

## **Parallel-Shift Sensitivity Analysis for HLB-Option and Knockout Advances**

The Federal Home Loan Bank of Boston (Bank) is providing estimated valuations of the specific HLB-Option and Knockout advances set forth below 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 HLB-Option or Knockout advance.

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 HLB-Option and Knockout advances.

The table depicts valuation estimates resulting from immediate parallel interest-rate movements of plus/minus 400 basis points in 100 basis point increments. 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 by the indicated basis point shocks. Please note that the valuation estimates are from the Federal Home Loan Bank of Boston's perspective. Since the advance is held by the member 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 advance, the Bank would be likely to exercise its option to cancel the advance as the value falls below 100. In the case of a Knockout advance, the Bank would automatically terminate the advance on any specified cancellation date if LIBOR is equal to or greater than a predetermined "strike rate" four London Business days prior to the scheduled cancellation date. In either case, the member's cost to prepay the advance increases as interest rates fall.

To identify your advance, locate the appropriate 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 the Money Desk at 1-800-357-3452.

As of: 1/31/2016 Parallel-Shift Sensitivity Analysis for HLB-Option and Knockout Advances

Start Date	Maturity Date	Next Call Date	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
4/24/2006	4/25/2016	4/25/2016	4.440	101.048	101.048	101.048	100.931	100.694	100.458	100.224	99.990
5/5/2006	5/5/2016	2/5/2016	4.350	101.148	101.148	101.148	101.011	100.747	100.484	100.223	100.022
5/5/2006	5/5/2016	2/5/2016	4.530	101.195	101.195	101.195	101.058	100.794	100.532	100.270	100.047
5/15/2006	5/16/2016	2/16/2016	4.350	101.281	101.281	101.281	101.120	100.827	100.535	100.244	100.023
5/15/2006	5/16/2016	2/16/2016	4.520	101.331	101.331	101.331	101.170	100.876	100.584	100.294	100.052
5/19/2006	5/19/2016	2/19/2016	4.510	101.365	101.365	101.365	101.198	100.897	100.597	100.298	100.051
6/12/2006	6/13/2016	3/14/2016	4.620	101.720	101.720	101.720	101.494	101.124	100.756	100.393	100.086
6/26/2006	6/27/2016	3/28/2016	4.730	101.944	101.944	101.944	101.684	101.275	100.869	100.469	100.126
7/24/2006	7/25/2016	4/25/2016	4.660	102.278	102.278	102.278	101.945	101.460	100.980	100.517	100.122
7/28/2006	7/28/2016	4/28/2016	4.490	102.232	102.232	102.232	101.891	101.399	100.911	100.447	100.062
8/25/2006	8/25/2016	2/25/2016	4.350	102.501	102.501	102.501	102.086	101.519	100.961	100.441	100.071
11/24/2006	11/25/2016	2/24/2016	4.190	103.480	103.480	103.480	102.812	101.996	101.211	100.521	100.074
12/1/2006	12/1/2016	3/1/2016	4.090	103.465	103.465	103.465	102.780	101.950	101.160	100.481	100.053
12/4/2006	12/5/2016	3/4/2016	4.080	103.502	103.502	103.502	102.805	101.964	101.165	100.476	100.047
12/5/2006	12/5/2016	3/7/2016	4.260	103.656	103.656	103.656	102.959	102.116	101.308	100.596	100.106
12/8/2006	12/8/2016	3/8/2016	3.990	103.458	103.458	103.458	102.753	101.905	101.103	100.420	100.017
12/12/2006	12/12/2016	3/14/2016	3.990	103.502	103.502	103.502	102.786	101.927	101.114	100.430	100.011
12/19/2006	12/19/2016	3/21/2016	4.190	103.759	103.759	103.759	103.022	102.142	101.301	100.563	100.073
12/28/2006	12/28/2016	3/28/2016	4.250	103.919	103.919	103.919	103.155	102.251	101.384	100.617	100.094
12/28/2006	12/28/2016	3/28/2016	4.400	104.058	104.058	104.058	103.293	102.388	101.515	100.730	100.160
1/12/2007	1/12/2017	4/12/2016	4.420	104.260	104.260	104.260	103.451	102.506	101.600	100.792	100.195
1/16/2007	1/17/2017	4/18/2016	4.790	104.683	104.683	104.683	103.857	102.896	101.965	101.105	100.408
2/2/2007	2/2/2017	2/20/2016	4.690	104.794	104.794	104.794	103.920	102.915	101.928	100.960	100.010
2/20/2007	2/21/2017	2/20/2016	4.850	105.213	105.213	105.213	104.281	103.212	102.161	101.126	100.108
2/20/2007	2/21/2017	2/22/2016	4.390	104.719	104.719	104.719	103.789	102.727	101.715	100.829	100.191
2/23/2007	2/23/2017	2/23/2016	4.250	104.592	104.592	104.592	103.656	102.591	101.581	100.714	100.137
2/23/2007	2/23/2017	2/23/2016	4.350	104.700	104.700	104.700	103.764	102.697	101.681	100.796	100.175
3/16/2007	3/16/2017	3/16/2016	4.090	104.658	104.658	104.658	103.659	102.540	101.495	100.622	100.076
3/23/2007	3/23/2017	3/23/2016	4.290	104.969	104.969	104.969	103.948	102.805	101.725	100.796	100.161
3/23/2007	3/23/2017	3/23/2016	4.290	104.969	104.969	104.969	103.948	102.805	101.725	100.796	100.161
4/9/2007	4/10/2017	4/11/2016	4.150	105.014	105.014	105.014	103.939	102.753	101.647	100.725	100.111
4/12/2007	4/12/2017	4/12/2016	4.250	105.159	105.159	105.159	104.077	102.883	101.762	100.813	100.162
4/13/2007	4/13/2017	4/13/2016	4.450	105.414	105.414	105.414	104.328	103.126	101.987	100.996	100.277
5/18/2007	5/18/2017	2/18/2016	4.190	105.505	105.505	105.505	104.313	103.023	101.822	100.817	100.163
5/22/2007	5/22/2017	2/22/2016	4.750	106.293	106.293	106.293	105.085	103.770	102.513	101.389	100.505
5/29/2007	5/30/2017	2/29/2016	4.250	105.725	105.725	105.725	104.496	103.172	101.933	100.885	100.182
6/7/2007	6/7/2017	3/7/2016	4.820	106.600	106.600	106.600	105.341	103.983	102.686	101.525	100.602
6/8/2007	6/8/2017	3/8/2016	4.490	106.161	106.161	106.161	104.902	103.548	102.273	101.167	100.364
6/18/2007	6/19/2017	3/18/2016	4.500	106.312	106.312	106.312	105.018	103.634	102.328	101.194	100.366
6/19/2007	6/19/2017	3/21/2016	4.650	106.523	106.523	106.523	105.227	103.839	102.521	101.358	100.477
6/22/2007	6/22/2017	3/22/2016	4.500	106.350	106.350	106.350	105.046	103.654	102.340	101.199	100.366
6/28/2007	6/28/2017	3/28/2016	4.500	106.425	106.425	106.425	105.103	103.693	102.364	101.208	100.364
7/13/2007	7/13/2017	4/13/2016	4.290	106.304	106.304	106.304	104.937	103.496	102.159	101.033	100.254
7/20/2007	7/20/2017	4/20/2016	4.290	106.387	106.387	106.387	104.998	103.539	102.183	101.041	100.246
7/27/2007	7/27/2017	4/27/2016	4.250	106.410	106.410	106.410	104.999	103.523	102.154	101.005	100.211
7/30/2007	1/30/2019	5/2/2016	3.990	112.135	112.135	111.512	108.496	105.751	103.403	101.589	100.407
7/31/2007	7/31/2017	5/2/2016	3.990	106.062	106.062	106.062	104.643	103.169	101.833	100.770	100.144
7/31/2007	7/31/2017	5/2/2016	3.990	106.062	106.062	106.062	104.643	103.169	101.833	100.770	100.144
7/31/2007	7/31/2017	5/2/2016	4.060	106.169	106.169	106.169	104.748	103.271	101.923	100.838	100.171
8/2/2007	8/2/2017	5/2/2016	4.050	106.176	106.176	106.176	104.749	103.270	101.925	100.841	100.171
8/2/2007	8/2/2017	5/2/2016	4.150	106.328	106.328	106.328	104.900	103.416	102.056	100.942	100.212
8/9/2007	8/9/2017	2/9/2016	3.990	106.162	106.162	106.162	104.714	103.219	101.864	100.782	100.139
8/16/2007	8/16/2017	2/16/2016	3.990	106.240	106.240	106.240	104.769	103.254	101.881	100.782	100.130
8/17/2007	8/17/2017	2/17/2016	4.000	106.266	106.266	106.266	104.792	103.274	101.897	100.793	100.133
9/4/2007	9/5/2017	3/4/2016	3.890	106.299	106.299	106.299	104.766	103.210	101.817	100.723	100.091
9/10/2007	9/11/2017	3/10/2016	3.690	106.037	106.037	106.037	104.489	102.932	101.565	100.542	100.003
9/11/2007	9/11/2017	3/11/2016	3.590	105.873	105.873	105.873	104.328	102.780	101.435	100.455	99.968
9/13/2007	9/13/2017	3/14/2016	3.990	106.550	106.550	106.550	104.988	103.403	101.971	100.827	100.126

Start Date	Maturity Date	Next Call Date	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
9/27/2007	9/27/2017	3/28/2016	3.650	106.134	106.134	106.134	104.534	102.937	101.538	100.503	99.955
10/11/2007	10/11/2017	4/11/2016	3.990	106.860	106.860	106.860	105.206	103.551	102.061	100.879	100.132
10/15/2007	10/16/2017	4/15/2016	3.990	106.916	106.916	106.916	105.245	103.575	102.073	100.880	100.124
10/26/2007	10/26/2017	4/26/2016	3.390	105.970	105.970	105.970	104.283	102.647	101.266	100.310	99.800
11/5/2007	11/6/2017	2/5/2016	4.390	107.865	107.865	107.865	106.114	104.368	102.759	101.409	100.437
11/6/2007	11/6/2017	2/8/2016	3.480	106.235	106.235	106.235	104.509	102.842	101.427	100.418	99.987
11/19/2007	11/20/2017	11/19/2012	4.290	107.853	107.853	107.853	106.049	104.229	102.449	100.707	99.004
11/20/2007	11/20/2017	2/22/2016	3.740	106.846	106.846	106.846	105.063	103.327	101.806	100.653	100.052
11/23/2007	11/24/2017	11/23/2011	3.990	107.348	107.348	107.348	105.535	103.708	101.922	100.176	98.467
11/23/2007	11/24/2017	11/23/2011	3.990	107.348	107.348	107.348	105.535	103.708	101.922	100.176	98.467
11/29/2007	11/29/2017	2/29/2016	2.950	105.473	105.473	105.473	103.696	102.056	100.776	100.075	99.873
11/30/2007	11/30/2017	2/29/2016	3.190	105.928	105.928	105.928	104.133	102.444	101.066	100.194	99.892
12/10/2007	12/11/2017	3/10/2016	3.450	106.516	106.516	106.516	104.673	102.927	101.454	100.426	99.947
12/24/2007	12/26/2017	12/24/2012	3.990	107.702	107.702	107.702	105.774	103.860	101.991	100.164	98.379
1/7/2008	1/8/2018	4/7/2016	2.590	105.093	105.093	105.090	103.222	101.612	100.483	99.917	99.660
1/8/2008	1/8/2018	4/8/2016	2.570	105.054	105.054	105.051	103.184	101.580	100.461	99.905	99.651
1/8/2008	1/8/2018	4/8/2016	2.640	105.192	105.192	105.188	103.314	101.687	100.528	99.934	99.666
1/11/2008	1/11/2018	4/11/2016	2.720	105.371	105.371	105.367	103.475	101.817	100.608	99.962	99.668
1/14/2008	1/16/2018	4/14/2016	3.240	106.443	106.443	106.437	104.485	102.694	101.233	100.275	99.802
1/16/2008	1/16/2018	4/18/2016	2.380	104.733	104.733	104.727	102.861	101.307	100.284	99.803	99.551
1/17/2008	1/17/2018	4/18/2016	2.250	104.481	104.481	104.474	102.628	101.124	100.185	99.760	99.523
1/18/2008	1/18/2018	4/18/2016	2.290	104.567	104.567	104.560	102.703	101.181	100.214	99.773	99.531
2/14/2008	2/14/2018	2/14/2012	3.190	106.601	106.601	106.578	104.498	102.462	100.476	98.539	96.649
2/25/2008	2/26/2018	2/25/2016	2.420	105.088	105.088	105.056	103.074	101.428	100.312	99.925	99.854
3/7/2008	3/7/2018	3/7/2016	3.550	107.553	107.553	107.511	105.395	103.440	101.790	100.604	100.007
3/14/2008	3/14/2018	3/14/2016	2.400	105.153	105.153	105.103	103.094	101.436	100.344	99.903	99.753
3/17/2008	3/19/2018	3/17/2016	3.300	107.131	107.131	107.074	104.943	103.005	101.417	100.362	99.898
4/28/2008	4/30/2018	4/28/2016	2.150	104.897	104.897	104.795	102.730	101.109	100.134	99.695	99.435
4/30/2008	4/30/2018	4/30/2013	3.740	108.518	108.518	108.409	106.099	103.842	101.645	99.505	97.420
5/23/2008	5/23/2018	2/23/2016	3.270	107.657	107.657	107.516	105.219	103.152	101.477	100.343	99.920
6/30/2008	7/2/2018	6/30/2011	3.690	109.050	109.050	108.845	106.356	103.929	101.570	99.276	97.047
7/11/2008	7/11/2018	7/11/2012	3.750	109.291	109.291	109.071	106.554	104.101	101.717	99.401	97.149
7/14/2008	7/16/2018	4/14/2016	2.500	106.229	106.229	106.014	103.711	101.814	100.523	99.889	99.605
7/14/2008	7/16/2018	4/14/2016	3.250	108.097	108.097	107.874	105.446	103.284	101.548	100.402	99.834
7/17/2008	7/17/2018	7/17/2013	3.750	109.354	109.354	109.123	106.589	104.120	101.721	99.390	97.125
8/15/2008	8/15/2018	2/16/2016	3.830	109.862	109.862	109.582	107.020	104.665	102.645	101.109	100.208
12/27/2011	12/27/2021	12/29/2014	3.550	121.269	121.269	116.277	110.175	104.433	99.034	93.955	89.176
4/27/2012	4/27/2016	4/27/2013	1.430	100.115	100.115	100.115	99.995	99.754	99.515	99.277	99.039
4/30/2012	5/2/2016	4/30/2013	1.380	100.353	100.353	100.353	100.223	99.968	99.715	99.463	99.212
5/15/2012	5/15/2017	5/15/2014	1.950	102.546	102.546	102.546	101.378	100.101	98.845	97.611	96.398
5/15/2012	5/15/2017	11/17/2014	2.510	103.277	103.277	103.277	102.105	100.823	99.563	98.324	97.106
6/20/2012	6/20/2017	6/22/2015	1.630	102.291	102.291	102.291	101.017	99.647	98.301	96.980	95.682
7/16/2012	7/17/2017	7/16/2014	1.720	102.546	102.546	102.546	101.189	99.746	98.331	96.942	95.580
7/18/2012	7/18/2018	7/20/2015	2.720	106.792	106.792	106.560	104.054	101.614	99.243	96.941	94.703
7/19/2012	7/19/2017	7/21/2014	1.690	102.511	102.511	102.511	101.148	99.700	98.281	96.888	95.521
10/1/2012	10/1/2019	4/1/2015	2.250	108.368	108.368	107.027	103.320	99.757	96.337	93.052	89.896
10/5/2012	10/5/2017	10/6/2014	1.630	102.775	102.775	102.775	101.165	99.512	97.892	96.307	94.755
3/8/2013	3/8/2018	3/9/2015	1.780	103.792	103.792	103.748	101.632	99.565	97.551	95.587	93.671
5/7/2014	5/7/2018	5/7/2015	1.760	104.043	104.043	103.923	101.642	99.418	97.254	95.147	93.095
10/16/2014	10/16/2018	10/17/2016	0.400	105.001	105.001	104.602	102.281	100.642	99.705	99.246	98.983
10/24/2014	10/24/2018	10/26/2015	1.740	104.818	104.818	104.404	101.659	98.997	96.418	93.918	91.495
10/24/2014	10/24/2018	10/26/2015	1.740	104.818	104.818	104.404	101.659	98.997	96.418	93.918	91.495
2/20/2015	2/20/2019	2/22/2016	0.110	105.455	105.455	104.781	101.707	99.929	99.866	99.803	99.740
3/26/2015	3/26/2019	3/29/2016	0.343	104.942	104.942	104.183	101.173	99.883	99.666	99.506	99.346
3/26/2015	3/26/2020	3/29/2016	0.343	106.497	106.497	104.574	100.894	99.844	99.666	99.506	99.346
6/29/2015	7/1/2019	6/29/2017	0.323	105.377	105.377	104.336	102.155	100.775	99.937	99.477	99.228
7/30/2015	7/30/2019	8/1/2016	0.032	105.318	105.318	104.187	101.424	100.193	99.869	99.824	99.824
8/14/2015	8/14/2025	8/14/2020	1.850	117.896	115.181	109.394	103.598	98.498	93.907	89.703	85.803

Start Date	Maturity Date	Next Call Date	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
8/19/2015	8/19/2025	8/21/2017	0.990	109.590	107.902	104.662	101.489	99.157	97.304	95.696	94.208
8/25/2015	8/25/2020	8/25/2017	0.950	104.401	104.401	103.215	100.749	98.784	97.099	95.558	94.090
8/26/2015	8/26/2025	8/26/2020	1.750	116.987	114.324	108.676	102.947	97.893	93.330	89.141	85.247
9/14/2015	9/14/2020	9/14/2017	1.050	104.922	104.922	103.627	101.027	98.951	97.178	95.567	94.042
9/15/2015	9/16/2019	9/15/2016	0.182	105.239	105.239	103.953	101.222	99.974	99.537	99.348	99.206
9/18/2015	9/18/2020	9/18/2017	1.090	105.122	105.122	103.784	101.137	99.026	97.230	95.603	94.065
9/29/2015	9/30/2019	9/29/2016	0.283	104.783	104.783	103.453	100.876	99.812	99.447	99.265	99.115
10/2/2015	10/2/2020	10/2/2017	0.890	104.216	104.216	103.050	100.573	98.549	96.781	95.148	93.590
10/2/2015	10/2/2025	10/2/2020	1.690	116.578	113.909	108.275	102.522	97.426	92.813	88.571	84.625
11/6/2015	11/6/2020	11/6/2017	1.050	105.077	105.077	103.699	101.000	98.803	96.898	95.155	93.502
11/6/2015	11/7/2022	11/6/2018	1.400	109.612	109.579	106.024	102.103	98.769	95.814	93.109	90.576
12/4/2015	12/4/2025	12/4/2018	1.360	113.578	111.161	106.836	102.451	98.826	95.681	92.847	90.219
12/8/2015	12/8/2020	12/8/2016	0.002	105.250	105.250	103.528	101.213	100.044	99.495	99.256	99.132
12/11/2015	12/12/2022	12/11/2017	0.002	109.229	109.083	104.693	101.924	100.232	99.126	98.392	97.876
12/15/2015	12/16/2019	12/15/2016	0.262	104.073	104.073	103.042	101.054	100.058	99.582	99.358	99.226
12/15/2015	12/15/2022	12/15/2017	0.601	109.278	109.126	104.729	102.014	100.429	99.481	98.935	98.617
12/18/2015	12/18/2020	12/18/2017	0.283	106.412	106.412	104.136	101.917	100.584	99.755	99.254	98.949
12/24/2015	12/24/2020	12/26/2017	1.250	106.211	106.211	104.552	101.570	99.143	97.051	95.153	93.367
12/24/2015	12/24/2025	12/24/2020	1.990	119.980	116.696	110.405	104.215	98.757	93.843	89.348	85.188
1/8/2016	1/8/2019	1/9/2017	1.120	103.337	103.337	102.967	101.016	99.605	98.519	97.578	96.693
1/12/2016	1/13/2020	1/12/2017	0.021	105.239	105.239	103.965	101.574	100.139	99.316	98.872	98.607
1/19/2016	1/19/2021	1/19/2018	1.150	105.797	105.797	104.180	101.240	98.820	96.707	94.771	92.940
1/19/2016	1/20/2026	1/22/2019	1.350	113.655	111.172	106.701	102.105	98.218	94.790	91.669	88.764
1/22/2016	1/22/2020	1/23/2017	0.021	103.981	103.981	102.843	100.766	99.641	99.036	98.694	98.455
1/29/2016	1/29/2021	1/30/2017	0.018	105.302	105.302	103.418	101.030	99.728	99.032	98.649	98.394
2/2/2016	2/2/2021	2/2/2018	0.013	105.540	105.540	103.140	101.090	99.935	99.264	98.906	98.735