

Solutions For Rising Interest Rates

Federal Home Loan Bank of Boston Webinar

Jason Hwang

Director of Financial Strategies, Research and Membership Applications

jason.hwang@fhbboston.com

Kevin Martin

Manager of Member Financial Strategies

kevin.martin@fhbboston.com

December 17, 2014

This webinar is being recorded

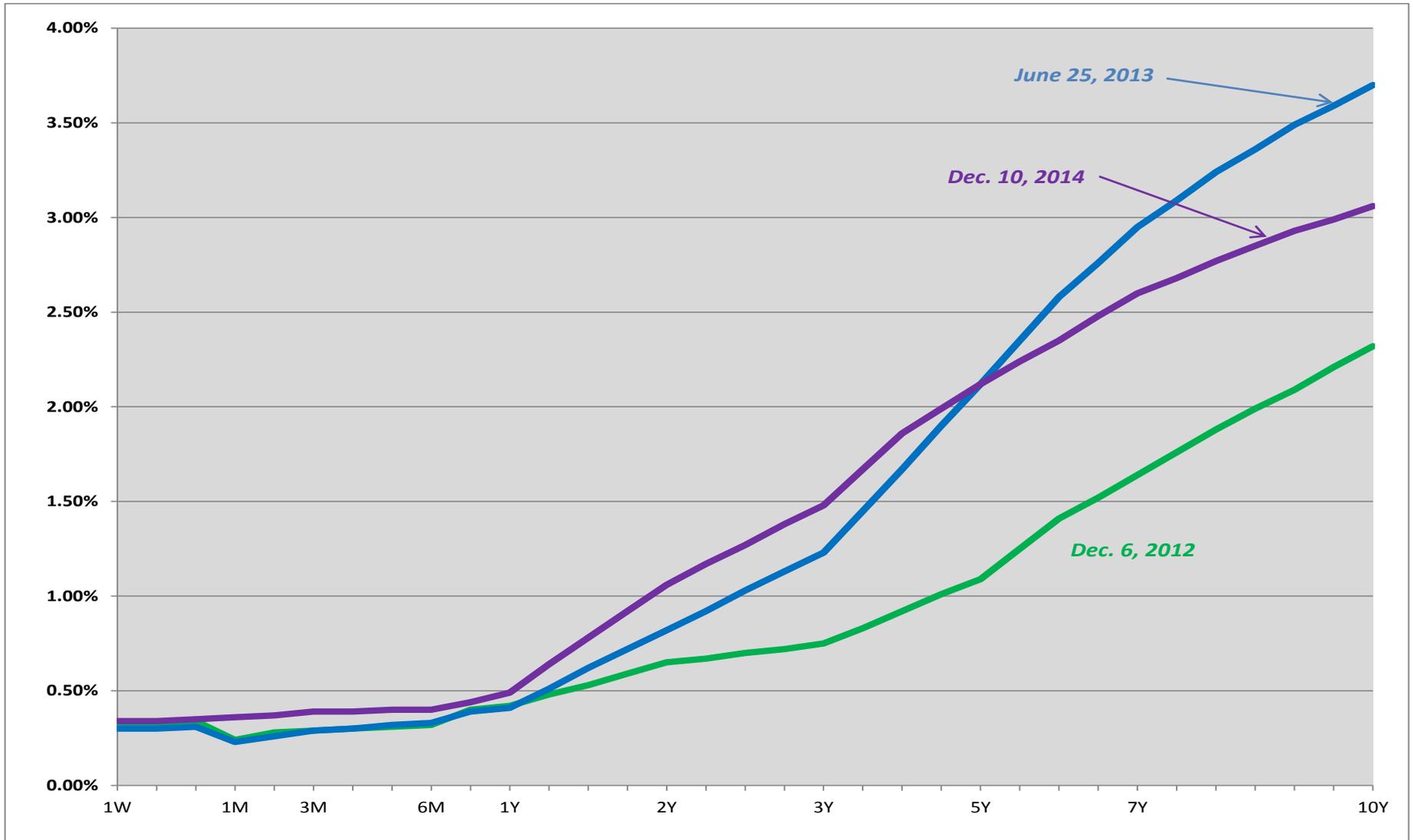
FHLBBoston

This presentation does not purport to disclose all the risks of and other material considerations associated with structured advance products. Members should not construe this information as business, legal, tax, or accounting advice from the Bank. Members should consult with their own independent business, legal, tax, and accounting advisers with respect to the structured advance products and should refrain from entering into the advances unless they have fully understood the terms and risks of the advance products. This information does not constitute an offer to engage in any transaction.

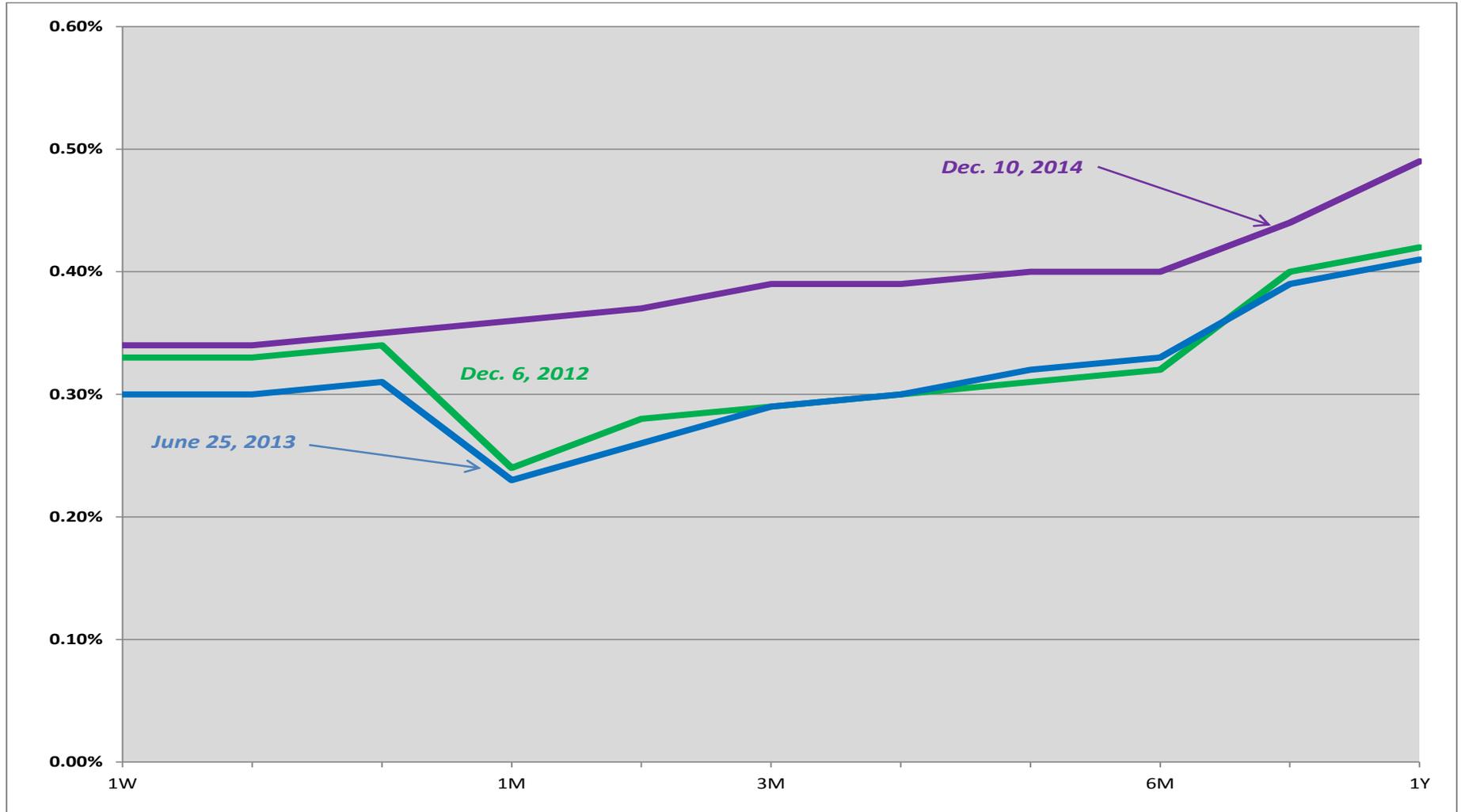
Agenda

- When will interest rates rise?
- Plain vanilla solutions
- Structured Products:
 - Symmetrical Prepayment advance
 - Flipper advance
 - Classic Plus Cap advance
 - Expander advance

When Will Rates Rise?



When Will Short-Term Rates Rise?



Classic Advance

- Nonamortizing, fixed-term and rate
- Principal due at maturity
- Interest due monthly
 - Calculated on an actual/360-day basis
 - Terms out to 20 years
- Used to:
 - Manage liquidity needs
 - Manage IRR
 - Fund short- or long-term assets

Classic Advances Benefit NEV Concerns

7 Year FHLB Classic Advance

Start Date - 12/08/2014

Maturity Date - 12/08/2021

Rate 2.71%

Approximate Market Value of Advance

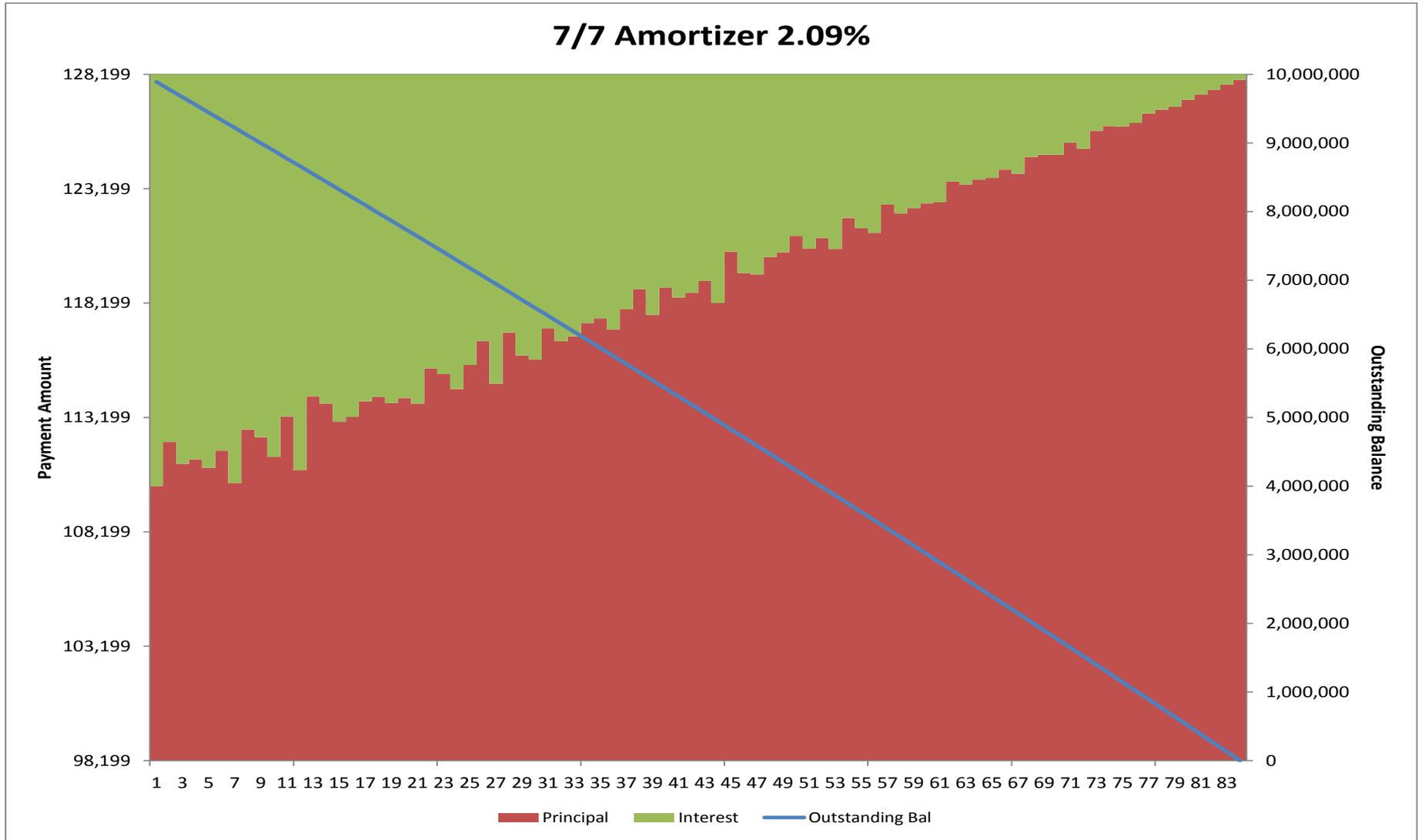
Remaining Term	Valuation Date	-50 bp	-40 bp	-20 bp	Base	+200 bp	+300 bp	+400 bp
7	12/8/2014	103.23%	102.57%	101.28%	100.00%	88.19%	82.89%	77.94%
6	12/8/2015	104.17%	103.59%	102.46%	101.33%	90.83%	86.04%	81.55%
5	12/8/2016	104.67%	104.19%	103.22%	102.26%	93.21%	89.04%	85.07%
4	12/8/2017	104.88%	104.48%	103.69%	102.91%	95.45%	91.96%	88.62%
3	12/8/2018	104.92%	104.62%	104.02%	103.42%	97.66%	94.92%	92.28%
2	12/8/2019	104.21%	104.01%	103.60%	103.20%	99.27%	97.38%	95.53%
1	12/8/2020	102.70%	102.63%	102.42%	102.22%	100.23%	99.25%	98.29%

Note: Estimated values based on parallel shifts of the FHLB Boston advance curve

Amortizing Advance

- A fixed-term and rate advance whose principal balance amortizes according to a predetermined schedule
- Principal & interest payment due monthly
- Terms out to 20 years with amortization periods out to 30 years
- Used to:
 - Manage liquidity needs
 - Manage IRR
 - Fund short- or long-term assets

Amortizing Advance



Structured Product Overview

- Members customize structure of advance
 - Final maturity, lockout period, notional amount, strike rates on caps/floors, or spread to LIBOR
- Available with maturities out to 20 years
- Some products contain an option where FHLB Boston holds the opportunity to cancel the advance prior to maturity
- Conversely, some products provide the member with the option to increase the outstanding amount of advance.
- \$10 million minimum but we can aggregate smaller amounts in special offerings
- More details on each advance product can be found in the Bank's Products and Solutions Guide

Symmetrical Prepayment Advance

- Fixed-term, fixed-rate, non-amortizing advance
- Special prepayment feature that allows the member to prepay the advance at its approximate market value
 - Potential to monetize a gain in a rising rate scenario
 - Lower prepayment fee than corresponding Classic advance in all rate scenarios

Symmetrical Prepayment Advance

5 Year FHLB Symmetrical Prepayment Advance

Start Date - 12/09/2014

Maturity Date - 12/09/2019

Rate 2.19%

Table 1

Estimated Prepayment Fees

(Subject to 10% termination value limitation, including prepayment fee differential)

Remaining Term	Prepayment Date	-150 bp	-100 bp	-50 bp	Base	+100 bp	+200 bp	+300 bp
5	12/9/2014	-7.52%	-4.98%	-2.50%	-0.10%	4.53%	8.91%	9.91%
4	12/9/2015	-7.17%	-5.12%	-3.11%	-1.15%	2.65%	6.28%	9.76%
3	12/9/2016	-5.75%	-5.02%	-3.50%	-2.00%	0.92%	3.74%	6.47%
2	12/9/2017	-3.83%	-3.83%	-3.27%	-2.26%	-0.28%	1.66%	3.55%
1	12/9/2018	-1.92%	-1.92%	-1.92%	-1.55%	-0.55%	0.43%	1.41%

Note: Negative amounts are due to FHLB, positive amounts are due to member. Expressed as a percent of principal amount prepaid.

Flipper Advance

- Starts as a sub-LIBOR floating rate advance during lockout period
 - Member chooses negative spread to 3mL
- After lockout period, FHLB Boston has option to cancel advance
- If the advance is not cancelled then...
 - “Flips” to a fixed-rate advance until final maturity
 - Rate at which the advance would “flip” is predetermined at disbursement

How it Works - Flipper Advance 4Y/1Y “Euro”

- Initial rate 0.00760%, 3mL less 23 basis points; 1.91% if “flipped”
- Advance reprices quarterly at 3mL less 23 bp during the lockout period (1 year)
 - Advance rate can reset at a rate less than zero
- FHLB Boston has a one time option to cancel the advance, one year from now
- If FHLB Boston *does not cancel*, the advance “flips” to a 3-year, fixed-rate advance at 1.91%
- If FHLB Boston *cancels* the advance, you can refinance into a new advance at market rates

Note: 4-year Classic advance rate 1.95%

3-year Classic advance rate 1.54%

Classic Plus Cap Advance

- Classic advance with an embedded LIBOR-indexed, interest-rate cap
- Members choose term, strike level of cap, index, notional amount of cap
 - Cap available on 1- or 3-month LIBOR
 - Cap is in effect for the full term of the advance
 - Cost of cap included in the advance rate
 - Notional amount of cap available at 1x, 2x, or 3x amount of advance
 - Cost of cap based on term, strike rate, notional amount, and market expectations towards forward rates

Classic Plus Cap Advance

- Maximum advance rate is established at disbursement
- Advance rate is fixed at the initial advance rate, but
 - If LIBOR exceeds the cap strike rate then the initial advance rate will be reduced until next reset date
 - If LIBOR is *below* the cap strike rate then the advance rate reverts to the initial advance rate
- LIBOR is compared to cap strike rate on rate adjustment dates, i.e. monthly or quarterly
- Advance rate could reprice as low as ZERO in a rising rate environment, depending on CAP structure

How it Works – Classic Plus Cap Advance

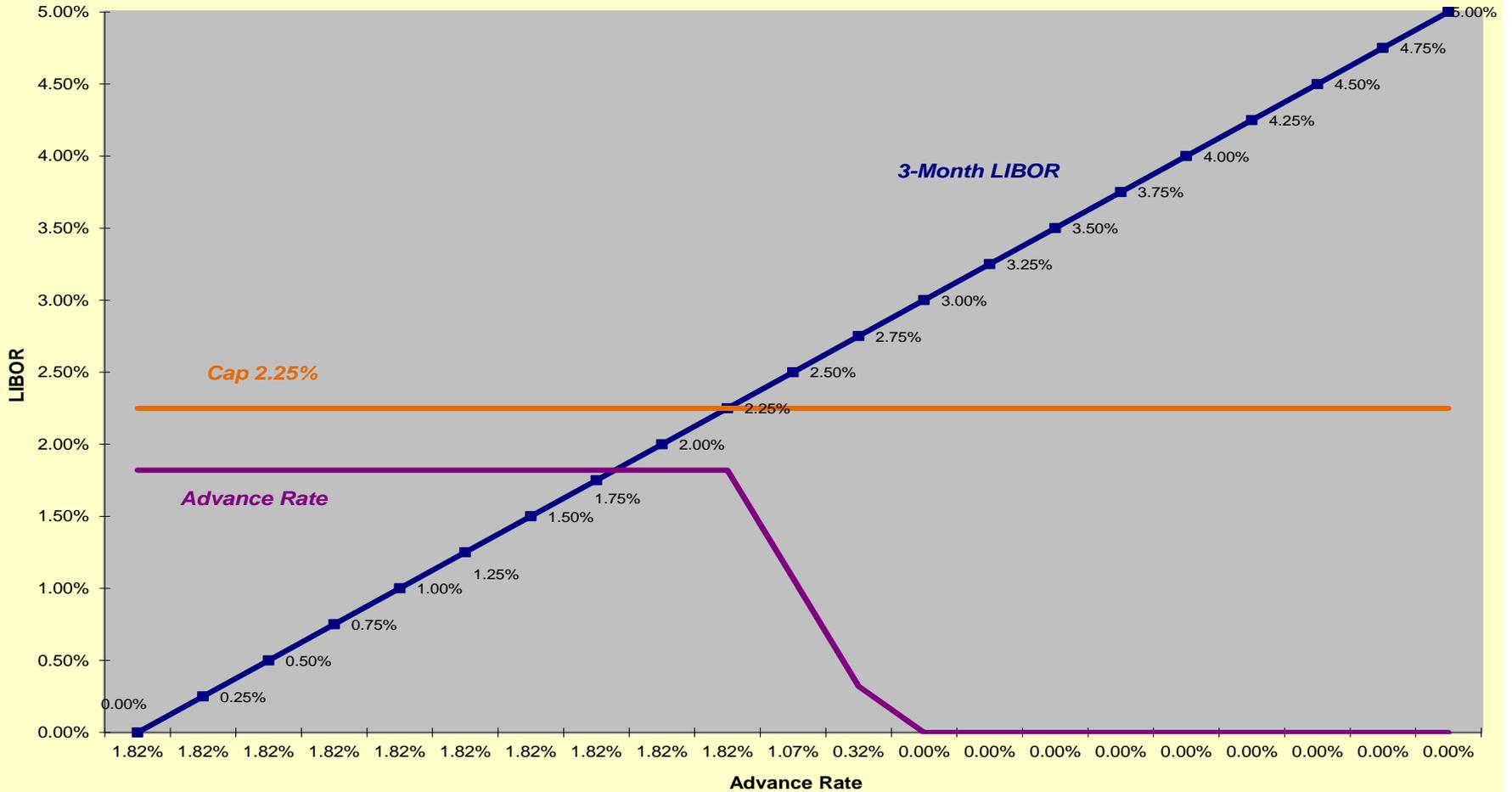
3 Yr. Term; Cap Strike Rate 2.25%; 3x Notional, Initial Advance Rate 1.82%

- If LIBOR exceeds the cap strike rate then the initial advance rate will be reduced until next reset date
- Adjusted advance rate = initial advance rate – cap factor x (LIBOR – cap strike rate)
 - Adjusted advance rate = $1.82\% - 3 \times (2.50\% - 2.25\%)$
 - Adjusted advance rate = $1.82\% - 3 \times (0.25\%)$
 - Adjusted advance rate = $1.82\% - 0.75\%$
 - Adjusted advance rate = 1.07%

Note: 3-year Classic advance rate 1.54%

Classic Plus Cap Advance

Classic Plus Cap Advance 3-Years
 Cap Strike @ 2.25% (3x Notional); Initial Advance Rate = 1.82%
 3-Year Classic Advance = 1.54%



Embedded in the advance is a purchased, or "long" interest-rate cap.

Expander Advance

- Fixed-term, fixed-rate, non-amortizing advance
- One-time opportunity to increase principal amount of advance by 100%
- Member chooses final maturity term and one-time expansion date
 - Expansion at the original interest rate
 - Maturities available from two- to 20-years
 - Expansion date from one- to 10-years from disbursement date

How it Works – Expander Advance 5Y/2Y

- 5-year/2-year Expander advance for \$10MM at 2.63%
 - The advance has a 5-year maturity and a 2-year expansion option date
 - The ‘embedded option’ allows the member to increase the balance of the advance on the second anniversary date of disbursement by \$10MM at 2.63% for the remaining 3-year term.

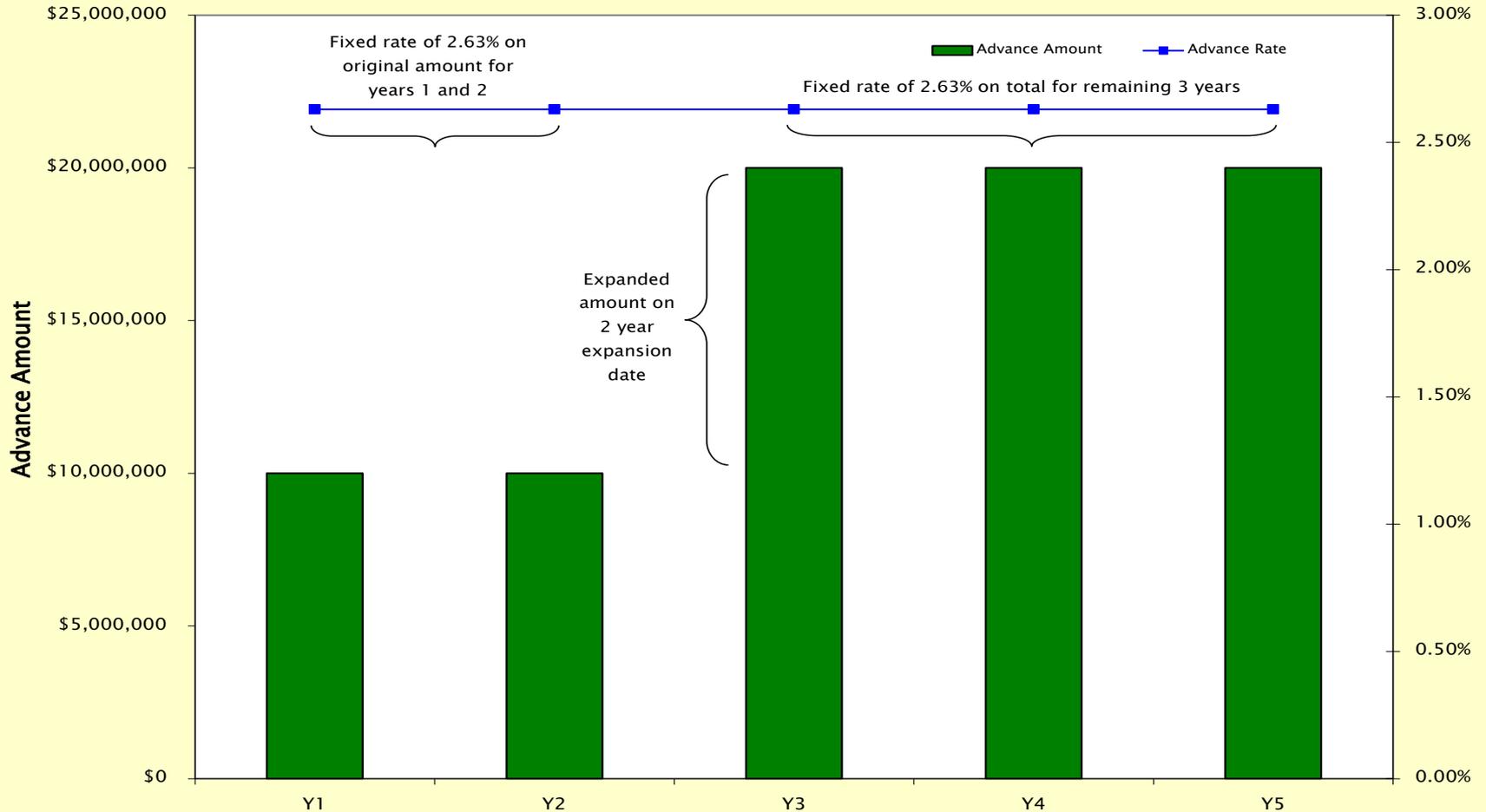
Note: 5-year Classic advance rate 2.23%

3-year Classic advance rate 1.54%

2-year Classic advance rate 1.09%

Expander Advance

5 Yr/2 Yr Expander Advance @ 2.63%



Advance Products by Interest-Rate Outlook

Interest-Rate Outlook				
	Falling Rates	Rates Unchanged	Rising Rates	Yield Curve Shape
Fixed Rate	S/T Classic S/T Amortizer Member Option	HLB Option	L/T Classic L/T Amortizer Symmetrical Prepayment HLB Option Plus Cap Knockout Expander Classic Plus Cap	
Floating Rate	LIBOR Floater DN Auction Floater Slider	Flipper	Capped Floater Collar Corridor Flipper with Guaranteed Flip	Curve Flattener Curve Steepener



Questions?

Comments?