

Peer Analysis and Balance Sheet Strategies Update



February 16, 2023

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Presenters



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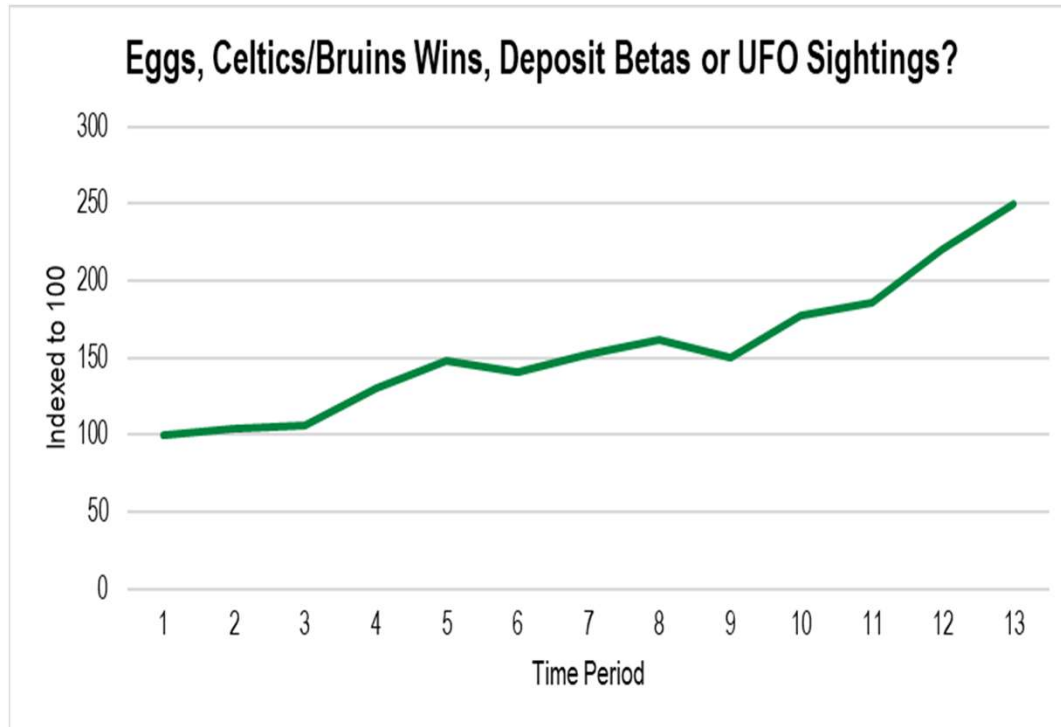
Assistant Vice President, Senior Financial Strategist

Overview

- Markets & Economy Update
- Peer Analysis & Call Report Trends
- Balance Sheet Strategies

Guess That Chart

Tougher than it may seem- a lot of charts are going up and to the right these days in the economy, Boston sports, the banking/credit union industry, and across the universe.



Is this a chart of:

- A: The price of a dozen eggs over the last year
- B: Cumulative wins by the Bruins & Celtics in the 2022-2023 season
- C: Deposit betas for FHLBank Boston banks and credit unions since rates started rising
- D: UFO sightings in the U.S. in 2023



Markets & Economy Update

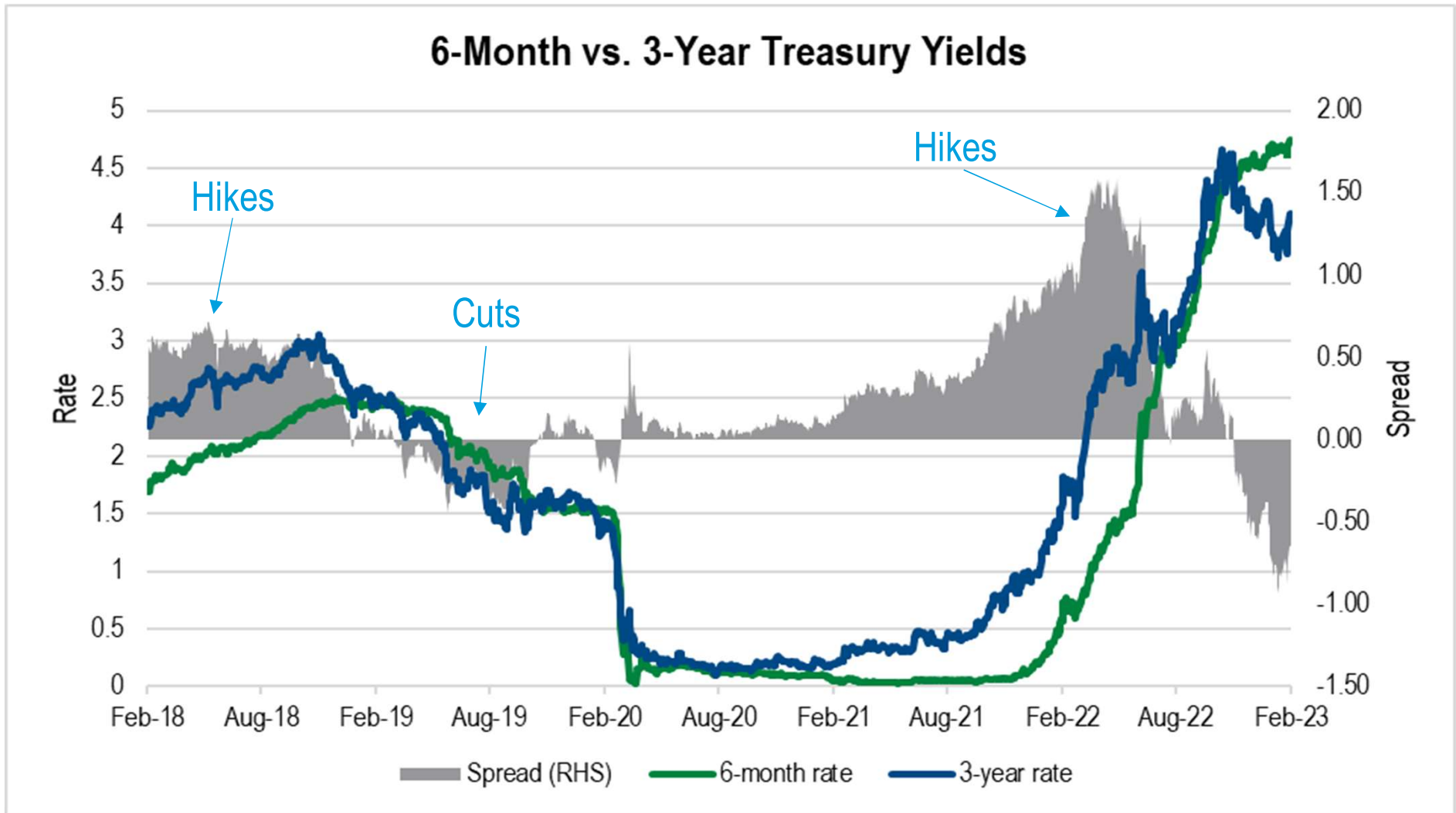


Markets & Economy Update

- The Yield Curve: Past, Present, Future
- Mortgage Rates & Spreads
- Inflation & Unemployment

Yield Curve Inversion

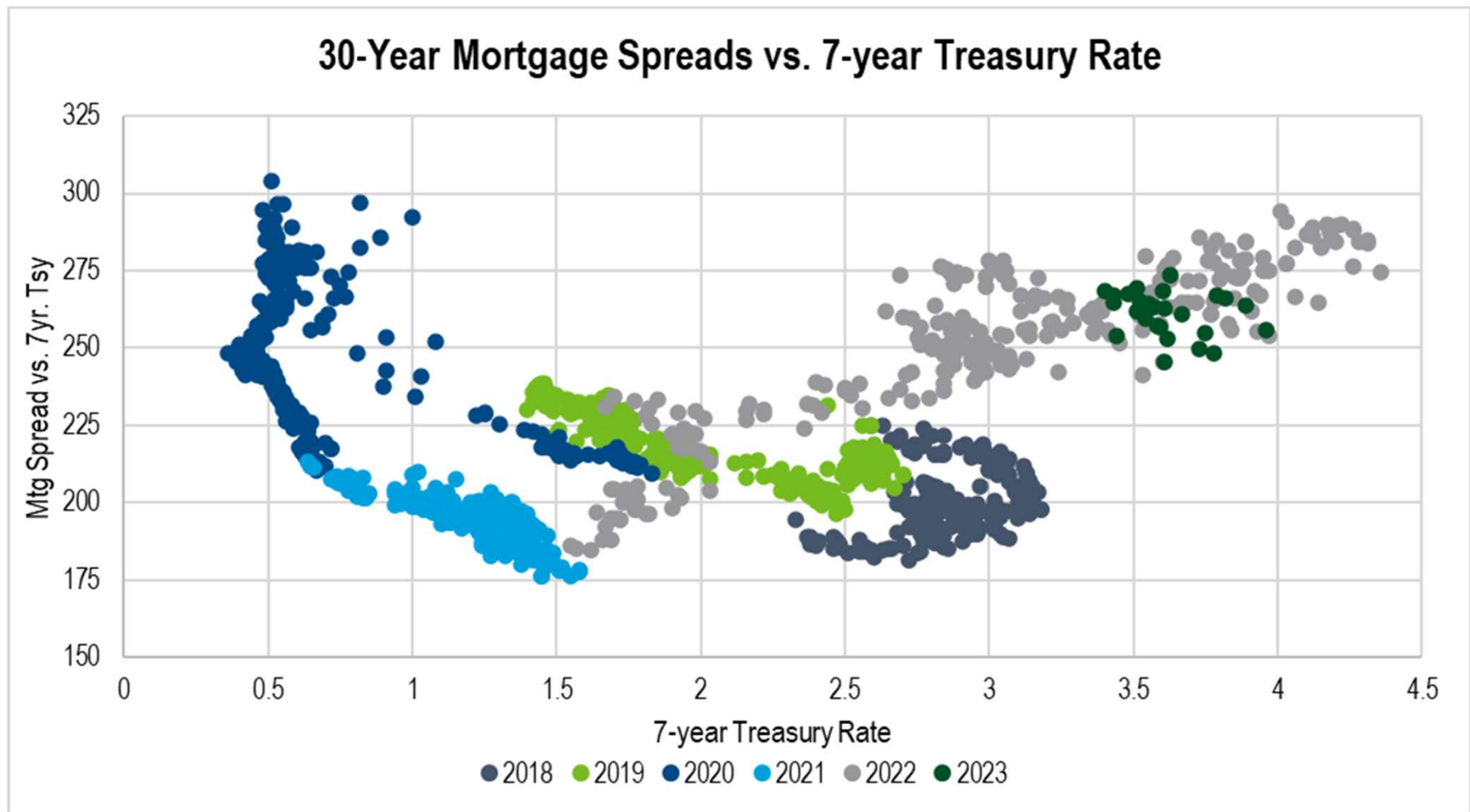
Intermediate and long parts of the yield curve signal a quick pause/pivot, with rates well below the short end.



Source: Federal Reserve Bank of St. Louis, FHLBank Boston

Mortgage Spreads

Off the highest and widest levels from late 2022, but mortgage rates AND spreads are still near historically favorable levels.

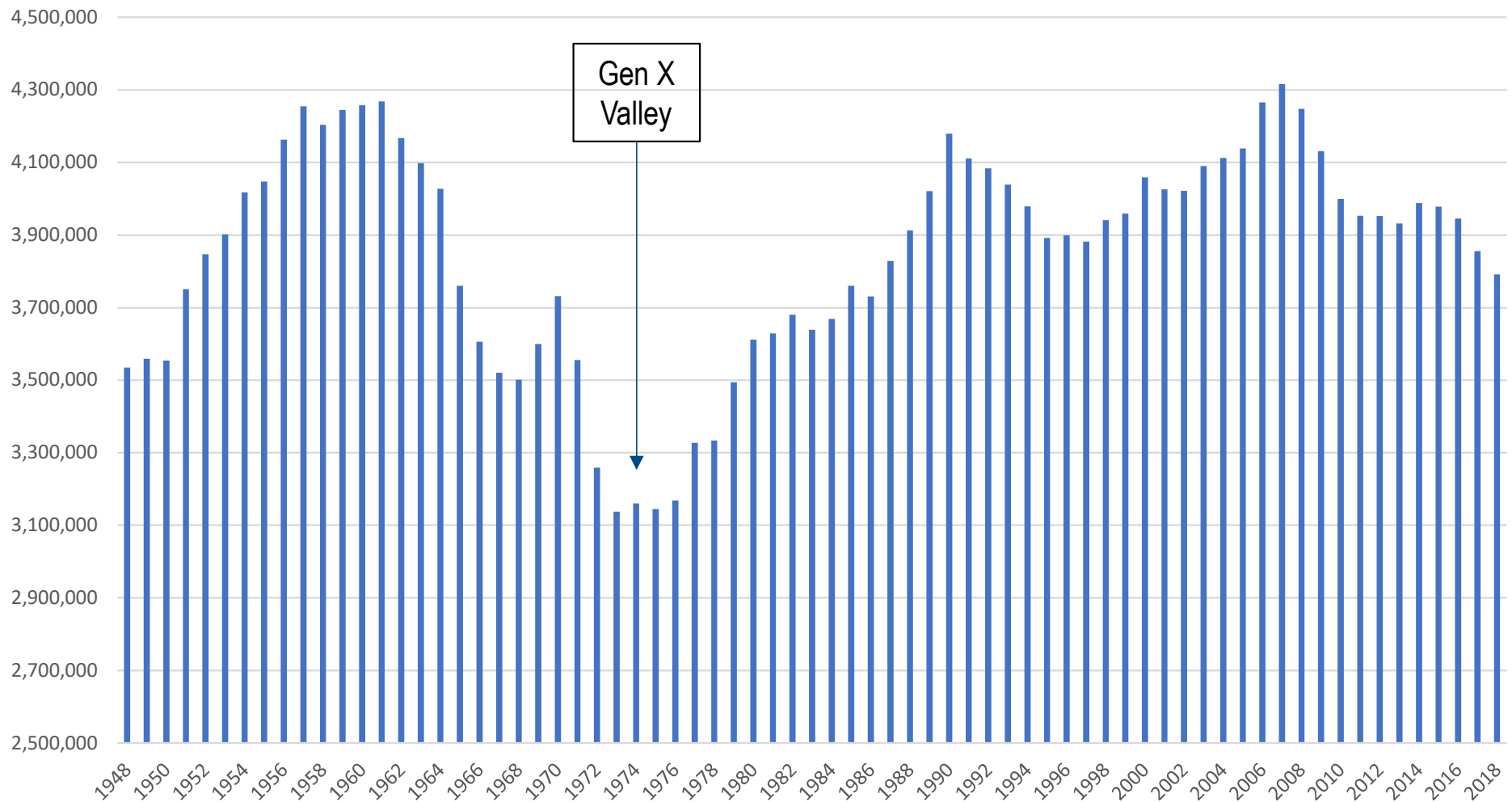


Source: Optimal Blue, Federal Reserve Bank of St. Louis, FHLBank Boston

Demography and the Labor Market

Sociological changes resulted in much lower birth rates in the 1970s than in other post-war timeframes. This secular demographic circumstance may influence labor markets today with structurally lower unemployment.

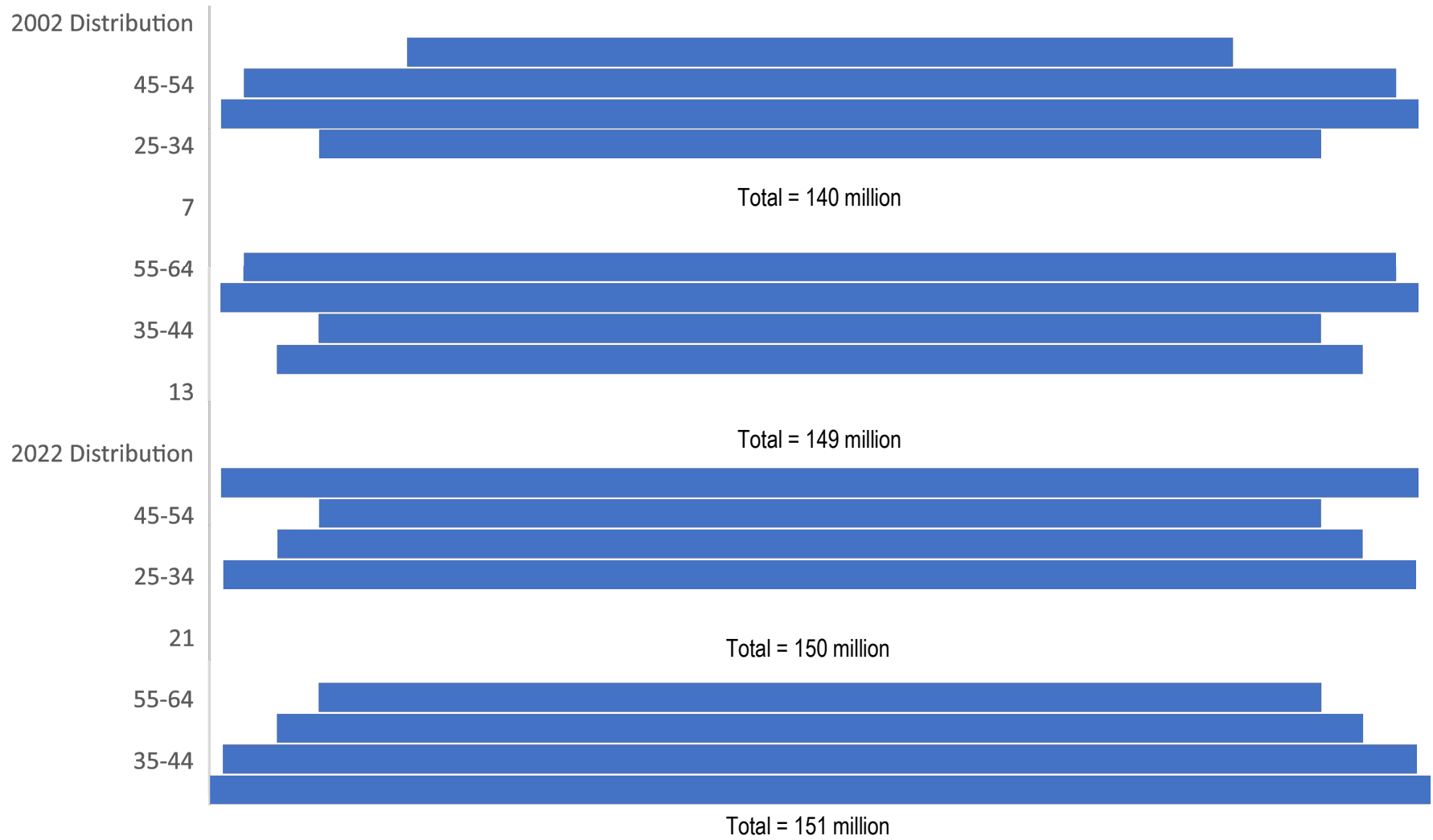
US Births by Year



Source: Bureau of Labor Statistics, Federal Reserve Bank of St. Louis, FHLBank Boston

Demography and the Labor Market

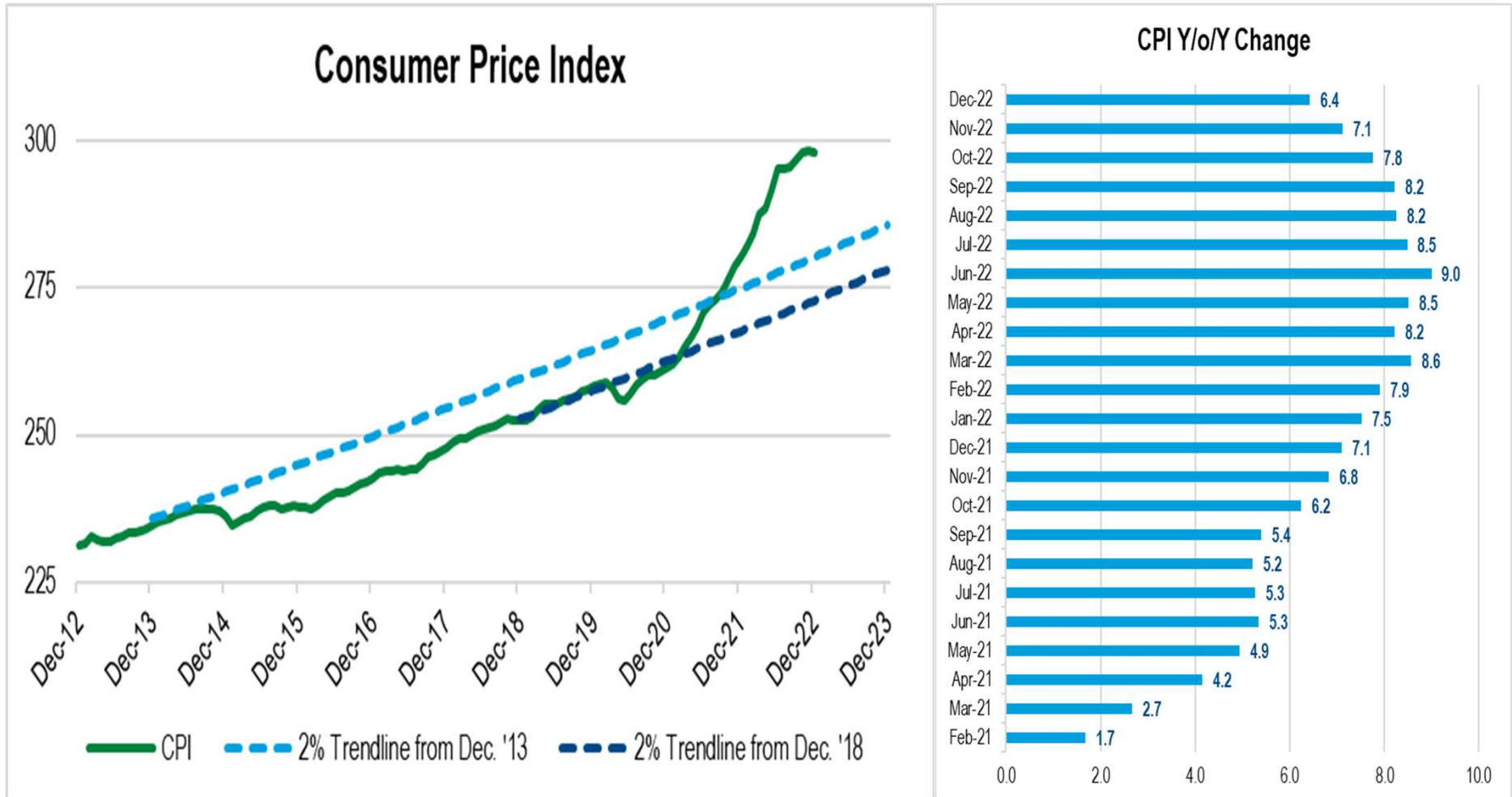
The working age population growth rate has all but entirely stopped and the distribution of that population will become more bottom-heavy than top-heavy this decade, possibly leading to improving wage growth for workers.



Source: Bureau of Labor Statistics, Federal Reserve Bank of St. Louis, FHLBank Boston

Inflation

Headline inflation is cooling off, but the compounding effect is still applying pressure to consumers and businesses.

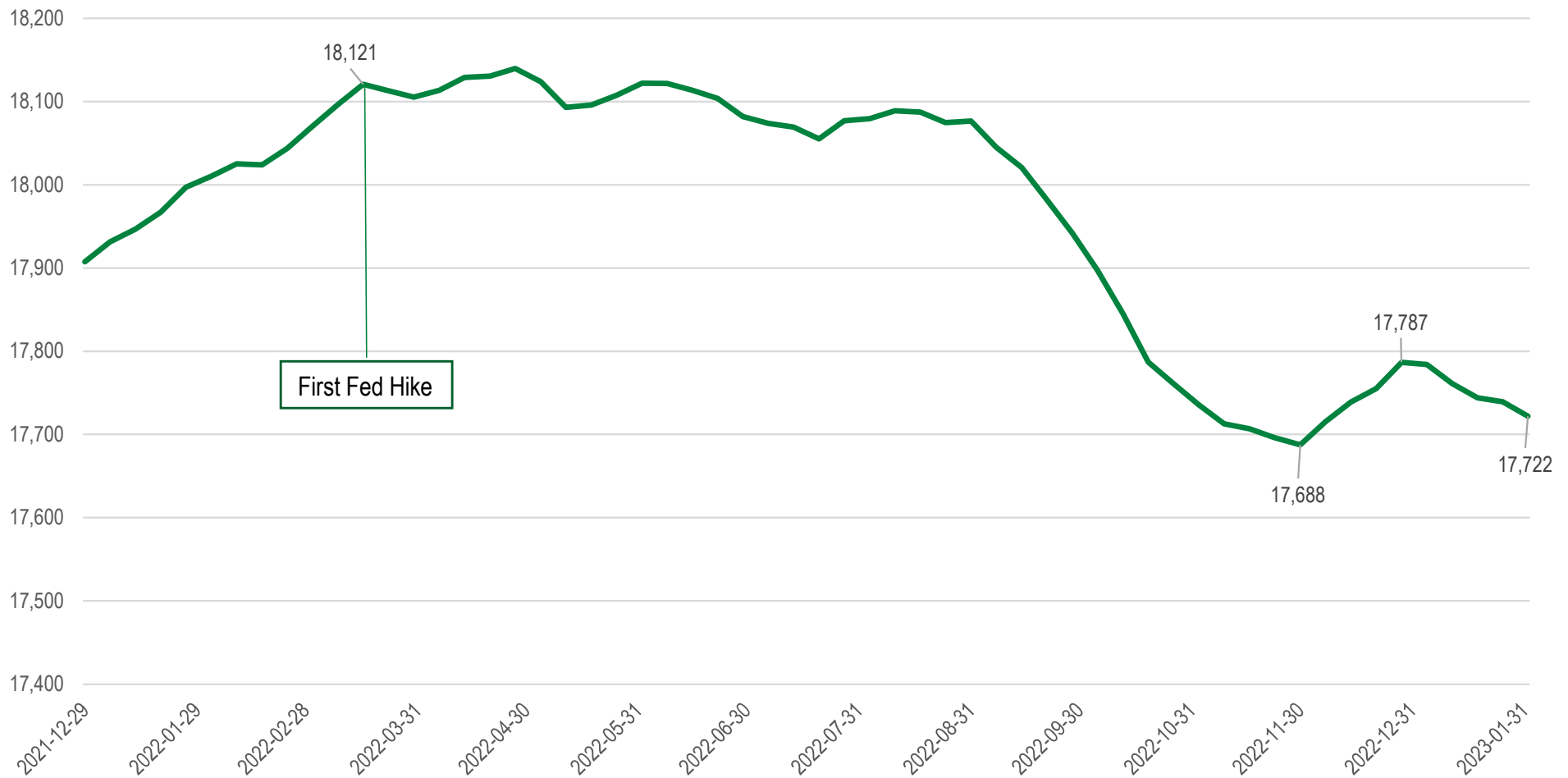


Source: Federal Reserve Bank of St. Louis, FHLBank Boston

Industry Deposit Trend

After a slight rebound in December, deposit outflows resumed in January. Since the Fed began tightening just under a year ago, the 4-week rolling average of commercial bank deposits has declined 2.2%.

Total Commercial Bank Deposits, 4-week Rolling Avg



Source: Federal Reserve Bank of St. Louis, FHLBank Boston

Peer Analysis & Call Report Trends

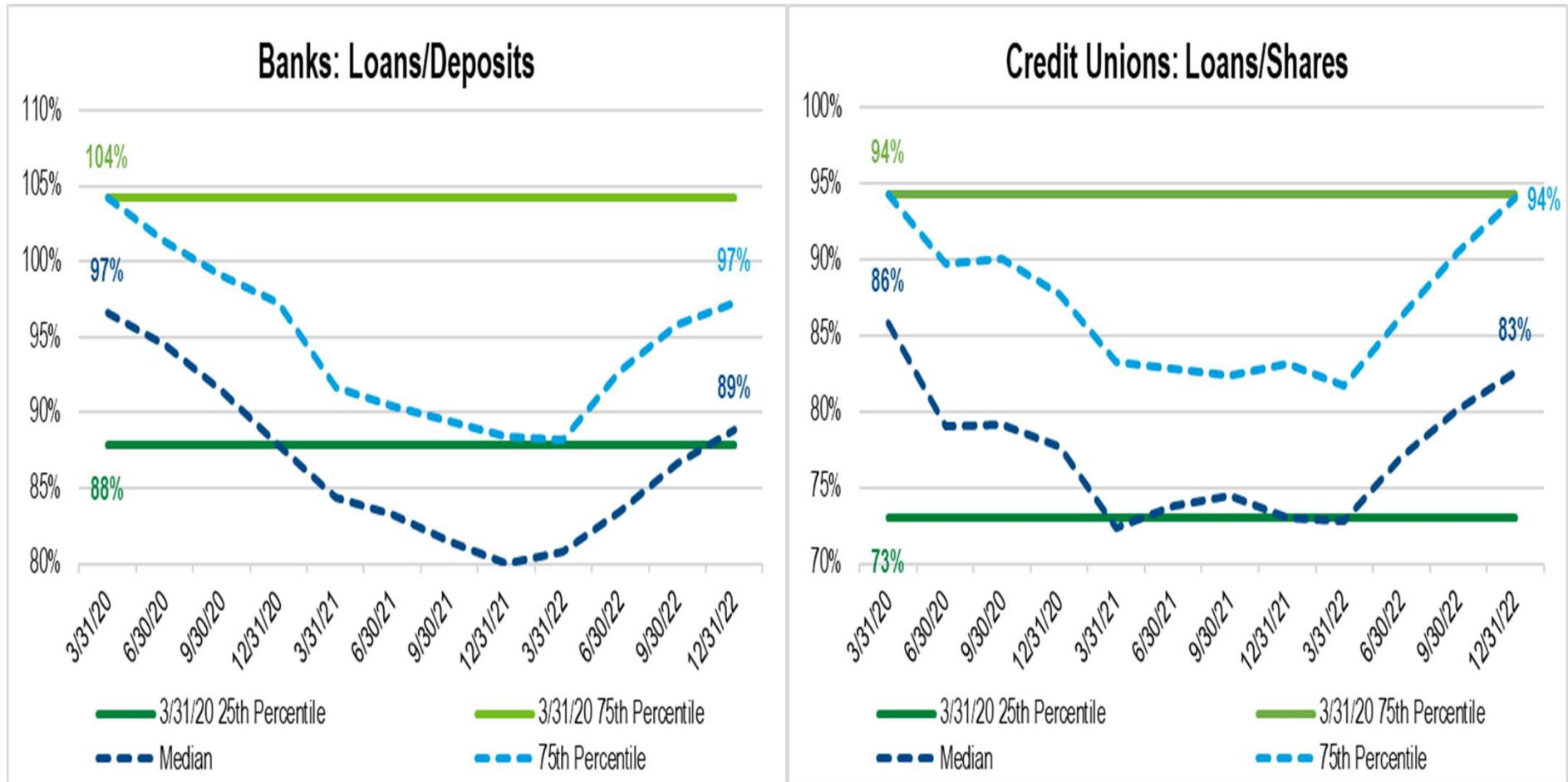


Peer Analysis & Call Report Trends

- Profitability
- Growth Trends
- Loan, Investment & Funding Composition
- Credit & Capital

Are Liquidity Levels Back to Normal?

While most have trended up over the last year, credit unions more than banks are closer to their pre-COVID ratios.

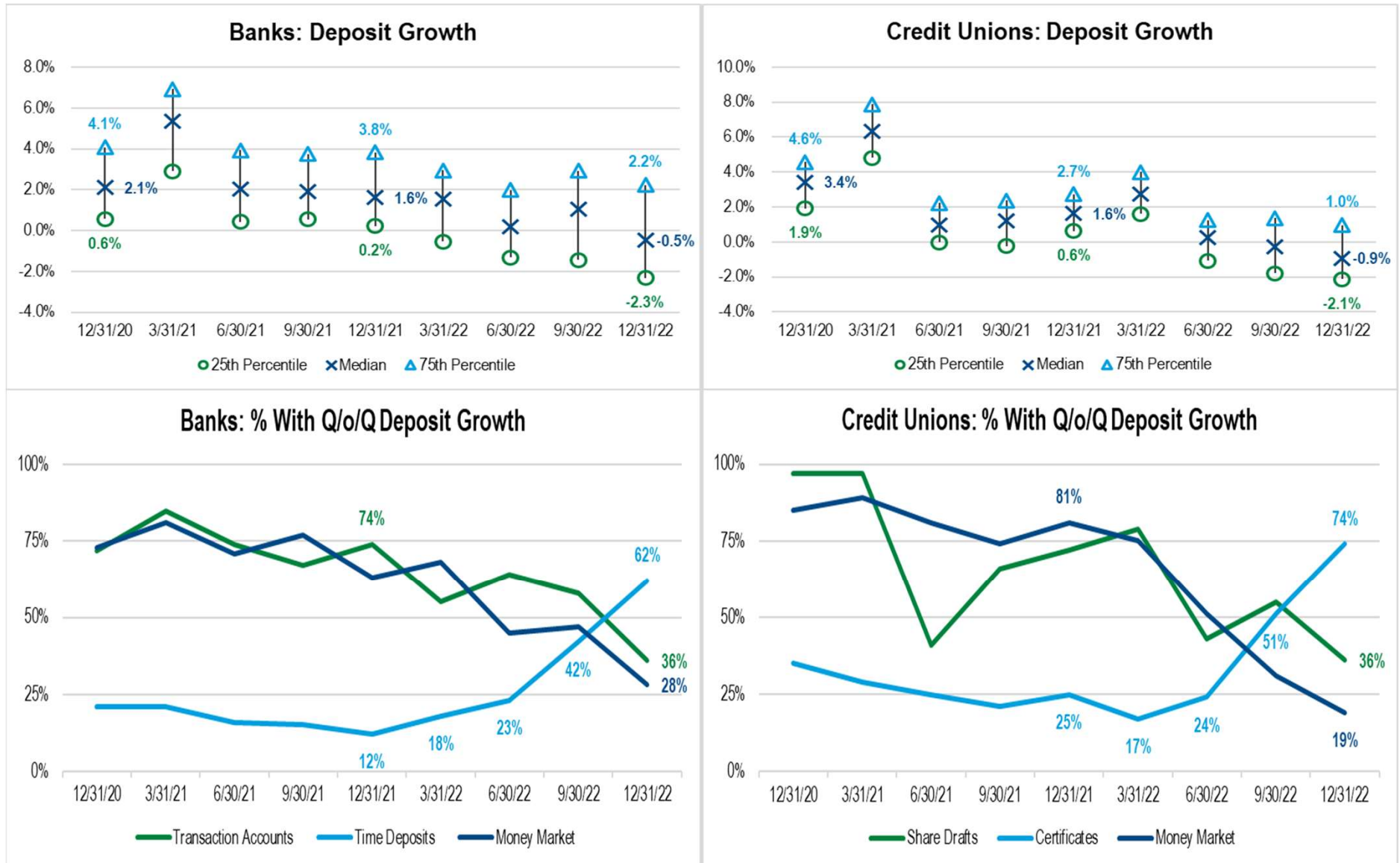


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Where's the Deposit Growth?

Macro headwinds have made deposit gathering (and retention) hard- a reversal of the favorable conditions in 2020-2021.

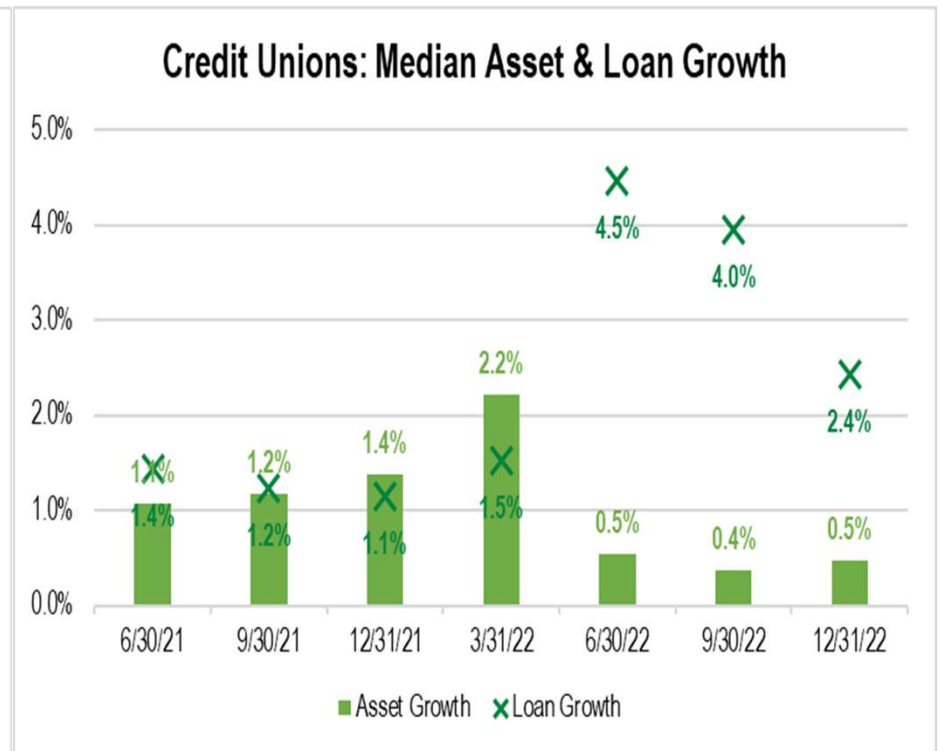
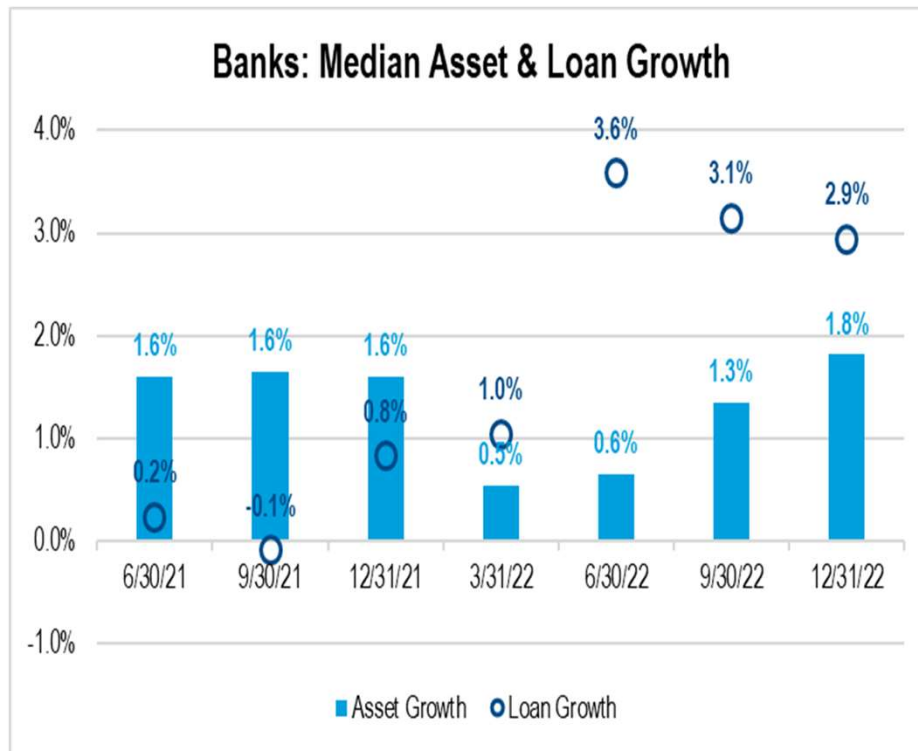


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Are Loans Still Growing?

Loans continue to expand, albeit at a declining rate. The gap relative to asset growth is still wide, and with modest investment cash flows and a challenging climate for deposit gathering, wholesale funding has plugged the gap.



% of Banks with Q/o/Q Growth	Total Loans	CRE	C&I	Mortgage
	89%	71%	60%	88%

% of Credit Unions with Q/o/Q Growth	Total Loans	Auto Loans	Home Equity	Mortgage
	86%	70%	88%	61%

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Source: S&P Global, FHLBank Boston

NIM Changes

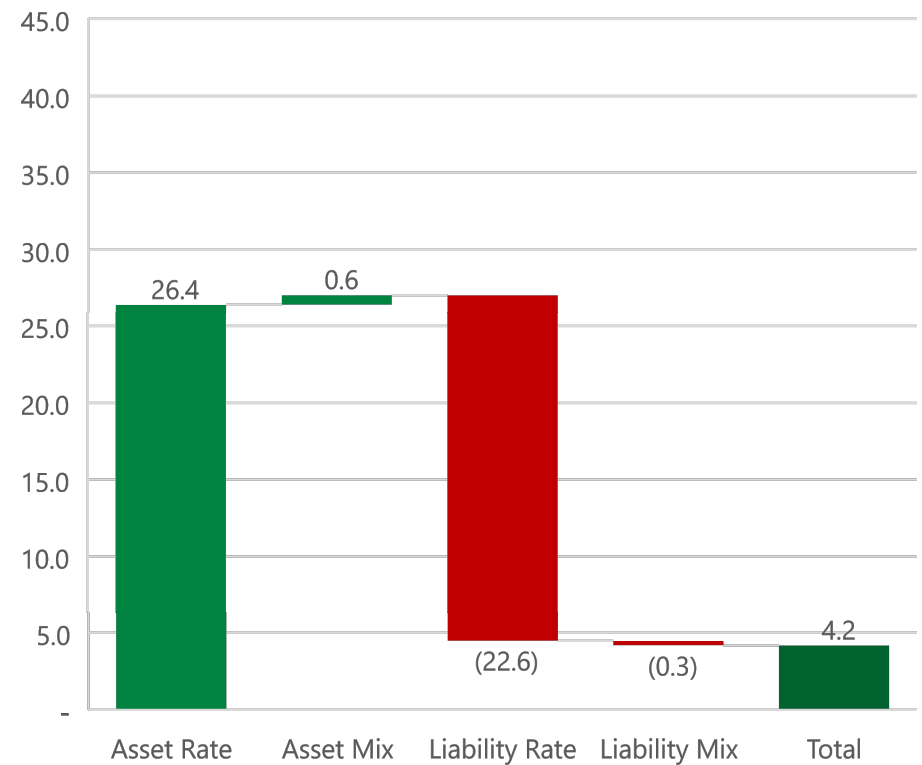
As has been the case in the rising rate cycle so far, both banks and credit unions had similar overall results on NIM for the quarter, increasing by 4.8 bps and 4.2 bps respectively.

Banks, however, have assets that are repricing faster than credit unions and they are being more aggressive with raising deposit rates likely as a result.

Bank NIM Change Estimate, QoQ (bps)



Credit Union NIM Change Estimate, QoQ (bps)



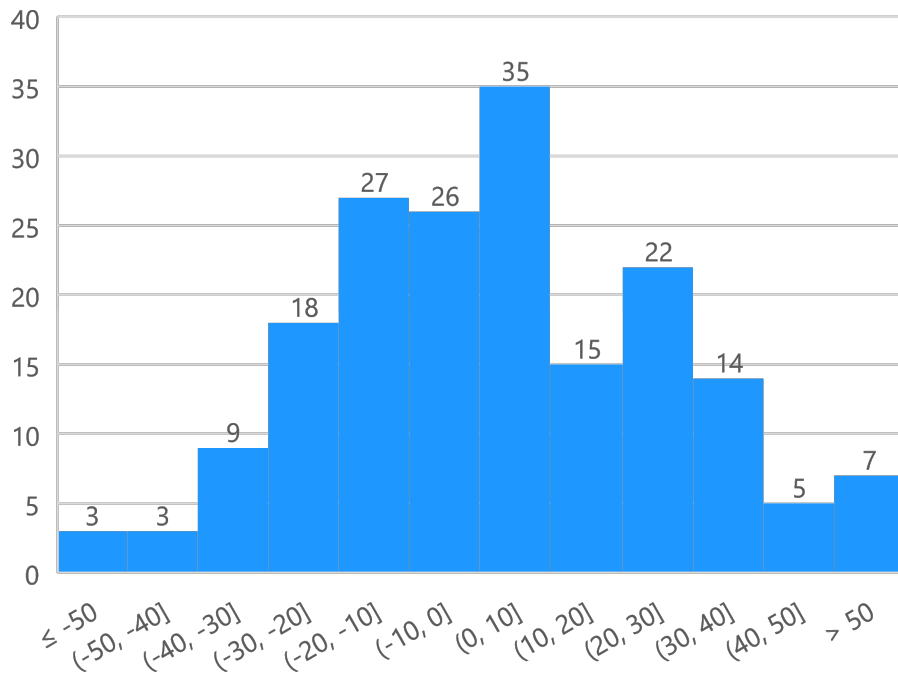
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4Q22 NIM Statistics

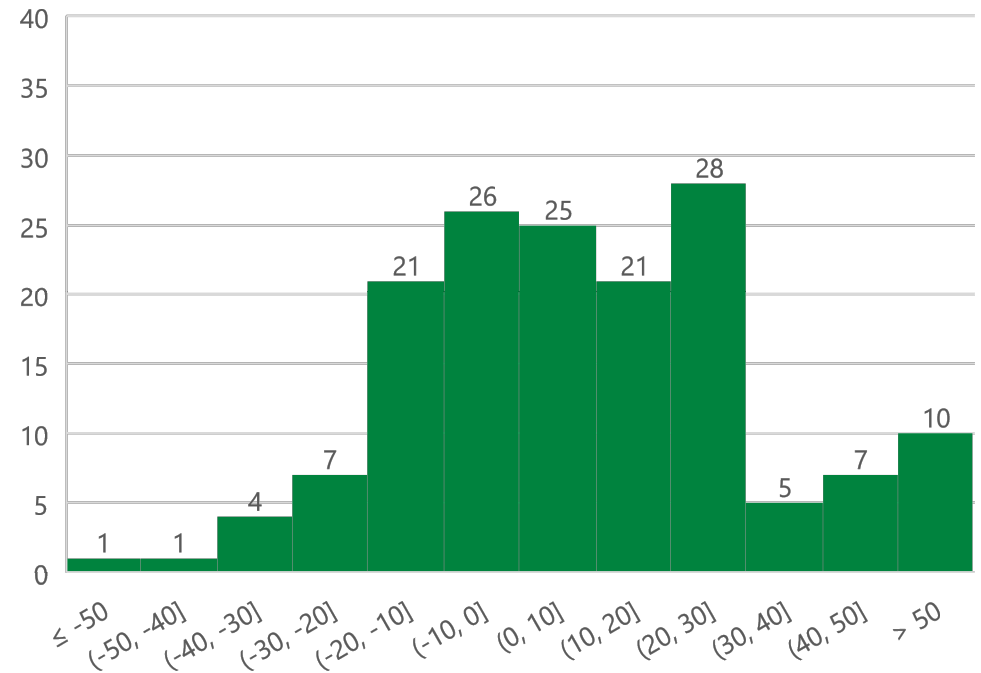
Unlike recent quarters in which the overwhelming majority of depositories saw NIM expansion, this quarter bore witness to a wider range of outcomes. While most still saw improvement in margins, 33% of banks and 21% of credit unions saw NIM contraction >10 bps.

Member Bank NIM Change QoQ



Highest (bps)	125	# of Increases	99	54%
Lowest (bps)	-155	# of Decreases	83	45%
Median (bps)	2	# of Unchanged	2	1%
WA Mean (bps)	5	Total	184	100%

Member Credit Union NIM Change QoQ



Highest	488	# of Increases	96	62%
Lowest	-74	# of Decreases	58	37%
Median (bps)	7	# of Unchanged	2	1%
WA Mean (bps)	5	Total	156	100%

Histogram is all members <\$250 Billion in Assets
WA Mean is all members <\$100 Billion in Assets

Source: S&P Global, FHLBank Boston

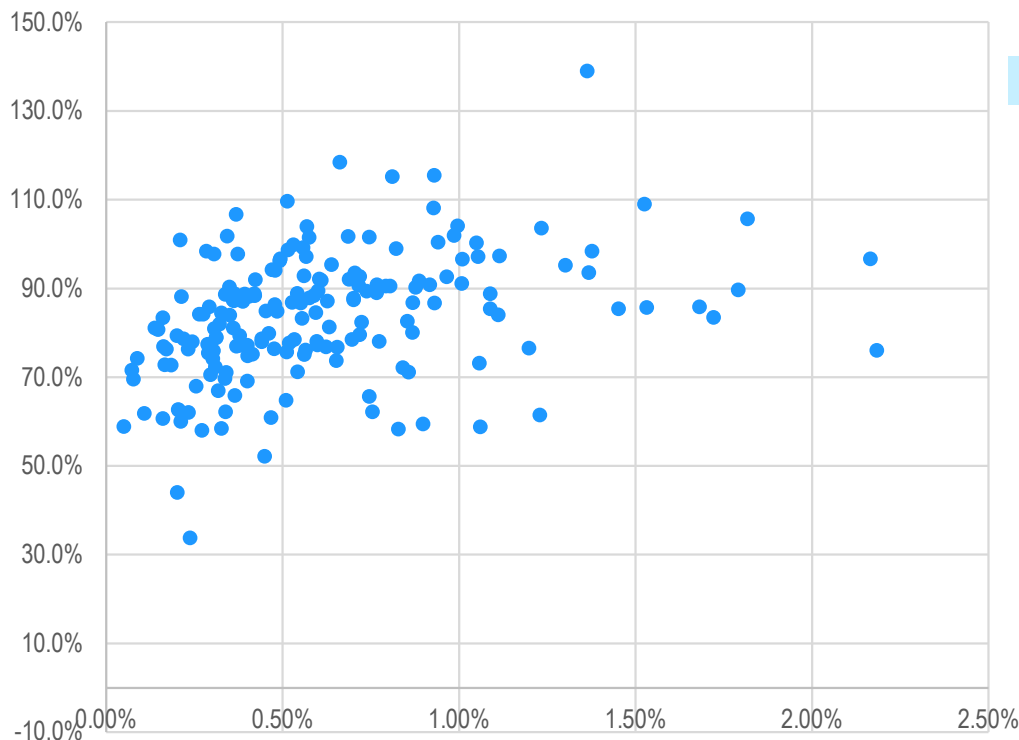
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Bank Deposit Costs by Geography, Liquidity

Bank deposit costs seem to be most correlated with loan yield changes and with liquidity pressures. If a bank is more asset-sensitive and is trying to grow loans, it will pay more on deposits.

Rhode Island has the highest funding costs in New England.

Bank Loans/Deposits vs. Deposit Cost



	Deposit Cost	Loans/Deposits	No of Banks
MA	0.636%	84.6%	97
RI	0.961%	91.0%	8
CT	0.595%	78.9%	29
VT	0.334%	74.2%	11
NH	0.541%	90.1%	14
ME	0.809%	81.7%	23

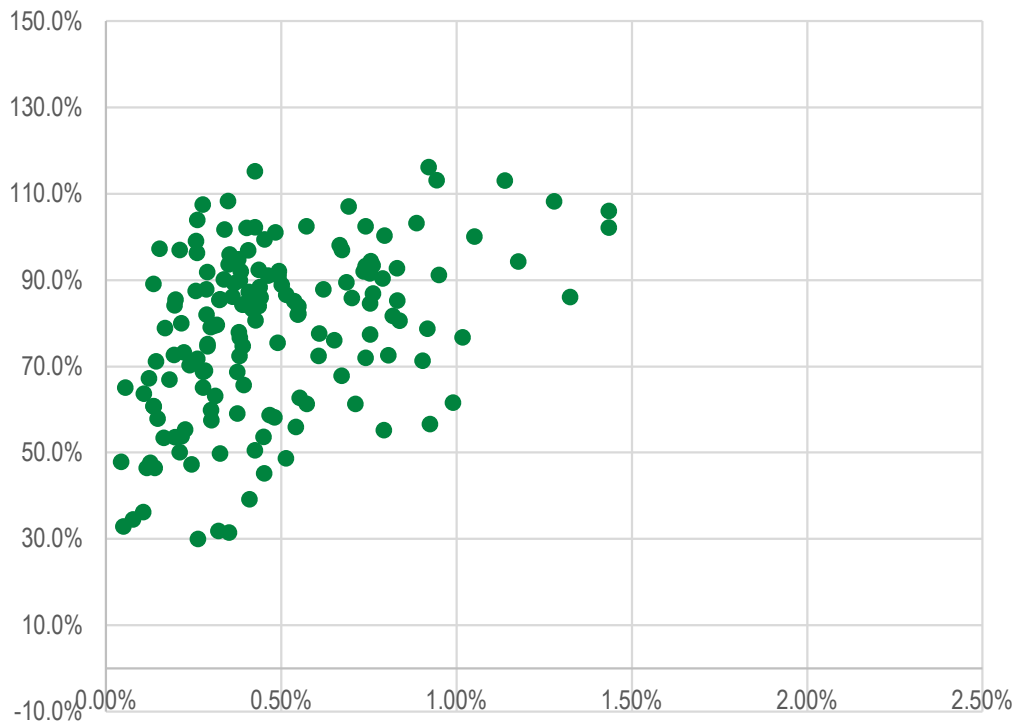
Correlation of Cost + Size = 0.05
 Correlation by Cost + Loans/Deposits = 0.35
 Correlation by Cost + Avg Loan \$ Chg = 0.26
 Correlation by Cost + Loan Yield Chg = 0.36

Credit Union Shares Costs by Geography, Liquidity

Credit Union liquidity is slightly more correlated with shares cost. Shares cost is lower and exhibits greater central tendency than bank deposit costs.

Again, Rhode Island has the highest costs.

Credit Union Loans/Shares vs. Shares Cost



	Shares Cost	Loans/Shares	No of CUs
MA	0.564%	91.5%	74
RI	0.943%	100.5%	7
CT	0.423%	77.7%	23
VT	0.524%	87.1%	7
NH	0.540%	87.5%	9
ME	0.562%	77.9%	34

Correlation of Cost + Size = 0.21
 Correlation by Cost + Loans/Shares = 0.42

Deposit/Shares Changes

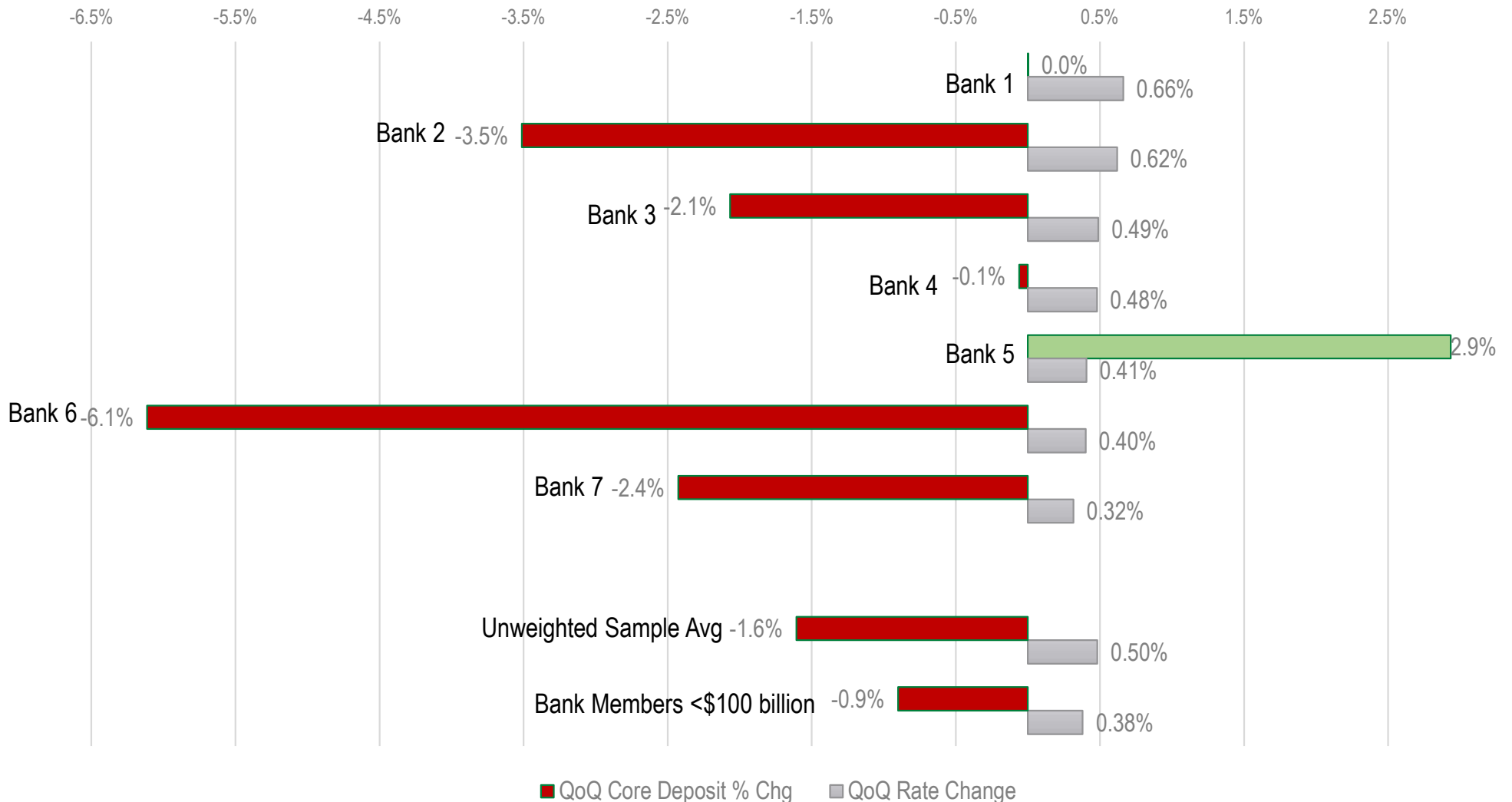
While headline deposits increased at banks, core deposits (all deposits x-brokered and listing) were down by 1.3%. Credit Unions fared slightly better with growth of 1.2%.

Banks <\$100 Billion				
	3Q22	4Q22	Change	% Change
Total Deposits	315,982,804	318,551,531	2,568,727	0.8%
Brokered + Listing	9,046,052	15,616,531	6,570,479	72.6%
Core Deposits	306,936,752	302,935,000	-4,001,752	-1.3%

Credit Unions				
	3Q22	4Q22	Change	% Change
Total Shares	83,395,234	84,550,003	1,154,769	1.4%
Non-Member Deposits	682,324	826,510	144,186	21.1%
Core Shares	82,712,910	83,723,493	1,010,583	1.2%

Are Deposit Rate Specials Working?

A sample of seven larger member banks that post higher deposit rate products online reveals that paying more hasn't led to core deposit growth. In fact, on average, these institutions paid more for worse core deposit growth than other members.

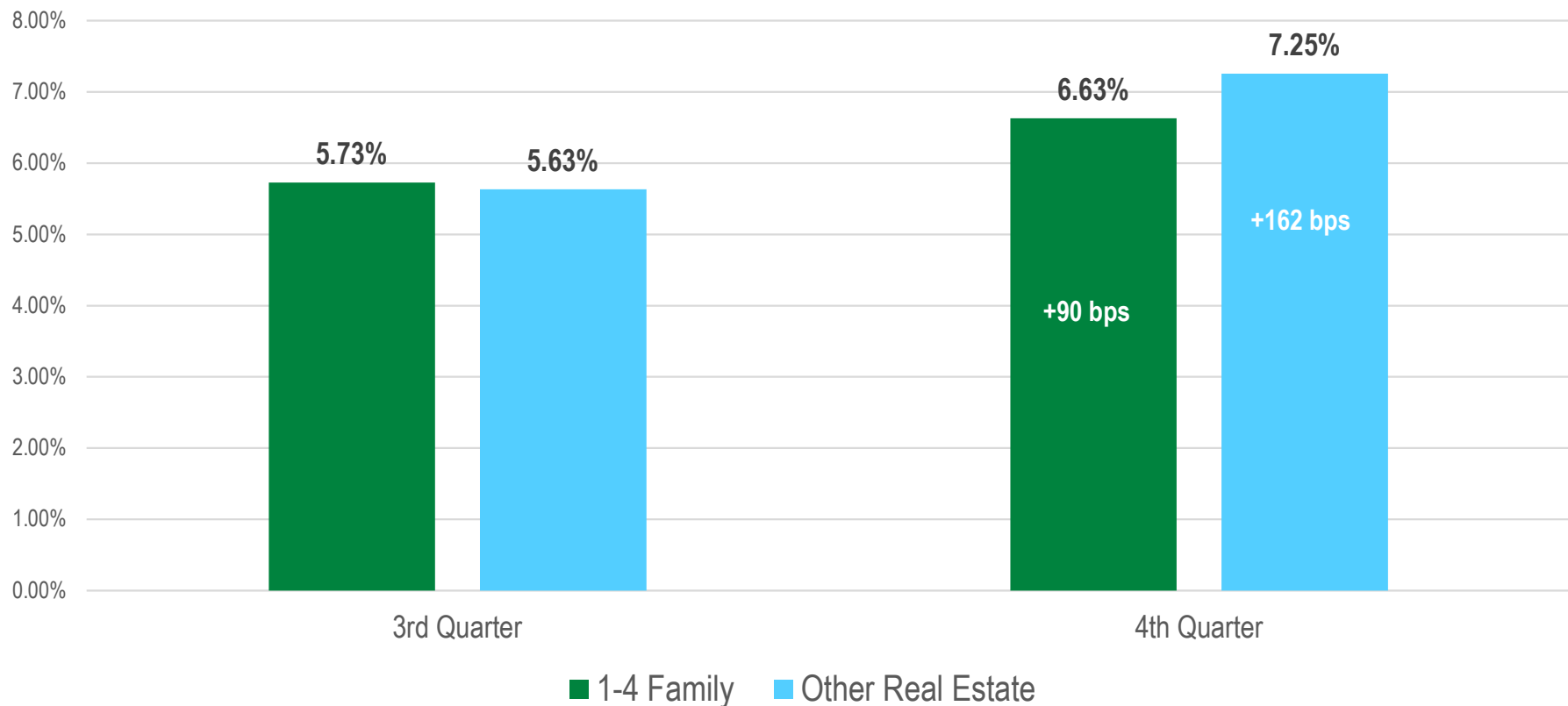


Implied Lending Pricing

Lending pricing likely reverted to a more normalized pattern this quarter in which residential loans were generally priced lower than other real estate loans.

Residential loan pricing is estimated to have increased 90 bps while pricing is estimated to have increased 162 bps on other real estate loans.

Implied Lending Rates, QoQ



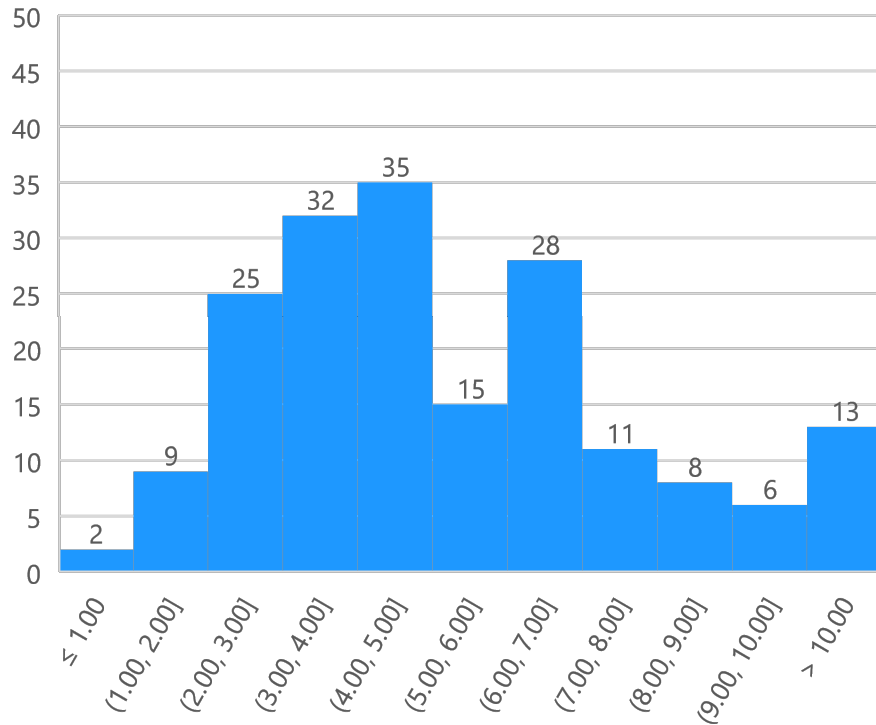
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Source: S&P Global, FHLBank Boston

Excess Capital

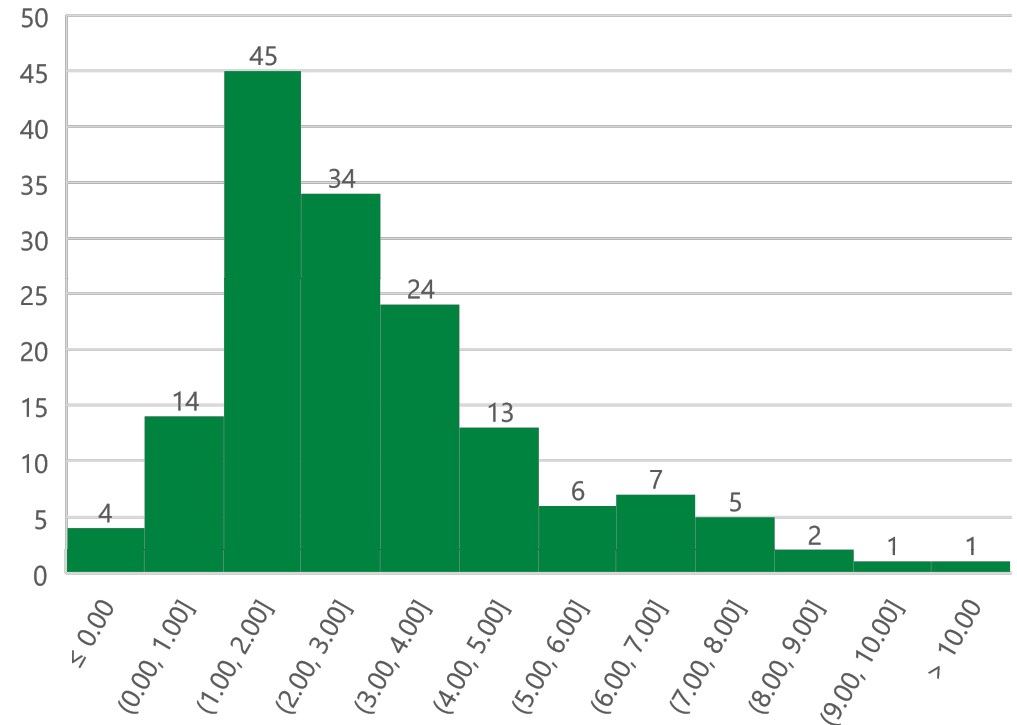
Although depositories may be subject to multiple capital ratio or net worth assessments depending upon size and management decisions, one of these regulatory ratios will necessarily be closest to regulatory limits than the others.

Excess Capital to “Well” Limiting Ratio, Banks 4Q22



Limiting Ratio	No. of Banks
CBLR	55
Tier 1 Leverage	62
Total Capital	67

Excess Capital to “Well” Limiting Ratio, Credit Unions 4Q22



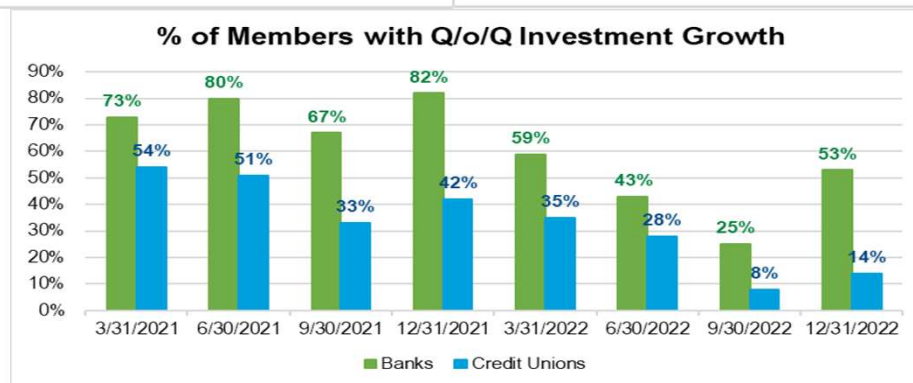
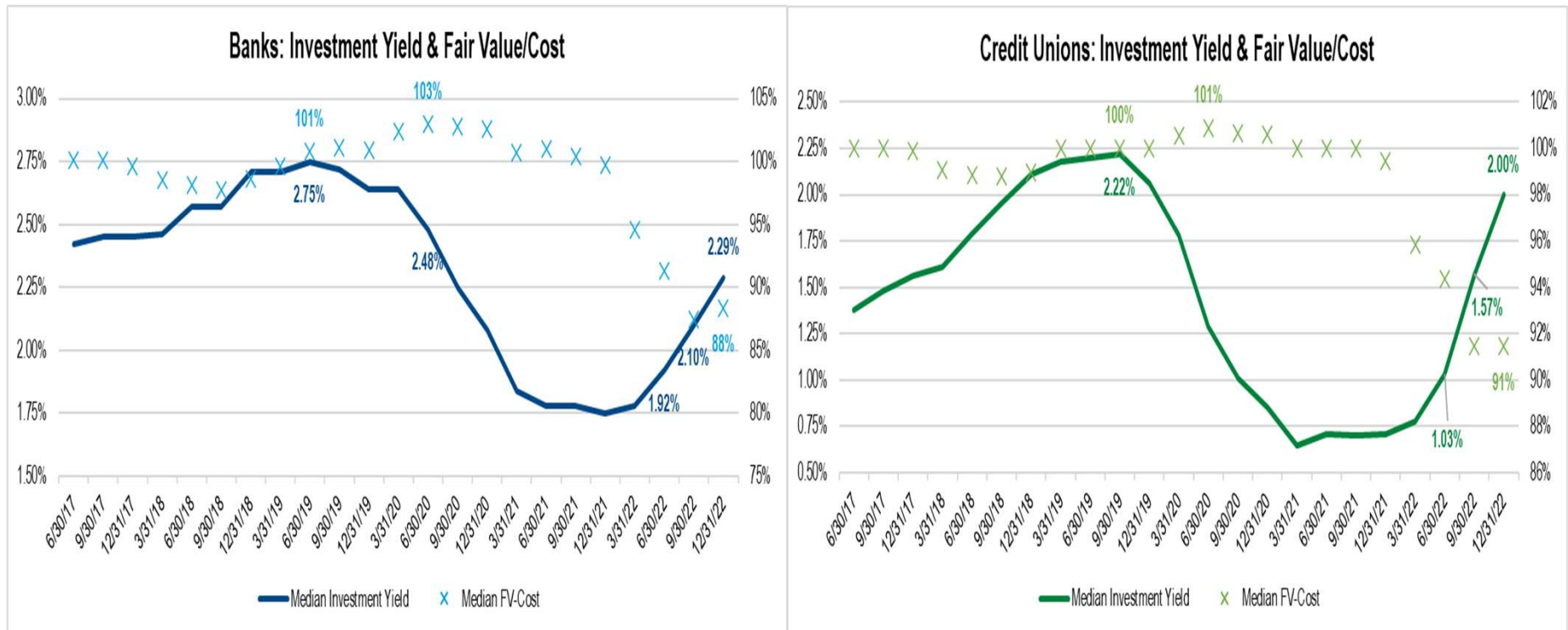
Limiting Ratio	No. of Credit Unions
Net Worth Ratio	104
CCULR	26
Total Capital	26

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Source: S&P Global, FHLBank Boston

Investment Yields & Structure

Cash flows remain slow, but the gap between cost basis and reinvestment yields has book yields approaching 2018-19 highs. Lower market values creates "air pocket" for prepays, and the dynamic of a portfolio within the portfolio.



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Source: S&P Global, FHLBank Boston

Balance Sheet Strategies



Balance Sheet Strategies

- Asset Opportunities
- Efficiently Bringing in the Marginal Dollar of Funding
- Wholesale Funding to Meet the Balance Sheet's Needs

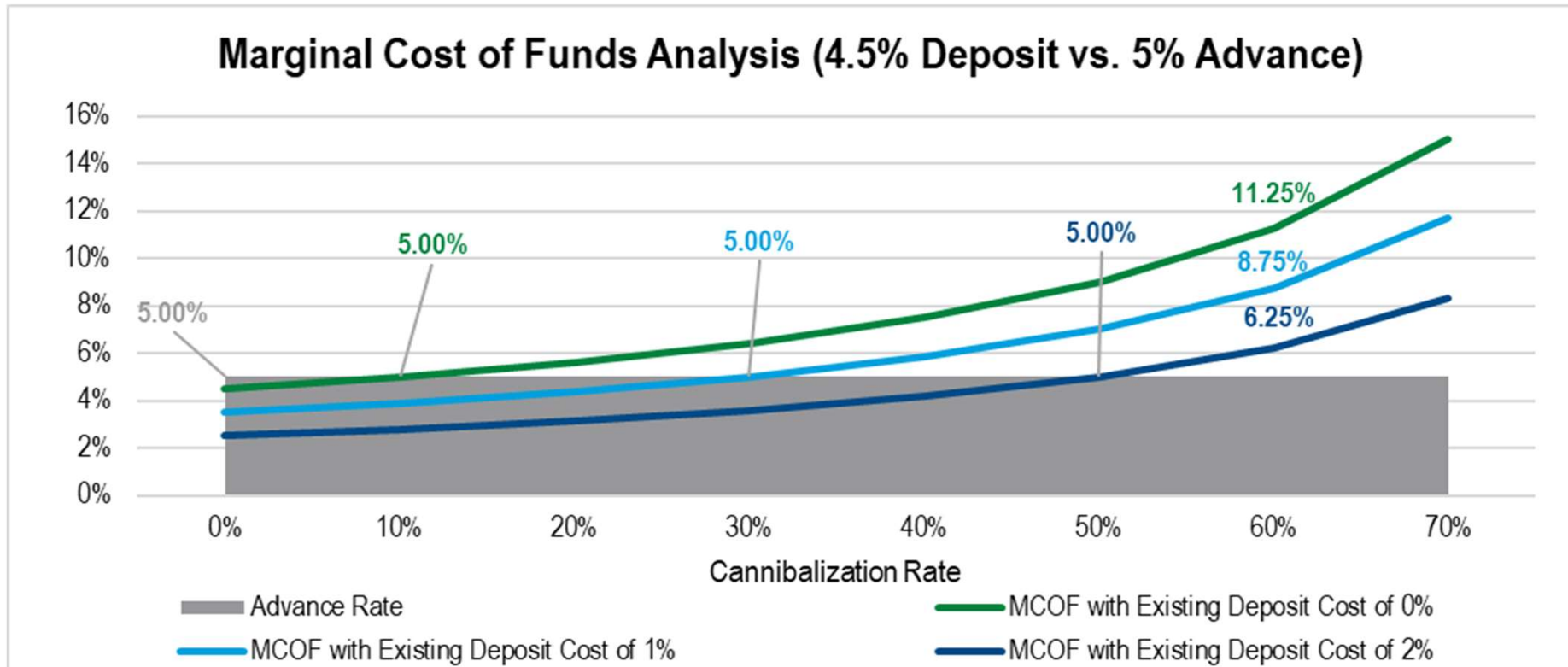
Asset Opportunities

Yield curve inversion, declining liquidity and a challenging climate for deposit gathering puts more and more pressure on asset allocation decisions.



Art & Science: Marginal Cost of Funds

What is the right price for deposits? If part of the money is flowing *from* existing low-cost accounts, then the true cost of the incremental funding can be **much** higher than the stated rate.



How Much Cannibalization Can You Withstand?

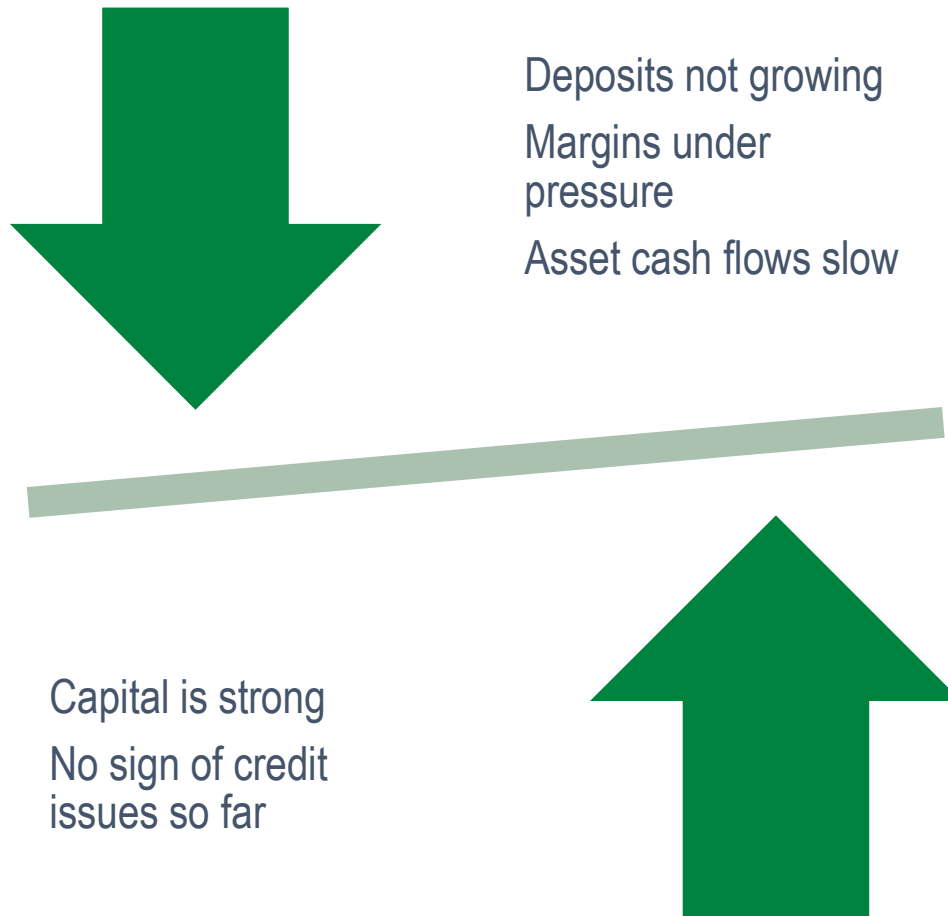
Existing Deposits at 0%? = ~10%

Existing Deposits at 1%? = ~30%

Existing Deposits at 2%? = ~50%

Balance Sheet Strategies

Advances are useful in efficiently addressing shifting return and risk needs across the balance sheet.



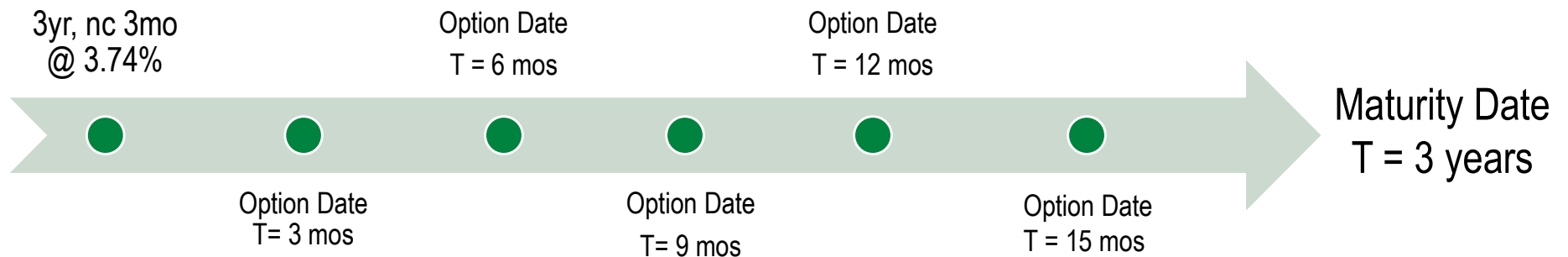
Solution

- Stem deposit outflows/grow with advances
 - Growth can offset shrinking margins
- Find structures that reduce margin pressure while targeting risk tolerance
 - HLB Options
 - Forward-starting

HLB-Option Advance

Member institutions take funding at a fixed rate and sell FHLBank Boston the option to call the advance on a specific date or series of dates after an initial lockout period.

HLB Option structures can be customized for a wide variety of terms and lockouts.



Features			
Fixed or Floating?	Fixed	Prepayable, Callable?	Yes, four business days notice
Available Maturity	Variety, likely 10 years max	Call Frequency	Default of 3 months, could be negotiated
Available Lockouts	Variety, minimum of 3 months	Minimum Size	\$2,000,000
Interest Paid	Second business day	Availability	Any time, variety of structures
Principal Paid	At call date or maturity date	Settlement	Two days forward

HLB-Option Advance

By selling the option, the fixed rate on an HLB Option advance is net lower than equivalently termed bullets for the lockout period.

HLB Option Advance Indicative Pricing*

		MATURITY					
		24	36	48	60	84	120
L O C K O U T	3	4.35%	3.82%	3.59%	3.35%	3.06%	2.93%
	6	4.58%	4.03%	3.70%	3.45%	3.23%	3.11%
	12	4.74%	4.18%	3.91%	3.66%	3.46%	3.23%
	24		4.42%		3.91%	3.64%	3.39%
	36				4.03%	3.74%	3.65%
	48					4.02%	3.88%
	60						3.97%

Spread to Bullet (Lockout)*

		MATURITY					
		24	36	48	60	84	120
L O C K O U T	3	-0.69%	-1.22%	-1.45%	-1.69%	-1.98%	-2.11%
	6	-0.59%	-1.14%	-1.47%	-1.72%	-1.94%	-2.06%
	12	-0.42%	-0.98%	-1.25%	-1.50%	-1.70%	-1.93%
	24		-0.40%		-0.91%	-1.18%	-1.43%
	36				-0.44%	-0.73%	-0.82%
	48					-0.31%	-0.45%
	60						-0.25%

- By selling options, members taking this advance most fully benefit if rates are static and volatility is low
- HLB Option advances have a highly similar option risk profile to a residential mortgage

- Structures with shorter lockouts and longer maturities have lower fixed pricing because more options are sold
- Likely the worst-case scenario for these advances is a sudden decline in rates resulting in the advance remaining at then above-market rates

*Indicative pricing only as of 2/13/23; all pricing is subject to change and rates and spreads are not guaranteed

Discount Note Auction-Floater Advance

Asset sensitive but liquidity light, with uncertain wholesale funding needs? Floating-rate advances can help align interest-rate risk and liquidity risk needs.

Long-term liquidity

- Final maturities of >1 year are more supportive of liquidity metrics as compared to rolling <1-month funding

Short-term rate exposure

- All-in rate adjusts every 4 weeks; spread is fixed at initiation, and the index is highly correlated with other short-term rate instruments like SOFR, T-bills, etc.

Prepayment flexibility

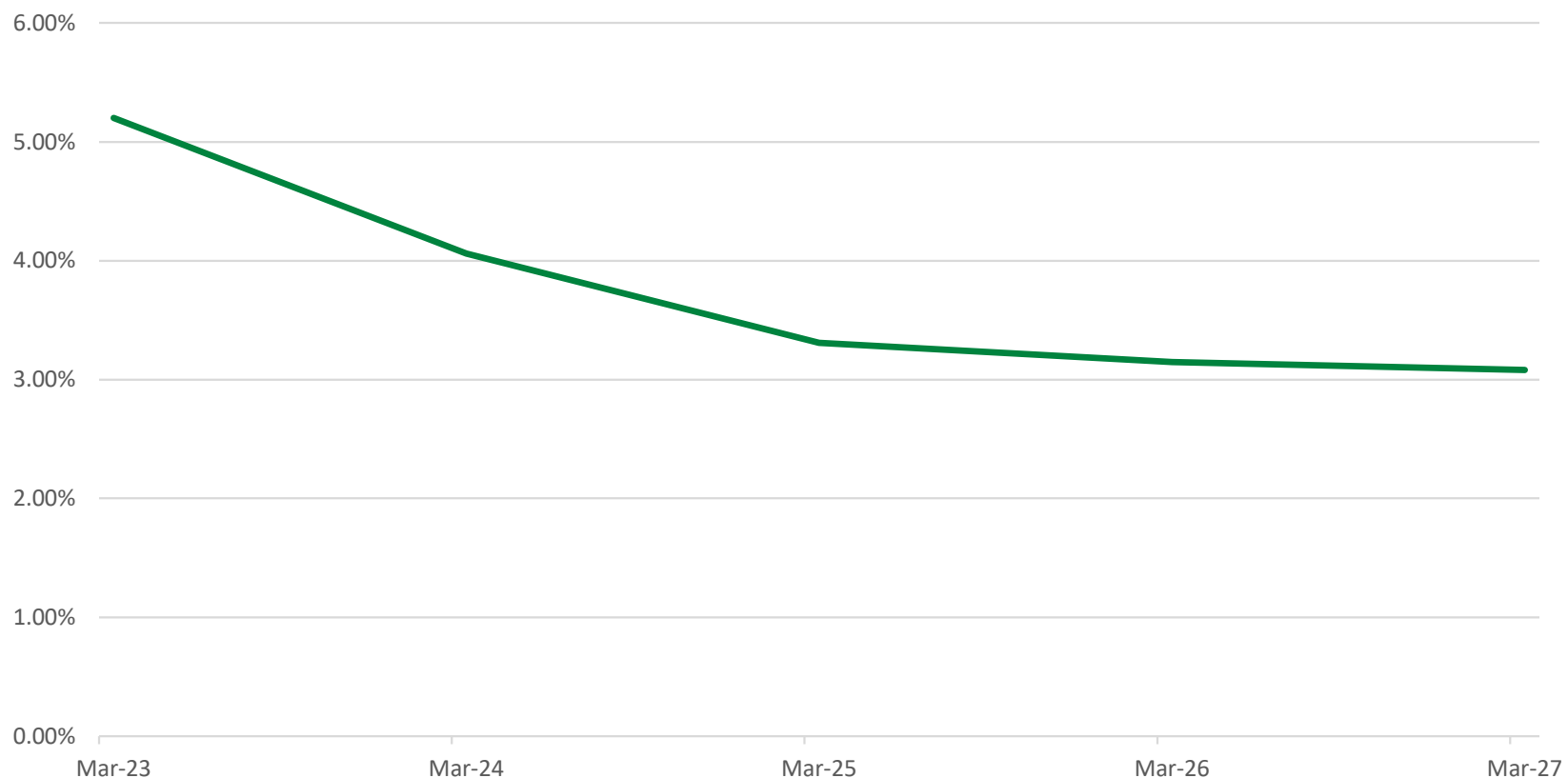
- Member can prepay in full or part at every rate reset, with no prepayment penalty

Structure	DN Index	Spread	Initial All-in Rate (as of 2/9/23)	Rate vs. 1-mo Classic (4.83%)	Rate vs. Matched Maturity Classic
1-year maturity, 4-week reset	4.52%	0.25%	4.77%	-0.06%	-0.38% (1yr @ 5.15%)
2-year maturity, 4-week reset	4.52%	0.30%	4.82%	-0.01%	+0.08% (2yr @ 4.74%)

Implied Path of Short-Term Rates

The yield curve has been inverted since this past summer. Below is the implied path of 1-year SOFR. The market is pricing in the upper end of Fed Funds peaking at either 5.25% or 5.50% in 2Q after two or three more 25 bps hikes. The first cut is now not expected until next winter.

Implied term SOFR bottoms at approximately 3.00% in early 2026.

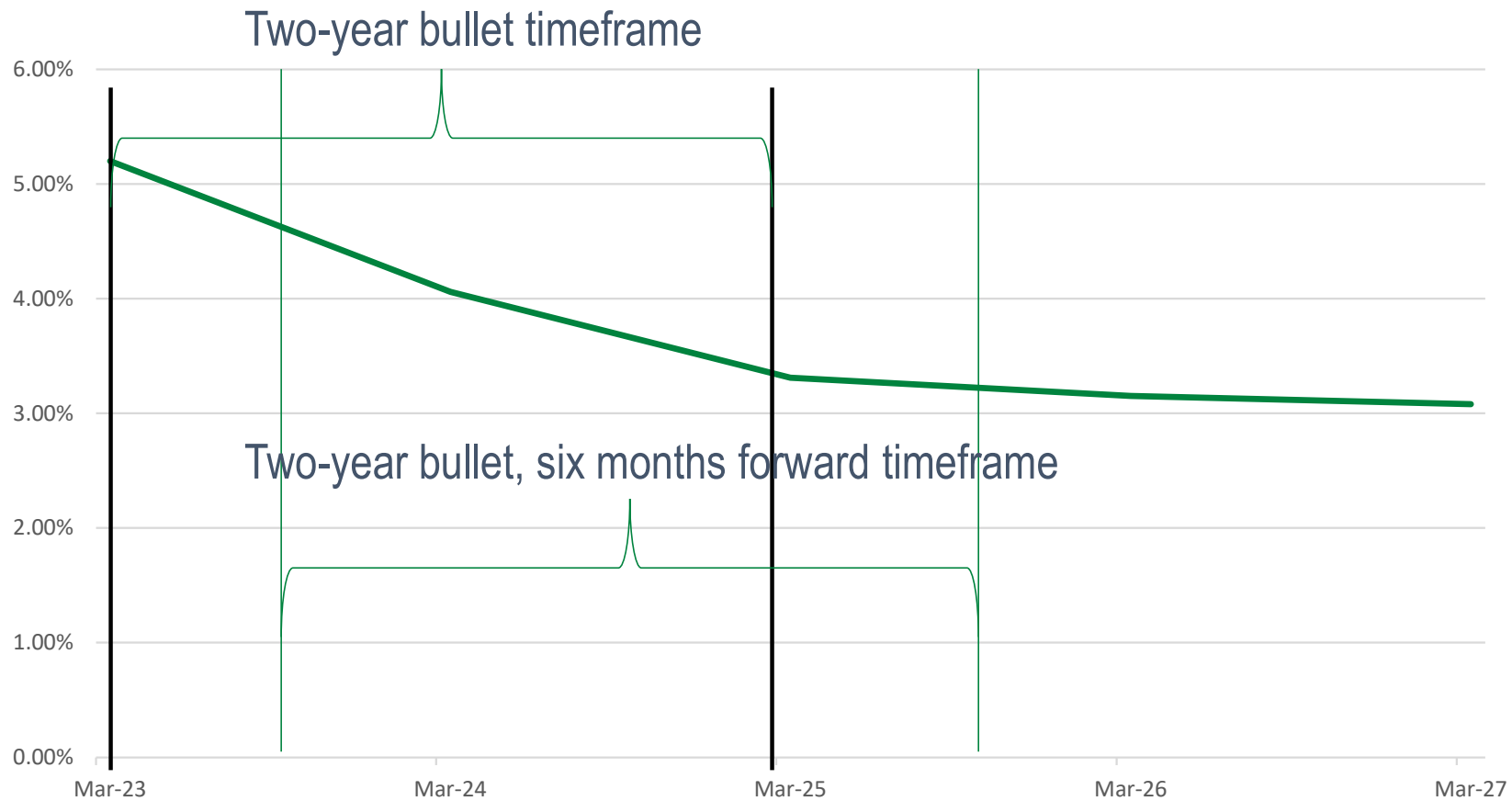


Source: Eris Innovations, FHLBank Boston

Forward Starting Advances

Because of the inverted curve, forward-starting advances generally have rates that are lower than spot rates. If funding is likely to be needed in the future, moving the timeframe of the outstanding advance into the period when the market is pricing in rate cuts will reduce the cost of the borrowing relative to straight bullets.

A two-year advance six months forward is approximately 37 bps cheaper than the bullet and a two-year advance one year forward is approximately 72 bps cheaper than the bullet.

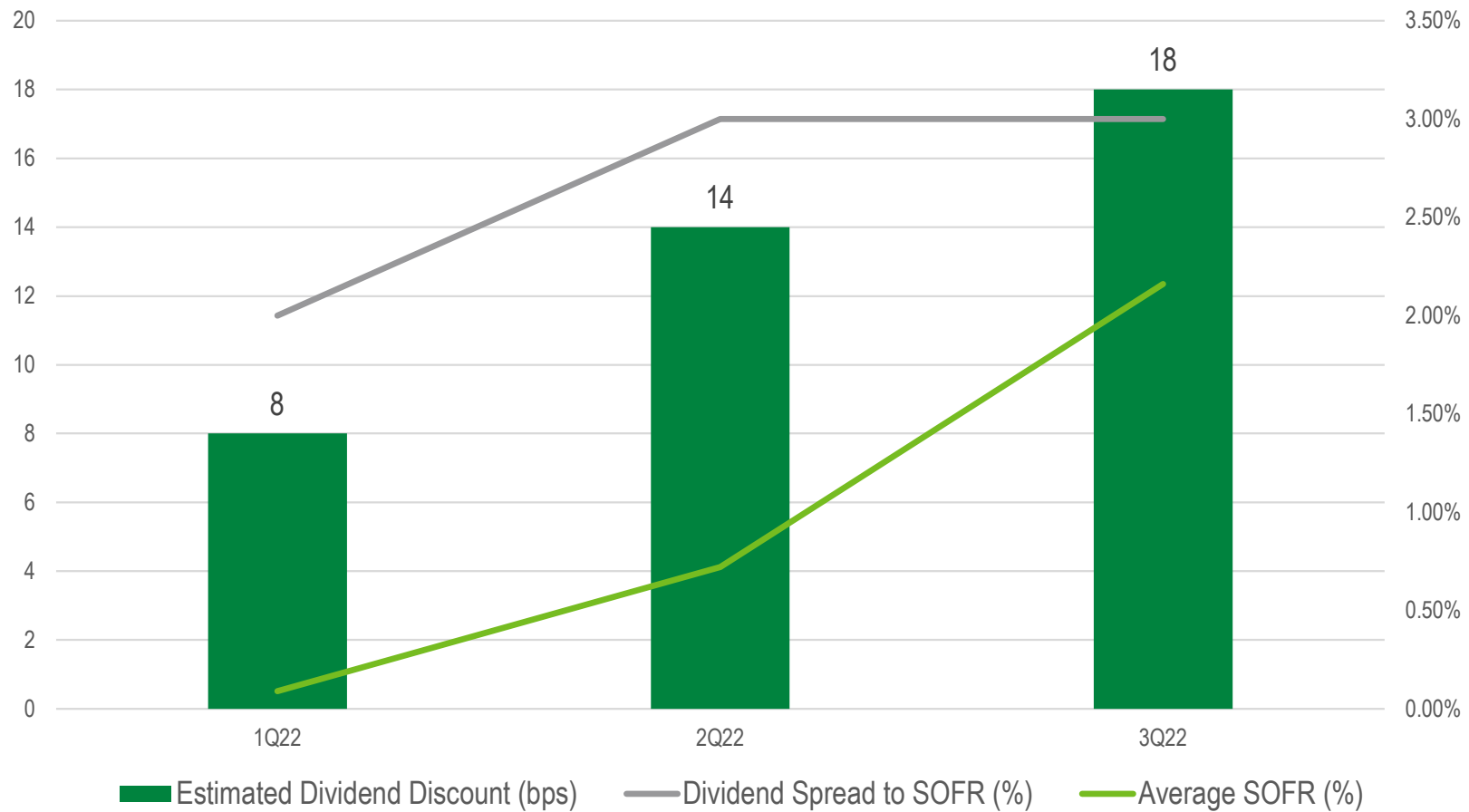


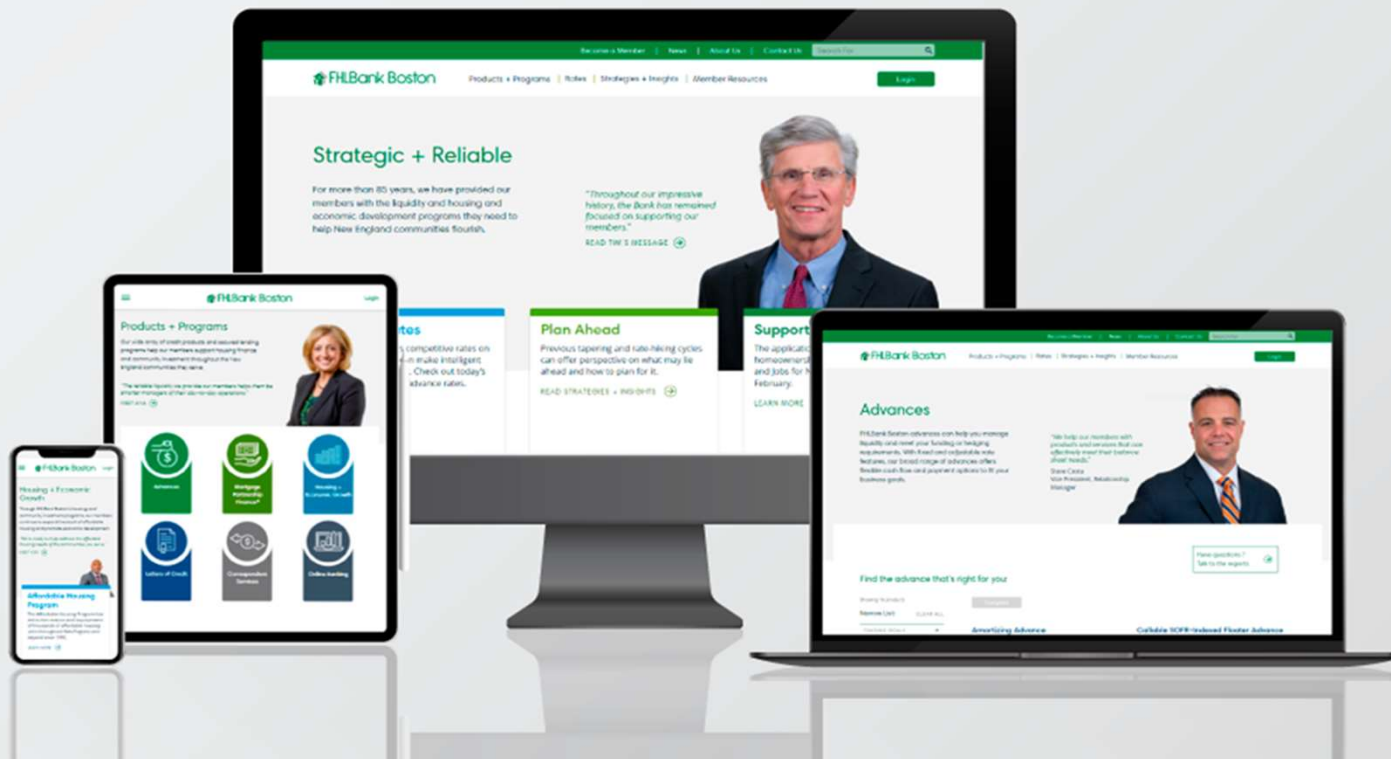
Source: Eris Innovations, FHLBank Boston

Value of Dividends

As short-term rates rise, FHLBank Boston dividends have increased.

The estimated value of those dividends relative to advance rates has also increased, reducing the overall effective cost of borrowing.





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