

## **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.

Start Date	Maturity		Next Call		Coupon	-300	-200	-100	Base	+100	+200	+300	+400
	Date	Date	Date	Date									
4/8/1998	4/8/2013	4/8/2013	4/8/2013	4/8/2013	5.490	101.022	101.022	101.022	100.991	100.801	100.612	100.424	100.236
8/19/1998	8/19/2013	2/19/2013	2/19/2013	2/19/2013	5.490	103.050	103.050	103.050	102.878	102.322	101.772	101.228	100.699
8/19/1998	8/19/2013	2/19/2013	2/19/2013	2/19/2013	5.490	103.050	103.050	103.050	102.878	102.322	101.772	101.228	100.699
12/14/1998	12/16/2013	3/14/2013	3/14/2013	3/14/2013	5.390	104.776	104.776	104.776	104.456	103.570	102.699	101.846	101.040
12/14/1998	12/16/2013	3/14/2013	3/14/2013	3/14/2013	4.890	104.333	104.333	104.333	104.013	103.129	102.261	101.417	100.648
12/15/1998	12/16/2013	3/15/2013	3/15/2013	3/15/2013	4.880	104.324	104.324	104.324	104.004	103.120	102.252	101.408	100.640
1/7/2000	1/7/2015	4/8/2013	4/8/2013	4/8/2013	5.950	111.668	111.668	111.668	110.503	108.499	106.553	104.705	103.029
3/6/2003	3/6/2013	3/6/2013	3/6/2013	3/6/2013	2.990	100.282	100.282	100.282	100.268	100.169	100.069	99.970	99.871
7/2/2004	7/2/2014	4/3/2013	4/3/2013	4/3/2013	3.990	105.730	105.730	105.730	105.047	103.607	102.194	100.808	99.446
12/13/2004	12/15/2014	3/13/2013	3/13/2013	3/13/2013	3.320	106.298	106.298	106.298	105.216	103.355	101.704	100.494	99.945
9/1/2005	9/1/2015	3/1/2013	3/1/2013	3/1/2013	4.130	110.818	110.818	110.818	109.008	106.368	103.805	101.319	98.905
9/30/2005	9/30/2015	3/30/2013	3/30/2013	3/30/2013	4.440	111.987	111.987	111.987	110.082	107.346	104.694	102.121	99.626
10/26/2005	10/26/2015	4/26/2013	4/26/2013	4/26/2013	4.540	112.585	112.585	112.585	110.594	107.782	105.056	102.414	99.853
1/17/2006	1/19/2016	4/17/2013	4/17/2013	4/17/2013	4.080	112.273	112.273	112.273	110.010	107.045	104.394	102.243	100.735
4/19/2006	4/19/2013	4/19/2013	4/19/2013	4/19/2013	4.630	101.003	101.003	101.003	100.966	100.745	100.526	100.308	100.090
4/24/2006	4/25/2016	4/24/2013	4/24/2013	4/24/2013	4.440	114.552	114.552	114.552	111.921	108.662	105.718	103.252	101.405
5/5/2006	5/5/2016	2/5/2013	2/5/2013	2/5/2013	4.350	114.378	114.378	114.378	111.713	108.443	105.510	103.082	101.299
5/5/2006	5/5/2016	2/5/2013	2/5/2013	2/5/2013	4.530	114.973	114.973	114.973	112.300	109.008	106.029	103.521	101.622
5/15/2006	5/16/2016	2/15/2013	2/15/2013	2/15/2013	4.350	114.511	114.511	114.511	111.802	108.502	105.542	103.089	101.281
5/15/2006	5/16/2016	2/15/2013	2/15/2013	2/15/2013	4.520	115.078	115.078	115.078	112.362	109.041	106.036	103.508	101.594
5/19/2006	5/19/2016	2/19/2013	2/19/2013	2/19/2013	4.510	115.083	115.083	115.083	112.355	109.026	106.017	103.486	101.571
6/12/2006	6/13/2016	3/12/2013	3/12/2013	3/12/2013	4.620	115.771	115.771	115.771	112.939	109.534	106.449	103.839	101.832
6/26/2006	6/27/2016	3/26/2013	3/26/2013	3/26/2013	4.730	116.331	116.331	116.331	113.436	109.979	106.834	104.147	102.047
6/28/2006	6/28/2013	3/28/2013	3/28/2013	3/28/2013	4.950	102.035	102.035	102.035	101.928	101.514	101.104	100.697	100.297
6/30/2006	7/1/2013	4/1/2013	4/1/2013	4/1/2013	4.890	102.051	102.051	102.051	101.940	101.518	101.100	100.685	100.288
7/14/2006	7/15/2013	4/15/2013	4/15/2013	4/15/2013	4.890	102.241	102.241	102.241	102.113	101.653	101.197	100.746	100.313
7/24/2006	7/25/2016	4/24/2013	4/24/2013	4/24/2013	4.660	116.451	116.451	116.451	113.442	109.923	106.739	104.042	101.956
7/28/2006	7/28/2016	4/29/2013	4/29/2013	4/29/2013	4.490	115.889	115.889	115.889	112.875	109.371	106.225	103.595	101.611
8/21/2006	8/21/2013	3/2/2013	3/2/2013	3/2/2013	4.750	102.665	102.665	102.665	102.491	101.931	101.377	100.829	100.288
8/25/2006	8/25/2016	2/25/2013	2/25/2013	2/25/2013	4.350	115.732	115.732	115.732	112.606	109.054	105.896	103.293	101.373
10/10/2006	10/10/2013	4/10/2013	4/10/2013	4/10/2013	4.250	102.975	102.975	102.975	102.742	102.045	101.357	100.697	100.162
10/12/2006	10/15/2013	4/12/2013	4/12/2013	4/12/2013	4.500	103.212	103.212	103.212	102.973	102.262	101.560	100.877	100.294
11/6/2006	11/6/2013	2/6/2013	2/6/2013	2/6/2013	4.290	103.325	103.325	103.325	103.058	102.287	101.529	100.801	100.193
11/17/2006	11/18/2013	2/19/2013	2/19/2013	2/19/2013	4.350	103.516	103.516	103.516	103.235	102.430	101.638	100.878	100.246
11/24/2006	11/25/2016	2/25/2013	2/25/2013	2/25/2013	4.190	116.224	116.224	116.224	112.693	108.953	105.686	103.054	101.172
11/30/2006	12/2/2013	2/28/2013	2/28/2013	2/28/2013	4.350	103.685	103.685	103.685	103.386	102.542	101.712	100.895	100.092
12/1/2006	12/1/2016	3/1/2013	3/1/2013	3/1/2013	4.090	115.905	115.905	115.905	112.357	108.631	105.406	102.843	101.054
12/4/2006	12/5/2016	3/4/2013	3/4/2013	3/4/2013	4.080	115.911	115.911	115.911	112.345	108.611	105.383	102.821	101.034
12/5/2006	12/5/2016	3/5/2013	3/5/2013	3/5/2013	4.260	116.613	116.613	116.613	113.030	109.258	105.958	103.289	101.359
12/6/2006	12/6/2013	3/6/2013	3/6/2013	3/6/2013	4.400	103.776	103.776	103.776	103.471	102.616	101.777	100.973	100.308
12/8/2006	12/8/2016	3/8/2013	3/8/2013	3/8/2013	3.990	115.593	115.593	115.593	112.021	108.300	105.103	102.591	100.873
12/12/2006	12/12/2016	3/12/2013	3/12/2013	3/12/2013	3.990	115.638	115.638	115.638	112.045	108.315	105.110	102.591	100.869
12/12/2006	12/12/2016	3/12/2013	3/12/2013	3/12/2013	4.050	115.873	115.873	115.873	112.275	108.531	105.299	102.743	100.967
12/19/2006	12/19/2016	3/19/2013	3/19/2013	3/19/2013	4.190	116.503	116.503	116.503	112.858	109.065	105.761	103.106	101.210
12/20/2006	12/20/2013	3/20/2013	3/20/2013	3/20/2013	4.500	104.037	104.037	104.037	103.713	102.819	101.942	101.098	100.378
12/28/2006	12/28/2016	3/28/2013	3/28/2013	3/28/2013	4.250	116.845	116.845	116.845	113.151	109.323	105.977	103.268	101.309
12/28/2006	12/28/2016	3/28/2013	3/28/2013	3/28/2013	4.400	117.440	117.440	117.440	113.733	109.873	106.471	103.680	101.606
1/12/2007	1/12/2017	4/12/2013	4/12/2013	4/12/2013	4.420	117.703	117.703	117.703	113.920	110.028	106.601	103.792	101.706
1/16/2007	1/17/2017	4/16/2013	4/16/2013	4/16/2013	4.790	119.252	119.252	119.252	115.412	111.438	107.881	104.873	102.524
1/23/2007	1/23/2014	4/23/2013	4/23/2013	4/23/2013	4.490	104.452	104.452	104.452	104.078	103.092	102.127	101.203	100.426
1/29/2007	1/29/2014	4/29/2013	4/29/2013	4/29/2013	4.790	104.830	104.830	104.830	104.445	103.442	102.458	101.493	100.546
2/2/2007	2/2/2017	2/2/2013	2/2/2013	2/2/2013	4.690	119.059	119.059	119.059	115.111	110.961	106.987	103.182	99.537
2/20/2007	2/21/2017	2/20/2013	2/20/2013	2/20/2013	4.850	119.965	119.965	119.965	115.902	111.680	107.640	103.773	100.070
2/20/2007	2/21/2017	2/20/2013	2/20/2013	2/20/2013	4.390	118.071	118.071	118.071	114.085	110.104	106.617	103.770	101.667
2/23/2007	2/23/2017	2/25/2013	2/25/2013	2/25/2013	4.250	117.518	117.518	117.518	113.536	109.581	106.144	103.373	101.370
2/23/2007	2/23/2017	2/25/2013	2/25/2013	2/25/2013	4.350	117.931	117.931	117.931	113.938	109.960	106.483	103.654	101.575
3/16/2007	3/16/2017	3/18/2013	3/18/2013	3/18/2013	4.090	117.097	117.097	117.097	113.021	109.065	105.670	102.984	101.104
3/21/2007	3/21/2017	3/21/2013	3/21/2013	3/21/2013	4.220	117.699	117.699	117.699	113.580	109.579	106.116	103.337	101.341
3/23/2007	3/23/2017	3/25/2013	3/25/2013	3/25/2013	4.290	118.017	118.017	118.017	113.878	109.855	106.359	103.535	101.478
3/23/2007	3/23/2017	3/25/2013	3/25/2013	3/25/2013	4.290	118.017	118.017	118.017	113.878	109.855	106.359	103.535	101.478
4/9/2007	4/10/2017	4/9/2013	4/9/2013	4/9/2013	4.150	117.636	117.636	117.636	113.416	109.396	105.941	103.197	101.262
4/12/2007	4/12/2017	4/12/2013	4/12/2013	4/12/2013	4.250	118.085	118.085	118.085	113.840	109.789	106.286	103.473	101.448
4/13/2007	4/13/2017	4/15/2013	4/15/2013	4/15/2013	4.450	118.948	118.948	118.948	114.674	110.571	106.985	104.051	101.867
4/23/2007	4/23/2014	4/23/2013	4/23/2013	4/23/2013	4.620	105.736	105.736	105.736	105.200	103.951	102.730	101.587	100.625
4/27/2007	4/27/2017	4/29/2013	4/29/2013	4/29/2013	4.250	118.262	118.262	118.262	113.930	109.845	106.312	103.475	101.427
5/2/2007	5/2/2014	2/4/2013	2/4/2013	2/4/2013	4.590	105.814	105.814	105.814	105.260	103.986	102.742	101.587	100.631
5/4/2007	5/5/2014	2/4/2013	2/4/2013	2/4/2013	4.550	105.801	105.801	105.801	105.241	103.959	102.708	101.549	100.598

Start Date	Maturity	Next Call	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
	Date	Date									
5/22/2007	5/22/2017	2/22/2013	4.750	120.740	120.740	120.686	116.199	111.942	108.179	105.026	102.583
5/29/2007	5/30/2017	2/28/2013	4.250	118.652	118.652	118.578	114.125	109.976	106.397	103.528	101.447
6/1/2007	6/2/2014	3/1/2013	4.500	106.087	106.087	106.087	105.469	104.110	102.788	101.571	100.590
6/7/2007	6/7/2017	3/7/2013	4.820	121.260	121.260	121.159	116.613	112.311	108.504	105.306	102.814
6/8/2007	6/8/2017	3/8/2013	4.490	119.817	119.817	119.712	115.205	110.979	107.294	104.280	102.023
6/11/2007	6/12/2017	3/11/2013	4.490	119.867	119.867	119.748	115.229	110.994	107.303	104.283	102.022
6/18/2007	6/19/2017	3/18/2013	4.500	119.999	119.999	119.855	115.316	111.062	107.352	104.315	102.035
6/19/2007	6/19/2017	3/19/2013	4.650	120.665	120.665	120.521	115.963	111.671	107.902	104.774	102.382
6/22/2007	6/22/2017	3/22/2013	4.500	120.036	120.036	119.881	115.334	111.074	107.357	104.313	102.027
6/28/2007	6/28/2017	3/28/2013	4.500	120.111	120.111	119.935	115.371	111.097	107.369	104.314	102.019
7/13/2007	7/13/2017	4/15/2013	4.290	119.351	119.351	119.120	114.552	110.311	106.661	103.732	101.606
7/20/2007	7/20/2017	4/22/2013	4.290	119.435	119.435	119.178	114.591	110.335	106.672	103.732	101.595
7/27/2007	7/27/2017	4/29/2013	4.250	119.336	119.336	119.055	114.454	110.195	106.539	103.613	101.502
7/30/2007	1/30/2019	4/30/2013	3.990	124.271	124.271	121.588	115.805	110.770	106.647	103.484	101.308
7/31/2007	7/31/2017	4/30/2013	3.990	118.198	118.198	117.905	113.340	109.162	105.634	102.880	100.987
7/31/2007	7/31/2017	4/30/2013	3.990	118.198	118.198	117.905	113.340	109.162	105.634	102.880	100.987
7/31/2007	7/31/2017	4/30/2013	4.060	118.517	118.517	118.223	113.646	109.445	105.880	103.076	101.122
8/2/2007	8/4/2014	2/4/2013	4.490	106.859	106.859	106.859	106.098	104.564	103.082	101.740	100.668
8/2/2007	8/2/2017	2/4/2013	4.150	118.950	118.950	118.648	114.053	109.822	106.220	103.375	101.368
8/2/2007	8/2/2017	2/4/2013	4.050	118.494	118.494	118.193	113.615	109.418	105.867	103.091	101.168
8/9/2007	8/9/2017	2/11/2013	3.990	118.297	118.297	117.969	113.385	109.193	105.663	102.917	101.036
8/16/2007	8/16/2017	2/19/2013	3.990	118.375	118.375	118.019	113.418	109.211	105.668	102.911	101.020
8/17/2007	8/17/2017	2/19/2013	4.000	118.432	118.432	118.073	113.466	109.254	105.704	102.938	101.037
8/20/2007	8/20/2014	8/20/2013	4.250	106.682	106.682	106.682	105.884	104.306	102.767	101.371	100.306
8/28/2007	8/28/2014	2/28/2013	4.350	106.935	106.935	106.935	106.118	104.519	102.979	101.596	100.530
8/30/2007	9/2/2014	2/28/2013	3.890	106.256	106.256	106.256	105.429	103.824	102.307	101.020	100.165
9/4/2007	9/5/2017	3/4/2013	3.890	118.130	118.130	117.699	113.074	108.875	105.370	102.685	100.892
9/10/2007	9/11/2017	3/11/2013	3.690	117.260	117.260	116.807	112.212	108.080	104.686	102.158	100.581
9/11/2007	9/11/2017	3/11/2013	3.590	116.792	116.792	116.341	111.771	107.680	104.349	101.912	100.444
9/12/2007	9/12/2014	3/12/2013	3.690	106.037	106.037	106.037	105.186	103.560	102.042	100.810	100.060
9/13/2007	9/15/2014	3/13/2013	3.990	106.561	106.561	106.561	105.701	104.059	102.503	101.173	100.269
9/13/2007	9/13/2017	3/13/2013	3.990	118.685	118.685	118.220	113.554	109.301	105.726	102.950	101.045
9/27/2007	9/29/2014	9/27/2010	4.490	107.558	107.558	107.558	106.661	104.966	103.307	101.682	100.090
9/27/2007	9/27/2017	3/27/2013	3.650	117.235	117.235	116.719	112.097	107.949	104.553	102.036	100.488
10/11/2007	10/14/2014	4/11/2013	4.180	107.210	107.210	107.210	106.278	104.550	102.910	101.481	100.452
10/11/2007	10/11/2017	4/11/2013	3.990	118.996	118.996	118.418	113.689	109.390	105.783	102.988	101.073
10/15/2007	10/16/2017	4/15/2013	3.990	119.051	119.051	118.454	113.711	109.403	105.789	102.987	101.066
10/25/2007	10/27/2014	4/25/2013	4.360	107.678	107.678	107.678	106.712	104.945	103.256	101.762	100.608
10/26/2007	10/26/2017	4/26/2013	3.390	116.280	116.280	115.662	111.046	106.980	103.739	101.452	100.151
11/2/2007	11/3/2014	2/4/2013	3.990	107.104	107.104	107.104	106.123	104.347	102.680	101.271	100.310
11/2/2007	11/3/2014	2/4/2013	4.190	107.460	107.460	107.460	106.477	104.696	103.009	101.546	100.489
11/5/2007	11/5/2014	2/5/2013	3.990	107.126	107.126	107.126	106.140	104.358	102.686	101.272	100.305
11/5/2007	11/6/2017	2/5/2013	4.390	121.217	121.217	120.528	115.653	111.171	107.327	104.231	101.955
11/6/2007	11/6/2017	2/6/2013	3.480	116.819	116.819	116.157	111.495	107.378	104.074	101.709	100.331
11/9/2007	11/10/2014	2/11/2013	4.330	107.794	107.794	107.794	106.792	104.987	103.269	101.759	100.615
11/13/2007	11/13/2014	2/13/2013	3.350	106.057	106.057	106.057	105.056	103.277	101.684	100.501	99.979
11/19/2007	11/19/2014	2/19/2013	4.270	107.792	107.792	107.792	106.768	104.939	103.203	101.682	100.550
11/19/2007	11/19/2014	2/19/2013	3.750	106.843	106.843	106.843	105.823	104.010	102.330	100.968	100.134
11/19/2007	11/19/2014	2/19/2013	3.750	106.843	106.843	106.843	105.823	104.010	102.330	100.968	100.134
11/19/2007	11/20/2017	2/19/2013	4.290	120.901	120.901	120.125	115.045	110.117	105.435	100.985	96.753
11/20/2007	11/20/2017	2/20/2013	3.740	118.221	118.221	117.492	112.726	108.461	104.956	102.330	100.647
11/23/2007	11/24/2017	2/23/2013	3.990	119.483	119.483	118.691	113.626	108.722	104.063	99.635	95.426
11/23/2007	11/24/2017	2/23/2013	3.990	119.483	119.483	118.691	113.626	108.722	104.063	99.635	95.426
11/29/2007	11/29/2017	2/28/2013	2.950	114.446	114.446	113.720	109.188	105.331	102.432	100.610	99.899
11/30/2007	11/30/2017	2/28/2013	3.190	115.630	115.630	114.886	110.263	106.262	103.158	101.058	100.053
12/10/2007	12/11/2017	3/11/2013	3.450	117.009	117.009	116.206	111.484	107.331	104.013	101.651	100.299
12/24/2007	12/26/2017	3/24/2013	3.990	119.838	119.838	118.903	113.744	108.754	104.019	99.522	95.251
1/3/2008	1/5/2015	4/3/2013	3.650	107.137	107.137	107.137	105.998	104.065	102.307	100.925	100.087
1/4/2008	1/4/2018	4/4/2013	3.360	116.789	116.789	115.893	111.157	107.022	103.757	101.475	100.204
1/7/2008	1/7/2015	4/8/2013	3.490	106.844	106.844	106.844	105.701	103.771	102.038	100.717	99.998
1/7/2008	1/8/2018	4/8/2013	2.590	112.970	112.970	112.120	107.702	104.072	101.537	100.179	99.724
1/8/2008	1/8/2018	4/8/2013	2.570	112.870	112.870	112.022	107.614	104.000	101.487	100.154	99.718
1/8/2008	1/8/2018	4/8/2013	2.640	113.221	113.221	112.366	107.921	104.251	101.657	100.239	99.737
1/11/2008	1/11/2018	4/11/2013	2.720	113.644	113.644	112.770	108.279	104.544	101.857	100.335	99.747
1/14/2008	1/16/2018	4/15/2013	3.240	116.298	116.298	115.361	110.640	106.554	103.371	101.203	100.054
1/16/2008	1/16/2018	4/16/2013	2.380	111.971	111.971	111.120	106.801	103.340	101.050	99.981	99.628
1/17/2008	1/17/2018	4/17/2013	2.250	111.324	111.324	110.486	106.248	102.909	100.782	99.893	99.590
1/18/2008	1/20/2015	4/18/2013	2.350	104.693	104.693	104.693	103.535	101.712	100.407	99.842	99.605

Start Date	Maturity Date	Next Call Date	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
1/18/2008	1/18/2018	4/18/2013	2.290	111.531	111.531	110.685	106.418	103.039	100.860	99.915	99.594
2/7/2008	2/7/2013	2/7/2013	2.490	100.048	100.048	100.048	100.046	100.025	100.004	99.983	99.962
2/13/2008	2/13/2013	2/13/2013	2.920	100.105	100.105	100.105	100.100	100.061	100.023	99.984	99.945
2/14/2008	2/14/2018	2/14/2013	3.190	116.303	116.303	115.150	109.923	104.898	100.137	95.623	91.342
2/19/2008	2/19/2013	2/19/2010	2.590	100.137	100.137	100.137	100.129	100.072	100.016	99.959	99.903
2/25/2008	2/25/2013	2/25/2013	3.090	100.215	100.215	100.215	100.205	100.130	100.056	99.981	99.907
2/25/2008	2/26/2018	2/25/2013	2.420	112.448	112.448	111.454	107.042	103.504	101.134	100.049	99.861
3/7/2008	3/9/2015	3/7/2013	2.890	106.157	106.157	106.157	104.866	102.834	101.172	100.166	99.864
3/7/2008	3/7/2018	3/7/2013	3.550	118.350	118.350	117.200	112.265	107.941	104.472	101.959	100.458
3/10/2008	3/11/2013	3/11/2013	2.390	100.259	100.259	100.259	100.242	100.129	100.017	99.904	99.792
3/12/2008	3/12/2013	3/12/2013	2.010	100.223	100.223	100.223	100.206	100.091	99.975	99.860	99.746
3/14/2008	3/14/2018	3/14/2013	2.400	112.452	112.452	111.397	106.988	103.461	101.115	100.028	99.782
3/17/2008	3/19/2018	3/18/2013	3.300	117.168	117.168	115.984	111.117	106.914	103.627	101.354	100.126
3/28/2008	3/28/2013	3/28/2013	2.820	100.439	100.439	100.439	100.414	100.255	100.097	99.939	99.782
4/14/2008	4/14/2015	4/14/2013	2.750	106.133	106.133	106.133	104.745	102.532	100.377	98.278	96.233
4/28/2008	4/28/2015	4/29/2013	3.250	107.375	107.375	107.375	105.946	103.743	101.847	100.509	99.847
4/28/2008	4/30/2018	4/29/2013	2.150	111.435	111.435	110.275	105.962	102.645	100.606	99.800	99.502
4/30/2008	4/30/2018	4/30/2013	3.740	119.893	119.893	118.397	112.889	107.595	102.860	100.478	99.893
5/2/2008	5/4/2015	2/4/2013	3.990	109.121	109.121	109.121	107.663	105.389	103.309	101.600	100.446
5/5/2008	5/5/2015	2/5/2013	3.170	107.255	107.255	107.255	105.809	103.602	101.736	100.458	99.982
5/8/2008	5/8/2015	2/8/2013	2.960	106.799	106.799	106.799	105.349	103.163	101.371	100.239	99.967
5/19/2008	5/19/2015	2/21/2013	4.700	110.940	110.940	110.940	109.430	107.069	104.770	102.534	100.356
5/23/2008	5/23/2013	2/25/2013	4.040	101.257	101.257	101.257	101.191	100.878	100.567	100.258	100.006
5/23/2008	5/23/2018	2/25/2013	3.270	117.602	117.602	116.160	111.176	106.908	103.588	101.308	100.136
5/27/2008	5/28/2013	5/27/2011	3.490	101.134	101.134	101.134	101.064	100.738	100.414	100.092	99.772
6/6/2008	6/6/2013	3/6/2013	3.990	101.396	101.396	101.396	101.316	100.965	100.616	100.270	99.926
6/16/2008	6/17/2013	3/16/2013	4.070	101.549	101.549	101.549	101.455	101.073	100.694	100.318	99.944
6/24/2008	6/24/2015	3/25/2013	3.830	109.298	109.298	109.298	107.700	105.298	103.131	101.399	100.293
6/30/2008	6/30/2015	4/1/2013	3.370	108.237	108.237	108.237	106.631	104.256	102.203	100.721	99.990
6/30/2008	7/2/2018	3/30/2013	3.690	120.273	120.273	118.477	112.790	107.339	102.190	97.325	92.728
7/7/2008	7/8/2013	4/7/2013	4.590	102.014	102.014	102.014	101.895	101.454	101.017	100.585	100.155
7/8/2008	7/8/2013	4/8/2013	4.250	101.865	101.865	101.865	101.746	101.305	100.869	100.437	100.008
7/10/2008	7/10/2014	4/10/2013	4.800	107.000	107.000	107.000	106.295	104.825	103.382	101.966	100.576
7/11/2008	7/11/2018	4/11/2013	3.750	120.696	120.696	118.855	113.135	107.652	102.474	97.584	92.962
7/14/2008	7/14/2015	7/15/2013	4.900	112.168	112.168	112.168	110.493	107.965	105.512	103.147	101.111
7/14/2008	7/16/2018	4/15/2013	2.500	113.832	113.832	112.301	107.654	103.934	101.401	100.090	99.669
7/14/2008	7/16/2018	4/15/2013	3.250	117.982	117.982	116.314	111.246	106.932	103.597	101.319	100.088
7/17/2008	7/17/2018	7/17/2013	3.750	120.759	120.759	118.888	113.151	107.689	103.225	100.808	99.864
7/21/2008	7/22/2013	4/22/2013	3.000	101.433	101.433	101.433	101.296	100.820	100.353	99.982	99.730
8/15/2008	8/15/2018	2/15/2013	3.830	121.510	121.510	119.642	114.272	109.568	105.733	102.839	100.926
9/8/2008	9/9/2013	3/8/2013	2.890	101.774	101.774	101.774	101.579	100.970	100.386	99.993	99.855
5/13/2009	5/13/2014	5/13/2013	4.000	105.189	105.189	105.189	104.614	103.315	102.062	100.746	99.466
9/28/2009	9/30/2013	3/28/2013	2.920	101.963	101.963	101.963	101.743	101.076	100.435	99.993	99.798
5/11/2010	5/11/2015	5/11/2015	3.700	108.530	108.530	108.530	107.055	104.697	102.037	98.684	94.543
5/24/2010	5/26/2015	2/25/2013	2.250	105.281	105.281	105.281	103.785	101.472	99.222	97.032	94.901
6/15/2010	6/15/2015	3/15/2013	2.280	105.478	105.478	105.478	103.927	101.558	99.255	98.786	97.016
4/27/2012	4/27/2016	4/29/2013	-0.160	104.361	104.361	104.361	101.824	99.998	99.929	99.915	99.902
4/30/2012	5/2/2016	4/30/2013	-0.159	104.208	104.208	104.208	101.659	99.987	99.937	99.934	99.932
5/15/2012	5/15/2017	5/15/2014	-0.150	105.936	105.936	105.899	102.171	100.387	99.831	99.701	99.686
5/15/2012	5/15/2017	11/17/2014	-0.150	106.358	106.358	106.321	102.495	100.469	99.600	99.268	99.157
7/16/2012	7/17/2017	7/16/2014	-0.146	105.240	105.240	104.991	101.442	100.028	99.674	99.606	99.603
7/18/2012	7/18/2018	7/20/2015	-0.147	108.287	108.287	106.424	102.120	100.125	99.303	98.944	98.812
7/19/2012	7/19/2017	7/21/2014	-0.148	105.149	105.149	104.892	101.368	99.995	99.653	99.582	99.575
10/1/2012	10/1/2019	4/1/2015	-0.052	110.280	110.280	106.058	101.552	99.649	98.889	98.544	98.335
10/5/2012	10/5/2017	10/6/2014	-0.045	104.988	104.988	104.416	100.933	99.620	99.150	98.908	98.724
10/5/2012	10/5/2017	10/6/2014	-0.045	104.988	104.988	104.416	100.933	99.620	99.150	98.908	98.724