March 20, 2019

Alfred M. Pollard, General Counsel
Attention: Comments/RIN 2590-AA98
Federal Housing Finance Agency
400 7th Street SW, 8th Floor
Washington, D.C. 20219
RE: Proposed Rule on Process for Validation and Approval of Credit Score Models

Dear Sir or Madam:

Quantilytic LLC ("Quantilytic") provides this letter in response to the Federal Housing Finance Agency's ("FHFA") proposed rule published December 21, 2018 on the process for validation and approval of credit score models by Fannie Mae and Freddie Mac (together, the "Enterprises").

Our comments on the FHFA Notice of Proposed Rule Making are based on our extensive personal experience in mortgage lending, private mortgage insurance, credit modeling, mortgage risk transfer analysis/structuring and secondary market trading.

Quantilytic previously provided input to the FHFA Credit Score Request for Input ("RFI") issued December 20, 2017. Quantilytic attaches its response to that 2017 RFI, and seeks that it should be incorporated by reference into this comment.

Our attached comments focus on section IV. Summary of the Proposed Rule and specifically D.2.b "Options for Evaluating Test Results."

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Options for Evaluating Test Results

Comparison-Based Approach

We believe the comparison based approach is too opaque with regard to decision criteria used in comparing models. Credit score providers should understand the standards of success as they are developing their models. Proper communication of a target not only levels the playing field and provides transparency but also, with careful specification of success criteria, can spur development of better models by all score providers as they can customize their models to the target criteria. The comparison based approach, with its ambiguous success criteria, fails on all counts.

Champion-Challenger Approach

We agree conceptually with many points discussed in the NPRM description of the champion challenger approach. A new credit score should, at a minimum, outperform the existing score across multiple environments if it is to prevail.

Truncation bias distorts a simple champion challenger approach as noted in the NPRM. While a "more accurate than" standard attempts to address this issue, the advantage afforded the challenger by truncation bias is extremely difficult to measure. This leaves open the question of how much more accurate than the champion model should the challenger be in order to be chosen.

Benchmark-Based Approach

The benchmark based approach suffers from several drawbacks.

First, truncation bias remains an issue if an existing model is one of the competitors. It is possible that an existing model would fail to exceed the benchmark while a competing model would exceed it due simply to the boost it receives relative to the existing model due to truncation bias.

Second, no process is defined in the proposed rule for setting the initial benchmark level. If the level is set too high, there is the risk that either no models exceed the benchmark. If it is set too low then even relatively poorly fit models could exceed the benchmark.

Third, the benchmark would have to be flexible enough to vary according to the level of economic stress and confounding exogenous factors present during the performance period under consideration. As we saw during the 2008 crisis, credit score rank ordering can become considerably more difficult when factors outside of those contained in the credit file such as poor underwriting standards and house price declines affect overall performance.

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Finally, this approach does not specify the criteria for selecting among multiple models that exceed the benchmark.

Transitional Approach

We believe the transitional approach is superior to other options.

Allowing the continued use of Classic FICO, once properly validated, is the least disruptive and most realistic option in the short term. While evaluation of new scores is desirable, any disruption created by near term uncertainty in credit score model selection could have serious consequences for the Enterprises, homeowners and lenders. We find it difficult to determine any benefit that could come from such disruption.

Among the advantages of the Transitional Approach are:
- A validated Classic FICO could serve as a natural benchmark for subsequent Credit Score Assessments.
- New model providers would have very clearly defined criteria for success as they build their models.
- The Enterprises and the housing market would continue to benefit from a model that has performed very well at rank ordering risk through many different economic environments.

The Transition Approach does not, however, directly address the issue of truncation bias. If Classic FICO K-S or other statistical fit measures were used as the de facto benchmark for future Credit Score Assessments, Classic FICO would still be disadvantaged due to truncation bias. However, we believe that FICO would almost certainly offer a newer version of their model for future assessments. That would effectively remove Classic FICO from those future assessments and thus partially mitigate the impact of truncation bias since the Enterprises would be choosing among all new models rather than employing a champion challenger approach.

Nonetheless, to the extent that a new FICO version is very highly correlated with Classic FICO, the new version would still suffer from truncation bias in comparison to other models that are less correlated with Classic FICO. We raise this issue not to favor FICO because they could always make the choice to develop a less correlated model. Rather, we believe that new models that are highly correlated with Classic FICO, regardless of who develops them, should not be disadvantaged in future assessments.

Therefore, we suggest that FHFA adopt a modified version of the transition approach. All new scoring models should be required to exceed the accuracy of Classic FICO (or subsequent incumbent models) by a certain margin but that margin should increase with decreasing correlation of the new models to Classic FICO. This can be justified on three counts:

1. Lower correlated scores unjustifiably benefit more from truncation bias than more highly correlated scores and should thus have a higher threshold.

2. Lower correlation implies the use of different data, transformations or statistical techniques that, if they truly add to explanatory power, should offer significantly better performance and thus cross a higher threshold than the highly correlated models.

3. More highly correlated models can be expected to have similar stability to Classic FICO, which has performed well through significant changes in borrower behavior and economic conditions. We simply do not know how lower correlated models will perform outside the test data sets. Therefore the lower correlated models should have higher thresholds.

Conclusion

A careful approach to introducing competition in scoring models for the Enterprises may incentivize new useful approaches to credit scoring. The Enterprises must take care, however, in making sure that performance gains are real rather than artifacts of statistical conditions such as truncation bias.

Evaluating new models should not disrupt the current, well-functioning mortgage market. Validating and continuing to use Classic FICO will cause no disruption while also providing a solid, evidence supported benchmark for future tests of new models. The Transitional Approach thus dominates the choices presented in the NPRM.

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