

## **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: December 31, 2003 Parallel-Shift Sensitivity Analysis for HLB-Option and Knockout Advances

Start Date	Next Call		Coupon	-300	-200	-100	Base	+100	+200	+300	+400
	Maturity	Date									
10/2/1996	10/2/2006	1/2/2004	6.53	117.55	115.58	112.67	109.99	107.57	105.47	103.69	102.25
2/27/1997	2/27/2012	2/27/2007	6.58	140.02	131.49	123.96	117.59	112.24	107.76	103.86	100.41
2/11/1998	2/11/2008	2/11/2004	5.59	120.92	116.69	112.70	109.26	106.42	104.14	102.41	101.15
3/13/1998	3/13/2008	3/15/2004	5.53	120.81	116.51	112.50	109.04	106.21	103.95	102.25	101.03
3/18/1998	3/18/2008	3/18/2004	5.68	121.64	117.32	113.24	109.70	106.79	104.44	102.61	101.28
3/24/1998	3/24/2008	3/24/2004	5.68	121.92	117.58	113.49	109.92	106.97	104.58	102.72	101.35
3/26/1998	3/26/2008	3/26/2004	5.49	120.96	116.66	112.64	109.15	106.29	104.00	102.26	101.02
4/8/1998	4/8/2013	1/8/2004	5.49	133.77	124.85	117.53	111.98	107.86	104.87	102.73	101.27
5/6/1998	5/6/2008	2/6/2004	5.79	122.52	118.02	113.79	110.16	107.14	104.72	102.86	101.48
5/8/1998	5/8/2008	2/9/2004	5.52	121.52	117.05	112.88	109.34	106.44	104.14	102.38	101.12
6/1/1998	6/4/2008	3/1/2004	5.52	121.55	117.00	112.79	109.23	106.34	104.05	102.31	101.07
6/16/1998	6/16/2008	3/16/2004	5.47	121.47	116.94	112.75	109.17	106.27	103.97	102.23	101.01
6/16/1998	6/16/2008	3/16/2004	5.70	122.30	117.74	113.48	109.84	106.84	104.46	102.61	101.27
6/24/1998	6/24/2008	3/24/2004	5.45	121.60	117.06	112.86	109.26	106.34	104.01	102.25	101.01
7/31/1998	7/30/2008	1/30/2004	5.39	122.01	117.39	113.12	109.45	106.47	104.11	102.31	101.04
7/31/1998	7/30/2008	1/30/2004	5.61	123.11	118.44	114.09	110.32	107.22	104.73	102.81	101.40
8/19/1998	8/19/2013	1/26/2004	5.49	134.70	125.48	117.97	112.27	108.06	105.00	102.81	101.31
8/19/1998	8/19/2013	2/18/2004	5.49	134.63	125.42	117.92	112.23	108.03	104.97	102.80	101.30
8/19/1998	8/19/2013	2/19/2004	5.49	134.69	125.47	117.97	112.26	108.06	104.99	102.81	101.31
8/25/1998	8/19/2013	1/26/2004	5.49	134.63	125.42	117.92	112.23	108.03	104.97	102.80	101.30
8/27/1998	8/19/2013	1/27/2004	5.49	134.70	125.48	117.97	112.27	108.06	105.00	102.81	101.31
9/30/1998	9/30/2013	9/30/2005	5.22	131.89	122.97	115.87	110.53	106.59	103.58	101.16	99.12
10/5/1998	10/6/2008	1/5/2004	4.49	117.43	112.88	108.92	105.82	103.45	101.76	100.64	100.16
10/13/1998	10/14/2008	1/13/2004	4.66	118.18	113.59	109.56	106.33	103.88	102.05	100.81	100.21
10/13/1998	10/14/2008	10/15/2004	4.66	118.18	113.59	109.56	106.33	103.88	102.05	100.81	100.21
10/20/1998	10/20/2008	1/20/2004	4.66	117.88	113.32	109.33	106.13	103.71	101.91	100.70	100.15
10/30/1998	10/30/2008	10/30/2003	4.99	119.90	114.90	110.03	105.38	100.97	96.77	92.78	88.98
10/30/1998	10/30/2008	1/30/2004	4.99	119.90	114.90	110.03	105.38	101.88	99.95	100.05	99.97
11/25/1998	11/25/2008	11/25/2003	5.20	121.26	116.15	111.16	106.43	101.93	97.65	93.59	89.73
12/7/1998	12/8/2008	3/8/2004	4.99	120.12	115.29	111.00	107.54	104.83	102.80	101.35	100.45
12/14/1998	12/16/2013	3/15/2004	4.89	128.33	119.71	113.12	108.38	105.05	102.76	101.21	100.32
12/14/1998	12/16/2013	12/15/2008	5.39	133.15	123.71	115.76	109.20	103.64	98.75	94.32	90.26
12/15/1998	12/16/2013	3/15/2004	4.88	128.56	119.91	113.27	108.50	105.14	102.82	101.26	100.35
1/13/1999	1/13/2009	1/13/2004	4.95	120.14	115.25	110.93	107.45	104.73	102.70	101.27	100.35
1/13/1999	1/13/2009	1/13/2004	4.97	120.13	115.24	110.93	107.45	104.73	102.70	101.27	100.35
1/15/1999	1/15/2009	1/15/2004	5.16	121.01	115.74	110.62	105.79	102.01	100.03	100.03	99.99
1/19/1999	1/20/2009	1/19/2003	4.98	120.37	115.10	109.99	105.15	100.57	96.22	92.09	88.17
1/29/1999	1/29/2009	1/29/2003	4.98	120.58	115.31	110.20	105.33	100.71	96.34	92.18	88.24
2/18/1999	2/18/2009	2/18/2004	4.88	120.28	115.32	110.96	107.45	104.72	102.68	101.24	100.40
2/18/1999	2/18/2009	2/18/2004	5.08	121.20	116.18	111.73	108.11	105.25	103.09	101.55	100.52
2/18/1999	2/18/2009	2/18/2004	5.43	122.84	117.74	113.15	109.32	106.27	103.91	102.14	100.93
2/19/1999	2/19/2009	2/19/2004	4.85	120.02	115.08	110.75	107.27	104.58	102.57	101.16	100.35
2/22/1999	2/23/2009	2/23/2004	4.88	120.15	115.21	110.87	107.36	104.64	102.61	101.19	100.36
3/22/1999	3/23/2009	3/22/2004	5.02	120.95	115.91	111.46	107.85	105.03	102.90	101.40	100.46
4/13/1999	4/13/2009	1/13/2004	4.91	120.50	115.40	110.95	107.40	104.65	102.63	101.20	100.39
4/23/1999	4/27/2009	1/23/2004	5.19	122.42	117.21	112.59	108.78	105.76	103.47	101.79	100.69
4/23/1999	4/27/2009	4/26/2004	5.50	124.08	118.78	114.00	110.00	106.80	104.30	102.43	101.10
4/26/1999	4/27/2009	1/26/2004	5.19	122.42	117.21	112.59	108.78	105.76	103.47	101.79	100.69
4/26/1999	4/27/2009	4/26/2004	5.50	124.08	118.78	114.00	110.00	106.80	104.30	102.43	101.10
4/28/1999	4/30/2009	1/28/2004	5.25	122.44	117.24	112.62	108.80	105.79	103.49	101.80	100.68
5/6/1999	5/6/2009	2/6/2004	5.31	123.15	117.81	113.07	109.19	106.12	103.78	102.05	100.88
5/24/1999	5/24/2004	2/24/2004	5.64	102.15	102.15	102.06	101.66	101.26	100.86	100.47	100.14
6/7/1999	6/8/2009	3/8/2004	5.70	125.70	120.16	115.15	110.98	107.59	104.97	102.96	101.52
6/7/1999	6/8/2009	6/7/2004	6.04	127.64	121.99	116.84	112.47	108.88	106.02	103.80	102.14
7/1/1999	7/1/2009	1/2/2004	6.11	126.99	121.10	115.39	110.07	105.03	101.86	99.80	100.00
7/23/1999	7/23/2009	1/23/2004	5.40	124.17	118.66	113.76	109.71	106.53	104.05	102.23	100.96
8/30/1999	8/30/2004	3/1/2004	5.79	103.81	103.81	103.61	102.93	102.25	101.59	100.96	100.41
9/8/1999	9/8/2009	3/8/2004	5.62	126.26	120.47	115.29	111.02	107.58	104.93	102.92	101.48
10/8/1999	10/8/2009	1/8/2004	5.58	126.59	120.70	115.45	111.12	107.65	104.96	102.94	101.49
11/1/1999	11/2/2009	2/2/2004	5.54	126.45	120.51	115.23	110.90	107.46	104.81	102.82	101.42
11/8/1999	11/8/2004	2/9/2004	6.01	105.03	105.03	104.64	103.77	102.91	102.07	101.28	100.63
11/8/1999	11/9/2009	2/9/2004	5.96	128.67	122.62	117.17	112.59	108.90	105.97	103.73	102.07
11/9/1999	11/9/2004	2/9/2004	5.77	104.97	104.97	104.58	103.71	102.84	102.00	101.22	100.58
11/9/1999	11/9/2009	1/9/2004	5.57	126.54	120.61	115.33	110.99	107.52	104.85	102.84	101.42
11/9/1999	11/9/2009	2/9/2004	5.57	126.54	120.61	115.33	110.99	107.52	104.85	102.84	101.42
12/10/1999	12/10/2009	3/10/2004	5.71	126.77	120.77	115.45	111.08	107.57	104.90	102.87	101.43
12/17/1999	12/17/2009	3/17/2004	5.91	128.13	122.06	116.64	112.10	108.43	105.57	103.40	101.81

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Start Date	Maturity	Next Call		Coupon	-300	-200	-100	Base	+100	+200	+300	+400
		Date	Date									
12/20/1999	12/21/2009	3/22/2004		5.81	127.73	121.69	116.29	111.79	108.17	105.34	103.21	101.68
12/22/1999	12/22/2009	3/22/2004		5.84	127.89	121.84	116.43	111.92	108.28	105.43	103.28	101.72
1/7/2000	1/7/2015	1/7/2004		5.95	142.44	131.49	122.50	115.62	110.53	106.79	104.12	102.25
1/12/2000	1/12/2010	1/12/2005		6.85	133.87	127.27	120.93	115.18	110.25	106.67	104.01	102.11
1/13/2000	1/13/2010	1/13/2004		5.91	129.19	122.96	117.39	112.73	108.96	105.98	103.72	102.06
1/13/2000	1/13/2010	1/16/2004		5.91	129.19	122.96	117.39	112.73	108.96	105.98	103.72	102.06
1/25/2000	1/25/2010	1/26/2004		5.97	129.44	123.22	117.64	112.94	109.12	106.11	103.81	102.11
1/27/2000	1/27/2010	1/27/2004		6.08	129.51	123.31	117.73	113.02	109.20	106.18	103.85	102.14
1/27/2000	1/27/2010	1/27/2004		6.21	130.84	124.56	118.87	114.03	110.06	106.90	104.43	102.57
2/3/2000	2/3/2005	2/3/2004		6.70	107.21	107.21	106.49	105.38	104.29	103.24	102.23	101.37
2/3/2000	2/5/2007	2/3/2004		5.92	118.15	115.39	112.18	109.30	106.77	104.64	102.93	101.61
2/7/2000	2/8/2010	2/9/2004		5.95	128.78	122.53	116.95	112.34	108.63	105.71	103.51	101.90
2/15/2000	2/15/2005	2/17/2004		7.06	107.83	107.83	107.11	105.96	104.84	103.74	102.69	101.74
2/16/2000	2/8/2010	2/9/2004		5.95	128.78	122.53	116.95	112.34	108.63	105.71	103.51	101.90
2/16/2000	2/16/2010	2/17/2004		6.47	132.34	125.92	120.07	115.08	110.96	107.66	105.05	103.06
2/16/2000	2/16/2010	2/17/2004		6.69	133.62	127.14	121.21	116.11	111.87	108.41	105.69	103.57
2/23/2000	2/23/2005	2/23/2004		6.80	107.73	107.73	107.01	105.84	104.69	103.57	102.51	101.57
2/24/2000	2/24/2005	2/24/2004		6.70	107.61	107.61	106.89	105.72	104.57	103.45	102.39	101.46
3/6/2000	3/7/2005	3/8/2004		6.69	107.78	107.78	106.93	105.72	104.54	103.40	102.34	101.43
3/6/2000	3/8/2010	3/8/2004		6.39	131.95	125.48	119.62	114.66	110.59	107.35	104.80	102.89
3/10/2000	3/10/2010	3/10/2004		6.33	131.96	125.48	119.61	114.65	110.57	107.33	104.79	102.87
3/13/2000	3/15/2010	3/15/2004		6.09	130.47	124.07	118.32	113.50	109.59	106.48	104.11	102.33
3/14/2000	3/15/2010	2/17/2004		6.09	130.47	124.07	118.32	113.50	109.59	106.48	104.11	102.33
3/15/2000	3/15/2010	3/15/2004		5.95	129.59	123.22	117.56	112.82	109.01	106.01	103.74	102.06
3/16/2000	3/16/2010	3/16/2004		6.36	132.05	125.58	119.71	114.73	110.64	107.38	104.83	102.89
3/21/2000	3/22/2010	3/22/2004		6.12	130.30	123.92	118.20	113.40	109.49	106.40	104.03	102.26
3/22/2000	3/22/2010	3/22/2004		5.96	129.49	123.15	117.50	112.77	108.95	105.96	103.69	102.00
3/28/2000	3/28/2007	3/29/2004		6.11	119.35	116.39	113.09	110.06	107.40	105.14	103.30	101.86
4/5/2000	4/5/2010	1/5/2004		5.95	129.50	123.08	117.36	112.64	108.84	105.87	103.63	102.00
4/11/2000	4/12/2010	1/12/2004		5.95	129.31	122.90	117.22	112.50	108.72	105.76	103.54	101.92
4/11/2000	4/12/2010	1/12/2004		6.05	130.19	123.73	117.97	113.16	109.28	106.22	103.89	102.19
4/11/2000	4/12/2010	1/12/2004		6.47	132.61	126.04	120.09	115.04	110.89	107.58	104.98	103.01
4/11/2000	4/12/2010	4/12/2004		6.56	133.55	126.92	120.90	115.76	111.52	108.10	105.41	103.34
4/11/2000	4/12/2010	4/11/2005		6.75	134.33	127.67	121.60	116.41	112.07	108.55	105.70	103.37
4/12/2000	4/12/2010	1/12/2004		5.99	130.29	123.81	118.03	113.21	109.32	106.26	103.92	102.20
4/13/2000	4/13/2010	4/13/2004		6.56	133.62	126.99	120.96	115.82	111.56	108.14	105.44	103.36
4/24/2000	4/24/2007	1/26/2004		6.16	120.10	116.93	113.54	110.43	107.70	105.39	103.49	102.02
4/24/2000	4/26/2010	1/26/2004		6.45	133.00	126.41	120.44	115.34	111.13	107.76	105.11	103.09
5/1/2000	5/1/2007	2/2/2004		6.15	120.20	116.82	113.36	110.26	107.54	105.27	103.42	101.98
5/2/2000	5/2/2007	2/2/2004		6.10	120.03	116.65	113.20	110.11	107.41	105.15	103.31	101.90
5/2/2000	5/2/2007	2/2/2004		6.41	120.93	117.55	114.07	110.92	108.15	105.80	103.86	102.33
5/3/2000	5/3/2010	2/3/2004		6.24	131.15	124.58	118.70	113.80	109.81	106.67	104.26	102.45
5/3/2000	5/3/2010	2/3/2004		6.36	132.05	125.43	119.48	114.48	110.41	107.17	104.65	102.74
5/15/2000	5/17/2010	2/17/2004		6.99	136.24	129.43	123.19	117.80	113.28	109.58	106.63	104.33
5/23/2000	5/23/2007	2/23/2004		6.44	121.48	118.09	114.59	111.37	108.53	106.10	104.08	102.48
5/26/2000	6/1/2010	2/26/2004		6.49	133.09	126.35	120.26	115.15	110.97	107.63	105.01	103.04
5/30/2000	6/1/2010	3/1/2004		6.49	133.09	126.35	120.26	115.15	110.97	107.63	105.01	103.04
6/1/2000	6/1/2005	3/1/2004		6.89	109.58	109.58	108.34	106.90	105.49	104.15	102.91	101.84
6/1/2000	6/1/2005	3/1/2004		7.14	109.95	109.95	108.71	107.26	105.85	104.50	103.24	102.13
6/2/2000	6/5/2007	3/2/2004		6.42	121.44	117.86	114.30	111.08	108.26	105.86	103.89	102.34
6/5/2000	6/5/2007	3/5/2004		6.42	121.44	117.86	114.30	111.08	108.26	105.86	103.89	102.34
6/6/2000	6/6/2005	3/8/2004		6.60	109.27	109.27	108.04	106.58	105.17	103.82	102.60	101.57
6/6/2000	6/7/2010	3/8/2004		6.31	132.22	125.53	119.51	114.47	110.37	107.12	104.61	102.72
6/7/2000	6/5/2007	2/9/2004		6.42	121.44	117.86	114.30	111.08	108.26	105.86	103.89	102.34
6/16/2000	6/16/2005	3/16/2004		6.25	108.92	108.92	107.68	106.20	104.76	103.42	102.21	101.21
6/16/2000	6/16/2010	3/16/2004		6.21	131.84	125.17	119.19	114.18	110.12	106.90	104.40	102.56
6/16/2000	6/16/2010	3/16/2004		6.35	133.15	126.40	120.31	115.16	110.95	107.60	104.98	103.00
6/21/2000	6/21/2005	3/22/2004		6.23	108.99	108.99	107.75	106.25	104.80	103.44	102.23	101.22
6/21/2000	6/21/2007	3/12/2004		6.20	120.90	117.33	113.78	110.57	107.76	105.40	103.48	102.00
6/21/2000	6/21/2007	3/22/2004		6.20	120.90	117.33	113.78	110.57	107.76	105.40	103.48	102.00
6/23/2000	6/25/2007	3/23/2004		6.25	121.27	117.69	114.14	110.89	108.04	105.64	103.68	102.15
6/27/2000	6/27/2005	3/29/2004		6.63	109.65	109.65	108.41	106.90	105.42	104.01	102.74	101.65
8/8/2000	8/8/2007	2/9/2004		6.03	120.56	116.82	113.17	109.93	107.15	104.86	103.03	101.65
8/8/2000	8/9/2010	2/9/2004		5.99	130.21	123.52	117.61	112.75	108.87	105.88	103.61	101.96
8/18/2000	8/18/2010	2/18/2004		6.09	131.24	124.49	118.49	113.52	109.50	106.38	103.99	102.25
8/25/2000	8/27/2007	2/25/2004		5.95	121.09	117.33	113.65	110.33	107.48	105.11	103.21	101.75
9/18/2000	9/18/2007	3/18/2004		5.98	121.31	117.46	113.71	110.36	107.50	105.12	103.23	101.78

As of: December 31, 2003 Parallel-Shift Sensitivity Analysis for HLB-Option and Knockout Advances

Start Date	Maturity	Next Call		Coupon	-300	-200	-100	Base	+100	+200	+300	+400
		Date	Date									
10/5/2000	10/5/2010	1/5/2004		5.71	129.24	122.47	116.57	111.80	108.05	105.19	103.06	101.55
10/10/2000	10/12/2010	1/12/2004		5.84	129.98	123.16	117.21	112.35	108.51	105.54	103.33	101.75
10/12/2000	10/12/2005	1/12/2004		6.05	110.51	110.32	108.54	106.75	105.06	103.53	102.21	101.18
10/13/2000	10/13/2010	1/13/2004		5.75	129.13	122.38	116.51	111.75	108.01	105.15	103.01	101.50
10/23/2000	10/24/2005	1/23/2004		5.99	110.58	110.38	108.60	106.78	105.06	103.51	102.18	101.13
10/23/2000	10/25/2010	1/23/2004		5.64	128.82	122.10	116.27	111.52	107.81	104.98	102.85	101.40
10/24/2000	10/24/2005	1/26/2004		5.99	110.55	110.35	108.58	106.75	105.04	103.48	102.16	101.11
10/27/2000	10/27/2010	1/27/2004		6.04	131.82	124.97	118.97	113.99	109.97	106.81	104.37	102.55
10/30/2000	10/30/2007	1/30/2004		5.85	120.97	117.06	113.28	109.90	107.05	104.69	102.83	101.45
11/2/2000	11/2/2005	2/2/2004		6.04	110.83	110.59	108.68	106.84	105.12	103.57	102.26	101.21
11/8/2000	11/8/2005	2/9/2004		5.97	110.76	110.51	108.61	106.76	105.03	103.47	102.16	101.12
11/8/2000	11/8/2007	2/9/2004		5.94	121.39	117.38	113.51	110.12	107.23	104.87	103.01	101.62
12/5/2000	12/6/2010	3/5/2004		5.41	127.19	120.48	114.75	110.20	106.74	104.14	102.26	100.99
12/5/2000	12/6/2010	3/5/2004		5.43	127.58	120.83	115.05	110.46	106.94	104.31	102.38	101.08
12/5/2000	12/6/2010	3/5/2004		5.49	127.81	121.04	115.24	110.63	107.07	104.41	102.46	101.13
12/11/2000	12/13/2010	3/11/2004		5.17	125.74	119.15	113.59	109.24	105.95	103.52	101.81	100.66
12/12/2000	12/13/2010	3/12/2004		5.11	124.95	118.43	112.99	108.73	105.54	103.19	101.57	100.51
12/15/2000	12/15/2010	3/15/2004		5.12	125.35	118.79	113.30	108.98	105.74	103.35	101.68	100.59
12/20/2000	12/20/2010	3/22/2004		4.78	123.44	117.08	111.80	107.77	104.78	102.65	101.17	100.27
12/20/2000	12/20/2010	3/22/2004		4.92	124.25	117.81	112.44	108.30	105.18	102.93	101.37	100.42
12/20/2000	12/20/2010	3/22/2004		4.95	123.86	117.46	112.14	108.06	104.99	102.77	101.27	100.36
12/21/2000	12/21/2010	3/22/2004		4.86	123.87	117.46	112.15	108.06	104.98	102.81	101.27	100.35
12/22/2000	12/22/2010	3/22/2004		4.95	124.30	117.85	112.48	108.33	105.21	102.93	101.38	100.42
12/26/2000	12/27/2010	3/26/2004		4.80	123.45	117.10	111.83	107.79	104.78	102.65	101.16	100.25
12/29/2000	12/29/2005	3/29/2004		5.33	110.22	109.93	107.90	105.95	104.17	102.62	101.40	100.50
1/8/2001	1/9/2006	1/8/2004		4.92	109.62	109.18	107.08	105.15	103.44	102.01	100.94	100.30
1/11/2001	1/11/2011	1/12/2004		5.37	127.72	120.99	115.30	110.78	107.28	104.62	102.67	101.32
1/12/2001	1/12/2011	1/12/2004		5.30	127.26	120.58	114.94	110.48	107.03	104.43	102.52	101.22
1/16/2001	1/18/2011	1/16/2004		4.78	124.06	117.56	112.19	108.07	105.00	102.79	101.29	100.42
1/19/2001	1/19/2011	1/19/2006		5.83	130.94	123.97	117.94	112.98	108.93	105.58	102.76	100.30
1/22/2001	1/24/2011	1/22/2004		4.50	122.18	115.88	110.78	106.92	104.13	102.13	100.83	100.17
1/26/2001	1/26/2011	1/26/2004		4.72	123.09	116.71	111.48	107.49	104.54	102.45	101.04	100.27
2/5/2001	2/7/2011	2/5/2004		4.58	122.94	116.49	111.22	107.28	104.40	102.37	101.00	100.26
2/5/2001	2/7/2011	2/5/2004		4.82	124.44	117.84	112.37	108.21	105.11	102.88	101.36	100.47
2/7/2001	2/7/2011	2/9/2004		4.82	124.04	117.48	112.07	107.97	104.92	102.73	101.26	100.41
2/12/2001	2/14/2011	2/12/2004		4.40	121.38	115.10	110.10	106.38	103.71	101.83	100.68	100.09
2/12/2001	2/14/2011	2/12/2004		4.57	122.74	116.33	111.10	107.18	104.32	102.30	100.94	100.21
2/22/2001	2/22/2006	2/23/2004		4.78	109.97	109.39	107.21	105.19	103.42	101.96	100.86	100.21
2/26/2001	2/28/2011	2/26/2004		4.50	122.29	115.94	110.81	106.94	104.11	102.12	100.80	100.08
2/26/2001	2/28/2011	2/26/2004		4.79	124.20	117.66	112.26	108.10	105.00	102.78	101.25	100.34
2/26/2001	2/28/2011	2/26/2004		5.06	126.01	119.29	113.67	109.25	105.92	103.45	101.74	100.59
2/26/2001	2/28/2011	2/27/2006		5.45	128.91	121.95	115.97	111.11	107.20	103.99	101.27	98.88
2/27/2001	2/27/2006	2/27/2004		4.64	109.74	109.16	106.99	104.97	103.21	101.77	100.73	100.12
2/27/2001	2/28/2011	2/27/2004		4.76	123.90	117.40	112.03	107.92	104.86	102.69	101.17	100.30
2/27/2001	2/28/2011	2/27/2004		5.02	125.74	119.04	113.46	109.06	105.78	103.36	101.66	100.54
3/1/2001	3/1/2006	3/1/2004		4.34	109.16	108.44	106.22	104.26	102.60	101.33	100.45	99.97
3/1/2001	3/1/2011	3/1/2004		4.59	122.75	116.26	111.01	107.10	104.26	102.26	100.95	100.19
3/1/2001	3/1/2011	3/1/2004		4.86	124.52	117.85	112.35	108.18	105.08	102.89	101.36	100.44
3/1/2001	3/1/2011	3/1/2006		5.27	127.49	120.55	114.66	109.99	106.24	103.17	100.55	98.23
3/5/2001	3/7/2011	3/5/2004		3.99	119.27	113.22	108.52	105.15	102.80	101.24	100.33	99.84
3/12/2001	3/13/2006	3/12/2004		4.42	109.50	108.78	106.55	104.54	102.83	101.48	100.54	100.00
3/12/2001	3/14/2011	3/12/2004		4.81	124.41	117.77	112.31	108.14	105.04	102.84	101.31	100.38
3/14/2001	3/14/2011	3/15/2004		4.86	124.68	118.01	112.51	108.30	105.17	102.94	101.37	100.43
3/19/2001	3/20/2006	3/19/2004		4.38	109.23	108.52	106.30	104.30	102.59	101.29	100.39	99.89
3/19/2001	3/21/2011	3/19/2004		4.07	119.00	113.03	108.37	105.05	102.70	101.16	100.24	99.74
3/20/2001	3/21/2011	3/22/2004		3.93	118.31	112.42	107.92	104.69	102.45	100.98	100.15	99.69
3/20/2001	3/21/2011	3/22/2004		4.68	123.72	117.16	111.79	107.72	104.72	102.58	101.13	100.25
3/26/2001	3/27/2006	3/26/2004		4.54	109.73	109.01	106.77	104.72	102.97	101.56	100.58	99.98
3/26/2001	3/28/2011	3/26/2004		3.99	118.87	112.91	108.33	104.99	102.67	101.13	100.22	99.71
4/10/2001	4/11/2011	4/12/2004		4.65	123.20	116.63	111.30	107.31	104.40	102.35	100.98	100.14
4/10/2001	4/11/2011	4/10/2006		5.15	126.31	119.01	112.84	108.19	104.70	101.87	99.45	97.26
4/17/2001	4/17/2006	1/20/2004		4.33	109.59	108.73	106.42	104.37	102.64	101.31	100.42	100.02
4/23/2001	4/23/2004	1/23/2004		4.09	101.22	101.22	101.17	100.85	100.54	100.23	100.00	99.92
4/23/2001	4/25/2011	4/24/2006		5.35	128.18	120.71	114.39	109.44	105.57	102.65	100.11	97.83
5/7/2001	5/8/2006	2/9/2004		3.99	109.16	108.15	105.80	103.79	102.14	100.95	100.24	99.88
5/8/2001	5/9/2011	2/9/2004		4.43	122.02	115.52	110.37	106.56	103.83	101.93	100.72	100.11
5/8/2001	5/9/2011	2/9/2004		4.47	122.21	115.70	110.51	106.67	103.91	102.00	100.75	100.13

As of: December 31, 2003 Parallel-Shift Sensitivity Analysis for HLB-Option and Knockout Advances

Start Date	Next Call		Coupon	-300	-200	-100	Base	+100	+200	+300	+400
	Maturity	Date									
6/1/2001	6/1/2011	6/1/2004	4.99	126.38	119.35	113.54	109.10	105.77	103.37	101.70	100.57
7/13/2001	7/13/2006	1/13/2004	5.24	113.46	111.71	109.11	106.77	104.73	103.02	101.70	100.76
8/13/2001	8/12/2011	8/13/2004	4.55	122.77	116.08	110.73	106.82	104.01	102.05	100.69	99.71
8/14/2001	8/14/2006	2/17/2004	4.83	112.84	110.87	108.24	105.92	103.94	102.35	101.17	100.41
8/20/2001	8/22/2011	8/21/2006	5.09	127.12	119.56	113.21	108.35	104.63	101.49	98.84	96.36
9/4/2001	9/6/2011	9/5/2006	4.88	125.96	118.41	112.27	107.57	103.85	100.87	98.18	95.70
9/10/2001	9/12/2011	9/11/2006	5.02	126.26	118.73	112.55	107.81	104.06	101.03	98.32	95.83
9/11/2001	9/11/2012	9/11/2006	4.78	127.01	118.67	112.00	107.14	103.51	100.48	97.88	95.42
9/25/2001	9/26/2011	9/25/2006	4.57	123.53	116.32	110.49	106.14	102.76	99.82	97.23	94.77
10/2/2001	10/3/2011	4/3/2006	4.29	120.97	113.83	108.51	104.78	101.89	99.60	97.44	95.40
10/2/2001	10/3/2011	4/2/2007	4.55	123.07	115.89	110.15	105.63	101.86	98.62	95.61	92.78
11/5/2001	11/7/2011	5/5/2006	3.85	117.86	111.26	106.60	103.32	100.73	98.41	96.23	94.15
12/4/2001	12/5/2011	12/4/2006	4.59	123.73	116.35	110.36	105.90	102.40	99.37	96.59	93.98
12/5/2001	12/5/2011	12/5/2006	4.60	123.71	116.33	110.35	105.89	102.39	99.36	96.59	93.98
12/13/2001	12/13/2011	12/13/2006	4.92	126.54	119.18	113.12	108.26	104.28	100.89	97.86	95.08
1/14/2002	1/17/2012	1/14/2005	3.95	119.35	112.93	108.13	104.78	102.46	100.92	100.12	99.63
1/31/2002	1/31/2012	1/31/2007	4.89	126.59	118.89	112.55	107.62	103.69	100.34	97.34	94.57
2/11/2002	2/12/2007	2/11/2004	4.09	112.74	109.74	106.87	104.51	102.64	101.29	100.43	100.00
2/15/2002	2/15/2007	2/15/2005	4.11	112.47	109.81	106.89	104.46	102.54	100.98	99.66	98.48
3/20/2002	3/20/2007	3/22/2004	4.47	114.28	111.14	108.12	105.56	103.50	101.91	100.82	100.13
4/8/2002	4/9/2007	1/8/2004	4.37	114.09	110.85	107.80	105.26	103.25	101.73	100.71	100.18
4/10/2002	4/10/2012	4/11/2005	4.39	122.31	114.05	107.84	104.16	102.14	100.64	99.42	98.22
4/25/2002	4/25/2007	1/26/2004	4.35	114.22	110.98	107.93	105.35	103.30	101.75	100.70	100.14
4/26/2002	4/26/2012	4/26/2007	4.92	126.97	119.10	112.62	107.55	103.48	99.96	96.79	93.89
4/30/2002	5/2/2005	1/30/2004	3.86	105.23	105.23	103.95	102.64	101.49	100.62	100.14	99.99
5/2/2002	5/2/2007	2/2/2004	4.29	114.00	110.65	107.57	105.04	103.06	101.59	100.63	100.13
5/14/2002	5/14/2007	2/17/2004	4.22	113.90	110.57	107.49	104.97	102.98	101.52	100.56	100.06
5/14/2002	5/14/2007	5/16/2005	4.24	113.77	110.43	107.15	104.49	102.45	100.76	99.30	97.96
6/3/2002	6/4/2012	3/3/2004	4.49	123.73	116.72	111.26	107.28	104.40	102.39	101.07	100.28
6/4/2002	6/4/2012	3/4/2004	4.49	123.73	116.72	111.26	107.28	104.40	102.39	101.07	100.28
6/19/2002	6/19/2007	3/19/2004	3.99	113.41	110.00	106.94	104.47	102.56	101.20	100.35	99.85
6/24/2002	6/25/2012	6/25/2007	4.39	123.42	115.85	109.84	105.17	101.34	97.90	94.78	91.81
6/28/2002	6/28/2007	3/29/2004	3.79	112.80	109.43	106.44	104.03	102.21	100.94	100.17	99.73
7/8/2002	7/9/2007	1/8/2004	3.83	112.89	109.45	106.41	104.02	102.21	100.97	100.26	99.97
7/12/2002	7/12/2007	1/12/2004	3.77	112.71	109.29	106.27	103.89	102.12	100.89	100.23	99.95
7/18/2002	7/19/2004	1/20/2004	1.70	100.88	100.88	100.73	100.19	99.97	99.92	99.87	99.81
7/24/2002	7/24/2007	1/26/2004	3.59	112.19	108.81	105.86	103.55	101.83	100.69	100.11	99.90
7/25/2002	7/25/2007	1/26/2004	3.58	112.16	108.79	105.84	103.53	101.82	100.68	100.11	99.89
7/26/2002	7/26/2012	7/26/2007	3.89	119.89	112.80	107.32	103.03	99.40	96.08	92.95	89.96
8/7/2002	8/7/2007	2/9/2004	3.29	111.08	107.72	104.89	102.77	101.28	100.38	99.98	99.84
8/8/2002	8/9/2004	2/9/2004	1.62	100.86	100.86	100.67	100.10	99.93	99.83	99.72	99.62
8/12/2002	8/13/2007	2/12/2004	3.29	111.13	107.78	104.94	102.81	101.30	100.38	99.97	99.80
8/26/2002	8/26/2004	2/26/2004	1.49	100.89	100.89	100.69	100.08	99.89	99.74	99.58	99.43
8/28/2002	8/28/2007	3/1/2004	3.29	111.27	107.92	105.07	102.90	101.35	100.39	99.86	99.56
9/23/2002	9/24/2012	9/23/2005	2.69	108.82	104.62	102.55	100.80	99.13	97.50	95.90	94.34
9/24/2002	9/24/2012	9/26/2005	2.69	109.10	104.78	102.63	100.86	99.19	97.56	95.96	94.39
9/27/2002	9/27/2007	3/29/2004	1.35	103.86	101.94	100.64	99.96	100.00	100.00	100.00	100.00
11/4/2002	11/5/2012	11/5/2007	3.35	115.32	108.87	104.04	100.02	96.41	93.02	89.78	86.68
11/12/2002	11/12/2004	2/12/2004	1.24	100.96	100.96	100.58	99.99	99.89	99.77	99.66	99.55
11/15/2002	11/15/2004	2/17/2004	1.21	101.01	101.01	100.63	100.02	99.88	99.76	99.64	99.52
11/21/2002	11/21/2012	11/21/2007	3.44	115.96	109.43	104.50	100.40	96.72	93.27	90.00	86.87
12/2/2002	12/3/2012	12/2/2005	2.90	112.75	107.50	103.96	101.44	99.33	97.44	95.64	93.90
12/5/2002	12/5/2012	3/5/2004	3.79	118.92	112.57	107.90	104.69	102.49	101.07	100.26	99.83
1/17/2003	1/17/2007	1/20/2004	1.17	103.18	101.76	100.56	99.99	99.95	99.90	99.85	99.81
1/27/2003	1/27/2006	1/27/2004	1.15	102.02	101.63	100.51	99.96	99.91	99.84	99.76	99.69
1/27/2003	1/28/2008	1/27/2004	1.25	103.56	101.74	100.56	99.97	99.92	99.84	99.76	99.68
1/30/2003	1/30/2006	1/30/2004	1.14	102.11	101.71	100.55	99.98	99.91	99.82	99.74	99.66
2/14/2003	2/14/2008	2/17/2004	1.21	103.40	101.65	100.49	99.96	99.87	99.75	99.63	99.51
2/25/2003	2/25/2008	2/25/2004	2.85	110.12	106.68	103.95	102.00	100.73	100.08	99.83	99.68
3/4/2003	3/4/2008	3/4/2004	2.81	109.84	106.40	103.70	101.83	100.65	100.05	99.77	99.59
3/6/2003	3/6/2013	3/6/2008	2.99	113.08	107.02	102.15	97.97	94.12	90.51	87.08	83.80
3/11/2003	12/12/2005	3/11/2004	5.59	111.06	110.76	108.71	106.77	104.97	103.38	102.04	101.02
3/11/2003	12/13/2005	3/15/2004	5.42	110.73	110.44	108.39	106.45	104.68	103.11	101.81	100.85
3/11/2003	1/24/2011	1/22/2004	4.69	125.08	118.44	112.93	108.66	105.45	103.12	101.51	100.52
3/11/2003	2/7/2011	11/2/2010	4.58	123.97	116.53	109.57	103.17	97.23	91.71	86.56	81.76
6/18/2003	6/20/2005	6/18/2004	1.04	101.35	101.35	100.45	99.85	99.39	98.92	98.47	98.01
10/20/2003	10/20/2006	10/20/2004	1.59	104.00	102.60	101.03	100.04	99.23	98.45	97.68	96.93

As of: December 31, 2003 Parallel-Shift Sensitivity Analysis for HLB-Option and Knockout Advances

Start Date	Maturity	Next Call		Coupon	-300	-200	-100	Base	+100	+200	+300	+400
		Date										
10/20/2003	10/20/2008	10/20/2004		1.56	104.95	102.59	100.99	100.01	99.21	98.42	97.66	96.90
10/20/2003	10/20/2008	10/20/2005		2.28	107.96	104.69	102.22	100.24	98.43	96.71	95.05	93.43
10/27/2003	10/27/2006	10/27/2005		2.22	105.89	104.22	102.19	100.79	100.07	99.92	99.85	99.77
12/9/2003	12/9/2008	12/11/2006		2.83	110.29	106.29	102.83	99.78	96.97	94.28	91.69	89.21
12/12/2003	12/12/2007	6/14/2004		1.21	104.29	102.19	100.78	100.01	99.55	99.11	98.67	98.24
12/18/2003	12/18/2006	6/18/2004		1.19	103.58	102.14	100.77	100.03	99.79	99.58	99.36	99.15
12/22/2003	12/24/2007	6/22/2004		1.21	104.33	102.23	100.81	100.01	99.52	99.04	98.57	98.11