

## Can your rate risk program cut it?

Reviewing your effort as regulators increase scrutiny

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The recently renewed and heightened regulatory focus on the exposure of bank balance sheets to rising interest rates requires that financial institutions of all types and sizes reassess their approaches to measuring and managing their risk. Measuring this exposure has become increasingly complicated as a result of changing capital markets, more complex investment and funding alternatives, non-bank competition, and better educated and more sophisticated customers. And all of this comes during the worse recession in most bankers' lifetimes when credit risk remains concern #1.

The discussion that follows is not intended to be an all-inclusive list of what is expected from an interest risk management process. It is intended to provide an impetus for bankers to evaluate their own process to determine whether it is robust enough for today's environment.

If the process is lacking, then each banker needs to understand what the required time and resources might be to bring their process up to an acceptable level of effectiveness. Remember that the primary purpose of interest rate risk modeling is not to just build a model, but rather to build a model accurately and use that model as a tool to better understand and manage balance sheet risk.

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Outlined below are some considerations to help a bank ensure that they have a robust interest rate risk measurement system and also some cautionary comments on common mistakes to avoid in the process of measuring and managing these risks. [This review comes in the context of the federal interagency "Advisory on Interest Rate Risk Management," of Jan. 6, and FDIC's related Financial Institution Letter-2-2010, of Jan. 20, related to that advisory.]

## Requirements for measuring interest rate risk

For all banks desiring to effectively measure interest rate risk, the following are required components of the process:

Instrument level processing—Effective interest rate risk measurement requires loans, investments, and all liabilities to be modeled individually, so the expected cashflows can be aggregated for each scenario being tested. These cashflows must be varied for optionality and expected customer behavior. They must include expected prepayments; contractual caps and floors; expected puts and calls; and customer product preferences that can result in changes to the balance sheet mix. Particularly in the current environment, bankers should determine how reasonable projections of loan cashflows and prepayments are. Prepayments are generally overstated now, given the higher loan-to-value ratios already in place in seasoned loans and the higher underwriting standards now in place. (Both factors - properties worth less than their current loan balances and tougher standards that make it more difficult to refinance reduce prepayments below where they might ordinarily be expected to be in a low-rate environment.)

## Changes in yield curve

shape—Historical analysis proves that yield curve shifts are seldom-if ever-parallel in nature. Ordinarily, as short-term interest rates rise, the yield curve eventually flattens, and as interest rates fall, the yield curve steepens. Under both scenarios, the long end of the curve moves first, followed by the short end. Regulatory mandates for testing for parallel shifts in the yield curve often underestimate interest rate exposure in rising rate scenarios for net interest income and overestimate the exposure to economic value changes. In falling interest rate scenarios, mandated parallel shift measurements create similar problems.

Here are some points in support of the need to model flattening yield curves in a rising rate environment:

- Every time the federal funds rate has been increased over the last 40 years, the yield curve has flattened

- Over that 40-year period, for every 2% increase in the federal funds rate the average increase in 5-year and 10-year U.S. Treasury bond rates has been 76 basis points and 50 basis points, respectively (a flatter curve).

- Over the last 25 years (from January 1985 through December 2009), during periods of Federal Reserve tightening, the average slope of the

yield curve was flattening, on average annually, by 71 basis points for the 5-year UST and 95 basis points for the 10-year UST.

• Growth versus no

growth—All financial institutions should measure the risk embedded in the current balance sheet structure, based on the composition of assets and liabilities. This is done by running rate scenarios with static balance sheets (no change in balance sheet size and mix). It is important that this risk be measured before it is masked or clouded by expected

balance-sheet growth, because there is no guarantee that the projected growth will ever materialize. Growth scenarios can then be analyzed to determine the impact of forecasted growth and mix changes on the bank's interest-rate-risk position. If the bank finds the current embedded risk is higher than the bank can tolerate, then it should correct the situation before factoring in growth.

• Multi-year

simulations—All financial institutions should run simulations that extend over at least three years and preferably five years. For most banks, the average life of assets is in the three-to-five-year range, whereas liabilities are usually somewhat shorter. To truly understand the effect of rate cycles on net interest income, these longer simulations are a necessity.

• Realistic scenarios—Interest rate scenarios used to measure interest rate risk must be credible.

This creates incentives for management to take the necessary actions to reduce risk, which often result in reduced current income. In addition to modeling realistic yield curve shapes, the use of interest rate ramps (a gradual change over some term) versus interest rate shocks (an immediate and sustained rate change) is much more credible.

In the 40 years from 1970 to 2010, there have been only 12 months in which the federal funds rate has increased 200 basis points or more, and only 12 years where the annual increase exceeded 200 basis points. Since January 1985, there have been a total of 72 months in which the federal funds rate has increased. During that period there have been no months in which the rate has increased more than 100 basis points.

The average monthly federal funds rate increase has been 21 basis points and the average 12 month rolling increase has been 1.21%. There is little doubt that the use of interest rate scenarios using ramps, rather than interest rate shocks, is a much more realistic approach.

• Realistic assumptions—Just as important as realistic interest rate scenarios are, so too are the assumptions used to create model results. Assumptions for loan and deposit pricing, reinvestment of cashflows, changes in balance sheet composition, etc. are key variables in model outputs. Assessing and documenting the reasonableness of assumptions is a key requirement for a successful interest

rate risk measurement process.

• Realistic backtesting/model validation—To be credible, any model used to measure interest rate risk must be backtested to ensure that results forecasted by the model approximate the actual results realized by the financial institution. The actual net interest income created by the balance sheet should be reconciled, at least quarterly, to the net interest income forecasted by the model. Any variance consistently exceeding more than 3-5% should cause concern about the integrity of the model and/or the process used to create assumptions.

Cautions and things to consider

Just

as there are definite requirements for the effective measurement of interest rate risk, there are also some cautions important to consider:

• The yield curve is not a predictor of future rates. Today's yield curve is nothing more than a supply and demand curve. Given the Federal Reserve's active participation in recent market purchases, this is definitely true.

• Economic

Value of Equity (EVE) and Net Interest Income (NII) simulations are not compatible. An EVE simulation is the result of discounting balance sheet cashflows to maturity without reinvestment of those cashflows. EVE represents the theoretical liquidation value of the balance sheet under different interest rate shocks. Net interest income simulations result from the reinvestment of these cashflows. The EVE and NII simulations cannot produce compatible results. Net interest income simulations should be management's primary tool for measuring interest rate risk.

• Do not manage to forecasts—manage risk. If a financial institution has more measured risk in any realistic scenario tested than its income stream can withstand, then action should be taken to reduce this risk regardless of management's economic forecast. No banker should ever let greed overcome fear. If risk is too great, action should be taken to reduce it.

• Effective interest

rate risk management is more than modeling. Simply having an interest rate risk model and reporting system does not constitute interest rate risk management. As noted in the recent regulatory advisory, "effective interest rate risk (IRR) management not only involves the identification and measurement of IRR, but also provides for appropriate actions to control the risk." Actions

need to be taken and documented as part of the process.

George Darling presented the basics of asset-liability management for directors in a recent ABA telephone briefing.

To order a CD of the telephone briefing, [click here](#).

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