

# Bank Asset/Liability Management

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Prepared by Peter Mihaltian

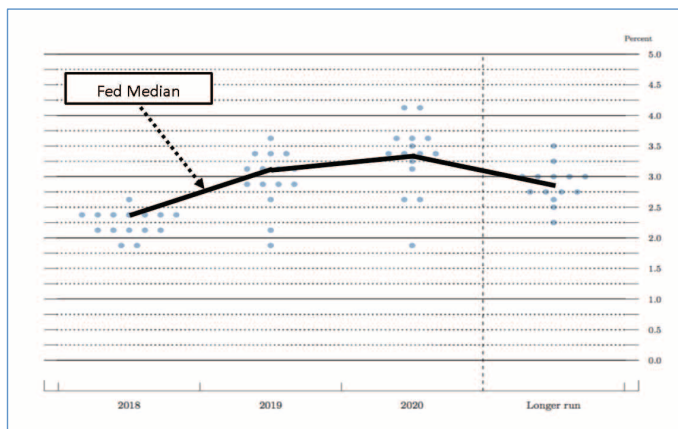
## ALM Modeling and Assumptions

We are more than half-way through this rising rate cycle. Agree or disagree?

This may well be a fair statement, if the Federal Open Market Committee (FOMC) Dot Plot is your guide.

In June the Fed hiked its target rate for the *seventh* time since late 2015, to a range of 1.75%-2.00%. The most recent FRB *Dot Plot* implies the Fed Funds rate is projected to eclipse 3% over the next few years, before settling in just below that over the longer term. *Five or six* more rate hikes from the Fed would put us in the ballpark of those longer-term expectations, as depicted in Exhibit 1.

### Exhibit 1



While we do not know whether these projections will come to fruition, they are nonetheless a popular conversation starter at ALCO meetings. Throw in expectations for the longer end of the yield curve and the discussion becomes even more colorful. Have long rates reached their peak? Will we see a greater sell-off in the market? Will the curve flatten more dramatically with the Fed continuing to tighten?

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The trajectory of the future path of interest rates is always on the minds of ALCOs given the importance of interest rate risk (IRR) and how we measure it. Our current positioning within this rising rate cycle has heightened this awareness. However, as risk managers, it is critical to see the forest for the trees, and be cautious when speculating on rates.

It is impossible to know with precision how fast and far the yield curve will ultimately rise. But, we can optimize our ALM modeling and assumptions development processes to best triangulate where our potential exposures may reside. There is no better time than the present for reevaluation.

### Are we running appropriate scenarios?

From the 2010 Joint-Agency Advisory on Interest Rate Risk Management:

*“Static interest rate shocks consisting of parallel shifts in the yield curve of plus and minus 200 basis points may not be sufficient to adequately assess an institution’s interest rate risk (IRR) exposure.”* Further, *“...institutions should regularly assess IRR exposures beyond typical industry conventions, including changes in rates of greater magnitude across different tenors to reflect changing slopes and twist of the yield curve.”*

### What array of interest rate scenarios are incorporated in your risk management process?

The guidance above clearly states we need to do more than +/- 200bps, but what else is reasonable and adds value to the assessment of our risk profile? Which scenarios could help us uncover potential meaningful exposures and influence strategic decisions? There is a hint that greater magnitude of movement and differing slopes are practical. However, there are countless derivations of these interest rate paths, so where do we start?

- *Pace:* Rates tend to move upward or downward over prolonged periods of time. Thus, they *ramp*. Rising and falling rate scenarios that manifest themselves over twelve and/or twenty-four month horizons typify the most recent rate cycles experienced, and also generally align with market expectations for the current rising rate cycle. Analyzing how your balance sheet performs as rates ramp up or down over one and two-year rate movement periods appears to be very reasonable and adds value given their historical context and future market projections.

- *Scale:* As mentioned above, the Fed, through its Dot Plot, is implying another 125-150bps, give or take, of up-

ward short term rate movement over the next few years. So, if we run an up 100bp and up 200bp scenario we should be good, right? Think again. While perhaps those magnitudes are *most plausible*, it is always prudent to analyze the potential impact on your balance sheet if rates move to a greater degree, e.g. +300bps or +400bps.

- *Slope:* Most IRR model managers run parallel interest rate movements, i.e. all tenors of the curve move the same magnitude. This establishes a solid baseline for how rising or falling rate environments impact the risk profile with the current slope of the curve maintained. Yet, most realize that in actuality the various points on a yield curve do not move in lock-step. Generally, over the course of an interest rate cycle curves will steepen and then flatten, or vice versa. Thus, adding scenarios that help isolate the impact of flattening or steepening curves is again reasonable, and can add value. Given current market projections, bear flattening scenarios, i.e. short rates moving more dramatically than longer term rates, in the range of up 100 or 200bps seem appropriate to assess.

- *Direction:* While the focus in this article thus far has been mostly on rising rates, what if they move lower? This could and will certainly happen again. It was less than two years ago that the 10-year Treasury note yielded below 1.40%. One could easily concoct a confluence of events which could ultimately lead to lower rates. For many institutions, falling rate scenarios portend their most challenging earnings environment, so it behooves thorough risk managers to consider *what-if* the market consensus is incorrect and to strategize accordingly.

Analyzing scenarios under various combinations of pace, slope, scale and direction are productive ways to ascertain under what *types* of environments your balance sheet experiences benefit, or potential exposure, without having to subscribe to a specific rate forecast, which will rarely be accurate, or run hundreds of interest rate paths, time consuming and most often *analysis paralysis*.

If tactical simulations are of interest to your ALCO, e.g. what happens to my balance sheet when the Fed moves up the next 25bps, or another +75bps over the next year, then they should be run as well — perhaps as a complement to the aforementioned array of scenarios, not the baseline. Remember, the purpose of ALM modeling is to triangulate our risk position and give our ALCO enough information to make good decisions, not encourage big bets on where rates may or may not go.

**Do we have confidence in our assumptions?**

Assumptions are an integral component of all IRR models. While there are thousands of assumptions in the models we run for our clients, some are undeniably more influential than others. It is critical to take the appropriate time to develop these key assumptions and monitor their accuracy as time progresses.

**Which assumptions are the most important?**

- Deposit behavior (beta, decay, volatility)
- Asset prepayments
- Asset pricing (spreads)

The 2010 Joint-Agency Advisory states that “*financial institutions should perform historical and forward-looking analyses to develop supportable assumptions.*” So, as a starting point, it is helpful to perform quantitative analyses to develop or substantiate these types of assumptions.

Most institutions who incorporate this will look to prior interest rate cycles to discern patterns or correlations they can apply to the current period.

We have performed hundreds of core deposit studies for clients over the years to aid in the establishment and documentation of deposit rate betas, volatility metrics, decay rates and to calculate average lives.

The same can be said on the loan side, where we’ve tracked empirical prepayment trends for specific institutions and used them to help develop future prepayment speed assumptions.

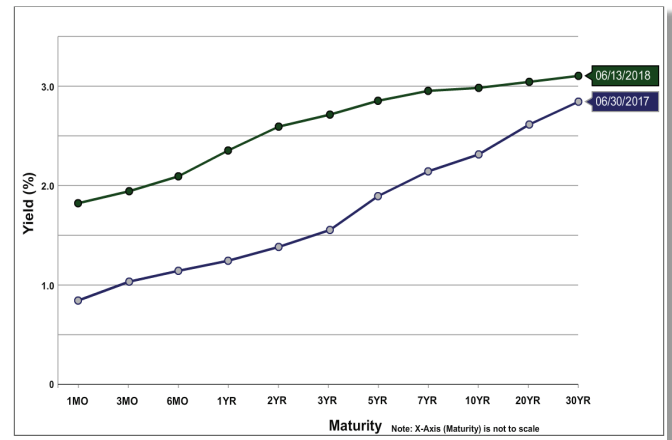
While the historical *quantitative* analysis is a great starting point, it is important that the ALCO and other key stakeholders apply *qualitative* judgements when necessary to best structure these assumptions. Many things in the banking world have changed since the last rising rate cycle occurred (2004-2006) for example, so often *qualitative* assessments are imperative to refine what the historical data are telling us.

**Can the current rising rate environment better inform our assumptions?**

While the last full rising rate cycle of 2004 to 2006 has been useful in framing deposit and loan assumptions for many institutions, we are receiving real-time data each day as the current cycle progresses that we can also utilize.

Since the end of the second quarter of 2017, the Treasury curve has in effect experienced what we might call *flattening* up 100bp. Rates on the shorter end of the yield curve have moved up approximately 100bps while those at the longer end have moved upward to a lesser degree,

Exhibit 2



Graph provided by U.S. Department of Treasury

thus removing slope from the curve. Exhibit 2 shows this derivation of *bear-flattening*.

Given these movements over the past twelve months, many institutions are reevaluating their assumed deposit betas, asset pricing, and prepayment speeds. They are typically asking themselves questions on these variable, such as:

*Deposit betas:*

- Have we been able to lag deposit rate increases versus our model expectations?
- If so, how much have we saved in potential interest expense?
- Can we continue to lag moving forward?
- Will we have to play *catch-up* and increase rates to a greater extent to retain balances?
- Have there been discernible balance shifts or migrations due to new pricing or products?
- Should we amend our betas depending on the answers to the above?

*Asset pricing:*

- Has the increase in rates across all points on the curve translated into higher loan yields?
- Are we seeing the full benefit, partial benefit, or none at all?
- If credit spreads are shrinking, do we still plan to grow at the same speed, or will we pull back?
- Should we edit current pricing spreads in the model to better align with our actual experience?

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### *Loan prepayments:*

- Have prepayment speeds slowed to the extent we expected?
- If not, what other *non-interest rate* factors could be influencing them
- Are there areas of the loan portfolio, e.g. ARM's repricing upward, that could see increased prepayments looking ahead?
- Should we update our assumptions based on the most recent trends?

Regardless of whether recent activity changes how you adjust assumptions such as the ones mentioned above, it is *best practice* to run stress tests in order to gauge the impact of "*what if we are wrong.*" After all, these are *assumptions* on customer behavior, which we may never truly be able to predict, no matter how robust historical data are.

### **Pulling it all together**

No matter what stage of this rising rate cycle you believe we are in, and how varied the assortment of interest rate scenarios you perform, each day that goes by provides additional information we can use to better inform our decision-making models. ALCOs that examine and analyze these deposit and asset behavioral trends and incorporate them into their risk-management process will be better prepared to navigate no matter how the yield curve moves in the near future.

*Zach Zoia*  
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## **Bank Asset/Liability Management**

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