Floating and Fixed-Rate Loan Prepayments

As of June 2022

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- This report presents a summary of Freddie Mac Multifamily floating-rate loan voluntary prepayment activity over the past 12 months (from July 2021 through June 2022).
- The 12-month average Constant Prepayment Rate (CPR) is 43% as of June 2022 — an increase of 10 percentage points from December 2021. 93% of current loans are in the 1% prepayment premium phase, which is up about 1 percentage point from the December report.
- The prepayment speed increased partially due to low interest rates at the beginning of the year and more loans entering favorable prepayment terms.
- Floating-rate loans offer borrowers more prepayment flexibility, with 83% choosing a one-year lockout followed by 1% prepayment premium.
- Prepayment speeds are computed based on loans that are eligible to prepay during the reporting period (July 2021 through June 2022) and exclude any loans still in their lockout period. However, that population changes monthly as loans season and exit their lockout period.
- We summarize prepayment speeds for floating-rate loans in the aggregate and by product type, vintage, prepayment type, prepayment phase and FRE-KF deal.
- Nearly all the fixed-rate loans that prepaid were in their open period. The June 2022 12-month annual average CPR for those open period loans was 67%.
- Prepayments are generally highest when prepayment premiums are lowest and among more seasoned loans.

The first Freddie Mac floating-rate K-Deal®, K-F01, was priced in October of 2012. The K-Deal program provides borrowers with the ability to obtain financing indexed to lower, short-term rates and also provides borrowers with more prepayment flexibility than fixed-rate products. Typical loan terms are 5-, 7- and 10-year. Through June 2022, Freddie Mac has funded and securitized more than 6,100 floating-rate loans totaling over $147 billion of original unpaid principal balance (UPB).

Prepayment Options Background

We originate 5-, 7- and 10-year floating-rate loans that generally range between $5 million and $100 million in size. We stopped accepting new loans indexed to LIBOR during the fourth quarter of 2020, and all new floating-rate loans will be indexed to SOFR. Legacy floating-rate LIBOR-indexed bonds will be transitioned to an alternative index in connection with the expected cessation of LIBOR at the end of June 2023. For most floating-rate transactions, we require borrowers obtain a third-party cap to hedge interest rate risk. Unlike our standard, fixed-rate K-Deal where loans have a lockout period followed by defeasance, our floating-rate program provides borrowers with more flexible prepayment options. The majority of borrowers opt for a lockout period followed by a 1% prepayment premium on the outstanding balance of the loan. Other options include step-down prepayment premiums where each year the prepayment premium decreases (typically starting at 3% for the first year, 2% the second year and 1% starting in the third year through maturity). Exhibit 1 shows the percentage of floating-rate business by term and prepay option going back to 2012 and does not include Value-Add Loans.

Loans that feature a 1-year lockout period followed by a 1% prepayment premium are by far the most popular structure, representing 83% of our floating-rate originations. Approximately 7% have a 2-year lockout period followed by a 1% premium, while the 3%-2%-1% step-down prepayment premium structure makes up 2% of origination floating-rate business. The remaining 8% of floating-rate business has varying lockout periods followed by prepayment premium, step-down structures or a combination of the two. Nearly all our floating-rate loans are either 7- or 10-year terms, making up 99% of floating-rate business.

Borrowers continue to favor 10-year loan terms, representing 60% (by UPB) of floating-rate business, while 39% are 7-year. Since our last report in December 2021, the breakout of 7-year and 10-year loans has moved little, with 7-year loans currently representing 39% of floating-rate business and 10-year loans accounting for 60%, while 5-year loans represent less than 1%.

The floating-rate program offers borrowers prepay optionality.

Exhibit 1: Available Prepayment Options for Floating-Rate Loans

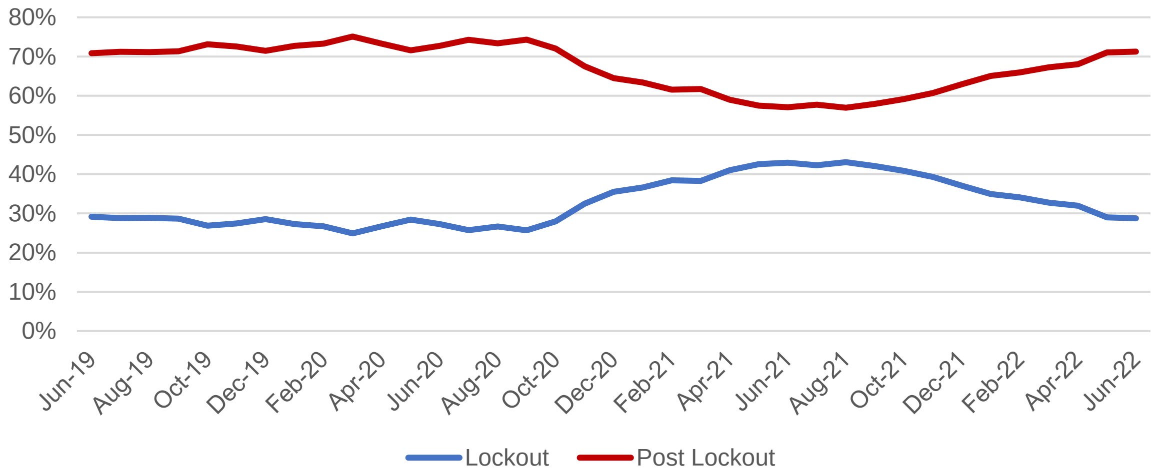
	Prepay Option % by Loan Term			Total % Floating-Rate Business			Total % Floating-Rate Business
Option	**5-year**	**7-year**	**10-year**	**5-year**	**7-year**	**10-year**	
1-year lockout, then 1%	91%	84%	83%	0%	33%	50%	83%
2-year lockout, then 1%	5%	6%	7%	0%	3%	4%	7%
3% - 2% - 1%	0%	2%	2%	0%	1%	1%	2%
All others*	5%	8%	8%	0%	3%	5%	8%
Total % Floating-Rate Business				0%	39%	60%	100%

Note: All others include a combination of lockout and step-down. Percentages represent original UPB balance for deals K-F01 through K-F136 and may not total 100% due to rounding.
Source: Freddie Mac.

Comparing June of 2019 with June of 2022, the rate of loans entering their post-lockout period is again equal at 71% (calculated monthly by the percentage of UPB) after dipping for much of 2021. This implies that recently more loans were seasoning out of their lockout period than originated with a lockout period. The middle of 2019 saw approximately 30% of UPB in the lockout period and 70% able to prepay with a premium, including those loans in the par/window period. In 2021, the percentage of loans post-lockout decreased, hitting 57% in July of 2021. Since then, the trend has reversed, and the percentage of loans post-lockout has risen.

Over the past year, the percentage of loans post-lockout increased and are now similar to levels seen in 2019 and early 2020.

Exhibit 2: Percentage of Active Loan UPB in Lockout and Post-lockout



Source: Freddie Mac

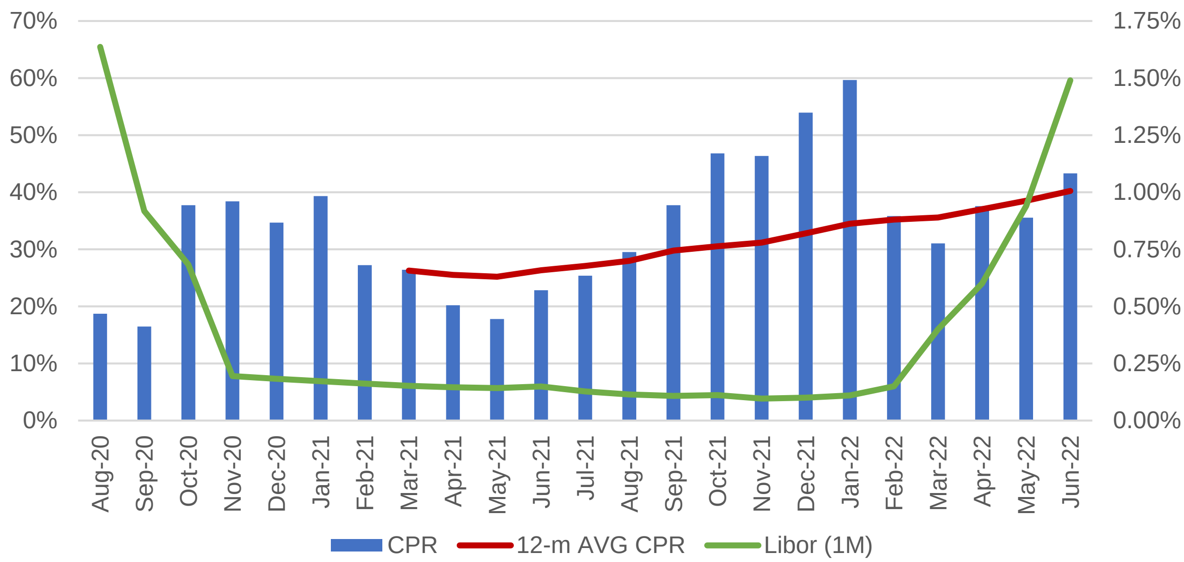
Prepayment Speeds by Loan Characteristics

In our prepayment speed analysis, we isolate the loan population that is contractually permitted to prepay by removing any loans still in the lockout period from the analysis. Due to the seasoning of loans, the population changes monthly as they move out of their lockout period into the ability to prepay with premiums. Therefore, we are calculating the prepayment rate based on a 12-month simple average unless otherwise stated.

As of June 2022, approximately 2,488 floating-rate loans remain active, representing over $62 billion in outstanding loan balance. The 12-month average CPR is 43%, compared with 33% in the December 2021 report. Exhibit 3 shows that annualized CPRs were generally in the 17% to 40% range from August 2020 through mid-2021, then late in 2021 the CPRs increased, ultimately hitting 60% by January 2022, but have since retreated to 30% to low 40% range.

Part of the reason for the increase in CPR through 2021 and into the beginning of 2022 is the low 1-month LIBOR rate. During 2020, 1-month LIBOR fell from 1.64% in August to less than 0.2% in December and remained near that level for all of 2021 until spiking up during the first half of 2022. As interest rates have increased during the first half of 2022, prepayment speed has declined from the elevated levels seen in late 2021 when rates were extremely low.

Exhibit 3: Annualized and 12-Month Average CPR and 1-Month LIBOR



Sources: Moody's Analytics, Freddie Mac

Due to the variety of prepayment premium options, we classify each loan into one of three prepayment premium phases: less than 1% (which includes the open phase), equal to 1% and greater than 1%. Exhibit 4 uses these classifications to show the percentage of outstanding loan balance over the 12-month period used in this report (July 2021 to June 2022). Consistent with the breakout of prepayment options in Exhibit 1, an overwhelming percentage of loans are in the 1% prepayment premium phase, with a small share in the <1% and >1% phases.

A vast majority of outstanding loans post-lockout are in the 1% prepayment premium phase.

Exhibit 4: Percentage of Outstanding Balance by Prepayment Premium Phase

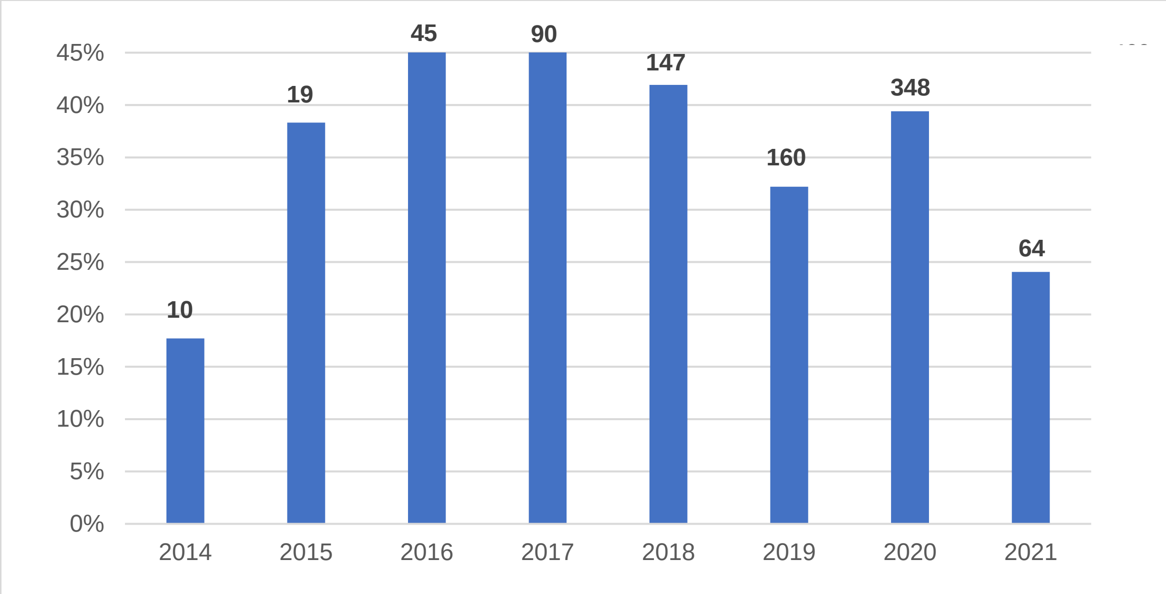
Prepayment Premium Phase	As of June 2021	As of June 2022
<1% Prepayment Premium Phase	2.95%	2.18%
=1% Prepayment Premium Phase	91.88%	93.51%
>1% Prepayment Premium Phase	5.17%	4.31%

Source: Freddie Mac

Over the past 12 months, the highest CPR by vintage are those loans originated in 2016 and 2017 at 45%, while the highest number of loans that prepaid were originated in 2020.

The most prepayments occurred in 2018 through 2020 vintage loans.

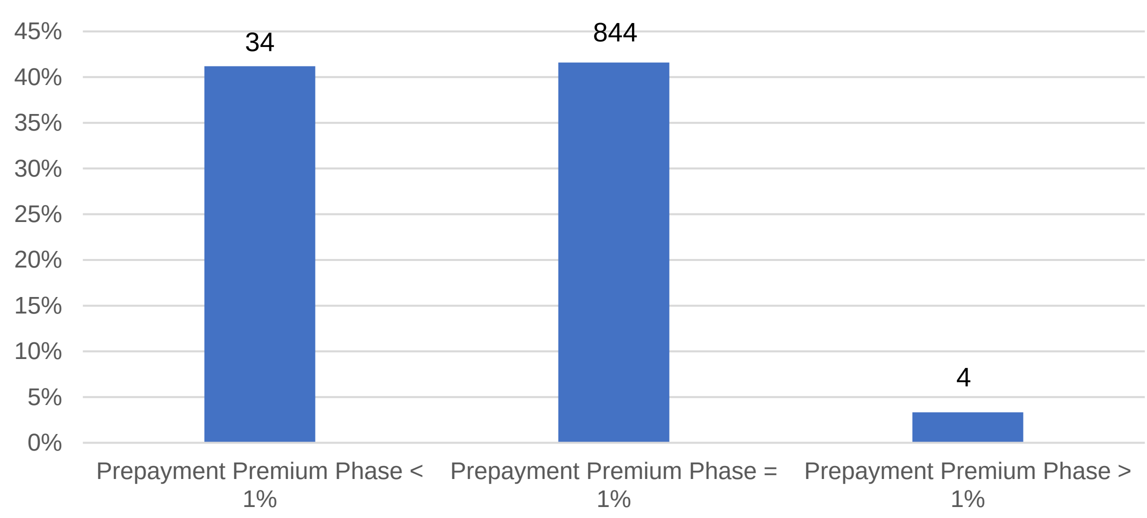
Exhibit 5: CPR and Loans Prepaid by Origination Vintage in the Past 12 Months



Source: Freddie Mac

Prepayment rates are the highest among loans that have a less than 1% prepayment premium and those with a prepayment premium of 1%, at 41% and 42% CPR respectively. By comparison, the CPR of loans with higher prepayment premiums is lowest at 3%.

Exhibit 6: CPR and Loans Prepaid by Prepayment Premium Phase in the Past 12 Months

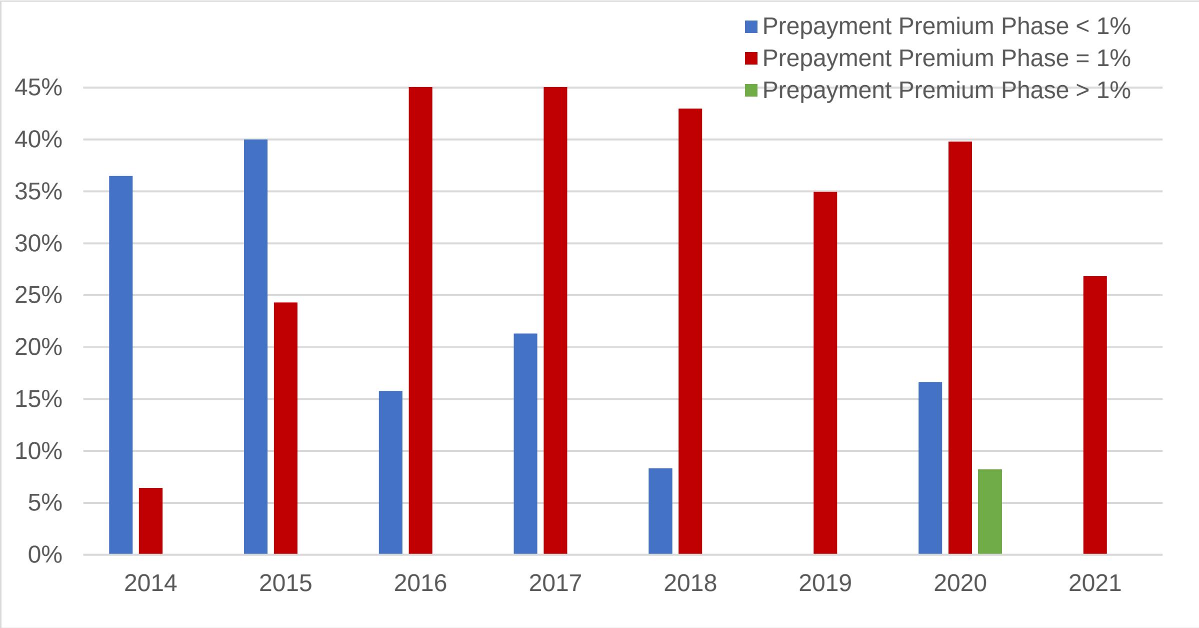


Source: Freddie Mac

Across vintage and prepayment premium phase, there is significant variation in prepayments, as shown in Exhibit 7. Loans with prepayment premiums of 1% or less and more seasoned loans generally have the highest prepayment rates, while loans with prepayment premiums of more than 1% were minimal.

CPRs are higher in loans originated three of more years ago and loans with lower prepayment premiums.

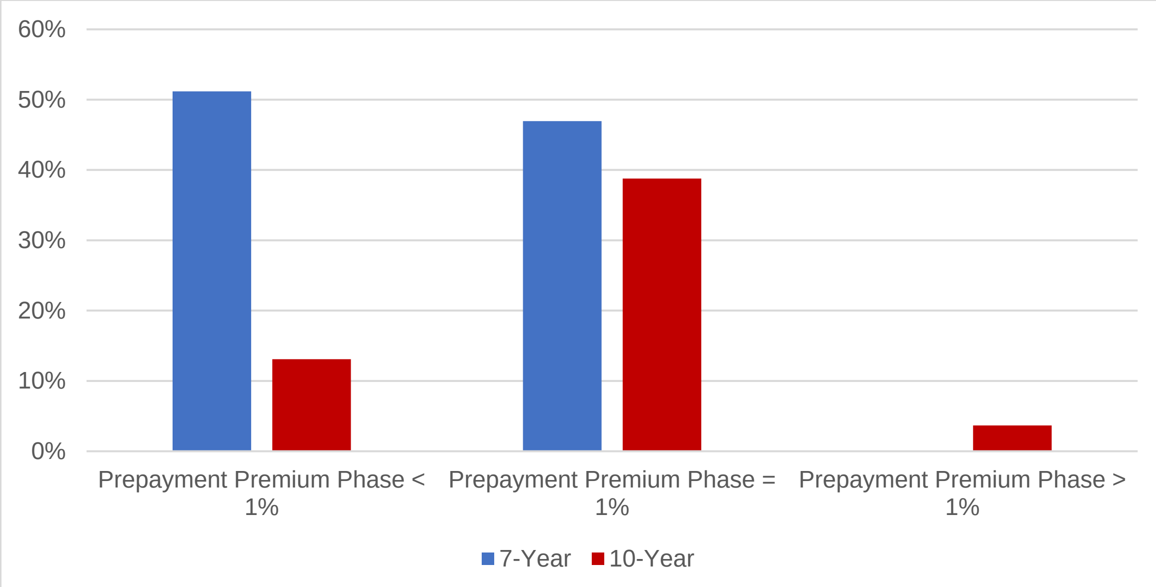
Exhibit 7: CPR by Vintage and Prepayment Premium Phase in the Past 12 Months



Note: We removed one loan from the chart that originated in 2021 with a prepayment premium of <1% and has since paid off.
Source: Freddie Mac

Since approximately 99% of floating-rate loans are either 7- or 10-year terms, we grouped any loans that are seven years or less into one category when analyzing prepay speeds by loan term. Exhibit 8 shows the CPR by origination term and prepayment premium phase. Across two of the three prepayment premiums, 7-year or shorter loans have a higher CPR than their 10-year counterparts. While the CPR for 10-year loans with a prepayment premium of 1% or more is low, no 7-year loans with a prepayment premium of 1% or more have prepaid.

Exhibit 8: CPR by Prepayment Premium Phase and Original Term in the Past 12 Months



Source: Freddie Mac

As shown in the Appendix, CPRs vary greatly by deal and are heavily dependent on when loans leave the lockout period and enter a prepayment premium phase. In the deal-level analysis, the CPRs are calculated using a weighted average of the number of loans in a post-lockout period in each month to the sum of loans in a post-lockout period over the 12-month reporting period. For example, as of November 2019, K-F50 had 43 post-lockout loans. This represented 16% of the total post-lockout loans in the 12-month reporting period. As of November 2020, only 20 loans were in a post-lockout period, representing 6% of the loans in a post-lockout period. This provides a comparison of CPRs among K-Deals, which shows that prepayment is dependent on loans exiting their lockout period. While the results vary, we typically see higher CPRs in the middle vintage K-F Deals while older K-F Deals either have no (or very few) loans remaining in the pools and below-average CPRs.

Loans with lower prepayment premiums have higher CPRs, along with shorter term loans.

Fixed Rate Prepayment Analysis

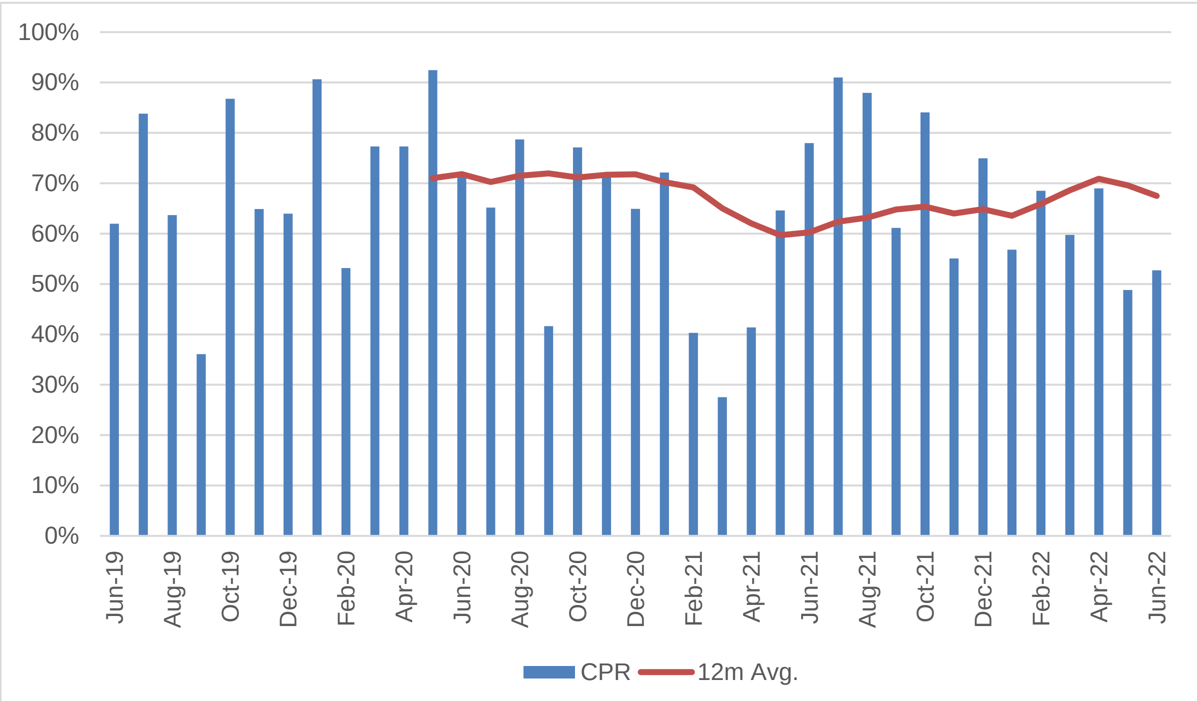
This report summarizes the prepayment speed of fixed loans based on three years of data, from June 2019 through June 2022. Loans included were 5-, 7-, 10- and 15-year as well as single-borrower deals. Typically, multifamily fixed-rate loans offer two prepayment options: lockout-defeasance-open structure and yield maintenance-open structure.[1] The vast majority of our fixed-rate loans are lockout-defeasance-open, representing 96% of our business while yield maintenance (YM) followed by an open period represents 4%. Yield maintenance and defeasance significantly reduce the prepayment risk during the prepayment premium phase of the loan. The average CPR for loans in either their

[1] Yield maintenance prepayment usually consists of two portions: (1) The loan's unpaid principal balance and (2) A prepayment premium. This premium is typically determined by calculating the present value of the remaining loan payments, with a discount factor equal to the current yield on the U.S. Treasury that matures closest to the loan's maturity date.
For defeasance prepayment, the borrower replaces the real estate securing its loan with a portfolio of securities that will generate the same debt service as the original collateral would over the term of the loan. Defeasance provides prepayment protection similar to yield maintenance for multifamily portfolio.

defeasance or YM period is less than 1%, while the CPR for loans without a prepayment premium is 66%.

Exhibit 9 shows the CPR for those loans in their open period. Over the past three years on a monthly basis the annualized CPR has varied from about 30% to 90%, with the June 2022 12-month average annual CPR of 67%. There is almost no prepayment activity during fixed-loans' defeasance or YM period. But once fixed loans enter the Open period, the average CPR increases dramatically.

Exhibit 9: Fixed-Rate Loans Annualized CPR During Open Period



Source: Freddie Mac

Summary

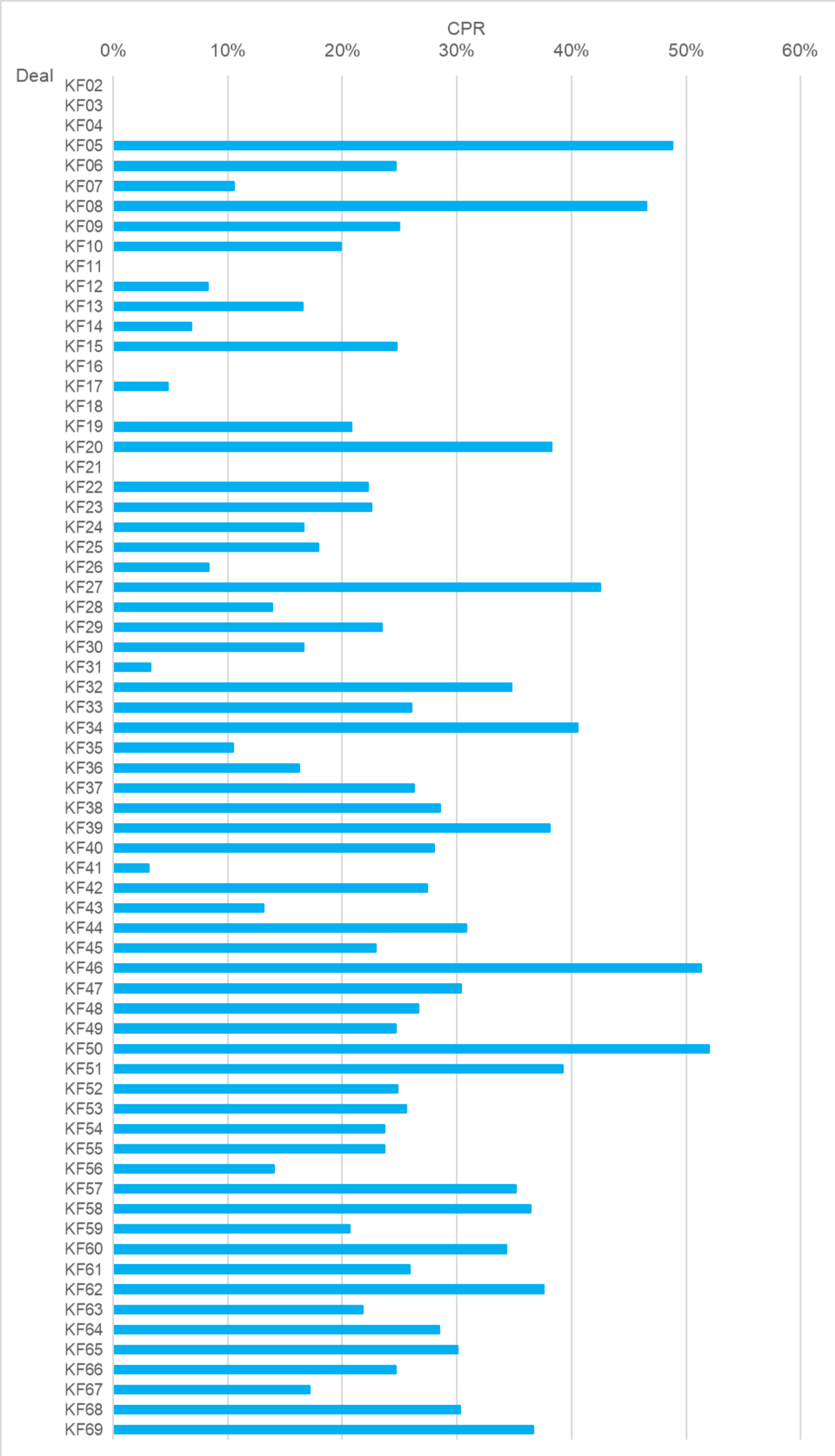
During the second half of 2021, the monthly floating prepayment rate increased with continued low interest rates and the optimism surrounding the strength of the economic recovery. However, interest rates rose quickly during the first half of 2022 and as a result, floating-rate prepayment speed dropped. As of June 2022, the overall 12-month CPR is 10 percentage points higher than what we reported in December 2021 for floating-rate loans. As these loans season and leave their lockout periods, we expect loans to prepay more quickly and the CPRs to increase. However, the rapid rise in interest rates may impact CPR speeds for floating-rate loans because higher interest rates typically slow down prepayment activity. Fixed-rate loan prepayments are minimal until the loans enter their open period, at which point prepayment speeds increase.

Appendix: CPR by K-F Deal in the Past 12 Months

Deal	CPR	Active Loans as of June 2022	Original Loan Count	Deal	CPR	Active Loans as of June 2022	Original Loan Count
KF02	0%	0	1	KF71	4%	27	34
KF03	0%	0	3	KF72	25%	11	27
KF04	0%	0	3	KF73	12%	30	38
KF05	49%	0	5	KF74	7%	13	19
KF06	25%	0	9	KF75	32%	18	32
KF07	11%	3	12	KF76	24%	25	39
KF08	47%	0	16	KF77	30%	11	24
KF09	25%	0	15	KF78	15%	26	33
KF10	20%	0	15	KF79	12%	31	37
KF11	0%	0	12	KF80	29%	26	41
KF12	8%	1	17	KF81	37%	24	42
KF13	17%	2	13	KF82	10%	21	28
KF14	7%	6	24	KF83	31%	20	35
KF15	25%	6	24	KF84	33%	19	36
KF16	0%	3	20	KF85	46%	12	40
KF17	5%	3	21	KF86	34%	13	33
KF18	0%	2	8	KF87	26%	26	49
KF19	21%	5	28	KF88	36%	11	23
KF20	38%	0	11	KF89	23%	15	35
KF21	0%	37	49	KF90	42%	21	37
KF22	22%	0	25	KF91	26%	26	41
KF23	23%	2	20	KF92	22%	33	45
KF24	17%	9	23	KF93	51%	22	43
KF25	18%	8	36	KF94	32%	34	45
KF26	8%	4	11	KF95	12%	32	38
KF27	42%	2	36	KF96	35%	32	49
KF28	14%	2	27	KF97	17%	27	37
KF29	23%	5	38	KF98	16%	28	31
KF30	17%	5	35	KF99	20%	23	28
KF31	3%	4	22	KF100	28%	24	41
KF32	35%	4	35	KF101	28%	21	33
KF33	26%	6	29	KF102	19%	25	36
KF34	41%	5	33	KF103	23%	24	31
KF35	10%	8	54	KF104	33%	18	26
KF36	16%	14	46	KF105	3%	27	29
KF37	26%	6	36	KF106	19%	27	30

KF38	29%	9	38
KF39	38%	7	31
KF40	28%	7	38
KF41	3%	6	15
KF42	27%	6	56
KF43	13%	9	34
KF44	31%	15	68
KF45	23%	16	60
KF46	51%	7	49
KF47	30%	8	55
KF48	27%	8	42
KF49	25%	12	54
KF50	52%	10	49
KF51	39%	9	41
KF52	25%	10	36
KF53	26%	14	46
KF54	24%	20	41
KF55	24%	18	40
KF56	14%	13	21
KF57	35%	17	42
KF58	36%	10	41
KF59	21%	22	40
KF60	34%	22	45
KF61	26%	18	33
KF62	38%	14	37
KF63	22%	23	36
KF64	29%	7	26
KF65	30%	15	26
KF66	25%	22	30
KF67	17%	13	21
KF68	30%	13	29
KF69	37%	15	33
KF70	30%	14	32

KF107	64%	20	30
KF108	29%	32	37
KF109	18%	32	40
KF110	8%	37	42
KF111	19%	39	43
KF112	41%	30	38
KF113	28%	35	39
KF114	2%	43	44
KF115	13%	62	65
KF116	18%	35	37
KF117	7%	57	61
KF118	0%	42	42
KF119	0%	44	44
KF120	0%	46	46
KF121	0%	28	28
KF122	0%	37	37
KF123	0%	32	32
KF124	0%	35	35
KF125	17%	24	25
KF126	0%	35	35
KF127	0%	34	34
KF128	0%	42	42
KF129	50%	35	36
KF130	0%	24	24
KF131	0%	48	48
KF132	0%	35	35
KF133	0%	29	29
KF134	0%	29	29
KF135	0%	30	30
KF136	0%	33	33
KF137	0%	0	32
KF138	0%	0	38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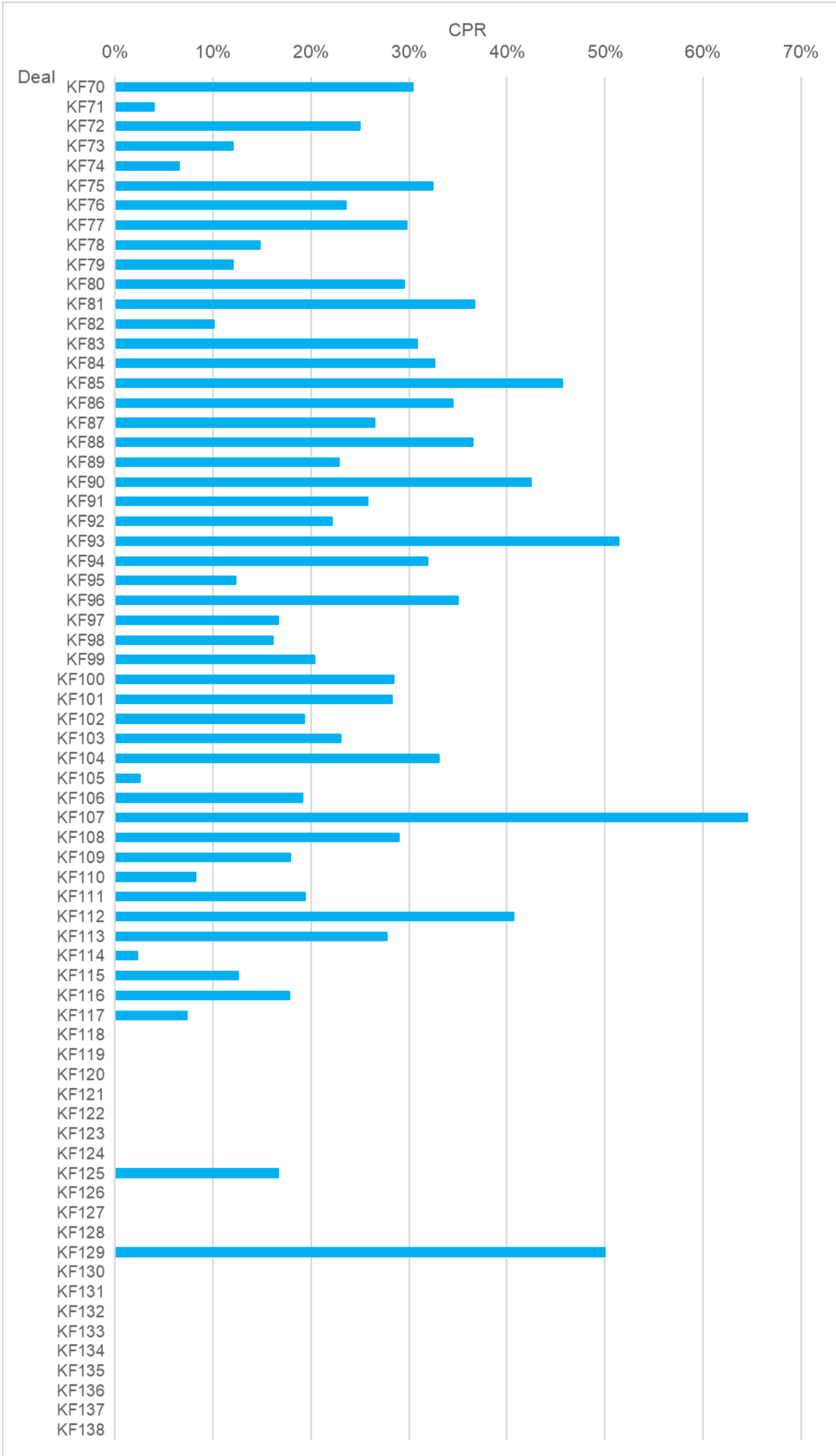
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