

“Lender choice” introduces a bias to default rates for mortgage underwriting

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Introduction

In July 2025,¹ the Federal Housing Finance Agency (FHFA) announced the acceptance of VantageScore 4.0 (VantageScore) for mortgages sold to Fannie Mae and Freddie Mac. Prior to this announcement, the mortgage industry relied exclusively on Classic FICO for eligibility and loan pricing.

After the initial announcement, the FHFA further indicated that lenders will have the choice of using Classic FICO or VantageScore—an option known as lender choice—for underwriting and pricing loans. The choice can be made on a loan-by-loan basis. This announcement introduces behavioral considerations to mortgage pricing, and it introduces a potential bias that, if not addressed, will result in mortgage credit providers taking on more risk within a credit score range and receiving a lower aggregate price for that risk.

The approval of additional credit scores brings operational and pricing changes to the industry. To allow for multiple credit scores, operational processes must be updated, and mortgage default rates and pricing must be analyzed, to avoid unintended consequences resulting from this change.

This paper demonstrates how lender choice impacts default rates by credit score range. A second paper will analyze how lender choice impacts loan pricing.

Data and definition of lender choice

Freddie Mac and Fannie Mae (the Enterprises) publish loan performance datasets that include loan-level attributes relied on for underwriting and monthly performance data on guaranteed loans. In July 2024, the Enterprises published historical VantageScore credit scores that can be merged with the loan performance datasets.² This VantageScore data is limited to approximately 46 million loans originated between 2013 and 2023, with performance from Q1 2013 to Q1 2025. Milliman analyzed this data for this paper. Since the analysis evaluates the impact of lender choice, only loans with both a VantageScore and Classic FICO score were analyzed. One million mortgages were dropped because they did not have both credit scores.

For this analysis, both Classic FICO and VantageScore are reported using the tri-merge methodology, which takes the median of credit scores reported by each credit bureau. This approach ensures similarity behind aggregation methods and is consistent with current policy. Both credit scores are discrete and bound between 300 and 850.

The mortgage lending industry is a highly competitive industry, and lenders often compete to offer the lowest interest rate they can offer profitably. In addition, the three credit bureaus announced they will provide VantageScore for free when a lender purchases a FICO score. Therefore, this analysis assumes that lenders will originate loans with the highest credit score, thus producing the lowest interest rate for the borrower. As such, the lender choice score is calculated as the higher credit score between Classic FICO and VantageScore.

1. Federal Housing Finance Agency. (July 15, 2025). Policy: Credit Scores. Retrieved October 21, 2025, from <https://www.fhfa.gov/policy/credit-scores>.

2. Federal Housing Finance Agency. (July 11, 2024). FHFA Announces Release of Historical VantageScore® 4.0 Credit Scores by the Enterprises [Press release]. Retrieved October 21, 2025, from <https://www.fhfa.gov/news/news-release/fhfa-announces-release-of-historical-vantagescore-4.0-credit-scores-by-the-enterprises>.

It is possible the ability of lenders to select the highest score among borrowers might be constrained by policy changes as the industry approaches implementation of multiple credit score options. This paper assumes that lenders have both credit scores and deliver the loan using the highest credit score. Under this assumption, the lender choice credit scores will always be equal to or higher than either score under the current single-credit score system.

Analysis

Milliman evaluated default rates by origination year and three credit score groupings: Classic FICO, VantageScore, and lender choice. Default rates are defined as a mortgage ever-90 days delinquent.

Figure 1 provides a summary of the dataset by origination year. The table calculates the number of loans, number of defaults, default rate, and average credit score by grouping for each origination year.

FIGURE 1: DATA SUMMARY STATISTICS BY ORIGINATION YEAR

ORIGINATION YEAR	LOAN COUNT	DEFAULT COUNT	DEFAULT RATE	AVERAGE SCORE		
				CLASSIC FICO	VANTAGE SCORE	LENDER CHOICE
2013	3,671,841	121,562	3.3%	756	767	777
2014	2,589,376	94,661	3.7%	750	758	769
2015	3,340,583	129,081	3.9%	752	762	772
2016	4,039,715	183,887	4.6%	753	763	774
2017	3,393,382	190,683	5.6%	748	755	767
2018	3,070,965	183,112	6.0%	747	753	766
2019	3,987,734	219,321	5.5%	760	773	-
2020	8,887,375	160,157	1.8%	763	777	785
2021	8,752,537	143,974	1.6%	756	770	778
2022	3,374,617	82,831	2.5%	749	755	767
2023	136,647	2,114	1.5%	756	758	771
Wavg	45,244,772	1,511,383	3.3%	755	765	775

Note: All records shown include both a Classic FICO and a VantageScore.

The data contains 45,244,772 mortgages, with 1,511,383 mortgages experiencing a 90-day delinquency. Approximately 39% of the data is concentrated in the 2020 and 2021 origination years; these years experienced significant refinance volume as interest rates fell due to the federal response to the COVID-19 pandemic. Default rates range from 1.5% to 6%, peaking for origination years 2017 to 2019, which coincide with forbearance policies and economic impacts of the COVID-19 pandemic. On average, the lender choice score is 10 points greater than VantageScore and 20 points higher than Classic FICO. This difference is consistent across origination years. The reason that lender choice has a higher credit score is because for each loan, the lender choice represents the greater of the other two scores. That is, there is only upward migration on the credit score.

Several loans experienced a default event in the data during the calendar period 2020 through 2021 because of the COVID-19 pandemic. Many of these defaults would likely not have occurred if there had not been a pandemic, and these defaults may not be reflective of expected behavior absent the pandemic. Therefore, Milliman analyzed the data by origination year, and Milliman analyzed the data excluding loans that experienced a default event during the COVID-19 pandemic period. The results and conclusions of this paper are consistent when evaluating the data with and without COVID-19 defaults. For brevity, this paper presents the results from the full dataset.

Figure 2 presents summary statistics across credit score ranges. The summary statistics are loan counts, default rates, and the change in the default rate relative to Classic FICO. The credit score cohorts coincide with loan-level pricing adjustment (LLPA) grids provided by Fannie Mae and Freddie Mac to price mortgage loans. As of the date of this paper, the Enterprises have not published new LLPA grids for VantageScore and/or in a lender choice setting. In absence of concrete guidance, the existing LLPA score credit score ranges are used in this analysis.

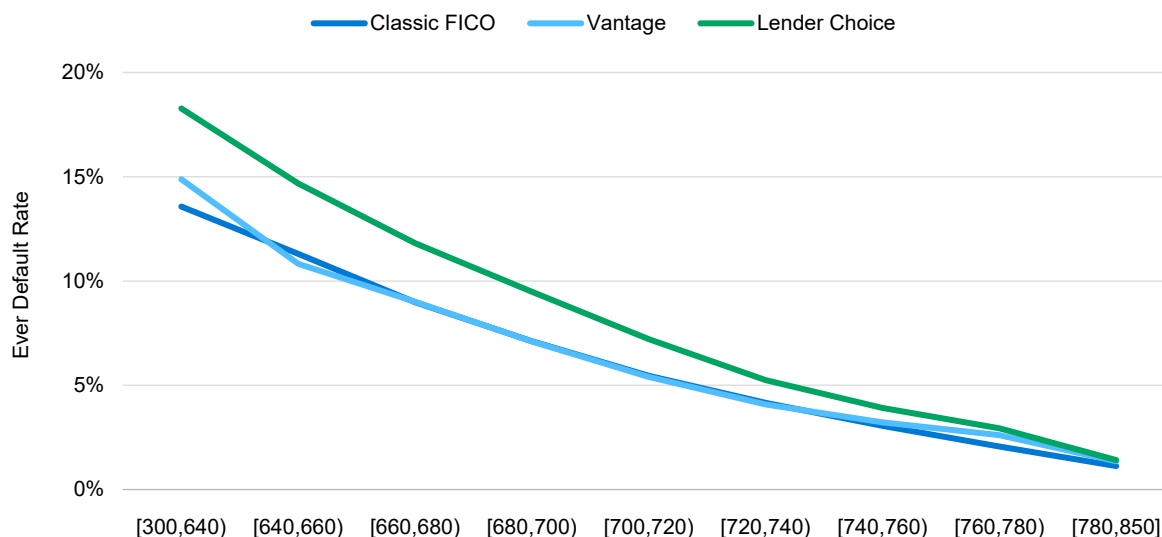
FIGURE 2: DATA SUMMARY STATISTICS BY CREDIT SCORE COHORT

CREDIT SCORE	LOAN COUNT			DEFAULT RATE			CHANGE IN D90+ RATE RELATIVE TO CLASSIC FICO	
	CLASSIC FICO	VANTAGE	LENDER CHOICE	CLASSIC FICO	VANTAGE	LENDER CHOICE	VANTAGE	LENDER CHOICE
[300,640)	643,694	909,495	214,466	13.6%	14.9%	18.3%	9.7%	34.7%
[640,660)	1,029,442	1,026,427	488,899	11.3%	10.8%	14.7%	-4.3%	29.9%
[660,680)	1,730,641	1,566,354	952,192	9.0%	9.0%	11.8%	0.3%	31.6%
[680,700)	2,974,173	2,610,349	1,819,482	7.1%	7.1%	9.5%	-0.2%	33.3%
[700,720)	4,014,819	3,863,735	3,005,832	5.5%	5.4%	7.2%	-1.0%	32.2%
[720,740)	4,766,824	4,230,379	4,007,743	4.2%	4.1%	5.2%	-1.8%	26.2%
[740,760)	5,904,172	3,958,719	4,492,137	3.0%	3.2%	3.9%	5.7%	28.2%
[760,780)	7,565,842	5,014,108	5,590,323	2.1%	2.6%	2.9%	26.4%	42.1%
[780,850]	16,615,165	22,065,206	24,673,698	1.1%	1.4%	1.4%	20.2%	25.4%
TOTAL	45,244,772	45,244,772	45,244,772	3.3%	3.3%	3.3%		

Relative to Classic FICO, more borrowers are observed at the tails of the distribution under VantageScore. Both the [300, 640) bucket and the [780, 850] bucket experience an increase in loan counts on a relative basis (+41% and +33%, respectively). Default rates are similar between Classic FICO and VantageScore for loans with a credit score below 760. Default rates are relatively higher under VantageScore than Classic FICO in the [760, 780) bucket (+26.4%) and the [780, 850] bucket (+20.2%). For these credit score ranges, the percentage difference is greater, but that is due in part to the low level of default.

Under lender choice, default rates are approximately 30% higher across all credit score cohorts. Figure 3 provides a visual of the default rates. Default rates for Classic FICO and VantageScore are similar. Default rates under lender choice are always greater than those for either Classic FICO or VantageScore.

FIGURE 3: GRAPH OF EVER DEFAULT RANGES BY CREDIT SCORE



Relative to Classic FICO, default rates generally increase by an average of 30% across each cohort under lender choice. Prior analysis performed by Milliman³ demonstrates that default rates between Classic FICO and VantageScore were generally consistent with each other. In addition, our analysis found that when leveraging both scores to evaluate a borrower, more information is gained such that the combination of a low Classic FICO and high VantageScore results in a higher default rate when compared to a borrower with a high Classic FICO and a high VantageScore.

When lender choice is introduced, this creates a bias in the assessment of risk for borrowers. The bias results in notably higher default risk (i.e., +30% on average) under lender choice for the same credit score range.

The implication for providers of mortgage credit is that lender choice increases the risk assumed within a credit score cohort. In conjunction with this higher risk, the credit provider is not being compensated for this additional risk since the total guarantee fee will be lower for a pool of mortgages assuming current pricing schedules. Many borrowers receive a higher credit score under lender choice and are therefore assigned a lower LLPA. An analysis by the American Enterprise Institute estimates that the application of lender choice will reduce guarantee fees by 10% to 13%.⁴

3. Magana, R. N. (September 24, 2024). Cracking the tape: What you need to know about VantageScore 4.0. Milliman. Retrieved October 21, 2025, from <https://www.milliman.com/en/insight/cracking-the-tape-vantage-score-4>.

4. Li, S., Peter, T., & Pinto, E. J. (October 2, 2025). Estimating the effect of a two-score system on loan-level price adjustments (LLPAs). American Enterprise Institute. Retrieved October 21, 2025, from <https://www.aei.org/research-products/report/estimating-the-effect-of-a-two-score-system-on-loan-level-price-adjustments/>.

Figure 4 calculates the impact that lender choice will have on the existing Classic FICO credit score cohorts. The figure shows the percentage of borrowers in each Classic FICO range who would improve at least one level because of their lender choice score.

FIGURE 4: AVERAGE SCORE CHANGE FROM LENDER CHOICE WITHIN CLASSIC FICO COHORT

CLASSIC FICO COHORT	AVERAGES			% OF BORROWERS WITH COHORT SHIFT		
	CLASSIC FICO	LENDER CHOICE	DIFFERENCE	INCREASE 1 COHORT	INCREASE 2+ COHORTS	INCREASED 1+ COHORT (TOTAL)
[300,640)	624	661	37	20%	47%	67%
[640,660)	650	682	32	19%	46%	65%
[660,680)	670	701	31	20%	43%	63%
[680,700)	690	719	29	21%	39%	60%
[700,720)	710	736	27	19%	35%	55%
[720,740)	730	752	23	16%	33%	49%
[740,760)	750	770	21	18%	33%	52%
[760,780)	770	790	20	57%	-	57%
[780,850]	798	812	15	-	-	-

Based on the data available for this analysis, borrowers in the lowest Classic FICO cohort [300, 640) could experience the greatest increase in credit score, with credit scores increasing by an average of +37 points. Because of the nature of the lender choice metric leveraged in this paper, no existing borrowers will have a lower credit score to offset the upward migration resulting from lender choice.

Importantly, this data does not account for newly qualified borrowers who may now enter the mortgage pool on account of their VantageScore and who historically have not been provided credit because of a low Classic FICO score. The inclusion of these newly qualified low Classic FICO scoring borrowers will also impact the default risk of the pool resulting from the lender choice model. In traditional lending, banks will perform universe tests from time to time so that the financial implications of an expansion of their credit box can be gauged using empirical data. That will not be possible here since these “swap-in” borrowers have historically been locked out of the housing market.

Figure 5 presents the results of a swap set analysis for each credit score cohort under lender choice relative to Classic FICO. Swap set analyses show how many borrowers are swapped in or out of a given pricing level to another pricing level. This analysis is useful in determining how changes to underwriting standards might affect the distribution of originations if updated underwriting standards are adopted. The analysis looks at both the number of loans and the default rate of those loans.

FIGURE 5: SWAP SET ANALYSIS OF CLASSIC FICO TO LENDER CHOICE

CREDIT SCORE	LOAN COUNTS				DEFAULT RATE			DEFAULT RATE RELATIVE TO LOANS THAT DID NOT CHANGE			CHANGE IN DEFAULT COUNT	
	NET CHANGE IN LOANS	SWAPPED IN	SWAPPED OUT	DID NOT CHANGE	# DEFAULTS NO CHANGE	DEFAULT RATE SWAPPED IN	DEFAULT RATE SWAPPED OUT	DEFAULT RATE NO CHANGE	SWAPPED IN	SWAPPED OUT	COUNT	% CHANGE
[300,640)	(429,228)	n/a	429,228	214,466	39,189	n/a	11.2%	18.3%	n/a	-39%	(48,152)	-55%
[640,660)	(540,543)	127,829	668,372	361,070	54,420	13.6%	9.3%	15.1%	-10%	-39%	(44,606)	-38%
[660,680)	(778,449)	310,918	1,089,367	641,274	77,015	11.4%	7.2%	12.0%	-5%	-40%	(42,935)	-28%
[680,700)	(1,154,691)	624,839	1,779,530	1,194,643	114,107	9.3%	5.5%	9.6%	-2%	-43%	(39,096)	-18%
[700,720)	(1,008,987)	1,180,495	2,189,482	1,825,337	130,596	7.3%	4.0%	7.2%	2%	-44%	(2,180)	-1%
[720,740)	(759,081)	1,573,301	2,332,382	2,434,442	125,700	5.4%	3.1%	5.2%	4%	-40%	12,078	6%
[740,760)	(1,412,035)	1,637,549	3,049,584	2,854,588	107,618	4.2%	2.4%	3.8%	10%	-37%	(4,389)	-2%
[760,780)	(1,975,519)	2,318,559	4,294,078	3,271,764	87,065	3.3%	1.6%	2.7%	25%	-39%	7,825	5%
[780,850]	8,058,533	8,058,533	n/a	16,615,165	187,222	2.0%	n/a	1.1%	78%	n/a	161,455	86%

The credit score range with the greatest change is the [780, 850] cohort. The swap set analysis is described in the following steps:

1. Under Classic FICO, there were 16.6 million loans in the [780, 850] bucket (see Figure 2).
2. The default rate on these loans was 1.1% (see Figure 2).
3. 8.1 million loans were added to this range under lender choice.
4. The default rate on these loans swapped in to the [780, 850] range was 2.0%, 78% higher than the original population ($2\%/1.1\% \sim 1.78$).
5. This causes the cohort default rate to rise from 1.1% under Classic FICO to 1.4% under lender choice (+20.2%), assuming constant pricing.

For the high Classic FICO cohorts, the default rate on loans swapped into a higher credit score tier is greater than the default rate on loans that did not change tiers under lender choice. For low Classic FICO ranges, the default rate of loans swapped into a credit score range is lower than the default rate on loans that did not change credit score ranges. This is driven by the upward migration of “good risks” relative to the remaining loan pool. In instances where this occurs, the number of loans being swapped out is significantly greater than the number of loans that did not change. For example, in the [640, 660) cohort, 668,372 loans are swapped out, and only 361,070 loans remain in the credit score cohort. The loans that are swapped out have a low default rate, and the remaining loans have a comparably higher default rate. In all cases, loans swapped out have a lower default rate compared to the loans that did not change credit score ranges under lender choice.

FIGURE 6: VISUAL OF SWAP SET ANALYSIS FOR CLASSIC FICO [680, 700)

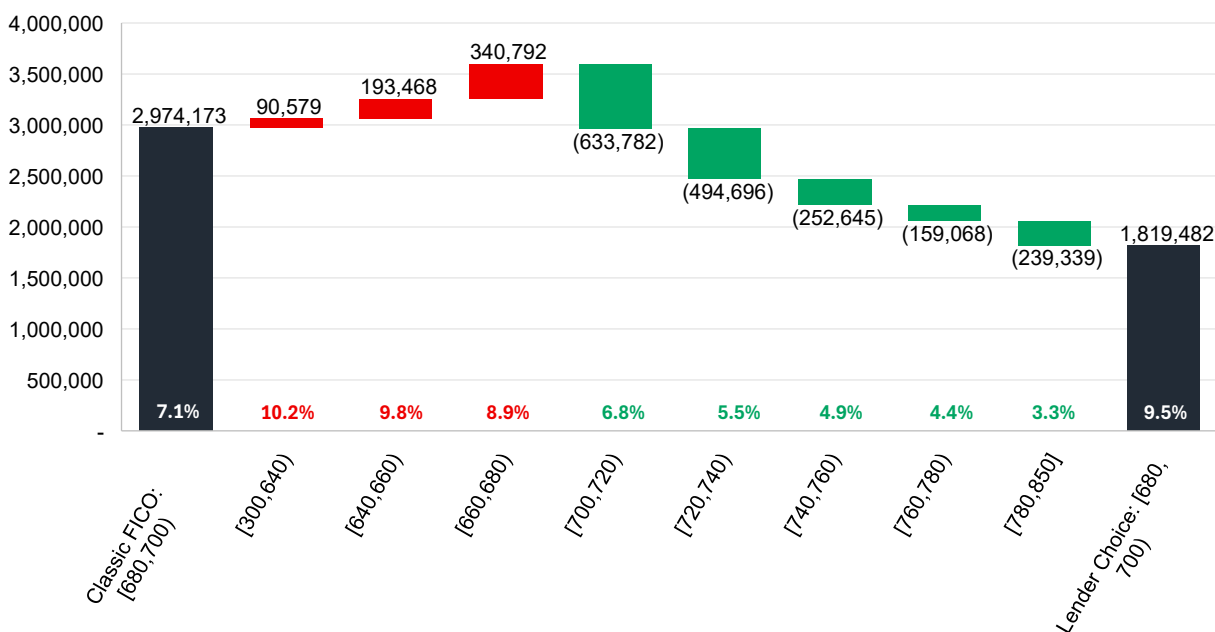


Figure 6 provides a visual of the swap set analysis for the Classic FICO range of [680, 700). This visual provides insight into the impact of lender Choice on default rates and the composition of loans before and after lender choice. There were approximately 3 million loans with a Classic FICO between 680 and 699, and the default rate on these loans was 7.1%. Within the data, approximately 625,000 loans had a VantageScore between 680 and 699 *that had a Classic FICO less than 680*. Of these 625,000 loans:

- 90,579 had a Classic FICO between 300 and 639, and the default rate was 10.2%.
- 193,468 had a Classic FICO between 640 and 659, and the default rate was 9.8%.
- 340,792 had a Classic FICO between 660 and 679, and the default rate was 8.9%.

The default rate on the loans swapped into the [680, 700) cohort under lender choice all had a higher default rate compared to the original Classic FICO range.

In addition to swapping loans in with lender choice, many loans also swapped out to higher-score cohorts. The loans that were swapped out are loans that had a VantageScore above 700 and a Classic FICO between 680 and 699. There were 1,779,530 loans swapped out. Of these 1,779,530 loans swapped out:

- 633,782 had a VantageScore between 700 and 719, and the default rate was 6.8%.
- 494,696 had a VantageScore between 720 and 739, and the default rate was 5.5%.
- 252,645 had a VantageScore between 740 and 759, and the default rate was 4.9%.
- 159,068 had a VantageScore between 760 and 779, and the default rate was 4.4%.
- 239,339 had a VantageScore between 780 and 850, and the default rate was 3.3%.

The default rate on the loans swapped out of the [680, 700) cohort under lender choice all had a lower default rate compared to the original Classic FICO range. In aggregate, lender choice results in adding higher-risk loans to the cohort and removing lower-risk loans. Because credit scores will only improve with lender choice, the net impact is that default rates are higher across all credit score ranges.

Implications for mortgage credit providers

Historical data containing information on mortgage loans with both a Classic FICO and VantageScore indicate that on average, lender choice credit scores increase by about 20 points compared to Classic FICO. Using the maximum Classic FICO or VantageScore methodology modeled for this paper, cohorts at the upper tail of the distribution increase in size, while those in the lower tail decrease materially. In addition, default rates across all credit score cohorts are elevated under lender choice. This observation holds across origination years.

The implication for mortgage credit providers is that lender choice will result in both higher expected default rates for the same credit score range and lower aggregate pricing. To produce actuarially sound guarantee fees and compensation for assuming credit risk, mortgage pricing will likely need to be adjusted through either increased average guarantee fees, LLPAs, or a combination of both. Milliman's LLPA analysis, which will be published after this analysis, will address pricing considerations under lender choice.

Limitations to this analysis

While this analysis demonstrates a bias in default rates under lender choice, there are some important limitations of the data and analysis.

1. Data from the last housing market economic crisis period (Great Recession) is not available in this analysis given the VantageScore sample begins in 2013. Therefore, we cannot assess the impact of lender choice under a severe housing market stress environment.
2. The data used in this analysis are only available for mortgage loans approved under Classic FICO. As a result, the distribution of Classic FICO is censored (limited) because borrowers may have been denied loans exclusively due to a low Classic FICO score, but those borrowers may have been approved in scenarios where a higher VantageScore had been available for decisioning at that point in time. The inclusion of these low Classic FICO scoring records would impact the default risk of a lender choice-originated population in the future.
3. Results are subject to change under various methods of aggregation and subsamples of the data. To underscore the validity of this analysis, Milliman replicated this analysis under various conditions, including: individual origination years to account for the merging of multiple observation windows, removing loans that defaulted during COVID-19 to account for potential confounding effects of the pandemic, and using default-rate equivalent credit score ranges proposed by VantageScore. In all cases, the results and conclusions of these subanalyses were consistent with the findings presented in this study.

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