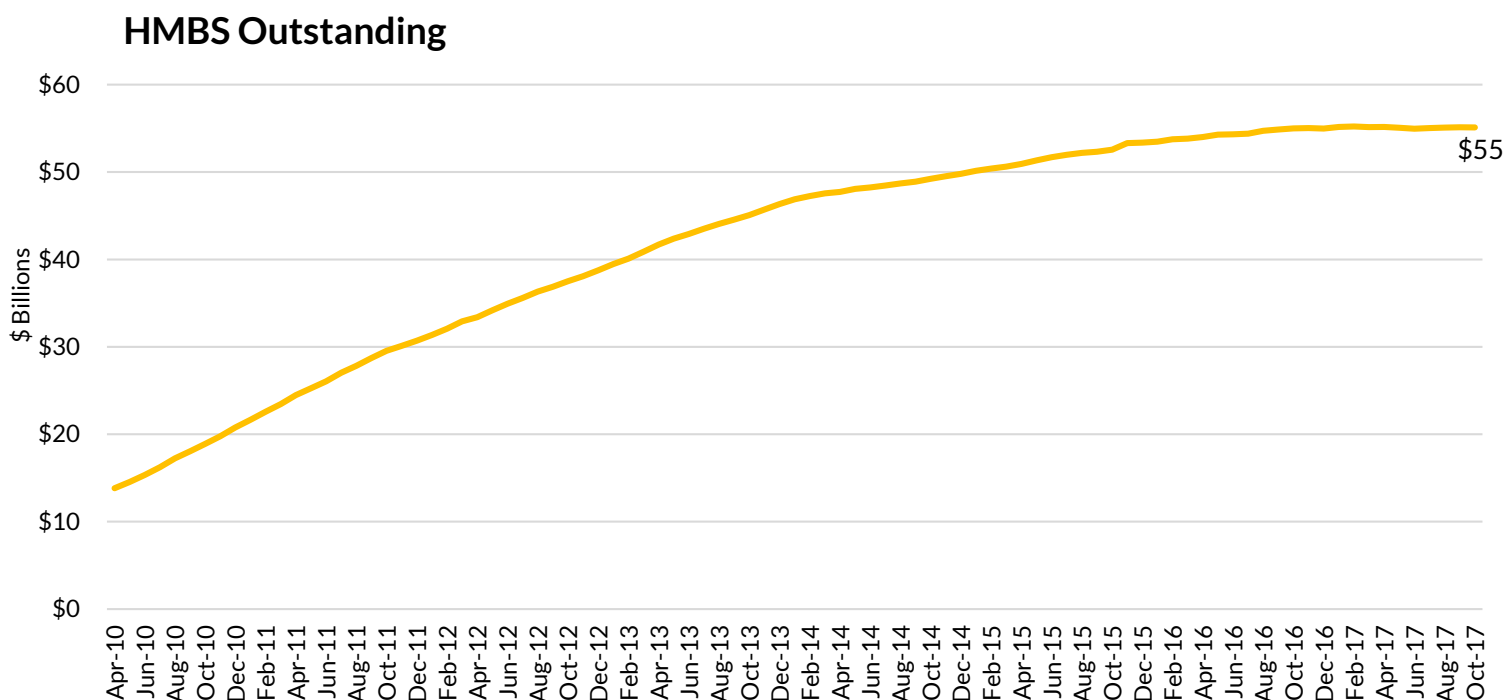
Sources: Credit Suisse and Urban Institute. Note: Data as of November 2017

# Other Ginnie Mae Programs Reverse Mortgage Volumes

Ginnie Mae reverse mortgage volumes remain steady, with issuance of \$0.9 billion in October. Outstanding securities totaled \$55.0 billion in October.



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



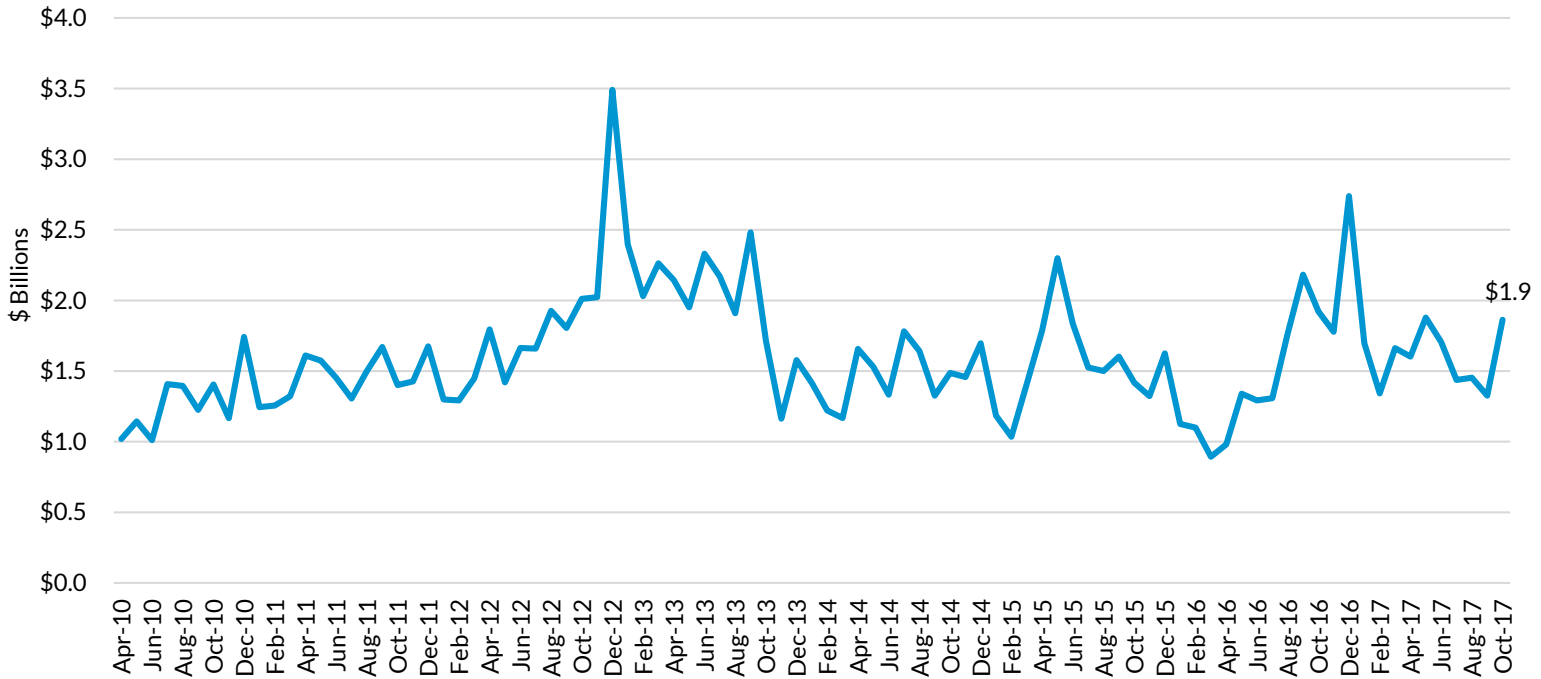
Sources: Ginnie Mae and Urban Institute. Note: Data as of October 2017

# Other Ginnie Mae Programs

## Multifamily Market

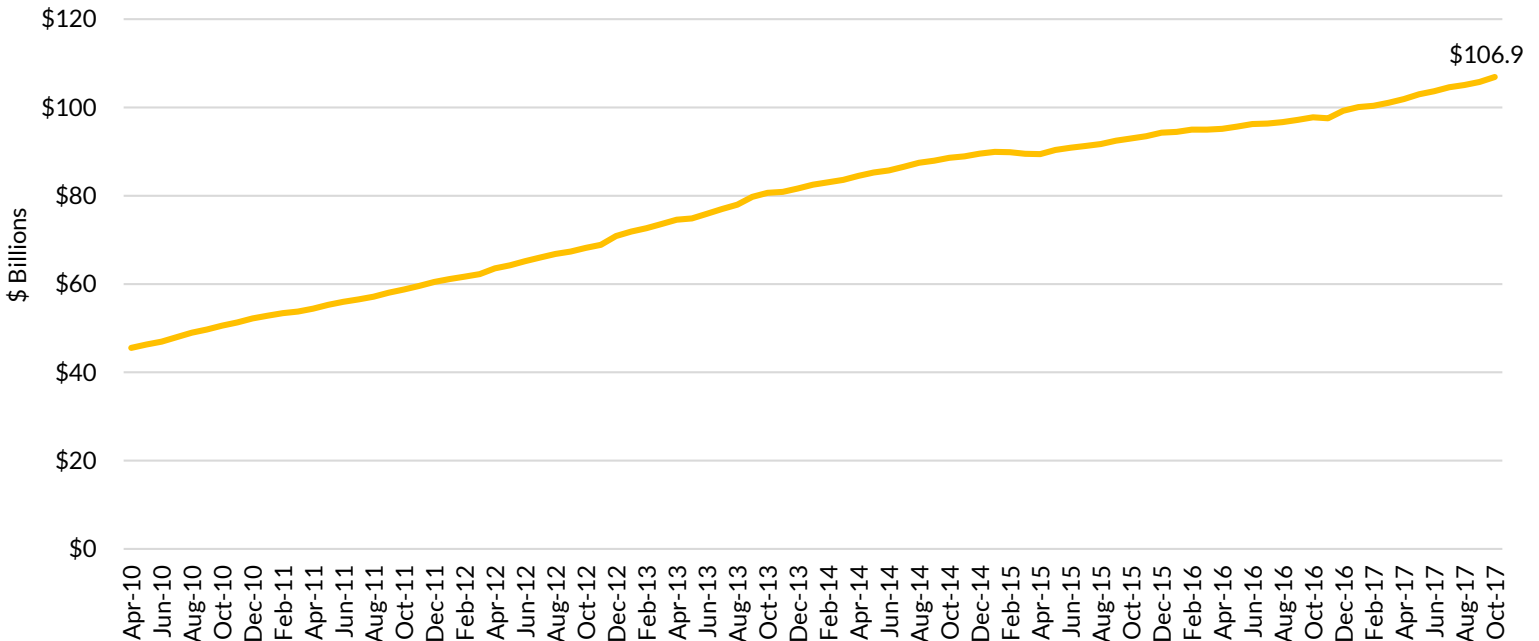
Ginnie Mae multifamily issuance volumes in October totaled \$1.9 billion. Outstanding multifamily securities totaled \$106.9 billion in October.

### Ginnie Mae Multifamily MBS Issuance



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

### Ginnie Mae Multifamily MBS Outstanding

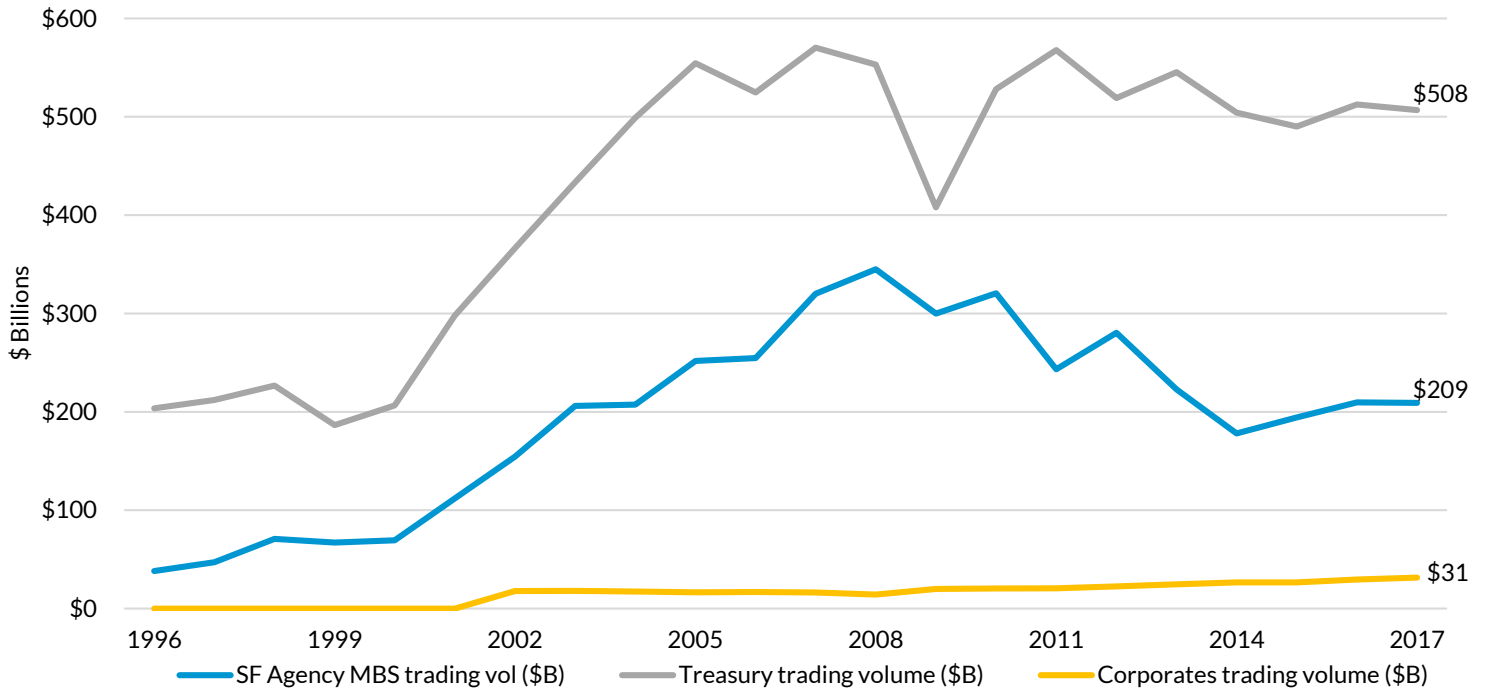


Sources: Ginnie Mae and Urban Institute. Note: Data as of October 2017

# Market Conditions

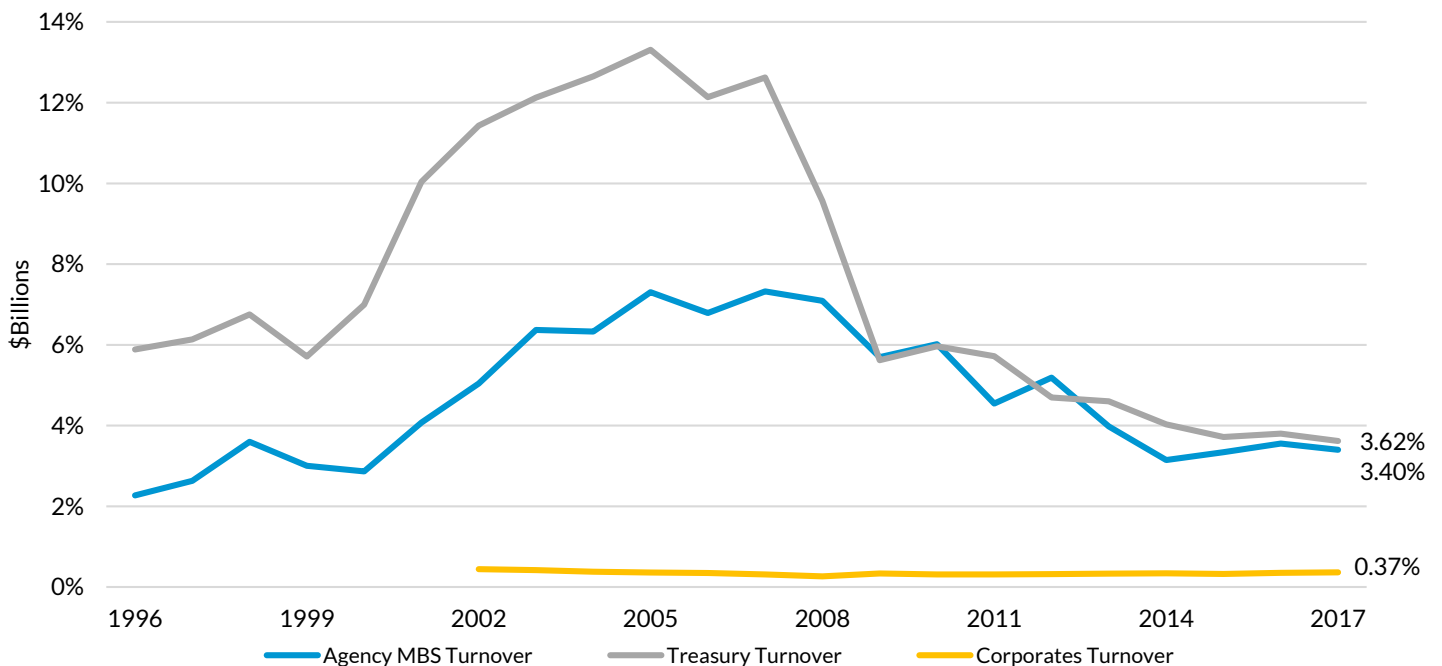
Agency MBS trading volume in 2017 has been slightly more robust than in the 2014-2015 period, and on par with 2016. Agency MBS turnover, however, has been lower in 2017 than in 2016; in the first eleven months of 2017, daily MBS turnover was 3.40 percent versus 3.76 percent in 2016. Current turnover levels are on par with those in 2015. 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 November 2017

## Average Daily Turnover by Sector



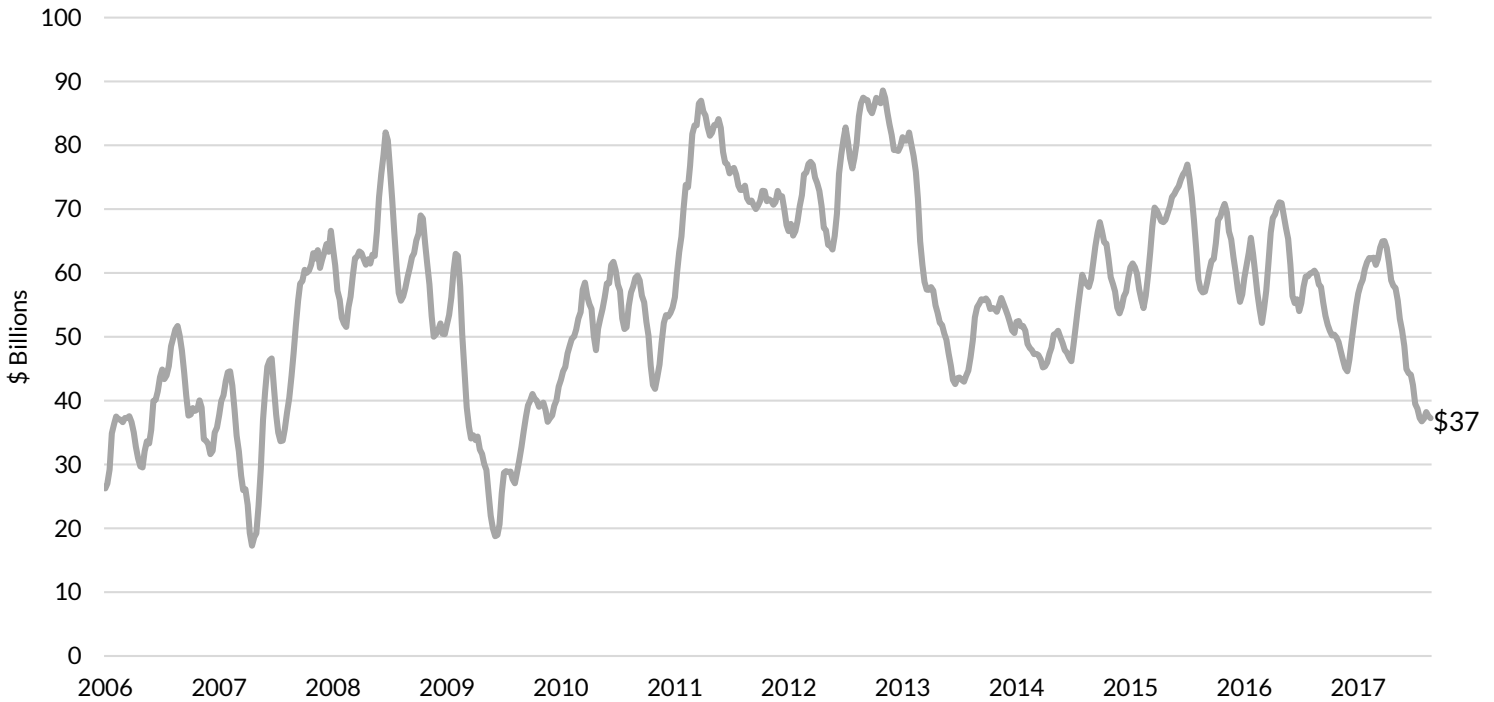
Sources: SIFMA and Urban Institute. Note: Data as of November 2017



# Market Conditions

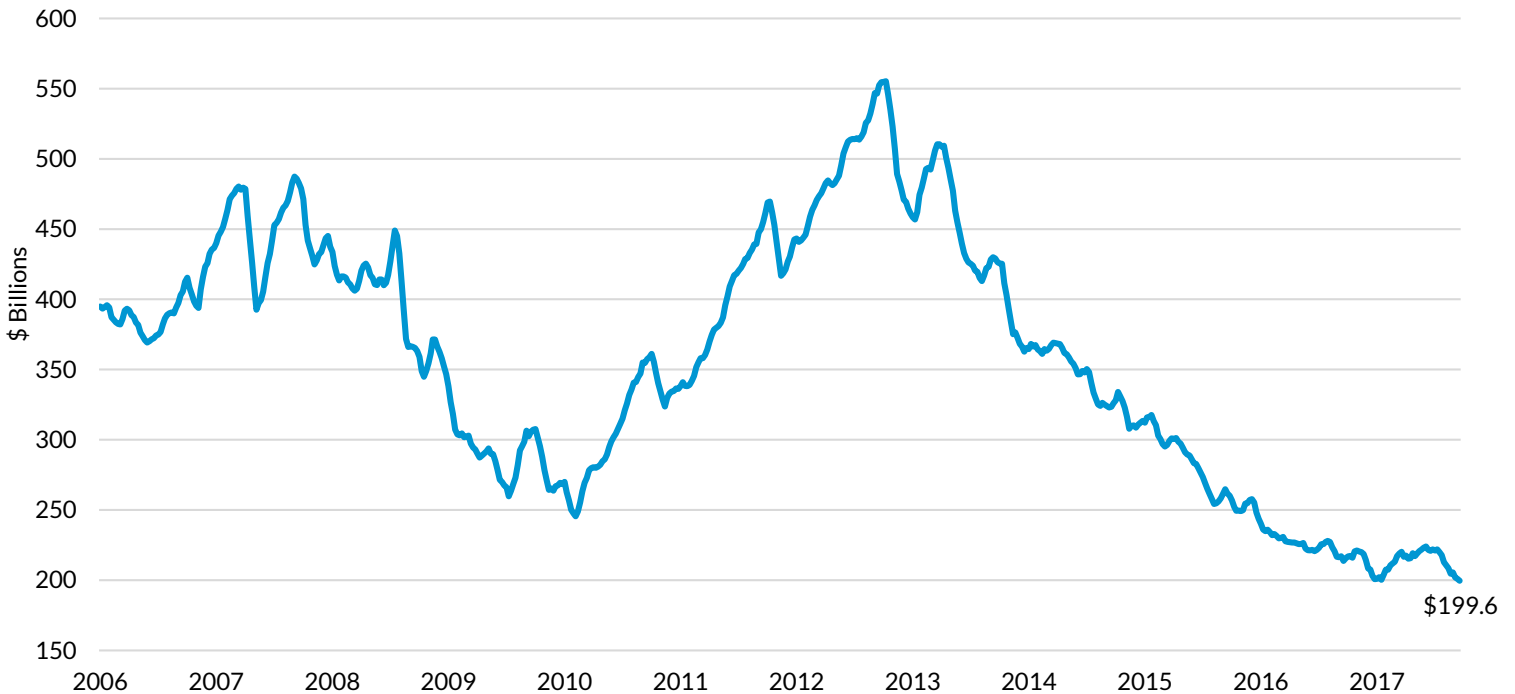
Dealer net positions in Agency MBS are now at the very lower end of the recent range, although gross positions may well be down more. The volume of repurchase activity is down sharply. This reflects banks cutting back on lower margin businesses.

### 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 November 2017

### Repo Volume: Securities In



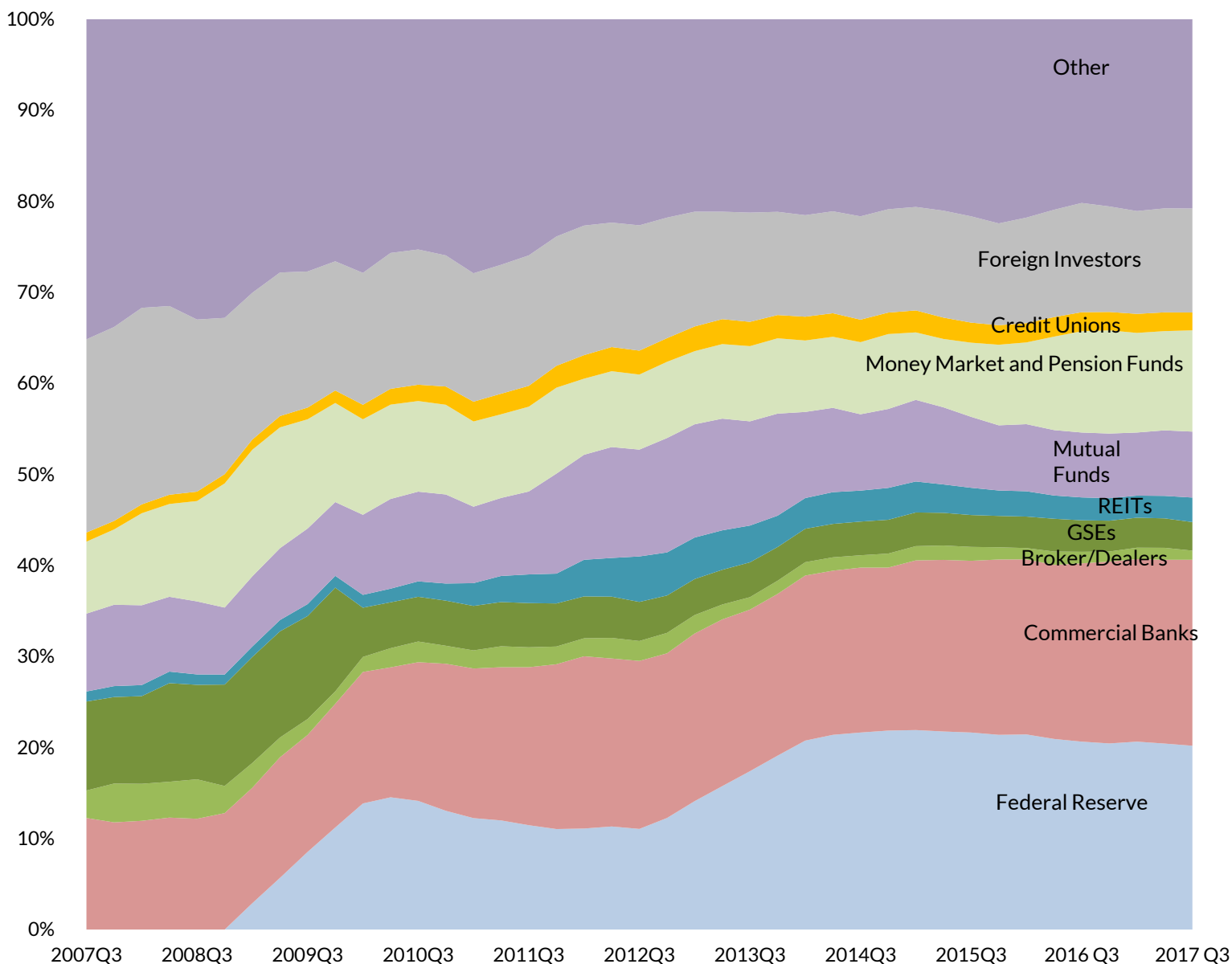
Sources: Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute. Note: Data as of November 2017

# 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?

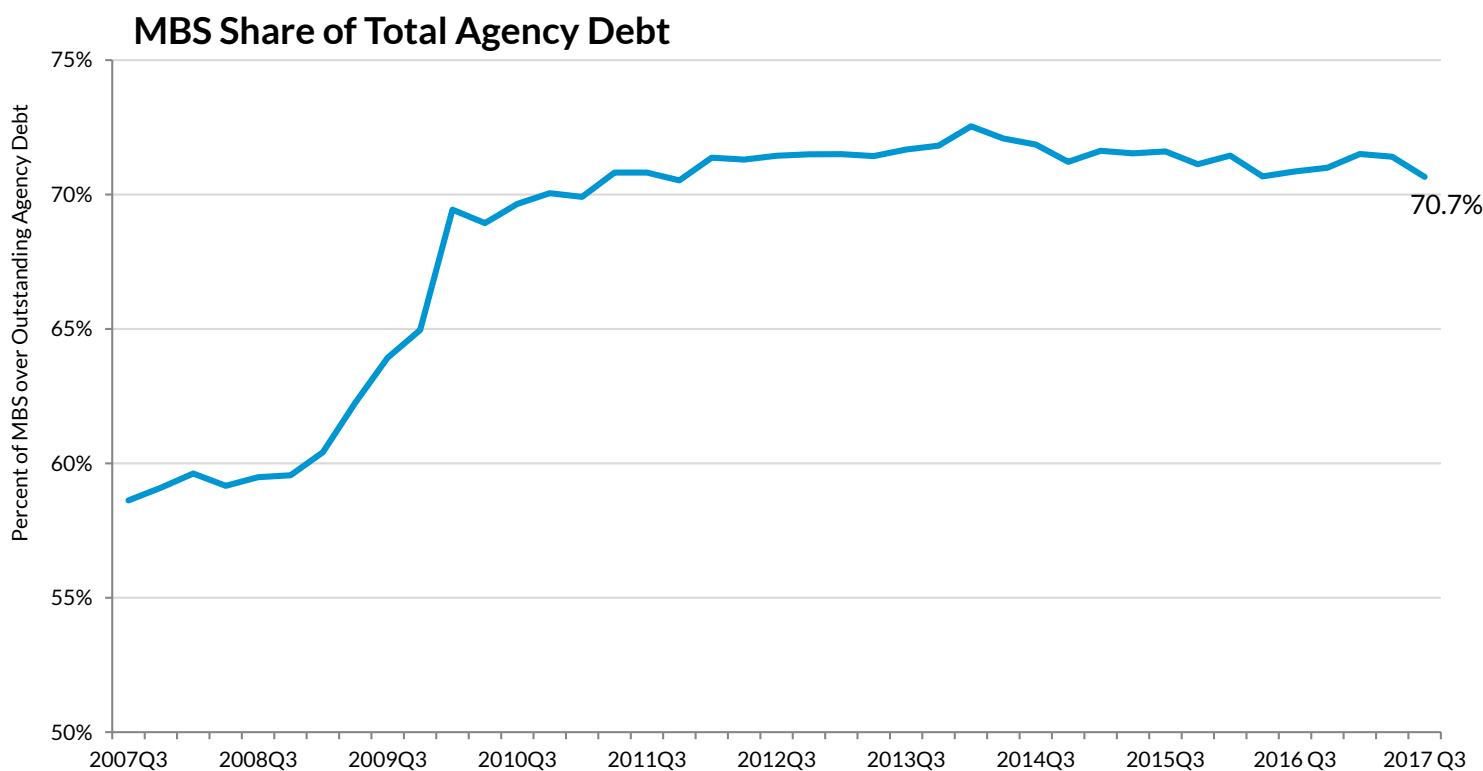
% of Total Agency Debt by Owner



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 71.0 percent. Commercial banks are the second largest holders of Agency MBS behind the Federal Reserve. Out of their \$1.8 trillion in holdings as of the end of November 2017, \$1.3 trillion of it was held by the top 25 domestic banks.



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

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Oct-16	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov 8	Nov 15	Nov 22	Nov 29
Largest Domestic Banks	1217.2	1240.2	1258	1272.9	1285.5	1288.5	1296.6	1306.4	1307.3	1309.9	1310.7	1312.9
Small Domestic Banks	445.1	464.2	467.7	469.6	473.9	477.2	480.9	481.9	480.3	480	479.4	478.9
Foreign Related Banks	14.2	13.1	12	12.5	12.5	12.6	11.8	11.9	11.9	12.5	12.8	13.3
Total, Seasonally Adjusted	1676.5	1717.5	1737.7	1755	1771.9	1778.3	1789.3	1800.2	1799.5	1802.4	1802.9	1805.1

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

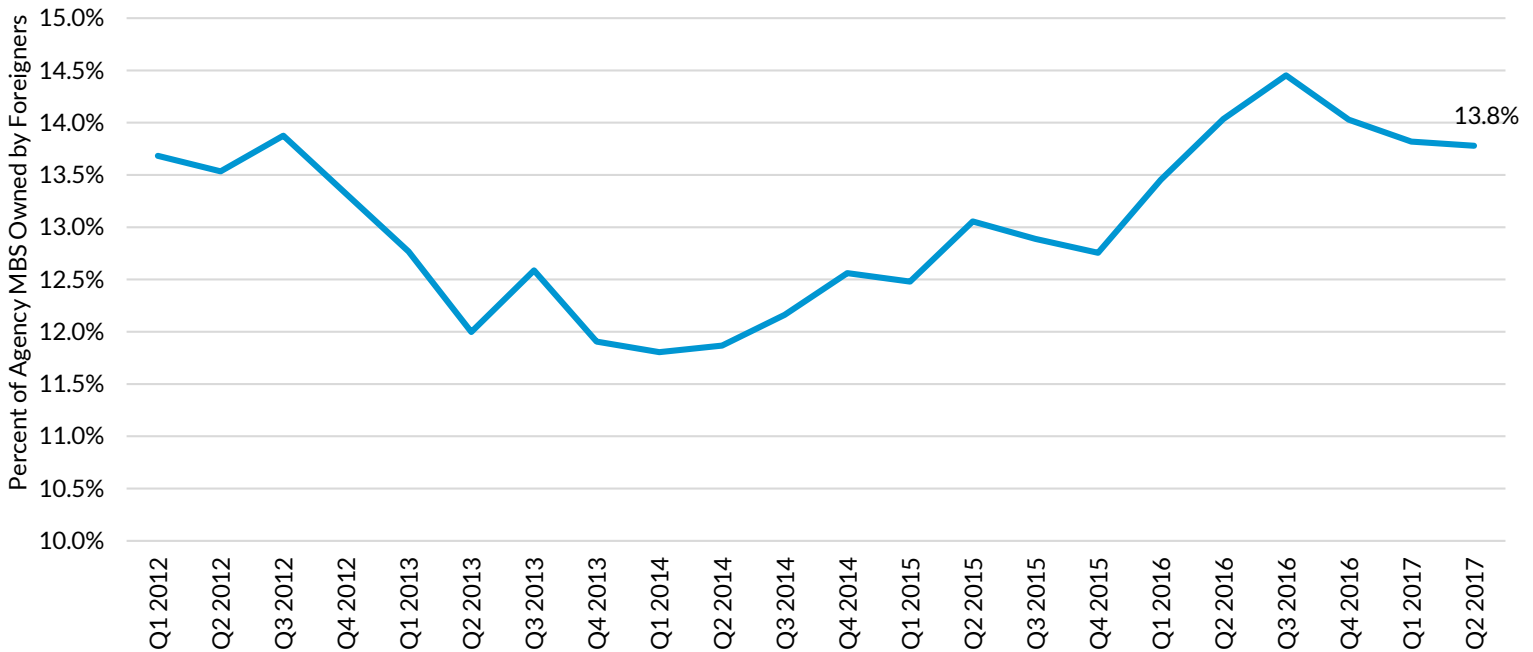
Top Bank & Thrift Residential MBS Investors		Total (\$MM)	GSE PT (\$MM)	GNMA PT (\$MM)	Agency REMIC (\$MM)	Non-Agency (\$MM)	Market Share
1	Bank of America Corporation	\$323,833	\$189,098	\$120,870	\$13,317	\$548	17.60%
2	Wells Fargo & Company	\$236,485	\$189,928	\$35,691	\$4,683	\$6,184	12.90%
3	JP 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%
	<b>Total Top 20</b>	<b>\$1,282,576</b>	<b>\$743,723</b>	<b>\$284,753</b>	<b>\$214,088</b>	<b>\$42,008</b>	<b>69.90%</b>

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

# MBS Ownership

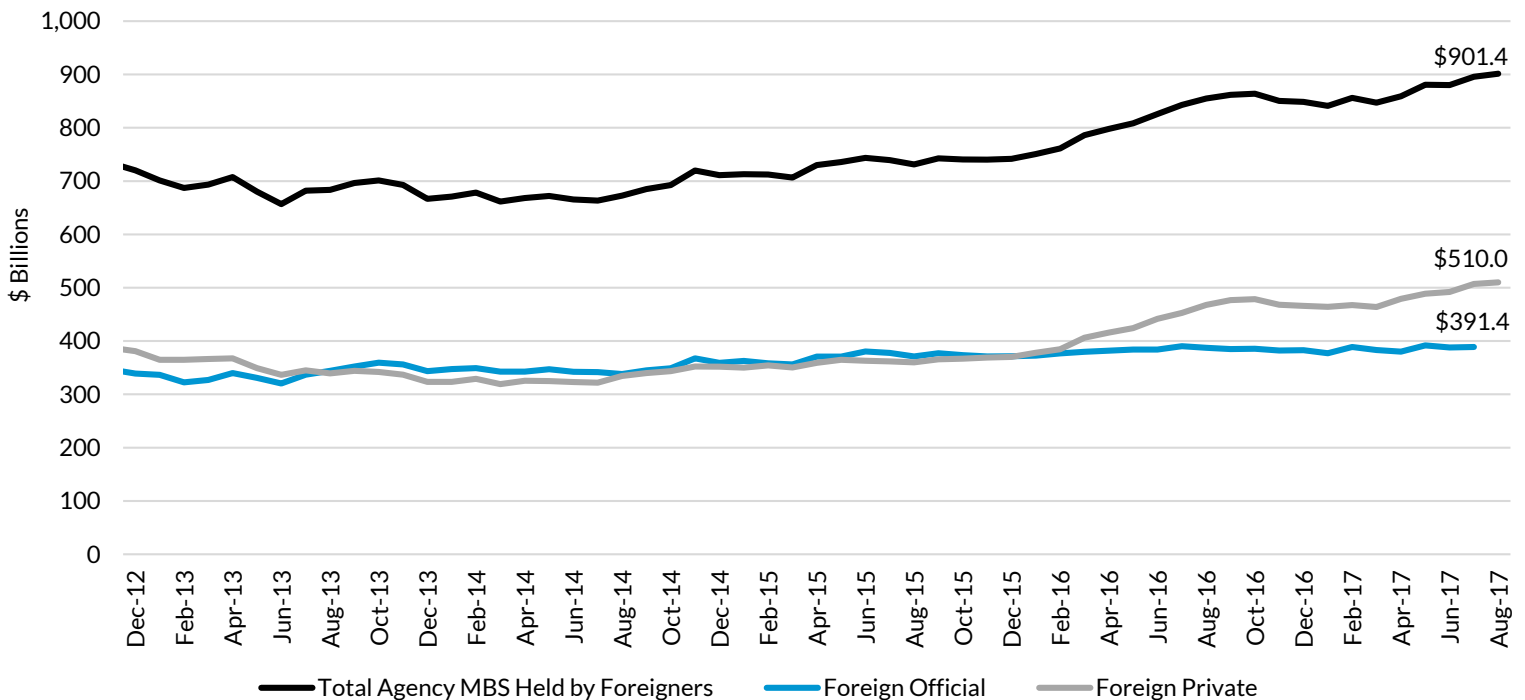
Foreign investors hold 13.8 percent of agency MBS, up from the lows in 2013. For the month of August, this represents \$901.4 billion in agency MBS, \$391.4 billion held by foreign official institutions and \$506.9 billion held by foreign private investors.

## Foreign Share of Agency MBS



Sources: SIFMA and Treasury International Capital (TIC). Note: Data as of Q2 2017.

## Monthly Agency MBS Holdings by Foreigners



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

# MBS Ownership

The largest foreign holders of agency MBS are Taiwan, China and Japan; these three countries 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. Our estimates indicate that Japan has been the single largest buyer of MBS from December 2016 to August 2017, adding \$26.5 billion for 2017.

## Agency MBS+ Agency Debt

Country	Level of Holdings (\$Millions)*							Change in Holdings (\$Millions)*					
	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Jul-17	Aug-17	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Jul-17	Aug-17
Taiwan	207,164	208,352	204,005	212,707	227,236	228,476	227,405	1,188	-4,347	8,702	14,529	1,240	-1,071
China	195,933	191,743	184,151	187,664	183,396	184,110	182,081	-4,190	-7,592	3,513	-4,268	714	-2,029
Japan	197,101	222,116	220,644	214,838	227,721	238,525	244,826	25,015	-1,472	-5,806	12,883	10,804	6,301
Ireland	47,635	48,307	47,065	46,178	45,353	45,839	45,415	672	-1,242	-887	-825	486	-424
South Korea	50,323	50,072	49,000	44,349	46,577	46,444	47,813	-251	-1,072	-4,651	2,228	-133	1,369
Luxembourg	32,164	32,549	35,352	29,014	29,229	30,316	28,800	385	2,803	-6,338	215	1,087	-1,516
Bermuda	28,402	28,714	27,624	26,960	26,793	26,877	27,467	312	-1,090	-664	-167	84	590
Cayman Islands	31,076	30,686	30,186	29,014	28,763	29,380	29,485	-390	-500	-1,172	-251	617	105
Switzerland	16,240	20,638	15,626	16,244	17,591	17,755	18,102	4,398	-5,012	618	1,347	164	347
Netherlands	12,459	10,536	10,326	11,018	12,039	12,388	12,752	-1,923	-210	692	1,021	349	364
Rest of World	148,288	140,716	140,625	126,439	128,428	124,975	124,000	-7,572	-91	-14,186	1,989	-3,453	-975
Total	954,326	984,429	964,604	944,425	973,126	985,085	988,146	30,103	-19,825	-20,179	28,701	11,959	3,061

## Agency MBS Only (Estimates)

Country	Level of Holdings (\$Millions)*							Change in Holdings (\$Millions)*					
	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Jul-17	Aug-17	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Jul-17	Aug-17
Taiwan	206,954	208,142	203,807	212,540	227,077	228,323	227,257	1,188	-4,335	8,734	14,536	1,247	-1,066
China	186,993	185,881	178,556	183,103	178,934	179,807	177,871	-1,112	-7,325	4,547	-4,169	873	-1,935
Japan	185,034	213,615	212,661	208,162	221,447	232,597	239,133	28,581	-954	-4,499	13,285	11,150	6,536
Ireland	37,695	39,142	38,405	38,910	38,381	39,149	38,918	1,447	-737	505	-530	769	-232
South Korea	34,173	34,726	34,505	32,126	34,905	35,239	36,956	553	-221	-2,379	2,779	334	1,717
Luxembourg	27,187	28,094	31,198	25,455	25,821	27,055	25,617	907	3,104	-5,744	366	1,234	-1,438
Bermuda	23,994	24,767	23,888	23,825	23,786	23,989	24,670	773	-879	-63	-39	203	681
Cayman Islands	22,815	22,918	22,851	22,847	22,855	23,716	23,990	103	-67	-3	8	861	274
Switzerland	11,717	16,446	11,596	12,873	14,380	14,674	15,116	4,729	-4,850	1,277	1,507	294	442
Netherlands	11,471	9,717	9,553	10,383	11,442	11,817	12,202	-1,754	-165	830	1,059	375	385
Rest of World	83,560	78,246	81,668	76,757	80,909	79,332	79,702	-5,314	3,422	-4,910	4,152	-1,577	371
Total	831,593	861,694	848,688	846,981	879,935	895,697	901,431	30,101	-13,006	-1,707	32,954	15,762	5,734

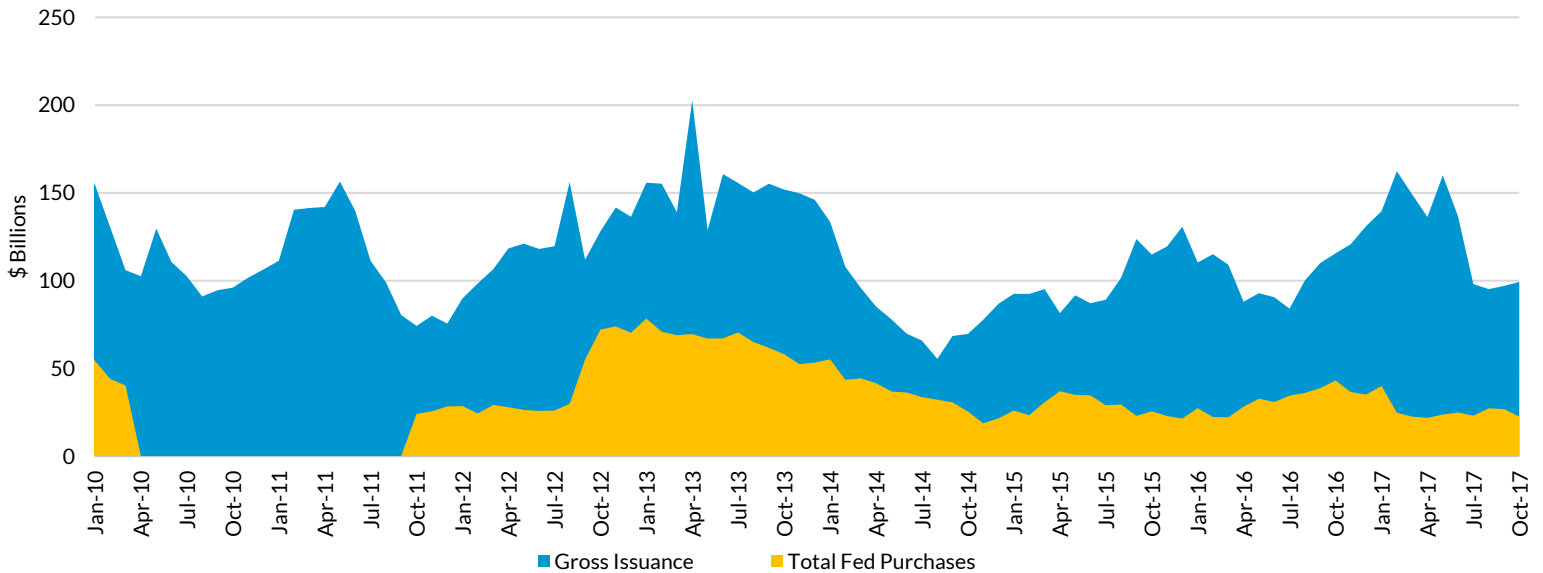
Sources: Treasury International Capital (TIC) and Urban Institute.

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 August 2017.

# MBS Ownership

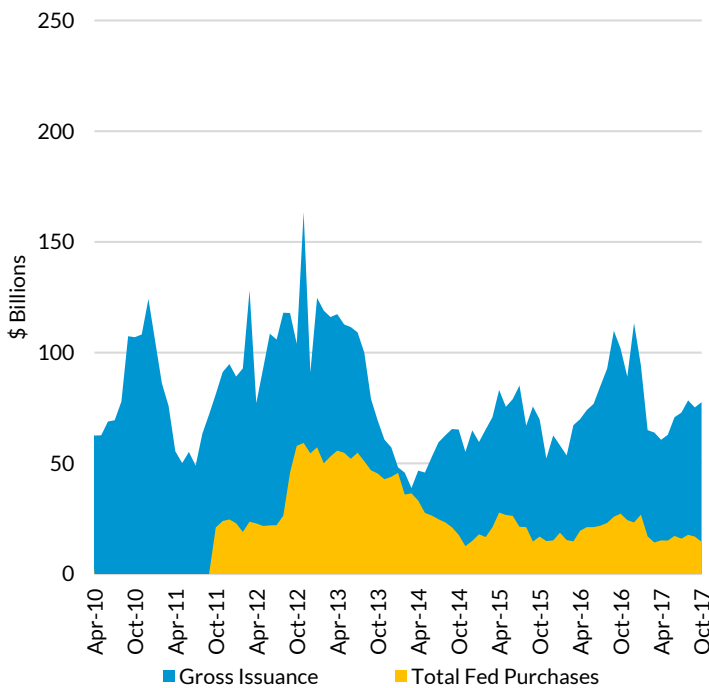
In October 2014, the Fed ended its purchase program, but continued buying at a significantly reduced level, reinvesting funds from pay downs on mortgages and agency debt into the mortgage market. Since then, the Fed's absorption of gross issuance has been between 20 and 30 percent. In October 2017, the Fed began its balance sheet reduction plan. Total Fed purchases decreased sharply from \$26.8 billion to \$22.5 billion, yielding Fed absorption of gross issuance of 19.4 percent, the lowest level in the past five years. This is a slow wind down; initially, the Fed will continue to reinvest, but by less than their run off. In October, the Fed absorbed 20.8 percent of Ginnie Mae issuance and 18.7 percent of GSE issuance.

## Total Fed Absorption



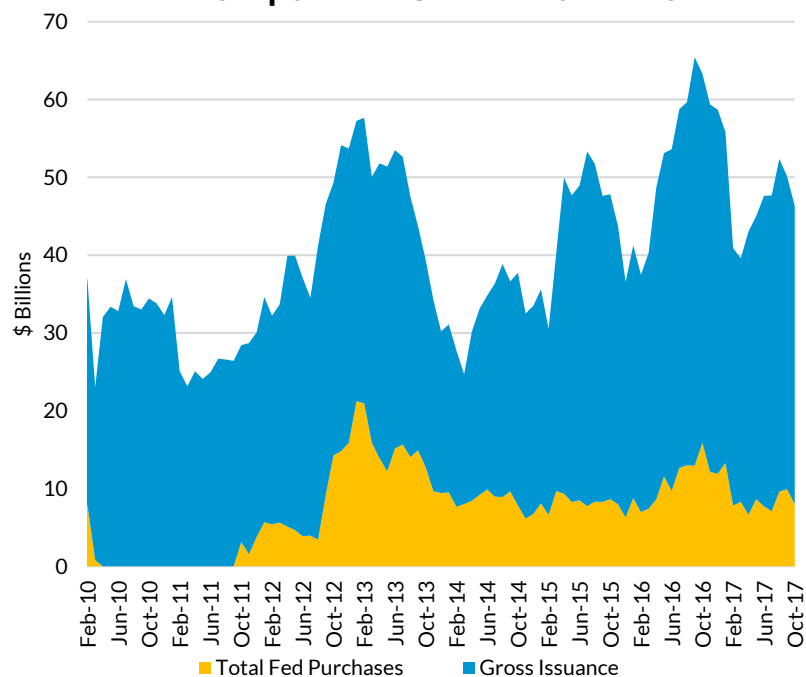
Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of October 2017.

## Fed Absorption of GSE MBS



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

## Fed Absorption of Ginnie Mae MBS



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

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