

Asset/Liability Analysis For Directors



Presented by
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Foundations

Measuring

GAP

- Compares the amount of assets that re-price in a given time period to the amount of liabilities that re-price during that same period. The mismatch is the “gap”. Historically, positive gap values (more assets re-pricing than liabilities) have been interpreted as an indicator that the balance sheet would benefit from rising rates. A negative gap would be interpreted the opposite.
- Gap calculations can be raw dollar amounts, or adjusted to estimate the relative sensitivity of the account type.

Foundations

Measuring

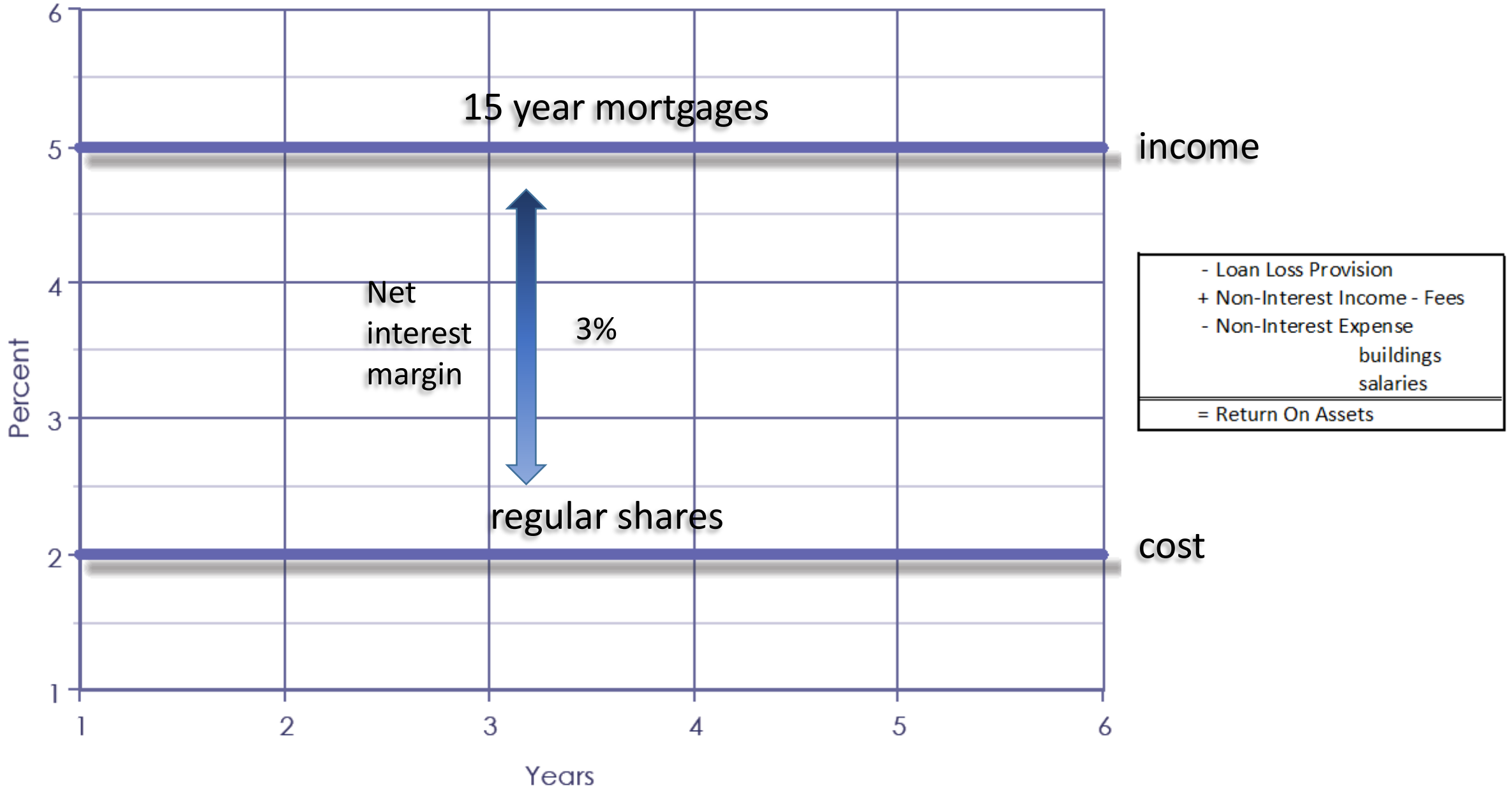
GAP Analysis

Gap analysis “can suffice for simple balance sheets that primarily consist of short-term bullet type investments and non mortgage-related assets.”

The designation of “simple” and “primarily” are a matter of opinion, the burden of establishing your balance sheet as “simple” will fall on you.

Few credit unions larger than the \$50mm threshold for formal policies would likely be determined to be non-complex enough to rely solely on GAP analysis.

\$50 MILLION CREDIT UNION



FN MA1604 Mtge

2) Export

9) Feedback

Cash Flow Table

CUSIP 31418AYA0 2.5760(177)4

9) Buy

9) Sell

1M	CPR 4.71	PSA 785	60D+	-	WAOLS 548M	Geo1 CA 49.0	Coupon 2.000
Buyout	-		LTV 62.00	#Loans 124	Geo2 VA 16.0	1st Proj 10/25/2013	

- 2) Scenarios
- 1) 30 PSA
 - 2) 46 PSA
 - 3) 74 PSA
 - 4) 10 CPR
 - 5) 266 PSA
 - 6) 1302 PSA
 - 7) 1650 PSA

3) Bond Flows

Settle **10/16/2013** Table Graph

Prepay **10.00** CPR

Single Mode
 Multi Mode

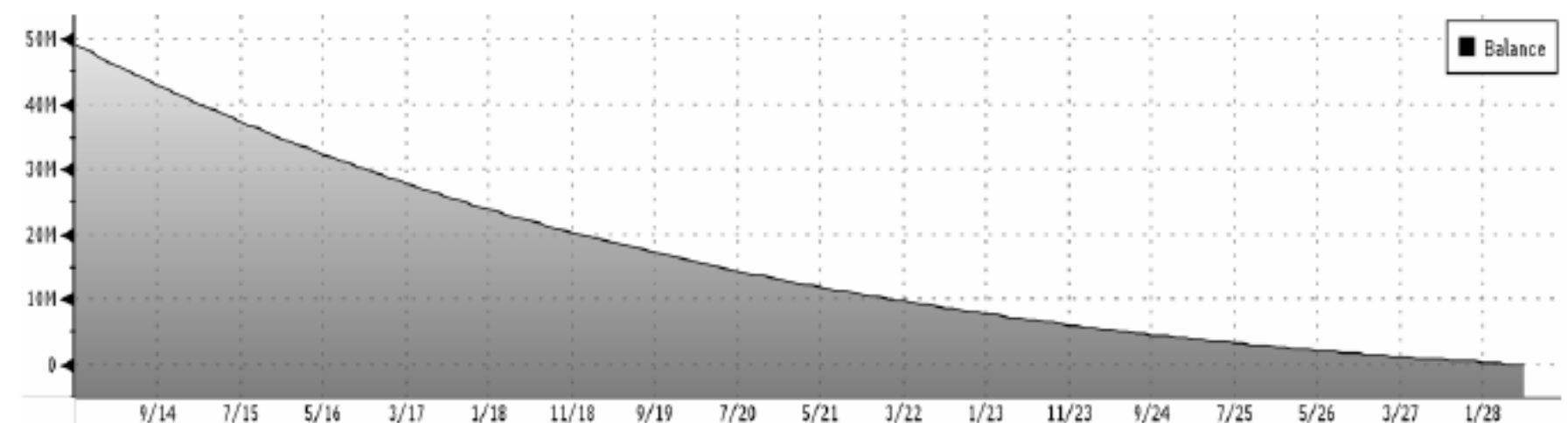
Price - Yield Calculations

4) Price	96-20	30/360	Factor	Sep13	0.9913837500
Yield	2.7423		Orig Bal	(USD)	66,614,283
Spread	137.4	<input type="text"/>	Your Orig Bal		51,000,000
			Prev Bal	0.97814764	49,885,530

Principal 11/25/13 - 6/25/28
176 Cashflows

Accrued 0.0833 for 15 days, Start 10/1/13, Delay 54, WAL 4.949

Type **Balance**



FN MA1604 Mtge
2) Export
99) Feedback
Cash Flow Table

CUSIP 31418AYA0 2.5760(177)4

95) Buy

90) Sell

1M	CPR 4.71	PSA 785	60D+	-	WAOLS	548M	Geo1 CA	49.0	Coupon 2.000
Buyout	-		LTV	62.00	#Loans	124	Geo2 VA	16.0	1st Proj 10/25/2013

2) Scenarios
3) Bond Flows

 Settle **10/16/2013**
 Table

 Graph

Prepay

10.00 CPR

Price - Yield Calculations

 4) Price **96-20** **30/360**

 Yield **2.7423**

 Spread **137.41**

Factor Sep13 0.9913837500

Orig Bal (USD) 66,614,283

 Your Orig Bal **51,000,000**

 Prev Bal 0.97814764 **49,885,530**

Principal 11/25/13 - 6/25/28

Accrued 0.0833 for 15 days, Start 10/1/13, Delay 54, WAL 4.949

15 Cashflows

Annual	Interest	Sched Prin	Prepay	Cashflow	Balance	CPR
1. 10/25/14n	926,916	2,702,994	4,838,012	8,467,921	42,344,524	10.00
2. 10/25/15n	784,991	2,496,106	4,095,434	7,376,531	35,752,984	10.00
3. 10/25/16	661,028	2,305,053	3,446,920	6,413,002	30,001,010	10.00
4. 10/25/17	552,941	2,128,624	2,881,549	5,563,114	24,990,837	10.00
5. 10/25/18	458,876	1,965,698	2,389,606	4,814,180	20,635,533	10.00
6. 10/25/19	377,185	1,815,243	1,962,455	4,154,883	16,857,835	10.00
7. 10/25/20n	306,404	1,676,304	1,592,423	3,575,131	13,589,108	10.00
8. 10/25/21	245,231	1,547,999	1,272,696	3,065,926	10,768,413	10.00
9. 10/25/22	192,513	1,429,515	997,226	2,619,253	8,341,673	10.00
10. 10/25/23	147,224	1,320,099	760,645	2,227,969	6,260,928	10.00
11. 10/25/24	108,457	1,219,059	558,198	1,885,714	4,483,671	10.00

Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000

Japan 81 3 3201 8900 Singapore 65 6212 1000

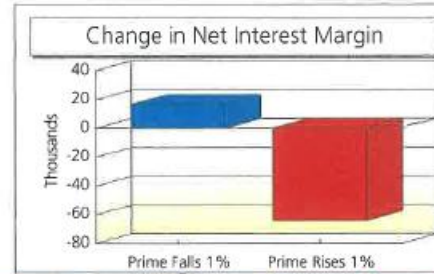
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Earnings at Risk

100bp Rate Shifts



Amounts in Thousands

Portfolio as of 09/30/2013

Call Report 06/30/2013

Rate Sensitive Assets

Loans

Fixed Rate
Floating Rate

Securities

Principal Cash Flows:

Agencies
Agy Callables
CD's
MBS Fixed
ARM
CMO Fixed
Overnight Funds

Floating Rate:

ARM
CMO Floating
SBA Adj.

Total Rate Sensitive Assets

Rate Sensitive Liabilities (National ECRs)

Share Drafts (51%/51%)
Regular Shares (42%/42%)
Money Market Shares (78%/78%)
Share Certificates < 1yr (90%/90%)
IRA/KEOGH < 1 yr (90%/90%)
All Other Shares (51%/51%)

Total Rate Sensitive Liabilities

Rate Sensitivity Gap(Assets-Liab)

Total Assets

Gap as a % of Total Assets

Change in Net Interest Margin

Change in Net Interest Margin

Net Interest Margin as of 2Q13

Percentage Change in Net Interest Margin

	Prime Down 100bp			Prime Up 100bp		
	Balance Sheet Gap (1)	ECR (2)	Income Statement Gap	Balance Sheet Gap (1)	ECR (2)	Income Statement Gap
	A	B	A x B	C	D	C x D
Loans						
Fixed Rate	\$22,372	61%	\$13,647	\$19,643	61%	\$11,982
Floating Rate	5,375	99%	5,321	5,375	99%	5,321
Securities						
Principal Cash Flows:						
Agencies	1,250	73%	913	1,250	73%	913
Agy Callables	1,781	73%	1,300	0	73%	0
CD's	2,139	100%	2,139	2,139	100%	2,139
MBS Fixed	2,761	73%	2,015	1,698	73%	1,240
ARM	3,673	73%	2,681	2,260	73%	1,650
CMO Fixed	52	73%	38	45	73%	33
Overnight Funds	16,130	100%	16,130	16,130	100%	16,130
Floating Rate:						
ARM	8,698	94%	8,141	8,698	94%	8,141
CMO Floating	100	100%	100	100	100%	100
SBA Adj.	8,412	100%	8,412	8,412	100%	8,412
Total Rate Sensitive Assets	\$72,743		\$60,838	\$65,750		\$56,060
Rate Sensitive Liabilities (National ECRs)						
Share Drafts (51%/51%)	\$10,422	51%	\$5,315	\$10,422	51%	\$5,315
Regular Shares (42%/42%)	81,869	42%	34,385	81,869	42%	34,385
Money Market Shares (78%/78%)	0	78%	0	0	78%	0
Share Certificates < 1yr (90%/90%)	18,787	90%	16,908	18,787	90%	16,908
IRA/KEOGH < 1 yr (90%/90%)	5,126	90%	4,613	5,126	90%	4,613
All Other Shares (51%/51%)	2,485	51%	1,267	2,485	51%	1,267
Total Rate Sensitive Liabilities	\$118,689		\$62,489	\$118,689		\$62,489
Rate Sensitivity Gap(Assets-Liab)	(\$45,946)		(\$1,651)	(\$52,939)		(\$6,429)
Total Assets	\$151,062		\$151,062	\$151,062		\$151,062
Gap as a % of Total Assets	-30.42%		-1.09%	-35.04%		-4.26%
Change in Net Interest Margin			\$17			(\$64)
Change in Net Interest Margin			0.01%			-0.04%
Net Interest Margin as of 2Q13			2.55%			2.55%
Percentage Change in Net Interest Margin			0.43%			-1.67%

ECR Analysis: Q1 2007 - Q2 2013

Account Type	ECR	High Rate	High Rate Balance	Low Rate	Low Rate Balance
Prime	100.00%	8.25	n.a.	3.25	n.a.
Share Drafts	0.00%	0.00	\$5,423	0.00	\$10,422
Regular Shares	47.00%	2.75	\$50,709	0.40	\$81,869
Money Market Shares	0.00%	0.00	\$0	0.00	\$0
Share Certificates	75.60%	4.28	\$22,201	0.50	\$28,637
IRA / KEOGH	77.00%	4.35	\$6,660	0.50	\$9,382
All Other Shares	47.00%	2.75	\$981	0.40	\$2,485

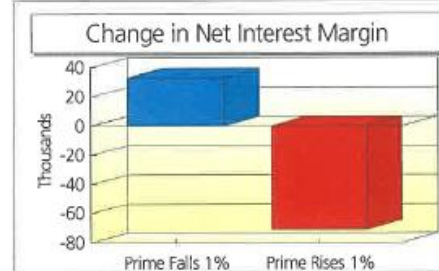
Source: NCUA 5300 Call Report Information

* - ECRs calculated using the max/min method - (max acct. value - min acct. value)/(max prime - min prime)

Assets: \$151,062,000

Earnings at Risk

100bp Rate Shifts



Amounts in Thousands

Portfolio as of 09/30/2013
Call Report as of 06/30/2013

Rate Sensitive Assets

Loans

	Balance Sheet Gap (1)	ECR (2)	Income Statement Gap A x B
Fixed Rate	\$22,372	33%	\$7,383
Floating Rate	5,375	99%	5,321

Securities

Principal Cash Flows:

	Balance Sheet Gap (1)	ECR (2)	Income Statement Gap C x D
Agencies	1,250	73%	913
Agy Callables	1,781	73%	1,300
CD's	2,139	100%	2,139
MBS Fixed	2,761	73%	2,015
ARM	3,673	73%	2,681
CMO Fixed	52	73%	38
Overnight Funds	16,130	100%	16,130
Floating Rate:			
ARM	8,698	94%	8,141
CMO Floating	100	100%	100
SBA Adj.	8,412	100%	8,412

Total Rate Sensitive Assets

Rate Sensitive Liabilities (National ECRs)

Share Drafts (51%/51%)	\$10,422	0%	\$0
Regular Shares (42%/42%)	81,869	47%	38,478
Money Market Shares (78%/78%)	0	0%	0
Share Certificates < 1yr (90%/90%)	18,787	76%	14,278
IRA/KEOGH < 1 yr (90%/90%)	5,126	77%	3,947
All Other Shares (51%/51%)	2,485	47%	1,168

Total Rate Sensitive Liabilities

Rate Sensitivity Gap(Assets-Liab)

Total Assets

Gap as a % of Total Assets

Change in Net Interest Margin	\$33		(\$71)
Change in Net Interest Margin		0.02%	-0.05%
Net Interest Margin as of 2Q13		2.55%	2.55%
% Change in Net Interest Margin		0.86%	-1.85%

	Prime Down 100bp			Prime Up 100bp		
	Balance Sheet Gap (1)	ECR (2)	Income Statement Gap A x B	Balance Sheet Gap (1)	ECR (2)	Income Statement Gap C x D
	A	B	A x B	C	D	C x D
Loans						
Fixed Rate	\$22,372	33%	\$7,383	\$19,643	34%	\$6,679
Floating Rate	5,375	99%	5,321	5,375	99%	5,321
Securities						
Agencies	1,250	73%	913	1,250	73%	913
Agy Callables	1,781	73%	1,300	0	73%	0
CD's	2,139	100%	2,139	2,139	100%	2,139
MBS Fixed	2,761	73%	2,015	1,698	73%	1,240
ARM	3,673	73%	2,681	2,260	73%	1,650
CMO Fixed	52	73%	38	45	73%	33
Overnight Funds	16,130	100%	16,130	16,130	100%	16,130
Floating Rate:						
ARM	8,698	94%	8,141	8,698	94%	8,141
CMO Floating	100	100%	100	100	100%	100
SBA Adj.	8,412	100%	8,412	8,412	100%	8,412
Total Rate Sensitive Assets	\$72,743		\$54,574	\$65,750		\$50,757
Rate Sensitive Liabilities (National ECRs)						
Share Drafts (51%/51%)	\$10,422	0%	\$0	\$10,422	0%	\$0
Regular Shares (42%/42%)	81,869	47%	38,478	81,869	47%	38,478
Money Market Shares (78%/78%)	0	0%	0	0	0%	0
Share Certificates < 1yr (90%/90%)	18,787	76%	14,278	18,787	76%	14,278
IRA/KEOGH < 1 yr (90%/90%)	5,126	77%	3,947	5,126	77%	3,947
All Other Shares (51%/51%)	2,485	47%	1,168	2,485	47%	1,168
Total Rate Sensitive Liabilities	\$118,689		\$57,872	\$118,689		\$57,872
Rate Sensitivity Gap(Assets-Liab)	(\$45,946)		(\$3,298)	(\$52,939)		(\$7,115)
Total Assets	\$151,062		\$151,062	\$151,062		\$151,062
Gap as a % of Total Assets	-30.42%		-2.18%	-35.04%		-4.71%
Change in Net Interest Margin			\$33			(\$71)
Change in Net Interest Margin			0.02%			-0.05%
Net Interest Margin as of 2Q13			2.55%			2.55%
% Change in Net Interest Margin			0.86%			-1.85%

- **How is your credit union position?
____positive ____negative**
- **Do your loan originations complement this position?**
- **Does your current investment portfolio complement this position?**

Foundations

Measuring

Earnings at Risk or “EAR” Simulation

Calculates net interest income over specific time period, normally 1 and 2 years, based on the current balance sheet, pricing assumptions, and the current interest rate environment.

This earnings calculation with rates unchanged serves is referred to as the “base case”, and should reasonably reflect the current earnings expectation for the credit union.

The primary purpose for the simulation is NOT the forecast of income – it is the identification of risks.

Foundations

Measuring

Earnings at Risk or “EAR” Simulation

- The earnings simulation is repeated under different assumed interest rate scenarios.
- As with the base case, the primary purpose of the simulations is not to forecast actual performance, but to establish exposures and trends.
- Simulations include a marginal amount of assumed changes in management behavior. For these reasons (and others), the actual earnings of the credit union will be different.
- The difference in the calculated net interest income of this simulation from the base case NII is the risk to the credit union’s earnings, or the “EAR”

Foundations

Measuring

Net Economic Value or “NEV”

- measures the effect of interest rates on the market value of net worth by calculating the present value of the assets minus the present value of liabilities.
- NEV calculations are not specifically required by the NCUA for the those FICUs that are “not complex” Most FICUs that have formal policies and procedures will have NEV risk limits incorporated.

Foundations

Measuring

Net Economic Value or “NEV”

The value of any financial instrument is directly related to how much it earns or costs. Assuming the same credit profile and maturity structure, higher rate loans are worth more, lower rate deposits are worth more, and higher coupon securities are worth more.

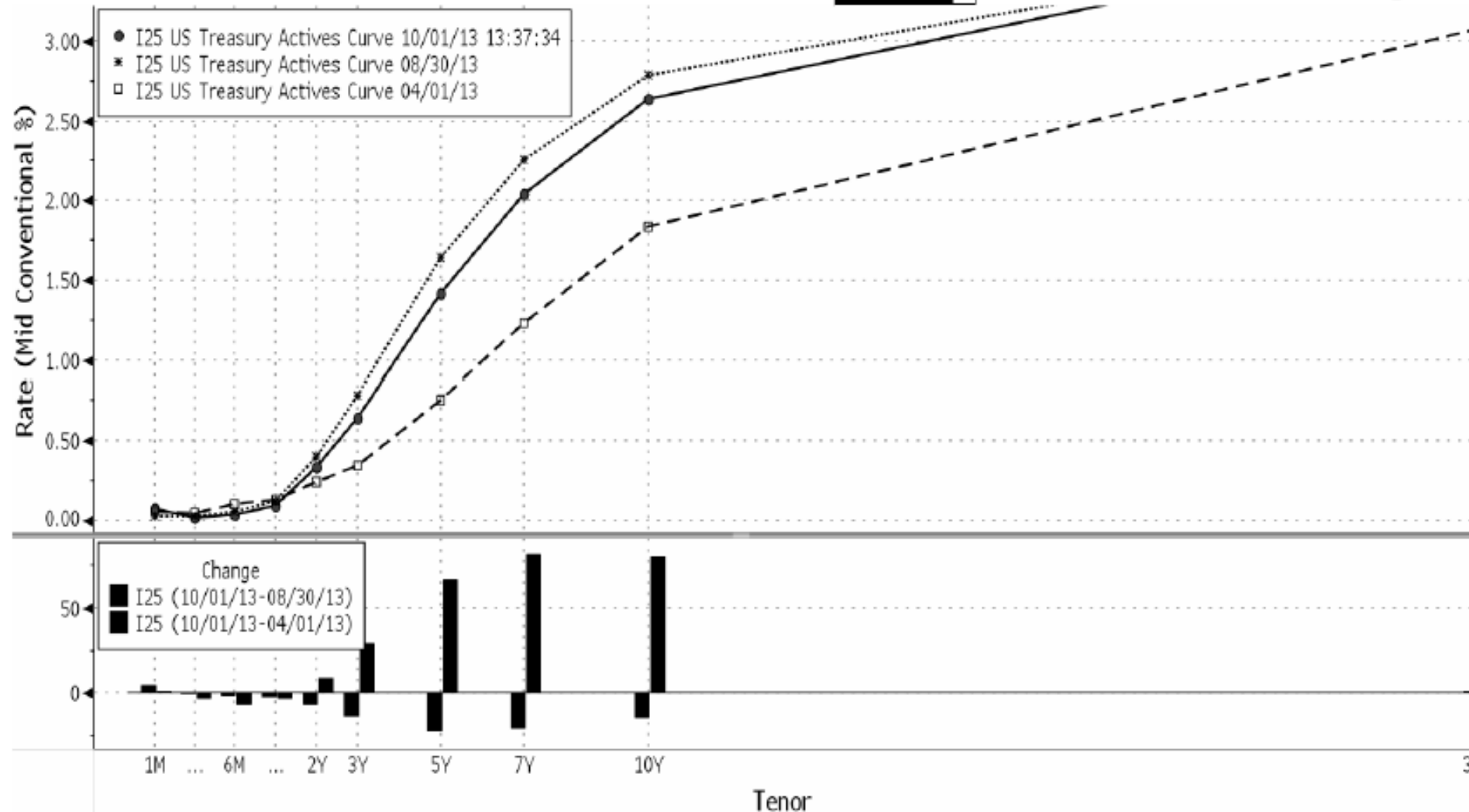
Therefore, the value of all the assets less the value of all liabilities is the value of the equity, or by extension the earning power of your balance sheet. As the value of the balance sheet decreases, in theory the earning power of your balance sheet decreases.

NEV calculations reveal the relative effect of embedded options, and structural miss-matches in the balance sheet.

Last 1D 1W 1M 04/01/13 Date ▼

Lower Chart Hist Chart ▼

Curves & Relative Value



Analysis of the Cost of Waiting to Invest



Vectored Cost Projection

10/1/2013

Horizon: 36 Months
Investment Amount: \$ 1,000,000

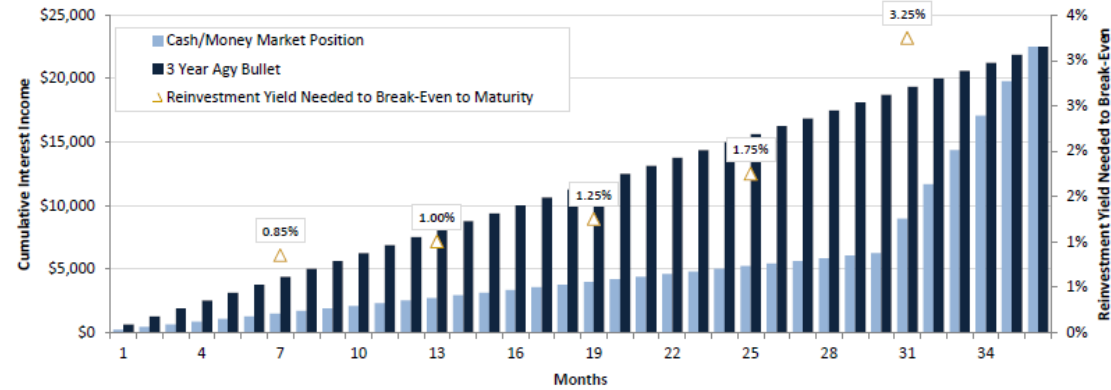
Investment Alternatives - Vectored Rate Summaries

Cash / Money Market Security			3 Year Agy Bullet		
	Rate	Period (Mos)		Rate	Period (Mos)
Period 1	0.25%	30 Months	Period 1	0.75%	36 Months
Period 2	3.25%	6 Months	Period 2		
Period 3			Period 3		
Period 4			Period 4		
Period 5			Period 5		
Period 6			Period 6		

Methodology

1. Analysis assumes all securities go to maturity.
2. Interest income not assumed to be reinvested.
3. Interest calculation based on 30/360 calendar.
4. The Vectored Cost Projection is based upon user inputs. The cost of each asset is input in monthly increments.

Chart 1. Cumulative Income Comparison



Yield and Income Comparisons to Horizon Term

	Cash / Money Market Security			3 Year Agy Bullet			Net Difference		
	Rate	Ann. YTD	Cum. Income	Rate	Ann. YTD	Cum. Income	Rate	Ann. YTD	Cum. Income
6 Month	0.25%	0.25%	\$ 1,250	0.75%	0.75%	\$ 3,750	0.50%	0.50%	\$ 2,500
12 Month	0.25%	0.25%	\$ 2,500	0.75%	0.75%	\$ 7,500	0.50%	0.50%	\$ 5,000
18 Month	0.25%	0.25%	\$ 3,750	0.75%	0.75%	\$ 11,250	0.50%	0.50%	\$ 7,500
24 Month	0.25%	0.25%	\$ 5,000	0.75%	0.75%	\$ 15,000	0.50%	0.50%	\$ 10,000
30 Month	0.25%	0.25%	\$ 6,250	0.75%	0.75%	\$ 18,750	0.50%	0.50%	\$ 12,500
36 Month	3.25%	0.75%	\$ 22,500	0.75%	0.75%	\$ 22,500	-2.50%	0.00%	\$ 0
42 Month									
48 Month									
54 Month									
60 Month									
Horizon (36)		0.75%	\$ 22,500		0.75%	\$ 22,500		0.00%	\$ -