Alfred M. Pollard, General Counsel
Attention: Comments/ RIN 2590-AA98
Federal Housing Finance Agency
Eighth Floor
400 Seventh Street SW
Washington, DC 20219

*www.fhfa.gov/open-for-comment-or-input*

## I. Summary

The proposed rule represents a very reasonable implementation of §310 of the Legislation; the timeframes could not be compressed without compromising risk management. The Credit Score Assessment as described is better suited to disqualifying underperforming models than to isolating a best-performing model. If this is so, more weight will be placed on the Enterprise Business Assessment in approving a credit score model. FHFA should clarify the status of capital models in the Business Assessment and include a consideration of exposure to adverse selection. The environment in which the Enterprises will be conducting the initial Solicitation, Validation and Approval makes it more attractive to adopt a Transition Approach.

## II. Introduction

FHFA has done an admirable job in drafting rules to implement §310 of the Economic Growth, Regulatory Relief, and Consumer Protection Act of 2018. The staging of the steps for solicitation, review and approval are appropriate; the timeframes laid out seem reasonable and the general expectation that the Enterprises will refresh their solicitation about every seven years is sensible.

It is almost inevitable that the procedures and timeframes laid out by the proposed rule will seem to some observers to be overly complex and protracted. Such impatience is likely to arise from two different sources. Some are convinced that more competition is the key to progress and that more progress in credit scoring models requires that hurdles be lowered to make things easier, less expensive and less demanding for competitors. Others believe that our conventional housing finance system can and must serve more families, that new credit scoring models are a way of extending the reach of the Enterprises and hence that obstacles to the adoption of new models must be eliminated.

It is certainly true that the Enterprises should be constantly seeking to identify the best available credit models and that they should strive to serve every creditworthy borrower. This is implied in their individual missions and expressed in the FHFA mission: "Ensure that the housing government sponsored enterprises operate in a safe and sound manner so that they serve as a reliable source of liquidity and funding for housing finance and community investment." But it remans critical that the Enterprises pursue their mission in a safe and sound manner.

"Model validation" as it is required by §310 (and implemented by the Proposed Rule) is something different from "model validation" as it is currently performed by financial institutions (including the Enterprises) as a part of their model risk management. The fact that the same term is used both

in the Legislation and in regulatory guidance but with different meanings can cause some confusion. In the Proposed Rule, FHFA remarks:

> Continuing to use Classic FICO could be beneficial to the Enterprises and other market participants in smoothing the transition away from using a credit score from a model that has not been validated and approved to an environment in which an Enterprise must only use credit scores from models that have been validated and approved.

It is certainly true that Classic FICO has not been validated under the rule. But it might be misleading to leave it at saying that it has not been validated. The fact is that the Enterprises ***do*** currently employ a validated credit score model (as that term is used in model risk management). The current credit score model (Classic FICO®) has been validated and re-validated by each Enterprise, scrutinized by three lines of defense and overseen by the regulator in accordance with detailed model-risk management guidance.[1] And the current credit score model is used pervasively throughout the Enterprises—even more than is made explicit in the NPR. The current credit score model (Classic FICO®) is incorporated as a risk measure into Conservator Capital Framework devised by FHFA and employed by the Enterprises in allocating resources, making decisions and evaluating financial performance. The current credit score model is likewise used as a basis of measuring credit risk in the Dodd Frank Act Stress Tests supervised by FHFA.[2]

## III. Credit Score Assessment

There are two aspects of the Credit Score Assessment that set it apart from typical model validation protocols. The first is that model accuracy and reliability are tested in a way separate from the way the model is used by the Enterprises. The second is that validation is made to coincide with a kind of competitive procurement procedure. These differences ought to be reflected in the way the results of this assessment are evaluated.

Within the context of model risk management, model validation typically means evaluation of a model's suitability for a specified purpose; the Credit Score Assessment as described in the NPR is a statistical evaluation without regard to purpose, or (to put it even more starkly) an evaluation with regard to a purpose never used by the Enterprises—the stand-alone power of a credit-scoring model to predict mortgage default. Within mortgage-related applications, credit scores are routinely combined with other risk factors (generally LTV, product type and some others) in estimating default models. As one of the Enterprises notes in a recent CRT disclosure:

> it should be noted that Credit Scores were developed to indicate a level of default probability over a two-year period, which does not correspond to the life of most mortgage loans. Furthermore, Credit Scores were not developed specifically for use in connection with mortgage loans, but for consumer loans in general. Therefore,

[1] FHFA AB 2013-07 and the associated Examination Module "Risk Modeling."
[2] See, for example, FHFA 2018 Report Cycle Dodd-Frank Act Stress Tests Summary Instructions and Guidance (March 1, 2018).

> Credit Scores do not address particular mortgage loan characteristics that influence the probability of repayment by the mortgagor.[3]

There is no obvious reason to assume that a credit scoring model that best predicts default on a stand-alone basis will also best predict defaults when it is used in combination with mortgage risk factors.

FHFA is, of course, aware of this difficulty and has provided for it in two separate ways: the first is by requiring that "that the Enterprise test accuracy on subgroups of loans" and adding that "[s]ubgroup testing could be applied to loan to value groups, credit score groups, thin credit file loans at origination, new credit files, and files with a past delinquency." The second is by supplementing the Credit Assessment Test with an Enterprise Business Assessment. Testing credit score models on subgroups of loans by LTV almost amounts to introducing LTV as a separate risk factor, but this approach introduces a complication of its own. If the Enterprises perform a variety of (very important) tests on subgroups of loans, it is entirely likely that the models will perform differently (from each other, but also from the same model) across these different subgroups. How, then, can an enterprise arrive at a single and meaningful measure of model accuracy?

A "champion-challenger" test within the Credit Score Assessment will certainly provide some insight into comparative model accuracy. When the test is applied to critical subsets of loans (e.g., high LTV or lower credit score populations), the champion-challenger approach could well furnish an objective basis for preferring one credit-score model over another.

I do not mean to argue against the accuracy component of the proposed Credit Score Assessment. The point is rather that a rank ordering of credit score models based on predictive (or separation) power in the absence of mortgage risk factors (which can be done either by assessing accuracy on subsets of loans or by assessing accuracy within a mortgage default model) is not sufficiently meaningful to justify an unqualified preference for one model over another or to disqualify all but the highest-scoring model from moving on to the Enterprise Business Assessment. FHFA should avoid adopting approaches which give the appearance of being impartial and reliable but put undue weight on the power of stand-alone credit scores. The accuracy component of the Credit Score Assessment is better used to qualify candidates for the Enterprise Business Assessment than to choose a most qualified credit score model.

There is a second reason to avoid putting undue weight on a single measure of accuracy in evaluating credit score models. Risk managers have learned to be leery of simple measures of predictive accuracy both in comparing different models and in evaluating the performance of a particular model. FHFA has clearly identified the major reason for this—the problem of overfitting. A good model is expected to be consistently reliable over time (without constant tinkering and adjustment) rather than accurate as possible at a single point in time. It may be somewhat optimistic to say (as FHFA says) that "[t]esting credit score accuracy at a minimum of two points in the economic cycle should also ensure the credit score models retain the ability to rank order credit risk over the economic cycle" While this may be roughly true under ordinary conditions, conditions in the mortgage market have been anything but ordinary.

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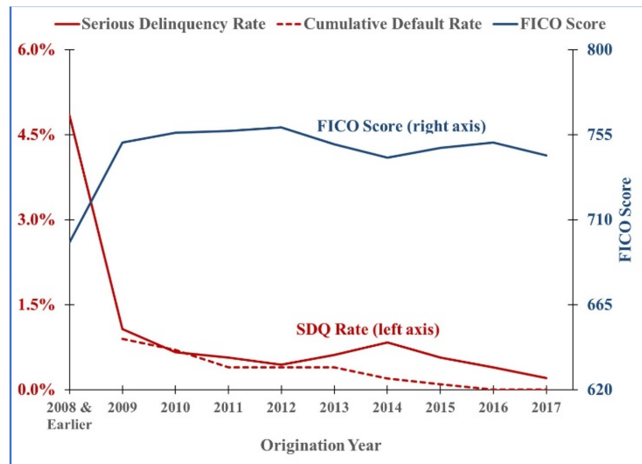
[3] Freddie Mac, STACR Series 2019-DNA1 Private Placement Memorandum at p.27

Figure 1 (at right) is a simple plot of mean FICO score at origination against current serious delinquency and cumulative default rates disclosed by Fannie Mae. For books before 2009, FICO scores were lower and current serious delinquency rates (even ten years after the financial crisis) were very high; for later books of business, mean FICO scores rose (in part because of the sharp truncation of lower scores) and serious delinquency rates fell sharply. There is far more involved in the analysis of these books and in model validation than is suggested by a reference to "the business cycle." The earlier books were often originated with scant documentation, layered risk factors and went through a sharp decline in house prices; the later books were fully documented by lenders often fearful of buybacks and purchased by Enterprises using dramatically improved quality control procedures but include only a small sampling of loans with lower credit scores. As numerous studies have shown, credit scores need to be supplemented by a variety of mortgage risk factors to account for recent experience.[4] Testing credit scores as a stand-alone predictor of default under these circumstances will certainly have some value, but it is unlikely to show the strength of a credit scoring model.

**Figure 1:** ***Average FICO Score and Current Serious Delinquency Rate by Acquisition Year (Fannie Mae)*:**
**Source: Fannie Mae**




IV. Enterprise Business Assessment

The scope of the Enterprise Business Assessment is appropriately very broad (indeed, open-ended); I would like comment on three aspects of the proposed rule: service to market or access to credit, the use of credit scores in determining capital requirements, and the factors the Enterprises are asked to consider in weighing industry impacts.

a. Access to Credit

FHFA raises the question whether the Enterprises ought to go beyond traditional fair-lending compliance: "to consider, in addition, whether the credit score model has the potential to promote access to mortgage credit for creditworthy applicants across all protected classifications." It would seem entirely appropriate that the Enterprises should be encouraged or required to consider and report on the promotion of access to credit. FHFA has stressed throughout its NPR the importance of Enterprise transparency; transparency regarding access to credit should not be neglected. In

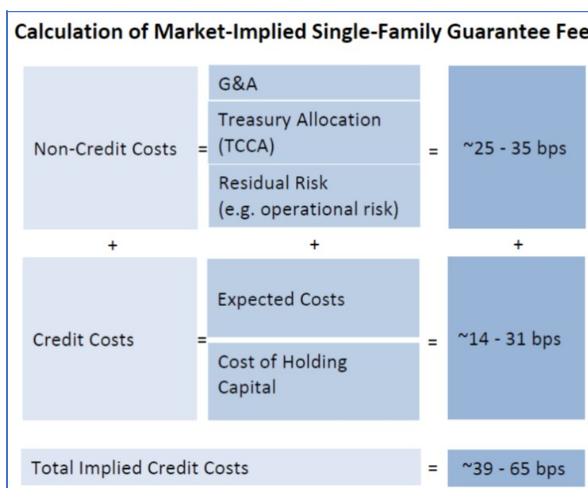
[4] See, for example, Bhardwaj and Sengupta, "Credit Scoring and Loan Default," Federal Reserve Bank of Kansas City Research Working Papers, February 2015. It is worth quoting from the executive summary: "Over time, this increased emphasis on credit scoring coincided with deterioration in FICO performance largely due to the fact that higher credit score originations of later cohorts were more likely to have riskier attributes. However, controlling for other attributes on originations and changes in economic conditions, we find that, as measures of borrower ranking, FICO performance on subprime loans over the years remains fairly stable."

addition, there may be tradeoffs between the promotion of access to credit and other considerations. (For example, FICO 9 includes information on rent payments and adjusts the weight on medical debt. Moving from classic FICO to FICO 9 might broaden the market but incur some transition costs for the Enterprises.) It would be good to know how the Enterprises see and weigh these tradeoffs. In addition, pilot programs (as outlined by FHFA) are undoubtedly a useful way for the Enterprises to explore the capability of credit score models to serve a broader market. Providing leeway for pilot programs becomes especially important in light of the passage of §310. Surely, the legislation was intended to encourage rather than discourage innovation; the legislation also provides FHFA with the latitude it needs to find room to accommodate innovation while maintaining safety and soundness. If a credit score provider could not be approved without a track record (§310(a)(C)(ii)) but could not establish the track record without some use or sponsorship by the Enterprises, it is difficult to see how innovation might occur. Pilot programs solve this dilemma. It is worth adding that pilot programs are of significant importance not only to new credit scoring entrants but also to established credit score providers looking to innovate, incorporate new data and broaden the market.

b. Capital

It is often said that financial-risk bearing institutions need to price for expected risk and capitalize severe or catastrophic risk; holding this capital itself has a cost, and the cost of capital must be reflected in price. FHFA seems to agree with this approach—see, for example, Figure 2 at right. But while the NPR is very explicit in treating upfront guarantee fees as part of "purchase-related systems and procedures," it is somewhat difficult to determine whether systems and procedures for determining required capital levels (and returns on capital) are included within the scope of purchase related systems and what role they play in the Enterprise Business Assessment. This would seem to be an important point to determine: credit scoring models are used pervasively in Enterprise capital models and FHFA itself uses credit scores in its proposed capital rule. In that proposed rule, FHFA notes in passing

**Figure 2:** ***Composition of Guarantee Fees:***
**Source: FHFA**




> the Enterprises currently rely on Classic FICO for product eligibility, loan pricing, and financial disclosure purposes, and therefore the base grid for new originations was estimated using Classic FICO credit scores. Furthermore, throughout the proposed rule, the use of credit scores should be interpreted to mean Classic FICO credit scores. *If the Enterprises were to begin using a different credit score for these purposes, or multiple scores, the grid for new originations, along with any other grid reliant on credit scores, would need to be recalibrated.*[5]

[5] **Federal Register** / Vol. 83, No. 137 / Tuesday, July 17, 2018 / Proposed Rules at 33338 (emphasis added)

This comment made reference to the previous Credit Score RFI; it is unclear how it might relate to approval of a credit score model under §310. It would be very helpful for FHFA to clarify the place of capital models in the Enterprise Risk Assessment, including the meaning of "accuracy" and "reliability" in connection with capital models. Capital models would typically depend on modeling defaults in a highly adverse environment. Testing this on a new credit score model could prove difficult. Such testing would certainly be facilitated if the odds-to-score ratio of a new model were consistent with that of the current model, but this cannot be expected for every new model.

The importance of capital considerations in arriving at a judgment of a credit score model goes well beyond the matter of the Enterprise capital framework; it extends to mortgage insurers as well. FHFA rightly notes that the approval and adoption of a new credit scoring model would require mortgage insurers to prepare and file new rate sheets. But this might be a modest task in comparison with the need for the Enterprises to prepare new PMIER schedules and for the mortgage insurers to make required adjustments to their capital structure and levels. If the approval of a new credit score model involves a thoughtful balancing of the benefit of greater accuracy against the cost to the industry of changing, the Enterprises need a comprehensive view of what must change both as a matter of law and as a matter of regulation. For this, it would be helpful for FHFA to clarify the status of capital modeling and capital requirements. While it might be plausible to conclude that capital models are not purchase-related systems or procedures, it is certainly awkward for a firm (Enterprise or mortgage insurer) to establish prices with one credit score model and capital with another.

**Figure 3:** ***Illustration of Current PMIERs Structure:*** **Source: Fannie Mae**

**Table 3:**
**Loan Vintage: 2009-June 2012**
**Loan Payment Status: Performing (current or not more than one missed monthly payment)**
**Loan Purpose: non-*HARP***

| | Original Credit Score | | | | | | |
|---|---|---|---|---|---|---|---|
| **Original LTV** | **<620** | **620-679** | **680-699** | **700-719** | **720-739** | **740-759** | **760-850** |
| **LTV <=85** | 9.61% | 4.06% | 2.30% | 1.86% | 1.24% | 1.00% | 1.00% |
| **85 < LTV <= 90** | 12.86% | 8.87% | 6.02% | 4.81% | 3.62% | 2.76% | 1.60% |
| **90 < LTV <= 95** | 20.08% | 14.27% | 10.15% | 8.17% | 6.53% | 4.98% | 2.98% |
| **LTV > 95** | 22.08% | 15.70% | 11.16% | 8.99% | 7.18% | 5.48% | 3.28% |

**Table 4:**
**Loan Vintage: Post June 2012**
**Loan Payment Status: Performing (current or not more than one missed monthly payment)**
**Loan Purpose: non-*HARP***

| | Original Credit Score | | | | | | |
|---|---|---|---|---|---|---|---|
| **Original LTV** | **<620** | **620-679** | **680-699** | **700-719** | **720-739** | **740-759** | **760-850** |
| **LTV <=85** | 13.09% | 9.17% | 5.85% | 4.66% | 3.61% | 2.73% | 1.58% |
| **85 < LTV <= 90** | 21.22% | 14.34% | 10.04% | 8.14% | 6.63% | 5.07% | 3.07% |
| **90 < LTV <= 95** | 26.43% | 17.45% | 12.96% | 10.50% | 8.95% | 6.91% | 4.39% |
| **LTV > 95** | 29.07% | 19.20% | 14.25% | 11.55% | 9.84% | 7.60% | 4.83% |

c. <u>Investor and Competitor Considerations</u>

FHFA is to be congratulated for being properly attentive to the cost and effort imposed on the industry by a change at the Enterprises. In connection with the Credit Score RFI, many of the trade groups detailed the cost of adjustment and many of those responses singled out the cost and time associated with SR 11-7, the Federal Reserve's guidance on model risk management.

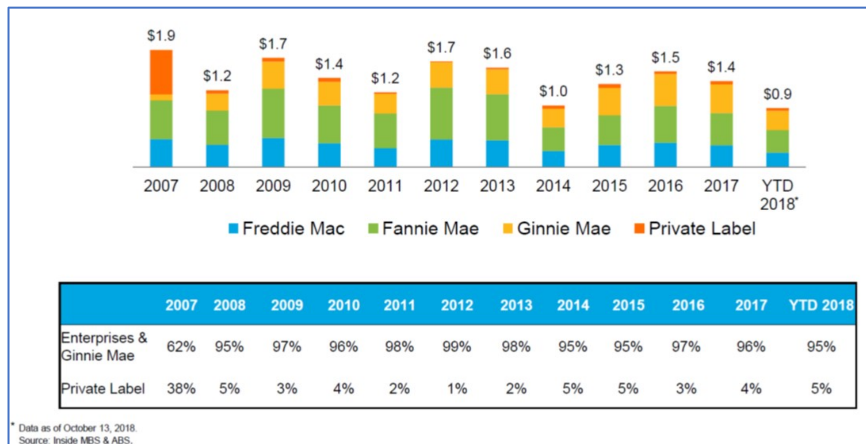
In completing the Enterprise Risk Assessment, the Enterprises should of course be sensitive to the cost of adjustment by the industry. But there is no obvious reason for the Enterprises to assume that the industry will always adjust, even if at some cost. Change that is too frequent or too radical or badly implemented is just as likely to lead to reduced investor participation; this possibility should also enter into the Assessment.

In discussing the Enterprise Risk Assessment, FHFA asks

> whether there are impacts, costs, or benefits that the Enterprises should specifically consider, and whether the impacted parties or areas market participants (including borrowers, lenders, investors, and the Enterprises), market liquidity, and availability of credit-are appropriate or should be supplemented.

There is at least one further consideration that FHFA should consider: the extent and type of competition in the securitization market. The Enterprises have a dominant position in the conventional mortgage market but (as the MBS market prior to 2008 made clear) this dominance is by no means assured. And if competition comes by way of adverse selection (as it has in the past), Enterprise operations raise concerns not only about competitive position but also about safety and soundness.

**Figure 4: *Composition of the MBS Market:* Source: Freddie Mac**




| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | YTD 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Enterprises & Ginnie Mae | 62% | 95% | 97% | 96% | 98% | 99% | 98% | 95% | 95% | 97% | 96% | 95% |
| Private Label | 38% | 5% | 3% | 4% | 2% | 1% | 2% | 5% | 5% | 3% | 4% | 5% |

* Data as of October 13, 2018.
Source: Inside MBS & ABS.

In the NPR, FHFA remarks:

> For example, if an Enterprise in the future no longer uses a third-party credit score in any purchase-related systems or procedures, the Enterprise would not be subject to the requirements of this proposed rule. However, if an Enterprise continues to price loans based on credit score and LTV ratios (LLPAs and Delivery fees), the Enterprise would still be subject to the requirements of this proposed rule, even if the Enterprise no longer used credit scores in any other manner.

This observation seems to suggest that the Enterprises could perhaps avoid the requirements of the rule by eliminating or altering their up-front fees. These fees not only roughly calibrate price to risk and capital, they also serve as protection against adverse selection; elimination or radical restructuring of these fees would be unwise.

The Enterprises have done a creditable job of adjusting to a regime of significantly higher guarantee fees without exposing themselves to adverse selection. The routine inclusion of Enterprise-eligible mortgage loans in non-Enterprise MBS suggests that the potential for adverse selection is real and requires real risk management. The adoption of a new credit scoring model would require the Enterprises to consider carefully the possibility of adverse selection as they reconfigure their up-front fees. This consideration is certainly related to but different from the judgment of the accuracy and reliability of new credit scoring models. FHFA should consider

adding the ease and practicability of avoiding adverse selection to the items to be included in the Enterprise Risk Assessment.

V. Initial Solicitation and Approval

As required by §310, FHFA's rule will not only prescribe procedures for the validation and approval of credit score models, but it will also initiate an inaugural solicitation and approval process. A consideration of the environment in which this will occur gives added weight (in addition to the reasons provided by FHFA) to favoring some transition approach.

At much the same time as the initial solicitation and approval, the Enterprises will be adopting the CECL standard, which is necessarily a credit-score model-driven exercise for which each Enterprise has doubtless done substantial preparation. CECL will have a notable impact not only on loss provisioning but also on the volatility of income, the level of retained earnings, the size of the deferred tax asset and timing of the recognition of the benefit of credit-risk transfer programs. Legislation requires that the Enterprises operate with an approved and validated credit score model but evaluating and changing models in the course of a transition to CECL could be cumbersome. It might be objected that the legislation concerns only purchase-related systems. While this is true, it is questionable model-risk management to buy or price loans with one credit model and manage and report on the portfolio using a different model. In addition, the establishment of the upfront portion of the guarantee fee is clearly a purchase-related use of credit score models. It would seem natural to want to match risk, upfront price and upfront credit provision. This matching would be greatly facilitated by the use of a consistent credit score model throughout the Enterprise; it might also require an acceleration in the way upfront fees are recognized (another change introducing complexity).

In addition to the transition to the CECL standard, the Enterprises will still be in the midst of a transition to the UMBS as the first solicitation and approval are occurring. While FHFA and each Enterprise have done a solid job of preparing investors for the transition, it is fair to say that many investors remain wary and will reject any choice that causes either a divergence between the Enterprises or a disruption between new and legacy securities. The transition approach could be a powerful support to the smooth introduction of UMBS.

§310 can be a useful tool in providing visibility to the way Congress expects the Enterprises to sustain competition and innovation, but the implementation of the legislation can entail some inconveniences. FHFA has drafted a rule that makes it possible to reduce the inconveniences while maintaining the strength of the legislation. The inconveniences will be reduced most effectively if the Credit Score Assessment is subordinated to the much more critical Enterprise Business Assessment and the transition is made as smooth as practicable.

Respectfully,

John Gibbons

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This comment reflects the individual views of the author.

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