



PREPAYMENT MONITORING REPORT

First 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. 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 mortgage, 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.



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 issuance year.

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.² 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.

² 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 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 issuance 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 loan 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.

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



Charts

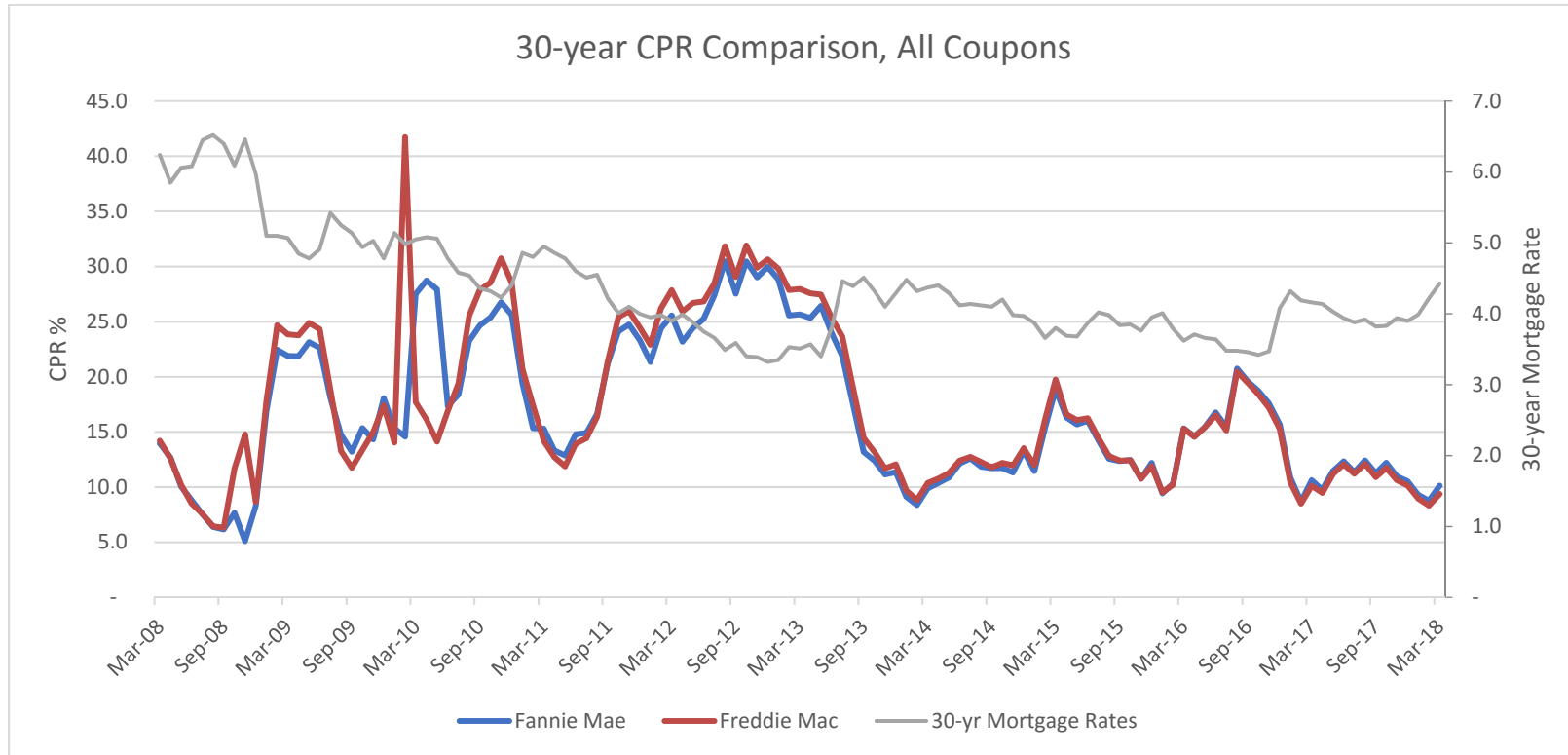
Chart 1 compares prepayment rates for all Fannie Mae and Freddie Mac TBA-eligible 30-year securities for the past ten years. Chart 1 also illustrates how prepayment rates (left axis) generally move in the opposite direction of the 30-year mortgage rate (right axis), illustrating how declines in mortgage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

Chart 2 illustrates the comparison of pool issuance years for a given MBS coupon. Chart 2 shows March 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 issuance years since 2011. FHFA uses these charts to assess the current alignment of CPRs for past origination cycles and the general trend of alignment across issuance years.

FHFA also uses Charts 3a through 3e to compare Fannie Mae's MBS and Freddie Mac's 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 each of the coupons that have had high volumes in recent years. The data in Chart 3a are aggregated across all issuance years. Charts 3b through 3e illustrate the degree of prepayment alignment for each coupon-issuance year cohort.



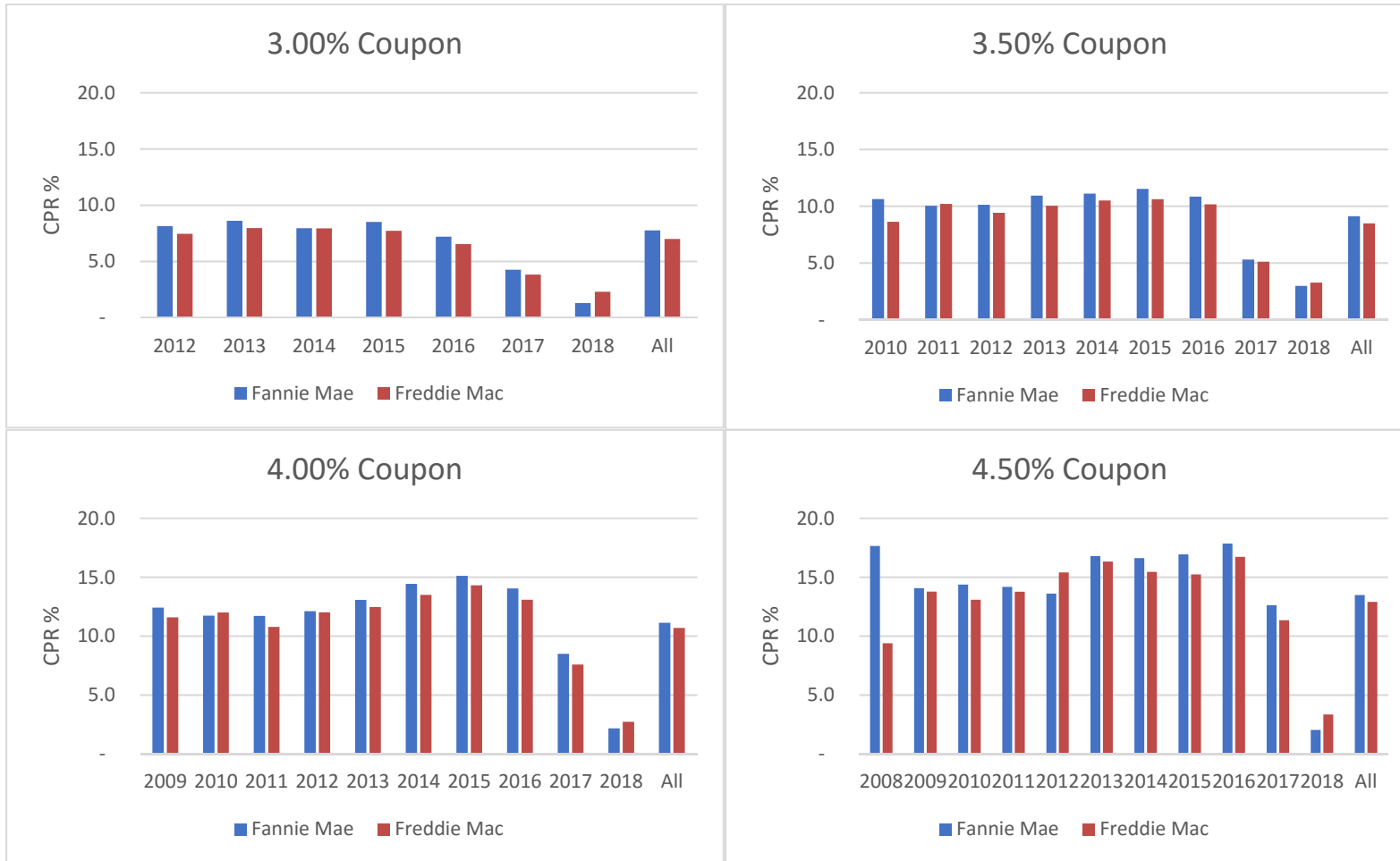
Chart 1: Prepayment Comparison for 30-Year, TBA-Eligible MBS, All Coupons, March 2008 through March 2018



Source: RiskSpan calculations from data available publicly as of April 11, 2018.



Chart 2: March 2018 Prepayment Rates on 30-year Enterprise MBS by Coupon and Issuance Year



Source: RiskSpan calculations from data available publicly as of April 11, 2018.



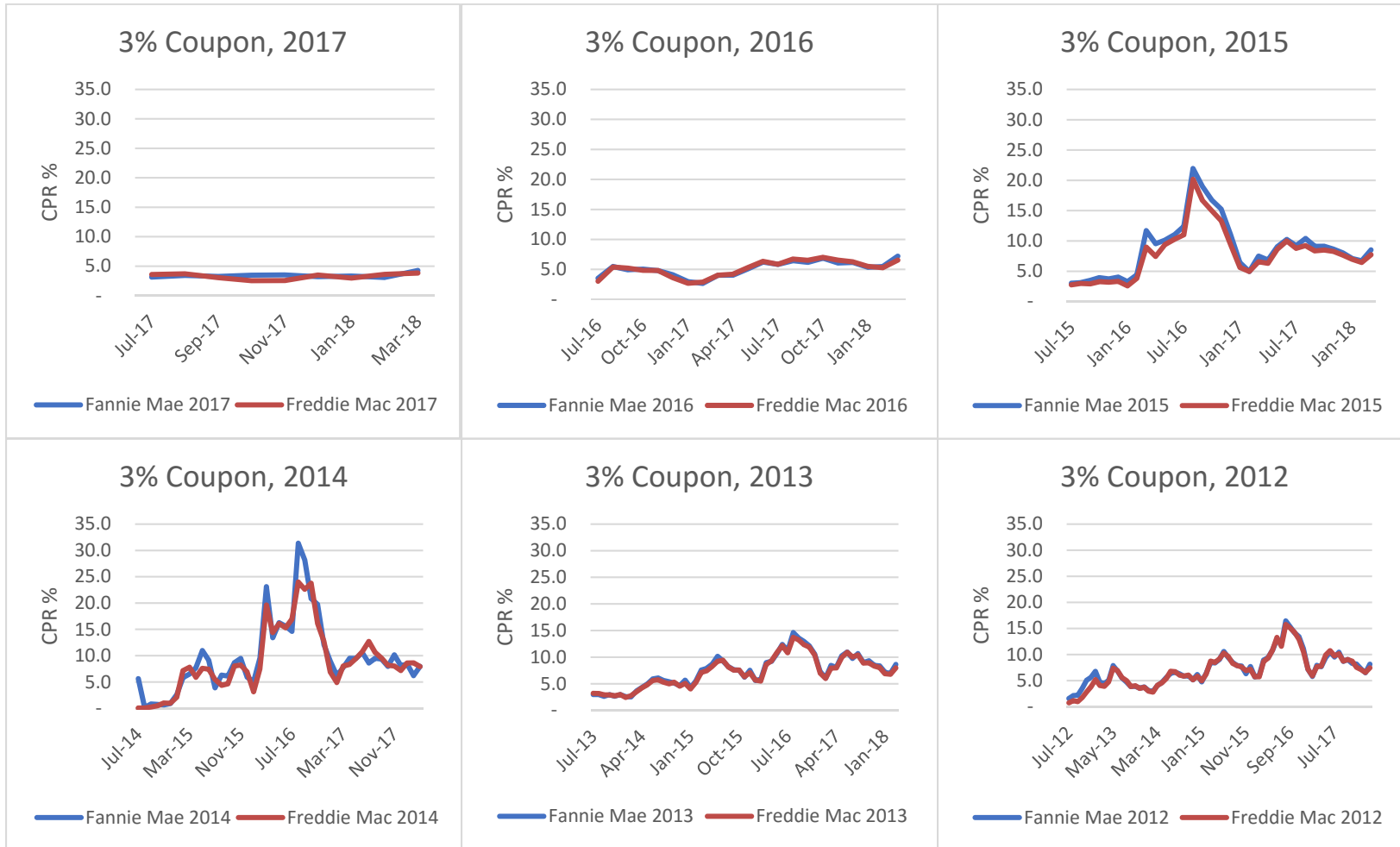
Chart 3a: Prepayment Rates on 30-year Enterprise MBS by Coupon, All Issuance Years, January 2012 through March 2018



Source: RiskSpan calculations from data available publicly as of April 11, 2018.



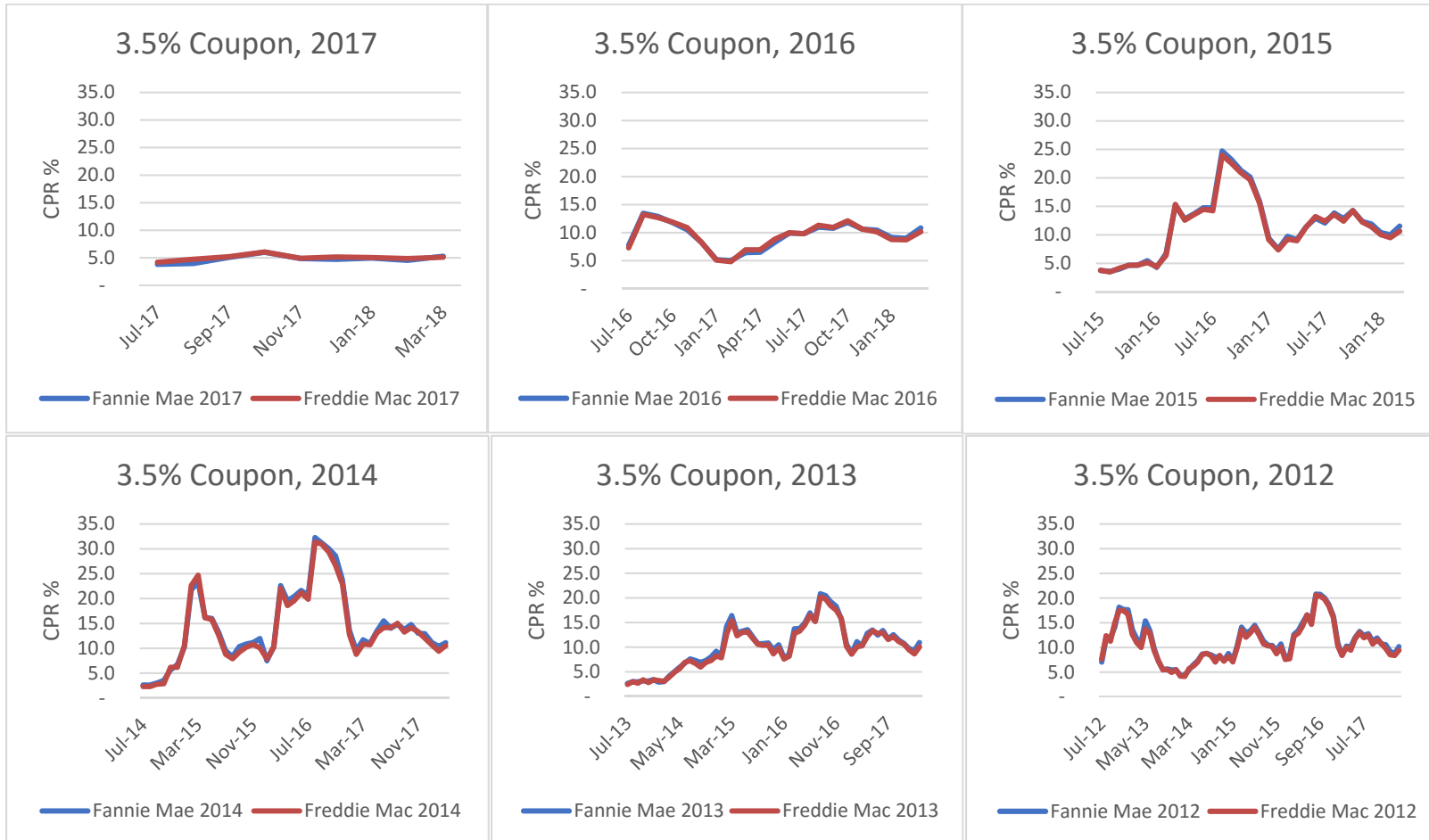
Chart 3b: Prepayment Rates on 3.00 Percent Coupon Enterprise MBS by Issuance Year



Source: RiskSpan calculations from data available publicly as of April 11, 2018.



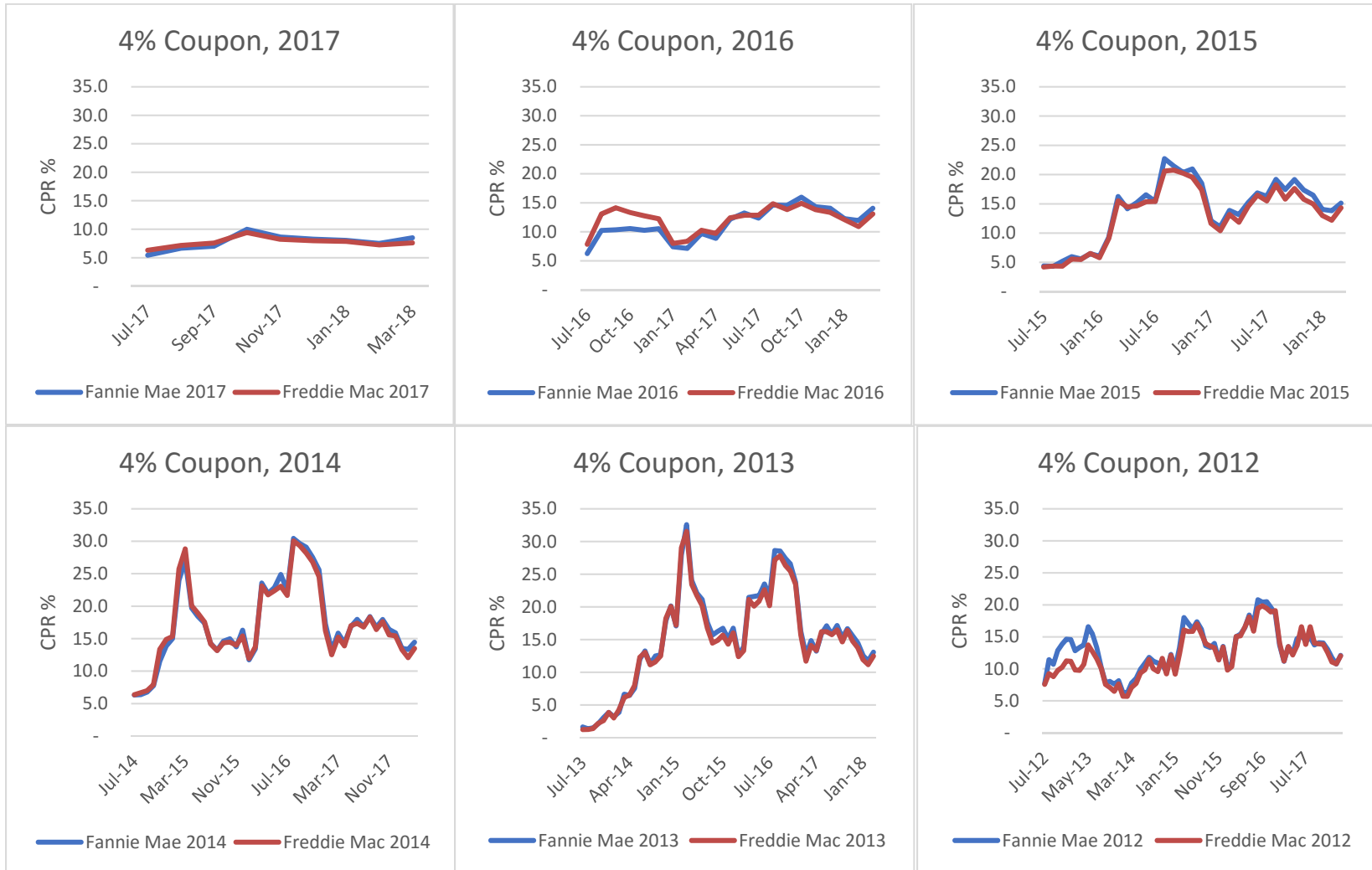
Chart 3c: Prepayment Rates on 3.50 Percent Coupon Enterprise MBS by Issuance Year



Source: RiskSpan calculations from data available publicly as of April 11, 2018.



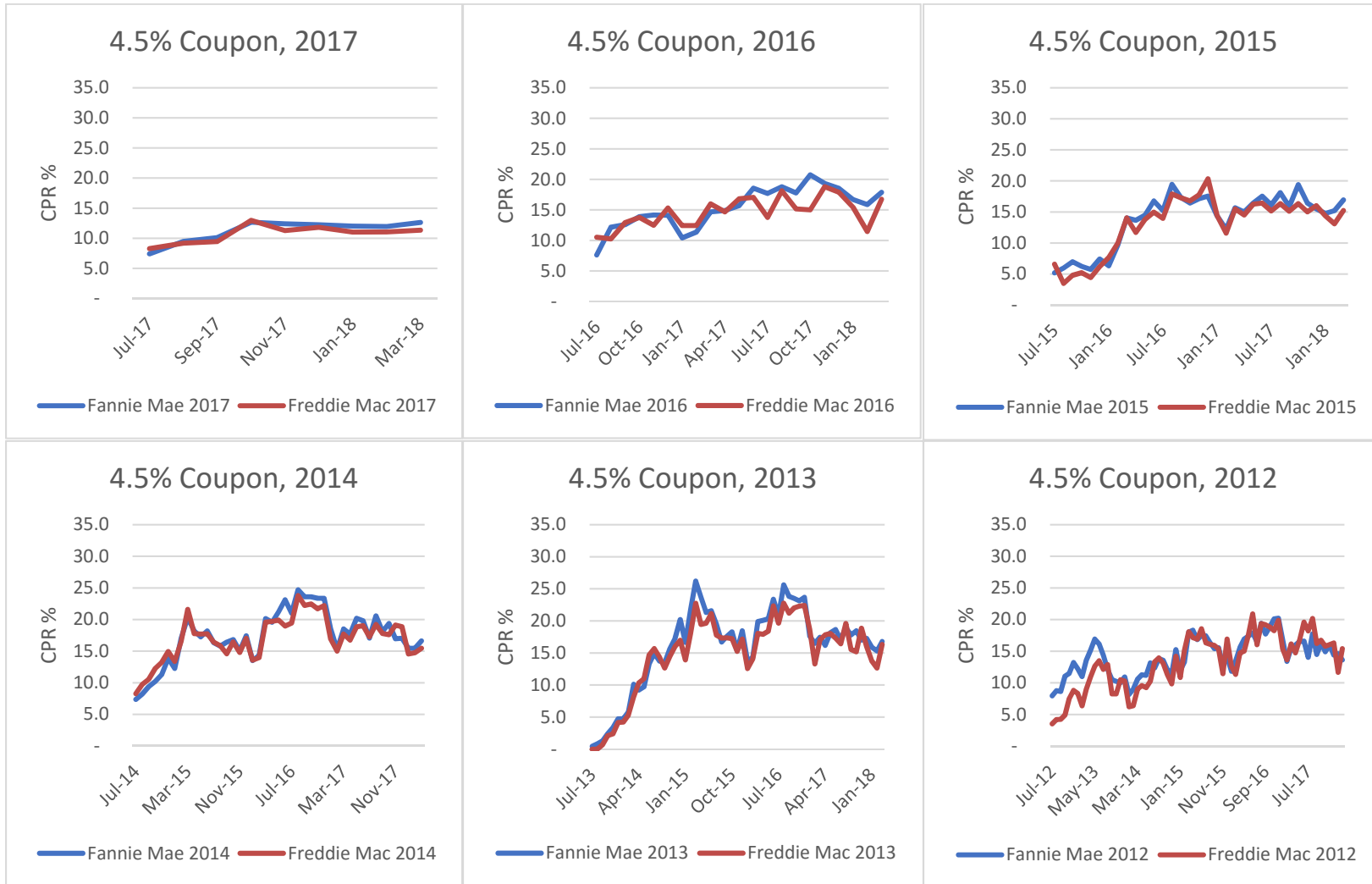
Chart 3d: Prepayment Rates on 4.00 Percent Coupon Enterprise MBS by Issuance Year



Source: RiskSpan calculations from data available publicly as of April 11, 2018.



Chart 3e: Prepayment Rates on 4.50 Percent Coupon Enterprise MBS by Issuance Year



Source: RiskSpan calculations from data available publicly as of April 11, 2018.



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 MBS that have the same coupon issued by a given Enterprise. To do so, an Enterprise's TBA-eligible MBS pools of a given coupon are ranked by prepayment rate from fastest to slowest over the past twelve months. 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 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. 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 MBS Annual Vintage Report

Coupon	Year	Weighted Average Coupon (percent)		Weighted Average Maturity (months)		Weighted Average Loan Age (months)		Unpaid Principal Balance (\$ billions)		Conditional Prepayment Rates (percent)									
		FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	March		February		January		Three-Month Average		Six-Month Average	
										FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
2.5	2012	3.20	3.14	285	284	64	64	4.7	1.0	7.19	3.82	5.26	6.49	6.27	3.59	6.38	4.64	6.48	5.79
	2013	3.15	3.15	287	287	61	62	3.5	0.9	6.37	4.97	5.99	5.01	6.17	3.24	6.06	4.41	6.21	5.48
	2016	3.37	3.32	336	336	19	19	4.2	3.7	4.16	5.67	3.44	3.62	3.30	3.30	3.63	4.20	3.57	4.03
	All	3.25	3.26	304	319	47	34	13.1	5.9	5.79	5.33	4.86	4.31	5.16	3.46	5.33	4.40	5.39	4.67
3.0	2012	3.58	3.61	283	283	66	65	92.1	47.7	8.15	7.47	6.52	6.56	7.28	7.11	7.51	6.40	8.48	7.85
	2013	3.58	3.57	290	290	60	60	126.6	74.7	8.61	7.97	6.90	6.78	7.14	6.89	7.42	7.62	7.72	7.76
	2014	3.86	3.78	312	309	40	43	1.8	1.4	7.96	7.94	6.19	8.63	8.40	8.62	7.81	8.40	9.48	8.86
	2015	3.77	3.75	319	319	34	34	47.6	42.3	8.52	7.72	6.72	6.44	7.10	6.96	7.15	7.04	7.89	7.63
	2016	3.66	3.71	336	336	19	19	212.4	162.5	7.21	6.54	5.50	5.29	5.35	5.51	6.09	5.78	6.21	6.19
	2017	3.66	3.74	346	348	11	8	14.2	14.6	4.27	3.84	3.08	3.62	3.33	2.99	3.60	3.46	3.90	3.86
	2018	3.89	3.83	356	356	2	2	1.7	1.5	1.30	2.31	0.59	1.24	1.10	0.00	0.00			
	All	3.64	3.67	313	317	40	36	496.6	344.9	7.77	7.00	6.09	5.87	6.29	6.12	6.76	6.37	7.18	6.94
3.5	2010	4.10	4.07	257	257	89	88	6.6	1.8	10.63	8.63	8.63	8.13	8.69	8.27	9.41	7.89	10.07	9.33
	2011	4.02	4.04	270	268	78	78	17.9	8.9	10.04	10.21	8.46	8.05	9.20	8.52	9.20	9.03	10.07	9.85
	2012	4.00	3.99	279	278	69	70	103.0	54.5	10.13	9.42	8.68	8.37	9.17	8.50	9.30	8.71	10.20	9.69
	2013	4.02	4.02	293	293	58	57	61.6	39.7	10.94	10.04	9.27	8.63	9.71	9.46	10.20	9.46	10.81	10.39
	2014	4.24	4.21	310	309	43	43	43.4	36.8	11.11	10.51	10.35	9.42	11.15	10.70	10.75	11.11	12.33	12.14
	2015	4.10	4.11	322	321	33	33	142.6	96.8	11.52	10.62	9.99	9.50	10.39	10.00	10.61	9.69	11.99	11.19
	2016	4.08	4.12	335	334	21	21	99.4	66.7	10.84	10.16	9.00	8.73	9.16	8.77	9.64	9.26	9.94	10.13
	2017	4.06	4.08	349	349	8	8	168.1	129.3	5.30	5.11	4.55	4.88	4.95	5.06	5.02	5.06	5.98	6.38
	2018	4.02	4.05	356	356	2	2	37.9	19.5	2.99	3.27	1.70	1.87	0.75	0.61	10.79	1.76		
All	4.07	4.09	320	323	33	31	681.0	454.2	9.12	8.49	7.85	7.60	8.31	8.09	8.82	8.30	10.11	9.83	

Source: RiskSpan calculations from data available publicly as of April 11, 2018.



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

Coupon	Year	Weighted Average Coupon (percent)		Weighted Average Maturity (months)		Weighted Average Loan Age (months)		Unpaid Principal Balance (\$ billions)		Conditional Prepayment Rates (percent)									
		FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	March		February		January		Three-Month Average		Six-Month Average	
										FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
4.0	2009	4.54	4.55	240	239	106	106	15.7	8.3	12.42	11.59	11.19	10.44	11.94	12.47	11.85	11.58	12.94	13.04
	2010	4.48	4.48	258	257	89	89	27.9	17.7	11.74	12.01	10.18	9.60	11.44	10.72	11.13	10.74	12.23	11.97
	2011	4.47	4.47	268	266	80	81	33.0	18.5	11.71	10.78	10.15	9.71	11.40	11.58	10.99	10.64	12.19	12.32
	2012	4.46	4.49	277	277	71	71	29.7	11.0	12.11	12.02	10.76	10.78	11.76	11.08	11.78	11.44	12.75	11.94
	2013	4.57	4.58	297	297	54	54	40.8	21.1	13.07	12.47	11.74	11.15	12.55	11.89	12.45	11.74	13.95	13.32
	2014	4.58	4.59	308	307	45	45	66.2	45.9	14.44	13.50	13.32	12.08	13.53	13.33	13.81	13.01	15.36	14.67
	2015	4.57	4.56	322	323	32	32	40.2	22.5	15.12	14.31	13.83	12.19	14.05	12.99	14.28	13.19	16.10	14.84
	2016	4.51	4.55	334	334	21	22	33.9	19.2	14.05	13.08	11.94	10.91	12.27	12.10	9.77	12.03	12.17	12.53
	2017	4.47	4.47	348	349	9	9	127.4	80.6	8.50	7.59	7.51	7.24	8.05	7.87	8.96	7.69	10.26	9.90
	2018	4.45	4.47	357	357	1	2	38.2	13.0	2.18	2.73	1.41	2.67	0.75	0.92	1.82	1.49		
All	4.51	4.52	315	315	38	38	453.5	257.9	11.13	10.70	10.12	9.71	10.92	10.81	11.37	10.73	13.00	12.62	
4.5	2008	5.12	5.08	231	228	118	120	0.6	0.1	17.66	9.39	12.98	12.62	16.95	14.90	7.98	20.87	12.79	19.29
	2009	4.93	4.92	242	242	105	105	29.5	21.5	14.07	13.78	12.76	12.59	14.01	13.53	13.67	13.34	15.09	14.52
	2010	4.94	4.95	255	253	93	93	23.0	17.9	14.38	13.09	12.56	12.43	13.86	13.54	13.55	12.94	14.72	15.43
	2011	4.93	4.90	266	265	82	83	25.1	14.8	14.18	13.77	12.18	12.01	13.31	14.12	13.35	13.43	14.58	14.38
	2012	4.95	4.96	276	276	72	72	3.1	0.8	13.62	15.41	14.60	11.66	14.39	16.29	14.54	11.99	14.81	14.72
	2013	5.04	5.12	297	298	54	53	8.1	2.7	16.79	16.33	15.31	12.65	15.89	13.78	16.31	14.28	16.98	17.07
	2014	5.02	5.08	306	306	46	46	12.2	5.0	16.62	15.46	15.46	14.76	15.45	14.55	15.49	14.92	16.67	15.91
	2015	4.97	4.97	321	322	32	31	3.3	1.7	16.94	15.23	15.21	13.09	14.78	14.39	16.91	16.93	16.86	16.31
	2016	4.91	4.98	334	334	21	22	5.5	2.2	17.86	16.73	15.87	11.45	16.70	15.43	16.13	10.85	17.81	14.17
	2017	4.97	4.94	349	349	9	9	31.3	19.1	12.62	11.35	11.96	11.05	12.02	11.03	12.46	11.58	14.30	14.15
2018	4.98	4.98	358	357	1	1	12.3	5.2	2.04	3.35	1.94	2.72	0.04	0.96	0.04	5.20			
All	4.96	4.95	290	284	62	67	157.6	93.1	13.49	12.90	12.58	12.00	13.48	13.23	13.90	13.14	15.26	14.94	

Source: RiskSpan calculations from data available publicly as of April 11, 2018.



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

Coupon	Year	Weighted Average Coupon (percent)		Weighted Average Maturity (months)		Weighted Average Loan Age (months)		Unpaid Principal Balance (\$ billions)		Conditional Prepayment Rates (percent)									
		FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	March		February		January		Three-Month Average		Six-Month Average	
										FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
5.0	2008	5.65	5.63	230	230	119	119	3.0	2.3	17.12	16.43	15.53	12.68	16.05	14.97	15.61	14.43	17.87	16.52
	2009	5.42	5.42	245	245	103	103	8.9	8.7	16.54	15.78	14.16	13.17	16.00	14.50	16.16	14.38	16.89	16.05
	2010	5.37	5.38	254	254	94	95	11.8	8.5	16.56	17.23	14.49	14.69	16.20	16.03	15.35	16.19	16.88	17.07
	2011	5.38	5.35	266	266	82	83	7.3	3.9	16.19	16.00	14.52	15.21	15.11	15.82	15.64	15.54	16.85	17.07
	2013	5.44	5.59	298	297	54	53	0.7	0.1	20.54	9.90	15.25	24.03	14.17	16.68	17.24	30.58	16.99	13.03
	2014	5.39	5.53	305	305	47	48	1.0	0.1	19.02	20.07	15.53	16.13	17.34	11.39	16.93	4.34	18.35	17.14
	2017	5.48	5.53	348	348	9	10	1.0	0.4	21.87	19.65	18.61	17.14	18.38	15.09	20.19	17.30	22.25	21.62
	2018	5.54	5.59	358	357	1	1	1.1	0.1	2.45	3.55	2.76	0.00	0.65	0.00				
	All	5.48	5.47	231	229	117	119	56.0	37.3	16.04	15.88	14.13	13.74	15.31	14.76	15.48	14.94	16.53	16.42
5.5	2008	6.03	6.03	230	230	118	118	4.7	3.3	19.10	16.78	16.14	14.88	17.10	16.53	17.35	15.33	18.85	17.64
	2009	5.94	5.94	244	243	103	104	1.4	1.0	17.23	17.70	15.49	15.17	14.70	13.17	16.76	19.48	16.61	16.70
	2010	5.85	5.85	253	252	95	95	1.0	0.5	17.71	12.34	13.70	14.49	15.24	12.19	15.92	11.95	17.70	16.24
	All	5.99	5.99	196	199	151	148	38.2	23.1	16.20	15.70	14.49	14.01	14.83	14.91	15.39	14.98	16.41	16.31
6.0	2008	6.54	6.51	231	230	118	117	2.6	2.1	20.77	19.13	18.24	15.02	17.92	17.97	19.25	17.15	19.11	18.51
	All	6.54	6.50	198	200	150	148	24.3	15.0	18.02	16.54	15.46	14.16	15.93	15.46	16.75	15.58	17.30	16.46
6.5	2008	6.99	6.95	230	230	118	117	0.9	0.7	22.66	16.14	16.46	14.72	16.28	16.71	18.93	15.60	19.29	16.49
	All	7.02	6.99	185	180	162	167	9.5	6.0	18.06	15.67	15.21	13.28	14.71	14.06	16.66	14.97	16.75	16.05
7.0	All	7.59	7.54	168	147	179	200	3.5	1.7	19.59	12.99	14.92	12.76	14.45	13.59	17.41	14.41	16.90	14.80
7.5	All	8.08	8.07	134	116	215	231	0.8	0.5	16.48	10.20	11.86	10.85	12.74	11.54	15.68	12.55	15.06	13.31
8.0	All	8.57	8.56	113	104	236	243	0.4	0.3	16.47	10.28	13.67	9.26	11.21	12.21	16.30	12.48	14.74	13.16

Source: RiskSpan calculations from data available publicly as of April 11, 2018.



Table 2: 30-year MBS Decile Report

Fannie Mae 30-year, 3.5% Coupon

Month		Conditional Prepayment Rate (percent)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Mar 18		27.9		14.3		11.6		9.8		8.2		6.2		4.9		3.4		0.8		0.2	
Feb 18		25.4		12.7		10.0		8.4		6.9		5.2		3.7		2.1		0.5		0.1	
Jan 18		26.2		13.3		10.7		9.0		7.4		5.8		4.3		2.3		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	
Mar 18	WALA / WAC	44	4.12	43	4.09	40	4.07	45	4.04	40	4.04	27	4.04	17	4.03	17	4.03	39	4.07	33	4.12
	ALS/ FICO	196	744	203	752	213	753	212	757	202	756	228	755	254	759	240	756	183	754	200	744
	CPR3 / CPR6	16.6	14.7	11.0	12.0	10.1	10.9	9.1	10.2	6.8	8.4	5.0	7.6	3.9	0.0	0.0	1.4	0.0	5.6	2.6	7.6
Feb 18	WALA / WAC	43	4.13	41	4.10	43	4.07	38	4.04	38	4.04	27	4.05	18	4.02	18	4.03	43	4.07	30	4.11
	ALS/ FICO	205	744	213	751	213	755	220	755	206	755	227	758	239	757	217	756	178	754	206	744
	CPR3 / CPR6	16.3	15.1	11.5	12.2	10.3	11.1	9.0	10.2	7.0	9.7	3.9	7.5	0.0	7.2	0.0	8.2	0.9	8.8	0.4	8.8
Jan 18	WALA / WAC	43	4.13	42	4.09	40	4.07	39	4.05	34	4.04	27	4.04	18	4.04	25	4.04	41	4.08	26	4.10
	ALS/ FICO	204	746	220	752	212	754	221	755	208	755	221	757	243	756	201	757	180	751	210	744
	CPR3 / CPR6	17.3	15.9	12.2	12.8	10.9	11.8	5.9	10.7	9.2	10.2	7.3	8.1	0.0	8.8	0.0	8.9	2.3	9.5	4.7	9.5

Freddie Mac 30-year, 3.5% Coupon

Month		Conditional Prepayment Rate (percent)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Mar 18		21.5		12.2		11.0		9.9		8.8		7.2		5.4		4.2		1.7		0.2	
Feb 18		19.5		11.0		9.9		9.0		8.0		6.6		4.9		3.6		1.4		0.2	
Jan 18		20.4		11.7		10.4		9.4		8.5		7.2		5.8		3.8		1.4		0.2	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Mar 18	WALA / WAC	45	4.09	38	4.12	39	4.11	40	4.09	37	4.08	30	4.07	20	4.09	13	4.09	25	4.04	35	4.07
	ALS/ FICO	179	750	225	751	229	754	227	756	221	752	214	755	241	758	258	758	184	756	186	746
	CPR3 / CPR6	12.3	12.5	10.2	11.7	9.6	11.3	9.5	10.7	8.1	9.8	0.0	8.6	0.0	6.8	0.0	6.7	0.0	6.7	0.0	7.6
Feb 18	WALA / WAC	43	4.09	37	4.12	38	4.11	35	4.11	38	4.09	29	4.07	19	4.09	14	4.05	29	4.05	34	4.07
	ALS/ FICO	185	749	226	752	236	754	221	756	229	754	224	755	233	756	246	757	177	757	184	745
	CPR3 / CPR6	13.6	12.8	11.1	12.1	10.5	11.5	9.6	11.2	8.8	10.4	7.7	9.0	6.0	6.6	4.4	6.7	5.6	8.2	5.3	8.1
Jan 18	WALA / WAC	43	4.10	38	4.13	34	4.13	36	4.07	37	4.08	27	4.10	23	4.09	16	4.04	27	4.04	33	4.07
	ALS/ FICO	189	750	220	754	242	752	234	754	217	754	236	755	225	756	228	758	179	756	183	745
	CPR3 / CPR6	14.7	13.9	12.0	12.6	11.4	12.4	10.4	11.5	9.7	10.9	8.3	9.3	7.1	8.0	4.9	8.0	6.0	8.8	6.0	8.7

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 April 11, 2018



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

Fannie Mae 30-year, 4% Coupon

Month		Conditional Prepayment Rate (percent)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Mar 18		35.3		17.9		14.1		11.6		9.8		7.9		5.3		1.9		0.4		0.0	
Feb 18		33.5		16.6		12.8		10.5		8.9		6.9		4.2		1.2		0.3		0.0	
Jan 18		34.7		17.7		13.9		11.5		9.9		7.9		4.9		1.5		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	
Mar 18	WALA / WAC	50	4.57	49	4.54	47	4.51	43	4.50	33	4.47	35	4.46	28	4.45	38	4.48	46	4.54	26	4.56
	ALS/ FICO	174	729	179	736	179	737	180	743	199	743	182	743	191	740	163	741	157	735	198	726
	CPR3 / CPR6	21.2	19.1	14.5	15.3	12.8	13.6	11.6	12.6	9.3	10.1	7.8	7.5	0.0	6.7	0.0	5.4	3.9	10.0	1.7	9.9
Feb 18	WALA / WAC	48	4.58	47	4.54	45	4.52	40	4.48	38	4.47	36	4.47	29	4.46	42	4.48	45	4.54	25	4.54
	ALS/ FICO	179	728	187	736	180	741	202	743	183	744	181	742	168	738	156	743	160	733	197	724
	CPR3 / CPR6	21.5	19.6	15.1	15.7	12.8	14.0	11.7	12.3	10.5	12.2	8.8	11.4	0.0	8.7	0.0	11.1	6.5	10.9	0.8	11.3
Jan 18	WALA / WAC	49	4.57	46	4.53	47	4.52	38	4.49	37	4.47	37	4.48	29	4.46	42	4.49	43	4.54	27	4.55
	ALS/ FICO	182	729	197	736	180	740	198	744	194	745	175	742	162	739	149	741	159	733	195	723
	CPR3 / CPR6	22.9	20.4	16.2	16.6	14.4	15.2	12.9	13.4	11.8	12.3	7.8	12.1	0.0	10.2	1.6	11.4	2.7	11.5	7.0	12.2

Freddie Mac 30-year, 4% Coupon

Month		Conditional Prepayment Rate (percent)																			
		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Mar 18		31.5		16.2		14.0		11.7		10.0		8.4		6.3		2.9		0.5		0.1	
Feb 18		28.9		14.7		12.5		10.9		9.3		7.8		5.5		2.4		0.5		0.1	
Jan 18		31.1		16.4		14.0		12.3		10.8		9.0		6.1		2.6		0.4		0.1	
Month		Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10	
Mar 18	WALA / WAC	52	4.56	48	4.56	48	4.57	42	4.52	36	4.52	29	4.48	26	4.48	29	4.46	47	4.50	34	4.54
	ALS/ FICO	160	735	188	740	195	740	184	742	211	742	200	741	184	737	170	741	150	743	179	725
	CPR3 / CPR6	18.4	16.9	13.6	14.7	11.6	14.5	9.1	13.1	9.7	11.9	4.1	10.8	2.9	9.4	0.0	9.2	5.4	9.7	0.0	9.8
Feb 18	WALA / WAC	51	4.57	41	4.56	41	4.54	47	4.54	32	4.51	39	4.51	25	4.47	34	4.47	49	4.51	33	4.53
	ALS/ FICO	168	734	199	736	210	740	200	744	212	741	173	742	175	739	164	742	143	742	177	725
	CPR3 / CPR6	19.2	17.3	14.2	15.1	12.8	14.3	12.1	13.5	11.5	12.4	10.4	12.5	7.2	9.6	6.7	9.9	7.4	10.2	6.8	10.3
Jan 18	WALA / WAC	50	4.57	42	4.56	40	4.55	35	4.55	42	4.50	41	4.52	31	4.48	29	4.46	48	4.51	32	4.53
	ALS/ FICO	175	735	193	735	216	742	220	741	200	746	172	742	171	740	161	739	140	741	175	726
	CPR3 / CPR6	20.7	18.9	15.6	16.2	14.2	14.8	13.5	14.1	12.9	13.6	10.9	12.8	8.2	11.1	7.3	10.4	8.0	11.1	7.6	10.9

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 April 11, 2018



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

Fannie Mae 30-year, 4.5% Coupon

Month	Conditional Prepayment Rate (percent)																				
	Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10		
Mar 18	45.7		22.1		17.1		13.9		11.1		7.8		2.9		0.7		0.2		0.0		
Feb 18	44.5		20.6		15.8		12.4		9.8		6.6		2.6		0.6		0.2		0.0		
Jan 18	46.0		22.0		17.4		14.0		11.0		7.3		2.6		0.6		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		
Mar 18	WALA / WAC	70	4.98	63	4.95	67	4.94	68	4.93	69	4.93	54	4.95	58	4.95	78	4.97	62	4.99	39	5.02
	ALS/ FICO	152	727	161	730	151	733	160	738	132	739	146	728	140	731	130	738	153	723	177	716
	CPR3 / CPR6	26.8	21.2	17.1	16.3	15.4	15.1	13.5	15.0	12.0	9.9	6.3	10.0	0.0	10.5	0.0	12.4	5.8	12.6	7.0	13.3
Feb 18	WALA / WAC	67	5.00	62	4.95	70	4.94	72	4.93	66	4.92	56	4.94	56	4.95	82	4.96	66	4.99	43	5.02
	ALS/ FICO	157	726	160	729	150	737	152	738	141	737	136	731	136	729	131	741	151	728	175	712
	CPR3 / CPR6	27.3	22.9	17.6	17.3	15.5	16.1	13.3	14.7	12.6	14.0	8.1	12.2	0.0	13.0	9.6	13.1	5.8	13.2	8.8	14.1
Jan 18	WALA / WAC	68	4.99	59	4.94	67	4.93	73	4.94	71	4.93	56	4.94	64	4.96	80	4.96	64	4.99	41	5.03
	ALS/ FICO	160	727	175	729	166	734	143	740	140	738	130	732	129	733	129	741	149	726	173	712
	CPR3 / CPR6	28.4	24.0	19.1	18.6	16.5	16.5	14.4	15.6	12.8	15.3	9.9	12.3	4.8	13.8	8.5	13.5	6.1	13.4	5.6	14.7

Freddie Mac 30-year, 4.5% Coupon

Month	Conditional Prepayment Rate (percent)																				
	Decile 1		Decile 2		Decile 3		Decile 4		Decile 5		Decile 6		Decile 7		Decile 8		Decile 9		Decile 10		
Mar 18	42.2		20.6		16.2		13.7		11.6		8.7		4.1		0.7		0.3		0.0		
Feb 18	41.2		19.3		15.0		12.5		10.1		7.2		3.3		0.7		0.3		0.0		
Jan 18	42.7		21.1		16.6		14.2		12.1		8.7		4.1		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		
Mar 18	WALA / WAC	72	4.97	70	4.96	72	4.93	84	4.93	81	4.93	60	4.93	57	4.94	75	4.96	64	4.96	43	5.00
	ALS/ FICO	152	733	149	739	158	739	153	745	149	747	149	736	131	738	130	743	143	732	173	715
	CPR3 / CPR6	23.7	21.1	15.6	16.9	14.0	15.3	7.7	14.9	11.9	13.6	10.8	13.7	0.0	12.7	5.3	12.8	5.7	12.4	3.4	12.2
Feb 18	WALA / WAC	67	4.97	77	4.95	66	4.93	73	4.93	86	4.92	70	4.94	61	4.95	81	4.94	64	4.97	45	5.00
	ALS/ FICO	162	733	160	743	165	739	154	740	141	747	138	742	127	739	125	745	143	730	168	716
	CPR3 / CPR6	25.3	21.1	16.4	16.8	15.1	16.1	14.2	14.9	12.9	14.9	11.4	13.7	9.6	12.8	9.5	12.8	9.7	13.1	9.6	13.2
Jan 18	WALA / WAC	65	4.99	75	4.94	81	4.93	77	4.93	83	4.93	65	4.93	61	4.94	79	4.94	61	4.96	45	5.00
	ALS/ FICO	162	730	165	742	158	746	168	746	144	745	129	739	129	738	124	744	142	731	168	716
	CPR3 / CPR6	26.8	22.4	18.0	17.9	16.4	16.8	15.9	16.4	14.6	15.8	12.3	14.3	10.8	14.0	10.0	12.9	10.2	13.3	10.0	13.6

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 April 11, 2018



Table 3: Q1 2018 30-year MBS Total Industry 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	45	2	318	9	7,062	10,105	162,284	102,463	150,170	67,887	54,632	30,125	5,002	1,131	118	172	175	380,745	212,090
UPB (\$ billions)	0.01	0.00	0.06	0.00	1.89	3.14	43.38	25.92	34.25	15.16	10.82	5.72	0.79	0.17	0.02	0.02	0.02	91.36	50.14
Percent of Lender Volume	0.0	0.0	0.1	0.0	2.1	6.3	47.4	51.7	37.5	30.3	11.9	11.4	0.9	0.3	0.0	0.0	0.0	100.0	100.0
WAC	3.09	3.13	3.43	3.40	3.85	3.86	4.02	4.07	4.44	4.46	4.98	4.98	5.50	5.59	5.86	5.94	6.46	4.30	4.29
WALA (months)	4	3	3	3	3	3	3	3	2	3	2	3	2	14	2	120	124	3	3
WA FICO	732	679	736	722	759	765	757	756	733	733	708	716	702	698	673	722	723	742	745
WA LTV	91	80	92	89	78	76	76	78	78	79	80	78	85	83	80	96	97	78	78
Percent FICO<680	16	44	12	22	4	1	3	3	14	13	34	26	40	43	66	31	24	11	9
Percent FICO>740	47	0	48	29	72	78	69	68	46	46	28	34	24	21	10	39	35	55	58
Percent LTV>80	71	0	77	61	38	34	34	36	35	36	34	27	51	37	19	98	98	35	35
Percent FICO<680 & LTV>80	6	0	8	12	2	0	1	1	4	4	10	7	18	10	9	31	22	3	2
Percent DTI>40	28	0	32	0	36	35	39	37	47	43	52	47	54	44	58	22	28	44	40
Percent Purchase	100	100	100	100	67	72	65	69	55	60	56	54	71	57	46	100	100	60	65
Percent Rate/Term*	0	0	0	0	33	18	35	17	45	14	44	10	29	3	54	0	0	40	15
Percent Cash-out	0	0	0	0	0	10	0	14	0	26	0	36	0	40	0	0	0	0	20
Percent Owner Occupied	100	100	100	100	95	96	94	94	87	86	71	63	69	61	49	100	100	88	88
Percent Second Home	0	0	0	0	4	4	5	4	4	3	2	1	1	0	0	0	0	4	3
Percent Investor	0	0	0	0	1	0	1	2	9	11	27	36	30	38	51	0	0	7	9

*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 April 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 issuance year.

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.

