



Appendices

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
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Appendix A

The data are from the Chicago Ethanol Spot data (USD per barrel) and the North Sea (Forties) spot Crude Oil (USD per barrel). The data were collected from EcoWin. The data span is from November 4, 2005 to December 26, 2013, at a daily frequency, which amounts to a total of 1,188 observations. Daily prices are computed as return of market “i” at time “t” relatives: $R_{i,t} = \ln(p_{i,t} / p_{i,t-1})$, where $P_{i,t}$ and $P_{i,t-1}$ are the daily spot prices for days “t” and “t-1.”

	ew:usa25845			ew:com21105	
	United States, Energy, Bio-fuel, Ethanol, Spot Chicago, USD			World, Energy, Oil, Crude Oil - North Sea (Forties), Spot, Close, USD	
	Ethanol Price ($P_{i,t}$)	Return of Ethanol price ($P_{i,t-1}$)		Crude oil Price ($P_{i,t}$)	Return of Crude oil price ($P_{i,t-1}$)
11/4/2005	1.98	Ethanol	11/4/2005	61.38	Crude oil
11/11/2005	1.98	0	11/11/2005	54.95	-0.11066
11/18/2005	2.05	0.034743	11/18/2005	53.44	-0.02786
11/25/2005	1.9	-0.07599	11/25/2005	53.75	0.005784
12/2/2005	1.9	0	12/2/2005	55.51	0.03222
12/9/2005	1.9	0	12/9/2005	57.83	0.040944
12/16/2005	2.08	0.090514	12/16/2005	59.06	0.021046
12/23/2005	2.08	0	12/23/2005	57.23	-0.03148
12/30/2005	2.08	0	12/30/2005	59.29	0.035362
1/6/2006	2.08	0	1/6/2006	63.38	0.066708
1/13/2006	2.34	0.117783	1/13/2006	62.13	-0.01992

1/20/2006	2.45	0.045937	1/20/2006	65.62	0.054652
1/27/2006	2.45	0	1/27/2006	65.65	0.000457
2/3/2006	2.35	-0.04167	2/3/2006	63.19	-0.03819
2/10/2006	2.35	0	2/10/2006	60.31	-0.04665
2/17/2006	2.45	0.041673	2/17/2006	58.99	-0.02213
2/24/2006	2.45	0	2/24/2006	60.78	0.029893
3/3/2006	2.42	-0.01232	3/3/2006	63.09	0.037301
3/10/2006	2.42	0	3/10/2006	59.19	-0.06381
3/17/2006	2.42	0	3/17/2006	61.14	0.032414
3/24/2006	2.42	0	3/24/2006	62.54	0.02264
3/31/2006	2.47	0.020451	3/31/2006	63.27	0.011605
4/7/2006	2.47	0	4/7/2006	62.22	-0.01673
4/21/2006	2.85	0.143101	4/21/2006	63.69	0.023351
4/28/2006	2.72	-0.04669	4/28/2006	62.45	-0.01966
5/5/2006	2.72	0	5/5/2006	60.11	-0.03819
5/12/2006	2.95	0.081173	5/12/2006	61.63	0.024973
5/19/2006	3.08	0.043124	5/19/2006	65.13	0.055237
5/26/2006	3.08	0	5/26/2006	66.99	0.028158
6/2/2006	3.08	0	6/2/2006	69.74	0.040231
6/9/2006	3.08	0	6/9/2006	73.04	0.046233
6/16/2006	3.08	0	6/16/2006	74.04	0.013598
6/23/2006	3.28	0.062914	6/23/2006	74.31	0.00364
6/30/2006	3.28	0	6/30/2006	70.41	-0.05391
7/7/2006	3.4	0.035932	7/7/2006	67.67	-0.03969
7/13/2006	3.1	-0.09237	7/13/2006	68.32	0.00956
7/20/2006	3.1	0	7/20/2006	69.47	0.016692
7/27/2006	2.5	-0.21511	7/27/2006	67.9	-0.02286
8/3/2006	2.5	0	8/3/2006	65.32	-0.03874
8/10/2006	2.58	0.031499	8/10/2006	67.72	0.036083
8/17/2006	2.53	-0.01957	8/17/2006	71.71	0.057249
8/24/2006	2.53	0	8/24/2006	73.72	0.027644
8/31/2006	2.28	-0.10404	8/31/2006	73.69	-0.00041
9/7/2006	2.28	0	9/7/2006	75.87	0.029154
9/14/2006	1.88	-0.1929	9/14/2006	73.04	-0.03801
9/21/2006	1.83	-0.02696	9/21/2006	77.04	0.053318

9/28/2006	1.62	-0.12189	9/28/2006	78.58	0.019792
10/5/2006	1.62	0	10/5/2006	74.22	-0.05708
10/12/2006	1.62	0	10/12/2006	72.71	-0.02055
10/19/2006	1.9	0.159428	10/19/2006	67.66	-0.07198
10/26/2006	2.05	0.075986	10/26/2006	66.79	-0.01294
11/2/2006	2.03	-0.0098	11/2/2006	62.98	-0.05874
11/9/2006	2.2	0.080422	11/9/2006	63.27	0.004594
11/16/2006	2.18	-0.00913	11/16/2006	59.03	-0.06937
11/23/2006	2.18	0	11/23/2006	56.78	-0.03886
11/30/2006	2.3	0.053584	11/30/2006	58.15	0.023842
12/7/2006	2.34	0.017242	12/7/2006	60.48	0.039287
12/14/2006	2.34	0	12/14/2006	58	-0.04187
12/21/2006	2.34	0	12/21/2006	56.08	-0.03366
12/28/2006	2.34	0	12/28/2006	56.94	0.015219
1/4/2007	2.43	0.03774	1/4/2007	57.85	0.015855
1/11/2007	2.39	-0.0166	1/11/2007	59.48	0.027787
1/18/2007	1.89	-0.23472	1/18/2007	61.17	0.028017
1/25/2007	1.9	0.005277	1/25/2007	63.6	0.038957
2/1/2007	1.9	0	2/1/2007	63.23	-0.00583
2/8/2007	2.07	0.085695	2/8/2007	63.06	-0.00269
2/15/2007	2.07	0	2/15/2007	61.42	-0.02635
2/22/2007	2.07	0	2/22/2007	58.74	-0.04461
3/1/2007	2.28	0.096627	3/1/2007	52.68	-0.10889
3/8/2007	2.4	0.051293	3/8/2007	52.23	-0.00858
3/15/2007	2.38	-0.00837	3/15/2007	54.88	0.049492
3/22/2007	2.35	-0.01269	3/22/2007	56.11	0.022165
3/29/2007	2.23	-0.05241	3/29/2007	58.04	0.033818
4/12/2007	2.4	0.073467	4/12/2007	55.36	-0.04728
4/19/2007	2.16	-0.10536	4/19/2007	60.23	0.084313
4/26/2007	2.2	0.018349	4/26/2007	59.18	-0.01759
5/3/2007	2.17	-0.01373	5/3/2007	61.18	0.033237
5/10/2007	2.2	0.01373	5/10/2007	60.46	-0.01184
5/17/2007	2.33	0.057411	5/17/2007	64.6	0.066232
5/18/2007	2.33	0	5/18/2007	66.25	0.025221
5/21/2007	2.33	0	5/21/2007	67.59	0.020025

5/22/2007	2.33	0	5/22/2007	68.87	0.018761
5/23/2007	2.33	0	5/23/2007	69.84	0.013986
5/24/2007	2.33	0	5/24/2007	68.45	-0.0201
5/28/2007	2.33	0	5/28/2007	69.6	0.016661
5/29/2007	2.33	0	5/29/2007	71.21	0.022869
5/30/2007	2.33	0	5/30/2007	69.42	-0.02546
5/31/2007	2.17	-0.07114	5/31/2007	67.97	-0.02111
6/1/2007	2.17	0	6/1/2007	68.68	0.010392
6/4/2007	2.17	0	6/4/2007	67.87	-0.01186
6/5/2007	2.17	0	6/5/2007	68.86	0.014481
6/6/2007	2.17	0	6/6/2007	66.92	-0.02858
6/7/2007	2.09	-0.03756	6/7/2007	66.16	-0.01142
6/8/2007	2.09	0	6/8/2007	65.09	-0.01631
6/11/2007	2.09	0	6/11/2007	66.37	0.019474
6/12/2007	2.09	0	6/12/2007	66.54	0.002558
6/13/2007	2.1	0.004773	6/13/2007	66.63	0.001352
6/14/2007	2.1	0	6/14/2007	68	0.020353
6/15/2007	2.1	0	6/15/2007	67.32	-0.01005
6/18/2007	2.1	0	6/18/2007	67.39	0.001039
6/19/2007	2.1	0	6/19/2007	67.23	-0.00238
6/20/2007	2.1	0	6/20/2007	67.18	-0.00074
6/21/2007	2.1	0	6/21/2007	67.05	-0.00194
6/22/2007	2.1	0	6/22/2007	65.22	-0.02767
6/25/2007	2.1	0	6/25/2007	64.5	-0.0111
6/26/2007	2.1	0	6/26/2007	64.79	0.004486
6/27/2007	2.1	0	6/27/2007	62.35	-0.03839
6/28/2007	2.1	0	6/28/2007	63.2	0.013541
6/29/2007	2.04	-0.02899	6/29/2007	62.95	-0.00396
7/2/2007	2	-0.0198	7/2/2007	64.08	0.017792
7/4/2007	2	0	7/4/2007	65.31	0.019013
7/5/2007	2.01	0.004988	7/5/2007	66.24	0.014139
7/6/2007	2.01	0	7/6/2007	66.33	0.001358
7/9/2007	2.01	0	7/9/2007	68.58	0.033359
7/10/2007	2.02	0.004963	7/10/2007	69.31	0.010588
7/11/2007	2.04	0.009852	7/11/2007	69.61	0.004319

7/12/2007	2.04	0	7/12/2007	70.45	0.011995
7/13/2007	2.04	0	7/13/2007	71.61	0.016331
7/16/2007	2.05	0.00489	7/16/2007	72.56	0.013179
7/17/2007	2.05	0	7/17/2007	71.32	-0.01724
7/18/2007	2.06	0.004866	7/18/2007	70.04	-0.01811
7/19/2007	2.02	-0.01961	7/19/2007	70.01	-0.00043
7/20/2007	2.02	0	7/20/2007	68.41	-0.02312
7/23/2007	2.02	0	7/23/2007	68.93	0.007572
7/24/2007	2.02	0	7/24/2007	69.4	0.006795
7/25/2007	1.99	-0.01496	7/25/2007	71.65	0.031906
7/26/2007	2	0.005013	7/26/2007	72.36	0.009861
7/27/2007	2	0	7/27/2007	72.5	0.001933
7/30/2007	1.96	-0.0202	7/30/2007	73.36	0.011792
7/31/2007	1.96	0	7/31/2007	70.39	-0.04133
8/1/2007	1.96	0	8/1/2007	69.2	-0.01705
8/2/2007	1.93	-0.01542	8/2/2007	68.84	-0.00522
8/3/2007	1.93	0	8/3/2007	69.52	0.00983
8/6/2007	1.93	0	8/6/2007	71.68	0.030597
8/7/2007	1.93	0	8/7/2007	72.13	0.006258
8/8/2007	1.93	0	8/8/2007	72.83	0.009658
8/9/2007	1.86	-0.03694	8/9/2007	72.67	-0.0022
8/10/2007	1.86	0	8/10/2007	71.05	-0.02254
8/13/2007	1.86	0	8/13/2007	72.26	0.016887
8/14/2007	1.86	0	8/14/2007	72.49	0.003178
8/15/2007	1.86	0	8/15/2007	72.21	-0.00387
8/16/2007	1.84	-0.01081	8/16/2007	72.26	0.000692
8/17/2007	1.84	0	8/17/2007	72.69	0.005933
8/20/2007	1.84	0	8/20/2007	72.81	0.001649
8/21/2007	1.84	0	8/21/2007	73.07	0.003565
8/22/2007	1.74	-0.05588	8/22/2007	73.75	0.009263
8/23/2007	1.74	0	8/23/2007	75.11	0.018273
8/24/2007	1.74	0	8/24/2007	75.26	0.001995
8/27/2007	1.74	0	8/27/2007	76.25	0.013069
8/28/2007	1.74	0	8/28/2007	77.43	0.015357
8/29/2007	1.74	0	8/29/2007	77.95	0.006693

8/30/2007	1.74	0	8/30/2007	78.48	0.006776
9/3/2007	1.74	0	9/3/2007	78.84	0.004577
9/4/2007	1.68	-0.03509	9/4/2007	78.72	-0.00152
9/5/2007	1.68	0	9/5/2007	78.74	0.000254
9/6/2007	1.61	-0.04256	9/6/2007	78.16	-0.00739
9/7/2007	1.59	-0.0125	9/7/2007	77.98	-0.00231
9/10/2007	1.58	-0.00631	9/10/2007	78.35	0.004734
9/11/2007	1.58	0	9/11/2007	79.94	0.02009
9/12/2007	1.58	0	9/12/2007	79.21	-0.00917
9/13/2007	1.58	0	9/13/2007	76.63	-0.03311
9/14/2007	1.58	0	9/14/2007	75.61	-0.0134
9/17/2007	1.58	0	9/17/2007	77.68	0.027009
9/18/2007	1.61	0.018809	9/18/2007	76.98	-0.00905
9/19/2007	1.61	0	9/19/2007	76.47	-0.00665
9/20/2007	1.6	-0.00623	9/20/2007	77.41	0.012217
9/21/2007	1.58	-0.01258	9/21/2007	77.56	0.001936
9/24/2007	1.58	0	9/24/2007	76.54	-0.01324
9/25/2007	1.56	-0.01274	9/25/2007	75.76	-0.01024
9/26/2007	1.54	-0.0129	9/26/2007	73.09	-0.03588
9/27/2007	1.54	0	9/27/2007	70.02	-0.04291
9/28/2007	1.57	0.019293	9/28/2007	70.88	0.012207
10/1/2007	1.57	0	10/1/2007	70.23	-0.00921
10/2/2007	1.56	-0.00639	10/2/2007	69.47	-0.01088
10/3/2007	1.56	0	10/3/2007	71.1	0.023192
10/4/2007	1.56	0	10/4/2007	69.09	-0.02868
10/5/2007	1.56	0	10/5/2007	70.9	0.02586
10/8/2007	1.55	-0.00643	10/8/2007	68.37	-0.03634
10/9/2007	1.55	0	10/9/2007	69.4	0.014953
10/10/2007	1.55	0	10/10/2007	67.87	-0.02229
10/11/2007	1.55	0	10/11/2007	67.43	-0.0065
10/12/2007	1.58	0.01917	10/12/2007	66.53	-0.01344
10/15/2007	1.61	0.018809	10/15/2007	68.13	0.023765
10/16/2007	1.61	0	10/16/2007	68.89	0.011093
10/17/2007	1.63	0.012346	10/17/2007	68.17	-0.01051
10/18/2007	1.63	0	10/18/2007	69.11	0.013695

10/19/2007	1.63	0	10/19/2007	69.93	0.011795
10/22/2007	1.63	0	10/22/2007	71.13	0.017014
10/23/2007	1.71	0.047913	10/23/2007	71.96	0.011601
10/24/2007	1.71	0	10/24/2007	73.59	0.022399
10/25/2007	1.76	0.02882	10/25/2007	74.62	0.013899
10/26/2007	1.77	0.005666	10/26/2007	75.42	0.010664
10/29/2007	1.8	0.016807	10/29/2007	76.91	0.019563
10/30/2007	1.8	0	10/30/2007	75.51	-0.01837
10/31/2007	1.75	-0.02817	10/31/2007	75.4	-0.00146
11/1/2007	1.75	0	11/1/2007	77.06	0.021777
11/2/2007	1.75	0	11/2/2007	77.75	0.008914
11/5/2007	1.82	0.039221	11/5/2007	78.44	0.008835
11/6/2007	1.82	0	11/6/2007	78.87	0.005467
11/7/2007	1.82	0	11/7/2007	78.59	-0.00356
11/8/2007	1.9	0.043017	11/8/2007	76.7	-0.02434
11/9/2007	1.9	0	11/9/2007	78.72	0.025996
11/12/2007	1.9	0	11/12/2007	78.73	0.000127
11/13/2007	1.91	0.005249	11/13/2007	78.86	0.00165
11/14/2007	1.91	0	11/14/2007	77.34	-0.01946
11/15/2007	1.92	0.005222	11/15/2007	76.42	-0.01197
11/16/2007	1.92	0	11/16/2007	75.81	-0.00801
11/19/2007	1.92	0	11/19/2007	78.93	0.040331
11/20/2007	1.93	0.005195	11/20/2007	81.22	0.0286
11/22/2007	1.93	0	11/22/2007	77.12	-0.0518
11/23/2007	1.93	0	11/23/2007	78.05	0.011987
11/26/2007	1.93	0	11/26/2007	78.29	0.00307
11/27/2007	1.93	0	11/27/2007	79.5	0.015337
11/28/2007	1.98	0.025577	11/28/2007	77.24	-0.02884
11/29/2007	1.92	-0.03077	11/29/2007	78.17	0.011968
11/30/2007	1.93	0.005195	11/30/2007	78.25	0.001023
12/3/2007	1.98	0.025577	12/3/2007	81.53	0.041062
12/4/2007	1.98	0	12/4/2007	81.32	-0.00258
12/5/2007	1.98	0	12/5/2007	83.3	0.024057
12/6/2007	1.95	-0.01527	12/6/2007	85.23	0.022905
12/7/2007	2	0.025318	12/7/2007	85.99	0.008878

12/10/2007	2.01	0.004988	12/10/2007	85.78	-0.00245
12/11/2007	2.01	0	12/11/2007	84.65	-0.01326
12/12/2007	2.01	0	12/12/2007	83.12	-0.01824
12/13/2007	2.01	0	12/13/2007	82.31	-0.00979
12/14/2007	2.01	0	12/14/2007	83.32	0.012196
12/17/2007	2.16	0.071973	12/17/2007	85.25	0.022899
12/18/2007	2.16	0	12/18/2007	84.56	-0.00813
12/19/2007	2.22	0.027399	12/19/2007	90.02	0.062571
12/25/2007	2.26	0.017858	12/25/2007	92.01	0.021865
12/26/2007	2.35	0.039051	12/26/2007	92.71	0.007579
12/27/2007	2.35	0	12/27/2007	94.54	0.019547
1/1/2008	2.35	0	1/1/2008	92.67	-0.01998
1/2/2008	2.35	0	1/2/2008	91.91	-0.00823
1/3/2008	2.35	0	1/3/2008	89.34	-0.02836
1/4/2008	2.35	0	1/4/2008	90.93	0.017641
1/7/2008	2.34	-0.00426	1/7/2008	90.52	-0.00452
1/8/2008	2.27	-0.03037	1/8/2008	92.19	0.018281
1/9/2008	2.22	-0.02227	1/9/2008	91.44	-0.00817
1/10/2008	2.2	-0.00905	1/10/2008	93.68	0.024202
1/11/2008	2.2	0	1/11/2008	94.87	0.012623
1/14/2008	2.3	0.044452	1/14/2008	94.5	-0.00391
1/15/2008	2.3	0	1/15/2008	94.98	0.005067
1/16/2008	2.3	0	1/16/2008	94.53	-0.00475
1/17/2008	2.3	0	1/17/2008	92.88	-0.01761
1/21/2008	2.3	0	1/21/2008	92.88	0
1/22/2008	2.29	-0.00436	1/22/2008	89.18	-0.04065
1/23/2008	2.21	-0.03556	1/23/2008	88.03	-0.01298
1/24/2008	2.21	0	1/24/2008	90.32	0.025681
1/25/2008	2.21	0	1/25/2008	91.05	0.00805
1/28/2008	2.24	0.013483	1/28/2008	88.46	-0.02886
1/29/2008	2.24	0	1/29/2008	88.01	-0.0051
1/30/2008	2.2	-0.01802	1/30/2008	86.38	-0.01869
1/31/2008	2.2	0	1/31/2008	87.02	0.007382
2/1/2008	2.2	0	2/1/2008	91.14	0.046259
2/4/2008	2.2	0	2/4/2008	92.02	0.009609

2/5/2008	2.2	0	2/5/2008	91.46	-0.0061
2/6/2008	2.15	-0.02299	2/6/2008	90.1	-0.01498
2/7/2008	2.16	0.00464	2/7/2008	90.49	0.004319
2/8/2008	2.16	0	2/8/2008	90.76	0.002979
2/11/2008	2.17	0.004619	2/11/2008	90.46	-0.00331
2/12/2008	2.17	0	2/12/2008	90.26	-0.00221
2/13/2008	2.17	0	2/13/2008	90.82	0.006185
2/18/2008	2.23	0.027274	2/18/2008	96.03	0.055781
2/19/2008	2.23	0	2/19/2008	96.17	0.001457
2/20/2008	2.34	0.048149	2/20/2008	93.93	-0.02357
2/22/2008	2.34	0	2/22/2008	97.26	0.034838
2/25/2008	2.34	0	2/25/2008	98.8	0.01571
2/26/2008	2.33	-0.00428	2/26/2008	97.17	-0.01664
2/27/2008	2.33	0	2/27/2008	94.39	-0.02903
2/28/2008	2.37	0.017022	2/28/2008	96.72	0.024385
2/29/2008	2.41	0.016737	2/29/2008	97.16	0.004539
3/3/2008	2.33	-0.03376	3/3/2008	93.2	-0.04161
3/4/2008	2.33	0	3/4/2008	92.26	-0.01014
3/5/2008	2.39	0.025425	3/5/2008	92.61	0.003786
3/6/2008	2.39	0	3/6/2008	90.87	-0.01897
3/7/2008	2.39	0	3/7/2008	87.75	-0.03494
3/10/2008	2.39	0	3/10/2008	88.96	0.013695
3/11/2008	2.39	0	3/11/2008	89.76	0.008953
3/12/2008	2.39	0	3/12/2008	88.13	-0.01833
3/13/2008	2.49	0.040989	3/13/2008	88.21	0.000907
3/14/2008	2.49	0	3/14/2008	86.86	-0.01542
3/17/2008	2.49	0	3/17/2008	87.84	0.011219
3/18/2008	2.47	-0.00806	3/18/2008	91.11	0.036551
3/21/2008	2.45	-0.00813	3/21/2008	93.01	0.020639
3/24/2008	2.46	0.004073	3/24/2008	92.18	-0.00896
3/25/2008	2.45	-0.00407	3/25/2008	91.91	-0.00293
3/26/2008	2.45	0	3/26/2008	91.74	-0.00185
3/27/2008	2.49	0.016195	3/27/2008	90.25	-0.01637
3/28/2008	2.49	0	3/28/2008	89.28	-0.01081
3/31/2008	2.49	0	3/31/2008	89.3	0.000224

4/1/2008	2.49	0	4/1/2008	92.2	0.031959
4/2/2008	2.49	0	4/2/2008	94.68	0.026543
4/3/2008	2.55	0.023811	4/3/2008	95.08	0.004216
4/4/2008	2.55	0	4/4/2008	94.72	-0.00379
4/7/2008	2.57	0.007813	4/7/2008	96.82	0.021928
4/8/2008	2.57	0	4/8/2008	98.06	0.012726
4/9/2008	2.57	0	4/9/2008	97.38	-0.00696
4/10/2008	2.57	0	4/10/2008	97.43	0.000513
4/11/2008	2.55	-0.00781	4/11/2008	98.08	0.006649
4/14/2008	2.55	0	4/14/2008	97.22	-0.00881
4/15/2008	2.56	0.003914	4/15/2008	95.77	-0.01503
4/16/2008	2.57	0.003899	4/16/2008	97.18	0.014615
4/17/2008	2.57	0	4/17/2008	98.8	0.016533
4/18/2008	2.57	0	4/18/2008	98.03	-0.00782
4/21/2008	2.54	-0.01174	4/21/2008	99.98	0.019697
4/22/2008	2.54	0	4/22/2008	101.05	0.010645
4/23/2008	2.55	0.003929	4/23/2008	101.98	0.009161
4/24/2008	2.55	0	4/24/2008	99.2	-0.02764
4/25/2008	2.55	0	4/25/2008	101.55	0.023413
4/28/2008	2.57	0.007813	4/28/2008	104.32	0.026912
4/29/2008	2.57	0	4/29/2008	105.51	0.011343
4/30/2008	2.57	0	4/30/2008	106.23	0.006801
5/1/2008	2.57	0	5/1/2008	108.08	0.017265
5/2/2008	2.51	-0.02362	5/2/2008	109.69	0.014787
5/5/2008	2.53	0.007937	5/5/2008	110.88	0.01079
5/8/2008	2.57	0.015687	5/8/2008	106	-0.04501
5/9/2008	2.57	0	5/9/2008	103.3	-0.0258
5/12/2008	2.59	0.007752	5/12/2008	100.08	-0.03167
5/13/2008	2.59	0	5/13/2008	100.08	0
5/15/2008	2.55	-0.01556	5/15/2008	99.61	-0.00471
5/16/2008	2.51	-0.01581	5/16/2008	102.13	0.024984
5/19/2008	2.51	0	5/19/2008	103.09	0.009356
5/20/2008	2.51	0	5/20/2008	101.88	-0.01181
5/21/2008	2.51	0	5/21/2008	101.18	-0.00689
5/22/2008	2.51	0	5/22/2008	97.84	-0.03357

5/26/2008	2.51	0	5/26/2008	101.56	0.037316
5/27/2008	2.51	0	5/27/2008	101.46	-0.00099
5/28/2008	2.51	0	5/28/2008	105.23	0.036484
5/29/2008	2.51	0	5/29/2008	104.1	-0.0108
5/30/2008	2.51	0	5/30/2008	106.56	0.023356
6/2/2008	2.51	0	6/2/2008	106.47	-0.00084
6/3/2008	2.51	0	6/3/2008	106.25	-0.00207
6/4/2008	2.51	0	6/4/2008	107.97	0.016059
6/5/2008	2.51	0	6/5/2008	110.29	0.02126
6/6/2008	2.38	-0.05318	6/6/2008	110.4	0.000997
6/9/2008	2.38	0	6/9/2008	110.89	0.004429
6/10/2008	2.38	0	6/10/2008	110.22	-0.00606
6/11/2008	2.38	0	6/11/2008	110.2	-0.00018
6/12/2008	2.7	0.126151	6/12/2008	112.39	0.019678
6/13/2008	2.86	0.05757	6/13/2008	114.79	0.021129
6/16/2008	2.89	0.010435	6/16/2008	114.3	-0.00428
6/17/2008	2.91	0.006897	6/17/2008	116.17	0.016228
6/18/2008	2.91	0	6/18/2008	114.85	-0.01143
6/19/2008	2.91	0	6/19/2008	113.51	-0.01174
6/20/2008	2.86	-0.01733	6/20/2008	110.77	-0.02443
6/23/2008	2.86	0	6/23/2008	106.15	-0.0426
6/24/2008	2.86	0	6/24/2008	110.57	0.040796
6/25/2008	2.86	0	6/25/2008	114.33	0.03344
6/26/2008	2.86	0	6/26/2008	119.53	0.044478
6/27/2008	2.86	0	6/27/2008	119.92	0.003257
6/30/2008	2.86	0	6/30/2008	118.9	-0.00854
7/1/2008	2.91	0.017331	7/1/2008	122.69	0.031378
7/2/2008	2.91	0	7/2/2008	122.34	-0.00286
7/4/2008	2.91	0	7/4/2008	120.63	-0.01408
7/7/2008	2.86	-0.01733	7/7/2008	122.21	0.013013
7/8/2008	2.86	0	7/8/2008	122.23	0.000164
7/9/2008	2.86	0	7/9/2008	121.59	-0.00525
7/10/2008	2.85	-0.0035	7/10/2008	123.17	0.012911
7/11/2008	2.85	0	7/11/2008	125.78	0.020969
7/14/2008	2.85	0	7/14/2008	127.89	0.016636

7/15/2008	2.85	0	7/15/2008	128.97	0.008409
7/16/2008	2.61	-0.08797	7/16/2008	130.4	0.011027
7/17/2008	2.61	0	7/17/2008	128.47	-0.01491
7/18/2008	2.61	0	7/18/2008	128.93	0.003574
7/21/2008	2.61	0	7/21/2008	129.28	0.002711
7/22/2008	2.36	-0.10069	7/22/2008	128.1	-0.00917
7/23/2008	2.36	0	7/23/2008	128.75	0.005061
7/24/2008	2.36	0	7/24/2008	126.38	-0.01858
7/25/2008	2.36	0	7/25/2008	121.32	-0.04086
7/28/2008	2.36	0	7/28/2008	122.11	0.006491
7/29/2008	2.36	0	7/29/2008	132.56	0.082113
7/30/2008	2.36	0	7/30/2008	134.63	0.015495
7/31/2008	2.51	0.061621	7/31/2008	135.59	0.007105
8/1/2008	2.52	0.003976	8/1/2008	134.67	-0.00681
8/4/2008	2.52	0	8/4/2008	132.26	-0.01806
8/5/2008	2.52	0	8/5/2008	134.44	0.016348
8/6/2008	2.52	0	8/6/2008	132.8	-0.01227
8/7/2008	2.22	-0.12675	8/7/2008	130.17	-0.02
8/8/2008	2.22	0	8/8/2008	127.72	-0.019
8/11/2008	2.22	0	8/11/2008	130.99	0.025281
8/12/2008	2.22	0	8/12/2008	133.43	0.018456
8/13/2008	2.22	0	8/13/2008	133.69	0.001947
8/14/2008	2.22	0	8/14/2008	134.82	0.008417
8/15/2008	2.24	0.008969	8/15/2008	131.14	-0.02768
8/18/2008	2.24	0	8/18/2008	136.37	0.039106
8/19/2008	2.24	0	8/19/2008	138.93	0.018598
8/20/2008	2.24	0	8/20/2008	137.55	-0.00998
8/21/2008	2.35	0.047939	8/21/2008	139.72	0.015653
8/22/2008	2.35	0	8/22/2008	140.29	0.004071
8/25/2008	2.35	0	8/25/2008	143.3	0.021229
8/26/2008	2.35	0	8/26/2008	142.99	-0.00217
8/27/2008	2.35	0	8/27/2008	138.27	-0.03357
8/28/2008	2.35	0	8/28/2008	132.8	-0.04036
9/1/2008	2.37	0.008475	9/1/2008	134.16	0.010189
9/2/2008	2.37	0	9/2/2008	142.13	0.057709

9/3/2008	2.37	0	9/3/2008	141.36	-0.00543
9/4/2008	2.34	-0.01274	9/4/2008	134.93	-0.04655
9/5/2008	2.34	0	9/5/2008	132.46	-0.01848
9/8/2008	2.34	0	9/8/2008	133.31	0.006397
9/9/2008	2.34	0	9/9/2008	128.59	-0.03605
9/10/2008	2.34	0	9/10/2008	128.69	0.000777
9/11/2008	2.17	-0.07542	9/11/2008	126.83	-0.01456
9/12/2008	2.17	0	9/12/2008	126.51	-0.00253
9/15/2008	2.17	0	9/15/2008	125.88	-0.00499
9/16/2008	2.17	0	9/16/2008	125.15	-0.00582
9/17/2008	2.17	0	9/17/2008	126.12	0.007721
9/18/2008	2.19	0.009174	9/18/2008	126.22	0.000793
9/19/2008	2.19	0	9/19/2008	122.91	-0.02657
9/22/2008	2.19	0	9/22/2008	124.55	0.013255
9/23/2008	2.19	0	9/23/2008	124.06	-0.00394
9/24/2008	2.19	0	9/24/2008	121.77	-0.01863
9/25/2008	2.22	0.013606	9/25/2008	116.05	-0.04811
9/26/2008	2.22	0	9/26/2008	113.72	-0.02028
9/29/2008	2.22	0	9/29/2008	116.04	0.020196
9/30/2008	2.22	0	9/30/2008	112.13	-0.03428
10/1/2008	2.22	0	10/1/2008	109.74	-0.02154
10/2/2008	1.98	-0.11441	10/2/2008	108.18	-0.01432
10/3/2008	1.98	0	10/3/2008	109.93	0.016047
10/6/2008	1.98	0	10/6/2008	110.87	0.008515
10/7/2008	1.98	0	10/7/2008	107.6	-0.02994
10/8/2008	1.98	0	10/8/2008	108.13	0.004914
10/9/2008	1.88	-0.05183	10/9/2008	108.22	0.000832
10/10/2008	1.88	0	10/10/2008	107.82	-0.0037
10/13/2008	1.88	0	10/13/2008	116.44	0.076913
10/14/2008	1.88	0	10/14/2008	113.19	-0.02831
10/15/2008	1.88	0	10/15/2008	108.94	-0.03827
10/16/2008	1.88	0	10/16/2008	111.35	0.021881
10/17/2008	1.72	-0.08895	10/17/2008	112.2	0.007605
10/20/2008	1.72	0	10/20/2008	112.89	0.006131
10/21/2008	1.72	0	10/21/2008	112.84	-0.00044

10/22/2008	1.72	0	10/22/2008	106.7	-0.05595
10/23/2008	1.72	0	10/23/2008	103.99	-0.02573
10/24/2008	1.72	0	10/24/2008	102.93	-0.01025
10/27/2008	1.72	0	10/27/2008	102.46	-0.00458
10/28/2008	1.72	0	10/28/2008	101.56	-0.00882
10/29/2008	1.72	0	10/29/2008	99.96	-0.01588
10/30/2008	1.76	0.02299	10/30/2008	97.82	-0.02164
10/31/2008	1.76	0	10/31/2008	95	-0.02925
11/3/2008	1.76	0	11/3/2008	95.36	0.003782
11/4/2008	1.76	0	11/4/2008	93.72	-0.01735
11/5/2008	1.79	0.016902	11/5/2008	89.7	-0.04384
11/6/2008	1.79	0	11/6/2008	85.1	-0.05264
11/7/2008	1.78	-0.0056	11/7/2008	85.34	0.002816
11/10/2008	1.78	0	11/10/2008	90.09	0.054166
11/11/2008	1.78	0	11/11/2008	95.77	0.06114
11/12/2008	1.78	0	11/12/2008	99.63	0.039514
11/13/2008	1.67	-0.06379	11/13/2008	99.92	0.002907
11/14/2008	1.67	0	11/14/2008	101.54	0.016083
11/17/2008	1.67	0	11/17/2008	100.05	-0.01478
11/18/2008	1.67	0	11/18/2008	100.48	0.004289
11/19/2008	1.71	0.02367	11/19/2008	95.51	-0.05073
11/20/2008	1.71	0	11/20/2008	92.87	-0.02803
11/21/2008	1.71	0	11/21/2008	91.55	-0.01432
11/24/2008	1.71	0	11/24/2008	88.19	-0.03739
11/25/2008	1.63	-0.04791	11/25/2008	88.4	0.002378
11/27/2008	1.63	0	11/27/2008	82.83	-0.06508
11/28/2008	1.63	0	11/28/2008	80.42	-0.02953
12/1/2008	1.63	0	12/1/2008	81.31	0.011006
12/2/2008	1.63	0	12/2/2008	74.23	-0.0911
12/3/2008	1.63	0	12/3/2008	73.93	-0.00405
12/4/2008	1.49	-0.0898	12/4/2008	74.34	0.00553
12/5/2008	1.49	0	12/5/2008	66.22	-0.11567
12/8/2008	1.49	0	12/8/2008	63.5	-0.04194
12/9/2008	1.49	0	12/9/2008	65.7	0.034059
12/10/2008	1.49	0	12/10/2008	67.11	0.021234

12/11/2008	1.49	0	12/11/2008	65.25	-0.02811
12/12/2008	1.49	0	12/12/2008	62.31	-0.0461
12/15/2008	1.49	0	12/15/2008	64.52	0.034853
12/16/2008	1.49	0	12/16/2008	60.02	-0.0723
12/17/2008	1.49	0	12/17/2008	58.8	-0.02054
12/18/2008	1.59	0.064958	12/18/2008	58.33	-0.00803
12/19/2008	1.59	0	12/19/2008	63.46	0.084293
12/22/2008	1.59	0	12/22/2008	60.62	-0.04578
12/23/2008	1.59	0	12/23/2008	59.62	-0.01663
12/25/2008	1.57	-0.01266	12/25/2008	62.24	0.043007
12/26/2008	1.57	0	12/26/2008	60.85	-0.02259
12/29/2008	1.57	0	12/29/2008	55.75	-0.08753
12/30/2008	1.57	0	12/30/2008	56.44	0.012301
1/1/2009	1.57	0	1/1/2009	54.37	-0.03737
1/2/2009	1.57	0	1/2/2009	52.03	-0.04399
1/5/2009	1.57	0	1/5/2009	50.87	-0.02255
1/6/2009	1.57	0	1/6/2009	50.15	-0.01425
1/7/2009	1.57	0	1/7/2009	50.28	0.002589
1/8/2009	1.66	0.055742	1/8/2009	48.56	-0.03481
1/9/2009	1.66	0	1/9/2009	47.81	-0.01557
1/12/2009	1.66	0	1/12/2009	45.35	-0.05282
1/13/2009	1.58	-0.04939	1/13/2009	44.46	-0.01982
1/14/2009	1.58	0	1/14/2009	48.57	0.088416
1/15/2009	1.59	0.006309	1/15/2009	46.57	-0.04205
1/19/2009	1.59	0	1/19/2009	49.21	0.05514
1/20/2009	1.59	0	1/20/2009	46.87	-0.04872
1/21/2009	1.59	0	1/21/2009	46.83	-0.00085
1/22/2009	1.59	0	1/22/2009	44.9	-0.04209
1/23/2009	1.59	0	1/23/2009	43.65	-0.02823
1/26/2009	1.59	0	1/26/2009	43.09	-0.01291
1/27/2009	1.59	0	1/27/2009	35.99	-0.18005
1/28/2009	1.59	0	1/28/2009	38.98	0.079808
1/29/2009	1.59	0	1/29/2009	38.73	-0.00643
1/30/2009	1.59	0	1/30/2009	38.3	-0.01116
2/2/2009	1.59	0	2/2/2009	42.5	0.104054

2/3/2009	1.59	0	2/3/2009	41.33	-0.02792
2/4/2009	1.59	0	2/4/2009	43.98	0.062146
2/5/2009	1.58	-0.00631	2/5/2009	41.16	-0.06627
2/6/2009	1.58	0	2/6/2009	41	-0.00389
2/9/2009	1.58	0	2/9/2009	39.35	-0.04108
2/10/2009	1.58	0	2/10/2009	38.52	-0.02132
2/11/2009	1.58	0	2/11/2009	37.04	-0.03918
2/12/2009	1.61	0.018809	2/12/2009	34.23	-0.0789
2/16/2009	1.61	0	2/16/2009	33.68	-0.0162
2/17/2009	1.61	0	2/17/2009	32.18	-0.04556
2/18/2009	1.61	0	2/18/2009	32.92	0.022735
2/19/2009	1.51	-0.06412	2/19/2009	34.58	0.049195
2/20/2009	1.51	0	2/20/2009	35.17	0.016918
2/23/2009	1.51	0	2/23/2009	33.93	-0.03589
2/24/2009	1.51	0	2/24/2009	42.29	0.220251
2/25/2009	1.51	0	2/25/2009	45.35	0.06986
2/26/2009	1.59	0.051624	2/26/2009	48.55	0.068184
2/27/2009	1.59	0	2/27/2009	45.51	-0.06466
3/2/2009	1.59	0	3/2/2009	42.22	-0.07504
3/3/2009	1.59	0	3/3/2009	41.79	-0.01024
3/4/2009	1.59	0	3/4/2009	40.06	-0.04228
3/5/2009	1.5	-0.05827	3/5/2009	42.25	0.053226
3/6/2009	1.5	0	3/6/2009	41.47	-0.01863
3/9/2009	1.5	0	3/9/2009	41.62	0.003611
3/10/2009	1.5	0	3/10/2009	42.77	0.027256
3/11/2009	1.53	0.019803	3/11/2009	39.87	-0.07021
3/12/2009	1.53	0	3/12/2009	40.92	0.025995
3/13/2009	1.53	0	3/13/2009	39.6	-0.03279
3/16/2009	1.53	0	3/16/2009	42.07	0.060506
3/17/2009	1.53	0	3/17/2009	43.53	0.034115
3/18/2009	1.53	0	3/18/2009	48.4	0.106049
3/19/2009	1.59	0.038466	3/19/2009	42.41	-0.13212
3/20/2009	1.59	0	3/20/2009	42.41	0
3/23/2009	1.59	0	3/23/2009	42.68	0.006346
3/24/2009	1.59	0	3/24/2009	43.72	0.024075

3/25/2009	1.59	0	3/25/2009	42.51	-0.02807
3/26/2009	1.65	0.037041	3/26/2009	42.96	0.01053
3/27/2009	1.65	0	3/27/2009	43.74	0.017994
3/30/2009	1.65	0	3/30/2009	43.98	0.005472
3/31/2009	1.65	0	3/31/2009	44.04	0.001363
4/1/2009	1.65	0	4/1/2009	47.18	0.068872
4/2/2009	1.61	-0.02454	4/2/2009	45.88	-0.02794
4/3/2009	1.61	0	4/3/2009	44.24	-0.0364
4/6/2009	1.61	0	4/6/2009	47.23	0.0654
4/7/2009	1.61	0	4/7/2009	43.36	-0.08549
4/8/2009	1.61	0	4/8/2009	41.79	-0.03688
4/10/2009	1.61	0	4/10/2009	39.41	-0.05864
4/13/2009	1.61	0	4/13/2009	42.51	0.07572
4/14/2009	1.61	0	4/14/2009	42.34	-0.00401
4/15/2009	1.61	0	4/15/2009	41.22	-0.02681
4/16/2009	1.58	-0.01881	4/16/2009	40.23	-0.02431
4/17/2009	1.58	0	4/17/2009	42.33	0.050883
4/20/2009	1.58	0	4/20/2009	45.11	0.063608
4/21/2009	1.58	0	4/21/2009	44.46	-0.01451
4/22/2009	1.58	0	4/22/2009	42.65	-0.04156
4/23/2009	1.6	0.012579	4/23/2009	42.97	0.007475
4/24/2009	1.6	0	4/24/2009	46.32	0.075072
4/27/2009	1.6	0	4/27/2009	44.7	-0.0356
4/28/2009	1.6	0	4/28/2009	43.73	-0.02194
4/29/2009	1.6	0	4/29/2009	44.45	0.016331
4/30/2009	1.67	0.04282	4/30/2009	44.66	0.004713
5/1/2009	1.67	0	5/1/2009	42.87	-0.04091
5/4/2009	1.67	0	5/4/2009	42.04	-0.01955
5/5/2009	1.67	0	5/5/2009	44.97	0.067374
5/6/2009	1.67	0	5/6/2009	44.12	-0.01908
5/7/2009	1.67	0	5/7/2009	45.53	0.031458
5/8/2009	1.67	0	5/8/2009	45.17	-0.00794
5/11/2009	1.67	0	5/11/2009	47.93	0.059308
5/12/2009	1.74	0.041061	5/12/2009	49.17	0.025542
5/13/2009	1.74	0	5/13/2009	51.5	0.046298

5/14/2009	1.74	0	5/14/2009	51.02	-0.00936
5/15/2009	1.74	0	5/15/2009	51.08	0.001175
5/18/2009	1.74	0	5/18/2009	51.51	0.008383
5/19/2009	1.74	0	5/19/2009	50.46	-0.0206
5/20/2009	1.74	0	5/20/2009	48.71	-0.0353
5/21/2009	1.74	0	5/21/2009	45.79	-0.06182
5/25/2009	1.74	0	5/25/2009	50.44	0.096719
5/26/2009	1.74	0	5/26/2009	49.93	-0.01016
5/27/2009	1.74	0	5/27/2009	50.56	0.012539
5/28/2009	1.76	0.011429	5/28/2009	50.27	-0.00575
5/29/2009	1.76	0	5/29/2009	51.86	0.031139
6/1/2009	1.76	0	6/1/2009	52.13	0.005193
6/2/2009	1.76	0	6/2/2009	52.61	0.009166
6/3/2009	1.76	0	6/3/2009	50.53	-0.04034
6/4/2009	1.76	0	6/4/2009	51.91	0.026944
6/5/2009	1.76	0	6/5/2009	51.16	-0.01455
6/8/2009	1.76	0	6/8/2009	51.78	0.012046
6/9/2009	1.76	0	6/9/2009	51.97	0.003663
6/10/2009	1.76	0	6/10/2009	48.95	-0.05987
6/11/2009	1.76	0	6/11/2009	48.55	-0.00821
6/12/2009	1.8	0.022473	6/12/2009	48.36	-0.00392
6/15/2009	1.8	0	6/15/2009	47.75	-0.01269
6/16/2009	1.8	0	6/16/2009	49.74	0.04083
6/18/2009	1.8	0	6/18/2009	48.6	-0.02319
6/19/2009	1.77	-0.01681	6/19/2009	50.21	0.032591
6/22/2009	1.77	0	6/22/2009	50.29	0.001592
6/23/2009	1.77	0	6/23/2009	51.73	0.028232
6/24/2009	1.77	0	6/24/2009	53.22	0.028396
6/25/2009	1.77	0	6/25/2009	53.11	-0.00207
6/26/2009	1.77	0	6/26/2009	54.82	0.03169
6/29/2009	1.77	0	6/29/2009	56.39	0.028237
6/30/2009	1.77	0	6/30/2009	55.57	-0.01465
7/1/2009	1.77	0	7/1/2009	55.54	-0.00054
7/2/2009	1.77	0	7/2/2009	56.07	0.009497
7/3/2009	1.77	0	7/3/2009	56.49	0.007463

7/6/2009	1.73	-0.02286	7/6/2009	56	-0.00871
7/7/2009	1.73	0	7/7/2009	56.08	0.001428
7/8/2009	1.73	0	7/8/2009	56.26	0.003205
7/9/2009	1.72	-0.0058	7/9/2009	56.87	0.010784
7/10/2009	1.72	0	7/10/2009	58.85	0.034224
7/13/2009	1.72	0	7/13/2009	57.67	-0.02025
7/14/2009	1.72	0	7/14/2009	58.35	0.011722
7/15/2009	1.72	0	7/15/2009	58.51	0.002738
7/16/2009	1.67	-0.0295	7/16/2009	58.6	0.001537
7/17/2009	1.67	0	7/17/2009	61.33	0.045534
7/20/2009	1.67	0	7/20/2009	63.52	0.035086
7/21/2009	1.67	0	7/21/2009	65.18	0.025798
7/22/2009	1.67	0	7/22/2009	66.8	0.02455
7/23/2009	1.67	0	7/23/2009	67.58	0.011609
7/24/2009	1.67	0	7/24/2009	66.06	-0.02275
7/27/2009	1.67	0	7/27/2009	67.53	0.022009
7/28/2009	1.67	0	7/28/2009	67.72	0.00281
7/29/2009	1.67	0	7/29/2009	67.56	-0.00237
7/30/2009	1.67	0	7/30/2009	68.89	0.019495
7/31/2009	1.71	0.02367	7/31/2009	70.47	0.022676
8/3/2009	1.71	0	8/3/2009	71.89	0.01995
8/4/2009	1.71	0	8/4/2009	70.17	-0.02422
8/5/2009	1.71	0	8/5/2009	68.3	-0.02701
8/6/2009	1.58	-0.07907	8/6/2009	70.33	0.029289
8/7/2009	1.58	0	8/7/2009	68.95	-0.01982
8/11/2009	1.58	0	8/11/2009	70.68	0.024781
8/12/2009	1.58	0	8/12/2009	66.33	-0.06352
8/13/2009	1.61	0.018809	8/13/2009	66.22	-0.00166
8/14/2009	1.61	0	8/14/2009	68.33	0.031366
8/17/2009	1.61	0	8/17/2009	68.67	0.004964
8/18/2009	1.61	0	8/18/2009	68.05	-0.00907
8/19/2009	1.61	0	8/19/2009	69.71	0.024101
8/20/2009	1.62	0.006192	8/20/2009	68.07	-0.02381
8/21/2009	1.62	0	8/21/2009	68.37	0.004398
8/24/2009	1.62	0	8/24/2009	65.59	-0.04151

8/25/2009	1.62	0	8/25/2009	64.7	-0.01366
8/26/2009	1.62	0	8/26/2009	62.77	-0.03028
8/27/2009	1.62	0	8/27/2009	61.29	-0.02386
8/28/2009	1.62	0	8/28/2009	59.41	-0.03115
8/31/2009	1.62	0	8/31/2009	58.72	-0.01168
9/1/2009	1.61	-0.00619	9/1/2009	57.98	-0.01268
9/2/2009	1.61	0	9/2/2009	57.8	-0.00311
9/3/2009	1.61	0	9/3/2009	60.8	0.050601
9/7/2009	1.61	0	9/7/2009	61.62	0.013397
9/8/2009	1.61	0	9/8/2009	63.14	0.024368
9/9/2009	1.61	0	9/9/2009	64.25	0.017427
9/10/2009	1.61	0	9/10/2009	65.63	0.021251
9/11/2009	1.61	0	9/11/2009	65.06	-0.00872
9/14/2009	1.67	0.036589	9/14/2009	67.76	0.040662
9/15/2009	1.67	0	9/15/2009	68.52	0.011154
9/16/2009	1.67	0	9/16/2009	69.53	0.014633
9/17/2009	1.67	0	9/17/2009	68.18	-0.01961
9/18/2009	1.67	0	9/18/2009	65.44	-0.04102
9/21/2009	1.67	0	9/21/2009	68.47	0.045262
9/22/2009	1.67	0	9/22/2009	69.98	0.021814
9/23/2009	1.67	0	9/23/2009	72.76	0.038957
9/24/2009	1.67	0	9/24/2009	74.08	0.017979
9/25/2009	1.67	0	9/25/2009	74.65	0.007665
9/28/2009	1.67	0	9/28/2009	74.97	0.004278
9/29/2009	1.67	0	9/29/2009	74.56	-0.00548
9/30/2009	1.67	0	9/30/2009	74.15	-0.00551
10/1/2009	1.88	0.118448	10/1/2009	71.64	-0.03444
10/2/2009	1.88	0	10/2/2009	74.14	0.034302
10/5/2009	1.88	0	10/5/2009	73.72	-0.00568
10/6/2009	1.88	0	10/6/2009	71.63	-0.02876
10/7/2009	1.88	0	10/7/2009	68.96	-0.03799
10/8/2009	1.88	0	10/8/2009	69.97	0.01454
10/9/2009	1.88	0	10/9/2009	73.14	0.044309
10/12/2009	1.88	0	10/12/2009	74.01	0.011825
10/13/2009	1.88	0	10/13/2009	74.06	0.000675

10/14/2009	1.88	0	10/14/2009	74.7	0.008605
10/15/2009	1.88	0	10/15/2009	73.46	-0.01674
10/16/2009	1.88	0	10/16/2009	71.1	-0.03265
10/19/2009	1.88	0	10/19/2009	71.03	-0.00099
10/20/2009	1.88	0	10/20/2009	73.15	0.02941
10/21/2009	1.88	0	10/21/2009	69.23	-0.05508
10/22/2009	1.88	0	10/22/2009	69.08	-0.00217
10/23/2009	1.88	0	10/23/2009	67.9	-0.01723
10/26/2009	1.88	0	10/26/2009	66.78	-0.01663
10/27/2009	1.88	0	10/27/2009	65.84	-0.01418
10/28/2009	1.88	0	10/28/2009	66.69	0.012827
10/29/2009	1.88	0	10/29/2009	69	0.034051
10/30/2009	1.88	0	10/30/2009	69.56	0.008083
11/2/2009	1.88	0	11/2/2009	68.76	-0.01157
11/3/2009	1.88	0	11/3/2009	68.56	-0.00291
11/4/2009	1.88	0	11/4/2009	66.52	-0.03021
11/5/2009	1.88	0	11/5/2009	66.29	-0.00346
11/6/2009	2.04	0.081678	11/6/2009	68.12	0.027232
11/9/2009	2.04	0	11/9/2009	71.22	0.044503
11/10/2009	2.04	0	11/10/2009	70.37	-0.01201
11/11/2009	2.04	0	11/11/2009	68.07	-0.03323
11/12/2009	2.04	0	11/12/2009	69.76	0.024524
11/13/2009	2.13	0.043172	11/13/2009	67.54	-0.03234
11/16/2009	2.13	0	11/16/2009	65.05	-0.03756
11/17/2009	2.13	0	11/17/2009	64.65	-0.00617
11/18/2009	2.13	0	11/18/2009	65.44	0.012146
11/19/2009	2.13	0	11/19/2009	64.63	-0.01245
11/20/2009	2.13	0	11/20/2009	65.63	0.015354
11/23/2009	2.13	0	11/23/2009	66.72	0.016472
11/24/2009	2.13	0	11/24/2009	66.1	-0.00934
11/26/2009	2.13	0	11/26/2009	68.12	0.030102
11/27/2009	2.15	0.009346	11/27/2009	67.35	-0.01137
11/30/2009	2.15	0	11/30/2009	68.17	0.012102
12/1/2009	2.15	0	12/1/2009	69.25	0.015719
12/2/2009	2.15	0	12/2/2009	70.56	0.01874

12/3/2009	2.15	0	12/3/2009	70.51	-0.00071
12/4/2009	2.16	0.00464	12/4/2009	71.87	0.019104
12/7/2009	2.16	0	12/7/2009	72.85	0.013544
12/8/2009	2.16	0	12/8/2009	74.28	0.019439
12/9/2009	2.16	0	12/9/2009	75.82	0.02052
12/10/2009	2.08	-0.03774	12/10/2009	76.67	0.011148
12/11/2009	2.08	0	12/11/2009	77.65	0.012701
12/14/2009	2.08	0	12/14/2009	78.26	0.007825
12/15/2009	2.08	0	12/15/2009	77.67	-0.00757
12/16/2009	2.08	0	12/16/2009	76.25	-0.01845
12/17/2009	2.08	0	12/17/2009	76.26	0.000131
12/18/2009	2.08	0	12/18/2009	74.68	-0.02094
12/21/2009	2.08	0	12/21/2009	76.73	0.02708
12/22/2009	2.08	0	12/22/2009	74.46	-0.03003
12/23/2009	1.9	-0.09051	12/23/2009	75.16	0.009357
12/25/2009	1.9	0	12/25/2009	77.96	0.036577
12/28/2009	1.9	0	12/28/2009	77.77	-0.00244
12/29/2009	1.9	0	12/29/2009	75.13	-0.03454
12/30/2009	1.9	0	12/30/2009	76.8	0.021985
1/1/2010	1.9	0	1/1/2010	76.6	-0.00261
1/4/2010	1.9	0	1/4/2010	74.78	-0.02405
1/5/2010	1.9	0	1/5/2010	74.36	-0.00563
1/6/2010	1.9	0	1/6/2010	76.79	0.032156
1/7/2010	1.9	0	1/7/2010	77.11	0.004159
1/8/2010	1.95	0.025975	1/8/2010	78.39	0.016463
1/11/2010	1.95	0	1/11/2010	76.21	-0.0282
1/12/2010	1.95	0	1/12/2010	75.36	-0.01122
1/13/2010	1.83	-0.06351	1/13/2010	77.94	0.033663
1/14/2010	1.83	0	1/14/2010	75.28	-0.03472
1/18/2010	1.83	0	1/18/2010	76.18	0.011884
1/19/2010	1.83	0	1/19/2010	75.75	-0.00566
1/20/2010	1.83	0	1/20/2010	77.48	0.022581
1/21/2010	1.83	0	1/21/2010	78.39	0.011677
1/22/2010	1.83	0	1/22/2010	76.66	-0.02232
1/25/2010	1.83	0	1/25/2010	77.46	0.010382

1/26/2010	1.83	0	1/26/2010	77.49	0.000387
1/27/2010	1.83	0	1/27/2010	75.88	-0.021
1/28/2010	1.82	-0.00548	1/28/2010	74.63	-0.01661
1/29/2010	1.82	0	1/29/2010	73.13	-0.0203
2/1/2010	1.82	0	2/1/2010	70.41	-0.0379
2/2/2010	1.82	0	2/2/2010	69.57	-0.012
2/3/2010	1.82	0	2/3/2010	70.59	0.014555
2/4/2010	1.81	-0.00551	2/4/2010	70.73	0.001981
2/5/2010	1.81	0	2/5/2010	72.99	0.031453
2/8/2010	1.81	0	2/8/2010	70.93	-0.02863
2/9/2010	1.81	0	2/9/2010	71.52	0.008284
2/10/2010	1.81	0	2/10/2010	72.49	0.013471
2/11/2010	1.76	-0.02801	2/11/2010	71.5	-0.01375
2/15/2010	1.76	0	2/15/2010	75.1	0.049123
2/16/2010	1.76	0	2/16/2010	75.1	0
2/17/2010	1.76	0	2/17/2010	76.54	0.018993
2/18/2010	1.73	-0.01719	2/18/2010	76.8	0.003391
2/19/2010	1.73	0	2/19/2010	77.77	0.012551
2/22/2010	1.73	0	2/22/2010	77.81	0.000514
2/23/2010	1.73	0	2/23/2010	75.71	-0.02736
2/24/2010	1.73	0	2/24/2010	78.96	0.042031
2/25/2010	1.73	0	2/25/2010	78.82	-0.00177
2/26/2010	1.72	-0.0058	2/26/2010	79.69	0.010977
3/1/2010	1.72	0	3/1/2010	80.12	0.005381
3/2/2010	1.72	0	3/2/2010	79.71	-0.00513
3/3/2010	1.72	0	3/3/2010	79.89	0.002256
3/4/2010	1.72	0	3/4/2010	79.13	-0.00956
3/5/2010	1.72	0	3/5/2010	77.33	-0.02301
3/8/2010	1.72	0	3/8/2010	77.41	0.001034
3/9/2010	1.72	0	3/9/2010	76.7	-0.00921
3/10/2010	1.72	0	3/10/2010	75.96	-0.00969
3/11/2010	1.72	0	3/11/2010	74.94	-0.01352
3/12/2010	1.72	0	3/12/2010	74.85	-0.0012
3/15/2010	1.72	0	3/15/2010	73.73	-0.01508
3/16/2010	1.72	0	3/16/2010	72.38	-0.01848

3/17/2010	1.72	0	3/17/2010	71.83	-0.00763
3/18/2010	1.72	0	3/18/2010	72.48	0.009008
3/19/2010	1.51	-0.13021	3/19/2010	72.6	0.001654
3/22/2010	1.51	0	3/22/2010	70.25	-0.0329
3/23/2010	1.51	0	3/23/2010	70.75	0.007092
3/24/2010	1.51	0	3/24/2010	71.23	0.006762
3/25/2010	1.54	0.019673	3/25/2010	73.74	0.034631
3/26/2010	1.54	0	3/26/2010	75.57	0.024514
3/29/2010	1.54	0	3/29/2010	71.15	-0.06027
3/30/2010	1.54	0	3/30/2010	69.96	-0.01687
3/31/2010	1.54	0	3/31/2010	69.47	-0.00703
4/2/2010	1.54	0	4/2/2010	70.05	0.008314
4/5/2010	1.54	0	4/5/2010	72.05	0.028151
4/6/2010	1.54	0	4/6/2010	71.19	-0.01201
4/7/2010	1.54	0	4/7/2010	71.18	-0.00014
4/8/2010	1.51	-0.01967	4/8/2010	74.77	0.049205
4/9/2010	1.51	0	4/9/2010	74.84	0.000936
4/12/2010	1.51	0	4/12/2010	76.51	0.022069
4/13/2010	1.51	0	4/13/2010	76.73	0.002871
4/14/2010	1.51	0	4/14/2010	76.8	0.000912
4/15/2010	1.51	0	4/15/2010	76.24	-0.00732
4/16/2010	1.55	0.026145	4/16/2010	76.8	0.007318
4/19/2010	1.55	0	4/19/2010	74.03	-0.03673
4/20/2010	1.55	0	4/20/2010	76.02	0.026526
4/21/2010	1.55	0	4/21/2010	75.73	-0.00382
4/22/2010	1.58	0.01917	4/22/2010	77.41	0.021942
4/23/2010	1.58	0	4/23/2010	78.57	0.014874
4/26/2010	1.58	0	4/26/2010	77.79	-0.00998
4/27/2010	1.58	0	4/27/2010	79.1	0.0167
4/28/2010	1.58	0	4/28/2010	78.75	-0.00443
4/29/2010	1.58	0	4/29/2010	78.58	-0.00216
4/30/2010	1.58	0	4/30/2010	80.1	0.019159
5/3/2010	1.58	0	5/3/2010	79.25	-0.01067
5/4/2010	1.58	0	5/4/2010	79.13	-0.00152
5/5/2010	1.58	0	5/5/2010	76.94	-0.02807

5/6/2010	1.6	0.012579	5/6/2010	79.31	0.030338
5/7/2010	1.6	0	5/7/2010	80.14	0.010411
5/10/2010	1.6	0	5/10/2010	80	-0.00175
5/11/2010	1.6	0	5/11/2010	78.27	-0.02186
5/12/2010	1.6	0	5/12/2010	78	-0.00346
5/13/2010	1.61	0.006231	5/13/2010	79.08	0.013751
5/14/2010	1.61	0	5/14/2010	77.59	-0.01902
5/17/2010	1.61	0	5/17/2010	78.2	0.007831
5/18/2010	1.61	0	5/18/2010	77.53	-0.0086
5/19/2010	1.61	0	5/19/2010	79.24	0.021816
5/20/2010	1.58	-0.01881	5/20/2010	79.01	-0.00291
5/21/2010	1.58	0	5/21/2010	79.83	0.010325
5/24/2010	1.58	0	5/24/2010	82.09	0.027917
5/25/2010	1.58	0	5/25/2010	81.31	-0.00955
5/26/2010	1.58	0	5/26/2010	83.93	0.031714
5/27/2010	1.58	0	5/27/2010	84.81	0.01043
5/31/2010	1.58	0	5/31/2010	82.03	-0.03333
6/1/2010	1.58	0	6/1/2010	82.27	0.002921
6/2/2010	1.58	0	6/2/2010	84.76	0.029817
6/3/2010	1.58	0	6/3/2010	83.09	-0.0199
6/4/2010	1.58	0	6/4/2010	85.46	0.028124
6/7/2010	1.58	0	6/7/2010	86.65	0.013829
6/8/2010	1.58	0	6/8/2010	84.61	-0.02382
6/9/2010	1.58	0	6/9/2010	83.04	-0.01873
6/10/2010	1.58	0	6/10/2010	84.93	0.022505
6/11/2010	1.6	0.012579	6/11/2010	84.75	-0.00212
6/14/2010	1.6	0	6/14/2010	84.78	0.000354
6/15/2010	1.6	0	6/15/2010	86.31	0.017886
6/16/2010	1.6	0	6/16/2010	87.07	0.008767
6/18/2010	1.6	0	6/18/2010	84.79	-0.02653
6/21/2010	1.6	0	6/21/2010	86.67	0.02193
6/22/2010	1.6	0	6/22/2010	86.04	-0.0073
6/23/2010	1.6	0	6/23/2010	87.94	0.021842
6/24/2010	1.6	0	6/24/2010	85.24	-0.03118
6/28/2010	1.54	-0.03822	6/28/2010	79.76	-0.06645

6/29/2010	1.54	0	6/29/2010	75.79	-0.05106
6/30/2010	1.54	0	6/30/2010	77.18	0.018174
7/1/2010	1.54	0	7/1/2010	78.3	0.014407
7/5/2010	1.54	0	7/5/2010	78.66	0.004587
7/6/2010	1.54	0	7/6/2010	75.68	-0.03862
7/7/2010	1.54	0	7/7/2010	73.03	-0.03564
7/8/2010	1.6	0.038221	7/8/2010	74.33	0.017644
7/9/2010	1.6	0	7/9/2010	71.4	-0.04022
7/12/2010	1.6	0	7/12/2010	69.02	-0.0339
7/13/2010	1.6	0	7/13/2010	69.9	0.012669
7/14/2010	1.6	0	7/14/2010	69.08	-0.0118
7/15/2010	1.63	0.018576	7/15/2010	66.44	-0.03897
7/16/2010	1.63	0	7/16/2010	70.05	0.05291
7/19/2010	1.63	0	7/19/2010	73.02	0.041524
7/20/2010	1.63	0	7/20/2010	72.4	-0.00853
7/21/2010	1.63	0	7/21/2010	72.6	0.002759
7/22/2010	1.64	0.006116	7/22/2010	72.49	-0.00152
7/23/2010	1.64	0	7/23/2010	72.24	-0.00345
7/26/2010	1.64	0	7/26/2010	72.58	0.004695
7/27/2010	1.64	0	7/27/2010	71.49	-0.01513
7/28/2010	1.64	0	7/28/2010	70.65	-0.01182
7/29/2010	1.69	0.030032	7/29/2010	71.14	0.006912
7/30/2010	1.69	0	7/30/2010	73.39	0.031138
8/2/2010	1.69	0	8/2/2010	73.89	0.00679
8/3/2010	1.69	0	8/3/2010	72.91	-0.01335
8/4/2010	1.69	0	8/4/2010	74.74	0.02479
8/5/2010	1.74	0.029157	8/5/2010	74.92	0.002405
8/6/2010	1.74	0	8/6/2010	75.87	0.0126
8/9/2010	1.74	0	8/9/2010	77.22	0.017637
8/10/2010	1.74	0	8/10/2010	76.75	-0.00611
8/11/2010	1.74	0	8/11/2010	78.33	0.020377
8/12/2010	2	0.139262	8/12/2010	77.88	-0.00576
8/13/2010	2	0	8/13/2010	74.82	-0.04008
8/16/2010	2	0	8/16/2010	75.12	0.004002
8/17/2010	2	0	8/17/2010	76.16	0.01375

8/18/2010	2	0	8/18/2010	76.61	0.005891
8/19/2010	1.95	-0.02532	8/19/2010	74.21	-0.03183
8/20/2010	1.95	0	8/20/2010	74.95	0.009922
8/23/2010	1.95	0	8/23/2010	71.73	-0.04391
8/24/2010	1.95	0	8/24/2010	71.95	0.003062
8/25/2010	1.95	0	8/25/2010	71.86	-0.00125
8/26/2010	2.02	0.035268	8/26/2010	73.48	0.022293
8/27/2010	2.02	0	8/27/2010	73.37	-0.0015
8/30/2010	2.02	0	8/30/2010	74.91	0.020772
8/31/2010	2.02	0	8/31/2010	75.55	0.008507
9/1/2010	2.02	0	9/1/2010	74.7	-0.01131
9/2/2010	1.99	-0.01496	9/2/2010	76.8	0.027725
9/6/2010	1.99	0	9/6/2010	75.97	-0.01087
9/7/2010	1.99	0	9/7/2010	76.1	0.00171
9/8/2010	1.99	0	9/8/2010	76.77	0.008766
9/9/2010	2.05	0.029705	9/9/2010	76.84	0.000911
9/10/2010	2.05	0	9/10/2010	76.28	-0.00731
9/13/2010	2.05	0	9/13/2010	78.12	0.023835
9/14/2010	2.05	0	9/14/2010	77.8	-0.0041
9/15/2010	2.05	0	9/15/2010	78.55	0.009594
9/16/2010	2.35	0.136576	9/16/2010	76.57	-0.02553
9/17/2010	2.35	0	9/17/2010	77.86	0.016707
9/20/2010	2.35	0	9/20/2010	79.89	0.025738
9/21/2010	2.35	0	9/21/2010	78.75	-0.01437
9/22/2010	2.35	0	9/22/2010	83.23	0.05533
9/23/2010	2.35	0	9/23/2010	84.85	0.019277
9/24/2010	2.14	-0.09361	9/24/2010	85.01	0.001884
9/27/2010	2.14	0	9/27/2010	84.15	-0.01017
9/28/2010	2.14	0	9/28/2010	82.03	-0.02552
9/29/2010	2.14	0	9/29/2010	82.29	0.003165
9/30/2010	2.07	-0.03326	9/30/2010	80.44	-0.02274
10/1/2010	2.07	0	10/1/2010	78.38	-0.02594
10/4/2010	2.07	0	10/4/2010	77.18	-0.01543
10/5/2010	2.07	0	10/5/2010	75.69	-0.01949
10/6/2010	2.07	0	10/6/2010	74.56	-0.01504

10/7/2010	2.15	0.037919	10/7/2010	76.74	0.028819
10/11/2010	2.33	0.0804	10/11/2010	74.94	-0.02374
10/12/2010	2.33	0	10/12/2010	73.53	-0.01899
10/13/2010	2.33	0	10/13/2010	72.88	-0.00888
10/14/2010	2.36	0.012793	10/14/2010	69.46	-0.04806
10/15/2010	2.36	0	10/15/2010	69.59	0.00187
10/18/2010	2.36	0	10/18/2010	74.5	0.068178
10/19/2010	2.36	0	10/19/2010	75.16	0.00882
10/20/2010	2.36	0	10/20/2010	76.1	0.012429
10/21/2010	2.36	0	10/21/2010	75.56	-0.00712
10/22/2010	2.36	0	10/22/2010	75.68	0.001587
10/25/2010	2.45	0.037426	10/25/2010	75.08	-0.00796
10/26/2010	2.45	0	10/26/2010	75.23	0.001996
10/27/2010	2.45	0	10/27/2010	76.4	0.015433
10/28/2010	2.45	0	10/28/2010	75.93	-0.00617
10/29/2010	2.44	-0.00409	10/29/2010	77.53	0.020853
11/1/2010	2.44	0	11/1/2010	77.92	0.005018
11/2/2010	2.44	0	11/2/2010	77.54	-0.00489
11/3/2010	2.44	0	11/3/2010	78.52	0.012559
11/4/2010	2.48	0.016261	11/4/2010	78.94	0.005335
11/5/2010	2.49	0.004024	11/5/2010	78.51	-0.00546
11/8/2010	2.49	0	11/8/2010	79.04	0.006728
11/9/2010	2.49	0	11/9/2010	77.58	-0.01864
11/10/2010	2.49	0	11/10/2010	79.67	0.026583
11/11/2010	2.41	-0.03266	11/11/2010	79.06	-0.00769
11/12/2010	2.41	0	11/12/2010	77.44	-0.0207
11/15/2010	2.41	0	11/15/2010	77.84	0.005152
11/16/2010	2.41	0	11/16/2010	78.88	0.013272
11/17/2010	2.41	0	11/17/2010	77.86	-0.01302
11/18/2010	2.26	-0.06426	11/18/2010	79.29	0.0182
11/19/2010	2.26	0	11/19/2010	78.87	-0.00531
11/22/2010	2.26	0	11/22/2010	80.86	0.024918
11/23/2010	2.16	-0.04526	11/23/2010	82.64	0.021775
11/25/2010	2.16	0	11/25/2010	83.35	0.008555
11/26/2010	2.16	0	11/26/2010	84.96	0.019132

11/29/2010	2.16	0	11/29/2010	83.62	-0.0159
11/30/2010	2.16	0	11/30/2010	83.83	0.002508
12/1/2010	2.16	0	12/1/2010	82.93	-0.01079
12/2/2010	2.07	-0.04256	12/2/2010	82.69	-0.0029
12/3/2010	2.07	0	12/3/2010	83.56	0.010466
12/6/2010	2.07	0	12/6/2010	83.1	-0.00552
12/7/2010	2.07	0	12/7/2010	81.49	-0.01956
12/8/2010	2.07	0	12/8/2010	81.8	0.003797
12/9/2010	2.07	0	12/9/2010	80.62	-0.01453
12/10/2010	2.07	0	12/10/2010	81.23	0.007538
12/13/2010	2.13	0.028573	12/13/2010	80.63	-0.00741
12/14/2010	2.13	0	12/14/2010	80.15	-0.00597
12/15/2010	2.13	0	12/15/2010	81.22	0.013262
12/16/2010	2.2	0.032335	12/16/2010	82.28	0.012967
12/17/2010	2.2	0	12/17/2010	81.13	-0.01408
12/20/2010	2.2	0	12/20/2010	82.83	0.020738
12/21/2010	2.2	0	12/21/2010	82.32	-0.00618
12/22/2010	2.33	0.057411	12/22/2010	83.82	0.018058
12/24/2010	2.33	0	12/24/2010	85.19	0.016212
12/27/2010	2.33	0	12/27/2010	86.64	0.016878
12/28/2010	2.33	0	12/28/2010	86.95	0.003572
12/29/2010	2.44	0.04613	12/29/2010	87.06	0.001264
12/30/2010	2.41	-0.01237	12/30/2010	87.69	0.00721
12/31/2010	2.41	0	12/31/2010	87.67	-0.00023
1/3/2011	2.38	-0.01253	1/3/2011	87.71	0.000456
1/4/2011	2.38	0	1/4/2011	85.69	-0.0233
1/5/2011	2.38	0	1/5/2011	85.05	-0.0075
1/6/2011	2.31	-0.02985	1/6/2011	83.54	-0.01791
1/7/2011	2.31	0	1/7/2011	82.92	-0.00745
1/10/2011	2.31	0	1/10/2011	83.19	0.003251
1/11/2011	2.31	0	1/11/2011	82.67	-0.00627
1/12/2011	2.31	0	1/12/2011	81.85	-0.00997
1/13/2011	2.34	0.012903	1/13/2011	82.23	0.004632
1/17/2011	2.34	0	1/17/2011	85	0.033131
1/18/2011	2.34	0	1/18/2011	84.53	-0.00554

1/19/2011	2.34	0	1/19/2011	85.66	0.013279
1/20/2011	2.34	0	1/20/2011	85.65	-0.00012
1/21/2011	2.3	-0.01724	1/21/2011	86.79	0.013222
1/24/2011	2.3	0	1/24/2011	89.26	0.028062
1/25/2011	2.3	0	1/25/2011	90.8	0.017106
1/26/2011	2.3	0	1/26/2011	91.56	0.008335
1/27/2011	2.3	0	1/27/2011	91.19	-0.00405
1/28/2011	2.3	0	1/28/2011	89.74	-0.01603
1/31/2011	2.3	0	1/31/2011	89.6	-0.00156
2/1/2011	2.3	0	2/1/2011	89.2	-0.00447
2/2/2011	2.3	0	2/2/2011	90.07	0.009706
2/3/2011	2.33	0.012959	2/3/2011	90.23	0.001775
2/4/2011	2.33	0	2/4/2011	90.93	0.007728
2/7/2011	2.33	0	2/7/2011	90.8	-0.00143
2/8/2011	2.33	0	2/8/2011	90.97	0.00187
2/9/2011	2.33	0	2/9/2011	91.25	0.003073
2/10/2011	2.44	0.04613	2/10/2011	93.01	0.019104
2/11/2011	2.44	0	2/11/2011	93.53	0.005575
2/14/2011	2.44	0	2/14/2011	94.08	0.005863
2/15/2011	2.44	0	2/15/2011	93.18	-0.00961
2/16/2011	2.44	0	2/16/2011	93.24	0.000644
2/17/2011	2.48	0.016261	2/17/2011	93.69	0.004815
2/21/2011	2.48	0	2/21/2011	92.53	-0.01246
2/22/2011	2.48	0	2/22/2011	93.53	0.010749
2/23/2011	2.48	0	2/23/2011	96.14	0.027523
2/24/2011	2.47	-0.00404	2/24/2011	93.79	-0.02475
2/25/2011	2.47	0	2/25/2011	95.35	0.016496
2/28/2011	2.47	0	2/28/2011	95.57	0.002305
3/1/2011	2.47	0	3/1/2011	94.71	-0.00904
3/2/2011	2.47	0	3/2/2011	96.06	0.014153
3/3/2011	2.57	0.039688	3/3/2011	96.95	0.009222
3/4/2011	2.57	0	3/4/2011	97.97	0.010466
3/7/2011	2.57	0	3/7/2011	97.81	-0.00163
3/8/2011	2.57	0	3/8/2011	99	0.012093
3/9/2011	2.57	0	3/9/2011	98.03	-0.00985

3/10/2011	2.54	-0.01174	3/10/2011	98.21	0.001834
3/11/2011	2.54	0	3/11/2011	98.64	0.004369
3/14/2011	2.54	0	3/14/2011	96.87	-0.01811
3/15/2011	2.54	0	3/15/2011	97.3	0.004429
3/16/2011	2.54	0	3/16/2011	97.5	0.002053
3/17/2011	2.4	-0.0567	3/17/2011	94.05	-0.03603
3/18/2011	2.4	0	3/18/2011	95.18	0.011943
3/21/2011	2.4	0	3/21/2011	96.4	0.012736
3/22/2011	2.4	0	3/22/2011	97.25	0.008779
3/23/2011	2.4	0	3/23/2011	98.12	0.008906
3/24/2011	2.5	0.040822	3/24/2011	99.8	0.016977
3/25/2011	2.5	0	3/25/2011	101.29	0.01482
3/28/2011	2.5	0	3/28/2011	101.21	-0.00079
3/29/2011	2.5	0	3/29/2011	99.24	-0.01966
3/30/2011	2.5	0	3/30/2011	98.89	-0.00353
3/31/2011	2.63	0.050693	3/31/2011	98.87	-0.0002
4/1/2011	2.63	0	4/1/2011	99.71	0.00846
4/4/2011	2.63	0	4/4/2011	100.42	0.007095
4/5/2011	2.63	0	4/5/2011	99.71	-0.0071
4/6/2011	2.63	0	4/6/2011	102.33	0.025937
4/7/2011	2.68	0.018833	4/7/2011	102.26	-0.00068
4/8/2011	2.68	0	4/8/2011	102.44	0.001759
4/11/2011	2.68	0	4/11/2011	103.74	0.012611
4/12/2011	2.68	0	4/12/2011	102.3	-0.01398
4/13/2011	2.68	0	4/13/2011	104.21	0.018498
4/14/2011	2.62	-0.02264	4/14/2011	105.94	0.016465
4/28/2011	2.61	-0.00382	4/28/2011	113.26	0.066813
5/5/2011	2.72	0.041282	5/5/2011	111.3	-0.01746
5/12/2011	2.5	-0.08434	5/12/2011	115.24	0.034788
5/19/2011	2.6	0.039221	5/19/2011	115.82	0.00502
6/2/2011	2.6	0	6/2/2011	122.4	0.055257
6/9/2011	2.74	0.052446	6/9/2011	121.8	-0.00491
6/16/2011	2.67	-0.02588	6/16/2011	124.91	0.025213
6/23/2011	2.68	0.003738	6/23/2011	124.7	-0.00168
6/30/2011	2.78	0.036634	6/30/2011	118.31	-0.0526

7/7/2011	2.74	-0.01449	7/7/2011	109.89	-0.07383
7/14/2011	2.88	0.049832	7/14/2011	112.9	0.027023
7/21/2011	3.04	0.054067	7/21/2011	117.38	0.038914
7/28/2011	3.07	0.00982	7/28/2011	116.79	-0.00504
8/4/2011	2.79	-0.09564	8/4/2011	121.45	0.039125
8/11/2011	2.82	0.010695	8/11/2011	111.97	-0.08127
8/18/2011	2.82	0	8/18/2011	107.22	-0.04335
8/25/2011	2.92	0.034847	8/25/2011	113.41	0.056127
9/1/2011	2.9	-0.00687	9/1/2011	118.06	0.040183
9/8/2011	2.9	0	9/8/2011	118.83	0.006501
9/15/2011	2.9	0	9/15/2011	118.19	-0.0054
9/22/2011	2.69	-0.07517	9/22/2011	116.07	-0.0181
9/29/2011	2.57	-0.04564	9/29/2011	103.28	-0.11675
10/6/2011	2.57	0	10/6/2011	110.09	0.063854
10/13/2011	2.68	0.041911	10/13/2011	110.75	0.005977
10/20/2011	2.7	0.007435	10/20/2011	116.79	0.053102
10/27/2011	2.74	0.014706	10/27/2011	114.99	-0.01553
11/3/2011	2.83	0.032319	11/3/2011	115.93	0.008141
11/10/2011	2.85	0.007042	11/10/2011	116.44	0.00439
11/17/2011	3	0.051293	11/17/2011	111.44	-0.04389
11/24/2011	2.82	-0.06188	11/24/2011	103.34	-0.07546
12/1/2011	2.68	-0.05092	12/1/2011	109.72	0.059907
12/8/2011	2.31	-0.14857	12/8/2011	111.39	0.015106
12/15/2011	2.12	-0.08583	12/15/2011	112.56	0.010449
12/22/2011	2.21	0.041576	12/22/2011	106.72	-0.05328
12/29/2011	2.24	0.013483	12/29/2011	115.99	0.083295
1/5/2012	2.35	0.047939	1/5/2012	112.2	-0.03322
1/12/2012	2.12	-0.103	1/12/2012	107.52	-0.04261
1/19/2012	2.11	-0.00473	1/19/2012	111.7	0.03814
1/26/2012	2.16	0.02342	1/26/2012	110.36	-0.01207
2/2/2012	2.12	-0.01869	2/2/2012	109	-0.0124
2/9/2012	2.17	0.023311	2/9/2012	108.4	-0.00552
2/23/2012	2.17	0	2/23/2012	111.85	0.031331
3/1/2012	2.23	0.027274	3/1/2012	112.8	0.008458
3/8/2012	2.25	0.008929	3/8/2012	110	-0.02514

3/15/2012	2.33	0.034938	3/15/2012	107.68	-0.02132
3/22/2012	2.26	-0.0305	3/22/2012	110.11	0.022316
3/29/2012	2.23	-0.01336	3/29/2012	117.26	0.062914
4/5/2012	2.26	0.013363	4/5/2012	119.2	0.016409
4/12/2012	2.19	-0.03146	4/12/2012	121.55	0.019523
4/19/2012	2.13	-0.02778	4/19/2012	124.72	0.025746
4/26/2012	2.18	0.023203	4/26/2012	126.73	0.015988
5/3/2012	2.17	-0.0046	5/3/2012	129.19	0.019225
5/10/2012	2.08	-0.04236	5/10/2012	124.18	-0.03955
5/17/2012	2.18	0.046957	5/17/2012	125.25	0.00858
5/24/2012	2.06	-0.05662	5/24/2012	126.06	0.006446
5/31/2012	2.01	-0.02457	5/31/2012	122.39	-0.02955
6/7/2012	2.02	0.004963	6/7/2012	116.71	-0.04752
6/14/2012	2.03	0.004938	6/14/2012	117.29	0.004957
6/21/2012	2.03	0	6/21/2012	119.22	0.016321
6/28/2012	2.16	0.062072	6/28/2012	110.08	-0.07976
7/5/2012	2.32	0.071459	7/5/2012	111.57	0.013445
7/12/2012	2.49	0.070716	7/12/2012	110.17	-0.01263
7/19/2012	2.68	0.073534	7/19/2012	107.71	-0.02258
7/26/2012	2.5	-0.06953	7/26/2012	98.56	-0.08878
8/2/2012	2.56	0.023717	8/2/2012	96.25	-0.02372
8/9/2012	2.61	0.019343	8/9/2012	94.7	-0.01623
8/16/2012	2.56	-0.01934	8/16/2012	89.6	-0.05536
8/23/2012	2.56	0	8/23/2012	99.69	0.10671
8/30/2012	2.58	0.007782	8/30/2012	99.56	-0.0013
9/6/2012	2.54	-0.01563	9/6/2012	104.47	0.048139
9/13/2012	2.42	-0.0484	9/13/2012	103.33	-0.01097
9/20/2012	2.25	-0.07284	9/20/2012	106.04	0.025889
9/27/2012	2.29	0.017622	9/27/2012	113	0.063571
10/4/2012	2.41	0.051075	10/4/2012	114.11	0.009775
10/11/2012	2.47	0.024591	10/11/2012	116.34	0.019354
10/18/2012	2.43	-0.01633	10/18/2012	112.73	-0.03152
10/25/2012	2.43	0	10/25/2012	114.98	0.019763
11/1/2012	2.43	0	11/1/2012	114.81	-0.00148
11/8/2012	2.37	-0.025	11/8/2012	113	-0.01589

11/15/2012	2.36	-0.00423	11/15/2012	110.47	-0.02264
11/22/2012	2.4	0.016807	11/22/2012	112.84	0.021227
11/29/2012	2.43	0.012423	11/29/2012	115.16	0.020352
12/6/2012	2.41	-0.00826	12/6/2012	116.18	0.008818
12/13/2012	2.33	-0.03376	12/13/2012	107.33	-0.07923
12/20/2012	2.25	-0.03494	12/20/2012	109.66	0.021476
12/27/2012	2.25	0	12/27/2012	109.58	-0.00073
1/3/2013	2.17	-0.0362	1/3/2013	108.88	-0.00641
1/10/2013	2.2	0.01373	1/10/2013	109.87	0.009051
1/17/2013	2.31	0.04879	1/17/2013	108.84	-0.00942
1/24/2013	2.37	0.025642	1/24/2013	110.6	0.016041
1/31/2013	2.44	0.029108	1/31/2013	108.01	-0.0237
2/7/2013	2.44	0	2/7/2013	110.81	0.025593
2/28/2013	2.36	-0.03334	2/28/2013	114.59	0.033544
3/7/2013	2.42	0.025106	3/7/2013	112.43	-0.01903
3/14/2013	2.59	0.06789	3/14/2013	113.23	0.00709
3/21/2013	2.66	0.026668	3/21/2013	116.03	0.024428
3/28/2013	2.57	-0.03442	3/28/2013	117.59	0.013355
4/4/2013	2.57	0	4/4/2013	118.35	0.006442
4/11/2013	2.49	-0.03162	4/11/2013	117.09	-0.0107
4/18/2013	2.52	0.011976	4/18/2013	112.73	-0.03795
4/25/2013	2.47	-0.02004	4/25/2013	110.52	-0.0198
5/2/2013	2.59	0.04744	5/2/2013	107.69	-0.02594
5/9/2013	2.69	0.037883	5/9/2013	107.18	-0.00475
5/16/2013	2.69	0	5/16/2013	106.51	-0.00627
5/23/2013	2.69	0	5/23/2013	109.32	0.02604
5/30/2013	2.73	0.01476	5/30/2013	103.84	-0.05143
6/6/2013	2.67	-0.02222	6/6/2013	97.31	-0.06495
6/13/2013	2.53	-0.05386	6/13/2013	99.06	0.017824
6/20/2013	2.5	-0.01193	6/20/2013	101.19	0.021274
6/27/2013	2.48	-0.00803	6/27/2013	105.84	0.044929
7/4/2013	2.41	-0.02863	7/4/2013	102.85	-0.02866
7/11/2013	2.52	0.044632	7/11/2013	102.9	0.000486
7/18/2013	2.57	0.019647	7/18/2013	103.67	0.007455
7/25/2013	2.53	-0.01569	7/25/2013	102.04	-0.01585

8/1/2013	2.28	-0.10404	8/1/2013	101	-0.01024
8/8/2013	2.27	-0.0044	8/8/2013	105.31	0.041788
8/15/2013	2.4	0.055689	8/15/2013	101.56	-0.03626
8/22/2013	2.4	0	8/22/2013	104.31	0.026717
8/29/2013	2.34	-0.02532	8/29/2013	108.35	0.037999
9/5/2013	2.92	0.221433	9/5/2013	110.04	0.015477
9/12/2013	2.1	-0.32965	9/12/2013	109.97	-0.00064
9/19/2013	2.14	0.018868	9/19/2013	108.17	-0.0165
9/26/2013	2.18	0.018519	9/26/2013	109.82	0.015139
10/3/2013	1.9	-0.13747	10/3/2013	111.94	0.01912
10/10/2013	1.9	0	10/10/2013	111.39	-0.00493
10/17/2013	2.1	0.100083	10/17/2013	115.91	0.039776
10/24/2013	2.1	0	10/24/2013	116.09	0.001552
10/31/2013	0.82	-0.94039	10/31/2013	113.1	-0.02609
11/7/2013	0.82	0	11/7/2013	109.91	-0.02861
11/14/2013	2.1	0.940388	11/14/2013	107.43	-0.02282
11/21/2013	2.64	0.228842	11/21/2013	107.55	0.001116
11/28/2013	2.42	-0.08701	11/28/2013	110.86	0.030312
12/5/2013	2.46	0.016394	12/5/2013	110.92	0.000541
12/12/2013	2.12	-0.14875	12/12/2013	109.93	-0.00897
12/19/2013	2.29	0.077136	12/19/2013	107.49	-0.02245
12/26/2013	2.29	0	12/26/2013	104.54	-0.02783

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Appendix B

Results from R software

Margin1 is ethanol.

Margin 2 is crude oil.

Both margins are log return.

Copula: Husler-Reiss

```
> print(fit.hr)
```

The Maximum Likelihood estimation is based on 40 observations.

Margin 1 :

	Estimate	Std. Error
m1.shape	0.42606	0.171
m1.loc	0.03452	0.005
m1.scale	0.02988	0.005

Margin 2 :

	Estimate	Std. Error
m2.shape	0.37162	0.193
m2.loc	0.04197	0.003
m2.scale	0.01585	0.003

Copula:

	Estimate	Std. Error
param	0.465	0.614

The maximized loglikelihood is 162.716

Optimization converged

Number of loglikelihood evaluations:

function gradient

252 39

Copula: Galambos

```
> print(fit.galambos)
```

The Maximum Likelihood estimation is based on 40 observations.

Margin 1 :

	Estimate	Std. Error
m1.shape	0.43239	0.158
m1.loc	0.03444	0.005
m1.scale	0.02995	0.005

Margin 2 :

	Estimate	Std. Error
m2.shape	0.37823	0.195
m2.loc	0.04197	0.003
m2.scale	0.01591	0.003

Copula:

	Estimate	Std. Error
param	0.2395	0.33

The maximized loglikelihood is 162.7305

Optimization converged

Copula: Tawn

```
> print(fit.tawn)
```

The Maximum Likelihood estimation is based on 40 observations.

Margin 1 :

	Estimate	Std. Error
m1.shape	0.41579	0.139
m1.loc	0.03419	0.005
m1.scale	0.02957	0.005

Margin 2 :

	Estimate	Std. Error
m2.shape	0.40935	0.203
m2.loc	0.04197	0.003
m2.scale	0.01608	0.003

Copula:

	Estimate	Std. Error
param	0.2465	0.352

The maximized loglikelihood is 162.9222

Optimization converged

Copula: Gumbel

```
> print(fit.gumbel)
```

The Maximum Likelihood estimation is based on 40 observations.

Margin 1 :

	Estimate	Std. Error
m1.shape	0.43375	0.147
m1.loc	0.03424	0.005
m1.scale	0.02980	0.005

Margin 2 :

	Estimate	Std. Error
m2.shape	0.39006	0.194
m2.loc	0.04204	0.003
m2.scale	0.01598	0.003

Copula:

	Estimate	Std. Error
param	1.076	0.157

The maximized loglikelihood is 162.8337

Optimization converged



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