

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.

Start Date	Maturity Date	Next Call Date	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
4/8/1998	4/8/2013	4/8/2013	5.490	100.595	100.595	100.595	100.574	100.468	100.362	100.257	100.151
8/19/1998	8/19/2013	5/20/2013	5.490	102.623	102.623	102.623	102.474	102.002	101.535	101.072	100.619
8/19/1998	8/19/2013	5/20/2013	5.490	102.623	102.623	102.623	102.474	102.002	101.535	101.072	100.619
12/14/1998	12/16/2013	3/14/2013	4.890	103.953	103.953	103.953	103.648	102.849	102.062	101.297	100.599
12/14/1998	12/16/2013	3/14/2013	5.390	104.357	104.357	104.357	104.052	103.251	102.462	101.688	100.960
12/15/1998	12/16/2013	3/15/2013	4.880	103.944	103.944	103.944	103.640	102.841	102.054	101.289	100.591
1/7/2000	1/7/2015	4/8/2013	5.950	111.205	111.205	111.205	110.080	108.166	106.307	104.540	102.940
3/6/2003	3/6/2013	3/6/2013	2.990	100.050	100.050	100.050	100.047	100.031	100.014	99.998	99.982
7/2/2004	7/2/2014	4/3/2013	3.990	105.419	105.419	105.419	104.762	103.408	102.078	100.771	99.487
12/13/2004	12/15/2014	3/13/2013	3.320	106.040	106.040	106.040	104.995	103.220	101.645	100.495	99.991
9/1/2005	9/1/2015	3/1/2013	4.130	110.496	110.496	110.496	108.774	106.221	103.741	101.333	98.993
9/30/2005	9/30/2015	3/30/2013	4.440	111.642	111.642	111.642	109.832	107.185	104.615	102.122	99.701
10/26/2005	10/26/2015	4/26/2013	4.540	112.232	112.232	112.232	110.345	107.620	104.978	102.415	99.928
1/17/2006	1/19/2016	4/17/2013	4.080	111.956	111.956	111.956	109.820	106.937	104.353	102.251	100.770
4/19/2006	4/19/2013	4/19/2013	4.630	100.643	100.643	100.643	100.615	100.479	100.343	100.207	100.071
4/24/2006	4/25/2016	4/24/2013	4.440	114.207	114.207	114.207	111.723	108.547	105.674	103.262	101.443
5/5/2006	5/5/2016	5/6/2013	4.350	114.040	114.040	114.040	111.522	108.335	105.473	103.098	101.344
5/5/2006	5/5/2016	5/6/2013	4.530	114.621	114.621	114.621	112.096	108.888	105.981	103.531	101.666
5/15/2006	5/16/2016	5/15/2013	4.350	114.173	114.173	114.173	111.612	108.396	105.507	103.106	101.332
5/15/2006	5/16/2016	5/15/2013	4.520	114.727	114.727	114.727	112.159	108.922	105.991	103.520	101.640
5/19/2006	5/19/2016	5/20/2013	4.510	114.732	114.732	114.732	112.153	108.909	105.972	103.499	101.619
6/12/2006	6/13/2016	3/12/2013	4.620	115.412	115.412	115.412	112.730	109.410	106.400	103.850	101.882
6/26/2006	6/27/2016	3/26/2013	4.730	115.963	115.963	115.963	113.219	109.849	106.780	104.152	102.095
6/28/2006	6/28/2013	3/28/2013	4.950	101.650	101.650	101.650	101.564	101.235	100.907	100.582	100.259
6/30/2006	7/1/2013	4/1/2013	4.890	101.671	101.671	101.671	101.582	101.244	100.908	100.575	100.247
7/14/2006	7/15/2013	4/15/2013	4.890	101.861	101.861	101.861	101.755	101.379	101.006	100.636	100.273
7/24/2006	7/25/2016	4/24/2013	4.660	116.089	116.089	116.089	113.231	109.799	106.690	104.053	102.003
7/28/2006	7/28/2016	4/29/2013	4.490	115.539	115.539	115.539	112.678	109.259	106.186	103.613	101.659
8/21/2006	8/21/2013	3/2/2013	4.750	102.296	102.296	102.296	102.144	101.668	101.197	100.730	100.267
8/25/2006	8/25/2016	5/28/2013	4.350	115.393	115.393	115.393	112.419	108.953	105.868	103.321	101.433
10/10/2006	10/10/2013	4/10/2013	4.250	102.644	102.644	102.644	102.430	101.817	101.211	100.628	100.153
10/12/2006	10/15/2013	4/12/2013	4.500	102.862	102.862	102.862	102.641	102.014	101.395	100.791	100.269
11/6/2006	11/6/2013	5/6/2013	4.290	102.991	102.991	102.991	102.741	102.055	101.378	100.727	100.190
11/17/2006	11/18/2013	5/17/2013	4.350	103.178	103.178	103.178	102.912	102.192	101.482	100.800	100.238
11/24/2006	11/25/2016	5/24/2013	4.190	115.898	115.898	115.898	112.523	108.870	105.677	103.093	101.238
11/30/2006	12/2/2013	5/28/2013	4.350	103.347	103.347	103.347	103.063	102.303	101.555	100.818	100.091
12/1/2006	12/1/2016	6/3/2013	4.090	115.586	115.586	115.586	112.195	108.556	105.403	102.888	101.120
12/4/2006	12/5/2016	3/4/2013	4.080	115.594	115.594	115.594	112.184	108.537	105.380	102.865	101.101
12/5/2006	12/5/2016	3/5/2013	4.260	116.282	116.282	116.282	112.856	109.172	105.946	103.328	101.428
12/6/2006	12/6/2013	3/6/2013	4.400	103.434	103.434	103.434	103.144	102.374	101.616	100.890	100.290
12/8/2006	12/8/2016	3/8/2013	3.990	115.283	115.283	115.283	111.867	108.233	105.105	102.637	100.937
12/12/2006	12/12/2016	3/12/2013	3.990	115.327	115.327	115.327	111.892	108.248	105.112	102.638	100.931
12/12/2006	12/12/2016	3/12/2013	4.050	115.558	115.558	115.558	112.117	108.460	105.299	102.786	101.031
12/19/2006	12/19/2016	3/19/2013	4.190	116.177	116.177	116.177	112.691	108.986	105.754	103.147	101.271
12/20/2006	12/20/2013	3/20/2013	4.500	103.687	103.687	103.687	103.378	102.569	101.774	101.007	100.355
12/28/2006	12/28/2016	3/28/2013	4.250	116.515	116.515	116.515	112.980	109.240	105.967	103.307	101.367
12/28/2006	12/28/2016	3/28/2013	4.400	117.098	117.098	117.098	113.550	109.780	106.453	103.716	101.670
1/12/2007	1/12/2017	4/12/2013	4.420	117.360	117.360	117.360	113.739	109.936	106.584	103.829	101.770
1/16/2007	1/17/2017	4/16/2013	4.790	118.880	118.880	118.880	115.204	111.321	107.844	104.896	102.587
1/23/2007	1/23/2014	4/23/2013	4.490	104.103	104.103	104.103	103.744	102.843	101.959	101.113	100.401
1/29/2007	1/29/2014	4/29/2013	4.790	104.457	104.457	104.457	104.088	103.170	102.267	101.381	100.510
2/2/2007	2/2/2017	5/2/2013	4.690	118.694	118.694	118.694	114.911	110.848	106.954	103.223	99.645
2/20/2007	2/21/2017	5/20/2013	4.850	119.588	119.588	119.588	115.697	111.563	107.604	103.811	100.177
2/20/2007	2/21/2017	5/20/2013	4.390	117.730	117.730	117.730	113.916	110.023	106.610	103.818	101.739
2/23/2007	2/23/2017	5/23/2013	4.250	117.188	117.188	117.188	113.379	109.511	106.145	103.423	101.445
2/23/2007	2/23/2017	5/23/2013	4.350	117.592	117.592	117.592	113.773	109.883	106.479	103.703	101.648
3/16/2007	3/16/2017	3/18/2013	4.090	116.779	116.779	116.779	112.885	109.013	105.685	103.040	101.175
3/21/2007	3/21/2017	3/21/2013	4.220	117.371	117.371	117.371	113.436	109.520	106.126	103.391	101.413
3/23/2007	3/23/2017	3/25/2013	4.290	117.683	117.683	117.683	113.730	109.792	106.365	103.589	101.552
3/23/2007	3/23/2017	3/25/2013	4.290	117.683	117.683	117.683	113.730	109.792	106.365	103.589	101.552
4/9/2007	4/10/2017	4/9/2013	4.150	117.314	117.314	117.314	113.287	109.349	105.961	103.258	101.331
4/12/2007	4/12/2017	4/12/2013	4.250	117.754	117.754	117.754	113.705	109.737	106.301	103.531	101.518
4/13/2007	4/13/2017	4/15/2013	4.450	118.602	118.602	118.602	114.525	110.507	106.990	104.107	101.944
4/23/2007	4/23/2014	4/23/2013	4.620	105.377	105.377	105.377	104.862	103.699	102.561	101.494	100.597
4/27/2007	4/27/2017	4/29/2013	4.250	117.932	117.932	117.932	113.803	109.798	106.331	103.535	101.496
5/2/2007	5/2/2014	5/2/2013	4.590	105.457	105.457	105.457	104.924	103.736	102.576	101.498	100.609
5/4/2007	5/5/2014	5/6/2013	4.550	105.447	105.447	105.447	104.909	103.713	102.546	101.463	100.579
5/18/2007	5/18/2017	5/20/2013	4.190	117.923	117.923	117.923	113.692	109.662	106.193	103.417	101.424

Start Date	Maturity Date	Next Call Date	Coupon	-300	-200	-100	Base	+100	+200	+300	+400
5/22/2007	5/22/2017	5/22/2013	4.750	120.371	120.371	120.371	116.050	111.877	108.183	105.082	102.671
5/29/2007	5/30/2017	5/29/2013	4.250	118.321	118.321	118.321	114.017	109.944	106.428	103.599	101.534
6/1/2007	6/2/2014	6/3/2013	4.500	105.737	105.737	105.737	105.142	103.869	102.631	101.491	100.579
6/7/2007	6/7/2017	3/7/2013	4.820	120.885	120.885	120.880	116.469	112.249	108.512	105.365	102.904
6/8/2007	6/8/2017	3/8/2013	4.490	119.468	119.468	119.462	115.086	110.938	107.318	104.349	102.117
6/11/2007	6/12/2017	3/11/2013	4.490	119.518	119.518	119.509	115.113	110.956	107.327	104.353	102.116
6/18/2007	6/19/2017	3/18/2013	4.500	119.649	119.649	119.635	115.203	111.026	107.379	104.385	102.129
6/19/2007	6/19/2017	3/19/2013	4.650	120.304	120.304	120.290	115.839	111.626	107.923	104.841	102.476
6/22/2007	6/22/2017	3/22/2013	4.500	119.686	119.686	119.670	115.223	111.039	107.384	104.384	102.119
6/28/2007	6/28/2017	3/28/2013	4.500	119.761	119.761	119.741	115.264	111.066	107.397	104.386	102.111
7/13/2007	7/13/2017	4/15/2013	4.290	119.018	119.018	118.956	114.468	110.299	106.705	103.813	101.695
7/20/2007	7/20/2017	4/22/2013	4.290	119.101	119.101	119.018	114.511	110.326	106.718	103.814	101.684
7/27/2007	7/27/2017	4/29/2013	4.250	119.006	119.006	118.901	114.381	110.192	106.588	103.696	101.587
7/30/2007	1/30/2019	4/30/2013	3.990	123.961	123.961	121.619	115.903	110.911	106.809	103.643	101.436
7/31/2007	7/31/2017	4/30/2013	3.990	117.887	117.887	117.770	113.287	109.174	105.695	102.964	101.069
7/31/2007	7/31/2017	4/30/2013	3.990	117.887	117.887	117.770	113.287	109.174	105.695	102.964	101.069
7/31/2007	7/31/2017	4/30/2013	4.060	118.201	118.201	118.084	113.589	109.454	105.938	103.161	101.207
8/2/2007	8/4/2014	5/2/2013	4.490	106.510	106.510	106.510	105.777	104.329	102.930	101.663	100.655
8/2/2007	8/2/2017	5/2/2013	4.050	118.179	118.179	118.055	113.559	109.428	105.926	103.176	101.260
8/2/2007	8/2/2017	5/2/2013	4.150	118.628	118.628	118.504	113.991	109.828	106.277	103.460	101.458
8/9/2007	8/9/2017	5/9/2013	3.990	117.987	117.987	117.841	113.337	109.210	105.726	103.004	101.127
8/16/2007	8/16/2017	5/16/2013	3.990	118.065	118.065	117.897	113.374	109.231	105.734	103.000	101.112
8/17/2007	8/17/2017	5/17/2013	4.000	118.121	118.121	117.950	113.423	109.274	105.770	103.028	101.129
8/20/2007	8/20/2014	8/20/2013	4.250	106.351	106.351	106.351	105.582	104.091	102.633	101.307	100.314
8/28/2007	8/28/2014	5/28/2013	4.350	106.597	106.597	106.597	105.809	104.297	102.840	101.533	100.531
8/30/2007	9/2/2014	5/30/2013	3.890	105.953	105.953	105.953	105.156	103.638	102.202	100.989	100.162
9/4/2007	9/5/2017	3/4/2013	3.890	117.828	117.828	117.600	113.048	108.908	105.446	102.781	100.981
9/10/2007	9/11/2017	3/11/2013	3.690	116.973	116.973	116.728	112.201	108.123	104.764	102.253	100.651
9/11/2007	9/11/2017	3/11/2013	3.590	116.513	116.513	116.269	111.765	107.727	104.430	102.005	100.497
9/12/2007	9/12/2014	3/12/2013	3.690	105.750	105.750	105.750	104.930	103.389	101.951	100.785	100.111
9/13/2007	9/15/2014	3/13/2013	3.990	106.251	106.251	106.251	105.422	103.866	102.392	101.135	100.255
9/13/2007	9/13/2017	3/13/2013	3.990	118.375	118.375	118.121	113.527	109.334	105.802	103.045	101.141
9/27/2007	9/29/2014	9/27/2010	4.490	107.209	107.209	107.209	106.344	104.737	103.161	101.618	100.105
9/27/2007	9/27/2017	3/27/2013	3.650	116.951	116.951	116.658	112.097	108.000	104.636	102.132	100.540
10/11/2007	10/14/2014	4/11/2013	4.180	106.885	106.885	106.885	105.986	104.346	102.787	101.430	100.449
10/11/2007	10/11/2017	4/11/2013	3.990	118.685	118.685	118.342	113.678	109.435	105.868	103.087	101.166
10/15/2007	10/16/2017	4/15/2013	3.990	118.741	118.741	118.380	113.703	109.450	105.875	103.087	101.160
10/25/2007	10/27/2014	4/25/2013	4.360	107.339	107.339	107.339	106.407	104.727	103.121	101.699	100.603
10/26/2007	10/26/2017	4/26/2013	3.390	116.016	116.016	115.629	111.073	107.049	103.831	101.540	100.236
11/2/2007	11/3/2014	5/2/2013	3.990	106.794	106.794	106.794	105.847	104.157	102.572	101.233	100.331
11/2/2007	11/3/2014	5/2/2013	4.190	107.134	107.134	107.134	106.186	104.491	102.886	101.495	100.496
11/5/2007	11/5/2014	5/6/2013	3.990	106.816	106.816	106.816	105.864	104.169	102.578	101.235	100.327
11/5/2007	11/6/2017	5/6/2013	4.390	120.876	120.876	120.437	115.634	111.210	107.410	104.342	102.069
11/6/2007	11/6/2017	5/6/2013	3.480	116.548	116.548	116.122	111.523	107.448	104.168	101.805	100.406
11/9/2007	11/10/2014	5/9/2013	4.330	107.457	107.457	107.457	106.491	104.772	103.138	101.701	100.616
11/13/2007	11/13/2014	5/13/2013	3.350	105.797	105.797	105.797	104.831	103.137	101.621	100.498	99.924
11/19/2007	11/19/2014	5/20/2013	3.750	106.552	106.552	106.552	105.567	103.840	102.241	100.946	100.115
11/19/2007	11/19/2014	5/20/2013	3.750	106.552	106.552	106.552	105.567	103.840	102.241	100.946	100.115
11/19/2007	11/19/2014	5/20/2013	4.270	107.460	107.460	107.460	106.472	104.730	103.076	101.629	100.557
11/19/2007	11/20/2017	5/19/2013	4.290	120.567	120.567	120.066	115.074	110.225	105.615	101.229	97.056
11/20/2007	11/20/2017	5/20/2013	3.740	117.930	117.930	117.452	112.749	108.530	105.054	102.435	100.745
11/23/2007	11/24/2017	5/23/2013	3.990	119.173	119.173	118.658	113.680	108.854	104.265	99.901	95.749
11/23/2007	11/24/2017	5/23/2013	3.990	119.173	119.173	118.658	113.680	108.854	104.265	99.901	95.749
11/29/2007	11/29/2017	5/29/2013	2.950	114.216	114.216	113.730	109.247	105.416	102.524	100.687	99.838
11/30/2007	11/30/2017	5/30/2013	3.190	115.382	115.382	114.885	110.314	106.346	103.257	101.144	100.017
12/10/2007	12/11/2017	3/11/2013	3.450	116.741	116.741	116.199	111.529	107.414	104.116	101.754	100.357
12/24/2007	12/26/2017	3/24/2013	3.990	119.528	119.528	118.891	113.817	108.905	104.238	99.804	95.588
1/3/2008	1/5/2015	4/3/2013	3.650	106.853	106.853	106.853	105.753	103.906	102.226	100.904	100.115
1/4/2008	1/4/2018	4/4/2013	3.360	116.528	116.528	115.909	111.215	107.114	103.864	101.573	100.287
1/7/2008	1/7/2015	4/8/2013	3.490	106.572	106.572	106.572	105.469	103.625	101.970	100.704	100.039
1/7/2008	1/8/2018	4/8/2013	2.590	112.769	112.769	112.175	107.782	104.166	101.623	100.245	99.849
1/8/2008	1/8/2018	4/8/2013	2.570	112.670	112.670	112.077	107.694	104.093	101.573	100.219	99.846
1/8/2008	1/8/2018	4/8/2013	2.640	113.015	113.015	112.417	108.000	104.346	101.745	100.305	99.856
1/11/2008	1/11/2018	4/11/2013	2.720	113.432	113.432	112.819	108.358	104.639	101.949	100.399	99.860
1/14/2008	1/16/2018	4/15/2013	3.240	116.046	116.046	115.386	110.707	106.650	103.478	101.291	100.125
1/16/2008	1/16/2018	4/16/2013	2.380	111.786	111.786	111.179	106.885	103.430	101.122	100.040	99.779
1/17/2008	1/17/2018	4/17/2013	2.250	111.149	111.149	110.550	106.332	102.995	100.849	99.967	99.753
1/18/2008	1/20/2015	4/18/2013	2.350	104.510	104.510	104.510	103.392	101.648	100.397	99.908	99.761

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	111.353	111.353	110.747	106.504	103.127	100.928	99.985	99.755
2/14/2008	2/14/2018	5/14/2013	3.190	116.055	116.055	115.224	110.079	105.127	100.430	95.974	91.746
2/25/2008	2/26/2018	5/28/2013	2.420	112.260	112.260	111.519	107.135	103.600	101.214	100.019	99.597
3/7/2008	3/9/2015	3/7/2013	2.890	105.932	105.932	105.932	104.686	102.737	101.146	100.179	99.977
3/7/2008	3/7/2018	3/7/2013	3.550	118.074	118.074	117.224	112.337	108.046	104.592	102.077	100.525
3/10/2008	3/11/2013	3/11/2013	2.390	100.073	100.073	100.073	100.067	100.038	100.008	99.979	99.949
3/12/2008	3/12/2013	3/12/2013	2.010	100.067	100.067	100.067	100.061	100.029	99.996	99.964	99.932
3/14/2008	3/14/2018	3/14/2013	2.400	112.265	112.265	111.479	107.084	103.560	101.197	100.103	99.936
3/17/2008	3/19/2018	3/18/2013	3.300	116.911	116.911	116.029	111.201	107.025	103.746	101.459	100.228
3/28/2008	3/28/2013	3/28/2013	2.820	100.219	100.219	100.219	100.205	100.130	100.054	99.979	99.904
4/14/2008	4/14/2015	4/14/2013	2.750	105.920	105.920	105.920	104.581	102.453	100.379	98.357	96.386
4/28/2008	4/28/2015	4/29/2013	3.250	107.122	107.122	107.122	105.746	103.627	101.802	100.512	99.920
4/28/2008	4/30/2018	4/29/2013	2.150	111.268	111.268	110.355	106.065	102.741	100.671	99.889	99.672
4/30/2008	4/30/2018	4/30/2013	3.740	119.602	119.602	118.456	113.030	107.809	102.940	100.435	99.936
5/2/2008	5/4/2015	5/2/2013	3.990	108.811	108.811	108.811	107.408	105.220	103.219	101.577	100.471
5/5/2008	5/5/2015	5/6/2013	3.170	107.009	107.009	107.009	105.616	103.493	101.696	100.472	99.896
5/8/2008	5/8/2015	5/8/2013	2.960	106.569	106.569	106.569	105.173	103.069	101.344	100.266	99.804
5/19/2008	5/19/2015	5/21/2013	4.700	110.574	110.574	110.574	109.123	106.850	104.636	102.479	100.377
5/23/2008	5/23/2013	5/23/2013	4.040	100.943	100.943	100.943	100.891	100.662	100.434	100.206	99.980
5/23/2008	5/23/2018	5/23/2013	3.270	117.348	117.348	116.215	111.275	107.029	103.715	101.416	100.136
5/27/2008	5/28/2013	5/27/2011	3.490	100.863	100.863	100.863	100.807	100.565	100.324	100.083	99.844
6/6/2008	6/6/2013	3/6/2013	3.990	101.086	101.086	101.086	101.022	100.755	100.489	100.224	99.961
6/16/2008	6/17/2013	3/16/2013	4.070	101.232	101.232	101.232	101.158	100.859	100.563	100.268	99.975
6/24/2008	6/24/2015	3/25/2013	3.830	109.000	109.000	109.000	107.469	105.152	103.061	101.390	100.293
6/30/2008	6/30/2015	4/1/2013	3.370	107.975	107.975	107.975	106.437	104.144	102.161	100.723	100.040
6/30/2008	7/2/2018	3/30/2013	3.690	119.986	119.986	118.549	112.944	107.564	102.479	97.670	93.122
7/7/2008	7/8/2013	4/7/2013	4.590	101.657	101.657	101.657	101.560	101.204	100.850	100.498	100.149
7/8/2008	7/8/2013	4/8/2013	4.250	101.535	101.535	101.535	101.437	101.081	100.727	100.376	100.027
7/10/2008	7/10/2014	4/10/2013	4.800	106.626	106.626	106.626	105.948	104.564	103.205	101.870	100.558
7/11/2008	7/11/2018	4/11/2013	3.750	120.405	120.405	118.924	113.285	107.874	102.760	97.925	93.353
7/14/2008	7/14/2015	7/15/2013	4.900	111.787	111.787	111.787	110.185	107.745	105.374	103.102	101.133
7/14/2008	7/16/2018	4/15/2013	2.500	113.637	113.637	112.401	107.770	104.050	101.497	100.158	99.804
7/14/2008	7/16/2018	4/15/2013	3.250	117.729	117.729	116.386	111.354	107.062	103.728	101.426	100.175
7/17/2008	7/17/2018	7/17/2013	3.750	120.467	120.467	118.957	113.301	107.891	103.307	100.848	99.903
7/21/2008	7/22/2013	4/22/2013	3.000	101.200	101.200	101.200	101.086	100.693	100.305	100.001	99.836
8/15/2008	8/15/2018	5/15/2013	3.830	121.212	121.212	119.681	114.365	109.696	105.880	102.981	101.041
9/8/2008	9/9/2013	3/8/2013	2.890	101.549	101.549	101.549	101.374	100.849	100.342	100.014	99.974
5/13/2009	5/13/2014	5/13/2013	4.000	104.877	104.877	104.877	104.325	103.111	101.941	100.914	100.187
9/28/2009	9/30/2013	3/28/2013	2.920	101.736	101.736	101.736	101.535	100.951	100.388	100.014	99.912
5/11/2010	5/11/2015	5/11/2015	3.700	108.242	108.242	108.242	106.824	104.562	102.038	98.816	95.164
5/24/2010	5/26/2015	5/25/2013	2.250	105.106	105.106	105.106	103.669	101.439	99.268	97.154	95.095
6/15/2010	6/15/2015	3/15/2013	2.280	105.300	105.300	105.300	103.813	101.528	99.304	98.950	97.139
4/27/2012	4/27/2016	4/29/2013	-0.160	104.361	104.361	104.361	101.956	100.008	99.945	99.937	99.928
4/30/2012	5/2/2016	4/30/2013	-0.159	104.208	104.208	104.208	101.788	99.968	99.950	99.950	99.950
5/15/2012	5/15/2017	5/15/2014	-0.170	105.936	105.936	105.936	102.324	100.453	99.848	99.705	99.681
5/15/2012	5/15/2017	11/17/2014	-0.170	106.358	106.358	106.358	102.659	100.558	99.634	99.283	99.150
7/16/2012	7/17/2017	7/16/2014	-0.146	105.240	105.240	105.166	101.586	100.083	99.685	99.606	99.597
7/18/2012	7/18/2018	7/20/2015	-0.147	108.287	108.287	106.781	102.338	100.205	99.285	98.877	98.708
7/19/2012	7/19/2017	7/21/2014	-0.148	105.149	105.149	105.068	101.514	100.042	99.659	99.583	99.568
10/1/2012	10/1/2019	4/1/2015	-0.052	110.277	110.277	106.352	101.702	99.759	99.010	98.717	98.574
10/5/2012	10/5/2017	10/6/2014	-0.045	104.985	104.985	104.651	101.101	99.748	99.305	99.124	99.012
10/5/2012	10/5/2017	10/6/2014	-0.045	104.985	104.985	104.651	101.101	99.748	99.305	99.124	99.012