

# HLB-Option Plus Cap Advance Primer

## I. Product Information

### History

In 1996, FHLB Boston introduced the HLB-Option advance and it soon became one of the most successful products in Bank history. It has enabled members to borrow at lower rates than would typically be available to them. Recently, members have expressed a desire for an advance product that would allow them to extend the term of their wholesale funding at rates below like-maturity bullets while also receiving a lower advance rate should short-term interest rates increase. By embedding an interest-rate cap feature into the HLB-Option advance we can offer members an advance product that will accomplish both objectives.

### How It Works

The HLB-Option Plus Cap advance is similar to an HLB-Option advance, the lone exception being the inclusion of an embedded interest-rate cap whose notional amount can be between one and three times the dollar amount of the advance. The embedded interest-rate cap is in effect only during the lockout period and its premium cost is included in the advance rate. If the advance is not cancelled at the end of the lockout period, the advance rate reverts to the initial advance rate until the advance is cancelled or for the remaining term. On each rate adjustment date the current index rate is compared to the cap strike rate. If the index is above the cap strike rate, the payment on the cap is based on the difference between the two rates multiplied by the notional factor, i.e. the notional amount of the cap as a multiple of the advance amount. The payment on the cap is applied as an adjustment to the initial interest rate for the advance and will be in effect until the next rate adjustment date. In a rising rate environment, the option will typically gain value and the advance rate will decrease. Whenever the index is below the strike rate, the cap will have no impact on the initial advance rate. The net adjusted advance rate cannot be less than zero percent.

**For example,** assume a **5-year/2-year HLB-Option Plus Cap advance** with a **3.25% strike rate on an embedded cap with *double*** the notional amount of the advance. Assume three month LIBOR is 3.25% at the start of the advance and the initial advance rate is 2.86%. The advance rate includes the cost of the cap for double the notional amount of the advance.

If three-month LIBOR increases to 3.50% at a rate adjustment date, the member's adjusted advance rate would be reset to 2.36% for the next three-month period, computed as follows:

$$\begin{aligned} & \text{Initial advance rate} = 2.86\% \\ & \text{'Payment' on cap component (if LIBOR exceeds 3.25\%)} = \\ & (\$ \text{ notional amount of cap} / \$ \text{ amount of advance}) \times (\text{current LIBOR} - \text{cap strike rate}) = \\ & (\$20\text{M} / \$10\text{M}) \times (3.50\% - 3.25\%) = 0.50\% \\ & \text{Net adjusted advance rate} = \text{initial advance rate} - \text{'payment' on cap component} = \\ & 2.86\% - 0.50\% = 2.36\% \end{aligned}$$

## Available Structures

Final maturities of offerings generally range from two to 15 years with the advance being cancelable by FHLB Boston after a lockout period of between three months and 10 years. FHLB Boston offers “Bermudan” structures, cancelable at the end of the lockout period and on a quarterly, semi-annual, or annual basis after the lockout period and “European” structures, which are cancelable on a one-time basis at the end of the lockout period. Cancellation dates, the cap strike rate, and the notional amount of the cap are mutually agreed upon at the commencement of the HLB-Option Plus Cap advance.

## II. Risks Associated with the HLB-Option Plus Cap advance and other Considerations

The HLB-Option Plus Cap advance involves both the sale and purchase of options. The member is purchasing an embedded interest-rate cap from FHLB Boston for the lockout period and the member’s exposure is limited to the premium paid. In addition, the member is selling the option to cancel the advance prior to final maturity to FHLB Boston. When selling options, it is important to understand the inherent risks and evaluate them as part of the member’s entire risk position. Members are familiar with selling options on the asset side of the balance sheet. Almost every loan on members’ balance sheets can be prepaid without penalty. Many investment portfolios also contain callable bonds. As interest rates change, members should be aware that any strategy involving prepayable or callable assets funded with HLB-Option Plus Cap advance could result in margin pressures and requires active risk management. The sale of options on both sides of the balance sheet results in opposite call profiles for the instruments. When interest rates rise, mortgage prepayments would likely slow and the portfolio would likely extend. Likewise, callable bonds also would extend because issuers would not exercise their call options. At the same time, the HLB-Option Plus Cap advance would likely be canceled. If FHLB Boston exercises its option to cancel, the member must repay the advance, but may replace the advance with a new advance. The new advance may be for any structure and term to maturity agreed upon between the member and FHLB Boston, subject to FHLB Boston's [Products Policy](#). The rate on the new advance will be that in effect at the time the new advance is taken.

In a falling interest rate environment, the exact opposite would be likely to occur. Mortgagors, anxious to reduce their monthly payments, would likely prepay and refinance at lower rates. Furthermore, the issuers of callable bonds, who are using these instruments to hedge their own mortgage portfolios, would call the bonds away from investors. The HLB-Option Plus Cap advance would likely remain outstanding at higher than market rates and again, the member’s margin could be compressed.

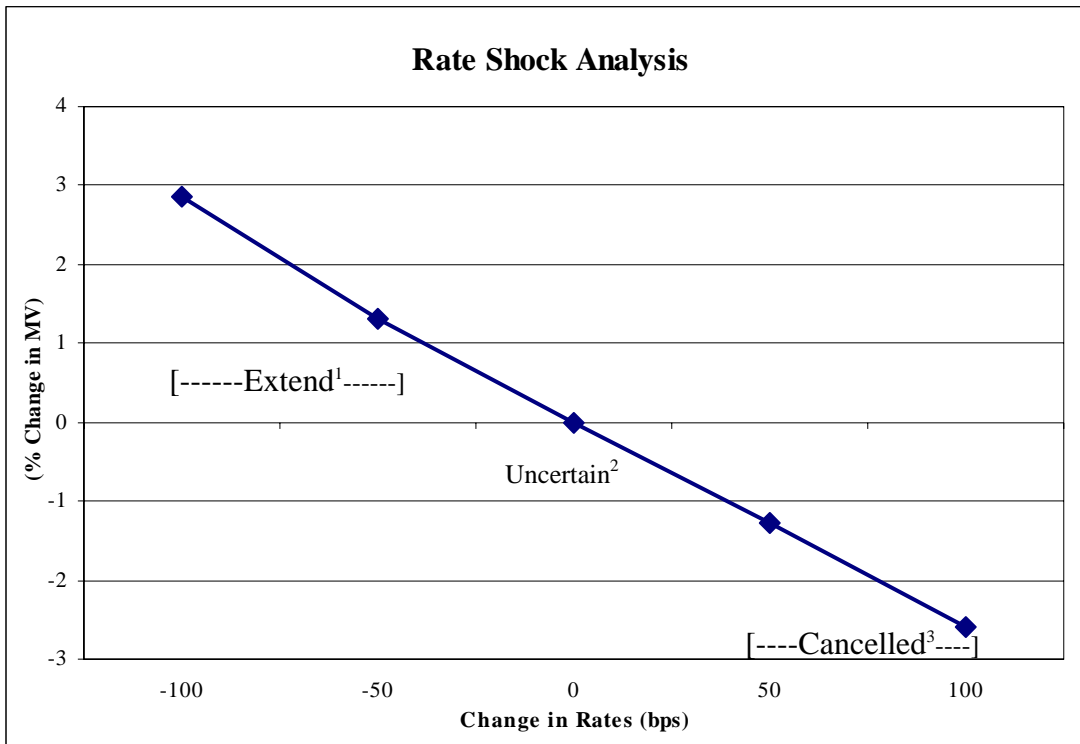
Members generally are attracted to the HLB-Option Plus Cap advance in a flat yield curve environment to lower their cost of funds. While this results in a lower advance rate than otherwise could be achieved, it is important for the member to quantify the effects on their net interest margin. HLB-Option Plus Cap advance also require active management as interest rates change. Contact your Asset/Liability or financial advisor for strategies you could employ in different interest rate environments. As usage of this

product increases, members should be able to quantify how changes in market rates would impact their net interest margin.

This statement does not purport to disclose all of the risks and other material considerations associated with the HLB-Option Plus Cap advance. Members should not construe this disclosure statement as business, legal, tax or accounting advice from FHLB Boston. Members should consult with their own business, legal, tax and accounting advisers with respect to the HLB-Option Plus Cap advance and should refrain from entering into the HLB-Option Plus Cap advance unless they have fully understood the terms and risks of the HLB-Option Plus Cap advance.

## Parallel-Shift Sensitivity Analysis

The following chart is intended to help you understand the risks of taking out a HLB-Option Plus Cap advance. The chart illustrates the approximate market values (MV) of a recent HLB-Option Plus Cap advance in several interest rate environments along with the expectations for behavior in those interest rate environments. However, the chart is not intended to be an indication of the future performance of the HLB-Option Plus Cap advance or of future interest rate trends associated with the HLB-Option Plus Cap advance.



<sup>1</sup> As interest rates decline, the value of the HLB-Option Plus Cap advance to FHLB Boston increases and the advance would likely extend.

<sup>2</sup> If interest rates are unchanged, it is uncertain whether FHLB Boston would cancel the advance.

<sup>3</sup> As interest rates rise, the value of the HLB Option Plus Cap advance to FHLB Boston falls and FHLB Boston would likely exercise its option to cancel the advance.