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Top Examiner Concerns on ALM

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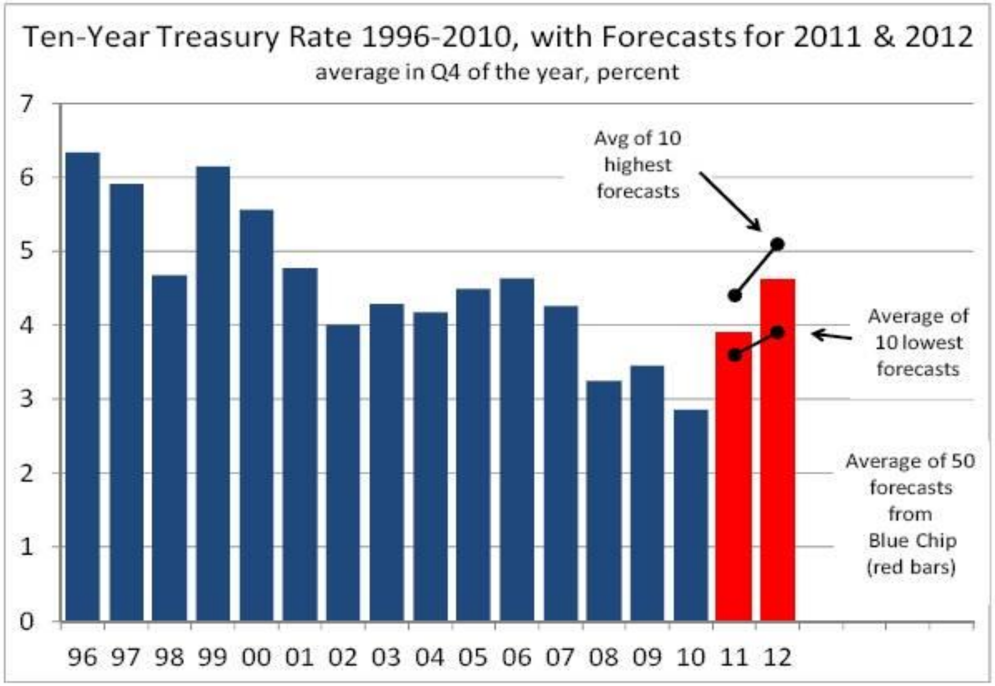
1 **"Interest rate risk is the most significant risk the industry faces right now."**

- (NCUA Letter to Credit Unions 14-CU-02)

- Prescribing an investment portfolio / balance sheet positioned for rising rates.
- Stay within 3 years on investments and 5 years on real estate loans.

Interest Rates Will Rise April 2011

- 10-year Treasury rate is likely to average almost 4% in 4th Quarter 2011.
- Some see rates at 5% in mid-2012.
- Surprise increase in inflation could push rates up faster than consensus forecast.



Source: U.S. Treasury, Blue Chip Economic Indicators

Office of the Chief Economist 10

Source: April 2011 NCUA Economic Overview; Chairman Matz at NAFCU CEO Conference

What if Interest Rates Don't Rise?

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Source: Bloomberg

What if Interest Rates Stay Low?

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Source: Bloomberg

Risk taking is not risk management!

Risk vs. Reward

Implementing simplistic, arbitrary, or overly restrictive controls to position the balance sheet for rising rates may create an imbalance in the risk – reward profile.

- Taking a **risk position** that rates will rise.
- Only “being conservative” if rates rise.

Restrictive Controls

Lost Earnings

Federally insured credit unions are required to have as part of their asset/liability management:

- Written interest rate risk policy
- An effective interest rate risk management program
  - Identifies, Measures, Monitors, Controls

Credit unions should formulate a policy that embodies its own practices and metrics appropriate to its operations.

Risk management practices should be implemented with increasing rigor and diligence as size, risk, and complexity increase.

Some **interest rate risk** exposure is a normal part of financial intermediation.

NCUA recognizes there are differences between credit unions.

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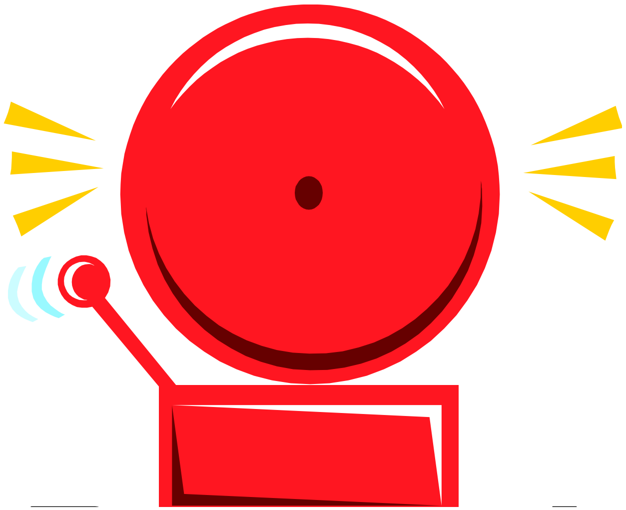
2 Interest rate risk is high because of a:

- High long-term asset ratio, or
- High Supervisory Interest Rate Risk Threshold Ratio, or
- Failing17/4 test



What is the long-term asset ratio?

Net Long-Term Assets/Total Assets: The sum of real estate loans which will not refinance, reprice or mature within 5 years, member business loans, investments with remaining maturities of more than 3 years, NCUSIF deposit, land and building, and other fixed assets divided by total assets.

Source: NCUA Financial Performance Reports (FPR) User's Guide

NCUA Guidance: Myth vs. Fact

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What is NCUA's benchmark for a max long-term asset ratio?

- "We don't have [one]… It used to be the old rule of thumb that we heard that there's this magic limit of 25% of long-term assets to total assets was the limit. That's never actually been the case."
- "We do not have a prescribed or defined benchmark formally, or informally for that matter, in terms of what's too much in terms of long-term assets."
- "There is not a limit but it does cause the examiner to start thinking in terms of interest rate risk and how is this credit union managing this risk."

NCUA Director of the Office of Examination and Insurance Larry Fazio at the October 2012 Virtual Town Hall Webinar

Net Long Term Asset Ratio (NLTA)

- The NCUA is “not going to tell you to manage to NLTA.“
- The NLTA is a "crude gauge" and "not a precise measure of interest rate risk."
- The NLTA is a helpful "off-site scoping mechanism.“
- Credit unions with high ratios “are not automatically a problem.”
- The NLTA “should not show up in your DORs.”

NCUA Director of the Office of Examination and Insurance Larry Fazio at the NCUA Listening Session, July 2014

Supervisory Interest Rate Risk Threshold (SIRRT) Ratio

- “We use that ratio as a proxy for a gauge of long-term assets to total assets and to get a sense for interest rate risk… on the balance sheet.”
- “It’s not a precise measure and it’s not intended to be. It’s one that we can drive off of call report data and put on the FPR.”
- “So, it’s meant to be gauge. It’s not meant to be a precise interest rate risk measure.”

NCUA Director of the Office of Examination and Insurance Larry Fazio at the October 2012 Virtual Town Hall Webinar

NCUA's 17/4 Test

- "We don't really use the 17/4 test as a risk metric guide post for determining low, medium, or high. It's more of a qualitative as well as quantitative review."
- "We're not really using the 17/4 test anymore."

NCUA Director of the Office of Examination and Insurance Larry Fazio at the October 2012 Virtual Town Hall Webinar

IRR Measurement and Monitoring

- Sufficiently rigorous to capture and measure all material IRR.
- Reported at least quarterly.

Risk Measurement Methods

- Gap Analysis and NCUA Asset Valuation Tables
  - Simple Measures
- Income Simulation and Net Economic Value
  - Comprehensive Measures

Examiner Concern

3

Policy limits for NEV must be based off of par.

or

Must use par for non-maturity share assumptions.

Non-Maturity Share Assumptions

- Par equates to all shares being withdrawn if share rates do not rise along with the market – is this reasonable?
- Historical deposit rate sensitivity and lag analysis can help determine and document reasonable assumptions.

Share Drafts

Share Drafts	Date	Growth	Annualized Growth Rate	Weighted Avg Life (Yrs)
Best Period	Mar-12	$13,552,238	44.17%	Infinity
Avg Period		$1,757,666	7.14%	n/a
Worst Period	Sep-08	($3,833,525)	-17.09%	5.82
Assumed Decay Rate (Avg "Negative Growth" Periods)			-7.78%	11.61 yrs

Date	Period Ending Balance	$ Growth	Annualized Growth Rate	Negative Periods Only
Sep-00				
Dec-00	$59,829,909			
Mar-01				
Jun-01	$63,563,200	$3,733,291	12.48%	
Sep-01				
Dec-01	$64,646,621	$1,083,421	3.41%	
Mar-02				
Jun-02	$71,374,234	$6,727,613	20.81%	
Sep-02				
Dec-02	$70,121,706	-$1,252,529	-3.51%	-3.51%
Mar-03	$77,017,947	$6,896,241	39.34%	
Jun-03	$78,606,007	$1,588,060	8.25%	
Sep-03	$78,701,598	$95,591	0.49%	
Dec-03	$80,072,829	$1,371,231	6.97%	
Mar-04	$83,716,998	$3,644,169	18.20%	
Jun-04	$83,930,009	$213,010	1.02%	
Sep-04	$84,937,874	$1,007,866	4.80%	
Dec-04	$88,014,643	$3,076,768	14.49%	
Mar-05	$91,851,619	$3,836,976	17.44%	
Jun-05	$90,633,758	-$1,217,861	-5.30%	-5.30%
Sep-05	$92,516,936	$1,883,178	8.31%	
Dec-05	$92,471,109	-$45,827	-0.20%	-0.20%
Mar-06	$91,431,431	-$1,039,678	-4.50%	-4.50%
Jun-06	$88,416,064	-$3,015,366	-13.19%	-13.19%
Sep-06	$84,815,232	-$3,600,833	-16.29%	-16.29%

Regular & Other Shares

Regular & Other Shares	Date	Q Growth	Annualized Growth Rate	Weighted Avg Life (Yrs)
Best Quarter	Mar-09	$14,962,882	34.15%	Infinity
Avg Quarter		$3,129,131	5.79%	n/a
Worst Quarter	Sep-06	($9,755,143)	-20.19%	4.94
Assumed Decay Rate (Avg "Negative Growth" Periods)			-9.39%	10.01 yrs

Date	Period Ending Balance	$ Growth	Annualized Growth Rate	Negative Periods Only
Sep-00				
Dec-00	$126,260,063			
Mar-01				
Jun-01	$137,021,772	$10,761,709	17.05%	
Sep-01				
Dec-01	$143,882,688	$6,860,915	10.01%	
Mar-02				
Jun-02	$163,080,506	$19,197,818	26.69%	
Sep-02				
Dec-02	$165,417,526	$2,337,020	2.87%	
Mar-03	$179,028,764	$13,611,238	32.91%	
Jun-03	$185,892,363	$6,863,599	15.34%	
Sep-03	$190,633,247	$4,740,884	10.20%	
Dec-03	$188,099,027	-$2,534,220	-5.32%	-5.32%
Mar-04	$198,271,944	$10,172,918	21.63%	
Jun-04	$199,419,058	$1,147,113	2.31%	
Sep-04	$199,835,823	$416,765	0.84%	
Dec-04	$196,039,605	-$3,796,218	-7.60%	-7.60%
Mar-05	$203,411,088	$7,371,482	15.04%	
Jun-05	$199,108,797	-$4,302,290	-8.46%	-8.46%
Sep-05	$196,039,239	-$3,069,558	-6.17%	-6.17%
Dec-05	$188,495,713	-$7,543,526	-15.39%	-15.39%
Mar-06	$199,264,925	$10,769,212	22.85%	
Jun-06	$193,263,131	-$6,001,794	-12.05%	-12.05%
Sep-06	$183,507,987	-$9,755,143	-20.19%	-20.19%

Source: Sample ALM, Balance Sheet Management Services

NCUA Letter to Credit Unions 03-CU-11: Non-Maturity Shares and Balance Sheet Risk (July 2003)

- Some credit unions may choose a **simple approach**…priced at par.
- Some credit unions may choose to incorporate their forecasted share behavior…best practices indicate that a credit union should conduct a documented assessment of its member behavior…

Interagency Advisory on Interest Rate Risk Management Frequently Asked Questions (Jan 2012):

- Institutions should use (non-maturity deposit decay) assumptions that reflect the institution's profile and activities and generally avoid reliance on industry estimates or default vendor assumptions.

NCUA Letter to Credit Unions 03-CU-11:

Non-Maturity Shares and Balance Sheet Risk (July 2003)

- Credit unions that forecast share behavior and incorporate those assumptions into their risk identification and measurement process will be expected to perform sensitivity analysis reflecting the value of the non-maturity shares by varying the underlying assumptions.

- The sensitivity analysis should be sufficiently rigorous to reflect the potential changes in non-maturity share behavior under stressed interest rate and economic conditions.

- The sensitivity testing should represent a good faith evaluation whether non-maturity share behavior that differs from the forecast assumptions would create any undue risk to the credit union.

Non-Maturity Share Assumptions

- Expectations for sensitivity testing is significantly increasing.

NEV-NMD Sensitivity : +300 Basis Point Rate-Shock Summary Results

NEV Analysis	Decay Rate Methodology	Weighted Avg Life of Liabilities	+300 bps NEV Capital Ratio	NCUA Risk Assessment	+300 bps Change in NEV vs Flat Rate	NCUA Risk Assessment
#1	FASB Topic #825: Decay Rates = 12-year Historical Avg	3.92yrs	10.36%	Low Risk	-16.27%	Low Risk
#2	FASB Topic #825: Decay Rates = Avg Jun'03-Jun'07	3.80yrs	10.20%	Low Risk	-17.26%	Low Risk
#3	FASB Topic #825: Decay Rates = Historical Worst 12-month Period	7.68yrs	19.73%	Low Risk	-1.14%	Low Risk
#4	FASB Topic #825: Decay Rates = Avg. of 12-yr Avg & Worst Q (#1 & #6)	3.24yrs	8.70%	Low Risk	-23.73%	Low Risk
#5	FASB Topic #825: Decay Rates = Avg.of the Four Worst Quarters	3.16yrs	8.48%	Low Risk	-24.60%	Low Risk
#6	FASB Topic #825: Decay Rates = Historical Worst Quarter	2.78yrs	7.58%	Low Risk	-29.95%	Moderate Risk
#7	NERA: Decay Rates = NCUA "Proposed Safe-harbor" Avg	1.92yrs	8.03%	Low Risk	-26.97%	Moderate Risk
#8	NMDs at PAR: Decay Rates = 1200%	0.51yrs	4.46%	Moderate Risk	-60.88%	High Risk
#9	FASB Topic #825: Decay Rates = CU Specified Avg Life	3.57yrs	9.39%	Low Risk	-19.63%	Low Risk

Source: Sample ALM, Balance Sheet Management Services

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NCUA Regulation requires the following IRR limits:

- Income Simulation: net interest income after shock change less than 20 percent over any 12-month period.
- Asset Valuation: after shock change in book value of net worth less than 50 percent, or after shock net worth of 4 percent or greater.
- Net Economic Value: after shock change in net economic value less than 25 percent, or after shock net economic value of 6 percent or greater.

NCUA Regulation: Myth vs. Fact

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IRR policy limits should maintain risk exposures within prudent levels. Examples of limits are as follows:

GAP: less than ±I 10 percent change in any given period, or cumulatively over 12 months.

Income Simulation: net interest income after shock change less than 20 percent over any 12-month period.

Asset Valuation: after shock change in book value of net worth less than 50 percent, or after shock net worth of 4 percent or greater.

Net Economic Value: after shock change in net economic value less than 25 percent, or after shock net economic value of 6 percent or greater.

NCUA emphasizes these are only for illustrative purposes, and management should establish its own limits that are reasonably supported. Where appropriate, management may also set IRR limits for individual portfolios, activities, and lines of business.

III. IRR Oversight and Management

A. Board of Directors Oversight

The board of directors is responsible for oversight of their credit union and for approving policy, major strategies, and prudent limits regarding IRR. To meet this

Source: Appendix B to NCUA Rule 741

NCUA Regulation: Myth vs. Fact

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IRR Exposure

	------------- Risk ------------		
Basis of Measurement	**Low**	**Moderate**	**High**
Gap			
% change in any given period or cummulatively over 12 months	**+/- 10%**	**+/- 10-20%**	**> +/- 20%**
Earnings Simulation			
NII: after shock change over any 12-month period	**<20%**	**20-30%**	**>30%**
NI: after shock change over any 12-month period	**<40%**	**40-75%**	**>75%**
Asset Valuation:			
After shock change in book value net worth	**<25%**	**25-50%**	**>50%**
or			
after shock value of net worth	**>6%**	**4-6%**	**<4%**
NEV:			
After shock change in market value net worth	**<25%**	**25-50%**	**>50%**
or			
after shock value of net worth	**>6%**	**4-6%**	**<4%**

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Source: NCUA Examiner Guidebook (Ch 13: ALM)

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5 | Management should be making decisions on new business activities based on IRR modeling

- Operational decisions should reflect IRR measurement results to control balance sheet makeup, funding, pricing, and business strategies.
- Measures to manage/control IRR should always be considered when a new activity increases IRR.
- Modeling gains importance as net worth decreases, income becomes negative and/or interest rate risks approach board approved maximum or minimum levels.

-NCUA Letter to Credit Unions, 12-CU-11

Examiner Concern

Examiner expectations when assessing a new strategy:

- IRR testing should be documented in the ALCO and/or Board minutes and should provide some justification for new strategy.
- Key management staff should fully understand IRR implications of new products/services and future plans for new products and services.
- Level of due diligence and quality of documentation/analytics will be critical in assessing risk to institution.

-NCUA Examiner Handbook, Chapter One, Risk Focused Program

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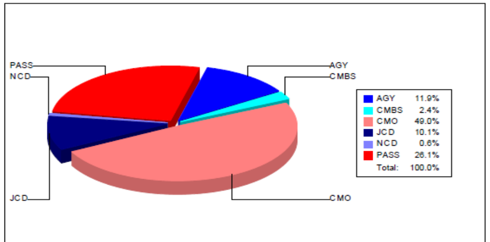
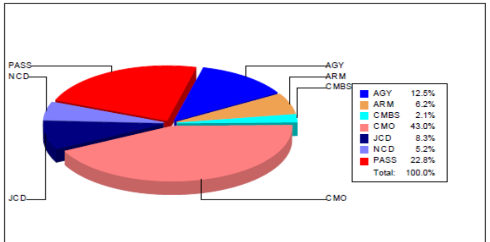
Sector Distribution: Before



Sector	Par ($000)	% of Total	Coupon (%)	Yield (%)	Avg Life (yrs)	P-Vol
NCD	$248	0.59%	1.90%	1.90%	5.00	4.38
PASS	$10,992	26.07%	2.69%	1.77%	4.45	3.74
AGY	$5,000	11.86%	1.30%	1.29%	1.95	4.75
CMO	$20,672	49.02%	2.10%	1.83%	3.63	4.55
CMBS	$992	2.35%	2.00%	2.82%	3.89	3.35
JCD	$4,265	10.11%	0.69%	0.69%	0.63	0.59
Totals:	**$42,170**	**100.00%**	**2.01%**	**1.66%**	**3.36**	**3.93**

Current Estimated Annual Income $699,373.66

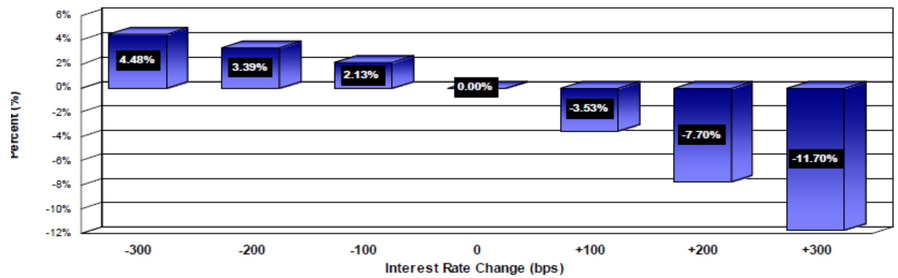
Sector Distribution: After



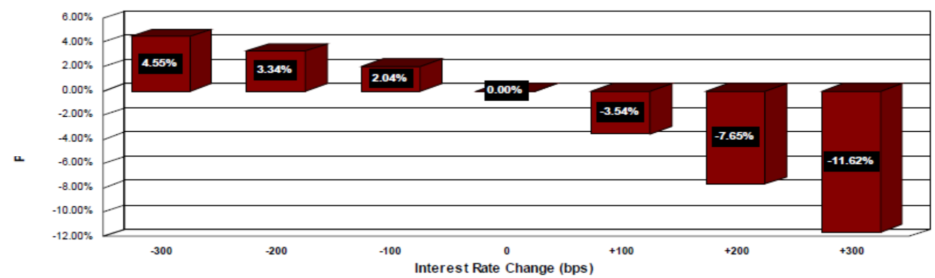
Sector	Par ($000)	% of Total	Coupon (%)	Yield (%)	Avg Life (yrs)	P-Vol
NCD	$2,481	5.15%	1.43%	1.42%	4.30	3.84
PASS	$10,992	22.84%	2.69%	1.77%	4.45	3.74
AGY	$6,000	12.47%	1.29%	1.29%	1.87	4.49
CMO	$20,672	42.95%	2.10%	1.83%	3.63	4.55
CMBS	$992	2.06%	2.00%	2.82%	3.89	3.35
JCD	$4,017	8.35%	0.70%	0.70%	0.67	0.63
ARM	$2,974	6.18%	2.47%	1.61%	4.70	3.47
Totals:	**$48,128**	**100.00%**	**2.00%**	**1.64%**	**3.46**	**3.90**

Proposed Estimated Annual Income $789,197.87
Estimated Income Change $89,824.21

Market Price Change (%) - BEFORE



Market Price Change (%) - AFTER



Asset Liability Management/Modeling

- ALM analytics can assess the impact of new products/services (various loan and share programs) on the entire balance sheet (net interest income simulation, net economic value standpoint, or liquidity forecast).

- The modified balance sheet can be reviewed side-by-side with the original balance sheet.

- Increased interest rate risk, liquidity risk and concentration risk can be quickly identified through the model.

- Only <u>significant</u> and/or <u>new</u> strategies should be subjected to such modeling as excessive modeling can produce much higher costs at diminishing marginal returns.

6 There are deficiencies in the liquidity management process.

- Not having, or having an inadequate, liquidity policy.
- Inadequate liquidity risk limits.
- Funding sources are not diversified.
- Risk measurement projections are not forward looking.
- Not having, or having an inadequate, Contingency Funding Plan.

NCUA Regulation: Myth vs. Fact

All credit unions need to have a written liquidity policy. Critical elements of sound liquidity risk management include:

- Corporate Governance
- Liquidity Management Policy
- Liquidity Risk Reporting
- Internal Controls
- Diversified Funding
- Intraday Liquidity
- Cushion of Liquid Assets
- Contingency Funding Plans

Liquidity Risk Management

The process of measuring liquidity risk should include robust methods for comprehensively projecting cash flows over an appropriate set of time horizons.

	12-month Liquidity Forecast (1)	Months 13-24	12-month Liquidity Forecast (2)	Months 13-24
Beginning Cash and Cash Equivalent Liquidity	$96,693,026	$221,866,477	$96,693,026	$131,931,312
Loan Cashflows (P&I) in:	$245,789,984	$248,002,662	$407,391,916	$472,454,039
Investment Cashflows (P&I) In:	$95,008,367	$48,101,147	$68,391,624	$47,441,007
New Deposits In plus Rollover-of Maturing CDs:	$212,758,745	$91,060,072	$231,788,561	$116,162,428
Rollover of Existing Borrowing	$7,923,753	$3,621,501	$7,923,753	$3,621,501
Loans Sold	$42,029,780	$42,515,646	$20,336,623	$23,342,301
Borrowings+Non-member Deposits+LPs Sold	$0	$0	$0	$0
Non-interest Income+Inv. Sold + Other Liquidity	$13,088,784	$13,088,784	$13,088,784	$13,088,784
Total Cashflow & Alt Liquidity In:	$616,599,413	$446,389,812	$748,921,261	$676,110,060
Forecast New Loan Originations	$266,517,317	$269,598,255	$480,771,197	$551,827,435
(3) Assumed Investment Purchases	$0	$0	$0	$0
Maturing Member CDs and Deposits Withdrawn:	$176,205,533	$49,618,432	$177,541,481	$50,951,176
Existing Borrowing and LPs Sold Maturities:	$7,923,753	$3,621,501	$7,923,753	$3,621,501
Dividend Expense plus Operating Expenses	$38,008,715	$37,519,808	$44,560,578	$54,226,022
NCUSIF Capitalization Deposit & Special Assessments:	$2,770,644	$2,930,729	$2,885,966	$3,219,835
Fixed Asset Purchases and Other Misc. Cash Outflows:	$0	$0	$0	$0
Total Cashflow Out:	$491,425,962	$363,288,725	$713,682,975	$663,845,969
ENDING CASH BALANCE	$221,866,477	$304,967,564	$131,931,312	$144,195,403

Source: Sample ALM, Balance Sheet Management Services

NCUA Regulation: Myth vs. Fact

Credit unions with more than $50 million in assets:

- **Liquidity Policy**
- **Establish a formal Contingency Funding Plan.**
  - The sufficiency of liquidity sources.
  - Identifies contingent liquidity sources.
  - Policies to manage a range of stress environments.
    - Short term events
    - Long term events
  - Lines of responsibility to respond to liquidity events.
  - Management processes that include clear implementation and escalation procedures for liquidity events.
  - Stress testing and updating the plan.

Liquidity Risk Management

The contingency funding analytical assessment ensures that the sources of liquidity are sufficient to fund normal operations during a liquidity crisis.

	12-month Liquidity Forecast (1)	Months 13-24	12-month Liquidity Forecast (2)	Months 13-24
ENDING CASH BALANCE	$221,866,477	$304,967,564	$131,931,312	$144,195,403
Available Contingent Liquidity:	As of: Dec-12	As of: Dec-13	As of: Dec-12	As of: Dec-13
Available Non-member Deposits:	$171,609,631	$179,816,485	$174,853,507	$187,713,021
Available Lines of Credit	$138,990,707	$138,990,707	$138,990,707	$138,990,707
Investment CDs Available for Early Withdrawal	$23,611,076	$10,270,187	$23,611,076	$10,270,187
Securities Portfolio at Appraised Value	$146,882,583	$114,596,083	$157,471,910	$132,116,835
TOTAL AVAILABLE CONTINGENT LIQUIDITY	$481,093,996	$443,673,461	$494,927,199	$469,090,749
TOTAL AVAILABLE CASH LIQUIDITY and CONTINGENT LIQUIDITY	$694,929,360	$740,609,912	$618,827,398	$605,255,039
as a % Current Total Assets	68.42%	69.81%	59.71%	54.53%

Source: Sample ALM, Balance Sheet Management Services

The CFP analytical assessment should also be stressed.

NCUA Regulation Myth vs. Fact

Credit Unions with more than $250 million in assets:

- **Liquidity Policy**
- **Formal Contingency Funding Plan**
- **Backup Federal Liquidity Source**
  - Federal Reserve's Discount Window
  - Central Liquidity Facility (CLF)
    - Regular membership
    - Membership through an agent
  - Apply by March 31, 2014.
  - Federal Home Loan Bank (FHLB) will not satisfy requirement.
- **Must conduct advance planning and periodic testing.**
  - Required by December 31, 2014.

7

Concentrations are not being properly controlled.

- Policy limits.
- Reporting.
- Level of a particular concentration is too high.

NCUA Guidance: Myth vs. Fact

- Management should know what concentration risks there are, and be able to demonstrate appropriate risk management to monitor and control the risk.

- The board of directors must establish a policy which addresses its philosophy on concentration risk, limits commensurate with net worth levels, and the rationale as to how it fits into the overall strategic plan of the credit union.

- Concentrations that exceed 100 percent of net worth must be monitored.
    - Single Exposures
    - Aggregate Exposures

Risk vs. Reward

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Risk management helps keep risk and reward in balance!

Good risk management is good business!

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Thank You!

Prescott Ford, CFA, Managing Director of the Office of Regulatory Affairs

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