



Risk Management Strategy & Solutions +

February 23, 2023

Solving the Liquidity Challenge





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Fed Funds Rate Rising Fastest Ever In Modern Banking

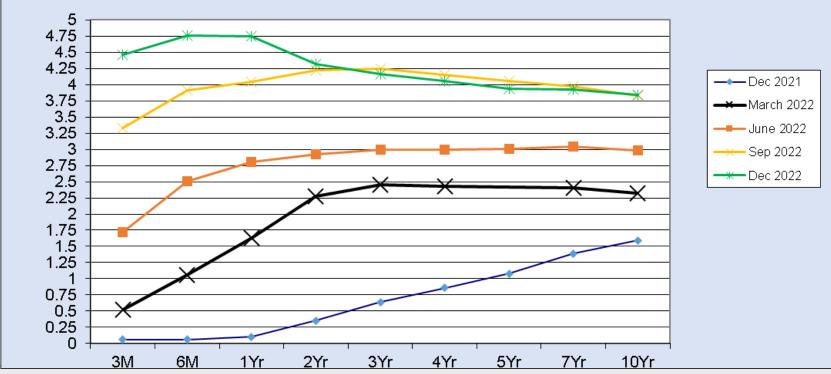
- 2004 - 2015 - 2022 **-** 1983 - 1988 **-** 1994 - 1999 34 36 Months after first rate hike Source: Federal Reserve statista 🔽

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The Yield Curve "JOURNEY" last 12 months

J.S. Treasury Rates





What's the Yield Curve Signaling?



Doubt is not a pleasant condition, but Certainty is Absurd

-Voltaire

UNCERTAINTY



Strategy Development

Deposits
Wholesale Funding
Lending
Investments
Hedging

Credit
Sensitivity & Stress Testing

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Today's Agenda

Current Market Realities, Trends & Forecasts

Liquidity Measurement & Management

Establishing a Total Liquidity Solution & Action Plan

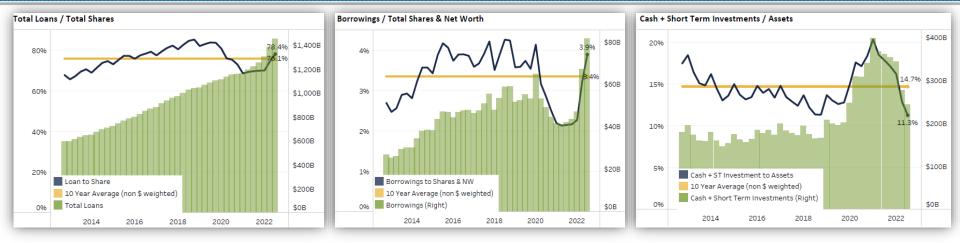
Risk Monitoring & Contingency Funding Plan

Stress Testing Considerations

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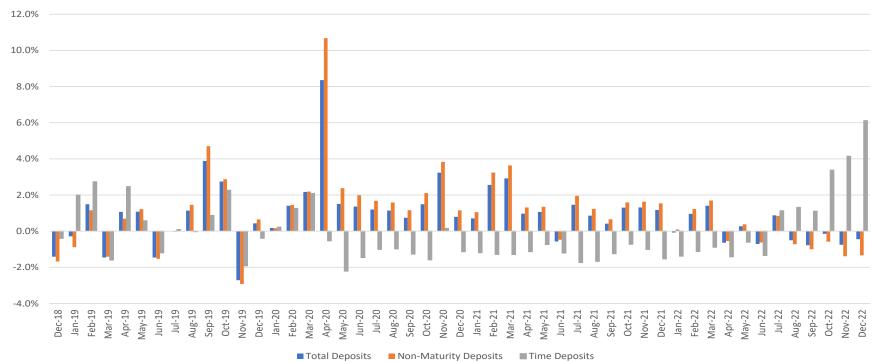


Source: NCUA 9/30/22 Chart Pack



Deposit Contraction Last 6 months

Deposits360°® Month-Over-Month Growth Rates (Banks & Credit Unions)

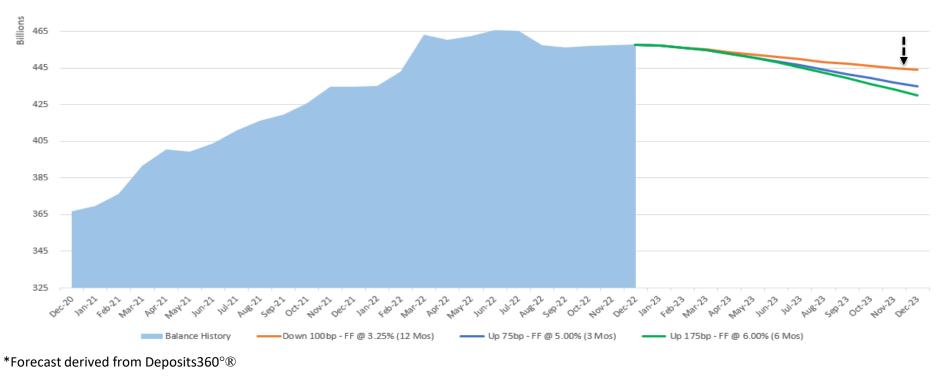




NMD Balance Forecast

Deposits360°® Analytics

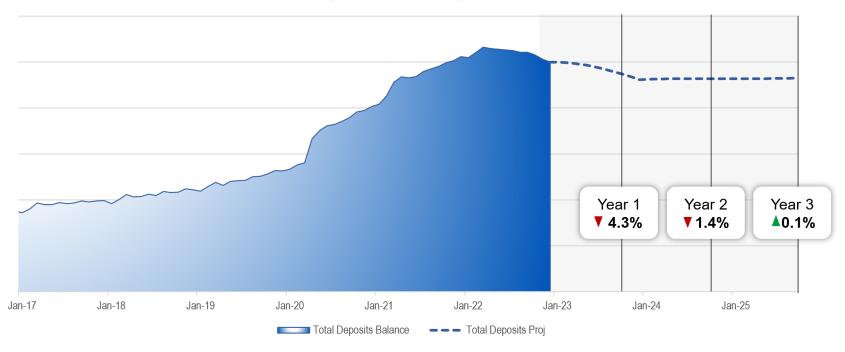
NMD Balance History & Forecast





Deposit Contraction Will Continue Through 2023

Total Deposit Balance History & Forecast



> Model Assumes Fed Funds at 5% at end of 2023, declining to 3.50% by 2025 - based on December 2022 FOMC dot plot

> Forecast derived from Deposits360°® - Industry NMD Rates above are balance weighted averages and do not include any outlier removal



Liquidity Risk Under the Microscope in 2023

NCUA's 2023 Supervisory Priorities



Liquidity Risk

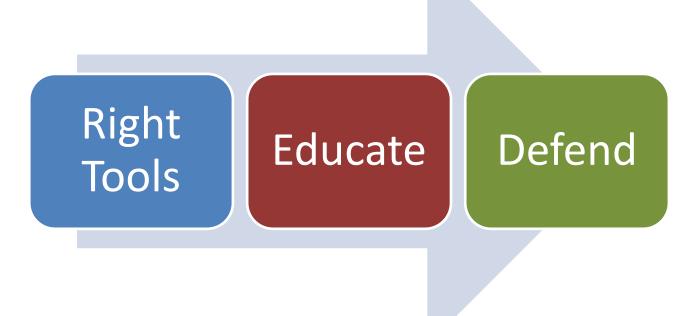
Funding pressure a theme for S&P Capital IQ Community banks across US

A. RISING INTEREST RATES ARE CAUSING SIGNIFICANT INVESTMENT PORTFOLIO DEPRECIATION





Your Goals: Be Prepared!



Examiner Focus



On-Balance Sheet Liquidity

The development of a Category 1 minimum liquidity (cash and short-term investments) parameter should align with the Board's risk tolerance and Credit Union's risk profile and be supported by management's estimates of liquidity needs during periods of stress.

NCUA 13-CU-10 "A simple rule of thumb is to identify the largest liquidity outflow your credit union has ever experienced and how long it persisted."

Risk Monitoring

Revisit your Liquidity Policy and Contingency Funding Plan and develop specific liquidity metrics that are quantifiable and convey your tolerance for liquidity risk... developing a liquidity dashboard would be beneficial in documenting and tracking them for management and the ALCO

Examiner Focus



Cash Flow Forecasting

Forecast liquidity based on budget and strategic initiatives. Understanding source so volatility in cash flows will help to anticipate shortfalls and plan for contingencies

Contingency Funding Plan

Develop a written CFP commensurate with its complexity, risk profile, and scope of operations that sets out strategies for addressing liquidity shortfalls in emergency situations

Stress Testing

Management should apply various stressors such as share runoff, asset quality deterioration, loss of borrowing capacity, and draws on off-balance sheet assets. Ability to remediate the stress event should subsequently be evaluated. Comprehensive stress testing, particularly given elevated IRR and increasing unrealized losses on securities, will be beneficial in early identification of liquidity shortfalls. This reporting should be made available to the BOD.



- 1. Define Cash Minimum
- 2. Establish Total Liquidity Process & Policies
- 3. Have a Strong Contingency Funding Plan
- 4. Build <u>Dynamic</u> Liquidity Forecast
- 5. Stress Test In Accordance With Current Environment
- 6. Develop Remediation Scenarios (very important, don't leave out)
- 7. Establish a Diverse Risk Monitoring Process



ESTABLISHING A TOTAL LIQUIDITY SOLUTION



5 Key Questions We Need to Answer to Drive Strategy

How Much Liquidity Do We Have?

How Much Liquidity Do We Need?

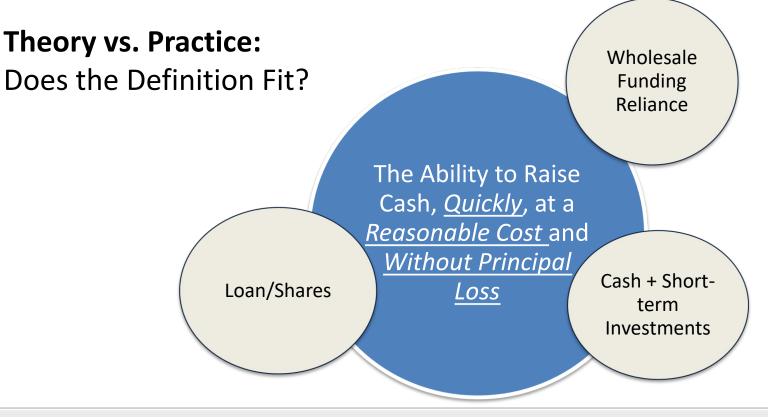
How Much Do We Want to Pay for that Liquidity?

How Much Exposure Do We Have to Changes in Rates?

Are We Being Paid Adequately for the Risks We Take?



Traditional Measures



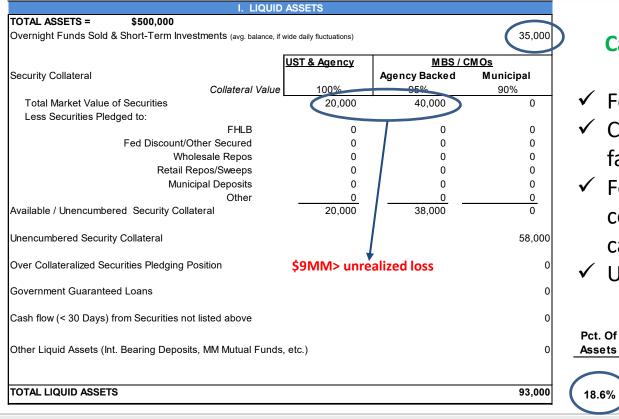


LIQUID ASSETS & TOTAL LIQUIDITY SOLUTION



Redefining Liquid Assets

Basic Surplus: Liquid Assets

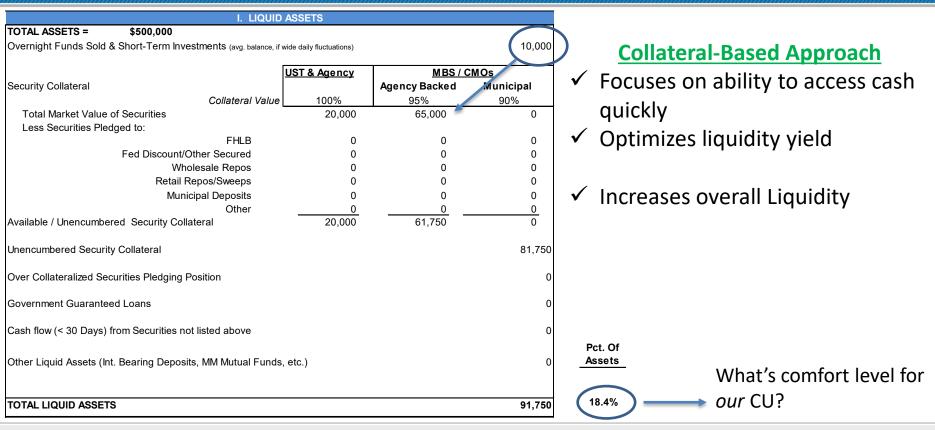


Cash + ST Investments/Assets Shortfalls:

- ✓ Forces to hold more cash
- ✓ Could increase IRR exposure to falling rates
- Focuses more on cash flow vs. collateral (needing to wait for cash to come due)
- ✓ Ultimately can hurt NII



Redefining Liquid Assets

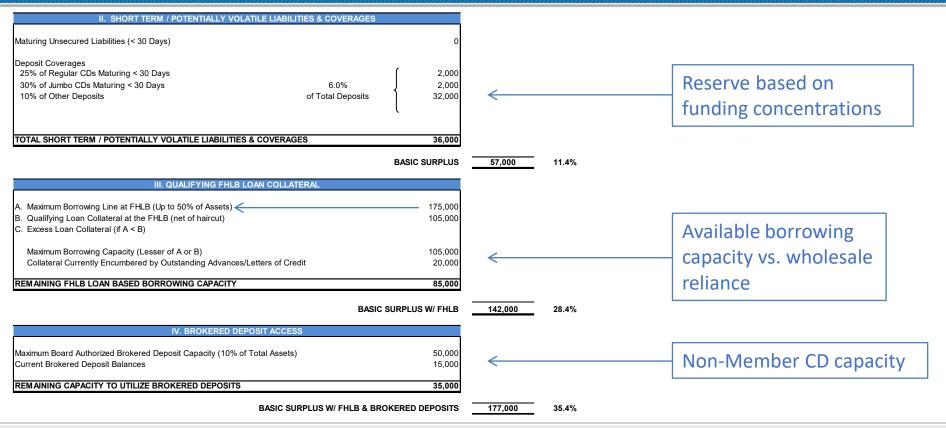


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Total Liquidity Focus

Basic Surplus: Total Liquidity





Strategy: Shift Cash/Investments into Loans

I. LIQUID	ASSETS		
TOTAL ASSETS = \$500,000			
Overnight Funds Sold & Short-Term Investments (avg. balance, if	wide daily fluctuations)		0
	UST & Agency	MBS / C	
Security Collateral		Agency Backed	Municipal
Collateral Value		95%	90%
Total Market Value of Securities	20,000	40,000	0
Less Securities Pledged to:			
FHLB	0	0	0
Fed Discount/Other Secured	0	0	0
Wholesale Repos	0	0	0
Retail Repos/Sweeps	0	0	0
Municipal Deposits	0	0	0
Other	0		0
Available / Unencumbered Security Collateral	20,000	38,000	0
In an aurent area of Casurity Callateral			F8 000
Unencumbered Security Collateral			58,000
Over Collateralized Securities Pledging Position			0
over obligateralized occurrites r ledging r osition			0
Government Guaranteed Loans			0
Cash flow (< 30 Days) from Securities not listed above			0
Other Liquid Assets (Int. Bearing Deposits, MM Mutual Funds	. etc.)		0
	,,		
OTAL LIQUID ASSETS			58,000
III. QUALIFYING FHLB	LOAN COLLATER	AL	
Maximum Borrowing Line at FHLB (Up to 50% of Assets)			175,000
Qualifying Loan Collateral at the FHLB (net of haircut)			131,250
Excess Loan Collateral (if A < B)			
			101 000
Maximum Borrowing Capacity (Lesser of A or B)			131,250
Collateral Currently Encumbered by Outstanding Advance	s/Letters of Credit		20,000
REMAINING FHLB LOAN BASED BORROWING CAPACITY			111,250
			,
		BASIC S	URPLUS W/ FHLB
		2,010 0	
IV. BROKERED D	EPOSIT ACCESS		
Maximum Board Authorized Brokered Deposit Capacity (10%	of Total Assets)		50,000
Current Brokered Deposit Balances			15,000
REMAINING CAPACITY TO UTILIZE BROKERED DEPOSITS	6		35,000
	BASIC SURPL	US W/ FHLB & BROP	LERED DEPOSITS

26.7%

33.7%

Shifting cash into loans reduces "liquid" assets but provides higher spreads of 200-300bps with <u>minimal impact to Total Liquidity</u>



Wholesale Funds vs. Deposits

	NEW DEPOSITS	WHOLESALE
RELATIONSHIPS?	Potentially	No
PROTECTION?	Insurance	Collateral
AVAILABLE IN BULK?	At a Price	Yes
COST ?	Rate + Cost of Conversion	Coupon
TERMS DETERMINED BY	Member of CU	Credit Union

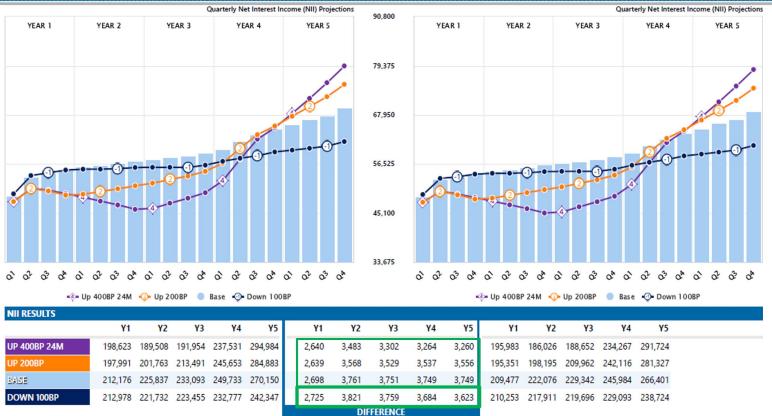
"Wholesale Funds can be a Stable Source of Core Funds"

<u>Terms Are Determined by You, Not the Depositor!!!</u>

\$75MM Cash to Mortgages @6.50% next 6 months



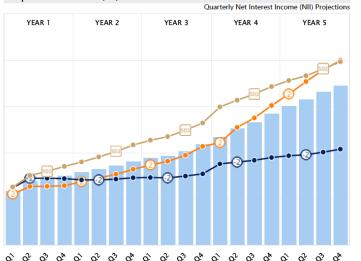
Impact to Liquidity?



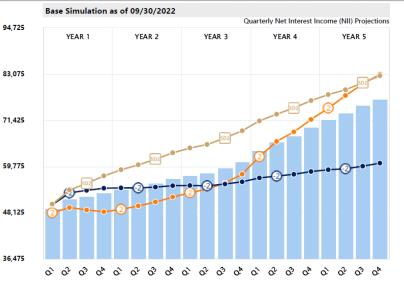


Pay Fixed Swap 3 years 3.73%, Receive 4.51% SOFR

Swap Simulation as of 09/30/2022







- Up 200BP 🕘 Base - Down 200BP - E- Steep Down 200BP

NII RESULTS															
	¥1	Y2	¥3	¥4	¥5	¥1	Y2	¥3	¥4	¥5	¥1	Y2	¥3	¥4	Y5
UP 200BP	203,136	215,594	234,598	268,533	315,918	8,483	13,900	13,900	0	0	194,653	201,694	220,698	268,533	315,918
BASE	210,013	224,989	239,995	267,268	297,067	3,900	3,900	3,900	0	0	206,113	221,089	236,095	267,268	297,067
DOWN 200BP	210,632	212,134	215,014	230,543	238,640	-683	-6,100	-6,100	0	0	211,315	218,234	221,114	230,543	238,640
STEEP DOWN 200BP	216,347	237,825	259,302	295,214	320,691	-752	-6,250	-6,250	0	0	217,099	244,075	265,552	295,214	320,691
							DI	FFERENCE							

_1. Swap simulation assumes a \$500MM, 3 year swap is executed immediately, paying 3.73% fixed and receiving 3 Month SOFR (currently 4.51%%).



Liquidity Management & Strategy Interwoven





CD Special w/ High Cannibalization



Source: Deposits360°®



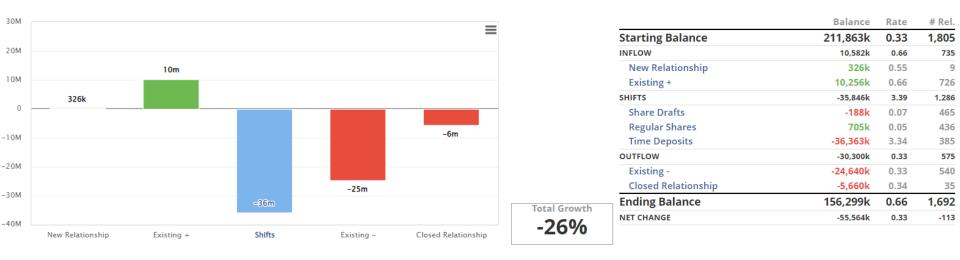
Deposit Action Items

- 1. Attrition: Identify, Monitor, Head-Off
 - Shift to CDs? Losing relationships? Balances? Tiers? Business vs. consumer?
 - > Develop early warning systems, execute comeback campaigns
- 2. Need to Be Agile
 - > Allow data analytics to guide strategies
- 3. Defining the next MMDA move
 - Trusting the exception process vs. walking up rates...Where do I have to be priced?
 - Review tier structure
- 4. Defining the CD portfolio objective
 - Relationship premium, new money component
 - > Focus on managing cannibalization



MMDA Attrition Case Study

3/31 thru 12/31



Source: Deposits360°®



RISK MONITORING & CONTINGENCY FUNDING PLAN



Liquidity Risk Monitor

Risk Monitor Must-Haves

- 1. Early warning system (3 levels)
- 2. Stress level response/action plan
- 3. Variety of indicators
- 4. Include leading indicators
- 5. Constant review





	Risk	Risk	Risk	Current	10/31/2022	Risk	Cons. Periods	Stress
	Level 1	Level 2	Level 3	Value	Value	Level	Triggered	Level
Indicators - Heightened Funding Needs								
1. \$ Change in Loan Growth less Non-Brokered Deposit Growth (1 Month) 1	\$50,000	\$75,000	\$100,000	\$54,013	\$68,055	Level 1	9	N/A
2. % Change in Non-Maturity Deposit Balances (1 Month) 2	-2.00%	-4.00%	-6.00%	-3.46%	-0.16%	Level 1	1	N/A
3. % Increase in Utilization of LOC	5.00%	10.00%	15.00%	0.87%	0.74%	N/A	N/A	N/A
Indicators - Liquidity/Funding Ratios								
4. Cash/Assets 3	2.00%	1.75%	1.50%	1.64%	1.69%	Level 2	3	N/A
5. Liquid Assets / Assets 4	6.00%	5.00%	4.00%	4.45%	4.53%	Level 2	6	N/A
6. Basic Surplus – Tier 2 5 📂	15.00%	12.50%	10.00%	5.96%	1.99%	Level 3	7	Level A
7. Basic Surplus – Tier 3 🤳	20.00%	17.50%	15.00%	23.34%	19.50%	N/A	N/A	N/A
8. Brokered Deposits / Assets	7.50%	11.25%	15.00%	3.18%	3.19%	N/A	N/A	N/A
9. Fed Discount Window Borrowings	15.00%	20.00%	25.00%	0.00%	0.00%	N/A	N/A	N/A
10. Borrowings / Shares + Net Worth 6	10.00%	15.00%	20.00%	11.99%	10.97%	Level 1	3	N/A
11. FHLB Borrowings / Assets	15.00%	20.00%	25.00%	10.58%	9.77%	N/A	N/A	N/A
12. Borrowings to Assets	25.00%	30.00%	35.00%	10.58%	9.77%	N/A	N/A	N/A
13. Wholesale Funds / Assets	25.00%	32.50%	40.00%	13.76%	12.97%	N/A	N/A	N/A
14. Non-Member Shares and Public Funds	80.00%	90.00%	100.00%	7.73%	7.68%	N/A	N/A	N/A
15. Loans / Shares 7	105.00%	112.50%	120.00%	114.40%	113.42%	Level 2	6	N/A
16. Uninsured Deposits / Total Deposits	20.00%	40.00%	60.00%	16.33%	17.02%	N/A	N/A	N/A
Indicators - Capital at Risk								
17. ALLL / Delinquent Loans 60 Days or Greater	80.00%	75.00%	70.00%	101.61%	107.58%	N/A	N/A	N/A
18. Delinquent Loans / Gross Loans	0.75%	1.25%	2.00%	0.51%	0.47%	N/A	N/A	N/A
19. Net Worth Ratio	10.00%	9.00%	8.00%	10.41%	10.37%	N/A	N/A	N/A
20. Net Charge Off Ratio	0.40%	0.50%	0.60%	0.14%	0.11%	N/A	N/A	N/A
21. Net Interest Margin	2.70%	2.60%	2.50%	2.92%	2.87%	N/A	N/A	N/A
							manaite Streen Level - N/A	

Composite Stress Level = N/A

Source: Liquidity360°®



Contingency Funding Plan

Contents
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Exceptions
APPENDIX 23

CFP Must-Haves

- 1. Roles clearly outlined
- 2. Define risk tolerance and action
- 3. Mention KRIs and stress testing
- 4. Emergency contact information
- 5. Effective communication

Source: Liquidity360°®



FORECAST & STRESS TEST





- Stress Testing Checklist
 - Contractual cash flows and forecast
 - Dynamic modeling
 - Assumption defense
 - Macro and idiosyncratic
 - Concentrations?
 - Document and back test
 - Run "Below Well-Capitalized" scenario
 - Remediation scenario
- Time to refresh scenario set?
 - Deposit runoff with continued loan demand
 - Credit concerns and collateral restrictions
 - FHLB restrictions tangible capital



Liquidity Stress – Dynamic Base Case

	And the set of the				
Cash In/Out Flow	i	(3,000)	(3,000)	(3,000)	(3,000)
Cumulative		9,207	6,207	3,207	207
Starting Cash Position	12,207				
COLLATERALIZED/SECURED FUNDING RESOURCES	Avall. Capacity				
Free UST / GSE Bond Collateral	136,315	136.315	136.315	136.315	136.315
Free Non-GSE Bond Collateral	130,315	130,315	130,313	0	130,313
Loan Based Borrowing Capacity (FHLB)	414.247	411.118	407,989	404.860	401,731
Residential Mtg Loan Collateral (FHLB)	215.920	212.797	209.005	200.539	203.410
Non-Residential Mtg Loan Collateral (FHLB)	198,321	198,321	198,321	198,321	198,321
TOTAL PRIMARY LIQUIDITY	550,563	547,433	544,304	541,175	538,046
	25.54%	25.31%	25.08%	24.86%	24.64%
	Avall.				
OTHER LIQUIDITY RESOURCES	Capacity				
Unsecured Funding					
Remaining National Deposit Capacity	0	0	0	0	0
Remaining Brokered Deposit Capacity	54,255	54,255	54,255	54,255	54,255
Other Unsecured Funds (i.e. Fed Fund Lines)	24,000	24,000	24,000	24,000	24,000
Other Secured Funding Resources					
Other Loan Based Borrowing Capacity (FRB)	28,696	28,696	28,696	28,696	28,696
TOTAL OTHER LIQUIDITY RESOURCES	106,951	106,951	106,951	106,951	106,951
	4.96%	4.94%	4.93%	4.91%	4.90%
Total Funds Availability (\$000)	669,720	663,591	657,462	651,333	645,204
Total Assets (\$000)	2,155,911	2,162,911	2,169,911	2,176,911	2,183,911
Total Funds Availability (% of Assets)	31.06%	30.68%	30.30%	29.92%	29.54%
LIQUIDITY MINIMUM (% of Assets)	5.00%	5.00%	5.00%	5.00%	5.00%
FUNDING EXCE\$\$/(\$HORTFALL)	561,925	555,446	548,967	542,487	536,008

\$40MM Loan Growth \$8MM Deposit Growth \$20MM Wholesale \$12MM Cash

> Source: Liquidity360°®





Loans

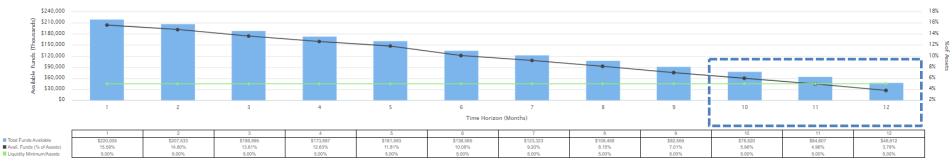
20,760	49,698	19,304	19,458
7,083	7,060	7,138	7,223
4,205	4,255	4,305	4,356
1,684	1,658	1,663	1,684
3,845	4,143	4,059	4,022
3,943	32,582	2,139	2,173
0	0	0	0
0	0	0	0
(20,957)	(52,100)	(21,725)	(21,894)
(8,965)	(8,948)	(9,033)	(9,126)
(5,030)	(5,082)	(5,133)	(5,186)
(1,794)	(1,774)	(1,784)	(1,811)
(3,044)	(3,342)	(3,265)	(3,228)
(2,124)	(32,954)	(2,510)	(2,543)
		(2,421)	(2,436)
	7,083 4,205 1,684 3,845 3,943 0 0 (20,957) (6,965) (5,030) (1,794) (3,044)	7,083 7,060 4,205 4,255 1,684 1,658 3,845 4,143 3,943 32,582 0 0 0 0 (20,957) (52,100) (8,965) (8,948) (5,030) (5,082) (1,794) (1,774) (3,044) (3,342)	7,083 7,080 7,138 4,205 4,255 4,305 1,684 1,658 1,663 3,845 4,143 4,059 3,943 32,582 2,139 0 0 0 0 0 0 (20,957) (52,100) (21,725) (8,965) (8,948) (9,033) (5,030) (5,082) (5,133) (1,794) (1,774) (1,784) (3,044) (3,342) (3,265)

Source: Liquidity360°®

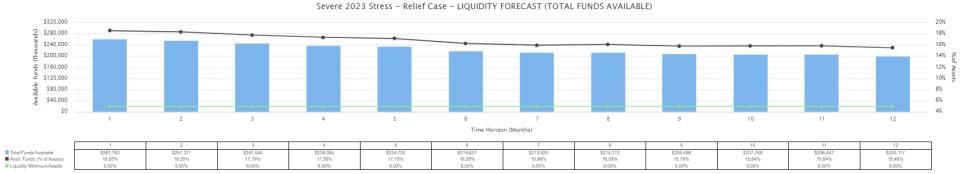




Source: Liquidity360°®



Severe 2023 Stress - Stress Case - LIQUIDITY FORECAST (TOTAL FUNDS AVAILABLE)

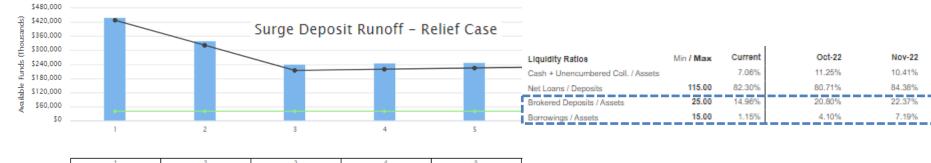




Liquidity Stress – Deposit Runoff Scenario



	1	2	3	4	5
Total Funds Available	\$378,622	\$243,913	\$109,204	\$101,670	\$94,136
 Avail. Funds (% of Assets) 	22.57%	15.09%	7.02%	6.55%	6.07%
Liquidity Minimum/Assets	5.00%	5.00%	5.00%	5.00%	5.00%



	1	2	3	4	5
Total Funds Available	\$441,249	\$340,423	\$241,778	\$245,087	\$248,165
 Avail. Funds (% of Assets) 	24.38%	19.05%	13.70%	13.96%	14.22%
Liquidity Minimum/Assets	5.00%	5.00%	5.00%	5.00%	5.00%

Source: Liquidity360°®

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- 1. Revisit Liquidity Measurement Methodology
- 2. Develop a Dynamic Forecast & Stress Test Framework
- 3. Revitalize Your Risk Monitor
- 4. Have the Right Tools, Educate, and Defend
- 5. Revitalize Liquidity & Wholesale Funding Policies from a business perspective!
- 6. Don't Panic! Seek Advice from your Friends at FHLB!



Valuable Resources on Liquidity

☆

DCG Webinars and On-Demand Library (darlingconsulting.com)

D·C·G	D·C·
The Deposit Difference	Mana <u>.</u> Turbu
The Deposit Difference (1.18.2023)	Managir Turbuler
• WEBCAST () 01:08:00	WEBCA
The Fed has triggered a Shocked Rising Rate environment in its effort to battle inflation with short-term market rates increasing substantially while Fed	In light of market rat uncertaint liquidity ris
\$	

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aging Liquidity Risk in ulent Waters

ing Liquidity Risk in ent Waters (12.8.2022)

AST () 01:17:00

the recent pronounced hike in ates and ongoing economic ty, examiner concerns over isk management practices –...







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