How mortgage payments impact your credit score

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Credit scores are a tool used by banks, insurance companies, mortgage investors, and others to evaluate the creditworthiness and behavior of consumers. Credit scores have become an influential factor for determining the availability and cost of both credit and insurance, and it is likely their use will continue to expand. Mortgage interest rates and other consumer loans are sensitive to changes in a borrower's credit score. Understanding how credit scores change with made or missed payments is an important aspect of consumer finance.

This article uses FICO score history from publicly available loan-level mortgage performance data[1] to measure how credit scores change given the payment history of the loans. For example, if a borrower misses a mortgage payment, how does that impact their credit score? If a borrower misses multiple payments, does that have a larger impact on credit scores? This article will look into these questions and more.

Note that this analysis does not include data on other types of credit, i.e., auto loans, credit cards, student loans, personal loans, etc. FICO is the credit score used throughout the analyses presented in this article. The findings are not aimed to explain dynamics seen in other credit score models.

Data

The analysis presented in this article uses loan-level performance data made publicly available by Fannie Mae and Freddie Mac. The data includes:

- Sample size: 1 million loans.
- Origination years covered: 2009-2023.
- Performance data: 37 million rows of monthly performance data.
- Performance data (time period covered): January 2017-January 2024
- Sample contains both original FICO and updated FICO beginning in 2017.

To demonstrate the importance of credit scores on the cost of credit, the table in Figure 1 shows the average interest rate for first-time homebuyers for a mortgage originated in September 2023 by credit score range.

FIGURE 1: AVERAGE INTEREST RATES, FIRST-TIME HOMEBUYERS BY CREDIT SCORE RANGE, SEPTEMBER 2023

FICO Range	300 - 619	620 - 639	640 - 659	660 - 679	680 - 699	700 - 719	720 - 739	740 - 759	760 - 779	780 - 799	800 - 819	820 +
Average Interest Rate	-	7.71	7.59	7.12	7.17	7.11	7.16	7.10	7.06	7.01	7.04	7.25

[1] Data sourced from Freddie Mac and Fannie Mae and references loan covered by credit risk transfer securities.

FICO changes in always-performing borrowers

FICO scores can improve, stay the same, or decrease over time. In general, if a consumer makes payments on their debt and demonstrates an ability to manage debt, their score will increase.

Based on an analysis on 1 million mortgages originated between 2009 and 2023, loans that have never been delinquent (i.e., never missed any payments) experience on average a 7.68-point increase in the FICO scores of those consumers. This is when comparing the most recent updated credit scores[2] with the FICO scores at origination. Loans with longer payment histories tend to have larger FICO score improvements (approximately 20 points) when compared to more recent originations. Note that the data is limited to active loans, so the total average of a 7.68 increase is skewed toward more recent originations.

The table in Figure 2 shows the original and most recent FICO score by origination year. The most recent loans (mortgages originated in 2023) have seen a decrease in the average FICO score (-4.81 points), and older originations have seen increases in average FICO scores.

FIGURE 2: CHANGE IN AVERAGE FICO SCORE BY MORTGAGE ORIGINATION YEAR

ORIGINATION YEAR	AVERAGE ORIGINAL FICO SCORE	AVERAGE MOST RECENT FICO SCORE	CHANGE (POINTS)	# OF LOANS IN THE SAMPLE
2009	747.59	767.36	19.77	2,216
2010	751.46	770.08	18.62	6,124
2011	750.66	770.49	19.83	8,662
2012	745.12	770.68	25.56	16,981
2013	728.59	760.52	31.93	7,054
2014	715.08	750.59	35.51	2,012
2015	737.51	763.86	26.35	3,065
2016	752.24	766.3	14.06	40,907
2017	749.23	761.14	11.91	107,756
2018	747.31	757.05	9.74	65,042
2019	750.87	758.65	7.79	71,906
2020	756.88	764.21	7.33	178,340
2021	751.48	755.99	4.51	283,463
2022	745.88	748.03	2.15	119,929
2023	749.54	744.74	-4.81	1,152

To get a more granular look at how these changes vary depending on the original FICO score (low vs. high), the table in Figure 3 shows the average change in FICO scores for loans originated in 2019, so this table controls for the age of the loans. This five-year outlook reveals that loans initially associated with low scores tend to experience the most significant increases, whereas those originating from individuals with relatively high FICO scores typically show a decrease over time, albeit minimal.

[2] Credit scores updated in January 2024 for most active loans.

FIGURE 3: CHANGE IN AVERAGE FICO SCORE BY ORIGINAL FICO SCORE, 2019 ORIGINATIONS

FICO RANGE AT ORIGINATION	ORIGINAL FICO SCORE	MOST RECENT FICO SCORE	CHANGE (POINTS)	# OF LOANS IN THE SAMPLE
300-619	603.23	717.89	114.66	44
620-639	630.04	677.01	46.97	584
640-659	650.22	687.07	36.85	1,280
660-679	669.83	703.96	34.13	2,294
680-699	689.82	717.04	27.22	4,998
700-719	709.7	732.47	22.77	7,147
720-739	729.59	745.29	15.70	9,428
740-759	749.66	757.68	8.02	11,565
760-779	769.73	771.28	1.55	13,211
780-799	789.41	784.2	-5.21	13,749
800-819	806.67	795.35	-11.32	7,460
820+	821.73	807.16	-14.57	146

Given that the data does not provide any insight into the status of other lines of credit, it is difficult to explore the reasons behind these changes. Borrowers with poor credit may benefit more from consistent mortgage payments given the relative lower starting point. On the other hand, individuals with initially high FICO scores might experience medium-term FICO score drops due to non-mortgage factors, such as changes in payment history in other lines of credit or the opening of new non-mortgage lines of credit.

This trend is not exclusive to 2019 mortgages. Borrowers with low original FICO scores tend to benefit the most across all origination years, while borrowers with a high original FICO score experience little to no change. This is outlined in Figure 4 for all origination years. Remember, these tables are filtered to loans that have never been delinquent on their mortgage. We will explore the impact of missing mortgage payments in the second part of this article.

Despite the inability to establish a reasonable explanation due to data constraints as to why borrowers with initially high FICO scores experience on average a score drop over time, the patterns shown in Figure 4 suggest that the higher the borrower's initial credit score, the less positive of an impact on credit score the continuous string of payments seems to have. The values represent the average point change within each bucket; for example, a value of 100 means the average credit score increased by 100 points over the evaluation period (e.g., from 650 to 750).

FIGURE 4: CHANGE IN AVERAGE FICO SCORE BY ORIGINAL FICO SCORE AND ORIGINATION YEAR (NEVER DELINQUENT)

FICO Range at Origination	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
300-619	129.74	148.84	149.27	145.45	128.12	127.63	137.51	107.81	110.43	104.27	114.66	91.56	99.49	66.01
620-639	114.10	104.81	101.37	101.71	84.28	74.11	89.39	66.38	53.05	48.23	46.97	39.73	34.18	22.87
640-659	57.43	86.91	76.73	81.76	77.65	69.51	52.04	54.42	45.25	41.26	36.85	37.46	28.15	18.14
660-679	66.13	63.85	69.69	73.21	65.46	59.45	53.45	48.33	41.35	34.57	34.13	33.70	24.47	17.02
680-699	58.60	59.36	58.31	59.61	54.26	42.25	47.56	44.51	37.24	30.29	27.22	29.45	21.10	13.56
700-719	44.53	42.63	43.90	49.89	40.51	47.12	40.11	36.25	29.48	25.49	22.77	25.35	17.67	10.13
720-739	29.95	26.33	29.97	31.05	31.69	24.04	28.52	26.07	22.27	17.56	15.69	17.59	10.71	5.11
740-759	18.36	18.25	20.05	20.84	15.95	13.03	18.32	15.82	11.81	9.00	8.03	9.84	5.13	1.25

FICO Range at Origination	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
760-779	5.40	5.87	6.55	8.27	8.18	3.53	9.52	5.19	2.93	1.64	1.55	3.42	0.08	-2.28
780-799	-6.34	-4.72	-5.32	-2.10	-4.65	-5.27	-2.28	-4.66	-4.82	-6.07	-5.20	-3.64	-5.68	-6.07
800-819	-15.55	-14.64	-14.64	-12.76	-8.25	-11.37	-8.13	-11.24	-12.51	-12.53	-11.32	-11.16	-12.28	-10.92
820+	-11.80	-28.13	-26.26	-20.21	-2.87	-21.82	0.75	-11.97	-13.76	-13.68	-14.57	-15.27	-15.80	-15.74

Short-term FICO changes (one to two years after origination)

A mortgage is often a large debt for most consumers, and there could be multiple requests for a credit score during the mortgage process. Therefore, it could be reasonable to see reductions in FICO scores shortly after a new mortgage is obtained. This is because a mortgage increases the debt of the consumer and generally more debt indicates more risk of nonpayment on the debt, and credit pulls tend to have negative impacts on credit scores.

Older mortgages tend to have more significant increases in FICO scores over time. To explore the idea of this being due to borrowers potentially experiencing an initial drop in their FICO scores in the short term and then gradually recovering in the medium to long term, the one-year and two-year movements in FICO scores are analyzed in the table in Figure 5.

Surprisingly, for all the origination years available for this exercise (2016-2023) the only vintage that has experienced an initial overall drop in scores is 2023, with an average decrease of 4.83 points. No other origination year has seen an initial decrease in the first 12-month and 24-month periods, which suggests that, for the average mortgage originated before 2023, the mortgage origination did not have noticeable negative impact on the FICO score in the short term. The reason for this observation is not clear from the data.

FIGURE 5: SHORT-TERM FICO TRENDS – SEGMENTED BY ORIGINATION YEAR (2016-2023 ORIGINATIONS, NEVER DELINQUENT)

YEAR	ORIGINAL FICO SCORE	FICO SCORE (AFTER 1 YEAR)	CHANGE (POINTS)	FICO SCORE (AFTER 2 YEARS)	CHANGE (POINTS)
2016	752.24	759.03	6.79	758.52	6.28
2017	749.23	752.58	3.35	753.72	4.49
2018	747.31	749.52	2.21	751.82	4.51
2019	750.87	753.72	2.85	756.54	5.67
2020	756.88	763.97	7.09	763.21	6.33
2021	751.48	756.57	5.09	755.72	4.24
2022	745.88	748.31	2.43	747.46	1.58
2023	749.54	744.71	-4.83		

When assessing the short-term outlook of borrowers and their credit scores, segmenting the changes by FICO range is insightful. Figure 6 summarizes the average change in FICO scores one year after the mortgage origination, based on the original FICO range.

Loans originally associated with lower scores experience the most meaningful gains, while those at the other end of the spectrum remain relatively flat or suffer a small drop. This dynamic only represents mortgages that have never been delinquent. In both the short and long term, making consistent payments on a mortgage seems to be advantageous for borrowers with an initially low FICO score.

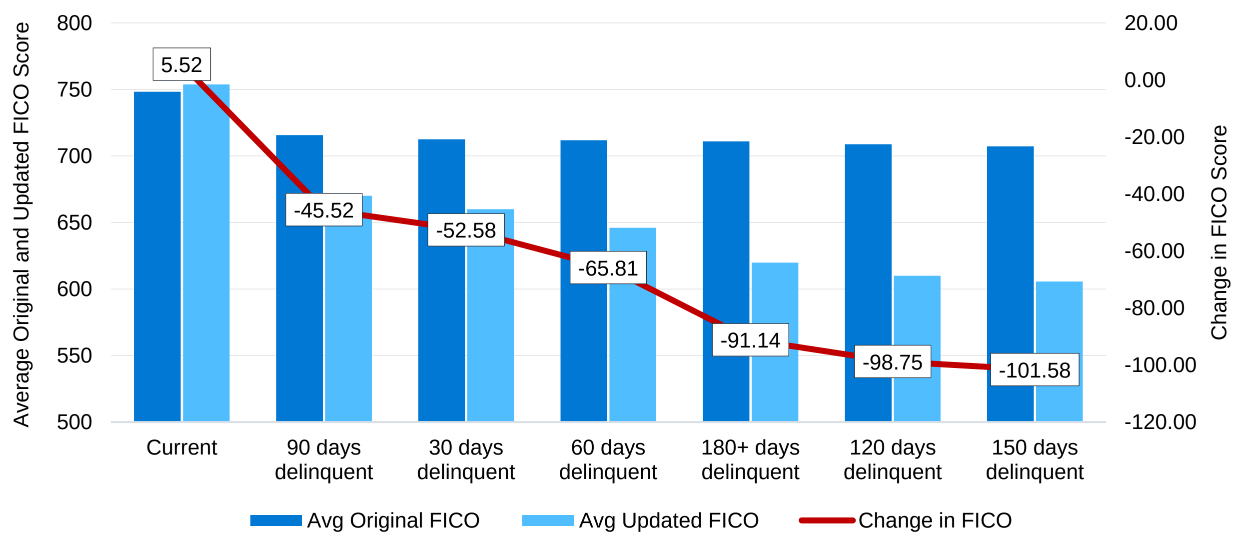
FIGURE 6: ONE-YEAR CHANGE IN AVERAGE FICO SCORE BY ORIGINAL FICO SCORE RANGE AND ORIGINATION YEAR (NEVER DELINQUENT)

FICO Range at Origination	2016	2017	2018	2019	2020	2021	2022	2023
300-619	101.50	83.68	90.57	97.43	86.20	96.65	57.15	-
620-639	29.49	22.84	16.70	24.65	26.99	28.42	21.27	-21.00
640-659	28.84	17.01	16.51	16.83	25.71	23.02	17.16	-15.67
660-679	13.80	17.20	10.70	13.77	23.37	19.86	15.62	5.18
680-699	17.31	13.66	10.94	11.97	20.10	16.96	12.96	8.58
700-719	16.54	11.40	10.81	10.60	18.51	14.53	11.01	-1.39
720-739	11.71	8.69	6.76	8.09	14.61	9.76	5.62	-1.99
740-759	8.53	4.57	2.46	4.25	9.77	5.63	1.64	1.38
760-779	4.01	-0.05	-0.87	0.02	4.61	1.52	-1.94	-5.83
780-799	-1.93	-3.88	-5.62	-4.40	-0.58	-2.62	-5.22	-14.53
800-819	-5.97	-8.54	-9.39	-8.65	-5.34	-7.24	-9.12	-14.56
820+	-5.55	-12.60	-11.57	-13.32	-9.19	-10.13	-12.02	-10.00

FICO trends in delinquent loans

The performance sample used in this analysis contained over 84,000 loans that have been delinquent at least once (mortgages that have missed at least one payment at some point in time). These loans were used to measure the impact that a negative credit event has on the borrower's FICO score. Figure 7 shows the difference between the original FICO score and the updated FICO score for every delinquent loan. Figure 7 segments the data out by the number of missed payments. For one missed payment, credit scores decline by 52.58 points, on average. For four missed payments, credit scores decline by approximately 98.75 points.

FIGURE 7: ORIGINAL AND UPDATED FICO SCORE DIFFERENCES BY DELINQUENCY



The data suggests that the marginal impact of missed payments declines with the number of missed payments. That is, after four missed payments the cumulative change in the credit score is generally consistent, and the credit score is around 600.

FIGURE 8: FICO RANGES MOVEMENTS (ORIGINAL FICO – FICO WHEN FIRST DELINQUENT) - SEGMENTED BY ORIGINAL FICO RANGE

ORIGINAL FICO RANGE	DOWN	UP	SAME
300-619		60.34%	39.66%
620-639	46.59%	41.69%	11.72%
640-659	47.63%	39.26%	13.11%
660-679	50.65%	37.00%	12.35%
680-699	51.67%	35.04%	13.29%
700-719	51.14%	35.34%	13.52%
720-739	52.43%	33.66%	13.91%
740-759	51.19%	32.38%	16.43%
760-779	50.07%	29.59%	20.34%
780-799	52.59%	22.39%	25.02%
800-819	59.91%	10.31%	29.78%
820+	78.12%		21.88%

Note: This table tracks FICO range movements. "Down" is the share of loans that moved to a lower range by the time the loan became delinquent. "Up" is the share of loans that moved to a higher range. "Same" is the share of loans that remained in the same FICO range.

To compare the trends seen with the loans that have never been delinquent to those that have been delinquent at least once, the tables in Figures 8 and 9 compare the original FICO score to the credit score at the time of delinquency and track the changes one year after the first delinquency was recorded.

One key finding is the evident deterioration in FICO scores prior to the delinquency taking place, as loans across all FICO ranges transition to a lower range by the time the delinquency gets recorded. Over 50% of loans that were originally part of a higher FICO range (740+) experience this drop, with the upper end of the spectrum having the highest percentage of loans moving down at least one range.

By the time a mortgage becomes delinquent, the average FICO score of a borrower would have decreased by 24.31 points on average, while those with originally higher credit scores experience a decrease of between 26.85 and 33.26 points. Mortgages with an original FICO score of less than 620 are the outliers in this case, as they experience on average a 59.62-point increase by the time the loan becomes delinquent.

FIGURE 9: CHANGE IN FICO SCORES – SEGMENTED BY ORIGINAL FICO RANGE

ORIGINAL FICO RANGE	ORIGINAL FICO SCORE	FICO SCORE (WHEN FIRST DELINQUENT)	CHANGE (POINTS)	# OF LOANS IN THE SAMPLE
300-619	580.69	640.31	59.62	764
620-639	630.06	619.54	-10.52	2,833
640-659	649.89	634.52	-15.37	4,943
660-679	669.66	649.33	-20.33	7,339
680-699	689.36	665.67	-23.69	11,095
700-719	709.05	684.68	-24.37	12,419
720-739	729.23	700.16	-29.07	11,877
740-759	749.33	721.2	-28.13	11,326
760-779	769.3	742.45	-26.85	9,959
780-799	789.01	760.46	-28.55	8,207
800-819	806.78	776.92	-29.86	3,945
820+	823.02	789.76	-33.26	96

Short-term FICO changes in delinquent loans

With the data available, the short-term movements in FICO scores (one-year and two-year changes) can be tracked after a credit event is reported. Within the first 12 months after the initial delinquency, most loans experience a drop in the average FICO score, with those belonging in the highest FICO ranges experiencing a decrease of between 20.31 and 34.91 points. This trajectory continues for another year, where FICO ranges of 740+ still have a decreasing average FICO score. Borrowers with lower or mid-range credit scores exhibited a higher likelihood to bounce back to their initial starting points. This may signal that it is difficult to erase the effect of a missed payment for a borrower with a previously clean record.

As with loans that have never been delinquent, mortgages in the lowest cohort (300-619) see an average increase of 27.65 points one year after the initial delinquency and continue the upward trend two years after the credit event was reported. Some additional factors, such as the effect of the lag between the credit event being reported and its impact on the credit score, delinquent activity in other credit lines, and the number of consecutive periods a loan is delinquent, might impact these estimates. Additional missed payments likely also affect borrowers with lower credit scores less compared to higher credit score borrowers.

FIGURE 10: SHORT-RUN ABSOLUTE CHANGE IN FICO SCORES MEASURED FROM FIRST DELINQUENCY

FICO RANGE WHEN DELINQUENT	CHANGE (1 YEAR AFTER DELINQUENCY)	CHANGE (2 YEARS AFTER DELINQUENCY)	CHANGE BETWEEN 1 AND 2 YEARS
300-619	27.65	44.62	16.97
620-639	-2.59	5.35	7.94
640-659	-3.39	4.43	7.81
660-679	-4.86	0.45	5.31
680-699	-5.84	-2.20	3.63
700-719	-6.94	-5.60	1.34
720-739	-11.18	-9.63	1.55
740-759	-10.34	-11.02	-0.69
760-779	-12.66	-14.38	-1.72
780-799	-14.96	-18.08	-3.12
800-819	-20.31	-22.27	-1.97
820+	-34.91	-36.62	-1.71

A better approach to understanding the impacts on FICO scores from mortgage credit events is to account for the number of missed payments within a defined window of time. For this, we tracked the loans that have been delinquent for at least one month in a two-year period (January 2022 to January 2024). Then a comparison was made between the original FICO, the FICO in January 2022, and the most recent reported FICO. The table in Figure 11 summarizes the findings.

The relative decrease in the average FICO score within each missed payments bucket increases as the number of payments increases, reaching an average drop of 112.73 points for loans that have remained delinquent for the past two years.

However, there seems to be a significant deterioration in credit scores in most cases even before the first missed payment gets recorded, especially with borrowers who would eventually remain delinquent for over a year. This suggests that, although the mortgage delinquency status seems to be correlated with a drop in the average credit scores, the FICO score would have already gone down considerably prior to the loan becoming delinquent in most cases.

Another key finding is the share of delinquent borrowers who have missed three or fewer payments in the last two years. The vast majority of the delinquent borrowers (65.90%) have remained delinquent for less than four months in the past two years.

A relatively smaller percentage of delinquent loans have remained delinquent for over a year (10.09%; 4,979 loans in the sample). This small group of loans are the ones that both have the lower original FICO scores relative to the rest of the sample and experience the most significant drops before and after the missed payments start (relative to the original FICO score).

FIGURE 11: CHANGE IN FICO SCORE BY NUMBER OF MISSED PAYMENTS (JAN. 2022-JAN. 2024)

MISSED PAYMENTS	ORIGINAL FICO SCORE	FICO SCORE (JAN 2022)	FICO SCORE (JAN 2024)	CHANGE (ORIGINAL - JAN 2024)	CHANGE (ORIGINAL - JAN 2022)	CHANGE (JAN 2022 - JAN 2024)	# OF LOANS IN THE SAMPLE	SHARE
1	732.61	730.46	715.17	-17.44	-2.15	-15.29	21,849	44.265%
2	720.59	707.86	682.94	-37.65	-12.73	-24.92	6,737	13.649%
3	714.42	691.99	655.35	-59.07	-22.43	-36.64	3,942	7.986%
4	713.73	689.98	645.6	-68.13	-23.75	-44.38	2,535	5.136%
5	710.93	682.25	638.72	-72.21	-28.68	-43.53	2,173	4.402%
6	709.87	677.36	630.37	-79.50	-32.51	-46.99	1,702	3.448%
7	708.12	669.49	619	-89.12	-38.63	-50.49	1,361	2.757%
8	709.42	670.75	621.2	-88.22	-38.67	-49.55	1,241	2.514%
9	708.21	662.52	612.33	-95.88	-45.69	-50.19	1,024	2.075%
10	707.16	664.03	608.65	-98.51	-43.13	-55.38	963	1.951%
11	708.76	657.87	611.26	-97.50	-50.89	-46.61	854	1.730%
12	705.75	659.27	609.02	-96.73	-46.48	-50.25	867	1.756%
13	706.69	644.89	594.44	-112.25	-61.80	-50.45	662	1.341%
14	703.72	648.7	591.69	-112.03	-55.02	-57.01	545	1.104%
15	705.46	639.16	593.12	-112.34	-66.30	-46.04	471	0.954%
16	705.02	633.78	589.61	-115.41	-71.24	-44.17	409	0.829%
17	700.07	625.75	581.74	-118.33	-74.32	-44.01	368	0.746%
18	697.49	630.49	581.38	-116.11	-67.00	-49.11	333	0.675%
19	699.02	623.52	578.18	-120.84	-75.50	-45.34	287	0.581%
20	701.53	615.53	581.49	-120.04	-86.00	-34.04	278	0.563%
21	694.52	597.57	576.98	-117.54	-96.95	-20.59	257	0.521%
22	703.4	610.3	585.71	-117.69	-93.10	-24.59	186	0.377%
23	697.22	599.84	581.31	-115.91	-97.38	-18.53	175	0.355%
24	701.79	595.8	589.06	-112.73	-105.99	-6.74	141	0.286%

Key takeaways

The availability and cost (i.e., interest rates) of credit are heavily correlated with credit scores. This article demonstrated how making consistent mortgage payments can increase borrower credit scores (and therefore lower the cost of credit) and how missing mortgage payments can have the opposite impact on credit scores. If a borrower misses one payment on their mortgage, the data indicates the average reduction in their credit score is approximately 50 points.

Despite the expected relationship between mortgage performance and FICO score changes, some trends seen in the analysis might be influenced by external factors that are not accounted for in this article and for which data is limited. In addition to this, delinquency reporting lag and the credit score reporting timelines might create a disconnect within performance periods, which could distort the results seen from the analysis.

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