

COVID-19 Impacts and Key Drivers to Agency First Lien FRM Mortgage Performance

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Agenda

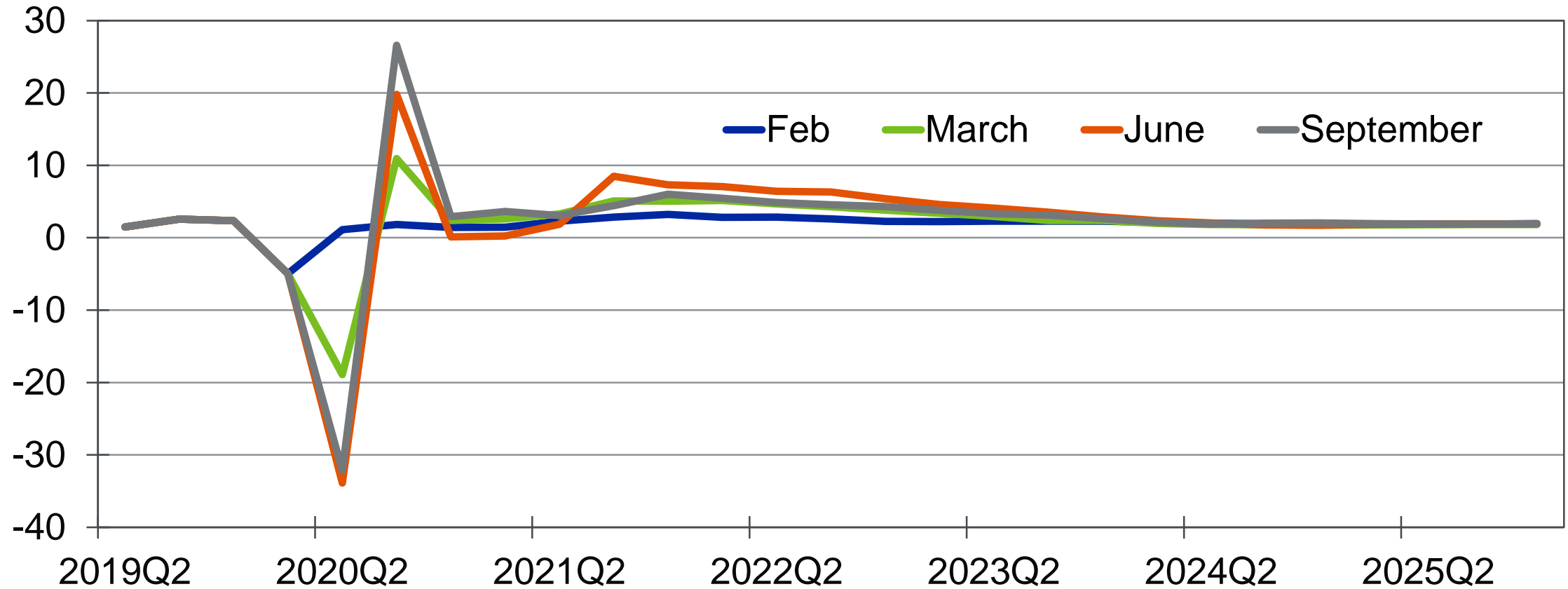
1. How COVID-19 Will Impact Fannie Mae and Freddie Mac First Lien FRM Mortgages
2. Which Accounts Are More Sensitive to the Economy
3. Methods to Analyze Fannie Mae and Freddie Mac Loans Under the CARES Act

1

How COVID-19 Will Impact
Fannie Mae and Freddie Mac
First Lien FRM Mortgages

Pre and Post COVID-19 Baseline Macro Outlook Changes

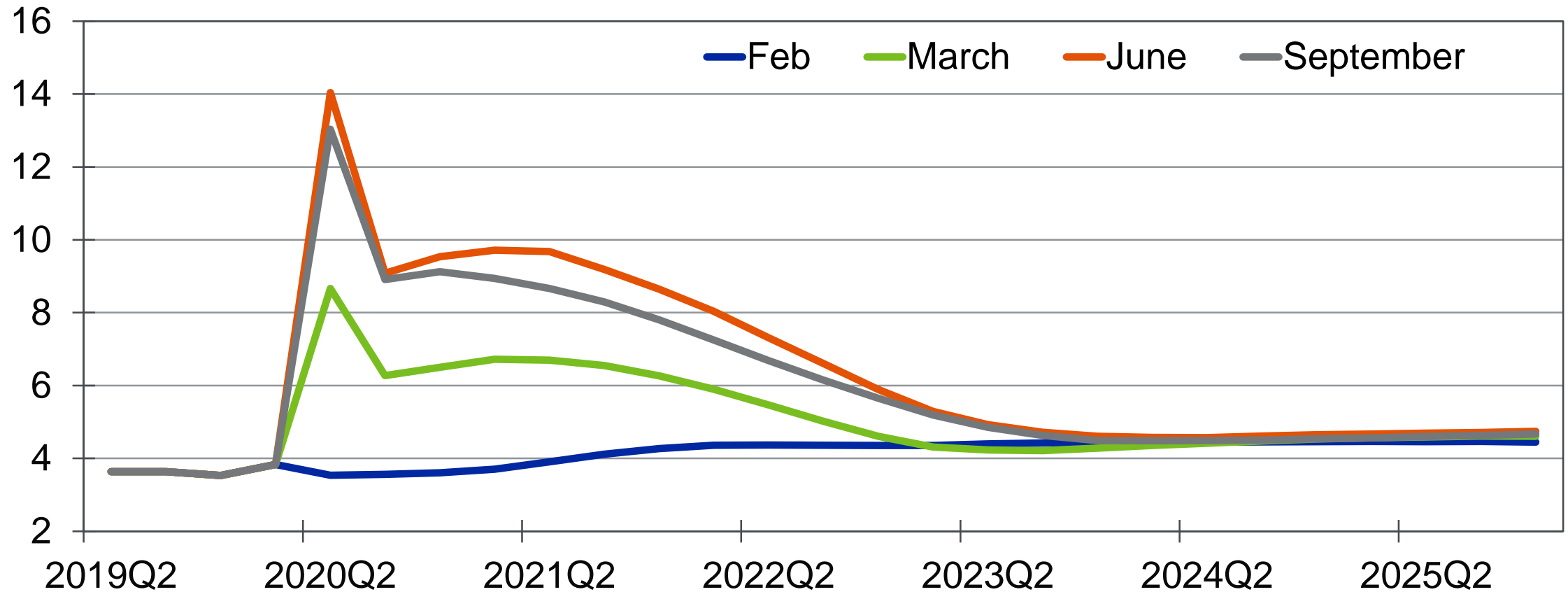
U.S. real GDP growth, SAAR (%)



Sources: BEA, Moody's Analytics

Pre and Post COVID-19 Baseline Macro Outlook Changes

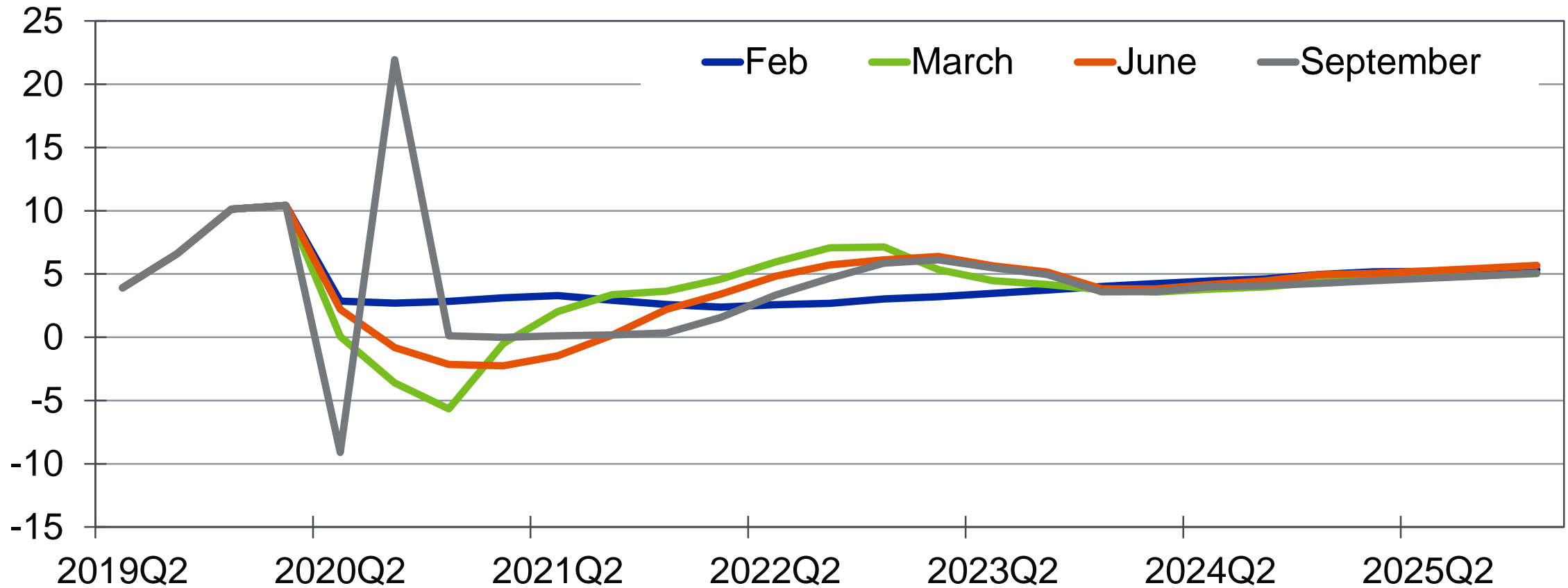
U.S. unemployment rate (%)



Sources: BLS, Moody's Analytics

Pre and Post COVID-19 Baseline Macro Outlook Changes

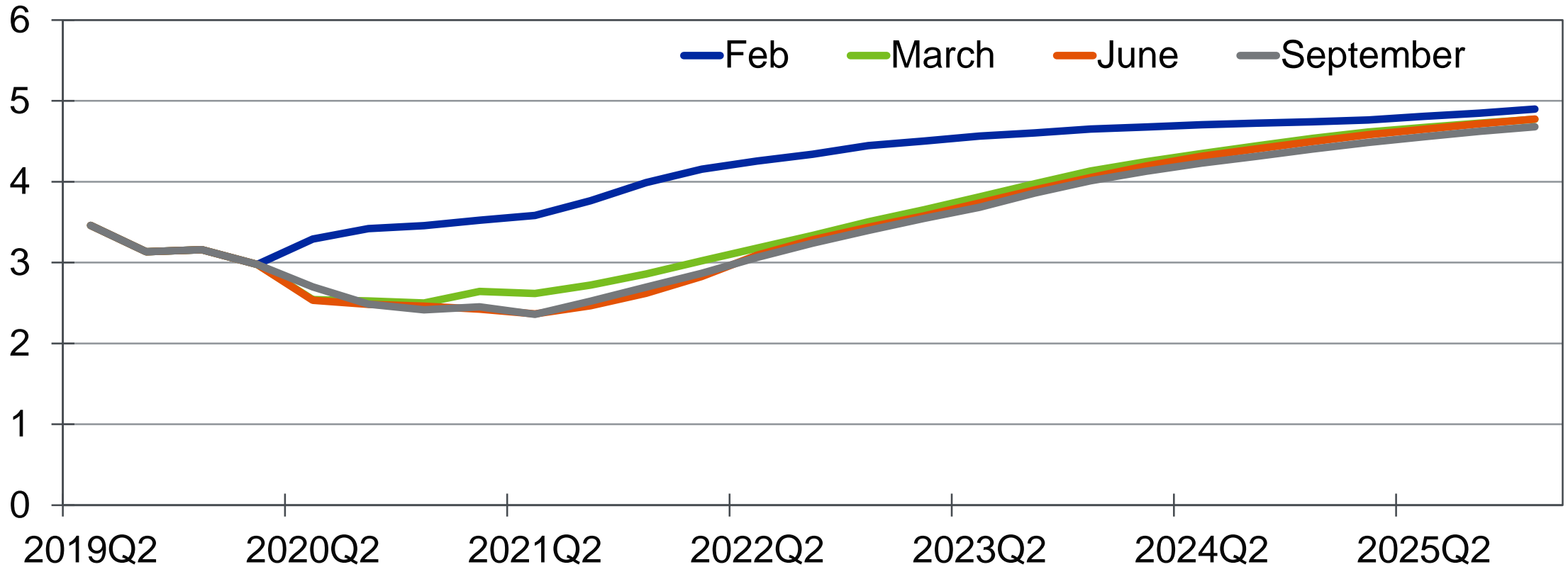
U.S. home price growth, SAAR (%)



Sources: NAR, Moody's Analytics

Pre and Post COVID-19 Baseline Macro Outlook Changes

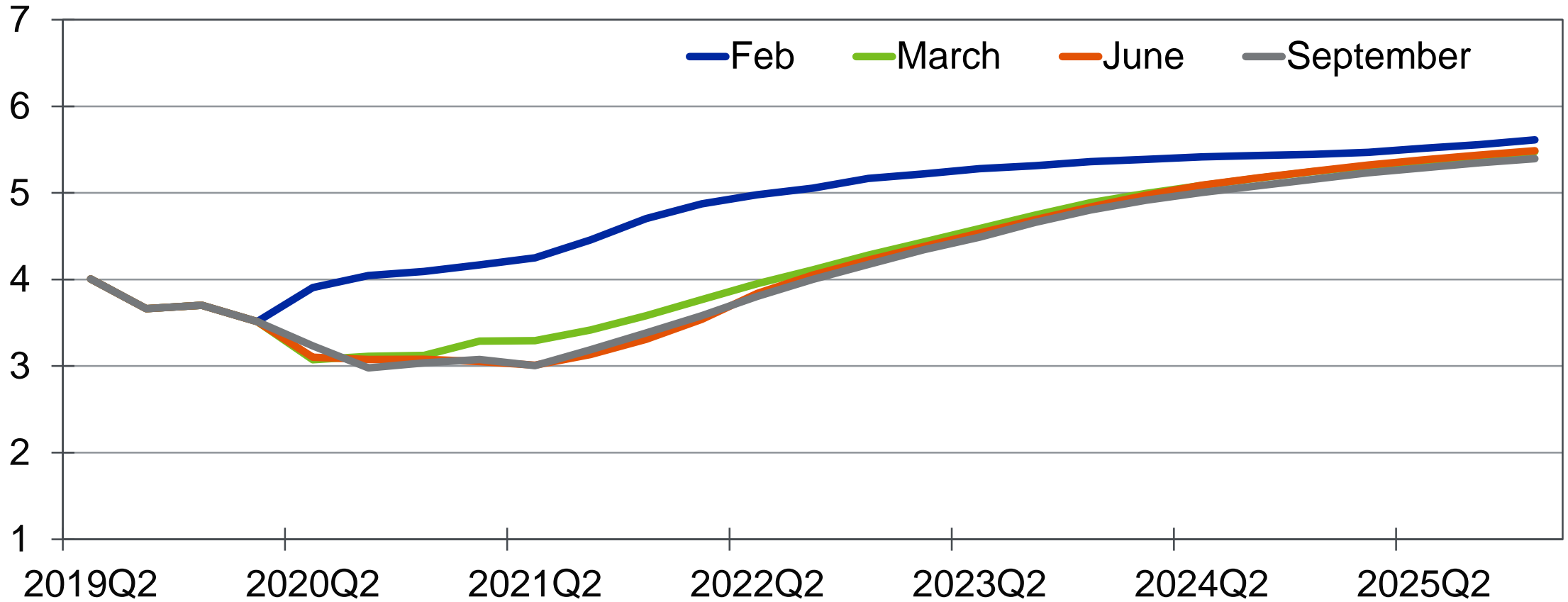
U.S. 15-Year Fixed Rate Mortgage Commitment Rate, SAAR (%)



Sources: Freddie Mac, Moody's Analytics

Pre and Post COVID-19 Baseline Macro Outlook Changes

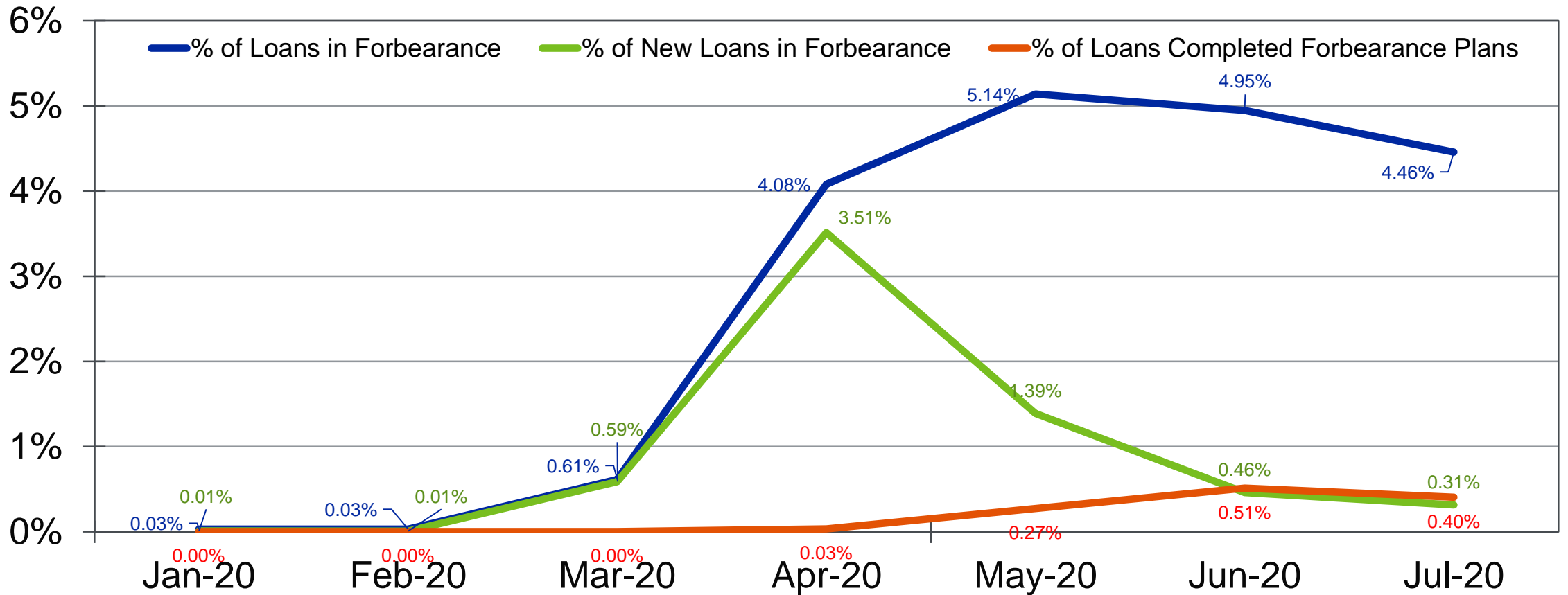
U.S. 30-Year Fixed Rate Mortgage Commitment Rate, SAAR (%)



Sources: Freddie Mac, Moody's Analytics

Fannie Mae and Freddie Mac Loans In Forbearance

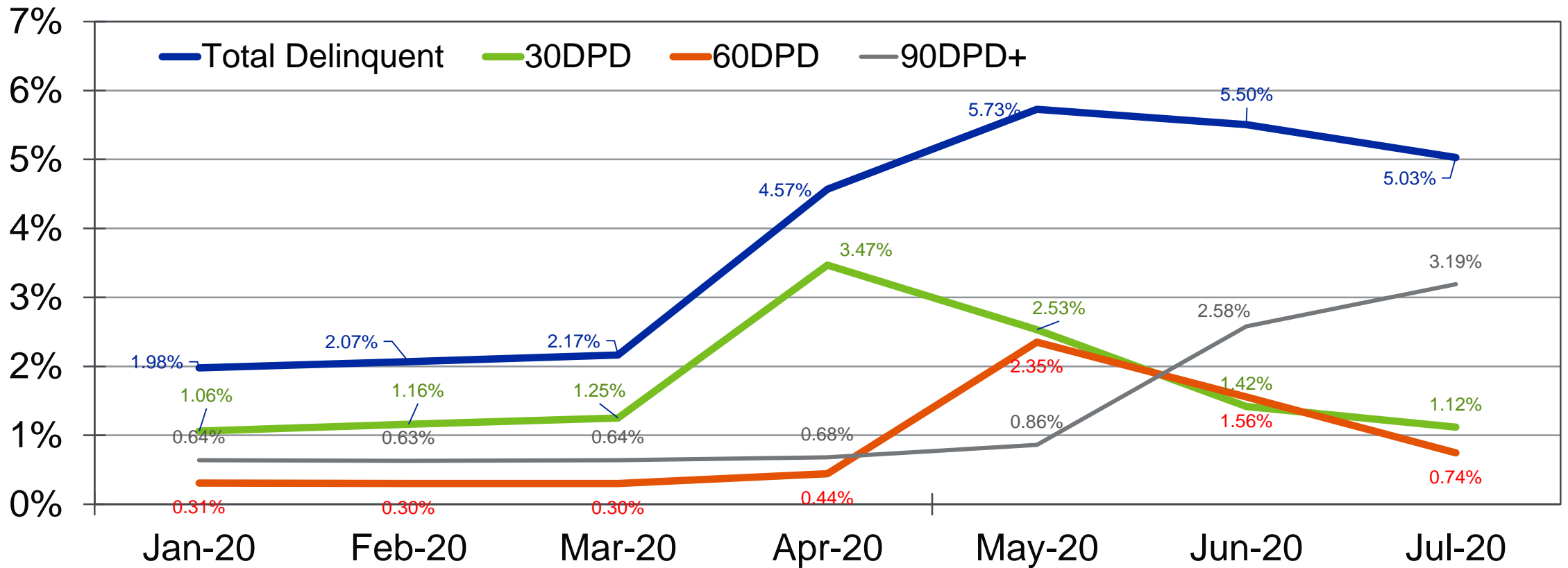
% of loans in payment deferral = 0.38% out of total loans serviced in July-20



Sources: FHFA Foreclosure Prevention and Refinance Report, Moody's Analytics

Fannie Mae and Freddie Mac Loans In Delinquent

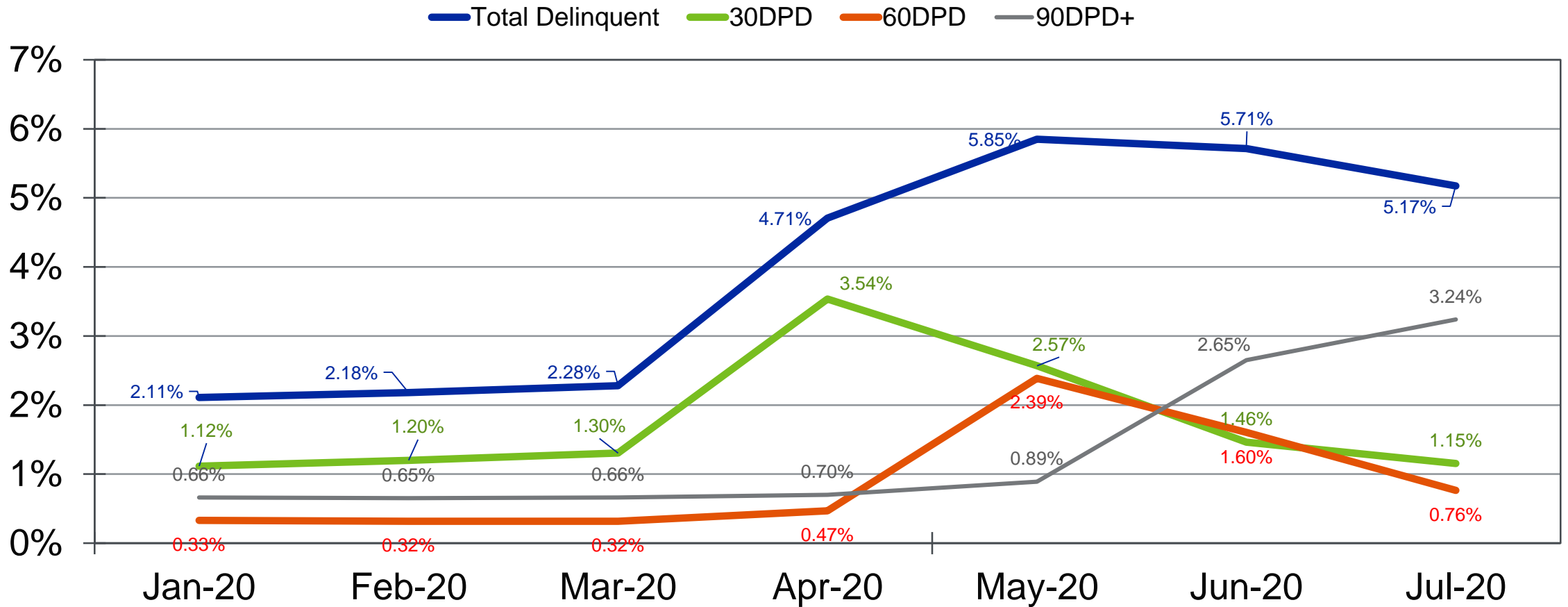
% of loans in 90DPD+ are increasing while loans in 30DPD and 60DPD are decreasing



Sources: FHFA Foreclosure Prevention and Refinance Report, Moody's Analytics

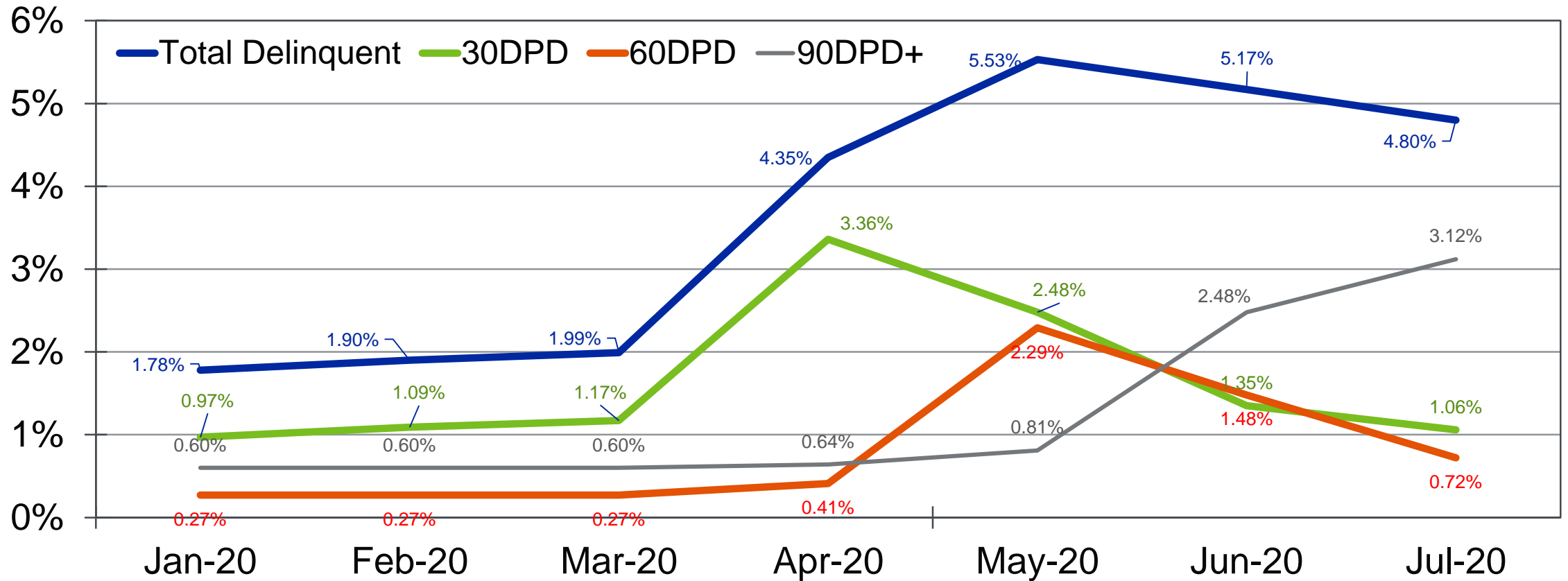
Fannie Mae Loans in Delinquent

Total: 40bps, 30DPD: 12bps, 60DPD: 8bps, 90DPD+: 11bps more on average compare to Freddie Mac since April 2020



Sources: FHFA Foreclosure Prevention and Refinance Report, Moody's Analytics

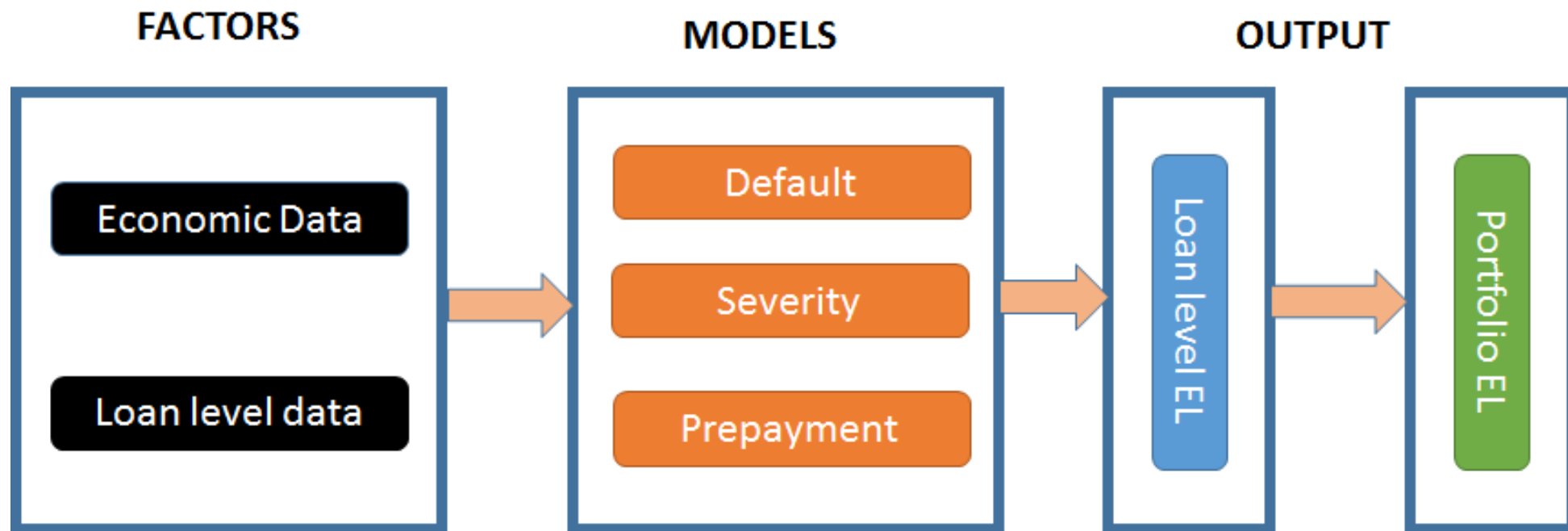
Freddie Mac Loans in Delinquent



Sources: FHFA Foreclosure Prevention and Refinance Report, Moody's Analytics

Mortgage Portfolio Analyzer - How It Works

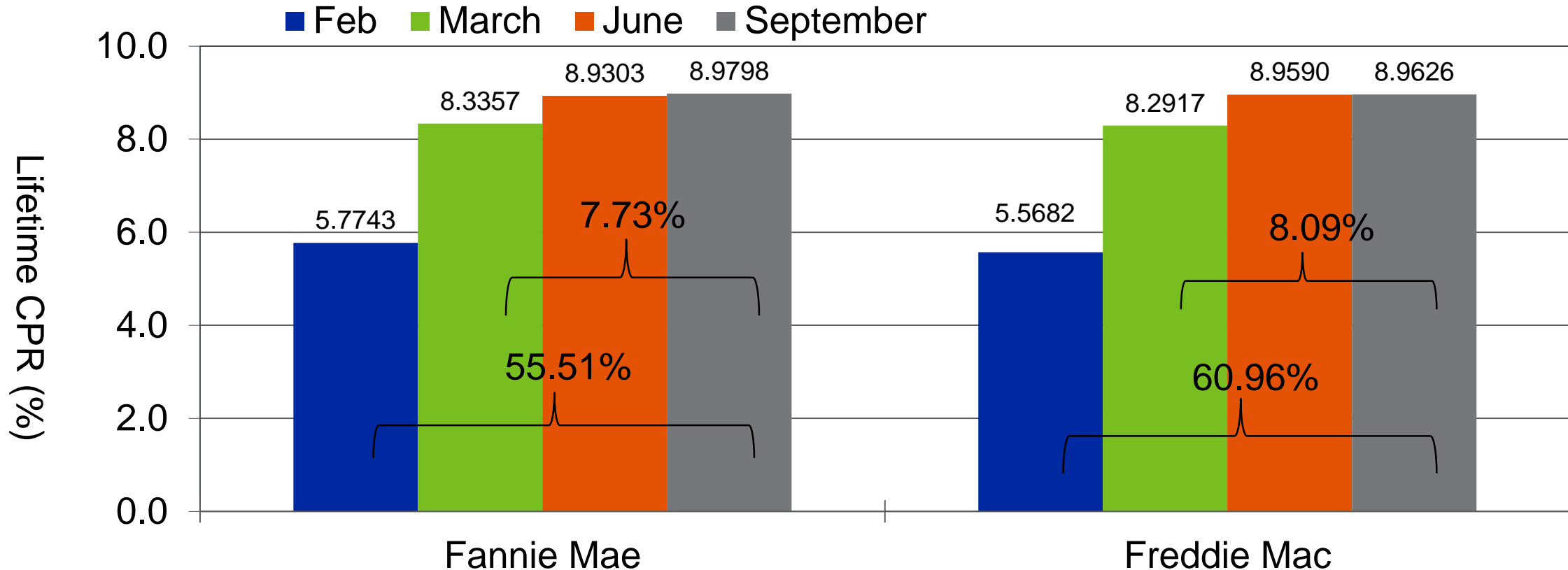
MPA models default, prepayment, and severity for each loan, taking as input information on the borrower, loan, underlying property, and local & national macro-economic factors.



Source: Moody's Analytics

Lifetime CPR Change Since COVID-19

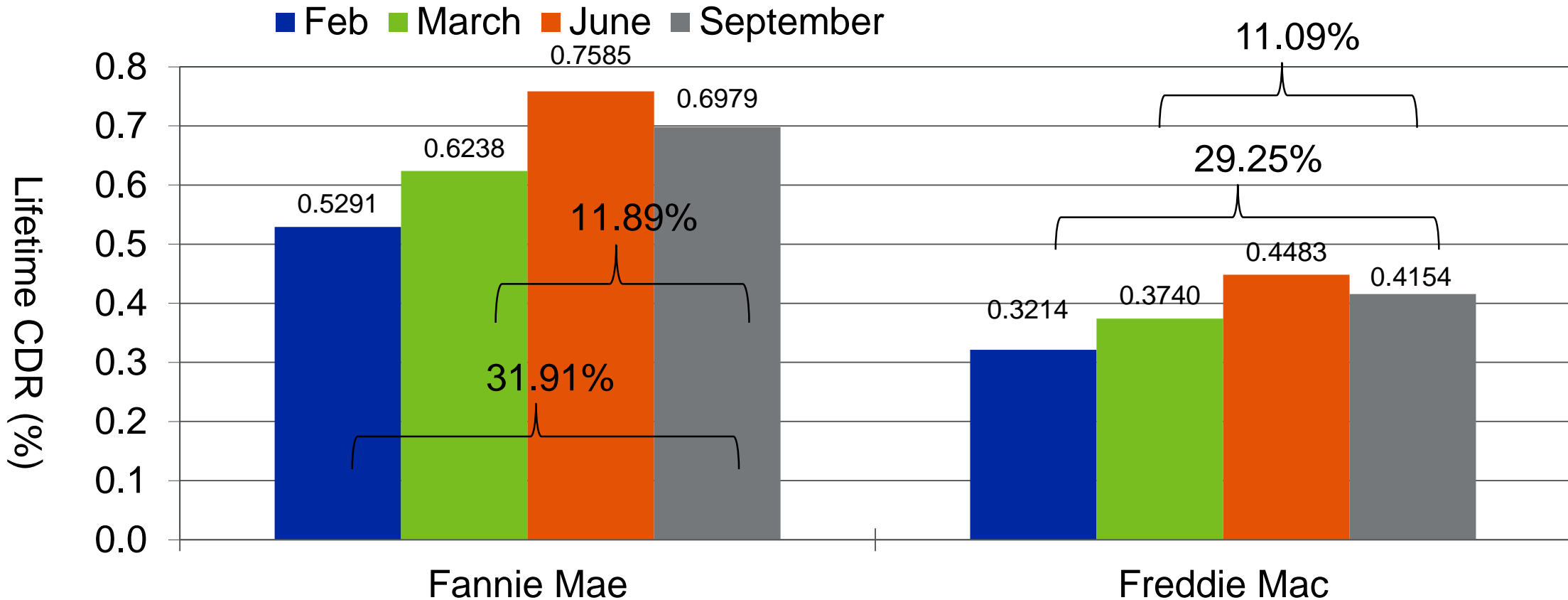
0.5 million 12/2019 Fannie Mae vs. 6/2019 Freddie Mac randomly sample portfolio March Run Results



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

Lifetime CDR Change Since COVID-19

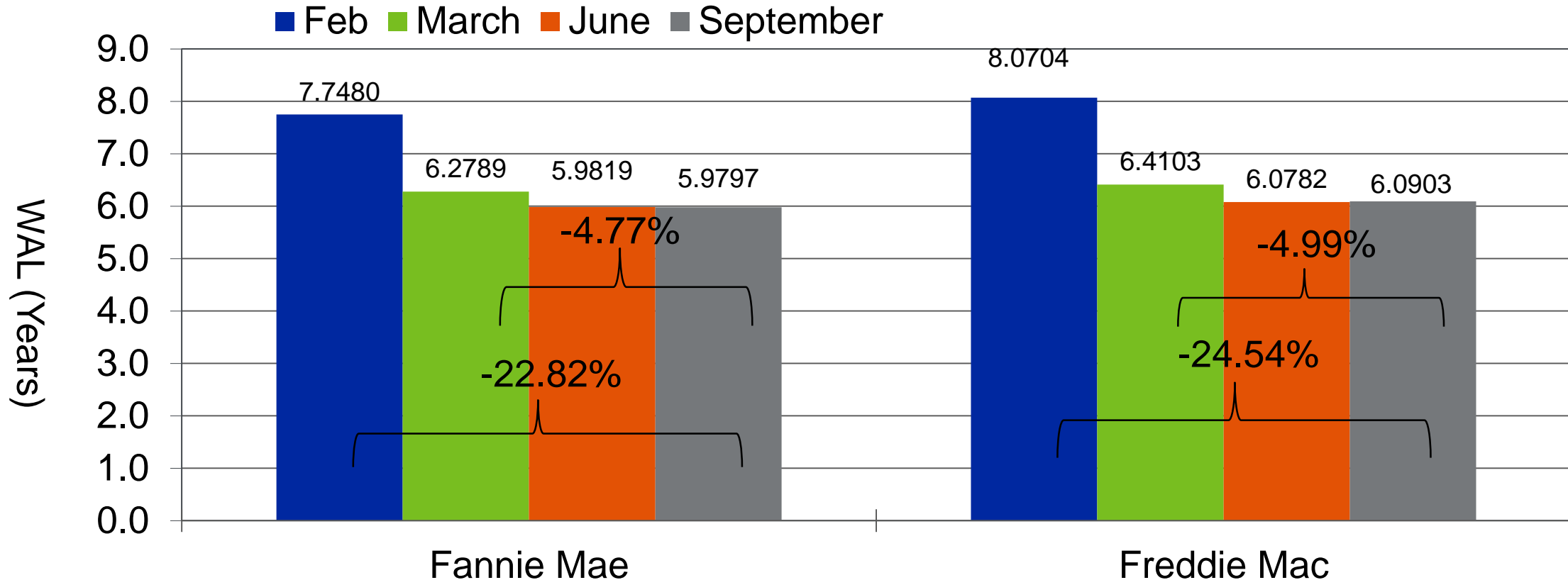
0.5 million 12/2019 Fannie Mae vs. 6/2019 Freddie Mac randomly sample portfolio March run results



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

Weighted Average Life Change Since COVID-19

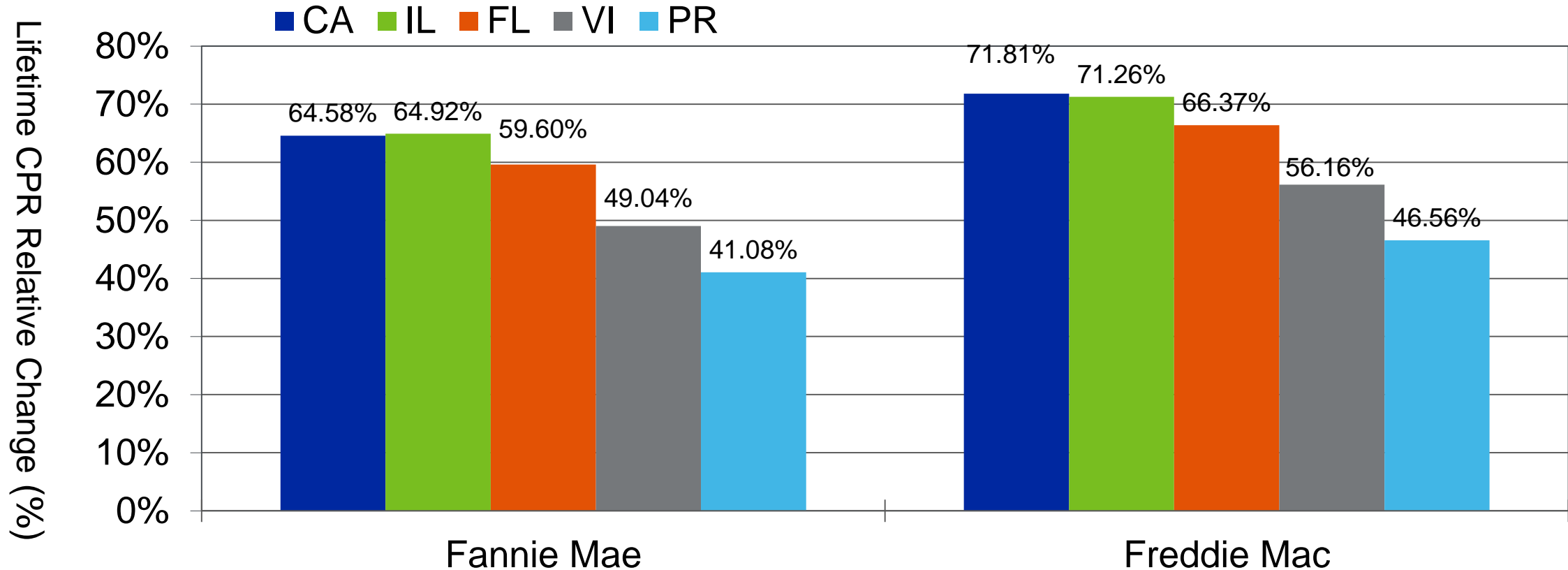
0.5 million 12/2019 Fannie Mae vs. 6/2019 Freddie Mac randomly sample portfolio March run results



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

Most State Lifetime CPR Change Are Similar Between Feb and Sept Baseline

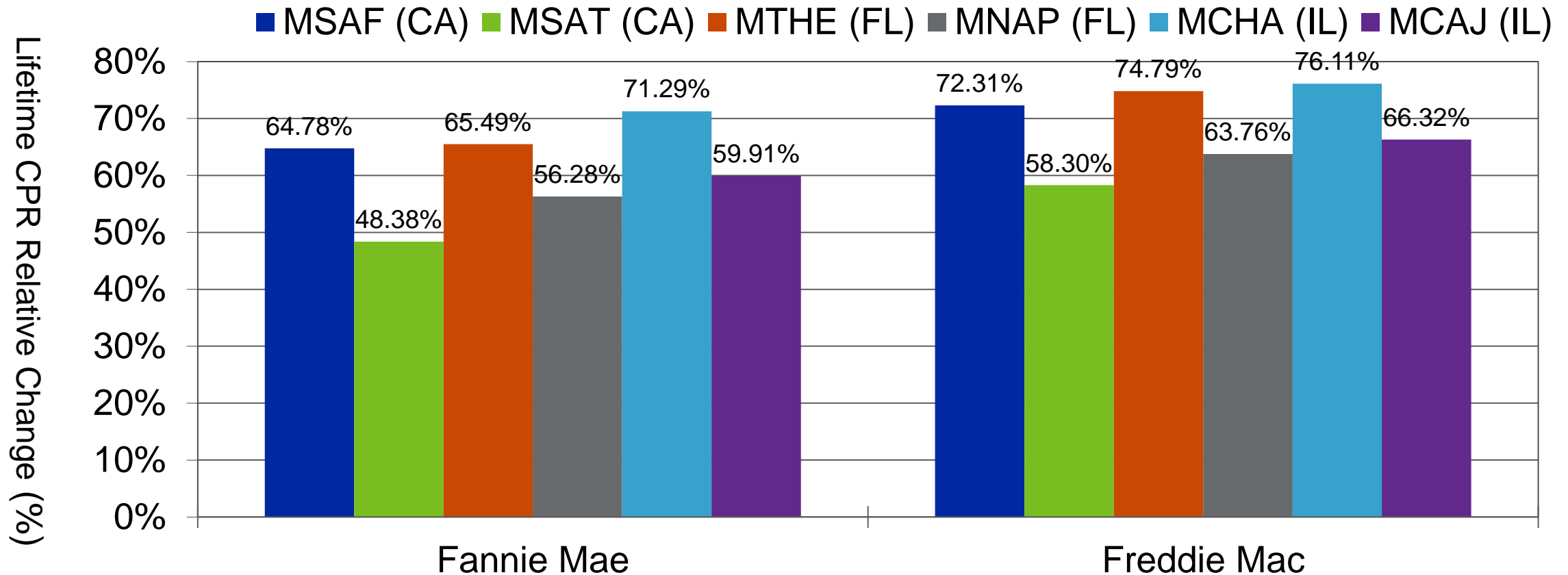
The Biggest Differences = 7.27% for Fannie and 7.16% for Freddie Excluding VI and PR among states



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

MSA Lifetime CPR Change Can Be Very Different Even In The Same State

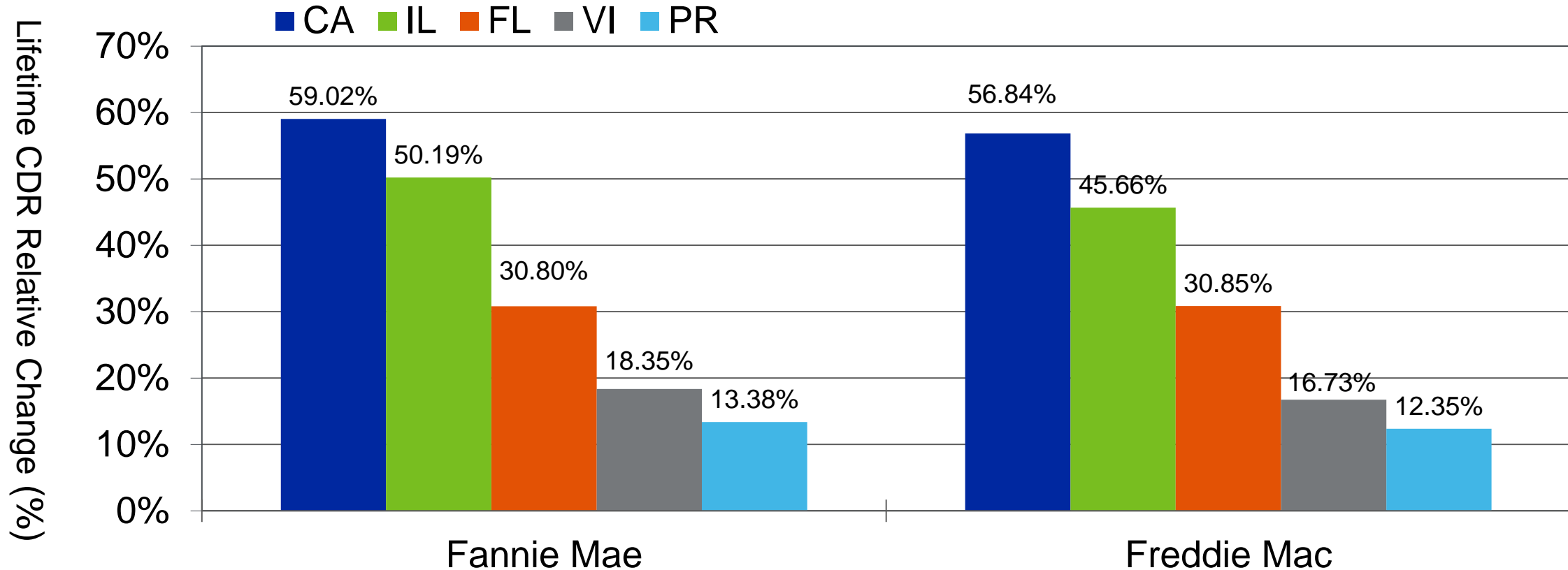
The Biggest Differences = 22.90% for Fannie and 17.81% for Freddie among MSA



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

Lifetime CDR Change Is Quite Different Among States Between Feb and Sept Baseline

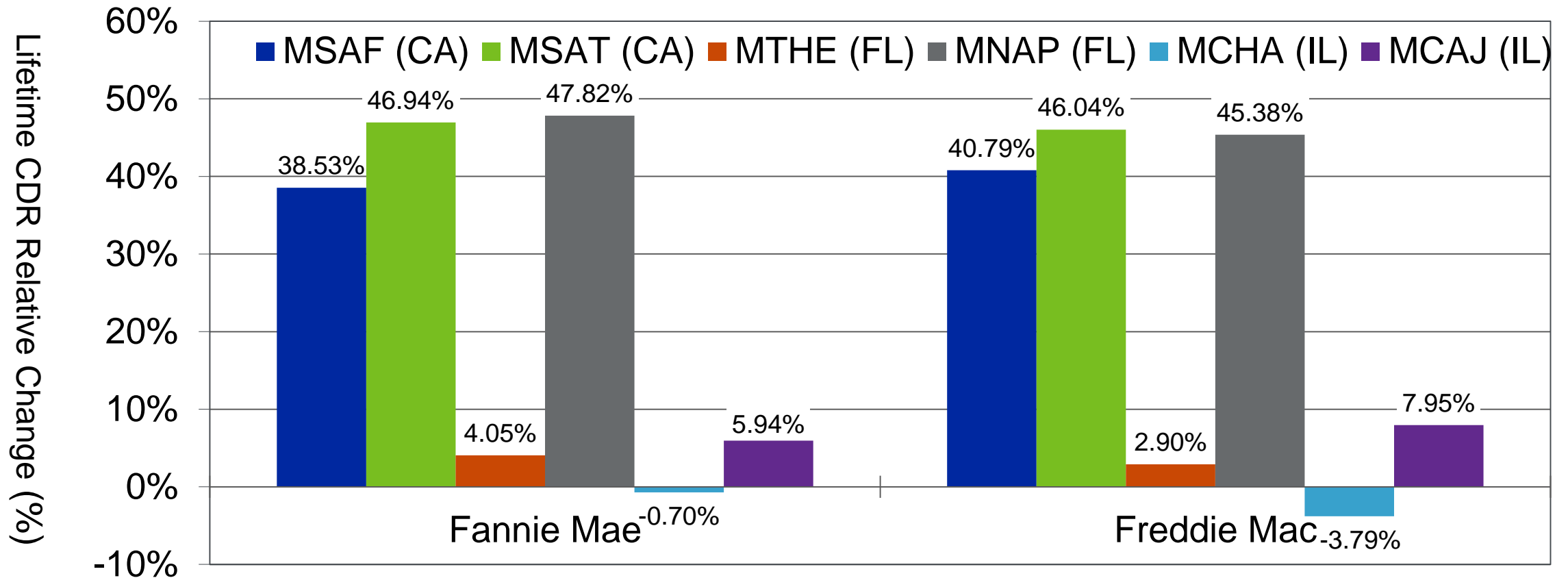
The Biggest Differences = 107.73% for Fannie and 86.69% for Freddie Excluding VI and PR among states



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

MSA Lifetime CDR Change Can Dramatically Different Even in the Same State

The Biggest Differences = 120.03% for Fannie and 103.56% for Freddie among MSA



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

2

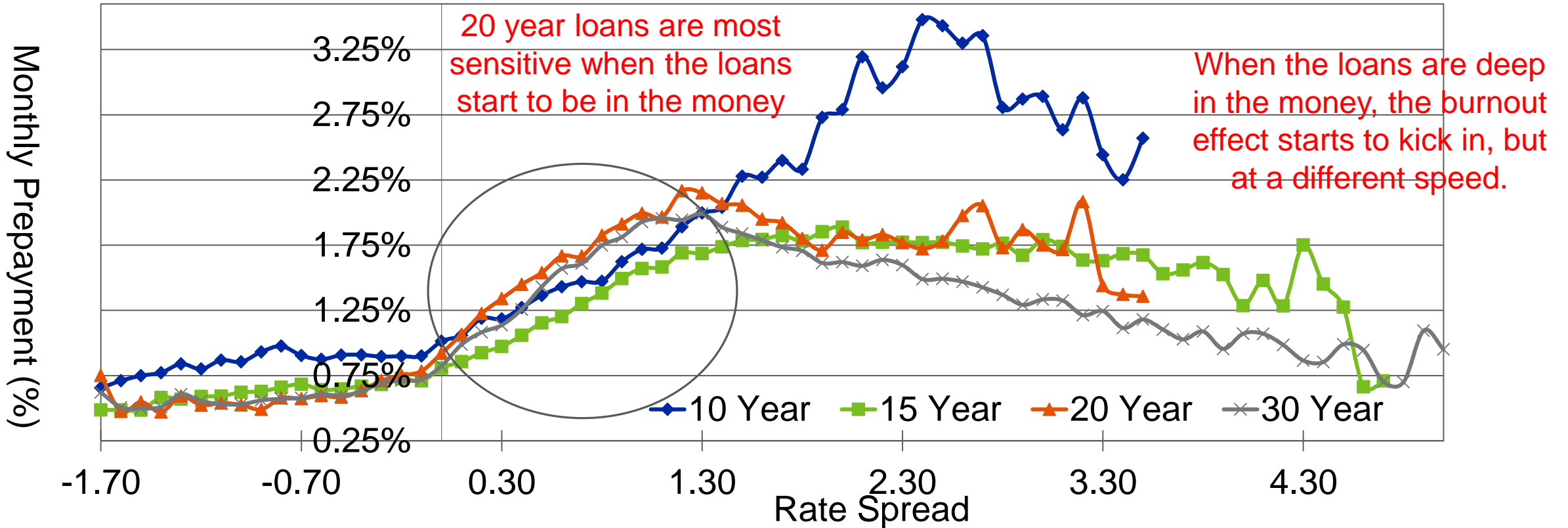
Which Accounts Are More
Sensitive to the Economy

2.1

Prepayment

Fannie Mae – 10 Year Loans’ Burnout Effect Happens Much Later and 30 Year Loans Are Most Subject to Burnout Effect

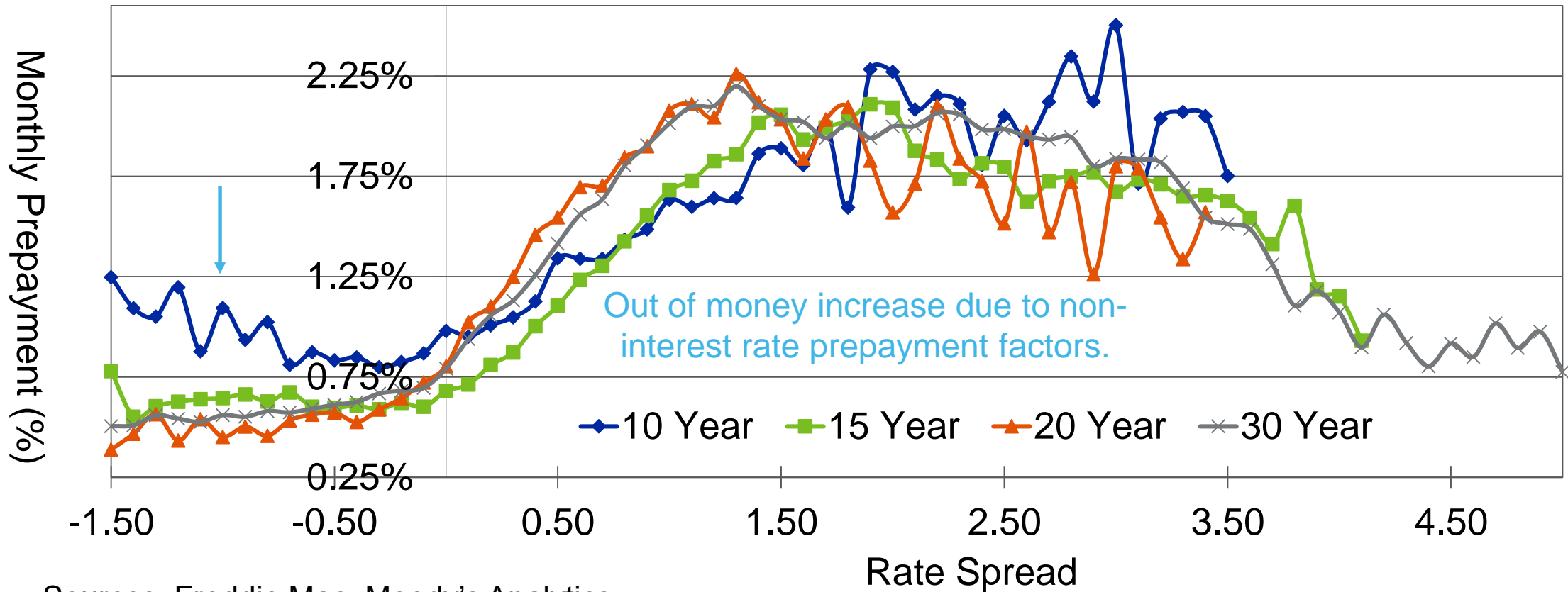
Rate Spread = Loan Rate - (Freddie15[0] if loan term ≤ 180 and Freddie30[0] if loan term > 180)



Sources: Fannie Mae, Moody's Analytics

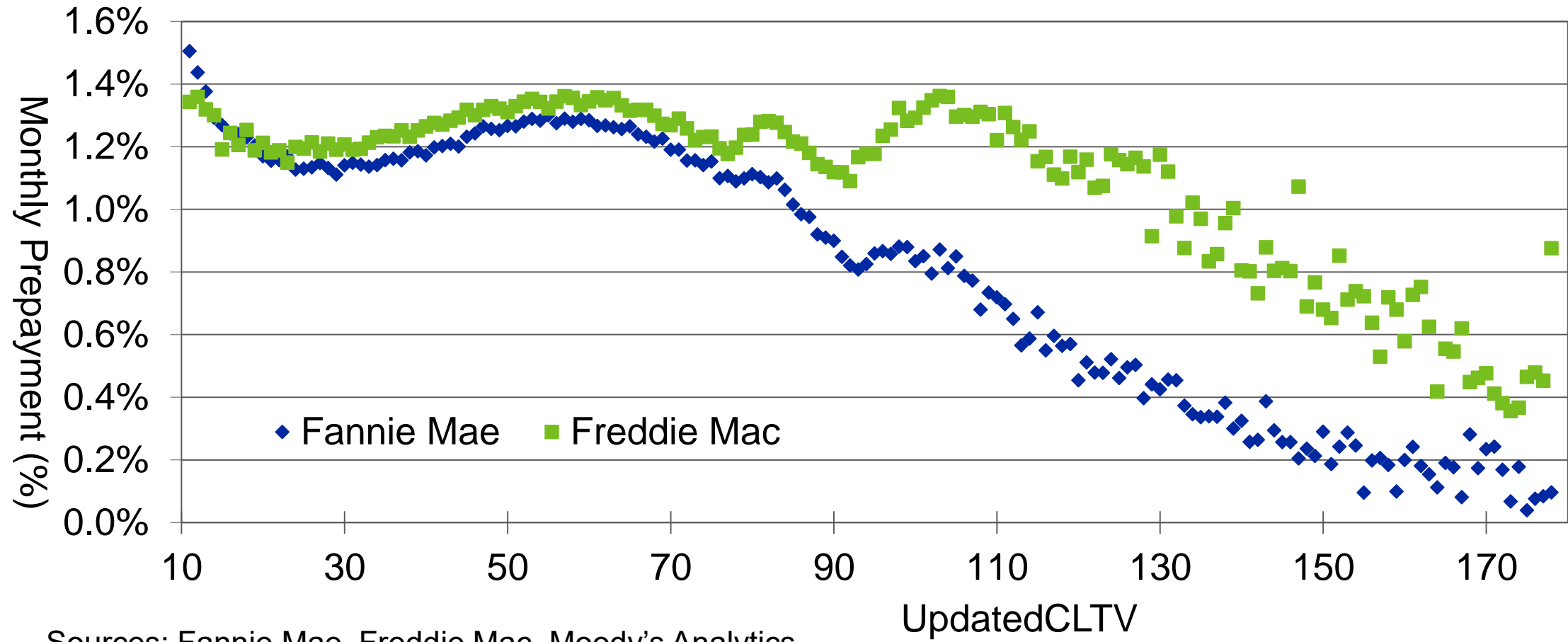
Freddie Mac - Loans Are More Sensitive to Rate Spread Change Compare to Fannie Mae Loans Between 0 to 1.4%

15 year loans have higher burnout effect compare to 30 year loans



Sources: Freddie Mac, Moody's Analytics

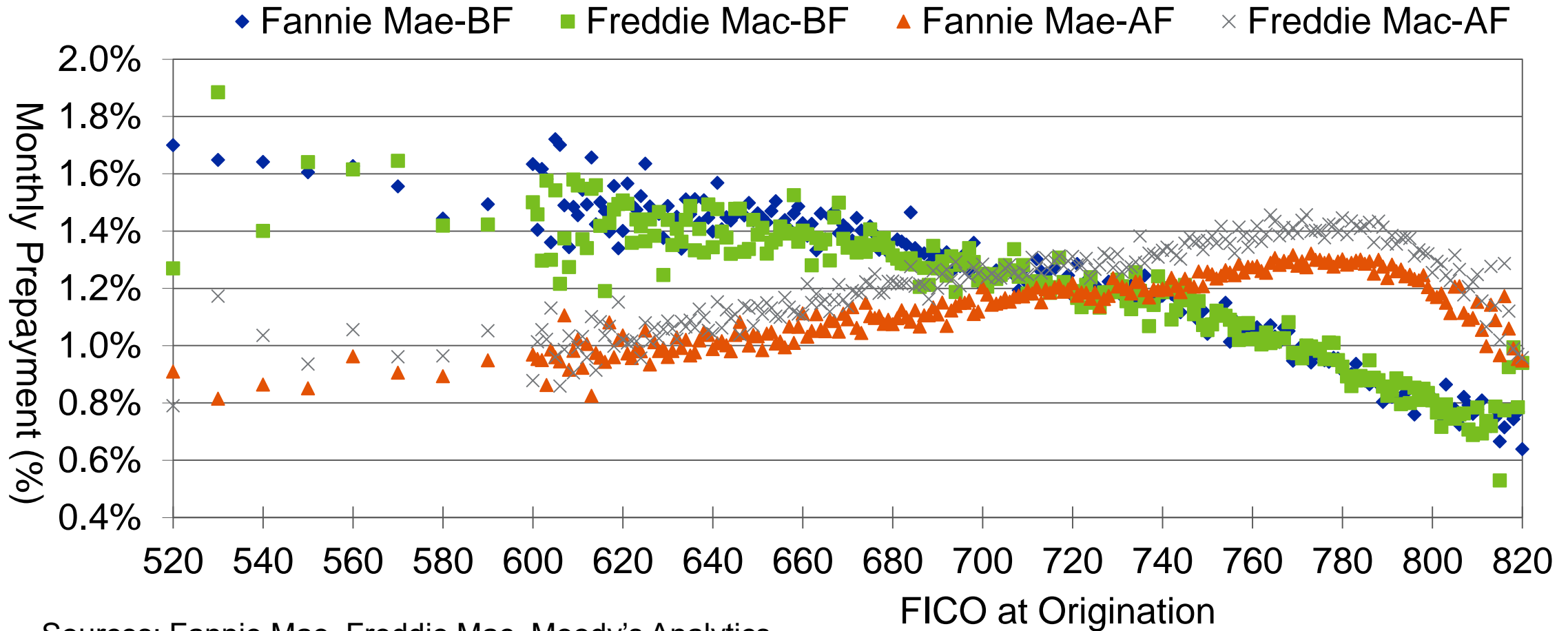
Fannie Mae Loans Are More Sensitive to the Home Price Change Compare to Freddie Mac Loans and When UpdatedCLTV Is Between 100% - 180%



Sources: Fannie Mae, Freddie Mac, Moody's Analytics

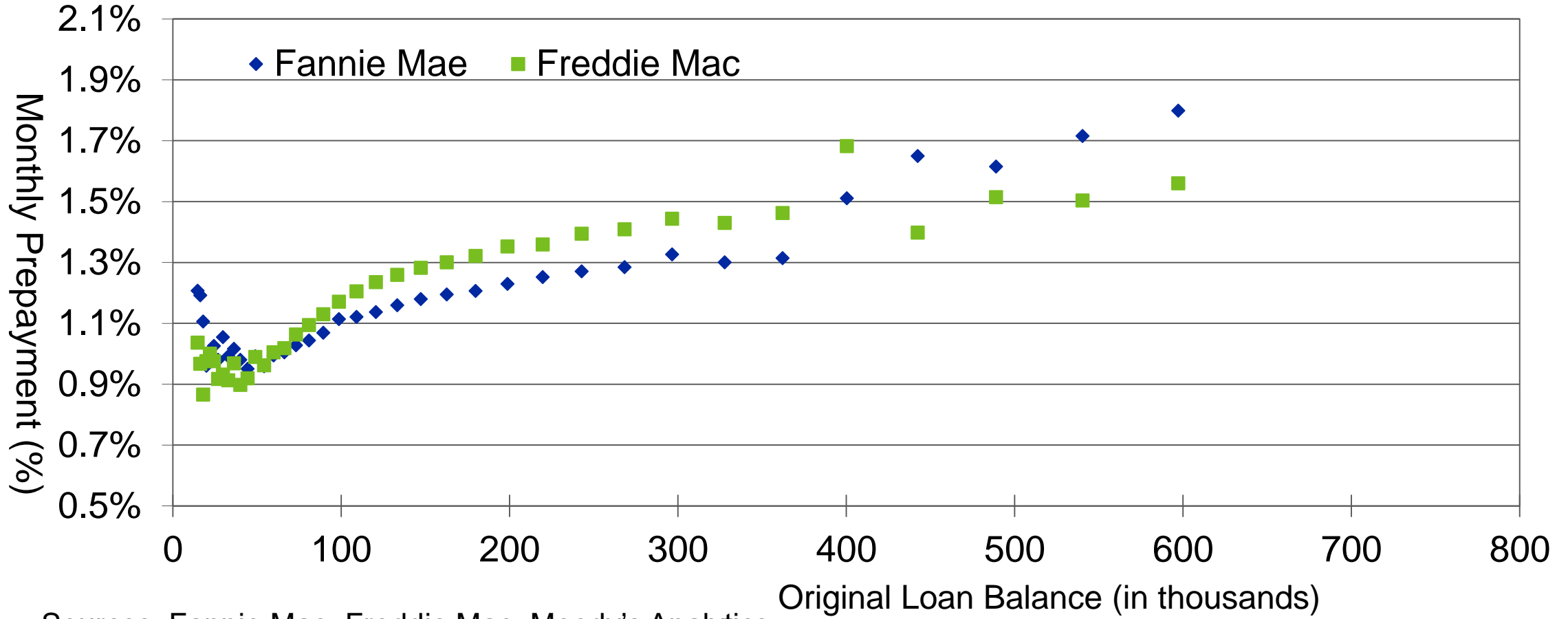
Prepayment Behavior Is Different Before and After 2008 Crisis

Freddie Mac loans are more sensitive to FICO differences post 2008



Sources: Fannie Mae, Freddie Mac, Moody's Analytics

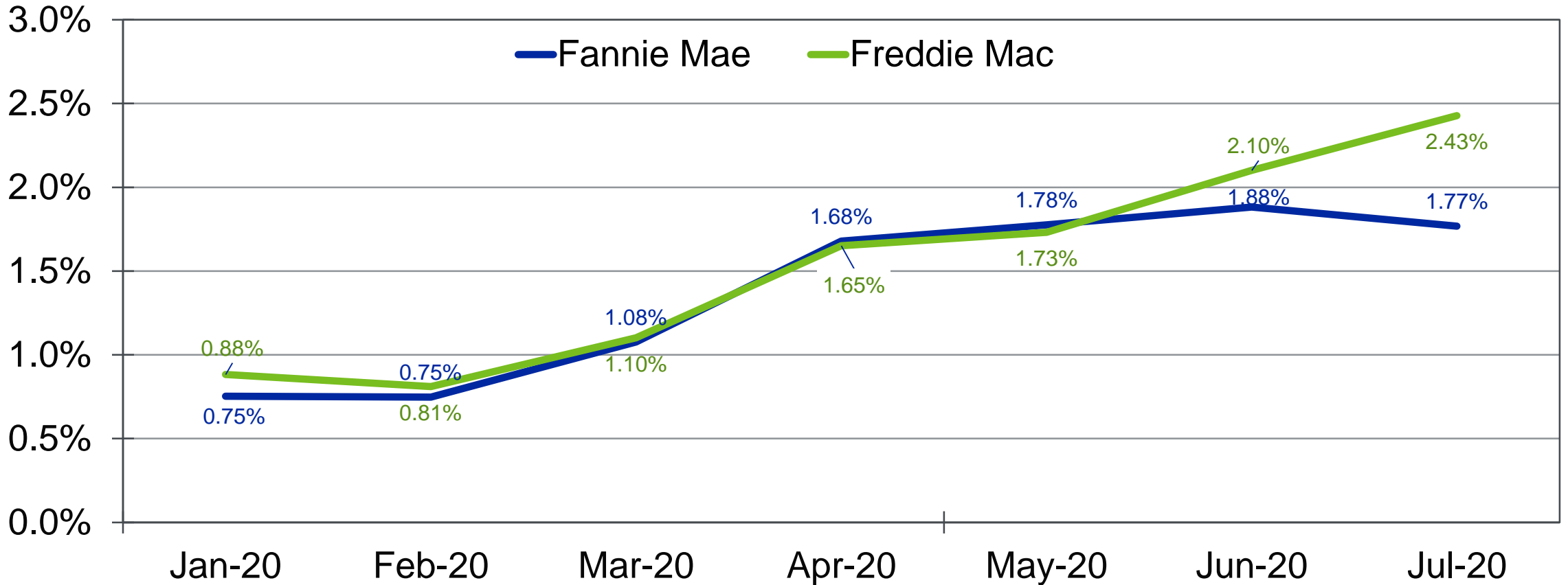
Smaller Size Loans Have Lower Prepayment Probability Due to Refinancing Cost



Sources: Fannie Mae, Freddie Mac, Moody's Analytics

Freddie Mac's Refinance Rate Is Around 1.4 Times Higher in July

Fannie Mae and Freddie Mac Loans Total Refinance Rate



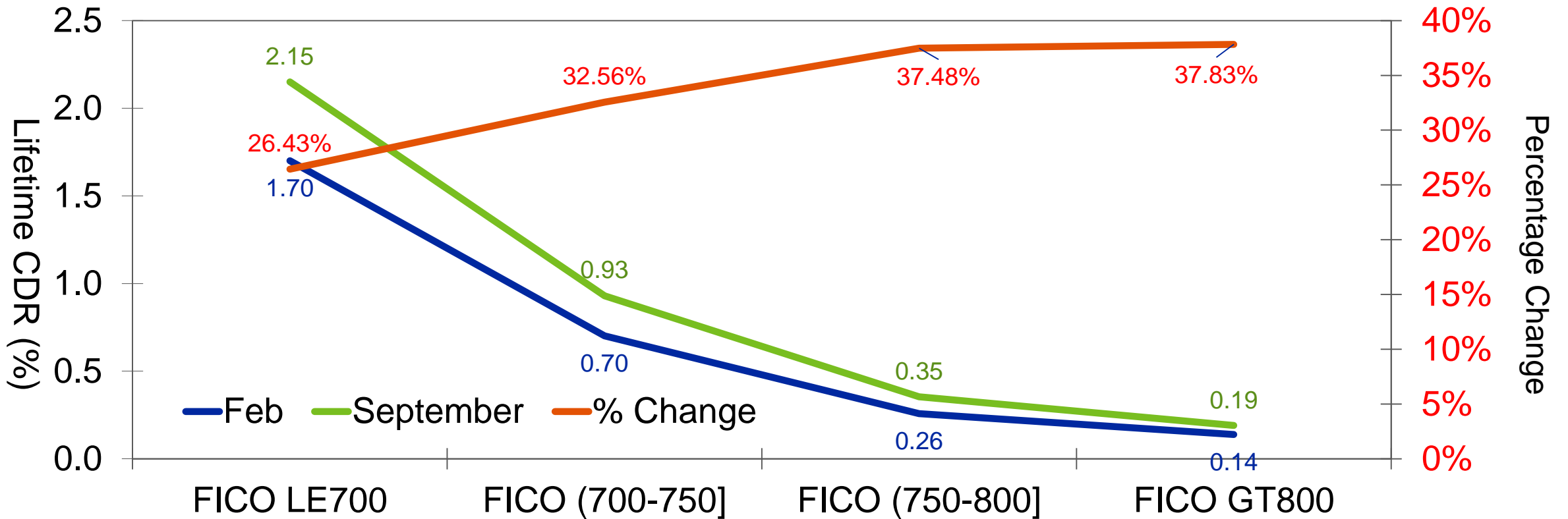
Sources: FHFA Foreclosure Prevention and Refinance Report, Moody's Analytics

2.2

Default

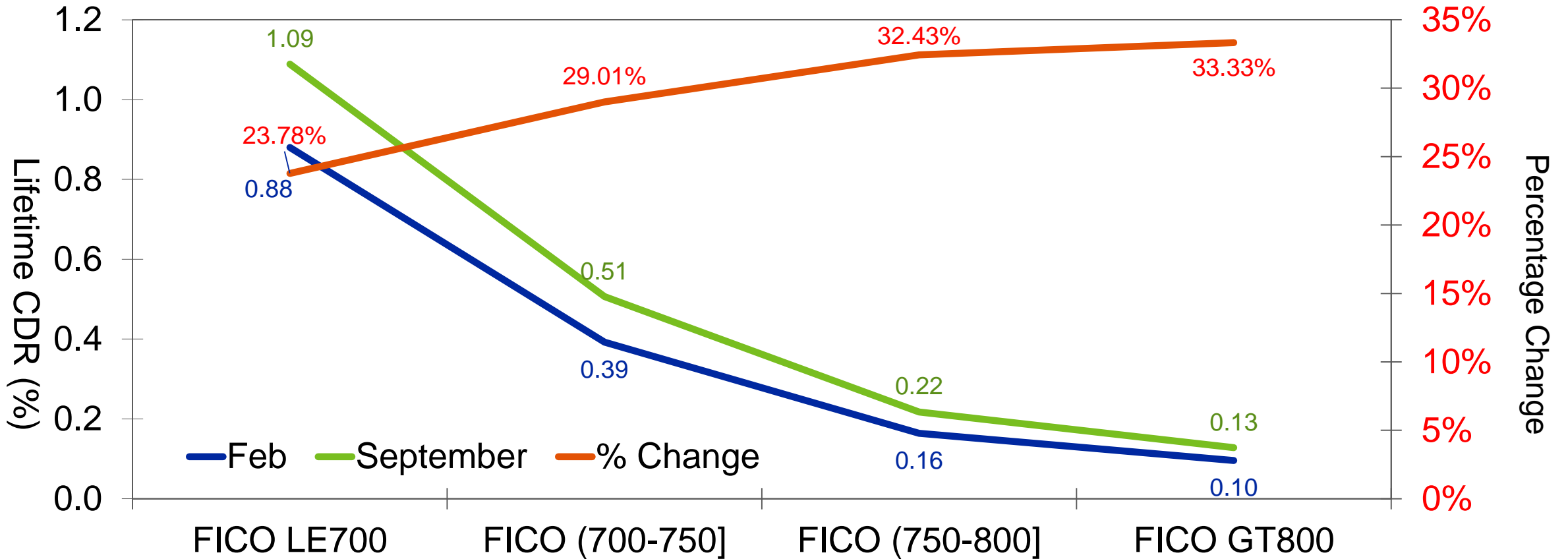
Fannie Mae – High FICO Loans Are Most Sensitive to Macro Shock

Average CDR - weighted by the portfolio balance at the end of the previous month



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

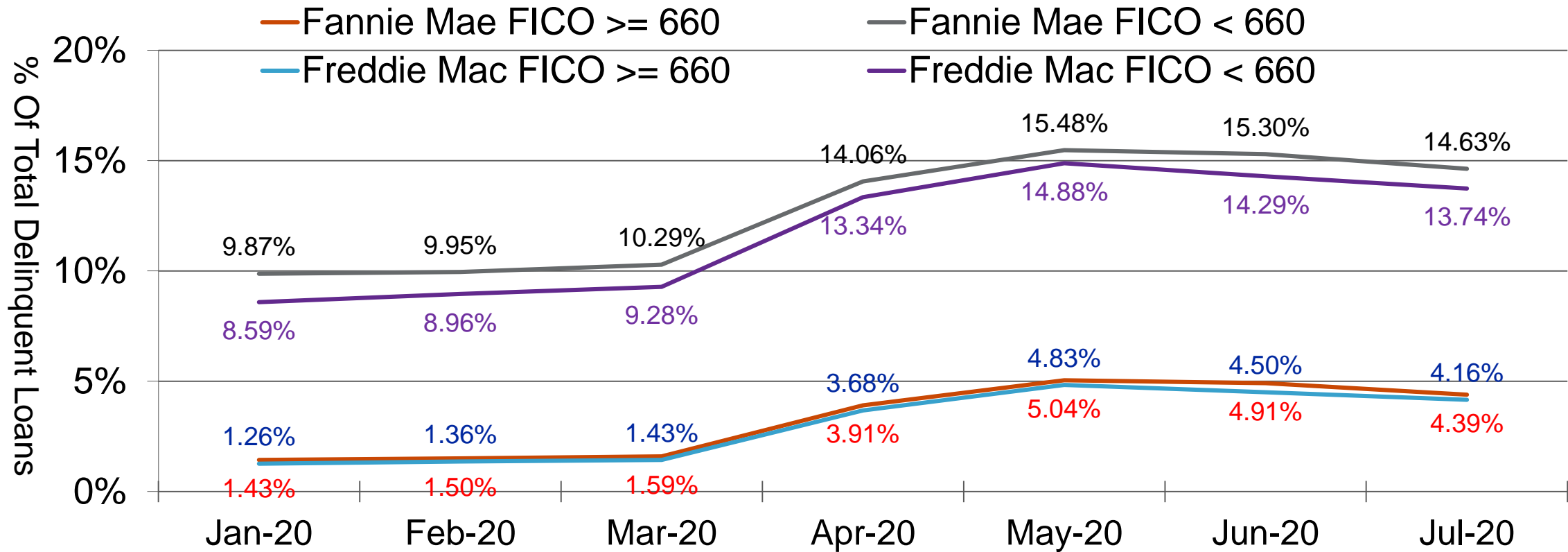
Freddie Mac – High FICO Loans Are Most Sensitive to Macro Shock



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

Delinquency Rates Are More Than Three Times Higher For Low FICO Loans

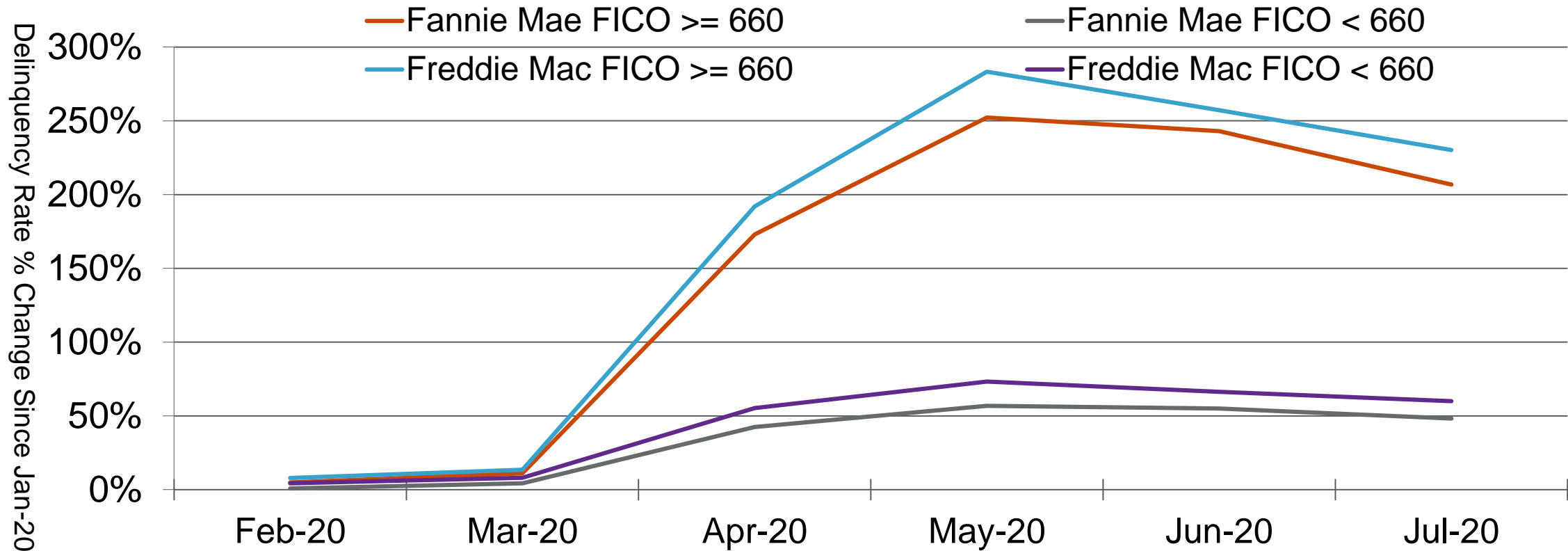
Total Delinquent Loans Percentage By Original Credit Score



Sources: FHFA Foreclosure Prevention and Refinance Report, Moody's Analytics

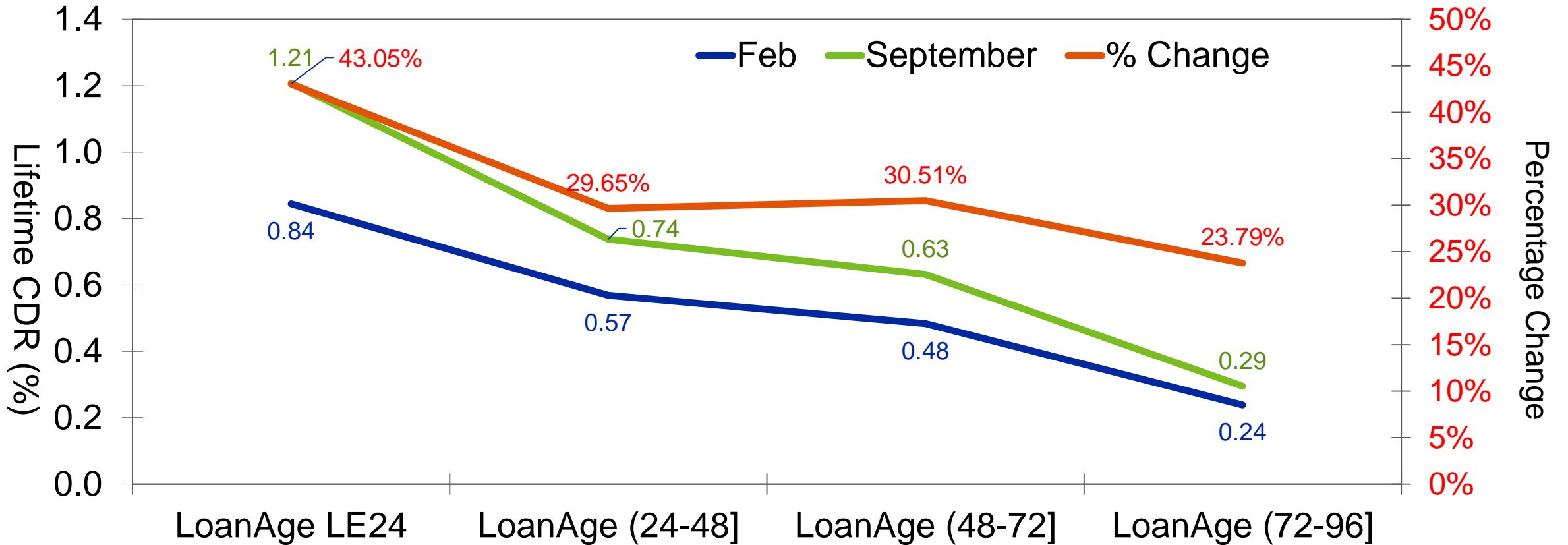
Delinquency Rate Increased The Most For FICO \geq 660 Loans

Change of the delinquency rate since Jan-2020. Freddie Mac loans have higher changes.



Sources: FHFA Foreclosure Prevention and Refinance Report, Moody's Analytics

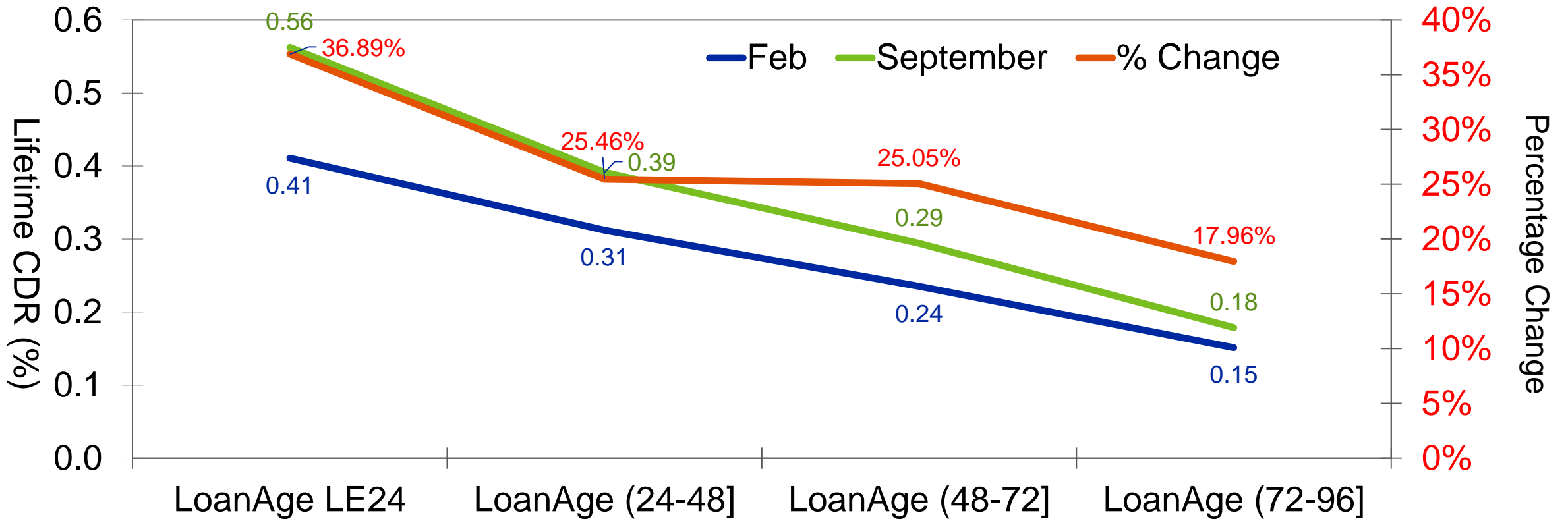
Fannie Mae – Young Loans Are Most Sensitive to Macro Shocks



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

Freddie Mac – Young Loans Are Most Sensitive to Macro Shocks

A bit less sensitive compare to Fannie Mae loans



Sources: Moody's Analytics, Mortgage Portfolio Analyzer

3

Methods to Analyze Fannie
Mae and Freddie Mac Loans
Under the CARES Act

Fannie Mae - Can We Learn From the History?

Major U.S. natural disaster events in the past 15 years that affected mortgage default rate

Incident	Incident Period	Affected State	Default Periods	Cure Rate	Avg. Months To Cured	Avg. LGD For Non-Cured Loans	Avg. Time2Liq For Non-Cured Loans (Months)	% of Modified Loans	Avg. Months To Modification
Maria	201709	PR	201709~201806	79.77%	9	52.79%	42	62.06%	6
Harvey	201708~201709	TX	201710~201801	69.69%	9	23.9%	45	58.31%	6
Irma	201709	FL	201711~201802	71.06%	9	41.13%	71	69.41%	5
Katrina	200508~200511	LA, MS, AL	LA: 200509~200604 MS: 200510~200602 AL: 200511~200601	21.22%	3	52.49%	54	17.48%	2
All Loans	N/A	N/A	200001~201912	51.26%	15	55.36%	17	34.63%	17

Sources: Fannie Mae, Moody's Analytics

*Cured Definition: Loan status became Current for at least three consecutive months after default (90DPD+).

Freddie Mac – % Of Modified Loans Post Disaster Event Are Less

Major U.S. natural disaster events in the past 15 years that affected mortgage default rate

Incident	Incident Period	Affected State	Default Periods	Cure Rate	Avg. Months To Cured	Avg. LGD For Non-Cured Loans	Avg. Time2Liq For Non-Cured Loans (Months)	% of Modified Loans	Avg. Months To Modification
Maria	201709	PR	201710~201805	70.29%	9	67.48%	61	47.97%	6
Harvey	201708~201709	TX	201710~201801	65.79%	8	23.04%	46	44.68%	6
Irma	201709	FL	201711~201802	72.40%	8	43.59%	57	54.97%	6
Katrina	200508~200511	LA, MS, AL	LA: 200509~200603 MS: 200510~200602 AL: 200510~200601	11.83%	3	43.41%	69	14.43%	2
All Loans	N/A	N/A	199902~201906	61.35%	16	49.19%	17	28.93%	18

Sources: Freddie Mac, Moody's Analytics

*Cured Definition: Loan status became Current for at least three consecutive months after default (90DPD+).

Questions & Answers

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