Article Series

Matt Harris
Senior Vice President
Assistant Director of A/L Management
The Baker Group LP
mharris@gobaker.com

Interest Rate Risk: Assumption Junction

If you've ever owned a car, you probably know about maintenance schedules. When followed, items such as oil, spark plugs, and tires are periodically reviewed and replaced to ensure the vehicle will continue to run properly. As regulators continue their increased scrutiny of interest rate risk (IRR) models, financial institutions should consider adopting their own "maintenance schedule" for model assumptions. Just like an automobile, a robust IRR model should be reviewed at least periodically to determine whether current behavior assumptions are appropriate and reasonable. When opening the hood of your interest rate risk model, the following critical assumptions should be reviewed:

- Interest rate scenarios to be modeled
- Reinvestment/discount/driver rates
- Rate sensitivities (betas) and time lags
- Average lives of non-maturing liabilities
- Asset prepayment/liability decay

While the list above is certainly not exhaustive, these assumptions could be considered the most critical and impactful to your reporting for both earnings-at-risk and long-term fair value analysis.

Rate Adjustments/Shocks

While it is commonly known that examiners are expecting +400 bps rate scenarios for earnings simulations, they are expecting to see non-parallel rate moves as well. This is where the short- and long-term rates of the curve move by different magnitudes. Historical yield curve analysis will assist with selection of the most realistic rate change scenarios.

Reinvestment and Discount Rates

The earnings-at-risk simulation relies heavily on reinvestment rates and other repricing rates to calculate the changes in interest income and expense. Discount rates, on the other hand, are used more specifically to determine the present value of future cash flows used more for long-term fair value analysis (economic value of equity or net economic value). Management should use current offering and other market rates to consistently adjust these, especially after recent rate changes and new products.

Rate Sensitivities and Time Lags

Sensitivities, sometimes known as "betas," are numbers that help describe the pricing relationship of a particular account in response to movement in market rates. Time lags specify how much time would pass before the account will begin to experience a rate change. For example, an account with a rate sensitivity of 30% and lag of 3 would imply that if market rates increased 100 basis points, the account would increase by only 30 basis points 3 months after the initial market rate move. Management should spend time reviewing historical rate performance to confirm that current sensitivity and lags assumptions are reasonable for their current activities.

Average Lives of Non-Maturing Liabilities

Widely considered the most mystifying assumptions for the model, the question here is what kind of maturities do the balances of your non-maturing liabilities have? Financial institutions should perform an analysis of non-maturing liability behavior and identify those funds which can be considered volatile versus core funding. Once separated, more volatile balances should be assigned shorter average lives versus core funding, which typically carries a longer average life.

(Continued)

Asset Prepayment/Liability Decay

Asset prepayments and liability decay rates are important to capture optionality on certain accounts. For assets, loans and mortgage-related securities have the ability to prepay principal. On the liability side, non-maturing liabilities incorporate decay rates to simulate the effect of depositors withdrawing balances in certain interest rate environments. A higher prepayment or decay rate would usually imply a shorter average life of the particular account.

Stress Testing Assumptions

One approach is to routinely stress test the assumptions in the model. Management may find this helpful as it identifies which items have the most significant impact on model results. An example of stressing an assumption would be removing time lags on non-maturing liabilities and doubling rate sensitivities. This adjustment would highlight the potential increase in interest expense if the institution would have to be more competitive from a pricing standpoint for those particular products.

Conclusion

Assumptions, by definition, are accepted as true without proof; therefore, there isn't necessarily a right and wrong way to model them. Also, while back testing is necessary and history may be insightful, it can't predict the future. Prudent risk managers are

aware of these limitations and will strive to maintain reasonable and supportable modeling assumptions. They will also consistently tweak and adjust their assumptions to better understand the implications those assumptions have on their model output and ultimately asset/liability management strategy.

The Baker Group is one of the nation's largest independently owned securities firms specializing in investment portfolio management for community financial institutions.

Since 1979, we've helped our clients improve decision-making, manage interest rate risk, and maximize investment portfolio performance. Our proven approach of total resource integration utilizes software and products developed by Baker's Software Solutions* combined with the firm's investment experience and advice. For more information, contact Matt Harris at The Baker Group: 800.937.2257, www.GoBaker.com, or email: mharris@GoBaker.com.

*The Baker Group LP is the sole authorized distributor for the products and services developed and provided by The Baker Group Software Solutions, Inc.

Matt Harris
Senior Vice President
Assistant Director of A/L Managemen
The Baker Group LP

Member: FINRA and SIPC   www.GoBaker.com
Oklahoma City, OK **|** Atlanta, GA **|** Austin, TX **|** Indianapolis, IN **|** Long Island, NY **|** Salt Lake City, UT **|** Springfield, IL **| 800.937.2257**
*The Baker Group LP is the sole authorized distributor for the products and services developed and provided by The Baker Group Software Solutions, Inc.