

## **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.





As of:

7/31/2017

## HLB Option Sensitivity Analysis for HLB-Option and Knockout Advances

Start Date	Maturity Date	Next Call Date	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
3/7/2017	3/8/2027	3/7/2019	1.50000	114.60992	110.16843	104.72673	101.07957	98.65564	96.83935	95.26428	93.78133
3/20/2017	3/20/2024	3/20/2019	1.55000	110.43492	108.71611	104.09114	100.84268	98.58007	96.80483	95.22154	93.71461
3/20/2017	3/22/2032	3/20/2018	1.04000	114.14409	108.08660	103.02984	100.37054	99.23465	98.55546	97.94241	97.34081
3/27/2017	3/29/2021	3/27/2018	0.14328	107.09973	107.09973	103.97392	101.45115	99.83809	99.10500	98.81942	98.65399
3/31/2017	3/31/2022	4/2/2018	0.29639	108.67500	108.57830	104.42791	101.52963	99.85538	99.15165	98.87158	98.69560
4/10/2017	4/11/2022	4/10/2018	0.30411	108.28492	108.17411	104.06907	101.25979	99.69018	99.04366	98.76747	98.57487
4/13/2017	4/13/2022	4/13/2018	0.30350	108.11900	108.00573	103.92155	101.15117	99.62780	99.00668	98.73230	98.53344
4/13/2017	4/15/2024	4/15/2019	1.45000	109.86630	108.15301	103.65719	100.50451	98.26542	96.46019	94.82518	93.26163
4/13/2017	4/13/2032	4/13/2018	0.99000	113.47484	107.64612	102.77782	100.24120	99.10075	98.36497	97.69220	97.03268
4/28/2017	4/28/2021	4/30/2018	0.31389	106.74681	106.74681	103.58296	101.11311	99.60214	98.90308	98.56703	98.32127
4/28/2017	4/28/2022	4/29/2019	1.59000	107.64843	107.52304	103.56822	100.61395	98.41744	96.59873	94.93410	93.33743
4/28/2017	4/29/2024	4/29/2019	0.31389	112.26678	109.83776	104.85425	101.60570	99.51650	98.32513	97.67781	97.30051
5/8/2017	5/10/2027	5/8/2018	1.30000	112.88907	108.70634	103.73017	100.78969	99.32667	98.44976	97.70273	96.98116
5/8/2017	5/10/2032	5/8/2018	1.15000	115.76651	109.16570	103.69306	100.64554	99.19736	98.33175	97.58747	96.86665
5/19/2017	5/19/2022	5/21/2018	0.17839	107.76397	107.59756	103.54113	100.98405	99.66080	99.20103	99.07488	99.02572
5/22/2017	5/24/2021	5/22/2018	0.17172	105.99192	105.99192	102.88046	100.73733	99.58409	99.16964	99.04813	98.99485
5/22/2017	5/24/2027	5/22/2018	1.09000	110.84897	107.13475	102.69795	100.24454	99.02594	98.18804	97.41864	96.66630
6/1/2017	6/7/2032	6/5/2018	0.99000	113.58109	107.69964	102.81207	100.19773	98.90115	98.01608	97.21112	96.42627
6/2/2017	6/7/2032	6/5/2018	0.99000	113.57831	107.69812	102.81048	100.19695	98.90096	98.01605	97.21112	96.42627
6/5/2017	6/6/2022	6/5/2018	0.21806	107.71067	107.51614	103.45775	100.90625	99.57482	99.07557	98.90189	98.80770
6/5/2017	6/5/2024	6/5/2019	0.21806	111.49513	108.97403	104.13917	101.20331	99.40141	98.43744	97.96812	97.74035
6/5/2017	6/7/2032	6/5/2018	0.99000	113.57695	107.69434	102.80548	100.19425	98.90026	98.01594	97.21111	96.42627
6/14/2017	6/14/2022	6/14/2019	1.59000	107.85598	107.66489	103.63088	100.58207	98.26682	96.32649	94.54821	92.84595
6/22/2017	6/22/2022	6/22/2018	0.28722	107.88694	107.66371	103.55261	100.92348	99.51187	98.94732	98.72134	98.57987
6/27/2017	6/27/2022	6/27/2018	0.29328	108.12087	107.88771	103.73210	101.03800	99.55666	98.94511	98.69486	98.53887
6/27/2017	6/27/2022	6/27/2019	1.60000	107.96317	107.75193	103.67739	100.59092	98.23950	96.26540	94.45564	92.72366
7/3/2017	7/3/2020	7/3/2018	0.29861	104.59423	104.59423	102.48313	100.67417	99.49312	98.90062	98.61780	98.43607
7/3/2017	7/6/2021	7/3/2018	0.29861	106.46823	106.46823	103.21082	100.89330	99.52205	98.89613	98.61481	98.43560
7/3/2017	7/5/2022	7/3/2019	0.29861	107.61331	107.34668	103.56663	101.08348	99.37204	98.32959	97.73920	97.39904
7/14/2017	7/14/2022	7/16/2018	0.00389	108.28769	108.01475	103.78904	100.95793	99.30694	98.55195	98.21293	97.99973
7/14/2017	7/14/2022	7/15/2019	1.62000	108.13921	107.89424	103.78202	100.64307	98.23274	96.20447	94.34784	92.57422
7/21/2017	7/21/2022	7/23/2018	0.00722	108.28846	107.99959	103.76402	100.92005	99.25624	98.48683	98.13119	97.90039
7/24/2017	7/25/2022	7/24/2019	1.63000	108.23926	107.97139	103.82789	100.65981	98.22331	96.17173	94.29391	92.50053
7/28/2017	7/28/2022	7/30/2018	0.01389	108.35071	108.04574	103.80194	100.92304	99.22706	98.43222	98.05824	97.81473
7/28/2017	7/28/2022	7/30/2018	0.31111	108.06597	107.76586	103.61203	100.88605	99.36022	98.67530	98.34566	98.11631
7/28/2017	7/28/2022	7/29/2019	1.60000	108.10092	107.82891	103.70643	100.55851	98.13127	96.07840	94.19363	92.39134
7/31/2017	7/31/2020	7/31/2018	0.26111	104.67123	104.67123	102.48294	100.58715	99.31102	98.62925	98.26698	98.01131
7/31/2017	2/1/2021	7/31/2018	0.26111	105.63095	105.63095	102.86275	100.69377	99.31713	98.62148	98.26254	98.00897
7/31/2017	8/2/2021	7/31/2018	0.26111	106.46770	106.46770	103.12987	100.74409	99.30536	98.61119	98.25919	98.00843
7/31/2017	1/31/2022	7/31/2018	0.26111	107.37621	107.33442	103.47386	100.86591	99.33619	98.61757	98.26120	98.01002
7/31/2017	8/1/2022	7/31/2018	0.26111	108.08204	107.77320	103.59677	100.85353	99.30700	98.60339	98.25631	98.00773
8/1/2017	8/3/2020	8/1/2018	0.01056	104.37365	104.37365	102.23871	100.54955	99.44791	98.93806	98.78001	98.75603
8/1/2017	8/1/2022	8/1/2018	0.01056	108.02517	107.71191	103.53731	100.92623	99.48241	98.91675	98.76747	98.75132