



HOUSING FINANCE AT A GLANCE

A MONTHLY CHARTBOOK

August 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.

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

Pricing data for GSE Credit Risk Transfer Securities now available

This month we are introducing new charts showing historical market pricing for GSE credit risk transfer securities (see page 27). The charts are based on daily pricing data provided by Vista Data Services. Vista created indices by vintage; the indices are comprised of the bottom mezzanine tranche of each deal issued in a particular year, plus the equity, B, tranche, if issued. These data are a major enhancement over the previous CRT charts, which showed tranche-level pricing only at the time of issuance. We show four separate pricing charts: (i) 2015 vintage index, 2016 vintage index and 2017 M index, (ii) 2017 M and B indices, (iii) 2014/15, 2016, 2017 low-LTV indices, and (iv) 2014/15, 2016, 2017 high-LTV indices. Note that the first chart compares 2015 and 2016 vintage indices to the 2017 M index instead of the 2017 vintage index. The 2017 vintage index includes some B tranches, which 2015 and 2016 vintage indices don't, as they were not issued.

There are some interesting things to note. First, is the clear tightening of prices over time. This is to be expected because strong house price appreciation has significantly boosted borrower equity in the underlying homes and reduced the likelihood that CRT investors will take a loss. This is more true for older vintages since they have accumulated more house price appreciation than recent vintages. The 2017 indices, which haven't witnessed as much HPI as the older vintages, should, all other factors equal, trade at wider spreads. If robust HPI continues, which we expect in the short run given the shortage of housing supply, spreads for 2017 vintage will continue to tighten.

At the same time, the indices are not fully comparable due to variances in the level of subordination across deals over time. As the CRT market has developed, the differences between the Fannie and Freddie deals have disappeared, and the structures have become standardized. In particular, the early Fannie deals had thinner first loss slices than more recent deals. As a result, the M tranches in 2017 deals have more credit enhancement at issuance than M tranches in previous vintages, which contributes to tighter spreads.

The charts are also useful in visualizing the impact of historical credit events on CRT prices. The most

notable credit event in the last 12 months was the onset of hurricanes Harvey, Irma and Maria in August/September 2017. All vintage indices show significant widening of spreads in the immediate aftermath of the disasters. This was followed by gradual tightening as the impacted geographies began recovering.

We anticipate updating these charts every month with latest pricing. Indices for 2018 CRT transactions will be added starting early 2019.

INSIDE THIS ISSUE

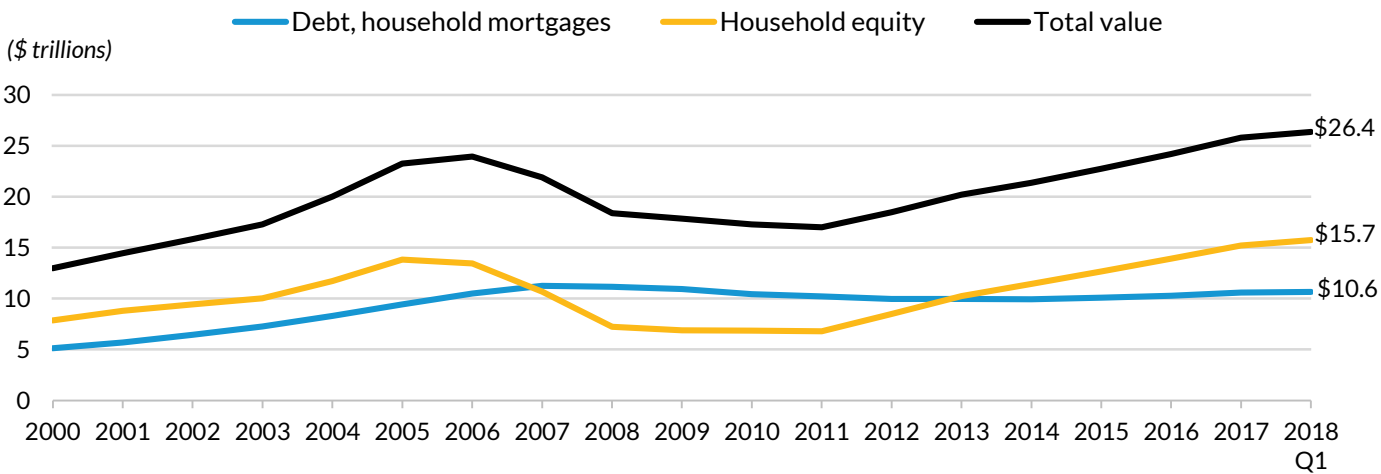
- Serious delinquency rates continued to decline in Q2 2018 (Pages 22 and 29).
- Both Fannie Mae and Freddie Mac's average g-fees on new acquisitions edged up in Q2 2018 (page 25).
- Newly added GSE risk-sharing indices show spreads on GSE CRT securities have narrowed considerably through time (page 27).
- Fed absorption of gross issuance dropped to new historical low in July 2018, as Fed's MBS taper size increased from \$12 to \$16 billion in July (page 31).
- FHA, VA and PMI's mortgage insurance activities all rose significantly while the market shares remained steady in Q2 2018 (page 32).
- Special quarterly feature includes GSE default, composition, loss severity, and repurchase indicators (pages 34-41).

OVERVIEW

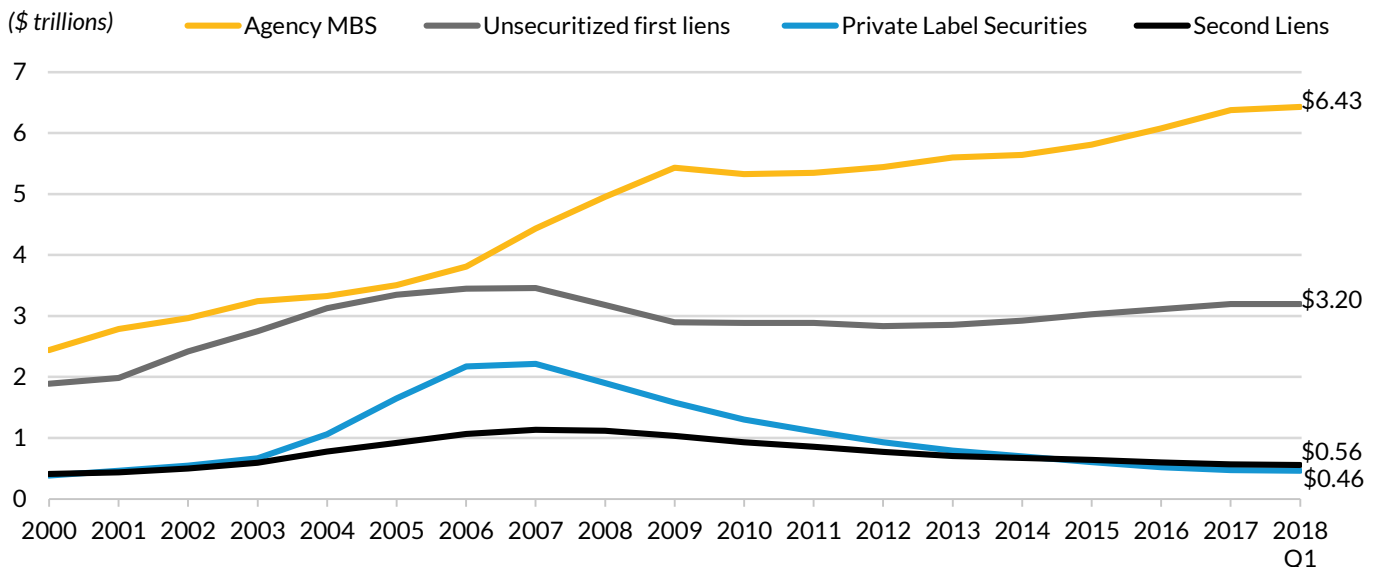
MARKET SIZE OVERVIEW

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 Q1 was no different. While total debt and mortgages was stable at \$10.6 trillion, household equity reached a new high of \$15.7 trillion, bringing the total value of the housing market to \$26.4 trillion, 10 percent higher than the pre-crisis peak in 2006. Agency MBS make up 60.4 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 30.0 percent. Second liens comprise the remaining 5.2 percent of the total.

Value of the US Housing Market



Size of the US Residential Mortgage Market

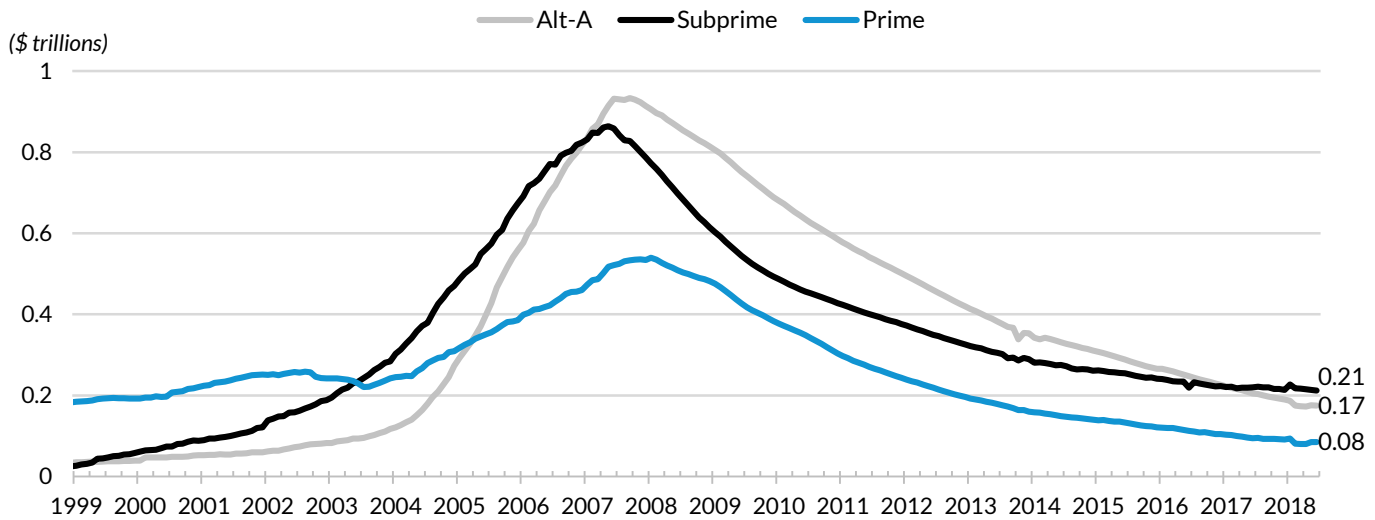


OVERVIEW

MARKET SIZE OVERVIEW

As of June 2018, debt in the private-label securitization market totaled \$471 billion and was split among prime (18.0 percent), Alt-A (37.1 percent), and subprime (44.9 percent) loans. In July 2018, outstanding securities in the agency market totaled \$6.5 trillion and were 43.4 percent Fannie Mae, 27.4 percent Freddie Mac, and 29.2 percent Ginnie Mae. Ginnie Mae has had more outstanding securities than Freddie Mac since May 2016.

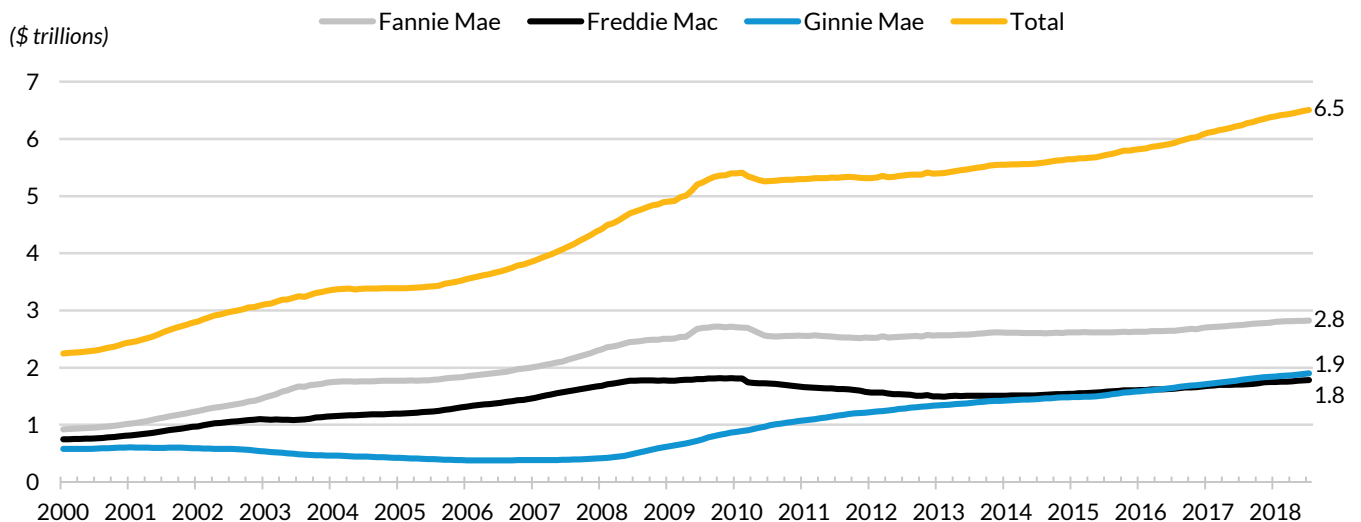
Private-Label Securities by Product Type



Sources: CoreLogic, Black Knight and Urban Institute.

June 2018

Agency Mortgage-Backed Securities



Sources: eMBS and Urban Institute.

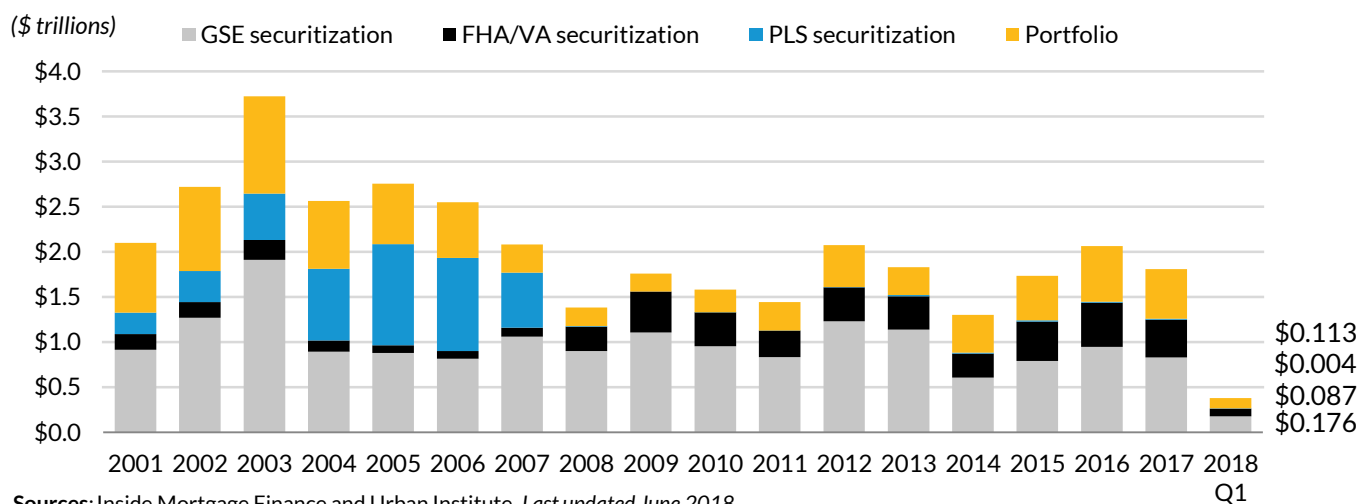
July 2018

OVERVIEW

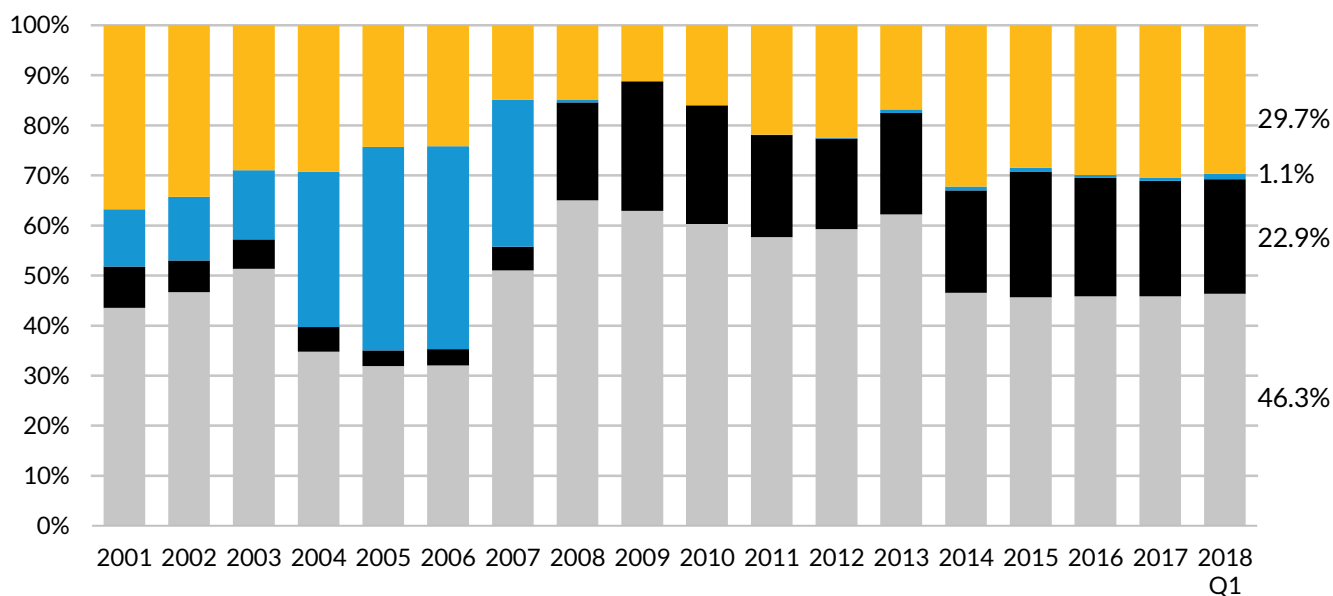
ORIGINATION VOLUME AND COMPOSITION

First Lien Origination Volume

First lien originations totaled \$380 billion in Q1 2018, down 16 percent from the first quarter of 2017, mostly due to higher interest rates. The portfolio originations share was 28 percent, the GSE share was around 46 percent, and the FHA/VA share was around 23 percent, all consistent with 2017 shares. Origination of private-label securities was under just over 1 percent, slightly higher than the 2017 share.



(Share, percent)

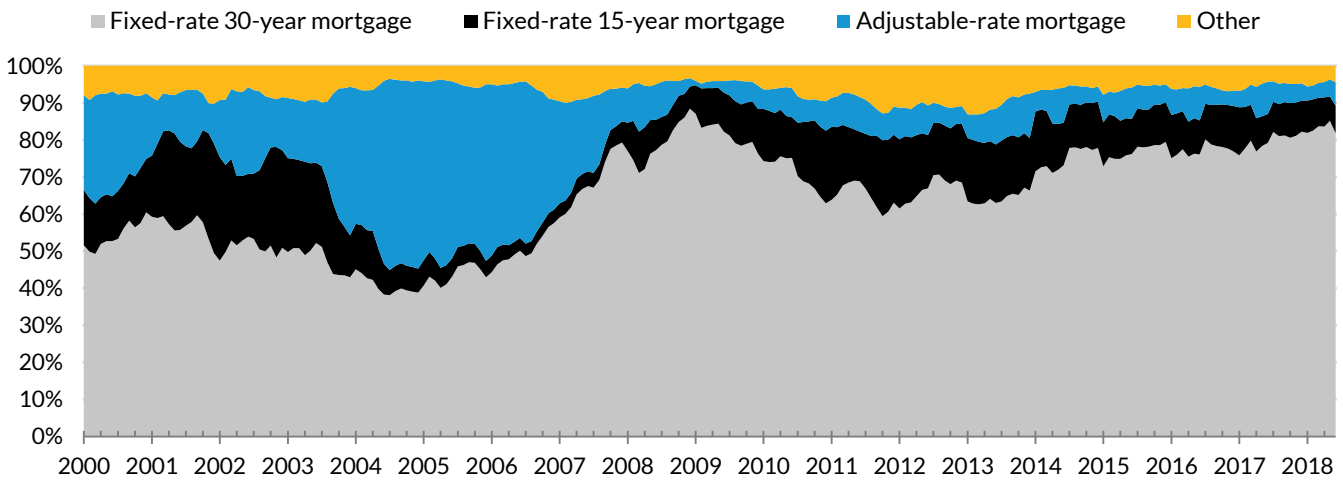


OVERVIEW

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 begun to decline again to 6.4 percent in June 2018. The 15-year fixed-rate mortgage (FRM), predominantly a refinance product, accounted for 7.4 percent of new originations in June 2018. If we exclude refinances (bottom chart), the share of 30-year FRMs in June 2018 stood at 87.9 percent, 15-year FRMs at 4.2 percent, and ARMs at 6.2 percent.

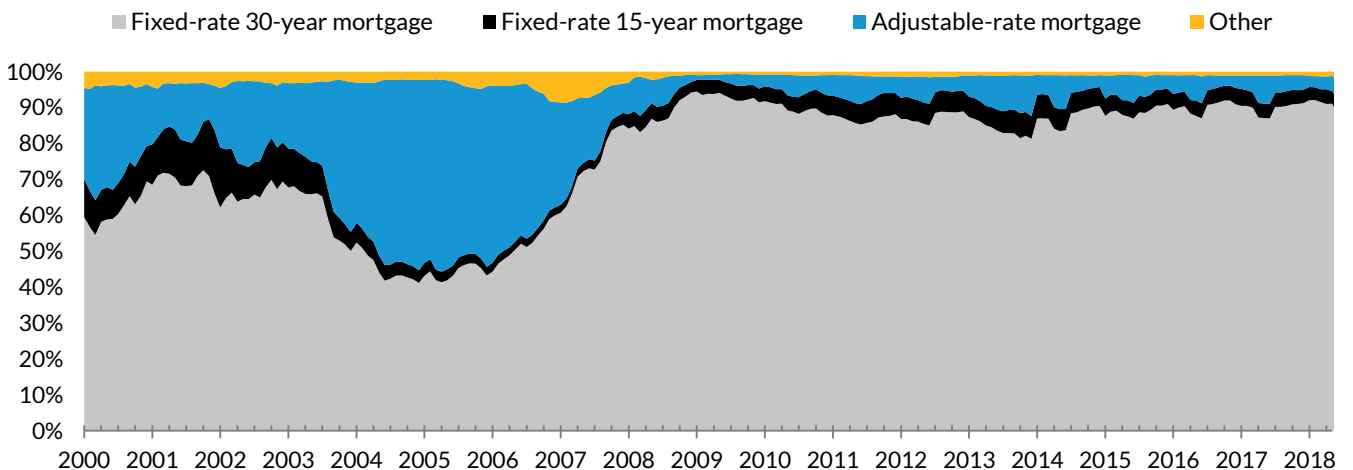
All Originations



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

June 2018

Purchase Loans Only



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

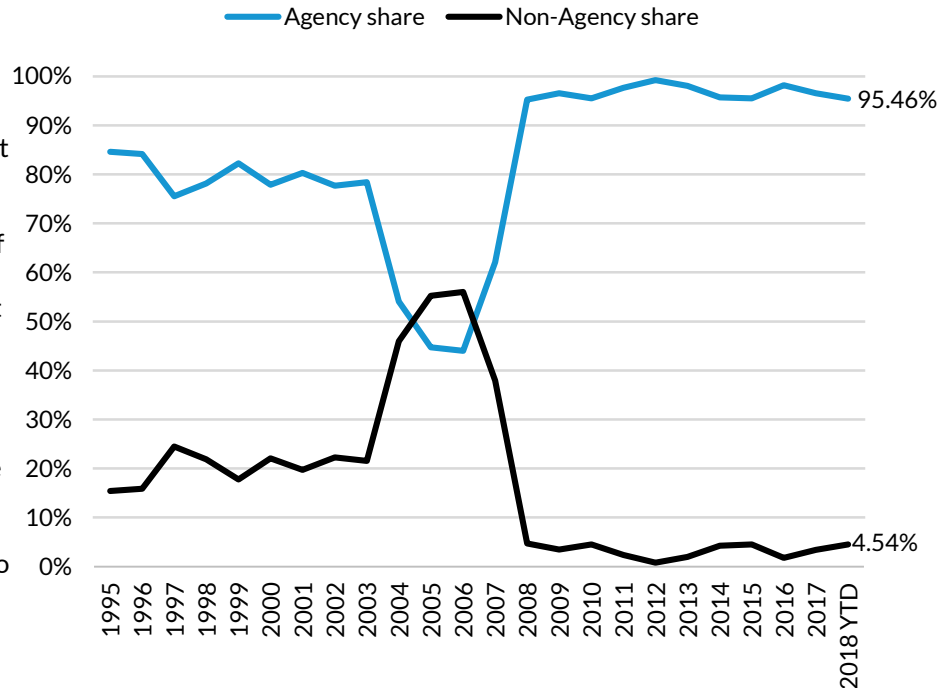
June 2018

OVERVIEW

SECURITIZATION VOLUME AND COMPOSITION

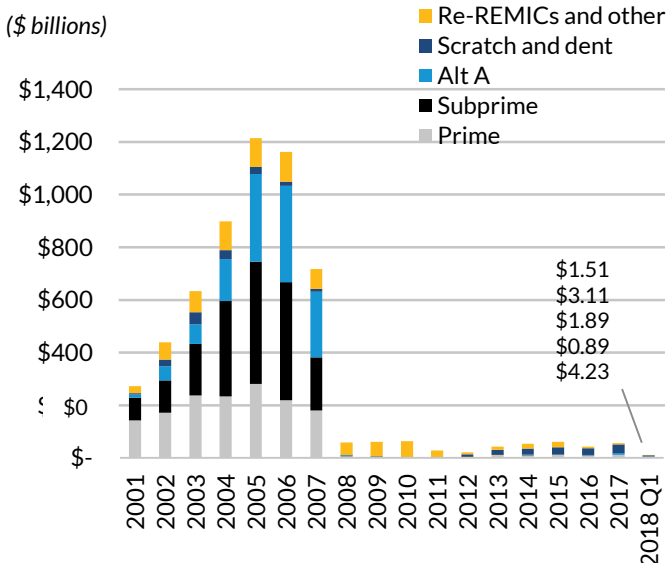
Agency/Non-Agency Share of Residential MBS Issuance

The non-agency share of mortgage securitizations in the first seven months of 2018 was 4.5 percent, above the 3.4 percent share in 2017. The non-agency securitization volume totaled \$11.6 billion in the first quarter of 2018, only a 2 percent increase over the same period in 2017, but there is a change in the mix. The non-performing and re-performing (scratch and dent) deals dropped 48 percent compared to a year ago, while the prime securitizations surged 80 percent year over year. Non-agency securitizations continue to be tiny compared to pre-crisis levels.



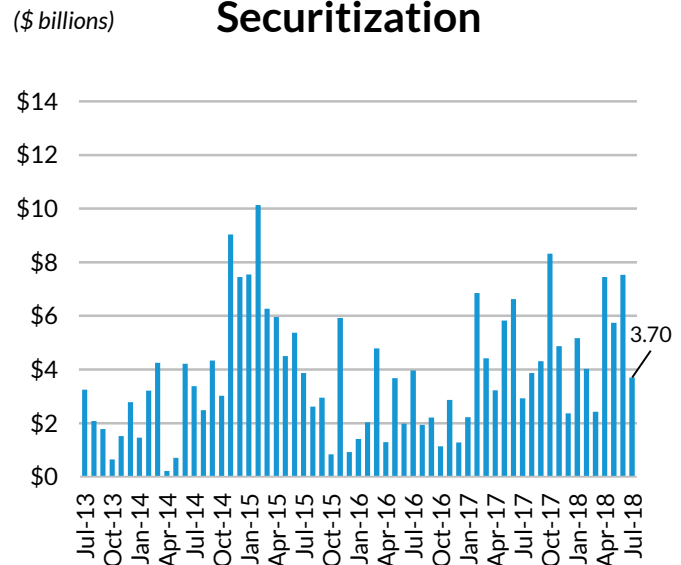
Sources: Inside Mortgage Finance and Urban Institute.
Note: Based on data from July 2018.

Non-Agency MBS Issuance



Sources: Inside Mortgage Finance and Urban Institute.

Monthly Non-Agency Securitization



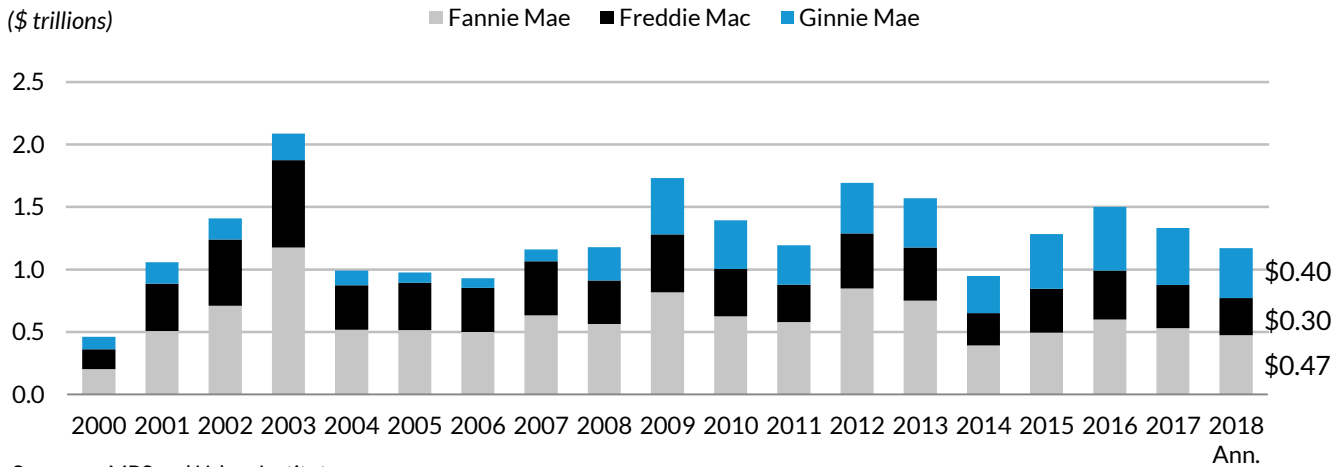
Sources: Inside Mortgage Finance and Urban Institute. 10

OVERVIEW

AGENCY ACTIVITY: VOLUMES AND PURCHASE/ REFI COMPOSITION

Agency issuance totaled \$683.4 billion in the first seven months of 2018, \$1.172 trillion on an annualized basis. This is down about 8.9 percent from the first seven months of 2017. In July 2018, the refinance share continued to decline for all three agencies, reaching a historical low. This is a result of increasing interest rates and the seasonal uptick in purchase activity. Loans sold into GSE pools in July are based on May and June home sales.

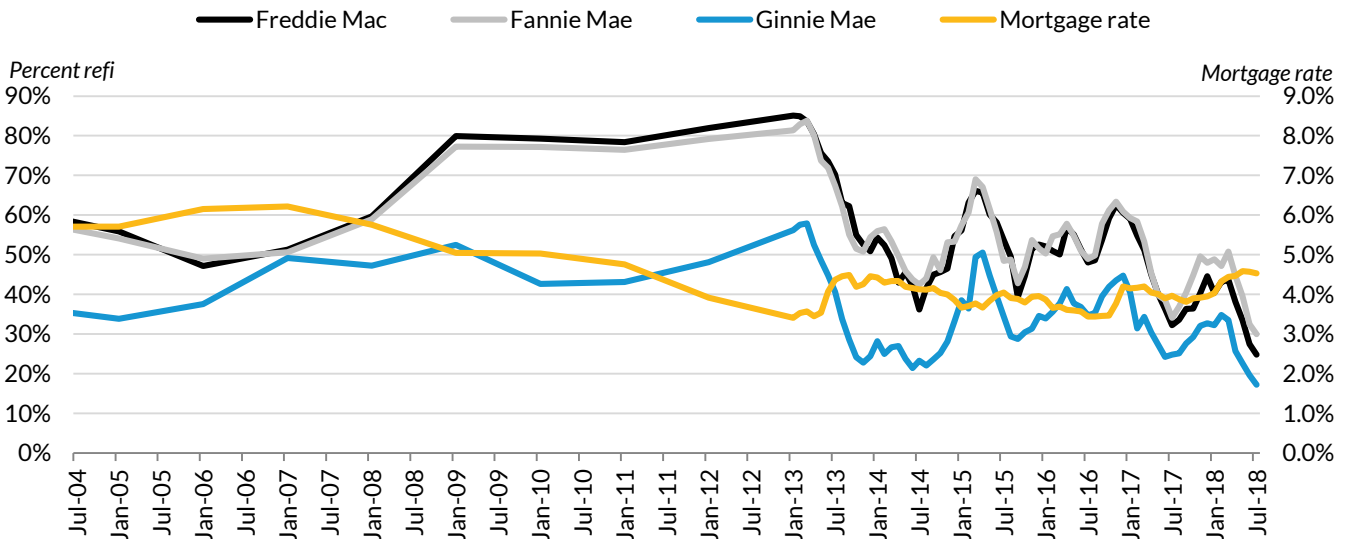
Agency Gross Issuance



Sources: eMBS and Urban Institute.

Note: Annualized figure based on data from July 2018.

Percent Refi at Issuance



Sources: eMBS and Urban Institute.

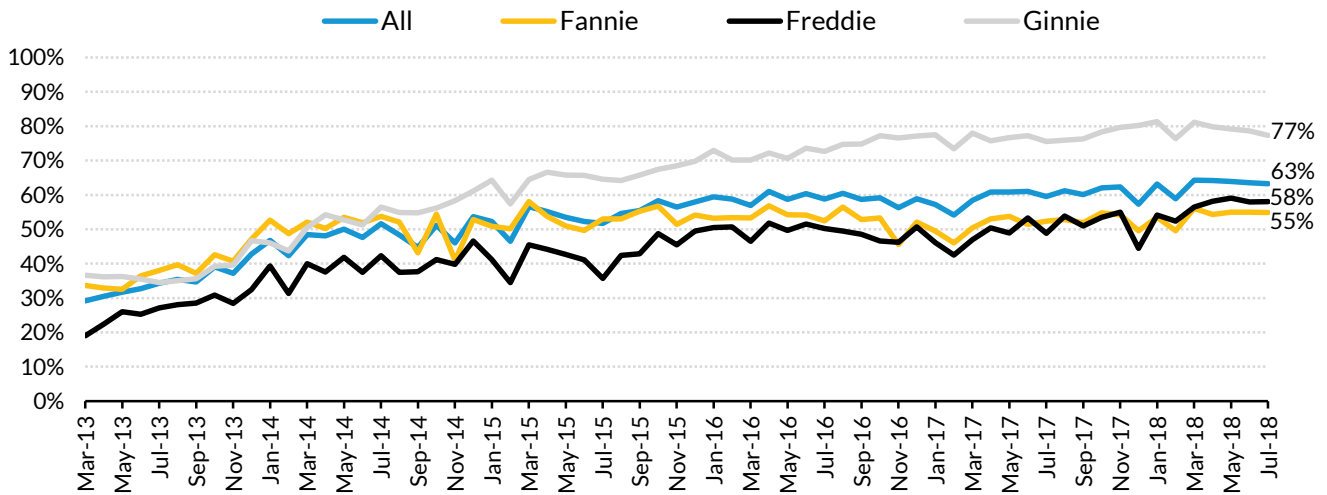
Note: Based on at-issuance balance. Figure based on data from July 2018.

OVERVIEW

NONBANK ORIGINATION SHARE

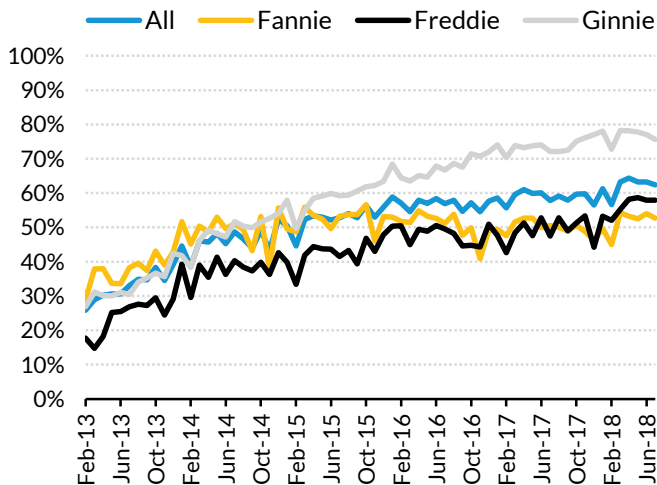
The nonbank origination share has been rising steadily for all three agencies since 2013. The Ginnie Mae nonbank share has been consistently higher than the GSEs, standing at 77 percent in July 2018. The Fannie Mae and Freddie Mac nonbank shares stood at 55 and 58 percent, respectively. The nonbank originator 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



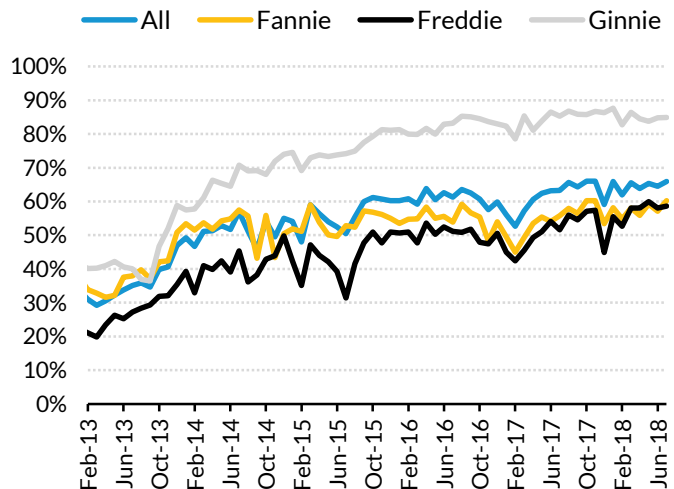
Sources: eMBS and Urban Institute.

Nonbank Origination Share: Purchase Loans



Sources: eMBS and Urban Institute

Nonbank Origination Share: Refi Loans



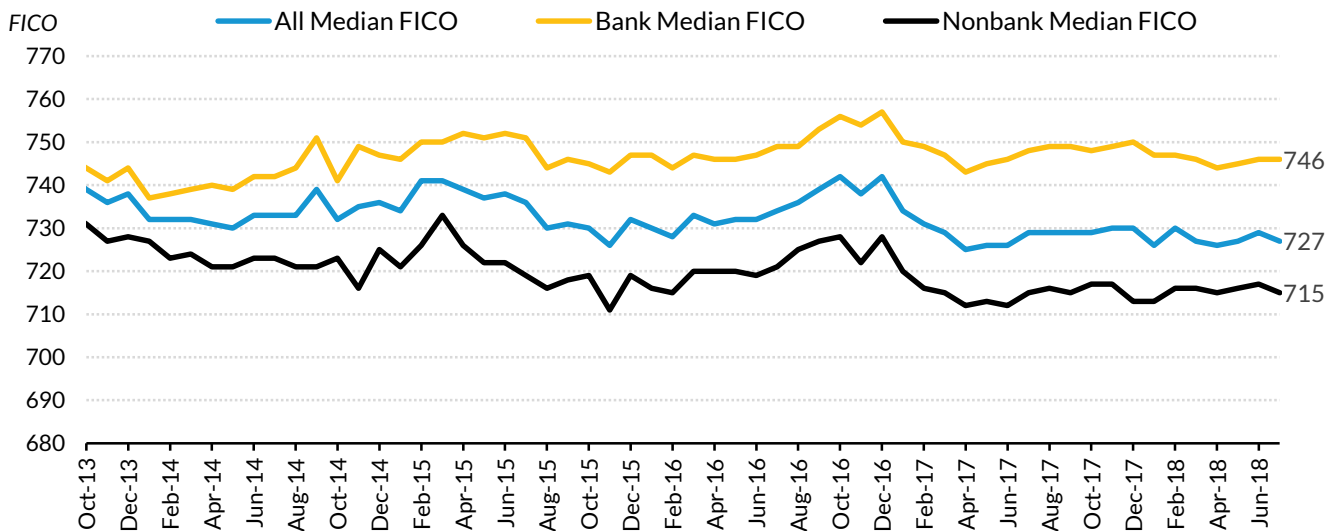
Sources: eMBS and Urban Institute

OVERVIEW

NONBANK CREDIT BOX

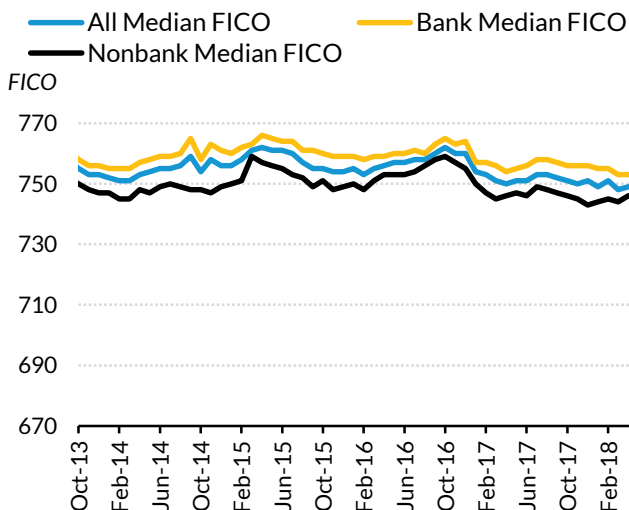
Nonbank originators have played a key role in opening up access to credit. The median GSE and the median Ginnie Mae FICO scores for loans originated by nonbanks are lower than their bank counterparts. Within the GSE space, both bank and nonbank FICOs have declined since 2014, with further relaxation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



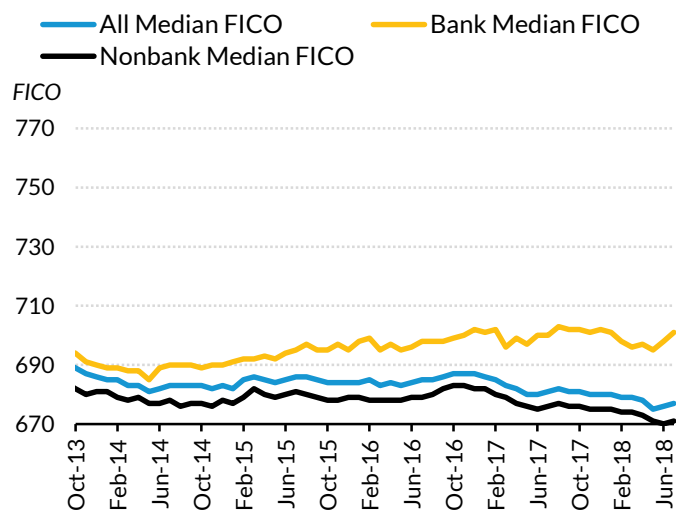
Sources: eMBS and Urban Institute.

GSE FICO: Bank vs. Nonbank



Sources: eMBS and Urban Institute.

Ginnie Mae FICO: Bank vs. Nonbank



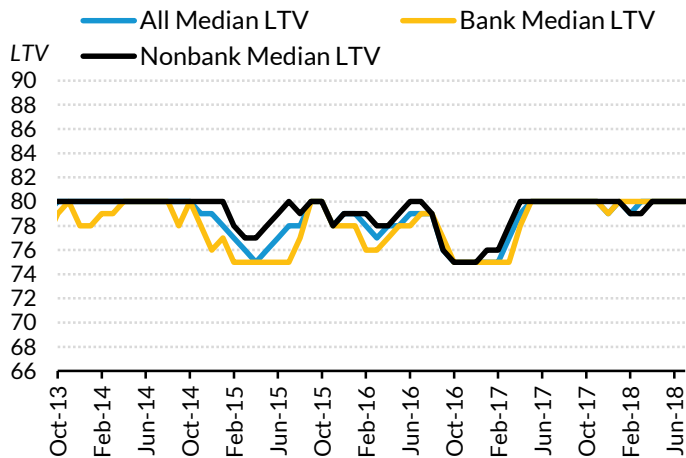
Sources: eMBS and Urban Institute.

OVERVIEW

NONBANK CREDIT BOX

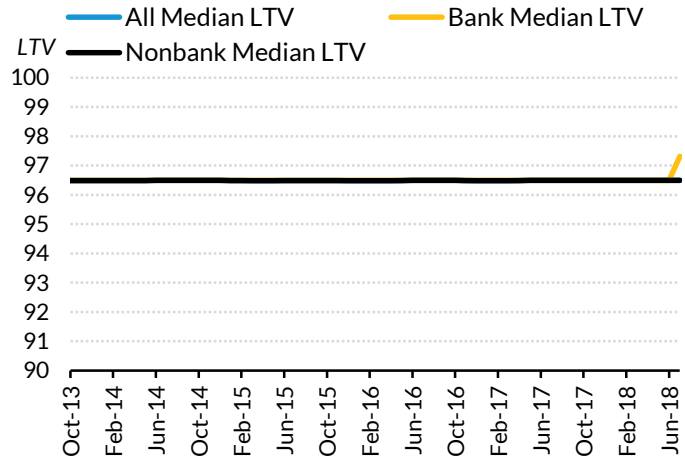
The median LTV ratios for loans originated by nonbanks are similar to their bank counterparts, while the median DTIs for nonbank loans are higher, indicating that nonbanks are more accommodating in this as well as in the FICO dimension. Note that since early 2017 there has been a measurable increase 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



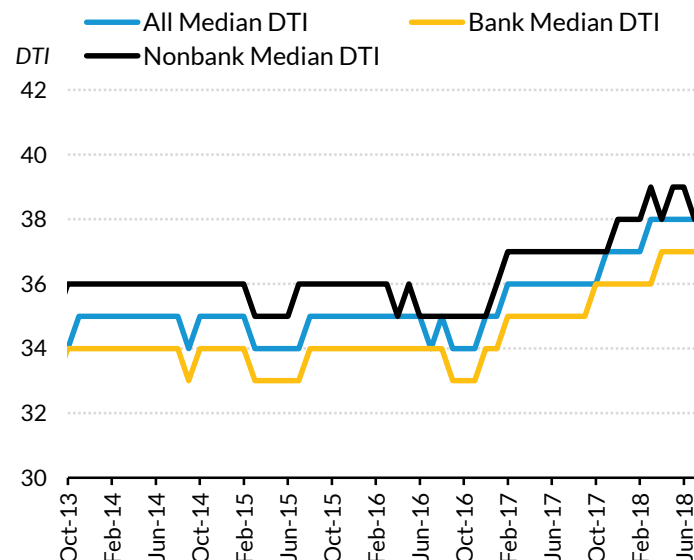
Sources: eMBS and Urban Institute.

Ginnie Mae LTV: Bank vs. Nonbank



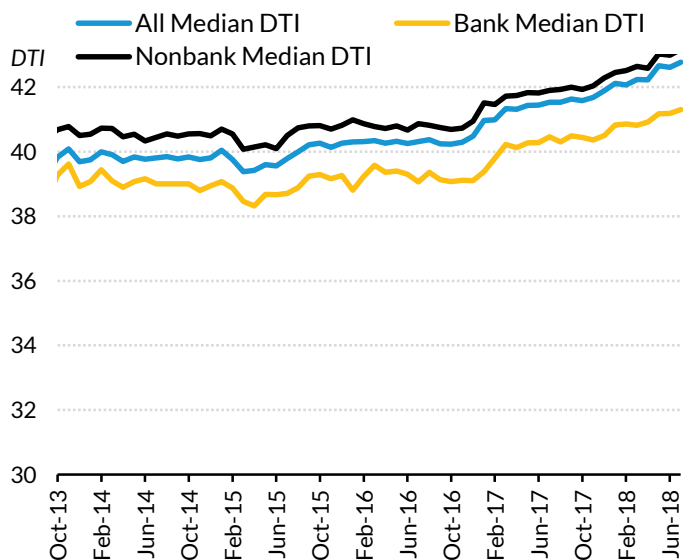
Sources: eMBS and Urban Institute.

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 marginally lower than the 1.7-1.8 billion in 2017. 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 35-36 percent in 2017 to a forecasted 28 -29 percent in 2018. Fannie, Freddie and MBA all forecast 2018 housing starts to be around 1.3 million units, up from a 1.2 million units in 2017. Home sales forecasts for 2018 are around 6.2-6.3 million, a slight increase 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	371	374	346	39	40	37
2018 Q2	453	464	447	26	28	26
2018 Q3	442	464	443	24	27	24
2018 Q4	404	384	370	26	23	27
2019 Q1	339	415	328	32	24	28
2019 Q2	472	438	443	23	23	22
2019 Q3	464	429	450	24	24	22
2019 Q4	420	409	371	26	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	1818	1710	36	36	35
FY 2018	1689	1686	1606	28	29	28
FY 2019	1695	1691	1592	26	24	25

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 4.5%, 4.6%, and 4.8%.

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	1279	1340	1287	6118	6270	6082	5439	643
FY 2019	1306	1400	1313	6229	6440	6221	5560	661

Sources: Mortgage Bankers Association, Fannie Mae, Freddie Mac and Urban Institute.

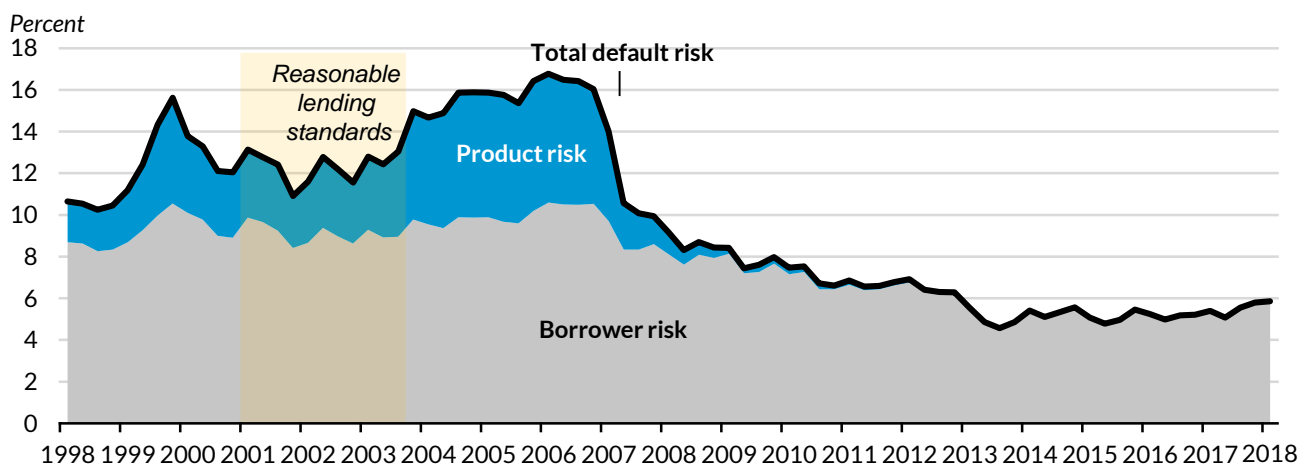
Note: Shaded boxes indicate forecasted figures. All figures are estimates for total single-family market; column labels indicate source of estimate.

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 first quarter of 2018 (Q1 2018) the index shows that credit availability increase for a third quarter in a row to 5.9 percent, the highest level since 2013. This increase continues to be driven by the credit expansions within both 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.

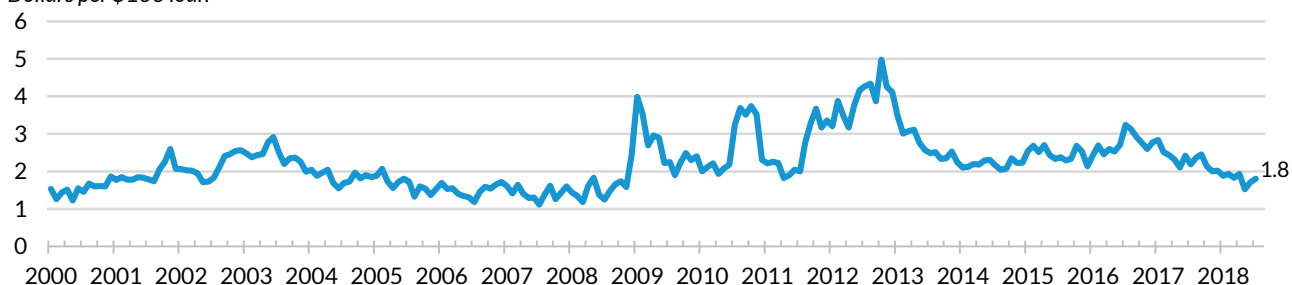
Q1 2018

Note: Default is defined as 90 days or more delinquent at any point. Last updated July 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 July 2018, OPUC stood at \$1.8, 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. \(2013\)](#).

July 2018

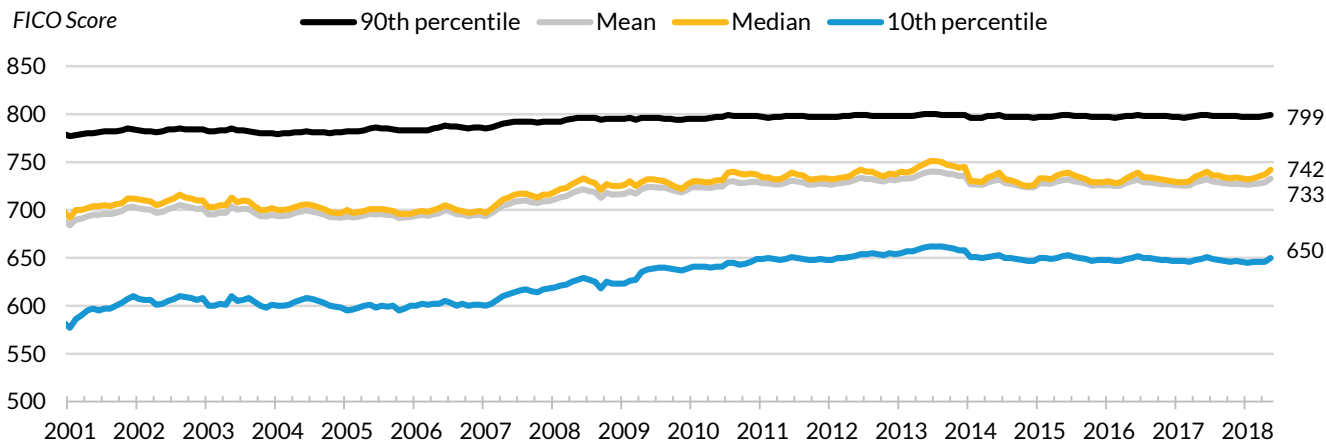
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STATE OF THE MARKET

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 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 650 as of May 2018. Prior to the housing crisis, this threshold held steady in the low 600s. Mean LTV levels at origination remain relatively high, averaging 87.3, which reflects the large number of FHA purchase originations.

Borrower FICO Score at Origination

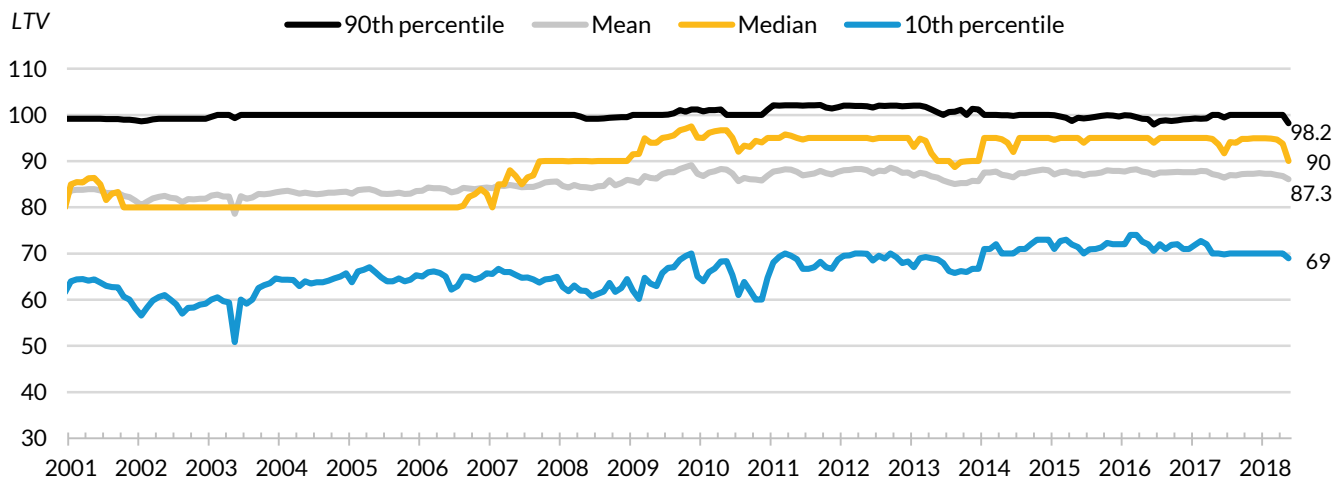


Sources: Black Knight, eMBS, HMDA, SIFMA and Urban Institute.

May 2018

Note: Includes owner-occupied purchase loans only.

Combined LTV at Origination



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

May 2018

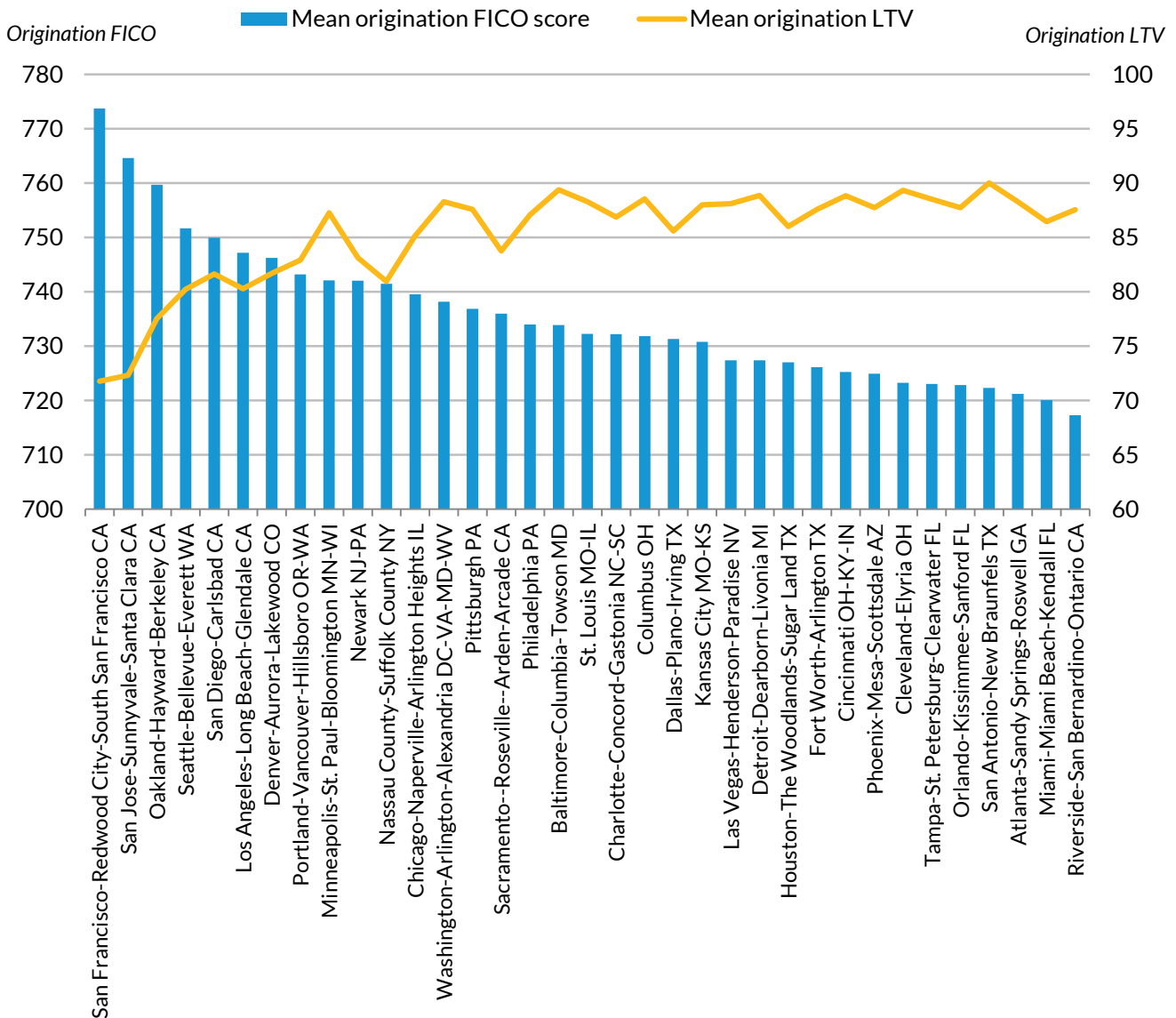
Note: Includes owner-occupied purchase loans only.

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 almost 774, while in Riverside-San Bernardino-Ontario, CA it is 717. 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.

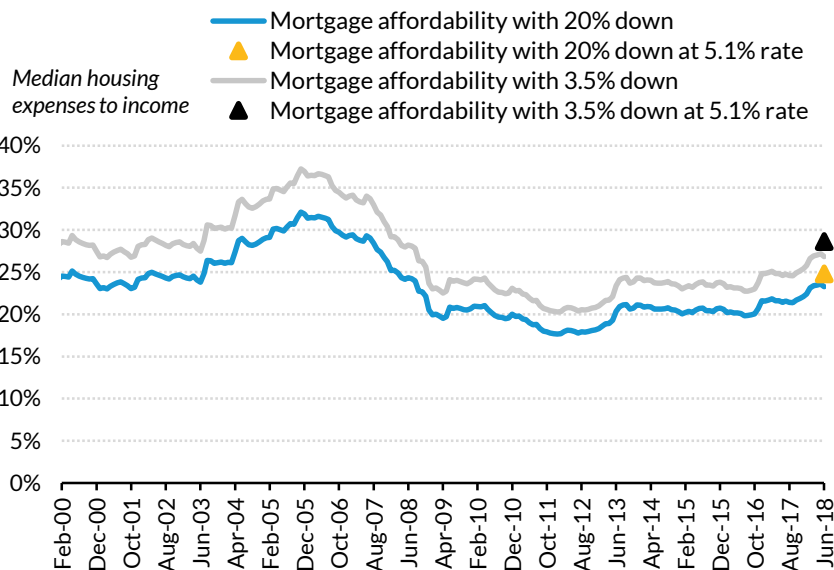
Note: Includes owner-occupied purchase loans only. Data as of June 2018.

STATE OF THE MARKET

HOUSING AFFORDABILITY

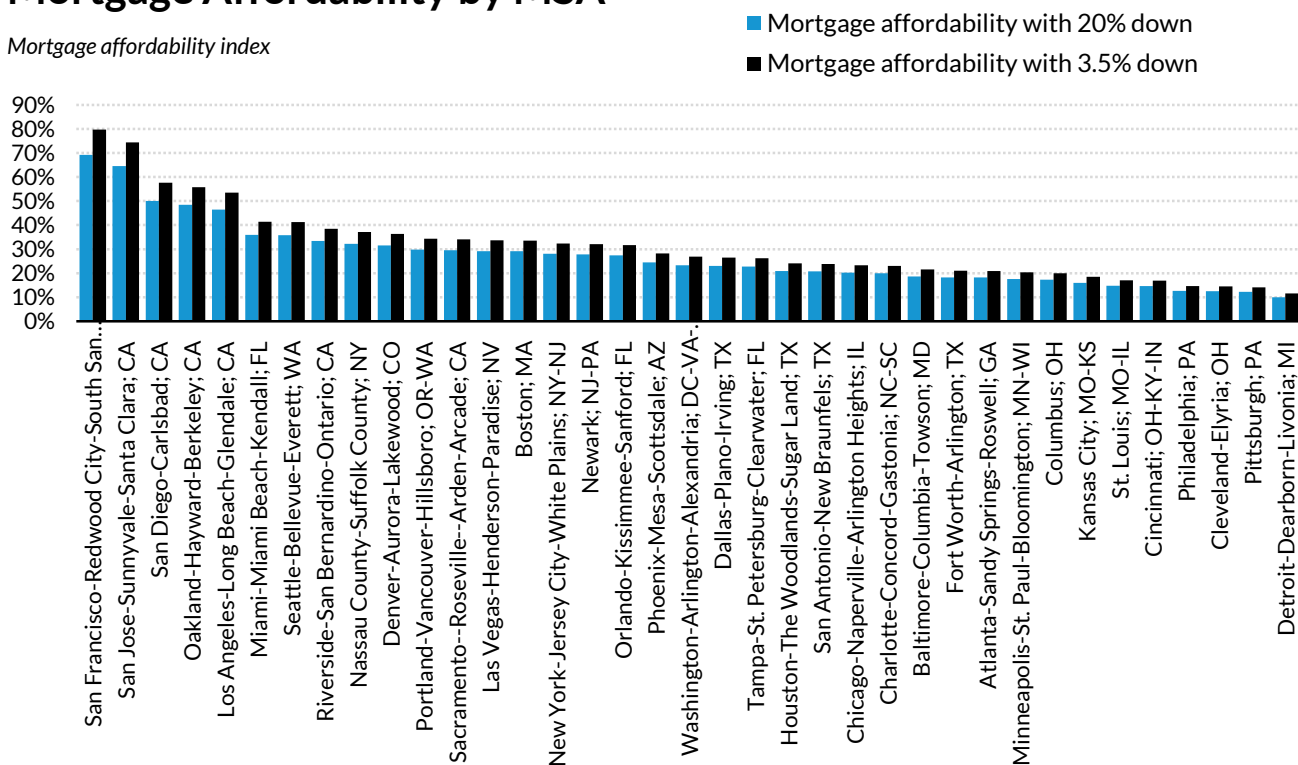
National Mortgage Affordability Over Time

Home prices remain affordable by historic standards, despite price increases over the last five years and the recent interest rate hikes. As of June 2018, with 20% down, the share of median income needed for the monthly mortgage payment stood at 23%; with 3.5% down, it is 27%. If interest rates rise 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.

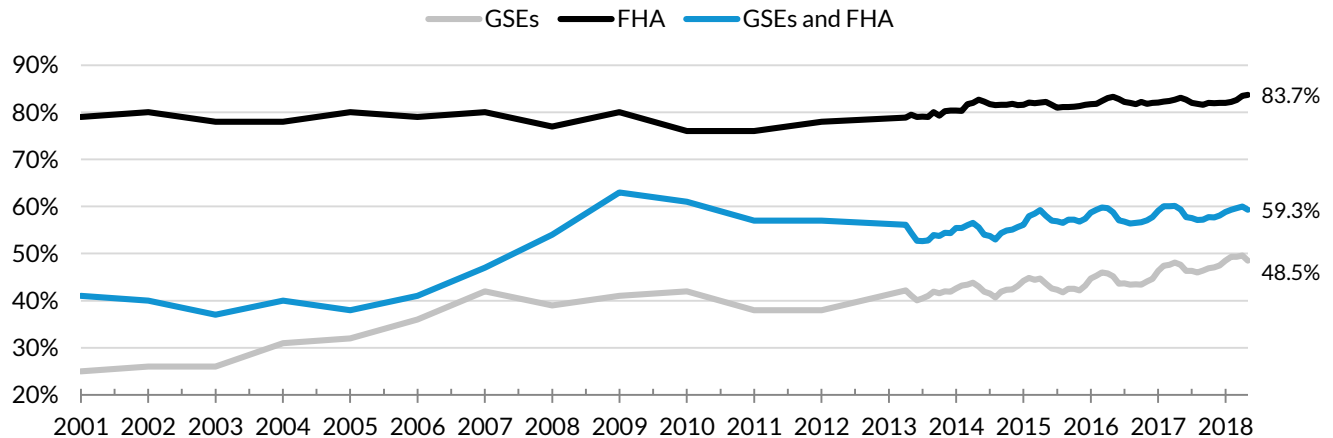
Note: Mortgage affordability is the share of median family income devoted to the monthly principal, interest, taxes, and insurance payment required to buy the median home at the Freddie Mac prevailing rate 2018 for a 30-year fixed-rate mortgage and property tax and insurance at 1.75 percent of the housing value. Data as of June 2018. The Freddie Mac prevailing rate for a 30-year fixed-rate mortgage is 4.57% in June 2018.

STATE OF THE MARKET

FIRST-TIME HOMEBUYERS

First-Time Homebuyer Share

In May 2018, the first-time homebuyer share of GSE purchase loans was 48.5 percent, slightly down from its highest level in recent history. The FHA has always been more focused on first-time homebuyers, with its first-time homebuyer share hovering around 80 percent; it stood at 83.7 percent in May 2018. The bottom table shows that based on mortgages originated in May 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.

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

May 2018

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 (\$)	233,891	260,998	203,351	227,756	221,131	255,913
Credit Score	739.1	755.1	670.5	676.1	710.4	743.0
LTV (%)	87.6	79.0	95.7	94.1	91.0	81.3
DTI (%)	36.1	36.5	43.1	44.0	39.1	37.7
Loan Rate (%)	4.76	4.65	4.85	4.77	4.8	4.67

Sources: eMBS and Urban Institute.

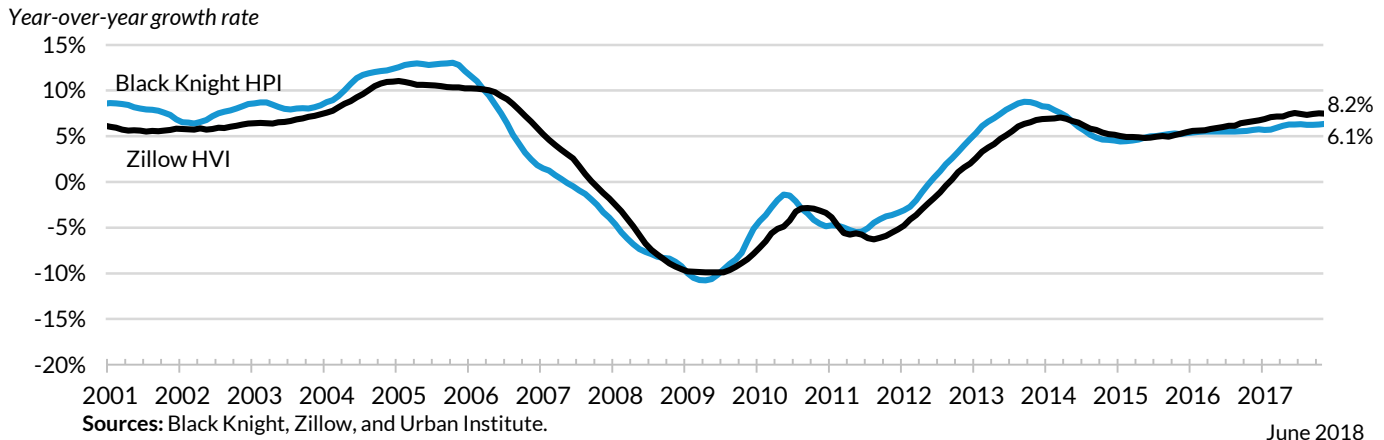
Note: Based on owner-occupied purchase mortgages originated in May 2018.

STATE OF THE MARKET

HOME PRICE INDICES

National Year-Over-Year HPI Growth

Home price appreciation remains very robust, 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.



Changes in Black Knight HPI for Top MSAs

After rising 49.1 percent from the trough, national house prices have now surpassed 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 10.9 and 12.0 percent, respectively, below peak values.

MSA	HPI changes (%)			% above peak
	2000 to peak	Peak to trough	Trough to current	
United States	76.2	-25.6	49.1	10.9
New York-Jersey City-White Plains NY-NJ	128.0	-22.2	40.9	9.7
Los Angeles-Long Beach-Glendale CA	181.0	-38.2	80.9	11.8
Chicago-Naperville-Arlington Heights IL	67.2	-38.3	44.6	-10.7
Atlanta-Sandy Springs-Roswell GA	32.8	-36.5	72.8	9.7
Washington-Arlington-Alexandria DC-VA-MD-WV	150.2	-28.0	32.4	-4.6
Houston-The Woodlands-Sugar Land TX	29.4	-6.7	44.5	34.8
Phoenix-Mesa-Scottsdale AZ	113.4	-51.2	82.7	-10.9
Riverside-San Bernardino-Ontario CA	178.1	-51.8	82.5	-12.0
Dallas-Plano-Irving TX	26.2	-7.1	62.8	51.2
Minneapolis-St. Paul-Bloomington MN-WI	69.0	-29.8	53.6	7.8
Seattle-Bellevue-Everett WA	90.7	-32.8	106.8	38.9
Denver-Aurora-Lakewood CO	34.1	-12.1	87.8	65.1
Baltimore-Columbia-Towson MD	123.2	-23.7	20.4	-8.2
San Diego-Carlsbad CA	148.8	-37.6	74.0	8.7
Anaheim-Santa Ana-Irvine CA	163.6	-35.3	64.7	6.5

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

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

STATE OF THE MARKET

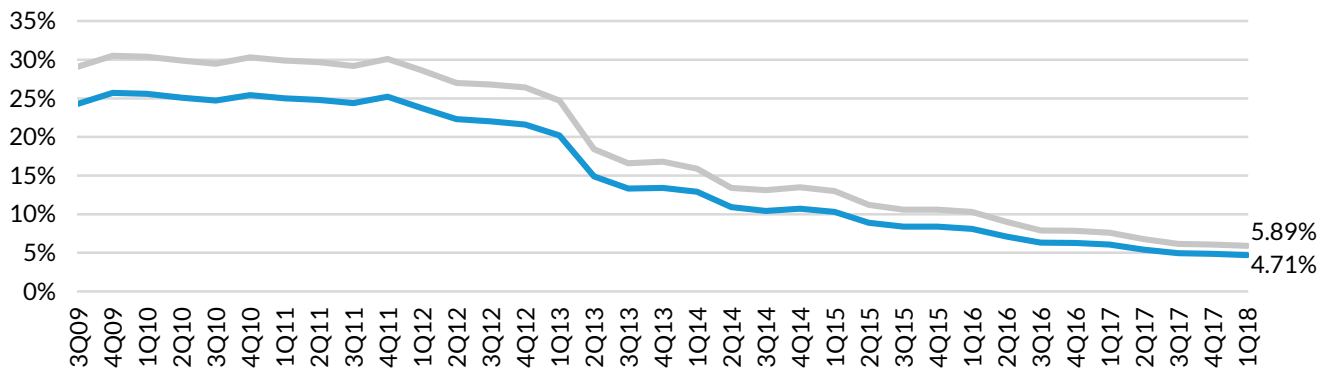
NEGATIVE EQUITY & SERIOUS DELINQUENCY

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 4.71 percent as of Q1 2018. Residential properties near negative equity (LTV between 95 and 100) comprise another 1.18 percent.

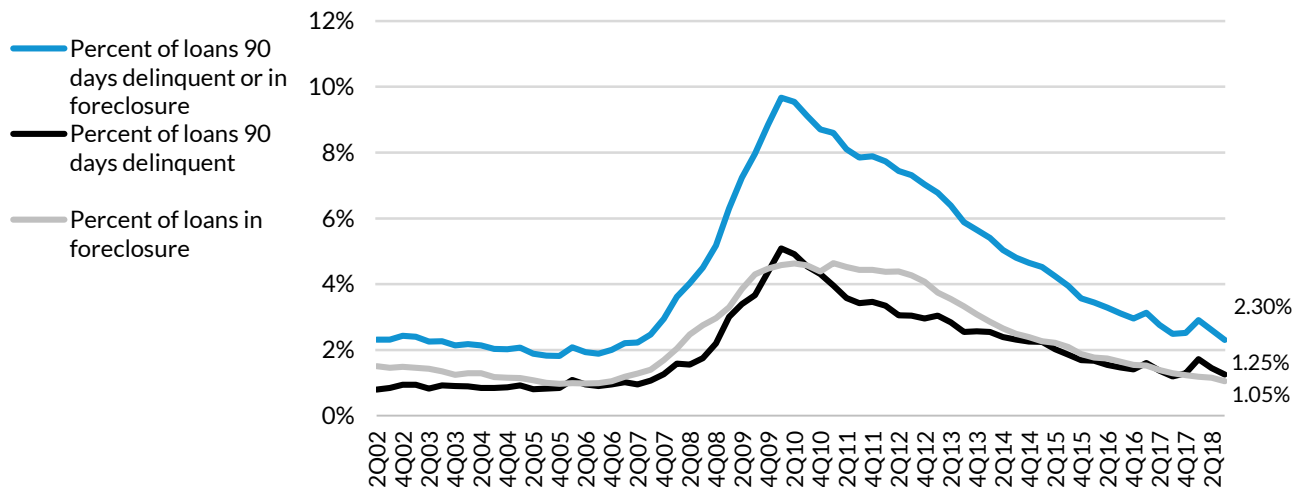


Sources: CoreLogic and Urban Institute.

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 June 2018.

Loans in Serious Delinquency/Foreclosure

Ninety day delinquencies rose sharply due to the hurricanes in the second half of 2017, but have declined from 1.45 to 1.25 percent in the first two quarters of 2018. The percent of loans in foreclosure continued to edge down to 1.05 percent. The combined delinquencies totaled 2.30 percent in Q2 2018, down from 2.61 percent in Q1 2018 and 2.49 percent in the same quarter a year ago.



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

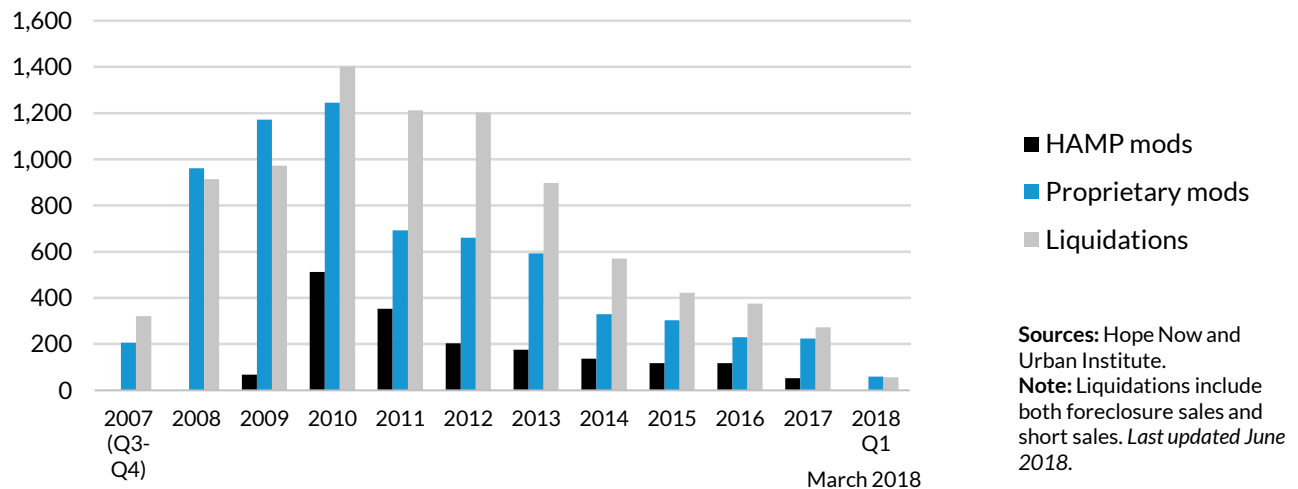
STATE OF THE MARKET

MODIFICATIONS AND LIQUIDATIONS

Total modifications (HAMP and proprietary) are roughly equal to total liquidations. Hope Now reports show 8,359,438 borrowers have received a modification since Q3 2007, compared with 8,618,645 liquidations in the same period. Modifications and liquidations have slowed significantly over the past few years. In Q1 2018, there were just 59,537 proprietary modifications and 56,137 liquidations. There were no new HAMP modifications as the program ended in 2017.

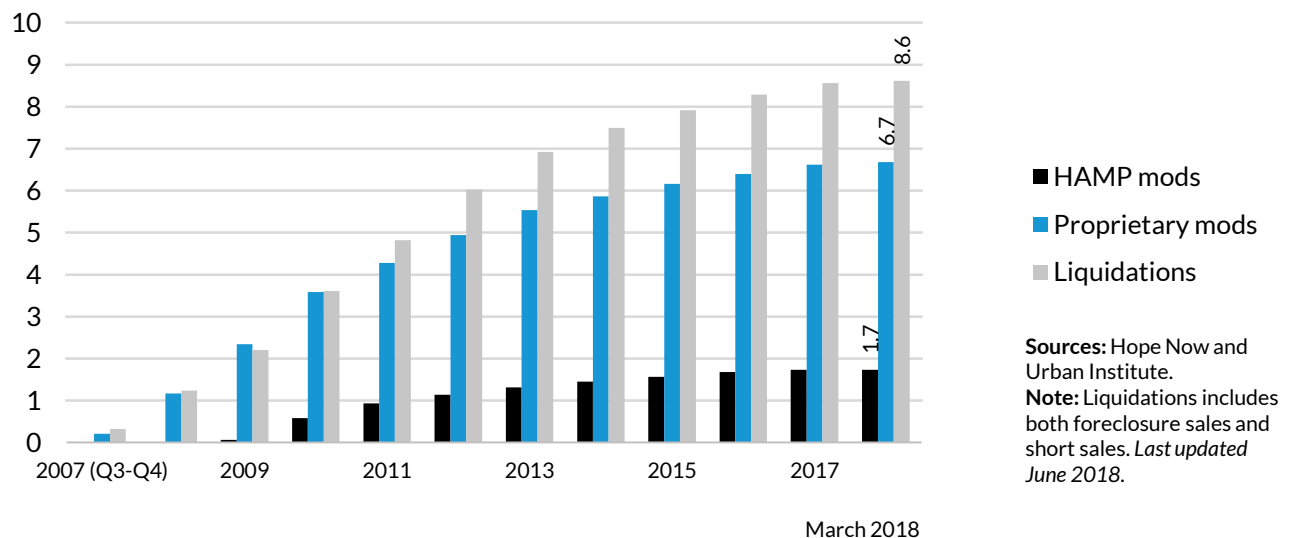
Loan Modifications and Liquidations

Number of loans (thousands)



Cumulative Modifications and Liquidations

Number of loans (millions)

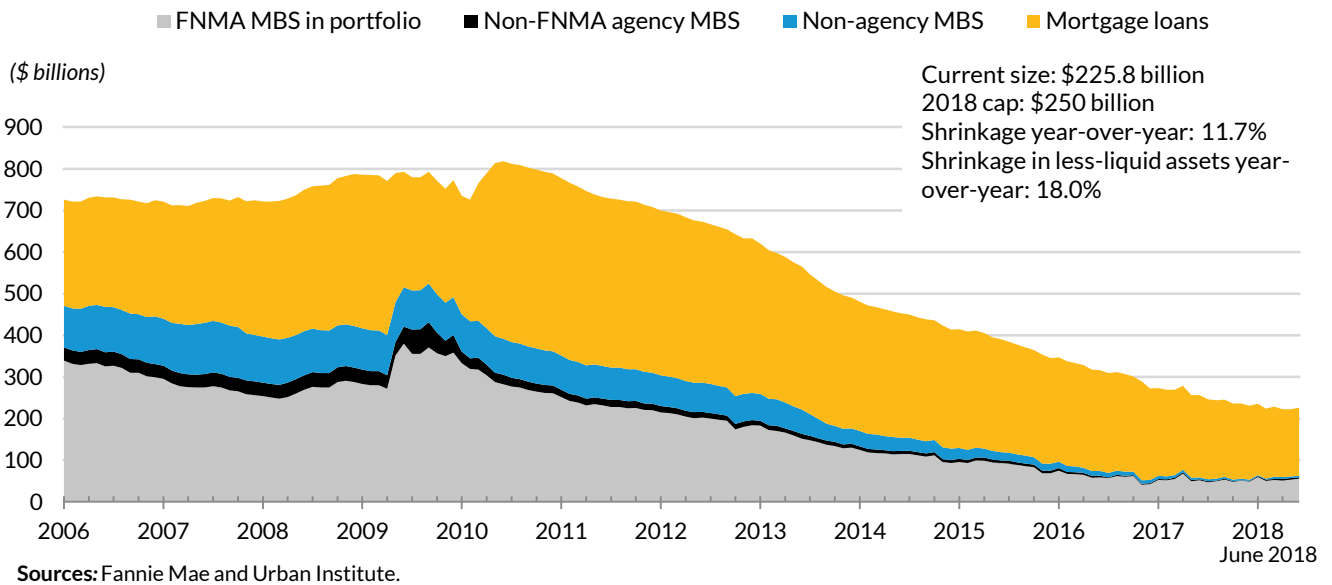


GSES UNDER CONSERVATORSHIP

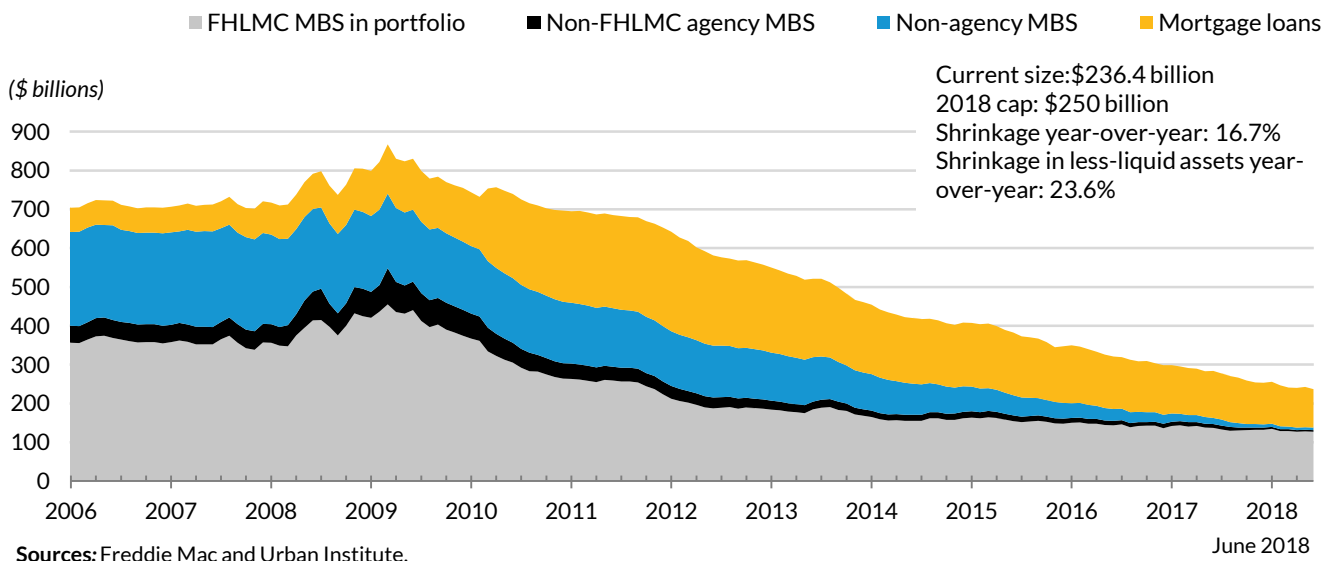
GSE PORTFOLIO WIND-DOWN

Both GSEs continue to contract their portfolios. Since June 2017, Fannie Mae has contracted by 11.7 percent and Freddie Mac by 16.7 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



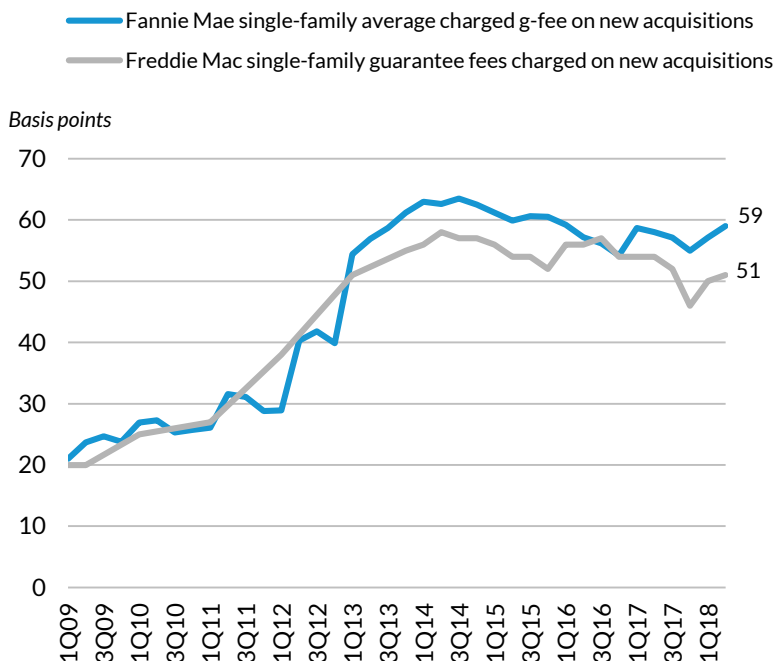
GSES UNDER CONSERVATORSHIP

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 57.1 to 59 bps in Q2 2018 and Freddie's increased to 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 August 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%
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 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 \$1.07 trillion, while Freddie's STACR totals \$987 billion. In 2018 so far, Fannie has issued 5 securities, and Freddie has issued three 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%
Total		\$1,098,172	\$33,560	3.1%

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%
Total		\$986,685	\$26,843	2.7%

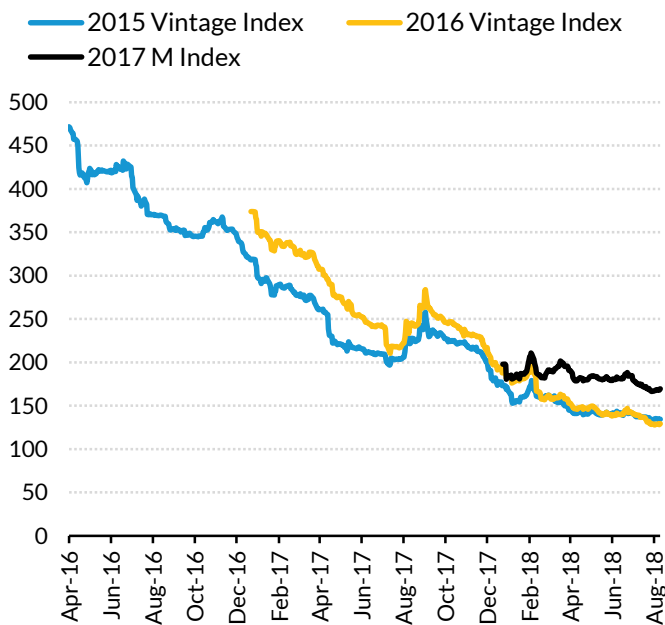
Sources: Fannie Mae, Freddie Mac and Urban Institute. **Note:** Classes A-H, M-1H, M-2H, and B-H are reference tranches only. These classes are not issued or sold. The risk is retained by Fannie Mae and Freddie Mac. "CE" = credit enhancement.

GSES UNDER CONSERVATORSHIP

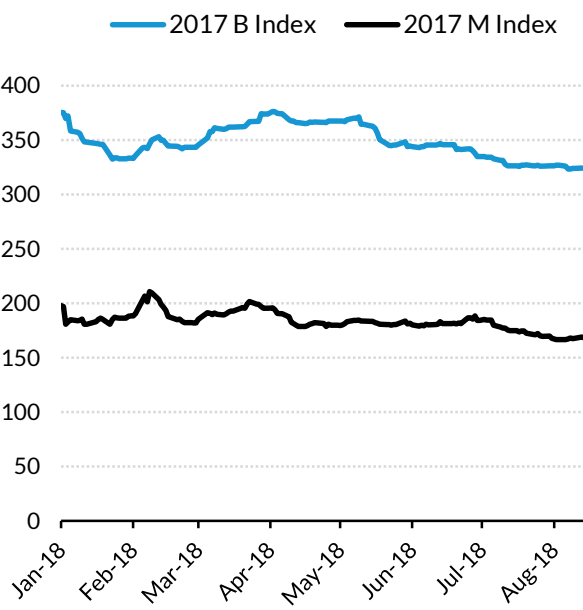
GSE RISK-SHARING INDICES

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 5 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.

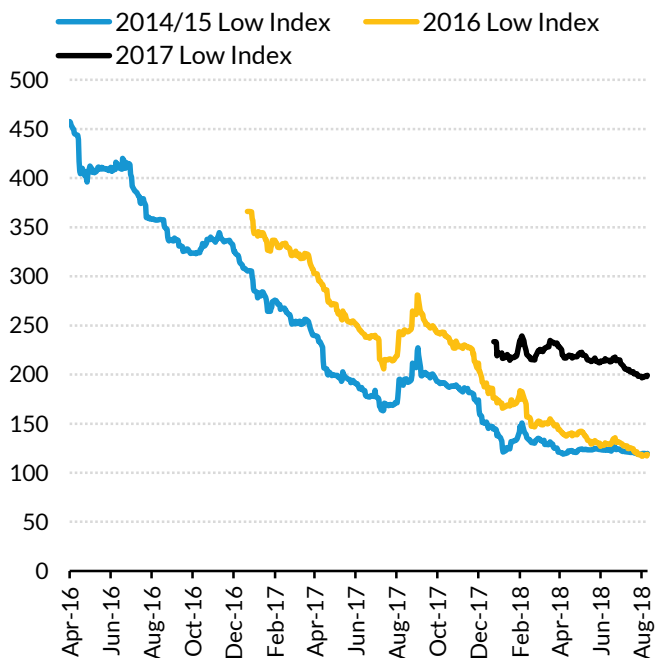
By Vintage



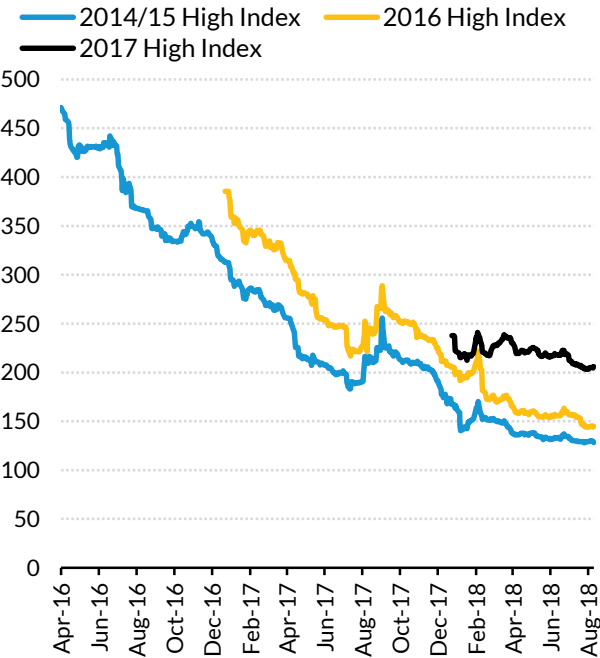
2017 Indices



Low Indices



High Indices



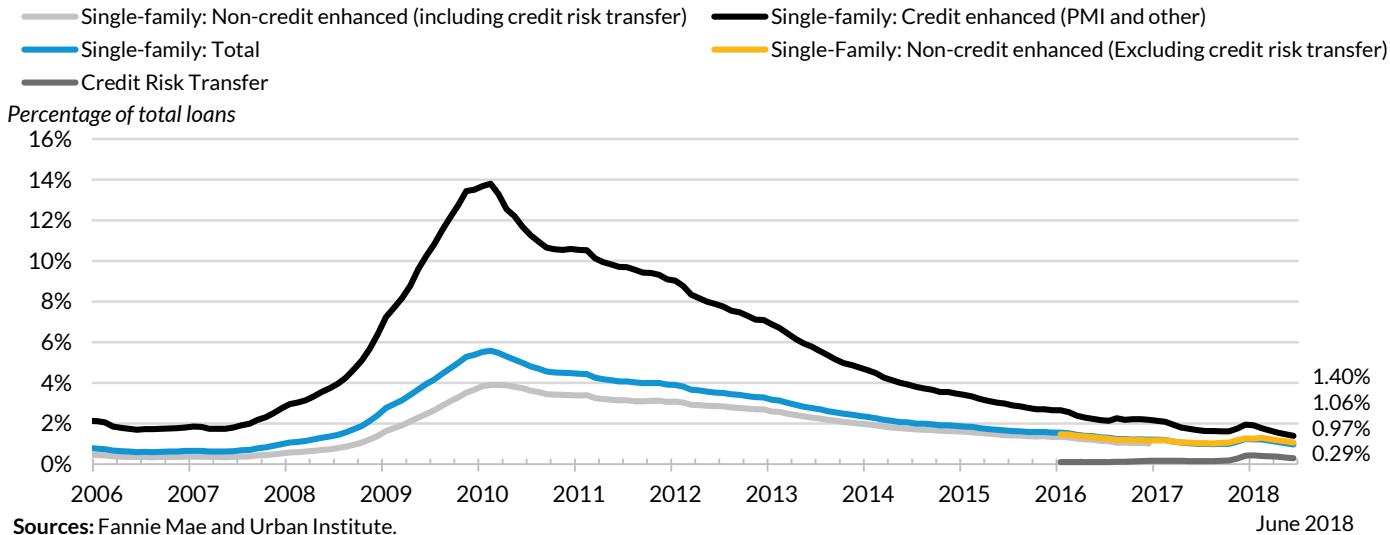
Sources: Vista Data Services and Urban Institute.

Note: Data as of August 15, 2018.

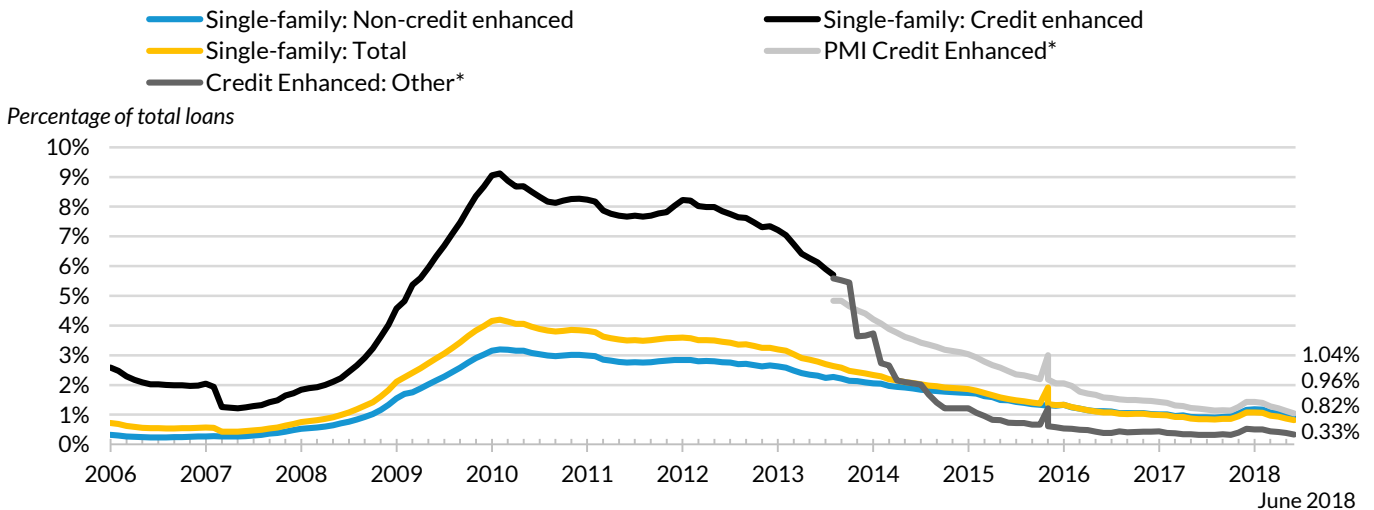
GSES UNDER CONSERVATORSHIP SERIOUS DELINQUENCY RATES

Serious delinquency rates of GSE loans continued to come down in June 2018. 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 June 2018, 0.97 percent of the Fannie portfolio and 0.82 percent of the Freddie portfolio were seriously delinquent, down slightly from 1.03 percent for Fannie and 0.87 percent for Freddie in May 2018. The hurricanes in August and September of 2017 caused a small spike, but the downward trend in delinquencies resumed and delinquency rates are lower than they were in the month prior to the hurricanes as of June 2018.

Serious Delinquency Rates–Fannie Mae



Serious Delinquency Rates–Freddie Mac

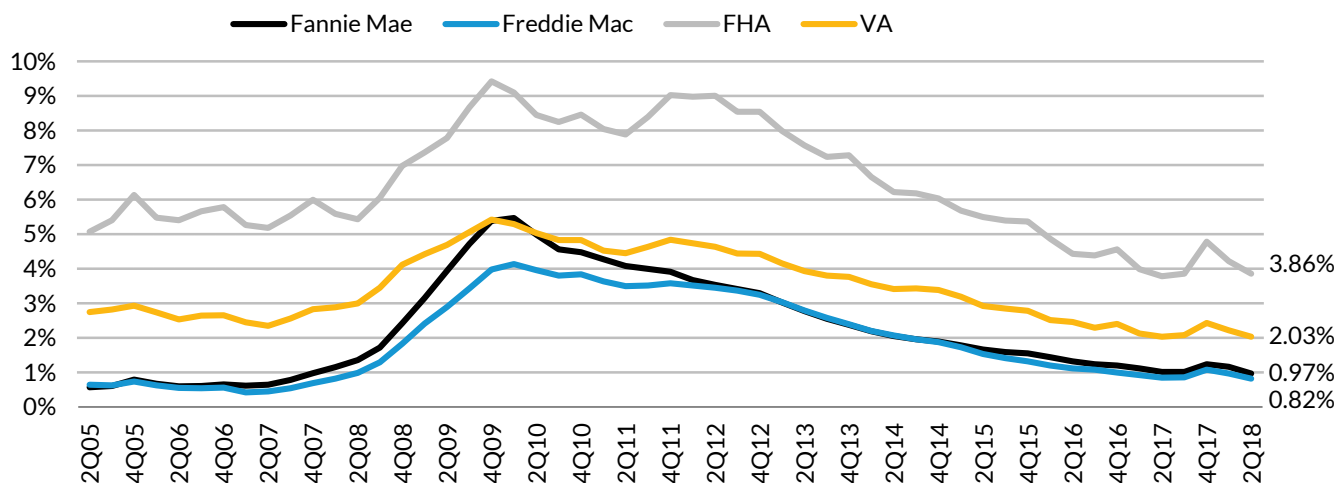


GSES UNDER CONSERVATORSHIP

SERIOUS DELINQUENCY RATES

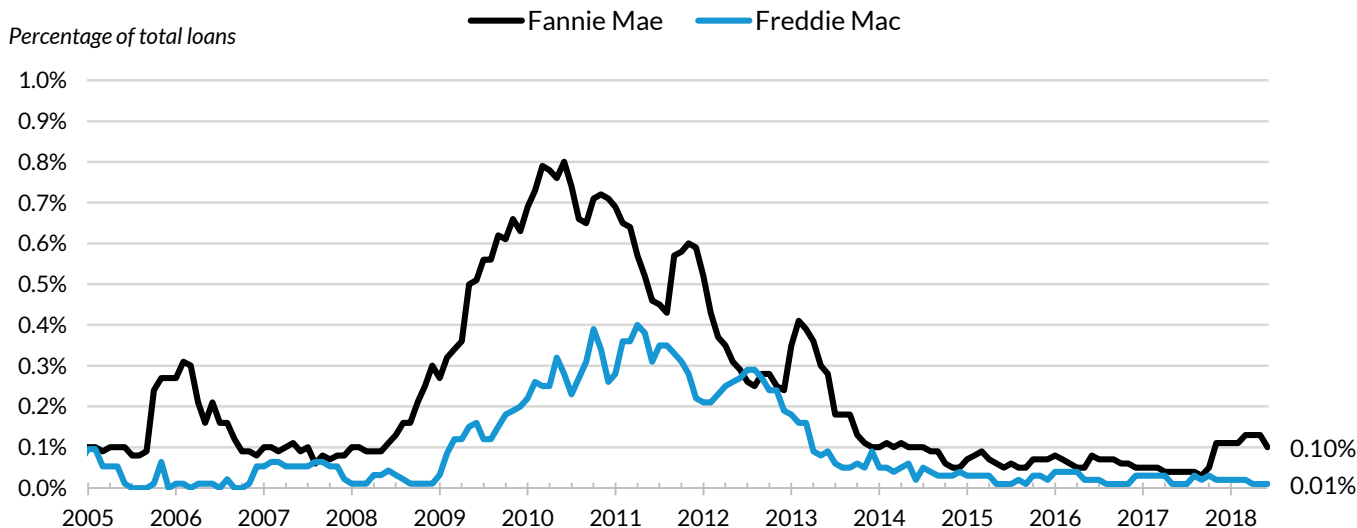
Serious delinquencies for single-family GSE loans, FHA loans, and VA loans continued to decline in the second quarter of 2018. GSE delinquencies remain high relative to 2005-2007, while FHA and VA delinquencies (which are higher than their GSE counterparts) are at levels lower than 2005-2007. GSE multifamily 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. In November 2017, Fannie multifamily serious delinquency rate rose to 0.11 percent, its highest level since early 2014, mostly due to the hurricanes in August and September of 2017; it increased further to 0.13 percent in March 2018 and remained at that level until decreasing to .10 percent in June. Freddie remained flat at 0.01 percent in June 2018.

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 August 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.

June 2018

AGENCY ISSUANCE

AGENCY GROSS AND

NET ISSUANCE

Agency gross issuance was \$683.8 billion in the first seven months of 2018, \$1.172 trillion on an annualized basis. This is down 8.9 percent year-over-year. When measured on a monthly basis, agency gross issuance year-over-year has been declining for seventeen consecutive months since March 2017, reflecting higher mortgage rates. Net issuance (which excludes repayments, prepayments, and refinances on outstanding mortgages) totaled \$129.3 billion in the first seven months of 2018, down 20.9 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	\$449.81	\$233.60	\$683.83
2018 YTD % Change YOY	-8.2%	-10.2%	-8.9%
2018 Ann.	\$771.10	\$400.46	\$1,171.56

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	\$67.4	\$61.9	\$129.3
2018 YTD % Change YOY	-19.6%	-22.3%	-20.9%
2018 (Ann.)	\$115.6	\$106.1	\$221.7

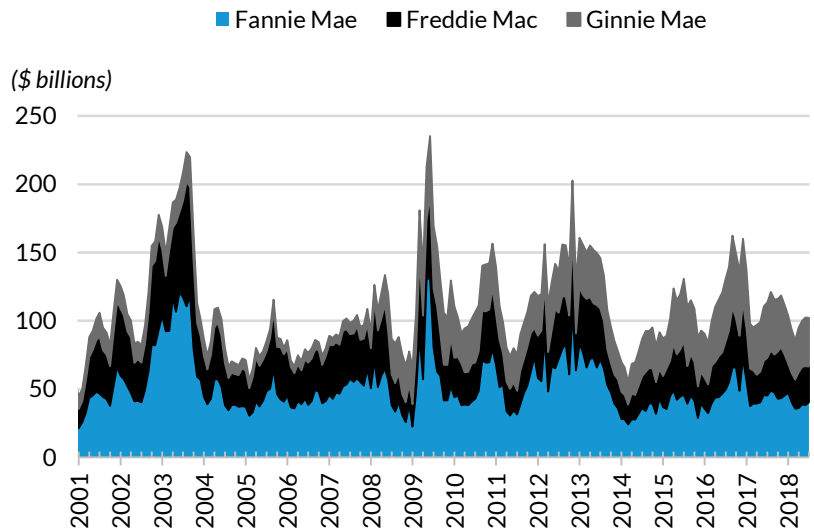
Sources: eMBS and Urban Institute.

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

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 34.8 percent in July 2018. The increase in this share over the past 18 months is due to the fact that rates have risen, and Ginnie Mae is less dependent on refi activity than its conventional counterparts.

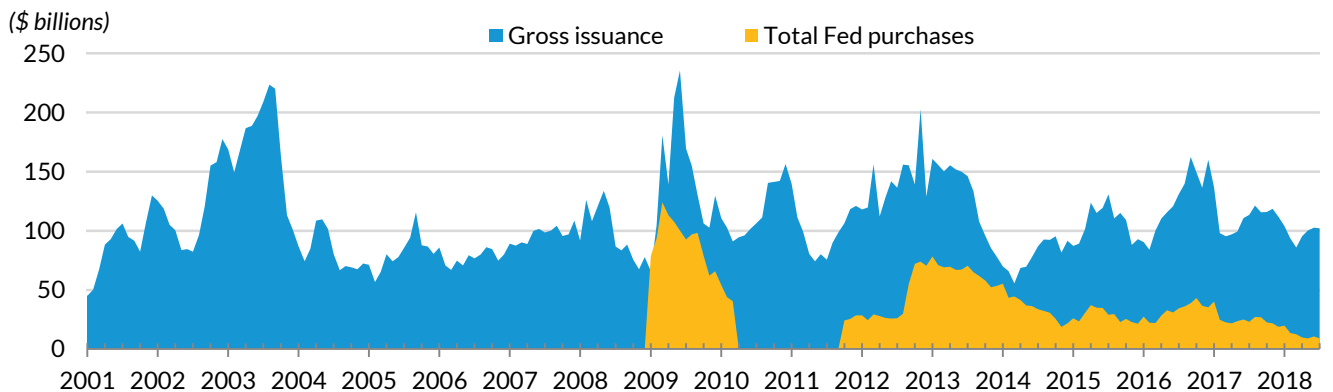


July 2018

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 from \$12 billion to \$16 billion in July 2018. In July 2018, total Fed purchases were \$9.04 billion, yielding Fed absorption of gross issuance of 9.0 percent, the lowest level since the Fed began its second mortgage purchase program.



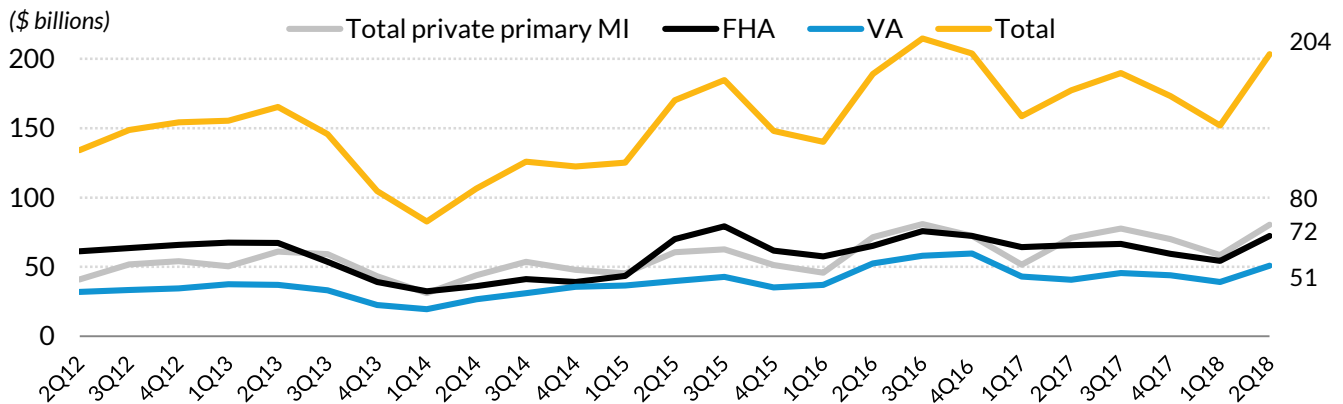
July 2018

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

AGENCY ISSUANCE MORTGAGE INSURANCE ACTIVITY

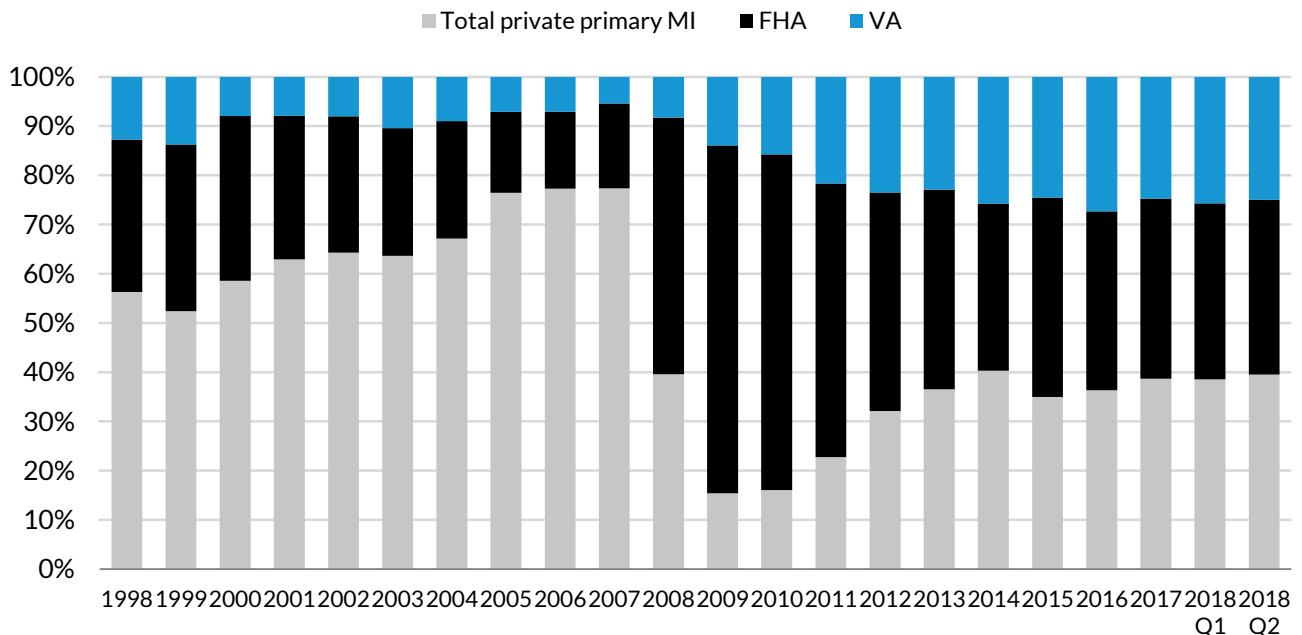
MI Activity

In 2018 Q2, mortgage insurance activity via the FHA, VA and private insurers increased from the previous quarter's \$151 billion to \$203 billion, up 14.7 percent year-over-year from the same quarter in 2017. Private mortgage insurers increased by \$22.0 billion, FHA increased by \$17.9 billion, and VA increased by \$11.8 billion. In the second quarter of 2018, FHA accounted for 35.5 percent of the market, consistent with the share in Q1 2018, while VA accounted for 25.0 percent, losing about 1 percent market share to private mortgage insurers (39.5 percent).



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

MI Market Share



Sources: Inside Mortgage Finance and Urban Institute. Last updated August 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 all 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 720 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	4.66%
FHA	4.70%

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	\$1,444	\$1,444	\$1,444	\$1,444	\$1,444	\$1,444	\$1,444	\$1,444
PMI	\$1,711	\$1,648	\$1,613	\$1,524	\$1,482	\$1,443	\$1,402	\$1,378
PMI Advantage	(\$267)	(\$204)	(\$169)	(\$80)	(\$38)	\$1	\$42	\$66

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, 65.4 percent of loans originated from 2011 to Q2 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%
2011-2Q17	≤700	3.3%	4.8%	1.3%	1.9%	11.4%
	700 to 750	5.6%	9.9%	3.1%	4.6%	23.3%
	>750	21.0%	28.7%	7.3%	8.4%	65.4%
	Total	30.0%	43.4%	11.7%	15.0%	100.0%
Total		34.2%	45.1%	10.4%	10.4%	100.0%

Sources: Fannie Mae and Urban Institute.

Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 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	3.7%	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%	21.7%	16.7%
	700 to 750	6.4%	9.8%	12.7%	13.2%	8.9%
	>750	2.2%	4.5%	7.2%	8.2%	3.8%
	Total	6.9%	10.2%	14.5%	15.6%	9.5%
2006	≤700	18.2%	22.4%	25.8%	27.4%	21.5%
	700 to 750	8.6%	13.2%	16.0%	16.8%	12.0%
	>750	2.9%	5.8%	9.1%	9.5%	5.0%
	Total	9.5%	13.2%	18.2%	19.4%	12.5%
2007	≤700	19.6%	23.5%	30.9%	31.3%	24.1%
	700 to 750	8.4%	13.4%	19.2%	18.5%	12.9%
	>750	2.7%	5.8%	11.0%	10.8%	5.3%
	Total	9.4%	13.4%	22.2%	21.9%	13.7%
2008	≤700	14.5%	17.1%	23.2%	23.3%	17.6%
	700 to 750	5.0%	8.0%	12.8%	12.6%	8.3%
	>750	1.3%	2.8%	6.3%	6.9%	2.9%
	Total	5.0%	6.4%	12.2%	12.9%	7.2%
2009-2010	≤700	3.9%	5.1%	4.9%	6.3%	4.5%
	700 to 750	1.0%	2.0%	2.4%	3.0%	1.7%
	>750	0.2%	0.6%	1.1%	1.4%	0.5%
	Total	0.7%	1.2%	1.6%	2.2%	1.0%
2011-2Q17	≤700	1.0%	1.3%	1.5%	1.9%	1.4%
	700 to 750	0.3%	0.4%	0.5%	0.7%	0.4%
	>750	0.1%	0.1%	0.2%	0.3%	0.1%
	Total	0.2%	0.3%	0.4%	0.6%	0.3%
Total		1.9%	2.8%	4.1%	3.4%	2.7%

Sources: Fannie Mae and Urban Institute.

Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 2017, with performance information on these loans through Q1 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, 60.5 percent of loans originated from 2011 to Q2 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- 2Q17	≤700	3.9%	4.8%	1.4%	1.8%	12.0%
	700 to 750	7.0%	12.1%	3.5%	4.8%	27.6%
	>750	19.2%	27.3%	6.6%	7.4%	60.5%
	Total	30.2%	44.3%	11.6%	14.0%	100.0%
Total		33.2%	46.8%	10.1%	10.0%	100.0%

Sources: Freddie Mac and Urban Institute.

Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q2 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%	4.2%	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	12.1%	16.5%	19.5%	21.0%	15.8%
	700 to 750	5.8%	9.4%	12.6%	12.9%	8.7%
	>750	2.0%	4.5%	7.2%	8.3%	3.7%
	Total	6.0%	10.0%	14.6%	15.8%	9.2%
2006	≤700	15.9%	21.0%	24.4%	26.8%	20.4%
	700 to 750	8.0%	12.6%	15.3%	15.4%	11.6%
	>750	2.7%	6.0%	8.9%	9.6%	5.0%
	Total	8.1%	12.7%	18.1%	20.2%	12.0%
2007	≤700	17.1%	22.5%	28.4%	31.0%	23.0%
	700 to 750	7.9%	13.5%	18.0%	18.4%	12.8%
	>750	2.6%	6.3%	10.2%	11.4%	5.6%
	Total	8.2%	13.5%	20.9%	22.6%	13.5%
2008	≤700	13.2%	17.1%	23.5%	22.6%	17.2%
	700 to 750	4.7%	8.4%	13.0%	11.7%	8.1%
	>750	1.4%	3.3%	6.8%	6.4%	3.0%
	Total	4.5%	7.6%	13.3%	13.0%	7.5%
2009-2010	≤700	3.3%	4.8%	5.0%	5.1%	4.1%
	700 to 750	0.9%	1.9%	2.1%	2.6%	1.5%
	>750	0.2%	0.6%	1.1%	1.2%	0.5%
	Total	0.6%	1.2%	1.6%	2.1%	1.0%
2011-2Q17	≤700	0.5%	0.6%	0.7%	0.9%	0.6%
	700 to 750	0.2%	0.2%	0.3%	0.4%	0.2%
	>750	0.0%	0.1%	0.1%	0.2%	0.1%
	Total	0.1%	0.2%	0.2%	0.3%	0.2%
Total		2.0%	3.4%	4.8%	4.7%	3.2%

Sources: Freddie Mae and Urban Institute.

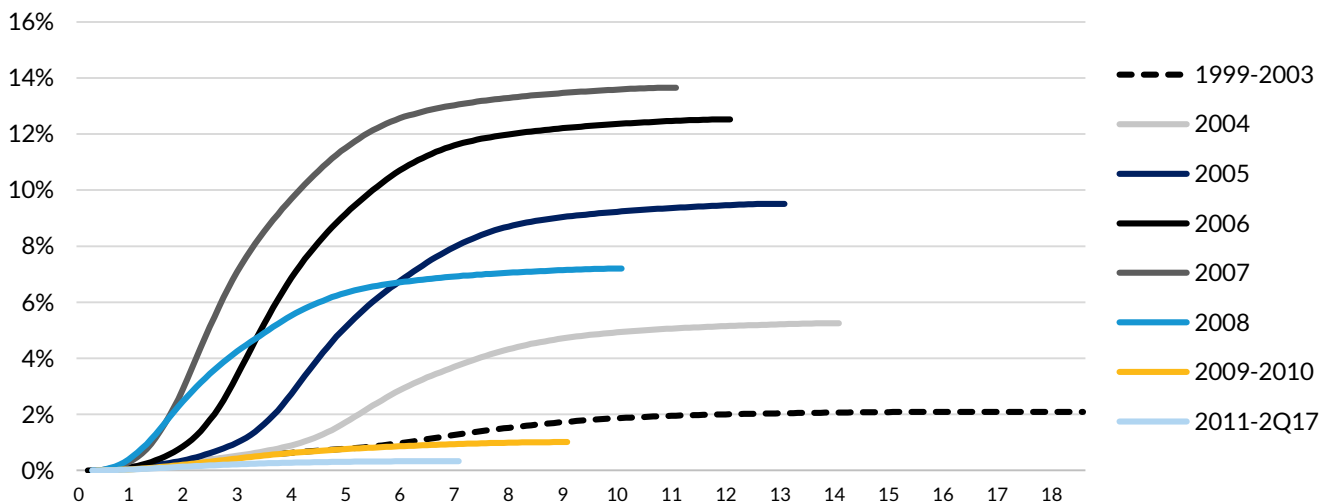
Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q2 2017, with performance information on these loans through Q4 2017. Default is defined as six months delinquent or disposed of via short sales, third-party sales, deeds-in-lieu of foreclosure, or real estate owned (REO 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 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 loans 85 months after origination, the cumulative default rate from 2009-10 and 2011- Q2 2017 are about 0.94 and .33 percent, respectively, compared to the cumulative default rate from 1999-2003 of 1.29 percent. For Freddie loans 82 months after origination, the cumulative default rates total 0.92 percent from 2009-10 and 0.19 percent from 2011-Q2 2017, compared to the rate from 1999-2003 of 1.18 percent.

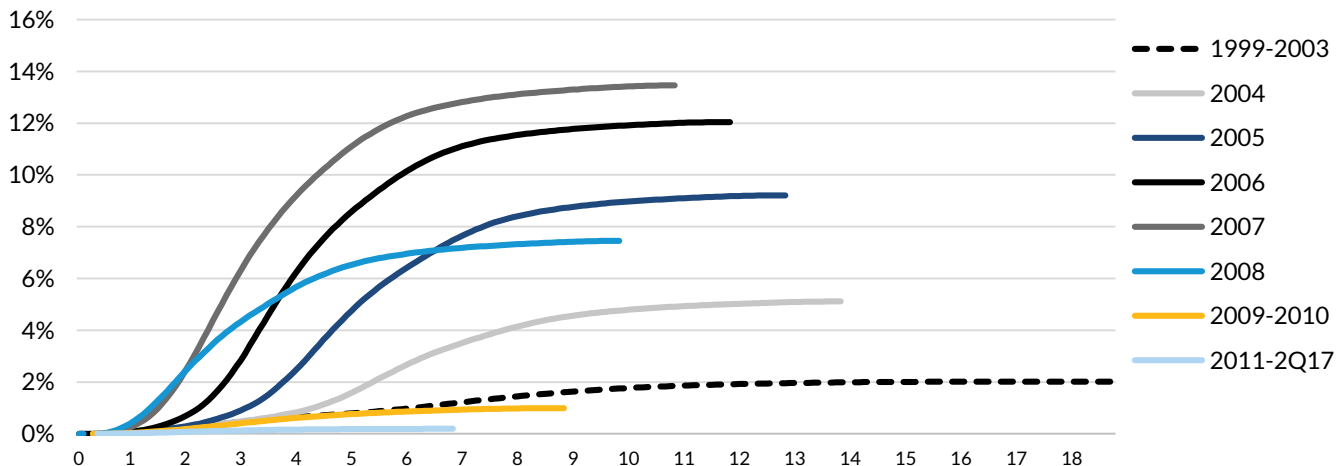
Fannie Mae Cumulative Default Rate by Vintage Year



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.

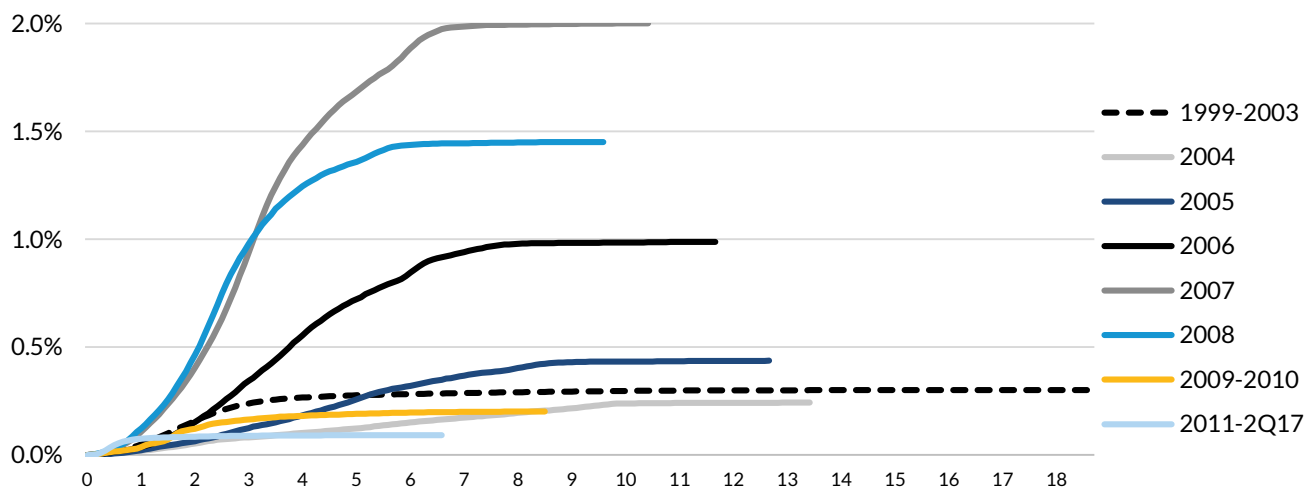
Note: The analysis included only mortgages with original terms of 241-420 months. A default is defined as a delinquency of 180 days or more, a deed-in-lieu, short sale, foreclosure sale or REO sale.

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.

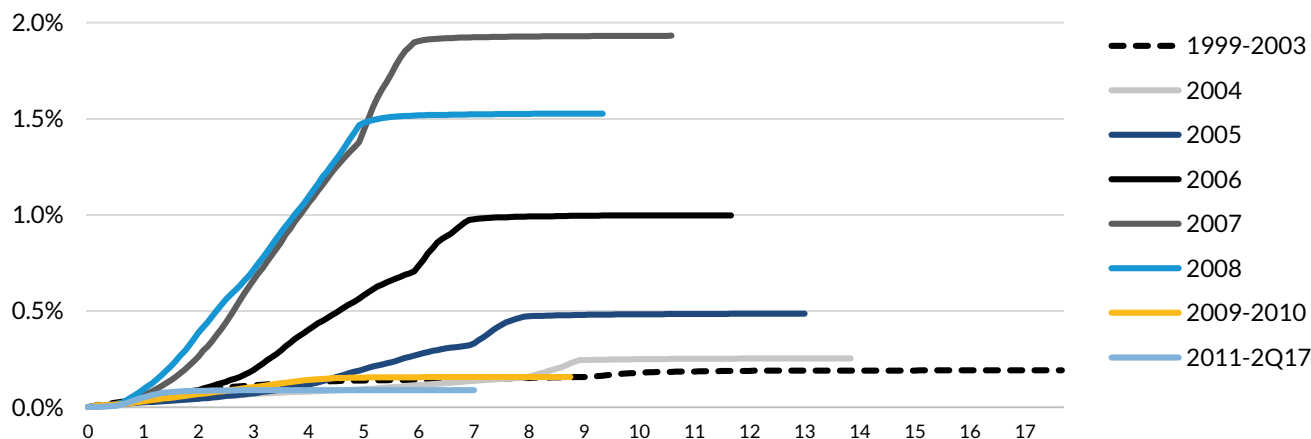
Fannie Mae Repurchase Rate by Vintage Year



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, 15.8 percent are prepaid, 10.7 percent are still in the pipeline (not current, not prepaid, not liquidated) and 57.9 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 41-45 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					
	Current	Prepay	Still in the Pipeline	% Already Liquidated Loans	<=60	60-80	>80	Total
1999-2004	12.61%	21.50%	8.09%	57.57%	24.0%	39.5%	24.0%	32.4%
2005	14.57%	11.83%	8.66%	63.60%	33.7%	48.4%	35.0%	44.4%
2006	14.87%	10.22%	8.41%	64.81%	42.1%	54.3%	37.7%	49.9%
2007	16.56%	11.07%	9.29%	61.18%	41.4%	53.6%	35.8%	47.0%
2008	17.63%	13.91%	10.18%	56.93%	34.6%	48.5%	28.1%	39.5%
2009-2010	16.91%	18.64%	16.42%	47.86%	22.6%	34.3%	17.0%	29.6%
2011-2Q17	16.80%	14.00%	47.00%	22.19%	14.0%	22.6%	5.9%	13.8%
Total	14.73%	15.75%	10.69%	57.88%	34.4%	47.6%	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					
	Current	Prepay	Still In The Pipeline	% Already Liquidated Loans	<=60	60-80	>80	Total
1999-2004	11.32%	19.00%	9.64%	60.05%	27.4%	42.1%	29.1%	35.6%
2005	14.38%	10.42%	10.92%	64.28%	37.1%	50.7%	38.0%	46.9%
2006	14.41%	8.67%	10.80%	66.13%	45.1%	56.0%	40.2%	51.8%
2007	15.17%	8.65%	11.37%	64.82%	48.2%	56.4%	39.9%	50.3%
2008	16.78%	11.50%	12.92%	58.81%	42.3%	53.5%	35.9%	46.3%
2009-2010	15.32%	17.05%	19.74%	47.90%	29.1%	39.8%	19.0%	34.9%
2011-2Q17	16.61%	16.43%	44.19%	22.76%	16.4%	30.7%	8.7%	19.1%
Total	13.80%	13.15%	11.64%	61.41%	39.9%	51.4%	34.9%	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 2017, with performance information on these loans through Q1 2018. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q2 2017, with performance information on these loans through Q4 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-Q2 2017 originations, Fannie Mae foreclosure alternatives had a defaulted UPB of \$168,011 and a loss severity of 11.6 percent, versus a defaulted UPB of \$148,473 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	190,008	145,586	44,422	111,752.1	106,036.8	130,404.7	32.39%	36.78%	20.70%
2005	72,797	48,819	23,978	168,610.8	157,315.7	191,604.3	44.43%	48.42%	37.77%
2006	74,122	49,859	24,263	182,905.4	170,130.2	209,117.4	49.92%	54.22%	42.72%
2007	90,038	60,462	29,576	192,327.8	179,046.7	219,439.2	47.05%	51.42%	39.76%
2008	52,872	35,500	17,372	190,045.1	175,782.1	219,097.3	39.45%	43.99%	32.01%
2009-2010	18,739	12,131	6,608	174,161.9	162,525.2	195,457.7	29.59%	34.09%	22.72%
2011-2Q17	8,413	5,615	2,798	155,033.4	148,473.0	168,011.6	13.81%	15.05%	11.61%
Total	506,989	357,972	149,017	155,824.1	143,789.5	184,669.6	40.96%	44.89%	33.61%

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	157,694	113,495	44,199	111,020.2	106,426.6	122,815.7	35.59%	40.16%	25.44%
2005	81,957	47,665	34,292	169,434.3	156,286.1	187,710.1	46.95%	51.85%	41.28%
2006	85,603	49,599	36,004	182,153.8	166,055.2	204,331.1	51.80%	57.09%	45.88%
2007	91,111	53,125	37,986	184,148.7	167,971.4	206,773.2	50.30%	56.33%	43.46%
2008	44,957	25,410	19,547	193,143.3	177,990.2	212,841.4	46.30%	53.32%	38.67%
2009-2010	13,412	7,387	6,025	177,539.6	169,017.0	187,988.8	34.91%	41.53%	27.61%
2011-2Q17	3,075	1,397	1,678	157,962.5	151,119.6	163,659.5	19.13%	24.56%	14.96%
Total	477,809	298,078	179,731	157,624.6	143,151.4	181,628.0	45.43%	50.20%	39.18%

Sources: Fannie Mae, Freddie Mac and Urban Institute.

Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q2 2017, with performance information on these loans through Q1 2018. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q2 2017, with performance information on these loans through Q4 2017. The analysis included only mortgages with original terms of 241-420 months.

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