**RiskGPS: Estimating Prepayments for Parallel and Non-Parallel Rate Shocks**

**Regulatory Expectations and Context**

Examiners expect banks to develop and periodically review **loan prepayment assumptions** that reflect the characteristics of their loan portfolios and customer behavior. While historical data provides a useful foundation, prepayment assumptions used in **rate-shocked margin and Economic Value of Equity (EVE) analyses** must also account for how loans might respond to **rapid interest rate changes**.

Accurate assumptions require both **quantitative and qualitative analysis** to ensure results are realistic.

**Using Historical Experience to Estimate Prepayments**

Suppose your bank has conducted a historical analysis and found an **actual average prepayment rate of 5%** over the past year. This rate can be applied to the **zero shock level** of your interest rate risk model.

To estimate prepayment rates at other shock levels—both positive and negative—a common approach involves benchmarking against the **Plansmith Default prepayment rates**.

**Step-by-Step Method**

1. **Calculate the Ratio:**
   * Divide your bank’s observed prepayment rate by the Plansmith Default prepayment rate for the zero shock level.
   * Example:  
     Your Bank’s Prepayment Rate = 5%  
     Plansmith Default (Zero Shock) = 10%  
     Ratio = 5% ÷ 10% = **50%**
2. **Apply to Other Shock Levels:**
   * Multiply the **Plansmith Default prepayment rate** at each rate shock level by your calculated ratio (50%) to estimate prepayments for each bucket.
   * This creates a **scaled estimate** that mirrors the rate behavior implied by Plansmith defaults while tailoring it to your bank’s experience.
3. **Review and Adjust Using Qualitative Analysis:**Evaluate and revise the rates to be consistent with your bank management’s best estimates of how your loans might react.

Adjust the estimates to reflect **management’s expectations** and experience with customer behavior under changing rate environments.

It is appropriate to apply qualitative judgment to these calculations to make sure the bank is comfortable discussing the estimates with examiners.

**Implementing Estimates in RiskGPS**

Once estimates are finalized, enter the calculated percentages into the corresponding **“User Defined” boxes** for each rate shock level. Click **“OK”** to register the changes.

Upon saving, RiskGPS will redirect you to the **Rate Sensitivity Gap** page.

**Interpreting the Impact**

* **Section 1** of the Gap Report:  
  Remains unchanged, as it displays the **original maturity distribution** of loans per call report data (no amortizations or prepayments applied).
* **Section 2** of the Gap Report:  
  Reflects the revised assumptions and shows how **prepayment activity** alters the repricing structure.

**Recommended Follow-Up Analysis**

To evaluate the effect of the new prepayment assumptions:

1. Review the **Rate Shocked Net Interest Margin (NIM)** page to compare results before and after applying the revised assumptions.
2. Examine the **Rate Shocked Economic Value of Equity (EVE)** section to assess the **long-term capital impact** of the prepayment changes.

**Conclusion**

Estimating prepayments for both parallel and non-parallel rate shocks requires a **balanced approach** that combines historical analysis, regulatory benchmarks, and thoughtful analysis. By incorporating realistic and well-supported assumptions into RiskGPS, your bank can present a more accurate picture of interest rate risk exposure to examiners and the Board.