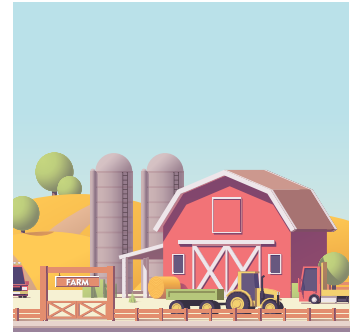
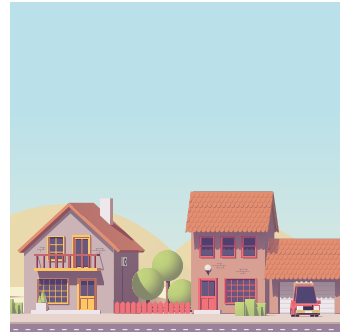




NCUA Office of the Chief Economist

Interest Rates for 30-Year Fixed-Rate Mortgages Originated in 2018: Relative Findings for Credit Union Mortgages



Summary

Using 2018 Home Mortgage Disclosure Act database and segmenting it to a sample of 30-year, fixed-rate mortgage loans, the NCUA's Office of the Chief Economist finds:

- Mortgage loans originated by credit unions generally carried lower interest rates than mortgage loans originated by other lenders;
- The median interest-rate spread for credit union mortgages was 9 to 14 basis points lower than for other originators;
- The discount in rates for credit union loans generally was observed in both urban and rural areas; and
- Statistics for three credit risk indicators—credit scores, combined loan-to-value ratios, and debt-to-income ratios—suggested that differences in mortgage rates were not likely the result of differences in credit risk.

The Chief Economist's report observes that the discount in mortgage rates generally would reduce the life-of-the-loan payments by thousands of dollars.

Background

The National Credit Union Administration has, for more than 10 years, published quarterly comparisons of mortgage interest rates at credit unions and banks. These reports, which include average rates for other loan products and different types of deposit accounts, are currently assembled by extracting information from





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databases maintained by S&P Global Market Intelligence. The statistics show mortgage rates reported by active banks and credit unions for the last Friday of the quarter.¹

Although the Global Market Intelligence data are timely and informative, a more comprehensive resource exists for mortgages: loan-level data reported under the Home Mortgage Disclosure Act. The data are reported with a lag and only by institutions that meet HMDA requirements, but the information is rich.² The HMDA loan-level data, which includes various risk indicators and originating institution information (including a credit union identifier), are estimated to be available for more than 90 percent of mortgages originated in the United States.³

Using the 2018 HMDA dataset, NCUA's Office of the Chief Economist produced mortgage statistics for 30-year, fixed-rate, conventional first-lien loans originated by credit unions and other institutions.⁴ The two tables included in this report show differences in median mortgage rates and rate spreads as well as differences in three indicators of credit risk. Median borrower credit scores are compared for borrowers at credit unions versus other institutions, as are statistics for a pair of important credit risk ratios: debt-to-income and combined loan-to-value. The statistics for the credit risk variables collectively provide context for whether differences in mortgage rates can be explained, in whole or in part, by systematic differences in the riskiness of the underlying loans.

Table 1 provides summary statistics for first-lien mortgages, including purchase-money loans and refinances. Table 2 provides summary statistics for just purchase-money mortgages. Results are presented for the United States as a whole as well as for a number of distinct geographic aggregations. Specific comparisons are shown for metropolitan and non-metropolitan areas, for instance.

Calculation Methodology

To calculate the statistics shown in the tables, OCE began with the 2018 agency HMDA dataset for August 2019, the latest available at the time of the analysis. To both ensure robustness of the results and to remove inconsistency in data reporting, OCE then implemented a series of data filters and data selection criteria.

1 S&P Global Market Intelligence monitors standard interest rate data for deposit, consumer loan, and mortgage products for over 75 percent of all banks and credit unions. Coverage is comprehensive for all institutions with over \$1 billion in total assets. Interest rate data are collected from a variety of sources. Financial institutions fax, email and enter their rate data into a secured system daily. Market Intelligence also collects information from a depository's website or by telephone.

Mortgage rates represent the best non-relationship/discounted rate based on excellent or best credit. Rates assume a \$200,000 loan amount, zero points, and 80% LTV. For financial institutions that do not offer a rate with zero points, Market Intelligence collects the rate closest to zero points and includes the points associated with that rate. Mortgage rates are updated at least once a month.

2 Loan origination information from HMDA-subject institutions becomes available to NCUA around March of the following year, and is updated by CFPB on a monthly basis as more institutions file through the year. Public datasets generally become available in late summer.

3 See page 10 of "Data Point: 2017 Mortgage Market Activity and Trends" available at https://files.consumerfinance.gov/f/documents/bcfp_hmda_2017-mortgage-market-activity-trends_report.pdf.

4 Although the HMDA dataset is extremely comprehensive, it represents neither a universe of loan originations nor a random sample. Given that it is not a random sample, tests of statistical significance are not appropriate. Because some small loan originators are not required to submit data under HMDA, to the extent there are differences in the characteristics of loans originated by small institutions, those differences will not be fully reflected in the summary statistics shown in this report. Given the breadth of available data, it is not at all obvious that findings related to the core focus of this report—systematic differences between credit union mortgage rates and other rates—would be materially affected if a universe of mortgage originations was analyzed.



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OCE chose to focus its analysis on first-lien, 30-year, fixed-rate conventional mortgages. The sample was comprised of loans collateralized by site-built, one-unit properties that were the primary residence of the homebuyer. Mortgages other than purchase-money, refinance, and cash-out mortgages were removed from the dataset.⁵

A number of data filters were implemented to remove likely data errors. In general, a light touch was employed in setting the thresholds; only the most extreme outliers were removed. Filters eliminated observations with anomalous credit scores, DTI ratios, and CLTV ratios. Additional data screens removed interest rates and interest rate spreads that were far above or below the norms.⁶

After all data filters were applied, the remaining “full sample” dataset—which includes purchase-money and refinance mortgages—had more than 2.4 million loans. A subsample of that dataset comprised of only purchase-money mortgages had roughly 1.8 million loans.

Prior to evaluating statistical results, OCE compared the different varieties of credit scores that were submitted by credit unions and other loan originators. HMDA filers submit different types of credit scores, each of which reflects a specific model from a particular vendor, such as FICO or Vantage. Given that the various models have slightly different statistical distributions, analyzing differences between credit scores for credit unions and other originators is only particularly meaningful if there are no material differences in the mix of score types being submitted. Fortunately, OCE’s review of the data suggested no significant difference in the sources of the credit scores.

Results

Tables 1 and 2, which report results for the full sample and the PMM-only dataset respectively, indicate that, in 2018, credit union mortgages generally had lower rates than mortgage loans originated by other lenders.

A comparison of contract interest rates reveals that credit union rates generally were about 13 basis points lower, at the median, than rates at other institutions. Tables 1 and 2 also indicate a qualitatively similar finding for the rate spread, which takes into account points and various fees paid by the borrower and thus is a more comprehensive measure for analysis.⁷ The median rate spread for credit union loans generally was 9 to 14 basis points lower than for other originators.

Tables 1 and 2 suggest that the difference in the median rate spread (and contract interest rates) tended to be similar across metro and non-metro areas. Within the full sample, the difference in the median rate spread for metropolitan areas was 12 basis points, a slightly narrower difference than the 14-basis-point gap in non-

5 Specifically, only loans with loan purpose codes of 1 (home purchase), 31 (rate-term refinance), and 32 (cash-out refinance) were selected.

6 For the credit risk and interest rate-related variables, the specific data selection rules were:

- Keep only records where: first borrower credit scores were ≥ 100 and ≤ 1000 , DTI ratios were $>0\%$ and $\leq 100\%$, and CLTV ratios were $>0\%$ and $\leq 100\%$.
- Select only records where the contract interest rate was $>2\%$ and $<10\%$ and the rate spread was ≥ -4 percentage points and ≤ 6 percentage points.

7 For a given mortgage, the rate spread is calculated as the difference between the annual percentage rate (APR) and the Average Prime Offer Rate. The APR is calculated as a function of the interest rate, various mortgage origination fees (e.g., closing, origination, underwriting, and processing fees), and points.



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metropolitan areas.⁸ For purchase-money mortgages, credit union loans had median rate spreads that were 9 basis points lower in metropolitan areas and 10 basis points lower in non-metropolitan areas.

For the ten largest states, the credit union rate discounts in 2018 were within a relatively narrow band.⁹ The difference in the median rate spread for the full sample, for example, ranged from 7 basis points in Georgia, Illinois, New York, and Ohio, to 20 basis points in Florida. For the PMM-only dataset, the rate spread discount for credit union loans ranged between -3 basis points (meaning the median credit union spread was slightly higher) in North Carolina to 18 basis points in Florida.

When evaluating the observed discounts being offered by credit unions, it is important to assess whether such discounts would hold up if they were adjusted for credit-risk-related attributes. Whether the rate differences shown in Tables 1 and 2 are meaningful depends in large part on differences in the credit characteristics of the loans that were originated. While median credit union rates generally were lower than other originator rates, if credit union mortgages tended to be of higher credit quality, the result would not be particularly surprising.

A comprehensive risk adjustment is beyond the scope of this analysis. However, the summary statistics in Tables 1 and 2 do not suggest that systematic differences in risk characteristics would account for the observed discounts in credit union mortgage rates. For the United States as a whole, the full sample suggests that, relative to other mortgages, credit union loans, at the median, had slightly lower credit scores, nearly identical CLTV ratios, and slightly lower DTI ratios. In other words, all else equal, one statistic indicated slightly higher credit risk, one indicated effectively identical risk, and one indicated lower risk.¹⁰ For the PMM-only sample, two of the three statistics—median credit scores and the median combined LTV ratios—were associated with higher credit risk.¹¹ This suggests that if risk characteristics were accounted for, a risk-adjusted difference in purchase-money mortgage rates would likely be somewhat larger than what was observed. Put differently, if purchase-money loans of identical risk attributes were compared for credit unions vs. other loan originators, the gap in mortgage rates would likely be even larger than what is shown in Table 2.

Although differences in credit union and non-credit union mortgage rates reflected in Tables 1 and 2 may appear small in magnitude, they can have a meaningful impact on borrowers. For borrowers in rural areas, who often have limited choices for mortgage providers, the 14 basis-point discount in the median rate spread would generally reduce life-of-loan payments by thousands of dollars. For a \$175,000 mortgage, for instance, total principal and interest payments would be nearly \$5,000 lower under a 3.60 percent interest rate versus a 3.74 percent rate.¹²

⁸ The median credit union rate spread was 0.25 percentage points versus 0.37 percentage points for other loan originators.

⁹ The “largest” states are defined as those with the greatest population.

¹⁰ The “all else equal” *caveat* should be stressed. For a given set of loan and borrower characteristics, credit union mortgages in fact could have different expected loan outcomes. In other words, differences in credit union underwriting or loan servicing could systematically produce different performance for borrowers of identical observed attributes.

¹¹ At about 5 percentage points, the difference in the CLTV ratios is fairly significant. For instance, a 2013 FHFA Working Paper that analyzed Fannie Mae- and Freddie Mac-guaranteed loans estimated that, under the 2013 Moody’s “Baseline” house price forecast and other assumptions, the 5 percentage point difference would produce more than a 90 basis point difference in cumulative loan foreclosure rates. (See page 16 of https://www.fhfa.gov/policyprogramsresearch/research/paperdocuments/2013-12_workingpaper_13-3-508.pdf.)

¹² For a 30-year fixed rate loan, principal and interest payments would total \$286,428 under a 3.60% interest rate, roughly \$4,978 lower than the \$291,405 total under a 3.74% rate.



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Discussion

The Office of the Chief Economist performed a number of checks to test the general finding that credit union mortgage rates tended to be lower than mortgage rates at other institutions in 2018. For instance, OCE looked at averages for interest rates and rate spreads rather than median values.¹³ It also conducted analyses of median rates under different filtering rules. For instance, OCE computed separate credit union discounts for middle-size loans (original balances of \$100,000 to \$300,000), loans submitted directly to the originating institution, and loans delivered to Fannie Mae and Freddie Mac. Ultimately, the general finding of discounted rates for 30-year, fixed-rate mortgages tended to persist across the various data subsets.¹⁴ At the same time, there was no change to the general finding about relative risk characteristics.¹⁵ Under the various data samples, summary statistics for credit union mortgages continued to indicate that the gap in the mortgage rates for 30-year fixed-rate loans was unlikely to be the result of systematic differences in the types of originated loans.

13 OCE's default metric was medians because medians tend to mitigate the impact of data irregularities.

14 While the results were quite robust for 30-year fixed-rate conventional loans, initial indications are that the discount may not have been present for 15-year fixed-rate loans when medians were compared.

15 The most significant difference in the credit risk statistics was evident in the sample of Fannie Mae and Freddie Mac mortgage deliveries. In that subsample, credit union loans had higher credit scores than other mortgages, although the gap in median scores was still less than 10 points and thus quite small.



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Table 1: 2018 Mortgage Characteristics for 30-Year Fixed-Rate Loans: Credit Unions vs. Other Originators
Conventional Mortgages on Non-Manufactured Homes; Purchase-Money and Refinance Mortgages
Median Values and Differences in Medians

Geography	Interest Rates			Rate Spread			Credit Score (First Applicant)			Combined Loan-to-Value (CTLV) Ratio			Debt-to-Income (DTI) Ratio		
	Credit Unions (%)	Other (%)	Difference	Credit Unions (Pctg. Pts)	Other (Pctg. Pts)	Difference	Credit Unions	Other	Difference	Credit Unions (%)	Other (%)	Difference	Credit Unions (%)	Other (%)	Difference
All USA	4.63	4.75	-0.13	0.25	0.38	-0.12	753	755	-2	80.0	80.0	-	35.9	38.1	-2.2
Metro Areas	4.63	4.75	-0.13	0.25	0.37	-0.12	754	755	-1	80.0	80.0	-	35.9	38.1	-2.2
Non-Metro Areas	4.63	4.75	-0.13	0.34	0.47	-0.14	744	750	-6	87.2	80.0	7.2	34.7	36.9	-2.2
Ten Largest States															
California	4.38	4.63	-0.25	0.15	0.29	-0.13	756	755	1	75.0	75.0	-	38.7	40.4	-1.7
Texas	4.75	4.75	0.00	0.35	0.45	-0.10	747	748	-1	80.0	80.0	-	37.5	38.6	-1.2
Florida	4.63	4.75	-0.13	0.28	0.48	-0.20	750	749	1	80.0	80.0	-	36.5	39.7	-3.1
New York	4.50	4.63	-0.13	0.20	0.26	-0.07	763	761	2	80.0	80.0	-	36.2	38.3	-2.1
Pennsylvania	4.50	4.64	-0.14	0.22	0.34	-0.12	761	759	2	80.0	80.0	-	34.6	36.2	-1.6
Illinois	4.63	4.70	-0.08	0.32	0.38	-0.07	748	757	-9	85.0	80.0	5.0	35.3	37.7	-2.3
Ohio	4.63	4.75	-0.13	0.32	0.39	-0.07	746	757	-11	85.0	82.0	3.0	33.7	35.6	-1.9
Georgia	4.63	4.75	-0.13	0.35	0.42	-0.07	749	753	-4	88.2	80.0	8.2	35.1	36.9	-1.8
North Carolina	4.50	4.63	-0.13	0.20	0.36	-0.15	723	759	-36	90.0	80.0	10.0	33.8	36.0	-2.3
Michigan	4.63	4.75	-0.13	0.35	0.50	-0.15	752	746	6	82.0	80.0	2.0	34.4	36.8	-2.4

Notes:

Because of rounding, values in the difference columns may not equal the differences in the values shown in the table

Data Selection Criteria: Loan Type=1, Lien Status=1, Action Taken=1, Occupancy Type=1, Total Units=1, Loan Term=360, Loan Purpose=1, 31, or 32; Construction

Method=1; Originated by a natural person credit union (not CUSO)

Metro Area loans identified as those where the Metropolitan Area variable ^=NA. Non-metropolitan area loans flagged as those where the metropolitan area variable=NA



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Table 2: 2018 Mortgage Characteristics for 30-Year Fixed-Rate Loans: Credit Unions vs. Other Originators
Conventional Mortgages on Non-Manufactured Homes; Purchase-Money Mortgages

Geography	Interest Rates			Rate Spread			Credit Score (First Applicant)			Combined Loan-to-Value (CTLV) Ratio			Debt-to-Income (DTI) Ratio		
	Credit Unions (%)	Other (%)	Difference	Credit Unions (Pctg. Pts)	Other (Pctg. Pts)	Difference	Credit Unions	Other	Difference	Credit Unions (%)	Other (%)	Difference	Credit Unions (%)	Other (%)	Difference
All USA	4.63	4.75	-0.13	0.28	0.37	-0.09	757	759	-2	90.0	85.0	5.0	35.8	37.9	-2.1
Metro Areas	4.63	4.75	-0.13	0.27	0.37	-0.09	757	759	-2	90.0	85.0	5.0	35.8	38.0	-2.1
Non-Metro Areas	4.63	4.75	-0.13	0.37	0.47	-0.10	747	753	-6	90.0	89.4	0.6	34.6	36.6	-2.0
Ten Largest States															
California	4.50	4.63	-0.13	0.15	0.28	-0.13	765	764	1	80.0	80.0	-	38.9	40.4	-1.4
Texas	4.63	4.75	-0.13	0.33	0.40	-0.07	752	755	-3	90.0	85.0	5.0	37.2	38.4	-1.2
Florida	4.63	4.75	-0.13	0.29	0.47	-0.18	756	753	3	89.7	80.0	9.7	36.5	39.5	-3.0
New York	4.50	4.63	-0.13	0.22	0.26	-0.03	765	763	2	85.0	80.0	5.0	36.0	37.9	-1.9
Pennsylvania	4.50	4.63	-0.13	0.23	0.33	-0.10	764	761	3	89.8	89.7	0.1	34.2	36.0	-1.7
Illinois	4.63	4.63	0.00	0.36	0.40	-0.04	750	759	-9	90.0	85.0	5.0	35.2	37.6	-2.4
Ohio	4.63	4.73	-0.10	0.34	0.39	-0.05	748	756	-8	90.0	90.0	-	33.5	35.5	-2.0
Georgia	4.63	4.75	-0.13	0.40	0.40	0.01	752	757	-5	94.9	89.3	5.6	35.2	36.9	-1.7
North Carolina	4.75	4.63	0.13	0.36	0.34	0.03	725	762	-37	95.0	87.5	7.5	33.9	36.0	-2.1
Michigan	4.63	4.75	-0.13	0.36	0.51	-0.15	755	750	5	90.0	90.0	-	34.3	36.7	-2.4

Notes:

Because of rounding, values in the difference columns may not equal the differences in the values shown in the table
 Data Selection Criteria: Loan Type=1, Lien Status=1, Action Taken=1, Occupancy Type=1, Total Units=1, Loan Term=360, Loan Purpose=1; Construction Method=1;
 Originated by a natural person credit union (not CUSO)
 "Metro Area" Loans identified as those where the Metropolitan Area variable ^= "NA." Non-metropolitan area loans flagged as those where the metropolitan area variable="NA"