

PREPAYMENT MONITORING REPORT

Third Quarter 2018

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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 single, common mortgage-backed security. The new security will be called the Uniform Mortgage-Backed Security or UMBS and is designed to trade in the "To-Be-Announced" (TBA) market¹ without regard to which Enterprise is the issuer. UMBS issued by Fannie Mae and Freddie Mac are designed to be fungible – that is, mutually interchangeable – in the TBA market. This fungibility 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.² 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, refinances the mortgages, or sells the home. 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-backed securities (MBS). 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.

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

² To avoid double counting, only first-level securitizations are included in the analysis. Second-level securitizations (Megs and Giants) are excluded.



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. For this purpose, FHFA defines a cohort as those Enterprise TBA-eligible securities with the same coupon, maturity, and loan-origination year.³

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.⁴ 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.

Recent Developments

Going forward, FHFA has determined that its *ex post* alignment monitoring will focus on cohorts of the Enterprises’ TBA-eligible MBS that have minimum combined outstanding principal balances in excess of \$10 billion and that are collateralized by loans originated in the six calendar years prior to the current calendar year. The data included in this Report conform to that standard.

³ 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. The definition of the cohorts used in this report can be found in the Glossary.

⁴ 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. In addition, Charts 2 and 3b through 3e and tables 1 and 2 omit data for coupon/origination-year cohorts 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.⁵

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, refinances the mortgage, sells the home, or defaults on the mortgage loan. 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*](#).

⁵ Previous Prepayment Monitoring Reports included cohorts with outstanding volumes of more than \$500 million at either Enterprises.



Charts

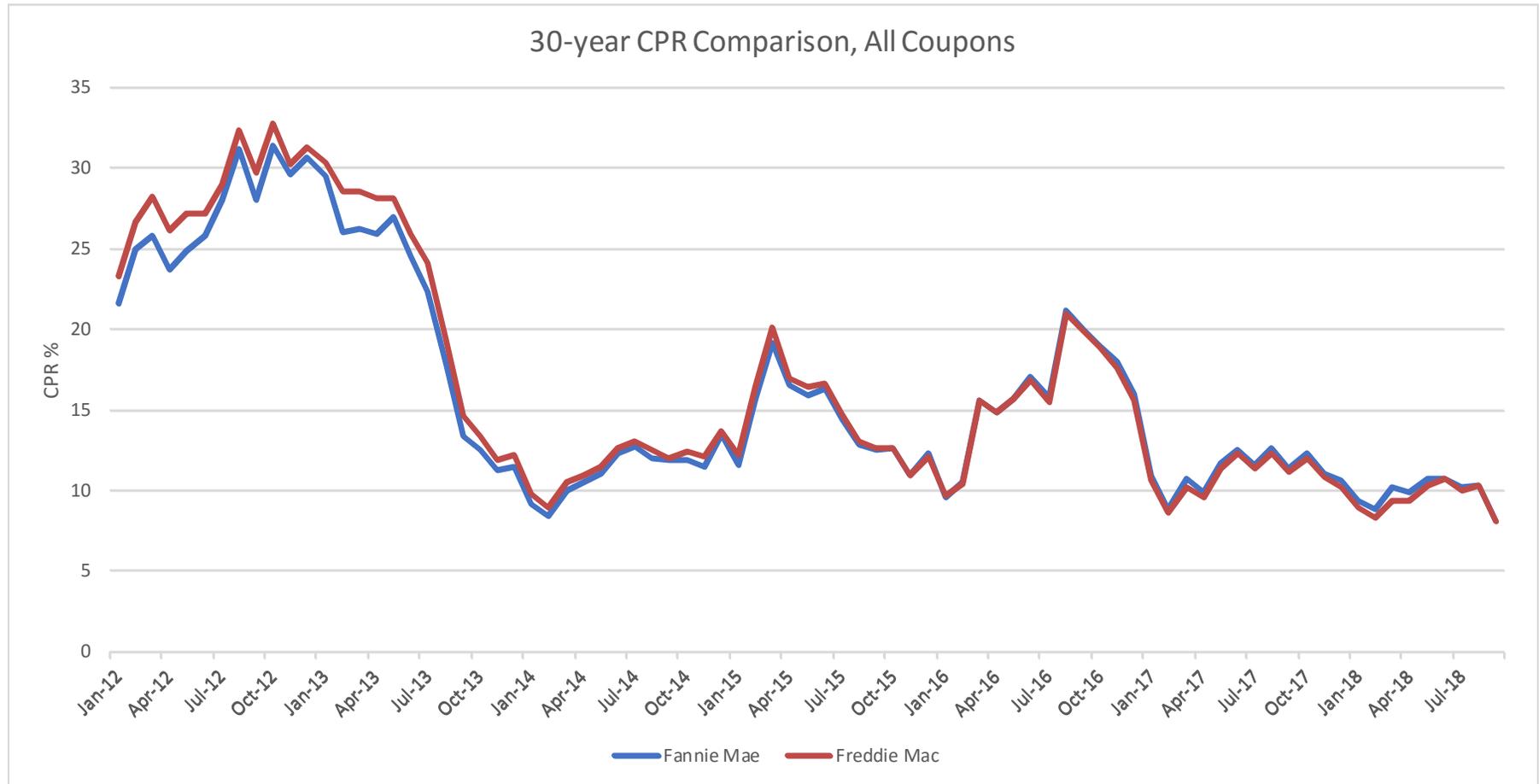
Chart 1 compares prepayment rates for all Fannie Mae and Freddie Mac TBA-eligible 30-year securities for the past six years. Chart 1 also illustrates how prepayment rates (left axis) generally move in the opposite direction of the 30-year mortgage rate (right axis), illustrating how declines in mortgage rates generally lead to faster prepayment rates and vice versa.

Chart 2 illustrates the comparison of pool loan-origination years for a given TBA-eligible MBS coupon. Chart 2 shows September 2018 prepayment rates for each Enterprise's 30-year MBS for the coupons with the greatest volume outstanding (3%, 3.5%, 4%, and 4.5%) and loan-origination years since 2012. 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 3e 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 3e illustrate the degree of prepayment alignment for each coupon-year cohort.



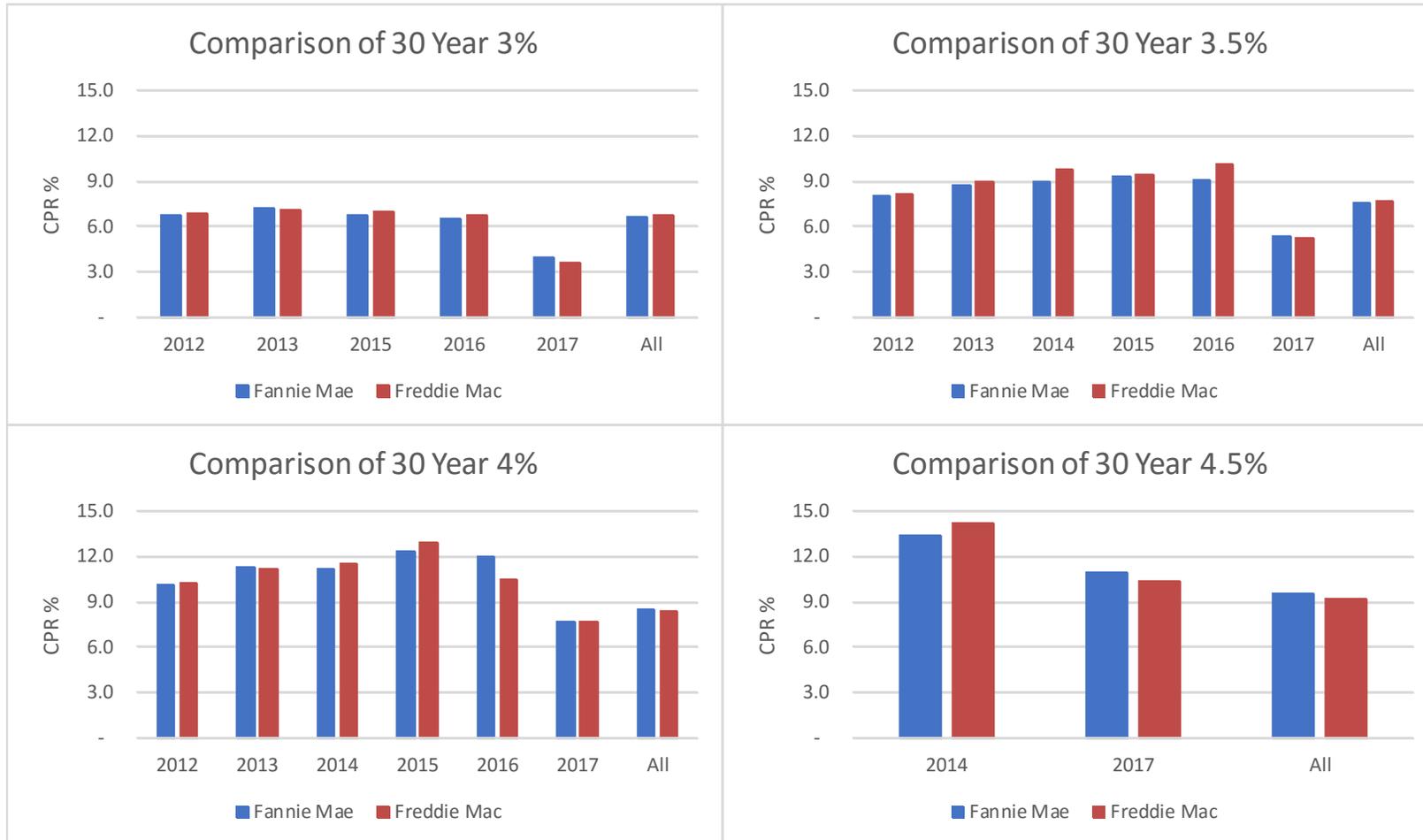
Chart 1: Prepayment Comparison for 30-Year, TBA-Eligible MBS, All Coupons



Source: RiskSpan calculations from data available publicly as of October 15, 2018. Calculations exclude pools with WALAs equal to zero.



Chart 2: September 2018 Prepayment Rates on 30-year, TBA-eligible MBS by Coupon and Loan-Originiation Year*

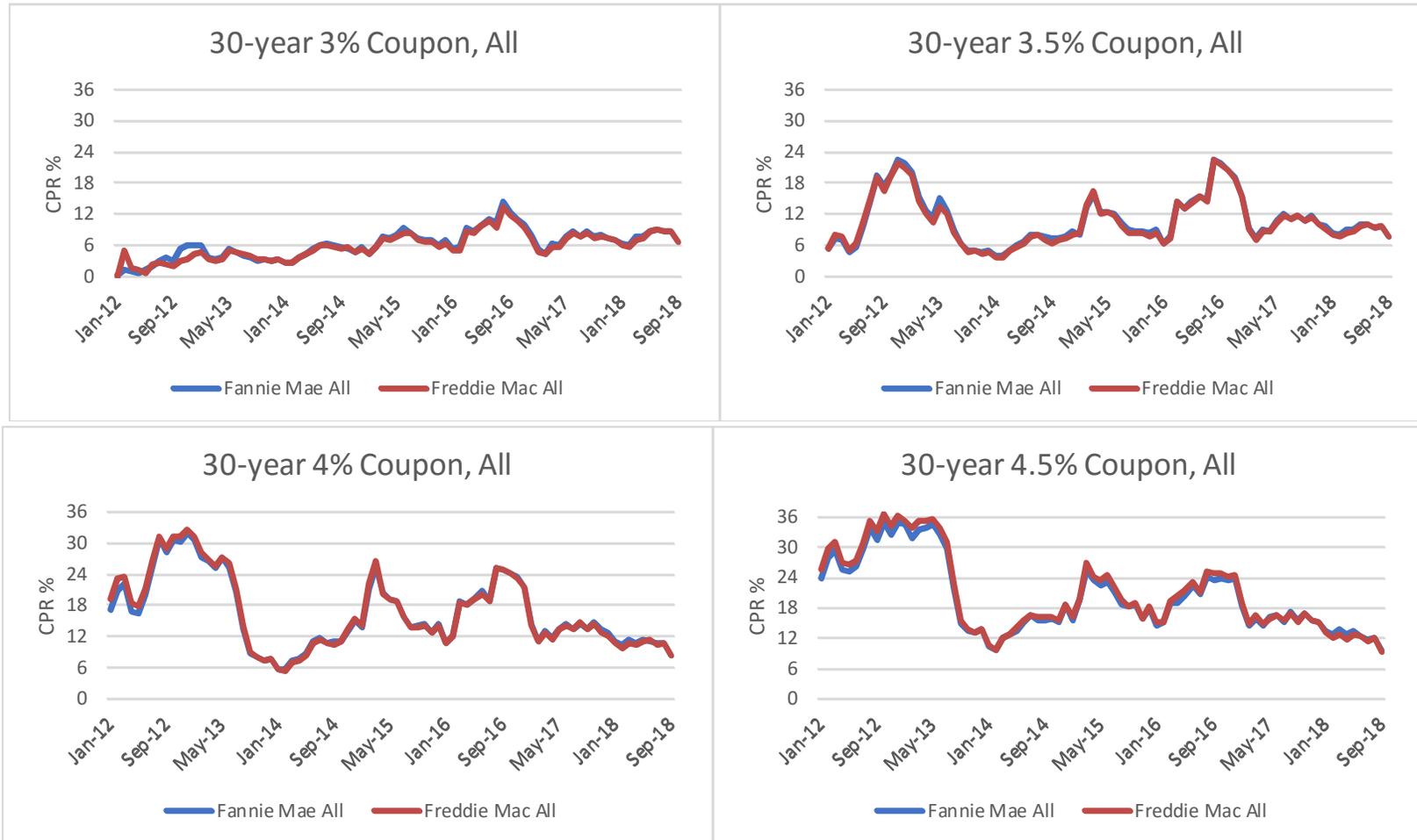


* The 3 percent coupon cohort for 2014 and the 4.5 percent coupon cohorts for 2012, 2013, 2015, and 2016 are omitted because each has a combined UPB below \$10 billion.

Source: RiskSpan calculations from data available publicly as of October 15, 2018. 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 October 15, 2018. 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*

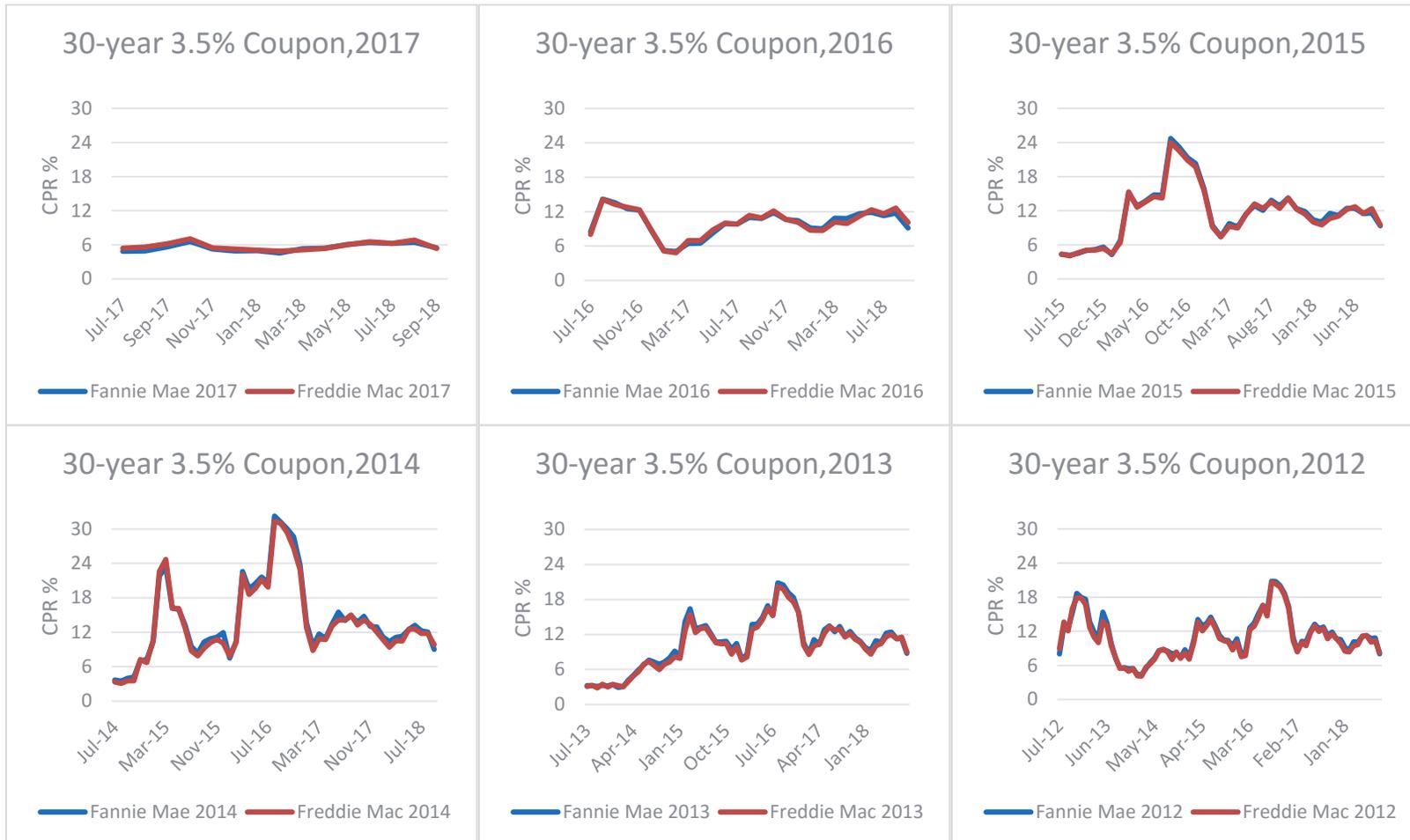


* The 2014 cohort is omitted because its combined UPB is below \$10 billion.

Source: RiskSpan calculations from data available publicly as of October 15, 2018. Calculations exclude pools with WALAs equal to zero.



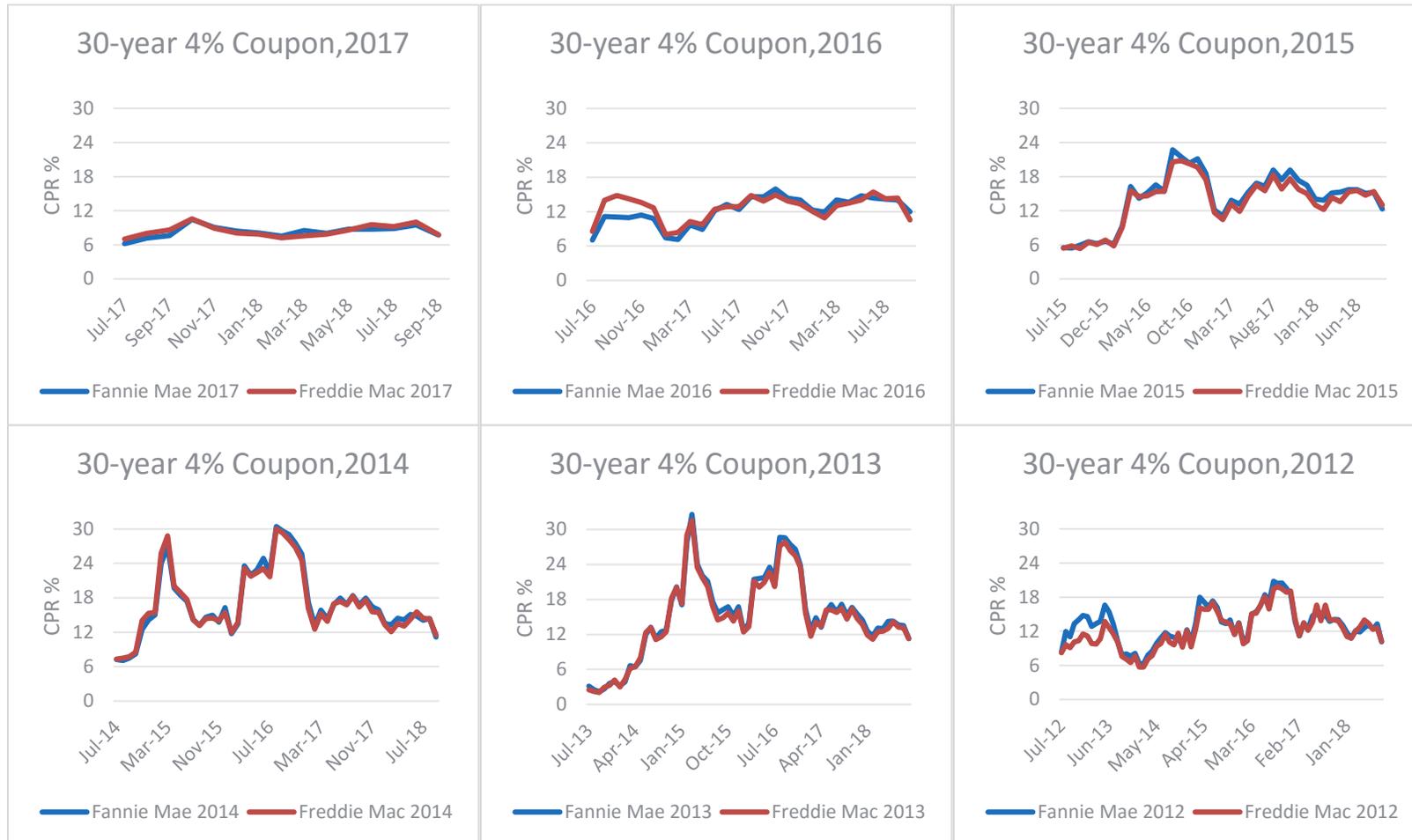
Chart 3c: Prepayment Rates on 30-year, 3.50 Percent Coupon TBA-eligible MBS by Loan-Originiation Year



Source: RiskSpan calculations from data available publicly as of October 15, 2018. Calculations exclude pools with WALAs equal to zero.



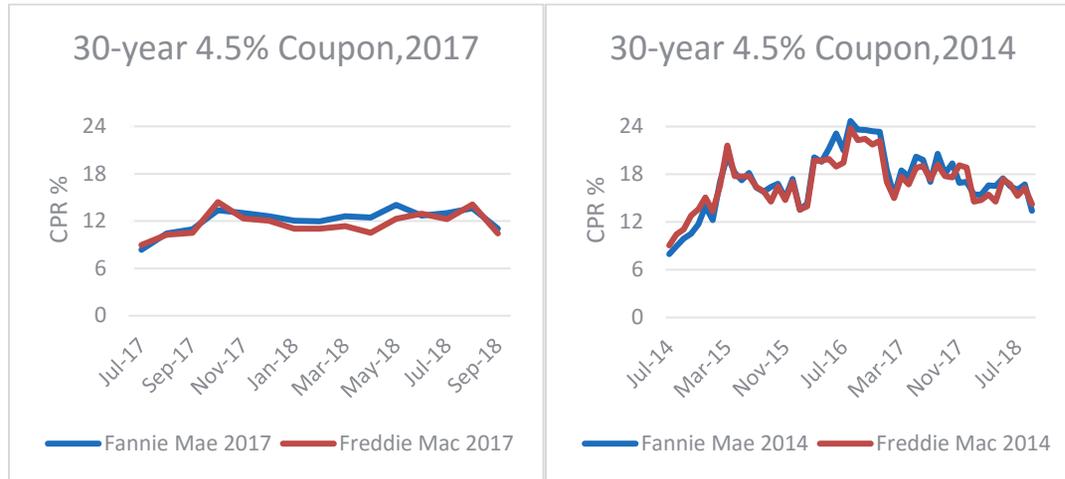
Chart 3d: Prepayment Rates on 30-year, 4.00 Percent Coupon TBA-eligible MBS by Loan-Originiation Year



Source: RiskSpan calculations from data available publicly as of October 15, 2018. Calculations exclude pools with WALAs equal to zero.



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



* The 2012, 2013, 2015, and 2016 cohorts are omitted because each has a combined UPB below \$10 billion.

Source: RiskSpan calculations from data available publicly as of October 15, 2018. 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)					
		FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	September		August		July	
										FNM	FRE	FNM	FRE	FNM	FRE
3	2012	3.58	3.61	277	277	72	71	87	45	6.82	6.94	8.86	8.99	9.02	8.85
	2013	3.58	3.57	284	283	66	66	119	70.4	7.25	7.1	9.24	9.32	9.45	9.5
	2015	3.77	3.75	312	312	40	40	44.9	40	6.85	7.03	9.27	8.83	9.24	9.14
	2016	3.66	3.71	330	330	25	25	201.7	154.3	6.55	6.82	8.31	8.77	8.32	8.68
	2017	3.66	3.74	339	342	17	14	13.9	14.1	4.01	3.72	5.31	5.24	5.09	4.68
	All	3.64	3.67	307	311	45	42	471.1	327.5	6.71	6.77	8.62	8.74	8.72	8.73
3.5	2012	3.99	3.99	272	272	75	76	96.2	51.1	8.04	8.2	10.81	10.32	10.74	10.11
	2013	4.02	4.01	286	286	64	63	57.5	37	8.77	9	11.31	11.57	11.24	11.26
	2014	4.24	4.21	303	302	49	49	40.3	34.4	9.01	9.86	12.05	11.77	12.22	11.79
	2015	4.10	4.11	315	314	39	39	132.8	90	9.35	9.49	11.6	12.33	11.49	11.53
	2016	4.08	4.12	328	328	27	27	92.9	62.3	9.15	10.15	11.75	12.64	11.29	11.63
	2017	4.06	4.08	342	342	14	14	161.7	124.2	5.45	5.34	6.45	6.86	6.23	6.27
	2018	4.11	4.17	351	351	7	6	51.4	37.4	3.9	3.88	4.64	4.9	4.69	4.13
	All	4.07	4.09	315	318	38	36	656.2	446.4	7.64	7.78	9.71	9.9	9.58	9.38
4	2012	4.46	4.49	271	270	77	77	27.6	10.2	10.12	10.25	13.3	12.57	12.35	12.38
	2013	4.57	4.58	290	290	60	60	37.6	19.5	11.32	11.27	13.52	13.11	13.61	13.25
	2014	4.58	4.58	301	300	51	51	60.7	42.2	11.18	11.56	14.41	14.32	14.09	14.45
	2015	4.57	4.56	316	316	38	38	36.8	20.6	12.33	12.98	15.23	15.39	15.06	14.73
	2016	4.51	4.55	327	327	27	28	31.2	17.6	11.98	10.55	14.05	14.39	14.19	14.25
	2017	4.47	4.47	342	342	15	15	120.9	76.4	7.71	7.79	9.49	9.98	8.84	9.18
	2018	4.61	4.62	354	354	4	4	136.7	89.7	4.49	4.43	5.33	4.83	5.02	4.58
	All	4.54	4.55	318	320	36	34	522.9	317.5	8.52	8.43	10.76	10.61	10.73	10.48
4.5	2013	5.04	5.12	291	292	60	59	7.4	2.5	13.09	12.5	15.52	15.48	16.71	13.45
	2014	5.02	5.08	300	300	52	52	11.1	4.5	13.39	14.24	16.72	16.3	16.04	15.29
	2017	4.97	4.94	342	342	15	15	29.1	17.8	11.03	10.43	13.61	14.11	13	12.23
	2018	5.10	5.02	354	354	4	4	63	39.5	5.56	6.09	6.28	6.67	5.4	6.07
	All	5.00	4.97	302	300	51	53	196.5	120.4	9.55	9.25	12.05	12.08	11.77	11.58
5	2018	5.66	5.56	355	355	3	3	10	6.1	5.74	7.02	6.41	7.23	5.85	7.15
	All	5.51	5.48	245	243	105	107	59.8	39.9	11.33	11.45	14.08	14.77	14.05	14.16

Source: RiskSpan calculations from data available publicly as of October 15, 2018. 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	
Sep 18		18.6		9.5		8.0		7.1		6.4		5.8		5.0		3.7		1.1		0.2	
Aug 18		22.2		12.1		10.1		9.1		8.4		7.6		6.8		5.4		2.2		0.3	
Jul 18		22.4		12.2		10.4		9.2		8.3		7.6		6.7		5.5		2.3		0.3	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Sep 18	WALA / WAC	55	3.64	50	3.65	49	3.63	40	3.66	39	3.65	43	3.60	39	3.61	48	3.61	52	3.64	47	3.67
	ALS/ FICO	203	762	220	763	233	766	244	763	262	765	245	765	255	764	242	766	215	767	220	761
	CPR3 / CPR6	12.5	10.9	9.4	9.3	8.6	8.8	8.4	8.50	8.1	8.1	7.4	7.8	7.0	7.5	6.7	7.4	6.0	7.3	5.8	7.4
Aug 18	WALA / WAC	54	3.65	50	3.66	53	3.64	37	3.65	40	3.65	37	3.63	38	3.58	48	3.61	50	3.64	47	3.67
	ALS/ FICO	201	763	219	763	227	766	261	764	251	764	257	763	255	765	238	765	219	766	216	762
	CPR3 / CPR6	14.2	11.7	10.6	9.80	9.7	9.10	8.8	8.30	8.7	8.40	8.3	8.00	7.6	7.40	7.5	7.70	6.6	7.30	6.1	7.10
Jul 18	WALA / WAC	52	3.65	49	3.65	51	3.64	44	3.66	37	3.64	38	3.62	35	3.58	42	3.61	50	3.63	46	3.66
	ALS/ FICO	208	763	221	764	225	765	245	764	254	765	248	763	267	765	244	765	217	766	217	762
	CPR3 / CPR6	14.3	11.2	10.6	9.20	9.8	8.60	9.2	8.30	8.7	7.90	8.3	7.70	7.6	6.90	7.5	7.10	6.8	7.00	6.1	6.60

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	
Sep 18		14.6		8.2		7.5		7.1		6.8		6.3		5.9		5.4		3.9		0.7	
Aug 18		17.4		10.6		10.0		9.2		8.7		8.4		7.9		7.2		5.6		1.2	
Jul 18		17.5		10.6		9.8		9.1		8.7		8.4		7.9		7.2		5.7		1.1	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Sep 18	WALA / WAC	55	3.65	40	3.73	41	3.71	36	3.69	43	3.65	38	3.65	44	3.64	39	3.67	42	3.67	47	3.68
	ALS/ FICO	179	762	242	763	242	762	266	760	252	764	259	763	257	764	262	764	236	765	192	762
	CPR3 / CPR6	11.2	10.3	9.0	9.0	8.9	9.1	8.3	8.30	8.1	8.3	7.6	7.7	7.6	7.9	7.6	7.8	6.2	6.8	6.0	7.2
Aug 18	WALA / WAC	52	3.67	39	3.71	38	3.72	42	3.67	45	3.66	41	3.67	36	3.67	45	3.63	34	3.65	44	3.67
	ALS/ FICO	190	762	240	761	247	763	242	763	252	765	268	764	261	761	237	764	241	763	199	763
	CPR3 / CPR6	12.3	10.5	10.0	9.10	9.6	8.90	9.1	8.30	8.7	8.20	8.9	8.40	8.6	8.20	8.0	7.80	7.0	6.70	6.3	6.80
Jul 18	WALA / WAC	53	3.64	42	3.69	36	3.72	38	3.71	41	3.67	40	3.70	39	3.62	35	3.62	38	3.67	43	3.68
	ALS/ FICO	187	762	234	763	243	761	260	763	269	763	260	765	251	762	255	762	233	764	199	762
	CPR3 / CPR6	12.6	10.0	9.8	8.70	9.4	8.30	9.2	8.10	8.9	7.80	8.9	7.90	8.2	7.30	7.8	7.00	7.3	6.70	6.2	6.30

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 October 15, 2018. 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	
Oct 18		24.4		11.8		9.5		7.8		6.5		5.4		4.5		2.9		0.5		0.1	
Sep 18		28.9		14.9		12.1		10.2		8.6		6.9		5.9		4.3		1.1		0.2	
Aug 18		28.6		14.8		12.0		10.2		8.5		6.8		5.6		4.1		1.0		0.2	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Oct 18	WALA / WAC	49	4.10	47	4.08	44	4.07	46	4.04	37	4.06	26	4.06	27	4.05	28	4.06	53	4.08	39	4.12
	ALS/ FICO	183	745	194	752	209	752	214	756	225	756	252	758	245	756	226	758	178	755	202	743
	CPR3 / CPR6	16.2	14.0	11.6	11.6	10.4	10.7	9.6	10.10	8.4	8.8	6.7	7.1	6.3	6.7	5.9	6.5	7.0	8.8	6.8	8.3
Sep 18	WALA / WAC	49	4.10	47	4.08	48	4.06	45	4.04	43	4.04	25	4.07	21	4.05	24	4.04	45	4.09	39	4.12
	ALS/ FICO	188	746	190	751	200	753	216	756	209	755	247	756	258	758	245	758	183	756	196	744
	CPR3 / CPR6	17.9	14.8	12.9	12.10	11.8	11.40	10.8	10.50	9.8	9.80	7.5	7.40	6.7	6.50	6.0	6.30	6.9	8.10	6.7	8.10
Aug 18	WALA / WAC	48	4.11	46	4.07	47	4.07	44	4.03	39	4.05	27	4.06	22	4.05	22	4.05	46	4.08	38	4.12
	ALS/ FICO	187	747	204	751	200	755	217	755	212	755	239	756	248	757	247	757	177	755	199	744
	CPR3 / CPR6	18.1	14.5	13.0	11.80	12.1	11.20	10.8	10.20	9.7	9.30	7.8	7.30	6.7	6.30	5.8	5.70	7.1	7.90	6.8	7.80

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	
Oct 18		20.5		11.1		9.8		9.0		7.9		6.3		5.0		4.0		2.0		0.3	
Sep 18		24.4		14.0		12.7		11.4		9.9		8.2		6.6		5.5		2.9		0.3	
Aug 18		23.3		13.2		12.0		11.2		9.9		7.8		6.3		4.9		2.4		0.3	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Oct 18	WALA / WAC	47	4.09	41	4.12	46	4.13	40	4.08	40	4.08	37	4.08	20	4.09	24	4.09	32	4.09	41	4.08
	ALS/ FICO	172	747	210	750	222	755	234	751	216	755	221	758	262	758	255	761	192	759	183	747
	CPR3 / CPR6	14.6	13.0	11.7	11.6	11.0	11.3	10.9	11.20	9.4	9.7	7.8	8.1	6.1	6.0	5.5	6.0	5.9	7.0	6.4	7.8
Sep 18	WALA / WAC	43	4.10	42	4.11	40	4.13	46	4.10	41	4.08	35	4.08	24	4.09	21	4.04	26	4.12	40	4.07
	ALS/ FICO	177	745	213	752	234	753	212	756	219	755	221	755	242	757	249	759	208	760	182	748
	CPR3 / CPR6	16.3	13.5	12.7	11.90	12.2	11.60	11.7	11.20	10.1	9.70	8.5	8.20	7.0	6.70	6.0	5.80	6.0	6.70	6.4	7.60
Aug 18	WALA / WAC	46	4.09	43	4.12	39	4.10	45	4.11	45	4.07	29	4.09	23	4.10	16	4.05	25	4.11	40	4.08
	ALS/ FICO	167	747	220	753	234	752	227	757	201	754	230	754	243	758	263	759	203	759	180	747
	CPR3 / CPR6	15.7	12.7	12.8	11.40	11.9	11.10	11.6	10.70	10.9	10.10	8.4	7.70	6.9	6.50	5.8	5.40	5.7	6.00	6.6	7.30

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 October 15, 2018. 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	
Oct 18		29.3		13.7		10.4		8.3		6.9		5.3		3.9		2.2		0.4		0.1	
Sep 18		34.5		17.0		13.1		10.8		9.2		7.1		5.3		3.5		0.6		0.1	
Aug 18		34.2		17.1		13.3		10.8		9.2		7.3		5.4		3.0		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	
Oct 18	WALA / WAC	52	4.55	51	4.52	50	4.49	33	4.46	30	4.49	24	4.51	15	4.61	27	4.60	54	4.54	36	4.59
	ALS/ FICO	163	732	168	737	174	741	208	743	209	741	215	745	242	752	197	748	159	741	187	726
	CPR3 / CPR6	19.2	16.6	13.3	13.1	11.4	11.7	9.8	10.00	8.8	8.9	7.1	7.6	5.2	5.6	5.9	7.8	7.9	9.9	7.6	9.5
Sep 18	WALA / WAC	52	4.56	53	4.51	50	4.51	35	4.49	35	4.47	31	4.48	13	4.60	21	4.54	52	4.54	35	4.59
	ALS/ FICO	165	730	166	737	172	740	205	741	206	742	198	743	252	752	201	746	154	742	184	727
	CPR3 / CPR6	21.3	17.6	14.5	13.80	13.0	12.70	11.0	10.80	10.1	10.10	8.3	8.40	5.5	6.10	5.7	6.60	8.1	9.90	7.6	9.30
Aug 18	WALA / WAC	53	4.55	54	4.53	50	4.50	42	4.49	27	4.46	31	4.47	15	4.52	25	4.54	54	4.54	35	4.58
	ALS/ FICO	168	731	172	738	170	741	183	741	218	741	192	741	237	747	198	746	153	741	184	726
	CPR3 / CPR6	21.7	17.7	15.0	13.90	13.1	12.60	11.3	11.00	9.7	9.30	9.0	8.90	5.7	5.70	6.0	6.90	8.1	9.70	7.7	9.10

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	
Oct 18		26.7		13.2		10.5		8.7		7.5		6.0		4.3		2.8		0.7		0.1	
Sep 18		31.0		16.4		13.9		11.7		9.8		7.8		5.6		3.6		0.9		0.1	
Aug 18		31.1		16.6		13.4		11.6		9.7		7.8		5.3		3.1		0.8		0.1	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Oct 18	WALA / WAC	53	4.54	52	4.55	51	4.53	36	4.51	28	4.51	19	4.52	12	4.62	15	4.63	51	4.53	34	4.54
	ALS/ FICO	154	736	174	740	191	741	213	742	226	740	222	746	246	751	229	754	146	746	180	731
	CPR3 / CPR6	18.1	15.7	13.3	13.4	12.0	12.3	10.5	10.60	9.2	9.6	7.2	7.2	5.0	5.9	5.7	7.3	7.6	9.6	7.0	8.9
Sep 18	WALA / WAC	52	4.56	50	4.54	44	4.54	46	4.52	32	4.49	27	4.50	14	4.52	11	4.63	45	4.54	36	4.54
	ALS/ FICO	156	734	176	740	204	742	186	742	210	742	203	741	238	749	242	751	156	748	177	731
	CPR3 / CPR6	20.0	16.6	14.6	13.50	13.0	12.50	12.3	11.80	9.9	9.70	8.6	8.70	6.4	6.10	4.7	5.90	8.0	9.50	7.6	9.00
Aug 18	WALA / WAC	51	4.55	46	4.54	52	4.54	40	4.53	29	4.50	29	4.49	21	4.50	15	4.57	46	4.54	35	4.54
	ALS/ FICO	161	735	178	737	181	744	204	741	212	739	195	742	225	748	228	751	152	746	177	730
	CPR3 / CPR6	19.9	16.1	15.0	13.80	13.4	12.70	12.0	11.30	10.4	9.80	9.0	8.30	6.7	6.50	5.1	6.10	8.1	9.10	7.4	8.50

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 October 15, 2018. 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	
Oct 18		35.9		15.5		11.9		9.2		6.8		5.0		2.6		0.7		0.3		0.0	
Sep 18		42.1		19.3		15.0		11.9		9.0		6.6		4.2		1.2		0.4		0.0	
Aug 18		41.4		19.1		15.1		12.0		8.9		5.9		3.2		1.0		0.3		0.0	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Oct 18	WALA / WAC	70	4.98	66	4.94	56	4.95	47	4.97	33	5.05	32	5.00	32	5.05	77	4.98	62	5.01	43	5.08
	ALS/ FICO	143	727	153	735	162	727	174	725	185	729	157	729	162	730	131	741	150	727	176	715
	CPR3 / CPR6	22.5	18.8	14.5	13.9	13.1	12.9	10.7	10.90	8.2	9.1	6.8	7.8	5.8	7.6	8.9	11.2	8.4	10.8	8.3	10.9
Sep 18	WALA / WAC	69	4.98	63	4.95	61	4.94	66	4.94	40	5.00	29	5.02	20	5.04	67	4.99	68	5.00	46	5.07
	ALS/ FICO	148	727	154	729	158	730	151	734	175	726	174	727	180	730	133	739	143	731	169	716
	CPR3 / CPR6	25.2	20.3	15.7	14.80	13.8	13.70	12.4	12.90	9.7	9.90	7.6	8.50	5.4	7.30	8.4	10.70	8.6	11.00	8.2	10.90
Aug 18	WALA / WAC	72	4.98	62	4.95	64	4.94	60	4.94	50	4.96	31	5.04	25	4.99	75	4.98	65	4.99	43	5.06
	ALS/ FICO	149	728	151	728	160	731	161	732	158	734	177	724	164	726	129	743	148	729	174	714
	CPR3 / CPR6	25.0	19.9	16.0	14.80	14.1	13.60	12.7	12.40	10.6	11.50	7.5	8.40	5.8	7.50	9.3	11.10	9.1	11.30	9.1	11.20

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	
Oct 18		33.5		15.4		11.6		8.9		7.0		5.2		3.0		0.9		0.3		0.1	
Sep 18		40.0		19.6		15.3		12.6		9.9		7.0		4.6		1.6		0.4		0.1	
Aug 18		39.8		18.8		14.3		11.9		9.7		6.6		3.9		1.0		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	
Oct 18	WALA / WAC	68	4.97	58	4.96	68	4.94	67	4.96	50	4.96	22	5.04	33	4.97	69	4.97	61	4.96	42	5.01
	ALS/ FICO	139	733	169	734	157	739	158	740	173	738	199	732	149	740	136	743	146	734	170	719
	CPR3 / CPR6	21.0	17.4	14.6	13.4	12.7	12.8	10.9	11.40	8.6	9.7	7.4	9.1	6.6	8.9	8.7	11.0	8.3	10.3	8.0	10.3
Sep 18	WALA / WAC	68	4.97	73	4.95	70	4.94	63	4.95	65	4.93	25	4.99	19	4.99	65	4.97	65	4.97	40	5.01
	ALS/ FICO	145	732	151	737	159	738	164	738	153	742	191	736	167	735	132	744	143	734	174	720
	CPR3 / CPR6	24.1	18.9	15.5	14.50	13.7	13.00	12.4	12.10	11.0	11.50	7.3	8.90	6.2	7.60	9.3	11.30	8.6	10.80	8.3	10.10
Aug 18	WALA / WAC	73	4.97	68	4.95	73	4.94	68	4.93	63	4.94	39	4.95	21	5.00	66	4.98	61	4.96	43	5.01
	ALS/ FICO	146	734	150	735	157	741	162	742	160	742	154	733	188	734	133	743	145	734	172	719
	CPR3 / CPR6	23.8	18.5	15.5	14.10	13.8	13.20	13.0	12.40	11.2	11.30	8.9	9.50	6.2	8.60	9.3	11.10	8.3	10.10	8.8	10.50

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 October 15, 2018. Calculations exclude pools with WALAs equal to zero.



Table 3: Q3 2018 30-year, TBA-eligible MBS Total Industry Quarterly Issuance Report*

	2.00%		2.50%		3.00%		3.50%		4.00%		4.50%		5.00%		5.50%		6.00%		All Loans	
	FNM	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	
Loan Count	1	36	22	1,829	830	24,488	20,626	230,625	158,598	143,784	94,016	35,250	24,512	1,765	609	238	48	440,573	299,467	
UPB (billions)	0.00	0.01	0.00	0.52	0.24	7.57	6.44	62.43	42.62	28.95	18.09	6.17	3.88	0.34	0.10	0.05	0.01	106.41	71.38	
% of Production Volume	0.00	0.00	0.00	0.50	0.30	7.10	9.00	58.70	59.70	27.20	25.30	5.80	5.40	0.30	0.10	0.00	0.00	100.00	100.00	
WA Note Rate (%)	3.13	3.62	3.43	4.08	4.02	4.39	4.37	4.73	4.71	5.17	5.07	5.70	5.58	6.25	6.15	6.40	6.56	4.88	4.82	
WA Loan Age (mos.)	5	4	42	4	5	3	3	2	3	2	3	3	3	3	6	2	39	3	3	
WA FICO	669	715	748	762	755	764	765	753	756	723	733	701	712	692	696	699	685	742	748	
WA LTV	0.8	0.89	0.84	0.77	0.79	0.77	0.79	0.79	0.81	0.8	0.8	0.81	0.79	0.9	0.85	0.95	0.82	0.8	0.8	
%FICO<680	100	22	5	2	5	2	2	5	3	22	15	41	33	46	45	38	56	11	8	
%FICO>740	0	28	60	76	67	77	78	65	67	38	45	25	32	17	21	19	9	56	61	
%LTV>80	0	70	59	42	40	36	41	41	46	41	40	33	28	68	49	99	45	41	43	
%FICO<680 & LTV>80	0	19	0	1	1	0	0	1	1	8	6	13	10	24	17	36	15	4	3	
%DTI>40	100	27	24	47	38	40	37	44	41	50	43	52	44	58	46	62	62	46	41	
%Purchase	100	100	87	81	83	82	86	79	84	69	73	58	60	77	70	99	60	75	80	
%Rate/Term	0	0	0	19	11	18	9	21	7	31	7	42	7	23	5	1	12	25	7	
%Cash out**	0	0	13	0	6	0	5	0	9	0	20	0	33	0	24	0	27	0	13	
%Owner Occupied	100	100	100	96	98	95	96	93	95	82	86	69	62	84	64	99	78	89	91	
%Second Home	0	0	0	3	2	4	3	5	4	4	4	2	2	0	2	0	2	5	4	
%Investor	0	0	0	1	0	1	0	2	1	14	10	29	37	15	34	1	20	7	5	

*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 October 15, 2018.



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.

