HOUSING FINANCE POLICY CENTER

HOUSING FINANCE AT A GLANCE

A MONTHLY CHARTBOOK

May 2020

URBAN INSTITUTE · ELEVATE · THE · DEBATE

ABOUT THE CHARTBOOK

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

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

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INTRODUCTION

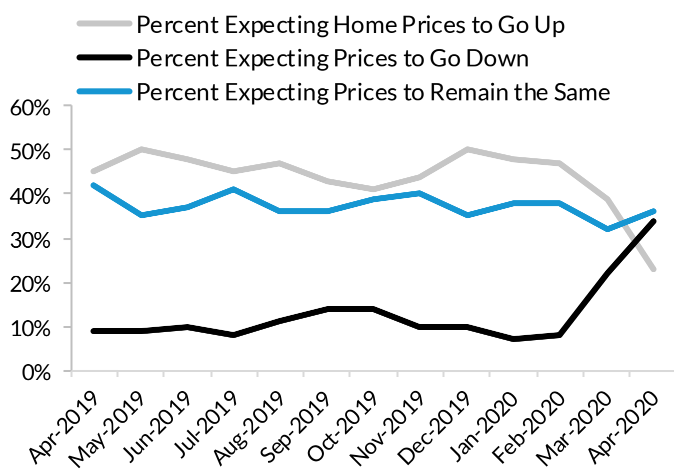
Consumers Grow More Pessimistic About Home Prices

The trajectory of house prices has been a key difference between the Great Recession and the current pandemic. Going into the pandemic, house prices continue to rise, fueled by very limited supply, while they were already falling heading into the Great Recession. Despite the strong pre-pandemic momentum, consumers recently reported that they expect home prices to decline very modestly over the coming year. The concern is amid a rising unemployment rate, falling house prices would further erode mortgage loan performance.

The historical trend of 12-month house price changes nationwide is documented on page 22 of this Chartbook. The figure shows that home price appreciation had been slowing sharply since late 2005 and early 2006, and registered year-over-year declines just prior to the Great Recession which started in December 2007. By contrast, house prices continued to rise through March 2020, our latest data.

However, Fannie Mae's latest Home Purchase Sentiment Index (HPSI) indicates that consumers are increasingly pessimistic about home prices. Between February and April, the share of consumers expecting home prices to fall in the next 12 months rose from 8 percent to 34 percent. Meanwhile, the proportion expecting home prices to rise dropped from 47 percent to 23 percent.

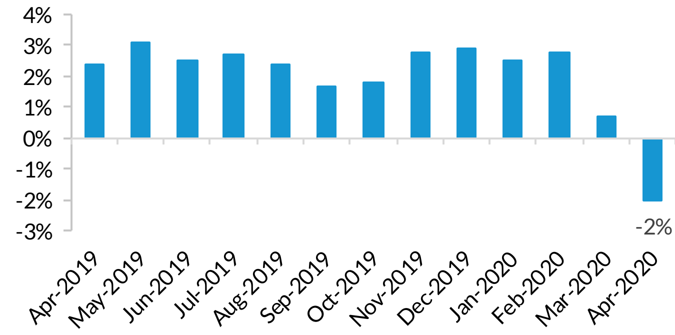
Composition of Consumers' Expectations of Home Price Changes in the Coming Year



Source: Fannie Mae.
Note: The shares may not sum to 100 percent because some respondents did not answer the question.

Over the same time, the size of the expected change in home prices has decreased. In February 2020, consumers expected home prices to rise by 2.8 percent on average over the coming year. By April, they expected home prices to fall by 2.0 percent. This is within the range of projections by economic forecasters; most see year-over-year home price changes in the range of +1.5 percent to -5 percent, averaging around -2 percent.

Average Consumer Expectation of 12-month Home Price Change



Source: Fannie Mae.

Consumers' expectations of future house price changes are important because they could guide home buying decisions today. For example, consumers may delay purchasing a home expecting home prices to fall. The HPSI indicates that the percent of consumers who believe it is a bad time to buy a home rose from 30 to 36 percent between February and April. Combined with a higher unemployment rate, less demand would weigh on home prices.

On the other hand, the for-sale inventory is low which would support house prices. Moreover, the HPSI suggests that inventory will remain low. It documents that 65 percent of consumers think it's a bad time to sell a home, up from 22 percent in February.

The future direction of home price changes remains unclear. However, the lack of housing inventory will limit any decline in house prices. And the strong housing equity position of the average homeowner suggests that modest house price declines are unlikely to significantly raise the share of underwater homeowners. Moreover, forbearance policies put in place nationwide buy many borrowers time to get back to work. These factors indicate that mortgage delinquency stemming from falling home prices is likely to remain low, and that a small percentage of those that go delinquent will transition to foreclosure. Additionally, we do not expect to see the emergence of the negative feedback loop which occurred during the Great Recession, where forced selling reduced house prices which caused additional forced selling.

INSIDE THIS ISSUE

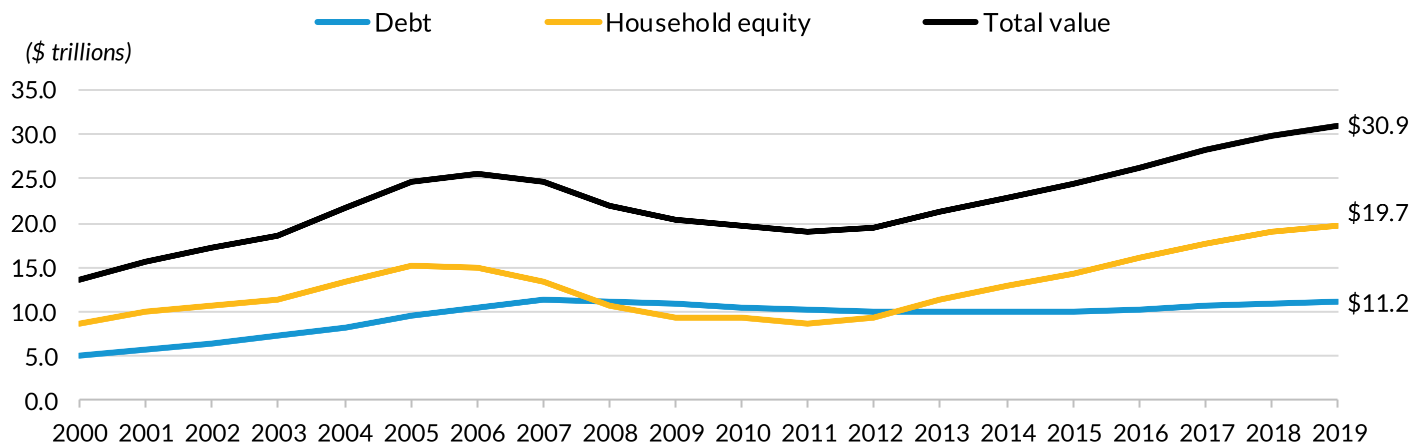
- In April 2020, originator profitability reached $5.60 per $100 loan, the highest level since at least the year 2000, reflecting lender capacity constraints amid the huge surge in refinance activity (Page 19).
- Fed purchases to continue to stabilize the mortgage market hit a new record in April, 2020, $295.1 billion, marginally more than the $292.2 billion in March (Page 31).
- Mortgage insurance activity via the FHA, VA and private insurers increased 93.1 percent from Q1 2019 to Q1 2020 (Page 32).
- Our special feature on GSE loan level credit is on pages 34-41.

OVERVIEW

MARKET SIZE OVERVIEW

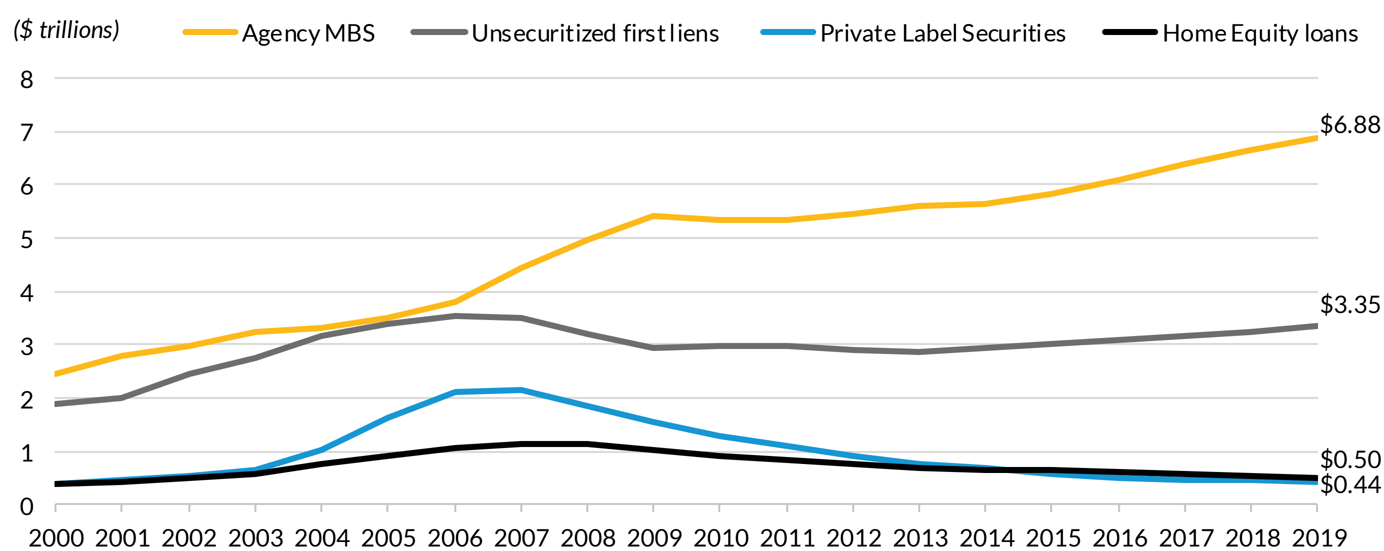
The Federal Reserve's Flow of Fund Report has indicated a gradually increasing total value of the housing market, driven primarily by growing home equity since 2012. The Q4 2019 numbers show that while total home equity was steady this quarter at $19.7 trillion, mortgage debt outstanding grew slightly from $11.1 trillion in Q3 to $11.2 trillion in Q4 2019, bringing the total value of the housing market to $30.9 trillion, 20.7 percent higher than the pre-crisis peak in 2006. Agency MBS account for 61.6 percent of the total mortgage debt outstanding, private-label securities make up 3.9 percent, and unsecuritized first liens make up 30.0 percent. Home equity loans comprise the remaining 4.5 percent of the total.

Value of the US Single Family Housing Market



Sources: Federal Reserve Flow of Funds and Urban Institute. Last updated April 2020.
Note: Single family includes 1-4 family mortgages. The home equity number is grossed up from Fed totals to include the value of households and the non-financial business sector.

Composition of the US Single Family Mortgage Market

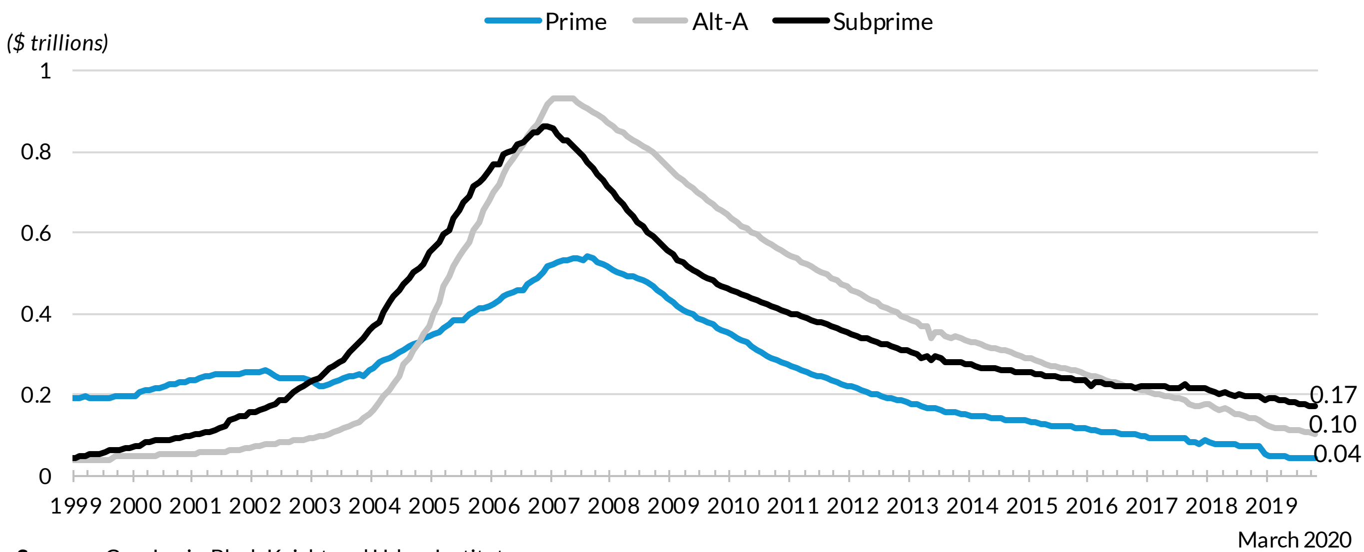


Sources: Federal Reserve Flow of Funds, eMBS and Urban Institute. *Last updated April 2020.*
Note: Unsecuritized first liens includes loans held by commercial banks, GSEs, savings institutions, credit unions and other financial companies

MARKET SIZE OVERVIEW

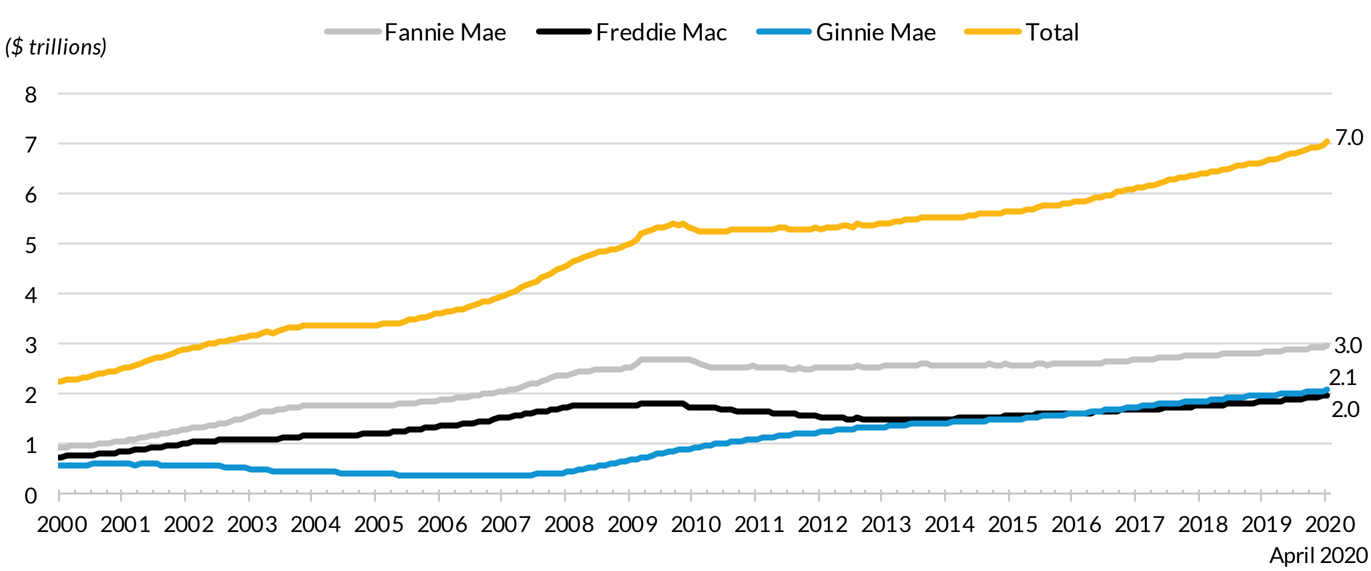
As of March 2020, our sample of first lien mortgage debt in the private-label securitization market totaled $319 billion and was split among prime (13.5 percent), Alt-A (32.4 percent), and subprime (54.0 percent) loans. In April 2020, outstanding securities in the agency market totaled $7.0 trillion, 42.3 percent of which was Fannie Mae, 28.2 percent Freddie Mac, and 29.5 percent Ginnie Mae. Ginnie Mae has had more outstanding securities than Freddie Mac since June 2016.

Private-Label Securities by Product Type



Sources: CoreLogic, Black Knight and Urban Institute.

Agency Mortgage-Backed Securities



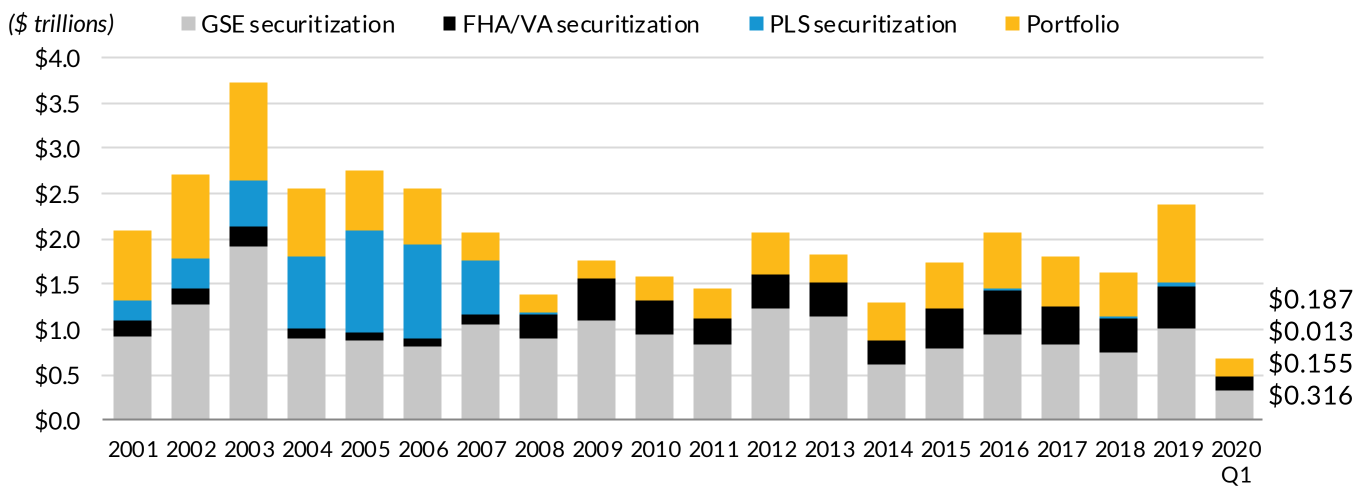
Sources: eMBS and Urban Institute.

OVERVIEW

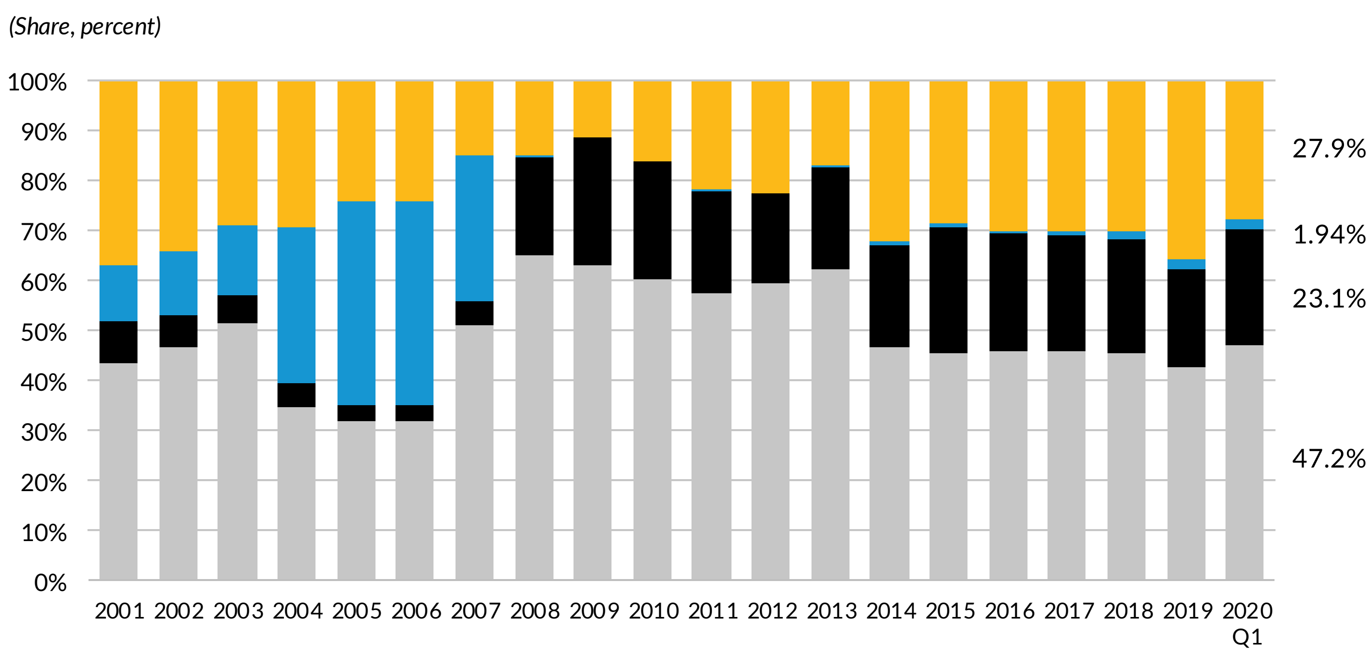
ORIGINATION VOLUME AND COMPOSITION

First Lien Origination Volume

In the first quarter of 2020, first lien originations totaled $670 billion, up from the Q1 2019 volume of $355 billion. The share of portfolio originations was 27.9 percent in Q1 2020, a significant decline from the 37.3 percent share in the same period of 2019. The Q1 2020 GSE share stood at 47.2 percent, up from 39.6 percent in Q1 2019. The FHA/VA share grew to 23.1 percent, compared to 21.0 percent last year. Private-label securitization currently tallies 1.94 percent, down from 2.9 percent one year ago, and a fraction of its share in the pre-bubble years.



Sources: Inside Mortgage Finance and Urban Institute. *Last updated May 2020.*



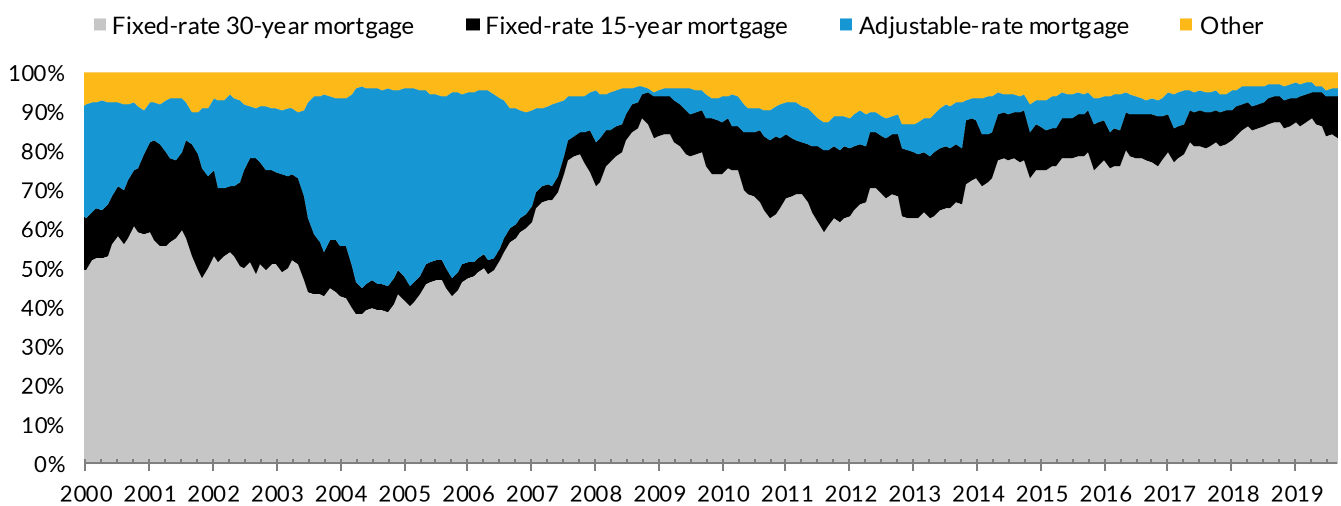
Sources: Inside Mortgage Finance and Urban Institute. *Last updated May 2020.*

OVERVIEW

PRODUCT COMPOSITION AND REFINANCE SHARE

The 30-year fixed-rate mortgage continues to remain the bedrock of the US housing finance system, accounting for 81 percent of new originations in March 2020. This share has increased over the last decade as the share of other products has shrunk. The 15-year fixed-rate mortgage, predominantly a refinance product, accounted for 10.6 percent of new originations in March 2020, while the ARM share accounted for 3.1 percent. Since late 2018, while there has been some month-to-month variation, the refinance share (bottom chart) has generally grown for both the GSEs and Ginnie Mae as interest rates have dropped. As rates have continued to drop in the wake of COVID-19, we expect the refinance share to continue to climb.

Product Composition

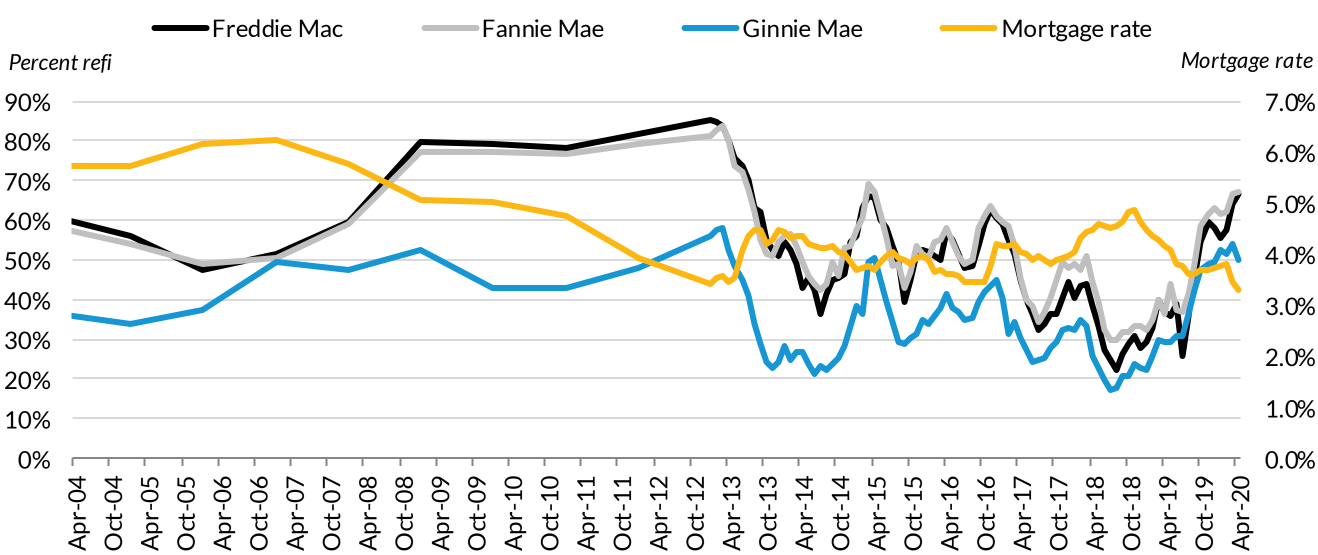


Sources: Black Knight, eMBS, HMDA, SIFMA and Urban Institute.

March 2020

Note: Includes purchase and refinance originations.

Percent Refi at Issuance



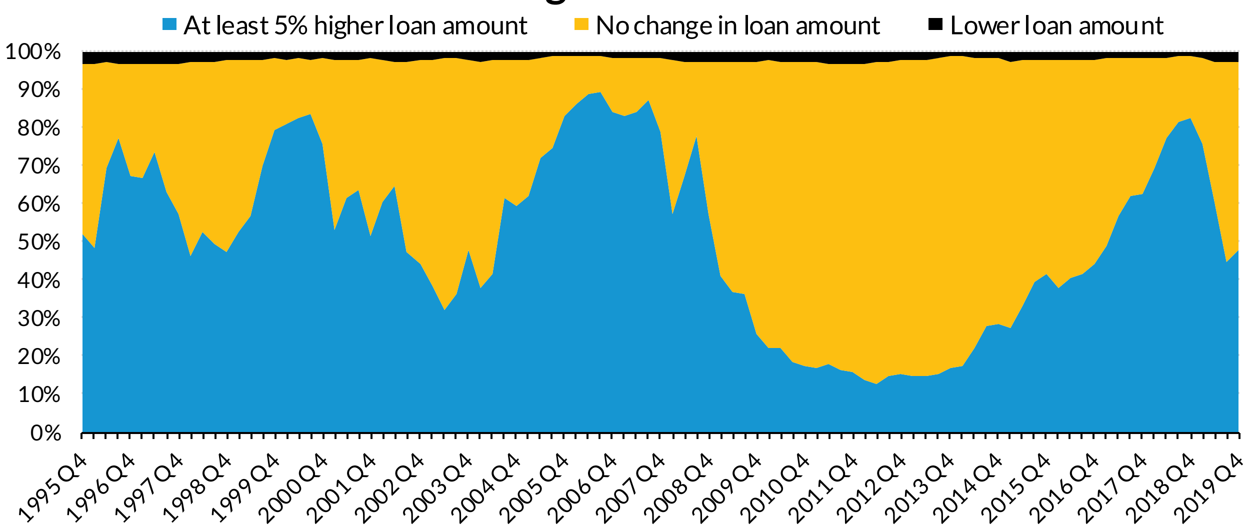
Sources: eMBS and Urban Institute.

Note: Based on at-issuance balance. Figure based on data from April 2020.

CASH-OUT REFINANCES

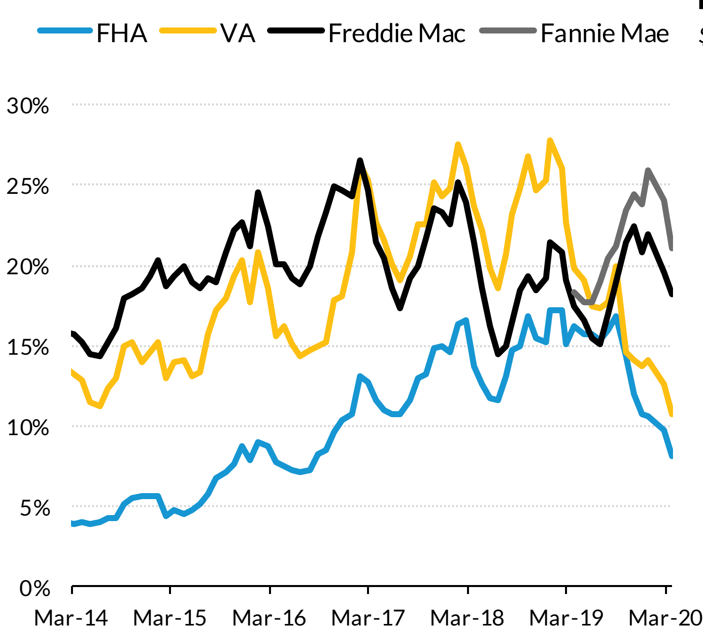
When mortgage rates are low, the share of cash-out refinances tends to be relatively smaller, as refinancing allows borrowers to save money by taking advantage of lower rates. But when rates are high, the cash-out refinance share is higher since the rate reduction incentive is gone and the only reason to refinance is to take out equity. The cash-out share of all refinances grew from 45 percent in the third quarter of 2019 to 48 percent in the fourth quarter. While the cash-out refinance share for conventional mortgages may seem high at 48 percent, equity take-out volumes are substantially lower than during the bubble years. The cash-out refi share of all agency lending has fallen in the first three months of 2020, likely due to the increased rate refinance activity from borrowers taking advantage of historically low rates.

Loan Amount after Refinancing



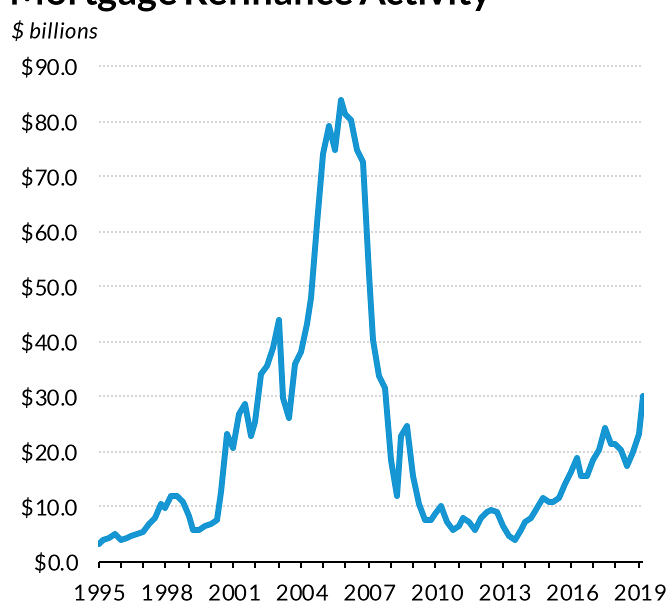
Sources: Freddie Mac and Urban Institute.
Note: Estimates include conventional mortgages only.

Cash-out Refi Share of All Originations



Sources: eMBS and Urban Institute.
Note: Data as of March 2020.

Equity Take-Out from Conventional Mortgage Refinance Activity

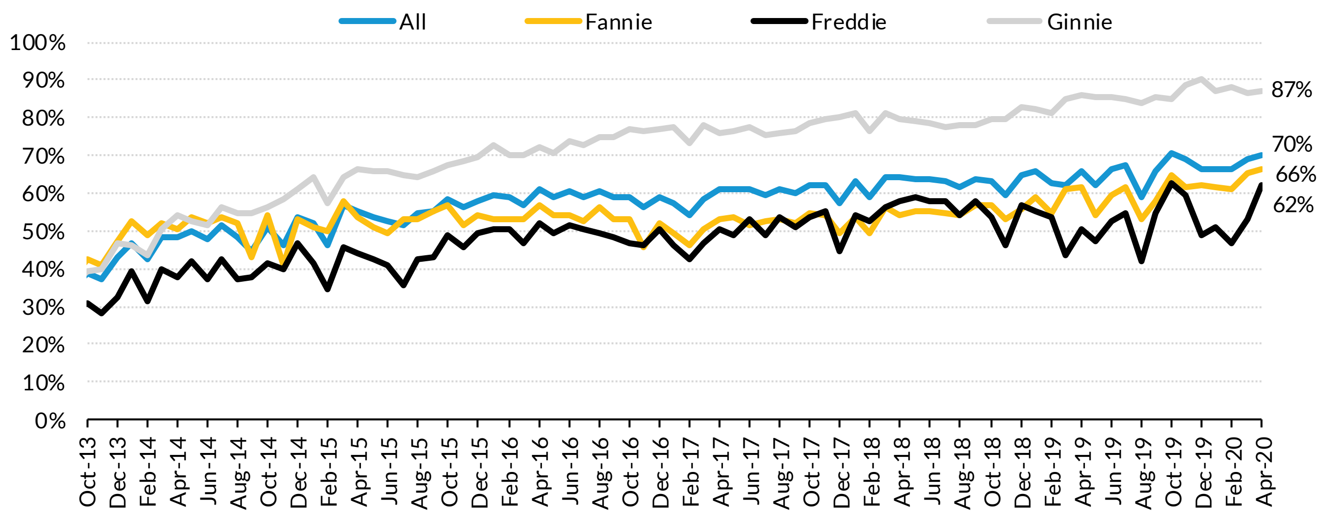


Sources: Freddie Mac and Urban Institute.
Note: These quarterly estimates include conventional mortgages only.

OVERVIEW
AGENCY NONBANK ORIGINATION SHARE

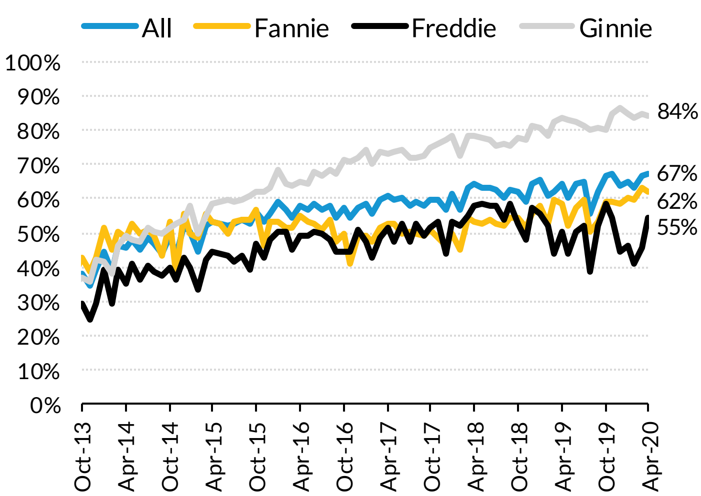
The nonbank share for agency originations has been rising steadily since 2013, standing at 70 percent in April 2020. The Ginnie Mae nonbank share has been consistently higher than the GSEs, rising slightly in April 2020 to 87 percent. Fannie and Freddie's nonbank shares both grew in April 2020 to 66 and 62 percent, respectively (note that these numbers can be volatile on a month-to-month basis.) Ginnie Mae, Fannie Mae and Freddie Mac all have higher nonbank origination shares for refi activity than for purchase activity.

Nonbank Origination Share: All Loans



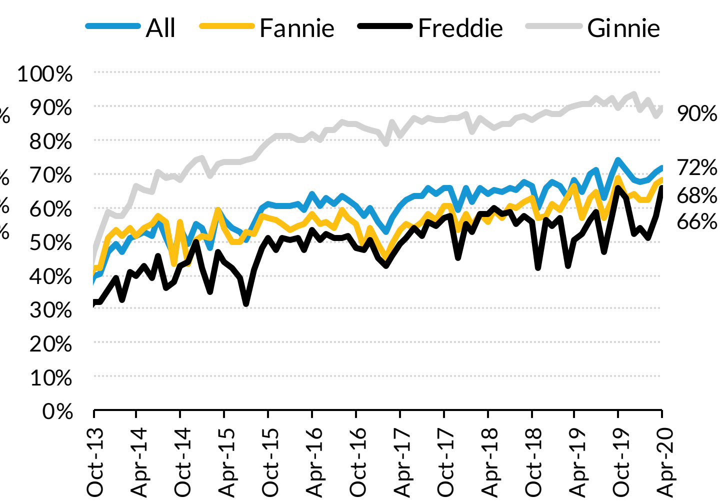
Sources: *eMBS and Urban Institute.*

Nonbank Origination Share: Purchase Loans



Sources: *eMBS and Urban Institute.*

Nonbank Origination Share: Refi Loans

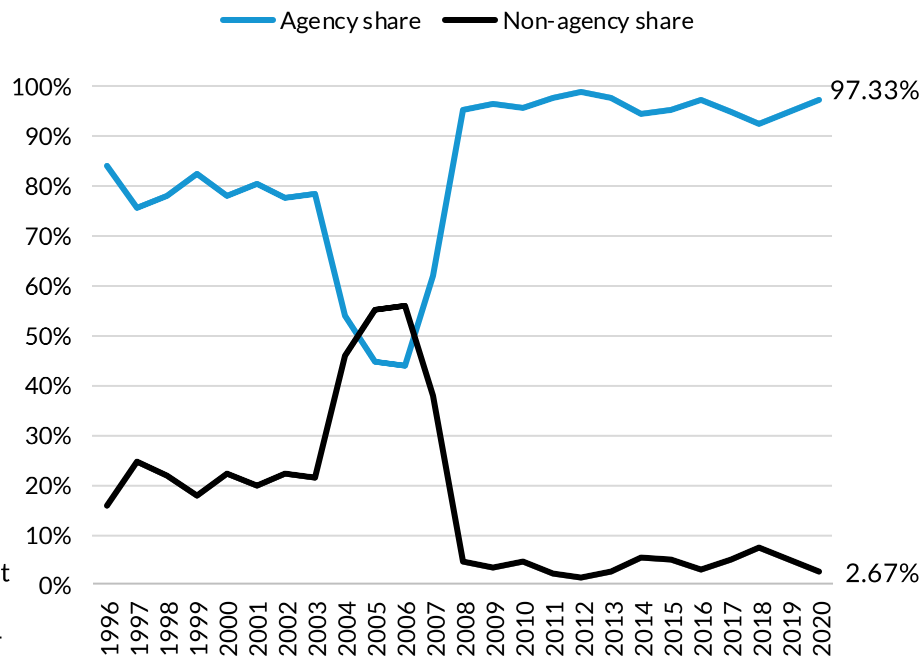


Sources: *eMBS and Urban Institute.*

SECURITIZATION VOLUME AND COMPOSITION

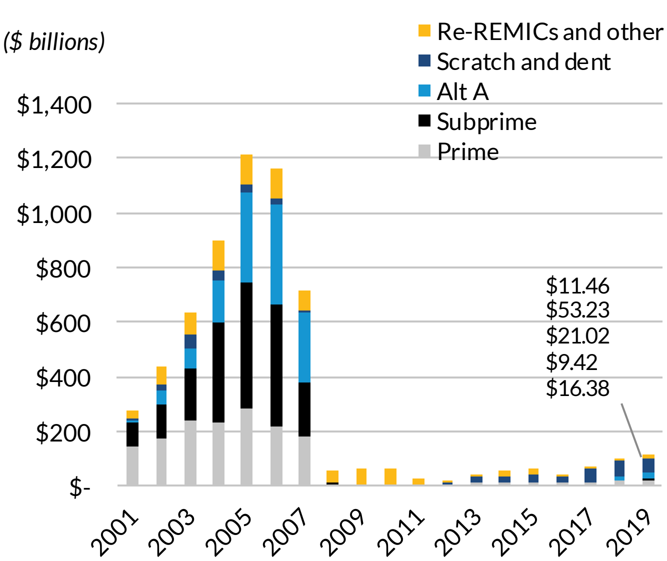
Agency/Non-Agency Share of Residential MBS Issuance

The non-agency share of mortgage securitizations has increased gradually over the post-crisis years, from 1.83 percent in 2012 to 5.0 percent in 2019. Through April of 2020, the non-agency share was 2.67 percent, and we expect it to go lower in the months ahead, as the non-agency market has been largely dormant due to dislocations caused by COVID-19. Non-agency securitization volume totaled $111.52 billion in 2019, an increase relative to 2018's $100.55 billion total. But there is a change in the mix. Alt-A and subprime securitizations have grown, while scratch and dent securitizations have fallen since the same period last year. Non-agency securitizations continue to be tiny compared to pre-crisis levels.



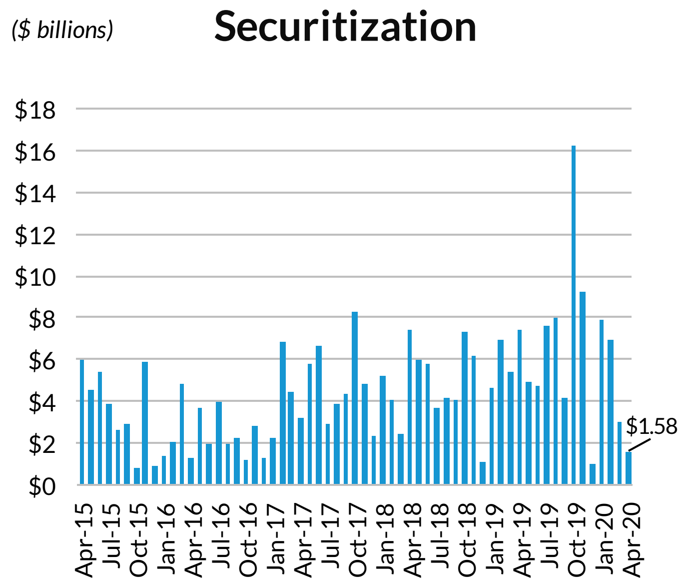
Sources: Inside Mortgage Finance and Urban Institute.
Note: Based on data from April 2020. Monthly non-agency volume is subject to revision.

Non-Agency MBS Issuance



Sources: Inside Mortgage Finance and Urban Institute.

Monthly Non-Agency Securitization



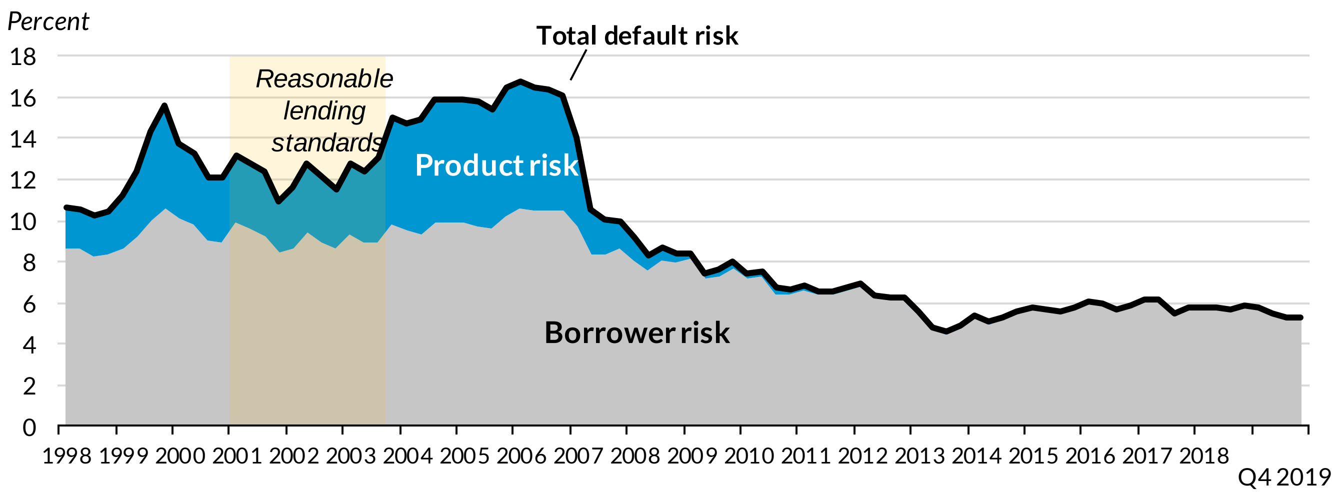
Sources: Inside Mortgage Finance and Urban Institute.

CREDIT BOX

HOUSING CREDIT AVAILABILITY INDEX

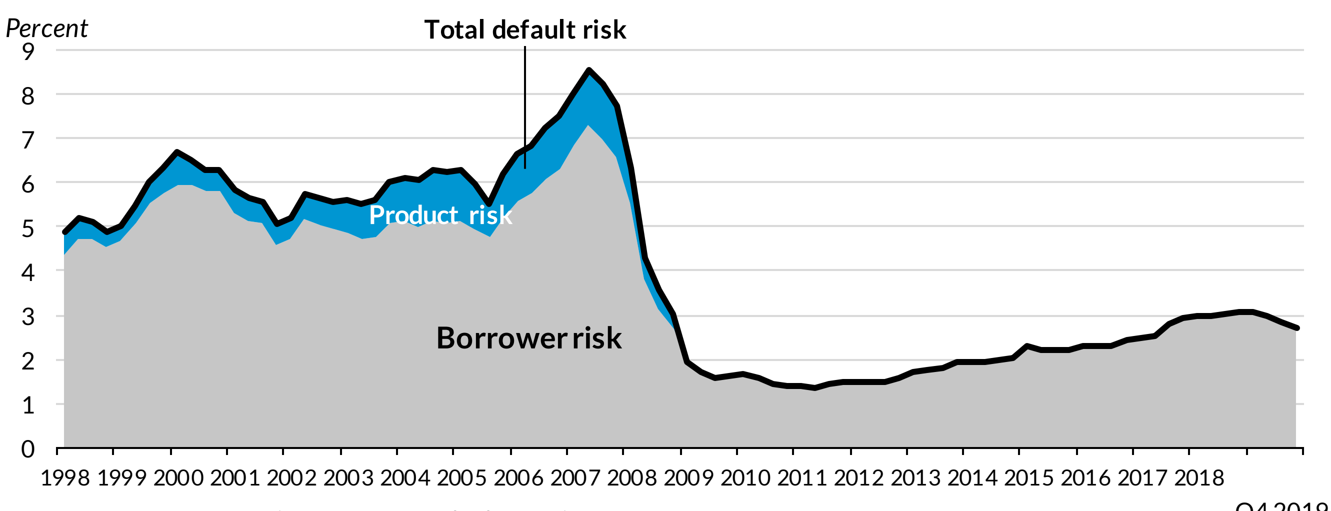
The Urban Institute's Housing Credit Availability Index (HCAI) assesses lenders' tolerance for both borrower risk and product risk, calculating the share of owner-occupied purchase loans that are likely to go 90+ days delinquent over the life of the loan. The HCAI Index stood at 5.3 percent in Q4 2019, unchanged from the previous quarter. There was a small drop in credit availability in all three channels, and a small increase in the market share of the government channel, which is relatively higher risk than the other channels. More information about the HCAI is available here.

All Channels



GSE Channel

The GSE market has expanded the credit box proportionately more than the government channel in recent years, although the GSE box is still much narrower. In Q3 2018, the index reached 3 percent for the first time since 2008, and then continued to increase in the following two quarters, reaching 3.07 percent in Q1 2019. HCAI declined in Q2, Q3 and Q4 of 2019, standing at 2.70 percent in Q4 2019.



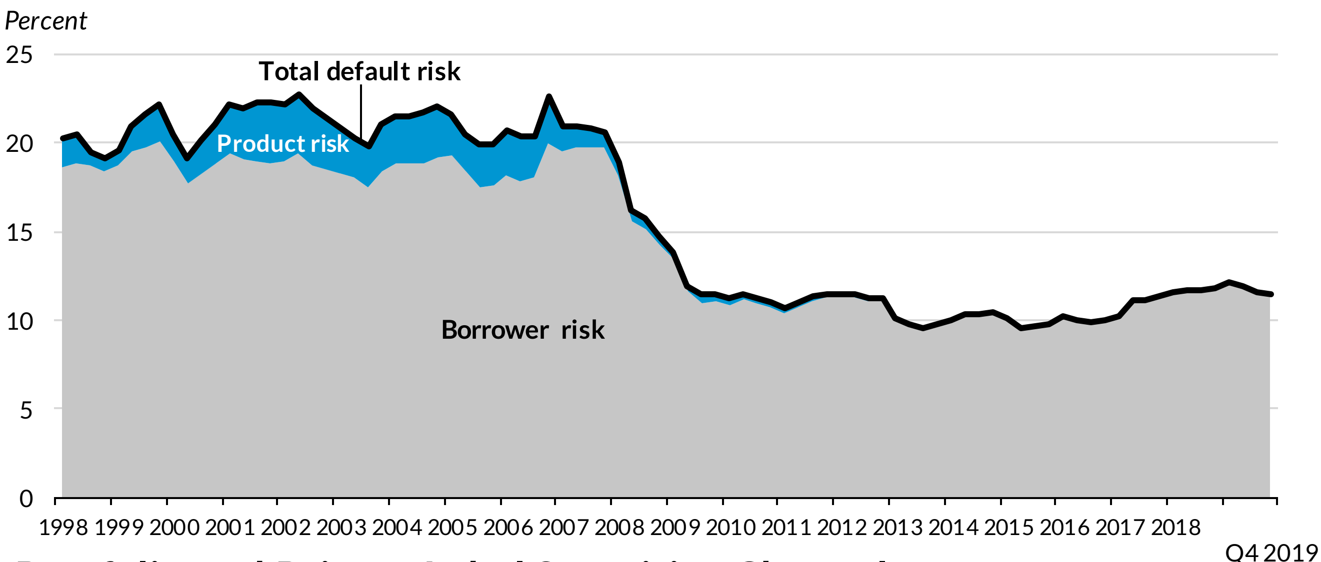
Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.
Note: Default is defined as 90 days or more delinquent at any point. *Last updated April 2020.*

CREDIT BOX

HOUSING CREDIT AVAILABILITY INDEX

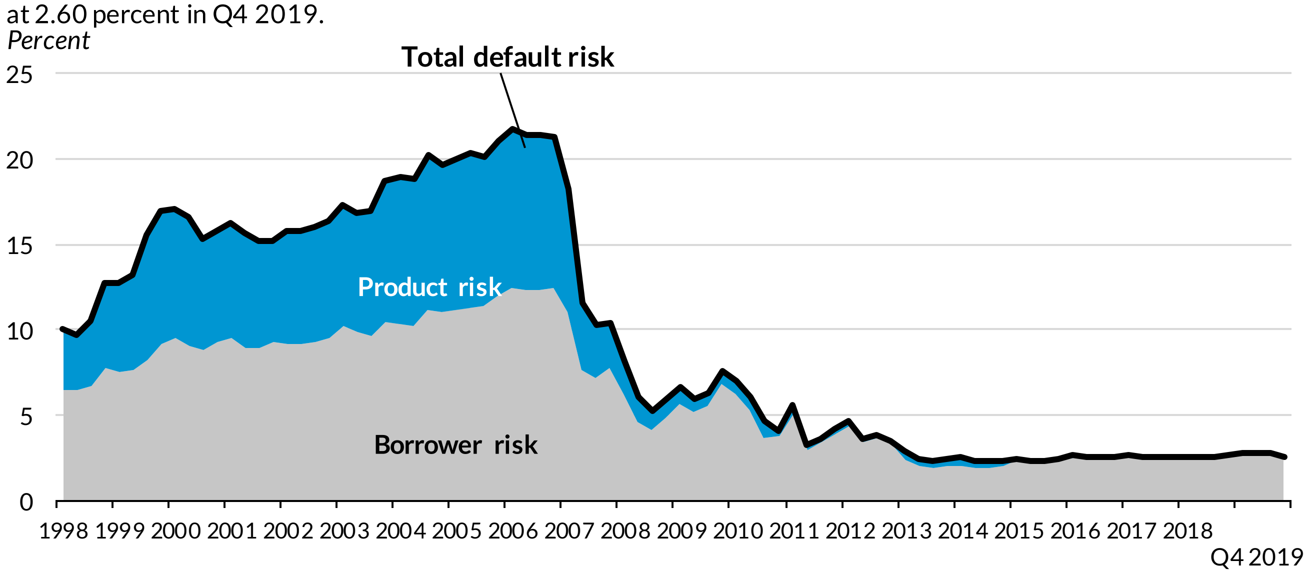
Government Channel

The total default risk the government channel is willing to take bottomed out at 9.6 percent in Q3 2013. It has gradually increased since then, although it was down slightly at 11.46 percent in Q4 2019, from 11.6 percent in Q3 2019.



Portfolio and Private Label Securities Channels

The portfolio and private-label securities (PP) channel took on more product risk than the government and GSE channels during the bubble. After the 2008 housing crisis, PP channel's product and borrower risks dropped sharply. The numbers have stabilized since 2013, with product risk fluctuating below 0.6 percent and borrower risk in the 2.0-3.0 percent range. Borrower risk decreased in the fourth quarter of 2019, and now stands at 2.59 percent, down from 2.72 percent in Q3 2019. Total risk in the portfolio and private-label securities channel stood at 2.60 percent in Q4 2019.



Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.
Note: Default is defined as 90 days or more delinquent at any point. *Last updated April 2020.*

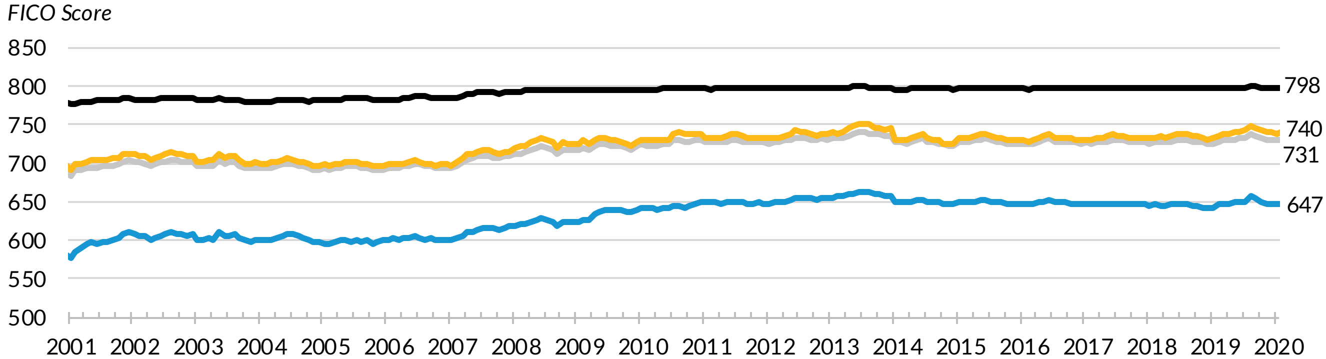
CREDIT BOX

CREDIT AVAILABILITY FOR PURCHASE LOANS

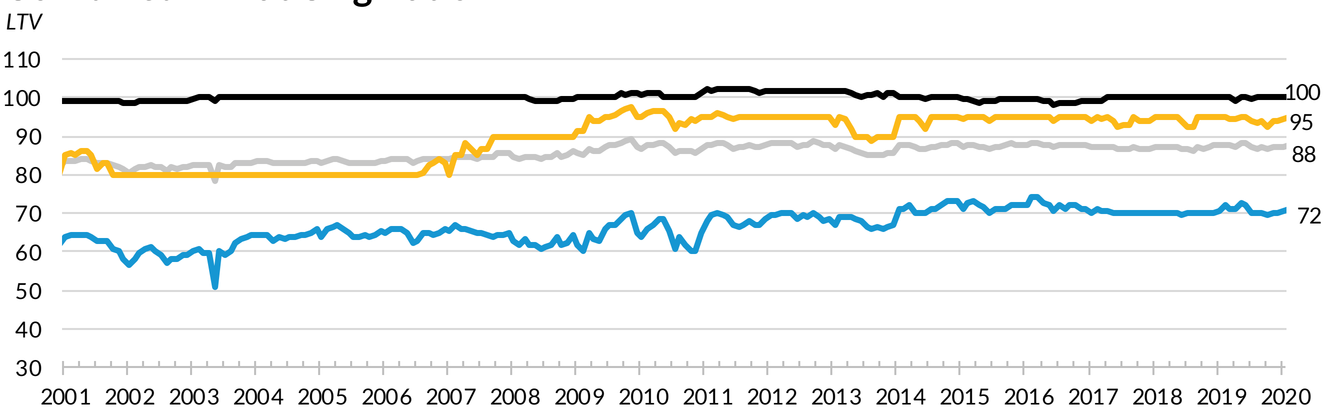
Access to credit remains tight, especially for lower FICO borrowers. The median FICO for current purchase loans is about 40 points higher than the pre-housing crisis level of around 700. The 10th percentile, which represents the lower bound of creditworthiness to qualify for a mortgage, was 647 in March 2020, which is high compared to low-600s pre-bubble. The median LTV at origination of 95 percent also remains high, reflecting the rise of FHA and VA lending. Although current median DTI of 39 percent exceeds the pre-bubble level of 36 percent, higher FICO scores serve as a strong compensating factor. Since this data is from March 2020, it reflects mortgage application activity in January and February; it does not yet reflect the credit tightening due to the effects of COVID-19.

Mean 90th percentile 10th percentile Median

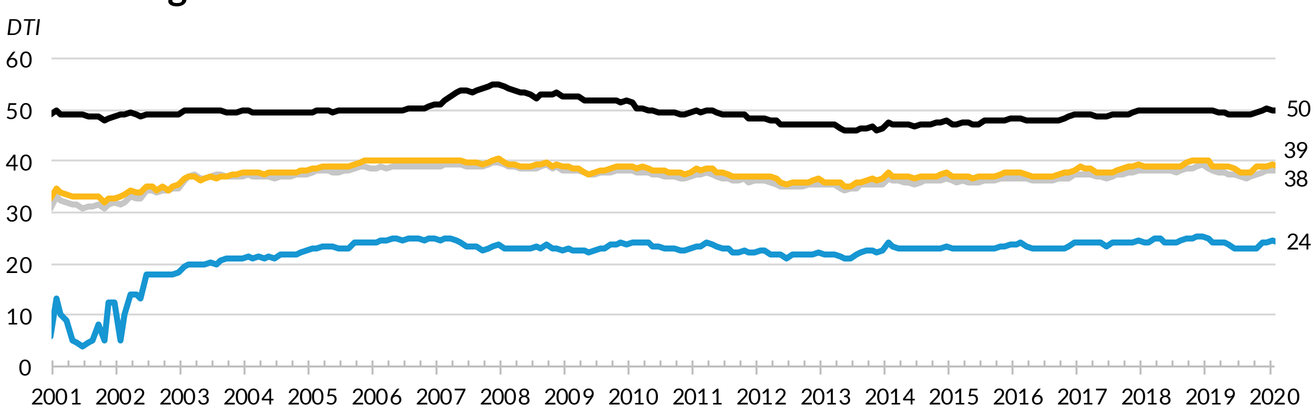
Borrower FICO Score at Origination



Combined LTV at Origination



DTI at Origination

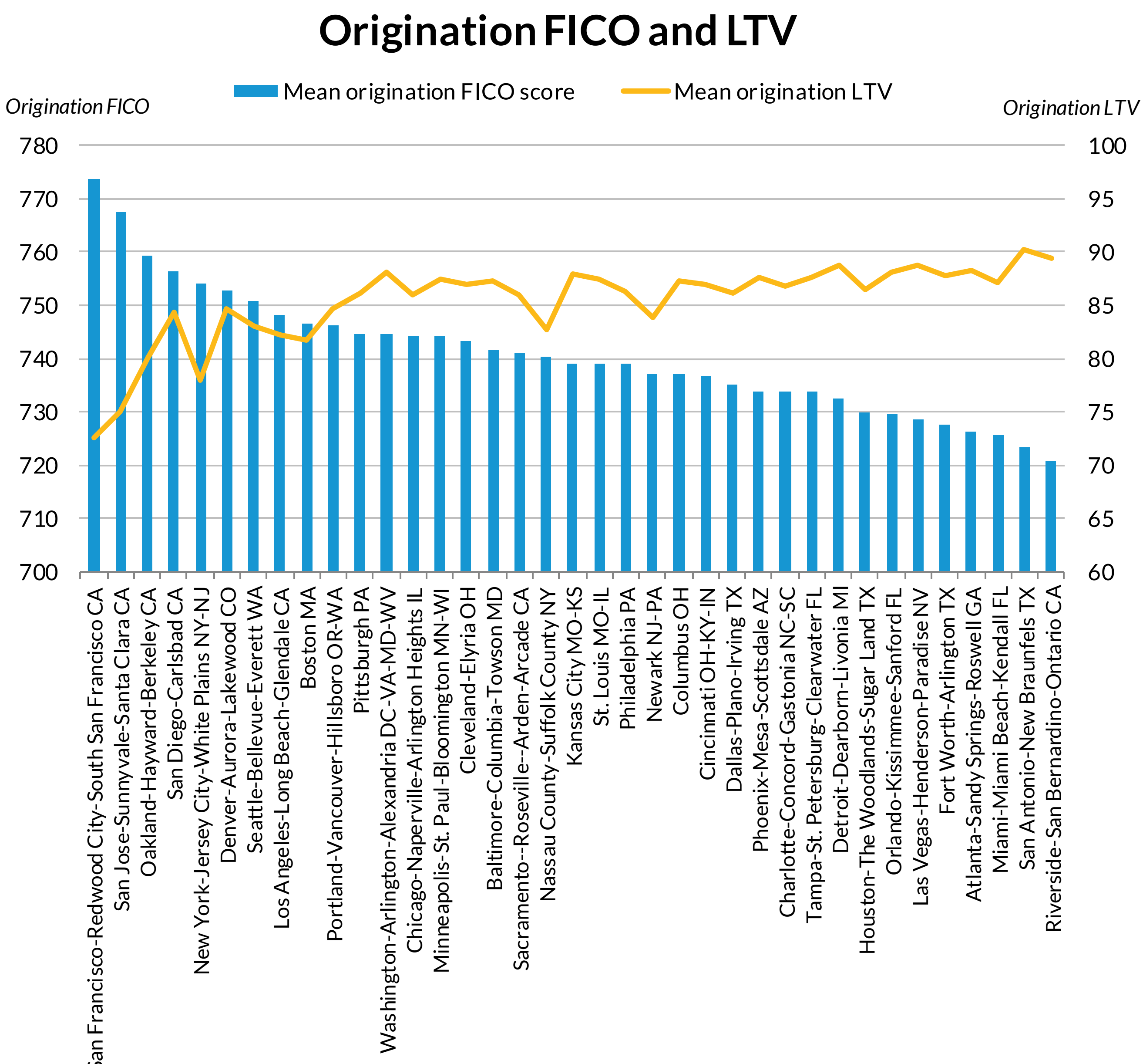


Sources: Black Knight, eMBS, HMDA, SIFMA, CoreLogic and Urban Institute.
Note: Includes owner-occupied purchase loans only. DTI data prior to April 2018 is from CoreLogic; after that date, it is from Black Knight. Data as of March 2020.

CREDIT BOX

CREDIT AVAILABILITY BY MSA 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 approximately 774. Across all MSAs, lower average FICO scores tend to be correlated with high average LTVs, as these MSAs rely heavily on FHA/VA financing.

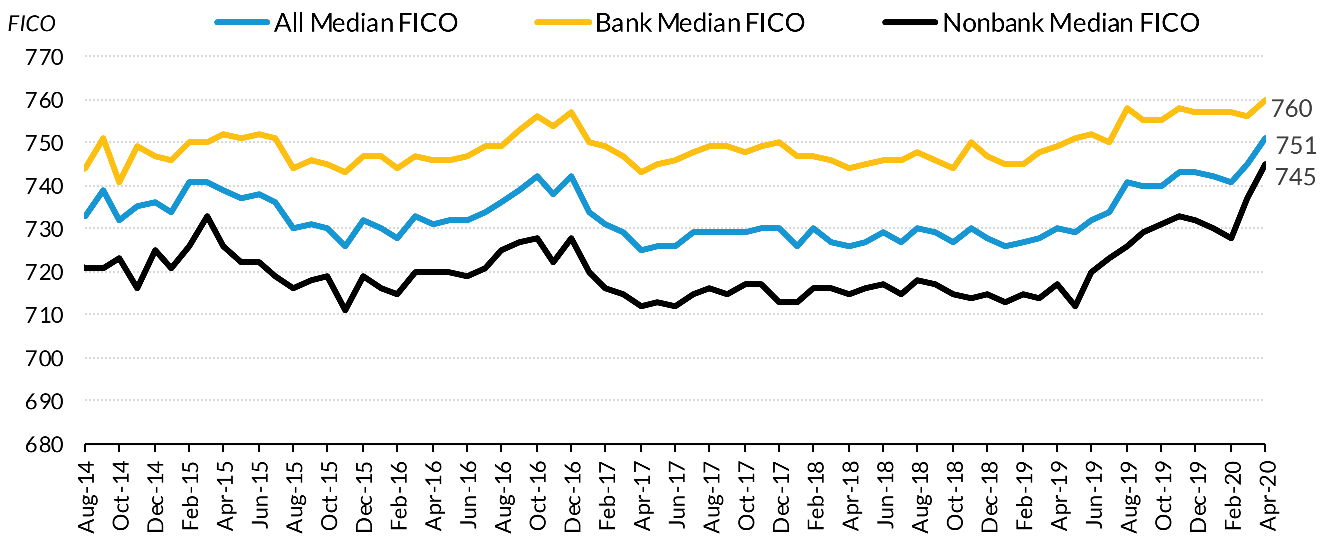


Sources: Black Knight, eMBS, HMDA, SIFMA and Urban Institute.
Note: Includes owner-occupied purchase loans only. Data as of March 2020.

AGENCY NONBANK CREDIT BOX

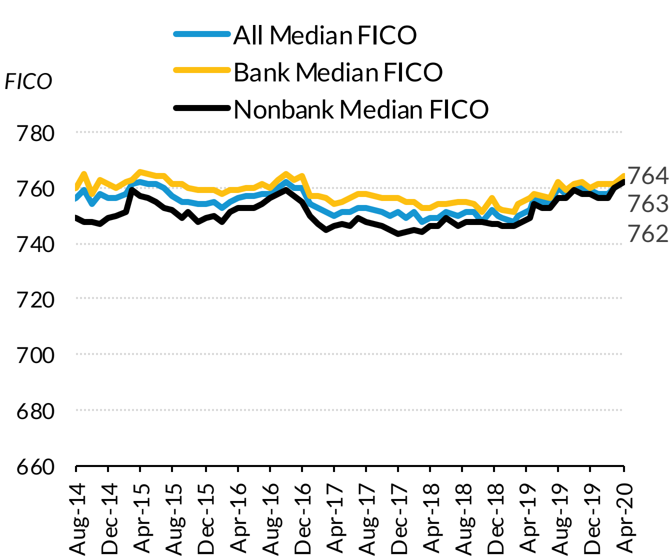
Nonbank originators have played a key role in expanding access to credit. In the GSE space, FICO scores for banks and nonbanks have nearly converged; the differential is much larger in the Ginnie Mae space. FICO scores for banks and nonbanks in both GSE and Ginnie Mae segments increased over the course of 2019 and early 2020, due to increased refi activity; this activity is skewed toward higher FICO scores. This has been particularly pronounced the last two months, March and April of 2020. Comparing Ginnie Mae FICO scores today versus five years ago (late 2014), FICO scores have risen significantly for the banks, while those of the non-banks were roughly constant; this reflects a sharp cut-back in FHA lending by many banks. As pointed out on page 11, banks comprise only about 13 percent of Ginnie Mae originations.

Agency FICO: Bank vs. Nonbank



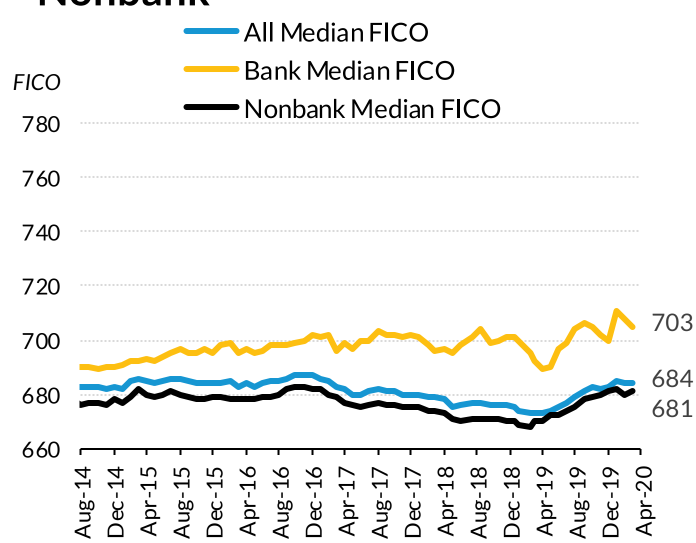
Sources: *eMBS and Urban Institute.*

GSE FICO: Bank vs. Nonbank



Sources: *eMBS and Urban Institute.*

Ginnie Mae FICO: Bank vs. Nonbank



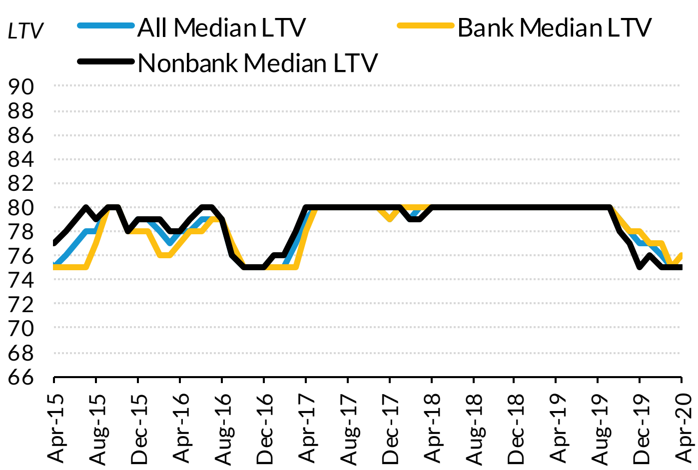
Sources: *eMBS and Urban Institute.*

CREDIT BOX

AGENCY NONBANK CREDIT BOX

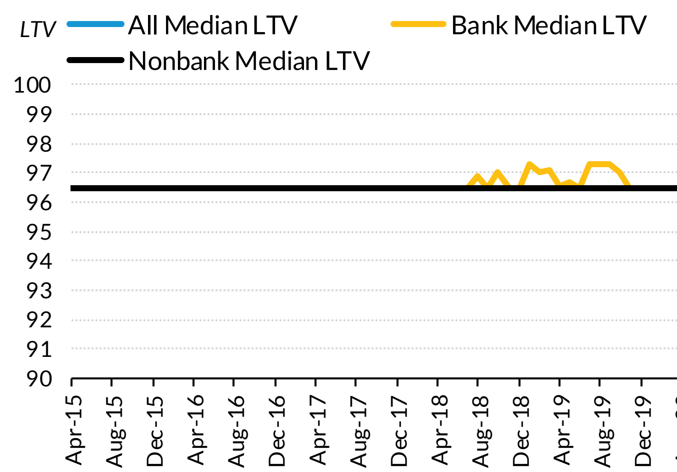
The median LTVs for nonbank and bank originations are comparable, while the median DTI for nonbank loans is higher than for bank loans, more so in the Ginnie Mae space. From early 2017 to early 2019, there was a sustained increase in DTIs, which has reversed beginning in the spring of 2019. This is true for both Ginnie Mae and the GSEs, for banks and nonbanks. As interest rates in 2017 and 2018 increased, DTIs rose, because borrower payments were driven up relative to incomes. As rates fell during most of 2019 and thus far in 2020, DTIs fell as borrower payments declined relative to incomes.

GSE LTV: Bank vs. Nonbank



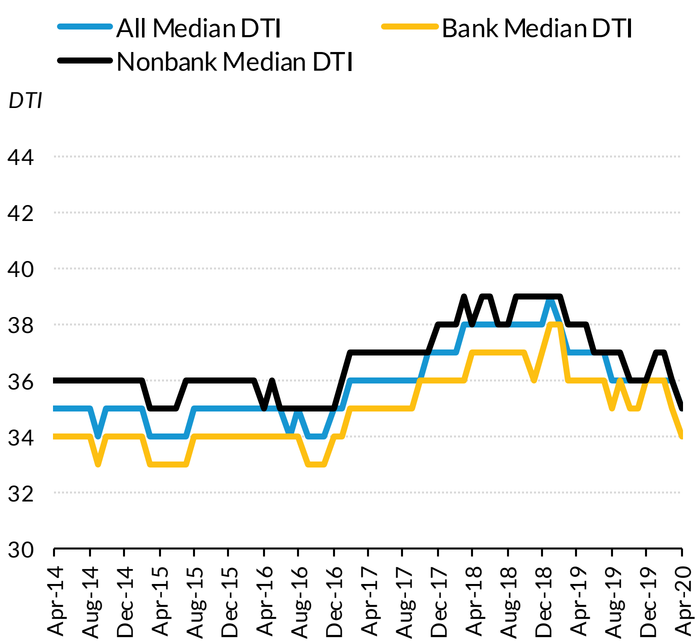
Sources: *eMBS and Urban Institute.*

Ginnie Mae LTV: Bank vs. Nonbank



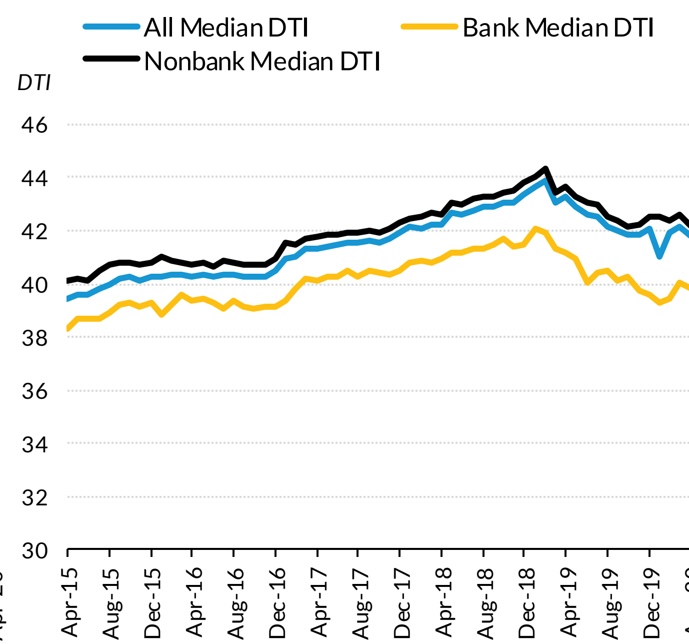
Sources: *eMBS and Urban Institute.*

GSE DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute.*

Ginnie Mae DTI: Bank vs. Nonbank



Sources: *eMBS and Urban Institute.*

MORTGAGE ORIGINATION PROJECTIONS

Fannie Mae, Freddie Mac and the MBA estimate 2020 origination volume to be between $2.35 and $2.63 trillion, higher than the $1.68-$1.77 trillion in 2018 and the $2.17 to $2.37 trillion in 2019. The increase in the 2020 origination volume is due to expectations of very strong refinance activity. All three groups expect the refinance share to be 8-12 percent higher than in 2019, based on continued low rates in the wake of COVID-19.

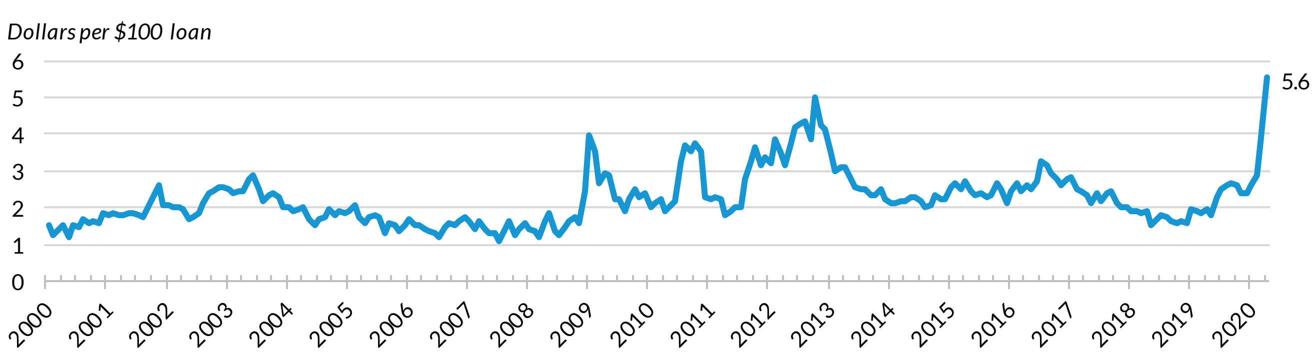
Total Originations and Refinance Shares

Period	Originations ($ billions)			Refi Share (percent)		
	Total, FNMA estimate	Total, FHLMC estimate	Total, MBA estimate	FNMA estimate	FHLMC estimate	MBA estimate
2019 Q1	334	355	325	32	37	30
2019 Q2	540	565	501	33	36	29
2019 Q3	716	700	651	47	47	42
2019 Q4	708	755	696	55	58	55
2020 Q1	641	607	563	62	58	54
2020 Q2	725	541	792	62	60	56
2020 Q3	667	626	575	56	48	46
2020 Q4	592	578	509	53	48	34
2016	2052	2125	1891	49	47	49
2017	1826	1810	1760	36	37	35
2018	1766	1700	1677	30	32	28
2019	2298	2375	2173	44	46	41
2020	2625	2351	2439	58	56	49
2021	2437	2369	2075	47	44	33

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. Regarding interest rates, the yearly averages for 2016, 2017, 2018 and 2019 were 3.8, 4.0, 4.6, and 3.9 percent. For 2020, the respective projections for Fannie, Freddie, and MBA are 3.2, 3.3, and 3.4 percent.

Originator Profitability and Unmeasured Costs

In April 2020, Originator Profitability and Unmeasured Costs (OPUC) stood at $5.55 per $100 loan, up substantially from $2.59 in January 2020, and the highest level on record. Increased profitability reflects lender capacity constraints amidst strong refi demand. Additionally, the Fed's massive purchases of agency MBS in March and April pushed down secondary yields, thus widening the spread to primary rates. We would expect OPUC to remain elevated for some time, potentially rise further, if refi demand remains strong and the Fed continues to buy large quantities of MBS. 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 a mortgage in the secondary market (less par) and adds two sources of profitability; retained servicing (both base and excess servicing, net of g-fees), and points paid by the borrower. OPUC is generally high when interest rates are low, as originators are capacity constrained due to refinance demand and have no incentive to reduce rates. Conversely, when interest rates are higher and refi activity low, competition forces originators to lower rates, driving profitability down.

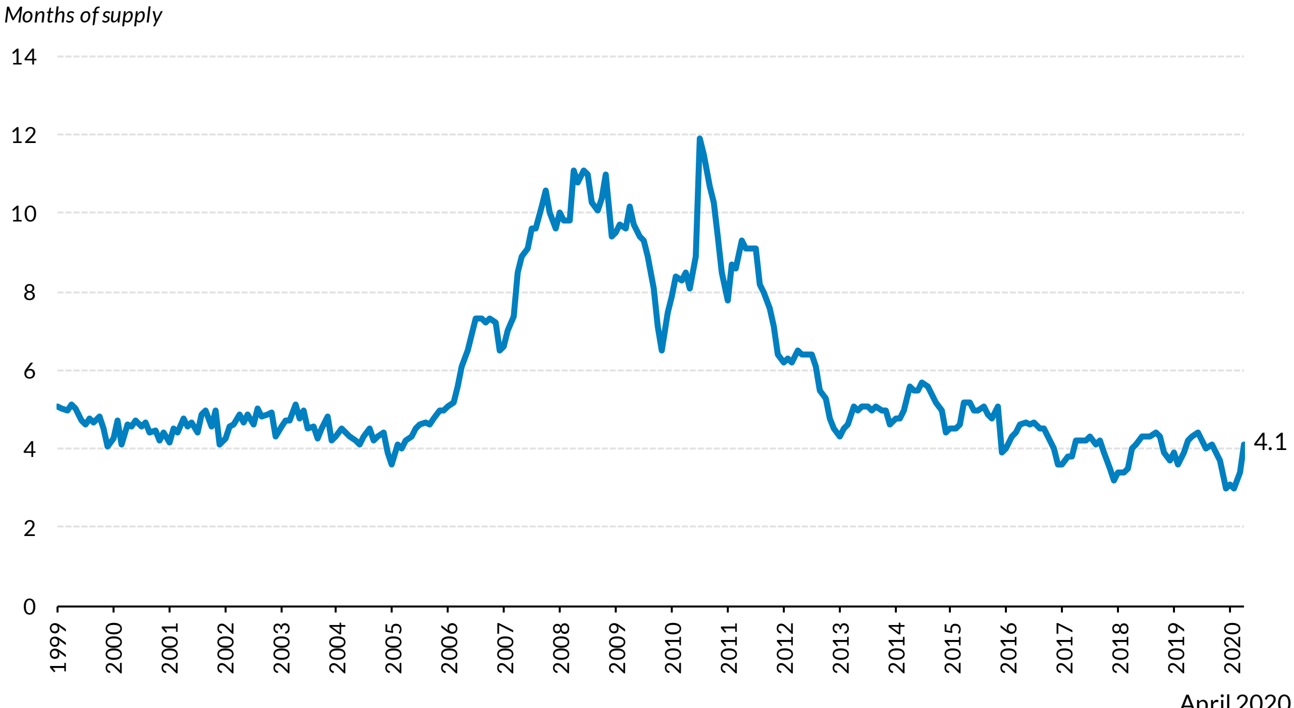


Sources: Federal Reserve Bank of New York, updated monthly and available at this link: http://www.ny.frb.org/research/epr/2013/1113fust.html and Urban Institute. Last updated April 2020.
Note: OPUC is a is a monthly (4-week moving) average as discussed in Fuster et al. (2013).

STATE OF THE MARKET
HOUSING SUPPLY

Strong demand for housing in recent years, coupled with historically low new home construction has led to a low—4.1 months—supply of for-sale homes in April 2020. This level is just below the 4.2 months in April 2019. Before the 2008 housing bubble, it averaged 4.6 months. Fannie Mae, Freddie Mac, the MBA, and the NAHB forecast 2020 housing starts to be 1.04 to 1.28 million units, behind 2019 levels. Fannie Mae, Freddie Mac, and the MBA predict total home sales of 5.10 to 5.76 million units in 2020, also below 2019 levels.

Months of Supply



Source: National Association of Realtors and Urban Institute. Data as of March 2020.

Housing Starts and Homes Sales

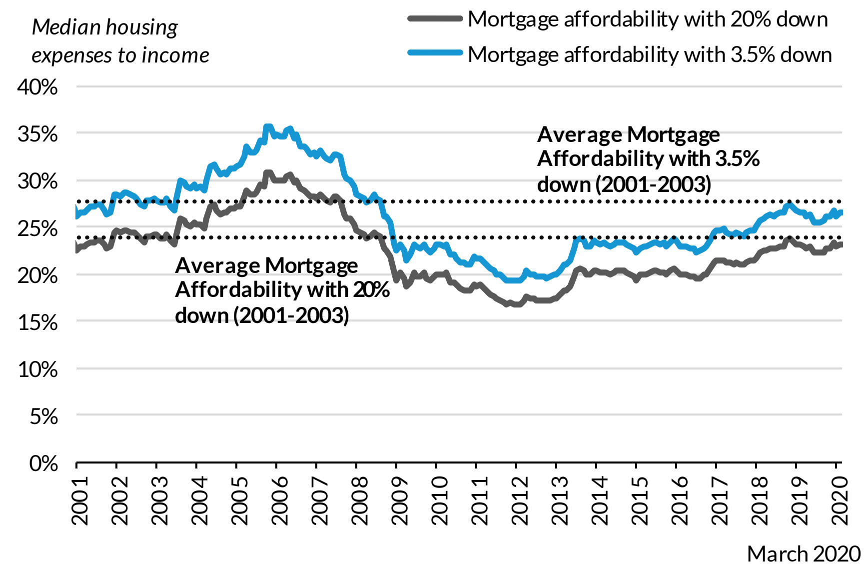
Year	Housing Starts, thousands				Home Sales. thousands			
	Total, FNMA estimate	Total, FHLMC estimate	Total, MBA estimate	Total, NAHB estimate	Total, FNMA estimate	Total, FHLMC estimate	Total, MBA estimate	Total, NAHB estimate*
2016	1174	1170	1177	1177	6011	6010	6001	5385
2017	1203	1200	1208	1208	6123	6120	6158	5522
2018	1250	1250	1250	1250	5957	5960	5956	5357
2019	1290	1250	1298	1298	6023	6000	6016	5439
2020	1158	1280	1102	1042	5133	5100	5764	4359
2021	1233	N/A	1260	1284	5846	6100	6369	5406

Sources: Mortgage Bankers Association, Fannie Mae, Freddie Mac, National Association of Home Builders and Urban Institute.
Note: Shaded boxes indicate forecasted figures; column labels indicate source of estimate. *NAHB home sales estimate is for single-family structures only, it excludes condos and co-ops. Other figures include all single-family sales.

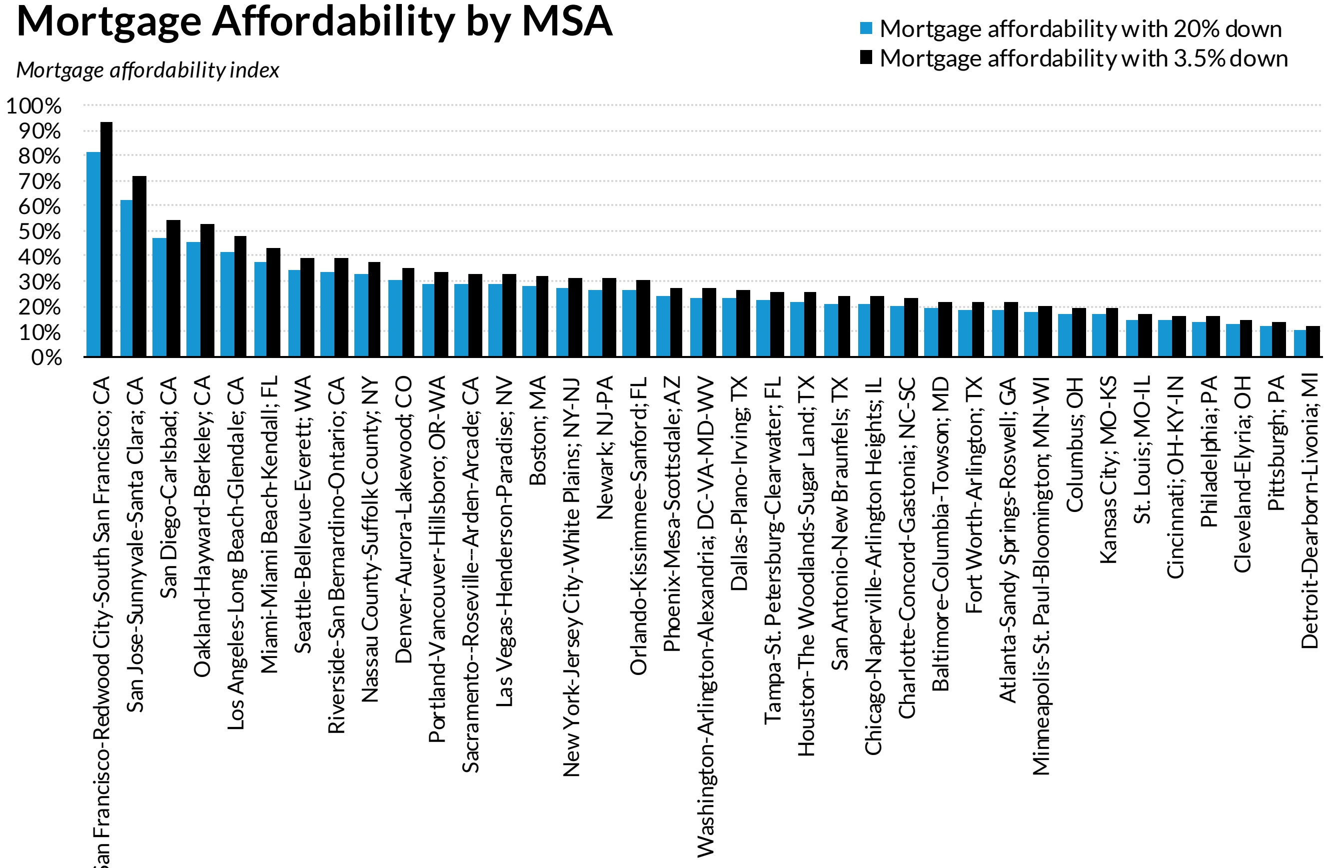
HOUSING AFFORDABILITY

National Mortgage Affordability Over Time

Home prices remain affordable by historic standards, despite price increases over the last 7 years, as interest rates remain relatively low in an historic context. As of March 2020, with a 20 percent down payment, the share of median income needed for the monthly mortgage payment stood at 23.2 percent; with 3.5 down, it is 26.6 percent. Since February 2019, the median housing expenses to income ratio has been slightly lower than the 2001-2003 average. As shown in the bottom picture, mortgage affordability varies widely by MSA.



Mortgage Affordability by MSA

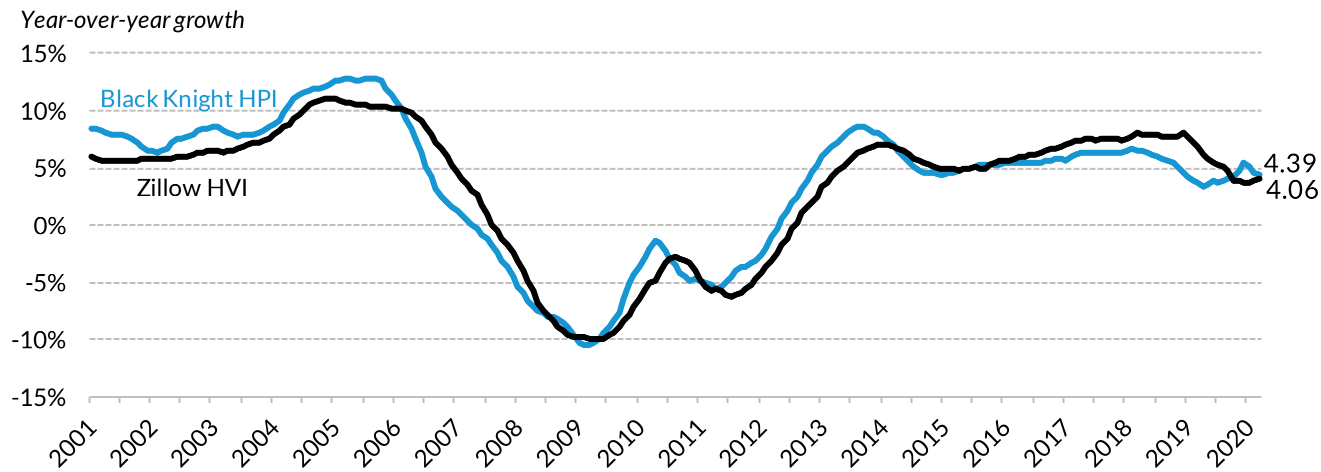


Sources: National Association of Realtors, US Census Bureau, Current Population Survey, American Community Survey, Moody's Analytics, Freddie Mac Primary Mortgage Market Survey, and the Urban Institute.
Note: Mortgage affordability is the share of median family income devoted to the monthly principal, 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 for the bottom chart as of Q2 2019.

HOME PRICE INDICES

National Year-Over-Year HPI Growth

Year-over-year home price appreciation was 4.06 percent in March 2020, up slightly from February, as measured by Zillow's hedonic index. According to Black Knight's repeat sales index, year-over-year home price appreciation declined slightly to 4.39 percent in March 2020. Although housing affordability remains constrained, especially at the lower end of the market, recent declines in rates serve as a partial offset. These numbers do not fully reflect the effect of the pandemic.



Sources: Black Knight, Zillow, and Urban Institute. **Note:** Data as of March 2020.

Changes in Black Knight HPI for Top MSAs

After rising 55.4 percent from the trough, national house prices are now 17.8 percent higher than pre-crisis peak levels. At the MSA level, eleven of the top 15 MSAs have exceeded their pre-crisis peak HPI: New York, NY; Los Angeles, CA; Atlanta, GA; Washington, DC; 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—Chicago, IL and Baltimore, MD—are 9.4 and 6.6 percent, respectively, below peak values. These numbers reflect transactions closed in March 2020 and contracted from earlier in the year; they do not include the effect of the pandemic.

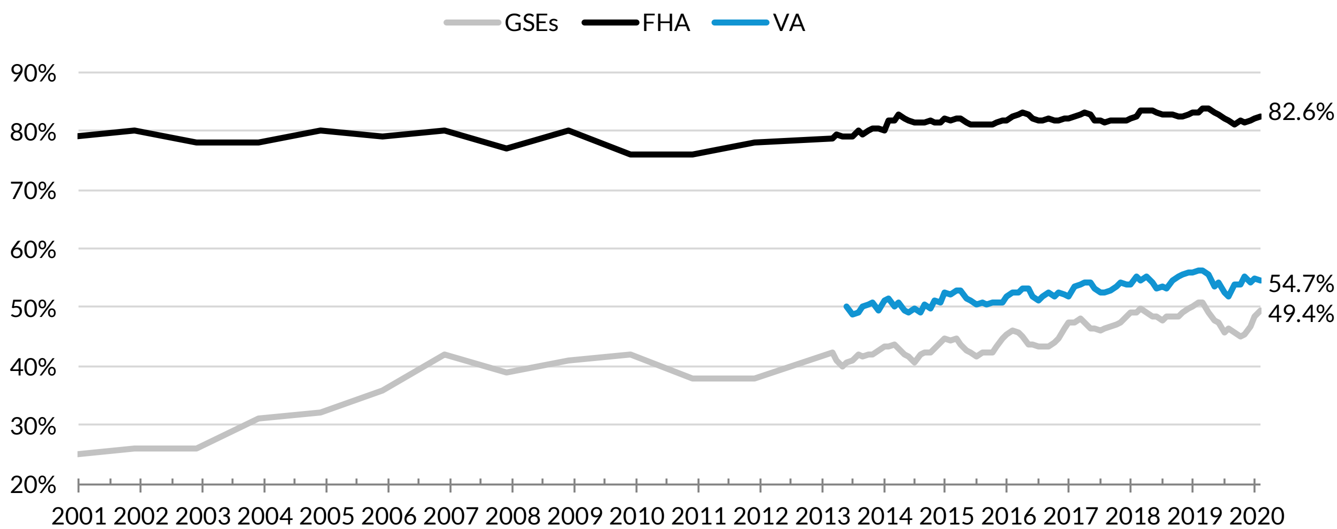
MSA	HPI changes (%)			% above peak
	2000 to peak	Peak to trough	Trough to current	
United States	75.2	-25.4	57.9	17.8
New York-Jersey City-White Plains, NY-NJ	127.9	-22.5	47.1	14.0
Los Angeles-Long Beach-Glendale, CA	179.6	-38.1	92.9	19.3
Chicago-Naperville-Arlington Heights, IL	67.2	-38.4	47.0	-9.4
Atlanta-Sandy Springs-Roswell, GA	32.4	-35.1	84.2	19.5
Washington-Arlington-Alexandria, DC-VA-MD-WV	149.0	-28.3	41.2	1.2
Houston-The Woodlands-Sugar Land, TX	29.3	-6.6	50.0	40.1
Phoenix-Mesa-Scottsdale, AZ	113.0	-51.1	104.4	-0.1
Riverside-San Bernardino-Ontario, CA	175.0	-51.7	94.4	-6.0
Dallas-Plano-Irving, TX	26.3	-7.2	70.5	58.2
Minneapolis-St. Paul-Bloomington, MN-WI	69.2	-30.6	64.3	14.0
Seattle-Bellevue-Everett, WA	90.5	-33.2	114.7	43.5
Denver-Aurora-Lakewood, CO	34.1	-12.2	96.1	72.2
Baltimore-Columbia-Towson, MD	123.3	-24.4	23.6	-6.6
San Diego-Carlsbad, CA	148.3	-37.5	83.8	14.9
Anaheim-Santa Ana-Irvine, CA	163.2	-35.2	69.1	9.5

Sources: Black Knight HPI and Urban Institute. Data as of March 2020.
Note: This table includes the largest 15 Metropolitan areas by mortgage count.

FIRST-TIME HOMEBUYERS

First-Time Homebuyer Share

In March 2020, the FTHB share for FHA, which has always been more focused on first time homebuyers, grew slightly to 82.6 percent. The FTHB share of VA lending decreased slightly in March, to 54.7 percent. The GSE FTHB share in March was up from February to 49.4 percent. The bottom table shows that based on mortgages originated in March 2020, the average FTHB was more likely than an average repeat buyer to take out a smaller loan, have a lower credit score, and higher LTV, thus paying a higher interest rate.



Sources: eMBS, Federal Housing Administration (FHA) and Urban Institute.

March 2020

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

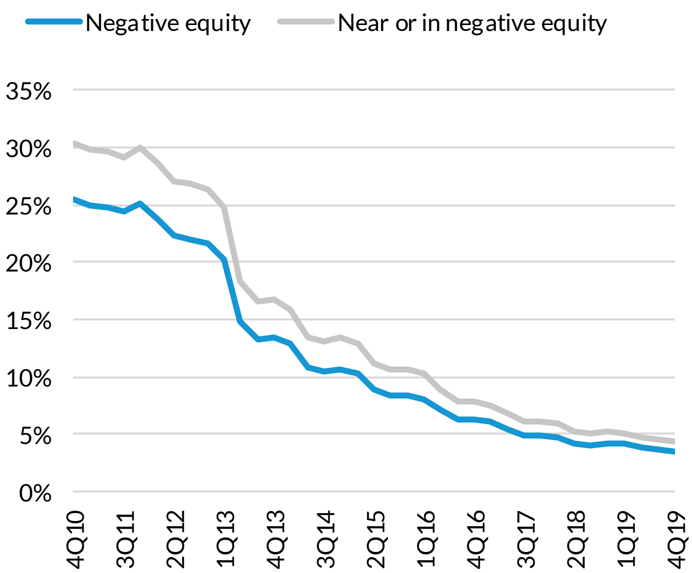
	GSEs		FHA		GSEs and FHA	
Characteristics	First-time	Repeat	First-time	Repeat	First-time	Repeat
Loan Amount ($)	264,459	286,939	225,877	246,151	248,762	280,550
Credit Score	745	757	674	676	716	744
LTV (%)	87	80	96	94	91	82
DTI (%)	35	36	43	45	38	38
Loan Rate (%)	3.80	3.73	3.87	3.77	3.83	3.74

Sources: eMBS and Urban Institute.
Note: Based on owner-occupied purchase mortgages originated in March 2020.

DELINQUENCIES AND LOSS MITIGATION ACTIVITY

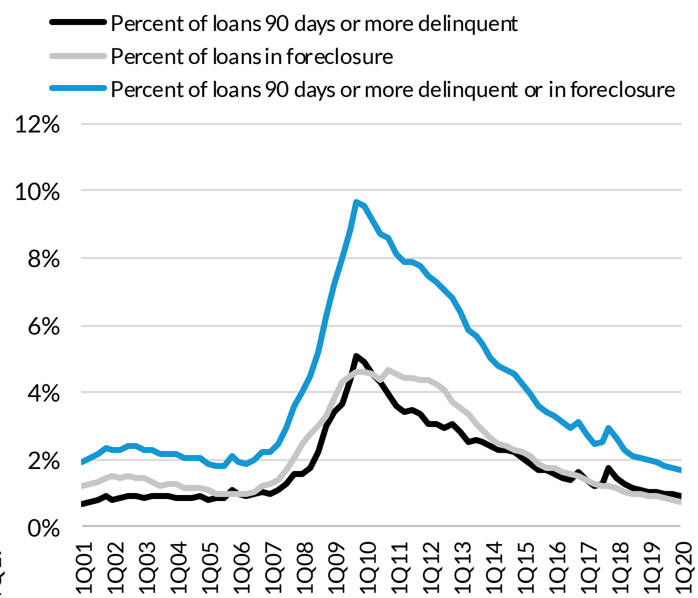
Loans in and near negative equity continued to decline in 4Q 2019; 3.5 percent now have negative equity, an additional 0.8 percent have less then 5 percent equity. Loans that are 90 days delinquent or in foreclosure have also been in a long decline, falling to 1.67 percent in Q1 2020. As the impacts of COVID-19 continue to be felt by homeowners, we anticipate a rise in serious delinquency rates moving forward in 2020. Newloan modifications and liquidations (bottom) have continued to decline. Since Q3, 2007, total loan modifications (HAMP and proprietary) are roughly equal to total liquidations. Hope Now reports show 8,644,182 borrowers received a modification from Q3 2007 to Q3 2019, compared with 8,871,863 liquidations in the same period.

Negative Equity Share



Sources: CoreLogic and Urban Institute.
Note: Loans with negative equity refer to loans above 100 percent LTV. Loans near negative equity refer to loans above 95 percent LTV. *Last updated March 2020.*

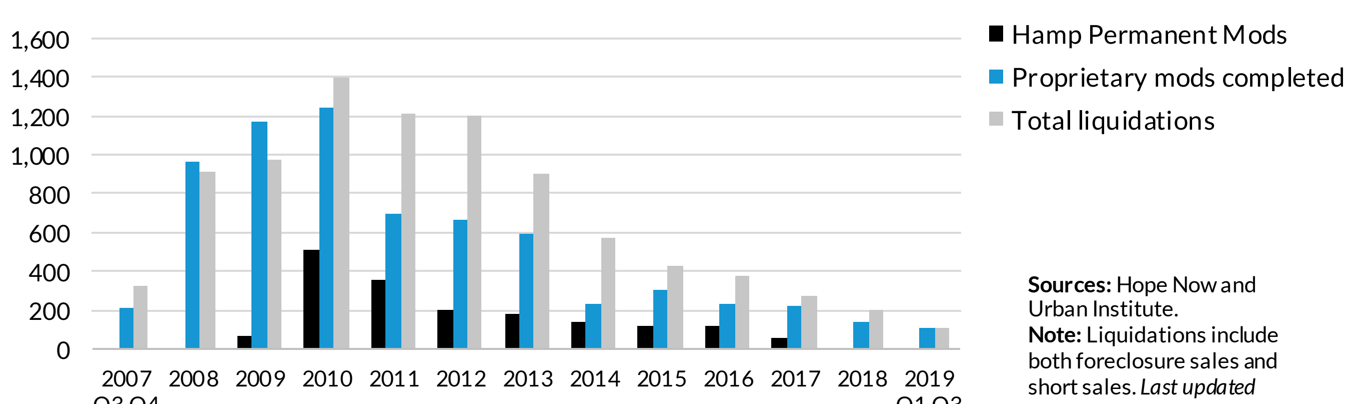
Loans in Serious Delinquency/Foreclosure



Sources: Mortgage Bankers Association and Urban Institute. *Last updated May 2020.*

Loan Modifications and Liquidations

Number of loans (thousands)

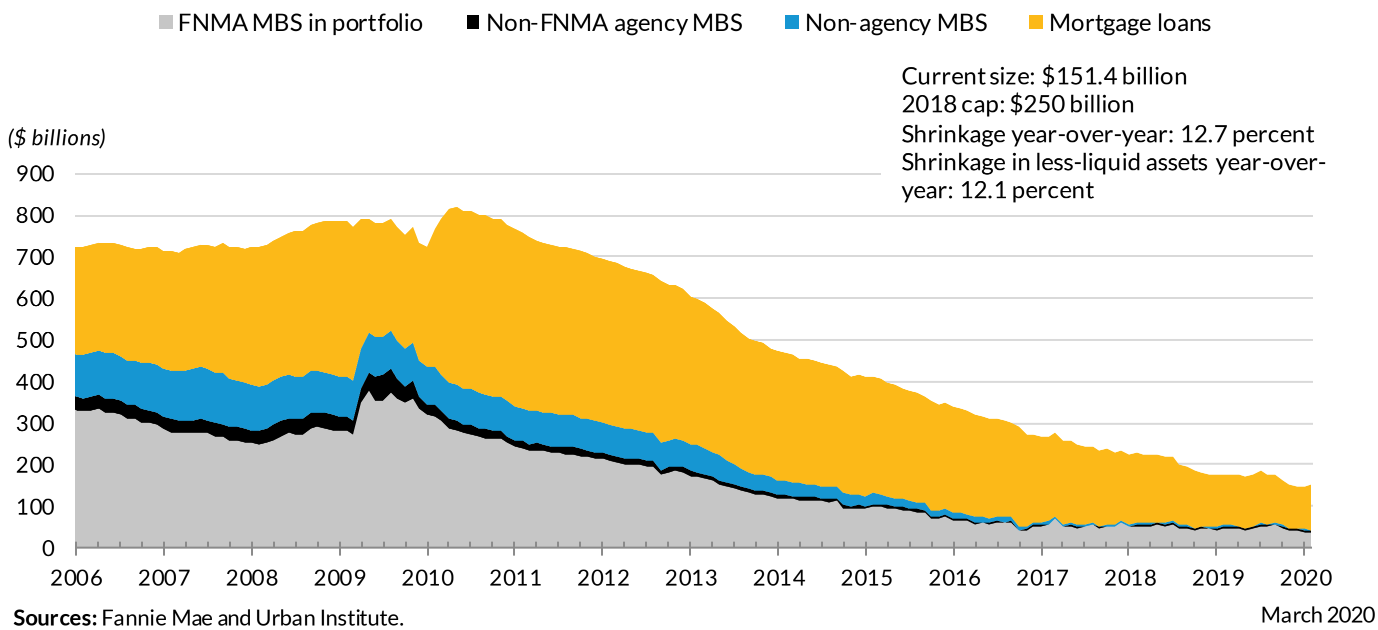


Sources: Hope Now and Urban Institute.
Note: Liquidations include both foreclosure sales and short sales. *Last updated March 2020.*

GSE PORTFOLIO WIND-DOWN

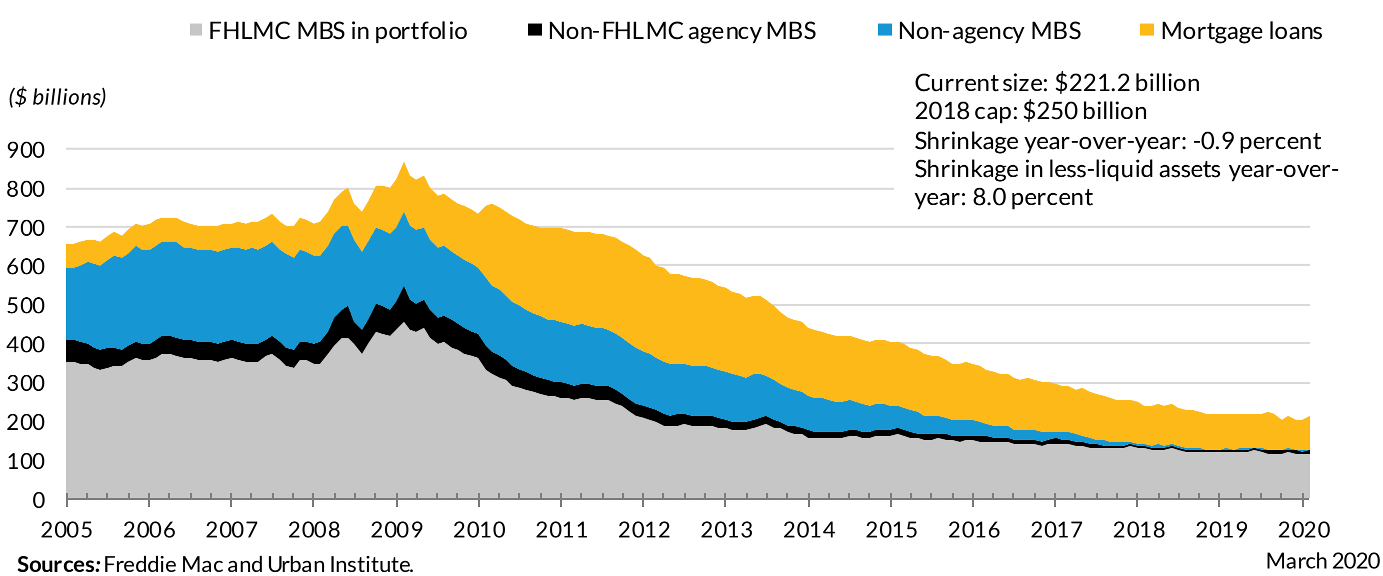
With the Fannie Mae and Freddie Mac portfolios well below the $250 billion size they were required to reach by year end 2018, the strategies of the two GSEs have diverged. Fannie is continuing to shrink its portfolio; it contracted by 12.7 percent between March 2019 and March 2020. By contrast, Freddie has held its portfolio constant; it has actually increased by 0.9 percent over the same period. Both GSEs are continuing to shrink their less liquid assets (mortgage loans, non-agency MBS).

Fannie Mae Mortgage-Related Investment Portfolio Composition



Sources: Fannie Mae and Urban Institute.

Freddie Mac Mortgage-Related Investment Portfolio Composition



Sources: Freddie Mac and Urban Institute.

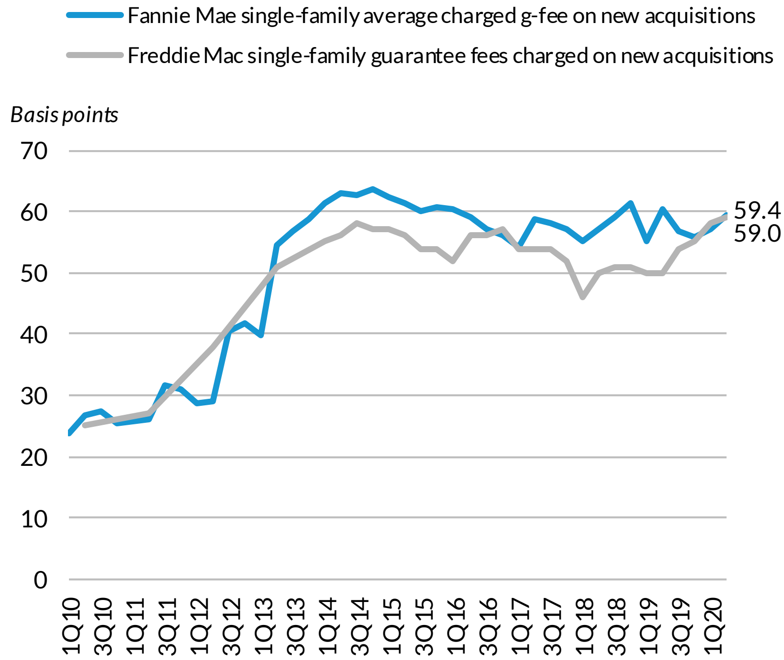
GSES UNDER CONSERVATORSHIP

EFFECTIVE GUARANTEE FEES

Guarantee Fees Charged on New Acquisitions

Fannie Mae's average g-fees charged on new acquisitions rose from 57.0 bps in Q4 2019 to 59.4 bps in Q1 2020. Freddie's rose slightly from 58.0 bps to 59.0 bps. The gap between the two g-fees was only 0.4 bps in Q1 2020, which is the smallest gap since Q4 2016. Today's g-fees are markedly higher than g-fee levels in 2011 and 2012, and have contributed to the GSEs' earnings; the bottom table shows Fannie Mae LLPAs, which are expressed as upfront charges.

Sources: Fannie Mae, Freddie Mae and Urban Institute.
Last updated May 2020.



Fannie Mae Upfront Loan-Level Price Adjustments (LLPAs)

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

Sources: Fannie Mae and Urban Institute.
Last updated March of 2019.

GSE RISK-SHARING TRANSACTIONS

Fannie Mae and Freddie Mac have been laying off back-end credit risk through CAS and STACR deals and 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 2020 scorecard requires the GSEs to transfer a significant amount of credit risk to private markets. This is a departure from the 2019 scorecard, which required risk transfer specifically on 90% of new acquisitions. Fannie Mae's CAS issuances since inception total $1.65 trillion; Freddie's STACR totals $1.47 trillion. Note that there has been no new issuance since the massive spread widening in March 2020.

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	$236,459	$7,392	3.1
2017	CAS 2017 deals	$264,697	$8,707	3.3
2018	CAS 2018 deals	$205,900	$7,314	3.6
January 2019	CAS 2019 - R01	$28,000	$960	3.4
February 2019	CAS 2019 - R02	$27,000	$1,000	3.7
April 2019	CAS 2019 - R03	$21,000	$857	4.1
June 2019	CAS 2019 - R04	$25,000	$1,000	4.0
July 2019	CAS 2019 - R05	$24,000	$993	4.1
October 2019	CAS 2019 - R06	$33,000	$1,300	3.9
October 2019	CAS 2019 - R07	$26,600	$998	3.8
November 2019	CAS 2019 - HRP1	$106,800	$963	0.9
January 2020	CAS 2020 - R01	$29,000	$1,030	3.6
February 2020	CAS 2020 - R02	$29,000	$1,134	3.9
March 2020	CAS 2020 - SBT1	$152,000	$966	0.6
Total		**$1,649,572**	**$46,601**	**2.8**

Freddie Mac – Structured Agency Credit Risk (STACR)

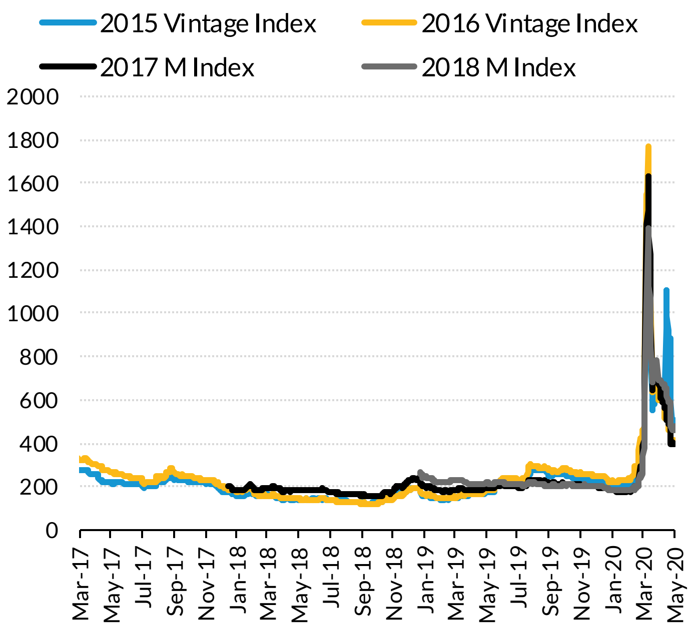
Date	Transaction	Reference Pool Size ($ m)	Amount Issued ($m)	% of Reference Pool Covered
2013	STACR 2013 deals	$57,912	$1,130	2.0
2014	STACR 2014 deals	$147,120	$4,916	3.3
2015	STACR 2015 deals	$209,521	$6,658	3.2
2016	STACR 2016 deals	$183,421	$5,541	2.8
2017	STACR 2017 deals	$248, 821	$5,663	2.3
2018	STACR 2018 deals	$216,581	$6,055	2.8
January 2019	STACR Series 2019 – DNA1	$24,600	$714	2.9
February 2019	STACR Series 2019 – HQA1	$20,760	$640	3.1
March 2019	STACR Series 2019 – DNA2	$20,500	$608	3.0
May 2019	STACR Series 2019 – HQA2	$19,500	$615	3.2
May 2019	STACR Series 2019 – FTR1	$44,590	$140	0.3
June 2019	STACR Series 2019 – HRP1	$5,782	$281	4.9
July 2019	STACR Series 2019 – DNA3	$25,533	$756	3.0
August 2019	STACR Series 2019 – FTR2	$11,511	$284	2.5
September 2019	STACR Series 2019 – HQA3	$19,609	$626	3.2
October 2019	STACR Series 2019 – DNA4	$20,550	$589	2.9
November 2019	STACR Series 2019 – HQA4	$13,399	$432	3.2
December 2019	STACR Series 2019 – FTR3	$22,508	$151	0.7
December 2019	STACR Series 2019 – FTR4	$22,263	$111	0.5
January 2020	STACR Series 2020 – DNA1	$29,641	$794	2.7
February 2020	STACR Series 2020 – HQA1	$24,268	$738	3.0
February 2020	STACR Series 2020 – DNA2	$43,596	$1,169	2.7
March 2020	STACR Series 2020 – HQA2	$35,066	$1,006	2.9
Total		**$1,467,052**	**$39,617**	**2.2**

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

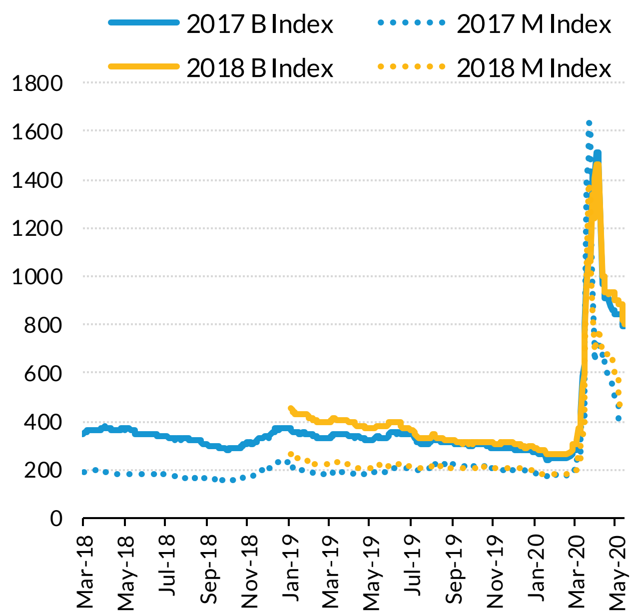
GSE RISK-SHARING INDICES

The figures below show the spreads on the 2015, 2016, 2017 and 2018 indices, as priced by dealers. Note the substantial spread widening in March 2020. This reflected investor expectations of higher defaults and potential credit losses owing to COVID-19, as well as some forced selling. Spreads have tightened quite a bit since then, but remain wide by historical standards. 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 and 2018 indices contain both the bottom mezzanine tranche as well as the equity tranche (the B tranche), in all deals when the latter was sold.

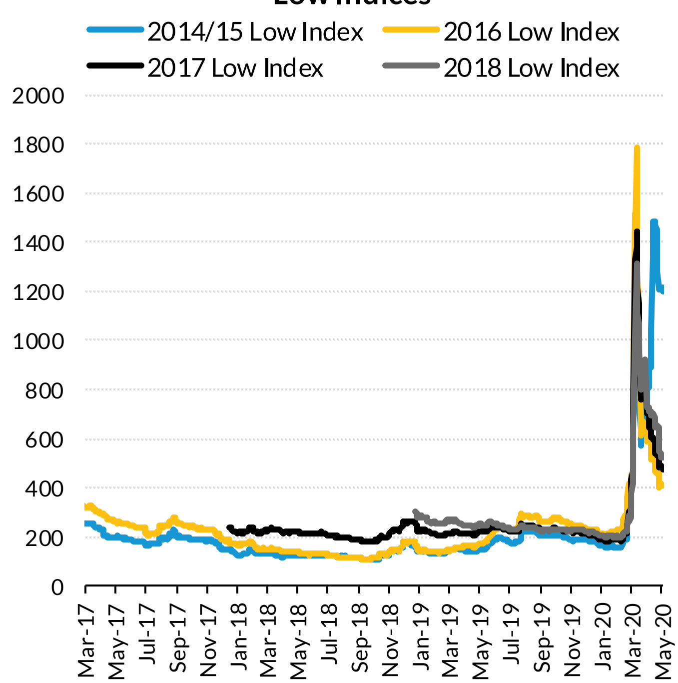
By Vintage



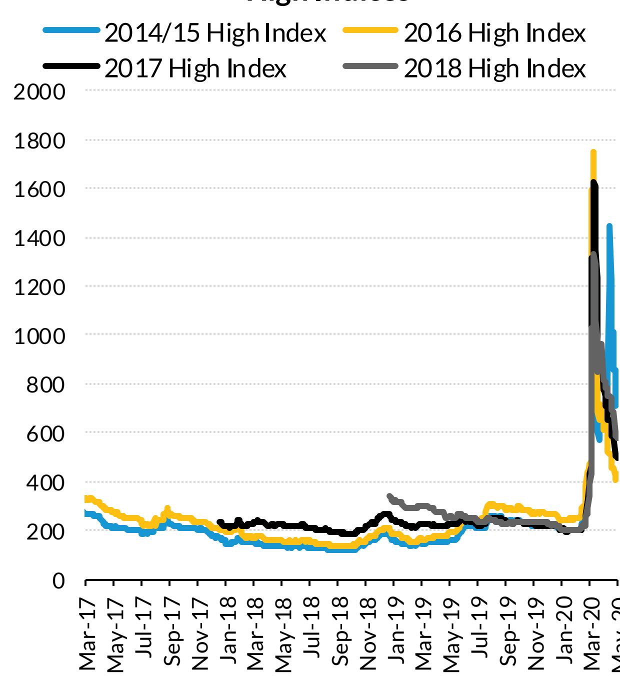
2017 and 2018 Indices



Low Indices



High Indices

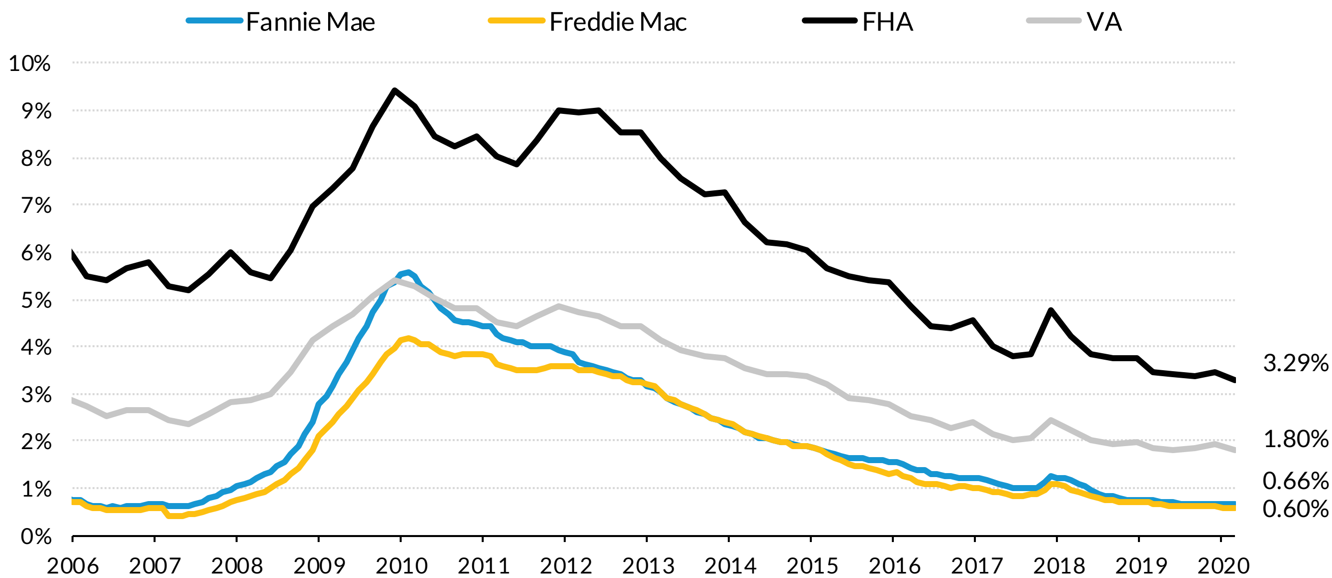


Sources: Vista Data Services and Urban Institute.
Note: Data as of May 15, 2020.

GSES UNDER CONSERVATORSHIP
SERIOUS DELINQUENCY RATES

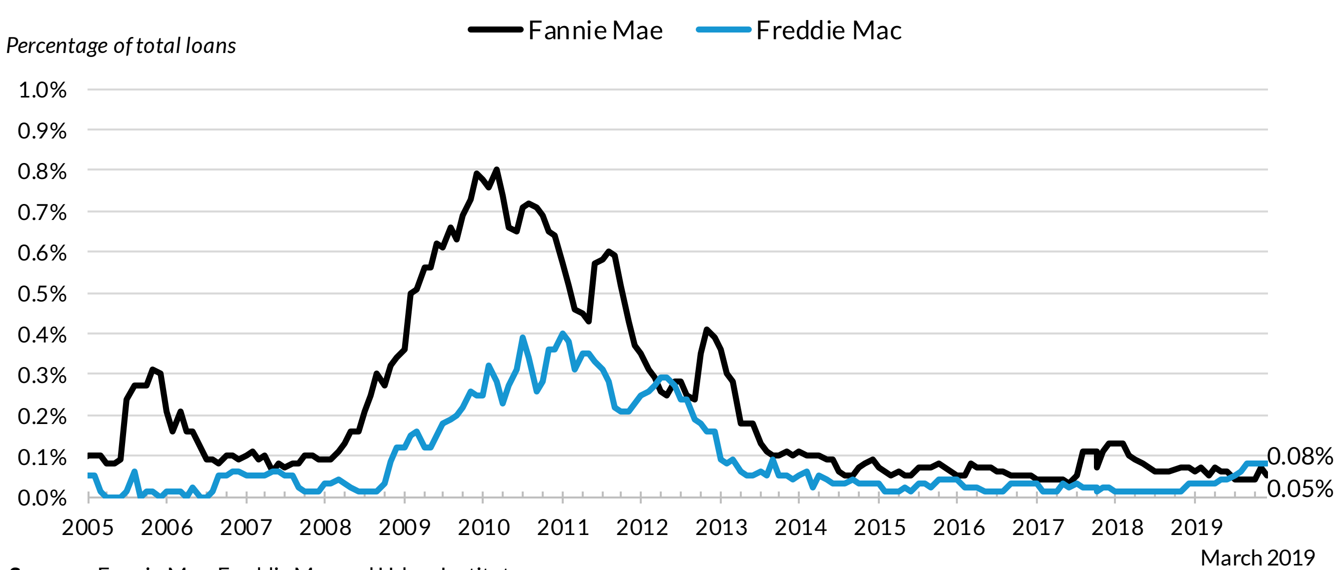
Serious delinquency rates for single-family GSE loans were constant through Q1 2020, while for FHA loans and VA loans they fell slightly. GSE delinquencies remain just above their 2006-2007 level, while FHA and VA delinquencies (which are higher than their GSE counterparts) are well below 2006-2007 levels. GSE multifamily delinquencies have declined post-crisis and remain very low.

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. FHA and VA delinquencies are reported on a quarterly basis, last updated May 2020. GSE delinquencies are reported monthly, last updated May 2020.

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 GROSS AND NET ISSUANCE

Agency gross issuance was $719.4 billion through the first four months of 2020, more than double the volume through April 2019. The sharp increase is due to the refinance wave, which did not begin in earnest until Q2 2019, and accelerated significantly in 2020. Net issuance (which excludes repayments, prepayments, and refinances on outstanding mortgages) totaled $159.8 billion in the first four months of 2020, up 146.3 percent from the same period in 2019.

Agency Gross Issuance

Issuance Year	GSEs	Ginnie Mae	Total
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	$795.0	$400.6	$1,195.3
2019	$1,042.6	$508.6	$1,551.2
2020 YTD	$497.8	$221.6	$719.4
2020 YTD % Change YOY	125.7%	98.0%	116.4%
2020 Ann.	$1,493.5	$664.9	$2,158.3

Agency Net Issuance

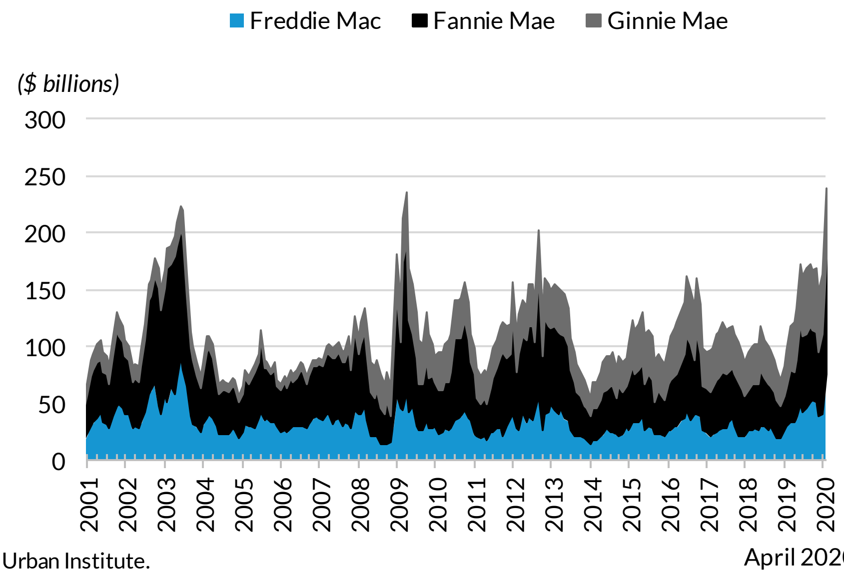
Issuance Year	GSEs	Ginnie Mae	Total
2001	$368.40	-$9.90	$358.50
2002	$357.20	-$51.20	$306.10
2003	$334.90	-$77.60	$257.30
2004	$82.50	-$40.10	$42.40
2005	$174.20	-$42.20	$132.00
2006	$313.60	$0.20	$313.80
2007	$514.90	$30.90	$545.70
2008	$314.80	$196.40	$511.30
2009	$250.60	$257.40	$508.00
2010	-$303.20	$198.30	-$105.00
2011	-$128.40	$149.60	$21.20
2012	-$42.40	$119.10	$76.80
2013	$69.10	$87.90	$157.00
2014	$30.5	$61.6	$92.1
2015	$75.1	$97.3	$172.5
2016	$127.4	$125.8	$253.1
2017	$168.5	$131.3	$299.7
2018	$149.4	$112.0	$261.5
2019	$197.8	$95.7	$293.5
2020 YTD	$125.1	$34.7	$159.8
2020 YTD % Change YOY	236.8%	25.1%	146.3%
2020 Ann.	$375.4	$104.0	$479.4

Sources: eMBS and Urban Institute.
Note: Dollar amounts are in billions. Data as of April 2020.

AGENCY GROSS ISSUANCE & FED PURCHASES

Monthly Gross Issuance

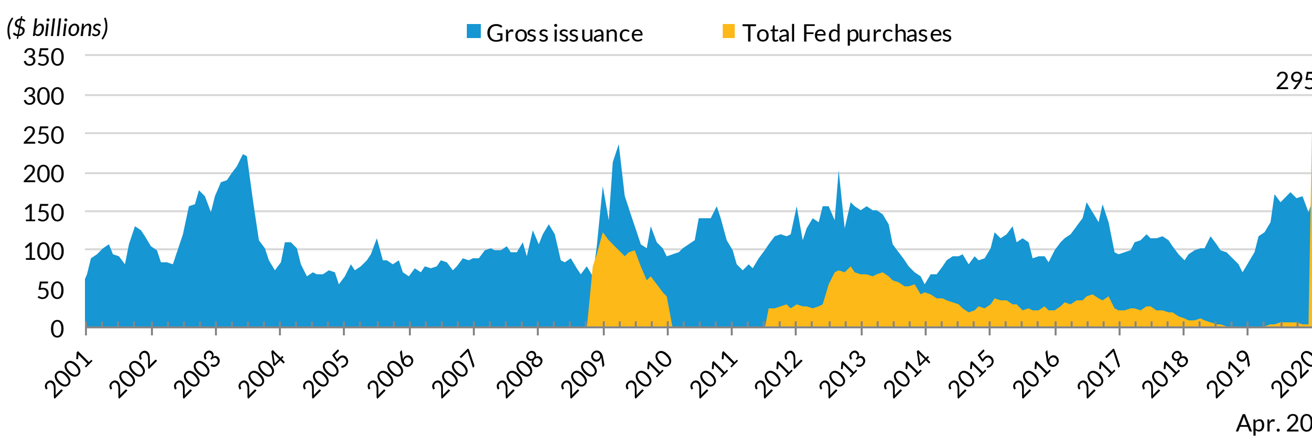
While FHA, VA and GSE lending have dominated the mortgage market since the 2008 housing crisis, there has been a change in the mix. The Ginnie Mae share of new issuances has risen from a precrisis level of 10-12 percent to 25.7 percent in April 2020. This reflects gains in both purchase and refinance share.



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

Fed Absorption of Agency Gross Issuance

On March 23, 2020, in response to the market dislocations caused by the coronavirus pandemic, the Fed announced they would purchase Treasuries and agency MBS in an amount necessary to support smooth functioning markets. In March, the Fed bought $292.2 in agency MBS, and April clocked in at $295.1 billion, the largest single month of purchases ever, constituting 123.2 percent of gross issuance. Prior to this, the Fed was winding down its MBS portfolio. From Oct 2014 to Sep 2017, the Fed ended its Great Recession era MBS purchase program, but was reinvesting funds from mortgages and agency debt into the mortgage market, absorbing 20-30 percent of agency gross issuance. The portfolio wind down started in October 2017, with the Fed allowing a pre-established amount of MBS to run off each month. From Oct 2017 to Sep 2018, the Fed was still reinvesting, but by less than the prepayments and repayments. In Oct 2018, the amount of MBS permitted to run off each month hit the $20 billion cap, leading to very small purchase volume between Q4 2018 and February 2020.

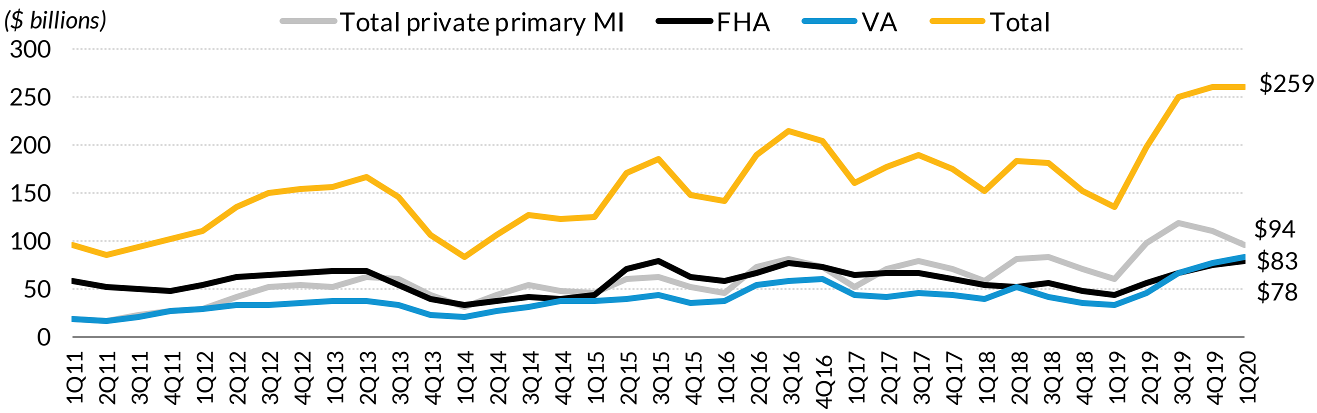


Sources: eMBS, Federal Reserve Bank of New York and Urban Institute.

MORTGAGE INSURANCE ACTIVITY

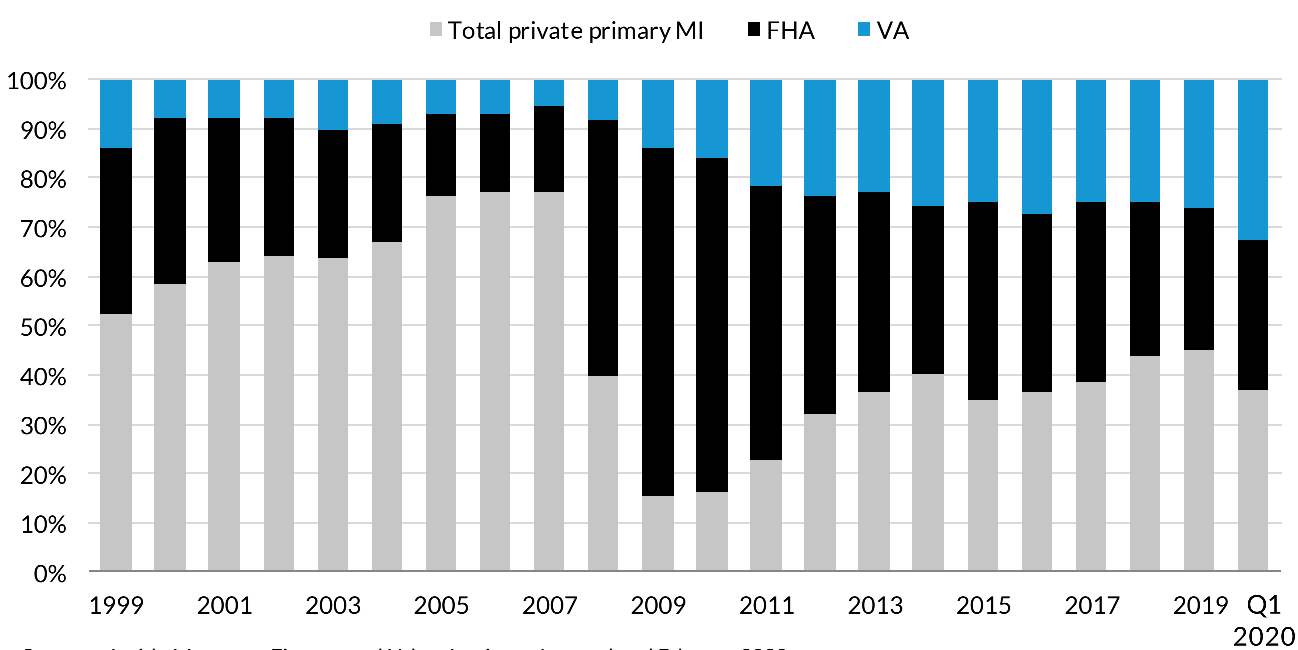
MI Activity

Mortgage insurance activity via the FHA, VA and private insurers increased from $134 billion in Q1 2019 to $259 billion in Q1 2020, a 93.1 percent increase. In the first quarter of 2020, private mortgage insurance written decreased by $15.88 billion, FHA increased by $3.32 billion and VA increased by $6.89 billion from the previous quarter. During this period, the VA share grew from 29.1 to 31.9 percent and the FHA share also grew, from 28.6 to 30.0 percent. The private mortgage insurers share fell significantly, from 42.3 to 36.3 percent compared to the previous quarter.



Sources: Inside Mortgage Finance and Urban Institute. *Last updated May 2020.*

MI Market Share



Sources: Inside Mortgage Finance and Urban Institute. *Last updated February 2020.*

MORTGAGE INSURANCE ACTIVITY

FHA premiums rose significantly in the years following the housing crash, with annual premiums rising from 50 to 135 basis points between 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 borrowers putting down less than 5%. 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 with a FICO of less than 720 will find FHA financing to be more financially attractive, borrowers with FICOs of 720 and above will find GSE execution with PMI to be more attractive.

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	3.31
FHA	3.43

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	1.86	1.65	1.54	1.21	0.99	0.87	0.70	0.58
Monthly Payment								
FHA	$1,264	$1,264	$1,264	$1,264	$1,264	$1,264	$1,264	$1,264
PMI	$1,527	$1,464	$1,428	$1,341	$1,297	$1,260	$1,219	$1,195
PMI Advantage	-$263	-$201	-$165	-$78	-$34	$4	$45	$69

Sources: Genworth Mortgage Insurance, Ginnie Mae, and Urban Institute. FHA rate from MBA Weekly Applications Survey. Conforming rate from Freddie Mac Primary Mortgage Market Survey.
Note: Rates as of April 2020.
Mortgage insurance premiums listed in percentage points. Grey shade indicates FHA monthly payment is more favorable, while 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, 63.1 percent of loans originated from 2011 to Q1 2019 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-Q119	≤700	3.7%	5.2%	1.4%	2.4%	12.6%
	700 to 750	5.7%	10.0%	3.2%	5.4%	24.3%
	>750	19.4%	27.3%	7.3%	9.0%	63.1%
	Total	28.9%	42.4%	12.0%	16.7%	100.0%
Total		33.2%	44.5%	10.6%	11.7%	100.0%

Sources: Fannie Mae and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q1 2019. 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 Great Recession. Post-2009 originations 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%	4.7%	6.1%	7.1%	4.9%
	700 to 750	1.2%	1.9%	2.9%	3.0%	2.0%
	>750	0.4%	0.8%	1.5%	1.7%	0.8%
	Total	1.6%	2.5%	3.9%	4.6%	2.5%
2005	≤700	14.0%	17.6%	20.2%	21.9%	16.8%
	700 to 750	6.4%	9.8%	12.8%	13.3%	9.0%
	>750	2.3%	4.5%	7.2%	8.3%	3.8%
	Total	7.0%	10.3%	14.6%	15.7%	9.6%
2006	≤700	18.4%	22.6%	26.0%	27.5%	21.7%
	700 to 750	8.7%	13.3%	16.1%	16.9%	12.1%
	>750	3.0%	5.9%	9.2%	9.6%	5.0%
	Total	9.6%	13.3%	18.4%	19.5%	12.6%
2007	≤700	19.8%	23.7%	31.1%	31.4%	24.3%
	700 to 750	8.5%	13.5%	19.3%	18.7%	13.0%
	>750	2.8%	5.8%	11.0%	10.9%	5.3%
	Total	9.5%	13.5%	22.3%	22.1%	13.8%
2008	≤700	14.7%	17.3%	23.4%	23.5%	17.8%
	700 to 750	5.1%	8.1%	12.9%	12.7%	8.4%
	>750	1.3%	2.8%	6.3%	6.9%	2.9%
	Total	5.1%	6.5%	12.3%	13.0%	7.3%
2009-2010	≤700	4.1%	5.4%	5.1%	6.6%	4.8%
	700 to 750	1.1%	2.1%	2.6%	3.1%	1.8%
	>750	0.2%	0.6%	1.1%	1.5%	0.5%
	Total	0.7%	1.2%	1.7%	2.4%	1.1%
2011-Q119	≤700	1.3%	1.7%	2.0%	2.5%	1.8%
	700 to 750	0.3%	0.5%	0.7%	0.9%	0.6%
	>750	0.1%	0.1%	0.2%	0.3%	0.2%
	Total	0.3%	0.4%	0.5%	0.8%	0.5%
Total		1.9%	2.7%	3.8%	3.0%	2.5%

Sources: Fannie Mae and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 toQ1 2019, with performance information on these loans through Q4 2019. 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, 59.2 percent of loans originated from 2011 to Q4 2018 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%
2011-4Q18	≤700	4.1%	5.1%	1.5%	1.9%	12.7%
	700 to 750	7.0%	12.4%	3.7%	5.1%	28.2%
	>750	18.0%	26.7%	6.7%	7.7%	59.2%
	Total	29.1%	44.2%	11.9%	14.7%	100.0%
Total		32.5%	46.6%	10.3%	10.6%	100.0%

Sources: Freddie Mac and Urban Institute.
Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q4 2018. The percentages are weighted by origination balance. The analysis included only mortgages with original terms of 241-420 months.

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. 2009 and later originations 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

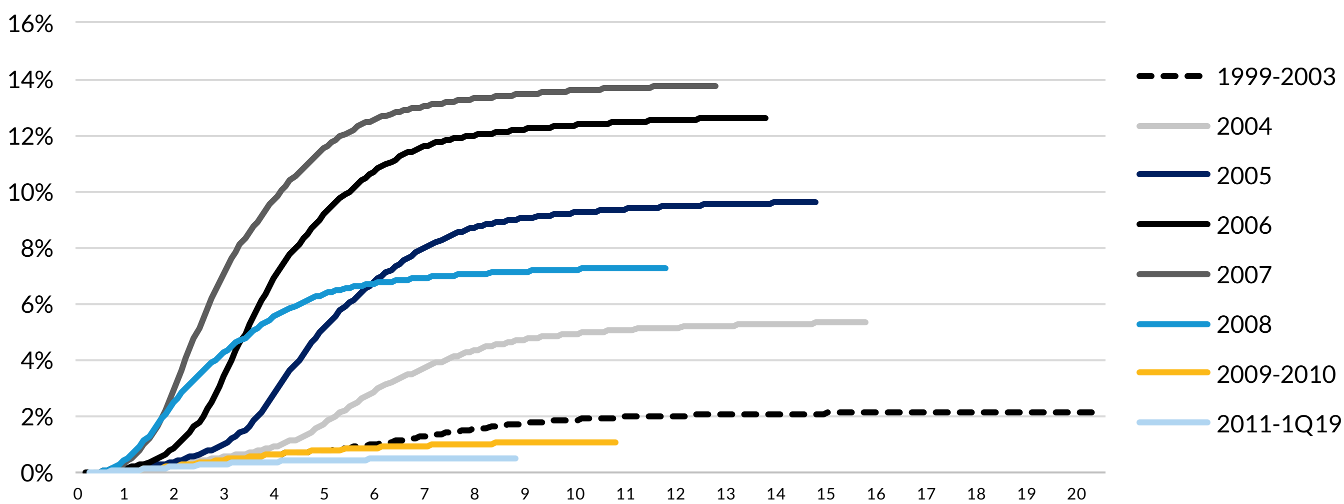
Origination Year	Origination FICO	LTV				Total
		≤70	70 to 80	80 to 90	>90	
1999-2004	≤700	3.2%	4.4%	6.7%	7.2%	5.0%
	700 to 750	1.1%	1.8%	2.8%	3.0%	1.8%
	>750	0.4%	0.9%	1.5%	1.9%	0.8%
	Total	1.3%	2.4%	4.5%	5.1%	2.6%
2005	≤700	12.6%	17.1%	20.2%	21.7%	16.4%
	700 to 750	6.0%	9.7%	13.1%	13.3%	9.0%
	>750	2.1%	4.7%	7.4%	8.6%	3.9%
	Total	6.3%	10.3%	15.1%	16.4%	9.5%
2006	≤700	16.5%	21.7%	25.3%	27.7%	21.1%
	700 to 750	8.2%	13.0%	15.9%	16.1%	12.0%
	>750	2.8%	6.1%	9.1%	10.0%	5.1%
	Total	8.4%	13.2%	18.8%	20.9%	12.5%
2007	≤700	17.9%	23.4%	29.6%	32.1%	24.0%
	700 to 750	8.2%	13.9%	18.7%	19.0%	13.3%
	>750	2.8%	6.5%	10.6%	11.7%	5.7%
	Total	8.5%	14.0%	21.7%	23.5%	14.0%
2008	≤700	13.9%	17.9%	24.4%	23.5%	18.0%
	700 to 750	5.0%	8.8%	13.6%	12.2%	8.5%
	>750	1.5%	3.5%	7.0%	6.7%	3.1%
	Total	4.7%	8.0%	13.8%	13.6%	7.8%
2009-2010	≤700	3.7%	5.3%	5.4%	5.6%	4.5%
	700 to 750	1.0%	2.1%	2.3%	2.9%	1.7%
	>750	0.3%	0.7%	1.1%	1.3%	0.5%
	Total	0.7%	1.4%	1.7%	2.3%	1.1%
2011-4Q18	≤700	0.9%	1.0%	1.3%	1.7%	1.1%
	700 to 750	0.3%	0.4%	0.5%	0.6%	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		2.0%	3.3%	4.5%	4.4%	3.1%

Sources: Freddie Mae and Urban Institute.
Note: Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q4 2018, with performance information on these loans through Q2 2019. 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.

DEFAULT RATE BY VINTAGE

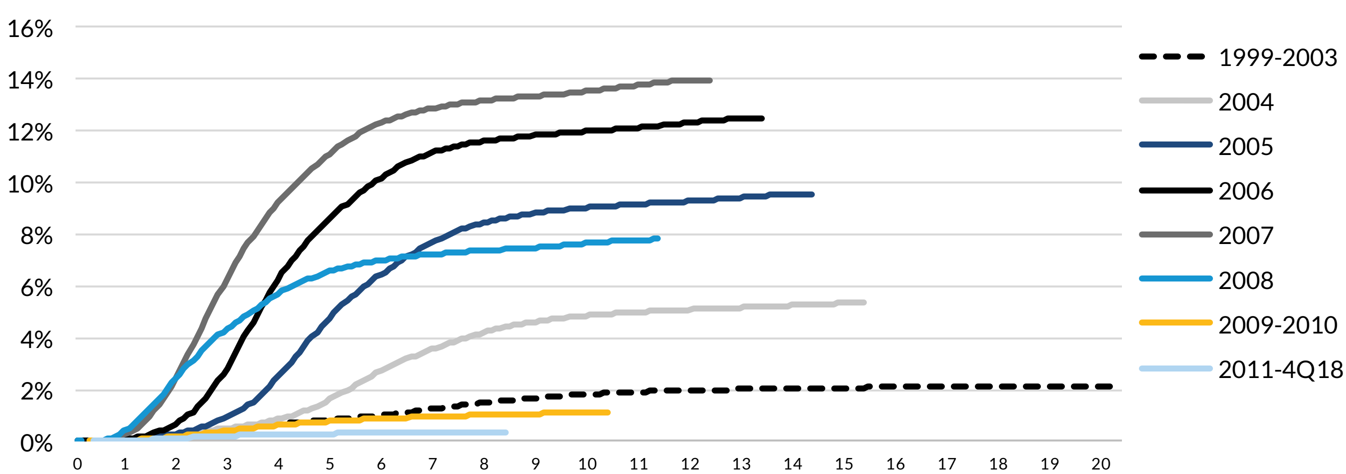
With pristine books of business and a strong housing market, default rates for the GSEs are much lower than they were historically. For Fannie Mae and Freddie Mac's 1999-2003 vintages, cumulative defaults total around 2.1 percent, while cumulative defaults for the 2007 vintage are around 14 percent. For both Fannie Mae and Freddie Mac, cumulative defaults for post-2009 vintages are on pace to fall below pre-2003 levels. For Fannie loans 100 months after origination, the cumulative default rate from 2009-10 and 2011- Q1 2019 are about 1.01 and 0.47 percent, respectively, compared to the cumulative default rate from 1999-2003 of 1.59 percent. For Freddie loans 100 months after origination, the cumulative default rates total 1.03 percent from 2009-10 and 0.33 percent from 2011-Q4 2018, compared to the rate from 1999-2003 of 1.60 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

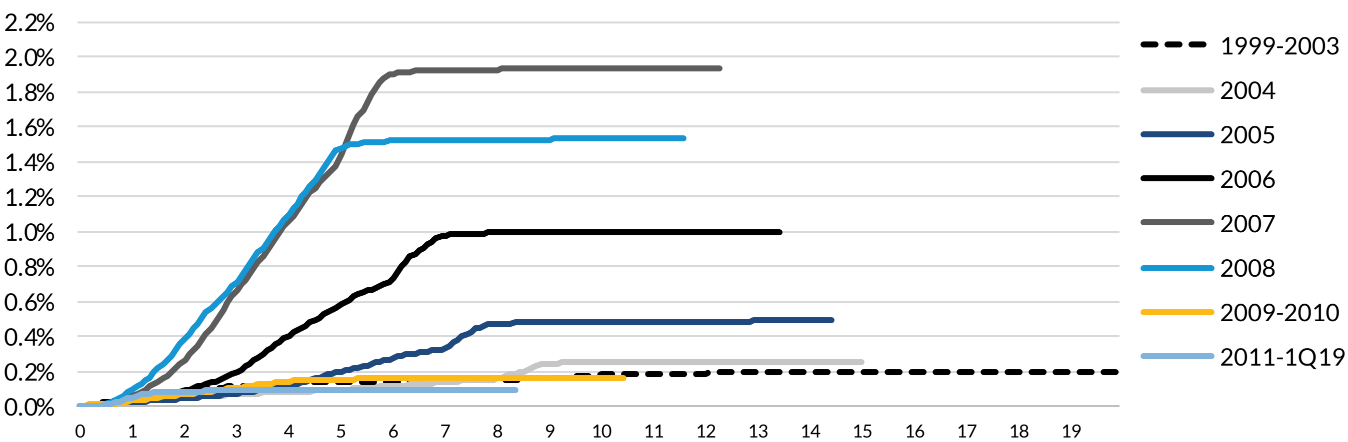


Sources: Freddie Mac and Urban Institute.
Note: The analysis included only mortgages with original terms of 241-420 months. A default is defined as a delinquency of 180 days or more, a deed-in-lieu, short sale, foreclosure sale or REO sale.

REPURCHASE RATE BY VINTAGE

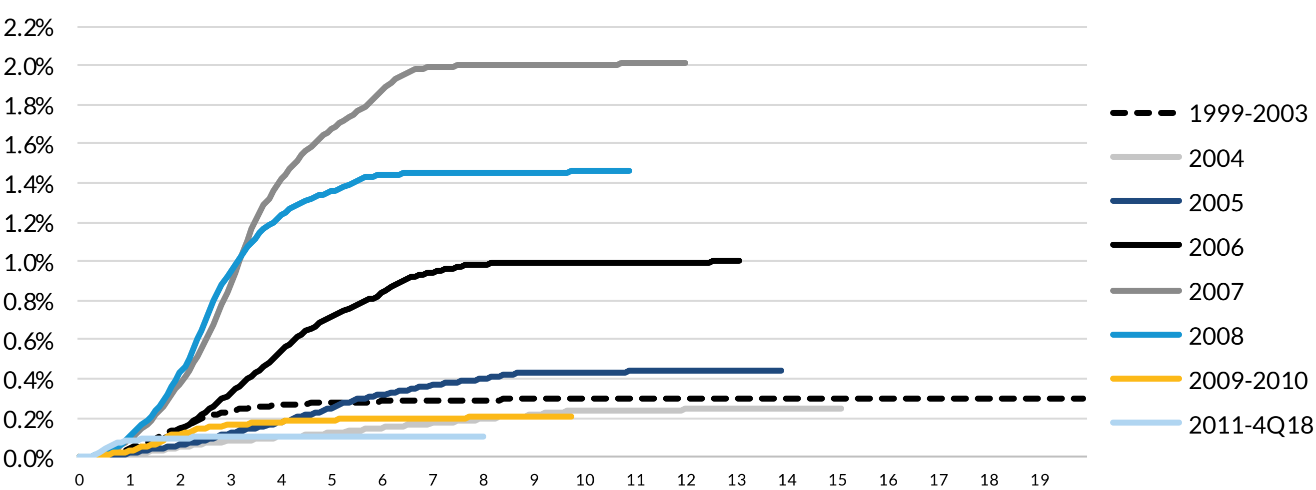
These figures show the cumulative percentage of fixed-rate, full documentation, amortizing 30-year loans of a given vintage that Fannie and Freddie have put back to lenders due to reps and warrants violations. Bubble era vintages were significantly more likely to be put back than either pre- or post-bubble vintages. Note that 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.

LOSS SEVERITY

Both Fannie Mae and Freddie Mac's credit data include the status of loans after they experience 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 loan that has experienced a credit event and categorize it based on present status – for Fannie Mae loans (top table) 12.5 percent are current, 19.1 percent are prepaid, 7.7 percent are still in the pipeline (not current, not prepaid, not liquidated) and 60.7 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 41-43 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	10.44%	24.28%	5.14%	60.13%	24.7%	39.7%	24.5%	32.8%
2005	11.38%	15.01%	5.18%	68.42%	33.6%	48.4%	35.5%	44.5%
2006	11.31%	13.13%	4.93%	70.63%	42.2%	54.3%	38.3%	50.0%
2007	12.28%	14.33%	5.40%	67.99%	41.2%	53.6%	36.2%	47.2%
2008	13.46%	17.79%	6.00%	62.75%	35.1%	48.9%	28.6%	39.9%
2009-2010	15.61%	22.92%	10.73%	50.74%	23.4%	35.1%	17.6%	30.5%
2011-1Q19	23.89%	19.07%	34.47%	22.57%	12.4%	21.9%	5.9%	13.0%
Total	12.50%	19.07%	7.69%	60.74%	34.3%	47.5%	29.4%	40.8%

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	8.18%	21.74%	5.31%	64.77%	25.2%	38.6%	27.9%	33.3%
2005	8.98%	12.42%	5.03%	73.57%	30.9%	44.8%	35.1%	41.8%
2006	8.26%	10.16%	4.81%	76.77%	35.7%	49.0%	36.8%	45.5%
2007	8.65%	10.22%	5.36%	75.76%	38.8%	48.6%	35.8%	43.9%
2008	9.91%	13.46%	6.47%	70.17%	33.6%	45.3%	32.0%	39.9%
2009-2010	12.61%	20.96%	12.04%	54.39%	25.5%	36.7%	18.5%	32.5%
2011-1Q19	22.70%	19.67%	36.42%	21.21%	14.3%	24.9%	8.3%	16.4%
Total	9.23%	15.43%	6.62%	68.72%	32.7%	45.1%	32.1%	40.4%

Sources: Fannie Mae, Freddie Mac, and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q1 2019, with performance information on these loans through Q4 2019. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q4 2018, with performance information on these loans through Q2 2019. 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 2011-1Q 2019 originations, Fannie Mae foreclosure alternatives had a mean defaulted UPB of $165,397 and a loss severity of 11.1 percent, versus a mean defaulted UPB of $151,669 and a loss severity of 14.3 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	196,493	147,515	48,978	111,443.2	105,702.8	128,728.1	32.76%	37.36%	21.39%
2005	75,376	49,564	25,812	167,905.0	156,856.1	189,118.0	44.50%	49.00%	37.34%
2006	76,669	50,655	26,014	182,117.1	169,635.4	206,416.2	50.04%	54.83%	42.37%
2007	93,784	61,567	32,217	191,630.0	178,626.7	216,472.3	47.17%	52.11%	39.38%
2008	55,534	36,327	19,207	188,965.1	174,973.6	215,413.3	39.91%	44.99%	32.11%
2009-2010	20,806	12,986	7,820	171,559.4	160,705.1	189,577.8	30.46%	35.54%	23.31%
2011-1Q19	14,707	9,078	5,629	156,925.7	151,669.3	165,397.1	12.99%	14.26%	11.11%
Total	533,369	367,692	165,677	155,356.9	143,541.7	181,570.4	40.85%	45.24%	33.15%

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	179,342	115,910	63,432	112,532.2	105,896.3	124,658.1	33.31%	40.57%	22.04%
2005	98,316	48,723	49,593	170,909.8	155,582.3	185,968.3	41.80%	52.08%	33.35%
2006	104,201	50,917	53,284	184,111.1	165,247.5	202,136.8	45.51%	57.18%	36.40%
2007	111,699	54,706	56,993	186,735.6	167,167.8	205,518.2	43.85%	56.50%	33.98%
2008	56,658	26,343	30,315	196,902.4	177,138.0	214,077.2	39.90%	53.61%	30.04%
2009-2010	17,190	8,108	9,082	177,688.8	166,512.9	187,666.2	32.54%	42.46%	24.68%
2011-4Q18	6,004	2,480	3,524	166,655.1	152,247.8	176,794.2	16.40%	23.01%	12.39%
Total	573,410	307,187	266,223	160,860.2	142,609.8	181,918.7	40.37%	50.37%	31.31%

Sources: Fannie Mae, Freddie Mac and Urban Institute.
Note: Fannie Mae loan level credit data includes loans originated from Q1 1999 to Q1 2019, with performance information on these loans through Q4 2019. Freddie Mac loan level credit data includes loans originated from Q1 1999 to Q4 2018, with performance information on these loans through Q2 2019. The analysis included only mortgages with original terms of 241-420 months.

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