



PREPAYMENT MONITORING REPORT

Second 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

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.

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.

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. FHFA monitors similar information for both Enterprises and for all coupons, maturities, and loan-origination years that account for outstanding volumes of more than \$500 million.

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*](#).



Charts

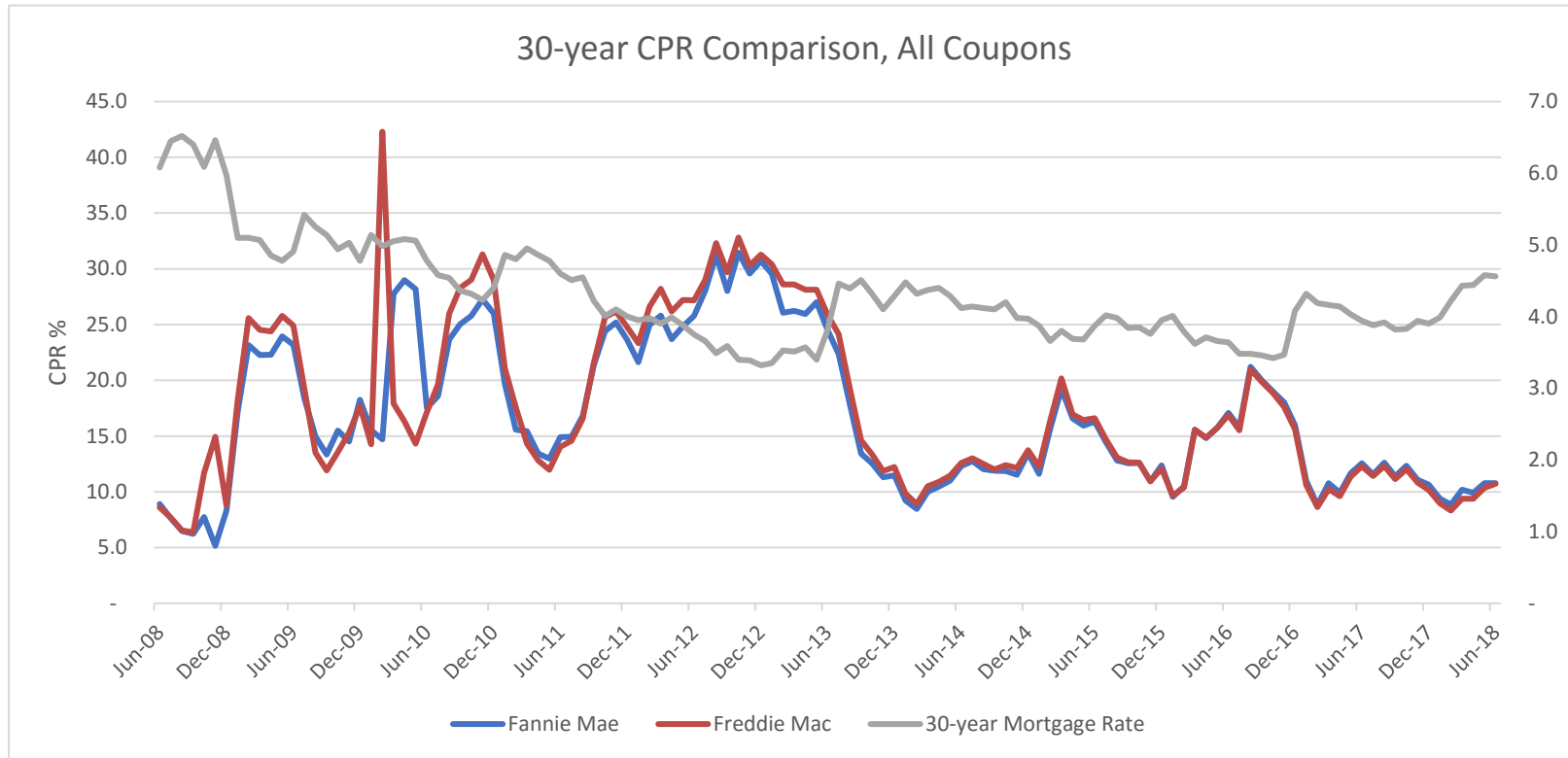
Chart 1 compares prepayment rates for all Fannie Mae and Freddie Mac TBA-eligible 30-year securities for the past ten years. Chart 1 also illustrates how prepayment rates (left axis) generally move in the opposite direction of the 30-year mortgage rate (right axis), illustrating how declines in mortgage 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 June 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 2008. 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.



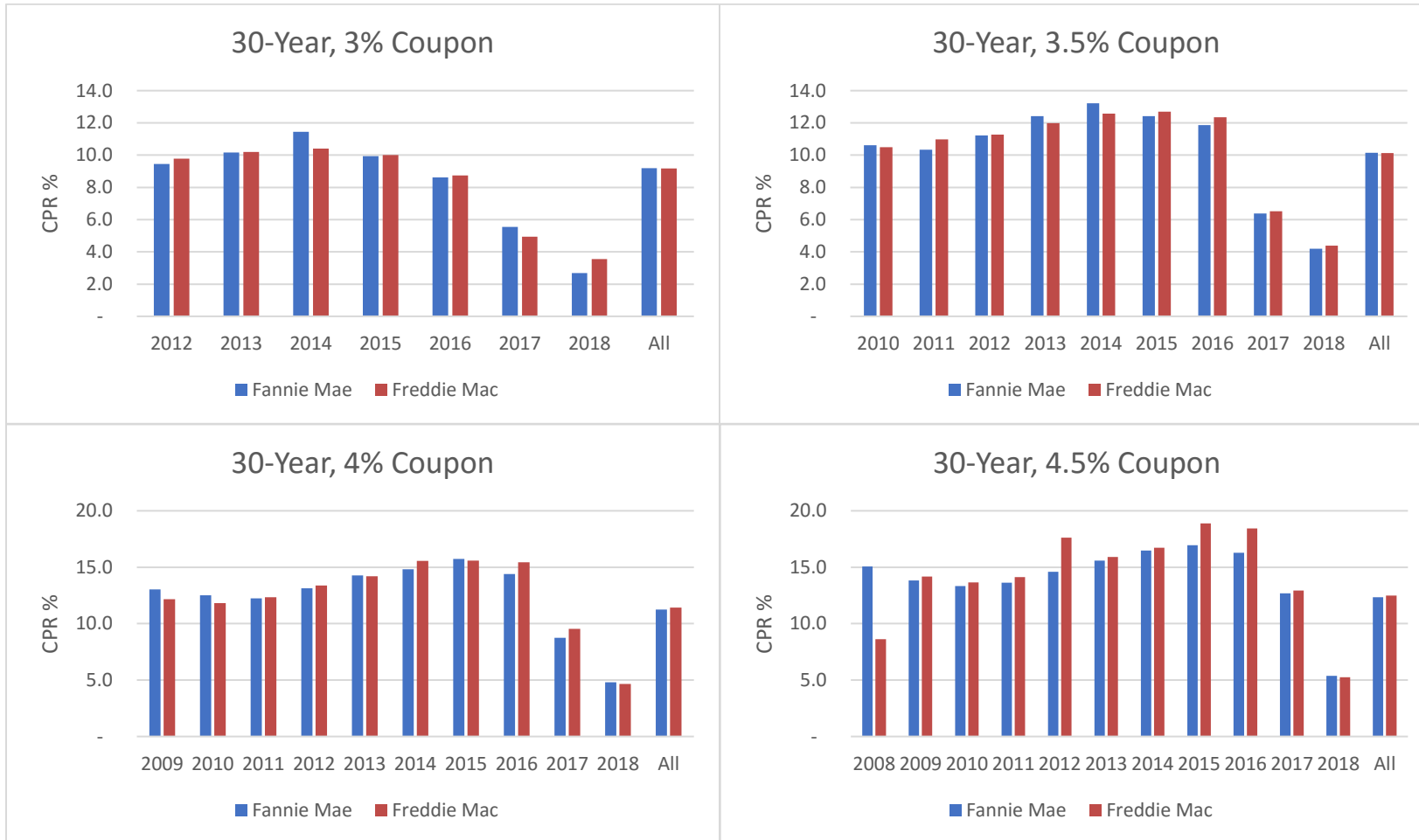
Chart 1: Prepayment Comparison for 30-Year, TBA-Eligible MBS, All Coupons, June 2008 through June 2018



Source: RiskSpan calculations from data available publicly as of July 11, 2018. Calculations exclude pools with WALAs equal to zero.



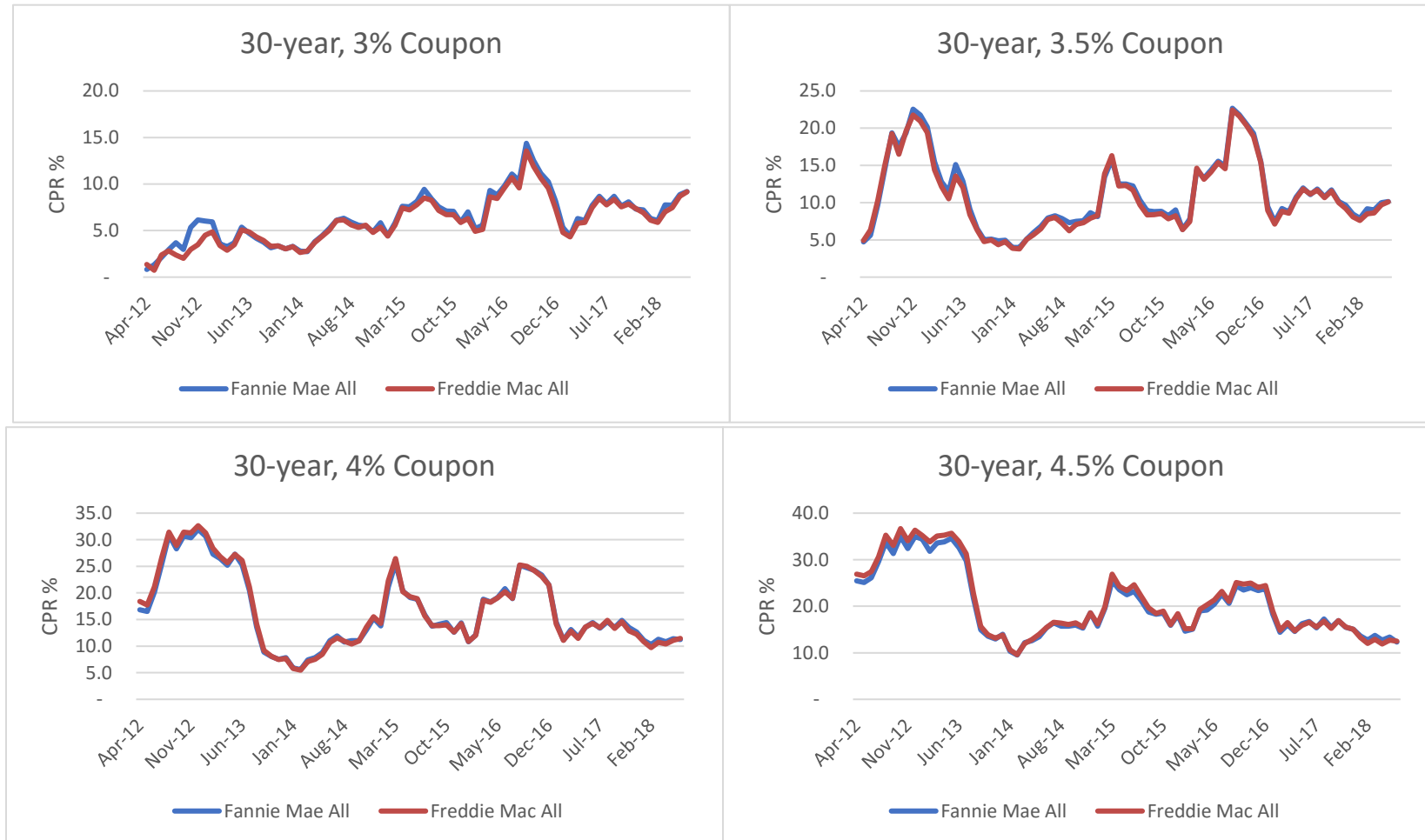
Chart 2: June 2018 Prepayment Rates on 30-year, TBA-eligible MBS by Coupon and Loan-Originiation Year



Source: RiskSpan calculations from data available publicly as of July 11, 2018. Calculations exclude pools with WALAs equal to zero.



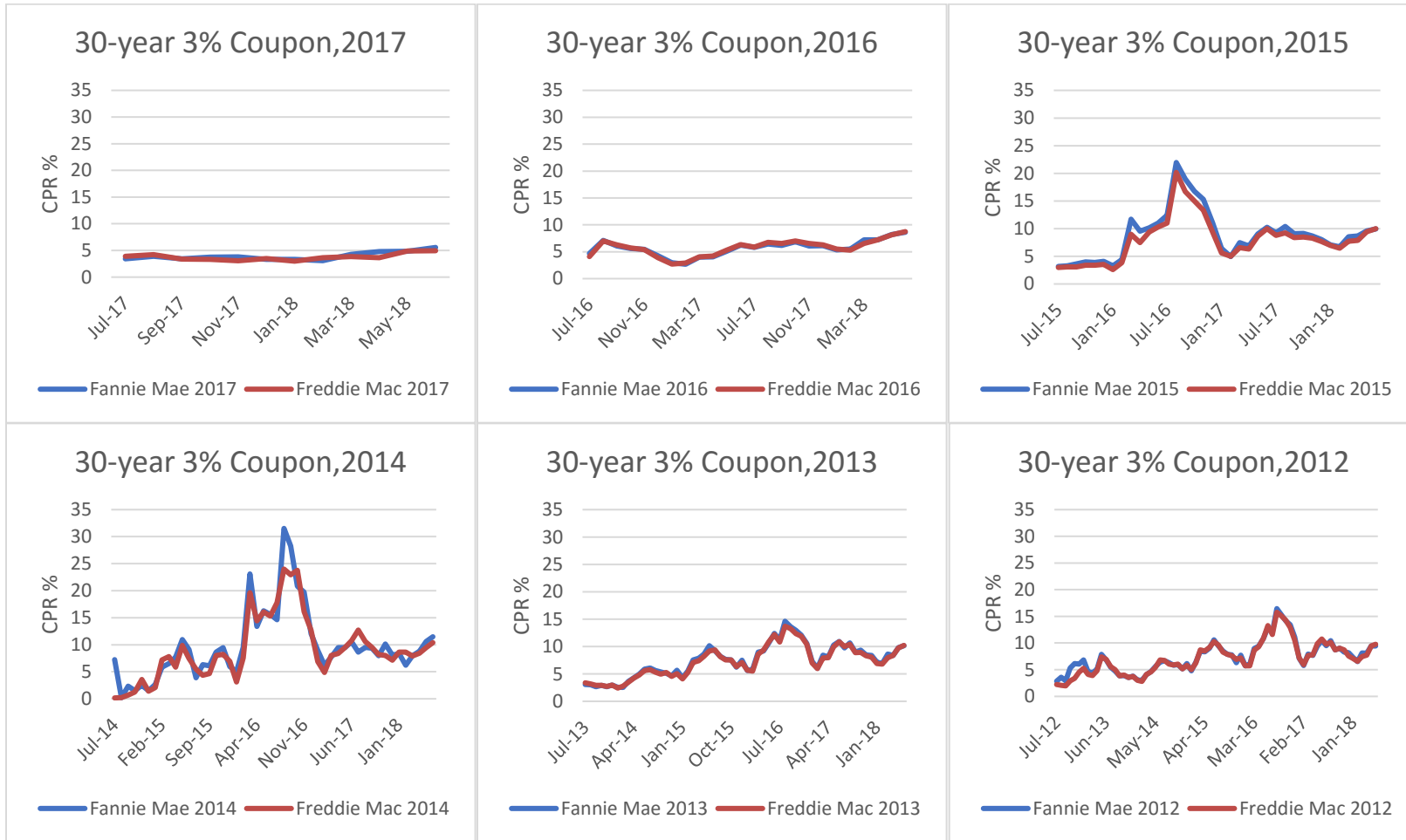
Chart 3a: Prepayment Rates on All 30-year, TBA-eligible MBS by Coupon



Source: RiskSpan calculations from data available publicly as of July 11, 2018. Calculations exclude pools with WALAs equal to zero.



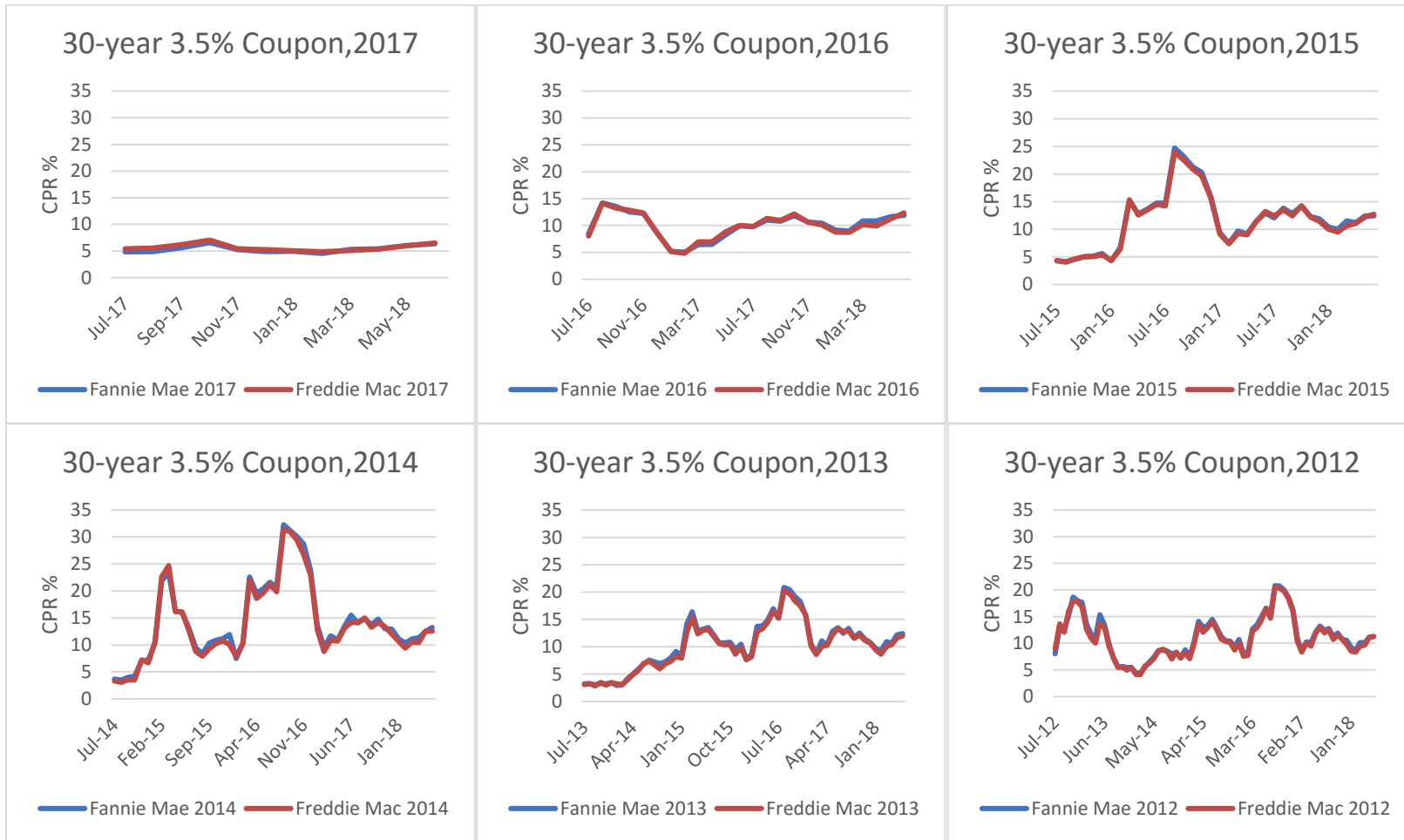
Chart 3b: Prepayment Rates on 30-year, 3.00 Percent Coupon TBA-eligible MBS by Loan-Originiation Year



Source: RiskSpan calculations from data available publicly as of July 11, 2018. Calculations exclude pools with WALAs equal to zero.



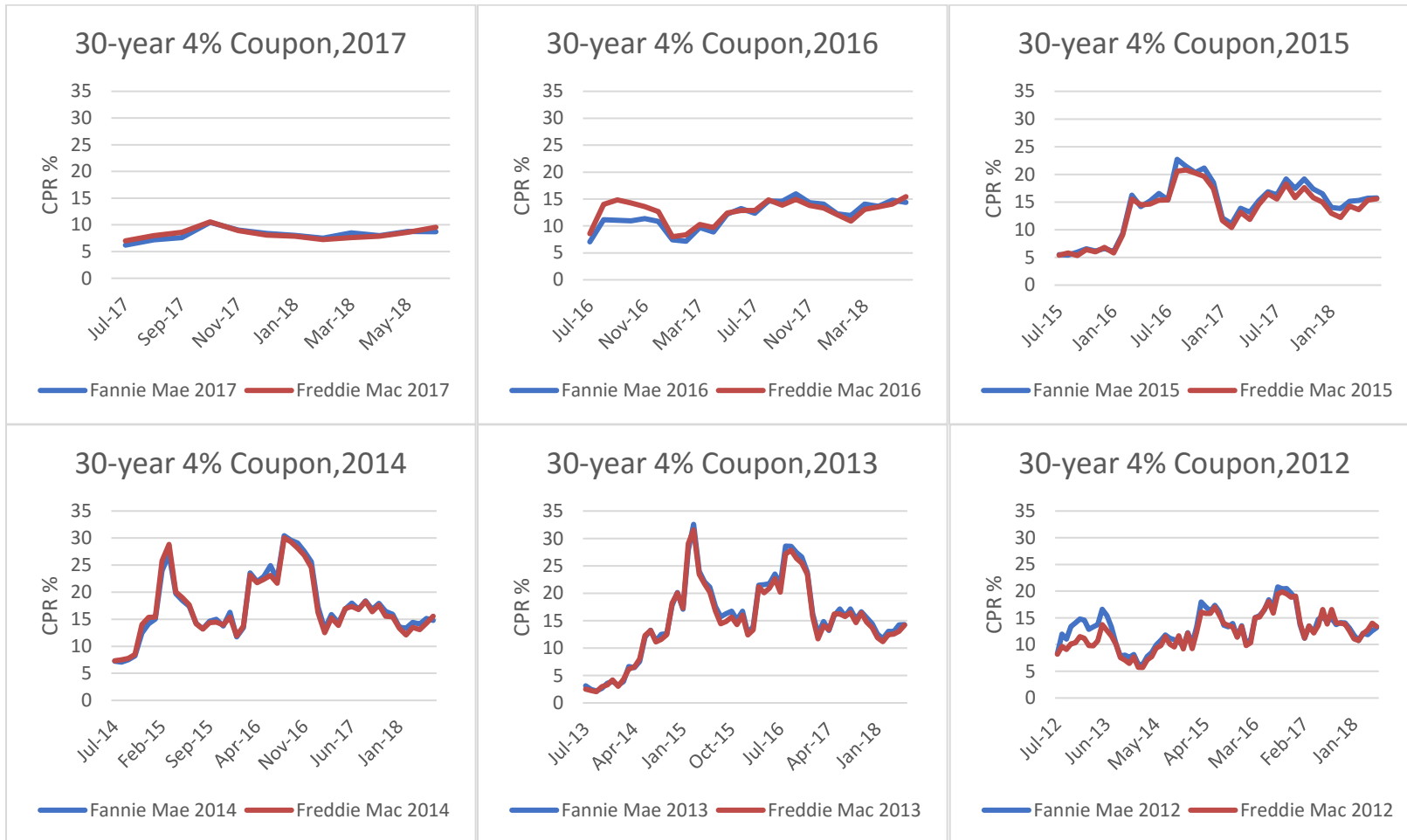
Chart 3c: Prepayment Rates on 30-year, 3.50 Percent Coupon TBA-eligible MBS by Loan-Originiation Year



Source: RiskSpan calculations from data available publicly as of July 11, 2018. Calculations exclude pools with WALAs equal to zero.



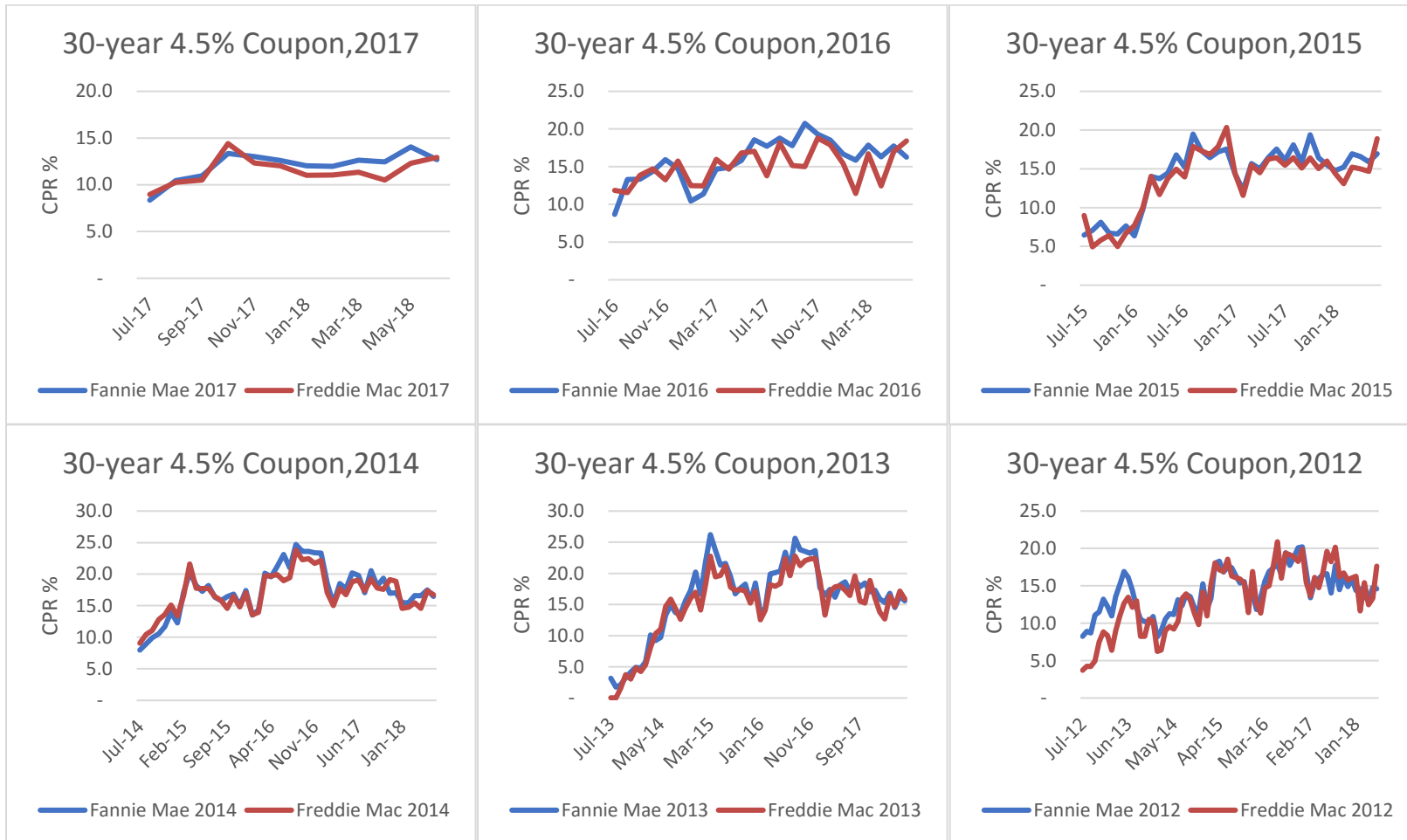
Chart 3d: Prepayment Rates on 30-year, 4.00 Percent Coupon TBA-eligible MBS by Loan-Originiation Year



Source: RiskSpan calculations from data available publicly as of July 11, 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



Source: RiskSpan calculations from data available publicly as of July 11, 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 LTVs 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	June		May		April	
										FNM	FRE	FNM	FRE	FNM	FRE
2.5	2012	3.20	3.14	281	281	67	67	4.5	1.0	8.75	7.97	7.68	8.46	6.32	7.30
	2013	3.15	3.15	284	284	64	65	3.4	0.8	7.93	8.50	7.43	6.35	7.94	6.04
	2016	3.37	3.32	333	333	22	22	4.1	3.7	7.04	5.72	6.11	5.91	6.07	4.18
	All	3.25	3.26	301	316	50	37	12.8	5.7	7.71	6.63	6.96	6.40	6.60	4.95
3	2012	3.58	3.61	280	280	69	68	89.4	46.3	9.45	9.78	9.46	9.47	8.09	7.71
	2013	3.58	3.57	287	286	63	63	122.6	72.4	10.16	10.19	9.81	9.76	8.35	8.37
	2014	3.86	3.78	308	305	43	46	1.8	1.4	11.45	10.40	10.60	9.47	8.80	8.41
	2015	3.77	3.75	315	316	37	37	46.2	41.1	9.94	10.00	9.62	9.42	8.70	7.89
	2016	3.66	3.71	333	333	22	22	206.9	158.4	8.62	8.74	8.20	8.17	7.22	7.24
	2017	3.66	3.74	343	345	14	11	14.1	14.3	5.56	4.95	4.82	4.88	4.81	3.62
	2018	3.88	3.85	353	353	5	5	2.3	2.1	2.69	3.55	2.79	3.73	2.05	3.27
	All	3.64	3.67	310	314	42	39	483.4	336.2	9.19	9.17	8.88	8.69	7.73	7.47
3.5	2010	4.10	4.07	254	254	92	91	6.4	1.7	10.61	10.48	10.69	10.36	9.70	10.63
	2011	4.02	4.04	267	265	81	81	17.3	8.6	10.34	10.98	9.79	10.41	9.61	9.13
	2012	4.00	3.99	276	275	72	73	99.5	52.8	11.22	11.27	11.14	11.11	10.10	9.67
	2013	4.02	4.01	290	289	61	60	59.5	38.3	12.41	11.98	12.20	11.65	10.68	10.43
	2014	4.24	4.21	306	305	46	46	41.7	35.5	13.22	12.57	12.49	12.55	11.32	10.46
	2015	4.10	4.11	318	318	36	36	137.4	93.3	12.42	12.70	12.41	12.20	11.18	11.05
	2016	4.08	4.12	331	331	24	24	96.0	64.6	11.87	12.35	11.64	11.20	10.84	9.93
	2017	4.06	4.08	346	346	11	11	165.0	126.8	6.37	6.52	6.04	6.01	5.40	5.36
	2018	4.06	4.13	353	354	4	4	44.6	31.4	4.20	4.38	4.29	4.17	3.23	3.57
	All	4.07	4.09	318	320	36	33	667.8	453.0	10.15	10.12	9.98	9.70	9.03	8.63

Source: RiskSpan calculations from data available publicly as of July 11, 2018. Calculations exclude pools with WALAs equal to zero.



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

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	June		May		April	
										FNM	FRE	FNM	FRE	FNM	FRE
4	2009	4.54	4.55	237	236	109	109	15.1	7.9	13.02	12.15	12.81	12.91	11.48	12.00
	2010	4.48	4.48	254	254	92	92	26.9	17.0	12.52	11.82	11.62	11.42	10.78	11.17
	2011	4.47	4.47	264	263	83	84	31.8	17.9	12.25	12.34	12.45	12.72	11.28	11.68
	2012	4.46	4.49	274	273	74	74	28.6	10.6	13.14	13.37	12.61	13.98	11.85	12.76
	2013	4.57	4.58	293	293	57	57	39.1	20.3	14.27	14.19	14.25	13.04	13.00	12.56
	2014	4.58	4.58	305	304	48	48	63.2	44.0	14.81	15.57	15.13	14.28	14.13	13.08
	2015	4.57	4.56	319	319	35	35	38.4	21.5	15.73	15.58	15.69	15.33	15.29	13.61
	2016	4.51	4.55	331	330	24	25	32.5	18.4	14.38	15.44	14.78	14.06	13.66	13.53
	2017	4.47	4.47	345	345	12	12	124.2	78.5	8.74	9.54	8.75	8.62	8.01	7.88
	2018	4.52	4.54	355	356	3	3	76.0	48.1	4.80	4.66	4.22	4.46	3.32	3.02
All	4.51	4.52	316	318	38	36	476.1	284.1	11.25	11.43	11.42	11.08	10.80	10.40	
4.5	2008	5.12	5.08	228	225	121	123	0.5	0.1	15.06	8.61	17.94	11.04	17.20	7.74
	2009	4.93	4.92	239	239	108	108	28.2	20.6	13.83	14.17	14.12	14.35	13.04	13.18
	2010	4.94	4.95	251	250	96	96	22.0	17.2	13.33	13.64	14.32	14.16	13.42	12.82
	2011	4.93	4.90	263	262	85	86	24.0	14.1	13.62	14.12	14.59	13.91	13.47	13.00
	2012	4.95	4.96	273	273	75	75	3.0	0.7	14.59	17.63	14.79	13.33	12.99	12.47
	2013	5.04	5.12	294	295	57	56	7.8	2.6	15.60	15.90	16.37	17.14	14.49	14.70
	2014	5.02	5.08	303	303	49	49	11.6	4.8	16.49	16.73	17.50	17.36	16.55	14.56
	2015	4.97	4.97	317	319	35	34	3.1	1.6	16.96	18.88	15.90	14.66	16.58	14.99
	2016	4.91	4.98	331	330	24	25	5.2	2.1	16.27	18.43	17.74	17.00	16.30	12.46
	2017	4.97	4.94	345	345	12	12	30.2	18.5	12.69	12.94	14.05	12.29	12.46	10.50
	2018	5.04	4.98	356	356	2	2	34.8	21.9	5.39	5.26	4.58	5.02	3.60	4.53
All	4.97	4.96	296	293	56	59	174.0	106.2	12.33	12.48	13.39	12.72	12.71	11.91	

Source: RiskSpan calculations from data available publicly as of July 11, 2018. Calculations exclude pools with WALAs equal to zero.



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

Coupon	Year	Weighted Average Coupon		Weighted Average Maturity		Weighted Average Loan Age		Unpaid Principal Balance		One-Month Conditional Prepayment Rates (percent)					
		(percent)		(months)		(months)		(\$ billions)		June		May		April	
		FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
5	2008	5.65	5.63	227	227	122	122	2.8	2.1	15.36	13.69	16.72	17.12	19.36	15.13
	2009	5.42	5.42	242	242	106	106	8.4	8.3	15.75	16.50	15.65	16.06	15.61	14.39
	2010	5.37	5.38	251	251	97	98	11.2	8.1	15.71	15.90	16.64	15.88	16.50	15.21
	2011	5.38	5.35	263	262	85	86	6.9	3.7	16.89	16.12	16.71	15.84	16.33	15.67
	2013	5.44	5.59	294	294	57	56	0.7	0.1	16.49	15.47	20.88	10.51	19.38	15.77
	2014	5.39	5.52	302	302	50	51	1.0	0.1	18.20	21.62	16.85	7.96	17.80	12.55
	2017	5.48	5.52	345	345	12	13	1.0	0.4	20.07	19.00	18.60	15.61	16.76	18.20
	2018	5.59	5.51	356	356	2	2	3.9	2.2	5.22	5.87	6.86	6.87	4.48	6.83
	All	5.48	5.47	235	233	114	115	56.1	37.7	15.01	15.16	15.61	15.11	15.46	14.59
5.5	2008	6.03	6.03	227	227	121	121	4.4	3.1	18.24	17.74	19.40	17.95	19.05	16.01
	2009	5.94	5.94	241	240	106	107	1.4	1.0	18.08	16.93	17.73	18.32	16.70	16.16
	2010	5.85	5.85	250	249	98	98	1.0	0.5	16.91	19.46	15.96	13.08	15.65	15.62
	All	5.99	5.99	195	196	153	151	36.5	22.0	16.30	15.66	16.54	16.07	15.84	15.35
6	2008	6.54	6.51	228	227	121	120	2.5	2.0	17.80	18.34	18.96	18.04	17.83	16.06
	All	6.54	6.50	195	197	153	151	22.9	14.2	17.17	16.33	17.51	16.22	16.59	15.12
6.5	2008	6.99	6.95	227	226	121	120	0.8	0.6	19.61	17.13	22.89	17.00	20.98	16.84
	All	7.02	6.99	182	177	166	170	9.0	5.7	17.04	15.83	18.27	14.63	17.68	15.26
7	All	7.59	7.54	165	144	183	202	3.2	1.6	18.63	15.50	18.59	14.17	16.74	13.94
7.5	All	8.08	8.07	131	114	218	233	0.8	0.5	16.31	13.42	16.10	13.13	15.75	12.45
8	All	8.57	8.56	110	102	239	246	0.3	0.3	14.37	13.20	13.06	12.64	12.82	11.90

Source: RiskSpan calculations from data available publicly as of July 11, 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		
Jun 18	29.7		15.7		12.9		11.0		9.1		7.3		5.9		4.3		1.2		0.2		
May 18	29.3		15.3		12.7		10.9		9.0		7.0		5.7		4.2		1.1		0.2		
Apr 18	27.7		14.0		11.6		9.8		8.1		6.2		4.8		3.3		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		
Jun 18	WALA / WAC	47	4.11	44	4.08	46	4.07	44	4.05	43	4.03	25	4.06	21	4.04	18	4.04	43	4.07	37	4.12
	ALS/ FICO	191	746	202	751	208	755	209	753	209	755	237	757	249	758	245	757	179	755	198	744
	CPR3 / CPR6	18.4	14.6	13.1	11.7	11.7	10.8	10.9	10.2	9.6	9.2	7.5	7.3	6.5	6.0	5.4	5.2	6.5	7.4	6.4	7.4
May 18	WALA / WAC	46	4.11	46	4.08	44	4.06	44	4.04	39	4.06	28	4.05	16	4.04	19	4.04	41	4.07	36	4.12
	ALS/ FICO	191	745	201	753	203	754	214	754	215	754	228	755	266	759	241	757	178	755	197	744
	CPR3 / CPR6	18.0	14.6	12.4	11.4	11.3	10.6	10.5	10.0	9.6	9.4	7.2	7.0	5.6	5.4	5.3	5.4	6.3	7.3	6.2	7.4
Apr 18	WALA / WAC	45	4.11	43	4.08	44	4.08	42	4.04	39	4.03	28	4.06	19	4.05	16	4.02	42	4.08	35	4.12
	ALS/ FICO	192	745	206	752	208	753	213	754	211	756	228	757	248	758	248	759	178	753	199	743
	CPR3 / CPR6	17.0	14.4	11.7	11.3	10.7	10.8	9.6	9.7	8.5	8.9	7.0	7.4	5.3	5.5	4.2	5.0	6.0	7.6	5.8	7.6

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 18	24.6		14.5		13.2		12.0		10.3		8.5		6.6		5.4		2.7		0.3		
May 18	24.1		13.7		12.4		11.3		10.1		8.3		6.2		4.9		2.6		0.3		
Apr 18	22.0		12.4		11.1		10.1		8.7		7.1		5.7		4.3		2.1		0.3		
Month	Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10		
Jun 18	WALA / WAC	49	4.08	41	4.13	37	4.12	44	4.09	42	4.06	32	4.09	20	4.09	15	4.06	24	4.10	37	4.07
	ALS/ FICO	174	749	222	752	239	752	211	754	213	754	222	757	244	759	252	757	204	758	179	747
	CPR3 / CPR6	15.9	12.5	12.5	11.3	11.9	11.0	11.2	10.4	10.2	9.5	8.4	7.9	6.6	6.2	5.6	5.1	5.3	5.6	6.0	6.7
May 18	WALA / WAC	46	4.09	43	4.10	40	4.13	41	4.11	38	4.07	37	4.06	19	4.11	13	4.07	23	4.06	37	4.07
	ALS/ FICO	169	749	213	755	235	753	228	754	227	752	201	755	243	758	265	758	205	757	181	746
	CPR3 / CPR6	14.9	12.3	11.7	10.8	11.3	11.0	10.6	10.2	9.6	9.3	8.4	8.2	6.1	6.2	4.9	4.8	5.0	5.4	5.7	6.6
Apr 18	WALA / WAC	45	4.09	40	4.10	37	4.12	42	4.12	41	4.08	30	4.08	20	4.08	12	4.06	24	4.05	37	4.07
	ALS/ FICO	177	748	216	753	231	753	212	755	222	755	236	754	234	755	268	758	189	758	181	746
	CPR3 / CPR6	13.8	12.2	10.8	11.0	10.4	11.0	9.7	10.2	8.8	9.3	7.4	7.8	6.0	6.4	4.4	4.7	4.5	5.6	5.1	6.6

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 12, 2018. Calculations exclude pools with WALAs equal to zero.



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

Fannie Mae 30-year, 4 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 18	35.2		17.8		13.8		11.2		9.3		7.5		5.4		2.5		0.4		0.1		
May 18	35.9		18.1		14.0		11.5		9.4		7.6		5.2		2.2		0.3		0.0		
Apr 18	34.8		16.9		13.4		10.9		8.9		7.3		4.6		1.6		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		
Jun 18	WALA / WAC	52	4.56	52	4.52	53	4.50	43	4.49	31	4.48	28	4.46	16	4.48	32	4.52	47	4.54	25	4.61
	ALS/ FICO	172	729	171	739	167	740	187	743	199	740	198	741	232	745	176	745	160	737	201	731
	CPR3 / CPR6	22.0	17.8	14.8	13.8	13.0	12.4	11.5	11.4	9.7	9.6	8.5	8.7	5.7	6.2	6.3	7.8	7.9	9.3	7.5	9.0
May 18	WALA / WAC	51	4.56	50	4.53	51	4.51	43	4.49	37	4.48	28	4.46	22	4.46	33	4.50	46	4.54	25	4.59
	ALS/ FICO	170	730	173	736	167	741	188	744	191	743	197	741	210	742	176	745	162	735	203	731
	CPR3 / CPR6	22.1	18.0	15.1	14.1	13.1	12.6	11.4	11.8	10.0	10.1	8.6	8.7	6.1	7.1	6.5	8.1	7.4	9.2	7.1	9.0
Apr 18	WALA / WAC	50	4.56	49	4.52	52	4.51	46	4.50	27	4.47	36	4.47	23	4.44	38	4.49	46	4.54	26	4.58
	ALS/ FICO	171	729	176	736	169	740	173	743	223	742	184	742	197	739	167	743	160	735	200	728
	CPR3 / CPR6	21.4	18.2	14.3	14.4	12.5	13.0	11.2	11.8	9.6	10.5	8.7	9.7	6.1	7.2	6.3	8.9	7.2	9.6	6.9	9.4

Freddie Mac 30-year, 4 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 18	32.9		17.9		14.5		12.4		10.7		8.5		6.2		3.5		0.7		0.1		
May 18	32.2		16.9		14.1		12.2		10.3		8.4		6.3		3.6		0.6		0.1		
Apr 18	31.2		15.9		13.1		11.3		9.6		8.2		6.2		2.7		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 18	WALA / WAC	50	4.55	48	4.56	49	4.53	47	4.53	30	4.52	30	4.49	19	4.47	20	4.51	46	4.53	31	4.54
	ALS/ FICO	159	734	186	739	178	741	198	742	214	740	190	741	234	744	196	749	152	744	180	731
	CPR3 / CPR6	20.0	16.2	15.2	13.9	13.1	12.5	12.0	11.6	10.5	10.3	8.8	8.5	6.8	6.5	6.1	6.6	7.5	8.8	7.1	8.2
May 18	WALA / WAC	53	4.54	47	4.55	48	4.55	43	4.53	36	4.51	29	4.48	22	4.47	20	4.50	46	4.51	33	4.53
	ALS/ FICO	158	736	181	739	193	742	202	742	199	741	193	740	210	742	192	744	151	745	179	728
	CPR3 / CPR6	19.6	16.1	14.3	13.7	12.8	12.6	12.0	12.0	10.0	10.3	9.1	9.2	6.2	6.9	5.6	6.7	7.3	8.9	6.8	8.3
Apr 18	WALA / WAC	53	4.54	47	4.55	48	4.55	43	4.53	36	4.51	29	4.48	22	4.47	20	4.50	46	4.51	33	4.53
	ALS/ FICO	158	736	181	739	193	742	202	742	199	741	193	740	210	742	192	744	151	745	179	728
	CPR3 / CPR6	19.6	16.1	14.3	13.7	12.8	12.6	12.0	12.0	10.0	10.3	9.1	9.2	6.2	6.9	5.6	6.7	7.3	8.9	6.8	8.3

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 12, 2018. Calculations exclude pools with WALAs equal to zero.



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

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 18	42.4		19.5		15.4		12.2		9.3		6.4		2.9		0.7		0.2		0.0		
May 18	44.7		21.3		16.7		13.3		10.0		6.9		2.8		0.6		0.2		0.0		
Apr 18	43.2		20.7		15.9		13.1		9.8		5.9		2.0		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 18	WALA / WAC	72	4.98	62	4.94	70	4.94	57	4.93	55	4.96	34	5.00	39	4.96	78	4.98	56	5.01	33	5.10
	ALS/ FICO	144	727	158	728	151	736	165	727	155	732	171	731	150	730	132	742	152	723	185	715
	CPR3 / CPR6	25.2	19.9	16.5	15.5	14.5	13.8	12.7	12.7	11.3	11.7	7.7	9.2	6.6	9.1	9.3	11.4	8.8	11.2	9.0	11.5
May 18	WALA / WAC	70	4.98	64	4.95	64	4.93	65	4.94	57	4.94	42	4.99	53	4.95	77	4.97	59	5.01	26	5.06
	ALS/ FICO	148	727	154	729	159	734	144	735	152	733	167	728	139	730	134	738	155	722	201	718
	CPR3 / CPR6	26.4	21.2	17.1	15.8	14.8	14.5	13.0	12.8	11.4	11.7	8.6	9.9	7.8	10.3	9.0	11.4	9.0	11.5	9.3	12.3
Apr 18	WALA / WAC	69	4.98	65	4.95	61	4.93	73	4.94	63	4.94	47	4.94	60	4.96	79	4.96	55	5.00	31	5.06
	ALS/ FICO	153	727	154	731	164	734	144	735	141	737	144	725	141	733	133	739	161	721	186	715
	CPR3 / CPR6	25.8	21.3	16.5	15.7	15.1	15.2	13.2	13.6	11.4	12.2	8.5	10.2	7.5	10.8	9.2	12.1	8.9	12.0	9.3	12.7

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 18	41.8		19.8		15.9		12.9		10.2		6.6		3.4		0.9		0.3		0.0		
May 18	42.3		20.1		16.0		13.6		11.0		7.8		3.5		0.9		0.3		0.0		
Apr 18	40.5		19.0		14.7		12.6		10.1		7.5		3.0		0.7		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		
Jun 18	WALA / WAC	72	4.96	68	4.94	73	4.94	83	4.93	58	4.93	43	4.94	24	4.98	76	4.95	58	4.97	32	5.01
	ALS/ FICO	146	733	155	737	148	741	138	745	170	736	161	736	186	734	134	744	149	730	169	721
	CPR3 / CPR6	24.4	19.3	15.3	14.0	14.0	13.4	12.9	13.0	11.2	11.5	8.7	9.9	7.9	9.6	9.1	10.7	8.2	10.3	8.2	10.3
May 18	WALA / WAC	73	4.97	77	4.94	79	4.93	74	4.92	64	4.94	42	4.93	37	4.95	75	4.96	62	4.96	40	4.99
	ALS/ FICO	148	734	149	741	158	741	153	741	149	737	164	734	160	738	127	744	146	732	172	718
	CPR3 / CPR6	24.4	19.5	15.3	14.2	14.6	14.4	13.0	13.0	10.9	11.7	8.7	10.7	8.2	10.5	9.1	11.2	8.7	11.1	8.1	10.7
Apr 18	WALA / WAC	74	4.97	78	4.95	83	4.93	71	4.94	65	4.92	57	4.94	49	4.94	80	4.95	61	4.96	40	5.00
	ALS/ FICO	146	736	150	743	151	743	147	742	156	738	152	736	148	736	127	743	149	730	172	717
	CPR3 / CPR6	23.5	19.5	15.0	14.9	13.4	14.5	12.9	14.1	11.1	12.8	10.1	11.6	7.4	10.5	8.8	11.6	8.1	11.1	7.8	11.0

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 12, 2018. Calculations exclude pools with WALAs equal to zero.



Table 3: Q2 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	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FRE	FNM	FRE
Loan Count	2	1	174	70	3,250	2,858	38,281	45,254	177,058	141,543	121,486	82,055	21,193	13,707	1,676	222	106	364,506	285,838
UPB (billions)	0.0	0.0	0.0	0.0	0.9	0.7	11.0	12.5	45.7	35.8	25.5	17.1	3.2	2.1	0.3	0.0	0.0	86.9	68.3
% of Production Volume	0	0	0	0	1	1	13	18	53	52	29	25	4	3	0	0	0	100	100
WA Note Rate (%)	3.13	3.13	3.39	3.39	3.84	3.88	4.21	4.26	4.57	4.56	5.06	4.99	5.61	5.50	6.04	6.05	6.43	4.71	4.63
WA Loan Age (mos.)	5	5	9	16	6	9	4	4	2	3	2	3	2	4	3	66	129	3	3
WA FICO	722	713	743	753	763	761	760	761	751	753	722	730	703	712	694	706	719	742	747
WA LTV	94	80	82	73	75	74	77	78	79	79	81	79	81	78	86	93	97	79	79
%FICO<680	0	0	9	2	2	5	3	2	5	4	22	16	40	32	46	33	24	11	8
%FICO>740	0	0	50	66	76	73	73	74	63	64	38	43	26	32	18	26	40	56	60
%LTV>80	100	0	56	39	31	34	37	41	41	41	41	36	36	25	55	82	97	41	39
%FICO<680 & LTV>80	0	0	7	0	1	1	1	0	1	1	8	5	13	8	23	23	22	4	2
%DTI>40	0	0	32	26	44	35	41	37	44	40	51	45	51	45	58	35	26	46	41
%Purchase	100	100	79	59	71	69	72	78	73	76	66	65	59	55	76	89	100	70	73
%Rate/Term	0	0	21	31	29	20	28	12	27	10	34	8	41	7	24	2	0	30	10
%Cash out**	0	0	0	9	0	11	0	10	0	14	0	27	0	38	0	9	0	0	17
%Owner Occupied	100	100	98	97	95	95	94	95	92	93	82	82	66	55	64	93	100	88	90
%Second Home	0	0	1	1	4	4	5	4	5	4	4	3	2	1	0	0	0	5	4
%Investor	0	0	2	1	1	1	1	1	2	2	15	15	32	44	35	7	0	7	7

*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 11, 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.

