

Chapter 3

Components of Asset-Liability Management

There are a number of analytical tools used in the practice of asset-liability management. The major components used in the practice of asset-liability management are as follows:

- asset-liability-management policy;
- financial reporting, including spread analysis, ratio analysis, cash-flow analysis, and mix analysis;
- forecasting;
- budgeting;
- gap analysis;
- duration analysis;
- what-if analysis and net interest income (NII) simulation;
- rate shock scenarios;
- net economic value (NEV) analysis.

Combined, these tools give a credit union an assessment of its interest-rate risk. Each of these categories makes an important contribution to asset-liability management. No one tool alone can provide all the necessary information, and leaving out one of these vital steps can provide credit union management with misleading information.

Also, the financial tools mentioned must be considered along with competitive market information and

specific credit union member wants, needs, and patterns of saving and borrowing. Together, these factors allow credit union directors and management to optimize returns and member service while controlling associated risks.

Asset-Liability-Management Policy

An **asset-liability-management policy** provides a framework and guidelines for decision making and measuring interest-rate risk. The policy

- is a formal written document approved by the board of directors and reviewed annually;
- establishes acceptable risk limitations and provides a mechanism for monitoring and reporting risk on a regular basis;
- specifically identifies the credit union's procedures for managing its interest-rate risk and the types of analyses that management will conduct. The policy specifies that appropriate independent audit procedures will be applied to ensure adequate

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internal controls and compliance with policy limits.

A sample policy for a smaller credit union or one that has relatively simple assets (such as little or no fixed-rate real estate loans or real estate-related investments) is included in appendix A.

A sample policy for a larger credit union or one with a diversity of investments and loans, including fixed-rate real estate instruments, is included in appendix B.

Your credit union will need to customize your asset-liability-management policy to suit your particular needs and objectives.

Financial Reporting

The foundation for all asset-liability-management analysis is a good financial reporting system. Reports that can be used and understood help management make sound financial decisions. Basic reports include the **balance sheet** (or statement of condition) and the **income statement** (or profit and loss statement). Comparing these statements for the current period to those of prior periods can help spot trends.

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Spread analysis includes information from both the income statement and the balance sheet. By bringing together information about volumes and yield, you get a two-dimensional picture of profitability. The *spread* on a balance sheet is the difference between the ability to produce interest income and the expenses related to the costs of the funds used to produce that income. Despite the fact that spread analysis does not contain information about maturities or repricing of assets and liabilities, it is still a very useful asset-liability management tool.

Ratio analysis allows management to monitor and detect trends in all aspects of credit union operations. Key ratios should be reviewed regularly and actions taken when negative trends emerge. “Stop-loss” criteria should be established, either in the asset-liability-management policy or the credit union business plan, that define levels of key ratios that will act as a trigger for management and the board to review associated policies and credit union activities. Plans and budgets should include an analysis of associated ratios, and budgeted ratios to actual results should be measured on an ongoing basis.

Liquidity analysis is used to track and monitor the need for cash to fund member withdrawals or settlement transactions, to disburse loans or to purchase investments. Projections for incoming member deposits (such as recurring payroll deposits), loan repayments and investment maturities can be generated to insure that adequate cash will

be available to meet the need for outgoing funds. Credit unions also often have made arrangements for a line of credit to be available to them for use on those occasions when outflows exceed the inflows. A line of credit is generally used on a short-term basis and is considered borrowing by the credit union.

Mix analysis converts each item of a credit union's balance sheet to a percentage of total assets, thus allowing for easy and quick analysis of changes to asset and liability categories and spotting of concentrations that may be of concern.

Graph Use

The use of graphs can be very helpful in identifying trends and pinpointing areas requiring your attention. Graphs can be especially useful to volunteers trying to gain a quick picture of the credit union's financial results without having to study many pages of details or computer reports.

Simple types of graphs such as a line or bar graph can help to see period-to-period changes over time. A line graph might be used to visually depict the year-end total assets over a historical five- or 10-year period and might even include the credit union's forecasted assets for the coming years. Unusual changes in growth would then be easy to identify and discuss. Building a line or bar graph based on a spreadsheet is relatively easy and quick to accomplish and can

then be saved and added to as each new period's result becomes available. Most credit union accounting or management employees should be able to provide graphs to you using the spreadsheets the credit union already has in place.

Graphs can be useful in looking at total credit union assets, various individual loan or deposit categories such as first mortgages or share certificates, the number of members, transactions of various types such as teller or branch transactions and virtually any other area that you might want to review for relevant trends.

A pie chart is a type of graph that can help you to quickly get a sense of the components of the information presented. The mix report can serve as a good basis for generating pie charts to give you a quick look at the composition of your loan portfolio or the types of deposits you have on your balance sheet. While a pie chart does not show you trends or changes over time, it can be a valuable tool in visually representing where your credit union stands at a single point in time.

A more complicated but valuable graphical tool is the trailing 12-month average graph. This type of a graph is similar to a line graph but rather than plotting each point, say each year-end total assets, each point on the graph represents the average of the prior 12

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months worth of data. Let's say, for example, that you are concerned about your interest-rate spread and the changes to it over time. You could construct a trailing 12-month (TTM) graph based on a spreadsheet where each point on the graph is the average of the net interest income for the prior 12 months. The use of this type of graph helps you to more closely identify true trends in the data and eliminate the effects of seasonal or other one-time fluctuations.

Forecasting

Forecasting includes information about the yield, volume, mix, and maturity of the balance sheet to estimate net income at some future point. *Yields* indicate the income or cost associated with a particular asset or liability. *Volume* measures the dollars and inflow and outflow of money in a particular asset or liability. *Mix* measures the composition of the balance sheet stating each asset or liability in terms of its relationship to total assets. *Maturity* refers to the stated date when the asset or liability comes due. Forecasts should also include stated assumptions used about changes in the economy and the impact on the credit union.

Budgeting

Budgeting begins with a thoughtful forecast of the credit union's balance sheet in order to

predict asset and liability activity for the budgeted period. Developing the budget requires that management set objectives in terms of asset and share growth, loan and investment activity, mix and composition of assets and liabilities, capitalization levels, and operating income and expenses. As well, the credit union budget will need to include the expected interest rates for new loans, investments and deposits, along with the resulting portfolio yields, to complete the income statement portion of the projection. The approved budget is then used as a basis for evaluating a credit union's performance.

Gap Analysis

Gap analysis attempts to classify existing rate-sensitive assets and liabilities by maturities or when repricing occurs to measure interest-rate sensitivity. This analysis provides an estimation at a single point in time of how your balance sheet would react to a change in interest rates during a given time frame. Trying to keep the dollars on both sides of the balance sheet reasonably matched in terms of maturity dates and repricing schedules is one way to minimize the impact of changes in interest rates.

While a valuable tool, gap analysis is limited in its ability to provide multiple scenarios and detailed information. In particular, gap analysis is limited in its ability to adequately evaluate assets related to mortgages either as loans or investments. It is a

fairly simplistic measure and should be used in conjunction with other asset-liability-management tools. Gap analysis helps to identify large mismatches in assets and liabilities. It does not, however, consider changes to market rates or risks such as prepayments and their associated impact on capital. The need to match assets and liabilities must be balanced with the requirement to obtain a safe and reasonable rate of return.

Duration Analysis

Duration analysis is the process of measuring the present values of future cash flows for all balance sheet accounts. Similar to gap analysis, duration analysis can help you determine how well your credit union can react to changes in interest rates without suffering from reduced earnings or value. The sensitivity of a particular asset price to changes in interest rates (its duration) is affected by the time to maturity, the coupon rate, and the yield to maturity.

Duration is a better measure of a security's risk than maturity, and it is commonly used in quotations of spreads on investments. The explanation and computation of specific duration results are quite complex and beyond the scope of this course. However, it is a useful tool in understanding the market and interest-rate risks of various financial instruments.

What-If Analysis and Net Interest Income (NII) Simulation

What-if analysis refers to a forecast of a credit union's financial statements by varying assumptions relative to rates, volumes, or other factors. **Net interest income (NII) simulation** allows you to test a range of different interest-rate scenarios and management's reaction to them. It is a natural extension of what-if analysis that allows the impacts on earnings of management actions to be predicted in various scenarios. The forecasted results for net interest income in the worst and best cases can then be measured and a determination made to see if they fall within acceptable levels of risk as defined in a credit union's asset-liability management policy.

Rate Shock Scenarios

Common NII simulation or what-if analysis would be one that measures the effect of an increase or decrease in interest rates. **Rate shock** scenarios are used to predict the associated risk to net interest income if a dramatic and sudden shift in interest rates occurs. Most credit union asset-liability committees (ALCOs) will establish standard rate shock reports that will be generated by management and then reviewed by the committee. As well, rate shock limitations can be included in

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the asset-liability policy and results of the periodic rate shock calculations compared to policy limits to help the committee monitor and manage risk.

Credit unions commonly produce multiple rate shock scenarios such as up and down 100, 200, and/or 300 basis points (bp) (100 basis points are equal to a 1 percent change). Management can then use the results of these shock tests to determine what actions need to be taken now as well as in the future should rates begin to move in a particular direction.

The income simulation is a useful tool for predicting the short-term impacts to future earnings and for strategic planning purposes. If a credit union is limiting its asset-liability-management analysis to net interest income and holds mortgage-related assets, it should extend the analysis for a five-year period and consider options that may occur in later years and their possible impact on earnings. Measuring not only the what-if assumptions of various potential management actions or changes to operations or services but also the associated NII simulations under varying interest-rate environments are valuable tools to managing and mitigating risks to a credit union's earnings.

Net Economic Value (NEV) Analysis

Net economic value (NEV) analysis measures the effect of interest-rate risk on capital. It measures the balance sheet's value at a fixed point in time. An NEV analysis considers the principal and interest cash flows and analyzes any associated option risk. By managing the net economic value, a credit union reduces both the volatility of earnings *and* net worth. Net economic value, simply put, is equal to the fair value of assets minus the fair value of liabilities. Generally, an NEV analysis calculates net economic value under the existing circumstances or current scenario as well as under various rate shocks. The difference between net economic value in the current and "shocked" scenarios represents the potential exposure or risk to credit union capital.

The level of asset-liability-management modeling and analysis conducted should be commensurate with the risk level of the assets and liabilities the credit union owns or proposes to own.

A more complex credit union will want to have established policy limits for changes to NEV in various rate shock scenarios. This information can then be monitored by the asset-liability committee to insure compliance with the credit union's policy limits on NEV in, for example, an up 300 (increase of 3% in rates) scenario.

Regulatory Considerations

In the wave of deregulation, the financial services industry suffered some harsh times during the 1980s and 1990s. Other financial services organizations suffered severe crises during this period, thus creating an increased focus on credit union practices. A significant portion of the issues experienced could have been prevented, or at least lessened, if proper asset-liability-management systems had been in place.

Credit unions today, along with other financial services organizations, are being scrutinized by Congress, the public, and the regulators. As a result, credit unions are feeling the pressure to become increasingly active in asset-liability management to adequately document the soundness of their management decisions and to demonstrate proper risk management techniques.

The National Credit Union Administration (NCUA) has established benchmarks to encourage federally insured credit unions to improve their performance. Most states have adopted similar programs. The program is the CAMEL rating system. This system is used by regulators to evaluate the credit union's asset-liability management and overall management practices and policies. Five important functions are evaluated:

1. Capital adequacy;
2. Asset quality;
3. Management;

4. Earnings;
5. Liquidity or asset-liability management.

Each area receives a rating from one to five, with one being the best rating and five the lowest. Then a composite rating is assigned based on the individual performance in the five areas. The VAP course V410, *Credit Union Examinations*, explains the CAMEL rating system in detail.

As you become more familiar with each component of CAMEL, it is easy to see that asset-liability management is the foundation of the entire system. The examiner evaluates the credit union on a hard financial numbers (quantitative) basis and on a subjective (qualitative) basis.

The quantitative review includes a review of key ratios specified under CAMEL as well as a review of a credit union's own tracking system. Management should be able to demonstrate ongoing monitoring and discussion of trends in key ratio areas in support of decisions made or actions taken to control any negative trends.

Regulatory developments and the formulation of a system of *prompt corrective action (PCA)* require an increased level of scrutiny of a credit union's risk management practices and techniques. The use of techniques such as gap analysis are deemed to be inadequate if used alone. Examinations focus on a credit union's assessment of interest-rate risk and its effect on underlying capital. This assessment must be sufficiently detailed and complex as determined by the overall com-

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plexity of the credit union's balance sheet. A review of NII simulation and the assumptions made is conducted. In credit unions with more complex assets and balance sheet structures, net economic value is computed and strategies reviewed for managing the risk to this value in various interest-rate scenarios.

The National Credit Union Administration (NCUA) publishes letters to credit unions offering guidance on topics of interest. These letters, published opinions, proposed regulations and copies of final regulations are all available at the NCUA Web site, www.ncua.gov. NCUA also prepares and sends to each credit union a periodic report containing key ratios for the credit union along with peer data. This report is called the "Financial Performance Report" or "FPR" and can also be obtained for your credit union on the NCUA Web site. A useful tool to understanding this information is the "User's Guide for NCUA's Financial Performance Report" (NCUA 8008). The guide contains detailed explanations of ratio calculations.

NCUA's letter to credit unions on the CAMEL rating system includes the criteria for each individual component along with tables of ratios for various asset size credit unions. The effects of the prompt corrective action regulation and the required capital levels to assure that your credit union is considered "well-capitalized" are integrated into the key ratio guide. However, credit unions will need to review their calculated net worth ratio vs. their risk-

based net worth to ascertain where the credit union rating for capital stands when considering the risk weighting and should also consider the effects of these risk weights on their credit union when projecting credit union targets for capital. Risk-based net worth is a required part of the reporting each credit union over \$10 million provides to NCUA and can be obtained from your credit union management. You can also easily access your past filed reports on the NCUA Web site by simply entering your credit union name and location.

Documentation of decisions and strategies to measure and manage risk under multiple scenarios is important. Included in this documentation should be the consideration given to current regulatory limits and an awareness of the credit union's **risk-based net worth**. This decision process and its documentation are key to a successful regulatory examination and to the proper management of the credit union.

Examinations are your opportunity to learn where you need to focus your management skills for the coming year. By using recommended asset-liability-management tools, you can help steer your credit union toward a more secure future.