October 20, 2015

Weekly Post: **Setting the Core Deposit Account Offer Rates**

Dear Clients-

When rate rises, we typically set our offer rates pegged to our competitors' rates drawing a tradeoff between retaining clients' deposit and lowering our funding costs. However, we can only guess how the competitors will set their rates. However, to determine our funding cost when rates rise, we need to project our funding rates based on some assumption on the competitors' rate movements. This weekly post describes at least historically how offer rates adjust to changes in the market rate.

Challenge

Historically, the offer rates of non-maturity accounts correlate with the market rates but in a complicated way depending on multiple factors.

- What is the appropriate "market rate" that the deposit rate should correlate? The Fed Funds rate? Three-month CD rate? One year Treasury rate? 10 year Treasury rate?
- If the market rate remains stable, then what is the spread between that market rate to our offer rate?
- When the market rate begins to rise (fall), will our offer rates rise (fall) in step or with a lag? Are the lags in the rising rate and falling rate regimes the same?

Regulators are concerned with the impact of rising deposit rates on earnings. Given the complexity of the offer rate strategies, shouldn't the concern be related to broader aspects on interest rate risk management?

Solution

THC non-maturity deposit account model assumes a market rate that bank customers would consider related to the deposit rate. Typically, the model assumes the 3 month CD rate or the one-year Treasury rate. This rate is called the *Benchmark Rate*.

Over a period of stable interest rates, the model determines the spread between the benchmark rate and the offer rate remains constant. Then the benchmark rate net of the spread is called the Target Rate, the offer rate that the customers' would accept in a stable market condition. Since the spread is fixed, the Target Rate always changes in step with the Benchmark Rate.

When rates rise, historically, offer rates do not rise in step with the Target Rate. Bank rates would gradually adjust to the Target Rate. After all, the market rates can rise and fall over a relatively short period, and the offer rates do rise and fall with the market rate. The offer rates tend to be more stable,

less volatile. The model offer rate rises at a rate proportional to the spread between the prevailing offer rate and the Target Rate. If the market rate rises rapidly, the offer rate will seek to catch up more rapidly. This behavior is called Partial Adjustments

However, historically we find this Partial Adjustment is "asymmetric." That is, the speed of adjustment is slower when rates rise but faster when rates fall. The asymmetric rate movement behavior enables banks to minimize the funding cost.

Numerical Example

Let us consider two interest rate scenarios. Under each scenario, we consider two adjustment rates, "beta." The benchmark rate is assumed to be the one year Treasury rate and the spread between the benchmark rate and the target rate is 25 bpts. When rates rise by 50bpt per year for three years, the table below presents the simulated rates.

	Sep-15	Dec-15	Mar-16	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18
1 year treasury rate	0.28%	0.41%	0.53%	0.66%	0.78%	0.91%	1.03%	1.16%	1.28%	1.41%	1.53%	1.66%	1.78%
target rate	0.03%	0.16%	0.28%	0.41%	0.53%	0.66%	0.78%	0.90%	1.03%	1.16%	1.28%	1.41%	1.53%
offer rate (beta 15%)	0.10%	0.10%	0.11%	0.12%	0.13%	0.15%	0.18%	0.21%	0.24%	0.28%	0.32%	0.37%	0.41%
offer rate (beta 29%)	0.10%	0.10%	0.11%	0.13%	0.16%	0.20%	0.25%	0.30%	0.36%	0.42%	0.49%	0.56%	0.64%
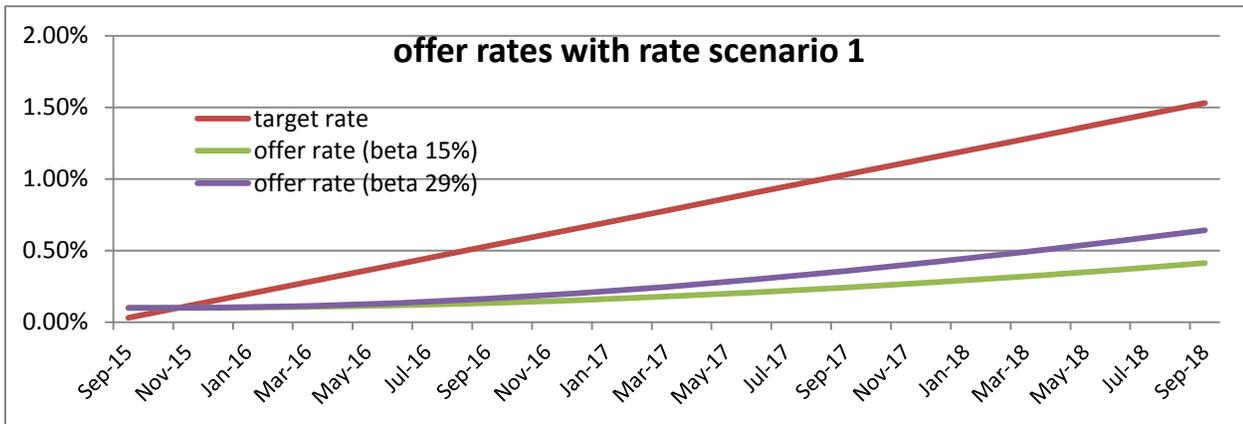
We now consider another rate scenario where the market rate rises 50 bpt in the first year, and then stays flat for the remaining years. We report the simulated rates in the table below.
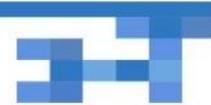
	Sep-15	Dec-15	Mar-16	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18
1 year treasury rate	0.28%	0.41%	0.53%	0.66%	0.78%	0.78%	0.78%	0.78%	0.78%	0.78%	0.78%	0.78%	0.78%
target rate	0.03%	0.16%	0.28%	0.41%	0.53%	0.53%	0.53%	0.53%	0.53%	0.53%	0.53%	0.53%	0.53%
offer rate (beta 15%)	0.10%	0.10%	0.11%	0.12%	0.13%	0.15%	0.17%	0.18%	0.20%	0.21%	0.23%	0.24%	0.25%
offer rate (beta 29%)	0.10%	0.10%	0.11%	0.13%	0.16%	0.20%	0.22%	0.25%	0.27%	0.29%	0.31%	0.33%	0.35%

offer rates with rate scenario 2
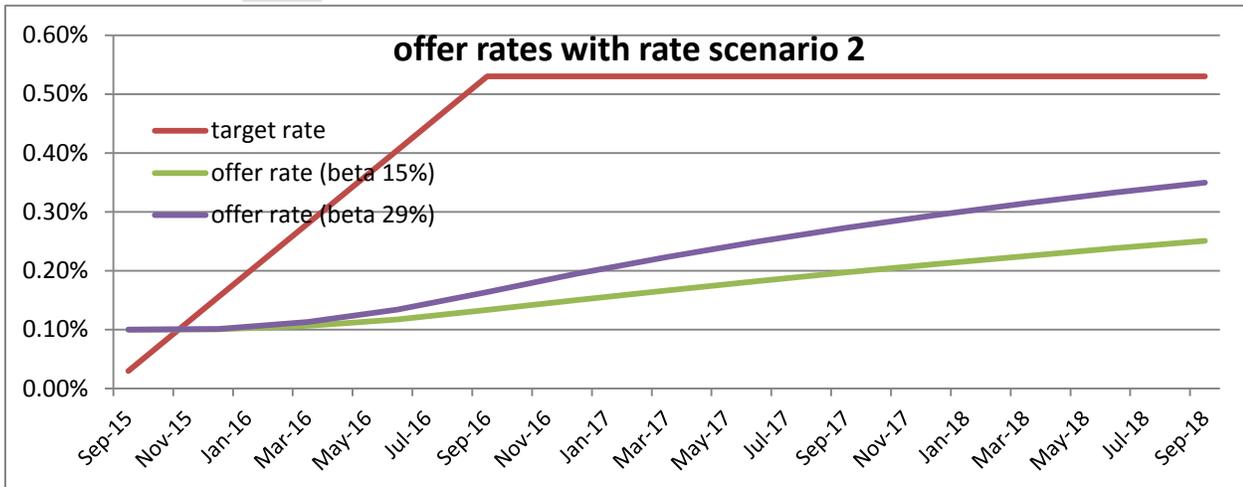
The impact of rising rates on our funding cost is a concern to us and the regulators. Based on historical experience, the offer rates tend to lag the market rates with a higher margin (the spread between the benchmark rate and the target rate). And therefore, the impact of rate rising on our earnings has to depend on the repricing of our assets on the balance sheet as well. When the balance sheet has significant cash that reprices faster than the deposit account rates, then rising rates, in fact, should lead to higher earnings.

Conclusion

THC uses your offer rate historical data to estimate the *Benchmark*, *Target Rate*, and the *Betas*. The projected offer rates under the regulatory rate shocks are reported in the EaR report. These are the model projection of your offer rate strategies. If you believe your strategies differ to the model projecting, then the THC model can be adjusted accordingly.

Please do not hesitate to contact THC staff if you have any questions regarding the offer-rate model.

Regards,

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