October 12, 2015

Weekly Post: **Compare Margins of Loans**

Dear Clients-

There are many loan types on our balance sheet including 30 and 15 year fixed rate mortgages, adjustable rate mortgages, depending on the first reset date, index, the reset frequency. The balance sheet contains multi-family and commercial mortgages and consumer loans such as HELOCs and auto-loans. We need to understand their relative profitability to optimize the bank's resources and to meet our customers' demand.

This week, I provide a profitability comparison using Market Overview, which depicts the loan rates and funding cost over a range of durations, an interest rate risk measure.

Challenge

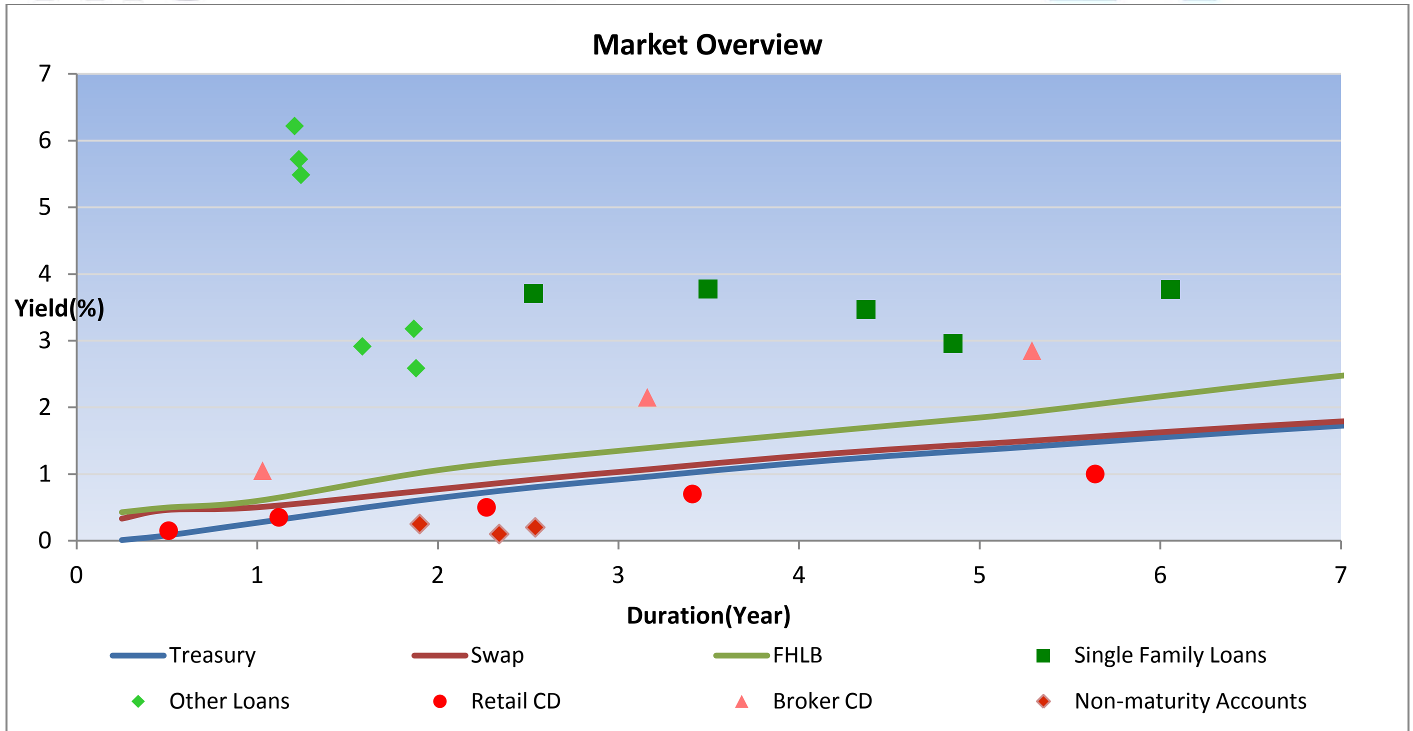
A loan profitability measure should be the present value of the net interest income net of the hedge cost of the risks.

- Is there a way to compare the profitability of each loan type intuitively?
- How should I determine the funding sources to maximize the net interest income?

Solutions

The Market Overview depicts the loan rates plotted against the loans' interest rate risk, the duration measure, as illustrated in Figure 1. The figure compares the yields of loans and the funding instruments adjusting for their interest rate risk. The assets include fixed-rate mortgage and adjustable rate mortgages, HELOCs and auto-loans. The figure also provides the rates of the liabilities include FHLB advances, retail deposits and broker deposits.

As an illustration, I use the generic loan rates and funding costs. Of course, you should use the rates available to you at your institution to be accurate.



Market Overview provides the relative rates and the cost of borrowing of our balance sheet items at a glance. In a match funding, the margin can be estimated by the rate spread between a loan and liability for the same duration. A portfolio ladder funding margin is the spread between the weighted average rates of the loans and that of the portfolio of funding such that the durations of the loan portfolio and funding portfolio are the same. Matching the duration to measure profitability is particularly important now because of the steep upward sloping curve.

The durations of the loans take prepayment risk into considerations. The non-maturity accounts durations are based on average beta and withdrawal rate across the banks in our database. Note that the duration of this account can be quite long, offering an interest rate risk hedge to some of the loans.

Numerical Example

Table 1 presents loans' descriptions and the spread isolated from the effect of the upward sloping curve. The option adjusted spread (OAS) is the spread after adjusting the loan yield net of the cost in matching the cash flow using the Treasury rates. While HELOCs have high OAS, we need to take the credit risk into consideration. The higher credit exposure lowers their profitability.

Loans (as of 10/13)

Description							Yield Attribution(%)				Interest Rate Risk	
	Int. Rate(%)	Type	Margin (%)	WAM	FICO	LTV (%)	YTM	time value	option spread	OAS	WAL	eff.dur
							[1]=[2]+	[2]	[3]	[4]		

							[3]+[4]					
Single Family Loans												
Fix30 730 80%	3.713	Fix30		360	730	80	3.771	1.956	0.131	1.683	8.12	6.06
Fix15 730 80%	2.935	Fix15		180	730	80	2.960	1.690	0.112	1.158	5.61	4.85
HYB7/1 730 80%	2.956	HYB7YR	2.74	360	730	80	3.468	1.870	0.079	1.519	5.89	4.37
HYB5/1 730 80%	2.951	HYB5YR	2.75	360	730	80	3.775	1.801	0.022	1.952	5.35	3.50
HYB3/1 730 80%	2.945	HYB3YR	2.76	360	730	80	3.708	1.326	0.011	2.371	5.06	2.53
Other Loans												
HELOC 30K	4.610		1.36	360	-	-	6.219	2.139	-	4.080	11.32	1.21
HELOC 50K	4.100		0.85	360	-	-	5.720	2.167	-	3.553	11.32	1.23
HELOC 100K	3.860		0.61	360	-	-	5.486	2.180	-	3.306	11.32	1.24
Auto used 60m	2.520	ConsRLoan_FIX		60	-	-	2.587	0.841	-	1.746	1.99	1.88
Auto used 48m	2.860	ConsRLoan_FIX		48	-	-	2.914	0.712	-	2.202	1.68	1.58
Auto new 60m	3.110	ConsRLoan_FIX		60	-	-	3.178	0.839	-	2.338	2.00	1.87

The table below presents the funding costs and their corresponding durations. The results suggest that long-term retail CDs offer attractive ways to fund long-dated loans.

Description	Yield	Duration
Non-maturity Accounts		
DDA - Interest	0.20	2.54
SAVINGS	0.10	2.34
Money Market	0.25	1.90
Retail CD		
retail 6m	0.15	0.51
retail 12m	0.35	1.12
retail 24m	0.50	2.27
retail 36m	0.70	3.41
retail 60m	1.00	5.64
Broker CD		
broker 12m	1.05	1.03
broker 36m	2.15	3.16
broker 60m	2.85	5.29

There are other considerations in the cost and benefits analysis beyond controlling the duration effect. Many loan types allow the borrower to prepay. The options spread measures the cost of the options to the institution. The options risk may affect our EVE percentage change under significant shift in interest rates. Loans have servicing costs that should be taken into account by deducting from the loan rate.

Market Overview enables us to consider combinations of loans and fundings to optimize our profitability.

Conclusion

We should consider using a mix of funding sources to manage our loan portfolio optimally. The current loan rates offered to customers should be evaluated by the funding costs from multiple sources. Market Overview provides us useful directions to determine this optimal mix.

We have recently received requests from clients to add other members of their institution to this list. Please send us the contact info for any of your teams members you wish to be included.

Please do not hesitate to contact THC staff if you have any questions regarding applying the Market Overview to enhance your profitability.

Regards,

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