

# PREPAYMENT MONITORING REPORT

Second Quarter 2019

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## Introduction

FHFA's *2014 Strategic Plan for the Conservatorships of Fannie Mae and Freddie Mac* includes the goal of improving the overall liquidity of Fannie Mae's and Freddie Mac's (the Enterprises) securities through the development of a common mortgage-backed security. That security is the Uniform Mortgage-Backed Security or UMBS, which began trading in the "To-Be-Announced" (TBA) market<sup>1</sup> on March 12, 2019. UMBS issued by Fannie Mae and Freddie Mac trade in the TBA market without regard to which Enterprise is the issuer. This fungibility, or interchangeability, is central to broadening and enhancing the liquidity of the secondary mortgage market on an ongoing basis.

This report provides insight into how FHFA monitors the consistency of prepayment rates across cohorts of the Enterprises' TBA-eligible MBS.<sup>2</sup> This report defines a cohort as those Enterprise TBA-eligible securities with the

same coupon, maturity, and loan-origination year.<sup>3</sup> A prepayment on a mortgage loan is the amount of principal paid in advance of the loan's scheduled payments. Full prepayment occurs when a borrower pays off the loan ahead of the scheduled maturity. If a borrower defaults on the mortgage loan, the Enterprise will pay investors the remaining principal balance and remove the loan from the MBS. That action has the same effect on investors as a full prepayment. Partial prepayment occurs when a borrower pays principal in addition to the regularly scheduled payment of principal and interest.

Consistency of prepayment rates is important to the success of UMBS and to the efficiency and liquidity of the secondary mortgage market. Some industry stakeholders have expressed concern that the rates of prepayment of the Enterprises' securities might materially diverge and undermine their fungibility. FHFA has taken a number of steps to promote the continued consistency of prepayment rates of Fannie Mae- and Freddie Mac-issued mortgage-

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<sup>1</sup> The TBA market is a forward market for certain mortgage-backed securities, including those issued by Fannie Mae and Freddie Mac.

<sup>2</sup> To avoid double counting, only first-level securitizations are included in the analysis. Second-level securitizations (Megas and Giants) are excluded.

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<sup>3</sup> FHFA has previously stated that cohorts would be determined by issuance year. Basing the analysis on loan-origination years is more consistent with industry practice.



backed securities (MBS).<sup>4</sup> This quarterly report is part of that commitment and provides market participants additional transparency into the data FHFA receives and reviews on a monthly basis and into FHFA's uses of that data.

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<sup>4</sup> See, for example, the UMBS Final Rule at <https://www.federalregister.gov/documents/2019/03/05/2019-03934/uniform-mortgage-backed-security>.



## Alignment Activity

FHFA has established Enterprise guidelines for alignment on prepayment rates – also referred to as prepayment speeds – that require the Enterprises to identify and align those Enterprise programs, policies, and practices that could materially affect prepayments, and to develop strategies to address any actual or anticipated divergences in prepayment rates.

FHFA guidelines call for general alignment on the observed prepayments associated with Enterprise MBS at the cohort level but not complete alignment of the Enterprises' programs, policies, and practices. Alignment efforts are required only on those innovations or other changes that are likely to cause a divergence of prepayment rates for two reasons: because the Enterprises remain separate entities and competitors and because complete alignment could hamper innovation by the Enterprises. Past innovations have delivered significant benefits to the secondary mortgage market and to mortgage borrowers.

To comply with FHFA guidelines, each Enterprise has a formal internal Enterprise-wide governance process to ensure that any significant changes proposed to its programs, policies, and practices are identified, reviewed, escalated, and submitted to FHFA for review in a timely

manner. Such reviews have helped align Enterprise prepayment rates in recent years and continue to help ensure that Enterprise business decisions consider investor interests.

For example, in 2017, the Enterprises and FHFA announced new streamlined refinance programs to replace the crisis-era Home Affordable Refinance Program (HARP). The new programs aim to assist borrowers who are current on their payments and who cannot refinance because their loan-to-value (LTV) ratios exceed the maximum otherwise allowed. Because these programs could significantly affect prepayment rates on TBA-eligible securities, FHFA required the Enterprises to align on all major program aspects prior to implementation.

The Enterprises are also required to monitor *ex post* all programs, policies, and practices for unanticipated effects on prepayment rates and security performance, and are required to report to FHFA any unexpected effects.

When circumstances arise that cause divergences in prepayment rates for some cohorts, notwithstanding these efforts, each Enterprise has strategies it can employ, with FHFA oversight, to address misalignment of prepayment rates.



FHFA will continue to require the Enterprises to submit non-public reports to FHFA with all proposed or pending changes as described in the [Update on the Single Security Initiative and Common Securitization Platform, December 2017](#).

*Ex post* monitoring of the actual prepayment rates is part of a broader effort to assure investors that cash flows from UMBS will be similar regardless of which Enterprise is the issuer. FHFA monitors and evaluates prepayment rates of the TBA-eligible securities issued by the Enterprises. As noted above, FHFA is seeking general alignment on the observed prepayment rates associated with Enterprise MBS at the cohort level. By “general alignment,” FHFA means that those cash flows should be similar rather than identical.

FHFA has set a minimum standard to trigger a review of the differences in prepayment rates of any given cohort. In general, FHFA investigates differences between actual Fannie Mae and Freddie Mac prepayment rates when the divergence for a cohort exceeds a conditional prepayment rate (CPR) of two percentage points. For a divergence in CPR in excess of three percentage points, FHFA will require that the cause of the divergence be reported to

FHFA’s internal Single Security Governance Committee.<sup>5</sup> This committee monitors issuance and prepayment performance of Fannie Mae’s and Freddie Mac’s mortgage-backed securities and takes remedial actions to address prepayment differences between the two Enterprises’ mortgage-backed securities when they arise.

## Future Reporting

On March 5, 2019, FHFA published the Uniform Mortgage-Backed Security Final Rule, which codifies the current alignment requirements that FHFA implemented under the Fannie Mae and Freddie Mac conservatorships and becomes effective on May 6, 2019. To monitor alignment, as defined in the new rule, FHFA will create new reports, such as an alignment report comparing the fastest quartiles of 3-month CPR on the Enterprises’ cohorts, and will provide examples of those reports in future Prepayment Monitoring Reports, targeting release in Q3 2019.

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<sup>5</sup> The percentage triggers are based on the current interest rate environment and are subject to change over time.



## Prepayment Performance Charts and Tables

FHFA uses the charts and data tables in this report to evaluate the alignment of loan attributes for newly issued Enterprise MBS and the prepayment performance of outstanding Enterprise MBS. These charts and tables have been abridged to improve readability by omitting coupons and years with lower volumes of outstanding securities. FHFA monitors similar information for both Enterprises, focusing primarily on coupons, maturities, and loan-origination years that have minimum combined outstanding principal balances in excess of \$10 billion and whose origination-years are not more than six calendar years prior to the current calendar year. Footnotes to the relevant charts and tables indicate cohorts that are below the \$10 billion threshold.

A prepayment on a mortgage loan is the amount of principal paid in advance of the loan's payment schedule. Full prepayment occurs when a borrower pays off the loans ahead of the scheduled maturity. Partial prepayment occurs

when a borrower pays principal in addition to the regularly scheduled payment of principal and interest.

When a loan is prepaid, an MBS investor receives the payment as principal. If the investor paid a premium for the security, the prepayment reduces the investor's yield. Therefore, investors in premium securities look for MBS that are likely to prepay slower than other MBS. Similarly, investors in discounted securities prefer MBS with faster prepayment rates.

Market participants measure prepayments using the CPR, which is the percentage of the existing mortgage pool principal that is prepaid in a given period expressed as a compounded annual rate.

For further descriptions of how FHFA uses this information, see [\*Update on the Single Security Initiative and Common Securitization Platform, December 2017\*](#).



## Charts

Chart 1 compares prepayment rates for all Fannie Mae and Freddie Mac TBA-eligible 30-year securities for the current year and the prior six years.

Chart 2 illustrates the comparison of pool loan-origination years for a given TBA-eligible MBS coupon. Chart 2 shows June 2019 prepayment rates for each Enterprise's 30-year MBS for coupons with combined issuance volume outstanding in excess of \$10 billion (3%, 3.5%, 4%, 4.5%, and 5%) and the six loan-origination years prior to the current calendar year.

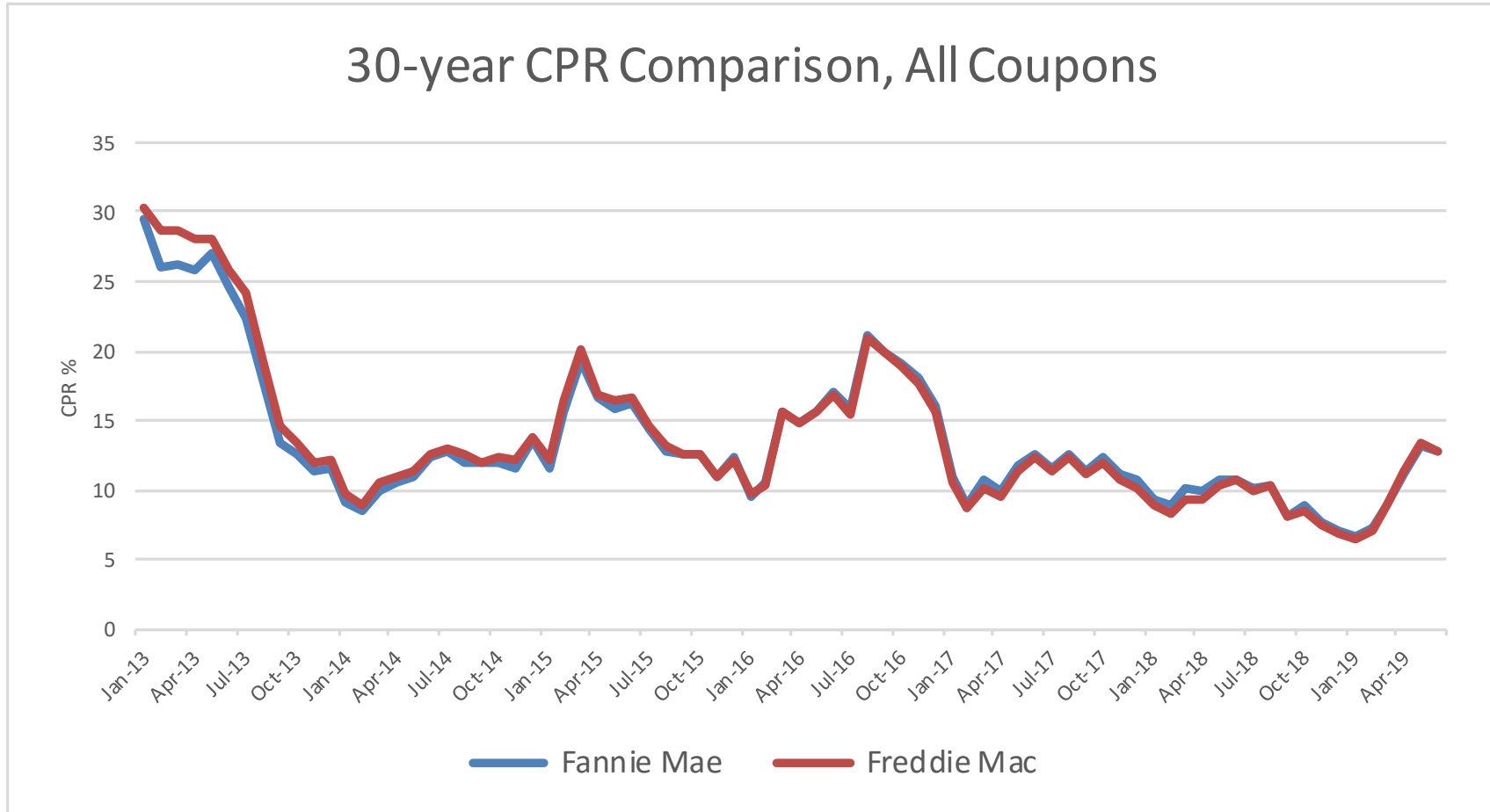
FHFA uses these charts to assess the current alignment of CPRs for past origination cycles and the general trend of alignment across loan-origination years.

FHFA also uses Charts 3a through 3f to compare Fannie Mae's TBA-eligible MBS and Freddie Mac's TBA-eligible MBS prepayment rates and to evaluate the degree of alignment on an historical basis. Chart 3a illustrates alignment in prepayment rates across the Enterprises for recent coupons with substantial issuance. For each coupon in Chart 3a, the prepayment rates illustrated are calculated across all outstanding TBA-eligible MBS at a given point in time. Charts 3b through 3f illustrate the degree of prepayment alignment for each coupon-year cohort.





Chart 1: Prepayment Comparison for 30-Year, TBA-Eligible MBS, All Coupons



Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



Chart 2: June 2019 Prepayment Rates on 30-year, TBA-eligible MBS by Coupon and Loan-Originiation Year\*

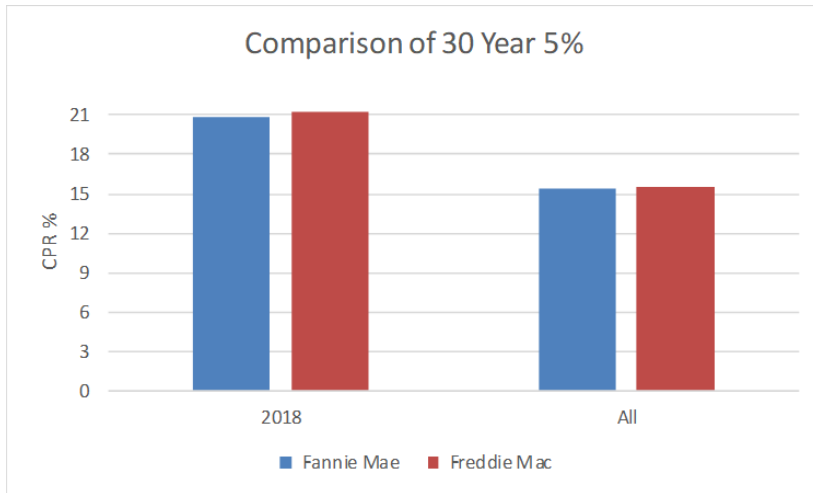


\* The 3 percent coupon cohorts for 2014 and 2018, and the 4.5 percent coupon cohorts for 2013, 2015, and 2016 are omitted because each has a combined UPB below the \$10 billion threshold.

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



**Chart 2: June 2019 Prepayment Rates on 30-year, TBA-eligible MBS by Coupon and Loan-Originator Year\***

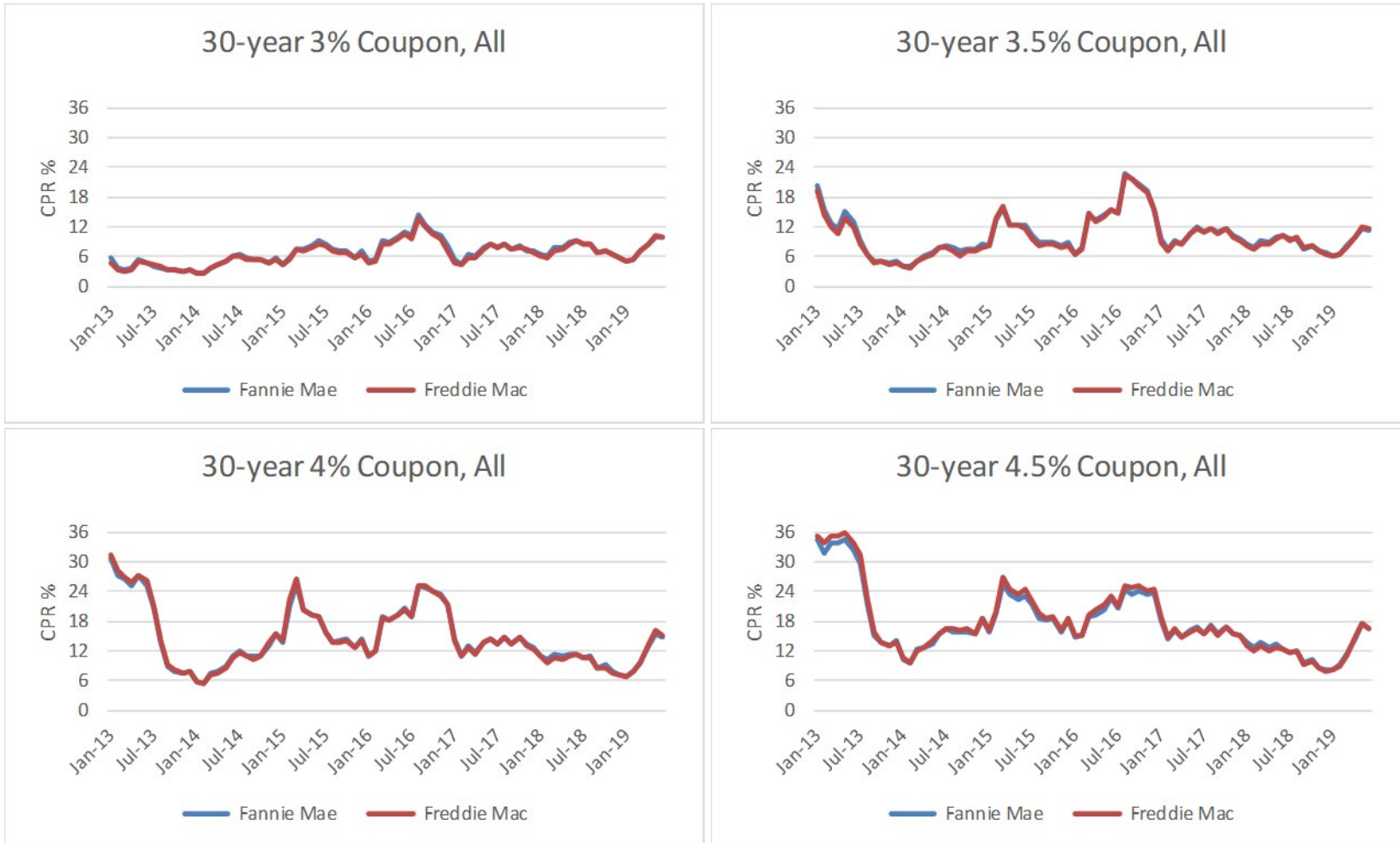


\* The 5 percent coupon cohorts for 2013, 2014, 2015, 2016, and 2017 are omitted because each has a combined UPB below the \$10 billion threshold.

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



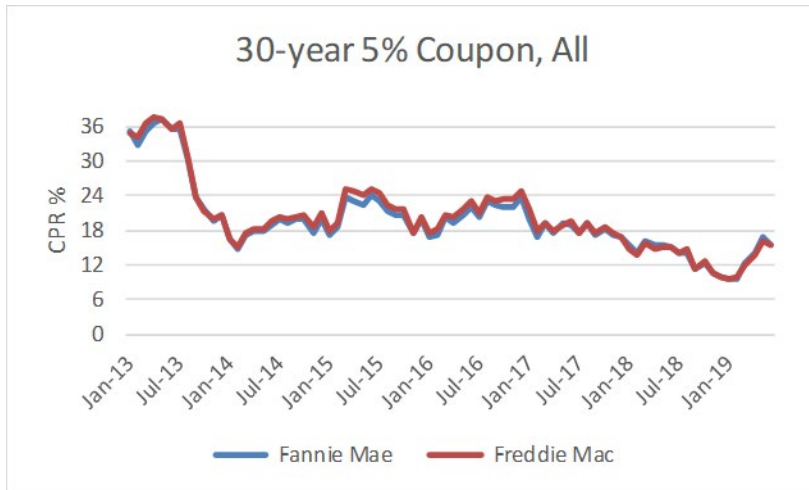
Chart 3a: Prepayment Rates on All 30-year, TBA-eligible MBS by Coupon



Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



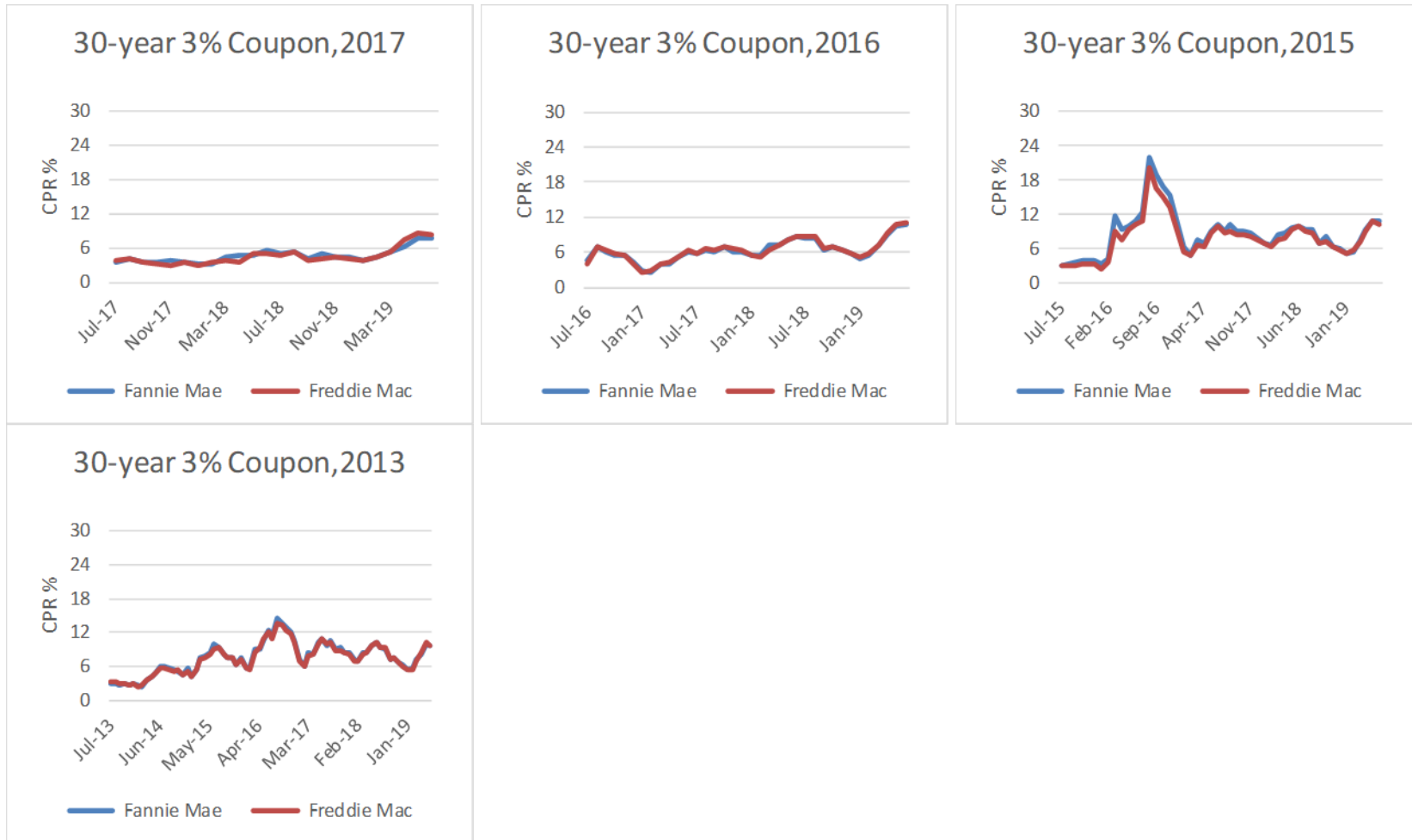
Chart 3a: Prepayment Rates on All 30-year, TBA-eligible MBS by Coupon



Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



Chart 3b: Prepayment Rates on 30-year, 3.00 Percent Coupon TBA-eligible MBS by Loan-Originiation Year\*

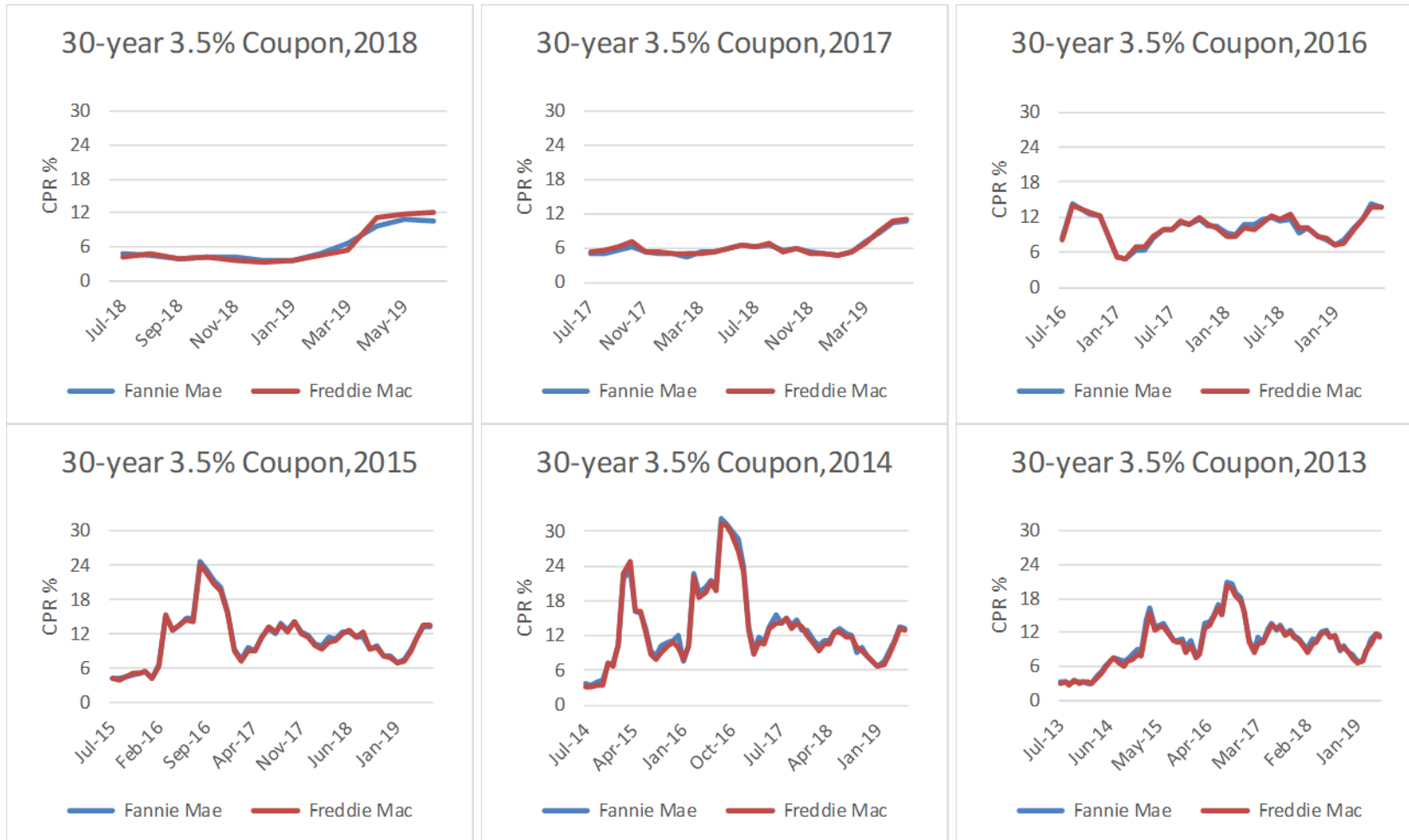


\* The 2014 and 2018 cohorts are omitted because each has a combined UPB below the \$10 billion threshold.

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



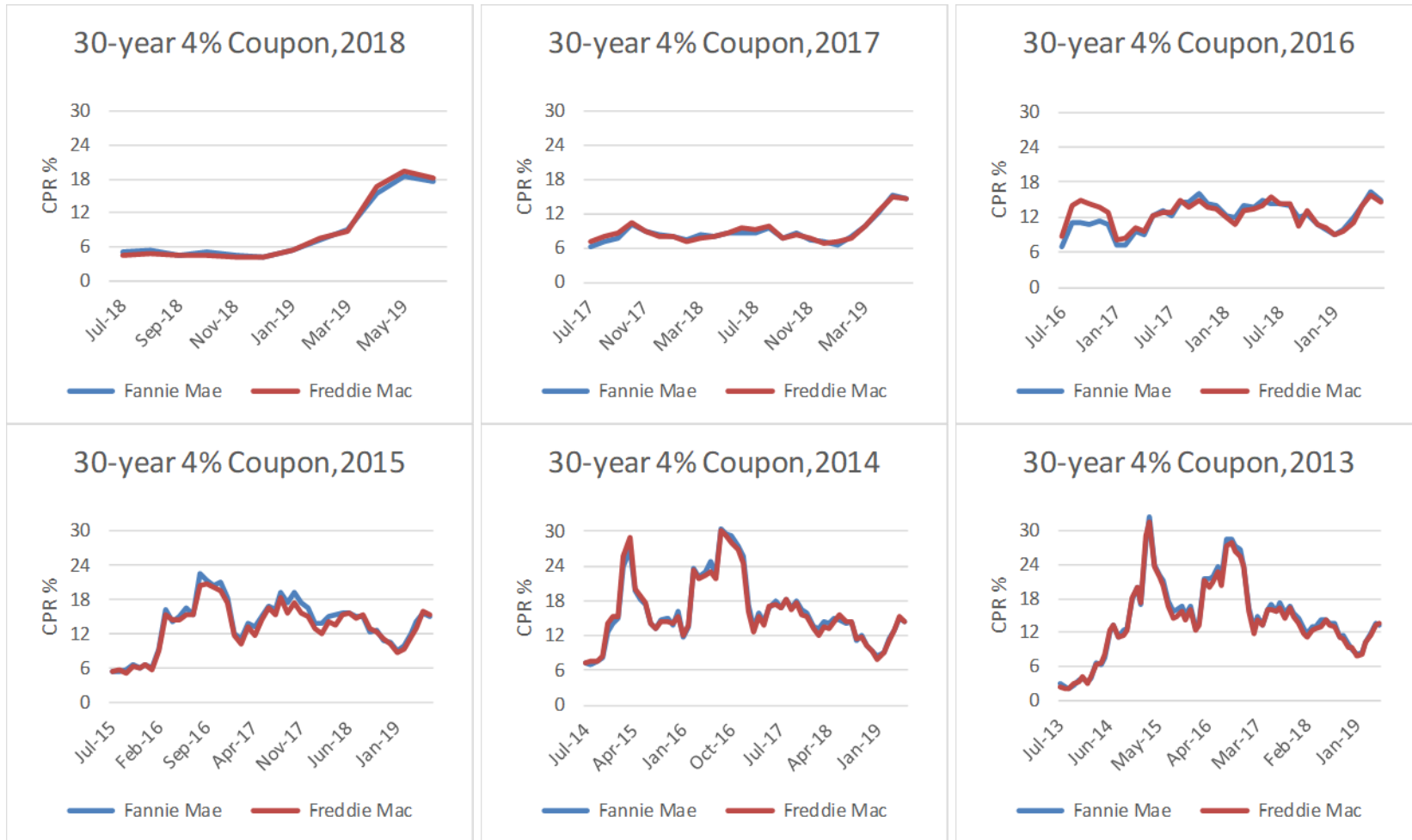
Chart 3c: Prepayment Rates on 30-year, 3.50 Percent Coupon TBA-eligible MBS by Loan-Originiation Year



Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



Chart 3d: Prepayment Rates on 30-year, 4.00 Percent Coupon TBA-eligible MBS by Loan-Originiation Year

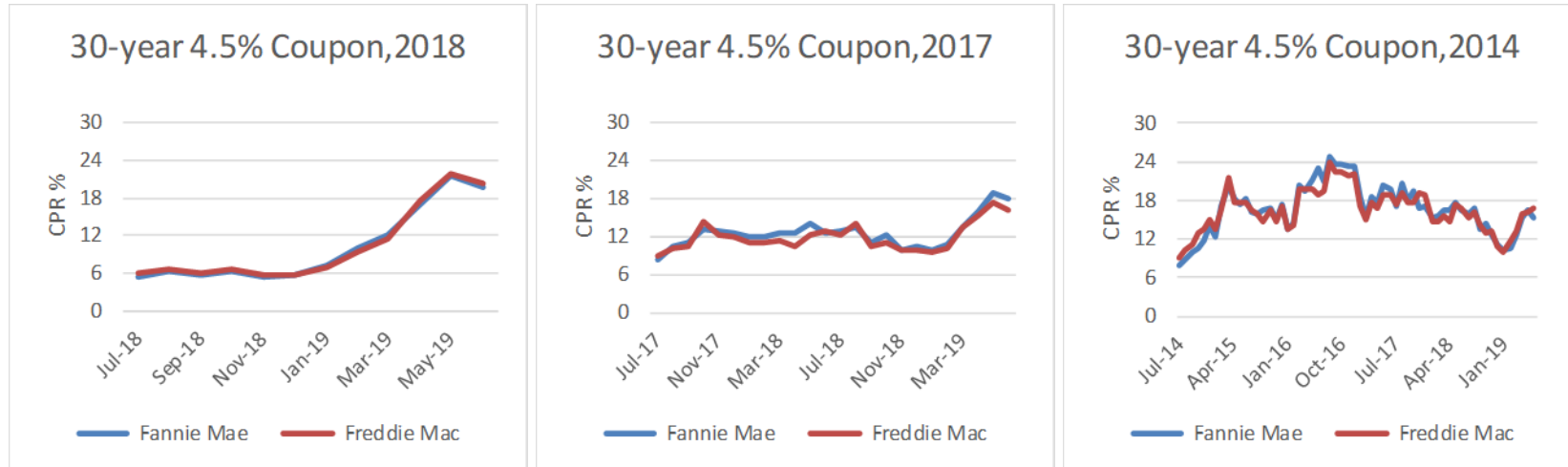


Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.





Chart 3e: Prepayment Rates on 30-year, 4.50 Percent Coupon TBA-eligible MBS by Loan-Originator Year

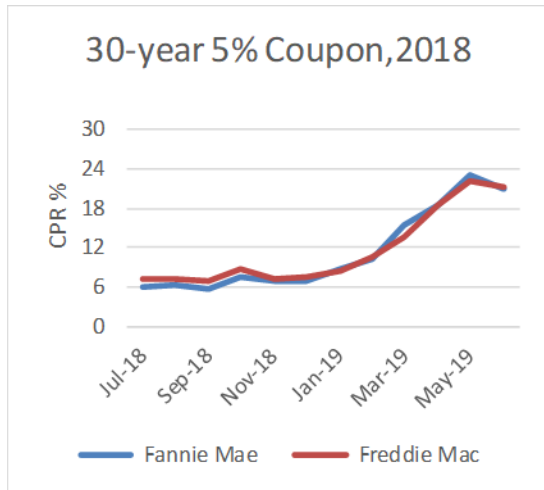


\* The 2013, 2015, and 2016 cohorts are omitted because each has a combined UPB below the \$10 billion threshold.

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



Chart 3f: Prepayment Rates on 30-year, 5.00 Percent Coupon TBA-eligible MBS by Loan-Origination Year



\* The 2013, 2014, 2015, 2016, and 2017 cohorts are omitted because each has a combined UPB below the \$10 billion threshold.

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



## Data Tables

FHFA uses Table 1, the Annual Vintage Report, to compare Fannie Mae's and Freddie Mac's prepayment rates with cohort attributes, such as the weighted-average coupon (WAC), the weighted-average maturity (WAM), the weighted-average loan age (WALA), and the unpaid principal balance (UPB). These comparisons provide context to understand better any significant differences in CPRs across the Enterprises.

Table 2, the Decile Report, is used to compare the range of prepayment rates across all of the TBA-eligible MBS that have the same coupon issued by a given Enterprise. To do so, all of an Enterprise's TBA-eligible MBS pools outstanding in the month and bearing the stated coupon are ranked by their one-month CPRs from fastest to slowest. The pools are then grouped into deciles based on UPB. In addition to the current month's prepayment rates, the Report presents the 3-month and 6-month CPR as well as the WALA, WAC, average loan size (ALS), and credit score (FICO) for each decile. Table 2 presents this information for each month of the quarter.

Table 3, the Total Industry Issuance Report, provides a comparison of Fannie Mae's and Freddie Mac's previous three months of issuance, with various key loan attributes that would affect the expectations of prepayments and delinquencies. The attributes that generally create faster prepayments, such as high credit score and low loan-to-value (LTV) ratio, also generally lower defaults. That is, borrowers with, for example, higher credit scores and lower LTV ratios tend to both prepay their mortgages faster than other borrowers and default less frequently. FHFA uses this report to identify any differences in loan attributes that may cause a divergence in prepayment rates. Analyzing new issuance data allows FHFA and the Enterprises to make timely adjustments to business practices to reduce potential misalignments in future prepayment rates.



Table 1: 30-year, TBA-eligible MBS Annual Vintage Report

Coupon	Year	Weighted Average Coupon (percent)		Weighted Average Maturity (months)		Weighted Average Loan Age (months)		Unpaid Principal Balance (\$ billions)		One Month Conditional Prepayment Rates (percent)					
										June		May		April	
		FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
3	2013	3.58	3.57	273	273	75	75	110.4	65.1	9.74	9.82	9.95	10.37	8.24	8.56
	2015	3.77	3.78	301	302	49	49	42.4	40.9	10.88	10.42	10.75	10.81	9.45	9.11
	2016	3.66	3.71	319	320	34	34	188.1	143.6	10.72	10.97	10.60	10.94	8.90	9.16
	2017	3.67	3.78	328	332	26	23	13.4	15.1	7.55	8.29	7.66	8.66	6.11	7.38
	2019	4.07	4.04	357	357	1	1	15.8	14.9	3.19	2.99	1.95	3.25	2.67	1.78
	All	3.65	3.70	299	304	52	48	455.7	324.9	9.91	9.96	10.00	10.36	8.45	8.68
3.5	2013	4.02	4.01	276	277	73	72	52.7	33.8	11.53	11.17	11.84	11.93	10.76	10.09
	2014	4.23	4.22	293	292	58	58	36.8	31.9	13.29	12.93	13.51	13.32	11.19	10.81
	2015	4.10	4.11	305	304	48	47	121.6	84.6	13.44	13.51	13.28	13.50	11.23	11.15
	2016	4.08	4.11	318	318	36	36	84.4	56.8	13.63	13.61	14.18	13.78	11.79	11.61
	2017	4.06	4.08	332	332	23	23	151.2	116.4	10.90	11.12	10.52	10.83	8.59	8.90
	2018	4.15	4.20	341	341	15	15	54.6	40.2	10.53	12.21	11.03	11.92	9.79	11.24
	2019	4.46	4.43	356	356	2	2	59.3	44.1	5.57	5.50	5.28	6.49	4.22	3.76
	All	4.11	4.13	310	313	43	40	670.4	464	11.42	11.57	11.57	11.87	9.99	10.01
4	2013	4.57	4.58	280	280	69	69	34.1	17.6	13.23	13.66	13.60	13.32	11.76	11.58
	2014	4.58	4.58	291	290	60	60	54.9	38	14.33	14.52	15.04	15.15	13.02	13.03
	2015	4.56	4.55	306	306	47	47	32.7	18.6	15.02	15.46	15.83	15.88	14.13	13.00
	2016	4.50	4.55	318	317	36	37	27.9	15.9	14.91	14.73	16.30	15.83	13.98	14.06
	2017	4.46	4.47	331	332	24	24	110.2	70.3	14.73	14.60	15.28	15.09	12.41	12.57
	2018	4.65	4.65	345	345	12	12	172.6	115.5	17.52	18.34	18.49	19.48	15.53	16.73
	2019	4.87	4.82	354	354	3	4	53.2	33.8	12.88	11.91	11.25	11.53	8.42	8.22
	All	4.58	4.59	315	318	38	36	575.7	356.6	14.86	15.19	15.44	15.96	13.07	13.49
4.5	2014	5.01	5.08	290	290	61	61	9.8	4	15.37	16.89	16.65	16.11	15.18	15.96
	2017	4.97	4.94	332	332	24	24	25.8	16	18.00	16.22	18.93	17.52	15.95	15.28
	2018	5.12	5.06	346	346	11	11	85.9	62	19.71	20.18	21.43	21.93	16.85	17.62
	2019	5.33	5.20	353	353	4	4	21.2	17.2	14.89	13.31	12.80	11.90	8.80	9.23
	All	5.05	5.02	305	307	48	46	226.8	151.9	16.46	16.50	17.39	17.57	14.31	14.76
5	2018	5.70	5.59	347	346	10	10	17.3	11.6	20.90	21.20	23.13	22.05	18.62	18.39
	2019	5.83	5.72	353	353	4	4	7.2	5	16.27	13.69	12.51	13.45	9.35	11.00
	All	5.57	5.53	262	261	89	89	68.8	46.5	15.44	15.47	16.71	16.29	14.01	13.62

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



Table 2: 30-year, TBA-eligible MBS Decile Report

**Fannie Mae 30-year, 3.0 Coupon**

Month		One-Month Conditional Prepayment Rate (%)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19		24.2		13.5		11.8		10.9		10.0		9.1		8.0		6.0		2.4		0.3	
May 19		24.1		13.6		11.7		10.9		10.1		9.3		8.2		6.3		2.5		0.4	
Apr 19		21.8		11.6		9.9		9.2		8.5		7.8		6.5		4.7		1.9		0.3	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19	WALA / WAC	59	3.66	55	3.64	48	3.67	47	3.65	49	3.61	53	3.61	55	3.63	58	3.65	49	3.71	55	3.68
	ALS/ FICO	253	762	277	764	272	763	272	763	283	765	293	764	289	766	272	765	235	766	249	761
	CPR3 /CPR6	14.8	10.6	11.0	8.6	10.5	8.2	10.0	8.00	9.3	7.5	9.2	7.4	8.5	7.0	7.9	6.6	5.2	4.8	5.5	5.4
May 19	WALA / WAC	58	3.67	57	3.66	47	3.69	48	3.63	48	3.62	46	3.60	55	3.60	61	3.61	53	3.70	55	3.68
	ALS/ FICO	248	761	274	764	279	763	283	764	278	764	278	764	282	766	276	766	240	765	249	762
	CPR3 /CPR6	13.9	10.0	9.9	7.90	9.6	7.70	9.0	7.10	8.6	6.90	8.3	6.80	7.6	6.40	7.0	6.10	5.1	4.80	4.8	4.90
Apr 19	WALA / WAC	57	3.66	55	3.65	48	3.66	44	3.66	42	3.62	49	3.60	58	3.61	59	3.62	57	3.65	54	3.68
	ALS/ FICO	250	762	266	763	276	763	290	765	277	763	292	765	277	765	269	766	239	765	250	761
	CPR3 /CPR6	12.0	9.1	8.3	7.10	7.7	6.80	7.3	6.50	6.9	6.20	6.6	6.00	6.3	6.10	5.5	5.50	4.5	5.00	4.0	4.70

**Freddie Mac 30-year, 3.0 Coupon**

Month		One-Month Conditional Prepayment Rate (%)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19		18.9		12.1		11.6		10.9		10.4		10.0		9.3		8.3		5.7		1.1	
May 19		19.3		12.4		11.6		11.2		10.7		10.1		9.7		9.0		6.8		1.5	
Apr 19		16.9		10.4		9.8		9.4		9.0		8.5		7.9		7.4		5.5		1.0	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19	WALA / WAC	54	3.71	44	3.72	38	3.73	45	3.66	44	3.68	50	3.67	55	3.66	65	3.63	48	3.72	40	3.78
	ALS/ FICO	213	762	245	761	242	759	245	761	250	762	258	765	252	764	247	768	234	765	217	762
	CPR3 /CPR6	12.9	8.9	11.0	8.7	10.7	8.5	9.9	7.80	10.0	7.9	9.6	7.6	9.3	7.6	8.7	7.1	6.9	5.7	4.5	4.2
May 19	WALA / WAC	57	3.67	43	3.74	42	3.72	44	3.67	42	3.69	45	3.68	60	3.64	55	3.65	50	3.70	48	3.73
	ALS/ FICO	210	761	235	762	254	760	250	761	248	762	252	762	264	765	246	765	251	766	217	763
	CPR3 /CPR6	12.2	9.1	9.6	7.70	9.3	7.50	9.3	7.30	9.1	7.20	8.8	7.20	7.9	6.50	7.8	6.30	6.3	5.30	4.5	4.50
Apr 19	WALA / WAC	54	3.69	39	3.74	39	3.73	42	3.70	48	3.64	50	3.68	58	3.62	45	3.64	55	3.68	53	3.69
	ALS/ FICO	214	762	235	761	242	759	263	762	261	763	251	764	242	764	247	763	233	765	217	762
	CPR3 /CPR6	9.8	7.9	7.6	6.70	7.9	7.10	7.5	6.60	7.0	6.30	7.0	6.20	6.4	5.70	6.6	6.00	5.9	5.70	4.0	4.70

ALS = average loan size; CPR3/CPR6 = 3 or 6 months conditional prepayment rate, respectively; WALA = weighted average loan age; WAC = weighted average coupon.

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



Table 2: 30-year, TBA-eligible MBS Decile Report

**Fannie Mae 30-year, 3.5 Coupon**

Month		One-Month Conditional Prepayment Rate (%)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19		30.4		16.4		13.7		12.2		11.1		9.9		8.0		5.7		1.5		0.2	
May 19		30.3		16.7		14.0		12.3		11.2		10.0		8.5		5.9		1.7		0.2	
Apr 19		28.4		14.4		11.8		10.2		9.2		8.2		7.0		4.8		1.2		0.2	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19	WALA / WAC	51	4.14	49	4.10	48	4.07	44	4.09	38	4.06	39	4.05	37	4.07	34	4.20	46	4.15	47	4.14
	ALS/ FICO	218	746	244	749	249	754	250	758	231	757	232	757	237	757	222	755	198	754	221	745
	CPR3 / CPR6	18.8	13.4	13.7	10.7	12.0	9.6	11.3	8.80	10.6	8.5	10.1	8.1	8.8	6.9	6.3	4.9	5.8	5.5	6.6	6.4
May 19	WALA / WAC	52	4.12	46	4.11	47	4.10	43	4.06	34	4.09	41	4.03	40	4.03	40	4.17	47	4.15	47	4.14
	ALS/ FICO	217	746	250	749	238	754	245	755	240	758	243	758	243	758	225	755	199	754	220	744
	CPR3 / CPR6	17.5	12.6	12.4	9.70	11.1	8.60	10.3	8.40	9.4	7.20	8.9	7.20	8.2	6.80	6.1	5.20	5.1	5.10	5.7	5.90
Apr 19	WALA / WAC	51	4.12	47	4.11	52	4.06	45	4.07	35	4.05	36	4.10	34	4.03	39	4.11	52	4.12	47	4.13
	ALS/ FICO	218	746	239	751	241	756	245	753	244	755	248	758	243	758	217	757	200	755	221	743
	CPR3 / CPR6	15.6	11.7	10.3	8.70	9.2	8.10	8.5	7.50	7.8	6.80	6.9	6.00	6.7	6.10	5.2	5.20	4.9	5.60	4.7	5.50

**Freddie Mac 30-year, 3.5 Coupon**

Month		One-Month Conditional Prepayment Rate (%)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19		25.6		15.8		14.2		12.9		12.1		11.2		9.7		7.4		3.5		0.3	
May 19		25.4		16.1		14.1		13.1		12.1		11.2		10.2		8.4		4.5		0.5	
Apr 19		23.5		13.6		11.9		11.0		10.3		9.2		8.1		6.7		2.8		0.3	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19	WALA / WAC	47	4.15	43	4.14	44	4.13	42	4.14	38	4.11	42	4.10	39	4.05	36	4.16	27	4.22	48	4.11
	ALS/ FICO	195	751	207	751	213	753	214	756	220	755	209	757	207	758	209	758	181	756	206	748
	CPR3 / CPR6	16.9	11.7	13.8	10.5	12.7	10.0	12.1	9.50	11.5	8.9	11.0	8.7	9.8	7.8	7.8	5.2	4.2	3.7	6.1	5.9
May 19	WALA / WAC	46	4.15	45	4.14	45	4.13	39	4.12	43	4.13	41	4.10	38	4.07	29	4.13	35	4.15	48	4.10
	ALS/ FICO	191	751	204	752	203	755	217	754	206	755	220	758	211	759	207	756	184	756	206	748
	CPR3 / CPR6	15.5	11.0	12.1	9.50	11.1	8.70	10.7	8.70	10.3	8.20	9.7	7.70	8.2	6.50	6.7	5.30	5.3	4.70	5.4	5.50
Apr 19	WALA / WAC	43	4.15	41	4.13	44	4.13	39	4.12	45	4.12	40	4.09	35	4.06	39	4.08	38	4.15	46	4.10
	ALS/ FICO	189	752	218	749	202	752	221	754	220	757	211	757	200	758	208	758	181	758	210	747
	CPR3 / CPR6	13.0	9.7	9.4	8.20	9.5	8.40	8.7	7.50	8.5	7.50	7.6	6.90	6.9	6.10	5.9	5.50	4.3	4.50	4.4	5.20

ALS = average loan size; CPR3/CPR6 = 3 or 6 months conditional prepayment rate, respectively; WALA = weighted average loan age; WAC = weighted average coupon.

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



Table 2: 30-year, TBA-eligible MBS Decile Report

**Fannie Mae 30-year, 4.0 Coupon**

Month		One-Month Conditional Prepayment Rate (%)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19		37.0		22.1		19.1		17.3		15.1		12.7		9.8		6.3		1.1		0.1	
May 19		36.2		23.4		20.4		17.9		15.8		13.6		10.8		6.9		1.3		0.2	
Apr 19		32.3		20.0		17.6		15.1		13.0		11.1		8.7		5.5		0.9		0.1	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19	WALA / WAC	33	4.70	29	4.64	25	4.64	31	4.53	38	4.51	45	4.53	50	4.51	35	4.62	59	4.57	43	4.61
	ALS/ FICO	197	741	218	743	219	745	217	743	210	740	212	743	204	745	196	742	179	744	207	728
	CPR3 /CPR6	24.7	16.4	19.5	14.5	17.8	12.2	16.1	12.20	14.4	11.2	12.7	9.6	11.0	9.1	7.9	6.2	7.4	7.1	7.1	7.0
May 19	WALA / WAC	35	4.66	22	4.70	29	4.59	31	4.55	32	4.49	42	4.54	45	4.55	44	4.56	58	4.57	43	4.61
	ALS/ FICO	199	740	213	745	217	744	215	743	211	742	212	742	205	745	194	745	180	744	206	729
	CPR3 /CPR6	21.7	14.5	17.2	10.70	15.5	11.10	13.9	10.60	13.0	9.70	11.5	8.40	9.6	7.70	7.7	6.60	6.4	6.50	6.2	6.30
Apr 19	WALA / WAC	39	4.62	18	4.68	30	4.59	33	4.57	37	4.50	43	4.51	38	4.56	37	4.59	59	4.56	43	4.61
	ALS/ FICO	196	737	213	747	217	744	225	742	214	742	207	744	203	745	189	744	181	745	207	728
	CPR3 /CPR6	18.5	13.1	13.2	9.40	12.1	8.70	11.3	8.20	10.1	8.50	9.3	7.90	7.6	6.30	5.9	5.50	5.4	6.20	5.3	6.00

**Freddie Mac 30-year, 4.0 Coupon**

Month		One-Month Conditional Prepayment Rate (%)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19		35.5		22.2		19.7		17.2		15.5		13.7		11.2		7.7		1.9		0.2	
May 19		36.3		23.8		20.0		17.7		16.1		14.2		12.1		9.0		3.0		0.3	
Apr 19		31.5		21.3		17.8		15.1		13.5		11.9		9.8		6.7		1.6		0.2	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19	WALA / WAC	31	4.67	20	4.69	24	4.64	35	4.55	37	4.52	44	4.56	43	4.56	40	4.55	50	4.58	41	4.58
	ALS/ FICO	186	745	189	751	198	746	203	740	206	741	187	743	192	745	187	747	174	747	204	733
	CPR3 /CPR6	25.5	16.9	20.8	13.7	18.0	12.5	16.0	12.30	14.8	11.5	12.8	9.5	11.7	9.0	9.5	7.4	6.7	6.2	6.8	6.5
May 19	WALA / WAC	27	4.68	23	4.67	25	4.61	34	4.56	40	4.56	38	4.54	41	4.56	41	4.56	46	4.58	43	4.57
	ALS/ FICO	186	748	191	750	197	745	201	744	202	739	191	741	193	748	186	746	174	749	203	733
	CPR3 /CPR6	22.2	13.5	17.6	11.60	15.7	11.40	13.9	10.60	13.0	9.80	12.0	9.10	9.8	7.30	8.1	6.80	6.3	5.90	5.9	6.10
Apr 19	WALA / WAC	27	4.66	17	4.68	29	4.60	32	4.55	40	4.54	40	4.52	37	4.58	38	4.58	53	4.56	41	4.57
	ALS/ FICO	182	747	191	750	196	745	191	741	195	742	191	742	197	747	187	748	174	748	205	733
	CPR3 /CPR6	17.5	11.5	13.6	8.80	12.1	9.00	11.0	8.70	10.6	8.60	9.7	8.50	7.7	6.30	6.1	5.60	5.2	5.80	5.1	5.90

ALS = average loan size; CPR3/CPR6 = 3 or 6 months conditional prepayment rate, respectively; WALA = weighted average loan age; WAC = weighted average coupon.

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



Table 2: 30-year, TBA-eligible MBS Decile Report

**Fannie Mae 30-year, 4.5 Coupon**

Month		One-Month Conditional Prepayment Rate (%)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19		44.0		27.9		22.8		18.2		14.3		11.5		8.1		3.3		0.5		0.1	
May 19		44.0		29.7		25.0		19.9		15.6		12.2		8.9		3.9		0.6		0.1	
Apr 19		39.2		24.7		19.8		15.9		12.7		9.8		7.0		2.8		0.5		0.1	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19	WALA / WAC	33	5.18	29	5.10	31	5.09	44	5.01	49	5.03	54	5.00	48	5.00	68	5.01	78	5.00	49	5.10
	ALS/ FICO	188	723	190	718	201	716	189	729	180	731	181	734	174	735	169	737	179	734	200	717
	CPR3 / CPR6	30.3	20.9	24.6	19.0	21.1	15.0	16.7	13.30	13.6	10.1	11.6	9.5	10.2	8.2	8.2	7.6	8.0	7.9	7.4	7.2
May 19	WALA / WAC	35	5.15	19	5.15	30	5.05	42	5.03	59	5.01	53	5.00	46	5.00	59	5.03	81	5.00	51	5.10
	ALS/ FICO	184	722	199	720	208	718	197	722	178	735	176	734	173	734	169	737	179	736	199	717
	CPR3 / CPR6	26.8	17.8	22.9	15.70	18.9	13.90	15.3	10.80	12.4	9.70	10.6	8.30	8.9	7.40	7.1	6.40	7.0	7.40	6.4	6.40
Apr 19	WALA / WAC	38	5.12	26	5.11	32	5.04	41	5.05	45	5.03	54	4.98	43	5.03	68	5.00	74	5.01	49	5.10
	ALS/ FICO	184	719	190	719	195	719	197	726	181	731	185	737	173	735	168	740	181	733	200	717
	CPR3 / CPR6	23.4	16.0	17.8	13.50	14.7	10.00	12.6	9.10	10.1	7.30	8.7	7.70	6.6	6.00	6.1	6.20	5.9	6.80	5.3	6.00

**Freddie Mac 30-year, 4.5 Coupon**

Month		One-Month Conditional Prepayment Rate (%)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19		44.9		27.9		22.3		18.0		14.3		11.4		8.4		3.6		0.5		0.1	
May 19		45.1		30.7		24.5		18.6		15.1		12.2		9.2		5.2		1.0		0.2	
Apr 19		40.3		25.6		19.9		16.2		12.9		10.1		7.7		3.4		0.6		0.1	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19	WALA / WAC	29	5.13	28	5.09	34	5.06	41	5.01	64	4.96	50	4.97	48	4.97	53	4.97	71	4.99	44	5.06
	ALS/ FICO	186	732	199	729	193	729	190	730	179	741	174	742	174	743	166	744	174	739	201	722
	CPR3 / CPR6	32.0	21.1	23.9	16.7	21.8	16.1	16.5	12.70	13.8	10.5	11.3	8.9	10.0	7.7	8.0	6.9	8.0	7.8	7.9	7.2
May 19	WALA / WAC	28	5.12	24	5.09	32	5.04	51	5.00	58	4.98	60	4.97	41	4.98	43	4.99	71	4.99	48	5.04
	ALS/ FICO	185	732	190	726	194	729	186	735	183	739	173	745	169	744	168	741	172	740	200	724
	CPR3 / CPR6	28.4	18.0	22.3	15.60	18.4	12.20	14.4	10.40	13.0	10.00	10.6	8.10	8.8	6.70	6.6	5.30	7.2	7.00	6.8	6.60
Apr 19	WALA / WAC	32	5.10	25	5.08	31	5.03	46	5.01	58	5.00	52	4.98	44	4.96	52	4.99	68	4.99	45	5.05
	ALS/ FICO	185	728	188	729	196	731	184	735	181	740	175	743	171	745	168	745	175	739	201	722
	CPR3 / CPR6	23.8	16.1	17.5	10.80	14.5	9.70	11.3	8.50	10.1	7.90	8.8	7.20	7.2	5.70	5.8	5.30	5.8	6.60	5.4	5.90

ALS = average loan size; CPR3/CPR6 = 3 or 6 months conditional prepayment rate, respectively; WALA = weighted average loan age; WAC = weighted average coupon.

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.





Table 2: 30-year, TBA-eligible MBS Decile Report

**Fannie Mae 30-year, 5.0 Coupon**

Month		One-Month Conditional Prepayment Rate (%)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19		52.6		28.1		19.7		14.2		9.9		4.4		1.1		0.5		0.2		0.0	
May 19		53.5		31.2		21.8		15.6		11.7		5.7		1.3		0.6		0.2		0.0	
Apr 19		49.6		25.5		18.1		12.4		8.4		3.3		1.0		0.5		0.2		0.0	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19	WALA / WAC	65	5.65	51	5.65	72	5.58	84	5.55	78	5.54	105	5.54	141	5.51	124	5.51	98	5.53	81	5.60
	ALS/ FICO	179	704	187	703	178	716	166	716	161	719	157	717	164	718	172	720	181	714	183	708
	CPR3 / CPR6	33.2	22.7	25.6	19.7	16.7	12.3	12.5	9.80	11.8	10.0	9.2	8.7	8.8	8.9	8.1	8.6	7.8	7.6	6.4	6.1
May 19	WALA / WAC	69	5.62	50	5.67	83	5.53	81	5.57	82	5.52	80	5.58	142	5.51	126	5.51	103	5.54	81	5.60
	ALS/ FICO	178	703	184	704	173	718	169	714	165	722	159	715	163	718	171	719	181	716	183	708
	CPR3 / CPR6	31.7	21.4	24.0	15.10	15.6	11.80	13.0	10.00	10.6	9.00	8.0	7.10	8.0	8.80	7.0	7.70	6.7	7.30	5.5	5.50
Apr 19	WALA / WAC	68	5.61	62	5.63	81	5.55	90	5.51	62	5.60	96	5.56	137	5.51	121	5.51	101	5.54	78	5.61
	ALS/ FICO	177	704	180	709	175	714	164	721	158	714	157	716	164	719	172	719	183	713	183	708
	CPR3 / CPR6	28.5	19.6	18.4	12.90	13.2	9.60	10.7	9.50	8.0	6.10	6.8	6.90	6.6	8.10	6.5	7.90	5.8	6.80	4.5	5.10

**Freddie Mac 30-year, 5.0 Coupon**

Month		One-Month Conditional Prepayment Rate (%)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19		50.8		28.3		18.8		14.4		11.4		6.9		1.5		0.5		0.3		0.0	
May 19		52.2		29.2		20.0		15.0		11.6		8.2		2.9		0.9		0.4		0.1	
Apr 19		47.6		23.8		16.0		12.6		9.6		5.8		1.4		0.6		0.3		0.1	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Jun 19	WALA / WAC	59	5.62	66	5.59	86	5.48	79	5.46	90	5.46	74	5.51	139	5.52	114	5.53	103	5.52	91	5.57
	ALS/ FICO	179	716	172	717	166	726	169	727	165	727	153	728	156	735	166	728	179	726	183	722
	CPR3 / CPR6	33.1	22.6	22.3	15.9	15.3	12.3	13.7	10.90	12.3	9.8	10.2	7.9	8.8	9.3	8.1	8.5	7.7	7.9	7.3	7.1
May 19	WALA / WAC	64	5.60	67	5.58	83	5.50	77	5.48	94	5.47	62	5.49	127	5.51	124	5.52	109	5.52	93	5.57
	ALS/ FICO	176	713	178	719	163	722	162	728	161	728	156	730	154	736	165	727	179	726	183	723
	CPR3 / CPR6	32.0	20.8	19.5	12.70	15.3	12.20	11.9	9.60	10.6	9.00	9.0	6.10	8.1	8.30	7.8	8.10	7.3	7.70	6.4	6.50
Apr 19	WALA / WAC	65	5.59	68	5.57	77	5.51	96	5.48	78	5.45	71	5.48	127	5.53	122	5.52	104	5.53	92	5.56
	ALS/ FICO	174	714	171	718	177	725	154	726	156	730	153	730	156	725	168	725	180	722	184	715
	CPR3 / CPR6	27.2	18.5	16.2	10.60	11.9	9.40	10.4	8.70	9.3	7.60	7.3	6.20	7.0	8.00	7.1	8.10	6.7	7.40	5.2	6.00

ALS = average loan size; CPR3/CPR6 = 3 or 6 months conditional prepayment rate, respectively; WALA = weighted average loan age; WAC = weighted average coupon.

Source: RiskSpan calculations from data available publicly as of July 2019. Calculations exclude pools with WALAs equal to zero.



Table 3: Q2 2019 30-year, TBA-eligible MBS Total Industry Quarterly Issuance Report\*

	2.50%		3.00%		3.50%		4.00%		4.50%		5.00%		5.50%		6.00%		7.50%		All Loans	
	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FRE	FNM	FRE	
Loan Count	498	394	50,738	56,383	183,026	139,399	111,958	81,250	38,289	39,137	15,751	13,254	2,067	1,740	133	85	14	402,460	331,656	
UPB (billions)	0.14	0.11	16.14	17.46	50.29	39.09	24.68	19.00	7.28	6.93	2.76	2.00	0.33	0.24	0.03	0.02	0.00	101.65	84.84	
% of Production Volume	0.10	0.10	16.00	20.60	49.50	46.00	24.30	22.30	7.20	8.10	2.70	2.40	0.30	0.30	0.00	0.00	0.00	100.00	100.00	
WA Note Rate (%)	3.48	3.74	4.05	4.03	4.44	4.42	4.83	4.80	5.34	5.20	5.80	5.71	6.29	6.23	6.54	6.54	8.34	4.58	4.52	
WA Loan Age (mos.)	20	3	4	7	2	2	2	2	2	3	2	2	3	3	3	3	220	2	3	
WA FICO	758	753	763	752	753	755	733	739	713	723	708	712	696	707	716	712	126	745	747	
WA LTV	0.72	0.83	0.76	0.77	0.8	0.8	0.8	0.8	0.79	0.77	0.81	0.76	0.84	0.82	0.94	0.94	0.84	0.79	0.79	
%FICO<680	5.00	2.00	2.00	1.00	4.00	3.00	12.00	9.00	30.00	22.00	33.00	33.00	43.00	35.00	22.00	21.00	22.00	8.00	6.00	
%FICO>740	71.00	73.00	76.00	77.00	65.00	68.00	45.00	51.00	32.00	39.00	30.00	33.00	20.00	29.00	23.00	24.00	0.00	58.00	63.00	
%LTV>80	17.00	59.00	34.00	31.00	45.00	44.00	42.00	42.00	33.00	30.00	39.00	22.00	46.00	40.00	90.00	92.00	77.00	41.00	39.00	
%FICO<680 & LTV>80	2.00	1.00	1.00	0.00	1.00	1.00	5.00	3.00	11.00	8.00	12.00	8.00	11.00	10.00	21.00	17.00	0.00	3.00	2.00	
%DTI>40	31.00	37.00	34.00	31.00	41.00	38.00	46.00	42.00	49.00	42.00	51.00	44.00	54.00	47.00	69.00	57.00	31.00	42.00	38.00	
%Purchase	55.00	81.00	61.00	66.00	71.00	73.00	66.00	67.00	59.00	61.00	63.00	54.00	62.00	64.00	99.00	89.00	88.00	67.00	69.00	
%Rate/Term	45.00	17.00	39.00	25.00	29.00	15.00	34.00	11.00	41.00	8.00	37.00	7.00	38.00	5.00	1.00	4.00	0.00	33.00	15.00	
%Cash out**	0.00	2.00	0.00	9.00	0.00	12.00	0.00	22.00	0.00	31.00	0.00	39.00	0.00	31.00	0.00	7.00	12.00	0.00	16.00	
%Owner Occupied	98.00	98.00	96.00	96.00	94.00	95.00	88.00	90.00	72.00	75.00	63.00	54.00	70.00	59.00	87.00	94.00	100.00	90.00	91.00	
%Second Home	2.00	0.00	4.00	4.00	5.00	4.00	5.00	4.00	3.00	3.00	2.00	2.00	1.00	1.00	0.00	0.00	0.00	4.00	4.00	
%Investor	0.00	2.00	1.00	0.00	1.00	1.00	7.00	7.00	25.00	22.00	35.00	44.00	29.00	41.00	13.00	6.00	0.00	5.00	5.00	

\*Numbers in the table represent end of quarter, not at-securitization, values. \*\*Fannie Mae does not report rate/term and cash-out refinancings separately. For this table, all refinanced loans underlying Fannie Mae MBS are included in the rate/term field. UPB = unpaid principal balance; WA = weighted average; WAC = weighted average coupon; WALA = weighted average loan age; LTV = loan-to-value ratio; DTI = debt-to-income ratio.

Source: RiskSpan calculations from data available publicly as of July 2019.



## Glossary

**Average loan size (ALS)** refers to the average dollar amount of the loans as stated on the notes at the time the loans were originated or modified.

**Cohort** refers to those Enterprise TBA-eligible securities with the same coupon, maturity, and loan-origination year. The loan-origination year is calculated as the value-weighted average of the origination years of the mortgages collateralizing a security.

**Conditional prepayment rate (CPR)**, also known as the constant prepayment rate, measures prepayments as a percentage of the current outstanding principal balance of the pool of loans backing a mortgage-backed security or cohort of those securities. The CPR is expressed as a compound annual rate.

**Debt-to-income (DTI) ratio** is the ratio obtained by dividing the total monthly debt expense by the total monthly income of the borrower at the time the loan was originated or modified.

**FICO** refers to a credit score produced by FICO and used in the mortgage underwriting process.

**Loan-to-value (LTV) ratio** is the ratio, expressed as a percentage, obtained by dividing the amount of the loan at origination by the value of the property.

**To-be-announced (TBA) market** is a forward market for certain mortgage-backed securities, including those issued by Fannie Mae and Freddie Mac.

**Uniform Mortgage-Backed Security (UMBS)** is the new single, common mortgage-backed security that Fannie Mae and Freddie Mac will be issuing to replace their current offerings of TBA-eligible single class, fixed-rate mortgage backed securities.



**Unpaid principal balance (UPB)** is the portion of a loan that the borrower has not yet paid back to the lender.

**Weighted average coupon (WAC)** refers to the average gross interest rates owed on the mortgages underlying the security weighted by the percentage of the security's unpaid principal balance that each mortgage represents.

**Weighted average loan age (WALA)** refers to the average number of months since the date of origination of mortgages underlying the security weighted by the percentage of the security's unpaid principal balance that each mortgage represents.

**Weighted average maturity (WAM)** refers to the average number of months remaining until the final payment is due on mortgages underlying the security weighted by the percentage of the security's unpaid principal balance that each mortgage represents.

