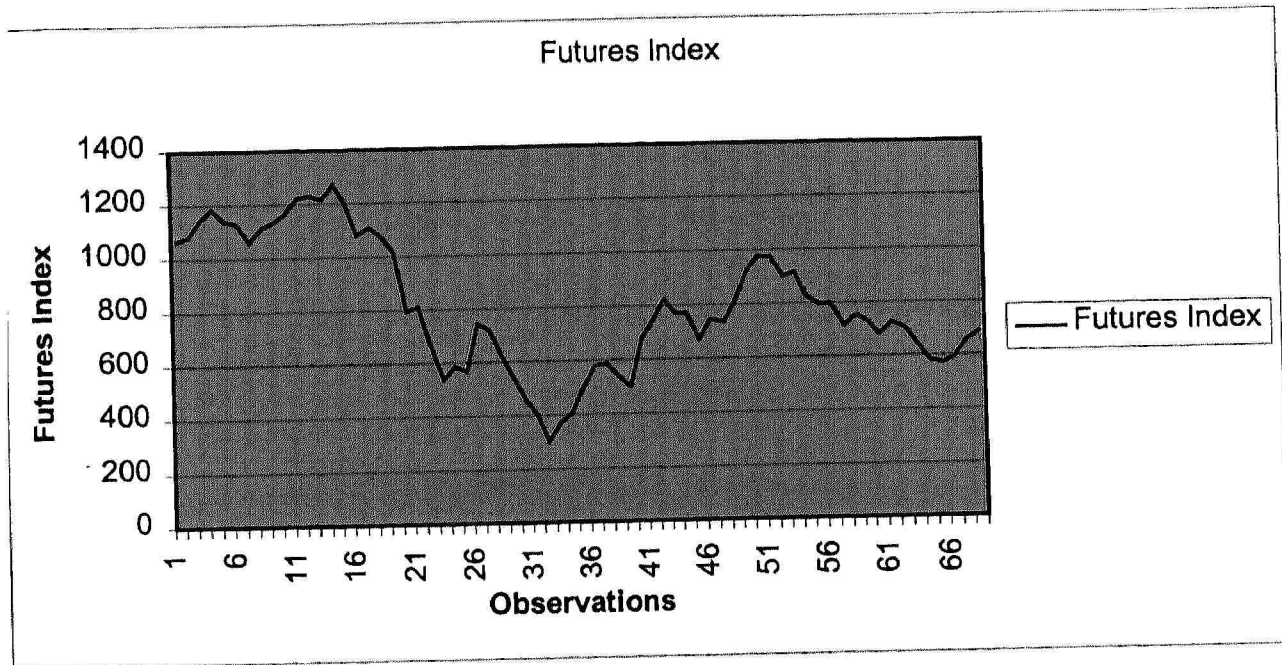


APPENDICES

Appendix 1.1

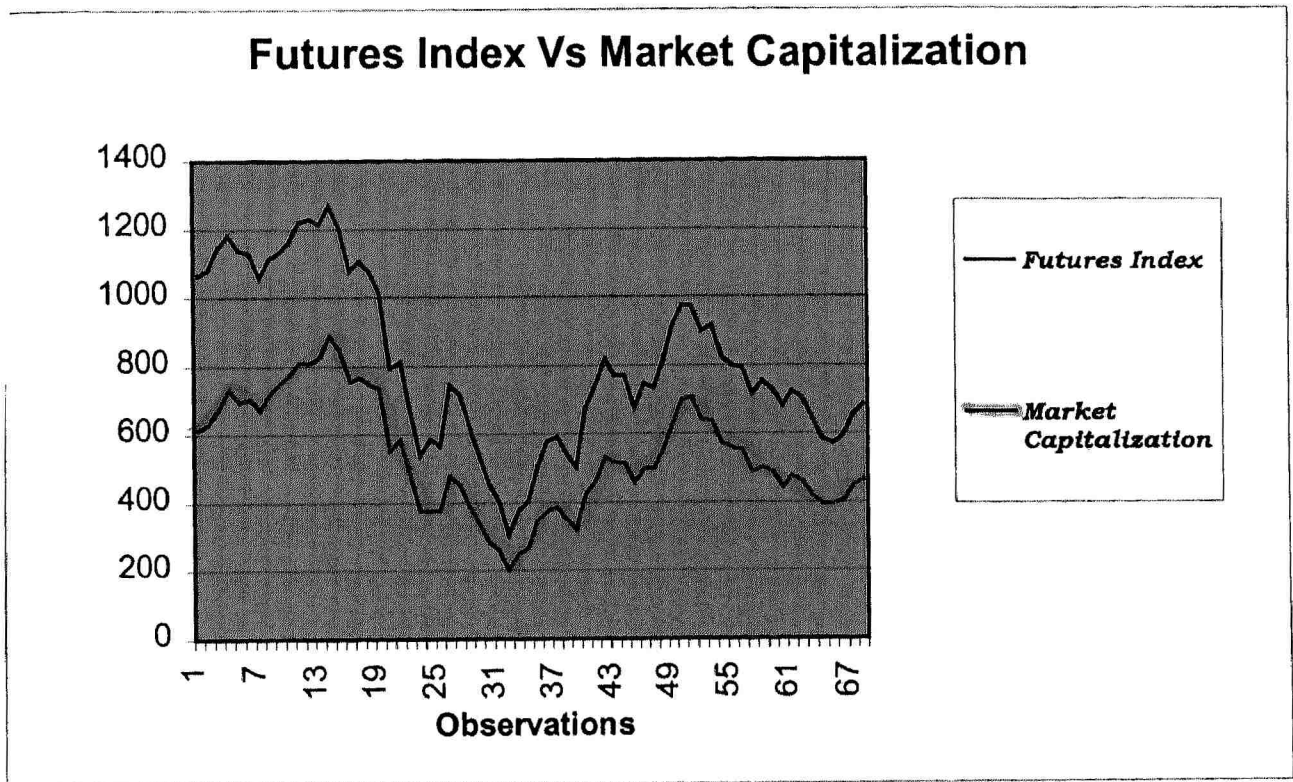
Futures Monthly Trend 1996-2001



Data : Monthly Data- January 1996- August 2001

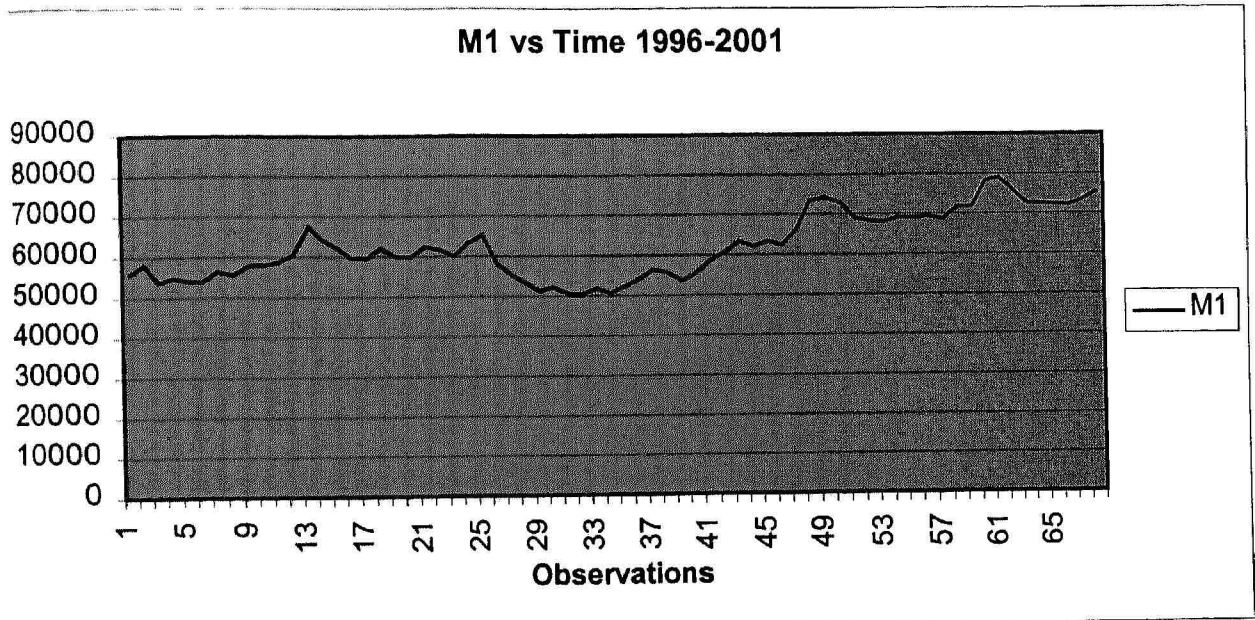
Appendix 1.2

Futures Index Vs. Market Capitalization 1996-2001



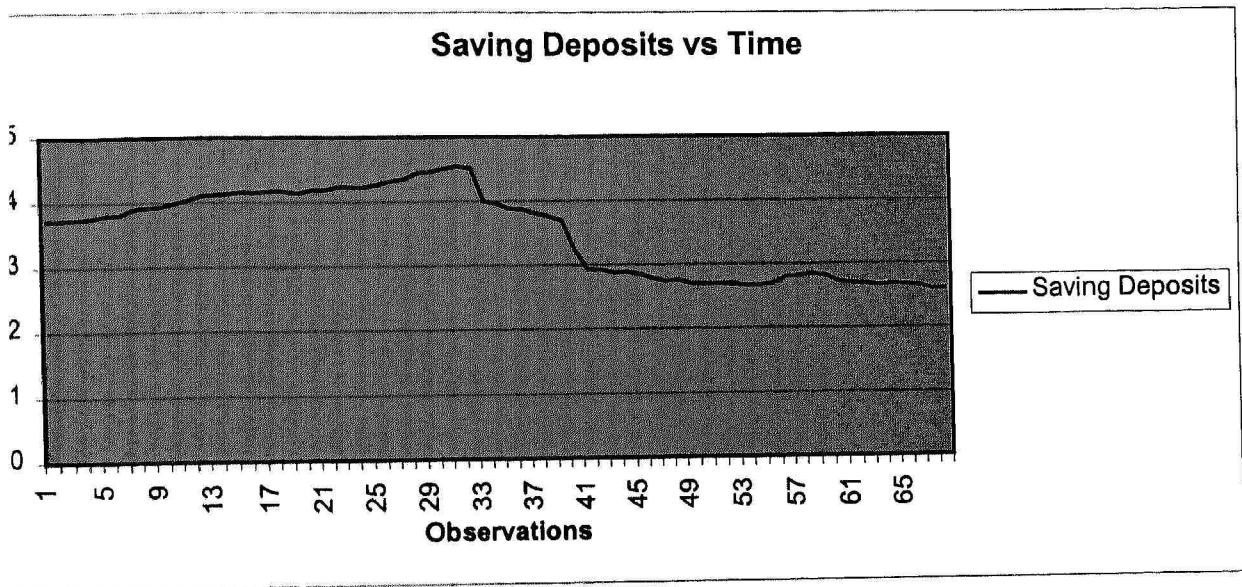
Appendix 1.3

M1 vs. Time 1996-2001



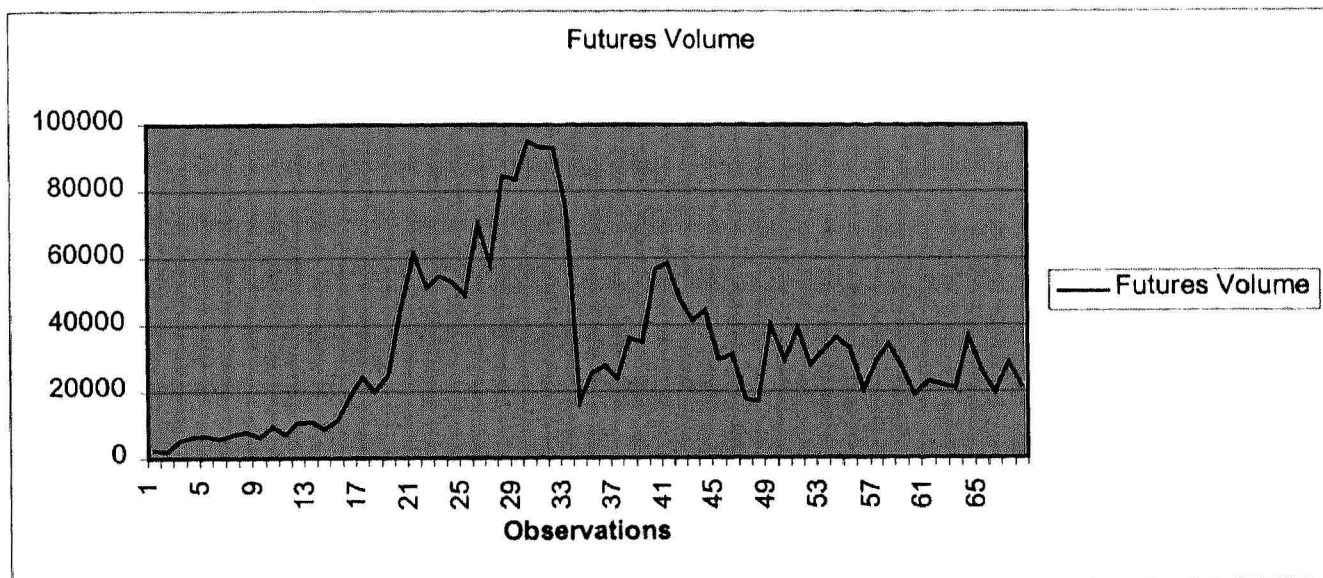
Appendix 1.4

Saving Deposits vs. Time 1996-2001



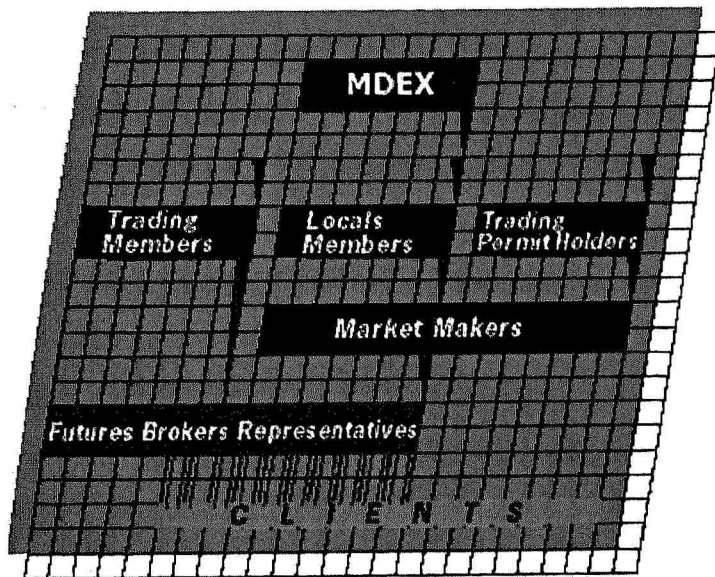
Appendix 1.5

Futures Volume vs. Time 1996-2001



Appendix 3.0

MDEX Structure



Source: MDEX Website at www.mdex.com

Appendix 4.0

Stock Split

ook at the example of a 2-1 stock split for stock A.

Splits:

Before the split:

Price x outstanding shares = market value

$$10 \times 50.00 = 500.00$$

After the split:

Price x outstanding shares = market value

$$5 \times 100.00 = 500.00$$

Outstanding Share Change:

Let's say for example that stock A had a share increase from 50 shares to 65 shares:

Outstanding			
Stock	price	shares	market value
A	10.00	x 65.00	= 650.00
B	5.00	x 75.00	= 375.00
C	15.00	x 10.00	= 150.00

1175.00= total market value

Total market value / divisor = index value

$$1175.00 / 10.25 = 114.60$$

The index value should equal 100, but since stock A had a share increase, the market value increased from 500 to 650, which also increased the total market value of the index. To adjust for the artificial increase in the value of the index we must adjust the divisor. As a result of the share increase we know what the new total market value of the index is (1175) and we know what the value of the index should be (100 at day 1). So here is what we do:

New total market value / index value = new divisor

$$1175 / 100 = 11.75$$

Appendix 5.0**Table 5.12****Forecast Data and Trading Simulation for Moving Averages MA (2)**

Period	Actual	Forecast MA(2)	Actual	Forecast Next Observation	Up/Down			
1	1064.8		1064.8	-		Buy	Sell	Profit/Loss
2	1079.9		1079.9	1072.35	Down	1145.4	1079.9	-6670
3	1145.4	1072.35	1145.4	1112.65	Down	1182.8	1145.4	-3860
4	1182.8	1112.65	1182.8	1164.1	Down	1136.6	1182.8	4500
5	1136.6	1164.1	1136.6	1159.7	Up	1136.6	1129.7	-810
6	1129.7	1159.7	1129.7	1133.15	Up	1129.7	1058.6	-7230
7	1058.6	1133.15	1058.6	1094.15	Up	1058.6	1113	5320
8	1113	1094.15	1113	1085.8	Down	1130.5	1113	-1870
9	1130.5	1085.8	1130.5	1121.75	Down	1162.2	1130.5	-3290
10	1162.2	1121.75	1162.2	1146.35	Down	1220.3	1162.2	-5930
11	1220.3	1146.35	1220.3	1191.25	Down	1229.2	1220.3	-1010
12	1229.2	1191.25	1229.2	1224.75	Down	1213.9	1229.2	1410
13	1213.9	1224.75	1213.9	1221.55	Up	1213.9	1268.3	5320
14	1268.3	1221.55	1268.3	1241.1	Down	1200.7	1268.3	6640
15	1200.7	1241.1	1200.7	1234.5	Up	1200.7	1079	-12290
16	1079	1234.5	1079	1139.85	Up	1079	1107.5	2730
17	1107.5	1139.85	1107.5	1093.25	Up	1075.6	1107.5	3070
18	1075.6	1093.25	1075.6	1091.55	Up	1075.6	1013	-6380
19	1013	1091.55	1013	1044.3	Up	1013	794.3	-21990
20	794.3	1044.3	794.3	903.65	Up	794.3	811.2	1570
21	811.2	903.65	811.2	802.75	Down	666.2	811.2	14380
22	666.2	802.75	666.2	738.7	Up	666.2	537.5	-12990
23	537.5	738.7	537.5	601.85	Up	537.5	587	4830
24	587	601.85	587	562.25	Down	566.6	587	1920
25	566.6	562.25	566.6	576.8	Up	566.6	743.6	17580
26	743.6	576.8	743.6	655.1	Down	720.2	743.6	2220
27	720.2	655.1	720.2	731.9	Up	720.2	622.3	-9910
28	622.3	731.9	622.3	671.25	Up	622.3	539.5	-8400

29	539.5	671.25	539.5	580.9	Up	539.5	455.9	-8480
30	455.9	580.9	455.9	497.7	Up	455.9	401.9	-5520
31	401.9	497.7	401.9	428.9	Up	401.9	303.5	-9960
32	303.5	428.9	303.5	352.7	Up	303.5	374	6930
33	374	352.7	374	338.75	Down	406.2	374	-3340
34	406.2	338.75	406.2	390.1	Down	505	406.2	-10000
35	505	390.1	505	455.6	Up	579.8	505	-7600
36	579.8	455.6	579.8	542.4	Down	591.1	579.8	-1250
37	591.1	542.4	591.1	585.45	Down	542	591.1	4790
38	542	585.45	542	566.55	Up	542	503.4	-3980
39	503.4	566.55	503.4	522.7	Up	503.4	675.3	17070
40	675.3	522.7	675.3	589.35	Down	741.8	675.3	-6770
41	741.8	589.35	741.8	708.55	Down	819	741.8	-7840
42	819	708.55	819	780.4	Down	770.7	819	4710
43	770.7	780.4	770.7	794.85	Up	770.7	769	-290
44	769	794.85	769	769.85	Up	769	673.9	-9630
45	673.9	769.85	673.9	721.45	Up	673.9	746.7	7160
46	746.7	721.45	746.7	710.3	Down	734.4	746.7	1110
47	734.4	710.3	734.4	740.55	Up	734.4	810.9	7530
48	810.9	740.55	810.9	772.65	Down	917.4	810.9	-10770
49	917.4	772.65	917.4	864.15	Down	975.7	917.4	-5950
50	975.7	864.15	975.7	946.55	Down	971.9	975.7	260
51	971.9	946.55	971.9	973.8	Up	971.9	900.3	-7280
52	900.3	973.8	900.3	936.1	Up	900.3	915.3	1380
53	915.3	936.1	915.3	907.8	Down	823.5	915.3	9060
54	823.5	907.8	823.5	869.4	Up	823.5	796.5	-2820
55	796.5	869.4	796.5	810	Up	796.5	795.1	-260
56	795.1	810	795.1	795.8	Up	795.1	713.9	-8240
57	713.9	795.8	713.9	754.5	Up	713.9	754.6	3950
58	754.6	754.5	754.6	734.25	Down	727.5	754.6	2590
59	727.5	734.25	727.5	741.05	Up	727.5	681.4	-4730
60	681.4	741.05	681.4	704.45	Up	Loss		(79,310.00)
61		704.45		340.7	Up	Loss per Month		(1,367.41)
62		340.7						

Table 5.13

Forecast Data and Trading Simulation for Moving Averages MA (3)

Period	Actual	Forecast MA(3)	Actual	Forecast Next Observation	Up/Down	Buy	Sell	Profit/Loss
1	1064.8		1064.8					
2	1079.9		1079.9					
3	1145.4		1145.4	1096.7	Down	1145.4	1182.8	3620
4	1182.8	1096.7	1182.8	1136.03	Down	1136.6	1182.8	4500
5	1136.6	1136.03	1136.6	1154.93	Up	1136.6	1129.7	-810
6	1129.7	1154.93	1129.7	1149.7	Up	1129.7	1058.6	-7230
7	1058.6	1149.7	1058.6	1108.3	Up	1058.6	1113	5320
8	1113	1108.3	1113	1100.43	Down	1130.5	1113	-1870
9	1130.5	1100.43	1130.5	1100.7	Down	1162.2	1130.5	-3290
10	1162.2	1100.7	1162.2	1135.23	Down	1220.3	1162.2	-5930
11	1220.3	1135.23	1220.3	1171	Down	1229.2	1220.3	-1010
12	1229.2	1171	1229.2	1203.9	Down	1213.9	1229.2	1410
13	1213.9	1203.9	1213.9	1221.13	Up	1213.9	1268.3	5320
14	1268.3	1221.13	1268.3	1237.13	Down	1200.7	1268.3	6640
15	1200.7	1237.13	1200.7	1227.63	Up	1200.7	1079	-12290
16	1079	1227.63	1079	1182.67	Up	1079	1107.5	2730
17	1107.5	1182.67	1107.5	1129.07	Up	1107.5	1075.6	-3310
18	1075.6	1129.07	1075.6	1087.37	Up	1075.6	1013	-6380
19	1013	1087.37	1013	1065.37	Up	1013	794.3	-21990
20	794.3	1065.37	794.3	960.967	Up	794.3	811.2	1570
21	811.2	960.967	811.2	872.833	Up	811.2	666.2	-14620
22	666.2	872.833	666.2	757.233	Up	666.2	537.5	-12990
23	537.5	757.233	537.5	671.633	Up	537.5	587	4830
24	587	671.633	587	596.9	Up	587	566.6	-2160
25	566.6	596.9	566.6	563.7	Down	743.6	566.6	-17820
26	743.6	563.7	743.6	632.4	Down	720.2	743.6	2220
27	720.2	632.4	720.2	676.8	Down	622.3	720.2	9670
28	622.3	676.8	622.3	695.367	Up	622.3	539.5	-8400
29	539.5	695.367	539.5	627.333	Up	539.5	455.9	-8480
30	455.9	627.333	455.9	539.233	Up	455.9	401.9	-5520

31	401.9	539.233	401.9	465.767	Up	401.9	303.5	-9960
32	303.5	465.767	303.5	387.1	Up	303.5	374	6930
33	374	387.1	374	359.8	Up	374	406.2	3100
34	406.2	359.8	406.2	361.233	Down	505	406.2	-10000
35	505	361.233	505	428.4	Up	579.8	505	-7600
36	579.8	428.4	579.8	497	Up	591.1	579.8	-1250
37	591.1	497	591.1	558.633	Up	542	591.1	4790
38	542	558.633	542	570.967	Up	542	503.4	-3980
39	503.4	570.967	503.4	545.5	Up	503.4	675.3	17070
40	675.3	545.5	675.3	573.567	Down	741.8	675.3	-6770
41	741.8	573.567	741.8	640.167	Down	819	741.8	-7840
42	819	640.167	819	745.367	Down	770.7	819	4710
43	770.7	745.367	770.7	777.167	Up	770.7	769	-290
44	769	777.167	769	786.233	Up	769	673.9	-9630
45	673.9	786.233	673.9	737.867	Up	673.9	746.7	7160
46	746.7	737.867	746.7	729.867	Down	734.4	746.7	1110
47	734.4	729.867	734.4	718.333	Up	734.4	810.9	7530
48	810.9	718.333	810.9	764	Down	917.4	810.9	-10770
49	917.4	764	917.4	820.9	Down	975.7	917.4	-5950
50	975.7	820.9	975.7	901.333	Down	971.9	975.7	260
51	971.9	901.333	971.9	955	Down	900.3	971.9	7040
52	900.3	955	900.3	949.3	Up	900.3	915.3	1380
53	915.3	949.3	915.3	929.167	Up	915.3	823.5	-9300
54	823.5	929.167	823.5	879.7	Up	823.5	796.5	-2820
55	796.5	879.7	796.5	845.1	Up	796.5	795.1	-260
56	795.1	845.1	795.1	805.033	Up	795.1	713.9	-8240
57	713.9	805.033	713.9	768.5	Up	713.9	754.6	3950
58	754.6	768.5	754.6	754.533	Down	727.5	754.6	2590
59	727.5	754.533	727.5	732	Up	727.5	681.4	-4730
60	681.4	732	681.4	721.167			Loss Loss per Month	(118,040.00)
61		721.167		469.633				(2,070.88)
62		469.633		227.133				
63		227.133						

Table 5.14

Forecast Data and Trading Simulation for Moving Averages MA (4)

Period	Actual	Forecast MA(4)	Actual	Forecast Next Observation	Up/Down	Buy	Sell	Profit/Loss
1	1064.8		1064.8					
2	1079.9		1079.9					
3	1145.4		1145.4					
4	1182.8		1182.8	1118.23	Down	1136.6	1182.8	4500
5	1136.6	1118.23	1136.6	1136.18	Down	1129.7	1136.6	570
6	1129.7	1136.18	1129.7	1148.63	Up	1129.7	1058.6	-7230
7	1058.6	1148.63	1058.6	1126.93	Up	1058.6	1113	5320
8	1113	1126.93	1113	1109.48	Up	1113	1130.5	1630
9	1130.5	1109.48	1130.5	1107.95	Down	1162.2	1130.5	-3290
10	1162.2	1107.95	1162.2	1116.08	Down	1220.3	1162.2	-5930
11	1220.3	1116.08	1220.3	1156.5	Down	1229.2	1220.3	-1010
12	1229.2	1156.5	1229.2	1185.55	Down	1213.9	1229.2	1410
13	1213.9	1185.55	1213.9	1206.4	Down	1268.3	1213.9	-5560
14	1268.3	1206.4	1268.3	1232.93	Down	1200.7	1268.3	6640
15	1200.7	1232.93	1200.7	1228.03	Up	1200.7	1079	-12290
16	1079	1228.03	1079	1190.48	Up	1079	1107.5	2730
17	1107.5	1190.48	1107.5	1163.88	Up	1107.5	1075.6	-3310
18	1075.6	1163.88	1075.6	1115.7	Up	1075.6	1013	-6380
19	1013	1115.7	1013	1068.78	Up	1013	794.3	-21990
20	794.3	1068.78	794.3	997.6	Up	794.3	811.2	1570
21	811.2	997.6	811.2	923.525	Up	811.2	666.2	-14620
22	666.2	923.525	666.2	821.175	Up	666.2	537.5	-12990
23	537.5	821.175	537.5	702.3	Up	537.5	587	4830
24	587	702.3	587	650.475	Up	587	566.6	-2160
25	566.6	650.475	566.6	589.325	Up	566.6	743.6	17580
26	743.6	589.325	743.6	608.675	Down	720.2	743.6	2220
27	720.2	608.675	720.2	654.35	Down	622.3	720.2	9670
28	622.3	654.35	622.3	663.175	Up	622.3	539.5	-8400
29	539.5	663.175	539.5	656.4	Up	539.5	455.9	-8480
30	455.9	656.4	455.9	584.475	Up	455.9	401.9	-5520
31	401.9	584.475	401.9	504.9	Up	401.9	303.5	-9960

32	303.5	504.9	303.5	425.2	Up	303.5	374	6930
33	374	425.2	374	383.825	Up	374	406.2	3100
34	406.2	383.825	406.2	371.4	Down	505	406.2	-10000
35	505	371.4	505	397.175	Down	579.8	505	-7600
36	579.8	397.175	579.8	466.25	Down	591.1	579.8	-1250
37	591.1	466.25	591.1	520.525	Down	542	591.1	4790
38	542	520.525	542	554.475	Up	542	503.4	-3980
39	503.4	554.475	503.4	554.075	Up	503.4	675.3	17070
40	675.3	554.075	675.3	577.95	Down	741.8	675.3	-6770
41	741.8	577.95	741.8	615.625	Down	819	741.8	-7840
42	819	615.625	819	684.875	Down	770.7	819	4710
43	770.7	684.875	770.7	751.7	Down	769	770.7	50
44	769	751.7	769	775.125	Up	769	673.9	-9630
45	673.9	775.125	673.9	758.15	Up	673.9	746.7	7160
46	746.7	758.15	746.7	740.075	Down	734.4	746.7	1110
47	734.4	740.075	734.4	731	Down	810.9	734.4	-7770
48	810.9	731	810.9	741.475	Down	917.4	810.9	-10770
49	917.4	741.475	917.4	802.35	Down	975.7	917.4	-5950
50	975.7	802.35	975.7	859.6	Down	975.7	971.9	-500
51	971.9	859.6	971.9	918.975	Down	900.3	971.9	7040
52	900.3	918.975	900.3	941.325	Up	900.3	915.3	1380
53	915.3	941.325	915.3	940.8	Up	915.3	823.5	-9300
54	823.5	940.8	823.5	902.75	Up	823.5	796.5	-2820
55	796.5	902.75	796.5	858.9	Up	796.5	795.1	-260
56	795.1	858.9	795.1	832.6	Up	795.1	713.9	-8240
57	713.9	832.6	713.9	782.25	Up	713.9	754.6	3950
58	754.6	782.25	754.6	765.025	Up	754.6	727.5	-2830
59	727.5	765.025	727.5	747.775	Up	727.5	681.4	-4730
60	681.4	747.775	681.4	719.35			Loss (113,400.00)	
61		719.35					Loss per Month (2,025.00)	
62		540.875						
63		352.225						
64		170.35						

Table 5.15

Forecast Data and Trading Simulation for Moving Averages MA (5)

Period	Actual	Forecast MA (5)	Actual	Forecast Next Observation	Up/Down	Buy	Sell	Profit/Loss
1	1064.8		1064.8					
2	1079.9		1079.9					
3	1145.4		1145.4					
4	1182.8		1182.8					
5	1136.6		1136.6	1121.9	Down	1129.7	1136.6	570
6	1129.7	1121.9	1129.7	1134.88	Up	1129.7	1058.6	-7230
7	1058.6	1134.88	1058.6	1130.62	Up	1058.6	1113	5320
8	1113	1130.62	1113	1124.14	Up	1113	1130.5	1630
9	1130.5	1124.14	1130.5	1113.68	Down	1162.2	1130.5	-3290
10	1162.2	1113.68	1162.2	1118.8	Down	1220.3	1162.2	-5930
11	1220.3	1118.8	1220.3	1136.92	Up	1220.3	1229.2	770
12	1229.2	1136.92	1229.2	1171.04	Down	1213.9	1229.2	1410
13	1213.9	1171.04	1213.9	1191.22	Down	1268.3	1213.9	-5560
14	1268.3	1191.22	1268.3	1218.78	Down	1200.7	1268.3	6640
15	1200.7	1218.78	1200.7	1226.48	Up	1200.7	1079	-12290
16	1079	1226.48	1079	1198.22	Up	1079	1107.5	2730
17	1107.5	1198.22	1107.5	1173.88	Up	1107.5	1075.6	-3310
18	1075.6	1173.88	1075.6	1146.22	Up	1075.6	1013	-6380
19	1013	1146.22	1013	1095.16	Up	1013	794.3	-21990
20	794.3	1095.16	794.3	1013.88	Up	794.3	811.2	1570
21	811.2	1013.88	811.2	960.32	Up	811.2	666.2	-14620
22	666.2	960.32	666.2	872.06	Up	666.2	537.5	-12990
23	537.5	872.06	537.5	764.44	Up	537.5	587	4830
24	587	764.44	587	679.24	Up	587	566.6	-2160
25	566.6	679.24	566.6	633.7	Up	566.6	743.6	17580
26	743.6	633.7	743.6	620.18	Down	720.2	743.6	2220
27	720.2	620.18	720.2	630.98	Down	622.3	720.2	9670
28	622.3	630.98	622.3	647.94	Up	622.3	539.5	-8400
29	539.5	647.94	539.5	638.44	Up	539.5	455.9	-8480
30	455.9	638.44	455.9	616.3	Up	455.9	401.9	-5520

31	401.9	616.3	401.9	547.96	Up	401.9	303.5	-9960
32	303.5	547.96	303.5	464.62	Up	303.5	374	6930
33	374	464.62	374	414.96	Up	374	406.2	3100
34	406.2	414.96	406.2	388.3	Down	505	406.2	-10000
35	505	388.3	505	398.12	Down	579.8	505	-7600
36	579.8	398.12	579.8	433.7	Down	591.1	579.8	-1250
37	591.1	433.7	591.1	491.22	Down	542	591.1	4790
38	542	491.22	542	524.82	Down	503.4	542	3740
39	503.4	524.82	503.4	544.26	Up	503.4	675.3	17070
40	675.3	544.26	675.3	578.32	Down	741.8	675.3	-6770
41	741.8	578.32	741.8	610.72	Down	819	741.8	-7840
42	819	610.72	819	656.3	Down	770.7	819	4710
43	770.7	656.3	770.7	702.04	Down	769	770.7	50
44	769	702.04	769	755.16	Down	673.9	769	9390
45	673.9	755.16	673.9	754.88	Up	673.9	746.7	7160
46	746.7	754.88	746.7	755.86	Up	746.7	734.4	-1350
47	734.4	755.86	734.4	738.94	Up	734.4	810.9	7530
48	810.9	738.94	810.9	746.98	Down	917.4	810.9	-10770
49	917.4	746.98	917.4	776.66	Down	975.7	917.4	-5950
50	975.7	776.66	975.7	837.02	Down	971.9	975.7	260
51	971.9	837.02	971.9	882.06	Down	900.3	971.9	7040
52	900.3	882.06	900.3	915.24	Up	900.3	915.3	1380
53	915.3	915.24	915.3	936.12	Up	915.3	823.5	-9300
54	823.5	936.12	823.5	917.34	Up	823.5	796.5	-2820
55	796.5	917.34	796.5	881.5	Up	796.5	795.1	-260
56	795.1	881.5	795.1	846.14	Up	795.1	713.9	-8240
57	713.9	846.14	713.9	808.86	Up	713.9	754.6	3950
58	754.6	808.86	754.6	776.72	Up	754.6	727.5	-2830
59	727.5	776.72	727.5	757.52	Up	727.5	681.4	-4730
60	681.4	757.52	681.4	734.5			Loss (75,780.00)	
		734.5		575.48			Loss per Month (1,377.82)	
		575.48		432.7				
		432.7		281.78				
		281.78		136.28				
		136.28		0				

Table 5.16

Forecast Data and Trading Simulation for Moving Averages MA (6)

Period	Actual	Forecast MA (6)	Actual	Forecast		Sell	Profit/Loss
				Next Observation	Buy		
1	1064.8		1064.8				
2	1079.9		1079.9				
3	1145.4		1145.4				
4	1182.8		1182.8				
5	1136.6		1136.6				
6	1129.7		1129.7	1123.2	1058.6	1129.7	6990
7	1058.6	1123.2	1058.6	1122.17	1058.6	1113	5320
8	1113	1122.17	1113	1127.68	1113	1130.5	1630
9	1130.5	1127.68	1130.5	1125.2	1162.2	1130.5	-3290
10	1162.2	1125.2	1162.2	1121.77	1220.3	1162.2	-5930
11	1220.3	1121.77	1220.3	1135.72	1220.3	1229.2	770
12	1229.2	1135.72	1229.2	1152.3	1213.9	1229.2	1410
13	1213.9	1152.3	1213.9	1178.18	1268.3	1213.9	-5560
14	1268.3	1178.18	1268.3	1204.07	1200.7	1268.3	6640
15	1200.7	1204.07	1200.7	1215.77	1200.7	1079	-12290
16	1079	1215.77	1079	1201.9	1079	1107.5	2730
17	1107.5	1201.9	1107.5	1183.1	1107.5	1075.6	-3310
18	1075.6	1183.1	1075.6	1157.5	1075.6	1013	-6380
19	1013	1157.5	1013	1124.02	1013	794.3	-21990
20	794.3	1124.02	794.3	1045.02	794.3	811.2	1570
21	811.2	1045.02	811.2	980.1	811.2	666.2	-14620
22	666.2	980.1	666.2	911.3	666.2	537.5	-12990
23	537.5	911.3	537.5	816.3	537.5	587	4830
24	587	816.3	587	734.867	587	566.6	-2160
25	566.6	734.867	566.6	660.467	566.6	743.6	17580
26	743.6	660.467	743.6	652.017	720.2	743.6	2220
27	720.2	652.017	720.2	636.85	622.3	720.2	9670
28	622.3	636.85	622.3	629.533	622.3	539.5	-8400
29	539.5	629.533	539.5	629.867	539.5	455.9	-8480

30	455.9	629.867	455.9	608.017	455.9	401.9	-5520
31	401.9	608.017	401.9	580.567	401.9	303.5	-9960
32	303.5	580.567	303.5	507.217	303.5	374	6930
33	374	507.217	374	449.517	374	406.2	3100
34	406.2	449.517	406.2	413.5	406.2	505	9760
35	505	413.5	505	407.75	579.8	505	-7600
36	579.8	407.75	579.8	428.4	591.1	579.8	-1250
37	591.1	428.4	591.1	459.933	542	591.1	4790
38	542	459.933	542	499.683	503.4	542	3740
39	503.4	499.683	503.4	521.25	503.4	675.3	17070
40	675.3	521.25	675.3	566.1	741.8	675.3	-6770
41	741.8	566.1	741.8	605.567	819	741.8	-7840
42	819	605.567	819	645.433	770.7	819	4710
43	770.7	645.433	770.7	675.367	769	770.7	50
44	769	675.367	769	713.2	673.9	769	9390
45	673.9	713.2	673.9	741.617	673.9	746.7	7160
46	746.7	741.617	746.7	753.517	734.4	746.7	1110
47	734.4	753.517	734.4	752.283	734.4	810.9	7530
48	810.9	752.283	810.9	750.933	917.4	810.9	-10770
49	917.4	750.933	917.4	775.383	975.7	917.4	-5950
50	975.7	775.383	975.7	809.833	971.9	975.7	260
51	971.9	809.833	971.9	859.5	900.3	971.9	7040
52	900.3	859.5	900.3	885.1	915.3	900.3	-1620
53	915.3	885.1	915.3	915.25	823.5	915.3	9060
54	823.5	915.25	823.5	917.35	823.5	796.5	-2820
55	796.5	917.35	796.5	897.2	796.5	795.1	-260
56	795.1	897.2	795.1	867.1	795.1	713.9	-8240
57	713.9	867.1	713.9	824.1	713.9	754.6	3950
58	754.6	824.1	754.6	799.817	754.6	727.5	-2830
59	727.5	799.817	727.5	768.517	727.5	681.4	-4730
60	681.4	768.517	681.4	744.833		Loss (24,550.00)	
						Loss per Observation (454.63)	

Table 5.17

Forecast Data and Trading Simulation for Moving Averages MA (7)

Period	Actual	Forecast MA (7)	Actual	Forecast Next Observation	Buy	Sell	With Commissions Profit/Loss	Without Commissions Profit/Loss
1	1064.8		1064.8					
2	1079.9		1079.9					
3	1145.4		1145.4					
4	1182.8		1182.8					
5	1136.6		1136.6					
6	1129.7		1129.7					0
7	1058.6		1058.6	1113.97	1058.6	1113	5320	5440
8	1113	1113.97	1113	1120.86	1113	1130.5	1630	1750
9	1130.5	1120.86	1130.5	1128.09	1162.2	1130.5	-3290	-3170
10	1162.2	1128.09	1162.2	1130.49	1220.3	1162.2	-5930	-5810
11	1220.3	1130.49	1220.3	1135.84	1229.2	1220.3	-1010	-890
12	1229.2	1135.84	1229.2	1149.07	1213.9	1229.2	1410	1530
13	1213.9	1149.07	1213.9	1161.1	1268.3	1213.9	-5560	-5440
14	1268.3	1161.1	1268.3	1191.06	1200.7	1268.3	6640	6760
15	1200.7	1191.06	1200.7	1203.59	1200.7	1079	-12290	-12170
16	1079	1203.59	1079	1196.23	1079	1107.5	2730	2850
17	1107.5	1196.23	1107.5	1188.41	1107.5	1075.6	-3310	-3190
18	1075.6	1188.41	1075.6	1167.74	1075.6	1013	-6380	-6260
19	1013	1167.74	1013	1136.86	1013	794.3	-21990	-21870
20	794.3	1136.86	794.3	1076.91	794.3	811.2	1570	1690
21	811.2	1076.91	811.2	1011.61	811.2	666.2	-14620	-14500
22	666.2	1011.61	666.2	935.257	666.2	537.5	-12990	-12870
23	537.5	935.257	537.5	857.9	537.5	587	4830	4950
24	587	857.9	587	783.543	587	566.6	-2160	-2040
25	566.6	783.543	566.6	710.829	566.6	743.6	17580	17700
26	743.6	710.829	743.6	672.343	720.2	743.6	2220	2340
27	720.2	672.343	720.2	661.757	622.3	720.2	9670	9790
28	622.3	661.757	622.3	634.771	622.3	539.5	-8400	-8280
29	539.5	634.771	539.5	616.671	539.5	455.9	-8480	-8360

30	455.9	616.671	455.9	605.014	455.9	401.9	-5520	-5400
31	401.9	605.014	401.9	578.571	401.9	303.5	-9960	-9840
32	303.5	578.571	303.5	540.986	303.5	374	6930	7050
33	374	540.986	374	488.186	374	406.2	3100	3220
34	406.2	488.186	406.2	443.329	406.2	505	9760	9880
35	505	443.329	505	426.571	579.8	505	-7600	-7480
36	579.8	426.571	579.8	432.329	591.1	579.8	-1250	-1130
37	591.1	432.329	591.1	451.643	542	591.1	4790	4910
38	542	451.643	542	471.657	503.4	542	3740	3860
39	503.4	471.657	503.4	500.214	675.3	503.4	-17310	-17190
40	675.3	500.214	675.3	543.257	741.8	675.3	-6770	-6650
41	741.8	543.257	741.8	591.2	819	741.8	-7840	-7720
42	819	591.2	819	636.057	770.7	819	4710	4830
43	770.7	636.057	770.7	663.329	769	770.7	50	170
44	769	663.329	769	688.743	673.9	769	9390	9510
45	673.9	688.743	673.9	707.586	673.9	746.7	7160	7280
46	746.7	707.586	746.7	742.343	734.4	746.7	1110	1230
47	734.4	742.343	734.4	750.786	734.4	810.9	7530	7650
48	810.9	750.786	810.9	760.657	917.4	810.9	-10770	-10650
49	917.4	760.657	917.4	774.714	975.7	917.4	-5950	-5830
50	975.7	774.714	975.7	804	971.9	975.7	260	380
51	971.9	804	971.9	832.986	900.3	971.9	7040	7160
52	900.3	832.986	900.3	865.329	915.3	900.3	-1620	-1500
53	915.3	865.329	915.3	889.414	823.5	915.3	9060	9180
54	823.5	889.414	823.5	902.143	823.5	796.5	-2820	-2700
55	796.5	902.143	796.5	900.086	796.5	795.1	-260	-140
56	795.1	900.086	795.1	882.614	795.1	713.9	-8240	-8120
57	713.9	882.614	713.9	845.214	713.9	754.6	3950	4070
58	754.6	845.214	754.6	814.171	754.6	727.5	-2830	-2710
59	727.5	814.171	727.5	789.486	727.5	681.4	-4730	-4610
60	681.4	789.486	681.4	756.071		Loss (67,700.00)		(61,340.00)
						Loss per Obs (1,253.70)		(1,135.93)

Table 5.18

Forecast Data and Trading Simulation for Exponential Smoothing with $\alpha = 0.1$

Period	Actual	Forecast Exponentially Smoothed	Actual	Forecast Next Observation	Buy	Sell	Profit/Loss
1	1064.8		1064.8	1064.8	-	-	-
2	1079.9	1064.8	1079.9	1066.31	1145.4	1079.9	(6,670.000)
3	1145.4	1066.31	1145.4	1074.219	1182.8	1145.4	(3,860.000)
4	1182.8	1074.219	1182.8	1085.077	1136.6	1182.8	4,500.000
5	1136.6	1085.077	1136.6	1090.229	1129.7	1136.6	570.000
6	1129.7	1090.229	1129.7	1094.176	1058.6	1129.7	6,990.000
7	1058.6	1094.176	1058.6	1090.619	1058.6	1113	5,320.000
8	1113	1090.619	1113	1092.857	1130.5	1113	(1,870.000)
9	1130.5	1092.857	1130.5	1096.621	1162.2	1130.5	(3,290.000)
10	1162.2	1096.621	1162.2	1103.179	1220.3	1162.2	(5,930.000)
11	1220.3	1103.179	1220.3	1114.891	1229.2	1220.3	(1,010.000)
12	1229.2	1114.891	1229.2	1126.322	1213.9	1229.2	1,410.000
13	1213.9	1126.322	1213.9	1135.08	1268.3	1213.9	(5,560.000)
14	1268.3	1135.08	1268.3	1148.402	1200.7	1268.3	6,640.000
15	1200.7	1148.402	1200.7	1153.632	1079	1200.7	12,050.000
16	1079	1153.632	1079	1146.169	1079	1107.5	2,730.000
17	1107.5	1146.169	1107.5	1142.302	1107.5	1075.6	(3,310.000)
18	1075.6	1142.302	1075.6	1135.632	1075.6	1013	(6,380.000)
19	1013	1135.632	1013	1123.368	1013	794.3	(21,990.000)
20	794.3	1123.368	794.3	1090.462	794.3	811.2	1,570.000
21	811.2	1090.462	811.2	1062.535	811.2	666.2	(14,620.000)
22	666.2	1062.535	666.2	1022.902	666.2	537.5	(12,990.000)
23	537.5	1022.902	537.5	974.3616	537.5	587	4,830.000
24	587	974.3616	587	935.6255	587	566.6	(2,160.000)
25	566.6	935.6255	566.6	898.7229	566.6	743.6	17,580.000
26	743.6	898.7229	743.6	883.2106	743.6	720.2	(2,460.000)
27	720.2	883.2106	720.2	866.9096	720.2	622.3	(9,910.000)
28	622.3	866.9096	622.3	842.4486	622.3	539.5	(8,400.000)
29	539.5	842.4486	539.5	812.1538	539.5	455.9	(8,480.000)
30	455.9	812.1538	455.9	776.5284	455.9	401.9	(5,520.000)

31	401.9	776.5284	401.9	739.0655	401.9	303.5	(9,960.000)
32	303.5	739.0655	303.5	695.509	303.5	374	6,930.000
33	374	695.509	374	663.3581	374	406.2	3,100.000
34	406.2	663.3581	406.2	637.6423	406.2	505	9,760.000
35	505	637.6423	505	624.3781	505	579.8	7,360.000
36	579.8	624.3781	579.8	619.9202	579.8	591.1	1,010.000
37	591.1	619.9202	591.1	617.0382	591.1	542	(5,030.000)
38	542	617.0382	542	609.5344	542	503.4	(3,980.000)
39	503.4	609.5344	503.4	598.921	503.4	675.3	17,070.000
40	675.3	598.921	675.3	606.5589	741.8	675.3	(6,770.000)
41	741.8	606.5589	741.8	620.083	819	741.8	(7,840.000)
42	819	620.083	819	639.9747	770.7	819	4,710.000
43	770.7	639.9747	770.7	653.0472	769	770.7	50.000
44	769	653.0472	769	664.6425	673.9	769	9,390.000
45	673.9	664.6425	673.9	665.5682	746.7	673.9	(7,400.000)
46	746.7	665.5682	746.7	673.6814	734.4	746.7	1,110.000
47	734.4	673.6814	734.4	679.7533	810.9	734.4	(7,770.000)
48	810.9	679.7533	810.9	692.8679	917.4	810.9	(10,770.000)
49	917.4	692.8679	917.4	715.3212	975.7	917.4	(5,950.000)
50	975.7	715.3212	975.7	741.359	971.9	975.7	260.000
51	971.9	741.359	971.9	764.4131	900.3	971.9	7,040.000
52	900.3	764.4131	900.3	778.0018	915.3	900.3	(1,620.000)
53	915.3	778.0018	915.3	791.7316	823.5	915.3	9,060.000
54	823.5	791.7316	823.5	794.9085	796.5	823.5	2,580.000
55	796.5	794.9085	796.5	795.0676	795.1	796.5	20.000
56	795.1	795.0676	795.1	795.0709	713.9	795.1	8,000.000
57	713.9	795.0709	713.9	786.9538	713.9	754.6	3,950.000
58	754.6	786.9538	754.6	783.7184	754.6	727.5	(2,830.000)
59	727.5	783.7184	727.5	778.0966	727.5	681.4	(4,730.000)
60	681.4	778.0966	681.4				
						Loss	(43,470.000)
						Loss Per Month	(749.483)

Table 5.19

Forecast Data and Trading Simulation for Exponential Smoothing with $\alpha = 0.2$

Period	Actual	Forecast	Actual	Forecast	Buy	Sell	Profit / Loss
		Exponentially Smoothed		Next Observation			
1	1064.8		1064.8	1064.8			
2	1079.9	1064.8	1079.9	1067.82	1145.4	1079.9	(6,670.000)
3	1145.4	1067.82	1145.4	1083.336	1182.8	1145.4	(3,860.000)
4	1182.8	1083.336	1182.8	1103.229	1136.6	1182.8	4,500.000
5	1136.6	1103.229	1136.6	1109.903	1129.7	1136.6	570.000
6	1129.7	1109.903	1129.7	1113.862	1058.6	1129.7	6,990.000
7	1058.6	1113.862	1058.6	1102.81	1058.6	1113	5,320.000
8	1113	1102.81	1113	1104.848	1130.5	1113	(1,870.000)
9	1130.5	1104.848	1130.5	1109.978	1162.2	1130.5	(3,290.000)
10	1162.2	1109.978	1162.2	1120.423	1220.3	1162.2	(5,930.000)
11	1220.3	1120.423	1220.3	1140.398	1229.2	1220.3	(1,010.000)
12	1229.2	1140.398	1229.2	1158.159	1213.9	1229.2	1,410.000
13	1213.9	1158.159	1213.9	1169.307	1268.3	1213.9	(5,560.000)
14	1268.3	1169.307	1268.3	1189.105	1200.7	1268.3	6,640.000
15	1200.7	1189.105	1200.7	1191.424	1079	1200.7	12,050.000
16	1079	1191.424	1079	1168.939	1079	1107.5	2,730.000
17	1107.5	1168.939	1107.5	1156.652	1107.5	1075.6	(3,310.000)
18	1075.6	1156.652	1075.6	1140.441	1075.6	1013	(6,380.000)
19	1013	1140.441	1013	1114.953	1013	794.3	(21,990.000)
20	794.3	1114.953	794.3	1050.822	794.3	811.2	1,570.000
21	811.2	1050.822	811.2	1002.898	811.2	666.2	(14,620.000)
22	666.2	1002.898	666.2	935.5583	666.2	537.5	(12,990.000)
23	537.5	935.5583	537.5	855.9467	537.5	587	4,830.000
24	587	855.9467	587	802.1573	587	566.6	(2,160.000)
25	566.6	802.1573	566.6	755.0459	566.6	743.6	17,580.000
26	743.6	755.0459	743.6	752.7567	743.6	720.2	(2,460.000)
27	720.2	752.7567	720.2	746.2454	720.2	622.3	(9,910.000)
28	622.3	746.2454	622.3	721.4563	622.3	539.5	(8,400.000)
29	539.5	721.4563	539.5	685.065	539.5	455.9	(8,480.000)
30	455.9	685.065	455.9	639.232	455.9	401.9	(5,520.000)

31	401.9	639.232	401.9	591.7656	401.9	303.5	(9,960.000)
32	303.5	591.7656	303.5	534.1125	303.5	374	6,930.000
33	374	534.1125	374	502.09	374	406.2	3,100.000
34	406.2	502.09	406.2	482.912	406.2	505	9,760.000
35	505	482.912	505	487.3296	579.8	505	(7,600.000)
36	579.8	487.3296	579.8	505.8237	591.1	579.8	(1,250.000)
37	591.1	505.8237	591.1	522.8789	542	591.1	4,790.000
38	542	522.8789	542	526.7032	503.4	542	3,740.000
39	503.4	526.7032	503.4	522.0425	503.4	675.3	17,070.000
40	675.3	522.0425	675.3	552.694	741.8	675.3	(6,770.000)
41	741.8	552.694	741.8	590.5152	819	741.8	(7,840.000)
42	819	590.5152	819	636.2122	770.7	819	4,710.000
43	770.7	636.2122	770.7	663.1097	769	770.7	50.000
44	769	663.1097	769	684.2878	673.9	769	9,390.000
45	673.9	684.2878	673.9	682.2102	673.9	746.7	7,160.000
46	746.7	682.2102	746.7	695.1082	734.4	746.7	1,110.000
47	734.4	695.1082	734.4	702.9665	810.9	734.4	(7,770.000)
48	810.9	702.9665	810.9	724.5532	917.4	810.9	(10,770.000)
49	917.4	724.5532	917.4	763.1226	975.7	917.4	(5,950.000)
50	975.7	763.1226	975.7	805.6381	971.9	975.7	260.000
51	971.9	805.6381	971.9	838.8905	900.3	971.9	7,040.000
52	900.3	838.8905	900.3	851.1724	915.3	900.3	(1,620.000)
53	915.3	851.1724	915.3	863.9979	823.5	915.3	9,060.000
54	823.5	863.9979	823.5	855.8983	823.5	796.5	(2,820.000)
55	796.5	855.8983	796.5	844.0187	796.5	795.1	(260.000)
56	795.1	844.0187	795.1	834.2349	795.1	713.9	(8,240.000)
57	713.9	834.2349	713.9	810.1679	713.9	754.6	3,950.000
58	754.6	810.1679	754.6	799.0543	754.6	727.5	(2,830.000)
59	727.5	799.0543	727.5	784.7435	727.5	681.4	(4,730.000)
60	681.4	784.7435	681.4	0			
						Loss	(50,510.000)
						Loss per Month	(870.862)

Table 5.20

Forecast Data and Trading Simulation for Exponential Smoothing with $\alpha = 0.5$

Period	Actual	Forecast	Actual	Forecast	Buy	Sell	Profit/Loss
		Exponentially Smoothed		Next Observation			
1	1064.8		1064.8	1064.8			
2	1079.9	1064.8	1079.9	1072.35	1145.4	1079.9	(6,670.000)
3	1145.4	1072.35	1145.4	1108.875	1182.8	1145.4	(3,860.000)
4	1182.8	1108.875	1182.8	1145.838	1136.6	1182.8	4,500.000
5	1136.6	1145.838	1136.6	1141.219	1136.6	1129.7	(810.000)
6	1129.7	1141.219	1129.7	1135.459	1129.7	1058.6	(7,230.000)
7	1058.6	1135.459	1058.6	1097.03	1058.6	1113	5,320.000
8	1113	1097.03	1113	1105.015	1130.5	1113	(1,870.000)
9	1130.5	1105.015	1130.5	1117.757	1162.2	1130.5	(3,290.000)
10	1162.2	1117.757	1162.2	1139.979	1220.3	1162.2	(5,930.000)
11	1220.3	1139.979	1220.3	1180.139	1229.2	1220.3	(1,010.000)
12	1229.2	1180.139	1229.2	1204.67	1213.9	1229.2	1,410.000
13	1213.9	1204.67	1213.9	1209.285	1268.3	1213.9	(5,560.000)
14	1268.3	1209.285	1268.3	1238.792	1200.7	1268.3	6,640.000
15	1200.7	1238.792	1200.7	1219.746	1200.7	1079	(12,290.000)
16	1079	1219.746	1079	1149.373	1079	1107.5	2,730.000
17	1107.5	1149.373	1107.5	1128.437	1107.5	1075.6	(3,310.000)
18	1075.6	1128.437	1075.6	1102.018	1075.6	1013	(6,380.000)
19	1013	1102.018	1013	1057.509	1013	794.3	(21,990.000)
20	794.3	1057.509	794.3	925.9046	794.3	811.2	1,570.000
21	811.2	925.9046	811.2	868.5523	811.2	666.2	(14,620.000)
22	666.2	868.5523	666.2	767.3761	666.2	537.5	(12,990.000)
23	537.5	767.3761	537.5	652.4381	537.5	587	4,830.000
24	587	652.4381	587	619.719	587	566.6	(2,160.000)
25	566.6	619.719	566.6	593.1595	566.6	743.6	17,580.000
26	743.6	593.1595	743.6	668.3798	720.2	743.6	2,220.000
27	720.2	668.3798	720.2	694.2899	622.3	720.2	9,670.000
28	622.3	694.2899	622.3	658.2949	622.3	539.5	(8,400.000)
29	539.5	658.2949	539.5	598.8975	539.5	455.9	(8,480.000)
30	455.9	598.8975	455.9	527.3987	455.9	401.9	(5,520.000)
31	401.9	527.3987	401.9	464.6494	401.9	303.5	(9,960.000)

32	303.5	464.6494	303.5	384.0747	303.5	374	6,930.000
33	374	384.0747	374	379.0373	374	406.2	3,100.000
34	406.2	379.0373	406.2	392.6187	505	406.2	(10,000.000)
35	505	392.6187	505	448.8093	579.8	505	(7,600.000)
36	579.8	448.8093	579.8	514.3047	591.1	579.8	(1,250.000)
37	591.1	514.3047	591.1	552.7023	542	591.1	4,790.000
38	542	552.7023	542	547.3512	542	503.4	(3,980.000)
39	503.4	547.3512	503.4	525.3756	503.4	675.3	17,070.000
40	675.3	525.3756	675.3	600.3378	741.8	675.3	(6,770.000)
41	741.8	600.3378	741.8	671.0689	819	741.8	(7,840.000)
42	819	671.0689	819	745.0344	770.7	819	4,710.000
43	770.7	745.0344	770.7	757.8672	769	770.7	50.000
44	769	757.8672	769	763.4336	673.9	769	9,390.000
45	673.9	763.4336	673.9	718.6668	673.9	746.7	7,160.000
46	746.7	718.6668	746.7	732.6834	734.4	746.7	1,110.000
47	734.4	732.6834	734.4	733.5417	810.9	734.4	(7,770.000)
48	810.9	733.5417	810.9	772.2209	917.4	810.9	(10,770.000)
49	917.4	772.2209	917.4	844.8104	975.7	917.4	(5,950.000)
50	975.7	844.8104	975.7	910.2552	971.9	975.7	260.000
51	971.9	910.2552	971.9	941.0776	900.3	971.9	7,040.000
52	900.3	941.0776	900.3	920.6888	900.3	915.3	1,380.000
53	915.3	920.6888	915.3	917.9944	915.3	823.5	(9,300.000)
54	823.5	917.9944	823.5	870.7472	823.5	796.5	(2,820.000)
55	796.5	870.7472	796.5	833.6236	796.5	795.1	(260.000)
56	795.1	833.6236	795.1	814.3618	795.1	713.9	(8,240.000)
57	713.9	814.3618	713.9	764.1309	713.9	754.6	3,950.000
58	754.6	764.1309	754.6	759.3655	754.6	727.5	(2,830.000)
59	727.5	759.3655	727.5	743.4327	727.5	681.4	(4,730.000)
60	681.4	743.4327	681.4	0			
						Loss	(109,030.000)
						Loss per Month	(1,879.83)

Table 5.21

Forecast Data and Trading Simulation for Exponential Smoothing with $\alpha = 0.8$

Period	Actual	Forecast	Actual	Forecast	Buy	Sell	Profit/Loss
		Exponentially Smoothed		Next Observation			
1	1064.8		1064.8	1064.8			
2	1079.9	1064.8	1079.9	1076.88	1145.4	1079.9	(6,670.000)
3	1145.4	1076.88	1145.4	1131.696	1182.8	1145.4	(3,860.000)
4	1182.8	1131.696	1182.8	1172.579	1136.6	1182.8	4,500.000
5	1136.6	1172.579	1136.6	1143.796	1136.6	1129.7	(810.000)
6	1129.7	1143.796	1129.7	1132.519	1129.7	1058.6	(7,230.000)
7	1058.6	1132.519	1058.6	1073.384	1058.6	1113	5,320.000
8	1113	1073.384	1113	1105.077	1130.5	1113	(1,870.000)
9	1130.5	1105.077	1130.5	1125.415	1162.2	1130.5	(3,290.000)
10	1162.2	1125.415	1162.2	1154.843	1220.3	1162.2	(5,930.000)
11	1220.3	1154.843	1220.3	1207.209	1229.2	1220.3	(1,010.000)
12	1229.2	1207.209	1229.2	1224.802	1213.9	1229.2	1,410.000
13	1213.9	1224.802	1213.9	1216.08	1213.9	1268.3	5,320.000
14	1268.3	1216.08	1268.3	1257.856	1200.7	1268.3	6,640.000
15	1200.7	1257.856	1200.7	1212.131	1200.7	1079	(12,290.000)
16	1079	1212.131	1079	1105.626	1079	1107.5	2,730.000
17	1107.5	1105.626	1107.5	1107.125	1075.6	1107.5	3,070.000
18	1075.6	1107.125	1075.6	1081.905	1075.6	1013	(6,380.000)
19	1013	1081.905	1013	1026.781	1013	794.3	(21,990.000)
20	794.3	1026.781	794.3	840.7962	794.3	811.2	1,570.000
21	811.2	840.7962	811.2	817.1192	811.2	666.2	(14,620.000)
22	666.2	817.1192	666.2	696.3838	666.2	537.5	(12,990.000)
23	537.5	696.3838	537.5	569.2768	537.5	587	4,830.000
24	587	569.2768	587	583.4554	566.6	587	1,920.000
25	566.6	583.4554	566.6	569.9711	566.6	743.6	17,580.000
26	743.6	569.9711	743.6	708.8742	720.2	743.6	2,220.000
27	720.2	708.8742	720.2	717.9348	622.3	720.2	9,670.000
28	622.3	717.9348	622.3	641.427	622.3	539.5	(8,400.000)
29	539.5	641.427	539.5	559.8854	539.5	455.9	(8,480.000)
30	455.9	559.8854	455.9	476.6971	455.9	401.9	(5,520.000)

31	401.9	476.6971	401.9	416.8594	401.9	303.5	(9,960.000)
32	303.5	416.8594	303.5	326.1719	303.5	374	6,930.000
33	374	326.1719	374	364.4344	406.2	374	(3,340.000)
34	406.2	364.4344	406.2	397.8469	505	406.2	(10,000.000)
35	505	397.8469	505	483.5694	579.8	505	(7,600.000)
36	579.8	483.5694	579.8	560.5539	591.1	579.8	(1,250.000)
37	591.1	560.5539	591.1	584.9908	542	591.1	4,790.000
38	542	584.9908	542	550.5982	542	503.4	(3,980.000)
39	503.4	550.5982	503.4	512.8396	503.4	675.3	17,070.000
40	675.3	512.8396	675.3	642.8079	741.8	675.3	(6,770.000)
41	741.8	642.8079	741.8	722.0016	819	741.8	(7,840.000)
42	819	722.0016	819	799.6003	770.7	819	4,710.000
43	770.7	799.6003	770.7	776.4801	770.7	769	(290.000)
44	769	776.4801	769	770.496	769	673.9	(9,630.000)
45	673.9	770.496	673.9	693.2192	673.9	746.7	7,160.000
46	746.7	693.2192	746.7	736.0038	734.4	746.7	1,110.000
47	734.4	736.0038	734.4	734.7208	734.4	810.9	7,530.000
48	810.9	734.7208	810.9	795.6642	917.4	810.9	(10,770.000)
49	917.4	795.6642	917.4	893.0528	975.7	917.4	(5,950.000)
50	975.7	893.0528	975.7	959.1706	971.9	975.7	260.000
51	971.9	959.1706	971.9	969.3541	900.3	971.9	7,040.000
52	900.3	969.3541	900.3	914.1108	900.3	915.3	1,380.000
53	915.3	914.1108	915.3	915.0622	823.5	915.3	9,060.000
54	823.5	915.0622	823.5	841.8124	823.5	796.5	(2,820.000)
55	796.5	841.8124	796.5	805.5625	796.5	795.1	(260.000)
56	795.1	805.5625	795.1	797.1925	795.1	713.9	(8,240.000)
57	713.9	797.1925	713.9	730.5585	713.9	754.6	3,950.000
58	754.6	730.5585	754.6	749.7917	727.5	754.6	2,590.000
59	727.5	749.7917	727.5	731.9583	727.5	681.4	(4,730.000)
60	681.4	731.9583	681.4	691.5117			
		691.5117				Loss	(74,410.000)
						Loss per Month	(1,282.931)

Table 5.22

Forecast Data and Trading Simulation for Exponential Smoothing with $\alpha = 0.9$

Period	Actual	Forecast Exponentially Smoothed	Actual	Forecast Next Observation	Buy	Sell	Profit/Loss
1	1064.8		1064.8	1064.8			
2	1079.9	1064.8	1079.9	1078.39	1145.4	1079.9	(6,670.000)
3	1145.4	1078.39	1145.4	1138.699	1182.8	1145.4	(3,860.000)
4	1182.8	1138.699	1182.8	1178.39	1136.6	1182.8	4,500.000
5	1136.6	1178.39	1136.6	1140.779	1136.6	1129.7	(810.000)
6	1129.7	1140.779	1129.7	1130.808	1129.7	1058.6	(7,230.000)
7	1058.6	1130.808	1058.6	1065.821	1058.6	1113	5,320.000
8	1113	1065.821	1113	1108.282	1130.5	1113	(1,870.000)
9	1130.5	1108.282	1130.5	1128.278	1162.2	1130.5	(3,290.000)
10	1162.2	1128.278	1162.2	1158.808	1220.3	1162.2	(5,930.000)
11	1220.3	1158.808	1220.3	1214.151	1229.2	1220.3	(1,010.000)
12	1229.2	1214.151	1229.2	1227.695	1213.9	1229.2	1,410.000
13	1213.9	1227.695	1213.9	1215.28	1213.9	1268.3	5,320.000
14	1268.3	1215.28	1268.3	1262.998	1200.7	1268.3	6,640.000
15	1200.7	1262.998	1200.7	1206.93	1200.7	1079	(12,290.000)
16	1079	1206.93	1079	1091.793	1079	1107.5	2,730.000
17	1107.5	1091.793	1107.5	1105.929	1075.6	1107.5	3,070.000
18	1075.6	1105.929	1075.6	1078.633	1075.6	1013	(6,380.000)
19	1013	1078.633	1013	1019.563	1013	794.3	(21,990.000)
20	794.3	1019.563	794.3	816.8263	794.3	811.2	1,570.000
21	811.2	816.8263	811.2	811.7626	811.2	666.2	(14,620.000)
22	666.2	811.7626	666.2	680.7563	666.2	537.5	(12,990.000)
23	537.5	680.7563	537.5	551.8256	537.5	587	4,830.000
24	587	551.8256	587	583.4826	566.6	587	1,920.000
25	566.6	583.4826	566.6	568.2883	566.6	743.6	17,580.000
26	743.6	568.2883	743.6	726.0688	720.2	743.6	2,220.000
27	720.2	726.0688	720.2	720.7869	720.2	622.3	(9,910.000)
28	622.3	720.7869	622.3	632.1487	622.3	539.5	(8,400.000)
29	539.5	632.1487	539.5	548.7649	539.5	455.9	(8,480.000)
30	455.9	548.7649	455.9	465.1865	455.9	401.9	(5,520.000)

31	401.9	465.1865	401.9	408.2286	401.9	303.5	(9,960.000)
32	303.5	408.2286	303.5	313.9729	303.5	374	6,930.000
33	374	313.9729	374	367.9973	406.2	374	(3,340.000)
34	406.2	367.9973	406.2	402.3797	505	406.2	(10,000.000)
35	505	402.3797	505	494.738	579.8	505	(7,600.000)
36	579.8	494.738	579.8	571.2938	591.1	579.8	(1,250.000)
37	591.1	571.2938	591.1	589.1194	542	591.1	4,790.000
38	542	589.1194	542	546.7119	542	503.4	(3,980.000)
39	503.4	546.7119	503.4	507.7312	503.4	675.3	17,070.000
40	675.3	507.7312	675.3	658.5431	741.8	675.3	(6,770.000)
41	741.8	658.5431	741.8	733.4743	819	741.8	(7,840.000)
42	819	733.4743	819	810.4474	770.7	819	4,710.000
43	770.7	810.4474	770.7	774.6747	770.7	769	(290.000)
44	769	774.6747	769	769.5675	769	673.9	(9,630.000)
45	673.9	769.5675	673.9	683.4667	673.9	746.7	7,160.000
46	746.7	683.4667	746.7	740.3767	734.4	746.7	1,110.000
47	734.4	740.3767	734.4	734.9977	734.4	810.9	7,530.000
48	810.9	734.9977	810.9	803.3098	917.4	810.9	(10,770.000)
49	917.4	803.3098	917.4	905.991	975.7	917.4	(5,950.000)
50	975.7	905.991	975.7	968.7291	971.9	975.7	260.000
51	971.9	968.7291	971.9	971.5829	900.3	971.9	7,040.000
52	900.3	971.5829	900.3	907.4283	900.3	915.3	1,380.000
53	915.3	907.4283	915.3	914.5128	823.5	915.3	9,060.000
54	823.5	914.5128	823.5	832.6013	823.5	796.5	(2,820.000)
55	796.5	832.6013	796.5	800.1101	796.5	795.1	(260.000)
56	795.1	800.1101	795.1	795.601	795.1	713.9	(8,240.000)
57	713.9	795.601	713.9	722.0701	713.9	754.6	3,950.000
58	754.6	722.0701	754.6	751.347	727.5	754.6	2,590.000
59	727.5	751.347	727.5	729.8847	727.5	681.4	(4,730.000)
60	681.4	729.8847	681.4	686.2485			
		686.2485				Loss	(93,990.000)
						Loss per Month	(1,620.517)

Table 5.23

Forecast Data and Trading Simulation for Exponential Smoothing with $\alpha = 0.01$

Period	Actual	Forecast Exponentially Smoothed Value	Actual	Forecast Next Observation	Buy	Sell	Profit/Loss
1	1064.8		1064.8	1064.8	-	-	-
2	1079.9	1064.8	1079.9	1064.951	1145.4	1079.9	(6,670.000)
3	1145.4	1064.951	1145.4	1065.755	1182.8	1145.4	(3,860.000)
4	1182.8	1065.755	1182.8	1066.926	1136.6	1182.8	4,500.000
5	1136.6	1066.926	1136.6	1067.623	1129.7	1136.6	570.000
6	1129.7	1067.623	1129.7	1068.243	1058.6	1129.7	6,990.000
7	1058.6	1068.243	1058.6	1068.147	1058.6	1113	5,320.000
8	1113	1068.147	1113	1068.596	1130.5	1113	(1,870.000)
9	1130.5	1068.596	1130.5	1069.215	1162.2	1130.5	(3,290.000)
10	1162.2	1069.215	1162.2	1070.144	1220.3	1162.2	(5,930.000)
11	1220.3	1070.144	1220.3	1071.646	1229.2	1220.3	(1,010.000)
12	1229.2	1071.646	1229.2	1073.222	1213.9	1229.2	1,410.000
13	1213.9	1073.222	1213.9	1074.628	1268.3	1213.9	(5,560.000)
14	1268.3	1074.628	1268.3	1076.565	1200.7	1268.3	6,640.000
15	1200.7	1076.565	1200.7	1077.806	1079	1200.7	12,050.000
16	1079	1077.806	1079	1077.818	1107.5	1079	(2,970.000)
17	1107.5	1077.818	1107.5	1078.115	1075.6	1107.5	3,070.000
18	1075.6	1078.115	1075.6	1078.09	1075.6	1013	(6,380.000)
19	1013	1078.09	1013	1077.439	1013	794.3	(21,990.000)
20	794.3	1077.439	794.3	1074.608	794.3	811.2	1,570.000
21	811.2	1074.608	811.2	1071.974	811.2	666.2	(14,620.000)
22	666.2	1071.974	666.2	1067.916	666.2	537.5	(12,990.000)
23	537.5	1067.916	537.5	1062.612	537.5	587	4,830.000
24	587	1062.612	587	1057.856	587	566.6	(2,160.000)
25	566.6	1057.856	566.6	1052.943	566.6	743.6	17,580.000
26	743.6	1052.943	743.6	1049.85	743.6	720.2	(2,460.000)
27	720.2	1049.85	720.2	1046.553	720.2	622.3	(9,910.000)
28	622.3	1046.553	622.3	1042.311	622.3	539.5	(8,400.000)
29	539.5	1042.311	539.5	1037.282	539.5	455.9	(8,480.000)

30	455.9	1037.282	455.9	1031.469	455.9	401.9	(5,520.000)
31	401.9	1031.469	401.9	1025.173	401.9	303.5	(9,960.000)
32	303.5	1025.173	303.5	1017.956	303.5	374	6,930.000
33	374	1017.956	374	1011.517	374	406.2	3,100.000
34	406.2	1011.517	406.2	1005.464	406.2	505	9,760.000
35	505	1005.464	505	1000.459	505	579.8	7,360.000
36	579.8	1000.459	579.8	996.2523	579.8	591.1	1,010.000
37	591.1	996.2523	591.1	992.2008	591.1	542	(5,030.000)
38	542	992.2008	542	987.6988	542	503.4	(3,980.000)
39	503.4	987.6988	503.4	982.8558	503.4	675.3	17,070.000
40	675.3	982.8558	675.3	979.7802	675.3	741.8	6,530.000
41	741.8	979.7802	741.8	977.4004	741.8	819	7,600.000
42	819	977.4004	819	975.8164	819	770.7	(4,950.000)
43	770.7	975.8164	770.7	973.7652	770.7	769	(290.000)
44	769	973.7652	769	971.7176	769	673.9	(9,630.000)
45	673.9	971.7176	673.9	968.7394	673.9	746.7	7,160.000
46	746.7	968.7394	746.7	966.519	746.7	734.4	(1,350.000)
47	734.4	966.519	734.4	964.1978	734.4	810.9	7,530.000
48	810.9	964.1978	810.9	962.6649	810.9	917.4	10,530.000
49	917.4	962.6649	917.4	962.2122	917.4	975.7	5,710.000
50	975.7	962.2122	975.7	962.3471	971.9	975.7	260.000
51	971.9	962.3471	971.9	962.4426	900.3	971.9	7,040.000
52	900.3	962.4426	900.3	961.8212	900.3	915.3	1,380.000
53	915.3	961.8212	915.3	961.356	915.3	823.5	(9,300.000)
54	823.5	961.356	823.5	959.9774	823.5	796.5	(2,820.000)
55	796.5	959.9774	796.5	958.3426	796.5	795.1	(260.000)
56	795.1	958.3426	795.1	956.7102	795.1	713.9	(8,240.000)
57	713.9	956.7102	713.9	954.2821	713.9	754.6	3,950.000
58	754.6	954.2821	754.6	952.2853	754.6	727.5	(2,830.000)
59	727.5	952.2853	727.5	950.0374	727.5	681.4	(4,730.000)
60	681.4	950.0374	681.4	947.3511			
		947.3511				Loss	(19,990.000)
						Loss per Month	(344.655)

Table 5.24

Forecast Data and Trading Simulation for Exponential Smoothing with $\alpha = 0.001$

Period	Actual	Forecast Exponentially Smoothed Value	Actual	Forecast Next Observation	Buy	Sell	Commissions Profit/Loss	Without Commissions Profit/Loss
1	1064.8		1064.8	1064.8				
2	1079.9	1064.8	1079.9	1064.815	1145.4	1079.9	(6,670.000)	-6550
3	1145.4	1064.815	1145.4	1064.896	1182.8	1145.4	(3,860.000)	-3740
4	1182.8	1064.896	1182.8	1065.014	1136.6	1182.8	4,500.000	4620
5	1136.6	1065.014	1136.6	1065.085	1129.7	1136.6	570.000	690
6	1129.7	1065.085	1129.7	1065.15	1058.6	1129.7	6,990.000	7110
7	1058.6	1065.15	1058.6	1065.143	1058.6	1113	5,320.000	5440
8	1113	1065.143	1113	1065.191	1130.5	1113	(1,870.000)	-1750
9	1130.5	1065.191	1130.5	1065.256	1162.2	1130.5	(3,290.000)	-3170
10	1162.2	1065.256	1162.2	1065.353	1162.2	1220.3	5,690.000	5810
11	1220.3	1065.353	1220.3	1065.508	1229.2	1220.3	(1,010.000)	-890
12	1229.2	1065.508	1229.2	1065.672	1213.9	1229.2	1,410.000	1530
13	1213.9	1065.672	1213.9	1065.82	1268.3	1213.9	(5,560.000)	-5440
14	1268.3	1065.82	1268.3	1066.023	1200.7	1268.3	6,640.000	6760
15	1200.7	1066.023	1200.7	1066.157	1079	1200.7	12,050.000	12170
16	1079	1066.157	1079	1066.17	1107.5	1079	(2,970.000)	-2850
17	1107.5	1066.17	1107.5	1066.212	1075.6	1107.5	3,070.000	3190
18	1075.6	1066.212	1075.6	1066.221	1013	1075.6	6,140.000	6260
19	1013	1066.221	1013	1066.168	1013	794.3	(21,990.000)	-21870
20	794.3	1066.168	794.3	1065.896	794.3	811.2	1,570.000	1690
21	811.2	1065.896	811.2	1065.641	811.2	666.2	(14,620.000)	-14500
22	666.2	1065.641	666.2	1065.242	666.2	537.5	(12,990.000)	-12870
23	537.5	1065.242	537.5	1064.714	537.5	587	4,830.000	4950
24	587	1064.714	587	1064.236	587	566.6	(2,160.000)	-2040
25	566.6	1064.236	566.6	1063.739	566.6	743.6	17,580.000	17700
26	743.6	1063.739	743.6	1063.418	743.6	720.2	(2,460.000)	-2340
27	720.2	1063.418	720.2	1063.075	720.2	622.3	(9,910.000)	-9790

28	622.3	1063.075	622.3	1062.634	622.3	539.5	(8,400.000)	-8280
29	539.5	1062.634	539.5	1062.111	539.5	455.9	(8,480.000)	-8360
30	455.9	1062.111	455.9	1061.505	455.9	401.9	(5,520.000)	-5400
31	401.9	1061.505	401.9	1060.846	401.9	303.5	(9,960.000)	-9840
32	303.5	1060.846	303.5	1060.088	303.5	374	6,930.000	7050
33	374	1060.088	374	1059.402	374	406.2	3,100.000	3220
34	406.2	1059.402	406.2	1058.749	406.2	505	9,760.000	9880
35	505	1058.749	505	1058.195	505	579.8	7,360.000	7480
36	579.8	1058.195	579.8	1057.717	579.8	591.1	1,010.000	1130
37	591.1	1057.717	591.1	1057.25	591.1	542	(5,030.000)	-4910
38	542	1057.25	542	1056.735	542	503.4	(3,980.000)	-3860
39	503.4	1056.735	503.4	1056.182	503.4	675.3	17,070.000	17190
40	675.3	1056.182	675.3	1055.801	675.3	741.8	6,530.000	6650
41	741.8	1055.801	741.8	1055.487	741.8	819	7,600.000	7720
42	819	1055.487	819	1055.25	819	770.7	(4,950.000)	-4830
43	770.7	1055.25	770.7	1054.966	770.7	769	(290.000)	-170
44	769	1054.966	769	1054.68	769	673.9	(9,630.000)	-9510
45	673.9	1054.68	673.9	1054.299	673.9	746.7	7,160.000	7280
46	746.7	1054.299	746.7	1053.991	746.7	734.4	(1,350.000)	-1230
47	734.4	1053.991	734.4	1053.672	734.4	810.9	7,530.000	7650
48	810.9	1053.672	810.9	1053.429	810.9	917.4	10,530.000	10650
49	917.4	1053.429	917.4	1053.293	917.4	975.7	5,710.000	5830
50	975.7	1053.293	975.7	1053.215	975.7	971.9	(500.000)	-380
51	971.9	1053.215	971.9	1053.134	971.9	900.3	(7,280.000)	-7160
52	900.3	1053.134	900.3	1052.981	900.3	915.3	1,380.000	1500
53	915.3	1052.981	915.3	1052.843	915.3	823.5	(9,300.000)	-9180
54	823.5	1052.843	823.5	1052.614	823.5	796.5	(2,820.000)	-2700
55	796.5	1052.614	796.5	1052.358	796.5	795.1	(260.000)	-140
56	795.1	1052.358	795.1	1052.101	795.1	713.9	(8,240.000)	-8120
57	713.9	1052.101	713.9	1051.763	713.9	754.6	3,950.000	4070
58	754.6	1051.763	754.6	1051.465	754.6	727.5	(2,830.000)	-2710
59	727.5	1051.465	727.5	1051.141	727.5	681.4	(4,730.000)	-4610
60	681.4	1051.141	681.4	1050.772				
		1050.772				Loss (10,930.000) (3,970.00)		
						Loss per Observations (188.448) (68.45)		

Table 5.25

Forecast Data and Trading Simulation for Exponential Smoothing with Extreme Value of $\alpha = 0.0001$

Period	Actual	Forecast Exponentially Smoothed Value	Actual	Forecast Next Observation	Buy	Sell	Commissions Profit/Loss	Without Commissions Profit/Loss
1	1064.8		1064.8	1064.8				
2	1079.9	1064.8	1079.9	1064.802	1145.4	1079.9	(6,670.000)	-6550
3	1145.4	1064.802	1145.4	1064.81	1182.8	1145.4	(3,860.000)	-3740
4	1182.8	1064.81	1182.8	1064.821	1136.6	1182.8	4,500.000	4620
5	1136.6	1064.821	1136.6	1064.829	1129.7	1136.6	570.000	690
6	1129.7	1064.829	1129.7	1064.835	1058.6	1129.7	6,990.000	7110
7	1058.6	1064.835	1058.6	1064.834	1058.6	1113	5,320.000	5440
8	1113	1064.834	1113	1064.839	1130.5	1113	(1,870.000)	-1750
9	1130.5	1064.839	1130.5	1064.846	1162.2	1130.5	(3,290.000)	-3170
10	1162.2	1064.846	1162.2	1064.856	1220.3	1162.2	(5,930.000)	-5810
11	1220.3	1064.856	1220.3	1064.871	1229.2	1220.3	(1,010.000)	-890
12	1229.2	1064.871	1229.2	1064.888	1213.9	1229.2	1,410.000	1530
13	1213.9	1064.888	1213.9	1064.902	1268.3	1213.9	(5,560.000)	-5440
14	1268.3	1064.902	1268.3	1064.923	1200.7	1268.3	6,640.000	6760
15	1200.7	1064.923	1200.7	1064.936	1079	1200.7	12,050.000	12170
16	1079	1064.936	1079	1064.938	1107.5	1079	(2,970.000)	-2850
17	1107.5	1064.938	1107.5	1064.942	1075.6	1107.5	3,070.000	3190
18	1075.6	1064.942	1075.6	1064.943	1013	1075.6	6,140.000	6260
19	1013	1064.943	1013	1064.938	1013	794.3	(21,990.000)	-21870
20	794.3	1064.938	794.3	1064.911	794.3	811.2	1,570.000	1690
21	811.2	1064.911	811.2	1064.885	811.2	666.2	(14,620.000)	-14500
22	666.2	1064.885	666.2	1064.846	666.2	537.5	(12,990.000)	-12870
23	537.5	1064.846	537.5	1064.793	537.5	587	4,830.000	4950
24	587	1064.793	587	1064.745	587	566.6	(2,160.000)	-2040
25	566.6	1064.745	566.6	1064.695	566.6	743.6	17,580.000	17700
26	743.6	1064.695	743.6	1064.663	743.6	720.2	(2,460.000)	-2340
27	720.2	1064.663	720.2	1064.629	720.2	622.3	(9,910.000)	-9790

28	622.3	1064.629	622.3	1064.584	622.3	539.5	(8,400.000)	-8280
29	539.5	1064.584	539.5	1064.532	539.5	455.9	(8,480.000)	-8360
30	455.9	1064.532	455.9	1064.471	455.9	401.9	(5,520.000)	-5400
31	401.9	1064.471	401.9	1064.405	401.9	303.5	(9,960.000)	-9840
32	303.5	1064.405	303.5	1064.329	303.5	374	6,930.000	7050
33	374	1064.329	374	1064.26	374	406.2	3,100.000	3220
34	406.2	1064.26	406.2	1064.194	406.2	505	9,760.000	9880
35	505	1064.194	505	1064.138	505	579.8	7,360.000	7480
36	579.8	1064.138	579.8	1064.09	579.8	591.1	1,010.000	1130
37	591.1	1064.09	591.1	1064.042	591.1	542	(5,030.000)	-4910
38	542	1064.042	542	1063.99	542	503.4	(3,980.000)	-3860
39	503.4	1063.99	503.4	1063.934	503.4	675.3	17,070.000	17190
40	675.3	1063.934	675.3	1063.895	675.3	741.8	6,530.000	6650
41	741.8	1063.895	741.8	1063.863	741.8	819	7,600.000	7720
42	819	1063.863	819	1063.838	819	770.7	(4,950.000)	-4830
43	770.7	1063.838	770.7	1063.809	770.7	769	(290.000)	-170
44	769	1063.809	769	1063.78	769	673.9	(9,630.000)	-9510
45	673.9	1063.78	673.9	1063.741	673.9	746.7	7,160.000	7280
46	746.7	1063.741	746.7	1063.709	746.7	734.4	(1,350.000)	-1230
47	734.4	1063.709	734.4	1063.676	734.4	810.9	7,530.000	7650
48	810.9	1063.676	810.9	1063.651	810.9	917.4	10,530.000	10650
49	917.4	1063.651	917.4	1063.636	917.4	975.7	5,710.000	5830
50	975.7	1063.636	975.7	1063.627	975.7	971.9	(500.000)	-380
51	971.9	1063.627	971.9	1063.618	971.9	900.3	(7,280.000)	-7160
52	900.3	1063.618	900.3	1063.602	900.3	915.3	1,380.000	1500
53	915.3	1063.602	915.3	1063.587	915.3	823.5	(9,300.000)	-9180
54	823.5	1063.587	823.5	1063.563	823.5	796.5	(2,820.000)	-2700
55	796.5	1063.563	796.5	1063.536	796.5	795.1	(260.000)	-140
56	795.1	1063.536	795.1	1063.509	795.1	713.9	(8,240.000)	-8120
57	713.9	1063.509	713.9	1063.474	713.9	754.6	3,950.000	4070
58	754.6	1063.474	754.6	1063.444	754.6	727.5	(2,830.000)	-2710
59	727.5	1063.444	727.5	1063.41	727.5	681.4	(4,730.000)	-4610
60	681.4	1063.41	681.4	1063.372				
		1063.372				Loss (22,550.000) (15,590.00)		
						Loss per Observations (388.793) (268.79)		

Table 5.26

Forecast Data and Trading Simulation for Exponential Smoothing with $\alpha = 0.99$

Period	Actual	Forecast Exponentially Smoothed Value	Actual	Forecast Next Observation	Buy	Sell	Commissions Profit/Loss	Without Commissions Profit/Loss
1	1064.8		1064.8	1064.8				
2	1079.9	1064.8	1079.9	2124.318	1079.9	1145.4	6,430.000	6550
3	1145.4	2124.318	1145.4	3239.145	1145.4	1182.8	3,620.000	3740
4	1182.8	3239.145	1182.8	4380.965	1182.8	1136.6	(4,740.000)	-4620
5	1136.6	4380.965	1136.6	5466.77	1136.6	1129.7	(810.000)	-690
6	1129.7	5466.77	1129.7	6535.972	1129.7	1058.6	(7,230.000)	-7110
7	1058.6	6535.972	1058.6	7525.162	1058.6	1113	5,320.000	5440
8	1113	7525.162	1113	8559.306	1113	1130.5	1,630.000	1750
9	1130.5	8559.306	1130.5	9601.467	1130.5	1162.2	3,050.000	3170
10	1162.2	9601.467	1162.2	10665.63	1162.2	1220.3	5,690.000	5810
11	1220.3	10665.63	1220.3	11777.74	1220.3	1229.2	770.000	890
12	1229.2	11777.74	1229.2	12888.65	1229.2	1213.9	(1,650.000)	-1530
13	1213.9	12888.65	1213.9	13974.41	1213.9	1268.3	5,320.000	5440
14	1268.3	13974.41	1268.3	15104.26	1268.3	1200.7	(6,880.000)	-6760
15	1200.7	15104.26	1200.7	16157.01	1200.7	1079	(12,290.000)	-12170
16	1079	16157.01	1079	17079.81	1079	1107.5	2,730.000	2850
17	1107.5	17079.81	1107.5	18022.52	1107.5	1075.6	(3,310.000)	-3190
18	1075.6	18022.52	1075.6	18925.16	1075.6	1013	(6,380.000)	-6260
19	1013	18925.16	1013	19757.7	1013	794.3	(21,990.000)	-21870
20	794.3	19757.7	794.3	20366.24	794.3	811.2	1,570.000	1690
21	811.2	20366.24	811.2	20986.03	811.2	666.2	(14,620.000)	-14500
22	666.2	20986.03	666.2	21456.69	666.2	537.5	(12,990.000)	-12870
23	537.5	21456.69	537.5	21795.71	537.5	587	4,830.000	4950
24	587	21795.71	587	22180.68	587	566.6	(2,160.000)	-2040
25	566.6	22180.68	566.6	22541.98	566.6	743.6	17,580.000	17700
26	743.6	22541.98	743.6	23075.27	743.6	720.2	(2,460.000)	-2340

27	720.2	23075.27	720.2	23580.59	720.2	622.3	(9,910.000)	-9790
28	622.3	23580.59	622.3	23984.44	622.3	539.5	(8,400.000)	-8280
29	539.5	23984.44	539.5	24302.69	539.5	455.9	(8,480.000)	-8360
30	455.9	24302.69	455.9	24535.31	455.9	401.9	(5,520.000)	-5400
31	401.9	24535.31	401.9	24712.37	401.9	303.5	(9,960.000)	-9840
32	303.5	24712.37	303.5	24790.42	303.5	374	6,930.000	7050
33	374	24790.42	374	24937.57	374	406.2	3,100.000	3220
34	406.2	24937.57	406.2	25115.27	406.2	505	9,760.000	9880
35	505	25115.27	505	25389.18	505	579.8	7,360.000	7480
36	579.8	25389.18	579.8	25734.68	579.8	591.1	1,010.000	1130
37	591.1	25734.68	591.1	26088.26	591.1	542	(5,030.000)	-4910
38	542	26088.26	542	26390.04	542	503.4	(3,980.000)	-3860
39	503.4	26390.04	503.4	26650.9	503.4	675.3	17,070.000	17190
40	675.3	26650.9	675.3	27079.59	675.3	741.8	6,530.000	6650
41	741.8	27079.59	741.8	27570.25	741.8	819	7,600.000	7720
42	819	27570.25	819	28132.93	819	770.7	(4,950.000)	-4830
43	770.7	28132.93	770.7	28642.73	770.7	769	(290.000)	-170
44	769	28642.73	769	29146.25	769	673.9	(9,630.000)	-9510
45	673.9	29146.25	673.9	29551.1	673.9	746.7	7,160.000	7280
46	746.7	29551.1	746.7	30024.37	746.7	734.4	(1,350.000)	-1230
47	734.4	30024.37	734.4	30481.21	734.4	810.9	7,530.000	7650
48	810.9	30481.21	810.9	31009.67	810.9	917.4	10,530.000	10650
49	917.4	31009.67	917.4	31638.81	917.4	975.7	5,710.000	5830
50	975.7	31638.81	975.7	32320	975.7	971.9	(500.000)	-380
51	971.9	32320	971.9	32991.3	971.9	900.3	(7,280.000)	-7160
52	900.3	32991.3	900.3	33585.68	900.3	915.3	1,380.000	1500
53	915.3	33585.68	915.3	34189.55	915.3	823.5	(9,300.000)	-9180
54	823.5	34189.55	823.5	34697.11	823.5	796.5	(2,820.000)	-2700
55	796.5	34697.11	796.5	35173.37	796.5	795.1	(260.000)	-140
56	795.1	35173.37	795.1	35643.96	795.1	713.9	(8,240.000)	-8120
57	713.9	35643.96	713.9	36029.93	713.9	754.6	3,950.000	4070
58	754.6	36029.93	754.6	36452.71	754.6	727.5	(2,830.000)	-2710
59	727.5	36452.71	727.5	36844.86	727.5	681.4	(4,730.000)	-4610
60	681.4	36844.86	681.4	37187.84	681.4	0		
		37187.84				Loss (46,810.000) (39,850.00)		
						Loss per (807.069) (687.07)		
						Observations		

Table 5.27

Forecast Data and Trading Simulation for Exponential Smoothing with $\alpha = 0.999$

Period	Actual	Forecast Exponentially Smoothed Value	Actual	Forecast Next Observation	Buy	Sell	Commissions Profit/Loss	Without Commissions Profit/Loss
1	1064.8		1064.8	1064.8				
2	1079.9	1064.8	1079.9	1079.885	1145.4	1079.9	(6,670.000)	-6550
3	1145.4	1079.885	1145.4	1145.334	1182.8	1145.4	(3,860.000)	-3740
4	1182.8	1145.334	1182.8	1182.763	1136.6	1182.8	4,500.000	4620
5	1136.6	1182.763	1136.6	1136.646	1136.6	1129.7	(810.000)	-690
6	1129.7	1136.646	1129.7	1129.707	1129.7	1058.6	(7,230.000)	-7110
7	1058.6	1129.707	1058.6	1058.671	1058.6	1113	5,320.000	5440
8	1113	1058.671	1113	1112.946	1130.5	1113	(1,870.000)	-1750
9	1130.5	1112.946	1130.5	1130.482	1162.2	1130.5	(3,290.000)	-3170
10	1162.2	1130.482	1162.2	1162.168	1220.3	1162.2	(5,930.000)	-5810
11	1220.3	1162.168	1220.3	1220.242	1229.2	1220.3	(1,010.000)	-890
12	1229.2	1220.242	1229.2	1229.191	1213.9	1229.2	1,410.000	1530
13	1213.9	1229.191	1213.9	1213.915	1213.9	1268.3	5,320.000	5440
14	1268.3	1213.915	1268.3	1268.246	1200.7	1268.3	6,640.000	6760
15	1200.7	1268.246	1200.7	1200.768	1200.7	1079	(12,290.000)	-12170
16	1079	1200.768	1079	1079.122	1079	1107.5	2,730.000	2850
17	1107.5	1079.122	1107.5	1107.472	1075.6	1107.5	3,070.000	3190
18	1075.6	1107.472	1075.6	1075.632	1075.6	1013	(6,380.000)	-6260
19	1013	1075.632	1013	1013.063	1013	794.3	(21,990.000)	-21870
20	794.3	1013.063	794.3	794.5188	794.3	811.2	1,570.000	1690
21	811.2	794.5188	811.2	811.1833	666.2	811.2	14,380.000	14500
22	666.2	811.1833	666.2	666.345	666.2	537.5	(12,990.000)	-12870
23	537.5	666.345	537.5	537.6288	537.5	587	4,830.000	4950
24	587	537.6288	587	586.9506	566.6	587	1,920.000	2040
25	566.6	586.9506	566.6	566.6204	566.6	743.6	17,580.000	17700
26	743.6	566.6204	743.6	743.423	720.2	743.6	2,220.000	2340
27	720.2	743.423	720.2	720.2232	720.2	622.3	(9,910.000)	-9790
28	622.3	720.2232	622.3	622.3979	622.3	539.5	(8,400.000)	-8280
29	539.5	622.3979	539.5	539.5829	539.5	455.9	(8,480.000)	-8360
30	455.9	539.5829	455.9	455.9837	455.9	401.9	(5,520.000)	-5400

31	401.9	455.9837	401.9	401.9541	401.9	303.5	(9,960.000)	-9840
32	303.5	401.9541	303.5	303.5985	303.5	374	6,930.000	7050
33	374	303.5985	374	373.9296	406.2	374	(3,340.000)	-3220
34	406.2	373.9296	406.2	406.1677	505	406.2	(10,000.000)	-9880
35	505	406.1677	505	504.9012	579.8	505	(7,600.000)	-7480
36	579.8	504.9012	579.8	579.7251	591.1	579.8	(1,250.000)	-1130
37	591.1	579.7251	591.1	591.0886	542	591.1	4,790.000	4910
38	542	591.0886	542	542.0491	542	503.4	(3,980.000)	-3860
39	503.4	542.0491	503.4	503.4386	503.4	675.3	17,070.000	17190
40	675.3	503.4386	675.3	675.1281	741.8	675.3	(6,770.000)	-6650
41	741.8	675.1281	741.8	741.7333	819	741.8	(7,840.000)	-7720
42	819	741.7333	819	818.9227	770.7	819	4,710.000	4830
43	770.7	818.9227	770.7	770.7482	770.7	769	(290.000)	-170
44	769	770.7482	769	769.0017	769	673.9	(9,630.000)	-9510
45	673.9	769.0017	673.9	673.9951	673.9	746.7	7,160.000	7280
46	746.7	673.9951	746.7	746.6273	734.4	746.7	1,110.000	1230
47	734.4	746.6273	734.4	734.4122	734.4	810.9	7,530.000	7650
48	810.9	734.4122	810.9	810.8235	917.4	810.9	(10,770.000)	-10650
49	917.4	810.8235	917.4	917.2934	975.7	917.4	(5,950.000)	-5830
50	975.7	917.2934	975.7	975.6416	971.9	975.7	260.000	380
51	971.9	975.6416	971.9	971.9037	971.9	900.3	(7,280.000)	-7160
52	900.3	971.9037	900.3	900.3716	900.3	915.3	1,380.000	1500
53	915.3	900.3716	915.3	915.2851	915.3	823.5	(9,300.000)	-9180
54	823.5	915.2851	823.5	823.5918	823.5	796.5	(2,820.000)	-2700
55	796.5	823.5918	796.5	796.5271	796.5	795.1	(260.000)	-140
56	795.1	796.5271	795.1	795.1014	795.1	713.9	(8,240.000)	-8120
57	713.9	795.1014	713.9	713.9812	713.9	754.6	3,950.000	4070
58	754.6	713.9812	754.6	754.5594	727.5	754.6	2,590.000	2710
59	727.5	754.5594	727.5	727.5271	727.5	681.4	(4,730.000)	-4610
60	681.4	727.5271	681.4	681.4461				
		681.4461				Loss		
						Loss per		
						Observations		
						(97,670.000) (90,710.00)		
						(1,683.966) (1,563.97)		

Table 5.28

Forecast Data and Trading Simulation for Exponential Smoothing with Extreme Value of $\alpha = 0.9999$

Period	Actual	Forecast Exponentially Smoothed Value	Actual	Forecast Next Observation	Buy	Sell	Commissions Profit/Loss	Without Commissions Profit/Loss
1	1064.8		1064.8	1064.8				
2	1079.9	1064.8	1079.9	1079.898	1145.4	1079.9	(6,670.000)	-6550
3	1145.4	1079.898	1145.4	1145.393	1182.8	1145.4	(3,860.000)	-3740
4	1182.8	1145.393	1182.8	1182.796	1136.6	1182.8	4,500.000	4620
5	1136.6	1182.796	1136.6	1136.605	1136.6	1129.7	(810.000)	-690
6	1129.7	1136.605	1129.7	1129.701	1129.7	1058.6	(7,230.000)	-7110
7	1058.6	1129.701	1058.6	1058.607	1058.6	1113	5,320.000	5440
8	1113	1058.607	1113	1112.995	1130.5	1113	(1,870.000)	-1750
9	1130.5	1112.995	1130.5	1130.498	1162.2	1130.5	(3,290.000)	-3170
10	1162.2	1130.498	1162.2	1162.197	1220.3	1162.2	(5,930.000)	-5810
11	1220.3	1162.197	1220.3	1220.294	1229.2	1220.3	(1,010.000)	-890
12	1229.2	1220.294	1229.2	1229.199	1213.9	1229.2	1,410.000	1530
13	1213.9	1229.199	1213.9	1213.902	1213.9	1268.3	5,320.000	5440
14	1268.3	1213.902	1268.3	1268.295	1200.7	1268.3	6,640.000	6760
15	1200.7	1268.295	1200.7	1200.707	1200.7	1079	(12,290.000)	-12170
16	1079	1200.707	1079	1079.012	1079	1107.5	2,730.000	2850
17	1107.5	1079.012	1107.5	1107.497	1075.6	1107.5	3,070.000	3190
18	1075.6	1107.497	1075.6	1075.603	1075.6	1013	(6,380.000)	-6260
19	1013	1075.603	1013	1013.006	1013	794.3	(21,990.000)	-21870
20	794.3	1013.006	794.3	794.3219	794.3	811.2	1,570.000	1690
21	811.2	794.3219	811.2	811.1983	666.2	811.2	14,380.000	14500
22	666.2	811.1983	666.2	666.2145	666.2	537.5	(12,990.000)	-12870
23	537.5	666.2145	537.5	537.5129	537.5	587	4,830.000	4950
24	587	537.5129	587	586.9951	566.6	587	1,920.000	2040
25	566.6	586.9951	566.6	566.602	566.6	743.6	17,580.000	17700
26	743.6	566.602	743.6	743.5823	720.2	743.6	2,220.000	2340
27	720.2	743.5823	720.2	720.2023	720.2	622.3	(9,910.000)	-9790

28	622.3	720.2023	622.3	622.3098	622.3	539.5	(8,400.000)	-8280
29	539.5	622.3098	539.5	539.5083	539.5	455.9	(8,480.000)	-8360
30	455.9	539.5083	455.9	455.9084	455.9	401.9	(5,520.000)	-5400
31	401.9	455.9084	401.9	401.9054	401.9	303.5	(9,960.000)	-9840
32	303.5	401.9054	303.5	303.5098	303.5	374	6,930.000	7050
33	374	303.5098	374	373.993	406.2	374	(3,340.000)	-3220
34	406.2	373.993	406.2	406.1968	505	406.2	(10,000.000)	-9880
35	505	406.1968	505	504.9901	579.8	505	(7,600.000)	-7480
36	579.8	504.9901	579.8	579.7925	591.1	579.8	(1,250.000)	-1130
37	591.1	579.7925	591.1	591.0989	542	591.1	4,790.000	4910
38	542	591.0989	542	542.0049	542	503.4	(3,980.000)	-3860
39	503.4	542.0049	503.4	503.4039	503.4	675.3	17,070.000	17190
40	675.3	503.4039	675.3	675.2828	741.8	675.3	(6,770.000)	-6650
41	741.8	675.2828	741.8	741.7933	819	741.8	(7,840.000)	-7720
42	819	741.7933	819	818.9923	770.7	819	4,710.000	4830
43	770.7	818.9923	770.7	770.7048	770.7	769	(290.000)	-170
44	769	770.7048	769	769.0002	769	673.9	(9,630.000)	-9510
45	673.9	769.0002	673.9	673.9095	673.9	746.7	7,160.000	7280
46	746.7	673.9095	746.7	746.6927	734.4	746.7	1,110.000	1230
47	734.4	746.6927	734.4	734.4012	734.4	810.9	7,530.000	7650
48	810.9	734.4012	810.9	810.8924	917.4	810.9	(10,770.000)	-10650
49	917.4	810.8924	917.4	917.3893	975.7	917.4	(5,950.000)	-5830
50	975.7	917.3893	975.7	975.6942	971.9	975.7	260.000	380
51	971.9	975.6942	971.9	971.9004	971.9	900.3	(7,280.000)	-7160
52	900.3	971.9004	900.3	900.3072	900.3	915.3	1,380.000	1500
53	915.3	900.3072	915.3	915.2985	915.3	823.5	(9,300.000)	-9180
54	823.5	915.2985	823.5	823.5092	823.5	796.5	(2,820.000)	-2700
55	796.5	823.5092	796.5	796.5027	796.5	795.1	(260.000)	-140
56	795.1	796.5027	795.1	795.1001	795.1	713.9	(8,240.000)	-8120
57	713.9	795.1001	713.9	713.9081	713.9	754.6	3,950.000	4070
58	754.6	713.9081	754.6	754.5959	727.5	754.6	2,590.000	2710
59	727.5	754.5959	727.5	727.5027	727.5	681.4	(4,730.000)	-4610
60	681.4	727.5027	681.4	681.4046				
		681.4046						
						Loss	(97,670.000)	(90,710.00)
						Loss per		
						Observations	(1,683.966)	(1,563.97)