Federal Housing Finance Agency
Office of Inspector General

Fannie Mae and Freddie Mac Purchases of Adjustable-Rate Mortgages

White Paper • WPR-2018-001 • January 4, 2018

WPR-2018-001

January 4, 2018

Executive Summary

Adjustable-rate mortgages (ARMs) entered the single-family mortgage market nationwide in the early 1980s. The critical feature of every ARM is an interest rate that changes periodically, at intervals set by the ARM, over the lifetime of the loan. Fannie Mae and Freddie Mac (the Enterprises) purchased ARMs during the 1980s and 1990s. During 1999, the Enterprises purchased ARMs with a principal unpaid balance of approximately $19.6 billion, roughly 3.6% of their total single-family mortgage purchases that year. In 2000, the ARM share of all single-family mortgages purchased by the Enterprises rose to about 14% and in 2005, the share peaked at nearly 20% of the more than $900 billion in overall Enterprise single-family purchases that year. From the early-2000s to 2006, the inventory of ARMs purchased by the Enterprises included ARMs with nontraditional features, such as payment only of interest with no principal, and/or monthly payment choices that did not cover the full amount of the monthly principal and interest owed, as well as with layers of additional risk such as reduced loan documentation and low-down payments. As the mortgage market first softened and then deteriorated, ARMs declined in borrower popularity. That decline was driven by a number of factors, including loss of the interest rate advantage, reduction in housing prices, and tightening of credit standards.

In 2007, the ARM share of all single-family mortgages purchased by the Enterprises declined to about 13% and reached a low of 2.3% ($27 billion) of their purchases of single-family mortgages in 2009. During these two years, the Enterprises adopted restrictions on purchases of ARMs with nontraditional features and with layers of specific risk. The Enterprises, however, have not eliminated purchases of ARMs. During the period January 2014 through April 2017, the Enterprises purchased a total of about $80 billion in ARMs and their ARM share of all single-family mortgage purchases increased from a low of 1.2% in the fourth quarter of 2016 to 2.4% in the first quarter of 2017.

According to the Enterprises, ARMs have a higher inherent credit risk than traditional single-family fixed-rate mortgages (FRMs) and ARMs with nontraditional features and/or layers of risk present greater credit risks. We prepared this white paper to understand whether the volume and percentage of Enterprise purchases of ARMs during the period January 2014 through April 2017 increased, whether these ARMs contain nontraditional features and/or layers of risk, and whether the increasing volume of Enterprise ARM purchases creates an emerging risk.

TABLE OF CONTENTS

EXECUTIVE SUMMARY 2

ABBREVIATIONS 4

BACKGROUND 5

2000-2006 HOUSING BUBBLE: ENTERPRISE PURCHASES OF ARMS INCREASE AND SOME OF THESE ARMS INCLUDED NONTRADITIONAL FEATURES AND RISK LAYERING 6

HOUSING CRISIS: ENTERPRISE PURCHASES OF ARMS DECLINE AND ENTERPRISES TIGHTEN CREDIT STANDARDS 7

HOUSING CRISIS: PERFORMANCE OF ARMS PURCHASED BY THE ENTERPRISES DURING THE HOUSING BUBBLE DETERIORATES 9

ENTERPRISE PURCHASES OF ARMS, 2014 TO APRIL 2017 9

DOES THE UPTICK IN ENTERPRISE PURCHASES OF ARMS DURING THE PERIOD NOVEMBER 2016 TO APRIL 2017 PORTEND AN EMERGING RISK?................11

CONCLUSION...12

OBJECTIVE, SCOPE, AND METHODOLOGY 14

ADDITIONAL INFORMATION AND COPIES 15

ABBREVIATIONS

ARM	Adjustable-rate mortgage
Enterprises	Fannie Mae and Freddie Mac, collectively
Fannie Mae	Federal National Mortgage Association
FHFA or Agency	Federal Housing Finance Agency
Freddie Mac	Federal Home Loan Mortgage Corporation
FRM	Fixed-rate mortgage
LIBOR	London interbank offered rate
LTV	Loan-to-value ratio
OIG	Federal Housing Finance Agency Office of Inspector General

BACKGROUND

The critical feature of every ARM is a mortgage with an interest rate that changes periodically over the lifetime of the loan, and the terms of that change in interest rate are set in the mortgage note. ARMs have an initial period—usually between six months and ten years—during which the interest rate and payment does not change, followed by periods of variable rates and payments until the loan is paid off.

ARM interest rates are set by the index and the margin. The index is a variable market interest rate to which the ARM is tied. The margin is an additional rate, usually constant, that the lender adds above the index. Most ARMs are also subject to caps limiting how high or low the ARM interest rate can go. In the initial period, ARMs almost always have lower interest rates than FRMs, making ARMs more attractive to some borrowers.

Types of ARMs

There are a variety of ARMs, differing by payment structure, with three primary types: hybrid ARMs, interest-only ARMs, and payment-option ARMs.

Hybrid ARMs, typically based on an amortizing schedule, are a hybrid of a fixed-rate period and an adjustable-rate period. In a 5/1 ARM, for example, the interest rate is fixed for 5 years then adjusts every 1 year until the loan is paid off, subject to a ceiling and a floor on the interest rate.

Interest-only ARMs allow a borrower to pay only the interest for a period before the loan begins to amortize—this can be for as long as 10 years. The monthly payment will then increase because the borrower starts paying back the principal as well as the interest each month.

Payment-option ARMs allow a borrower to choose among several payment options each month, including a minimum option that may be less than the interest and principal, and therefore, negatively amortizes because the unpaid interest adds to the principal balance of the loan.

2000-2006 HOUSING BUBBLE: ENTERPRISE PURCHASES OF ARMS INCREASE AND SOME OF THESE ARMS INCLUDED NONTRADITIONAL FEATURES AND RISK LAYERING

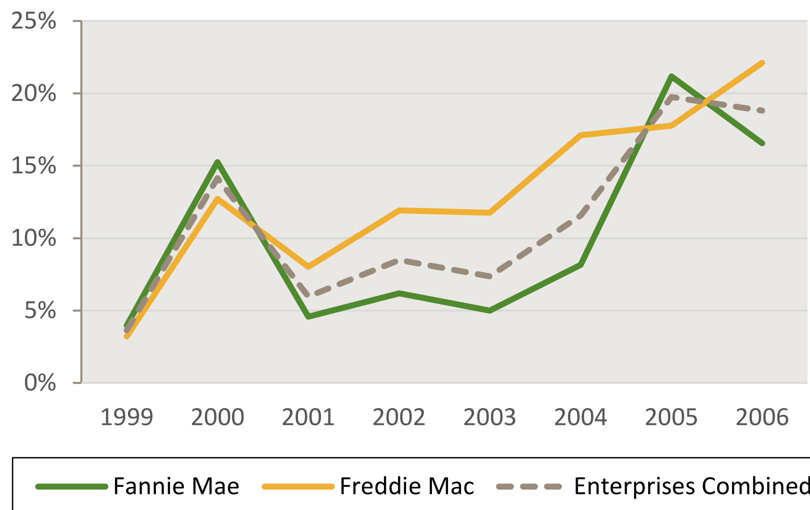
During the period 2000 to 2006, prices for single-family homes surged. (For purposes of this white paper, that time period will also be called the housing bubble.) According to FHFA, single-family home prices increased more than 8% between 1999 and 2000, the largest annual increase since 1989. By 2005, single-family home prices increased 11% from the prior year—the largest annual change since 1979. The rapid increase in home prices reduced affordability.

In that environment, the initial interest rates offered by ARMs, which were lower than 30-year FRMs, made ARMs an attractive option for many borrowers because ARMs were perceived by borrowers to boost purchasing power.[1] During this period, borrower reliance on ARMs increased and Enterprise purchase volume of ARMs escalated significantly. In 1999, the volume of ARMs purchased by the Enterprises amounted to roughly $20 billion, or 3.6% of their purchases of single-family mortgages. Over a year, the volume of ARMs purchased by the Enterprises rose to $55 billion in 2000, or roughly 14% of their purchases of single-family mortgages. Enterprise purchases of ARMs continued to grow in volume. By 2005, the volume of ARMs purchased by the Enterprises reached nearly $180 billion, roughly 20% of their overall purchases of single-family mortgages. See Figure 1.

During this same period, more lenders began to offer ARMs with nontraditional features to a wider range of borrowers. ARMs offering nontraditional features of interest-only or payment-option offered even lower initial payments than standard ARMs by allowing borrowers to defer payment of some or all of the principal and/or accrued interest. Federal financial regulators observed that some borrowers who qualified for ARM loans with nontraditional features might not have qualified for an ARM with standard features, or an FRM, or understood the risks associated with ARMs with nontraditional features. Experts have speculated that lenders, owner-occupants, and investors took the risks inherent in ARMs with nontraditional features because they expected that the increasing value of single-family homes would counteract the increased risk.

[1] For example, the Federal Reserve Bank of San Francisco reported that, during the Summer of 2004, the initial interest rates for ARMs were as much as 2.5 percentage points lower than 30-year FRM rates.

FIGURE 1. ARM SHARE OF FANNIE MAE AND FREDDIE MAC SINGLE-FAMILY MORTGAGE PURCHASES, 1999-2006



Source: FHFA, 2016 Report to Congress.

ARMs offered during this same period often included additional layers of risk. These layers of risk included limited documentation, low-down payments (also called high loan-to-value ratios),[2] teaser rates, and relaxed underwriting standards, such as lowered minimum credit scores and/or increased or maximum debt-to-income ratios.[3] Subsequently, federal financial regulators identified simultaneous second liens as another layer of risk. Some ARMs combined layers of risk with nontraditional features, such as interest-only and payment-options. The Enterprises have publicly reported that the higher delinquency and default rates of ARMs purchased during the early 2000s to 2006 were associated with, in some measure, the layers of additional risks.

HOUSING CRISIS: ENTERPRISE PURCHASES OF ARMS DECLINE AND ENTERPRISES TIGHTEN CREDIT STANDARDS

As the mortgage market began to deteriorate between 2006 and 2007, the ARM share of mortgages purchased by the Enterprises decreased from 19% of their overall purchases of single-family mortgages in 2006 to 13% in 2007. ARMs appeared to lose much of their interest rate advantage as the spread between a 30-year FRM and a 5/1 hybrid ARM tightened to less than 0.20 percentage points in the beginning of 2007. Fannie Mae reported that "heightened consumer awareness of the risks of certain non-traditional ARM product

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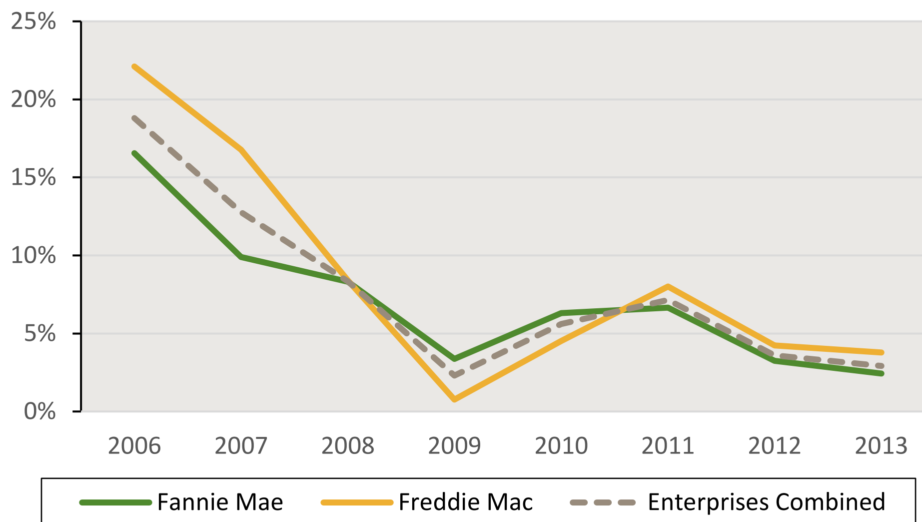
[2] The loan-to-value (LTV) ratio is the ratio between the original loan amount of the first mortgage and the lower of the property's appraised value or sales price. Lenders use the LTV ratio as a measure to compare the amount of the first mortgage with the appraised value of the property. The higher a borrower's down payment, the lower the LTV ratio. For example, if a borrower puts down 5% of the appraised value of the property and receives a mortgage for the remaining 95%, the mortgage is considered a 95% LTV mortgage.

[3] The debt-to-income (DTI) ratio is a risk measure that compares a borrower's debt payments to their income.

features" along with improvements in housing affordability contributed to the decline in the popularity of ARMs. Subsequent to 2007, the ARM percentage of the Enterprises' total single-family purchases continued to decline, reaching a low of 2.3% ($27 billion) of their purchases of single-family mortgages in 2009.

During 2007 to 2010, the Enterprises tightened restrictions on their purchases of ARMs, including ARMs with nontraditional features and layers of risk. In 2007, Freddie Mac discontinued purchases of ARMs with the nontraditional feature of payment-options and announced that it would "limit the use of low-documentation underwriting" for ARMs. In 2010, Fannie Mae updated its selling guide, requiring higher down payments and credit scores for interest-only loans.[4] That year, Freddie Mac discontinued purchases of interest-only ARMs. Over the next few years the ARM share of the Enterprises' single-family acquisitions remained relatively low, and in 2013, the share was about 2.9% ($34 billion). See Figure 2.

FIGURE 2. ARM SHARE OF FANNIE MAE AND FREDDIE MAC SINGLE-FAMILY MORTGAGE PURCHASES, 2006-2013



Source: FHFA, 2016 Report to Congress.

[4] Fannie Mae later stopped purchasing interest-only loans on July 31, 2014.

HOUSING CRISIS: PERFORMANCE OF ARMS PURCHASED BY THE ENTERPRISES DURING THE HOUSING BUBBLE DETERIORATES

As the mortgage market further deteriorated during 2007, home prices fell and lenders tightened credit standards. When ARMs originated during 2000-2006 approached their scheduled rate resets, many borrowers were unable to refinance out of those ARMs.

As the weaknesses in the housing market continued, the foreclosures for nontraditional ARMs led to high credit losses for the Enterprises. In 2012, for example, interest-only loans[5] accounted for only 4% of Fannie Mae's single-family mortgages but 22% ($3.1 billion) of its single-family credit losses.

ENTERPRISE PURCHASES OF ARMS, 2014 TO APRIL 2017

We reviewed loan-level data for Enterprise purchases of ARMs from January 2014 through April 2017 (review period) to understand whether purchases of ARMs are increasing and whether any increased rate of ARM purchases represents an emerging risk. During the review period, the Enterprises purchased about $80 billion in ARMs, less than half their ARM purchases in 2005 alone. The Enterprises averaged about $15 billion in ARM acquisitions per month in 2005. In comparison, the highest monthly ARM acquisition volume during the review period was $3.4 billion in October 2014, about 80% less than the 2005 monthly volume.

During 2014, the Enterprises' single-family ARM share increased from 2.9% to 5.2% but the dollar value decreased by about $800 million. At that time, the spread between a 30-year FRM and a 5/1 hybrid ARM was, on average, more than one percentage point. As the spread tightened in 2015 and 2016, Enterprise purchases of ARMs declined.

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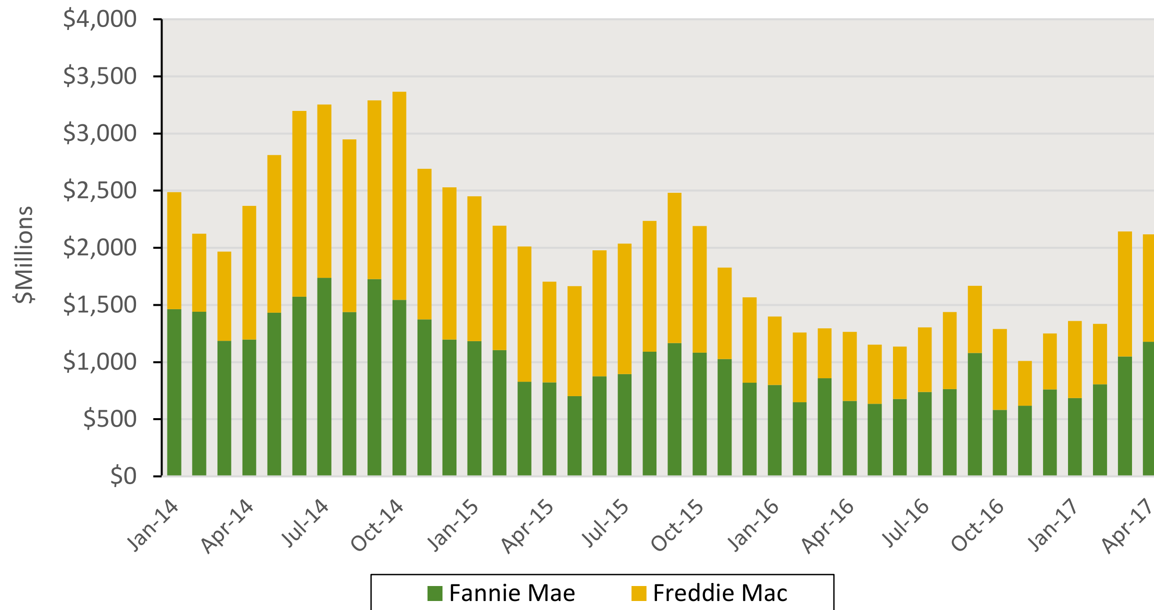
[5] Although both fixed-rate and adjustable-rate mortgages can have interest-only payments, most mortgages that offer an interest-only payment are ARMs.

As illustrated below in Figure 3, the Enterprises' ARM purchase volume began to rise after November 2016. During a three-month period, February 2017 through April 2017, the dollar value of the Enterprises' ARM acquisitions increased from $1.3 billion to $2.1 billion.

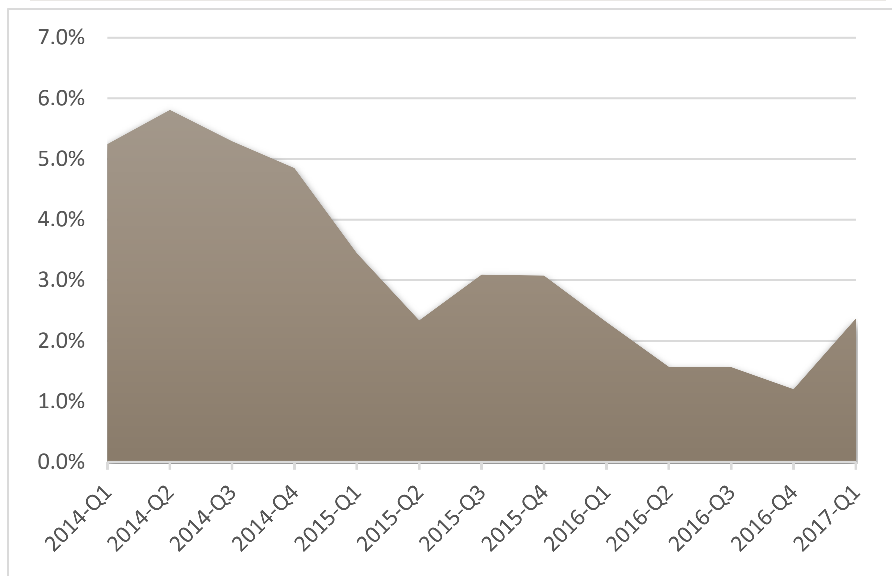
FIGURE 3. FANNIE MAE AND FREDDIE MAC SINGLE-FAMILY ARM PURCHASE VOLUME (UNPAID PRINCIPAL BALANCE), JANUARY 2014 THROUGH APRIL 2017



Source: OIG analysis of information provided by FHFA.

The Enterprises' single-family ARM share also remained well below housing bubble peaks. During 2014 the ARM share peaked at roughly 6%, compared to a peak of about 20% in 2005. For 2015 through the end of the review period, ARM purchases did not exceed 3.4%. As with the ARM volume, ARM share also experienced an increase in early 2017. Enterprise ARM share between fourth quarter 2016 and first

FIGURE 4. THE ARM SHARE OF ENTERPRISES' SINGLE-FAMILY MORTGAGE PURCHASES, 2014-Q1 THROUGH 2017-Q1



Source: OIG analysis of information provided by FHFA.

quarter 2017 rose from 1.2% to 2.4%, although this is still below the 2014 and 2005 peaks. See Figure 4.

Not surprisingly, these increases came during a period when interest rates and house prices were also on the rise. According to Freddie Mac, the 30-year FRM interest rate averaged 4.2% in December 2016 and March 2017, the highest since April 2014, while, the average interest rate for a 5/1 hybrid ARM was one percentage point lower at 3.2%. Also, recent quarterly house price gains have been the highest in over three years, according to FHFA.

DOES THE UPTICK IN ENTERPRISE PURCHASES OF ARMS DURING THE PERIOD NOVEMBER 2016 TO APRIL 2017 PORTEND AN EMERGING RISK?

Our analysis of loan level data for ARMs purchased by the Enterprises during the review period led us to understand that both the volume and percentage of Enterprise purchases of ARMs were significantly lower than the volume and percentage during the housing bubble. Pursuant to the Enterprises' seller/servicer requirements on ARM purchases after 2007 only a small fraction of ARMs purchased by the Enterprises during the review period contained nontraditional features. For example, roughly 0.1% ($95 million) were negative amortizing ARMs.[6] Less than 0.1% ($62 million) were interest-only ARMs, all acquired by Fannie Mae from January to July 31, 2014.[7] Our review of loan files found that the credit quality of ARMs purchased by the Enterprises during the review period was stronger than those of all single-family mortgages purchased by the Enterprises during the same period. For example, the loan files showed borrowers of ARMs purchased by the Enterprises during this period had higher down payments and higher credit scores.

Fannie Mae and Freddie Mac have separately reported that ARMs historically have had higher default rates than FRMs, which they have attributed, in part, to rising borrower payments when interest rates adjust upwards. As the Federal Reserve has signaled, interest rates will likely increase over the next few years. In recent securities filings, the Enterprises warned of the increased risk of credit losses from ARMs in a rising interest rate environment.

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[6] These ARMs were originally acquired by Freddie Mac in 2005 and 2006 in a securitized form rather than as individual loans. Subsequently, some of the loans were subject to loss mitigation processes, including modification. In 2016, the underlying securities from 2005-2006 were dismantled, which brought the individual loans on Freddie Mac's books.

[7] Freddie Mac discontinued purchases of interest-only loans in 2010. Fannie Mae discontinued purchases of interest-only loans after July 31, 2014.

While only a fraction of the ARMs purchased by the Enterprises during the review period contained nontraditional features, recent changes to Enterprise seller/servicer guides suggest the potential for additional risk layering. For example, both Enterprises are purchasing ARMs with lower minimum down payments (i.e. higher LTV ratios). Beginning in July 2017, Fannie Mae reduced the minimum down payment for an ARM to as low as 5% (down from a minimum of 10%). Freddie Mac was already purchasing ARMs with down payments that low. The layer of risk created by lower down payments was quantified in a 2013 study by FHFA that found foreclosure rates typically increased as down payments decreased. According to Black Knight Financial Services, for 2015 vintage Enterprise loans, the serious delinquency rate for 97% LTV loans was roughly twice that for 95% LTV loans at 15 months after origination, however, their serious delinquency rate was over 90% lower than that of 97% LTV loans originated in 2004 and 2005 at the same 15 month observation point. Further, as noted by Freddie Mac, a high LTV ratio increases losses when a borrower defaults. Also beginning in July this year, Fannie Mae increased the maximum debt-to-income ratio from 45% to 50% for loans submitted through its automated underwriting system, including ARMs. Freddie Mac's maximum debt-to-income ratio was already at 50%. By comparison, in implementing the Dodd-Frank Act, the Consumer Financial Protection Bureau said that a debt-to-income ratio of less than or equal to 43% generally safeguards affordability.

Finally, many Enterprise ARMs will soon require a foundational change but the potential risk, if any, from this change is not understood. Presently, many Enterprise ARMs use the London interbank offered rate (LIBOR) as the index. In July 2017, U.K. regulators announced LIBOR would be phased out in the next five years. Therefore, each LIBOR-linked Enterprise ARM will need a new index to determine the borrower's payment amount.

CONCLUSION

According to the Enterprises, ARMs have a higher inherent credit risk than FRMs and ARMs with nontraditional features and/or layers of risk present greater credit risks. We prepared this white paper to understand changes in the volume and percentage of Enterprise purchases of ARMs during the review period, whether these ARMs contain nontraditional features and/or layers of risk, and whether the increasing volume of Enterprise ARM purchases creates an emerging risk. Our data review indicated that Enterprise purchases of ARMs increased modestly in early 2017 but remain far below the volume and percentage of ARM purchases during the housing bubble and that these recent ARM purchases include virtually none of the nontraditional features and risk layers found in ARMs purchased by the Enterprises during the housing bubble. Recent revisions to the sellers' guides will permit some risk layering but far less than the risk layering permitted during the housing bubble. Recognizing that the

Enterprises have separately reported that ARMs historically had higher default rates than FRMs, the modest increase in ARM purchases, combined with revisions to the sellers' guides to permit some risk layering, suggests that ARMs are an emerging risk that merits ongoing monitoring.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of this white paper was to provide background information on Fannie Mae and Freddie Mac's acquisitions of single-family adjustable-rate mortgages. To achieve this objective, we reviewed publicly available documents from FHFA, the Enterprises, and other institutions. We also reviewed and analyzed Enterprise loan data provided by FHFA. We did not independently test the reliability of the data.

We provided FHFA with the opportunity to respond to a draft of this white paper. We appreciate the cooperation of FHFA staff, as well as the assistance of all those who contributed to the preparation of this white paper.

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