

## Fixed Asset Hedging – Muni Swaps

*This Day in History: On September 27, 1998, Mark McGwire of the St. Louis Cardinals breaks the single-season home run record, hitting his record-setting 69<sup>th</sup> and 70<sup>th</sup> home runs during the last game of the season against the Montreal Expos. On September 27, 1939, Poland surrenders to Germany after 26 days of fighting and 140,000 Polish troops are taken prisoner.*

**Market Update: There were several dynamics at play in the rates market last week, with the Fed announcement dominating the action late in the week. Rates ended the week higher across a steepening curve.**

Term	Swap Rates			Change	
	9/24/2021	9/17/2021	8/24/2021	WoW	MoM
2y	0.39	0.33	0.32	0.05	0.07
3y	0.67	0.60	0.55	0.07	0.12
5y	1.05	0.97	0.88	0.08	0.17
7y	1.28	1.20	1.10	0.08	0.18
10y	1.48	1.40	1.31	0.08	0.17
20y	1.73	1.66	1.60	0.08	0.13
2s/10s slope	1.09	1.07	0.99	0.03	0.11

**Desk activity was weighted toward portfolio hedging with commercial loan hedging starting to gain some traction after a summer lull. Portfolio hedgers are buying longer municipal securities with cash and then using interest rate swaps to mitigate price risk.**

As bank liquidity levels continue at all-time highs, we wanted to highlight the muni hedging strategy that has been so prevalent over the last several weeks. This is a great strategy for deploying excess cash without taking on too much price risk.

With the muni hedging strategy, you buy the fixed rate bond and execute a pay fixed interest rate swap to convert the fixed rate cash flows on the bond to floating rates. Most of our hedges mature at the bonds first call date. This “partial term” approach reduces price volatility to levels normally seen on 2 and 3-year duration bonds while providing much more attractive yields than those available in the 2 and 3-year maturity space.

The table below illustrates bonds that were available early last week. You can easily see the yields and price volatilities that were available - both hedged (Swapped) and unhedged. The hedged bonds incorporate swaps that mature on the bonds first call date

**Immediate Rate Shocks**

9/21/2021

	Security 1	Security 2	Security 3	Security 4
CUSIP	79623PLT0	423542SG5	64966QXT2	052397YB6
Description	SAN ANTONIO TX	HEMET CA UNIF SCH DIST	City of New York, NY	AUSTIN TX
Type	Taxable	Taxable	Tax-Free Gen. Mkt	Taxable
Rating	Aaa / AAA	AA / A-Under AGM	Aa2 / AA	Aa1 / AAA
Maturity   Yrs	8/1/2036   14.9	8/1/2038   16.9	8/1/2040   18.9	9/1/2041   19.9
Call   Yrs	8/1/2031   9.9	8/1/2031   9.9	8/1/2031   9.9	9/1/2031   9.9
Callable Tail	5-Years	7-Years	9-Years	10-Years
Coupon	2.28	2.50	4.00	2.40
Price	101.50	100.74	120.19	100.92
YTC	2.11	2.42	1.76 (2.10 C-TEY)	2.30
YTM	2.16	2.45	2.63 (3.20 C-TEY)	2.34
-100 Price Vol	11.4	11.9	6.0	13.0
+100 Price Vol	-10.8	-11.4	-5.6	-12.5
+300 Price Vol	-29.5	-31.0	-15.7	-33.8

	Sec. 1 Swapped	Sec. 2 Swapped	Sec. 3 Swapped	Sec. 4 Swapped
CUSIP	79623PLT0	423542SG5	64966QXT2	052397YB6
Description	SAN ANTONIO TX	HEMET CA UNIF SCH DIST	City of New York, NY	AUSTIN TX
Type	Taxable	Taxable	Tax-Free Gen. Mkt	Taxable
Rating	Aaa / AAA	AA / A-Under AGM	Aa2 / AA	Aa1 / AAA
Maturity   Yrs	8/1/2036   14.9	8/1/2038   16.9	8/1/2040   18.9	9/1/2041   19.9
Call   Yrs	8/1/2031   9.9	8/1/2031   9.9	8/1/2031   9.9	9/1/2031   9.9
Callable Tail	5-Years	7-Years	9-Years	10-Years
Coupon	FF + 77 bps	FF + 108 bps	FF + 83 bps	FF + 96 bps
Price	101.50	100.74	120.19	100.92
YTC	0.84	1.15	0.90	1.03
YTM	n.a.	n.a.	n.a.	n.a.
-100 Price Vol	1.4	1.9	-4.0	3.0
+100 Price Vol	-1.8	-2.4	3.4	-3.5
+300 Price Vol	-5.1	-6.6	8.7	-9.4

We think this is a compelling strategy for financial institutions needing yield but unwilling to take on undue price risk. Let us know if you would like to hear more.

Have a good week!

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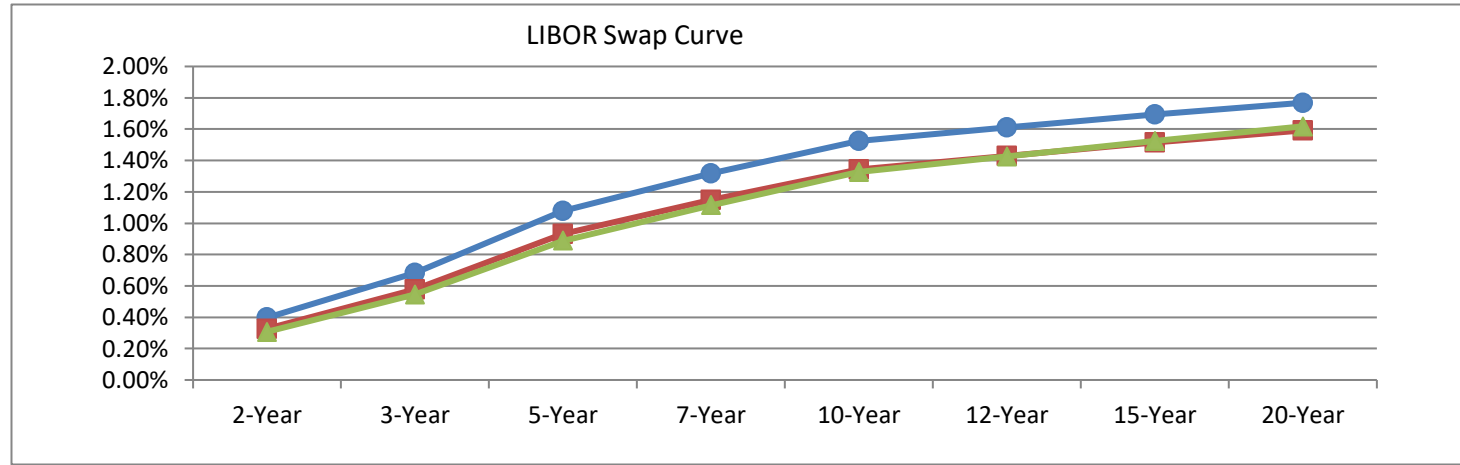
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### Interest Rate Swap Curves

LIBOR Swap Curve			
	Current	Last Week	Last Month
2-Year	0.397%	0.327%	0.308%
3-Year	0.682%	0.577%	0.545%
5-Year	1.079%	0.930%	0.888%
7-Year	1.317%	1.150%	1.115%
10-Year	1.524%	1.344%	1.326%
12-Year	1.612%	1.430%	1.425%
15-Year	1.695%	1.515%	1.525%
20-Year	1.768%	1.592%	1.618%

\*Bloomberg mid-market quotations



Money Market Rates		3M LIBOR Forward Rates	
1M LIBOR	0.08675%	Dec-21	0.18500%
3M LIBOR	0.13175%	Mar-22	0.15000%
6M LIBOR	0.15500%	Jun-22	0.21000%
12M LIBOR	0.23600%	Sep-22	0.34000%
Prime	3.25000%	Dec-22	0.53000%
FFTR	0.2500%		
Eff FF	0.0800%		
SOFR	0.0500%		

### Spot Start Loan Hedging

Rate Term (Years)	Floating Rate	Amortization Term (Years)							
		3-Year	5-Year	7-Year	10-Year	15-Year	20-Year	25-Year	Bullet
2-Year	LIBOR + 2.00%	2.40%	2.43%	2.44%	2.45%	2.45%	2.45%	2.46%	2.46%
3-Year	LIBOR + 2.00%	2.49%	2.62%	2.66%	2.68%	2.70%	2.71%	2.71%	2.72%
4-Year	LIBOR + 2.00%		2.73%	2.81%	2.86%	2.90%	2.91%	2.92%	2.94%
5-Year	LIBOR + 2.00%		2.78%	2.92%	3.01%	3.05%	3.06%	3.07%	3.09%
6-Year	LIBOR + 2.00%			2.99%	3.09%	3.14%	3.17%	3.18%	3.20%
7-Year	LIBOR + 2.00%			3.01%	3.15%	3.22%	3.25%	3.27%	3.31%
8-Year	LIBOR + 2.00%				3.20%	3.29%	3.33%	3.35%	3.38%
9-Year	LIBOR + 2.00%				3.22%	3.34%	3.38%	3.40%	3.44%
10-Year	LIBOR + 2.00%				3.23%	3.38%	3.43%	3.45%	3.50%
12-Year	LIBOR + 2.00%	Customer Pays Fixed, Monthly, Act/360				3.43%	3.49%	3.53%	3.59%
15-Year	LIBOR + 2.00%	Customer Receives 1-Month LIBOR + 2.00%				3.45%	3.56%	3.60%	3.67%

### Forward Starting Swap Quotes

Rate Term (Years)	Floating Rate	20-Year Amortization		
		3-Month	6-Month	12-Month
2-Year	LIBOR + 2.00%	2.56%	2.67%	2.94%
3-Year	LIBOR + 2.00%	2.81%	2.91%	3.12%
4-Year	LIBOR + 2.00%	3.00%	3.09%	3.28%
5-Year	LIBOR + 2.00%	3.14%	3.21%	3.38%
6-Year	LIBOR + 2.00%	3.23%	3.30%	3.45%
7-Year	LIBOR + 2.00%	3.32%	3.38%	3.51%
8-Year	LIBOR + 2.00%	3.38%	3.44%	3.56%
9-Year	LIBOR + 2.00%	3.44%	3.49%	3.60%
10-Year	LIBOR + 2.00%	3.48%	3.53%	3.63%
12-Year	LIBOR + 2.00%	3.53%	3.58%	3.67%
15-Year	LIBOR + 2.00%	3.59%	3.63%	3.71%

### Profitability Analysis

Rate Term (Years)	Profit Per Basis Point of Mark-up, Per \$1,000,000 of Notional							
	3-Year	5-Year	7-Year	10-Year	15-Year	20-Year	25-Year	Bullet
2-Year	\$141	\$167	\$178	\$186	\$193	\$196	\$198	\$202
3-Year	\$160	\$220	\$247	\$266	\$281	\$289	\$293	\$304
4-Year		\$253	\$300	\$335	\$362	\$376	\$383	\$403
5-Year		\$264	\$339	\$394	\$437	\$458	\$470	\$500
6-Year			\$362	\$443	\$505	\$535	\$553	\$597
7-Year			\$371	\$481	\$566	\$607	\$631	\$692
8-Year				\$508	\$619	\$674	\$706	\$785
9-Year				\$525	\$666	\$736	\$776	\$877
10-Year				\$531	\$706	\$792	\$842	\$967
12-Year	Fee Income Generation Only Possible With				\$764	\$889	\$962	\$1,143
15-Year	Back-to-Back Swaps and SMART Loan Products				\$797	\$994	\$1,109	\$1,395

### Macro-Hedging

Protection Against Rising Rates							
3mL Pay Fixed Swap		Pay Fix, quarterly, act/360 both sides	3-Month LIBOR Caps - Premium in Basis Points				
Rate Term	Rate		Strike	2-Year	3-Year	4-Year	5-Year
2-Year	0.51%		0.30%	0.71%	1.77%	3.24%	4.80%
3-Year	0.79%		0.50%	0.57%	1.46%	2.76%	4.17%
4-Year	1.00%		0.75%	0.46%	1.16%	2.27%	3.49%
5-Year	1.16%						

Protection Against Falling Rates							
Prime Rcv Fixed Swap		Receive fixed, monthly, act/365 both sides	3-Month LIBOR Floors - Premium in Basis Points				
Rate Term	Rate		Strike	2-Year	3-Year	4-Year	5-Year
2-Year	3.33%		0.25%	0.48%	0.67%	0.78%	0.92%
3-Year	3.57%		0.15%	0.41%	0.58%	0.68%	0.80%
4-Year	3.79%		0.10%	0.39%	0.55%	0.65%	0.77%
5-Year	3.93%						

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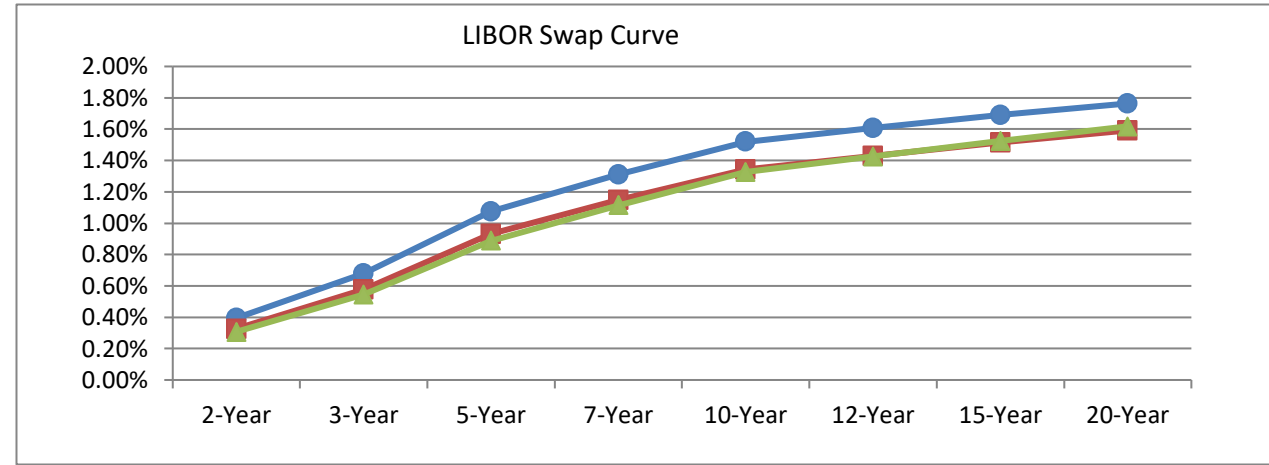
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### Interest Rate Swap Curves

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FFTR	0.2500%		
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SOFR	0.0500%		

### Spot Start Loan Hedging

Rate Term (Years)	Floating Rate	Amortization Term (Years)							
		3-Year	5-Year	7-Year	10-Year	15-Year	20-Year	25-Year	Bullet
2-Year	Prime	3.50%	3.53%	3.54%	3.54%	3.55%	3.55%	3.55%	3.55%
3-Year	Prime	3.58%	3.71%	3.74%	3.77%	3.78%	3.79%	3.79%	3.80%
4-Year	Prime		3.82%	3.89%	3.94%	3.97%	3.99%	3.99%	4.01%
5-Year	Prime		3.86%	4.00%	4.08%	4.11%	4.13%	4.14%	4.15%
6-Year	Prime			4.06%	4.16%	4.21%	4.23%	4.24%	4.26%
7-Year	Prime			4.08%	4.22%	4.29%	4.32%	4.33%	4.36%
8-Year	Prime				4.26%	4.35%	4.38%	4.40%	4.43%
9-Year	Prime				4.28%	4.39%	4.43%	4.45%	4.48%
10-Year	Prime				4.29%	4.43%	4.47%	4.49%	4.54%
12-Year	Prime	Customer Pays Fixed, Monthly, Act/360				4.48%	4.54%	4.57%	4.62%
15-Year	Prime	Customer Receives Prime				4.50%	4.60%	4.63%	4.70%

### Forward Starting Swap Quotes

Rate Term (Years)	Floating Rate	20-Year Amortization		
		3-Month	6-Month	12-Month
2-Year	Prime	3.64%	3.74%	3.99%
3-Year	Prime	3.88%	3.97%	4.18%
4-Year	Prime	4.07%	4.15%	4.33%
5-Year	Prime	4.20%	4.27%	4.42%
6-Year	Prime	4.29%	4.36%	4.50%
7-Year	Prime	4.37%	4.43%	4.55%
8-Year	Prime	4.43%	4.49%	4.59%
9-Year	Prime	4.48%	4.53%	4.63%
10-Year	Prime	4.52%	4.56%	4.66%
12-Year	Prime	4.58%	4.61%	4.70%
15-Year	Prime	4.63%	4.67%	4.74%

### Profitability Analysis

Rate Term (Years)	Profit Per Basis Point of Mark-up, Per \$1,000,000 of Notional							
	3-Year	5-Year	7-Year	10-Year	15-Year	20-Year	25-Year	Bullet
2-Year	\$141	\$167	\$179	\$187	\$193	\$197	\$198	\$202
3-Year	\$160	\$222	\$248	\$268	\$283	\$290	\$294	\$304
4-Year		\$255	\$302	\$338	\$365	\$378	\$386	\$403
5-Year		\$267	\$342	\$398	\$441	\$462	\$474	\$500
6-Year			\$366	\$448	\$510	\$540	\$558	\$597
7-Year			\$375	\$487	\$573	\$614	\$638	\$692
8-Year				\$515	\$628	\$683	\$715	\$785
9-Year				\$532	\$677	\$747	\$787	\$877
10-Year				\$539	\$718	\$805	\$855	\$967
12-Year	Fee Income Generation Only Possible With				\$779	\$906	\$979	\$1,143
15-Year	Back-to-Back Swaps and SMART Loan Products				\$814	\$1,017	\$1,134	\$1,395

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