VIRGINIA BANKERS ASSOCIATION ANNUAL CONFERENCE

Pricing Loans in Volatile Markets

STAY ABREAST & PROFITABLE

Presented By:
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Agenda

1 **Current Rate Environment**
How did institutions respond to the unprecedented rate increases?

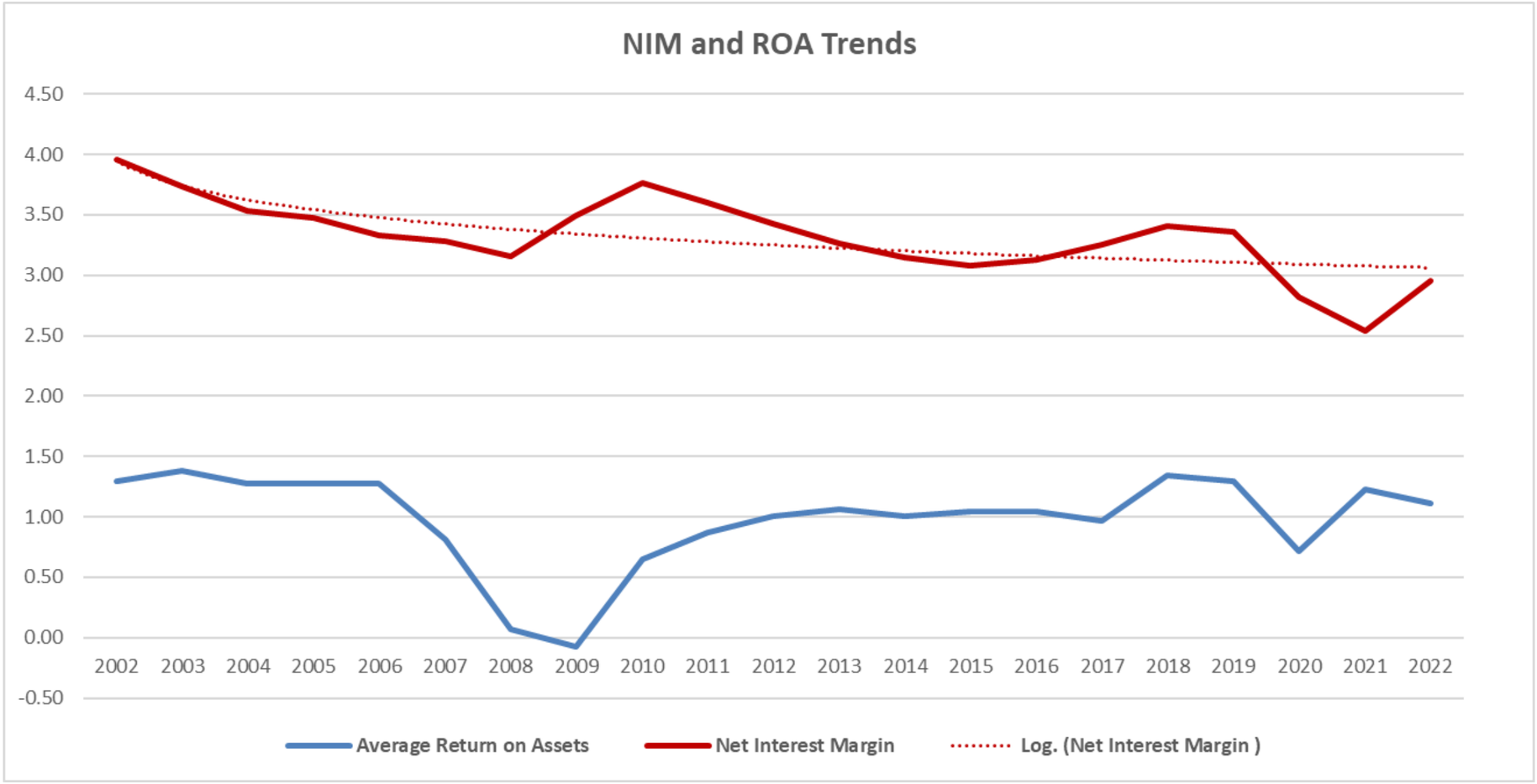
2 **Using Models to Book Profitable Loans**
Leveraging the Loan Pricing Model to help hit strategic goals.

3 **Applying Marginal Yield Calculation to Loan Pricing**
What are the implications of raising or lowering rates?

4 **Deposit Pricing & Funding Strategies**
How do you preserve liquidity in a volatile rate environment?

FED Fund Rate – Rising Rates

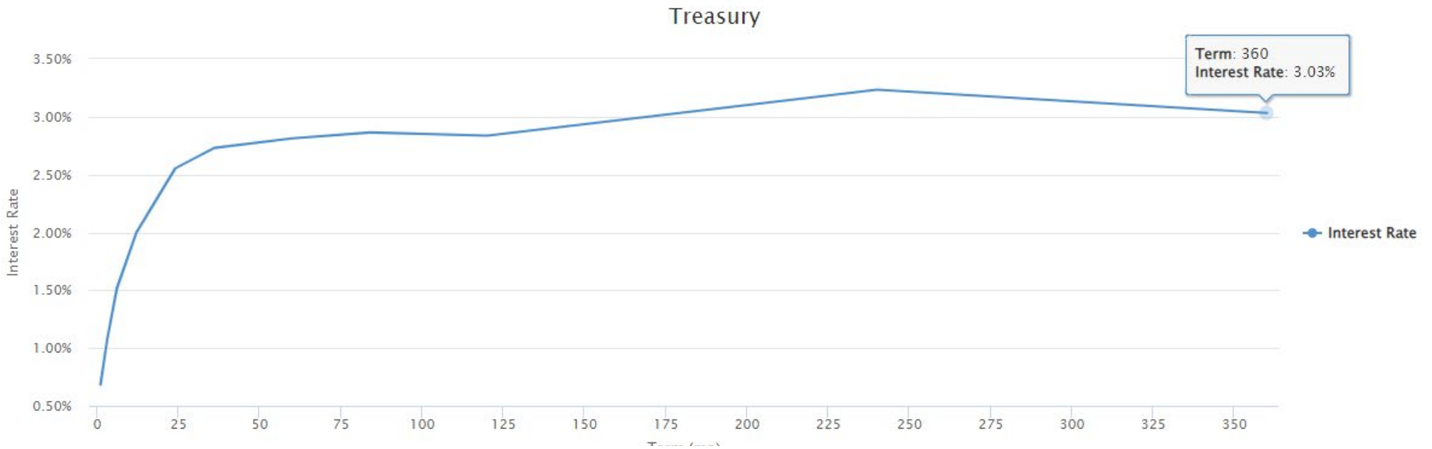
FED Funds Rate – Link to profitability?



Rate Changes Are Not Parallel

Rate Changes – US Treasury Rate

May 31, 2022



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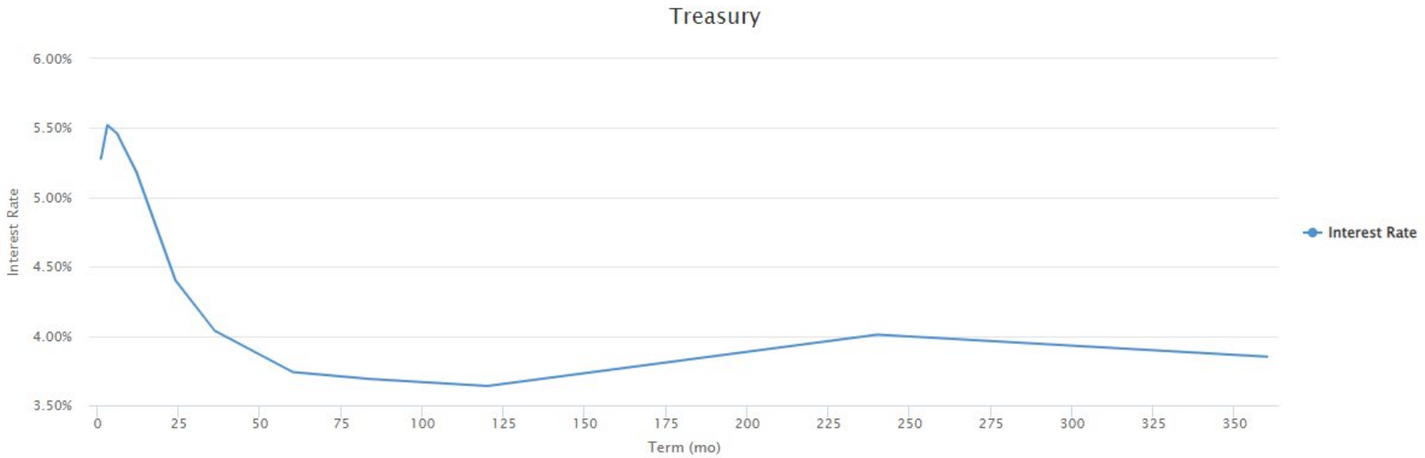
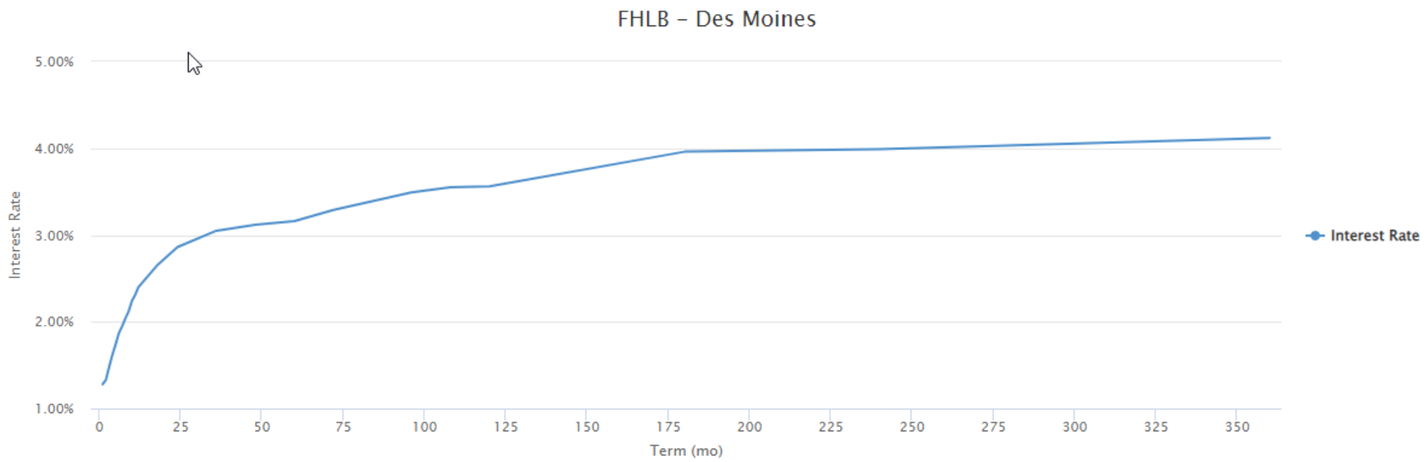


FHLB Rate Changes

May 31, 2022



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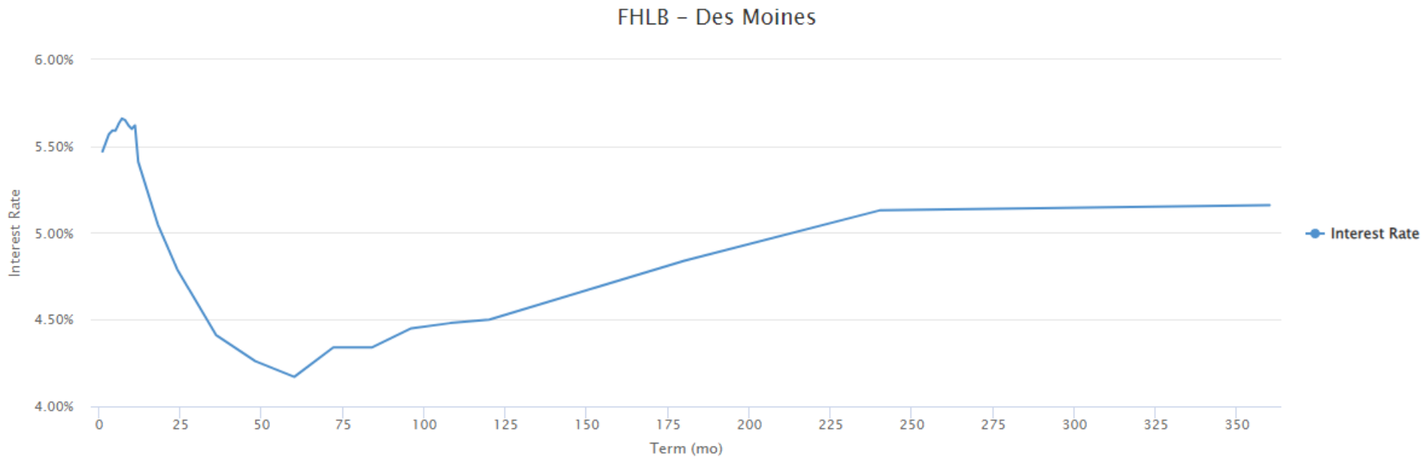


Using Models to Book Profitable Loans

The Role of Loan Pricing Models

- Keys to an Effective Model
  - Identify well priced loans
  - Deal with poorly priced loans
  - Provide multiple profit metrics
  - Use your risk and cost structure

Booking Profitable Loans

- Must have a methodology to determine if loan rates cover risks and costs
  - What is your profit measure that must be met?
  - Is it the same across product?
- Must figure out what the member wants, and can we meet that given our risk appetite?
- Remember basic Econ rules…
  - Econ 101 – If supply exceeds demand – poorly priced
  - Econ 101 – If demand exceeds supply – well priced

Types of Loan Pricing Models

Risk Based Pricing Models

- Uses different loan characteristics to adjust price
- Typically used to set a Base Price (Product Rate Sheet)
- Has some profitability margin baked into Base Price
- Typically requires a default scenario for each Product
- Helps eliminate Fair Lending Issues

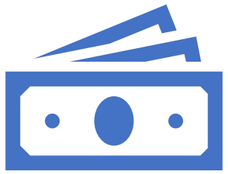
Types of Loan Pricing Models

Profitability Pricing Models

- Uses revenue/expense/risk assumptions to calculate profitability on an individual loan or total relationship
- Expense allocations become a Key Assumption
- Cost of funds should be forward looking
- Allows pricing flexibility based on Profitability targets
- Can be used at ALCO to identify what Products to offer or can be used by Lending Staff to justify exceptions to risked based models

12

Modern Loan Pricing Methodology

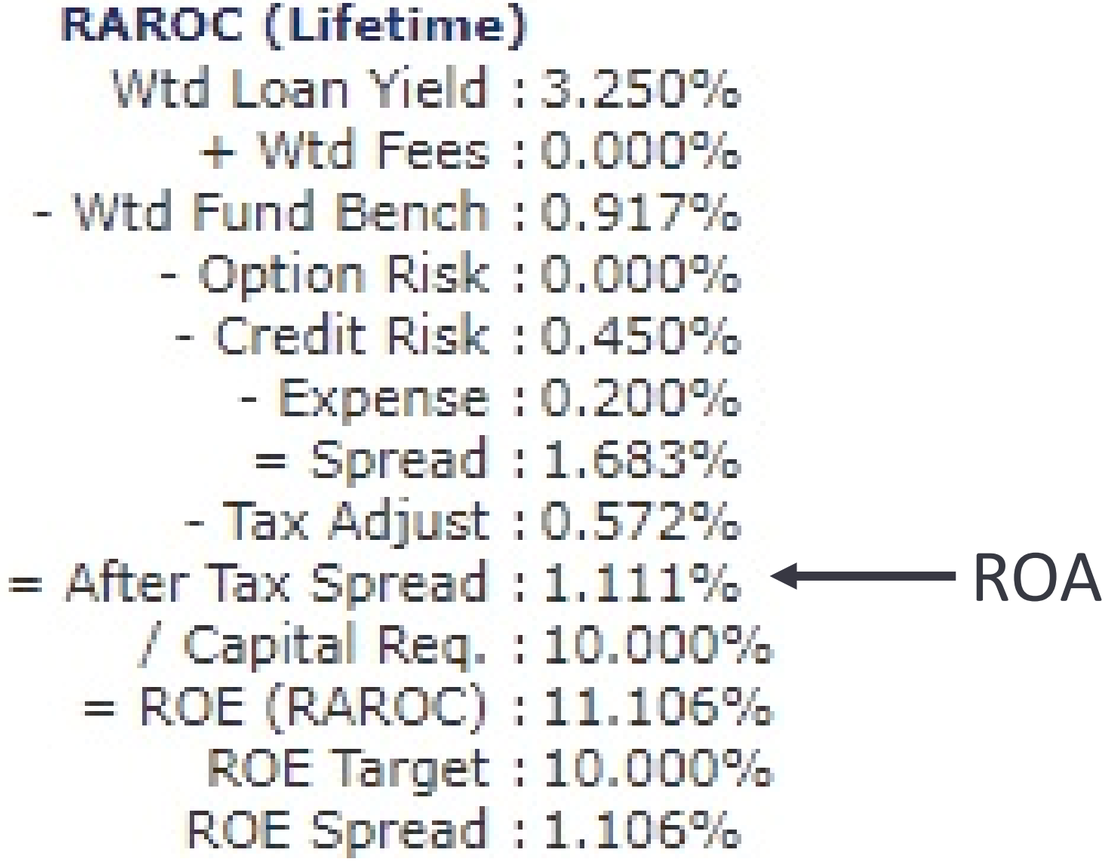


Revenue

Profitability Model – ROA or RAROC

RAROC calculation using a 10% capital requirement.

- RAROC = Risk Adjusted Return on Capital
- Calculation
  - Calculate dollar income.
  - Calculate funding costs using FTP.
  - Calculate dollar expenses.
  - ROA, divide by average principal outstanding.
  - ROE, divide by capital allocated.
- Allocating Capital
  - Allocate capital to produce a measure similar to institution ROE.
  - Using Risk Based Capital guidelines and capital target
    - CU Net Worth target = 10%
    - Loan risk weight = 100%
    - Allocate 10% (10% *100%) capital to the loan pricing



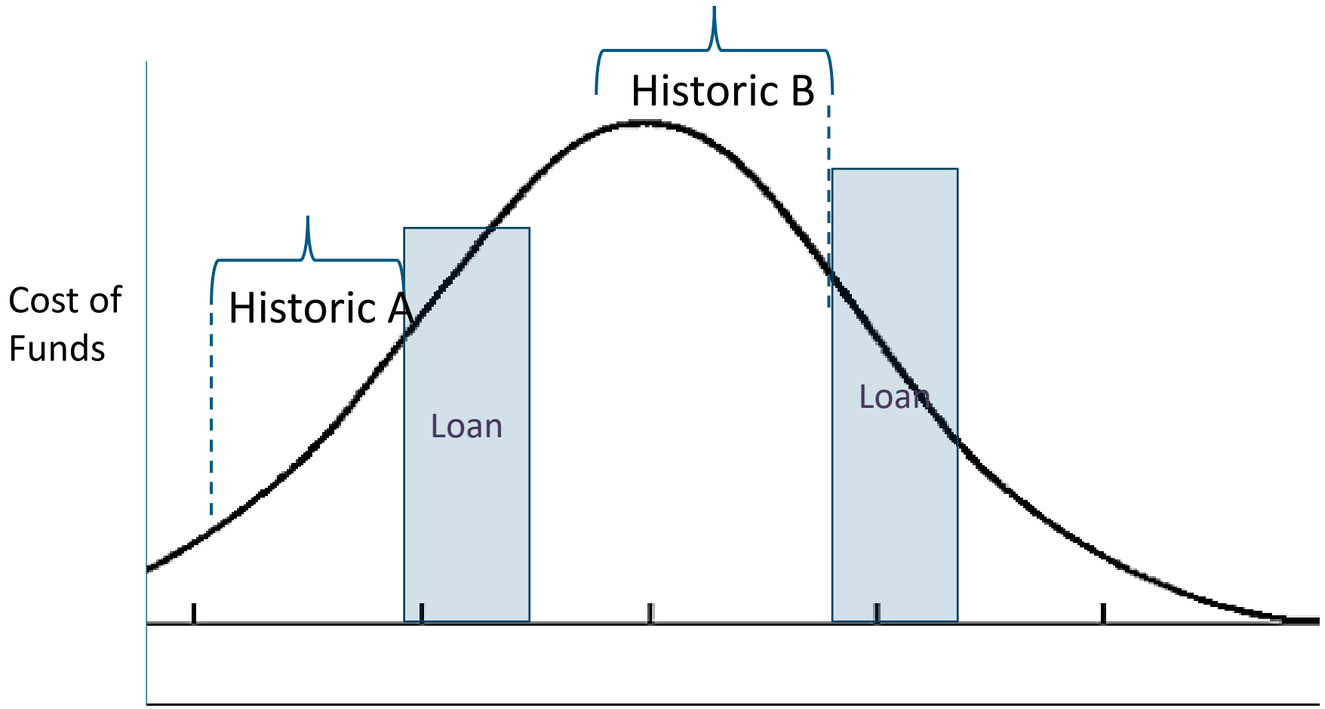
Calculating Cost of Funds

What cost of funds should we use?

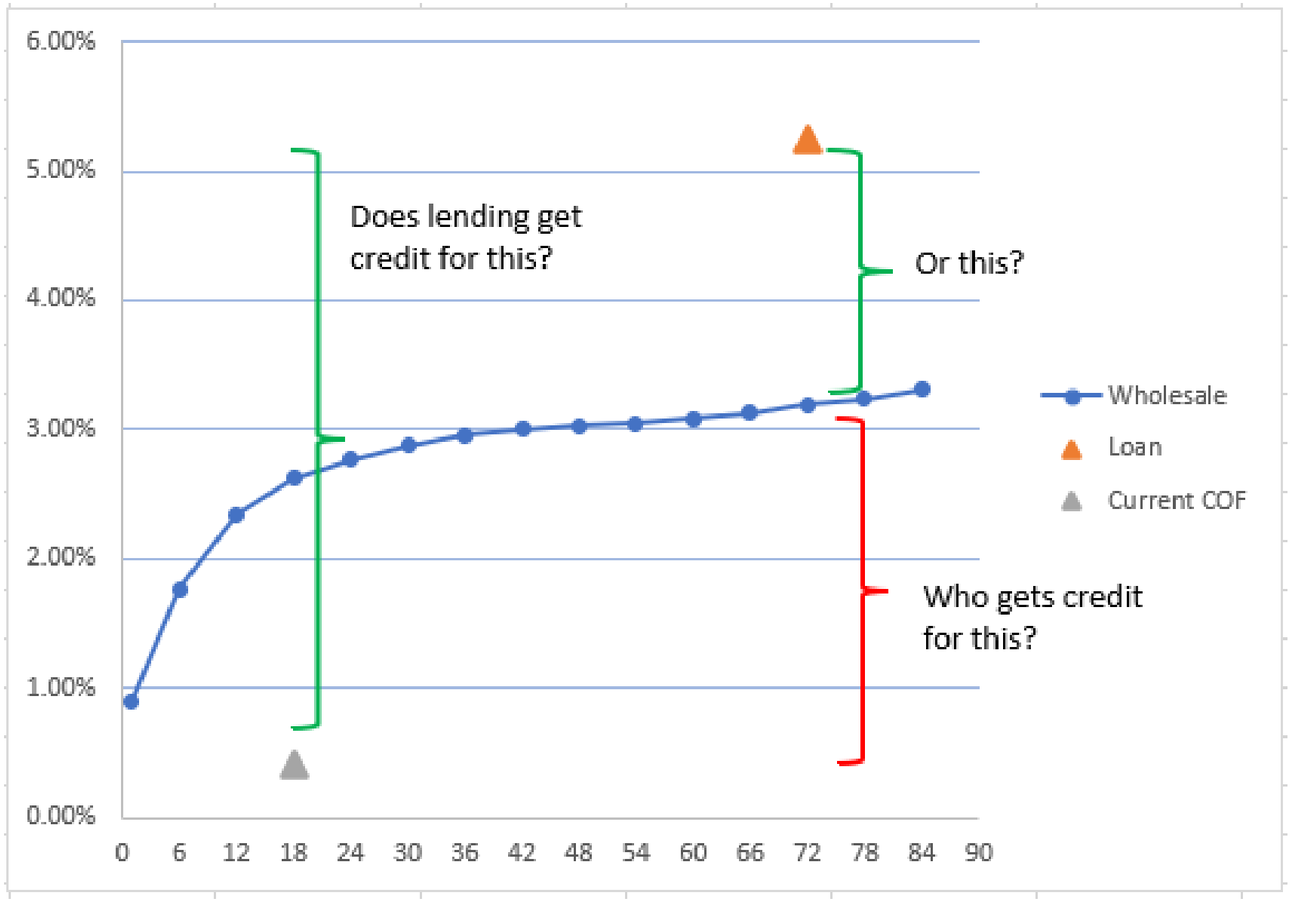
Internal cost of funds is easily calculated. But it is historic.

Our expected internal cost of funds is not expressed as a curve.

How much has your COF increased in last 12 months?



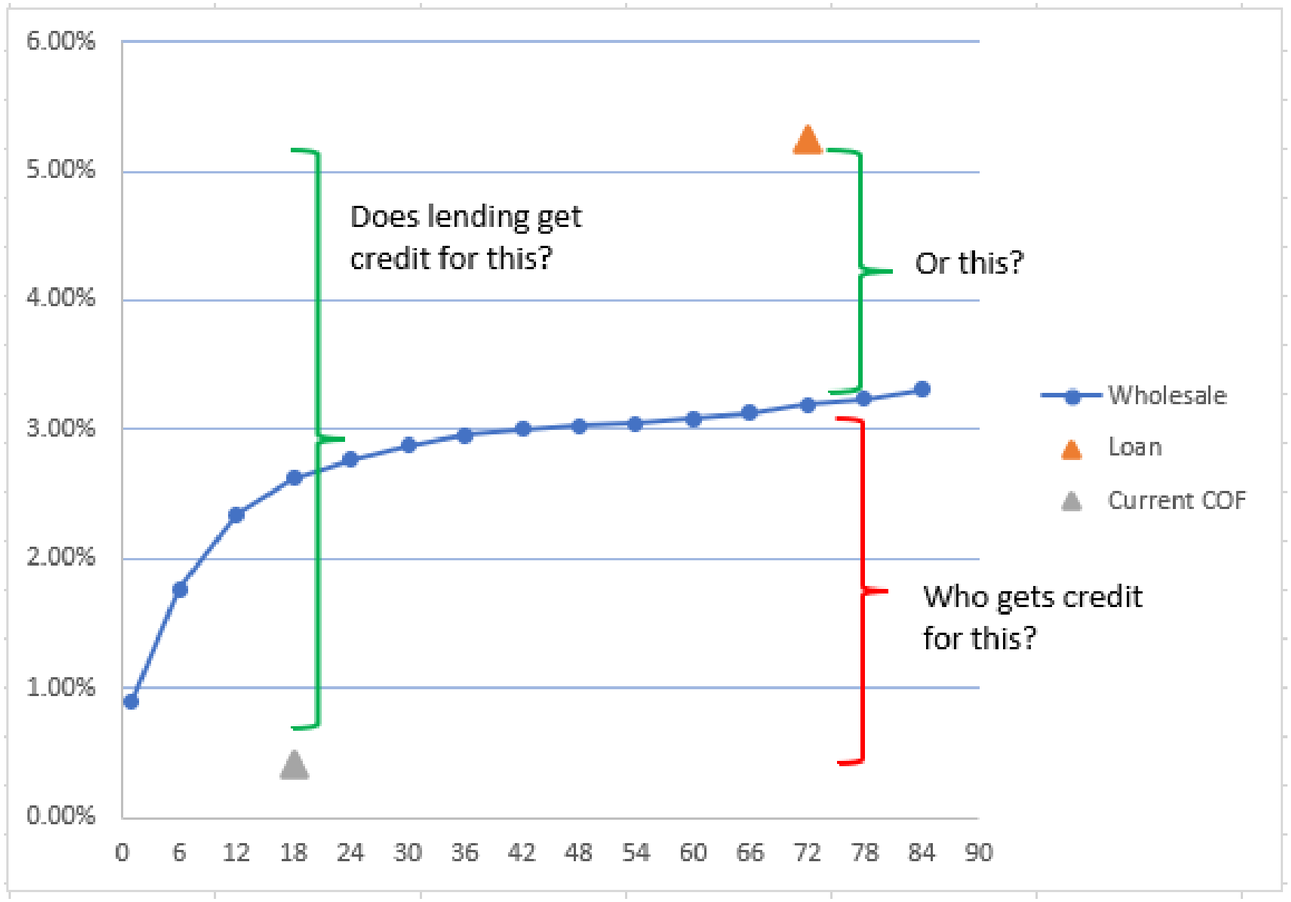
Cost of Funds – Funds Transfer Pricing



June 2022 Rates

- The wholesale curve is the marginal cost of funding my cash flows – *depending on when the cash flows occur.*
- We use FTP in loan pricing to make sure we don't favor loans without accounting for interest rate risk and option risk.
- We use FTP in deposit pricing to make sure we aren't funding loans at a cost higher than our wholesale alternatives.

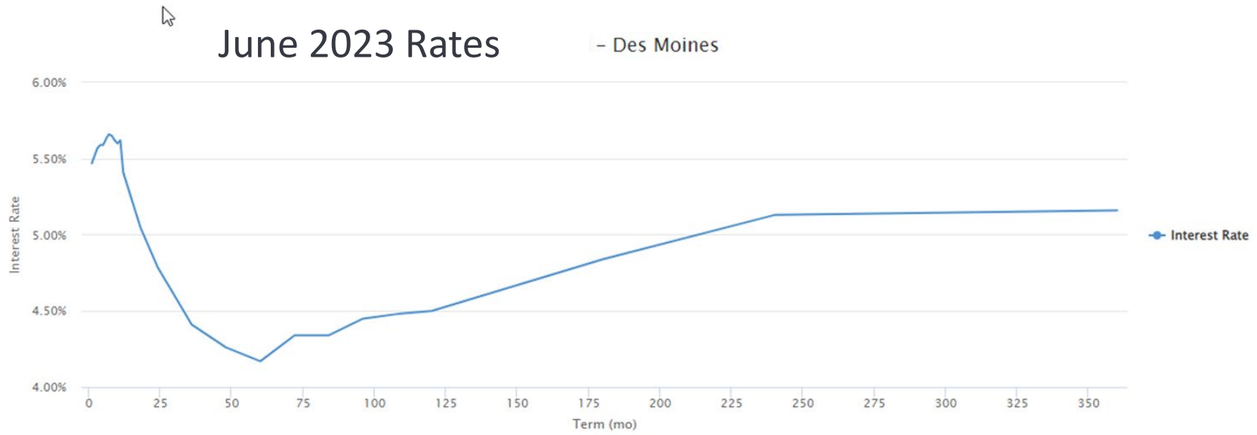
Cost of Funds – Funds Transfer Pricing



June 2022 Rates

- Lending often gets credit for the entire difference between loan rate and cost of funds
- But durations are not the same
  - FTP matches up durations on funding vs. assets
- Lending team should get credit for yield above the FTP curve
  - Maybe less some credit risk?
- Retail gets credit for funding costs below wholesale costs

Cost of Funds – Funds Transfer Pricing



- From 1Q 2022 to 1Q2023
  - Loan rates moved from 5.25% to 5.75%
    - +50 bp
  - Current COF has risen from 0.10% to 0.78%
    - +68 bp and still rising
    - But short-term funding alternatives up over 400 bp!
  - 60-month Treasury up to 3.74% from 2.81%
    - +93 bp
  - Offer rate doesn't cover changes in wholesale realities.
  - So, who get hit with the impact of the cost? .

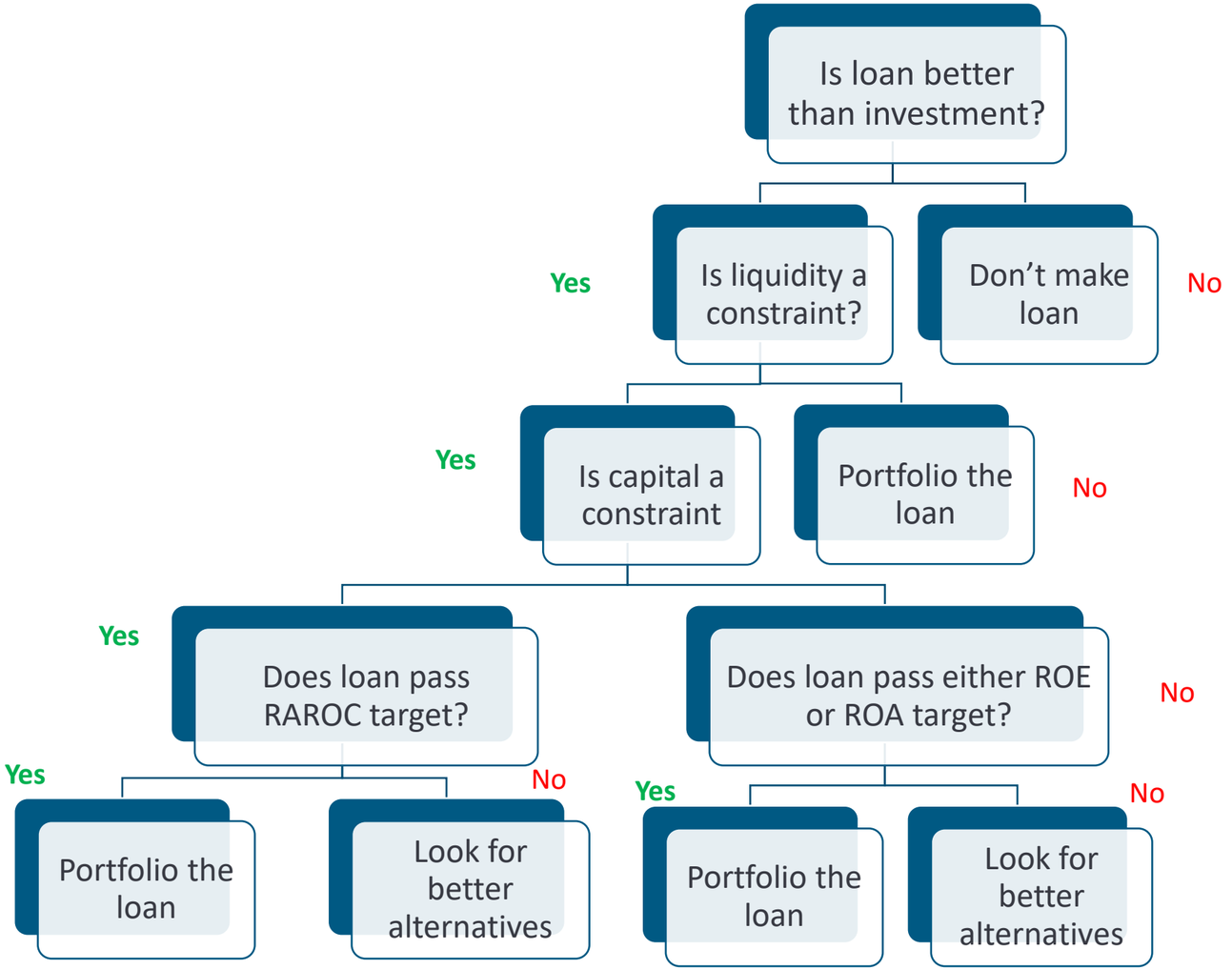
Loan Returns in 2022

- Loan rates and yields were finally rising.
- Cost of retail funding was still low, many still had pandemic liquidity.

$1,000,000 CRE owner occupied, 5/20 balloon, priced off 5-year treasury.

Loan Date	Index Rate	Credit Spread	Customer Rate	ROE	Inv Spread
3/15/2022	2.76%	2.25%	5.01%	10.08%	1.72%
6/15/2022	3.34%	2.25%	5.59%	5.84%	0.86%
7/15/2022	2.87%	2.25%	5.12%	4.01%	0.75%
8/15/2022	3.11%	2.25%	5.36%	6.47%	1.09%
9/15/2022	3.96%	2.25%	6.21%	7.11%	1.29%
9/15/2022			5.12%	-0.61%	0.19%

The Role of Loan Pricing Models



Managing Growth
Marginal Return on Loans

A Look at Loan Rates & Mix

Recent Client Discussion

- Client concerned about declining loan portfolio decides to discount rates to keep loan demand higher and loan officers employed

- Discounting rates from market by 50bp on average loan balance of $250k
- Seeing a doubling of loans vs. market price
- What is the yield on these new loans?

Marginal Yield Calcualtor				
	Average Loan Size		$250,000	
	Market Rate	**# of Loans**	**Volume**	**Income**
Current Status	6.75%	30	$7,500,000	$506,250
Reduce 50bp	6.25%	60	$15,000,000	$937,500
	Change from rate reduction		**$7,500,000**	**$431,250**
	Incremental/Marginal Rate		**5.75%**	

A Look at Loan Rates & Mix

What if we just dropped a little bit….

- Lowered discount 50bp to 25 bp
- Expecting a 50% increase in loan demand
- What is the yield on these new loans?

Marginal Yield Calculalor				
	Average Loan Size		$250,000	
	Market Rate	**# of Loans**	**Volume**	**Income**
Current Status	6.75%	30	$7,500,000	$506,250
Reduce 25bp	6.50%	45	$11,250,000	$731,250
	Change from rate reduction		**$3,750,000**	**$225,000**
	Incremental/Marginal Rate		**6.00%**	

A Look at Loan Rates & Mix

What if we raised rates a little bit….

- Better but what if we can still get 27 loans and raise rates 15 bp?
- The last 3 loans we get by dropping to 6.75% are only yielding 5.4%

Marginal Yield Calculalor

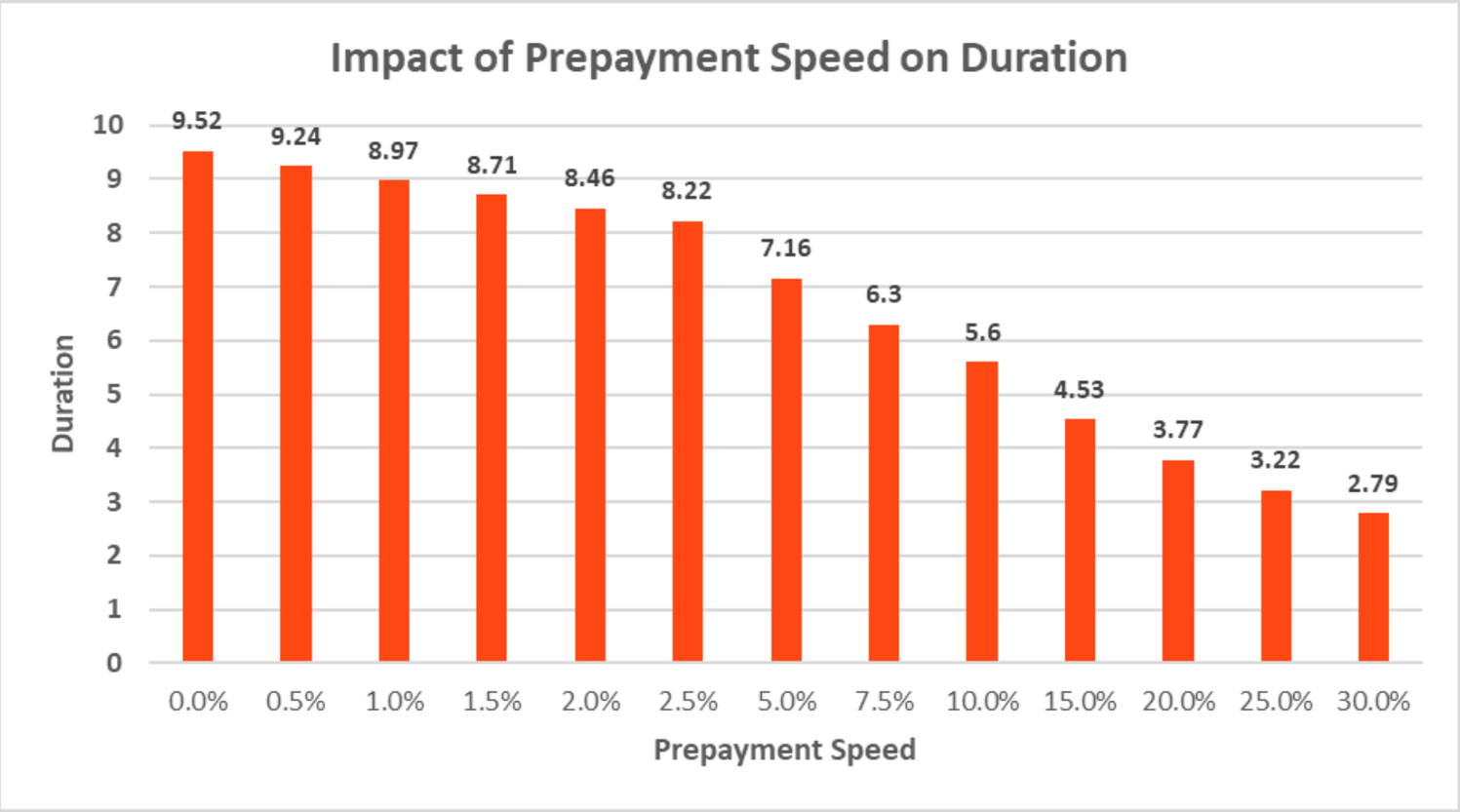
	Average Loan Size		$250,000	
	Market Rate	**# of Loans**	**Volume**	**Income**
Current Status	6.75%	30	$7,500,000	$506,250
Raise 15bp	6.90%	27	$6,750,000	$465,750
	Change from rate reduction		**($750,000)**	**($40,500)**
	Incremental/Marginal Rate		**5.40%**	

Sometimes growth is not as profitable as we think it is!

Duration & Blended Funding

Understanding Duration vs Term

Cash Flows



Variables impacting duration

- Interest rate
- Prepayment speed

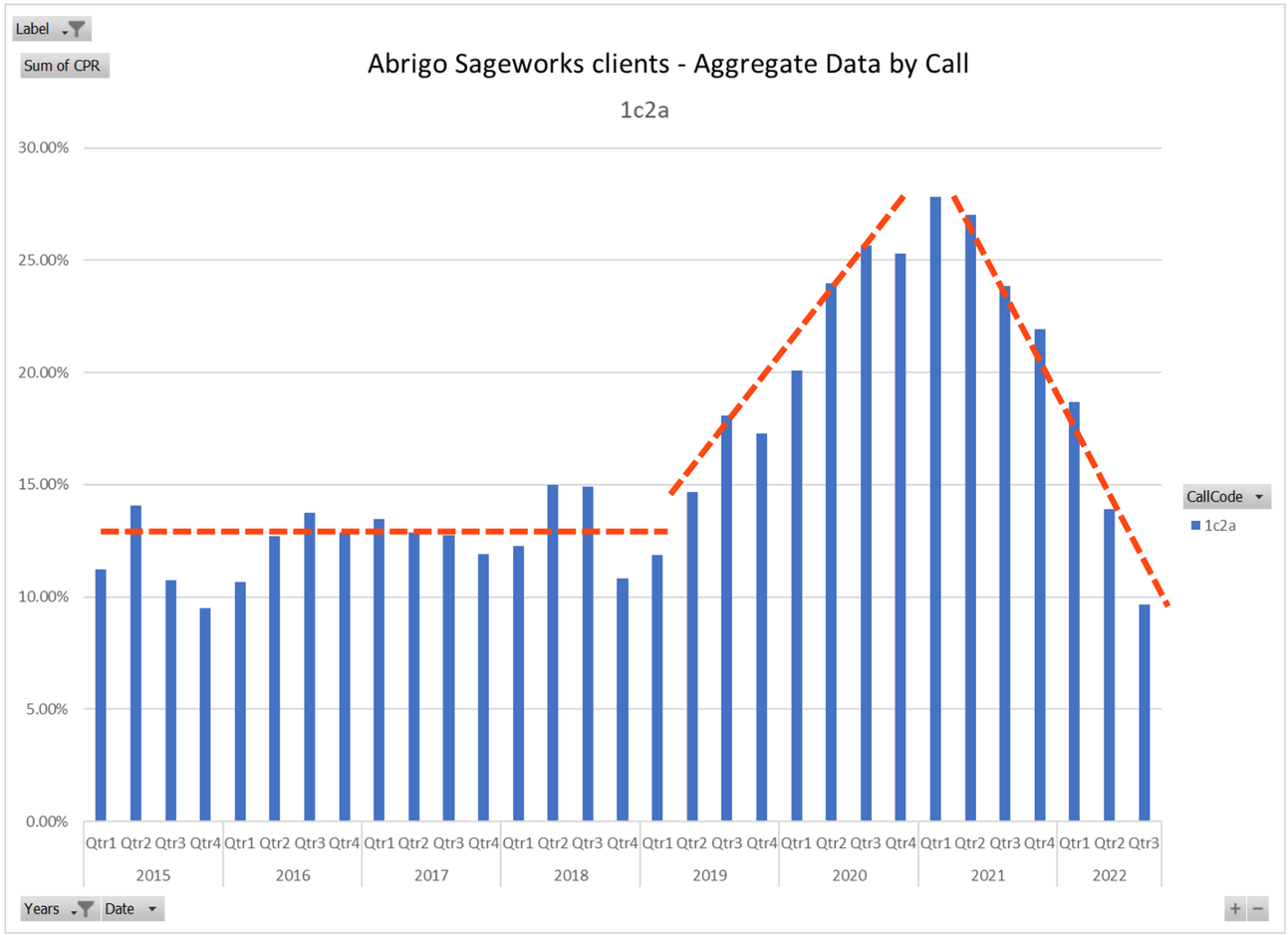
Pricing scenario:

- 20 year fixed
- 4.00% interest
- 10% prepayment

Rate	Duration
2.00%	5.48
4.00%	5.60
6.00%	5.71
8.00%	5.80

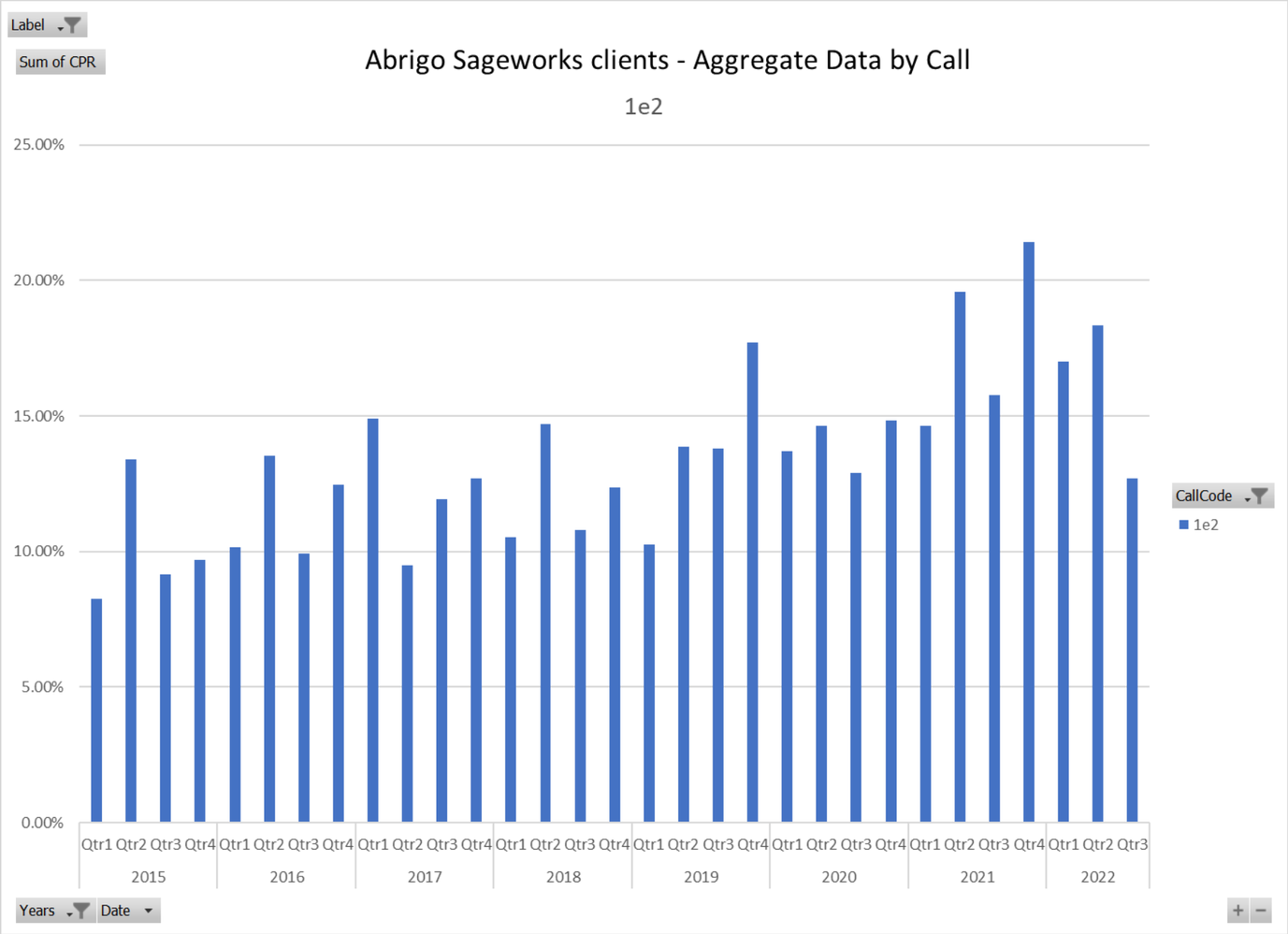
26

Abrigo Mortgage Data – Call Code 1c2a



- Prepayments remained steady between 2015-2018
- 2020 & early 2021 prepayment speeds accelerated
  - Why would prepayment speeds rise as 10-year treasury rates began to increase?
  - Does that fit the market estimated prepayment behavior?
- What happened in 2022?
  - Refi boom over
  - Inflation and Fed actions

Abrigo CRE Data – Call Code 1E2



- Non-Owner Occupied CRE
- Much higher baseline than 1E1
  - Term structure of loans?
  - Investor incentives to churn property? (1031 exchange?)
- This is evidence that despite prepayment penalties, prepayments still take place!
  - Partial vs. full
- Why would prepayments be rising in 2021/22 then falling off in Q4 2022?

Cost of Funds – Funds Transfer Pricing

Blended Funding Concepts

What is blended funding?

- Portion of funding allocated from core deposits
- Portion of funding (new deposits from borrower)
- Remaining funding required from wholesale

Example scenario:

Customer wants a $1,000,000 loan @ 6.25% with a 5 Yr. Balloon and 20 Yr. Amortization

Willing to bring over $100,000 of new deposits

Cost of Funds – Blended Funding

Blended Funding Concepts

5/20 Balloon						
Amount	1,000,000					
Duration	4.5 Yrs					
Rate	6.25%					

Funding Sources	**% of Loan**	**Amount**	**Rate**	**Expense**	**Duration (Yrs)**
Core Deposits - MMDA	25%	$ 250,000	2.75%	$ 6,875	1.5
Core Deposits - Savings	20%	$ 200,000	0.20%	$ 400	3
New Deposits	5%	$ 50,000	4.50%	$ 2,250	0.5
FHLB Funding - 1 Yr	10%	$ 100,000	5.18%	$ 5,180	1
FHLB Funding - 2 Yr	20%	$ 200,000	4.40%	$ 8,800	2
FHLB Funding - 3 Yr	20%	$ 200,000	4.04%	$ 8,080	3
FHLB Funding - 5 Yr	0%	$ -	3.74%	$ -	5
Total	**100%**	**$ 1,000,000**	**3.16%**	**$ 31,585**	**2.1**

Duration mismatch

Rates as of 5/31/2023 – FHLB Des Moines

3.09% Spread

30

Cost of Funds – Blended Funding

Retail COF rises as deposit lags catch up to market

Funding Sources	% of Loan	Amount	Rate	Expense	Duration (Yrs)
Core Deposits - MMDA	25%	$ 250,000	3.75%	$ 9,375	1.5
Core Deposits - Savings	20%	$ 200,000	0.50%	$ 1,000	3
New Deposits	5%	$ 50,000	5.50%	$ 2,750	0.5
FHLB Funding - 1 Yr	10%	$ 100,000	5.18%	$ 5,180	1
FHLB Funding - 2 Yr	20%	$ 200,000	4.40%	$ 8,800	2
FHLB Funding - 3 Yr	20%	$ 200,000	4.04%	$ 8,080	3
FHLB Funding - 5 Yr	0%	$ -	3.74%	$ -	5
Total	**100%**	**$ 1,000,000**	**3.52%**	**$ 35,185**	**2.1**

Rates as of 5/31/2023 – FHLB Des Moines

Increases funding costs 34 bp

Cost of Funds – Blended Funding

Longer term increases current spreads – but at what cost?

Funding Sources	% of Loan	Amount	Rate	Expense	Duration (Yrs)
Core Deposits - MMDA	10%	$ 100,000	2.75%	$ 2,750	1.5
Core Deposits - Savings	5%	$ 50,000	0.20%	$ 100	3
New Deposits	5%	$ 50,000	4.50%	$ 2,250	0.5
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FHLB Funding - 3 Yr	20%	$ 200,000	4.04%	$ 8,080	3
FHLB Funding - 5 Yr	30%	$ 300,000	3.74%	$ 11,220	5
	100%	**$ 1,000,000**	**2.72%**	**$ 38,380**	**2.9**

Rates as of 5/31/2023 – FHLB Des Moines

Reduced duration mismatch

3.53 Spread +44 bp

Leveraging Loan Pricing Models to hit Strategic Goals

Strategic Goals

Loan Growth or Increase Loan to Deposit Ratios

Selecting targets bases on strategic goals

Improve Returns ROA/ROE

Applying the appropriate cost assumptions

Increase Net Interest Margin spread

Using model to leverage perceived values versus actual cost

34

Impact on Profitability

- Cost of funding loans is going up.
- Do you have any liquidity left, will you borrow?
- Shape of yield curve affects how interest rate risk is considered. This leads to different outcomes for different loan types.
- Investment yields higher, so the bar for risk-free alternatives is higher.
- Credit risk being re-evaluated, higher credit risk hurdles.
- CFPB 1071 is on the horizon (2024-2025)

Recent Loan Rate Trends

Prepayments are at historic lows and won't likely reprice as fast in falling rates

Lags in the last few months have shortened

Widening spreads (to any index) represents the liquidity premium and credit spreads in the market today

So how are we supposed to price loans then?

Takeaways

1. Consistency and accuracy in loan pricing methodologies are critical in preserving margin and avoiding unprofitable loans.

2. Volatile rate environments requires constant updates and analysis of markets to make decisions.

3. Future loan payments may be less volatile than in past market rate reductions

4. Funding structures and “matching” cash flows crucial to future margins

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38

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