THC Financial Engineering
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February 3, 2016

Weekly Post Simulating Loan Growth: Impact of Loan Loss Provision

Dear Clients-

Many of you experienced loan growth in 2015 and expect the growth to continue this year. Your Strategic/Budget planning module, Earnings-at-Risk report and Sources and Uses of Funds report take your balance sheet growth into consideration. The flat growth assumption that you have been using and is required for regulatory reports may not be applicable.

However, the growth of your loan portfolio has financial accounting implications. Indeed, multiple factors will affect your earnings:

- Increase in loan loss allowance
- Loan origination fee income
- Operational costs in loan origination and servicing
- Loan interest income net of funding cost

Challenge

These factors affect your earnings and capital ratios. The impact changes over a projected time horizon

- How should loan growth be modeled so that we can analyze the profitability of originating different loan types?
- How can we use the modeling of loan growth to formulate optimal balance sheet strategies, including funding strategies of balance sheet growth?
- How can we incorporate CECL treatment in strategic planning?

Solution

My Post last week explains the use of Financial Simulations to simulate proforma financial statements. We can apply the functions in Financial Simulations to capture these factors in loan growth. Let us consider a hypothetical bank, Bank C. A summary dashboard of Bank C for the September cycle is given below

Current or Horizon Simulated Dashboard

Economic Values			capital			NII and Earnings 12mo Projections		
assets	loans	deposits	EVE	EVE ratio(%)	duration	NII	earnings	margin (%)
254,952	167,223	202,604	42,715	16.75	5.46	8,666	140	3.34

In this example, we make the below assumptions to illustrate the modeling of loan growth.

1. The net loan growth is $12 million annually, with average of loan size is $250,000.

2. The total ALLL factor is 1%.
3. The loan fee income is $1,000 per loan
4. The non-interest cost is assumed to increase $25,000 annually.
5. The loan growth is funded with cash

These assumptions can be inputted into the Financial Simulation model and the impact of the loan growth on capital and earnings are given below.

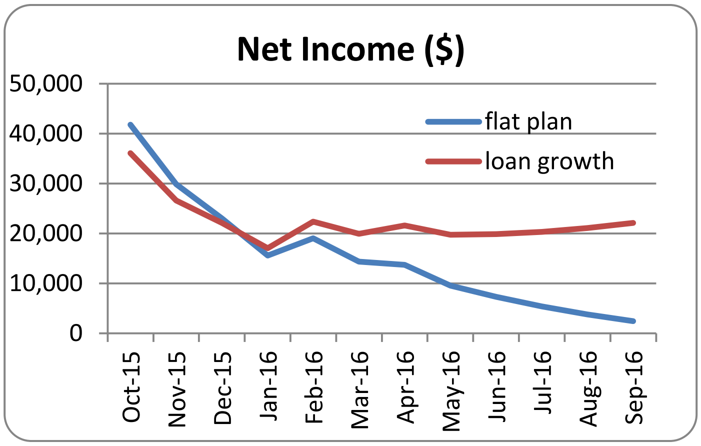
Numerical Example

Monthly Projection | Quarterly Summary | Du Pont Analysis

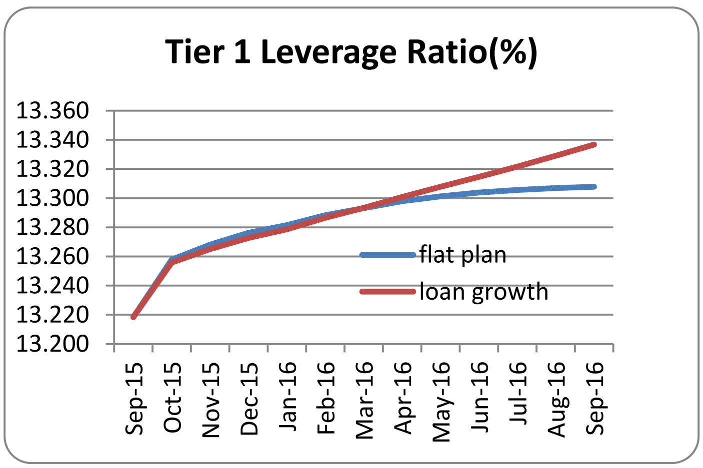
	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16
Balance Sheet($000)								
⊟ Total assets								
⊞ Cash & Short Term	37,085	36,131	35,168	34,200	33,227	32,259	31,289	30,321
⊞ Securities	46,979	46,979	46,979	46,979	46,979	46,979	46,979	46,979
⊞ Loans and lease financing receivables	160,783	161,783	162,783	163,783	164,783	165,783	166,783	167,783
⊟ Other assets								
Premises and fixed assets (including c…	4,792	4,792	4,792	4,792	4,792	4,792	4,792	4,792
Others	4,565	4,565	4,565	4,565	4,565	4,565	4,565	4,565
LESS: Allowance for loan and lease lo…	-4,590	-4,600	-4,610	-4,620	-4,630	-4,640	-4,650	-4,660
Other assets	4,767	4,757	4,747	4,737	4,727	4,717	4,707	4,697
Total assets	249,614	249,650	249,677	249,699	249,716	249,738	249,758	249,780
⊞ Total liabilities	216,281	216,281	216,281	216,281	216,281	216,281	216,281	216,281
Capital	33,333	33,369	33,396	33,418	33,435	33,457	33,477	33,499
Chg in Capital		36	27	22	17	22	20	22
Tier 1 Capital	33,057	33,093	33,120	33,142	33,159	33,181	33,201	33,223
Total Assets for Leverage Capital Purposes	250,083	249,650	249,677	249,699	249,716	249,738	249,758	249,780
Tier 1 Leverage Ratio(%)	13.22	13.26	13.27	13.27	13.28	13.29	13.29	13.30
Risk Based Asset	178,708	178,744	178,771	178,793	178,810	178,832	178,852	178,874
Tier1 Capital Ratio(%)	18.50	18.51	18.53	18.54	18.54	18.55	18.56	18.57
Total risk-based capital	35,328	35,364	35,391	35,413	35,430	35,452	35,472	35,494
Total Risk-Based Capital Ratio(%)	19.77	19.78	19.80	19.81	19.81	19.82	19.83	19.84
Income Projection($)								
⊟ Total assets								
⊞ Cash & Short Term		2,022	7,527	7,327	7,362	13,845	13,441	13,037
⊞ Securities		50,803	56,012	59,036	60,225	62,046	63,372	66,021
⊞ Loans and lease financing receivables		754,999	736,989	729,104	722,005	722,296	718,934	720,603
⊞ Other assets		0	0	0	0	0	0	0
Total assets		807,825	800,528	795,467	789,593	798,187	795,747	799,662
⊞ Total liabilities		48,350	54,452	55,794	57,114	58,139	59,171	60,693
LOSS PROVISION		107,333	107,333	107,333	107,333	107,333	107,333	107,333
NONINTEREST INCOME		143,667	143,667	143,667	143,667	143,667	143,667	143,667
NONINTEREST EXPENSE		744,639	744,639	744,639	744,639	744,639	744,639	744,639
PROFIT BEFORE TAX		51,170	37,771	31,368	24,174	31,742	28,272	30,664

The net loan loss is assumed to be $97,333 monthly. The net growth of loan is $1,000,000 monthly, and the total ALLL factor is 1%, so the loan loss allowance should increase by $10,000. Therefore, the total loan loss provision is $107,333 in the projected income statement (net loan loss + increase of the loan loss allowance). The $10,000 in the loan loss provision is consistent with the change of the chart of account 'Allowance for loan and leases' on the projected balance sheet.

The proforma financial statements enable you to evaluate the impact of loan growth on capital ratio and earnings over time.



Due to the loan loss allowance of the loan growth, the net income decreases in the first month with the loan growth plan, compared with the flat plan. However, after 4 months, the loan income has a positive impact on earnings.



Due to the increase of the loan loss allowance related to the loan growth, the tier 1 leverage ratio drops in the first months. The tier 1 leverage ratio is projected to increase after 6 months as a result of increase earnings.

Conclusions

By taking the loan loss allowance and non-interest income/expense into account in performing the financial simulation, the projected pro-forma financial statements enables you to evaluate alternative loan growth strategies: portfolio mix of loans or fund the growth with borrowings instead of using cash. Our example shows the importance of using proforma financial statements because the impact of the capital ratio and earnings changes over time. This methodology applies to CECL treatment on loan loss provision.

If you would like to learn more about the THC approach to evaluate your strategies, please do not hesitate to contact my colleagues or me.

Regards,

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