PREPAYMENT MONITORING REPORT

Third Quarter 2021

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Introduction

Fannie Mae and Freddie Mac began issuing the Uniform Mortgage-Backed Securities (UMBS) on June 3, 2019.

This quarterly report provides market participants additional transparency into a sample of the data FHFA receives and reviews on a monthly basis. The report focuses on alignment of prepayment rates, which continues to be important to the success of UMBS and to the efficiency and liquidity of the secondary mortgage market.

Ex post monitoring of 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, allowing both Enterprises' UMBS to trade in a one, unified market. This report provides insight into how FHFA monitors the consistency of prepayment rates across cohorts of the Enterprises' TBA-eligible MBS,[1] where a cohort consists of those Enterprise TBA-eligible securities with the same coupon, maturity, and loan-origination year and total

combined issuance across the Enterprises exceeds $10 billion. 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.

Background on UMBS:

Issuance of UMBS through the Enterprises' jointly developed Common Securitization Platform (CSS), fulfilled important elements of FHFA's *2014 Strategic Plan for the Conservatorships of Fannie Mae and Freddie Mac*. Forward trading of UMBS began in the "To-Be-Announced" (TBA) market[2], on March 12, 2019 with first settlements of the UMBS trades on June 3, 2019. UMBS is issued without regard to which Enterprise is the issuer and has effectively merged the formerly separate Enterprise MBS markets. UMBS has broadened and enhanced liquidity in the secondary market for residential mortgages and reduced costs to taxpayers.[3]

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[1] To avoid double counting, only first-level securitizations are included in the analysis. Second-level securitizations (Megas, Giants, and Supers) are excluded, with the exception of fastest quartile analyses and Table 2 (Quartile Report). For those exceptions, Freddie Mac multi-lender second-level securitizations traded as a single security are included and the related first-level securitizations are excluded to avoid double counting.

[2] The TBA market is a forward market for certain mortgage-backed securities, including those issued by the Enterprises.

[3] See *An Update on the Structure of the Single Security*, May 2015, p.4

Alignment Requirements

On March 5, 2019, FHFA published the *Uniform Mortgage-Backed Security Final Rule* (Final Rule). The Final Rule codified FHFA thresholds with respect to differences between the prepayment rates of corresponding cohorts of each Enterprises' TBA-eligible securities. The Final Rule uses three-month conditional prepayment rates (CPRs), and measures alignment both with respect to entire cohorts and the fastest paying quartile of each cohort. Generally, the Enterprises must report to FHFA differences between Fannie Mae and Freddie Mac prepayment rates when the divergence between three-month CPRs exceeds 2 percentage points for an entire cohort or five percentage points for the fastest paying quartile of a cohort. For a divergence in three-month CPR in excess of three percentage points for an entire cohort or eight percentage points the fastest paying quartile of a cohort, the Enterprises must provide a written report to FHFA on the causes of the divergence and submit a written remediation plan. In most instances, FHFA's UMBS Governance Committee reviews the reports and may recommend or require remedial actions.

Prepayment Performance Charts and Tables

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

As mentioned previously, a prepayment on a mortgage loan is the amount of principal paid in advance of the loan's payment schedule. 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.

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

Prepayments between the Enterprises remain reasonably aligned quarter over quarter. Despite record low rates and refinance activity post UMBS implementation, the consistency in prepayment performance has contributed to continued efficiency and liquidity in the UMBS market. FHFA continues to monitor any cohort level pooling divergences between the Enterprises and its potential impact on prepay speeds.

Charts

Charts 1 and 2 illustrate alignment of entire cohorts, using one-month CPR. FHFA uses the one-month CPR in these charts to assess the alignment at the cohort level for past origination cycles and the general trend of alignment across loan-origination years on a more granular basis than the three-month CPR would afford.

Chart 1 compares one-month CPR for both Enterprises TBA-eligible 30-year securities for the current year and the prior six years.

Chart 2 illustrates the comparison of pool loan-origination years for a given TBA-eligible MBS coupon. Chart 2 shows September 2021 one-month prepayment rates for entire cohorts each Enterprise's 30-year MBS for coupons with combined issuance volume outstanding in excess of $10 billion (1.5%, 2%, 2.5%, 3%, 3.5%, 4%, 4.5%, and 5%) and the six loan-origination years prior to the current calendar year.

Charts 3a through 3i illustrate alignment with respect to the fastest paying quartiles of each cohort. FHFA uses these charts to assess alignment with respect to the fastest paying quartiles of cohorts of the Enterprises' TBA-eligible MBS on a historical basis. Chart 3a illustrates alignment in one-month prepayment rates across the Enterprises for recent coupons with issuance greater than $10 billion. For each coupon in Chart 3a, the illustrated one-month prepayment rates are calculated across the fastest paying quartile at a given point in time. Charts 3b through 3i illustrate the degree of three-month prepayment rate alignment of the fastest paying quartile for each coupon-year cohort.

Chart 4 illustrates the spread between the weighted average loan rates (WACs) in mortgage pools to the coupon on the MBS backed by that pool for 30-year MBS issued by the Enterprises during the quarter. FHFA monitors this spread because differences in the spread between the Enterprises can lead to differences in prepayment rates as interest rates change. Securities with higher spreads are likely to experience faster prepayment rates as borrowers take advantage of opportunities to refinance due to their higher loan rates.

Chart 1: One-month CPR Comparison for 30-Year, for All TBA-Eligible MBS, All Coupons
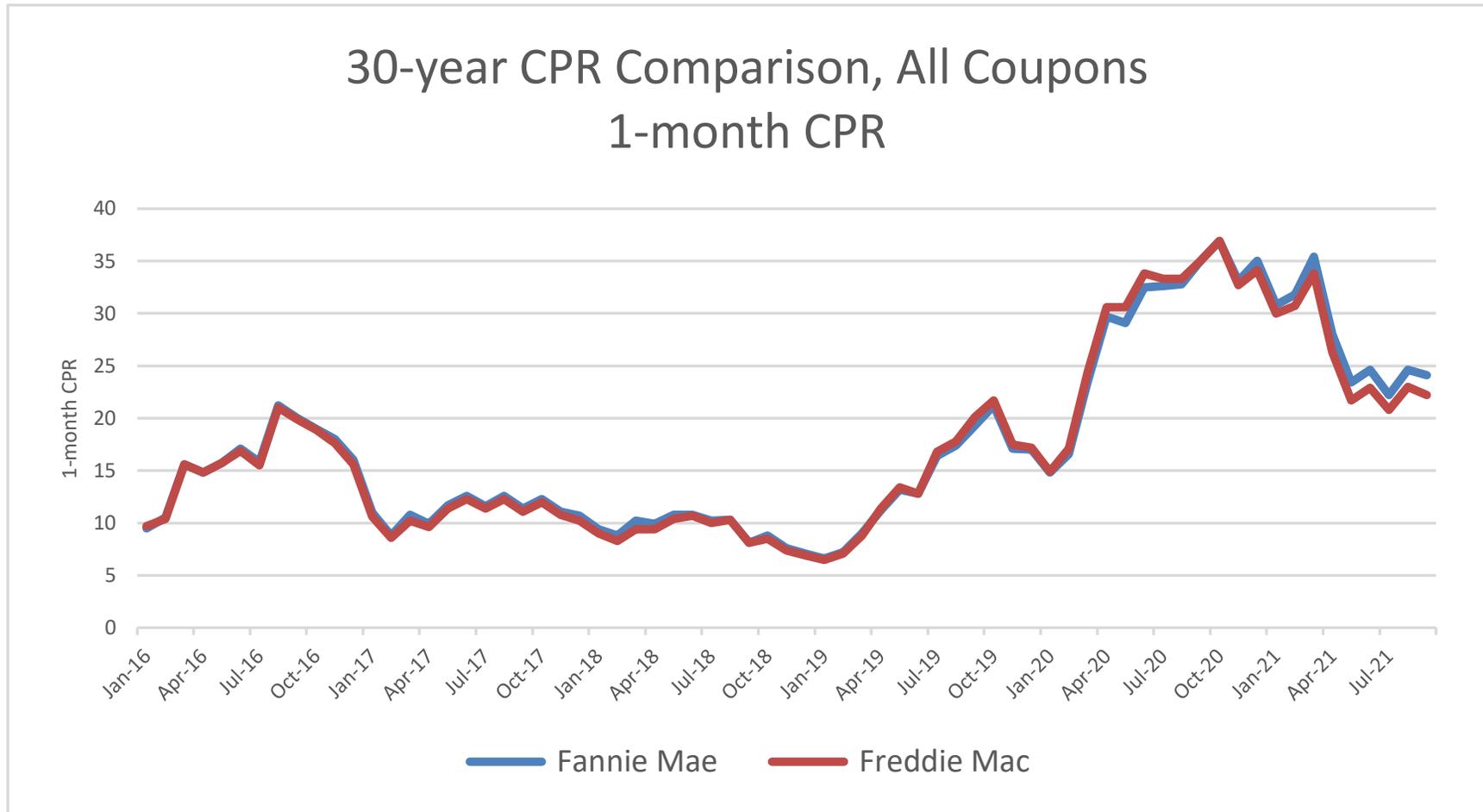
30-year CPR Comparison, All Coupons
1-month CPR

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no one-month CPR information.

Chart 2: September 2021 One-month CPR on All 30-year, TBA-eligible MBS by Coupon and Loan-Origination Year*

Comparison of 30-year 1.5%
1-month CPR

Comparison of 30-year 2%
1-month CPR

Comparison of 30-year 2.5%
1-month CPR

Comparison of 30-year 3%
1-month CPR
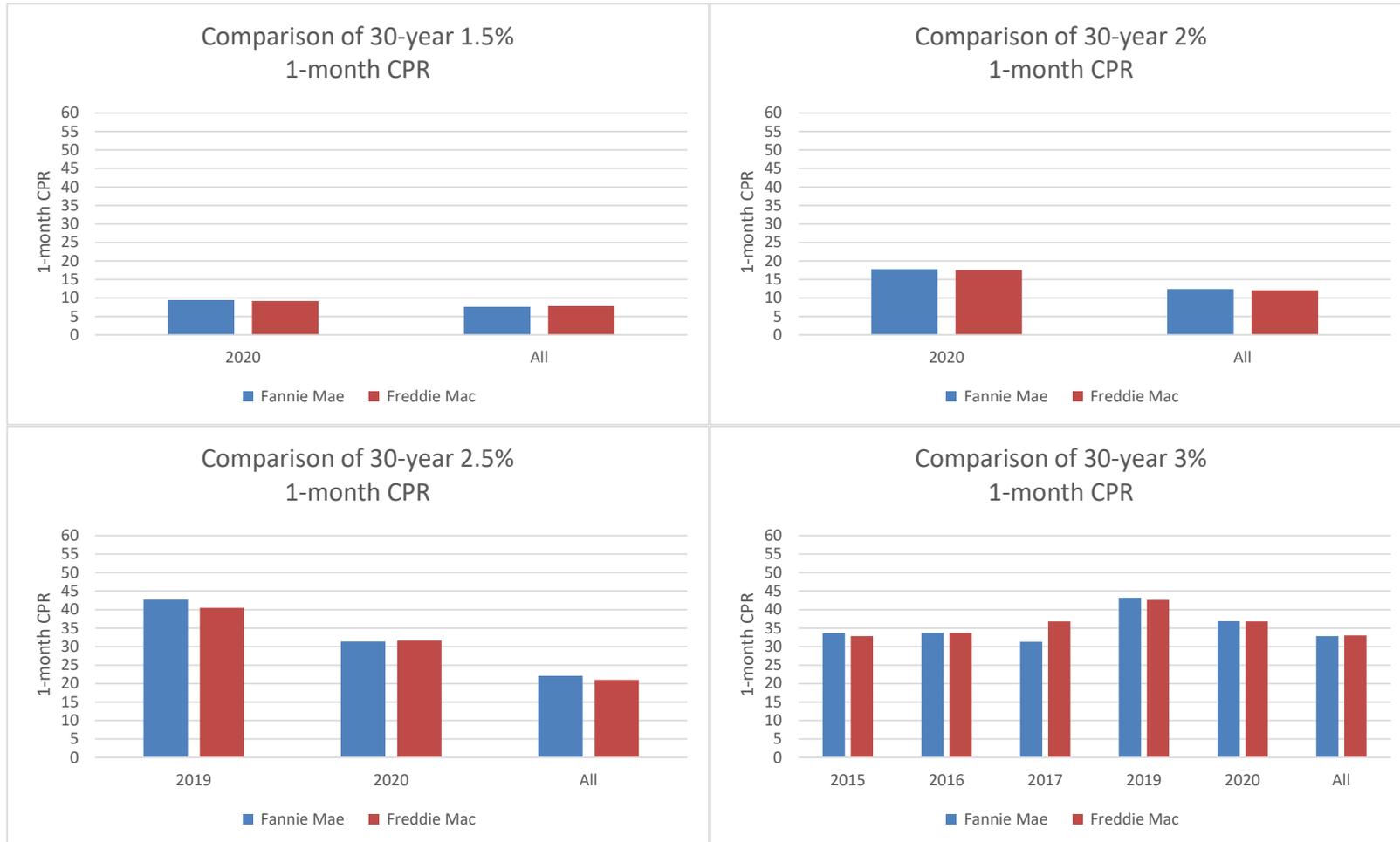
* The 1.5 percent coupon cohorts for 2015, 2016, 2017, 2018, and 2019; the 2 percent coupon cohorts for 2015, 2016, 2017, 2018, and 2019; the 2.5 percent coupon cohorts for 2015, 2016, 2017, and 2018; and the 3 percent coupon cohort for 2018, are omitted because each has a combined UPB below the $10 billion threshold.

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no one-month CPR information.

Chart 2: September 2021 One-month CPR on All 30-year, TBA-eligible MBS by Coupon and Loan-Origination Year*

Comparison of 30-year 3.5% 1-month CPR

Fannie Mae   Freddie Mac

Comparison of 30-year 4% 1-month CPR

Fannie Mae   Freddie Mac

Comparison of 30-year 4.5% 1-month CPR

Fannie Mae   Freddie Mac

Comparison of 30-year 5% 1-month CPR

Fannie Mae   Freddie Mac
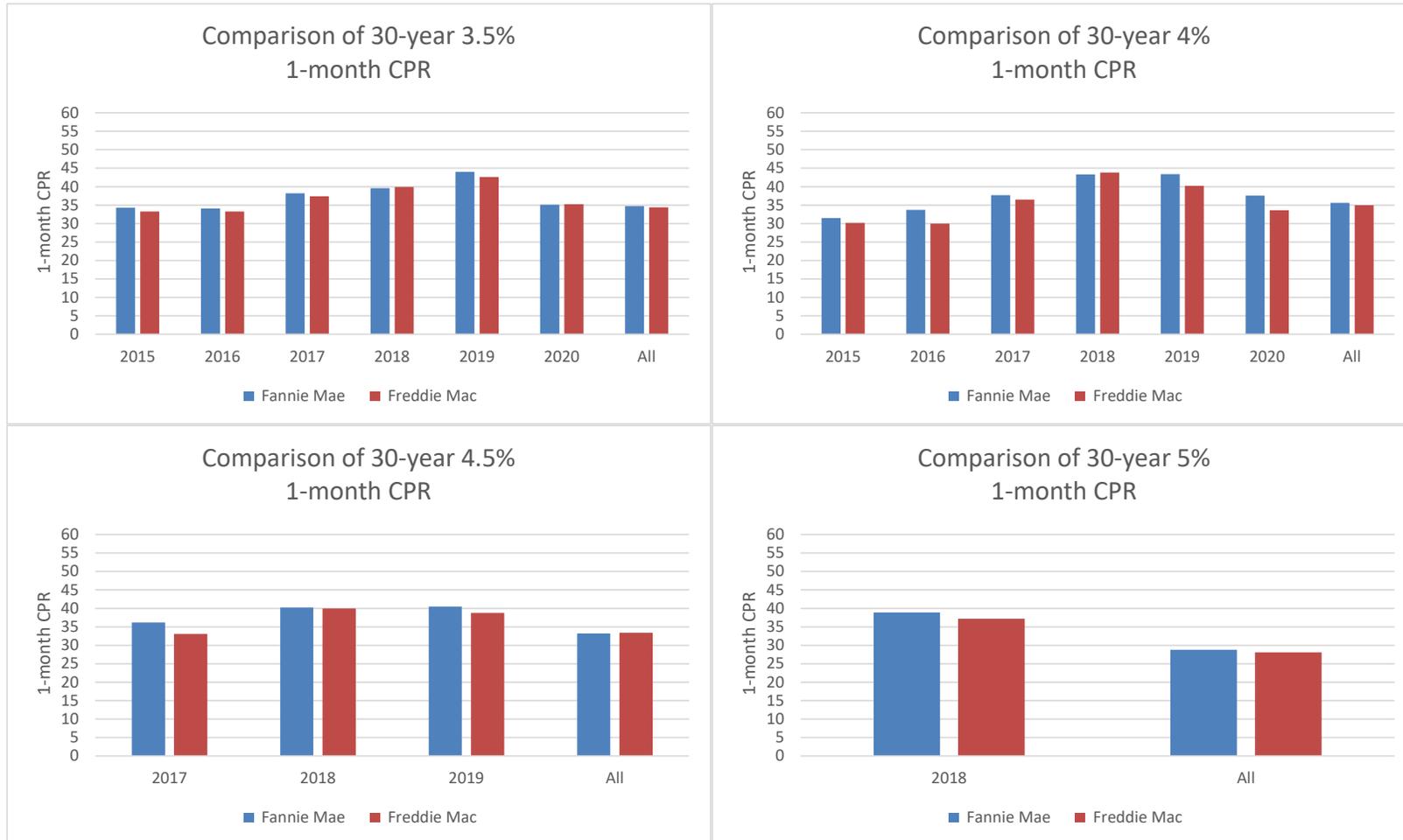
* The 4.5 percent coupon cohorts for 2015, 2016, and 2020, and the 5 percent coupon cohorts for 2015, 2016, 2017, 2019, and 2020, are omitted because each has a combined UPB below the $10 billion threshold.

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no one-month CPR information.

Chart 3a: One-month CPR on All 30-year, TBA-eligible MBS by Coupon*
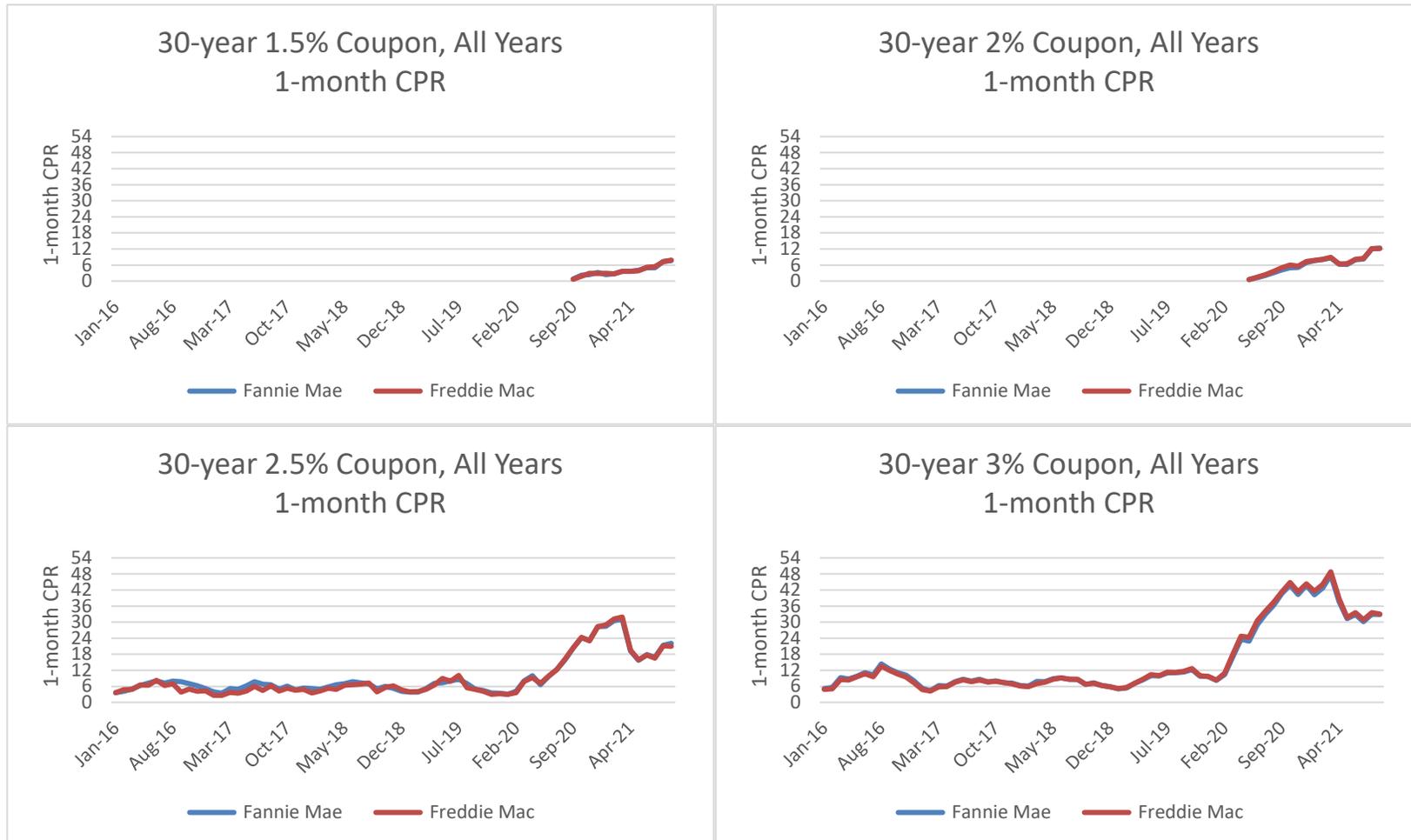
* CPR data was omitted for dates where the combined UPB of the coupon cohort was below the $10 billion threshold.

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no one-month CPR information.

Chart 3a: One-month CPR on All 30-year, TBA-eligible MBS by Coupon

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no one-month CPR information.

Chart 3b: Three-month CPR on 30-year Fastest Paying Quartiles, 1.50 Percent Coupon TBA-eligible MBS by Loan-Origination Year*
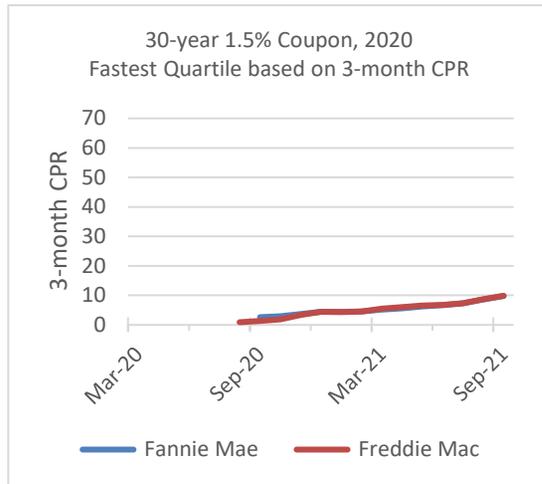
* The 2015, 2016, 2017, 2018, and 2019 cohorts are omitted because each has a combined UPB below the $10 billion threshold.

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no three-month CPR information.

Chart 3c: Three-month CPR on 30-year Fastest Paying Quartiles, 2.00 Percent Coupon TBA-eligible MBS by Loan-Origination Year*
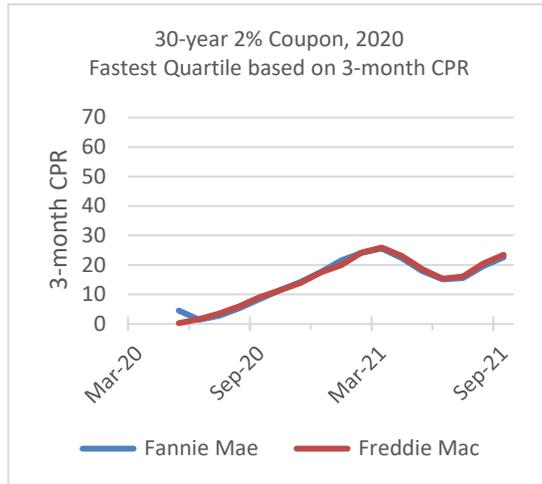
* The 2015, 2016, 2017, 2018, and 2019 cohorts are omitted because each has a combined UPB below the $10 billion threshold.

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no three-month CPR information.

Chart 3d: Three-month CPR on 30-year Fastest Paying Quartiles, 2.50 Percent Coupon TBA-eligible MBS by Loan-Origination Year*
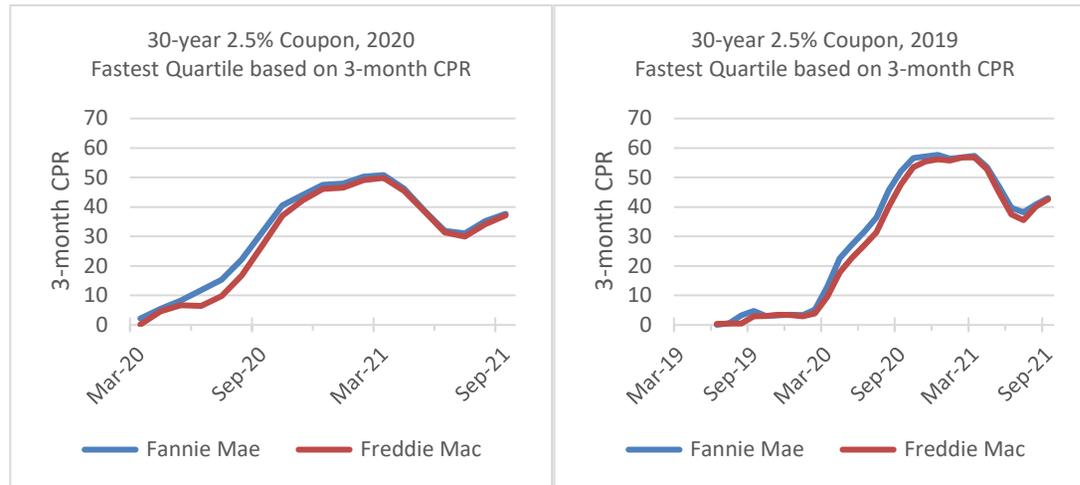
* The 2015, 2016, 2017, and 2018 cohorts are omitted because each has a combined UPB below the $10 billion threshold.

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no three-month CPR information.

Chart 3e: Three-month CPR on 30-year Fastest Paying Quartiles, 3.00 Percent Coupon TBA-eligible MBS by Loan-Origination Year*
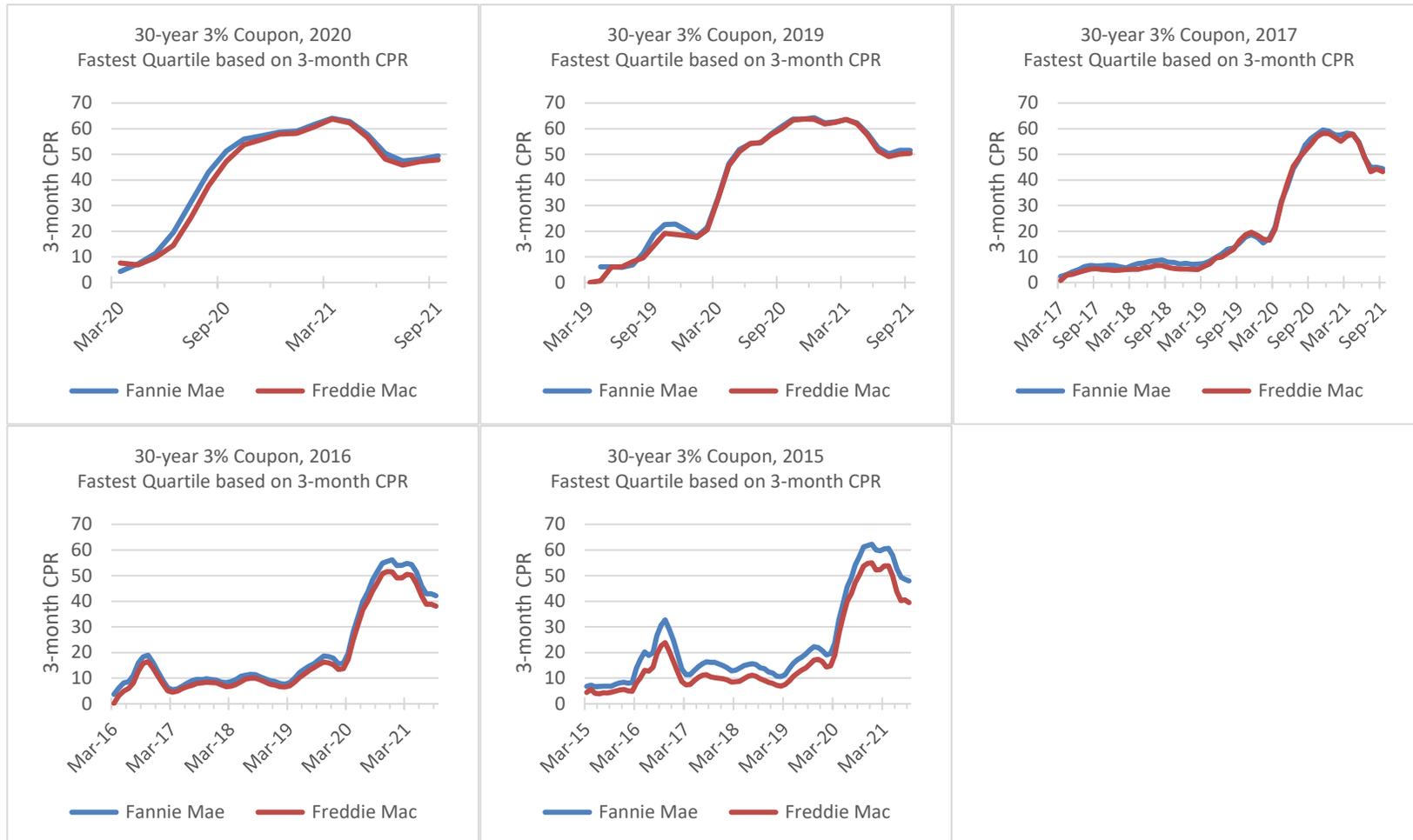
* The 2018 cohort is omitted because it has a combined UPB below the $10 billion threshold.

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no three-month CPR information.

Chart 3f: Three-month CPR on 30-year Fastest Paying Quartiles, 3.50 Percent Coupon TBA-eligible MBS by Loan-Origination Year
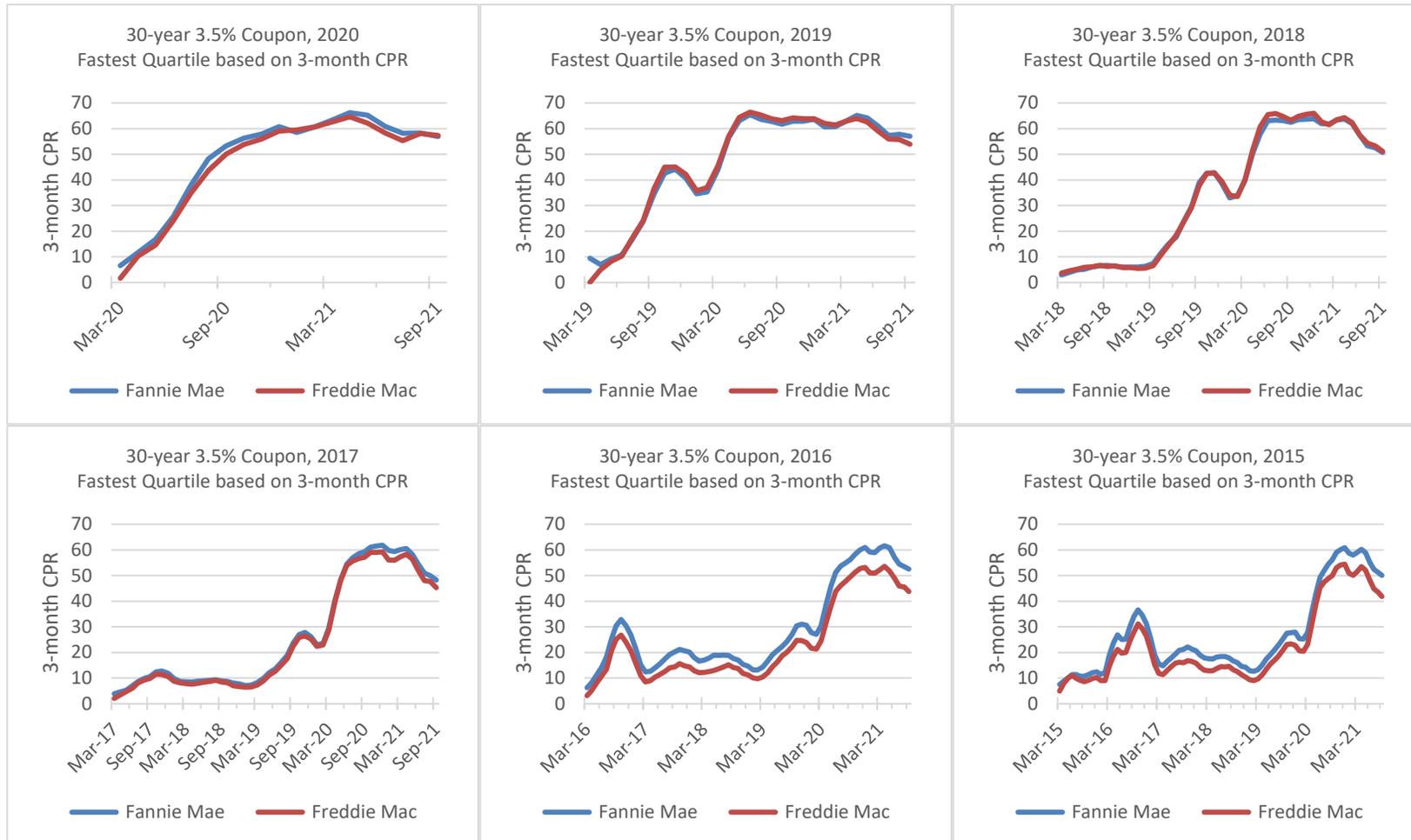
Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no three-month CPR information.

Chart 3g: Three-month CPR on 30-year Fastest Paying Quartiles, 4.00 Percent Coupon TBA-eligible MBS by Loan-Origination Year
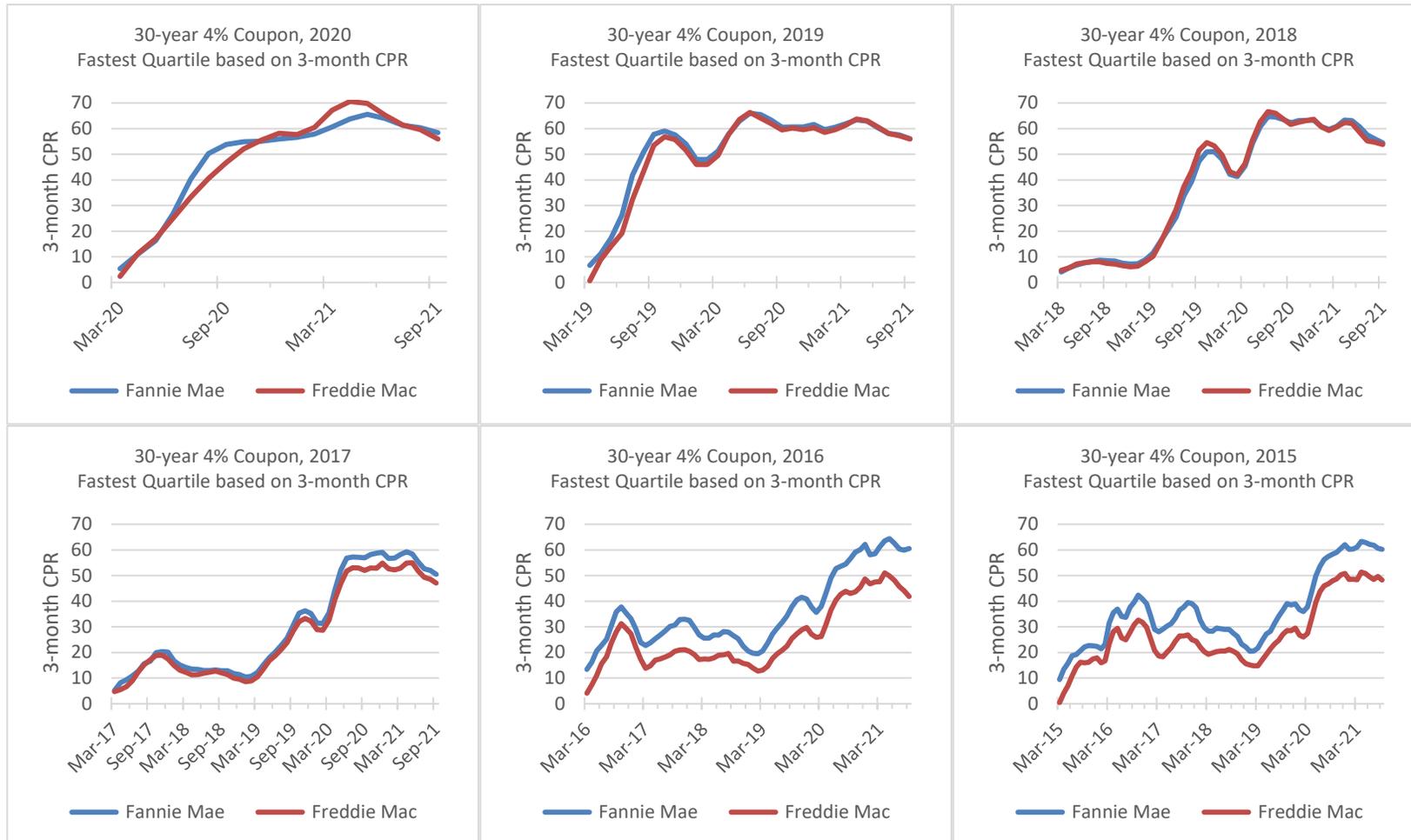
Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no three-month CPR information.

Chart 3h: Three-month CPR on 30-year Fastest Paying Quartiles, 4.50 Percent Coupon TBA-eligible MBS by Loan-Origination Year

30-year 4.5% Coupon, 2019
Fastest Quartile based on 3-month CPR

30-year 4.5% Coupon, 2018
Fastest Quartile based on 3-month CPR

30-year 4.5% Coupon, 2017
Fastest Quartile based on 3-month CPR
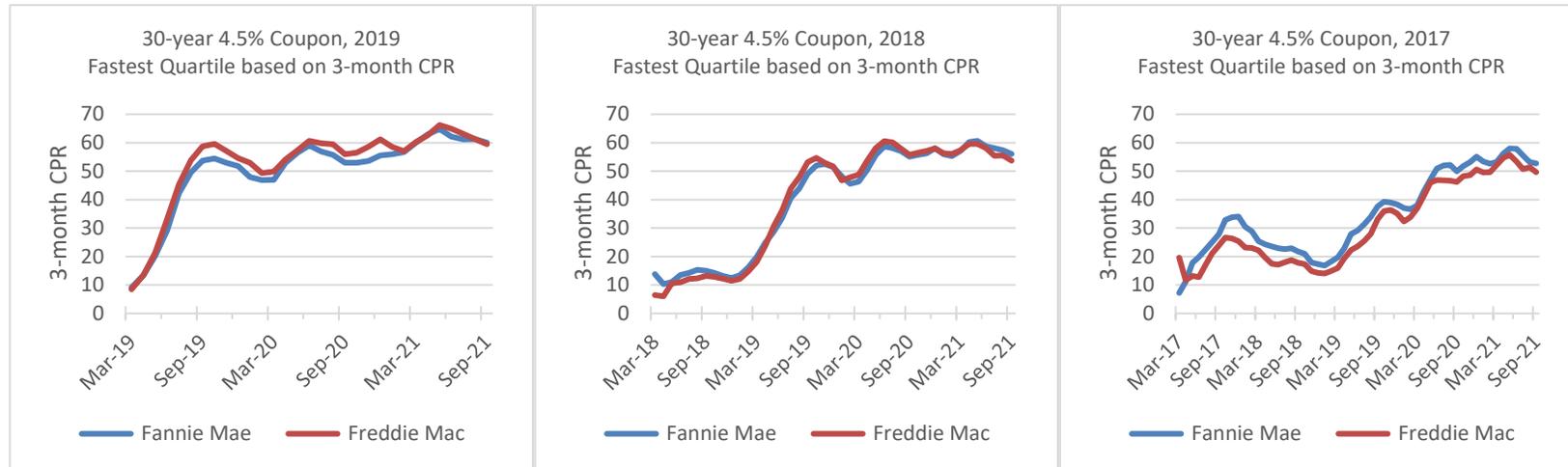
* The 2015, 2016, and 2020 cohorts are omitted because each has a combined UPB below the $10 billion threshold.

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no three-month CPR information.

Chart 3i: Three-month CPR on 30-year Fastest Paying Quartiles, 5.00 Percent Coupon TBA-eligible MBS by Loan-Origination Year

30-year 5% Coupon, 2018
Fastest Quartile based on 3-month CPR
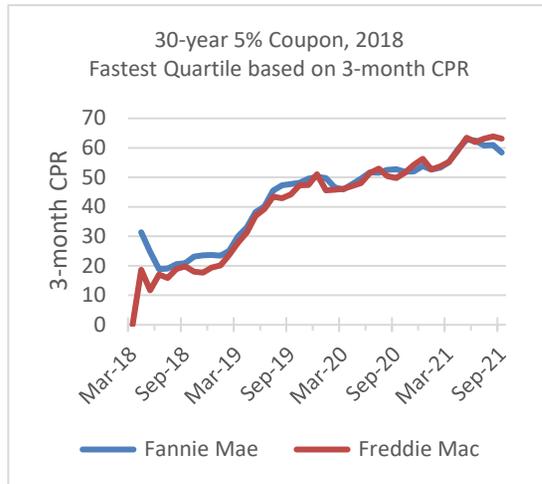
* The 2015, 2016, 2017, 2019, and 2020 cohorts are omitted because each has a combined UPB below the $10 billion threshold.

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no three-month CPR information.

Chart 4: Comparison of Weighted Average Loan Rate to Coupon Spread on New 30-year MBS Issuance
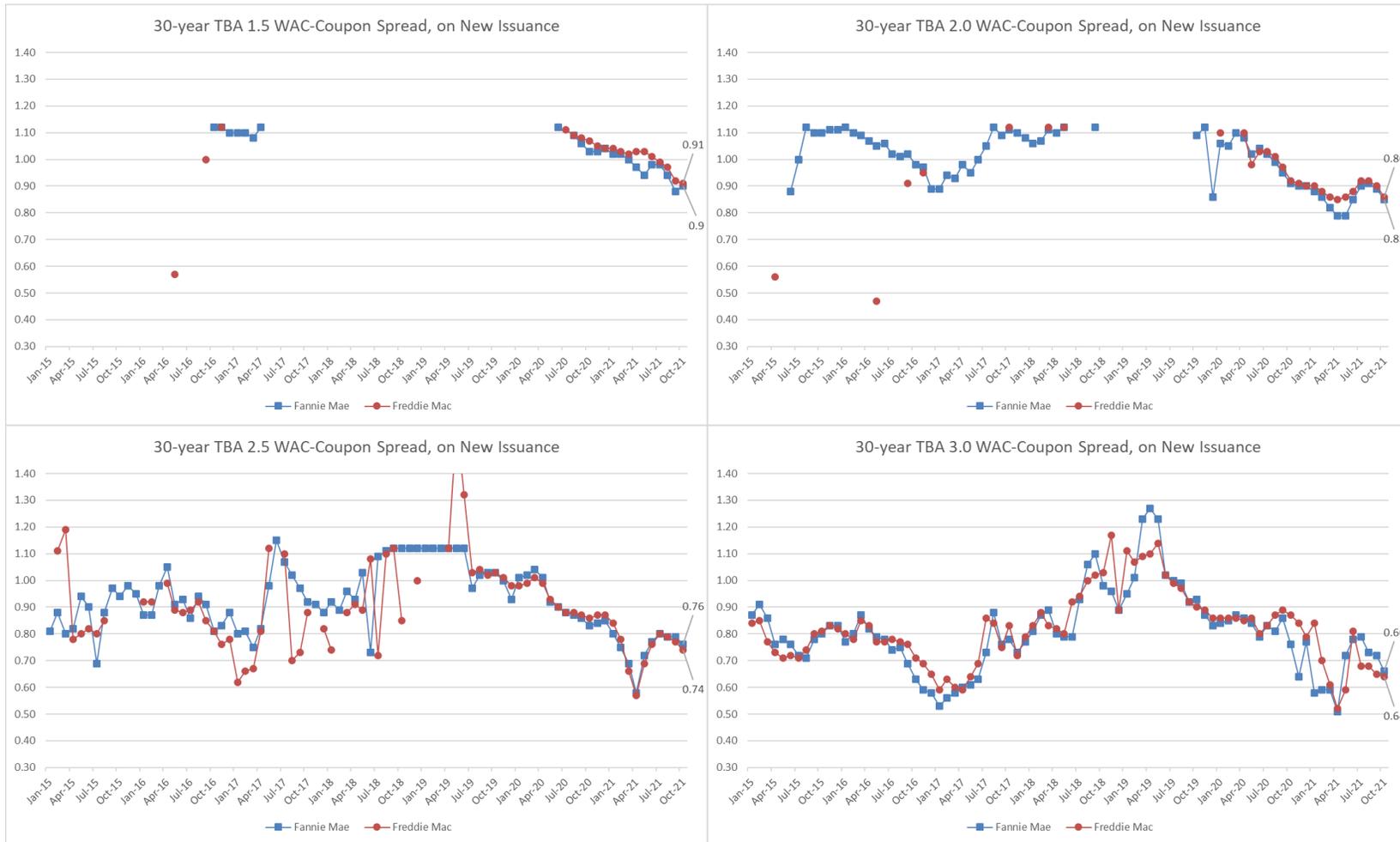
Source: RiskSpan calculations from data available publicly as of October 2021. Gaps in data may occur in some months due to a lack of MBS issuance.

Chart 4: Comparison of Weighted Average Loan Rate to Coupon Spread on New 30-year MBS Issuance
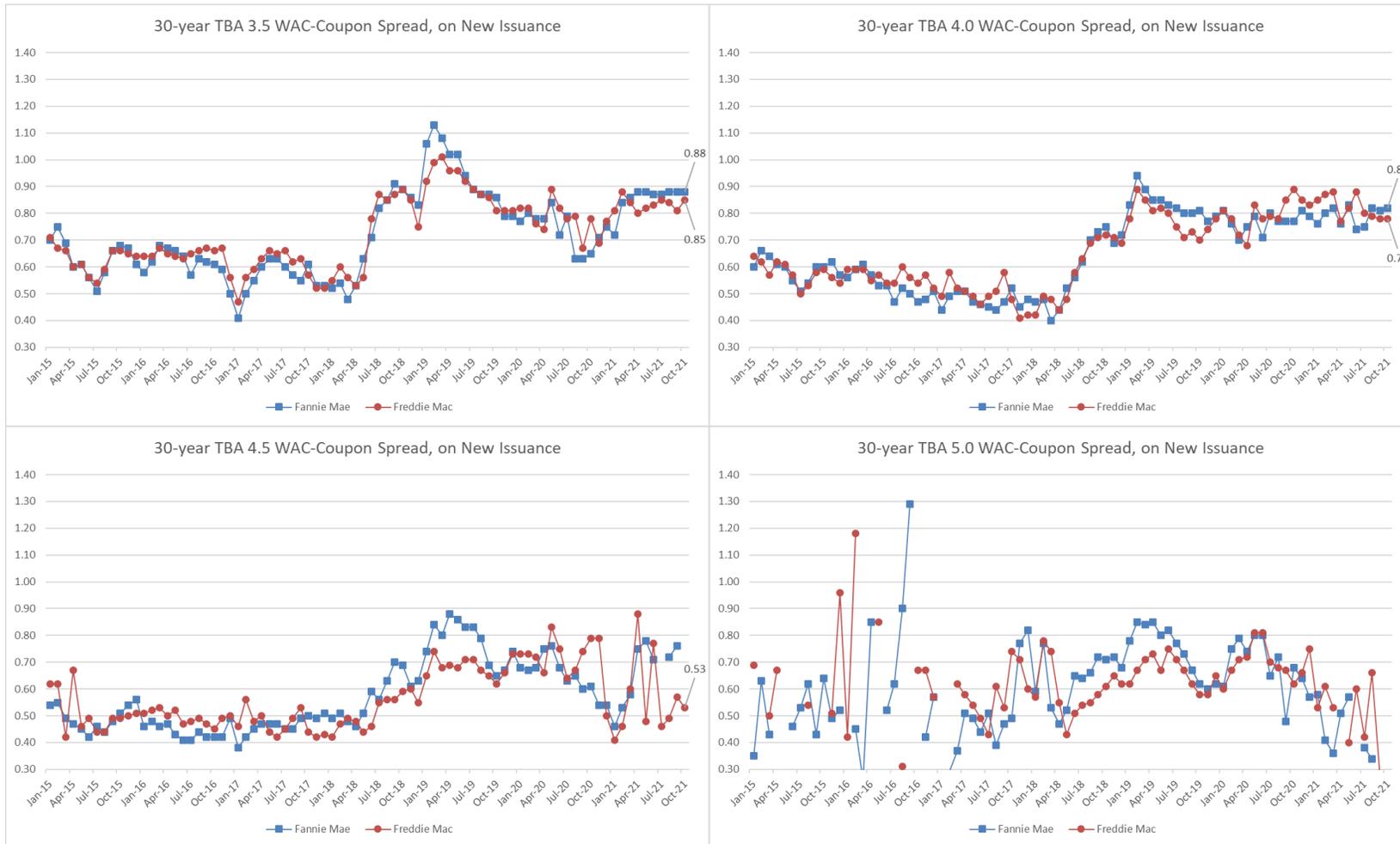
Source: RiskSpan calculations from data available publicly as of October 2021. Gaps in data may occur in some months due to a lack of MBS issuance.

Data Tables

FHFA uses Table 1, the Annual Vintage Report, to compare, at the cohort level, the Enterprises' three-month prepayment rates with cohort attributes, such as the weighted-average loan rate (WAC), the weighted-average loan 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 Quartile 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, excluding specified pools as defined in the glossary, and bearing the stated coupon are ranked by their three-month CPRs from fastest to slowest. The pools are then grouped into quartiles based on UPB. The Report presents the WALA, WAC, average loan size (ALS), and credit score (FICO) for each quartile. Quartile 1 in this table corresponds to the fastest paying quartile. Table 2 presents this information as of the end of the quarter.

Table 3, the Total Industry Issuance Report, provides a comparison, at the coupon cohort level, of the Enterprises' previous three months of issuance, with various key loan attributes that would affect the expectations of prepayments and delinquencies. FHFA uses this report to identify any differences in loan attributes that may cause a divergence in prepayment rates. The attributes that generally create faster prepayments, such as high credit score and low loan-to-value (LTV) ratio, also generally lower defaults. 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, Fastest Quartile of TBA-eligible MBS Vintage Report

Coupon	Year	Weighted Average Coupon (percent)		Weighted Average Maturity (months)		Weighted Average Loan Age (months)		Unpaid Principal Balance ($ billions)		Three Month Conditional Prepayment Rates (percent)					
										September		August		July	
		FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
1.5	2020	2.54	2.55	342	343	12	11	10.3	13.1	9.80	9.90	8.60	8.70	7.30	7.30
2	2020	2.99	2.99	338	340	15	14	69.4	58.8	22.60	23.40	19.60	20.40	15.50	16.10
2.5	2019	3.50	3.51	330	330	24	24	5.5	4.6	43.00	42.60	40.90	40.10	38.20	35.50
	2020	3.42	3.42	337	336	17	17	50.8	34	37.70	37.10	35.20	34.10	31.00	30.00
3	2015	3.78	3.79	270	270	76	76	4.6	4.4	47.90	39.50	48.60	40.50	49.40	40.20
	2016	3.72	3.73	286	288	63	62	17.3	13.8	42.10	38.10	42.90	38.80	42.90	38.80
	2017	3.78	3.89	299	304	50	47	1.4	1.5	44.40	43.20	44.90	44.30	44.80	43.20
	2019	3.95	3.95	328	328	25	26	12.5	11.5	51.60	50.40	51.60	50.10	50.20	49.10
	2020	3.87	3.86	335	337	19	17	13	7.3	49.40	47.80	48.10	47.20	47.40	45.80
3.5	2015	4.14	4.14	273	275	75	73	8.5	6.7	50.10	41.80	51.30	43.70	52.40	44.80
	2016	4.15	4.17	285	287	65	64	4.6	3.5	52.50	43.80	53.50	45.60	54.40	45.90
	2017	4.09	4.08	300	302	50	49	9.1	7.2	48.30	45.20	50.00	47.70	50.90	48.00
	2018	4.31	4.33	312	311	39	40	3.4	2.4	50.70	51.10	52.50	53.30	53.30	54.30
	2019	4.41	4.40	328	327	26	27	6	4.4	57.00	53.90	57.80	55.70	57.30	55.90
	2020	4.36	4.37	337	337	19	19	1.6	0.9	56.90	57.30	58.30	58.10	58.20	55.30
4	2015	4.64	4.59	277	278	73	73	1	0.8	60.20	48.20	60.60	49.60	61.80	48.50
	2016	4.60	4.60	287	286	64	65	0.7	0.8	60.50	41.80	59.90	44.10	60.30	45.70
	2017	4.50	4.49	301	302	51	51	4.7	3.4	50.50	47.10	52.00	48.60	52.60	49.30
	2018	4.72	4.69	314	314	38	39	7.4	4.9	54.40	53.80	55.90	54.70	57.60	55.20
	2019	4.89	4.86	328	325	27	29	2.9	1.7	56.10	55.90	57.60	57.20	58.10	58.10
	2020	4.85	4.82	338	337	19	17	0.6	0.3	58.40	56.00	60.30	59.60	61.30	61.40
4.5	2017	5.02	4.93	303	303	50	51	0.8	0.6	52.70	49.60	53.20	51.30	55.50	50.70
	2018	5.26	5.15	317	316	37	38	2.3	1.9	56.10	53.70	57.30	55.50	58.10	55.40
	2019	5.35	5.33	325	325	30	28	1	0.5	60.00	59.50	61.30	61.30	61.20	63.10
5	2018	5.75	5.68	317	317	37	38	0.5	0.3	58.40	63.10	61.00	63.90	60.80	63.10

Source: RiskSpan calculations from data available publicly as of October 2021. Calculations exclude new issuance with no three-month CPR information, and exclude specified pools (see appendix for definition). The balances displayed on the table are beginning-of-quarter balances for the population included in the fastest quartile for each cohort.

Table 2: 30-year TBA-eligible, less Specified Pools, Cohort Quartile Report for Qualifying Cohorts*

30-year, 1.5	Quartile 1		Quartile 2		Quartile 3		Quartile 4	
Fannie Mae	9.2		7.6		6.2		3.7	
Freddie Mac	9.3		7.8		6.1		4.3	
Difference	-0.1		-0.2		0.1		-0.6	
Attributes	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
WALA	12	12	11	10	9	8	7	7
WAC	2.53	2.55	2.52	2.54	2.52	2.53	2.47	2.52
ALS	364	363	376	373	389	381	359	363
FICO	775	774	775	774	775	772	773	771

30-year, 2.5	Quartile 1		Quartile 2		Quartile 3		Quartile 4	
Fannie Mae	37.9		33.5		18.6		6.1	
Freddie Mac	37.2		33.0		17.9		5.8	
Difference	0.7		0.5		0.7		0.3	
Attributes	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
WALA	19	19	15	15	12	11	5	5
WAC	3.43	3.43	3.36	3.36	3.33	3.32	3.28	3.28
ALS	330	326	339	340	317	315	324	327
FICO	764	764	759	760	751	751	747	747

30-year, 2.0	Quartile 1		Quartile 2		Quartile 3		Quartile 4	
Fannie Mae	20.3		14.4		8.5		4.4	
Freddie Mac	20.1		14.0		9.0		4.6	
Difference	0.2		0.4		-0.5		-0.2	
Attributes	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
WALA	14	14	10	10	8	8	5	5
WAC	2.95	2.95	2.89	2.90	2.83	2.87	2.86	2.89
ALS	352	359	347	350	334	342	345	346
FICO	771	771	767	765	765	763	765	763

30-year, 3.0	Quartile 1		Quartile 2		Quartile 3		Quartile 4	
Fannie Mae	50.0		42.9		35.4		24.6	
Freddie Mac	48.2		40.9		35.7		27.6	
Difference	1.8		2.0		-0.3		-3.0	
Attributes	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
WALA	27	25	31	37	58	60	46	48
WAC	3.89	3.90	3.84	3.83	3.69	3.74	3.71	3.74
ALS	314	320	301	299	282	281	269	269
FICO	755	754	749	752	761	758	752	753

* FHFA omits the average prepayment speeds of pools with age less than 3 months and coupon cohorts with a combined UPB less than $10 billion.
* Qualifying Cohorts are defined as cohorts of TBA-eligible pools, excluding Specified Pools, issued during the most recent six origination years, including the current origination year.
* The weighted-average statistics that are published in this table use beginning-of-quarter balances and end-of-quarter WAC, WALA, and FICO. ALS statistics represent a simple average of all loans in the cohorts.

Table 2: 30-year TBA-eligible, less Specified Pools, Cohort Quartile Report for Qualifying Cohorts*

30-year, 3.5	Quartile 1		Quartile 2		Quartile 3		Quartile 4	
Fannie Mae	54.4		43.5		39.2		27.3	
Freddie Mac	50.3		42.1		38.4		32.1	
Difference	4.1		1.4		0.8		-4.8	
Attributes	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
WALA	37	35	51	49	57	63	63	64
WAC	4.35	4.32	4.13	4.13	4.06	4.12	4.12	4.14
ALS	289	293	281	288	282	273	258	266
FICO	740	745	752	751	752	748	746	747

30-year, 4.5	Quartile 1		Quartile 2		Quartile 3		Quartile 4	
Fannie Mae	57.7		49.0		44.9		31.7	
Freddie Mac	55.2		48.0		44.3		32.4	
Difference	2.5		1.0		0.6		-0.7	
Attributes	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
WALA	35	36	37	37	39	40	43	44
WAC	5.28	5.18	5.26	5.20	5.16	5.09	5.10	5.06
ALS	278	278	288	296	290	281	262	268
FICO	702	715	705	715	710	714	708	712

30-year, 4.0	Quartile 1		Quartile 2		Quartile 3		Quartile 4	
Fannie Mae	55.3		48.3		44.5		31.9	
Freddie Mac	53.1		47.4		42.5		33.4	
Difference	2.2		0.9		2.0		-1.5	
Attributes	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
WALA	37	37	37	38	47	50	52	55
WAC	4.76	4.74	4.74	4.70	4.52	4.54	4.58	4.60
ALS	285	294	288	294	284	287	260	266
FICO	728	738	738	739	733	731	729	727

30-year, 5.0	Quartile 1		Quartile 2		Quartile 3		Quartile 4	
Fannie Mae	60.7		47.9		41.9		27.1	
Freddie Mac	63.5		48.1		44.0		25.0	
Difference	-2.8		-0.2		-2.1		2.1	
Attributes	FNM	FRE	FNM	FRE	FNM	FRE	FNM	FRE
WALA	33	33	35	35	34	33	36	33
WAC	5.77	5.70	5.75	5.69	5.78	5.74	5.75	5.70
ALS	259	260	268	266	276	268	246	265
FICO	682	693	680	700	682	699	688	692

* FHFA omits the average prepayment speeds of pools with age less than 3 months and coupon cohorts with a combined UPB less than $10 billion.
* Qualifying Cohorts are defined as cohorts of TBA-eligible pools, excluding Specified Pools, issued during the most recent six origination years, including the current origination year.
* The weighted-average statistics that are published in this table use beginning-of-quarter balances and end-of-quarter WAC, WALA, and FICO. ALS statistics represent a simple average of all loans in the cohorts.

Table 3: Q3 2021 30-year, TBA-eligible MBS Total Industry Quarterly Issuance Report*

	1.50%		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	FRE	FNM	FRE
Loan Count	5,715	5,565	321,179	350,449	339,616	354,559	65,546	71,179	9,120	11,895	2,501	2,542	83	219	17	68	29	34	743,777	796,539
UPB (billions)	2.05	2.11	108.16	121.69	94.27	99.69	12.98	12.63	2.04	2.26	0.53	0.47	0.01	0.04	0.00	0.01	0.00	0.00	220.05	238.89
% of Production Volume	0.90	0.90	49.20	50.90	42.80	41.70	5.90	5.30	0.90	0.90	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00
WA Note Rate (%)	2.41	2.43	2.88	2.89	3.28	3.27	3.70	3.66	4.38	4.33	4.81	4.78	5.25	5.02	5.35	5.52	6.11	6.58	3.12	3.10
WA Loan Age (mos.)	1	1	1	1	1	1	1	2	2	2	1	2	4	7	2	97	192	174	1	1
WA FICO	771	770	762	761	739	740	715	720	704	707	694	711	697	694	645	616	699	696	749	750
WA LTV	0.63	0.68	0.72	0.75	0.76	0.76	0.77	0.73	0.8	0.76	0.79	0.77	0.78	0.78	0.76	0.83	0.8	0.8	0.74	0.75
%FICO<680	1.00	1.00	3.00	3.00	11.00	10.00	30.00	25.00	39.00	38.00	51.00	37.00	50.00	53.00	97.00	42.00	32.00	25.00	8.00	7.00
%FICO>740	83.00	83.00	75.00	74.00	51.00	52.00	34.00	37.00	30.00	31.00	22.00	34.00	28.00	26.00	0.00	23.00	16.00	22.00	62.00	62.00
%LTV>80	13.00	19.00	26.00	31.00	32.00	29.00	29.00	19.00	30.00	14.00	23.00	17.00	13.00	19.00	7.00	19.00	43.00	57.00	29.00	29.00
%FICO<680 & LTV>80	0.00	0.00	0.00	0.00	3.00	2.00	9.00	5.00	10.00	7.00	7.00	3.00	6.00	2.00	4.00	2.00	20.00	20.00	2.00	1.00
%DTI>40	28.00	28.00	33.00	32.00	38.00	35.00	40.00	35.00	45.00	37.00	45.00	39.00	49.00	40.00	5.00	48.00	39.00	27.00	36.00	33.00
%Purchase	25.00	36.00	48.00	56.00	49.00	49.00	48.00	38.00	53.00	41.00	46.00	44.00	39.00	44.00	7.00	34.00	67.00	73.00	48.00	52.00
%Rate/Term	60.00	50.00	33.00	27.00	23.00	22.00	16.00	20.00	8.00	8.00	4.00	5.00	1.00	2.00	0.00	11.00	10.00	9.00	28.00	24.00
%Cash out	15.00	14.00	19.00	17.00	28.00	29.00	36.00	42.00	39.00	51.00	50.00	51.00	60.00	54.00	93.00	55.00	23.00	19.00	24.00	24.00
%Owner Occupied	98.00	98.00	97.00	98.00	94.00	93.00	82.00	80.00	68.00	59.00	64.00	46.00	49.00	53.00	100.00	75.00	86.00	90.00	94.00	94.00
%Second Home	2.00	2.00	3.00	2.00	4.00	5.00	5.00	5.00	4.00	4.00	5.00	4.00	4.00	4.00	0.00	1.00	6.00	4.00	3.00	3.00
%Investor	0.00	0.00	0.00	0.00	3.00	2.00	13.00	15.00	28.00	36.00	31.00	50.00	47.00	44.00	0.00	24.00	8.00	6.00	2.00	2.00

* Numbers in the table represent end of quarter, not at-securitization, values. 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 2021.

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 where the combined unpaid principal balance of such securities exceeds $10 billion. 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.

Fastest paying quartile of a cohort means the quartile of a cohort that has the fastest prepayment speeds as measured by the three-month CPR. The quartiles shall be determined by ranking outstanding TBA-eligible securities with the same coupon, maturity, and loan-origination year by the three-month CPR, excluding specified pools, and dividing each cohort into four parts such that the total unpaid principal balance of the pools included in each part is equal.

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.

Specified pools for the purpose of this report, are those pools with one or more of the following characteristics at issuance: a maximum loan size of $200,000, a loan-to-value ratio at the time of loan origination of greater than 80 percent, a FICO score

of less than 700, where all loans finance investor-owned properties, or where all loans finance properties in the states of New York or Texas or the Commonwealth of Puerto Rico.

To-be-announced (TBA) market is a forward market for certain mortgage-backed securities, including those issued by the Enterprises.

Uniform Mortgage-Backed Security (UMBS) is the new single, common mortgage-backed security that the Enterprises issue, which replaced their previous 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.