RE-MODELING ASSET/LIABILITY MANAGEMENT

Picture this: You have been living in the same home for almost 20 years. Your kitchen has served you well as a place to prepare and eat thousands of meals. It remains functional but has started to show signs of wear. Cabinet doors do not close well, or worse, fall off from time to time. Your family has grown to a point where the room feels smaller and more crowded. In addition, with more people and expanded dietary needs, other rooms have been invaded for supplementary food storage.

Asset/Liability Management (ALM) has been around for even longer than your kitchen, but many organizations still rely on the same information set as they did 20-30 years ago. Over that time the financial industry has evolved, so you should ask yourself a few ALM-related questions:

1. Does your ALM process synchronize well with other similar processes such as budgeting and accounting?
2. Has your ALM process changed over time to keep up with your products and culture?

3. Have silos popped up in your organization to deal with specific needs (such as CECL) without consideration given to ALM integration?

The issue of process synchronization comes about when new processes are introduced without proper planning and consideration. Like a new appliance that doesn't quite fit in, processes often get added in a hurry and without regard to how they will interact with existing processes. Organizations should step back periodically to look for inefficiencies in reporting and reconciliation that can be deceptively costly.

The second issue seems even more obvious, but when things are going okay institutions are reluctant to upgrade ALM. Over the past decade several creative products have been introduced into the market. And it has been so long since a rising rate cycle that a whole new generation of bankers exists. So how will your institution price deposits if/when rates move up? Are there products on your balance sheet with risks you are not sure about how to manage?

While these are both fair questions to ponder, the remainder of this article is focused primarily on the evolution of the industry and regulations.

The events of 2007/2008 showed that traditional ALM was missing a key ingredient (credit) in most organizations. Until that point in time, the vast majority of financial institutions focused on rate shocks as their primary stress test. The Dodd Frank Stress Test (DFAST) was developed as an alternative mechanism to stress economic scenarios and to understand the potential impact of changes in factors other than interest rates on credit/defaults. Initially, most institutions required to submit DFAST results analyzed their loans independently. Default estimates were then "stapled" onto the rest of their projections (usually ALM results). Over time, most DFAST institutions have been able to evolve and integrate default modeling into their ALM process.

Ten years later the concept of economic forecasting is slowly replacing the more limited interest rate modeling. Current Expected Credit Loss (CECL) requirements are pushing economic forecasting into the mainstream. As more and more institutions make this transition, an evolution similar to DFAST is taking shape:

- The initial requirements will probably be met by collaboration of lending/credit teams and external consultants
- Multiple processes will be merged to deliver meaningful results
- A process will be developed to repeat and update the analysis over time
- You will be asked to stress test and explain variances and potential adaptations to your methodologies
- Economic forecasting and default modeling will be embedded into your ALM and budgeting processes

As you think about moving towards economic forecasting and projecting defaults, keep the end in mind. Remember that most companies currently offering CECL solutions have strong track records looking at historical credit losses, but are not well-versed in the nuances of projecting cash flows. If you believe that default modeling / CECL will ultimately become part of ALM and stress testing, most solutions you see out there today will require significant evolution to remain relevant.

An integrated approach to CECL as part of ALM will be more defendable and easier to manage in the long run.

Modeling Default Behavior

There are two main considerations for default modeling. First, what methodology will you use to predict defaults for an instrument or portfolio? Second, how will you develop assumptions to support that methodology?

Defaults show up as estimated cash flow impacts on future payment dates, similar to prepayments. In traditional ALM, a cash flow report would show principal, interest, and prepayments. When layering in default projections an individual payment (or cash flow) can be subdivided into several components, including, but not limited to, principal, interest, prepayment, default, and recovery.

Assume we have an individual loan that amortizes. We expect a payment of $100 on June 15th: $90 of principal and $10 of interest. Several things could happen on June 15th:

1. We receive a normal payment of $100
2. We receive $200 which translates to a prepayment of $100
3. We receive nothing

If we receive nothing, the loan would move to a past due/delinquent status. Depending on the situation, the loan could continue into default and later some amount of recovery might be negotiated (referred to as Loss Given Default).

When modeling instruments such as this loan, ALM engines estimate prepayment speeds (usually CPR) and apply them in several ways. Rate/refi tables, age and seasoning factors, or much more sophisticated models can drive them. Default estimation is similar, although more factors are often involved. Some of the common methodologies used to project probability of default (PD) and loss given default (LGD) include:

1. Simple PD/LGD based on historical experience
2. Table lookup based on credit score, risk grade, LTV, etc.
3. Migration matrix based on credit score, risk grade, LTV, etc.
4. Regression formula layering in several economic variables such as GDP, housing prices, unemployment, etc.

It is important to understand the trade offs for using each of the different methodologies. For instance, a simple probability of default applied to an entire portfolio of instruments would not differentiate one instrument's behavior from another. However, that portfolio may be homogeneous or not be substantial enough to warrant more precision. You also may not have the proper instrument characteristics to perform deeper analysis. Usually you want to understand your capabilities and shoot for the stars, then settle for less when reality sets in. Reality can come in many forms – budget constraints, data quality, resources, time, and even ability to interpret and explain results.

The second part of this re-modeling process is to develop assumptions to support the methodologies you would like to use. Your basis for these assumptions should have some historical foundation. Correlations are a common tool for deriving regression formulas against economic variables. Many popular statistical tools exist and even Excel can help you with this type of study, assuming your data is complete and correct. When regressions are not feasible, vintage analysis (losses by origination period) and simple incurred loss studies (historical loss patterns) can be ways to get started down this path. Various industry sources offer their insights, and of course consultants can be hired to analyze all or part of your balance sheet for you.

As you begin to test these methodologies, don't forget to stress your results. Adding sensitivity to your assumptions is a very good way to see how your methodology will hold up if your situation changes. If stress results don't make sense then you may need to rethink your methodology.

One final thought here – when you are remodeling, each "room" can have a different theme. You may choose to use a single probability of default based on incurred losses for auto loans. When looking at mortgages you may find that industry averages by credit score fit your behavior a little better. And for commercial real estate you have enough data and history to build a full economic-based regression model.

ALM exists to help financial institutions align capital, earnings and risk profiles with their company strategies. Is it time for you to consider re-modeling?

About the Author
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