HOUSING FINANCE POLICY CENTER

HOUSING FINANCE AT A GLANCE

A MONTHLY CHARTBOOK

October 2017

URBAN INSTITUTE · ELEVATE · THE · DEBATE

ABOUT THE CHARTBOOK

The Housing Finance Policy Center's (HFPC) mission is to produce analyses and ideas that promote sound public policy, efficient markets, and access to economic opportunity in the area of housing finance. *At A Glance*, a monthly chartbook and data source for policymakers, academics, journalists, and others interested in the government's role in mortgage markets, is at the heart of this mission.

We welcome feedback from our readers on how we can make *At A Glance* a more useful publication. Please email any comments or questions to ataglance@urban.org.

To receive regular updates from the Housing Finance Policy Center, please visit here to sign up for our bi-weekly newsletter.

HOUSING FINANCE POLICY CENTER STAFF

Laurie Goodman
Center Co-Director

Alanna McCargo
Center Co-Director

Edward Golding
Senior Fellow

Jim Parrott
Senior Fellow

Sheryl Pardo
Associate Director of Communications

Todd Hill
Policy & Research Program Manager

Jun Zhu
Senior Research Associate

Bing Bai
Research Associate I

Karan Kaul
Research Associate I

Bhargavi Ganesh
Research Assistant

Sarah Strochak
Research Assistant

Andrea Reyes
Center Administrator

CONTENTS

Overview

Market Size Overview
- Value of the US Residential Housing Market 6
- Size of the US Residential Mortgage Market 6
- Private Label Securities 7
- Agency Mortgage-Backed Securities 7

Origination Volume and Composition
- First Lien Origination Volume & Share 8

Mortgage Origination Product Type
- Composition (All Originations & Purchase Originations Only) 9

Securitization Volume and Composition
- Agency/Non-Agency Share of Residential MBS Issuance 10
- Non-Agency MBS Issuance 10
- Non-Agency Securitization 10

Agency Activity: Volumes and Purchase/Refi Composition
- Agency Gross Issuance 11
- Percent Refi at Issuance 11

Non-bank Origination Share
- Nonbank Origination Share: All Loans 12
- Nonbank Origination Share: Purchase Loans 12
- Nonbank Origination Share: Refi Loans 12

Non-bank Credit Box
- Agency FICO: Bank vs. Nonbank 13
- GSE FICO: Bank vs. Nonbank 13
- Ginnie Mae FICO: Bank vs. Nonbank 13
- GSE LTV: Bank vs. Nonbank 14
- Ginnie Mae LTV: Bank vs. Nonbank 14
- GSE DTI: Bank vs. Nonbank 14
- Ginnie Mae DTI: Bank vs. Nonbank 14

State of the Market

Mortgage Origination Projections
- Total Originations and Refinance Shares 15
- Housing Starts and Home Sales 15

Credit Availability and Originator Profitability
- Housing Credit Availability Index (HCAI) 16
- Originator Profitability and Unmeasured Costs (OPUC) 16

Credit Availability for Purchase Loans
- Borrower FICO Score at Origination Month 17
- Combined LTV at Origination Month 17
- Origination FICO and LTV by MSA 18

Housing Affordability
- National Housing Affordability Over Time 19
- Affordability Adjusted for MSA-Level DTI 19

CONTENTS

First-Time Homebuyers

First-Time Homebuyer Share 20
Comparison of First-time and Repeat Homebuyers, GSE and FHA Originations 20

Home Price Indices

National Year-Over-Year HPI Growth 21
Changes in CoreLogic HPI for Top MSAs 21

Negative Equity & Serious Delinquency

Negative Equity Share 22
Loans in Serious Delinquency 22

Modifications and Liquidations

Loan Modifications and Liquidations (By Year & Cumulative) 23

GSEs under Conservatorship

GSE Portfolio Wind-Down

Fannie Mae Mortgage-Related Investment Portfolio 24
Freddie Mac Mortgage-Related Investment Portfolio 24

Effective Guarantee Fees & GSE Risk-Sharing Transactions

Effective Guarantee Fees 25
Fannie Mae Upfront Loan-Level Price Adjustment 25
GSE Risk-Sharing Transactions and Spreads 26-27

Serious Delinquency Rates

Serious Delinquency Rates – Fannie Mae & Freddie Mac 28
Serious Delinquency Rates – Single-Family Loans & Multifamily GSE Loans 29

Agency Issuance

Agency Gross and Net Issuance

Agency Gross Issuance 30
Agency Net Issuance 30

Agency Gross Issuance & Fed Purchases

Monthly Gross Issuance 31
Fed Absorption of Agency Gross Issuance 31

Mortgage Insurance Activity

MI Activity & Market Share 32
FHA MI Premiums for Typical Purchase Loan 33
Initial Monthly Payment Comparison: FHA vs. PMI 33

Special Feature

Loan Level GSE Credit Data

Fannie Mae Composition & Default Rate 34-35
Freddie Mac Composition & Default Rate 36-37
Default Rate by Vintage 38
Repurchase by Vintage 39
Loss Severity and Components 40-41

Related HFPC Work

Publications and Events 42

INTRODUCTION

Three mortgage market developments with lasting consequences

Last month brought about three significant developments that could have lasting consequences for the mortgage market. ; Secretary Carson's recent comments on enforcement under the False Claims Act, the wind down of Fed's agency MBS portfolio, and continued innovation within GSE credit risk transfer.

FCA Enforcement: Following the great recession, the DOJ significantly increased its enforcement of FCA for lenders originating FHA mortgages. This resulted in many lenders having to pay extremely high fines, even for small origination mistakes. Because of this, many depository lenders left FHA lending in recent years, causing a drastic shift in FHA lending towards nonbanks and contributing to the overall tightness of credit at the lower end of the credit spectrum. In recent remarks at the House Financial Services Committee, Secretary Carson said that HUD was "addressing that problem" and was "committed to getting that resolved." This is highly noteworthy because ending the use of FCA for small origination mistakes is critical in giving depository lenders the confidence they need to resume FHA lending. If implemented, this change of direction would be an important step towards gradually improving access to credit for low- and moderate-income borrowers.

The Fed's portfolio reduction of agency MBS: The second development came late September from the Federal Reserve. On Sep 20th the Fed announced its decision to initiate, in October 2017, the process of reducing its holdings of agency MBS, which were accumulated during quantitative easing over 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. By giving the reductions a start date, the Fed is now officially scaling back its support that helped push mortgage rates lower during the downturn. The Fed's decision, which is subject to ongoing monitoring, resolved a major source of near-term uncertainty for MBS investors and caused spreads to tighten. The spread between the current coupon Ginnie Mae MBS and the average of 5 and 10-year US treasury notes narrowed by about 7 basis points, while the spread between current coupon Fannie MBS and the average US treasury note tightened by 4 basis points in the week after the announcement.

CRT innovation: Lastly, Freddie Mac recently announced yet another expansion of its STACR credit risk transfer program to broaden the investor base for CRT securities. Freddie announced a new type of CRT security that is collateralized by mortgages (in contrast to existing CRT securities which are general obligations of Freddie Mac). This change would allow the new securities (called STACR-Securitized Participation Interests) to qualify as eligible assets for real estate investment trusts, which invest exclusively in real estate and real estate-backed assets. STACR-SPI is also tax friendly for foreign investors due to its REMIC election. REIT participation in the credit risk transfer market will bring another source of private capital into the mortgage market. It will also increase overall demand, and facilitate better pricing and liquidity for CRT securities, as this market continues to grow.

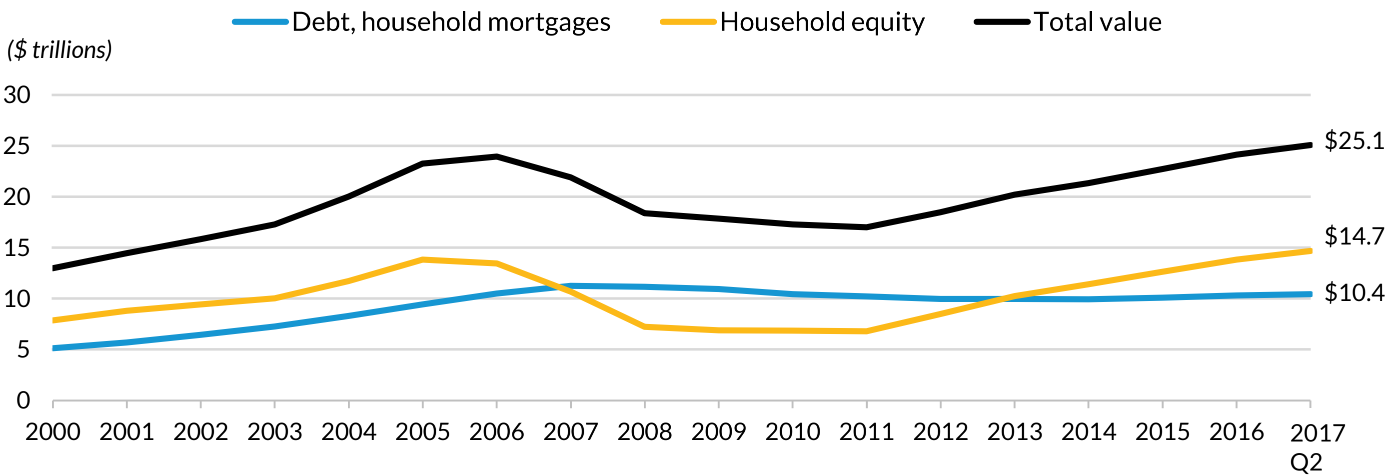
INSIDE THIS ISSUE

- HCAI shows mortgage credit availability decreased from 5.4 to 5.1 in Q2 2017 (Page 16).
- With home prices reaching pre-crisis peak levels and higher rates, national housing affordability fell closer to long-term historical average (page 19).
- National house prices reached the pre-crisis peak level in August 2017 (Page 21).
- Special quarterly feature includes GSE default, composition, loss severity, and repurchase indicators (Pages 34-41).

MARKET SIZE OVERVIEW

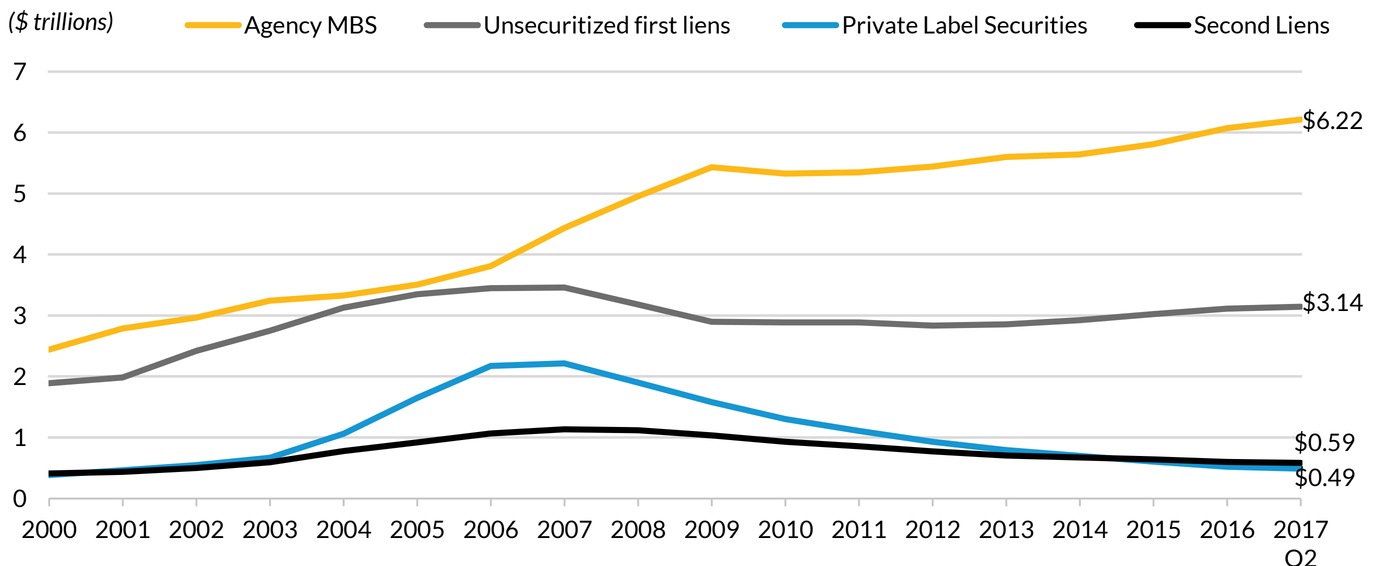
Since 2012, the Federal Reserve's Flow of Funds report has consistently indicated an increasing total value of the housing market, driven by growing household equity and 2017 Q2 was no different. While total debt and mortgages was stable at $10.4 trillion, household equity reached a new high of $14.7 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.

Value of the US Housing Market



Sources: Federal Reserve Flow of Funds and Urban Institute. *Last updated September 2017.*

Size of the US Residential Mortgage Market

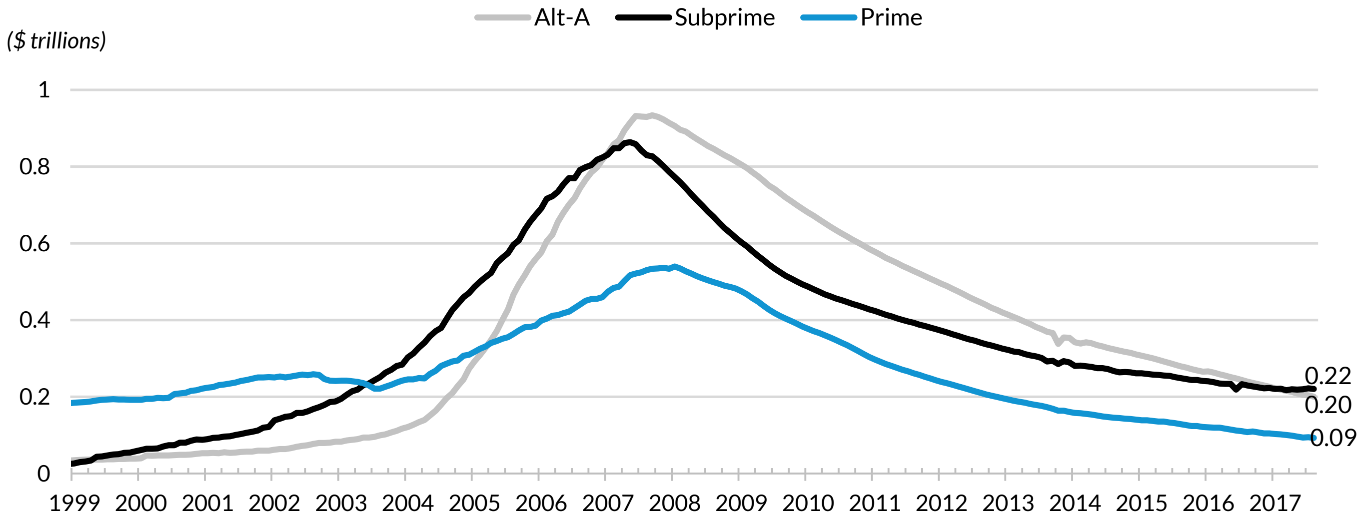


Sources: Federal Reserve Flow of Funds, Inside Mortgage Finance, Fannie Mae, Freddie Mac, eMBS and Urban Institute. *Last updated September 2017.* **Note:** Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, and credit unions.

MARKET SIZE OVERVIEW

As of August 2017, debt in the private-label securitization market totaled $513 billion and was split among prime (18.1 percent), Alt-A (39.0 percent), and subprime (42.9 percent) loans. In September 2017, outstanding securities in the agency market totaled $6.29 trillion and were 44.0 percent Fannie Mae, 27.3 percent Freddie Mac, and 28.8 percent Ginnie Mae. Ginnie Mae has had more outstanding securities than Freddie Mac since May 2016.

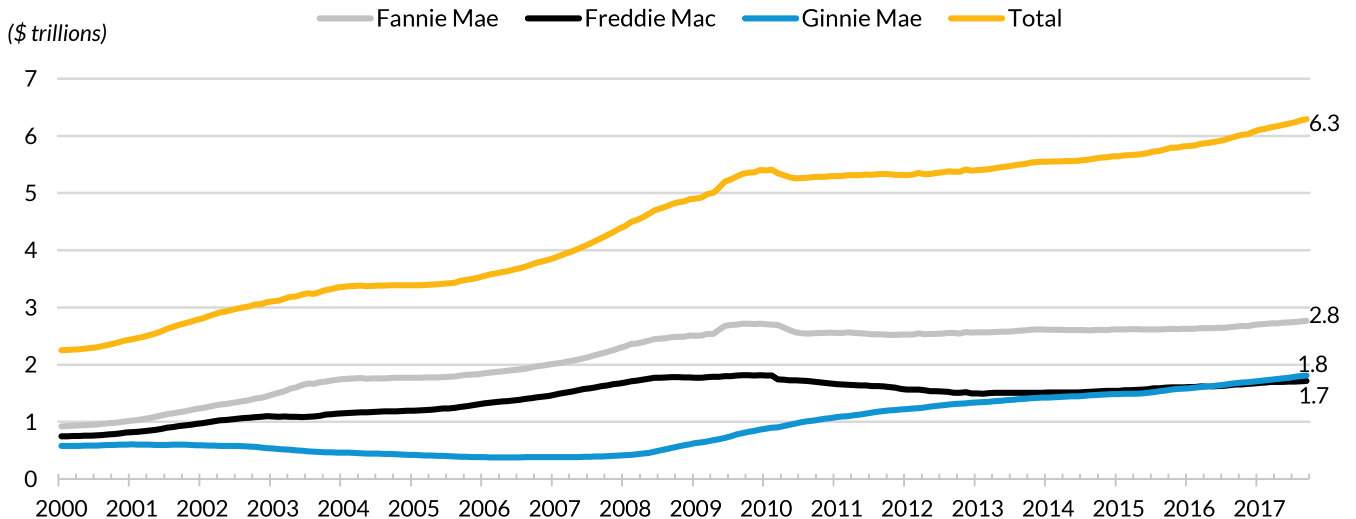
Private-Label Securities by Product Type



Sources: CoreLogic and Urban Institute.

August 2017

Agency Mortgage-Backed Securities



September 2017

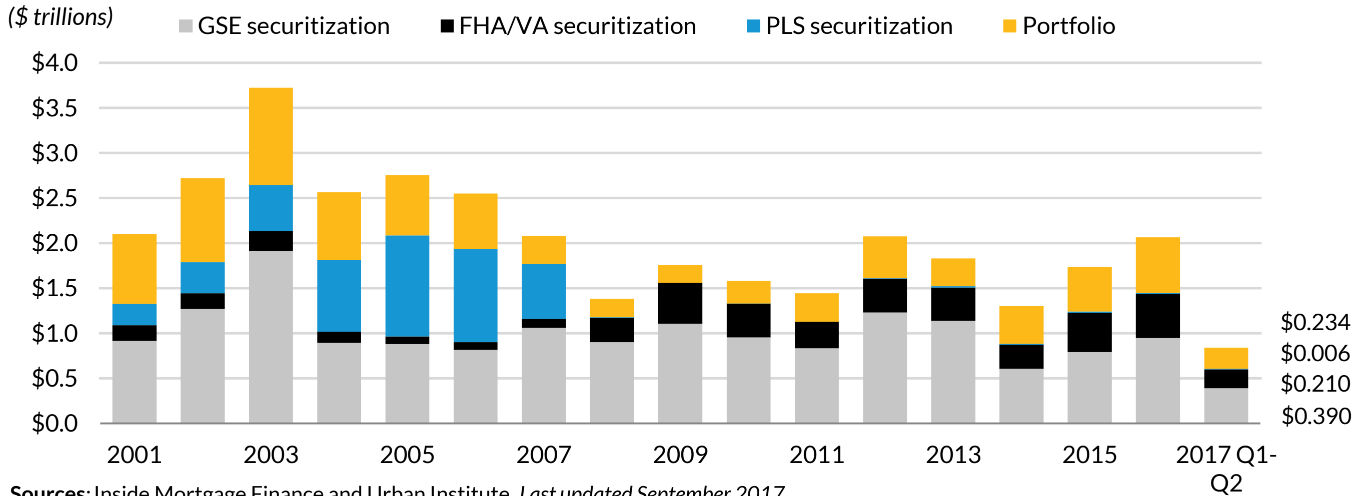
Sources: eMBS and Urban Institute.

OVERVIEW

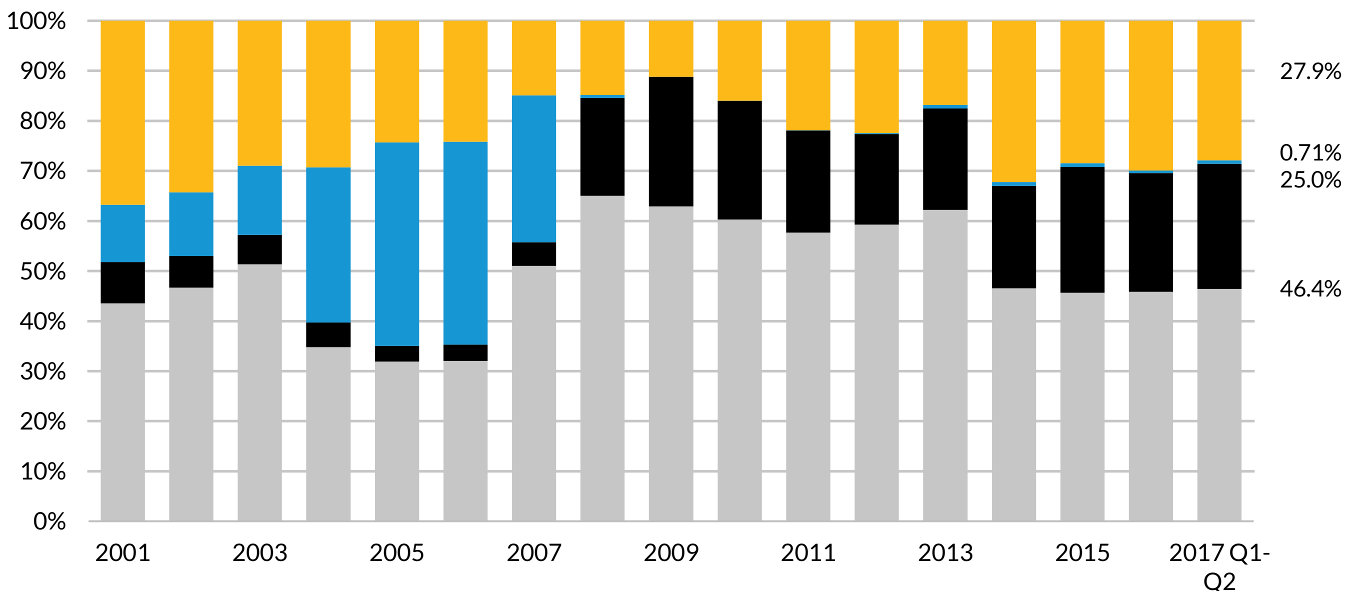
ORIGINATION VOLUME AND COMPOSITION

First Lien Origination Volume

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, despite an increase in Q2 2017. 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.



Sources: Inside Mortgage Finance and Urban Institute. *Last updated September 2017.*



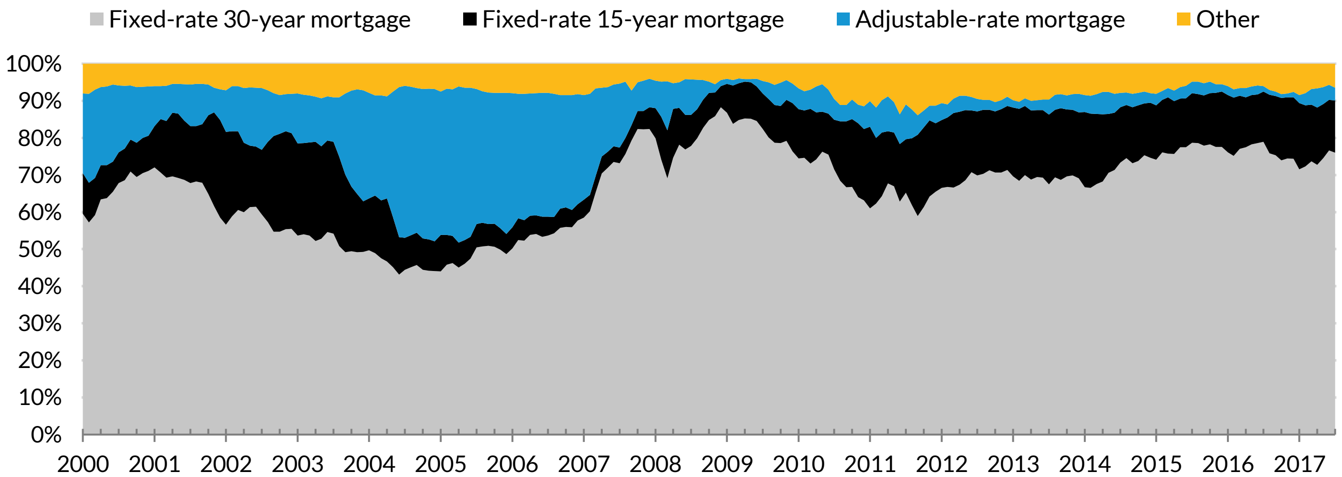
Sources: Inside Mortgage Finance and Urban Institute. *Last updated September 2017.*

OVERVIEW

MORTGAGE ORIGINATION PRODUCT TYPE

Adjustable-rate mortgages (ARMs) accounted for as much as 42 percent of all new originations during the peak of the 2005 housing bubble (top chart). The ARMs fell to an historic low of 1 percent in 2009, and then slowly grew to a high of 6 percent in April 2014. Since then, ARMs have began to decline again to 3.5 percent in July 2017. The 15-year fixed-rate mortgage (FRM), predominantly a refinance product, accounted for 14.1 percent of new originations in July 2017. If we exclude refinances (bottom chart), the share of 30-year FRMs in July 2017 stood at 89.6 percent, 15-year FRMs at 5.8 percent, and ARMs at 3.1 percent.

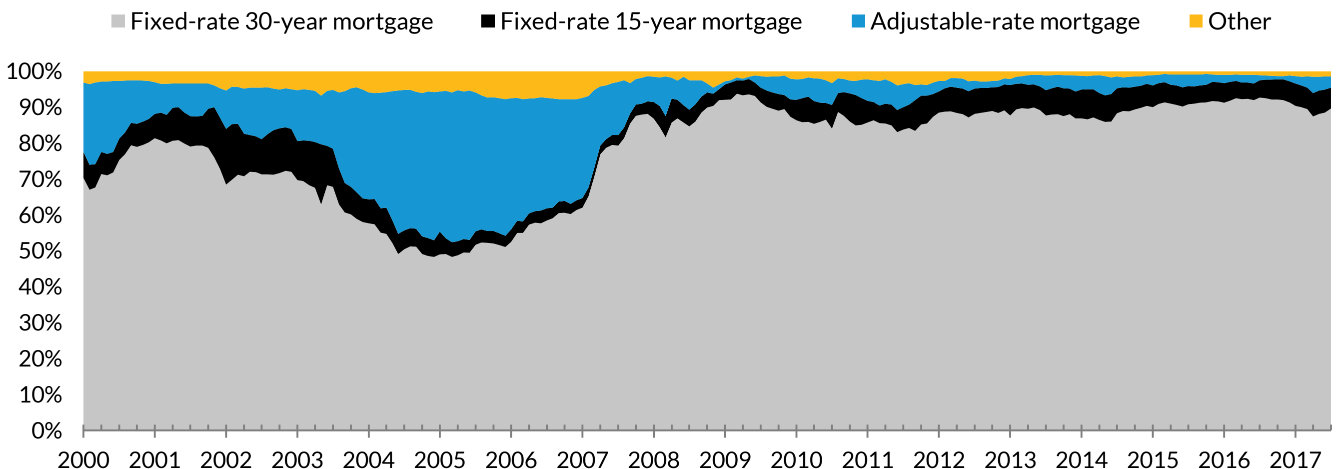
All Originations



Sources: Corelogic, eMBS, HMDA, SIFMA and Urban Institute.

July 2017

Purchase Loans Only



Sources: Corelogic, eMBS, HMDA, SIFMA and Urban Institute.

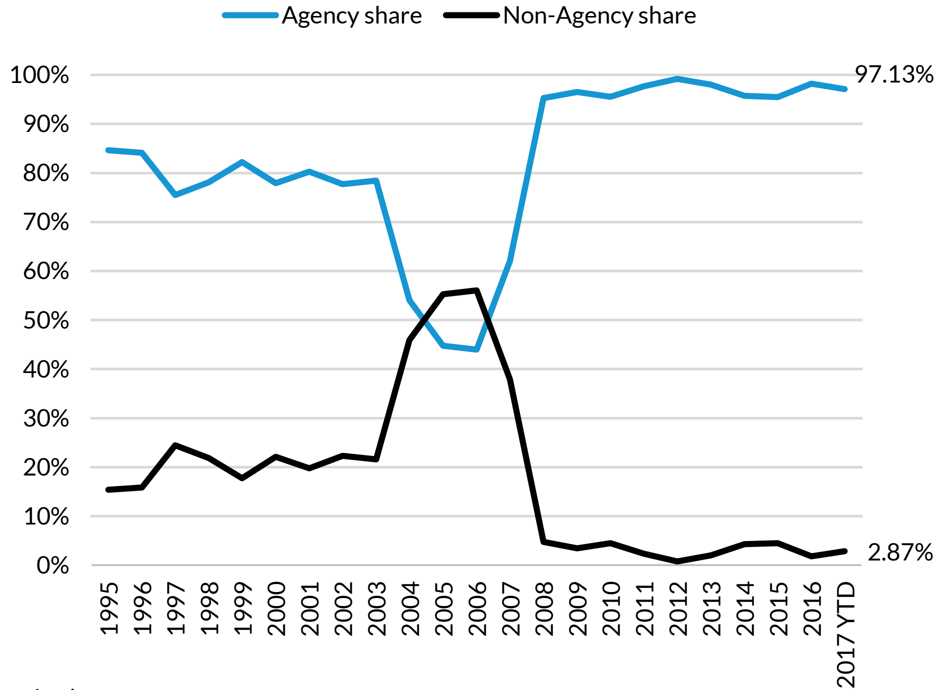
July 2017

OVERVIEW

SECURITIZATION VOLUME AND COMPOSITION

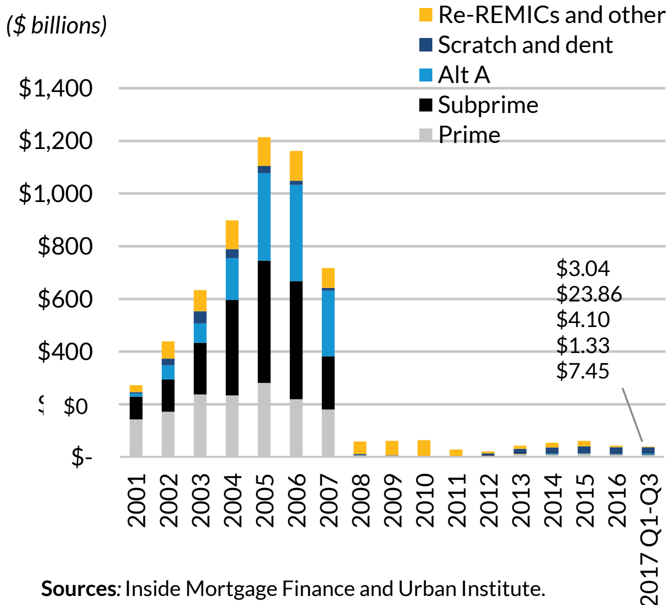
Agency/Non-Agency Share of Residential MBS Issuance

The non-agency share of mortgage securitizations in the first nine months of 2017 was 2.9 percent, compared to 1.8 percent in all of 2016 and 4.5 percent in all of 2015. The non-agency securitization volume totaled $40.0 billion in the first three quarters of 2017, a 12 percent increase over the same period in 2016. Much of the volume was in non-performing and re-performing (scratch and dent) deals. The volume of prime securitizations in the first three quarters of 2017 totaled $7.45 billion, just below the $7.75 billion in Q1-3 2016. Non-agency securitizations continue to be tiny compared to pre-crisis levels.



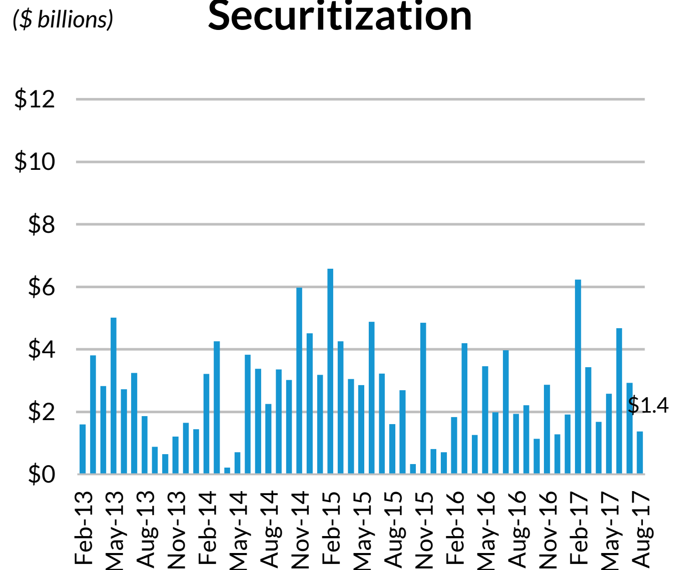
Sources: Inside Mortgage Finance and Urban Institute.
Note: Based on data from September 2017.

Non-Agency MBS Issuance



Sources: Inside Mortgage Finance and Urban Institute.

Monthly Non-Agency Securitization



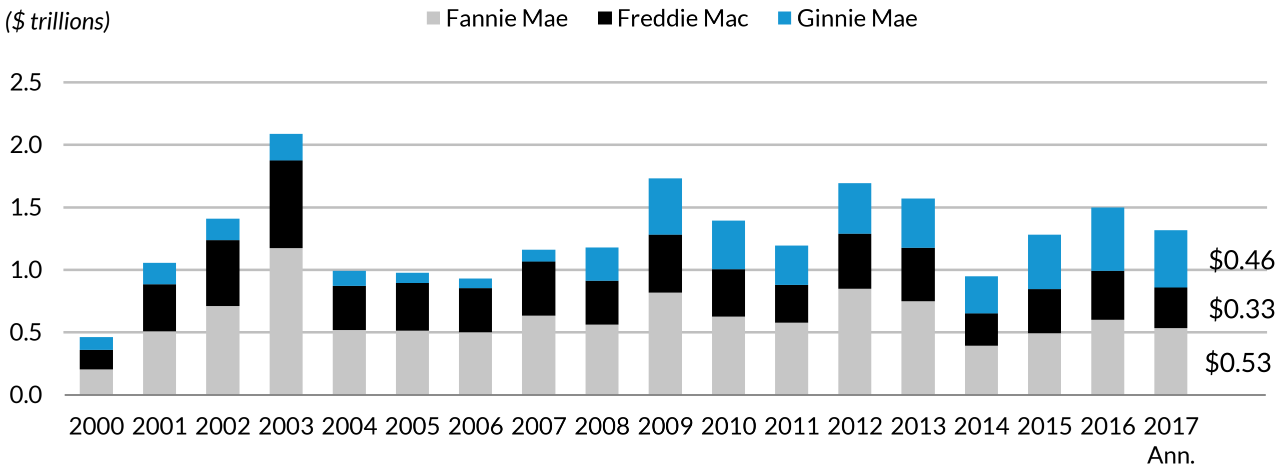
Sources: Inside Mortgage Finance and Urban Institute.
Note: Monthly figures equal total non-agency MBS issuance minus Re-REMIC issuance. *Last updated August 2017.*

OVERVIEW

AGENCY ACTIVITY: VOLUMES AND PURCHASE/ REFI COMPOSITION

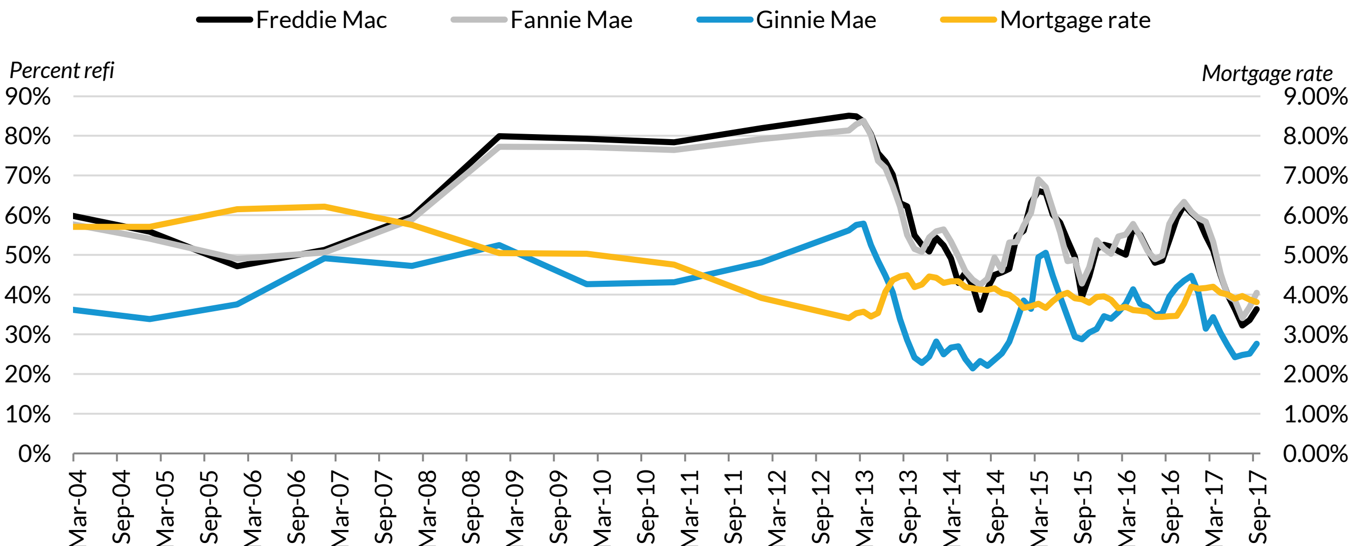
Agency issuance totaled $986.9 billion for the first 9 months of the year, $1.315 trillion on an annualized basis. This is down about 6 percent from the first 9 months of 2016. The refinance share edged up a bit in September, a typical seasonal effect associated with lower purchase volume attributable to the end of the heavy summer purchase activity.

Agency Gross Issuance



Sources: eMBS and Urban Institute.
Note: Annualized figure based on data from September 2017.

Percent Refi at Issuance



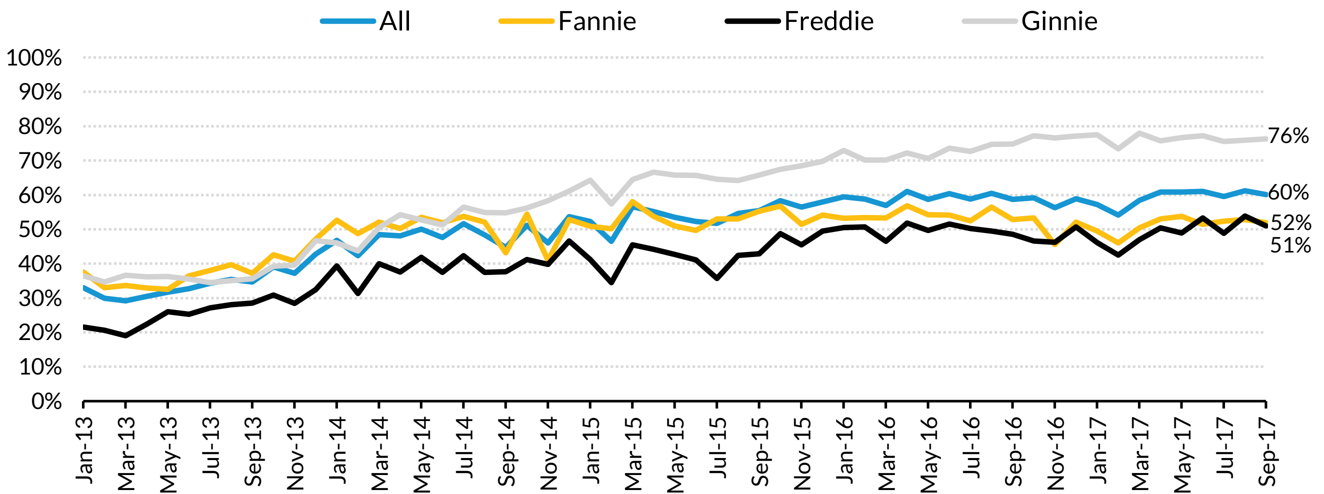
Sources: eMBS and Urban Institute.
Note: Based on at-issuance balance. Figure based on data from September 2017

OVERVIEW

NONBANK ORIGINATION SHARE

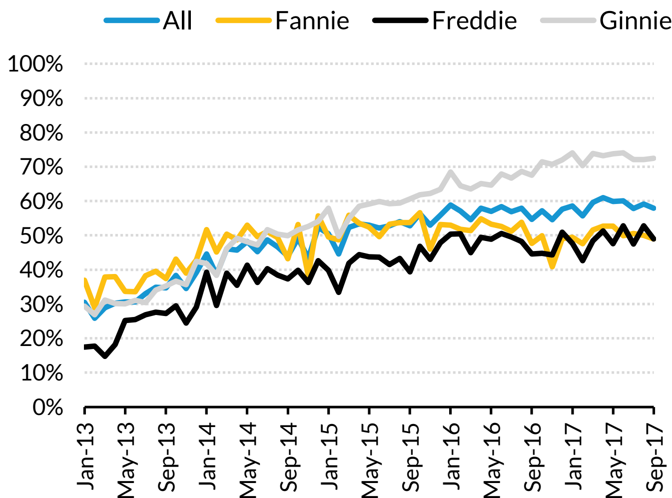
Though nonbank origination share has increased for all three agencies since 2013, the percentage has remained steady month-over-month. This month, Freddie and Fannie had nonbank originator shares between 51-52 percent, while Ginnie Mae's nonbank share was at 76 percent. The nonbank originator share is higher for refinance than for purchases across all three agencies.

Nonbank Origination Share: All Loans



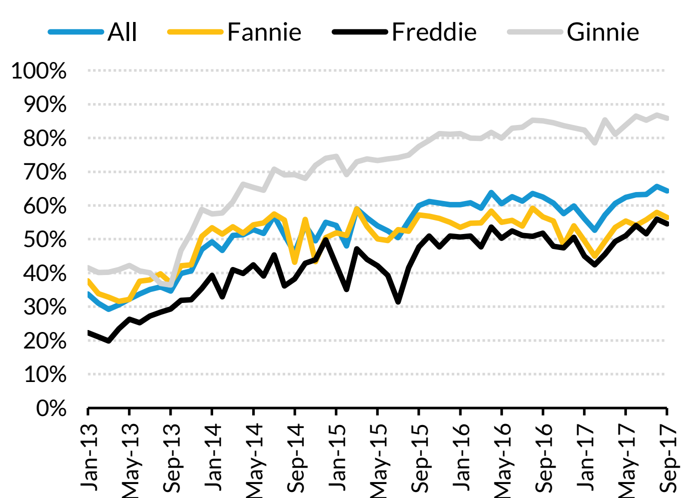
Sources: *eMBS and Urban Institute.*

Nonbank Origination Share: Purchase Loans



Sources: *eMBS and Urban Institute*

Nonbank Origination Share: Refi Loans



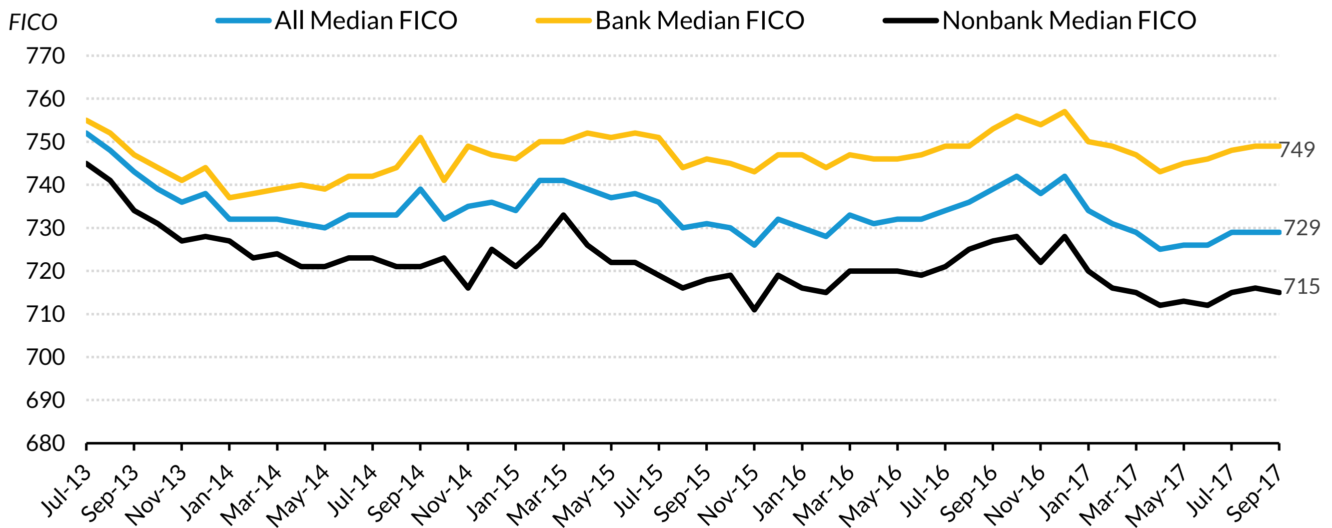
Sources: *eMBS and Urban Institute*

OVERVIEW

NONBANK CREDIT BOX

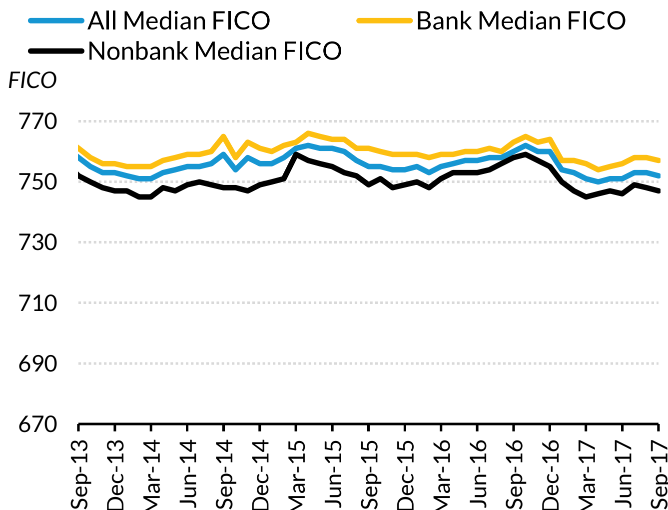
Nonbank originators have played a key role in opening up access to credit. The median GSE and the median Ginnie Mae FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, both bank and nonbank FICOs have declined since 2014 with further relaxation in FICOs in 2017. In contrast, within the Ginnie Mae space, FICO scores for bank originations have increased since 2014 while nonbank FICOs have declined. This largely reflects the sharp cut-back in FHA lending by many banks.

Agency FICO: Bank vs. Nonbank



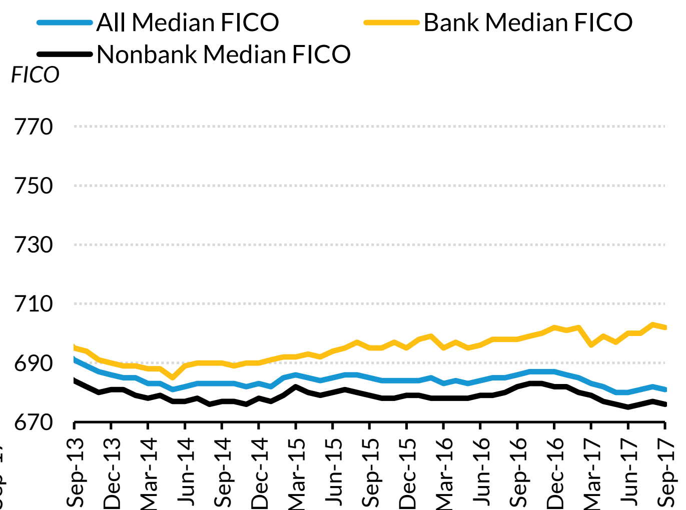
Sources: *eMBS and Urban Institute.*

GSE FICO: Bank vs. Nonbank



Sources: *eMBS and Urban Institute.*

Ginnie Mae FICO: Bank vs. Nonbank



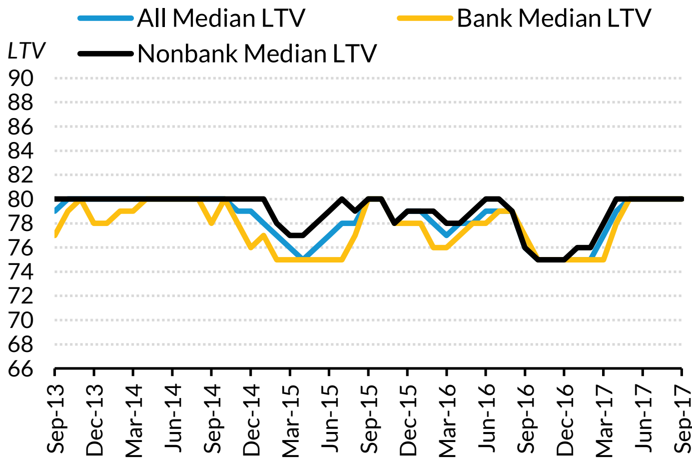
Sources: *eMBS and Urban Institute.*

OVERVIEW

NONBANK CREDIT BOX

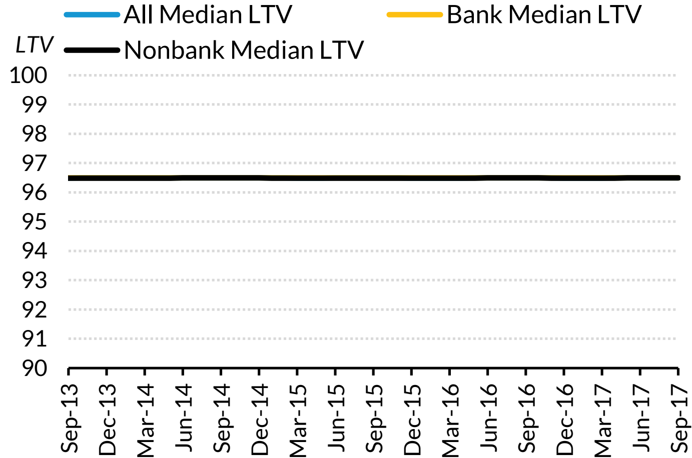
The median LTV ratios for loans originated by nonbanks are similar to their bank counterparts, while the median DTIs for nonbank loans are higher, indicating that nonbanks are more accommodating in this as well as in the FICO dimension. Note that in 2017 there has been a measurable increase in DTIs. This is true for both Ginnie Mae and GSE loans, banks and nonbank originators.

GSE LTV: Bank vs. Nonbank



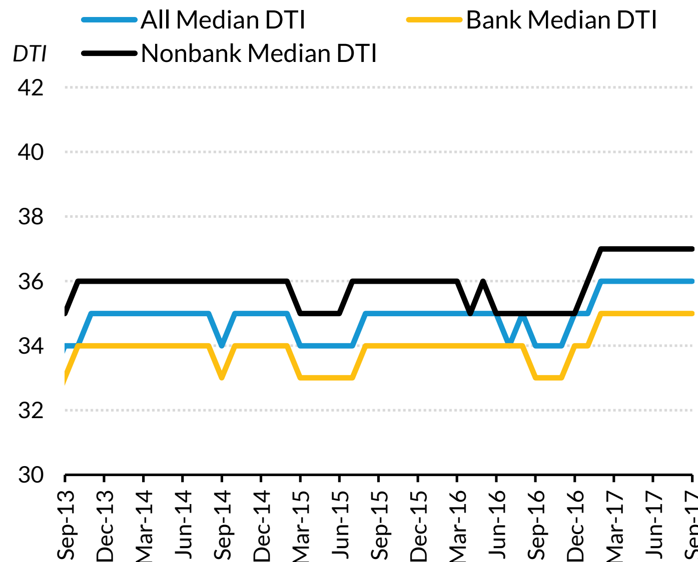
Sources: *eMBS and Urban Institute.*

Ginnie Mae LTV: Bank vs. Nonbank



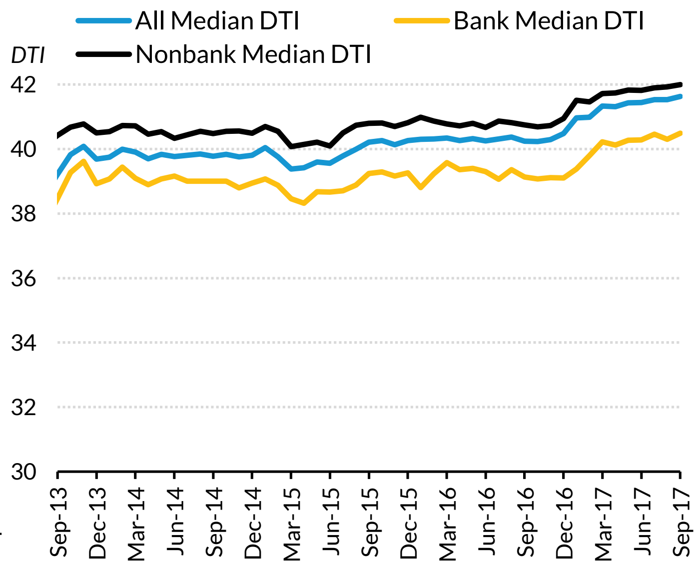
Sources: *eMBS and Urban Institute.*

GSE DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute.*

Ginnie Mae DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute.*

MORTGAGE ORIGINATION PROJECTIONS

Origination volume for calendar year 2016 was close to $2.0 trillion. In 2017, Fannie Mae, Freddie Mac and MBA expect origination volume to be in the $1.55-$1.65 trillion range, owing to a sharp decline in refinance activity due to rising interest rates. In 2017, the share of refinances is expected to be in the 33-34 percent range, representing a drop from the 48 percent refi share in 2016. Fannie, Freddie, and MBA all forecast 2017 housing starts to total 1.21 to 1.24 million units, an increase from 2016. Home sales forecasts for 2017 range from 6.20-6.28 million, a rise from 2016 levels.

Total Originations and Refinance Shares

Period	Originations ($ billions)			Refi Share (%)		
	Total, FNMA estimate	Total, FHLMC estimate	Total, MBA estimate	FNMA estimate	FHLMC estimate	MBA estimate
2017 Q1	393	397	361	48	42	41
2017 Q2	454	490	463	33	26	32
2017 Q3	453	500	455	32	32	30
2017 Q4	366	413	348	28	32	31
2018 Q1	312	324	345	33	30	30
2018 Q2	432	482	445	24	25	24
2018 Q3	435	487	443	23	24	23
2018 Q4	390	402	355	26	23	28
FY 2014	1301	1350	1261	40	39	40
FY 2015	1730	1750	1679	47	45	46
FY 2016	2052	2125	1891	48	48	48
FY 2017	1649	1545	1612	34	33	33
FY 2018	1541	1500	1588	25	25	26

Sources: Fannie Mae, Freddie Mac, Mortgage Bankers Association and Urban Institute.
Note: Shaded boxes indicate forecasted figures. All figures are estimates for total single-family market. Column labels indicate source of estimate. Regarding interest rates, the yearly averages for 2014, 2015,and 2016 were 3.6%, 3.7%, and 3.6%. For 2017, the respective projections for Fannie, Freddie, and MBA are 4.1%, 4.2%, and 4.2%.

Housing Starts and Homes Sales

Year	Housing Starts, thousands			Home Sales. thousands				
	Total, FNMA estimate	Total, FHLMC estimate	Total, MBA estimate	Total, FNMA estimate	Total, FHLMC estimate	Total, MBA estimate	Existing, MBA estimate	New, MBA Estimate
FY 2014	1003	1000	1001	5377	5380	5360	4920	440
FY 2015	1112	1110	1108	5751	5750	5740	5237	503
FY 2016	1174	1170	1177	6011	6010	6001	5440	561
FY 2017	1219	1240	1210	6203	6200	6282	5659	623
FY 2018	1328	1360	1338	6352	6300	6702	6007	695

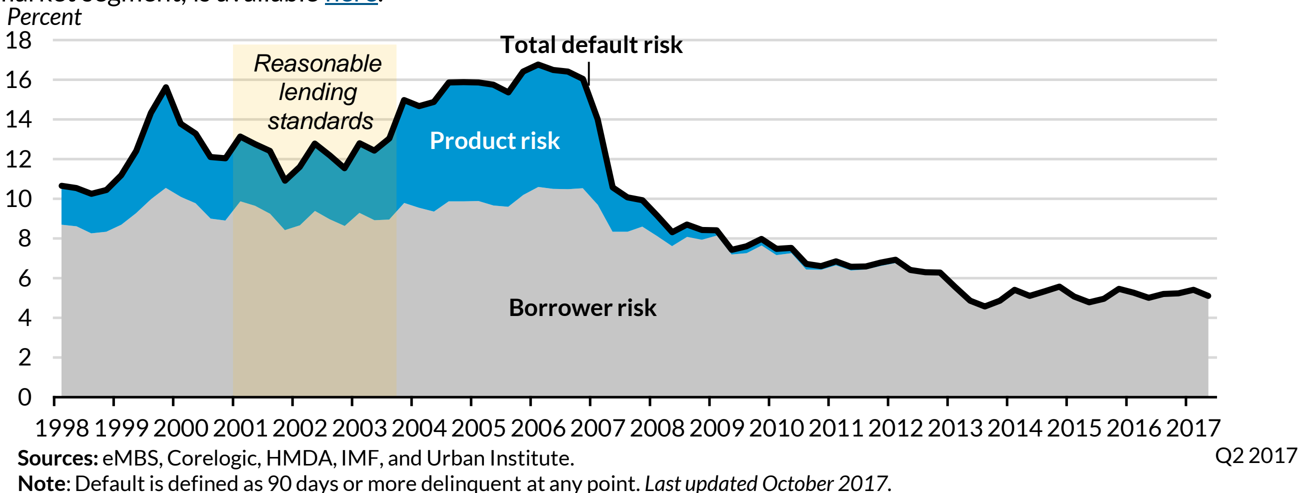
Sources: Mortgage Bankers Association, Fannie Mae, Freddie Mac and Urban Institute.
Note: Shaded boxes indicate forecasted figures. All figures are estimates for total single-family market; column labels indicate source of estimate.

STATE OF THE MARKET

CREDIT AVAILABILITY AND ORIGINATOR PROFITABILITY

Housing Credit Availability Index (HCAI)

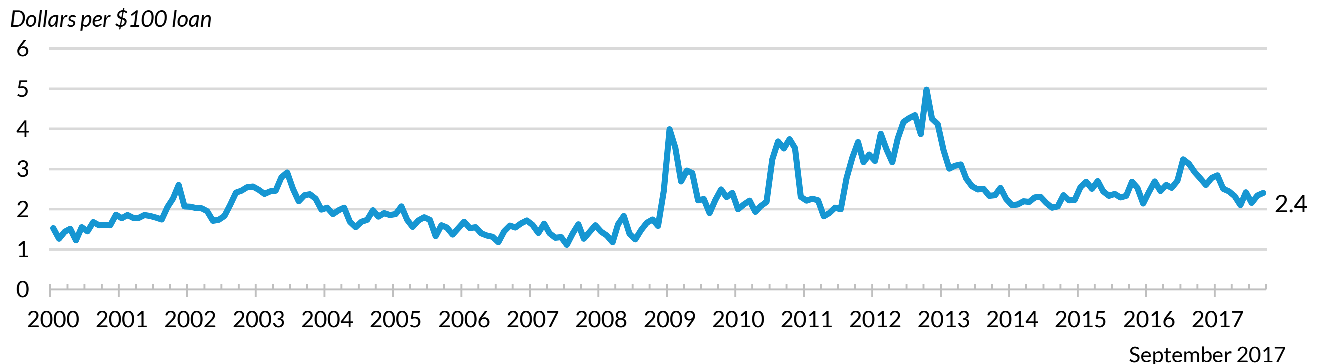
HFPC's Housing Credit Availability Index (HCAI) assesses lenders' tolerance for both borrower risk and product risk, calculating the share of owner-occupied purchase loans that are likely to default. The index shows that credit availability decreased slightly to 5.1 in the second quarter of 2017 (Q2 2017), down from 5.4 in Q1 2017, the highest level since 2016. This decline was mostly driven by a shift in market composition from Q1 to Q2 2017, with the government channel losing market share to the portfolio channel, where lending standards are tighter. In the meantime, credit continued to expand within the GSE and government channels, thanks to higher interest rates and lower refinance volumes. More information about the HCAI, including the breakdown by market segment, is available here.



Sources: eMBS, Corelogic, HMDA, IMF, and Urban Institute.
Note: Default is defined as 90 days or more delinquent at any point. *Last updated October 2017.*

Originator Profitability and Unmeasured Costs

When originator profits are higher, mortgage volumes are less responsive to changes in interest rates, because originators are at capacity. Originator Profitability and Unmeasured Costs (OPUC), formulated and calculated by the Federal Reserve Bank of New York, is a good relative measure of originator profitability. OPUC uses the sales price of the mortgage in the secondary market (less par) and adds two additional sources of profitability; retained servicing (both base and excess servicing, net of g-fees) and points paid by the borrower. With interest rates higher after the 2016 presidential election, OPUC rose sharply to $3.21 in July 2016. With the post-election high interest rates, OPUC now stands at $2.4.



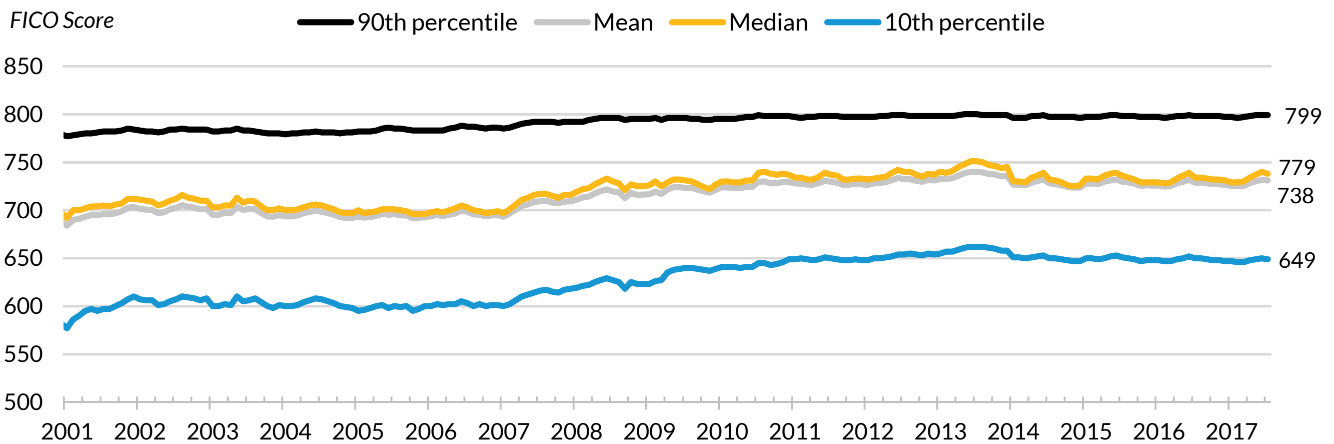
Sources: Federal Reserve Bank of New York, updated monthly and available at this link: http://www.ny.frb.org/research/epr/2013/1113fust.html and Urban Institute.
Note: OPUC is a is a monthly (4-week moving) average as discussed in Fuster et al. (2013).

STATE OF THE MARKET

CREDIT AVAILABILITY FOR PURCHASE LOANS

Access to credit has become extremely tight, especially for borrowers with low FICO scores. The mean and median FICO scores on new purchase originations have both drifted up about 21 and 20 points over the last decade, respectively. The 10th percentile of FICO scores, which represents the lower bound of creditworthiness needed to qualify for a mortgage, stood at 649 as of July 2017. Prior to the housing crisis, this threshold held steady in the low 600s. Mean LTV levels at origination remain relatively high, averaging 86.7, which reflects the large number of FHA purchase originations.

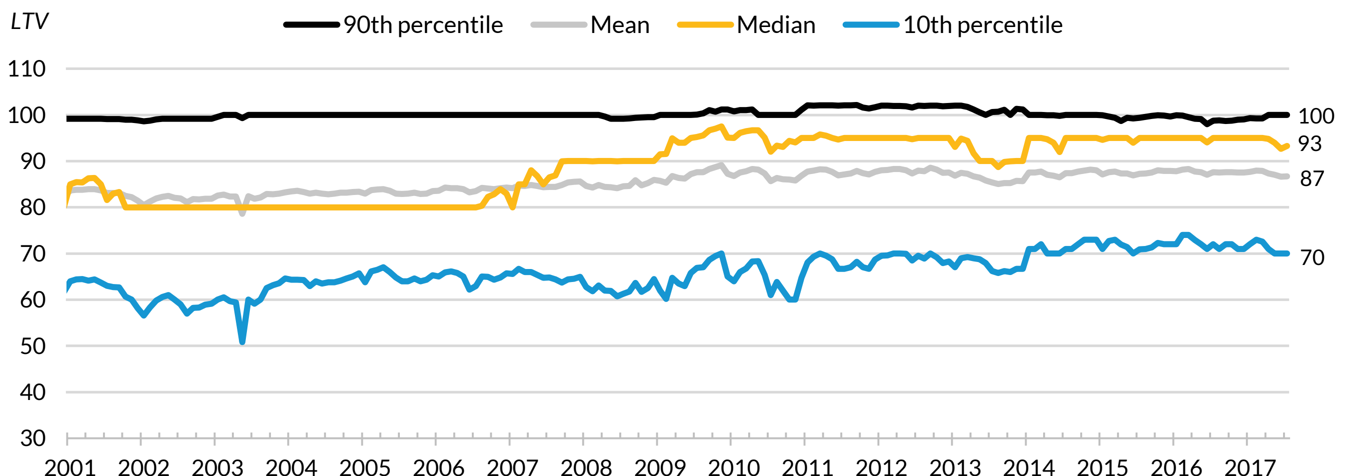
Borrower FICO Score at Origination



Sources: CoreLogic, eMBS, HMDA, SIFMA and Urban Institute.
Note: Includes owner-occupied purchase loans only.

July 2017

Combined LTV at Origination



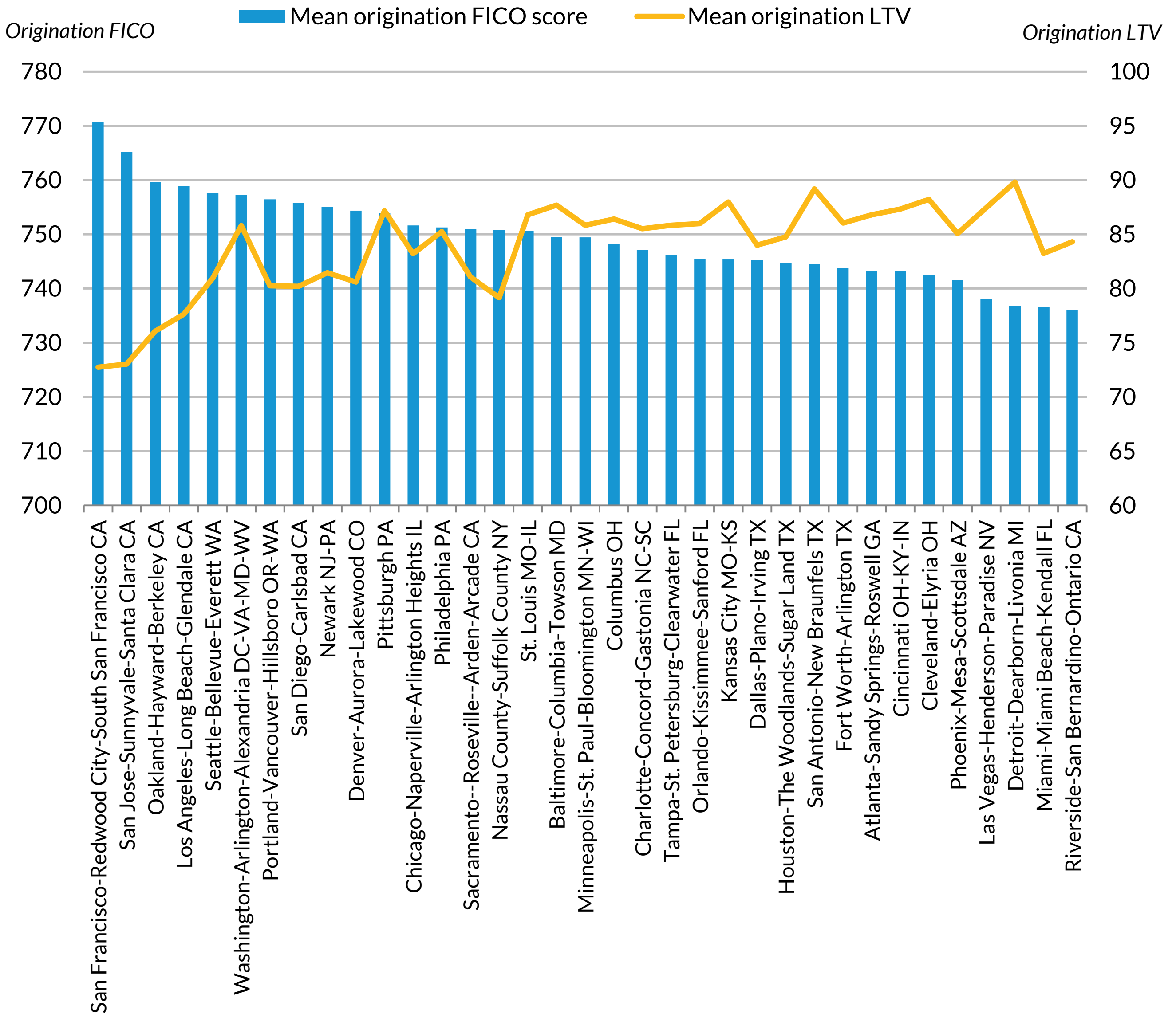
Sources: Corelogic, eMBS, HMDA, SIFMA and Urban Institute.
Note: Includes owner-occupied purchase loans only.

July 2017

STATE OF THE MARKET

CREDIT AVAILABILITY FOR PURCHASE LOANS

Credit has been tight for all borrowers with less-than-stellar credit scores--especially in MSAs with high housing prices. For example, the mean origination FICO for borrowers in San Francisco- Redwood City- South San Francisco, CA is 771, while in Riverside-San Bernardino-Ontario CA it is 736. Across all MSAs, lower average FICO scores tend to be correlated with high average LTVs, as these MSAs rely heavily on FHA/VA financing.



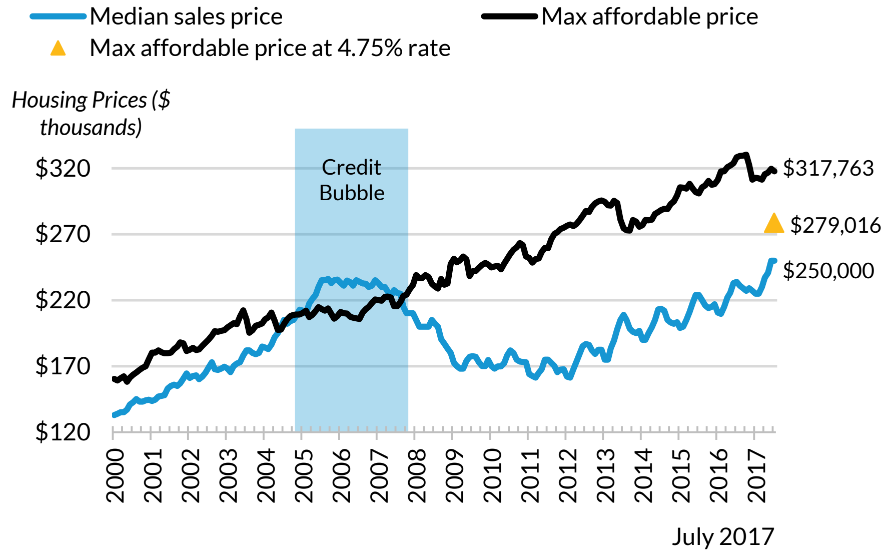
Sources: CoreLogic, eMBS, HMDA, SIFMA and Urban Institute.
Note: Includes owner-occupied purchase loans only. Data as of July 2017.

HOUSING AFFORDABILITY

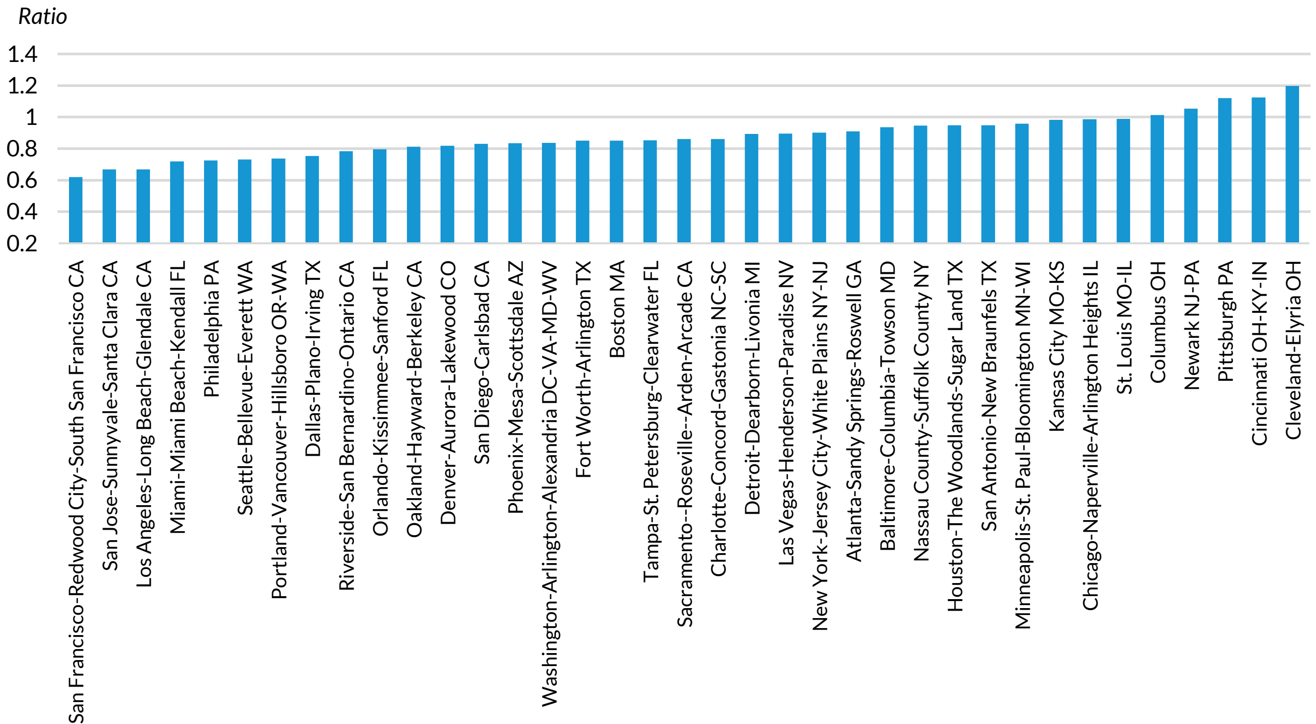
National Housing Affordability Over Time

Home prices remain affordable by historic standards, despite increases over the last five years and the recent interest rate hikes. Even if interest rates rise to 4.75 percent, affordability would still be at the long-term historical average.

Sources: CoreLogic, US Census, Freddie Mac and Urban Institute.
Note: The maximum affordable price is the house price that a family can afford putting 20 percent down, with a monthly payment of 28 percent of median family income, at the Freddie Mac prevailing rate for 30-year fixed-rate mortgage, and property tax and insurance at 1.75 percent of housing value.



Affordability Adjusted for MSA-Level DTI

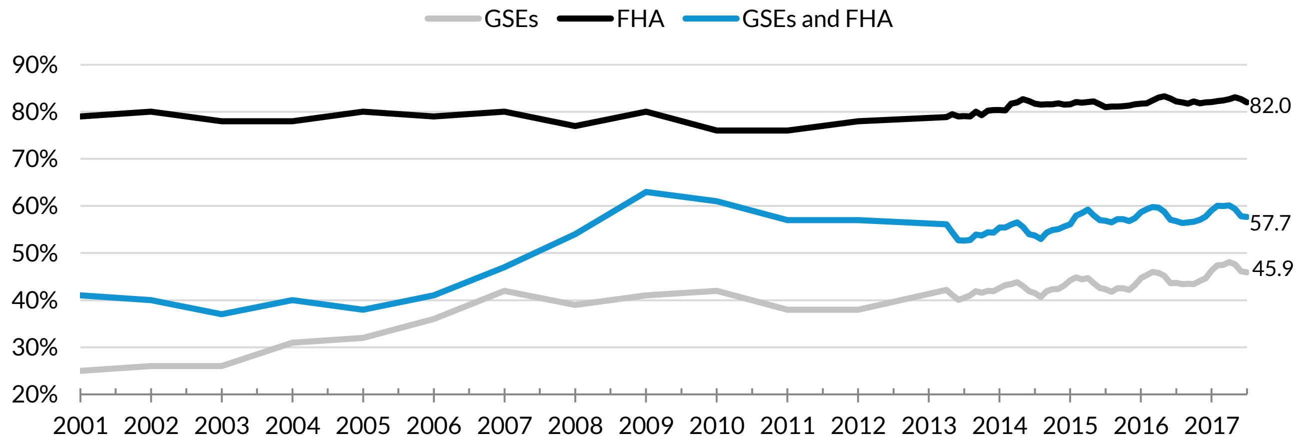


Sources: CoreLogic, US Census, Freddie Mac and Urban Institute calculations based on NAR methodology.
Note: Index is calculated relative to home prices in 2000-03. A ratio above 1 indicates higher affordability in July 2017 than in 2000-03.

FIRST-TIME HOMEBUYERS

First-Time Homebuyer Share

In July 2017, the first-time homebuyer share of GSE purchase loans fell for the third consecutive month to 45.9 percent, after hitting the highest level in recent history in April (48.1 percent). The FHA has always been more focused on first-time homebuyers, with its first-time homebuyer share hovering around 80 percent; it stood at 82.0 percent in July 2017. The bottom table shows that based on mortgages originated in July 2017, the average first-time homebuyer was more likely than an average repeat buyer to take out a smaller loan and have a lower credit score and higher LTV and DTI, thus requiring a higher interest rate.



Sources: eMBS, Federal Housing Administration (FHA) and Urban Institute.
Note: All series measure the first-time homebuyer share of purchase loans for principal residences.

July 2017

Comparison of First-Time and Repeat Homebuyers, GSE and FHA Originations

	GSEs		FHA		GSEs and FHA	
Characteristics	First-time	Repeat	First-time	Repeat	First-time	Repeat
Loan Amount ($)	227,341	253,197	201,672	224,438	215,898	248,166
Credit Score	739.9	755.6	676.6	684.3	711.7	743.1
LTV (%)	87.0	78.8	95.5	94.1	90.8	81.5
DTI (%)	34.3	34.8	42.2	43.3	37.8	36.3
Loan Rate (%)	4.19	4.05	4.2	4.1	4.19	4.06

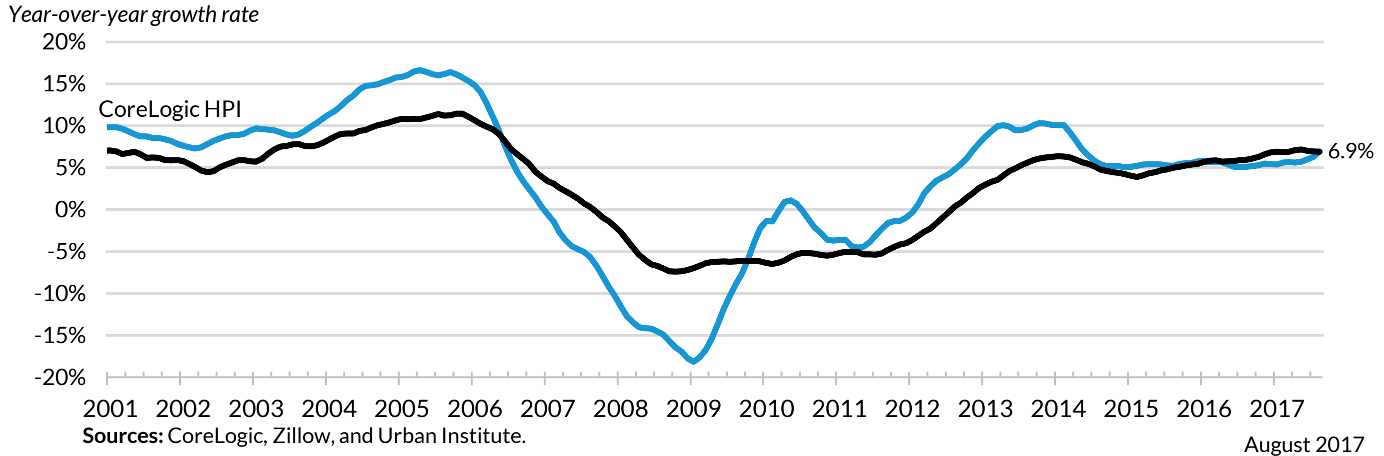
Sources: eMBS and Urban Institute.
Note: Based on owner-occupied purchase mortgages originated in July 2017.

STATE OF THE MARKET

HOME PRICE INDICES

National Year-Over-Year HPI Growth

While the strong year-over-year home price growth from 2012 to 2013 has slowed somewhat, home price appreciation remains robust as measured by the repeat sales index from CoreLogic and hedonic index from Zillow. We will continue to closely monitor how rising mortgage rates impact this strong growth.



Sources: CoreLogic, Zillow, and Urban Institute.

August 2017

Changes in CoreLogic HPI for Top MSAs

After rising 49.9 percent from the trough, national house prices have now reached pre-crisis peak levels. At the MSA level, Nine of the top 15 MSAs have reached their peak HPI: New York, NY; Los Angeles, CA; Atlanta, GA; Houston, TX; Dallas, TX; Minneapolis, MN; Seattle, WA; Denver, CO and San Diego, CA. Two MSAs particularly hard hit by the boom and bust– Phoenix, AZ and Riverside, CA– would need to rise 21 and 22 percent to return to peak levels, respectively.

MSA	HPI changes (%)			% Rise needed to achieve peak
	2000 to peak	Peak to trough	Trough to current	
United States	93.7	-33.3	49.9%	0.0%
New York-Jersey City-White Plains NY-NJ	112.0	-16.7	32.0%	-9.1%
Los Angeles-Long Beach-Glendale CA	177.2	-38.4	68.9%	-3.8%
Chicago-Naperville-Arlington Heights IL	66.0	-35.7	37.0%	13.6%
Atlanta-Sandy Springs-Roswell GA	38.0	-32.9	60.9%	-7.3%
Washington-Arlington-Alexandria DC-VA-MD-WV	155.3	-34.2	37.9%	10.2%
Houston-The Woodlands-Sugar Land TX	39.7	-14.0	45.6%	-20.1%
Phoenix-Mesa-Scottsdale AZ	123.7	-52.7	74.0%	21.4%
Riverside-San Bernardino-Ontario CA	186.1	-52.7	72.9%	22.1%
Dallas-Plano-Irving TX	34.3	-13.8	59.1%	-27.1%
Minneapolis-St. Paul-Bloomington MN-WI	73.0	-30.4	45.3%	-1.2%
Seattle-Bellevue-Everett WA	90.9	-29.1	81.5%	-22.3%
Denver-Aurora-Lakewood CO	35.6	-13.2	74.4%	-34.0%
Baltimore-Columbia-Towson MD	122.8	-24.6	17.0%	13.3%
San Diego-Carlsbad CA	145.0	-37.5	61.6%	-1.0%
Anaheim-Santa Ana-Irvine CA	160.7	-35.7	54.5%	0.6%

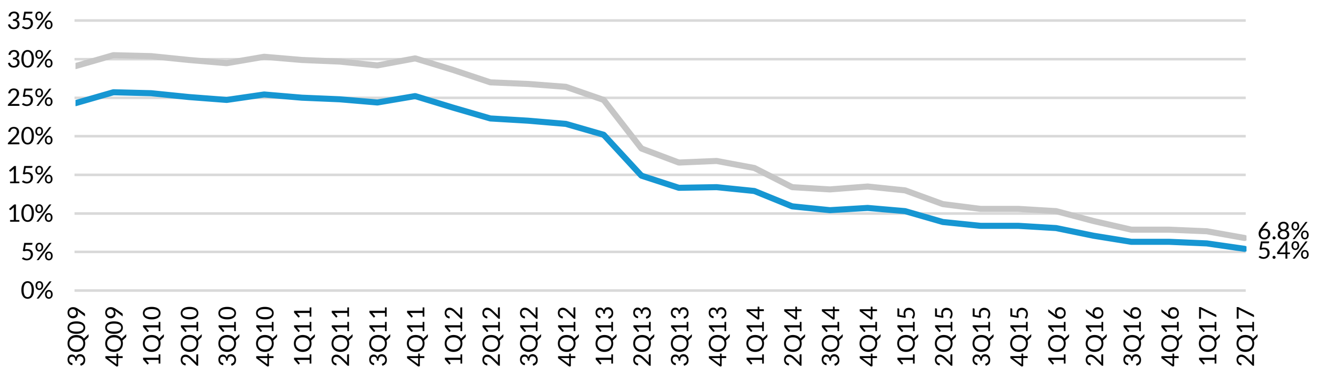
Sources: CoreLogic HPIs and Urban Institute. Data as of August 2017.
Note: This table includes the largest 15 Metropolitan areas by mortgage count.

STATE OF THE MARKET

NEGATIVE EQUITY & SERIOUS DELINQUENCY

Negative Equity Share

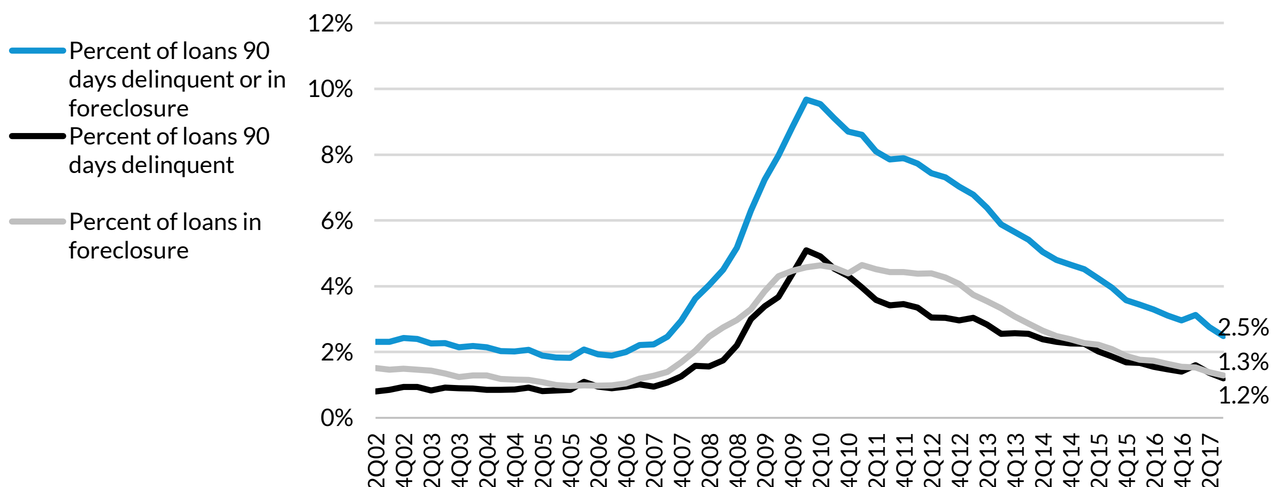
With housing prices continuing to appreciate, residential properties in negative equity (LTV greater than 100) as the share of all residential properties with a mortgage continued to decline and stood at 5.4 percent as of Q2 2017. Residential properties in near negative equity (LTV between 95 and 100) comprise another 1.4 percent..



Sources: CoreLogic and Urban Institute.
Note: CoreLogic negative equity rate is the percent of all residential properties with a mortgage in negative equity. Loans with negative equity refer to loans above 100 percent LTV. Loans near negative equity refer to loans above 95 percent LTV. *Last updated September 2017.*

Loans in Serious Delinquency/Foreclosure

90 day delinquencies continued their decline from 1.37 to 1.2 percent in Q2 2017. The percent of loans in foreclosure continued to edge down to 1.29 percent. The combined delinquencies totaled 2.49 percent in Q2 2017, down from 2.76 percent in Q1 2017 and 3.11 percent for the same quarter a year earlier.



Sources: Mortgage Bankers Association and Urban Institute. *Last updated September 2017.*

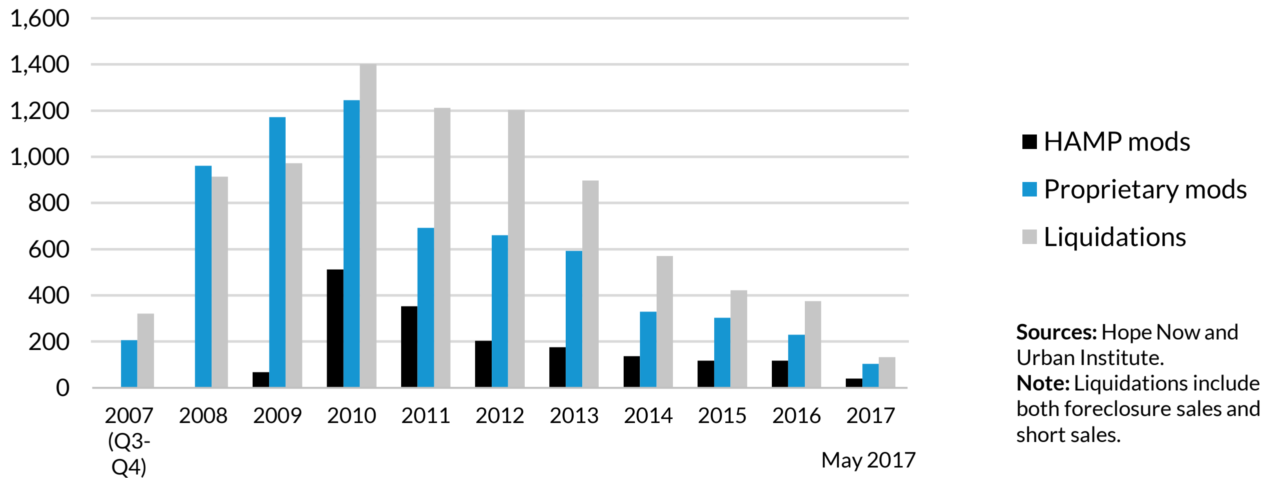
STATE OF THE MARKET

MODIFICATIONS AND LIQUIDATIONS

Total modifications (HAMP and proprietary) are now roughly equal to total liquidations. Hope Now reports show 8,242,918 borrowers have received a modification since Q3 2007, compared with 8,422,434 liquidations in the same period. Modifications and liquidations have slowed significantly over the past few years. In the first five months of 2017, there were just 142,640 modifications and 132,369 liquidations.

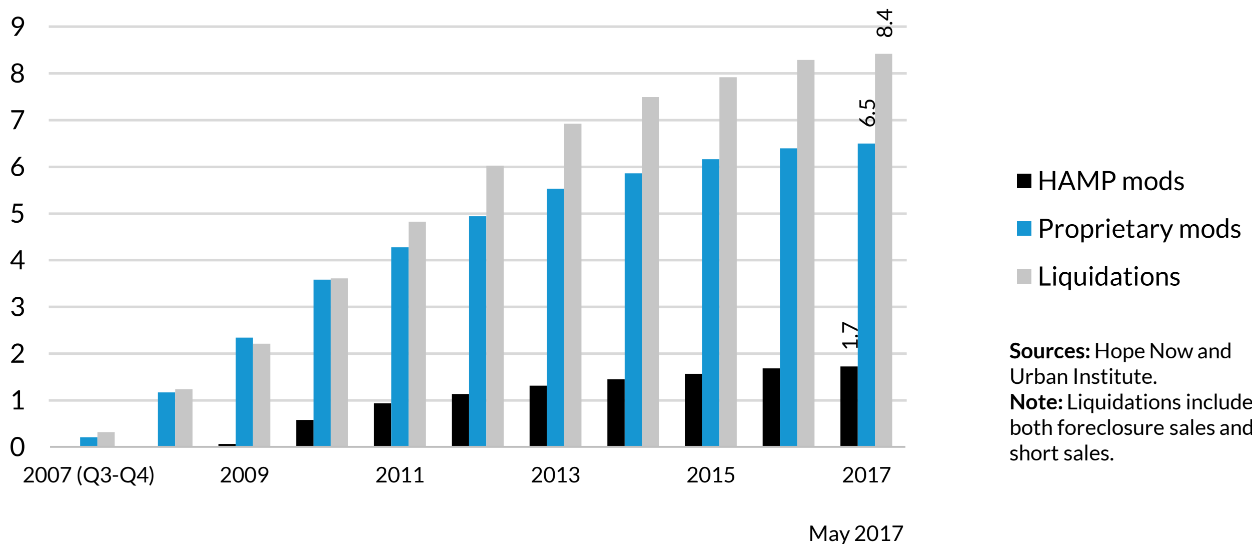
Loan Modifications and Liquidations

Number of loans (thousands)



Cumulative Modifications and Liquidations

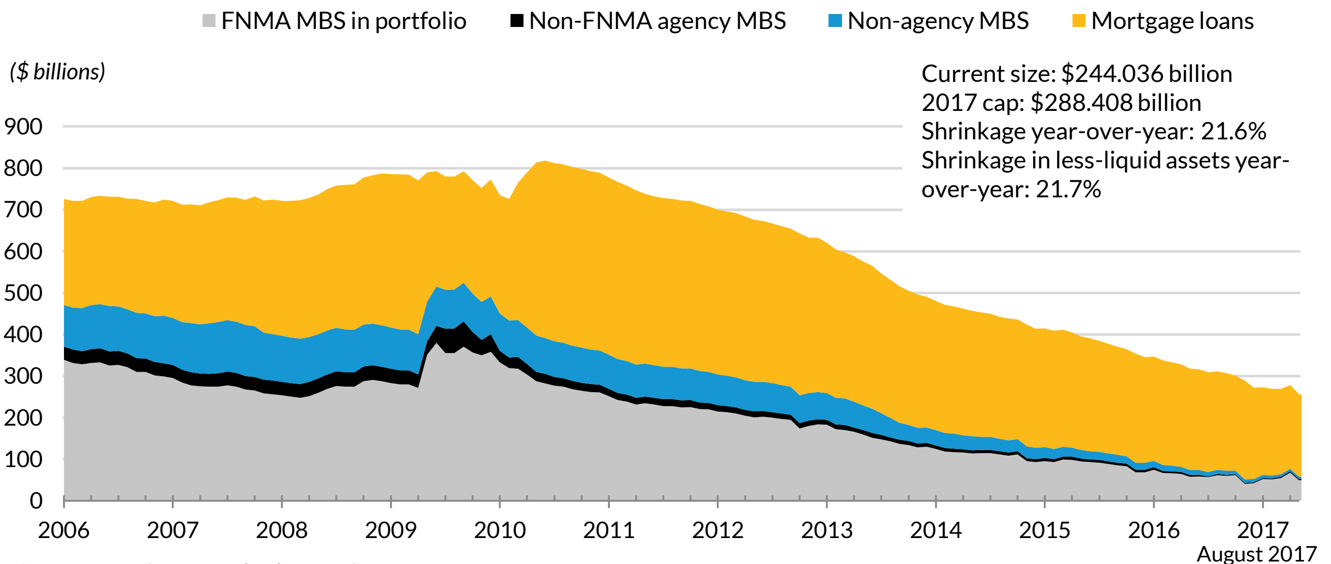
Number of loans (millions)



GSE PORTFOLIO WIND-DOWN

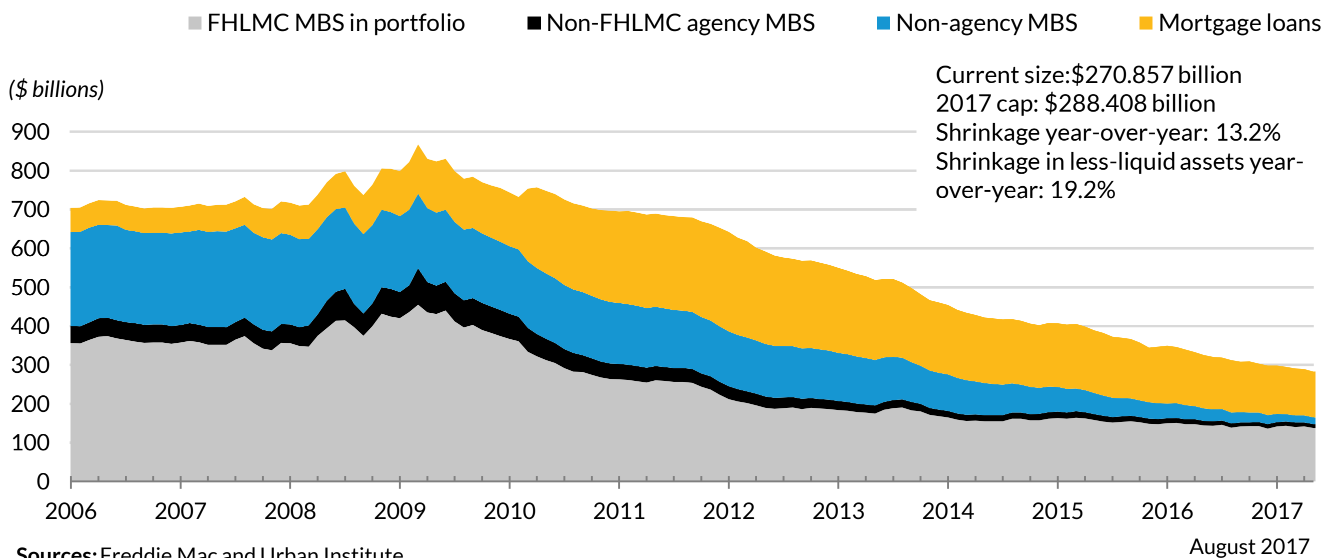
Both GSEs continue to contract their portfolios. Since August 2016, Fannie Mae has contracted by 21.6 percent and Freddie Mac by 13.2 percent. They are shrinking their less-liquid assets (mortgage loans and non-agency MBS) faster than they are shrinking their entire portfolio. As of August 2017, both Fannie Mae and Freddie Mac are below their year-end 2017 portfolio cap. Fannie Mae is also below the long run portfolio cap of $250 billion that each GSE is required to reach by year-end 2018.

Fannie Mae Mortgage-Related Investment Portfolio Composition



Sources: Fannie Mae and Urban Institute.

Freddie Mac Mortgage-Related Investment Portfolio Composition

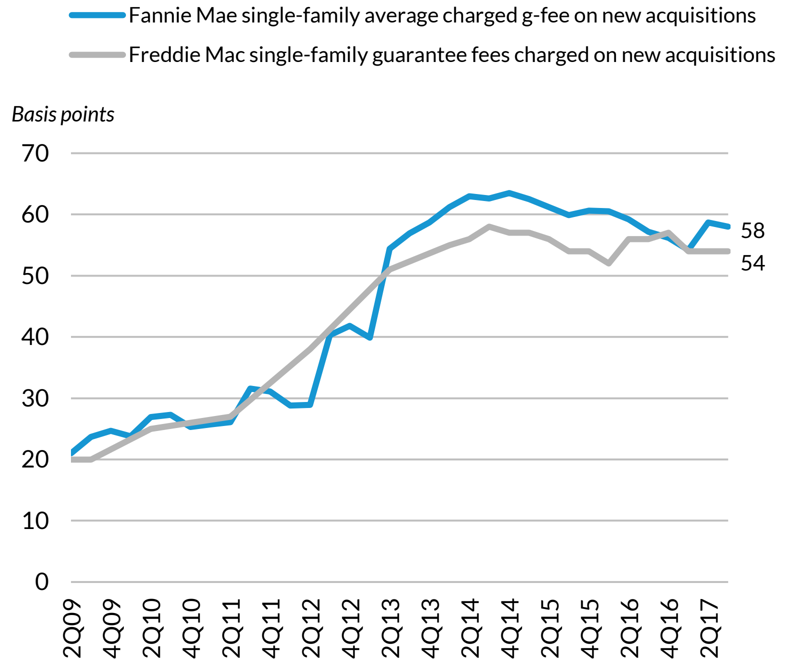


Sources: Freddie Mac and Urban Institute.

EFFECTIVE GUARANTEE FEES

Guarantee Fees Charged on New Acquisitions

The latest 10-K indicates that Fannie's average g-fees on new acquisitions decreased from 58.7 to 58.0 bps in Q2 2017 and Freddie's remained flat at 54 bps. This is a marked increase over 2012 and 2011, and has contributed to the GSEs' profits. The GSE's latest Loan-Level Pricing Adjustments (LLPAs) took effect in September 2015; the bottom table shows the Fannie Mae LLPAs, which are expressed as upfront charges. Note that the September 2015 changes were very modest, and did not have a material impact on GSE pricing. In particular, the Adverse Market Delivery Charge (ADMC) of 0.25 percent was eliminated, and LLPAs for some borrowers were slightly increased to compensate for the revenue loss.



Sources: Fannie Mae, Freddie Mae and Urban Institute.
Last updated August 2017.

Fannie Mae Upfront Loan-Level Price Adjustments (LLPAs)

Credit Score	LTV							
	≤60	60.01 – 70	70.01 – 75	75.01 – 80	80.01 – 85	85.01 – 90	90.01 – 95	95.01 – 97
> 740	0.00%	0.25%	0.25%	0.50%	0.25%	0.25%	0.25%	0.75%
720 – 739	0.00%	0.25%	0.50%	0.75%	0.50%	0.50%	0.50%	1.00%
700 – 719	0.00%	0.50%	1.00%	1.25%	1.00%	1.00%	1.00%	1.50%
680 – 699	0.00%	0.50%	1.25%	1.75%	1.50%	1.25%	1.25%	1.50%
660 – 679	0.00%	1.00%	2.25%	2.75%	2.75%	2.25%	2.25%	2.25%
640 – 659	0.50%	1.25%	2.75%	3.00%	3.25%	3.75%	2.75%	2.75%
620 – 639	0.50%	1.50%	3.00%	3.00%	3.25%	3.25%	3.25%	3.50%
< 620	0.50%	1.50%	3.00%	3.00%	3.25%	3.25%	3.25%	3.75%
Product Feature (Cumulative)								
High LTV	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Investment Property	2.125%	2.125%	2.125%	3.375%	4.125%	N/A	N/A	N/A

Sources: Fannie Mae and Urban Institute.
Note: For whole loans purchased on or after September 1, 2015, or loans delivered into MBS pools with issue dates on or after September 1, 2015.

GSES UNDER CONSERVATORSHIP

GSE RISK-SHARING TRANSACTIONS

Fannie Mae and Freddie Mac have been laying off back-end credit risk through CAS and STACR deals as well as through reinsurance transactions. They have also done a few front-end transactions with originators and experimented with deep mortgage insurance coverage with private mortgage insurers. FHFA's 2017 scorecard requires the GSEs to lay off credit risk on 90 percent of newly acquired loans in categories targeted for transfer. Fannie Mae's CAS issuances to date cover 33 percent of its outstanding guarantees, while Freddie's STACR covers 48 percent. In October 2017, Freddie Mac issued a $600M STACR deal, its last planned high LTV deal of the year.

Fannie Mae – Connecticut Avenue Securities (CAS)

Date	*Transaction*	*Reference Pool Size ($ m)*	*Amount Issued ($m)*	*% of Reference Pool Covered*
2013	CAS 2013 deals	$26,756	$675	2.5%
2014	CAS 2014 deals	$227, 234	$5,849	2.6%
2015	CAS 2015 deals	$187,126	$5,463	2.9%
February 2016	CAS 2016 – C01	$28,882	$945	3.3%
March 2016	CAS 2016 – C02	$35,004	$1,032	2.9%
April 2016	CAS 2016 – C03	$36,087	$1,166	3.2%
July 2016	CAS 2016 – C04	$42,179	$1,322	3.1%
August 2016	CAS 2016 - C05	$38,668	$1,202	3.1%
November 2016	CAS 2016 - C06	$33,124	$1,024	3.1%
December 2016	CAS 2016 – C07	$22,515	$702	3.1%
January 2017	CAS 2017 – C01	$43,758	$1,351	3.1%
March 2017	CAS 2017 – C02	$39,988	$1,330	3.3%
May 2017	CAS 2017 – C03	$41,246	$1,371	3.3%
May 2017	CAS 2017 – C04	$30,154	$1,003	3.3%
July 2017	CAS 2017 – C05	$43,751	$1,351	3.1%
August 2017	CAS 2017 – C06	$31,900	$1,101	3.5%
Total		**$908,372**	**$26,886**	**3.0%**
Percent of Fannie Mae's Total Book of Business		**32.79%**		

Freddie Mac – Structured Agency Credit Risk (STACR)

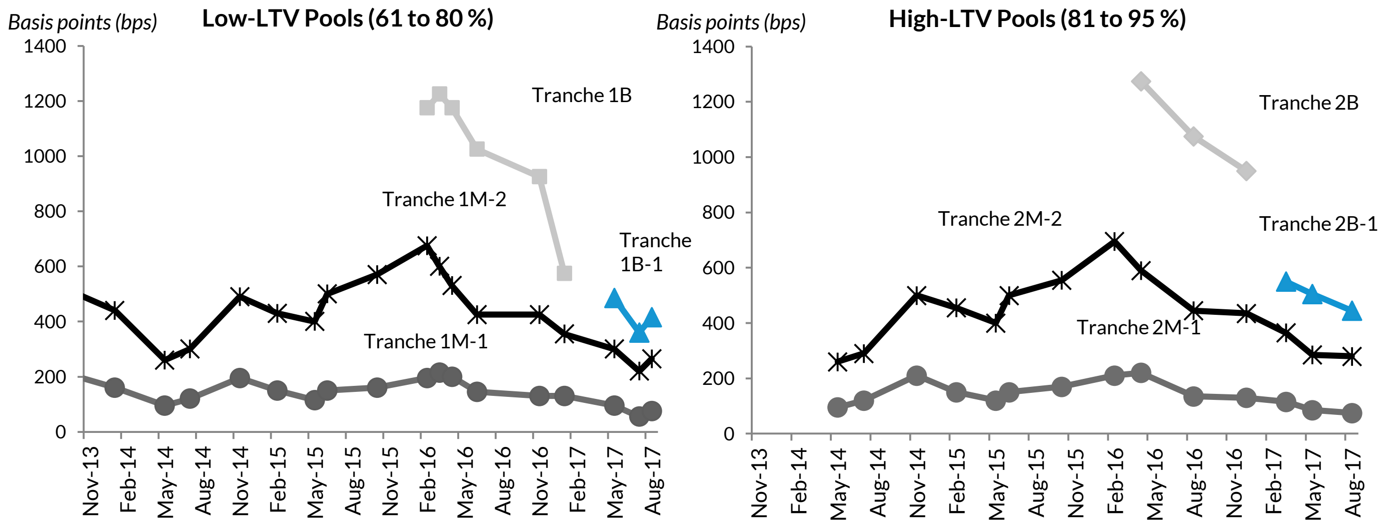
Date	*Transaction*	*Reference Pool Size ($ m)*	*Amount Issued ($m)*	*% of Reference Pool Covered*
2013	STACR 2013 deals	$57,912	$1,130	2.0%
2014	STACR 2014 deals	$147,120	$4,916	3.3%
2015	STACR 2015 deals	$209,521	$6,658	3.2%
January 2016	STACR Series 2016 – DNA1	$35,700	$996	2.8%
March 2016	STACR Series 2016 – HQA1	$17,931	$475	2.6%
May 2016	STACR Series 2016 – DNA2	$30,589	$916	3.0%
May 2016	STACR Series 2016 – HQA2	$18,400	$627	3.4%
June 2016	STACR Series 2016 – DNA3	$26,400	$795	3.0%
September 2016	STACR Series 2016 – HQA3	$15,709	$515	3.3%
September 2016	STACR Series 2016 – DNA4	$24,845	$739	3.0%
October 2016	STACR Series 2016 - HQA4	$13,847	$478	3.5%
January 2017	STACR Series 2017 – DNA1	$33, 965	$802	2.4%
February 2017	STACR Series 2017 – HQA1	$29,700	$753	2.5%
April 2017	STACR Series 2017 – DNA2	$60,716	$1,320	2.2%
June 2017	STACR Series 2017 – HQA2	$31,604	$788	2.5%
September 2017	STACR Series 2017 – DNA3	$56,151	$1,200	2.1%
October 2017	STACR Series 2017 – HQA3	$21,641	$600	2.8%
Total		**$769,668**	**$23,708**	**2.8%**
Percent of Freddie Mac's Total Book of Business		**48.15%**		

Sources: Fannie Mae, Freddie Mac and Urban Institute.
Note: Classes A-H, M-1H, M-2H, and B-H are reference tranches only. These classes are not issued or sold. The risk is retained by Fannie Mae and Freddie Mac. "CE" = credit enhancement.

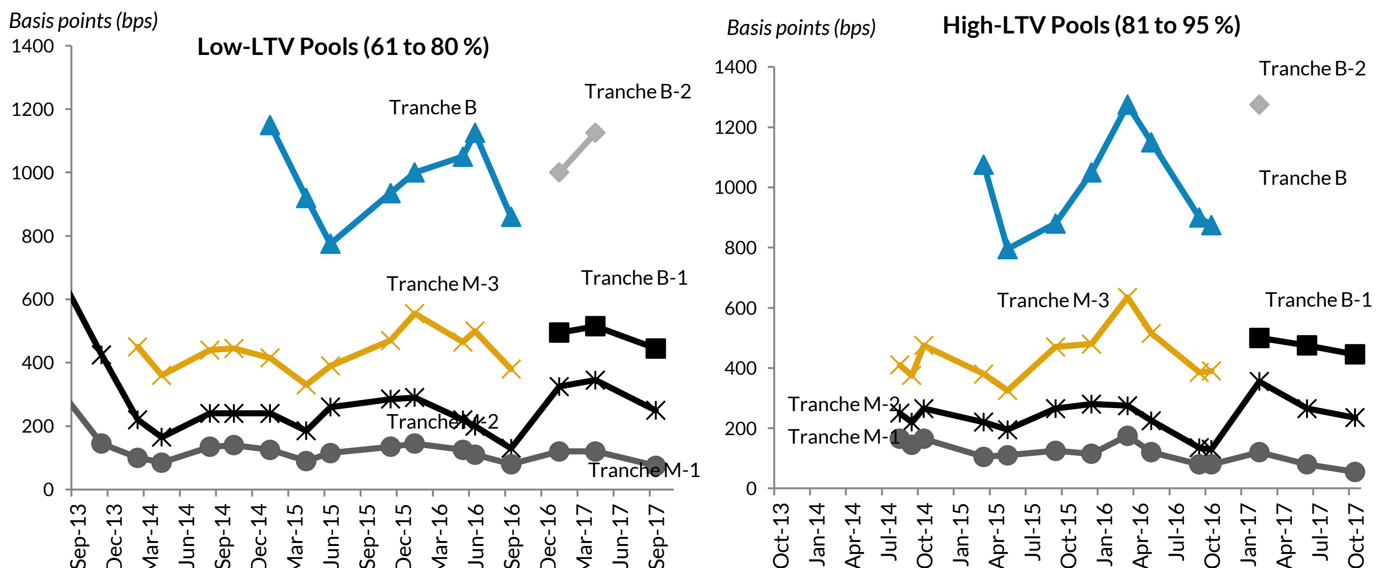
GSE RISK-SHARING SPREADS

CAS and STACR spreads have moved around considerably since 2013, with the bottom mezzanine tranche and the first loss bonds experiencing considerably more volatility than the top mezzanine bonds. Tranche B in particular has been highly volatile because of its first loss position. Spreads widened especially during Q1 2016 due to falling oil prices, concerns about global economic growth and the slowdown in China. Since then spreads have resumed their downward trend but remain volatile. Secondary market spreads, not reflected here, show some widening post Hurricanes Harvey and Irma.

Fannie Mae CAS Spreads at-issuance (basis points over 1-month LIBOR)



Freddie Mac STACR Spreads at-issuance (basis points over 1-month LIBOR)



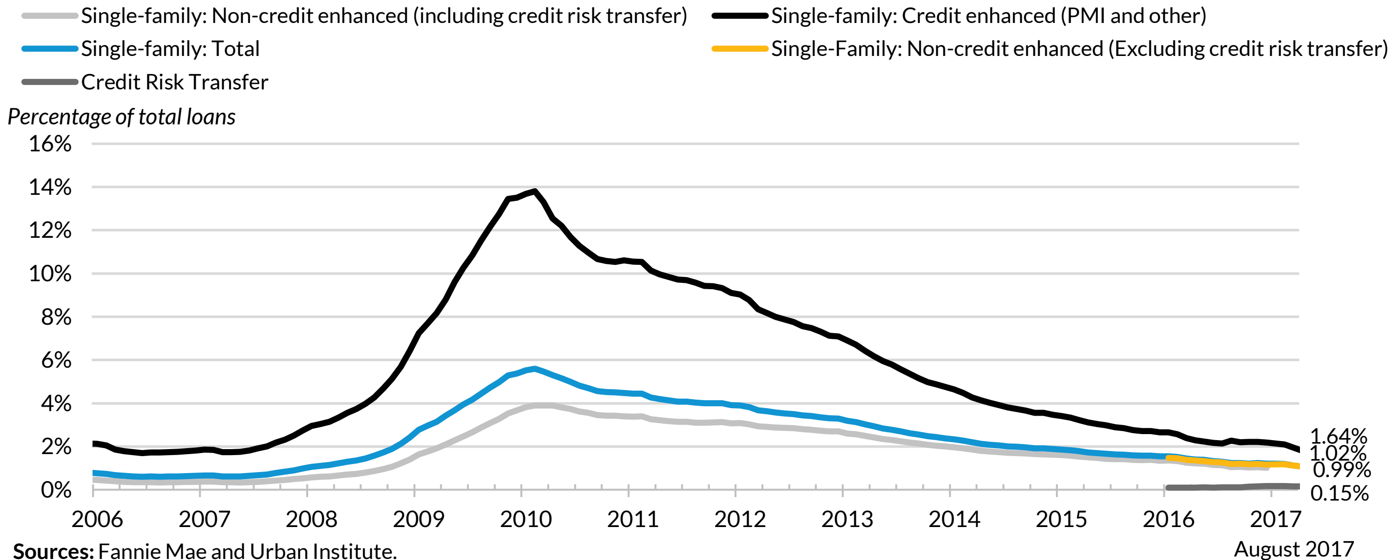
Sources: Fannie Mae, Freddie Mac Press Releases and Urban Institute.

GSES UNDER CONSERVATORSHIP

SERIOUS DELINQUENCY RATES

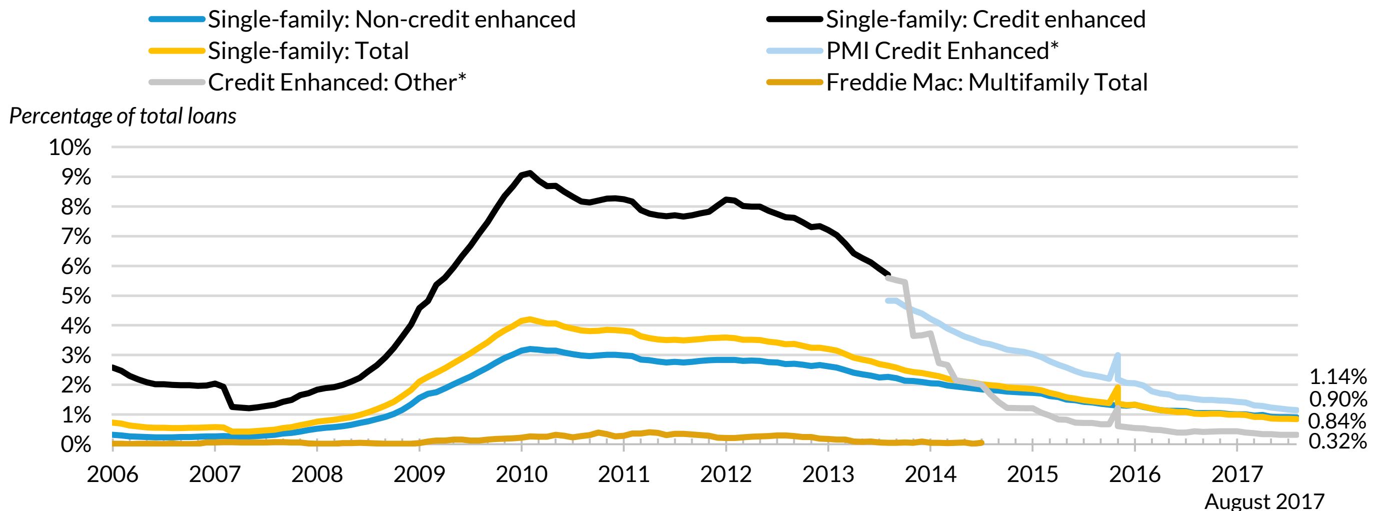
Serious delinquency rates of GSE loans continue to decline as the legacy portfolio is resolved and the pristine, post-2009 book of business exhibits very low default rates. As of August 2017, 0.99 percent of the Fannie portfolio and 0.84 percent of the Freddie portfolio were seriously delinquent, down from 1.24 percent for Fannie and 1.03 percent for Freddie in August 2016.

Serious Delinquency Rates–Fannie Mae



Sources: Fannie Mae and Urban Institute.
Note*: Following a change in Fannie reporting in March 2017, we started to report the credit risk transfer category and a new non-credit enhanced category that excludes loans covered by either primary MI or credit risk transfer transactions. Fannie reported these two new categories going back to January 2016.

Serious Delinquency Rates–Freddie Mac

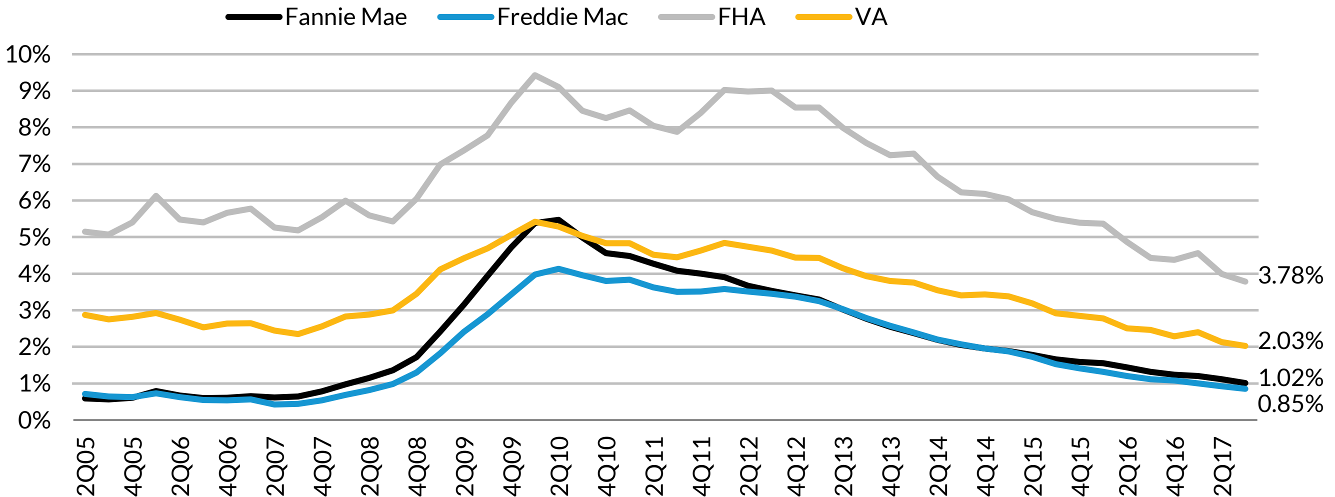


Sources: Freddie Mac and Urban Institute.
Note*: Following a change in Freddie reporting in September 2014, we switched from reporting credit enhanced delinquency rates to PMI and other credit enhanced delinquency rates. Freddie reported these two categories for credit-enhanced loans going back to August 2013. The other category includes single-family loans covered by financial arrangements (other than primary mortgage insurance) including loans in reference pools covered by STACR debt note transactions as well as other forms of credit protection.

SERIOUS DELINQUENCY RATES

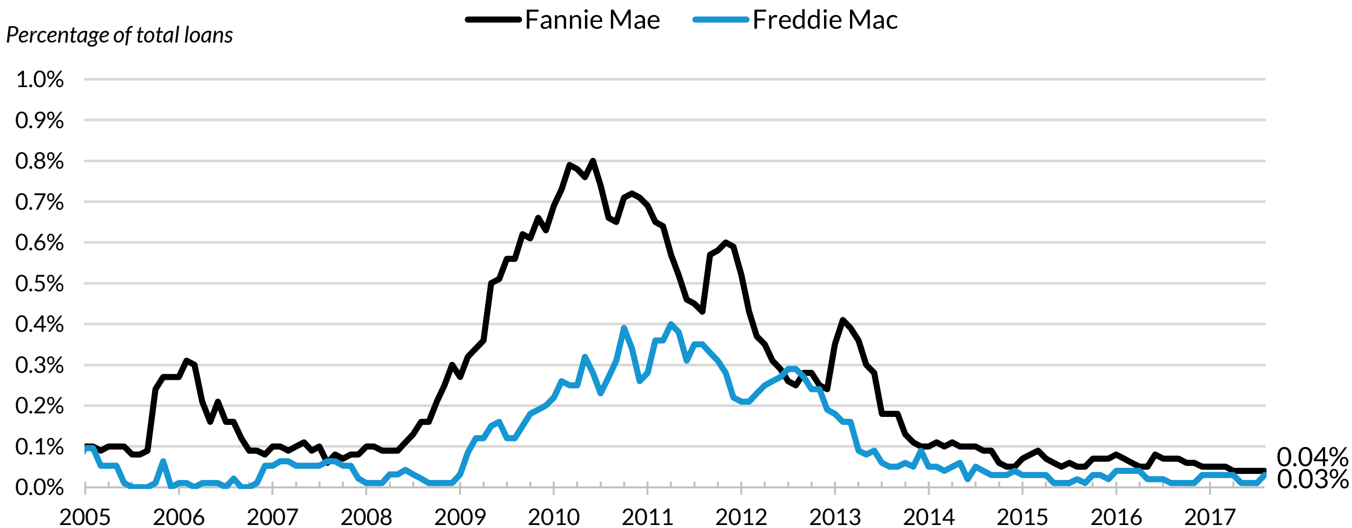
Serious delinquencies for GSE single-family loans continued to decline. After the seasonal uptick in Q4 2016, both FHA and VA delinquencies resumed their decline to 3.78 and 2.03 percent through Q2 2017. GSE delinquencies remain higher relative to 2005-2007, while FHA and VA delinquencies (which are higher than their GSE counterparts) are at levels lower than 2005-2007. GSE multifamily delinquencies have declined to pre-crisis levels, although they did not reach problematic levels even in the worst years of the crisis.

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. Not seasonally adjusted.

Serious Delinquency Rates–Multifamily GSE Loans



August 2017

Sources: Fannie Mae, Freddie Mac and Urban Institute.
Note: Multifamily serious delinquency rate is the unpaid balance of loans 60 days or more past due, divided by the total unpaid balance.

AGENCY GROSS AND NET ISSUANCE

The agency gross issuance totaled $986.9 billion in the first three quarters of 2017, a 6.4 percent decrease year-over-year. When measured on a monthly basis, the agency gross issuance was lower year-over-year for seven consecutive months since March. If we annualize year to date gross issuance, volume is down from 2016. Net issuance (which excludes repayments, prepayments, and refinances on outstanding mortgages) was up 35.7 percent versus the same period in 2016, on track to become the most robust net issuance year in recent history.

Agency Gross Issuance

Issuance Year	GSEs	Ginnie Mae	Total
2000	$360.6	$102.2	$462.8
2001	$885.1	$171.5	$1,056.6
2002	$1,238.9	$169.0	$1,407.9
2003	$1,874.9	$213.1	$2,088.0
2004	$872.6	$119.2	$991.9
2005	$894.0	$81.4	$975.3
2006	$853.0	$76.7	$929.7
2007	$1,066.2	$94.9	$1,161.1
2008	$911.4	$267.6	$1,179.0
2009	$1,280.0	$451.3	$1,731.3
2010	$1,003.5	$390.7	$1,394.3
2011	$879.3	$315.3	$1,194.7
2012	$1,288.8	$405.0	$1,693.8
2013	$1,176.6	$393.6	$1,570.1
2014	$650.9	$296.3	$947.2
2015	$845.7	$436.3	$1,282.0
2016	$991.6	$508.2	$1,499.8
2017 YTD	$643.7	$343.3	$986.9
2017 YTD %Change YOY	-6.4%	-6.4%	-6.4%
2017 Ann	$858.2	$457.7	$1,315.9

Agency Net Issuance

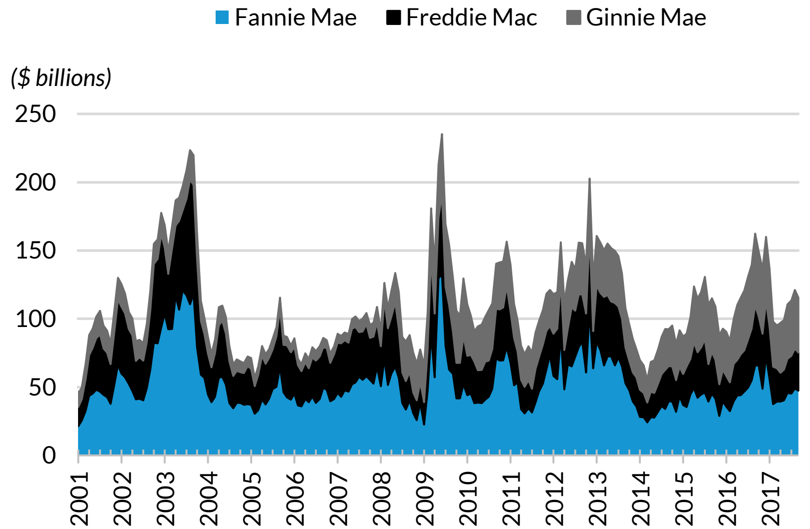
Issuance Year	GSEs	Ginnie Mae	Total
2000	$159.8	$29.3	$189.1
2001	$368.4	-$9.9	$358.5
2002	$357.2	-$51.2	$306.1
2003	$334.9	-$77.6	$257.3
2004	$82.5	-$40.1	$42.4
2005	$174.2	-$42.2	$132.0
2006	$313.6	$0.2	$313.8
2007	$514.9	$30.9	$545.7
2008	$314.8	$196.4	$511.3
2009	$250.6	$257.4	$508.0
2010	-$303.2	$198.3	-$105.0
2011	-$128.4	$149.6	$21.2
2012	-$42.4	$119.1	$76.8
2013	$69.1	$87.9	$157.0
2014	$30.5	$61.6	$92.1
2015	$75.1	$97.3	$172.5
2016	$135.5	$125.3	$260.8
2017 YTD	$112.6	$105.5	$218.1
2017 YTD %Change YOY	35.7%	11.3%	22.7%
2017 Ann	$150.1	$140.7	$290.8

Sources: eMBS and Urban Institute.
Note: Dollar amounts are in billions. Annualized figure based on data from September 2017.

AGENCY GROSS ISSUANCE & FED PURCHASES

Monthly Gross Issuance

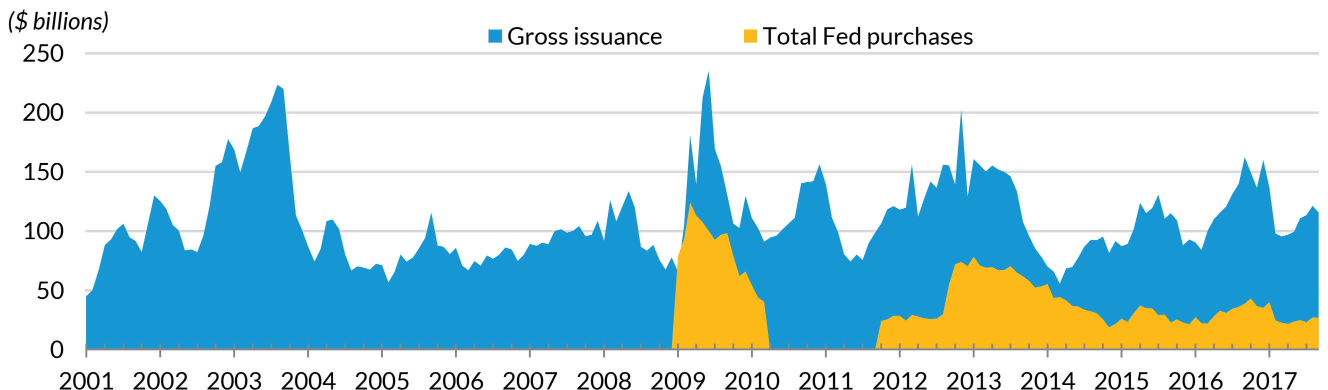
While government and GSE lending have dominated the mortgage market since the crisis, there has been a change in the mix. The Ginnie Mae share reached a peak of 28 percent of total agency issuance in 2010, declined to 25 percent in 2013, and has bounced back sharply since then. With the elevated mortgage rates since the election, monthly agency issuance has been lower year over year for seven consecutive months since March. Less dependent on refinances, Ginnie Mae gross issuance experienced less of a drop, driving its share up to 35 percent in September 2017.



Sources: eMBS, Federal Reserve Bank of New York, and Urban Institute.

Fed Absorption of Agency Gross Issuance

In October 2014, the Fed ended its purchase program, but continued buying at a much reduced level, reinvesting funds from pay downs on mortgages and agency debentures into the mortgage market. Since then, the Fed's absorption of gross issuance has been between 20 and 30 percent. In September 2017, agency gross issuance declined to $115.5 billion while total Fed purchases decreased slightly to $26.8 billion, yielding Fed absorption of gross issuance of 23.2 percent, up from 22.5 percent last month. In their September 2017 meeting, the Fed announced that 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 will continue to reinvest, but by less than their run off.

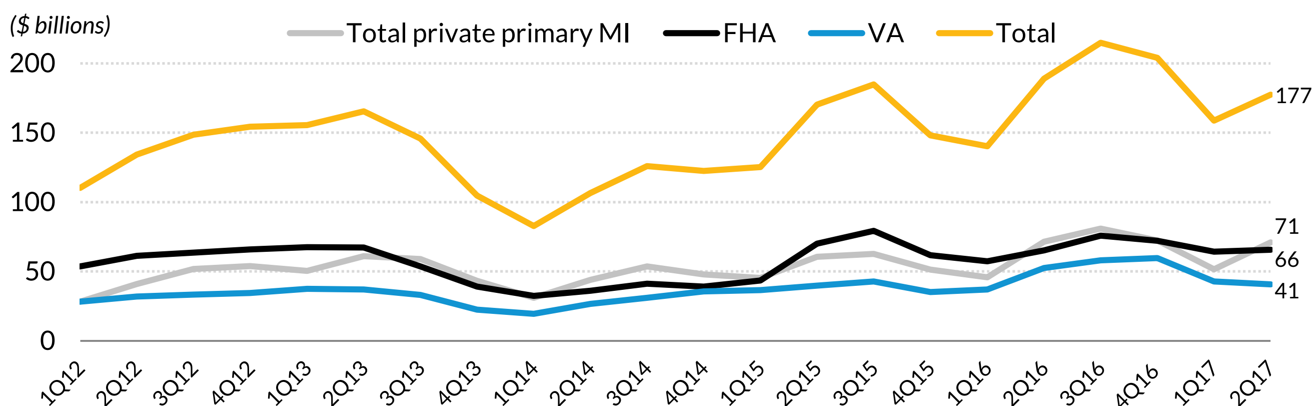


Sources: eMBS, Federal Reserve Bank of New York and Urban Institute.

MORTGAGE INSURANCE ACTIVITY

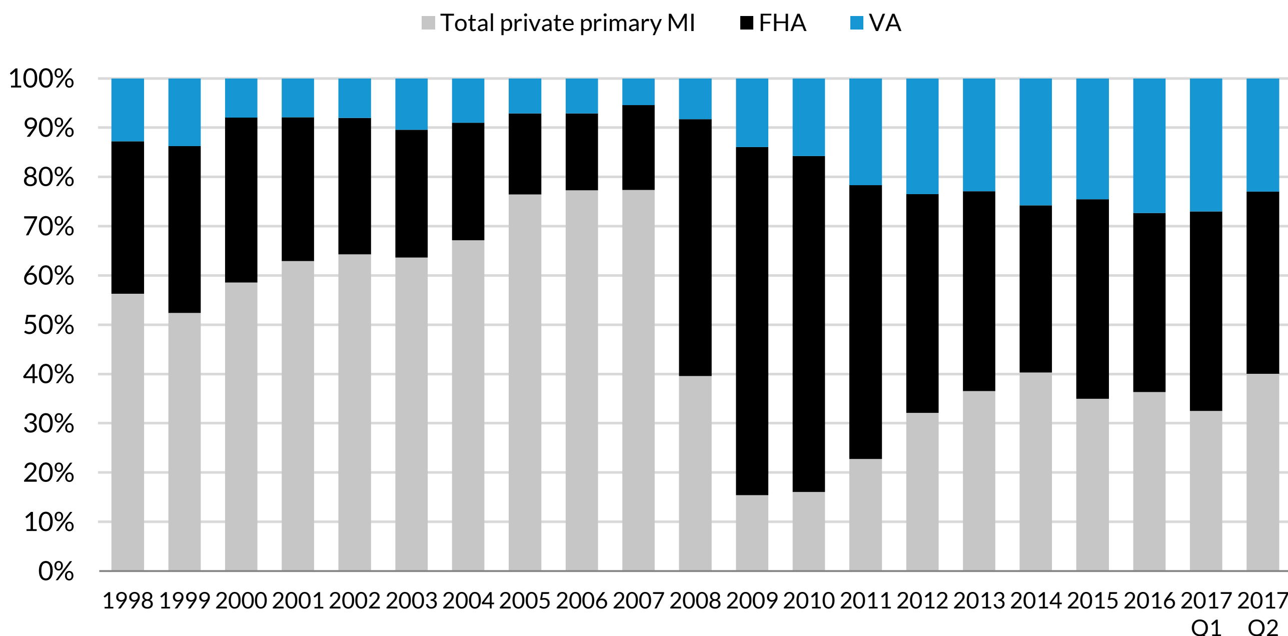
MI Activity

In 2017 Q2, mortgage insurance activity via the FHA, VA and private insurers rose from the previous quarter's $159 billion to $177 billion, but it was still down 6 percent year-over-year from the same quarter in 2016. This quarter's increase is mainly driven by private mortgage insurers' $19 billion growth, while FHA edged up slightly and VA activity declined. FHA's market share fell from 41 to 37 percent and VA share fell from 27 to 23 percent in 2017 Q2, while the private insurance market's share increased to 40 percent (from 32 percent the previous quarter).



Sources: Inside Mortgage Finance and Urban Institute. *Last updated August 2017.*

MI Market Share



Sources: Inside Mortgage Finance and Urban Institute. *Last updated August 2017.*

AGENCY ISSUANCE

MORTGAGE INSURANCE ACTIVITY

FHA premiums rose significantly in the years following the housing crash, with annual premiums rising 170 percent from 2008 to 2013 as FHA worked to shore up its finances. In January 2015, President Obama announced a 50 bps cut in annual insurance premiums, making FHA mortgages more attractive than GSE mortgages for all borrowers. The April 2016 reduction in PMI rates for borrowers with higher FICO scores has partially offset that. As shown in the bottom table, a borrower putting 3.5 percent down will now find FHA more economical except for those with FICO scores of 760 or higher.

FHA MI Premiums for Typical Purchase Loan

Case number date	Upfront mortgage insurance premium (UFMIP) paid	Annual mortgage insurance premium (MIP)
1/1/2001 - 7/13/2008	150	50
7/14/2008 - 4/5/2010*	175	55
4/5/2010 - 10/3/2010	225	55
10/4/2010 - 4/17/2011	100	90
4/18/2011 - 4/8/2012	100	115
4/9/2012 - 6/10/2012	175	125
6/11/2012 - 3/31/2013[a]	175	125
4/1/2013 – 1/25/2015[b]	175	135
Beginning 1/26/2015[c]	175	85

Sources: Ginnie Mae and Urban Institute.
Note: A typical purchase loan has an LTV over 95 and a loan term longer than 15 years. Mortgage insurance premiums are listed in basis points.
* For a short period in 2008 the FHA used a risk based FICO/LTV matrix for MI.
[a] Applies to purchase loans less than or equal to $625,500. Those over that amount have an annual premium of 150 bps.
[b] Applies to purchase loans less than or equal to $625,500. Those over that amount have an annual premium of 155 bps.
[c] Applies to purchase loans less than or equal to $625,500. Those over that amount have an annual premium of 105 bps.

Initial Monthly Payment Comparison: FHA vs. PMI

Assumptions	
Property Value	$250,000
Loan Amount	$241,250
LTV	96.5
Base Rate	
Conforming	4.12%
FHA	4.02%

FICO	620 - 639	640 - 659	660 - 679	680 - 699	700 - 719	720 - 739	740 - 759	760 +
FHA MI Premiums								
FHA UFMIP	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%
FHA MIP	0.85%	0.85%	0.85%	0.85%	0.85%	0.85%	0.85%	0.85%
PMI								
GSE LLPA*	3.50%	2.75%	2.25%	1.50%	1.50%	1.00%	0.75%	0.75%
PMI Annual MIP	2.25%	2.05%	1.90%	1.40%	1.15%	0.95%	0.75%	0.55%
Monthly Payment								
FHA	$1,334	$1,334	$1,334	$1,334	$1,334	$1,334	$1,334	$1,334
PMI	$1,708	$1,646	$1,601	$1,480	$1,429	$1,388	$1,340	$1,300
PMI Advantage	($374)	($312)	($267)	($146)	($95)	($54)	($6)	$34

Sources: Genworth Mortgage Insurance, Ginnie Mae and Urban Institute.
Note: Mortgage insurance premiums listed in percentage points. Grey shade indicates FHA monthly payment is more favorable, while light blue indicates PMI is more favorable. The PMI monthly payment calculation does not include special programs like Fannie Mae's HomeReady and Freddie Mac's Home Possible (HP), both offer more favorable rates for low- to moderate-income borrowers.
LLPA= Loan Level Price Adjustment, described in detail on page 21.

FANNIE MAE COMPOSITION

Since 2008, the composition of loans purchased by Fannie Mae has shifted towards borrowers with higher FICO scores. For example, 66.5 percent of loans originated from 2011 to 2016 Q2 were for borrowers with FICO scores above 750, compared to 40.7 percent of borrowers in 2007 and 36.7 percent from 1999-2004.

Balance on 30-year, Fixed-rate, Full-doc, Amortizing Loans

Origination Year	Origination FICO	LTV				Total
		≤70	70 to 80	80 to 90	>90	
1999-2004	≤700	9.4%	15.1%	4.5%	4.5%	33.4%
	700 to 750	9.2%	14.2%	3.4%	3.2%	30.1%
	>750	15.5%	16.1%	2.7%	2.3%	36.7%
	Total	34.1%	45.4%	10.7%	10.0%	100.0%
2005	≤700	12.6%	15.5%	3.4%	2.3%	33.8%
	700 to 750	9.8%	13.3%	2.1%	1.4%	26.6%
	>750	17.4%	18.7%	2.1%	1.4%	39.6%
	Total	39.7%	47.5%	7.7%	5.1%	100.0%
2006	≤700	12.7%	16.1%	3.5%	2.2%	34.5%
	700 to 750	8.9%	13.5%	2.2%	1.3%	25.9%
	>750	15.8%	20.1%	2.4%	1.4%	39.7%
	Total	37.3%	49.8%	8.1%	4.9%	100.0%
2007	≤700	10.8%	15.1%	5.3%	3.1%	34.3%
	700 to 750	7.8%	12.5%	3.0%	1.7%	25.0%
	>750	15.2%	20.1%	3.3%	2.0%	40.7%
	Total	33.8%	47.7%	11.6%	6.8%	100.0%
2008	≤700	7.6%	7.2%	2.9%	2.0%	19.7%
	700 to 750	7.8%	11.9%	4.1%	2.7%	26.4%
	>750	19.0%	25.7%	5.8%	3.4%	53.9%
	Total	34.4%	44.7%	12.7%	8.1%	100.0%
2009-2010	≤700	3.6%	2.9%	0.3%	0.2%	6.9%
	700 to 750	8.2%	10.8%	1.7%	0.8%	21.5%
	>750	32.3%	33.5%	4.0%	1.7%	71.5%
	Total	44.1%	47.2%	6.0%	2.7%	100.0%
2011-2Q16	≤700	3.1%	4.7%	1.2%	1.8%	10.7%
	700 to 750	5.5%	9.8%	3.0%	4.3%	22.6%
	>750	21.5%	29.6%	7.3%	8.1%	66.5%
	Total	30.1%	44.1%	11.4%	14.2%	100.0%
Total		34.4%	45.6%	10.2%	9.8%	100.0%

Sources: Fannie Mae and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 2016. The percentages are weighted by origination balance. The analysis included only mortgages with original terms of 241-420 months.

FANNIE MAE DEFAULT RATE

While the composition of Fannie Mae loans originated in 2007 was similar to that of 2004 and earlier vintage years, 2007 loans experienced a much higher default rate due to the sharp drop in home values in the recession. Originations from 2009 and later have pristine credit characteristics and a more favorable home price environment, contributing to very low default rates.

Default Rate on 30-year, Fixed-rate, Full-doc, Amortizing Loans

Origination Year	Origination FICO	LTV				Total
		≤70	70 to 80	80 to 90	>90	
1999-2004	≤700	3.7%	4.6%	6.1%	7.0%	4.9%
	700 to 750	1.2%	1.9%	2.9%	3.0%	1.9%
	>750	0.4%	0.8%	1.5%	1.7%	0.8%
	Total	1.5%	2.4%	3.9%	4.5%	2.5%
2005	≤700	13.8%	17.3%	19.9%	21.6%	16.6%
	700 to 750	6.4%	9.7%	12.7%	13.1%	8.9%
	>750	2.2%	4.5%	7.1%	8.2%	3.8%
	Total	6.9%	10.2%	14.4%	15.6%	9.5%
2006	≤700	18.1%	22.3%	25.7%	27.2%	21.4%
	700 to 750	8.6%	13.2%	16.0%	16.6%	12.0%
	>750	2.9%	5.8%	9.1%	9.5%	5.0%
	Total	9.4%	13.1%	18.1%	19.3%	12.5%
2007	≤700	19.5%	23.3%	30.7%	31.0%	23.9%
	700 to 750	8.4%	13.4%	19.1%	18.5%	12.9%
	>750	2.7%	5.7%	10.9%	10.8%	5.3%
	Total	9.4%	13.3%	22.1%	21.8%	13.6%
2008	≤700	14.3%	16.9%	23.0%	23.1%	17.4%
	700 to 750	5.0%	7.9%	12.7%	12.5%	8.3%
	>750	1.2%	2.7%	6.2%	6.9%	2.8%
	Total	5.0%	6.4%	12.1%	12.8%	7.1%
2009-2010	≤700	3.7%	4.8%	4.7%	6.0%	4.3%
	700 to 750	1.0%	1.9%	2.4%	2.9%	1.6%
	>750	0.2%	0.5%	1.0%	1.4%	0.4%
	Total	0.6%	1.1%	1.6%	2.2%	1.0%
2011-2Q16	≤700	0.8%	1.0%	1.1%	1.3%	1.0%
	700 to 750	0.2%	0.3%	0.4%	0.5%	0.3%
	>750	0.0%	0.1%	0.1%	0.2%	0.1%
	Total	0.1%	0.2%	0.3%	0.4%	0.2%
Total		2.0%	2.9%	4.4%	3.7%	2.8%

Sources: Fannie Mae and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 2016, with performance information on these loans through Q1 2017. Default is defined as more than six months delinquent or disposed of via short sales, third-party sales, deeds-in-lieu of foreclosure, or real estate owned (REO acquisitions). The analysis included only mortgages with original terms of 241-420 months.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

FREDDIE MAC COMPOSITION

Since 2008, the composition of loans purchased by Freddie Mac has shifted towards borrowers with higher FICO scores. For example, 61.4 percent of loans originated from 2011 to Q2 2016 were for borrowers with FICO scores above 750, compared to 38.9 percent of borrowers in 2007 and 33.3 percent from 1999-2004.

Balance on 30-year, Fixed-rate, Full-doc, Amortizing Loans

Origination Year	Origination FICO	LTV				Total
		≤70	70 to 80	80 to 90	>90	
1999-2004	≤700	7.8%	16.6%	5.5%	5.6%	35.5%
	700 to 750	8.9%	16.0%	3.4%	3.2%	31.5%
	>750	13.6%	15.6%	2.3%	1.8%	33.3%
	Total	30.3%	48.2%	11.2%	10.6%	100.0%
2005	≤700	10.6%	17.0%	3.3%	2.9%	33.9%
	700 to 750	9.4%	15.4%	2.0%	1.6%	28.4%
	>750	15.8%	18.8%	1.7%	1.4%	37.7%
	Total	35.8%	51.2%	7.0%	5.9%	100.0%
2006	≤700	10.1%	17.3%	3.4%	3.2%	34.0%
	700 to 750	8.3%	16.1%	1.9%	1.5%	27.9%
	>750	14.4%	20.7%	1.7%	1.3%	38.1%
	Total	32.8%	54.1%	7.1%	6.0%	100.0%
2007	≤700	9.2%	15.5%	4.6%	4.8%	34.0%
	700 to 750	7.5%	14.3%	2.6%	2.6%	27.0%
	>750	14.4%	19.5%	2.5%	2.6%	38.9%
	Total	31.1%	49.4%	9.7%	9.9%	100.0%
2008	≤700	7.3%	8.7%	3.1%	2.1%	21.3%
	700 to 750	9.2%	13.1%	3.7%	2.4%	28.3%
	>750	21.6%	21.5%	4.7%	2.6%	50.4%
	Total	38.1%	43.3%	11.5%	7.1%	100.0%
2009-2010	≤700	3.9%	3.2%	0.3%	0.2%	7.7%
	700 to 750	9.3%	11.9%	1.7%	0.9%	23.8%
	>750	32.5%	31.0%	3.6%	1.4%	68.5%
	Total	45.8%	46.1%	5.6%	2.5%	100.0%
2011-3Q16	≤700	3.7%	4.6%	1.3%	1.7%	11.3%
	700 to 750	6.9%	12.0%	3.4%	4.6%	26.9%
	>750	19.8%	27.9%	6.5%	7.2%	61.4%
	Total	30.5%	44.4%	11.2%	13.5%	100.0%
Total		33.5%	47.0%	9.9%	9.6%	100.0%

Sources: Freddie Mac and Urban Institute.
Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2016. The percentages are weighted by origination balance. The analysis included only mortgages with original terms of 241-420 months.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

FREDDIE MAC DEFAULT RATE

While the composition of Freddie Mac loans originated in 2007 was similar to that of 2004 and earlier vintage years, 2007 loans experienced a much higher default rate due to the sharp drop in home values in the recession. Originations from 2009 and later have pristine credit characteristics and a more favorable home price environment, contributing to very low default rates.

Default Rate on 30-year, Fixed-rate, Full-doc, Amortizing Loans

Origination Year	Origination FICO	LTV				Total
		≤70	70 to 80	80 to 90	>90	
1999-2004	≤700	3.0%	4.2%	6.5%	6.9%	4.7%
	700 to 750	1.0%	1.7%	2.7%	2.9%	1.7%
	>750	0.4%	0.8%	1.5%	1.8%	0.7%
	Total	1.3%	2.3%	4.3%	4.8%	2.5%
2005	≤700	12.0%	16.4%	19.4%	20.9%	15.7%
	700 to 750	5.8%	9.4%	12.5%	12.8%	8.6%
	>750	2.0%	4.5%	7.1%	8.2%	3.7%
	Total	6.0%	9.9%	14.5%	15.8%	9.2%
2006	≤700	15.8%	20.9%	24.3%	26.7%	20.3%
	700 to 750	7.9%	12.6%	15.2%	15.3%	11.5%
	>750	2.7%	6.0%	8.9%	9.5%	5.0%
	Total	8.0%	12.7%	18.0%	20.1%	12.0%
2007	≤700	16.9%	22.4%	28.2%	30.8%	22.9%
	700 to 750	7.8%	13.4%	17.9%	18.3%	12.8%
	>750	2.6%	6.3%	10.2%	11.4%	5.5%
	Total	8.1%	13.5%	20.8%	22.5%	13.4%
2008	≤700	13.1%	17.0%	23.3%	22.5%	17.1%
	700 to 750	4.7%	8.4%	12.9%	11.6%	8.0%
	>750	1.4%	3.3%	6.7%	6.3%	2.9%
	Total	4.4%	7.6%	13.2%	12.9%	7.4%
2009-2010	≤700	3.2%	4.6%	4.9%	5.2%	3.9%
	700 to 750	0.8%	1.8%	2.1%	2.5%	1.5%
	>750	0.2%	0.6%	1.1%	1.2%	0.4%
	Total	0.6%	1.2%	1.6%	2.1%	1.0%
2011-3Q16	≤700	0.5%	0.6%	0.6%	0.8%	0.6%
	700 to 750	0.1%	0.2%	0.2%	0.3%	0.2%
	>750	0.0%	0.1%	0.1%	0.1%	0.1%
	Total	0.1%	0.1%	0.2%	0.3%	0.2%
Total		2.0%	3.6%	5.0%	5.0%	3.3%

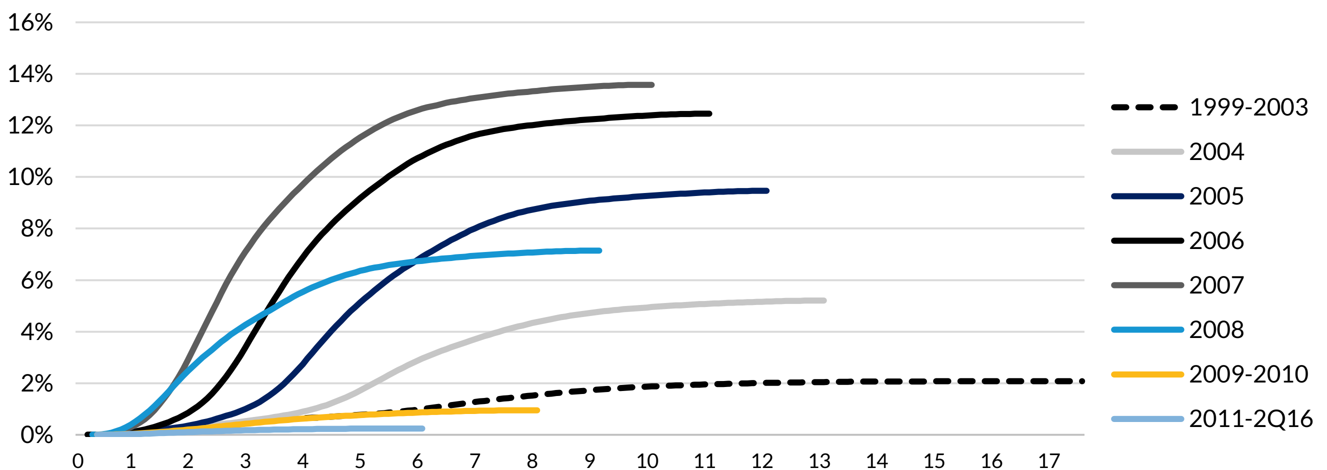
Sources: Freddie Mae and Urban Institute.
Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2016, with performance information on these bans through Q1 2017. Default is defined as six months delinquent or disposed of via short sales, third-party sales, deeds-in-lieu of foreclosure, or real estate owned (REO acquisitions). The analysis included only mortgages with original terms of 241-420 months.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

DEFAULT RATE BY VINTAGE

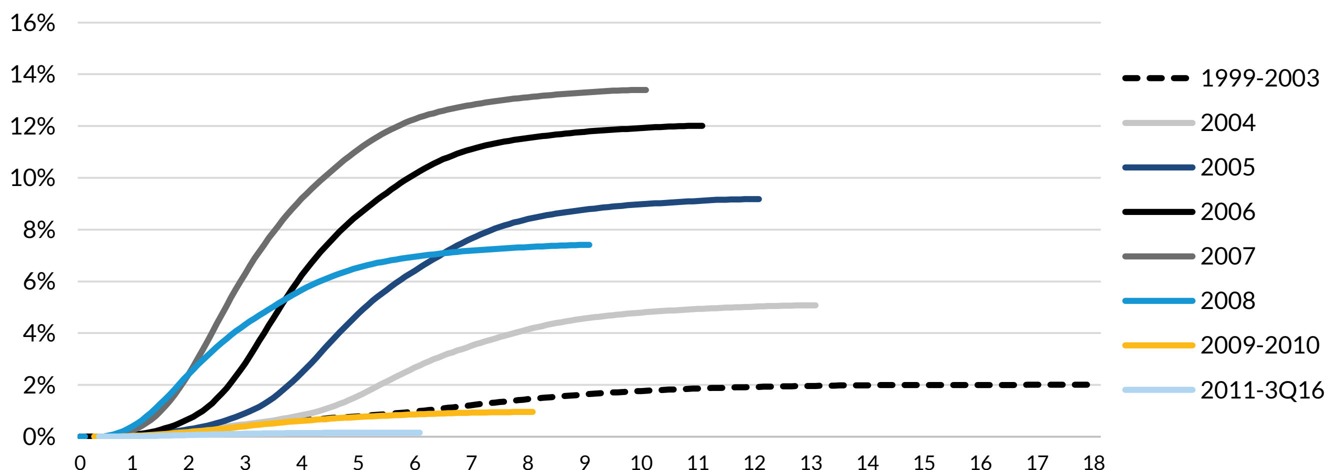
With cleaner books of business and the housing recovery underway, default rates for the GSEs are much lower than they were just a few years ago. For Fannie Mae and Freddie Mac's 1999-2003 vintages, cumulative defaults total around 2 percent, while cumulate defaults for the 2007 vintage are around 13-14 percent. For both Fannie Mae and Freddie Mac, cumulative defaults from post-2009 vintages are on pace to fall below pre-2003 levels. For Fannie loans 73 months after origination, the cumulative default rate from 2009-10 and 2011-Q2 2016 are about 0.87 and 0.24 percent, respectively, compared to the cumulative default rate from 1999-2003 of 1.00 percent. For Freddie loans 70 months after origination, the cumulative default rates total 0.87 percent from 2009-10 and 0.16 percent from 2011-Q3 2016, compared to the rate from 1999-2003 of 0.99 percent.

Fannie Mae Cumulative Default Rate by Vintage Year



Sources: Fannie Mae and Urban Institute.
Note: The analysis included only mortgages with original terms of 241-420 months.

Freddie Mac Cumulative Default Rate by Vintage Year

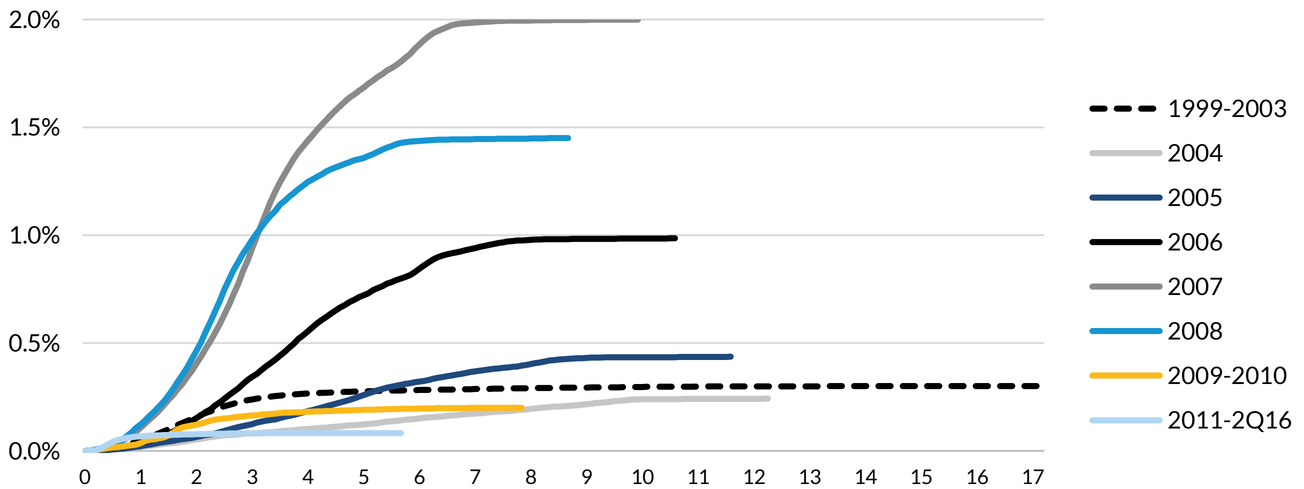


Sources: Freddie Mac and Urban Institute.
Note: The analysis included only mortgages with original terms of 241-420 months.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA
REPURCHASE RATE BY VINTAGE

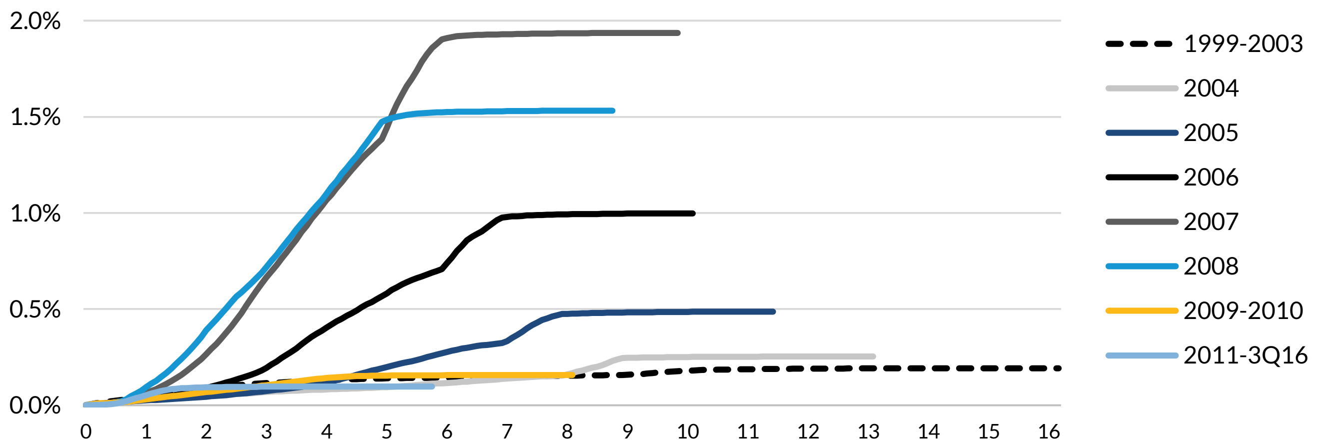
These figures show the cumulative percentage of fixed-rate, full documentation, amortizing 30-year loans of a given vintage that Fannie and Freddie have put back to lenders due to reps and warrants violations. Note that the put-backs are generally quite small, with the exception of the 2006-2008 vintages. These numbers exclude loans put back through global settlements, which are not done at the loan level. Moreover, lenders' attitudes are formed by the total share of put-backs on their books. The database used in this analysis, while very characteristic of new production, excludes many loans that are likely to be put back, including limited documentation loans, non-traditional products (such as interest-only loans), and loans with pool insurance policies.

Fannie Mae Repurchase Rate by Vintage Year



Sources: Fannie Mae and Urban Institute.
Note: The analysis included only mortgages with original terms of 241-420 months.

Freddie Mac Repurchase Rate by Vintage Year



Sources: Freddie Mac and Urban Institute.
Note: The analysis included only mortgages with original terms of 241-420 months.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

LOSS SEVERITY

Both Fannie Mae and Freddie Mac's credit data now include the status of the loan after it has experienced a credit event (default). A credit event is defined as a delinquency of 180 days or more, a deed-in-lieu, short sale, foreclosure sale or REO sale. We look at each of the loans and categorize them as to their present status—for Fannie Mae loans (top table) 17.0 percent are current, 14.0 percent are prepaid, 11.5 percent are still in the pipeline and 57.6 percent have already liquidated (deed-in-lieu, short sale, foreclosure sale, REO sale). Freddie Mac's results (bottom table) are very similar. The right side of both tables shows the severity of all loans that have liquidated, broken down by LTV buckets: total Fannie and Freddie severities are around 40-45 percent.

Fannie Mae - Liquidation Rates and Severities for D180+ loans

Year	Paths for D180+ Loans (% of total count)				Severity for Already Liquidated Loans			
	Paths With No Eventual Loss		Paths With Eventual Loss					
	Current	Prepay	Still in the Pipeline	% Already Liquidated Loans	<=60	60-80	>80	Total
1999-2004	13.98%	19.84%	9.28%	56.89%	22.5%	38.8%	23.2%	31.6%
2005	17.21%	9.92%	10.01%	62.75%	32.7%	47.9%	34.2%	43.8%
2006	17.68%	8.48%	9.86%	63.80%	41.1%	53.8%	36.9%	49.3%
2007	19.92%	9.08%	10.91%	59.96%	40.3%	53.0%	35.0%	46.4%
2008	20.80%	11.50%	11.97%	55.58%	32.8%	47.5%	27.1%	38.4%
2009-2010	18.14%	16.23%	19.42%	46.21%	20.5%	33.3%	16.0%	28.4%
2011-2Q16	17.19%	13.42%	45.45%	23.94%	12.8%	20.3%	5.3%	12.7%
Total	16.93%	13.91%	11.45%	57.62%	33.3%	47.1%	28.8%	40.4%

Freddie Mac - Liquidation Rates and Severities for D180+ loans

Year	Paths for D180+ Loans (% of total count)				Severity for Already Liquidated Loans			
	Paths With No Eventual Loss		Paths With Eventual Loss					
	Current	Prepay	Still In The Pipeline	% Already Liquidated Loans	<=60	60-80	>80	Total
1999-2004	12.02%	17.95%	8.78%	61.25%	28.1%	41.9%	29.0%	35.6%
2005	15.11%	9.11%	8.94%	66.85%	37.2%	50.1%	38.2%	46.6%
2006	15.05%	7.56%	8.66%	68.74%	44.8%	55.4%	40.7%	51.6%
2007	15.90%	7.46%	9.74%	66.90%	48.1%	55.9%	40.3%	50.3%
2008	17.67%	10.04%	11.38%	60.90%	41.9%	53.0%	36.4%	46.4%
2009-2010	15.47%	15.35%	19.21%	49.97%	29.6%	39.3%	19.4%	34.8%
2011-3Q16	15.48%	14.72%	45.72%	24.08%	21.6%	31.0%	9.8%	21.1%
Total	14.46%	11.93%	10.06%	63.55%	39.9%	51.0%	35.2%	45.4%

Sources: Fannie Mae, Freddie Mac, and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 2016, with performance information on these loans through Q1 2017. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2016, with performance information on these loans through Q1 2017. The analysis included only mortgages with original terms of 241-420 months.

SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

LOSS SEVERITY BY CHANNEL

The table below shows the severity of Fannie and Freddie loans that have liquidated, broken down by liquidation channel and vintage year. Foreclosure alternatives, including short sales, note sales, and third party sales have higher defaulted unpaid principal balance (UPB) and much lower loss severities than REO sales. For example, for 2011-2016 Q2 originations, Fannie Mae foreclosure alternatives had a defaulted UPB of $172,149 and a loss severity of 9.6 percent, versus a defaulted UPB of $146,513 and a loss severity of 14.1 percent for REO sales.

Fannie Mae - Loss Severity for already liquidated loans

Year	Number of Loans			Mean defaulted UPB ($)			Severity		
	All	REO	Foreclosure Alternatives	All	REO	Foreclosure Alternatives	All	REO	Foreclosure Alternatives
1999-2004	183,135	142,389	40,746	112,131.4	106,389.8	132,110.0	31.63%	36.05%	19.19%
2005	70,421	47,752	22,669	169,345.6	157,867.4	193,521.0	43.84%	47.72%	37.17%
2006	71,897	48,820	23,077	183,623.2	170,655.9	211,013.0	49.35%	53.49%	42.25%
2007	86,875	59,093	27,782	192,967.2	179,543.7	221,478.0	46.36%	50.54%	39.14%
2008	50,558	34,508	16,050	190,769.9	176,411.9	221,537.0	38.43%	42.85%	30.87%
2009-2010	16,601	11,219	5,382	177,324.8	164,410.3	204,194.0	28.42%	32.61%	21.38%
2011-2Q16	5,535	3,947	1,588	153,933.3	146,513.4	172,149.0	12.65%	14.09%	9.62%
Total	485,022	347,728	137,294	156,426.5	144,194.4	187,339.0	40.41%	44.22%	33.00%

Freddie Mac - Loss Severity for Already Liquidated Loans

Year	Number of Loans			Mean defaulted UPB ($)			Severity		
	All	REO	Foreclosure Alternatives	All	REO	Foreclosure Alternatives	All	REO	Foreclosure Alternatives
1999-2004	159,288	112,201	47,087	112,124.8	106,622.8	125,235.3	35.60%	39.82%	27.04%
2005	84,665	46,958	37,707	170,842.1	156,522.8	188,674.6	46.64%	51.61%	41.51%
2006	88,468	48,841	39,627	183,643.5	166,383.9	204,916.2	51.58%	56.92%	46.24%
2007	93,272	52,132	41,140	185,511.0	168,414.4	207,175.7	50.31%	56.11%	44.34%
2008	46,075	24,826	21,249	195,045.8	178,418.0	214,472.6	46.43%	53.06%	39.98%
2009-2010	13,345	6,892	6,453	181,240.8	169,796.2	193,464.1	34.82%	41.08%	28.95%
2011-3Q16	2,383	976	1,407	160,067.9	151,800.3	165,803.0	21.11%	26.07%	17.97%
Total	487,496	292,826	194,670	159,305.7	143,317.6	183,355.2	45.44%	49.99%	40.08%

Sources: Fannie Mae, Freddie Mac and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 2016, with performance information on these loans through Q1 2017. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2016, with performance information on these loans through Q1 2017. The analysis included only mortgages with original terms of 241-420 months.

RELATED HFPC WORK

PUBLICATIONS AND EVENTS

Upcoming events:
November 1, 2017: Housing Finance, Affordability, and Supply in the Digital Age

Projects

The Mortgage Servicing Collaborative

Housing Finance Reform Incubator

Housing Credit Availability Index (HCAI)

Publications

The Relationship between Housing and Asthma among School-Age Children
Authors: Bhargavi Ganesh, Corianne Scally, Laura Skopec, Jun Zhu
Date: October 16, 2017

Mortgage Insurance Data at a Glance
Authors: Laurie Goodman, Alanna McCargo, Sheryl Pardo, Jun Zhu, Bing Bai, Karan Kaul, Bhargavi Ganesh
Date: August 22, 2017

Sixty Years of Private Mortgage Insurance in the United States
Authors: Laurie Goodman, Karan Kaul
Date: August 22, 2017

The Impact of Higher Interest Rates on the Mortgage Market
Authors: Laurie Goodman
Date: August 10, 2017

In Need of an Update: Credit Scoring in the Mortgage Market
Authors: Laurie Goodman
Date: July 27, 2017

The Common Securitization Platform
Authors: Jim Parrott
Date: July 19, 2017

Fannie Mae Raises the DTI Limit
Authors: Edward Golding, Laurie Goodman, Jun Zhu
Date: July 19, 2017

GSE Financing of Single-Family Rentals
Authors: Laurie Goodman, Karan Kaul
Date: May 10, 2017

Clarifying the Choices in Housing Finance Reform
Authors: Jim Parrott
Date: March 13, 2017

Blog Posts

Five things that may surprise you about the fastest growing segment of the housing market
Authors: Sarah Strochak
Date: October 3, 2017

The mortgage industry needs a modernized disaster recovery toolkit
Authors: Karan Kaul, Laurie Goodman
Date: September 22, 2017

How HARP saved borrowers billions and improved the housing finance system
Authors: Jim Parrott, Laurie Goodman, Karan Kaul, Jun Zhu
Date: September 20, 2017

Visualizing Hurricane Harvey's impact on Houston's neighborhoods
Authors: Bhargavi Ganesh, Sarah Strochak
Date: September 15, 2017

Five things every policymaker should know about nonbanks and the evolving mortgage industry
Authors: Laurie Goodman, Karan Kaul, Bing Bai
Date: September 5, 2017

Why the single-family rental merger won't hurt homebuyers or renters
Authors: Laurie Goodman, Robert Abare
Date: August 14, 2017

Six ways the GSEs can better achieve their mission to serve the underserved
Authors: Sarah Strochak, Edward Golding
Date: July 30, 2017

These four trends in rental housing have big implications for the growing affordability crisis
Authors: Alanna McCargo
Date: July 26, 2017

A generation is stuck in starter homes, but they're gaining traction
Authors: Laurie Goodman, Bing Bai, Sheryl Pardo
Date: July 24, 2017

Progress on the single security is an unheralded success
Authors: Laurie Goodman, Bing Bai, Jim Parrott
Date: July 11, 2017

Acknowledgments

The Housing Finance Policy Center (HFPC) was launched with generous support at the leadership level from the Citi Foundation and John D. and Catherine T. MacArthur Foundation. Additional support was provided by The Ford Foundation and The Open Society Foundations.

Ongoing support for HFPC is also provided by the Housing Finance Innovation Forum, a group of organizations and individuals that support high-quality independent research that informs evidence-based policy development. Funds raised through the Forum provide flexible resources, allowing HFPC to anticipate and respond to emerging policy issues with timely analysis. This funding supports HFPC's research, outreach and engagement, and general operating activities.

The chartbook is funded by these combined sources. We are grateful to them and to all our funders, who make it possible for Urban to advance its mission.

The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders. Funders do not determine research findings or the insights and recommendations of Urban experts. Further information on the Urban Institute's funding principles is available at www.urban.org/support.

Housing Finance Innovation Forum Members as of June 27, 2017

Organizations
Arch MI
Bank of America Foundation
BlackRock
DownPayment Resource
Ellington Management Group
Finance of America Reverse, LLC
Freddie Mac
Genworth
Mortgage Bankers Association
Mr. Cooper
National Association of Home Builders
National Association of Realtors
Ocwen
Pretium Partners
Prospect Mortgage
Pulte Home Mortgage
Quicken Loans
TIG Advisors
Two Harbors Investment Corp.
U.S. Mortgage Insurers (USMI)
VantageScore
Wells Fargo & Company
400 Capital Management

Individuals
Raj Date
Mary Miller
Jim Millstein
Beth Mlynarczyk
Toni Moss
Shekar Narasimhan
Faith Schwartz
Mark Zandi

Data Partners
CoreLogic
Moody's Analytics

Copyright © September 2017. The Urban Institute. All rights reserved. Permission is granted for reproduction of this file, with attribution to the Urban Institute. The Urban Institute is a nonprofit, nonpartisan policy research and educational organization that examines the social, economic, and governance problems facing the nation.

URBAN
INSTITUTE · ELEVATE · THE · DEBATE