



Forecasting the potential impacts on liquidity, deposits and earnings in the current environment of economic and geopolitical uncertainty and likely interest rate rises.

Liquidity risk is commonly defined as an institution's inability or perceived inability to meet demand for new loans or withdrawal of deposits. Liquidity risk management is therefore, to put it simply, ensuring that enough funds are available to meet such demand. Except, of course, it is not so simple. First, because it is risk that drives rewards, so there is a balance to be struck between profitability and managing liquidity, which becomes trickier when interest rate changes are on the horizon. Second, you need to forecast growth and plan the balance sheet mix to optimize earnings while maintaining the institution's interest rate risk profile. And third, because you have to forecast based not just today's environment but also alternative trajectories and stress environments.

There are several risk factors that can influence liquidity. In each case, the impact is unique, so it is worth considering them in turn. The two most obvious and quantifiable risks are interest rate risk and credit risk.

Interest rate risk is probably the one that most concerns institutions at the moment. Financial institutions need to think beyond the impact on margins; interest rate risk can also influence the timing of anticipated cashflow. You need to consider the impact on bond prices and the exercise of embedded options as well as earnings and cost of funds. You must consider both sides of the balance sheet.

Credit risk actually breaks down into two types: consumer credit quality and the credit quality of the institution. A change in consumer credit quality can impact liquidity by slowing prepayments, reducing cashflow through delinquencies and charge-offs on non-performing loans. On the institution side, there is a potential for credit-sensitive depositors to withdraw from the institution if it is given a rating downgrade, which creates a funding gap. Thus for credit risk you also have to consider both sides of the balance sheet.

A third quantifiable, though lesser risk, is price risk. Institutions should consider the impact of changes to the assets in mortgage, trading and available stable funding (AFR) portfolios on the liquidity coverage ratio (LCR).

Other risks that you should consider may be less quantifiable, but that does not mean they are less significant. They include operational risk, in particular the potential for breakdown in internal processes and procedures surrounding intra-day liquidity; the financial impact of compliance failures; and strategic and reputation risks.

How should you be measuring liquidity risk?

a) Regulatory guidelines

Basel III's regulatory guideline for measuring short-term liquidity is based on the following formula:

$$\frac{\text{Stock of HQLA}}{\text{Total net outflows over the next 30 calendar days}} \geq 100\%$$

One of the key reforms introduced by Basel III, this **Liquidity Coverage Ratio (LCR)** requires banks to hold an adequate amount of unencumbered High-Quality Liquid Assets (HQLA) that can be converted easily and immediately into cash in private markets. Banks are required to demonstrate daily that their LCR ratio is always equal to or greater than 100%. The LCR divides eligible assets into Level 1, Level 2A and Level 2B, whereby Level 1 assets, due to their higher quality, receive preferential treatment in the HQLA composition compared to the Level 2 assets. Total net cash outflow is defined as the expected cash outflows minus expected cash inflows; this is determined by multiplying the outstanding balances by the supervisory rates.

The Basel LCR framework has been transcribed into each jurisdiction's national law in different ways. Therefore, eligible assets for each category vary depending on the local LCR rules. So, while LCR is a regulatory measure it will vary for each institution based on the jurisdiction and the composition of the institution's assets.

Longer-term liquidity is governed under Basel III by the Net Stable Funding Ratio (NSFR). The NSFR presents the proportion of long-term assets with stable funding and is calculated as the amount of Available Stable Funding (ASF) divided by the amount of Required Stable Funding (RSF) over a one-year horizon. This ratio must equal or exceed 100% as shown in the equation below:

$$\frac{\text{Available source of stable funding}}{\text{Required source of stable funding}} \geq 100\%$$

ASF is the portion of capital and liabilities expected to remain with the institution for more than one year. An ASF factor is assigned to the carrying value of funding component.

RSF is the amount of stable funding that it is required to hold given the liquidity characteristics and residual maturities of its assets. For each item, the RSF amount is determined by assigning an RSF factor to the carrying value of the exposure.

So here too, there are prescribed guidelines for determining which deposits can count as stable funding and risk factors are assigned to these balances. Balance sheet composition therefore comes into play as does the risk/reward tradeoff for holding heavily liquid but lower earning assets.

b) Internal measures

Beyond these regulatory guidelines, which are relatively blunt instruments, management should be adopting and implementing more fluid and dynamic institution-specific measures. These include a variety of **ratio reports** such as cash and easily convertible securities (e.g. GSE debt, Treasury bonds) to assets; on-balance sheet liquidity; loans to deposits; loans to shares; and core deposits to total deposits. The exact nature of these ratios will depend in large part on semantics, for example how each specific organization defines "core deposits".

You should then put in place thresholds for internal warnings metrics for liquidity monitoring. There is no one-size-fits-all solution for ratios or thresholds – these really do vary, depending on the nature of each institution. For example, if your institution is heavily into commercial lending, you might want to include non-performing loan metrics in your system, but if your focus is non-real estate consumer lending, or brokered deposits, other ratios will be more relevant. Each institution must look at its own balance sheet to choose the most appropriate metrics and thresholds to monitor as a task of the Asset-Liability Committee (ALCO) or an internal ALM group.

A drawback of ratio reporting, however, is that it is essentially looking backwards. You can map trends showing what happened in the past, but to look at what may happen in the future, internal committees and liquidity managers should be looking at **cashflow projections**. Here, you can leverage an existing ALM system, looking not just at contractual cashflow but also layering in actual customer behavior. You would generally start with a basic gap analysis to see if the institution is asset or liability sensitive and look at contractual monthly and/or bucketed projections, identifying repricing mismatches and indicating the general direction of earnings impact given a change in interest rates.

Then take it a step further to evaluate cashflow; not just in the current rate environment, but also alternative environments, and what effect they would have on total payments and prepayments as well as what would happen on the other side of the balance sheet in terms of call options on advances etc. You should also consider incorporating behavioral changes: for example, what impact would an interest rate hike have on credit quality, volume of defaults and their severity, and how would that influence your total cashflow?

If you want to go even further, you can incorporate your baseline growth projections for loans, investments, deposit forecasted balances etc. to see what effect they would have on liquidity. You can then stress-test these projections in various scenarios (mild, moderate and severe) – both specific to the institution and systemic (varying rates of inflation and unemployment etc.) In setting these up, it's a good idea to give some thought to what is important to your institution and how often you should reevaluate the scenarios.

In the current rapidly changing situation, it makes sense to reevaluate frequently. We're coming out of a position where institutions were flush with liquidity following government stimulus measures, which also swelled the volume of loans. Now we are facing growing inflationary pressures and a shift in labor markets. It is a good idea to keep an eye on the dates when monetary committees will be meeting to take or review decisions on interest rates and money supply. What are the monetary policy analysts saying? And of course, the geopolitical situation is highly volatile.

Such developments will impact liquidity in ways that may be difficult to predict, and which vary between institutions. You should therefore be figuring out what are the right questions to ask on deposit runoff for different types of deposit. How fast will it go? What are the impacts on core and non-core deposits? Insured versus uninsured? Brokered deposits? Is there concentration risk with top depositors? There may also be reputation issues around runoff of certain funds.

All this comes with a warning not to measure and model everything if you want to avoid analysis paralysis! Each institution must identify the bellwether indicators that make most sense – that is precisely the strength of internal measures of liquidity risk compared with the blunt instrument of regulatory limits.



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