

“Time for Better ALM Practices?”

Mid-August 2007 was a time of interest rate volatility related to the subprime lending boom that was exacerbated by the inclusion of those assets in the collateralized debt obligation (CDO) market. An increase in rate volatility, ceteris paribus (from ECO 101), results in greater earnings volatility for most banks.

Based on this increase in volatility, banks may wish to reassess their risk measurement standards, including the frequency of measurement. When assessing a banks’ risk position, it is important to jointly consider both:

- its quantitative risk metrics and
- its qualitative risk management process.

In a normal market, banks with moderate risk are suggested by their supervisors to have “acceptable practices.” Increased market volatility may result in increased risk; thus, supervisors may require “better practices.” The following table 1 illustrates this concept.

Table 1

Risk assessment	Qualitative risk management practices		
Quantitative risk	Substandard Practices	Acceptable Practices	“Better” Practices
Low risk	needs improvement	Acceptable	Acceptable
Moderate risk	needs improvement	Acceptable	Acceptable
High risk	needs improvement	needs improvement	Acceptable

Source: OCC

In Mid-August, the bond market saw anew the flight to quality. Investors of commercial paper and other short corporate debt shifted their investments to short Treasuries driving 3-month T-Bill yields down 2%, within two weeks, only to see them bounce back shortly thereafter. This interest rate volatility generally increases banks’ Sensitivity to Market Risk, which is defined as “the degree to which changes in interest rates, foreign exchange rates, commodity prices, or equity prices can adversely affect a financial institution’s earnings or economic capital.”

Quantitative risk measurement

The foundation of a “better” risk management process is a better risk measurement process. A few years ago, as part of its move towards enhanced risk

management practices, including increased transparency, FNMA began by disclosing certain monthly risk measurements. These were:

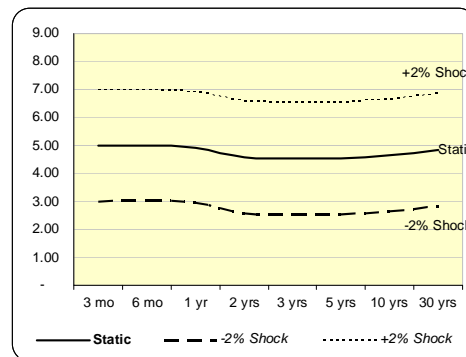
1. Risk to earnings resulting from yield level changes
2. Risk to earnings resulting from yield curve changes
3. Duration gap position
4. Run 100s of scenarios for earnings and value at risk

It is important to note that these measurements are disclosed monthly. The production of internal metrics ranged from real-time to daily to monthly.

Risk to earnings resulting from yield level changes: parallel yield curve shifts

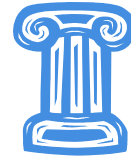
Most banks utilize parallel yield curve risk shifts or “shocks” as an integral part of their risk measurement process (see table 2, as of June 30, 2007). The typical +/-2% parallel shift is primarily useful for estimating the impact of changes in the level of rates. While useful as a stress test and/or as long-term estimate of value risk, this may not be a realistic approach to estimating the risk to earnings as the yield curve rarely shifts in a parallel fashion. As a result, this measurement may mislead both internal and external stakeholders of the amount of prospective earnings volatility.

Table 2



Risk to earnings resulting from yield level changes: non-parallel yield curve shifts

During the sustained flat to inverted yield curve of 2005 to 2007, many banks have learned anew that they may be at least as exposed to risk from the shape, or slope, of the yield curve as from the level of rates. In an earlier article in BALM, we noted that banks should



include both level and slope measures in their back-testing exercises.

With the UST rates from 3 months out to 5 years hovering around 4% to 4.25% as of early September 2007, the bias is ever stronger for a Fed ease. For planning and risk measurement purposes, banks should consider estimating their earnings sensitivity over the next several quarters utilizing non-parallel yield curve shifts (see tables 3 & 4, as of June 30, 2007), in addition to parallel yield curve shocks typically used (table 2).

The approach to estimating slope risk is a two-step process:

1. First, utilize the usual parallel shift.
2. Then, utilize a form of non-parallel yield curve shifts, or twists. More advanced ALM models have an automated form of implementing this process, both for ease of use and for period-to-period consistency.

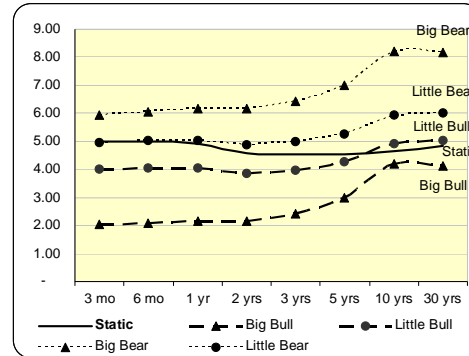
Only by using both methodologies can a bank disaggregate level risk from slope risk.

The following is an example of the rate scenarios we suggested our client banks consider as of June 30, 2007. In this instance, our analysis is focused on curve "steepeners," but it is important to consider various twist scenarios (this topic was the note of a recent Bank ALM article). After analyzing your projections with these more likely rate scenarios, it is easier to devise tactics to increase earnings and/or mitigate interest rate risk.

Table 3
Slope change example

	Static	-2% Shock	"Big Bull"
Level change	0	-200	-200
Short rate change	0	-200	-300
Long rate change	0	-200	-100
Slope change	0	0	+200

Table 4
Slope change example



Duration gap position: asset duration less liability duration

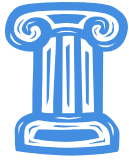
Most banks measure their duration gap position, either directly via modified duration metrics, or indirectly, via effective duration metrics. These are frequently communicated to ALCO and/or the Board via a rate shock scenario highlighting the impact to economic value of equity (EVE). This summarized measure, in some institutions, produces a sense of "shock and awe," and is dismissed as unrealistic as ALCO and Board members may sense that their bank usually does not lose 25% of value in a short period due to market risk (assuming that they do not fund their mortgage portfolio with short-term promotional CDs, or worse).

By first understanding how assets and liabilities may have scenario-dependent durations, it becomes easier to comprehend how the EVE may change in a non-linear fashion. For example, by explaining how asset (e.g. mortgage loans) and liability (e.g. structured borrowings) durations change with rates, we have found that Boards become capable of understanding duration analysis, resulting in the desired "Aha!" moment.

By breaking this analysis into component parts, both the ease of understanding and ease of facilitating discussion of tactical alternatives is facilitated. This greatly assists in moving the ALM process from the measurement phase to the management phase.

Run 100s of scenarios for earnings and value at risk: focus on "worst cases"

The above examples focused on pre-determined, or deterministic, rate scenarios. A more sophisticated approach is to use a form of stochastically determined



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scenarios, as with Monte Carlo and/or lattice-based scenarios. One advantage of this approach is that is relatively straightforward to estimate the impact of increased and/or implied rate volatility. For example, if short rate volatility is at 15% during a time of FED and market stability, but rises during time of FED and market instability, consider using 30% short rate volatility, or higher.

Based on the underlying interest rate model(s) and portfolio(s), this can again produce the “shock and awe” results that are seen in the parallel rate shift scenarios. In contrast, though, this approach is based on a theoretically sound foundation. In addition, by reviewing the projected risk to earnings and/or values, especially when presented in a probabilistic setting, ALCO can focus on hedging those scenarios that are projected to be unacceptably risky.

In addition, by running numerous scenarios, it is more likely to find, *ex ante*, a scenario that is reasonably closed to realized rate moves. This greatly simplifies the back-testing exercise championed by certain stakeholders.

Finally, when reviewing the results of this type of probabilistic analysis, it may be comforting for ALCO to know that, based on market volatility; it is 90% likely to achieve its earnings objectives. Then, it is straightforward to hedge the remaining 10% of risk with carefully targeted transactions. That is, you can focus on buying insurance for only the scenarios that you need to hedge.

Of course, the opposite is also true. If, due to increased rate volatility, it is unlikely that you will reach your earnings objectives, your ALCO should clearly communicate this to interested stakeholders and be prepared to take prompt action.

Summary

“Better” practices are always acceptable to interested stakeholders, including bank supervisors. These include:

- timely (monthly?) measurement,
- transparent disclosure to internal and external stakeholders, and
- the integration of risk measurement, scenario-dependent tactical analysis, and the informed implementation of risk management decisions.

Endnotes

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www.aspratt.com/store/805.php

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