October 1, 2015

*Weekly Post:* **Funding Loan Commitment: Managing Interest Rate and Liquidity Risks**

Dear Clients-

We often consider the liquidity issue in funding a loan commitment by ensuring the availability of cash, and then manage the interest rate risk of the new loan volume on the balance sheet at a later date. This approach may limit our earning potential by not identifying the risk-adjusted margin of each transaction.

Alternatively, we may determine funding strategies designed for each loan commitment in managing their combined liquidity and interest rate risks. This approach measures profitability of the loans underwritten, isolated from the risk consideration.

Measuring **Risk-Adjusted Margin** on the transaction level assists us to increase earnings.

As we have noticed, currently interest rate risk and liquidity risk are almost inseparable from a regulatory perspective. Naturally, we should take this approach for our underwriting process as well, resulting in enhancing our performance.

**Challenge**

FHLB advances and other funding products do offer amortization funding seeking to match the payment schedules of loans. Banks also often use level funding, spreading the funding maturities over a longer time horizon to minimize the liquidity risk in refunding. These approaches focus on managing liquidity risk and not necessarily interest rate risk.

- How can we manage the combined repricing gap risk and liquidity gap risk when loans can be prepaid based on the embedded borrowers' options?
- Since the weighted average life often can not measure the loan value sensitivity to interest rate changes and manage repricing gap risk, how can risk-adjusted margin be measured?

**Solutions**

Optimization methodology can determine a ladder funding that seeks to minimize both liquidity and repricing gaps based on the ALCO preference. And the funding can maximize the interest margin

In THC Financial Officer (TFO), you can select a loan type, the number of borrowings, duration target ( to manage interest rate risk) and the projected cash flows.

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| Size | WAL | Rate | Cashflow |
|---|---|---|---|
| How much funding? | Around what maturity? | What is your funding target? | What is your cash flow allocation? |
| Investment amount(000): 5,000 | ○ WAL ◉ Duration | Required Rate: % | Profile: FRM15 |
| Max # of borrowings: 10 | Months or 4.5 Years | | |

| Term(yr) | Ratio(%) |
|---|---|
| 0 to 3mos: | |
| >3 to 6mos: | |
| >6 to 1yr: | 5 |
| >1 to 2yrs: | 10 |
| >2 to 3yr: | 10 |
| >3 to 5yrs: | 20 |
| >5 to 10yrs: | 40 |
| >10yrs: | 15 |

Set Size Weight: low high — Set WAL Weight: low high — Set Rate Weight: low high — Set Term Weight: low high

The weights on the duration and the cash flow constraints can be adjusted, for example equally weighted. Then the funding solutions will be provided, along with the *Risk Adjusted Margin*

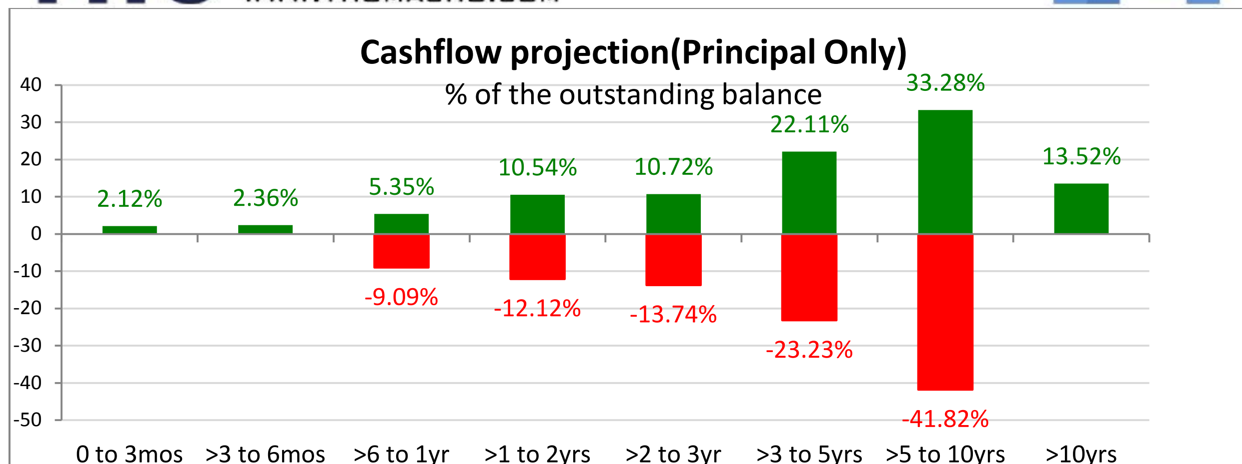
**Numerical Example**

As an illustration, I consider a 15 year fixed rate 1-4 family residential mortgage, $5million loan commitment. Using rates of FHLB (Chicago) advances, the figure below shows the optimal funding solution.

| Strategy[8891] | Inst ID | Size($000) | Price | Desc | Maturity | Dur | Yield |
|---|---|---|---|---|---|---|---|
| Cash | | 19 | 100 | FedFund | O/N | 0 | 0.19 |
| Investment | 53928 | 5,000 | 99.4 | Fix 15 3.08% 720 75% | 9/29/2030 | 4.78 | 2.66 |
| Funding | 91845 | 450 | 100 | adv Bullet 1Y CHICAGO | 9/25/2016 | 0.98 | 0.63 |
| Funding | 91846 | 600 | 100 | adv Bullet 2Y CHICAGO | 9/25/2017 | 1.96 | 0.92 |
| Funding | 91847 | 680 | 100 | adv Bullet 3Y CHICAGO | 9/25/2018 | 2.91 | 1.33 |
| Funding | 91848 | 1,150 | 100 | adv Bullet 4Y CHICAGO | 9/25/2019 | 3.83 | 1.63 |
| Funding | 91850 | 2,070 | 100 | adv Bullet 6Y CHICAGO | 9/25/2021 | 5.56 | 2.13 |

The duration and the weighted average yield of the funding are 3.94 years and 1.62% respectively. The loan duration and yield are 4.78 years and 3%. Therefore, the funding has a lower duration with a risk-adjusted margin of 138 basis point.

The projected cash flows of this funding are depicted below, indicating the efficacy of the funding in managing interest rate and liquidity risks.




**Conclusion**

In funding of loan commitments, we should seek to minimize both interest rate and liquidity risks to determine the *risk-adjusted margin*. The use of risk-adjusted margin enables us to identify profitability of new loan production so that we can service our customers better while enhancing earnings.

*Please do not hesitate to contact THC staff if you have any questions regarding THC Financial Officer (TFO), which is a module of Risk Officer™ and is available to you with no additional cost.*

Regards,

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