HOUSING FINANCE AT A GLANCE

A MONTHLY CHARTBOOK

January 2022
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

What do Rising Mortgage Rates Mean for the Housing Market?

In recent weeks mortgage rates have turned upward as inflationary pressures persist, economic growth continues, and expectations of policy tightening by the Federal Reserve’s Federal Open Markets Committee (FOMC) rise. Higher rates come amid a time of significant house price growth. But while higher rates can stoke affordability concerns which may weigh on house prices, they also reflect stronger economic fundamentals which in turn provides support to the housing market.

Over the past month, the 10-year Treasury rate has been climbing contributing to higher mortgage rates. Between December 23rd and January 20th, average mortgage rates have risen by 51 basis points to 3.56 percent with the 10-Year Treasury rate climbing by 35 basis points to 1.82 percent.

The 10-Year Treasury rate can be decomposed into the yield on 10-Year Treasury Inflation Protected Securities (10-Year TIPS), or the real yield, and the spread between the 10-Year rate and 10-Year TIPS, a market-based measure of inflation expectations. As the chart above illustrates, the higher 10-Year Treasury rate is due to a 42-basis point increase in the rate on 10-Year TIPS. Previous analysis indicates that higher rates on 10-Year TIPS are consistent with stronger underlying economic fundamentals.

Still, rising mortgage rates can raise concerns over the future of the housing market. Hypothetically, rising mortgage rates reduce homebuying affordability which can in turn lowers homebuying demand and ultimately house prices. But on the other hand, rising mortgage rates often reflect an improving economy which corresponds with low unemployment, and in turn boosts housing demand and house prices. In addition, rising interest rates correspond with higher inflation which also boosts asset valuations such as house prices.

The figure above confirms that there is only a minute historical relationship between the pace of mortgage rate changes and rate of house price changes. The scatter plot covers the 1976-2021 period. This evidence illustrates that the change in mortgage rates alone cannot explains the degree of change in house prices over the past 2 years. Closer inspection of Figure 2 above also indicates that higher mortgage rates, which typically occur in a stronger economy, can correspond with rising house prices. Most of the blue circles above the x-axes, months where mortgage rates are rising, are concentrated in the right-hand corner, where house prices are also rising. In other words, while rising mortgage rates may correspond with slower house price appreciation, house prices are unlikely to decline outright.

These results have several implications for homeownership. First, it suggests that homebuying demand may not experience a sustained and significant decline in the face of higher mortgage rates. At the same time, higher mortgage rates should support continued growth in housing equity, which should in turn boost cash-out refinancings, even as rate-term refinancings become less attractive. And as a result, higher mortgage rates, by themselves, should not significantly increase the risk of mortgage delinquency, both because of the likelihood that housing equity remains solid and because higher interest rates mean a stronger economy and low unemployment.

INSIDE THIS ISSUE

- Mortgage origination volume reached another record in 2021, totaling $4.83 trillion, easily surpassing the previous record of $4.10 trillion in 2020. (Page 8).
- Total nonagency securitization volume reached $167.62 billion in 2021, highest since 2008, and far surpassing the $91.09 billion total in 2020 and $111.52 billion total in 2019 (Page 12).
- Months of supply in December 2021 fell to 1.8 months, setting a new record-low from 1.9 month in January 2021 (Page 15).
MARKET SIZE OVERVIEW

The Federal Reserve's Flow of Funds Report has indicated a gradually increasing total value of the housing market, driven primarily by growing home equity since 2012. Mortgage debt outstanding increased slightly from $12.0 trillion in Q2 2021 to $12.3 trillion in Q3 2021, while total household equity increased from $25.1 trillion to $26.9 trillion. The total value of the housing market reached $39.2 trillion in the third quarter of 2021, 59.1 percent higher than the pre-crisis peak in 2006. Agency MBS account for 66.6 percent of the total mortgage debt outstanding, private-label securities make up 3.2 percent, and home equity loans make up 3.3 percent. Unsecuritized first liens comprise the remaining 26.9 percent with banks making up 18.6 percent, credit unions 4.5 percent, and other non-depositories accounting for 3.7 percent of the total.

Value of the US Single Family Housing Market

Composition of the US Single Family Mortgage Market

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.

Notes: Unsecuritized First Liens (Other) includes mortgages not held on bank balance sheets.
As of Q3 2021, unsecuritized first liens held outside banks and credit unions totaled $0.46 trillion. In this space, REITs, insurers and retirement funds have experienced particularly robust percentage increases over the last decade. In December 2021, outstanding securities in the agency market totaled $8.3 trillion, 42.0 percent of which was Fannie Mae, 33.1 percent Freddie Mac, and 24.9 percent Ginnie Mae.

Unsecuritized 1st Liens Held by Non-Depositories


Agency Mortgage-Backed Securities

Sources: eMBS and Urban Institute.
Mortgage origination volume reached another record in 2021, totaling $4.83 trillion, far surpassing the previous record of $4.10 trillion in 2020. The share of portfolio originations was 28.1 percent in 2021, an increase compared to the 22.3 percent share in 2020. The GSE share was lower in 2021 at 54.5 percent, compared to 58.2 percent in 2020. The lower GSE share largely reflects the return of portfolio lending which had pulled back during the pandemic. The FHA/VA share in 2021 stood at 15.2 percent, down from 18.1 percent in 2020. The PLS share was higher in 2021 at 2.2 percent, compared to 1.00 percent in 2020, but remains a fraction of its share pre-2008.

The 30-year fixed-rate mortgage continues to remain the bedrock of the US housing finance system, accounting for 75.3 percent of new originations in November 2021. The share of 15-year fixed-rate mortgages, predominantly a refinance product, was 14.5 percent of new originations in November 2021. The ARM share accounted for 1.5 percent of new originations. From late 2018-though March 2021, while there was some month-to-month variation, the refi share (bottom chart) generally increased for both the GSEs and for Ginnie Mae as interest rates dropped. Since April 2021, in reaction to slightly higher interest rates, the refi share has dropped. In December 2021, the GSE refi shares are in the 59 to 62 percent range; the Ginnie Mae refi share was 33.1 percent.

Sources: Black Knight, eMBS, HMDA, SIFMA and Urban Institute.
Note: Includes purchase and refinance originations.

Sources: eMBS and Urban Institute.
Note: Based on at-issuance balance. Figure based on data from December 2021.
When mortgage rates are low, the share of cash-out refinances tends to be relatively smaller, as rate/term 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 refinances generally declined in 2020, reaching 25 percent in September 2020 due to increased rate refinances amidst historically low rates. As rates have stabilized and the bulk of rate-refinance activity behind us, the cash-out share increased to 58.6 percent in December 2021. Despite the increase in the cash-out share, the absolute volume of cash-out refinances is relatively stable.

**Cash-out Share of Conventional Refinances**

**Sources:** Freddie Mac, eMBS and Urban Institute.

**Note:** The cashout share for conventional market is calculated using Freddie Mac’s quarterly refinance statistics from 1995 to 2013. Post 2013 it is calculated monthly using eMBS.
OVERVIEW

AGENCY NONBANK ORIGINATION SHARE

The nonbank share for agency originations has been rising steadily since 2013, standing at 75.1 percent in December 2021. The Ginnie Mae nonbank share has been consistently higher than the GSEs, increasing from November to December 2021, and now stands at 92.6 percent. Fannie and Freddie had nonbank shares of 70.0 percent and 70.2 percent respectively in December 2021. Ginnie and Freddie had higher nonbank origination shares for refi activity than for purchase activity in November 2021, while Fannie had a slightly higher share for purchase activity.

Nonbank Origination Share: All Loans

Sources: eMBS and Urban Institute.

Nonbank Origination Share: Purchase Loans

Nonbank Origination Share: Refi Loans

Sources: eMBS and Urban Institute.
The non-agency share of mortgage securitizations increased gradually from 1.83 percent in 2012 to 5.0 percent in 2019. In 2020, the non-agency share dropped to 2.44 percent, reflecting increased agency refinances and less non-agency production due to COVID-19 related dislocation. The market recovered in 2021, with full-year non-agency share rising to 4.3 percent, although the share remains lower than 2019. While the share is lower, as agency securitization volume is high due to refi activity, 2021 is the largest year of non-agency securitization since 2008. Securitization volume reached $50.22 billion in Q4 2021, a significant increase relative to the $35.36 billion in Q4 2019 and $19.54 billion in Q4 2020. Annual nonagency securitization volume totaled $167.62 billion in 2021, far surpassing the $91.09 billion total in 2020 and $111.52 billion total in 2019. These number remain small compared to pre-housing market crisis levels.

Sources: Inside Mortgage Finance and Urban Institute.
Note: Based on data from November 2021. Monthly non-agency volume is subject to revision.
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 stood at 5.2 percent in Q2 2021, up from a historic low in Q3 2020 of just below 5.0 percent and slightly above the Q1 2021 level at 5.1 percent. Note that we updated the methodology as of Q2 2020, see new methodology here. The slight credit loosening from Q1 2021 to Q2 2021 was primarily led by increased borrower default risk in the government channel. Credit loosening from Q4 2020 to Q1 2021 was led by increased borrower default risk among government channel originations, as well as a shift in market composition, with the GSE channel making up a smaller portion of total purchase originations. More information about the HCAI is available here.

All Channels

GSE Channel

The trend toward greater credit availability in the GSE channel began in Q2 2011. From Q2 2011 to Q1 2020, the total risk taken by the GSE channel doubled, from 1.4 percent to 2.7 percent. This is still very modest by pre-crisis standards. However, accelerated tightening throughout 2020 induced by market conditions due to COVID-19 drove down credit risk to 2.5 percent in Q4 2020. The increase in Q1 2021, to 2.58 percent, marked the first expansion of credit availability in the GSE channel since Q1 2019. In Q2 2021, credit availability was largely unchanged from Q1 at 2.56 percent.

Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.
Note: Default is defined as 90 days or more delinquent at any point. Last updated October 2021.
Government Channel

The total default risk the government loan channel is willing to take bottomed out at 9.6 percent in Q3 2013. It fluctuated in a narrow range above that number for three years. In the eleven quarters from Q4 2016 to Q1 2019, the risk in the government channel increased significantly from 9.9 to 12.1 percent but has since receded. After declining to 10.4 percent in Q3 2020 due to the pandemic, the government channel has since increased risk to 11.1 percent in Q2 2021; still far below the pre-bubble level of 19 – 23 percent.

Portfolio and Private Label Securities Channels

The portfolio and private-label securities (PP) channel took on more product risk than the FVR and GSE channels during the bubble. After the crisis, the channel’s product and borrower risks dropped sharply. The numbers have stabilized since 2013, with product risk well below 0.5 percent and total risk largely in the range of 2.3-3.0 percent; it was 2.7 percent in Q2 2021. However, the PP market share plummeted during the COVID-19 crisis, as borrowers increasingly used government or GSE channels or could not obtain a mortgage at all. The PP share has since increased from Q4 2020 to Q2 2021 but remains a shadow of what it once was.

Sources: eMBS, CoreLogic, HMDA, IMF, and Urban Institute.
Note: Default is defined as 90 days or more delinquent at any point. Last updated October 2021.
Access to credit remains tight, especially for lower FICO borrowers. The median FICO for current purchase loans is about 22 points higher than the pre-housing crisis level of around 722. The 10th percentile, which represents the lower bound of creditworthiness to qualify for a mortgage, was 653 in November 2021, which is still high compared to low-600s pre-bubble. The median LTV at origination of 90 percent also remains high, reflecting the rise of FHA and VA lending. Origination DTIs trended lower over the course of 2020 and early 2021, reflecting the sharp decline in mortgage rates.
OVERVIEW

RACIAL & ETHNIC COMPOSITION

Across all channels, the share of purchase lending to minorities reached a peak of 37.0% in 2006. Following the Great Recession and amidst a period of very tight credit, the minority share of purchase lending declined to a low of 24.5% in 2013. Since then, it has slowly recovered – it stood at 31.4% in 2020. The share of purchase lending to Black borrowers varied widely by channel in 2020. 16.3 percent of FHA loans were originated to Black borrowers compared with 12.8 percent of VA loans, 4.8 percent for GSEs and 4.0 percent of portfolio loans. Similarly, 26.5 percent of FHA purchase loans were originated to Hispanic borrowers in 2020 compared to 13.3 percent of VA loans, 11.2 percent for GSEs, and 10.1 percent of portfolio loans.

Purchase Loan Shares by Race

Source: 2020 Home Mortgage Disclosure Act (HMDA).
Note: Includes purchase loans only.

2020 Purchase Loan Channel Shares by Race

Source: 2020 Home Mortgage Disclosure Act (HMDA).
Note: Includes purchase loans only.
AGENCY NONBANK CREDIT BOX

In the GSE space, FICO scores for banks and nonbanks dipped in 2021 although they remain elevated. The difference between the two stood at 9 points in December 2021, compared to the 21 point gap between bank and nonbank FICOs in the Ginnie space. FICO scores for banks and nonbanks in both GSE and Ginnie Mae segments increased during the Q1 2019 to Q1 2021 period, due to increased refi activity; with refi activity now waning, originators, particularly nonbank originators, have been aggressively competing for new business, and are now more accommodating to borrowers with lower credit scores. Note that there has been a sharp cut-back in FHA lending by banks post-2008. As pointed out on page 11, banks now comprise only about 7 percent of Ginnie Mae originations.

Agency FICO: Bank vs. Nonbank

Sources: eMBS and Urban Institute.

GSE FICO: Bank vs. Nonbank

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 2020, DTIs fell as borrower payments declined relative to incomes. Over the last nine months, DTIs have increased, reflecting the small rise in rates and steep house price increases, both of which force households to borrow more in relation to income.

GSE LTV: Bank vs. Nonbank

Ginnie Mae LTV: Bank vs. Nonbank

GSE DTI: Bank vs. Nonbank

Ginnie Mae DTI: Bank vs. Nonbank

Sources: eMBS and Urban Institute.
Fannie Mae, Freddie Mac and the MBA estimate 2022 origination volume to be between $2.6 and $3.34 trillion, down from $3.99 to $4.65 trillion in 2021. By most estimates, 2021 was the highest origination year of the 21st century, with volumes surpassing 2020, the year with the previous record. The very robust origination volume in 2020 and 2021 is due to very strong refinance activity. All three groups expect the 2022 refinance share to be 18 to 26 percentage points lower than in 2021.

### Total Originations and Refinance Shares

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**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 2017, 2018, 2019 and 2020 were 4.0, 4.6, 3.9, and 3.0 percent. For 2021, the respective projections for Fannie, Freddie, and MBA are 3.0, 3.0, and 3.1 percent. Freddie Mac forecasts are now released quarterly, last updated January 2022.

### Originator Profitability and Unmeasured Costs

In December 2021, Originator Profitability and Unmeasured Costs (OPUC) stood at $2.52 per $100 loan, a decrease from last month. Increased profitability reflects lender capacity constraints amidst strong refi demand. The continued decline reflects the fact that the backlog of refinance has been processed, and originators are competing more aggressively on price. 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.


**Note:** OPUC is a monthly (4-week moving) average as discussed in Fuster et al. (2013).
STATE OF THE MARKET

HOUSING SUPPLY

Months of supply in December 2021 fell to 1.8, setting a new record low from 1.9 in January 2021. Strong demand for housing in recent years, fueled by low mortgage rates, has kept the months supply limited. Fannie Mae, the MBA, and the NAHB forecast 2022 housing starts to be between 1.63 and 1.71 million units; these 2022 forecasts are above 2021 levels. Fannie Mae, Freddie Mac, the MBA, and the NAHB predict total home sales of 6.32 to 7.33 million units in 2022, above 2021 levels.

**Months of Supply**

*Months of supply*

Housing Starts and Home Sales

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<th>Total, NAHB estimate</th>
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**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. Freddie Mac home sales are now updated quarterly instead of monthly, with the last update in January 2022. *NAHB home sales estimate is for single-family structures only, it excludes condos and co-ops. Other figures include all single-family sales.
Despite historic low interest rates, increases in home prices have pushed affordability to the worst levels since 2008. As of December 2021, with a 20 percent down payment, the share of median income needed for the monthly mortgage payment stood at 28.7 percent; with 3.5 percent down it is 32.8 percent. These numbers are well above the 2001-2003 median, and represent a sharp worsening in affordability over the past year. As shown in the bottom picture, mortgage affordability varies widely by MSA.

**Mortgage Affordability by MSA**

Mortgage affordability index


**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 Q3 2020.
According to Black Knight’s updated repeat sales index, year-over-year home price appreciation increased to 18.42 percent in November 2021, compared to 18.07 percent the previous month. Year-over-year home price appreciation as measured by Zillow’s hedonic index was 19.32 percent in November 2021, up from 19.21 in October. Although housing affordability remains constrained, especially at the lower end of the market, low rates serve as a partial offset.

House prices escalated significantly in the second half of 2020 and into 2021 across all price tiers. Before the pandemic, lower priced homes appreciated much more than higher priced homes. With higher priced homes also experiencing steep appreciation last year, the gap has disappeared.

Sources: Black Knight and Urban Institute. Note: Black Knight modified the methodology behind their HPI in February 2021, resulting in changes to historic price estimates. Data as of November 2021.
First-Time Homebuyer Share

In December 2021, the FTHB share for FHA, which has always been more focused on first time homebuyers, was 84.1 percent. The FTHB share of VA lending in December was 51.2 percent. The GSE FTHB share slightly decreased in December relative to November, to 49.1 percent. The bottom table shows that based on mortgages originated in November 2021, the average FTHB was more likely than an average repeat buyer to take out a smaller loan, have a lower credit score, and have a higher LTV, thus paying a higher interest rate.

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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>GSEs First-time</th>
<th>GSEs Repeat</th>
<th>FHA First-time</th>
<th>FHA Repeat</th>
<th>GSEs and FHA First-time</th>
<th>GSEs and FHA Repeat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan Amount ($)</td>
<td>308,670</td>
<td>325,002</td>
<td>259,974</td>
<td>273,494</td>
<td>295,615</td>
<td>327,628</td>
</tr>
<tr>
<td>Credit Score</td>
<td>744</td>
<td>755</td>
<td>670</td>
<td>669</td>
<td>718</td>
<td>742</td>
</tr>
<tr>
<td>LTV (%)</td>
<td>87</td>
<td>78</td>
<td>95</td>
<td>93</td>
<td>91</td>
<td>83</td>
</tr>
<tr>
<td>DTI (%)</td>
<td>35</td>
<td>36</td>
<td>43</td>
<td>44</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Loan Rate (%)</td>
<td>3.09</td>
<td>3.01</td>
<td>3.17</td>
<td>2.92</td>
<td>3.09</td>
<td>2.99</td>
</tr>
</tbody>
</table>

Sources: eMBS and Urban Institute.
Note: Based on owner-occupied purchase mortgages originated in November 2021.
Loans in and near negative equity continued to decline in Q3 2021; 2.12 percent now have negative equity, an additional 0.35 percent have less than 5 percent equity. Due to the effects of COVID-19, the share of loans that are 90 days or more delinquent or in foreclosure remained high but declined again by 63 basis points, from 4.03 in Q2 2021 to 3.40 percent in Q3 2021. This number includes loans where borrowers have missed their payments, including loans in COVID-19 forbearance. The bottom chart shows the share of loans in forbearance according to the MBA Weekly Forbearance and Call Volume Survey, launched in March 2020. After peaking at 8.55 percent in early June 2020, the total forbearance rate has declined to 2.06 percent as of October 31st, 2021, the final week of the call survey. The MBA has since moved to conducting a monthly survey with the most recent forbearance rate dropping to 1.41% as of December 31st, 2021. GSE loans have consistently had the lowest forbearance rates, standing at 0.68 percent at the end of December. The most recent forbearance rate for Ginnie Mae loans was 1.63 percent; other (e.g., portfolio and PLS) loans had the highest forbearance rate at 3.43 percent.
The Fannie Mae and Freddie Mac portfolios remain well below the $250 billion size they were required to reach by year-end 2018, or the $225 billion cap mandated in January 2021 by the new Preferred Stock Purchase Agreements (PSPAs). From November 2020 to November 2021, the Fannie portfolio contracted year-over-year by 34.4 percent, and the Freddie portfolio contracted by 45.0 percent. Within the portfolio, both Fannie Mae and Freddie Mac contracted their less-liquid assets (mortgage loans, non-agency MBS), by 47.7 percent and 46.4 percent, respectively, over the same 12 month period.

**Fannie Mae Mortgage-Related Investment Portfolio Composition**

Current size: $107.2 billion  
2021 PSPA cap: $225 billion  
Shrinkage year-over-year: 34.4 percent  
Shrinkage in less-liquid assets year-over-year: 47.7 percent

**Freddie Mac Mortgage-Related Investment Portfolio Composition**

Current size: $106.1 billion  
2021 PSPA cap: $225 billion  
Shrinkage year-over-year: 45.0 percent  
Shrinkage in less-liquid assets year-over-year: 46.4 percent

**Note:** Effective March 2021, Freddie Mac doesn’t provide FHLMC/non-FHLMC breakout of agency MBS. The above charts were updated in May 2021 to reflect this.
GSES UNDER CONSERVATORSHIP
EFFECTIVE GUARANTEE FEES

Guarantee Fees Charged on New Acquisitions

Fannie Mae and Freddie Mac’s average g-fees charged have largely converged since the first quarter of 2020. Fannie Mae’s average g-fees charged on new acquisitions decreased from 57.9 bps in Q2 2021 to 57.3 bps in Q3 2021. Freddie’s also decreased from 59.0 bps to 58.0 bps. The gap between the two g-fees was 0.7 bps in Q3 2021. 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.


Fannie Mae Upfront Loan-Level Price Adjustments (LLPAs)

<table>
<thead>
<tr>
<th>Credit Score</th>
<th>LTV (%)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤60</td>
<td>60.01 - 70</td>
<td>70.01 - 75</td>
<td>75.01 - 80</td>
<td>80.01 - 85</td>
<td>85.01 - 90</td>
<td>90.01 - 95</td>
<td>95.01 - 97</td>
</tr>
<tr>
<td>&gt; 740</td>
<td>0.00</td>
<td>0.25</td>
<td>0.25</td>
<td>0.50</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
<td>0.75</td>
</tr>
<tr>
<td>720 – 739</td>
<td>0.00</td>
<td>0.25</td>
<td>0.50</td>
<td>0.75</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
<td>1.00</td>
</tr>
<tr>
<td>700 – 719</td>
<td>0.00</td>
<td>0.50</td>
<td>1.00</td>
<td>1.25</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.50</td>
</tr>
<tr>
<td>680 – 699</td>
<td>0.00</td>
<td>0.50</td>
<td>1.25</td>
<td>1.75</td>
<td>1.50</td>
<td>1.25</td>
<td>1.25</td>
<td>1.50</td>
</tr>
<tr>
<td>660 – 679</td>
<td>0.00</td>
<td>1.00</td>
<td>2.25</td>
<td>2.75</td>
<td>2.75</td>
<td>2.25</td>
<td>2.25</td>
<td>2.25</td>
</tr>
<tr>
<td>640 – 659</td>
<td>0.50</td>
<td>1.25</td>
<td>2.75</td>
<td>3.00</td>
<td>3.25</td>
<td>2.75</td>
<td>2.75</td>
<td>2.75</td>
</tr>
<tr>
<td>620 – 639</td>
<td>0.50</td>
<td>1.50</td>
<td>3.00</td>
<td>3.00</td>
<td>3.25</td>
<td>3.25</td>
<td>3.25</td>
<td>3.50</td>
</tr>
<tr>
<td>&lt; 620</td>
<td>0.50</td>
<td>1.50</td>
<td>3.00</td>
<td>3.00</td>
<td>3.25</td>
<td>3.25</td>
<td>3.25</td>
<td>3.75</td>
</tr>
</tbody>
</table>

Product Feature (Cumulative)


Fannie Mae and Freddie Mac have been laying off back-end credit risk through CAS and STACR deals and reinsurance transactions. They have also done front-end transactions with originators and reinsurers and experimented with deep mortgage insurance coverage. Historically, the GSEs have transferred vast majority of their credit risk to private markets. Fannie Mae’s CAS issuances since inception total $1.83 trillion; Freddie’s STACR totals $2.3 trillion. After the COVID-19 induced spread widening in March 2020, and the reproposed capital rules released by FHFA shortly thereafter, Fannie Mae did not issue any deals from Mar 2020 to Sep 2021, while Freddie Mac continued to issue. With the proposed changes in the Capital Rule, and the more positive attitude toward CRT at FHFA, Fannie Mae resumed CAS issuance in October 2021.

### Fannie Mae – Connecticut Avenue Securities (CAS)

<table>
<thead>
<tr>
<th>Date</th>
<th>Transaction</th>
<th>Reference Pool Size ($ m)</th>
<th>Amount Issued ($m)</th>
<th>% of Reference Pool Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>CAS 2013 deals</td>
<td>$26,756</td>
<td>$675</td>
<td>2.5</td>
</tr>
<tr>
<td>2014</td>
<td>CAS 2014 deals</td>
<td>$227,234</td>
<td>$5,849</td>
<td>2.6</td>
</tr>
<tr>
<td>2015</td>
<td>CAS 2015 deals</td>
<td>$187,126</td>
<td>$5,463</td>
<td>2.9</td>
</tr>
<tr>
<td>2016</td>
<td>CAS 2016 deals</td>
<td>$236,459</td>
<td>$7,392</td>
<td>3.1</td>
</tr>
<tr>
<td>2017</td>
<td>CAS 2017 deals</td>
<td>$264,697</td>
<td>$8,707</td>
<td>3.3</td>
</tr>
<tr>
<td>2018</td>
<td>CAS 2018 deals</td>
<td>$205,900</td>
<td>$7,314</td>
<td>3.6</td>
</tr>
<tr>
<td>2019</td>
<td>CAS 2019 deals</td>
<td>$291,400</td>
<td>$8,071</td>
<td>2.8</td>
</tr>
<tr>
<td>January 2020</td>
<td>CAS 2020 – R01</td>
<td>$29,000</td>
<td>$1,030</td>
<td>3.6</td>
</tr>
<tr>
<td>February 2020</td>
<td>CAS 2020 – R02</td>
<td>$29,000</td>
<td>$1,134</td>
<td>3.9</td>
</tr>
<tr>
<td>March 2020</td>
<td>CAS 2020 – SBT1</td>
<td>$152,000</td>
<td>$966</td>
<td>0.6</td>
</tr>
<tr>
<td>October 2021</td>
<td>CAS 2021 – R01</td>
<td>$72,302</td>
<td>$1,202</td>
<td>1.7</td>
</tr>
<tr>
<td>November 2021</td>
<td>CAS 2021 – R02</td>
<td>$35,117</td>
<td>$984</td>
<td>2.8</td>
</tr>
<tr>
<td>December 2021</td>
<td>CAS 2021 – R03</td>
<td>$34,783</td>
<td>$909</td>
<td>2.6</td>
</tr>
<tr>
<td>January 2022</td>
<td>CAS 2022 – R04</td>
<td>$53,747</td>
<td>$1,506</td>
<td>2.8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$1,833,521</td>
<td>$51,202</td>
<td>2.8</td>
</tr>
</tbody>
</table>

### Freddie Mac – Structured Agency Credit Risk (STACR)

<table>
<thead>
<tr>
<th>Date</th>
<th>Transaction</th>
<th>Reference Pool Size ($ m)</th>
<th>Amount Issued ($m)</th>
<th>% of Reference Pool Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>STACR 2013 deals</td>
<td>$57,912</td>
<td>$1,130</td>
<td>2.0</td>
</tr>
<tr>
<td>2014</td>
<td>STACR 2014 deals</td>
<td>$147,120</td>
<td>$4,916</td>
<td>3.3</td>
</tr>
<tr>
<td>2015</td>
<td>STACR 2015 deals</td>
<td>$209,521</td>
<td>$6,658</td>
<td>3.2</td>
</tr>
<tr>
<td>2016</td>
<td>STACR 2016 deals</td>
<td>$183,421</td>
<td>$5,541</td>
<td>2.8</td>
</tr>
<tr>
<td>2017</td>
<td>STACR 2017 deals</td>
<td>$248,821</td>
<td>$5,663</td>
<td>2.3</td>
</tr>
<tr>
<td>2018</td>
<td>STACR 2018 deals</td>
<td>$216,581</td>
<td>$6,055</td>
<td>2.8</td>
</tr>
<tr>
<td>2019</td>
<td>STACR 2019 deals</td>
<td>$271,105</td>
<td>$5,947</td>
<td>2.2</td>
</tr>
<tr>
<td>January 2020</td>
<td>STACR Series 2020 – DNA1</td>
<td>$29,641</td>
<td>$794</td>
<td>2.7</td>
</tr>
<tr>
<td>February 2020</td>
<td>STACR Series 2020 – HQA1</td>
<td>$24,268</td>
<td>$738</td>
<td>3.0</td>
</tr>
<tr>
<td>February 2020</td>
<td>STACR Series 2020 – DNA2</td>
<td>$43,596</td>
<td>$1,169</td>
<td>2.7</td>
</tr>
<tr>
<td>March 2020</td>
<td>STACR Series 2020 – HQA2</td>
<td>$35,066</td>
<td>$1,006</td>
<td>2.9</td>
</tr>
<tr>
<td>July 2020</td>
<td>STACR Series 2020 – DNA3</td>
<td>$48,328</td>
<td>$1,106</td>
<td>2.3</td>
</tr>
<tr>
<td>July 2020</td>
<td>STACR Series 2020 – HQA3</td>
<td>$31,278</td>
<td>$835</td>
<td>2.7</td>
</tr>
<tr>
<td>August 2020</td>
<td>STACR Series 2020 – DNA4</td>
<td>$41,932</td>
<td>$1,088</td>
<td>2.6</td>
</tr>
<tr>
<td>September 2020</td>
<td>STACR Series 2020 – HQA4</td>
<td>$25,009</td>
<td>$680</td>
<td>2.7</td>
</tr>
<tr>
<td>October 2020</td>
<td>STACR Series 2020 – DNA5</td>
<td>$43,406</td>
<td>$1,086</td>
<td>2.5</td>
</tr>
<tr>
<td>November 2020</td>
<td>STACR Series 2020 – HQA5</td>
<td>$42,257</td>
<td>$1,080</td>
<td>2.6</td>
</tr>
<tr>
<td>December 2020</td>
<td>STACR Series 2020 – DNA6</td>
<td>$38,810</td>
<td>$790</td>
<td>2.0</td>
</tr>
<tr>
<td>January 2021</td>
<td>STACR Series 2021 – DNA1</td>
<td>$58,041</td>
<td>$970</td>
<td>1.7</td>
</tr>
<tr>
<td>February 2021</td>
<td>STACR Series 2021 – HQA1</td>
<td>$62,980</td>
<td>$1,386</td>
<td>2.2</td>
</tr>
<tr>
<td>March 2021</td>
<td>STACR Series 2021 – DNA2</td>
<td>$55,687</td>
<td>$1,188</td>
<td>2.1</td>
</tr>
<tr>
<td>April 2021</td>
<td>STACR Series 2021 – DNA3</td>
<td>$44,585</td>
<td>$950</td>
<td>2.1</td>
</tr>
<tr>
<td>June 2021</td>
<td>STACR Series 2021 – HQA2</td>
<td>$56,550</td>
<td>$550</td>
<td>1.0</td>
</tr>
<tr>
<td>July 2021</td>
<td>STACR Series 2021 – DNA5</td>
<td>$71,388</td>
<td>$1,186</td>
<td>1.7</td>
</tr>
<tr>
<td>September 2021</td>
<td>STACR Series 2021 – DNA3</td>
<td>$37,677</td>
<td>$1,071</td>
<td>2.8</td>
</tr>
<tr>
<td>October 2021</td>
<td>STACR Series 2021 – DNA6</td>
<td>$89,347</td>
<td>$1,484</td>
<td>1.7</td>
</tr>
<tr>
<td>November 2021</td>
<td>STACR Series 2021 – DNA7</td>
<td>$67,196</td>
<td>$1,276</td>
<td>1.9</td>
</tr>
<tr>
<td>December 2021</td>
<td>STACR Series 2021 – HQA4</td>
<td>$31,255</td>
<td>$963</td>
<td>3.1</td>
</tr>
<tr>
<td>January 2022</td>
<td>STACR Series 2022 – DNA1</td>
<td>$33,573</td>
<td>$1,353</td>
<td>4.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$2,346,351</td>
<td>$58,659</td>
<td>2.5</td>
</tr>
</tbody>
</table>

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.
The figures below show the spreads on 2017, 2018, 2019, and 2020 indices, as priced by dealers. Note the substantial spread widening in March 2020. This reflected expectations of higher defaults and potential credit losses owing to COVID-19, as well as forced selling. Spreads have tightened back to just below pre-COVID levels for the M tranches but remain above pre-COVID levels for the B tranches. The 2017, 2018, 2019, and 2020 indices contain both the bottom mezzanine tranche as well as the equity tranche, in all deals when the latter was sold. 2020 indices are heavily Freddie Mac as Fannie did not issue any new deals in the last three quarters of 2020.

Sources: Vista Data Services and Urban Institute.
Note: Data as of January 14, 2022.
Serious delinquency rates for single-family GSE loans decreased in November 2021, to 1.33 percent for Fannie Mae and 1.24 percent for Freddie Mac. Serious delinquency rates for FHA loans also decreased in November 2021, to 7.83 percent. In Q3 2021, VA serious delinquency rates declined to 4.48 percent. Note that loans that are in forbearance are counted as delinquent for the purpose of measuring delinquency rates. Fannie multifamily delinquencies decreased in November to 0.41 percent, while Freddie multifamily delinquencies also declined at 0.09 percent.

Serious Delinquency Rates–Single-Family Loans

Sources: Fannie Mae, Freddie Mac, Federal Housing Administration, 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. VA delinquencies are reported on a quarterly basis, last updated for Q3 2021. GSE and FHA delinquencies are reported monthly, last updated for November 2021.

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 issuance was $3.60 trillion in 2021, a 13.1 percent increase from 2020. This reflects strong purchase originations in 2021 compared to 2020, as well as the refinance wave which persisted in 2021. Net issuance (new securities issued less the decline in outstanding securities due to principal pay-downs or prepayments) totaled $759.1 billion in 2021, a 16.3 percent increase from the volume in 2020.

### Agency Gross Issuance

<table>
<thead>
<tr>
<th>Issuance Year</th>
<th>GSEs</th>
<th>Ginnie Mae</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>$885.1</td>
<td>$171.5</td>
<td>$1,056.6</td>
</tr>
<tr>
<td>2002</td>
<td>$1,238.9</td>
<td>$169.0</td>
<td>$1,407.9</td>
</tr>
<tr>
<td>2003</td>
<td>$1,874.9</td>
<td>$213.1</td>
<td>$2,088.0</td>
</tr>
<tr>
<td>2004</td>
<td>$872.6</td>
<td>$119.2</td>
<td>$991.9</td>
</tr>
<tr>
<td>2005</td>
<td>$894.0</td>
<td>$81.4</td>
<td>$975.3</td>
</tr>
<tr>
<td>2006</td>
<td>$853.0</td>
<td>$76.7</td>
<td>$929.7</td>
</tr>
<tr>
<td>2007</td>
<td>$1,066.2</td>
<td>$94.9</td>
<td>$1,161.1</td>
</tr>
<tr>
<td>2008</td>
<td>$911.4</td>
<td>$267.6</td>
<td>$1,179.0</td>
</tr>
<tr>
<td>2009</td>
<td>$1,280.0</td>
<td>$451.3</td>
<td>$1,731.3</td>
</tr>
<tr>
<td>2010</td>
<td>$1,003.5</td>
<td>$390.7</td>
<td>$1,394.3</td>
</tr>
<tr>
<td>2011</td>
<td>$879.3</td>
<td>$315.3</td>
<td>$1,194.7</td>
</tr>
<tr>
<td>2012</td>
<td>$1,288.8</td>
<td>$405.0</td>
<td>$1,693.8</td>
</tr>
<tr>
<td>2013</td>
<td>$1,176.6</td>
<td>$393.6</td>
<td>$1,570.1</td>
</tr>
<tr>
<td>2014</td>
<td>$650.9</td>
<td>$296.3</td>
<td>$947.2</td>
</tr>
<tr>
<td>2015</td>
<td>$845.7</td>
<td>$436.3</td>
<td>$1,282.0</td>
</tr>
<tr>
<td>2016</td>
<td>$991.6</td>
<td>$508.2</td>
<td>$1,499.8</td>
</tr>
<tr>
<td>2017</td>
<td>$877.3</td>
<td>$455.6</td>
<td>$1,332.9</td>
</tr>
<tr>
<td>2018</td>
<td>$795.0</td>
<td>$400.6</td>
<td>$1,195.3</td>
</tr>
<tr>
<td>2019</td>
<td>$1,042.6</td>
<td>$508.6</td>
<td>$1,551.2</td>
</tr>
<tr>
<td>2020</td>
<td>$2,407.5</td>
<td>$775.4</td>
<td>$3,182.9</td>
</tr>
<tr>
<td>2021</td>
<td>$2,650.8</td>
<td>$855.3</td>
<td>$3,599.9</td>
</tr>
</tbody>
</table>

### Agency Net Issuance

<table>
<thead>
<tr>
<th>Issuance Year</th>
<th>GSEs</th>
<th>Ginnie Mae</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>$368.40</td>
<td>-$9.90</td>
<td>$358.50</td>
</tr>
<tr>
<td>2002</td>
<td>$357.20</td>
<td>-$51.20</td>
<td>$306.10</td>
</tr>
<tr>
<td>2003</td>
<td>$334.90</td>
<td>-$77.60</td>
<td>$257.30</td>
</tr>
<tr>
<td>2004</td>
<td>$82.50</td>
<td>-$40.10</td>
<td>$42.40</td>
</tr>
<tr>
<td>2005</td>
<td>$174.20</td>
<td>-$42.20</td>
<td>$132.00</td>
</tr>
<tr>
<td>2006</td>
<td>$313.60</td>
<td>$0.20</td>
<td>$313.80</td>
</tr>
<tr>
<td>2007</td>
<td>$514.90</td>
<td>$30.90</td>
<td>$545.70</td>
</tr>
<tr>
<td>2008</td>
<td>$314.80</td>
<td>$196.40</td>
<td>$508.00</td>
</tr>
<tr>
<td>2009</td>
<td>$250.60</td>
<td>$198.30</td>
<td>$448.90</td>
</tr>
<tr>
<td>2010</td>
<td>-$303.20</td>
<td>$198.30</td>
<td>-$105.00</td>
</tr>
<tr>
<td>2011</td>
<td>-$128.40</td>
<td>$149.60</td>
<td>$21.20</td>
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<tr>
<td>2012</td>
<td>-$42.40</td>
<td>$119.10</td>
<td>$76.80</td>
</tr>
<tr>
<td>2013</td>
<td>$69.10</td>
<td>$87.90</td>
<td>$157.00</td>
</tr>
<tr>
<td>2014</td>
<td>$30.5</td>
<td>$61.6</td>
<td>$92.1</td>
</tr>
<tr>
<td>2015</td>
<td>$75.1</td>
<td>$97.3</td>
<td>$172.5</td>
</tr>
<tr>
<td>2016</td>
<td>$127.4</td>
<td>$125.8</td>
<td>$253.1</td>
</tr>
<tr>
<td>2017</td>
<td>$168.5</td>
<td>$131.3</td>
<td>$299.7</td>
</tr>
<tr>
<td>2018</td>
<td>$149.4</td>
<td>$112.0</td>
<td>$261.5</td>
</tr>
<tr>
<td>2019</td>
<td>$197.8</td>
<td>$95.7</td>
<td>$293.5</td>
</tr>
<tr>
<td>2020</td>
<td>$632.8</td>
<td>$19.9</td>
<td>$652.7</td>
</tr>
<tr>
<td>2021</td>
<td>$753.5</td>
<td>$5.6</td>
<td>$759.1</td>
</tr>
</tbody>
</table>

### 2021 % Change Over 2020

<table>
<thead>
<tr>
<th></th>
<th>2021 %</th>
<th>2021 Annualized</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSEs</td>
<td>10.1%</td>
<td>$2,650.8</td>
</tr>
<tr>
<td>Ginnie Mae</td>
<td>10.3%</td>
<td>$855.3</td>
</tr>
<tr>
<td>Total</td>
<td>13.1%</td>
<td>$3,599.9</td>
</tr>
<tr>
<td></td>
<td>2021 %</td>
<td>2021 Annualized</td>
</tr>
<tr>
<td>GSEs</td>
<td>19.1%</td>
<td>$753.5</td>
</tr>
<tr>
<td>Ginnie Mae</td>
<td>-72.1%</td>
<td>$5.6</td>
</tr>
<tr>
<td>Total</td>
<td>16.3%</td>
<td>$759.1</td>
</tr>
</tbody>
</table>

Sources: eMBS and Urban Institute.

Note: Dollar amounts are in billions. Data as of December 2021.
In Mar 2020, in response to COVID-19 market dislocations, the Fed announced Treasury and agency MBS purchases in an amount necessary to support smooth functioning of markets. In Mar 2020, the Fed bought $292.2 billion in agency MBS, and April 2020 clocked in at $295.1 billion, the largest two months of mortgage purchases ever and well over 100 percent of gross issuance for each of those two months. After the market stabilized, the Fed slowed its purchases to around $100-$125 billion per month ($40 billion of net new purchases). In Nov 2021, the Fed announced a reduction in net purchases of agency MBS by $5 billion each month starting that month. In Dec, the Fed announced they will increase this reduction to $10 billion a month in light of rising inflation, effective Jan 2022. In Dec 2021, Fed purchases totaled $91.4 billion, 38.8 percent of monthly gross issuance. As of Jan 2022, total agency MBS owned by the Fed equaled $2.69 trillion, the highest level ever. Prior to the COVID-19 intervention, the Fed was winding down its MBS portfolio from its 2014 prior peak.
AGENCY ISSUANCE
MORTGAGE INSURANCE ACTIVITY

MI Activity
In the third quarter of 2021, private mortgage insurance written decreased by $32.0 billion, FHA decreased by $6.0 billion, and VA decreased by $24.2 billion relative to Q3 2020. During this period, the private mortgage insurers share decreased from 47.4 to 46.6 percent, while the FHA share increased from 22.0 to 24.4 percent. The VA share decreased from 30.6 to 29.0 percent compared to the same period a year ago. From Q1 to Q3 2021, the private mortgage insurers share stood at 44.2 percent, the same share from Q1 to Q3 2020. During this same period, the FHA slightly decreased from 24.5 percent to 24.3 percent, while the VA share slightly increased from 31.3 percent in 2020 to 31.5 percent in 2021.


MI Market Share

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 700 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

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

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

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>$250,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property Value</td>
<td>$250,000</td>
</tr>
<tr>
<td>Loan Amount</td>
<td>$241,250</td>
</tr>
<tr>
<td>LTV</td>
<td>96.5</td>
</tr>
<tr>
<td>Base Rate</td>
<td>3.10</td>
</tr>
<tr>
<td>FHA</td>
<td>3.40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FHA MI Premiums</td>
<td>1.75</td>
<td>1.75</td>
<td>1.75</td>
<td>1.75</td>
<td>1.75</td>
<td>1.75</td>
<td>1.75</td>
<td>1.75</td>
</tr>
<tr>
<td>FHA UFMIP</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
</tr>
<tr>
<td>FHA MIP</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
</tr>
<tr>
<td>GSE LLPA*</td>
<td>3.50</td>
<td>2.75</td>
<td>2.25</td>
<td>1.50</td>
<td>1.50</td>
<td>1.00</td>
<td>0.75</td>
<td>0.75</td>
</tr>
<tr>
<td>PMI Annual MIP</td>
<td>1.86</td>
<td>1.65</td>
<td>1.54</td>
<td>1.21</td>
<td>0.99</td>
<td>0.87</td>
<td>0.70</td>
<td>0.58</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Monthly Payment</th>
<th>FHA</th>
<th>$1,260</th>
<th>$1,260</th>
<th>$1,260</th>
<th>$1,260</th>
<th>$1,260</th>
<th>$1,260</th>
<th>$1,260</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMI</td>
<td>$1,498</td>
<td>$1,435</td>
<td>$1,400</td>
<td>$1,313</td>
<td>$1,269</td>
<td>$1,231</td>
<td>$1,191</td>
<td>$1,167</td>
</tr>
<tr>
<td>PMI Advantage</td>
<td>-$239</td>
<td>-$176</td>
<td>-$140</td>
<td>-$54</td>
<td>-$9</td>
<td>$28</td>
<td>$69</td>
<td>$93</td>
</tr>
</tbody>
</table>


Note: Rates as of December 2021.

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.
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Authors: Jung Choi, Laurie Goodman, Daniel Pang
Date: November 1, 2021
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