**RiskGPS: Securities Assumptions**

RiskGPS imports a significant amount of data from your bank’s call report. However, to enhance the accuracy of interest rate risk analysis, certain additional details about your securities may be required. The Securities Assumptions screen is divided into three primary sections:

1. **Additional Line Item Details**
2. **Adjust Gap Report (Maturity/Repricing Timing)**
3. **Duration and Market Value of Securities (in Months) at Different Rate Shock Levels**

**Note**: Inputs in the lower sections of the Securities Assumptions screen can override entries in the upper sections. Additionally, some inputs may alter what appears in other parts of the assumption page. Always click the **“OK”** button to save your changes before switching screens. Failure to do so will result in the loss of your inputs.

While many institutions may only need to modify a few assumptions, understanding how these assumptions function is essential for making accurate changes.

**1. Additional Line Item Details**

This section allows the entry of important information not captured in the call report.

**Maturity of Interest-Bearing Deposits in Other Banks**

Historically, Interest Bearing Deposits in Other banks generally consisted primarily of certificates of deposit. More recently, this category has become more significant as more banks bought one year certificates over a range of time, so RiskGPS defaults this maturity to 6 months. However, many banks have shifted to overnight deposits. If your deposits are overnight in nature, enter **0** in the **User Defined Months** box. For a mix of CDs and overnights, use the **Adjust GAP Report** section. Any entry in this lower section will override the top-level input.

Clicking “OK” saves your changes, recalculates the report, and refreshes the screen to the **Rate Sensitivity Gap Report**. The balance will reflect in the Adjust Gap Report section under the relevant maturity bucket. The value will appear on the **Int. Bearing Deposits in Other Banks** **CALC** line unless manually overridden using the **User Defined** field.

**Reverse Repo Maturity**

Reverse repos are generally short-term (often overnight) instruments. Very few banks invest in these, but for those who do, maturity is usually overnight. While a maturity of zero months would be more precise, there is no significant difference if you leave the system default of one month. If your bank has investments in term repos, enter the average maturity for the category.

**Repurchase Agreements Maturity**

This refers to liabilities, not assets. Most repo agreements are overnight borrowings secured by government or agency bonds. The default assumption (overnight) is sufficient in most cases. Input is only needed if your bank uses term repos.

**Callable Bonds**

A callable bond may be repaid earlier than its final maturity. For Agency securities, the early payment usually happens when rates drop, and the Agency can issue replacement bonds at a lower rate. Callable bonds generally pay higher rates than bonds that are not callable. The amount of this extra yield is labeled “**Callable Spread**” in RiskGPS; securities dealers often refer to this as the “*option adjusted spread*”.

To capture the behavior of callables, RiskGPS performs a dynamic analysis. At each shock level, the model compares the market yield to the portfolio (or book) yield, less the callable spread of the category. If the market yield drops below the adjusted portfolio yield, income is reduced to reflect the lower market yield. If the market rate is higher, income is held constant until final maturity. Similarly, for market value and duration, maturities will be accelerated if the market yield is below the adjusted portfolio yield but left in their final maturity category if market yields are higher. This can result in a significant difference in market value increases on negative shocks, as well as much shorter durations on negative shocks than positive shocks.

*In RiskGPS, the callable bond assumptions apply only to US Agency securities. It does not include mortgage backed or CMO bonds even though they may be issued by a government agency. It also does not include municipal bonds, even though they may have call provisions.* Municipals are not included because calls on the typical bank portfolio holdings are rarely caused by market rate changes. The system default is that 50% of agencies are callable. That is an industry-wide estimate and your bank’s proportion could be significantly more or less. Your bond accounting system or broker should be able to provide a precise percentage of bonds callable, although you may want to modify that percentage to exclude bonds that are technically callable but have significant call protection for the next year or two.

The system default distribution of securities may change when you change the callable bond percentage, but only after you click the “OK” button at the bottom of the screen. The numbers initially displayed reflect the default assumption of 50% callable bonds with a 50 BP callable spread. If you enter any amounts in the Adjust Gap Report section for Government, Agencies & Munis User Defined, the callable bond assumption will be ignored. The result is the same as entering 0% in the callable percentage box.

**Callable Spread**

*Callable Spread allows you to specify the additional yield that can be attributed to the issuer’s ability to call the bond.* RiskGPS defaults to a Callable Spread of 50 basis points (or 0.5%). That approximates the option-adjusted spread for a relatively short-term bond that is callable at any time. Callable spreads can be much higher for bonds with long maturities or much lower for bonds with very short maturities. We recommend that you use a weighted average spread for the US Agency part of your portfolio. This can be obtained from certain bond accounting reports or estimated by your broker or other investment advisor. *The input is in basis points, so a spread of 1% would be input as 100.*

**Dividends on Equity Securities**

This includes dividends on FHLB or FRB stock. Because dividends are often paid once or twice a year, the timing on quarterly call reports can create an inaccurate system default projection. Simply enter the dividends that you expect to receive in the year following the call report date (in thousands). RiskGPS assumes that dividends on equity securities are not sensitive to market rates, but including the adjustment will increase the accuracy of the interest income and margin projections in the model.

**2. Adjust Gap Report Section**

This section may not require modifications for most banks. If you make changes in this section, there are two important cautions:However, consider the following:

1. **Callable Bonds=**: If you input any numbers on the Gov’t, Agen & Munis User Defined line, the Callable Percentage will be ignored and there will be no dynamic evaluation of callables. That means that bonds will all run to the maturity you specified regardless of changes in market rates. This could overstate both income and market value in negative rate shocks.

* **Interest Bearing Deposits in Other Banks:** This item is only needed if your bank has both overnights and certificates. If you have only CDs, put the average remaining maturity of the CDs in the “Maturity of Interest Brng Deps” line at the top of the Securities Assumptions screen. If you have overnights, enter a zero in the box.

**3. Duration and Market Value of Securities**

RiskGPS calculates the Default **Duration** and **Market Value of securities** based upon call report data plus any assumption changes you entered in the preceding part of the Securities Assumption screen.

***Duration*** *is a measure of the expected change in market value per 100 basis points and reflects price sensitivity to market rate changes.. When duration is expressed in years, it corresponds to the relative price change per 1% change in rates. For example, if a portfolio has a duration of 1 year, its market value will change by the same percentage as the change in rates. If a portfolio duration is 2 years, its market value will decline by twice the percentage of any rate change.*

*For assets, the direction of the market value change is opposite to the direction of the rate change. Thus, securities market values are always lower than the zero point on positive shocks and higher on negative shocks. Annual duration is the expected change in market value per 100 basis points.* *RiskGPS reports duration in months, so you divide the monthly duration by 12 to get the annual duration. For example, a duration of 60 months, divided by 12, equals 5 years. That portfolio market value will change at a rate five times the amount of rate change. Continuing that example, a 400 BP rate shock (4% market rate change) with a duration of 60 months, would result in a 20% change in portfolio market value.*

Because of this relationship, *market values can be calculated if duration is available, and duration can be calculated if market value is available.* While duration and market value calculations are simple for some types of securities, they can be quite complex for others. Securities with calls, prepayments and other options for principal or yield changes over the life of the instrument require analysis of details not available in the call report.

*Plansmith recommends that banks with significant positions in complex securities, like callable bonds, step-ups, mortgage backed securities, CMOs, or anything else that has variable cash flows, be analyzed at the instrument level with a sophisticated bond pricing model. Such models may be available from your bond dealer or bond accounting source. Often these sources will provide a detailed analysis with portfolio totals that can be input in the User Defined Market Value section.*

Assumption data entry is easy if your bond report includes a sensitivity section that shows portfolio market values at 100 basis point intervals between -400 and +400. Just enter those amounts (in $thousands). Once you register the entries by clicking the “OK” button, RiskGPS will calculate the User Defined Duration. *If your bond report does not provide market values but does show portfolio durations or percentage changes for various amounts of shock, you can use those change rates from the default market value at the zero point in the RiskGPS report. The zero point value comes straight from the market value that your bank reported in the call report. It should be the same as reported in your detailed third-party report. If not, you may want to make sure that some types of investments were not omitted from your broker or bond accounting report. User Defined Duration cannot be entered manually. It is always calculated from the user entered Market Values.*

If your detailed analysis does not cover the full range of rate shock, you can estimate the amounts for the missing shocks.