



RiskGPS®

Interest Rate Risk Measurement and Control  
for Community Banks & Thrifts

 **Plansmith** February 2024





## Quick Tips for using this Manual

**Plansmith's Bankers GPS User Manual** has been redesigned and updated to allow you, the User, to experience a seamless navigation experience between the chapters, sub-sections, appendices and image references within the material.

We have incorporated a Navigation/Bookmark pane that can be activated while reading the manual in a PDF format. From the navigation pane in your PDF reader, the chapters and sub-chapters are bookmarked and when selected, they will take you directly to the section desired. To open your Navigation/Bookmark pane in a PDF view, open your PDF reader and **click the 'Bookmarks' button**, or choose '**View**', then '**Show/Hide**', '**Navigation Panes**', '**Bookmarks**'. Most PDF readers will allow you to expand/collapse the Bookmarks.

Even without access to the Navigation Pane, within the content of the manual itself, the Table of Contents, Chapters\Sub-Chapters, sections and images are referenced and/or hyperlinked. Simply click on the hyperlinks provided on the pages to be immediately redirected to the referenced material.

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A team of proven professionals is standing-by to help you with your questions, dilemmas and strategy techniques, we are available each business day from 8:30 AM to 5:00 PM CST via:

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## Introduction

Your **RiskGPS** system was built to provide bankers with an analysis of the impact that changing interest rates could have on the bank's financial performance and the potential for loss. The **RiskGPS** report - in conjunction with bank policy - measures, monitors, and allows actions to be taken to control the bank's financial exposure.

**RiskGPS** Asks – and answers – the two questions that are imperative in measuring and managing your bank's interest rate risk on an ongoing basis:

- 1) How will the Net Interest Margin from the bank's current balance sheet change in the next year if interest rates are unchanged and how would this estimate be affected by different rate conditions?
- 2) What would happen to the market values of the bank's assets and liabilities and, by subtraction, the market value of the bank's equity, at varying interest rates?

The first question addresses the traditional definition of "interest rate risk", applying differing relative rate sensitivities to the maturity schedule of each balance sheet category and subjecting the whole to changing rates through an immediate and contract "shock", most commonly used in regulatory reporting.

The second recognizes that changing interest rates affect equity and liability, the bank's two sources of strength and viability, as well as short-term income. **RiskGPS** incorporates the most modern techniques to evaluate the resilience of the bank's structure, and reports its **Economic Value of Equity (EVE)** risk estimate in clear, transparent terms. This includes an evaluation of the before-and-after capacity of the bank for comparison to policy limits set by the Board of Directors.

Plansmith professionals can help you develop trends in these two key areas, and because we have experience working with many institutions, we make available a broad range of alternatives and solutions to help you guide your bank to a successful future.

### Data Source

The system utilizes data from Call Reports filed by your bank with the government each quarter. Although the data is less detailed than could be obtained from other sources (i.e., your bank's accounting system), it is still useful in analyzing your bank's interest rate risk. The program modifies and adjusts call report information to prepare it for the analysis. For most small to medium-sized, less complicated community banks, there is enough information contained in Call Report data to generate reasonable answers to those two key questions.

As a bank's balance sheet or product mix becomes more complex, a more sophisticated program that allows for more granularity in the data will become a necessity and the banker will be encouraged to upgrade to a more robust ALM system like Plansmith's **Financial Compass®**.

### The Analysis

The interest rate risk measurement methods recommended and/or required by bank examiners mandate two views of the bank's position: the short-term income impact, and the long-term perspective as seen in the potential change to the bank's **Economic Value of Equity (EVE)**. At its heart, **RiskGPS** provides results to meet these criteria. It is not the position of this program to recommend either but, rather, to do the math, report the results and meet regulatory guidelines for acceptability.

The short-term risk to **Net Interest Income (NII)** is analyzed using two methods, Rate Sensitivity Gap and simulation of net interest income over nine rate scenarios (up & down 100bp, 200bp, 300bp, 400bp & current or zero point). The efficiency of these methods has been practiced and accepted by banks and examiners alike for many years.

The long-term risk is measured in terms of the potential change in the bank's EVE, also referred to as **Market Value of Equity (MVE)**. This value is actually the market value. This method calculates the mark-to-market value of each side of the balance sheet, and by subtraction, determines the market value of the bank should it be sold off in pieces. It is important to note that this does not yield a traditional or even accurate measure of the bank's value, as it would be seen in a sale or merger context. See page 37-39 of this User's Guide for more detail on how we calculate market and market values.



## The Report

The actual **RiskGPS** report has been designed to appear as a book, with narratives, tabular results, and charts. This allows for greater clarity and demonstrates cause-and-effect relationships. It has a beginning (historical trend views), a middle (the actual risk on the current balance sheet), and an end (the Performance Forecast). This is done to make it more comfortable to read, less daunting than a sheaf of papers covered with numerical tables, and to help the non-accountant/analyst or Board Member understand the potential gains and losses in the bank's position as rates change.

There is a one-page Executive Summary in the very front that provides a quick review of all the analysis results. At the top of this page, you will see the bank's current position and performance results. The next section shows the bank's risk position with respect to the rate change that will cause declining income or equity loss; in other words; the "high-risk" rate environment for the bank. Lastly, the bottom section of the Summary shows a projection of the bank's performance over the next four quarters based on prior quarter's trends and current assumptions.

Immediately following the Executive Summary, several pages present historical data, balance sheets, income statements, and yield & cost reports, all to help the reader put the bank's progress into perspective, as well as to provide a quick "data consistency" review. In reviewing these pages, you can quickly see changes that may suggest trends and any data issues that should be resolved before accepting the results.

The main body of the report - the actual analysis - is the keystone of the entire risk analysis system. It is where the work is done and the analysis for each method is presented concisely, yet in adequate detail. The program attempts to establish a benchmark against which the results of the analyses can be compared, prepares the data for analysis, and finally, shows the analysis itself.

The subsequent pages of the report are a recap of the assumptions you input into the Assumption pages and then used in the calculations, as well as estimates that show the defaults versus any user inputs or changes to the defaults. This helps the reader better understand the components of the final results.

The power of the system lies in its ease of use and is based on the assumptions that generate the analysis. The following sections of this User's Guide explain the methods used to generate the initial or default assumptions by the system and an explanation of the use of these assumptions in the report. The user is strongly urged to review these default assumptions and adjust to align with the banker's experience and market conditions.

**Make sure you document any changes in Assumption for your ALCO/Board Meetings and Examiners.**

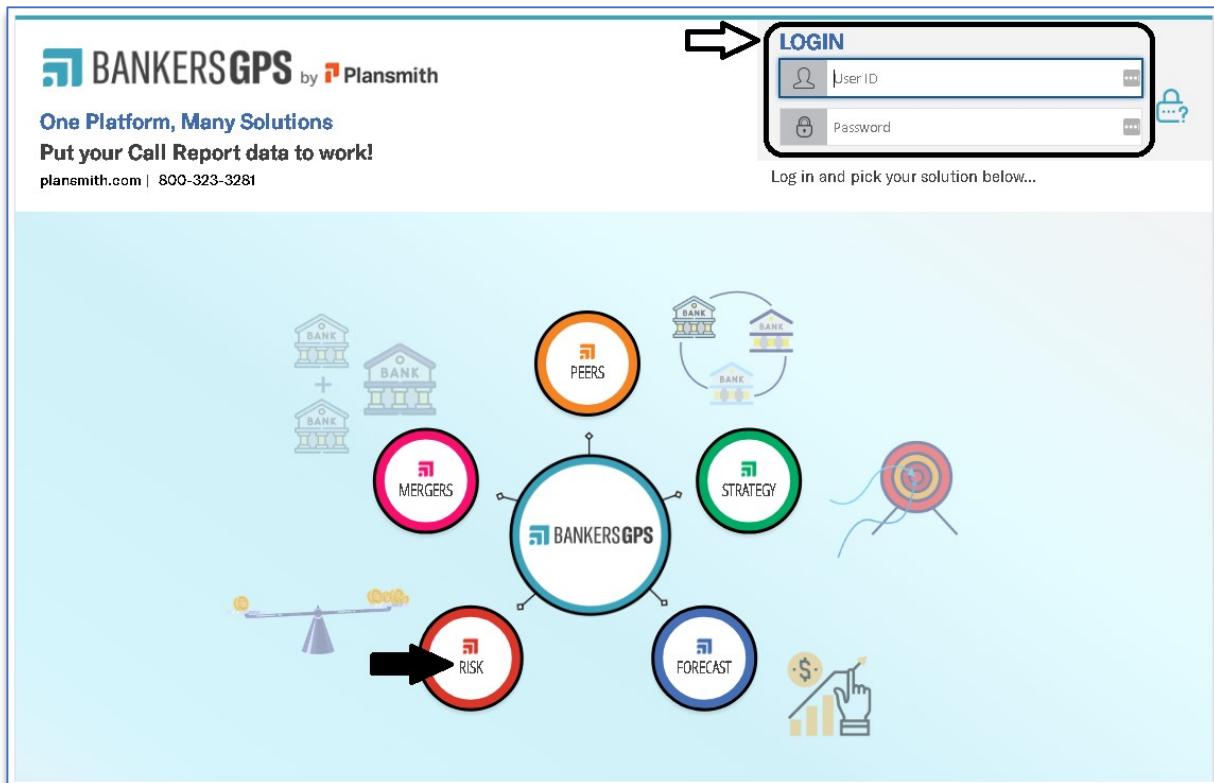
**RiskGPS is meant to be a reasonable approximation of a bank's risk position, produced with minimal effort and expense, and highly effective for most less-complicated community banks.**

## Getting Started

### Logging In

To log in, enter your Driver's ID and Password then click the 'Risk' button.

We recommend that the user **ALWAYS** review the report data first, as it is directly fed from the Call Report, to ensure accuracy of the information uploaded for use in the program. There are reports within **RiskGPS** that will assist in this review and facilitate the user's auditing of the Call Report Transmission file. Therefore, let's review the report output





## Chapter 1: RiskGPS® Interest Rate Risk, Report Calculation Methodology

Risk is a broad concept as it covers so many aspects of the bank. While the Comptroller of the Currency has defined nine risks, we will focus only on one in our analysis, Interest Rate Risk. All banks have risk, but some could absorb the consequences and go on, whereas others may not. If we are going to measure risk, we need a benchmark against which to measure the potential severity of the loss. Our starting point is to prepare the analysis and give it meaning by calculating Risk Tolerance, the ability to endure losses and continue to maintain an adequate capital ratio. There are actually two risk tolerances, Capital and Interest Margin. While both relate to the capital ratio, one is a simple subtraction while the other involves the expense levels and the impact of changing rates on the bank's Net Interest Income

### 1.1 Margin Risk Tolerance

Risk Tolerance is the ability to absorb losses to capital while still maintaining a ratio above the minimum level. This is calculated by subtracting the minimum capital ratio from the bank's current capital ratio. Your bank's Tier 1 Equity Risk Tolerance ratio can be found in the introductory paragraph on the Margin Risk Tolerance page in **RiskGPS**. This will also serve as a benchmark to measure severity as we determine the impact of changing rates on the bank's Equity Ratio.

**Note:** When we use the term **Net Interest Income (NII)** we are referring to the actual dollar value; whereas, **Net Interest Margin (NIM)** is the ratio of NII to Average Earning Assets.

#### 1.1.1 Risk Tolerance

Risk Tolerance is the ability to absorb a decline in NII yet continue to maintain a NII above the minimum requirement. The minimum NII is the NII that must be generated to maintain the current capital level, pay dividends, and cover all operating expenses including loan losses. If the bank generates at least this amount then all is well and its current Capital Ratio will be maintained; however, if the actual NII falls below the minimum, the Capital Ratio will also fall below the current minimum level.

**Note:** Non-Interest Income is presented as a contra expense on the Risk Tolerance Analysis.

### 1.2 Tax Equivalent Adjustment

Since the NIM is usually stated as a tax equivalent ratio, the system adds tax - free income to the calculation. The default is calculated using the most recent quarter, annualized. There is no manual adjustment for this value.

Tax estimates are made on the basis of two things: the tax rate the bank experienced during the current quarter and the Minimum Required Earnings (MRE).

- If the MRE is zero, the tax will be zero.
- However, if the MRE is greater than zero, then the tax is figured as  $(MRE/(1+Tax\ Rate)) * Tax\ Rate$ .

In other words, the income is grossed up to pre-tax and then the taxes are calculated. It is important to remember we are dealing with minimum levels of income and expense here. That is why the taxes are not necessarily the taxes we would pay if we were trying to calculate the expected earnings.

**Note:** if the bank is a Sub-chapter "S" and has selected that in the assumptions area, there may still be a small tax rate calculated for state tax purposes. Choosing the Sub-S option in the Assumptions sets the effective rate to zero.

The next line totals all the overhead values into Total Other Expenses. On the following line, the Minimum Required Interest Margin (MRE +Total Other Expenses) is calculated. This is the NII that the bank must generate to cover all expenses and maintain its capital ratio at or above a minimum level. Net Interest Income Risk Tolerance, the bank's ability to absorb losses in the NII and continue to meet total expense, is calculated by subtracting the Minimum Interest Margin from the Interest Margin at the Zero Rate Simulation value. As we will see later, this then becomes the benchmark against which Net Interest Margin will be measured



### 1.3 Rate Sensitivity Gap Report

Gap analysis has been a staple in risk measurement since the late 1970s when it was introduced as a simple technique to determine the impact of rising and falling rates. While its true effectiveness continues to be questioned, it is, nonetheless, still used in a very large number of financial institutions and by many examiners.

This report has two roles within the analysis:

- 1) It is a standard technique
- 2) Since it presents the current cash flow, maturity, and repricing information, it forms the basis for the simulations and market value calculations in later reports.

The top of the page shows the Securities and Loan maturity information contained in the call report, unadjusted. The body of the report shows the adjusted values based on data refined through the assumptions. We advise you to review this report and be satisfied that the results shown are consistent with the bank's views.

At the bottom of the Gap report, you will find the incremental gap, i.e., rate sensitive assets – rate sensitive liabilities, for each time period. The program calculates the Cumulative Gap as well as the Gap Ratio RSA/RSL. This can be used in conjunction with the bank's rate risk policy.

There is another calculation shown, the Time-Weighted 12-Month Gap. This is intended to help correlate the twelve-month mismatch, a one-year rate change and the potential risk in Net Interest Margin (NIM). The simple Cumulative Gap equally weights all Gap positions throughout the year. In actuality, the short-term Gap will have a greater impact than the long-term Gap because its effect will be felt longer. By time-weighting the incremental Gaps, we can produce a more accurate measurement of the impact of rate changes on the one-year NIM.

**The formula is:**  $NIM \text{ change} = \text{Time-Weighted 12-month Gap} / \text{Total Earning Assets}$

This simple technique shows the impact on NIM for a 100bp change in rate. The impact will depend on the sign of the Gap as well as the sign of the rate change. For example, if the 12-month Time-Weighted Gap is 50,000 and the Total Earning Assets are 200,000, then the expected impact on NIM would be -25bp for a -100bp change in rates. This would be true for an immediate and sustained -100bp change.

**Note:** In this analysis, the significant time period is a twelve-month horizon. However, the report displays the full-time horizon and totals because the data can be used as an audit tool - as well as used in the calculation of market values - later in the report.

#### 1.3.1 Assumptions Impacting Gap

The default assumptions in the program are calculated from historical relationships and/or industry standards when there is a lack of information. **RiskGPS** allows the banker to refine and change these assumptions to build a more realistic analysis.

##### 1.3.1.1 Beta Assumptions

Impact on the distribution of non-maturing balances in the Gap report. The program performs a historical analysis of the relationship between the change in rate on the account and interest rate changes as seen in the movement of the six-month T-Bill rate. These analyses are separated into rising and falling rate environments.

The user can develop an even more accurate relationship for the analysis by answering the question: 'How would the bank change its offering rate if rates were to rise or fall 100bp over the next twelve months?'.

Research indicates that when assigning Betas for CDs, the banker should set the rate based on a percentage (Beta) of Fed Funds. The initial assumption is set to the research (default) value of 71%, indicating that the new rate on CDs will change 71% of the rate change level in both the Simulation of NIM and the calculation of EVE at each level. You may change this percentage in the Deposit Assumptions for both regular and jumbo CDs.



## 1.4 Net Interest Margin Simulation Calculations

Simulation of the new interest margin under varying interest rate conditions is becoming the method of choice by regulators as it incorporates optionality in the analysis.

**Note:** NIM simulation is executed without balance sheet growth or mix-change effect.

## 1.5 Prepayment Assumptions

Plansmith Defaults for Prepayment Assumptions are estimates based on Plansmith's analysis of recent industry client data. The user should review these assumptions and make changes appropriate to their bank's risk profile and market conditions. It is also highly recommended that the user run alternative prepayment scenarios to analyze the impact on results due to assumption changes.

Prepayment speeds are applied to ALL loans as well as the MBS and CMOs.

Callable bond data described earlier is also applied in the simulation for each rate level. As rates rise, bond calls will mostly likely decline; they will likely increase as rates fall.

Both of these situations – prepayments and callability – will result in a non-linear profile between interest income and Net Interest Margin as market rates change.

## 1.6 Application of Rate Changes

The maturing balance categories (Loans, Securities, CDs, and Maturities - including prepayments) are subtracted from the current balance at the old rate, and replaced at the new rate based on the rate change scenario. In the case of CDs, the new rates used are 71% of the shock rate. This is the result of research performed on the average Beta for renewing CDs.

The new volume and rate are blended into the remaining balances to calculate the interest on the category. The **RiskGPS** system uses the old portfolio yield as the roll-off rate on the maturities.

**Note:** the program uses the Tax Equivalent Yield on Securities to calculate interest income.

Non-Maturing categories such as MMDA and Savings do not have maturities and the entire portfolio is re - priced at the new rate. However, the new category rate is calculated using its Beta factor. For example, if the Beta on the account is 25%, then the rate change for that category is the old rate plus (+) the change in the market rate level, multiplied (x) by 25%. The new rate is used to calculate the interest on that category.

The result of these calculations for each category is summarized in the program report. The chart at the bottom of the report displays the Net Interest Margin, (i.e., (Interest Income - Interest Expense) / Total Earning Assets)). The Minimum Required NIM is also shown on the chart as a benchmark against which to measure the severity of the risk. The difference between the Simulated NIM and the Minimum is the Risk Tolerance. As long as the NIM is above the Minimum, the bank will continue to protect its capital ratio. When the NIM falls below the Minimum, it indicates that the capital ratio could fall.



## 1.7 Back-Testing of Net Interest Margin

**RiskGPS** provides an automated back-testing analysis to measure the reasonability of the projected change to net interest margin as anticipated by the Rate Shock Projected Margin, as compared the actual change in net interest margin of the same time period. It does so by using the historical data as well as the historical projected rates for those periods.

This service can be performed by an outside third party; however, this is not usually required with models that are Call Report driven, as the assumptions are not as complex.

Using identical calculations, a margin is determined for historical periods (up to 4 years back) using the **projected rate forecast** for those periods. The projected change in Net Interest Margin is compared to the actual change in Net Interest Margin and a variance/error is then determined. The absolute value of variances is averaged to create the Average Error over the past 4 years and is reported on the bottom of page 15a, expressed as +/- basis points.

Although a lower number is always desirable, the Average Error may be large, i.e., greater than 10% of the total margin, for a variety of reasons. For example, as the time period comparisons are relatively long it would be common for management to intervene and alter the intended outcome as compared to the original assumptions used to develop the analysis. Another consideration is the predictive rates used in the margin calculation as compared to the actual rates recorded. Rates can be key indicators of changes amplified in the balances sheet at the bank changes its tactics accordingly.

Any Town Bank, Any City, AS				BankersGPS by Plansmith
Back-Testing				
In order to validate the accuracy of the model, the system performs back-testing of results by comparing the difference between calculated Net Interest Margin and Actual Net Interest Margin over 4 years. It then averages the absolute values of those differences to determine an Average Error.				
<b>Net Interest Margin Comparison</b>				
Period	Actual Change	Projected Change	Difference	
YE 2009 - YE 2010	0.0824	0.0855	0.0031	
YE 2010 - YE 2011	0.0712	0.0286	0.0426	
YE 2011 - YE 2012	-0.2765	0.0148	0.2913	
YE 2012 - YE 2013	-0.2237	0.0082	0.2319	
<b>Average Margin of Error (+/-)</b>				<b>14 bp</b>
<b>Rate Forecast Comparison</b>				
Period	Actual Change	Projected Change	Difference	
YE 2009 - YE 2010	-0.0024	0.3624	0.3648	
YE 2010 - YE 2011	-0.0752	0.1251	0.2003	
YE 2011 - YE 2012	0.0413	0.0657	0.0244	
YE 2012 - YE 2013	-0.0103	0.0402	0.0505	
<b>Average Margin of Error (+/-)</b>				<b>16 bp</b>



## 1.8 Rate Shocked Economic Value of Equity (EVE) Calculations

As explained in the report narrative, this is a calculation of the market value of each category in the balance sheet. The system uses the Discounted Cash Flow (DCF) method in some cases and the Duration method in others. In all cases, the optionality within the category is applied at each rate shock level. Rate Shock of Market Value is always immediate and sustained and the rate changes are applied, assuming a parallel shift in the yield curve.

**Note:** There is sometimes a great deal of confusion surrounding the term ‘market value’. In this analysis, we are calculating the market value of each balance sheet category using a permutation of discounted cash flow. It is not unusual for a banker to believe that the value of deposits should increase as rates increase but this is really just a perspective. From the depositor’s perspective, these are less valuable as rates increase. The discounted cash flow method is neutral, i.e., it just discounts the net present value of future cash flows. In the MVE calculations, the objective is to determine the net equity position of the bank by calculating the market value of the assets, less the market value of the liabilities. From the banker’s perspective, the objective is to have the deposit values fall faster than the asset values, thus increasing the difference, or “EVE”, at the assumed liquidation.

### 1.8.1 Calculation of Loan Market Value

**RiskGPS** uses the **Discounted Cash Flow (DCF)** method to calculate the market value of loans and applies prepayments at each shock level. The discount rate is taken as the average rate on new loans made during the quarter, as an indication of a market rate. However, the user is encouraged to review this rate and determine a proper discount rate.

**See: [Loan Assumptions](#)**

**Note:** When determining the market rate in the NPV calculation, like a bond, the lower the rate the higher the value of the instrument. Likewise, the higher the market rate used, the lower the value of the portfolio. The market rate is “shocked” at each shock level in the analysis to determine the risk due to rate change.

**Note:** Although **non-accruals** are included in the loan balances, these balances are not rate shocked and maintain a constant value

### 1.8.2 Calculation of Securities Market Value

The calculation of the market value of securities is performed using **Duration**. The duration of an instrument is the expected percent change in its market value for a 100bp change in rate. The durations are easily converted into years - and thus, percentages – by dividing the monthly durations by twelve. Therefore, 24-month duration is equivalent to two years, which translates to a 2% change in market value, for each 100bp change in rate. If the user’s bond report states the duration in years, the duration must be converted to months and then divided by twelve in order to compare with that used in **RiskGPS**.

The duration at each shock level is determined in light of prepayments on the MBS and CMO duration, as each shock level is determined in light of prepayments on the MBS and CMO categories as well as the callable model on the Agency securities. These values are used as defaults. However, the user is strongly advised to review the bond portfolio analysis obtained from a respected bond analysis program and use the market values to override the defaults in the Securities Assumptions. Durations will adjust after saving your entries.

**Note:** the objective is to have the same market values on the program report as are displayed in the bond analytics output from an outside bond analysis program. The user may have to “tweak” the market values to achieve this, but in the end, this could improve the perceived “accuracy” of the report to a third-party reader.



### 1.8.3 Calculation of Non-Maturing Deposit Market Value

Decay rates are a method for creating artificial maturities for non-maturing deposit accounts so Discounted Cash Flow calculations can be applied. It should be noted that the duration of a non-maturing account is about half of the decay rate. The longer the decay rate, the longer the duration, and therefore, the more sensitive the market value of these deposits will be.

The program estimates decay rates using the Beta Factors determined earlier. The idea is that the lower the Beta, the less rate sensitive the category, and therefore, the longer the decay rate. The estimated decay rates are calculated in the Deposit Assumption section. The formula for these assumptions is  $12/\text{Beta} (\%)$ . For example, a 25% Beta translates to a 48-month decay rate, or 24-month duration. The user is strongly advised to review these decay rates and the resulting market values of these non-maturing categories, and to make adjustments where appropriate.

### 1.8.4 Calculation of All Other Liabilities Market Value

CDs and Borrowings are calculated using discounted cash flow, using their current yield as the discount rate and shocking at each level. The CD market rate is computed to be 71% of the shock rate, which is reflected in the Beta factors for a renewing CD.

**Note:** The market value of Fed Funds Sold and Purchased are taken at book in all cases.

### 1.8.5 Risk Calculation

In the report, the percent change in the bank's EVE, or mark-to-market market value, is shown at each interest rate shock level. While we are unaware of any written regulatory policy on the level of change in value of this number, our experience in working with examiners and banks completing exams is that the change to equity should not exceed -10 for each 100bp of shock. This may vary with the examining agency or even the examiner, and as each bank is unique, must be evaluated individually while still adhering with specific policy limits adopted by your Board of Directors.

## 1.9 Strategy Bubbles - Risk Management Strategy Calculations

The **Rate Risk Management Strategy** analysis is not a required risk analysis but is unique to Plansmith products and helps clarify the relationship between the components of risk.

**There are two parts to the report:** the top chart plots the earning assets and paying liabilities as a whole, and the bottom chart breaks out the product types within each. In both, the constant maturity (CMT) yield curve is provided as a reference point. In between is a table showing the key elements in numeric format, Yield and Duration. The Duration difference is sometimes called the Duration GAP, i.e., the difference between the duration of assets and liabilities.

Bubbles allow you to quickly inspect and compare the difference between the asset yield and the yield curve for the same duration Treasury bond, as well as the average cost rate on liabilities to the same curve. These differences are called benefits because the bank is getting a yield higher than the same term Treasury security or paying a cost rate below the same term Treasury security. The vertical distance in the yield curve, at the asset and liability durations, is called the mismatch risk and is the amount of NIM gain due to taking duration risk (i.e., separating the bubbles).

If these bubbles are overlapping, the bank would have no risk. Its assets and liabilities would alter their yields, as well as their respective market values, roughly in tandem as rates change. However, as the two bubbles move apart, risk is created; the farther apart, the greater the risk (and, in normal times, the greater the reward). For example, as the asset bubble moves to the right, it usually moves asset yield up, parallel with the yield curve. The steeper the yield curve slope becomes, the greater the increase in NIM. It is also increasing the Duration Gap with greater risk to asset market values – and so, EVE – when rates change.

The user can think of rate risk management as moving these two bubbles left or right, or closer or farther apart. To help determine which components of the balance sheet could be adjusted, the bottom chart allows bubbles for the individual components. Moving these bubbles will impact the larger bubbles and show the resulting risk.



## 1.10 Performance Forecast

With all this rate risk analysis accomplished, bankers reading this report will want to know what their performance will be over the next four quarters. The **RiskGPS** report will provide the bottom-line by combining the Blue Chip Rates (a professional rate consensus forecast from 50 top economists), along with our simulations, to determine the new interest margin over the coming four quarters – as well as the ROA and key ratios associated with that performance.

The forecast of key parts of the yield curve is shown at the top of the Forecast Performance page. Since each bank is slightly different in structure, we have tried to apply weighting to various parts of the balance sheet to account for the impact of a changing yield curve, though recognizing that the yield curve does not move in parallel within each time period. This is a refinement to forecast that may not be required but is presented. The goal is to demonstrate - using the individual bank's unique structure - how changing rates could affect its capacity and performance.

By applying the weighted average rate change to our simulations, we can estimate the change in the Net Interest Margin (NIM). This new NIM is presented as a ratio to average earning assets. The Profit and Loss (P&L) is stated as a percent of average assets and so, **RiskGPS** must convert the NIM as a percent of earning assets to a percent of average assets to use in the P&L. This accounts for the difference in NIM on this report versus the NIM simulation on previous pages.

The other values in the P&L are taken from the Risk Tolerance assumptions and are converted to ratios. The P&L ratios as a percentage to average assets are shown for the previous four quarters, the current quarter, and the projected four quarters, to help the user see the trends. Also included on the far right of the page are the actual dollar value projections.

**Any Town Bank, Any City, AS**

BankersGPS  
by Plansmith

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### Performance Forecasts

This performance forecast combines the Blue Chip Financial Forecasts' interest rate projections with the Rate Shock Simulation. Since the margin has been computed for various rate changes, we need only apply the rate forecast from Blue Chip. The first step is to determine the overall rate change based on the distribution of the assets and liabilities along the Yield Curve and Prime Rate. Next, the weighting factors are determined as the percentage of assets and liabilities influenced by these rates. From this, the Weighted Average Rate Change is computed to be used in the Simulation.

Blue Chip Interest Rate Forecast								
	Proj.	Proj.	Proj.	Proj.	Proj. Avg	Current	Weighting	Rate
	1 QTR	2 QTR	3 QTR	4 QTR	4 QTRs	Quarter	Factors	Change
FED Funds (QA)	0.10	0.10	0.20	0.30	0.18	0.10	0%	8bp
3 mo TBILL (QA)	0.10	0.10	0.10	0.30	0.15	0.04	36%	11bp
6 mo TBILL (QA)	0.10	0.10	0.20	0.40	0.20	0.06	6%	14bp
1 yr CMT (QA)	0.20	0.30	0.40	0.60	0.38	0.10	9%	26bp
2 yr CMT (QA)	0.50	0.70	0.90	1.10	0.80	0.45	13%	35bp
Prime (QA)	3.30	3.30	3.30	3.30	3.30	3.25	36%	5bp
Weighted Average Rate Change =								14bp

Projected rate change of 14 bp results in a 3 bp change in Net Interest Margin. Projected 12 month Net Interest Margin 3.64% (EA) of 3.30% of Total Assets.



## Chapter 2: Navigation

**RiskGPS** is easy to navigate and web-based, making it easy to access anytime, anywhere.

The home screen will display your institution's name, the date the report was last updated, and the anniversary date of your subscription.

There are 4 menu options to choose from, as shown below. They are:

- View Report
- Assumptions
- Data Update
- Setup.

Most of your time will be spent in the Assumptions sections as you review and adjust your data.



- 1) **View Report:** Allows direct access to any page of the final report. As you modify and save your assumptions, you will be taken immediately to the report page most affected by the adjustments made.
- 2) **Assumptions:** There are five sub-options, to be described in full detail later in this manual, that allow the user to further quantify the data being used in the analysis.
  - a. Risk Tolerance Assumptions
  - b. Loan Assumptions
  - c. Securities Assumptions
  - d. Deposit Assumptions
  - e. Reclassifications Assumptions
- 3) **Data Update:** There are three sub-options in this feature:
  - a. Upload TRN: load the bank's current quarter Call Report transmission file
  - b. Rollback TRN: allows you to go back one quarter after the current transmission file has been uploaded
  - c. Reload (uncommon): refresh your **RiskGPS** plan by loading an amended Call Report
- 4) **Setup:** Allows you to order a Model Validation report for examiners, or to add additional subject banks for analysis. There is a fee to add additional subject banks.

**Note:** If you acquire a new institution or run analyses for multiple banks, you may add these additional Subject Banks as needed. These additional banks will appear within the "Subject Bank Selection" box. However, please be advised that you will be charged for each Subject Bank added to your account. The user is responsible for payment for all banks selected and may only be removed by a member of our staff. If you select a bank in error, please call us immediately so that we may adjust your account accordingly.



(Navigation cont'd)

In addition to the various tabs from which to operate **RiskGPS**, you are also given a tool bar in the upper right-hand corner that allows you to move from page to page (<, >), generate reports and export them to a PDF file, access a copy of the **RiskGPS User's Guide** online via the **Help menu** (?), send feedback to our staff, and log out of the system.

**Step 1**

**Subject Bank Selection**

Search Subject Bank :

Any Town Bank, Any City, AS (176603) ▼

**Add Bank**

Note: If the bank for which you want to generate the report is not present in the list above click on Add Bank button to add that bank.

**Subject Bank Description**

Name	: Any Town Bank
Physical Address	: 165 South Randall Road
City, County, State	: Any City, Any County, Any State
Assets (000's)	: 176,603
Updated through	: Jun 2014 (Updated on 08 Aug 2014)
The final access month will be	: Dec 2015
Certificate Number	: 99999

**Order Validation**

**Step 2**

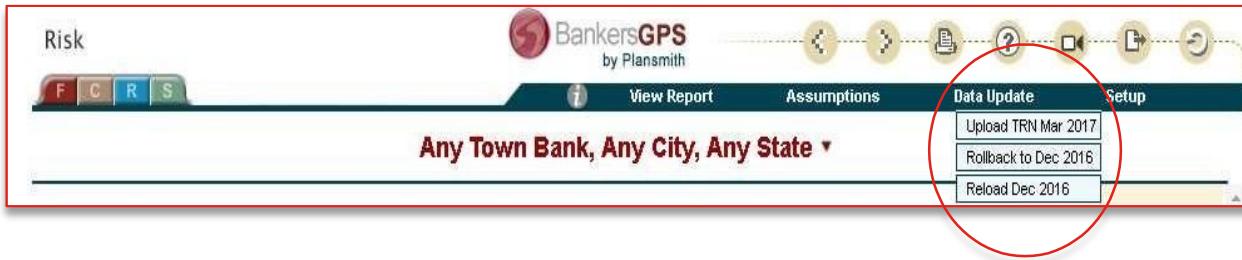
Review and change the assumptions using the "Assumptions" menu above. You can directly view the report using the "View Report" above which will be generated using default assumptions or saved assumptions.

**Step 3**

Generate/Download PDF Reports for the selected bank. You can download the report in Adobe Acrobat PDF format for printing or distributing. Generating and downloading a PDF format report will take you 3 - 5 minutes depending on your internet connection.



## Chapter 3: Data Update



As soon as your Call Report data has been completed, you have the ability to upload the data into **RiskGPS**. Simply select **Upload TRN** for the current quarter. You will be asked to browse for the location of your Call Report Transmission file. Select your file and the data will upload in seconds.

Or, after submitting your Call, you can select **Load from FDIC**. This will pull your data directly from the FDIC website and populate your **RiskGPS**.

In the event you have updated for the current quarter but have not saved the data from the previous quarter's report, there is a **Rollback** feature. Here you can Rollback to the previous quarter, print your report and save your PDF to your PC or network, then reload your current quarter data. **This option only lasts for a limited time until Risk GPS uploads the most recent quarter for all banks.**

Approximately five weeks after the end of the quarter or shortly after the required quarter filing cycle has concluded, **RiskGPS** will automatically update all bank records from the FDIC. Once this occurs you will be unable to access the previous quarter Reports.

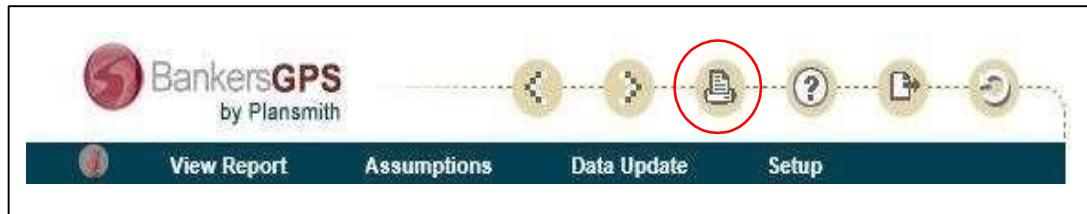
In the rare event that your institution had submitted an amended Call Report after our **RiskGPS** universal retrieval of data, you are able to refresh your **RiskGPS** plan by using the **Reload** option. The system will access the FDIC website and pull your amended quarter information. You will NOT be able to reload prior quarter information when filing multiple revised Call Reports, but the revised information will be included in historical information used by the system for calculation trends and default assumptions.



## Chapter 4: Printing the RiskGPS® Report

When ready to print, follow these steps:

- 1) Click 'Export to PDF'



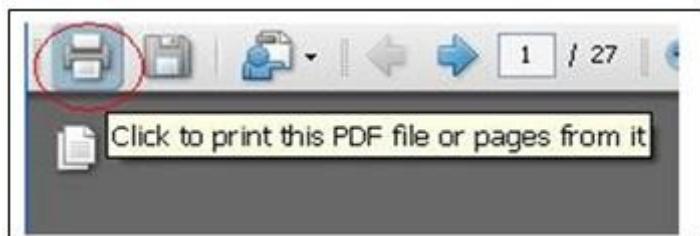
- 2) Click 'Generate Report'



- 3) Click 'View PDF Report'



- 4) Finally, select your printer icon at the upper-lefthand corner and 'Print'





## Chapter 5: RiskGPS® Sample Report with Explanations

(Some report narrative omitted.)

**RiskGPS™** offers 4 distinctive sections of financial information and analysis: **History**, **Calculations** (*Income & Rate Shock of Income and Market Value*), **Forecast**, and **Assumptions**. End-of-quarter balances are used for these calculations.

The screenshot shows a sample RiskGPS report for "Any Town Bank" located in "Any City, Any State". The report is titled "Bankers GPS by Plansmith" and describes itself as "The thinking banker's guide to the future". It is "Especially Prepared For" the specified bank. The report is dated from "Information reported by the bank in the Jun 2017 Call Report". A certification statement from TCG Risk Analytics in Pittsburgh, PA, states that the calculations and methodologies have been certified valid for the measurement of bank interest rate risk. Copyright information for Plansmith Corporation is also present. The word "Risk" is prominently displayed at the bottom of the page.



## 5.1 Executive Summary

The Executive Summary offers a recap for your board and/or examiners of the inherent risk position to the existing balance sheet for your institution. The detail of this analysis follows in the body of this report

Any Town Bank, Any City, AS				BankersGPS by Plansmith			
Executive Summary							
Bank's Statistics from the Jun 2014 Call Report							
Quarter		Quarter		YTD			
Asset Size :		Return on Avg Assets:		0.70%	0.59%		
Earning Assets :		Int. Margin / Earn Assets :		3.74%	3.63%		
Tier 1 Equity Capital :		Loans Loss Prov/ Avg Assets :		-0.32%	-0.11%		
Tier 1 Equity/Assets :		Assets growth Rate :		2.09%	1.34%		
Net Interest Margin Risk Assessment							
Bank management must ensure that risk is measured over a potential range of interest rate changes including both parallel and nonparallel yield curve shifts. Below is a summary analyses of the risk to the Net Interest Margin and Equity under these conditions:							
Rate Sensitivity GAP Data		12 Month Gap	50,828	12 Month RSA/RSL	2.05		
Parallel Yield Curve Rate Shock							
-200bp		Flat	+400bp	Non-Parallel Yield Curve Shock			
Interest Income		5,500	6,201	8,532	6,201		
Interest Expense		153	425	1,500	962		
Net Interest Income		5,347	5,776	7,032	5,238		
All other Expenses plus Dividends		4,019	4,019	4,019	4,019		
Net Income		1,328	1,757	3,013	1,219		
Adjusted Equity		26,412	26,841	28,097	26,303		
Adj. Equity Ratio		14.96%	15.20%	15.91%	14.89%		
NIM Percent Change		-7.42%	21.75%	-9.31%	-12.12%		
Economic Value of Equity Risk							
The Economic Value of Equity is a function of the duration difference between the asset and liabilities. The risk in this case is that rates will FALL and cause the bank's equity value to fall. The rate of decline for the equity value is -7% for a 100bp of immediate rate FALL. This decline should be compared to the bank's rate risk policy for acceptability. The severity of the potential loss is measured by the Equity Risk Cushion which tells that the bank is in a position to absorb a loss and maintain minimum equity ratio.							
Fair Values							
-200bp		-100bp	Flat	+100bp	+400bp		
Asset Value		181,606	179,084	176,562	174,063		
Liability Value		159,678	155,438	151,198	148,391		
Economic Value of Equity		21,928	23,646	25,364	25,672		
EVE Ratio		12.07%	13.20%	14.37%	14.75%		
EVE Percent Change		-13.54%	-6.77%	1.22%	4.30%		
Minimum Equity (7%)		12,712	12,536	12,184	11,650		
Equity Cushion		9,216	11,110	13,488	14,804		
Projected Results							
Avg Rate Change		14bp	Asset Growth Rate		0.00%		
NIM (% of Earn Assets)		3.62%	Ending Tier 1 Equity		26,444		
Net Overhead (% of Total Assets)		2.08%	Equity Ratio(% of Total Assets)		14.97%		
Loan Loss Provision (% of Total Assets)		0.00%					
Projected Return on Assets 0.77 %							



## 5.2 Balance Sheet

**Balance Sheet** information data is taken directly from Schedule RC from the Call Report. These are End-of-Quarter Balances.

Balance Sheet					
(000 omitted)					
Assets	Mar 2016	Jun 2016	Sep 2016	Dec 2016	Mar 2017
Cash and nonint bearing deposits	309	432	242	253	254
Interest bearing deposits	4,552	4,109	3,809	6,943	3,168
U.S. Treasury Securities	5,087	5,087	5,087	5,087	6,081
U.S. Govt Agencies & Corp Oblig.	0	0	0	0	0
State and Political Subdivisions	0	0	0	0	0
Total Mortgage Backed Securities	0	0	0	0	0
Other Equities and Mutual Funds	0	0	0	0	0
Other Debt Securities	0	0	0	0	0
<b>Total Securities</b>	<b>5,087</b>	<b>5,087</b>	<b>5,087</b>	<b>5,087</b>	<b>6,081</b>
Fed Funds Sold + Rev Repurch. Agrmnts	390	390	390	390	390
Loans Secured by Real Estate	816	850	940	660	902
Commercial & Industrial Loans	222	274	347	328	304
Consumer Loans	132	160	172	188	147
Leases	0	0	0	0	0
All Other Loans	407	402	441	254	391
Unearned Discount	0	0	0	0	0
<b>Total Loans (net of unearned)</b>	<b>1,577</b>	<b>1,686</b>	<b>1,900</b>	<b>1,430</b>	<b>1,744</b>
Loan Loss Reserve	-45	-45	-45	-45	-45
Fixed & Other Assets	72	76	115	101	106
<b>Total Assets</b>	<b>11,942</b>	<b>11,735</b>	<b>11,498</b>	<b>14,159</b>	<b>11,698</b>
Liabilities					
Checking (Non-Interest Bearing)	20,423	21,050	20,627	21,898	23,322
Checking (Interest Bearing)	14,116	15,938	17,309	15,330	18,167
MMDA	16,240	15,228	9,184	15,667	14,819
Savings	11,650	12,657	12,662	13,388	12,833
CDs < \$250K	27,551	25,938	24,775	24,538	23,800
CDs > \$250K	5,663	5,925	5,938	6,251	5,757
<b>Total Deposits</b>	<b>95,643</b>	<b>96,736</b>	<b>90,495</b>	<b>97,072</b>	<b>98,698</b>
Fed Funds Purch + Repurch Agrmnts	0	0	0	25	0
Other Borrowed Funds	2,000	1,500	3,500	3,500	5,500
<b>Total Borrowings</b>	<b>2,000</b>	<b>1,500</b>	<b>3,500</b>	<b>3,525</b>	<b>5,500</b>
All Other Liabilities	90	159	144	69	87
<b>Total Equity Capital</b>	<b>12,540</b>	<b>12,744</b>	<b>12,927</b>	<b>12,848</b>	<b>13,054</b>
<b>Total Liabilities + Equity Capital</b>	<b>110,273</b>	<b>111,139</b>	<b>107,065</b>	<b>113,514</b>	<b>117,338</b>



## 5.3 Selected Average Balances

**Selected Average Balances** information is taken directly from Schedule RC-K of the Call Report

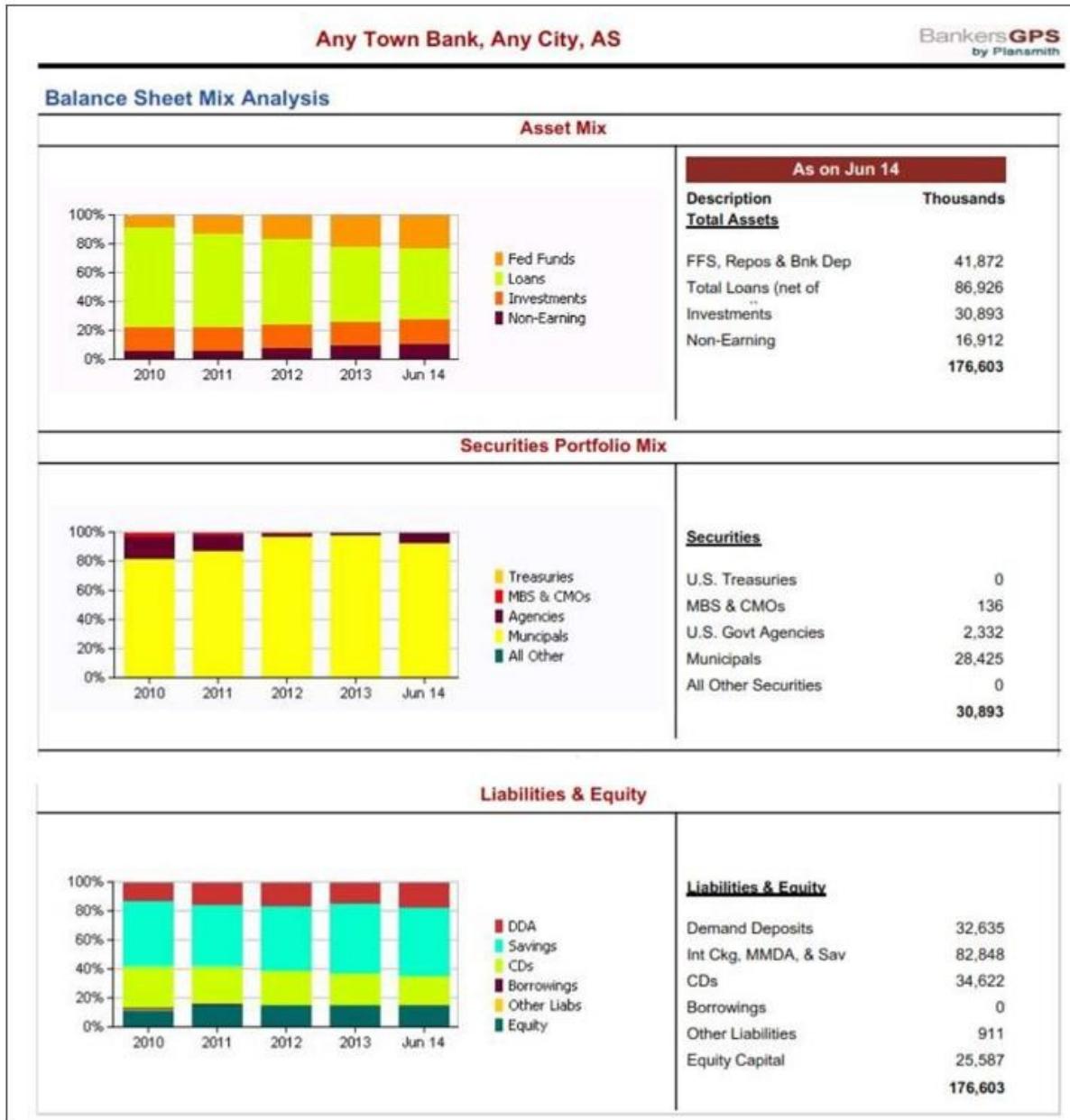
<b>Selected Average Balances</b>					
(000 omitted)	Mar 2016	Jun 2016	Sep 2016	Dec 2016	Mar 2017
<b>Earning Assets</b>					
Interest Bearing Deposits in Other Banks	855	907	2,036	2,740	3,426
Total Securities	4,932	8,411	14,294	14,495	14,376
Fed Funds Sold + Rev Repurch. Agrmnts	0	0	0	0	1,500
Loans Secured by Real Estate	76,461	76,796	75,665	74,969	73,652
Commercial & Industrial Loans	910	872	1,034	1,111	979
Consumer Loans	133	90	88	120	130
Total Loans (net of unearned)	77,533	77,785	76,813	76,224	74,778
Total Leases	0	0	0	0	0
<b>Earning Assets</b>	<b>83,320</b>	<b>87,103</b>	<b>93,143</b>	<b>93,459</b>	<b>94,080</b>
<b>Interest Bearing Liabilities</b>					
Checking (Interest Bearing)	12,324	14,444	14,709	14,618	15,013
MMDA and Savings	27,811	27,271	25,199	22,446	28,649
CDs < \$250K *	25,939	26,587	25,233	25,486	24,517
CDs > \$250K *	6,083	6,236	5,918	5,977	5,750
Int. Bearing Deposits in Foreign Offices	0	0	0	0	0
Total Deposits	72,157	74,538	71,059	68,527	73,929
Fed Funds Purch + Repurch Agrmnts	0	0	0	0	0
Other Borrowings	2,923	1,667	2,500	3,500	2,799
<b>Interest Bearing Liabilities</b>	<b>75,080</b>	<b>76,205</b>	<b>73,559</b>	<b>72,027</b>	<b>76,728</b>

\*The proportion of average balances reported for CDs < \$250K and >\$250K in Q1 2017 has been applied to all historical periods.

\* The proportion of average balances reported for CDs < \$250K and > \$250K in Q1 2017 has been applied to all historical periods.



## 5.4 Balance Sheet Mix Analysis





## 5.5 Income Statement

Income is presented for each quarter. The model takes the current quarters Schedule RI from the Call Report, which is YTD, and subtracts the prior quarter(s) from the same calendar year to arrive at the current quarter numbers.

<b>Income Statement</b>					
(000 omitted)	Mar 2016	Jun 2016	Sep 2016	Dec 2016	Mar 2017
<b>Interest Income</b>					
Int on bal due from dep. institutions	5	3	6	11	19
Int on FFS and Reverse Repos	0	0	0	0	4
Inc on Investment Securities	25	41	51	59	59
Int & Fees on Loans	970	883	931	931	874
Int & Fees on Leases	0	0	0	0	0
Income on trading accounts	0	0	0	0	0
Other Interest Income	3	3	2	6	4
<b>Interest Income Total</b>	<b>1,003</b>	<b>930</b>	<b>990</b>	<b>1,007</b>	<b>960</b>
Int exp on Checking	2	2	2	3	2
Int exp on MMA & Savings	14	13	12	11	17
CDs < \$250K *	20	19	18	18	19
CDs > \$250K *	49	48	45	46	48
Total Int Exp on Deposits	85	82	77	78	86
Int Exp on Borrowed Funds	16	13	11	14	12
<b>Int Expense Total</b>	<b>101</b>	<b>95</b>	<b>88</b>	<b>92</b>	<b>98</b>
<b>Net Interest Inc before Provision</b>	<b>902</b>	<b>835</b>	<b>902</b>	<b>915</b>	<b>862</b>
Provision for loan and lease losses	31	8	0	0	0
<b>Net Int Inc After Loan Loss Prov</b>	<b>871</b>	<b>827</b>	<b>902</b>	<b>915</b>	<b>862</b>
Trust Income	0	0	0	0	0
Service charges on deposit accounts	36	38	48	45	38
Other noninterest Income	1,147	227	145	121	141
<b>Noninterest Income Total</b>	<b>1,183</b>	<b>265</b>	<b>193</b>	<b>166</b>	<b>179</b>
Realized Gains(Losses) on sec Total	0	0	0	0	0
Income taxes	470	90	106	99	84
Extraordinary items net of tax	0	0	0	0	0
<b>Net income(loss)</b>	<b>780</b>	<b>139</b>	<b>167</b>	<b>147</b>	<b>122</b>

\*The proportion of interest expense reported for CDs <\$250K and >\$250K in Q1 2017 has been applied to all historical periods.

\* The proportion of interest expense reported for CDs <\$250K and >\$250K in Q1 2017 has been applied to all historical periods.



## 5.6 Yields & Costs

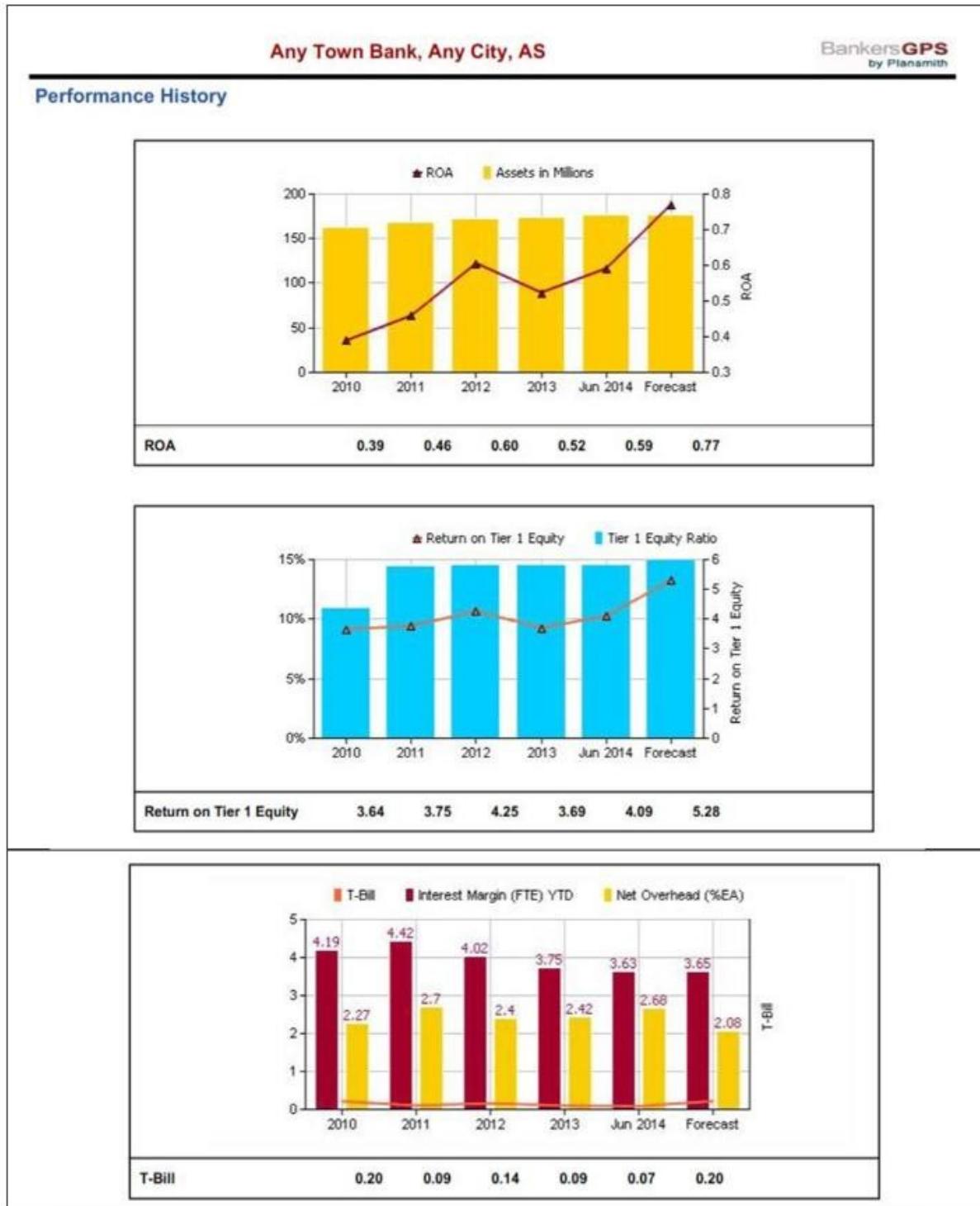
Yields & Costs are calculated using the quarterly Average Balances reported in the Call Report and quarterly Interest Income/Expense data.

This data is used to calculate the zero point on the **Rate Shock of Income**.

<b>Yields and Costs</b> (000 omitted)					
<b>Earning Assets</b>	<b>Mar 2016</b>	<b>Jun 2016</b>	<b>Sep 2016</b>	<b>Dec 2016</b>	<b>Mar 2017</b>
Interest Bearing Deposits	2.34	1.32	1.18	1.61	2.22
U.S. Treasury & Agencies	1.97	2.12	1.82	2.12	1.78
Yield on All Securities (FTE)	2.03	1.95	1.43	1.63	1.64
Fed Funds Sold + Rev Repurch. Agrmnts	0.00	0.00	0.00	0.00	1.07
Loans Secured by Real Estate	4.97	4.46	4.76	4.84	4.61
Commercial & Industrial Loans	7.91	12.39	10.83	8.28	10.21
Consumer Loans	3.01	4.44	9.09	3.33	3.08
Total Loans (net of unearned)	5.00	4.54	4.85	4.89	4.68
Total Leases	0.00	0.00	0.00	0.00	0.00
<b>Yield on All Earning Assets</b>	<b>4.82</b>	<b>4.27</b>	<b>4.25</b>	<b>4.31</b>	<b>4.08</b>
<b>Interest Bearing Liabilities</b>					
Checking (Int Bearing)	0.06	0.06	0.05	0.08	0.05
MDMA and Savings	0.20	0.19	0.19	0.20	0.24
CDs < \$250K	0.30	0.29	0.28	0.28	0.31
CDs > \$250K	3.25	3.08	3.05	3.07	3.34
Total Deposits	0.47	0.44	0.43	0.46	0.47
Fed Funds Purch + Repurch Agrmnts	0.00	0.00	0.00	0.00	0.00
Rate on Other Borrowings	2.19	3.12	1.76	1.60	1.71
<b>Rate on Interest Bearing Liabilities</b>	<b>0.54</b>	<b>0.50</b>	<b>0.48</b>	<b>0.51</b>	<b>0.51</b>
<b>Spread</b>	<b>4.28</b>	<b>3.77</b>	<b>3.77</b>	<b>3.80</b>	<b>3.57</b>

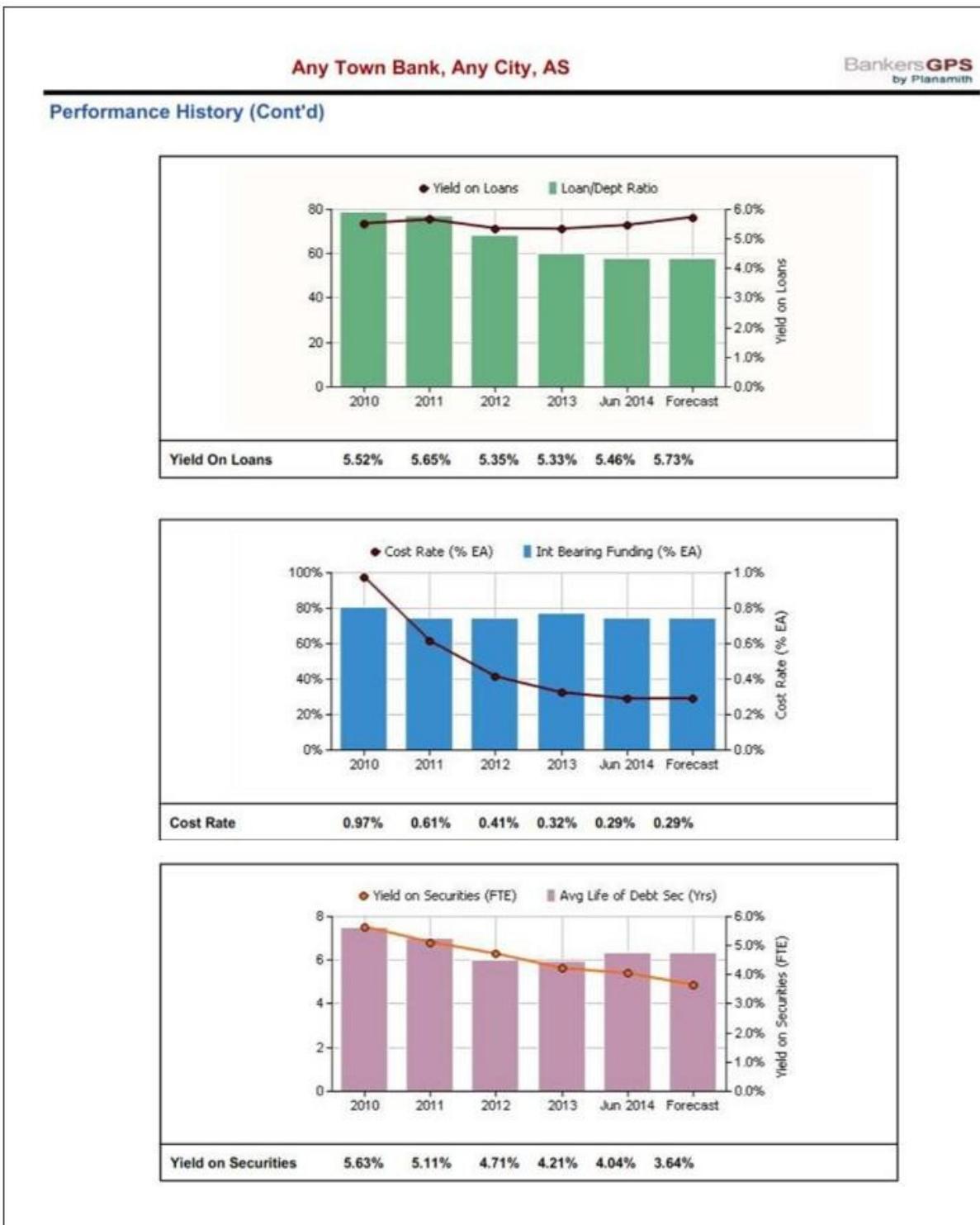


## 5.7 Performance History





(Performance History cont'd)





## 5.8 Margin Risk Tolerance

**Margin Risk Tolerance** is the ability to take potential losses to capital while still maintaining a ratio above the minimum capital level.

**Risk Tolerance** is calculated by adding the minimum required earnings to meet capital and dividends and Other Expenses assumed by the bank for the coming year and subtracting the total from the Current Margin under flat rates applied to new Average Assets.

See: [Risk Tolerance Assumptions](#)

### Margin Risk Tolerance

To provide meaning to rate risk measurements we must set benchmarks against which the sensitivity of risk can be evaluated. The severity of a potential loss depends upon how much the bank can afford to lose and not impair capital. The ability to absorb the losses and still maintain adequate capital is called Risk Tolerance. Risk can be classified as either short - term or long - term. Short - term risk impacts margin earnings in the near term. The Economic Value of the bank's Equity (EVE) reflects the long - term risk to earnings. Margin Risk Tolerance is determined by computing the minimum net interest margin required to meet all expenses, including capital formation and dividends. The Tier 1 Equity Risk Tolerance is simply the difference between the minimum acceptable capital ratio and the bank's capital ratio. This value provides a measurement of the bank's ability to lose capital and still maintain its minimum capital ratio. A minimum capital ratio of 7.00% will be used in our calculations. The Tier 1 Equity Risk Tolerance is determined by subtracting the minimum capital ratio from its capital ratio. The Tier 1 Equity Risk Tolerance for Strategy Bank, Schaumburg, IL is 3.32%.

#### Calculation of Required Minimum Margin

(000 omitted)

Assets	Current Qtr	Growth Rate	Proj. End	Average	Projected Amount	% Earn Assets	% Avd Assets
Total Assets	339,475	3.7%	352,036	345,755			
Earning Assets	312,730	3.7%	324,301	318,516			
Tier 1 Equity Capital	35,031		35,031	35,031	0	0.00	0.00
Tier 1 Equity/Asset Ratio	10.32%			9.95%			
Dividends (assumed equal to last 4 qtrs)					750	0.24	0.22
<b>Earning required to meet capital and dividend needs</b>					<b>750</b>	<b>0.24</b>	<b>0.22</b>
Non-Interest Income (% of Avg Assets averaged from last 4 qtrs)					(4,071)	(1.28)	(1.18)
Non-Interest Expense (% of Avg Assets averaged from last 4 qtrs)					14,262	4.48	4.12
Tax Equivalent Adjustment (current quarter)					115	0.04	0.03
Loan Loss Provision (most recent quarter extended)					1,210	0.38	0.35
Estimated Taxes (Effective Rate=26% applied to Required Income)					277	0.09	0.08
<b>Total Other Expenses Supported by Interest Margin</b>					<b>11,793</b>	<b>3.71</b>	<b>3.41</b>
<b>MINIMUM REQUIRED INTEREST MARGIN (FTE)</b>					<b>12,543</b>	<b>3.94</b>	<b>3.63</b>

#### Calculation of Risk Tolerance

	Amount	%EA	%AA
Current Margin under flat rates applied to new Avg Assets	17,840	5.60	5.16
Required Net Interest Margin (FTE) over next 12 months	12,543	3.94	3.63
<b>Risk Tolerance (Maximum Allowable Net Interest Margin Change)</b>	<b>5,297</b>	<b>1.66</b>	<b>1.53</b>
<b>Risk Limit (Maximum allowable NIM percent change)</b>		<b>29.64 %</b>	

The Risk Tolerance tells us how much the net interest margin could change before the bank's capital would fall below the current or minimum amount due to insufficient capital formation from earnings. A positive value indicates the bank has the ability to absorb adverse rate changes in the net interest margin. However, a negative Risk Tolerance indicates the capital ratio will decline even without rate change. The Risk Limit is the maximum percentage NIM change from the Current Margin (under flat rates) before the bank's capital would fall below the current amount or the designated minimum required amount, whichever is higher.



## 5.9 Rate Sensitivity of Non-Maturing Balances & Betas

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### Rate Sensitivity of Non-Maturing Balances

Cost of Funds Rate (COFR) for non-maturing deposits - Interest Bearing Checking, MMDA and Savings - is under the direct control of the bank. However, there is often a relationship between interest rates and the yields on these accounts. In this section, we attempt to uncover this relationship and use it to determine the COFR behavior on these accounts as rates rise and fall. To accomplish this, we have identified two periods of sustained interest rate change, one rising and one falling. We then correlate the change of interest rates and the COFR for these periods. For rising interest rates, we use the period from March 2004 through March 2006. For falling interest rates, we use March 2007 through Mar 2009. The correlation we call the Beta. The system will use the Beta to determine the COFR as interest rates rise and fall.

Note: In the case where this correlation is negative, we say the correlation is indeterminate and set the Beta to a zero value.

Non-Maturing Accounts vs T-Bill						
Rising Rate Conditions				Falling Rate Conditions		
<b>T-Bill</b> <span style="color: black;">—</span>	<b>Checking(Int. Bearing)</b> <span style="color: green;">--</span>	<b>MMDA &amp; Savings</b> <span style="color: red;">- -</span>	<b>T-Bill</b> <span style="color: black;">—</span>	<b>Checking(Int. Bearing)</b> <span style="color: green;">--</span>	<b>MMDA &amp; Savings</b> <span style="color: red;">- -</span>	

Relative Rate Change Speeds Compare to 6 mon. T-Bill						
Category	Historical Values			User Defined		
	Gap Beta	Rising Rates	Falling Rates	Gap Beta	Rising Rates	Falling Rates
Checking (Interest Bearing)	45%	36%	54%	40%	25%	54%
MMDA & Savings	31%	29%	33%	24%	15%	33%

The system uses history to develop these Betas. As stated above, COFR, in reality, is at the discretion of the bank and is a product of many factors including both rate change and competition. It is important for the user to determine the validity of these Beta approximations. Therefore, we offer a method that allows the user to incorporate all the known factors when making Beta assumptions.

**Estimating the Beta**

The best way to estimate how the COFR will change is to ask the question, if interest rates were to rise 100bp over the next year, how much would the bank change its COFR? The same question is valid for falling rate conditions. This value is essentially the Beta for that account. For example, if you think that if interest rates were to rise 100bp and your COFR on an account would increase 25bp, then the Beta is 25%.

**Betas have three major uses for this Risk Analysis: Gap, Rate Shock, and calculation of Decay Terms.**

Beta represents a percentage of change in the bank's interest rate for every 1.00% change in yield curve rates. As deposit products act differently to rate changes, we ask you to review and adjust, if needed, the estimated Beta Values.

See: [Deposit Assumptions](#) for beta and decay information



## 5.10 Rate Sensitivity Gap Report | Gap

**Rate Sensitivity Gap Report:** If the sum of the balances from the maturity data above does not equal the balances on the Balance Sheet, then the program will put the difference into the greater than >15-year bucket. Typically, these differences are due to non-performing loans or other investment securities without maturities that must be accounted for later in the market value calculation. Non Accruals are not included in Gap nor are they used in the Rate Shock of Net Interest Margin.

### Rate Sensitivity Gap

The first requirement is to adjust the call report amortizing accounts to cash flow. These include the MBS & CMO as well as the Loan accounts. Shown below are the balance as they come from the call report.

	1-3 mth.	3-12 mth.	1-3 Years	3-5 Years	5-15 Years	>15 Years	Total
Govt Agen & Muni Sec	-	1,253	-	1,491	2,811	1,574	7,129
MBS & CMO Maturities	-	-	1,066	1,248	5,401	-	7,715
Loan Maturities as Reported	-	2,214	6,755	14,508	14,676	8,287	75,709

Following amortization, prepayment speeds are applied. Finally, the Floating Rate Loans are estimated by subtracting the averages maturity from Loans Repricing < 3 months. The results of these adjustments can be seen in the Rate Sensitivity Gap report table below.

The Non-Maturing Deposits are distributed using the Beta Factors calculated on the previous page. The Beta reflects the bank's propensity to adjust offering rates as interest rates change. These Betas should be reviewed and adjusted in the Assumption / Gap section of the program. CD maturities are taken from the call report. The user is advised to review these adjustments and make adjustments using the Assumptions in the menu.

**GAP**, as according to the Call Report, can be viewed on the top portion of the **RiskGPS** Gap report. If all assumptions and adjustments to the bank information were turned off, **RiskGPS** would be identical to your Call Report information. However, Assumptions allow us to modify the information in order to capture a more realistic rate risk environment.

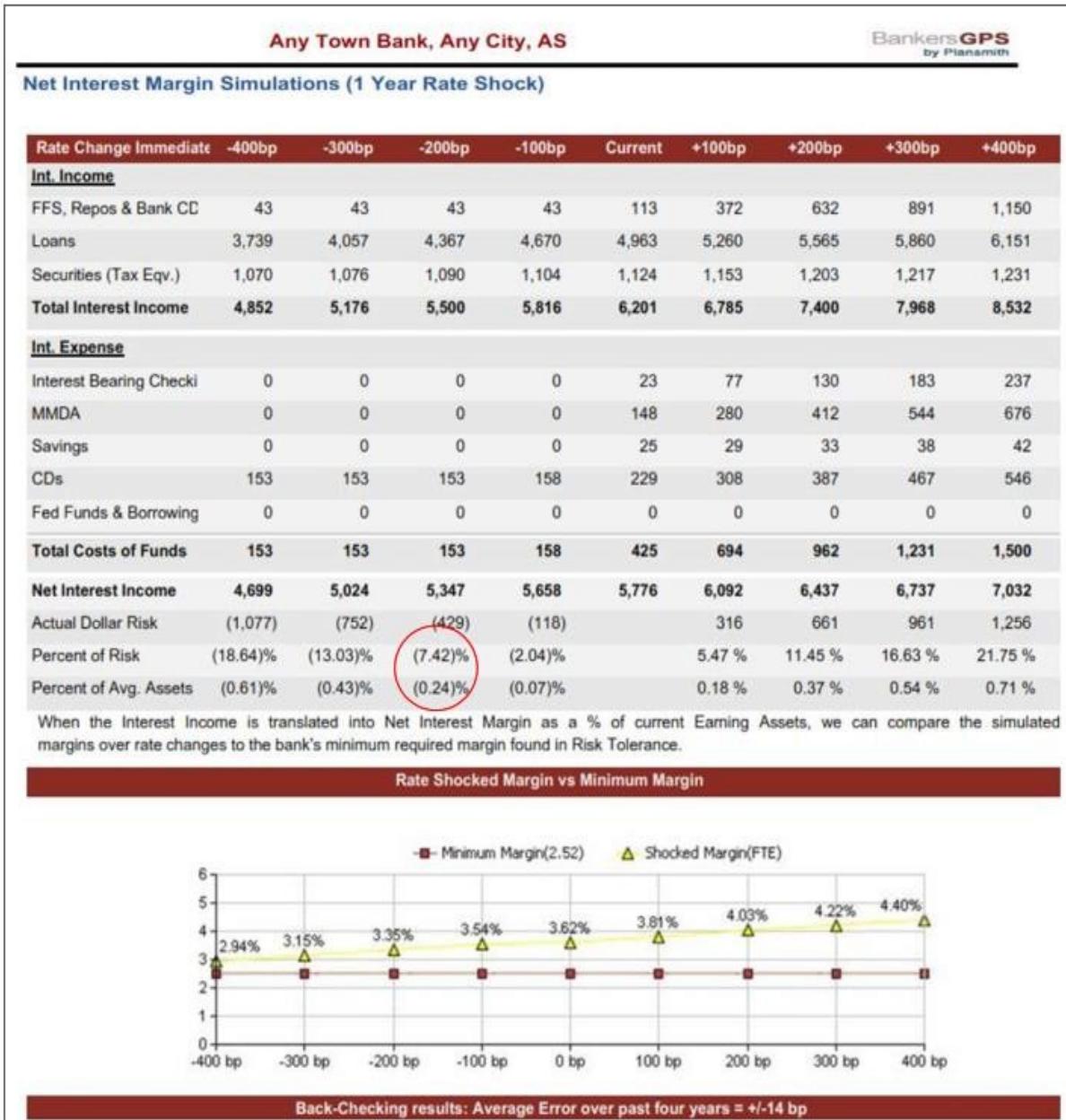
Time Buckets	Floating	1-3 mth.	3-12 mth.	1-3 Years	3-5 Years	5-15 Years	>15 Years	Total
FFS & Repos	2,500	-	-	-	-	-	-	2,500
Int Brngs Deps in Bnks	-	-	10,894	-	-	-	-	10,894
Gov, Agn & Mun Sec.	-	1,253	-	-	1,491	2,811	1,574	7,129
MBS & CMO Maturities Adjust	-	468	1,426	1,891	1,221	2,709	-	7,715
<b>Total Debt Securities</b>	-	1,721	1,426	1,891	2,712	5,520	1,574	14,844
Loan Mats Adjusted	1,293	7,934	17,289	16,323	6,876	16,991	9,003	75,709
<b>Total Earning Assets</b>	3,793	9,655	29,609	18,214	9,588	22,511	10,577	103,947
Checking (Int Bearing)	7,085	-	-	11,082	-	-	-	18,167
MMDA & Savings	8,572	-	-	19,080	-	-	-	27,652
Total Savings Deposits	15,657	-	-	30,162	-	-	-	45,819
CDs < \$250K	-	6,299	13,113	3,983	405	-	-	23,800
CDs > \$250K	-	1,412	1,415	2,671	259	-	-	5,757
<b>Total Time Deposits</b>	-	7,711	14,528	6,654	664	-	-	29,557
Other Borrowings	-	-	5,500	-	-	-	-	5,500
FFP and Repos	-	-	-	-	-	-	-	-
Total Borrowed Funds	-	-	5,500	-	-	-	-	5,500
<b>Total Int Bearing Liabs</b>	<b>15,657</b>	<b>7,711</b>	<b>20,028</b>	<b>36,816</b>	<b>664</b>	<b>-</b>	<b>-</b>	<b>80,876</b>
R.S. Gap	(11,864)	1,944	9,581	(18,602)	8,924	22,511	10,577	23,071
<b>Risk Indicators from Gap Analysis</b>								
Cumulative GAP	(11,864)	(9,920)	(339)					
Cumulative RSA / RSL	0.24	0.58	0.99					
Time-Weighted 12 mth. Gap			(6,651)					

**Time-Weighted 12-month Gap** weights the report buckets according to their ability to reprice. The Floating bucket would be weighted at 100% as it is available over the entire 12-month period, the 1-3-month bucket at 83%, and the 3-12 month at 37.5%.

**Note:** **Loan, Security and Deposit Assumptions** have a direct impact on how balances are distributed in each time bucket.



## 5.11 Net Interest Margin Simulation



The **Minimum Margin (FTE)**, represented in the graph by a red box, can be found on the Risk Tolerance Report.

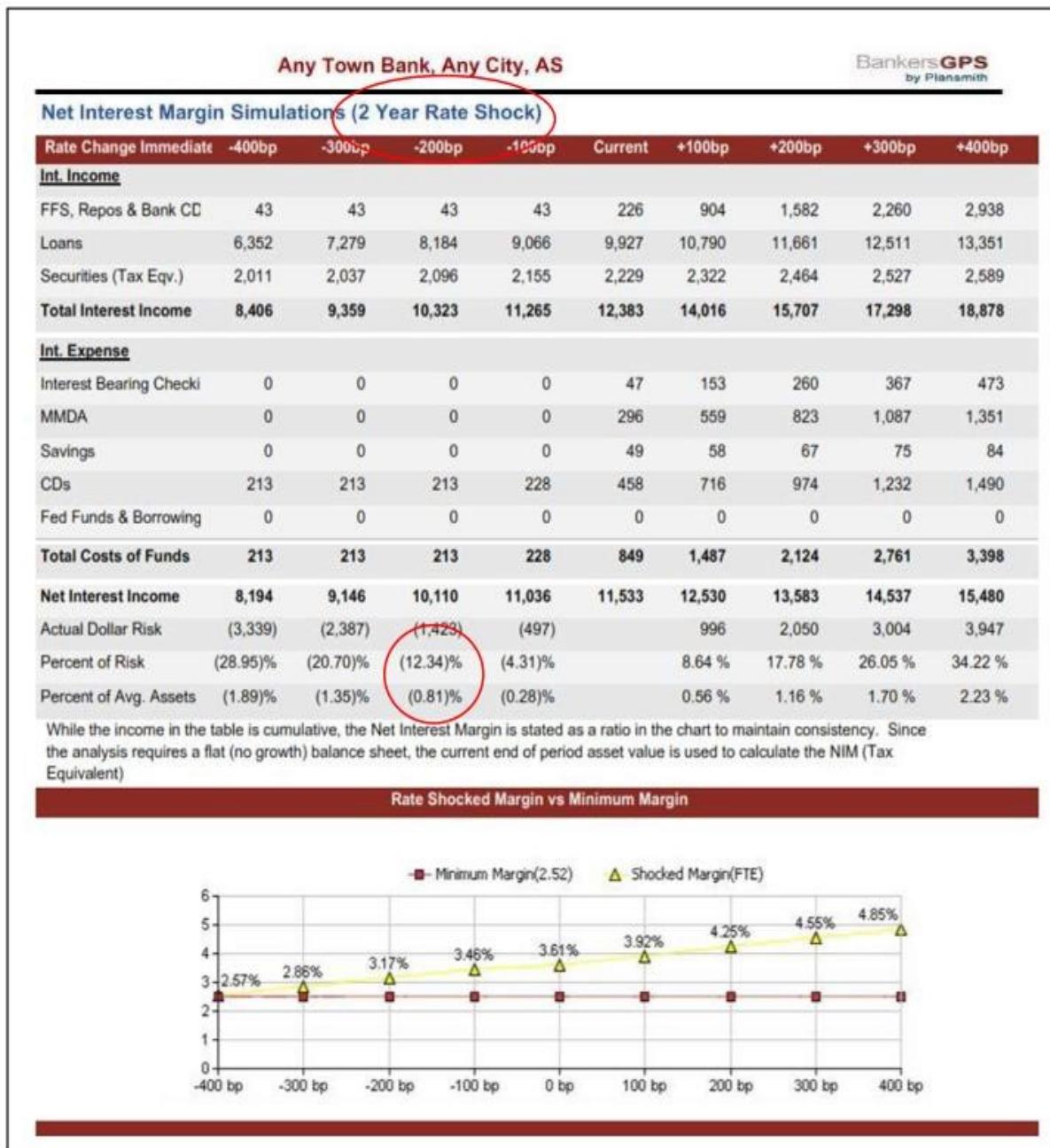
**Shocked Margin (FTE)** values, shown as yellow triangles in the graph above, are impacted by Loan, Security, and Deposit assumptions. One recommended industry guideline is that the **Percentage of Risk** change in margin should not exceed a decline of -10% for every 200bp of shock.

**Back-checking (Testing)** shown as +/- bp at the bottom of this report is the difference in the projected margin compared to the historical margin. A change less than 10% is preferable. Subtracting the back - checking variance from the projected NIM will provide you with a worst-case scenario as compared to the calculated minimum margin displayed.-\*+.

See: [Interest Rate Risk Report-Methodology](#)



(Net Interest Margin, cont'd)



The same recommended industry guideline that applied for **Percentage of Risk** change in margin on the 1yr Rate Shock also applies to the 2yr Rate Shock; not to exceed a decline of -10% for every 200bp of shock.



## 5.12 Yield Curve Risk Assessment

**Yield Curve Risk Assessment**, often referred to as **Non-Parallel Yield Curve Shock**, is performed by analyzing two major yield curve alternatives, in addition to the traditional Parallel Yield Rate Shock. By creating two variations, **long-term rates flat/short-term rates rising**, and **short-term rates flat/long-term rates falling**, the **worst-case risk scenario** can be examined in one easy to read report.

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### Yield Curve Risk Assessment

#### Yield Curve Risk Assessment

By using sensitivity analysis, we can determine a worst-case impact on Net Interest Income from a non-parallel shift in the yield curve. The long-end of the curve generally drives the asset yields and the short-end tends to most significantly impact the cost of liabilities.

To create a sufficiently meaningful yield curve shift we use two approaches. In the first scenario, long-term rates remain unchanged while short-term rates rise to a point where the yield curve becomes slightly inverted. In the second scenario, long-term rates fall as far as possible while short-term rates remain unchanged. The worst-case scenario will allow us to assess the bank's yield curve risk. These two scenarios are depicted in the charts below.

**Long-term flat, short-term rising**

**Short-term flat, long-term falling**

The information below provides the results of these two methods to determine the worst-case impact on Net Interest Income and Equity.

#### Calculating Yield Curve Risk

Total Assets	176,603
Base Case Net Interest Income	5,776
<b>Scenario #1</b>	
Interest Income - Long Term Rates Flat	6,201
Less Interest Expense - Short Term Rai	962
Net Interest Income	5,238
Dollars at Risk	538
Percent Change from Base-Case NII	-9.31%
<b>Worst-Case Net Interest Income</b>	<b>5,076</b>
<b>Risk Adjusted Earnings and Dividends</b>	
Worst-Case Net Interest Income	5,076
Less Other Expenses and Dividends (from Risk Tolerance)	4,019
Worst Case Adjustment to Equity	1,057
Adjusted Current Tier 1 Equity for Worst-Case	26,141
<b>Risk to Current Equity - Worst Case</b>	
Current Tier 1 Equity	25,084
Adjusted Equity for Worst Case	26,141
Gain (loss) to Current Tier 1 Equity	1,057
<b>Risk to Minimum Equity - Worst Case</b>	
Minimum Tier 1 Equity	12,362
Adjusted Equity for Worst Case	26,141
Cushion (Shortfall) to Minimum Equity	13,778



## 5.13 Rate Shock Economic Value of Equity

Current Value, also known as the **zero point**, has been marked-to-market from its present value.

A recommended industry guideline is that the maximum change to MVE Risk should not exceed -20% for every 200bp change in rate shock.

See: [Interest Rate Risk Report-Methodology](#)

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Rate Shocked Economic Value of Equity										
Rate Shocks	Fair Values									
	-400bp	-300bp	-200bp	-100bp	Current	+100bp	+200bp	+300bp	+400bp	
FFS & Other	42,498	42,342	42,185	42,029	41,872	41,715	41,559	41,402	41,246	
Loans	90,654	89,715	88,774	87,830	86,885	85,964	85,079	84,197	83,328	
Loan Loss Reserve	(2,751)	(2,751)	(2,751)	(2,751)	(2,751)	(2,751)	(2,751)	(2,751)	(2,751)	
Securities (Fair Value)	36,578	35,157	33,736	32,314	30,893	29,472	27,915	26,426	24,937	
Non-Earning Assets	19,663	19,663	19,663	19,663	19,663	19,663	19,663	19,663	19,663	
<b>Assets (MV)</b>	<b>186,642</b>	<b>184,126</b>	<b>181,606</b>	<b>179,084</b>	<b>176,562</b>	<b>174,063</b>	<b>171,465</b>	<b>168,937</b>	<b>166,423</b>	
Non-Int Bearing Chkg	38,069	36,697	35,326	33,955	32,584	31,918	31,253	30,588	29,923	
Int Bearing Chkg	24,902	24,005	23,108	22,211	21,314	20,879	20,444	20,009	19,574	
MMDA	58,292	56,947	55,602	54,257	52,913	51,832	50,752	49,672	48,591	
Savings	10,308	9,937	9,566	9,194	8,823	8,452	8,081	7,709	7,338	
CDs	35,675	35,420	35,165	34,909	34,654	34,399	34,143	33,888	33,633	
FFP and Repos	0	0	0	0	0	0	0	0	0	
Other Borrowings	0	0	0	0	0	0	0	0	0	
Non - Paying Liabs	911	911	911	911	911	911	911	911	911	
<b>Liabilities (MV)</b>	<b>168,157</b>	<b>163,918</b>	<b>159,678</b>	<b>155,438</b>	<b>151,198</b>	<b>148,391</b>	<b>145,584</b>	<b>142,776</b>	<b>139,969</b>	
<b>EV Equity</b>	<b>18,485</b>	<b>20,208</b>	<b>21,928</b>	<b>23,646</b>	<b>25,364</b>	<b>25,672</b>	<b>25,881</b>	<b>26,161</b>	<b>26,454</b>	
<b>EVE Risk (% Change)</b>	<b>(27.1)%</b>	<b>(20.3)%</b>	<b>(13.5)%</b>	<b>(6.8)%</b>	<b>0.0 %</b>	<b>1.2 %</b>	<b>2.0 %</b>	<b>3.1 %</b>	<b>4.3 %</b>	

Guidelines: Maximum change of 10% for 100bp, 20% for 200bp, 40% for 400bp rate change.  
(Adjustments have been made to account for Goodwill and Intangibles)

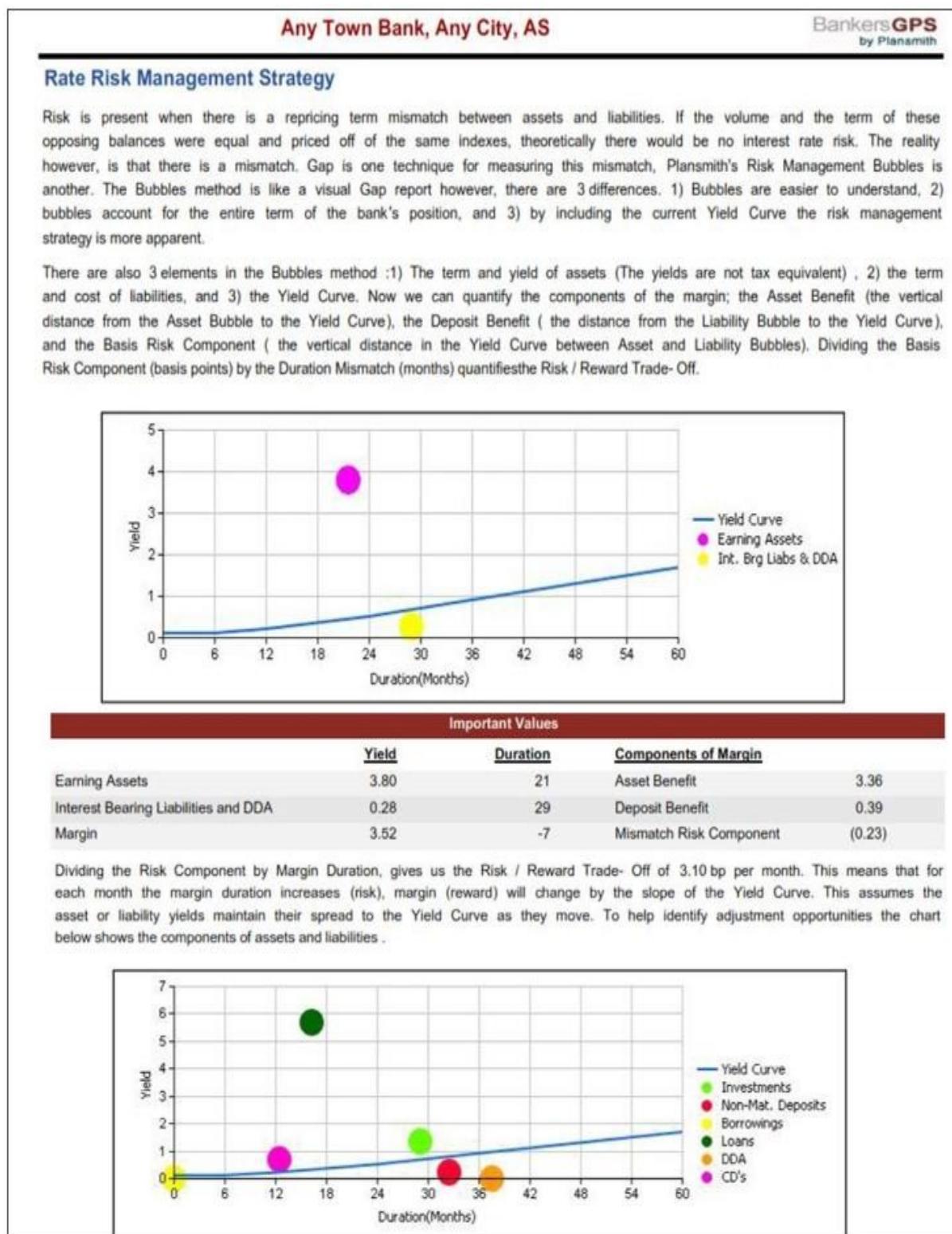
Economic Value of Equity as a Percentage of Market Value of Assets																																							
<table border="1"> <caption>Data for Economic Value of Equity as a Percentage of Market Value of Assets</caption> <thead> <tr> <th>Rate Shock (bp)</th> <th>Minimum Capital (%)</th> <th>Equity (%)</th> </tr> </thead> <tbody> <tr><td>-400</td><td>6.5%</td><td>9.90%</td></tr> <tr><td>-300</td><td>6.5%</td><td>10.98%</td></tr> <tr><td>-200</td><td>6.5%</td><td>12.07%</td></tr> <tr><td>-100</td><td>6.5%</td><td>13.20%</td></tr> <tr><td>0</td><td>6.5%</td><td>14.37%</td></tr> <tr><td>100</td><td>6.5%</td><td>14.75%</td></tr> <tr><td>200</td><td>6.5%</td><td>15.09%</td></tr> <tr><td>300</td><td>6.5%</td><td>15.49%</td></tr> <tr><td>400</td><td>6.5%</td><td>15.90%</td></tr> </tbody> </table>										Rate Shock (bp)	Minimum Capital (%)	Equity (%)	-400	6.5%	9.90%	-300	6.5%	10.98%	-200	6.5%	12.07%	-100	6.5%	13.20%	0	6.5%	14.37%	100	6.5%	14.75%	200	6.5%	15.09%	300	6.5%	15.49%	400	6.5%	15.90%
Rate Shock (bp)	Minimum Capital (%)	Equity (%)																																					
-400	6.5%	9.90%																																					
-300	6.5%	10.98%																																					
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0	6.5%	14.37%																																					
100	6.5%	14.75%																																					
200	6.5%	15.09%																																					
300	6.5%	15.49%																																					
400	6.5%	15.90%																																					

The user is encouraged to review all of the assumptions for bond maturities, the securities, durations, loan prepayments and maturity of Borrowings. The bank's Equity Risk provides a long term perspective on earnings due to rate change.

## 5.14 Rate Risk Management Strategy

**Duration** values are affected by the model assumptions. The Margin Duration describes the movement of the bubbles (longer or shorter) and directly affects the Risk/Reward Trade-Off. By changing the assumptions, you can create different What-ifs, and measure those effects on the Risk/Reward Trade-Off.

**Risk Reward Trade-Off** is calculated by taking the Mismatch Risk Component, divided by the Margin Duration x 100.





## 5.15 Performance Forecast

Any Town Bank, Any City, AS							BankersGPS by Plansmith								
Performance Forecasts															
This performance forecast combines the Blue Chip Financial Forecasts' interest rate projections with the Rate Shock Simulation. Since the margin has been computed for various rate changes, we need only apply the rate forecast from Blue Chip. The first step is to determine the overall rate change based on the distribution of the assets and liabilities along the Yield Curve and Prime Rate. Next, the weighting factors are determined as the percentage of assets and liabilities influenced by these rates. From this, the Weighted Average Rate Change is computed to be used in the Simulation.															
Blue Chip Interest Rate Forecast															
Proj.	Proj.	Proj.	Proj.	Proj. Avg	Current	Weighting	Rate								
1 QTR	2 QTR	3 QTR	4 QTR	4 QTRs	Quarter	Factors	Change								
FED Funds (QA)	0.10	0.10	0.20	0.30	0.18	0.10	0%	8bp							
3 mo TBILL (QA)	0.10	0.10	0.10	0.30	0.15	0.04	36%	11bp							
6 mo TBILL (QA)	0.10	0.10	0.20	0.40	0.20	0.06	6%	14bp							
1 yr CMT (QA)	0.20	0.30	0.40	0.60	0.38	0.10	9%	28bp							
2 yr CMT (QA)	0.50	0.70	0.90	1.10	0.80	0.45	13%	35bp							
Prime (QA)	3.30	3.30	3.30	3.30	3.30	3.25	36%	5bp							
Weighted Average Rate Change =							14bp								
Projected rate change of 14 bp results in a 3 bp change in Net Interest Margin. Projected 12 month Net Interest Margin 3.64% (EA) or 3.30% of Total Assets.															
Projected Income Statement (% of Total Average Assets)															
	Trailing	Current	Projected	Proj. P & L											
	4 Qtrs.	Quarter	4 Qtrs.	(\$000)											
Interest Margin (FTE)	3.28%	3.35%	3.30%	5,828											
Loan Loss Provision	0.10%	-0.32%	0.00%	0											
Net Interest Margin	3.18%	3.67%	3.30%	5,828											
Non Interest Income	0.46%	0.50%	0.47%	830											
Non Interest Expense	2.69%	3.04%	2.55%	4,503											
Net Overhead	2.24%	2.54%	2.08%	3,673											
Pre - Tax Income	0.94%	1.13%	1.22%	2,155											
Sec G/L, Ext Items	0.00%	0.00%	0.00%	0											
FTE Adjustment	-0.20%	-0.20%	-0.20%	(353)											
Estimated Income Taxes	-0.17%	-0.23%	-0.25%	(442)											
Return on Average Assets	0.57%	0.70%	0.77%	1,360											
Assets, Earnings & Capital Forecast															
(000) omitted	Current Quarter	Growth Rate	Projected over next 4 Qtrs												
Total Assets	176,603	0.0%	176,603												
Earning Assets	159,691	0.0%	159,691												
Annualized Earnings	1,222	11.3%	1,360												
Projected Dividends			0												
Tier 1 Equity Capital	25,084	5.4%	26,444												
Tier 1 Equity Capital Ratio	14.20 %		14.97%												
Return on Tier 1 Equity	4.87 %		5.28%												

**Weighted Average Rate Change** is an important component in the forecasted ratios. The rate is applied to the **Rate Shock Margin Simulation** to determine where the bank's margin would be if applying the rate change.

See: [Rate Shock Net Interest Margin Simulation](#) – with the new margin position, the forecasted ratios can be calculated with the calculation converted to a percentage of Total Assets.



## Chapter 6: Assumptions (revised May 2020)

After your initial review of the **RiskGPS** Analysis, you will want to review and modify the various assumptions. There are five assumption sections: Risk Tolerance, Loans, Securities, Deposits, and Reclassifications. We will review each section and describe the correlation between modifying the data and the effects it will have on your **RiskGPS** report.

The Call Report is primarily a data-gathering document and not a financial document; therefore, the information must be “prepared” before it is to be used in analysis. The maturity data in the Call Report is stated as final maturity, or next repricing, which means that the actual cash flows need to be determined. In addition, some portion of the investment portfolio is callable and must be accounted for in the possible cash flows. The assumption section of **RiskGPS** makes these areas available to you for modification.

**Note:** in **RiskGPS**, a blank box signifies the retention of the default settings, and a “0” (zero) indicates no balance or rate.

**Each screen allows you to save changes (OK), clear your entries and refresh the default settings (Clear Adjustments), or refresh by returning to the previously saved changes (Reset).**

### 6.1 Risk Tolerance Assumptions

For **RiskGPS** to calculate the minimum Net Interest Income (NII) for the bank it must determine of all expenses, or cash flows, that the NII must cover. The Risk Tolerance Report contains a dollar value of the item, and to the immediate right, the system has calculated percentage of Earning Assets (EA) and the percentage of Average Assets (AA). Both are presented to accommodate the various ratios that bankers use in their measurement methods.

**Strategy Bank, Schaumburg, IL ▾**

**Risk Tolerance Assumptions**

The values calculated from the Risk Tolerance Analysis will set the benchmark from which the bank's Net Interest Margin will be measured. The system estimates below are based on the bank's past activity as well as applying industry standards. Review and adjust entries representing the values over the next 4 quarters. A 'blank' under User Defined defaults to the system estimate values.

	System Estimates	User Defined
Minimum Capital Ratio	7.00	<input type="text"/> 3.00 %
Total Asset Growth Rate	5.50	<input type="text"/> 5.00 %
Projected Dividends (enter as a negative to indicate capital injection)	1,250	<input type="text"/> 500 (000's)
Projected Non-Interest Income	4,015	<input type="text"/> 3,585 (000's)
Projected Non-Interest Expense	15,899	<input type="text"/> 12,980 (000's)
Projected Loan Loss Provision	2,526	<input type="text"/> 1,800 (000's)
Estimated Effective Tax Rate	14.17	<input type="text"/> %

\*S Corp?  Yes  No

**OK** **Clear Adjustments** **Reset**

Note: All system estimates are estimated from the bank's historical and current data or from outside sources. It is the responsibility of the user to determine the usability of these assumptions and make changes appropriate to their bank and market conditions.

The following are the assumptions that impact Risk Tolerance.

System Estimates are default values based on the bank's past activity as well as applying industry standards.

**Minimum Capital Ratio:** **RiskGPS** will default to a 7% minimum. Please enter your bank's minimum Capital/Asset ratio as required and stated in your bank's policy.

**Total Asset Growth Rate:** **RiskGPS** will review both recent and long-term history to make an initial default (estimate) growth rate for the next 4 quarters. This rate will also be used in the Performance Forecast section of the system. You will need to enter the bank's current year's budgeted Total Asset Growth Rate.



(Risk Tolerance Assumptions, cont'd)

**Projected Dividends:** Based on the bank's history, **RiskGPS** will forecast the estimated dividends expected to be paid over the next four quarters; this will be used in the NII calculations. If you are anticipating a capital injection, enter that here as a negative, or contra dividend.

**Projected Non-Interest Income, Non-Interest Expense, and Provision for Loan Loss:** These will also be estimated based on the bank's history, as the values over the previous four quarters are summed and divided by the YTD Average Earning Assets (last 4 quarters Avg. Earn. Assets/4). **RiskGPS** then applies the ratio to the projected Average Earning Assets (see Risk Tolerance report). The user is encouraged to revise the amounts to better reflect what the bank estimates will be occurring over the next four quarters.

#### Tax Equivalent Adjustments (TE) –

For tax estimates, please edit the following as needed:

- **Estimated Effective Tax Rate:** Enter annual percentage.
- **"S" Corp? Yes/No:** Select appropriate tax condition.



## 6.2 Loan Assumptions

All Default Assumption values are estimated from the bank's historical and current data and outside sources. It is the responsibility of the banker to determine the usability of these assumptions and make changes appropriate to the bank and its market condition.

**Loan Assumptions**

System Estimates are calculated based on the banks past activity. It is important to review and adjust where needed to capture the bank's current position more accurately. A 'blank' under User Defined defaults to the System Estimate values.

Market Rate on Loans Used as the Discount Rate	System Estimates	User Defined
Please enter the Weighted Average Rate on New Loans	7.79	<input type="text"/> %

**Note:** To exclude PPP Loan Fees from Interest and Fees on Loans used in Rate Shock calculations, enter the amount below.

Paycheck Protection Program (PPP) Loan Adjustments	
Amount of PPP Loan FEES booked this quarter	<input type="text"/> (000's)

**Note:** The Call report requires banks to classify Floating Rate Loans that have reached their floor, as Fixed. Their maturity is therefore reported at its final maturity date. By providing the information below, the system can automatically move these balances back to Floating when the rate shock level causes them to exceed their floor.

All Other Loans – (all loans excluding 1-4 Fam Res Mtgs)		
Volume of Floating Loans without Floor	4,650	<input type="text"/> (000's)

**Note:** Please fill in the weighted rates below for Floating Loans. For the Contractual Rate (also known as Indexed Rate), enter what the weighted average yield would be if there were no floors or ceilings. For example, if these loans are priced at Prime plus a spread, and Prime = 8.50% and the weighted average spread is 50bp, then the Weighted Average Contractual (Indexed) Rate is 9.0%.

Floating Loans Above Floor	0	<input type="text"/> (000's)
Weighted Average Yield on Floating Loans Above Floor	7.79	<input type="text"/> %
Weighted Average Contractual (Indexed) Rate	0.00	<input type="text"/> % > Floor
Weighted Average Floor Rate	0.00	<input type="text"/> %
Weighted Average Ceiling Rate	<input type="text"/> %	<input type="text"/> %
Floating Loans at their Floor	0	<input type="text"/> (000's)
Weighted Average Contractual (Indexed) Rate	0.00	<input type="text"/> % == Floor
Weighted Average Floor Rate	0.00	<input type="text"/> %
Weighted Average Ceiling Rate	<input type="text"/> %	<input type="text"/> %

**Closed-end Loans Secured by First Liens on 1-4 Family Residential Properties** **Note:** Please put 0 in the cells that are not in use in this section.

	1-3 mon	3-12 mon	1-3 years	3-5 years	5-15 years	>15 years
RE Loans as Reported	7,515	33,043	49,025	88,285	38,247	2,861 (000's)
Non ARM Volume	<input type="text"/> (000's)					
ARM Volume	<input type="text"/> (000's)					
Floor Rate	<input type="text"/> %					
Ceiling Rate	<input type="text"/> %					
Wt. Avg Contractual (Indexed) Rate	<input type="text"/> %					

Amortize Loans ?  Yes  No

**Loan Prepayment Percentages at various Rate Levels (applies to all loans and mortgage backed securities)**

Level	-400	-300	-200	-100	0	+100	+200	+300	+400
Plansmith Defaults	10.00	8.75	7.50	6.25	5.00	4.50	4.00	4.00	4.00
User Defined	<input type="text"/>								

**OK** **Clear Adjustments** **Reset**

Note: 'Plansmith Defaults' are prepayment assumption estimates based on Plansmith's analysis of recent industry/client data. The user should review these assumptions and make changes appropriate to their bank's risk profile and to market conditions. It is also highly recommended that the user run alternative prepayment scenarios to analyze the impact on results due to assumption changes.

**Market Rate for Loans Used as Discount Rate.** Also known as the Average Rate expected for New Loans. This rate serves multiple purposes. First, this rate is used as the discount rate on Loans when calculating their Market Value for the EVE shock analysis. Secondly, it represents the repricing rate on all contractual run-offs, i.e., loan maturities and prepayments.

Important: A system estimate is supplied for you; we recommend you review and edit as appropriate.



(Loan Assumptions, Cont'd)

**All Other Loans - (all loans excluding 1-4 Fam Res Mtgs)** is defined as **all of the bank's loans *excluding* Residential 1-4 family closed end loans and fixed rate loans**. The Call Report requires banks to classify Floating Rate Loans that have reached their floor as Fixed. Therefore, maturity schedules as stated in the bank's Call Report, when combined with repricing data, may not be a true indicator of the bank's interest rate risk position.

**RiskGPS's** loan assumptions provide you with the ability to distribute floating loans into three categories: Floating, Floating Above Floor, and Floating At their Floor. **See:** Loan Cash Flow Report, Other Loans, may include Revolving Credit

**Volume of Loans Floating without a Floor:** This field is available so you may identify that portion of the amount reported in the 1-3 month maturity bucket of the call report that are immediately available for repricing. **RiskGPS** may provide an estimate, or system default, for you. You are encouraged to edit this assumption to coincide with your bank loan reports.

**Note:** Your entry for Floating Loan volumes cannot exceed that as reported in your 1-3 month maturity bucket on the call report. You will be notified in the event this occurs.

Floating Loans without a floor will reprice using our calculated rate for All Other Loans. If you supply information for 'Floating Loans Above Floor' (see below), your user-defined Weighted Average Contractual (Indexed) Rate will be used in replacement of the rate on All Other Loans.

All Other Loans – (all loans excluding 1-4 Fam Res Mtgs)		
Volume of Floating Loans without Floor	4,586	(000's)
<b>Note:</b> Please fill in the weighted rates below for Floating Loans. For the Contractual Rate (also known as Indexed Rate), enter what the weighted average yield would be if there were no floors or ceilings. For example, if these loans are priced at Prime plus a spread, and Prime = 8.50% and the weighted average spread is 50bp, then the Weighted Average Contractual (Indexed) Rate is 9.0%.		
Floating Loans Above Floor	0	(000's)
Weighted Average Yield on Floating Loans Above Floor	6.01	%
Weighted Average Contractual (Indexed) Rate	0.00	% > Floor
Weighted Average Floor Rate	0.00	%
Weighted Average Ceiling Rate		15.09 %

**Floating Loans Above Floor:** Here you may enter Other Loan balances which have a floating/variable rate but are governed by a floor. In this situation, the balances will reprice freely during a rate shock simulation until rates decline to the point they hit their floor. When this condition is met, **RiskGPS** will treat them as a fixed rate loan. This will demonstrate the protective nature on interest that these loan types have in a declining rate environment.

**Weighted Average Yield on Floating Loans Above Floor:** This is the weighted average yield on loans in this category and may be the same or very close to the Contractual (Indexed) Rate for Floating Loans Above Floor. This yield will be used in the calculation of exiting interest for each shock calculation. If you do not enter a weighted average yield, the system will use the estimated yield based on your call report data.

	System Estimates	User Defined
Floating Loans Above Floor	0	(000's)
Weighted Average Yield on Floating Loans Above Floor	6.01	%
Weighted Average Contractual (Indexed) Rate	0.00	% > Floor
Weighted Average Floor Rate	0.00	%
Weighted Average Ceiling Rate		15.09 %

**Weighted Average Contractual (Indexed Rate):** For the Contractual Rate, also known as the Indexed Rate, enter what the weighted average yield would be if there were no floors or ceilings. For example, if these loans were priced at Prime plus a spread, where Prime = 8.5% and the weighted average spread is .50bps, then the Weighted Average Contractual/Indexed Rate would be 9.0%.

In many cases, the Weighted Average Yield and the Weighted Average Contractual/Indexed Rate may be the same.

With this information, the model is trying to determine if, and when, the cash flows will change with rising rates, i.e., when will they move out of fixed (amortizing) and reprice as Floating.

- The weighted average contractual (indexed) rate should be higher than the floor rate as they are not yet at their floor



(Loan Assumptions, Cont'd)

**Floating Loans At their Floor:** This assumption allows you to break out floating loans currently at their floor, reported as Fixed in your call report, so that during a rate shock simulation, **RiskGPS** will allow these volumes to reprice again when the rates exceed the current floor. This will have a favorable impact to interest in a rising rate shock environment.

- The weighted average contractual (indexed) rate should be at or lower than the floor rate as they are currently at their floor

**Note:** It is possible that the total of all three assumption categories may not equal Total Other Loans, as you may have traditional fixed balances remaining in the category. For Floating above and at Floor volumes, **RiskGPS** will limit your entries so not to exceed the amount of Total Other Loans, less any entries made to Volume of Loans Floating without a Floor. You will be automatically notified if you violate this restriction.

**Adjustable Rate Mortgages (ARMs):** If entered, **RiskGPS** will use the data you've supplied to reprice volumes at the middle of the time bucket in which they are entered, in their entirety, while being held to their Floor or Ceiling. The model will total the volumes and verify that the ARM and Fixed values equal the total RE 1-4 family values you entered on your most recent Call Report.

	1-3 mon	3-12 mon	1-3 years	3-5 years	5-15 years	>15 years	
RE Loans as Reported	7,515	33,043	49,025	88,285	38,247	2,861	(000's)
Non ARM Volume	7,515	30043	37221	88285	37090	2,861	(000's)
ARM Volume	0	3,000	11804	0	1157	0	(000's)
Floor Rate	0	5.00	5.00	5.50	6.00	0	%
Ceiling Rate	0	16.00	16.00	16.00	16.00	0	%
Wt. Avg Contractual (Indexed) Rate	0	6.00	6.50	7.00	7.00	0	%
Amortize Loans ?	<input checked="" type="radio"/> Yes <input type="radio"/> No						

**Weighted Average Contractual (Indexed) Rate:** this line enables you to define what the ARM balance is currently earning (when it is between the Floor and Ceiling), or what rate the ARMs would be earning if they were not currently at the Floor or Ceiling.

Entering this data will provide the model with the detail needed to better analyze the impact of these repricings on Margin and Economic Value of Equity (EVE).

**Loan Amortization:** If your maturity data is recorded in the Call Report at its final maturity date (full term), this feature allows **RiskGPS** to modify those maturities by selecting the "Yes" option next to 'Amortize Loans?'. If your loan portfolio consists of a majority of repriceable loans and you record their maturities at their first repricing date, then select "No" to the option to amortize these loans. See the GAP report for original and revised maturity distributions.

**Note:** The volume in each period cannot exceed the total amount of that same period in the Call Report.

**RiskGPS** assumes that ARM loans amortize, on average, based on twelve monthly payments per year.

#### Loan Prepayment Percentages (CPR) at various rate levels.

Plansmith defaults for Prepayment Assumptions are estimates based on Plansmith's analysis of recent industry client data. The user should review these assumptions and make changes appropriate to their bank's risk profile and to market conditions. It is also highly recommended that the user run alternative prepayment scenarios to analyze the impact on results due to assumption changes.

Loan Prepayment Percentages at various Rate Levels (applies to all loans and mortgage backed securities)									
Level	-400	-300	-200	-100	0	+100	+200	+300	+400
Plansmith Defaults	20.00	17.50	15.00	12.50	10.00	8.75	7.50	6.25	5.00
User Defined									
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="button" value="OK"/>	<input type="button" value="Clear Adjustments"/>	<input type="button" value="Reset"/>						



(Loan Assumptions, Cont'd)

**Note:** If changing the default settings, it is important that you document the reasoning or methodology behind the assumption changes. Prepayments will reprice at the current Loan Yield, or the User Defined Discount/Avg. Rate on New Loans, located at the top of the Loan Assumption entry form.

Strategy Bank, Schaumburg, IL ▾							
Log File of individual Amortizations and Prepayments							
REAL ESTATE LOANS							
Rate used to Amortize = 6.53							
Amortization	Immed.	1-3 mon	3-12 mon	1-3 yrs	3-5 yrs	5-15 yrs	> 15 yrs
1-3 mth = 8,987							
Amortization		8,987					
3-12 mth = 20,315							
Amortization		8,027	19,190				
1-3 Yr = 6,552							
Amortization		773	2,396	21,925			
3-5 Yr = 7,289							
Amortization		402	1,246	3,637	24,572		
5-15 Yr = 21,411							
Amortization		383	1,187	3,463	3,945	12,908	
>15 Yr = 1,807							
Amortization		11	34	100	114	858	690
Total RE Loans		18,583	24,054	29,125	28,631	13,766	690
Balances in periods >12 months are prepaid into 1-3 mon and 3-12 mon time periods							
Pre Payment Rate = 0.10							
After Prepay		19,349	26,351	28,067	28,025	12,437	621
ALL OTHER LOANS							
Rate used to Amortize = 8.30							
Amortization	Immed.	1-3 mon	3-12 mon	1-3 yrs	3-5 yrs	5-15 yrs	> 15 yrs
1-3 mth = 15,864							
Distribute Floating		8,581	7,283				
3-12 mth = 49,672							
Amortization		19,561	30,111				
1-3 Yr = 41,665							
Amortization		4,839	15,132	21,694			
3-5 Yr = 41,406							
Amortization		2,206	6,899	20,632	11,668		
5-15 Yr = 19,308							
Amortization		314	980	2,932	3,460	11,622	
>15 Yr = 534							
Amortization		3	8	25	29	246	224
Total Other Loans		8,581	34,205	53,130	45,283	15,158	11,868
Balances in periods >12 months are prepaid into 1-3 mon and 3-12 mon time periods							
Pre Payment Rate = 0.10							
After Prepay + Assumptions		21,131	23,469	58,570	40,754	13,642	10,681
<b>Total Loans</b>		<b>21,131</b>	<b>42,818</b>	<b>84,921</b>	<b>68,821</b>	<b>41,667</b>	<b>23,118</b>
							<b>822</b>



(Loan Assumptions, cont'd)

**Example of the method to estimate Immediate Repriceable loans:**

As you may know, loan maturities reported in your FFIEC Call Report for the first two years are grouped into the following time buckets: 1-3 month, 3-12 month, and 1-3 years. When running a Rate Shock Analysis this data may be missing a key element, Immediately Repricing Loans.

Using deductive methods, **RiskGPS** looks at the original maturities reported for Non-RE loans.

We assume that the 1-3 month contains the Immediate as well as any dollars maturing between 1-3 months. We can also assume that the payments expected for the 3-12-month bucket are fairly close to those payments made in the previous period.

Therefore, we divide the 3-12-month bucket by 3 to estimate one quarter of maturity payments.

If then that same amount represents one quarter of maturity data in the 1-3-month bucket, then we can deduct it leaving us with the amount that is most likely Immediately Repriceable.

ALL OTHER LOANS							
Rate used to Amortize = 7.73							
Amortization	Immed.	1-3 mon	3-12 mon	1-3 yrs	3-5 yrs	5-15 yrs	> 15 yrs
1-3 mth = 16,709							
Distribute Floating	1,618	15,091					
3-12 mth = 45,272							
Amortization			45,272				
1-3 Yr = 38,797							
Amortization				38,797			
3-5 Yr = 40,744					40,744		
Amortization						40,744	
5-15 Yr = 20,064						20,064	
Amortization							20,064
>15 Yr = 402							402
Amortization							402
Total Other Loans	1,618	15,091	45,272	38,797	40,744	20,064	402
Balances in periods >12 months are prepaid into 1-3 mon and 3-12 mon time periods							
Pre Payment Rate = 0.00							
After Prepay	1,618	15,091	45,272	38,797	40,744	20,064	402

**Example from above:**

3-12 bucket as per <u>Call Report</u>	45,272 maturing dollars
1/3 Estimated amount per quarter	15,091 maturing per quarter
1-3 mth bucket as per <u>Call Report</u>	16,709
Less estimate per quarter for 1-3 mth	-15,091
Leaves the Estimate for Immediate	<u>1,618</u>

**Important Note:** These are estimates only. The user is encouraged to adjust the Loan Assumptions to best reflect their detail which may be obtained from their loan application.



## 6.3 Securities Assumptions

Security cash flows are divided into several categories: *U.S. Government Securities, US Agency Securities, State & Political, Mortgage Backs & Other Debt Securities*. Treasury and Municipal Securities are reported as bullet bonds using only the stated maturities.

Securities Assumptions		System Estimates				User Defined			
Maturity of Interest Brng Deps in Other Banks		6				3 Month(s)			
Reverse Repo Maturity		1				Month(s)			
Repurchase Agreements Maturity		1				Month(s)			
US Agencies Callable Percentage	50	50 %				Callable Spread 50 bp			
Dividends on Equity Securities		5				(000's)			
Adjust Gap Report		Immediate	1-3 mon	3-12 mon	1-3 year	3- 5 year	5- 15year	>15 year	
Int. Brngs Deps in Other Banks Calc.		0	0	17,992	0	0	0	0	
Int. Brngs Deps in Other Banks User Defined	8,200	0	9,792	0	0	0	0	0	
Govt, Agen & Munis Calc.	0	0	0	0	1,316	5,342	6,606		
Govt, Agen & Munis User Defined									
Other Borrow Calc.	0	0	0	0	0	0	0	0	
Other Borrow User Defined									
Duration and Market Value of Securities (in months) at different Rate Shock Levels									
Level	-400	-300	-200	-100	0	+100	+200	+300	+400
Default Duration (in months)	86	87	87	88	88	88	88	89	89
Default Market Value	30,165	28,506	26,830	25,136	23,426	21,703	19,972	18,232	16,484
User Defined Market Value									
Resulting User Defined Duration (in mths)									
<input type="button" value="OK"/> <input type="button" value="Clear Adjustments"/> <input type="button" value="Reset"/>									

Let's review the Default assumptions and the User Defined Options available:

**Maturity of Interest Bearing Deposits in Other Banks, Reverse Repo Maturity, and Repurchase Agreements** will default to 6 months. Remember: if the User Defined area remains blank, it will use the default information. If you wish to change the maturity, enter the number of months each type is most likely to be held for. If you do not have any balances in these categories, no action is necessary.

**US Agency Callable Percentage:** You may adjust the callable values in one of two ways:

- Edit the Spread / Percentage Called
- Edit the maturity distribution brought forward from the Call Report

US Government Agency Security maturities can have contractual callable options. This assumption allows you to estimate the percentage of your portfolio that has contractual calls, and to identify the average spread (rate drop) in which it would produce the call. **RiskGPS** will default to 50% of the portfolio at a 50bp rate change.

Using this estimate, the system subtracts 50bp from the current Agency yield and compares that to the current 2-Yr Treasury Bill Rate (see Performance Forecast). If the Agency yield is higher, 50% of the Agency balances will be called and placed in the 1-3-month maturity category. This relationship is dynamic and will change as the rate levels adjust during Rate Shock Simulation.

**Editing the maturity distribution will take precedence over the percentage option. If editing the maturity distribution in any given line, you must complete the entire line of information.**



(Securities Assumptions, cont'd)

If the sum of the maturities from the maturity data does not equal the balance on the balance sheet, then the program will put the difference into the greater than 15-year bucket on the Gap Report. Typically, these differences are due to other investment securities without maturities that must be accounted for later in the market value calculation.

**Dividends on Equity Securities:** Dividends on Equity and Funds is different from normal yields on securities, in that they are not subject to rate changes and therefore are not part of the rate shock calculations. They are estimated by the program and taken from the Call Report line interest & dividend income for calculating the Yield on Securities used in Rate Shock calculations.

Based on the default data or your adjustments to the assumptions, **RiskGPS** will calculate the Duration and the Market Value for your Securities Portfolio at each Shock increment.

Duration and Market Value of Securities (in months) at different Rate Shock Levels									
Level	-400	-300	-200	-100	0	+100	+200	+300	+400
Default Duration (in months)	86	87	87	88	88	88	88	89	89
Default Market Value	30,165	28,506	26,830	25,136	23,426	21,703	19,972	18,232	16,484
User Defined Market Value	<input type="text"/>								
Resulting User Defined Duration (in mths)									

**User Defined Market Value/Duration:** You may further define your securities values by requesting a rate shock market value report from your broker and entering the values here. Once defined by the user, the user defined Decay values will be calculated and displayed.

Select 'OK' – to save. The system automatically recalculates both Duration and Market Value.



## 6.4 Deposit Assumptions

Based on the bank's historical rate relationship to changes in the yield curve, **RiskGPS** will estimate bank-specific betas. Betas represent the percentage of change in the bank's interest rate for every 1.00% change in yield curve rates. As deposit products react differently to rate change, we ask you to review and adjust the estimated Beta values when necessary.

See: [Rate Sensitivity of Non-Maturing Deposits](#)

**The way you would read the example below would be:**

**Interest Bearing Checking:**

- For every 1.00% increase in interest rates, **RiskGPS** has determined that the bank historically increased its rate by 37bps
- For every 1.00% decrease in interest rates, the bank historically decreased its rates by 24bps.

**Deposit Assumptions**

Calculated are used as system estimates. It is recommended that the user review and adjust these to insure consistency with the banks position. Note, however, that a "blank" tells the program to use system estimates. To input a zero or any other value, type 0 or the particular value respectively.

	Rising Rates	User Defined	Falling Rates	User Defined
Beta for Checking ( Interest Bearing)	37.00	<input type="text"/> %	24.00	<input type="text"/> %
Beta for MMDA	4.00	<input type="text"/> %	25.00	<input type="text"/> %
Beta for Savings	4.00	<input type="text"/> %	25.00	<input type="text"/> %
Beta for CDs	71.00	<input type="text"/> %	71.00	<input type="text"/> %
	Rising Rates	User Defined	Falling Rates	User Defined
Decay term for Non-Interest Bearing Checking balances	32	<input type="text"/> Month(s)	50	<input type="text"/> Month(s)
Decay term for Interest Bearing Checking balances	32	<input type="text"/> Month(s)	50	<input type="text"/> Month(s)
Decay term for MMDA balances	100	<input type="text"/> Month(s)	48	<input type="text"/> Month(s)
Decay term for Savings balances	100	<input type="text"/> Month(s)	48	<input type="text"/> Month(s)

**Discount Rate**

	System Estimates*	User Defined
Non Interest Bearing Checking Accounts	2.68	<input type="text"/> %
Interest Bearing Checking Accounts	2.68	<input type="text"/> %
MMDA	2.67	<input type="text"/> %
Savings	2.67	<input type="text"/> %
CDs	2.66	<input type="text"/> %

**OK**   **Clear Adjustments**   **Reset**

**For example:** The user lowers the rising beta on **Interest Bearing Checking** from 37 to 25bp. This tells the model that the bank intends to increase its interest rate .25 for every 1% rise in rates.

	Rising Rates	User Defined
Beta for Checking ( Interest Bearing)	37.00	<input type="text"/> 25.00 %
Beta for MMDA	4.00	<input type="text"/> %
Beta for Savings	4.00	<input type="text"/> %
Beta for CDs	71.00	<input type="text"/> %

Changes in the Betas will affect the Decay rates in the section below the Betas. Therefore, if you make changes to the Betas, select 'OK' then return to the Deposit Assumptions page to review the revised decay information.

**Decay Term** information affects the market value associated with non-maturing deposits reported on the [Rate Shocked Economic Value of Equity](#). Typically, the more rate sensitive the deposit, the shorter the decay. However, if the customer base has a history of long-term retention, then the decay value can be changed, and, in most cases, extended. In such a case the longer the decay of the deposit the greater the market value will fluctuate.

Although the model will suggest appropriate decay terms based upon the current betas for non-maturing balance repricing, the user is asked to examine each decay term and determine if they are accurate.

**For example:** **Money Market Accounts** typically have short decay terms in fluctuating rate environments as the customer moves their balances more frequently to get the best rate of return. In stagnate or falling rate conditions, your MMDA customer is more likely to stay put, i.e., have a longer decay. As many of you have experienced, there may be conditions that contradict these situations. You have the ability to customize the decay term to describe the current customer behavior.



(Deposit Assumptions, cont'd)

Deposit Assumptions				
Calculated are used as system estimates. It is recommended that the user review and adjust these to insure consistency with the banks position. Note, however, that a "blank" tells the program to use system estimates. To input a zero or any other value, type 0 or the particular value respectively.				
	Rising Rates	User Defined	Falling Rates	User Defined
Beta for Checking (Interest Bearing)	37.00	<input type="text"/> %	24.00	<input type="text"/> %
Beta for MMDA	4.00	<input type="text"/> %	25.00	<input type="text"/> %
Beta for Savings	4.00	<input type="text"/> %	25.00	<input type="text"/> %
Beta for CDs	71.00	<input type="text"/> %	71.00	<input type="text"/> %
	Rising Rates	User Defined	Falling Rates	User Defined
Decay term for Non-Interest Bearing Checking balances	32	<input type="text"/> Month(s)	50	<input type="text"/> Month(s)
Decay term for Interest Bearing Checking balances	32	<input type="text"/> Month(s)	50	<input type="text"/> Month(s)
Decay term for MMDA balances	100	<input type="text"/> Month(s)	48	<input type="text"/> Month(s)
Decay term for Savings balances	100	<input type="text"/> Month(s)	48	<input type="text"/> Month(s)
Discount Rate				
	System Estimates*	User Defined		
Non Interest Bearing Checking Accounts	2.68	<input type="text"/> %		
Interest Bearing Checking Accounts	2.68	<input type="text"/> %		
MMDA	2.67	<input type="text"/> %		
Savings	2.67	<input type="text"/> %		
CDs	2.66	<input type="text"/> %		

In our example above, the system calculated short decays for the Non-Maturing Deposits. The bank felt that this it did not reflect their current situation in which these deposits are much more 'sticky', and should, in fact, be considered core deposits.

**Discount Rates** – are used to determine the current and shocked market value of your deposit balances. As each deposit has a decay term or actual maturity, it has a duration. The account's duration is matched up with its counterpart on the yield curve for assigning the discount rate. If a balance category has \$0 balances, the Fed Funds rate is displayed as a system default for the Discount Rate.

Again, the user is asked to consider the current situation and edit where necessary.

See: [Performance Forecast](#) page for yield curve information.

Also see: [Rate Risk Management Strategy Report](#) of duration information.



## 6.5 Reclassification Assumptions

Some banks reclassify non-maturing deposit balances to recognize sweep accounts and to reduce assessment fees. This can distort the calculation of interest expense and cost rate. If your bank has engaged in this activity, it is necessary to re-state these reclassifications to obtain a better estimate of cost rate for rate shock purposes.

The program allows the user to load a restatement of MMA and Savings balances for the past five quarters and save them.

**Strategy Bank, Schaumburg, IL ▾**

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**Reclassifications**

Calculated are used as system estimates. It is recommended that the user review and adjust these to insure consistency with the banks position. Note, however, that a "blank" tells the program to use the system estimates. To input a zero or any other value, type 0 or the particular value respectively.

	Dec 2017	Mar 2018	Jun 2018	Sep 2018	Dec 2018
MMDA	<input type="text"/>				
Savings	<input type="text"/>				
DDA	<input type="text"/>				
Int Bearing Checking	<input type="text"/>				

**OK** | **Clear Adjustments** | **Reset**

**Note:** If this does not apply to your institution, no action is required.



## Conclusion

**RiskGPS** is an efficient, cost effective and informative Interest Rate Risk analysis tool for less complicated community banks. The analysis uses regulatory methodologies to arrive at reasonable approximations of the impact of changing rates on a static balance sheet. The inclusion of a Performance Forecast was added to provide a more meaningful report of the potential changes to the bottom-line, four quarters from the current quarter. We are confident that you will find this quick, easy, and attractive report extremely useful, as so many other users do.

Should questions arise as you complete your quarterly **RiskGPS** analysis, please give us a call at 800-323-3281 or send an email to support@bankersgps.com. We're always happy to help!



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## Glossary of Terms

<b>Adjusted Scheduled Maturities</b>	Contractual amortization adjusted by prepayment amounts from earlier months. See also: <b>Scheduled Maturities, Total Maturities</b> .
<b>Adjusted Scheduled Repricings</b>	Contractual repricings adjusted for prepayments.
<b>ALCO</b>	Asset/Liability Committee, a group of financial institution managers and/or directors charged with the responsibility of formulating the institution's policy and procedure to evaluate and manage interest rate risk.
<b>Average Term (or Life)</b>	The time-weighted average maturity or repricing of assets and liabilities.
<b>Budget Cost</b>	The weighted average interest rate on a liability for the month. Should be equal to the annualized monthly budget income divided by the average balance for that month, but <b>Compass</b> does not calculate this field in the budget area.
<b>Capital Risk Tolerance</b>	The reduction in the financial institution's equity that would cause the equity to fall to the minimum required ratio to assets. It is computed as the current capital less the minimum capital required.
<b>Convexity</b>	Describes the shape of the line graphing Economic Value of Equity when Economic Values are adversely impacted by <b>Optionality</b> .
<b>Cumulative Gap</b>	The sum of the periodic rate sensitivity gaps over the next 12 months.
<b>Decay Rate</b>	An artificial maturity structure for a balance sheet account that has no contractual maturity. The maturity structure can be used in <b>Gap, Economic Value</b> or both <b>Gap</b> and <b>Economic Value</b> calculations.
<b>Driver Rate</b>	A market interest rate that is beyond the control of the individual financial institution that influences pricing decisions of the institution.
<b>Duration</b>	The percent change in Economic Value (price) of a financial instrument for every 100bp change in interest rates. <b>Duration</b> is usually expressed in months. Divide the <b>Duration</b> in months by 12 to convert to percentage.
<b>Dynamic Gap</b>	<b>Gap</b> analysis performed at a time in the future based upon a projected starting point, with asset/liability mix affected by management's strategy.
<b>Earnings at Risk</b>	The actual income loss in dollars due to rate change from the current level. It is computed by subtracting the net interest income at each Rate Shock increment from the current or zero change level. Only potential losses are reported.
<b>Economic Value</b>	Current Economic Values of the interest-bearing balance sheet categories are calculated using the discounted cash flow method or supplied in the call report.
<b>Economic Value of Equity (EVE)</b>	The difference between the Economic Value of the assets and Economic Value of the liabilities. It is the financial institution's theoretical liquidation value if assets were sold and liabilities paid off.
<b>EOM Balance</b>	The balance projected for the last day of the month. For an account with maturities, the EOM balance is the sum of last month's end of month balance, new balances generated in the month, less <b>Total Maturities</b> .
<b>EOM Yield</b>	The yield of the account as of month end. Should be equal to the weighted average yield of all maturities in the account.



Factor	A percentage relationship between driver and a price. For example, a <b>Factor</b> of 50% would mean a price of 3% if the driver were at 6%, and a price of 5% if the driver is at 10%.
Fully Tax Equivalent (FTE)	This is the adjustment to yield and margin that accounts for the non-taxable or partial taxability of some investments and loans.
Gap	The dollar difference between total rate sensitive assets and total rate sensitive liabilities over a selected period of time. Rate sensitivity is the total of maturities, amortizations, repricings, and prepayments during the selected period.
Interest Rate Risk	Risk of a decline in a financial institution's earnings or liquidation value caused by changes in market levels of interest rates.
Margin Risk Tolerance	The difference between the institution's current net interest margin and its minimum required margin needed to meet all expenditures including dividends and capital formation (if needed).
Market Rate	This is the current competitive rate on new loans within the institution's trade area. The <b>Market Rate</b> is used as the discounting rate in the Economic Value calculation.
Minimum Margin	The net interest margin needed to meet all expenditures as well as dividends and capital formation, if needed. If the net interest margin falls below the minimum, then capital formation and, ultimately, the capital ratio will fall.
Model	<ol style="list-style-type: none"><li>1. A mathematical relationship between a driver (independent variable) and an outcome (dependent variable).</li><li>2. A shortcut to apply a single assumption (or set of assumptions) to a number of different elements.</li></ol>
New Maturities	Maturities resulting from amortization or final maturity of balances added after projections begin. These amounts are determined by account properties set with the Account Wizard or Edit Properties options. (See also: <b>Scheduled Maturities</b> .)
New Repricings	Balances that will reprice each month on transactions originated subsequent to the last day of actual data. This is determined by the properties set in the Account Wizard or Edit Properties options.
Offering Rate	The interest rate of new balances (new transactions) on an account with maturities, or the rate on all balances for an account without maturities.
Optionality	The ability of the financial institution's customers (or bond issuers) to prepay or redeem when market interest rates make it attractive for them to do so.
Prepayment	A full or partial repayment or redemption earlier than specified in the contract between the customer (or issuer) and the financial institution.
Prepayment Model	An estimate of a monthly percentage of early payments. In a "full" or "dynamic" model, the percentage varies according to the amount of <b>Spread</b> .
Price	The offering rate, or rate offered on new transactions. This rate may be influenced by a <b>Driver Rate</b> , but may react in a complex, rather than linear manner to <b>Driver Rate</b> changes.
Ramped Rate Shock	<b>Rate Shock</b> computed by gradually applying the amount of rate change over the time horizon selected. For example, a 300 basis point <b>Ramped Rate Shock</b> changes <b>Driver Rates</b> by 27.27 basis points (300/11) in months 2-12 in a 1 year rate shock.



Rate Sensitivity Gap	The difference between repricing or maturing assets and liabilities in a given time period.
Rate Shock	A technique that simulates rate changes over a specified time horizon from 12 - 60 months and the reinvestment of maturity cash flows and repricing of both earning assets and interest-bearing liabilities. The results show the impact on interest margin as rates move up and down, holding all account volumes constant.
Risk Cushion	The difference between the risk adjusted margin for a 100bp rate change or the risk adjusted capital for a 100bp rate change and the current margin or capital.
Scenario	A particular set of rate and volume assumptions created to test the results of an alternate course of management action.
Scheduled Maturities	Contractual principal payments and final maturities of the portfolio that existed on the last day of the month of actual data. See also: <b>New Maturities</b> , <b>Prepayment</b> , <b>Total Maturities</b> .
Scheduled Maturities Xrate	The <b>Xrate</b> of the <b>Scheduled Maturities</b> in a particular month.
Scheduled Prepayments	The amount of payments or principal reductions in excess of contractually required amounts. <b>Prepayments</b> are calculated by application of a <b>Prepayment Model</b> to an account or category.
Spread	<ol style="list-style-type: none"><li>1. The difference between the Driver Rate and the Price, expressed as an addition or subtraction (See also: <b>Factor</b>)</li><li>2. The difference between the existing rate to the customer and the institution's current rate for new transactions on that product. In <b>Compass</b>, a positive spread is always defined as an advantage to the customer.</li></ol>
Total Maturities	The sum of <b>Adjusted Scheduled Maturities</b> , <b>Prepayments</b> , and <b>New Maturities</b> .
Total Maturities Xrate	The <b>Xrate of Total Maturities</b> .
Variance Report	A report that compares: <ol style="list-style-type: none"><li>1. Actual results to budget results.</li><li>2. Actual results from one period of time to another.</li><li>3. Actual results to peer group averages.</li><li>4. Any combination of the above.</li></ol>
Xrate	The weighted average rate for the item to the left. The weighted average rate is calculated by multiplying each note, security or certificate amount by its rate, adding the total of all such results, and dividing that result by the total end of month balance.
Yield	The percentage of annualized monthly income or expense divided by the average balance for that month.



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