De Minimis Amount = Should this depend on damages to date or total damages assuming the loan will continue to perform and not prepaid until the end of the contract term? If the de minis is limited to damages to date, this would be relevant for people who did not have a large Markup Difference or had the loan only had a short period of time.

Does the De Minimis bar apply to interest rate reduction as well?

Need to figure out what to do w.r.t. things that already prepaid and defaulted.

NHW Average Markup is the BISG probability weighted average of non-Hispanic White average markup. If the estimation model includes any controls, the NHW Average Markup for any particular PC borrower will take that into account.

Material and Significant Disparities refers to disparities that are significant at 5% level and greater than 10 bps.

I. Scope and Timing

A. The following outline on how to remediating borrowers applies loans originated from April 1, 2011 to December 31, 2013.

B. Remediation for loans originated between April 1, 2011 and March 31, 2012 shall be completed within 30 days of a federal district court's approval of the this Consent Order. Remediation for loans originated between April 1, 2013 and December 31, 2013 shall be completed within 30 days of the court's approval of this Consent Order or February 14, 2014, whichever is later.

II. Disparities and Damages Calculation

A. For each protected class, the average disparities will be calculated using the proportional method based on the BISG probability proxies. Aside from the BISG probabilities, the model should contain no other explanatory variables. Disparities will be estimated separately by period – 4/1/2011 to 3/31/2012, 4/1/2012 to 3/31/2013 and 4/1/2013 to 12/31/2013. Hereinafter, "PC" refers to protected classes that show material and significant disparity in a period.

Comment [SW1]: If we allow any controls, this will need to be modified.

B. Using the disparity estimates from I.A, the amount of *Total Damages as of Date T* will be calculated as follows.

1. For every borrower *i* whose BISG probabilities of being one or more of the PCs are greater than zero -

a. Calculate an adjusted contract rate ($ACR_{i,PC}$) for each PC by subtracting the full estimated disparity for the PC from borrower *i*'s contract rate. For example, for borrower *i* whose BISG probabilities of being African American (AA) and Hispanic (Hisp) are greater than zero, calculate two adjusted contract rates.

$ACR_{i,AA}$ = actual contract rate$_i$ - estimated disparity for AA
$ACR_{i,Hisp}$ = actual contract rate$_i$ - estimated disparity for Hispanic

b. Construct adjusted loan amounts ($ALA_{i,PC}$) by allocating the fraction of dollars to a PC based on the BISG probabilities.

$ALA_{i,AA}$ = (loan amount$_i$) x Prob(borrower i = AA)
$ALA_{i,Hisp}$ = (loan amount$_i$) x Prob(borrower i = Hispanic)

c. Calculate the total difference in payments between the time of origination and Date *T*, assuming loan amount = *ALA* and comparing the actual contract rate with *ACR*.

$Damages_{i,AA}$ = The difference in payment stream using the actual contract rate vs. $ACR_{i,AA}$, assuming loan amount = $ALA_{i,AA}$
$Damages_{i,Hisp}$ = The difference in payment stream using the actual contract rate vs. $ACR_{i,Hisp}$, assuming loan amount = $ALA_{i,Hisp}$

$Damages_i = Damages_{i,AA} + Damages_{i,Hisp}$

2. In the event that a borrower prepaid or defaulted on a loan before Date *T*, *Damages* will be calculated as of the prepay or default date. In the event that the loan was sold to another financial institution, calculate *Damages* as if the loan were held to maturity without default or prepayment.

3. *Total Damages as of Date T* = sum of $Damages_i$ for all borrowers. This amount will be distributed to borrowers following the steps in Paragraph III below.

4. Compensation for damages that continues from Date *T* to the end of the loan term will be done through a reduction in contract rate going forward following the steps in Paragraph IV below.

III. Distribution of *Total Damages as of Date T*

Comment [SW2]: This Paragraph describes how to divide Total Damages proportionally to only those PC members who paid greater than average NHW disparities.

A. Compensation Eligible Borrowers

1. Only borrowers with greater than zero probabilities of being one of the PCs are eligible.

2. Only borrowers who paid higher markups than the NHW average markup are eligible.

B. Determine Proportion

3. For every Eligible borrower, calculate the total difference in payments as of Date T between using the actual contract rate and the model-predicted rate if the borrower were NHW.[1] Calculate the Initial Estimated Compensation ("IEC") by multiplying the total difference by the sum of PC probabilities.

Example: If borrower *i* has Prob(AA) = 0.45, Prob(Hispanic) = 0.3 and Prob(NHW) = 0.25, IEC_i = (0.45 + 0.3)*(total difference in payments).

4. Calculate a second estimate of compensation (SEC) using the following formula:

$$SEC_i = (Total\ Damages\ as\ of\ Date\ T)\left(\frac{IEC_i}{\sum_{j \in Eligible\ Borrowers} IEC_j}\right)$$

[1] If the estimation model has no control other than BISG probabilities, this would be the average NHW markup.

5. If SEC_i < *De Minimis Amount* (e.g., $20), no compensation will be made to that borrower. The remaining borrowers, Final Compensation Recipients, will receive the following final estimate of compensation.

$$FEC_i = (Total\ Damages\ as\ of\ Date\ T)\left(\frac{IEC_i}{\sum_{j \in Final\ Compensation\ Recipients} IEC_j}\right)$$

IV. Note rate reduction for loan payments after Date T

1. For every PC and for each borrower in that PC (i.e., borrower whose BISG probability for being in that PC is greater than zero), calculate the difference between actual markup paid by the PC borrower and the NHW average markup ("Markup Difference"). If the disparity estimation model in I.A has controls, Markup Difference will take that into account.