

Asset-liability management (ALM)

The traditional asset-liability management (ALM) is any of several of techniques designed to coordinate the management of an entity's future development of assets with the management of its future development of liabilities. The overall risk to a financial institution, and therefore to its policyholders, depends on the combined performance of the asset and liability portfolio. Asset-liability management is an integral part of financial institution's management; it is essential to have both a structured and systematic process for optimizing the balance sheet. As part of the integrated risk management, the goals of ALM are profit enhancement of the company, to prevent default in payments or finally to avoid insolvency.

Reasons for the asset-liability management vary between financial institutions: in insurance sector, it depends on investment behavior of clients, products of the insurance company and the influence from fluctuating capital market prices on balance sheet value. In the banking sector, it relies on the investment strategy, the structure of the portfolio, and balance sheet policy.

Techniques in asset-liability management can be differentiated in functions of cash-flow testing, functions of cash-flow matching, functions of duration-matching and finally functions of the dynamic financial analysis (DFA). Techniques for *assessing* asset-liability risk came to include gap analysis and duration analysis. All techniques lead to required effects of an optimum balance sheet structure. The result are perfectly matched assets and liabilities with controllable and fixed cash flows. The accurate reconciliation of assets and liabilities is important to limit balance sheet risk "*mismatch risk*", and resources are available for evaluating and controlling interest rate risk.

Balance sheet risk can be categorized into two major types of significant risks, which are liquidity risk and interest rate risk. Changes in market liquidity and or interest rates exposes business to the risk of loss. It may threaten the survival of an institution. An illustrative example is shown in figure 1.

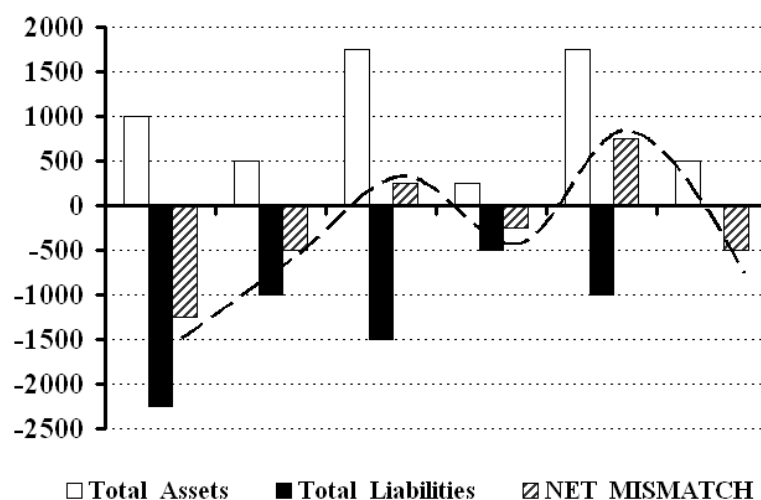


Figure 1: Development of an institution's assets and liabilities through time

Imagine the overall interest rate risk of a bank: It is the policy of the Bank to measure and manage its rate sensitivity position to ensure the long run earning power of the bank. Rate sensitive assets (*RSA*) are investments like loans or bonds whose value goes up when interest rates fall and down when interest rates rise within a given time frame. Rate sensitive liabilities (*RSL*) are interest paying deposits or other liabilities whose value depends on the level of interest rates.

In addressing the challenge of interest rate risk, the ratios of *RSA* to *RSL* and *gap to equity* (i.e. the quotient $RSA - RSL$ to equity), as well as gap to total assets will be analyzed based on e.g. 30, 60, 90, 180, 365-day, and 1-2 year definition. More importantly, however, special interest has to be placed on the change in net interest income that will result from possible fluctuations in interest rates, changing account volumes, and time. In particular, changes in interest income resulting from increasing, decreasing and constant rate scenarios will be evaluated via simulation.

In an effort to measure risk to market value of equity, the Bank will review all long-term fixed rate assets. The Bank will review price volatility of the investment portfolio using duration analysis and specifically look at the estimated depreciation in market value if interest rates for example rise 300 basispoints in

comparison to the Bank's equity capital. In addition, the Bank will also compare long term assets to short term volatile liabilities.

Increasingly, one focus on asset and liability risk of the *firm-wide* portfolio. The ALM efficient frontier shown in figure 2 illustrates the efficient economic strategies given the company's asset and liability profile and business plan. The selection between the efficient portfolios is a function of risk tolerances and assessment of other financial criteria, such as investment strategy, dividend/bonus/crediting strategy or profit enhancement.

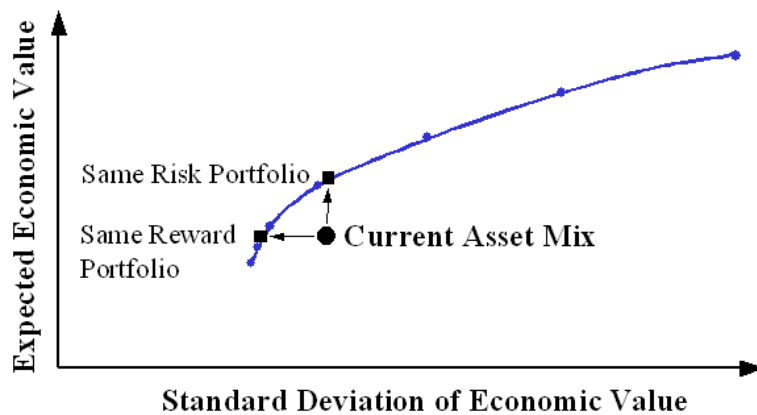


Figure 2: ALM Efficient Frontier Analysis

ALM was pioneered by financial institutions, but corporations now also apply ALM techniques. The range of asset-liability management activities has expanded. Today, asset-liability management divisions are addressing (non-trading) foreign exchange risks and other risks. Also, ALM has extended to other industrial firms. Corporations have implemented practices of ALM to address interest-rate exposures, liquidity risk and foreign exchange risk. They are using related techniques to address commodities risks. One use also simulation models to measure the risk to net income by projecting the future composition of the bank and applying different interest rate scenarios. Complex simulation modeling

techniques in both banks and insurance companies will be incorporated to run "what if" analyses to estimate the effects of different ALM strategies on the bank's or insurer's risk profile and profitability.

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Further Reading

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See also: CONTROLLING; BALANCE-SHEET-MANAGEMENT, ASSETS; LIABILITIES; HEDGING; ASSET-LIABILITY RISKS (MISMATCH RISK); DURATION; EXPECTED LOSS, HEDGING IN ILLIQUID MARKETS,

VALUE-AT-RISK: CREDIT VAR, CASH GAP ANALYSIS, FUNDING GAP ANALYSIS, FUNDING RISK, RISK AWARENESS AND IDENTIFICATION, RISK MANAGEMENT IN FINANCIAL INSTITUTIONS (BANKS, ETC), RISK MANAGEMENT: MANAGING FOR SHAREHOLDER VALUE