

Weekly Post: **Managing a Residential Loan Portfolio**

Dear Clients:

Challenge:

30 year, 15 year FRM, 3-1, 5-1, 7-1, 10-1, 5-5 ARMS, balloons and more are the many mortgage loan types available. These different types of mortgage loans differ by their interest rate and credit risk exposures and these two risk exposures are related. Managing residential loan portfolios is complex.

Many decisions that we make depend on the accuracy in measuring the loan portfolio risk. For example:

- Should we keep the loans on the book or sell them?
- Should we retain the servicing fees when we sell the loans?
- Should we originate 15 and/or 30 yr FRM and hedge them with funding strategies?

In essence, how do we measure the risk of our loans in order to determine the risk and return trade off in managing our balance sheet?

Solution:

The solution hinges on the “prepayment-default” model that determines the projected cash flows of each loan over 1,000 interest rate risk scenarios to identify the value and risks and, taking the age, seasonality, spread between the loan rate and the market rate, FICO score, LTV, burnout effect and many other factors into account. Such complexity prohibits the use of a simple “look up” table, as some ALM models would use, to identify mortgage loan portfolio risks.

I co-developed a prepayment-default model with FHFA, called the Dunskey-Ho model (2006). The model is currently described in detail at *Mortgage Analytics Platform*, FHFA site to provide transparency in their analysis of FNMA and FHLMC loans.

<http://www.fhfa.gov/PolicyProgramsResearch/Research/Pages/FHFA-MORTGAGE-ANALYTICS-PLATFORM.aspx>

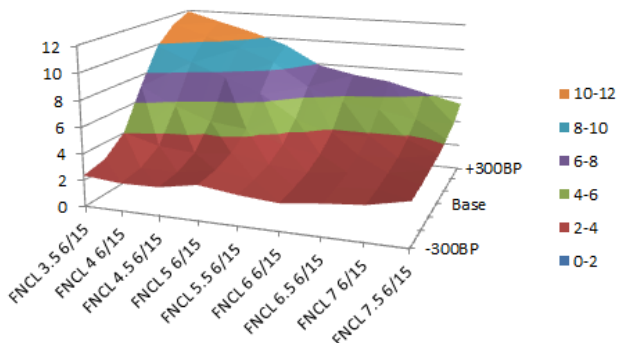
The THC Risk Officer™ loan analytics report measures all the risks comprehensively, enabling you to determine the risk and return trade off of each loan or loan portfolio, along with the ability to model funding strategies to provide income and manage the risks, as illustrated below.

Numerical Example

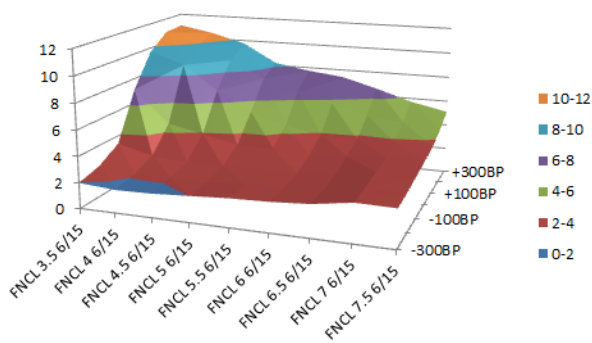
THC prepayment-default model benchmarked well with Wall Street consensus, as illustrated by the four figures below, where they compare the weighted average life of a sample of FNMA 30 year FRM and FNMA 15 year FRM over a range of interest rate shocks.



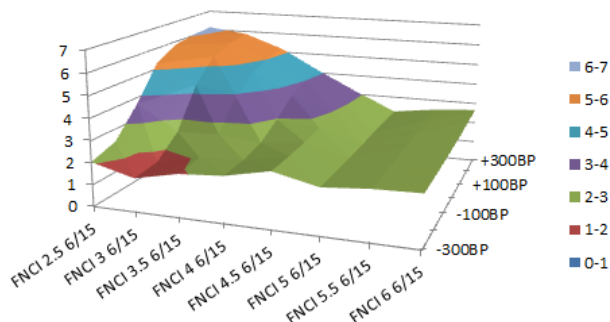
FRM 30: THC Model Weight Average Life



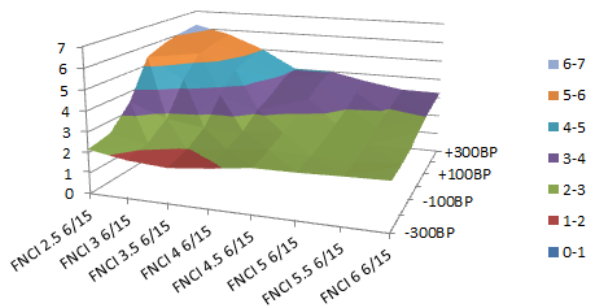
FRM 30: Street Consensus of Weighted Average Life



FRM 15: THC Model Weight Average Life



FRM 15: Street Consensus of Weighted Average Life



THC Mortgage Analytics Report can provide you a comparison of the risk exposures of each loan type as illustrated below. The loans are assumed to have FICO 720 and LTV 75, valued at par as off May 30.

Loan type	Rate(%)	WAL	duration	Credit spread(%)	OAS(%)	+200bpt Price
30 FRM	3.90	9.10	5.71	0.018	1.200	85.540
15 FRM	3.20	7.47	5.01	0.007	1.012	88.334
1-1 ARM	2.46	5.81	0.98	0.043	2.319	97.956
3-1 ARM	2.70	3.92	2.24	0.034	1.739	95.185
5-1 ARM	2.89	3.82	3.03	0.020	1.376	93.318
7-1 ARM	3.10	5.04	3.91	0.008	1.172	91.234

Conclusion

THC mortgage analytics are consistent with the risk analysis used in the market place. This allows you to use the THC model to understand your risk and return and make better decisions on when to sell, what to sell, what to originate and how to hedge a loan pool based on your loan risk analysis.

Do not hesitate to contact THC if you want to discuss your mortgage portfolio strategies.

Regards,
Tom Ho



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