

## **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: 11/30/2015 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
1/17/2006	1/19/2016	1/19/2016	4.080	100.567	100.567	100.567	100.527	100.392	100.258	100.124	99.990
4/24/2006	4/25/2016	1/25/2016	4.440	101.813	101.813	101.813	101.590	101.186	100.786	100.392	100.089
5/5/2006	5/5/2016	2/5/2016	4.350	101.897	101.897	101.897	101.648	101.217	100.790	100.389	100.075
5/5/2006	5/5/2016	2/5/2016	4.530	101.975	101.975	101.975	101.727	101.296	100.868	100.459	100.126
5/15/2006	5/16/2016	2/16/2016	4.350	102.030	102.030	102.030	101.752	101.291	100.835	100.406	100.064
5/15/2006	5/16/2016	2/16/2016	4.520	102.109	102.109	102.109	101.831	101.370	100.914	100.477	100.118
5/19/2006	5/19/2016	2/19/2016	4.510	102.142	102.142	102.142	101.856	101.387	100.923	100.479	100.113
6/12/2006	6/13/2016	12/14/2015	4.620	102.515	102.515	102.515	102.160	101.623	101.093	100.589	100.163
6/26/2006	6/27/2016	12/28/2015	4.730	102.759	102.759	102.759	102.365	101.789	101.220	100.677	100.211
7/24/2006	7/25/2016	1/25/2016	4.660	103.081	103.081	103.081	102.606	101.955	101.315	100.711	100.230
7/28/2006	7/28/2016	1/28/2016	4.490	103.006	103.006	103.006	102.523	101.864	101.218	100.616	100.165
8/25/2006	8/25/2016	2/25/2016	4.350	103.250	103.250	103.250	102.683	101.950	101.237	100.595	100.112
11/24/2006	11/25/2016	2/24/2016	4.190	104.201	104.201	104.201	103.325	102.348	101.426	100.642	100.097
12/1/2006	12/1/2016	3/1/2016	4.090	104.169	104.169	104.169	103.271	102.282	101.360	100.596	100.115
12/4/2006	12/5/2016	12/4/2015	4.080	104.204	104.204	104.204	103.291	102.290	101.358	100.588	100.110
12/5/2006	12/5/2016	12/7/2015	4.260	104.390	104.390	104.390	103.475	102.472	101.526	100.720	100.166
12/8/2006	12/8/2016	12/8/2015	3.990	104.145	104.145	104.145	103.220	102.213	101.281	100.523	100.081
12/12/2006	12/12/2016	12/14/2015	3.990	104.189	104.189	104.189	103.249	102.231	101.288	100.520	100.077
12/19/2006	12/19/2016	12/21/2015	4.190	104.481	104.481	104.481	103.513	102.469	101.490	100.668	100.139
12/28/2006	12/28/2016	12/28/2015	4.250	104.651	104.651	104.651	103.648	102.578	101.570	100.717	100.159
12/28/2006	12/28/2016	12/28/2015	4.400	104.815	104.815	104.815	103.811	102.738	101.720	100.839	100.217
1/12/2007	1/12/2017	1/12/2016	4.420	105.021	105.021	105.021	103.958	102.845	101.796	100.893	100.258
1/16/2007	1/17/2017	1/19/2016	4.790	105.508	105.508	105.508	104.422	103.290	102.206	101.234	100.480
2/2/2007	2/2/2017	2/20/2016	4.690	105.602	105.602	105.602	104.451	103.270	102.108	100.965	99.839
2/20/2007	2/21/2017	2/20/2016	4.850	106.049	106.049	106.049	104.818	103.579	102.360	101.161	99.982
2/20/2007	2/21/2017	2/22/2016	4.390	105.475	105.475	105.475	104.248	103.027	101.889	100.926	100.246
2/23/2007	2/23/2017	2/23/2016	4.250	105.324	105.324	105.324	104.090	102.868	101.738	100.802	100.164
2/23/2007	2/23/2017	2/23/2016	4.350	105.449	105.449	105.449	104.214	102.989	101.849	100.891	100.221
3/16/2007	3/16/2017	12/16/2015	4.090	105.362	105.362	105.345	104.041	102.773	101.620	100.696	100.135
3/23/2007	3/23/2017	12/23/2015	4.290	105.708	105.708	105.683	104.355	103.059	101.865	100.875	100.211
3/23/2007	3/23/2017	12/23/2015	4.290	105.708	105.708	105.683	104.355	103.059	101.865	100.875	100.211
4/9/2007	4/10/2017	1/11/2016	4.150	105.729	105.729	105.680	104.300	102.968	101.759	100.784	100.169
4/12/2007	4/12/2017	1/12/2016	4.250	105.891	105.891	105.839	104.452	103.109	101.882	100.877	100.218
4/13/2007	4/13/2017	1/13/2016	4.450	106.180	106.180	106.127	104.735	103.380	102.128	101.072	100.333
5/18/2007	5/18/2017	2/18/2016	4.190	106.226	106.226	106.116	104.629	103.199	101.906	100.867	100.183
5/22/2007	5/22/2017	2/22/2016	4.750	107.111	107.111	106.994	105.488	104.021	102.651	101.466	100.570
5/29/2007	5/30/2017	2/29/2016	4.250	106.457	106.457	106.326	104.805	103.340	102.011	100.930	100.200
6/7/2007	6/7/2017	12/7/2015	4.820	107.430	107.430	107.285	105.733	104.224	102.816	101.597	100.664
6/8/2007	6/8/2017	12/8/2015	4.490	106.934	106.934	106.787	105.237	103.740	102.367	101.221	100.395
6/18/2007	6/19/2017	12/18/2015	4.500	107.087	107.087	106.921	105.339	103.811	102.410	101.237	100.388
6/19/2007	6/19/2017	12/21/2015	4.650	107.323	107.323	107.157	105.573	104.038	102.617	101.408	100.506
6/22/2007	6/22/2017	12/22/2015	4.500	107.125	107.125	106.953	105.363	103.827	102.418	101.239	100.384
6/28/2007	6/28/2017	12/28/2015	4.500	107.200	107.200	107.018	105.410	103.858	102.434	101.242	100.376
7/13/2007	7/13/2017	1/13/2016	4.290	107.042	107.042	106.832	105.188	103.614	102.198	101.050	100.289
7/20/2007	7/20/2017	1/20/2016	4.290	107.126	107.126	106.902	105.239	103.647	102.214	101.053	100.283
7/27/2007	7/27/2017	1/27/2016	4.250	107.142	107.142	106.905	105.223	103.616	102.173	101.011	100.253
7/30/2007	1/30/2019	2/1/2016	3.990	112.823	112.823	111.104	108.014	105.280	103.031	101.375	100.368
7/31/2007	7/31/2017	2/1/2016	3.990	106.749	106.749	106.505	104.820	103.228	101.836	100.779	100.143
7/31/2007	7/31/2017	2/1/2016	3.990	106.749	106.749	106.505	104.820	103.228	101.836	100.779	100.143
7/31/2007	7/31/2017	2/1/2016	4.060	106.868	106.868	106.623	104.936	103.337	101.931	100.847	100.180
8/2/2007	8/2/2017	2/2/2016	4.050	106.873	106.873	106.625	104.934	103.335	101.931	100.848	100.178
8/2/2007	8/2/2017	2/2/2016	4.150	107.043	107.043	106.794	105.100	103.493	102.069	100.949	100.236
8/9/2007	8/9/2017	2/9/2016	3.990	106.849	106.849	106.587	104.878	103.267	101.861	100.787	100.130
8/16/2007	8/16/2017	2/16/2016	3.990	106.927	106.927	106.650	104.922	103.293	101.871	100.784	100.114
8/17/2007	8/17/2017	2/17/2016	4.000	106.955	106.955	106.677	104.946	103.313	101.886	100.793	100.117
9/4/2007	9/5/2017	12/4/2015	3.890	106.969	106.969	106.653	104.876	103.216	101.788	100.721	100.127
9/10/2007	9/11/2017	12/10/2015	3.690	106.672	106.672	106.345	104.561	102.911	101.525	100.529	100.047
9/11/2007	9/11/2017	12/11/2015	3.590	106.491	106.491	106.164	104.385	102.750	101.393	100.440	100.012

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Start Date	Maturity Date	Next Call Date	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
9/13/2007	9/13/2017	12/14/2015	3.990	107.237	107.237	106.905	105.101	103.408	101.938	100.815	100.159
9/27/2007	9/27/2017	12/28/2015	3.650	106.762	106.762	106.403	104.576	102.892	101.483	100.474	100.006
10/11/2007	10/11/2017	1/11/2016	3.990	107.547	107.547	107.158	105.279	103.523	102.004	100.846	100.163
10/15/2007	10/16/2017	1/15/2016	3.990	107.603	107.603	107.202	105.309	103.541	102.011	100.845	100.157
10/26/2007	10/26/2017	1/26/2016	3.390	106.554	106.554	106.135	104.251	102.553	101.189	100.304	99.909
11/5/2007	11/6/2017	2/5/2016	4.390	108.621	108.621	108.174	106.209	104.350	102.697	101.363	100.453
11/6/2007	11/6/2017	2/8/2016	3.480	106.834	106.834	106.392	104.476	102.747	101.346	100.408	99.925
11/19/2007	11/20/2017	11/19/2012	4.290	108.591	108.591	108.114	106.092	104.113	102.180	100.293	98.450
11/20/2007	11/20/2017	2/22/2016	3.740	107.490	107.490	107.016	105.043	103.232	101.713	100.623	99.995
11/23/2007	11/24/2017	11/23/2011	3.990	108.035	108.035	107.550	105.522	103.537	101.600	99.709	97.862
11/23/2007	11/24/2017	11/23/2011	3.990	108.035	108.035	107.550	105.522	103.537	101.600	99.709	97.862
11/29/2007	11/29/2017	2/29/2016	2.950	105.981	105.981	105.497	103.572	101.919	100.705	100.017	99.666
11/30/2007	11/30/2017	2/29/2016	3.190	106.477	106.477	105.987	104.032	102.310	100.979	100.160	99.741
12/10/2007	12/11/2017	12/10/2015	3.450	107.110	107.110	106.594	104.590	102.795	101.354	100.383	99.995
12/24/2007	12/26/2017	12/24/2012	3.990	108.390	108.390	107.832	105.714	103.643	101.623	99.653	97.731
1/4/2008	1/4/2018	1/4/2016	3.360	107.149	107.149	106.580	104.527	102.709	101.273	100.350	99.965
1/7/2008	1/8/2018	1/7/2016	2.590	105.539	105.539	104.978	103.031	101.455	100.414	99.977	99.839
1/8/2008	1/8/2018	1/8/2016	2.570	105.496	105.496	104.935	102.992	101.424	100.395	99.970	99.833
1/8/2008	1/8/2018	1/8/2016	2.640	105.646	105.646	105.083	103.125	101.528	100.455	99.989	99.840
1/11/2008	1/11/2018	1/11/2016	2.720	105.840	105.840	105.267	103.287	101.652	100.528	100.007	99.837
1/14/2008	1/16/2018	1/14/2016	3.240	107.001	107.001	106.406	104.335	102.521	101.116	100.253	99.910
1/16/2008	1/16/2018	1/19/2016	2.380	105.143	105.143	104.571	102.653	101.153	100.241	99.901	99.755
1/17/2008	1/17/2018	1/19/2016	2.250	104.868	104.868	104.300	102.416	100.979	100.160	99.876	99.737
1/18/2008	1/18/2018	1/19/2016	2.290	104.961	104.961	104.389	102.490	101.032	100.184	99.883	99.743
2/14/2008	2/14/2018	2/14/2012	3.190	107.150	107.150	106.480	104.237	102.047	99.915	97.837	95.813
2/25/2008	2/26/2018	2/25/2016	2.420	105.505	105.505	104.847	102.827	101.248	100.267	99.809	99.546
3/7/2008	3/7/2018	12/7/2015	3.550	108.164	108.164	107.453	105.222	103.234	101.635	100.537	100.039
3/14/2008	3/14/2018	12/14/2015	2.400	105.566	105.566	104.874	102.834	101.251	100.263	99.972	99.935
3/17/2008	3/19/2018	12/17/2015	3.300	107.699	107.699	106.962	104.730	102.780	101.269	100.292	99.963
4/28/2008	4/30/2018	1/28/2016	2.150	105.267	105.267	104.484	102.432	100.925	100.114	99.832	99.671
4/30/2008	4/30/2018	4/30/2013	3.740	109.162	109.162	108.302	105.830	103.422	101.082	98.806	96.594
5/23/2008	5/23/2018	2/23/2016	3.270	108.220	108.220	107.318	104.936	102.878	101.299	100.305	99.810
6/30/2008	7/2/2018	6/30/2011	3.690	109.686	109.686	108.649	106.001	103.426	100.927	98.501	96.147
7/11/2008	7/11/2018	7/11/2012	3.750	109.937	109.937	108.873	106.198	103.596	101.073	98.624	96.248
7/14/2008	7/16/2018	1/14/2016	2.500	106.659	106.659	105.659	103.350	101.553	100.415	99.952	99.796
7/14/2008	7/16/2018	1/14/2016	3.250	108.657	108.657	107.611	105.112	102.973	101.344	100.337	99.925
7/17/2008	7/17/2018	7/17/2013	3.750	109.999	109.999	108.918	106.225	103.608	101.070	98.607	96.217
8/15/2008	8/15/2018	2/16/2016	3.830	110.521	110.521	109.368	106.705	104.332	102.383	100.973	100.145
12/27/2011	12/27/2021	12/29/2014	3.550	121.880	120.698	114.330	108.187	102.418	97.001	91.914	87.133
4/27/2012	4/27/2016	4/27/2013	1.430	100.592	100.592	100.592	100.365	99.959	99.556	99.156	98.760
4/30/2012	5/2/2016	4/30/2013	1.380	100.590	100.590	100.590	100.351	99.931	99.515	99.102	98.693
5/15/2012	5/15/2017	5/15/2014	2.510	103.709	103.709	103.604	102.137	100.693	99.278	97.888	96.525
5/15/2012	5/15/2017	11/17/2014	1.950	102.881	102.881	102.776	101.315	99.878	98.468	97.085	95.727
6/20/2012	6/20/2017	6/22/2015	1.630	102.571	102.571	102.404	100.847	99.319	97.821	96.353	94.913
7/16/2012	7/17/2017	7/16/2014	1.720	102.842	102.842	102.625	100.994	99.393	97.826	96.290	94.786
7/18/2012	7/18/2018	7/20/2015	2.720	107.260	107.260	106.183	103.523	100.939	98.433	96.002	93.643
7/19/2012	7/19/2017	7/21/2014	1.690	102.802	102.802	102.581	100.945	99.340	97.767	96.227	94.718
10/1/2012	10/1/2019	4/1/2015	2.250	108.755	108.755	105.952	102.125	98.454	94.935	91.561	88.325
10/5/2012	10/5/2017	10/6/2014	1.630	103.056	103.056	102.681	100.833	99.025	97.258	95.531	93.842
3/8/2013	3/8/2018	3/9/2015	1.780	104.098	104.098	103.382	101.110	98.896	96.741	94.643	92.601
5/7/2014	5/7/2018	5/7/2015	1.760	104.346	104.346	103.476	101.042	98.675	96.375	94.140	91.968
10/16/2014	10/16/2018	10/17/2016	0.097	104.875	104.875	103.523	101.426	100.218	99.625	99.355	99.204
10/24/2014	10/24/2018	10/26/2015	1.740	105.118	105.118	103.743	100.855	98.059	95.356	92.740	90.209
10/24/2014	10/24/2018	10/26/2015	1.740	105.118	105.118	103.743	100.855	98.059	95.356	92.740	90.209
2/20/2015	2/20/2019	2/22/2016	0.110	105.474	105.474	103.670	100.845	99.774	99.490	99.263	99.037
3/26/2015	3/26/2019	3/29/2016	0.066	104.825	104.825	102.887	100.494	99.884	99.774	99.706	99.638
3/26/2015	3/26/2020	3/29/2016	0.066	106.380	106.380	102.812	100.315	99.859	99.774	99.706	99.638
6/29/2015	7/1/2019	6/29/2017	0.046	105.290	105.290	102.998	101.262	100.197	99.606	99.299	99.134

<b>Start Date</b>	<b>Maturity Date</b>	<b>Next Call Date</b>	<b>Coupon</b>	<b>-300</b>	<b>-200</b>	<b>-100</b>	<b>Base</b>	<b>+100</b>	<b>+200</b>	<b>+300</b>	<b>+400</b>
7/30/2015	7/30/2019	8/1/2016	0.032	105.322	105.322	102.868	100.639	99.748	99.420	99.239	99.084
8/14/2015	8/14/2025	8/14/2020	1.850	118.215	113.661	107.249	101.555	96.517	91.958	87.761	83.853
8/19/2015	8/19/2025	8/21/2017	0.990	109.760	106.906	103.490	100.595	98.388	96.531	94.842	93.238
8/25/2015	8/25/2020	8/25/2017	0.950	104.564	104.564	102.432	100.074	98.118	96.364	94.711	93.116
8/26/2015	8/26/2025	8/26/2020	1.750	117.288	112.854	106.534	100.903	95.904	91.368	87.184	83.281
9/14/2015	9/14/2020	9/14/2017	1.050	105.103	105.103	102.786	100.305	98.249	96.419	94.705	93.057
9/15/2015	9/16/2019	9/15/2016	0.007	105.133	105.133	102.509	100.469	99.768	99.561	99.486	99.436
9/18/2015	9/18/2020	9/18/2017	1.090	105.309	105.309	102.924	100.401	98.318	96.468	94.740	93.081
9/29/2015	9/30/2019	9/29/2016	0.006	104.657	104.657	102.024	100.213	99.643	99.474	99.396	99.334
10/2/2015	10/2/2020	10/2/2017	0.890	104.370	104.370	102.252	99.857	97.827	95.986	94.243	92.561
10/2/2015	10/2/2025	10/2/2020	1.690	116.869	112.455	106.104	100.441	95.397	90.810	86.574	82.622
11/6/2015	11/6/2020	11/6/2017	1.050	105.257	105.257	102.803	100.211	98.027	96.064	94.222	92.454
11/6/2015	11/7/2022	11/6/2018	1.400	109.853	108.589	104.587	100.803	97.520	94.557	91.803	89.198
