Analytics Insights

Education

An introduction to Ginnie Mae project loans

Agency CMBS

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Overview

Ginnie Mae Project Loans (GNPL), one of the major agency CMBS products, had a breakout year in 2020 as new issuance doubled since 2019. GNPL are typically fixed rate loans that have a maturity term of 35-40 years and full amortization, and are backed by multi-family, health care and rural housing properties. They also carry explicit US government guarantee and an outstanding balance of about $137 billion. This paper

- provides an introduction of the project loans, including their characteristics and Real Estate Mortgage Investment Conduit (REMIC) features;

- discusses GNPL prepayment behavior and drivers captured by Yield Book GNPL prepayment model.

Contents

Executive summary

- Ginnie Mae Project Loans carry explicit US government guarantee and are mostly fixed-rate 35-40 years loans backed by residential multifamily properties.

- The most common call protection provision in recent years is no lockout and 10-year declining penalty.

- During the COVID pandemic in 2020, with rates dropping to record low levels, GNPL refinancing activities spiked.

- Yield Book's GNPL prepayment model is designed to incorporate major prepayment factors in an effort to capture the dynamics and unique features of GNPL.

GNPL summary

Ginnie Mae Project Loans (GNPL) are typically fixed rate loans that have a maturity term of 35-40 years and full amortization, and are backed by multi-family, health care and rural housing properties.

Exhibit 1 shows the profile of new issuance of GNPLs in the last three years and the outstanding universe as of year-end 2020. The total outstanding balance is about $137 billion. New issuance for 2020 amounted to $31.6 billion, more than double that of 2019. The average note rate is 3-4% and median loan size $8-9 million for recent new issuances. Most of the loans have the "0/10" call protection (i.e. no lock-out period and 10-year declining prepayment penalty schedule). About three quarters of the loans are backed by multi-family properties.

GNPLs have $137 billion outstanding balance with average note rate of 3.5% and median size of 5MM, and mostly backed by multifamily properties.

Exhibit 1 – Snapshot of GNPL New Issuance and Outstanding

	New Issuance			Outstanding Universe
	2018	**2019**	**2020**	
Total UPB ($B)	19.9	14.8	31.6	137.3
Avg Note Rate (%)	4.0%	3.8%	3.0%	3.5%
Median Loan Size ($M)	8.9	9.6	8.9	5.0
% "0/10" Call Protection	61.2%	81.1%	73.7%	55.1%
% Multi-family	79.5%	69.7%	74.8%	74.6%

Source: Ginnie Mae, Yield Book (December 2020).

Explicit guarantee from US government

GNPLs carry an explicit US government guarantee, either in the form of Federal Housing Administration (FHA, part of the Department of Housing and Urban Development, aka HUD), insurance or US Department of Agriculture (USDA) guarantee for a full recovery of principal. In addition, additional GNMA guarantee ensures the timely payment of principal and interest. Another advantage is that bank regulators attach a zero-percent risk weighting to GNPLs.

US Government guarantees the principal and interest payment, but not the prepayment penalty.

Property types

There are three types of properties financed by project loans:

- Residential multi-family (low- and moderate-income multi-family housing)

- Health care (nursing homes, assisted living facilities and hospitals)

- Rural housing

Exhibit 2 – Original GNPL balance distribution by property types
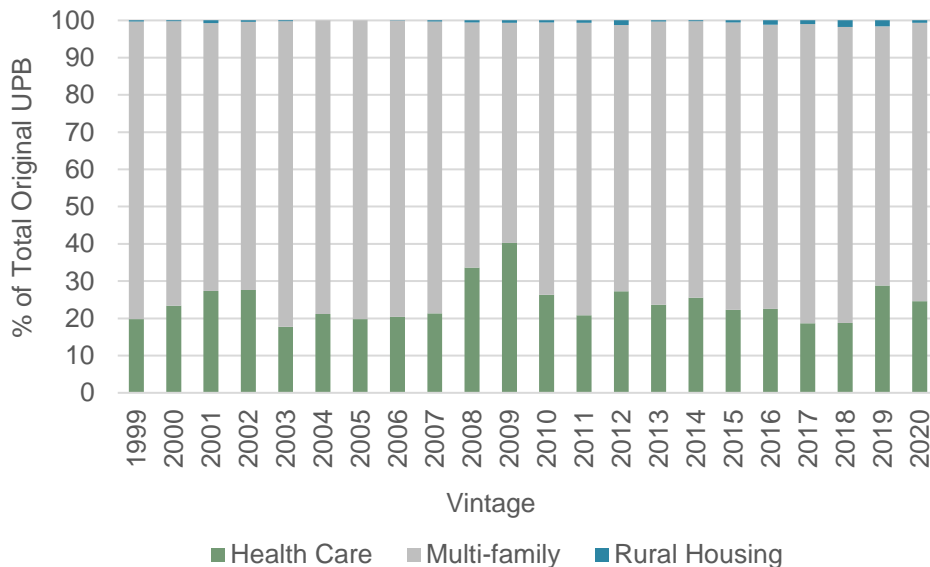
Residential multi-family has been the dominating property type over the years.

GNPL underwriting

GNPL loans are underwritten through various sections of the National Housing Act:

- Residential multi-family (Section 207, 221(d)(4), 223(a)(7), 223(f))

- Healthcare (Section 232, 242)

- Rural housing (Section 515, 538)

Appendix 1 – Project loan sections/programs includes a summary of each FHA/USDA lending program.

As part of the underwriting criteria, the required minimum debt service coverage ratios, or DSCRs, for the properties generally range from 1.11x to 1.20x, and the maximum loan to value ratios, or LTVs, range from 83% to 90%, across different type of properties in some major sections like 221(d)(4) and 223(f) (Exhibit 3).

Exhibit 3 – Underwriting criteria for section 221(d)(4) and 223(f) project loans

	221(d)(4)		223(f)	
	Min DSCR	Max LTV	Min DSCR	Max LTV
Market Rate Properties	1.20x	85%	1.20x	83%
Affordable Housing Properties	1.15x	87%	1.15x	85%
Rental Assistance Properties	1.11x	90%	1.11x	87%

Source: FHA/HUD (December 2020).

All GNPL loans are originated and underwritten by HUD-approved private lenders. Exhibit 4 shows the top five originators/underwriters based on new issuance volume in 2020.

Exhibit 4 – Top five originators/underwriters in 2020

| Originators/Underwriters	New Issuance ($bil)
ORIX REAL ESTATE CAPITAL,	5.14
GREYSTONE FUNDING COMPANY	3.56
DWIGHT CAPITAL LLC	3.14
BERKADIA COMMERCIAL MORTG	2.35
WALKER & DUNLOP, LLC	2.14

Source: Yield Book (December 2020).

Call protection

One key feature of GNPLs is the call protection provision for mitigating the prepayment risk. The call protection is typically in the form of a hard lockout period, followed by a penalty period for voluntary prepayments. Call protection provisions have evolved over the years (Exhibit 5). For recent vintages, the most common call protection provision has been no-lockout period and a declining 10-year penalty schedule ("0/10" for a short notation), which starts at 10% of the outstanding principal balance in the first year and declines by 1% annually in the following years. Popular structures in earlier years include the "2/8" structure (2-year lockout followed by 8-year prepay penalty, which declines 1% annually from 8% to 1%) and "1/9" structure (1-year lockout followed by 9-year prepay penalty which declines 1% annually from 9% to 1%).

"0/10"s have been the most common call protection provision in recent years (no lockout, 10-year penalty term which declines 1% annually from 10% to 1%).

Exhibit 5 – Call protection provisions by vintage
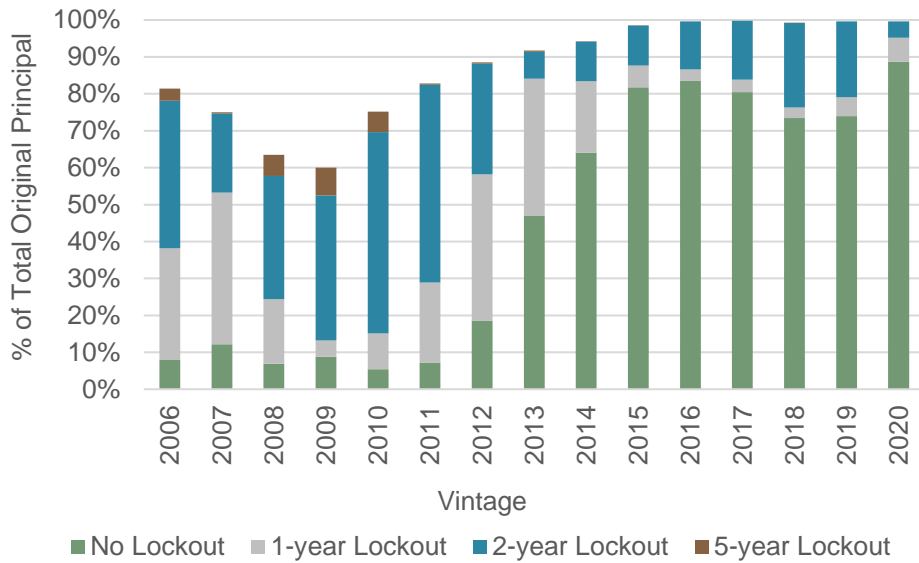
Source: Ginnie Mae, Yield Book (December 2020).

Exhibit 6 shows the GNPL outstanding balance distribution by call protection provisions. As can be seen, more than half call protection provisions are "0/10"s. Note that the "Other" category includes loans with more than two years of lockout as well as loans with irregular penalty schedules, e.g., a 10-year penalty schedule with 10% for the first 5 years, and declining from 5% to 0% in the following five years.

Exhibit 6 – Distribution by call protection provision (by current outstanding balance)
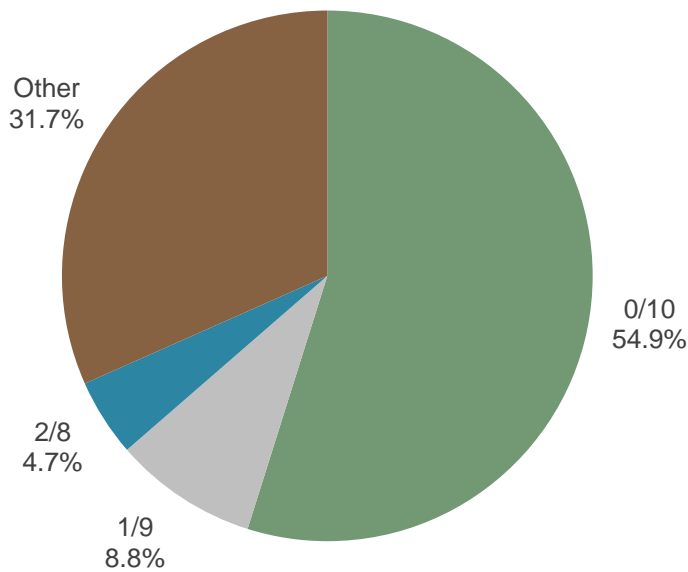
Source: Ginnie Mae, Yield Book (December 2020).

PLCs and CLCs

Project loans with FHA insurance can also be traded as pass-through certificates. They can be either construction loan certificates (CLC) or permanent loan certificates (PLC). CLCs have a commitment of total loan amount and allow multiple drawdowns over the construction period during which only interest payment is required. CLCs can be converted to PLCs upon construction completion and FHA endorsement. CLCs have been a relatively small portion of the originations (especially for 2020), with the majority being PLCs (Exhibit 7).

Construction loans (CLCs) can be converted to permanent loans (PLCs) upon construction completion and FHA endorsement.

Exhibit 7 – Original Balance Distribution CLCs vs PLCs
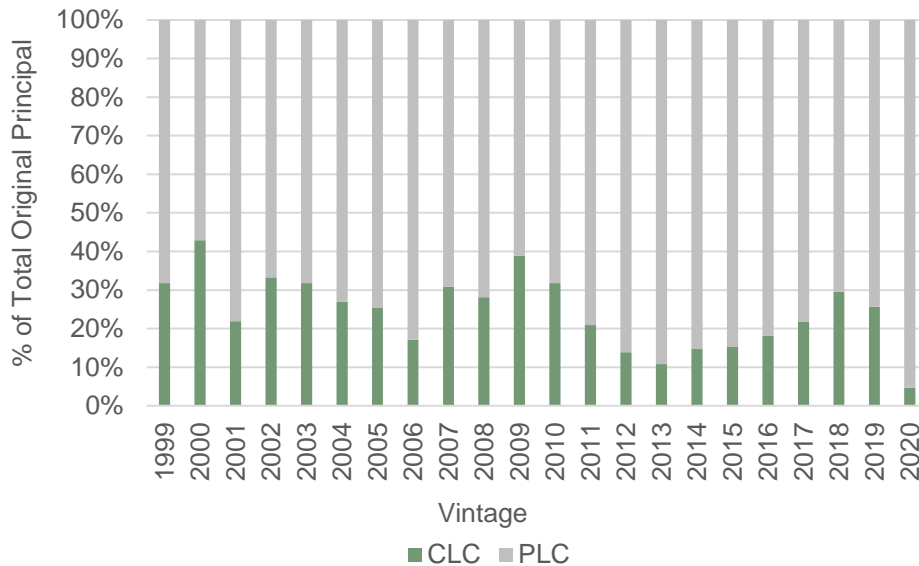
Source: Ginnie Mae, Yield Book (December 2020).

Securitization

Most of the project loans (PLCs/CLCs) are securitized in multiple-tranche REMIC, form (also called GNR REMICs). These REMICs provide geographic, coupon and program type diversity with a number of underlying project loans. In addition, the cashflow and deal structure features of GNR REMICs are designed for various duration and risk/return profiles. Exhibit 8 shows the new GNR REMIC issuance volume, average deal size, and average number of loans per REMIC deal in the past three years. Note that section 242 hospital loans are excluded from GNR REMIC securitizations.

Exhibit 8 – Snapshot of GNR REMICs new issuance

	2018	2019	2020
UPB ($bil)	16.0	15.0	33.5
Avg. Deal Size ($M)	219	221	322
Avg. # of loans	77	77	93

Source: Yield Book (December 2020).

GNR REMIC issuance for 2020 more than doubled that in 2019 as refinancing volume jumped and Ginnie Mae stepped up to meet financing demand in multi-family market.

Deal structure

A typical GNR REMIC deal, as illustrated in Exhibit 9 has three main types of classes/tranches:

- Time-tranched, sequential-pay classes with various average lives (typically ranging from 3 to 12 years).

- Z class accrues interest by adding to its principal balance; the interest diverted from Z class goes to pay down sequential classes first.

- IO class receives all excess interest and the prepayment penalties collected by the trustee.

Exhibit 9 – A sample GNR REMIC deal (GNR 2020-159)

Class of REMIC Securities	Original Principal Balance (1)	Interest Rate	Principal Type (2)	Interest Type (2)	CUSIP Number	Final Distribution Date (3)
AB	$ 35,000,000	1.25%	SEQ	FIX	38380RBY5	October 2062
AC	25,000,000	1.30	SEQ	FIX	38380RBZ2	October 2062
AD	14,000,000	1.60	SEQ	FIX	38380RCA6	October 2062
AE	10,200,000	1.70	SEQ	FIX	38380RCB4	October 2062
AG	25,000,000	1.90	SEQ	FIX	38380RCC2	October 2062
AH	16,800,000	2.00	SEQ	FIX	38380RCD0	October 2062
AJ	20,000,000	(4)	SEQ	WAC/DLY	38380RCE8	October 2062
Z	830,000	(4)	SEQ	WAC/Z/DLY	38380RCF5	October 2062
IO	146,830,408	(4)	NTL(PT)	WAC/IO/DLY	38380RCG3	October 2062
Residual RR	0	0.00	NPR	NPR	38380RCH1	October 2062

Source: Ginnie Mae (October 2020).

Based on the Offering Circular of GNR 2020-159, the average life is 26.4 years for the Z class and 5.2 years for the IO class, when assuming a 15% constant prepayment rate.

Given the dual insurance of the underlying GNPLs, a GNR REMIC deal inherits the explicit government guarantee for the full recovery and timeliness of all cashflows when any of the GNPLs default. Similarly, GNR REMIC bonds also carry a zero-risk weighting. However, prepayment penalty collection for IO classes is not guaranteed by FHA or GNMA.

Return profile of IO classes can be very sensitive to prepayment speeds. Also, prepayment penalty collection for IO classes is not guaranteed by government.

Pricing convention

The market pricing convention for GNR REMICs is 15% CPJ, which is a combination of Project Loan Default curve (PLD) and a flat 15% Constant Prepayment Rate (CPR) for voluntary prepayments after the lockout period ends. The PLD curve (Exhibit 10) was developed more than two decades ago by Donaldson, Lufkin & Jenrette (DLJ) to estimate the default behavior of project loans, based on historical project loan default experience. Default rates are expressed as a per annum percentage of the outstanding principal balance of a project loan by loan age.

Exhibit 10 – PLD curve
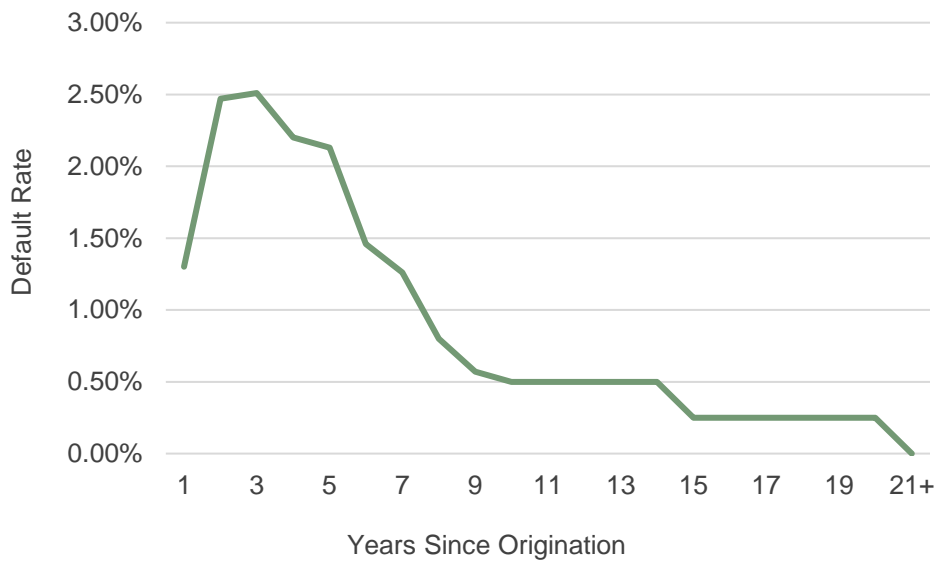
Source: Yield Book (December 2020).

GNPL historical prepayment speeds

As discussed above, due to the explicit guarantee on principal recovery from US government, the main risk for GNPL is the prepayment risk, which is comprised of voluntary prepayments and involuntary prepayments (due to default). Exhibit 11 illustrates the total prepayment speeds by vintages and loan age in years.

Exhibit 11 – Historical Prepayment Speeds for GNPLs

Year Since Origination	Issue Year															
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1	0.1	1.4	0.2	1.0	1.5	7.9	1.9	0.1	5.0	4.4	2.0	2.1	3.3	7.1	5.4	4.0
2	0.8	0.4	2.6	4.3	5.5	14.3	14.2	2.4	4.3	8.1	5.6	7.8	4.9	15.6	35.0	
3	1.7	4.2	5.0	14.8	18.0	35.5	16.2	3.4	3.5	16.2	13.3	11.0	5.0	24.5		
4	7.5	4.5	9.4	15.5	26.8	22.2	13.8	4.9	7.3	13.4	13.8	12.2	25.4			
5	15.0	9.8	11.0	15.7	22.9	15.2	12.8	7.1	9.1	18.3	14.7	28.9				
6	13.7	14.8	13.7	10.3	15.8	12.6	14.9	6.7	12.7	18.1	26.0					
7	14.0	14.8	12.9	13.6	13.3	11.1	14.6	16.8	18.7	32.9						
8	21.3	17.0	14.8	10.8	9.4	10.2	13.0	9.2	22.8							
9	13.9	14.7	8.8	18.1	7.5	10.0	19.6	24.0								
10	14.9	26.2	9.6	11.5	8.7	19.3	34.4									

Source: Ginnie Mae, Yield Book (December 2020).

COVID pandemic impact

During the COVID pandemic in 2020, with rates moving down to record low levels, GNPL refinancing activities spiked, contributing to large prepayment speed jumps and a doubled year-over-year new issuance volume as pointed out earlier.

Exhibit 12 – GNPL Prepay Speeds 2019-2020
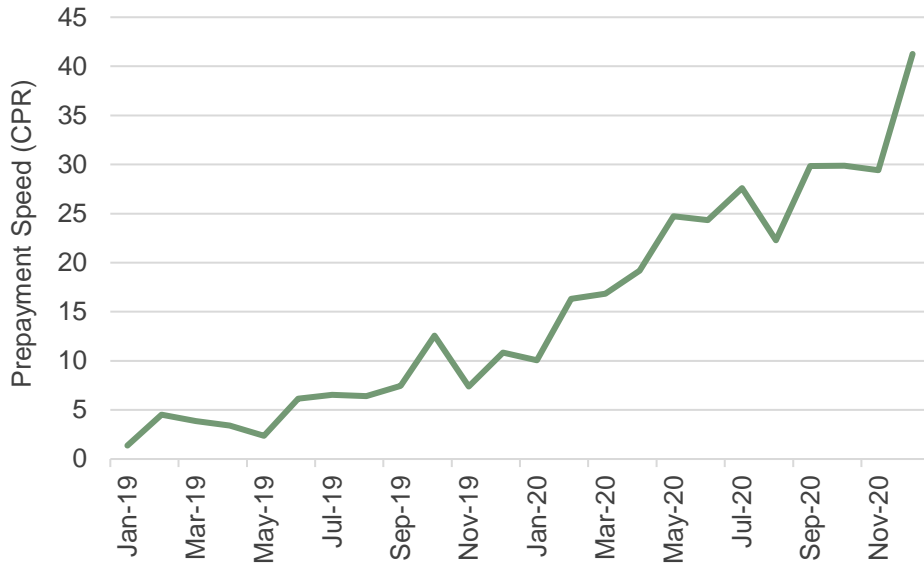
GNPL prepayment speeds jumped during the COVID pandemic due to record low rates.

Source: Ginnie Mae, Yield Book (December 2020).

While the GNR REMIC bond market was under stress at the beginning of the pandemic, the Fed's agency CMBS purchase program quickly came to provide a backstop and stabilized the spreads, which are now even tighter than pre-COVID.

That said, GNPL delinquency rates did pick up following the pandemic, touching 1.7% in June (up from 0.8% in March). Nevertheless, GNPL delinquency rates are still low compared to private label CMBS multi-family loans, which stand at around 3%.

Exhibit 13 – GNPL 30-Day+ Delinquency Rates
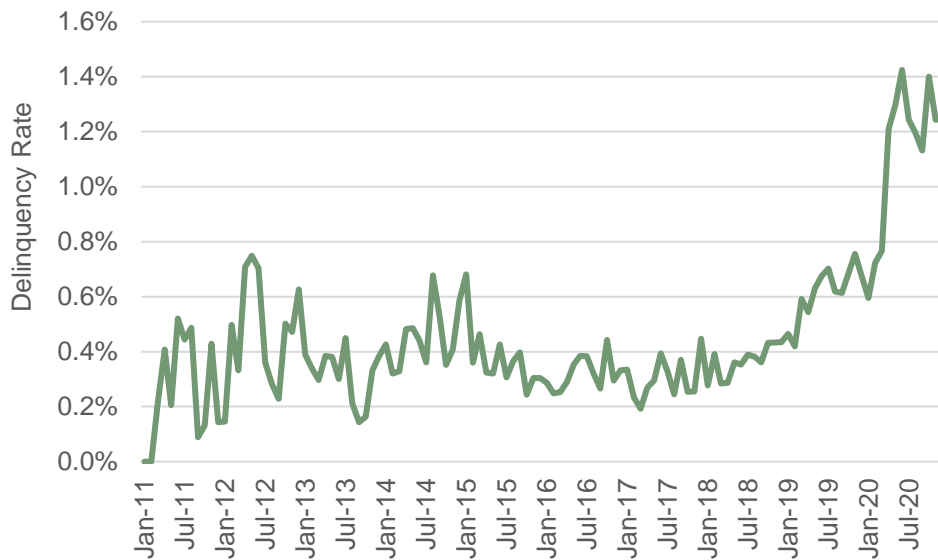
Source: Ginnie Mae, Yield Book (December 2020).

Prepayment behavior and model considerations

From Exhibit 11, it is quite clear that the historical prepayment speeds varied over time (often significantly departing from 15%), while the market pricing convention of 15% CPJ is a simplified assumption, which does not capture all the dynamics and unique features of GNPL. Yield Book's GNPL prepayment model is designed to incorporate major prepayment factors. In the next section, we will discuss GNPL prepayment behavior/drivers and Yield Book GNPL prepayment model.

Yield Book's GNPL prepayment model is designed to capture the major drivers behind prepayment behavior of GNPLs.

Call protection provision

Lockout period – Typical lockout periods are one- and two-years, or no lockout. The longer the lockout, the greater is the release of pent-up demand at its expiry (see Exhibit 14 for vintage 2014). On the other hand, most new GNPL issuance nowadays have no lockout period, meaning lockout expiration has little effect on recent vintages.

Exhibit 14 – Prepayment Speed by Lockout Periods for 2014 Vintage

Call protection provision (with lockout period and penalty term schedule) dictates the shape of GNPL prepayment speed curves.
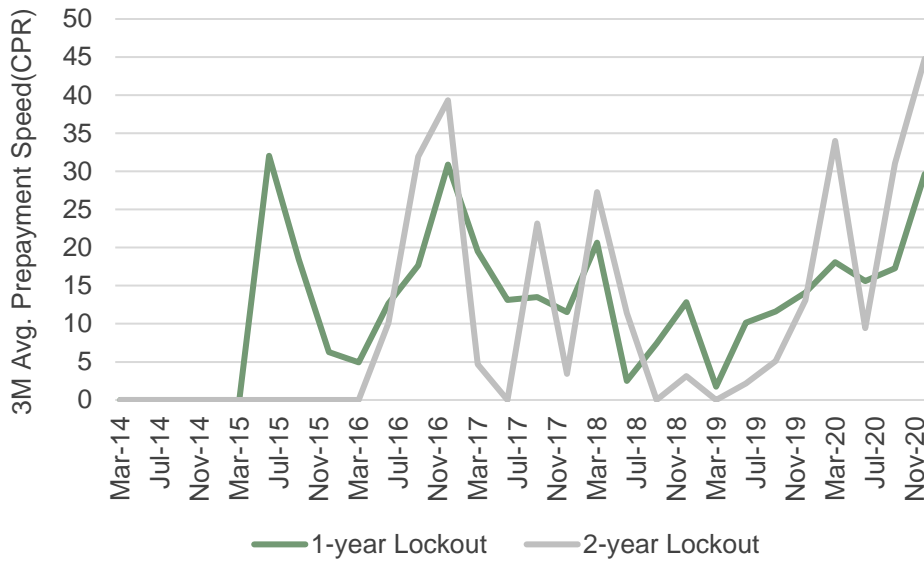
Source: Yield Book (December 2020).

Prepayment penalty – Following the lockout period, GNPL loans have a prepayment penalty term during which loans may still prepay as long as the refinance incentive (driven by record low rates, property appreciation, and penalty tax deductibility) exceeds the penalty. Obviously, the higher the prepayment penalty, the lower the prepayment speeds (Exhibit 15). In the same vein, prepayment speeds also tend to ramp up when penalty term seasons and penalty points decline (Exhibit 16).

Exhibit 15 – Prepayment Speed by Magnitude of Penalty (post-2000 vintages, multi-family)

Source: Yield Book (December 2020).

Exhibit 16 – Prepay speeds for recent vintage "0/10s"
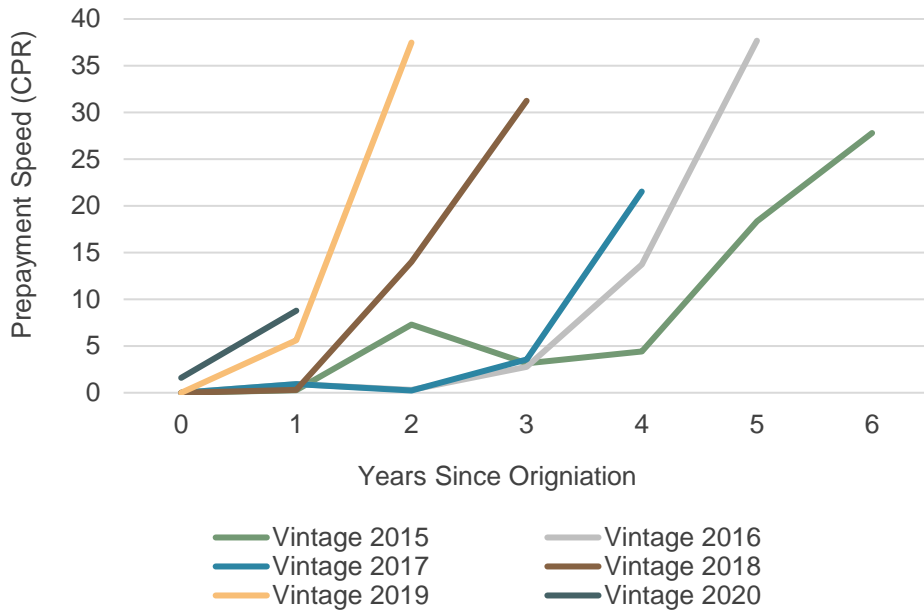
Source: Yield Book (December 2020).

Rate refinance incentive

Rate refinance incentive is a primary driver for GNPL prepayment behavior. Exhibit 17 shows that when the rate dropped to a trough in December 2016, the prepayment speed peaked at the same time. In 2020 following the pandemic, as the rate fell rapidly, the prepayment speed rose sharply and jumped to record high level at year end.

Prepay penalty adjusted rate refinance incentive is a key driver of GNPL prepayment activities.

Exhibit 17 – Prepay Speed vs Project Loan Rate for 2011 Vintage
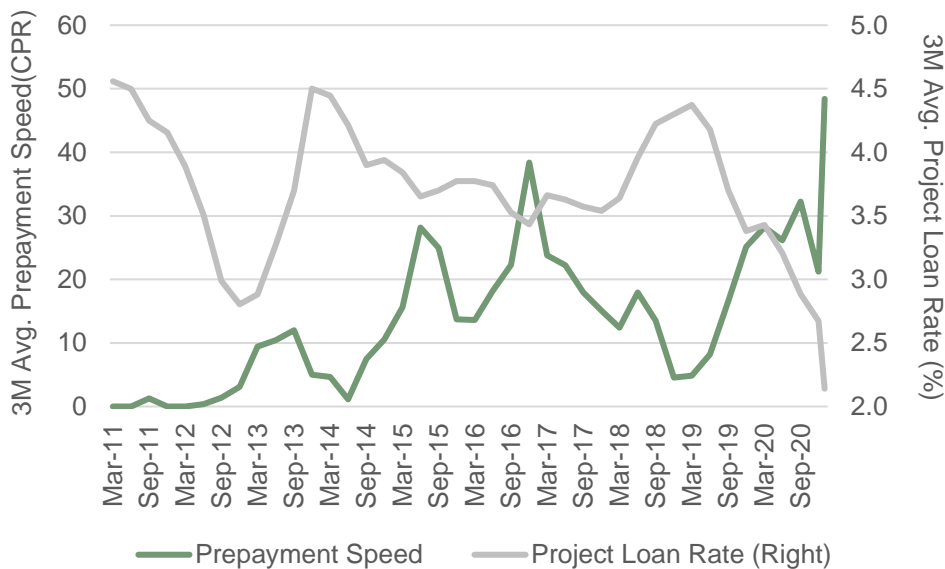
Source: Yield Book.

Rate refinance incentive depends not only on the project loan rate movement since origination, but also on the prepayment penalty points the borrower has to pay as the prepayment penalty decreases the rate incentive. Hence, a prepayment penalty-adjusted rate incentive needs to be calculated by translating the penalty points into equivalent rate movement.

Loan size

Larger loans tend to be more reactive and prepayment faster than smaller ones as shown in Exhibit 18. In addition, Exhibit 19 shows rate refinance S-curves where prepayment speed increases by penalty-adjusted rate incentive as well as loan size—given the same rate incentive, larger size loans will have higher dollar amount savings, and hence higher refinancing incentive.

Larger loans are more reactive to rate refinancing incentives.

Exhibit 18 – Prepayment Speed by Loan Size for 2011 Vintage (multi-family)
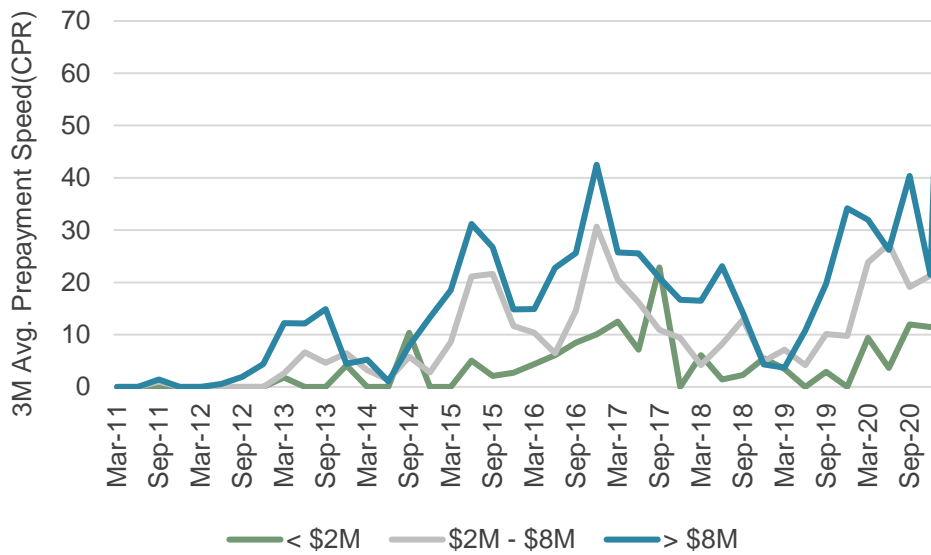
Source: Yield Book (December 2020).

Exhibit 19 – Rate Refinancing S-Curves by Penalty-Adjusted Rate Incentive and Loan Size (post-2000 vintages, multi-family "0/10s")
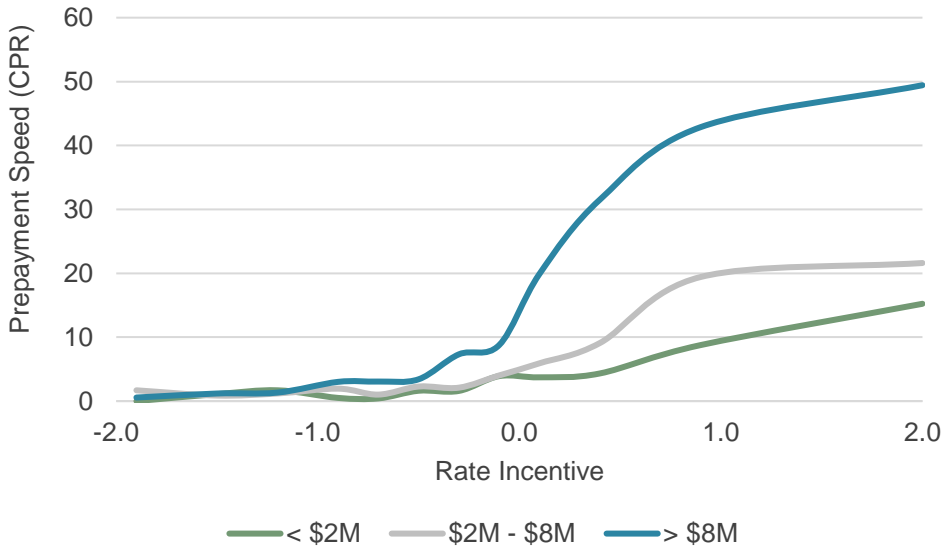
Source: Yield Book (December 2020).

Property type

Residential multi-family loans generally prepayment faster than health care loans and rural housing loans. Exhibit 20 compares the prepayment speeds for residential multi-family and health care loans for 2015 vintage.

Residential multi-family loans generally prepay faster than health care loans and rural housing loans.

Exhibit 20 – Prepayment Speeds by Property Types for 2015 Vintage
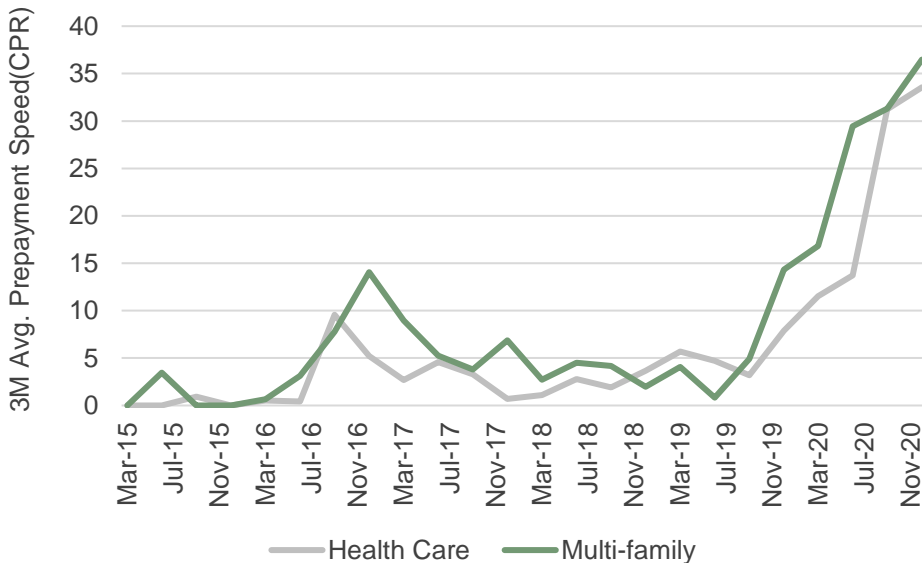
Source: Yield Book (December 2020).

The reasons that health care loan prepayments are slower and generally less responsive to refinancing incentives than multi-family loans is possibly related to the fact that health care properties tend to have smaller property price appreciation over time, and health care properties are mostly intended for long-term operational purpose.

That said, the prepayment speed for health care properties can be more volatile than multi-family properties from time to time due to the more complex nature of health care properties and government health care policy changes.

Construction loans

Empirical data indicates that CLC prepayments are typically slower than original PLCs in the first couple of years as they are in the construction period, but tend to prepay faster (comparing to original PLCs) after they convert to PLCs (Exhibit 21). This is likely due to fact that many CLC financed constructions were built to sell at a higher valuation once the property construction is complete or when the property is leased up.

PLCs which are converted from CLCs tend to prepay faster than original PLCs.

Exhibit 21 – CLC/Converted PLC vs Original PLC for 2010 Vintage
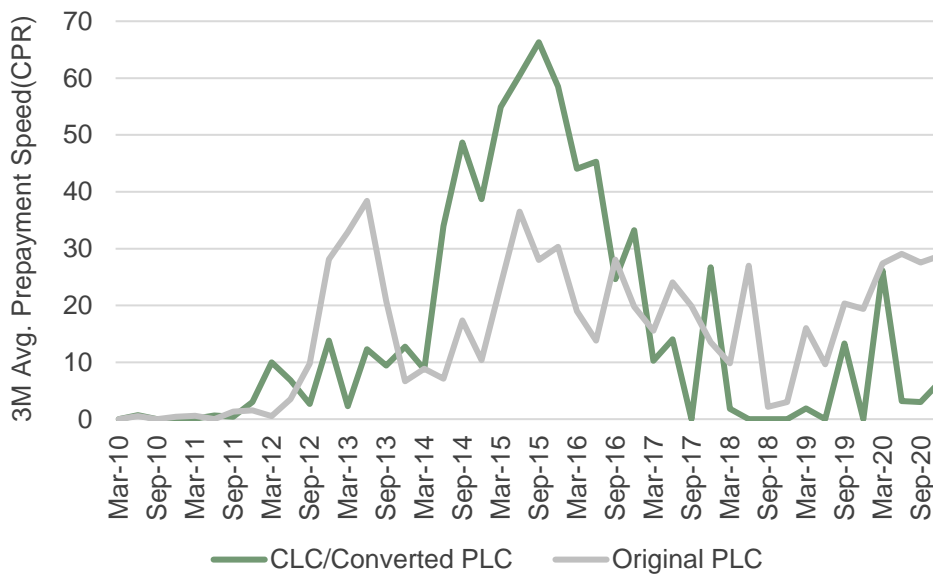
Source: Yield Book (December 2020).

Property appreciation

Prepayment speeds generally increase with property value appreciation, though it appears that the relationship is not very strong once the appreciation reaches over 60% (Exhibit 22), where some prepayments could also be attributed to higher Weighted Average Coupon (WAC).

Exhibit 22 – Impact of Property Price Appreciation on Prepayment (multi-family)
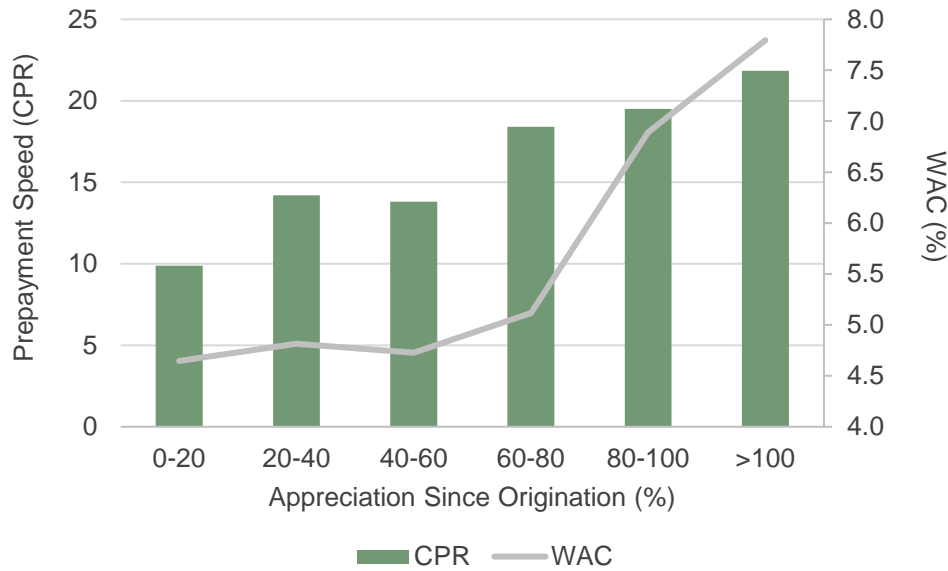
Source: Yield Book, Federal Reserve Board (December 2020).

Defaults

Yield Book GNPL prepayment model uses a modified Project Loan Default (MPLD) curve based on empirical observation that actual default rates start low in the first few years and stabilize at a low level after 20 years (instead of dropping to zero), as shown in Exhibit 23.

Furthermore, an adjustment is applied to the MPLD curve depending on the delinquency status and unemployment rate.

A modified PLD curve is used to model default rate with adjustment by loan delinquency status and unemployment rate.

Exhibit 23 – PLD Curve and MPLD Curve
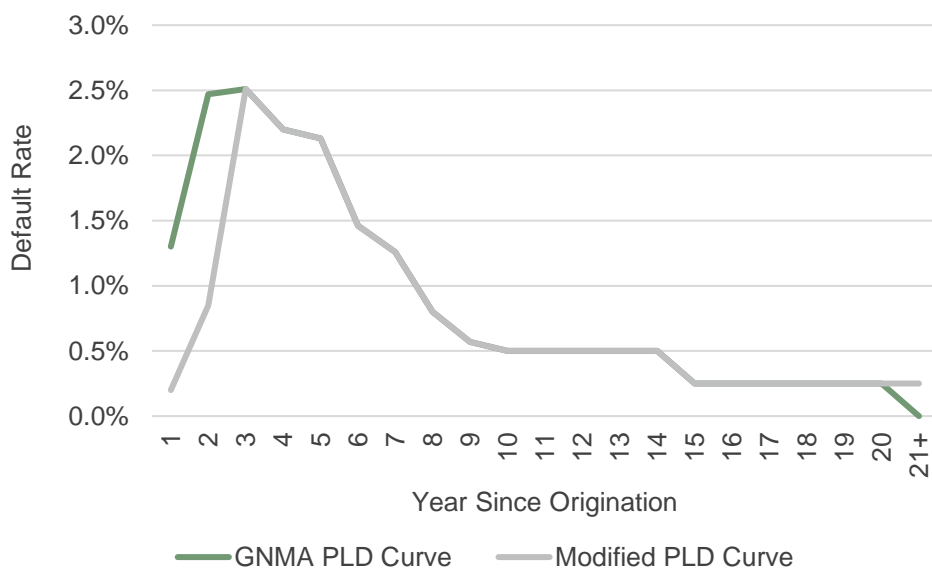
Source: Yield Book (December 2020).

Turnover

The turnover rate depends on the age of the loan, the property appreciation, the lock-in period, the seasonality, the unemployment rate and the property type.

Media effect

Media effect attempts to capture the phenomenon that when rates declined for an extended period and then dropped to record lows, the prepayment speeds are expected to be faster than what is implied by the rate incentive.

Burnout

The burnout effect refers to the situation when a loan has been exposed to a high number of refinancing incentives, but the borrower has chosen not to take them up. The fact that the loan fails to seize any of the refinancing opportunities implies inherent issues with the loan/property, which dampen prepayment speeds for this type of loans.

Underwriting tightness

Underwriting environment conditions can be reflected by loan rate spreads—wider spreads generally reflect tighter underwriting standards, and narrower spreads are often associated with loose underwriting.

Unemployment rate

Unemployment rate affects the fundamentals of GNPL properties and hence both prepayment and default. Rising unempoyment may also be associated with financial distress of lenders, limiting financings to GNPL market. It is worth noting that government subsidies such as Section 8, Medicare/Medicaid, and the various COVID stimulus/relief packages during the pandemic, have helped mitigate the economic stress of those who have lost jobs, and soften the impact to GNPL performance.

Model specification

Mathematically, the modeled prepayment speed (CPR) is expressed as the following, incorporating all the model considerations as mentioned above:

$$CPR = Volunatary\ CPR + Involuntary\ CPR$$

Where

- $Voluntary\ CPR = Refinancing + Turnover$

- $Refinancing = Refinance\ Factor * Media\ Effect\ Factor * Burnout\ Factor * Lockout\ Factor * Penalty\ Factor * Underwriting\ Factor * Property\ Appreciation\ Factor * Unemployment\ Factor * Construction\ Loan\ Factor * Property\ Type\ Factor$

- $Turnover\ = (Property\ Appreciation\ Factor +$

  $Seasoning\ Effect) * Lockin\ Factor * Seasonality\ Factor * Unemployment\ Factor$

- $Involuntary\ CPR = MPLD * Delinquency\ Status\ Factor * Unemployment\ Factor$

GNPL prepayments are broken into three main components:

- Refinancing

- Turnover

- Default (Involuntary Prepay)

Each component is driven by distinct factors.

Model performance testing

Below, we show the charts of model projected prepayment speeds compared to actual speeds for recent vintages from 2011 to 2019.

The testing results indicate that the performance of GNPL prepayment model is mostly satisfactory across different vintages.

Exhibit 24 – Model Performance Charts

GNPL Vintage 2011, Projected vs. Actual
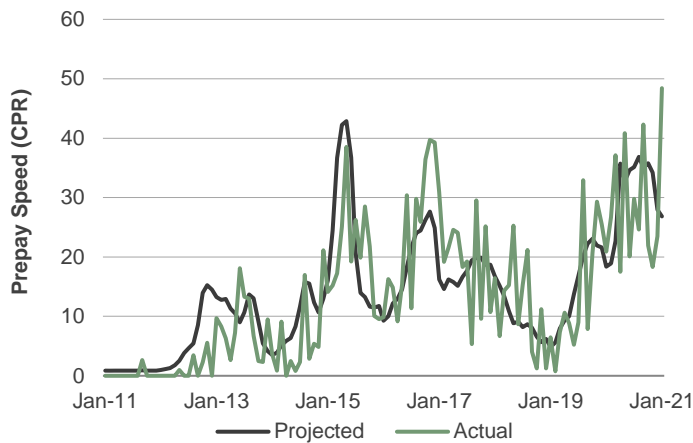
GNPL Vintage 2012, Projected vs. Actual
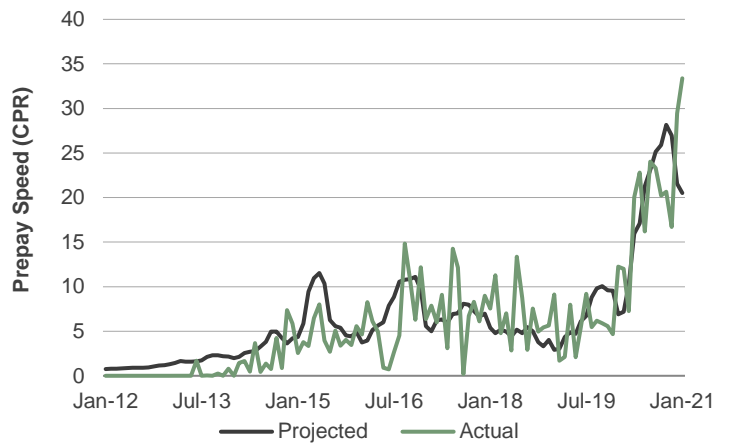
GNPL Vintage 2013, Projected vs. Actual
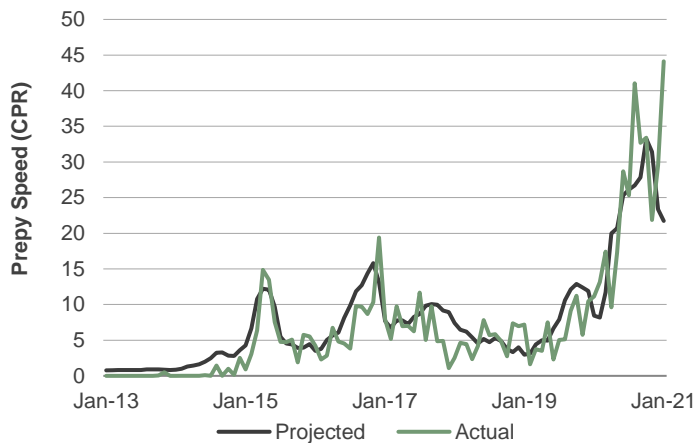
GNPL Vintage 2014, Projected vs. Actual
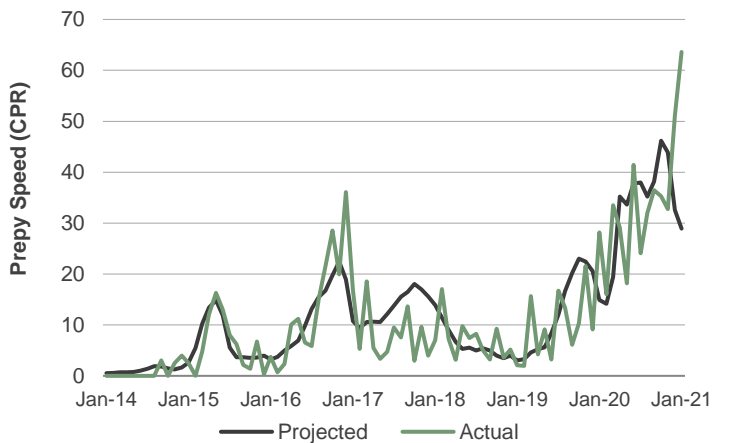
GNPL Vintage 2015, Projected vs. Actual
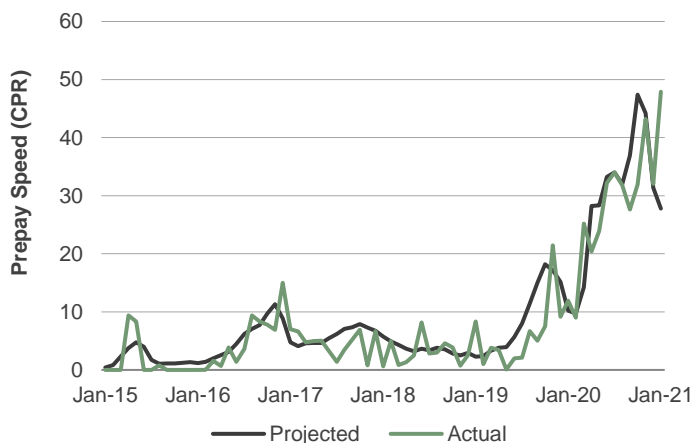
GNPL Vintage 2016, Projected vs. Actual
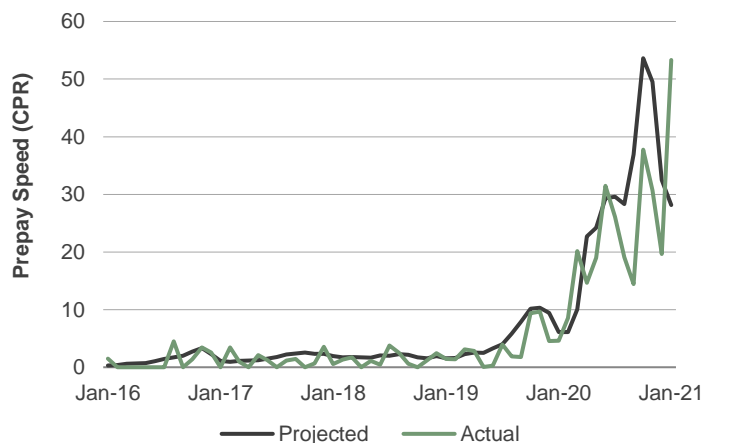
GNPL Vintage 2017, Projected vs. Actual
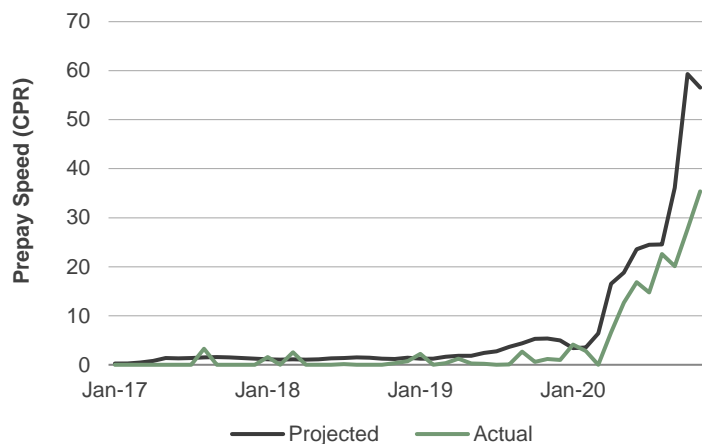
GNPL Vintage 2018, Projected vs. Actual
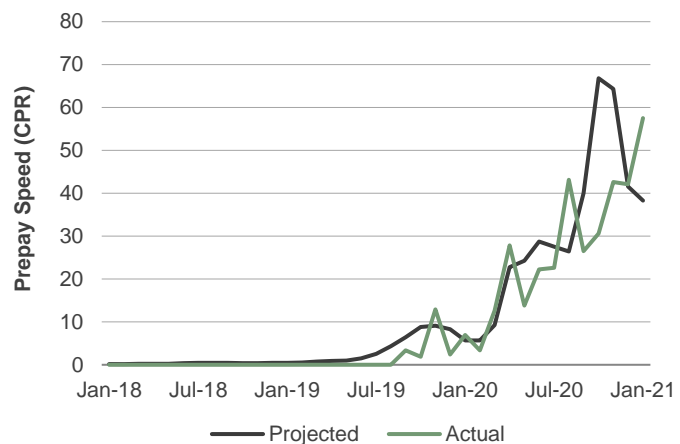
GNPL Vintage 2019, Projected vs. Actual
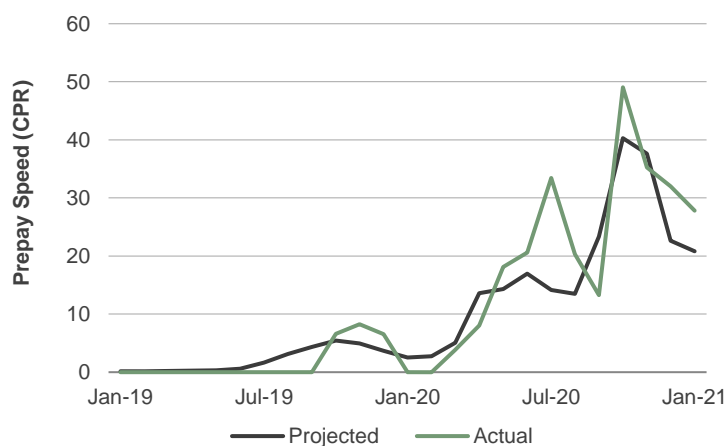
Source: Yield Book (January 2021). Past performance is no guarantee of future results. Please see the end for important legal disclosures.

Appendix 1 – Project loan sections/programs

Section 207, Mortgage Insurance for Rental Housing and Manufactured Home Parks:

Section 207 Program insures mortgage loans to finance the construction or substantial rehabilitation of a broad range of rental housing and manufactured home parks. Although still authorized, it is no longer used for new construction and substantial rehabilitation. It is, however, the primary insurance vehicle for the Section 223(f) refinancing program. Multi-family new construction and substantial rehabilitation projects are currently insured by Section 221(d)(4) programs.

Section 221(d)(4), Mortgage Insurance for Rental and Cooperative Housing:

Section 221(d)(4) insures mortgage loans to facilitate the new construction or substantial rehabilitation of multi-family rental or cooperative housing for low- and moderate-income families, elderly, and the handicapped.

Section 223(a)(7), Mortgage Insurance for Refinancing of Existing Multifamily Rental Housing:

Section 223(a)(7) insures mortgage loans to facilitate the refinancing of existing mortgages currently insured by FHA. The refinanced new loan amount is capped by the original balance of the old loan. And the new loan term is capped by the remaining term on the old loan.

Section 223(f), Mortgage Insurance for Purchase or Refinancing of Existing Multifamily Rental Housing:

Section 223(f) insures mortgage loans to facilitate the purchase or refinancing of existing multi-family rental housing. These projects may have been financed originally with conventional or FHA insured mortgages. The refinanced loan amount may exceed that of the old loan. Properties requiring substantial rehabilitation are not eligible for mortgage insurance under this program.

Section 232, Mortgage Insurance for Nursing Homes and Assisted-Living Facilities:

Section 232 insures mortgage loans to facilitate the construction, substantial rehabilitation, and refinancing of nursing homes, intermediate care facilities, board and care homes, and assisted-living facilities.

Section 242, Mortgage Insurance for Hospital Facilities:

FHA insures the construction, substantial rehabilitation, or refinancing of acute care hospital facilities ranging from large teaching institutions to small rural critical access hospitals through this program.

Section 515, Rural Rental Housing Loans:

Section 515 Rural Rental Housing Loans are mortgages made by USDA to provide affordable rental housing for very low-, low-, and moderate-income families, elderly persons, and persons with disabilities.

Section 538, Guaranteed Rural Rental Housing Program:

Section 538 Program provides federal government guarantees for loans made by commercial lenders to developers of multifamily rental housing for low- and moderate-income tenants in rural areas. USDA guarantees up to 90 percent of a loan made by a qualified lender

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