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Prepared by Peter Mihaltian

Managing a Prudent Assumptions Process

One area that has increasingly been mentioned in the comments/findings of recent audits and regulatory exams is the process surrounding assumption development, documentation and best practices. This article is designed to show you what a typical assumption development process may look like. The article also describes how to ensure that you are getting the best inputs into your ALM models while assuring that the documentation surrounding your assumptions supports your model inputs. Remember, having a good assumptions development process means you can rest assured that the output of your model is as accurate as possible. This will allow you more time focusing on your bank's strategic direction.

Assumption Development

The first step in organizing a robust assumptions discussion is to have the right personnel involved. Ideally, you would want a representative from each area of the bank present, i.e. treasury, lending, retail, etc. At some institutions these jobs may overlap, but the main goal is to have personnel with the appropriate expertise present so they can speak to future expectations.

As part of the modeling process, there should be an assumptions meeting that is held preferably on a quarterly basis or as frequently as the model is being run. This is when there is a full review of all of the assumptions embedded in the ALM model, e.g. liquidity, net interest income simulations, economic value of equity calculation, etc. Items that should be discussed include but are not limited to the following:

- Loan, investment, term funding cash flow replacement assumptions (for NII simulations), including structures and rates.
- Expectations for use of wholesale funding.

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- Prepayment assumptions.
- Deposit betas.
- Decay/average lives of non-maturity deposits (for value at risk models).

A typical assumption discussion begins with a walk-through of the prior quarter's assumptions. The main goal is to assess the validity of the existing assumptions and to make changes where appropriate.

The following are some examples of typical questions that are covered during a quarterly assumptions meeting:

- What has changed at the bank since the prior review?
- What has changed in the local marketplace since the last review?
- Are we still writing the same types of loans and at what rates?
- What is our outlook for future investment purchases?
- How do we expect our depositors to behave in the future?
- Are our depositors more or less rate sensitive than a quarter ago?
- Are we introducing any new products or entering any new lines of business?

Each one of these questions warrants a conversation. The most productive assumptions meetings are more conversational in nature. It is healthy to question the validity of key assumptions and to challenge your colleagues when necessary. Providing support to back your assumptions is also required in order to develop the most accurate model inputs possible.

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Assumption Documentation

A common area in which there are shortfalls is in documentation. We often see regulatory exam findings in this area as well. A rule of thumb is that if a conversation isn't documented then you have to assume that it never happened.

Taking minutes of the assumptions meeting is a prudent practice for assumption documentation. Although Darling Consulting Group details all of the assumptions to our clients in reports that we provide each quarter, there still needs to be documentation from the bank surrounding how the institution arrived at the assumptions used in the model. At the very least, minutes from an assumptions call should include the following:

1. Who was in attendance? This goes back to making sure that you have the appropriate representatives from the functional areas of the institution involved.
2. What topics were discussed? Did you cover all of the applicable areas of the balance sheet? Keeping your documentation organized, e.g. investments, loans, deposits, borrowings, etc., can be helpful when looking back at previous meetings to see why an assumption was originally made and assessing whether the rationales for your assumptions are still valid.
3. Were there any key/material assumption changes? Did you go over all of the key assumptions in the model? Were there any assumptions to which you did not make any changes although recent activity suggested otherwise? If so, document why you decided not to make changes. Remember, keeping an assumption the same is still a decision that should be documented! Were there any material assumption changes? For example, did you change deposit betas? Did a new competitor enter the market that caused a change in strategy and therefore related model assumptions? Was a new deposit study conducted? If so, reference the study in the minutes. Furnish details and support for why the changes were made. These types of changes should also be noted in the minutes of the subsequent ALCO meeting along with the impact of those changes on the model.
4. Provide tools and other qualitative information used to support your changes. This last item is critical. Many of the comments and findings in audits and regulatory exams are in relation to support for assumptions. As a model manager, you want to be sure that you can explain why an assumption was changed and be able to provide support for that change. For example, consider an institution that has a large residential ARM portfolio with the assumption that all cash flow from the portfolio is expected to be replaced with a 7/1 ARM at 4.50%. In a review of the assumption it becomes clear that the majority of loans recently written have been 5/1 ARMs

at 4.25%, prompting questions surrounding the validity of the assumption. After further review, the loan pipeline also shows that most of the rates currently locked in are for 5/1 ARMs at 4.25%. During this discussion, the lending team has indicated that there has been a shift in demand as rates have risen and more borrowers have opted for the lower rate mortgages. This is where you would provide a loan origination report, a residential loan pipeline report and documentation of the discussion surrounding the change in local market demand in order to support your assumption change. Keep in mind that using history alone is not enough support for a key assumption change. *History may not be indicative of future activity* so providing qualitative and quantitative support for your assumptions is important.

"Generally, key assumptions used in an IRR measurement system should be reviewed at least annually. Management can employ a variety of techniques to develop key assumptions; however, all such techniques involve obtaining and analyzing relevant data, and making judgment-based adjustments to reflect the possibility that assumptions based on past data may not reflect future trends." – FDIC Supervisory Insights Winter 2014

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An area of documentation that is often shortchanged is the case of items for which detailed underlying data or support may be lacking. This could be due to lack of necessary data from a bank's core systems or for other reasons. Some examples might include purchased loan portfolios for which the data file does not have the detailed fields required to process the loans on an instrument level basis, or certain investments for which analytics from *standard* sources like The Yield Book® or Bloomberg© are not available. In these cases you should develop documented assumptions that reflect how the asset or liability is being modeled and why your method of modeling is reasonable and sufficiently accurate. Note that materiality may be a factor in your assessment. We have seen examination reports that speak to this issue specifically.

Communication

Key model assumptions should be understood and periodically approved by senior management and the board, i.e. at least annually. If key assumptions have changed, they should be noted in the minutes of the assumptions meeting and also in the minutes of the ALCO meeting.

"When assumptions are adjusted from prior reporting periods, the changes and their effects on model outputs should be documented and clearly identified." – Advisory on Interest Rate Risk Management from January 6, 2010.

The ALCO committee and senior management should understand how key assumption changes are driving changes in the current position, i.e. liquidity, interest rate risk and capital, of the institution.

Stress Testing

Despite all the work that goes into developing the best assumptions possible, the reality is that they will never be 100% accurate. A prudent interest rate risk management process must include sensitivity testing in order to stress the key or most material model assumptions on a periodic basis. These stress tests will give the ALCO committee an understanding of the potential impact of differences in assumptions. Key model assumptions that should be stress tested at least annually include:

- Option risk, e.g. different prepayment assumptions.
- Asset pricing, e.g. credit spread tightening in loan portfolio.
- Deposit sensitivity, e.g. the impact of greater rate sensitivity on deposits than assumed.
- Decay/average life assumptions, e.g. impact of differences in the average life of non-maturity deposits in the value at risk calculation.

If an assumption is material enough that a change could meaningfully impact the results of the model, then it should be stress tested and understood by both the ALCO committee and senior management. Of course, more documentation should be provided in these areas to support your base model assumptions.

Conclusion

The key to managing a prudent assumptions process includes involving the right personnel, addressing all applicable areas of the balance sheet, documenting and providing support for assumption inputs, stress testing and communicating key assumptions to senior management. Following this recipe will enhance your assumptions development process. Now you can spend less time worrying about how accurate the assumption inputs are and more time on what you can do strategically to improve your current position.

— John Demeritt
Darling Consulting Group

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Editor
Peter A. Mihaltian, President
Southeast Consulting, Inc.
212 S. Tryon Street, Suite 925
P.O.Box 470886
Charlotte, NC 28247-0886
(704) 338-9160
E-mail: info@southeastconsulting.com
Website:
www.southeastconsulting.com

Publisher's Staff

Manuscript Editor
Jennifer Brooke

Editorial Inquiries
Peter A. Mihaltian