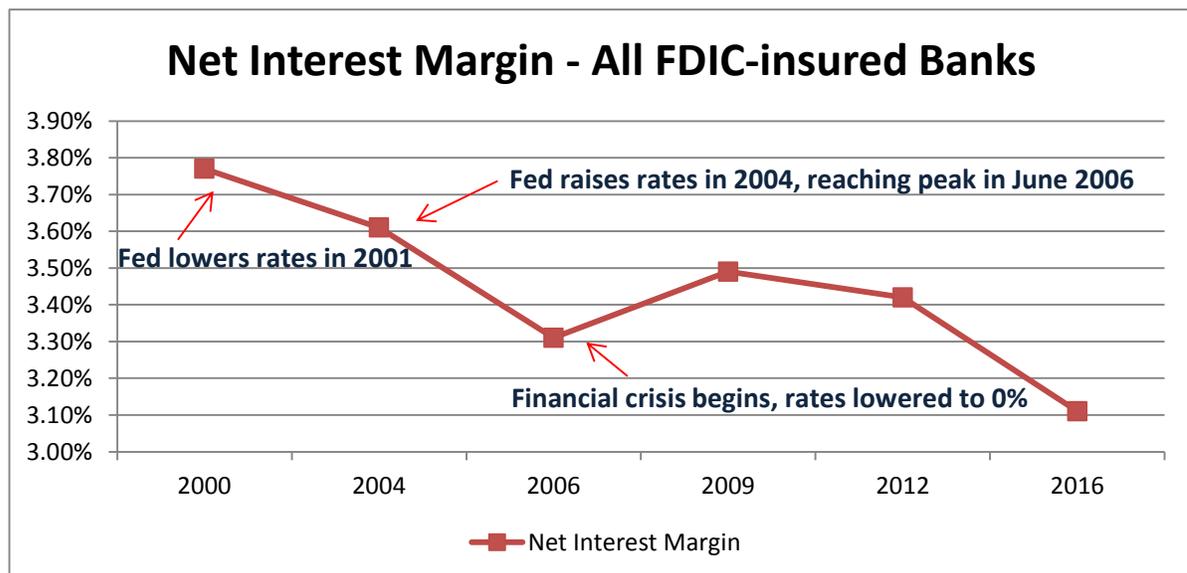


Is Your Institution Really Asset Sensitive?

After close to 10 years of historically low interest rates, many financial institutions appear poised to finally pop their champagne bottles with the prospect of sustained Fed Funds rate increases on the horizon. Several institutions are convinced that, after years of net interest margin (“NIM”) compression due to low yields, weak loan demand and the accumulation of interest earning overnight asset balances, their balance sheets are asset sensitive. They expect their asset yields will increase more and faster than liability yields, leading to increased NIMs. However, before beginning the celebrations, prudent managers should be asking themselves if they really are as asset sensitive as their models may show.

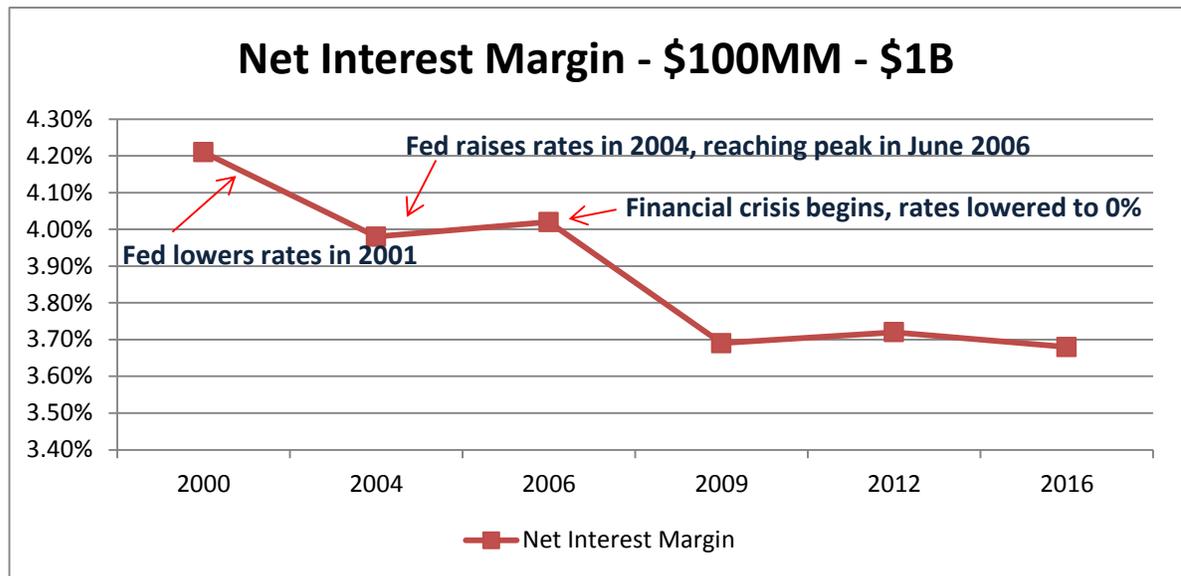
Do Rising Rates Lead to Higher NIMs?

When looking at historical data, it is clear that rising interest rates have not always lead to increased NIMs. We looked at NIM data for all FDIC-insured banks from the end of 2000 until September 2016 (the latest data available) and overall NIMs have declined by about 65 bps during that period. There were two periods where the Fed lowered rates (2001 recession and 2007 financial crisis) and one period of rate increases (2004 – 2006). During the Fed rate hikes between June 2004 and December 2006, NIMs actually declined by about 30 bps for the overall bank universe.



Source: FDIC Statistics on Depository Institutions (SDI)

For community banks with assets between \$100MM and \$1B, their NIMs increased by about 4 bps between June 2004 and the end of 2006. While certainly better than the performance of the overall bank universe, this small increase should make institutions wonder if they really were as asset sensitive as their models may have shown during that time period.



Source: FDIC Statistics on Depository Institutions (SDI)

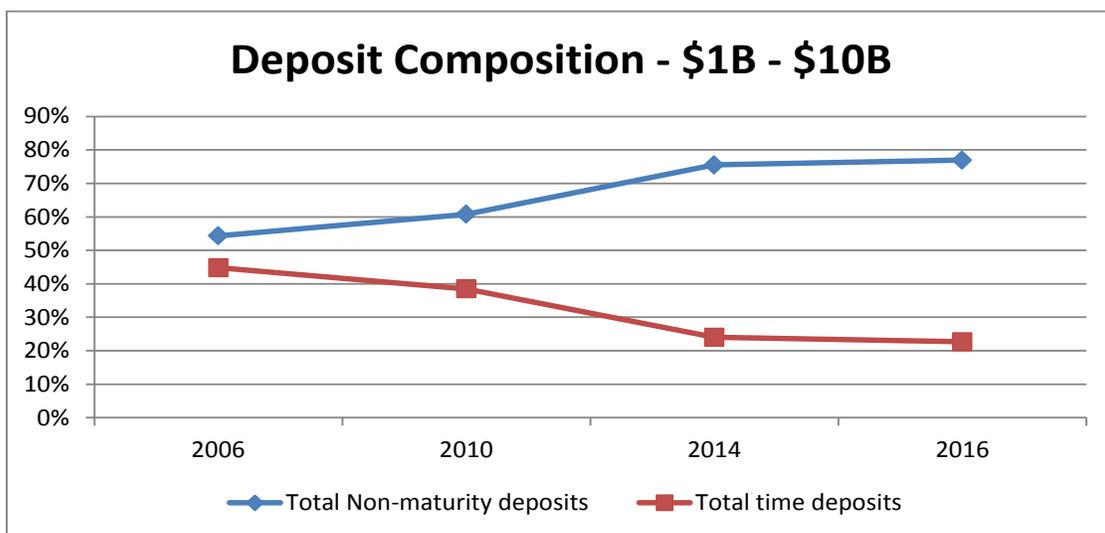
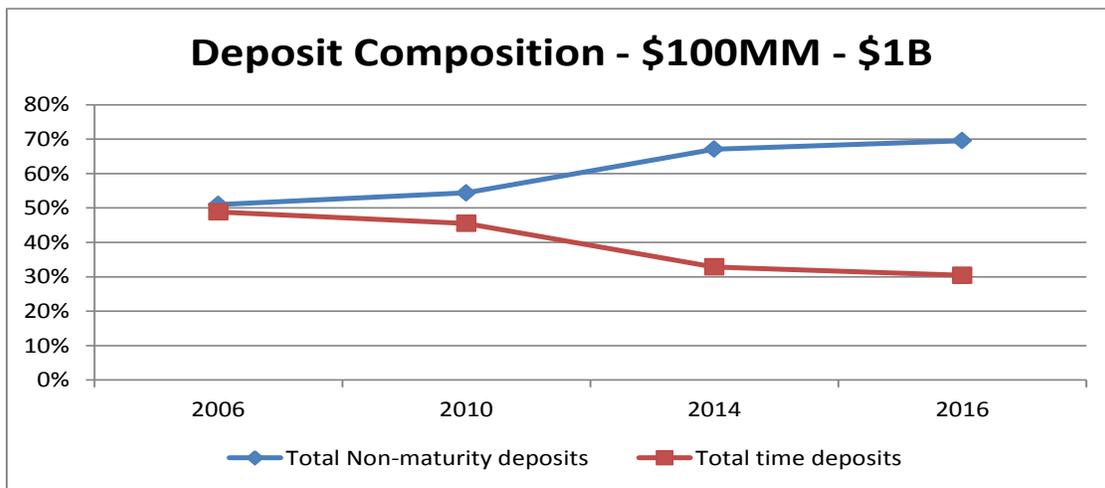
Modeling Challenges

In order to bridge the gap between model results perception and historical performance reality, it is critical to review and reassess modeling assumptions, which play a significant role in measuring interest rate risk. For assets, most instruments have defined interest rate and repricing characteristics that are relatively easy to capture in modeling. However, there are other variables, such as prepayment assumptions, that impact the maturity timing of these instruments.

For deposits, modeling assumptions play a much more prominent role and are also significantly more challenging to forecast accurately. This is primarily due to the fact that non-maturity deposits, such as demand, money market and savings accounts do not have contractual interest rates, as they are determined by the institution. The repricing beta assumptions for these core deposit accounts are critical in measuring interest rate risk, and even minor changes in these assumptions can have a material impact on interest rate risk results. Many institutions have seen a surge in these deposit accounts since the beginning of the financial crisis, including significant increases in non-interest bearing demand deposit balances. The increases in these

accounts have come at the expense of time deposit balances, which have declined in proportion.

We reviewed the composition of deposits for FDIC-insured banks between 2006 and 2016 for banks with assets between \$100MM - \$1B and \$1B - \$10B. For both of these peer groups the results were similar. In December 2006 the split between non-maturity deposits and time deposits was roughly 50%/50%. As of September 2016, non-maturity deposits accounted for over 70% of total deposit balances, an increase of over 20%. Larger banks with assets greater than \$10B showed similar trends. Distant history has taught us that one important question to ask is whether your model assumes that non-maturity deposit funds will flow into higher costing CDs as rates rise. Based on the banks we have already modeled at VBC as of year-end, we are beginning to see signs of this phenomenon.



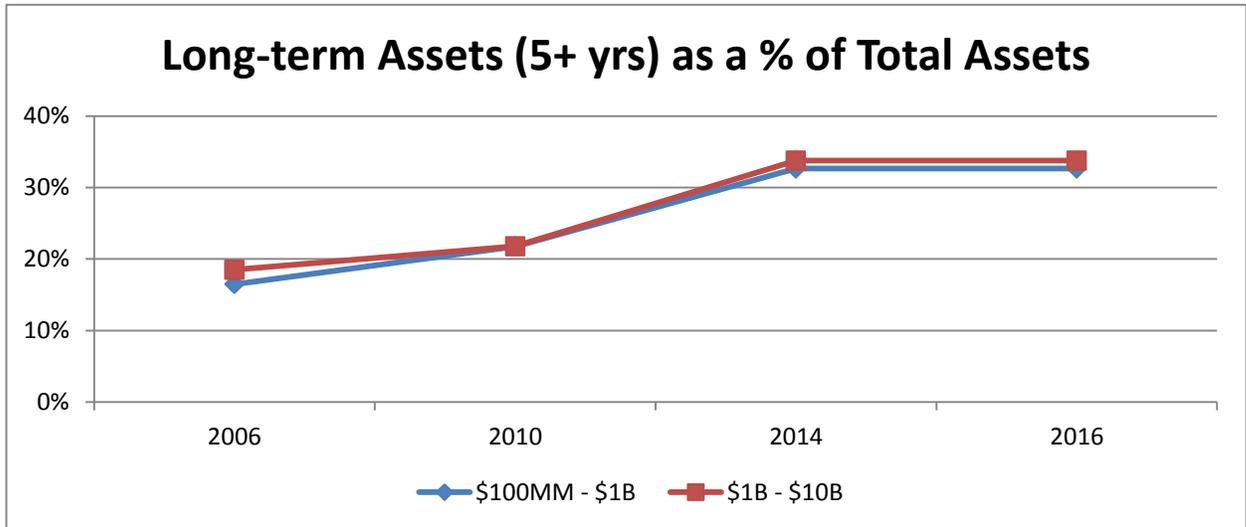
Source: FDIC Statistics on Depository Institutions (SDI)

In order to forecast the repricing betas for these non-maturity accounts, institutions typically have reviewed historical correlations between rates on these accounts and interest rates via a detailed core deposit study. Unfortunately, the last period of sustained rising rates was between 2004 and 2006. Are those correlations still relevant? Will some of these surge balances leave the institution as rates increase? Will customers move balances from non-interest bearing accounts to higher yielding money market or CD accounts? With these balances now comprising over 70% of total deposits, the answers to these questions and the corresponding modeling assumptions employed play a significant role in forecasting whether the balance sheet is really asset sensitive and poised to benefit from rising rates.

Trends in Asset Durations

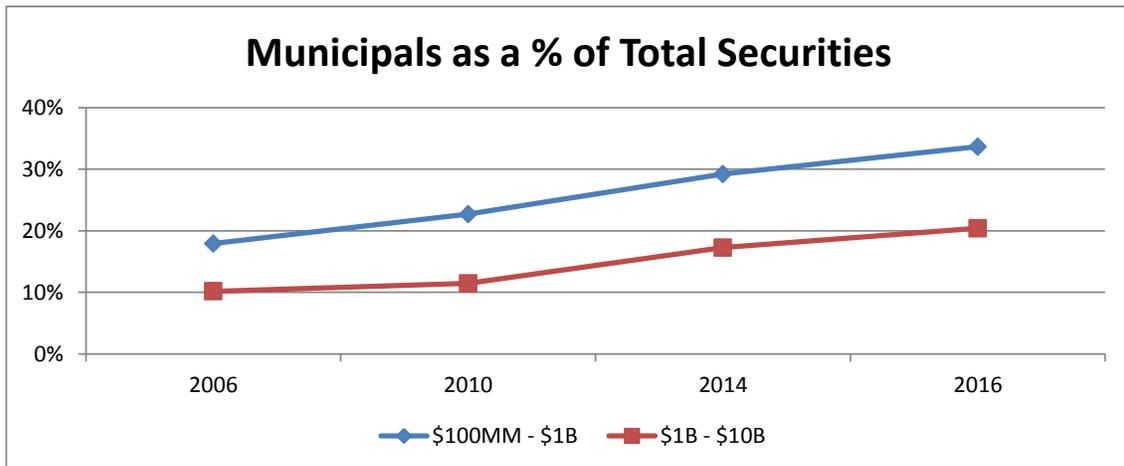
Exacerbating this issue is the fact that asset durations have been trending longer as institutions purchased longer duration, higher yielding assets to offset margin compression brought on by the sustained low rate environment. Throughout the first few years of the financial crisis, many institutions maintained high levels of cash and short-term assets as loan demand weakened, rates declined and prepayments increased. These institutions were hoping to be able to benefit from higher rates once the cycle turned (this was also encouraged by Regulators). However, as the years passed and the prospects for rate increases were consistently delayed, many institutions began putting money to work further out on the curve in order to pick up as much yield as possible.

Historical data for the same two asset size peer groups showed that long-term assets (assets with remaining maturities or repricing intervals of over five years) as a percentage of total assets have roughly doubled, from 16% at the end of 2006 to 33% by September 2016. Larger institutions (>\$10B) showed similar trends.



Source: FDIC Statistics on Depository Institutions (SDI)

It appears that one of the primary causes has been the increase in longer-duration municipal bonds. Between 2006 and 2016, municipal bonds as a percentage of total securities have also doubled, and now comprise close to 35% of the total securities portfolio for banks with assets between \$100MM and \$1B.



Source: FDIC Statistics on Depository Institutions (SDI)

Balance sheets with longer duration assets, that may also extend further in a rising rate environment, make the challenge of understanding deposit rate sensitivities and durations that much more important.

Understanding Risk Exposures is Key

The purpose of interest rate risk modeling, aside from Regulatory requirements, is not to accurately predict the future. There are too many variables in a typical asset-liability

model that make it nearly impossible to forecast exactly how the balance sheet will perform. Actual changes in interest rates rarely mirror model forecasts (for both parallel and non-parallel rate shift scenarios), interest rate spreads change and modeling assumptions are not always accurate. There are exercises, such as model back-testing, that can help institutions understand the causes of model variances and improve modeling assumptions. However, the goal is not to forecast with 100% accuracy.

The primary purpose of modeling interest rate risk, in our opinion, is to understand where the risks and exposures of your particular balance sheet lie. This can be accomplished by drilling down into model results and understanding why certain assets and liabilities are forecast to behave in certain fashions. Understanding the composition of your investment, loan and deposit portfolios is a critical component to this exercise in the current environment.

When it comes to core deposit assumptions, it is essential that informed decisions are made with regards to pricing and overall deposit strategy. How rate sensitive are your customers? Have you quantified surge balances? Will you chase deposits via higher yields than your competition? How far will you go to hold onto existing deposits? How fast will you raise deposit rates in relation to Fed Funds increases? The Federal Home Loan Banks have recently increased their advance rates, which means the pain associated with potentially having to replace core deposits with wholesale funding is already a reality. For example, since September 2016 the FHLB Dallas advance rates have increased across the curve, from 30 bps for 30-day funding to 90 bps for 10-year funding. These are all questions that may not be able to be answered with certainty, but understanding where the risks and exposures lie is critical to making informed decisions. Now is the time to re-evaluate these modeling assumptions.

Stress Testing

Stress testing is a great tool to help understand where the balance sheet may be exposed to interest rate risk. Regulators have placed heavy emphasis on this exercise in recent years, specifically as it relates to core deposit assumptions (betas and durations). By stressing various modeling assumptions in different rate scenarios, bankers can be better informed to make decisions that will drive financial performance. The goal should be to run realistic stress scenarios based on specific risk exposures, which can then assist in developing strategies to mitigate these risks that are commensurate with the risk appetite of the institution. It is more prudent to consider various stress scenarios that magnify exposures than to simply rely on one set

of modeling assumptions to predict the asset sensitivity and future performance of the balance sheet.

Again, ask yourself “are we really as asset sensitive as the models show”? Have you considered the impact of lengthening asset durations (due to slower prepayments), a flatter yield curve AND the negative impact of funding costs increasing more rapidly than modeled? Please reach out to your VBC representative to see how we can assist with this process.

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