

Global Markets Analysis Report

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

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URBAN INSTITUTE, HOUSING FINANCE POLICY CENTER

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HIGHLIGHTS

VA's Contribution to Ginnie Mae Issuances

The issuance volume of Ginnie Mae MBS has nearly doubled over the last eight years: from \$268 billion in 2008 to \$508 billion in 2016. Although FHA lending was the single largest contributor to this growth, VA lending has also played an increasingly larger role. The share of Ginnie Mae MBS backed by VA mortgages increased from just 15 percent in 2008 to over 40 percent in 2016. At the same time, FHA's share has declined from 82 percent to 55 percent over the same period (see page 17 for issuance volumes by agency). In other words, Ginnie Mae issuance volume today is much more sensitive to the volume of VA lending than was the case in the past.

Much of the growth in recent issuances was driven by refinance activity induced by historically low interest rates. But not all government lending channels were equally dependent on refinance. For instance, the share of FHA originations that were refinances averaged about 34 percent from 2013 to 2016. In contrast, the average VA refinance share was much higher at 51 percent (see page 19 for refinance shares). Therefore as rates rise over the next few years and refinance volumes decline, VA origination volumes will undoubtedly suffer more than FHA's.

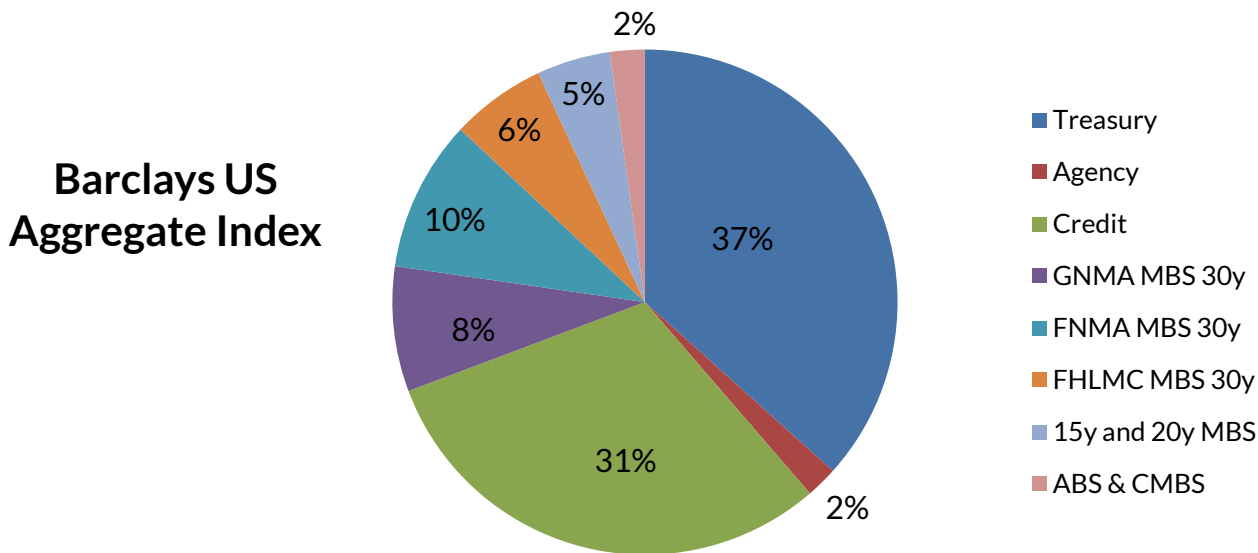
And recent data confirm this: The share of VA originations that are refinances declined from 61 percent for Nov 2016 issuances to 52 percent for Feb '17 issuances, a 9 percentage point fall. In contrast, FHA's refinance share declined only 3 points, from 35 to 32 percent. This trend has an important implication for the future composition of Ginnie Mae MBS: If VA's refinance share continues to decline at a faster rate, its share of Ginnie issuances will gradually reduce. However, offsetting this decline will be the strength of VA's purchase origination volume, which has increased from \$57 billion in 2013 to \$94 billion in 2016. Thus, even as VA's refinance volumes dwindle, increased purchase originations should help keep VA's share of Ginnie issuances above historical levels.

Highlights this month:

- US MBS comprised 29 percent of the Barclays US Aggregate Index, and 12 percent in the Barclays Global Aggregate Index in March 2017 (Page 4).
- The total value of the US Housing Market surpassed its pre-crisis level in Q4 2016, driven by an increase in household equity (Page 6).
- The agency refi share continued to decline in February with the recent interest rate increases. For the Ginnie Mae market, the VA refi share dropped the most from 61 to 52 percent, while FHA was down from 35 to 32 percent (Page 19).
- The non-bank originator share of the Ginnie Mae market fell sharply from 77 to 73 percent in February 2017, reversing a trend of expansion in recent years (Page 29).

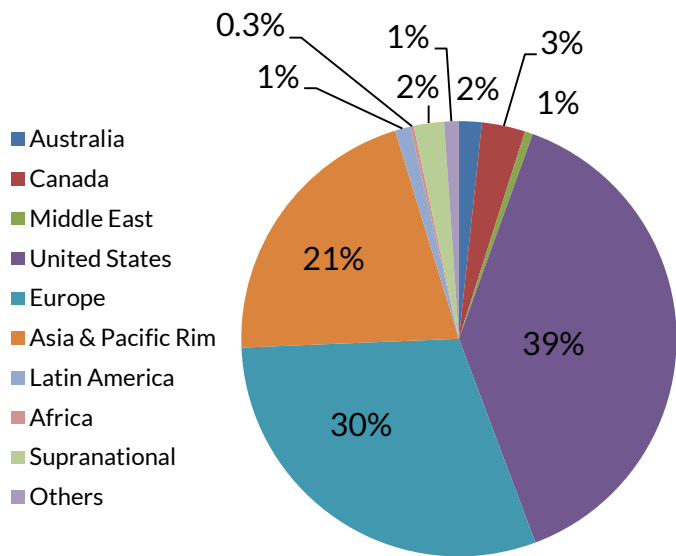
Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

US MBS comprise 29 percent of the Barclays US Aggregate Index-- marginally smaller 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% and 6% of the market, respectively. Mortgages with terms of 15- and 20- year comprise the balance (5%) of the US MBS share. US securities are the largest single contributor to the Barclays Global Aggregate, accounting for 39% of the global total. US MBS comprises 12% of the global aggregate.



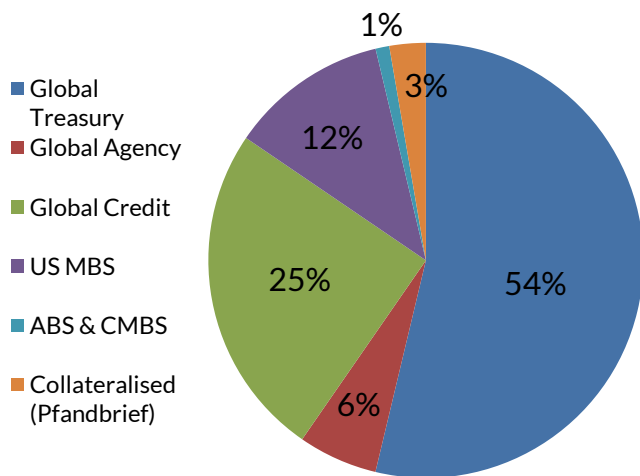
Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2017

Barclays Global Aggregate Index by Country



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

Barclays Global Aggregate Index by Sector

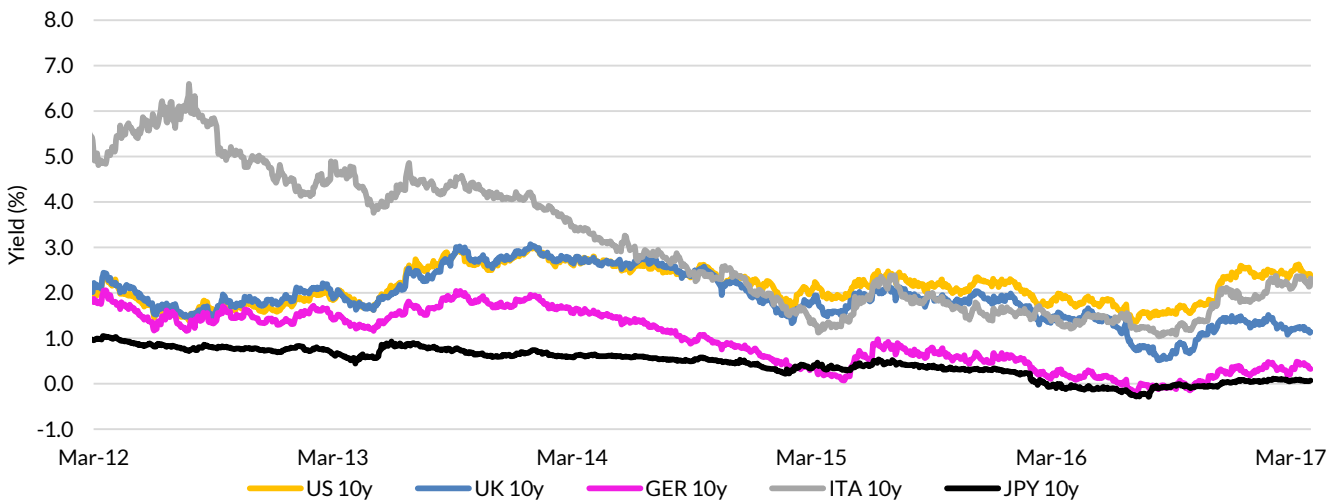


Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2017

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

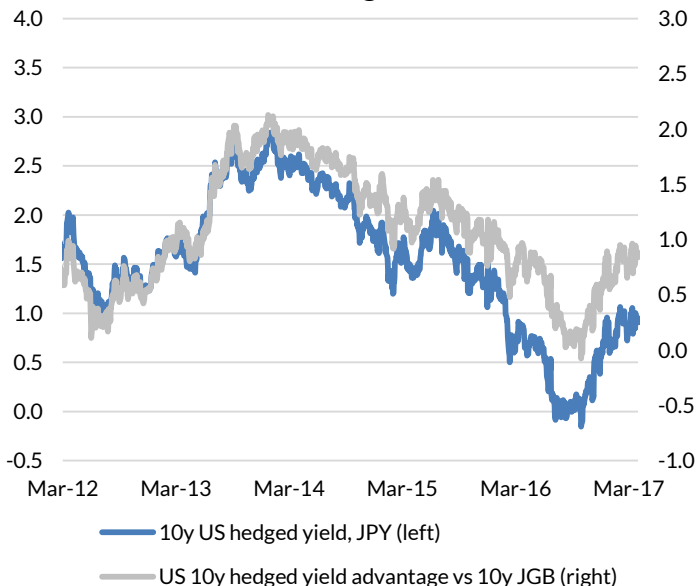
Over the past few years, US Treasury interest rates, as measured by the 10-year note have consistently been the highest in the developed world, a trend which continued this month. As of the end of March, the US 10-year Treasury note had a yield of 2.39%, versus 1.14% for the UK, 0.33% for Germany and 0.07% for Japan. However, if the Treasury notes are hedged into foreign currencies, the US yield advantage narrows -- it stands at 84 bps this month versus the JGB, and 29 bps versus the 10-year Bund. This month shows an increase of 9 bps versus the JGB and a decrease of 20 bps versus the Bund.

Global 10-year Treasury Yields



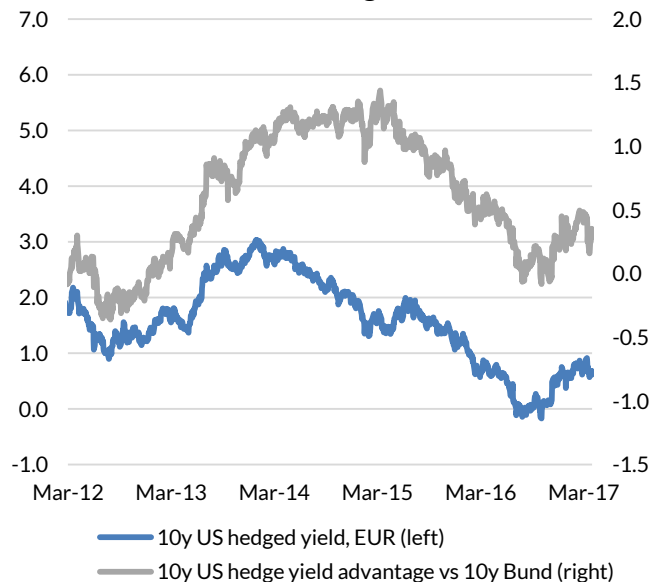
Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2017

10yr US Treasury hedged yield, JPY



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

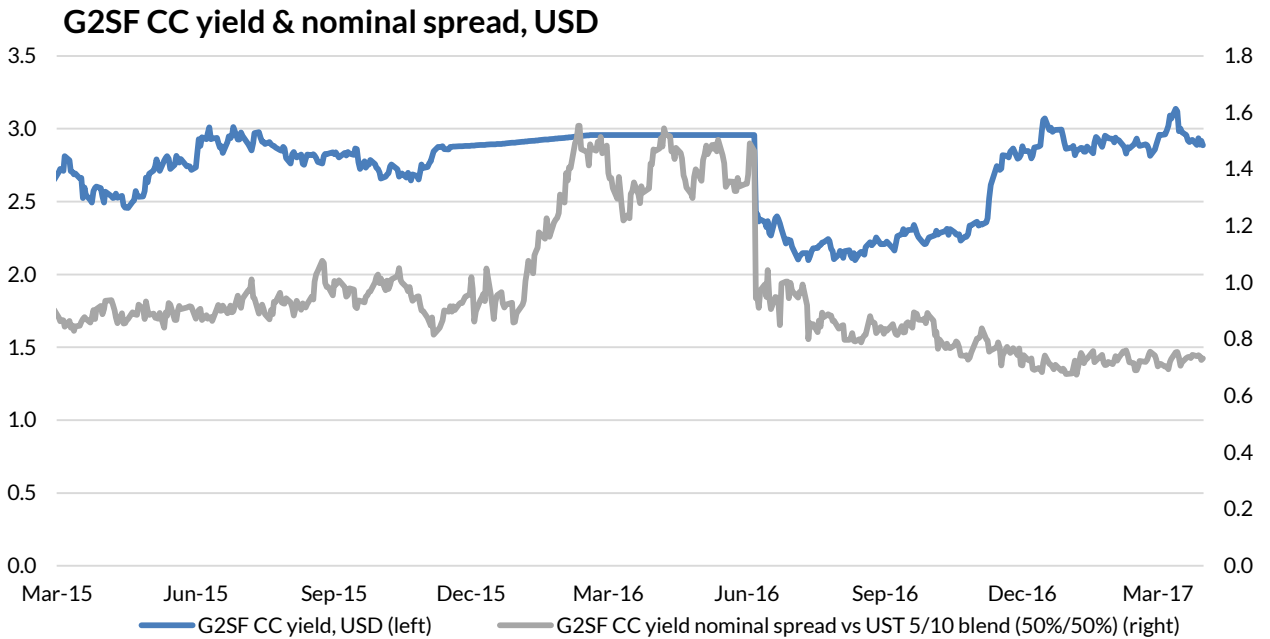
10yr US Treasury hedged yield, EUR



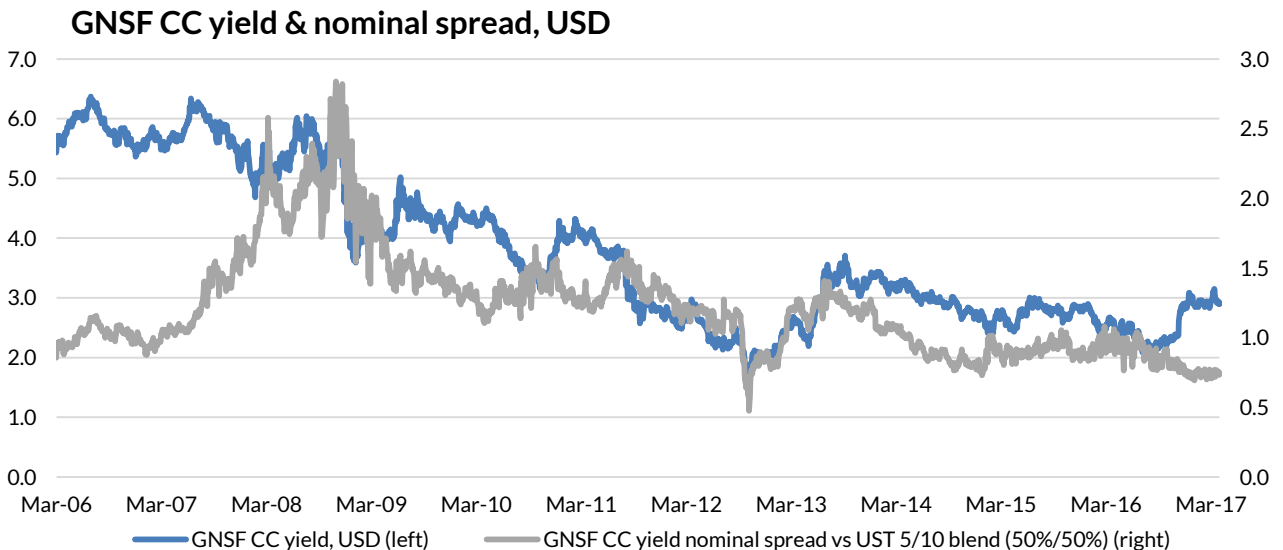
Sources: Bloomberg and State Street Global Advisors
Note: Data as of March 2017

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

Ginnie securities outyield their Treasury counterparts (as measured by the average of the 5- and 10-year Treasury yields) -- 73 basis points on G2SF and 74 basis points on GNSF.



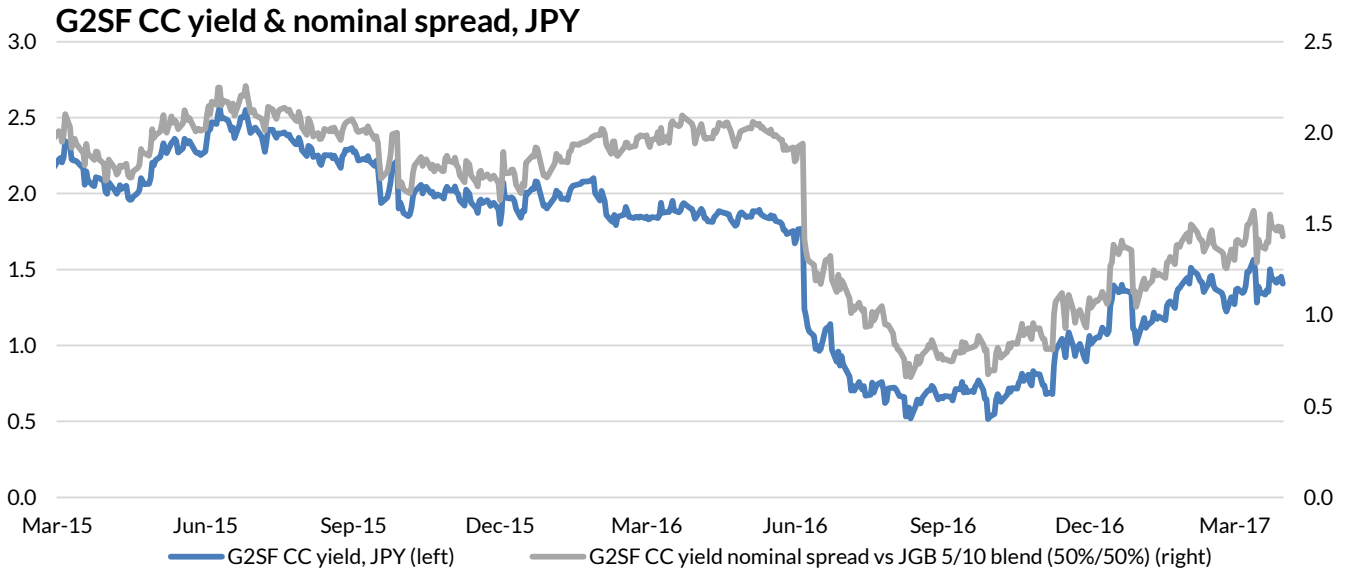
Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2017



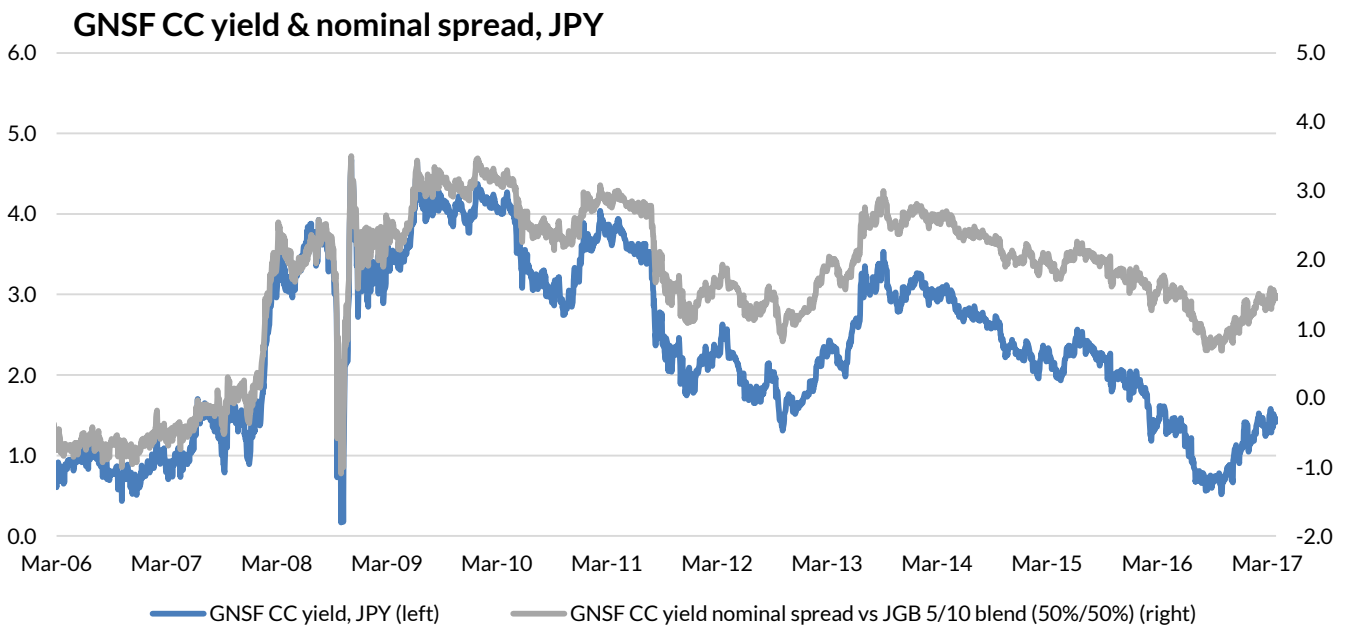
Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2017

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; handily outyielding the sovereign debt of other countries. This figure shows that G2SF and GNSF hedged into Japanese yen yield more than the JGB 5/10 blend by 143 and 144 basis points, respectively.



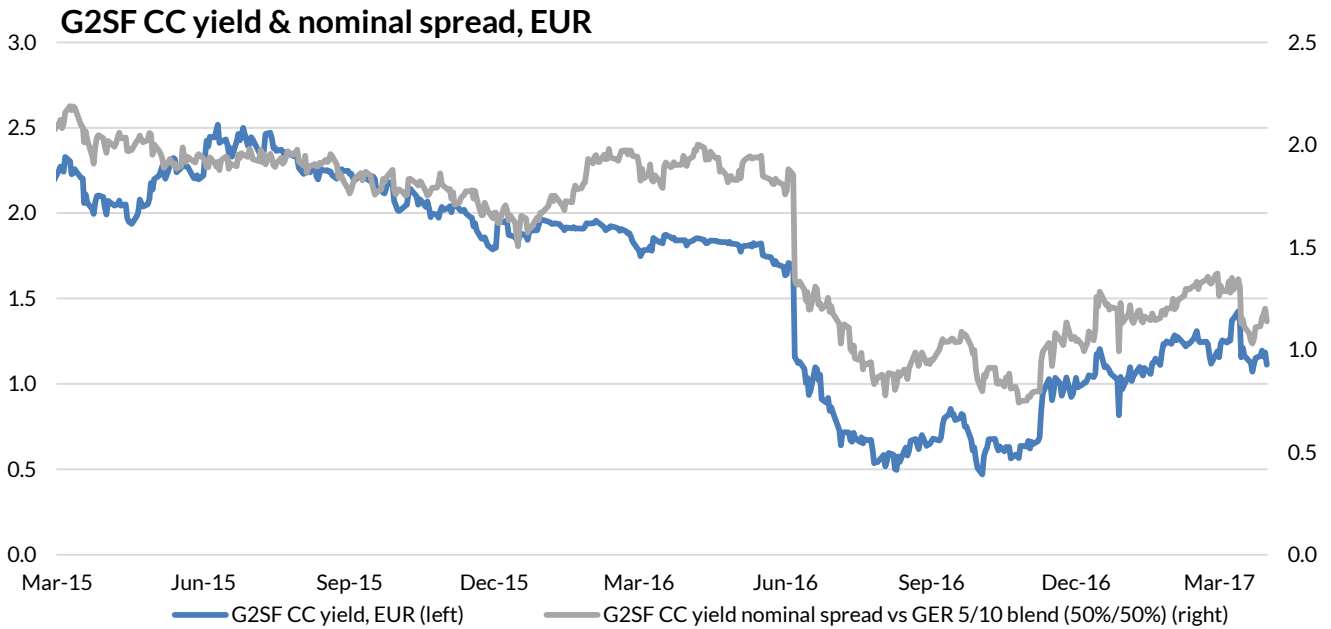
Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2017



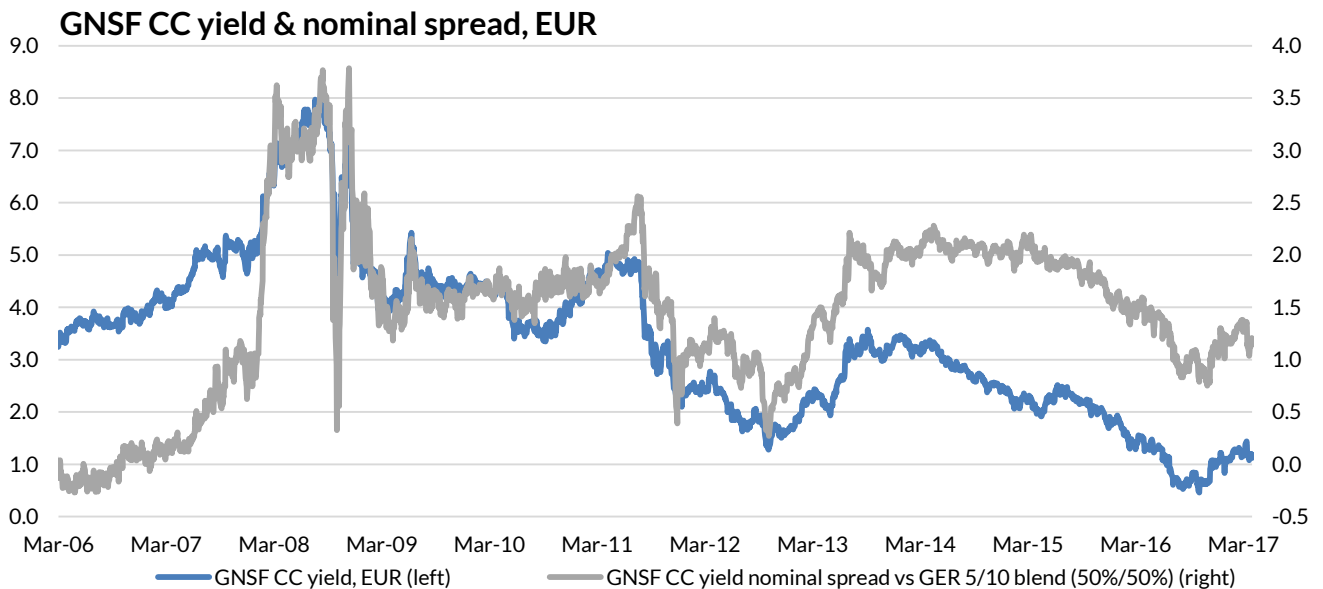
Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2017

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. This figure shows that G2SF and GNSF hedged with euros yield more than the average of the German 5/10 Bund blend by 114 and 115 basis points, respectively.



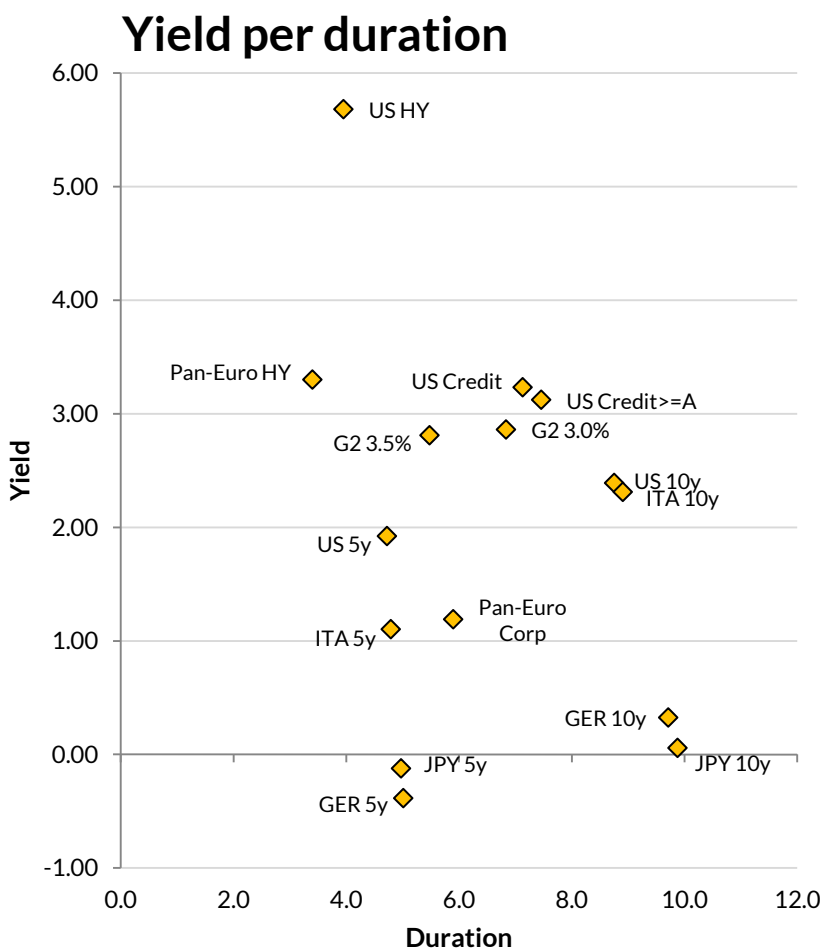
Sources: Bloomberg and State Street Global Advisors. Note: Data as of March 2017



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

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

As interest rates have risen, Ginnie Mae durations have extended by more than a year. Even so, US MBS yields are about the same or higher than most securities with the same or shorter durations. The only exception is the 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	1.92
US 10y	8.8	2.39
GNMA II 3%	6.8	2.86
GNMA II 3.5%	5.5	2.81
JPY 5y	5.0	-0.13
JPY 10y	9.9	0.06
GER 5y	5.0	-0.39
GER 10y	9.7	0.33
ITA 5y	4.8	1.10
ITA 10y	8.9	2.31
US credit	7.1	3.23
US credit >= A	7.5	3.12
US HY	4.0	5.68
Pan-Euro corp	5.9	1.19
Pan-Euro HY	3.4	3.3

Sources: Bloomberg and State Street Global Advisors. Note: Yields are in base currency of security and unhedged. Data as of March 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 duration (interest rate risk). The result: the excess return per unit of risk for the mortgage market is the highest of any market over the past decade.

Average Return (Per Month)

Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield*	Pan Euro High Yield*
1 year	0.01	-0.12	0.28	0.22	1.28	0.67
3 year	0.20	0.18	0.31	0.36	0.39	0.41
5 year	0.15	0.14	0.33	0.43	0.56	0.69
10 year	0.35	0.33	0.46	0.36	0.66	0.72

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	-0.02	-0.15	0.25	0.28	1.25	0.73
3 year	0.19	0.16	0.29	0.40	0.37	0.45
5 year	0.14	0.13	0.32	0.45	0.55	0.71
10 year	0.30	0.28	0.41	0.31	0.61	0.67

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	0.55	1.13	1.28	1.11	1.25	1.25
3 year	0.52	1.00	1.19	1.16	1.75	1.44
5 year	0.66	0.93	1.21	1.18	1.55	1.43
10 year	0.77	1.23	1.76	1.47	3.08	3.65

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	-0.04	-0.13	0.19	0.25	1.00	0.59
3 year	0.36	0.16	0.24	0.34	0.21	0.31
5 year	0.21	0.13	0.27	0.38	0.36	0.50
10 year	0.40	0.23	0.24	0.21	0.20	0.18

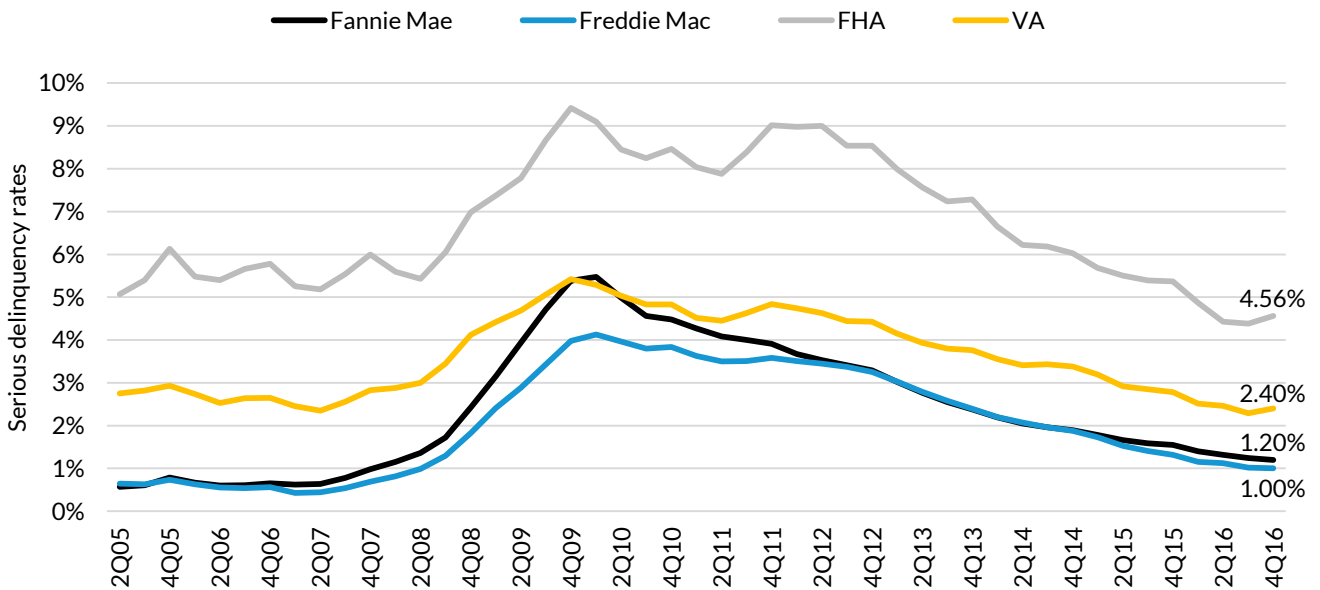
*Assumes 2% capitalization max per issuer on high yield indices

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

State of the US Housing Market

The US Housing Market is recovering from the Great Recession. Serious delinquency rates at the GSEs are slightly above where they were pre-crisis, while serious delinquency rates at the FHA and VA are actually lower, as the book of business is of much higher credit quality. FHA, VA recorded their first uptick in recent years, Whether this is a new trend or a strong seasonal change will be closely monitored. Home price changes turned positive in 2012, and continue to increase at around 7 percent per year, as measured by both CoreLogic and Zillow.

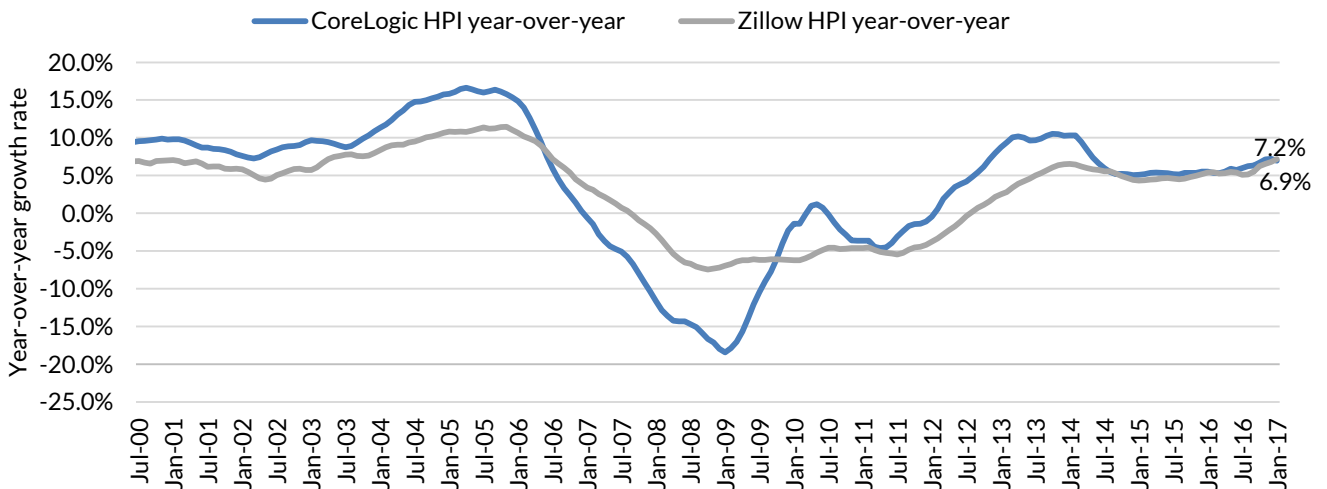
Serious Delinquency Rates: Single-Family Loans



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 Q4 2016

National Year-Over-Year HPI Growth



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

State of the US Housing Market

Nationally, the housing market has improved by 44.1 percent since the trough, and needs to increase by another 4.2 percent to achieve peak valuation. However, the picture is very different for different states, with many states well in excess of the prior peak, while Nevada is 46 percent below peak levels, and Arizona and Florida are both around 26 percent below peak levels.

State	HPI Changes					Current HPI % Below Peak
	2000 to Peak	Peak to Trough	Trough to Current	YOY		
National	93.7%	-33.4%	44.1%	6.9%	4.2%	
Alabama	45.9%	-21.0%	18.6%	3.8%	6.7%	
Alaska	68.9%	-9.2%	15.7%	1.6%	-4.9%	
Arizona	121.6%	-50.6%	60.8%	6.6%	26.0%	
Arkansas	39.2%	-7.8%	12.2%	4.6%	-3.3%	
California	149.1%	-42.6%	64.3%	5.8%	6.0%	
Colorado	40.2%	-13.9%	55.5%	9.1%	-25.3%	
Connecticut	79.5%	-25.0%	6.7%	0.6%	25.0%	
Delaware	90.3%	-24.0%	16.0%	1.7%	13.4%	
District of Columbia	150.2%	-10.3%	35.7%	5.3%	-17.8%	
Florida	149.2%	-49.8%	57.6%	7.3%	26.3%	
Georgia	40.2%	-31.0%	46.0%	6.4%	-0.7%	
Hawaii	152.4%	-20.8%	42.9%	6.7%	-11.6%	
Idaho	86.1%	-41.1%	58.5%	9.0%	7.1%	
Illinois	60.1%	-32.8%	26.2%	5.6%	18.0%	
Indiana	24.1%	-16.4%	22.8%	5.3%	-2.6%	
Iowa	25.5%	-4.8%	16.1%	3.3%	-9.5%	
Kansas	33.1%	-13.9%	22.1%	5.6%	-4.8%	
Kentucky	27.0%	-8.9%	17.3%	5.6%	-6.4%	
Louisiana	58.2%	-7.8%	18.9%	3.4%	-8.7%	
Maine	93.1%	-15.3%	27.1%	-1.8%	-7.2%	
Maryland	137.8%	-31.3%	17.8%	4.3%	23.6%	
Massachusetts	81.8%	-21.4%	32.7%	6.1%	-4.1%	
Michigan	26.1%	-43.5%	62.2%	6.4%	9.1%	
Minnesota	69.9%	-28.4%	34.7%	5.4%	3.7%	
Mississippi	36.8%	-19.0%	15.7%	1.5%	6.7%	
Missouri	46.2%	-22.2%	24.2%	4.6%	3.6%	
Montana	80.4%	-16.7%	29.3%	3.1%	-7.2%	
Nebraska	25.3%	-5.2%	20.4%	4.6%	-12.4%	
Nevada	129.0%	-60.1%	71.6%	5.3%	46.2%	
New Hampshire	82.9%	-24.0%	25.6%	6.0%	4.8%	
New Jersey	109.7%	-26.5%	13.2%	2.5%	20.1%	
New Mexico	64.3%	-26.9%	17.3%	5.5%	16.6%	
New York	102.4%	-13.7%	29.8%	7.1%	-10.7%	
North Carolina	39.4%	-14.8%	22.5%	5.2%	-4.2%	
North Dakota	49.0%	-2.0%	43.0%	1.0%	-28.7%	
Ohio	22.1%	-20.7%	24.8%	5.4%	1.1%	
Oklahoma	35.6%	-3.3%	12.7%	1.6%	-8.3%	
Oregon	87.6%	-29.5%	57.5%	10.3%	-10.0%	
Pennsylvania	71.6%	-12.8%	11.3%	2.9%	3.0%	
Rhode Island	131.0%	-34.6%	23.9%	5.6%	23.4%	
South Carolina	61.3%	-22.3%	28.4%	6.4%	0.3%	
South Dakota	37.2%	-3.6%	31.2%	9.1%	-20.9%	
Tennessee	41.0%	-13.5%	30.0%	7.4%	-11.1%	
Texas	39.2%	-13.2%	42.7%	6.8%	-19.2%	
Utah	64.8%	-31.9%	50.1%	8.0%	-2.2%	
Vermont	80.7%	-9.0%	11.8%	6.1%	-1.7%	
Virginia	135.4%	-30.8%	26.7%	3.1%	14.0%	
Washington	90.2%	-28.3%	51.4%	10.8%	-7.9%	
West Virginia	78.4%	-28.8%	18.3%	1.7%	18.8%	
Wisconsin	48.6%	-17.5%	19.6%	5.4%	1.3%	
Wyoming	75.8%	-15.4%	23.6%	1.1%	-4.4%	

Sources: CoreLogic and Urban Institute. Note: HPI data as of January 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 01/2017, the latest HPI data period.

State of the US Housing Market

Ginnie Mae loans constitute 33.1 percent of outstanding agency issuance by loan balance, 33.4 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 18.6 percent in the District of Columbia to a high of 53.6 percent in Mississippi. In general, the Ginnie Mae share is higher in states with lower home prices.

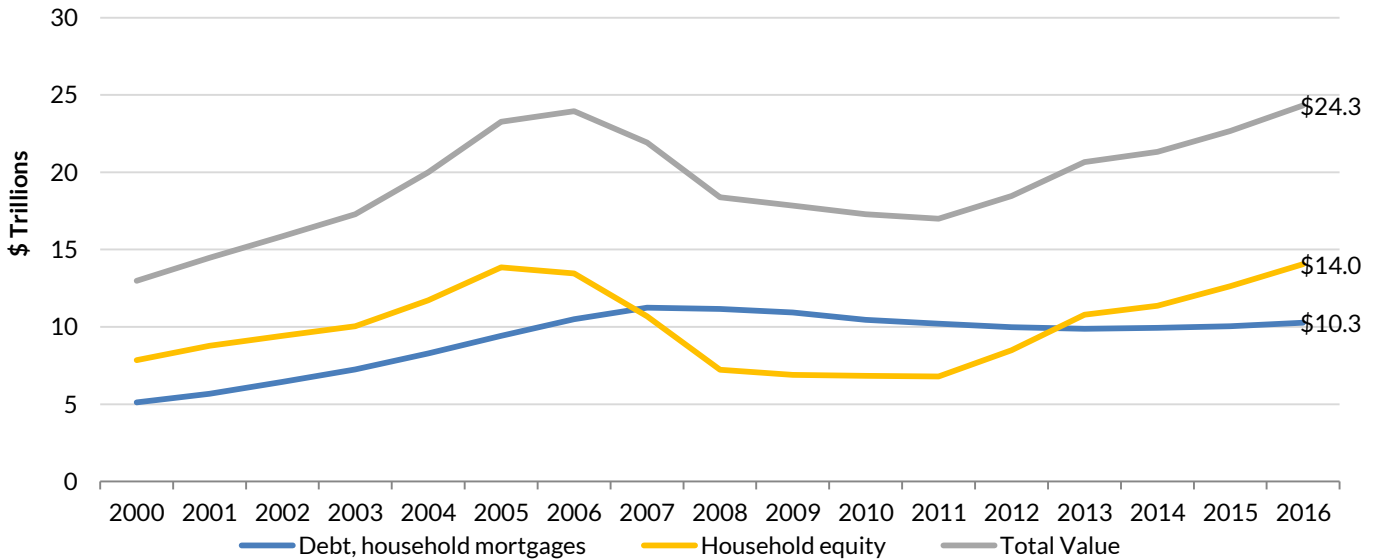
State	Agency Issuance (past 1 year)			Agency Outstanding		
	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)
National	33.4%	210.4	230.3	33.1%	172.5	204.2
Alabama	46.4%	159.0	181.5	48.3%	139.1	166.1
Alaska	53.6%	279.9	244.2	52.6%	250.9	224.8
Arizona	38.7%	200.1	206.9	35.9%	169.2	185.9
Arkansas	43.3%	139.6	166.8	48.1%	119.9	150.0
California	27.0%	334.9	321.9	22.6%	272.5	286.6
Colorado	32.0%	258.8	255.1	31.9%	214.7	228.7
Connecticut	31.0%	213.9	229.2	30.1%	202.2	217.1
Delaware	40.3%	214.5	221.6	38.0%	196.0	205.2
District of Columbia	18.3%	409.9	361.6	18.6%	315.2	328.5
Florida	40.0%	198.2	198.7	37.3%	164.8	180.1
Georgia	41.7%	176.3	205.5	41.7%	149.5	182.2
Hawaii	41.5%	486.5	374.3	31.8%	402.6	339.5
Idaho	36.2%	182.2	188.3	36.2%	155.9	169.9
Illinois	24.4%	175.2	202.6	25.6%	152.2	181.3
Indiana	39.4%	137.1	156.9	40.7%	119.1	139.0
Iowa	24.2%	142.0	165.0	28.1%	122.3	145.7
Kansas	34.3%	149.8	173.9	38.1%	129.8	153.8
Kentucky	40.2%	145.8	166.1	40.9%	130.7	147.3
Louisiana	42.0%	168.6	191.0	44.8%	147.7	174.5
Maine	35.7%	178.5	196.0	33.2%	163.6	177.8
Maryland	45.0%	282.1	268.6	40.2%	247.0	244.3
Massachusetts	21.1%	275.0	278.0	19.9%	246.2	251.2
Michigan	26.6%	141.2	169.0	27.9%	120.2	148.4
Minnesota	25.4%	189.0	205.5	26.7%	165.2	186.5
Mississippi	49.2%	147.5	169.4	53.6%	128.9	155.3
Missouri	34.6%	148.1	174.7	37.5%	129.8	153.2
Montana	31.7%	206.0	206.3	32.9%	177.0	186.7
Nebraska	32.0%	156.5	168.6	37.4%	131.3	149.9
Nevada	44.8%	220.1	212.8	42.3%	186.9	190.9
New Hampshire	32.8%	222.9	219.4	30.8%	204.7	198.2
New Jersey	29.4%	248.5	268.8	28.8%	230.7	246.5
New Mexico	45.0%	174.6	184.7	44.9%	153.6	170.6
New York	27.2%	236.2	261.7	27.5%	200.0	238.2
North Carolina	35.3%	174.9	200.6	37.2%	151.2	181.3
North Dakota	27.4%	205.6	203.0	27.7%	174.6	181.1
Ohio	37.0%	137.7	156.9	39.0%	123.2	141.9
Oklahoma	46.1%	149.2	168.9	51.5%	128.3	154.2
Oregon	27.9%	233.8	243.7	26.7%	200.9	213.8
Pennsylvania	34.8%	167.0	194.3	34.8%	150.2	178.4
Rhode Island	36.6%	212.7	216.3	34.2%	195.8	200.3
South Carolina	40.3%	177.1	191.6	39.8%	153.7	174.3
South Dakota	35.2%	170.7	181.2	38.0%	150.9	160.5
Tennessee	42.4%	171.1	194.0	44.6%	145.1	173.6
Texas	36.0%	185.0	208.1	40.3%	146.0	185.9
Utah	31.9%	219.4	234.5	34.0%	193.1	211.1
Vermont	23.8%	194.8	196.1	20.0%	179.7	180.6
Virginia	46.0%	277.9	266.8	42.3%	238.3	241.5
Washington	32.1%	262.2	266.3	31.7%	223.0	235.3
West Virginia	47.9%	154.0	156.0	46.2%	136.5	145.4
Wisconsin	21.2%	160.9	175.7	22.2%	143.9	158.4
Wyoming	40.8%	205.8	207.2	42.6%	189.9	192.4

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

State of the US Housing Market

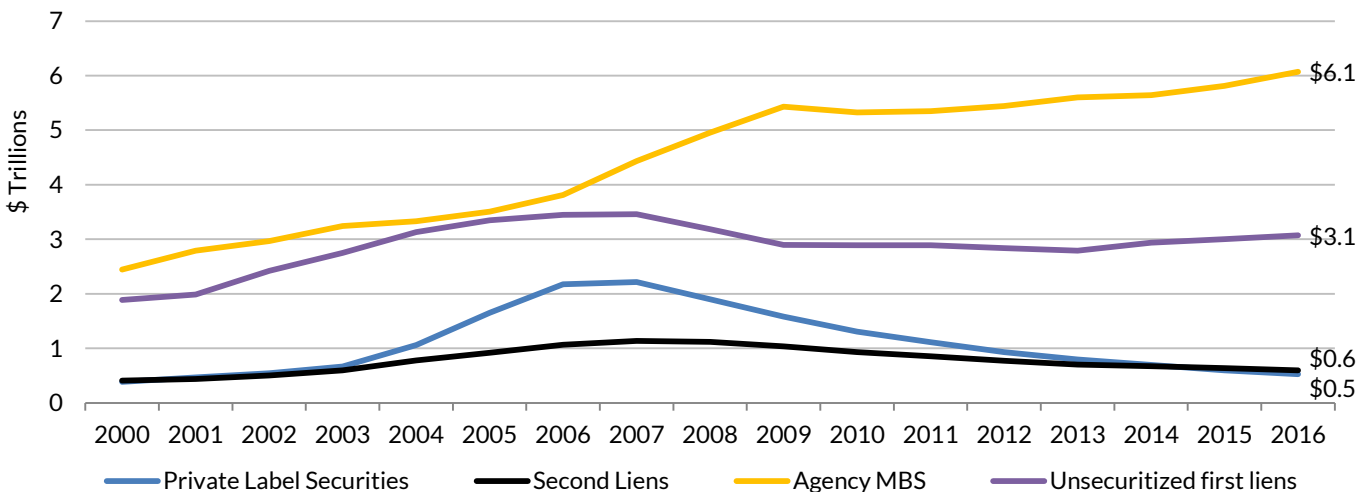
The Federal Reserve's Flow of Funds report has consistently indicated an increasing total value of the housing market driven by growing household equity since 2012, and 2016 was no different. While total debt and mortgages was stable at \$10.3 trillion, household equity reached a new high of \$14.0 trillion, bringing the total value of the housing market to \$24.3 trillion, surpassing the pre-crisis peak of \$23.9 trillion in 2006. Agency MBS make up 59.2 percent of the total mortgage market, private-label securities make up 5.1 percent, and unsecuritized first liens at the GSEs, commercial banks, savings institutions, and credit unions make up 29.9 percent. Second liens comprise the remaining 5.8 percent of the total.

Value of the US Housing Market



Sources: Federal Reserve Flow of Funds and Urban Institute. Data as of Q4 2016.

Size of the US Residential Mortgage Market



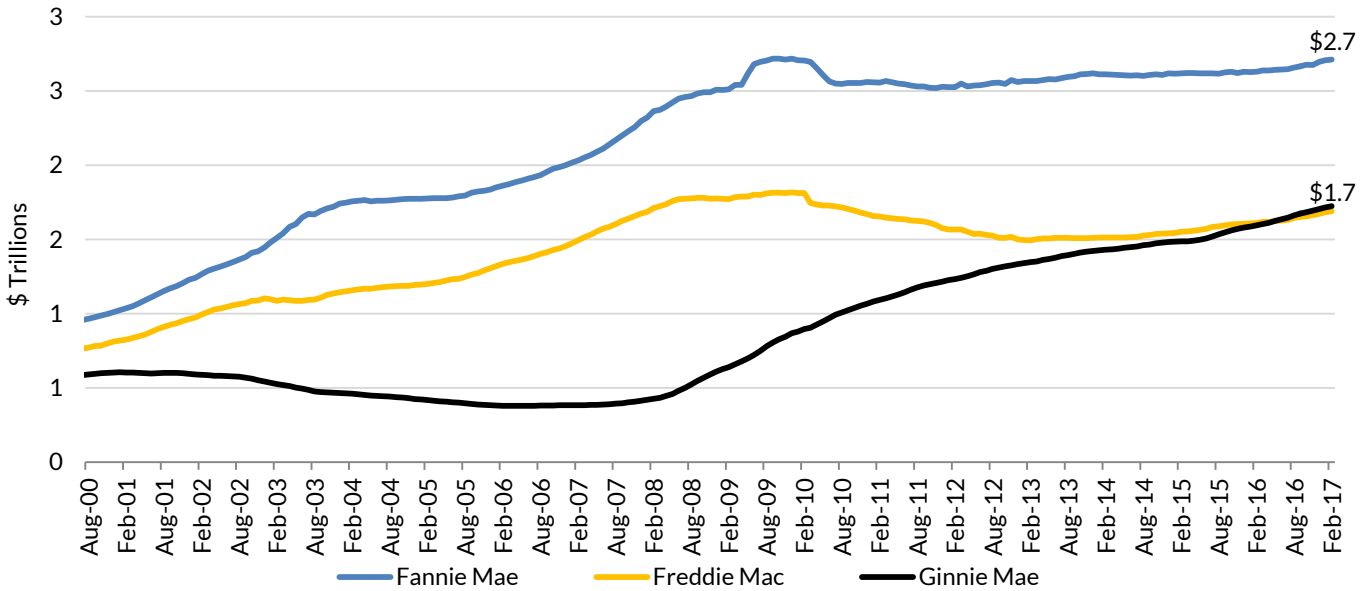
Sources: Federal Reserve Flow of Funds, Inside Mortgage Finance, Fannie Mae, Freddie Mac, eMBS and Urban Institute.

Note: Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, and credit unions. Data as of Q4 2016.

State of the US Housing Market

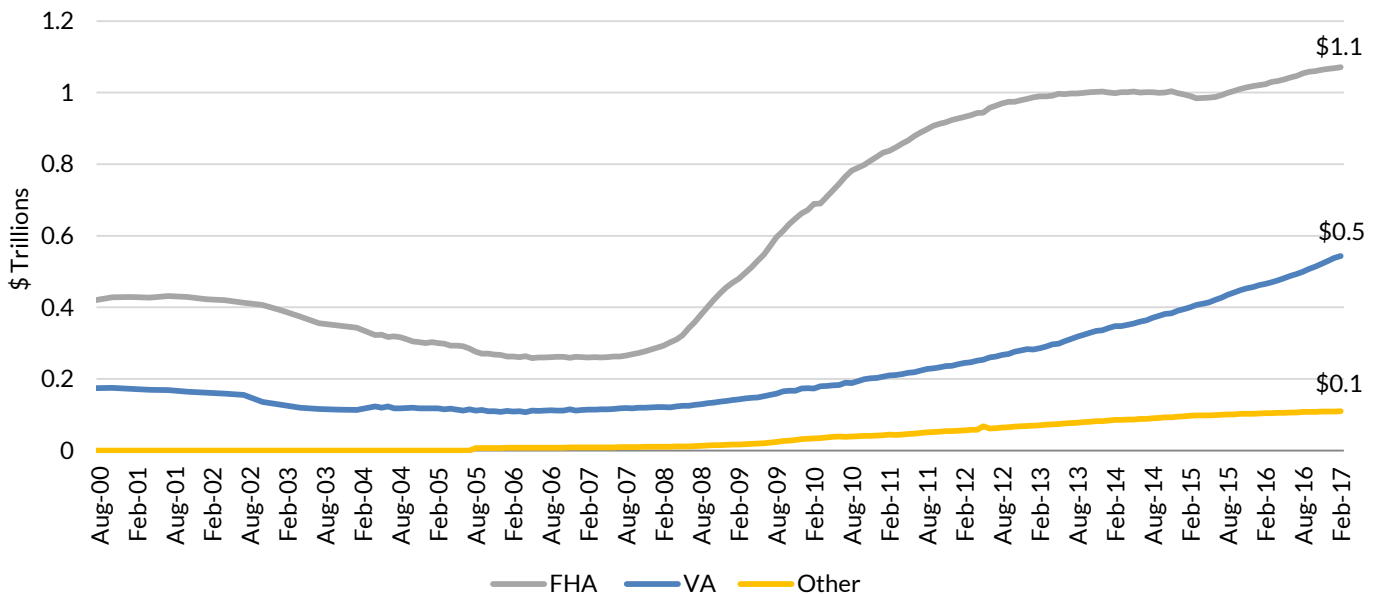
As of February 2017, outstanding securities in the agency mortgage market (forward mortgages only) totaled \$6.1 trillion: 44.2 percent Fannie Mae, 27.6 percent Freddie Mac, and 28.2 percent Ginnie Mae. Ginnie Mae now has more outstandings than Freddie Mac. Within the Ginnie Mae market, VA has been growing very rapidly-- comprising 31.5 percent of total Ginnie Mae outstandings.

Outstanding Agency Mortgage-Backed Securities



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

Outstanding Ginnie Mae Mortgage-Backed Securities

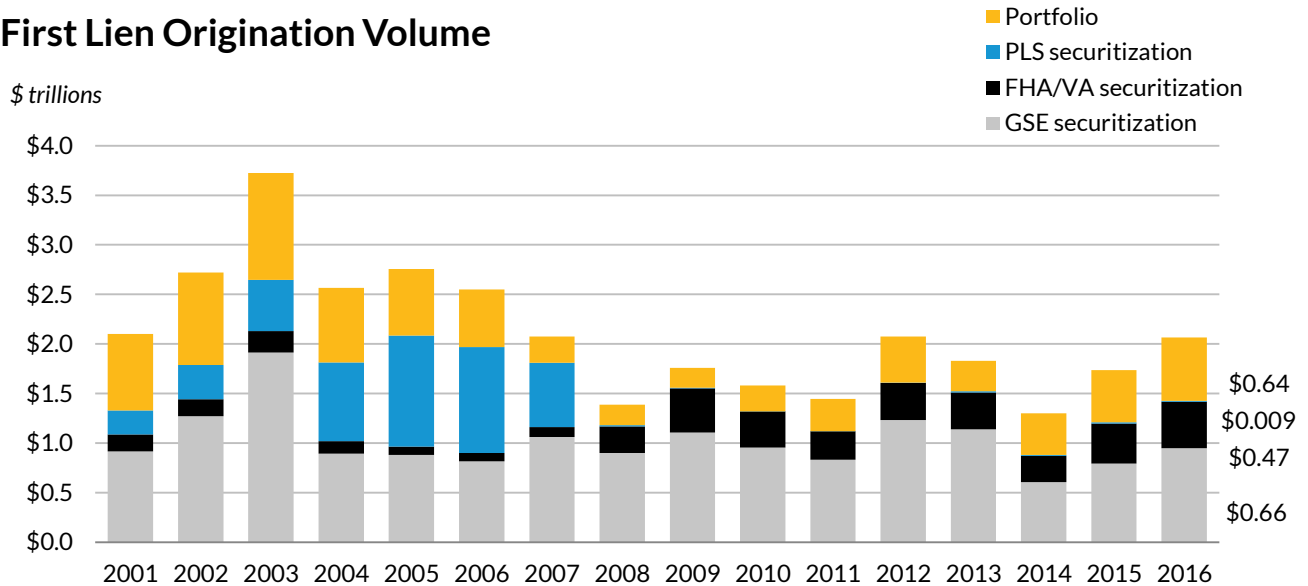


Sources: eMBS and Urban Institute. Note: Data as of February 2017

State of the US Housing Market

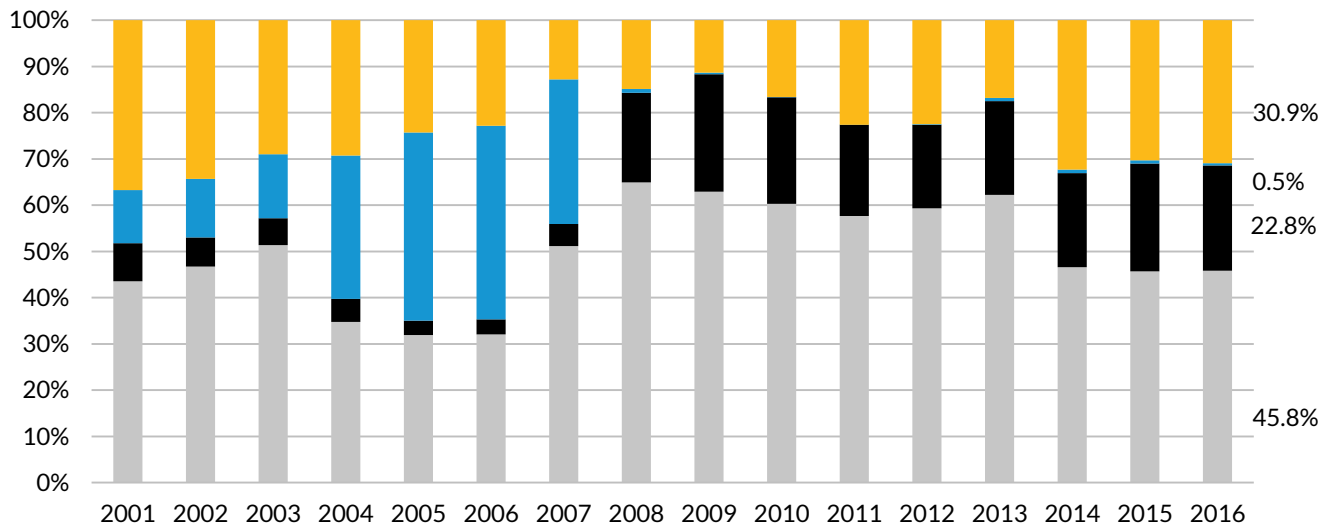
First lien originations in 2016 totaled approximately \$2.1 trillion, the most robust origination year since 2012. The share of portfolio originations was 30.9 percent, up from 30.2 percent in 2015. The GSE share went up to 45.9 percent, from 45.7 percent for the same period in 2015. The FHA/VA share was slightly down: 22.8 percent in 2016 versus 23.3 percent in 2015. Origination of private-label securities is well under 1% in both years.

First Lien Origination Volume



Sources: Inside Mortgage Finance and Urban Institute. Note: Data as of Q4 2016.

First Lien Origination Share



Sources: Inside Mortgage Finance and Urban Institute. Note: Data as of Q4 2016.

US Agency Market, Originations

Agency gross issuance totaled \$234.7 billion in the first two months of 2017, a 34 percent increase from the same period last year. Ginnie Mae gross issuance has grown by 20.2 percent, while GSE gross issuance has grown by 42.4 percent. Within the Ginnie Mae market, FHA is up by 13.5 percent while VA origination is up by 30.7 percent.

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	\$93.2	\$65.9	\$159.0	\$75.7	\$234.7
2017 %Change YOY	37.0%	50.9%	42.4%	20.2%	34.4%
2017 Ann.	\$559.1	\$395.1	\$954.2	\$454.0	\$1,408.2

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	\$155.7	\$19.2	\$436.3
2016	\$281.8	\$206.5	\$19.9	\$508.2
2017 YTD	\$41.8	\$30.4	\$3.4	\$75.7
2017 %Change YOY	13.5%	30.7%	19.5%	20.2%
2017 Ann.	\$251.0	\$182.5	\$20.5	\$454.0

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

Note: Dollar amounts are in billions. Annualized figure based on data from 2016. "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 February 2017.

US Agency Market, Originations

Agency net issuance totaled \$50.1 billion for the first two months of 2017, up 115 percent over the same period last year. Ginnie Mae net issuance was \$19.7 billion, comprising 39.3 percent of total agency net issuance. Note that Ginnie Mae net issuance was up 13.7 percent versus the same time last year. Ginnie Mae net issuance is comprised of 71.5 percent VA issuance, 25.1 percent FHA issuance and 3.4 percent other issuance.

Agency Net Issuance

Issuance Year	Fannie Mae	Freddie Mac	GSE Total	Ginnie Mae	Total Agency
2000	\$92.0	\$67.8	\$159.8	\$29.3	\$189.1
2001	\$216.0	\$151.8	\$367.8	-\$9.9	\$357.9
2002	\$219.2	\$138.3	\$357.6	-\$51.2	\$306.4
2003	\$293.9	\$41.1	\$335.0	-\$77.6	\$257.4
2004	\$33.2	\$50.2	\$83.3	-\$40.1	\$43.2
2005	\$62.6	\$111.7	\$174.4	-\$42.2	\$132.1
2006	\$164.3	\$149.3	\$313.6	\$0.3	\$313.8
2007	\$295.9	\$218.8	\$514.7	\$30.9	\$545.5
2008	\$212.5	\$101.8	\$314.3	\$196.4	\$510.8
2009	\$207.0	\$42.5	\$249.5	\$257.4	\$506.8
2010	-\$158.7	-\$146.8	-\$305.5	\$198.2	-\$107.3
2011	-\$37.6	-\$95.8	-\$133.4	\$149.4	\$16.0
2012	\$28.8	-\$75.3	-\$46.5	\$118.4	\$71.9
2013	\$54.9	\$11.6	\$66.5	\$85.8	\$152.3
2014	\$0.4	\$29.9	\$30.3	\$59.8	\$90.1
2015	\$10.1	\$64.9	\$75.0	\$94.5	\$169.5
2016	\$68.6	\$67.0	\$135.6	\$125.1	\$260.7
2017 YTD	\$13.2	\$17.2	\$30.4	\$19.7	\$50.1
2017 %Change YOY	621.2%	315.0%	408.9%	13.7%	115.0%
2017 Ann.	\$79.2	\$103.1	\$182.3	\$118.0	\$300.4

Ginnie Mae Breakdown: Net Issuance

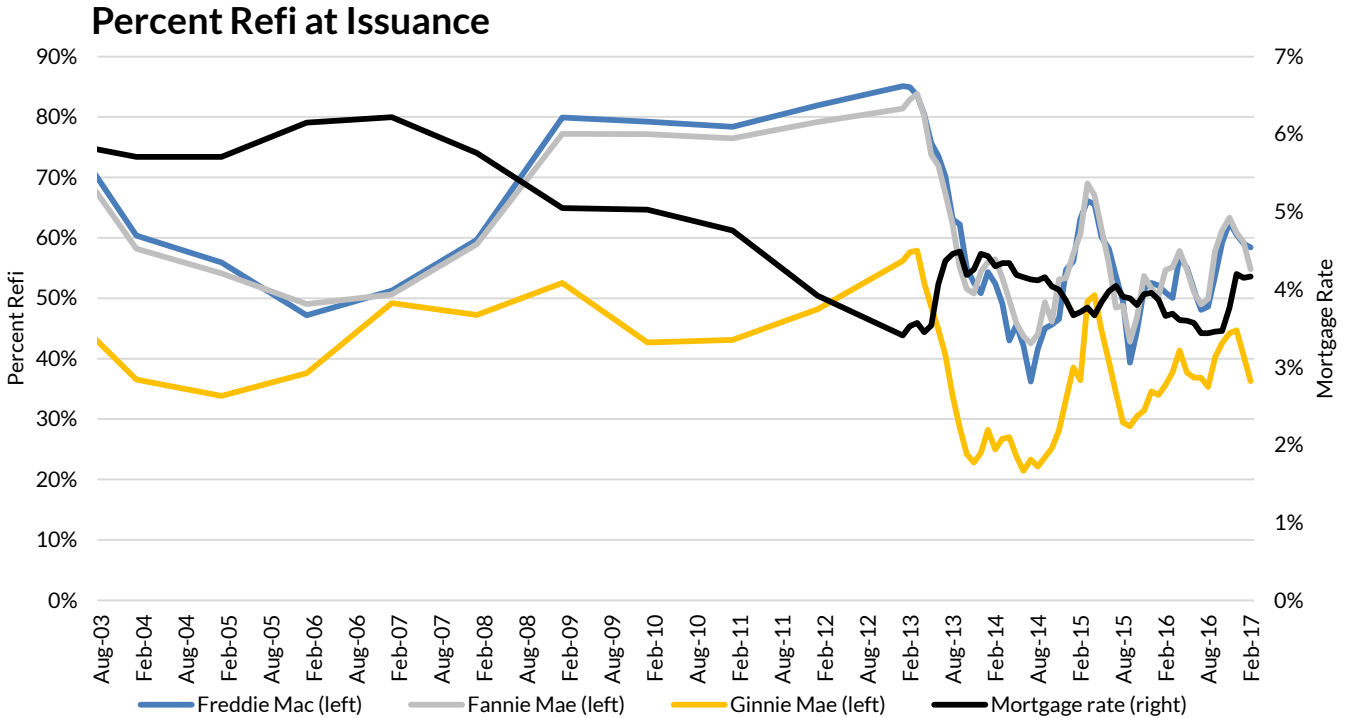
Issuance Year	FHA	VA	Other	Total
2000	\$29.0	\$0.3	\$0.0	\$29.3
2001	\$0.7	-\$10.6	\$0.0	-\$9.9
2002	-\$22.5	-\$28.7	\$0.0	-\$51.2
2003	-\$56.5	-\$21.1	\$0.0	-\$77.6
2004	-\$45.2	\$5.1	\$0.0	-\$40.1
2005	-\$37.7	-\$11.8	\$0.0	-\$42.2
2006	-\$4.7	\$3.8	\$1.2	\$0.2
2007	\$20.2	\$8.7	\$2.0	\$30.9
2008	\$173.3	\$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	\$20.0	\$66.8	\$7.9	\$94.7
2016	\$46.4	\$72.7	\$6.1	\$125.1
2017 YTD	\$4.9	\$14.1	\$0.7	\$19.7
2017 %Change YOY	-11.0%	40.0%	-93.3%	13.7%
2017 Ann.	\$29.6	\$84.4	\$4.0	\$118.0

Sources: eMBS and Urban Institute (top and bottom)

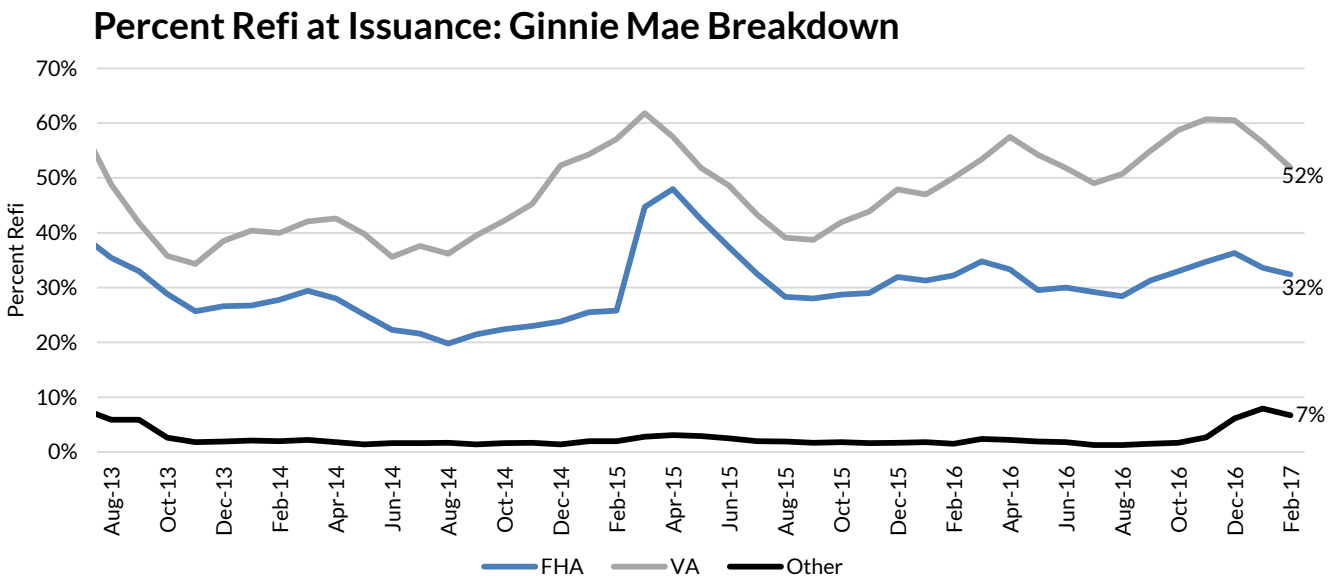
Note: Dollar amounts are in billions. Annualized figure based on data from 2016. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of February 2017.

US Agency Market, Originations

The Ginnie Mae refi share stands at 36 percent in February 2017, below the 55 and 58 percent shares for Fannie Mae and Freddie Mac, respectively. Within Ginnie Mae, VA had the highest refi share of 52 percent in February 2017, followed by FHA's 32 percent refi share. While most of these refi rates continued to edge down this month, we expect them to taper more in the months ahead, due to higher interest rates.



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



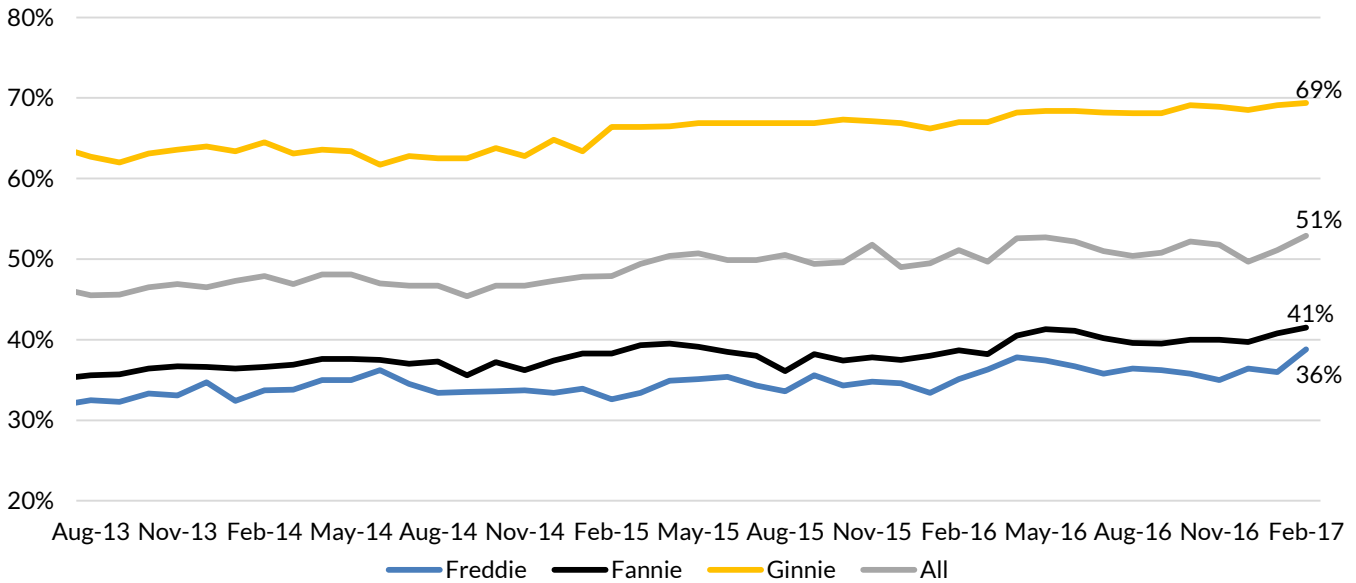
Sources: eMBS and Urban Institute.

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 February 2017.

Credit Box

First time homebuyers are more important to the Ginnie Mae market, comprising 69 percent of purchase originations, compared to Fannie and Freddie's 41 percent and 36 percent share of the first-time homebuyer market. The bottom table shows that based on mortgages originated in February 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 slightly lower DTI, thus requiring a higher interest rate.

First Time Homebuyer Share: Purchase Only Loans



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

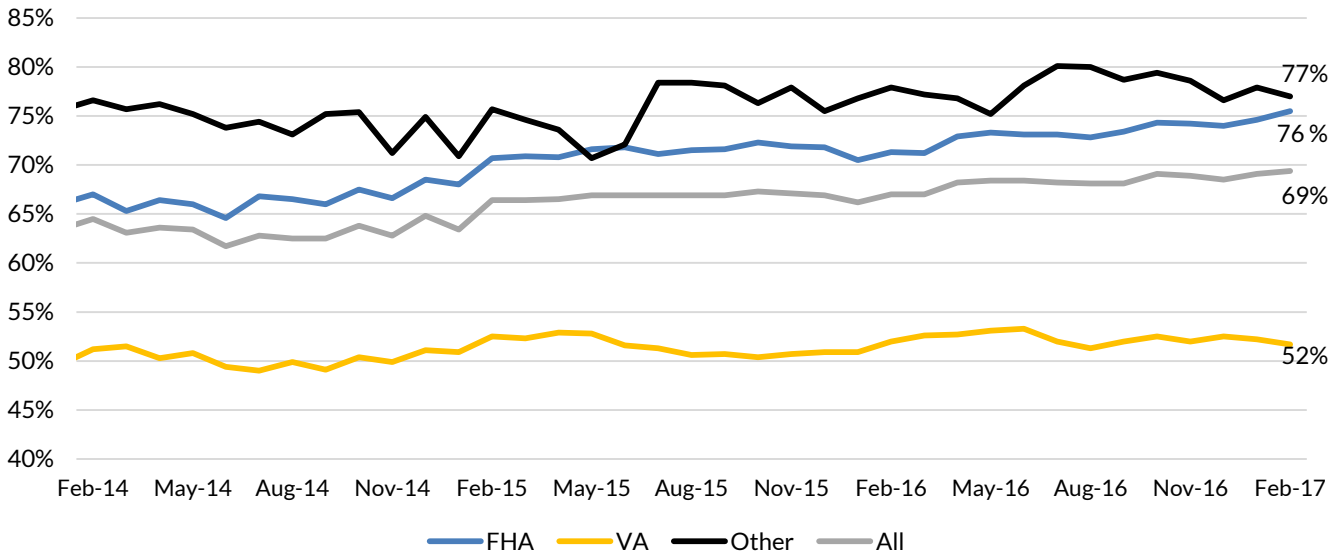
	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$Thousands)	211.9	238.6	218.9	248.2	194.3	237.2	203.2	241.1
Credit Score	735.4	751.8	740.1	754.4	684.6	703.4	707.3	736.0
LTV (%)	86.4	78.0	87.1	79.9	96.5	95.3	92.1	84.3
DTI (%)	34.5	35.0	35.0	35.6	40.5	41.2	38.0	37.3
Loan Rate (%)	4.23	4.11	4.20	4.07	4.06	3.97	4.13	4.05

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

Credit Box

Within the Ginnie Mae purchase market, 76 percent of FHA loans, 52 percent of VA loans and 77 percent of other loans represent financing for first time home buyers. The bottom table shows that based on mortgages originated in February 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 higher LTV and slightly lower DTI, 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 February 2017.

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$ Thousands)	193.1	213.4	231.5	282.2	139.4	153.2	194.3	237.2
Credit Score	679.2	685.2	697.1	726.5	695.2	698.8	684.6	703.4
LTV (%)	95.5	94.3	98.5	95.6	99.3	99.2	96.5	95.3
DTI (%)	41.7	42.4	39.5	40.8	34.9	35.4	40.5	41.2
Loan Rate (%)	4.12	4.08	3.93	3.82	3.95	4.01	4.06	3.97

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

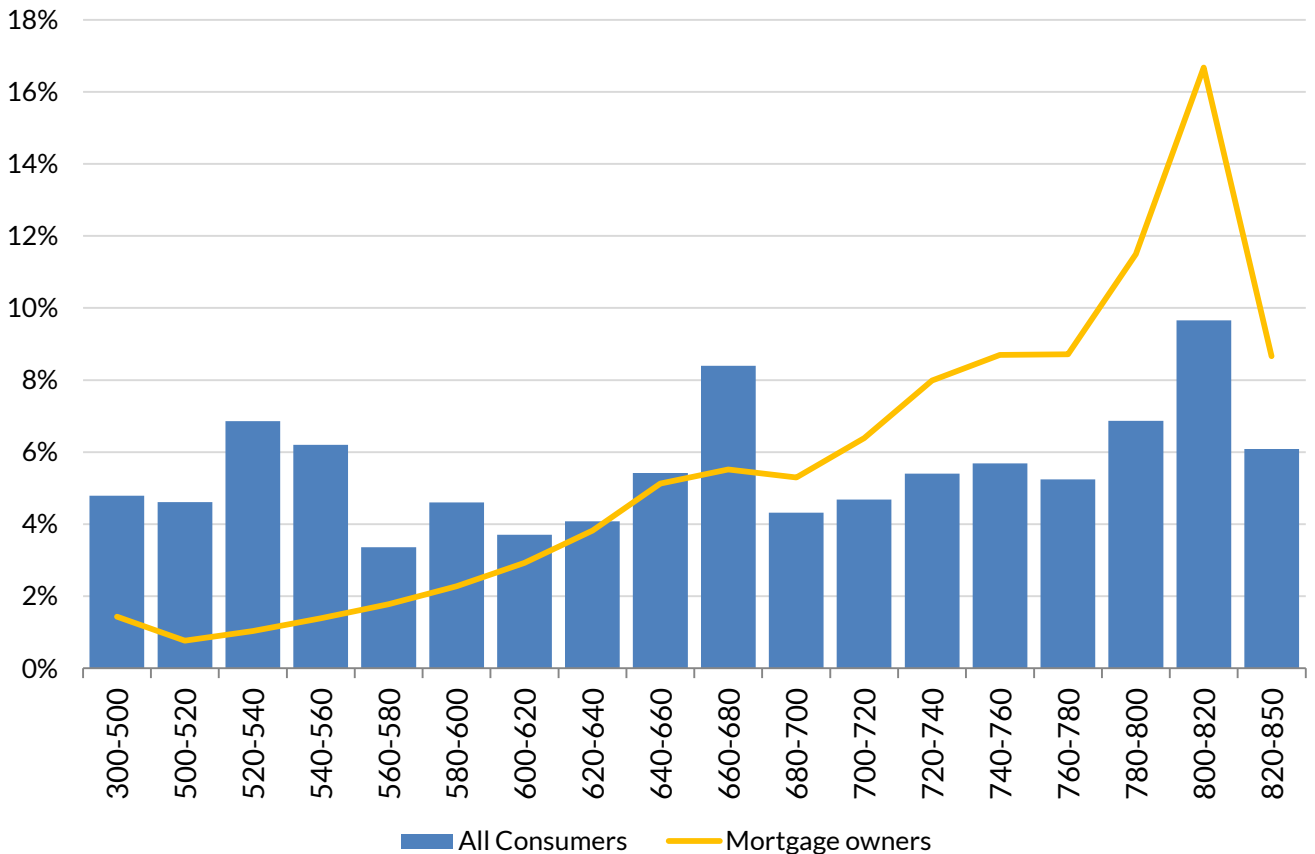
Credit Box

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 (675) is lower than the 25th percentile of those with a mortgage (676).

FICO Score Distribution: Mortgage Owners vs All Consumers

All Consumers- Percentiles								
Minimum	P5	P10	P25	P50	P75	P90	P95	Maximum
300	501	523	575	675	770	812	821	839

Mortgage Owners- Percentiles								
Minimum	P5	P10	P25	P50	P75	P90	P95	Maximum
306	564	609	676	749	800	818	824	839



Sources: Credit Bureau Data and Urban Institute.
 Note: Data as of August 2015.

February 2017 Credit Box at a Glance

In February 2017, the median Ginnie Mae FICO score was 685 versus 751 for Fannie and 755 for Freddie. Note that the FICO score for the 10th percentile was 627 for Ginnie Mae, versus 668 for Fannie and 680 for Freddie. Within the Ginnie Mae market, FHA loans have a median FICO score of 674, VA loans have a median FICO score of 710 and other loans have a median FICO score of 692.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	211,562	645	678	726	773	797	723
Fannie	65,631	679	713	756	787	801	746
Freddie	53,939	686	719	758	787	801	750
Ginnie	91,992	628	651	683	726	770	690

Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	209,164	651	689	737	779	800	730
Fannie	94,367	662	700	747	784	802	738
Freddie	67,918	676	709	752	786	802	744
Ginnie	46,879	622	652	690	737	780	694

All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	420,726	647	683	731	776	798	727
Fannie	159,998	668	706	751	785	802	742
Freddie	121,857	680	713	755	786	802	747
Ginnie	138,871	627	651	685	729	774	691

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	91,992	628	651	683	726	770	690
FHA	58,067	625	647	675	711	750	681
VA	24,209	635	664	708	762	635	664
Other	9,716	642	660	691	732	767	696

Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	46,879	622	652	690	737	780	694
FHA	23,563	612	641	673	708	749	675
VA	22,651	637	670	712	762	793	712
Other	665	638	667	702	747	782	705

All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	138,871	627	651	685	729	774	691
FHA	81,630	622	645	674	710	750	679
VA	46,860	636	667	710	762	793	712
Other	10,381	641	660	692	732	768	697

February 2017 Credit Box at a Glance

In February 2017, the median loan-to-value ratio (LTV) was 96.5 percent for Ginnie Mae, 75.0 percent for Fannie Mae, and 76.0 for Freddie. The 10th percentile was 80.0 percent for Ginnie Mae and 44-47 percent for the GSEs. Within the Ginnie Mae market, the median LTV was 96.5 for FHA, 98.7 for VA and 101.0 for the other lending programs.

Purchase LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	204,817	71.0	80.0	95.0	96.5	99.7	87.6
Fannie	65,687	60.0	75.0	80.0	95.0	95.0	81.0
Freddie	53,944	64.0	78.0	80.0	95.0	95.0	82.0
Ginnie	85,186	91.9	96.5	96.5	99.2	101.2	96.2

Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	200,551	42.0	57.0	72.0	80.0	90.0	68.5
Fannie	94,368	39.0	53.0	68.0	77.0	80.0	64.3
Freddie	67,912	41.0	55.0	69.0	79.0	82.0	65.4
Ginnie	38,271	66.5	79.7	85.0	94.4	98.7	84.4

All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	405,368	50.0	68.0	80.0	95.0	97.0	78.1
Fannie	160,055	44.0	60.0	75.0	80.0	95.0	71.2
Freddie	121,856	47.0	62.0	76.0	84.0	95.0	72.7
Ginnie	123,457	80.0	90.0	96.5	97.1	101.0	92.5

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	85,186	91.9	96.5	96.5	99.2	101.2	96.2
FHA	52,524	93.1	96.5	96.5	96.5	96.5	95.2
VA	22,870	88.5	96.4	100.0	101.8	102.3	97.1
Other	9,792	95.1	99.1	101.0	101.0	101.1	99.2

Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	38,271	66.5	79.7	85.0	94.4	98.7	84.4
FHA	24,636	67.5	79.7	85.0	91.8	95.9	83.0
VA	12,953	63.8	79.2	90.0	99.2	102.2	86.3
Other	682	83.1	90.7	99.0	100.7	102.0	94.5

All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	123,457	80.0	90.0	96.5	97.1	101.0	92.5
FHA	77,160	80.0	88.0	96.5	96.5	96.5	91.3
VA	35,823	76.7	90.0	98.7	101.1	102.2	93.2
Other	10,474	94.0	98.8	101.0	101.0	101.3	98.9

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

February 2017 Credit Box at a Glance

In February 2017, the median Ginnie Mae debt-to-income ratio (DTI) was 41.0 percent, considerably higher than the 35-36 percent median DTIs for Fannie and Freddie. The 10th percentile for Ginnie Mae was 26.8 percent, also much higher than the 21 percent DTIs for the GSEs. Within the Ginnie Mae market, the median FHA DTI ratio was 42.5, versus 39.9 for VA and 35.7 for other lending programs.

Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	210,988	24.0	31.0	38.6	44.0	49.0	37.4
Fannie	65,617	22.0	28.0	36.0	42.0	45.0	34.6
Freddie	53,909	22.0	29.0	37.0	42.0	45.0	35.2
Ginnie	91,462	28.0	34.6	41.4	47.6	52.9	40.7

Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	191,696	21.0	28.0	36.0	43.0	47.0	34.9
Fannie	91,844	20.0	27.0	35.0	42.0	45.0	33.8
Freddie	66,299	20.0	27.0	36.0	42.0	46.0	34.4
Ginnie	33,553	23.8	31.3	39.8	46.9	52.1	38.7

All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	402,684	22.0	29.0	37.0	43.4	48.0	36.2
Fannie	157,461	21.0	27.0	35.0	42.0	45.0	34.2
Freddie	120,208	21.0	28.0	36.0	42.0	45.0	34.7
Ginnie	125,015	26.8	33.7	41.0	47.4	52.7	40.2

Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	91,462	28.0	34.6	41.4	47.6	52.9	40.7
FHA	58,126	29.2	36.0	42.8	48.7	53.6	41.9
VA	24,026	26.7	33.5	40.7	47.2	52.5	40.1
Other	9,310	25.5	30.7	35.9	40.2	43.1	35.0

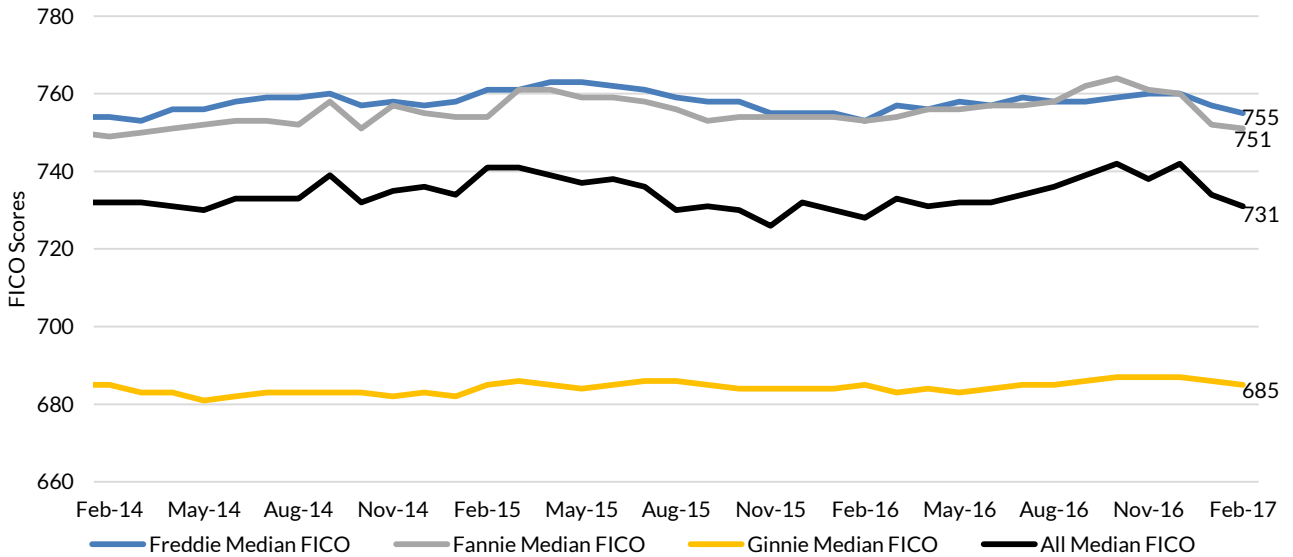
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	33,553	23.8	31.3	39.8	46.9	52.1	38.7
FHA	16,923	25.8	33.0	41.3	47.8	52.3	40.0
VA	16,132	22.4	29.9	38.6	45.8	51.9	37.8
Other	498	15.4	21.2	28.9	38.4	44.0	29.7

All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	125,015	26.8	33.7	41.0	47.4	52.7	40.2
FHA	75,049	28.4	35.3	42.5	48.5	53.3	41.4
VA	40,158	24.8	32.1	39.9	46.7	52.3	39.2
Other	9,808	24.8	30.2	35.7	40.2	43.1	34.7

Credit Box: Historical

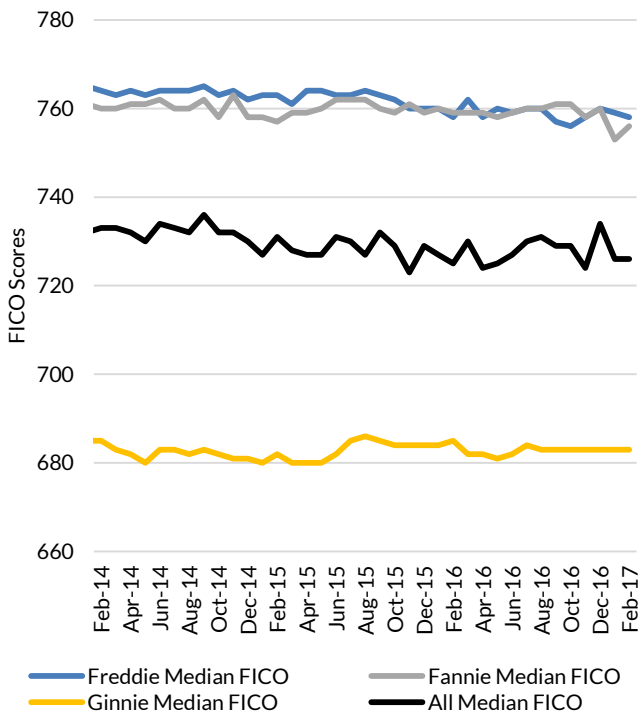
This figure, showing median FICO scores since October 2013, demonstrates that the median FICO score for Ginnie Mae has always been considerably lower than for the GSEs. The difference between Ginnie Mae and GSE FICO scores is wider in purchase loans than in refi loans.

FICO Scores for All Loans



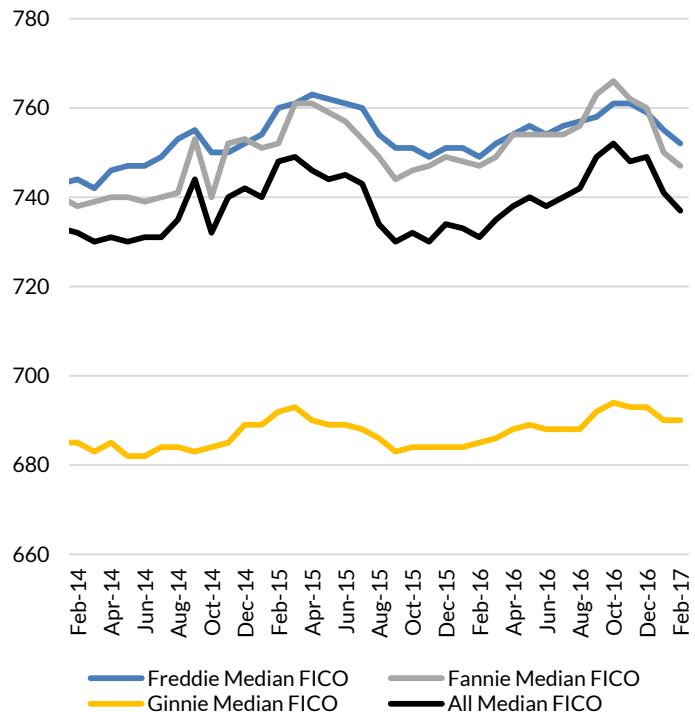
Sources: eMBS and Urban Institute. Note: Data as of February 2017

FICO Scores for Purchase Loans



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

FICO Scores for Refinance Loans

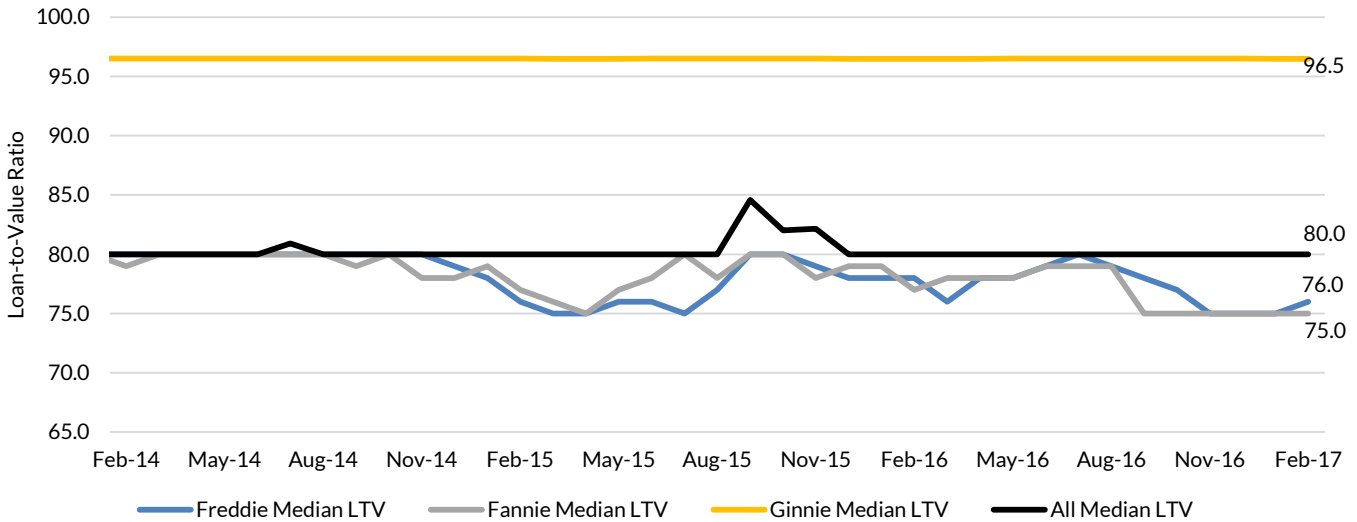


Sources: eMBS and Urban Institute. Note: Data as of February 2017

Credit Box: Historical

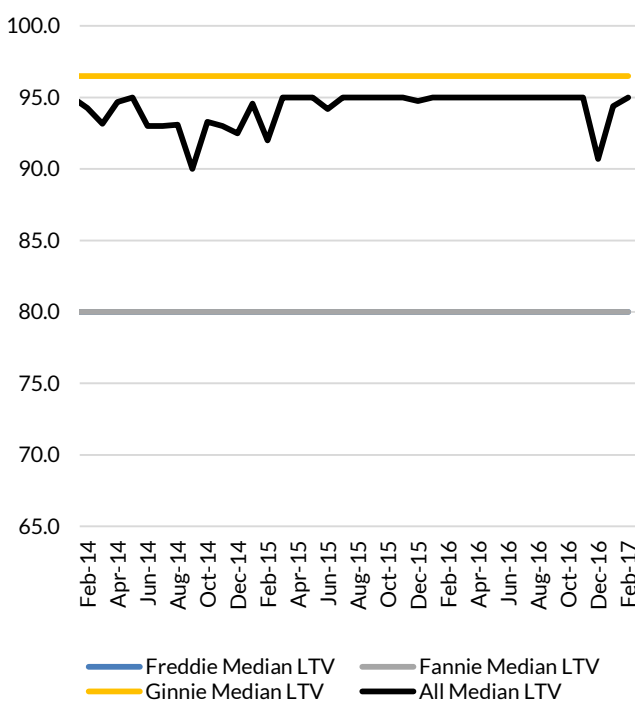
Median LTVs for Ginnie Mae loans have historically been at 96.5, much higher than the 75-80 average for the GSEs. Through time, refinances have LTVs about 10 points lower than their purchase counterparts.

LTV Ratio for All Loans



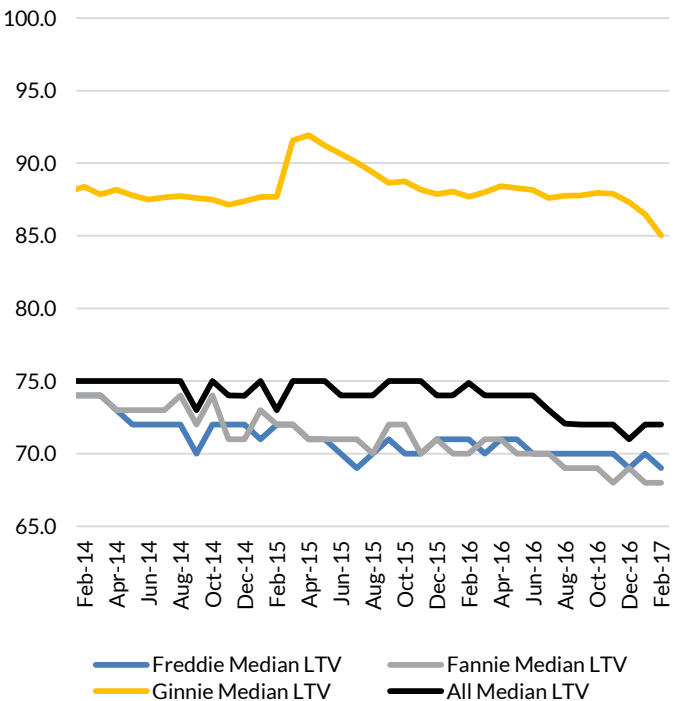
Sources: eMBS and Urban Institute. Note: Data as of February 2017.

LTV Ratio for Purchase Loans



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

LTV Ratio for Refinance Loans

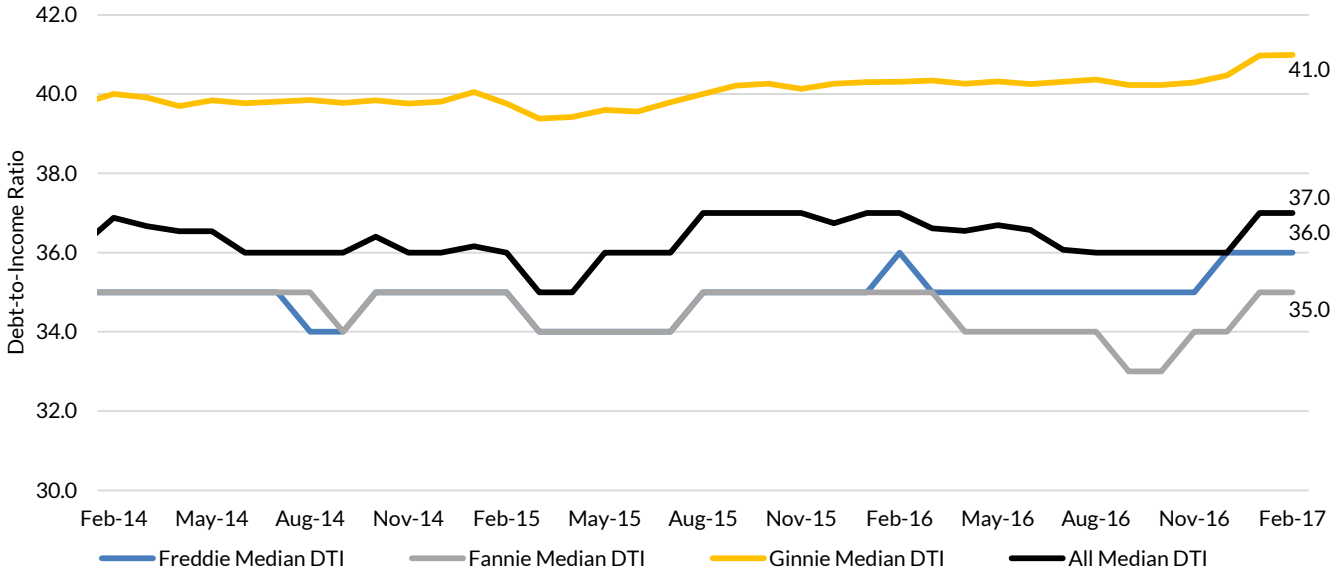


Sources: eMBS and Urban Institute
Note: Data as of February 2017.

Credit Box: Historical

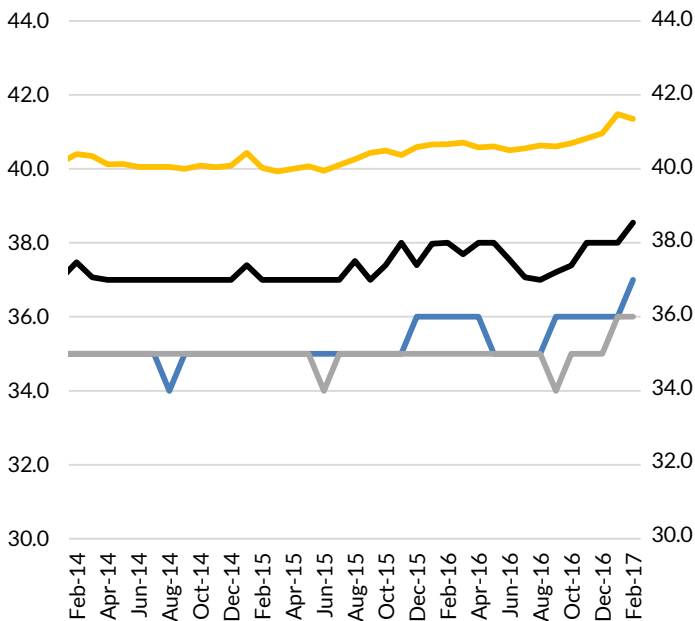
Median debt-to-income ratios on Ginnie Mae loans have historically been in the low 40s, considerably higher than the 35-36 DTIs for the GSEs.

DTI Ratio for All Loans



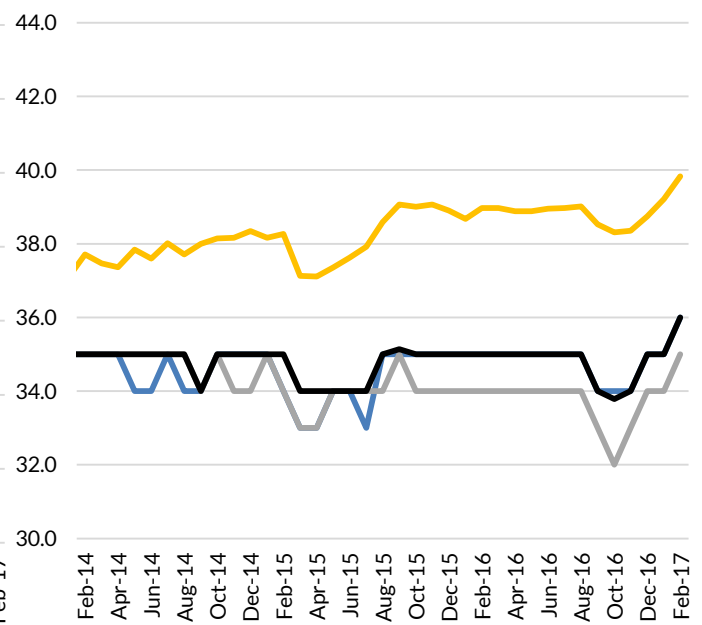
Sources: eMBS and Urban Institute. Note: Data as of February 2017

DTI Ratio for Purchase Loans



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

DTI Ratio for Refinance Loans

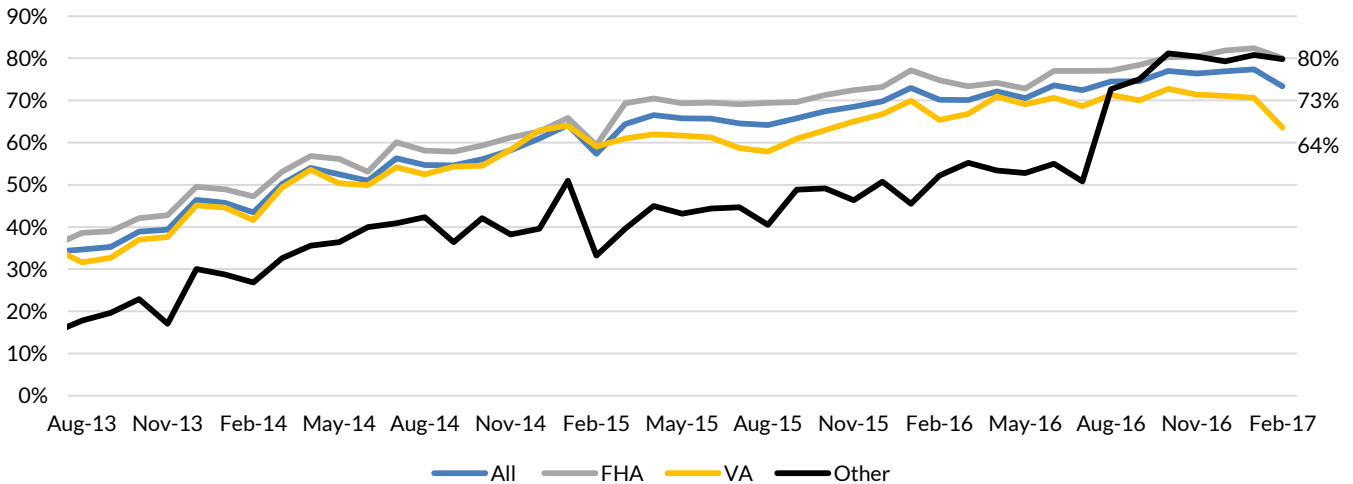


Sources: eMBS and Urban Institute. Note: Data as of February 2017

Ginnie Mae Non-bank Originators

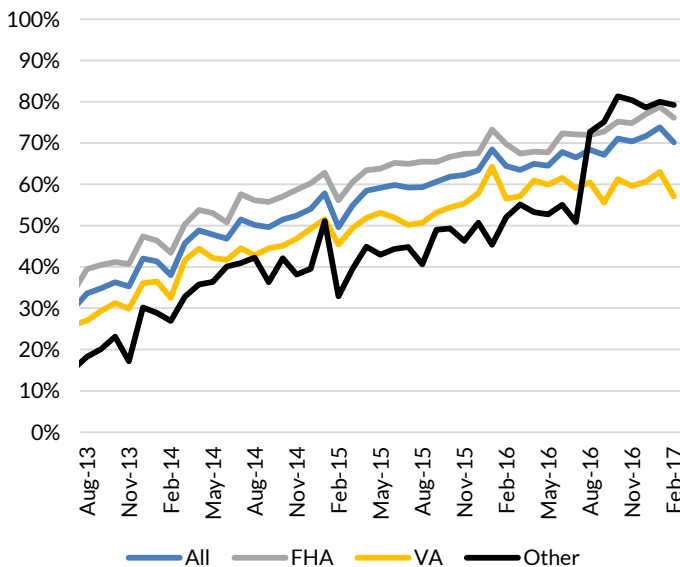
The non-bank originator share of the Ginnie Mae market fell sharply from 77 to 73 percent in February 2017, reversing a long expanding trend in recent years. VA issuance experienced the biggest drop from 71 to 64 percent. FHA issuance was down from 82 to 80 percent, and the Other issuance declined from 81 to 80 percent. This is likely due to the refi reduction caused by recent interest rate hike, as non-bank originators are more dominant in the refinance market and the VA originations relies more heavily on refis than FHA and other loans.

Ginnie Mae Non-bank Originator Share: All Loans



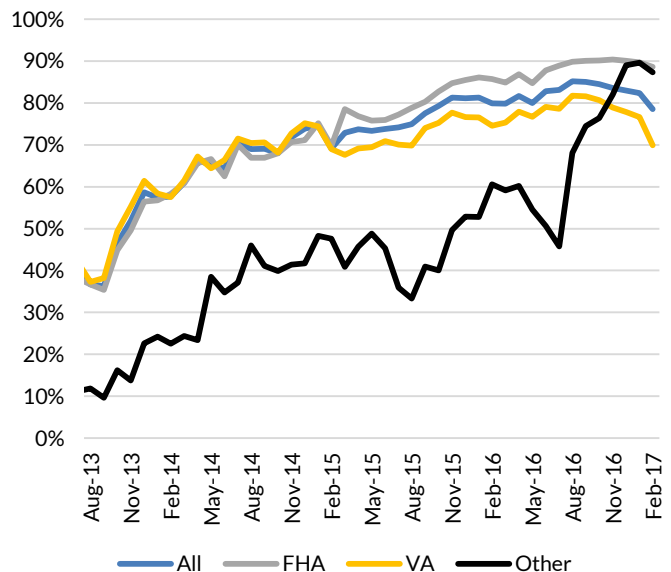
Sources: eMBS and Urban Institute. Note: Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of February 2017.

Ginnie Mae Non-bank Share: Purchase Loans



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

Ginnie Mae Non-bank Share: Refi Loans



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

Ginnie Mae Non-bank Originators: February 2017 Credit Box

An analysis of recent origination suggests non-bank originators have considerably lower median borrower FICO scores than do bank originators. Overall, the median Ginnie Mae FICO score is 685-- it is 702 for bank borrowers and 680 for non-bank borrowers. For FHA borrowers, the median FICO score for bank originators is 687 and 16 points lower for non-banks. For VA borrowers, the median FICO score for bank originators is 724 and it is 19 points lower for non-banks. For “Other” loans, the median FICO score for bank originators is 703 and it is 13 points lower for non-banks.

All Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	137,708	627	651	685	730	774	691
Bank	36,485	643	666	702	750	786	707
Non-Bank	101,223	623	647	680	722	767	686
FHA Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	80,761	622	645	674	710	750	679
Bank	17,279	642	661	687	721	761	692
Non-Bank	63,482	620	641	671	707	746	675
VA Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	46,645	636	667	710	762	793	712
Bank	17,097	645	677	724	772	797	723
Non-Bank	29,548	630	661	703	754	789	705
Other Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	10,302	641	660	692	733	768	697
Bank	2,109	639	662	703	748	779	701
Non-Bank	8,193	642	660	690	728	764	696

Ginnie Mae Non-bank Originators: February 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	122,392	80.0	90.0	96.5	97.1	101.0	92.5
Bank	31,725	82.7	93.4	96.5	99.3	101.8	93.8
Non-Bank	90,667	79.5	88.6	96.5	96.5	101.0	92.0
FHA Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	76,340	80.0	87.9	96.5	96.5	96.5	91.3
Bank	16,302	85.0	95.0	96.5	96.5	96.5	93.3
Non-Bank	60,038	79.3	85.8	96.5	96.5	96.5	90.7
VA Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	35,657	76.6	90.0	98.7	101.1	102.2	93.2
Bank	13,251	77.7	90.0	98.8	101.2	102.2	93.5
Non-Bank	22,406	76.0	90.0	98.7	101.0	102.2	93.1
Other Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	10,395	94.0	98.8	101.0	101.0	101.4	98.9
Bank	2,172	96.0	100.0	101.0	101.0	102.0	99.7
Non-Bank	8,223	93.8	98.6	100.8	101.0	101.0	98.7

Ginnie Mae Non-bank Originators: February 2017 Credit Box

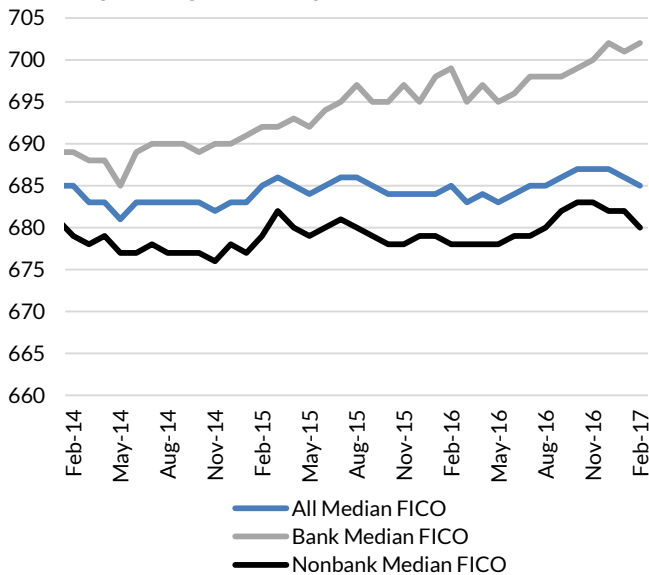
An analysis of the borrowers' DTI ratios for bank versus non-bank originators indicates the former are very slightly more conservative. That is, the median DTI ratio for bank originators is 39.8, versus 41.5 for non-banks. This difference is slightly smaller for FHA loans, and slightly larger for VA loans.

All Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	123,894	26.8	33.7	41.0	47.4	52.7	40.2
Bank	33,783	25.1	32.3	39.8	45.6	51.0	38.8
Non-Bank	90,111	27.5	34.2	41.5	48.0	53.1	40.7
FHA Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	74,212	28.4	35.3	42.5	48.5	53.3	41.4
Bank	16,714	27.4	34.5	41.5	46.6	51.7	40.2
Non-Bank	57,498	28.7	35.5	42.9	49.0	53.6	41.8
VA Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	39,953	24.8	32.1	39.9	46.7	52.3	39.2
Bank	15,057	23.1	30.5	38.6	45.4	50.7	37.7
Non-Bank	24,896	25.9	33.1	40.7	47.5	52.9	40.0
Other Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	9,729	24.8	30.2	35.7	40.2	43.1	34.7
Bank	2,012	24.3	29.6	35.6	40.2	43.3	34.6
Non-Bank	7,717	25.0	30.4	35.7	40.2	43.0	34.8

Ginnie Mae Nonbank Originators: Historical Credit Box

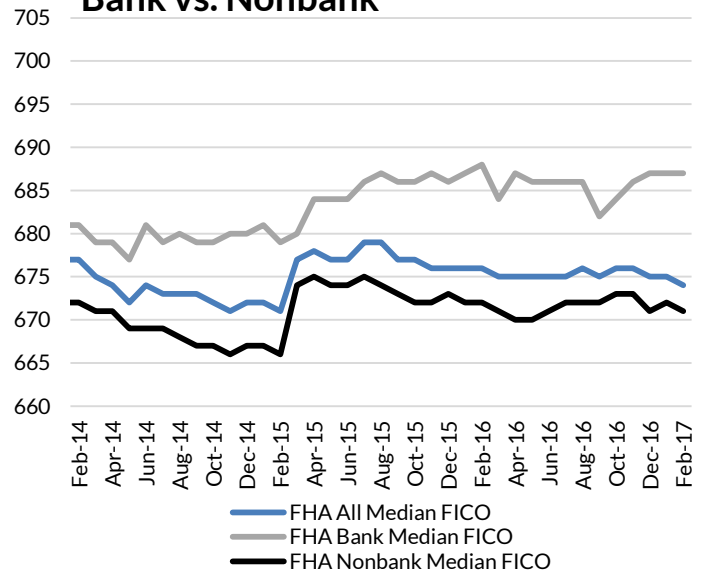
The difference in FICO scores between loans originated by banks and non-banks has been growing over time for both FHA and VA loans. The growth of the bank-nonbank differential is even more pronounced in VA loans than in FHA loans-- a point that has received little attention.

Ginnie Mae FICO Scores Bank vs. Nonbank



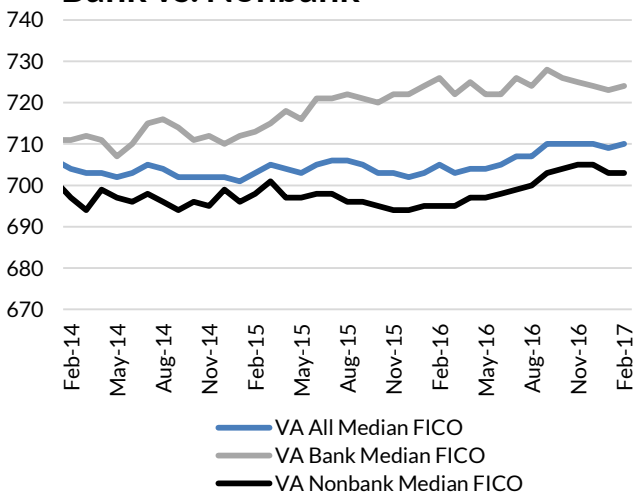
Sources: eMBS and Urban Institute Note: Data as of February 2017

Ginnie Mae FHA FICO Scores Bank vs. Nonbank



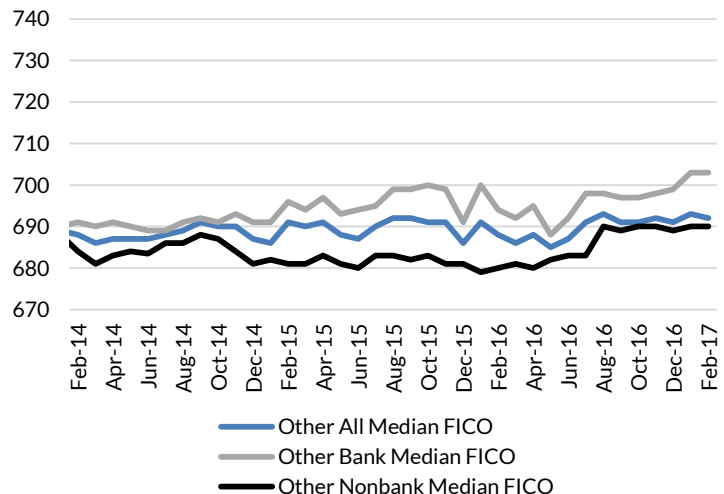
Sources: eMBS and Urban Institute Note: Data as of February 2017

Ginnie Mae VA FICO Scores Bank vs. Nonbank



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

Ginnie Mae Other FICO Scores Bank vs. Nonbank

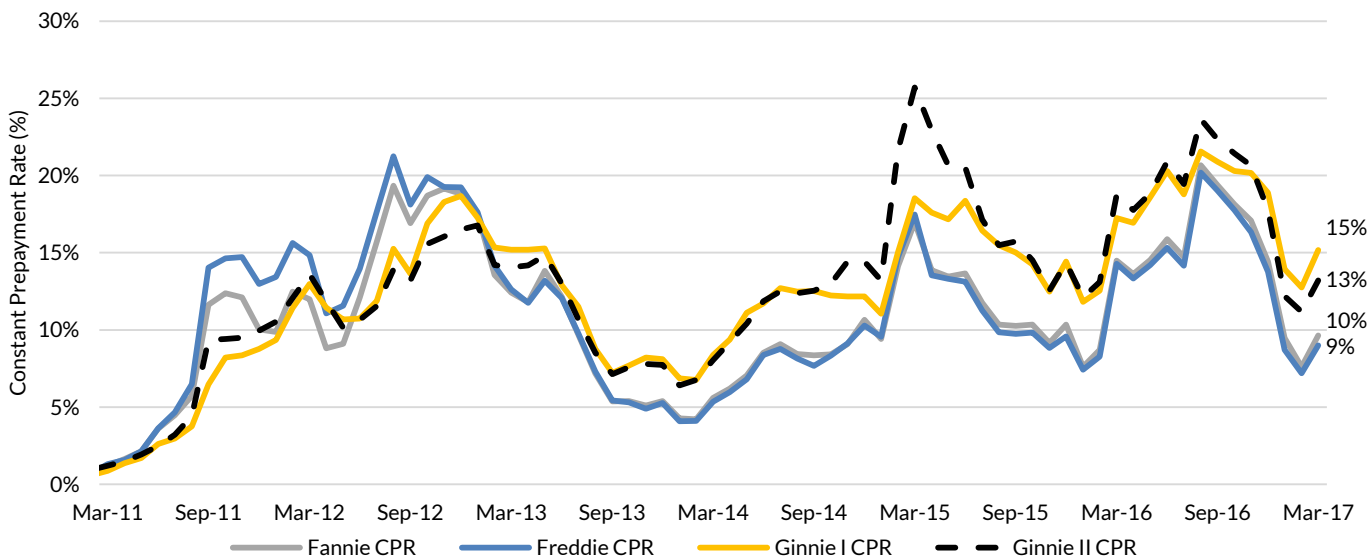


Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of February 2017.

Prepayments

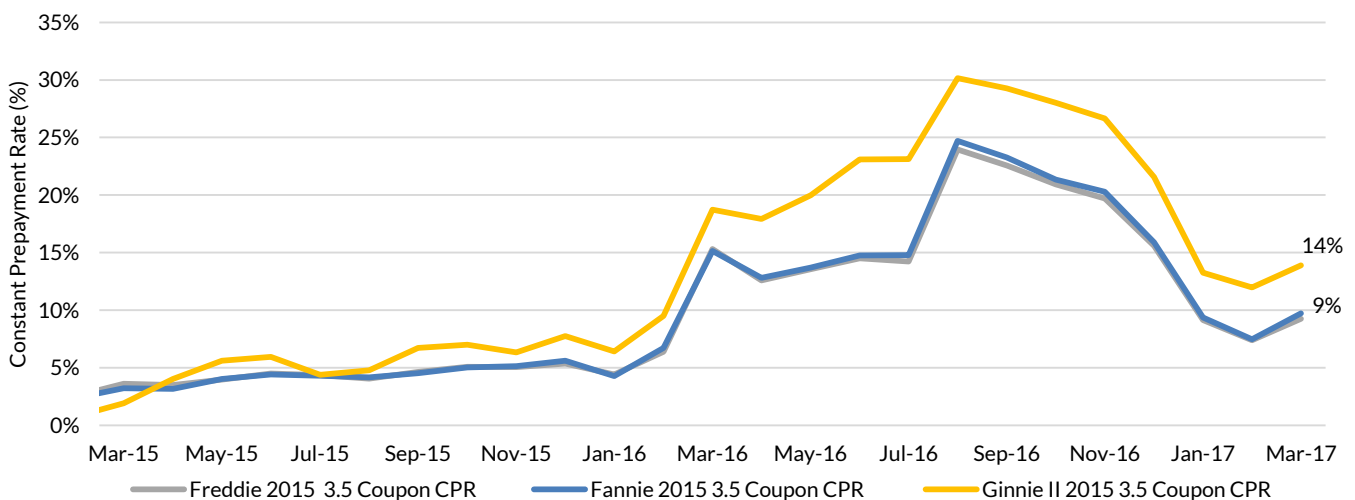
Prepayments on Ginnie Mae securities were lower than on GSE securities in 2011 to mid-2013. Since then, they have been higher. These differences hold across all coupon buckets. The differences are especially pronounced on more recent production. These increased Ginnie speeds reflect the growing share of VA loans, which prepay at faster speeds than FHA loans. This also reflects the fact that FHA streamlined refinance program applies 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 mortgage rate hike since election day in November 2016, the speeds for all agencies have slowed down considerably. This declining trend was reversed in March 2017, mostly due to an increased numbers of days compared to February (23 vs 19).

Aggregate Prepayments



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

2015 Issued 3.5 Coupon CPR

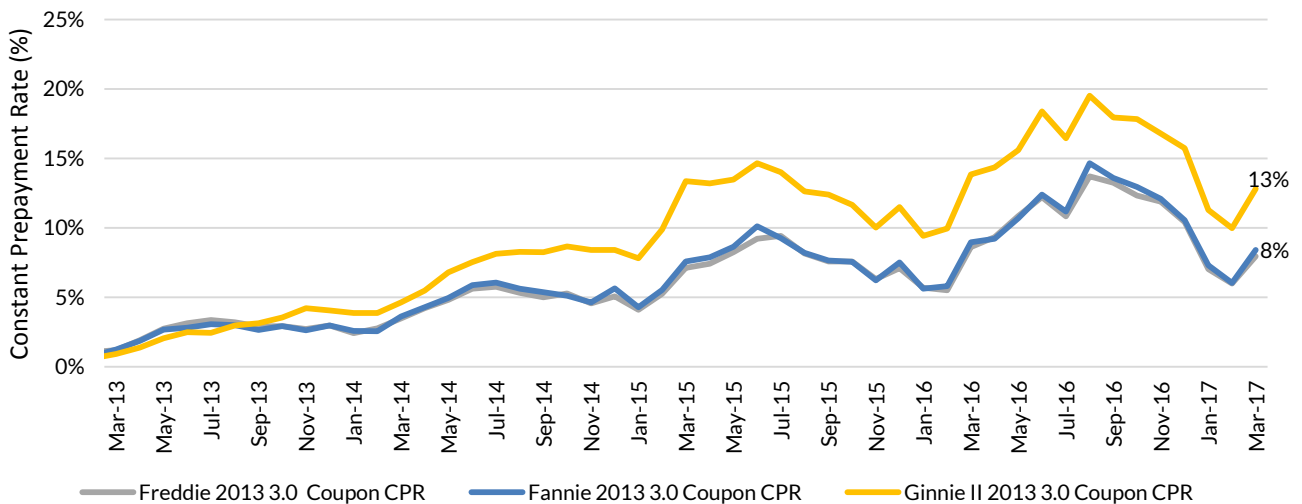


Sources: Credit Suisse and Urban Institute. Note: Data as of March 2017

Prepayments

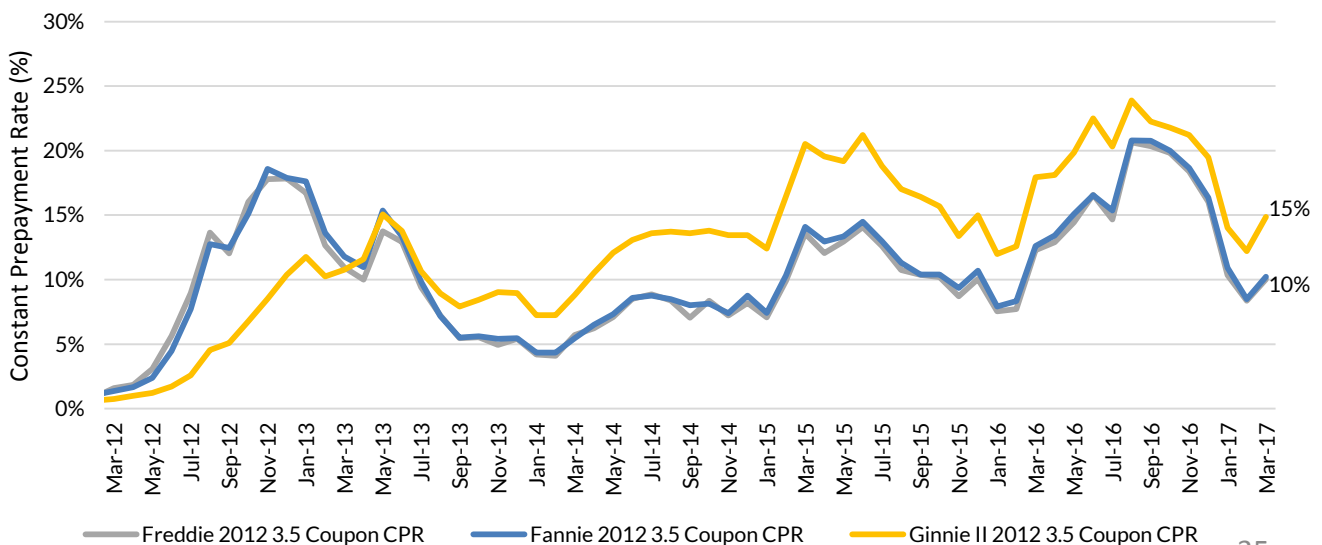
The 2013 Ginnie II 3.0s are faster than their conventional counterparts. 2012 Ginnie II 3.5s have been faster since mid 2013. The differences accelerated in 2015—potentially due to the FHA mortgage insurance premium (MIP) cut. In January, 2015 FHA lowered their MIPs from 135 basis points per annum to 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. And in fact GSE guarantee fees have gone up over that period, creating a disincentive for conventional borrower. Moreover, more recent origination is more heavily VA loans, which are more prepayment responsive than either FHA or conventional. As mortgage rates rose since election day, the prepayment speeds of Ginnies and Conventionals both fell sharply. However, speeds ticked up for all agencies this month, mostly due to an increased numbers of days in March (23) compared to February (19).

2013 Issued 3.0 Coupon CPR



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

2012 Issued 3.5 Coupon CPR

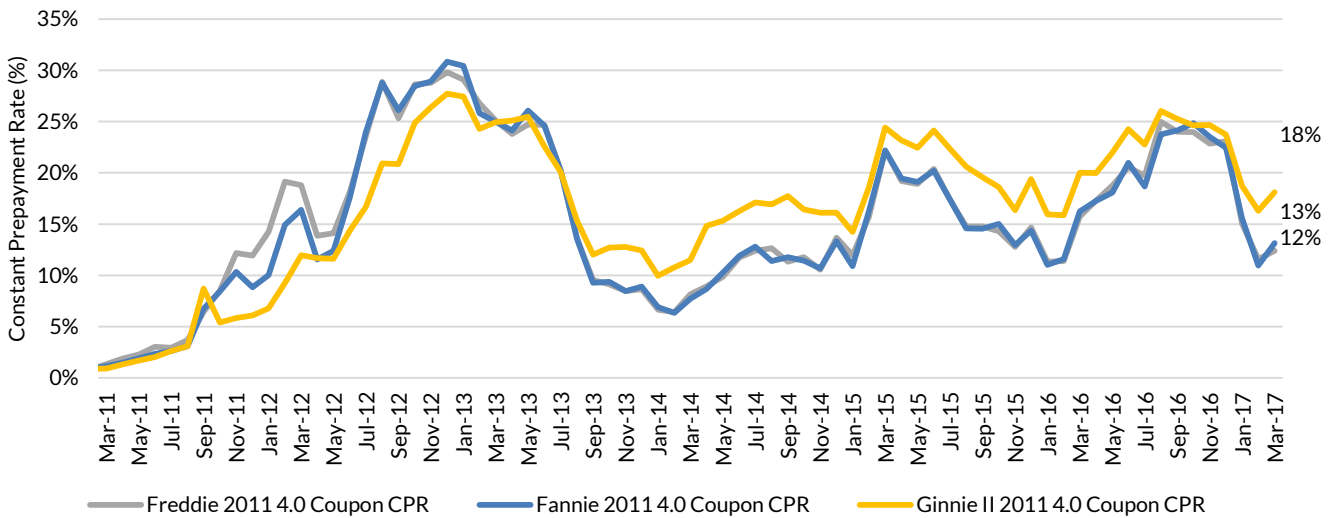


Sources: Credit Suisse and Urban Institute. Note: Data as of March 2017

Prepayments

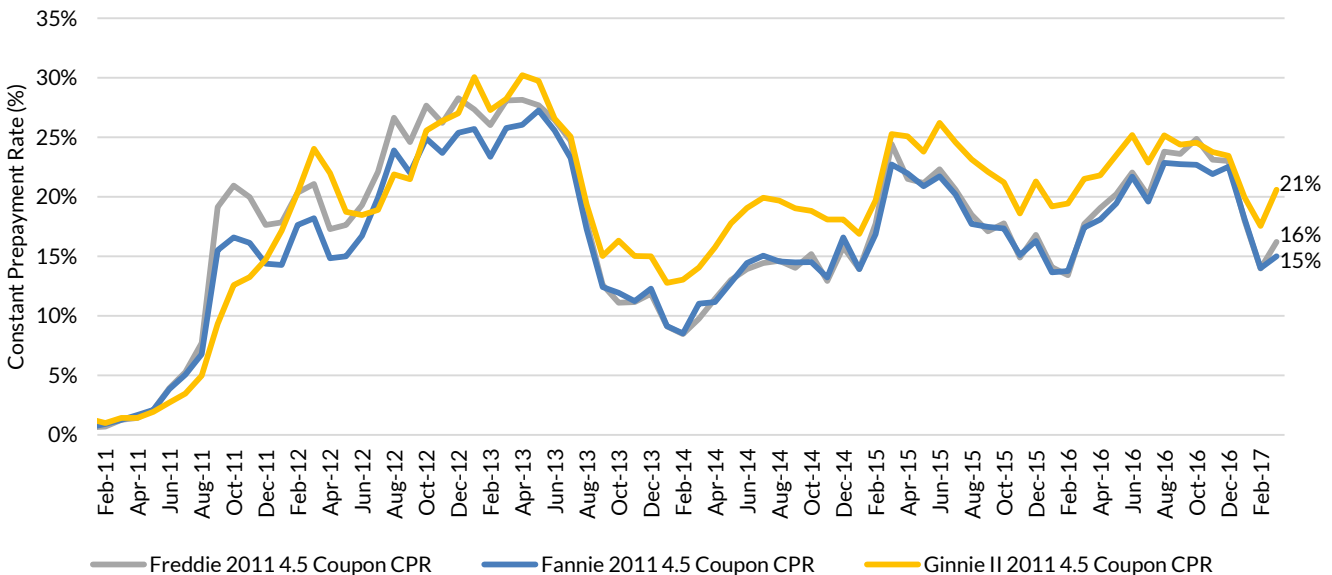
The 2011 Ginnie II 4.0s and 4.5s have been paying faster than their conventional counterparts since late 2013. We believe both the contributions of the much faster VA mortgages as well as simplifications to the FHA streamlined programs during 2013 explain this. However, as mortgage rates started to rise sharply since November and reached 4.17 percent in February, the speeds for all agencies have slowed down considerably. In March, the speeds ticked up mostly due to an increased number of days compared to February (23 vs 19).

2011 Issued 4.0 Coupon CPR



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

2011 Issued 4.5 Coupon CPR

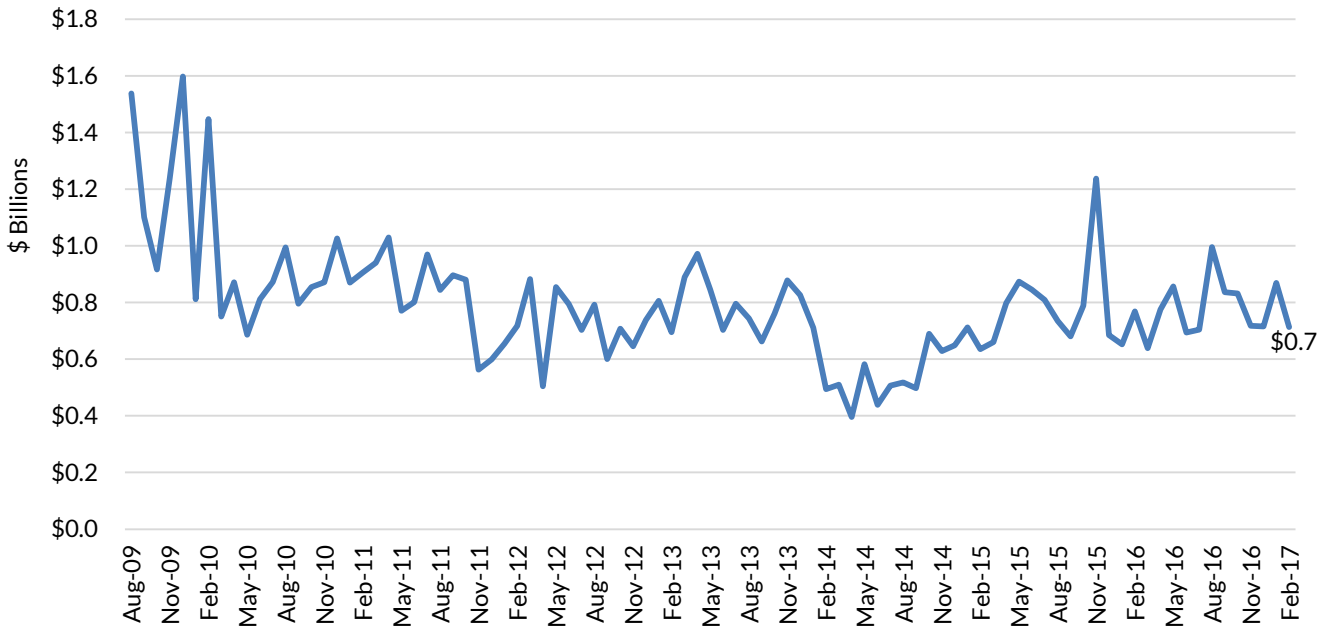


Sources: Credit Suisse and Urban Institute. Note: Data as of March 2017

Other Ginnie Mae Programs Reverse Mortgage Volumes

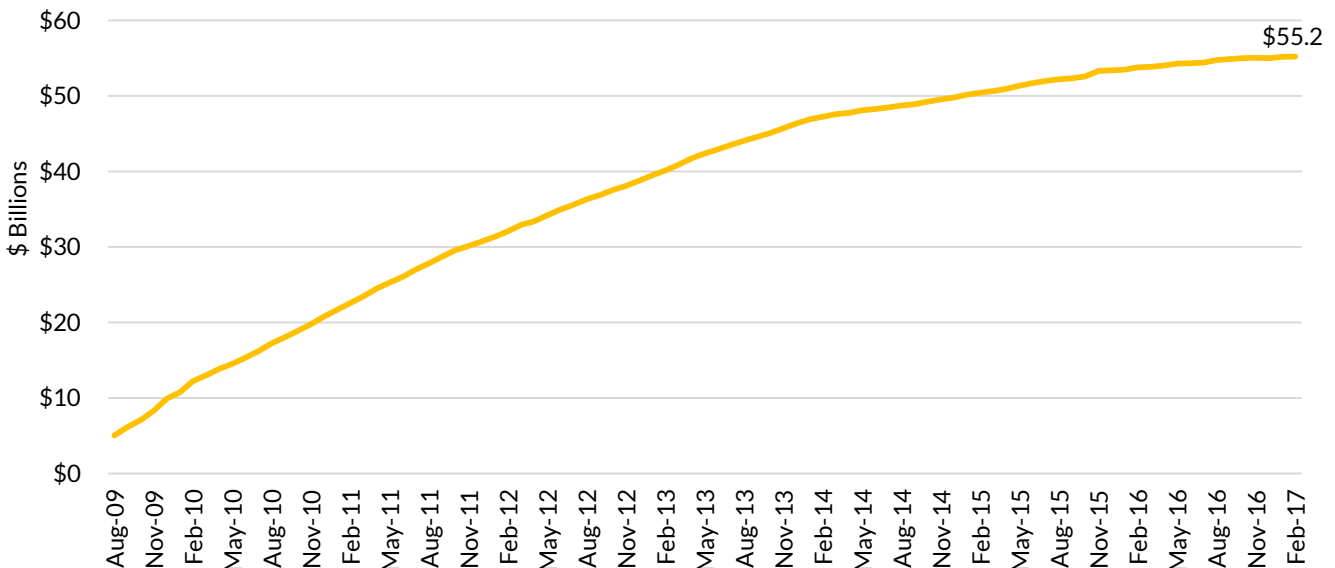
Ginnie Mae reverse mortgage volumes remain steady, with issuance of \$0.7 billion in February. Outstanding securities total \$55.2 billion in February.

HMBS Issuance Volume



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

HMBS Outstanding



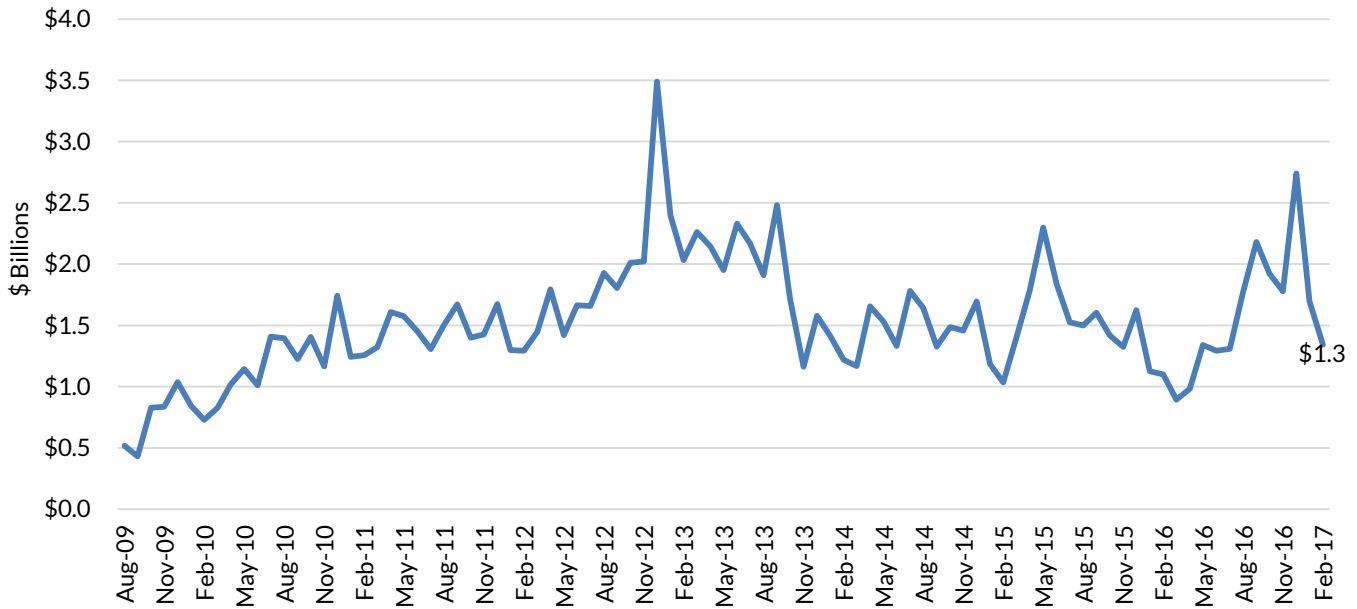
Sources: Ginnie Mae and Urban Institute. Note: Data as of February 2017

Other Ginnie Mae Programs

Multifamily Market

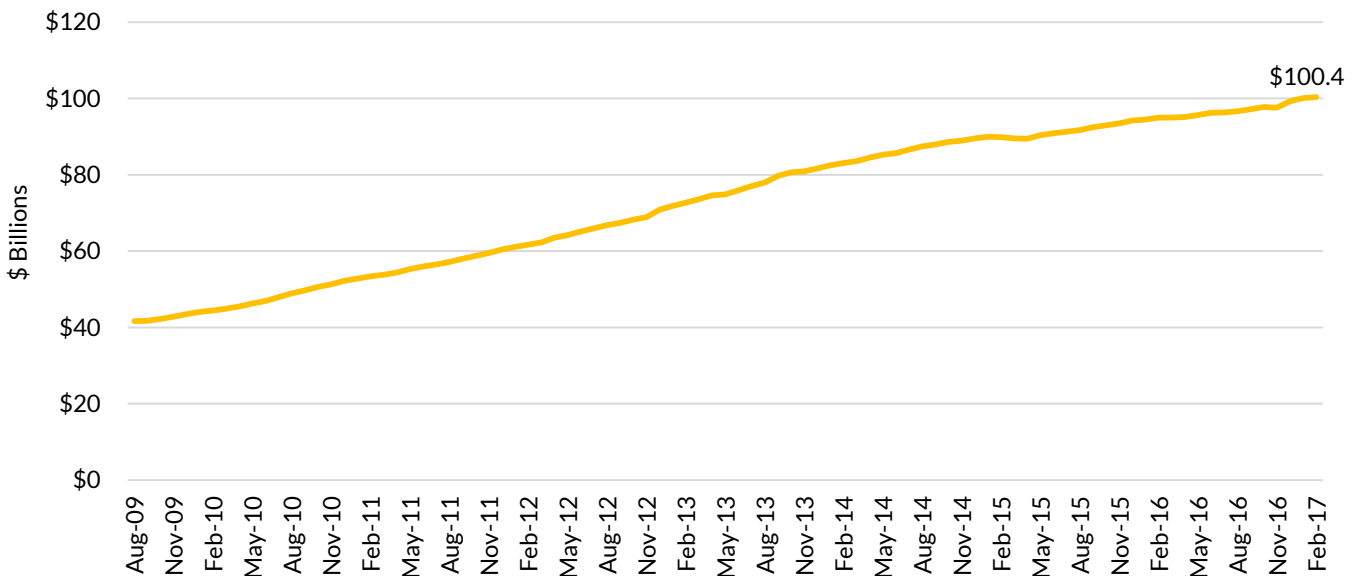
Ginnie Mae multifamily issuance volumes in February totaled \$1.3 billion. Outstanding multifamily securities totaled \$100.4 billion in February.

Ginnie Mae Multifamily MBS Issuance



Sources: Ginnie Mae and Urban Institute. Note: Data as of December 2016

Ginnie Mae Multifamily MBS Outstanding

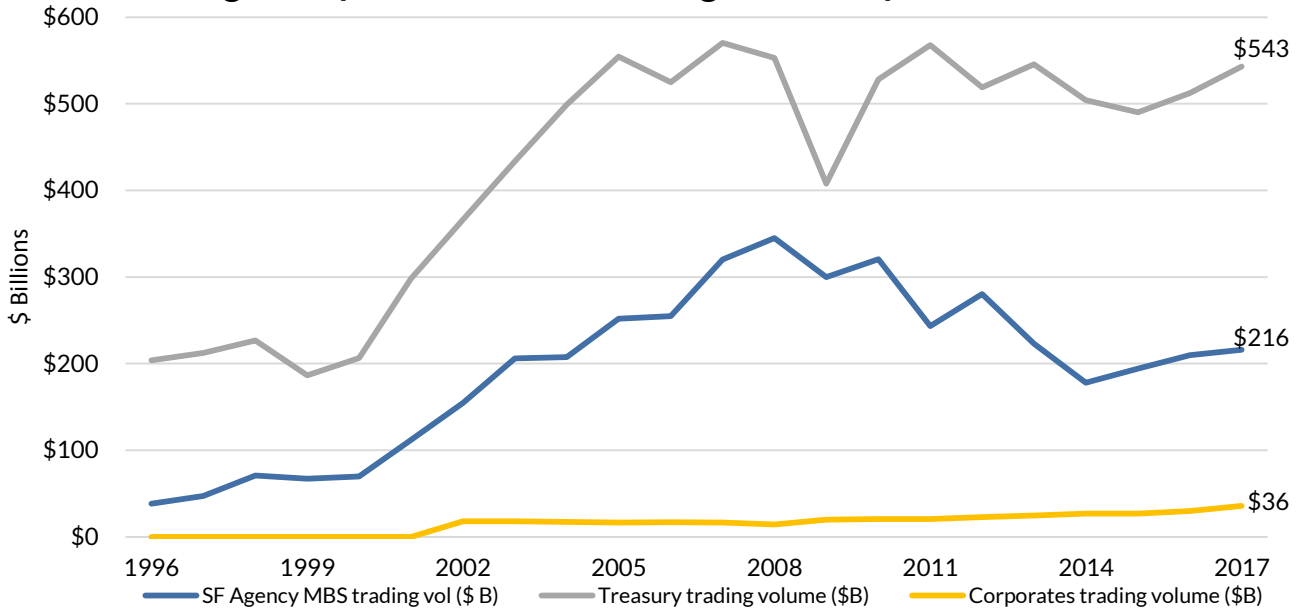


Sources: Ginnie Mae and Urban Institute. Note: Data as of December 2016

Market Conditions

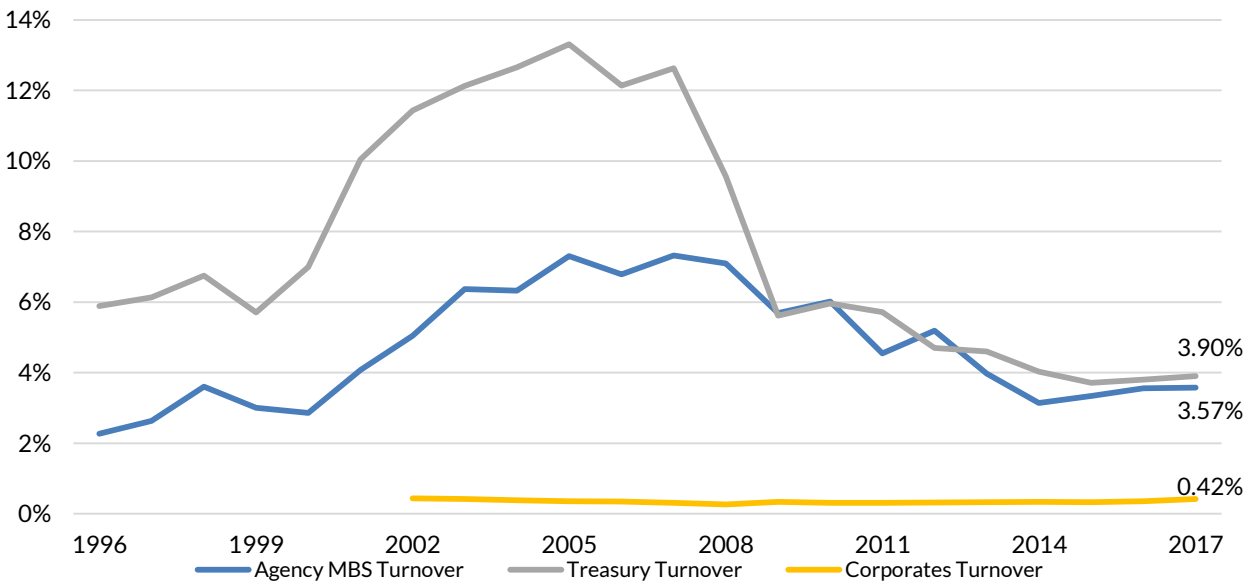
Agency MBS trading volume and turnover in 2017, while well lower than in 2005-2013, has been more robust than in the 2014-2016 period. In the first two months of 2017, daily turnover was 3.57% versus 3.55% in 2016 and 3.34% in 2015. Note that average daily Treasury turnover is also down dramatically 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 February 2017

Average Daily Turnover by Sector

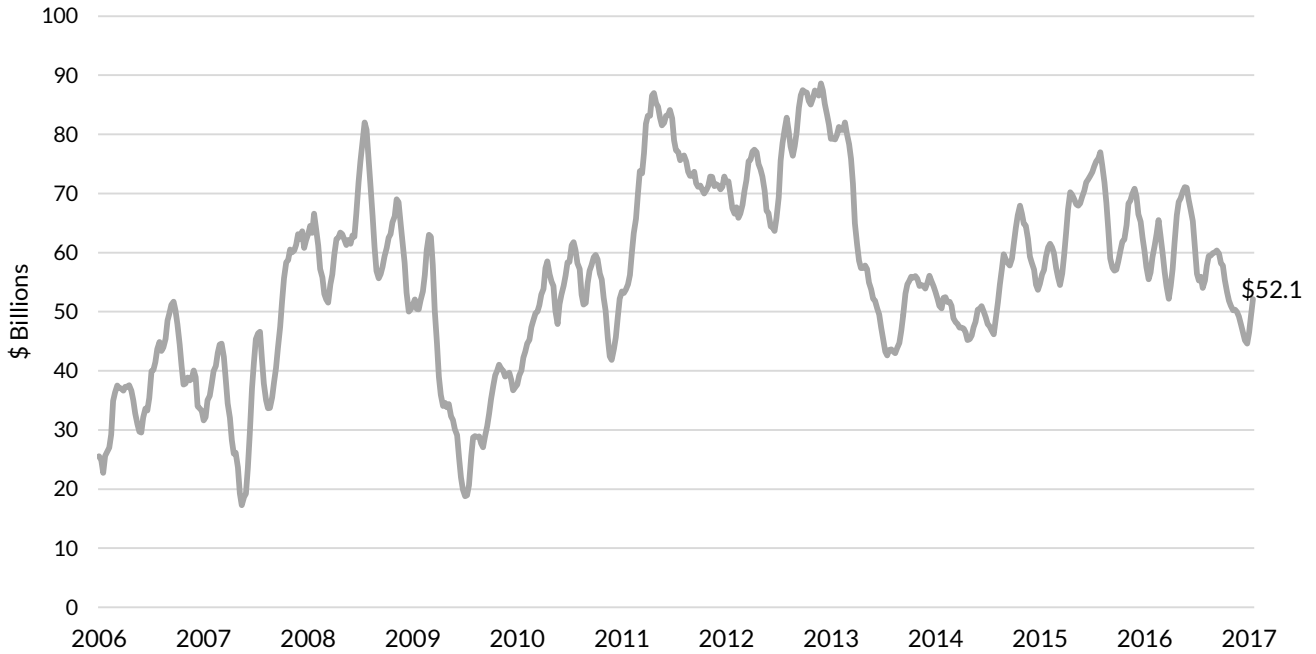


Sources: SIFMA and Urban Institute. Note: Data as of February 2017

Market Conditions

Dealer net positions in Agency MBS are currently at the 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 March 2017

Repo Volume: Securities In



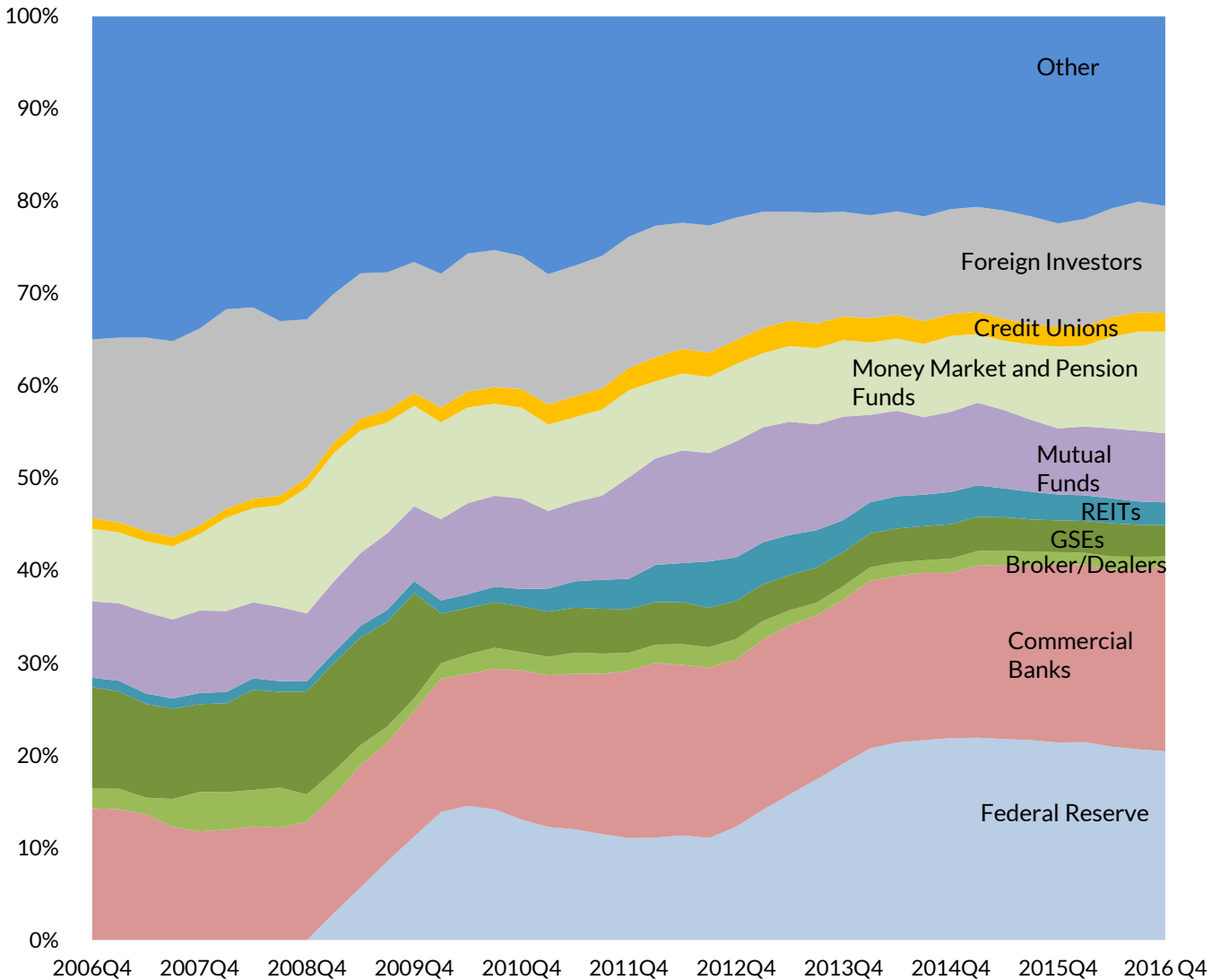
Sources: Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute. Note: Data as of March 2017

MBS Ownership

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

Who owns Total Agency Debt?

% of Total Agency Debt by Owner

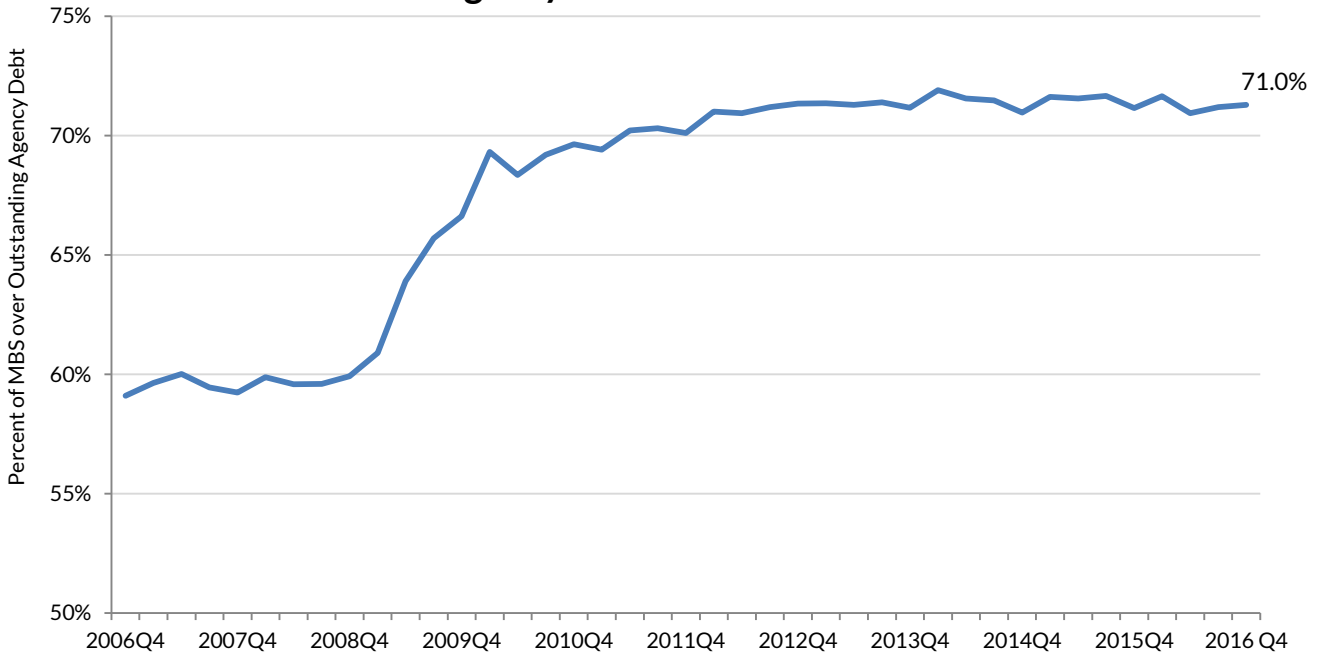


Sources: Federal Reserve Flow of Funds and Urban Institute. Note: Data as of Q4 2016.

MBS Ownership

As Fannie and Freddie reduce the size of their retained portfolio, less agency debt is required to fund that activity, hence the MBS share of total agency debt increases. It now stands at 71.0 percent. Commercial banks are the second largest holders of Agency MBS behind the Federal Reserve. Out of their \$1.7 trillion in holdings as of the end of March, \$1.23 trillion of it is held by the top 25 domestic banks.

MBS Share of Total Agency Debt



Sources: eMBS, Federal Reserve Flow of Funds, and Urban Institute. Note: Data as of Q4 2016.

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Feb-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar 8	Mar 15	Mar 22	Mar 29
Largest Domestic Banks	1131.2	1192.2	1205.9	1217.7	1217.2	1218	1224.8	1230	1223.3	1231.5	1232.8	1231.5
Small Domestic Banks	425.3	439.5	440.8	444.8	449.8	451.8	456.2	455.7	457.3	456.6	458.5	458.1
Foreign Related Banks	14.8	13.6	13.8	14.3	14.1	12.6	12.7	12.9	12.8	12.8	13.2	13.1
Total, Seasonally Adjusted	1571.3	1645.3	1660.5	1676.8	1681.1	1682.4	1693.7	1698.6	1693.4	1700.9	1704.5	1702.7

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

MBS Ownership

Out of the \$1.74 trillion in MBS holdings at banks and thrifts, \$1.25 trillion are in agency pass-through form: \$931 billion in GSE pass-throughs and \$323 billion in Ginnie Mae pass-throughs. There are another \$419.8 billion in Agency CMOs. Non-agency holdings total \$63.0 billion. Ginnie Mae pass-throughs have been the fastest growing sector in the past 2 years. Bank and thrift holdings of MBS are very concentrated, with the top 20 holders accounting for 69 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
2Q16	\$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

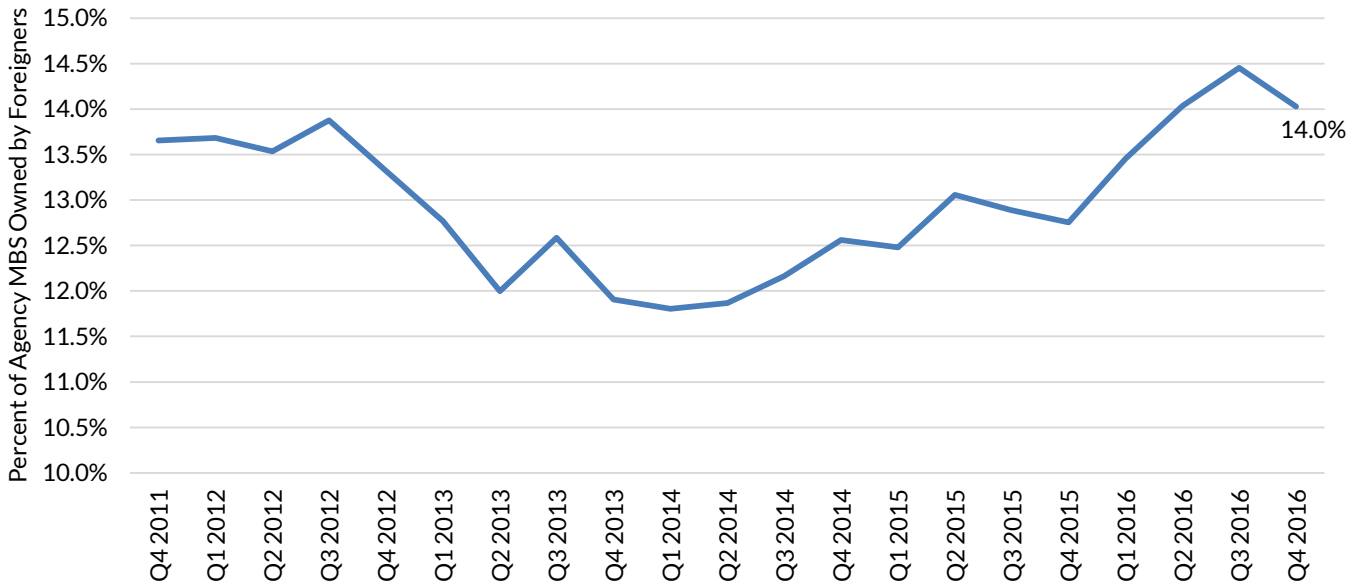
Top Bank & Thrift Residential MBS Investors		All Banks & Thrifts (\$Billions)						
		Total (\$MM)	GSE PT (\$MM)	GNMA PT (\$MM)	Agency REMIC (\$MM)	Non-Agency (\$MM)	Market Share	
1	Bank of America Corporation	\$312,751	\$118,664	\$178,264	\$15,115	\$708	18.00%	
2	Wells Fargo & Company	\$202,916	\$26,039	\$163,534	\$5,762	\$7,581	11.70%	
3	JP Morgan Chase & Co.	\$101,974	\$22,315	\$67,791	\$698	\$11,170	5.90%	
4	U.S. Bancorp.	\$80,665	\$9,971	\$27,886	\$42,369	\$439	4.60%	
5	Citi Group Inc.	\$61,759	\$350	\$46,099	\$9,577	\$5,733	3.60%	
6	Charles Schwab Bank	\$59,486	\$7,511	\$37,815	\$14,160	\$0	3.40%	
7	Capital One Financial Corporation	\$50,921	\$9,697	\$17,832	\$21,571	\$1,821	2.90%	
8	Bank of New York Mellon Corp.	\$50,417	\$2,205	\$30,525	\$14,963	\$2,723	2.90%	
9	PNC Bank, National Association	\$40,824	\$5,603	\$27,840	\$3,819	\$3,562	2.40%	
10	Branch Banking and Trust Company	\$34,485	\$3,608	\$8,988	\$21,210	\$679	2.00%	
11	State Street Bank and Trust Company	\$31,425	\$7,564	\$3,469	\$11,282	\$9,110	1.80%	
	KeyBank National Association	\$27,110	\$1,412	\$1,058	\$24,640	\$0	1.60%	
12	Morgan Stanley	\$24,373	\$6,592	\$9,492	\$8,289	\$0	1.40%	
	SunTrust Bank	\$22,397	\$10,071	\$12,251	\$1	\$74	1.30%	
13	HSBC Bank USA, National Association	\$20,649	\$5,605	\$6,885	\$8,153	\$6	1.20%	
16	Regions Bank	\$18,583	\$5,500	\$11,085	\$1,994	\$4	1.10%	
17	E*TRADE Bank	\$15,872	\$2,944	\$9,703	\$3,226	\$0	0.90%	
18	Fifth Third Bank	\$15,607	\$2,995	\$4,260	\$8,352	\$0	0.90%	
19	MUFG Union Bank, National Association	\$15,223	\$4,803	\$4,963	\$5,129	\$328	0.90%	
20	The Northern Trust Company	\$14,703	\$1	\$9,053	\$5,630	\$19	0.80%	
Total Top 20		\$1,202,137	\$253,450	\$678,792	\$225,938	\$43,957	69.30%	

Sources: Inside Mortgage Finance and Urban Institute. Note: Data as of Q4 2016

MBS Ownership

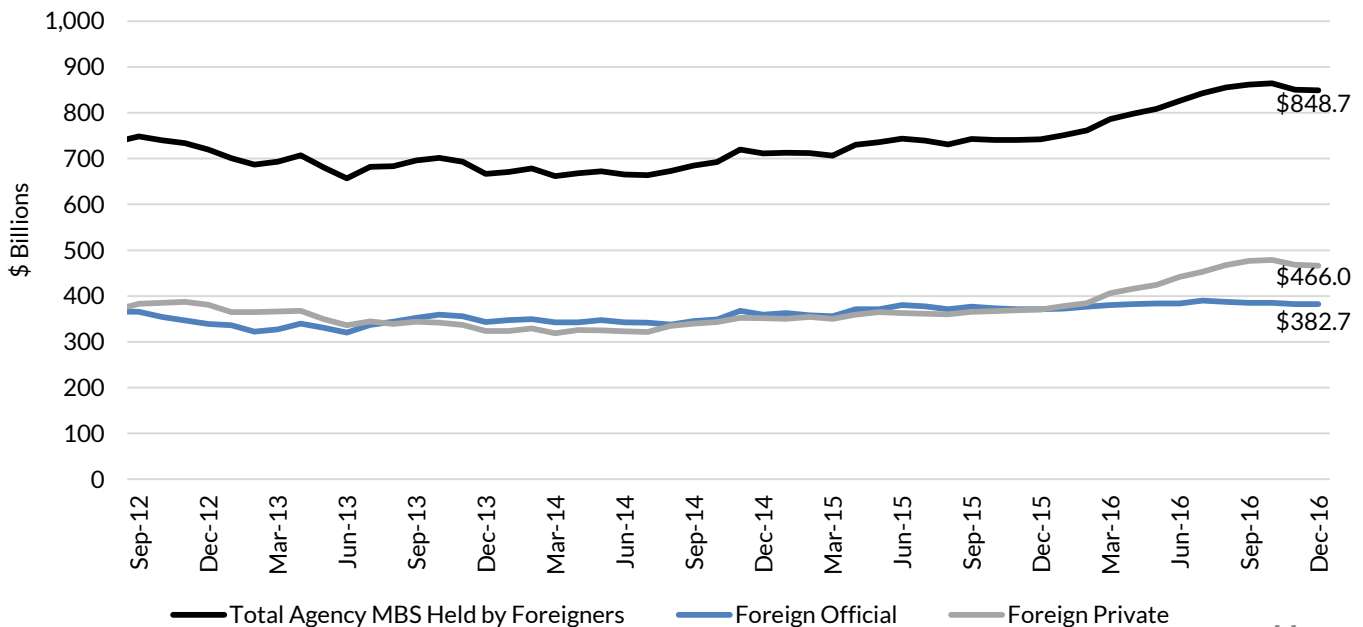
Foreign investors hold 14.0% of agency MBS, up considerably from the lows in 2013. For the month of December, this represents \$848.7 billion in agency MBS, \$382.7 billion held by official institutions and \$466.0 billion held by private investors.

Foreign Share of Agency MBS



Sources: SIFMA and Treasury International Capital (TIC). Note: Data as of Q4 2016.

Monthly Agency MBS Holdings by Foreigners



Sources: Treasury International Capital (TIC) and Urban Institute. Note: Data as of November 2016.

MBS Ownership

The single largest holders of agency MBS are Taiwan, China and Japan; these three countries comprise over 70 percent of all foreign holdings. Since June of 2015, we estimate Taiwan and Japan have expanded their holdings while China has contracted. Our estimates indicate Japan has been the single largest buyer of MBS in 2016, up by \$76 billion compared to June 2015.

Agency MBS+ Agency Debt

Country	Level of Holdings (\$ Millions)							Change in Holdings (\$ Millions)					
	Jun-15	Sep-15	Dec-15	Mar-16	Jun-16	Sep-16	Dec-16	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016
Taiwan	189,503	199,028	198,243	204,340	207,057	208,352	204,005	9,525	-785	6,097	2,717	1,295	-4,347
China	221,978	207,537	195,429	197,628	195,759	191,743	184,151	-14,441	-12,108	2,199	-1,869	-4,016	-7,592
Japan	157,177	153,567	157,675	176,215	197,116	222,116	220,644	-3,610	4,108	18,540	20,901	25,000	-1,472
Ireland	38,510	39,831	43,193	46,136	48,460	48,307	47,065	1,321	3,362	2,943	2,324	-153	-1,242
Luxembourg	27,454	25,923	26,254	26,748	32,426	32,549	35,352	-1,531	331	494	5,678	123	2,803
Cayman Islands	22,794	26,078	26,450	27,307	28,281	30,686	30,186	3,284	372	857	974	2,405	-500
Switzerland	18,094	16,082	16,466	16,590	16,188	20,638	15,626	-2,012	384	124	-402	4,450	-5,012
United Kingdom	8,937	7,770	8,022	9,243	9,532	10,520	9,578	-1,167	252	1,221	289	988	-942
Canada	3,719	3,644	3,271	3,255	3,965	6,578	5,047	-75	-373	-16	710	2,613	-1,531
Belgium	5,746	5,749	5,459	5,627	4,490	4,336	4,597	3	-290	168	-1,137	-154	261
Rest of World	191,495	195,960	194,446	199,916	347,014	208,604	208,353	4,465	-1,514	5,470	147,098	-138,410	-251
Total	885,407	881,169	874,908	913,005	946,946	984,429	964,604	-4,238	-6,261	38,097	33,941	37,483	-19,825

Agency MBS Only (Estimates)

Country	Level of Holdings (\$Millions)*							Change in Holdings (\$Millions)*					
	Jun-15	Sep-15	Dec-15	Mar-16	Jun-16	Sep-16	Dec-16	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016
Taiwan	188,000	199,211	199,923	206,827	209,489	209,550	205,448	11,211	713	6,904	2,662	62	-4,102
China	208,000	195,829	185,493	187,035	185,139	181,535	174,719	-12,171	-10,336	1,542	-1,896	-3,604	-6,816
Japan	132,000	128,958	132,679	156,158	180,891	206,246	208,362	-3,042	3,722	23,478	24,734	25,355	2,116
Ireland	28,000	29,555	34,388	37,677	40,180	39,201	38,293	1,555	4,834	3,288	2,503	-979	-908
Luxembourg	22,000	20,710	20,983	21,392	28,086	27,825	31,503	-1,290	273	409	6,694	-261	3,677
Cayman Islands	18,000	21,865	22,987	23,727	24,717	27,023	26,894	3,865	1,122	739	990	2,306	-129
Switzerland	11,000	9,304	9,620	9,705	9,338	13,909	8,829	-1,696	316	85	-367	4,571	-5,080
United Kingdom	6,000	5,016	5,224	6,388	6,728	7,810	6,771	-984	208	1,164	340	1,082	-1,039
Canada	2,000	1,937	1,620	1,600	2,301	5,269	3,598	-63	-317	-20	701	2,968	-1,671
Belgium	2,000	2,004	1,757	1,898	905	766	989	4	-247	141	-993	-139	223
Rest of World	123,000	128,255	127,026	133,686	137,906	142,561	143,283	5,255	-1,229	6,660	4,221	4,655	722
Total	740,000	742,643	741,701	786,092	825,681	861,694	848,688	2,643	-942	44,391	39,589	36,013	-13,006

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

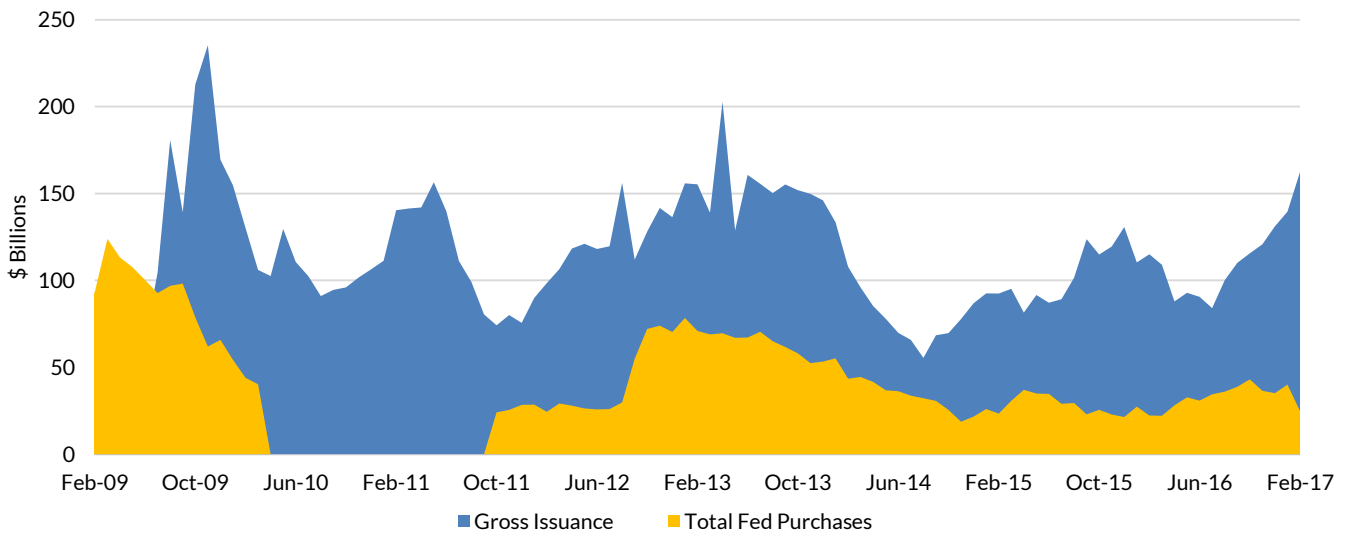
Note: Data as of December 2016

*calculated based on June 2015 report with amount asset backed per country

MBS Ownership

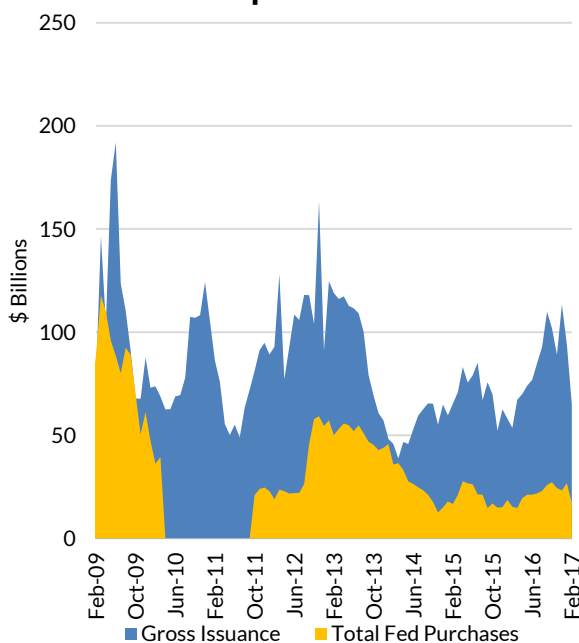
In October 2014, the Fed ended its purchase program, but continued buying at a significantly reduced level, reinvesting funds from pay downs on mortgages and agency debt into the mortgage market. Since then, the Fed's absorption of gross issuance has been between 20 and 30 percent, and it was 25.3 percent for February 2017. During this month, the Fed has been buying Ginnie Mae securities and GSE securities at similar rates. Over the past year, the Fed has absorbed an average of 25.8 percent of GSE issuance and 25.6 percent of Ginnie Mae issuance.

Total Fed Absorption



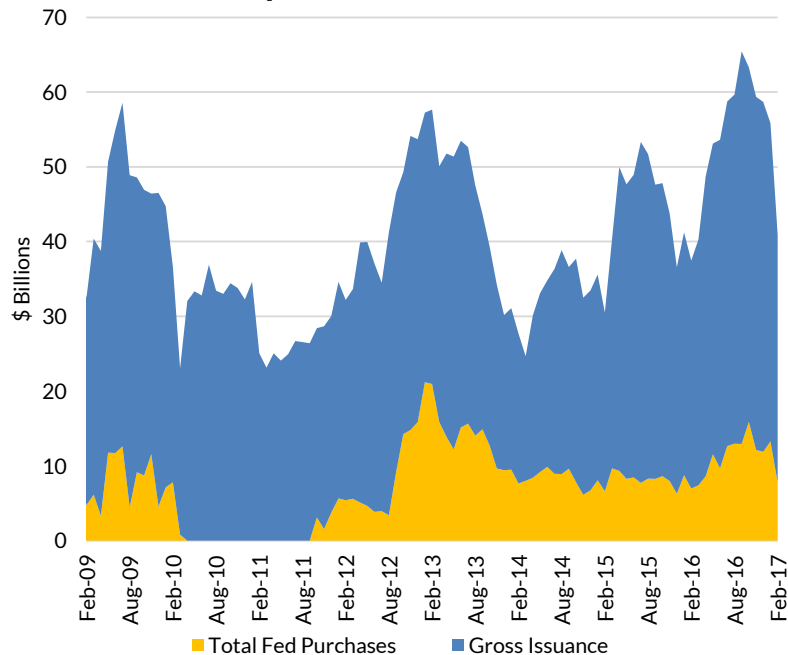
Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of February 2017.

Fed Absorption of GSE MBS



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

Fed Absorption of Ginnie Mae MBS



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

Disclosures

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