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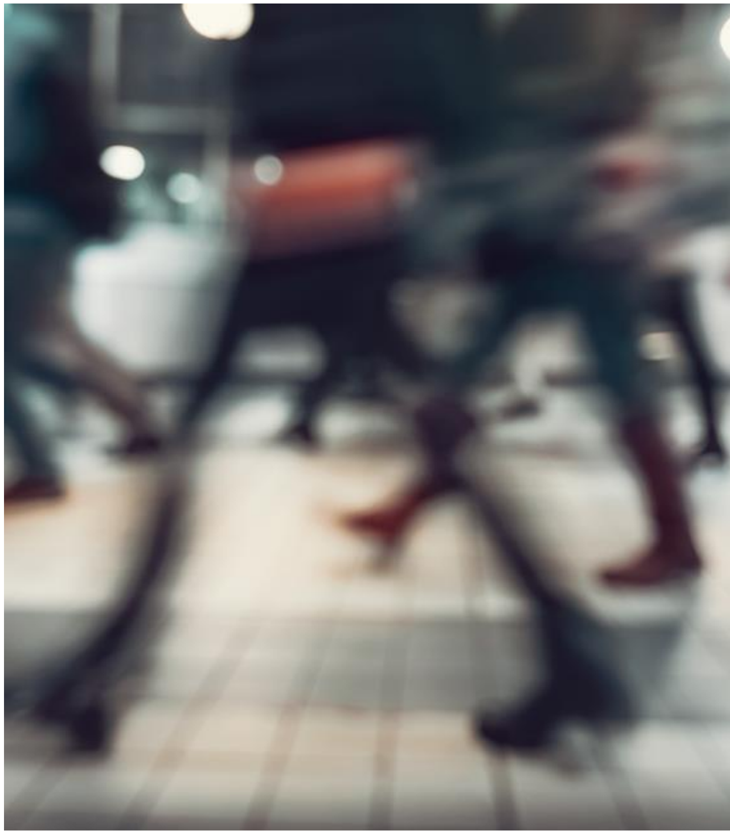

FHLB DES MOINES

You Can't Predict, But You Can Prepare - the Second Half of 2022

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Developing Strategy in 2022

Determine the part or parts of the yield curve that impact your institution the most

- 80/20 rule may be in effect

Realistic modeling should create your roadmap to strategy development

- Don’t predict:

  Prepare by knowing the WHAT, the WHEN & the HOW

Don’t wait for big moves in rates to develop strategy – too late

- 15bp+ moves in <u>shape of curve</u> should lead to execution

Don’t confuse strategy with tactics

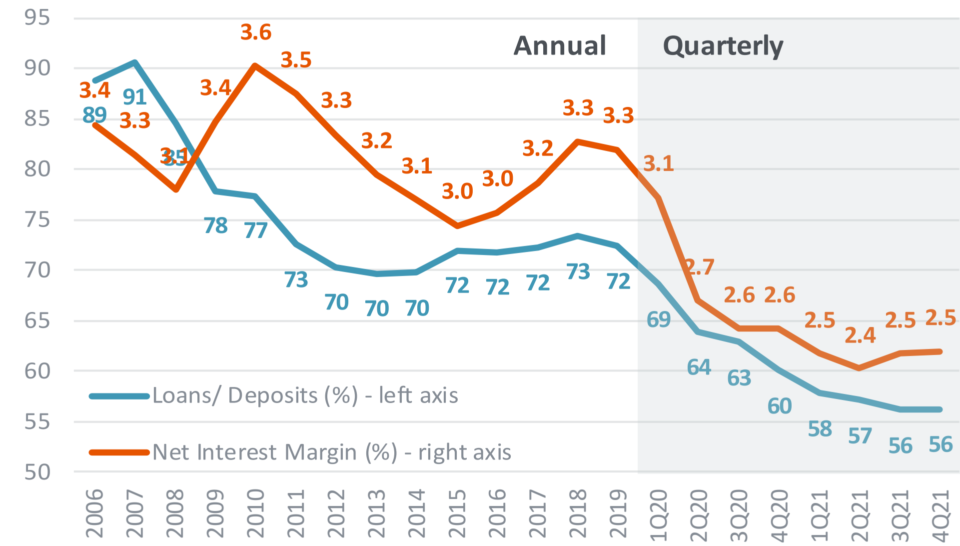
- Tactics are running “what ifs” for examiners based on parallel shifts to stay within policy

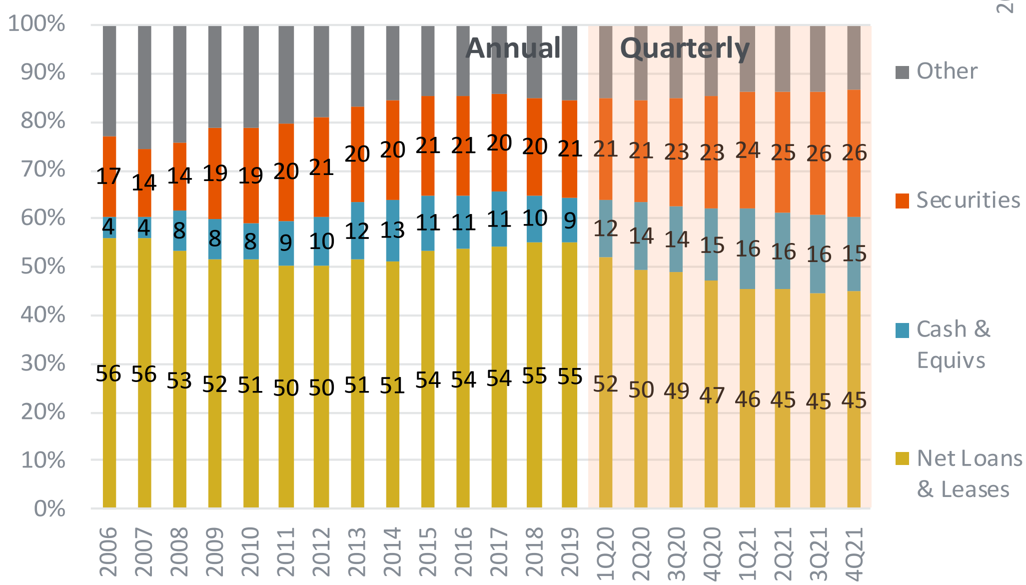
- Strategy is knowing what you will execute when and if the situation arises

- Knowing the impact of small curve shifts should lead to future execution

How we got here… liquidity surge has driven loan-to-deposit (and NIM) to cycle lows, and bond portfolios to record highs

- L2D down from 73% to 56%
- Banks \$500M – \$10B L2D down from 85% to 71%
- Deposits up \$5.2T, or +39%
- Loans up just \$760bn, or +8%





- Meaningful NIM compression
- Cash remains at record levels
- Bonds up 66% to cycle-high 26% of total assets
- 20% of assets in AFS

Sources: S&P Global
Note: data reflects all US commercial banks

Deposits Relative to Loans Over Time

Sources: S&P Global
Note: data reflects all US commercial banks

The deposit landscape has changed

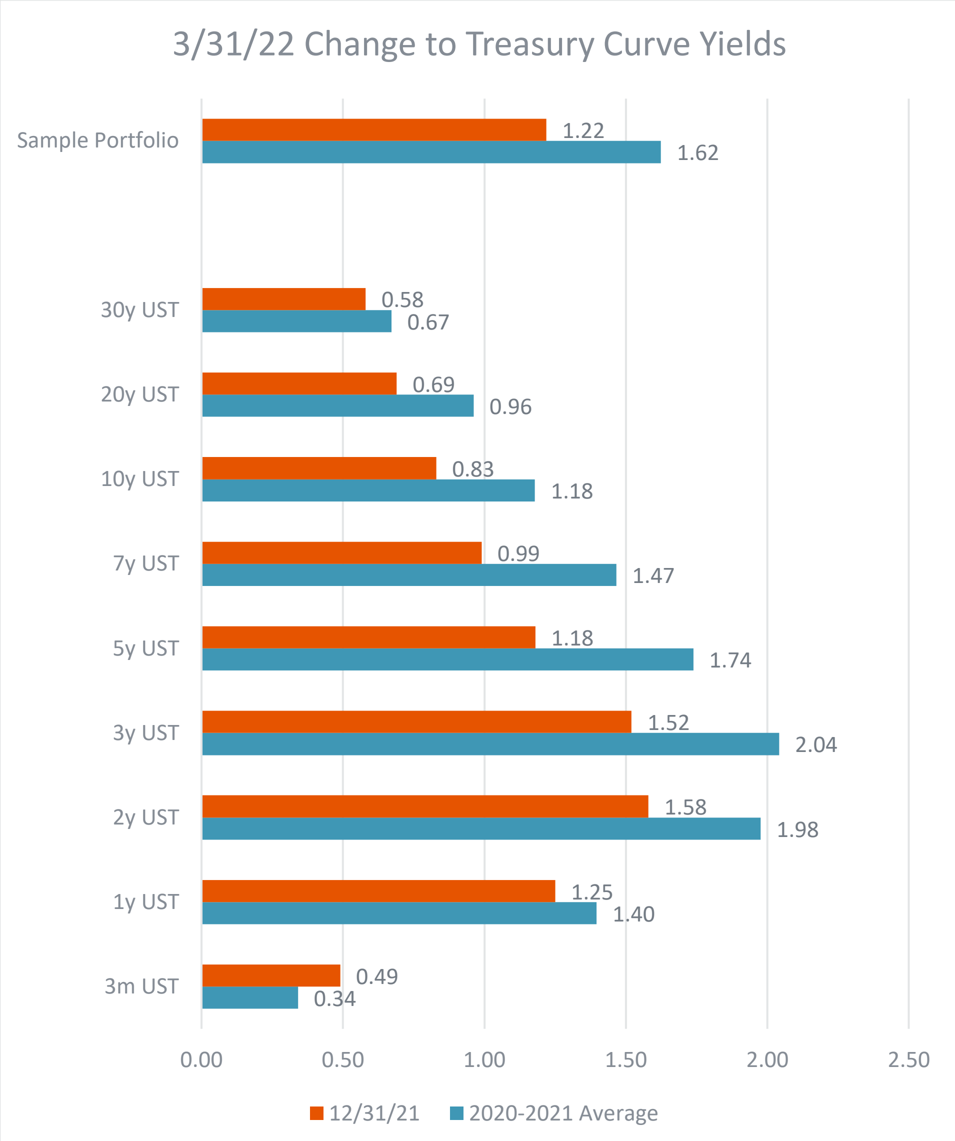
- Stop preparing like it hasn't

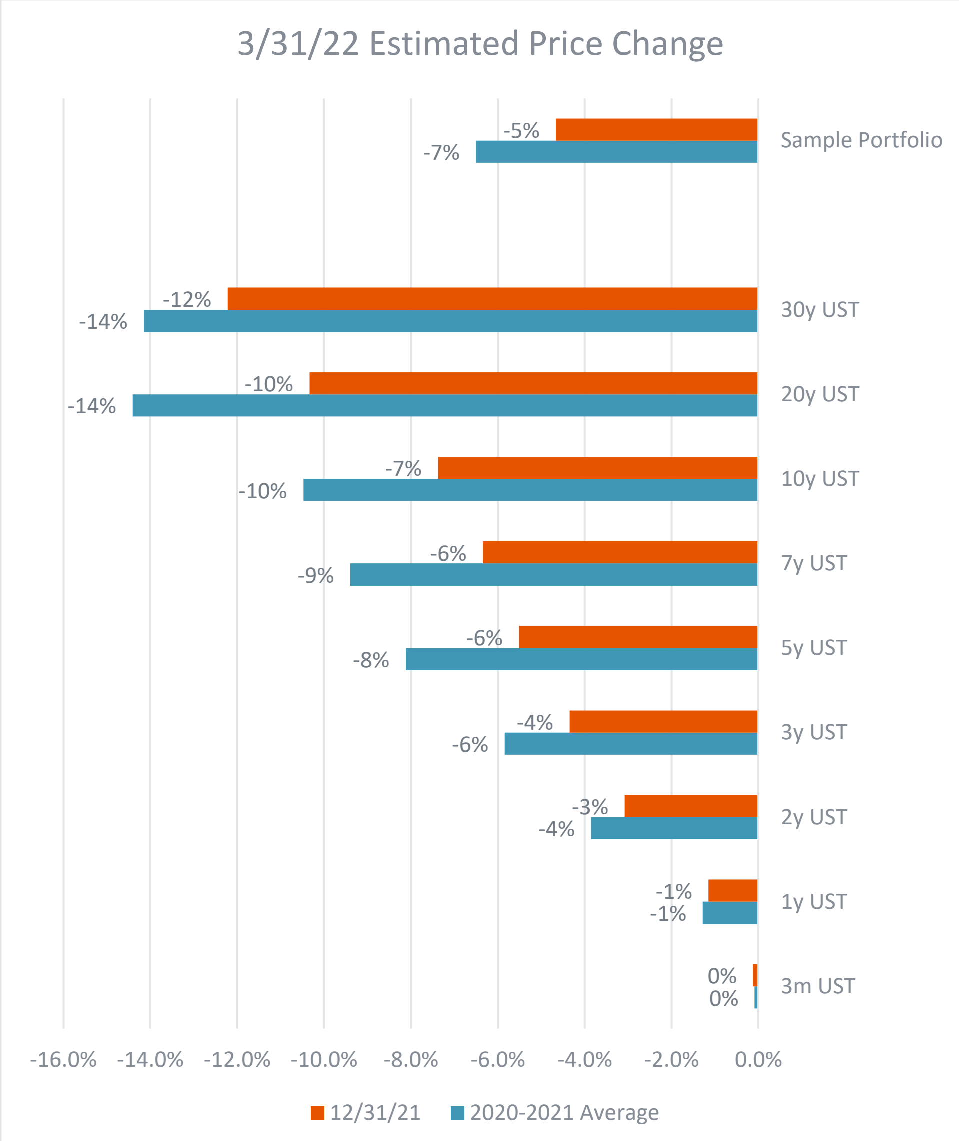
- The Fed drove deposits in –
  - But will they dictate a change in cost

- How do you think about protecting your cost of funds

- Starts with modeling – create your own index

How we got here: 1Q22 treasury curve prices down 1-12% across the curve, as rates are up 50-160bps (most in 40 years*)





Sample Portfolio: created to estimate impact to a 'typical' depository investment portfolio with a duration of ~4.3 years
*Some tenors saw biggest quarterly change in nearly 40 years

Yield curve fluctuations

Index	11/8/18	12/31/19	8/4/20	3/19/21	12/31/21	4/14/22
Fed Funds Target	2.25%	1.75%	0.25%	0.25%	0.25%	0.50%
2 Year Treasury	2.97%	1.57%	0.11%	0.15%	0.73%	2.42%
5 Year Treasury	3.09%	1.69%	0.19%	0.88%	1.26%	2.72%
7 Year Treasury	3.17%	1.83%	0.36%	1.36%	1.44%	2.78%
10 Year Treasury	3.24%	1.92%	0.51%	1.72%	1.51%	2.78%
2-10Yr Treasury Spread	0.27%	0.35%	0.40%	1.57%	0.78%	0.36%
FFT-5Yr Treasury Spread	0.84%	-0.06%	-0.06%	0.63%	1.01%	2.28%
Commentary (Peak/Trough Based on 10year UST)	*(Last) Cycle Peak*	*Pre-Covid*	*Cycle Trough*	*Spring Spike*	*Year-End*	*Today*

Source: Bloomberg, Fed Funds Target is Upper Bound
Market data as of 4/14/2022

Weaponizing your ALCO

Concept

- Determine part(s) of the yield curve that matter to your company

- Use economic data for pricing, not strategy development

Strategy

- Understand your exposure to develop sound strategies
  - Pick 2-3 realistic yield curve shifts
  - Quantify these impacts for ALCO and identify potential remedies
  - Given macro uncertainty, financial institutions are migrating to neutral

- Stick to "inside-out" approach
  - Realistic modeling leads to effective strategy development

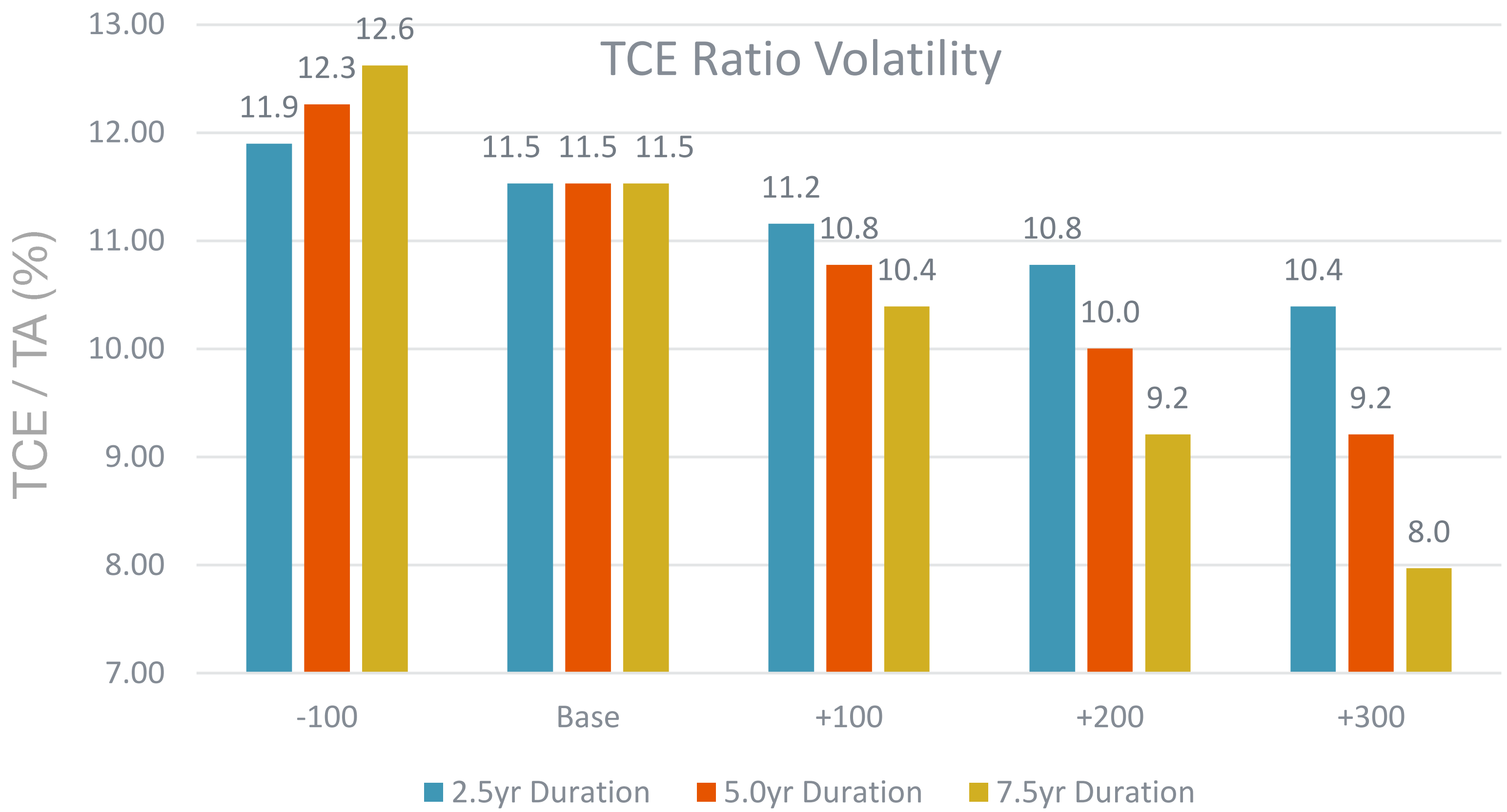
Content

- Create a 3-5 page actionable ALCO summary deck

- Equate sensitivity to rate changes to something that will get your committee's attention
  - BPS of NIM, ROA, EPS, etc.

Tangible book value at risk

- A 100bps rate increase (parallel shock) results in ~75bps decline to TCE Ratio
- This equates to 2/3rds of a full year of earnings given the industry average 9% ROTCE (~114bps TCE Ratio Expansion)



Note the 5 year duration is based on the 3 month trailing average duration of all investment portfolios in the Piper Sandler database. This metric evolves over time, and is based on the forward yield curve and a range of prepayment assumptions based on product type
TCE data reflects average for all regulated depositories
Source: S&P Global, PSC

Impact to my institution?

Regulatory Capital Adequacy:

- No impact to (most) regulatory capital ratios (assuming opt out)
- FDIC PCA Critically Undercapitalized: Tangible Equity/Tangible Assets < 2%

Earnings:

- Losses are unrealized (unless impaired)
- Reinvestment rates higher
- Industry trends 'asset sensitive' holistically

Liquidity:

- On/off balance sheet liquidity metrics largely unaffected… although realizing losses likely necessary to sell bonds

Tangible Equity Sensitivity:

- Trading multiple for public companies
- Exchange multiple for some private company ownership transactions
- Compensation incentives tied to book value growth
- Dividend distribution implications
- M&A deal math

Communication with key stakeholders

- Reminder: purpose of the bond portfolio
  - Spread managers, not Total Rate of Return (vs. benchmark)

- Why is the bond portfolio at a loss and why is equity down?
  - Bonds down, balance sheet potential up
  - <u>Unrealized</u>: Interest rate impacts - Accounting vs. Economics

- Why did we buy bonds when rates were so low?
  - Opportunity cost at an all time high
  - Have a long memory of prior earnings
  - NOTE: We rarely have cash when bond yields are up – current situation

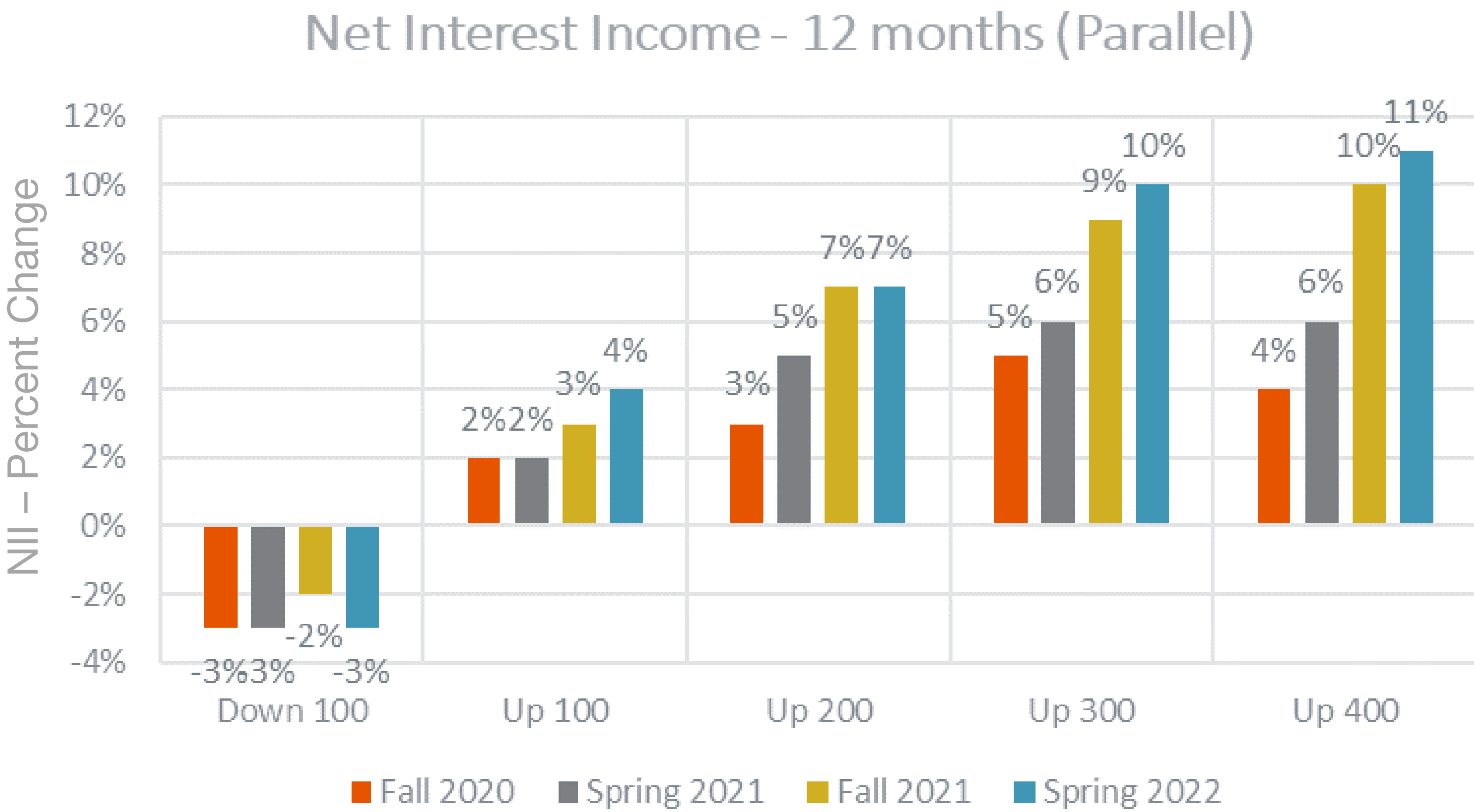
- What will be the impact to our franchise value or stock price?
  - Are you in the bell curve?
  - Unrealized gains/losses move opposite of Price/TBV
  - Fed moves are different than curve moves

- What are the strategies to mitigate or fix it?

Industry profile: net interest income volatility projection

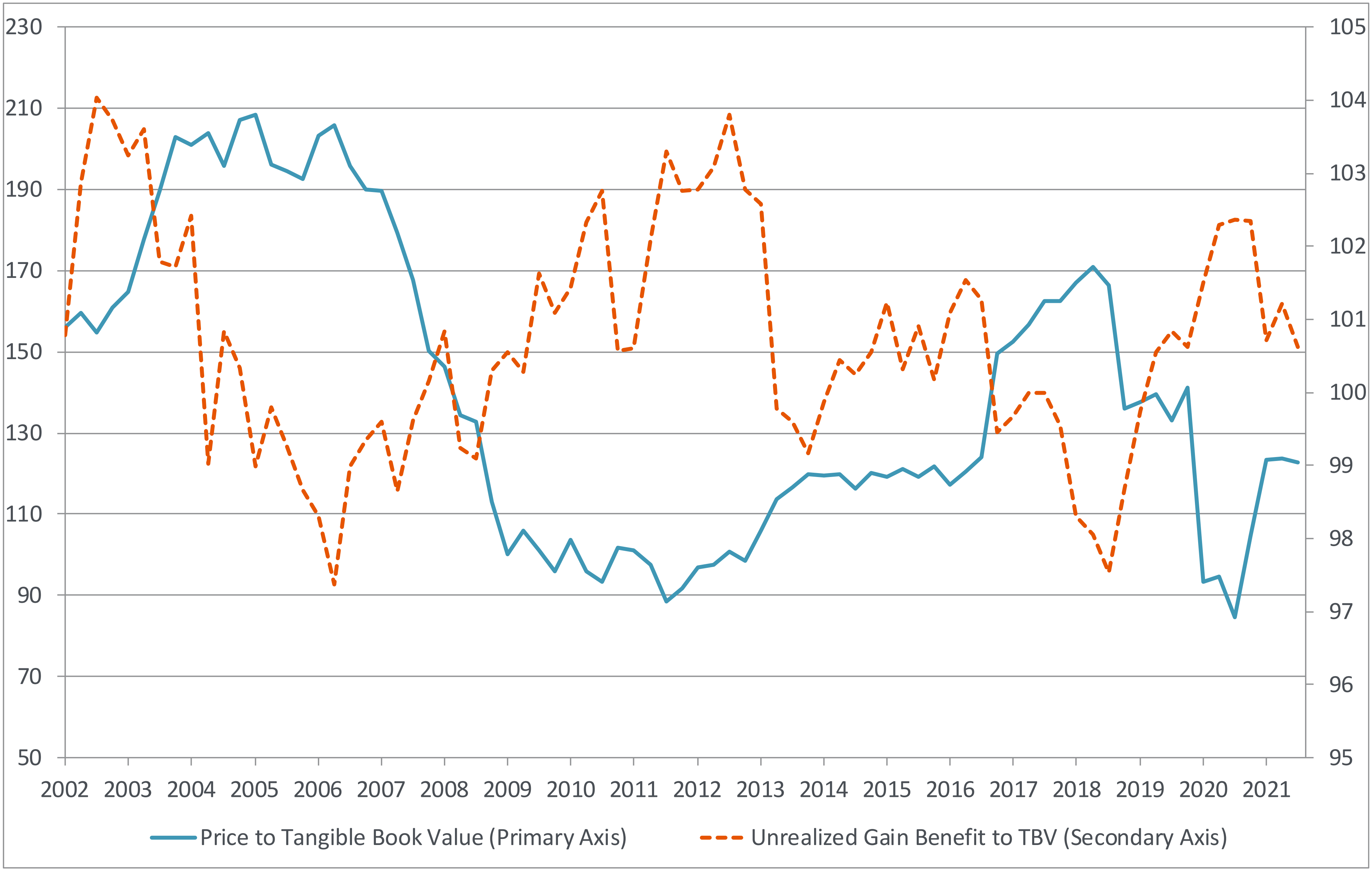
Industry well position for higher rates…

…at least based on a parallel rate shock



Source: OCC https://occ.gov/publications-and-resources/publications/interest-rate-risk-statistics-reports/files/pub-interest-rate-risk-statistics-spring-2022.pdf
The Fall 2020 statistics in this report are based on data from 942 banks. The as-of date of the data ranges from December 31, 2018, to June 30, 2020.
The Spring 2021 statistics in this report are based on data from 946 banks. The as-of date of the data ranges from March 31, 2019, to October 31, 2020.
The Fall 2021 statistics in this report are based on data from 960 banks. The as-of date of the data ranges from September 30, 2019, to June 30, 2021.
The Spring 2022 statistics in this report are based on data from 944 banks. The as-of date of the data ranges from March 31, 2020, to December 31, 2021.

AFS/HTM OCI protection debate: bank valuation vs. bond valuation



Source: S&P Global Market Intelligence.
Includes public banks $1bln to $10bln in assets (median metrics)

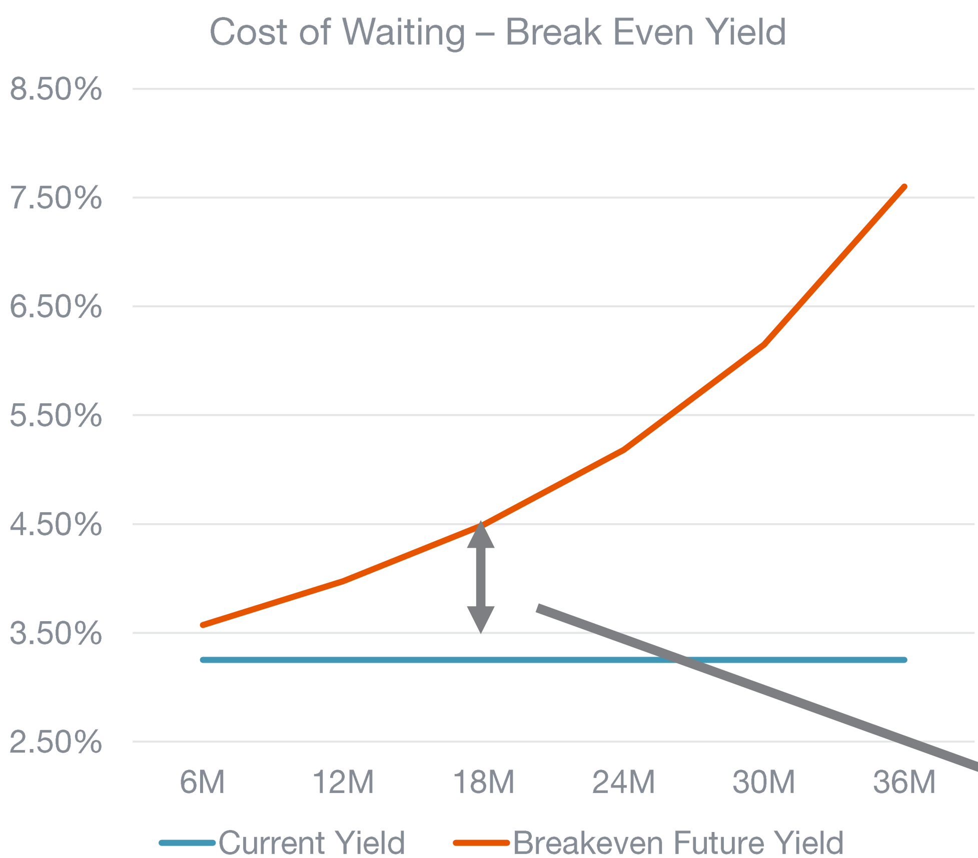
Common mistakes

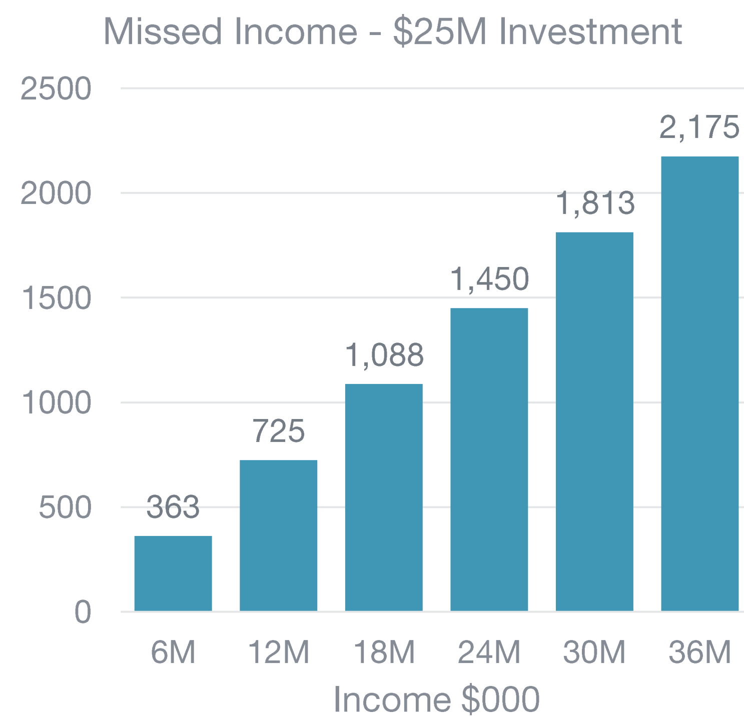
- View bond portfolio in a vacuum
- Confusing unrealized with actual losses
- Short memories

- Rate predictions
- Pause security purchases
- Purchase only shorter assets

- Ignoring where your entire balance sheet is exposed
- Ignoring exposure to multiple parts of the curve
- Confusing tactics for strategy

Opportunity Cost of Cash



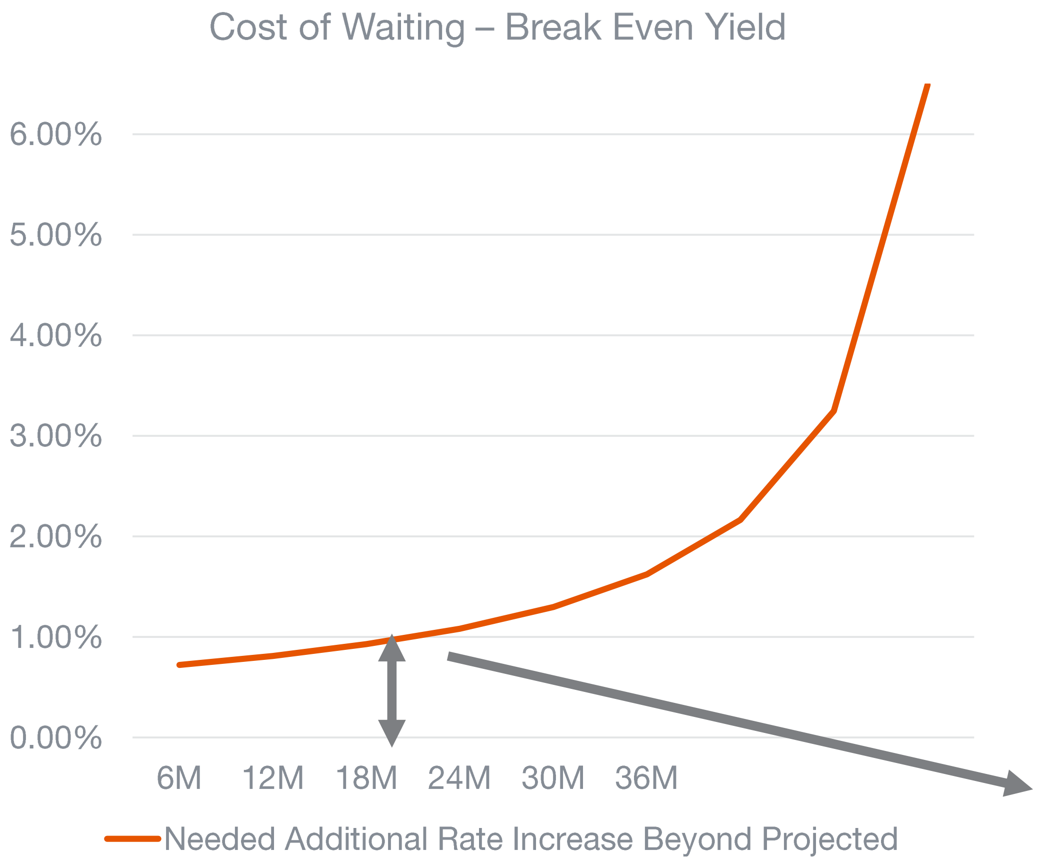


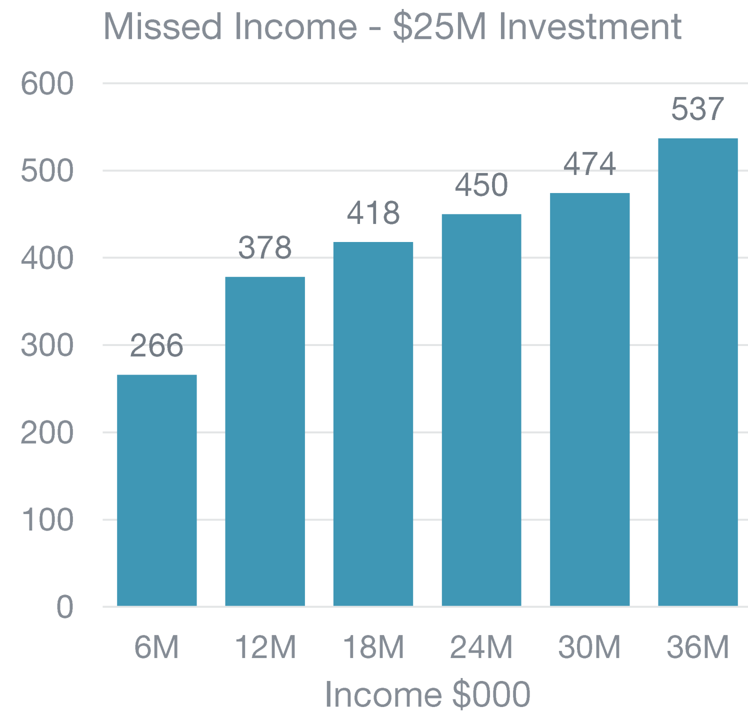
- Waiting 18 months means investors must find 4.50% yields vs. 3.25% yields to capture the same income impact of investing today

- Current expectations for multiple Fed moves are baked into current yields

Cash cost 35 bps, Bond Yield 325 bps

Opportunity Cost of Cash – Forwards





- Waiting 18 months means interest rates must rise by 93 bps more than projected to capture the same income impact of investing in bonds today

- Current expectations for multiple Fed moves are already baked into current yields

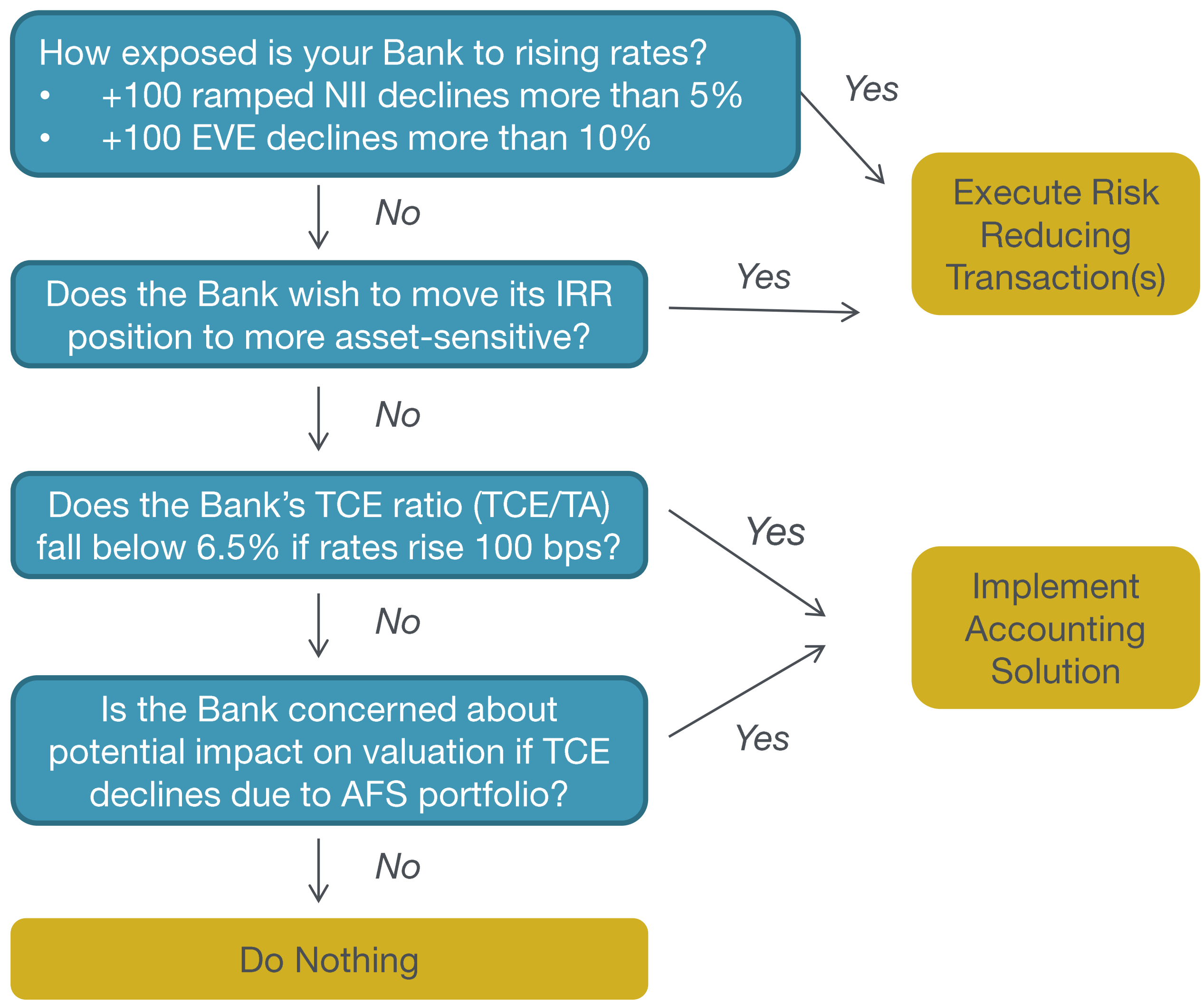
Cash cost based on implied forward curve
Proxy bond yield 325 bps

AFS and unrealized losses

Decision tree on rate protection

Key considerations:

- Sensitivity to TCE & TBV
- Liquidity profile (and various measurements)
- Realized vs. unrealized mark-to-market
- Accounting vs. economic solutions
- Bond valuation vs. bank valuation, etc.



Scenario overview: key considerations

	HTM	Sell Bonds	Hedge Assets	Hedge Funding
Earnings	No impact	Take loss; reinvest dictates earn back	Reduce current earnings	Reduce current earnings
Accounting	Accounting solution, not economic	Remove/ reduce exposure	Fair value partially hedged	Cash flow hedge marked through OCI (symmetry)
Other Considerations	Target AFS /Assets… not HTM /Bonds	Already flush with liquidity	Bond cash flows dictate structure	Limited items to hedge with the prolonged liquidity surge
	Reduced flexibility		Can forward start	Can forecast future funding
	CECL implications			

Sight vs. Vision

- Sight: is what lies right in front of us

- Vision: is what lies ahead

- Three biggest balance sheet concerns: these lie ahead, not the current mark on the bond portfolio
  - Deposit mix shift costing us money
  - Loan origination rates not keeping up with market rates
  - If we are significantly tied to the fed, what if we don’t hit all the projected rate hikes

Key Takeaways

- Remember how we got here, communicate that message
- Don’t confuse sight for vision
- Beware of common mistakes
- Holistic liquidity, balance sheet risk, and interest rate risk trends drive investment portfolio decisions
- Its not relative value, its relative value to your balance sheet
- **Don’t spend so much time looking backwards, there are bigger issues ahead**

Appendix

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Scott Hildenbrand is a managing director and the head of the financial strategies group at Piper Sandler. Hildenbrand also runs Piper Sandler Hedging Services, LLC, which is registered as a swap introducing broker with the Commodity Futures Trading Commission and is a member of the National Futures Association.

Previously, Hildenbrand was a principal and chief balance sheet strategist of Sandler O'Neill + Partners, L.P. He headed the balance sheet analysis and strategy group, working with financial institutions on balance sheet strategy development, which includes interest rate risk management, investment portfolio strategy, retail and wholesale funding management, capital planning, budgeting, and stress testing. Hildenbrand also worked closely with the firm's investment banking group to identify and develop strategic opportunities for clients involved in mergers and acquisitions.

Hildenbrand previously worked in Sandler O'Neill's interest rate products group, focusing on developing and implementing structured wholesale funding strategies for financial institutions. He spent his first four years at the firm in the asset/liability management group. Prior to joining Sandler O'Neill in 2004, Hildenbrand worked as a financial analyst in asset/liability management at Tower Federal Credit Union in Maryland.

In 2021 Hildenbrand was elected to the Financial Managers Society board of directors. Additionally, he serves as treasurer on the board of directors for Liam's Room, a non-profit organization that focuses on pediatric palliative care, a specialized approach to medical care for children with serious illnesses.

Hildenbrand holds a Master of Business Administration degree in finance from Loyola College in Maryland and a bachelor's degree with a concentration in accounting and finance from Gettysburg College. He is a frequent speaker at industry conferences and seminars.

Risk Considerations of Hedging with Derivatives

While derivative transactions hedging future liabilities have many benefits, they also require the Management and Board of Directors to carefully review the associated risks and considerations.

SOME OF THE RISK FACTORS MANAGEMENT AND THE BOARD SHOULD CONSIDER INCLUDE:

Market risk

- Risk that market moves in the opposite direction of the hedge leading to “buyer’s remorse” and a net cost to the hedge over its life

Counterparty risk

- Risk that counterparty defaults and derivative’s value must be written off
- Risk that counterparty margin posted does not cover market value
- Chance of counterparty default may put hedge accounting treatment in jeopardy

Accounting risk

- If hedge accounting is jeopardized through some misalignment between the hedge and the hedged item, the derivative market value of the hedge may be forced to flow through earnings and regulatory capital

Regulatory risk

- Policies and procedures for monitoring initial and ongoing risk most scrutinized
- Minimal risk when derivative strategy is used for hedging and not speculative use

Liquidity Risk

- Management must evaluate the effect an interest rate derivative strategy may have on liquidity calculations when collateral calls and periodic hedge payments are considered

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