

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

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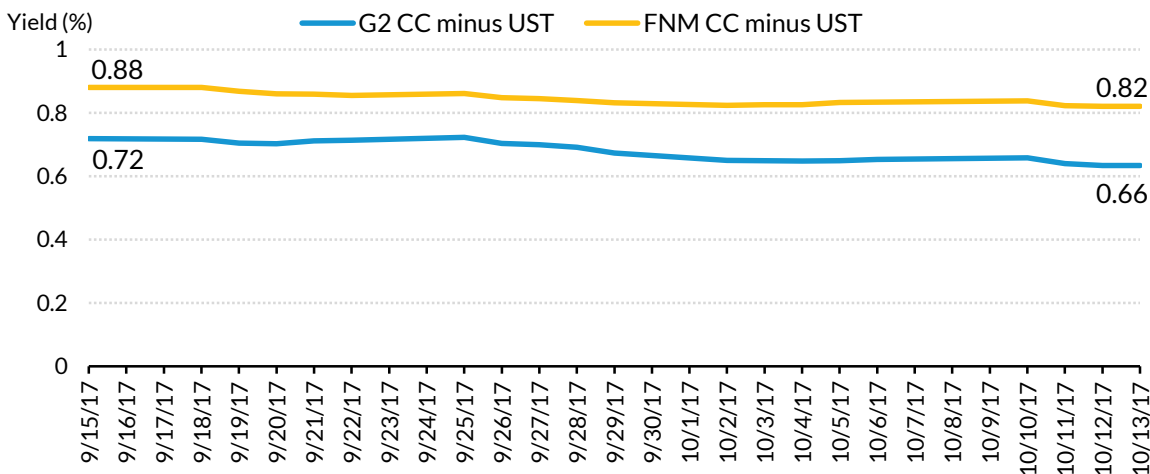
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HIGHLIGHTS

MBS spreads respond to Fed's announcement on wind-down.

The Federal Reserve announced on September 20, 2017 that, in October, it would start the process of reducing its holdings of agency MBS accumulated during quantitative easing of the last several years. Prior to this announcement, the Fed had only said that it would begin its reductions *later this year*. The Fed also confirmed that the reductions in agency MBS will be capped at \$4 billion initially, with caps increasing by \$4 billion each quarter until they hit \$20 billion in October 2018. To the extent the run offs are insufficient to hit the target reduction, the Federal Reserve would not sell.

To the surprise of many market participants, spreads between agency mortgage backed securities (MBS) and Treasury securities actually narrowed. The relative attractiveness charts on page 6 show that the spread between current coupon Ginnie Mae MBS and the average of 5 and 10 years US treasury notes narrowed towards the end of September and early October (by about 7 basis points). The same holds true for the spread between current coupon Fannie MBS and the average US treasury, which tightened by 4 basis points since the day of the announcement.



Source: Credit Suisse and Urban Institute.

This reaction is very different than the “taper tantrum” in 2013, when Bernanke announced that the Fed may begin to taper its Treasury and mortgage backed securities market purchases. In that case, the market was uncertain about both the start date and the amount that would be tapered each month. In 2017, by announcing a start date of the reductions and by confirming the caps, the Fed effectively ended one source of uncertainty for MBS investors, who quickly priced in the new development.

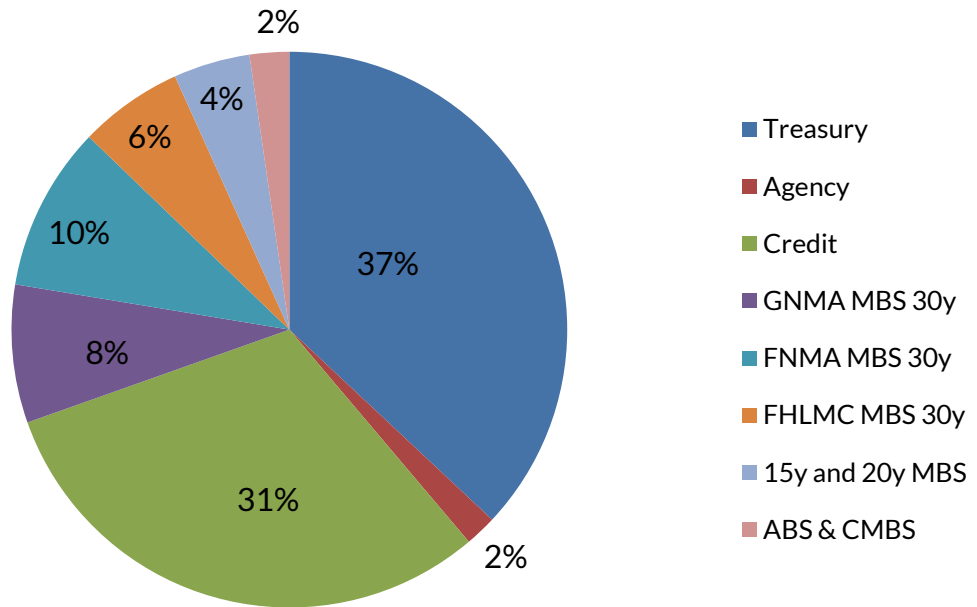
Highlights this month:

- With the tightening of spreads on US MBS after the Federal Reserve announced that it will begin to wind down its portfolio in October, US MBS looks less attractive versus both the JGB and Bund in September 2017 (Pages 7-8).
- Serious delinquency rates continued to decline for all agencies in Q2 2017 (Page 11).
- The total value of the US Housing Market continued to rise in Q2 2017, driven by the increase in household equity (Page 14).
- Agency refinance rates stabilized in August 2017, after the prolonged decline since the election day (page 20).

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

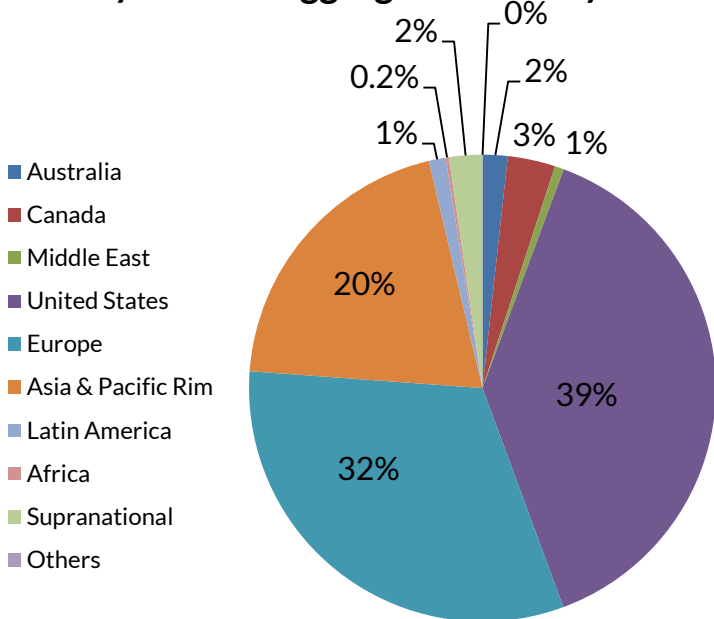
US MBS comprise 28 percent of the Barclays US Aggregate Index-- marginally less than either the US Treasury share (37%) or the US Credit share (31%). Fannie Mae 30-year MBS comprises the largest percent of US MBS (10%), while Ginnie Mae 30-year MBS and Freddie Mac 30-year MBS comprise 8 percent and 6 percent of the market, respectively. Mortgages with terms of 15- and 20- year 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



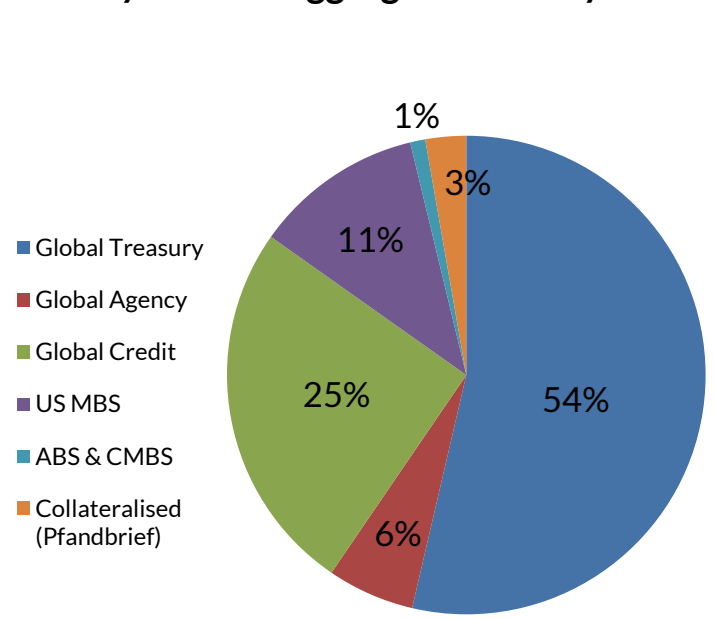
Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2017

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

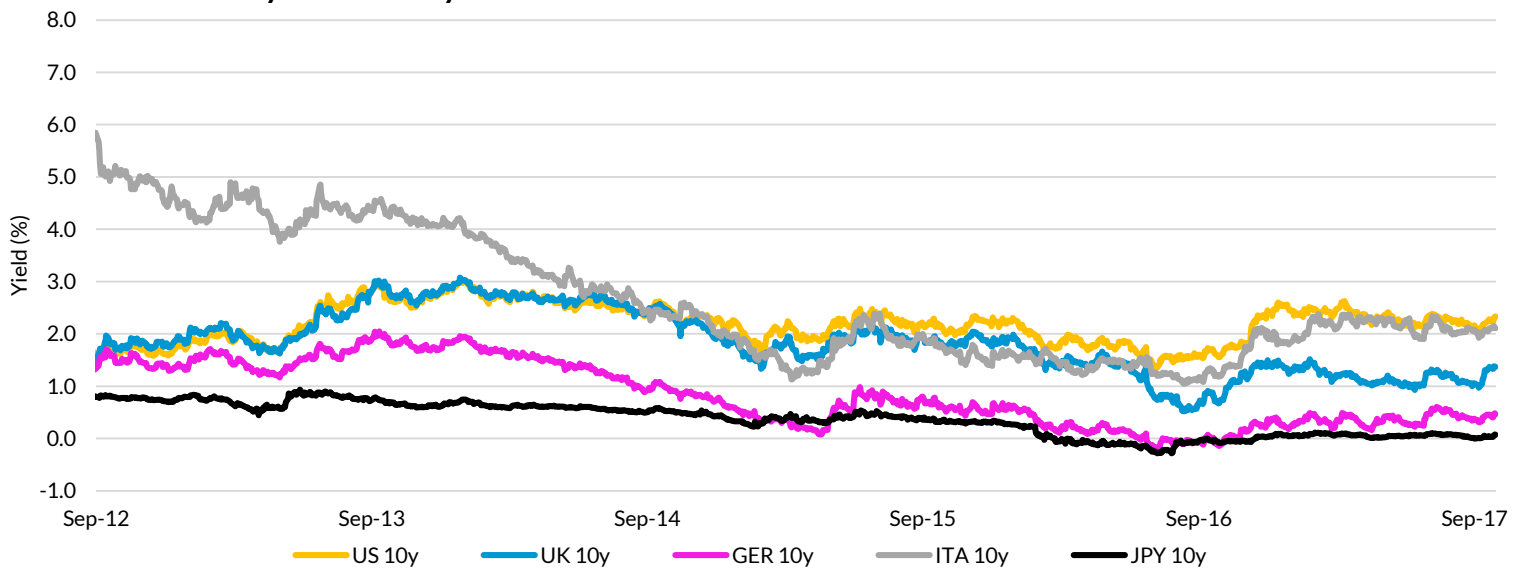


Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2017

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

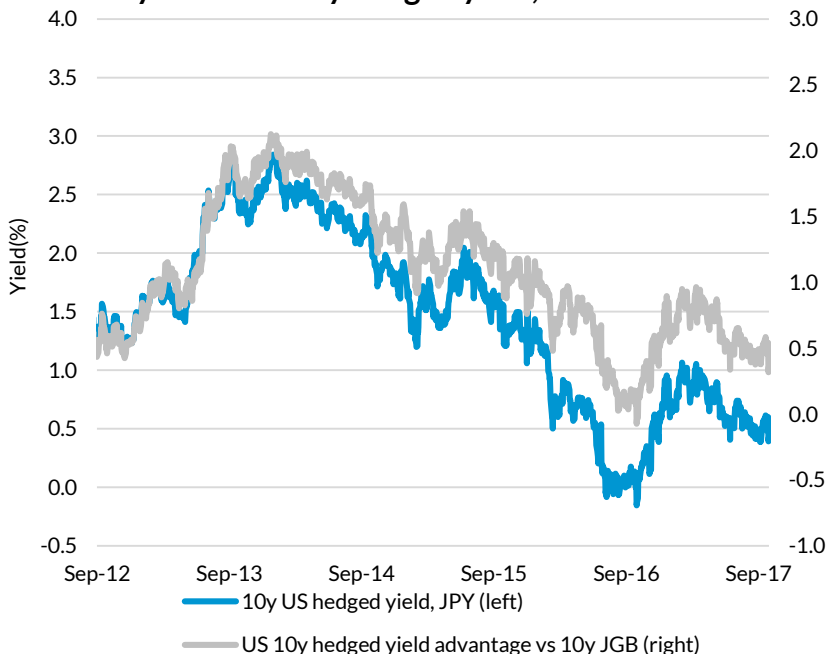
Over the past few years, US Treasury interest rates, as measured by the 10-year note have consistently been the highest in the developed world. The US 10-year Treasury note was at 2.1 percent in August, and has edged up to 2.3 percent this month. Interest rates for Italy, Japan, Germany, and the UK all declined slightly to 2.1, 0.07, 0.5, and 1.4 percent respectively. If the Treasury notes are hedged into foreign currencies, the US yield advantage stands at 36 basis points (bps) versus the JGB, and -24 bps versus the 10-year Bund. This month showed a decrease of 7 bps versus both the JGB and the Bund.

Global 10-year Treasury Yields



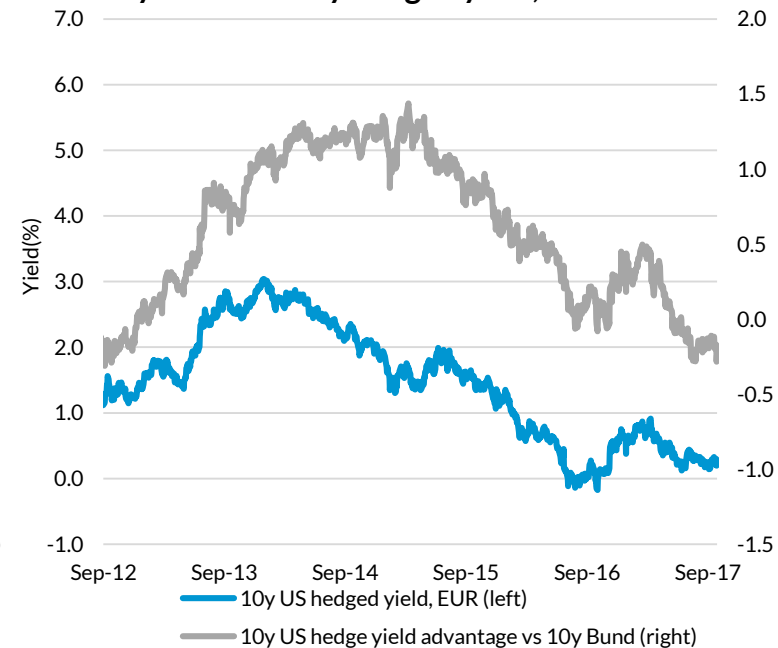
Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2017

10yr US Treasury hedged yield, JPY



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

10yr US Treasury hedged yield, EUR

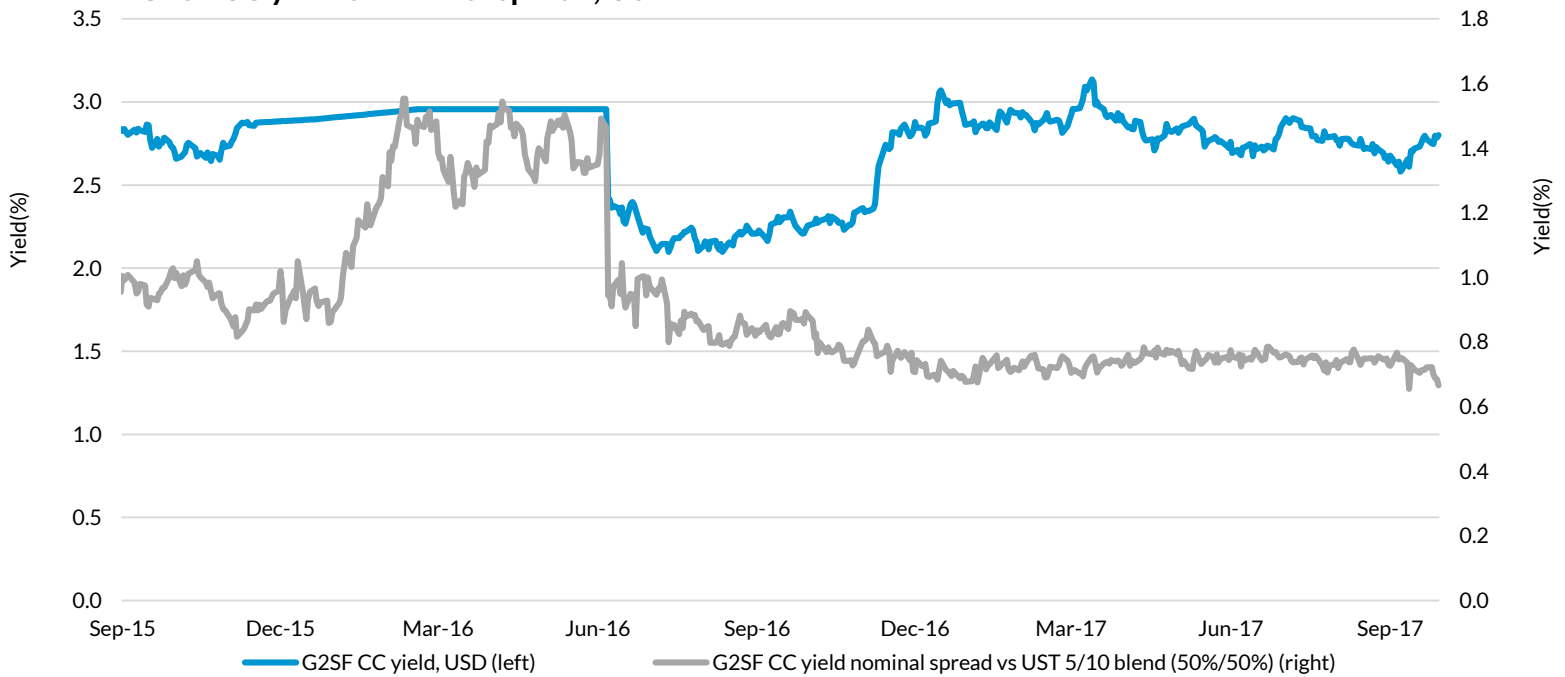


Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2017

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

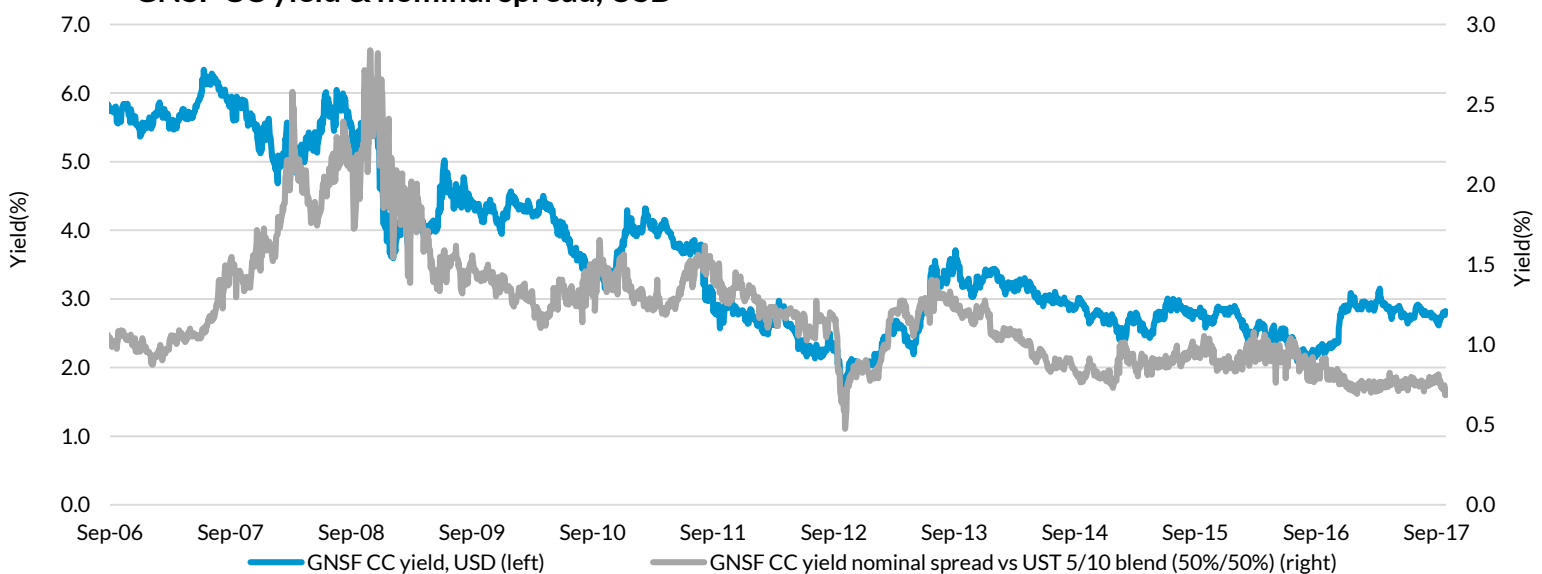
Ginnie securities outyield their Treasury counterparts (as measured by the average of the 5- and 10-year Treasury yields) 67 and 68 basis points on G2SF and GNSF, respectively. This represents a tightening of 6 and 8 basis points from last month, respectively. The Federal Reserve announced that it will begin to wind down its portfolio in October. With the timing uncertainty resolved, spreads tightened.

G2SF CC yield & nominal spread, USD



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

GNSF CC yield & nominal spread, USD

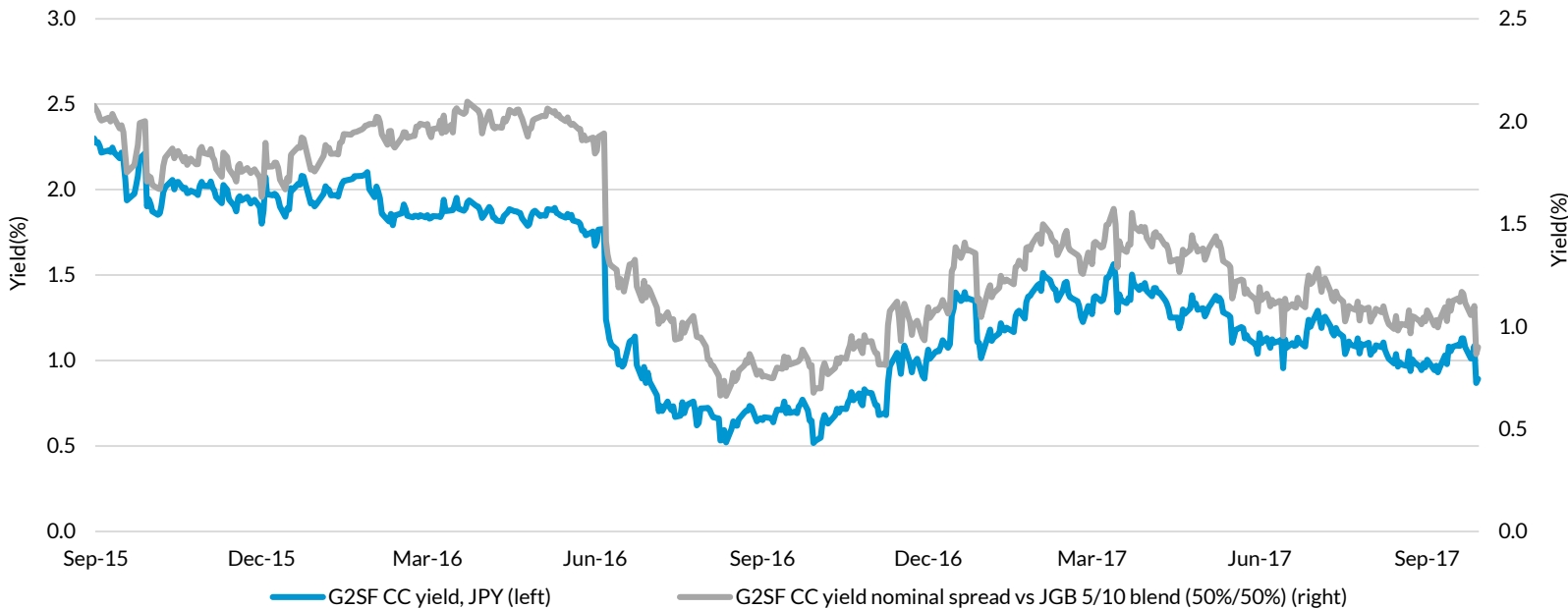


Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2017

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

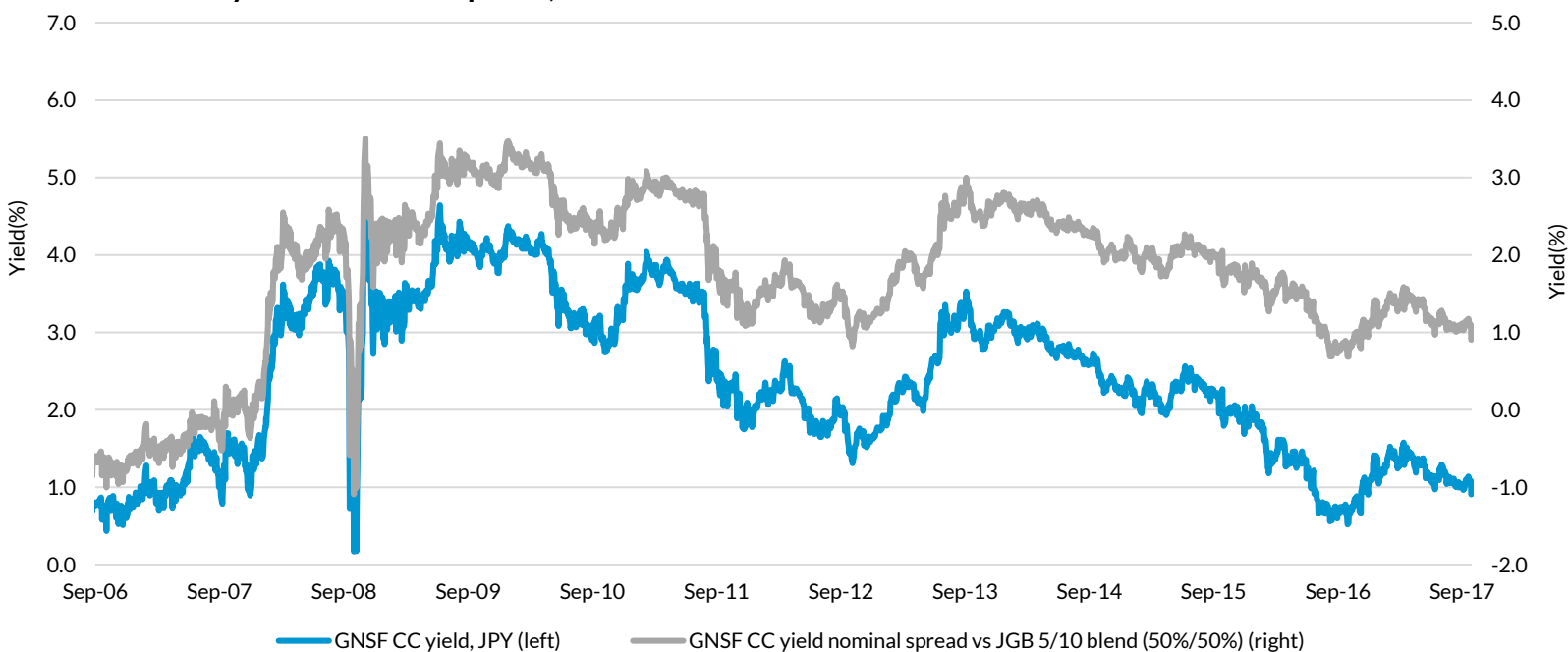
If Ginnie Mae securities are hedged into foreign currencies, they look attractive on a yield basis; handily outyielding the sovereign debt of other countries. This figure shows that G2SF and GNSF hedged into Japanese yen yield more than the JGB 5/10 blend by 90 and 92 basis points, respectively.

G2SF CC yield & nominal spread, JPY



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

GNSF CC yield & nominal spread, JPY

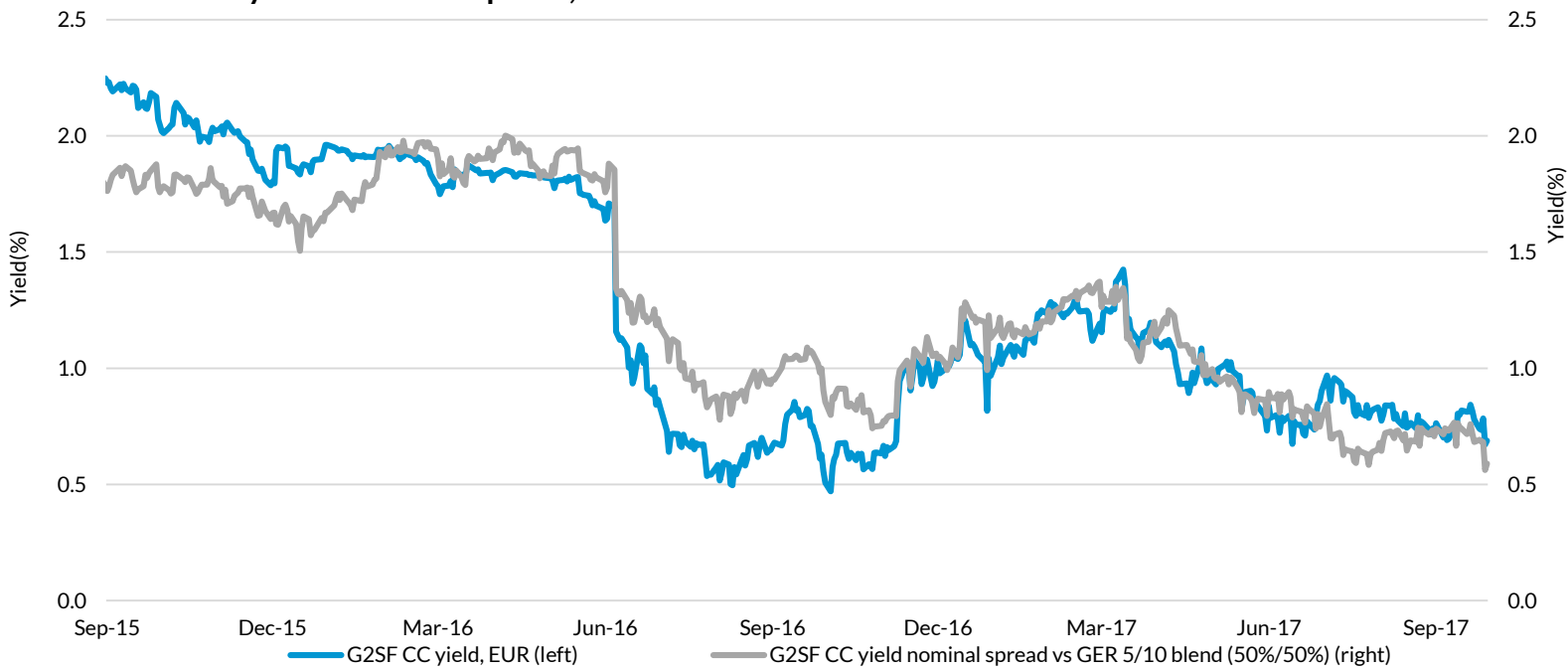


Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 2017

Relative Attractiveness of US Fixed Income and Ginnie Mae MBS

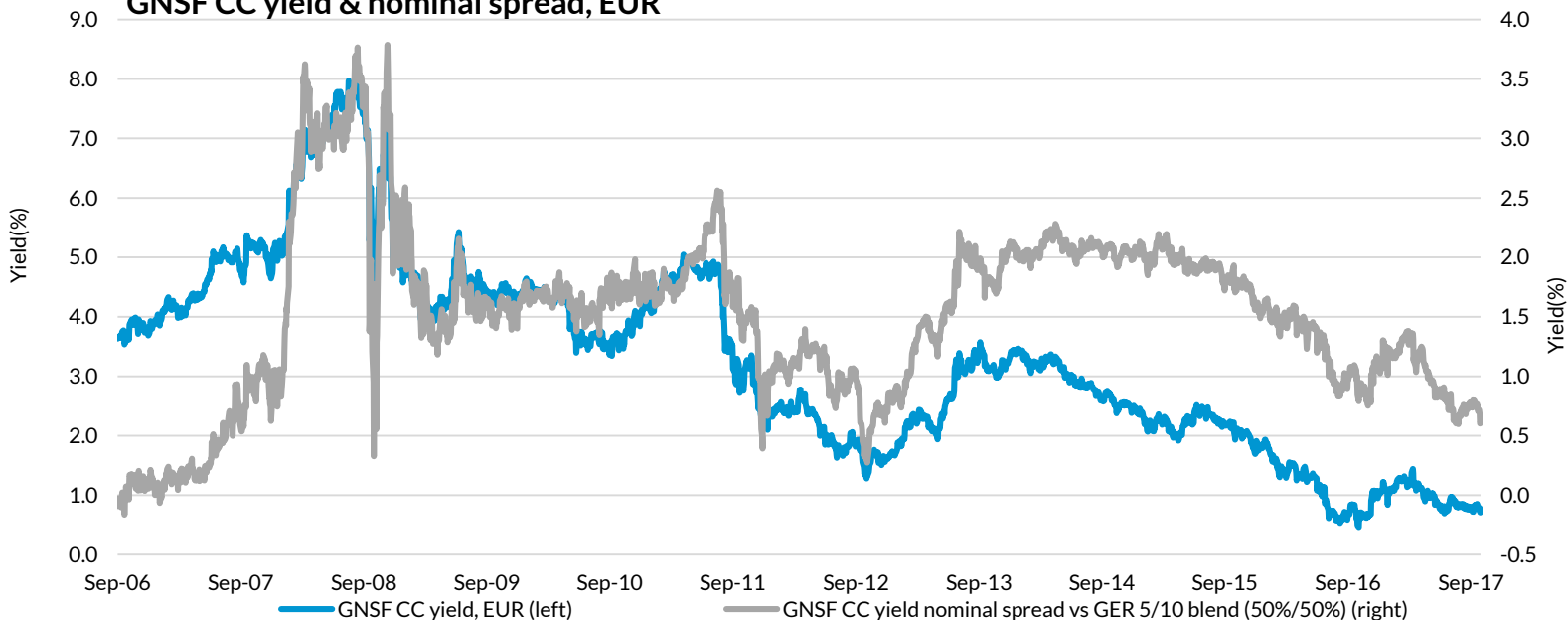
If Ginnie Mae securities are hedged into foreign currencies, they look attractive on a yield basis versus sovereign alternatives. This figure shows that G2SF and GNSF hedged with euros yield more than the average of the German 5/10 Bund blend by 59 and 61 basis points, respectively.

G2SF CC yield & nominal spread, EUR



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

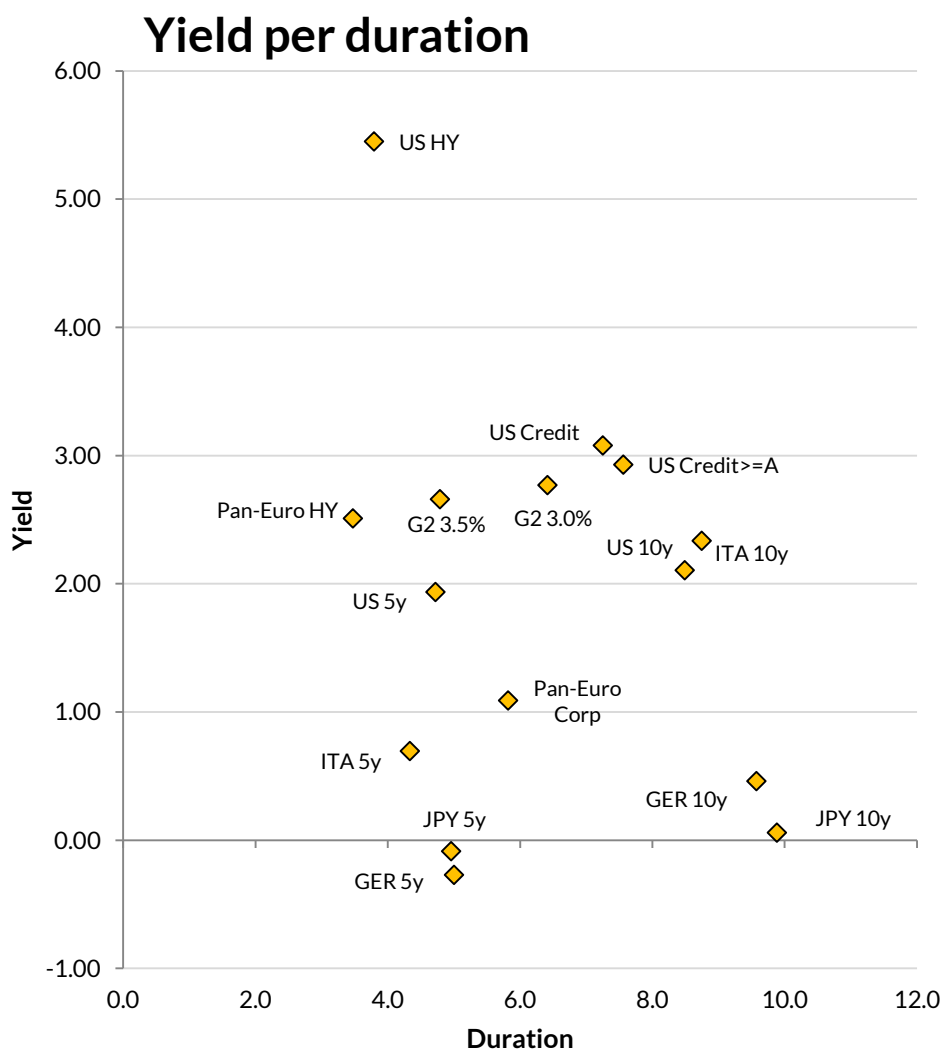
GNSF CC yield & nominal spread, EUR



Sources: Bloomberg and State Street Global Advisors. Note: Data as of September 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	4.8	1.70
US 10y	8.9	2.12
GNMA II 3%	6.2	2.66
GNMA II 3.5%	4.8	2.59
JPY 5y	4.8	-0.14
JPY 10y	9.8	0.00
GER 5y	5.1	-0.35
GER 10y	9.7	0.36
ITA 5y	4.4	0.71
ITA 10y	8.6	2.04
US credit	7.3	2.98
US credit >= A	7.6	2.83
US HY	3.8	5.61
Pan-Euro corp	5.8	0.99
Pan-Euro HY	3.4	2.5

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

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	-0.14	0.19	0.00	0.72	0.64
3 year	0.18	0.17	0.34	0.22	0.49	0.44
5 year	0.14	0.11	0.29	0.33	0.53	0.62
10 year	0.34	0.31	0.48	0.38	0.68	0.76

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	-0.05	-0.20	0.13	0.08	0.65	0.71
3 year	0.15	0.14	0.31	0.26	0.46	0.49
5 year	0.12	0.09	0.27	0.36	0.51	0.65
10 year	0.31	0.28	0.45	0.35	0.66	0.73

Standard Deviation

Time Period	US MBS Ginnie Mae	US Treasury	US Credit Corp	Pan Euro Credit Corp	US High Yield*	Pan Euro High Yield*
1 year	0.60	1.00	1.08	0.93	0.74	0.62
3 year	0.48	1.00	1.13	1.15	1.67	1.44
5 year	0.66	0.91	1.16	1.11	1.51	1.31
10 year	0.76	1.22	1.75	1.46	3.04	3.62

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	-0.08	-0.20	0.12	0.08	0.88	1.14
3 year	0.31	0.14	0.28	0.23	0.28	0.34
5 year	0.18	0.10	0.24	0.33	0.34	0.50
10 year	0.41	0.23	0.26	0.24	0.22	0.20

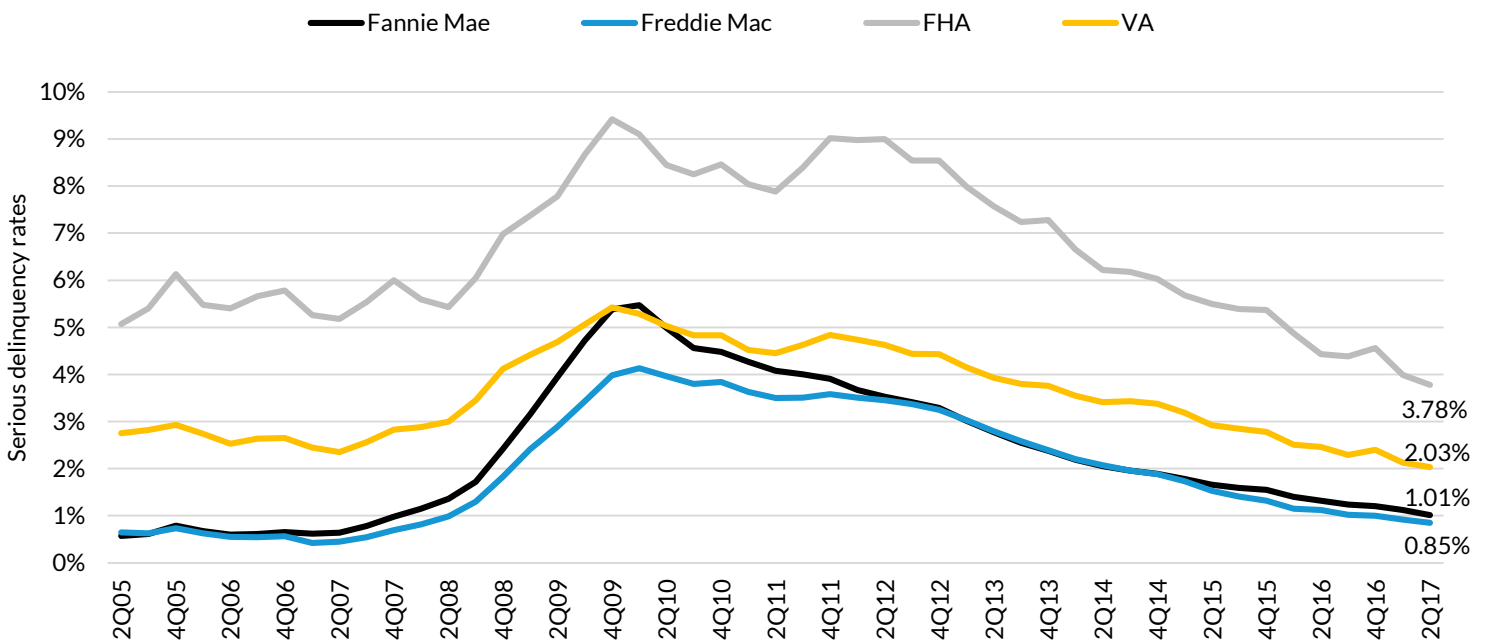
*Assumes 2% capitalization max per issuer on high yield indices

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

State of the US Housing Market

Serious delinquencies for GSE single-family loans continued to decline. After the seasonal upswing in Q4 2016, both FHA and VA delinquencies resumed their decline to 3.78 and 2.03 percent in Q2 2017. GSE delinquencies remain higher 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 6.7-6.8 percent per year, as measured by both CoreLogic and Zillow.

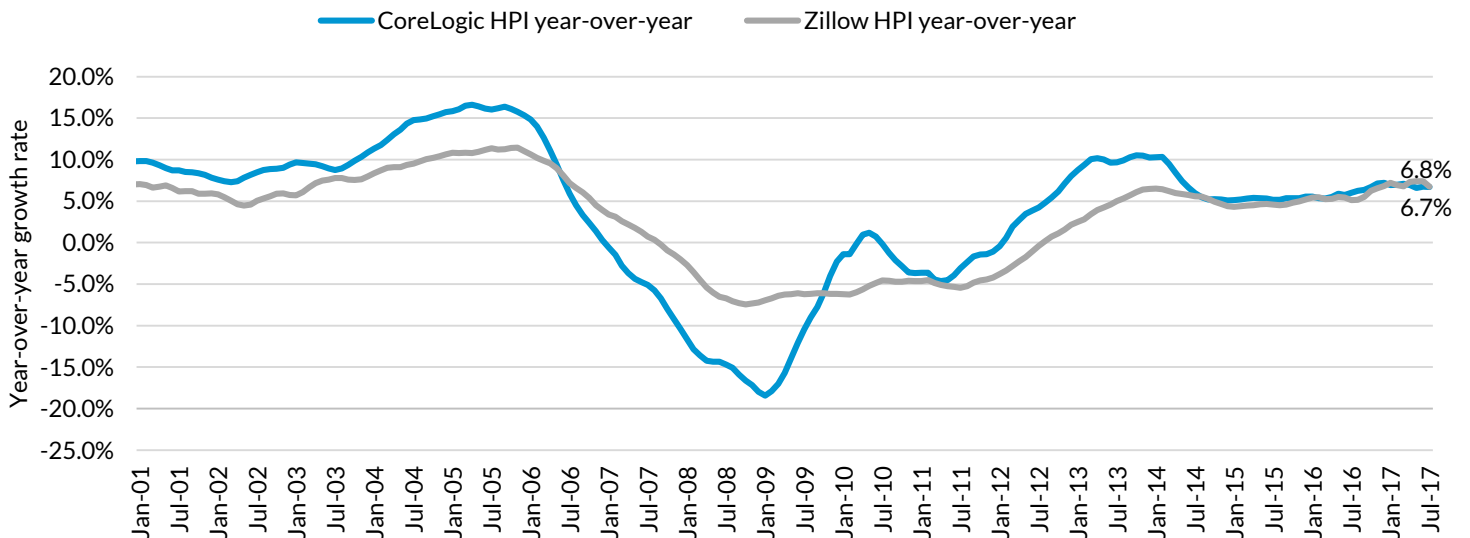
Serious Delinquency Rates: Single-Family Loans



Sources: Fannie Mae, Freddie Mac, MBA Delinquency Survey and Urban Institute.

Note: Serious delinquency is defined as 90 days or more past due or in the foreclosure process. Data as of Q2 2017.

National Year-Over-Year HPI Growth



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

State of the US Housing Market

Nationally, the housing market has improved by 49.1 percent since the trough, and needs to increase by only 0.5 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 35.5 percent below peak levels and Florida is 22.8 percent below peak levels.

State	HPI Changes				YOY	Current HPI % Below Peak
	2000 to Peak	Peak to Trough	Trough to Current			
National	93.7%	-33.3%	49.1%	6.7%	0.5%	
Alabama	46.3%	-20.7%	22.5%	3.8%	3.0%	
Alaska	68.8%	-9.3%	19.7%	2.3%	-7.8%	
Arizona	121.5%	-50.6%	66.0%	6.2%	21.9%	
Arkansas	39.4%	-7.7%	14.7%	3.2%	-5.5%	
California	149.0%	-42.5%	73.2%	6.9%	0.4%	
Colorado	40.4%	-13.8%	64.2%	8.3%	-29.4%	
Connecticut	79.4%	-24.9%	10.4%	1.3%	20.6%	
Delaware	90.4%	-23.9%	17.2%	1.5%	12.1%	
District of Columbia	150.4%	-10.5%	38.6%	4.7%	-19.4%	
Florida	149.2%	-49.7%	61.8%	6.2%	22.8%	
Georgia	40.3%	-30.8%	51.5%	5.6%	-4.6%	
Hawaii	152.4%	-20.5%	45.5%	6.4%	-13.5%	
Idaho	85.7%	-41.0%	69.9%	9.0%	-0.2%	
Illinois	60.0%	-32.7%	31.0%	3.6%	13.4%	
Indiana	24.3%	-16.4%	27.4%	4.8%	-6.1%	
Iowa	25.5%	-4.8%	20.6%	4.0%	-13.0%	
Kansas	33.3%	-13.9%	26.0%	4.0%	-7.8%	
Kentucky	26.9%	-8.9%	21.1%	4.2%	-9.3%	
Louisiana	58.5%	-7.6%	23.8%	4.9%	-12.6%	
Maine	92.6%	-16.4%	34.1%	4.9%	-10.8%	
Maryland	137.7%	-31.2%	20.8%	2.7%	20.3%	
Massachusetts	81.8%	-21.3%	38.9%	6.5%	-8.6%	
Michigan	26.1%	-43.3%	73.9%	8.3%	1.5%	
Minnesota	69.8%	-28.3%	42.7%	6.1%	-2.4%	
Mississippi	35.4%	-18.5%	21.0%	4.8%	1.4%	
Missouri	46.2%	-22.2%	30.4%	5.1%	-1.4%	
Montana	80.0%	-16.6%	35.8%	3.9%	-11.7%	
Nebraska	25.2%	-5.3%	26.6%	5.4%	-16.6%	
Nevada	129.0%	-60.0%	84.4%	8.2%	35.5%	
New Hampshire	82.6%	-23.9%	30.4%	5.8%	0.9%	
New Jersey	109.5%	-26.4%	16.3%	2.1%	16.8%	
New Mexico	64.4%	-26.6%	20.3%	3.6%	13.2%	
New York	102.2%	-13.8%	31.7%	7.3%	-11.9%	
North Carolina	39.6%	-14.6%	26.8%	5.1%	-7.7%	
North Dakota	49.6%	-2.1%	49.7%	3.4%	-31.8%	
Ohio	22.1%	-20.6%	30.2%	4.2%	-3.2%	
Oklahoma	35.7%	-3.2%	15.5%	2.0%	-10.6%	
Oregon	87.5%	-29.4%	67.3%	8.3%	-15.4%	
Pennsylvania	71.6%	-12.8%	16.3%	2.9%	-1.3%	
Rhode Island	130.9%	-34.5%	31.3%	6.6%	16.3%	
South Carolina	61.4%	-22.2%	31.6%	4.3%	-2.4%	
South Dakota	37.2%	-3.5%	30.2%	2.5%	-20.4%	
Tennessee	41.1%	-13.5%	35.7%	7.0%	-14.9%	
Texas	39.3%	-13.1%	47.3%	5.7%	-21.8%	
Utah	64.8%	-31.8%	62.9%	10.8%	-10.0%	
Vermont	81.6%	-9.1%	14.4%	4.8%	-3.9%	
Virginia	135.2%	-30.6%	30.4%	2.7%	10.5%	
Washington	90.2%	-28.2%	67.4%	12.9%	-16.9%	
West Virginia	82.5%	-28.2%	19.9%	-2.2%	16.1%	
Wisconsin	48.6%	-17.2%	26.9%	6.3%	-4.8%	
Wyoming	75.4%	-14.8%	27.8%	0.4%	-8.2%	

Sources: CoreLogic and Urban Institute. Note: HPI data as of July 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 07/2017, the latest HPI data period.

State of the US Housing Market

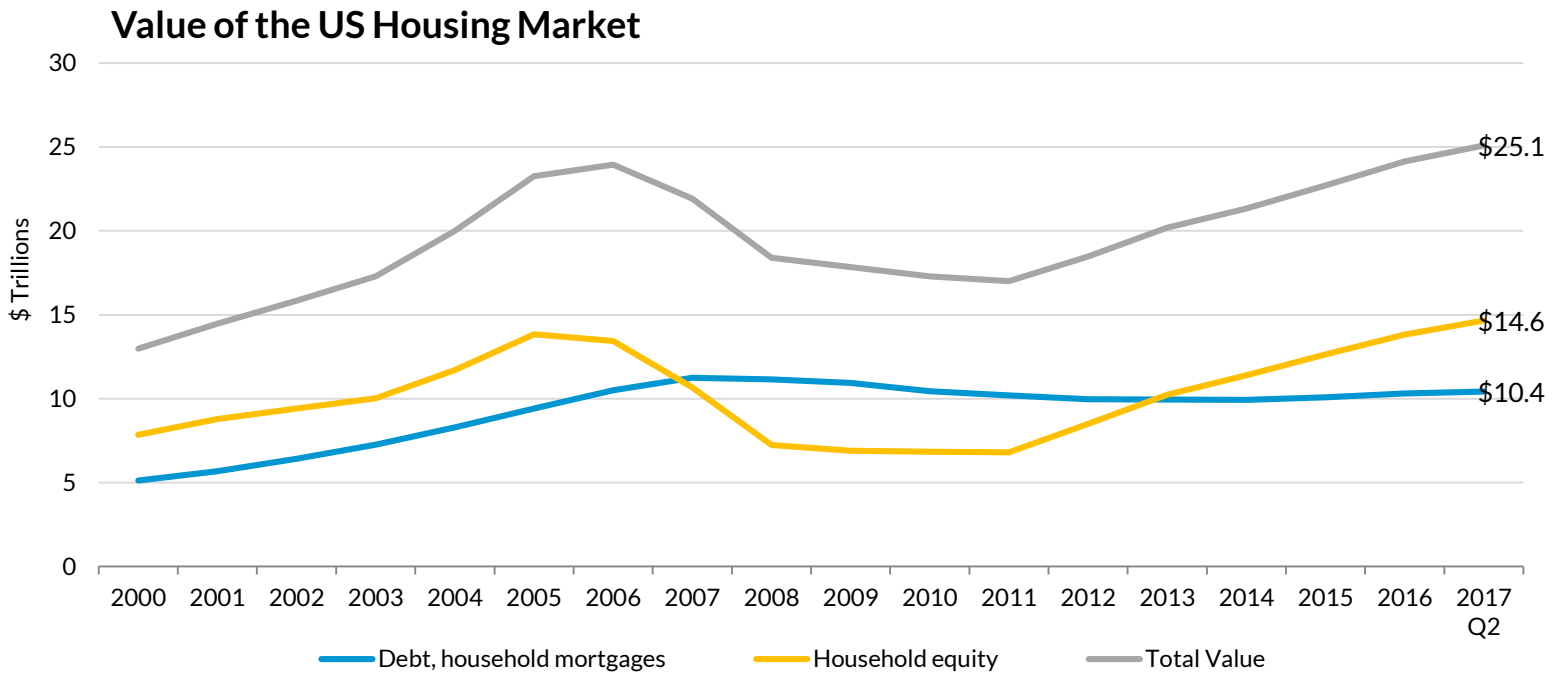
Ginnie Mae loans constitute 32.9 percent of outstanding agency issuance by loan balance, 33.3 percent of the issuance over the past year. However, the Ginnie Mae share varies widely across states, with the share of outstandings (as measured by loan balance) as low as 18.1 percent in the District of Columbia and as high as 53.2 percent in Mississippi. In general, the Ginnie Mae share is higher in states with lower home prices.

State	Agency Issuance (past 1 year)			Agency Outstanding		
	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)	Ginnie Mae Share	Ginnie Mae Average Loan Size (Thousands)	GSE Average Loan Size (Thousands)
National	33.3%	210.8	229.0	32.9%	175.3	206.1
Alabama	45.5%	158.6	180.4	47.8%	140.4	167.3
Alaska	53.4%	279.4	243.4	52.5%	253.4	226.1
Arizona	36.5%	202.1	206.9	35.5%	172.6	188.3
Arkansas	43.3%	140.1	166.2	47.6%	121.2	151.5
California	26.9%	335.4	321.6	22.6%	279.1	289.3
Colorado	32.3%	265.6	257.7	31.3%	221.5	232.4
Connecticut	30.8%	214.0	228.4	30.1%	202.7	217.4
Delaware	39.8%	211.7	220.5	37.9%	196.8	206.4
District of Columbia	17.6%	400.9	359.0	18.1%	320.2	330.8
Florida	39.5%	202.0	199.6	37.2%	169.0	182.4
Georgia	41.4%	178.0	204.2	41.5%	152.0	184.1
Hawaii	38.8%	480.7	371.8	31.8%	409.8	342.1
Idaho	35.5%	185.0	190.6	36.0%	158.9	172.4
Illinois	24.7%	176.1	201.4	25.5%	153.8	182.3
Indiana	39.4%	138.1	156.0	40.4%	120.4	140.2
Iowa	24.8%	142.3	164.0	27.6%	123.6	147.2
Kansas	35.1%	150.7	174.0	37.8%	131.2	155.4
Kentucky	40.6%	146.4	166.3	40.8%	131.8	148.6
Louisiana	42.5%	168.1	189.5	44.4%	149.2	175.9
Maine	35.7%	180.3	195.0	33.3%	164.9	179.0
Maryland	44.4%	281.6	265.7	40.3%	249.6	245.5
Massachusetts	22.1%	279.6	276.7	19.9%	249.3	252.6
Michigan	26.1%	142.3	167.8	27.5%	121.7	149.8
Minnesota	25.4%	191.7	205.5	26.3%	167.6	188.2
Mississippi	49.8%	148.1	168.6	53.2%	130.4	156.5
Missouri	35.3%	148.6	172.7	37.2%	131.2	154.6
Montana	31.2%	207.0	209.0	32.4%	179.6	189.1
Nebraska	31.6%	157.6	168.8	36.6%	133.2	151.8
Nevada	43.1%	224.7	215.8	41.8%	191.7	194.2
New Hampshire	32.3%	224.9	219.3	30.8%	206.3	199.7
New Jersey	29.4%	248.6	265.8	28.6%	231.5	247.3
New Mexico	44.4%	175.4	184.8	44.6%	155.0	171.6
New York	26.6%	239.4	264.4	27.1%	202.6	240.5
North Carolina	34.9%	175.9	199.9	36.8%	153.0	182.8
North Dakota	27.6%	205.4	203.3	27.4%	177.3	183.3
Ohio	36.7%	138.7	156.6	38.6%	124.0	142.9
Oklahoma	46.5%	149.9	169.5	50.9%	129.8	155.6
Oregon	27.5%	239.5	246.6	26.3%	205.1	217.3
Pennsylvania	34.3%	166.4	193.0	34.5%	150.9	179.4
Rhode Island	37.2%	215.6	214.8	34.4%	197.8	201.2
South Carolina	40.4%	178.9	190.7	39.7%	155.9	175.8
South Dakota	36.0%	172.1	181.8	37.7%	152.7	162.8
Tennessee	41.9%	173.4	194.6	44.0%	147.5	175.7
Texas	35.7%	188.4	209.3	39.5%	149.6	188.5
Utah	31.7%	223.8	237.4	33.3%	196.8	214.5
Vermont	23.5%	194.2	192.9	20.0%	180.4	181.2
Virginia	45.4%	274.4	263.4	42.3%	240.6	242.7
Washington	31.7%	266.5	269.0	31.3%	227.4	239.0
West Virginia	48.0%	153.6	154.5	46.2%	137.6	146.0
Wisconsin	21.8%	162.5	175.3	22.1%	145.3	159.5
Wyoming	41.5%	208.7	208.6	42.2%	191.5	193.8

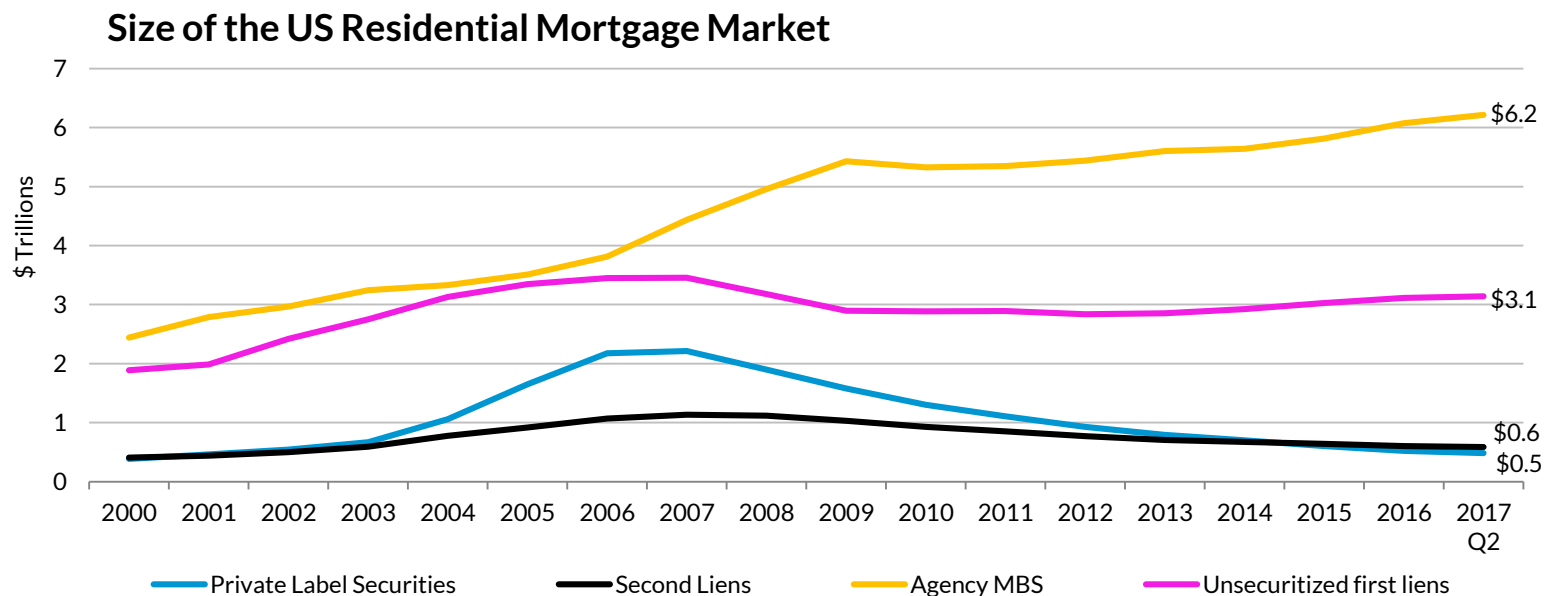
Sources: eMBS and Urban Institute. Note: Ginnie Mae share are based on loan balance as of July 2017.

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 Q2 was no different. While total debt and mortgages was stable at \$10.4 trillion, household equity reached a new high of \$14.7 trillion, bringing the total value of the housing market to \$25.1 trillion, surpassing the pre-crisis peak of \$23.9 trillion in 2006. Agency MBS make up 59.6 percent of the total mortgage market, private-label securities make up 4.7 percent, and unsecuritized first liens at the GSEs, commercial banks, savings institutions, and credit unions make up 30.1 percent. Second liens comprise the remaining 5.6 percent of the total.



Sources: Federal Reserve Flow of Funds and Urban Institute. Data as of Q2 2017.



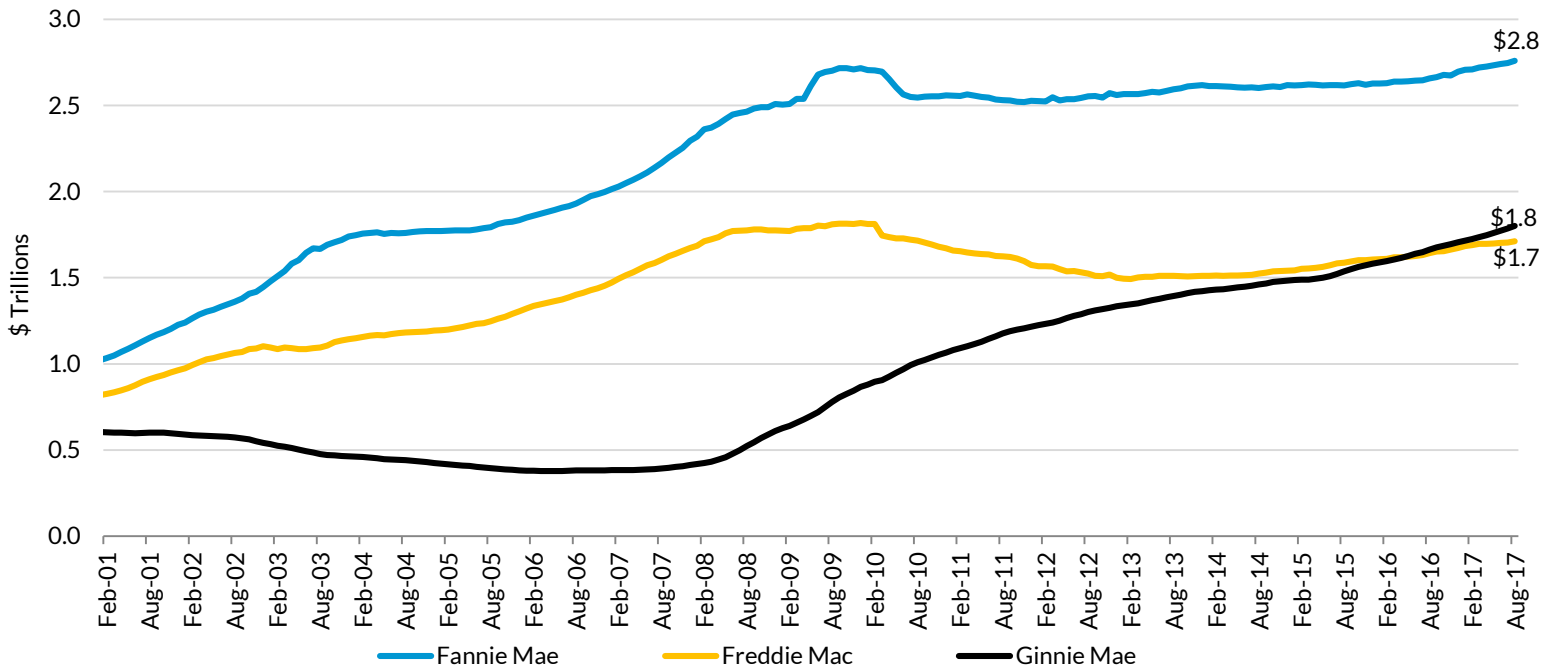
Sources: Federal Reserve Flow of Funds, Inside Mortgage Finance, Fannie Mae, Freddie Mac, eMBS and Urban Institute.

Note: Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, and credit unions. Data as of Q2 2017.

State of the US Housing Market

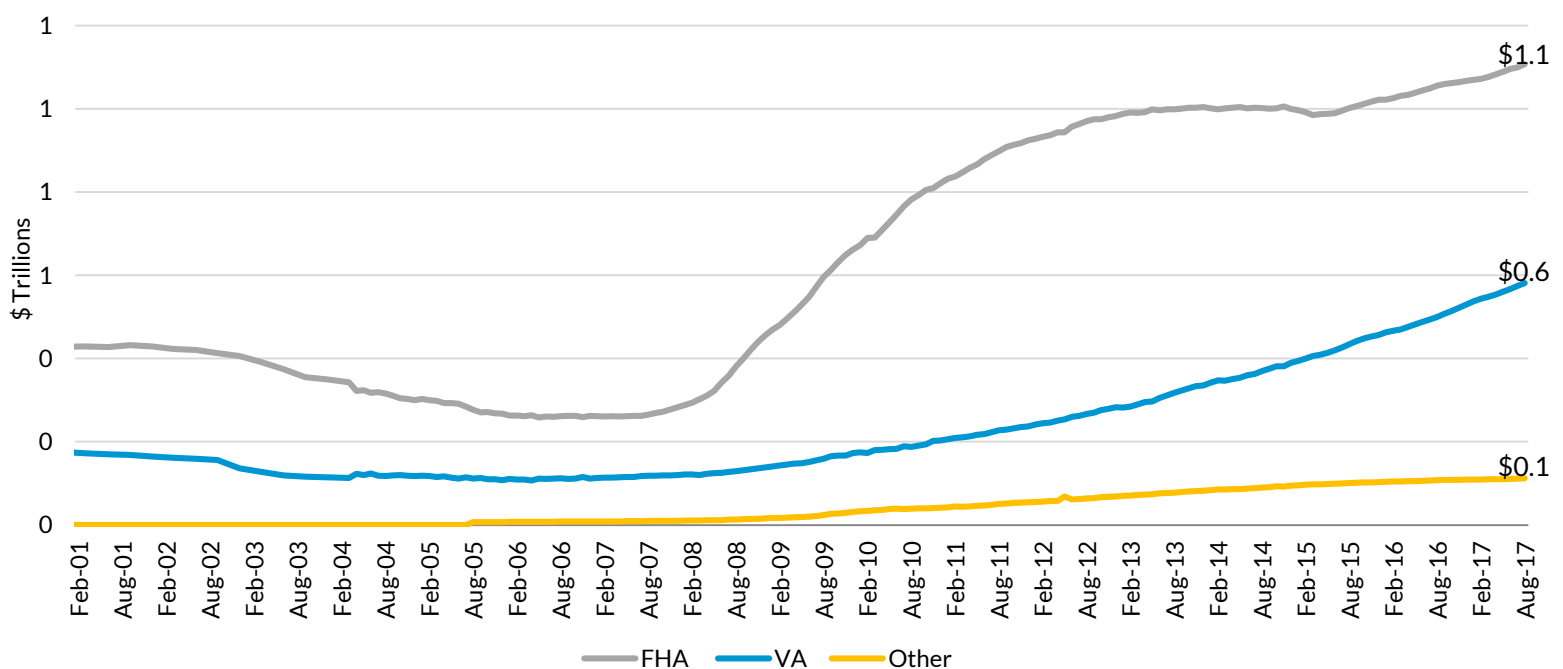
As of August 2017, outstanding securities in the agency market totaled \$6.27 trillion and were 44.0 percent Fannie Mae, 27.3 percent Freddie Mac, and 28.7 percent Ginnie Mae. Ginnie Mae now has more outstandings than Freddie Mac. Within the Ginnie Mae market, VA has been growing very rapidly--comprising 32.3 percent of total Ginnie Mae outstandings.

Outstanding Agency Mortgage-Backed Securities



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

Outstanding Ginnie Mae Mortgage-Backed Securities

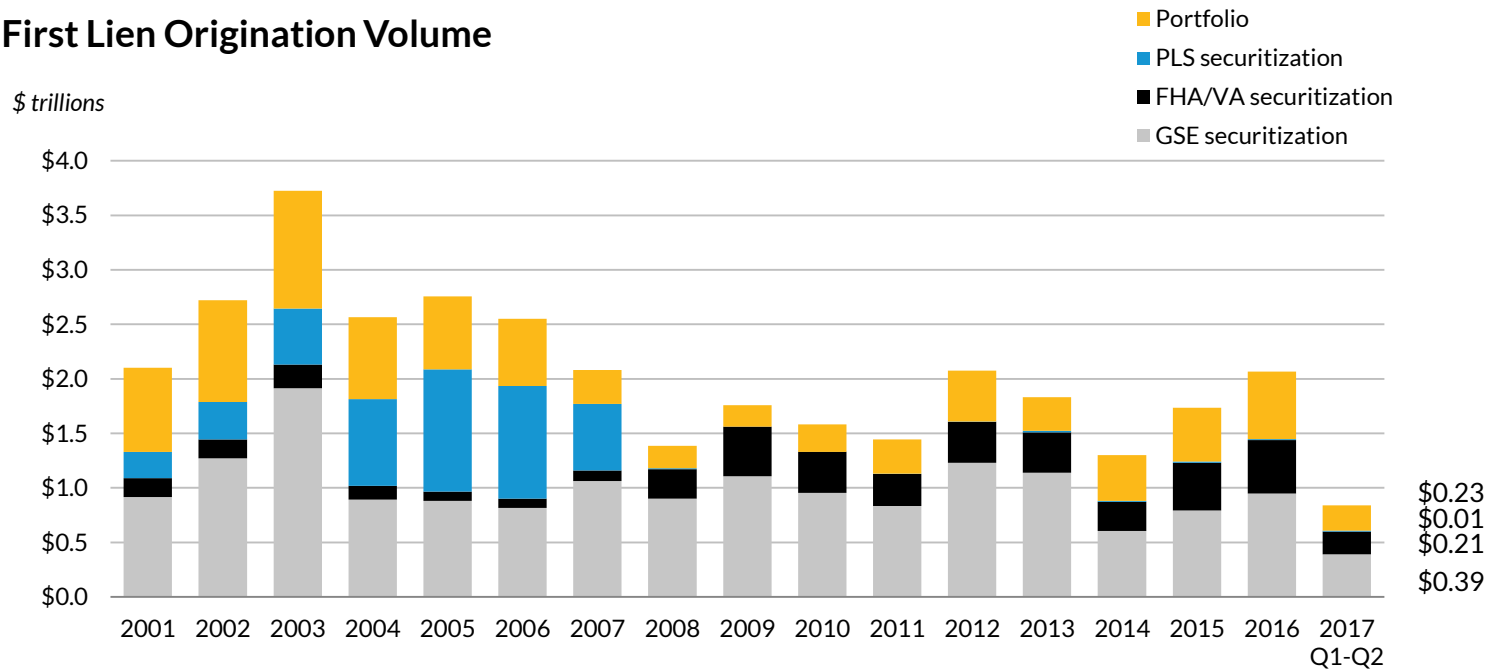


Sources: eMBS and Urban Institute. Note: Data as of August 2017

State of the US Housing Market

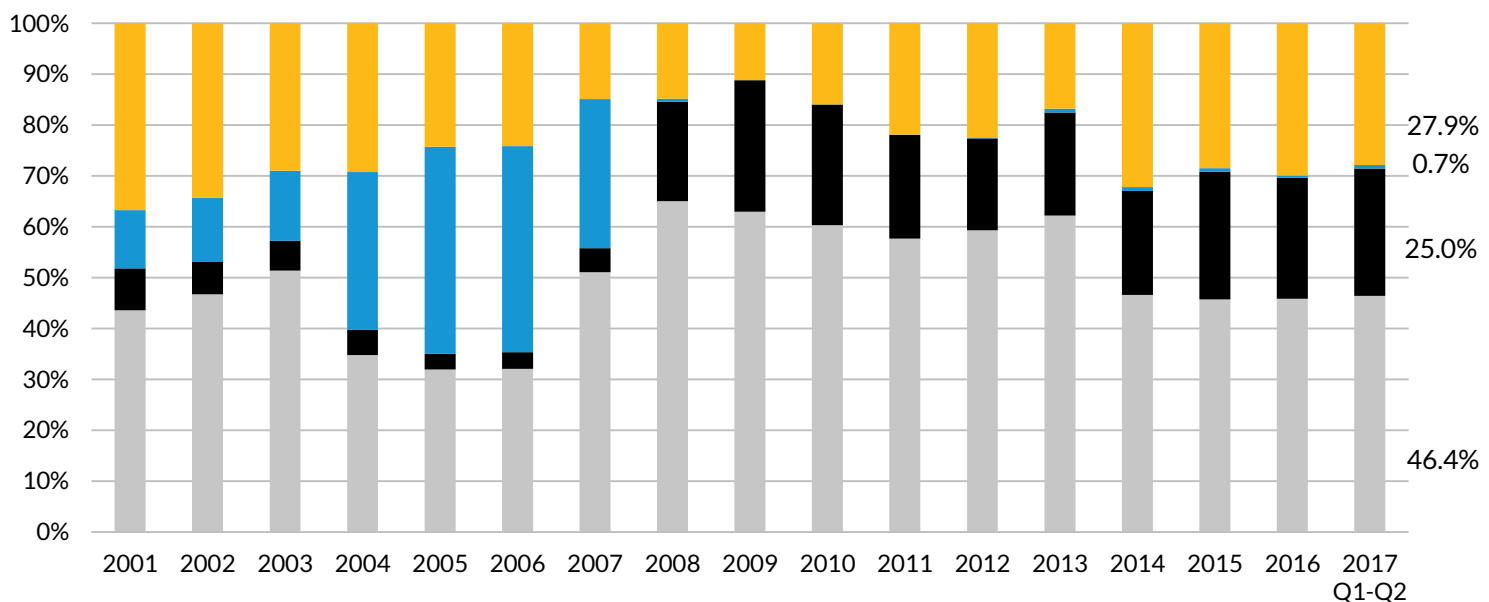
After a record high origination year in 2016 (\$2.1 trillion), the first lien originations totaled \$840 billion in the first half of 2017, down 6 percent from the same period last year, mostly due to the elevated interest rates. The share of portfolio originations was 28 percent, down slightly from 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 \$1,307.2 billion in the first eight months of 2017, a 2.3 percent decrease from the same period last year. Ginnie Mae gross issuance is down by 3.6 percent, while GSE gross issuance is down by 1.6 percent. Within the Ginnie Mae market, FHA is down by 2.1 percent and VA origination is down by 6.8 percent. As a result of higher rates, origination for full year 2017 is 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	\$352.3	\$216.1	\$568.4	\$303.0	\$871.5
2017 YTD %Change YOY	1.5%	-6.2%	-1.6%	-3.6%	-2.3%
2017 Ann.	\$528.5	\$324.1	\$852.6	\$454.5	\$1,307.2

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	\$155.6	\$19.2	\$436.3
2016	\$281.8	\$206.5	\$19.9	\$508.2
2017 YTD	\$175.1	\$114.6	\$13.3	\$303.0
2017 YTD %Change YOY	-2.1%	-6.8%	6.7%	-3.6%
2017 Ann.	\$262.7	\$171.8	\$20.0	\$454.5

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

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

US Agency Market, Originations

Agency net issuance totaled \$196.1 billion for the first eight months of 2017, up 44.3 percent over the same period last year. Ginnie Mae net issuance was \$94.7 billion, comprising 48.3 percent of total agency net issuance. Note that Ginnie Mae net issuance is up 15.1 percent versus the same time last year. Ginnie Mae net issuance is comprised of 54.6 percent VA issuance, 41.9 percent FHA issuance and 3.5 percent other issuance.

Issuance Year	Agency Net Issuance				
	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	\$62.3	\$39.1	\$101.4	\$94.7	\$196.1
2017 YTD %Change YOY	119.6%	5.9%	55.3%	15.1%	32.9%
2017 Ann.	\$93.4	\$58.6	\$152.1	\$142.1	\$294.2

Issuance Year	Ginnie Mae Breakdown: Net Issuance			
	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	\$39.7	\$51.7	\$3.3	\$94.7
2017 YTD %Change YOY	16.3%	19.7%	-33.1%	15.1%
2017 (Ann.)	\$59.56	\$77.61	\$4.93	\$142.1

Sources: eMBS and Urban Institute (top and bottom)

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

US Agency Market, Originations

Agency gross issuance totaled 121.1 billion in August 2017, the fourth consecutive monthly gain for the GSEs and the fifth for Ginnie Mae. The steady growth in recent months is mainly driven by purchase mortgages, while the agency gross issuance is down compared to the same period last year, due to the elevated mortgage rates. Less dependent on refinances, Ginnie Mae share has increased from 29 percent to 35 percent in the first eight months of 2017. Despite the variability in gross issuance, Ginnie Mae net issuance is relatively constant; 12.7 billion per month through August in 2017, versus 10.3 billion per month in 2016.

Monthly Agency Issuance

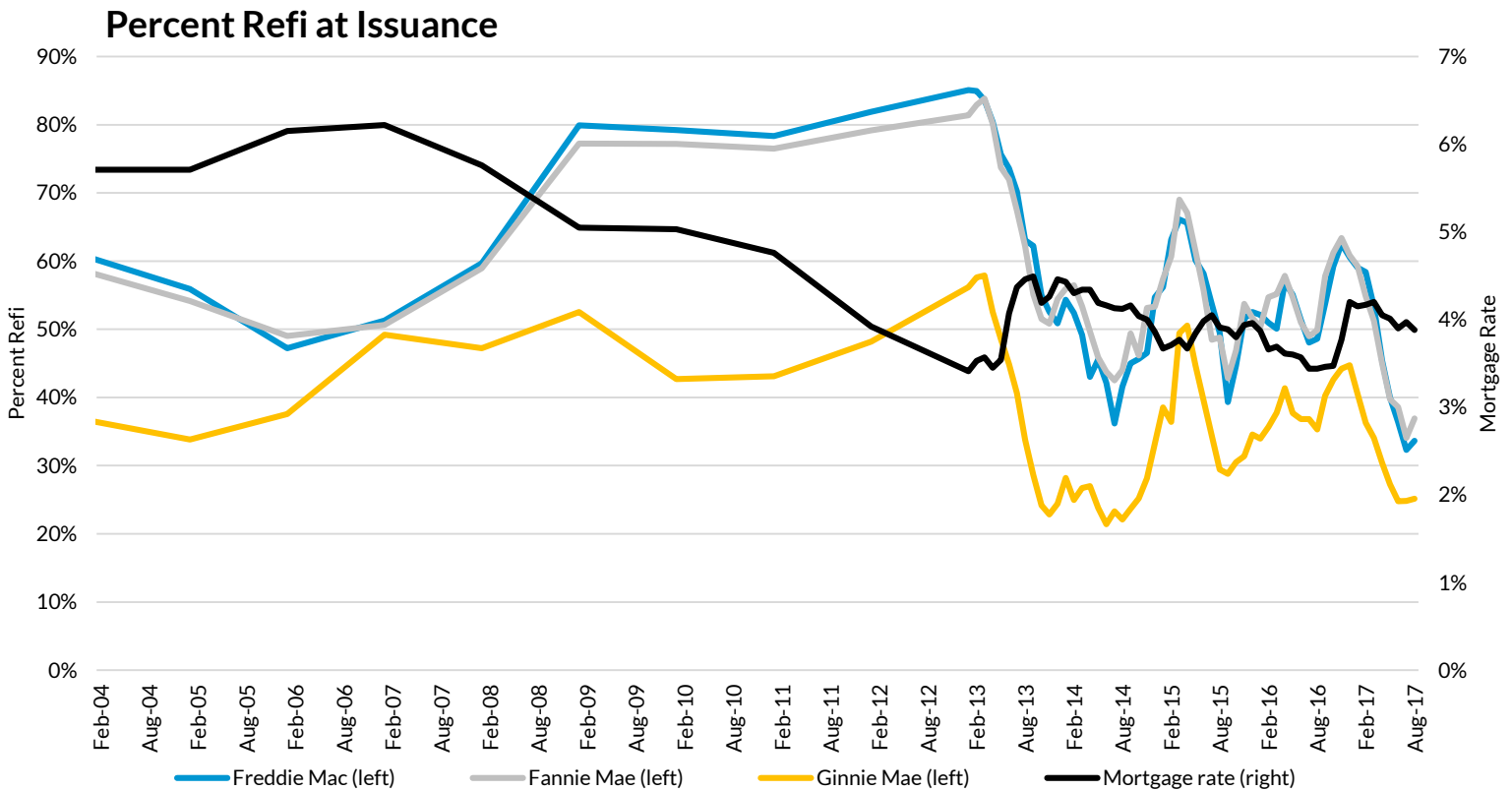
Date	Gross Issuance			Net Issuance		
	Fannie Mae	Freddie Mac	Ginnie Mae	Fannie Mae	Freddie Mac	Ginnie Mae
Jan-14	\$28.2	\$20.0	\$21.6	-\$4.9	\$0.5	\$4.9
Feb-14	\$27.9	\$17.9	\$20.1	-\$0.2	\$1.2	\$5.2
Mar-14	\$24.1	\$14.7	\$16.7	-\$2.3	-\$0.9	\$1.9
Apr-14	\$28.0	\$18.7	\$21.7	-\$1.9	\$1.2	\$5.2
May-14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

Sources: eMBS and Urban Institute

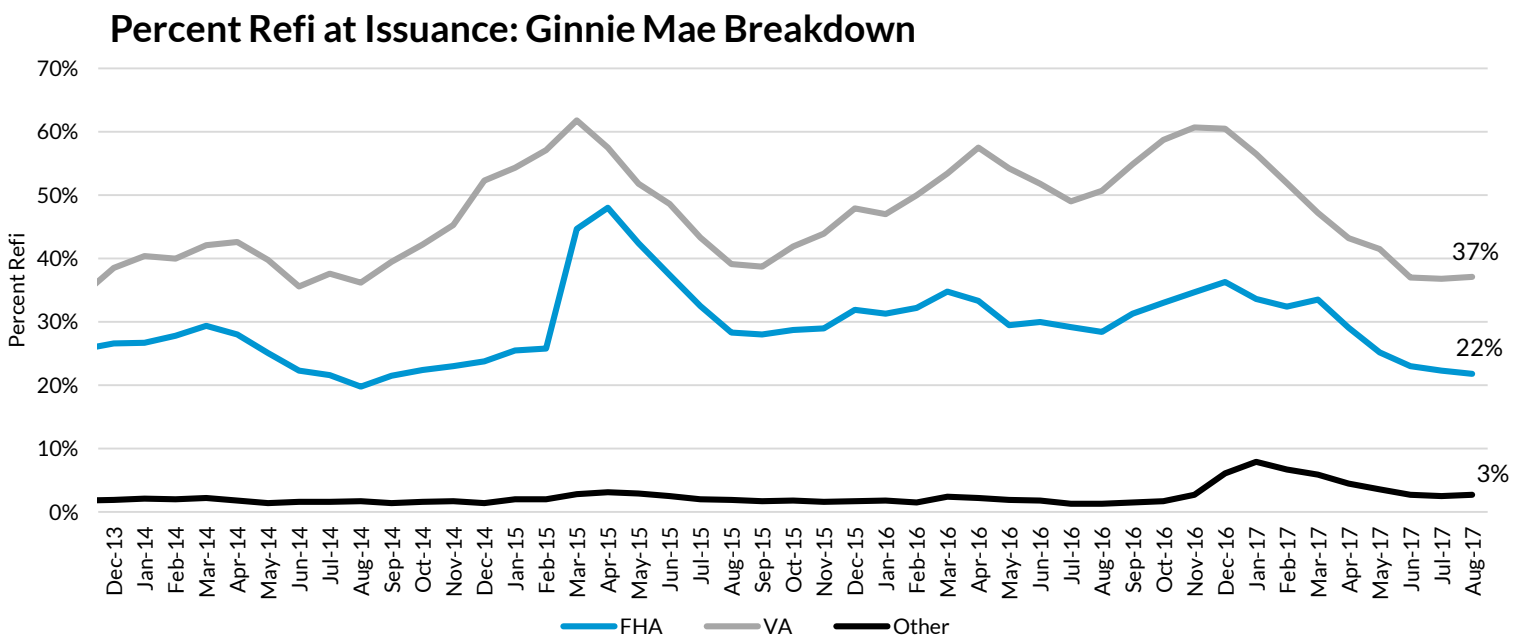
Note: Dollar amounts are in billions. "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. All data is as of August 2017.

US Agency Market, Originations

The Ginnie Mae refi share stood at 25 percent in August 2017, below the 37 and 34 percent shares for Fannie Mae and Freddie Mac, respectively. Within Ginnie Mae, VA had the highest refi share at 37 percent in August 2017, followed by FHA's 22 percent refi share.



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



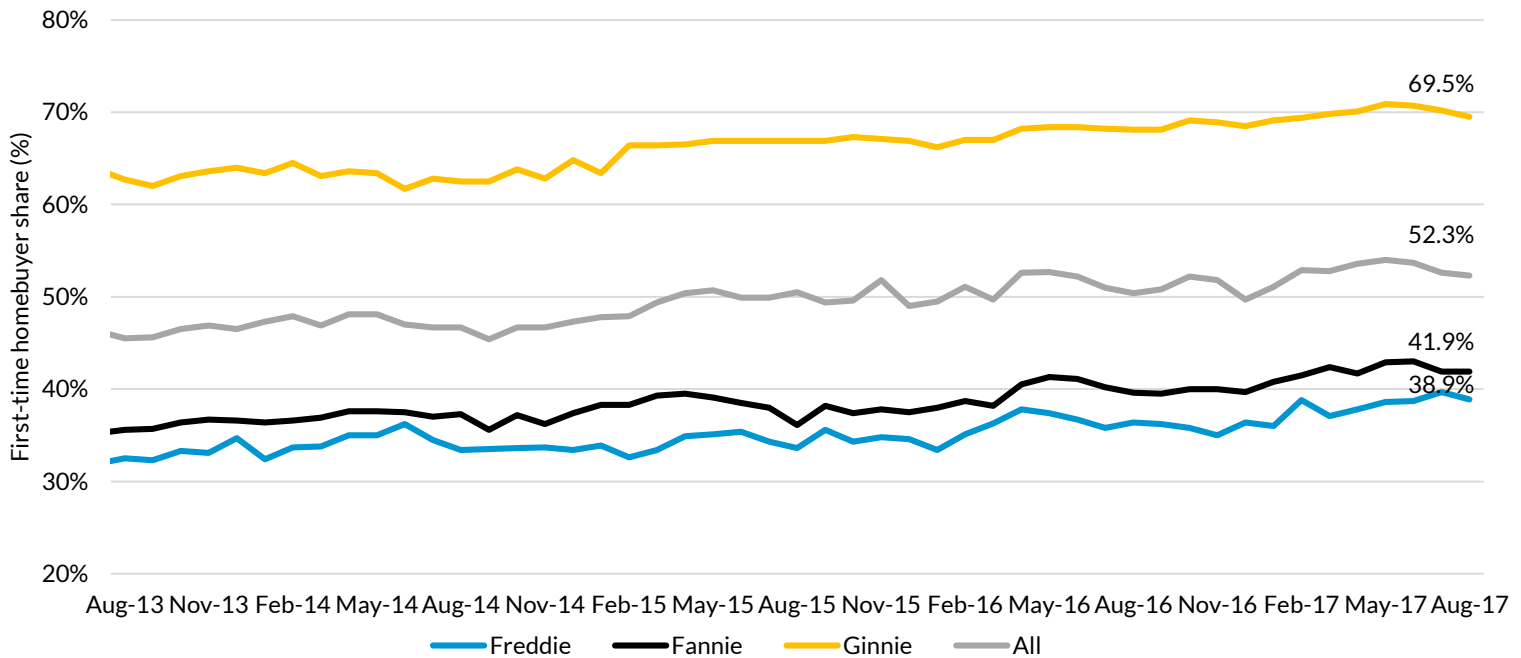
Sources: eMBS and Urban Institute.

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 August 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 42 percent and 39 percent share of the first-time homebuyer market. The bottom table shows that based on mortgages originated in August 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 higher DTI, thus requiring a higher interest rate.

First Time Homebuyer Share: Purchase Only Loans



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

	Fannie Mae		Freddie Mac		Ginnie Mae		All	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$Thousands)	236,376	261,519	224,967	250,882	202,621	249,467	214,999	253,477
Credit Score	741.4	755.2	739.0	755.6	684.2	705.0	710.1	740.0
LTV (%)	86.9	79.7	87.1	78.2	96.9	95.5	92.3	83.9
DTI (%)	34.7	35.4	34.2	34.6	40.7	41.6	37.8	36.9
Loan Rate (%)	4.22	4.10	4.22	4.06	4.14	4.01	4.17	4.05

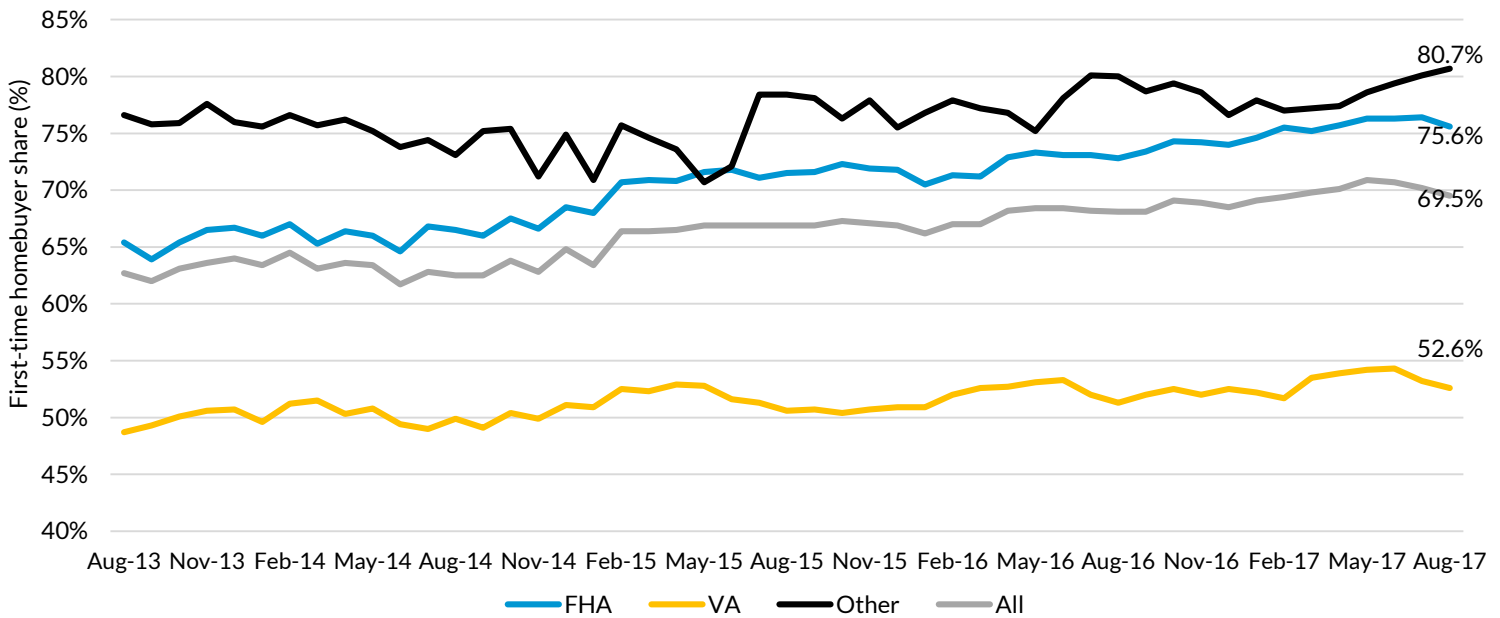
Sources: eMBS and Urban Institute.

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 August 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 August 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 August 2017.

	FHA		VA		Other		Ginnie Mae Total	
	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat	First-Time	Repeat
Loan Amount (\$ Thousands)	199,443	220,691	241,591	293,440	142,430	155,392	202,621	249,467
Credit Score	676.6	682.9	701.5	730.0	696.9	700.9	684.2	705.0
LTV (%)	95.5	94.2	99.7	96.3	99.4	99.4	96.9	95.5
DTI (%)	42.1	43.1	39.5	40.6	34.8	35.3	40.7	41.6
Loan Rate (%)	4.20	4.13	3.98	3.86	4.06	4.11	4.14	4.01

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

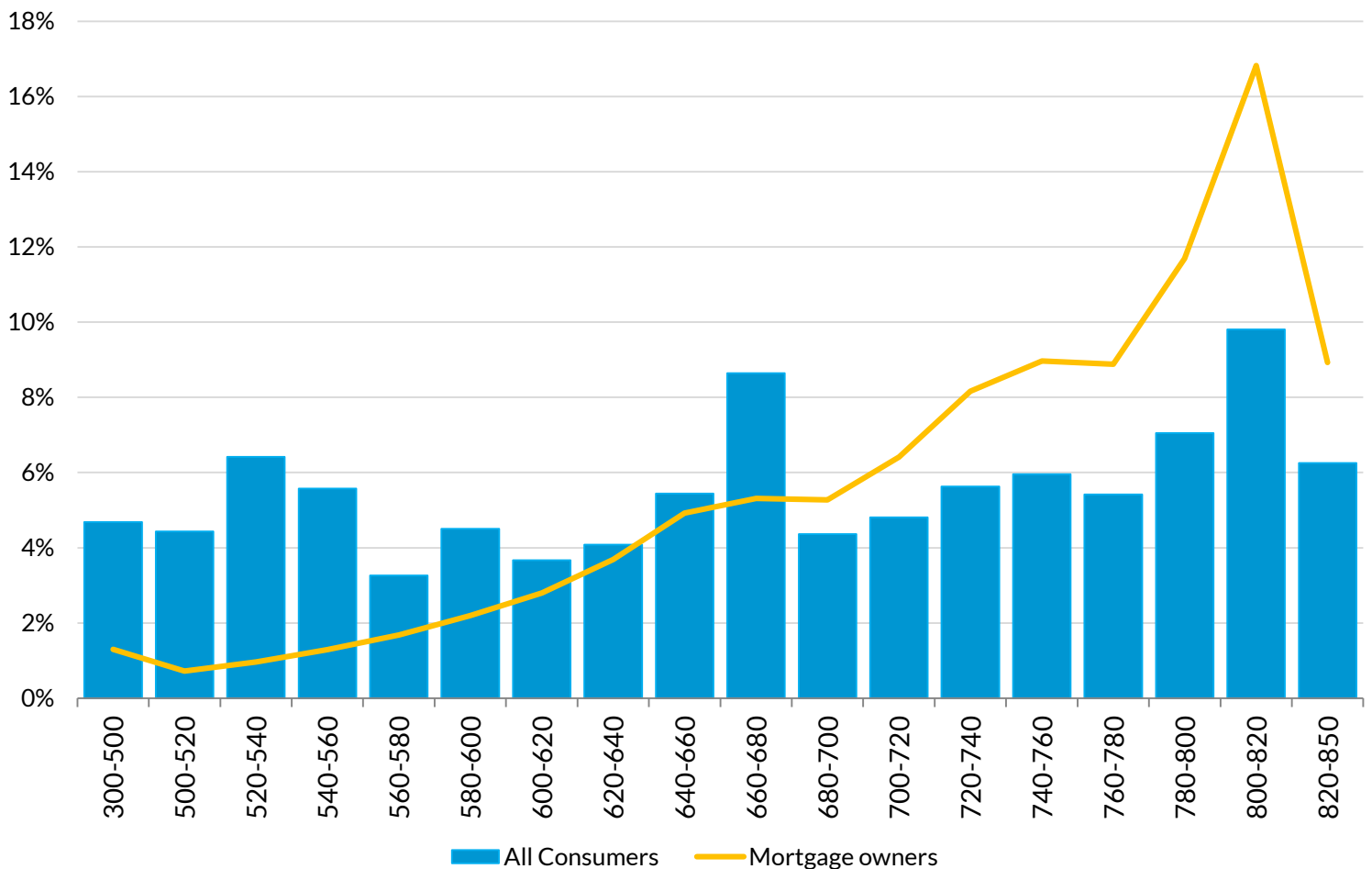
Credit Box

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.

August 2017 Credit Box at a Glance

In August 2017, the median Ginnie Mae FICO score was 682 versus 752 for Fannie and 754 for Freddie. Note that the FICO score for the 10th percentile was 625 for Ginnie Mae, versus 673 for Fannie and 681 for Freddie. Within the Ginnie Mae market, FHA loans have a median FICO score of 671, VA loans have a median FICO score of 708 and other loans have a median FICO score of 693.

Purchase FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	341,034	646	682	731	776	798	726
Fannie	124,283	683	718	758	787	802	749
Freddie	79,553	688	720	759	787	802	751
Ginnie	137,198	627	650	683	728	773	691

Refi FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	162,099	644	681	726	772	797	723
Fannie	75,702	661	696	740	779	800	735
Freddie	44,656	669	703	744	780	800	738
Ginnie	41,741	614	645	681	724	769	685

All FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	503,133	645	681	729	775	797	725
Fannie	199,985	673	709	752	785	801	744
Freddie	124,209	681	713	754	785	801	746
Ginnie	178,939	625	649	682	727	772	689

Purchase FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	137,198	627	650	683	728	773	691
FHA	85,217	623	644	672	708	747	678
VA	39,548	636	666	714	768	795	715
Other	12,433	642	661	693	733	768	698

Refi FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	41,741	614	645	681	724	769	685
FHA	21,304	603	634	666	702	742	668
VA	20,121	628	660	698	746	783	701
Other	316	623	659	704	755	785	703

All FICO: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	178,939	625	649	682	727	772	689
FHA	106,521	620	643	671	707	746	676
VA	59,669	633	664	708	761	792	710
Other	12,749	642	661	693	734	769	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 August 2017.

August 2017 Credit Box at a Glance

In August 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 10th percentile was 83.1 percent for Ginnie Mae and 50-52 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 lending programs.

Purchase LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	341,497	72.0	80.0	95.0	96.5	100.0	87.6
Fannie	124,385	62.0	78.0	80.0	95.0	95.0	81.6
Freddie	79,679	64.0	79.0	80.0	95.0	95.0	81.9
Ginnie	137,433	92.8	96.5	96.5	100.0	102.0	96.4

Refi LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	165,598	45.0	60.0	75.0	83.0	94.3	71.6
Fannie	75,705	42.0	56.0	70.0	79.0	80.0	65.9
Freddie	44,846	42.0	57.0	70.0	80.0	80.0	66.6
Ginnie	45,047	68.3	81.2	86.5	96.7	100.0	86.1

All LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	507,095	58.0	75.0	86.0	96.5	99.0	82.4
Fannie	200,090	50.0	67.0	80.0	90.0	95.0	75.7
Freddie	124,525	52.0	69.0	80.0	90.0	95.0	76.4
Ginnie	182,480	83.1	93.9	96.5	100.0	101.0	93.9

Purchase LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	137,433	92.8	96.5	96.5	100.0	102.0	96.4
FHA	85,357	93.3	96.5	96.5	96.5	96.5	95.2
VA	39,592	90.5	100.0	100.0	102.2	103.3	98.1
Other	12,484	95.7	99.3	101.0	101.0	101.0	99.4

Refi LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	45,047	68.3	81.2	86.5	96.7	100.0	86.1
FHA	22,040	67.4	79.9	86.5	88.6	96.8	83.0
VA	22,678	69.4	82.6	92.8	100.0	102.2	89.0
Other	329	77.8	87.3	97.6	100.8	101.9	92.8

All LTV: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	182,480	83.1	93.9	96.5	100.0	101.0	93.9
FHA	107,397	84.1	93.5	96.5	96.5	96.5	92.7
VA	62,270	80.0	92.0	100.0	101.4	103.0	94.8
Other	12,813	95.2	99.2	101.0	101.0	101.0	99.2

Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting 169 bps from this new issuer-reported LTV. Data as of August 2017.

August 2017 Credit Box at a Glance

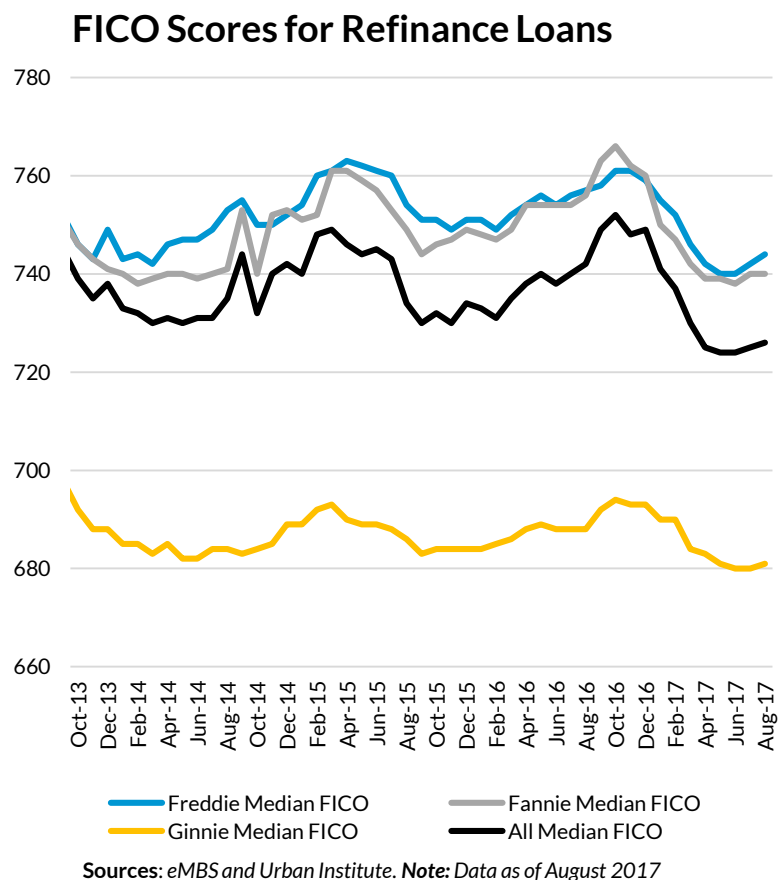
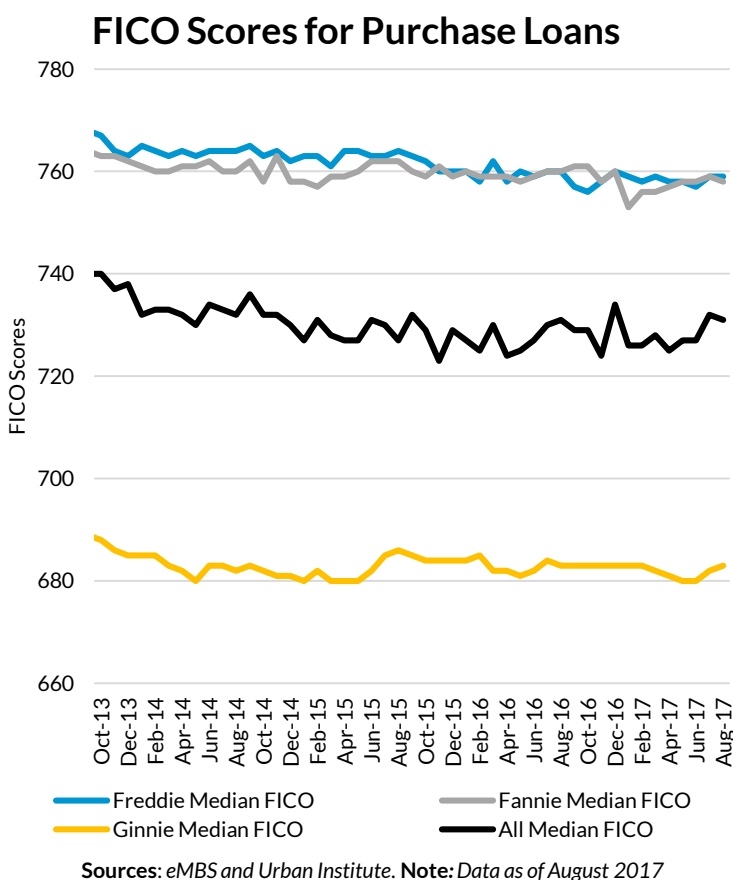
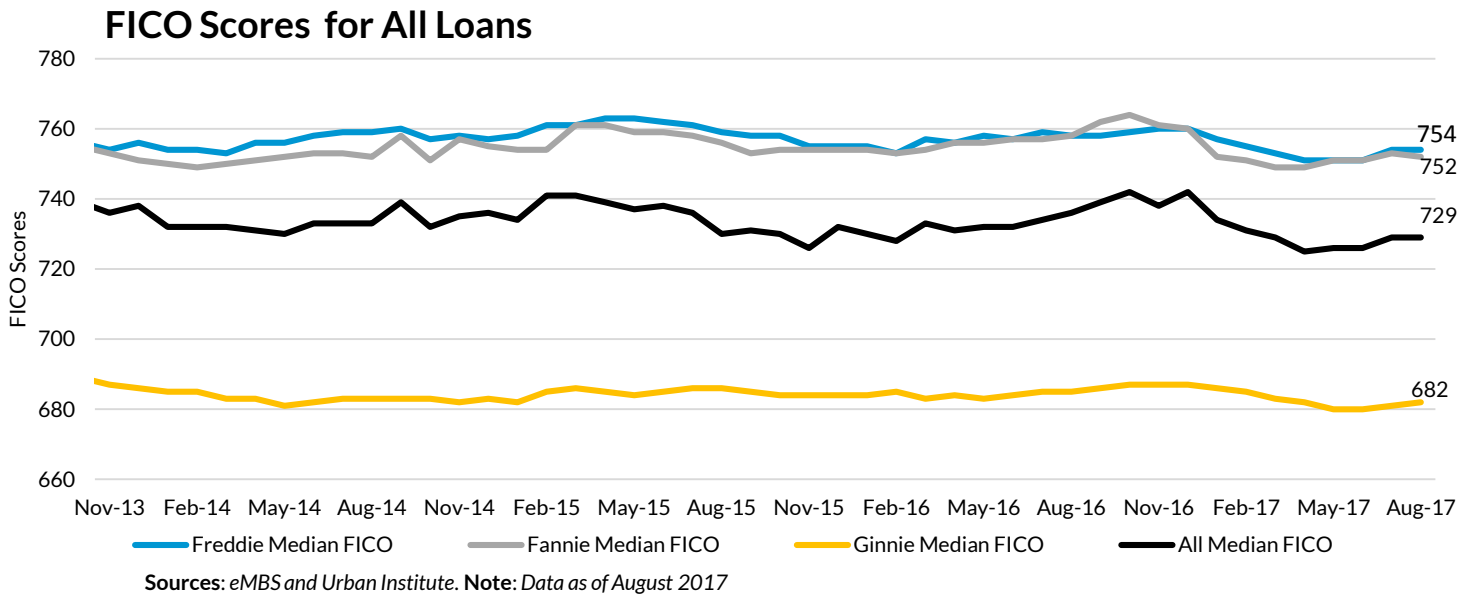
In August 2017, the median Ginnie Mae debt-to-income ratio (DTI) was 41.5 percent, considerably higher than the 35.0 and 36.0 percent median DTIs for Fannie Mae and Freddie Mac, respectively. The 90th percentile for Ginnie Mae was 53.2 percent, also much higher than the 45-46 percent DTIs for the GSEs. Fannie Mae has recently announced they will raise their DTI limit from 45.0 to 50.0. Within the Ginnie Mae market, the median FHA DTI ratio was 43.1 percent, versus 40.4 percent for VA and 35.8 percent for other lending programs.

Purchase DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	341,096	24.0	30.7	38.0	44.0	49.0	37.1
Fannie	124,380	22.0	28.0	36.0	42.0	45.0	34.3
Freddie	79,619	22.0	29.0	36.0	42.0	45.0	35.0
Ginnie	137,097	28.1	34.6	41.6	48.1	53.3	41.0
Refi DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	150,250	22.0	29.0	37.0	43.0	47.4	35.8
Fannie	74,291	21.0	28.0	35.0	42.0	45.0	34.2
Freddie	43,836	22.0	28.0	37.0	43.0	46.0	35.3
Ginnie	32,123	25.6	32.9	41.1	47.9	52.9	40.0
All DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	491,346	23.0	30.0	38.0	44.0	48.7	36.7
Fannie	198,671	21.0	28.0	35.0	42.0	45.0	34.3
Freddie	123,455	22.0	29.0	36.0	43.0	46.0	35.1
Ginnie	169,220	27.6	34.3	41.5	48.1	53.2	40.8
Purchase DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	137,097	28.1	34.6	41.6	48.1	53.3	41.0
FHA	85,356	29.6	36.3	43.2	49.3	53.9	42.3
VA	39,400	26.3	33.2	40.6	47.3	52.7	40.0
Other	12,341	25.4	30.5	35.9	40.1	42.9	34.9
Refi DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	32,123	25.6	32.9	41.1	47.9	52.9	40.0
FHA	17,013	27.0	34.4	42.3	48.7	53.5	41.1
VA	14,873	24.4	31.6	39.8	46.7	52.2	39.0
Other	237	16.3	20.6	29.8	37.3	41.8	29.8
All DTI: Ginnie Mae Breakdown By Source							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	169,220	27.6	34.3	41.5	48.1	53.2	40.8
FHA	102,369	29.2	36.0	43.1	49.2	53.8	42.1
VA	54,273	25.8	32.8	40.4	47.1	52.6	39.8
Other	12,578	25.1	30.4	35.8	40.0	42.9	34.8

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. Data as of August 2017.

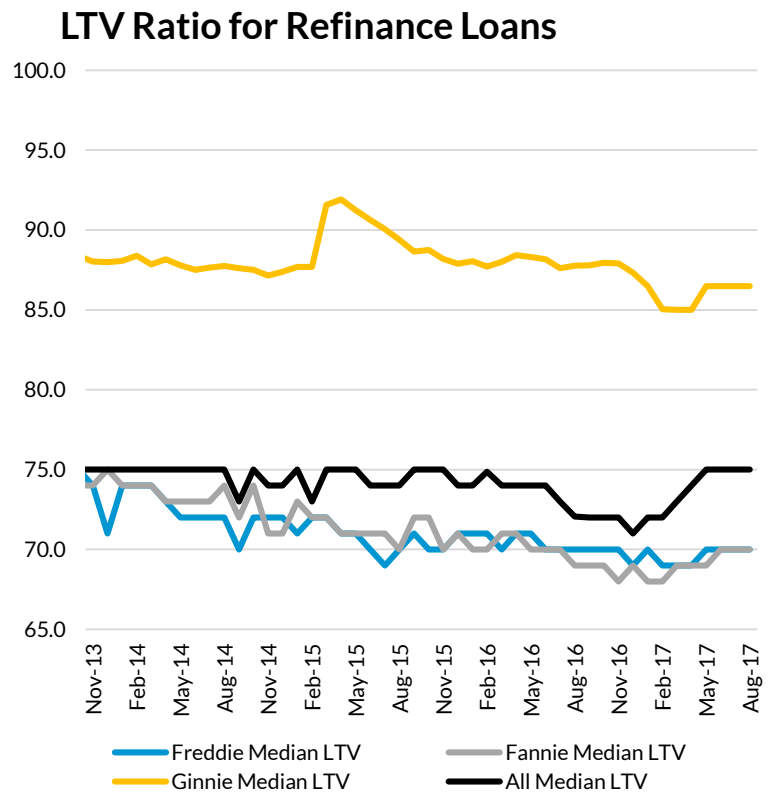
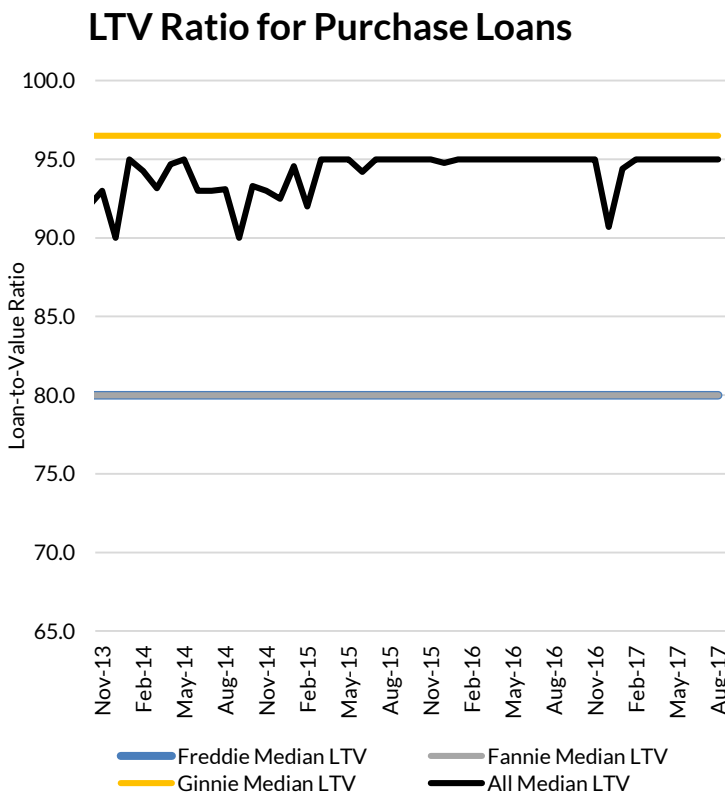
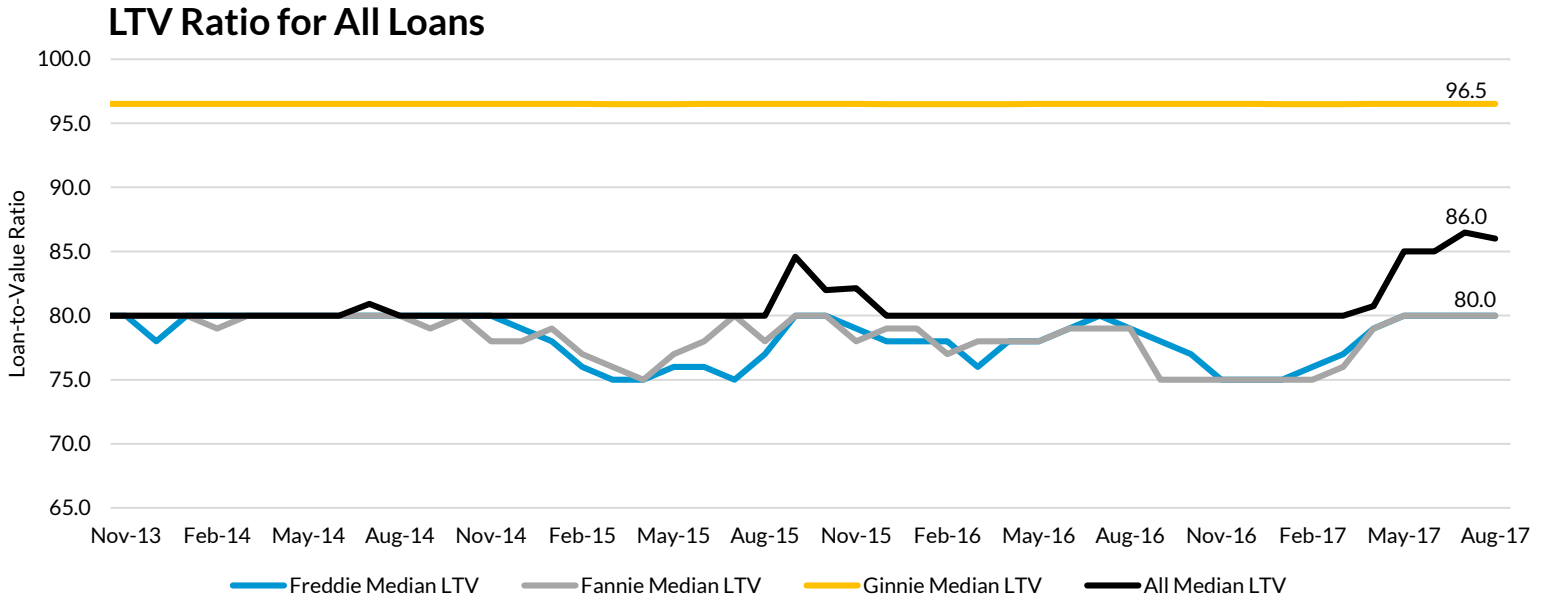
Credit Box: Historical

The median FICO score for all agency MBS originated in August now stands at 729, stable since last month. The figures clearly shows 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, much higher than the 75-80 average for the GSEs. Through time, refinances have LTVs about 10 points lower than their purchase counterparts.

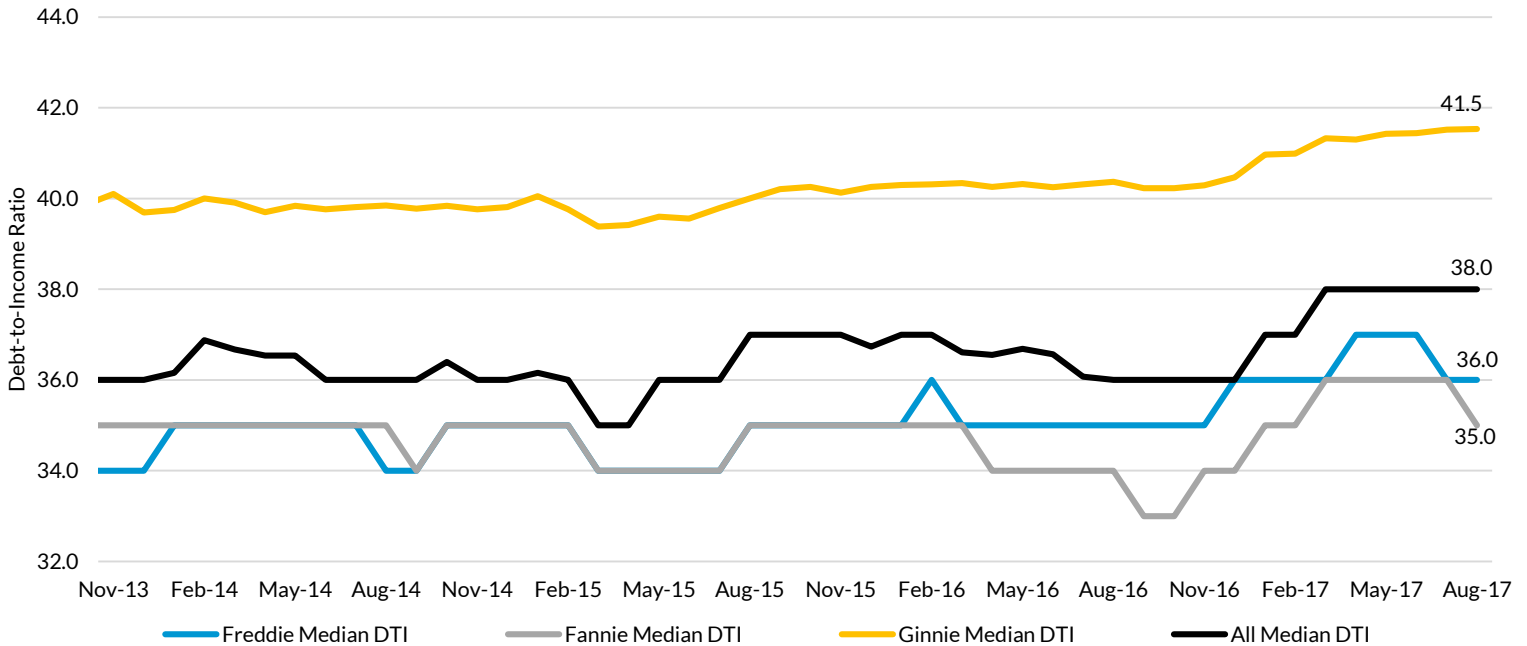


Sources: eMBS and Urban Institute. Note: In May 2017 Ginnie Mae began disclosing issuer-reported LTV for FHA loans, which includes the financed upfront mortgage insurance premium. To make it consistent with the previously reported LTV, we removed the financed upfront mortgage insurance premium by subtracting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

Credit Box: Historical

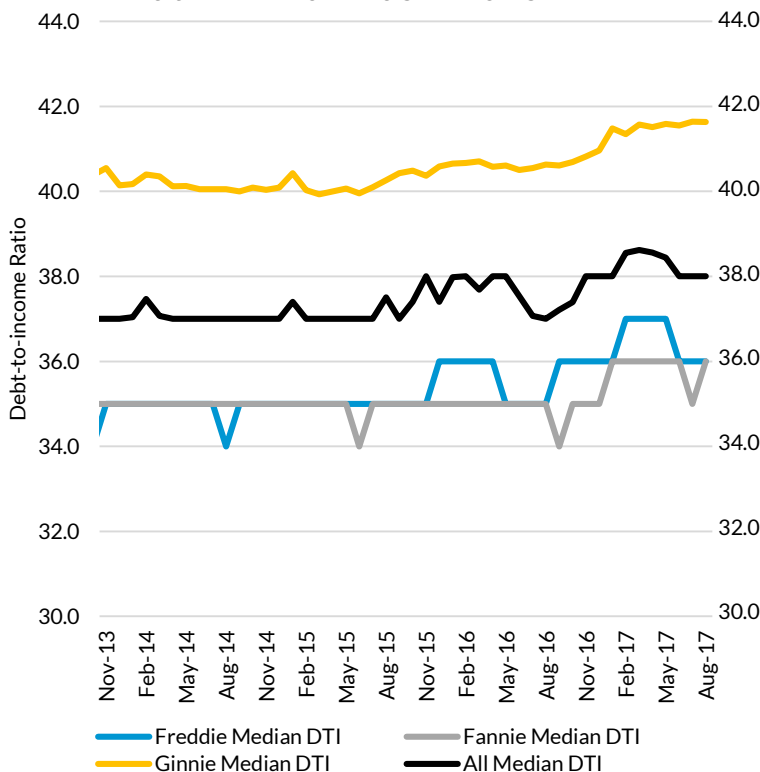
Median debt-to-income ratios on Ginnie Mae loans have historically been in the low 40s, considerably higher than the 35-36 percent DTIs for the GSEs. The DTIs for refinance loans have historically been much lower than for purchase loans, but the DTIs for refinance loans have been creeping up sharply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

DTI Ratio for All Loans



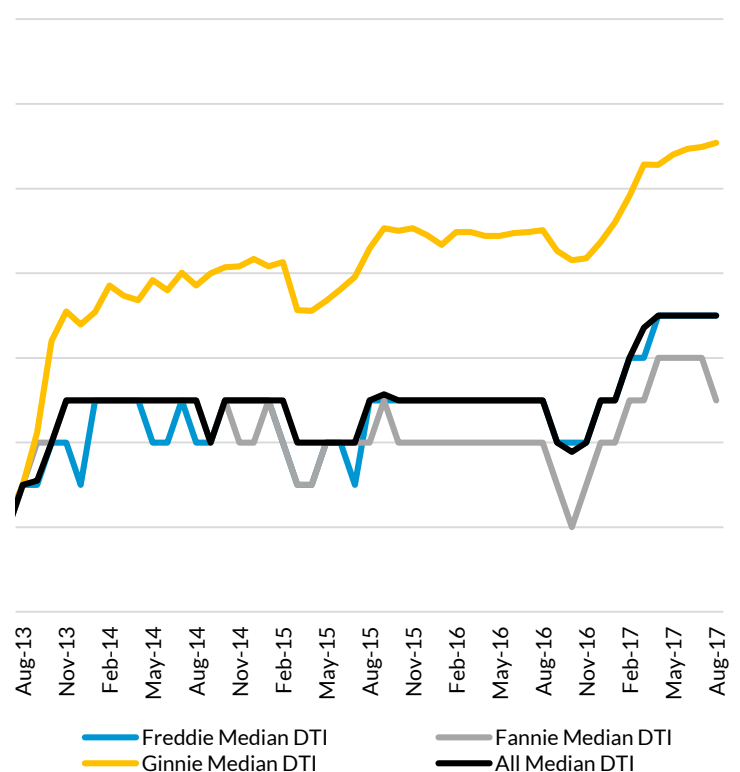
Sources: eMBS and Urban Institute. Note: Data as of August 2017

DTI Ratio for Purchase Loans



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

DTI Ratio for Refinance Loans

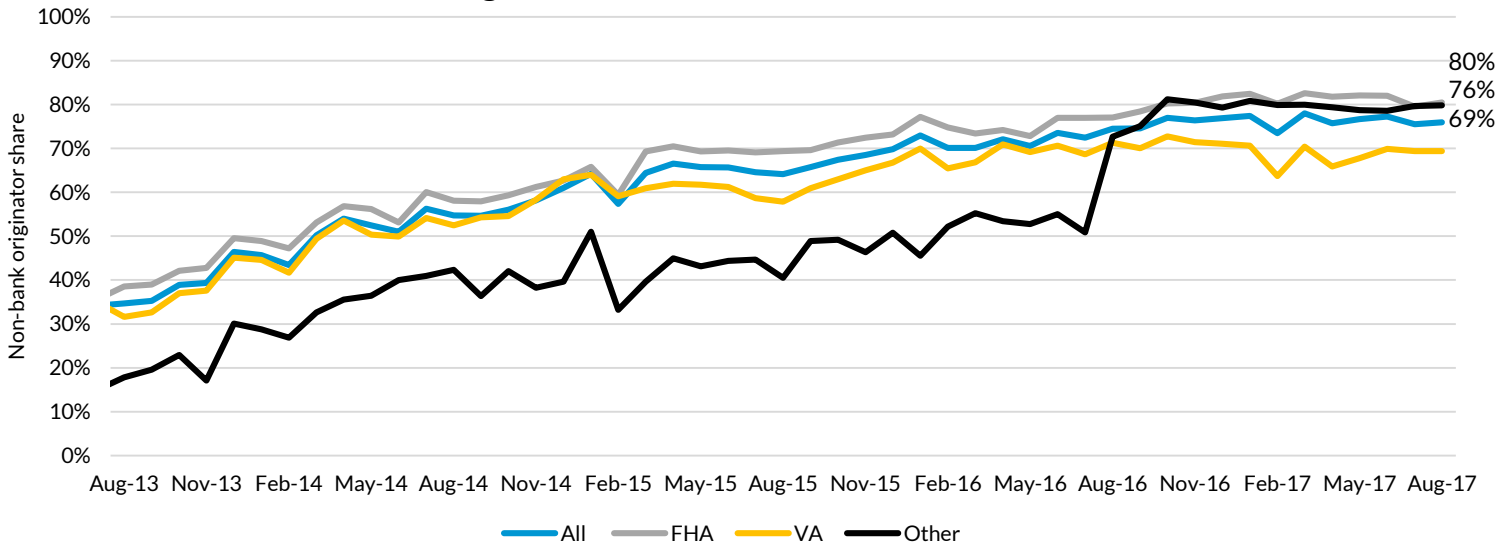


Sources: eMBS and Urban Institute. Note: Data as of August 2017

Ginnie Mae Non-bank Originators

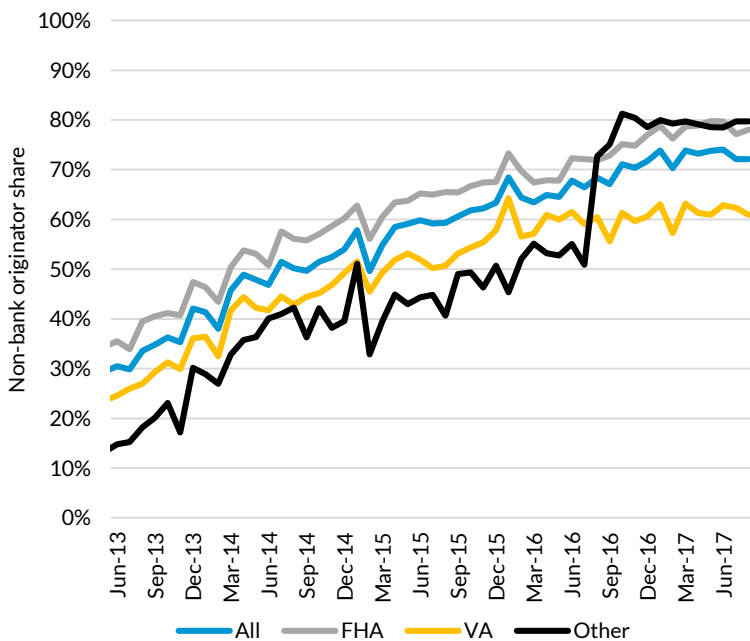
The non-bank originator share of the Ginnie Mae was 76 percent in August 2017, a slight decrease from June. The non-bank share of VA issuance stood at 69 percent in August, while the non-bank share of FHA and Other issuance both stood at 80 percent.

Ginnie Mae Non-bank Originator Share: All Loans



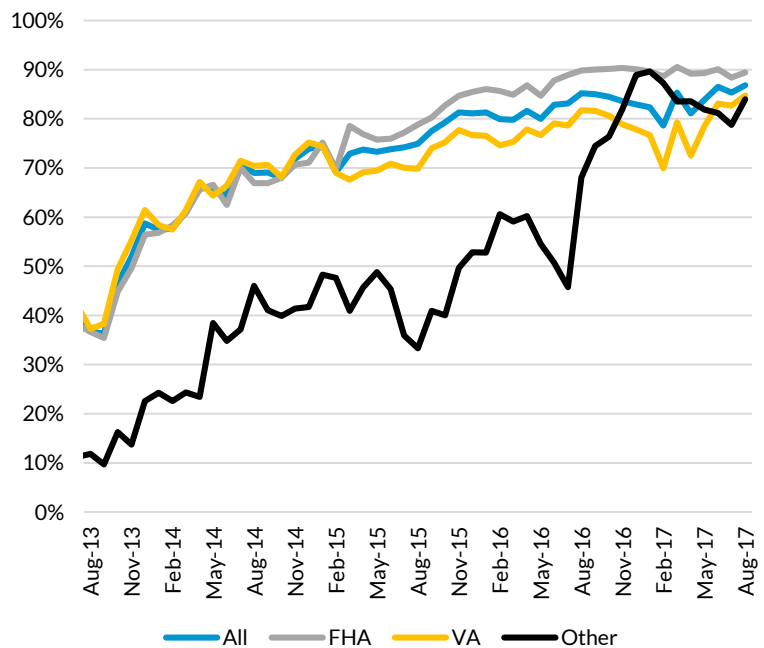
Sources: eMBS and Urban Institute. Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of August 2017.

Ginnie Mae Non-bank Share: Purchase Loans



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

Ginnie Mae Non-bank Share: Refi Loans



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

Ginnie Mae Non-bank Originators: August 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 682-- it is 703 for bank borrowers versus 677 for non-bank borrowers. For FHA borrowers, the median FICO score for bank originators is 687 versus 667 for non-banks. For VA borrowers, the median FICO score for bank originators is 731 versus 700 for non-banks. For "Other" loans, the median FICO score for bank originators is 715 versus 690 for non-banks.

All Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	178,168	625	649	682	727	772	689
Bank	42,421	643	665	703	755	790	709
Non-Bank	135,747	621	645	677	718	762	683
FHA Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	105,967	620	643	671	707	746	676
Bank	21,143	642	660	687	724	762	694
Non-Bank	84,824	616	639	667	702	740	672
VA Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	59,528	633	664	708	761	792	710
Bank	18,655	647	678	731	780	799	727
Non-Bank	40,873	628	658	700	750	786	703
Other Ginnie Mae FICO							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	12,673	642	661	694	734	769	698
Bank	2,623	642	668	715	757	783	710
Non-Bank	10,050	642	659	690	726	761	695

Ginnie Mae Non-bank Originators: August 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	181,708	83.1	93.9	96.5	100.0	101.0	93.9
Bank	42,932	85.0	94.8	96.5	100.0	102.0	94.8
Non-Bank	138,776	82.5	92.9	96.5	99.0	101.0	93.6
FHA Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	106,841	84.1	93.4	96.5	96.5	96.5	92.7
Bank	21,437	86.5	94.8	96.5	96.5	96.5	94.0
Non-Bank	85,404	83.0	91.6	96.5	96.5	96.5	92.4
VA Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	62,130	80.0	92.0	100.0	101.4	103.0	94.8
Bank	18,829	80.0	93.0	100.0	100.0	102.6	94.9
Non-Bank	43,301	79.8	91.4	100.0	102.1	103.3	94.7
Other Ginnie Mae LTV							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	12,737	95.2	99.2	101.0	101.0	101.0	99.2
Bank	2,666	96.8	100.5	101.0	101.0	102.0	100.0
Non-Bank	10,071	94.8	99.1	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 August 2017.

Ginnie Mae Non-bank Originators: August 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 40.5, versus 41.9 for non-banks.

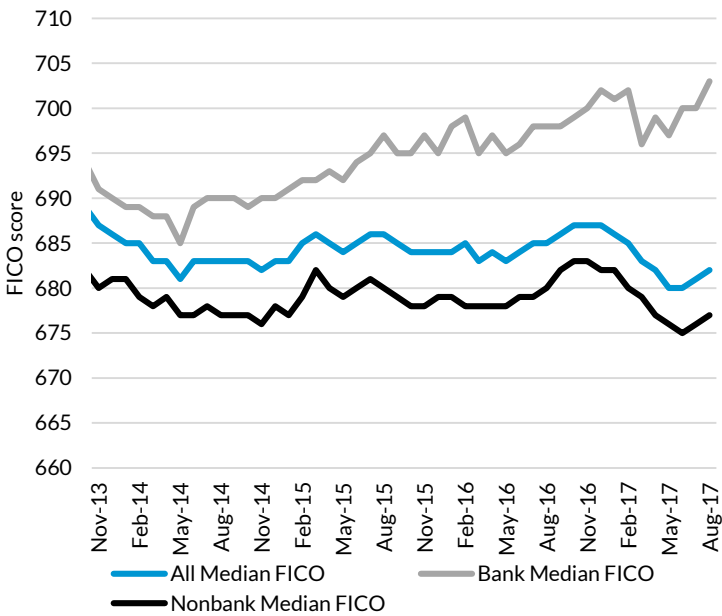
All Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	161,124	27.5	34.3	41.5	48.0	53.1	40.8
Bank	39,869	26.1	33.0	40.5	46.6	52.0	39.6
Non-Bank	121,255	28.0	34.7	41.9	48.4	53.4	41.1
FHA Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	98,507	28.9	35.7	43.0	49.1	53.7	41.9
Bank	20,739	28.2	35.1	42.1	47.8	52.9	41.0
Non-Bank	77,768	29.1	36.0	43.3	49.3	53.9	42.2
VA Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	50,898	25.9	33.0	40.5	47.2	52.6	39.8
Bank	16,763	24.1	31.3	39.1	45.9	51.4	38.5
Non-Bank	34,135	26.8	33.8	41.1	47.8	53.1	40.5
Other Ginnie Mae DTI							
	Number of Loans	P10	P25	Median	P75	P90	Mean
All	11,719	25.2	30.3	36.0	40.2	43.0	34.9
Bank	2,367	25.0	30.0	35.7	40.3	43.4	34.8
Non-Bank	9,352	25.4	30.4	36.0	40.2	42.9	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 August 2017.

Ginnie Mae Nonbank Originators: Historical Credit Box

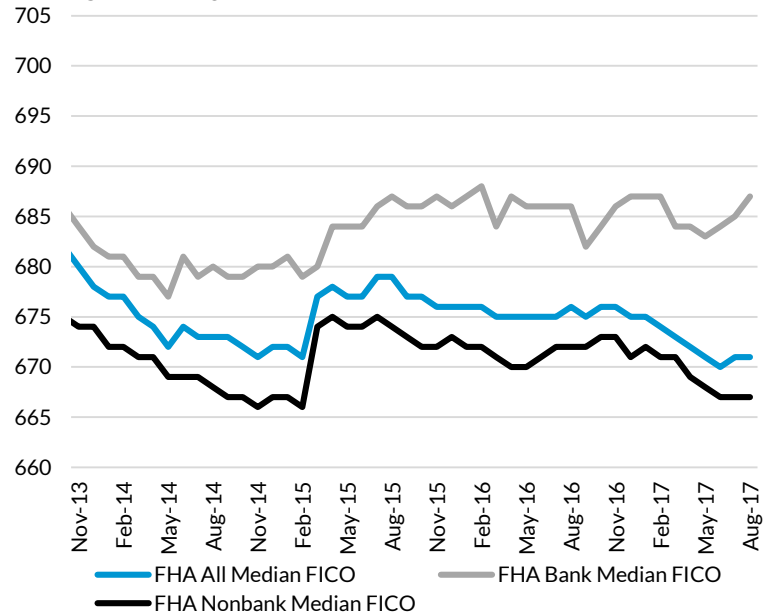
The FICO scores for Ginnie Mae bank originators increase relative to their non-bank counterparts in August. This brings the spread in the FICO scores between banks and non-banks to their widest level since the data became available in 2013.

Ginnie Mae FICO Scores: Bank vs. Nonbank



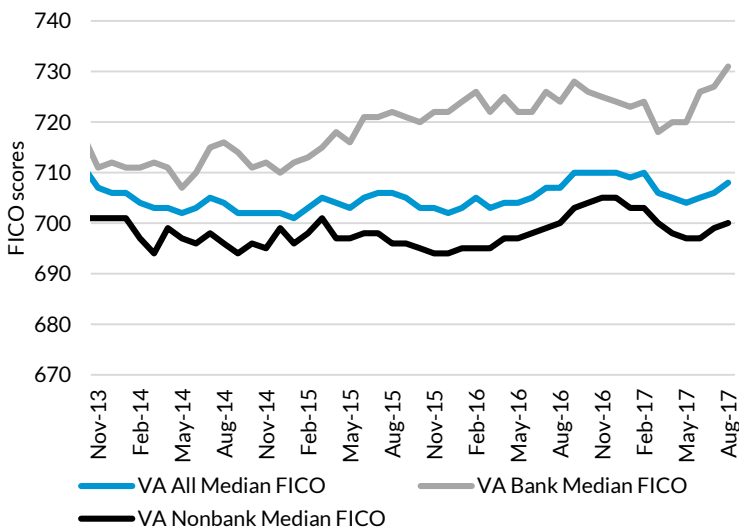
Sources: eMBS and Urban Institute Note: Data as of August 2017

Ginnie Mae FHA FICO Scores: Bank vs. Nonbank



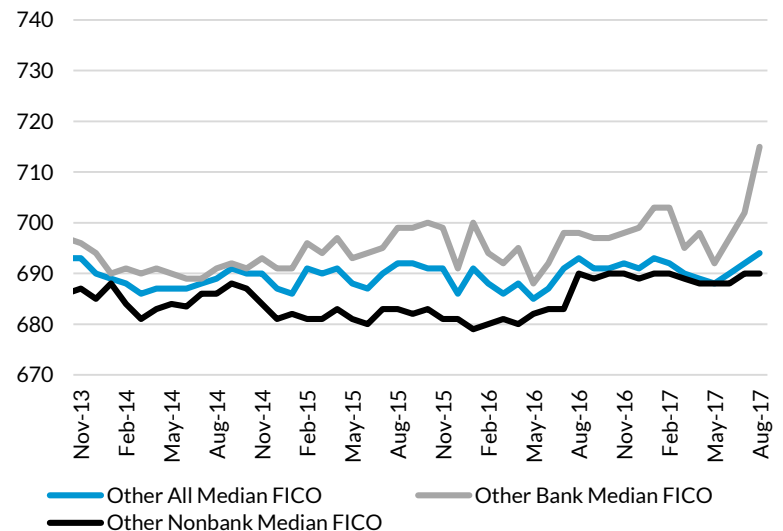
Sources: eMBS and Urban Institute Note: Data as of August 2017

Ginnie Mae VA FICO Scores: Bank vs. Nonbank



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

Ginnie Mae Other FICO Scores: Bank vs. Nonbank

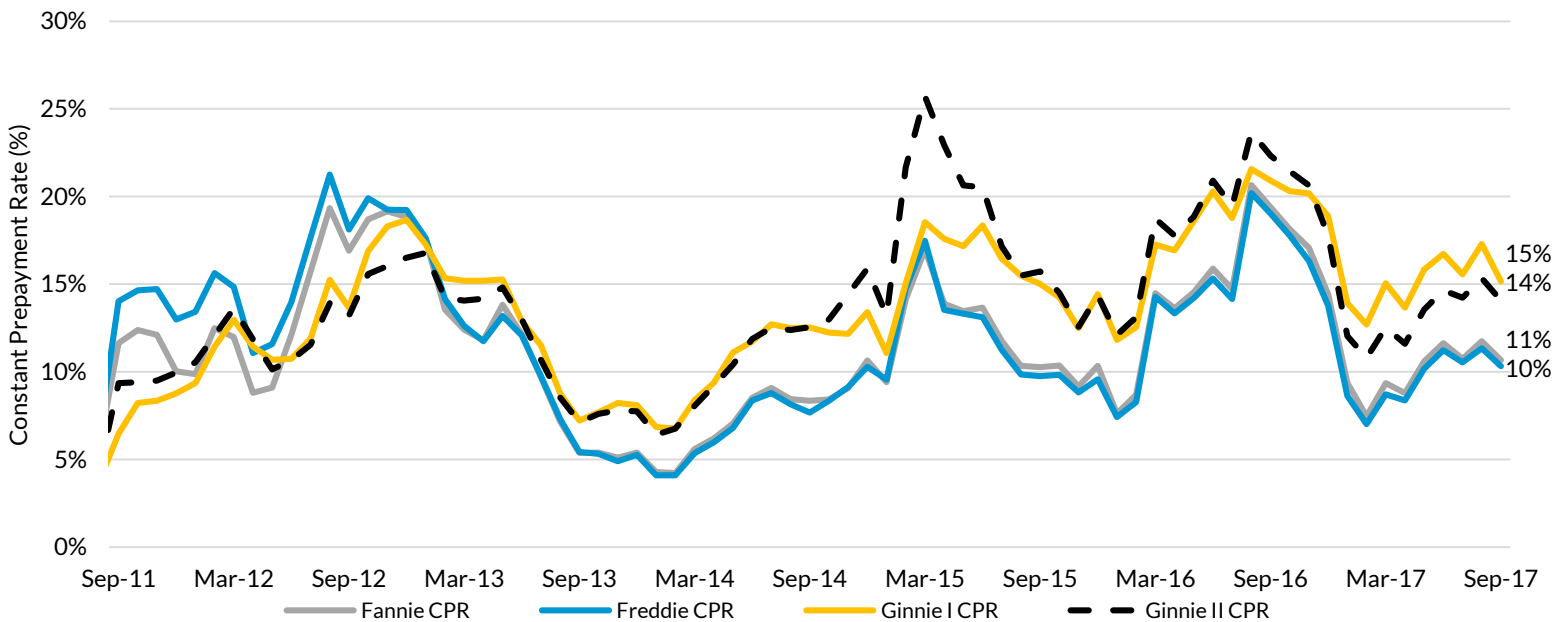


Sources: eMBS and Urban Institute Note: "Other" refers to loans insured by HUD's Office of Public and Indian Housing and the Department of Agriculture's Rural Development. Data as of August 2017.

Prepayments

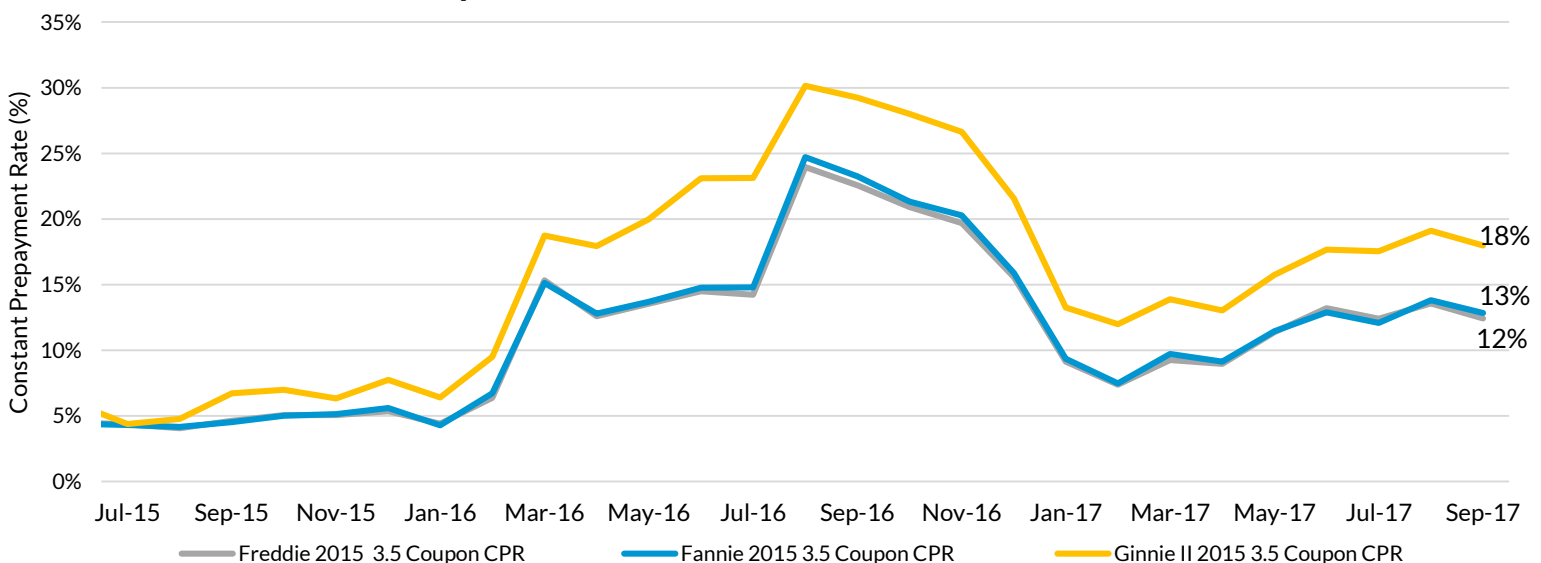
Prepayments on Ginnie Mae securities were lower than on GSE securities from 2011 through mid-2013, but have been higher since. These differences hold across all coupon buckets. The differences are especially pronounced on more recent production. These increased Ginnie speeds reflect the growing share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

2015 Issued 3.5 Coupon CPR

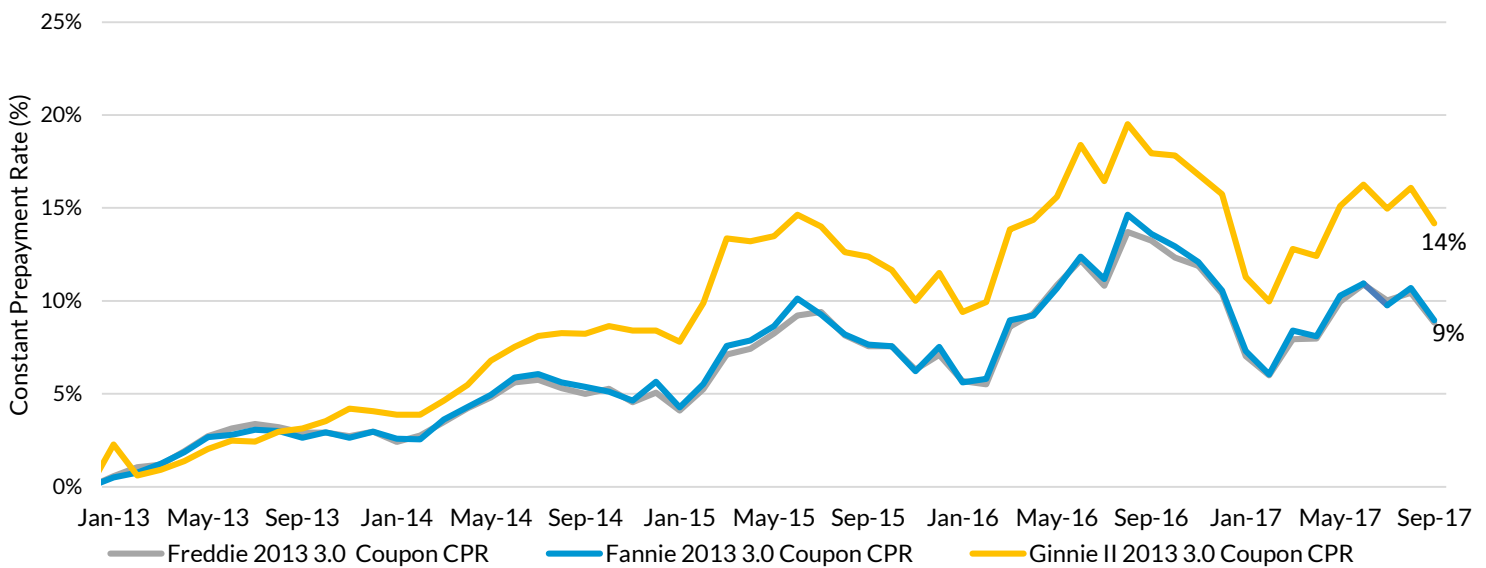


Sources: Credit Suisse and Urban Institute. Note: Data as of September 2017

Prepayments

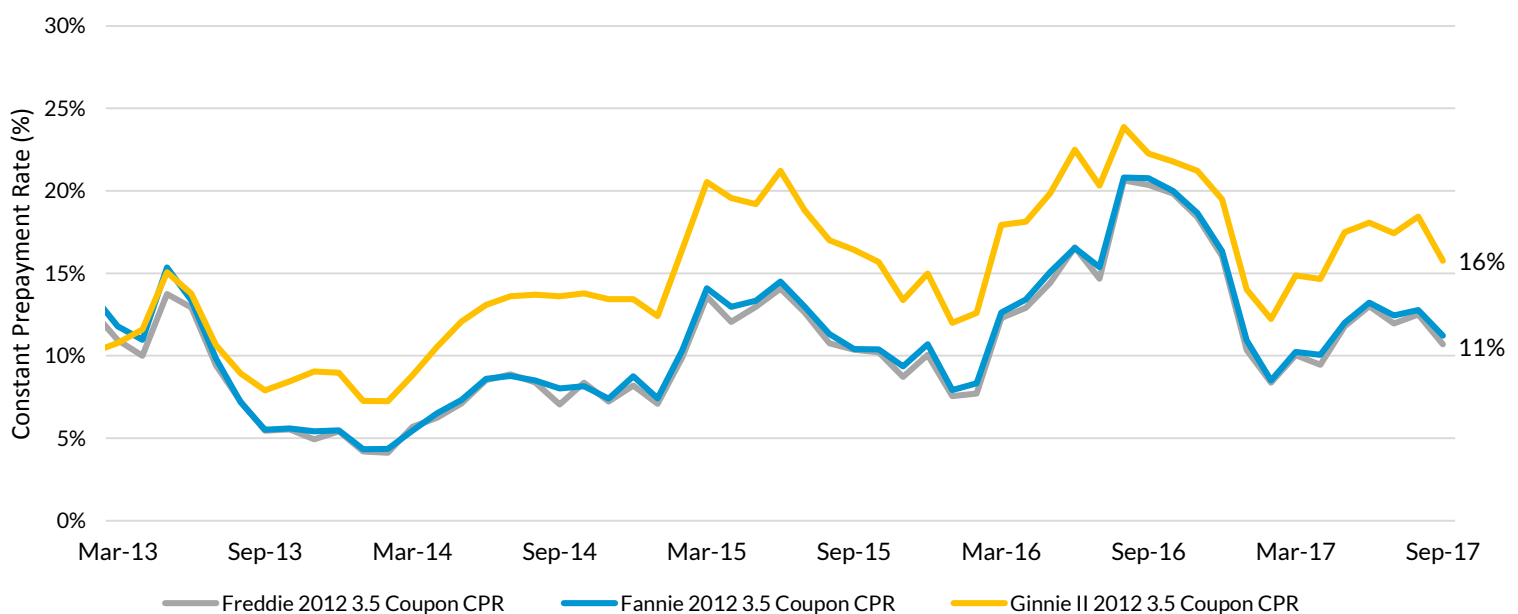
The 2013 Ginnie II 3.0s are prepaying faster than their conventional counterparts. 2012 Ginnie II 3.5s have been faster since mid-2013. The differences accelerated in 2015—potentially due to the FHA mortgage insurance premium (MIP) cut. In January 2015 FHA lowered its MIPs from 135 basis points per annum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

2012 Issued 3.5 Coupon CPR

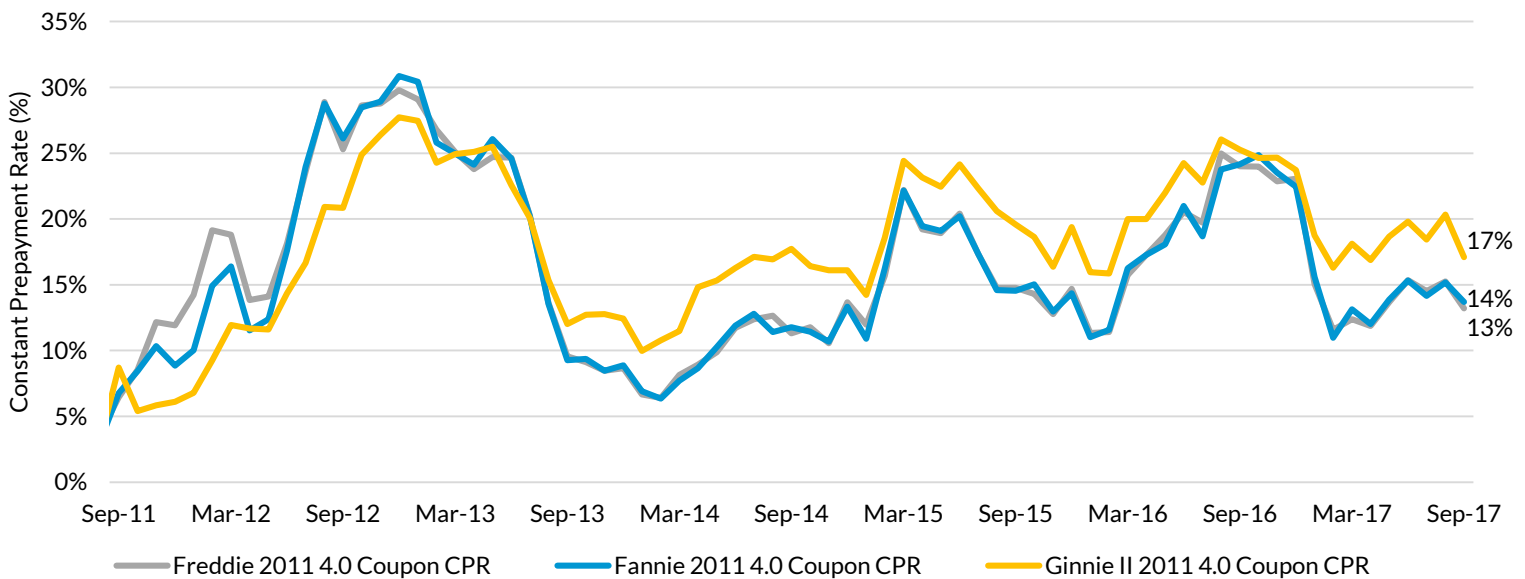


Sources: Credit Suisse and Urban Institute. Note: Data as of September 2017

Prepayments

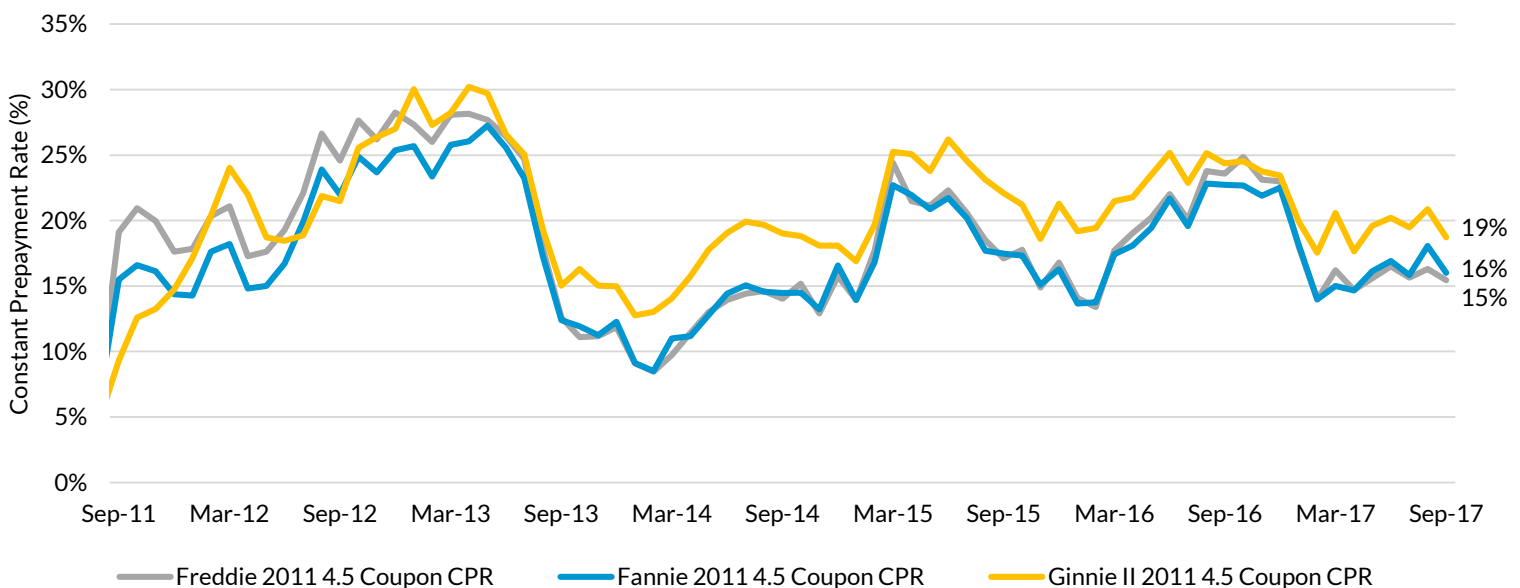
The 2011 Ginnie II 4.0s and 4.5s have been prepaying faster than their conventional counterparts since late 2013. Faster VA mortgage prepays plus simplifications to the FHA streamlined programs in 2013 are likely contributors to the faster speeds. However, as mortgage rates rose sharply since November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

2011 Issued 4.5 Coupon CPR

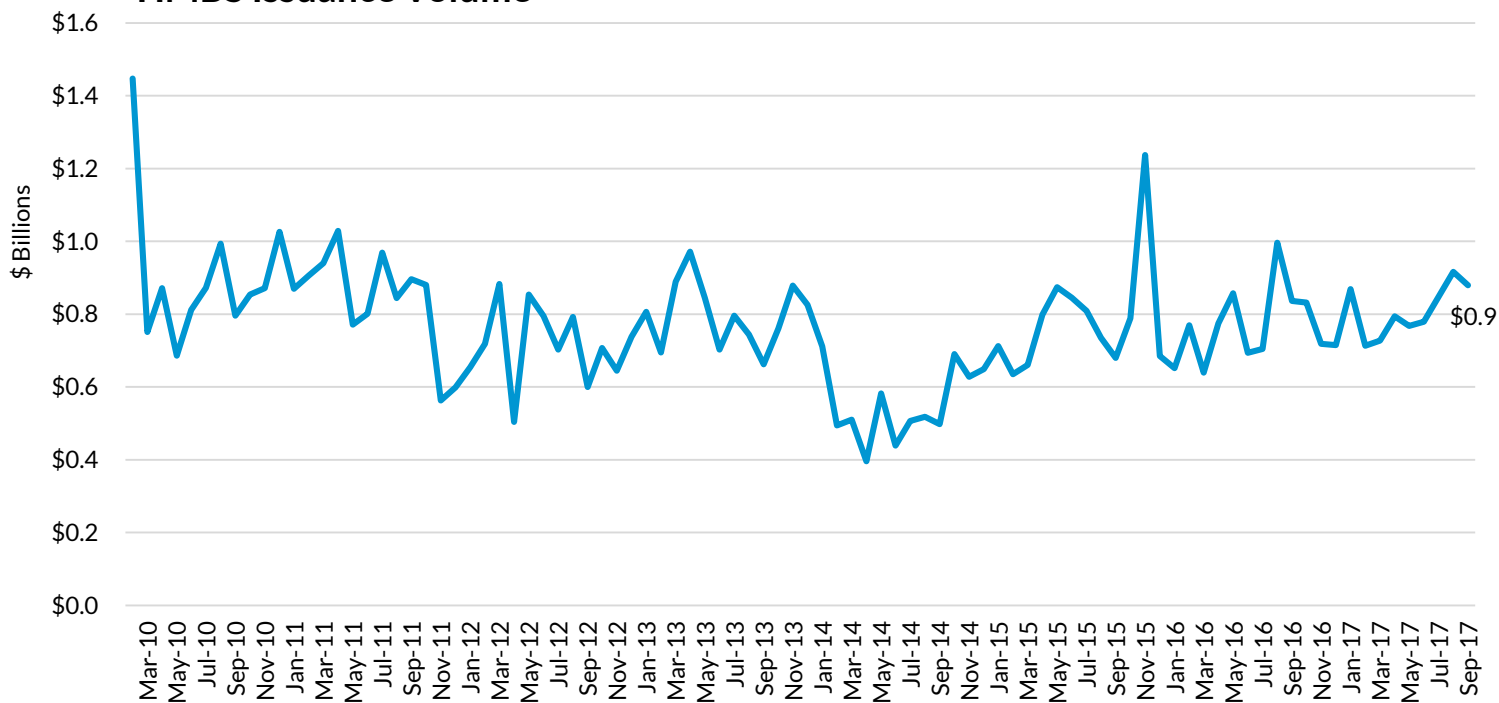


Sources: Credit Suisse and Urban Institute. Note: Data as of September 2017

Other Ginnie Mae Programs Reverse Mortgage Volumes

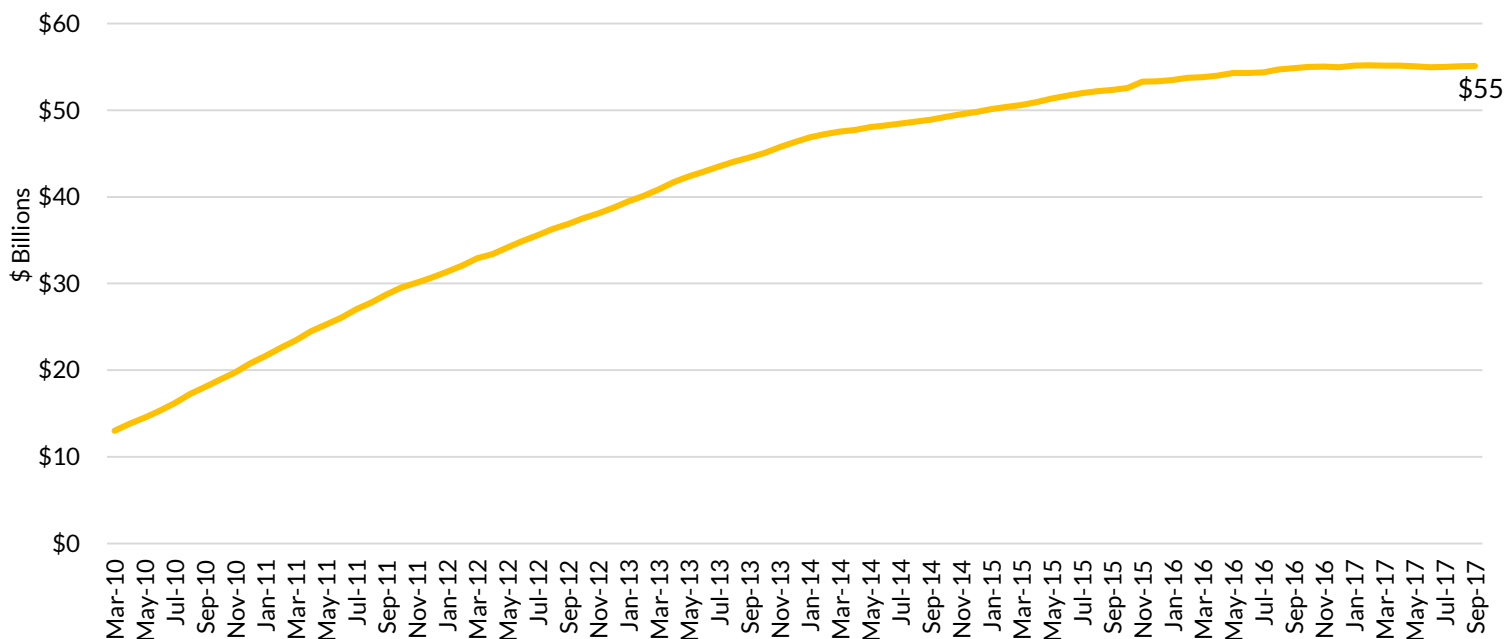
Ginnie Mae reverse mortgage volumes remain steady, with issuance of \$0.9 billion in September. Outstanding securities totaled \$55.0 billion in September.

HMBS Issuance Volume



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

HMBS Outstanding



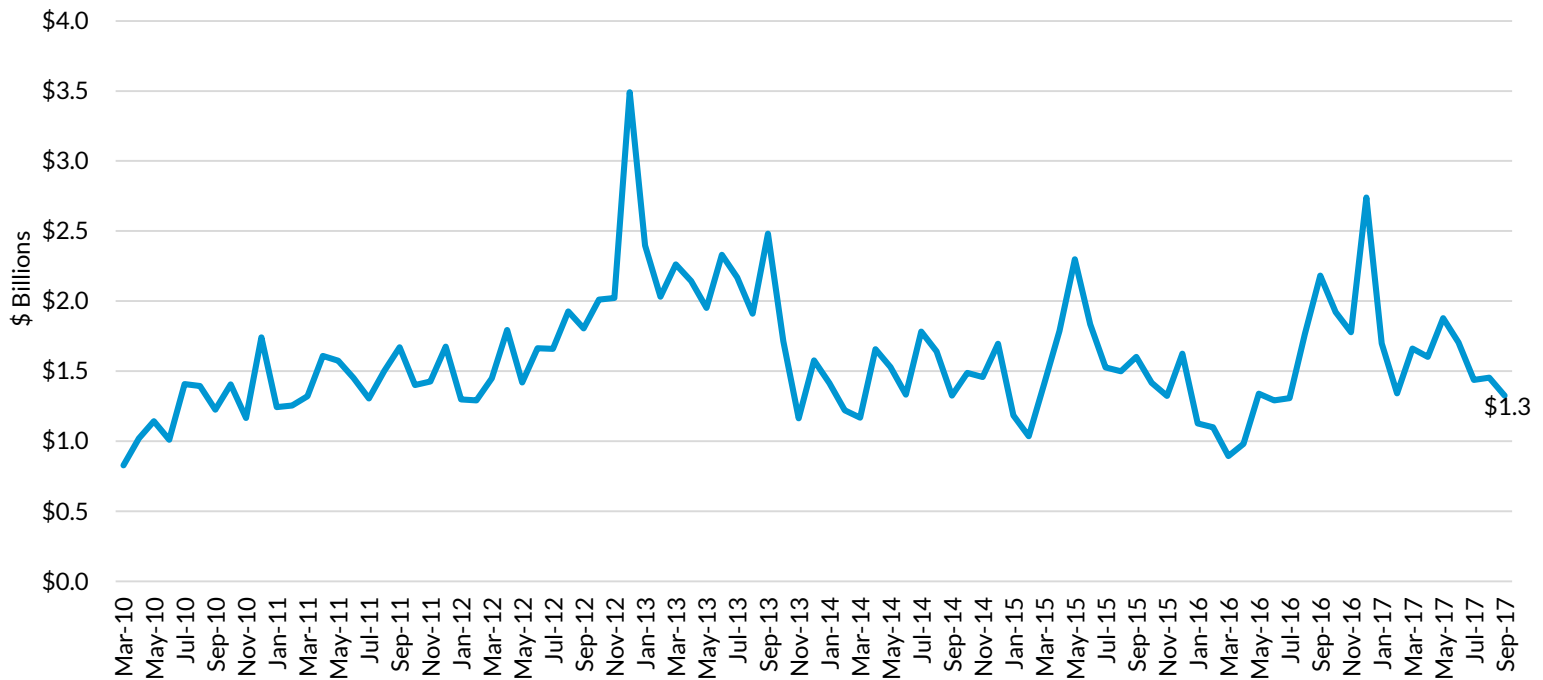
Sources: Ginnie Mae and Urban Institute. Note: Data as of September 2017

Other Ginnie Mae Programs

Multifamily Market

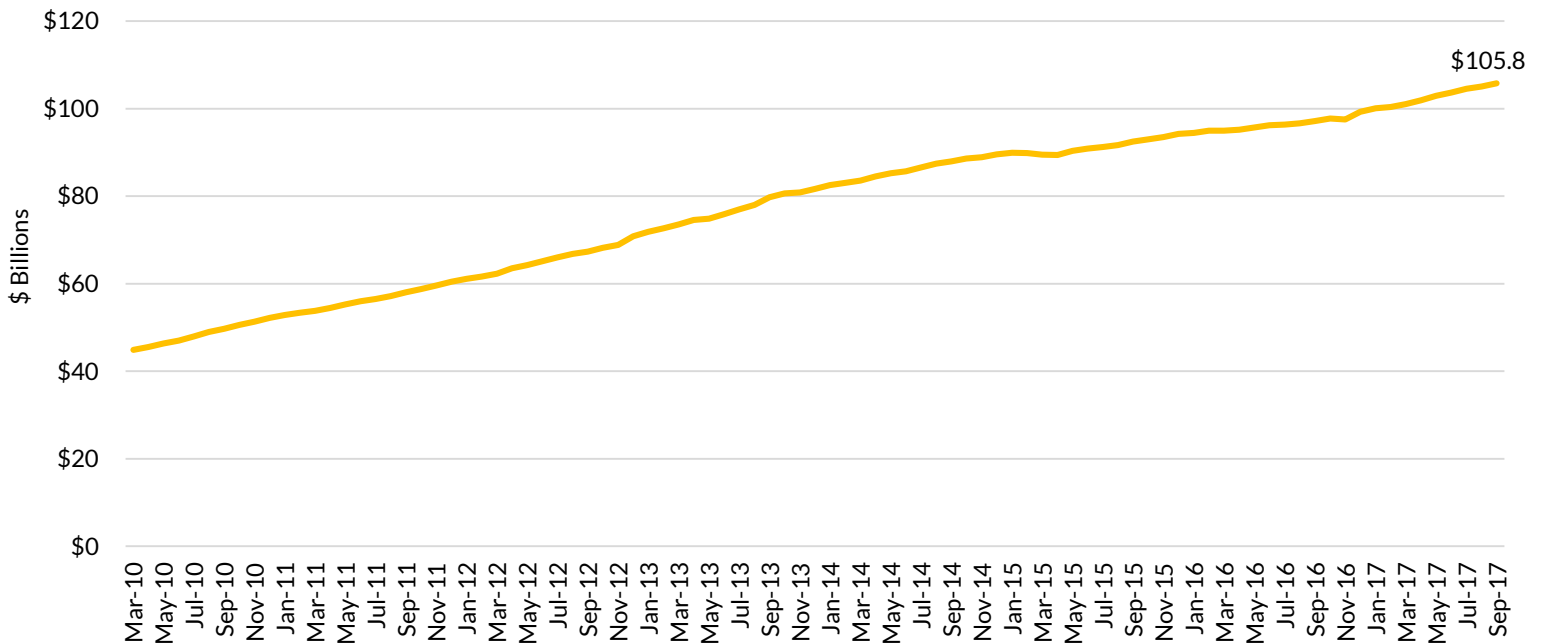
Ginnie Mae multifamily issuance volumes in September totaled \$1.3 billion. Outstanding multifamily securities totaled \$105.8 billion in September.

Ginnie Mae Multifamily MBS Issuance



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

Ginnie Mae Multifamily MBS Outstanding

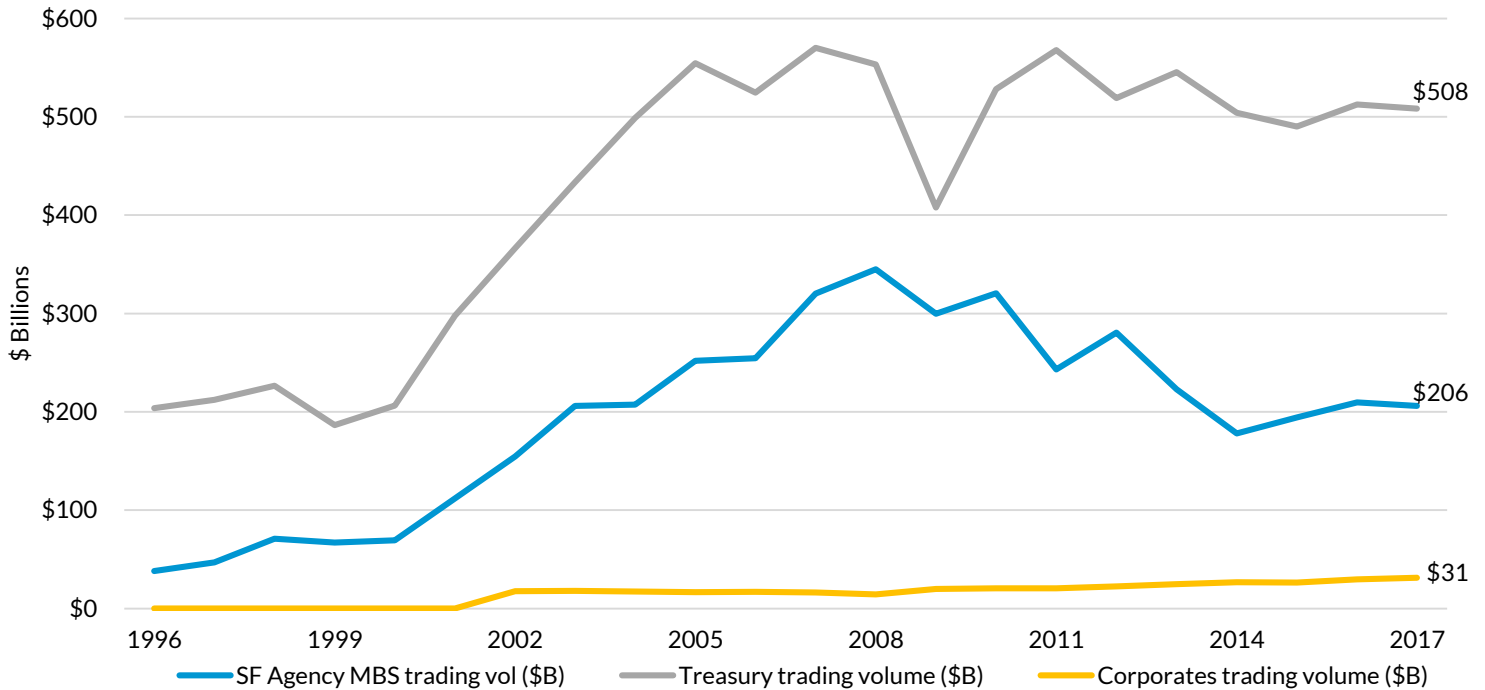


Sources: Ginnie Mae and Urban Institute. Note: Data as of September 2017

Market Conditions

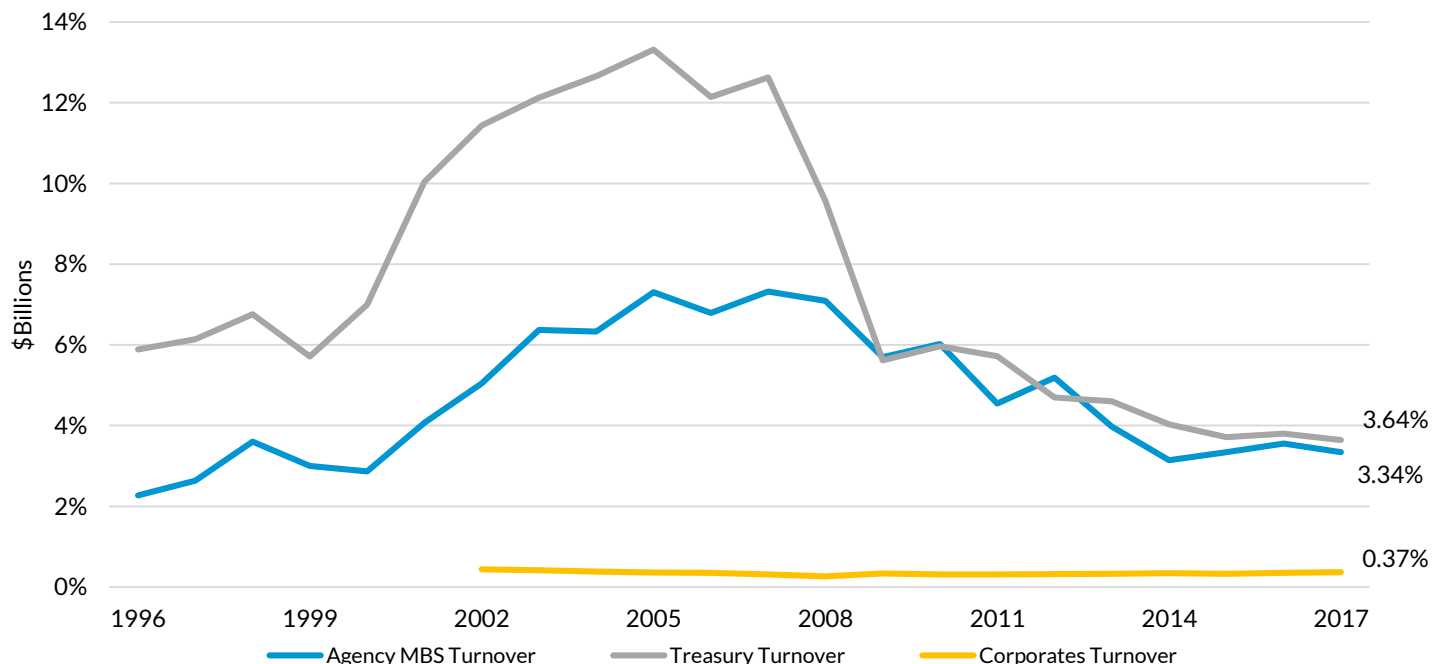
Agency MBS trading volume in 2017 has been slightly more robust than in the 2014-2015 period, and slightly less robust than 2016. Agency MBS turnover, however, has been lower in 2017 than in 2016; in the first nine months of 2017, daily MBS turnover was 3.34 percent versus 3.55 percent in 2016. Current 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 September 2017

Average Daily Turnover by Sector

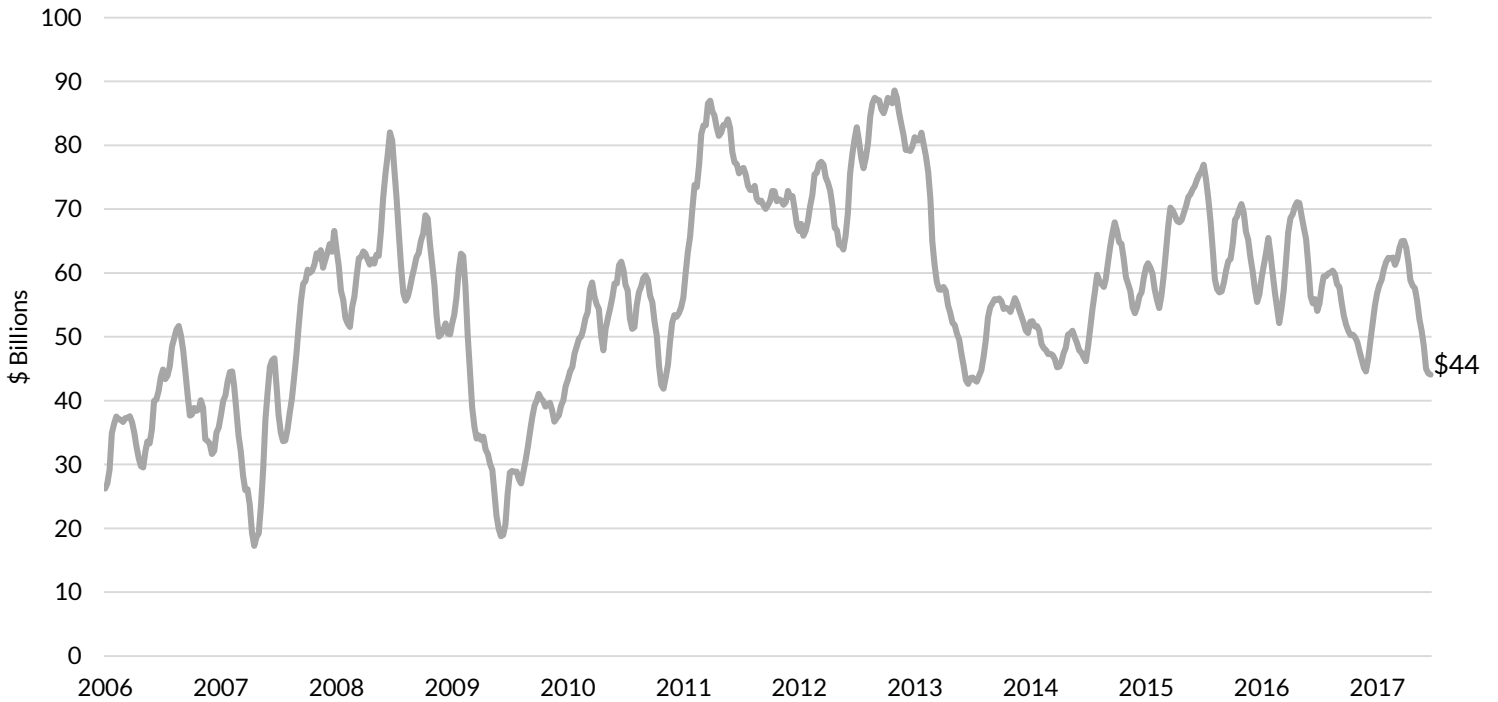


Sources: SIFMA and Urban Institute. Note: Data as of September 2017

Market Conditions

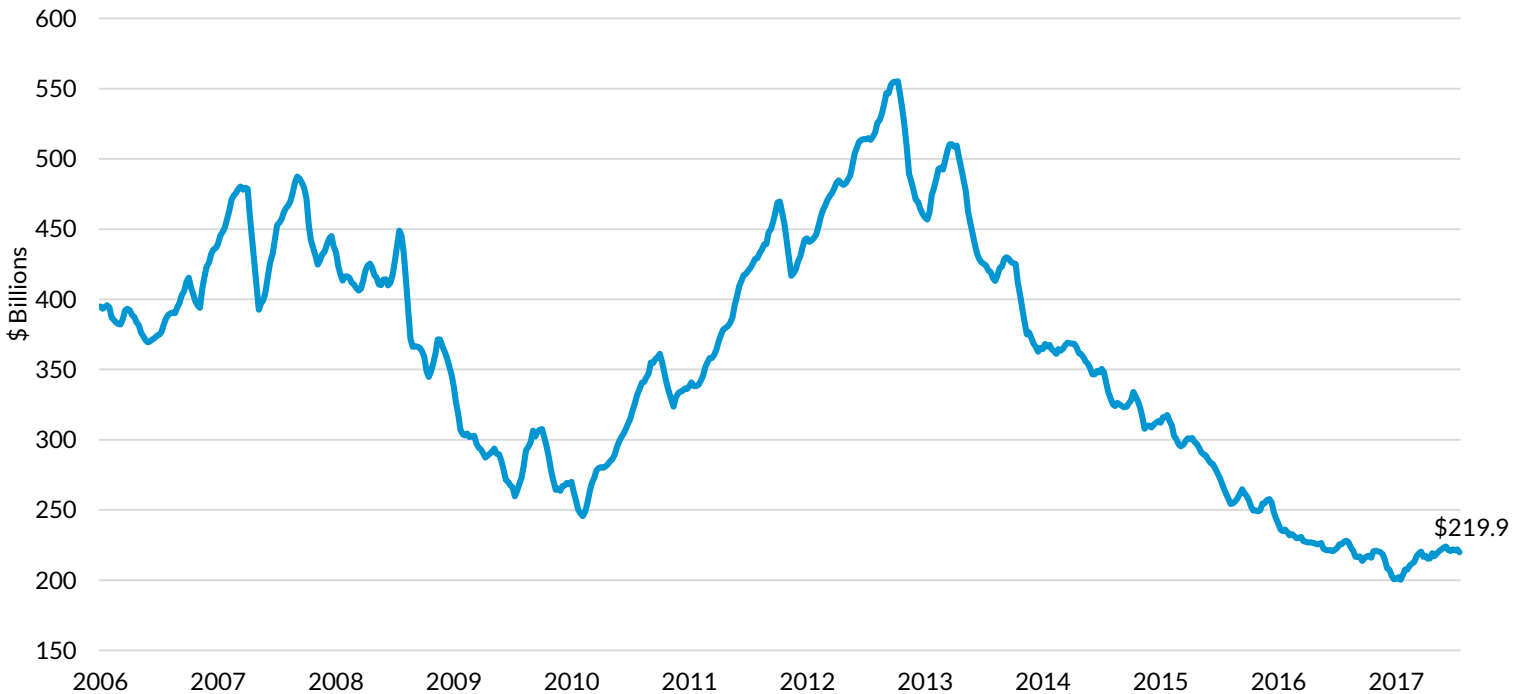
Dealer net positions in Agency MBS are now at the very lower end of the recent range, although gross positions may well be down more. The volume of repurchase activity is down sharply. This reflects banks cutting back on lower margin businesses.

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 September 2017

Repo Volume: Securities In



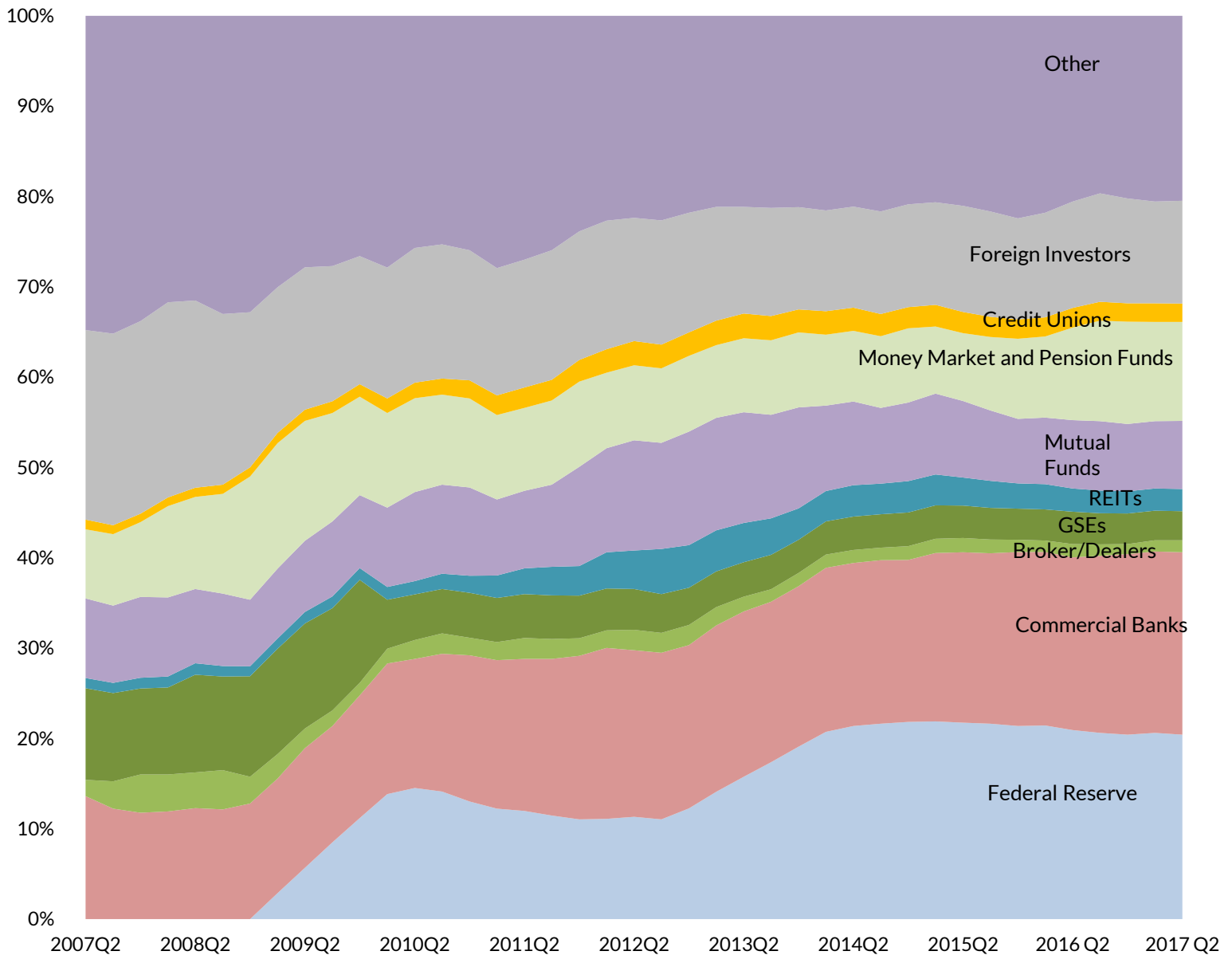
Sources: Federal Reserve Bank of New York Primary Dealer Statistics and Urban Institute. Note: Data as of September 2017

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 (11 percent). The broker/dealer and GSE shares are a fraction of what they once were.

Who owns Total Agency Debt?

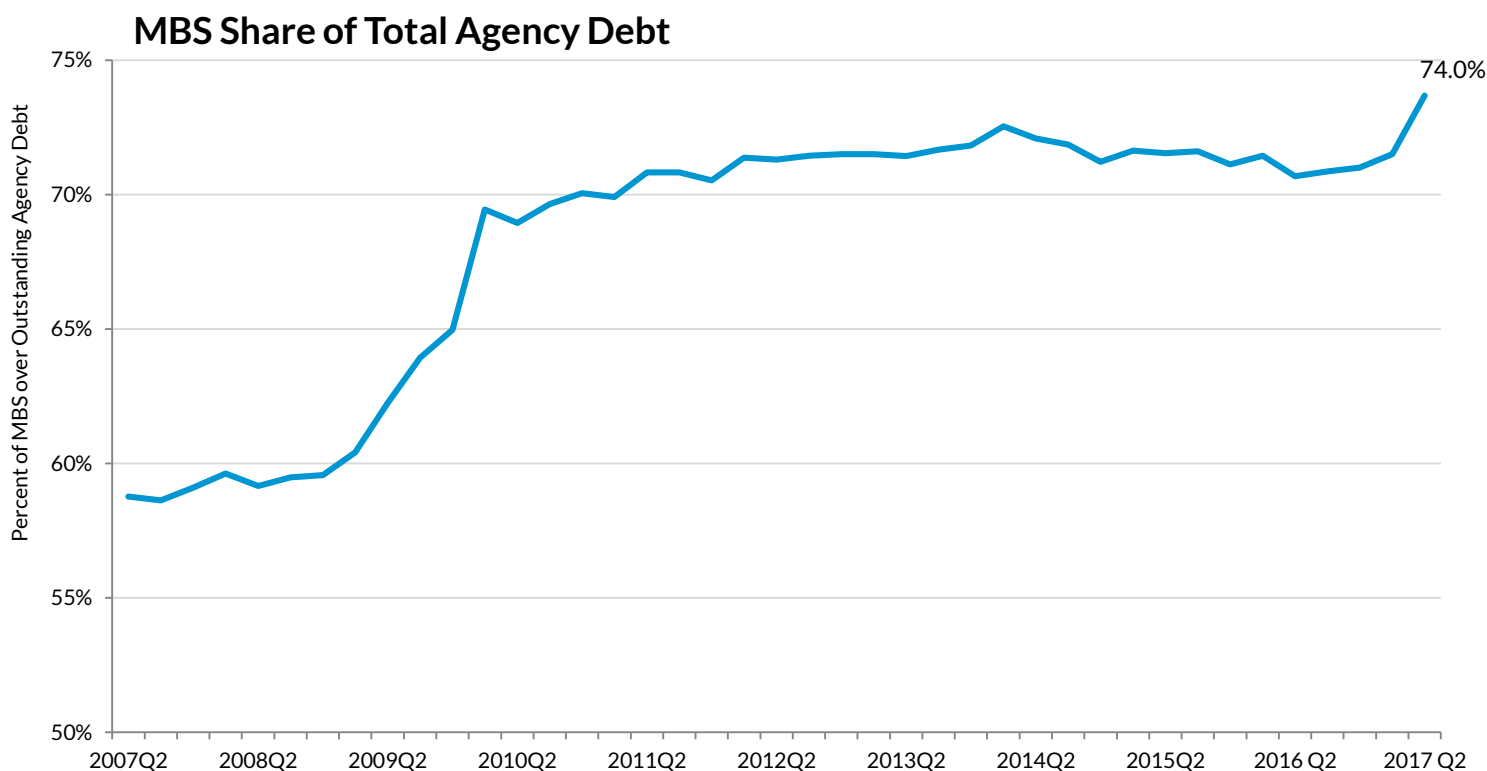
% of Total Agency Debt by Owner



Sources: Federal Reserve Flow of Funds and Urban Institute. Note: Data as of Q2 2017.

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. For Q2 2017, the MBS share of total agency debt stood at 74.0 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 August 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 Q2 2017.

	Commercial Bank Holdings (\$Billions)								Week Ending			
	Aug-16	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep 6	Sep 13	Sep 20	Sep 27
Largest Domestic Banks	1191.3	1230.4	1223.0	1240.2	1258.0	1272.9	1285.7	1288.7	1287.6	1284.8	1304.1	1306.0
Small Domestic Banks	439.1	459.1	461.9	464.2	467.7	469.6	473.9	477.4	481.4	482.7	481.6	481.9
Foreign Related Banks	13.4	13	13	13.1	12	12.5	12.5	12.6	12.3	11.8	11.8	11.6
Total, Seasonally Adjusted	1643.8	1702.5	1697.9	1717.5	1737.7	1755	1772.1	1778.7	1781.3	1779.3	1797.5	1799.5

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

MBS Ownership

Out of the \$1.8 trillion in MBS holdings at banks and thrifts, \$1.3 trillion is in agency pass-through form: \$985.1 billion in GSE pass-throughs and \$335.5 billion in Ginnie Mae pass-throughs. There are another \$417.9 billion in Agency CMOs. Non-agency holdings total \$60.2 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 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
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
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

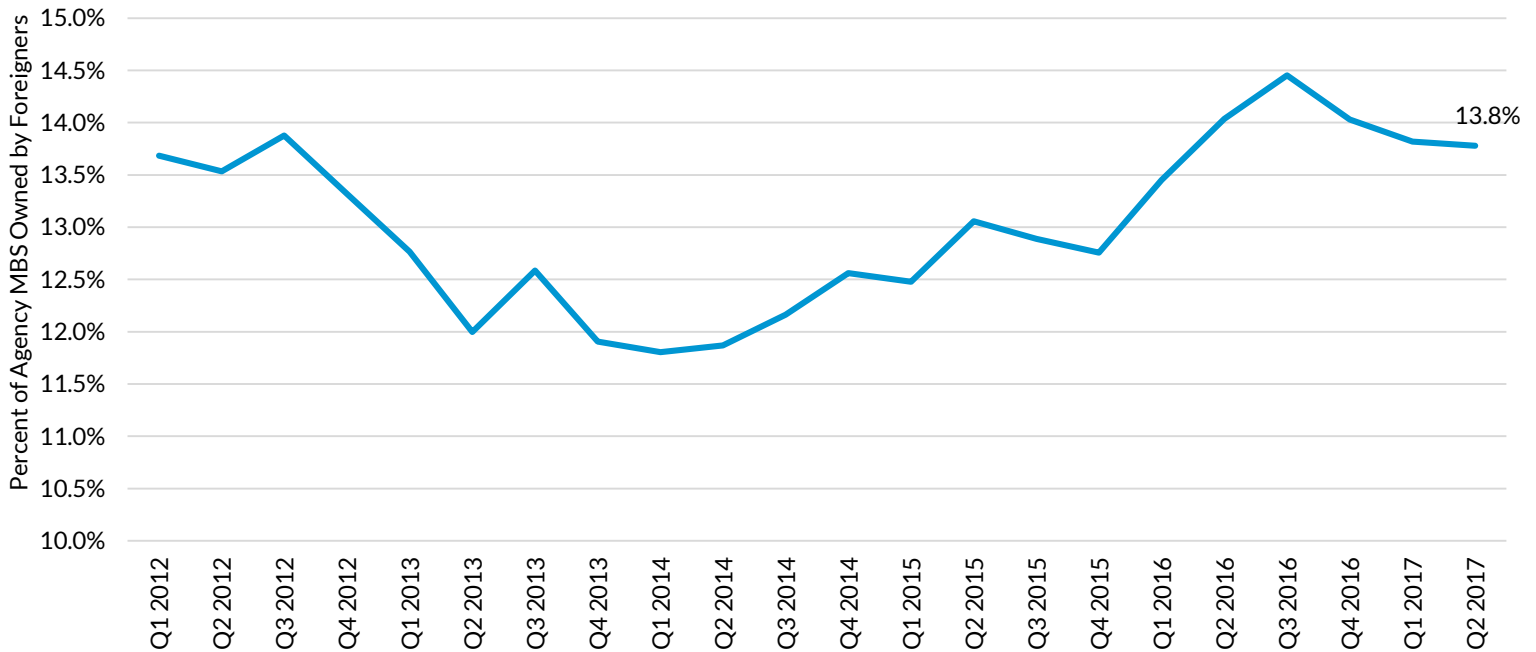
Top Bank & Thrift Residential MBS Investors		Total (\$MM)	GSE PT (\$MM)	GNMA PT (\$MM)	Agency REMIC (\$MM)	Non-Agency (\$MM)	Market Share
1	Bank of America Corporation	\$316,509	\$183,276	\$118,810	\$13,824	\$599	17.60%
2	Wells Fargo & Company	\$219,976	\$176,267	\$31,535	\$5,035	\$7,139	12.20%
3	JP Morgan Chase & Co.	\$104,986	\$72,022	\$20,307	\$560	\$12,097	5.80%
4	U S. Bancorp.	\$78,648	\$32,324	\$10,531	\$35,790	\$2	4.40%
5	Charles Schwab Bank	\$68,270	\$51,991	\$1,645	\$9,512	\$5,122	3.80%
6	Citi Group Inc.	\$62,429	\$37,310	\$10,123	\$14,996	\$0	3.50%
7	Capital One Financial Corporation	\$52,738	\$17,877	\$10,896	\$22,275	\$1,691	2.90%
8	Bank of New York Mellon Corp.	\$51,855	\$31,363	\$1,996	\$16,165	\$2,331	2.90%
9	PNC Bank, National Association	\$42,799	\$31,409	\$4,760	\$3,378	\$3,252	2.40%
10	Branch Banking and Trust Company	\$35,468	\$9,572	\$3,516	\$21,748	\$632	2.00%
11	State Street Bank and Trust Company	\$30,324	\$3,710	\$6,628	\$10,678	\$9,308	1.70%
	Morgan Stanley	\$24,627	\$998	\$1,267	\$22,362	\$0	1.40%
12	KeyBank National Association	\$24,581	\$9,685	\$7,110	\$7,786	\$0	1.40%
	SunTrust Bank	\$22,592	\$13,074	\$3,818	\$5,701	\$0	1.30%
13	HSBC Bank USA, National Association	\$22,335	\$12,089	\$10,178	\$0	\$68	1.20%
16	E*TRADE Bank	\$20,826	\$6,225	\$7,026	\$7,569	\$6	1.20%
17	Regions Bank	\$18,641	\$11,227	\$5,278	\$2,132	\$4	1.00%
18	Fifth Third Bank	\$17,614	\$5,408	\$5,119	\$6,589	\$499	1.00%
19	MUFG Union Bank, National Association	\$16,177	\$4,201	\$3,830	\$8,146	\$0	1.00%
20	Santander Bank, N.A.	\$15,889	\$3,999	\$3,725	\$8,166	\$0	0.90%
	Total Top 20	\$1,247,283	\$714,026	\$268,096	\$222,411	\$42,748	69.60%

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

MBS Ownership

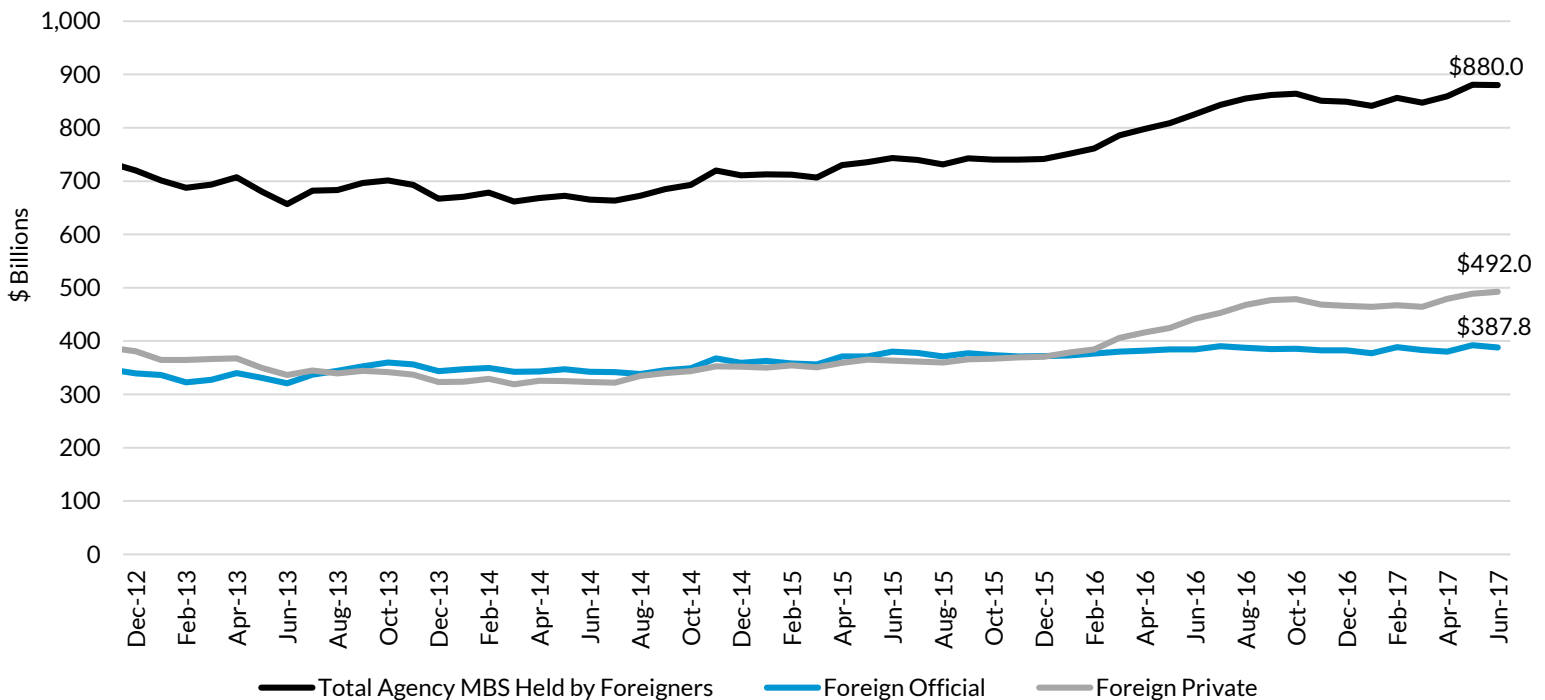
Foreign investors hold 13.8 percent of agency MBS, up considerably from the lows in 2013. For the month of June, this represents \$880.0 billion in agency MBS, \$387.8 billion held by official institutions and \$492.0 billion held by private investors.

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 June 2017.

MBS Ownership

The single 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 between June 2016 and May 2017, adding \$36 billion over the 1 year period.

Agency MBS+ Agency Debt

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

Agency MBS Only (Estimates)

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

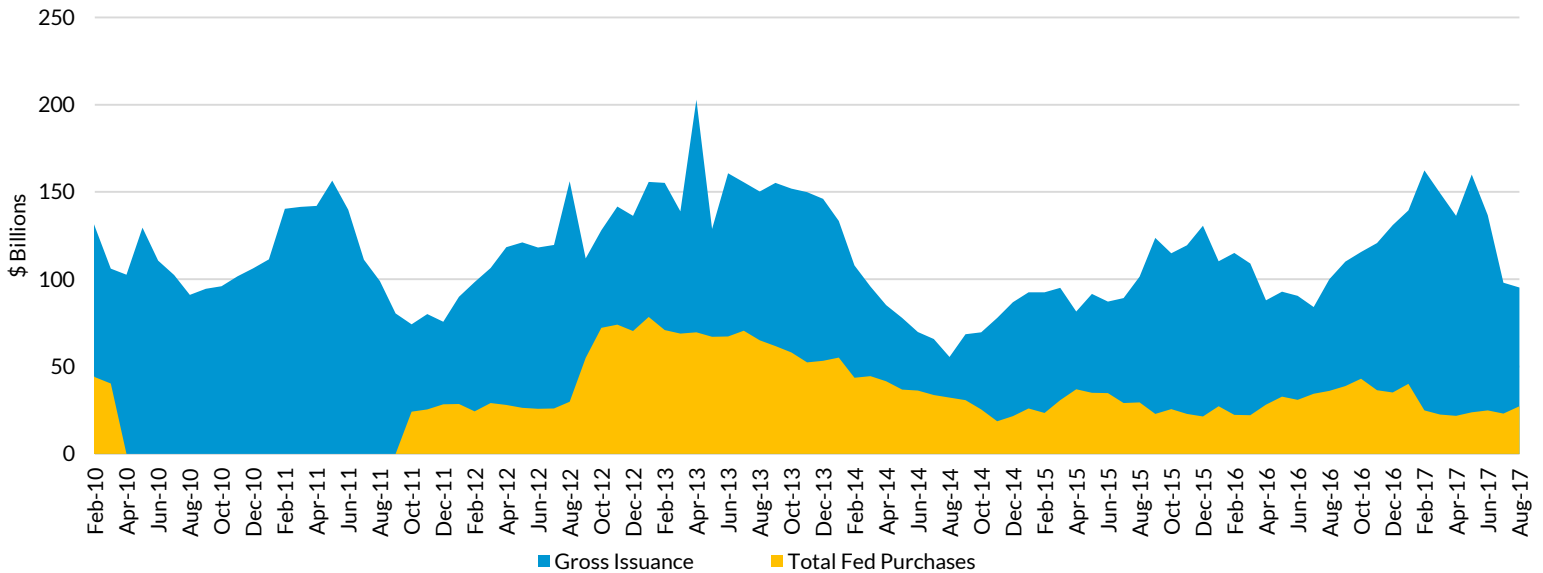
Sources: Treasury International Capital (TIC) and Urban Institute.

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 June 2017.

MBS Ownership

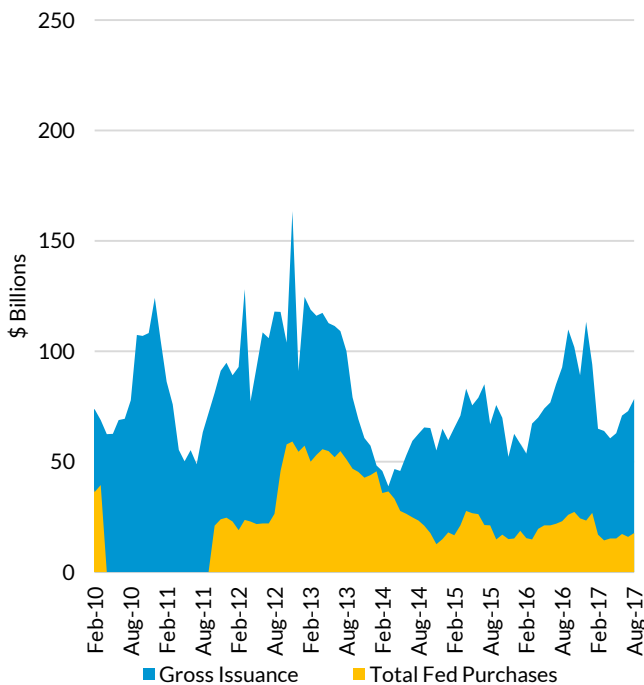
In October 2014, the Fed ended its purchase program, but continued buying at a significantly reduced level, reinvesting funds from pay downs on mortgages and agency debt into the mortgage market. Since then, the Fed's absorption of gross issuance has been between 20 and 30 percent; it was 22.5 percent for August 2017. During this month, the Fed has been buying Ginnie Mae securities and GSE securities at the same rate. Over the past year, the Fed has absorbed an average of 24.5 percent of GSE and Ginnie Mae issuance. In their September 2017 meeting, the Fed announced the balance sheet reduction plan, which would reduce the size of both their mortgage and treasury portfolios, will begin in October. This is a slow wind down; initially, the Fed would continue to reinvest, but by less than their run off.

Total Fed Absorption



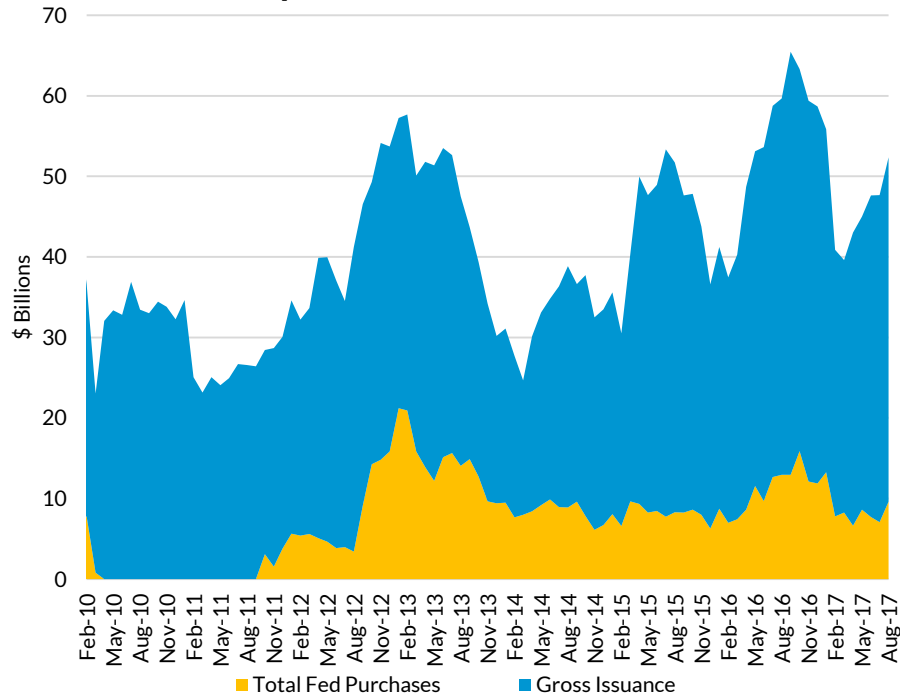
Sources: eMBS, Federal Reserve Bank of New York and Urban Institute. Note: Data as of August 2017.

Fed Absorption of GSE MBS



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

Fed Absorption of Ginnie Mae MBS



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

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