WHITE PAPER

Boost Performance and Reduce Overall Risk with LIABILITY-DRIVEN INVESTING

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In the financial institutions world, interest rate risk has become a main concern of examiners everywhere. But when investment managers discuss the investment portfolio, conversations often revolve around risk and return as they relate to the portfolio only. While return and risk of the investment portfolio are certainly important, they should not be the only driving forces behind a credit union's investing strategy, nor should the investment portfolio be an entity that operates independently from other balance sheet components. According to the BAI Foundation, a financial institution's objectives in managing securities portfolios should include the following, listed in order of importance:

1. To manage *overall* interest rate risk of the *entire* balance sheet
2. To manage liquidity
3. To produce income
4. To manage credit risk[1]

Too often, financial institutions' portfolios of loans and leases are not very liquid and carry substantial credit risk that can put the entire institution at risk. Liability-driven investing, however, can remedy that situation. With this practice, risk relative to liabilities is the primary concern. Risk objectives are determined by asset liability management (ALM) strategies that focus on funding liabilities. A good investment manager will structure the securities portfolio in such a way that it plays a balancing role in providing a ready source of liquidity while at the same time, it offsets the loan portfolio's credit risk. Income production comes from tactical asset allocation that involves underweighting or overweighting asset classes relative to target weights in the policy portfolio, adding value strategically.

Liability-Driven ALM Approaches to Consider

As stated above, liability-driven ALM approaches focus on modeling liabilities, and then adopting optimal asset allocations to fund those liabilities. Two liability-driven strategies most relied upon by financial institutions are the dedication strategies of *cash-flow matching* and *immunization*. Dedication strategies are specialized fixed-income strategies designed to accommodate the specific funding needs of the investor. Risk control within these strategies can be improved by matching the characteristics and constraints of the liabilities with the characteristics of the investor and the constraints of the financial institution. An investor or institution likely to favor the liability-driven approach would be an investor or institution with:

- Below average risk tolerance
- High penalties to pay for failure to meet liabilities
- Liabilities that have interest-rate-sensitive market values
- Risk in the investment portfolio that limits the ability to profitably take risk elsewhere
- Legal and regulatory requirements, as well as incentives, that favor holding fixed-income securities
- Tax incentives that favor holding fixed-income securities[2]

Generally, credit unions use more conservative approaches to investing, but those conservative strategies often lower overall risk tolerance. The fact that credit unions must meet the demand of their borrowers at any given time and deliver products that are interest-rate sensitive oftentimes prevents management from looking at both sides of the balance sheet for opportunity. These "blinders" can result in too much risk exposure in the investment portfolio, causing credit unions to lose the ability to take on more risk in the more-profitable loan portfolio. The liability-driven ALM strategies of cash-flow matching and immunization address this issue.

Matched Book (Cash-Flow Matching)

Cash-flow matching is an appealing strategy because the portfolio manager only needs to select securities to match the timing and amount of liabilities. For example, a bond is selected with a maturity that matches the latest liability on the balance sheet. The amount of that liability is the amount of principal invested into that bond. This process continues until all liabilities have been matched by the securities selected for the portfolio. Simply put, the cash-flow matching

[1] "Managing Investment Portfolios: A Dynamic Process" by R. Charles Tschampion, CFA, Laurence B. Siegel, Dean J. Takahashi, John L. Maginn, CFA, 2007
[2] "Managing Investment Portfolios: A Dynamic Process" by William F. Sharpe, Peng Chen, CFA, Jerald E. Pinto, CFA, Dennis W. McLeavey, CFA, 2007

strategy involves matching cash outflows with cash inflows. Investments in bonds are "matched" to offset future liabilities. A financial institution using the cash-flow matching strategy is often referred to as an institution having a "matched book." This approach mitigates risk relative to funding liabilities.

Immunization Strategy (Risk Matching)

Whereas cash-flow matching is known as having a matched book, immunization strategy is known as risk matching. Immunization strategy aims to build a portfolio that will produce a return relative to the liabilities it is matched against. Using liability characteristics as constraints, a credit union portfolio manager will structure the portfolio investments around those constraints. Therefore, as interest rates increase, the change in price of a security is partly offset by a change in the value of the liabilities. As interest rates decline, a security's price increase is partly offset by a liability value decrease, thus maintaining the value of the credit union's net worth. It's important to note here that changes will not *exactly* offset one another. The purpose of immunization is to find the portfolio where the change in value of assets and liabilities is equal, and maintenance of the value of the credit union's net worth is achieved. Because weighted-average duration is a component of the immunization strategy, the immunization approach involves more risk than the cash-flow approach with respect to funding liabilities. But if a manager constructs a well-built immunized portfolio, an assured rate of return over a pre-determined time horizon is locked in. An immunized portfolio has three characteristics:

1. Specified time horizon
2. Assured rate of return during the pre-determined holding period
3. Insulation from interest-rate-change effects on the net worth at the horizon date[3]

Immunization, then, requires offsetting price risk and reinvestment risk, as well as duration matching. Over time, market yield will definitely fluctuate, and those fluctuations will result in the change of duration. Plus, duration also changes with the simple passage of time, which raises the question: *How often does the investor rebalance an immunized portfolio?* And the answer to that is: *It depends on the costs and benefits of rebalancing.* With more frequent rebalancing, the investor will take on more transaction costs, hindering the likelihood of achieving the target return. However, if an investor does not rebalance enough, the duration can cause a detour from the target, also affecting the portfolio's ability to reach the desired return. Therefore, the portfolio manager must accept some mismatch in the duration to avoid unnecessary transaction costs.

The Best Liability-Driven ALM Strategy for Credit Unions

While both matched book and immunization strategies are recommended liability-driven ALM approaches, immunization is the most practical strategy for the average credit union. Cash-flow matching is far too intricate and complex a process, and assuming there is no change in the term structure, immunization provides an assured rate of total return. The investor may also use tactical asset allocation to add value to the immunized portfolio. Keep in mind that this active form of ALM requires performance measurement in order to ensure return goals are being met and risk levels are being maintained. To properly measure results, benchmarks must be put in place[4].

Benchmarking

The Merriam-Webster Dictionary defines a benchmark as a "standard or point of reference in measuring or judging quality, value, etc." Without a proper benchmark, there is no way to accurately measure the portfolio manager's performance. By implementing a benchmark into the liability-driven investment approach, credit unions will enjoy lower risk exposure, while optimizing the entire balance sheet for peak performance. For a deeper explanation of benchmarking, consult QuantyPhi's white paper titled *Defining Success*.

[3] "Managing Investment Portfolios: A Dynamic Process" by H. Gifford Fong, Larry D. Guin, CFA, 2007
[4] "Managing Investment Portfolios: A Dynamic Process" by Fong, Guin, CFA, 2007