

## **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 purchase 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: 7/31/2015 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
9/1/2005	9/1/2015	9/1/2015	4.130	100.367	100.367	100.367	100.355	100.269	100.182	100.096	100.010
9/30/2005	9/30/2015	9/30/2015	4.440	100.752	100.752	100.752	100.724	100.557	100.390	100.224	100.058
10/26/2005	10/26/2015	10/26/2015	4.540	101.097	101.097	101.097	101.048	100.811	100.574	100.339	100.105
1/17/2006	1/19/2016	10/19/2015	4.080	101.949	101.949	101.949	101.774	101.305	100.840	100.390	100.036
4/24/2006	4/25/2016	10/26/2015	4.440	103.317	103.317	103.317	102.951	102.212	101.487	100.797	100.230
5/5/2006	5/5/2016	8/5/2015	4.350	103.371	103.371	103.371	102.983	102.217	101.468	100.766	100.200
5/5/2006	5/5/2016	8/5/2015	4.530	103.511	103.511	103.511	103.122	102.356	101.604	100.891	100.295
5/15/2006	5/16/2016	8/17/2015	4.350	103.504	103.504	103.504	103.090	102.295	101.517	100.787	100.194
5/15/2006	5/16/2016	8/17/2015	4.520	103.641	103.641	103.641	103.227	102.431	101.650	100.911	100.288
5/19/2006	5/19/2016	8/19/2015	4.510	103.670	103.670	103.670	103.249	102.445	101.657	100.911	100.282
6/12/2006	6/13/2016	9/14/2015	4.620	104.081	104.081	104.081	103.599	102.726	101.872	101.064	100.378
6/26/2006	6/27/2016	9/28/2015	4.730	104.362	104.362	104.362	103.844	102.932	102.039	101.189	100.454
7/24/2006	7/25/2016	10/26/2015	4.660	104.660	104.660	104.660	104.066	103.079	102.116	101.211	100.452
7/28/2006	7/28/2016	10/28/2015	4.490	104.527	104.527	104.527	103.925	102.931	101.966	101.066	100.342
8/25/2006	8/25/2016	8/25/2015	4.350	104.724	104.724	104.724	104.038	102.965	101.926	100.985	100.248
11/24/2006	11/25/2016	8/24/2015	4.190	105.621	105.621	105.621	104.599	103.282	102.040	100.966	100.206
12/1/2006	12/1/2016	9/1/2015	4.090	105.555	105.555	105.555	104.511	103.184	101.945	100.892	100.189
12/4/2006	12/5/2016	9/4/2015	4.080	105.587	105.587	105.587	104.525	103.189	101.942	100.885	100.182
12/5/2006	12/5/2016	9/8/2015	4.260	105.833	105.833	105.833	104.770	103.426	102.160	101.063	100.279
12/8/2006	12/8/2016	9/8/2015	3.990	105.497	105.497	105.497	104.424	103.083	101.839	100.801	100.133
12/12/2006	12/12/2016	9/14/2015	3.990	105.541	105.541	105.541	104.451	103.100	101.847	100.800	100.125
12/12/2006	12/12/2016	9/14/2015	4.050	105.625	105.625	105.625	104.534	103.180	101.920	100.857	100.157
12/19/2006	12/19/2016	9/21/2015	4.190	105.901	105.901	105.901	104.778	103.400	102.108	100.998	100.226
12/28/2006	12/28/2016	9/28/2015	4.250	106.091	106.091	106.091	104.930	103.526	102.206	101.067	100.259
12/28/2006	12/28/2016	9/28/2015	4.400	106.306	106.306	106.306	105.144	103.735	102.401	101.230	100.361
1/12/2007	1/12/2017	10/13/2015	4.420	106.519	106.519	106.519	105.290	103.844	102.480	101.288	100.404
1/16/2007	1/17/2017	10/16/2015	4.790	107.131	107.131	107.131	105.877	104.405	102.998	101.722	100.700
2/2/2007	2/2/2017	8/2/2015	4.690	107.191	107.191	107.191	105.863	104.339	102.845	101.379	99.942
2/20/2007	2/21/2017	8/20/2015	4.390	106.963	106.963	106.963	105.553	104.001	102.550	101.298	100.379
2/20/2007	2/21/2017	8/20/2015	4.850	107.692	107.692	107.692	106.275	104.691	103.139	101.618	100.126
2/23/2007	2/23/2017	8/24/2015	4.250	106.764	106.764	106.764	105.348	103.798	102.360	101.142	100.268
2/23/2007	2/23/2017	8/24/2015	4.350	106.923	106.923	106.923	105.505	103.950	102.499	101.254	100.343
3/16/2007	3/16/2017	9/16/2015	4.090	106.748	106.748	106.748	105.237	103.646	102.194	100.992	100.202
3/21/2007	3/21/2017	9/21/2015	4.220	107.021	107.021	107.021	105.484	103.871	102.384	101.140	100.279
3/23/2007	3/23/2017	9/23/2015	4.290	107.161	107.161	107.161	105.613	103.991	102.489	101.222	100.326
3/23/2007	3/23/2017	9/23/2015	4.290	107.161	107.161	107.161	105.613	103.991	102.489	101.222	100.326
4/9/2007	4/10/2017	10/9/2015	4.150	107.135	107.135	107.135	105.505	103.850	102.343	101.093	100.255
4/12/2007	4/12/2017	10/13/2015	4.250	107.331	107.331	107.331	105.688	104.020	102.489	101.211	100.320
4/13/2007	4/13/2017	10/13/2015	4.450	107.688	107.688	107.688	106.036	104.353	102.790	101.453	100.472
4/27/2007	4/27/2017	10/27/2015	4.250	107.508	107.508	107.508	105.793	104.085	102.522	101.215	100.305
5/18/2007	5/18/2017	8/18/2015	4.190	107.646	107.646	107.633	105.831	104.079	102.488	101.176	100.265
5/22/2007	5/22/2017	8/24/2015	4.750	108.721	108.721	108.705	106.871	105.068	103.380	101.896	100.742
5/29/2007	5/30/2017	8/31/2015	4.250	107.897	107.897	107.875	106.021	104.233	102.603	101.249	100.291
6/7/2007	6/7/2017	9/8/2015	4.820	109.064	109.064	109.026	107.133	105.288	103.559	102.040	100.844
6/8/2007	6/8/2017	9/8/2015	4.490	108.456	108.456	108.416	106.529	104.703	103.020	101.585	100.534
6/11/2007	6/12/2017	9/11/2015	4.490	108.506	108.506	108.457	106.559	104.722	103.030	101.587	100.531
6/18/2007	6/19/2017	9/18/2015	4.500	108.612	108.612	108.549	106.631	104.773	103.063	101.604	100.536
6/19/2007	6/19/2017	9/21/2015	4.650	108.899	108.899	108.836	106.913	105.045	103.312	101.808	100.671
6/22/2007	6/22/2017	9/22/2015	4.500	108.650	108.650	108.581	106.653	104.788	103.071	101.606	100.534
6/28/2007	6/28/2017	9/28/2015	4.500	108.725	108.725	108.643	106.698	104.817	103.085	101.609	100.532
7/13/2007	7/13/2017	10/13/2015	4.290	108.496	108.496	108.382	106.405	104.510	102.791	101.374	100.390
7/20/2007	7/20/2017	10/20/2015	4.290	108.579	108.579	108.450	106.453	104.540	102.806	101.377	100.383
7/27/2007	7/27/2017	10/27/2015	4.250	108.582	108.582	108.438	106.423	104.496	102.754	101.328	100.343
7/30/2007	1/30/2019	10/30/2015	3.990	114.175	114.175	112.320	108.919	105.889	103.375	101.491	100.317
7/31/2007	7/31/2017	11/2/2015	3.990	108.101	108.101	107.949	105.937	104.034	102.358	101.032	100.184
7/31/2007	7/31/2017	11/2/2015	3.990	108.101	108.101	107.949	105.937	104.034	102.358	101.032	100.184
7/31/2007	7/31/2017	11/2/2015	4.060	108.244	108.244	108.091	106.075	104.163	102.469	101.116	100.234
8/2/2007	8/2/2017	11/2/2015	4.150	108.449	108.449	108.292	106.268	104.343	102.624	101.234	100.301

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Start Date	Maturity Date	Next Call Date	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
8/2/2007	8/2/2017	11/2/2015	4.050	108.246	108.246	108.089	106.070	104.158	102.465	101.113	100.229
8/9/2007	8/9/2017	8/10/2015	3.990	108.201	108.201	108.029	105.994	104.071	102.377	101.036	100.196
8/16/2007	8/16/2017	8/17/2015	3.990	108.279	108.279	108.091	106.036	104.095	102.385	101.032	100.191
8/17/2007	8/17/2017	8/17/2015	4.000	108.311	108.311	108.121	106.062	104.118	102.403	101.044	100.194
9/4/2007	9/5/2017	9/4/2015	3.890	108.287	108.287	108.056	105.955	103.987	102.274	100.945	100.153
9/10/2007	9/11/2017	9/10/2015	3.690	107.923	107.923	107.678	105.577	103.629	101.963	100.725	100.058
9/11/2007	9/11/2017	9/11/2015	3.590	107.708	107.708	107.464	105.372	103.442	101.812	100.625	100.021
9/13/2007	9/13/2017	9/14/2015	3.990	108.589	108.589	108.339	106.208	104.204	102.444	101.058	100.197
9/27/2007	9/27/2017	9/28/2015	3.650	107.999	107.999	107.718	105.576	103.595	101.912	100.672	100.014
10/11/2007	10/11/2017	10/13/2015	3.990	108.899	108.899	108.582	106.377	104.311	102.506	101.091	100.205
10/15/2007	10/16/2017	10/15/2015	3.990	108.955	108.955	108.625	106.406	104.327	102.512	101.090	100.200
10/26/2007	10/26/2017	10/26/2015	3.390	107.702	107.702	107.352	105.167	103.187	101.567	100.449	99.878
11/5/2007	11/6/2017	8/5/2015	4.390	110.109	110.109	109.724	107.423	105.240	103.281	101.671	100.540
11/6/2007	11/6/2017	8/6/2015	3.480	108.013	108.013	107.636	105.416	103.401	101.734	100.562	100.022
11/19/2007	11/20/2017	11/19/2012	4.290	110.045	110.045	109.621	107.252	104.927	102.665	100.463	98.319
11/20/2007	11/20/2017	8/20/2015	3.740	108.757	108.757	108.341	106.052	103.943	102.151	100.808	100.099
11/23/2007	11/24/2017	11/23/2011	3.990	109.387	109.387	108.953	106.579	104.251	101.986	99.782	97.637
11/23/2007	11/24/2017	11/23/2011	3.990	109.387	109.387	108.953	106.579	104.251	101.986	99.782	97.637
11/29/2007	11/29/2017	8/31/2015	2.950	106.981	106.981	106.558	104.360	102.452	100.988	100.149	99.909
11/30/2007	11/30/2017	8/31/2015	3.190	107.558	107.558	107.126	104.881	102.891	101.312	100.271	99.930
12/10/2007	12/11/2017	9/10/2015	3.450	108.279	108.279	107.812	105.509	103.432	101.728	100.538	99.987
12/24/2007	12/26/2017	12/24/2012	3.990	109.742	109.742	109.219	106.754	104.340	101.994	99.712	97.494
1/4/2008	1/4/2018	10/5/2015	3.360	108.287	108.287	107.757	105.413	103.321	101.629	100.486	99.927
1/7/2008	1/8/2018	10/7/2015	2.590	106.417	106.417	105.903	103.725	101.914	100.636	99.989	99.719
1/8/2008	1/8/2018	10/8/2015	2.570	106.367	106.367	105.854	103.681	101.879	100.615	99.977	99.710
1/8/2008	1/8/2018	10/8/2015	2.640	106.541	106.541	106.024	103.831	101.996	100.687	100.008	99.726
1/11/2008	1/11/2018	10/13/2015	2.720	106.762	106.762	106.234	104.010	102.135	100.772	100.036	99.724
1/14/2008	1/16/2018	10/14/2015	3.240	108.099	108.099	107.538	105.183	103.104	101.452	100.370	99.857
1/16/2008	1/16/2018	10/16/2015	2.380	105.949	105.949	105.428	103.298	101.573	100.427	99.880	99.635
1/17/2008	1/17/2018	10/19/2015	2.250	105.631	105.631	105.116	103.034	101.377	100.313	99.830	99.592
1/18/2008	1/18/2018	10/19/2015	2.290	105.737	105.737	105.217	103.118	101.437	100.347	99.841	99.601
2/14/2008	2/14/2018	2/14/2012	3.190	108.231	108.231	107.565	104.979	102.454	100.004	97.625	95.315
2/25/2008	2/26/2018	8/25/2015	2.420	106.325	106.325	105.704	103.472	101.671	100.458	99.957	99.890
3/7/2008	3/7/2018	9/8/2015	3.550	109.367	109.367	108.663	106.135	103.867	102.007	100.687	100.033
3/14/2008	3/14/2018	9/14/2015	2.400	106.379	106.379	105.718	103.474	101.670	100.466	99.948	99.793
3/17/2008	3/19/2018	9/17/2015	3.300	108.818	108.818	108.085	105.571	103.360	101.600	100.435	99.931
4/28/2008	4/30/2018	10/28/2015	2.150	105.995	105.995	105.241	103.015	101.302	100.242	99.779	99.521
4/30/2008	4/30/2018	4/30/2013	3.740	110.430	110.430	109.531	106.711	103.964	101.302	98.722	96.221
5/23/2008	5/23/2018	8/24/2015	3.270	109.328	109.328	108.402	105.745	103.433	101.614	100.410	99.951
6/30/2008	7/2/2018	6/30/2011	3.690	110.936	110.936	109.827	106.831	103.918	101.099	98.373	95.735
7/11/2008	7/11/2018	7/11/2012	3.750	111.208	111.208	110.067	107.043	104.104	101.261	98.512	95.852
7/14/2008	7/16/2018	10/14/2015	2.500	107.506	107.506	106.493	103.986	101.978	100.618	99.949	99.670
7/14/2008	7/16/2018	10/14/2015	3.250	109.758	109.758	108.667	105.900	103.511	101.649	100.441	99.873
7/17/2008	7/17/2018	7/17/2013	3.750	111.270	111.270	110.109	107.068	104.113	101.256	98.493	95.820
8/15/2008	8/15/2018	8/17/2015	3.830	111.819	111.819	110.593	107.626	104.968	102.755	101.117	100.186
10/8/2010	10/8/2015	10/8/2012	2.250	100.431	100.431	100.431	100.397	100.208	100.021	99.834	99.648
12/27/2011	12/27/2021	12/29/2014	3.550	123.083	121.287	114.587	108.118	102.056	96.382	91.070	86.094
4/27/2012	4/27/2016	4/27/2013	1.430	101.076	101.076	101.076	100.709	99.974	99.250	98.536	97.832
4/30/2012	5/2/2016	4/30/2013	1.380	101.058	101.058	101.058	100.680	99.932	99.194	98.468	97.752
5/15/2012	5/15/2017	5/15/2014	1.950	103.542	103.542	103.531	101.755	99.987	98.259	96.568	94.914
5/15/2012	5/15/2017	11/17/2014	2.510	104.559	104.559	104.548	102.766	100.989	99.251	97.551	95.888
6/20/2012	6/20/2017	6/22/2015	1.630	103.124	103.124	103.059	101.166	99.310	97.496	95.724	93.992
7/16/2012	7/17/2017	7/16/2014	1.720	103.425	103.425	103.303	101.335	99.407	97.525	95.687	93.893
7/18/2012	7/18/2018	7/20/2015	2.720	108.182	108.182	107.024	104.022	101.110	98.295	95.572	92.940
7/19/2012	7/19/2017	7/21/2014	1.690	103.375	103.375	103.248	101.276	99.343	97.457	95.615	93.817
10/1/2012	10/1/2019	4/1/2015	2.250	109.518	109.518	106.574	102.408	98.421	94.612	90.972	87.491
10/5/2012	10/5/2017	10/6/2014	1.630	103.608	103.608	103.305	101.121	98.988	96.909	94.883	92.910
3/8/2013	3/8/2018	3/9/2015	1.780	104.701	104.701	103.976	101.367	98.830	96.369	93.981	91.664

