

## **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
5/8/2018	5/8/2023	5/8/2019	1.43763	114.15073	111.22914	107.18344	103.52359	100.70664	99.92502	99.90366	99.88242
5/17/2018	5/17/2023	5/17/2019	1.38288	114.42667	111.47901	107.39832	103.68929	100.78602	99.84114	99.79582	99.75075
5/17/2018	5/17/2023	5/18/2020	2.84000	111.65898	108.76331	104.85120	101.59863	99.48560	98.26893	97.26945	96.29531
5/24/2018	5/24/2021	5/24/2019	1.25100	108.38353	106.94626	104.84909	102.81485	100.93885	99.76709	99.70282	99.63889
5/24/2018	5/24/2023	5/26/2020	1.65100	111.65215	109.16558	106.07824	103.21664	100.76900	99.19279	98.69446	98.66536
6/5/2018	6/5/2023	6/5/2019	1.29850	113.54120	110.61005	106.59706	103.02182	100.39962	99.82585	99.81265	99.79965
6/5/2018	6/5/2023	6/5/2020	2.72000	111.30986	108.38072	104.46805	101.29006	99.27806	98.06670	97.02685	96.00993
6/25/2018	6/25/2021	6/25/2019	2.10150	106.98462	105.53565	103.45570	101.50087	99.99401	99.77225	99.70766	99.64355
6/25/2018	6/26/2023	6/25/2020	2.10150	110.42675	107.89552	104.80368	102.08054	100.12310	99.28684	99.11329	99.05646
6/25/2018	6/26/2023	6/25/2020	0.30150	112.99589	110.38248	107.13522	104.07758	101.26545	98.92197	97.50029	97.05767
6/27/2018	6/27/2023	6/27/2019	2.53000	110.67438	107.71559	103.83748	100.85877	99.81787	99.66341	99.51057	99.35869
7/2/2018	7/3/2023	7/2/2019	0.59975	114.31587	111.34862	107.29619	103.61905	100.73121	99.61635	99.61054	99.60861
7/2/2018	7/3/2023	7/2/2019	1.59975	112.78915	109.85241	105.88620	102.43943	100.11472	99.79064	99.78822	99.78605
7/2/2018	7/3/2023	7/2/2020	2.71000	111.47904	108.48488	104.51037	101.29048	99.22779	97.94378	96.83656	95.75566
7/30/2018	7/31/2023	7/30/2019	0.58275	115.09986	112.04803	107.89003	104.07754	100.95813	99.35420	99.21837	99.14165
7/30/2018	7/31/2023	7/30/2019	1.83275	113.18223	110.17053	106.11980	102.58360	100.13966	99.60972	99.53152	99.45430
8/23/2018	8/23/2023	8/23/2019	0.65100	114.25688	111.20470	107.09579	103.38088	100.47082	99.21563	99.12169	99.06379
8/28/2018	8/28/2023	8/28/2019	0.62888	114.26484	111.19872	107.07655	103.35108	100.43411	99.16080	99.05050	98.97951
9/4/2018	9/7/2021	9/4/2019	2.11513	106.65128	105.18681	103.15719	101.28520	99.94506	99.73129	99.72524	99.71978
9/25/2018	9/27/2021	9/25/2019	2.69000	106.58250	104.89919	102.53994	100.55331	99.59271	99.19263	98.80380	98.41837
9/25/2018	9/27/2021	9/25/2020	2.99000	107.31666	105.62593	103.22891	101.06146	99.33724	97.93612	96.62418	95.33993
10/3/2018	10/3/2023	10/3/2019	1.59550	113.66990	110.61440	106.59470	103.03712	100.42053	99.49653	99.46502	99.46306
10/26/2018	10/28/2023	10/28/2019	0.58638	114.94051	111.78134	107.61789	103.81921	100.71370	98.98228	98.68356	98.61507
10/29/2018	10/30/2023	10/29/2020	1.58238	111.55524	108.73478	105.54794	102.64393	100.23427	98.71542	98.15424	98.03096
11/6/2018	11/8/2021	11/6/2019	2.23438	106.65360	105.15459	103.11870	101.25209	99.92243	99.59021	99.57496	99.56455
12/17/2018	12/17/2021	12/17/2019	2.11463	106.23798	104.71321	102.66717	100.85079	99.71834	99.47527	99.43427	99.39733
12/24/2018	12/24/2021	12/24/2019	2.10150	105.97373	104.43831	102.38671	100.61757	99.61766	99.42417	99.36595	99.31021