Comment on Validation and Approval of Credit Score Models Proposed Rule by the Federal Housing Finance Agency (FHFA)

Introduction

On December 13, 2018, FHFA proposed a rule regarding the "process for validation and approval of credit score models by the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) (together, the Enterprises)."[1] There are many aspects to this proposed rule but for the purposes of this note I focus exclusively on the potential impact on the development and implementation of the Uniform Mortgage Backed Security (UMBS).[2]

The use of credit score models by the Enterprises is of interest with respect to the UMBS because of the potential impact on the relative performance of the Enterprise UMBS at the cohort level. In the December 2017 Single Security Initiative (SSI) and Common Securitization Platform (CSP) Update,[3] FHFA states "Some market participants have expressed concern that divergence in the prepayment rates of UMBS issued by Fannie Mae and Freddie Mac could lead to differences in the prices of Fannie Mae- and Freddie Mac-issued UMBS and to the possibility of erosion of the broad market liquidity the SSI seeks to foster." These concerns would be mitigated by ensuring that the cash flows associated with the Enterprise UMBS be in "general alignment", i.e. not identical but close enough to inhibit the execution of "stipulated trades". A "stipulated trade" is one in which an investor states that it will only accept delivery of a security issued by a particular Enterprise. To deter this activity, FHFA will investigate any divergence in the one-month conditional prepayment rates (CPR) of Fannie Mae and Freddie Mac securities in excess of two percentage points at the cohort level.

The remainder of this note is devoted to the analysis of the impact of divergences in the credit characteristics of loans in Fannie Mae and Freddie Mac securities on their prepayment speeds, and the implications of these for the proposed rule.

Prepayment Speeds

Using big data tools provided by Recursion Co, it is possible to look at the relationship between the credit characteristics and prepayment speeds for loans that are in conforming MBS securities. Chart 1 shows the 1-month Conditional Prepayment Rate (CPR) for Fannie Mae and Freddie Mac 30-year fixed rate mortgages over the time period between early 2005 and early 2018 as reported by the Enterprises in the performance databases issued in support of the Credit Risk Transfer (CRT) program.[4] Chart 2 shows

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[1] https://www.fhfa.gov/SupervisionRegulation/Rules/Pages/Validation-and-Approval-of-Credit-Score-Models.aspx

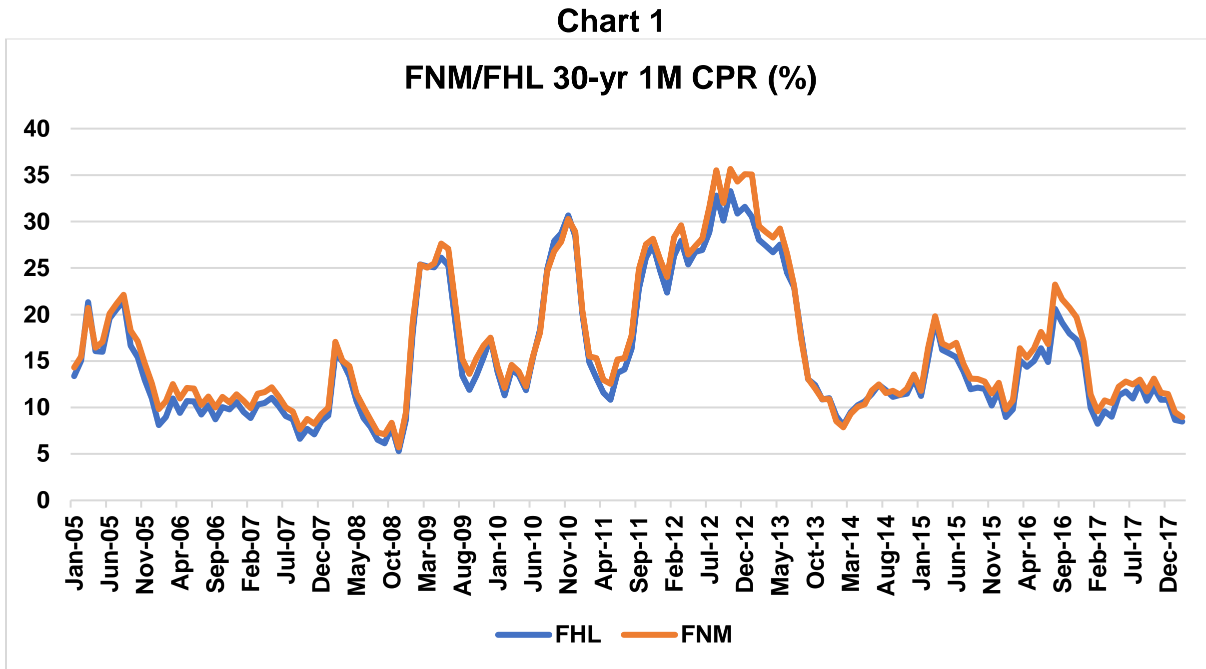
[2] https://www.federalregister.gov/documents/2018/09/17/2018-20124/uniform-mortgage-backed-security

[3] https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/Update-on-the-Single-Security-Initiative-and-the-CSP_December-2017.pdf

[4] See http://www.fanniemae.com/portal/funding-the-market/data/loan-performance-data.html and http://www.freddiemac.com/research/datasets/sf_loanlevel_dataset.html. The data for Fannie Mae is lagged by one month, reflecting differences in the timing of payments between the two securities.

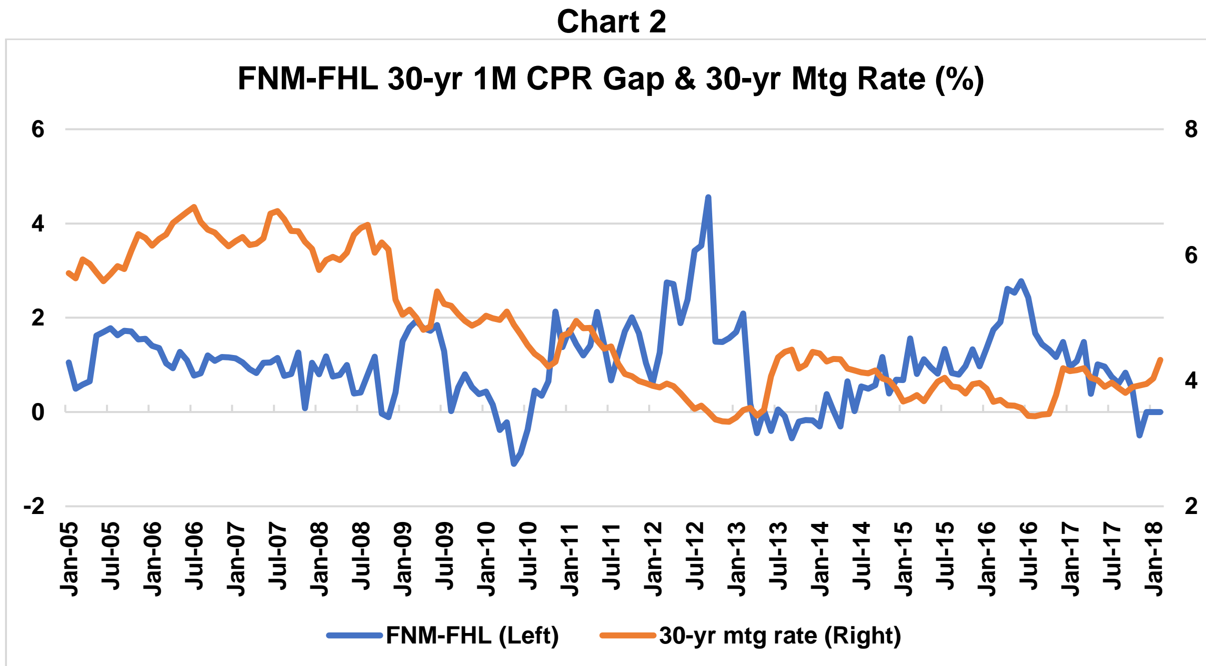
the gap between the reported CPR's. Over the 13 year period covered by this data, there were two periods, Q3:2012 – Q1:2013, and Q2:2016 – Q4:2016 during which the gap persistently exceeded 2%.

Chart 1



Source: Recursion Co

Chart 2



Source: Fannie Mae, Freddie Mac, Recursion Co

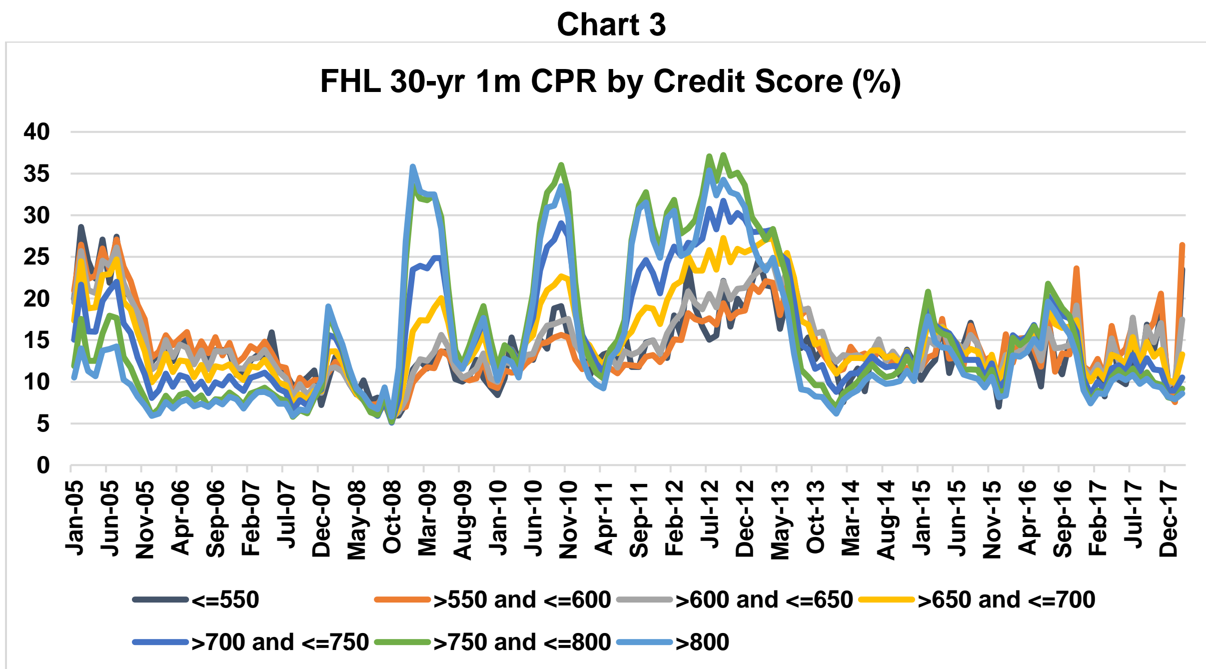
Chart 2 also shows the trend in the 30-year fixed mortgage rate over the same period. The two periods when the CPR gap jumped above 2% coincide with episodes that resulted in downward pressure on borrowing costs that drove the mortgage rate below 4%. The first occurrence corresponded with the announcement of the "QE3" round of

asset purchases on the part of the Federal Reserve, while the second was associated with a “flight to quality” on the part of global investors following the Brexit referendum in the UK.[5]

Portfolio Characteristics

The natural question that arises is why prepayments for the loans reported by Fannie Mae jumped more sharply compared to those for Freddie Mac during such episodes. The first portfolio characteristic that comes to mind is credit scores. There are two components to this analysis. First, Charts 3 and 4 demonstrate that high-credit score borrowers tend to prepay faster than less credit-worthy borrowers for both Fannie Mae and Freddie Mac loans. This trend has abated recently, as improved fundamentals and growing confidence have reduced the “credit auctioning” that limited the availability of funds during and immediately following the Global Financial Crisis (GFC).

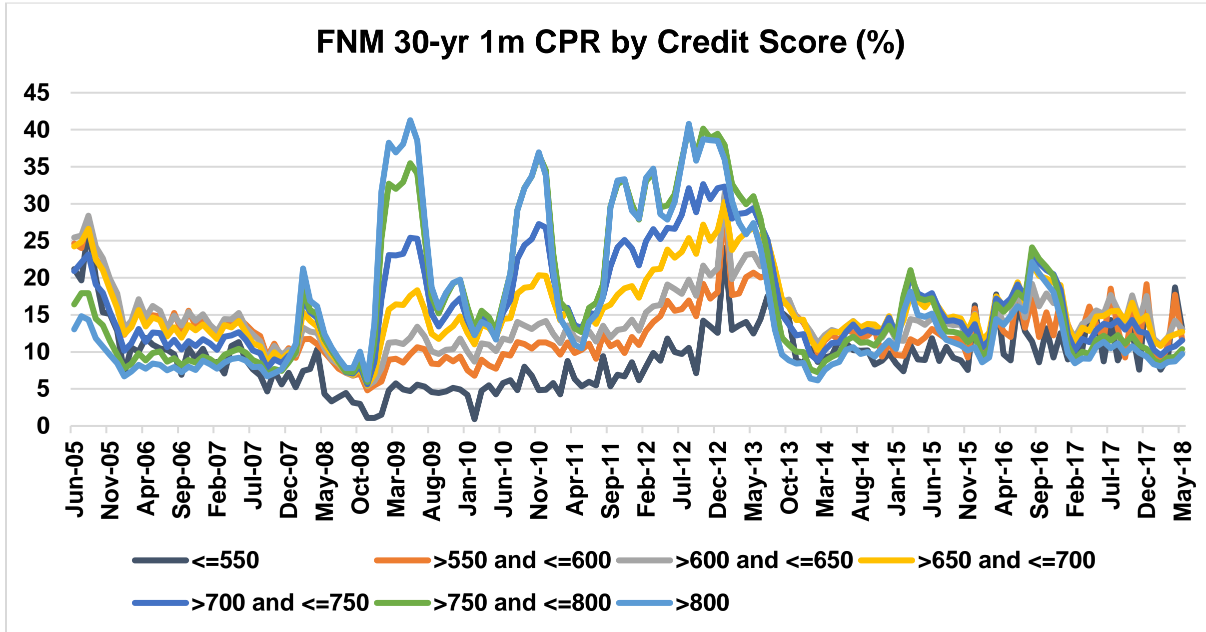
Chart 3



Source: Recursion Co, Freddie Mac single family loan performance data

[5] QE3 was announced on September 13, 2012 while the Brexit referendum was held June 23, 2016.

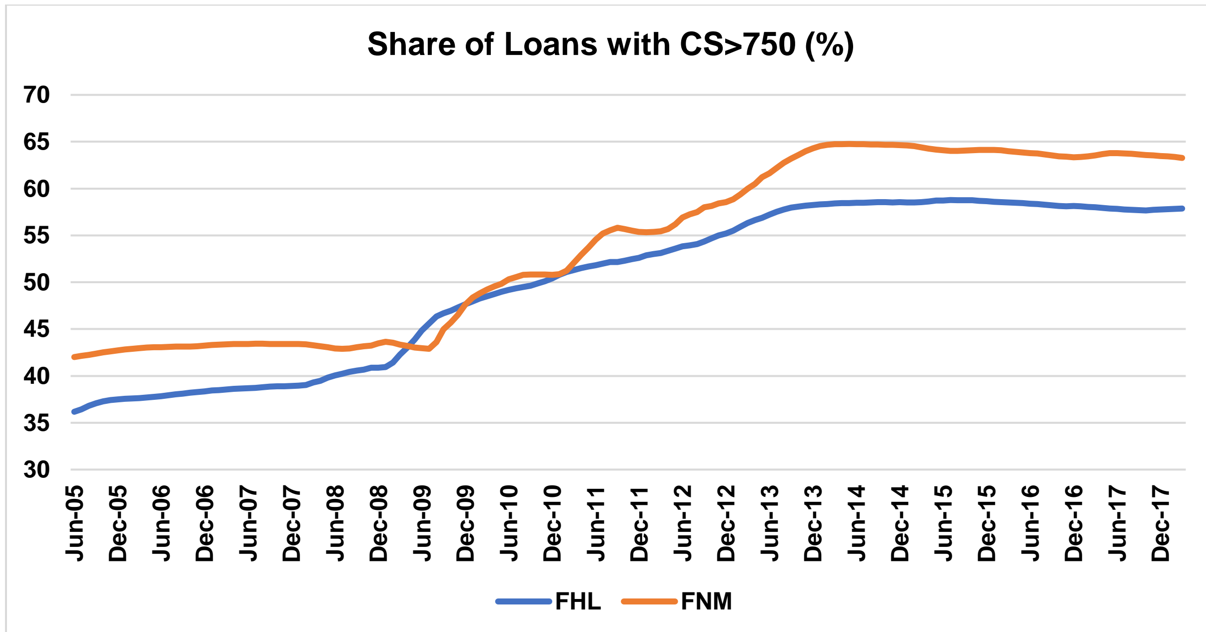
Chart 4



Source: Recursion Co, Fannie Mae single family loan performance data

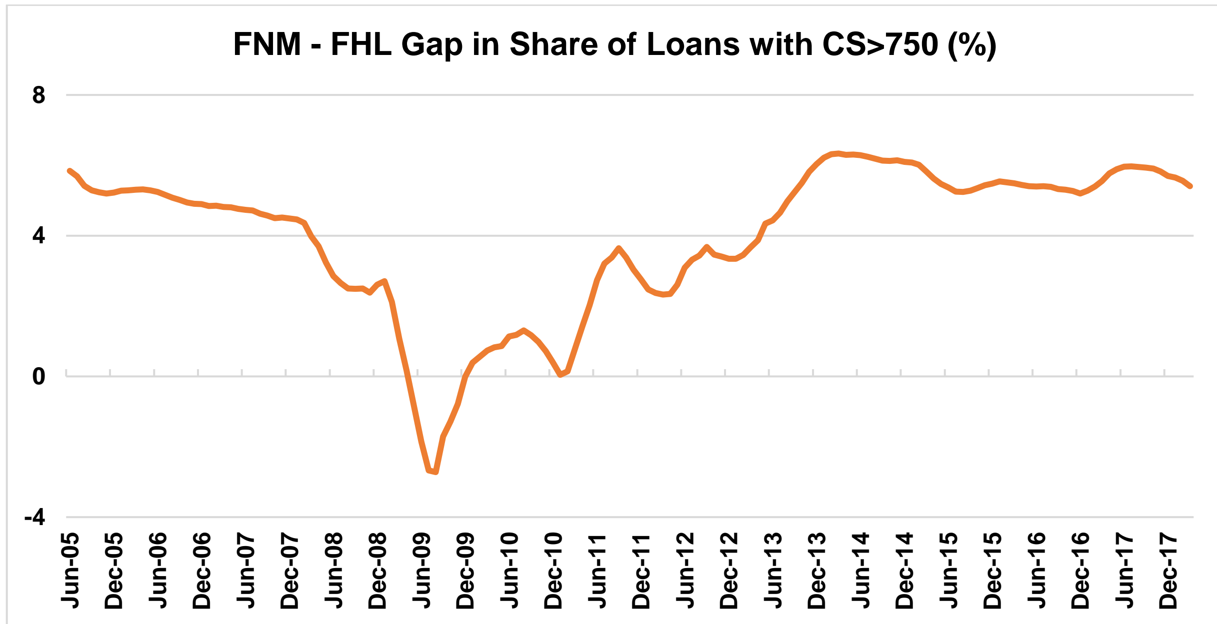
To understand the impact of the spreading out of prepayment speeds by credit scores on aggregate prepayments, it is necessary to look at the composition of the reported loans. Chart 5 shows the share of loans with credit scores >750 for the Freddie Mac and Fannie Mae reported loans. Chart 6 shows the difference.

Chart 5



Source: Recursion Co, Fannie Mae/Freddie Mac single family loan performance data

Chart 6



Source: Recursion Co , Fannie Mae/Freddie Mac single family loan performance

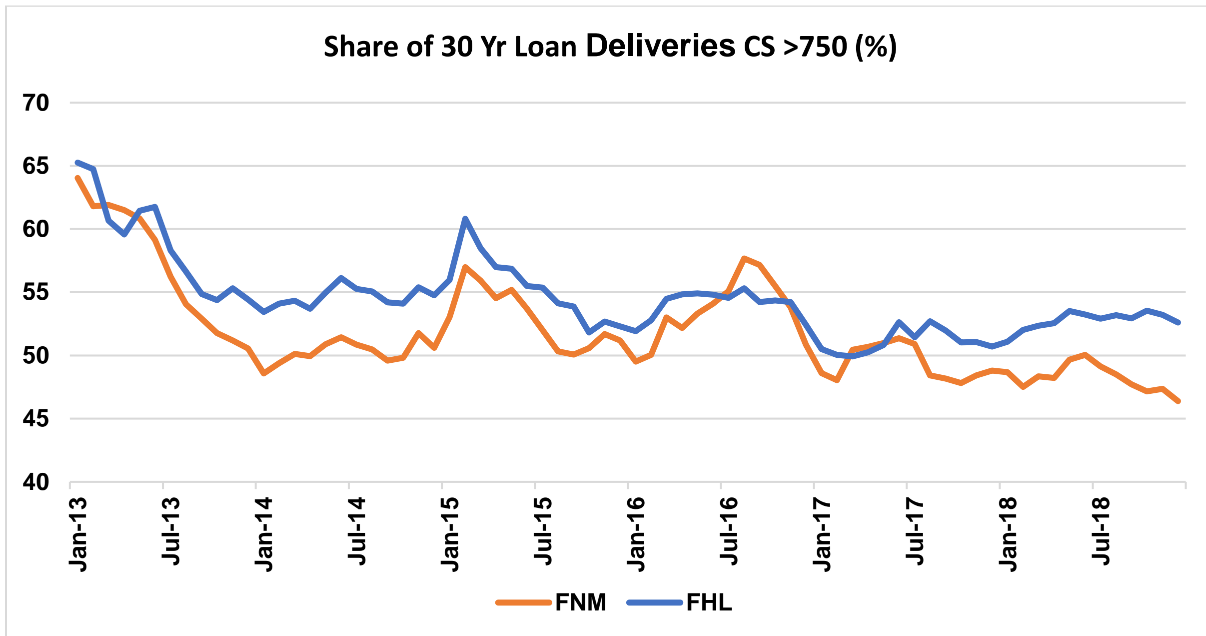
In general, Fannie Mae has reported loans with a greater share of high credit score loans than Freddie Mac, with the notable exception of the period of the GFC. This pattern is informative in terms of explaining the spikes in the relative CPR's between the two agencies in 2012 and 2016 when mortgage rates declined sharply. It also explains why there was not a widening of the CPR gap during the GFC when mortgage rates also fell sharply.

<u>Recent Developments</u>

Now that a relationship between credit score distribution and CPR differentials between the Enterprises over time has been established, it is informative to look at recent developments in this area. Chart 7 presents the share of new issue loans with credit scores over 750 for Fannie Mae and Freddie Mac securitized pools. Chart 8 presents the difference. This is distinct from all the prior charts which were based on data for the entire population of reported loans of the Enterprises.[6] In addition, the two data sets cover different periods. The reported loans at any moment in time consist of loans going back for many years, and the data are released with a lag of as long as a year. The delivery data used in Charts 7 and 8 are for the delivery month only and are very up to date.

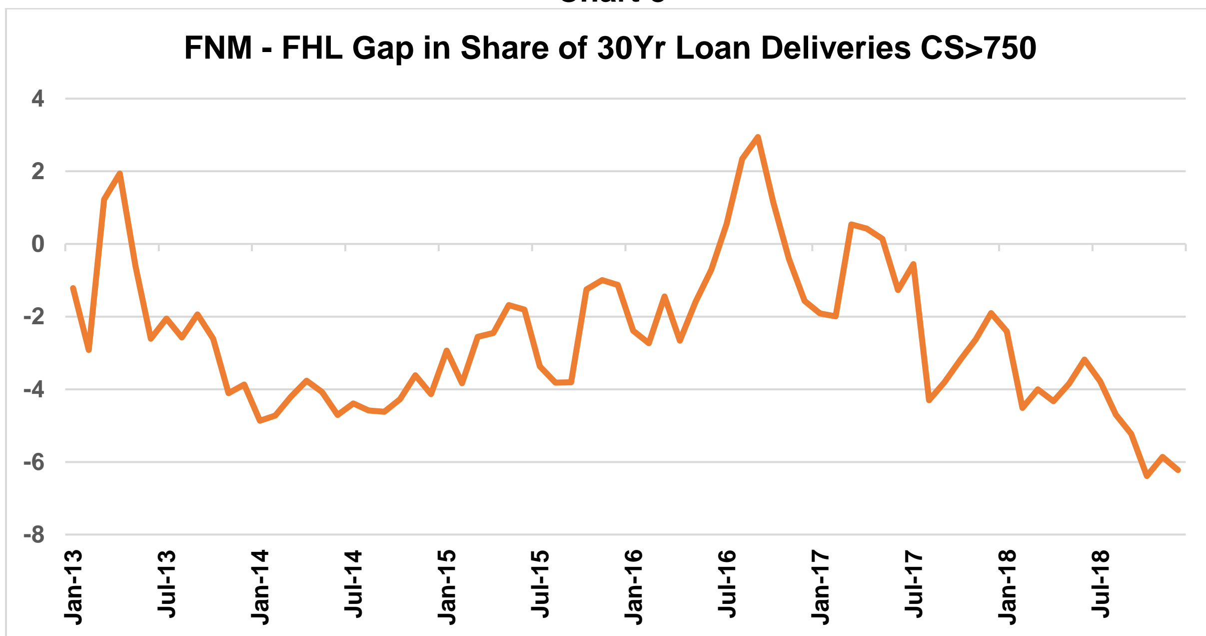
[6] Another way of expressing this is that Charts 7 and 8 are flow data, while the prior charts are all stock data.

Chart 7



Source: Recursion Co

Chart 8



Source: Recursion Co

The notable development displayed in these charts is the recent trend towards a higher share of high credit score loans in the securities issued by Freddie Mac relative to Fannie Mae. Should this trend continue, over time the credit score compositions of the

Enterprises books of business will be increasingly out of alignment, resulting in an elevation of the risk that prepayment speeds will differ to a degree where the integrity of the Uniform MBS will be challenged.

Policy Conclusion

In its proposed rule regarding the "process for validation and approval of credit score models", FHFA offers a suite of considerations under which a model may be utilized by an Enterprise:

"*The proposed rule would establish a four-phase validation and approval process: (1) solicitation of applications from credit score model developers, (2) an initial review of submitted applications, (3) Credit Score Assessment, and (4) Enterprise Business Assessment*."

In addition, however:

"*FHFA may determine as regulator that it is necessary to align the Enterprises on approved credit score model(s) to help maintain efficiency and liquidity in the secondary mortgage market, a core purpose of the Safety and Soundness Act and the charter acts*."

Our analysis above plainly demonstrates that differences in outcomes regarding the credit distributions across the books of business of the enterprises can lead to differentials in prepayment speeds that could undermine the structure of the Uniform MBS by incentivizing investors to conduct stipulated trades. The result would be that the liquidity gains envisioned from the SSI would not be attained. Consequently, I strongly encourage FHFA to closely monitor the characteristics of the guaranty books of the Enterprises, and to take measures to prevent these from significantly diverging, including a requirement that the Enterprises use a single credit scoring model in their assessments of borrower creditworthiness.

With regards to the question of how such a model is selected, with house prices at cyclical highs and clear signs of increasing leverage in the conforming book of loans, it is of paramount importance that the primary consideration behind this decision relate to the safety and soundness of the Enterprises. The best credit score model would be that with a long history of accurate performance through various cycles, as well as one requiring borrowers to demonstrate they have adequate experience managing their finances before a mortgage is provided.

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