

How Is Asset and Liability

This article examines current practice, the mandate, and challenges facing ALM that emerged from a McKinsey & Company survey. Conducted in 2006 and 2007, the survey included 29 participants from 17 countries.



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THE TRADITIONAL BUSINESS model of commercial banking was to finance long-term loans with relatively short-term liabilities. In the heavily regulated environment that prevailed up to the 1970s, this business was relatively simple; banks had only to worry about the creditworthiness of their borrowers and focus on earning a positive spread. Stable interest rates allowed asset decisions to be made independently from decisions about liabilities. The maturity gap between the two sides of a bank's balance sheet was not much of an issue.

All this changed in the late 1970s for two important reasons. First, the focus of monetary policy switched from stabilizing interest rates to controlling monetary aggregates. Second, the 1980s ushered in a new age of deregulation that started with the elimination of interest rate restrictions. These changes resulted in an increase in the volatility of interest rates and a shift in the value of both bank assets and liabilities. When interest rates rose sharply from 1980 to 1982, many banks and thrifts became insolvent and ultimately had to be liquidated. The value of the assets of institutions that regulators closed during this period is estimated to be over \$500 billion.

The lesson from this historical episode was that a more integrated treatment of a bank's balance sheet risk is essential for consistent financial performance. The individual characteristics of a single asset or liability—its interest rate terms, the currency in which it is denominated, and its liquidity—are important, but so too is the relationship between the two sides of the balance sheet. Managing these inter-relationships is usually referred to as *asset and liability management*, or ALM, which reached maturity in response to the turmoil of the 1980s.

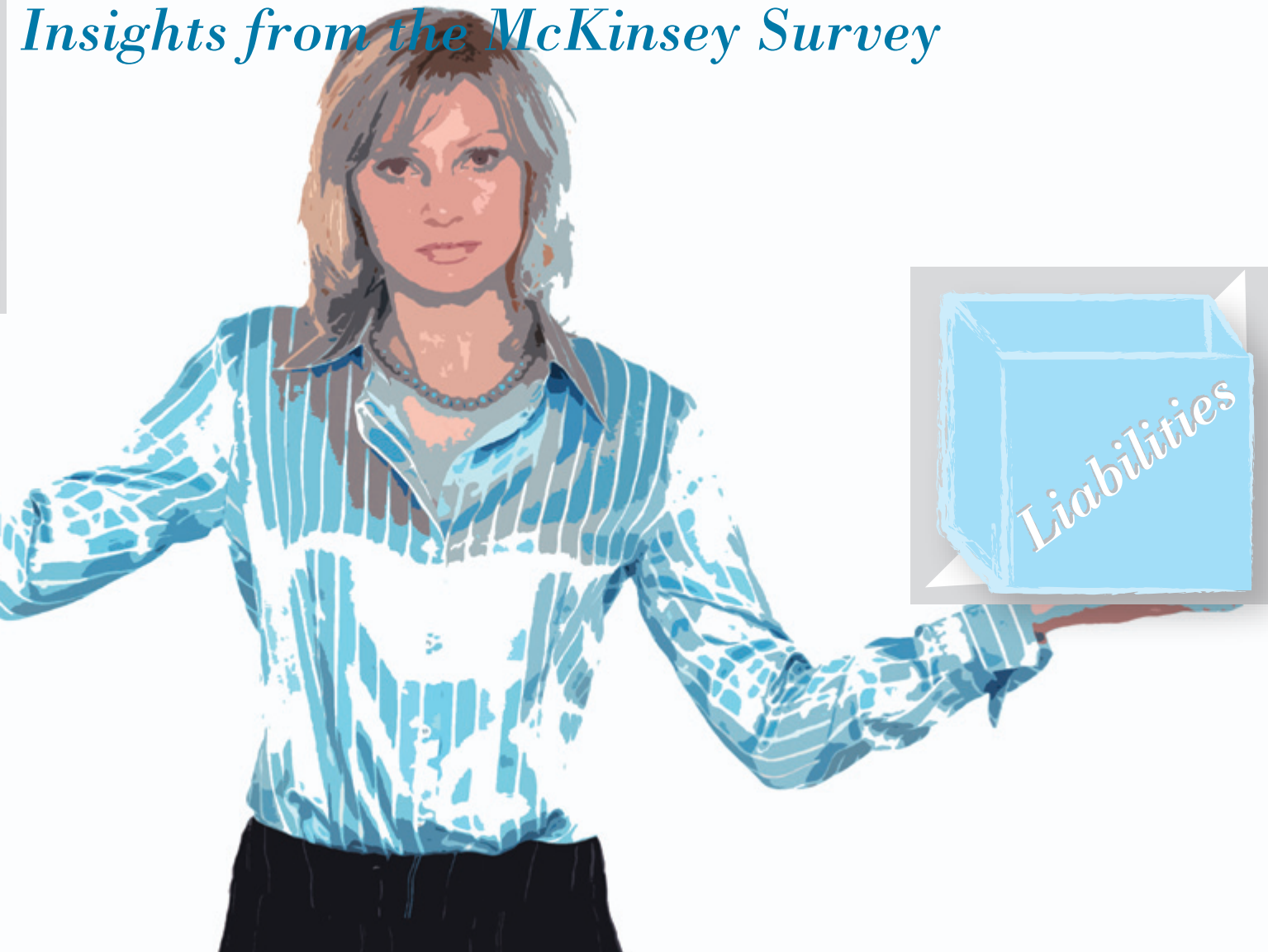
Then came the 1990s. Interest in ALM receded as the banking industry focused on its list of new priorities—pressing issues such as the removal of barriers to competition, the growing choice of alternative assets, and the trend toward industry consolidation. The new millennium saw expansionary monetary policy, which produced historically low and stable short-term interest rates and a nicely upward sloping yield curve. This presented lucrative opportunities for institutions that wanted to take interest rate risk, leading many to neglect the lessons of 25 years ago. In this stable interest rate environment, good ALM practices seemed less urgent, and interest in them was relatively low.

However, events have caused the pendulum to swing back. Indeed, as the Federal Reserve reversed its policy stance, and continued to tighten in 2004 and into 2007, the yield curve became flatter and inverted. This suggested that financing long-term investments with short-term borrowing implied a negative spread. This proved to be bad news for institutions that came to rely on income from traditional fixed-rate lending financed by short-term deposits. Then, the changes in the credit and liquidity environment that began in mid 2007 presented two new challenges. First, the sharp decline in short-term interest rates engineered by the Federal Reserve led to a change in the yield curve shape as it returned to its normal upward slope. Second, the sudden liquidity challenges facing many institutions increased the need to focus on liquidity management. The latter was an area that had been all but ignored by many.

Clearly, market conditions are in a state of flux, suggesting that ALM and its appropriate use will become much

Management Changing?

Insights from the McKinsey Survey



more important going forward. Yet, because of the previous reduced interest in ALM, there is relatively little information today concerning how major institutions conduct ALM and the issues these organizations are addressing.

In order to provide some such evidence, McKinsey & Company decided to conduct a survey on ALM practice around the world. The survey was conducted with 29 participants from 17 countries over a six-month period in 2006 and 2007. This article examines current practice, the mandate, and challenges facing ALM that emerged from the survey, including the basic approach taken, the methods used, and the degree of accuracy one can expect from standard ALM techniques.

The Basics of ALM

In principle, a bank could eliminate interest rate risk by matching the cash flows of its assets and liabilities. However, this approach is virtually impossible and clearly impractical. For most institutions, deposits constitute a majority of their liabilities, and a substantial portion of these deposits are redeemable on demand. These liabilities have a maturity that is uncertain and hence hard to match. Further, even if maturity matching were feasible, the cost of doing so would be prohibitive. Plus, restricting banks to financing investment only when they have liabilities with identical cash flows would entail substantial loss of profitable opportunities. So in order to take advantage of avail-

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able opportunities, banks prefer to assume some interest risk, gapping the maturity of their assets and liabilities to a certain extent.

But how does a financial institution measure its interest rate exposure? How does it decide how much risk to take? And how does it manage the process? The basic measurement of interest rate risk involves estimating the impact of rate changes on some measure of earnings. The simplest approach focuses on net interest income (NII) and looks at the impact of a given movement in the general level of interest rates on short-run income. Given the GAP, or difference between the book value of assets and liabilities that will mature or be repriced in a chosen time frame, typically one quarter or one year, the exercise tries to measure the change in NII reported that quarter or year as a result of the presumed change in interest rates. The level of analysis can be limited to a simple scenario or it can become a very comprehensive sensitivity analysis (as in simulation analysis).

Another approach is to measure the change in the market value of assets and liabilities to fluctuations in interest rates, rather than current cash flows. This approach, which uses duration analysis developed in the bond market, focuses exclusively on market value effects of rate changes on assets and liabilities. In this case, the value of equity, which is the difference between the value of assets and liabilities, is the focus of analysis, not reported earnings. If the market value is unaffected—that is, asset values change as much as liabilities when rates change—the balance sheet is said to be immunized.

However, the use of duration presents its own challenges. The first of these is that accounting earnings do not nicely match duration measures of interest rate sensitivities. Beyond this, the duration of a financial instrument changes with interest rates, which implies that banks focusing on market value have to constantly adjust their portfolio, worrying about factors that change every time rates change, like convexity and other more esoteric measures of trading risk.

For reasons that are similar to ones pertinent to the cash-flow-matching approach, this is often costly or impractical, especially when rates can change frequently. But some try nonetheless, using the economic value of equity (EVE) approach and measuring the duration gap (DGAP) between assets and liabilities, or the value at risk (VAR) facing the bank in a way that is similar to measuring trading risk.

A senior committee in the bank is delegated to mea-

sure, monitor, and manage interest rate risk using one of the two approaches outlined above. This committee, the Asset and Liability Management Committee, or ALCO, makes all of these decisions and sets policies that must be followed throughout the institution. The ALCO also formulates strategies and sets goals for the different financial variables that it monitors.

Current ALM Practice: A Summary of the McKinsey Survey's Results

With this as background, what are the actual practices in place at global financial firms? To gain insight into this question, the survey first provides some comparative analysis on two broad sets of issues. It investigates the methodological issues surrounding the measurement and management of rate risk at these institutions, then examines the organizational structures in place to handle this important responsibility.

Turning to the first, we find that several factors can influence the choice of method used for ALM, including the accessibility of relevant data, expertise and technology, and the availability of appropriate financial instruments in local markets. As far as organizational issues are concerned, we find that these can be important because the *modus operandi* of ALM measurement and management determines incentives and is likely to affect its performance in fundamental ways.

How do banks measure market risk and protect their balance sheets? The survey supports the notion that measured accounting GAP and NII are the primary variables used by the participating institutions, with 79% and 75% of respondents indicating that these are their primary measures of interest rate risk, respectively. The EVE and VAR are relatively popular; some 42% and 54% of survey participants, respectively, report using these measures, albeit often in a secondary capacity. More than 40% of the banks use three of these risk metrics simultaneously and around 35% use all four.

Once interest risk is measured, this information is used to formulate and implement hedging strategy. Participants indicated that the time horizon for hedging positions tends to be transaction specific. All banks agree that an important role of market risk management is to reduce earnings volatility. However, banks in developed markets seem to embrace a more conservative philosophy; some 44% of these banks agree with the statement that the

role of market risk management is to completely eliminate risk, compared to 33% of emerging-market banks. Emerging-market banks tend to hedge a lower percentage of interest rate risk; only 50% of emerging-market banks report some systematic hedging, compared to 100% of developed-market banks.

These differences in strategy are likely due to the economic realities facing the banks. Emerging markets tend to be more volatile than their developed counterparts. They also tend to have a less developed set of financial tools, with the result that available hedging instruments are limited. Therefore, emerging-market banks may have no other choice but to assume more risk. In response, these banks often offer limited fixed-rate products bearing prepayment risk in comparison to their developed-market siblings.

Most banks set and monitor tolerance limits using only one or two measures of risk. NII limits are generally tight in developed markets, where banks are willing to risk only one to two weeks of NII for a 100-basis-point parallel move of the yield curve. This compares to one to two months of NII or even more for a similar severe interest rate shock in emerging markets. As outlined above, this difference in risk appetite may be caused by the higher volatility and lower depth of emerging markets. Developed-market banks may also be using better modeling techniques with more intricate interest rate scenarios, allowing better management of their interest rate exposure.

Swaps are the preferred instruments for hedging interest rate risk in both markets, and 88% of all banks report using them. Forwards, futures, and options are used less frequently, especially in emerging markets. Only 25% of participants reported using forwards and futures to hedge interest rate risks and only 40% use options.

Banks also seem concerned with managing currency risk. In terms of foreign exchange exposure, emerging-market banks are more vulnerable to devaluations of local currencies, and they typically seek to reduce their exposure to currency risk more actively than their developed-market counterparts. Although about 40% of all respondents have little foreign exchange exposure and choose to leave their position open, 57% of emerging-market participants hedge all currency risk versus 50% of developed-market participants. Some 56% of the emerging-market banks in the survey tend to set net currency exposure limits compared to 20% of banks in developed markets, where currency exposure is not as big a concern. Some 50% of these banks report that their exposure is too insignificant to actively manage. Cross-currency swaps as well as forwards and futures are equally popular as hedging instruments in both markets, and options are practically not used.

Who performs the ALM function and how is it organized?
The textbook image of an ALCO that is entirely responsible for ALM is a bit misleading. The reality is more nuanced.

Treasury is typically in charge of the ALM function and devises the strategies and policies, while ALCO's role is limited to approving the proposed policies and ensuring compliance. In a minority of cases, an independent risk management function can be involved in this process; however, this tends to occur more frequently in the developed markets.

The degree of Treasury's specialization also tends to vary around the world. In some cases, particularly in emerging markets, Treasury is also responsible for some trading and capital market business. Although the extent of specialization may depend on the size and sophistication of the bank's market, it does have consequences for incentives. When the ALM function is performed by a dedicated Treasury, banks tend to treat it as a support function rather than a profit center. This changes Treasury's attitudes toward risk and may well contribute to the higher appetite for risk observed in emerging markets.

The membership structure of ALCO is an important tool that can be used to strengthen the committee's mandate. As expected, the top corporate officers of the bank are usually members. The CEO is a member in 70% of the surveyed banks, and he or she chairs it in 35% of the cases. The corresponding percentages, respectively, for other corporate officers are as follows: CFO (100% and 47%), CRO (80% and 6%), and treasurer (85% and 12%).

More importantly, business units are often directly represented in ALCO: 90% of survey participants report that business-unit leaders are members of the committee. This practice expands the committee's role from simply that of approving policies and monitoring compliance to providing a discussion forum for the risk consequences of important business and product strategies. This fosters better and timelier information sharing and promotes risk-based decision making throughout the organization. ALCO's influence is further reinforced when membership is structured into specialized subcommittees that address specific issues in ALM; some 71% of survey participants adopted this approach.

How do banks ensure that ALM actually achieves the goal of optimizing income while limiting risk? The vast majority of surveyed banks (89%) use an internal audit to assess the performance of the ALM function at least once a year. All the exceptions to this rule operate in emerging markets. Most banks use, at most, two measures of ALM performance. Absolute treasury profit and loss (P&L) and net interest margin (NIM) are the most popular measures, used by 50% and 30% of the surveyed banks, respectively. Some aspects of ALM performance are hard to measure, though. For instance, a bank that has an efficient ALM practice can more comfortably manage the risks that are associated with complex financial products and, as a result, may offer a more diverse range of products.

Valuing business-unit performance through appropriate ALM pricing. Different activities and business units



within a bank either supply or use funds. Every bank needs to establish some mechanism to allocate and price these funds so that senior management can determine the relative profitability of individual business units. Some 96% of all respondents use a formal *funds transfer pricing* (FTP) system for this purpose.

This system charges an interest rate to the users of funds and pays a rate to the suppliers of funds. Thus, FTP is akin to an internal market for funds. The majority of the banks indicated that the primary objectives of FTP are to create economic transparency and to immunize business units from extraneous financial risks. Indeed, FTP allows lending divisions to focus on asset quality, while Treasury determines the appropriate size of the maturity gap.

Some 70% of banks assign FTP rates at the product level, while 22% assign rates at the business-unit level as well. Meanwhile, 88% of all banks use matched-term funding rates as their basic FTP framework, and 71% of banks determine the base rate on the LIBOR/swap curve. Government or self-created curves are also used, particularly in countries where the swap market is not developed.

The typical practice is to pick a base rate that captures the duration of the underlying instrument and to adjust that rate to reflect liquidity costs. This approach is more common in developed countries. Nearly 90% of these banks add a liquidity premium, versus 60% in emerging markets. Some 40% of the banks that charge a liquidity premium base the premium on their wholesale funding credit spreads.

Although only 33% set FTP rates for all balance sheet items, the fraction is substantially higher for developed markets' banks (57%). This comparison suggests that banks in developed countries use more systematic and stringent FTP approaches than do the emerging-market banks.

How do banks protect their balance sheets against fluctuations in the flow of funds? The ALCO and Treasury are also entrusted with providing adequate liquidity for the financial institution. In this area, there is a strong consensus that the primary objectives of funding and liquidity management are to provide access to diverse funding sources while achieving low funding costs and meeting regulatory requirements.

Banks manage liquidity risk by monitoring and setting tolerance limits for various liquidity measures. Banks predominantly use a combination of liquid assets ratio (70% of banks), funding concentration ratios (48%), or static gap by maturity (47%) to measure liquidity. Monitoring activity involves a combination of factors, including an analysis of market conditions, the institution's balance sheet structure, and regulatory requirements.

All participants comply with regulatory liquidity requirements. However, very few banks keep liquidity reserves in excess of the requirements, so a careful liquidity

monitoring effort is required. The majority of banks (75%) have instituted formal liquidity contingency plans, including early warning systems. However, developed-market banks tend to have more sophisticated contingency plans with defined escalation procedures.

By contrast, banks in emerging markets tend to put more emphasis on deposits as a source of funds: 86% agreed with the proposition that banks need to fund the balance sheet with deposits to enhance profitability, and 80% agreed that accessing local deposits is an important objective of liquidity management. On the same subjects, agreement among developed-market banks was 75% and 38%, respectively.

Unfinished Business: The Challenges and Issues Ahead

Given the high level of ongoing consolidation within the banking industry and the removal of regulatory barriers between banking and other financial businesses, both the size and scope of modern financial institutions are increasing. At the same time, the benign interest rate structure of the recent past seems destined to end. As a result, the ALM approaches that exist today will need to be improved and adapted to fit this more complex environment. Recognizing this, participants in the survey have offered a series of recommendations—virtual projects that the industry must address in order to keep ahead of the curve and out of trouble. Three appear most relevant.

The need for increased centralization in ALM. The issue of ALM organization is likely to increase in importance in the larger, more complex institutions of tomorrow. The key challenge here is to design an ALM function that is specialized and accountable—and one that has the right incentives. The choice between the centralized and decentralized organization is crucial. Centralization of the ALM function promotes the dissemination of best practices at the cost of substantial communication requirements. This tension is already apparent in the parent-subsidary relationship.

According to the survey's results, banks tend to favor the centralized approach, although this view is more prevalent in emerging markets. Some 89% and 62% of banks in emerging and developed markets, respectively, report



using market risk management to influence business decisions at subsidiary level; similarly, 67% and 50% of banks in the two respective markets reported using a centralized approach when it comes to managing liquidity in foreign subsidiaries.

However, ALM systems are not always connected throughout the organization. Only 50% of all respondents reported that ALM systems were centralized through a global network. Very often, subsidiaries use different systems and send manual reports to corporate headquarters. In order to reap the benefits of a centralized ALM function, banks still face challenges in ensuring adequate information system integration. In contrast, when the ALM function is decentralized, communication requirements are lower, but governance and coordination issues become more difficult to manage.

Two areas where analytics can be improved. On the methodological front, the key issues are related to the sophistication of measurement systems. As noted above, simple scenario testing that evaluates the impact of a few rather straightforward interest rate or exchange rate shocks on some measure of performance is the most frequently employed methodology. This approach to the impact of changes in market rates has not changed materially over the past several decades. So why haven't more analytical techniques been used to capture interest rate risk? Why are firms still depending on earnings-based measures of interest rate risk, instead of using economic value approaches like EVE and duration? When properly implemented, EVE gives a more complete evaluation of the cost of forgone income and the effect on share price volatility that are associated with the bank's interest rate management practice.

However, in order to be accurate, these measures require sophisticated accounting standards and improved information systems. So far, these requirements seem to have limited the practical applications of economic value approaches. The increased availability of sophisticated software, the decreased cost of computing, and the widespread electronic capture of data suggest that the impediments are disappearing in IT. But this still leaves the very

real accounting and reporting issues on the table.

Similarly, simulation analysis requires that the response of each asset and liability to interest rate fluctuations be carefully modeled, and it produces results that are only as good as the quality and integrity of the input. Accurate simulations require substantial commitments in terms of effort and expertise because many assets and liabilities have uncertain cash flows. Retail deposit balances and open-end consumer credit products, like credit card balances outstanding, are the most relevant examples.

Enhanced liquidity and early warning systems. Finally, the challenge of liquidity management is to accurately measure the liquidity of a bank's balance sheet, in order to create early warning systems and provide incentives to improve liquidity. We know little about liquidity, its characteristics, and its sudden and abrupt departure from some markets. Yet, with larger institutions, the issue of liquidity management has taken on new urgency, as we all know. In light of recent market turmoil, clearly this is an area where more work is warranted.

Conclusion

ALM was developed in the 1980s to help financial institutions control a sharp increase in interest rate risk. Subsequently, it evolved into a set of techniques that enable financial institutions to manage a much broader set of risks. ALM is likely to play a growing role in financial institutions going forward.

In the future, the management of interest rate risk will be more important to the performance of financial institutions. The removal of regulatory barriers, combined with a trend toward consolidation, has created larger and more complex institutions in need of more sophisticated risk management tools. Regulators and rating agencies are focusing increasingly on the risk management practices of the institutions they monitor. Finally, impressive technological progress in the capture, transfer, and processing of data has made sophisticated risk management techniques available to financial institutions.

The more astute bank managers will take advantage of these new developments to improve the transparency and flexibility of their business. In large part because they have adopted more systematic ALM, banks in developed markets offer more diverse and complex products than their emerging-market counterparts. An extension of that logic suggests that, even within developed markets, ALM could be an important determinant of bank product strategy. ❖



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