



Fannie Mae®

# Connecticut Avenue Securities®

Investor Presentation

January 2021



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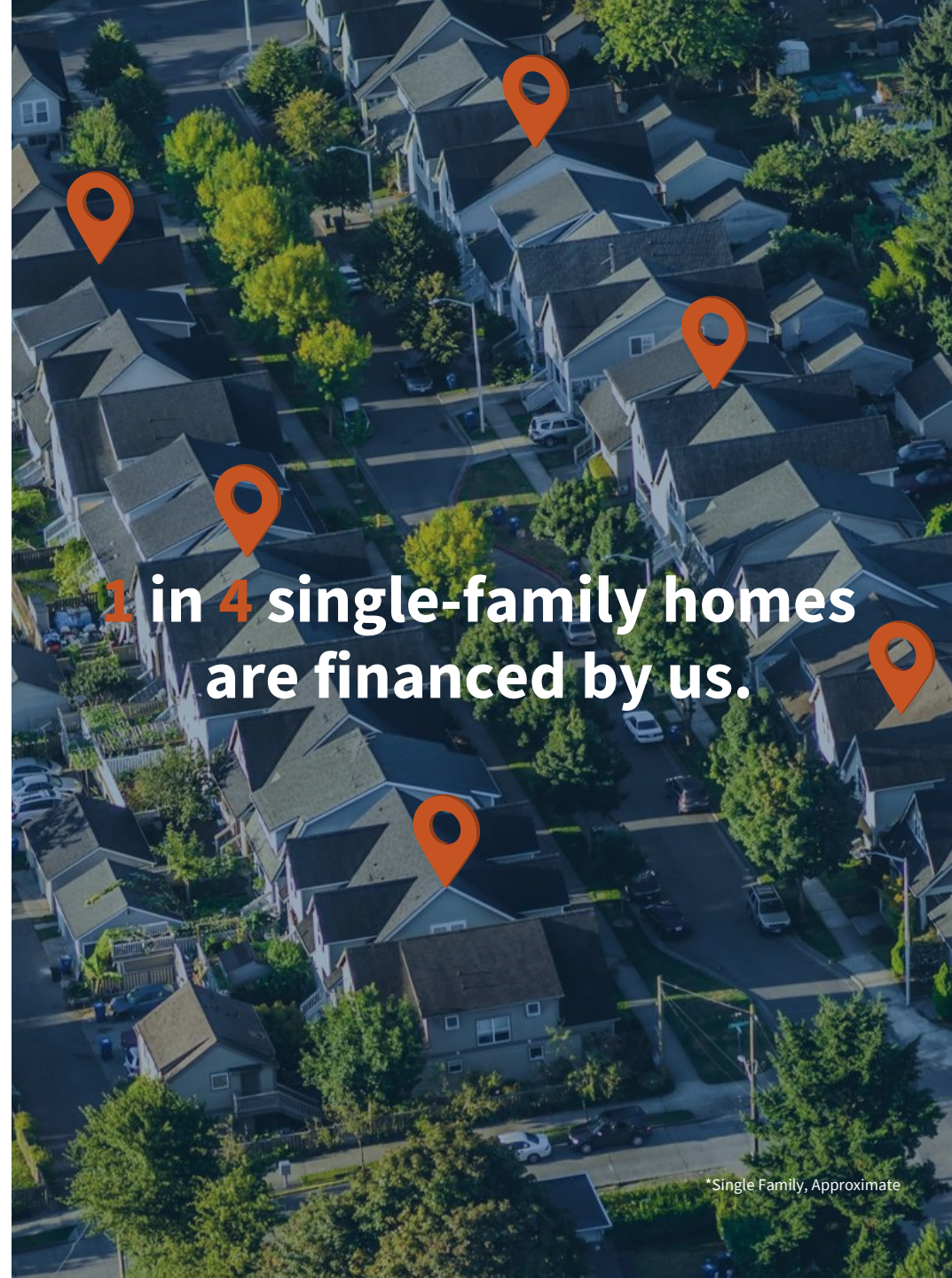
# Who We Are

We are America's Housing Partner.

**Fannie Mae sits at the very heart of the U.S. housing industry.**

We purchase qualifying mortgages from lenders, bundle them into bonds and sell to investors. Lenders use their replenished cash to originate new mortgages, and we use ours to start the process again. This continuous flow of money promotes a healthy housing market.

We partner with lenders to create home purchase (single-family) and rental (multifamily) opportunities for millions of Americans across the country.

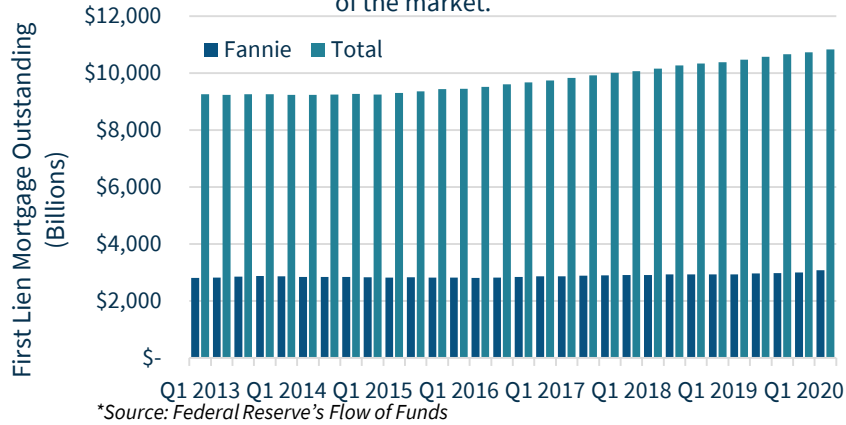


**1 in 4 single-family homes are financed by us.**

\*Single Family, Approximate

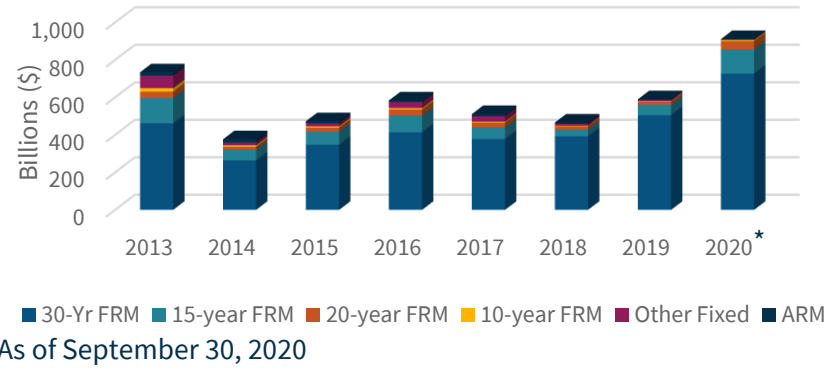
# Our Size and Scale: Single-Family

As of June 2020, U.S. Single Family 1<sup>st</sup> Lien mortgage debt outstanding totaled \$10.8 trillion. Fannie Mae's share stood at approximately \$3.1 trillion, nearly 29% of the market.



The U.S. mortgage market is dominated by the 30-year Fixed-Rate Mortgage (FRM).

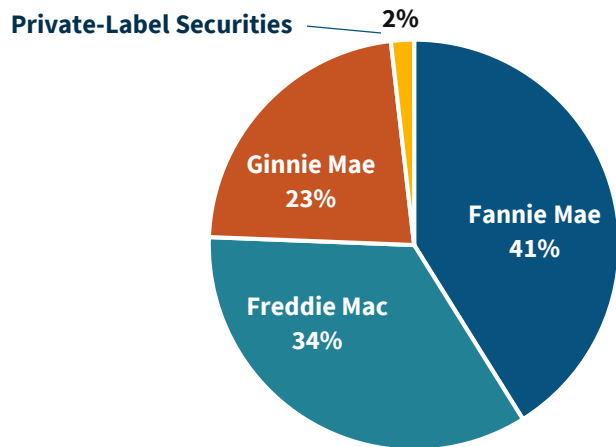
## Fannie Mae MBS Issuance by Product Type



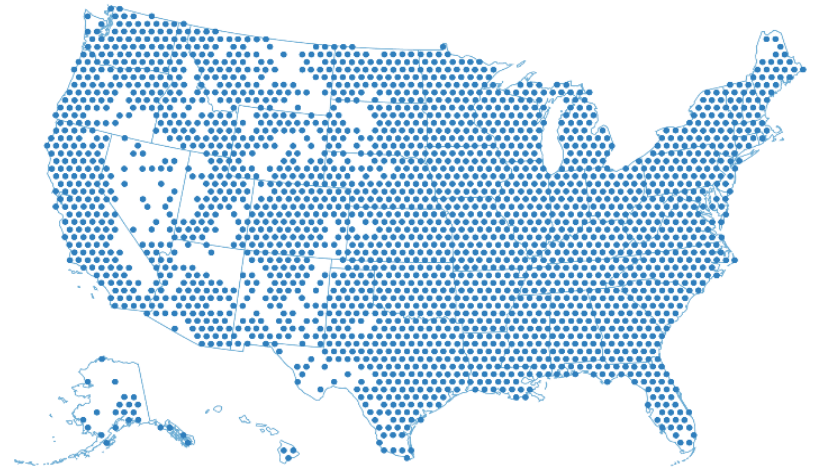
Fannie Mae was the largest issuer of single-family mortgage securities in the third quarter of 2020.

## Q3 2020 Market Share:

Single-Family Mortgage-Related Securities Issuances Share

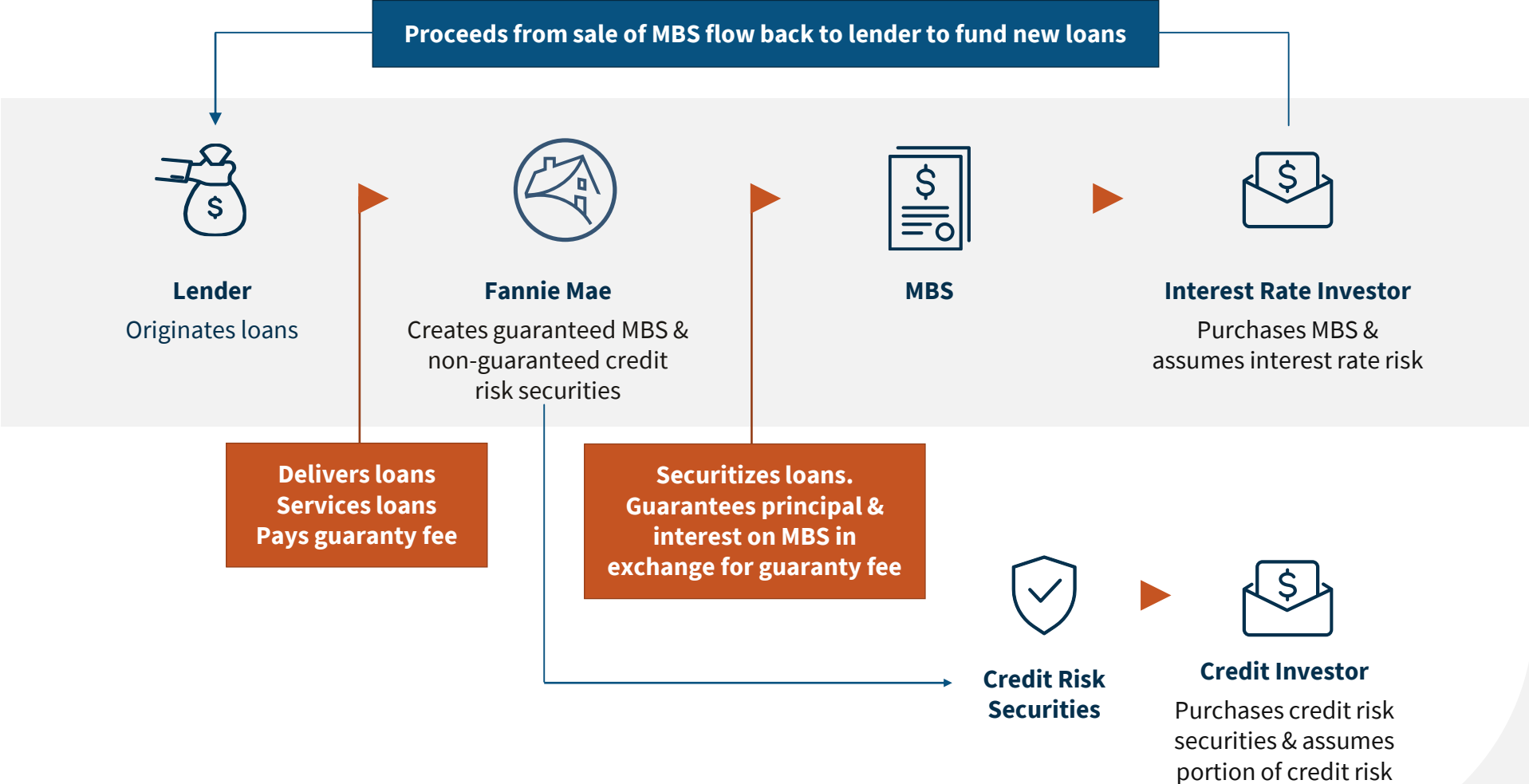


We provided \$933 billion in single family mortgage liquidity across the country in the first nine months of 2020.



# Our Single-Family Business

Providing liquidity to the housing market and investment options to rates and credit investors.

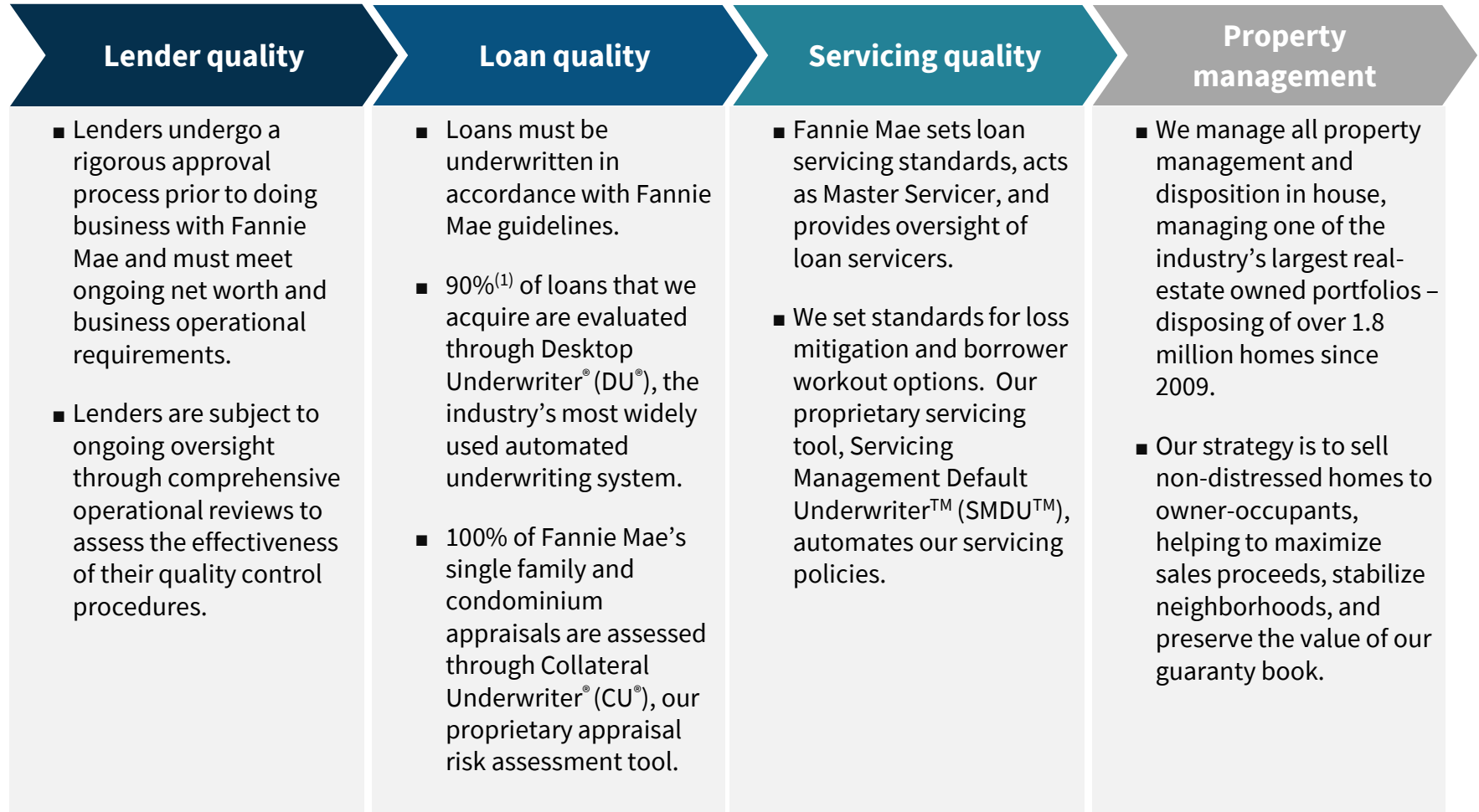




# Credit Risk Management



# Our Credit Risk Management Approach



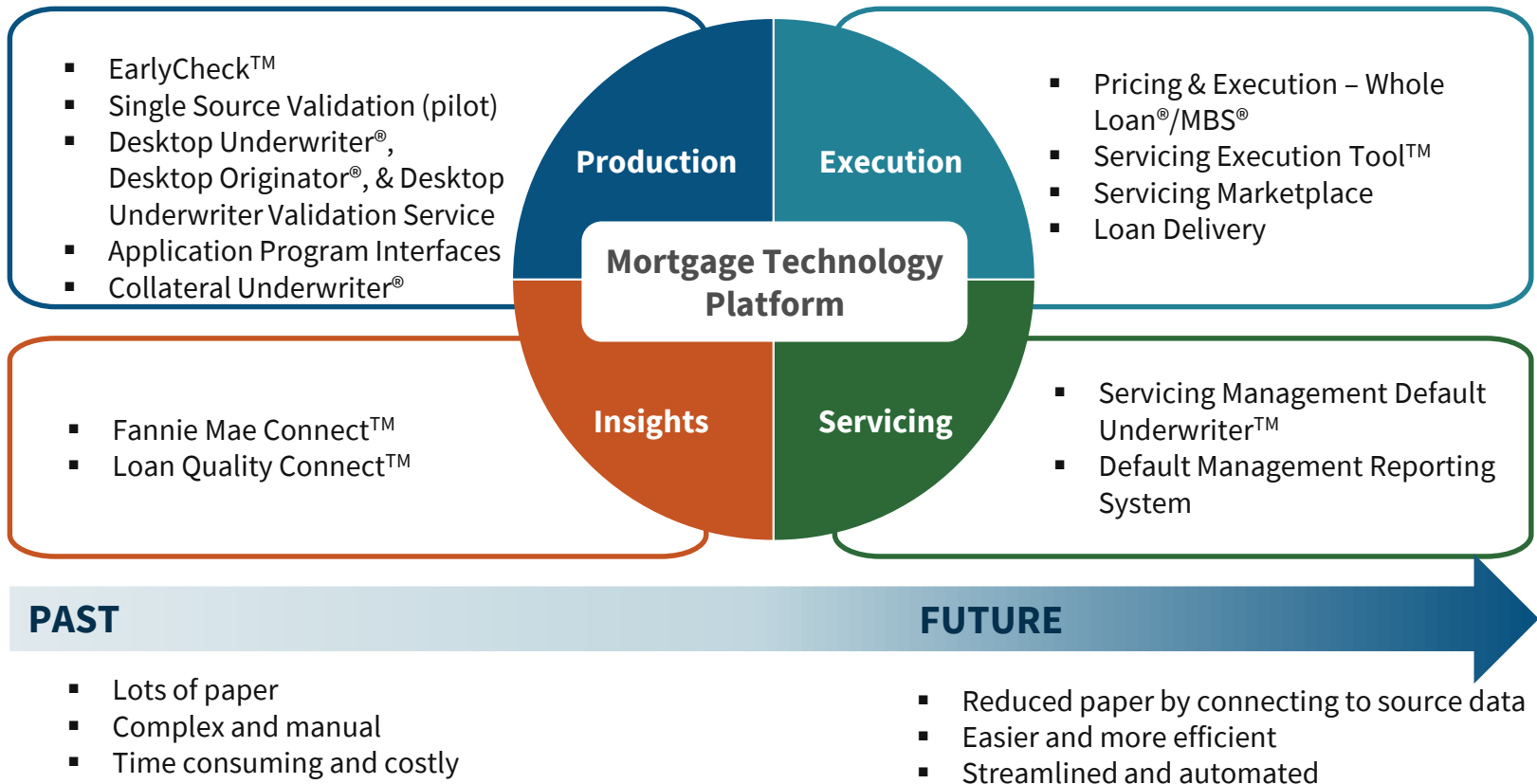
<sup>(1)</sup> Approximate





# Our Goal: Reducing Credit Losses Through a Fully Digital and Secured Mortgage Process

Improve quality and drive efficiency by using data and eliminating manual processes throughout the entire lifecycle.



# Credit Risk Management Highlights

Fannie Mae's industry-leading technology drives improved loan quality and better outcomes.

## Desktop Underwriter®



**1,900<sup>(1)</sup>**  
Lenders/Agents



Loan deliveries in 2020  
through DU®<sup>(1)</sup>

- In 1H 2020, \$516 BN in UPB delivered to Fannie Mae had one or more **Day 1 Certainty®** components

(1) Approximately 1200 lenders actively deliver loans to Fannie Mae through DU on an annual basis. Approximately 700 additional lenders are approved for DU access.

## Collateral Underwriter®



**22,790+**  
Registered Users\*

**3,270+**  
Registered Lenders/  
Agents

- **100%** of single-family and condominium appraisals go through CU as part of our QC process

\*Since January 2015



**45 Million+**  
Appraisals collected to date

**7.4 Million+**  
Appraisals viewed by lenders since launch

## Servicing Management Default Underwriter™

**~95% of**  
Delinquencies  
covered through  
SMDU



**1-2 hours**  
saved per loan with  
automated loss mitigation



- Over **1,000 servicers** currently benefit from SMDU through B2B integration or through the SMDU User Interface
- Provides **consistent decisioning** for loss mitigation solutions

## Real Estate Owned

**1.8 million+**  
Homes disposed of since 2009  
(industry's largest distressed  
portfolio)

**HomePath.com**  
**72+ Million**  
Users to date

- Best execution approach to sell real estate based on NPV comparison to move-in ready home sold to owner occupant
- **100% of REO sales** managed in-house: resulting in lower costs, higher sales prices, and reduced severities





# Program overview



# Fannie Mae's Connecticut Avenue Securities (CAS program)

Since 2013, we've grown into the premier, award-winning mortgage credit risk transfer program in the industry, with:

- The creation of the innovative CAS REMIC®
- Industry-leading, data-driven credit risk management methodologies
- Thoughtful and consistent issuance approach
- Transparent and unique investor resources
- Maturing and liquid market

Largest mortgage credit book in the industry, with innovative tools to improve the loan manufacturing process

**\$47 billion**  
issued under the CAS  
program since 2013

Transferred a portion  
of risk on

**\$1.5 trillion**  
in unpaid principal balance of  
mortgage loans  
at time of CAS issuance

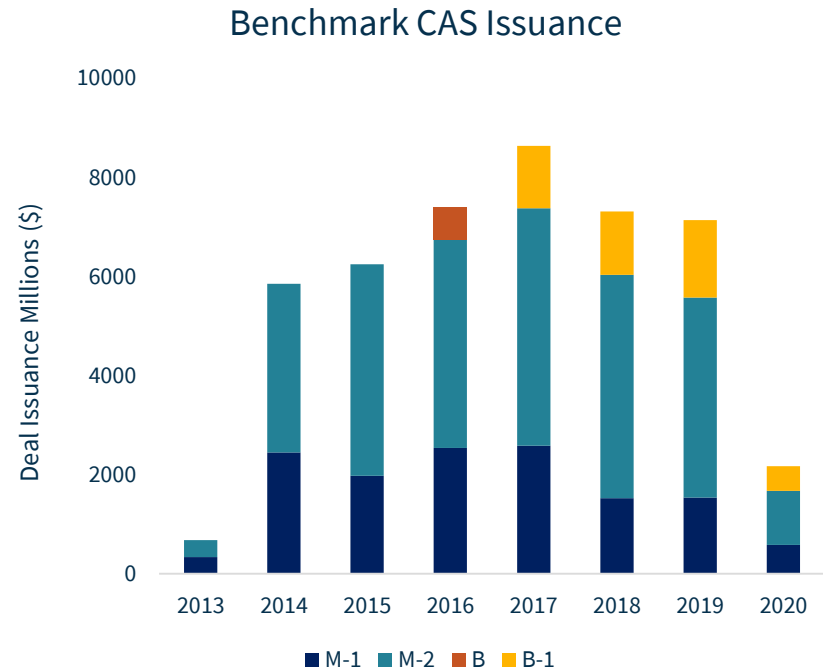
Transparent credit risk  
management process with  
historical research dataset of  
over

**44 million**  
loans



# CAS Program Highlights

- Large, geographically diversified loan pools provide **broad exposure to U.S. housing market**
- Fannie Mae serves as the **credit risk manager** – acting as an intermediary between the lender and investor to set standards, manage quality, mitigate losses, and maximize value
- **Consistent structures** promote liquidity and facilitate comparison of deals across time
- **Broad Wall Street coverage**, daily markets, and publishing research and analytics
- Pricing and trading volume available on **TRACE and Bloomberg**
- **Active deal management** – includes receiving ratings on previously unrated CAS bonds
- Transparent investor resources – including our investor analytical tool, **Data Dynamics**<sup>®</sup>
- All on-the-run CAS deals issued in or after November 2018 qualify as **REMICS**



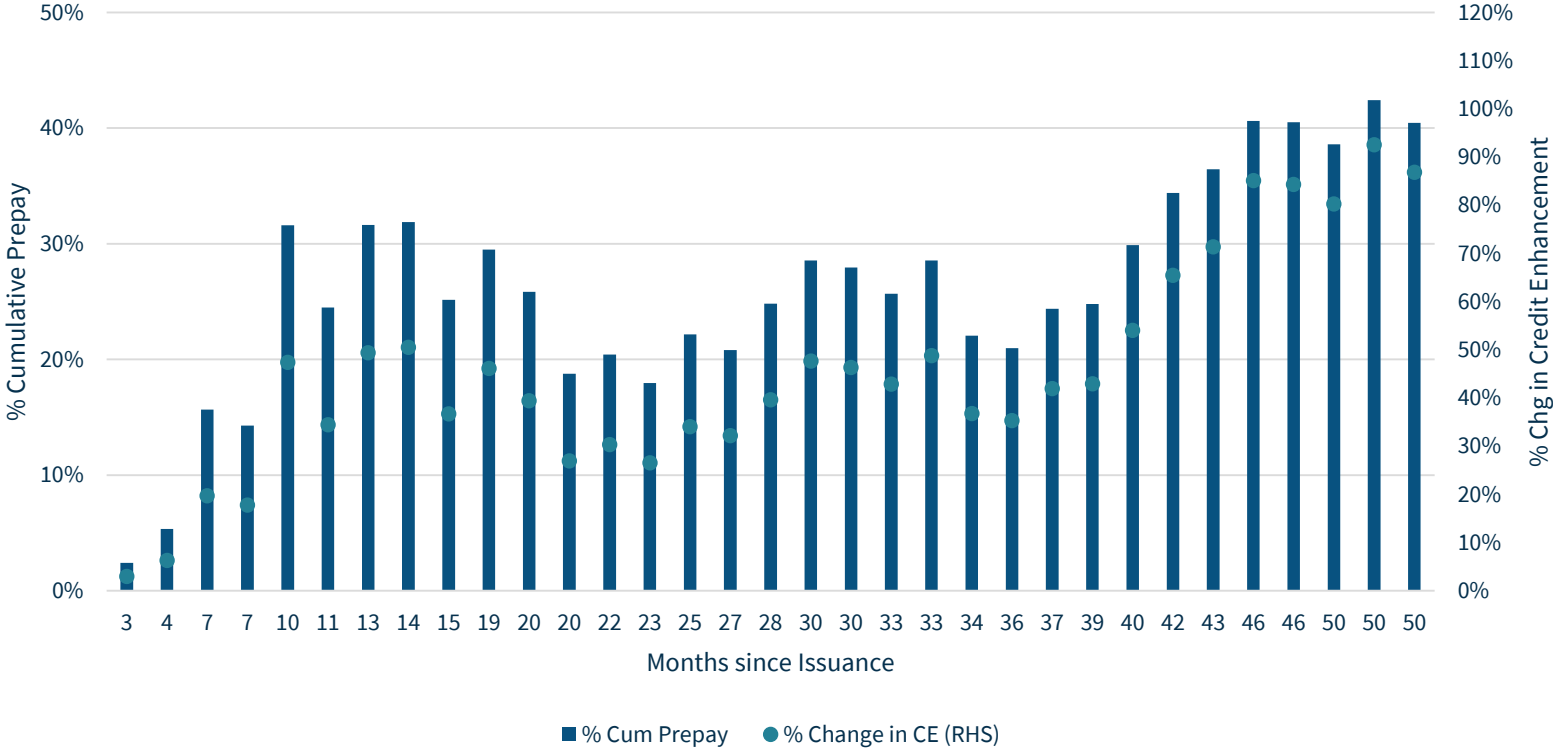
Fannie Mae has issued **\$47 BN under the CAS program** to date, and **\$24.1 BN in bonds** remain outstanding as of September 2020.



# Credit Enhancement Levels Have Increased With Seasoning

Deals are structured to result in bond de-levering as loans pay down

2016-2019 CAS M2 Bond Changes in Credit Enhancement

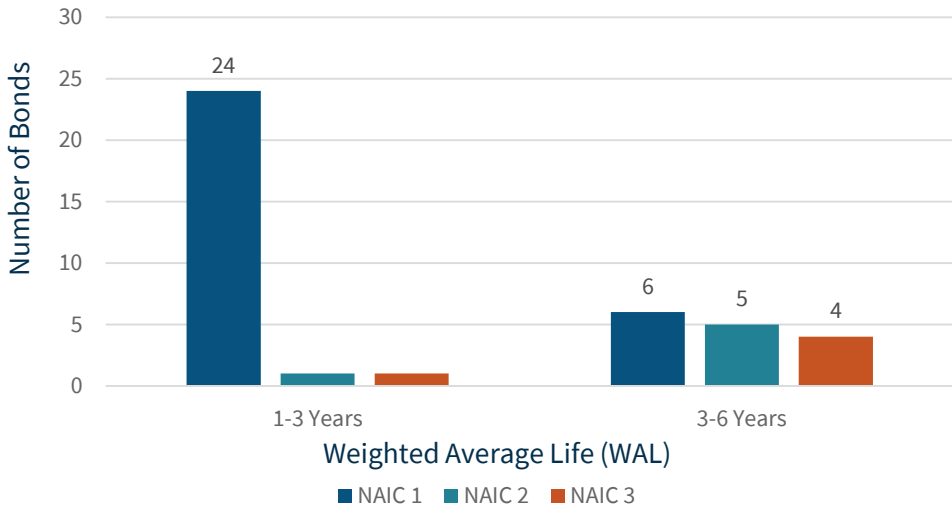


Source: Fannie Mae, Bloomberg

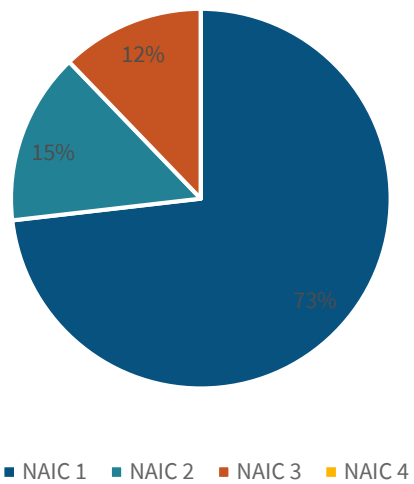
# CAS Direct Debt NAIC Designations for 2020

- All M1 bonds rated by NAIC in 2019 have paid off – 100% of which were rated NAIC 1.
- Ten direct debt bonds consisting of Exchangeable or RCR cohorts received upgrades for 2020.
- Thirty M2 bonds maintained their NAIC 1 rating from last year.

Direct Debt M-2 Classes by NAIC Designation



Direct Debt M2 Classes by NAIC rating



Note: The current WALs were run on December 31, 2020. NAIC designations as of the 2020 filing year.

CAS direct debt transactions received **favorable NAIC designations** for the 2020 filing year



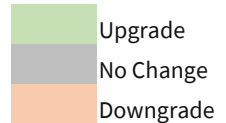
# CAS Bond Ratings – At Issuance vs Current

- All CAS M1 bonds and 63 M2 bonds have current ratings the same as or higher than their rating at issuance.

**M1 Rating Transition Matrix**

At Issuance Rating

A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	M1	Current Rating*
1			3	1	4					AAA	
				3	4					AA+	
			1	2	2		1			AA	
			3	3	1					AA-	
	1		5	3	2					A+	
	1		1	1	3					A	
		3	2	1	4					A-	
			9		3					BBB+	
				11	1					BBB	
					15					BBB-	
										BB+	
										BB	
										BB-	
										B+	
										B	



**M2 Rating Transition Matrix**

At Issuance Rating

A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	M2	Current Rating*
								1			A+	
								1			A	
							1	2			A-	
			2			2	1	3	2		BBB+	
							1	1	2		BBB	
						2	1	3	3	1	BBB-	
						4	1	4	4		BB+	
								1	5		BB	
						1		6	5		BB-	
						3		2	4		B+	
							1				B	
											B-	

\* - Current ratings as of 12/31/20





# CAS REMIC NAIC Breakpoints for 2020

- The NAIC has applied its approved modeling process to all 2018 and 2019 CAS REMICs
- The NAIC breakpoint grids for the CAS REMIC M-2 Classes are below

DEAL	NOTE CLASS	CUSIP	TYPE*	NAIC 1	NAIC 2	NAIC 3	NAIC 4	NAIC 5	ZERO LOSS
CAS 2018-R07	1M2	20753QAE9	AVR	99.44	101.59	106.36	118.08	134.14	N
CAS 2019-R01	2M2	20754FAK8	AVR	97.08	99.18	103.84	115.28	130.96	N
CAS 2019-R02	1M2	20753KAB8	AVR	99.83	101.99	106.78	118.54	134.67	N
CAS 2019-R03	1M2	20753MAF5	AVR	99.68	101.84	106.62	118.36	134.47	N
CAS 2019-R04	2M2	20753TAB9	AVR	98.24	100.37	105.08	116.66	132.53	N
CAS 2019-R05	1M2	20754HAE8	AVR	99.93	102.1	106.89	118.66	134.81	N
CAS 2019-R06	2M2	20754JAB0	AVR	96.54	98.62	103.25	114.63	130.23	N
CAS 2019-R07	1M2	20753WAF3	AVR	97.87	99.99	104.68	116.22	132.03	N
CAS 2018-R07	1M2	20753QAE9	NON-AVR	99.24	100.1	101.91	106.3	123.25	N
CAS 2019-R01	2M2	20754FAK8	NON-AVR	96.89	97.72	99.49	103.78	120.32	N
CAS 2019-R02	1M2	20753KAB8	NON-AVR	99.63	100.49	102.31	106.72	123.73	N
CAS 2019-R03	1M2	20753MAF5	NON-AVR	99.48	100.34	102.15	106.56	123.54	N
CAS 2019-R04	2M2	20753TAB9	NON-AVR	98.04	98.89	100.68	105.02	121.76	N
CAS 2019-R05	1M2	20754HAE8	NON-AVR	99.73	100.59	102.41	106.83	123.85	N
CAS 2019-R06	2M2	20754JAB0	NON-AVR	96.34	97.17	98.93	103.2	119.64	N
CAS 2019-R07	1M2	20753WAF3	NON-AVR	97.68	98.52	100.3	104.63	121.3	N

\*Note:

AVR = Applies to NAIC reporting entities that maintain an Asset Valuation Reserve (AVR), generally life and health insurance companies

Non-AVR = Applies to NAIC reporting entities that do not maintain an Asset Valuation Reserve, generally property & casualty and HMO insurance companies

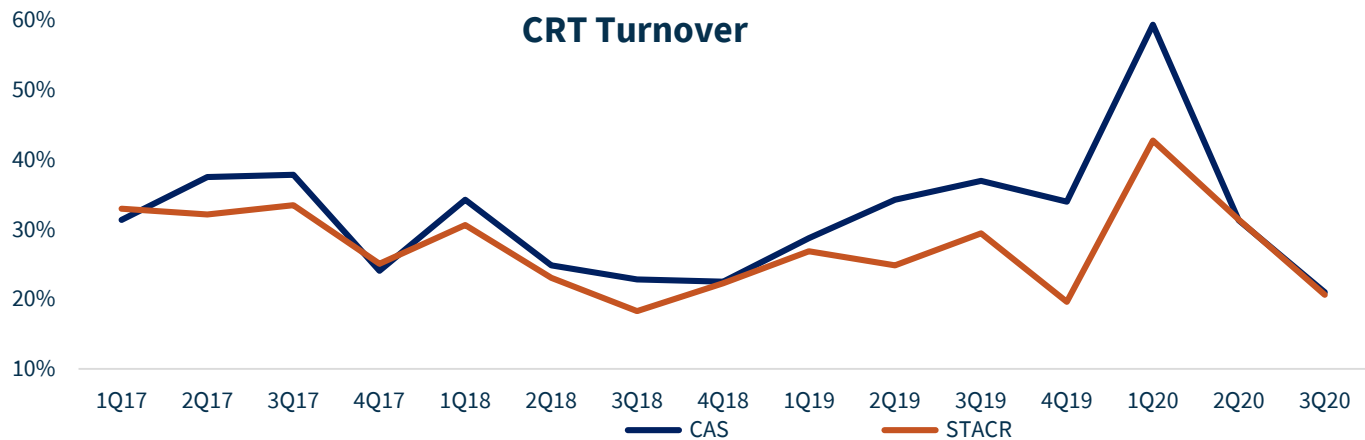
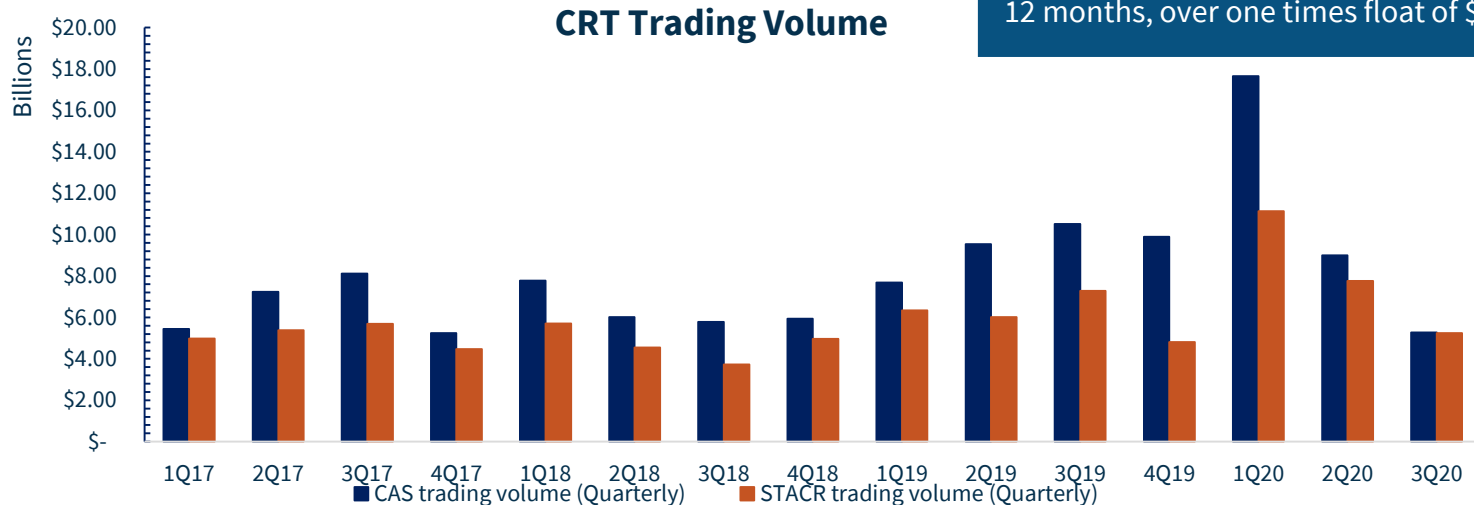
Note: Items in yellow reflect the current designations

Fannie Mae received breakpoints on **all CAS REMIC transactions** issued in 2018 and 2019



# CRT Quarterly Trading Volume and Turnover

\$42B of secondary trading in CAS bonds in the last 12 months, over one times float of \$24.1B\*



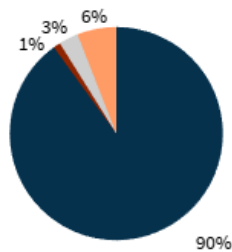
Source: Fannie Mae trading survey, Bloomberg  
 \* As of September 2020  
 \*\*Note: total quarterly trading volume/average quarterly outstanding UPB



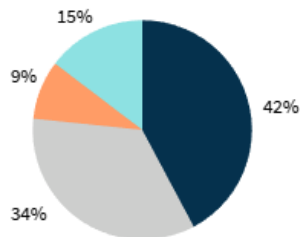
# CAS Benchmark Program to Date

## Investor Distribution

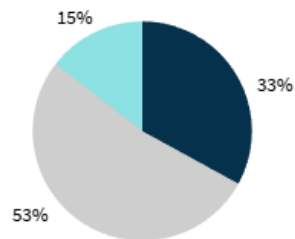
2020 M1



2020 M2



2020 B1



■ Asset Manager
 ■ Depository Institution/Bank
 ■ Hedge Fund/Private Equity
 ■ Insurance Company
 ■ REIT

Percentage (by allocation)

	2013	2014	2015	2016	2017	2018	2019	2020
Asset Manager	64%	61%	80%	83%	82%	81%	92%	90%
Depository Institution/Bank	5%	11%	2%	0%	0%	0%	0%	1%
Hedge Fund/Private Equity	19%	18%	6%	6%	8%	5%	7%	3%
Insurance Company	12%	10%	12%	11%	10%	14%	1%	6%
REIT	0%	0%	0%	1%	0%	0%	0%	0%

Percentage (by allocation)

	2013	2014	2015	2016	2017	2018	2019	2020
Asset Manager	35%	50%	36%	42%	41%	35%	53%	42%
Depository Institution/Bank	1%	6%	0%	0%	0%	0%	0%	0%
Hedge Fund/Private Equity	63%	42%	57%	49%	46%	54%	39%	34%
Insurance Company	0%	0%	0%	1%	3%	0%	0%	9%
REIT	1%	2%	7%	8%	10%	11%	7%	15%

Percentage (by allocation)

	2017	2018	2019	2020
Asset Manager	45%	43%	24%	33%
Hedge Fund/Private Equity	50%	52%	67%	53%
Insurance Company	1%	0%	0%	0%
REIT	4%	5%	9%	15%



# CAS Deal Structure Overview



# CAS REMIC Overview

## Investor

### Benefits

- Better treatment under REIT income and asset tests for tax purposes
- Removes tax impediments for non-U.S. investors to enable participation in non-rated tranches
- Helps insulate investors from potential future counterparty risk exposure to Fannie Mae
- Simplifies and aligns tax treatment of CAS with other mortgage related securities

## Fannie Mae

### Benefits

- Supports expansion of the CAS program investor base
- Achieves insurance accounting treatment for CAS, which aligns the timing of the recognition of CAS benefits with credit losses

## Enabling REMIC eligibility

- In order to facilitate this change, a REMIC tax election is made for a majority of single-family loans we acquire and securitize in MBS, beginning with loans in MBS pools issued on and after **May 1, 2018**
- Extensive industry outreach indicates market agreement that there is no impact to MBS
- SIFMA's TBA Committee voted on the new structure proposal, identifying no issues that would impair the TBA eligibility
- The nature of our MBS, remittances, and cash flows to MBS investors, are unchanged

Starting with 2018-R07, all on-the-run CAS deals in or after November 2018 qualify as REMICs



# CAS REMIC Key Deal Features

Most of the features of the existing CAS structure are unchanged:

- Loan eligibility
- Capital structure
- Actual loss calculations
- Modification loss calculations
- High LTV Refinance program provisions (i.e., continuance of coverage for loans that refinance under the High LTV Refi program)
- Timing of cash flows and loss allocations
- Final maturity date/call date
- Offered as par-priced uncapped LIBOR floater
- Risk retention features

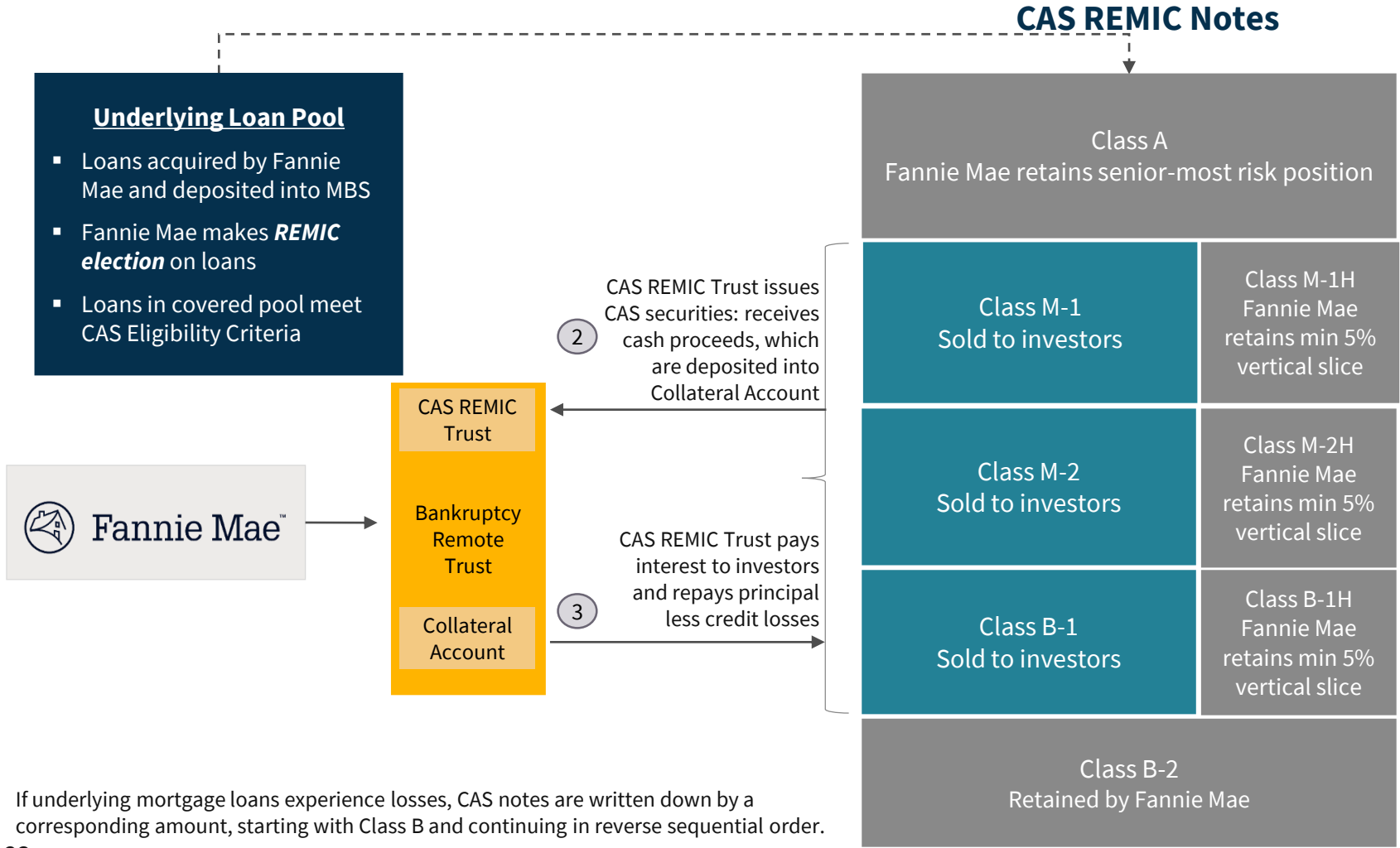
## **CFTC Considerations:**

Like the previous CAS debt transactions, the CAS REMIC has been structured in a manner that does not involve any swaps; therefore the transaction is **not** considered a Commodity Pool



# CAS REMIC Structure Mirrors Legacy CAS Program

1 Credit and prepayment performance of the underlying mortgage loans determines performance of CAS securities  
 REMIC regular interests that are associated with the loans are conveyed to the CAS REMIC



If underlying mortgage loans experience losses, CAS notes are written down by a corresponding amount, starting with Class B and continuing in reverse sequential order.



# CAS 2020-R01 Transaction Overview

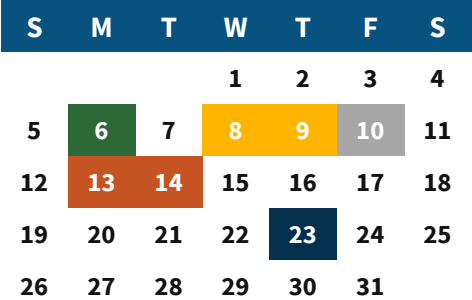
Est. \$1.033 billion in offered notes<sup>(1)</sup>

Class	Loan Group	Offered Notes (Est. \$MM)	Credit Support (%)	Tranche Thickness (%)	Expected Ratings (Fitch/KBRA)	10% CPR to Early Redemption		20% CPR to Early Redemption	
						Expected WAL (yrs)	Expected Principal Window	Expected WAL (yrs)	Expected Principal Window
1M-1	1	\$303.085	2.85%	1.10%	BBB-sf / BBB+ (sf)	2.58	1 – 48	1.37	1 – 25
1M-2	1	\$523.509	0.95%	1.90%	Bsf / BB (sf)	6.25	48 – 84	3.94	25 – 79
1B-1	1	\$206.648	0.20%	0.75%	NR / NR	7.01	84 – 84	6.98	79 – 84
1B-2	1	\$0.000	0.00%	0.20%	N/A	N/A	N/A	N/A	N/A

<sup>(1)</sup> The Maturity Date for all classes will be January 2040. First Early Redemption Date will be January 2027.

## Transaction Timeline\*

### January 2020



- Tape Release
- Pre-Marketing
- Broad Investor Call
- Execution
- Closing

### Deal timing:

- Loan Data File: January 6, 2020
- Pre-Marketing: January 8 - 10, 2020
- CAS 2020-R01 Broad Investor Call: January 10, 2020
- CAS 2020-R01 Execution: January 13 - 14, 2020
- Closing and Settlement: January 23, 2020

\*All dates are approximate





# CAS 2020-R02 Transaction Overview

Est. \$1.134 billion in offered notes<sup>(1)</sup>

Class	Loan Group	Offered Notes (Est. \$MM)	Credit Support (%)	Tranche Thickness (%)	Expected Ratings (S&P/KBRA)	10% CPR to Early Redemption	
						Expected WAL (yrs)	Expected Principal Window
2M-1	2	\$276.657	3.35%	1.00%	BBB-(sf) / BBB (sf)	2.02	1 – 38
2M-2	2	\$567.147	1.30%	2.05%	B+(sf) / BB- (sf)	5.67	38 – 84
2B-1	2	\$290.490	0.25%	1.05%	NR / NR	6.95	84 – 84
2B-2	2	\$0.000	0.00%	0.25%	N/A	N/A	N/A

<sup>(1)</sup> The Maturity Date for all classes will be January 2040. First Early Redemption Date will be January 2027.

## Transaction Timeline\*

### January 2020

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

### February 2020

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

- Tape Release
- Pre-Marketing
- Broad Investor Call
- Execution
- Closing

### Deal timing:

Loan Data File: January 27, 2020

Pre-Marketing: January 29 - 31, 2020

CAS 2020-R02 Broad Investor Call: January 31, 2020

CAS 2020-R02 Execution: February 3 - 4, 2020

Closing and Settlement: February 12, 2020

\*All dates are approximate



# CAS 2020-R01 Structural Overview (Group 1)

**Reference Pool**  
**June 2019 – August 2019\***  
**(Loans with REMIC election)**

**Group 1 Loans**  
**Original LTV 60.01 – 80.00%**

**Class 1A-H**  
**96.05% thick**  
**3.95% credit support (initial)**  
**4.65% credit support (required)**

**Class 1M-1**  
**1.10% thick**  
**2.85% credit support**

**Class 1M-1H**  
**(5% vertical slice)**

**Class 1M-2**  
**1.90% thick**  
**0.95% credit support**

**Class 1M-2H**  
**(5% vertical slice)**

**Class 1B-1**  
**0.75% thick**  
**0.20% credit support**

**Class 1B-1H**  
**(5% vertical slice)**

**Class 1B-2H**  
**0.20% thick;**  
**0.00% credit support**

- 20-year legal final maturity; Fannie Mae optional call starting in year 7
- Reference Pool contains only 60.01-80.00% LTV loans
- Loans acquired October 2018-August 2019 and securitized into MBS pools issued in July 2019-September 2019
- Notes are par-priced uncapped LIBOR floaters
- Fannie Mae optional 10% clean up call
- Minimum credit enhancement to unlock unscheduled principal is 4.65%
- Credit events are based on actual losses
- 1M-2 class will offer exchange features with rated exchangeable notes
- All classes are issued as REMICs and treated as debt-for-tax
- Fannie Mae will retain 100% of the first loss tranche and at least 5% of all offered tranches. Retention is in line with requirements of Regulation (EU) 2017/2402 Section 5.1(d) regarding retention of material net economic interest

All H tranches are reference tranches only and will not be issued

\*A small portion of loans in the Reference Pool (less than 5% by loan count and UPB) were acquired between October 2018 and May 2019



# CAS 2020-R02 Structural Overview (Group 2)

**Reference Pool**  
**June 2019 – September 2019\***  
**(Loans with REMIC election)**

**Group 2 Loans**  
**Original LTV 80.01 – 97.00%**

**Class 2A-H**  
**95.65% thick**  
**4.35% credit support (initial)**  
**4.95% credit support (required)**

**Class 2M-1**  
**1.00% thick**  
**3.35% credit support**

**Class 2M-1H**  
**(5% vertical slice)**

**Class 2M-2**  
**2.05% thick**  
**1.30% credit support**

**Class 2M-2H**  
**(5% vertical slice)**

**Class 2B-1**  
**1.05% thick**  
**0.25% credit support**

**Class 2B-1H**  
**(5% vertical slice)**

**Class 2B-2H**  
**0.25% thick;**  
**0.00% credit support**

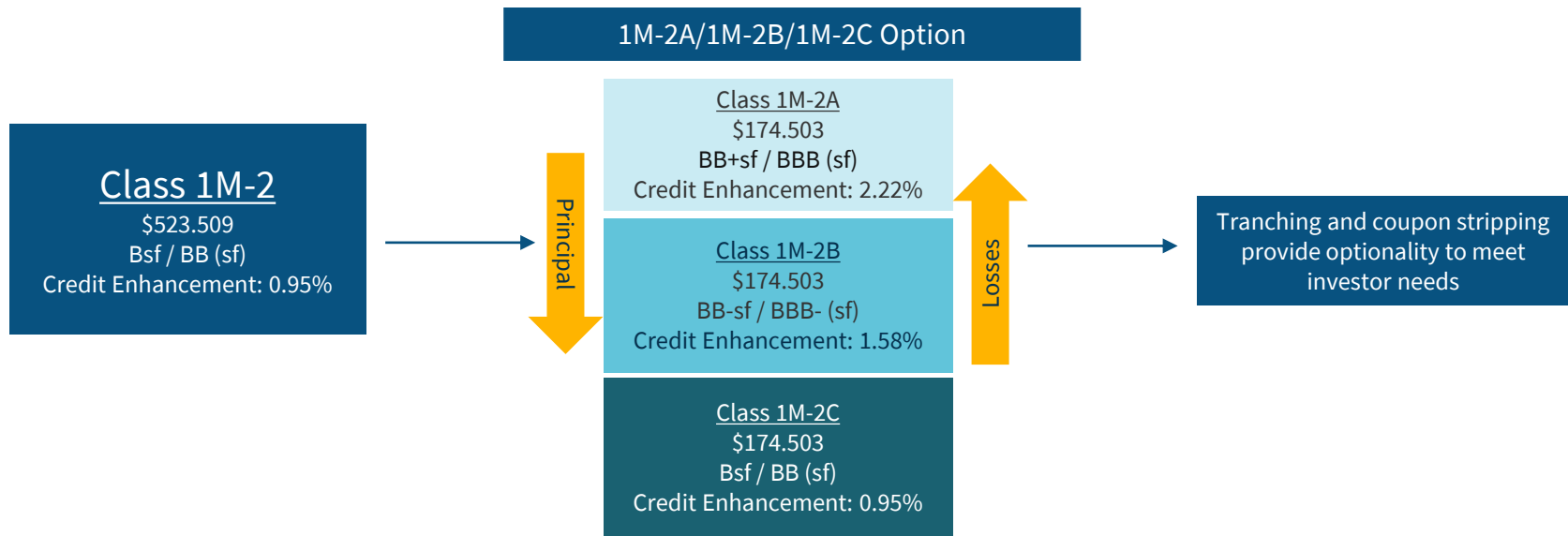
- 20-year legal final maturity; Fannie Mae optional call starting in year 7
- Reference Pool contains only 80.01-97.00% LTV loans
- Loans acquired from November 2018– September 2019 and securitized into MBS pools issued in July 2019-September 2019
- Classes are par-priced uncapped LIBOR floaters
- Fannie Mae optional 10% clean up call
- Minimum credit enhancement to unlock unscheduled principal is 4.95%
- Credit events are based on actual losses
- 2M-2 class will offer exchange features with rated exchangeable notes
- All classes are issued as REMICs and treated as debt-for-tax
- Fannie Mae will retain 100% of the first loss tranche and at least 5% of all offered classes. Retention is in line with requirements of Regulation (EU) 2017/2402 Section 5.1(d) regarding retention of material net economic interest

All H tranches are reference tranches only and will not be issued

\*A small portion of loans in the Reference Pool (less than 5% by loan count and UPB) were acquired between November 2018 and May 2019)



# CAS 2020-R01 Exchangeable Notes (Group 1)



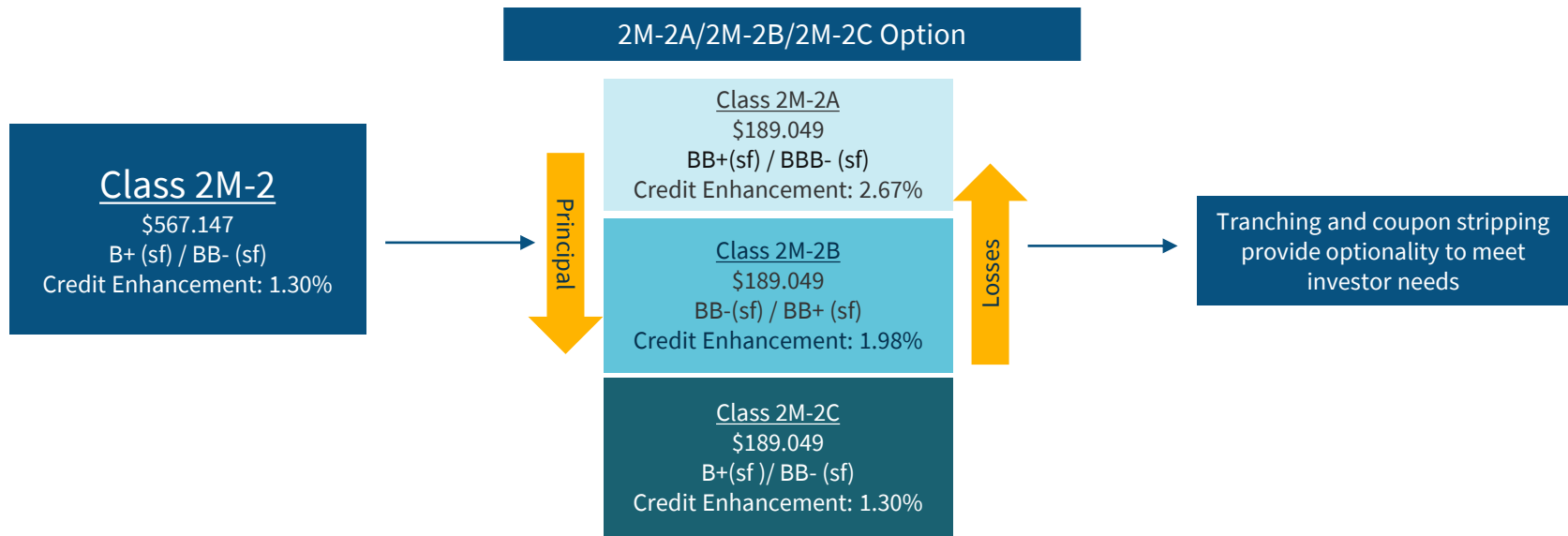
- 1M-2A, 1M-2B and 1M-2C are LIBOR floaters with a margin equal to the 1M-2
- To reduce the coupon, each exchangeable class can be stripped down to exchange into four P&I tranches, each with a different margin and corresponding fixed IO
- Multiple combinations of the floating rate and IO classes are available to meet various investor needs

## REIT-Targeted Exchangeable Notes:

- The introduction of the CAS REMIC added new exchangeable notes giving REIT investors the option to convert 1M-2 and/or 1B-1 notes into separate interest components that distinguish income that counts favorably toward the REIT income test ("good REIT income") from other income
- The exchange of the original note would create two pari passu notes: one that receives only good REIT income and another that receives all other income



# CAS 2020-R02 Exchangeable Notes (Group 2)



- 2M-2A, 2M-2B and 2M-2C are LIBOR floaters with a margin equal to the 2M-2
- To reduce the coupon, each exchangeable class can be stripped down to exchange into four P&I tranches, each with a different margin and corresponding fixed IO
- Multiple combinations of the floating rate and IO classes are available to meet various investor needs

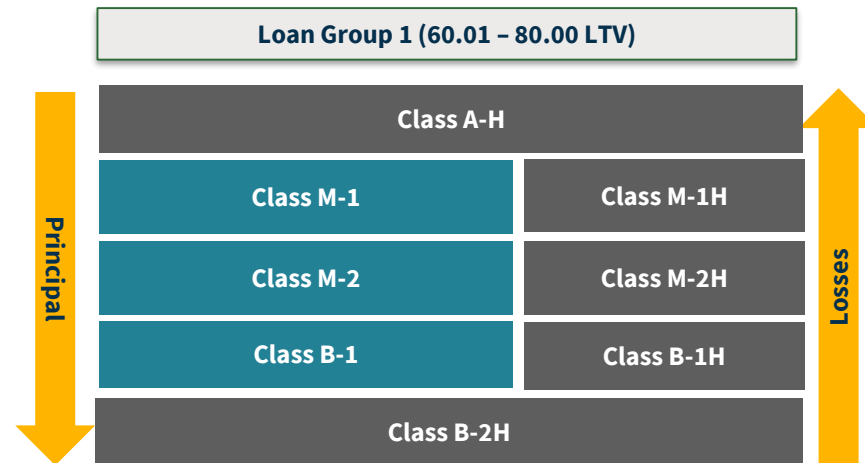
## REIT-Targeted Exchangeable Notes:

- The introduction of the CAS REMIC added new exchangeable notes giving REIT investors the option to convert 2M-2 and/or 2B-1 notes into separate interest components that distinguish income that counts favorably toward the REIT income test ("good REIT income") from other income
- The exchange of the original note would create two pari passu notes: one that receives only good REIT income and another that receives all other income



# Cash Flow Waterfall

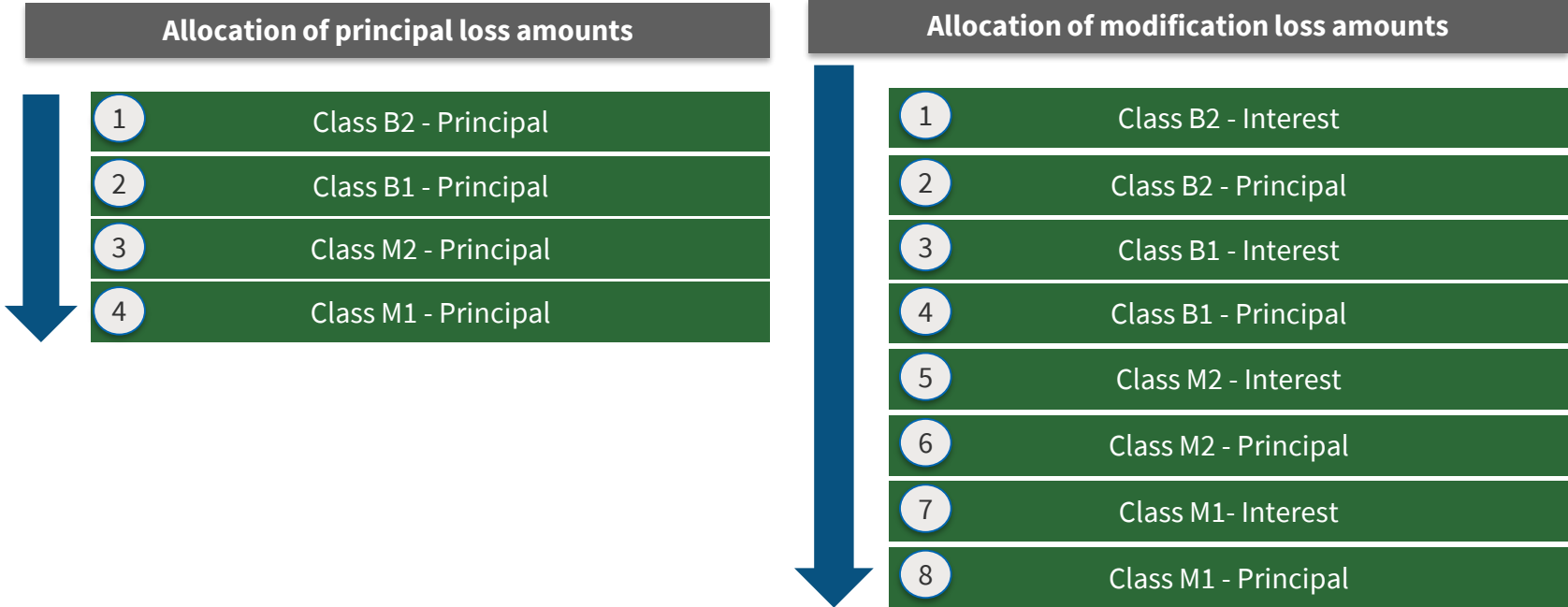
- CAS cash flow structure is similar to typical RMBS transaction cash flows
- Principal payments and losses applied to the notes mirror the activity on the loans in the underlying Reference Pool
- **Principal Payments** are first allocated pro rata between senior notes and subordinate notes, then are applied sequentially to the subordinate notes starting with M-1
  - Deal must meet specified credit enhancement and delinquency tests for the subordinate notes to receive unscheduled principal payments
- **Losses** are applied in reverse sequential order beginning with class B-2H
- Principal payments and losses are allocated pro rata between the sold notes and the retained vertical slice



**Senior Notes:** A class | **Mezzanine Notes:** M classes | **Subordinate Notes:** B classes | **Retained Vertical Slice:** 1M-1H, 1M-2H, 1B-1H



# Credit Events and Allocation of Losses



# Actual Loss Calculation – Principal Losses

Losses at Disposition		
(+)	Loan Balance	UPB at time of removal from reference pool (including any prior principal forgiveness amount)
(+)	Total Liquidation Costs	Foreclosure Expense
		Property Preservation Expense
		Asset Recovery Expense
		Miscellaneous Holding Expenses/Credits
		Associated Taxes
(+)	Accrued Interest	Unpaid interest from Last Paid Installment date through Disposition Date on interest-bearing UPB, based on net Note rate (Note Rate net of servicing fee or 35 bps, whichever is greater)
(-)	Total Proceeds	Net Sales Proceeds
		Credit Enhancement Proceeds (Mortgage Insurance Proceeds)
		Repurchase/ Make Whole Proceeds
		Other Proceeds

Expenses and proceeds associated with a credit event are passed through to noteholders 90 days after the disclosed Disposition Date (e.g., property sale date). Any remaining trailing expenses and proceeds are passed through on a monthly basis thereafter as received.





# Modification Losses

Modification	Borrower Impact	Loss to Investor
<b>Interest Rate Reduction</b>	Reduces monthly interest rate borrower pays on loan obligation	Losses passed through based on the difference between the modified and original note rate paid on the outstanding loan balance
<b>Principal Forbearance</b>	Mortgage payments are suspended for a specific period of time; the portion of suspended principal does not bear interest and is due at termination of the loan	Loss reflects foregone interest on non interest bearing portion of UPB
<b>Term Extension</b>	Loan term is extended to reduce borrower monthly payments	No loss to investor
<b>Principal Forgiveness*</b>	Outstanding principal loan balance is subject to a one time principal reduction based on established eligibility criteria	<ul style="list-style-type: none"> <li>▪ At time of principal forgiveness, no modification losses will be passed through to noteholders</li> <li>▪ The forgiven UPB amount will be treated as unscheduled principal at the time of the modification</li> <li>▪ If the modified loan subsequently experiences a credit event, the amount of the principal forgiveness will be included in the credit event net loss (realized loss calculation)</li> </ul>

Modification losses are passed through to noteholders on a monthly basis once a permanent modification takes effect. No losses are incurred during a modification trial period (typically 3 months).

\*Fannie Mae does not anticipate that any loans referenced in CAS deals will be eligible for Principal Forgiveness

\*Principal Forgiveness Eligibility Criteria: <http://www.fhfa.gov/Media/PublicAffairs/Pages/FHFA-Announces-PRM-Program-and-Further-Enhancements-to-NPL-Sales-Reqts.aspx>



# Collateral Account: Mechanics and Eligible Investments

## Collateral account

- Fannie Mae will deposit CAS REMIC note issuance proceeds into a collateral account held by the Bankruptcy Remote Trust
- Funds held in collateral account are used to return principal to CAS investors, as well as to compensate Fannie Mae for actual loan losses
- Third-party investment manager will invest funds subject to a pre-defined list of eligible investment criteria designed to meet the dual objectives of preservation of capital and timely liquidity (e.g. Short term US gov't obligations, money market funds, etc.)
- Investment guidelines designed to meet Rating Agency criteria to support up to a AAA future rating on CAS notes

## Eligible investment guidelines

Eligible Investments are limited to:

- United States government obligations (guaranteed/backed or issued by the U.S government) without specified rating limits, if the obligations are scheduled to mature before the next Payment Date
- Repurchase obligations with a term scheduled to mature prior to next Payment Date on obligations issued or fully guaranteed by the U.S. government, entered into with a depository institution or trust company incorporated under the laws of the U.S. or any state thereof, provided that at time of investment the short-term issuer rating of such institutions shall have a credit rating of at least 'A1', 'P1', 'F1+' or equivalent from at least one U.S. nationally recognized statistical rating organization (NRSRO)
- Money market funds (MMF): investments in U.S. government money market funds or other liquidity products similar to U.S. government money market funds, provided they are designed to meet the dual objective of preservation of capital and timely liquidity



# CAS 2020-R01 G1 Reference Pool Selection Process

Oct 2018 – August 2019 Total Acquisitions of \$446BN Original UPB



Reserved for Reinsurance



Random Division

**Loans have REMIC election and were securitized in MBS issued in July 2019 – September 2019\***

**Fully amortizing, generally 25-year and 30-year fixed rate\*\*, 1-4 unit, first lien, conventional**

**Not Refi Plus™ / Not HARP**

**60% < Loan-to-Value ≤ 80%**

0 x 30 payment history since acquisition

Not subject to a repurchase request as of Cut-Off Date

Not subject to any form of risk sharing with the loan seller and/or servicer



100% of October 2018 – August 2019 Available Loans



**Connecticut Avenue Securities: \$29.0BN Current UPB \*\*\***

\*October 2018 – August 2019 acquisitions were pooled into REMIC-eligible MBS in July 2019 – September 2019.

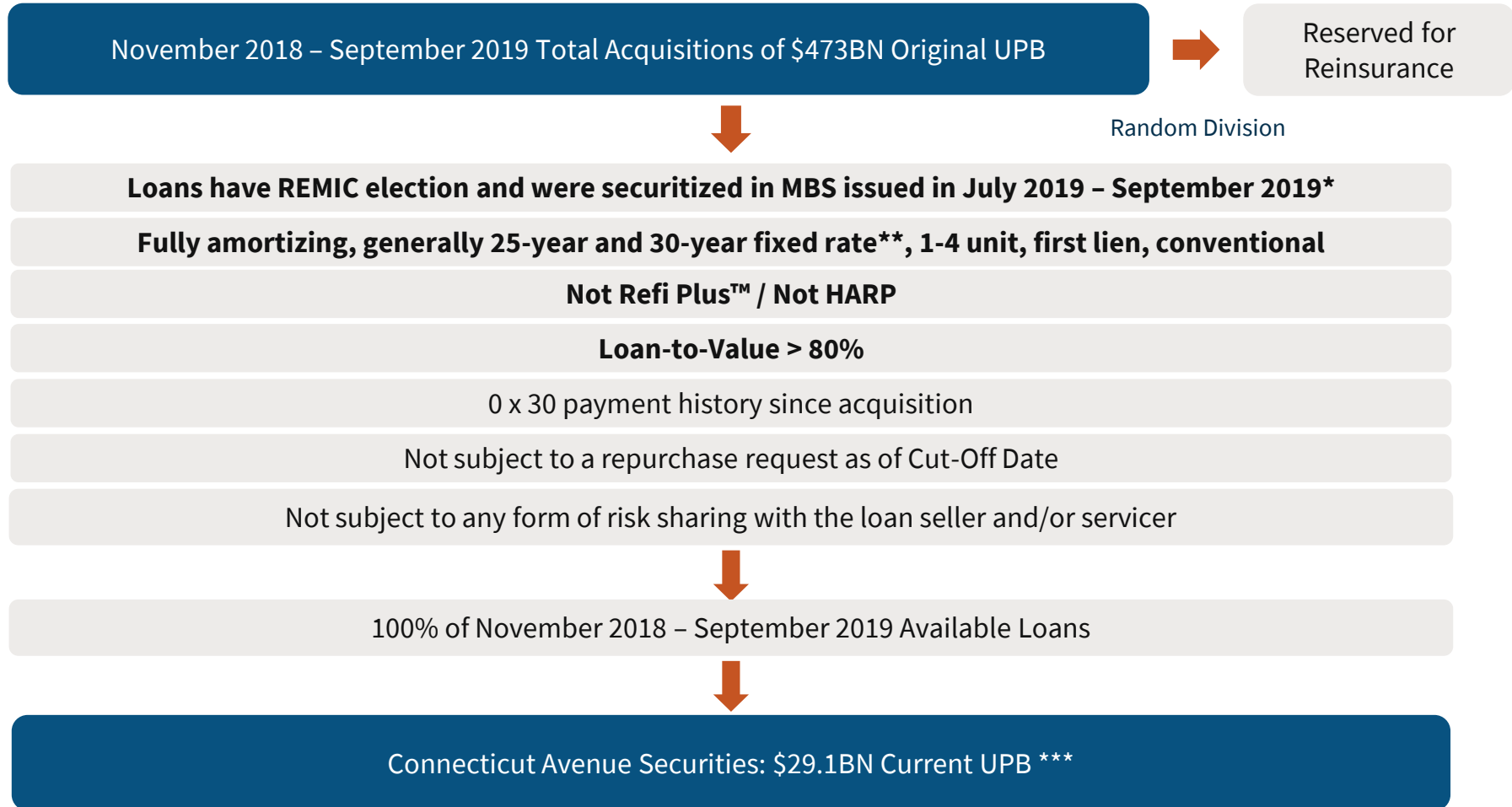
\*\*All loans will have terms greater than 240 months and less than or equal to 360 months. Other minimal exclusion criteria apply.

\*\*\* Current UPB Reflects CAS 2020-R01 November 2019 Book Profile. Numbers may not foot due to rounding.

Fannie Mae acquires HARP loans under its Refi Plus™ initiative, which provides expanded refinance opportunities for eligible Fannie Mae borrowers.



# CAS 2020-R02 G2 Reference Pool Selection Process



\*November 2018 – September 2019 acquisitions were pooled into REMIC-eligible MBS in July 2019 – September 2019.

\*\*All loans will have terms greater than 240 months and less than or equal to 360 months. Other minimal exclusion criteria apply.

\*\*\* Current UPB Reflects CAS 2020-R02 November 2019 Book Profile. Numbers may not foot due to rounding.

Fannie Mae acquires HARP loans under its Refi Plus™ initiative, which provides expanded refinance opportunities for eligible Fannie Mae borrowers.



# Acquisition Profile

## 60.01-80.00 LTV CAS Eligible Loan Acquisition Profile

Orig Date	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
<b>Original UPB (\$M)</b>	\$ 18,709	\$ 21,246	\$ 23,631	\$ 23,193	\$ 23,766	\$ 22,629	\$ 22,523	\$ 34,597	\$ 56,906	\$ 58,230	\$ 63,722	\$ 64,917	\$ 78,888	\$ 69,145
<b>WA Note Rate</b>	4.1%	4.0%	3.9%	3.9%	3.9%	3.9%	3.9%	3.8%	3.5%	3.4%	3.4%	3.3%	3.2%	3.0%
<b>WA FICO</b>	753	754	757	755	753	753	752	756	759	761	762	763	764	765
<b>WA DTI</b>	35.3%	35.0%	34.4%	34.8%	35.2%	35.4%	35.5%	34.8%	33.8%	33.2%	33.2%	33.2%	33.2%	33.0%
<b>WA OLTV</b>	69.6%	69.3%	68.8%	68.2%	68.5%	68.2%	68.1%	68.3%	68.0%	67.3%	66.6%	66.7%	66.7%	66.5%
<b>WA CLTV</b>	70.0%	69.8%	69.2%	68.7%	69.0%	68.7%	68.6%	68.7%	68.4%	67.9%	67.3%	67.4%	67.3%	67.0%
<b>% Purchase</b>	47.3%	41.9%	32.7%	32.0%	32.9%	32.0%	29.0%	26.6%	22.9%	17.7%	17.9%	23.4%	26.0%	26.8%
<b>% CA</b>	20.4%	21.5%	23.2%	22.5%	23.3%	24.6%	25.4%	26.9%	26.6%	25.9%	27.3%	28.3%	28.7%	29.6%
<b>WA Risk Layers<sup>1</sup></b>	0.57	0.55	0.52	0.56	0.59	0.61	0.64	0.59	0.50	0.48	0.46	0.43	0.43	0.42
<b>% Investor</b>	7.5%	6.9%	6.2%	6.7%	6.5%	7.0%	7.2%	7.5%	6.5%	5.2%	5.3%	5.1%	6.1%	6.5%
<b>% FICO &lt; 680</b>	7.1%	6.3%	5.3%	5.8%	6.0%	6.4%	6.6%	5.6%	4.6%	4.0%	4.0%	4.0%	4.1%	3.8%
<b>% Cashout</b>	26.0%	26.3%	27.3%	29.4%	31.7%	32.1%	34.4%	31.8%	27.1%	27.1%	26.1%	22.7%	20.9%	20.8%
<b>%DTI 46-50</b>	16.4%	15.4%	13.9%	14.6%	15.5%	16.1%	15.8%	14.3%	12.3%	11.5%	11.3%	11.6%	11.5%	11.2%

## 80.01-97.00 LTV CAS Eligible Loan Acquisition Profile

Orig Date	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
<b>Original UPB (\$M)</b>	\$ 13,020	\$ 13,093	\$ 12,662	\$ 11,353	\$ 11,731	\$ 11,199	\$ 10,947	\$ 16,589	\$ 25,360	\$ 23,611	\$ 25,154	\$ 27,285	\$ 31,093	\$ 25,648
<b>WA Note Rate</b>	4.1%	4.0%	3.9%	3.9%	3.9%	3.9%	3.9%	3.8%	3.5%	3.5%	3.4%	3.3%	3.2%	3.0%
<b>WA FICO</b>	746	747	750	750	748	749	749	750	751	750	750	750	749	750
<b>WA DTI</b>	37.0%	36.7%	36.4%	36.4%	36.7%	36.8%	36.7%	36.1%	35.6%	35.5%	35.7%	35.9%	35.9%	35.9%
<b>WA OLTV</b>	92.6%	92.4%	91.7%	91.7%	91.7%	91.6%	91.6%	91.5%	91.2%	91.2%	91.5%	91.8%	91.7%	91.7%
<b>WA CLTV</b>	92.6%	92.4%	91.7%	91.7%	91.7%	91.7%	91.6%	91.5%	91.3%	91.2%	91.5%	91.8%	91.8%	91.7%
<b>% Purchase</b>	84.3%	80.8%	71.3%	70.9%	72.3%	72.9%	70.2%	66.8%	61.4%	58.1%	64.5%	72.3%	74.1%	76.0%
<b>% CA</b>	9.6%	10.1%	11.7%	10.7%	12.3%	13.5%	14.0%	13.4%	12.5%	11.5%	12.4%	12.6%	12.6%	13.3%
<b>WA Risk Layers<sup>1</sup></b>	0.23	0.22	0.20	0.20	0.20	0.21	0.20	0.17	0.16	0.16	0.16	0.17	0.17	0.17
<b>% Investor</b>	0.2%	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%
<b>% FICO &lt; 680</b>	5.6%	5.4%	4.3%	4.1%	4.1%	4.3%	4.0%	3.5%	3.3%	3.5%	3.9%	4.4%	4.7%	4.8%
<b>% Cashout</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>%DTI 46-50</b>	17.2%	16.0%	15.2%	15.2%	15.6%	16.0%	15.8%	13.8%	12.9%	12.2%	12.2%	12.6%	12.4%	12.4%

<sup>1</sup> Risk Layers defined as: Investor Property, Cash-out Refinance, DTI > 45 (rounded to the nearest integer), & FICO < 680

Source: Fannie Mae Data, as of September 2020 activity date



# CAS 2020-R01 Group 1 and CAS 2019-R07 Group 1 Reference Pool Summary

	CAS 2020-R01 G1	CAS 2019-R07 G1
Reference Period - Acquisition Months	Oct 2018 - Aug 2019	May 2018 - Jun 2019
MBS Pooling Months	Jul 2019 - Sep 2019	Apr 2019 - Jun 2019
Number of Reference Obligations	105,274	102,286
Aggregate Original Principal Balance	\$29,330,684,000	\$26,566,028,000
Aggregate Current Principal Balance	\$29,003,350,855	\$26,271,425,532
Average Original Principal Balance	\$278,613	\$259,723
Average Current Principal Balance	\$275,503	\$256,843
Gross Mortgage Rate	4.28%	4.61%
Weighted Average Remaining Term	355.7	356.1
Weighted Average Original Term	359.4	359.4
Weighted Average Loan Age	3.6	3.3
Weighted Average Original LTV	75.4%	75.5%
Weighted Average Original CLTV	75.9%	75.9%
Weighted Average DTI	36.0%	36.6%
Weighted Average FICO	750	747
% Refinance	50.3%	45.7%
% Cash-out	24.2%	26.6%
% No Cash-out	26.1%	19.1%
% Owner Occupied	89.1%	86.1%
% SF/PUD	90.4%	89.0%
Top 5 Geographic Concentration	California - 21.34%	California - 20.94%
	Texas - 6.44%	Texas - 7.10%
	Colorado - 5.54%	Florida - 6.76%
	Florida - 5.43%	Colorado - 4.59%
	Washington - 5.02%	Washington - 4.56%

Cohort	CAS 2020-R01 G1	CAS 2019-R07 G1	Delta
FICO < 660	3.78%	4.75%	-0.97%
FICO < 660; CLTV > 80	0.05%	0.04%	0.01%
FICO < 660; CLTV > 75	1.89%	2.17%	-0.28%
FICO < 660; Risk Layer > 0	2.80%	3.69%	-0.90%
FICO < 660; Risk Layer > 1	0.95%	1.43%	-0.48%
FICO < 660; Risk Layer > 2	0.07%	0.15%	-0.08%
CLTV > 80	2.35%	2.30%	0.05%
CLTV > 75	55.80%	56.05%	-0.24%
Risk Layer > 0	68.61%	71.83%	-3.22%
Risk Layer > 1	24.66%	28.51%	-3.84%
Risk Layer > 2	3.44%	4.53%	-1.09%
LTV < 70	22.26%	22.15%	0.11%
46 - 50 DTI	17.41%	19.34%	-1.93%

Risk Layer is defined as investor property, cash-out refinance, 46-50 DTI (rounded to nearest integer) and single borrower.

The CAS 2020-R01 pool profile is available on Data Dynamics:

<http://www.fanniemae.com/DataDynamics>



# CAS 2020-R02 Group 2 and CAS 2019-R06 Group 2 Reference Pool Summary

	CAS 2020-R02 G2	CAS 2019-R06 G2
Reference Period - Acquisition Months	Nov 2018 - Sep 2019	May 2018 - June 2019
MBS Pooling Months	Jul 2019 - Sep 2019	Jan 2019 - June 2019
Number of Reference Obligations	110,537	130,696
Aggregate Original Principal Balance	\$29,424,705,000	\$33,156,617,000
Aggregate Current Principal Balance	\$29,121,892,280	\$32,818,049,500
Average Original Principal Balance	\$266,145	\$253,693
Average Current Principal Balance	\$263,458	\$251,102
Gross Mortgage Rate	4.18%	4.67%
Weighted Average Remaining Term	356.5	356.5
Weighted Average Original Term	359.8	359.9
Weighted Average Loan Age	3.3	3.4
Weighted Average Original LTV	92.3%	92.8%
Weighted Average Original CLTV	92.3%	92.8%
Weighted Average DTI	37.6%	38.3%
Weighted Average FICO	743	742
% Refinance	17.3%	9.4%
% Cash-out	0.0%	0.0%
% No Cash-out	17.3%	9.4%
% Owner Occupied	97.0%	95.9%
% SF/PUD	89.9%	88.9%
Top 5 Geographic Concentration	California - 12.31%	California - 12.16%
	Texas - 7.22%	Texas - 8.30%
	Florida - 6.25%	Florida - 7.45%
	Washington - 4.26%	Washington - 4.30%
	Colorado - 3.77%	Arizona - 3.51%

Cohort	CAS 2020-R02 G2	CAS 2019-R06 G2	Delta
FICO < 660	3.11%	3.71%	-0.60%
FICO < 660; CLTV > 95	0.63%	0.88%	-0.24%
FICO < 660; CLTV > 90	2.00%	2.43%	-0.44%
FICO < 660; Risk Layer > 0	1.29%	1.77%	-0.48%
FICO < 660; Risk Layer > 1	0.08%	0.13%	-0.05%
FICO < 660; Risk Layer > 2	0.00%	0.00%	0.00%
CLTV > 95	20.30%	23.11%	-2.81%
CLTV > 90	59.39%	63.48%	-4.09%
Risk Layer > 0	60.74%	62.23%	-1.50%
Risk Layer > 1	11.53%	12.98%	-1.45%
Risk Layer > 2	0.02%	0.04%	-0.02%
LTV < 90	40.76%	36.71%	4.05%
46 - 50 DTI	19.04%	21.59%	-2.55%

Risk Layer is defined as investor property, cash-out refinance, 46-50 DTI (rounded to nearest integer) and single borrower.

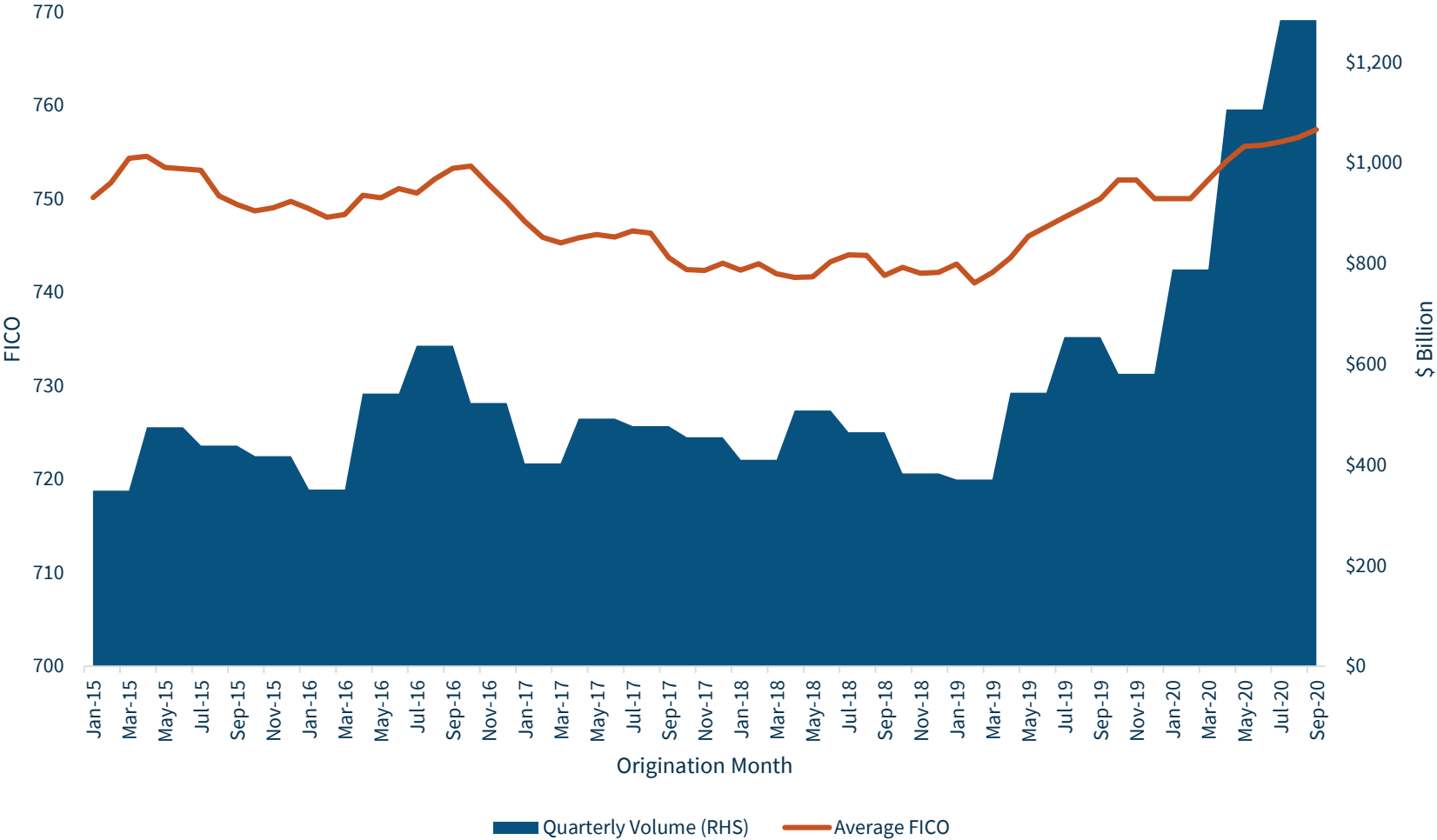
The CAS 2020-R02 pool profile is available on Data Dynamics:

<http://www.fanniemae.com/DataDynamics>



# Total Mortgage Origination Volume and FICO

Credit profile fluctuates with the origination cycle

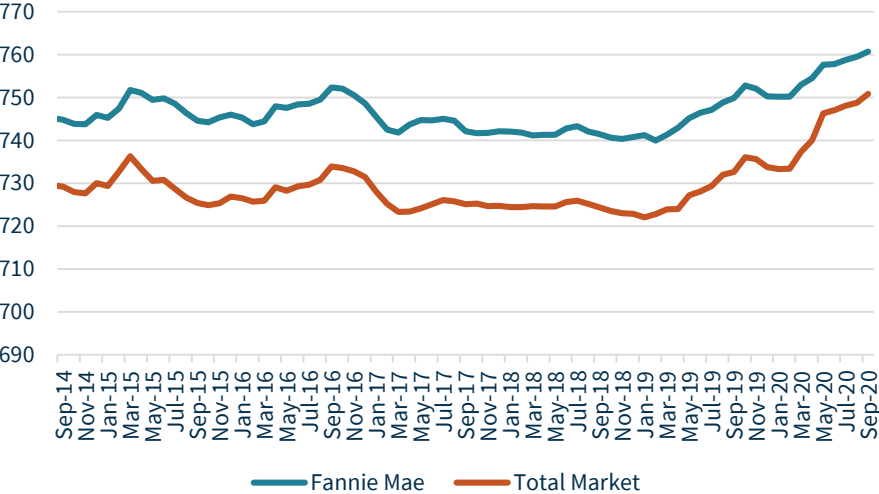


Source: Fannie Mae. Origination estimates for aggregate market.

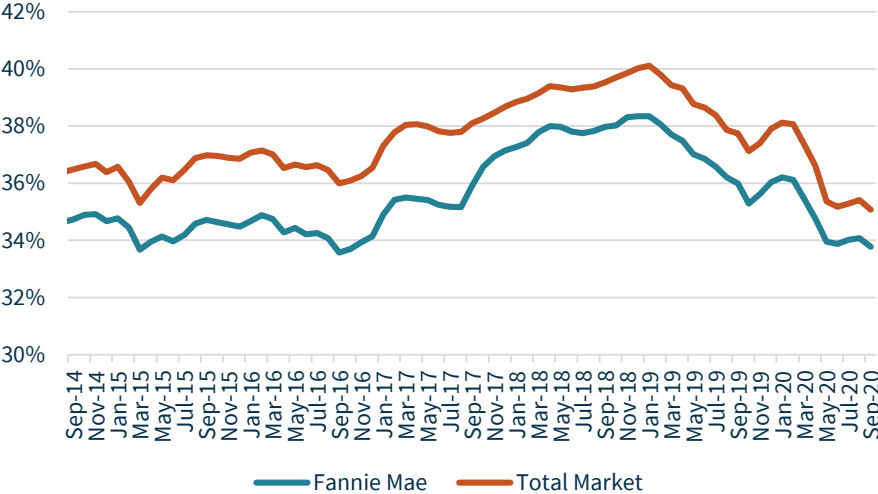


# Total Market Credit Profile Trend

### WA FICO



### WA DTI



Source: Fannie Mae, MBS issuance data. Includes 25-year and 30-year fixed rate loans. Total Market reflects issuance data from Fannie Mae, Freddie Mac, and Ginnie Mae. Origination month is derived from first payment date



# DU Model Updates

## DU Timeline

### July 2017: DU 10.1

- Enabled loans with DTI ratios above 45% (up to 50%) to rely on DU's comprehensive risk assessment
- Removed DU model overlays with set maximum LTV ratio and minimum reserves requirements for those loans

## Dynamic Credit Management

### March 2018: DU 10.2

- Revised DU's risk assessment to limit risk layering
- Fewer DU Approve recommendations on loans that have multiple higher-risk characteristics

### December 2018: DU 10.3

- Enhanced DU's management of multiple risk layers
- Six months of reserves for cash-out refinances with DTI over 45% to address increase in high DTI acquisitions

### July 2019

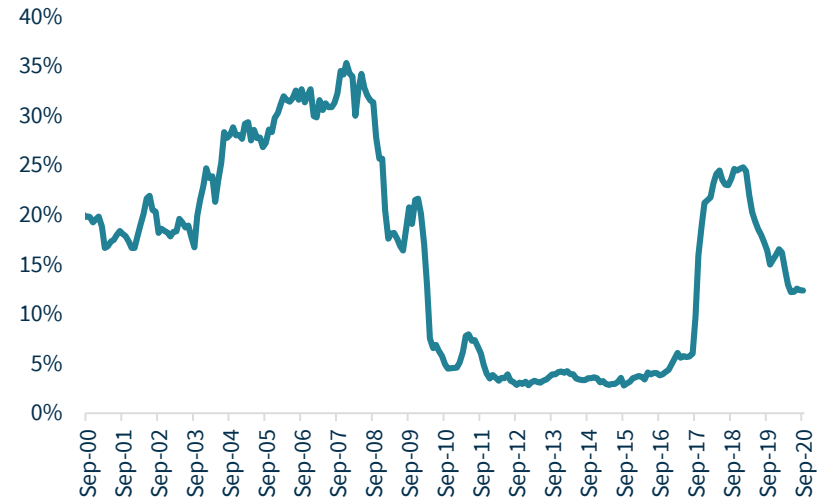
- Certain new loan casefiles submitted to DU will receive an Ineligible recommendation when multiple high-risk factors are present
- We have updated the DU eligibility assessment to better align the mix of business delivered to Fannie Mae with the composition of business in the overall market

### April 2020

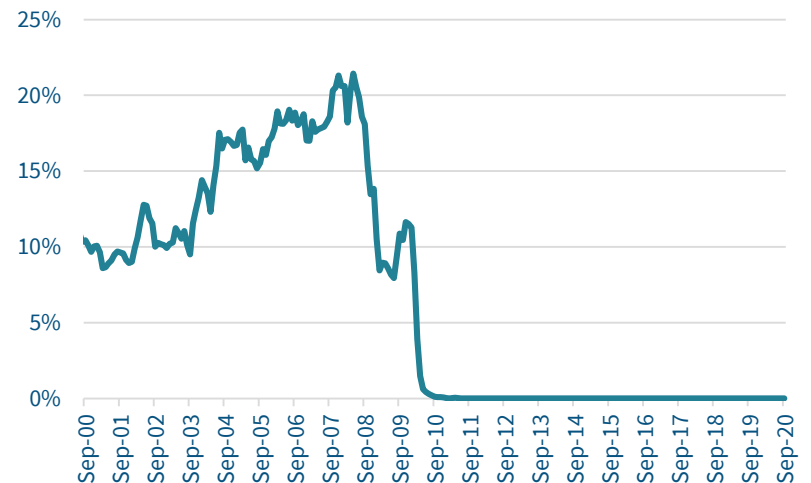
- Revised DU's risk and eligibility assessments to result in modest reduction of loan casefiles with high-risk factors receiving an Approve/Eligible recommendation

## DTI

% > 45



% > 50\*

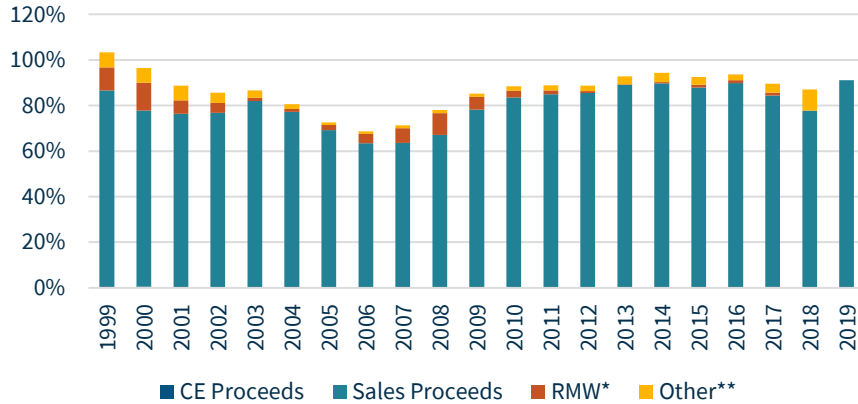


\*Rounded to nearest integer

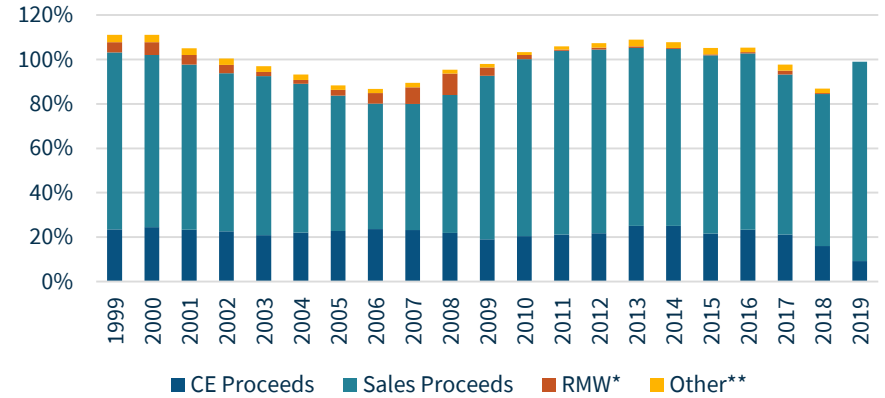


# Group 1/Group 2 Loss Comparison

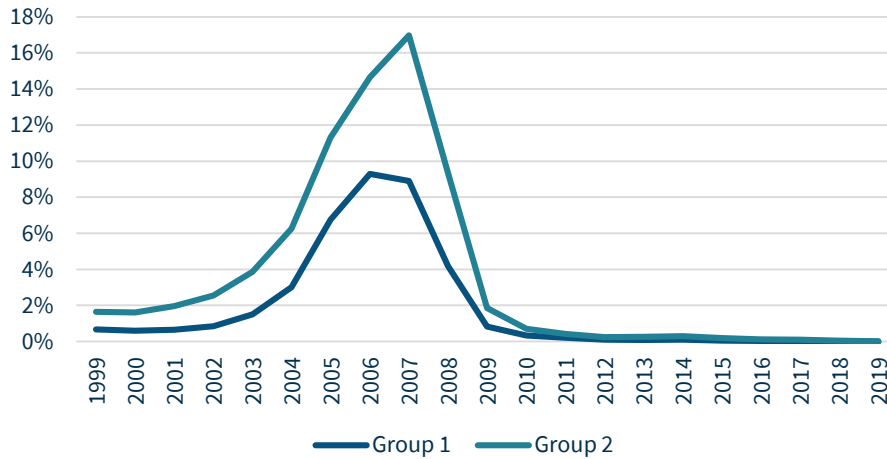
## Group 1 Proceeds as % of Defaulted UPB



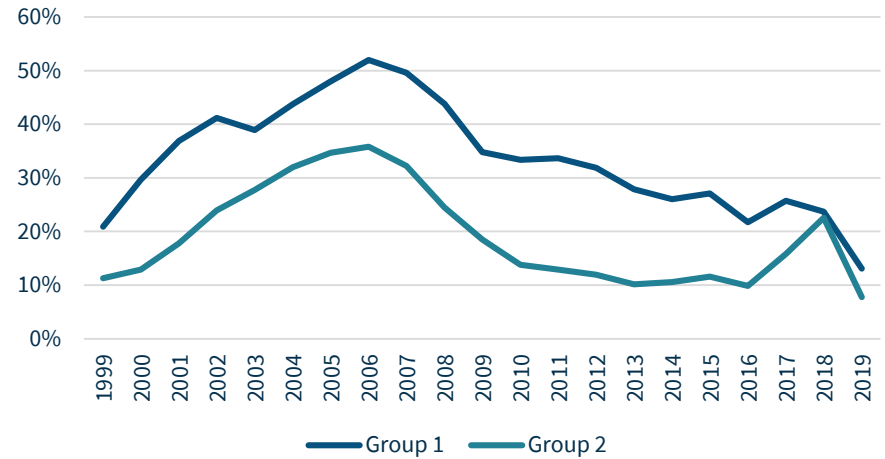
## Group 2 Proceeds as % of Defaulted UPB



## Default Rate



## Severity Rate



\*RMW = Repurchase Make Whole proceeds

\*\*Other = Amounts other than sales proceeds including redemption proceeds received from the mortgagor

# Private Mortgage Insurance on High LTV Loans

All loans in CAS deals with original loan-to-value ratios greater than 80% are required to have mortgage insurance (MI) in place provided by one of eight approved and active Mortgage Insurance Companies

- **Borrower-paid MI:** the borrower makes a monthly payment as part of his/her mortgage payment
  - Approximately 84%<sup>(1)</sup> of MI is borrower-paid. Monthly MI payment is typically 7.0% - 7.5%<sup>(2)</sup> of the borrower's total mortgage payment at loan inception. MI can be canceled by borrower once loan reaches 78% LTV (and can be canceled by the borrower in other circumstances).
- **Lender-paid MI:** the lender pays for the MI upfront and charges the borrower a higher interest rate
  - Approximately 16%<sup>(1)</sup> of MI is lender-paid. Lender-paid MI cannot be cancelled because the payment is built into the mortgage rate.

If a loan goes to disposition, the MI company is obligated to pay Fannie Mae a claim based on the MI coverage percentage. This payment is passed through to the CAS investor as additional disposition proceeds and reduces the loss.

LTV Range (%)	Standard MI Coverage (%)
95.01 – 97.00%	35.0%
90.01 – 95.00%	30.0%
85.01 – 90.00%	25.0%
80.01 – 85.00%	12.0%

*Note: most loans have “standard” coverage; however, levels may differ on some loans – this is disclosed on the loan-level deal file*

Example CAS Loss Calculation	
Defaulted UPB	\$ (100,000.00)
Delinquent Interest	\$ (5,000.00)
Liquidation Expenses	\$ (5,000.00)
MI Claim Amount	\$ (110,000.00)
Net Sales Proceeds	\$ 80,000.00
Gross Loss	\$ (30,000.00)
MI Proceeds	\$ 27,500.00 (MI Coverage: 25%)
<b>CAS Investor Net Loss</b>	<b>\$ (2,500.00)</b>

If the MI company fails to pay a claim per their contractual obligation, Fannie Mae will step in and cover the MI contractual benefit amount on that loan. Investors are not exposed to MI Company counterparty risk.

(1) Figures represent breakdown of MI payments from CAS 2018-C04 deal

(2) Given the following key assumptions: 90% LTV, 740 FICO, MGIC Mortgage Insurance rates (44 bps for a 740 FICO loan), No Curtailment



## Fannie Mae's flagship affordable lending product

- Designed to serve creditworthy borrowers and to help fulfill our affordable housing mission and regulatory housing goals while maintaining strong, sustainable credit standards

## HomeReady helps to improve housing affordability by reducing borrower costs:

- Reduced MI requirements for LTV>90 result in lower monthly payment
- Lower loan-level price adjustments (LLPAs) help to reduce the rate and/or fees charged to the borrower

## Borrower Eligibility Changes – July 2019

Fannie Mae announced changes to the income limits for eligible HomeReady borrowers, beginning with new casefiles submitted to Desktop Underwriter on or after July 20, 2019:

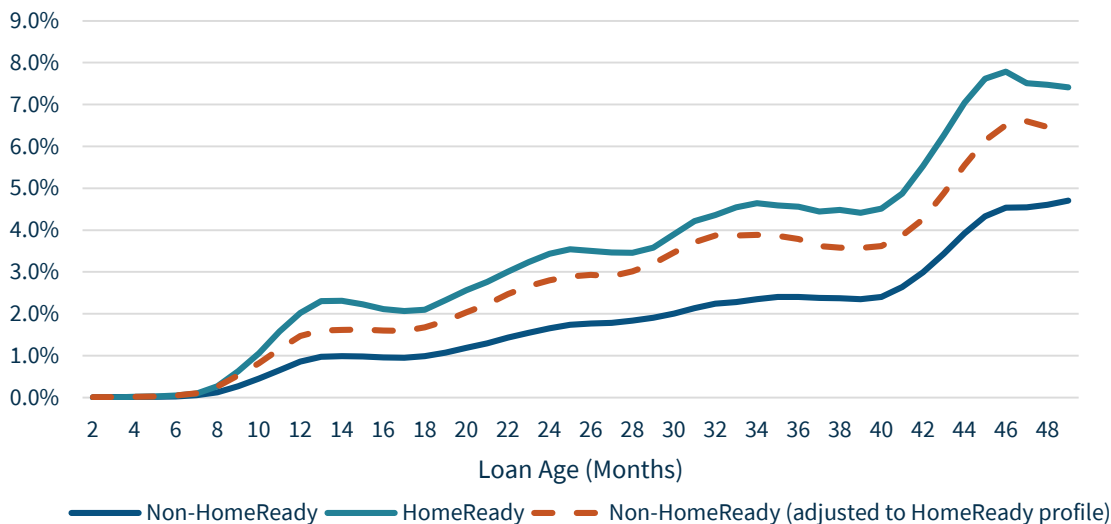
Eligibility Change	Prior to July 20, 2019	New applications on or after July 20, 2019
Borrower income limit requirements	Borrowers' total annual qualifying income may not exceed <b>100%</b> of the area median income (AMI) for the property's location	Borrowers' total annual qualifying income may not exceed <b>80%</b> of the area median income (AMI) for the property's location
Properties in low-income census tracts	No limitation on borrower income if subject property is located in a low-income census tract	Borrowers' total annual qualifying income may not exceed 80% of the area median income (AMI) for the property's location
Share of CAS 2020-R02 HomeReady UPB	94.8%	5.2%



# Risk-adjusted Performance of HomeReady in Line with Cohort

- Distribution of HomeReady loans differs from non-HomeReady loans
- HomeReady has greater concentration in higher CLTV and lower FICO
- Adjusted for profile, HomeReady loans perform in line with non-HomeReady loans
- HomeReady performance explained by loan attributes (CLTV, FICO, risk layers)

Ever 60 Days Delinquent % by Loan Age



Non-HomeReady UPB Distribution

Non-HomeReady		FICO				Total
CLTV	Risk Layers	< 660	660-700	700-740	> 740	
<=80	0	1%	2%	4%	12%	18%
	1	1%	3%	6%	16%	26%
	2	1%	2%	3%	7%	14%
	3	0%	1%	1%	1%	3%
	4	0%	0%	0%	0%	0%
81-90	0	0%	1%	2%	5%	8%
	1	0%	1%	2%	5%	8%
	2	0%	0%	0%	1%	1%
	3	0%	0%	0%	0%	0%
	4	0%	0%	0%	0%	0%
91-97	0	0%	1%	3%	5%	10%
	1	0%	1%	3%	6%	10%
	2	0%	0%	0%	1%	1%
	3	0%	0%	0%	0%	0%
	4	0%	0%	0%	0%	0%
<b>Total</b>		<b>5%</b>	<b>12%</b>	<b>23%</b>	<b>60%</b>	<b>100%</b>

HomeReady UPB Distribution

HomeReady		FICO				Total
CLTV	Risk Layers	< 660	660-700	700-740	> 740	
<=80	0	1%	1%	1%	1%	3%
	1	1%	2%	1%	4%	9%
	2	0%	1%	0%	1%	3%
	3	0%	0%	0%	0%	0%
	4	0%	0%	0%	0%	0%
81-90	0	0%	1%	1%	2%	4%
	1	1%	2%	3%	6%	11%
	2	0%	0%	1%	2%	3%
	3	0%	0%	0%	0%	0%
	4	0%	0%	0%	0%	0%
91-97	0	1%	3%	5%	5%	14%
	1	1%	6%	12%	22%	42%
	2	0%	1%	4%	7%	12%
	3	0%	0%	0%	0%	0%
	4	0%	0%	0%	0%	0%
<b>Total</b>		<b>6%</b>	<b>16%</b>	<b>29%</b>	<b>49%</b>	<b>100%</b>

Source: Fannie Mae CAS at-issuance and monthly remittance files. Loans originated since 2H2016 and referenced in CAS deals. Loans are bucketed by CLTV, FICO, and risk layers. Risk layers defined as DTI > 45 (rounded to the nearest integer), single borrower, cash-out refinance, and investor property. Risk-adjusted performance is derived by scaling non-HomeReady performance by HomeReady UPB distribution across buckets. Loans in hurricane areas have been excluded.



# CAS 2020-R02 G2 (80.01-97 LTV) HomeReady® Loan Profile

## HomeReady Loan Profile:

Range of OLTV	Current UPB	WA LTV	WA CLTV	WA DTI	WA FICO	Risk Layers*
80.01-85	7.9%	84.0%	84.1%	39.6%	736	0.37
85.01-90	14.7%	89.5%	89.5%	39.5%	743	0.34
90.01-95	27.3%	94.6%	94.6%	40.3%	740	0.36
95.01-97	50.1%	97.0%	97.0%	40.0%	740	0.30
All	100.0%	94.2%	94.2%	40.0%	740	0.33

Approximately 0.12% by loan count of HomeReady loans in the reference pool were underwritten through DU® using boarder income.

\*Risk Layers in this view are defined as an investor property, cash-out refinance, DTI > 45 (rounded to the nearest integer), and FICO < 680.



# Standard Selling Guide vs HomeReady

Product feature	Standard guide	HomeReady – Purchase and LCOR* Only
<b>Maximum LTV (Refer to Fannie Mae Eligibility Matrix for full list)</b>	<ul style="list-style-type: none"> <li>95% LTV for 1-unit properties, principal residence</li> <li>Up to 97% LTV allowed for First-Time Homebuyers. LTV &gt; 95% must be underwritten through DU</li> <li>LCOR transactions LTV&gt;95-97% must be owned or securitized by Fannie Mae.</li> </ul>	<b>Same as standard</b>
<b>Maximum DTI</b>	50%	<b>Same as standard</b>
<b>Rental income from subject property and boarder income</b>	<ul style="list-style-type: none"> <li>Documented rental income from subject property is allowed for 2-4 unit properties and investment properties</li> <li>Boarder income generally not allowed</li> </ul>	<ul style="list-style-type: none"> <li>Documented rental income not eligible for investment properties</li> <li>Rental income from a 1-unit property with accessory unit permitted</li> <li>Documented boarder income (e.g., rent paid by roommate) may be allowed if it meets guidelines.</li> </ul>
<b>Non-occupant co-borrower (such as a parent)</b>	Permitted, with criteria for amount of down payment and DTI required from occupant borrower	<b>Same as standard</b>
<b>Mortgage Insurance</b>	<ul style="list-style-type: none"> <li>Required for LTV &gt; 80%</li> <li>Reduced MI coverage allowed for approved lenders with pricing adjustment</li> </ul>	<ul style="list-style-type: none"> <li>MI coverage percentage reduced for loans with LTV &gt; 90%</li> </ul>
<b>Gifts, grants, Community Seconds, cash-on-hand and sweat equity as a source of funds for down payment and closing costs</b>	<ul style="list-style-type: none"> <li>Gifts, grants, and Community Seconds are allowed as sources of down payment and closing costs with appropriate documentation</li> <li>Cash-on-hand and sweat equity generally not allowed</li> </ul>	<ul style="list-style-type: none"> <li><b>Same as standard, plus:</b></li> <li>Cash-on-hand may be allowed with appropriate documentation</li> <li>Sweat equity may be allowed under qualifying programs – if so, max LTV is 95% and borrower must contribute at least 3% from own funds for down payment</li> </ul>
<b>Minimum borrower contribution required from borrower’s own funds (whether or not gifts, grants etc, are also present)</b>	<ul style="list-style-type: none"> <li>LTV &lt;=80%: 0%</li> <li>LTV &gt;80%: <ul style="list-style-type: none"> <li>1-unit property principal residence: 0%</li> <li>2-4 unit property: 5%</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Same as standard for LTV &lt;=80%: 0%</b></li> <li>LTV &gt;80%: <ul style="list-style-type: none"> <li>1-unit principal residence property: 0%</li> <li>2-4 unit property: 3%</li> </ul> </li> </ul>
<b>Non-traditional credit</b>	Allowed with appropriate documentation	<b>Same as standard</b>
<b>Manufactured housing up to 95% and HomeStyle® Renovation (approved lenders) up to 95%</b>	May be allowed up to 95%, manufactured housing must be underwritten through DU	<b>Same as standard</b>



\*LCOR = Limited Cash-Out Refinance (aka “rate/term” refi)





# High LTV Refinance Eligibility Timeline

The CAS program has been designed so that the impact of a borrower's ability to refinance an underwater loan is consistent across all CAS deals

Loan time period	Acquired on or before 5/31/2009	6/1/2009 through 9/30/2017	Note date on or after 10/1/2017
<b>Borrower Options</b> 			
<b>Borrower Options</b> Do borrowers have the ability to refinance a loan where the LTV based on current property value exceeds standard Fannie Mae eligibility?	<b>Yes</b>	<b>No</b>	<b>Yes</b>
Applicable refinance program name	HARP / Refi Plus	None	High LTV Refinance Option
<b>CAS Treatment</b> 			
<b>CAS Treatment</b> How does the borrower's refinance option (or lack thereof) impact CAS Deals?	N/A , no eligible loans are included in CAS deals	Loan remains in CAS deal because borrower does not have ability to refi	When borrower exercises high LTV refinance option, loan remains in CAS deal
Applicable CAS Deals	None	CAS 2013-C01 through CAS 2018-C01	CAS 2018-C02 – forward
Applicable CAS Reference Pool time period	<b>N/A</b>	<b>7/1/2012 through 9/30/2017</b>	<b>10/1/2017 – forward</b>



# High Loan-to-Value (HLTV) Refinance Option

The HLTV Refinance Option is a proactive approach that provides refinance opportunities to borrowers with existing Fannie Mae mortgages who are making their mortgage payments on time but whose LTV ratio for a new mortgage loan exceeds the maximum allowed for standard limited cash-out refinance options in the *Selling Guide*.

## HLTV Program Eligibility Requirements

- Existing mortgage loan is owned by Fannie Mae and has an Origination Date on or after October 1, 2017
- Mortgage loan is 15 months seasoned
- Mortgage loan is current
  - No 30-day mortgage delinquencies during the most recent six-month period, and
  - no more than one 30-day delinquency in months 7-12
- Borrower can refinance under this option more than once as long as all other requirements are met

## Applicability to CAS

- Loans that are refinanced through the HLTV Refinance Option will remain in the reference pool for their respective CAS transactions
  - Interest rate reductions will not constitute Modification Events and will not impact CAS investors
  - Principal reductions due to borrower prepayments or lender incentives made under the HLTV Program will be treated as partial prepayments. Principal forgiveness is not part of the HLTV Program
  - Loan reporting will reflect any changes to terms made pursuant to the HLTV Program

Because these loans represent a replacement of existing risk, a “continuance of coverage” approach for CAS deals provides for this risk to remain with existing CAS investors.





# Historical Comparative Analysis



# Group 1 (60.01-80.00 OLTV) - Historical Acquisition Profile

## 60-80 LTV Historical FRM25-30 Loan Acquisition Profile

Orig year	Loan		WA Note					% 2nd	%			WA Risk	
	Count	Original UPB	Rate	WA FICO	WA DTI	WA OLTV	WA OCLTV	Lien <sup>1</sup>	Investor	% Refi <sup>2</sup>	% TPO <sup>3</sup>	% CA	Layers <sup>4</sup>
1999	64,769	\$8.5B	7.77%	713	34.4	75.9	76.0	0.7%	4.0%	35.6%	52.0%	15.0%	0.71
2000	553,544	\$76.5B	8.09%	715	35.2	76.1	76.5	2.7%	4.3%	30.0%	57.0%	16.2%	0.69
2001	1,375,223	\$213.7B	6.96%	714	33.7	75.1	75.6	3.7%	4.6%	68.0%	55.9%	20.0%	0.84
2002	1,423,564	\$232.4B	6.48%	717	33.9	74.6	75.3	5.0%	4.9%	70.6%	57.4%	19.9%	0.84
2003	1,832,743	\$314.3B	5.74%	718	33.7	74.1	75.0	7.0%	4.7%	75.9%	58.7%	20.4%	0.83
2004	736,673	\$129.7B	5.83%	715	36.6	74.9	76.8	14.9%	4.1%	57.9%	60.4%	16.4%	0.93
2005	718,429	\$138.4B	5.83%	719	38.2	74.9	77.5	20.2%	4.0%	57.1%	63.0%	11.4%	1.00
2006	569,439	\$115.5B	6.41%	719	39.3	75.3	78.0	21.5%	5.2%	53.9%	64.7%	9.5%	1.03
2007	651,559	\$139.0B	6.33%	720	39.1	75.3	77.9	20.6%	6.8%	58.9%	67.6%	10.4%	1.05
2008	702,901	\$159.3B	6.03%	742	38.2	75.1	76.6	12.3%	8.5%	58.0%	62.6%	18.5%	0.82
2009	1,104,879	\$263.4B	4.99%	761	34.7	74.5	75.6	9.0%	3.8%	71.1%	51.0%	20.3%	0.55
2010	791,575	\$195.7B	4.74%	763	33.1	74.9	76.0	9.5%	6.2%	59.9%	56.3%	27.8%	0.36
2011	638,631	\$149.5B	4.58%	762	33.3	75.1	76.1	8.8%	9.1%	56.2%	58.5%	29.2%	0.37
2012	1,033,055	\$253.9B	3.85%	765	31.9	74.6	75.6	8.8%	8.7%	65.5%	56.3%	29.3%	0.32
2013	865,971	\$206.4B	4.05%	757	33.2	75.1	76.2	8.9%	10.5%	53.6%	49.4%	29.5%	0.39
2014	589,469	\$136.9B	4.47%	747	34.6	75.9	76.9	8.6%	11.4%	41.9%	46.5%	27.8%	0.48
2015	752,586	\$182.9B	4.13%	748	34.1	75.3	76.3	8.0%	10.6%	52.0%	42.1%	27.1%	0.49
2016	898,858	\$227.0B	3.90%	750	34.0	74.9	75.7	5.7%	8.8%	54.5%	43.5%	25.8%	0.48
2017	788,577	\$194.9B	4.32%	744	35.7	75.5	76.2	4.9%	10.6%	43.5%	47.9%	22.4%	0.62
2018	704,102	\$176.1B	4.86%	743	37.6	75.7	76.2	3.6%	10.8%	38.8%	49.0%	19.1%	0.76
2019	860,010	\$241.6B	4.22%	750	35.8	75.0	75.5	3.1%	7.4%	56.3%	53.7%	22.2%	0.66
2Q20	622,881	\$186.6B	3.58%	757	34.2	74.2	74.6	3.2%	5.9%	74.6%	40.3%	22.0%	0.49

Only loans with LTV between 60-80 are included. Excludes loans with CLTV >97

Statistics weighted by origination UPB

1. Loans with CLTV more than 3 % greater than LTV are assumed to have second liens.

2. Includes both Rate/Term and Cash-out Refinances.

3. Includes Broker and Correspondent originations.

4. Risk Layers defined as: Investor Property, Cash-out Refinance, DTI > 45 (rounded to the nearest integer) & FICO < 680

Source: Fannie Mae October 2020 Data Release



# Group 2 (80.01-97.00 OLTV) - Historical Acquisition Profile

## 80-97 LTV Historical FRM25-30 Loan Acquisition Profile

Orig year	Loan Count	Original UPB	WA Note Rate	WA FICO	WA DTI	WA OLTV	WA OCLTV	% 2nd Lien <sup>1</sup>	% Investor	% Refi <sup>2</sup>	% TPO <sup>3</sup>	% CA	WA Risk Layers <sup>4</sup>
1999	48,439	\$6.1B	7.87%	700	36.0	92.1	92.1	0.0%	1.4%	12.4%	51.3%	11.3%	0.59
2000	394,365	\$50.9B	8.21%	703	37.0	92.2	92.2	0.0%	1.9%	10.9%	54.7%	10.8%	0.62
2001	642,765	\$89.5B	7.08%	701	35.8	91.1	91.2	0.1%	2.5%	38.7%	54.8%	10.8%	0.69
2002	525,263	\$74.7B	6.65%	701	36.5	91.1	91.1	0.1%	3.5%	37.3%	56.9%	9.6%	0.75
2003	515,762	\$76.2B	5.85%	702	36.2	90.8	90.9	0.3%	3.3%	42.7%	58.2%	7.6%	0.76
2004	214,946	\$32.1B	5.97%	699	38.7	91.3	91.3	0.3%	3.9%	29.3%	57.6%	4.5%	0.89
2005	168,374	\$27.0B	5.97%	703	40.1	90.7	90.8	0.3%	4.4%	34.6%	59.0%	2.2%	0.95
2006	131,800	\$22.6B	6.55%	704	41.3	90.6	90.6	0.3%	4.9%	35.6%	61.0%	2.0%	1.00
2007	214,760	\$41.2B	6.50%	703	41.8	90.6	90.6	0.4%	5.7%	43.5%	67.5%	4.6%	1.05
2008	262,878	\$55.8B	6.19%	731	40.9	90.9	90.9	0.3%	3.4%	29.6%	62.9%	13.3%	0.64
2009	160,045	\$34.8B	5.02%	755	33.7	89.9	89.9	0.5%	0.0%	41.5%	45.8%	8.8%	0.11
2010	121,651	\$27.6B	4.72%	760	32.8	90.3	90.4	0.5%	0.0%	32.1%	54.9%	10.3%	0.03
2011	161,989	\$36.1B	4.59%	759	33.4	91.3	91.3	0.3%	0.1%	27.0%	59.6%	12.3%	0.04
2012	322,236	\$73.9B	3.87%	758	33.0	91.4	91.4	0.4%	0.1%	33.4%	55.1%	13.5%	0.05
2013	416,179	\$94.1B	4.16%	751	34.2	92.0	92.1	0.4%	0.1%	22.3%	50.0%	13.2%	0.07
2014	379,750	\$85.5B	4.49%	743	35.1	91.9	92.0	0.3%	0.2%	15.1%	45.3%	12.5%	0.12
2015	462,797	\$108.3B	4.17%	745	34.7	92.0	92.0	0.3%	0.2%	17.5%	42.7%	11.8%	0.08
2016	549,210	\$132.5B	3.89%	745	34.8	92.0	92.0	0.3%	0.2%	17.0%	42.8%	12.0%	0.09
2017	547,874	\$132.6B	4.29%	743	36.4	92.4	92.4	0.3%	0.4%	8.9%	49.1%	11.7%	0.17
2018	567,481	\$141.6B	4.80%	742	38.5	92.7	92.8	0.3%	0.4%	5.4%	51.1%	10.7%	0.32
2019	646,534	\$178.3B	4.20%	745	37.4	92.1	92.2	0.2%	0.3%	20.4%	54.4%	13.4%	0.30
2Q20	372,588	\$108.9B	3.56%	750	35.9	91.3	91.3	0.2%	0.2%	37.4%	38.5%	13.2%	0.18

Only loans with LTV between 80-97 are included. Excludes loans with CLTV >97

Statistics weighted by origination UPB

1. Loans with CLTV more than 3 % greater than LTV are assumed to have second liens.

2. Includes both Rate/Term and Cash-out Refinances.

3. Includes Broker and Correspondent originations.

4. Risk Layers defined as: Investor Property, Cash-out Refinance, DTI > 45 (rounded to the nearest integer) & FICO < 680

Source: Fannie Mae October 2020 Data Release



# Group 1: Historical Loss Performance Re-weighted to CAS 2020-R01 Profile

Realized Loss Performance						Default Pipeline Implications				CAS 2020-R01 G1 Equivalent Perf. (Not Including Default Pipeline) <sup>1</sup>		
Orig Year	Remaining		20 Year Net			Rem. CAS Window (Months) <sup>3</sup>	Rem. CAS Window % <sup>3</sup>	Unsold REO % <sup>4</sup>	Active D180 % <sup>5</sup>	Net Loss <sup>6</sup>	Mod Loss <sup>7</sup>	Total Comped Loss
	UPB	Pool Factor	Loss	Mod Loss <sup>2</sup>	Total Loss							
2000	0.3B	0.38%	0.17%	0.03%	0.20%	15.2	6.3%	0.00%	0.01%	0.08%	0.01%	0.09%
2001	1.4B	0.68%	0.23%	0.04%	0.27%	26.8	11.2%	0.01%	0.01%	0.12%	0.02%	0.14%
2002	3.3B	1.42%	0.34%	0.06%	0.40%	39.4	16.4%	0.01%	0.02%	0.20%	0.04%	0.24%
2003	11.4B	3.64%	0.56%	0.13%	0.69%	49.6	20.7%	0.02%	0.05%	0.39%	0.08%	0.47%
2004	6.6B	5.07%	1.27%	0.31%	1.59%	62.1	25.9%	0.04%	0.10%	0.79%	0.19%	0.98%
2005	9.5B	6.85%	3.15%	0.75%	3.90%	74.6	31.1%	0.08%	0.16%	2.07%	0.45%	2.52%
2006	7.7B	6.70%	4.73%	1.34%	6.07%	86.6	36.1%	0.09%	0.18%	2.93%	0.80%	3.73%
2007	10.3B	7.38%	4.28%	1.52%	5.81%	98.8	41.2%	0.12%	0.21%	2.47%	0.85%	3.32%
2008	8.5B	5.33%	1.75%	0.78%	2.53%	110.2	45.9%	0.08%	0.15%	1.18%	0.56%	1.74%
2009	25.8B	9.80%	0.27%	0.03%	0.30%	121.5	50.6%	0.03%	0.07%	0.33%	0.05%	0.38%
2010	30.4B	15.56%	0.09%	0.01%	0.10%	135.4	56.4%	0.02%	0.05%	0.16%	0.01%	0.17%
2011	31.2B	20.86%	0.06%	0.00%	0.06%	147.2	61.3%	0.01%	0.05%	0.09%	0.01%	0.10%
2012	110.2B	43.39%	0.02%	0.00%	0.02%	158.9	66.2%	0.01%	0.04%	0.04%	0.00%	0.04%
2013	92.3B	44.71%	0.01%	0.00%	0.02%	169.9	70.8%	0.01%	0.06%	0.02%	0.00%	0.02%
2014	53.9B	39.56%	0.01%	0.00%	0.01%	183.1	76.3%	0.02%	0.10%	0.01%	0.00%	0.01%
2015	105.2B	57.91%	0.00%	0.00%	0.01%	194.4	81.0%	0.01%	0.09%	0.00%	0.00%	0.00%
2016	163.4B	74.25%	0.00%	0.00%	0.00%	207.0	86.2%	0.01%	0.08%	0.00%	0.00%	0.00%
2017	152.6B	82.50%	0.00%	0.00%	0.00%	218.8	91.2%	0.01%	0.08%	0.00%	0.00%	0.00%

1. Reflects historical loss rates re-weighted to reflect the FICO, CLTV, & Risk Layer Count distribution of CAS 2020 R01 G1
2. Reflects interest income forgone due to loan modifications (includes both interest rate and principal forbearance modifications)
3. Calculated as average loan age subtracted from 240 months (CAS maturity)
4. Calculated as default UPB for foreclosed loans that have yet to be disposed divided by total vintage origination UPB
5. Calculated as last UPB for loans that were in D180+ delinquency as of the last activity period in the public dataset divided by total vintage origination UPB
6. In addition to the re-weighting, historical loss rates used in the comp process have been revised to reflect the ~4.28% WAC of the CAS pool
7. Reflects historical mod loss re-weighted to reflect the FICO, CLTV, & Risk Layer Count distribution of CAS 2020-R01 G1



# Group 2: Historical Loss Performance Re-weighted to CAS 2020-R02 Profile

Realized Loss Performance						Default Pipeline Implications				CAS 2020-R02 G2 Equivalent Perf. (Not Including Default Pipeline) <sup>1</sup>		
Orig Year	Remaining UPB	Pool Factor	20 Year Net Loss	Mod Loss <sup>2</sup>	Total Loss	Rem. CAS Window (Months) <sup>3</sup>	Rem. CAS Window % <sup>3</sup>	Unsold REO % <sup>4</sup>	Active D180 % <sup>5</sup>	Net Loss <sup>6</sup>	Mod Loss <sup>7</sup>	Total Comped Loss
2000	0.3B	0.51%	0.20%	0.05%	0.25%	12.0	5.0%	0.02%	0.01%	0.06%	0.02%	0.08%
2001	0.9B	1.00%	0.34%	0.08%	0.42%	23.5	9.8%	0.01%	0.02%	0.15%	0.04%	0.19%
2002	1.5B	2.04%	0.59%	0.14%	0.73%	35.8	14.9%	0.03%	0.04%	0.29%	0.08%	0.37%
2003	3.6B	4.68%	1.03%	0.26%	1.29%	46.8	19.5%	0.05%	0.08%	0.62%	0.16%	0.78%
2004	2.0B	6.22%	1.93%	0.52%	2.45%	59.0	24.6%	0.09%	0.14%	1.13%	0.30%	1.43%
2005	2.2B	8.01%	3.81%	0.95%	4.76%	71.5	29.8%	0.15%	0.20%	2.28%	0.55%	2.83%
2006	1.8B	7.88%	5.11%	1.63%	6.75%	83.6	34.8%	0.17%	0.23%	2.86%	0.88%	3.74%
2007	3.8B	9.23%	5.29%	2.34%	7.62%	96.5	40.2%	0.25%	0.28%	2.72%	1.25%	3.97%
2008	3.8B	6.72%	2.20%	1.45%	3.65%	107.0	44.6%	0.13%	0.18%	1.25%	1.04%	2.29%
2009	3.3B	9.55%	0.32%	0.06%	0.38%	118.2	49.3%	0.04%	0.05%	0.41%	0.10%	0.51%
2010	4.3B	15.71%	0.08%	0.01%	0.10%	132.4	55.2%	0.03%	0.06%	0.11%	0.02%	0.13%
2011	7.2B	20.02%	0.04%	0.01%	0.05%	144.5	60.2%	0.03%	0.06%	0.05%	0.03%	0.08%
2012	28.3B	38.33%	0.02%	0.00%	0.02%	156.1	65.0%	0.02%	0.07%	0.04%	0.00%	0.04%
2013	35.2B	37.46%	0.02%	0.01%	0.02%	167.5	69.8%	0.03%	0.09%	0.02%	0.01%	0.03%
2014	31.7B	37.19%	0.01%	0.01%	0.02%	180.1	75.0%	0.05%	0.16%	0.01%	0.01%	0.02%
2015	59.8B	55.54%	0.01%	0.00%	0.01%	191.5	79.8%	0.04%	0.17%	0.01%	0.00%	0.01%
2016	91.0B	72.66%	0.00%	0.00%	0.00%	203.8	84.9%	0.04%	0.16%	0.00%	0.00%	0.00%
2017	92.4B	80.14%	0.00%	0.00%	0.00%	215.8	89.9%	0.03%	0.15%	0.00%	0.00%	0.00%

1. Reflects historical loss rates re-weighted to reflect the FICO, CLTV, & Risk Layer Count distribution of CAS 2020 R02 G2

2. Reflects interest income forgone due to loan modifications (includes both interest rate and principal forbearance modifications)

3. Calculated as average loan age subtracted from 240 months (CAS maturity)

4. Calculated as default UPB for foreclosed loans that have yet to be disposed divided by total vintage origination UPB

5. Calculated as last UPB for loans that were in D180+ delinquency as of the last activity period in the public dataset divided by total vintage origination UPB

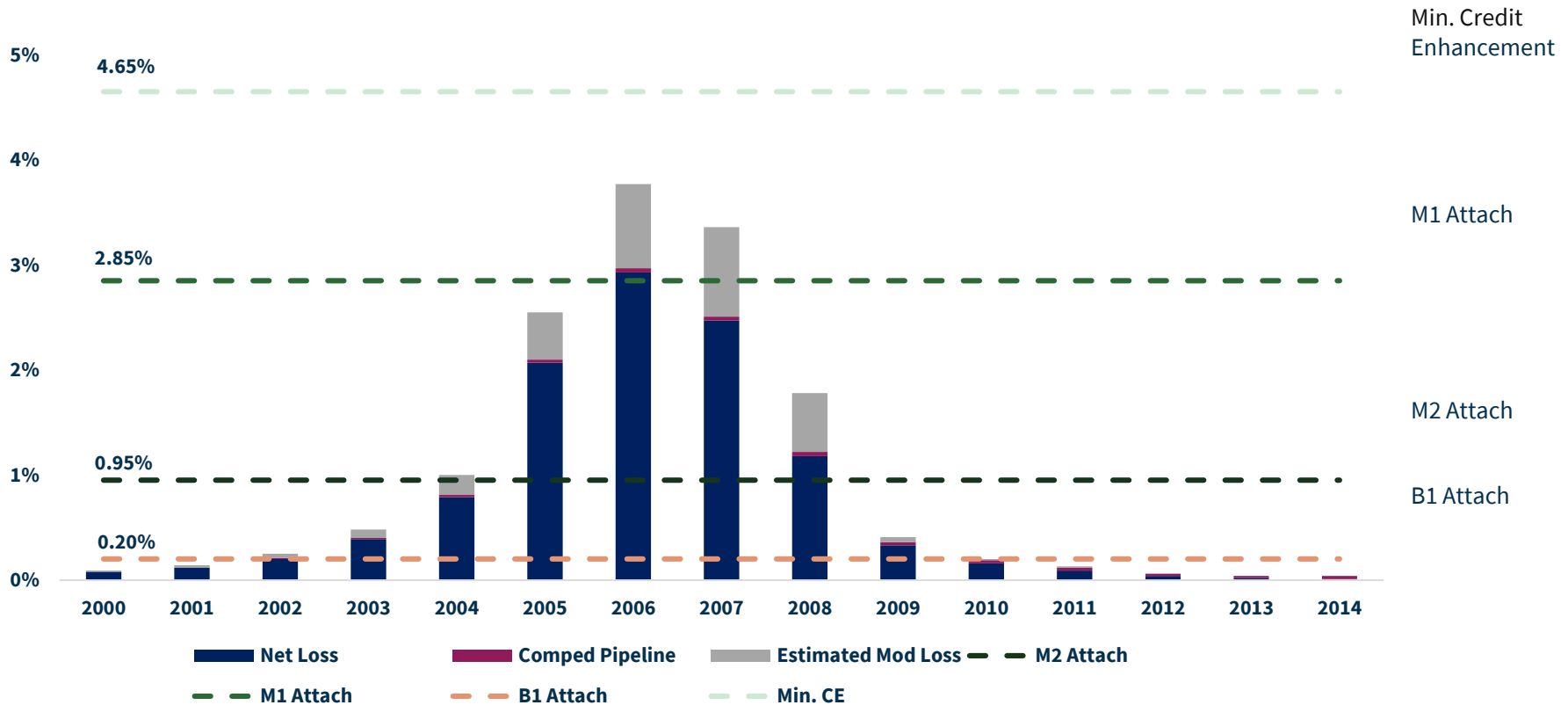
6. In addition to the re-weighting, historical loss rates used in the comp process have been revised to reflect the ~4.18% WAC of the CAS pool

7. Reflects historical mod loss re-weighted to reflect the FICO, CLTV, & Risk Layer Count distribution of CAS 2020-R02 G2



# Historical Loss Performance Re-weighted to CAS 2020-R01 Profile

CAS 2020-R01 G1 Comped Loss Performance with Pipeline Consideration (60.01-80 LTV Loans)



1. Bars reflect historical cumulative loss performance re-weighted to the CAS 2020-R01 G1 profile across FICO/CLTV/Risk Layer distribution
2. Estimated Mod Loss re-weighted to the CAS 2020-R01 G1 profile across FICO/CLTV/Risk Layer distribution (risk layers defined as: Investor property, cash-out refinance, DTI > 45 (rounded) and single borrower)
3. Comped Pipeline equal to 25% of the previously defined loss pipeline re-weighted across the FICO/CLTV/Risk Layer distribution

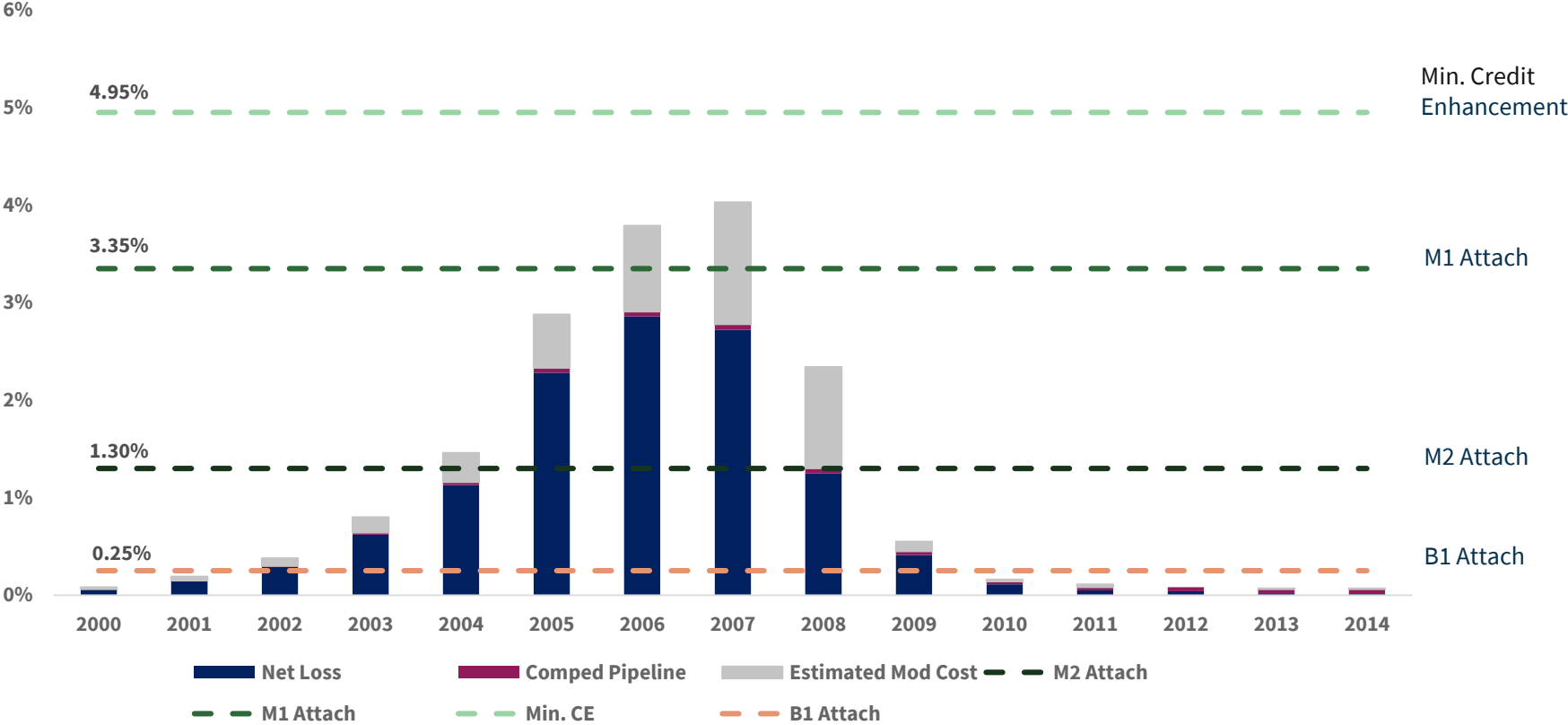
Source: Fannie Mae Data Dynamics. <http://www.fanniemae.com/DataDynamics>





# Historical Loss Performance Re-weighted to CAS 2020-R02 Profile

CAS 2020-R02 G2 Comped Loss Performance with Pipeline Consideration (80.01-97.00 LTV Loans)



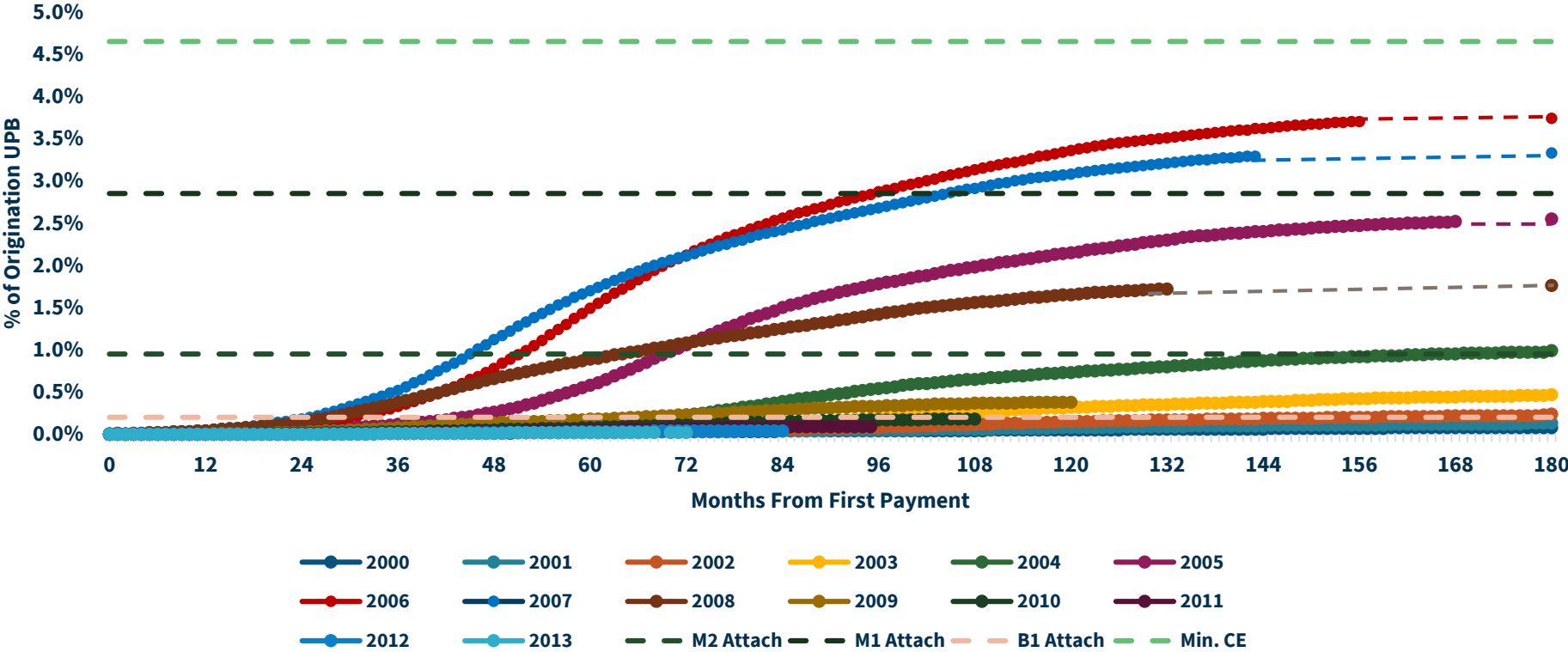
1. Bars reflect historical cumulative loss performance re-weighted to the CAS 2020-R02 G2 profile across FICO/CLTV/Risk Layer distribution
2. Estimated Mod Loss re-weighted to the CAS 2020-R02 G2 profile across FICO/CLTV/Risk Layer distribution (risk layers defined as: Investor property, cash-out refinance, DTI > 45 (rounded) and single borrower)
3. Comped Pipeline equal to 25% of the previously defined loss pipeline re-weighted across the FICO/CLTV/Risk Layer distribution

Source: Fannie Mae Data Dynamics. <http://www.fanniemae.com/DataDynamics>



# Group 1: Historical Loss Performance Re-weighted to CAS 2020-R01 profile (Group 1)

Group 1 (60.01-80.00 OLTV) Comped Historical Loss



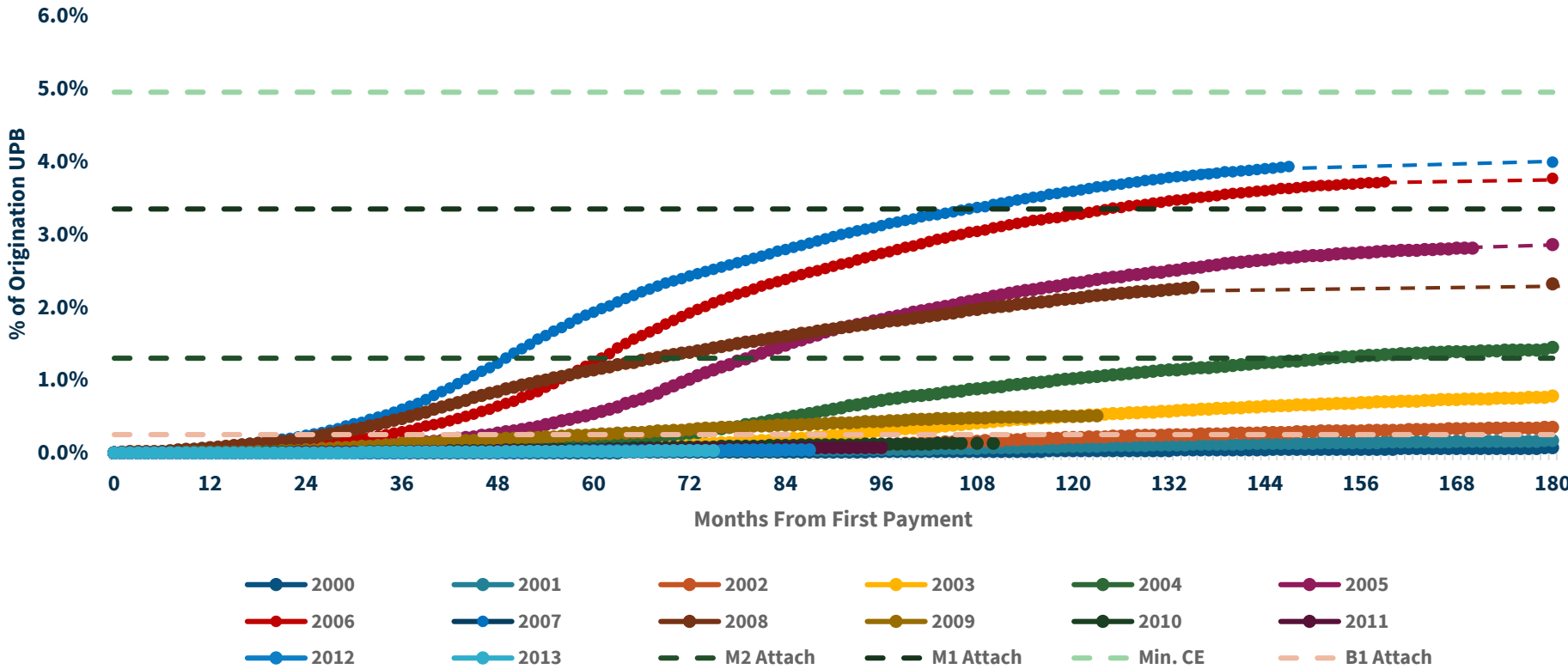
1. Curves reflect historical cum loss performance re-weighted to the CAS 2020-R01 Group 1 profile across FICO/CLTV/Risk Layer distribution
2. Comped loan modification concession (mod loss) for a given vintage has been distributed evenly across each point on the respective curve
3. A projected terminal loss has been calculated for all vintages with fewer than 240 months of activity. Projected terminal loss calculated by adding 25% of the default pipeline to the cumulative loss (default pipeline defined as foreclosed loans without a property disposition and loans that were in D180 delinquency as of the most recent available activity record)

Source: Fannie Mae October 2019 Data Release



# Group 2: Historical Loss Performance Re-weighted to CAS 2020-R02 Profile (Group 2)

Group 2 (80.01-97.00 OLTV) Comped Historical Loss



1. Curves reflect historical cum loss performance re-weighted to the CAS 2020-R02 Group 2 profile across FICO/CLTV/Risk Layer distribution
2. Comped loan modification concession (mod loss) for a given vintage has been distributed evenly across each point on the respective curve
3. A projected terminal loss has been calculated for all vintages with fewer than 180 months of activity. Projected terminal loss calculated by adding 25% of the default pipeline to the cumulative loss (default pipeline defined as foreclosed loans without a property disposition and loans that were in D180 delinquency as of the most recent available activity record)

Source: Fannie Mae January 2020 Data Release



# Loss/Severity Statistical Summary (Group 1)

## Loss/Severity Summary Characteristics by Origination Year (Group 1)

(Reflects loan status in performance dataset for activity through Q2 2020)

Loan Population: loans with zero balance code of '02', '03', '09', '15' with non-null Disposition dates

	Origination Year																Total
	1999-2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Default UPB (\$M) <sup>1</sup>	\$1,903	\$1,948	\$4,711	\$3,888	\$9,301	\$10,686	\$12,324	\$6,628	\$2,149	\$617	\$292	\$222	\$154	\$116	\$80	\$53	\$55,071
Default Rate (%)	0.6%	0.8%	1.5%	3.0%	6.7%	9.3%	8.9%	4.2%	0.8%	0.3%	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	1.8%

EXPENSES:																		
Delinquent Interest	12%	12%	11%	11%	11%	11%	11%	12%	9%	9%	8%	7%	7%	7%	7%	5%	11%	
Total Liquidation Exp.	13%	15%	14%	13%	10%	9%	9%	10%	11%	13%	14%	14%	14%	13%	13%	10%	11%	
Foreclosure	5%	5%	5%	4%	3%	3%	3%	3%	3%	4%	4%	4%	5%	4%	5%	4%	3%	
Property Preservation	4%	4%	4%	3%	3%	2%	2%	3%	3%	4%	5%	5%	5%	5%	4%	4%	3%	
Asset Recovery	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	
Misc. Holding Expenses/Credits	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	1%	
Associated Taxes	3%	4%	4%	4%	3%	3%	3%	3%	3%	4%	4%	3%	3%	3%	3%	2%	3%	
Total Costs	125%	127%	125%	124%	121%	121%	121%	122%	120%	122%	122%	120%	121%	120%	120%	115%	122%	

PROCEEDS:																		
Net Sales Proceeds	77%	77%	82%	77%	69%	63%	64%	67%	78%	83%	85%	86%	89%	90%	88%	90%	70%	
Credit Enhancement	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Repurchase/Make Whole	8%	4%	1%	1%	2%	4%	6%	10%	6%	3%	2%	1%	0%	0%	1%	1%	5%	
Other	6%	5%	3%	2%	1%	1%	1%	1%	1%	2%	2%	2%	4%	4%	3%	2%	2%	
Total Proceeds	91%	86%	87%	81%	73%	69%	71%	78%	85%	88%	89%	89%	93%	94%	92%	94%	76%	

Severity	34.7%	41.2%	38.9%	43.7%	48.0%	52.0%	49.6%	43.8%	34.8%	33.4%	33.7%	31.9%	27.9%	26.0%	27.1%	21.7%	45.9%
Total Net Loss (\$M)	\$659	\$802	\$1,833	\$1,700	\$4,462	\$5,555	\$6,114	\$2,903	\$747	\$206	\$98	\$71	\$43	\$30	\$22	\$12	\$25,256

1. Default UPB, expenses and proceeds in this view are for completed foreclosures only. These are defined as loans with a zero balance code of '02', '03', '09', or '15' and non-null disposition dates. Default rate is calculated as the sum of default UPB divided by the origination UPB. Expense and proceed line items are a percentage of default UPB.

Source: Fannie Mae October 2020 Data Release



# Loss/Severity Statistical Summary (Group 2)

## Loss/Severity Summary Characteristics by Origination Year (Group 2)

(Reflects loan status in performance dataset for activity through Q2 2020)

Loan Population: loans with zero balance code of '02', '03', '09', '15' with non-null Disposition dates

	Origination Year																Total
	1999-2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Default UPB (\$M) <sup>1</sup>	\$2,665	\$1,893	\$2,925	\$2,003	\$3,045	\$3,305	\$6,966	\$5,196	\$639	\$193	\$145	\$172	\$230	\$221	\$172	\$125	\$29,893
Default Rate (%)	1.8%	2.5%	3.8%	6.2%	11.3%	14.6%	16.9%	9.3%	1.8%	0.7%	0.4%	0.2%	0.2%	0.3%	0.2%	0.1%	2.8%

EXPENSES:																		
<b>Delinquent Interest</b>	11%	11%	11%	11%	11%	12%	12%	11%	8%	7%	7%	6%	6%	7%	6%	5%	11%	
<b>Total Liquidation Exp.</b>	12%	13%	14%	14%	12%	11%	10%	9%	9%	10%	12%	13%	13%	12%	11%	10%	11%	
<b>Foreclosure</b>	5%	5%	5%	4%	4%	3%	3%	3%	2%	3%	4%	4%	4%	3%	3%	3%	3%	
<b>Property Preservation</b>	4%	4%	4%	4%	3%	3%	2%	2%	3%	3%	4%	5%	4%	4%	4%	4%	3%	
<b>Asset Recovery</b>	0%	0%	1%	1%	1%	0%	0%	1%	1%	1%	1%	1%	0%	0%	0%	0%	1%	
<b>Misc. Holding Expenses/Credits</b>	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
<b>Associated Taxes</b>	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%	3%	3%	3%	3%	2%	2%	3%	
<b>Total Costs</b>	<b>123%</b>	<b>124%</b>	<b>125%</b>	<b>125%</b>	<b>123%</b>	<b>123%</b>	<b>122%</b>	<b>120%</b>	<b>116%</b>	<b>117%</b>	<b>119%</b>	<b>119%</b>	<b>119%</b>	<b>118%</b>	<b>117%</b>	<b>115%</b>	<b>122%</b>	

PROCEEDS:																		
<b>Net Sales Proceeds</b>	76%	71%	72%	67%	61%	57%	57%	62%	74%	80%	83%	83%	80%	80%	80%	79%	63%	
<b>Credit Enhancement</b>	24%	23%	21%	22%	23%	24%	23%	22%	19%	20%	21%	22%	25%	25%	22%	23%	23%	
<b>Repurchase/Make Whole</b>	5%	4%	2%	2%	3%	5%	7%	10%	4%	2%	1%	1%	0%	0%	1%	5%		
<b>Other</b>	3%	3%	3%	3%	2%	2%	2%	2%	2%	1%	1%	2%	3%	3%	3%	2%	2%	
<b>Total Proceeds</b>	<b>107%</b>	<b>100%</b>	<b>97%</b>	<b>93%</b>	<b>88%</b>	<b>87%</b>	<b>89%</b>	<b>95%</b>	<b>98%</b>	<b>103%</b>	<b>106%</b>	<b>107%</b>	<b>109%</b>	<b>108%</b>	<b>105%</b>	<b>105%</b>	<b>92%</b>	

<b>Severity</b>	<b>16.1%</b>	<b>23.9%</b>	<b>27.7%</b>	<b>32.0%</b>	<b>34.7%</b>	<b>35.8%</b>	<b>32.2%</b>	<b>24.5%</b>	<b>18.5%</b>	<b>13.8%</b>	<b>12.9%</b>	<b>11.9%</b>	<b>10.1%</b>	<b>10.6%</b>	<b>11.6%</b>	<b>9.8%</b>	<b>30.1%</b>
<b>Total Net Loss (\$M)</b>	<b>\$428</b>	<b>\$453</b>	<b>\$811</b>	<b>\$641</b>	<b>\$1,056</b>	<b>\$1,183</b>	<b>\$2,244</b>	<b>\$1,271</b>	<b>\$118</b>	<b>\$27</b>	<b>\$19</b>	<b>\$21</b>	<b>\$23</b>	<b>\$23</b>	<b>\$20</b>	<b>\$12</b>	<b>\$8,351</b>

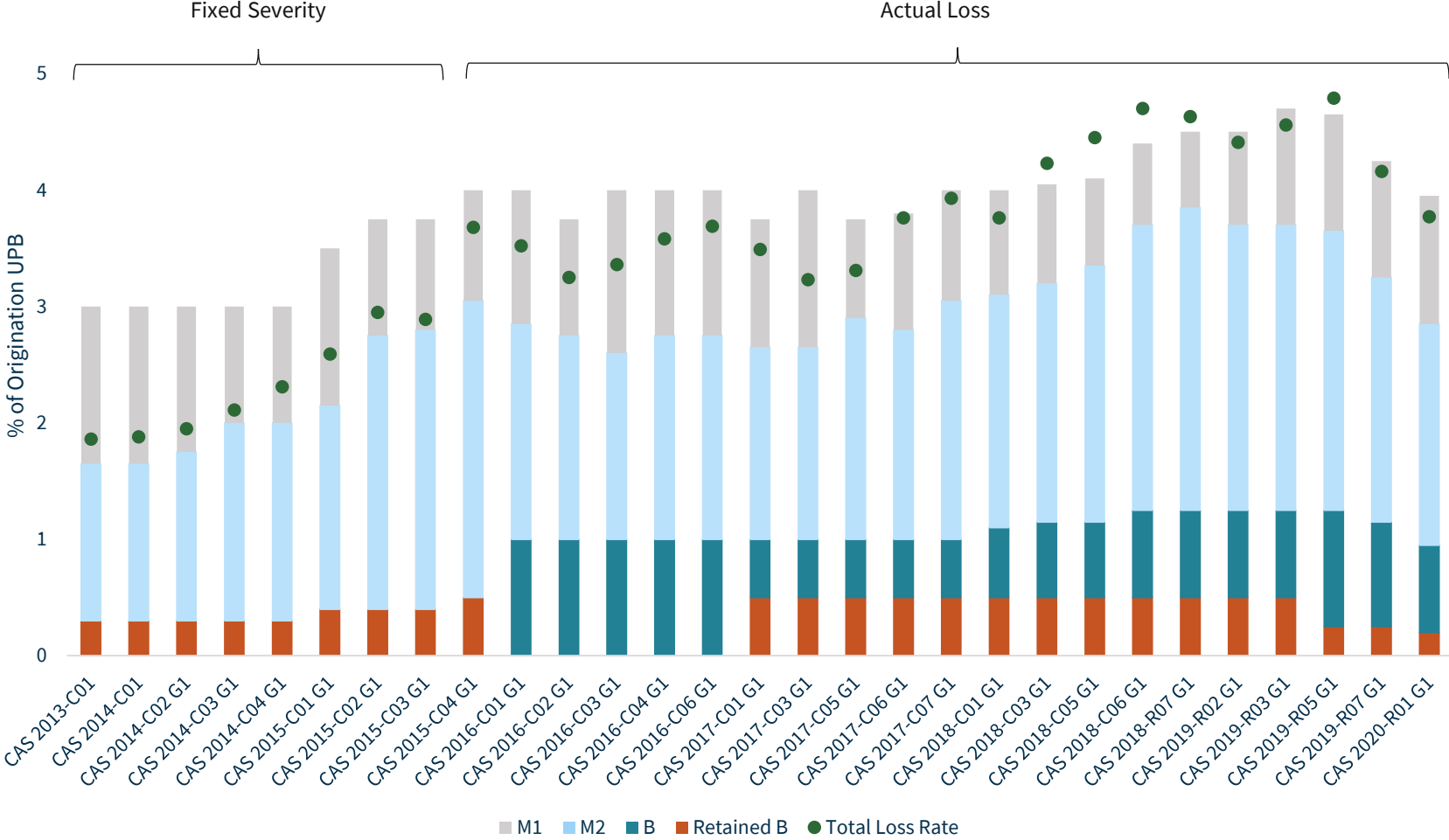
1. Default UPB, expenses and proceeds in this view are for completed foreclosures only. These are defined as loans with a zero balance code of '09', '03', '02', or '15' and non-null disposition dates. Default rate is calculated as the sum of default UPB divided by the origination UPB. Expense and proceed line items are a percentage of default UPB.

Source: Fannie Mae October 2020 Data Release



# Historical Loss Performance Re-weighted to CAS Profiles (Group 1)

G1 Deals: Total Loss Rate Comped to 2006 Vintage Year

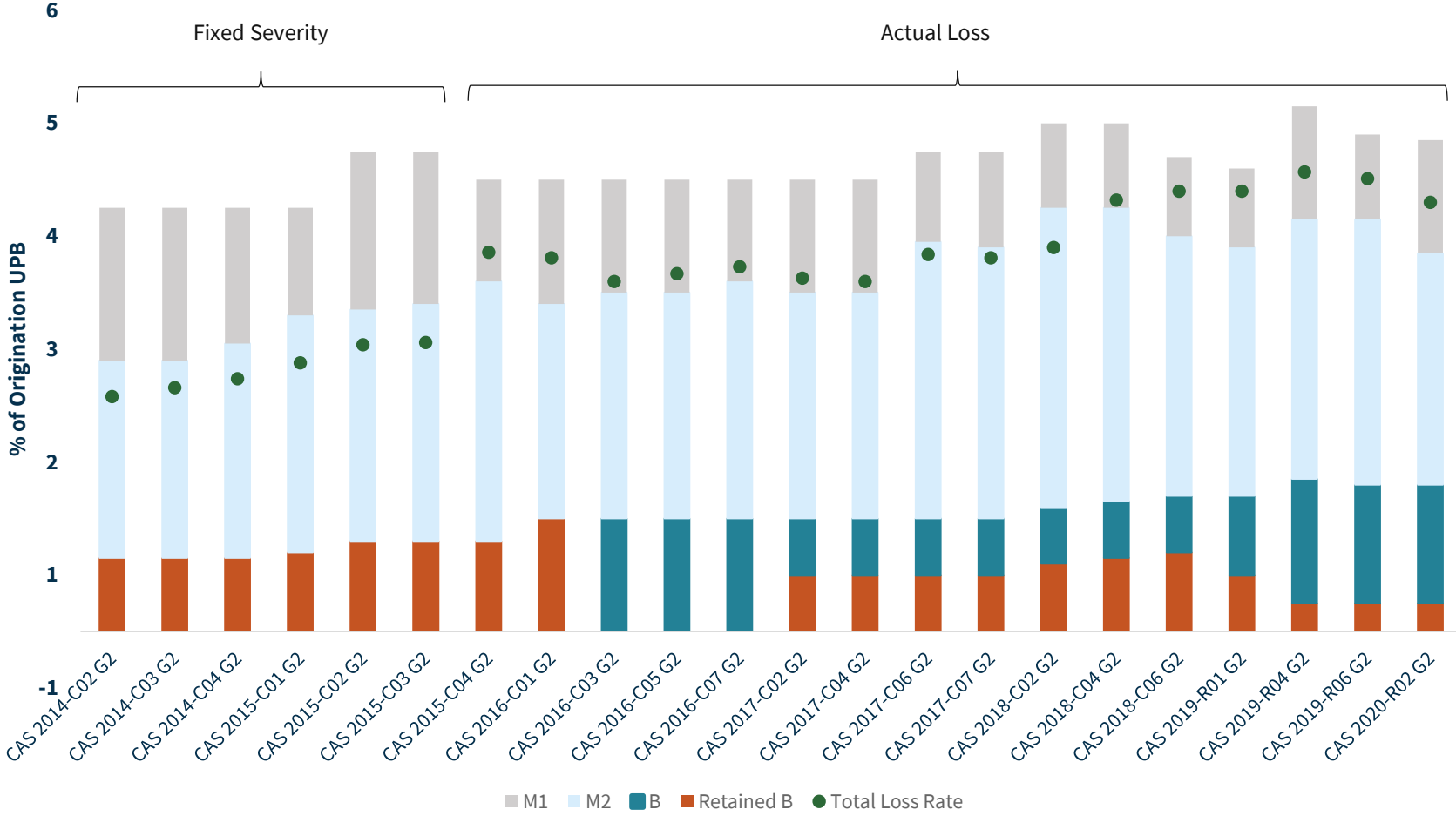


1. Dots reflect historical total loss performance re-weighted to all of Group 1 CAS profiles across FICO/CLTV/Risk Layer distribution  
 2. For deals up to and including CAS 2015-C03, total loss is calculated in accordance with the fixed severity schedule; for the others, total loss is calculated from actual net, modification and pipeline losses  
 3. Total loss rate is based on a 150 months maturity for deals up to and including CAS 2019-R03 and based on a 240 months maturity for CAS 2019-R05 and onward



# Historical Loss Performance Re-weighted to CAS Profiles (Group 2)

G2 Deals: Total Loss Rate Comped to 2006 Vintage Year



1. Dots reflect historical total loss performance re-weighted to all of Group 2 CAS profiles across FICO/CLTV/Risk Layer distribution  
 2. For deals up to and including CAS 2015 C03, total loss is calculated in accordance with the fixed severity schedule; for the others, total loss is calculated from actual net, modification and pipeline losses





# Investor resources





# COVID-19 Investor Resources

Fannie Mae remains committed to helping market participants easily access the investor resources and communications related COVID-19.



## Investor Resources

Webpage focused on COVID-19 Investor resources including FAQs, announcements, and Lender Letters.

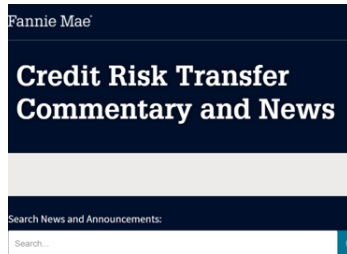
[Visit the site.](#)



## Webinar Replays

An overview of Fannie Mae's temporary selling, servicing, and collateral policies related to COVID-19.

[Access the replay.](#)



## Commentary and News

Searchable repository of all news and announcements impacting CRT investors.

[Read more.](#)



## Data Dynamics Enhancements

New dashboards to view performance of loans in temporary payment forbearance or modification, and analyze historical outcomes for those loans. [View user guide.](#)

[Sign up](#) to receive the latest news and insights via email



# Fannie Mae is Committed to ESG

- Board level committee established to govern Environmental, Social and Governance performance
- Rating Agency Scores: BBB from MSCI and 65 out of 100 from Sustainalytics
- Commitment to transparency through annual Multifamily Green Bond Impact Report



## Environmental

**\$95+ billion**

Green securities, including \$84 billion Green Multifamily MBS and \$11 billion GeMS issued since inception through October 2020

**528,000 metric tons**

Greenhouse gas emissions reduced per year through multifamily green-financed properties

**7.7 billion**

Gallons of water saved in multifamily green-financed buildings through 2019



## Social

**\$126 million**

Tenant costs saved, or an average of \$178 per family per year

**180,000 jobs**

Well-paid jobs created or supported through the construction and retrofitting of 770,000 apartment units



## Governance

**50%**

Board members who are women or minorities and 50% of board committees are chaired by women.

Fannie Mae outlines its corporate governance guidelines, code of conduct, risk management practices, supply chain monitoring, data privacy policy and more on its webpages

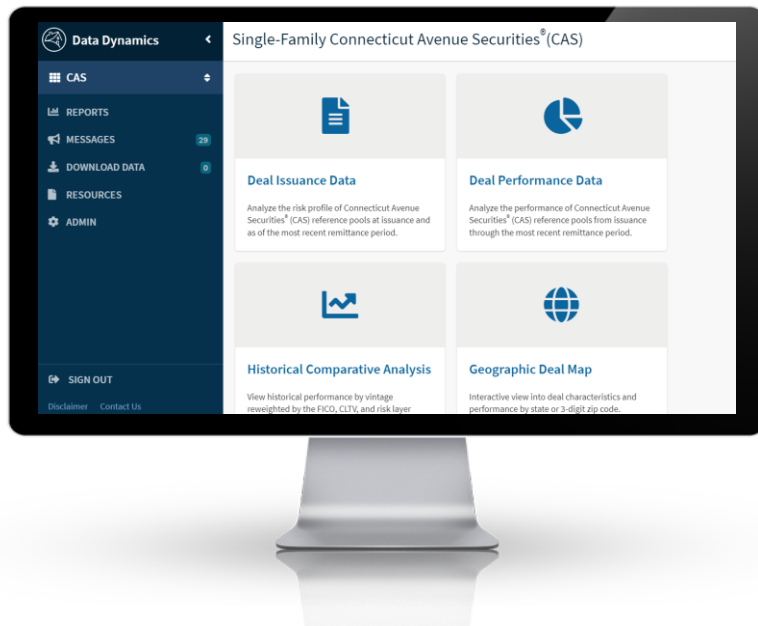
Our commitment to ESG is a natural fit with our mission.

Visit [fanniemae.com/esg](https://fanniemae.com/esg) to learn more



# Data Dynamics®

The only free platform that allows investors to gain insights into historical loan performance trends, issuance profiles, and monthly performance – exclusively for Fannie Mae’s CAS and CIRT programs.



## NEW:

- Forbearance & Modification Dashboards: enables users to access snapshots of performance on active population of loans in temporary payment forbearance or modification

## Access

- Available 24x7 at no cost. Access at-issuance and ongoing monthly performance data directly through new API (application programming interface) functionality.
- Support and training via 1:1 demos, webinars, and investor relations helpline
- View all CAS and CIRT data, and our historical loan performance dataset supporting the programs

## Transparency

- Export/download data or charts to combine with other tools or share with portfolio managers and risk departments

## Insights

- Unique insight into risk and performance trends through dynamic, drillable analysis
- Quick access to potential impacts of events (e.g., natural disasters)

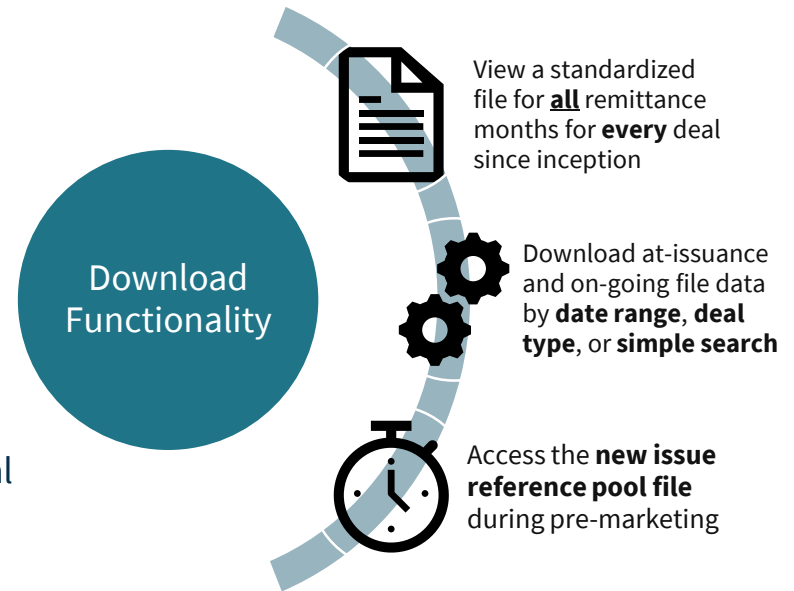
Access today at [www.fanniemae.com/datadynamics](http://www.fanniemae.com/datadynamics)



# Data Dynamics: Powerful Insights and Capabilities

Dynamic drillable analysis enables investors to keep abreast of their investments and emerging trends.

- Aggregate performance of a specific portfolio
- Compare credit profile of a new deal to outstanding deals
- View delinquency performance of credit tails and how loans move between states of delinquency from period to period
- Observe loan disposition characteristics and trends
- Analyze potential impacts of market events (e.g. natural disasters)
- Export data for additional analysis
- Drill into forbearance and modification data
- ...and much more.



# Historical Loan-level Performance Data

Gain insights into historical performance trends and relationships to credit performance via our dataset.

## Access our historical monthly loan performance data on a portion of our single-family mortgage loans

- Includes a subset of our 30-year and less, fully amortizing, full documentation, conventional fixed-rate mortgage acquisitions since January 2000
- Updated on a quarterly basis to include a new quarter of acquisitions and performance
- Inclusive of loans modified through HARP®, supporting market analysis of high loan-to-value refinance assistance programs

## Key features:

- Utilize Data Dynamics to see aggregated loan-level data
- Download the entire dataset with one-click, capturing over 50 data elements per loan
- Self-serve with abundant investor resources including file layout, glossary, FAQs, web tutorials, and statistical summaries to support download of dataset

[www.fanniemae.com/loanperformance](http://www.fanniemae.com/loanperformance)

Orig. Vintage	Origination (USD \$M)	Orig. Loan Count	% of Orig. LPIF	Active LPIF (USD \$M)	Active Loan Count	Average Appreciation (LPIF %)	WA FICO	WA LTV	WA CLTV	WA DTI	WA Risk Rate	Incentive (%)	Combined (%)	LTV	WA Stat Types
2000	\$10,820	192,362	100.00%	\$57	1,362	105,385	717	77.9%	77.0%	34.4%	7.4%	3.2%	13.8%	12.1%	6.14
2001	\$183,737	3,767,843	100.00%	\$516	10,232	106,761	718	77.7%	77.9%	36.2%	8.18%	3.0%	14.2%	14.2%	6.10
2002	\$472,121	2,271,670	100.00%	\$2,819	46,890	148,243	722	72.8%	72.2%	33.3%	8.32%	3.2%	11.1%	12.1%	6.51
2003	\$554,753	3,157,700	100.00%	\$5,707	83,105	146,451	737	69.4%	68.9%	30.6%	6.51%	4.5%	10.7%	14.2%	6.66
2004	\$177,512	3,747,450	100.00%	\$21,132	270,328	152,324	729	67.1%	67.2%	32.8%	5.94%	4.9%	14.2%	23.2%	6.21
2005	\$279,833	1,741,206	100.00%	\$11,603	105,446	107,046	733	64.3%	64.9%	36.7%	5.42%	4.1%	14.2%	19.2%	5.66
2006	\$224,233	1,442,213	100.00%	\$76,288	761,099	114,422	728	63.7%	61.7%	37.8%	5.25%	3.8%	14.2%	14.2%	5.15
2007	\$148,737	1,530,547	100.00%	\$11,688	105,875	103,641	735	70.5%	70.5%	36.6%	5.34%	4.9%	14.2%	11.4%	5.26
2008	\$245,227	1,222,900	100.00%	\$17,139	121,589	108,125	729	72.2%	69.2%	38.5%	6.22%	6.1%	11.1%	11.1%	5.22
2009	\$155,833	1,441,206	100.00%	\$15,405	131,722	116,162	745	70.7%	70.3%	37.6%	6.66%	6.6%	10.6%	14.2%	5.18
2010	\$121,257	2,292,700	100.00%	\$12,249	225,226	225,167	749	68.2%	67.0%	33.6%	6.01%	4.2%	11.1%	23.2%	6.08
2011	\$437,343	1,451,533	100.00%	\$84,777	479,334	379,622	764	66.7%	66.7%	34.6%	4.64%	4.5%	14.2%	15.1%	6.22
2012	\$207,100	1,091,070	100.00%	\$76,717	386,470	270,225	759	68.2%	69.1%	32.1%	4.22%	6.2%	22.2%	23.2%	6.11
2013	\$618,933	3,530,148	100.00%	\$283,817	1,430,825	746,880	773	63.8%	64.3%	34.1%	3.65%	6.9%	14.2%	14.2%	6.62
2014	\$424,413	2,221,406	100.00%	\$224,224	1,370,881	470,225	761	62.4%	62.4%	32.6%	3.62%	7.2%	15.2%	21.1%	6.13
2015	\$193,374	1,441,443	100.00%	\$193,336	813,364	744,668	763	76.4%	77.3%	34.2%	4.33%	7.8%	14.2%	23.2%	6.17
2016	\$121,831	1,890,200	100.00%	\$253,212	1,344,854	228,372	755	73.9%	75.0%	33.5%	3.58%	7.2%	14.2%	23.2%	6.17
2017	\$643,443	3,740,448	100.00%	\$435,445	1,443,344	746,373	764	71.4%	74.9%	33.6%	3.73%	6.9%	14.2%	23.2%	6.17
2018	\$223,512	1,711,000	100.00%	\$247,189	1,338,000	221,118	751	75.8%	76.2%	33.6%	4.17%	6.8%	22.2%	12.2%	6.00



# CAS Loan-level Data Disclosure

- Fannie Mae makes over 100 loan-level disclosure fields available to support CAS analysis
- Fields include key loan risk factors, loan term characteristics, collateral characteristics, servicing data, and disposition data, such as (not limited to):

<b>Loan and Borrower Characteristics</b>	Property Type	HomeReady Program Indicator, and First Time Home Buyer Indicator	High Loan-to-Value Refinance Indicator
	Number of Borrowers	Original Debt to Income Ratio	Borrower FICO and Co-Borrower FICO scores (at origination, deal issuance, and ongoing)
<b>Collateral Characteristics</b>	Number of Units	Original Loan to Value Ratio (LTV) and Combined LTV Ratio (CLTV)	Three digit zip code
	Occupancy Type	Metropolitan Statistical Area	Property Inspection Waiver Flag <sup>(1)</sup>
<b>Servicing Data</b>	Servicer Name	Loan Payment History	Reason and Date as to why a loan balance went to zero
	Mortgage Insurance Cancellation Indicator	Modification Flag	Current Loan Delinquency Status
<b>Loan Term Characteristics</b>	Original and Current Interest Rate	Original Loan Term	Loan Age
	Original and Current UPB	Origination Date	Maturity Date
<b>Disposition Data</b>	Last Paid Installment Date	Foreclosure Date	Detailed Proceed Fields
	Original and Current List Price and Date	Disposition Date	Detailed Expense Fields

(1) Available beginning with CAS 2017-C07



# Resources for EU investors

Fannie Mae’s webpage helps European Union institutional investors and those managing funds subject to EU regulations comply with EU securitization regulation

- Information and resources that Fannie Mae already makes publicly available for all investors is organized in an easy-to-navigate format according to applicable sections of EU Regulation 2017/2402
- **Download monthly loan-level data in ESMA-template format directly from Data Dynamics®, Fannie Mae’s free CRT data analytics tool**
- Mapping file helps investors with reporting obligations by mapping CAS data fields to ESMA templates



[www.fanniemae.com/portal/funding-the-market/credit-risk/european-investors-cas-resources.html](http://www.fanniemae.com/portal/funding-the-market/credit-risk/european-investors-cas-resources.html)





# Contact Us


Information is available for investors and potential investors about Fannie Mae's products, the company's financial performance, and disciplined management of credit risk and interest rate risk.

## For more information, please contact us:

 [Credit\\_Securities@fanniemae.com](mailto:Credit_Securities@fanniemae.com)

 800-2FANNIE (800-232-6643)

 [@fanniemae](https://twitter.com/fanniemae)

 [www.facebook.com/fanniemae](https://www.facebook.com/fanniemae)

 [@fanniemae.com](https://plus.google.com/@fanniemae)

## By Mail:

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Washington, DC 20005

Fannie Mae is headquartered in Washington, D.C. and operates regional offices in Chicago, Plano, and Philadelphia.

## Headquarters

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Washington, DC 20005







# Appendix

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# Commodity Futures Trading Commission (CFTC) Considerations

CAS REMIC structure allows transaction to be created in a manner that does not involve swaps

- Transaction documents are traditional commercial transactions
- None of the transaction documents will utilize an ISDA or similar agreement
- The substance of all transaction documents will be commercial (securities and capital contribution) agreements
- Outside counsel to Fannie Mae and the Issuer will deliver an opinion letter that the transaction does not involve any swaps
- Since the transaction does not involve any swaps, the Issuer is not considered a commodity pool and, therefore, does not need to register with the CFTC



# Swaps Analysis

## CAS REMIC structure allows transaction to be created in a manner that does not involve swaps

- For the first CAS REMIC deal, CAS 2018-R07, Fannie received an opinion letter from Eversheds Southerland (US) LLP regarding its swaps analysis. Fannie Mae will receive similar opinion letters for each subsequent issuance
- Eversheds concluded that the transactions between Fannie Mae and the CAS REMIC Trust are not security-based swaps since they are based on a reference pool of mortgages
- Eversheds concluded that the both the Capital Contribution Agreement (CCA) and the Collateral Administration Agreement (CAA) between Fannie and CAS REMIC Trust are commercial transactions and therefore should not be treated as swaps
  - The sources of payments on the Notes consist of: (i) investment earnings and liquidation proceeds of short-term, liquid investments held in the Cash Collateral Account; (ii) amounts received in respect of REMIC interests issued by separate REMIC trusts previously established by Fannie Mae and assigned by Fannie Mae to the Issuer; and (iii) additional capital contributions made by Fannie Mae pursuant to the CCA and the CAA, each as further described in the 2019-R05 term sheet
- Eversheds determined that both the CCA and the CAA should be considered as commercial transactions, supported by the following facts:
  - Fannie Mae's and the Trust's payment obligations are not severable from the transaction
  - No OTC trading (or similar) market exists for the obligations under the CCA and CAA
  - Fannie's contribution of the IO securities from the Q-REMIC have been sized specifically to satisfy all payments under the CAA and are contributed to the Trust for tax (REMIC and REIT eligibility) and securitization structuring purposes
    - For further details/analysis, refer to the CAS REMIC overview on pages 61-64 and the Good REIT Income slides on pages 69-72
- The CCA and CAA lack various other characteristics that are common in swap transactions, such as:
  - Is not documented like a swap
  - Does not possess the characteristics of a swap (no exchange of payments, no netting, no credit exposure)



# Summary of Key Tax, Legal and Regulatory Considerations

Topic	CAS direct debt	CAS REMIC
<b>Issuer</b>	Fannie Mae	CAS REMIC Trust, a wholly-owned, non-consolidated subsidiary of Fannie Mae. Fannie Mae is sponsor and depositor
<b>Registration</b>	Exempt under Fannie Mae Charter Act	Exempt under 144A
<b>Offering Restrictions</b>	Within the U.S.: Notes offered only to “Qualified Institutional Buyers” as defined in Rule 144A under the Securities Act.	Within the U.S.: Notes offered only to “Qualified Institutional Buyers” as defined in Rule 144A under the Securities Act.
<b>Regulation S</b>	Outside the U.S.: Notes offered only to non-U.S. persons pursuant to Regulation S of the Securities Act.	Outside the U.S.: Notes offered only to non-U.S. persons pursuant to Regulation S of the Securities Act.
<b>Sales to REITs</b>	CAS are deemed to be government securities for purposes of the REIT tax tests, so are qualifying assets for REITs, but generally are less attractive because they do not produce qualifying real property income for REITs.	A REMIC security will be a qualified REIT asset and will produce qualified income for REITs.
<b>Tax treatment</b>	M1 and M2 are debt for tax B1 is a contingent notional principal contract for tax	All tranches are treated as debt for tax



# Tax, Legal and Regulatory Summary (cont.)

Topic	CAS direct debt	CAS REMIC
<b>Sale of B piece</b>	B piece is generally subject to 30% withholding tax if sold to non-U.S. investors.	B piece is treated as debt-for-tax and therefore NOT subject to withholding tax if sold to overseas investors
<b>CFTC/Commodity Pool Operator</b>	Registration as a Commodity Pool Operator (CPO) is not required.	Registration as a Commodity Pool Operator (CPO) is not required.
<b>Investment Company Act of 1940</b>	Fannie Mae, as an instrumentality or ‘government entity’ of the United States, is exempt from registration pursuant to Section 2(b) of the Act.	As an entity wholly owned by Fannie Mae, the SPV is exempt from registration pursuant to Section 2(b) of the Act.
<b>Volcker Rule</b>	Exempt from the 1940 Act since Fannie Mae is the issuer. Securities are exempt from Volcker Rule since they are not issued in reliance upon an exemption under Section 3(c)(1) or 3(c)(7) of the 1940 Act.	The SPV will be exempt from the Act pursuant to Section 2(b). CAS REMIC notes therefore will not constitute interests in a “covered fund” for purposes of the Volcker Rule since the Volcker Rule applies only to securities issued in reliance on Sections 3(c)(1) or 3(c)(7) of the Act.
<b>ERISA eligibility</b>	Non-rated and below investment grade rated notes are ERISA eligible because they represent either (i) debt for tax or (ii) equity in an operating company (Fannie Mae).	The M1 and M2 notes will be ERISA-eligible because they are both able to meet certain criteria to be characterized as debt-for-tax independent of the REMIC election. The B1 is not expected to be ERISA-eligible.



# REMIC Functionality in Data Dynamics



[← Reports Home](#)

## Tools for REIT Investors

Welcome to Fannie Mae's CAS REMIC™ mREIT investor reports, aimed to support our mortgage REIT investors in better understanding their investments in our Connecticut Avenue Securities® (CAS) program.

The CAS REMIC was designed in part to enable further mREIT participation in the program, providing favorable treatment under the REIT income and asset tests for tax purposes. These reports support mREIT investors in monitoring the recognition of REIT income for tax purposes ("Good REIT Income").

In addition to these reports, Fannie Mae has added new exchangeable notes to its CAS REMIC offerings that may be used to convert certain classes into interest components that distinguish income that counts favorably for purposes of the REIT income test from other income. Refer to the specific CAS offering documents for more detail [here](#).

These tools are applicable to CAS deals issued beginning with CAS 2018 R07 and forward, or the "R" series. Previous CAS deals were issued as debt of Fannie Mae, and are identified by a different offering series with a "C" designation, or the "C" series (e.g., CAS 2018 C06).

We value your feedback. Share it [here](#).



### Net Guarantee Fee Reporting and Analysis

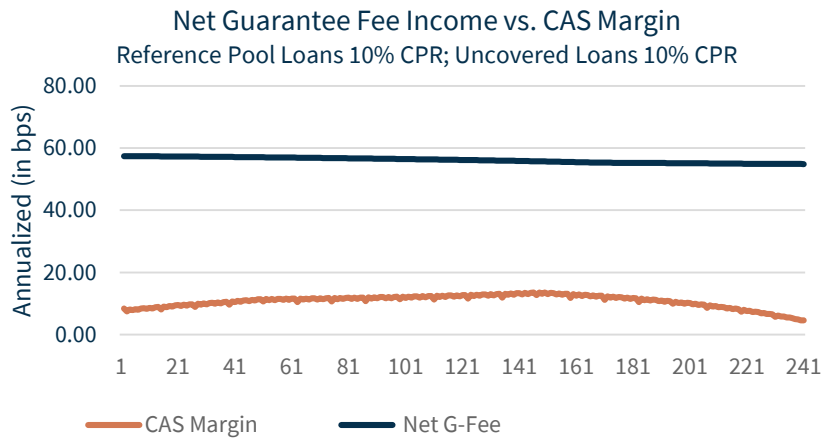
This tool provides additional reporting to help REIT investors analyze the net guarantee fee income available to CAS REMIC trusts.

[View Report](#)

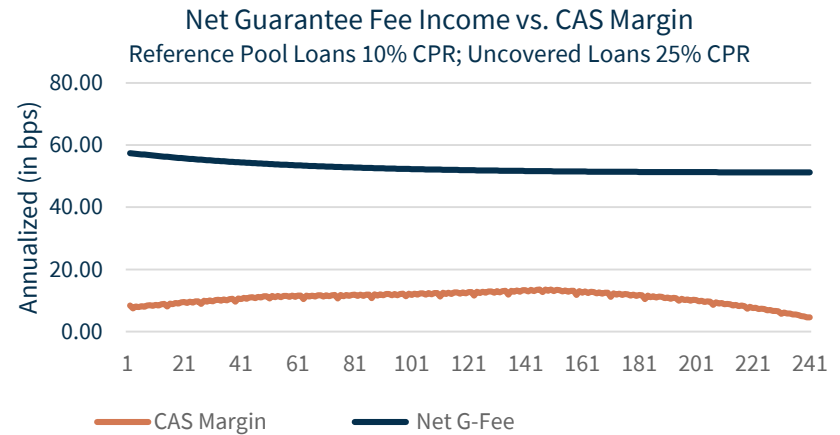


# CAS 2020-R02 G-fee Adequacy Analysis

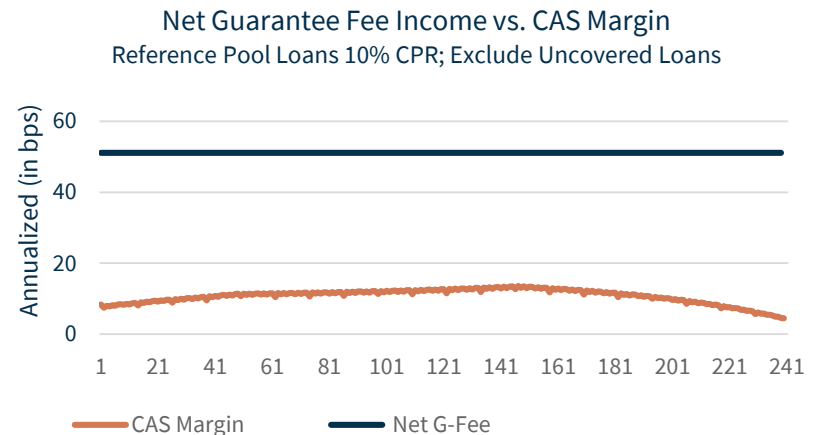
**Base scenario:** Assumes Reference Pool Loans and Uncovered Q-REMIC Loans prepay at the same rate



**Moderate scenario:** Assumes Uncovered Q-REMIC Loans prepay faster than covered loans



**Stress scenario:** Assumes 100% of Uncovered Q-REMIC Loans pay off in first remittance month



## Implications:

- **Even under an assumed Stress Scenario, the Net G-Fee is more than sufficient to cover the CAS margin in order to generate “good REIT income”**
- **This analysis also supports the opinion that the transaction is not a swap, since the IO securities contributed from the Q-REMIC (i.e., the Net G-Fee) are sufficient to cover the CAS margin**



# CAS 2020-R01 G1 Excluded Loans Performance Summary

**Initial cohort pool loan performance summary:** Performance of loans that met the CAS eligibility criteria at acquisition but were excluded from the CAS 2020-R01 reference Pool due to delinquency history, payoff, or QC removal

Category	Loan Count	Original Loan Balance
<b>Initial Cohort</b>	107,962	\$30,151,778,000
<b>Less loans that did not satisfy the delinquency criteria, less loans that paid-in-full, less quality control removals</b>	2,688	\$821,094,000
<b>Eligible Loans</b>	105,274	\$29,330,684,000
<b>Reference Pool</b>	105,274	\$29,330,684,000

## Excluded loan summary (by Loan Count):

Worst DQ Status Since Acquisition	Current Status <sup>(1)</sup>											Total
	Current	D30	D60	D90	D120	D150	D180	>D180/Default	Paid in Full	QC Removal	Repurchase	
<b>Current</b>	16	0	0	0	0	0	0	0	1,097	0	0	<b>1,113</b>
<b>D30</b>	767	730	0	0	0	0	0	0	8	0	0	<b>1,505</b>
<b>D60</b>	19	0	39	0	0	0	0	0	1	0	0	<b>59</b>
<b>D90</b>	2	0	0	9	0	0	0	0	0	0	0	<b>11</b>
<b>D120</b>	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>D150</b>	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>D180</b>	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>&gt;D180</b>	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>All</b>	<b>804</b>	<b>730</b>	<b>39</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,106</b>	<b>0</b>	<b>0</b>	<b>2,688</b>

(1) The above table takes into account acquisition eligibility criteria prior to the consideration of delinquency and other Cut-Off Date eligibility requirements, which could understate such Cut-Off Date eligibility exclusions

(2) Loans remain subject to Fannie Mae's post-purchase QC process as of December 2019 and are therefore excluded from eligibility





# CAS 2020-R02 G2 Excluded Loans Performance Summary

**Initial cohort pool loan performance summary:** *Performance of loans that met the CAS eligibility criteria at acquisition but were excluded from the CAS 2020-R02 reference Pool due to delinquency history, payoff, or QC removal*

Category	Loan Count	Original Loan Balance
<b>Initial Cohort</b>	112,140	\$29,881,057,000
<b>Less loans that did not satisfy the delinquency criteria, less loans that paid-in-full, less quality control removals</b>	1,603	\$456,352,000
<b>Eligible Loans</b>	110,537	\$29,424,705,000
<b>Reference Pool</b>	110,537	\$29,424,705,000

## Excluded loan summary (by Loan Count):

Worst DQ Status Since Acquisition	Current Status <sup>(1)</sup>											Total
	Current	D30	D60	D90	D120	D150	D180	>D180/Default	Paid in Full	QC Removal	Repurchase	
<b>Current</b>	8	0	0	0	0	0	0	0	258	1	0	<b>267</b>
<b>D30</b>	799	435	0	0	0	0	0	0	4	0	0	<b>1,238</b>
<b>D60</b>	18	8	55	0	0	0	0	0	0	0	0	<b>81</b>
<b>D90</b>	3	1	0	9	0	0	0	0	0	0	0	<b>13</b>
<b>D120</b>	0	0	0	0	4	0	0	0	0	0	0	<b>4</b>
<b>D150</b>	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>D180</b>	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>&gt;D180</b>	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>All</b>	<b>828</b>	<b>444</b>	<b>55</b>	<b>9</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>262</b>	<b>1</b>	<b>0</b>	<b>1,603</b>

(1) The above table takes into account acquisition eligibility criteria prior to the consideration of delinquency and other Cut-Off Date eligibility requirements, which could understate such Cut-Off Date eligibility exclusions

(2) Loans remain subject to Fannie Mae's post-purchase QC process as of December 2019 and are therefore excluded from eligibility



# Credit Bureau Data: FICO Tail Progression

	Tri-Merge at Orig	Equifax at Aqsn	Equifax at Issue
CAS 2018-C05 Group 1	743	740	743
% <620	0.00%	1.48%	1.60%
% <660	6.02%	7.02%	6.72%
CAS 2018-C06 Group 1	741	740	741
% <620	0.00%	1.44%	1.61%
% <660	6.77%	7.17%	7.07%
CAS 2018-C06 Group 2	743	735	733
% <620	0.00%	1.22%	2.12%
% <660	3.86%	6.81%	8.36%
CAS 2018-R07 Group 1	742	739.5	740
% <620	0.00%	1.54%	1.72%
% <660	6.88%	7.50%	7.63%
CAS 2019-R01 Group 2	743	735	732
% <620	0.00%	1.27%	2.45%
% <660	3.90%	6.77%	8.89%
CAS 2019-R02 Group 1	745	741	742
% <620	0.00%	1.36%	1.84%
% <660	5.94%	6.65%	7.19%
CAS 2019-R03 Group 1	743	740	741
% <620	0.00%	1.52%	1.85%
% <660	6.52%	7.33%	7.72%
CAS 2019-R04 Group 2	742	733	730
% <620	0.00%	1.37%	2.94%
% <660	4.14%	7.31%	9.80%
CAS 2019-R05 Group 1	741	739	740
% <620	0.00%	1.60%	1.87%
% <660	6.52%	7.73%	7.65%
CAS 2019-R06 Group 2	742	733	732
% <620	0.00%	1.26%	2.00%
% <660	3.69%	6.76%	8.17%
CAS 2019-R07 Group 1	747	744	745
% <620	0.00%	1.16%	1.39%
% <660	4.75%	5.65%	5.93%
CAS 2020-R01 Group 1	750	746	748
% <620	0.00%	0.96%	1.31%
% <660	3.78%	4.97%	5.27%
CAS 2020-R02 Group 2	743	735	734
% <620	0.00%	1.13%	1.83%
% <660	3.11%	6.22%	7.57%

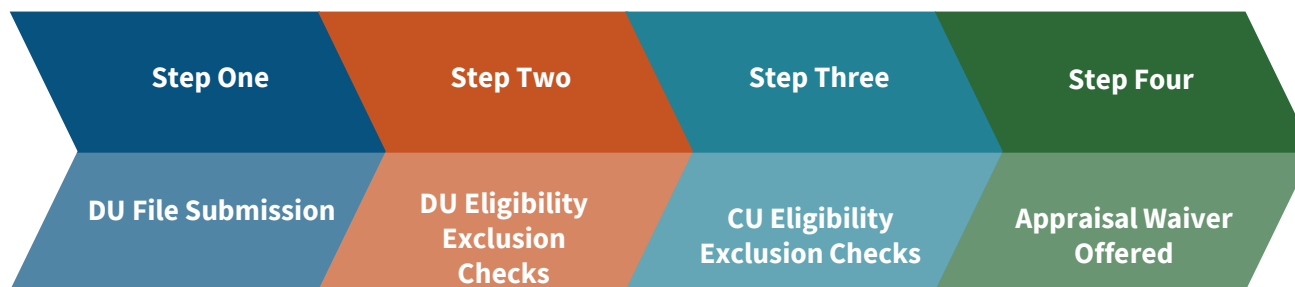
- At loan delivery, Fannie Mae requires the following versions of the classic FICO score for both DU and manually underwritten mortgage loans:
  - Equifax Beacon® 5.0
  - Experian®/Fair Isaac Risk Model V2SM
  - TransUnion FICO® Risk Score, Classic 04
- The representative score is then calculated as the median of these three scores for each borrower, therefore the Current FICO fields in CAS disclosures (Equifax) should not be directly compared to the FICO as of the Origination Date (Tri-Merge)
- Fannie Mae provides updated Equifax-only FICO scores on a monthly basis for all of our CAS offerings so that investors can track the ongoing borrower and co-borrower credit profiles
- At deal issuance, Fannie Mae provides the Equifax-only FICO score so that investors have a benchmark against which to compare the ongoing monthly Equifax scores
- The Equifax At-Issue FICO scores are provided for informational purposes only, and are not used to establish loan eligibility
- For information on Equifax monthly supplemental borrower and co-borrower credit performance offerings, visit [www.Equifax.com/business/capital-markets](http://www.Equifax.com/business/capital-markets) or email [EMSSalesSupport@Equifax.com](mailto:EMSSalesSupport@Equifax.com)



# Appraisal Waiver

As part of Fannie Mae's commitment to **simplify** the complexity of mortgage origination by creating **efficiencies** and delivering **innovations** that improve the loan manufacturing process, we updated our appraisal waiver offering, formerly known as Property Inspection Waiver, by integrating Desktop Underwriter (DU) and Collateral Underwriter (CU).

By using CU's industry-leading analytics, we can offer appraisal waivers for certain lower-risk eligible loans.



- Subject property generally has a prior appraisal that was analyzed by CU.
  - CU will evaluate the prior appraisal for overvaluation or property eligibility issues. If any of these issues exist, an appraisal waiver will not be granted.
  - CU will use the prior appraised value along with Fannie Mae's Home Price Index to assess the reasonableness of the estimated property value provided by the lender in DU.
  - If estimated property value is reasonably supported, the loan may be eligible for a waiver, subject to additional eligibility requirements.
- The majority of transactions will continue to require an appraisal.
- Fannie Mae has offered appraisal waivers for many years, and we have observed no material differences in performance for loans with the waiver versus comparable risk loans that obtained an appraisal.
- Waiver rates have been included on CAS deal files as a loan-level field since October 2017.
- In [March 2020](#), Fannie Mae enhanced its Uniform Mortgage Backed Securities (UMBS) and Mortgage-Backed Securities (MBS) disclosures to include a new attribute, "Property Valuation Method," which indicates the method by which the value of the subject mortgaged property was obtained, including appraisal waivers. The new attribute applied to all Fannie Mae single-family securities – both fixed-rate and adjustable-rate – with issue dates on or after January 1, 2017. This enhancement is for active loans only and not loans that were previously paid off or liquidated for other reasons.



# How MI Works: Typical Loan Possible Claim Outcomes

**MI Coverage “Percentage Option” Settlement**

- MI elects to pay amount equal to Total indebtedness \* MI coverage %
- Indebtedness=Defaulted UPB + DQ Interest + Allowable Expenses
- CAS Investor sustains net loss after MI benefit is recognized

**Property Sale**

- Fannie Mae disposes of property prior to MI’s settlement of the claim
- MI responsible for payment equal to the lesser of the loss sustained by Fannie Mae or the amount calculated under the Percentage Option
- CAS deal could sustain a loss if amount recovered from MI is less than loss amount because MI caps expenses and accrued interest

**Conveyance**

- MI opts to acquire the property from Fannie Mae by paying amount equal to Total Indebtedness (subject to MI limits on expenses)
- Fannie Mae transfers property deed to MI company
- CAS deal sustains no loss (unless MI limits on expenses apply)

**Rescission**

- MI QC review uncovers R&W breach and rescinds coverage
- Fannie Mae will seek make-whole recoveries from the seller/servicer for amount equivalent to MI proceeds that are otherwise contractually due. If Fannie Mae also identifies a R&W breach, seller/servicer may be responsible for the entire loss.
- CAS investor will receive benefit equal to the amount of make-whole recoveries collected by Fannie Mae

Post-crisis, MI benefits were reduced in some cases due to a Deferred Payment Obligation (DPO) imposed by MI regulators

In this event, Fannie Mae will step in and make the CAS investor whole for the full MI claim amount due

**MI Factor:** Fannie Mae recently began to streamline the MI claims process, whereby foreclosure expenses are determined by applying a numerical factor to all applicable claim amounts. The factor is established based on Fannie Mae’s historical data on foreclosure expenses paid on MI claims and is intended to have no material impact to the overall levels of mortgage insurance proceeds. It is designed to simplify and accelerate MI claim calculations and increase certainty of payment amount. This process is in effect with a limited number of MI providers and it is our intention to expand in the future. The same factors will be used for all participating MI’s and will apply to all claim payments regardless of when the loan was originated.



# How MI Works: MI Cancellation Provisions

Borrower Paid Mortgage Insurance may be cancelled under the following circumstances:

1. Automatic Termination (based on scheduled amortization):
  - the principal balance of the mortgage loan reaches 78% of the original value of the property AND
  - the borrower's payment is current
2. Borrower-Initiated Termination Based on Original Property Value (i.e. loan balance decrease):
  - Outstanding balance of the loan is reduced such that the LTV ratio reaches  $\leq 80\%$  of the original value of the property (typically due to a curtailment) AND
  - Borrower must have an acceptable payment history:
    - payment is current;
    - has no payment 30 or more days past due in the last 12 months; and
    - has no payment 60 or more days past due in the last 24 months
  - The servicer must warrant that the current property value is at least equal to the original property value. The servicer may choose to order a broker price opinion (BPO), a certification of value, or a new appraisal to verify the current property value
3. Borrower-Initiated Termination Based on Current Property Value (i.e., property value increase):
  - Servicer must establish current property value as evidenced by a new appraisal based on an interior and exterior inspection of the property and prepared in accordance with Fannie Mae's appraisal standards.
  - LTV ratio must be:
    - 75% or less, if the seasoning of the mortgage loan is between two and five years
    - 80% or less, if the seasoning of the mortgage loan is greater than five years
  - Borrower must have an acceptable payment history (see requirements above for borrower-initiated termination)

EPMI automatically terminates after 10 years. It is not cancellable prior to 10-year termination.

*Applicable to mortgages secured by one-unit principal residence or second home; lower LTV ratios required for other loan types.*

*To note, #1 and #2, above, are provisions of the Homeowner's Protection Act of 1998. #3 is allowed under current Fannie Mae Servicing Guidelines.*



# Deal Summaries & Comparison – Group 1

	2017-C06	2017-C07	2018-C01	2018-C03	2018-C05	2018-C06	2018-R07	2019-R02	2019-R03	2019-R05	2019-R07	2020-R01
<b>Pricing Date</b>	8/15/2017	11/14/2017	2/6/2018	5/1/2018	7/26/2018	10/2/2018	10/31/2018	3/5/2019	4/9/2019	7/30/2019	10/29/2019	1/14/2020
<b>Pricing (1 Month LIBOR +)</b>	M1: 75 bps M2: 265 bps B1: 415 bps	M1: 65 bps M2: 240 bps B1: 400 bps	M1: 60 bps M2: 225 bps B1: 355 bps	M1: 68 bps M2: 215 bps B1: 375 bps	M1: 72 bps M2: 235 bps B1: 425 bps	M1: 55 bps M2: 200 bps B1: 375 bps	M1: 75 bps M2: 240 bps B1: 435 bps	M1: 85 bps M2: 230 bps B1: 415 bps	M1: 75 bps M2: 215 bps B1: 410 bps	M1: 75 bps M2: 200 bps B1: 410 bps	M1: 77 bps M2: 210 bps B1: 340 bps	M1: 80 bps M2: 205 bps B1: 325 bps
<b>Size</b>	M1: \$156.6 mm M2: \$281.9 mm B1: \$78.3 mm	M1: \$186.2 mm M2: \$401.7 mm B1: \$97.9 mm	M1: \$384.2 mm M2: \$853.7 mm B1: \$256.1 mm	M1: \$251.4 mm M2: \$606.4 mm B1: \$192.3 mm	M1: \$204.7 mm M2: \$600.5 mm B1: \$177.4 mm	M1: \$86.6 mm M2: \$353.4 mm B1: \$108.2 mm	M1: \$149.8 mm M2: \$599.2 mm B1: \$172.9 mm	M1: \$200.5 mm M2: \$614 mm B1: \$188 mm	M1: \$204.1 mm M2: \$500.1 mm B1: \$153.1 mm	M1: \$225.7 mm M2: \$542.7 mm B1: \$225.7 mm	M1: \$249.6 mm M2: \$524.1 mm B1: \$224.6 mm	M1: \$303.1 mm M2: \$523.5 mm B1: \$206.7 mm
<b>Credit Enhancement</b>	M1: 2.80% M2: 1.00% B1: 0.50%	M1: 3.05% M2: 1.00% B1: 0.50%	M1: 3.10% M2: 1.10% B1: 0.50%	M1: 3.20% M2: 1.15% B1: 0.50%	M1: 3.35% M2: 1.15% B1: 0.50%	M1: 3.70% M2: 1.25% B1: 0.50%	M1: 3.85% M2: 1.25% B1: 0.50%	M1: 3.70% M2: 1.25% B1: 0.50%	M1: 3.70% M2: 1.25% B1: 0.50%	M1: 3.65% M2: 1.25% B1: 0.25%	M1: 3.25% M2: 1.15% B1: 0.25%	M1: 2.85% M2: 0.95% B1: 0.20%
<b>Minimum Credit Enhancement Test</b>	Credit enhancement greater than 3.80%	Credit enhancement greater than 4.50%	Credit enhancement greater than 4.50%	Credit enhancement greater than 4.40%	Credit enhancement greater than 4.40%	Credit enhancement greater than 4.50%	Credit enhancement greater than 4.75%	Credit enhancement greater than 4.50%	Credit enhancement greater than 4.70%	Credit enhancement greater than 4.65%	Credit enhancement greater than 4.25%	Credit enhancement greater than 4.65%
<b>Vertical Slice Retained</b>	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%
<b>Ratings</b>	Fitch/KBRA M1: BBB – sf/BBB+(sf) M2: Bsf/BB(sf) B1: Unrated	Fitch/KBRA M1: BBB-sf/BBB+(sf) M2: Bsf/BB- (sf) B1: Unrated	Fitch/DBRS M1: BBB-sf/BBB (high) (sf) M2: Bsf/B (high) (sf) B1: Unrated	Fitch/DBRS M1: BBB-sf/BBB (sf) M2: Bsf/B (high) (sf) B1: Unrated	Fitch/DBRS M1: BBB-sf/BBB (high) (sf) M2: Bsf/B (high) (sf) B1: Unrated	Fitch/KBRA M1: BBB-sf/A (sf) M2: Bsf/BB (sf) B1: Unrated	Fitch/KBRA M1: BBB-sf/A+ (sf) M2: Bsf/BB (sf) B1: Unrated	S&P/Morningstar M1: BBB+ sf/A M2: B+sf/BBB- B1: Unrated	S&P/Morningstar M1: BBB+ sf/A M2: B+sf/BBB- B1: Unrated	S&P/KBRA M1: BBB+ sf/BBB+ sf M2: B+sf/BB sf B1: Unrated	Fitch/KBRA M1: BBB-sf/BBB+(sf) M2: Bsf/BB (sf) B1: Unrated	Fitch/KBRA M1: BBB-sf/BBB+(sf) M2: Bsf/BB (sf) B1: Unrated
<b>Lead/Co Lead</b>	BAR/MS	BAML/NOM	BAML/WF	BAR/MS	BAML/NOM	NOM/BAR	BAML/JPM	Nomura/Wells	CITI/BNP	BAR/MS	BAR/BAML	MS/WF
<b>Acquisition Period</b>	January 2017/February 2017	February 2017/April 2017	May 2017/August 2017	September 2017/November 2017	December 2017/March 2018	March 2018/April 2018	April 2018/June 2018	May 2018/September 2018	May 2018/November 2018	May 2018/ March 2019	May 2018/June 2019	Oct 2018/August 2019
<b>Loan Count</b>	69,367	88,483	186,525	127,544	116,174	62,061	98,567	107,109	88,981	98,085	102,286	105,274
<b>UPB</b>	\$16.5 BN	\$20.6 BN	\$44.9 BN	\$31.1 BN	\$28.7 BN	\$15.2 BN	\$24.5 BN	\$26.8 BN	\$21.8 BN	\$24.0 BN	\$26.6 BN	\$29.3 BN



# Deal Summaries & Comparison – Group 1

	2017-C06	2017-C07	2018-C01	2018-C03	2018-C05	2018-C06	2018-R07	2019-R02	2019-R03	2019-R05	2019-R07	2020-R01
<b>Avg Principal Balance</b>	\$240,576	\$236,462	\$243,826	\$246,754	\$249,993	\$247,183	\$248,404	\$249,627	\$243,953	\$244,978	\$259,723	\$278,613
<b>Avg Gross Mortgage Rate</b>	4.08%	4.38%	4.34%	4.25%	4.28%	4.60%	4.80%	4.89%	4.95%	5.07%	4.61%	4.28%
<b>Avg Remaining Term to Stated Maturity</b>	354 months	353 months	355 months	355 months	355 months	356 months	357 months	355 months	357 months	356 months	356 months	356 months
<b>Weighted Avg Original Term</b>	359 months	359 months	359 months	359 months	359 months	359 months	360 months	360 months	360 months	360 months	359 months	359 months
<b>Weighted Avg Loan Age</b>	5 months	6 months	5 months	4 months	4 months	3 months	3 months	4 months	3 months	4 months	3 months	4 months
<b>Avg Original LTV Ratio</b>	74.91%	75.31%	75.80%	75.47%	75.29%	75.36%	75.73%	75.83%	75.75%	75.58%	75.52%	75.4%
<b>Avg Original CLTV Ratio</b>	75.64%	76.01%	76.50%	76.12%	75.86%	75.90%	76.26%	76.36%	76.26%	76.06%	75.91%	75.9%
<b>Avg Debt-to-Income Ratio</b>	35%	35%	35%	36%	37%	37%	38%	37%	38%	38%	37%	36%
<b>Credit Score</b>	746	744	746	743	743	741	742	745	743	741	747	750
<b>Loan Purpose (% UPB)</b> No cash-out refinance: Purchase: Cash-out refinance:	25.99% 44.98% 29.03%	28.35% 52.76% 18.18%	13.21% 62.61% 24.18%	17.74% 53.31% 28.95%	18.54% 49.95% 31.51%	14.68% 52.93% 32.39%	10.06% 61.95% 27.99%	8.27% 66.14% 25.60%	9.26% 63.52% 27.22%	11.72% 58.61% 29.67%	19.07% 54.33% 26.60%	26.11% 49.70% 24.19%
<b>Percent Owner Occupied</b>	84.87%	83.59%	84.90%	85.54%	85.63%	84.15%	84.06%	85.35%	85.53%	85.36%	86.06%	89.1%
<b>Top Three Geographic Concentration (% UPB)</b>	California: 21.78% Texas: 7.32% Florida: 5.79%	California: 21.76% Texas: 7.75% Washington: 4.82%	California: 20.36% Texas: 7.82% Florida: 6.27%	California: 22.97% Texas: 7.02% Florida: 5.22%	California: 22.43% Texas: 6.89% Florida: 6.14%	California: 22.45% Texas: 7.73% Florida: 7.00%	California: 19.72% Texas: 8.29% Florida: 6.95%	California: 17.64% Texas: 8.02% Florida: 6.70%	California: 17.09% Texas: 8.16% Florida: 6.71%	California: 17.53% Texas: 8.37% Florida: 7.24%	California: 20.94% Texas: 7.10% Florida: 6.76%	California: 21.34% Texas: 6.44% Colorado: 5.54%
<b>Top Three Sellers (% UPB)</b>	Wells Fargo: 20.81% Quicken Loans: 6.86% SunTrust: 4.41%	Wells Fargo: 15.11% Quicken Loans: 6.78% JPM Chase: 5.59%	Wells Fargo: 20.10% Quicken Loans: 6.28% United Shore Financial Services: 3.91%	Wells Fargo: 21.43% Quicken Loans: 9.73% JPM Chase: 4.43%	Wells Fargo: 24.96% Quicken Loans: 10.03% United Shore Financial Services: 6.21	Wells Fargo: 24.60% Quicken Loans: 10.50% United Shore Financial Services: 5.11%	Wells Fargo: 25.09% Quicken Loans: 9.13% United Shore Financial Services: 4.65%	Wells Fargo: 24.68% Quicken Loans: 10.14% United Shore Financial Services: 4.58%	Wells Fargo: 23.54% Quicken Loans: 10.44% Freedom Mortgage Corp.: 4.73%	Wells Fargo: 24.01% Quicken Loans: 13.02% JPM Chase: 4.89%	Wells Fargo: 20.10% Quicken Loans: 13.98% United Shore Financial Services: 7.81%	Wells Fargo: 15.32% Quicken Loans: 9.86% United Shore Financial Services: 7.17%



# Deal Summaries & Comparison – Group 2

	2017-C02	2017-C04	2017-C06	2017-C07	2018-C02	2018-C04	2018-C06	2019-R01	2019-R04	2019-R06	2020-R02
Pricing Date	3/15/2017	5/23/2017	8/15/2017	11/14/2017	3/6/2018	6/26/2018	10/2/2018	2/5/2019	6/25/2019	10/2/2019	2/3/2020
Pricing (1 Month LIBOR +)	M1: 115 bps M2: 365 bps B1: 550 bps	M1: 85 bps M2: 285 bps B1: 505 bps	M1: 75 bps M2: 280 bps B1: 445 bps	M1: 65 bps M2: 250 bps B1: 445 bps	M1: 65 bps M2: 220 bps B1: 400 bps	M1: 75 bps M2: 255 bps B1: 450 bps	M1: 55 bps M2: 210 bps B1: 410 bps	M1: 85 bps M2: 245 bps B1: 435 bps	M1: 75 bps M2: 210 bps B1: 525 bps	M1: 75 bps M2: 210 bps B1: 375 bps	M1: 75 bps M2: 200 bps B1: 300 bps
Size	M1: \$379.9 mm M2: \$759.8 mm B1: \$189.9 mm	M1: \$257.8 mm M2: \$601.5 mm B1: \$143.2 mm	M1: \$117.9 mm M2: \$360.9 mm B1: \$73.6 mm	M1: \$107.7 mm M2: \$303.9 mm B1: \$63.3 mm	M1: \$188.8 mm M2: \$667.2 mm B1: \$151.1 mm	M1: \$187.9 mm M2: \$598.9 mm B1: \$152.6 mm	M1: \$70.0 mm M2: \$230.0 mm B1: \$70.0 mm	M1: \$186.7 mm M2: \$586.8 mm B1: \$186.7 mm	M1: \$234.3 mm M2: \$538.8 mm B1: \$257.7mm	M1: \$233.8 mm M2: \$732.7 mm B1: \$327.4mm	M1: \$276.7 mm M2: \$567.1 mm B1: \$290.5mm
Credit Enhancement	M1: 3.00% M2: 1.00% B-1: 0.50%	M1: 3.10% M2: 1.00% B-1: 0.50%	M1: 3.45% M2: 1.00% B-1: 0.50%	M1: 3.40% M2: 1.00% B-1: 0.50%	M1: 3.75% M2: 1.10% B-1: 0.50%	M1: 3.70% M2: 1.15% B-1: 0.50%	M1: 3.50% M2: 1.20% B-1: 0.50%	M1: 3.40% M2: 1.20% B1: 0.50%	M1: 3.65% M2: 1.35% B1: 0.25%	M1: 3.65% M2: 1.30% B1: 0.25%	M1: 3.35% M2: 1.30% B1: 0.25%
Minimum Credit Enhancement Test	Credit enhancement greater than 4.25%	Credit enhancement greater than 4.25%	Credit enhancement greater than 4.50%	Credit enhancement greater than 4.50%	Credit enhancement greater than 4.50%	Credit enhancement greater than 4.50%	Credit enhancement greater than 4.20%	Credit enhancement greater than 4.10%	Credit enhancement greater than 5.00%	Credit enhancement greater than 4.85%	Credit enhancement greater than 4.95%
Vertical Slice Retained	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%	M1: 5% M2: 5% B1: 5%
Ratings	Fitch/KBRA M1: BBB-sf/BBB(sf) M2: Bsf/B+(sf) B1: Unrated	Fitch/KBRA M1: BBB-sf/BBB(sf) M2: Bsf/B+(sf) B1: Unrated	Fitch/KBRA M1: BBB – sf/B+(sf) M2: Bsf/B+ (sf) B1: Unrated	Fitch/KBRA M1: BBB-sf/BBB(sf) M2: Bsf/B (sf) B1: Unrated	Fitch/KBRA M1: BBB-sf/BBB+(sf) M2: Bsf/B+(sf) B1: Unrated	Fitch/Morningstar M1: BBB-sf/A+ M2: Bsf/BB+ B1: Unrated	Fitch/KBRA M1: BBB-sf/BBB+(sf) M2: Bsf/B+(sf) B1: Unrated	Fitch/Morningstar M1: BBB-sf/A M2: Bsf/BBB B1: Unrated	Fitch/Morningstar M1: BBB-sf/BBB+ M2: Bsf/BB B1: Unrated	S&P/Morningstar M1: BBB-(sf)/A- M2: B(sf)/BB+ B1: Unrated	Fitch/KBRA M1: BBB-(sf)/BBB(sf) M2: B+ (sf)/BB-(sf) B1: Unrated
Lead/Co Lead	JPM/BNP	JPM/CITI	BAR/MS	BAML/NOM	JPM/BNP	CITI/JPM	NOM/BAR	BAML/CITI	BAML/NOM	BAML/MS	BAML/BAR
Acquisition Period	May 2016/Sep 2016	Oct 2016/Dec 2016	January 2017/March 2017	April 2017/June 2017	June 2017/September 2017	October 2017/January 2018	Feb 2018/March 2018	May 2018/August 2018	Aug 2018/December 2018	Jan 2019/June 2019	Nov 2018/September 2019
Loan Count	170,672	125,573	66,489	56,296	112,133	103,753	43,325	115,586	102,543	130,696	110,537
UPB	\$39.9 BN	\$30.1 BN	\$15.5 BN	\$13.3 BN	\$26.5 BN	\$24.7 BN	\$10.5 BN	\$28.4 BN	\$25.1 BN	\$33.2 BN	\$29.4 BN





# Deal Summaries & Comparison – Group 2

	2017-C02	2017-C04	2017-C06	2017-C07	2018-C02	2018-C04	2018-C06	2019-R01	2019-R04	2019-R06	2020-R02
<b>Avg Principal Balance</b>	\$234,300	\$240,129	\$233,259	\$236,843	\$236,333	\$238,285	\$245,976	\$246,231	\$244,292	\$253,693	\$266,198
<b>Avg Gross Mortgage Rate</b>	3.87%	3.73%	4.26%	4.39%	4.26%	4.21%	4.34%	4.78%	4.89%	4.67%	4.18%
<b>Avg Remaining Term to Stated Maturity</b>	354 months	355 months	356 months	356 months	356 months	355 months	355 months	355 months	354 months	357 months	356 months
<b>Weighted Avg Original Term</b>	360 months	360 months	360 months	360 months	360 months	360 months	360 months	360 months	360 months	360 months	360 months
<b>Weighted Avg Loan Age</b>	6 months	4 months	4 months	4 months	4 months	5 months	5 months	5 months	6 months	3 months	3 months
<b>Avg Original LTV Ratio</b>	92.13%	91.83%	92.21%	92.54%	92.53%	92.47%	92.50%	92.84%	92.79%	92.78%	92.31%
<b>Avg Original CLTV Ratio</b>	92.15%	91.85%	92.24%	92.57%	92.55%	92.49%	92.52%	92.86%	92.81%	92.8%	92.33%
<b>Avg Debt-to-Income Ratio</b>	35%	35%	36%	36%	36%	38%	38%	38%	38%	38%	38%
<b>Credit Score</b>	746	746	743	744	743	742	743	743	742	742	743
<b>Loan Purpose (% UPB)</b>											
<b>No cash-out refinance:</b>	14.75%	19.91%	14.04%	7.54%	7.14%	10.65%	10.95%	4.03%	4.17%	9.38%	17.29%
<b>Purchase:</b>	85.25%	80.09%	85.96%	92.46%	92.86%	89.35%	89.05%	95.97%	95.83%	90.62%	82.71%
<b>Cash-out refinance:</b>											
<b>Percent Owner Occupied</b>	96.60%	96.59%	96.09%	96.65%	95.98%	95.72%	96.19%	95.91%	95.40%	95.94%	96.97%
<b>Top Three Geographic Concentration (% UPB)</b>	California: 11.22% Texas: 7.59% Florida: 5.65%	California: 11.88% Texas: 6.91% Florida: 5.51%	California: 11.16% Texas: 8.36% Florida: 6.56%	California: 11.26% Texas: 7.58% Florida: 4.89%	California: 10.86% Texas: 7.16% Florida: 5.56%	California: 13.11% Texas: 7.37% Florida: 5.66%	California: 12.29% Texas: 7.66% Florida: 7.28%	California: 9.82% Texas: 7.69% Florida: 7.01%	California: 9.50% Texas: 8.03% Florida: 7.04%	California: 12.16% Texas: 8.30% Florida: 7.45%	California: 12.31% Texas: 7.22% Florida: 6.25%
<b>Top Three Sellers (% UPB)</b>	Wells Fargo: 17.77% Quicken Loans: 5.25% Franklin American: 2.24%	Wells Fargo: 20.44% Quicken Loans: 5.49% JPM: 2.58%	Wells Fargo: 18.09% JP Morgan: 4.98% Quicken Loans: 4.26%	Wells Fargo: 18.67% JP Morgan: 4.57% Quicken Loans: 3.82%	Wells Fargo: 21.44% Quicken Loans: 4.82% JP Morgan: 4.69%	Wells Fargo: 21.90% Quicken Loans: 6.84% JP Morgan: 5.22%	Wells Fargo: 25.49% Quicken Loans: 6.96% United Shore Financial Services: 4.78%	Wells Fargo: 23.38% Quicken Loans: 6.04% JP Morgan: 5.14%	Wells Fargo: 22.24% Quicken Loans: 6.28% JP Morgan: 4.29%	Wells Fargo: 22.87% Quicken Loans: 10.95% United Shore financial Services: 7.12%	Wells Fargo: 20.74% Quicken Loans: 10.95% JP Morgan: 5.47%





# Thank You

