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Your Credit Score Is a Ranking, Not a Score

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With credit scores affecting so many important aspects of our lives, it's no wonder that people are concerned with improving their scores. Once they start to paying attention to them, though, consumers often find their scores changing in unpredictable ways. Knowing that your score is not a rating of your creditworthiness but a measure of where your creditworthiness ranks relative to everyone else is the first step in understanding your score and how to manage it.

Credit scores are used in nearly every part of our lives, from applications for car loans, mortgages, and credit cards, to applications for insurance. It is well established that people with higher scores get better loans and pay lower insurance premiums than people with lower scores. Because credit scores matter so much, many consumers regularly monitor their scores, and some try to improve them. But when people start paying closer attention, they are often puzzled by how and why their scores change over time. [Editor's note: The original version of this paragraph incorrectly included references to the use of credit scores in hiring decisions.]

Credit scores can be hard to figure out. They can change even when one's behavior has not. Or the same exact credit score can qualify a borrower for a loan one year but not be high enough the next. Part of the apparent unpredictability comes from the common misunderstanding that a credit score is a rating of one's creditworthiness. Actually, it is a ranking of one's creditworthiness compared to the rest of the population in the United States at any point in time. In other words, your score depends not only on your credit behavior but also on the behavior of others. If your score changes over time, it means your rank-order among other consumers has changed.

Knowing more about who produces credit scores and how they are calculated can help consumers understand, interpret, and manage their scores.

A Multitude of Credit Scores

The first models of credit scoring were developed by the Fair Isaac Corporation more than 50 years ago. The scores produced by the models, FICO scores, were named after the company and are well-known today. Since then, more than a hundred different models and scores have been developed for and used by lenders, insurance companies, and utility providers.

Credit scores in the United States are now calculated by the Fair Isaac Corporation and a number of other companies—the three major credit bureaus (TransUnion, Equifax, and Experian), other independent firms, and lenders themselves. In general, the calculation involves analyzing consumers' past and current behavior with respect to their credit obligations. Each company produces its own types of scores, and there are many types of scores for different purposes. For example, there are credit scores designed for specific kinds of lending, such as auto loans, mortgages, and credit cards. There are credit scores for insurance products, for utility services, for cell phone service, and more. Most consumers, however, are familiar with only one type of credit score, the "consumer score," which is provided by the three major credit bureaus.

Though the three credit bureaus produce credit scores for the same purpose, the scores themselves are not the same. Differences are partially driven by the fact that the bureaus may have different information reported to them by lenders and financial companies. The differences can also trace to differences in the models used by each of the credit bureaus, which arise as the companies compete for business and try to distinguish themselves with scores that predict consumers' riskiness more accurately.

Recently, the three credit bureaus joined forces and created a new company called VantageScore Solutions, LLC. Their goal was to develop credit scores for consumers that are the same across the three credit bureaus. The scores they produce, VantageScores, are not distributed by the combined company; rather, each credit bureau markets and distributes them to lenders and consumers.

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Table 1. Factors Affecting Your FICO Credit Score

Factor affecting your FICO score	Portion of score (percent)	Explanation
Payment history	35	Payment history is the most important factor affecting your credit score. Lenders are interested in: what your payment history is on all your accounts; the length of your positive credit history and how long you have gone without a negative item; whether there are any severe unpaid debts like bankruptcies or foreclosures; and the number and severity of delinquencies in your credit history.
Amount owed	30	The extent of indebtedness plays large role in determining your credit score. Too many credit accounts and a high ratio of credit balances to credit limits can affect your score. Also affecting your score is the amount of debt on each account and the level of debt paid off on term accounts. Consumers can demonstrate responsibility by making scheduled payments and paying down installment loans.
Length of credit history	15	Longer credit histories result in higher scores. Important factors incorporated into credit scores are: length of credit history, length of time specifi c accounts have been open, and the duration of time since each account was last used.
How much new credit	10	Credit scores also incorporate information about how much new credit you are taking on. Credit scores track consumers who suddenly take on new debt and potentially overextend themselves, by checking to see when the last time a consumer opened an account and how many accounts were opened and by looking at the number of inquires on the consumer's credit reports.
Type of credit	10	The type of credit you have plays an important role in determining your credit score. A "healthy mix" of installment loans and revolving credit from banks is considered better for your score.

Source: *Credit Scores & Credit Reports. How the System Really Works, What You Can Do*, by Evan Hendricks, 2005. Privacy Times, Inc.

What Credit Scores Mean (and What They Don't)

The exact formula for each type of score is kept secret by every organization that produces one, just like the exact formula for Coca-Cola is a trade secret.

However, we know the main ingredients of some credit scores, since they were released to the public by Fair Isaac and VantageScore Solutions. As an example, table 1 lists the factors that enter the FICO formula. Factors that enter VantageScores are similar; they can be found in the testimony of VantageScore's president, Barrett Burns, to the House of Representatives in 2010.

Roughly speaking, companies that produce credit scores calculate them in several steps. In step one, they analyze data on each consumer, such as payment history, the amount owed at the moment, and other information like that listed in table 1, by plugging these data into a complicated and proprietary statistical model. The model predicts a consumer's likelihood of becoming more than 90 days past due on a credit obligation within the next two years and produces an odds ratio for each individual. Odds ratios are the sum of a consumer's good credit behaviors divided by the sum of his or her bad credit behaviors.

In step two, consumers are organized into groups (called "scorecards") with others who have similar events in their credit histories. For example, if a person has missed a mortgage payment, his or her information enters a scorecard with other consumers who also missed a mortgage payment. Consumers with behaviors that are deemed most harmful to their creditworthiness enter a scorecard with a lowest range of credit scores assigned to it. Consumers who have the best behaviors and have paid all their bills on time enter a scorecard with the highest ranges of scores. All the consumers in between these extremes enter scorecards with score ranges in between, ranking from the worst to the best, that is, from the lowest to the highest. In this way, the ranking of scores in terms of consumers' riskiness is always preserved.

In step three, the odds ratio is mapped to a credit score for each consumer, based on scorecard positions, to create the score-odds relationship. Lenders must have the entire relationship to make lending decisions, not just the scores but also the translation of those scores into odds ratios (what the scores mean in terms of the riskiness of potential borrowers). It is important to note that the scores and the odds ratios are calculated at a certain point in time. Later, as information is updated, both can change. If individuals change their credit behavior, their likelihood of future default (the odds) will change as well. But whether and how a different odds ratio will affect a consumer's score depends on the credit behavior of everyone else in the population, as it determines what scorecard those consumers enter.

The rank-ordering of consumers' creditworthiness means that individuals with higher scores are anticipated to manage their debt better than those with lower scores. A score of 750 does not guarantee that individuals with that score will not default on their loans. It only means that they are less likely to default than, say, those with a score of 700. While rank-ordering is valid at any point in time a score is considered, scores should not be compared across different points in time. A score of 750 is always expected to perform better than a 700 calculated at the same time, but 750 today does not indicate the same level of riskiness as 750 two years ago.

It is also possible that the credit behavior of the entire population can change, so that the relationship between odds ratios and scores shifts (see figure 1). A shift downward, for example, would mean that the entire population has become riskier to lend to. This happened after the re-

cent financial crisis, which resulted in increased credit risk for everybody. FICO Insights (2009) reports that mortgage loans originated in 2008 to consumers with scores of 700 were performing like loans originated in 2006 to consumers with scores of 670.

At the same time, a consumer with a score of 750 is still less risky than a consumer with a score below 750. In other words, higher scores are always expected to perform better than lower scores, but each score may not mean the same level of creditworthiness compared between one time period and another.

Figure 2 demonstrates this point using a sample of subprime mortgages originated in 2005, 2006, and 2007. The mortgages were split into groups according to borrowers' credit scores at the time the mortgages were originated. Within 12 months after origination, mortgage performance was analyzed.

Borrowers with higher scores had much lower rates of serious delinquency (more than two payments missed) than borrowers with lower scores. This is true for all origination years in the sample, which means that the rank-ordering is preserved in each period. However, for each credit score group, even the highest, delinquency rates rose in each subsequent vintage. In particular, subprime mortgages associated with scores above 700 in the 2007-vintage were performing as bad as mortgages associated with scores between 500 and 600 in the 2005-vintage.

Moving Targets

Given that consumers' credit scores can't be compared across time, how do lenders use the scores? That is, how do they choose a score below which a loan will be originated at a higher price or not be originated at all—their cut-off point so to speak? The short answer to this question is that lenders must receive not only the credit scores of potential borrowers before deciding to lend, but also their translation into the level of riskiness they represent at the current time (the score-odds relationship). Analyzing both, the score and what it means in terms of risk (the odds), a lender must make a decision about what risk is acceptable at that point in time.

To elaborate, let's consider an example using figure 1. Imagine that the riskiness of the entire population has increased from period 1 to period 2, so that each score in period 2 represents a lower odds ratio and a higher risk than in period 1.

While lenders' decisions on a cut-off point would ultimately depend on their business objectives (such as meeting certain lending volumes, for example), from a strict risk perspective, those who want to maintain the same cut-off point based on credit scores must cope with a higher level of risk in their portfolios (on the graph, moving from point A to point C: same scores, higher risk); lenders who want to maintain the same level of risk in period 2 as in period 1 must increase the credit score cut-off point (moving from point A to point B on the graph: same risk, higher scores). This is a simplistic example, but it shows how the shifts in the risk-score relationship could impact some business choices, such as the selection of the cut-off.

In a paper released in 2009, VantageScore Solutions discusses a similar example with the following numbers. Lenders who set their cut-off at VantageScores of 750 in 2003 were following a strategy to originate loans such that their overall portfolio risk was 0.8 percent (0.8 percent of loans were expected to default).

Later, in 2006 through 2008, risk had increased for every credit score (the odds-score line shifted downward). If those lenders were to maintain their 750 cut-off point, they would

Figure 1. Credit Scores and Odds Ratios

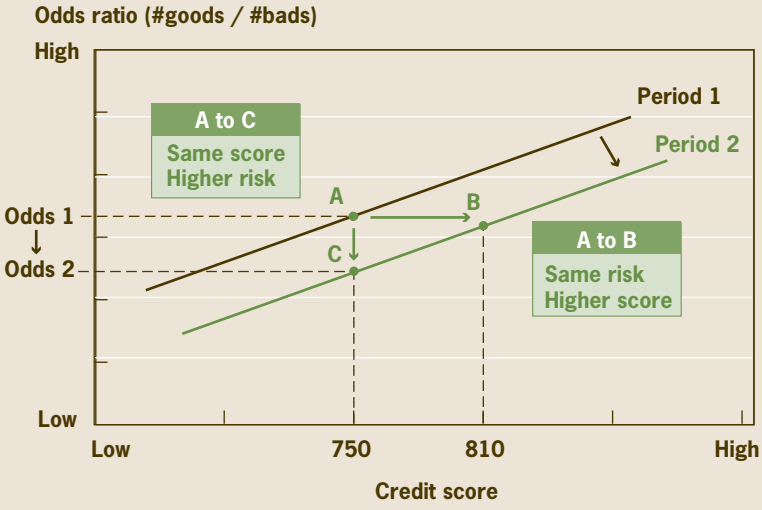
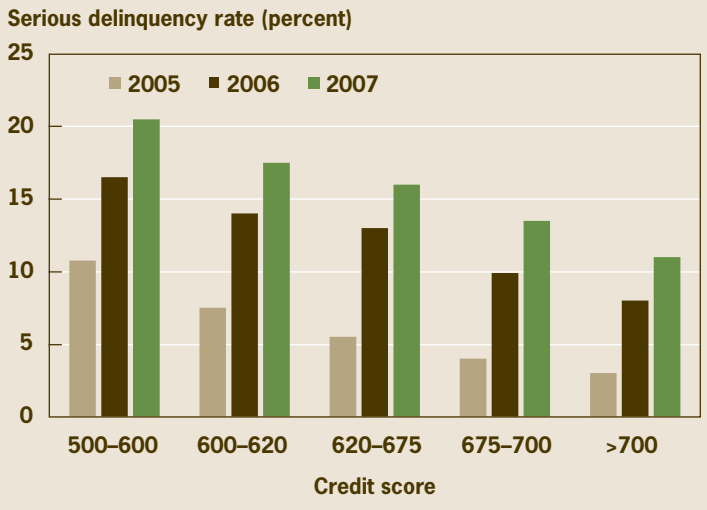


Figure 2. Serious Delinquency Rates for Subprime Loans, One Year after Origination



Source. "Did Credit Scores Predict the Subprime Crisis?" by Yuliya Demyanyk, 2008. *The Regional Economist* (October).

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be originating loans that would double the riskiness of their portfolios (1.6 percent of loans would be expected to default). If they were to keep the same 0.8 percent risk level, the cut-off score would have to increase to 810.

Conclusion

Higher credit scores translate into the possibility of getting better and cheaper services. No wonder everyone seems to want a higher one. However, consumers usually don't understand what the scores mean in terms of actual credit riskiness at a given point in time. They're often puzzled by how and why their scores change.

Improving a credit score is not totally within the individual's control. The everyday credit behavior of consumers affects their riskiness measure, the odds ratio. But whether an improved odds ratio corresponds to a better credit score depends on the credit behavior of the rest of the population. In other words, without a translation of credit scores into a measure of riskiness, it is incorrect to compare credit scores over time.

Recommended Reading

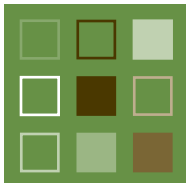
Credit Scores & Credit Reports. How the System Really Works, What You Can Do, by Evan Hendricks. 2005. Privacy Times, Inc.

"Did Credit Scores Predict the Subprime Crisis?" by Yuliya Demyanyk, 2008. *The Regional Economist* (October).

"FICO Score Trends in Today's Economic Uncertainty." *FICO Insights*, July 18, 2009.

"Credit Scoring in Volatile Times," VantageScore Solutions, 2009. A Supplement to *American Banker*, produced by SourceMedia Custom Solutions. Available at <http://www.vantagescore. com/docs/American_Banker_Insert_9-28-09.pdf.>

Testimony of Barrett Burns, president and chief executive officer, VantageScore Solutions, LLC, before the Subcommittee on Financial Institutions and Consumer Credit, Committee on Financial Services, United States House of Representatives Hearing on "Keeping Score on Credit Scores: An Overview of Credit Scores, Credit Reports and Their Impact on Consumers," March 24, 2010.



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