Derivative Strategies in Light of the New Hedge Accounting Rules

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STIFEL Fixed Income Strategy

More than 125 years old and still growing

Learning Objectives

- As a result of this session, participants will be able to:
 - Indicate the key revisions to the hedge accounting framework provided by ASU 2017-12
 - Gain perspective on other institutions, their early adoption efforts and the corresponding strategies employed
 - Apply the new hedging rules to achieve cheaper term funding vehicles with greater flexibility throughout the tenor
 - Achieve greater risk adjusted returns within the loan and investment portfolio by implementing various hedging strategies to a variety of instruments

New Hedge Accounting Rules: Overview and Early Adoption

• On August 28, 2017, the Financial Accounting Standards Board (FASB) released Accounting Standards Update No. 2017-12– Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities

When is it effective?

- <u>Public companies:</u> For fiscal years, and interim periods within those fiscal years, beginning after **December 15, 2018**
- Private companies: for fiscal years beginning after December 15, 2019 (and interim periods for fiscal years beginning after December 15, 2020)
- Early adoption will be permitted in any interim period or fiscal years before the effective date of the standard

Early Adoption = One Time HTM Reclass

- Instruments eligible to hedged under the Last of Layer method may be reclassified from Held to Maturity (HTM) to Available for Sale (AFS) in same reporting period that the institution adopts the new rule
- This may be done <u>even if</u> the entity does not intend to designate the instrument as a hedged item
- The eligibility of items to be hedged must meet the GAAP definition of prepayable. This includes both mortgage-backed securities and callable debt instruments

Early Adoption Considerations

Currently have derivatives in hedge relationship form (early adoption complexity: moderate)

- ✓ Board meeting to inform board of early adoption
- Review of existing hedge relationships to determine if transition provisions of new standard can be applied to remove/eliminate any ineffectiveness (i.e., legacy fair value hedges)
- ✓ Public disclosures
- ✓ Internal memos regarding adoption and HTM reclassification

Currently DO NOT have derivatives in hedge relationship form (early adoption complexity: simple)

- ✓ Board meeting to inform board of early adoption
- ✓ Public disclosures
- ✓ Internal memos regarding adoption and HTM reclassification

Early Adoption: Sampling of 1st Quarter 2018 Early Adopters

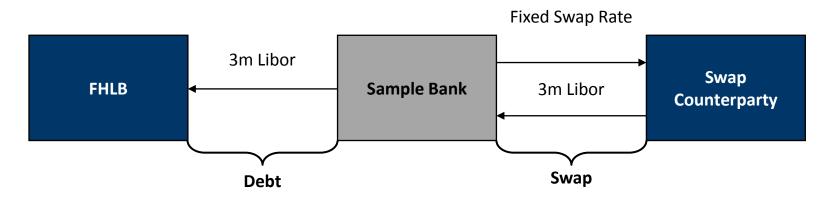
Below is a sampling of public banks that disclosed early adoption of ASU 2017-12 in their Q1 '18 10Q filings:



Swap Applications for Funding Strategy

Cash Flow Hedge of Short-Term FHLB Borrowings

- A pay fixed interest rate swap is an effective hedge to guard against rising interest rates
- This instrument is effectively a fixed rate borrowing, where the changes in market value of the swap move in the opposite direction of fixed rate securities and are recorded in Other Comprehensive Income (OCI), not net worth
 - Opportunity for utilization depends on structure and presence of existing wholesale funding book (e.g., FHLB advances, brokered CDs, etc.) and composition of retail funding base
 - Compared to other solution for rates up protection (Held-to-Maturity designation and longer term fixed rate funding), this provides realizable gain in rates up and limits future balance sheet encumbrance



Cost Comparison: Swaps vs. FHLB Borrowings

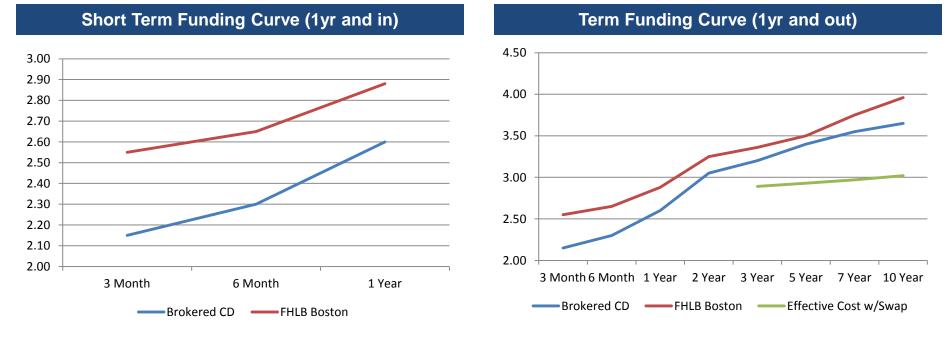
- The grid below illustrates the relative cost savings of using pay-fixed interest rate swaps as a replacement for regular fixed rate FHLB advances
- Cost savings increase for longer tenors as "term premium" charged by FHLB Boston is greater for longer tenors

Opt	Option 1: Rolling Series of 3 Month Fixed Rate Advances (Cash Flow Hedge)											
	FHLB Fixed Rate Advance ¹	Swap Rate (vs. 3 Mo LIBOR) ¹	FHLB 3 Mo Advance Spread ²	Total Borrowing Cost (Swap + Spread)	Cost Savings (bps vs. Term FHLB)							
3Y	3.36%	3.14%	+15bps	3.29%	7							
5Y	3.50%	3.18%	+15bps	3.33%	17							
7Y	3.75%	3.22%	+15bps	3.37%	38							
10Y	3.96%	3.27%	+15bps	3.42%	54							

- 5yr point: Savings of 17 bps vs. FHLB fixed rate advances
- Note: the hedge accounting relationship would require 3 month borrowings to be maintained throughout life of hedge transaction

Funding Curve Considerations

- The ascending path of 3 month LIBOR since year-end 2017 has led to a divergence between short-term FHLB rates and rates from other funding sources (e.g., brokered, internet, or retail deposits).
- This divergence in short-term funding rates has also created a unique opportunity to create liability duration in the same manner as term funding from the FHLB by borrowing from a cheaper short-term funding source and entering into a pay-fixed swap <u>on the asset side of the balance sheet (57 bps of net</u> cost savings at the 5yr point of the curve).



Brokered CD rate is 40 bps under FHLB Boston rates at 3 month point

Effective term funding cost with interest rate swap is 57 bps less than FHLB Boston at the 5yr point



Hedge on Assets = Lower Cost Term Funding Opportunity

 Using the new hedging rules, one can borrow the shortest/cheapest funding source (Brokered/Retail/Internet/FHLB) and shorten asset duration using "last of layer" pay-fixed swaps on pools of prepayable fixed rate assets (CRE loans, residential mortgages, etc.) at a cheaper all-in effective cost than term FHLB advance rates:

Optio	Option 2: Last of Layer Hedge on Pool of Fixed Rate Assets (Fair Value Hedge)											
	FHLB Fixed Rate Advance ¹	Swap Rate (vs. 3 Mo LIBOR) ¹	Short Term Funding Spread to 3 Mo LIBOR ²	Effective Cost (Swap + Spread)	Cost Savings (bps vs. Term FHLB)							
3Y	3.36%	3.14%	-25bps	2.89%	47							
5Y	3.50%	3.18%	-25bps	2.93%	57							
7Y	3.75%	3.22%	-25bps	2.97%	78							
10Y	3.96%	3.27%	-25bps	3.02%	94							

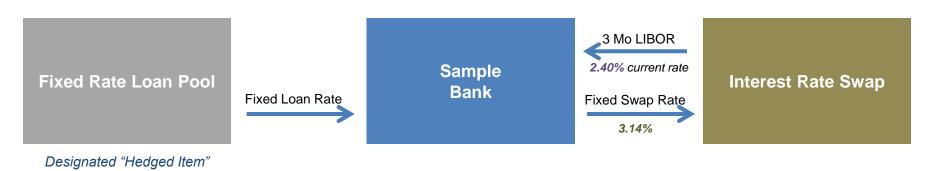
- Analysis above assumes 3 Month Brokered CD rate of 2.15% (vs. 3 Mo LIBOR at 2.40%)
- As illustrated on the following slide, <u>since the interest rate swap is pointed at a pool of assets</u> and not tied to the short-term funding, **one has the ability to pivot to any source of short-term funding at any point in time** without impacting the hedge accounting of the interest rate swap.

Funding Structure and Net Cashflows

Liability Side of Balance Sheet



Asset Side of Balance Sheet



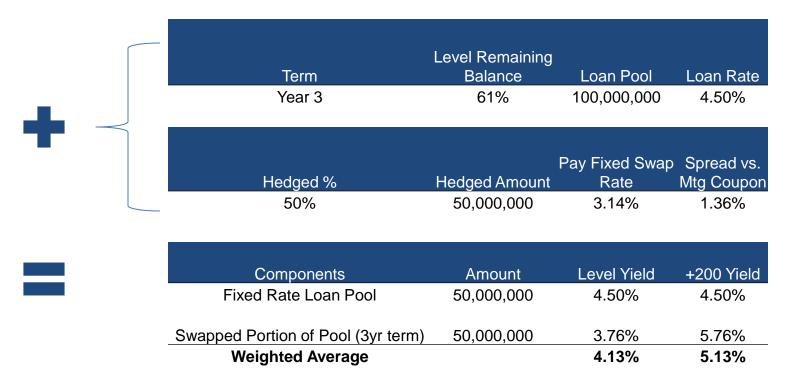
Effective Cost =

Fixed Swap Rate + (Short-Term Funding Rate - 3 Mo LIBOR)

3.14% + (2.15% - 2.40%) = **2.89%**

Last of Layer Approach: \$100mm fixed rate loan pool

• Using prepayment model projected remaining balance (level rates) at the 3yr point, one can construct a \$50mm floating rate loan pool by hedging the last layer using a 3yr pay-fixed interest rate swap within a \$100mm fixed rate loan pool (assumed 4.50% WAC).



By swapping \$50mm of the \$100mm loan pool to a floating yield of 3 Mo LIBOR + 1.36% (3.76% currently) for 3 years, this results in a blended level yield for the 50% fixed/50% floating loan pool of 4.13% and 5.13% in an up 200 shock.

Case Study: Pinnacle Financial Partners (PNFP)

Loan and Deposit Growth are Keys to Top and Bottom Line Growth

PNFP continues to transition to more variable rate assets



	Weig	hted Average Coup	on (*)	New Loans A	verage Rates
	Sept. 30, 2017	June 30, 2018	Net change	1Q18	2Q18
LIBOR	3.70%	4.43%	0.73%	4.38%	4.58%
Prime	4.52%	5.24%	0.72%	5.48%	5.49%
Fixed rate	4.43%	4.44%	0.01%	4.65%	4.72%
Fed funds	1.25%	2.00%	0.75%	1.75%	2.00%

(*) Weighted Average EOP Coupon Trends

 Excludes impact of PAA and impact from early payoff's which result in immediate recognition of deferred fees and prepayment penalties and increase actual yields

Avg. contractual life of fixed rate loans approx. 48 months.

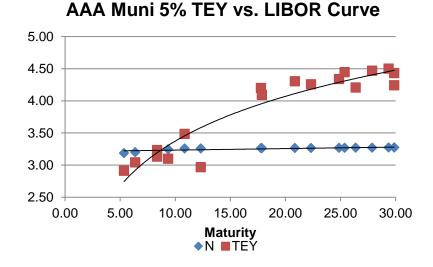


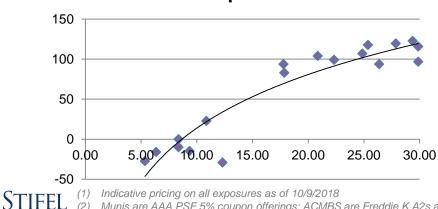
Asset Hedging Strategies in the Portfolio

Spread Curves

- While benchmark rate curves are flat, spread curves in certain products have steepness on the long end •
- Creating synthetic floaters with swaps allows us to capture spread without taking duration ٠

Municipal Spread Curve



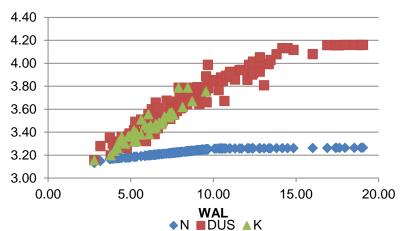


(2)

Spread

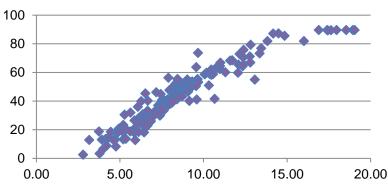
Munis are AAA PSF 5% coupon offerings; ACMBS are Freddie K A2s and Fannie DUS

ACMBS Spread Curve



ACMBS Yields vs. LIBOR Curve





Tax-Exempt Munis Swapped to Float: Create Your Own Floaters

- The new hedge accounting framework provides the ability to implement partial term hedges of callable debt which
 effectively allows one to alter the yield/duration profile of a fixed rate instrument for any desired term.
 - For callable municipal securities, this can be particularly useful in swapping the bond to floating up to the call date or any tenor before the call date.
 - Additionally, a forward starting interest rate swap can be put on in order to continue to earn the current fixed rate on the bond until the forward start date of the swap.

CUSIP	Issuer	Coupon	Maturity Date	Call Date	Unhedged TEY
882270UY5	EAGLE MOUNTAIN & SAGINAW TX ISD (AAA PSF)	4.00	8/15/2048	8/15/2027	4.70%

Sample Security Details

Swapped Security Details (swapped to 8/15/2028 call date)

Hedged TEY	Discount Margin (TEY over 3mL)	Up 100 Price Risk (Unhedged)	Up 100 Price Risk (Hedged)	Up 300 Price Risk (Unhedged)	Up 300 Price Risk (Hedged)
3.81%	+139 bps	-11.13	-3.74	-31.37	-11.01

- As illustrated above, swapping longer callable munis to a chosen term up to the call date can result in a floating
 rate security with a yield of 3 Mo LIBOR plus 100+ bps. When compared to spreads on CLOs (call risk) and SBA
 floaters (premium risk), this can result in an attractive floating rate alternative within the investment portfolio.
- Note: shortening tenor of swap would result in additional spread on asset (less negative carry from swap), but reduces price risk protection

Tax-Exempt Munis Swapped to Float: Maturity/Coupon Comparison

In the table below, we illustrate 4% and 5% coupon general market municipal sample offerings. In order to
mitigate the "tail risk" of the unhedged portion of the bond that remains after the call, moving up in coupon
increases the likelihood that the bond is called. While the sample offerings below are TX PSF, AAA GOs (20%
RW) issues, AA/Revenue Bonds (50% RW) could be considered in this strategy for a potentially higher spread.

	Underlying Exposure							Yield Comparison			Price Risk Comparison			
lssue Typ		Cpn	Mat (Yrs)	Call (Yrs)	CUSIP	Issuer	Price	TEY Unhedged	TEY Hedged	Floating Sprd to 3mL	Up 100 Unhedged	Up 100 Hedged	Up 300 Unhedged	Up 300 Hedged
GO	AAA	4.0	29.9	8.9	269696KD1	EAGLE MOUNTAIN & SAGINAW TX IN	101.11	4.70	3.81	139	-11.13	-3.74	-31.37	-11.01
GO	AAA	4.0	29.4	9.4	014393YM8	ALDINE TX ISD	100.69	4.78	3.87	145	-11.32	-3.52	-31.55	-10.16
GO	AAA	4.0	25.8	9.8	585488UJ6	MELISSA TX ISD	101.13	4.71	3.80	138	-10.96	-2.91	-30.52	-8.51
GO	AAA	5.0	29.4	9.4	743600D21	PROSPER TX ISD	111.86	4.26	3.44	102	-9.47	-2.46	-27.66	-8.40
GO	AAA	5.0	27.9	9.4	537096X79	LITTLE ELM TX ISD	112.03	4.23	3.42	100	-9.37	-2.36	-27.34	-8.11
GO	AAA	5.0	20.9	8.9	249002GE0	DENTON TX ISD	112.54	4.07	3.26	84	-8.62	-1.97	-25.38	-7.09

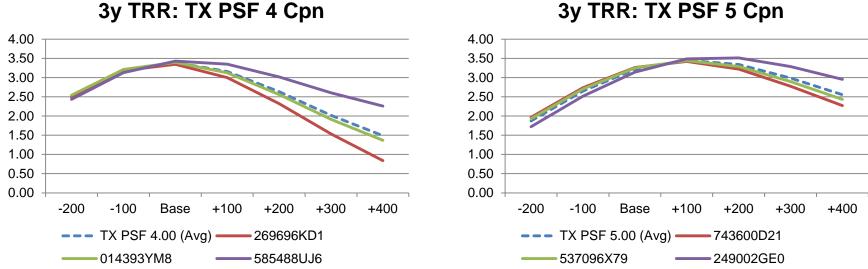
Additional Considerations

- While the 100% TEFRA disallowance for general market municipals as used in this strategy is a risk for those concerned about an increase in cost of funds, the floating rate nature of the swapped security yield and the cost of funds beta for each 100 bps increase in 3 Mo LIBOR must be analyzed in tandem. This TEFRA risk is mitigated for banks with investment subsidiaries.
- Hedge accounting provides flexibility to unwind swap and amortize gain/loss on swap through yield of bond (not realized gain/loss event) if there is desire to revert back to fixed rate bond at future point in time. This flexibility can be useful in order to manage the institution's interest rate risk position in changing rate environments.

Tax-Exempt Munis Swapped to Float: Total Return Profile

	Description						1Y TRR				3Y TRR			
Туре	Price	Yield	DM	+300 Price Risk	-100	Base	+100	+200	-100	Base	+100	+200		
TX PSF 4.00	100.98	3.83	141	-9.89	5.13	3.41	0.66	-2.63	3.17	3.39	3.16	2.63		
269696KD1	101.11	3.81	139	-11.01	5.26	3.36	0.28	-3.42	3.18	3.34	3.00	2.32		
014393YM8	100.69	3.87	145	-10.16	5.22	3.42	0.54	-2.83	3.21	3.40	3.13	2.56		
585488UJ6	101.13	3.80	138	-8.51	4.89	3.45	1.15	-1.62	3.13	3.43	3.35	3.02		
TX PSF 5.00	112.14	3.37	95	-7.87	3.86	3.25	1.78	-0.47	2.65	3.22	3.45	3.34		
743600D21	111.86	3.44	102	-8.40	4.04	3.29	1.62	-0.88	2.74	3.26	3.42	3.22		
537096X79	112.03	3.42	100	-8.11	3.96	3.28	1.70	-0.66	2.70	3.25	3.44	3.29		
249002GE0	112.54	3.26	84	-7.09	3.57	3.17	2.02	0.12	2.52	3.14	3.49	3.51		

3y TRR: TX PSF 4 Cpn



Indicative pricing as of 10/9/18 STIFEL

TEFRA Disallowance of 100% (General Market) assumes 65bps cost of funds and 21% effective tax rate (2)

Hedged Offerings: Fannie DUS and Freddie K A2/AM

		Underlying I	Exposur	9		Yield	l Compar	ison	Price Risk Comparison			
Тур	Cpn	Des	Price	Bond Mty	Hedge Mty	Yield Unhedged	Yield Hedged	Floating Sprd to 3mL	Up 100 Unhedged	Up 100 Hedged	Up 300 Unhedged	Up 300 Hedged
DUS	3.33	FN 109498	99.42	6.81	6.38	3.46	2.59	17	-5.84	-0.16	-16.38	-0.39
	3.10	FN AN0571	97.50	7.23	6.79	3.53	2.64	22	-6.18	-0.08	-17.26	-0.18
	2.64	FN AN1243	94.41	7.64	7.21	3.51	2.58	15	-6.58	0.09	-18.30	0.34
	3.09	FN AN4633	96.46	8.31	7.88	3.63	2.70	28	-6.94	0.08	-19.22	0.26
	2.99	FN AN7763	94.67	9.14	8.71	3.72	2.77	34	-7.53	0.27	-20.69	0.80
	3.06	FN AN7133	93.41	11.14	10.21	3.84	2.84	42	-8.77	0.28	-23.72	0.92
	3.71	FN AN9398	98.12	14.73	14.29	3.94	2.96	54	-10.41	0.80	-27.48	2.12
K A2/AM	3.00	FHMS K725 A2	98.54	5.29	3.29	3.29	2.46	4	-4.62	-1.67	-13.15	-4.54
	3.59	FHMS K730 A2	100.77	6.29	4.13	3.43	2.60	18	-5.28	-1.63	-14.90	-4.17
	2.67	FHMS K055 A2	94.68	7.46	6.13	3.49	2.58	16	-6.32	-0.56	-17.64	-1.39
	3.35	FHMS K061 A2	98.39	8.13	5.96	3.57	2.70	28	-6.68	-1.30	-18.54	-3.37
	3.30	FHMS K070 A2	97.36	9.13	7.96	3.65	2.73	31	-7.33	-0.31	-20.18	-0.73
	3.85	FHMS K078 A2	101.10	9.71	9.04	3.71	2.82	40	-7.54	0.01	-20.70	0.09
	3.92	FHMS K078 AM	101.14	9.71	9.46	3.78	2.87	45	-7.61	0.23	-20.85	0.64

- DUS swapped to end of YM period; Ks swapped to end of defeasance period
- Floaters at 2.46-2.96%, depending on maturity point (spread curve steep out to 10y point)

(1) Indicative offering levels, swap rates, and 3 Mo LIBOR as of 10/9/2018

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(2) Non-amortizing DUS bonds are chosen for simplicity; however, swaps could be built to match the corresponding amortization schedule on amortizing bonds

(3) Swap structures: spot start pay fixed S/A 30/360, receive 3mL Qtrly Act/360, with maturity dates aligned to end of the call protection period on underlying exposures

Risk considerations:

- Involuntary prepayments
- LIBOR swaps/Treasuries basis (swap spreads) YM calculated using spread to Treasuries, but hedging with LIBOR swaps

Comments:

- Risk of mismatch between investor YM payment and market value of swap at unwind comes when swap rates decline (negative market value on swap) and decline more than Treasury rates (swap spreads tighten)
- Net coupon difference (DUS coupon minus interpolated Treasury) provides cushion against adverse movements in swap spreads
- Mitigate basis risk with higher coupon DUS
 - Higher coupon DUS provide greater protection against adverse swap spread movements
- Mitigate basis risk in Freddie K-Deal product
 - Call protection predominantly in the form of defeasance
 - Note that available volumes are likely less versus DUS

Swapped ACMBS: TRR Profile

		Underlying Ex	cposure			1y TRR Profile				3y TRR Profile			
Тур	Cpn	Des	Price	Bond Mty	Hedge Mty	-100	Base	+100	+200	-100	Base	+100	+200
DUS	3.33	FN 109498	99.42	6.81	6.38	1.96	2.63	3.32	4.04	1.71	2.62	3.53	4.45
	3.10	FN AN0571	97.50	7.23	6.79	1.92	2.67	3.44	4.24	1.73	2.66	3.61	4.55
	2.64	FN AN1243	94.41	7.64	7.21	1.73	2.61	3.51	4.43	1.64	2.62	3.60	4.59
	3.09	FN AN4633	96.46	8.31	7.88	1.88	2.73	3.61	4.51	1.76	2.73	3.71	4.69
	2.99	FN AN7763	94.67	9.14	8.71	1.79	2.80	3.83	4.87	1.77	2.79	3.82	4.85
	3.06	FN AN7133	93.41	11.14	10.21	1.99	2.86	3.77	4.73	1.88	2.86	3.84	4.84
	3.71	FN AN9398	98.12	14.73	14.29	1.71	2.98	4.25	5.53	1.85	2.95	4.06	5.18
ĸ													
A2/AM	3.00	FHMS K725 A2	98.54	5.29	3.29	2.99	2.32	1.72	1.18	1.71	2.62	3.53	4.45
	3.59	FHMS K730 A2	100.77	6.29	4.13	3.35	2.63	1.99	1.43	1.73	2.66	3.61	4.55
	2.67	FHMS K055 A2	94.68	7.46	6.13	2.44	2.64	2.91	3.22	1.64	2.62	3.60	4.59
	3.35	FHMS K061 A2	98.39	8.13	5.96	3.36	2.76	2.28	1.91	1.76	2.73	3.71	4.69
	3.30	FHMS K070 A2	97.36	9.13	7.96	2.36	2.77	3.24	3.76	1.77	2.79	3.82	4.85
	3.85	FHMS K078 A2	101.10	9.71	9.04	2.13	2.84	3.58	4.35	1.88	2.86	3.84	4.84
	3.92	FHMS K078 AM	101.14	9.71	9.46	1.95	2.89	3.84	4.81	1.85	2.95	4.06	5.18

(1) Indicative offering levels, swap rates, and 3 Mo LIBOR as of 10/9/2018

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(2) Non-amortizing DUS bonds are chosen for simplicity; however, swaps could be built to match the corresponding amortization schedule on amortizing bonds

(3) Swap structures: spot start pay fixed S/A 30/360, receive 3mL Qtrly Act/360, with maturity dates aligned to end of the call protection period on underlying exposures

Partial Term Hedging

PWC "Derivatives and hedging" January 2018

6.4.7.1 Basis adjustments in partial-term hedges

If a reporting entity elects to amortize a basis adjustment in a partial-term hedge while the hedging relationship is in place, it would amortize the basis adjustment over the life of the hedge (that is, over the partial-term period). However, if the hedge is discontinued early, the remaining basis adjustment would be amortized in accordance with the guidance in ASC 310-20, *Nonrefundable Fees and Other Costs*. Thus, the amortization period may change upon termination.

- As illustrated above, upon discontinuance (early termination) of the hedge, the gain/loss (basis adjustment) will be amortized or accreted similarly to the premium or discount on the instrument. For example, in the case of a premium municipal bond, it will be amortized to the earliest call date.
- This accounting application provides flexibility within a partial term hedging strategy, as the
 institution could decide at the horizon to maintain the longer term protection or could choose to
 early terminate at that point in time. This would allow the institution to reintroduce the falling rates
 protection at its discretion without immediate P/L recognition of the gain/loss.

Partial Term Hedge: Basis Adjustment Upon Discontinuation

• As can be seen below, the amortization/accretion of the gain upon a swap early termination is <u>recognized</u> as if it is a basis adjustment to the bond which can be different than the original hedged term.

10.3.7.2 Amortization of basis adjustments in partial-term hedges that are discontinued

For interest-bearing assets and liabilities, if a partial-term hedge is discontinued early, the remaining basis adjustment would be amortized in accordance with the applicable guidance for the hedged item.

For example, for hedges of interest bearing loans, amortization of the basis adjustment would be calculated in accordance with ASC 310-20. Thus, the amortization period may change upon termination because basis adjustments amortized while the partial-term hedge is in place are amortized over the assumed term of the hedged item while amortization upon discontinuance under ASC 310-20 may be over the contractual life.

• The portion boxed in **blue** above is an important distinction. In the case of a swap term that is shorter than the natural amortization/accretion time period of a loan or bond (i.e. swap term of 6 years and call date on bond of 9 years), the gain/loss on swap would be recognized over a longer time period than the hedged term.

Last of Layer Approach

815-20-25-12A For a closed portfolio of **prepayable** financial assets or one or more beneficial interests secured by a portfolio of prepayable financial instruments, an entity may designate as the hedged item a stated amount of the asset or assets that are not expected to be affected by prepayments, defaults, and other factors affecting the timing and amount of cash flows if the designation is made in conjunction with the partial-term hedging election in paragraph 815-20-25- 12(b)(2)(ii) (this designation is referred to throughout Topic 815 as the "last-of-layer method").

- a. As part of the initial hedge documentation, an analysis shall be completed and documented to support the entity's expectation that the hedged item (that is, the designated last of layer) is anticipated to be outstanding as of the hedged item's assumed maturity date in accordance with the entity's partial-term hedge election. That analysis shall incorporate the entity's current expectations of prepayments, defaults, and other events affecting the timing and amount of cash flows associated with the closed portfolio of prepayable financial assets or beneficial interest(s) secured by a portfolio of prepayable financial instruments.
- b. For purposes of its analysis, the entity may assume that as prepayments, defaults, and other events affecting the timing and amount of cash flows occur, they first will be applied to the portion of the closed portfolio of prepayable financial assets or one or more beneficial interests that is not part of the hedged item (that is, the designated last of layer).

• The new hedging standard contains a significant degree of flexibility for situations in which the forecasted balance is no longer expected to occur during the life of the hedge.

815-25-40-8

For a hedging relationship designated under the last-of-layer method in accordance with paragraph 815-20-25-12A, an entity shall discontinue (or partially discontinue) hedge accounting in either of the following circumstances:

- a. If the entity cannot support on a subsequent testing date that the hedged item (that is, the designated last of layer) is anticipated to be outstanding in accordance with paragraph 815-25-35-7A, it shall at a minimum discontinue hedge accounting for the portion of the hedged item no longer expected to be outstanding at the hedged item's assumed maturity date.
- b. If on a subsequent testing date the outstanding amount of the closed portfolio of prepayable financial assets or one or more beneficial interests is less than the hedged item, the entity shall discontinue hedge accounting.

815-25-40-9

If a last-of-layer method hedging relationship is discontinued (or partially discontinued), the outstanding basis adjustment (or portion thereof) as of the discontinuation date shall be allocated to the individual assets in the closed portfolio using a systematic and rational method. *An entity shall amortize those amounts over a period that is consistent with the amortization of other discounts or premiums associated with the respective assets in accordance with other Topics (for example, Subtopic 310-20 on receivables–nonrefundable fees and other costs).*

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