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Balancing Qualitative and Quantitative Analysis in Interest Rate Risk Management

One of the most important lessons an A/L Manager can discover is that interest rate risk management is more than a quantitative exercise. It's all about effectively managing your balance sheet which requires both quantitative and qualitative skills. The last few years have taught us to expect what we had thought were low probability, high impact events and prepare for action as the probability increases. This forces us to look at the environment on both a quantitative and qualitative basis and take a more realistic look at the economy and resulting potential yield curve scenarios as we plan balance sheet strategies and tactics.

Banks used to do business first and then deal with the risk they took as they marched forward. Years of financial growth and upheaval led us to determine how much overarching tolerance or appetite for risk we have (given our current and potential capital) and keep our business risk profile within that range. Quantitative ALM is part of the process of determining how much risk we can tolerate in our qualitative stomachs. Although interest rate risk rarely or ever causes a bank failure, who wants to live with their banks (and their jobs) on the edge? You want your bank to be the complete package: capable of effectively managing credit, liquidity, operating, and interest rate risk in order to take advantage of business opportunities that are arising around us.

We are undergoing a generational change that is leading to more widespread and efficient use of analytics. As the BBB's (i.e. baby boomer bankers) retire, there will be a greater orientation toward using modeling tools which are becoming more user friendly and offer more for the money. Complexity in asset and liability products and greater uncertainty surrounding earnings and capital reinforces this need. Not surprisingly, this will place more importance on the need to balance quantitative and qualitative analysis to avoid quantitative domination. Run the models, question and interpret their results so that you can have a clear understanding of how to apply what they're telling you—or not telling you---about the real world and your ability to respond to the risk environment. Although in ALM we often focus on “what the regulator wants”, it's really about what the shareholder needs to ensure business survival and growth.

One example that is ripe for a marriage between quantitative and qualitative analysis is the traditional approach of using parallel rate shocks on the analysis of economic value of equity and earnings simulations. Figure 1 shows a US Treasury yield curve example from July, 2010 using parallel shocks from a base case starting point of 100 basis points in both directions¹.

¹ Typically, down shocks also represent a parallel shock down, but in low rate environments such as ours, you can't get a complete 100 basis point parallel shift downward since models typically don't permit negative interest rates.

Parallel shocks provide an easy way to measure risk based on similar changes at all points on the yield curve and it eliminates any analytical noise produced through yield curve and twist stresses.

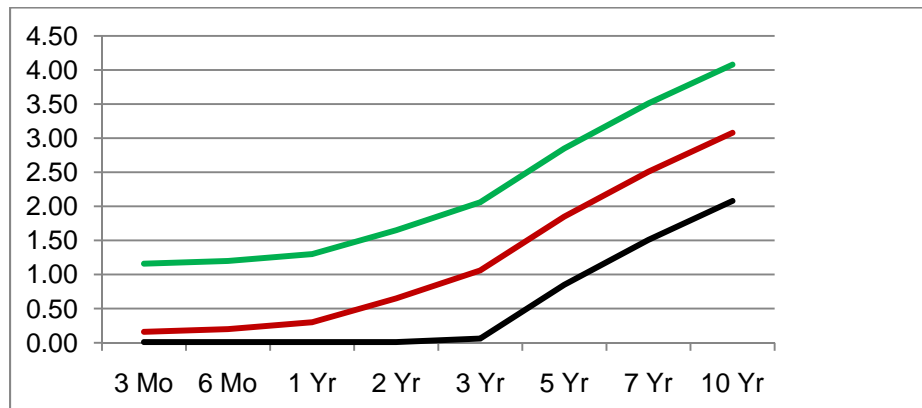


Figure 1

This is a good starting point in defining shocks and stresses, but not the ending point. Analysis such as yield curve twist for prescribed curve movements should all be addressed as well...by examining the changes from the 2 year to 10 year by 10 bps, 25 bps, or 50 bps helps you understand the next level of risk that you face. Other measures such as basis risk and volatility risk should be considered if you face those types of risk. These are all important to help you manage to Regulatory and Board ALM compliance limits.

But the object of IRR is to take you beyond the world of compliance and move you toward using ALM and IRR as balance sheet management tools and enable you to prepare for the market environment ahead. How often have you seen parallel rates occur in nature? Although they may occur, yield curves historically tend to flatten at higher levels with increased economic activity and steepen at lower levels as the economy weakens.²

Moving beyond quantitative calculations toward proactive balance sheet management requires more work. Understanding the current economic drivers and figuring out what that may mean in terms of future realistic yield curves (up, down, sideways, twist) is critical. This information can then be used to develop strategies and tactics which will lead us to figure out how we want to manage our investment portfolios, funding book and equity position. It will also help us focus our limited attention and resources and prioritize them toward higher probability movements in the yield curve....both up and down.

Using more realistic yield curves could also provide a clearer understanding of your bank's earnings profile or analysis of a particular strategy in a high probability market environment. The yield curves in Figure 2 show the base case accompanied by a flattening "Rebound" curve as well as a "Double Dip" recession curve. Let's analyze a five year US Treasury funded with

² Interestingly enough, in the current environment a parallel shock in the US Treasury Curve **might** be one potential result of a dollar or fiscal crisis, rather than a traditional economic rebound from a low interest rate environment.

three month Repo. Figure 3 illustrates the quarterly spread based on the forward curve for Base Case, a parallel Up 100 Shock and the realistic "Rebound" yield curve.

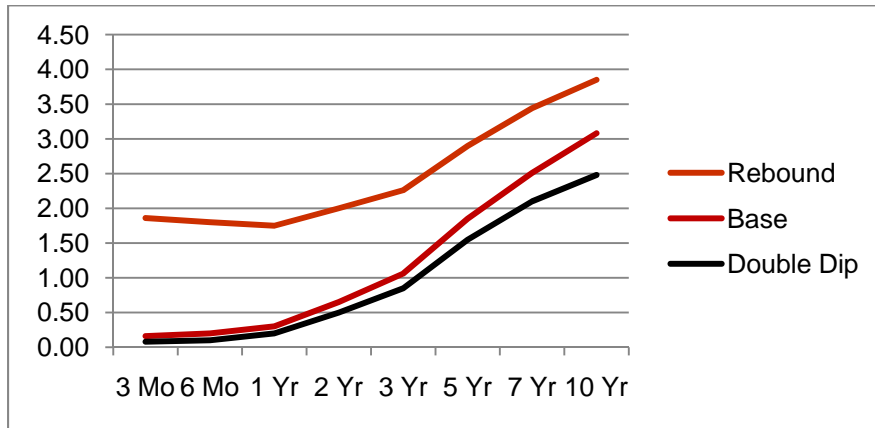


Figure 2

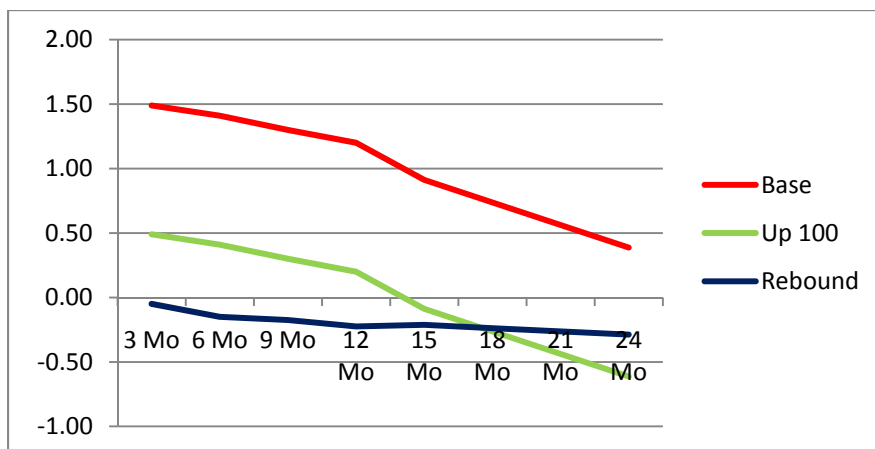


Figure 3

When you look at the quarterly spreads in Figure 3 for the asset and liability combination, you see a different risk picture depending on whether you use the Up 100 parallel rate shift or the more realistic Rebound curve. The Rebound curve helps provide clearer insight into managing earnings expectations.

In their 2010 advisory³, the financial regulators indicated that institutions should analyze shocks beyond 200 basis points and in fact they specifically mention up and down 300 and 400 basis points. At the same time the advisory indicates that "Institutions should ensure their scenarios are severe but plausible in light of the existing level of rates and the interest rate cycle." This gives further support for banks to consider the economic environment and test potential scenarios--- in addition to conventional parallel shocks---that are both probable and significant in terms of affecting your risk profile.

³ Interagency Advisory on Interest Rate Risk Management, January 6, 2010, page 5

Figures 4 and 5 provide the same funding analysis for a 300 basis point parallel shock and a more plausible yield curve flattening near those levels. It is again clear that the spread results are different and that examining the risk profile generated by both curves is important to assess various possible outcomes in the future market environment.

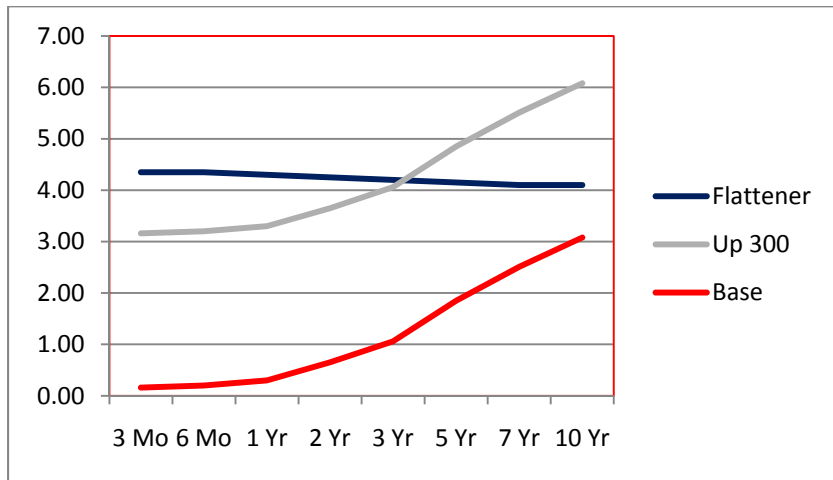


Figure 4

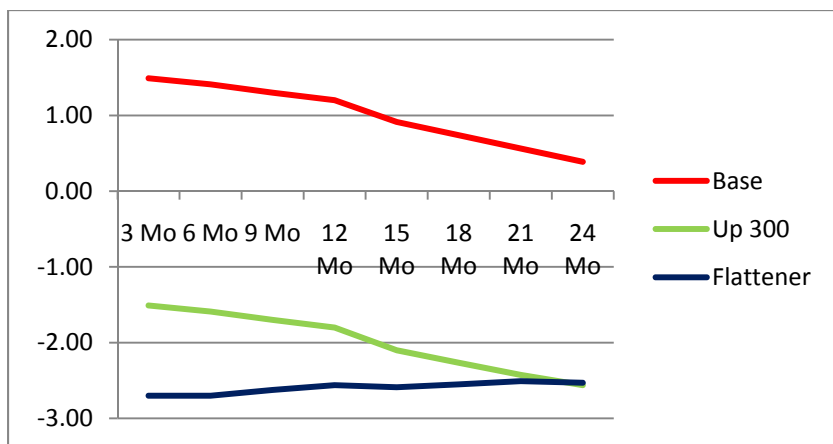


Figure 5

Keep in mind that the use of realistic scenarios may be challenging to develop and apply in models, particularly if you have a complicated balance sheet with lots of yield curve drivers and embedded derivatives. Obviously, you can never be certain that the curves you select will actually come true. Nevertheless, it's a useful tool to help prepare and implement a balance sheet management response. It can also enhance proactive ALM and help establish a realistic connection between quantitative and qualitative analysis for interest rate risk managers.

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