

HOUSING FINANCE POLICY CENTER



# HOUSING FINANCE AT A GLANCE

A MONTHLY CHARTBOOK

November 2018

## 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](mailto:ataglance@urban.org).

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

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# INTRODUCTION

On November 15<sup>th</sup>, the Federal Housing Administration (FHA) released its 2018 Annual Report to Congress on the financial condition of the Mutual Mortgage Insurance Fund (MMI Fund). At the end of FY 2018, the MMI Fund had a capital reserve ratio of 2.76 percent, which is 0.58 percent more than the FY 2017 capital reserve ratio of 2.18 percent. The financial condition of the MMI Fund has improved in large part because of continued decline in the serious delinquency rate, which fell to 4.11 percent at the end of FY 2018 from 4.32 percent a year ago, as well as declining claims activity on the historical book of business.

Despite this sound performance, the report highlighted certain risks that merit ongoing monitoring. The report noted a rise in cash-out refinance activity in FY 2018. The number of cash-out refinance mortgages endorsed by the FHA increased from 141,885 in FY 2017 to in 150,883 in FY 2018, a 6.3 percent rise. As a share of total endorsement count, cash-out was nearly 15 percent, compared to 11.4 percent last year. There are a couple of reasons for this. Broadly speaking, rising mortgage rates have significantly curtailed rate-refinances- loans that take advantage of lower interest rates to lower monthly payments.) This boosts the cash-out share.

Another factor likely raising FHA's cash-out refinance volumes is the 85 percent maximum loan-to-value (LTV) ratio for FHA cash-out refinances vs. 80 percent for conventional cash-outs. In other words, borrowers can extract more equity through a FHA cash-out than a conventional one. Also, FHA cash-out refinances can be more cost effective than conventional cash-outs for some borrowers because of a lower base FHA mortgage rate and FHA's non-risk-based pricing. Table 1 compares the "all-in" mortgage rate for an 85 LTV FHA cash-out refinance (inclusive of all mortgage insurance premiums) to the all-in rate for conventional cash-out refis (inclusive of fees and LLPAs) for a range for FICO scores and LTV ratios between 75 to 80 percent. This analysis shows that borrowers with FICOs below 640 will can save 11 bps by choosing FHA over conventional. Overall, the ability to extract more equity, and at a lower price seem to be driving the growth in FHA cash-out volumes.

## All-in price for FHA cash-out (max LTV 85%) and conventional cash-out refinance (max LTV 80%)

	FHA cash-out (LTV 85%)	Conventional cash-out LTV 75-80%			
		FICO 680-699	FICO 660-679	FICO 640-659	FICO ≤ 639
Base mortgage rate	5.08%	5.16%	5.16%	5.16%	5.16%
UF MIP annualized	0.35%	--	--	--	--
Annual MIP	0.85%	--	--	--	--
FICO/LTV LLPA	--	0.350%	0.550%	0.600%	0.600%
Cash-out LLPA	--	0.350%	0.375%	0.525%	0.625%
<b>All in mortgage rate</b>	<b>6.28%</b>	<b>5.86%</b>	<b>6.09%</b>	<b>6.29%</b>	<b>6.39%</b>
Rate savings over conventional		-0.42%	-0.19%	0.01%	0.11%

Source: Moody's Analytics and Urban Institute calculations.

Note: FHA maximum LTV for cash-out refinance is 85 percent; conventional maximum LTV for cash-out refinance is 80 percent. All calculations assume a 5-year average life of loan.

## INSIDE THIS ISSUE

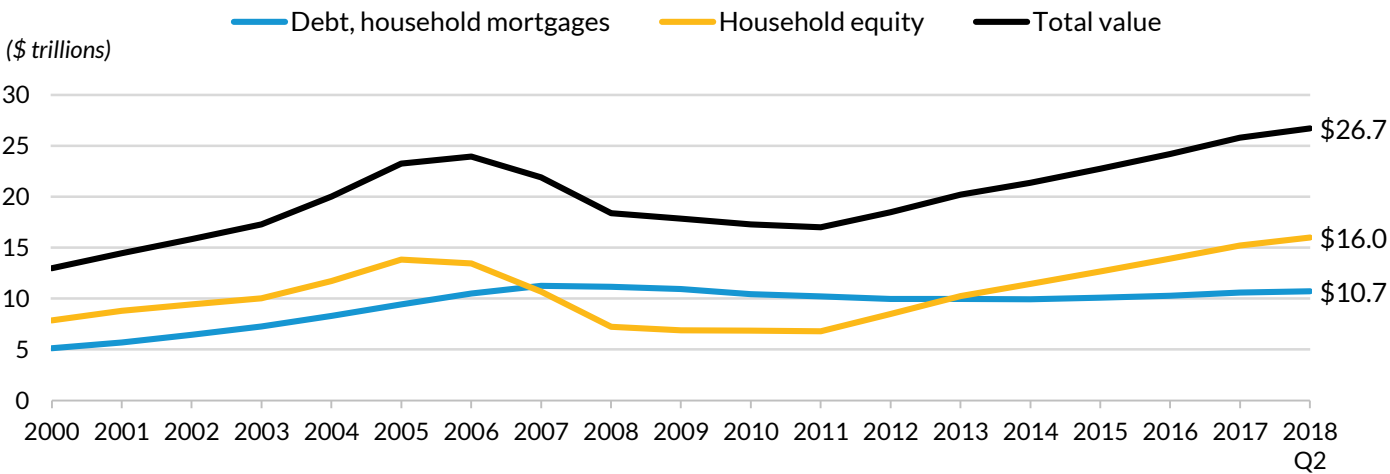
- Serious delinquency rates continued to decline in Q2 2018 (pages 22 and 29).
- Fannie Mae's average g-fee on new acquisitions edged up in Q3 2018 while Freddie Mac's number stayed flat (page 25).
- Fed absorption of gross issuance dropped to new historical low in October 2018, as Fed's MBS taper size increased to the maximum level of \$20 billion in Q4 2018 (page 31).
- FHA and PMI's mortgage insurance activities both increased while VA activities fell in Q3 2018 (page 32).
- Special quarterly feature includes GSE default, composition, loss severity, and repurchase indicators (pages 34-41).

## OVERVIEW

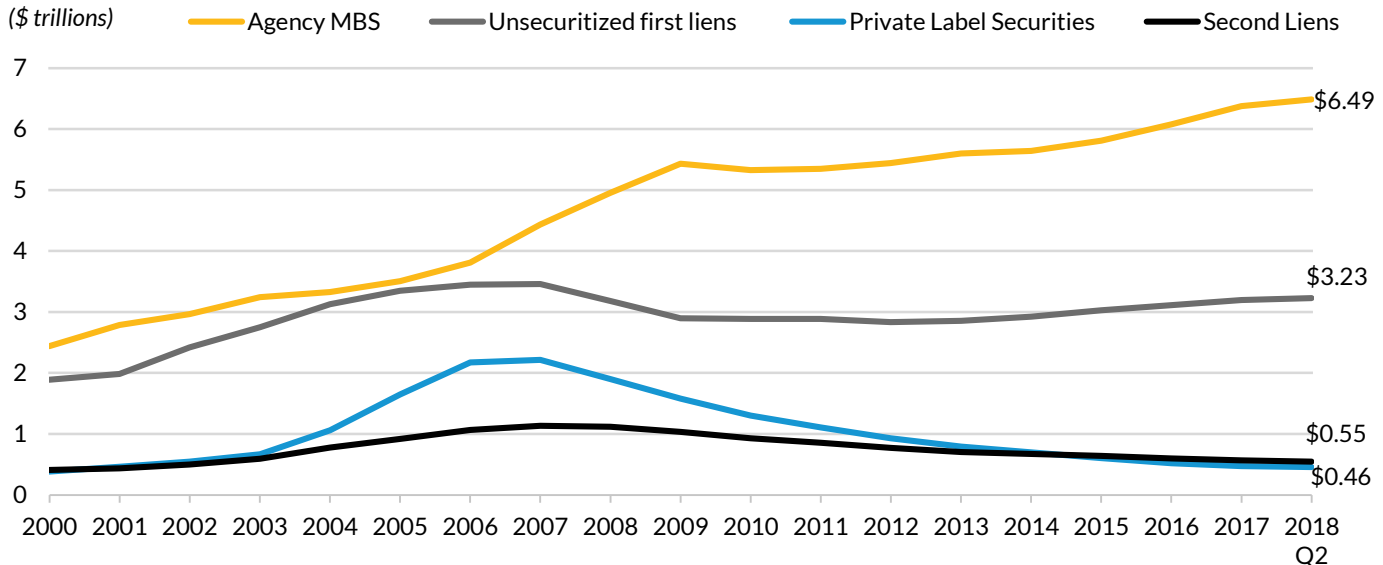
# MARKET SIZE OVERVIEW

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 2018 Q2 was no different. While total debt and mortgages was stable at \$10.7 trillion, household equity reached a new high of \$16.0 trillion, bringing the total value of the housing market to \$26.7 trillion, 10 percent higher than the pre-crisis peak in 2006. Agency MBS make up 61.0 percent of the total mortgage market, private-label securities make up 4.3 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 5.1 percent of the total.

## Value of the US Housing Market



## Size of the US Residential Mortgage Market

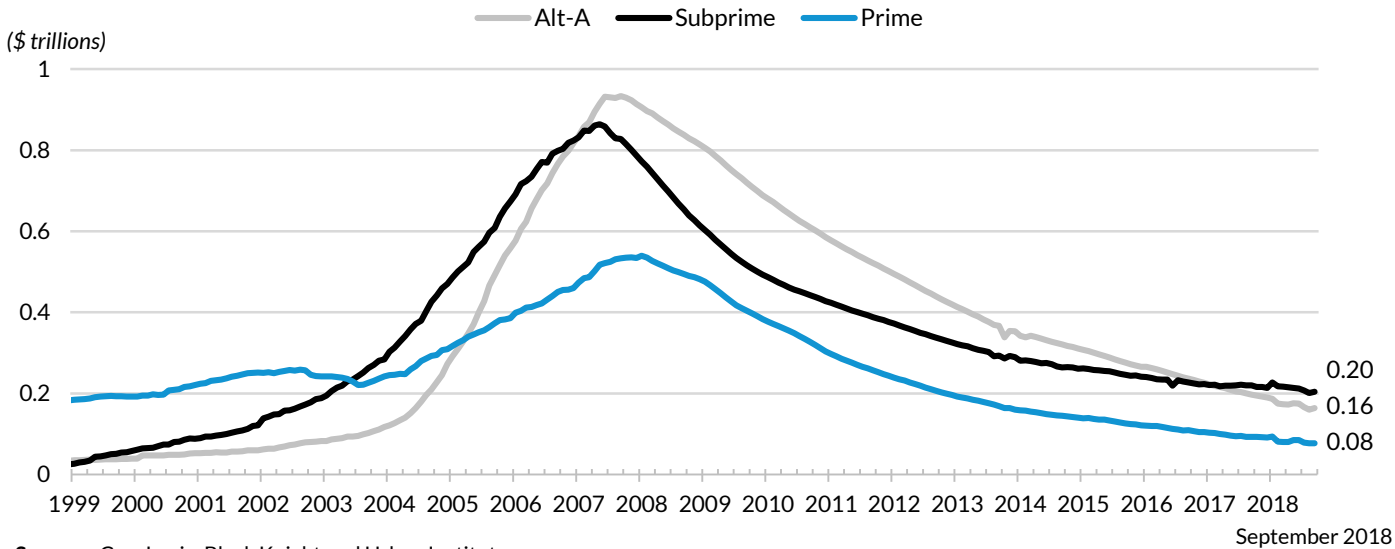


## OVERVIEW

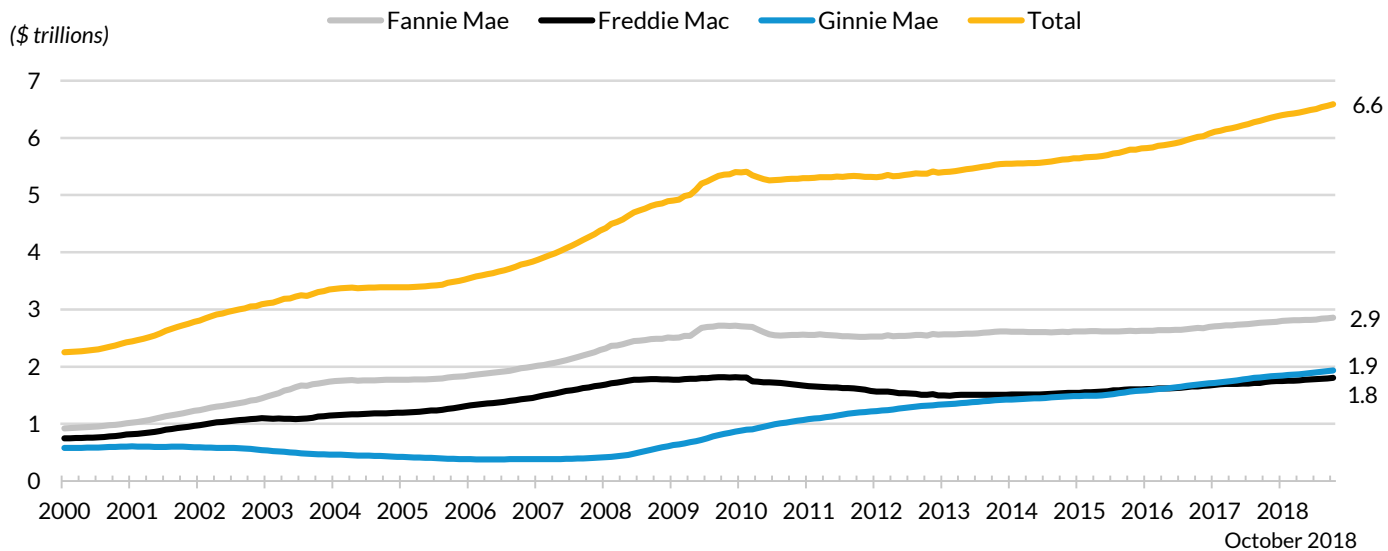
# MARKET SIZE OVERVIEW

As of September 2018, debt in the private-label securitization market totaled \$445 billion and was split among prime (17.3 percent), Alt-A (36.8 percent), and subprime (45.8 percent) loans. In October 2018, outstanding securities in the agency market totaled \$6.6 trillion and were 43.3 percent Fannie Mae, 27.3 percent Freddie Mac, and 29.3 percent Ginnie Mae. Ginnie Mae has had more outstanding securities than Freddie Mac since May 2016.

## Private-Label Securities by Product Type



## Agency Mortgage-Backed Securities

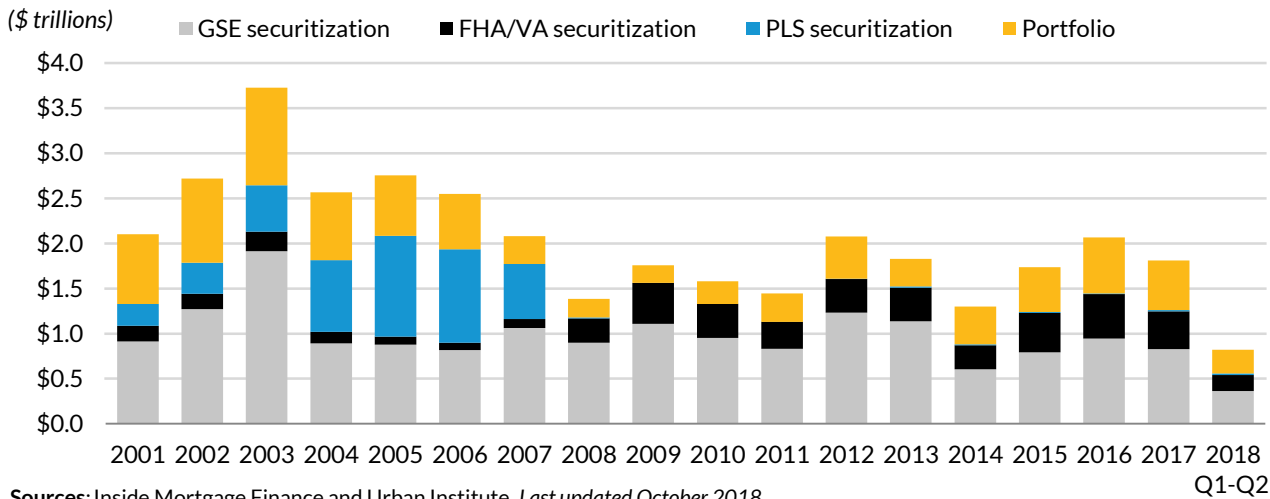


## OVERVIEW

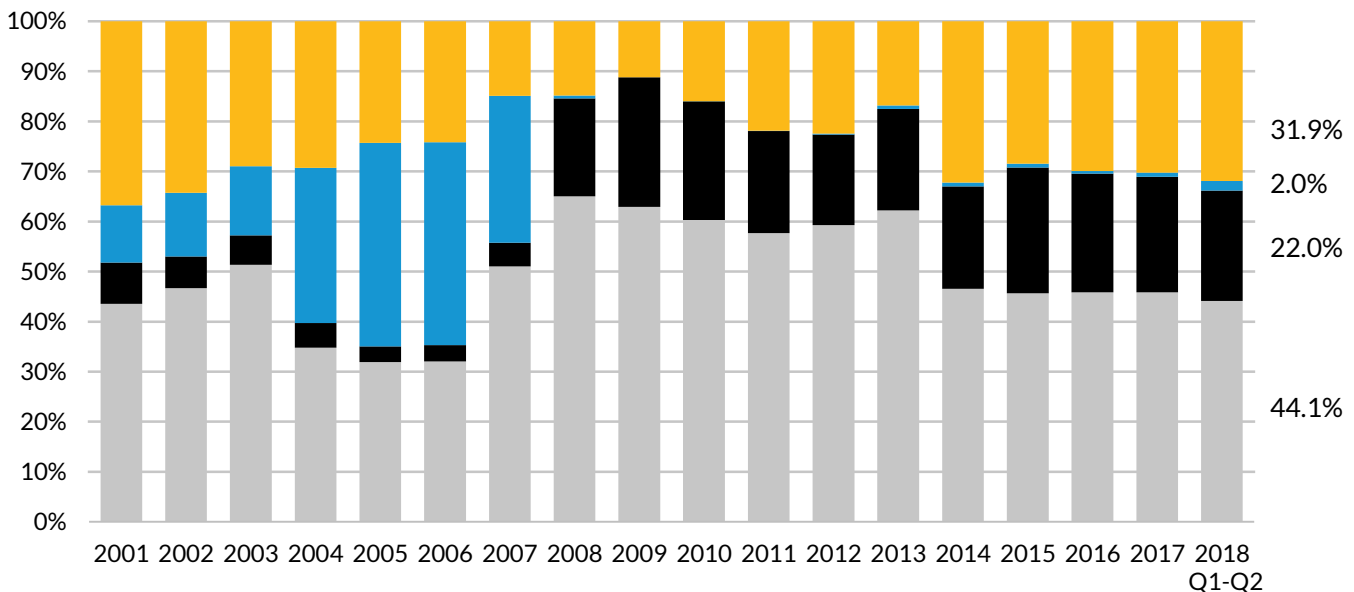
# ORIGINATION VOLUME AND COMPOSITION

## First Lien Origination Volume

First lien originations totaled \$820 billion in H1 2018, down slightly from the same period in 2017, mostly due to higher interest rates. The share of portfolio originations was 32 percent in the first half of 2018, up from 30 percent in 2017. The GSE share was around 44 percent, down from 46 percent in 2017. The FHA/VA share was slightly down: 22 percent for H1 2018 versus 23 percent in 2017. Origination of private-label securities was under just under 2 percent, higher than the 2017 share of 0.6 percent.



(Share, percent)



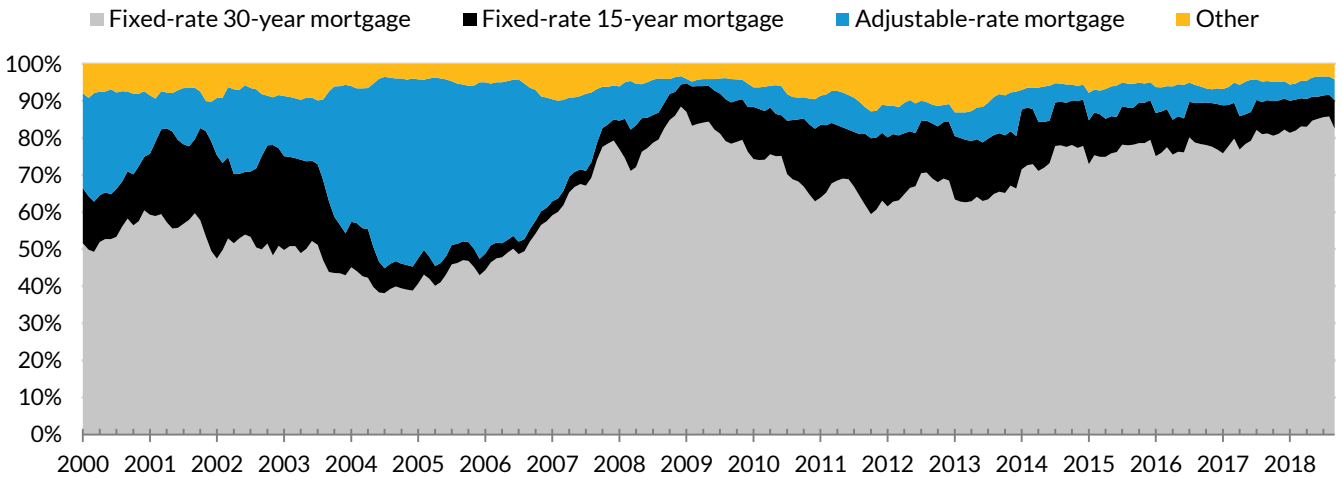


## OVERVIEW

# MORTGAGE ORIGINATION PRODUCT TYPE

Adjustable-rate mortgages (ARMs) accounted for as much as 52 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 12 percent in December 2013. Since then, ARMs have declined to 5.6 percent in September 2018. The 15-year fixed-rate mortgage (FRM), predominantly a refinance product, accounted for 7.7 percent of new originations in September 2018. If we exclude refinances (bottom chart), the share of 30-year FRMs in September 2018 stood at 89.2 percent, 15-year FRMs at 4.3 percent, and ARMs at 5.3 percent.

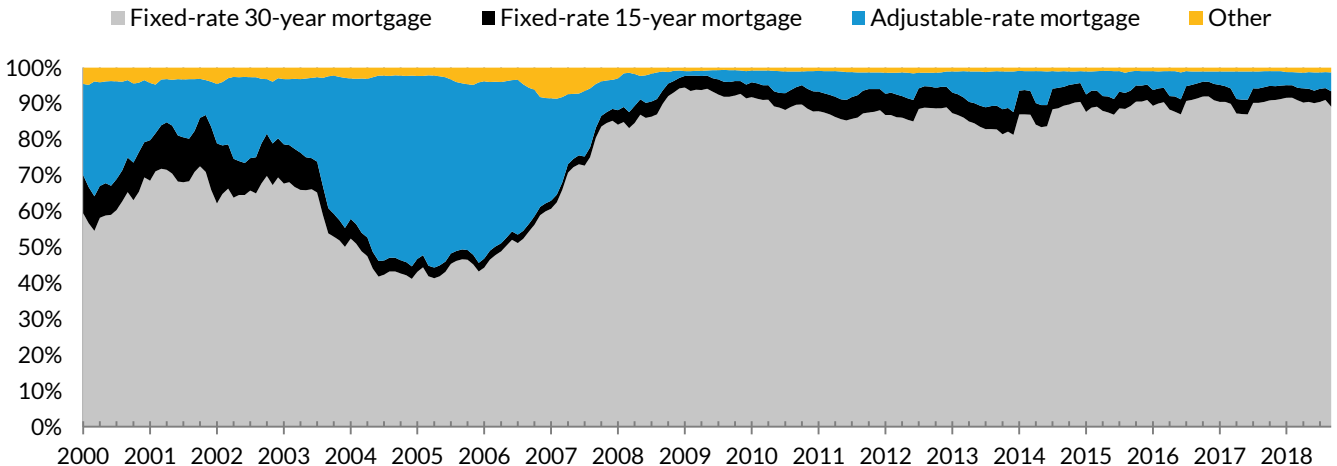
## All Originations



Sources: Black Knight, eMBS, HMDA, SIFMA and Urban Institute.

September 2018

## Purchase Loans Only



Sources: Black Knight, eMBS, HMDA, SIFMA and Urban Institute.

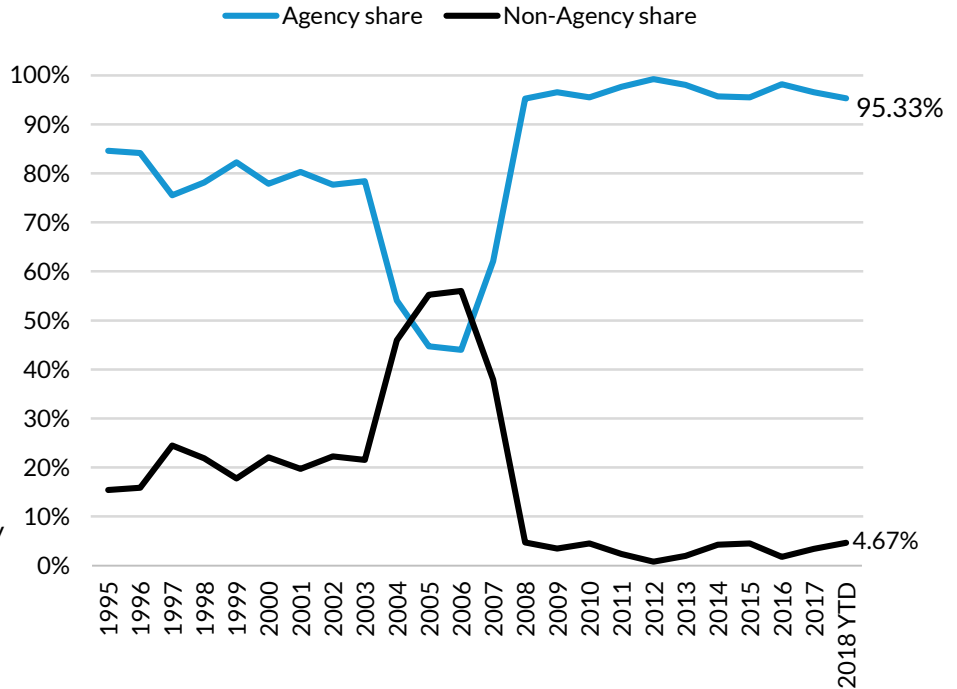
September 2018

# OVERVIEW

# SECURITIZATION VOLUME AND COMPOSITION

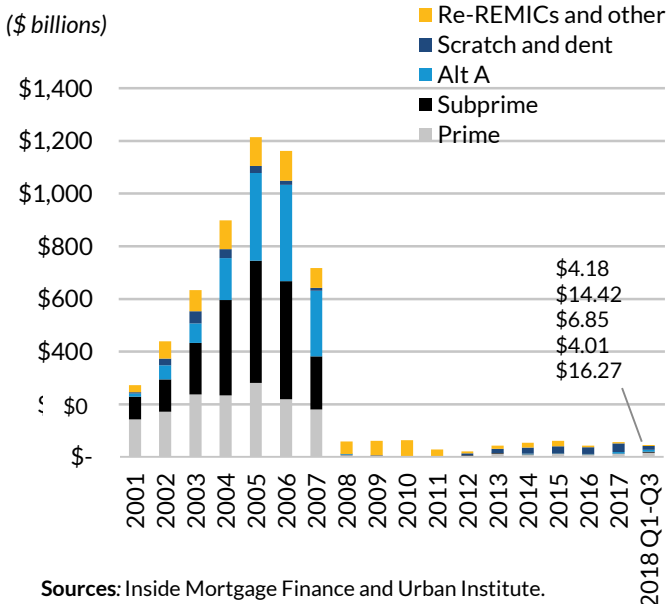
## Agency/Non-Agency Share of Residential MBS Issuance

The non-agency share of mortgage securitizations in the first ten months of 2018 was 4.7 percent, above the 3.4 percent share in 2017. The non-agency securitization volume totaled \$45.7 billion in the first three quarters of 2018, a 12 percent increase over the same period in 2017, but there is a change in the mix. Prime securitizations continued to surge through the third quarter, while scratch and dent were down from the same period in 2017. Non-agency securitizations continue to be tiny compared to pre-crisis levels.



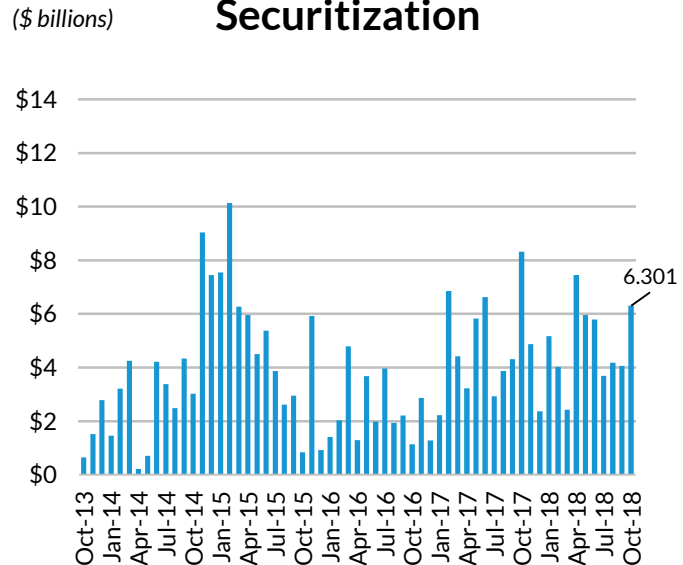
Sources: Inside Mortgage Finance and Urban Institute.  
 Note: Based on data from October 2018.

## Non-Agency MBS Issuance



Sources: Inside Mortgage Finance and Urban Institute.

## Monthly Non-Agency Securitization



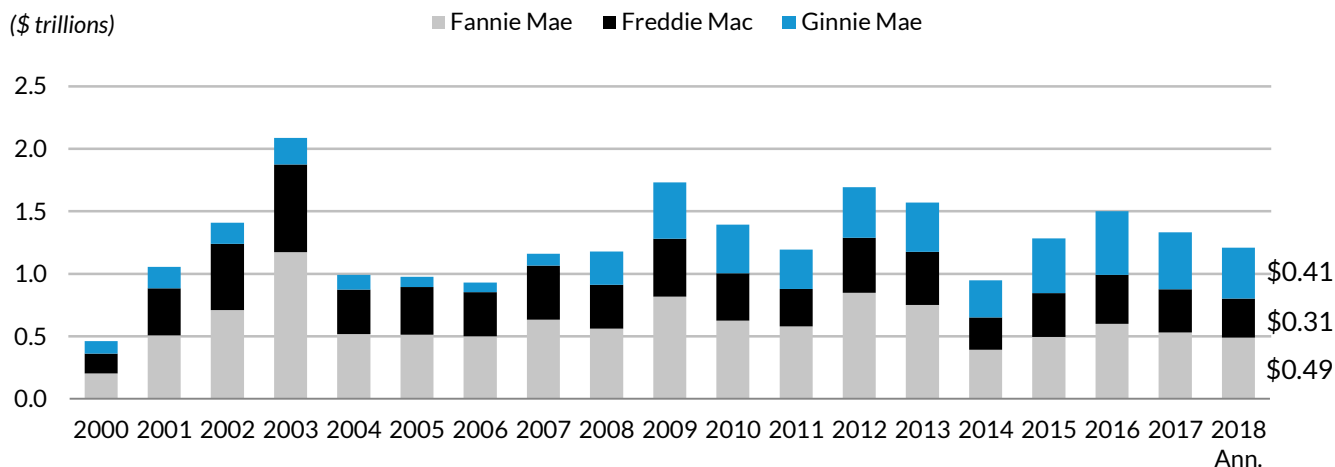
Sources: Inside Mortgage Finance and Urban Institute. 10

## OVERVIEW

# AGENCY ACTIVITY: VOLUMES AND PURCHASE/ REFI COMPOSITION

Agency issuance totaled \$1.007 trillion in the first ten months of 2018, \$1.208 trillion on an annualized basis. This is down about 8.7 percent from the same period of 2017. The refi share for all three agencies has been falling sharply due to rising interest rates and seasonal upticks in purchase activity through the first eight months of 2018. With the end of the summer surge in purchase activity, the refi is stabilizing to increasing slightly. In October, the refi share increased for Freddie Mac, and stayed relatively consistent for Fannie Mae and Ginnie Mae.

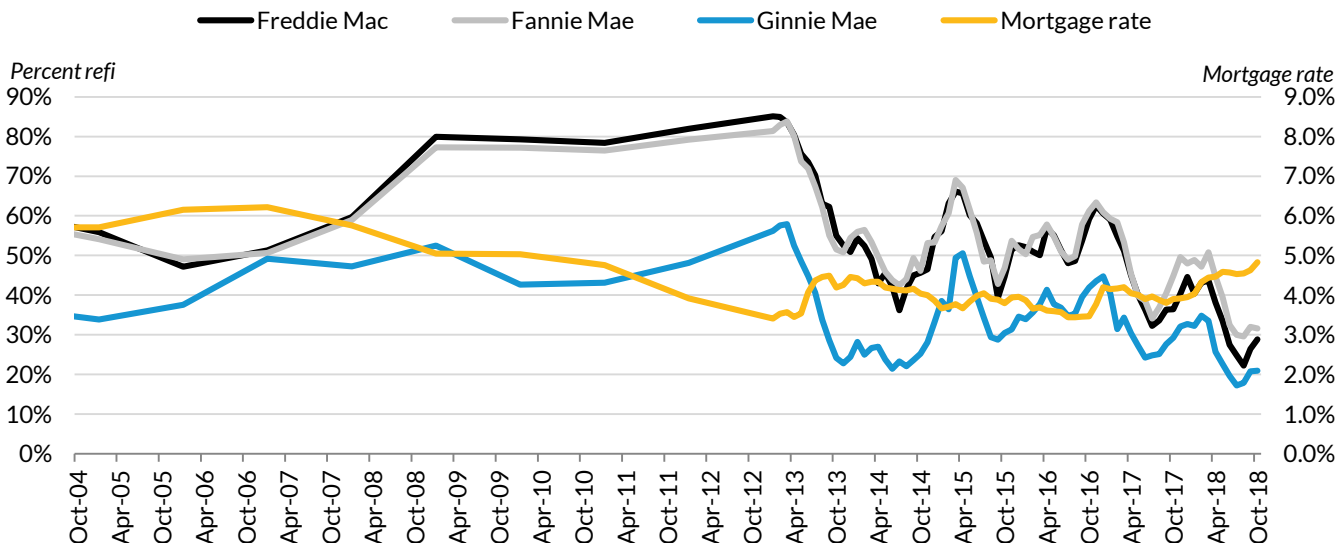
## Agency Gross Issuance



Sources: eMBS and Urban Institute.

Note: Annualized figure based on data from October 2018.

## Percent Refi at Issuance



Sources: eMBS and Urban Institute.

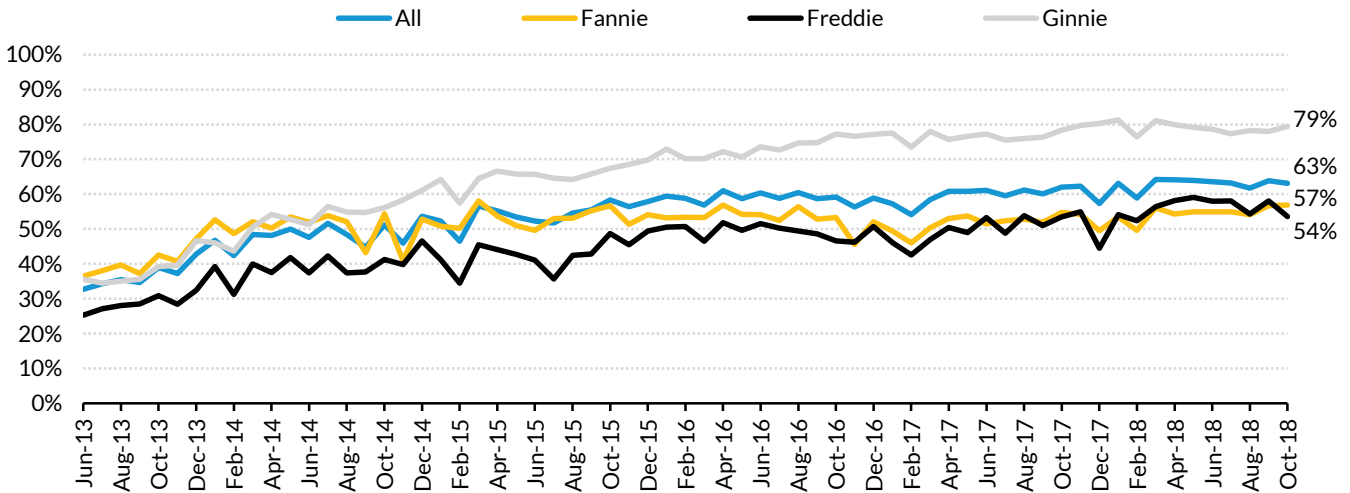
Note: Based on at-issuance balance. Figure based on data from October 2018.

## OVERVIEW

# NONBANK ORIGINATION SHARE

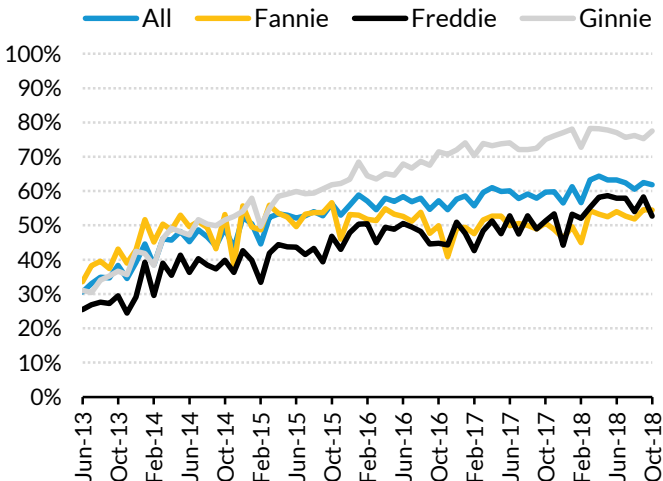
The nonbank origination share has been rising steadily for all three agencies since 2013. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at 79 percent in October 2018. The Fannie Mae and Freddie Mac nonbank shares stood at 57 and 54 percent respectively. The nonbank originator share is higher for Ginnie refis than for purchase loans; for the GSEs, the purchase and refi loans have a similar bank/nonbank mix.

## Nonbank Origination Share: All Loans



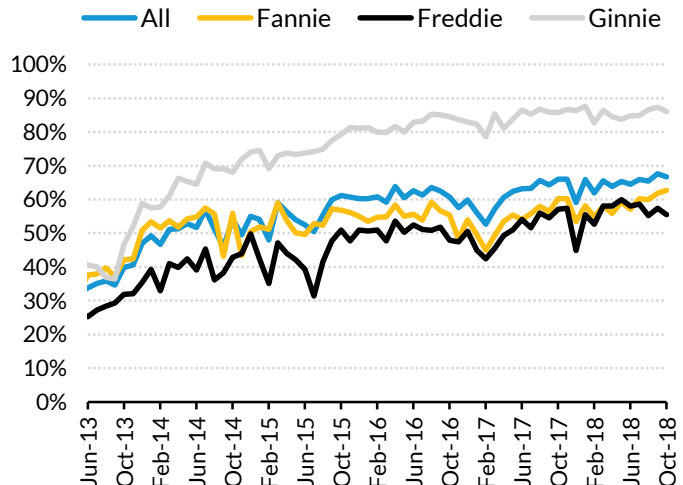
Sources: eMBS and Urban Institute.

## Nonbank Origination Share: Purchase Loans



Sources: eMBS and Urban Institute

## Nonbank Origination Share: Refi Loans



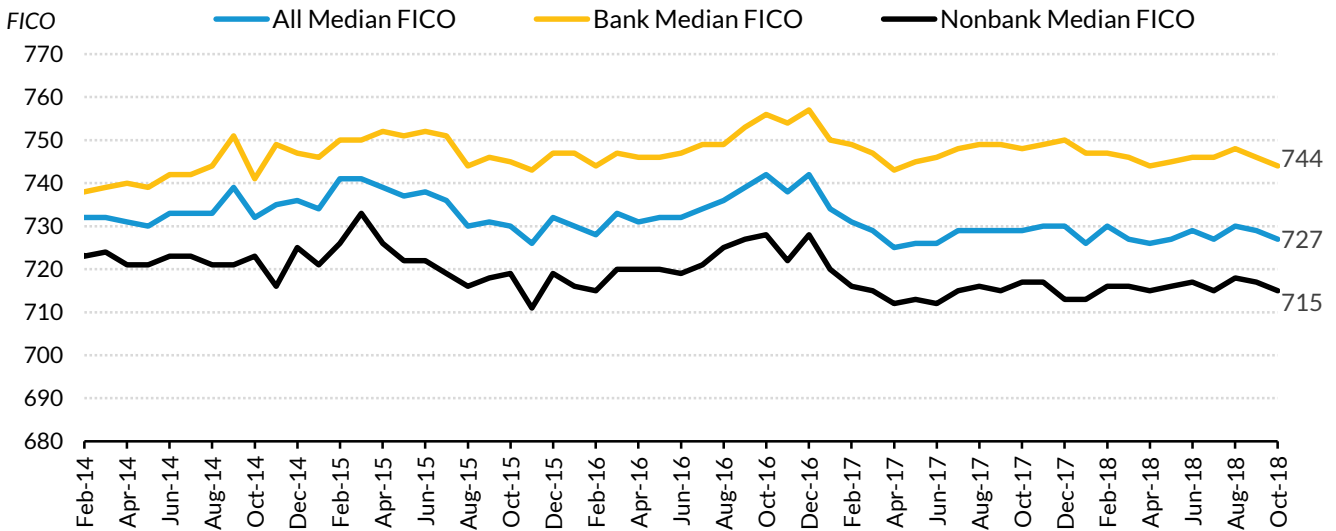
Sources: eMBS and Urban Institute

# OVERVIEW

# NONBANK CREDIT BOX

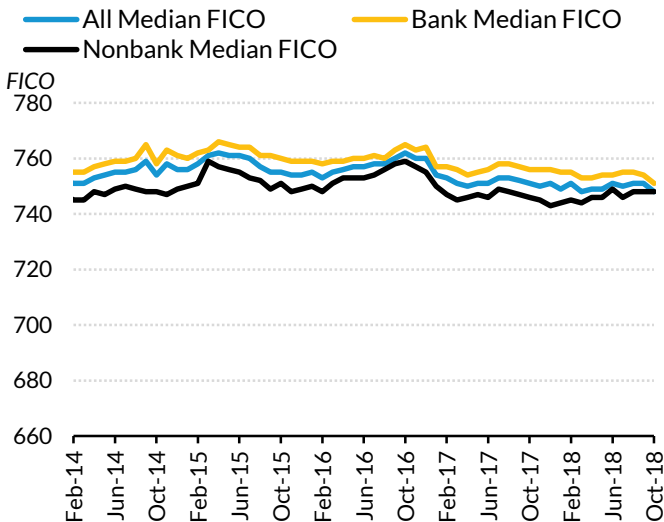
Nonbank originators have played a key role in opening up access to credit. The median GSE and the median Ginnie Mae FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, bank FICOs have declined slightly since 2014 and nonbank FICOs are roughly constant. 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



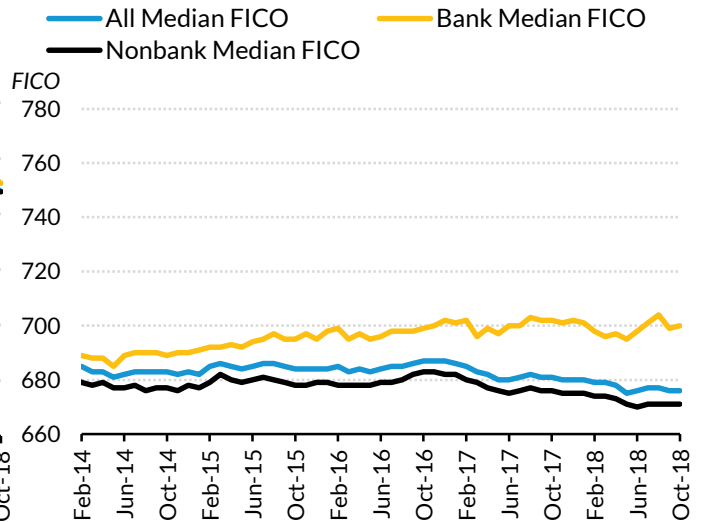
Sources: eMBS and Urban Institute.

## GSE FICO: Bank vs. Nonbank



Sources: eMBS and Urban Institute.

## Ginnie Mae FICO: Bank vs. Nonbank



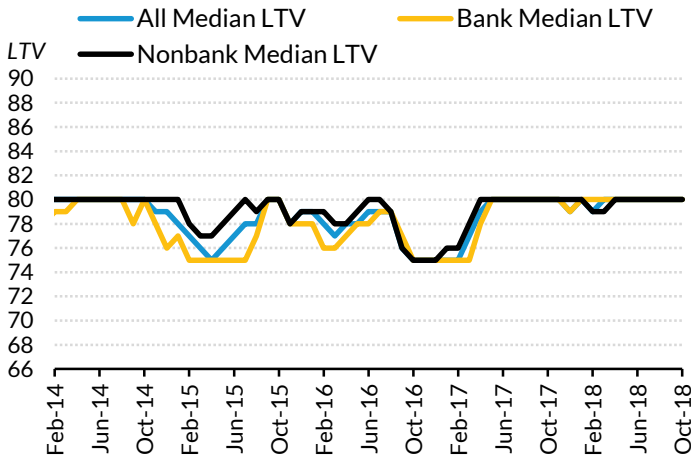
Sources: eMBS and Urban Institute.

# OVERVIEW

# NONBANK CREDIT BOX

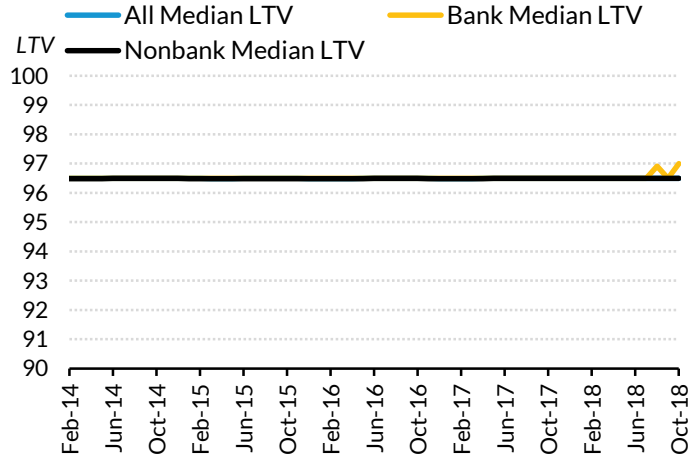
The median LTV ratios for loans originated by nonbanks are similar to their bank counterparts, while the median DTIs for nonbank loans are higher, indicating that nonbanks are more accommodating in this dimension as well as in the FICO dimension. Since early 2017 there has been a measurable increase in DTIs. This is true for both Ginnie Mae and GSE loans, banks and nonbank originators. Rising DTIs are to be expected in a rising rate environment, as higher interest rates, which usually accompany higher home prices, drive up borrowers' monthly payments, and the reduction in refinance volumes makes lenders more apt to work a bit harder to get a loan approved for a marginal borrower.

## GSE LTV: Bank vs. Nonbank



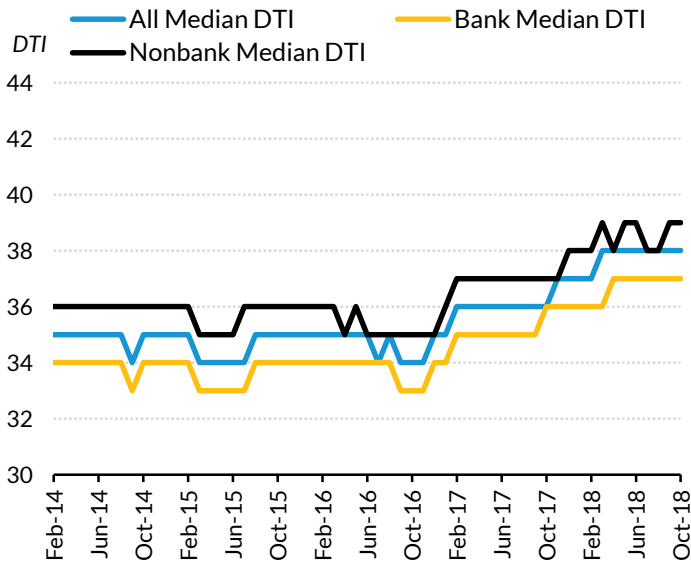
Sources: eMBS and Urban Institute.

## Ginnie Mae LTV: Bank vs. Nonbank



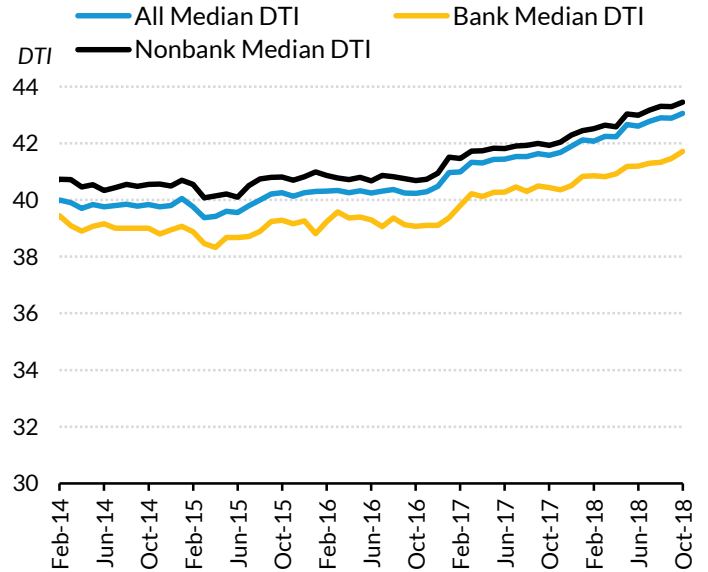
Sources: eMBS and Urban Institute.

## GSE DTI: Bank vs. Nonbank



Sources: eMBS and Urban Institute.

## Ginnie Mae DTI: Bank vs. Nonbank



Sources: eMBS and Urban Institute.

## STATE OF THE MARKET

# MORTGAGE ORIGINATION PROJECTIONS

Fannie Mae, Freddie Mac and MBA all forecast origination volume in 2018 to be 1.62-1.65 trillion, about 9 percent lower than the 1.8 trillion estimate in 2017. The numbers shown in the top table reflects the fact that Fannie and Freddie have further revised down their 2018 estimates. These 2017 and 2018 numbers are considerably lower than the \$2.0 trillion of originations in 2016. The differences owe primarily to a decline the refi share: from 47-49 percent in 2016 to 36-37 percent in 2017 to a forecasted 28 -29 percent in 2018. Fannie, Freddie and MBA forecast 2018 housing starts to be around 1.26-1.29 million units, up from a 1.2 million units in 2017. Home sales forecasts for 2018 are around 6.0-6.1 million, down a smidge from 2017 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
2018 Q1	374	374	342	39	40	37
2018 Q2	447	455	452	25	29	26
2018 Q3	418	445	457	24	24	24
2018 Q4	386	375	385	25	23	27
2019 Q1	322	335	326	31	30	28
2019 Q2	443	450	448	23	23	22
2019 Q3	437	465	460	23	23	22
2019 Q4	401	400	396	25	24	26
FY 2014	1301	1350	1261	40	39	40
FY 2015	1730	1750	1679	47	45	46
FY 2016	2052	2125	1891	49	47	49
FY 2017	1826	1810	1760	36	37	36
FY 2018	1624	1649	1636	28	29	28
FY 2019	1603	1650	1630	25	25	24

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, 2016 and 2017 were 4.2%, 3.9%, 3.8%, and 4.0%. For 2018, the respective projections for Fannie, Freddie, and MBA are 4.6%, 4.5%, and 4.9%.

## 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	1203	1200	1208	6124	6120	6158	5542	616
FY 2018	1265	1290	1273	6005	6070	6021	5400	621
FY 2019	1265	1350	1305	6043	6180	6237	5583	654

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.

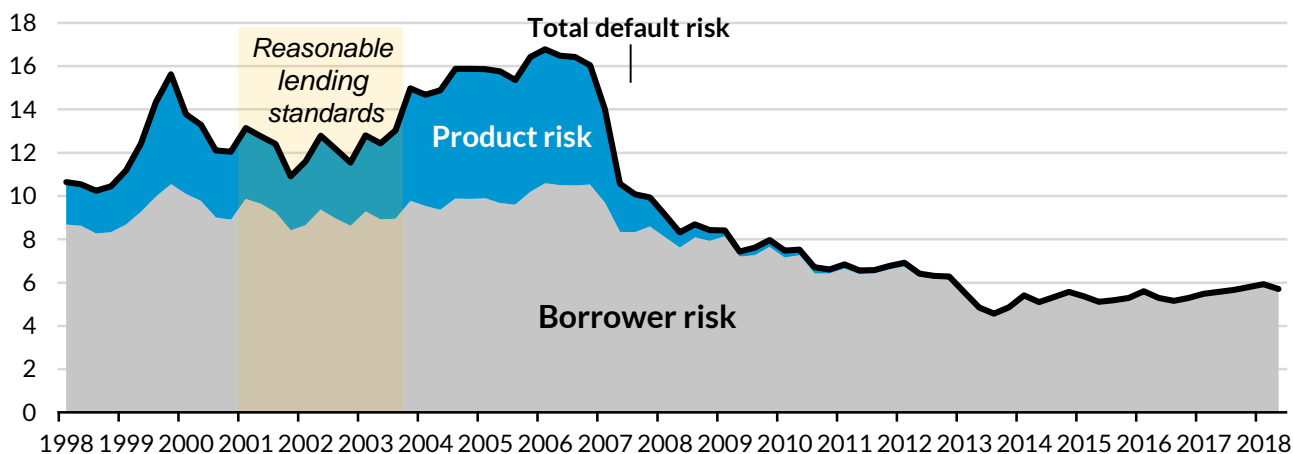
## STATE OF THE MARKET

# 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 go 90+ days delinquent over the life of the loan. In the second quarter of 2018 (Q2 2018) the index shows that credit availability slightly decreased to 5.7, ending four consecutive quarters of increases. The decline was primarily driven by a shift in market composition, as the government channel lost market share to the portfolio channel which has much tighter lending standards. More information about the HCAI, including the breakdown by market segment, is available [here](#).

Percent



Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.

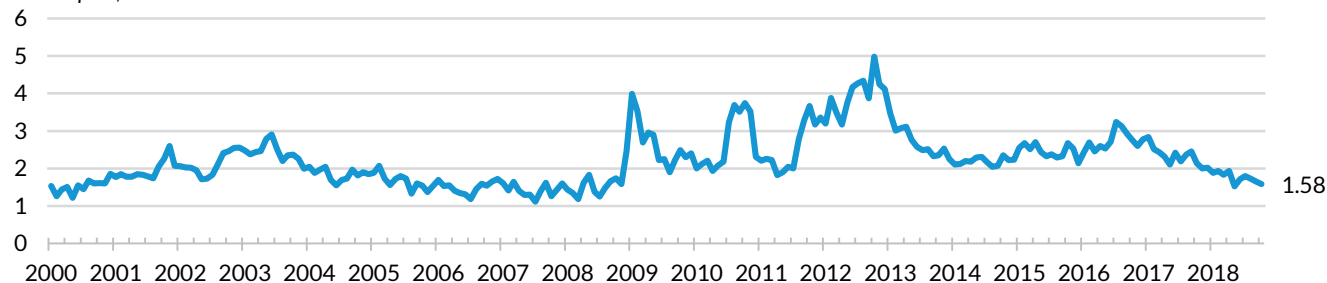
Q2 2018

Note: Default is defined as 90 days or more delinquent at any point. Last updated October 2018.

## 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. OPUC has generally been high when interest rates were low, as originators are capacity constrained due to refinance volume, and have no incentive to reduce rates. Conversely, when interest rates are relatively high and refi activity is low, originators are competing for a more limited amount of mortgages, driving profitability down. In October 2018, OPUC stood at \$1.58, near the lower end of the range in recent years.

Dollars per \$100 loan



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 monthly (4-week moving) average as discussed in [Fuster et al. \(2013\)](#).

October 2018

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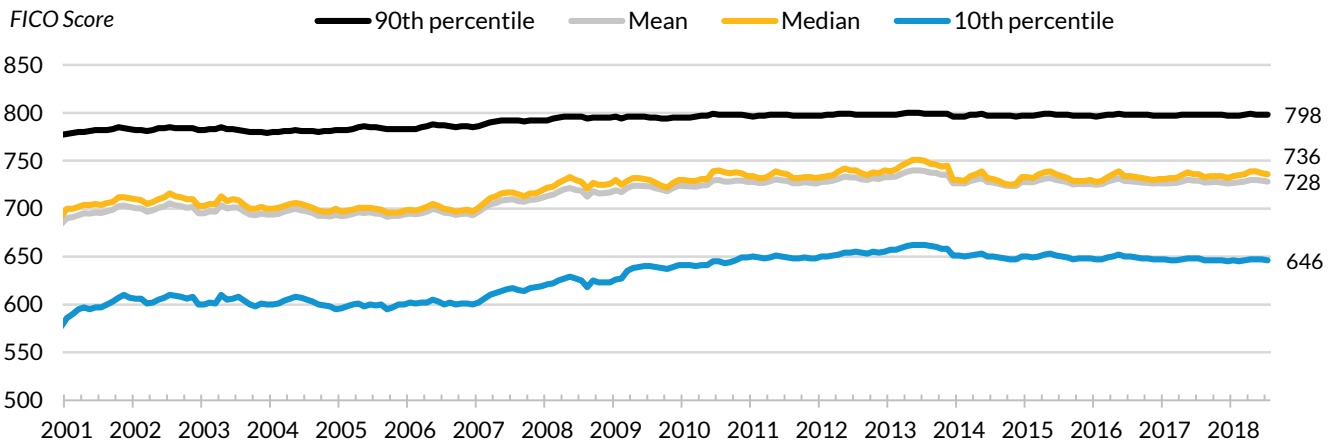


## STATE OF THE MARKET

# CREDIT AVAILABILITY FOR PURCHASE LOANS

Access to credit remains extremely tight, especially for borrowers with low FICO scores. The mean and median FICO scores on new purchase originations have both drifted up about 10 and 8 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 646 as of August 2018. Prior to the housing crisis, this threshold held steady in the low 600s. Mean LTV levels at origination remain relatively high, averaging 87, which reflects the large number of FHA purchase originations, although there was a small drop in the most recent month.

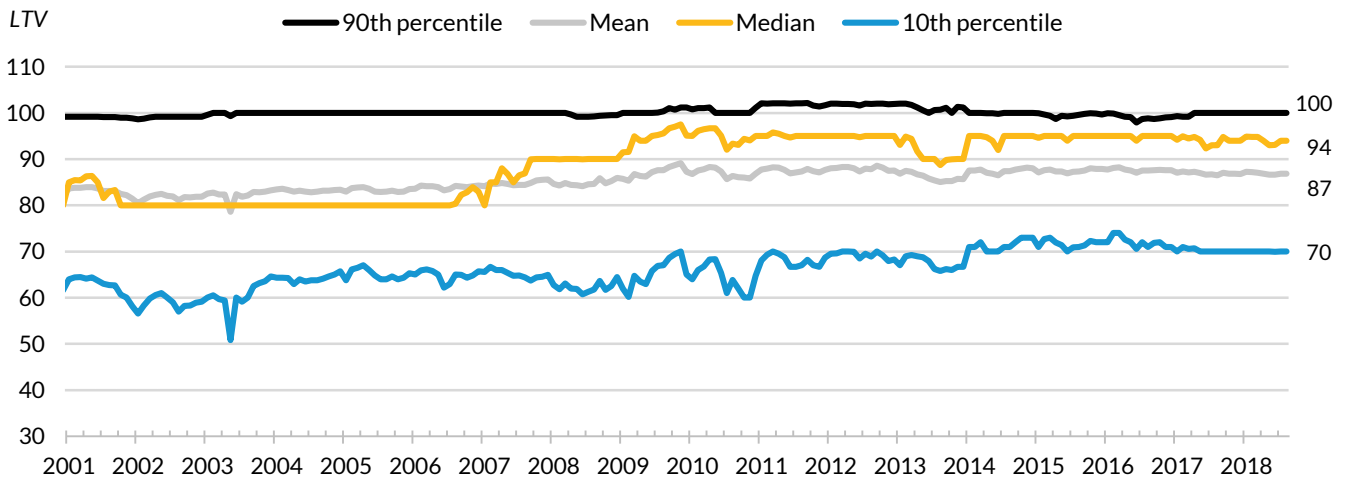
## Borrower FICO Score at Origination



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

August 2018

## Combined LTV at Origination



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

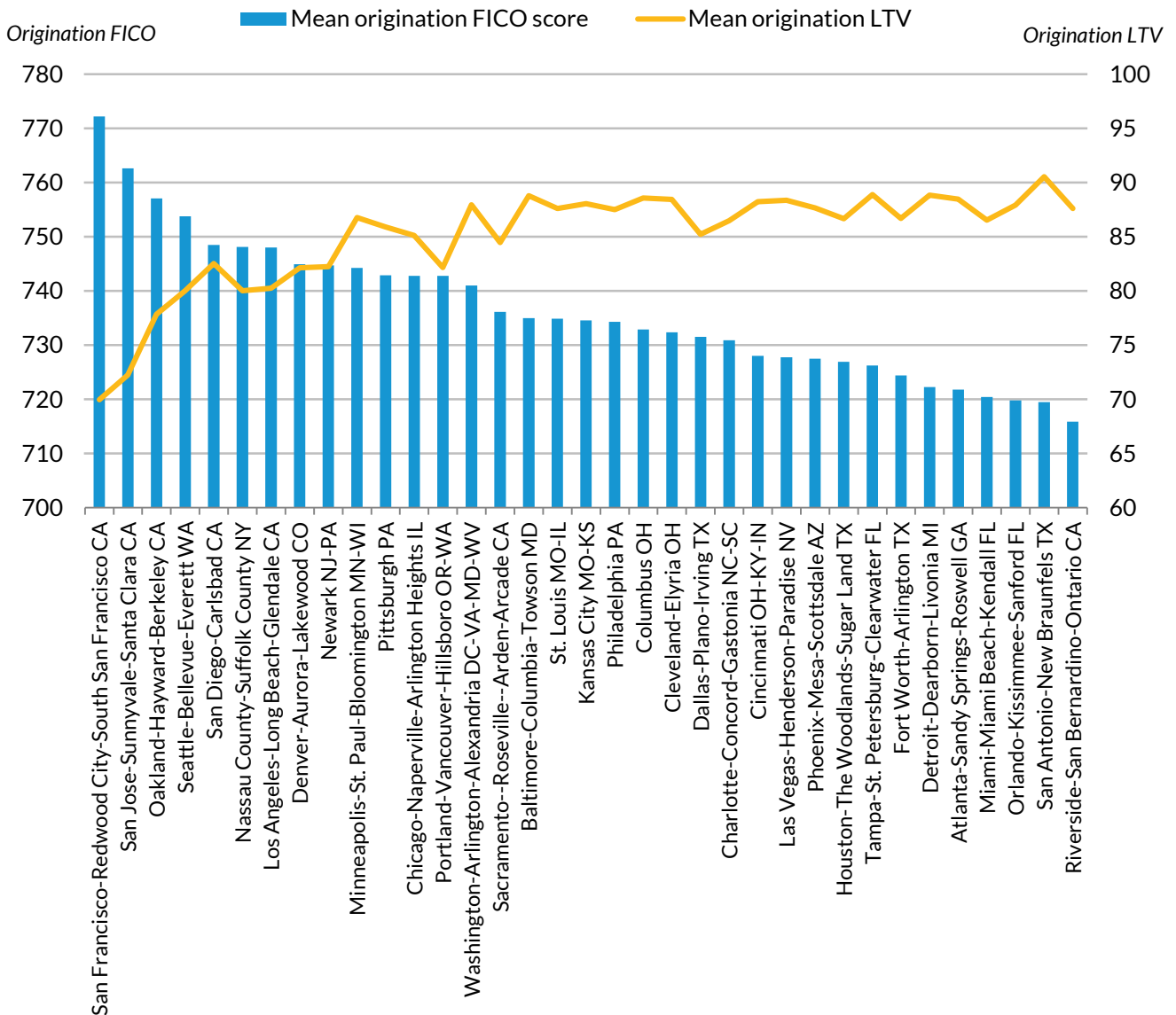
August 2018

## 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 772, while in Riverside-San Bernardino-Ontario, CA it is 716. Across all MSAs, lower average FICO scores tend to be correlated with high average LTVs, as these MSAs rely heavily on FHA/VA financing.

## Origination FICO and LTV



Sources: Black Knight, eMBS, HMDA, SIFMA and Urban Institute.

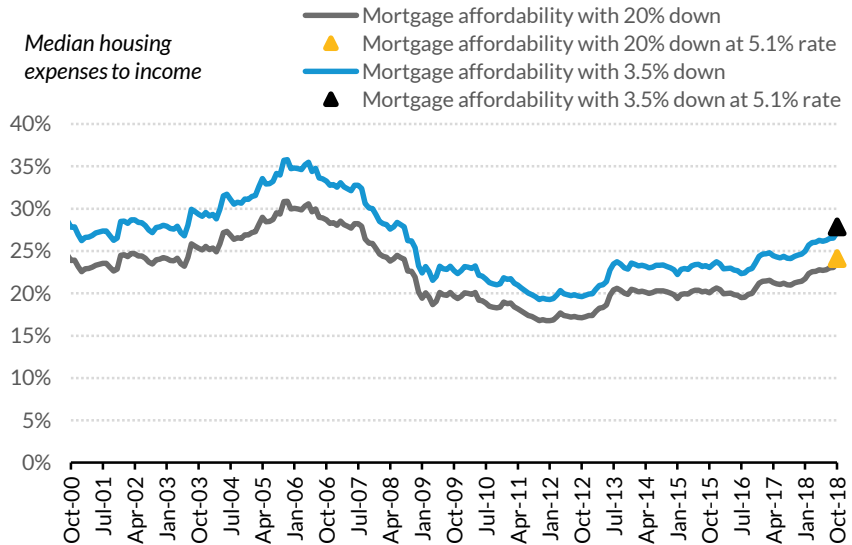
Note: Includes owner-occupied purchase loans only. Data as of August 2018.

# STATE OF THE MARKET

# HOUSING AFFORDABILITY

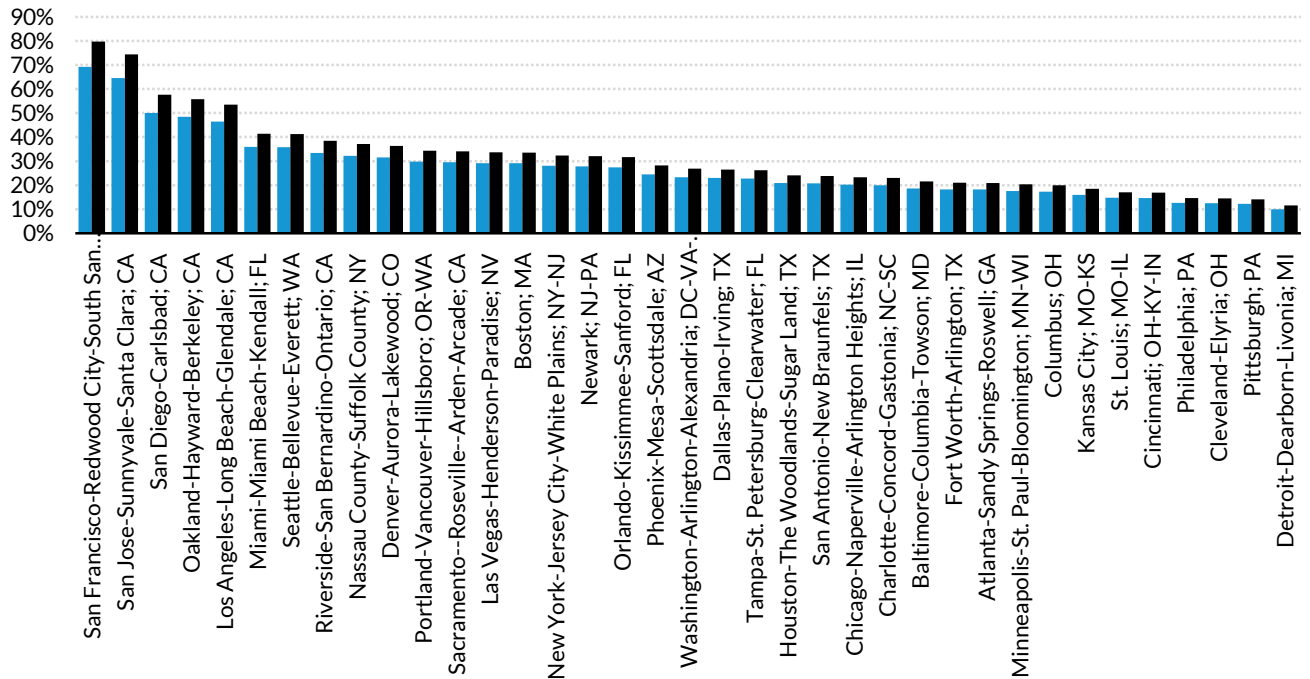
## National Mortgage Affordability Over Time

Home prices remain affordable by historic standards, despite price increases over the last 6.5 years and the recent interest rate hikes. As of October 2018, with 20% down payment, the share of median income needed for the monthly mortgage payment stood at 23.6%; with 3.5% down, it is 27.2%. If interest rates rise from 4.83% to 5.1%, the housing expenses to income share with both a 20 percent and a 3.5 percent down payment would be the same as the 2001-03 averages (24 and 28 percent, respectively). As shown in the bottom picture, mortgage affordability varies widely across MSAs.



## Mortgage Affordability by MSA

Mortgage affordability index



**Sources:** National Association of Realtors, US Census Bureau, Current Population Survey, American Community Survey, Moody's Analytics, Freddie Mac Primary Mortgage Market Survey, and the Urban Institute.

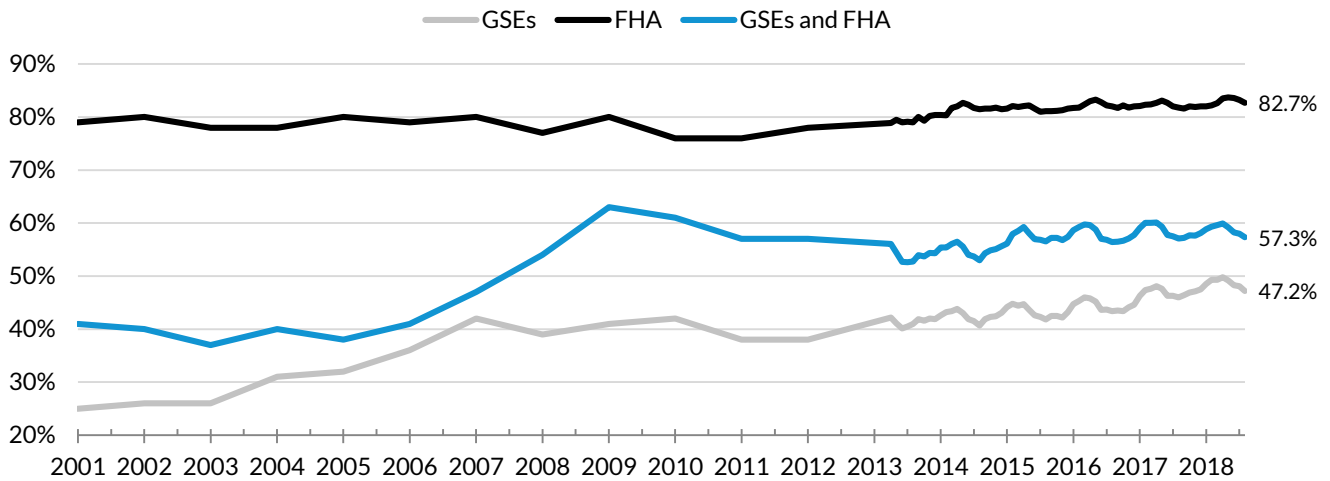
**Note:** Mortgage affordability is the share of median family income devoted to the monthly principal, interest, taxes, and insurance payment required to buy the median home at the Freddie Mac prevailing rate 2018 for a 30-year fixed-rate mortgage and property tax and insurance at 1.75 percent of the housing value. Data of the bottom chart as of Q3 2018.

## STATE OF THE MARKET

# FIRST-TIME HOMEBUYERS

## First-Time Homebuyer Share

In August 2018, the first time homebuyer share of purchase loans fell for both FHA and conventional mortgages, reflecting seasonal factors. FHA, which has always been more focused on first time homebuyers, remains near their record-high first time homebuyer share with 82.7 percent in August 2018; the FHA share has traditionally hovered around 80 percent. The GSE share in August 2018 was 47.2 percent. The bottom table shows that based on mortgages originated in August 2018, 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.

August 2018

Note: All series measure the first-time homebuyer share of purchase loans for principal residences.

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

Characteristics	GSEs		FHA		GSEs and FHA	
	First-time	Repeat	First-time	Repeat	First-time	Repeat
Loan Amount (\$)	234,798	258,431	205,314	227,834	223,005	254,183
Credit Score	738.3	754.2	669.6	675.9	710.9	743.4
LTV (%)	87.4	78.8	95.5	93.9	90.7	80.9
DTI (%)	36.4	36.8	43.4	44.4	39.2	37.8
Loan Rate (%)	4.84	4.73	4.92	4.84	4.87	4.75

Sources: eMBS and Urban Institute.

Note: Based on owner-occupied purchase mortgages originated in August 2018.

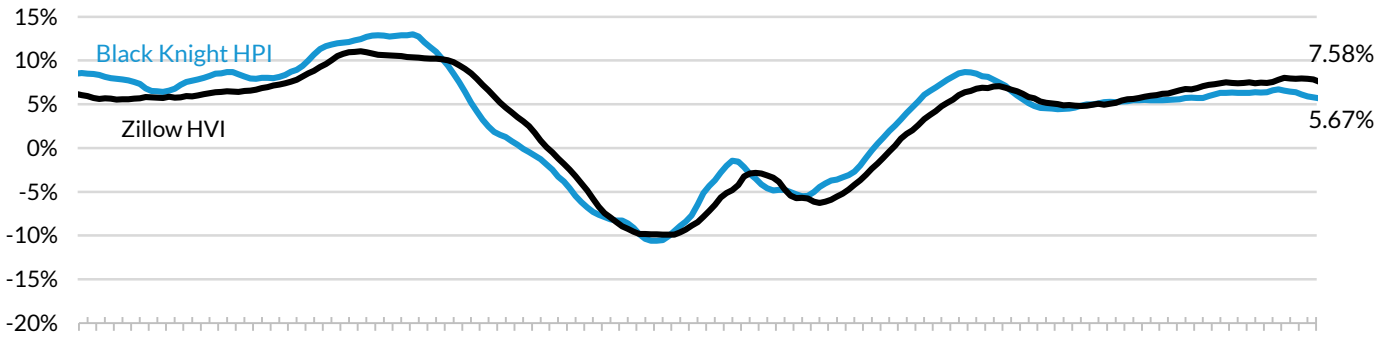
# STATE OF THE MARKET

# HOME PRICE INDICES

## National Year-Over-Year HPI Growth

Year-over-year home price appreciation slowed slightly but remained robust in September 2018, as measured by both the Black Knight's repeat sales index and Zillow's hedonic index. We will be monitoring the impact of rising interest rates on home prices. Historically, rising interest rates (generally observed in tandem with a stronger economy and higher inflation) have been associated with higher home price increases, despite the impact on affordability.

Year-over-year growth rate



2000 2001 2002 2003 2004 2005 2005 2006 2007 2008 2009 2010 2010 2011 2012 2013 2014 2015 2015 2016 2017 2018

Sources: Black Knight, Zillow, and Urban Institute. Note: Data as of September 2018.

## Changes in Black Knight HPI for Top MSAs

After rising 49.4 percent from the trough, national house prices are now 11.1 percent higher than pre-crisis peak levels. At the MSA level, ten of the top 15 MSAs have exceeded their pre-crisis peak HPI: New York, NY; Los Angeles, CA; Atlanta, GA; Houston, TX; Dallas, TX; Minneapolis, MN; Seattle, WA; Denver, CO, San Diego, CA, and Anaheim, CA. Two MSAs particularly hard hit by the boom and bust—Phoenix, AZ and Riverside, CA—are 9.3 and 11.8 percent, respectively, below peak values.

MSA	HPI changes (%)			% above peak
	2000 to peak	Peak to trough	Trough to current	
United States	75.8	-25.5	49.1	11.1
New York-Jersey City-White Plains, NY-NJ	127.9	-22.2	42.2	10.6
Los Angeles-Long Beach-Glendale, CA	180.7	-38.2	80.6	11.7
Chicago-Naperville-Arlington Heights, IL	67.1	-38.4	43.5	-11.6
Atlanta-Sandy Springs-Roswell, GA	32.7	-35.7	72.0	10.5
Washington-Arlington-Alexandria, DC-VA-MD-WV	149.6	-28.2	32.1	-5.2
Houston-The Woodlands-Sugar Land, TX	29.5	-6.7	44.8	35.0
Phoenix-Mesa-Scottsdale, AZ	113.4	-51.2	85.9	-9.3
Riverside-San Bernardino-Ontario, CA	177.3	-51.8	82.8	-11.8
Dallas-Plano-Irving, TX	26.2	-7.2	63.3	51.5
Minneapolis-St. Paul-Bloomington, MN-WI	69.1	-30.1	53.7	7.4
Seattle-Bellevue-Everett, WA	90.6	-32.8	100.4	34.6
Denver-Aurora-Lakewood, CO	34.1	-12.1	85.5	63.0
Baltimore-Columbia-Towson, MD	123.3	-23.9	20.4	-8.4
San Diego-Carlsbad, CA	148.6	-37.5	71.8	7.4
Anaheim-Santa Ana-Irvine, CA	163.6	-35.3	62.7	5.2

Sources: Black Knight HPI and Urban Institute. Data as of September 2018.

Note: This table includes the largest 15 Metropolitan areas by mortgage count.

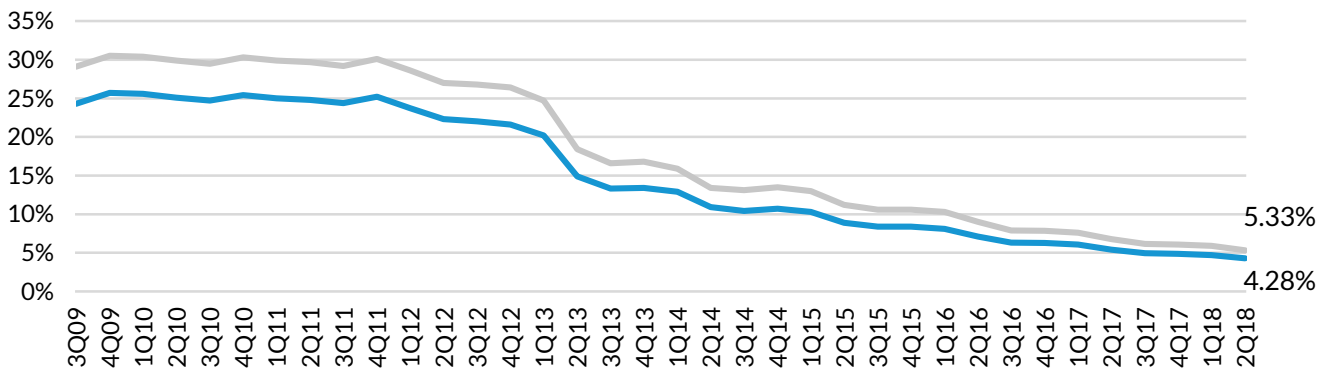
## STATE OF THE MARKET

# NEGATIVE EQUITY & SERIOUS DELINQUENCY

### Negative Equity Share

— Negative equity      — Near or in negative equity

With housing prices continuing to appreciate, residential properties in negative equity (LTV greater than 100) as a share of all residential properties with a mortgage continued to edge down to 4.28 percent as of Q2 2018. Residential properties near negative equity (LTV between 95 and 100) comprise another 1.05 percent.

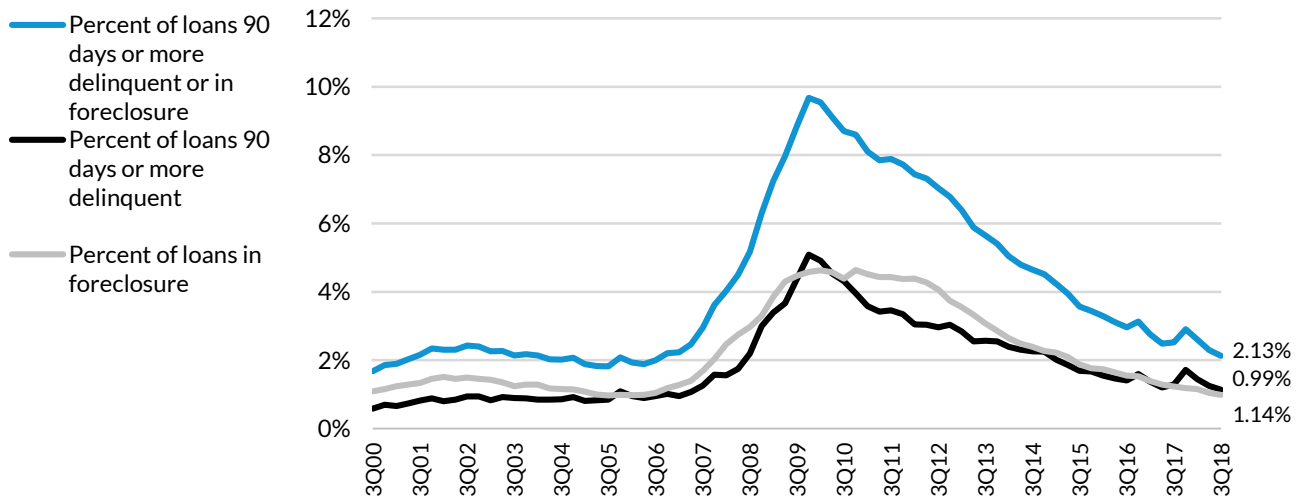


Sources: CoreLogic and Urban Institute.

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 2018.

### Loans in Serious Delinquency/Foreclosure

Loans 90 days or more delinquent rose sharply due to the hurricanes in the second half of 2017, but have since declined from 1.45 to 1.14 percent through the first three quarters of 2018, lower than in the quarter before the hurricanes. The percent of loans in foreclosure continued to edge down, dropping to 0.99 percent. Loans 90 days or more delinquent or in foreclosure totaled 2.13 percent in Q3 2018, down from 2.30 percent in Q2 2018 and 2.52 percent in the same quarter a year ago.



Sources: Mortgage Bankers Association and Urban Institute. Last updated November 2018.

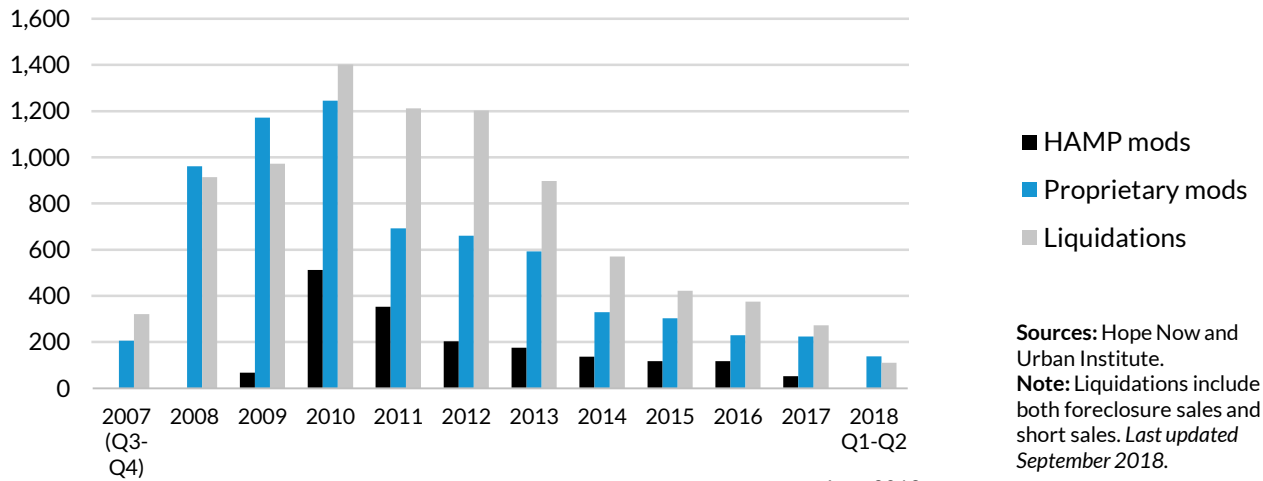
# STATE OF THE MARKET

# MODIFICATIONS AND LIQUIDATIONS

Total modifications (HAMP and proprietary) are roughly equal to total liquidations. Hope Now reports show 8,491,929 borrowers have received a modification since Q3 2007, compared with 8,673,435 liquidations in the same period. Modifications and liquidations have slowed significantly over the past few years. In Q2 2018, there were just 78,389 proprietary modifications and 54,790 liquidations. There were no new HAMP modifications as the program ended in 2017.

## Loan Modifications and Liquidations

Number of loans (thousands)



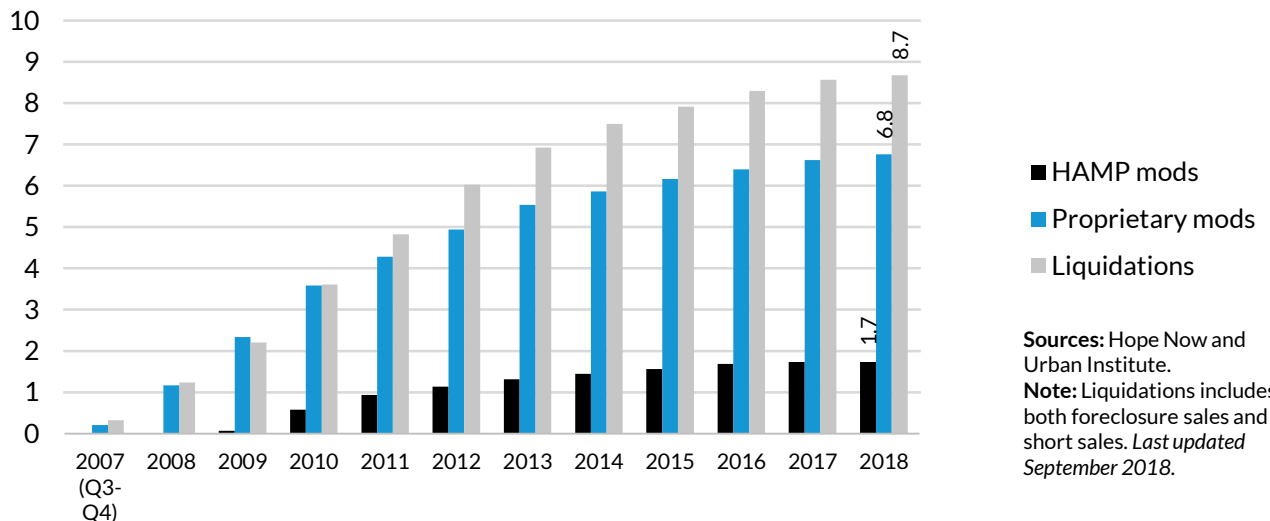
June 2018

- HAMP mods
- Proprietary mods
- Liquidations

Sources: Hope Now and Urban Institute.  
 Note: Liquidations include both foreclosure sales and short sales. Last updated September 2018.

## Cumulative Modifications and Liquidations

Number of loans (millions)



June 2018

- HAMP mods
- Proprietary mods
- Liquidations

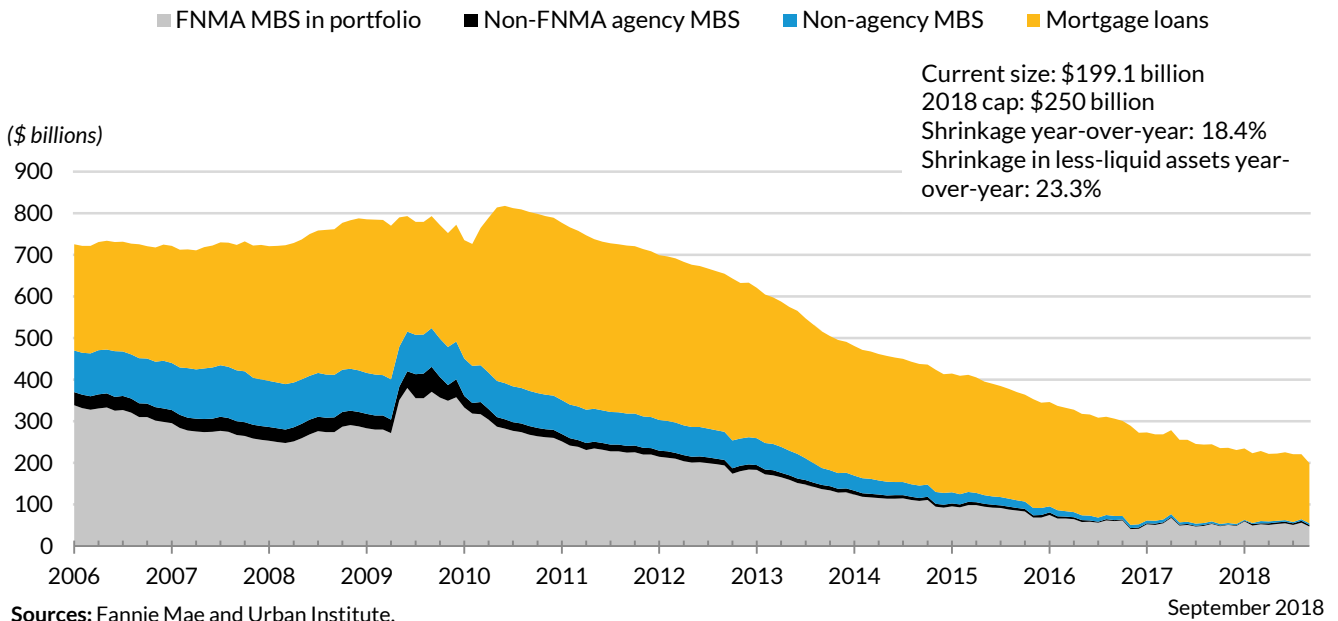
Sources: Hope Now and Urban Institute.  
 Note: Liquidations includes both foreclosure sales and short sales. Last updated September 2018.

## GSES UNDER CONSERVATORSHIP

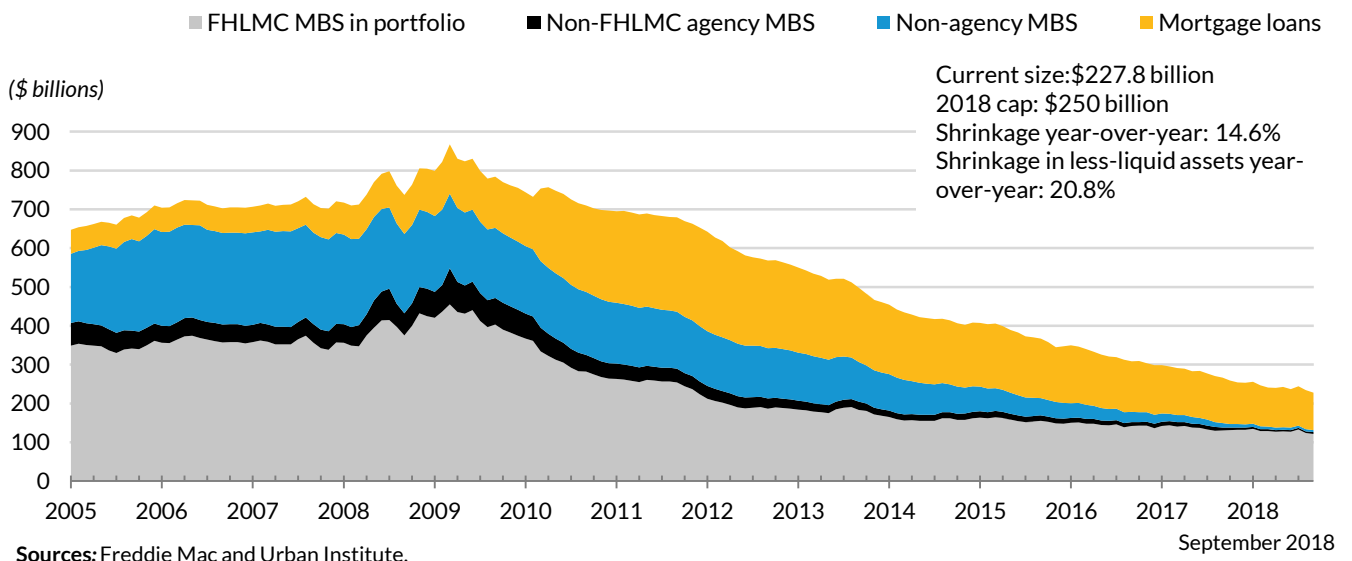
# GSE PORTFOLIO WIND-DOWN

Both GSEs continue to contract their portfolios. Since September 2017, Fannie Mae has contracted by 18.4 percent and Freddie Mac by 14.6 percent. They are shrinking their less-liquid assets (mortgage loans and non-agency MBS) faster than they are shrinking their entire portfolio. The Fannie Mae and Freddie Mac portfolios are now both below the \$250 billion maximum portfolio size; they were required to reach this terminal level by year end 2018. Fannie met the target in 2017, Freddie met the target in February 2018.

## Fannie Mae Mortgage-Related Investment Portfolio Composition



## Freddie Mac Mortgage-Related Investment Portfolio Composition





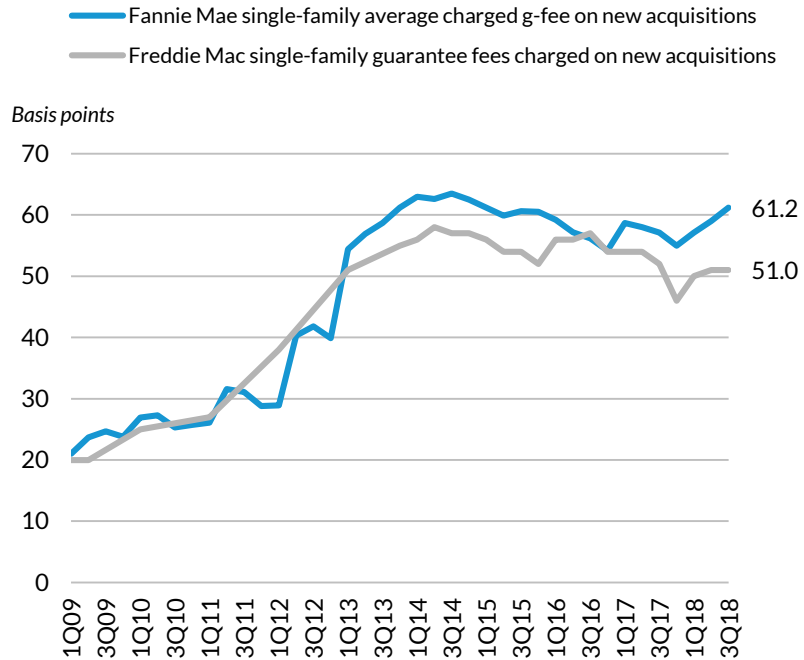
## GSES UNDER CONSERVATORSHIP

# EFFECTIVE GUARANTEE FEES

### Guarantee Fees Charged on New Acquisitions

The latest 10-Q indicates that Fannie's average g-fees on new acquisitions increased from 59 to 61.2 bps in Q3 2018 while Freddie's remained at 51 bps. This is markedly higher than g-fee levels in 2011 and 2012, 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.

Sources: Fannie Mae, Freddie Mac and Urban Institute.  
Last updated November 2018.



### 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%
<b>Product Feature (Cumulative)</b>								
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 front-end transactions with originators and reinsurers, and experimented with deep mortgage insurance coverage with private mortgage insurers. FHFA's 2018 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 total \$1.148 trillion, while Freddie's STACR totals \$1.054 trillion. In 2018 so far, Fannie has issued seven securities, and Freddie has issued five securities.

### 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%
2016	CAS 2016 deals	\$213,944	\$6,690	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%
November 2017	CAS 2017 - C07	\$33,900	\$1,200	3.5%
February 2018	CAS 2018 - C01	\$44,900	\$1,494	3.3%
March 2018	CAS 2018 - C02	\$26,500	\$1,007	3.8%
May 2018	CAS 2018 - C03	\$31,100	\$1,050	3.4%
June 2018	CAS 2018 - C04	\$24,700	\$940	3.8%
July 2018	CAS 2018 - C05	\$28,700	\$983	3.4%
October 2018	CAS 2018 - C06	\$25,700	\$918	3.6%
October 2018	CAS 2018 - R07	\$24,300	\$922	3.8%
<b>Total</b>		<b>\$1,148,172</b>	<b>\$35,400</b>	<b>3.1%</b>

### 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%
2016	STACR 2016 deals	\$199,130	\$5,541	2.8%
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%
December 2017	STACR Series 2017 - HRP1	\$15,044	\$200	1.3%
January 2018	STACR Series 2018 - DNA1	\$34,733	\$900	2.6%
March 2018	STACR Series 2018 - HQA1	\$40,102	\$985	2.5%
June 2018	STACR Series 2018 - DNA2	\$49,346	\$1,050	2.1%
September 2018	STACR Series 2018 - DNA3	\$30,000	\$820	2.7%
October 2018	STACR Series 2018 - HQA2	\$36,200	\$1,000	2.8%
<b>Total</b>		<b>\$1,053,885</b>	<b>\$28,663</b>	<b>2.7%</b>

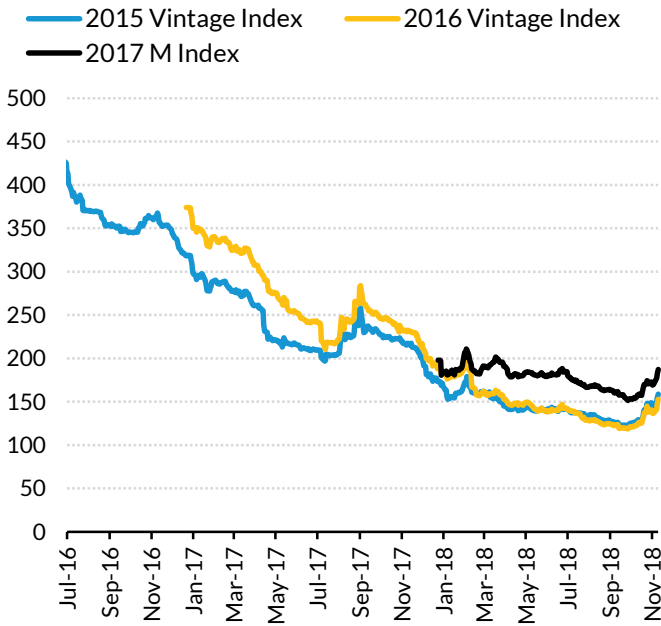
Sources: Fannie Mae, Freddie Mac and Urban Institute. Note: Classes A-H, M-1H, M-2H, and B-H are reference tranches only. These classes are not issued or sold. The risk is retained by Fannie Mae and Freddie Mac. "CE" = credit enhancement.

# GSES UNDER CONSERVATORSHIP

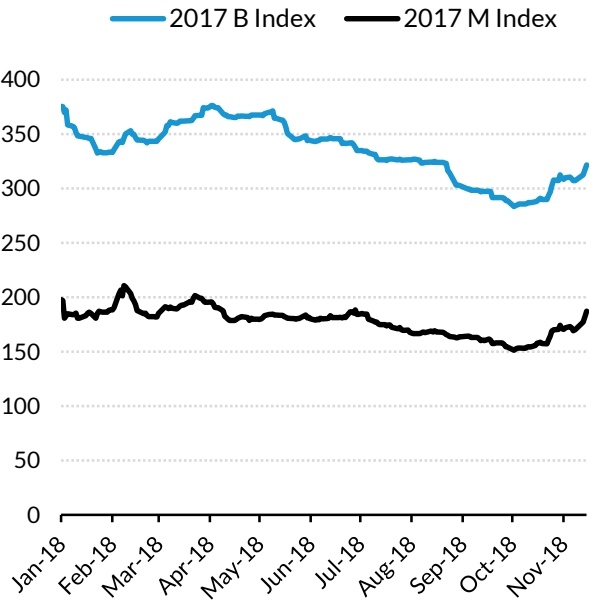
## GSE RISK-SHARING INDICES

Spreads on CRT securities have narrowed considerably through time, despite occasional bouts of volatility. The figures below show the spreads on 2015, 2016 and 2017 indices, as priced by dealers. Note that the 2015 and 2016 indices consist of the bottom mezzanine tranche in each deal, weighted by the original issuance amount; the equity tranches were not sold in these years. The 2017 indices contain both the bottom mezzanine tranche as well as the equity tranche (the B tranche), in all deals when the latter was sold.

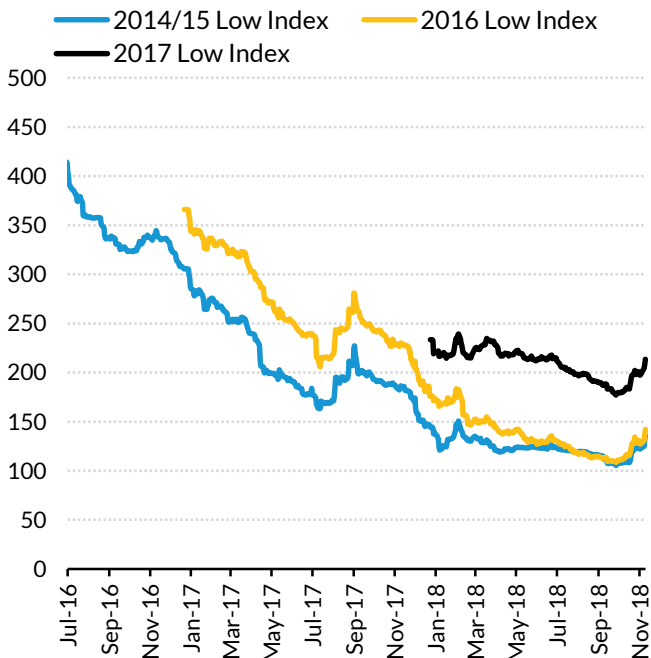
**By Vintage**



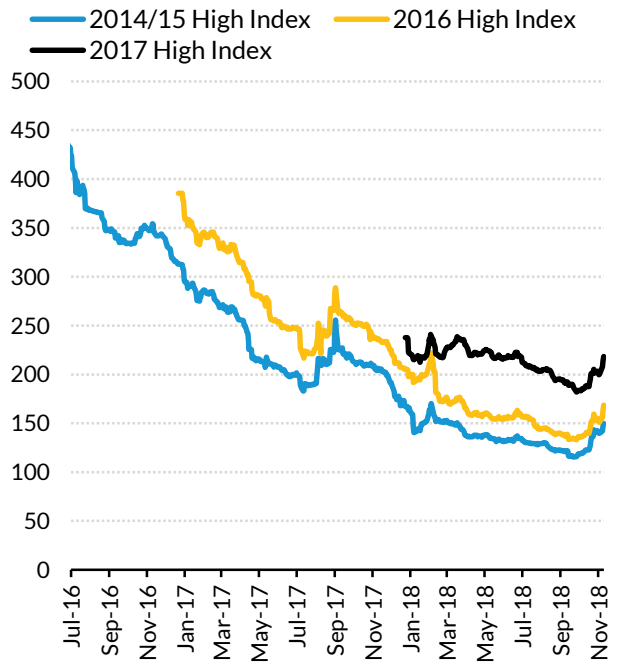
**2017 Indices**



**Low Indices**



**High Indices**



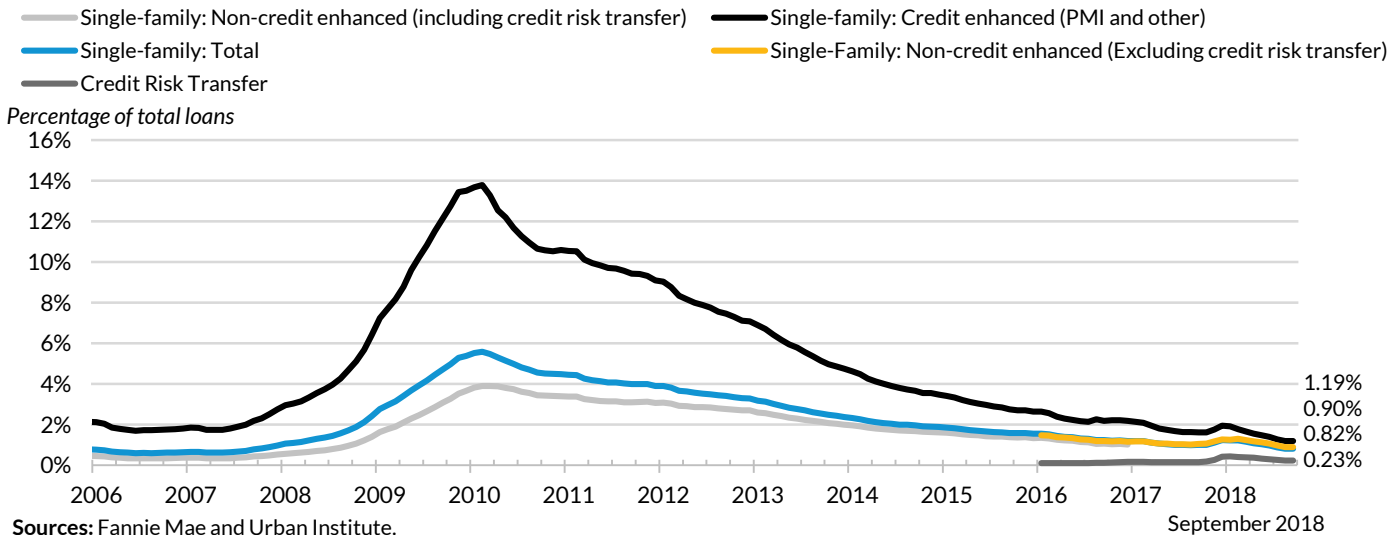
Sources: Vista Data Services and Urban Institute.  
 Note: Data as of November 15, 2018.

# GSES UNDER CONSERVATORSHIP

## SERIOUS DELINQUENCY RATES

Overall, there has been a marked long term decline in serious delinquency rates as the legacy portfolio is resolved and the pristine, post-2009 book of business exhibits very low default rates. As of September 2018, 0.82 percent of the Fannie portfolio and 0.73 percent of the Freddie portfolio were seriously delinquent, unchanged from the previous month. The hurricanes in August and September of 2017 caused a small spike, but the downward trend in delinquencies resumed and the last few months delinquency rates, have been lower than in the month prior to the hurricanes.

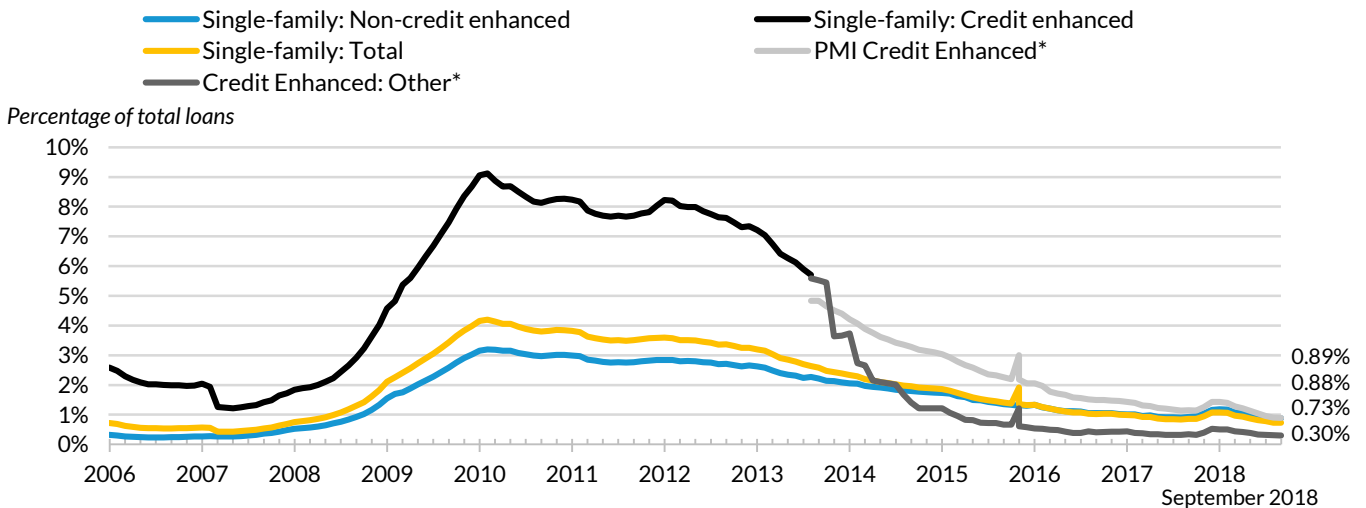
### Serious Delinquency Rates-Fannie Mae



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.

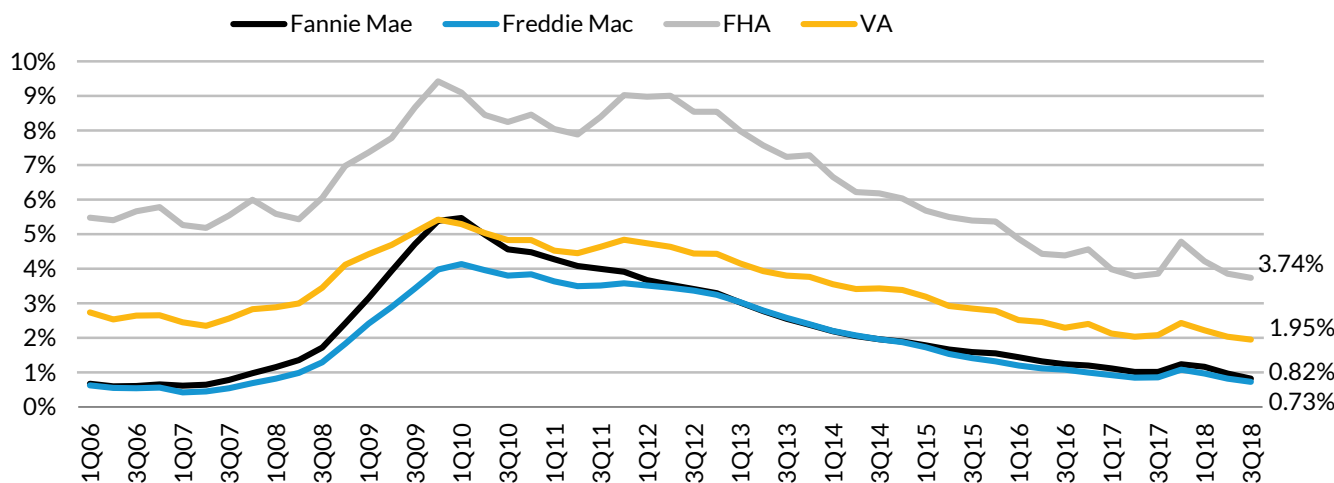
Note\*: Following a change in Freddie reporting in September 2014, we switched from reporting credit enhanced delinquency rates to PMI and other credit enhanced delinquency rates. Freddie reported these two categories for credit-enhanced loans going back to August 2013. The other category includes single-family 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.

# GSES UNDER CONSERVATORSHIP

## SERIOUS DELINQUENCY RATES

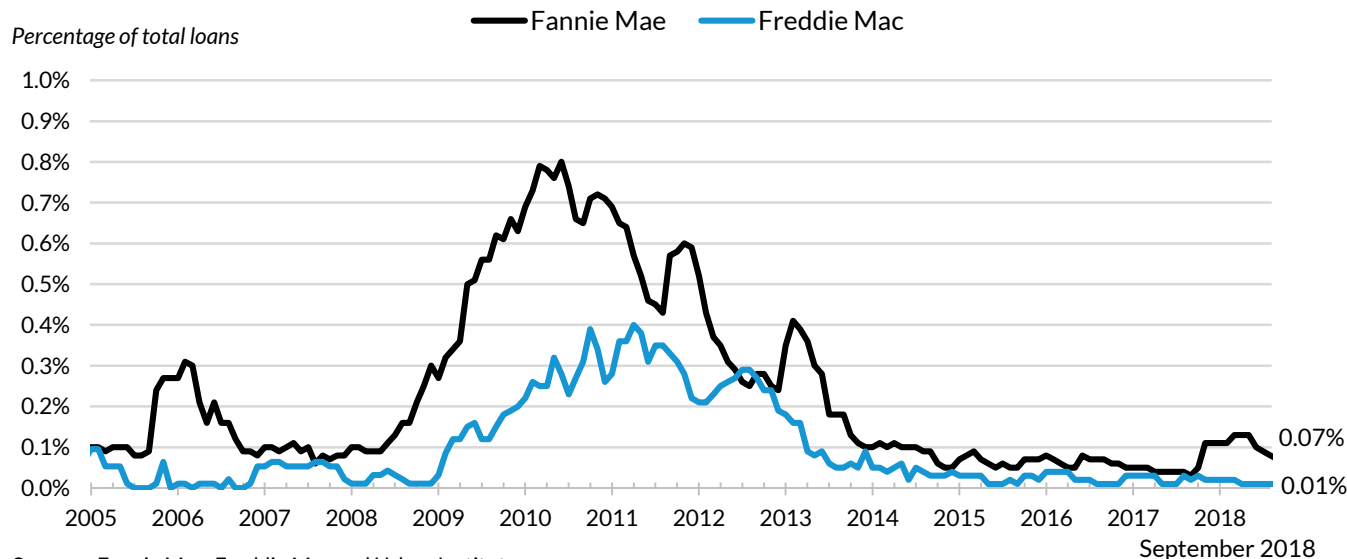
Serious delinquencies for single-family GSE loans, FHA loans, and VA loans continued to decline in Q3 2018 to levels equal to or lower than before the hurricane related uptick in Q4 2017. GSE delinquencies remain high relative to 2005-2007, while FHA and VA delinquencies (which are higher than their GSE counterparts) are at levels lower than 2005-2007. GSE multifamily delinquencies remain at the levels prevailing before the financial crisis, although they did not reach problematic levels even in the worst years of the crisis. Fannie Mae delinquencies did rise after the 2017 hurricanes to a peak of 0.13 percent and has begun to decline; September 2018 delinquencies stand at 0.07 percent. Freddie Mac did not experience a post hurricane rise in multifamily delinquencies; September 2018 delinquencies stand at 0.01 percent.

### 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. Last updated November 2018.

### Serious Delinquency Rates—Multifamily GSE Loans



**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 ISSUANCE

# AGENCY GROSS AND

# NET ISSUANCE

Agency gross issuance was \$1.007 trillion in the first ten months of 2018, \$1.209 trillion on an annualized basis. This is down 8.7 percent year-over-year. When measured on a monthly basis, agency gross issuance year-over-year has been declining for 20 consecutive months since March 2017, reflecting higher mortgage rates. Net issuance (which excludes repayments, prepayments, and refinances on outstanding mortgages) totaled \$213.0 billion in the first ten months of 2018, down 14.4 percent from the same period in 2017.

## 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	\$877.3	\$455.6	\$1,332.9
2018 YTD	\$668.1	\$339.0	\$1,007.1
2018 YTD % Change YOY	-7.4%	-11.2%	-8.7%
2018 Ann.	\$801.7	\$406.8	\$1,208.5

## 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	\$168.5	\$131.3	\$299.7
2018 YTD	\$119.6	\$93.4	\$213.0
2018 YTD % Change YOY	-9.8%	-19.6%	-14.4%
2018 (Ann.)	\$143.5	\$112.1	\$255.6

Sources: eMBS and Urban Institute.

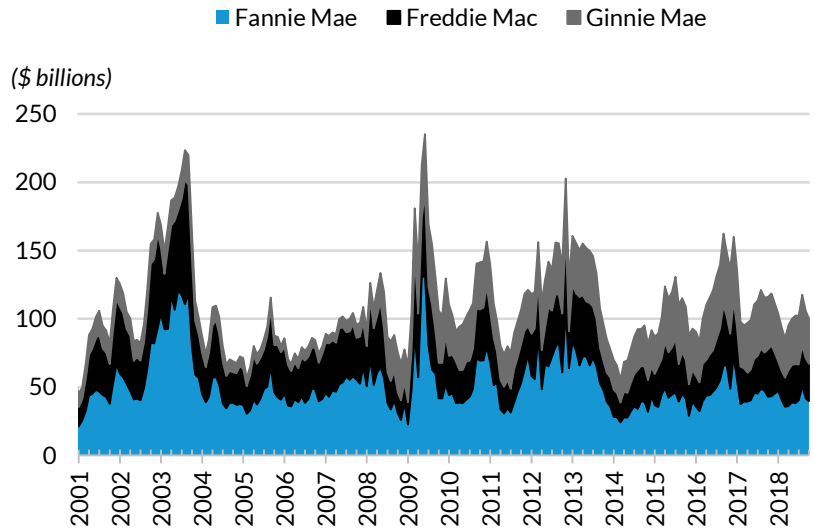
Note: Dollar amounts are in billions. Data as of October 2018.

## AGENCY ISSUANCE

# 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 rose from its low levels in the pre-crisis period to 28 percent in 2010, then declined to 25 percent in 2013. Since then, the share has bounced back sharply, and now stands at 33.1 percent in October 2018. The increase in this share over the past 2 years is due to the fact that rates have risen, and Ginnie Mae is less dependent on refi activity than its conventional counterparts.

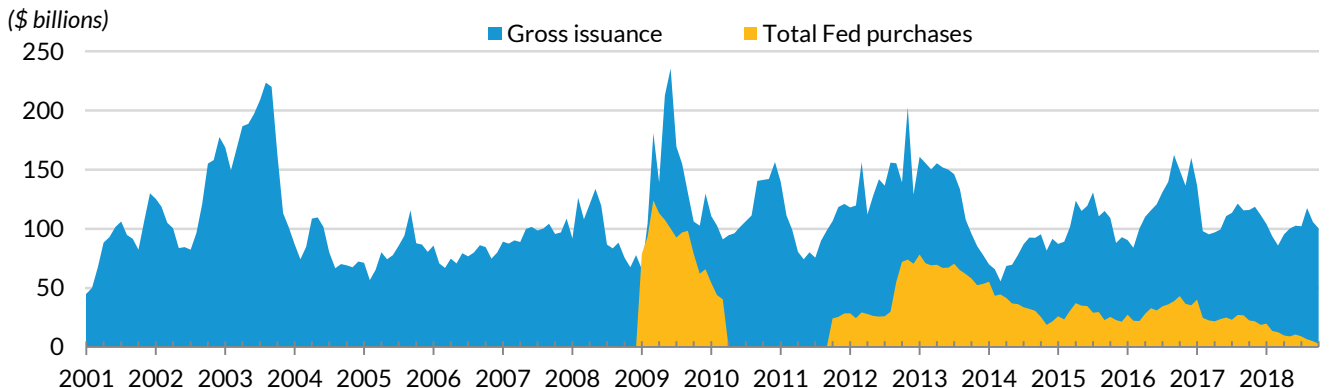


October 2018

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

## Fed Absorption of Agency Gross Issuance

The Fed has begun to wind down their portfolio, and we are beginning to see the effects in slower absorption rates. During the period October 2014-September 2017, the Fed had ended its purchase program, but was reinvesting funds from mortgages and agency debt into the mortgage market, absorbing 20-30 percent of agency gross issuance. With the wind down, which started in October 2017, the Fed has continued to reinvest, but by less than prepayment and repayments. The amount of the MBS taper (amount permitted to run off each month) increased to the maximum taper of \$20 billion in October 2018; total Fed purchases fell further to \$2.94 billion, yielding Fed absorption of gross issuance of 2.9 percent, the lowest level since the Fed began its second mortgage purchase program.



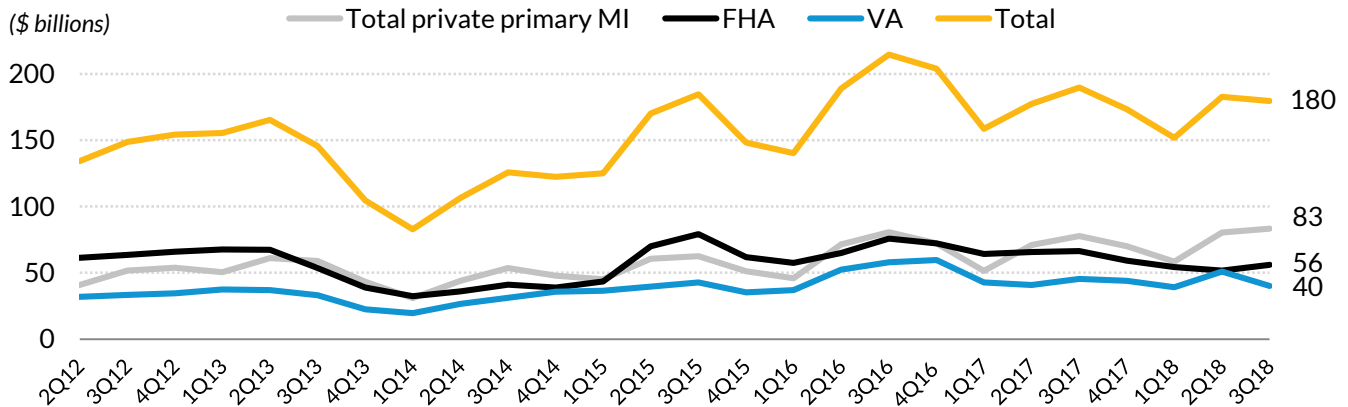
October 2018

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

# AGENCY ISSUANCE MORTGAGE INSURANCE ACTIVITY

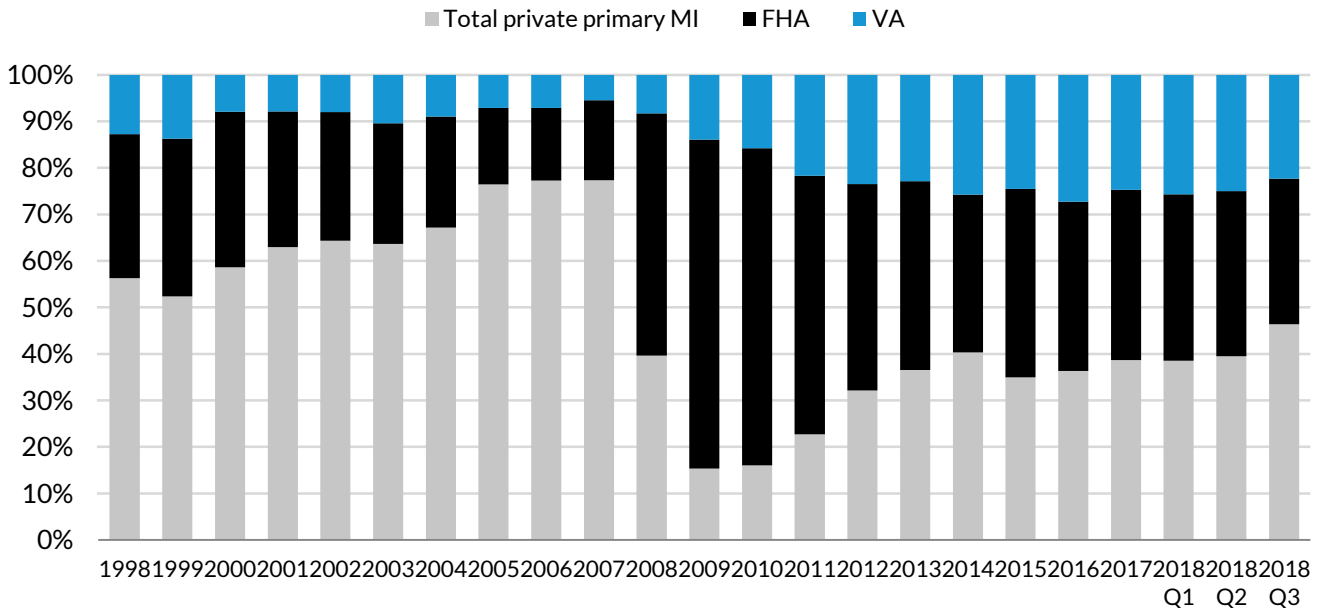
## MI Activity

In 2018 Q3, mortgage insurance activity via the FHA, VA and private insurers declined from the previous quarter's \$182 billion to \$179 billion, down 5.3 percent year-over-year from the same quarter in 2017. Private mortgage insurers increased by \$2.95 billion, FHA increased by \$4.53 billion, while VA decreased by \$10.7 billion. In the third quarter of 2018, the VA share fell from 27.8 percent to 22.4 percent, while the FHA share rose from 44.0 percent to 46.4 percent and the private mortgage insurers share grew from 43.9 percent to 46.4 percent.



Sources: Inside Mortgage Finance and Urban Institute. Last updated November 2018.

## MI Market Share



Sources: Inside Mortgage Finance and Urban Institute. Last updated November 2018.



# 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 the overwhelming majority of high LTV borrowers. The April 2016 reduction in PMI rates for borrowers with higher FICO scores and April 2018 reduction for lower FICO borrowers 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 740 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 <sup>a</sup>	175	125
4/1/2013 - 1/25/2015 <sup>b</sup>	175	135
Beginning 1/26/2015 <sup>c</sup>	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.

<sup>a</sup> Applies to purchase loans less than or equal to \$625,500. Those over that amount have an annual premium of 150 bps.

<sup>b</sup> Applies to purchase loans less than or equal to \$625,500. Those over that amount have an annual premium of 155 bps.

<sup>c</sup> 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	5.16%
FHA	5.08%

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	\$1,501	\$1,501	\$1,501	\$1,501	\$1,501	\$1,501	\$1,501	\$1,501
PMI	\$1,877	\$1,814	\$1,768	\$1,645	\$1,595	\$1,540	\$1,492	\$1,452
PMI Advantage	(\$376)	(\$313)	(\$268)	(\$145)	(\$94)	(\$39)	\$9	\$49

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 25.

# SPECIAL FEATURE: LOAN LEVEL GSE CREDIT DATA

## FANNIE MAE COMPOSITION

Since 2008, the composition of loans purchased by Fannie Mae has shifted towards borrowers with higher FICO scores. For example, 65.0 percent of loans originated from 2011 to Q3 2017 were for borrowers with FICO scores above 750, compared to 40.7 percent of borrowers in 2007 and 36.6 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%	15.0%	4.5%	4.5%	33.4%
	700 to 750	9.2%	14.2%	3.4%	3.2%	30.0%
	>750	15.6%	16.1%	2.7%	2.3%	36.6%
	Total	34.2%	45.3%	10.6%	9.9%	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%	18.6%	2.1%	1.4%	39.6%
	Total	39.8%	47.4%	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%	1.2%	25.9%
	>750	15.8%	20.1%	2.4%	1.4%	39.6%
	Total	37.4%	49.7%	8.1%	4.8%	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	15.3%	20.1%	3.3%	2.0%	40.7%
	Total	33.9%	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%	2.6%	26.4%
	>750	19.1%	25.6%	5.8%	3.4%	53.9%
	Total	34.5%	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	32.4%	33.5%	4.0%	1.7%	71.5%
	Total	44.2%	47.2%	5.9%	2.7%	100.0%
2011-3Q17	≤700	3.4%	4.9%	1.3%	2.0%	11.6%
	700 to 750	5.6%	9.9%	3.1%	4.7%	23.4%
	>750	20.7%	28.5%	7.3%	8.5%	65.0%
	Total	29.7%	43.3%	11.7%	15.3%	100.0%
Total		34.0%	45.0%	10.4%	10.6%	100.0%

Sources: Fannie Mae and Urban Institute.

Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q3 2017. 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

## 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	3.8%	4.6%	6.1%	7.1%	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	13.9%	17.5%	20.1%	21.8%	16.7%
	700 to 750	6.4%	9.8%	12.7%	13.2%	9.0%
	>750	2.2%	4.5%	7.2%	8.2%	3.8%
	Total	6.9%	10.2%	14.5%	15.6%	9.5%
2006	≤700	18.3%	22.4%	25.8%	27.4%	21.6%
	700 to 750	8.6%	13.2%	16.1%	16.8%	12.1%
	>750	2.9%	5.8%	9.1%	9.5%	5.0%
	Total	9.5%	13.2%	18.3%	19.4%	12.5%
2007	≤700	19.7%	23.6%	31.0%	31.3%	24.2%
	700 to 750	8.4%	13.4%	19.2%	18.6%	12.9%
	>750	2.8%	5.8%	11.0%	10.8%	5.3%
	Total	9.4%	13.4%	22.2%	22.0%	13.7%
2008	≤700	14.5%	17.1%	23.2%	23.3%	17.6%
	700 to 750	5.0%	8.0%	12.9%	12.6%	8.3%
	>750	1.3%	2.8%	6.3%	6.9%	2.9%
	Total	5.0%	6.5%	12.2%	12.9%	7.2%
2009-2010	≤700	4.0%	5.2%	5.0%	6.3%	4.6%
	700 to 750	1.1%	2.0%	2.5%	3.0%	1.7%
	>750	0.2%	0.6%	1.1%	1.4%	0.5%
	Total	0.7%	1.2%	1.6%	2.3%	1.0%
2011-3Q17	≤700	1.1%	1.5%	1.7%	2.1%	1.5%
	700 to 750	0.3%	0.4%	0.6%	0.8%	0.5%
	>750	0.1%	0.1%	0.2%	0.3%	0.1%
	Total	0.2%	0.3%	0.4%	0.7%	0.4%
<b>Total</b>		1.9%	2.8%	4.1%	3.3%	2.7%

Sources: Fannie Mae and Urban Institute.

Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q3 2017, with performance information on these loans through Q2 2018. 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, 60.1 percent of loans originated from 2011 to Q3 2017 were for borrowers with FICO scores above 750, compared to 38.9 percent of borrowers in 2007 and 33.2 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	7.7%	16.6%	5.5%	5.6%	35.4%
	700 to 750	8.9%	15.9%	3.4%	3.2%	31.4%
	>750	13.6%	15.5%	2.3%	1.8%	33.2%
	Total	30.2%	48.0%	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%	1.7%	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%	7.2%	100.0%
2009-2010	≤700	3.9%	3.2%	0.3%	0.3%	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	45.7%	46.1%	5.6%	2.6%	100.0%
2011- 3Q17	≤700	4.0%	4.9%	1.4%	1.8%	12.2%
	700 to 750	7.0%	12.2%	3.6%	4.9%	27.7%
	>750	18.9%	27.1%	6.7%	7.5%	60.1%
	Total	29.9%	44.3%	11.7%	14.2%	100.0%
<b>Total</b>		33.0%	46.8%	10.1%	10.1%	100.0%

Sources: Freddie Mac and Urban Institute.

Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2017. 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	3.1%	4.3%	6.5%	7.0%	4.8%
	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%	4.9%	2.5%
2005	≤700	12.2%	16.6%	19.7%	21.1%	15.9%
	700 to 750	5.8%	9.5%	12.7%	13.0%	8.7%
	>750	2.0%	4.6%	7.3%	8.4%	3.8%
	Total	6.0%	10.1%	14.7%	16.0%	9.3%
2006	≤700	16.1%	21.3%	24.8%	27.1%	20.6%
	700 to 750	8.1%	12.8%	15.6%	15.6%	11.7%
	>750	2.7%	6.0%	9.0%	9.7%	5.0%
	Total	8.2%	12.9%	18.4%	20.4%	12.2%
2007	≤700	17.3%	22.9%	28.9%	31.4%	23.4%
	700 to 750	8.0%	13.7%	18.3%	18.7%	13.0%
	>750	2.7%	6.4%	10.4%	11.6%	5.6%
	Total	8.3%	13.7%	21.2%	23.0%	13.7%
2008	≤700	13.4%	17.4%	23.8%	22.9%	17.5%
	700 to 750	4.8%	8.5%	13.2%	11.8%	8.2%
	>750	1.4%	3.4%	6.9%	6.5%	3.0%
	Total	4.5%	7.8%	13.5%	13.2%	7.6%
2009-2010	≤700	3.4%	4.9%	5.1%	5.2%	4.2%
	700 to 750	0.9%	1.9%	2.2%	2.6%	1.6%
	>750	0.2%	0.6%	1.1%	1.3%	0.5%
	Total	0.6%	1.3%	1.6%	2.1%	1.0%
2011-3Q17	≤700	0.6%	0.7%	0.8%	1.1%	0.8%
	700 to 750	0.2%	0.3%	0.3%	0.4%	0.3%
	>750	0.0%	0.1%	0.1%	0.2%	0.1%
	Total	0.2%	0.2%	0.3%	0.4%	0.2%
<b>Total</b>		2.0%	3.4%	4.7%	4.6%	3.2%

Sources: Freddie Mae and Urban Institute.

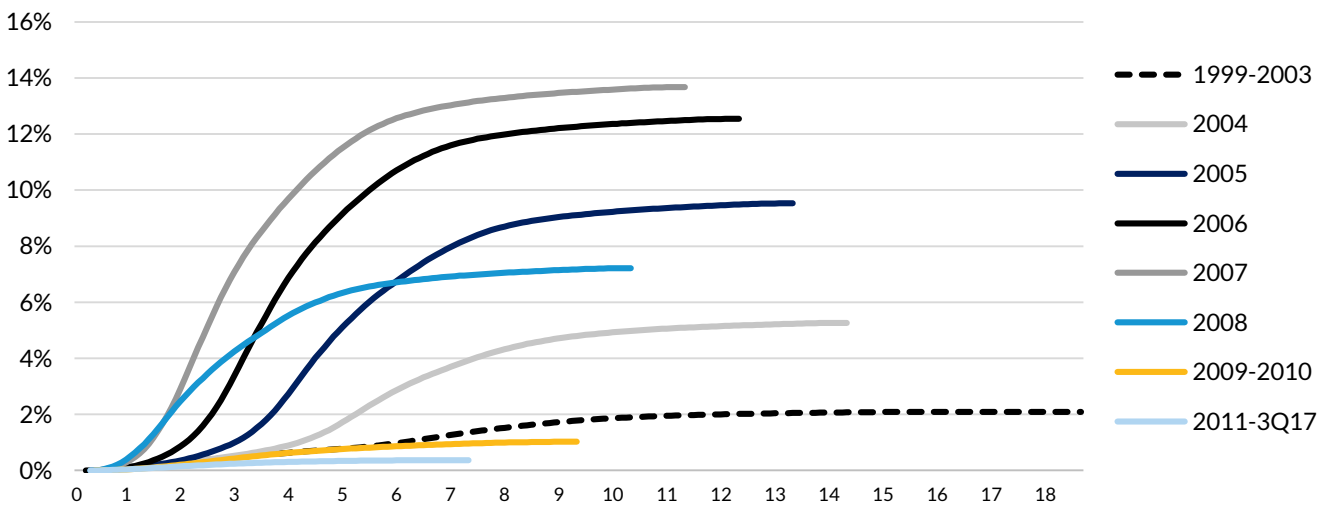
Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2017, with performance information on these loans through Q1 2018. Default is defined as six months delinquent or disposed of via short sales, third-party sales, deeds-in-lieu of foreclosure, or real estate owned (REO 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 cumulative 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 Mae loans 88 months after origination, the cumulative default rate from 2009-10 and 2011- Q3 2017 are about 0.96 and 0.37 percent, respectively, compared to the cumulative default rate from 1999-2003 of 1.35 percent. For Freddie Mac loans 85 months after origination, the cumulative default rates total 0.94 percent from 2009-10 and 0.22 percent from 2011-Q3 2017, compared to the rate from 1999-2003 of 1.24 percent.

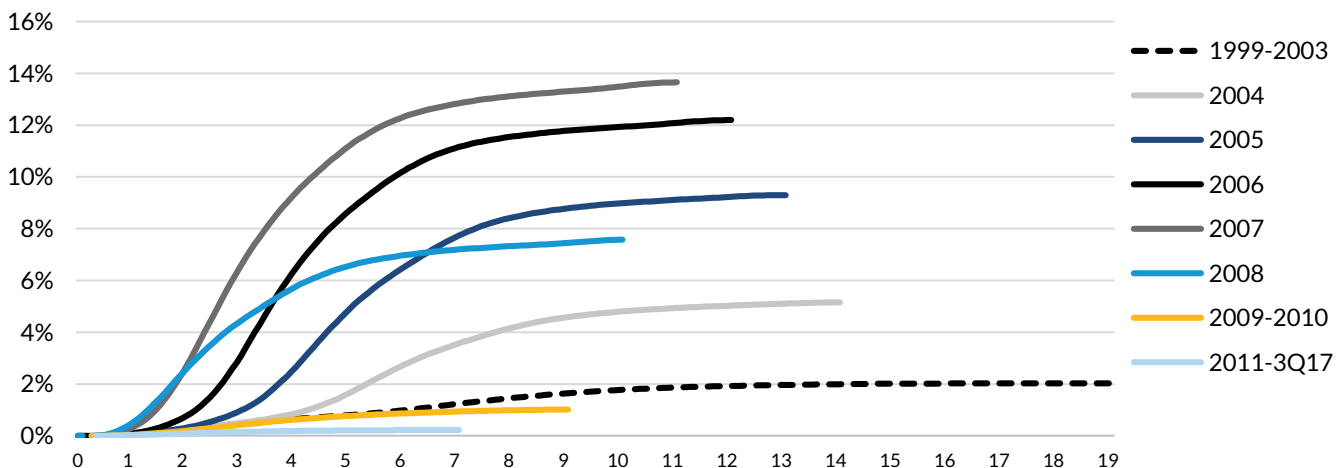
### Fannie Mae Cumulative Default Rate by Vintage Year



Sources: Fannie Mae and Urban Institute.

Note: The analysis included only mortgages with original terms of 241-420 months. A default is defined as a delinquency of 180 days or more, a deed-in-lieu, short sale, foreclosure sale or REO sale.

### Freddie Mac Cumulative Default Rate by Vintage Year



Sources: Freddie Mac and Urban Institute.

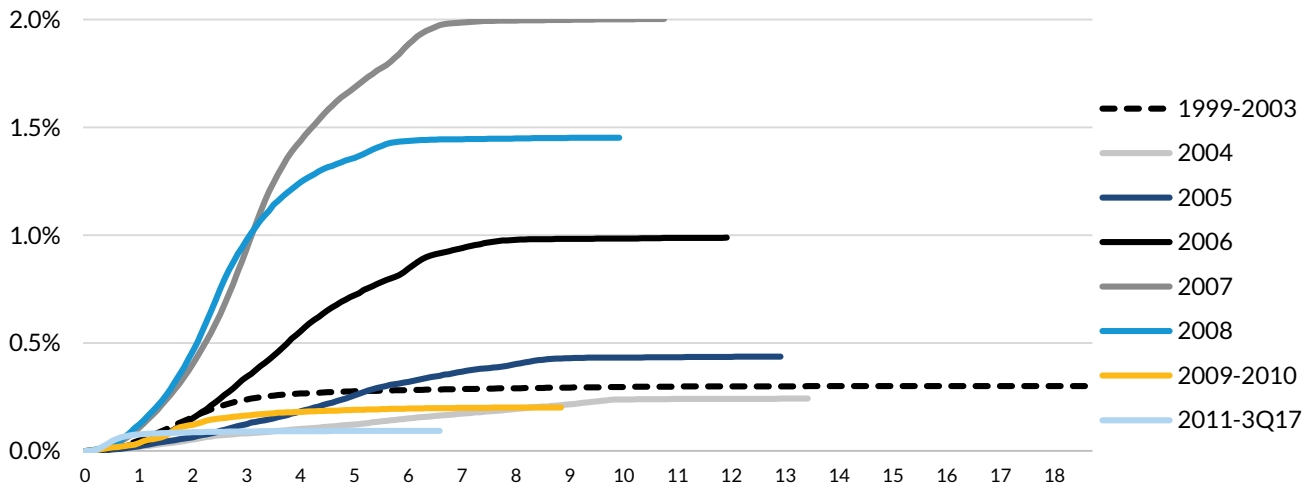
Note: The analysis included only mortgages with original terms of 241-420 months. A default is defined as a delinquency of 180 days or more, a deed-in-lieu, short sale, foreclosure sale or REO sale.

# 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.

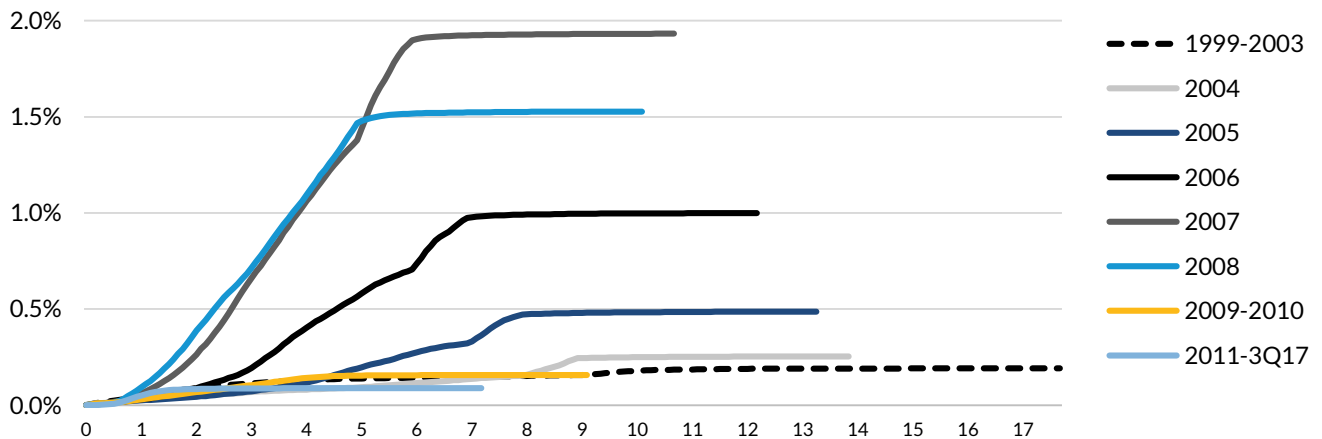
### Fannie Mae Repurchase Rate by Vintage Year



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 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) 14.7 percent are current, 16.1 percent are prepaid, 10.2 percent are still in the pipeline (not current, not prepaid, not liquidated) and 57.8 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 41-44 percent.

### Fannie Mae - Liquidation Rates and Severities for D180+ loans

Origination Year	Paths for D180+ Loans (% of total count)				Severity for Already Liquidated Loans			
	Paths With No Eventual Loss		Paths With Eventual Loss		<=60	60-80	>80	Total
	Current	Prepay	Still in the Pipeline	% Already Liquidated Loans				
1999-2004	12.48%	21.84%	7.49%	57.72%	24.1%	39.5%	24.1%	32.5%
2005	14.54%	12.23%	7.89%	63.80%	33.7%	48.5%	35.2%	44.5%
2006	14.84%	10.57%	7.60%	65.05%	42.1%	54.3%	37.9%	50.0%
2007	16.35%	11.48%	8.46%	61.47%	41.4%	53.7%	35.9%	47.1%
2008	17.33%	14.41%	9.14%	57.28%	34.7%	48.7%	28.1%	39.6%
2009-2010	17.26%	19.22%	15.33%	47.93%	23.1%	34.7%	17.4%	30.0%
2011-3Q17	17.18%	14.28%	47.20%	21.32%	13.8%	22.5%	5.9%	13.7%
Total	14.66%	16.13%	10.20%	57.81%	34.4%	47.7%	29.4%	41.0%

### Freddie Mac - Liquidation Rates and Severities for D180+ loans

Origination Year	Paths for D180+ Loans (% of total count)				Severity for Already Liquidated Loans			
	Paths With No Eventual Loss		Paths With Eventual Loss		<=60	60-80	>80	Total
	Current	Prepay	Still In The Pipeline	% Already Liquidated Loans				
1999-2004	10.16%	19.20%	8.09%	62.55%	27.5%	41.3%	28.8%	35.2%
2005	11.99%	10.66%	8.04%	69.31%	35.5%	48.4%	37.2%	45.1%
2006	11.32%	8.82%	7.66%	72.20%	41.6%	52.7%	38.9%	49.0%
2007	11.65%	8.83%	8.42%	71.10%	44.5%	52.4%	38.0%	47.2%
2008	13.24%	11.68%	9.70%	65.38%	39.4%	49.4%	34.0%	43.3%
2009-2010	14.20%	17.38%	16.68%	51.74%	29.4%	39.1%	19.2%	34.6%
2011-3Q17	14.72%	15.57%	46.80%	22.90%	18.3%	29.5%	8.5%	18.8%
Total	11.46%	13.33%	9.32%	65.88%	37.7%	48.7%	33.9%	43.5%

**Sources:** Fannie Mae, Freddie Mac, and Urban Institute.

**Note:** Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q3 2017, with performance information on these loans through Q2 2018. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2017, with performance information on these loans through Q1 2018. The analysis included only mortgages with original terms of 241-420 months. Freddie Mac recently enhanced their data by identifying third party sales and note sales. As compared with the last report, this produces a higher percent of liquidated loans and a lower overall severity. Fannie Mae already included these fields in their data.



# 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-Q3 2017 originations, Fannie Mae foreclosure alternatives had a defaulted UPB of \$168,889 and a loss severity of 11.2 percent, versus a defaulted UPB of \$148,700 and a loss severity of 15.1 percent for REO sales.

### Fannie Mae - Loss Severity for already liquidated loans

Origination Year	Number of Loans			Mean defaulted UPB (\$)			Severity		
	All	REO	Foreclosure Alternatives	All	REO	Foreclosure Alternatives	All	REO	Foreclosure Alternatives
1999-2004	191,057	145,929	45,128	111,679.0	105,978.1	130,109.0	32.51%	36.90%	20.94%
2005	73,224	48,966	24,258	168,490.4	157,219.3	191,238.5	44.52%	48.55%	37.84%
2006	74,562	50,007	24,555	182,758.1	170,082.8	208,566.2	49.97%	54.34%	42.72%
2007	90,687	60,687	30,000	192,207.6	178,989.2	218,937.8	47.12%	51.51%	39.86%
2008	53,372	35,645	17,727	189,998.4	175,656.0	218,819.1	39.57%	44.20%	32.09%
2009-2010	19,081	12,257	6,824	173,743.8	162,493.9	193,943.2	30.05%	34.45%	23.43%
2011-3Q17	9,260	6,072	3,188	155,653.3	148,700.2	168,889.4	13.65%	15.13%	11.17%
Total	511,243	359,563	151,680	155,761.8	143,754.4	184,216.3	41.01%	44.99%	33.66%

### Freddie Mac - Loss Severity for Already Liquidated Loans

Origination Year	Number of Loans			Mean defaulted UPB (\$)			Severity		
	All	REO	Foreclosure Alternatives	All	REO	Foreclosure Alternatives	All	REO	Foreclosure Alternatives
1999-2004	165,504	113,860	51,644	112,067.6	106,360.8	124,649.4	35.19%	40.23%	25.69%
2005	89,365	47,840	41,525	170,906.1	156,189.7	187,860.5	45.12%	51.91%	38.61%
2006	94,865	49,778	45,087	183,916.5	165,903.0	203,804.3	49.05%	57.16%	41.76%
2007	101,579	53,403	48,176	186,294.2	167,852.5	206,736.8	47.23%	56.35%	39.03%
2008	50,848	25,582	25,266	196,234.1	177,831.6	214,866.7	43.29%	53.36%	34.85%
2009-2010	14,843	7,543	7,300	179,012.5	168,342.1	190,038.0	34.60%	41.70%	28.10%
2011-3Q17	3,676	1,581	2,095	161,615.7	151,878.2	168,964.2	18.83%	23.75%	15.50%
Total	520,680	299,587	221,093	160,215.0	143,076.0	183,438.9	43.47%	50.24%	36.31%

Sources: Fannie Mae, Freddie Mac and Urban Institute.

Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q3 2017, with performance information on these loans through Q2 2018. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q3 2017, with performance information on these loans through Q1 2018. The analysis included only mortgages with original terms of 241-420 months. Freddie Mac recently enhanced their data by identifying third party sales and note sales. As compared with the last report, this produces a higher percent of liquidated loans and a lower overall severity. Fannie Mae already included these fields in their data.

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