November 10, 2015

Weekly Post: **Balancing Margin and Liquidity/Interest Rate Risks**

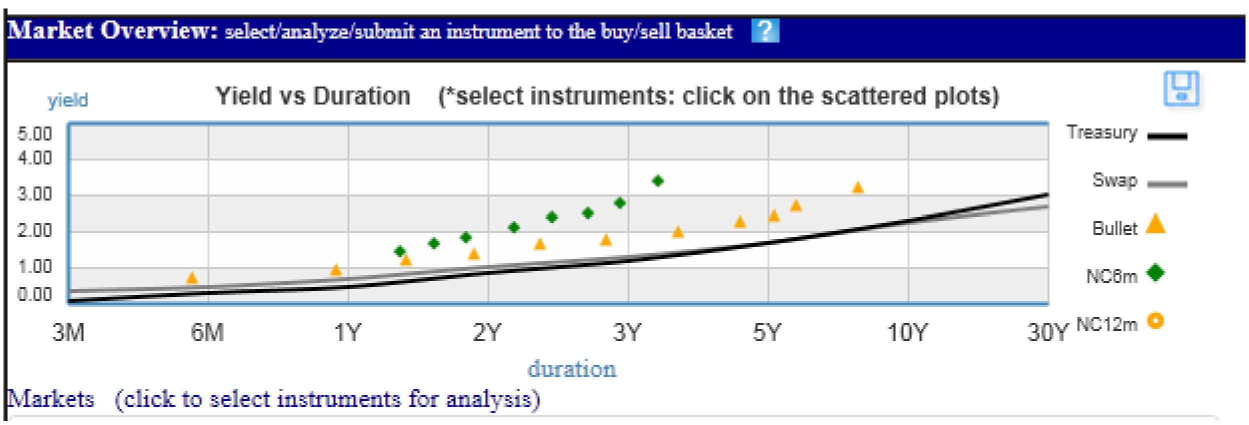
Dear Clients-

I am often impressed with how well your balance sheet risk is being managed. A good example would be when your liquidity gap report shows the periodic gap matches in every bucket with excess short term assets to absorb any shocks. These types of results are even more impressive when you factor in the complexity of core deposit account decay rate, prepayment of loans and other complex customer behaviors that have to be taken into account. Furthermore, liquidity risk is only one of many factors that you have to consider. Margins (earnings) and Duration (interest rate risk) are also important.

Managing your balance sheet must take myriad of variables such as margin, liquidity and duration in a constantly changing market conditions and customer behavior.

Challenge

Our ALCO strategies such as investment sector rotation (as discussed last week), loan growth, and funding strategies always need to balance multiple goals: margin increase, liquidity management and interest rate risk. For example, with our current upward sloping curve, increase~~d~~ liability sensitivity would increase earnings but may also increase interest rate risk. If borrowings are used, referring to the figure below, the funding cost increases significantly with maturity, lowering the margin while lowering liability sensitivity (lowering balance sheet duration). *Market Overview is available in your Risk Officer ™*

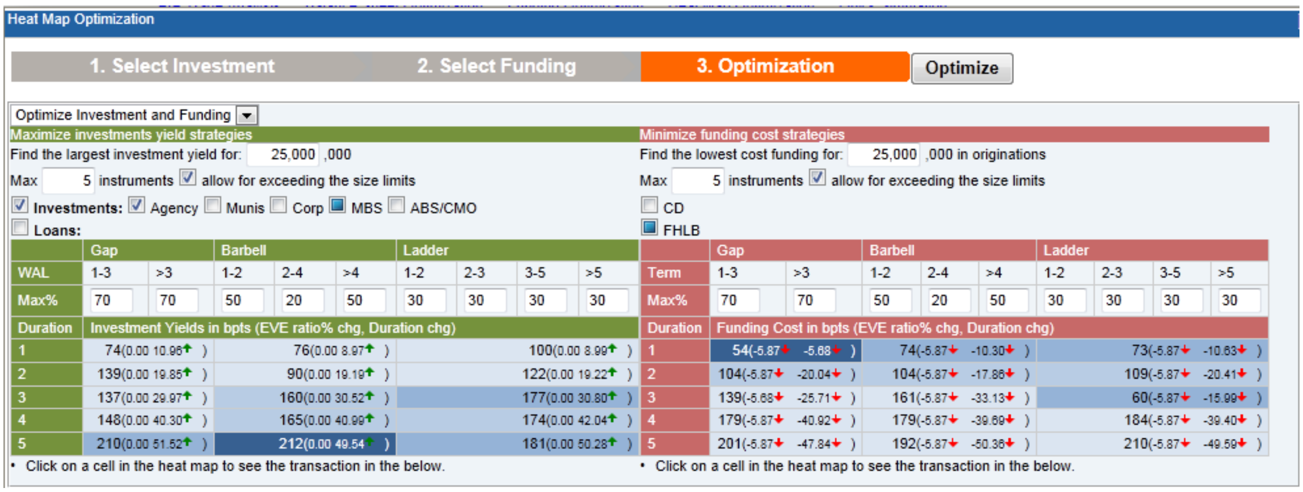


- How to formulate or adjust your balance sheet strategy to seek the optimal balance of enhancing margin, managing interest rate and liquidity risks?

Solution

Risk Officer ™ can provide the ALCO the tools and reports which provide insight into formulating your balance sheet strategies. A solution is the “Heat Map”. The Heat Map allows the ALCO to specify three types of strategies for assets or liabilities:

1. Gap Strategy seeks to fill in any gap on the asset or liability portfolio.
2. Barbell Strategy seeks to manage the short term liquidity and balances the overall duration with long term instruments.
3. Ladder Strategy seeks to evenly distribute the sources and uses of funds.



	Gap		Barbell			Ladder			
WAL	1-3	>3	1-2	2-4	>4	1-2	2-3	3-5	>5
Max%	70	70	50	20	50	30	30	30	30
Duration	Investment Yields in bpts (EVE ratio% chg, Duration chg)								
1	74(0.00 10.96↑)		76(0.00 8.97↑)			100(0.00 8.99↑)			
2	139(0.00 19.85↑)		90(0.00 19.19↑)			122(0.00 19.22↑)			
3	137(0.00 29.97↑)		160(0.00 30.52↑)			177(0.00 30.80↑)			
4	148(0.00 40.30↑)		165(0.00 40.99↑)			174(0.00 42.04↑)			
5	210(0.00 51.52↑)		212(0.00 49.54↑)			181(0.00 50.28↑)			

	Gap		Barbell			Ladder			
Term	1-3	>3	1-2	2-4	>4	1-2	2-3	3-5	>5
Max%	70	70	50	20	50	30	30	30	30
Duration	Funding Cost in bpts (EVE ratio% chg, Duration chg)								
1	54(-5.87↓ -5.68↓)		74(-5.87↓ -10.30↓)			73(-5.87↓ -10.63↓)			
2	104(-5.87↓ -20.04↓)		104(-5.87↓ -17.86↓)			109(-5.87↓ -20.41↓)			
3	139(-5.68↓ -25.71↓)		161(-5.87↓ -33.13↓)			60(-5.87↓ -15.99↓)			
4	179(-5.87↓ -40.92↓)		179(-5.87↓ -39.69↓)			184(-5.87↓ -39.40↓)			
5	201(-5.87↓ -47.84↓)		192(-5.87↓ -50.36↓)			210(-5.87↓ -49.59↓)			

ALCO can decide on the assets or funding sources in the optimization. The Heat Map will provide the optimal mix of assets and liabilities for each strategy and duration level. Refer to the Figure above. In the Heat Map, ALCO can measure and determine the tradeoffs

- Duration (asset and liability sensitivities) and margin
- Strategies in managing liquidity
- Among asset sectors/funding sources

Numerical Example

For illustrative purpose, the following optimal strategies are derived from using THC benchmark agency bonds, MBS and FHLB fundings. Referring to the Heat Map, ALCO can make the following observations:

- The asset barbell strategy (5 year duration) gives the highest yield (212 bpt) and the funding gap (1 year duration) gives the lowest funding cost (54 bpt). The margin (158 bpt) is maximized
- The asset and liability ladder strategies (3 year duration) have yields 177 bpt and 60 bpt respectively, resulting in 117 bpt margin, managing liquidity and interest rate risk (in terms of duration) simultaneously.

- The asset (duration 3 year) and liability (duration 2 year) barbell strategies yield 160 bpt and 104 bpt respectively. Increase duration of one year gives a margin of 56 bpt.

These observations are summarized below.

	Asset Strategy	Asset duration	Liability Strategy	Liability duration	Margin
Long duration strategy	Barbell	5 year	Gap	1 year	158 bpt
Matched strategy	Ladder	3 year	Ladder	3 year	117 bpt
Liquidity strategy	Barbell	3 year	Barbell	2 year	56 bpt

These numerical examples show that ALCO can decide on the strategies appropriate for the bank's balance sheet, and the optimization provides an overview of the tradeoffs among Margin, Liquidity and Interest Rate Risks.

Conclusion

Managing your balance sheet needs to meet multiple, often conflicting, goals. ALCO needs to continually monitor and adjust its performance targets to the dynamic market conditions. Heat Map enables ALCO to make these tactical decisions.

Please do not hesitate to contact THC staff if you have any questions regarding the Heat Map.

Regards,

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