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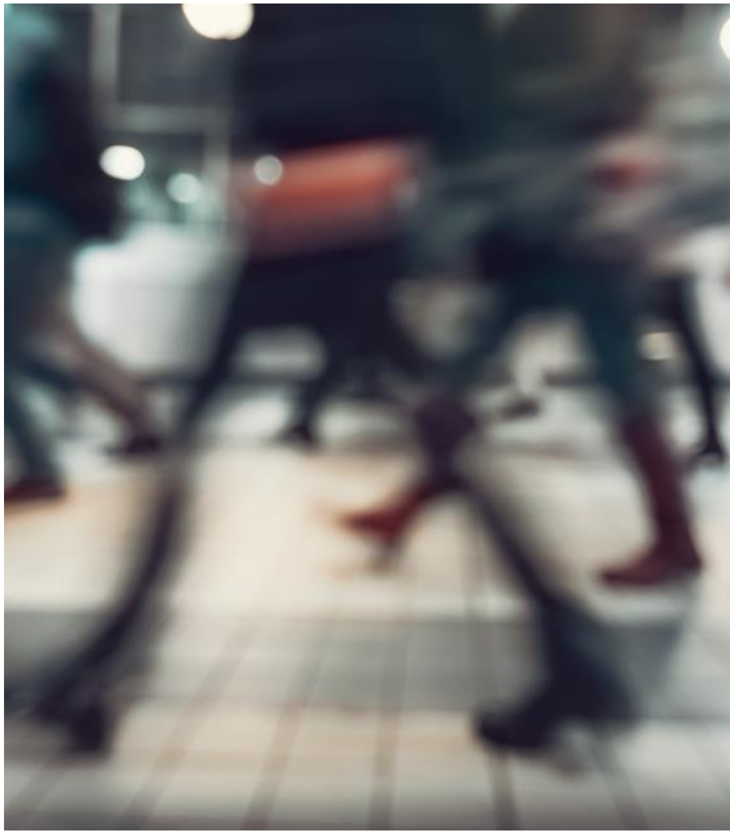

Federal Home Loan Bank
NEW YORK

You Can't Predict, But You Can Prepare: Getting Ready for the Rest of 2021

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Current themes in the banking industry

Liquidity

- It is still here
- Strategically measure
- Margin pressure
- M&A impact?

Yield Curve

- Steepness is here
- What are we rooting for?
- 2/10s vs FF/5s
- OCI/HTM

Capital

- Debt markets remain robust
- Spreads still tight – for how long
- Off market transactions / know your underwriter

M&A and Valuation

- Deals have started
- Larger banks have better multiples
- MOE type deals
- Tech & scale

You can't predict, you can prepare

WHY TREASURY RATES WILL RALLY

- The relative advantage the S&P 500 dividend yield has held over the benchmark U.S. Treasury note since 2019 seems to have vanished
- On a currency hedged basis US bonds offer yields of more than 1% to euro and yen based investors compared to their domestic bonds
- Higher real rates suggest economic growth is gaining traction, but the increase may adversely impact risk assets. Rising real rates may trigger a measured or panic-driven rotation out of stocks and into bonds
- President Biden will seek more than $3 tn in new tax revenue
    - Return the corporate tax rate to 28% from 21%
    - Households making over $400k would see an increase in the marginal tax rate

WHY TREASURY RATES WILL SELL-OFF

- Economy continues to grow (given all the stimulus) increasing the reflation risk as lockdown restrictions are further lifted
- 5yr inflation breakeven at 2.63%, its highest since 2008
- Base effects could push inflation above 3% over the next 2-3 months, giving the false impression that inflation has moved higher on a sustainable basis
- Optimism on the $2.3 tn infrastructure spending plan (i.e. American Jobs Plan); also President Biden will propose a second $2 tn spending plan (i.e. American Families Plan)
- Capital relief over the Supplementary Leverage Ratio was not extended
- Concerns over excessive debt issuance

What is the market giving us?

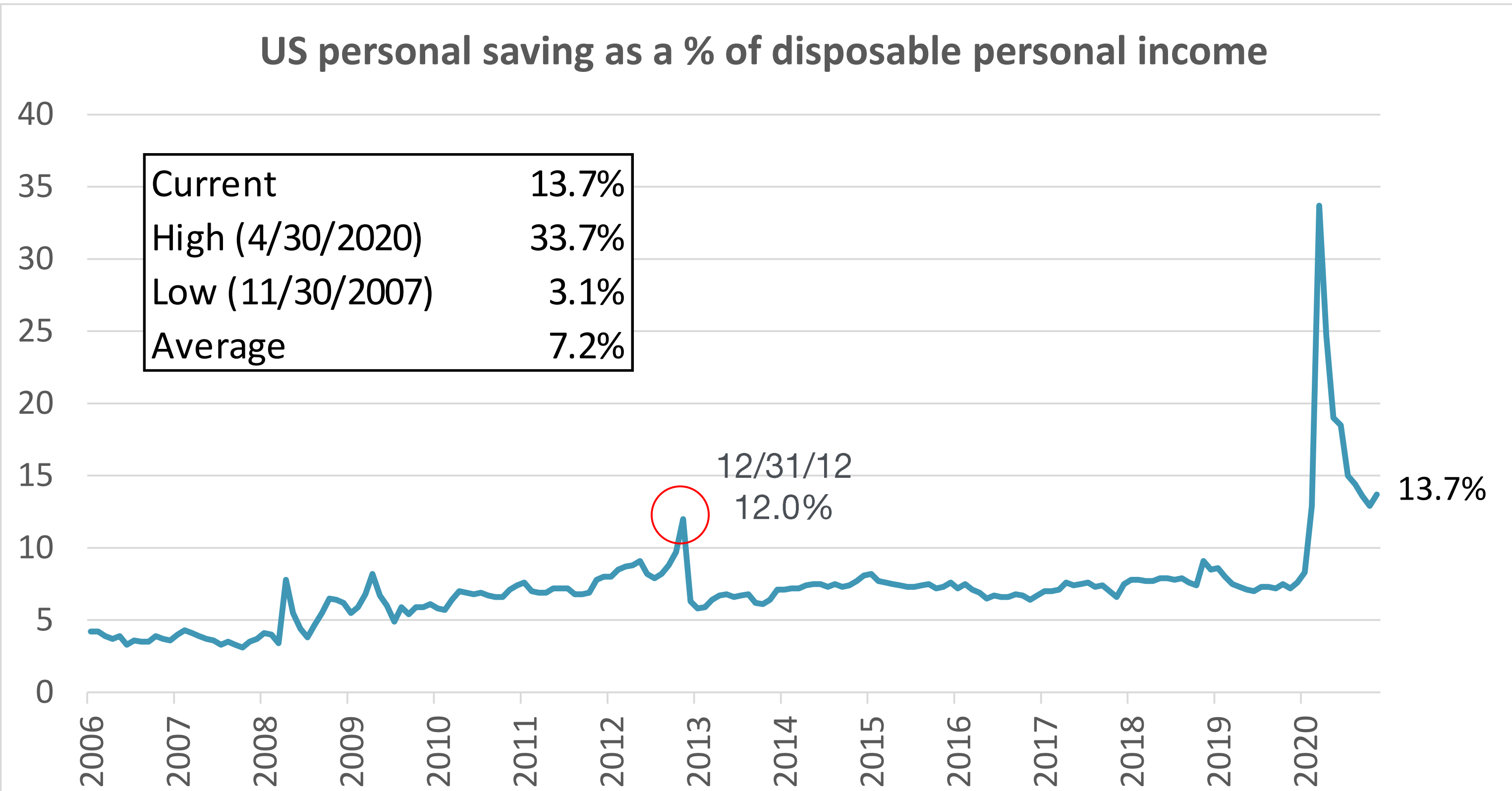
Yield Curve Reactions

Index	3/31/20	6/30/20	9/30/20	12/31/20	3/31/21	4/7/21
Fed Funds Target	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
2 Year Treasury	0.25%	0.15%	0.13%	0.16%	0.16%	0.15%
5 Year Treasury	0.38%	0.29%	0.30%	0.39%	0.94%	0.85%
7 Year Treasury	0.54%	0.49%	0.47%	0.64%	1.42%	1.32%
10 Year Treasury	0.67%	0.66%	0.71%	0.88%	1.74%	1.65%
2-10Yr Treasury Spread	0.42%	0.51%	0.58%	0.72%	1.58%	1.50%
FFT-5Yr Treasury Spread	0.13%	0.04%	0.05%	0.14%	0.69%	0.60%

Source: Bloomberg, Fed Funds Target is Upper Bound
Market data as of 4/7/2021

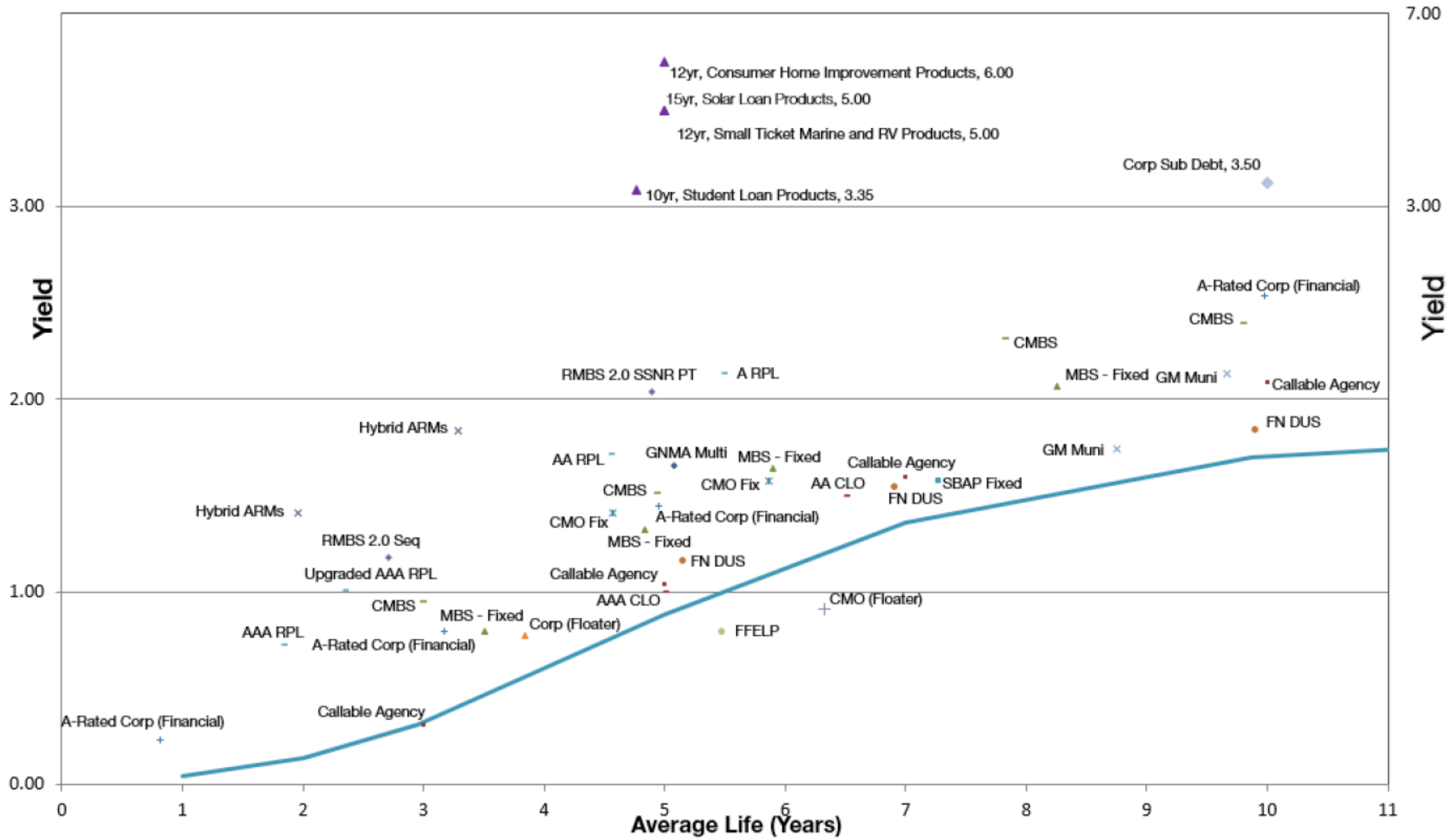
Market liquidity and US personal saving

Recent Trends for U.S. Public Banks							
Balance Sheet & Liquidity	2013Y	2014Y	2015Y	Q1'20	Q2'20	Q3'20	Q4'20
Cash / Assets	5.4%	5.2%	5.0%	6.1%	8.2%	7.5%	9.1%
Securities / Assets	19.6%	18.6%	17.4%	14.6%	13.5%	13.6%	14.5%
Loans / Deposits	82.2%	84.4%	86.7%	90.7%	88.4%	87.5%	83.4%



Bond market trends

- Steeper yield curve creates value in roll-down
- Improved income options (1.6-2%+ yields)
- Jumbo MBS prepay speeds high
- Stimulus flowing into state and local pockets upgrades muni sector
- Limited incentive to sell - immense liquidity



Source: Bloomberg, Piper Sandler & Co, securities as of 3/31/2021

1. Indicative spreads are based on mid-market levels for interpolated benchmark securities. Actual spreads may vary significantly for specific bonds, given market volatility.
2. Yields on loan flow products are estimated. For further discussion on how to begin consideration and further due diligence, please reach out to Piper Sandler Loan Strategies, LLC.

What we are buying

- Leaned into agency MBS 20Y 2s, <103 = better with recent lower premiums

- Munis and agency CMBS seem expensive on spread perspective,
    - Leading folks to conduit CMBS, usually AAA and 7 year part of the curve
    - Munis and conduit CMBS are both non-agency

- Room for one-off Sub Debt

- Non-CUSIP investments are still getting focus: BOLI, loan flow programs

You will be asked about bond portfolio valuations

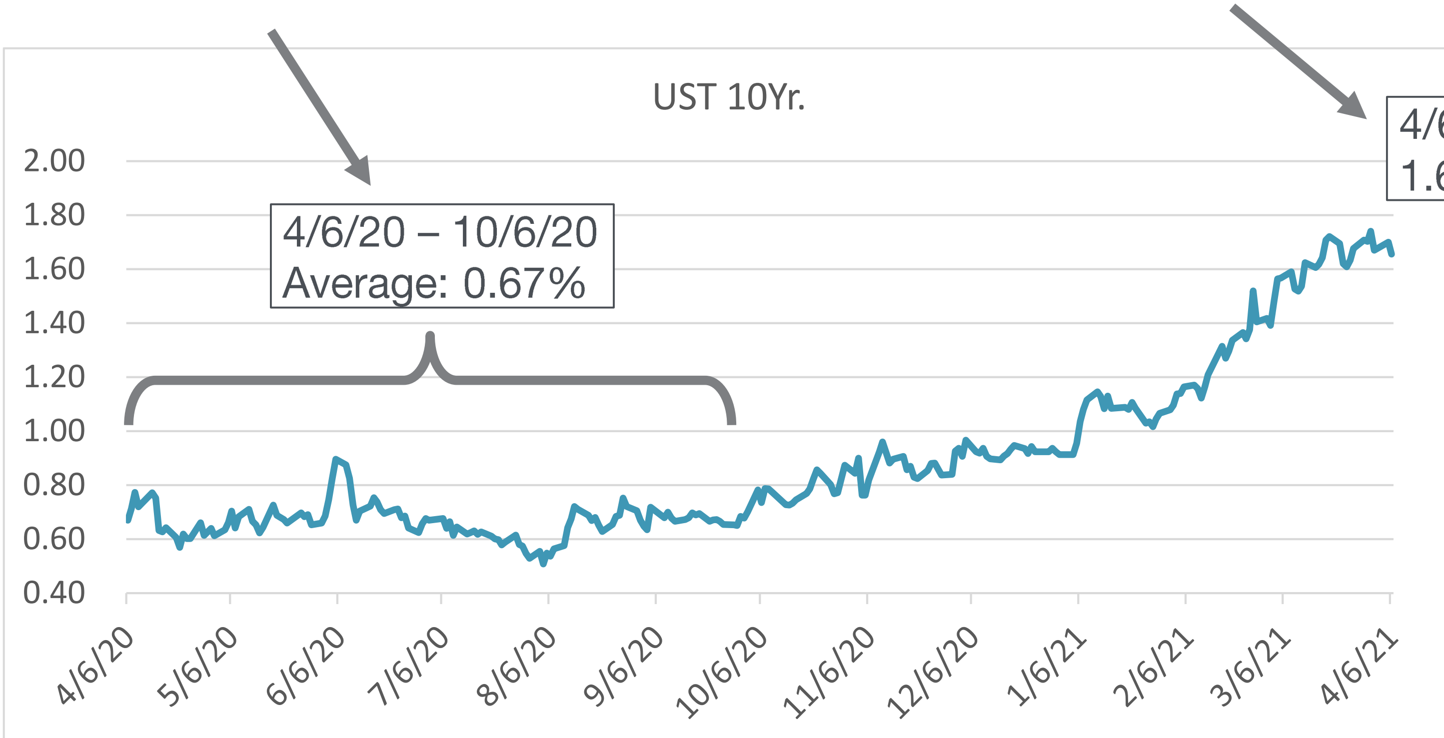
Key considerations:

- 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.

Unrealized losses

If you were buying bonds here…

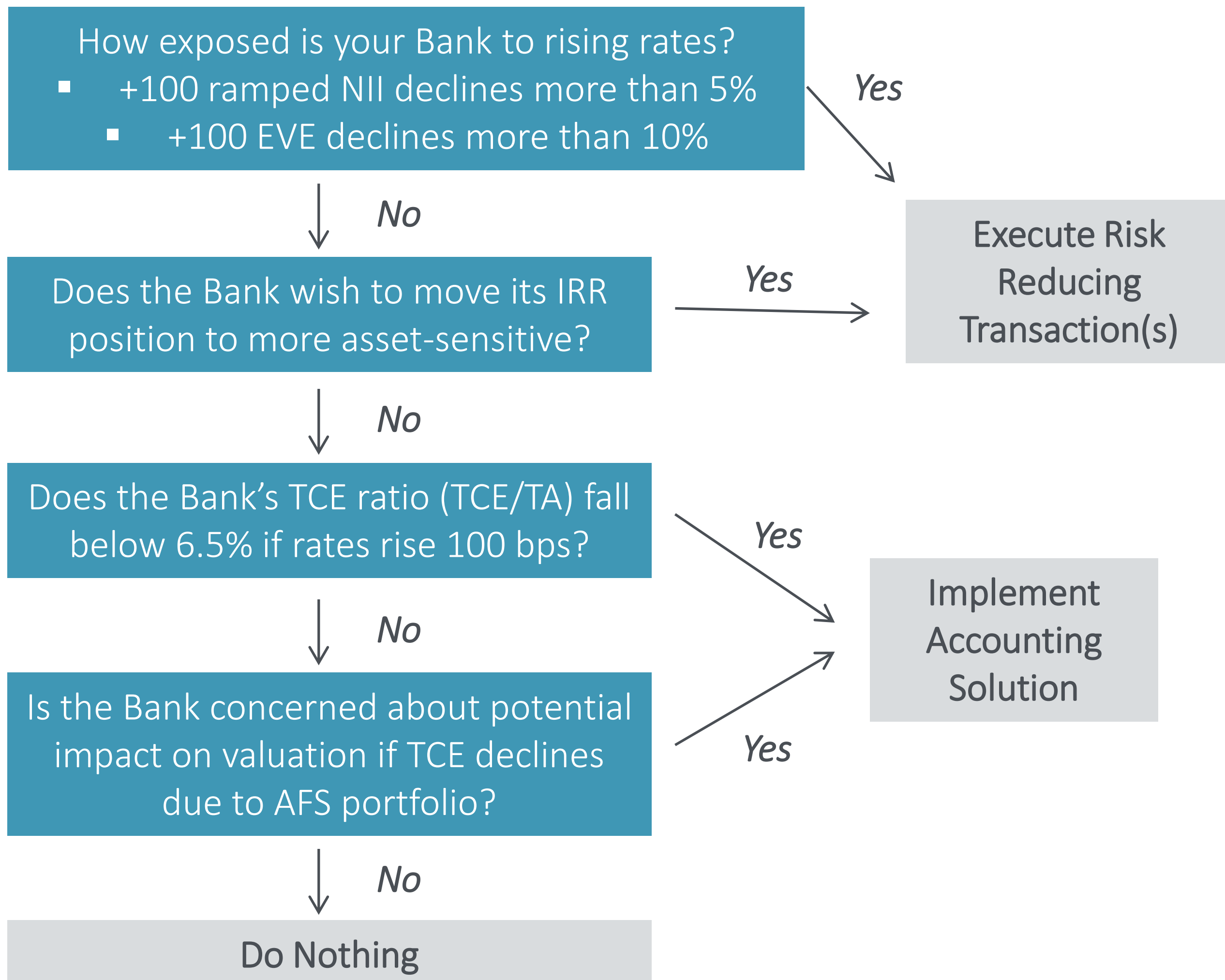
We are in the +100 Scenario @10yrs.



- Where are you exposed? Do you need protection?

Source: Bloomberg
Market data as of 4/6/2021

Decision tree on rate protection



Summary of Alternatives

There are four basic tactics to address this exposure:

Reclassify securities to “Held to Maturity”

- “Locks in” current unrealized gains / losses currently in OCI, which are then amortized away over the life of the security
- Care must be taken to avoid taking away flexibility to manage the balance sheet from a liquidity and interest rate risk perspective (ie. inability to sell or hedge investments)
- CECL implications on non-agency securities

Sell securities to lock in current gain / loss

- Long-run economic impact depends on size of gain / loss, use of proceeds, and expected average life of securities sold
- If losses are taken, may need to reinvest into loans to shorten the earn back, or add leverage to the balance sheet to replace lost earnings

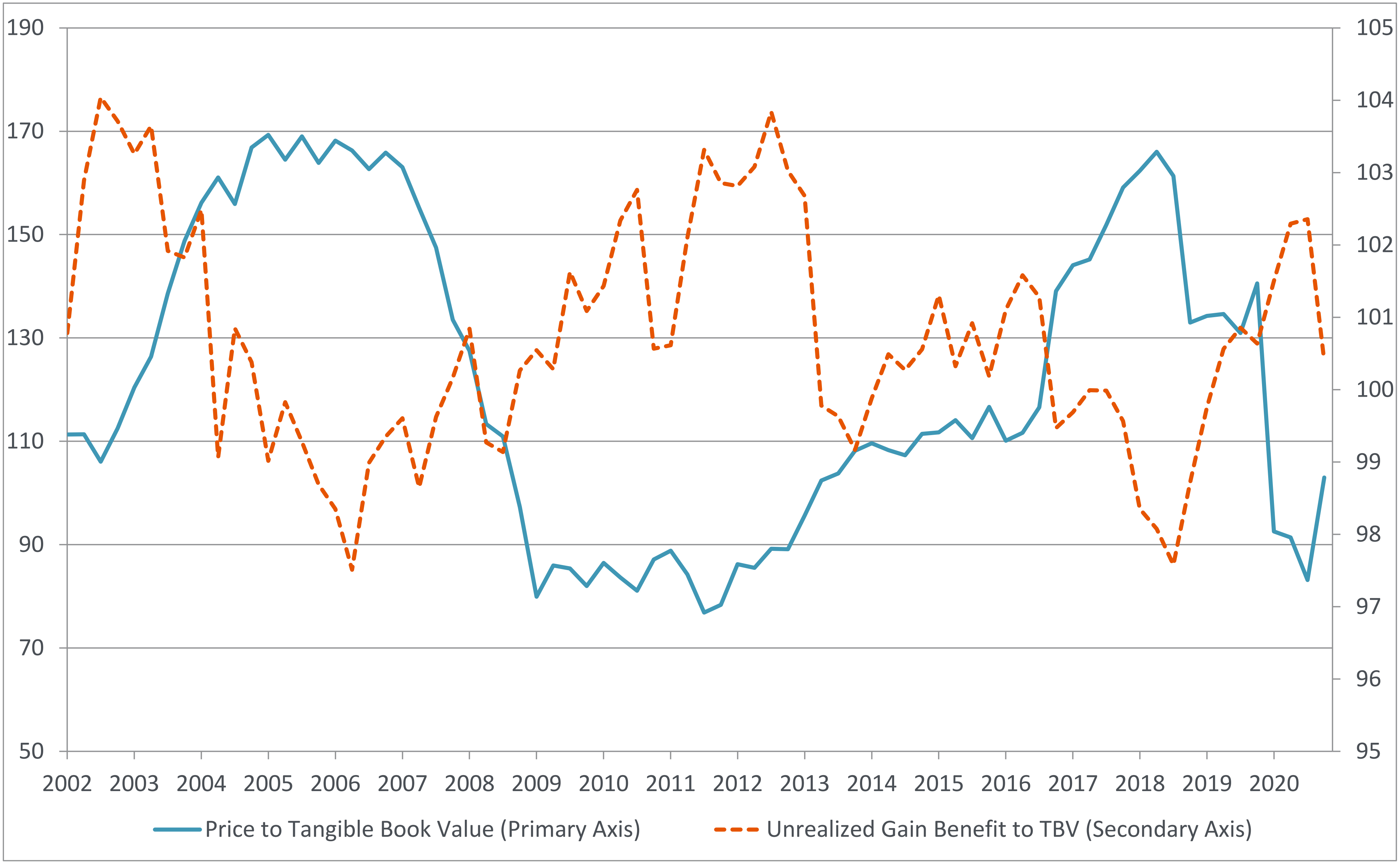
Apply a swap to floating as a fair value hedge of fixed rate bonds

- New hedge accounting rules provide more flexibility
- Impact to earnings will depend on future changes to interest rates

Pay fixed on swap or purchase cap designated as cash flow hedge of current or future funding costs

- This approach has gained the most traction of any in the last two years due to straightforward accounting and the ability to execute with minimal give-up in earnings or flexibility

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)

Hedging Trends Q1'2021

- I paid fixed on a liability swap last year and like the rate protection it offers, but **I don't need the funding anymore.** What should I do?

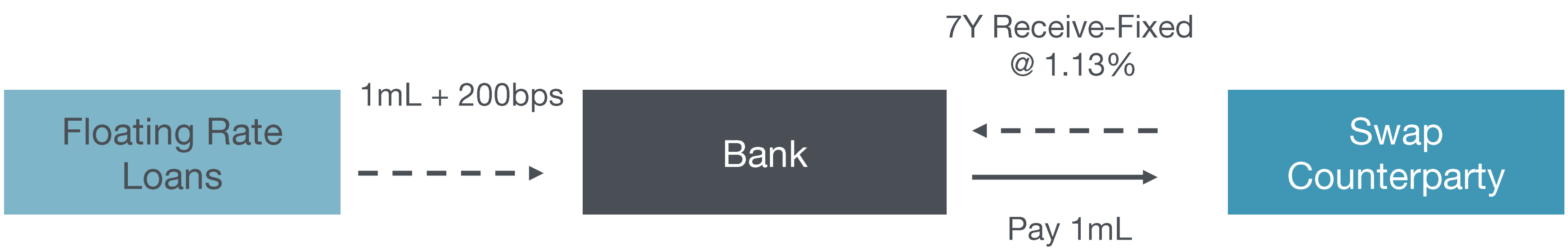
- Can I replicate this same pay-fixed rate protection, **but hedge using an asset instead of a liability**?

- I'm watching term rates rise, but **the short end just won't budge**. How do I offset some of the earnings drag of my floating rate assets?

- I think I have a solid core deposit base and am not that concerned about short term rates rising, **but what if they do rise** and deposit competition is fiercer?

Asset Sensitive: Receive-Fixed Swaps to Enhance Income

- The Bank owns a portfolio of **unfloored commercial floating-rate loans** weighing on earnings
- Synthetically **extend asset duration** and **increase NIM today** with receive-fixed swaps
- **Protect against NIM compression** if rates fall or remained unchanged, but removes some upside should rates increase



Result: Pick up 102bps in yield
Converts a **2.11%** loan yield (1mL + 200bps) into a **3.13%** synthetic fixed yield

Enhance earnings now, IRR profile of institution still benefits from rising rates

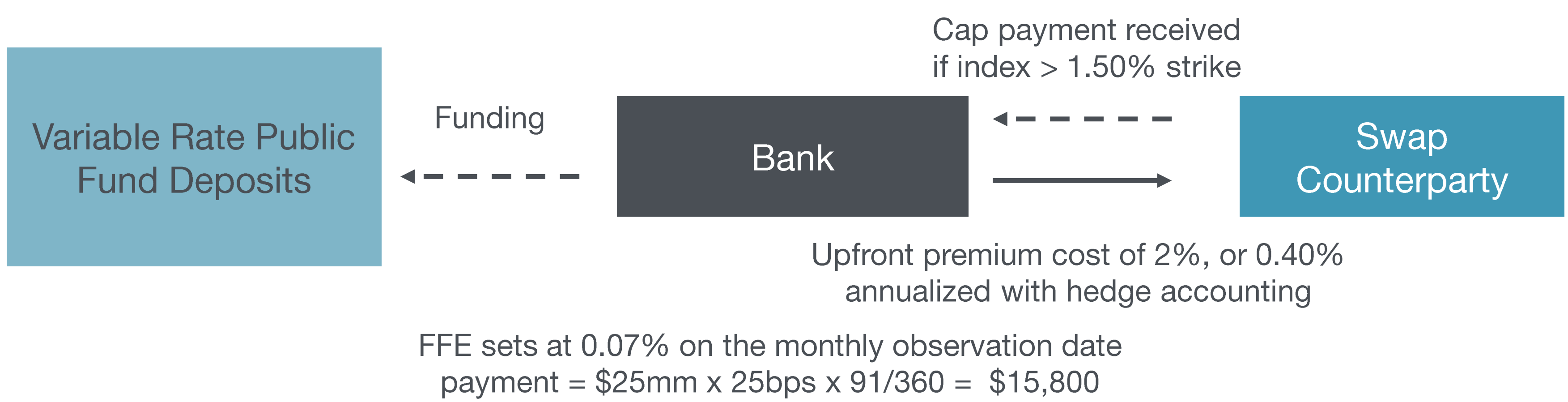
Swap fixed rate debt to floating with a receive-fixed swap to achieve a similar income impact

Market valuation as of April 7, 2021, subject and indicative
1mL @ .11250%

Public Fund Deposit Hedging Strategy

Strategy: Hedge public deposits using a 5Y cap on Fed Funds Effective by paying a one time premium upfront and receiving payments if FFE goes above the strike rate on any reset date

- If FFE sets above the strike, cap payment calculated as FFE less strike rate x notional x act/360 day count
- Ensure that the cap strike is set above any contracted floor rates



Considerations:

- Because the cost of the cap is paid for upfront, the bank has no future payment obligations
- Flexibility to execute quickly under a long-form confirm with an ISDA/CSA to follow
    - CSA helps the bank to mitigate counterparty exposure of the premium paid

Asset-Side Hedging (Spot Start):
Convert a Fixed Rate Bond to a Synthetic Floater

- Extend investment portfolio duration and earn higher yields
- Protect TCE when rates rise
- Elect Short-Cut Fair Value hedge accounting with critical terms matching, which **eliminates effectiveness testing requirements and earnings volatility** when structured properly

Example:

Target bonds with predictable cash flows like agency bullets, municipal bonds with bullet maturities or long calls, and fixed rate corporate bonds

Market valuation as of April 7, 2021, subject and indicative

No Current Funding Needs? Forward-Start a Liability-Side Hedge

- **Use forward-starting liability swaps to** hedge future borrowing needs
- **Elect cash flow hedge accounting** with no income volatility and greater flexibility

Forward-Starting Pay Fixed Swaps vs. FFE (Q)				
Effective	3Y	4Y	5Y	7Y
6M	0.57%	0.82%	1.04%	1.37%
1Y	0.79%	1.03%	1.24%	1.52%
18M	1.03%	1.26%	1.44%	1.67%
2Y	1.29%	1.49%	1.63%	1.82%

The features of a forward-starting swap create an opportunity for the Bank to:

- **Immediately protect tangible book value from rising rates**
- **Preserve current income** until the effective date when the funding is taken out and the cash flows on the swap begin
- Lock in the current low rate/flat yield curve environment for an extended term

Market valuation as of April 7, 2021, subject and indicative

Case Study: Cash Deploy and Receive-Fixed Swaps

Case Study

- $1B asset Bank
- Asset sensitive (parallel shift only)
- Exposed to short end of the curve
- Excess liquidity

Deploy $50M of excess cash yielding 0.10% into a mix of securities yielding 1.79%

- 80% 20yr 2.0% MBS
- 20% non-agency CMBS

Swap $75M of floating-rate loans to fixed for 7 years

- Pick up 102 bps of additional yield vs. 1ML +200

	Base	Pro Forma Strategy
Cash / Assets (%)	10%	5%
Securities / Assets (%)	15%	20%
Net Interest Income		+$1,610
NIM	3.00%	+0.16%
-100 Net Interest Income ($30M Flat)	$28.5M	+$1,505 +5.3%
+100 Net Interest Income ($30M Flat)	$31.5M	+$415 +1.3%

Key Takeaways

- Know what part of the yield curve matters to your institution
- Small moves in rates should lead to execution – don’t wait for the parallel shifts
- Strategically measure liquidity
- Understand why derivative use is up
- 2022 is on my mind

Appendix

Risk Considerations of Hedging with Derivatives

While derivative transactions hedging future liabilities have many benefits, they also require the Bank's 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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Scott Hildenbrand is a Managing Director and Head of Piper Sandler Financial Strategies, 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 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. In these capacities, Hildenbrand works closely with the firm's Investment Banking Group to identify and develop strategic opportunities for clients involved in mergers and acquisitions.

Previously, he was a Principal and Chief Balance Sheet Strategist of Sandler O'Neill + Partners, L.P. Prior thereto, Hildenbrand 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.

Hildenbrand serves as Treasurer on the Board of Directors for Liam's Room, a not-for-profit organization that focuses on pediatric palliative care, a specialized approach to medical care for children with serious illnesses. He is a frequent speaker at industry conferences and seminars. He holds an M.B.A. in finance from Loyola College in Maryland and a bachelor's degree with a concentration in accounting and finance from Gettysburg College.

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