



ALM FIRST

for a partnership built on trust.

EasCorp ALM Academy | October 2023

Balance Sheet Hedging Strategies for Credit Unions

Speakers

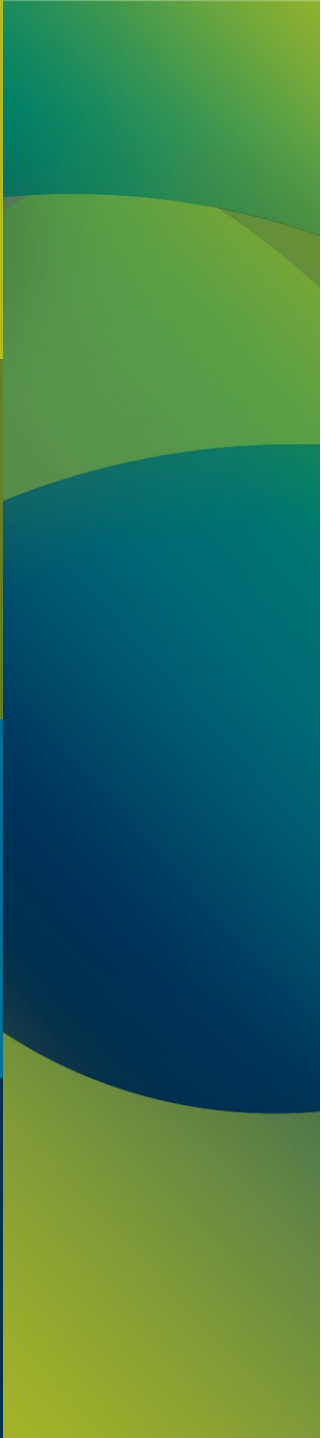


Alain Tourikian
Director, Advisory Services

Agenda

- Why Hedge?
- Introduction to Interest Rate Swaps
- Funding the Balance Sheet
 - CD Specials and Marginal Cost of Funds (MCOF)
 - Wholesale Funding (FHLB or Brokered CDs)
 - Synthetic Borrowings Through the Use of Interest Rate Swaps

Why Hedge?



What does hedging bring to our financial toolbox?

- With multiple assets competing for a spot on the balance sheet, proactive institutions use hedging to ensure products are priced correctly and to manage their interest rate risk.
- A hedging strategy allows a depository to retain longer-duration assets, better serve borrowers with more product offerings, and improve safety & soundness.



**Competitively
Price Loans**



**Manage Duration
Effectively**



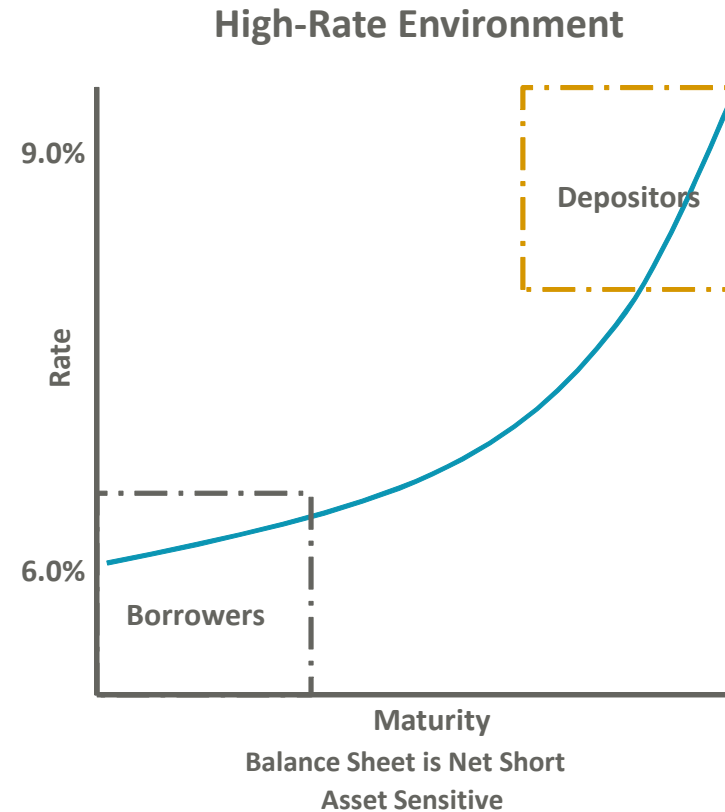
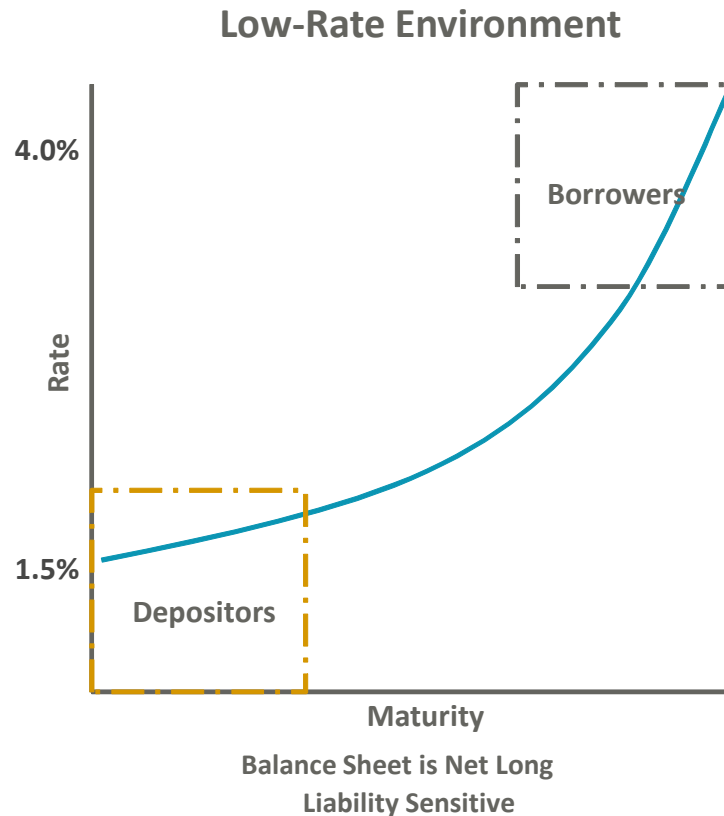
**Reduce Interest
Rate Risk**

Why Is Now the Time to Consider Hedging Strategies?

- Mitigate variability, improve predictability
- Be market agnostic
- Enhance budget results
- Promote risk management
- Optimize the Balance Sheet

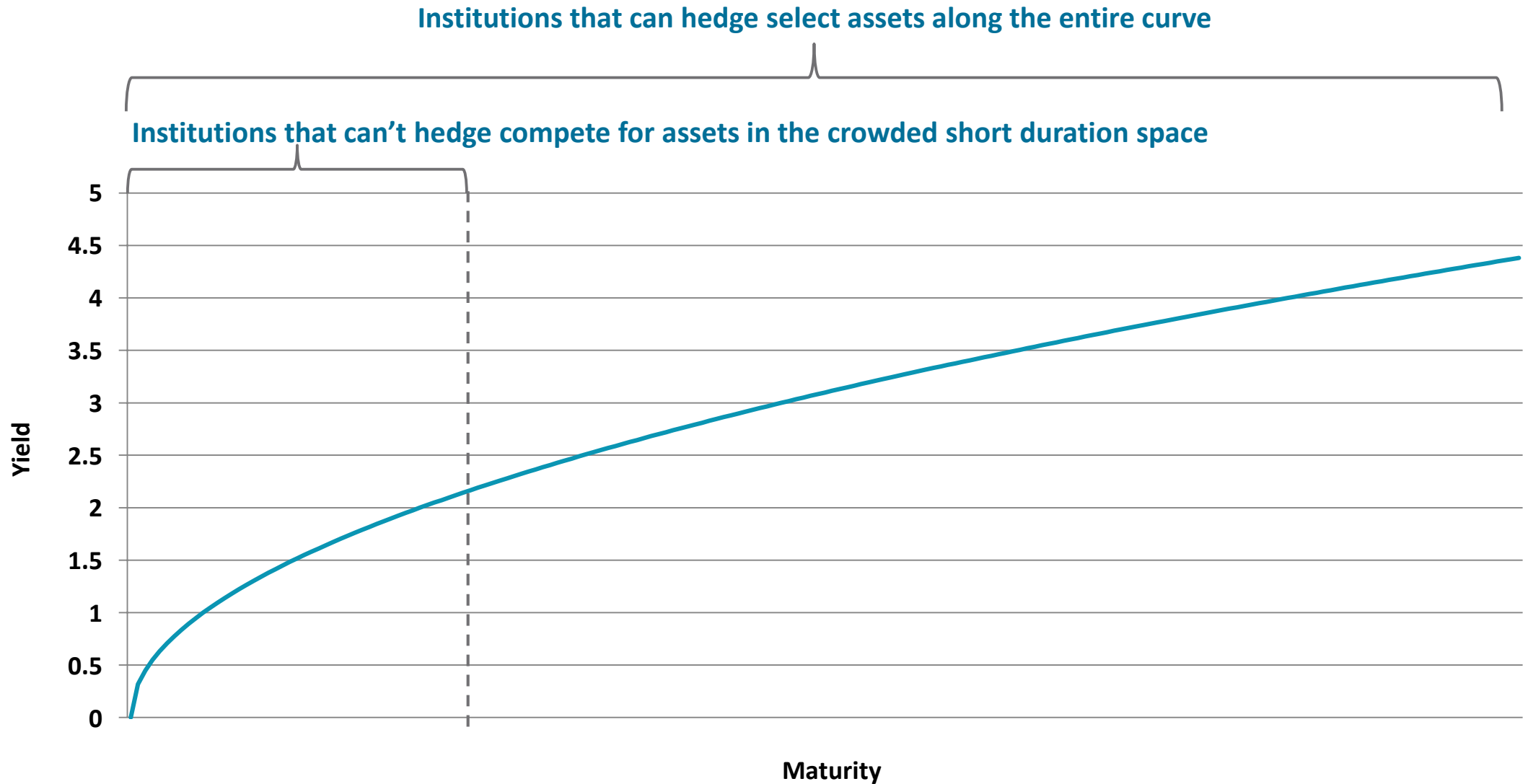


Borrowers vs. Depositors – The Thrift Dilemma



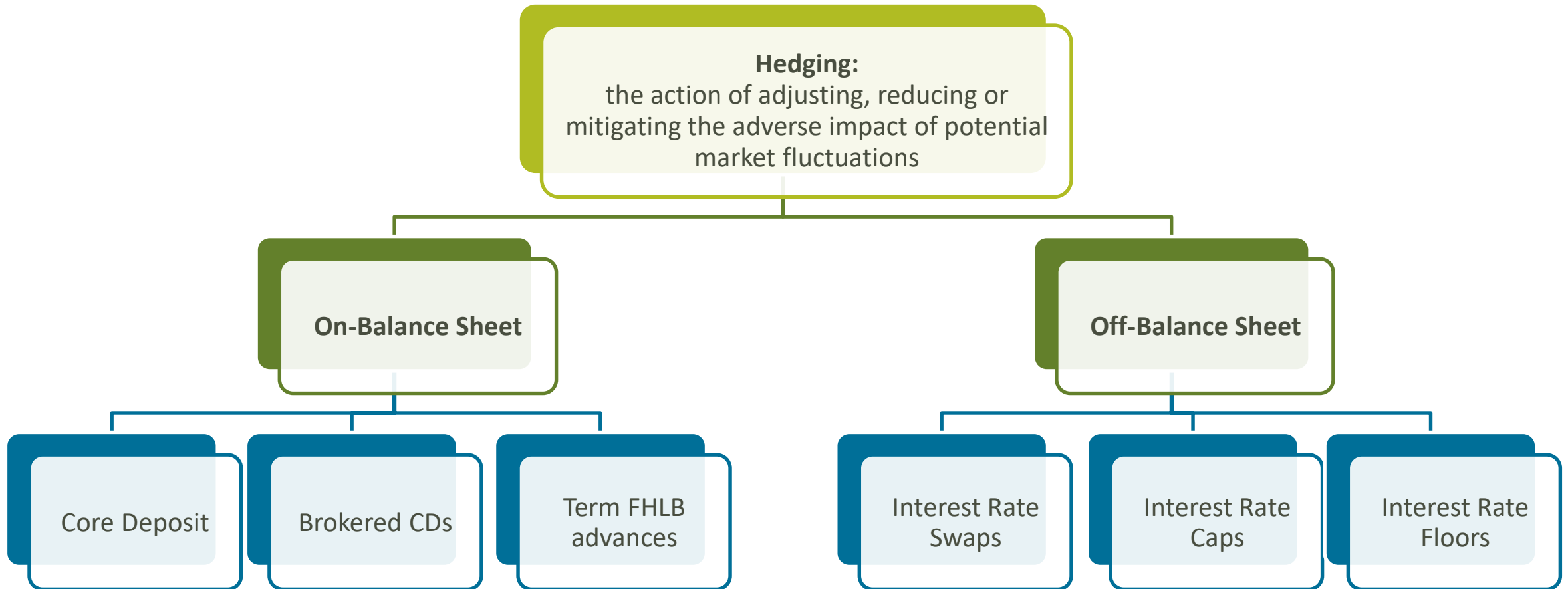
- Depositors & borrowers maximize their own utility
- The use of hedging (Interest Rate Swaps) allows the FI to synthetically change their IRR profile without affecting both borrowers and depositors.

Opportunities Lie Along The Entire Yield Curve



The illustration represents a hypothetical situation and is not intended to be representative of any particular client or situation.

Hedging Defined



History of Derivative Use in Banks/Credit Unions

- **Commercial Banks:**
 - Have been using derivatives since 1985 for Macro Hedging purposes, and,
 - Many regional/super regional banks have been using the instrument to help borrowers achieve long-term financing through “Back-to-Back” Swaps since 2006, and while also enhancing non-interest income fees for their profitability metrics.
- **Credit Unions:**
 - The NCUA voted to approve the use of derivatives on January 23, 2014.
 - Gave Credit Unions the authority to enter into certain interest rate derivatives for balance sheet management and risk reduction.
 - October 2020 – The NCUA Board proposed to amend the existing rules to make it easier for credit unions to use derivatives to manage interest rate risk.
 - On June 25, 2021, the new Derivatives rule became effective.
 - The rule modernized NCUA’s derivatives framework, making it more principles-based.
- Allows for greater flexibility in the management of interest rate risk for all depositories.

History

- Over-the-Counter (OTC) derivative contracts have their origins in the exchange traded markets
- Notional amount of OTC contracts
 - \$582 trillion
 - Interest rate contracts make up the lions share of OTC derivatives

Hedging Interests	
Interest Rate	80%
Credit Default (CDS)	1%
Foreign Exchange	17%
Commodity	0.5%
Equity	1%
Other	0.5%

Market Comparison

- The outstanding notional principal in the OTC derivatives market dwarfs the large primary fixed-income markets

Market Size	
Treasuries	\$21 trillion
Agency Debt	\$2 trillion
MBS	\$11 trillion
OTC Derivatives	\$582 trillion

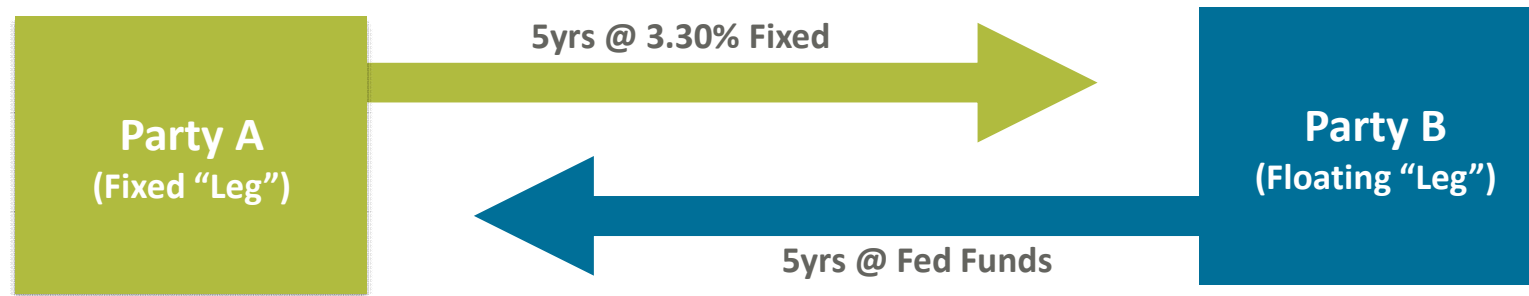
Introduction of Derivatives

- Can be used to **reduce term borrowings** and **improve capital ratios** if sufficient liquidity is available
- Can be used to **reduce funding cost** if liquidity is needed
- Can **offset interest rate risk of longer duration fixed assets**, such as 30-year fixed rate mortgages
- The most common type of Derivatives in the credit union industry are **Interest Rate Swaps**
- **Banks/Credit Unions do not use Derivatives as a form of speculation**

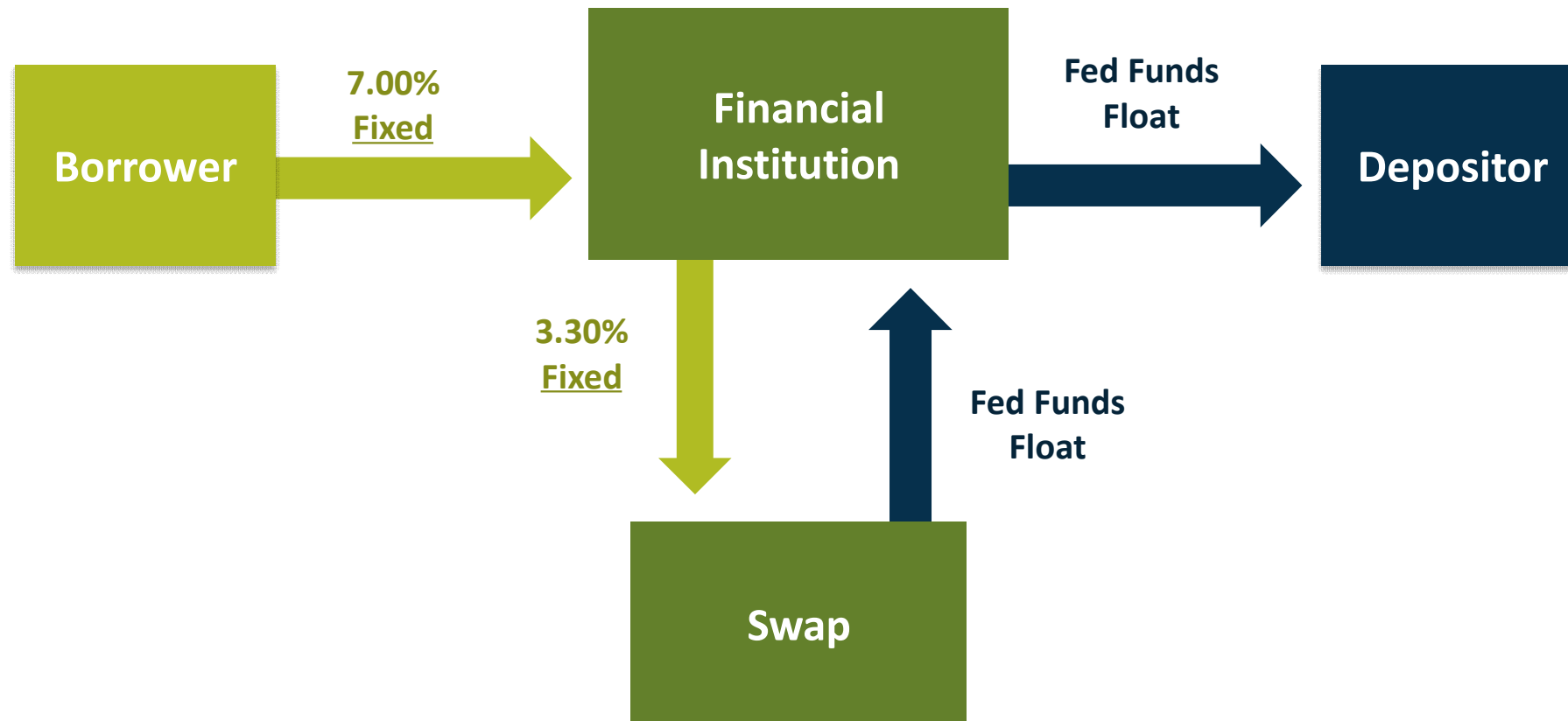
Introduction to Interest Rate Swaps

Interest Rate Swap

- A financial instrument in which **two parties agree to exchange interest rate payments**
 - Based on a specified notional amount from a fixed rate to a floating rate (or vice versa) or from one floating rate to another
 - Allows an institution to effectively manage asset/liability duration gap



Interest Rate Swap Mechanics



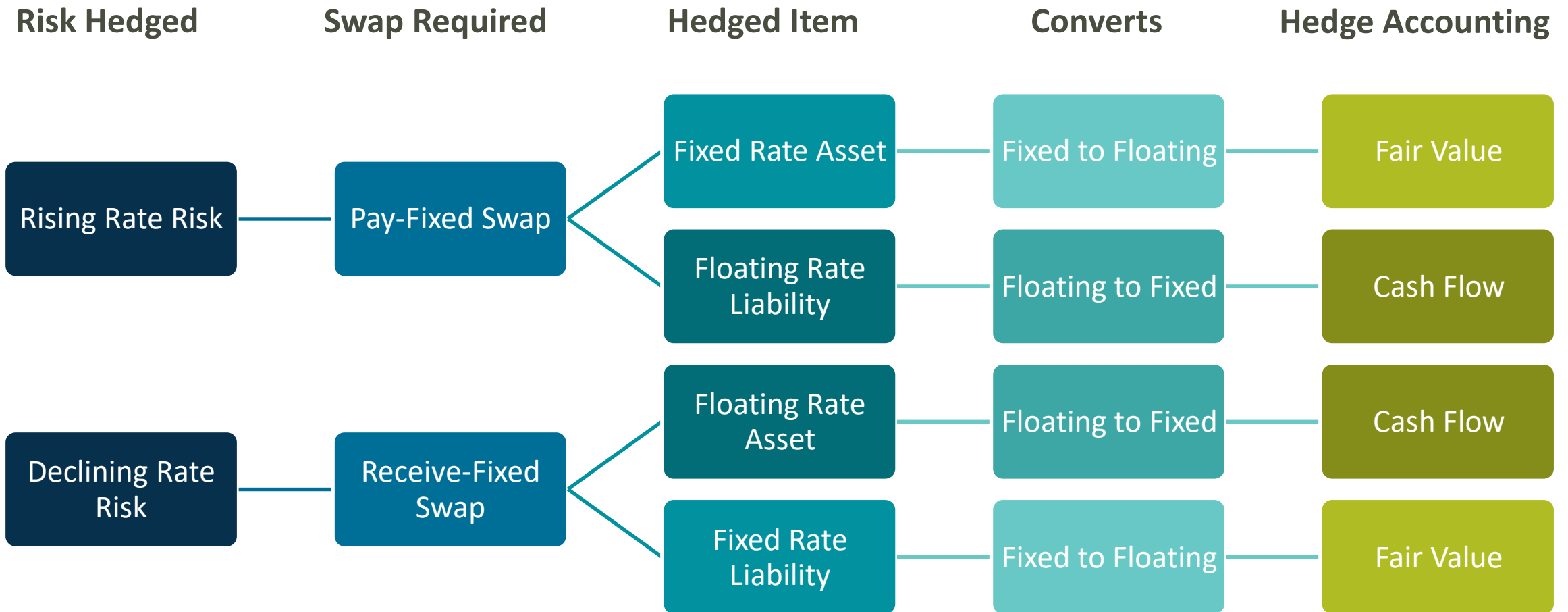
Hedged vs. Unhedged Portfolio - Income

- \$50mm fixed-rate mortgage portfolio paired with high-beta funding

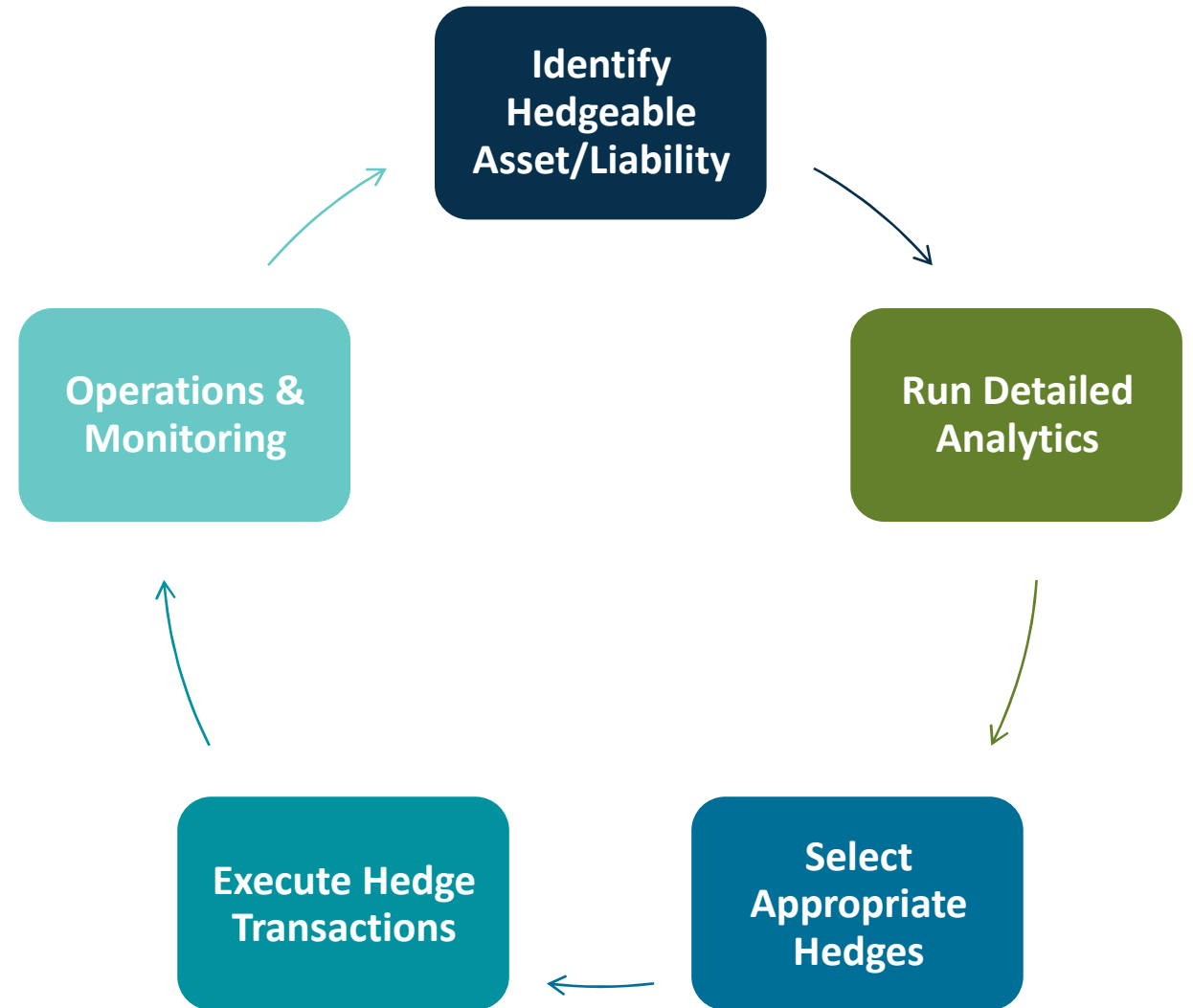
Unhedged Portfolio					
	Base	+0.50%	+1.00%	+2.00%	+3.00%
Mortgage	7.00%	7.00%	7.00%	7.00%	7.00%
Funding Cost	(3.25%)	(3.75%)	(4.25%)	(5.25%)	(6.25%)
Margin (%)	3.75%	3.25%	2.75%	1.75%	0.75%
Margin (\$)	\$1.88mm	\$1.63mm	\$1.38mm	\$875k	\$375k

Hedged Portfolio (5yr pay fixed swap)					
	Base	+0.50%	+1.00%	+2.00%	+3.00%
Mortgage	7.00%	7.00%	7.00%	7.00%	7.00%
Funding Cost	(3.25%)	(3.75%)	(4.25%)	(5.25%)	(6.25%)
Hedging Cost	(0.87%)	(0.37%)	0.13%	1.13%	2.13%
Margin (%)	2.88%	2.88%	2.88%	2.88%	2.88%
Margin (\$)	\$1.44mm	\$1.44mm	\$1.44mm	\$1.44mm	\$1.44mm

Hedging With Swaps – Payer or Receiver



The Hedging Process



The illustration above is hypothetical and is not intended to represent any particular security or asset.

Funding the Balance Sheet

Depository Checklist



Price assets accurately



Fund cheaply



Leverage appropriately



Utilize ROE/RAROC models to identify relative value



Hedge IRR when necessary

Depository Funding Trends

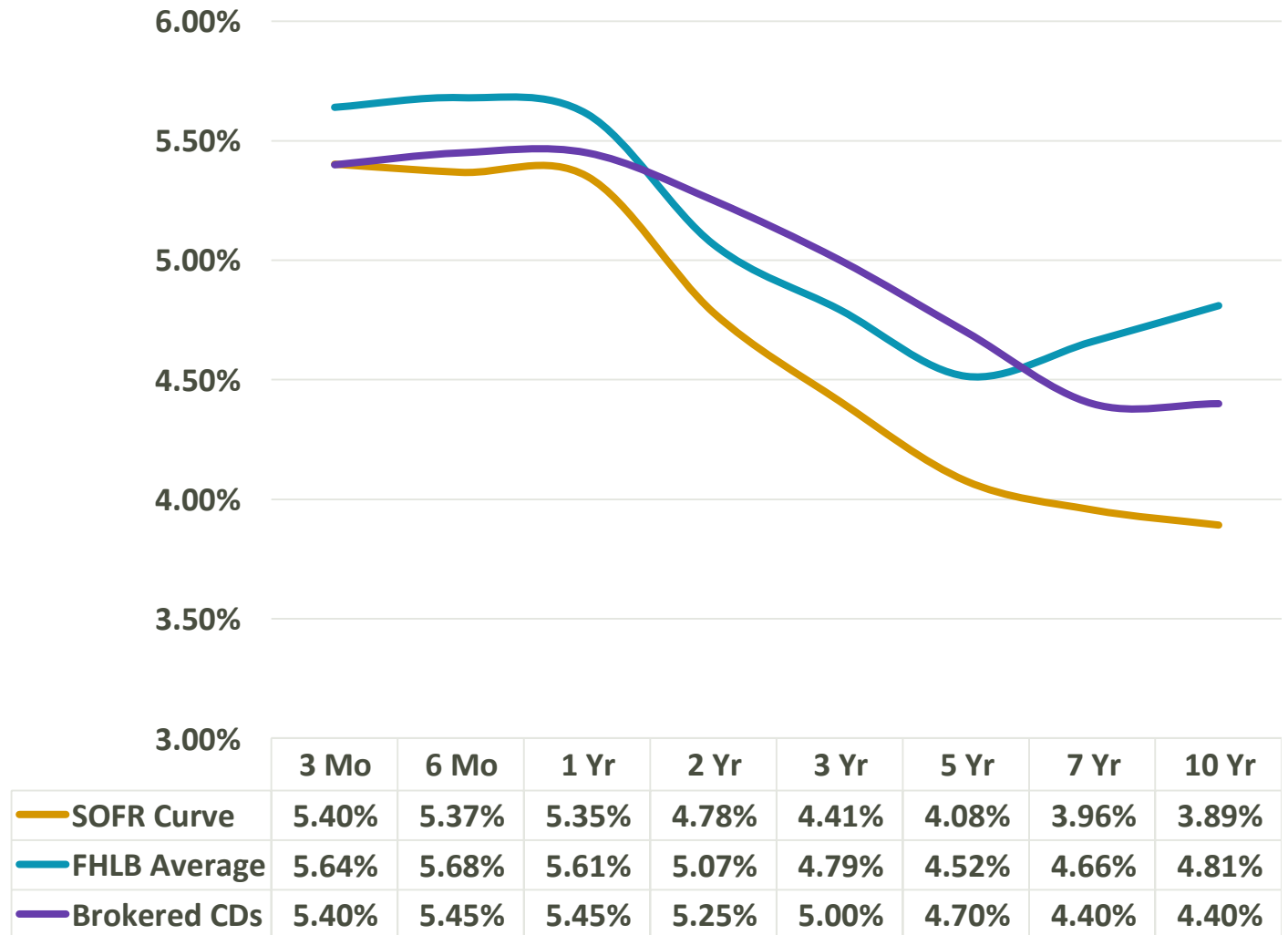
- US Depositories continue to rely on expensive borrowings such as certificates of deposits (CDs) and are being forced to offer higher rates in order to protect against outflows as customers seek greater returns.
- In the aggregate, CD balances have increased 30.6% quarter over quarter.
- **Deposit outflows slowed in the second quarter, with deposits falling 0.5% from the prior quarter after falling 2.5% sequentially in the first quarter. While deposit outflows were not as large, institutions paid up to defend their funding, leading to notably higher deposit costs.**

Depository Funding Costs

- The cost of the products has also been climbing.
 - The average interest rate on one-year CDs increased by 15 bps to 1.98% from the May 3rd rate hike to July 7th.
 - The average rates have increased by 70 basis points since year-end 2022 and by 33 basis points since the failure of Silicon Valley Bank on March 10th.
- **The industry's aggregate cost of deposits rose to 1.78% in the second quarter of 2023, up 37 basis points from a quarter earlier. That equates to a beta, or the percentage of change in fed funds passed on to depositors, of 79.1% in the period, compared to 48.7% in the previous quarter.**
- **Deposits costs are likely to remain elevated throughout 2023 and 2024**, in no small part due to the continued growth in high-cost CDs.
- **The buildup in higher-cost products will lead to higher funding costs (i.e., marginal cost of funds) and should serve as a headwind to net interest margins.**

Wholesale Funding Curve

- Can be cheaper than raising deposit rates and/or running a “odd-lot” CD term specials
- Very efficient way to secure funding but creates no franchise value
- More expensive than derivatives and dilutes Capital/Net Worth Ratio
- Borrowings/Assets ratio that is under 20% is considered “safe” funding best practices strategies for depositories to consider



Source: Bloomberg, Regional FHLBs

What is the Marginal Cost of Funds?

- Pricing for deposits is a function of needing funding (i.e., supply/demand) and not necessarily tied to modeled Beta assumptions.

Deposit Portfolio Section:	Term	Rate	Target Balance (\$000)
Current CD Special Rate (\$000)	13 Month	5.25%	\$ 40,000
Annualized Interest Expense on CD Special Portfolio (\$000)		\$ 2,100	

Comparable Wholesale Funding:

FHLB	13 Month	5.60%
Brokered CD	13 Month	5.40%

As of June 30, 2023 Simulation Results:

Current Wtd Avg Rate on Total NMD Portfolio	0.58%
Total NMD Portfolio Balance (\$000)	\$ 1,097,542
Annualized Interest Expense on NMD Portfolio (\$000)	\$ 6,321
Current Wtd Avg Beta Coefficient of NMD Portfolio	34%
Beta % of NMD Portfolio Subject to Reprice	\$ 368,988
Annualized Interest Expense on % of Sensitive NMD Portfolio (\$000)	\$ 2,125
Rate Premium Paid on CD Special vs. NMD Portfolio Rate	4.67%

Marginal Cost of Funds Defined

Marginal Cost of Funds ⁽¹⁾					
	% of Balances Price Sens.	Current Rate Paid	Proposed Rate Increase/ (Decrease)	Rate Premium Paid	Marginal Cost of Funds
Assumes All Balances Are Price Sensitive	100%	0.58%	4.67%	4.67%	9.92%
	75%	0.58%	4.67%	3.51%	8.76%
	50%	0.58%	4.67%	2.34%	7.59%
	40%	0.58%	4.67%	1.87%	7.12%
	30%	0.58%	4.67%	1.40%	6.65%
	20%	0.58%	4.67%	0.93%	6.18%
	15%	0.58%	4.67%	0.70%	5.95%
	10%	0.58%	4.67%	0.47%	5.72%
Assumes All Balances Are NOT Price Sensitive	0%	0.58%	4.67%	0.00%	5.25%
Current % of Balances That Are Price Sensitive	34%	0.58%	4.67%	1.57%	6.82%

Model Application/Footnotes:

⁽¹⁾ Marginal Cost of Funds Definition/Calculation:

$$\text{Dollar Rate Premium Paid} = \text{Proposed Rate Increase}/(\text{Decrease}) * \text{Sensitive Balances}$$

Proposed Rate Increase *	Sensitive Balances		=	Dollar Rate Premium Paid
4.67%	(% Sensitive * 34%)	Target Balance) \$ 40,000		\$ 629

$$\text{Marginal Cost of Funds} = [\text{Dollar Rate Premium Paid} + \text{Dollar Rate on CD Special}]/\text{Target CD Balance}$$

Dollar Rate Premium Paid +	Dollar Rate on CD Special -	/ Target Balance	=	Marginal Cost of Funds
\$ 629	\$ 2,100	\$ 40,000		6.82%

$$\text{Percent Rate Premium Paid} = \text{Marginal Cost of Funds} - \text{Current Rate} - \text{Proposed Rate Increase}$$

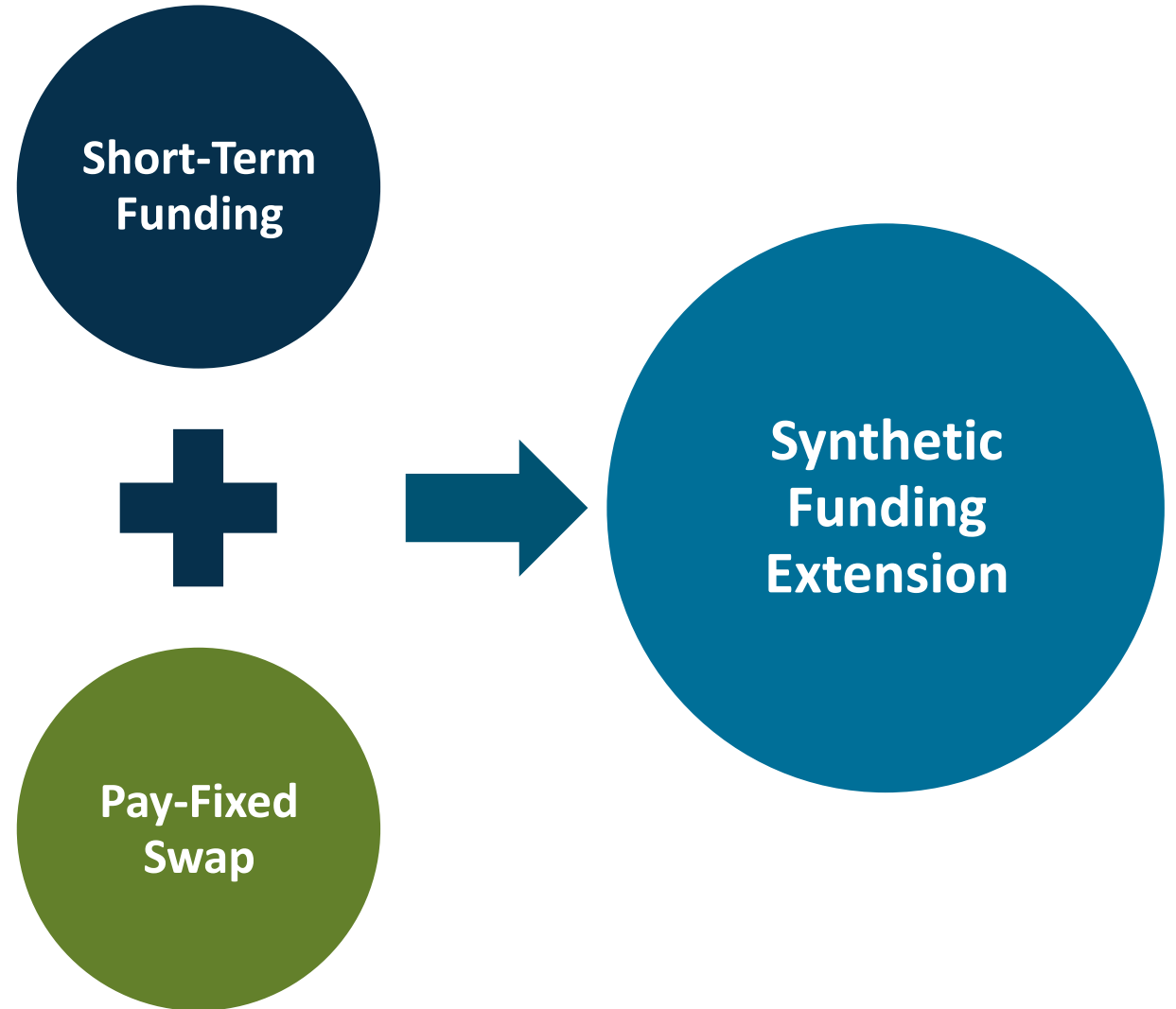
Marginal Cost of Funds -	Current Rate -	Proposed Rate Increase	=	Percent Rate Premium Paid
6.82%	0.58%	4.67%		1.57%

Pricing is tied to demand for the institution and the impact to **Marginal Cost of Funds (MCOF)** needs to be factored into the pricing decision (or at least understood for the opportunity cost).

Potential Funding Strategy: Use of Wholesale Borrowings

- Review existing Funding Policy to ensure you are allowed to use either FHLB or brokered deposits
 - Consider setting your policy limits as a percent of Total Assets rather than Total Deposits or Capital/Net Worth as it will provide you greater flexibility
- Consider moving any excess collateral not currently being pledged elsewhere to FHLB to increase borrowing capacity and help strengthen Contingency Funding Scenarios
 - Agency Securities (5% Haircut)
 - Minimize amount pledged to Fed Discount Window as availability will be limited
- Wholesale Borrowings (if used wisely within your Liquidity Policy metrics) will provide you a tool to mitigate interest rate risk and even act as a supplement for short-term/long-term liquidity needs (i.e., not a bad thing!)
- Floating rate FHLB and brokered deposits tied to Fed Funds Effective will allow you to fix the cost (lower) through a Pay Fix/Receive Float swap without any disintermediation to your existing client base
 - May be even less expensive than traditional term borrowings
- **Borrowings/Assets ratio that is under 20% is considered “safe” funding best practices strategies for depositories to consider**

Synthetic Alteration



Borrowing Cost Comparison

- Relatively inexpensive non-core term funding can be created using synthetic alteration
- By entering a receive-float, pay-fixed swap, the interest earned on the floating leg offsets the expense paid on the short-term non-core funding source
- The new effective funding rate is the interest rate on the fixed leg of the swap + spread between short-term funding cost & floating receivable.

Tenor	SOFR Curve	FHLB Average	Brokered CDs
3 Mo	5.40%	5.64%	5.40%
6 Mo	5.37%	5.68%	5.45%
1 Yr	5.35%	5.61%	5.45%
2 Yr	4.78%	5.07%	5.25%
3 Yr	4.41%	4.79%	5.00%
5 Yr	4.08%	4.52%	4.70%
7 Yr	3.96%	4.66%	4.40%
10 Yr	3.89%	4.81%	4.40%

Other US Rates	Current Day
FF Effective	5.33%
FDTR	5.50%
IORB	5.40%
Prime	8.50%
Overnight SOFR	5.31%
30-Day Avg SOFR	5.31%
90-Day Avg SOFR	5.18%

What is a Term Liquidity Premium?

- A **liquidity premium** in this context is the institution-specific funding premium over a market reference rate.
- The **term liquidity premium (TLP)** is the additional cost over a swap rate the borrower pays to access **term** liquidity for a given period of time.
 - The premium gets larger the farther out the term.

Tenor	SOFR Curve	FHLB Average	TLP
3 Mo	5.40%	5.64%	24 BP
6 Mo	5.37%	5.68%	31 BP
1 Yr	5.35%	5.61%	26 BP
2 Yr	4.78%	5.07%	29 BP
3 Yr	4.41%	4.79%	38 BP
5 Yr	4.08%	4.52%	44 BP
7 Yr	3.96%	4.66%	70 BP
10 Yr	3.89%	4.81%	92 BP

Synthetic Duration Extension – Non-Core Funding

- Most short-term funding sources available to depositories have a strong correlation to short-term markets rates.
- Given this correlation, depositories can use interest rate swaps to reduce their overall funding cost and synthetically alter funding to better fit their balance sheet.



Total Portfolio Sensitivity Analysis – 5-Year Pay Fix/Receive Float Swap

Derivatives Trade Detail Section:	
Hedge Tenor:	5 Year
Swap Structure:	Pay Fix/Rec Float
Notional Amount (\$000):	\$75,000
Origination/Transaction Date:	9/6/23
Maturity Date:	9/30/28
Accrual Year Base:	Actual/365
Estimated Pay Rate - Fixed:	4.08%
Receive Rate Index (Float):	Fed Funds
Estimated Duration:	5.0 Years
Hedged Item:	FHLB 30 Day Borrowing
Index Rate:	Fed Funds
Current Fed Funds:	5.33%
Index Spread on Deposit:	0.00%
Current Rate on Funding	5.56%
Current Balance of Portfolio:	\$75,000
Percentage Hedge Target:	100.0%
Notional Hedged Amount	\$75,000

Total Portfolio Sensitivity Analysis						
Funding Rate Paid to Borrow:	-200 BP	-100 BP	Base	+100 BP	+200 BP	+300 BP
FHLB 30 Day Borrowing	3.56%	4.56%	5.56%	6.56%	7.56%	8.56%
Less: Spread	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Net Funding Rate to Depository^(a)	3.56%	4.56%	5.56%	6.56%	7.56%	8.56%
Net Swap Rate:						
Pay Rate - Fixed	4.08%	4.08%	4.08%	4.08%	4.08%	4.08%
Rec Rate Fed Funds - Floating	3.33%	4.33%	5.33%	6.33%	7.33%	8.33%
Net Pay/(Rec) Rate^(b)	0.75%	-0.25%	-1.25%	-2.25%	-3.25%	-4.25%
Net Term Funding Rate^(c)	4.30%	4.30%	4.30%	4.30%	4.30%	4.30%
Net Interest Income Impact^(d)	(\$560)	\$191	\$941	\$1,691	\$2,441	\$3,191

Footnotes:

- (a) **Unhedged Item (Net Deposit Rate)** = FHLB 30 Day Borrowing Rate - Less Spread
(b) **Net Pay/(Receive) Rate on Swap** = Fixed Rate Pay to Counterparty - Receive Rate (Float)
(c) **Net Term Fund Rate after Swap** = Net Funding Rate + Net Pay/(Receive) Rate on Swap
(d) **Annualized Net Interest Income Impact** = Notional Hedged Amount * Net Pay/(Receive) Rate on Swap

Borrowings vs. Interest Rate Swaps

- **Borrowings:**

- Decreases capital ratios

- **Interest rate swaps:**

- Capital ratios do not decrease
- Higher ROA compared to borrowings (costs less)
- Does not provide liquidity

Current Day	Pay Fix/Rcv Float	FHLB (Avg)	Difference	Annualized Savings on \$100mm Notional
2-Year	5.01	5.07	6bps	60,000
3-Year	4.64	4.79	16bps	160,000
5-Year	4.30	4.52	21bps	210,000
7-Year	4.18	4.66	48bps	480,000
10-Year	4.12	4.81	69bps	690,000

Key Takeaways

Key Takeaways

Depository institutions are generally not compensated for taking interest rate risk.

Risk measurement is a critical component of the risk management process.

Ensure you are well compensated for your asset pricing.

Derivatives are a common part of finance and of a depository's balance sheet—use them to your advantage.

Derivatives can be used to reduce an institutions funding costs.

Hedged funding costs with proper asset pricing provide several benefits to an institution:

- Optimize balance sheet
- Be market agnostic
- Promote capital stewardship
- Enhance budget results

Disclaimer

Returns are gross of fees, unaudited, and estimated using the Modified Dietz method. ALM First does not have complete discretionary trading authority over each account reflected in the performance discussed herein. Some clients had investment results materially different from those portrayed in this document. These data were compiled from client portfolios that consistently accepted ALM First investment advice.

Portfolio performance is discussed for illustrative purposes only and does not necessarily predict or depict performance of that strategy in an individual client's account. It must be noted that investments are not necessarily limited to the investments comprising the portfolio and may be adjusted by individual clients' account restrictions. A portfolio cannot be purchased directly by investors.

The results shown do not represent the results of actual trading using client assets but were achieved by means of the retroactive application of a model that was designed with the benefit of hindsight. Past performance is no guarantee of future results.

Investments in securities are valued based on quotations obtained from independent pricing services or independent dealers. With respect to securities where independent valuations are not available on the valuation date, or where a valuation is not deemed reasonable by ALM First, ALM First will determine the fair value. The fair valuation process requires judgment and estimation by ALM First. Although ALM First uses its best judgment in estimating the fair value of investments, there are inherent limitations in any estimation technique. Future events may affect the estimates of fair value and the effect of such events on the estimates of fair value, including the ultimate liquidation of investments, could be material to returns. The production and delivery of this material to any investor/recipient does not establish any express or implied duty or obligation between ALM First and any such investor/recipient, including (without limitation) any duty to determine fair market value or update such material.

Moreover, this report was prepared as of the date indicated herein. No representation or warranty is made by ALM First that any of the returns or financial metrics detailed herein will be achieved in the future, as past performance is not a reliable indicator of future results. Certain assumptions may have been made in preparing this material which have resulted in the returns and financial metrics detailed herein. Changes to the assumptions may have a material impact on any returns or financial metrics herein. Furthermore, ALM First gives no representation, warranty or undertaking, or accepts any liability, as to the accuracy or completeness of the information contained this report.

This report was prepared for informational purposes only without regard to any particular user's investment objectives, financial situation, or means, and ALM First is not soliciting any action based upon it. This material is not intended as, nor should it be construed in any way as accounting, tax, legal, or investment advice including within the meaning of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. Certain transactions give rise to substantial risk and are not suitable for all investors. The strategies discussed herein can have volatile performance and may employ leverage. Moreover, investment advisory fees and expenses may offset trading gains.

This report was prepared by ALM First Financial Advisors, LLC. The hereto mentioned report contains information which is confidential and may also be privileged. It is for the exclusive use of the intended recipient(s). If you are not the intended recipient(s), please note that any distribution, copying, or use of this report or the information contained herein is strictly prohibited. If you have received this report in error, please notify the sender immediately and then destroy any copies of it. ALM First neither owes nor accepts any duty or responsibility to the unauthorized reader. ALM First shall not be liable in respect of any loss, damage, or expense of whatsoever nature which is caused by any use the unauthorized reader may choose to make of this report, or which is otherwise a result of gaining access to the report by the unauthorized reader.

"ALM First" is a brand name for a financial services business conducted by ALM First Group, LLC ("ALM First") through its wholly owned subsidiaries: ALM First Financial Advisors, LLC ("ALM First Financial Advisors"); ALM First Advisors, LLC ("ALM First Advisors"); and ALM First Analytics, LLC ("ALM First Analytics"). Investment advisory services are offered through ALM First Financial Advisors, an SEC registered investment adviser with a fiduciary duty that requires it to act in the best interests of clients and to place the interests of clients before its own; however, registration as an investment advisor does not imply any level of skill or training. Moreover, ALM First Financial Advisors, LLC ("ALM First Financial Advisors"), an affiliate of ALM First Group, LLC ("ALM First"), is a separate entity and all investment decisions are made independently by the asset managers at ALM First Financial Advisors. Access to ALM First Financial Advisors is only available to clients pursuant to an Investment Advisory Agreement and acceptance of ALM First Financial Advisors' Brochure. You are encouraged to read these documents carefully. Balance sheet advisory services are offered through ALM First Advisors. Financial reporting services, loan introduction services, and other special project services are offered through ALM First Analytics. Neither ALM First nor any of its subsidiaries provide legal, tax, or accounting advice.

Thank You!

Alain Tourikian

Director, Advisory Services

atourikian@almfirst.com

Darren Fago, CFA

Director, Advisory Services

dfago@almfirst.com

3800 Maple Avenue, Suite 600

Dallas, TX 75219

Phone: 800.752.4628

Fax: 214.987.1052

[**www.almfirst.com**](http://www.almfirst.com)

