FREQUENTLY ASKED QUESTIONS

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What is the current credit score requirement in the mortgage industry?

Fannie Mae, Freddie Mac, and FHA require that originators request three credit scores for each borrower: one each from each of Equifax, Experian, and TransUnion (collectively the "CRCs").

The FICO models that are currently used to derive those scores are as follows:

1. ***FICO Classic v2*** from Experian, formerly branded Experian/Fair Isaac Risk Model. This model was implemented in 1999 and built using data from 1995 to 1997.
2. ***FICO Classic v5*** from Equifax, formerly branded Beacon 5.0. This model was implemented in 2003 and built using data from 1998 to 2000.
3. ***FICO Classic 04*** from TransUnion, formerly branded as EMPIRICA. This model was implemented in 2004 and built using data from 1998 to 2000.

How do Fannie Mae and Freddie Mac use credit scores?

Short answer: pricing and eligibility, not underwriting.

Both Fannie Mae and Freddie Mac use credit scores to determine product eligibility and pricing and the RFI addresses this as opposed to automated underwriting criteria. Eligibility is defined using a baseline score minimum, typically 620. Pricing is determined based on the borrower's FICO Score and the LTV of the loan. In cases where the borrower has multiple FICO Scores available, the score used is determined as the lower of two or middle of three.

Both Fannie and Freddie underwrite mortgages using proprietary, custom engines. These engines consider raw credit file data together with data not included in the borrower's credit report, such as income and employment. Fannie Mae does not include the borrower's FICO Score in this underwriting process. Freddie Mac uses the borrower's FICO Score as one of many attributes in this process.

How do VantageScore 3.0 and FICO 9 compare with each other and with the current, legacy models? **(back to top)**

Short answer: All newer models are generally more predictive and more consumer-friendly. VantageScore, as compared with FICO 9, is more consistent and scores more people.

All models under consideration share the same goal: to rank order consumers based on their likelihood of default. While all the models in question were built using credit file data, the newer models reflect changes in consumer behaviors *and* improvements in the depth and accuracy of the underlying data. The approaches that these two companies take in building these models, however, result in different outcomes and different model architectures. Several of those differences are summarized below.

Predictiveness: VantageScore and FICO compete to build more predictive models. Greater predictive performance is the metric against which many lenders make adoption decisions. Each of VantageScore's four models has been more predictive than the last. FICO has made similar claims.

Consumer-friendliness: The ways that newer models treat medical collections and medical debt are fairer to consumers. In addition, both newer models from VantageScore and FICO will consider consumer rental data when it is present in consumer's credit files, although the quantity today is limited. In addition, almost every eligible consumer has access to his or her VantageScore 3.0 credit score through free educational programs like those offered by Credit Karma, Capital One, and Chase. While FICO 8 is also widely available to consumers, neither FICO 9 nor its legacy scores are widely available to consumers for free.

Consistency: If you pull a borrower's credit score from each CRC, they are often different. With FICO, these differences can be the result of differences in the underlying data—not all lenders report to all CRCs, and they sometimes report at different times— or of differences in the algorithm itself. With VantageScore, the only reason a borrower's scores will differ is due to actual differences in the data itself because VantageScore is the only model with a consistent algorithm at all three CRCs. This results in more consistency in a tri-merge process.

Scoreable universe: VantageScore 3.0 generates a predictive credit score for approximately 30 million consumers that FICO 9 renders "unscoreable." Approximately 7.6 million of those consumers have a credit score of 620 or higher, including 2.4 million minority borrowers.

Are VantageScore and FICO built using the same data? (back to top)

Short answer: both companies work with credit file data, but they use it in different ways. The data themselves evolve over time, and newer models capture those changes.

All models under consideration were built using credit file data from Equifax, Experian, and TransUnion (“the CRCs”). Comments by some observers that they are built using “the same data” miss a good deal of nuance. These datasets can and do change over time for several reasons.

The first reason is that consumer behaviors change. Financial products, consumer preferences, demographics, and economic realities evolve over time. These changes show up in the credit file data, and newer models are able to more fully capture the consumers of their day.

The second reason is that the technologies and policies used to store and categorize data change. The credit files of the late 1990s, when legacy FICO models were built, did not distinguish between student loans or installment loans; between first and second mortgages; or between medical and non-medical collections. Likewise, they did not include trend information on balance or payment fields. Newer models are able to leverage these improvements.

One last reason is that the financial reporting ecosystem itself evolves. While in the past it was more typical that lenders reported to their regional credit bureaus, most large lenders today report to all three CRCs. At the same time, increasing consumer awareness of and access to their credit histories has resulted in more engagement in identifying and disputing errors. The recent settlement between Equifax, Experian, TransUnion, and 33 state attorneys general resulted in the culling of certain types of data that were allegedly problematic or prone to errors. Newer models are more tuned to these changes.

Finally: while both companies work with credit file data, they do so in different ways. These are large and changing datasets, and the decisions that VantageScore and FICO make in working with them result in substantively different models. VantageScore 4.0, for example, was built in part using analytical techniques that would have been impractical (if even possible) fifteen years ago.

What are the benefits of adopting new models? (back to top)

Short answer: better access and fairer pricing for consumers; better risk evaluation for lenders and investors; more transparency for all participants; and continued pressure on model developers to innovate.

Our analysis demonstrates that, in aggregate, lender choice will result in more creditworthy consumers being able to access the conventional mortgage market. For some lenders—in particular those who apply credit overlays to screen out borrowers with thin or near-prime credit— the volume of qualified borrowers may not change. By

creating a platform for competition, however, the market as a whole will benefit and a healthier market will help all participants over the long run.

The immediate benefits would be that all consumers—from those with nontraditional credit histories to prime—would receive a price based on a newer, more consumer-friendly and accurate credit score. Many would see no change in price; others would perhaps see a smaller change associated with moving from one box on the pricing grid to the next; and a few, in particular those who qualify through nontraditional underwriting, could see enough of a difference to make a mortgage loan affordable for them.

Over the near term, we would expect that competition would have a positive impact on the price and availability of credit scores throughout the mortgage process which would result in increased homeownership. In the tri-merge process, the availability of a second option could put competitive pressure on the price paid for credit scores by re-sellers, lenders, and/or end consumers. Please note, however, that VantageScore Solutions is not involved in the sale or pricing of its models or that of the credit scores calculated using its models.

Over the medium- and long-run, competition will encourage model developers to continue building better models. Since 2006, competition has led to multiple new versions of VantageScore and FICO. These new versions continue to improve in terms of consistency, predictive power, and consumer-friendliness.

One example of such an improvement is the inclusion of rental payment information. VantageScore 1.0 was the first generic model to consider positive rental payment data when available in a consumer's credit file. While the availability of rental data is limited today, this move has put positive pressure on other industry participants. It has encouraged newer entrants to begin collecting and furnishing rental data to the CRCs, which has also coincided with the eventual inclusion of rental data in FICO 9. Earlier this year, the NYC Comptroller published an exhaustive study advocating the expansion in the reporting of these data. This evolution will take time, and VantageScore has been proud to advocate for this positive change since its beginning.

Which of the FHFA's proposed options is the optimal choice for the market as a whole? **(back to top)**

Short answer: only Option 3, in which lenders can choose which model to use, would create lasting competition.

VantageScore Solutions has always supported lender choice. In a well-structured market, the benefits of competition will always accrue to consumers. We are proud of the role that we have had in driving competitive innovation and transparency since our launch in 2006. The ultimate test of a model's value is its predictive power and size of the scoreable population, and we are confident that, in a competitive market, many lenders would test and elect to use VantageScore.

Of the options on the table, only Option 3 ("Lender Choice on which Score to Deliver, with Constraints") would create true and lasting competition. Choice would enable

lenders to opt in to the cost of switching to a new model only in situations when such a change would make business sense. Option 3 also eliminates the potential for "score shopping" by requiring lenders to stick with their decision for a period of time. As lenders adopt VantageScore, we believe that such adoption will improve consumers' access to credit in certain segments and enable many more borrowers to obtain fairer pricing. And while change can create uncertainty for investors, that uncertainty can be entirely mitigated by sharing ample historical data; appending one or more homogeneous (i.e., calculated using a single model) sets of credit scores to all securitizations, regardless of the score chosen by any individual lender; and allowing sufficient time to transition.

The current FICO scoring models in use were developed using data from 1995 to 2000. They have been used to determine mortgage eligibility since prior to the Great Recession and to determine pricing since the first LLPAs were published. It is time to change. Given the complexity and cost of such an industrywide initiative, not to mention the time and cost of analysis in advance of that change, it is essential that this next move accommodates competing models. Option 3 would support competition and provide a platform to make future model upgrades more efficiently so that the market will not need to wait another two decades to benefit from the latest data, tools, and innovations.

No one company should have a monopoly on the analysis of consumer credit information. Looking beyond the mortgage industry, the virtues of competition are self-evident. Option 3 will ensure that FICO, VantageScore, and others (provided their scores are empirically derived, demonstrably and statistically sound, and based on current data from a consumer reporting agency) continue to compete to develop models that are the most predictive for the largest number of consumers.

Does VantageScore score more people by lowering standards? **(back to top)**

Short answer: No. VantageScore, along with its users, hold it to the highest standards for predictive performance. VantageScore is able to score more consumers because of its innovations, not because it has lowered any standard.

VantageScore 3.0, launched in 2013, made significant strides in using credit file information to score the millions of consumers who were unable to obtain a FICO Score. VantageScore 4.0 has taken this effort further, using machine learning techniques to generate our most predictive model yet.

Our success in this arena has often been mischaracterized by FICO as an indication of "lowered standards." That is not the case. FICO has maintained is arbitrary minimum scoring criteria since its first generic model. FICO often characterizes these criteria as decades of research, when we believe it may be more aptly characterized as decades of inertia. Changing minimum scoring criteria would change FICO's population distributions and require the development of new reason codes— two factors that increase switching costs for lenders that are looking to upgrade from one version of FICO to the next. Scoring more people may also inhibit the opportunity to sell secondary scores such as FICO XD.

Much has changed since the first FICO model was built. The CRCs went on to introduce more granular data, which in turn enabled modelers to distinguish, for example, between first and second mortgages and between student and other types of installment loans. At the same time, increases in computing power have made newer analytical techniques and large-sample analysis possible. VantageScore 4.0 was built using 45 million credit files, including trended credit data, using analytical techniques that would have been impractical (if even possible) when the first FICO scores were built.

As part of its mischaracterization, FICO often relies upon a "research score" that it built to demonstrate the impossibility of using credit file data to score more consumers. FICO then uses this research score as a proxy for VantageScore for purposes of FICO's analysis and commentary. This research score, according to FICO, demonstrated a remarkably low Gini score of 14.7 and did not align with the rest of its population. That is not, however, the case with actual VantageScore models. VantageScore 3.0 and 4.0 both have Gini scores above 50 for those consumers who are unscoreable by FICO, and our models show strong alignment between and across populations. FICO's "research score" is an irrelevant and inaccurate straw man, while all VantageScore models are routinely tested for performance by VantageScore Solutions and, more importantly, by the more than 2,200 regulated financial institutions that use them. Our publicly available test results confirm that we score more consumers without sacrificing predictiveness.

If you let lenders choose, how can you prevent them from "score shopping" each loan? **(back to top)**

Short answer: require originators to pick a model and stick with it for some defined period of time.

There is only a potential for arbitrage if originators can pull two sets of credit scores for a given loan but deliver it with only the set that delivers the best execution. By requiring that originators choose a model and stick with it for some period of time, this risk can be effectively eliminated. This requirement can and should be enforced through the re-sellers at the originator level to ensure that loan aggregators are not burdened with enforcement.

An alternative approach to eliminating adverse selection would be to treat score shopping as an option and price accordingly. Opportunities to score shop are inherently limited: pricing is a grid rather than a continuous function; the "lower of two, middle of three" decision score framework is already conservative; and score shopping carries costs for the shopper. As a result, this approach would likely result in a very small increase in delivery fees. The benefit of this approach is that it eliminates information asymmetry and with it, all opportunity for adverse selection. Further, it does so in a way that does not require re-sellers to make any policy or system changes. The downside of this approach is that all participants would face marginally higher fees while not all participants (and therefore not all consumers) would employ a score shopping strategy or derive its benefit.

If you change the requirement, how can you avoid disrupting the capital markets? **(back to top)**

Short answer: share historical data, give plenty of notice, and append both VantageScore 3.0 and FICO 9 to each loan in investor disclosures.

Both DU and LP will be largely unaffected by the decision at hand because we are not recommending adjusting the credit criteria. Likewise, the parameters of the "credit box" will remain in full effect. These are the foundations on which TBA liquidity is built, while Legacy FICO remains entirely a reporting convention. Changing that convention will require recalibrating models (i.e. pre-payment models), which will require time and data. But, providing these conditions are met, there is no reason why it should impact market liquidity in any way.

Both Fannie and Freddie should provide enough historical data to enable investors and analytic vendors to recalibrate their prepayment models. This dataset should include a representative performance sample of single family loans which would also include the following attributes: VantageScore 3.0, FICO Score 9, PMI, loan balance, owner or investor, originator, coupon, and servicer.

The most efficient way to deliver this dataset would be to append VantageScore 3.0 and FICO Score 9 to the existing single family loan performance datasets that Fannie and Freddie maintain in connection with their Connecticut Avenue Securities ("CAS") and Structured Agency Credit Risk ("STACR") programs, respectively. Appending scores to historical loans is a straightforward process for any of the three national credit bureaus.

These data should be provided to investors as soon as possible to allow time to study this change and recalibrate their models. This release should be made before those loans acquired using newer scoring models comprise a meaningful percentage of any pool.

Furthermore, the disclosure of VantageScore 3.0 ***and*** FICO 9 (each of which is generally more predictive than the Legacy FICO Scores) should have a positive impact on participants' ability to price securities. While this would have marginal benefits for rates investors, the benefits to credit investors could be more meaningful in a less benign part of the credit cycle. We strongly encourage the Enterprises to append both VantageScore 3.0 and FICO 9 to each loan in each securitization or reference pool.

Will having multiple scores in the market confuse consumers? **(back to top)**

Short answer: consumers are already accessing both VantageScore 3.0 and newer versions of FICO to manage their credit health.

Outside the mortgage industry, there is no one "score that lenders use." Just as lenders use a variety of custom and third-party credit scores to make decisions,

consumers have multiple credit scores available to help them manage their credit health. During the twelve months ending in July 2017, over 1.4 billion VantageScore credit scores were delivered directly to consumers by lenders like Chase and Capital One and educational websites like CreditKarma, Lending Tree, and Mint. These scores are calculated using the same VantageScore model used by lenders (i.e., not an "educational" model). They are most often provided free of charge as part of educational offerings that include simulators, credit reports, educational articles, and explanations.

Almost every adult with a credit file now has the ability to freely access his or her VantageScore 3.0 and credit report. In many instances, they also have access to one or more versions of FICO Score provided by Experian or a lender. For a recurring monthly fee of $39.95, some consumers purchase access to 28 different versions of their FICO Score from myFICO.com.

In a 2015 survey conducted by FTI Consulting, the majority of consumers reported that they had been scored by more than one different credit scoring model during the preceding twelve months. Asked, "What impact did having multiple credit scores have on your understanding of your credit score," 95% of respondents said the impact was neutral or positive.

Credit is more complicated than any three digit number. This is as true in the mortgage industry as it is in any other. Explaining what it takes to qualify for a mortgage is an essential part of consumer education. While FHFA and the Enterprises can and should clearly state any change in certain and accessible terms, it will be incumbent upon the industry—real estate agents, mortgage brokers and bankers, credit counselors, lenders, and servicers—to continue to educate borrowers as they do today. Educational websites that help consumers build and manage their credit and finances will continue to be strong allies in that effort.

What is the relationship between VantageScore, FICO, Equifax, Experian, and TransUnion? **(back to top)**

Equifax, Experian, and TransUnion each maintain their own versions of consumers' core credit histories. While there are other credit bureaus and other sets of data (sometimes termed "alternative data"), it is these core credit files that are most heavily relied on by lenders to make credit decisions. Each of the CRCs collects consumer data from its network of data furnishers (lenders, collection agencies, utility companies, etc.), and markets those records in a variety of ways.

In the mortgage industry, these credit files are most commonly distributed through re-sellers who bundle these three disparate histories into a single, "tri-merge report." The largest re-sellers are Credco (CoreLogic), Equifax Mortgage Services, and Factual Data (CBC Innovis). There are also dozens of smaller entities.

VantageScore Solutions was created in 2006 as a joint venture between the three CRCs in response to market demand. Its scope is intentionally limited to building, maintaining, and supporting its own credit scoring models. VantageScore is not

involved in sales: this is a restriction put in place to comply with antitrust statutes. FICO, a publicly-traded company, sued VantageScore and its owners in 2006 asserting claims of antitrust. The U.S. Federal District Court dismissed those antitrust claims in a 2009 ruling (a subsequent appeal was also rejected). Also in October 2006, the Department of Justice (DOJ) looked into VantageScore and its formation; the DOJ closed its inquiry of VantageScore in January 2007.

Both VantageScore and FICO use core credit files from the three CRCs to build credit scoring models. These models rank order consumers based on their likelihood of defaulting on any account during a two-year window. The most recent versions from both companies are based on a 300 to 850 scale, with 850 representing the least risky consumers. While both companies begin with the same data, they take vastly different approaches in using it. The resulting models have completely different architectures and often take different positions on, for example, which types of data to use or ignore and which types of credit files to score or exclude.

Models built and owned by VantageScore or FICO are hosted at the CRCs, which compete with each other to sell the derivatives of those models (i.e., credit scores). FICO also sells its products, including scores (to lenders and resellers), directly in some markets. In the mortgage market, credit scores are delivered by the CRCs to re-sellers, which include them in their tri-merge reports.

There is no reliable source of market share information between model developers because the total number of credit scores used is not ascertainable. While FICO still has a dominant position, a 2017 report by Oliver Wyman found that VantageScore was used over 8.5 billion times during a 12-month period by over 2,700 users, including more than six billion scores used by more than 2,200 financial institutions.

What market share does VantageScore have? **(back to top)**

There is no reliable source for calculating any company's market share data when it comes to credit scores. A recent report by Oliver Wyman estimated that VantageScore was used more than 8.5 billion times by more than 2,200 lenders during a twelve model window. A copy of that report is linked here for reference.