

Market Snapshot





Contents

Macro-Economic Indicators

Rate History

Prepayment Speed Trends

Delinquency Trends

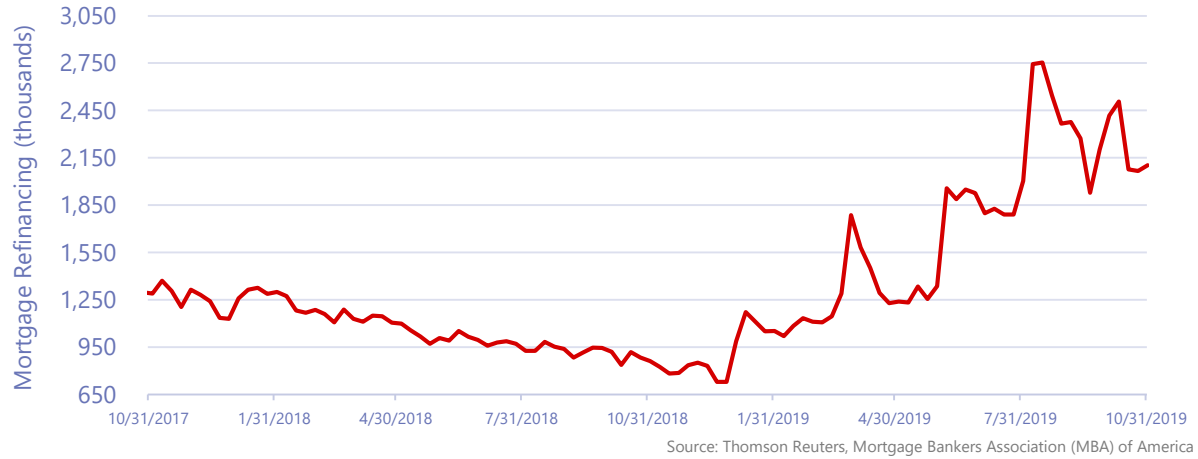
Macro- Economic Indicators

Summary

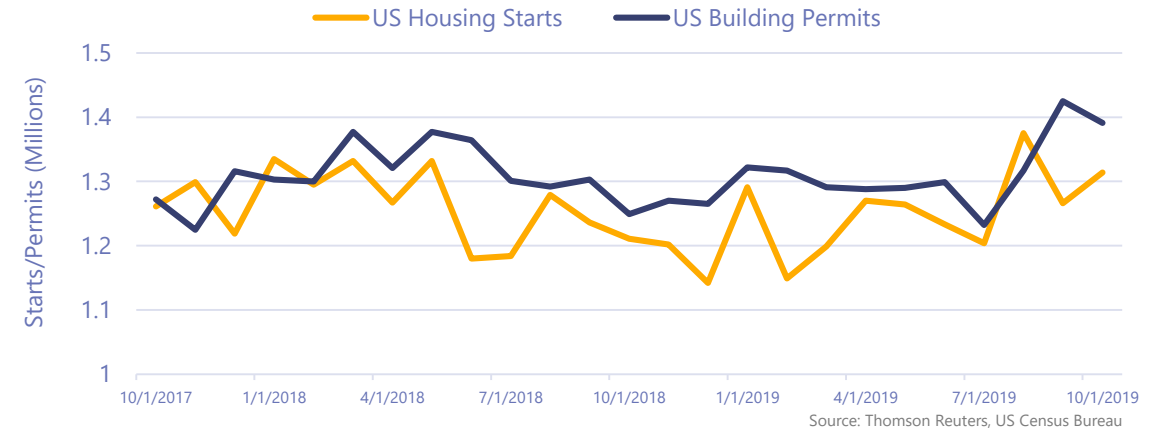
- The residential housing sector showed strong year-over-year growth with new building permit figures for October coming in at 1,461,000, 14.1% above the October 2018 number of 1,281,000. Housing starts totaled 1,314,000 for October, 8.5% above the October 2018 figure of 1,211,000.
- Consumer confidence was down slightly for October with a reading of 125.9. This was below consensus expectations from polled economists who anticipated a reading of 128 for the month.
- The MBA Mortgage Refinance Application Index continued its recent trend of volatility, but finished off the month with a weekly reading of 2,066,000, down 6.2% from the end of September.

Macro-Economic Indicators

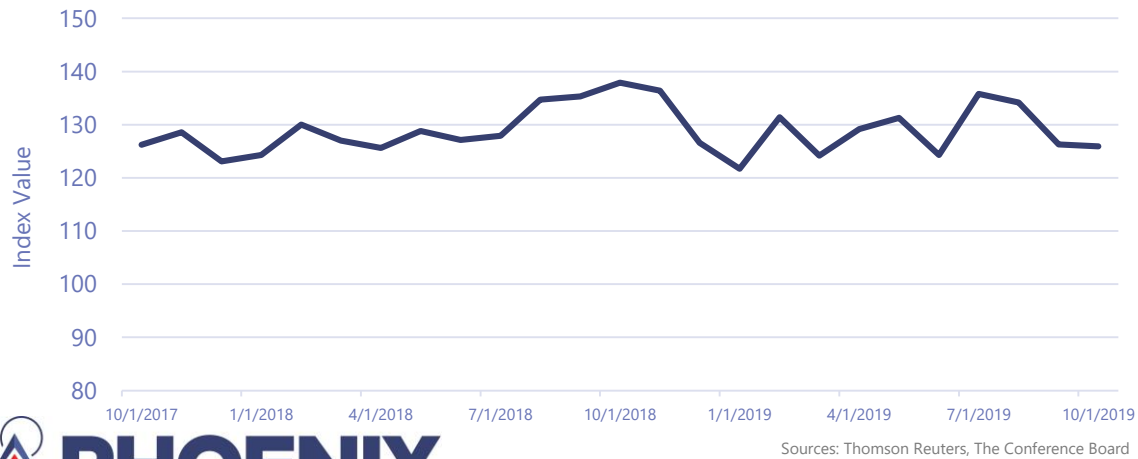
MBA Mortgage Refinance Application Index



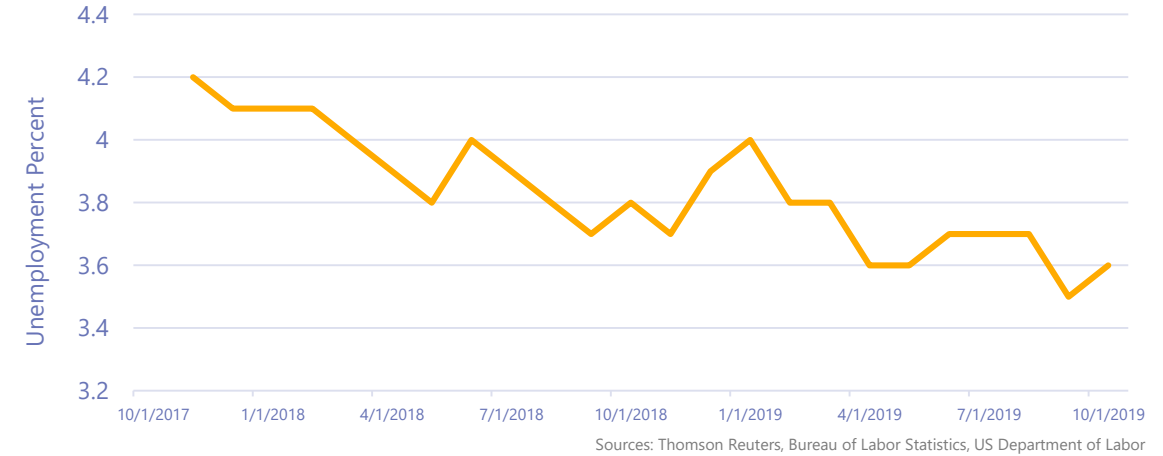
US Housing Starts/US Building Permits



US Consumer Confidence



Unemployment Rate



Rate History

Summary

- Mortgage par rates were up slightly month-over-month for the Conventional 30-year fixed product, closing at 3.874% compared to 3.861% last month. Government 30-year fixed rates and Conventional 15-year fixed rates, meanwhile, were down by 5.9 bps and 2.5 bps month over month. Primary/secondary spreads remained unchanged for both Government and Conventional mortgages.
- SWAP rates increased for maturities of 10 years and greater and decreased for 3-month through 5-year maturities. This resulted in a widening of the 2yr-10yr SWAP spread out of inversion territory to close at positive 5.6 bps as of 10/31/2019.

Rate History (cont.)

Primary Rates as of 10/31/2019

Rate	10/31/2019	9/30/2019	7/31/2019	10/30/2018
CONV30	3.874	3.861	4.043	5.017
CONV15	3.400	3.425	3.620	4.233
GOV30	3.556	3.615	3.761	4.886
ARM 5/1	3.500	3.500	3.750	4.250

Secondary Rates as of 10/31/2019

Rate	10/31/2019	9/30/2019	7/31/2019	10/30/2018
FNMA 30	2.624	2.611	2.793	3.967
FNMA 15	2.200	2.225	2.370	3.133
GNMA II 30	2.256	2.315	2.511	3.836
GNMA II 15	2.238	2.225	2.370	3.222
ARM 5/1	3.850	4.000	3.970	4.260

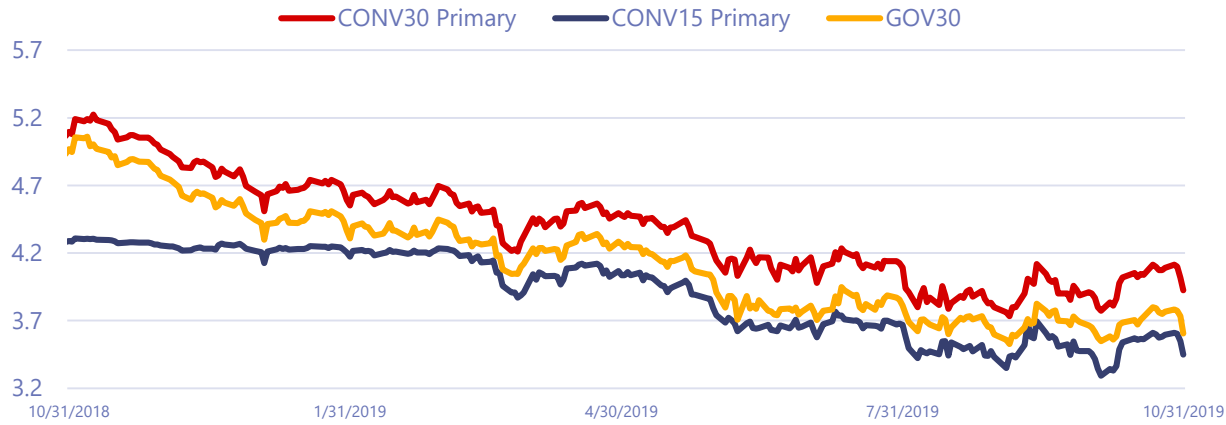
Earnings Rates as of 10/31/2019

Rate	10/31/2019	9/30/2019	7/31/2019	10/31/2018
3 MO ED	1.872	2.089	2.318	2.606
6 MO ED	1.810	2.022	2.263	2.739
12 MO ED	1.698	1.763	2.133	2.923
2 YR SWAP	1.529	1.610	1.887	3.044
3 YR SWAP	1.479	1.530	1.809	3.086
5 YR SWAP	1.467	1.481	1.783	3.100
10 YR SWAP	1.585	1.542	1.923	3.183
15 YR SWAP	1.688	1.623	2.045	3.249
20 YR SWAP	1.743	1.671	2.108	3.268
30 YR SWAP	1.770	1.691	2.139	3.252

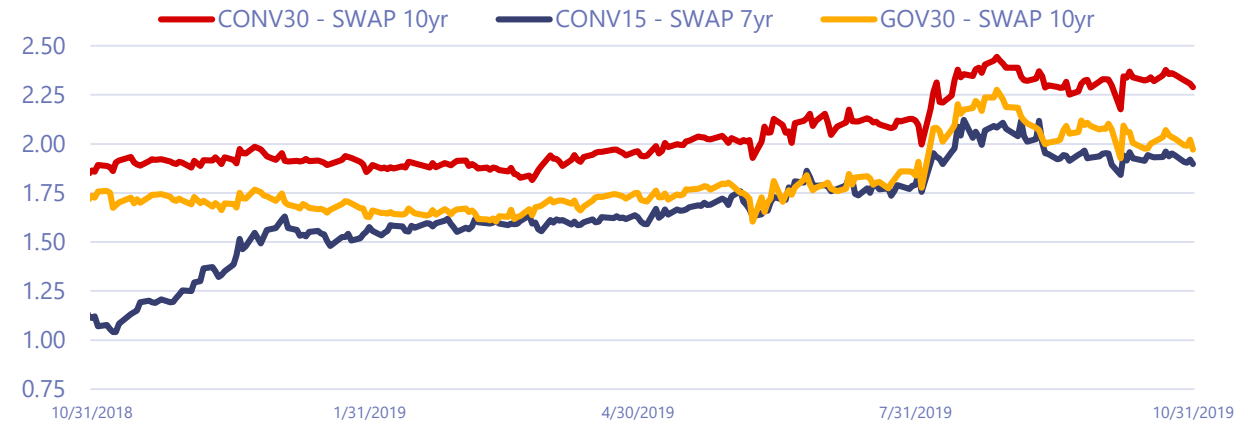
Source: Thomson Reuters and PHOENIX

Rate History

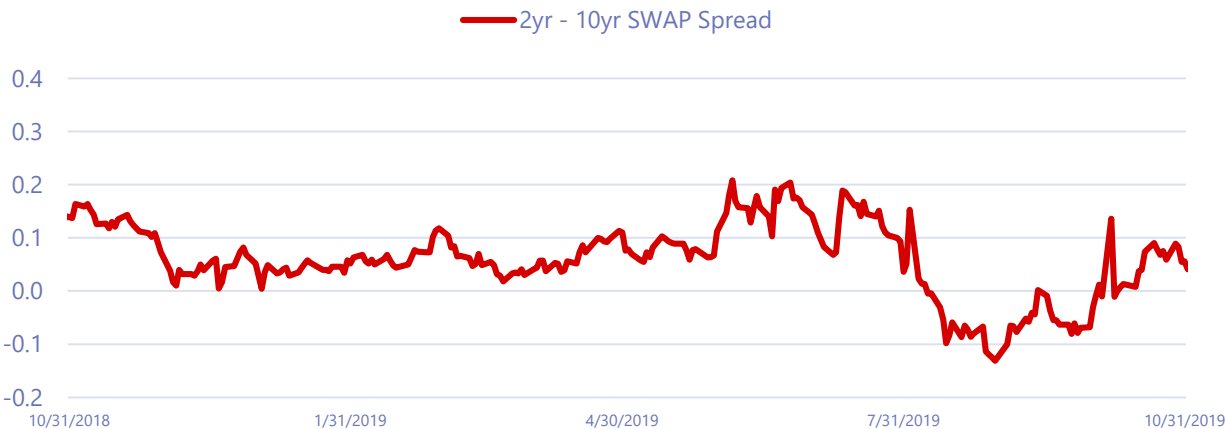
Mortgage Par Rates (%)



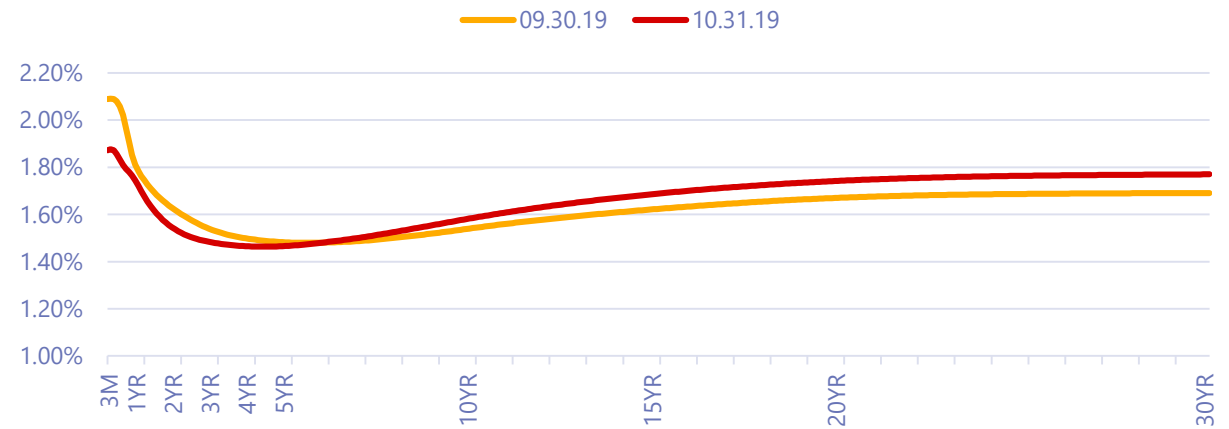
Mortgage Par Spread over SWAP Rates (%)



2yr and 10yr SWAP Spread



Yield Curve Comparison



Prepayment Speed Trends

Summary

- Par rates remained relatively flat over the month of October—however, total CPRs are up 11.62% month-over-month.
- All products saw an increase in prepayment speeds month-over-month, with conventional 30-year product experiencing the largest monthly increase of 13.92%.
- Conventional 30-year, FHA, and VA product prepayment speeds have increased by at least 76% year-over-year, driven primarily by the decrease in conventional and government 30-year par rates by ~117 bps and ~136 bps, respectively, from October 2018.

CPR Summary

SUMMARY TABLES - October 2019

Loan Characteristics						Prepayments	
Investor	Avg Orig Bal	WAC	WAvg Orig FICO	WAvg Orig LTV	WAvg Age	CPR	1mo CPR Change%
CONV Fixed 30	\$215,092	4.36	749	77	56	20.15%	13.92%
CONV Fixed 15	\$171,792	3.64	756	66	56	14.27%	12.01%
GNMA Fixed 30	\$184,234	4.16	694	94	52	20.48%	7.91%
GNMA Fixed 15	\$140,239	3.66	709	83	60	15.80%	19.05%

Vintage	Avg Orig Bal	WAC	WAvg Orig FICO	WAvg Orig LTV	WAvg Age	CPR	1mo CPR Change%
2005	\$138,645	5.36	694	77	146	12.30%	12.89%
2006	\$144,781	5.41	685	78	131	11.27%	12.59%
2007	\$154,397	5.29	682	80	120	10.88%	13.67%
2008	\$150,024	5.28	686	81	115	12.15%	12.97%
2009	\$166,244	4.92	727	79	116	16.31%	16.66%
2010	\$174,254	4.65	738	79	106	16.61%	16.16%
2011	\$173,188	4.41	742	77	96	16.09%	17.49%
2012	\$201,086	3.78	749	80	85	13.84%	15.61%
2013	\$190,500	3.81	743	79	75	13.96%	12.21%
2014	\$183,067	4.26	734	80	60	19.07%	16.97%
2015	\$211,407	3.95	738	79	49	18.29%	13.08%
2016	\$230,764	3.71	739	78	37	16.67%	9.91%
2017	\$228,320	4.13	734	80	26	23.02%	13.22%
2018	\$227,132	4.71	731	82	15	39.07%	3.82%

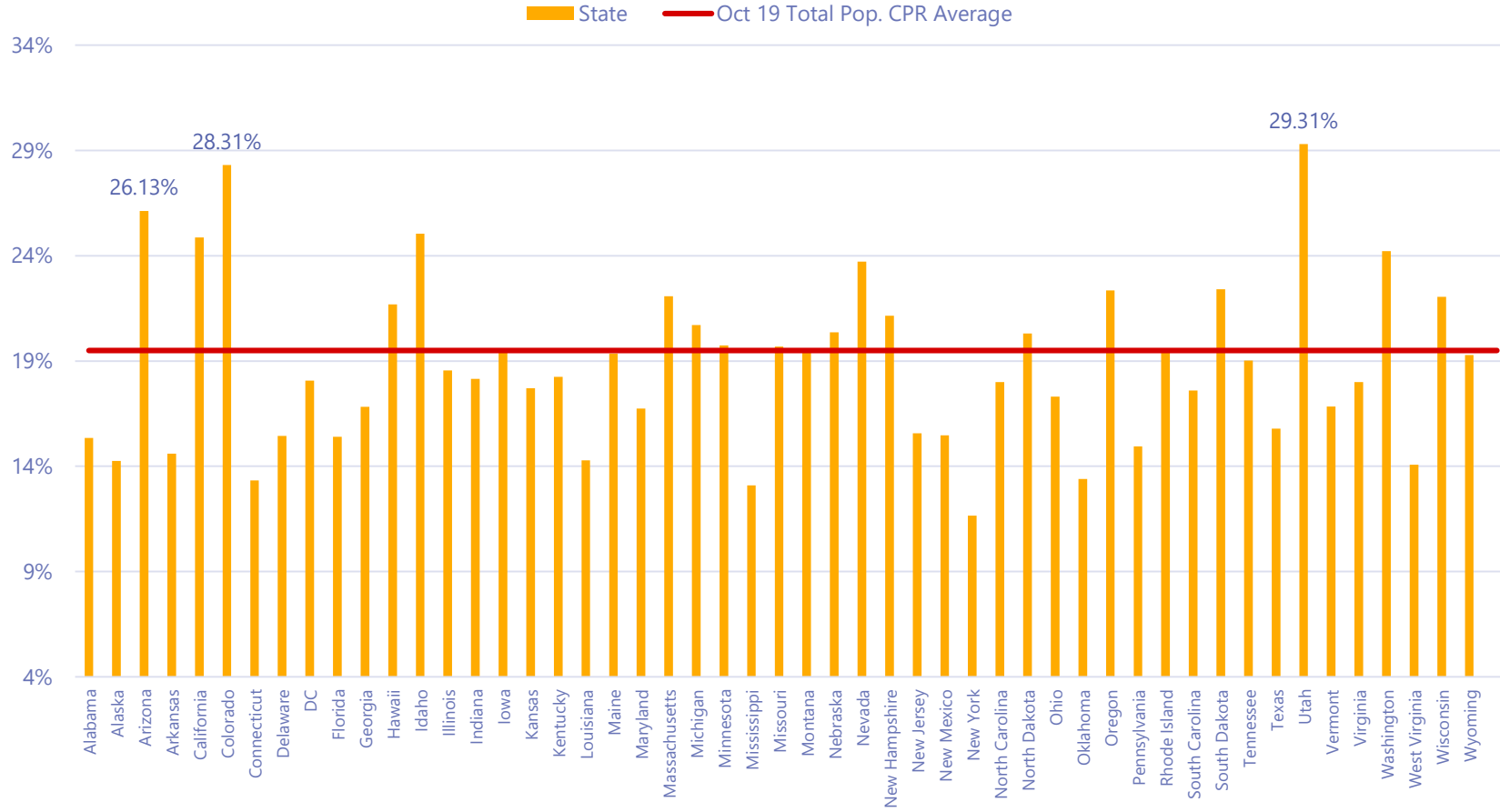
Tranche	Avg Orig Bal	WAC	WAvg Orig FICO	WAvg Orig LTV	WAvg Age	CPR	1mo CPR Change%
0.0000 - 4.4999	\$216,683	3.83	743	79	50	16.61%	12.34%
4.5000 - 4.9999	\$194,917	4.68	728	81	48	26.99%	12.05%
5.0000 - 5.4999	\$170,537	5.16	710	83	64	26.40%	7.04%
5.5000 - 5.9999	\$144,399	5.66	698	81	97	21.06%	8.98%
6.0000 - 6.4999	\$121,930	6.16	695	78	142	14.95%	11.80%
6.5000 - 6.9999	\$106,292	6.66	687	79	160	12.44%	11.71%
7.0000 - 7.4999	\$87,256	7.14	675	81	182	11.49%	13.73%
7.5000 - 7.9999	\$77,886	7.63	659	82	199	10.30%	13.07%
8.0000 - 8.4999	\$71,054	8.14	647	82	218	9.78%	10.97%
8.5000 or more	\$64,614	8.89	637	82	225	10.89%	20.15%

GSE and GNMA fixed rate product only

Source: Black Knight McDash

Prepayment Speed Trends

Average CPR by State - October 2019



Analysis

- Utah continues to lead the country in prepayment speeds (29.31% CPR), while New York continues to bring up the rear with the slowest prepayment speeds (11.66% CPR) over the month of October.
- Western states (UT, CO, NM, AZ, WY) continue to lead the country in prepayment speeds, while Northeastern states (PA, NY, NJ) continue to bring in the rear.

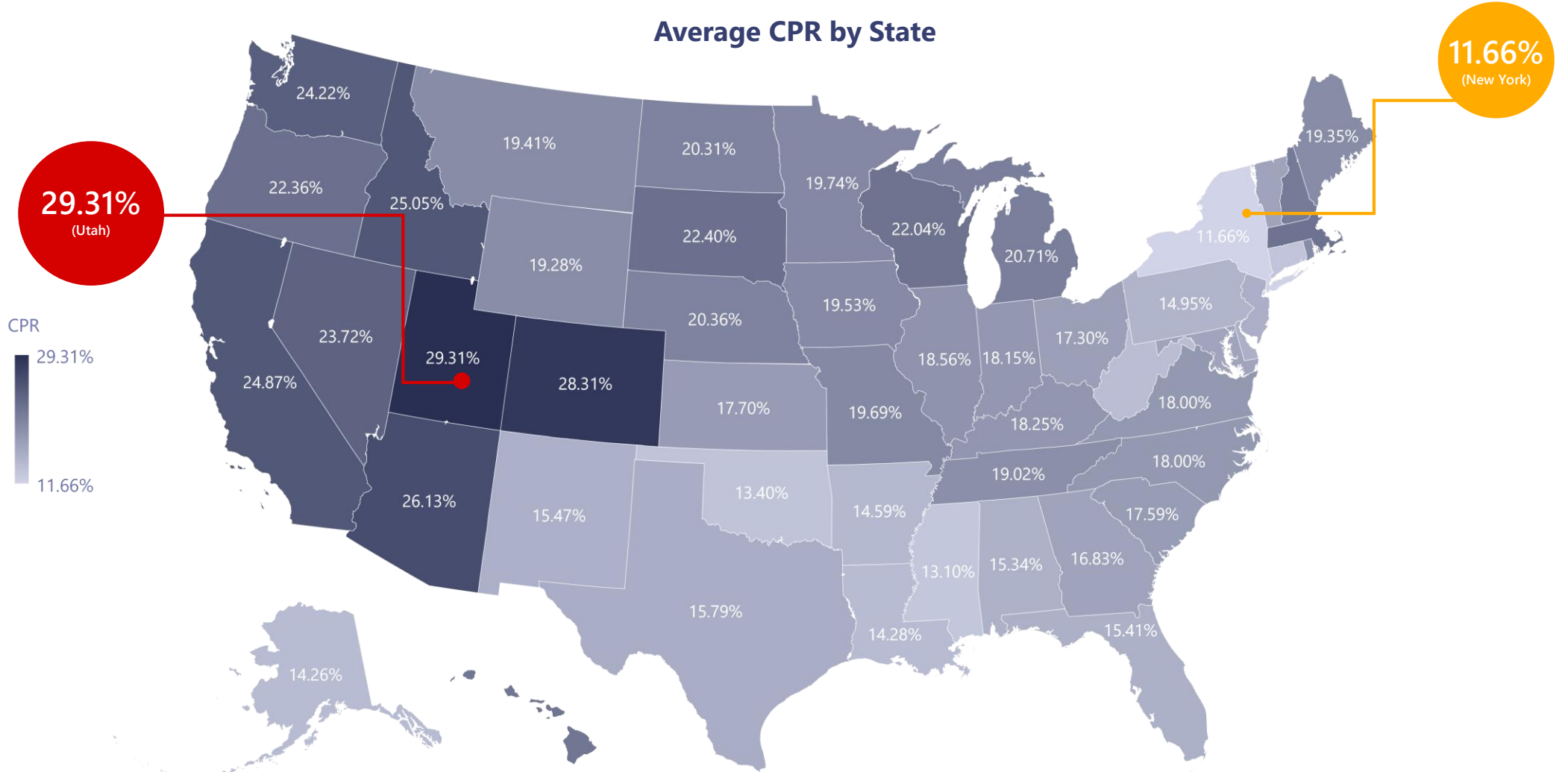
GSE and GNMA fixed rate product only



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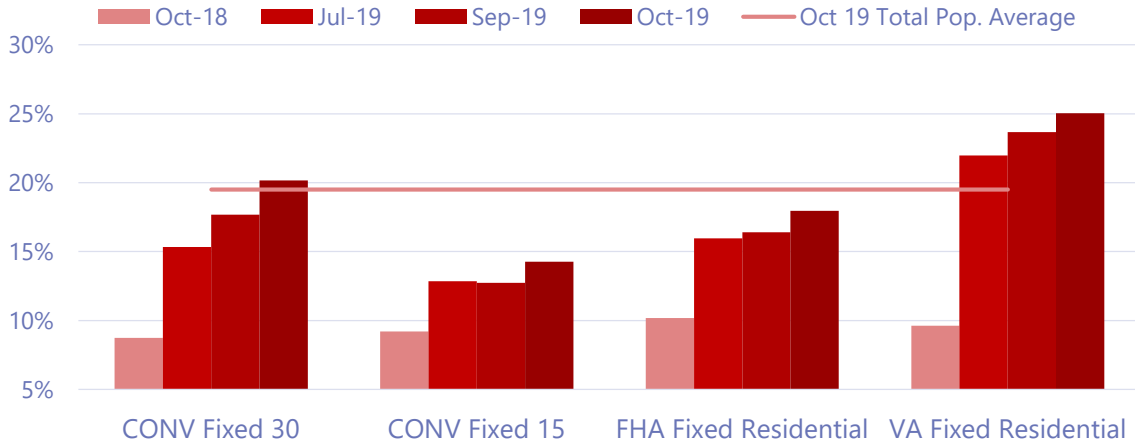
Source: Black Knight McDash

Prepayment Speed Trends (cont.)

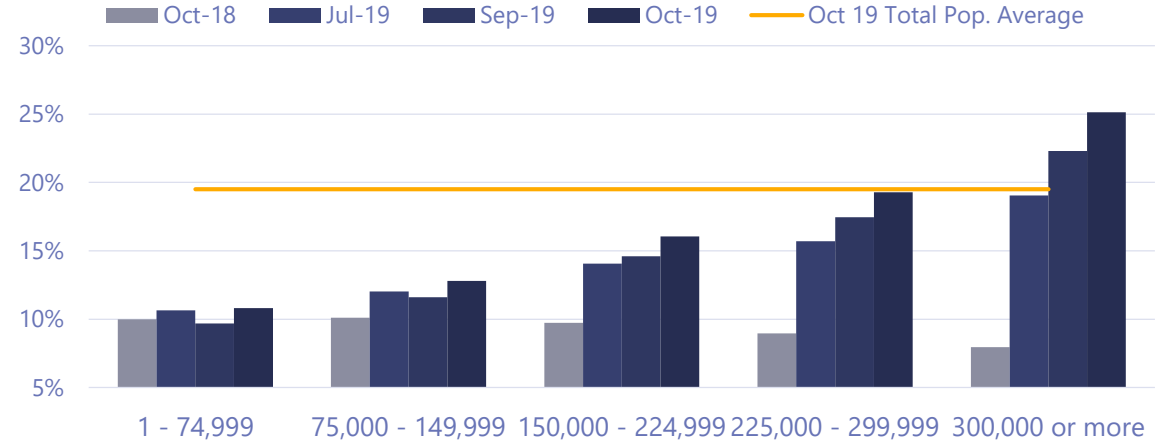


Prepayment Speed Trends (cont.)

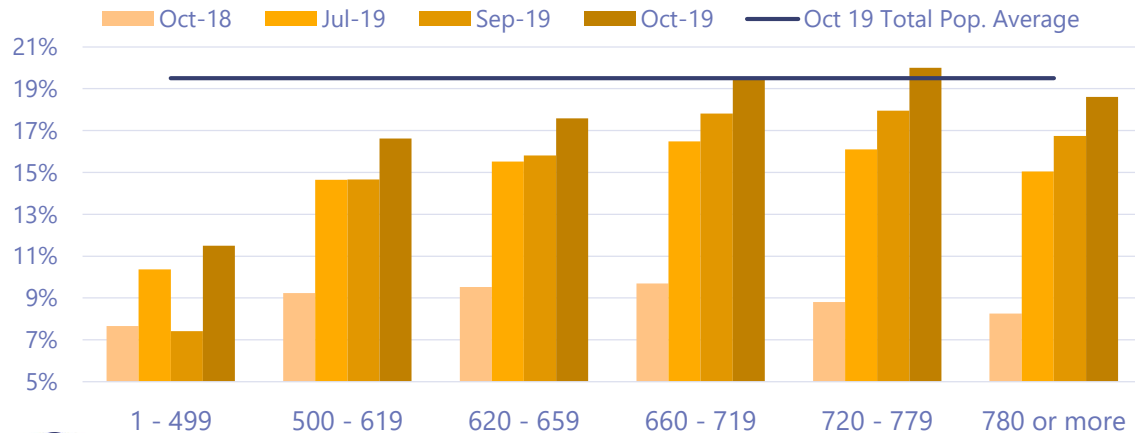
CPR by Fixed-Rate Product - October 2019



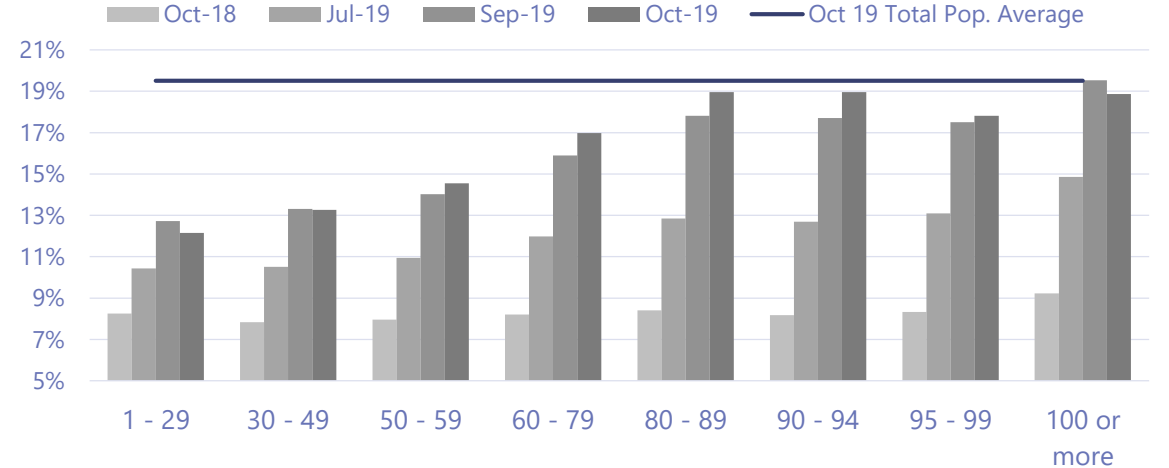
CPR by Original Loan Balance - October 2019



CPR by Original FICO - October 2019



CPR by Original LTV - October 2019



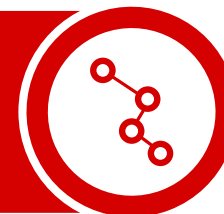
Delinquency Trends

Summary

- The national delinquency and foreclosure rate decreased by 5.68% this month.
- Conventional 30-year loans' delinquency and foreclosure rates decreased slightly, dropping 6 bps over the month. FHA delinquency and foreclosure rates increased by 9 bps, while delinquency among VA loans increased 3 bps.
- Overall, delinquency and foreclosure levels have been very steady in the last year: the 12-month average rate for Conventional Fixed 30-year loans is 2.28%, just 5 bps higher than this month's rate.

Total delinquencies down

5.68%



Delinquency Summary

SUMMARY TABLES - October 2019

Loan Characteristics

Investor	Avg Orig Bal	WAC	WAvg Orig FICO	WAvg Orig LTV	WAvg Age
CONV Fixed 30	\$215,092	4.36	749	77	56
CONV Fixed 15	\$171,792	3.64	756	66	56
GNMA Fixed 30	\$184,234	4.16	694	94	52
GNMA Fixed 15	\$140,239	3.66	709	83	60

Delinquencies

30d DQ	60d DQ	+90d DQ	Total FC	Total DQ & FC	1mo DQ & FC Change%
1.19%	0.34%	0.44%	0.27%	2.23%	-2.53%
0.47%	0.09%	0.10%	0.04%	0.70%	-6.05%
3.92%	1.12%	0.86%	0.48%	6.38%	-0.78%
1.35%	0.30%	0.21%	0.11%	1.97%	-0.76%

Vintage	Avg Orig Bal	WAC	WAvg Orig FICO	WAvg Orig LTV	WAvg Age	30d DQ	60d DQ	+90d DQ	Total FC	Total DQ & FC	1mo DQ & FC Change%
2005	\$138,645	5.36	694	77	146	5.30%	1.78%	2.03%	1.71%	10.82%	-3.47%
2006	\$144,781	5.41	685	78	131	6.49%	2.28%	2.88%	2.55%	14.20%	-2.13%
2007	\$154,397	5.29	682	80	120	6.77%	2.51%	3.28%	2.82%	15.38%	-2.84%
2008	\$150,024	5.28	686	81	115	6.43%	2.08%	2.13%	1.91%	12.55%	-4.32%
2009	\$166,244	4.92	727	79	116	3.12%	0.90%	0.71%	0.49%	5.22%	-3.91%
2010	\$174,254	4.65	738	79	106	2.16%	0.59%	0.48%	0.27%	3.49%	-3.91%
2011	\$173,188	4.41	742	77	96	1.77%	0.48%	0.39%	0.20%	2.84%	-3.57%
2012	\$201,086	3.78	749	80	85	1.08%	0.28%	0.23%	0.12%	1.71%	-6.86%
2013	\$190,500	3.81	743	79	75	1.28%	0.33%	0.31%	0.16%	2.07%	-8.85%
2014	\$183,067	4.26	734	80	60	1.90%	0.54%	0.54%	0.26%	3.24%	-6.87%
2015	\$211,407	3.95	738	79	49	1.61%	0.45%	0.46%	0.22%	2.74%	-11.60%
2016	\$230,764	3.71	739	78	37	1.45%	0.38%	0.42%	0.21%	2.45%	-12.43%
2017	\$228,320	4.13	734	80	26	1.70%	0.46%	0.50%	0.24%	2.90%	-8.61%
2018	\$227,132	4.71	731	82	15	1.76%	0.52%	0.47%	0.20%	2.94%	-2.29%

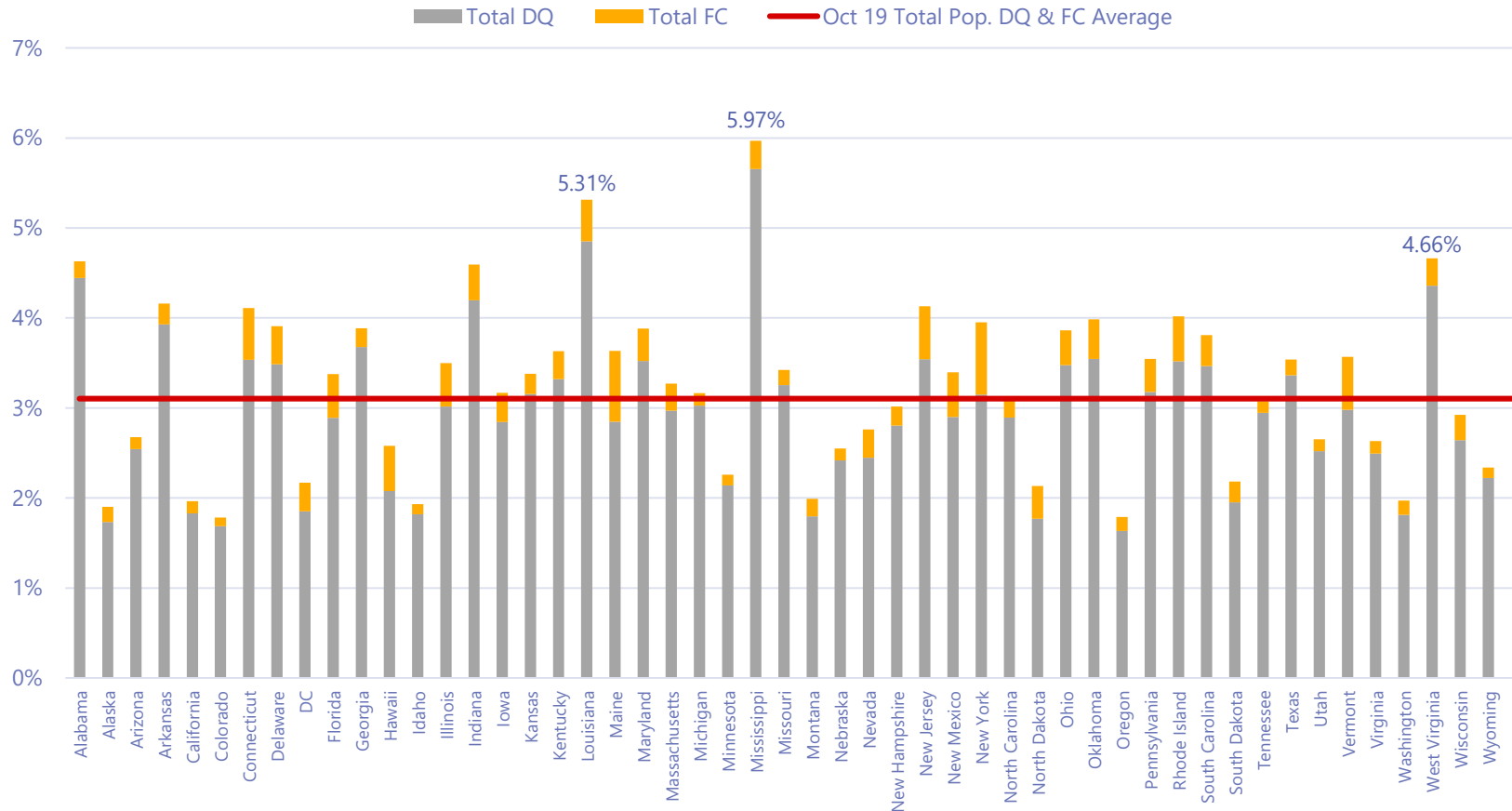
Tranche	Avg Orig Bal	WAC	WAvg Orig FICO	WAvg Orig LTV	WAvg Age	30d DQ	60d DQ	+90d DQ	Total FC	Total DQ & FC	1mo DQ & FC Change%
0.0000 - 4.4999	\$216,683	3.83	743	79	50	1.38%	0.38%	0.39%	0.23%	2.38%	-9.37%
4.5000 - 4.9999	\$194,917	4.68	728	81	48	2.09%	0.59%	0.58%	0.29%	3.53%	-2.65%
5.0000 - 5.4999	\$170,537	5.16	710	83	64	3.07%	0.87%	0.81%	0.41%	5.16%	-0.65%
5.5000 - 5.9999	\$144,399	5.66	698	81	97	3.78%	1.07%	0.95%	0.59%	6.39%	-0.05%
6.0000 - 6.4999	\$121,930	6.16	695	78	142	4.42%	1.26%	1.22%	1.11%	8.01%	-3.27%
6.5000 - 6.9999	\$106,292	6.66	687	79	160	5.05%	1.47%	1.50%	1.61%	9.63%	-3.96%
7.0000 - 7.4999	\$87,256	7.14	675	81	182	5.76%	1.76%	1.78%	2.16%	11.46%	-2.32%
7.5000 - 7.9999	\$77,886	7.63	659	82	199	6.09%	1.87%	2.13%	2.43%	12.52%	-1.73%
8.0000 - 8.4999	\$71,054	8.14	647	82	218	6.68%	2.04%	2.26%	2.60%	13.58%	-2.15%
8.5000 or more	\$64,614	8.89	637	82	225	6.91%	2.20%	2.85%	3.01%	14.96%	-2.00%

GSE and GNMA fixed rate product only

Source: Black Knight McDash

Delinquency Trends

Average Delinquency and Foreclosure by State - October 2019



Analysis

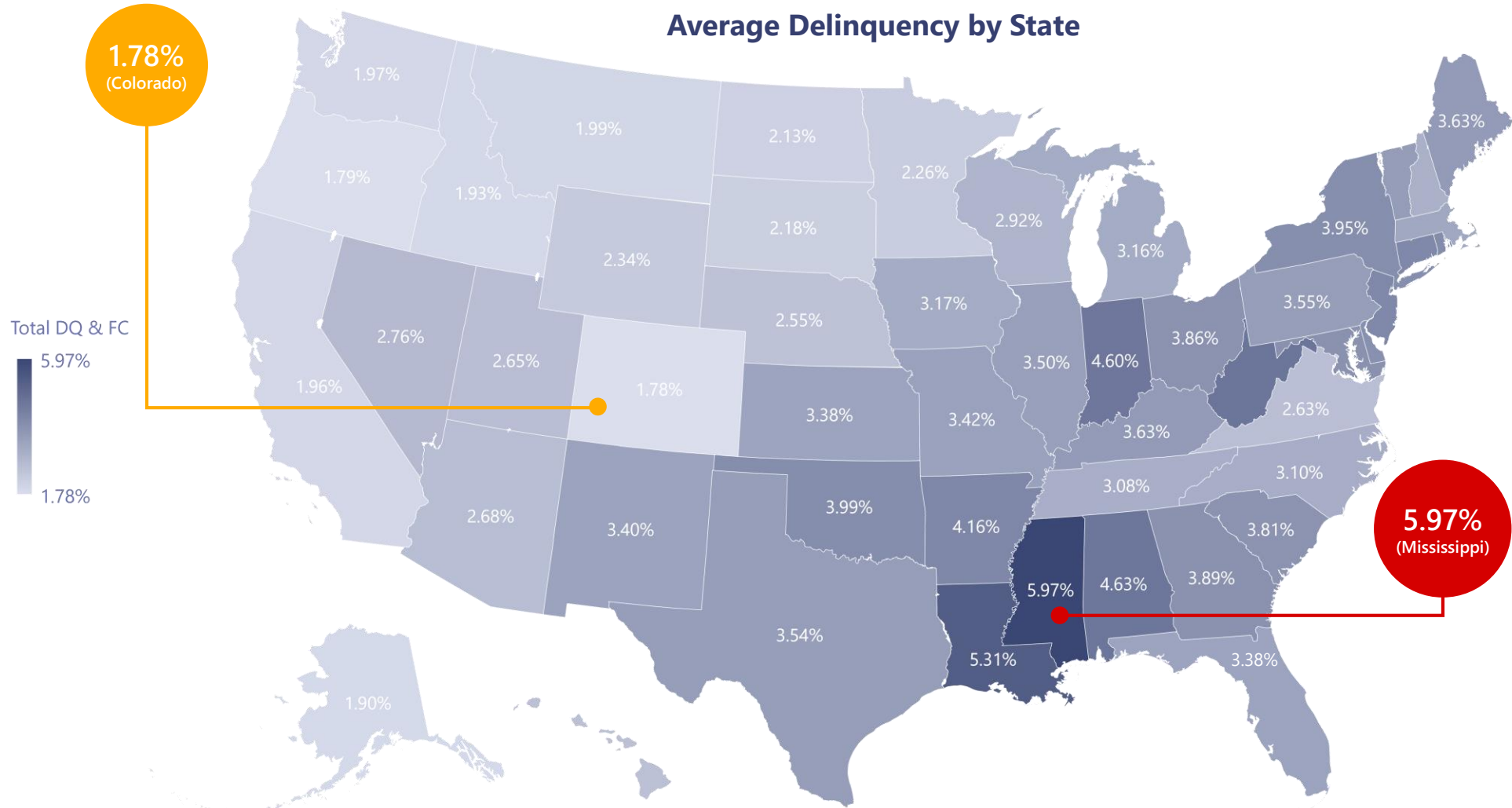
- Colorado is the best-performing state, with delinquency and foreclosure rates at 1.78%.
- With 5.97% delinquency and foreclosure rates, Mississippi is the nation's most-delinquent state.
- The Pacific region (CA, OR, WA, HI, and AK) has the lowest overall delinquency and foreclosure rates (2.09%).

GSE and GNMA fixed rate product only

Source: Black Knight McDash



Delinquency Trends (cont.)

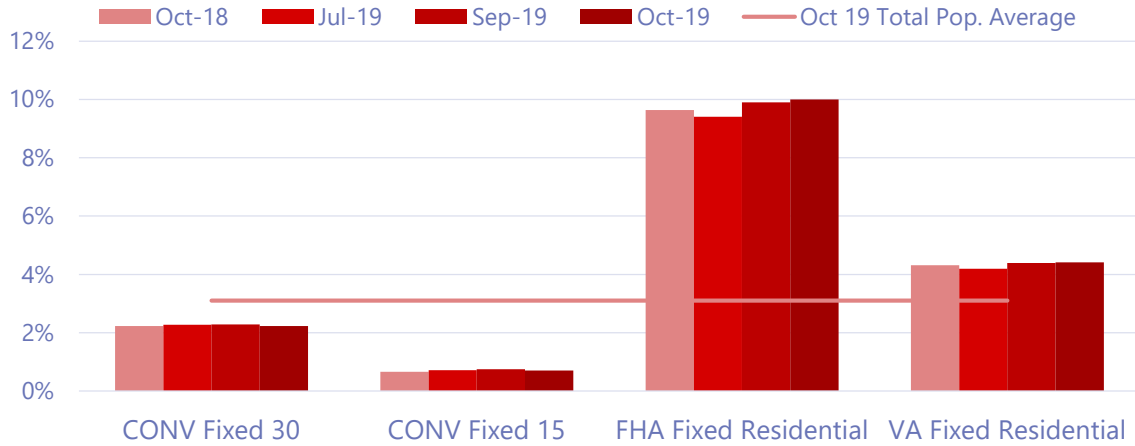


GSE and GNMA fixed rate product only

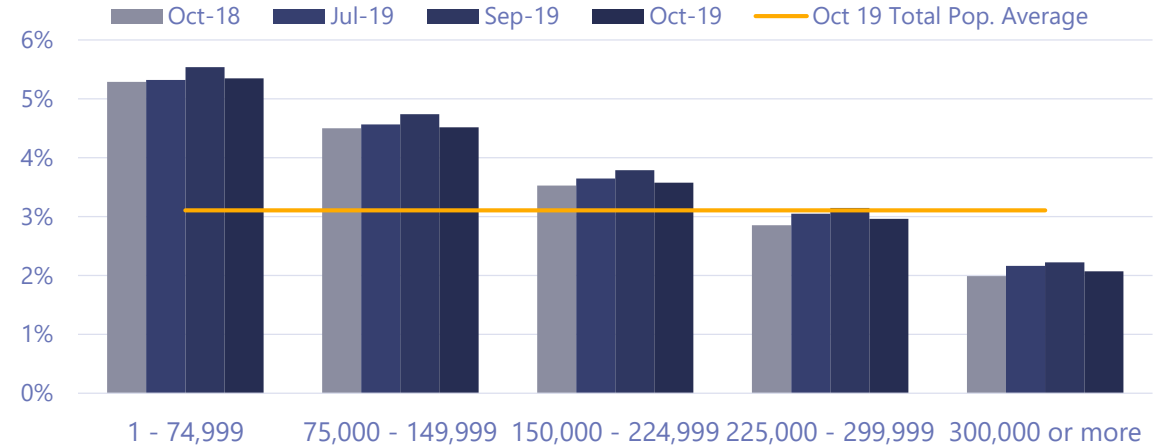
Source: Black Knight McDash

Delinquency Trends (cont.)

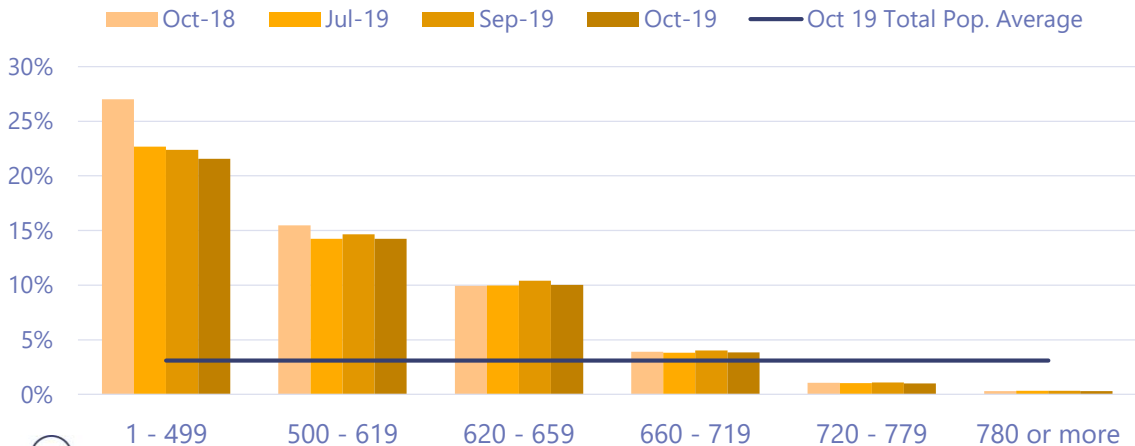
Delinquency and Foreclosure by Fixed-Rate Product - October 2019



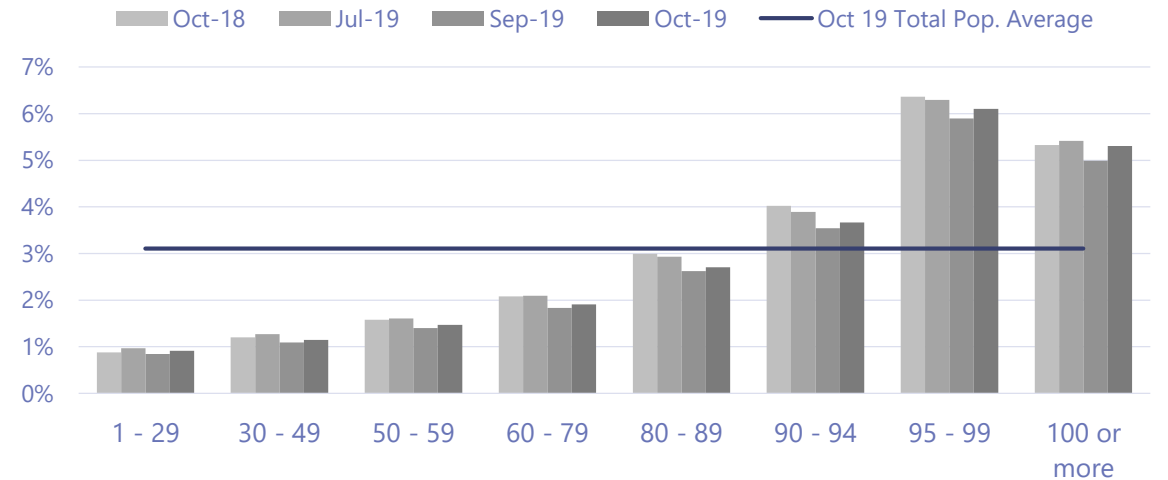
Delinquency and Foreclosure by Original Loan Balance - October 2019



Delinquency and Foreclosure by Original FICO - October 2019



Delinquency and Foreclosure by Original LTV - October 2019



Tables

State Summary

Prepayment and Delinquency

SUMMARY TABLES - October 2019

State	Loan Characteristics					Prepayments			Delinquencies						
	WAvg Orig Bal	WAC	WAvg Orig FICO	WAvg Orig LTV	WAvg Age	CPR	1mo CPR Change%	CPR Factor	30d DQ	60d DQ	+90d DQ	Total FC	Total DQ & FC	1mo DQ & FC Change%	DQ Factor
National	\$198,128	4.21	735	80	55	19.50%	11.62%	100.00%	1.80%	0.50%	0.50%	0.30%	3.11%	-5.68%	100.00%
Alabama	\$152,714	4.27	726	85	60	15.34%	10.53%	78.66%	2.76%	0.80%	0.89%	0.19%	4.63%	-4.71%	149.15%
Alaska	\$247,250	4.00	732	86	57	14.26%	1.06%	73.10%	1.11%	0.33%	0.30%	0.17%	1.90%	-28.25%	61.26%
Arizona	\$184,518	4.30	734	84	48	26.13%	5.04%	133.99%	1.70%	0.46%	0.39%	0.13%	2.68%	-3.01%	86.18%
Arkansas	\$137,837	4.19	729	84	59	14.59%	8.46%	74.82%	2.55%	0.63%	0.75%	0.23%	4.16%	-4.08%	134.04%
California	\$283,465	4.14	744	72	51	24.87%	15.59%	127.52%	1.22%	0.31%	0.30%	0.13%	1.96%	-8.61%	63.22%
Colorado	\$237,013	4.12	744	77	45	28.31%	5.38%	145.15%	1.12%	0.29%	0.28%	0.10%	1.78%	-7.23%	57.46%
Connecticut	\$214,274	4.22	735	80	63	13.32%	18.87%	68.31%	2.23%	0.63%	0.68%	0.58%	4.11%	-5.52%	132.40%
Delaware	\$200,031	4.25	732	82	60	15.44%	15.58%	79.15%	2.19%	0.63%	0.67%	0.42%	3.91%	-5.67%	125.93%
DC	\$318,008	4.13	751	72	55	18.07%	16.43%	92.65%	1.17%	0.31%	0.37%	0.32%	2.17%	-3.25%	69.92%
Florida	\$178,315	4.35	728	84	52	15.41%	8.33%	79.00%	1.83%	0.53%	0.53%	0.49%	3.38%	-5.56%	108.79%
Georgia	\$171,473	4.25	727	84	57	16.83%	10.23%	86.28%	2.33%	0.68%	0.67%	0.21%	3.89%	-6.23%	125.15%
Hawaii	\$349,692	4.12	747	75	58	21.69%	21.50%	111.22%	1.34%	0.35%	0.38%	0.50%	2.58%	-3.59%	83.03%
Idaho	\$178,378	4.22	740	81	50	25.05%	9.11%	128.46%	1.24%	0.33%	0.25%	0.11%	1.93%	-6.08%	62.22%
Illinois	\$181,172	4.20	735	82	58	18.56%	14.83%	95.15%	1.87%	0.57%	0.58%	0.49%	3.50%	-6.39%	112.72%
Indiana	\$133,080	4.32	720	85	56	18.15%	4.93%	93.06%	2.71%	0.78%	0.70%	0.40%	4.60%	-3.91%	147.99%
Iowa	\$142,577	4.10	737	83	56	19.53%	14.42%	100.12%	1.85%	0.54%	0.46%	0.32%	3.17%	-5.55%	102.00%
Kansas	\$147,455	4.18	733	84	56	17.70%	6.19%	90.78%	2.05%	0.57%	0.54%	0.22%	3.38%	-7.09%	108.86%
Kentucky	\$145,644	4.22	728	83	55	18.25%	6.13%	93.60%	2.18%	0.60%	0.55%	0.31%	3.63%	-7.25%	116.97%
Louisiana	\$163,982	4.28	720	83	57	14.28%	9.03%	73.20%	3.02%	0.93%	0.90%	0.46%	5.31%	-4.39%	171.14%
Maine	\$178,988	4.22	732	81	55	19.35%	16.04%	99.24%	1.83%	0.50%	0.51%	0.79%	3.63%	-7.49%	117.00%
Maryland	\$242,046	4.15	731	82	59	16.75%	10.70%	85.86%	2.20%	0.64%	0.68%	0.36%	3.88%	-6.72%	125.09%
Massachusetts	\$257,135	4.11	740	76	55	22.08%	21.04%	113.23%	1.90%	0.51%	0.56%	0.30%	3.27%	-8.22%	105.35%
Michigan	\$143,311	4.28	733	83	58	20.71%	15.30%	106.20%	1.98%	0.56%	0.48%	0.14%	3.16%	-6.34%	101.90%
Minnesota	\$188,377	4.13	745	83	55	19.74%	14.40%	101.20%	1.41%	0.37%	0.36%	0.12%	2.26%	-8.87%	72.79%
Mississippi	\$145,613	4.29	716	85	58	13.10%	8.60%	67.16%	3.49%	1.05%	1.12%	0.31%	5.97%	-3.73%	192.27%
Missouri	\$147,286	4.21	734	83	54	19.69%	7.65%	100.95%	2.08%	0.61%	0.56%	0.17%	3.42%	-5.21%	110.24%
Montana	\$187,916	4.11	745	79	52	19.41%	9.51%	99.53%	1.16%	0.30%	0.34%	0.19%	1.99%	-13.29%	64.09%
Nebraska	\$147,121	4.06	741	83	52	20.36%	13.48%	104.38%	1.57%	0.41%	0.43%	0.13%	2.55%	-6.39%	82.09%
Nevada	\$199,068	4.36	730	85	46	23.72%	8.98%	121.61%	1.49%	0.44%	0.52%	0.32%	2.76%	-1.00%	88.99%
New Hampshire	\$205,407	4.18	736	81	56	21.15%	14.27%	108.45%	1.85%	0.46%	0.49%	0.21%	3.02%	-8.30%	97.10%
New Jersey	\$240,640	4.20	736	78	61	15.56%	14.33%	79.79%	2.11%	0.66%	0.77%	0.59%	4.13%	-5.01%	133.04%
New Mexico	\$162,970	4.33	731	82	65	15.47%	6.98%	79.33%	2.01%	0.49%	0.40%	0.50%	3.40%	-3.55%	109.44%
New York	\$234,964	4.30	738	74	65	11.66%	23.75%	59.77%	1.97%	0.56%	0.62%	0.81%	3.95%	-5.90%	127.31%
North Carolina	\$172,612	4.20	734	82	55	18.00%	11.32%	92.31%	1.85%	0.52%	0.52%	0.20%	3.10%	-4.76%	99.77%
North Dakota	\$181,072	3.98	743	82	50	20.31%	23.93%	104.13%	1.18%	0.22%	0.37%	0.36%	2.13%	-3.96%	68.66%
Ohio	\$135,796	4.30	725	85	59	17.30%	12.00%	88.73%	2.23%	0.63%	0.62%	0.39%	3.86%	-3.83%	124.41%
Oklahoma	\$143,441	4.29	725	85	57	13.40%	8.74%	68.73%	2.31%	0.67%	0.56%	0.44%	3.99%	-4.50%	128.37%
Oregon	\$214,295	4.24	745	78	52	22.36%	12.46%	114.63%	1.07%	0.29%	0.28%	0.16%	1.79%	-7.78%	57.65%
Pennsylvania	\$168,921	4.21	735	81	60	14.95%	19.58%	76.66%	2.04%	0.59%	0.56%	0.37%	3.55%	-6.95%	114.20%
Rhode Island	\$203,190	4.21	734	82	57	19.39%	12.20%	99.44%	2.21%	0.64%	0.67%	0.50%	4.02%	-4.40%	129.44%
South Carolina	\$167,394	4.25	728	83	54	17.59%	11.22%	90.21%	2.22%	0.63%	0.61%	0.34%	3.81%	-5.88%	122.74%
South Dakota	\$164,668	3.99	744	82	50	22.40%	7.97%	114.87%	1.26%	0.34%	0.34%	0.23%	2.18%	-11.05%	70.27%
Tennessee	\$166,706	4.21	732	82	52	19.02%	6.07%	97.53%	1.86%	0.54%	0.55%	0.13%	3.08%	-7.93%	99.03%
Texas	\$176,145	4.29	726	83	51	15.79%	6.07%	80.97%	2.22%	0.63%	0.52%	0.17%	3.54%	-3.55%	113.91%
Utah	\$220,473	4.18	736	82	43	29.31%	-0.80%	150.27%	1.62%	0.45%	0.46%	0.13%	2.65%	-2.86%	85.44%
Vermont	\$179,861	4.23	740	78	62	16.84%	24.57%	86.35%	1.94%	0.50%	0.54%	0.59%	3.57%	-4.63%	114.88%
Virginia	\$237,013	4.10	738	82	55	18.00%	8.12%	92.32%	1.61%	0.45%	0.44%	0.14%	2.63%	-4.50%	84.73%
Washington	\$238,913	4.20	739	79	49	24.22%	10.88%	124.19%	1.22%	0.26%	0.33%	0.16%	1.97%	-2.42%	63.51%
West Virginia	\$143,168	4.31	720	85	61	14.08%	20.31%	72.20%	2.95%	0.80%	0.61%	0.30%	4.66%	-5.55%	150.14%
Wisconsin	\$161,761	4.18	737	82	56	22.04%	13.91%	113.03%	1.69%	0.50%	0.46%	0.28%	2.92%	-7.97%	94.14%
Wyoming	\$195,757	4.09	735	82	52	19.28%	7.25%	98.88%	1.49%	0.36%	0.37%	0.12%	2.34%	-9.66%	75.33%

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