ALM & Funding Strategies for the Current Environment

FHLBank Boston
Strategic partnerships. Reliable funding.

June 28, 2023

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Presenters

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Overview

- The 30,000 Foot View
- Deposit Strategies
- Lending & Mortgage Considerations
- Investment Tactics
- Thoughts on Wholesale Funding

The 30,000 Foot View

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Big Picture Considerations

How do we reconcile capital market conditions, the state of our balance sheet and the ALM levers we decide to pull?

- What's next for short-term rates?
- What stage of the credit cycle are we in?
- Any glimmers of hope on deposit growth and cost?
- Wholesale portfolios keep gaining in importance
- Pain points & fighting the last war vs. the next one

Deposit Valuation Methods & Management Strategies

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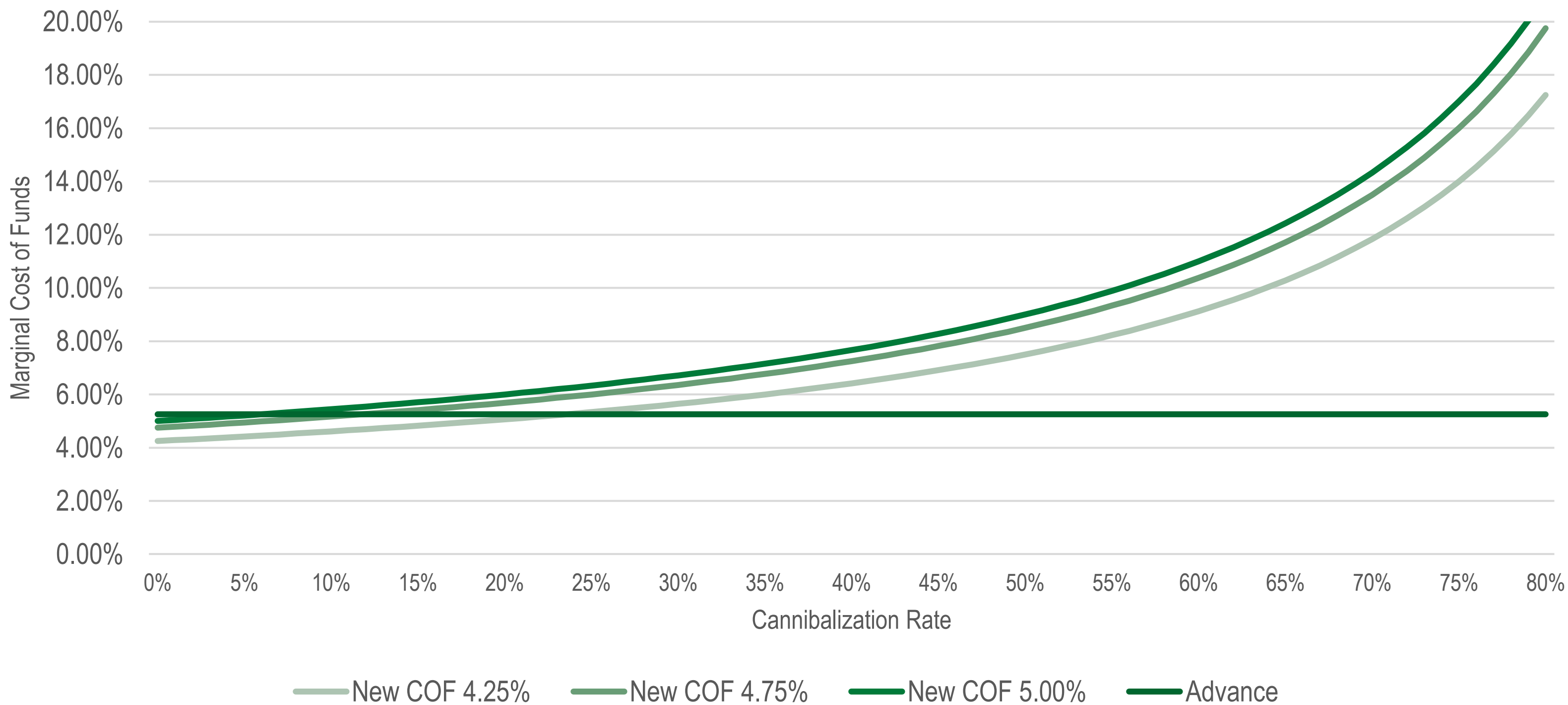
Marginal Cost of Funds



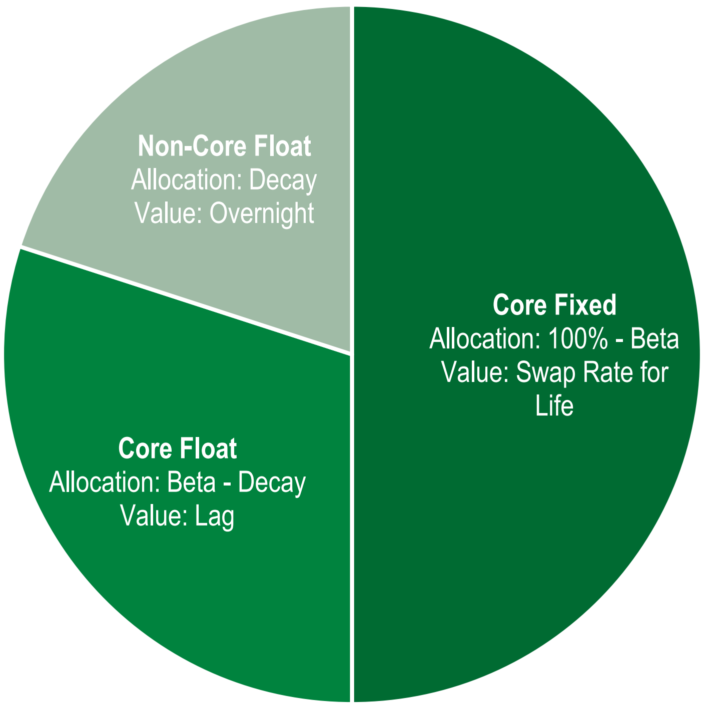
New Deposit Rate	5.00%
Existing Cost of Funds	1.00%
Cannibalization Rate	33%
Effective Existing Deposit Markup	6.00%
Marginal Cost of Funds	7.00%

- Introducing a new product that cannibalizes existing balances results in much higher economic costs than the nominal interest rate offered ("marginal cost of funds")
- At left, a specific example is estimated
- Above, the curve of that marginal cost of funds is plotted over increasing cannibalization rates; the black line represents the cost of a short-term advance, so points on the curve above that line are inefficient

Source: FHLBank Boston

Deposit Valuation Overview

Even though non-maturity deposits do not have a contractual interest rate or a defined term, ALM assumptions can be used to make good estimates of their economic value in a way that's similar to bond valuations.



- **Non-Core Float** balances are short-term and volatile
- **Core Fixed** balances are implied to be long-term and not volatile
- **Core Float** balances are price-sensitive and are not volatile if paid in a reasonable timeframe
  - All balances are then given a liquidity premium to recognize their value over wholesale

Deposit Valuation Overview

With higher rates, low cost and insensitive deposits look very attractive.

Deposit Type	Ultimate Rate	Beta	Lag	Decay	Life	Net Op Costs	Profitability	Lifetime Value
DDA/Draft Shares	0.00%	0%	n/a	14%	7.1	0.25%	4.31%	23.91%
NOW/Draft Shares	1.50%	20%	4	14%	7.1	0.20%	2.96%	16.43%
Savings/Regular Shares	2.90%	50%	3	20%	5.0	0.15%	1.92%	7.98%
MMDA/Regular Shares	3.50%	60%	3	20%	5.0	0.15%	1.47%	6.11%
High Cost	4.75%	85%	1	40%	2.5	0.15%	0.53%	1.20%

- It's reasonable to think of deposit "profitability" as being similar to a loan spread with much higher option risk, but no credit risk
- For many depositories, non-interest-bearing transaction accounts have lifetime values 3x – 4x of higher-paying maturity products

Source: FHLBank Boston

Deposit Valuation Overview

Training deposit clients to be price-sensitive has the potential to significantly reduce franchise value.

Deposit Type	Ultimate Rate	Beta	Lag	Decay	Life	Net Op Costs	Profitability	Lifetime Value
DDA	0.00%	0%	n/a	20%	5.0	0.25%	4.26%	17.73%
NOW	1.25%	20%	4	21%	4.8	0.20%	3.19%	12.87%
Savings	2.00%	30%	3	20%	5.0	0.15%	2.51%	10.45%
MMDA	3.00%	50%	3	27%	3.7	0.15%	1.93%	6.20%
High Cost	4.80%	80%	1	40%	2.5	0.15%	0.46%	1.03%

Deposit Type	Ultimate Rate	Beta	Lag	Decay	Life	Net Op Costs	Profitability	Lifetime Value
DDA	0.00%	0%	n/a	25%	4.0	0.25%	4.44%	15.21%
NOW	1.75%	30%	4	25%	4.0	0.20%	2.80%	9.61%
Savings	3.00%	50%	3	33%	3.0	0.15%	1.92%	5.10%
MMDA	4.00%	75%	3	40%	2.5	0.15%	1.29%	2.90%
High Cost	5.00%	90%	1	60%	1.7	0.15%	0.32%	0.50%

	Difference	
DDA	0.18%	-2.52%
NOW	-0.39%	-3.26%
Savings	-0.59%	-5.35%
MMDA	-0.64%	-3.30%
High Cost	-0.14%	-0.53%

Source: FHLBank Boston

Deposit Strategies Overview

	Super Product	CD Specials	Exceptions	Rack Rates	Off-B/S, Sweep
Benefits	**Lighter administration**, can produce **more volume** more quickly	Funds likely to be **stickier** for term, can raise **more volume** more quickly	High pricing discretion; **targets** clients/verticals of **strategic importance**	**Easy** to implement, can help relationship with existing clients	Keeps relationship, provides **fee income**
Drawbacks	High risk of **cannibalization**	Lots of **balances will come due together**, higher administrative burden	High **administrative burden**, risk of **fumbling complex relationships**	Likely the **costliest** solution, allows for no discretion	Balances likely **aren't funding assets**
Observed Practices	Sourcing from different channels, such as online	Capping the amount of one offering, tweaking breakage fees	Becoming nimble with the core system to limit administrative issues	Focus on verticals that are less price-sensitive	Could use external partners or develop internal products

Which Strategy to Use?

Your institution's approach to managing client funding is going to come down to three considerations:

-What is our overall business strategy?

-Who are our client verticals?

-Are we trying to aggressively grow or replace lost funding?

CD Specials, Super Product

- Need to produce more volume now?
- Need an easy-to-implement product?

Exceptions

- More interested in preserving profitability while targeting strategic clients?

Off B/S Sweeps

- Losing clients to non-bank products and investments?

Assessing Strategy Effectiveness

- If the Super Product or CD Special is generating > 15% - 20% cannibalization, consider managing with Exceptions
- If CDs are representing a funding concentration risk, perhaps pivot to a non-maturity strategy
  - ~5% of funding in a single timeframe could be getting outsized
- If total funding in combined Super Product + CD Specials is approaching contingent funding source capacity, consider moderation
- If your cost of funding is rising more aggressively than industry averages, consider the value of finding different client verticals and promoting a value proposition different from rate
  - Convenience
  - Safety
  - Service
  - Related products

Lending & Mortgage Considerations

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Systematically Add Value to Loans

What if there was a way to add 25-100 bps on loan spreads?

Scenarios

Smaller

	Loan Rate Change	0.25%
x	Loans % of B/S	80%
x	Fixed % of Loans	60%
-	Tax Rate	25%
/	Leverage Ratio	9%
	ROE Improvement	**1.0%**

Medium

	Loan Rate Change	0.50%
x	Loans % of B/S	80%
x	Fixed % of Loans	60%
-	Tax Rate	25%
/	Leverage Ratio	9%
	ROE Improvement	**2.0%**

Significant

	Loan Rate Change	1.00%
x	Loans % of B/S	85%
x	Fixed % of Loans	80%
-	Tax Rate	25%
/	Leverage Ratio	9%
	ROE Improvement	**5.7%**

And that method boiled down to modest changes in messaging to clients and staff, plus data collection?

Source: FHLBank Boston

Just How Valuable Are Prepayment Provisions?

When rates are elevated, prepayment provisions could be the most valuable loan term of all.

Term:	5-yr
Amortization:	25-yr
Amount:	$5 million
Loan Index:	FHLB
FHLB Rate:	4.25%
Loan Spread to Index:	2.50%
Loan Rate:	6.75%
Treasury Rate:	4.00%

- At left are terms for a hypothetical loan
- If rates decline two years from now and the borrower elects to take advantage and prepay the loan with no penalty, the value of that loss is estimated below
  - If rates drop **150 bps**, the lender would have **effectively made a 2-yr loan for 4.68%** -- that's below the current 2-yr Treasury at 4.75%

Principal Remaining	Years Remaining	Then Current 3-yr UST	Term Rate Difference	PV of Rate Chg	Dollar PV	Effective Loan Yield
4,875,000	3	3.00%	-1.0%	-2.7%	-132,870	5.39%
4,875,000	3	2.50%	-1.5%	-4.1%	-202,228	4.68%
4,875,000	3	2.00%	-2.0%	-5.6%	-273,612	3.94%
4,875,000	3	1.00%	-3.0%	-8.7%	-422,700	2.41%

Source: FHLBank Boston

Styles of Prepayment Provisions Compared

	Step Down	Yield Maintenance	Rate Make Whole
Description	**Fixed %** applied to principal for remaining term (e.g. 5-4-3-2-1)	PV is calculated relative to **replacing the loan with a US Treasury** for the remaining term	PV is calculated relative to the **underlying index itself** by, essentially, replacing the loan with a similarly priced loan for the remaining term
Benefits	**Easy** to understand, communicate; provides good protection for first 100 bps in rate movements	**Protects lender** from both interest rate changes and sourcing additional loans	**Protects lender** from changes to interest rates
Disadvantages	Provides **poor protection in higher rate environments**	Could be difficult to understand and communicate, can be seen as being **punitive, difficult to sell**	Could be difficult to understand and communicate

Prepayment Styles Quantified

The size of the prepayment as a % of loan balance is estimated under different prepayment scenarios.

If term rates were to drop to any significant degree, the Step Down style will underperform.

Years Remaining	Term Rate Difference	Step Down	Yield Maintenance	Rate Make Whole
4	-1.0%	4.0%	13.3%	3.5%
4	-1.5%	4.0%	15.4%	5.4%
4	-2.0%	4.0%	17.6%	7.3%
4	-3.0%	4.0%	22.1%	11.4%
4	-4.0%	4.0%	27.0%	15.8%
3	-1.0%	3.0%	10.3%	2.7%
3	-1.5%	3.0%	11.8%	4.1%
3	-2.0%	3.0%	13.4%	5.6%
3	-3.0%	3.0%	16.7%	8.7%
3	-4.0%	3.0%	20.3%	11.9%
2	-1.0%	2.0%	7.1%	1.9%
2	-1.5%	2.0%	8.1%	2.8%
2	-2.0%	2.0%	9.1%	3.8%
2	-3.0%	2.0%	11.3%	5.9%
2	-4.0%	2.0%	13.5%	8.0%

Source: FHLBank Boston

Spotlight on Step Down vs. Rate Make Whole

When rates are elevated, prepayment provisions could be the most valuable loan term of all.

Term:	5-yr
Amortization:	25-yr
Loan Index:	FHLB
FHLB Rate:	4.25%
Loan Spread to Index:	2.50%
Loan Rate:	6.75%
Treasury Rate:	4.00%

- The same hypothetical loan from earlier is used to specifically compare what would happen under the Step Down and Rate Make Whole prepayment provision styles
- If term rates were to drop into the low-mid 2s, the Rate Make Whole wins handily

Principal Remaining	Years Remaining	Then Current 3-yr UST	Term Rate Difference	Step Down	Make Whole	Difference	Dollar Difference	Difference, as Eff Yield
4,875,000	3	3.00%	-1.0%	3.0%	2.7%	-0.3%	-13,380	-0.14%
4,875,000	3	2.50%	-1.5%	3.0%	4.1%	1.1%	55,978	0.57%
4,875,000	3	2.00%	-2.0%	3.0%	5.6%	2.6%	127,362	1.31%
4,875,000	3	1.00%	-3.0%	3.0%	8.7%	5.7%	276,450	2.84%

Source: FHLBank Boston

Rate Make Whole Takeaways

- **When rates are up, prepayment provisions are a key** – if not *the* key – economic lending term to be negotiated

- **Consider ways to communicate this value to lenders -- and to borrowers**
  - Rate Make Whole is plain not punitive but equitable to the lender for providing long-term interest rate certainty to the borrower
  - Rate Make Whole removes the basis risk and spread associated with discounting by US Treasurys in the traditional, stronger Yield Maintenance penalty
  - See if the borrower is willing to float
  - Consider a lockout with a late stub that allows the loan to be re-financed as an alternative (e.g., only allow the loan to prepay in the final six months of its term)

- **Capture the data, track it, and, ideally, model it**

Mortgage Sales Value Considerations

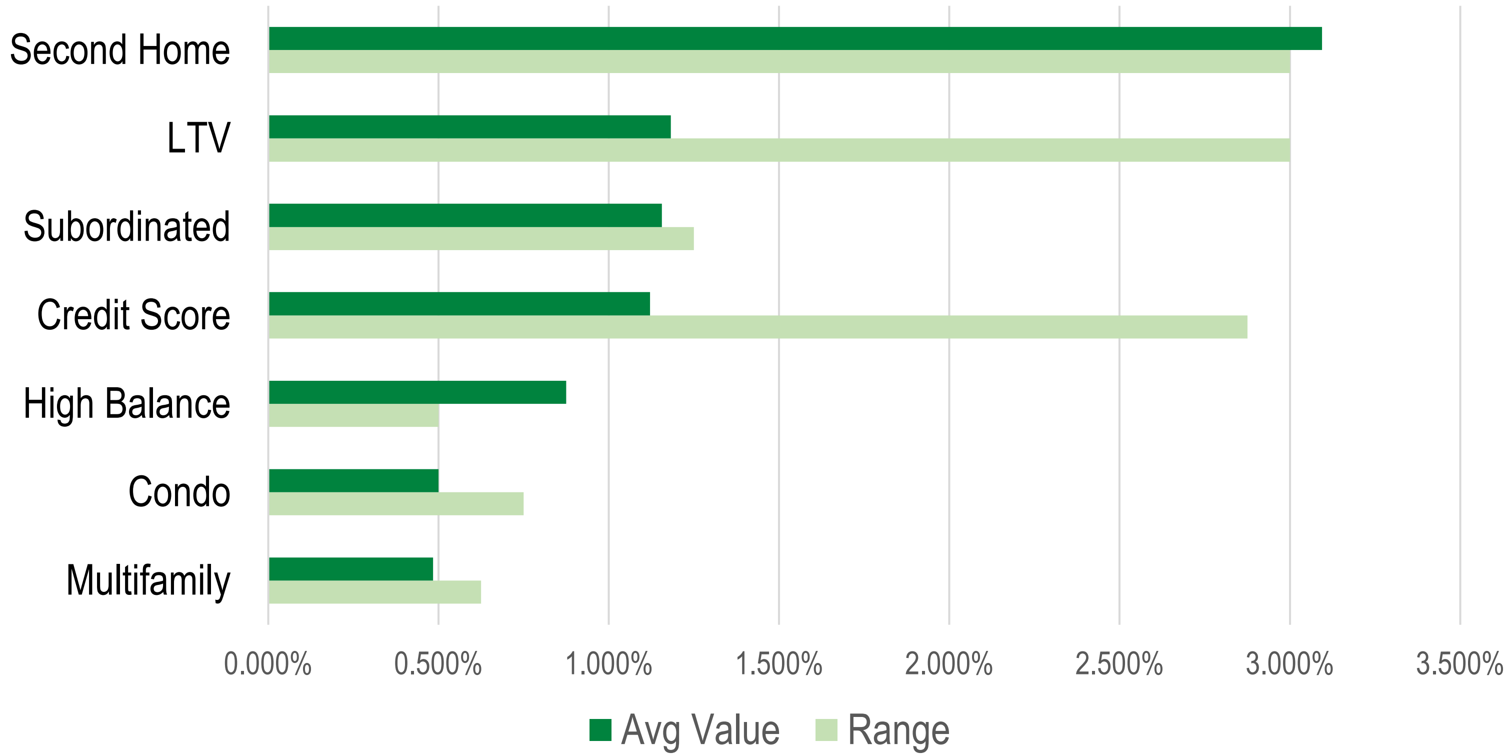
At right, a **30-yr fixed mortgage at 6.50%** compares MPF vs. other GSEs assuming a 5-yr life

- Headline price
- CE fees earned
- Realized costs in LLPAs vs. contingent exposure in CEOs

Evaluation		
Metric	Value	MPF or FNMA?
Estimated MPF Headline Price	101.21	
Estimated FNMA Headline Price	100.79	
Estimated Headline Price Difference	**0.412**	**MPF**
Estimated PV of MPF CE Trailer	0.247	
Estimated Price Difference w/CE Fees	**0.659**	**MPF**
FNMA LLPA, Credit Score + Use	1.375	
FNMA LLPA, Property Type	0.000	
FNMA LLPA, Additional Features	0.000	
FNMA LLPA, High Balance	0.000	
FNMA LLPA Waiver	n/a	
*Total FNMA LLPAs	1.375	
Mortgage Pricing Adjustment to Borrower	**0.34%**	
Estimated Price Difference w/LLPAs + CE Fees	**2.034**	**MPF**

Source: FHLBank Boston

Loan Attribute LLPAs Compared



- Second homes have very high LLPAs
- LTV and Credit Score can generate a very wide range of outcomes
- Condos and Multifamily properties have low LLPAs

Heat Map of Loan Attribute LLPAs Head-to-Head

	High Balance	Condo	Multifamily	Second Home	Subordinated	LTV	Credit Score
High Balance	x	High Balance	High Balance	Second Home	Subordinated	High Balance	Credit Score
Condo	High Balance	x	Condo	Second Home	Subordinated	LTV	Credit Score
Multifamily	High Balance	Condo	x	Second Home	Subordinated	LTV	Credit Score
Second Home	Second Home	Second Home	Second Home	x	Second Home	Second Home	Second Home
Subordinated	Subordinated	Subordinated	Subordinated	Second Home	x	LTV	Subordinated
LTV	High Balance	LTV	LTV	Second Home	LTV	x	LTV
Credit Score	Credit Score	Credit Score	Credit Score	Second Home	Subordinated	LTV	x

- Matrix above compares each attribute only with respect to one other attribute at a time
  - The stronger the shade, the more significantly the attribute dominates
- The "winner" of the head-to-head matchup is based on the highest average value, except for **LTV**
  - If the attribute's **range > average**, LTV is said to be more important and vice versa
  - For instance, even though the High Balance attribute is typically smaller than the effect that LTV has on LLPAs, *any* High Balance loan has some relatively significant LLPA, so High Balance actually governs LTV on a head-to-head basis
  - Conversely, Credit Score has essentially no effect on virtually any loan with a low LTV, so LTV should govern Credit Score on a head-to-head basis

Investment Tactics

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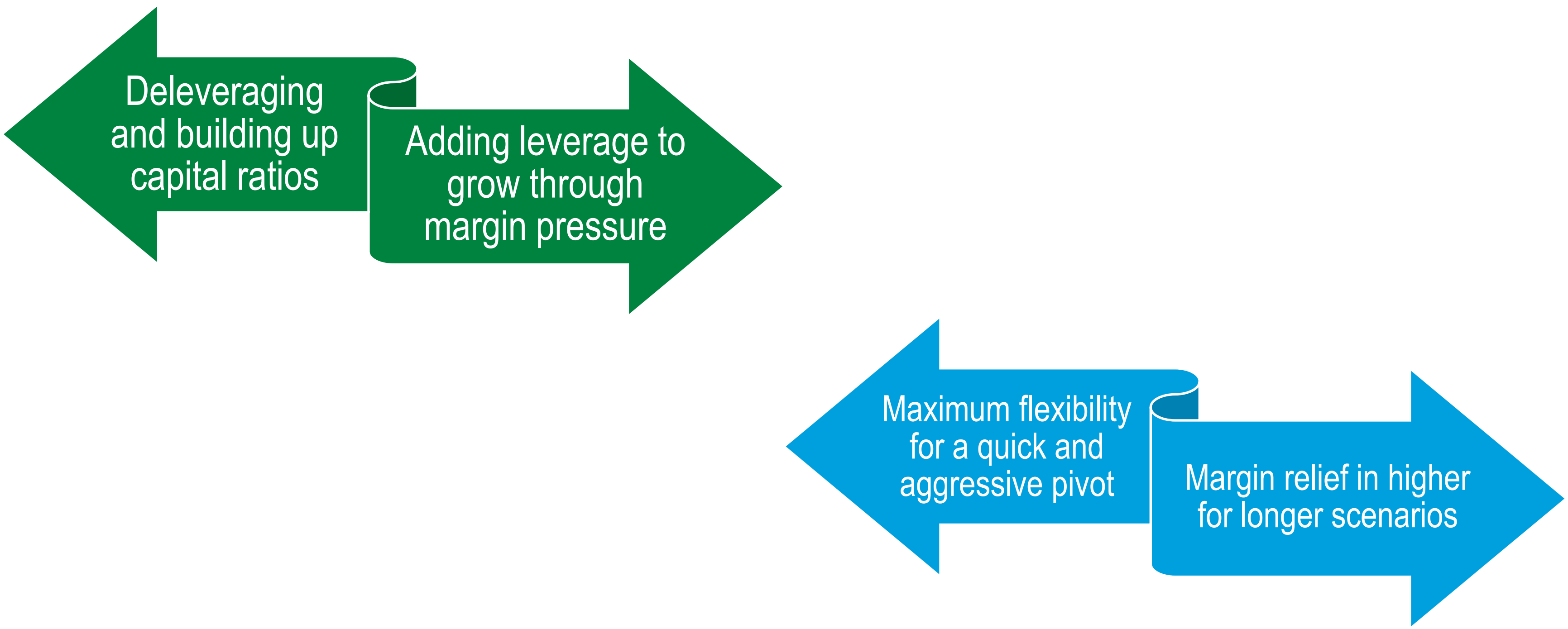
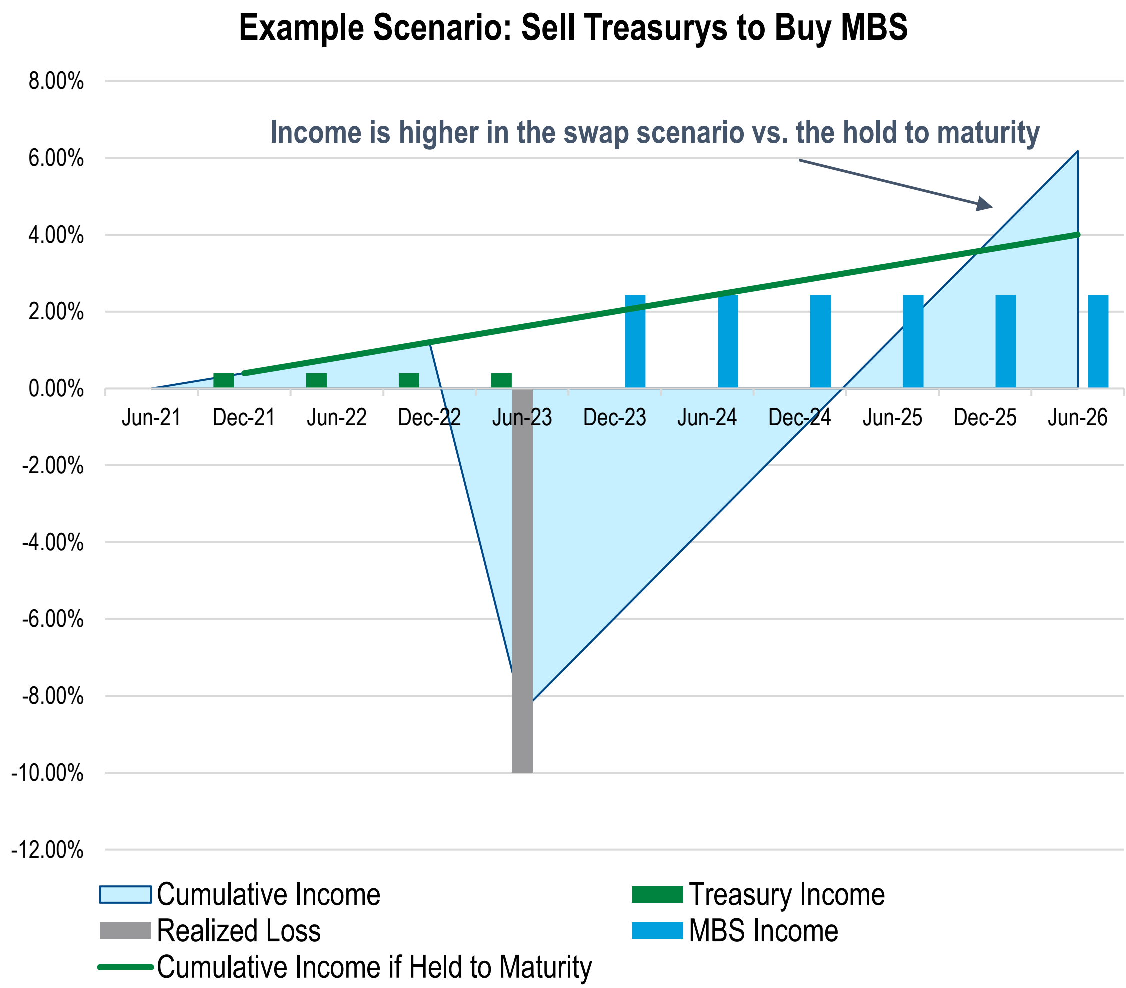
Preparing for a Turn in the Economy

Soft landing or hard landing. Quick pivot or higher for longer. How to position the balance sheet best is not a simple task.



Investment Portfolio Restructuring

There are no free lunches. Any improvement in earn-back period must come from a shift in the risk profile, so depending on current structure vs. future structures, there may be capacity to move within risk tolerance bands.



Assumptions

Buy 5-year Treasury in June 2021 at 0.40% yield

Sell Treasury in June 2023 at 4.40% yield (~10% realized loss)

Reinvest proceeds in MBS at +100 spread to yield 5.40%

Because of wider spreads on replacement assets, breakeven occurs before the original maturity

Across the 5-year horizon, income is higher in the swap scenario

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

Investment Leverage Opportunities

If you have the capital and liquidity, current wide spreads and the shape of the yield curve present opportunities to prepare the balance sheet for down-rate scenarios.

MBS vs. Short Funding

Narrow spreads now, but potential for expansion in quick pivot. Adaptable to speed up in prepays.

MBS vs. Intermediate Funding

Income simulation neutral initially, wider spreads than funding short b/c of inversion

MBS vs. Structured Funding

Widest initial spreads due to acceptance of cash flow risk (on both sides)

Positively Convex Assets

Give up some yield/spread now for principal protection tomorrow

Prepare Now for Opportunities Later

If we see a short-term market dislocation that creates long-term opportunities, are you ready, willing and able to deploy depositories' greatest advantage over other bond market participants?

Balance Sheet Preparedness

- Do you have the liquidity to act when opportunities arise?
- Do you have key stakeholder support to act quickly?

Asset Opportunities

- What's on the wish list?
- Crawl, walk, run- is it a new asset class or a familiar one?

Funding Plan

- Match fund to isolate (wide) spreads, with no rate/liquidity risk
- Partial duration mismatch; i.e. 5yr asset vs. 2yr funding
- Short funding

Thoughts on Wholesale Funding

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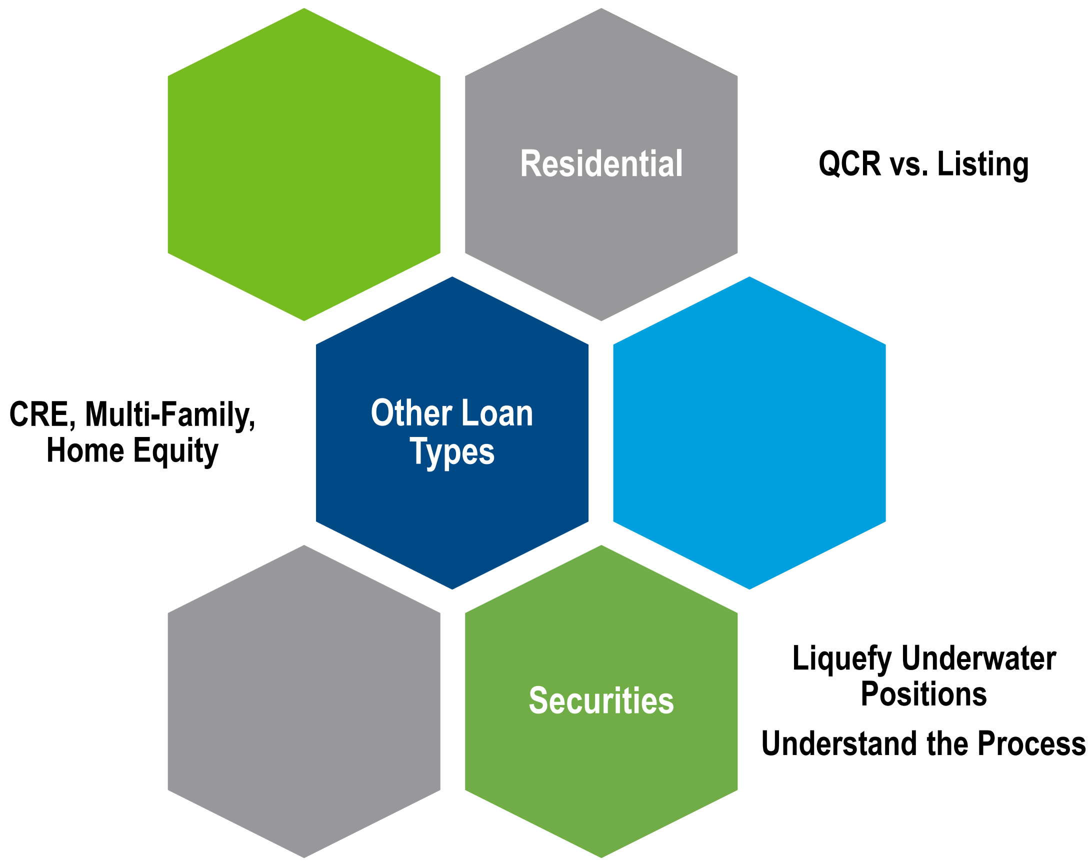
Maximizing Collateral

With liquidity considerations front and center, now more than ever optimizing borrowing capacity is essential.

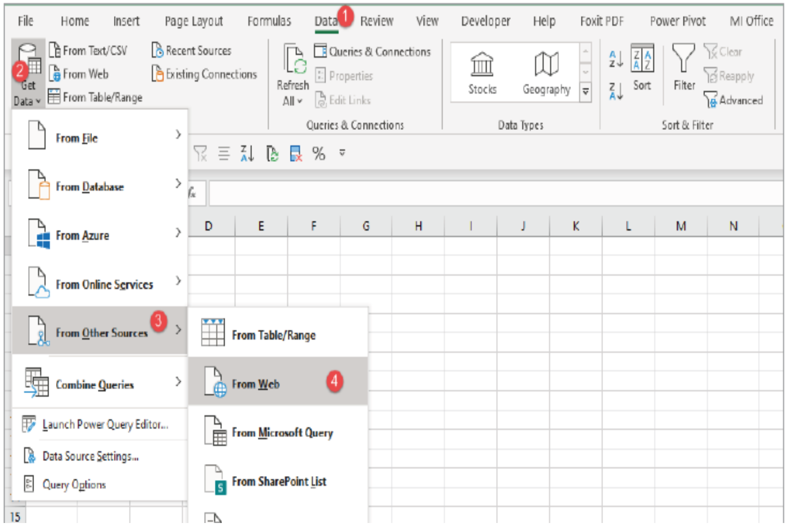


Rates API

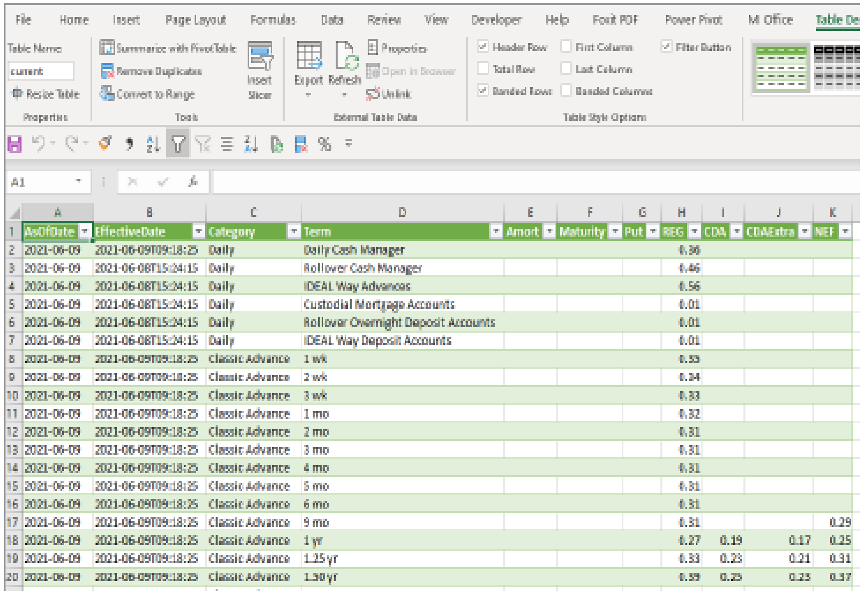
Efficiently get access to FHLBank Boston rates in Excel, so that it can be integrated into your analytical systems.

Connecting FHLBank Boston Rates API to Excel

Step 1: Open Excel workbook and set up API connection



Step 7: Data is ready to use



	AsOfDate	EffectiveDate	Category	Term	Amort	Maturity	Put	REG	CDA	CDAExtra	NEF
2	2021-06-09	2021-06-09T09:18:25	Daily	Daily Cash Manager				0.36			
3	2021-06-09	2021-06-08T15:24:15	Daily	Rollover Cash Manager				0.46			
4	2021-06-09	2021-06-08T15:24:15	Daily	IDEAL Way Advances				0.56			
5	2021-06-09	2021-06-08T15:24:15	Daily	Custodial Mortgage Accounts				0.01			
6	2021-06-09	2021-06-08T15:24:15	Daily	Rollover Overnight Deposit Accounts				0.01			
7	2021-06-09	2021-06-08T15:24:15	Daily	IDEAL Way Deposit Accounts				0.01			
8	2021-06-09	2021-06-09T09:18:25	Classic Advance	1 wk				0.33			
9	2021-06-09	2021-06-09T09:18:25	Classic Advance	2 wk				0.34			
10	2021-06-09	2021-06-09T09:18:25	Classic Advance	3 wk				0.33			
11	2021-06-09	2021-06-09T09:18:25	Classic Advance	1 mo				0.32			
12	2021-06-09	2021-06-09T09:18:25	Classic Advance	2 mo				0.31			
13	2021-06-09	2021-06-09T09:18:25	Classic Advance	3 mo				0.31			
14	2021-06-09	2021-06-09T09:18:25	Classic Advance	4 mo				0.31			
15	2021-06-09	2021-06-09T09:18:25	Classic Advance	5 mo				0.31			
16	2021-06-09	2021-06-09T09:18:25	Classic Advance	6 mo				0.31			
17	2021-06-09	2021-06-09T09:18:25	Classic Advance	9 mo				0.31			0.29
18	2021-06-09	2021-06-09T09:18:25	Classic Advance	1 yr				0.27	0.19	0.17	0.25
19	2021-06-09	2021-06-09T09:18:25	Classic Advance	1.25 yr				0.33	0.23	0.21	0.31
20	2021-06-09	2021-06-09T09:18:25	Classic Advance	1.50 yr				0.39	0.23	0.23	0.37

Reach out to us or your Relationship Manager to get set up with access to the Rates API

Understanding the Tools in the Funding Toolkit

Different environments call for different approaches and solutions.

WEBINAR

How the HLB-Option Advance Works

JUNE 14, 2023

LEARN MORE

WEBINAR

Peer Analysis and Balance Sheet Strategies Update May 2023

MAY 25, 2023

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WEBINAR

How It Works: Symmetrical Prepayment Advance

APRIL 21, 2023

LEARN MORE

WEBINAR

ALM and Funding Strategies for the Current Environment

APRIL 10, 2023

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WEBINAR

Peer Analysis and Balance Sheet Strategies Update February 2023

FEBRUARY 28, 2023

LEARN MORE

WEBINAR

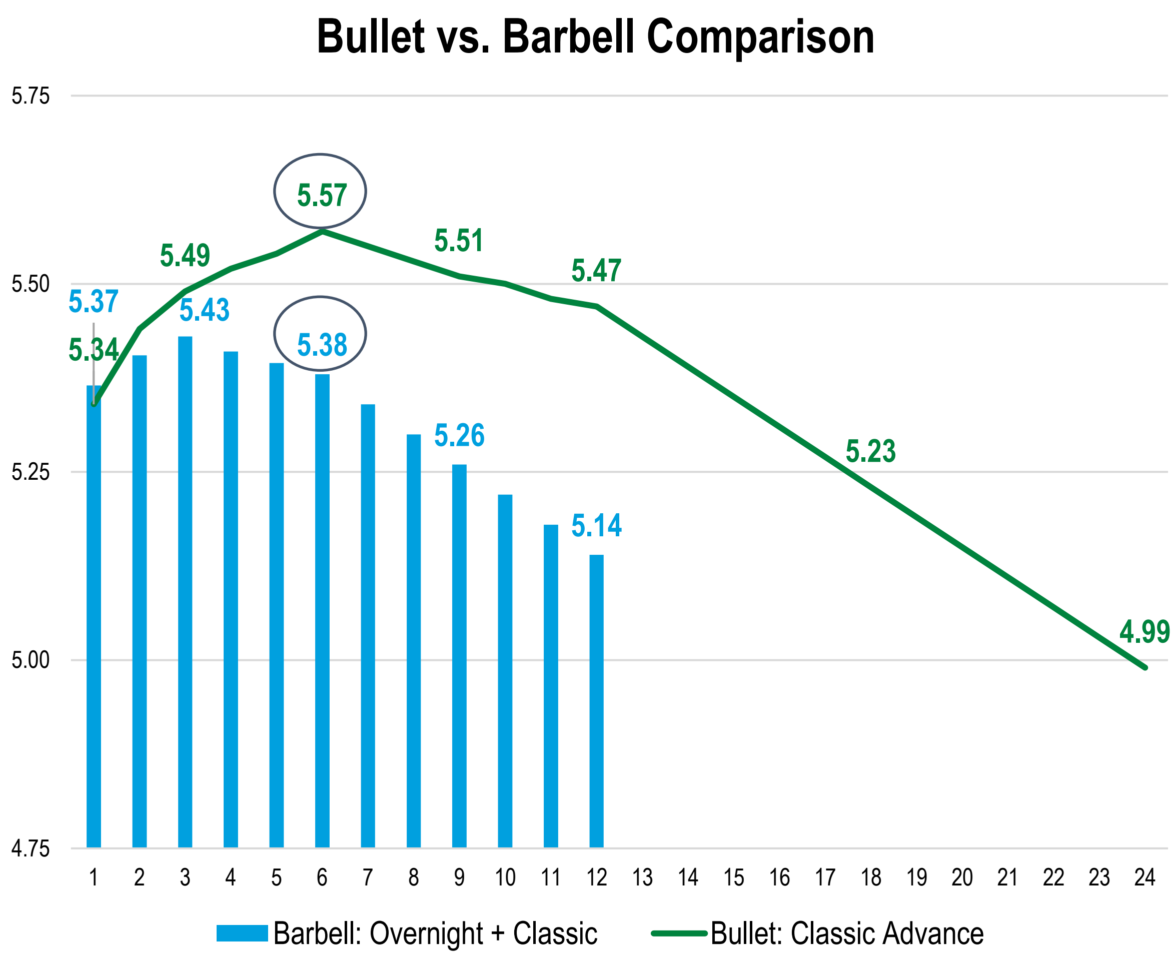
How It Works: Discount Note Auction-Floater Advance

FEBRUARY 03, 2023

LEARN MORE

Bullet vs. Barbell vs. Ladder?

The shape of the yield curve, and what it may look like if rate cuts materialize, presents opportunities to target different tenors to both capture immediate cost savings and maintain flexibility to reprice lower in rate cut scenarios.

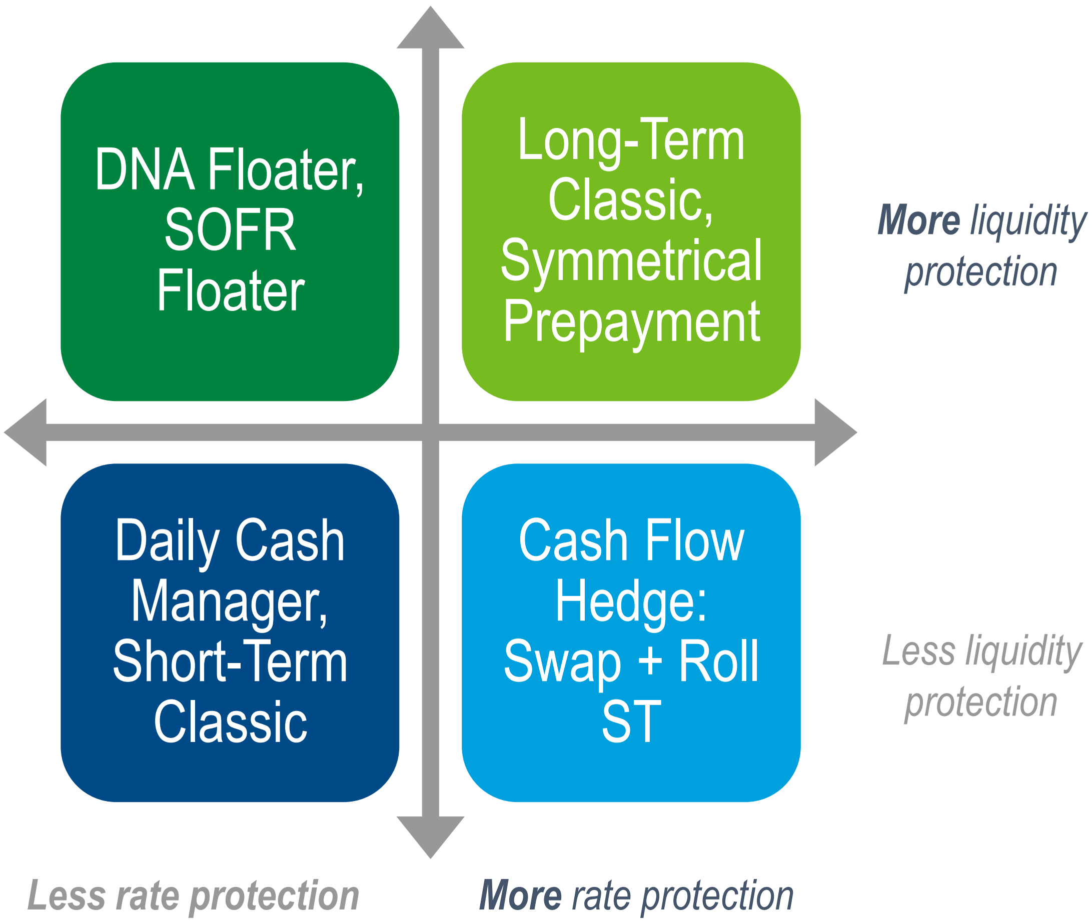


Source: FHLBank Boston

	6-month Funding: Bullet	6-month Funding: Barbell
Daily Cash Manager	None	50% of amount, currently at 5.29%
6-month Classic	100% of amount, at 5.57%	None
1-year Classic	None	50% of amount, at 5.47%
Total Funding Cost (Day 1)	5.57%	5.38%

Balancing Interest-Rate & Liquidity Risks

Need the liquidity benefits of Long-Term Classic Advances but want the short-term rate exposure of Short-Term Classic Advances? Consider floating-rate advances like the DNA Floater.



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 6/20/23)	Rate vs. Matched Lockout Classic	Rate vs. Matched Maturity Classic
1-year maturity, 4-week reset	5.00%	0.25%	5.25%	-0.08% (1mo @ 5.33%)	-0.20% (1yr @ 5.45%)

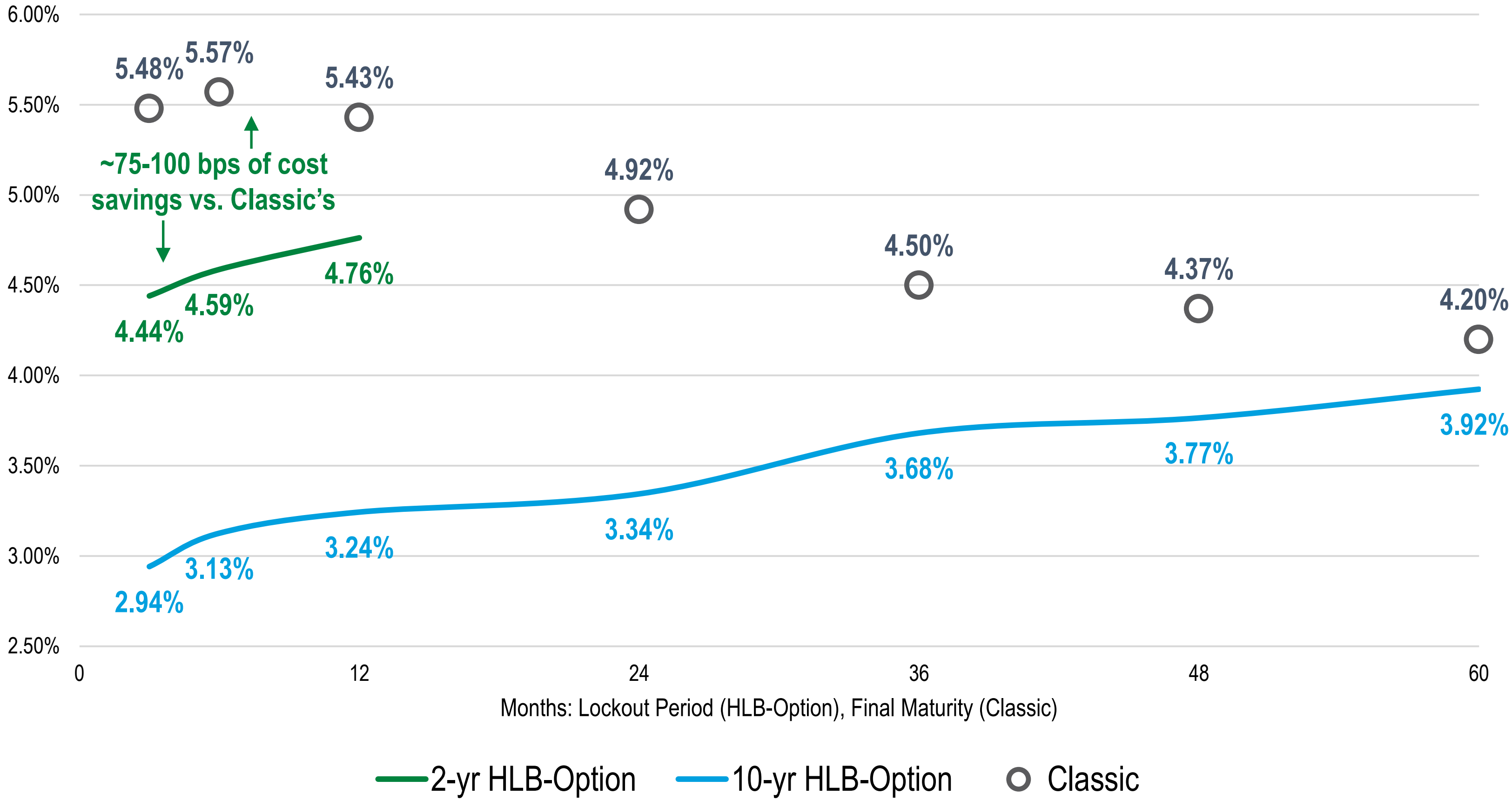
Compare vs. T-bills @ 5.10%

Source: U.S. Treasury, FHLBank Boston

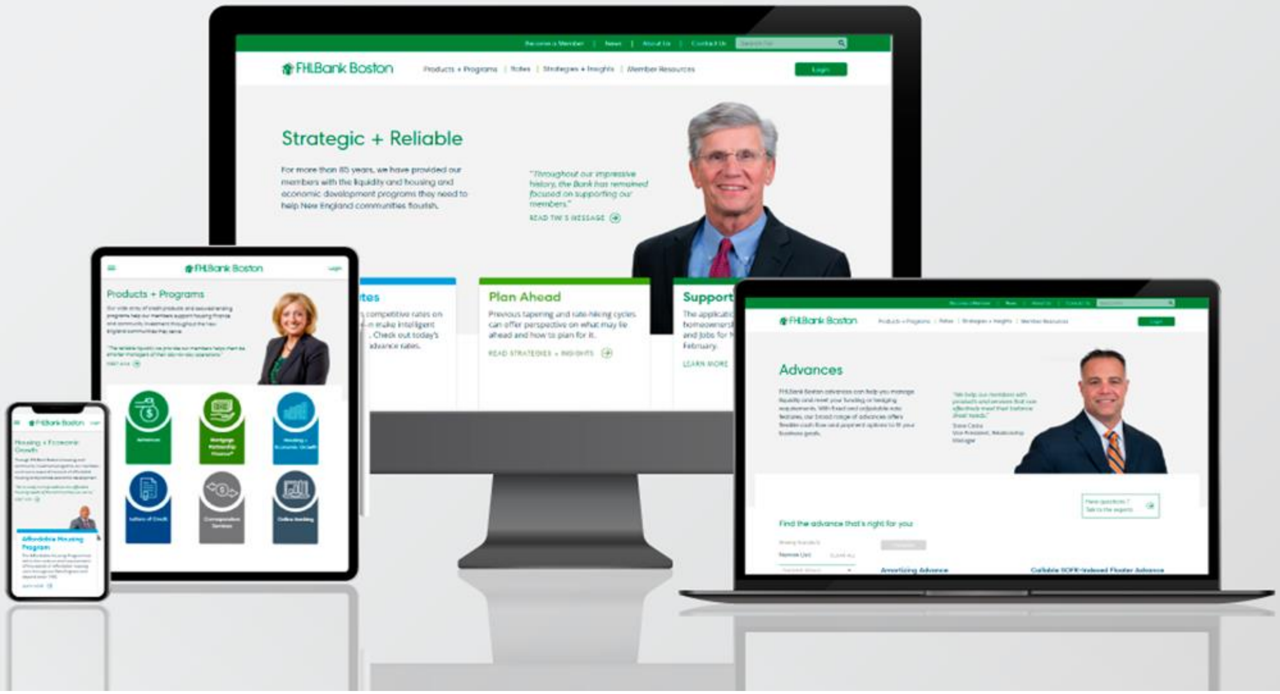
Shorter Maturity HLB-Option Advances

Conditions continue to be optimal for puttables- but different than in past cycles, value and cost savings are not just concentrated in long maturities and shorter lockouts- short maturity structures produce expense relief with less tail risk.

HLB-Option Advance and Classic Advance Curves



Source: FHLBank Boston



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Thank You

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