Loan Pricing and Other Potential Land Mines Keeping You from Increasing Your Margin

2023 FHLB Topeka

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Asset Management Group, Inc.

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Not FDIC Insured No Bank Guarantee May Lose Value



Today's Discussion

- Understanding Rate Cycles
- Understanding Loan Pricing
- Managing your Margin – Potential Land Mines

Understanding Rate Cycles

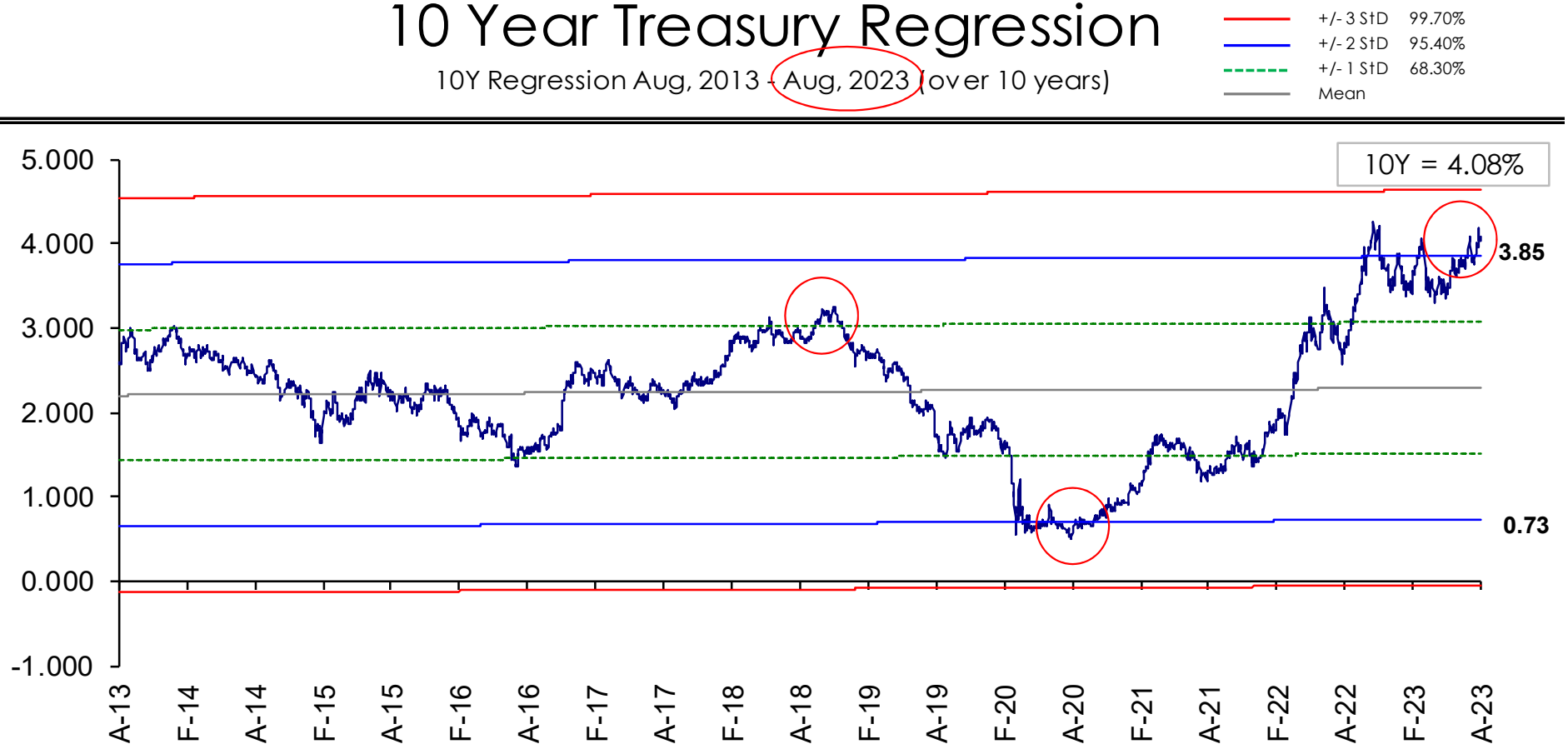
- We often look to the Fed for guidance on future interest rate moves
  - Fed Policy is backward looking, not forward looking
  - Higher for longer, but not necessarily raising the target rate further
- Is there anything we can use to help us understand the current/future rate cycle?
  - Regression
  - Fed DOT Plot
  - Fed Funds Futures
  - Treasury Futures curve
- What can we learn from previous rate cycles?

Statistical Regression



10 Year Treasury Regression

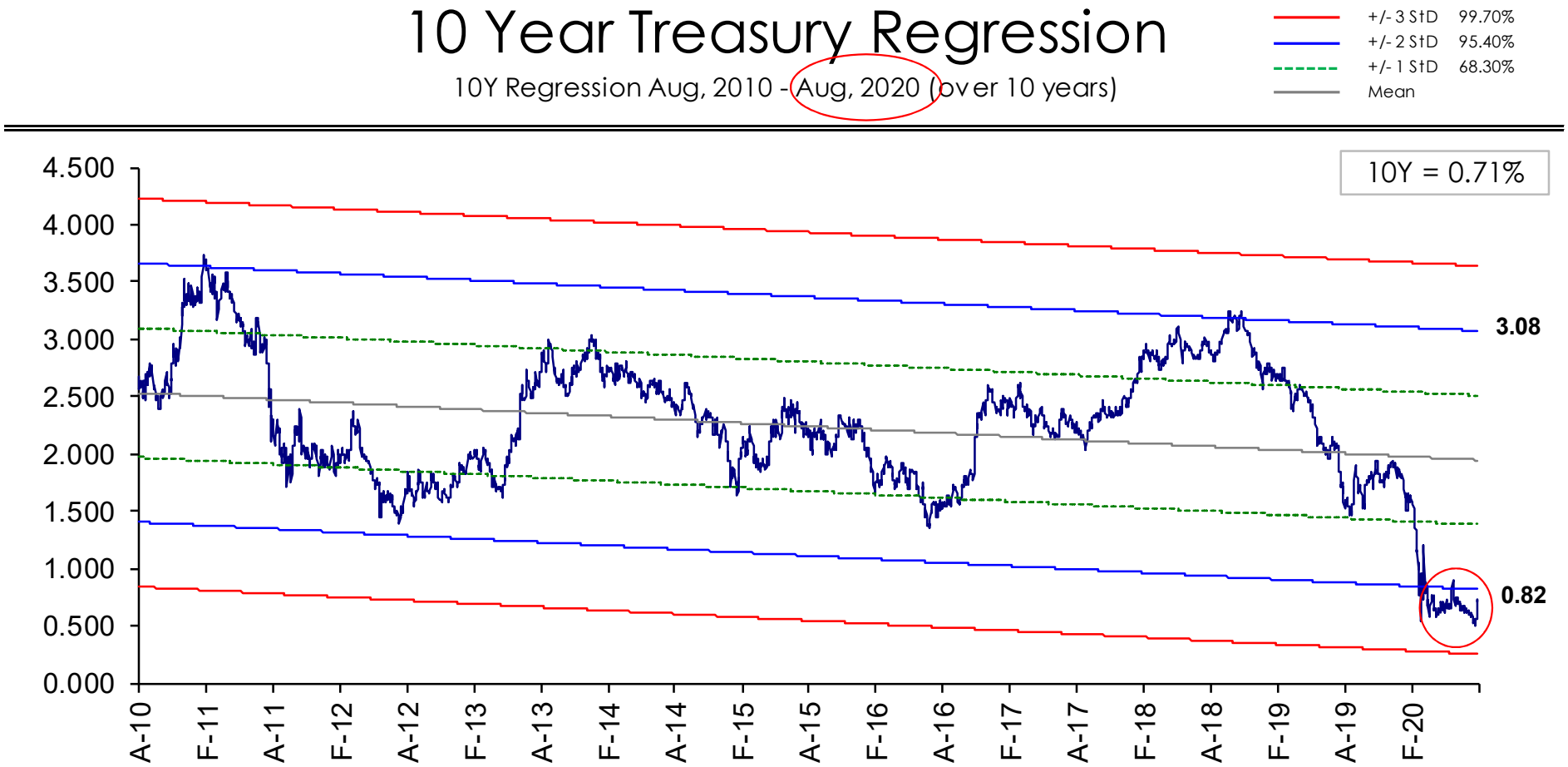
10Y Regression Aug, 2013 - Aug, 2023 (over 10 years)



Source: Bloomberg™

10 Year Treasury Regression

10Y Regression Aug, 2010 - Aug, 2020 (over 10 years)



Source: Bloomberg™

10 Year Treasury Regression

10Y Regression Nov, 2008 - Nov, 2018 (over 10 years)



Source: Bloomberg™

Fed DOT Plot



Source: Bloomberg

Fed Funds Futures



Source: Bloomberg

Current Treasury Futures Curve

*Shows 1-yr treasury lower 1-yr forward

YCGT0025 | Curve List | Export | Settings | Forward Curve Analysis

Curve Date 10/25/23 Market Mid

Horizon Curve | Implied Forwards

Add Columns

3 Mo
6 Mo
12 Mo
24 Mo

Table | Graph

US Treasury Actives Curve (Reference Curve) (Swap Rate)

Tenor	Spot (%)	3 Mo (%)	6 Mo (%)	12 Mo (%)	24 Mo (%)
1 Mo	5.39391	5.52829	5.25932	4.71639	4.58602
2 Mo	5.43764	5.53854	5.27107	4.72554	4.57922
3 Mo	5.46461	5.55086	5.28247	4.73501	4.58271
6 Mo	5.56071	5.43828	5.26526	4.74960	4.59068
9 Mo	5.46894	5.34308	5.08894	4.74468	4.58444
1 Yr	5.41490	5.22927	5.01046	4.76264	4.60456
2 Yr	5.09665	4.98260	4.85123	4.68542	4.67279
3 Yr	4.94022	4.87302	4.79497	4.70413	4.70742
4 Yr	4.89460	4.84297	4.78626	4.72220	4.79899
5 Yr	4.87409	4.84796	4.81516	4.79102	4.85062
7 Yr	4.92940	4.90190	4.86982	4.83562	4.85110
9 Yr	4.91508	4.89265	4.86668	4.85506	4.95128
10 Yr	4.92381	4.92157	4.91607	4.92810	5.01621
12 Yr	5.03303	5.03081	5.02691	5.03698	5.11331
15 Yr	5.14016	5.13802	5.13382	5.14207	5.20776
20 Yr	5.23409	5.22121	5.20718	5.19137	5.19892
30 Yr	5.05159	5.04071	5.02877	5.01519	5.02000
50 Yr	4.91660	4.90728	4.89723	4.88549	4.88869

Source: Bloomberg

Treasury Futures Curve – 10/25/2021

YCGT0025 | Curve List | Export | Settings | Forward Curve Analysis

Curve Date 10/25/21 Market Mid

Horizon Curve | Implied Forwards

Add Columns

3 Mo
6 Mo
12 Mo
24 Mo

Table | Graph

US Treasury Actives Curve (Reference Curve) (Swap Rate)

Tenor	Spot (%)	3 Mo (%)	6 Mo (%)	12 Mo (%)	24 Mo (%)
1 Mo	0.05589	0.06191	0.17294	0.74592	1.32108
2 Mo	0.07665	0.06191	0.17296	0.74615	1.32180
3 Mo	0.05488	0.06684	0.17297	0.74639	1.32254
6 Mo	0.06063	0.11923	0.23317	0.74503	1.32835
9 Mo	0.09800	0.17688	0.40496	0.74548	1.32642
1 Yr	0.14685	0.32105	0.48862	0.78651	1.34232
2 Yr	0.46566	0.62514	0.78166	1.06274	1.58753
3 Yr	0.75492	0.90379	1.04866	1.31685	1.67758
4 Yr	1.01993	1.13198	1.24117	1.44985	1.80769
5 Yr	1.18328	1.29165	1.39740	1.59698	1.88493
7 Yr	1.46406	1.53772	1.60975	1.74517	1.93600
9 Yr	1.59041	1.64868	1.70573	1.82283	2.02568
10 Yr	1.64329	1.70753	1.77113	1.89135	2.07489
12 Yr	1.78260	1.83699	1.89039	1.99238	2.14830
15 Yr	1.92011	1.96485	2.00885	2.09291	2.22158
20 Yr	2.05235	2.08364	2.11449	2.17286	2.25834
30 Yr	2.08168	2.10483	2.12784	2.17106	2.23435
50 Yr	2.10472	2.12150	2.13821	2.16955	2.21549

*Shows 1-yr treasury higher 1-yr and 2-yrs forward

Source: Bloomberg

Treasury Futures Curve – 12/25/2018

After the last Fed hike in the last cycle, the futures curve showed rates relatively static 1 and 2 years forward

YCGT0025 | Curve List | Export | Settings | Forward Curve Analysis

Curve Date 12/25/18 | Market Mid

Horizon Curve | Implied Forwards

Add Columns: 3 Mo, 6 Mo, 12 Mo, 24 Mo

Table | Graph

US Treasury Actives Curve (Reference Curve) (Swap Rate)

Tenor	Spot (%)	3 Mo (%)	6 Mo (%)	12 Mo (%)	24 Mo (%)
1 Mo	2.41254	2.59128	2.65946	2.52260	2.52493
2 Mo	2.40420	2.59404	2.66247	2.52530	2.52764
3 Mo	2.38851	2.60062	2.66547	2.52783	2.53009
6 Mo	2.49662	2.66350	2.66648	2.54283	2.53120
9 Mo	2.55296	2.65411	2.62054	2.53786	2.53089
1 Yr	2.58099	2.62336	2.60505	2.54299	2.54041
2 Yr	2.56223	2.58058	2.57156	2.54172	2.58025
3 Yr	2.55514	2.57419	2.57484	2.56752	2.59900
4 Yr	2.57101	2.58553	2.58599	2.58445	2.66562
5 Yr	2.58372	2.60851	2.62065	2.63981	2.70519
7 Yr	2.66165	2.68172	2.69358	2.71362	2.77300
9 Yr	2.72172	2.73857	2.74800	2.76647	2.83707
10 Yr	2.74562	2.76531	2.77905	2.80395	2.86827
12 Yr	2.81008	2.82694	2.83864	2.85985	2.91547
15 Yr	2.87441	2.88848	2.89817	2.91578	2.96158
20 Yr	2.93757	2.94890	2.95664	2.97072	3.00782
30 Yr	2.99909	3.00779	3.01364	3.02433	3.05237
50 Yr	3.04452	3.05129	3.05575	3.06393	3.08553

Source: Bloomberg

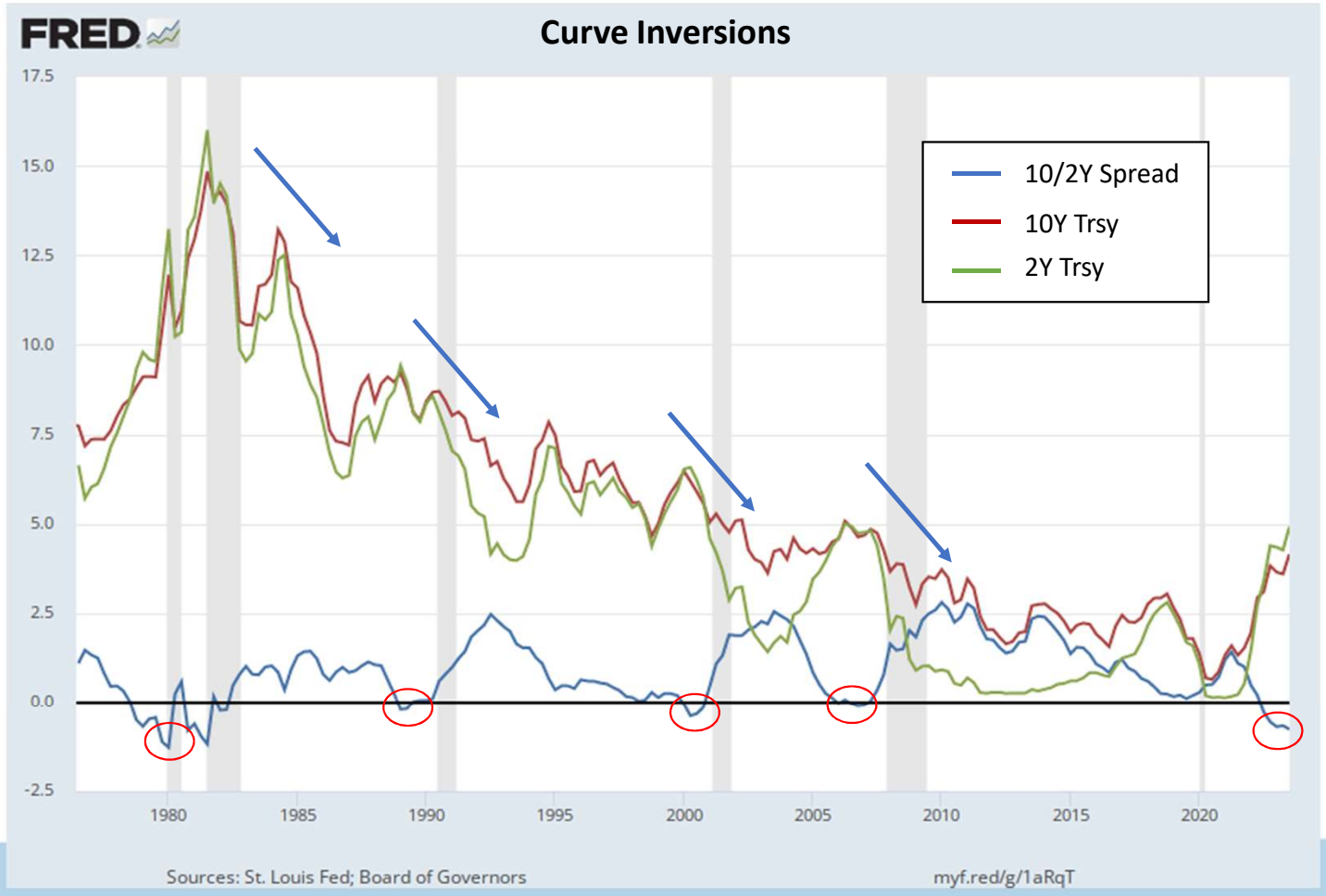
What are the “indicators” telling us?

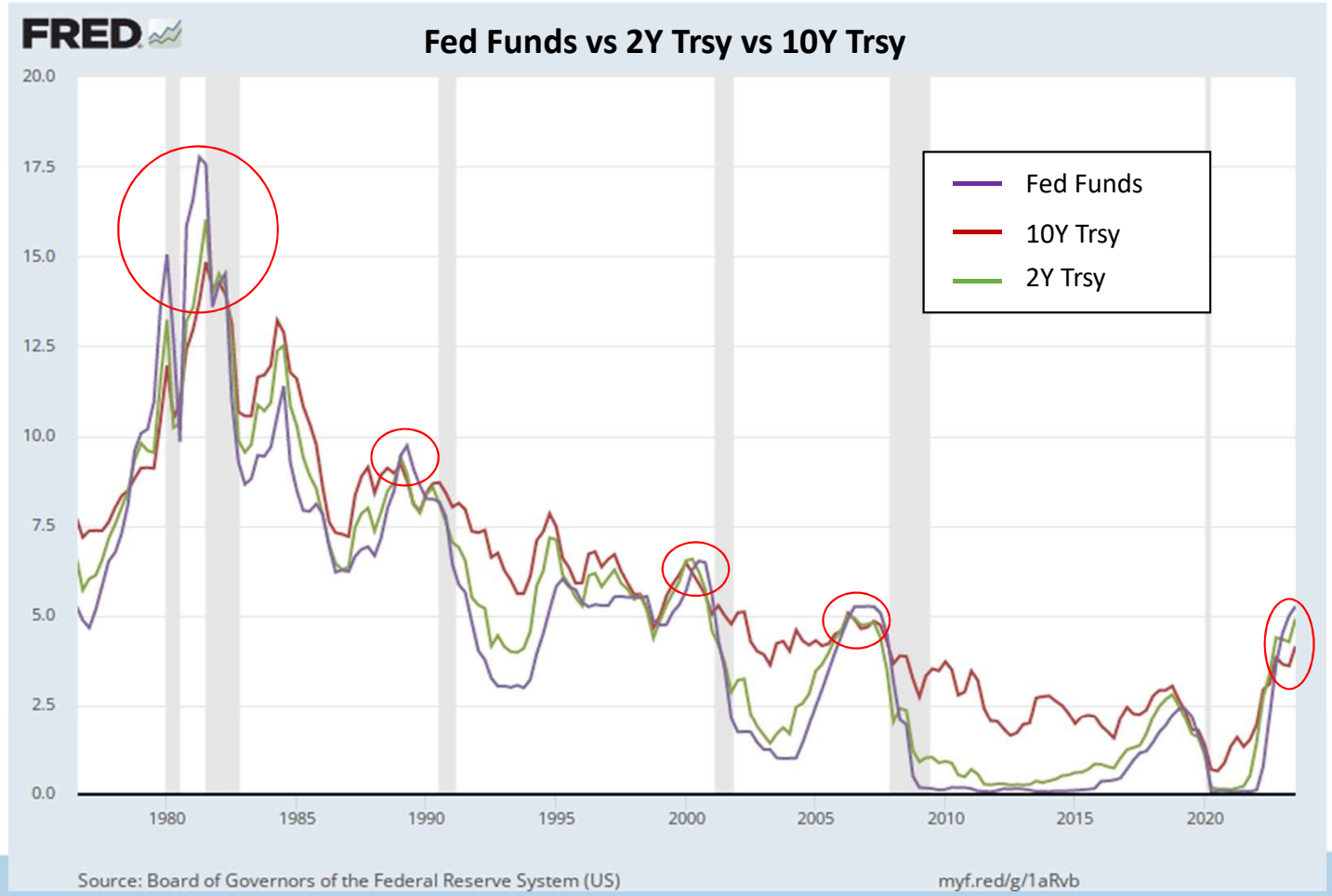
- Regression Analysis: Rates are highly probable to move lower over time.
- Fed DOT Plot: The Fed Governors survey shows they expect rates lower over time.
- Fed Funds Futures curve: Shows the Fed Funds rate lower 12 months forward.
- Treasury Futures curve: Shows the shape of the curve stays relatively the same, but rates lower 12 months forward.

Regression/Decision Matrix

DECISION MATRIX								
10Y Trsy	Yld Crv	Likely Rate Move	Liabilities	Loans	Credit	Investment	Off Bal Sheet	Leverage
+2 Std	Inverted	Lower	Short/Call? Whlsle; Rate NOT Term	More Fixed; Prepay Penalties; Prime	Tighter Credit Standards	Max Dur; Min Options/CF	Asset: Var > Fix Liab: Fix > Var	Max Leverage (Max Invest)
+1 Std	Flattening	Lower/Higher	Shorter Mat Call Wholesale	Prefer Fixed; Prepay Penalties; Prime	Begin Tighter Credit	Extend Dur; Fewer Options	Hedge Int. Rate Exp as Needed	Incr Leverage (More Invest)
-1 Std	Steepening	Higher/Lower	Longer Mat Call Wholesale	Prefer Float; Prepay Penalties; Tsy	Begin Easier Credit	Shorten Dur; Increase CF	Hedge Int. Rate Exp as Needed	Incr Leverage (More Loans)
-2 Std	Very Steep	Higher	Longest Mat Bullet Wholesale	More Var; Tsy Index; No Caps/Ceil	Easiest Credit Standards	Min Dur; Max CF; Long Mat = HTM	Asset: Fix > Var Dep: Var > Fix	Max Leverage (Max Loans)




FRED
Curve Inversions
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
-2.5
1980
1985
1990
1995
2000
2005
2010
2015
2020
10/2Y Spread
10Y Trsy
2Y Trsy
Sources: St. Louis Fed; Board of Governors
myf.red/g/1aRqT


FRED
Fed Funds vs 2Y Trsy vs 10Y Trsy
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
1980
1985
1990
1995
2000
2005
2010
2015
2020
Fed Funds
10Y Trsy
2Y Trsy
Source: Board of Governors of the Federal Reserve System (US)
myf.red/g/1aRvb

Loan Builder and understanding the “nuts and bolts” of pricing a deal

- Loan Builder is a tool developed by BancPath to assist lenders in properly valuing the options and risks inherent in every deal
- BancPath© Loan Builder | BancPath© from the Asset Management Group (ccbfinancial.com)
- FREE



Understanding Loan Pricing

4 Principals to EVERY deal

1. Credit Risk
2. Interest Rate Risk
3. Term Risk (Loss of Liquidity and/or Prepayment Risk)
4. Profit



BancPath© Loan Builder

A FREE and EASY 10 Step Loan Pricing Tool

In the highly competitive market for pricing loans, it is vital that risk not only be identified, but also priced properly. By breaking a loan into its component parts, a lender can guarantee that they are properly compensated for both CREDIT RISK and INTEREST RATE RISK.
Have comments or feedback?

MARKET INFORMATION AS OF 10/24/2023

DEAL NAME:

LOAN AMOUNT

$ 1000000

Print

STEP 1	**Term or Balloon**	5 Years	4.54%
STEP 2	**Amortization**	20 Years	0.08%
	Term + Amort Cost		4.62% SOFR RATE
STEP 3	**Prepayment Cost**	0 Years	1.31%
STEP 4	**Liquidity Cost**		1.19%
STEP 5	**Credit Cost**	3	1.50% "A" Credit
	Prepay + Liquidity + Credit Cost		4.00% SWAP SPREAD

RISK ADJUSTED OFFER RATE **8.62%**



Loan Builder – Built around the 4 Principals

The Following Steps are Optional:

STEP 6 Relationship Adj.	%
NET OFFER RATE	**8.62%**
Total Adjusted Spread	4.00%
Duration of Loan	4.02
Walk Away Rate (Given Credit Consideration Above)	8.06%

			TOTAL CHARGE ANNUAL CHARGE
STEP 7	**Loan Loss Provision**	1.25%	11,637 2,893
STEP 8	**Capital**	9%	83,788
STEP 9	**Overhead Cost**	1.75%	16,292
STEP 10	**Alt Cost of Funds**	FHLB	5.11%
FEES	**Additional Fee Income**	$ *OR* %	0 0.000%

ANNUAL NET PROFIT (Before Tax)

13,504
16.12% ROE
1.45% ROAA



Loan Builder – Built around the 4 Principals

- Loan Builder helps you understand where a loan structure should be priced compared to market rates, not competitor rates.
- Can help you understand if a loan will expand your earnings or compress them.
- Helps provide a range of potential rates available based on the “options” in the loan.

Understanding the 4 Principals

- If you are going to “give away” an option, it is worth knowing the value of that option

- Spread matters, Pricing matters – more so now than ever before.
  - As our deposit base becomes more “rate sensitive”, we have to become as good at managing the assets of the bank as we have historically been in managing the liabilities.

- Using derivative instruments doesn’t fix a poorly priced loan, it just changes the structure of it.

Alternative Yields for Comparison

20% Risk-weighted Freddie Mac Fixed Pass-through MBS @ 6.60% yield

SD8369 Mtge | Actions | Export | Settings | Yield Tabl

100% FNCL 6.5 N 7.394(358)1 CUSIP 3132DWJN4 Pool Level As of 10/2023

10/2023	4831	P9.7C	0.0B	Traits	CL, Super, 30/360	Coupon	6.5%	Maturity	10/1/53	CA	16% 2023 100%
3Mo	--	--	--	09/01/2023	2.4MMM	LTV/HLTV	82/82	Accrual	11/1-11/30	TX	5% 2022 0%
6Mo	--	--	--	10/25/2023	2.4MMM	MAXLS	1,480,000	Next Pay	12/25/23	WA	5%
12Mo	--	--	--	Factor	0.99081057	WAOLS	507,691			IL	5%
Life	4831	9.7	--	# Loans	5,352						

1) Price-to-Yield

Settle	11/13/23	+300 MED	+200 MED	+100 MED	0 MED	-100 MED	-200 MED	-300 MED
Vary	0	99 PSA	112 PSA	133 PSA	173 PSA	303 PSA	581 PSA	855 PSA
Price	99-16	6.60	6.60	6.60	6.60	6.60	6.61	6.62
Avg Life		11.64	10.96	9.99	8.51	5.66	3.35	2.46
Mod Duration		7.07	6.78	6.36	5.68	4.23	2.80	2.15
Prin Win	Date	12/23-8/53	12/23-8/53	12/23-8/53	12/23-8/53	12/23-8/53	12/23-8/53	12/23-8/53
I Spread		167	169	172	173	177	175	167

Source: Bloomberg

Understanding your data

- Every institution here has a goldmine waiting to be discovered
- Your data is your insight into what drives risk and reward – spend your resources wisely to uncover what makes your institution profitable (or not?)
- If you don’t have the expertise to uncover these gems yourself, partner with someone who can help you.

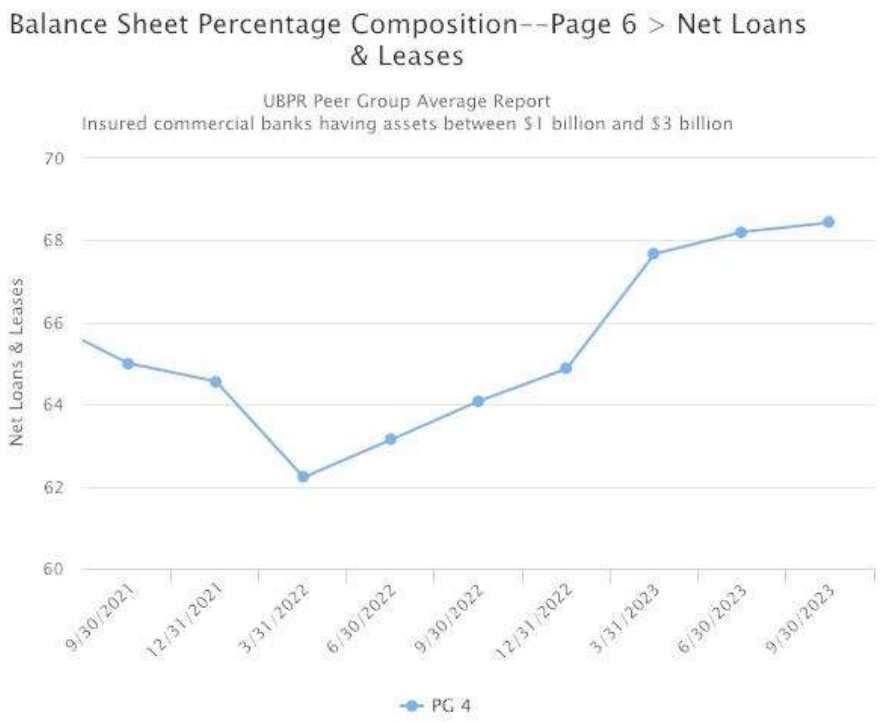
Understanding Your Data

- Data mining allows banks to monitor performance metrics more granularly than ever before.
- Find a way to let YOUR data tell YOUR story
  - How is the Loan portfolio performing?
    - Where are there land mines lurking?
  - How is the Investment portfolio performing?
    - Can you do anything to change it?
  - What is happening with your cost of funds?
  - What is happening with your margin?
    - Is there more pressure to your margin from current pricing, or previous pricing?
    - Can current pricing positively change previously booked assets?

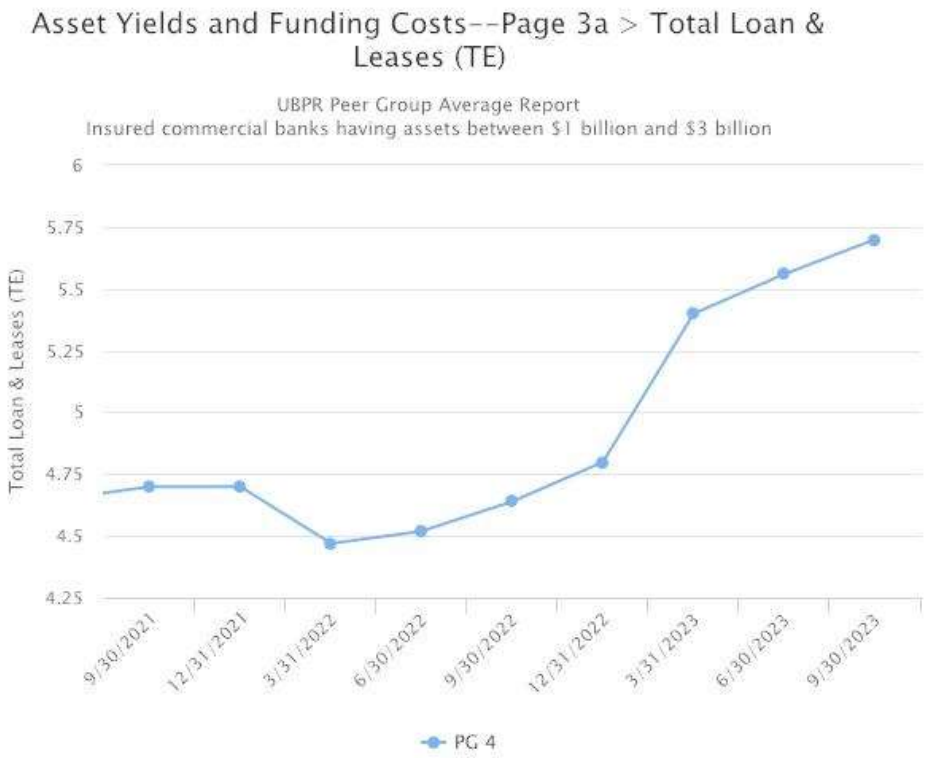
- Understanding YOUR data is one way you can answer these questions



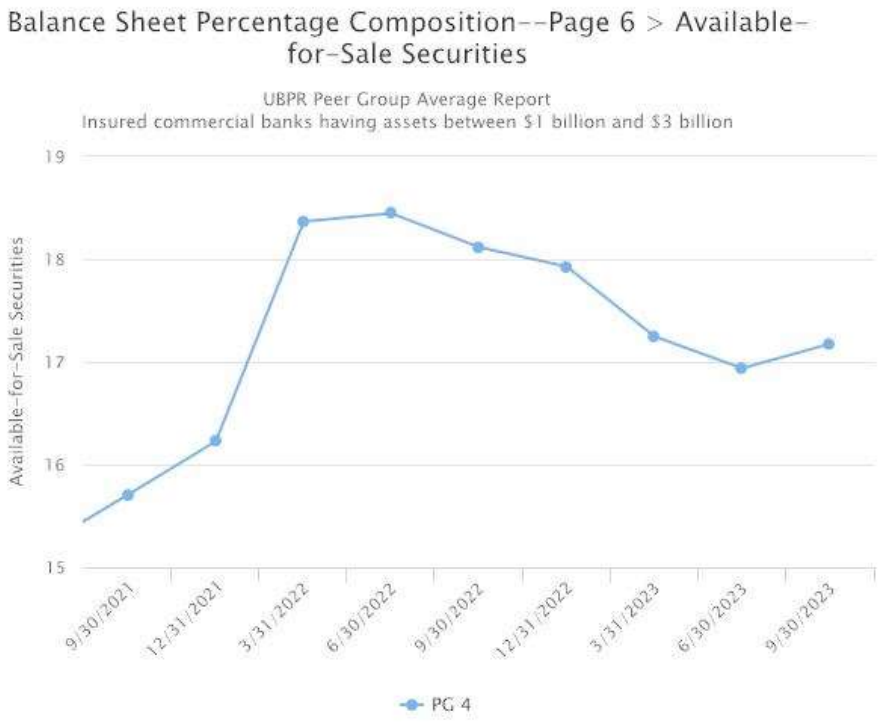
Loans as a Percent of Assets



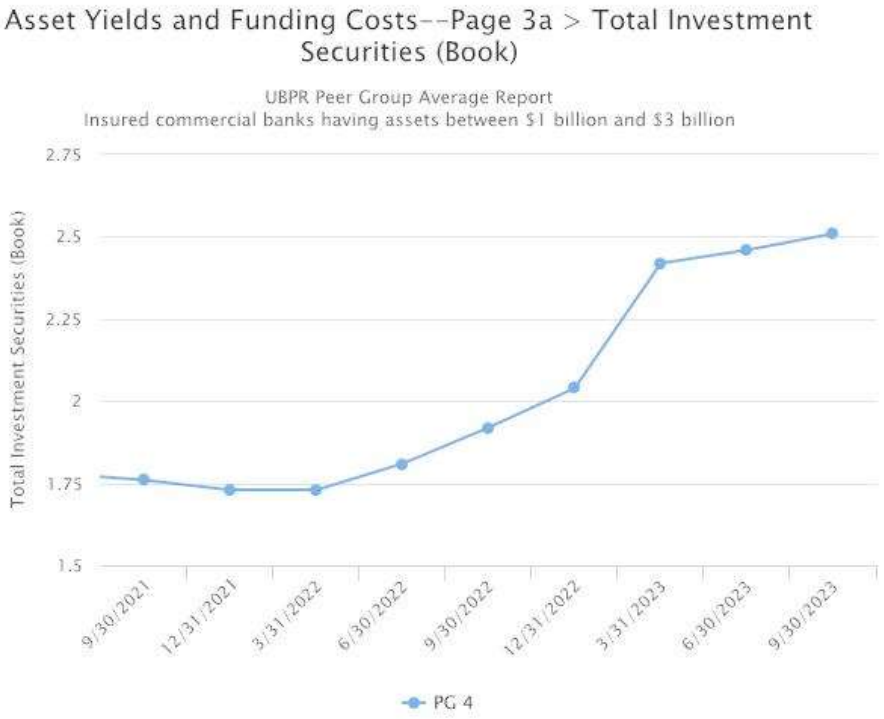
Yield on Loans



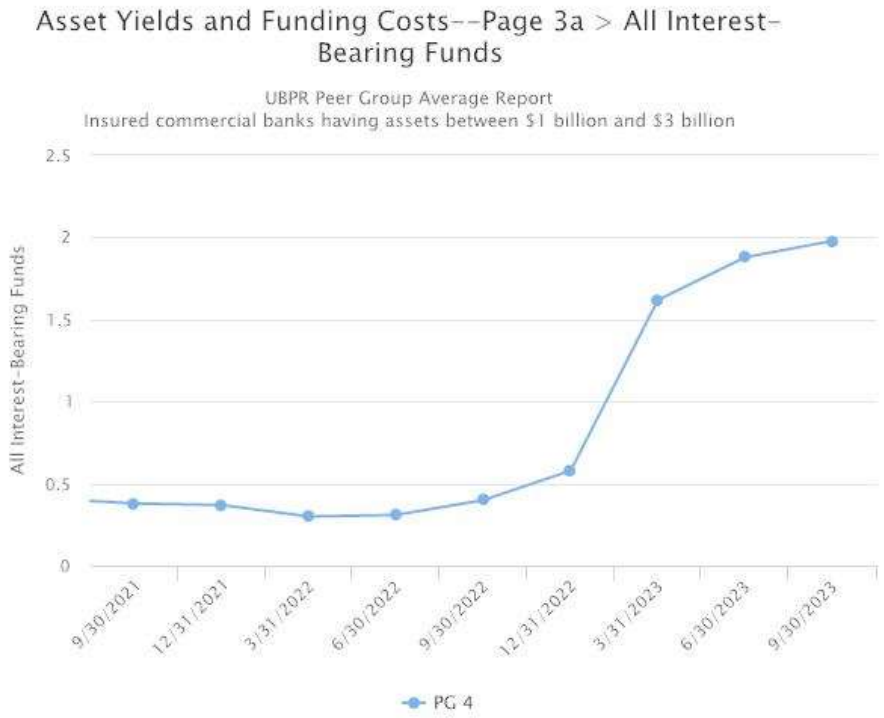
AFS Securities as a Percent of Assets



Book Yield on Investments



Cost of Funds



Net Interest Margin



Story of the Spread

- 2021 – Peer Group 4 of UBPR
  - Yield on Loans – Cost of Funds = 4.70% - 0.38% = 4.32%
  - Yield on Investments – Cost of Funds = 1.76% - 0.38% = 1.38%
  - NIM = 3.33%
  - Loans contributing roughly 68% of margin dollars
  - Investments contributing roughly 32% of margin dollars
- 2023 – Peer Group 4 of UBPR
  - Yield on Loans – Cost of Funds = 5.56% - 1.88% = 3.68%
  - Yield on Investments – Cost of Funds = 2.46% - 1.88% = 0.58%
  - NIM = 3.44%
  - Loans contributing roughly 92% of margin dollars
  - Investments contributing roughly 8% of margin dollars

Potential Land Mines Impacting Margin

Fixed Rate BY Maturity	TOTAL COMML RE			TOTAL CONS			TOTAL RE			TOTAL COMMERCIAL		
	Balance	Rate	% Tot	Balance	Rate	% Tot	Balance	Rate	% Tot	Balance	Rate	% Tot
1 YR	17,230,246	4.76%	16.44%	221,059	6.51%	0.33%	5,693,630	5.61%	11.92%	2,577,970	4.06%	7.76%
2 YR	6,193,917	4.43%	22.36%	424,570	6.69%	0.97%	1,320,495	6.86%	14.68%	1,721,788	4.70%	12.94%
(19%) 50%: 3 YR	4,740,033	5.01%	26.88%	1,479,078	5.90%	3.20%	1,145,939	5.53%	17.08%	5,429,792	3.98%	29.29%
4 YR	5,352,505	4.43%	31.99%	1,852,606	5.90%	5.99%	773,757	4.44%	18.70%	5,622,022	4.12%	46.21%
5 YR	4,228,451	4.19%	36.02%	2,541,222	6.17%	9.81%	1,569,699	5.81%	21.98%	7,918,100	5.18%	70.05%
6 YR	7,208,236	4.17%	42.90%	4,134,980	6.41%	16.04%	2,040,075	5.23%	26.25%	3,947,528	4.43%	81.93%
7 YR	4,258,482	4.42%	46.97%	4,654,946	6.58%	23.04%	1,126,476	5.42%	28.61%	1,077,122	4.89%	85.17%
10 YR	49,463,620	4.21%	94.17%	15,230,396	7.07%	45.97%	6,060,980	5.63%	41.30%	1,313,606	3.56%	89.13%
15 YR	5,982,601	5.20%	99.88%	35,892,461	7.10%	100.00%	10,530,155	4.79%	63.34%	1,949,857	2.56%	95.00%
20 YR	102,358	4.90%	99.98%	0	0.00%	100.00%	2,161,640	5.78%	67.86%	1,424,253	2.35%	99.29%
> 20 YR	20,273	4.31%	100.00%	0	0.00%	100.00%	15,356,404	4.27%	100.00%	237,390	0.49%	100.00%
	104,780,722	4.42%		66,431,317	6.91%		47,779,249	5.01%		33,219,428	4.22%	

* Fixed Rate Loans with an opportunity to reprice within 3 years tend to provide the greatest balance sheet flexibility. HFS Loans are excluded. Top 4 categories are Shown.

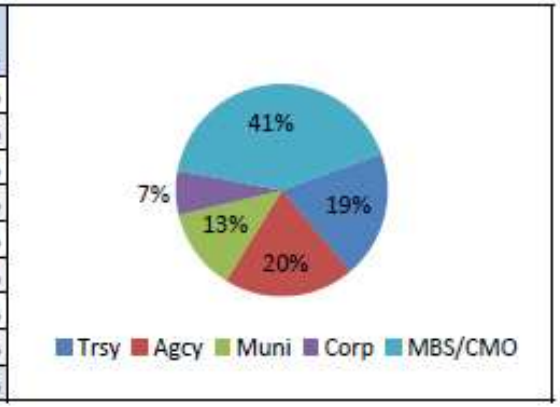
Potential Land Mines Impacting Margin

- ~$86MM in loans with an average maturity of 9.75 years @ 4.22% yield (data from highlighted balances on previous slide)
- Very hard to force a reprice on these loans. Fixed rate loans at advantaged rates.
- Strategy to manage the margin on this block of loans:
  - Wait for the next rate bottom to lock the spread on the remaining balance.
    - Use defined term wholesale strategies to lock the margin on the block.
  - Call these loans due and reprice them up.
    - Not advised – creates a huge reputation risk

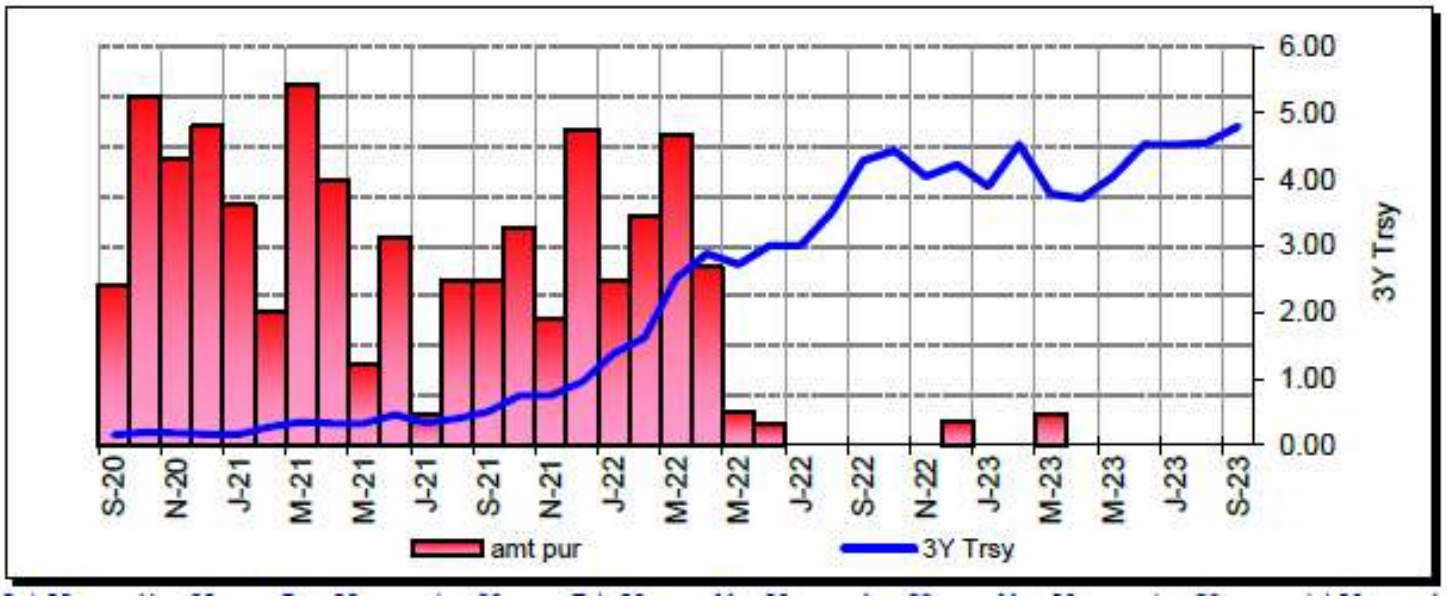


Potential Land Mines Impacting Margin

All BancPath Banks	% Total	Cpn	Bk Yld	Duration	Mkt Px	Variance
Treasuries	19.44%	1.24%	1.50%	1.92	93.27	-6.45%
Agencies	19.92%	1.98%	1.96%	3.16	91.10	-8.88%
Municipals	12.51%	3.13%	2.84%	6.86	92.62	-9.86%
Corp/Other	6.64%	2.88%	2.85%	4.66	87.92	-12.51%
CMO - Fix	7.24%	2.34%	2.48%	4.30	85.65	-13.79%
CMO - Float	9.45%	6.97%	7.31%	0.12	99.00	-0.28%
MBS - Fix	20.62%	2.32%	1.90%	4.42	88.25	-13.21%
MBS - Adj	4.19%	2.86%	3.78%	2.28	93.46	-8.42%
Total	100.00%	2.65%	2.65%	3.50	91.36	-9.19%



Typical Bank Investment Purchases



What is being generated?

- Assuming $100MM portfolio:

- Treasuries:
  - Par: $19,440,000
  - Book Yield: 1.50%
  - Maturity: 1.92 years
  - Total Income: $559,872

At maturity, need to redeploy:

- Par: $19,440,000
- Yield: ???? – depends on what you assume
- Maturity: ???? – depends on your assumption

What is being generated? Re-Investment

Rates Down Assumption:

- Par: $19,440,000
- Book Yield: 3%
- Maturity: 3 years
- Re-investment Income: $1,749,600

- Total Income: $2,309,472
- Yield to 4.92 years = 2.41%

Rates Up Assumption:

- Par: $19,440,000
- Book Yield: 6%
- Maturity: 3 years
- Re-investment Income: $3,499,200

- Total Income: $4,059,072
- Yield to 4.92 years = 4.22%

How to Manage Your Margin? Assuming Rates Lower

Take the 6.45% loss and pre-fund the reinvestment now.

- Par after loss: $18,186,120
- Yield: 6%
- Annualized Income: $1,091,167.20
- Total income of pre-funding: $5,368,542.62

- Difference between doing nothing vs taking action: $1,805,190.62
- Increase in yield versus doing nothing: 1.89%
- Yield to 4.92 years (net of loss) = 4.30%

Decision Matrix to Maximize Margin

DECISION MATRIX								
10Y Trsy	Yld Crv	Likely Rate Move	Liabilities	Loans	Credit	Investment	Off Bal Sheet	Leverage
+2 Std	Inverted	Lower	Short/Call? Whlsle; Rate NOT Term	More Fixed; Prepay Penalties; Prime	Tighter Credit Standards	Max Dur; Min Options/CF	Asset: Var > Fix Liab: Fix > Var	Max Leverage (Max Invest)
+1 Std	Flattening	Lower/Higher	Shorter Mat Call Wholesale	Prefer Fixed; Prepay Penalties; Prime	Begin Tighter Credit	Extend Dur; Fewer Options	Hedge Int. Rate Exp as Needed	Incr Leverage (More Invest)
-1 Std	Steepening	Higher/Lower	Longer Mat Call Wholesale	Prefer Float; Prepay Penalties; Tsy	Begin Easier Credit	Shorten Dur; Increase CF	Hedge Int. Rate Exp as Needed	Incr Leverage (More Loans)
-2 Std	Very Steep	Higher	Longest Mat Bullet Wholesale	More Var; Tsy Index; No Caps/Ceil	Easiest Credit Standards	Min Dur; Max CF; Long Mat = HTM	Asset: Fix > Var Dep: Var > Fix	Max Leverage (Max Loans)

Summary

- Use the tools and information available to develop a rate bias.
- Your rate bias should dictate how you price and structure your assets (loans and investments).
- Sometimes, we inadvertently place land mines in our balance sheet. How we manage them going forward will impact our margin over time.
- Doing nothing is still a choice.

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