Fannie Mae Benchmark CPR™ Commentary

August 2021

Key Highlights

- This month, we highlight prepayment trends observed in July. The 30-Year Benchmark CPR3 for the Fannie Mae cohort decreased 7.2% to 18.0 CPR. The 15-Year Benchmark CPR3 for the Fannie Mae cohort also declined this month to 16.2 CPR, a decrease of 7.4%.

- Given the current refinance wave has persisted for some time, we use the MBS Cohort Analyzer to search for evidence of burnout, particularly among higher coupons.

- We compare trends in the 30-year and 15-year historical BCPR data, focusing on the dramatic shift of seller UPB out of the *Share of Seller UPB with >10% MoM BCPR3 Decrease* bucket for the BCPR3. We also observe a tightening in the BCPR3 Range for the top 100 sellers.

- Using the BCPR Component Profile table, we explore the shifting collateral profiles of the component populations underlying the BCPR3 and compare the most recent component profile to the overall Fannie Mae 30-year TBA-eligible universe.

- We analyze the expanded BCPR Heatmap view and observe continued slowdown in the Investor story.

- Lastly, we feature select S-curves on various Fannie Mae 30-year cohorts using the Cohort Analyzer tool in Data Dynamics.
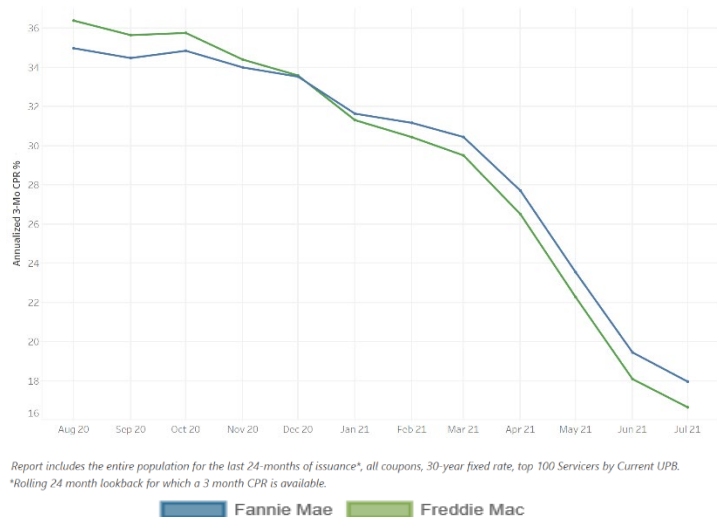
Quick Navigation

Monthly Benchmark CPR Results

Spotlight on Burnout

Historical Benchmark CPR Analysis

BCPR Component Profiles

This Month's Trend Observations

MBS Cohort Analyzer Reports

Additional Resources

Visit **Data Dynamics** to explore the tools used in this commentary.

Monthly Benchmark CPR Results

30 Year Benchmark CPR

Report includes the entire population for the last 24-months of issuance*, all coupons, 30-year fixed rate, top 100 Servicers by Current UPB.
*Rolling 24 month lookback for which a 3 month CPR is available.

Fannie Mae   Freddie Mac

Exhibit 1

The July 30-year Benchmark CPR3 (BCPR3) for the Fannie Mae cohort decreased 7.2% to 18.0 CPR – from 19.4 CPR in June – which marks nine straight monthly decreases. The July 2021 1-month component decreased 9.5% versus the June 1-month component and decreased 20.7% versus the April 1-month component that it replaces in the BCPR3 calculation (see *Table 1a*).

Using a prevailing 30-year mortgage rate of 2.77%, which is 13bps lower MoM, we estimate that 51.3% of all mortgages – and 62.9% of conventional mortgages – are at least 50bps in the money. This is a slight increase in the refinanceable share of the population MoM.

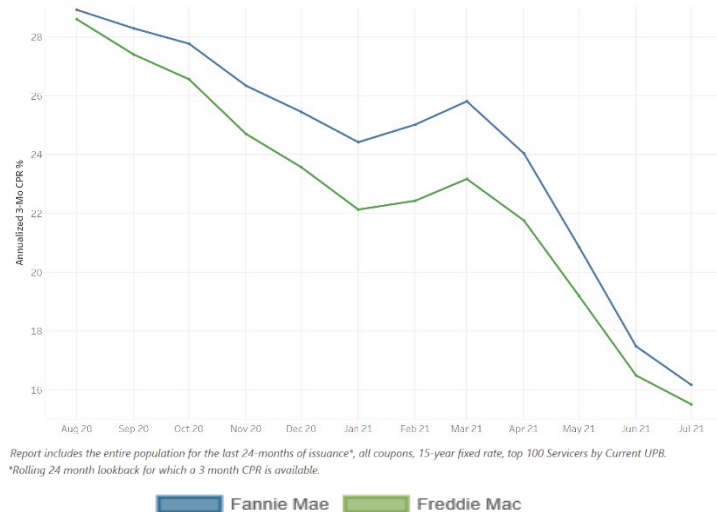| Table 1a. Components of Fannie Mae's 30 Year June and July BCPR Results						Table 1b. Components of Fannie Mae's 15 Year June and July BCPR Results					
30 Yr FNM Cohort		BCPR3 Components				15 Yr FNM Cohort		BCPR3 Components			
Reporting Period	BCPR3	Apr	May	Jun	Jul	Reporting Period	BCPR3	Apr	May	Jun	Jul
June 2021	19.4	21.7	17.7	19.0		June 2021	17.5	19.2	16.2	17.1	
July 2021	18.0		17.7	19.0	17.2	July 2021	16.2		16.2	17.1	15.2

Table 1: Components of Fannie Mae's June and July BCPR Results

15 Year Benchmark CPR

Report includes the entire population for the last 24-months of issuance*, all coupons, 15-year fixed rate, top 100 Servicers by Current UPB.
*Rolling 24 month lookback for which a 3 month CPR is available.

Fannie Mae   Freddie Mac

Exhibit 2

 The Fannie Mae Cohort 15-year Benchmark CPR3 (BCPR3) came in at 16.2 CPR, which represents a 7.4% decrease from 17.5 CPR in June. The July 2021 1-month component decreased 11.1% versus the June 2021 1-month component and decreased 20.8% versus the April 2020 1-month component that it replaces in the calculation. See *Table 1b* for the one-month components of FNM cohort 15-year BCPR3.

Spotlight on Burnout

When a refinance wave persists for some time, as the current one has, market participants begin to search for evidence of burnout in prepayment rates, particularly among higher coupons. Fannie Mae's **Cohort Analyzer** tool enables investors to evaluate prepayment behavior for signs of burnout. Here, we provide an example of the types of analysis enabled by the Cohort Analyzer.

As seen in **Exhibit 6** on the left, we can plot S-curves for the 2017-18 vintage at different points in time to see how prepayment behavior has evolved. We do this in the tool by setting the series to PERF-Period and the Vintage filter to 2017-2018. For this fixed set of loans, we can see the speeds decay over time for loans that are 50, 100 and 150bp in-the-money. Note the significantly more muted response for the current month, represented in blue.

Another approach is to look at the rank ordering of different WALA buckets at a given refinance incentive over time, as we show in **Exhibit 7** on the right. This is another way of visualizing WALA ramps dynamically. For the S-curves in the charts on the right, we set series to be WALA and sub-cohorts to be PERF-period. In the rightmost panel, reflecting prepayment behavior observed 12 months ago, [12-23] WALA loans (green) were the fastest, while [24-35] and [36-47] WALA loans reflect some burnout, as the yellow and purple lines fall below the green line. Over time (which can be observed by looking at each incremental panel to the left), the yellow line representing the [24-35] WALA bucket drifts toward the top of the stack, perhaps signaling that burnout is being pushed out on the seasoning curve.
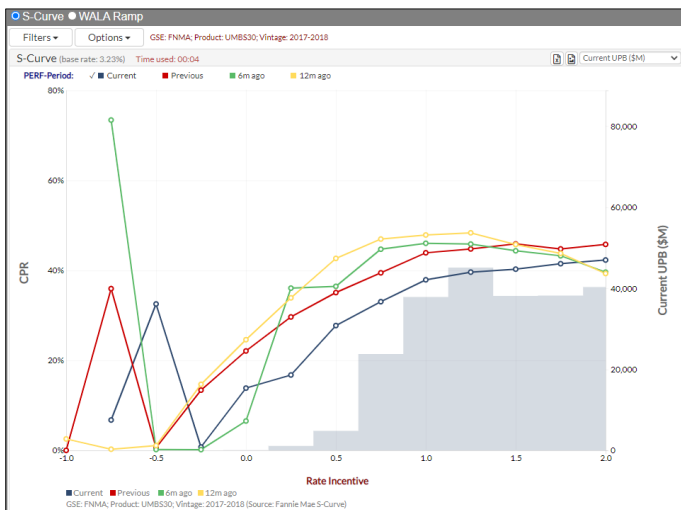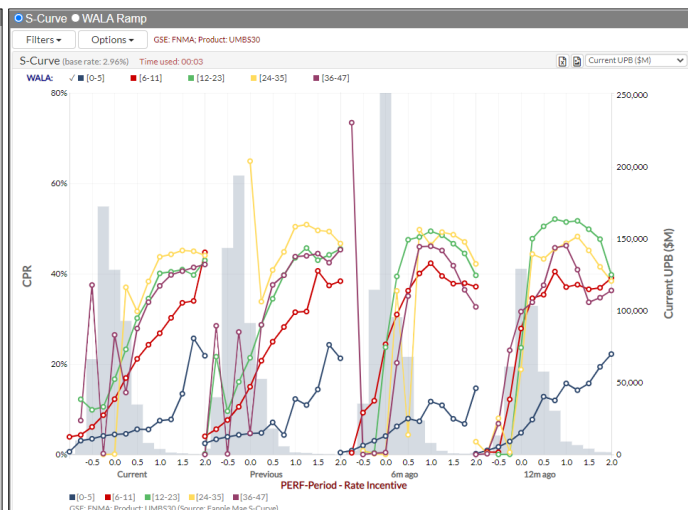

Exhibit 6

Exhibit 7

Historical Benchmark CPR Data

Tables 2 and 3 below provide an updated summary of key trends of the 30-year and 15-year historical BCPR data. As a reminder, historical BCPR data can be found on the Download Data page under the MBS section of Data Dynamics.

Fannie 30-year BCPR3 speeds decreased 7.2% to 18.0 BCPR MoM from 19.4 BCPR, following a 17.4% decline a month prior. The **BCPR3 Range (Max-Min) for Top 100 Sellers** has continued to narrow from 36.1 in May to 26.1 in July following the decreasing trend in BCPR3 speeds from 23.5 in May to 18.0 in July. Related to this narrowing trend, the **WA Standard Deviation BCPR3 for Top 100 Sellers** have also tightened from 5.9 in May to 4.3 in July. Given the 30-year BCPR3 declines of down 7.2% in July, the concentration of lenders in the **Share of Seller UPB with >10% MoM BCPR3 Decrease** bucket dramatically shifted out of this category as more lenders fall into Share of Seller UPB with 5-10% and 0-5% Decrease buckets.

Fannie 15-year speeds dropped 7.4% MoM from down 16.2% one month prior resulting in a similar pattern compared to the 30y population. The **Share of Seller UPB with >10% MoM BCPR3 Decrease** dropped to 39% from 86% as more lenders fall into other buckets. See orange highlights for 30y and 15y changes.

Summary of Fannie Mae 30 Year Historical BCPR Data - Seller view

Metric	Jul-2021	Jun-2021	May-2021	Jul-2020
Cohort BCPR1	15.4	16.6	15.2	28.4
Cohort BCPR3	**18.0**	**19.4**	**23.5**	**35.6**
Cohort BCPR6	28.1	31.0	34.3	38.9
WA BCPR3 of Top 25 Sellers*	19.7	21.4	25.9	37.0
WA NR-Adjusted % of Cohort for Top 25 Sellers*	111.9	111.5	110.7	104.3
BCPR3 Range (Max-Min) for Top 100 Sellers*	26.1	28.3	36.1	39.4
WA Standard Deviation BCPR3 for Top 100 Sellers*	4.3	4.8	5.9	5.2
WA Standard Deviation BCPR3 for All Sellers	5.3	5.9	7.1	6.9
Total Current UPB ($B)	**1454**	**1394**	**1326**	**777**
% of Cohort UPB w/ NR-Adjusted BCPR3 0-90% of Cohort	32%	30%	30%	23%
% of Cohort UPB w/ NR-Adjusted BCPR3 90-110% of Cohort	31%	32%	33%	52%
% of Cohort UPB w/ NR-Adjusted BCPR3 110-130% of Cohort	25%	22%	31%	21%
% of Cohort UPB w/ NR-Adjusted BCPR3 >130% of Cohort	13%	16%	7%	4%
Share of Seller UPB with >10% MoM BCPR3 Increase	3%	1%	1%	3%
Share of Seller UPB with 5-10% MoM BCPR3 Increase	3%	1%	1%	2%
Share of Seller UPB with 0-5% MoM BCPR3 Increase	5%	1%	1%	20%
Share of Seller UPB with 0-5% MoM BCPR3 Decrease	24%	3%	3%	46%
Share of Seller UPB with 5-10% MoM BCPR3 Decrease	38%	5%	8%	14%
Share of Seller UPB with >10% MoM BCPR3 Decrease	28%	89%	86%	14%

Table 2

Summary of Fannie Mae 15 Year Historical BCPR Data - Seller view

Metric	Jul-2021	Jun-2021	May-2021	Jul-2020
Cohort BCPR1	13.8	15.2	13.9	22.6
Cohort BCPR3	**16.2**	**17.5**	**20.9**	**28.8**
Cohort BCPR6	24.6	26.8	28.8	31.4
WA BCPR3 of Top 25 Sellers*	17.4	18.6	22.1	30.6
WA NR-Adjusted % of Cohort for Top 25 Sellers*	115.2	114.3	113.6	107.4
BCPR3 Range (Max-Min) for Top 100 Sellers*	24.3	33.0	42.3	52.2
WA Standard Deviation BCPR3 for Top 100 Sellers*	3.6	4.3	5.5	7.2
WA Standard Deviation BCPR3 for All Sellers	5.1	5.8	7.1	8.9
Total Current UPB ($B)	**268**	**254**	**235**	**102**
% of Cohort UPB w/ NR-Adjusted BCPR3 0-90% of Cohort	47%	44%	47%	42%
% of Cohort UPB w/ NR-Adjusted BCPR3 90-110% of Cohort	14%	15%	9%	18%
% of Cohort UPB w/ NR-Adjusted BCPR3 110-130% of Cohort	14%	15%	27%	14%
% of Cohort UPB w/ NR-Adjusted BCPR3 >130% of Cohort	25%	25%	16%	26%
Share of Seller UPB with >10% MoM BCPR3 Increase	6%	3%	4%	15%
Share of Seller UPB with 5-10% MoM BCPR3 Increase	4%	1%	2%	15%
Share of Seller UPB with 0-5% MoM BCPR3 Increase	20%	3%	3%	16%
Share of Seller UPB with 0-5% MoM BCPR3 Decrease	10%	3%	5%	34%
Share of Seller UPB with 5-10% MoM BCPR3 Decrease	20%	4%	14%	6%
Share of Seller UPB with >10% MoM BCPR3 Decrease	39%	86%	71%	15%

Table 3

BCPR Component Profiles

The BCPR Component Profiles table breaks out the component populations of the BCPR3 and highlights the evolution of the underlying profile. As a reminder, the differentiating characteristic of the BCPR is its unique reference population: a 24-month rolling issuance window of loans with at least three months of seasoning (BCPR3). Gaining visibility into the collateral profile of each component of the BCPR3 can help market participants better understand trends in this metric.

As seen in *Table 4* below, the first four records (a-d) summarize the respective collateral profiles of the Apr-21 through Jul-21 BCPR components as of the start of each respective month. In other words, each rep line represents the collateral profile that drove that component month's performance. The Apr-Jun components comprise the Jun BCPR3, while the May-Jul components comprise the Jul BCPR3. We observe a continued increase in the weighted average original loan size of the reference population, reflecting continued home price appreciation and re-leveraging. Additionally, the BCPR population's credit profile continues to improve, and the weighted average WAC of the population continues to decline, as higher WAC loans refinance into lower rates.

The bottom half of the table isolates the four sub-populations that distinguish the Jun-21 and Jul-21 component populations. Items f-g summarize the profile of loans that paid off in Jul-21 and Jun-21, respectively. Not surprisingly, loans that prepaid exhibit higher WACs than the respective component population and are more seasoned. Relative to the population of loans that paid off in Jun, Jul pay-offs have a lower WAC despite the higher WALA. Once again, the credit quality of loans that paid off in Jul is marginally weaker than that of loans that paid off in Jun. Investor properties represent a smaller share of loans that paid off month-over-month, suggesting some frictions to refinancing. Finally, Item h summarizes the profile of May-21 issuances, which replace May-19 issuances (summarized in Item i below), in the Jul component. The most recent month of issuance (May-21) to be included in the BCPR3 component exhibits a much lower WAC, higher weighted average loan size, and higher credit quality than the most seasoned month of issuance (May-19) that it replaces. Notably, the share of investor properties exhibited a decline.

Finally, we compare the most recent BCPR component profile to the overall Fannie Mae 30-year TBA-eligible universe, which is the population that many market participants focus on when analyzing monthly prepayments. Because the latter population is not limited by an issuance window, we observe that it is more seasoned than the Jul BCPR component population. The higher prepayments observed on the overall population are likely attributable to a higher weighted average WAC and weighted average original loan size.

Table 4. Fannie Mae 30-Year BCPR Component Collateral Profiles

	Orig amt ($MM)	Beg bal ($MM)	Beg loan count	WA OLS	WA WAC	WA WALA	WA FICO	WA LTV	WA DTI	% CA	% TPO	% AW	% Owner	% Investor	% Purchase	SMM	CPR
Fannie Mae BCPR																	
a. Apr component	1,308,399	1,280,009	4,784,297	273,478	3.34	10	755	74	35	20%	40%	32%	91%	5%	40%	2.0	21.7
b. May component	1,380,478	1,349,812	5,033,575	274,254	3.29	10	756	74	34	21%	40%	33%	91%	5%	39%	1.6	17.7
c. Jun component	1,454,756	1,421,712	5,272,347	275,922	3.25	10	756	74	34	21%	39%	34%	91%	5%	39%	1.7	19.0
d. Jul component	1,515,444	1,480,185	5,455,600	277,778	3.22	10	756	74	34	21%	39%	34%	91%	5%	39%	1.6	17.2
e. MoM profile change	60,688	58,473	183,253	1,856	-0.03	0	0	0	0	0%	0%	0%	0%	0%	0%	-10.1%	-9.3%
f. Jul pay-offs	23,147	22,315	79,257	292,346	3.62	15	748	76	36	25%	44%	30%	93%	4%	37%	100.0	100.0
g. Jun pay-offs	24,792	23,926	84,580	293,467	3.69	14	748	76	36	25%	46%	29%	92%	5%	38%	100.0	100.0
h. May-21 issuances	98,201	97,646	329,084	298,406	3.11	2	755	73	35	21%	41%	30%	93%	4%	43%	0.4	4.3
i. May-19 issuances	13,444	12,656	64,227	209,323	4.62	27	738	80	37	13%	50%	7%	89%	7%	69%	5.5	49.0
Fannie Mae universe																	
j. Jul universe	9,551,110	2,527,627	11,849,862	309,645	3.62	35	751	74	N/A	N/A	39%	22%	89%	7%	43%	2.1	22.2
k. Diff vs. Jul component	8,035,666	1,047,442	6,394,262	31,868	0.40	25	-5	1	N/A	N/A	0%	-12%	-2%	1%	4%	0.5	5.0

Note: Profile calculations use public loan-level disclosures and Fannie Mae's BCPR methodology to define populations.

This Month's Prepayment Observations

In *Exhibit 8* we use the BCPR1 Heatmaps to highlight prepayment performance of various loan cuts. We add the MoM change and the MoM percentage change. Note that the Investor cut is listed twice. The first instance is the Investor story as part of a specified pooling waterfall. The second instance purely isolates investor loans as distinct from principal residence and second homes. Note the UPB differences between the two, as there are investor loans pooled in other stories like low loan balance cuts, etc. As with last month, the most notable observation from this exhibit appears to be the Investor story. Investor loans experienced a greater slowdown than the overall Fannie Mae universe and stood out among other spec cohorts, as seen below in Exhibit 4, as secondary market frictions have taken hold.

Exhibit 8. Mo/Mo Percentage Changes of Various Spec & Loan Cuts on the BCPR1 Heatmap

Population	Orig Amount ($ MM)	Current UPB ($ MM)	20-Aug	20-Sep	20-Oct	20-Nov	20-Dec	21-Jan	21-Feb	21-Mar	21-Apr	21-May	21-Jun	21-Jul	Mo/Mo Change BCPR1	Mo/Mo % Change
85k	$11,567	$10,338	12.18	13.28	13.38	12.3	13.06	10.62	10.75	13.21	11.71	10.44	11.12	10.48	-0.64	-6%
110k	$24,578	$21,841	14.91	15.8	15.41	14.22	15.86	12.21	12.81	15.15	12.48	11.15	12.36	11.63	-0.73	-6%
125k	$25,191	$22,261	16.16	16.04	16.23	15.51	15.75	13.62	13.73	16.88	13.23	11.91	12.58	12.14	-0.44	-3%
150k	$58,132	$51,076	16.85	17.69	17.92	16.14	16.9	14.18	14.86	17.5	13.54	11.68	12.94	11.97	-0.97	-7%
175k	$76,130	$66,275	19.14	19.66	19.82	17.66	18.46	15.63	16.34	18.61	14.29	12.21	13.56	12.82	-0.74	-5%
200k	$101,268	$87,386	20.02	21.65	21.67	18.74	19.99	17.56	17.64	19.64	14.98	12.38	13.77	13.37	-0.4	-3%
225k	$113,516	$97,000	21.96	22.98	22.7	19.69	20.99	18.94	19.45	21.4	16.03	12.89	14.61	13.88	-0.73	-5%
NY	$47,163	$42,764	15.61	16.41	17.77	15.65	15.3	12.5	12.4	14.54	10.79	8.39	7.92	7.23	-0.69	-9%
TX	$87,695	$73,496	25.42	25.72	25.03	21.34	22.89	22.29	20.78	24.87	17.85	15	16.13	15.06	-1.07	-7%
FL	$80,237	$69,061	22.51	23.42	23.42	19.38	21.83	18.66	19.93	22.64	16.75	13.55	15.1	13.96	-1.14	-8%
PR	$434	$412	11.92	7.97	12.32	14.38	4.36	11.34	5.69	6.85	7.49	5.09	4.84	6.67	1.83	38%
LTV>=95	$162,734	$130,635	28.51	29.68	30.93	27.89	30.79	27.91	30.28	32.44	23.29	18.71	20.5	19.17	-1.33	-6%
Investor	$52,599	$43,328	24.34	25.4	27.14	22.9	25.43	23.46	24.84	27.66	20.7	16.86	15.91	13.98	-1.93	-12%
FICO<700	$108,175	$84,759	29.56	30.12	31.8	29.39	31.93	26.9	28.24	31.76	24.97	21.69	22.51	20.73	-1.78	-8%
Non-Spec	$1,002,241	$774,733	33.38	35.01	35.9	31.13	33.8	30.73	31.26	30.89	19.57	15.69	17.35	15.85	-1.5	-9%
Retail	$1,146,977	$961,584	23.28	24.43	24.87	21.84	23.88	21.35	22.29	24.2	16.59	13.64	15.17	14.37	-0.8	-5%
Correspondent	$490,343	$364,103	34.24	36.71	37.38	33.11	35.07	31.72	32.23	33.53	23.4	18.31	19.54	17.61	-1.93	-10%
Broker	$315,326	$249,677	30	30.62	33.71	29.35	33.31	30.7	30.93	28.82	19.03	16.42	17.73	15.85	-1.88	-11%
Purchase	$752,631	$616,361	28.97	29.57	29.78	25.92	27.28	24.52	25.66	28.13	19.96	15.42	16.14	14.4	-1.74	-11%
Refi	$827,568	$666,257	25.47	27.63	28.89	25.01	27.93	25.65	26.02	25.84	16.52	14.17	16.14	15.46	-0.68	-4%
Cash-out	$371,580	$292,745	29.56	31.49	32.78	29.7	32.3	27.87	28.1	28.9	20.83	17.16	18.72	17.14	-1.58	-8%
Principal	$1,789,015	$1,438,795	28.26	29.67	30.43	26.7	28.96	26.07	26.73	27.64	18.7	15.3	16.82	15.56	-1.26	-7%
Second Home	$69,794	$58,242	25.9	26.4	26.86	22.35	24.15	21.26	21.58	23.61	17.44	13.35	14.29	13.19	-1.1	-8%
Investment	$92,849	$78,326	21.38	22.22	23.56	20.5	22.13	19.85	21.1	24.15	18.68	14.96	14.84	13.34	-1.5	-10%
Standard Appraise	$1,297,924	$1,043,367	27.75	29.1	29.95	26.42	28.44	25.39	26.55	28.61	20.3	16.23	17.39	15.98	-1.41	-8%
Appraise Waive	$653,745	$531,996	28.19	29.55	30.07	25.82	28.5	26.03	25.61	24.58	15.29	13.17	15.09	14.12	-0.97	-6%

MBS Cohort Analyzer Reports

Below, we continue featuring S-curves for various Fannie Mae 30-year cohorts for different historical performance periods to see how relative prepay behavior has evolved over time. Prepay sensitivity is displayed for the June activity, the previous month, six months ago and a year ago. We highlight performance on FICO, Loan Size, LTV, Channel, Loan Purpose, Selected States, Occupancy, and Appraisal Waiver Status in the snapshots below (See *Exhibits 5-12*). We invite readers to review our MBS Cohort Analyzer User Guide to review various ways to utilize this tool.
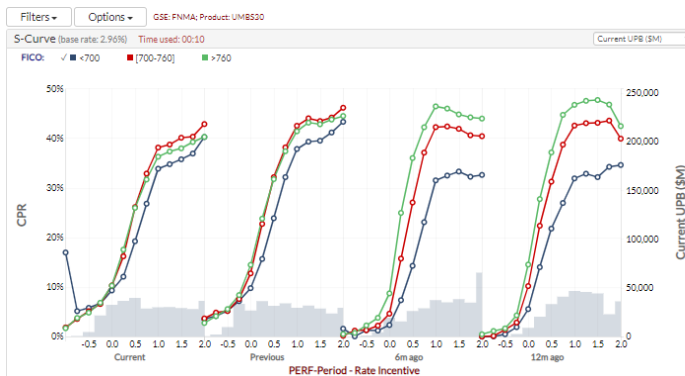
Exhibit 9: *S-Curves for FICO Buckets Over Various Performance Periods*
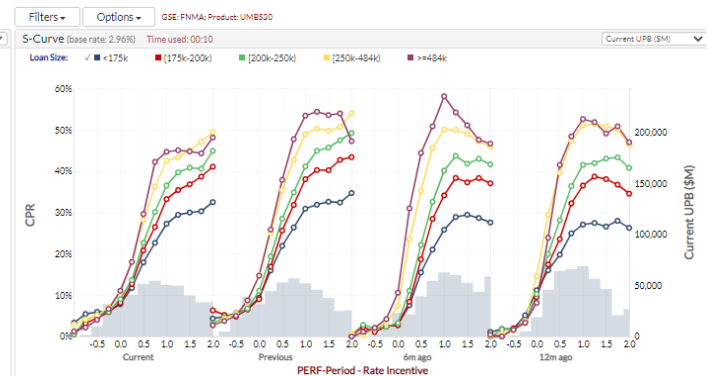
Exhibit 10: *S-Curves for Loan Size Buckets Over Various Performance Periods*
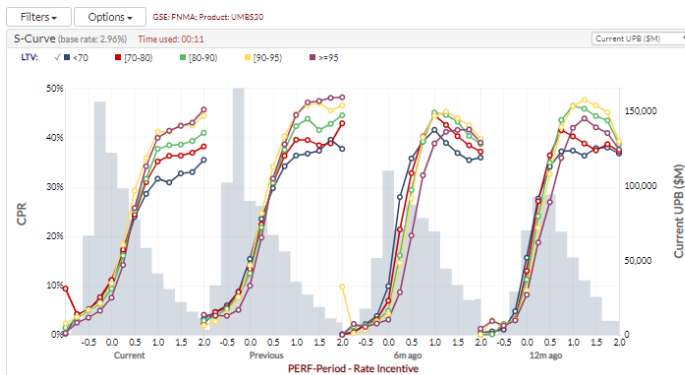
Exhibit 11: *S-Curves for LTV Buckets Over Various Performance Periods*
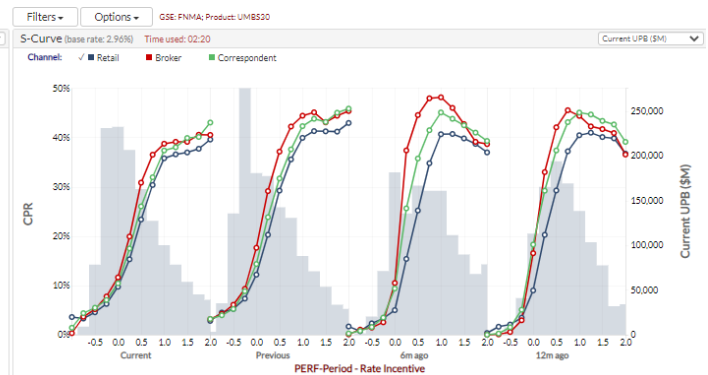
Exhibit 12: *S-Curves for Channel Buckets Over Various Performance Periods*
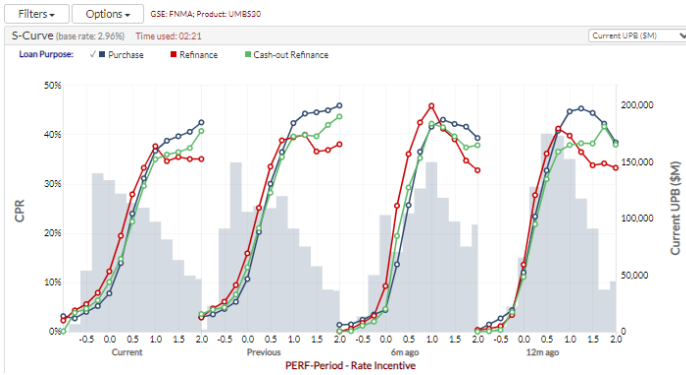
Exhibit 13: *S-Curves for Loan Purpose Buckets Over Various Performance Periods*
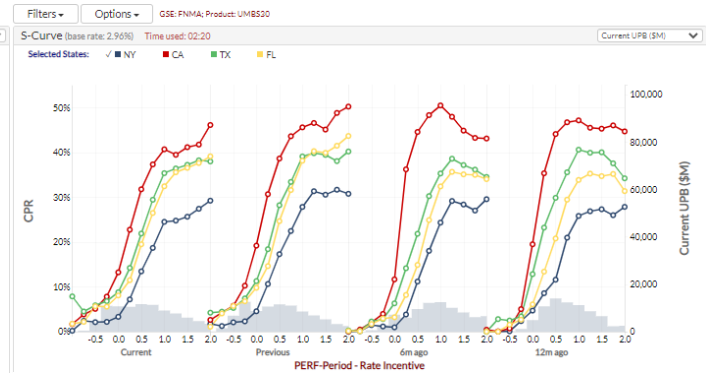
Exhibit 14: *S-Curves for GEO Story Buckets Over Various Performance Periods*
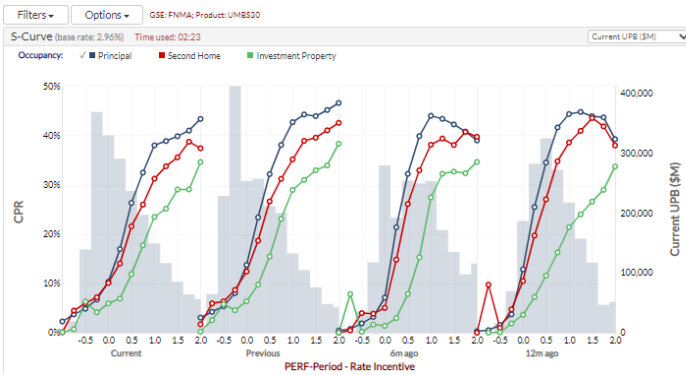
Exhibit 15: *S-Curves for Occupancy Buckets Over Various Performance Periods*
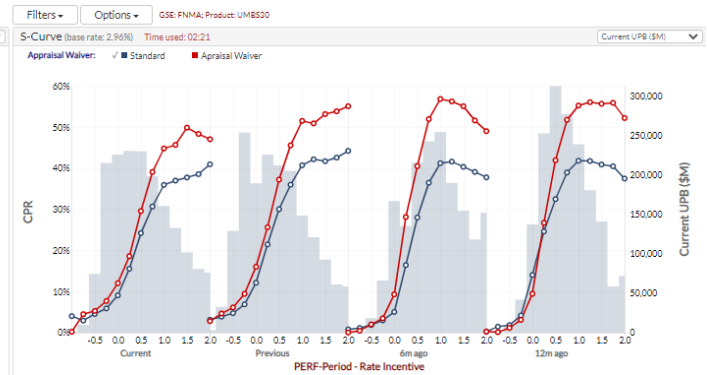
Exhibit 16: *S-Curves for Appraisal Buckets Over Various Performance Periods*

Additional Resources

For questions, contact the Fannie Mae Investor Help Line at 1-800-232-6643, Option 3 or by e-mail.

Benchmark CPR Dashboard

Benchmark CPR Historical Data Download

Benchmark CPR Methodology Overview

Benchmark CPR Video Tutorial

MBS Cohort Analyzer Dashboard

MBS Cohort Analyzer User Guide

MBS Cohort Analyzer Video

Data Dynamics Overview

Stay Connected

Sign up for news, commentaries, and announcements