

## **HLB Option Sensitivity Analysis for HLB-Option, Flipper, and Knockout Advances**

The Federal Home Loan Bank of Boston (Bank) is providing estimated valuations of the specific aforementioned advances for members' information and convenience only. The estimated valuations are generated by models obtained from external sources which are used for the Bank's own asset/liability management purposes. The models include the use of specific assumptions, for example, market volatility and discount curve adjusted for the Bank's spread, to estimate the value of the advance. The valuations represent theoretical market values only and should not be construed as a liquidation price for the aforementioned advances.

It is expressly understood that in providing this valuation information to members, the Bank is not performing any advisory service. The valuations are being provided without representation or warranty and the member shall be solely responsible for any decision it makes or actions it takes based on the valuations provided. It is recommended that institutions maintain independent capabilities to value their asset/liability positions, including the aforementioned advances.

The table depicts valuation estimates resulting from immediate, parallel interest-rate movements. In order to rule out negative interest rates, our model applies an effective floor of plus ten basis points to the yield curve for all down-rate scenarios. As a result, large down-rate shocks will reflect valuation at the floor rate of ten basis points in place of any negative interest rates that would otherwise be produced. Please note that the valuation estimates are from the Bank's perspective. Since the member holds the advance as a liability, positive price changes in the table correspond to the advance having a negative impact on the member's estimated market value of portfolio equity (and vice versa). The theoretical argument follows that as interest rates rise, the value of the advance to the Bank falls. In the case of an HLB-Option or a Flipper advance, the Bank would likely exercise its option to cancel the advance as the value falls below 100. In the case of a Knockout advance, the Bank is obligated to terminate the advance on any specified cancellation date if LIBOR is equal to or greater than the predetermined "strike rate." In either case, the member's cost to prepay the advance increases as interest rates fall.

To identify your advance, locate the appropriate start date and maturity date and then verify the coupon rate. The report is sorted in ascending order by start date, followed by coupon. Once the appropriate structure is determined, read across to view the sensitivity analysis that has been performed on the advance.

If you have any questions or would like further explanation of this analysis, contact Member Financial Strategies at 1-800-292-9644.



Start Date	Maturity Date	Next Call Date	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
5/24/2018	5/24/2021	8/26/2019	4.09000	107.88411	107.47783	105.53128	103.63577	101.83373	100.33684	99.80480	99.65386
5/24/2018	5/24/2023	5/26/2020	1.52475	111.80467	110.99532	107.70057	104.72249	102.03907	99.96301	98.90697	98.67904
6/5/2018	6/5/2023	9/5/2019	3.36000	113.40185	112.54233	108.49259	104.75802	101.66660	99.94736	99.63160	99.45521
6/5/2018	6/5/2023	6/5/2020	2.72000	110.84897	110.00175	106.06531	102.64188	100.16716	98.74633	97.79329	96.91617
6/25/2018	6/25/2021	9/25/2019	3.39000	106.83600	106.40966	104.38819	102.44992	100.74486	99.79328	99.52570	99.29631
6/25/2018	6/26/2023	6/25/2020	1.84925	110.49316	109.65659	106.32765	103.40371	101.01532	99.58546	99.11287	99.01308
6/25/2018	6/26/2023	6/25/2020	0.04925	113.36730	112.50827	109.05384	105.90462	102.95623	100.33877	98.39622	97.46019
6/27/2018	6/27/2023	9/27/2019	2.53000	110.24566	109.37990	105.43749	102.12251	100.07514	99.54258	99.30438	99.07014
7/2/2018	7/3/2023	7/2/2019	1.59975	112.97173	112.08552	107.98447	104.26370	101.30080	99.99318	99.98782	99.98249
7/2/2018	7/3/2023	7/2/2019	0.59975	114.67972	113.78579	109.62599	105.75543	102.42867	100.21946	99.99014	99.98481
7/2/2018	7/3/2023	7/2/2020	2.71000	111.01974	110.14378	106.14234	102.68212	100.16962	98.66845	97.63739	96.69439
7/30/2018	7/31/2023	7/30/2019	0.58275	115.22401	114.33039	110.15009	106.24244	102.82173	100.39774	99.82425	99.82425
7/30/2018	7/31/2023	7/30/2019	1.83275	113.09457	112.21128	108.10561	104.38046	101.40108	99.94861	99.92797	99.92797
8/23/2018	8/23/2023	8/23/2019	0.52350	114.57985	113.66081	109.43580	105.51699	102.16107	99.93989	99.48859	99.42728
8/28/2018	8/28/2023	8/28/2019	0.52063	114.58347	113.65765	109.41799	105.48668	102.12075	99.90113	99.42960	99.35674
9/4/2018	9/7/2021	9/4/2019	2.00250	106.73341	106.31845	104.25736	102.29375	100.62936	99.87791	99.84107	99.83299
9/25/2018	9/27/2021	9/25/2019	2.69000	106.12671	105.65169	103.39694	101.35461	99.98978	99.59000	99.35814	99.12905
9/25/2018	9/27/2021	9/25/2020	2.99000	106.81004	106.33315	104.05977	101.92356	100.10254	98.67957	97.47109	96.31985
10/3/2018	10/3/2023	10/3/2019	1.59550	113.83826	112.92165	108.76568	104.96575	101.82817	99.99144	99.66367	99.65483
10/26/2018	10/26/2023	10/28/2019	0.58638	114.75180	113.78208	109.58195	105.68523	102.28769	99.87181	99.01723	98.97208
10/29/2018	10/30/2023	10/29/2020	1.58238	111.50998	110.56293	107.08696	104.11929	101.52358	99.60343	98.62452	98.36402
11/6/2018	11/8/2021	11/6/2019	2.06513	106.73498	106.30512	104.22713	102.26412	100.61387	99.79156	99.68522	99.67348
12/17/2018	12/17/2021	12/17/2019	1.91025	106.31445	105.86356	103.75909	101.81111	100.28225	99.62175	99.51529	99.47430
12/24/2018	12/24/2021	12/24/2019	1.84313	106.04146	105.58226	103.46512	101.53238	100.09459	99.54110	99.43947	99.38011