Appendix Table 6.2: Adjusted CCC Purchases (Contract Basis) by Regions, Weekly, October 12, 1990 - September 27, 1991 1/

	Block Cheese				Barrel Cheese				Barrels & Blocks
Date	Midwest	West	East	Total	Midwest	West	East	Total	Total
				1,000 lbs					
901012	0	0	0	0	0	0	0	0	0
901019	0	0	0	0	0	0	0	0	0
901026	0	0	0	0	0	0	0	0	0
901102	0	0	0	0	0	0	0	0	0
901109	495	0	0	495	0	0	0	0	495
901116	784	0	0	784	42	0	0	42	826
901121	303	129	0	432	46	0	0	46	478
901130	1837	43	0	1880	833	0	0	833	2713
901207	598	115	0	713	1122	0	0	1122	1835
901214	1158	515	0	1673	1602	0	0	1602	3275
901221	510	582	0	1092	1031	0	0	1031	2123
901228	706	41	0	747	912	0	0	912	1659
910104	0	0	0	0	854	0	0	854	854
910111	893	316	0	1209	1862	0	0	1862	3071
910118	969	263	0	1232	2003	0	0	2003	3235
910125	1279	576	0	1855	534	0	0	534	2389
910201	1236	526	0	1762	741	0	0	741	2503
910208	260	230	0	490	588	0	0	588	1078
910215	503	1029	0	1532	988	0	0	988	2520
910222	1095	1133	0	2228	811	0	0	811	3039
910301	552	641	0	1193	53	0	0	53	1246
910308	620	663	0	1283	476	0	0	476	1759
910315	577	239	237	1053	324	0	0	324	1377
910322	370	466	0	836	-1496	0	0	-1496	-660
910328	299	289	314	902	-1186	0	0	-1186	-284
910405	622	535	0	1157	268	0	0	268	1425
910412	218	652	0	870	679	0	0	679	1549
910419	923	175	62	1160	335	0	0	335	1495
910426	365	162	0	527	-58	0	0	-58	469
910503	216	426	0	642	-116	0	0	-116	526
910510	574	408	138	1120	-548	0	0	-548	572
910517	184	-82	240	342	-874	0	0	-874	-532
910524	146	58	0	204	0	0	0	0	204
910531	0	0	0	0	0	0	0	0	0
910607	0	0	0	0	0	0	0	0	0
910614	0	11	0	11	0	0	0	0	11
910621	-436	0	0	-436	-85	0	0	-85	-521
910628	0	0	0	0	0	0	0	0	0
910705	0	0	0	0	0	0	0	0	0
910712	-222	0	0	-222	0	0	0	0	-222
910719	-101	0	0	-101	0	0	0	0	-101
910726	0	0	0	0	0	0	0	0	0
910802	-219	0	0	-219	0	0	0	0	-219
910809	0	0	0	0	0	0	0	0	0
910816	0	0	0	0	0	0	0	0	0
910823	0	0	0	0	0	0	0	0	0
910830	0	0	0	0	0	0	0	0	0
910906	0	0	-700	-700	0	0	0	0	-700
910913	0	0	0	0	0	0	0	0	0
910920	0	0	0	0	0	0	0	0	0
910927	0	0	0	0	0	0	0	0	0
Total	17314	10141	291	27746	11741	0	0	11741	39487

Source: Dairy Market Statistics, AMS, USDA, Annual Summary, 1990 and 1991.

1/ Adjusted purchases are total purchases, contract basis,less cancellations. Negative numbers can result when previous week(s) cancellations exceed current week purchases (contract basis).

Appendix Table 6.3

End-of-Month Commercial Stocks of American Cheese and CCC Stocks of Natural (Blocks and Barrels) Cheese, 1980-1993

Commercial Stocks of American Cheese

Year	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Average
						-------Million Pounds-------							
1980	393.1	392.5	384.6	393.0	419.5	433.3	443.4	418.1	422.7	409.5	391.5	422.8	410.3
1981	421.8	423.4	410.3	428.4	419.0	425.4	426.1	404.4	374.5	363.0	353.8	373.8	402.0
1982	374.8	370.1	367.8	367.8	367.8	365.6	365.6	365.6	318.1	318.1	318.1	334.7	352.8
1983	343.7	372.9	380.4	379.4	379.4	374.4	391.7	380.8	359.7	365.5	360.2	368.2	371.4
1984	357.1	353.1	364.6	354.4	365.7	374.2	365.9	360.4	346.3	340.5	339.6	339.7	355.1
1985	354.7	349.3	338.1	324.0	343.9	363.0	355.4	351.9	335.0	322.5	313.4	306.5	338.1
1986	312.0	315.5	324.7	327.4	340.2	348.8	351.9	353.3	333.9	310.3	287.3	277.0	323.5
1987	295.8	292.8	302.5	325.3	338.7	353.2	360.4	345.5	344.8	319.1	311.3	289.3	323.2
1988	292.2	293.0	292.5	305.3	309.1	313.2	309.7	285.9	268.9	253.3	229.2	256.3	284.0
1989	265.7	286.2	279.5	285.5	300.8	302.7	304.2	295.8	265.7	244.5	229.6	229.7	274.1
1990	254.8	267.5	288.4	299.4	320.9	335.1	358.7	356.4	347.0	337.1	332.0	339.2	319.7
1991	357.0	349.3	361.2	371.2	374.0	380.7	368.6	361.7	345.5	311.5	294.5	295.6	347.6
1992	319.2	329.8	316.8	317.1	328.9	327.0	354.8	351.1	341.5	322.4	312.1	333.1	329.5
1993	339.3	320.7	319.4	314.7	343.8	404.5	403.0	392.1	386.7	392.7	360.2	357.2	361.2
Average	334.4	336.9	337.9	342.3	353.7	364.4	368.5	358.8	342.2	329.3	316.6	323.1	342.3

CCC Stocks of Natural Cheese

1980	6.6	7.1	3.1	12.1	19.0	38.8	64.3	83.1	75.5	74.9	70.7	56.8	42.7
1981	82.9	85.2	93.7	111.5	136.6	159.5	189.6	213.3	224.1	228.3	236.7	249.3	167.6
1982	251.5	252.6	273.8	273.8	273.8	346.7	346.7	346.7	447.0	447.0	447.0	546.1	354.4
1983	586.6	612.2	637.6	652.4	653.6	674.5	691.3	743.2	781.2	765.5	750.4	731.5	690.0
1984	739.7	763.3	752.6	727.1	737.7	714.9	712.5	684.7	671.8	639.3	606.2	545.2	691.3
1985	511.0	494.6	468.2	467.9	459.1	483.9	498.1	504.9	506.5	472.1	469.1	452.3	482.3
1986	430.1	406.4	399.9	415.5	438.3	445.6	463.2	462.7	426.0	400.9	378.2	324.7	416.0
1987	294.6	271.5	254.6	228.0	230.8	211.5	186.7	164.2	140.5	122.0	92.0	78.1	189.5
1988	72.7	66.9	61.6	53.9	57.6	68.7	78.7	65.2	46.0	39.9	31.7	27.1	55.8
1989	20.4	6.8	6.2	7.7	8.3	8.8	7.8	6.4	5.8	5.6	5.6	5.1	7.9
1990	4.2	3.7	3.4	1.4	1.2	0.9	1.8	2.3	1.7	1.3	2.4	8.0	2.7
1991	13.9	18.3	25.0	32.7	34.5	33.1	34.3	30.4	28.5	26.4	24.6	22.2	27.0
1992	19.6	18.2	18.6	17.6	14.6	16.4	15.2	13.1	8.3	5.6	7.1	7.8	13.5
1993	8.0	7.0	7.0	8.0	5.0	5.0	4.0	3.0	2.0	2.0	2.0	1.6	4.5
Average	217.3	215.3	214.7	215.0	219.3	229.2	235.3	237.4	240.3	230.8	223.1	218.3	224.6

Source: Dairy Market Statistics, Annual Summary, USDA.

Appendix Table 6.4a: Kraft Market Share of Retail Quantity of Cheese Sold, by Type, 1988-92.

Year & Qtr	American Cheese	Natural Cheese (Excl Shred)	Natural Shredded Cheese	Spreads & Imitation Balls	Cheese	Ricotta Cheese	All Other Cheese	Sub-Total	Cream Cheese	Total
				----Percent Share of Total Pounds Sold----						
88.1	59.11	37.68	28.54	49.20	0.00	20.34	61.20	46.33	68.56	49.00
88.2	58.85	36.98	27.14	46.28	0.00	20.96	62.28	46.47	67.72	49.02
88.3	58.42	36.23	28.04	46.13	0.00	18.98	63.11	46.26	67.35	48.65
88.4	60.65	37.66	27.78	47.15	0.00	20.02	61.67	46.46	64.60	49.25
89.1	60.44	36.26	27.18	46.73	0.00	20.38	60.41	46.06	66.99	48.50
89.2	59.31	34.56	27.09	46.74	0.00	19.41	57.53	45.75	66.79	48.18
89.3	58.39	34.11	26.16	44.01	0.00	18.29	58.95	45.01	66.33	47.43
89.4	60.32	35.28	25.57	40.65	0.00	18.94	57.07	44.23	64.90	47.48
90.1	58.42	31.94	25.76	37.07	0.00	18.75	55.48	42.25	67.78	45.26
90.2	57.11	29.62	25.68	35.72	0.00	19.79	57.08	41.46	67.88	44.78
90.3	56.89	28.44	25.52	33.85	0.00	17.16	58.12	41.14	67.50	44.37
90.4	57.63	28.73	24.44	37.17	0.00	17.87	57.67	40.33	63.17	44.11
91.1	55.27	26.06	21.57	35.65	0.00	17.06	56.19	38.21	65.15	41.60
91.2	53.84	27.55	23.74	34.00	0.00	19.38	56.93	39.25	64.84	42.44
91.3	52.88	26.38	24.24	38.88	0.01	17.50	58.72	39.07	64.75	42.29
91.4	52.82	27.87	22.03	40.04	0.52	20.24	44.24	37.05	61.82	41.28
92.1	51.75	25.55	20.54	40.55	1.76	17.05	50.40	36.22	63.89	39.74
92.2	52.09	26.22	21.36	43.42	3.23	20.58	49.40	37.38	64.20	40.95
92.3	52.48	25.01	24.35	46.83	3.24	17.53	48.24	38.01	63.52	41.29
92.4	54.93	28.12	24.13	45.68	3.23	23.01	40.63	38.52	63.24	42.84
1988	59.26	37.15	27.89	47.22	0.00	20.10	62.06	46.38	66.80	48.99
1989	59.61	35.08	26.48	44.25	0.00	19.33	61.83	45.25	66.10	47.89
1990	57.51	29.68	25.32	36.05	0.00	18.42	60.67	41.28	66.18	44.62
1991	53.73	26.96	22.84	37.30	0.13	18.60	59.65	38.38	63.91	41.88
1992	52.81	26.27	22.61	44.25	2.80	19.82	58.50	37.54	63.66	41.25

Source: I.R.I. Infoscan data as reported by Andrew W. Franklin and Ronald W. Cotterill, "Pricing and Marketing Strategies in the National Brand Cheese Industry", Food Marketing Policy Research Report No. 26, September 1994.

Appendix Table 6.4b: Kraft Market Share of Retail Dollar Sales of Cheese, by Type, 1988-92.

Year & Qtr	American Cheese	Natural Cheese (Excl Shred)	Natural Shredded Cheese	Spreads & Balls	Imitation Cheese	Ricotta Cheese	All Other Cheese	Sub-Total	Cream Cheese	Total
				----Percent Share of Total Dollar Sales----						
88.1	62.56	41.47	31.67	47.03	0.00	23.37	63.29	48.91	72.02	51.30
88.2	62.55	40.94	30.28	44.61	0.00	24.16	63.84	48.95	71.00	51.28
88.3	62.55	40.45	31.40	43.99	0.00	22.77	64.41	49.02	70.62	51.19
88.4	64.03	41.90	31.07	45.27	0.00	23.34	63.52	49.10	68.60	51.52
89.1	63.76	40.43	30.34	46.50	0.00	23.48	62.01	48.70	70.40	50.83
89.2	62.82	38.96	30.08	46.76	0.00	23.00	59.70	48.26	69.83	50.39
89.3	62.10	38.30	29.57	43.42	0.00	21.48	60.67	47.55	69.41	49.65
89.4	63.80	40.11	29.27	40.83	0.00	22.33	60.51	47.36	68.75	49.89
90.1	62.27	36.74	29.03	37.56	0.00	21.20	59.15	45.46	70.85	47.79
90.2	61.62	34.64	29.15	36.13	0.00	22.41	59.84	44.94	71.07	47.50
90.3	62.00	33.76	29.52	34.77	0.00	20.55	61.61	45.06	70.07	47.41
90.4	63.14	34.08	28.64	38.10	0.00	20.45	60.72	44.60	66.52	47.22
91.1	62.29	32.36	26.23	38.41	0.00	19.56	59.70	43.60	68.41	46.00
91.2	61.36	33.63	28.48	36.88	0.00	22.10	60.03	44.62	68.29	46.95
91.3	60.02	31.95	28.98	40.35	0.01	20.32	60.84	43.90	67.89	46.27
91.4	59.56	32.90	26.18	41.16	0.50	20.89	38.02	40.70	66.08	43.94
92.1	58.61	30.43	23.61	43.63	1.54	18.68	41.79	39.55	68.01	42.44
92.2	59.14	30.89	24.17	44.59	2.72	20.82	44.11	40.77	68.11	43.69
92.3	58.98	29.54	27.02	46.62	2.98	19.90	43.72	40.95	67.67	43.73
92.4	61.04	31.75	26.58	45.83	2.93	22.45	41.98	41.29	68.13	44.83
1988	62.94	41.21	31.12	45.25	0.00	23.40	63.76	49.00	70.38	51.33
1989	63.12	39.49	29.79	44.00	0.00	22.62	63.40	47.94	69.52	50.18
1990	62.26	34.80	29.07	36.76	0.00	21.12	62.41	45.01	69.33	47.47
1991	60.84	32.70	27.39	39.33	0.12	20.65	61.51	43.19	67.55	45.77
1992	59.43	30.67	25.35	45.23	2.48	20.55	60.74	40.64	67.99	43.69

Source: Franklin and Cotterill, op.cit.

Appendix Table 6.4c: Kraft Brand Retail Cheese Sales, by Type, 1988-92.

Year & Qtr	American Cheese	Natural Cheese (Excl Shred)	Natural Shredded Cheese	Spreads & Balls	Imitation Cheese	Ricotta Cheese	All Other Cheese	Sub-Total	Cream Cheese	Total	Percent Change
					----Sales in Millions of Pounds----						
88.1	85.09	38.16	10.46	14.01	0.00	4.47	11.76	163.96	33.07	197.02	
88.2	85.01	35.92	9.03	12.38	0.00	3.40	11.24	156.98	31.18	188.16	-4.50%
88.3	86.52	35.74	9.57	12.33	0.00	2.94	12.23	159.32	29.65	188.97	0.43
88.4	88.96	40.54	10.92	17.30	0.00	4.78	12.36	174.86	44.26	219.12	15.96
89.1	90.58	37.20	11.07	14.35	0.00	4.66	12.56	170.41	32.73	203.14	-7.29
89.2	89.85	33.49	10.06	14.77	0.00	3.20	11.28	162.67	31.01	193.68	-4.66
89.3	87.82	32.67	9.74	13.28	0.00	2.83	11.88	158.23	29.86	188.09	-2.89
89.4	87.38	37.81	10.90	16.67	0.00	4.38	11.76	168.90	46.28	215.18	14.41
90.1	87.45	36.36	11.51	11.47	0.00	3.96	12.36	163.11	34.91	198.03	-7.97
90.2	87.04	32.83	10.65	10.59	0.00	4.11	12.03	157.25	37.04	194.29	-1.88
90.3	88.03	30.98	10.94	9.72	0.00	2.94	12.55	155.16	35.59	190.75	-1.83
90.4	87.40	34.53	12.01	13.95	0.00	4.62	12.77	165.28	51.34	216.62	13.56
91.1	84.97	30.50	11.18	11.89	0.00	4.37	13.39	156.30	38.46	194.75	-10.09
91.2	81.68	29.50	11.02	9.73	0.00	3.59	12.62	148.12	34.94	183.06	-6.00
91.3	78.50	27.67	11.74	11.78	0.00	3.10	15.14	147.94	35.11	183.05	-0.01
91.4	73.53	31.70	12.11	14.84	0.02	5.46	7.82	145.48	50.01	195.48	6.79
92.1	71.88	27.21	11.99	11.93	0.06	4.03	12.04	139.14	35.77	174.91	-10.53
92.2	74.80	27.66	11.38	12.24	0.09	4.73	9.32	140.21	37.03	177.24	1.33
92.3	76.02	25.98	13.19	14.31	0.09	3.27	9.75	142.60	35.10	177.70	0.26
92.4	77.48	32.44	14.87	16.99	0.08	6.53	6.63	155.02	53.91	208.93	17.57
1988	345.58	150.35	39.98	56.03	0.00	15.60	47.58	655.12	138.16	793.27	
1989	355.63	141.17	41.77	59.08	0.00	15.08	48.38	660.20	139.88	800.09	0.86
1990	349.92	134.70	45.10	45.73	0.00	15.63	48.42	640.80	158.89	799.69	-0.05
1991	318.66	119.37	46.05	48.24	0.02	16.53	48.08	597.84	158.51	756.35	-5.42
1992	300.18	113.29	51.42	55.47	0.32	18.56	47.48	576.98	161.81	738.79	-2.32

Source: Franklin and Cotterill, op.cit.

Appendix Table 6.4d: Kraft Brand Retail Cheese Sales, by Type, 1988-92.

Year & Qtr	American Cheese	Natural Cheese (Excl Shred)	Natural Shredded Cheese	Spreads & Imitation Balls	Cheese	Ricotta Cheese	All Other Cheese	Sub-Total	Cream Cheese	Total	Percent Change
					----Sales in Millions of Dollars----						
88.1	193.01	128.06	34.86	36.96	0.00	7.76	53.16	453.81	77.06	530.87	
88.2	193.72	120.76	30.02	32.77	0.00	6.07	48.93	432.27	74.31	506.58	-4.58%
88.3	202.61	122.61	32.45	33.43	0.00	5.58	53.29	449.97	72.34	522.30	3.10
88.4	213.75	142.60	38.81	49.28	0.00	8.32	56.70	509.46	101.21	610.67	16.92
89.1	222.06	132.12	39.63	41.04	0.00	8.16	56.57	499.57	78.64	578.21	-5.32
89.2	222.06	121.28	35.42	42.41	0.00	6.10	50.26	477.53	75.70	553.22	-4.32
89.3	225.02	120.80	36.06	39.32	0.00	5.45	53.10	479.75	74.23	553.98	0.14
89.4	243.89	150.02	44.39	53.86	0.00	8.44	58.99	559.59	109.13	668.72	20.71
90.1	255.37	149.04	47.93	37.62	0.00	8.00	64.36	562.31	88.51	650.83	-2.68
90.2	256.71	134.39	44.58	34.82	0.00	7.80	59.33	537.63	92.23	629.86	-3.22
90.3	270.26	133.44	47.95	33.33	0.00	6.48	65.13	556.60	89.98	646.58	2.65
90.4	273.99	146.58	53.78	48.78	0.00	9.02	66.47	598.61	121.12	719.73	11.31
91.1	268.88	132.96	50.29	41.38	0.00	8.60	70.51	572.62	96.20	668.82	-7.07
91.2	254.44	125.07	48.25	33.72	0.00	7.22	64.15	532.85	89.40	622.25	-6.96
91.3	243.03	117.69	51.78	39.83	0.00	6.51	70.52	529.36	90.04	619.40	-0.46
91.4	233.41	131.23	53.73	49.88	0.04	9.22	25.05	502.55	119.33	621.89	0.40
92.1	228.44	113.56	50.66	42.61	0.13	7.79	33.70	476.88	92.54	569.42	-8.44
92.2	232.14	111.57	46.48	41.47	0.18	7.92	27.61	467.37	93.47	560.85	-1.51
92.3	233.66	107.94	53.40	47.07	0.20	6.82	29.51	478.60	91.69	570.29	1.68
92.4	234.79	125.80	59.68	56.63	0.18	10.54	26.26	513.89	128.88	642.77	12.71
1988	803.08	514.03	136.14	152.44	0.00	27.73	212.09	1845.51	324.92	2170.43	
1989	913.03	524.22	155.50	176.63	0.00	28.15	215.49	2016.44	337.69	2354.13	8.46
1990	1056.33	563.46	194.24	154.54	0.00	31.30	216.82	2255.16	391.84	2646.99	12.44
1991	999.77	506.95	204.05	164.80	0.04	31.55	216.63	2137.38	394.97	2532.34	-4.33
1992	929.03	458.88	210.22	187.79	0.69	33.07	218.91	1936.75	406.58	2343.33	-7.46

Source: Franklin and Cotterill, op.cit.

Appendix Table 6.5a: Private Label Market Share of Retail Quantity of Cheese Sold, by Type, 1988-92

Year & Qtr	American Cheese	Natural Cheese (Excl Shred	Natural Shredded Cheese	Spreads & Imitation Balls	Cheese	Ricotta Cheese	All Other Cheese	Sub-Total	Cream Cheese	Total
				----Percent Share of Total Pounds Sold----						
88.1	23.23	27.85	38.46	18.98	20.89	8.17	20.24	24.68	26.10	24.85
88.2	23.13	27.42	40.11	20.43	19.66	16.12	19.28	25.26	26.67	25.43
88.3	24.02	28.24	39.90	19.09	19.46	18.16	19.12	25.85	26.90	25.97
88.4	21.98	28.04	38.92	18.04	19.62	17.46	20.11	24.70	30.05	25.52
89.1	22.12	29.13	40.47	22.50	19.35	16.46	20.15	25.64	27.55	25.86
89.2	23.54	29.24	41.10	22.79	17.19	15.93	20.50	26.30	27.70	26.46
89.3	23.54	29.15	41.94	21.69	15.45	17.01	20.65	26.35	28.05	26.55
89.4	22.57	28.50	41.15	18.64	16.32	18.11	22.12	25.55	30.57	26.34
90.1	23.90	29.84	41.89	20.63	23.55	18.15	22.54	27.08	27.16	27.09
90.2	25.19	30.81	41.30	21.39	25.92	19.48	21.20	27.77	27.21	27.70
90.3	26.01	31.16	42.99	22.92	28.86	20.10	22.25	28.73	26.78	28.49
90.4	25.29	33.15	41.81	20.84	29.84	23.57	23.41	28.99	30.69	29.27
91.1	27.71	34.42	43.64	27.06	28.10	21.24	23.85	30.97	27.83	30.57
91.2	28.60	34.44	42.81	28.87	30.48	20.41	22.22	31.26	28.54	30.92
91.3	29.42	34.76	42.62	24.69	32.16	21.36	23.56	31.45	28.16	31.04
91.4	29.26	34.58	41.64	22.78	32.29	21.54	33.30	31.60	32.11	31.68
92.1	30.22	36.11	41.32	25.57	30.01	20.01	29.63	32.52	29.53	32.14
92.2	30.06	35.54	41.91	23.70	33.40	21.18	28.03	32.18	29.70	31.85
92.3	29.84	35.79	42.11	21.22	33.46	21.48	28.34	32.09	30.11	31.83
92.4	27.41	34.31	40.44	21.18	34.60	20.50	31.07	30.51	31.33	30.66
1988	23.09	27.89	39.31	19.04	19.94	14.69	19.70	25.11	27.71	25.44
1989	22.95	28.99	41.15	21.20	17.09	16.95	21.63	25.95	28.71	26.30
1990	25.11	31.27	42.00	21.39	26.99	20.52	24.41	28.15	28.28	28.17
1991	28.73	34.55	42.66	25.68	30.62	21.18	28.01	31.32	29.45	31.06
1992	29.39	35.41	41.41	22.79	32.69	20.73	28.54	31.81	30.30	31.59

Source: Franklin and Cotterill, op.cit.

Appendix Table 6.5b: Private Label Market Share of Retail Dollar Sales of Cheese, by Type, 1988-92.

Year & Qtr	American Cheese	Natural Cheese (Excl Shred)	Natural Shredded Cheese	Spreads & Balls	Imitation Cheese	Ricotta Cheese	All Other Cheese	Sub-Total	Cream Cheese	Total
				----Percent Share of Total Dollar Sales----						
88.1	20.15	23.50	34.25	10.87	18.72	7.11	19.03	21.58	20.36	21.45
88.2	19.89	22.94	35.48	11.44	17.39	14.21	18.28	21.64	20.69	21.54
88.3	20.32	23.36	34.91	10.98	17.10	14.91	18.26	21.85	20.75	21.74
88.4	18.94	23.41	34.15	10.72	16.96	15.10	18.72	21.21	23.14	21.45
89.1	18.96	24.36	35.56	13.34	16.26	14.28	18.93	22.14	21.09	22.03
89.2	19.82	24.14	35.96	13.25	14.46	13.97	19.38	22.27	21.39	22.19
89.3	19.94	24.26	36.38	12.88	12.89	14.87	19.55	22.44	21.48	22.35
89.4	19.34	23.94	35.46	10.83	13.12	15.45	19.87	21.80	23.42	21.99
90.1	20.22	24.92	36.17	12.63	18.54	15.89	20.03	23.11	20.66	22.89
90.2	20.95	25.38	35.19	12.96	20.51	16.61	19.08	23.28	20.78	23.03
90.3	21.39	25.80	36.36	13.69	23.12	17.38	19.50	23.92	20.56	23.60
90.4	20.45	26.88	34.96	12.26	24.22	19.33	20.60	23.76	23.12	23.68
91.1	21.25	27.22	35.65	15.69	23.66	17.90	20.77	24.63	20.46	24.22
91.2	21.76	26.98	34.79	16.62	25.71	17.11	19.43	24.53	21.19	24.20
91.3	23.07	27.84	34.82	14.15	27.65	17.93	19.91	25.13	20.94	24.71
91.4	23.16	28.30	34.28	13.40	27.62	18.06	34.72	26.17	23.71	25.86
92.1	23.92	29.55	34.25	14.58	25.94	16.89	31.86	27.04	21.72	26.50
92.2	23.60	29.28	35.22	13.98	28.67	17.65	25.49	26.49	22.17	26.03
92.3	24.01	29.92	35.95	12.55	29.90	18.18	25.16	26.82	22.17	26.33
92.4	22.21	29.13	34.20	12.26	30.79	17.29	25.18	25.59	22.83	25.23
1988	19.81	23.31	34.66	10.97	17.55	12.63	18.58	21.56	21.41	21.54
1989	19.52	24.17	35.81	12.39	14.16	14.69	20.61	22.15	22.00	22.13
1990	20.76	25.77	35.65	12.83	21.54	17.40	24.14	23.52	21.46	23.32
1991	22.28	27.59	34.88	14.87	26.01	17.78	25.91	25.11	21.74	24.75
1992	23.44	29.46	34.87	13.26	28.62	17.46	20.64	26.48	22.28	26.01

Source: Franklin and Cotterill, op.cit.

Appendix Table 6.5c: Private Label Brand Retail Cheese Sales, by Type, 1988-92.

Year & Qtr	American Cheese	Natural Cheese (Excl Shred)	Natural Shredded Cheese	Spreads & Balls	Imitation Cheese	Ricotta Cheese	All Other Cheese	Sub-Total	Cream Cheese	Total	Percent Change
				----Sales in Millions of Pounds----							
88.1	33.44	28.21	14.10	5.40	0.48	1.80	3.89	87.32	12.59	99.91	
88.2	33.41	26.63	13.35	5.47	0.38	2.61	3.48	85.33	12.28	97.61	-2.30%
88.3	35.57	27.85	13.61	5.10	0.38	2.82	3.70	89.04	11.84	100.88	3.35
88.4	32.24	30.18	15.29	6.62	0.41	4.17	4.03	92.95	20.59	113.54	12.55
89.1	33.15	29.88	16.49	6.91	0.47	3.77	4.19	94.85	13.46	108.31	-4.60
89.2	35.66	28.34	15.27	7.20	0.40	2.62	4.02	93.52	12.86	106.38	-1.79
89.3	35.40	27.92	15.62	6.55	0.36	2.63	4.16	92.65	12.63	105.28	-1.03
89.4	32.69	30.55	17.54	7.65	0.40	4.19	4.56	97.57	21.80	119.37	13.39
90.1	35.78	33.96	18.72	6.38	0.82	3.83	5.02	104.52	13.99	118.51	-0.72
90.2	38.39	34.15	17.12	6.34	0.80	4.05	4.47	105.32	14.85	120.17	1.40
90.3	40.25	33.94	18.43	6.58	0.91	3.44	4.81	108.36	14.12	122.48	1.92
90.4	38.35	39.83	20.54	7.82	0.98	6.10	5.18	118.82	24.94	143.76	17.38
91.1	42.60	40.28	22.62	9.02	1.04	5.45	5.68	126.69	16.43	143.12	-0.45
91.2	43.39	36.87	19.86	8.26	0.90	3.78	4.92	117.99	15.38	133.37	-6.82
91.3	43.67	36.47	20.65	7.48	0.96	3.79	6.08	119.09	15.27	134.36	0.75
91.4	40.73	39.34	22.89	8.44	0.98	5.81	5.89	124.08	25.97	150.05	11.67
92.1	41.98	38.46	24.13	7.52	1.02	4.73	7.08	124.91	16.53	141.44	-5.74
92.2	43.17	37.49	22.32	6.68	0.92	4.86	5.29	120.72	17.13	137.85	-2.54
92.3	43.22	37.18	22.80	6.48	0.96	4.00	5.73	120.38	16.64	137.02	-0.60
92.4	38.66	39.58	24.91	7.88	0.89	5.82	5.07	122.81	26.71	149.52	9.12
1988	134.66	112.87	56.35	ERR	24.25	11.40	15.10	354.64	57.30	411.94	
1989	136.91	116.69	64.91	28.31	1.63	13.22	16.93	378.59	60.75	439.34	6.65
1990	152.77	141.89	74.81	27.13	3.52	17.42	19.48	437.02	67.90	504.92	14.93
1991	170.39	152.96	86.02	33.21	3.87	18.83	22.57	487.85	73.05	560.90	11.09
1992	167.03	152.71	94.16	28.56	3.79	19.42	23.16	488.83	77.01	565.84	0.88

Source: Franklin and Cotterill, op.cit.

Appendix Table 6.5d: Private Label Brand Retail Cheese Sales, by Type, 1988-92.

Year & Qtr	American Cheese	Natural Cheese (Excl Shred)	Natural Shredded Cheese	Spreads & Balls	Imitation Cheese	Ricotta Cheese	All Other Cheese	Sub-Total	Cream Cheese	Total	Percent Change
				----Sales in Millions of Dollars----							
88.1	62.17	72.59	37.70	8.54	0.88	2.36	15.99	200.23	21.78	222.01	
88.2	61.61	67.66	35.17	8.41	0.71	3.57	14.01	191.15	21.65	212.80	-4.15%
88.3	65.81	70.80	36.07	8.35	0.73	3.65	15.11	200.52	21.25	221.77	4.22
88.4	63.22	79.66	42.66	11.67	0.83	5.38	16.71	220.13	34.14	254.27	14.65
89.1	66.04	79.61	46.45	11.78	0.95	4.96	17.27	227.07	23.56	250.62	-1.43
89.2	70.08	75.15	42.34	12.02	0.80	3.70	16.31	220.41	23.19	243.59	-2.81
89.3	72.26	76.53	44.36	11.67	0.74	3.77	17.11	226.45	22.97	249.42	2.39
89.4	73.92	89.56	53.78	14.28	0.85	5.84	19.37	257.60	37.17	294.77	18.18
90.1	82.93	101.08	59.71	12.65	1.74	6.00	21.79	285.90	25.81	311.71	5.75
90.2	87.26	98.48	53.83	12.49	1.74	5.78	18.92	278.48	26.97	305.45	-2.01
90.3	93.25	101.99	59.06	13.12	1.98	5.48	20.61	295.50	26.40	321.90	5.39
90.4	88.75	115.60	65.64	15.69	2.13	8.53	22.55	318.89	42.10	360.99	12.14
91.1	91.71	111.86	68.35	16.90	2.19	7.87	24.53	323.42	28.77	352.19	-2.44
91.2	90.24	100.36	58.93	15.19	1.89	5.59	20.77	292.98	27.75	320.72	-8.93
91.3	93.41	102.55	62.22	13.97	2.02	5.74	23.08	303.00	27.78	330.77	3.13
91.4	90.75	112.91	70.37	16.24	2.06	7.97	22.87	323.17	42.82	365.99	10.65
92.1	93.23	110.25	73.50	14.24	2.15	7.04	25.69	326.10	29.56	355.65	-2.83
92.2	92.63	105.76	67.73	13.01	1.92	6.72	15.95	303.71	30.42	334.14	-6.05
92.3	95.13	109.32	71.06	12.67	2.00	6.23	16.98	313.40	30.04	343.43	2.78
92.4	85.44	115.42	76.80	15.14	1.89	8.12	15.75	318.57	43.19	361.76	5.34
1988	252.81	290.70	151.61	36.96	3.15	14.97	61.82	812.02	98.82	910.84	
1989	282.30	320.86	186.94	49.74	3.35	18.28	70.06	931.52	106.88	1038.41	14.01
1990	352.19	417.15	238.23	53.95	7.60	25.79	83.87	1178.78	121.28	1300.06	25.20
1991	366.12	427.69	259.87	62.30	8.16	27.18	91.25	1242.56	127.12	1369.68	5.36
1992	366.44	440.75	289.09	55.07	7.96	28.10	74.38	1261.78	133.20	1394.98	1.85

Source: Franklin and Cotterill, op.cit.

Appendix Table 6.6a: Total Retail Cheese Sales, by Type, 1988-92.

Year & Qtr	American Cheese	Natural Cheese (Excl Shred)	Natural Shredded Cheese	Spreads & Imitation Balls	Cheese	Ricotta Cheese	All Other Cheese	Sub-Total	Cream Cheese	Total	Percent Change
					----Sales in Millions of Pounds----						
88.1	143.96	101.29	36.66	28.47	2.28	21.99	19.21	353.86	48.23	402.09	
88.2	144.45	97.11	33.28	26.76	1.95	16.20	18.05	337.80	46.04	383.84	-4.54%
88.3	148.10	98.63	34.11	26.73	1.95	15.51	19.38	344.41	44.02	388.43	1.19
88.4	146.67	107.66	39.29	36.70	2.11	23.90	20.04	376.37	68.52	444.89	14.54
89.1	149.87	102.58	40.73	30.70	2.43	22.87	20.79	369.97	48.86	418.83	-5.86
89.2	151.50	96.91	37.15	31.61	2.31	16.48	19.61	355.57	46.43	402.00	-4.02
89.3	150.40	95.79	37.24	30.18	2.32	15.48	20.16	351.57	45.02	396.59	-1.35
89.4	144.86	107.18	42.61	41.02	2.46	23.15	20.60	381.88	71.31	453.19	14.27
90.1	149.70	113.83	44.69	30.93	3.50	21.12	22.28	386.05	51.51	437.56	-3.45
90.2	152.40	110.84	41.46	29.65	3.10	20.78	21.08	379.31	54.57	433.88	-0.84
90.3	154.73	108.93	42.86	28.72	3.16	17.13	21.60	377.13	52.73	429.86	-0.93
90.4	151.66	120.18	49.14	37.54	3.30	25.86	22.14	409.82	81.27	491.09	14.24
91.1	153.73	117.03	51.82	33.35	3.69	25.64	23.84	409.10	59.03	468.13	-4.68
91.2	151.70	107.07	46.40	28.61	2.95	18.53	22.16	377.42	53.89	431.31	-7.86
91.3	148.44	104.91	48.44	30.31	2.99	17.74	25.79	378.62	54.22	432.84	0.35
91.4	139.20	113.77	54.98	37.06	3.02	26.97	17.69	392.69	80.89	473.58	9.41
92.1	138.90	106.50	58.40	29.41	3.41	23.65	23.89	384.16	55.98	440.14	-7.06
92.2	143.60	105.50	53.25	28.18	2.75	22.97	18.87	375.12	57.68	432.80	-1.67
92.3	144.85	103.89	54.15	30.56	2.86	18.64	20.21	375.16	55.26	430.42	-0.55
92.4	141.05	115.35	61.61	37.20	2.58	28.39	16.31	402.49	85.25	487.74	13.32
1988	583.18	404.69	143.34	118.66	8.29	77.60	76.68	1412.44	206.81	1619.25	
1989	596.63	402.46	157.73	133.51	9.52	77.98	78.25	1458.99	211.62	1670.61	3.17
1990	608.49	453.78	178.15	126.84	13.06	84.89	79.81	1552.31	240.08	1792.39	7.29
1991	593.07	442.78	201.64	129.33	12.65	88.88	80.59	1557.82	248.03	1805.85	0.75
1992	568.40	431.24	227.41	125.35	11.60	93.65	81.16	1536.92	254.17	1791.09	-0.82

Source: Franklin and Cotterill, op.cit.

Appendix Table 6.6b: Total Retail Cheese Sales, by Type, 1988-92.

Year & Qtr	American Cheese	Natural Cheese (Excl Shred)	Natural Shredded Cheese	Spreads & Balls	Imitation Cheese	Ricotta Cheese	All Other Cheese	Sub-Total	Cream Cheese	Total	Percent Change
					----Sales in Millions of Dollars----						
88.1	308.52	308.85	110.08	78.58	4.72	33.19	83.99	927.93	107.00	1034.93	
88.2	309.70	294.95	99.15	73.47	4.10	25.14	76.64	883.15	104.66	987.81	-4.55%
88.3	323.91	303.10	103.33	76.00	4.26	24.50	82.74	917.84	102.43	1020.27	3.29
88.4	333.83	340.31	124.91	108.85	4.88	35.63	89.27	1037.68	147.54	1185.22	16.17
89.1	348.27	326.82	130.63	88.26	5.85	34.75	91.22	1025.80	111.70	1137.50	-4.03
89.2	353.49	311.31	117.76	90.70	5.55	26.52	84.18	989.51	108.40	1097.91	-3.48
89.3	362.35	315.41	121.93	90.55	5.75	25.38	87.53	1008.90	106.94	1115.84	1.63
89.4	382.27	374.04	151.67	131.92	6.51	37.79	97.48	1181.68	158.74	1340.42	20.13
90.1	410.10	405.63	165.08	100.15	9.41	37.74	108.80	1236.91	124.93	1361.84	1.60
90.2	416.60	388.02	152.97	96.37	8.47	34.79	99.16	1196.38	129.77	1326.15	-2.62
90.3	435.90	395.31	162.43	95.86	8.58	31.55	105.72	1235.35	128.41	1363.76	2.84
90.4	433.94	430.06	187.74	128.02	8.80	44.11	109.46	1342.13	182.08	1524.21	11.77
91.1	431.66	410.91	191.71	107.72	9.27	43.98	118.10	1313.35	140.62	1453.97	-4.61
91.2	414.67	371.94	169.39	91.42	7.34	32.69	106.86	1194.31	130.91	1325.22	-8.86
91.3	404.92	368.33	178.70	98.72	7.31	32.03	115.91	1205.92	132.62	1338.54	1.01
91.4	391.89	398.94	205.26	121.18	7.45	44.13	65.88	1234.73	180.59	1415.32	5.74
92.1	389.76	373.16	214.60	97.67	8.27	41.69	80.64	1205.79	136.07	1341.86	-5.19
92.2	392.53	361.22	192.29	93.00	6.69	38.05	62.58	1146.36	137.24	1283.60	-4.34
92.3	396.17	365.40	197.66	100.97	6.69	34.27	67.50	1168.66	135.49	1304.15	1.60
92.4	384.65	396.27	224.57	123.57	6.15	46.95	62.55	1244.71	189.17	1433.88	9.95
1988	1275.96	1247.21	437.47	336.90	17.96	118.46	332.65	3766.61	461.63	4228.24	
1989	1446.38	1327.58	521.99	401.43	23.66	124.44	339.87	4205.89	485.78	4691.67	10.96
1990	1696.54	1619.02	668.22	420.40	35.26	148.19	347.41	5010.77	565.19	5575.96	18.85
1991	1643.14	1550.12	745.06	419.04	31.37	152.83	352.20	4948.31	584.74	5533.05	-0.77
1992	1563.11	1496.05	829.12	415.21	27.80	160.96	360.41	4765.52	597.97	5363.49	-3.06

Source: Franklin and Cotterill, op.cit.

Appendix Table 6.7. Kraft and Private Label Retail Cheese Prices and Price Gaps, by Types, 1988-1992.

	-- Price Per Pound --							
Yr & Qtr	Kraft American Price	PL American Price	Kraft Pvt Label American Price Gap	Percent Kraft Pvt Label American Price Gap	Kraft Spreads & Balls Price	PL Spreads & Balls Price	Kraft Pvt Label Spreads & Balls Price Gap	Percent Kraft Pvt Label Spreads & Balls Price Gap
88.1	$2.27	$1.86	$0.41	22.01%	$2.64	$1.58	$1.06	66.98%
88.2	2.28	1.84	0.43	23.58	2.65	1.54	1.11	72.07
88.3	2.34	1.85	0.49	26.58	2.71	1.64	1.08	65.73
88.4	2.40	1.96	0.44	22.53	2.85	1.76	1.08	61.52
89.1	2.45	1.99	0.46	23.07	2.86	1.71	1.16	67.79
89.2	2.47	1.97	0.51	25.77	2.87	1.67	1.20	72.10
89.3	2.56	2.04	0.52	25.54	2.96	1.78	1.18	66.11
89.4	2.79	2.26	0.53	23.45	3.23	1.87	1.36	72.92
90.1	2.92	2.32	0.60	25.97	3.28	1.98	1.30	65.53
90.2	2.95	2.27	0.68	29.76	3.29	1.97	1.32	66.97
90.3	3.07	2.32	0.75	32.51	3.43	1.99	1.44	72.03
90.4	3.13	2.31	0.82	35.47	3.50	2.01	1.49	74.25
91.1	3.16	2.15	1.01	46.98	3.48	1.87	1.61	85.80
91.2	3.12	2.08	1.04	49.77	3.47	1.84	1.63	88.47
91.3	3.10	2.14	0.96	44.75	3.38	1.87	1.51	81.14
91.4	3.17	2.23	0.95	42.48	3.36	1.92	1.44	74.70
92.1	3.18	2.22	0.96	43.09	3.57	1.89	1.68	88.66
92.2	3.10	2.15	0.96	44.62	3.39	1.95	1.44	74.07
92.3	3.07	2.20	0.87	39.65	3.29	1.96	1.33	68.24
92.4	3.03	2.21	0.82	37.12	3.33	1.92	1.41	73.40
1988	$2.32	$1.88	$0.45	23.79%	$2.72	$1.64	$1.08	66.30%
1989	2.57	2.06	0.51	24.51	2.99	1.76	1.23	70.13
1990	3.02	2.31	0.71	30.94	3.38	1.99	1.39	69.94
1991	3.14	2.15	0.99	46.01	3.42	1.88	1.54	82.11
1992	3.09	2.19	0.90	41.07	3.39	1.93	1.46	75.61

Appendix Table 6.7 (cont.) Kraft and Private Label Retail Cheese Prices and Price Gaps, by Types, 1988-1992.

	-- Price Per Pound --							
Yr & Qtr	Kraft Natural (exc Shred) Price	PL Natural (exc Shred) Price	Kraft Pvt Label Natural (exc Shred) Price Gap	Percent Kraft Pvt Label Natural (exc Shred) Price Gap	Kraft Natural Shred Price	PL Natural Shred Price	Kraft Pvt Label Natural Shred Price Gap	Percent Kraft Pvt Label Natural Shred Price Gap
88.1	$3.36	$2.57	$0.78	30.42%	$3.33	$2.67	$0.66	24.63%
88.2	3.36	2.54	0.82	32.32	3.32	2.63	0.69	26.12
88.3	3.43	2.54	0.89	34.97	3.39	2.65	0.74	28.00
88.4	3.52	2.64	0.88	33.29	3.56	2.79	0.77	27.44
89.1	3.55	2.66	0.89	33.33	3.58	2.82	0.76	27.07
89.2	3.62	2.65	0.97	36.53	3.52	2.77	0.75	26.93
89.3	3.70	2.74	0.96	34.90	3.70	2.84	0.86	30.33
89.4	3.97	2.93	1.04	35.33	4.07	3.07	1.01	32.83
90.1	4.10	2.98	1.12	37.74	4.16	3.19	0.98	30.57
90.2	4.09	2.88	1.21	41.93	4.19	3.14	1.04	33.20
90.3	4.31	3.01	1.30	43.36	4.38	3.21	1.18	36.77
90.4	4.25	2.90	1.34	46.28	4.48	3.20	1.28	40.17
91.1	4.36	2.78	1.58	57.00	4.50	3.02	1.48	48.89
91.2	4.24	2.72	1.52	55.77	4.38	2.97	1.41	47.61
91.3	4.25	2.81	1.44	51.24	4.41	3.01	1.40	46.35
91.4	4.14	2.87	1.27	44.23	4.44	3.07	1.36	44.29
92.1	4.17	2.87	1.31	45.57	4.22	3.05	1.18	38.67
92.2	4.03	2.82	1.21	42.97	4.09	3.04	1.05	34.63
92.3	4.16	2.94	1.22	41.33	4.05	3.12	0.93	29.96
92.4	3.88	2.92	0.96	32.99	4.01	3.08	0.93	30.23
1988	$3.42	$2.58	$0.84	32.75%	$3.41	$2.69	$0.72	26.58%
1989	3.71	2.75	0.96	35.05	3.72	2.88	0.84	29.27
1990	4.18	2.94	1.24	42.28	4.31	3.18	1.12	35.24
1991	4.25	2.80	1.45	51.89	4.43	3.02	1.41	46.68
1992	4.05	2.89	1.16	40.34	4.09	3.07	1.02	33.16

Appendix Table 6.8 Average Retail Price Per Pound of Kraft, Borden, and Private Label Brand American Cheese.

Yr & Qtr	Kraft Brand	Borden Brand	Private Label Brand	Kraft Less Borden	Kraft Less PL
88.1	$2.488	$2.198	$1.859	$0.290	$0.629
88.2	2.461	2.261	1.844	0.200	0.617
88.3	2.535	2.294	1.850	0.241	0.685
88.4	2.659	2.333	1.961	0.326	0.698
89.1	2.687	2.387	1.992	0.300	0.695
89.2	2.641	2.426	1.965	0.215	0.676
89.3	2.745	2.446	2.041	0.299	0.704
89.4	3.049	2.686	2.261	0.363	0.788
90.1	3.205	2.852	2.318	0.353	0.887
90.2	3.188	2.815	2.273	0.373	0.915
90.3	3.304	2.909	2.317	0.395	0.987
90.4	3.395	2.956	2.314	0.439	1.081
91.1	3.407	2.935	2.153	0.472	1.254
91.2	3.308	2.779	2.080	0.529	1.228
91.3	3.328	2.794	2.139	0.534	1.189
91.4	3.411	2.925	2.228	0.486	1.183
92.1	3.290	2.961	2.221	0.329	1.069
92.2	3.225	2.852	2.146	0.373	1.079
92.3	3.211	2.760	2.201	0.451	1.010
92.4	3.238	2.646	2.210	0.592	1.028

Source: Franklin and Cotterill, op.cit.

Appendix Table 6.9a. Market Shares of Company Brand Sales of Processed Cheeses

----Percent Share of Retail Sales in Dollars----

Company	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Kraft	56.0	57.0	57.0	57.8	59.3	59.4	59.6	60.2	59.8	58.3
Borden	8.1	7.5	8.1	8.5	8.1	8.3	8.4	8.0	8.5	8.1
Land O' Lakes	2.2	2.5	3.0	2.9	3.5	4.1	3.9	3.7	4.4	4.4
Fromageries	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.3	1.3	1.3
Weight Watchers	.5	.4	.5	.6	.7	.8	.9	1.1	1.1	.9
Top Five Cos.	68.0	68.7	69.8	71.0	72.8	73.8	74.0	74.2	75.2	73.1
All Other Cos.	4.3	4.6	5.1	4.8	4.9	3.9	4.4	5.8	6.9	6.8
Generic & Private Label	27.7	28.1	26.9	25.5	23.3	23.3	21.5	20.1	19.7	20.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: SAMI Million Dollar Brands
Note: Individual market shares do not always add to 100%.

Appendix Table 6.9b. Market Shares of Company Brand Sales of Natural Cheeses

----Percent Share of Retail Sales in Dollars----

Company	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Kraft	33.2	33.1	32.4	32.5	30.5	29.5	29.3	29.3	30.9	29.7
Sargento	2.3	2.5	2.9	3.2	3.9	4.0	4.6	5.6	6.0	6.5
Sorrento	1.1	1.2	1.4	1.7	2.7	3.2	3.3	3.5	3.3	3.5
Beatrice	3.7	3.5	3.4	3.6	3.9	4.0	3.9	3.8	3.3	3.0
Frigo Cheese Corp	.8	.8	.8	1.0	1.4	1.4	1.6	1.7	2.0	2.1
Top Five Cos.	42.8	43.4	42.8	43.5	43.3	42.5	43.6	44.5	45.5	44.8
All Other Cos.	11.3	9.2	9.1	9.5	10.2	11.6	11.5	11.8	12.1	12.4
Generic & Private Label	45.9	47.4	48.1	47.0	46.5	45.9	44.9	43.7	42.4	42.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: SAMI, Million Dollar Brands.
Note: Individual market shares do not always add to 100%.

Appendix Table 6.9c. Market Shares of Company Brand Sales of Cream Cheese

----Percent Share of Retail Sales in Dollars----

Company	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Kraft	69.9	69.3	69.3	69.7	69.3	69.2	70.4	69.6	69.0	69.0
Breakstone	3.6	3.3	3.4	3.6	3.8	3.7	3.6	3.7	3.2	3.0
Bongrain	--	--	--	--	--	.8	.7	.8	1.6	1.6
Anco Intl. Corp.	--	--	--	--	--	1.2	.9	.9	.9	.8
Zausner Food	--	--	--	--	--	--	--	--	--	.3
Top Five Cos.	73.5	73.0	73.1	73.7	73.4	75.2	75.9	75.2	74.9	74.7
All Others (2)	0.3	0.4	0.4	0.4	0.3	0.4	0.5	0.6	0.4	0.4
Generic & Private Label	26.0	27.4	26.9	26.9	27.1	25.0	24.1	24.3	23.9	23.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: SAMI, Million Dollar Brands.
Note: Individual market shares do not always add to 100%.

Appendix Table 6.10. Average Retail Prices of Kraft and Private Label Brands

	All Processed Cheese			All Natural Cheeses			Cream Cheese		
	Kraft	PL	% Gap	Kraft	PL	% Gap	Kraft	PL	% Gap
1981	$2.37	$2.01	17.9%	$2.99	$2.52	18.7%	$1.95	$1.54	26.6%
1982	2.50	2.02	23.7	3.08	2.70	14.1	2.03	1.61	26.1
1983	2.55	2.02	26.2	3.16	2.70	17.0	2.09	1.65	26.7
1984	2.60	2.00	30.0	3.25	2.70	20.3	2.18	1.69	29.0
1985	2.63	2.00	31.5	3.30	2.65	24.5	2.25	1.72	30.8
1986	2.63	1.99	32.2	3.33	2.64	26.1	2.30	1.74	32.2
1987	2.68	1.99	34.7	3.37	2.64	27.7	2.39	1.78	34.3
1988	2.76	2.05	34.6	3.45	2.65	30.1	2.47	1.80	37.2
1989	2.87	2.12	35.4	4.03	2.90	39.0	2.53	1.86	36.0
1990	3.31	2.35	40.9	4.55	3.13	45.4	2.56	1.89	35.4
Percentage Point Change 1981-1988			16.7			11.4			10.6

Source: SAMI Million Dollar Brands

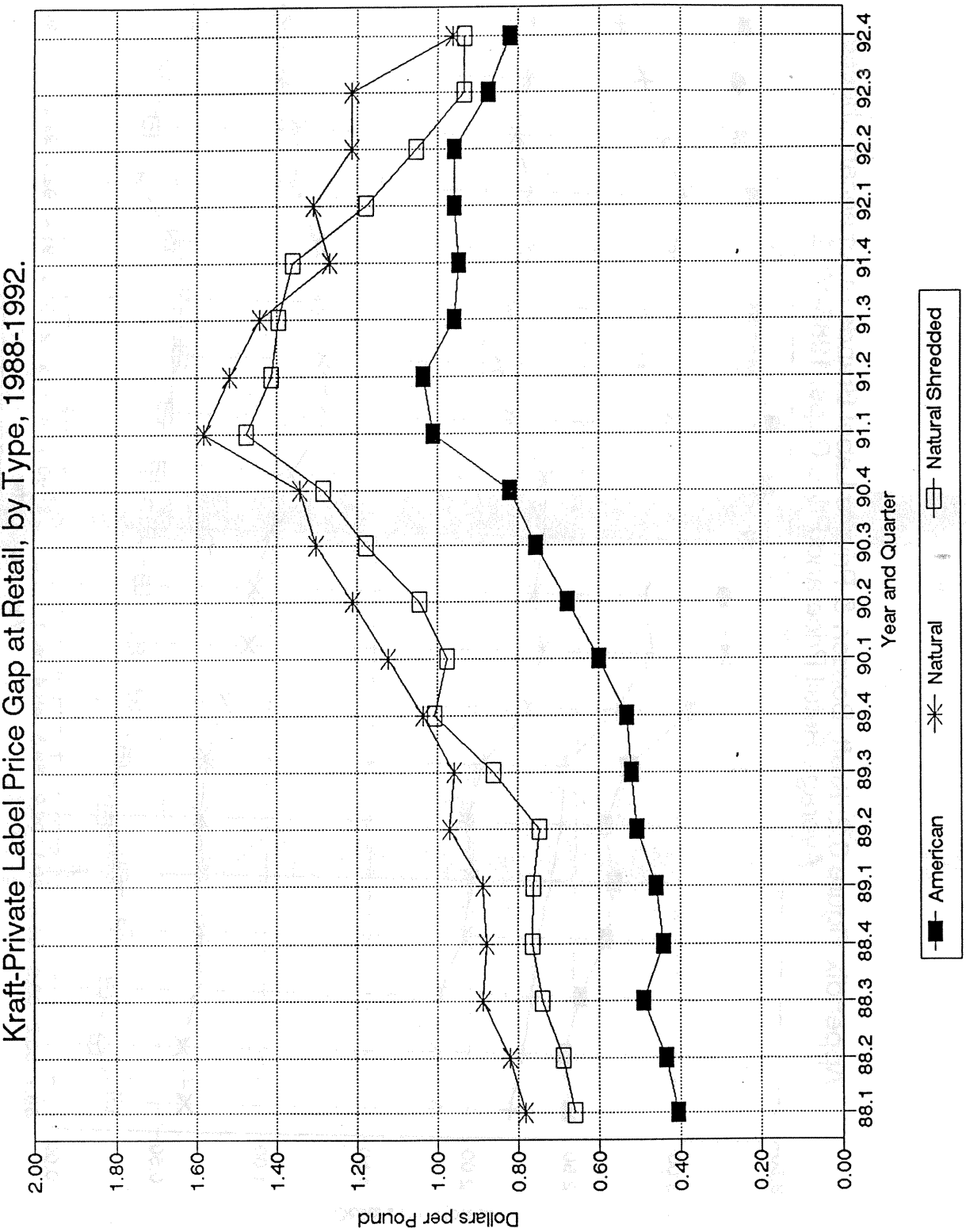
Appendix Table 6.11. Retail Prices of Natural and Processed Cheese, Leading Brands, 1981-1990

	Price Per Pound			Percent Change		
	1981	1985	1990	1981-1985	1985-1990	1981-1990
NATURAL CHEESE						
Private Label	$2.53	$2.67	$2.91	5.5%	9.0%	15.9%
Kraft						
Cracker Barrel	3.30	3.58	4.50	8.5	25.7	36.4
Harvest Moon	2.67	2.91	3.80	9.0	30.6	42.3
Kraft Brand	3.02	3.38	4.80	11.9	42.0	58.9
Land O' Lakes						
Lake to Lake	2.75	3.11	3.46	13.1	11.3	25.8
Beatrice						
County Line	3.06	3.30	3.92	7.8	18.8	28.1
Pauly	2.45	2.29	2.49	-6.5	7.0	1.6
NCE Blocks	1.358	1.248	1.315	-8.1	5.4	-3.2
PROCESSED CHEESE						
Private Label	2.05	2.08	2.37	1.5	13.9	15.6
Kraft						
Velveeta	1.74	2.09	2.89	20.1	38.3	66.1
Cheez Whiz	2.35	2.59	3.53	10.2	36.3	50.2
Kraft Brand	1.91	2.41	3.26	26.1	35.3	70.7
Borden	2.45	2.48	3.09	1.2	24.5	26.1
NCE Barrels	1.308	1.211	1.279	-7.4	5.6	-2.2

Source: SAMI Million Dollar Brands.

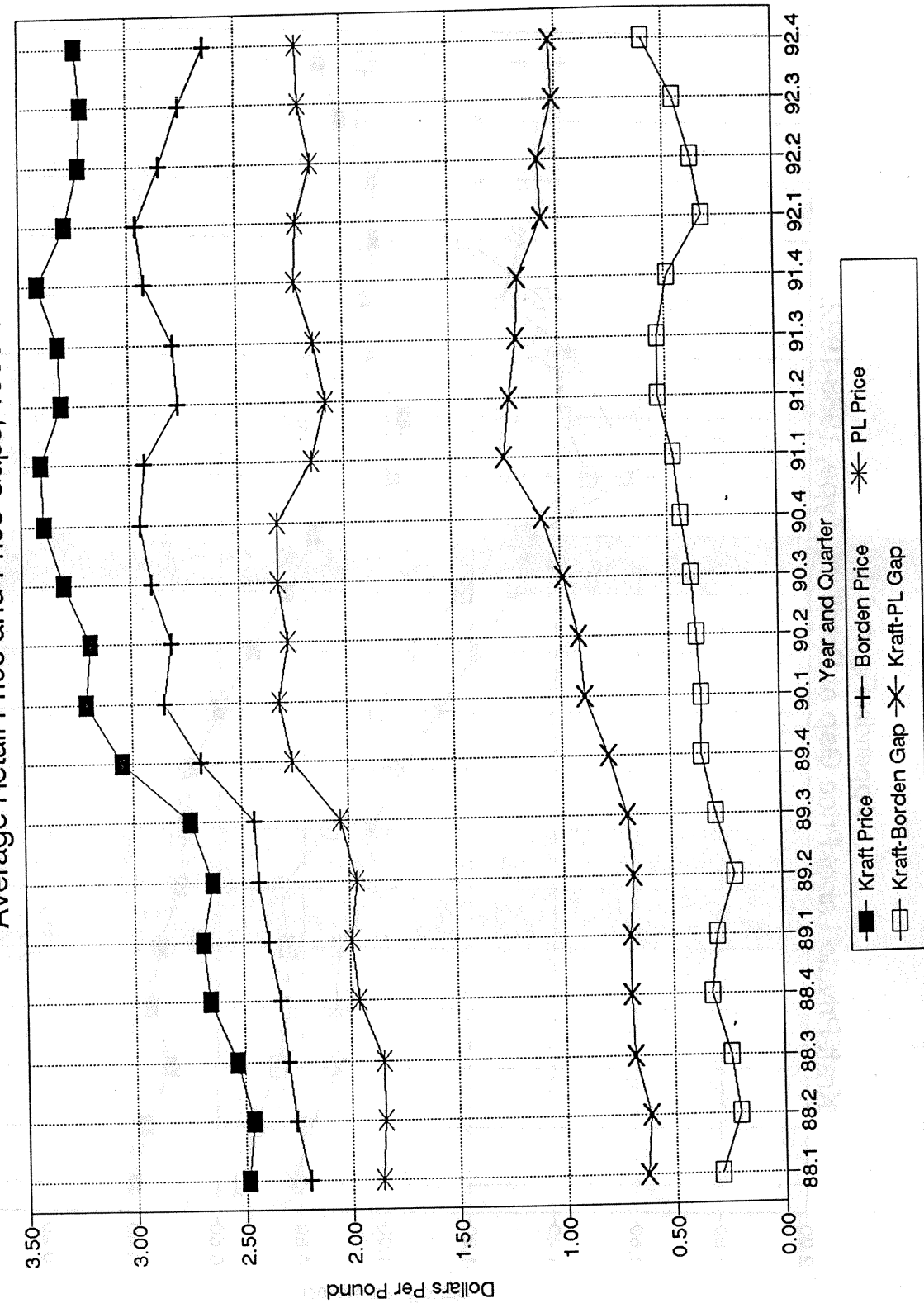
Appendix Figure 6.1

Kraft-Private Label Price Gap at Retail, by Type, 1988-1992.



Source : Appendix Table 6.7

Appendix Figure 6.2: Kraft, Borden & Private Label Brands of American Cheese, Average Retail Price and Price Gaps, 1988-1992



Source: Franklin and Cotterill, op.cit.

Chapter 7--Summary, Conclusions, and Policy Initiatives

A. Introduction

Cheese is the most important manufactured dairy product in the U.S. commanding 85 percent of the milk from Wisconsin and 33 percent of all milk in the U.S. However, the price of cheese has even more effect on the nation's dairy farmers than these figures suggest. Cheese prices largely determine the manufactured grade milk price (previously the M-W price but now the Basic Formula Price), which is the main driver of farm milk prices throughout the country.

In 1992 sales of cheese manufacturers and marketers were about $16 billion. Bulk natural cheese generally goes from the cheese manufacturing plants to one of two types of converting operations: about three-fourths of natural cheese goes to cut and wrap operations which convert bulk cheese into the form, size and package desired by end-users; the remaining one-fourth goes to processing plants which grind, emulsify and blend natural cheese (usually with the aid of heat) to make processed cheese, cheese foods and cheese spreads.

Most cheese converters market finished natural or processed cheese products to one or more of three main types of customers: roughly 40 percent of all cheese is sold to retail food stores, 44 percent to food service, and the remaining 16 percent is sold to other food manufacturers (industrial accounts). Brands such as Kraft, Sargento and Borden are primarily important in cheese sold through food stores. Leading brands of cheese are sold at substantial premiums over private label or store brand cheese. Margins on cheese sold to food service and industrial accounts are similar to those on private label cheese.

We estimate that the largest four manufacturers of natural cheese accounted for about 29 percent of total pounds made in 1992. Most of the leading manufacturers are also involved in

either cheese processing or the marketing of natural cheese. However, some of the leading processors/marketers make little or no natural cheese (i.e., Schreiber, Borden, Sargento). The largest four marketers of processed and natural cheese account for about 38 percent of the total *pounds* sold. The Census Bureau reported that in 1992 the four largest cheese companies made 42 percent of the *value* of all natural and processed cheese shipments. Thus, overall both cheese manufacturing and cheese marketing are only moderately concentrated.

B. Cheese Pricing and the NCE

The commercial cheese industry in the United States began in the 1840s and by 1870 boasted over 1300 cheese factories, located predominantly in Wisconsin and New York State. Initially cheese factories conducted business individually with dealers. But by the 1870s so-called "dairy boards" were established, where factory representatives and cheese dealers met and engaged in organized trading. These dairy boards and their successors evolved into the current National Cheese Exchange located in Green Bay, Wisconsin.

The National Cheese Exchange, often referred to herein as the NCE or the Exchange, is a centralized cash auction market trading 40-pound blocks (640-pound blocks were added in 1994) or 500-pound barrels of cheddar cheese in carlots of 40,000 pounds. In recent years the NCE has had 30 to 40 members consisting of cheese manufacturers, marketers, brokers and customers. Trading typically occurs from 10:00 a.m. to 10:30 a.m. each Friday.

During 1988 to 1993 just 0.2 percent of all bulk cheese was traded on the NCE. About 90-95 percent of bulk cheese sales involved direct supply arrangements using written or verbal "committed supply" agreements, often one year in duration. Another 5 to 10 percent involved spot market transactions.

Although only a tiny share of all bulk cheese transactions occurs on the NCE, it serves as the primary price discovery mechanism for bulk cheese transactions.. Virtually all long-term bulk cheese contracts (not merely cheddar cheese) use so-called *formula price contracts,* which spell out various terms of trade as well as an agreed upon price premium over the closing weekly NCE opinion or price. Spot sales also are priced "off the NCE"; however, premiums are negotiated for each transaction and may vary somewhat from week to week. On committed supply agreements, prenegotiated premiums often apply for extended periods so that transaction prices move in lock-step with NCE prices.

NCE prices are also used in formula pricing some cheese sold wholesale to retailers and food service companies, especially private label and weak cheese brands. Historically, this practice tended to "couple" the wholesale price of cheese with the NCE price. Since about 1985 the extent and closeness of such coupling has declined, as some companies adopt wholesale list prices that change infrequently or modify the terms of formula price contracts.

C. Potential Problems of Thin Markets

Because such a small share of total bulk cheese transactions occur on the NCE, it is what market analysts call a "thin" market. Formula pricing and thin markets often go together. As firms adopt formula pricing--i.e., trading off a price established by someone else--the residual market declines in volume. Thin markets like the NCE are primarily a potential problem where they serve as a widely used reference price and hence become highly leveraged. The incentive to influence the NCE would be very different if it were used to price 5 percent of bulk cheese sales rather than the estimated 90 to 95 percent. As it is, during 1988-1993, the price on 0.2

percent of all cheese produced was used in setting the price on 90 to 95 percent. That simple fact creates a great incentive for attempting to influence the NCE.

Economists have identified several possible adverse consequences of thin markets including manipulation of price, incorrect price signals causing misallocation of resources, and increased price volatility due to market illiquidity. Thinly traded markets do not necessarily perform poorly if there is sufficient volume "waiting in the wings" and if no single firm (or group of cooperating firms) is large enough to influence price to its (their) advantage. The critical issue lies in having a sufficient volume of potential traders who will participate in price determination should price depart from the competitive level. Supply and demand in the thin central market may not accurately represent aggregate supply and demand conditions, especially if only a few firms trade in the central market, but virtually all firms use prices generated there in formula price arrangements. Even if a non-trader believes that the central market price is inaccurate, he may continue to use formula pricing since doing so reduces his transaction costs. Thus, for a given product the competitive structure of a thin central market may differ significantly from that of the aggregate market. The cheese industry illustrates this principle since the NCE is far more concentrated than either the buying or selling side of the aggregate market. The nature of competition in a central market is affected when some of its traders enjoy *strategic competitive advantages* over other actual and potential traders. As shown below, such advantages may cause the thinly traded central market to become a submarket within the larger aggregate market, with prices for both set in the central market.

The various stages of the cheese subsector fit the economic definition of moderately concentrated oligopolies. In sharp contrast, NCE trading is highly concentrated in both buying

and selling, and it has a dominant seller-trader--Kraft General Foods, Inc., owned by Philip Morris Companies Inc. During 1988-1993, Kraft made 74 percent of all NCE sales and the next largest seller a mere 6 percent, with the top four seller-traders together accounting for 88 percent. During this period, the leading buyer-trader made 35 percent of all NCE purchases while the top four buyer-traders together came in at 81 percent. The degree of concentration was even greater in barrel trading, which accounted for 68 percent of all NCE sales and often appeared to drive block prices. During 1988-1993, Kraft made 83 percent of all barrel sales, a substantial percentage increase over the 1980-1987 period, when Kraft made only 25 percent of all barrel sales.

D. NCE Functions and Trader Motivations

Essential to understanding the trading conduct on the NCE is the proper identification of its functions: (a) to provide a cash market where members may buy and sell cheese and (b) to establish a "market opinion" price for bulk cheese, based on the day's last sale, highest bid, or lowest offer. There are, however, conflicting beliefs as to the primary reason traders use the Exchange. One view is that leading traders use the Exchange primarily as an alternative outlet or source of cheese; the second view is that they trade primarily to influence NCE prices, which are used in formula pricing bulk cheese bought and sold elsewhere.

If traders use the NCE primarily as an alternative outlet or source of supply, their trading patterns on the Exchange should be similar to those in any *bona fide* cash agricultural auction market: (a) traders that manufacture and sell most of their bulk cheese off the NCE should be mainly sellers on the NCE and (b) traders that normally buy most of their bulk cheese from others off the NCE for processing and marketing purposes should be mainly buyers on the NCE.

On the other hand, if firms trade primarily to influence NCE prices, their trading conduct may often be the reverse of that expected in *bona fide* cash agricultural auction markets.

We tested these conflicting hypotheses by examining trading patterns over the 1980-1993 period. During 1980-1987, cheese companies that sold bulk cheese off the NCE were predominantly sellers on the NCE, while cheese marketers that bought bulk cheese off the NCE were predominantly buyers on the NCE--as expected in a bona fide cash auction market. This trading pattern was reversed during 1988-1993, when some leading marketers became predominantly sellers and several leading manufacturers became predominantly buyers.

The most significant reversal was that of Kraft, the largest buyer of bulk cheese off the NCE. During the seven years, 1980-1986, Kraft bought 411 loads on the NCE while selling only 175 loads. However, beginning in August 1986, Kraft became *exclusively a seller-trader* on the NCE.[1] Also, beginning in 1988, three leading agricultural cooperative cheese manufacturers reversed their role, from being mainly sellers to being mainly buyers on the NCE. The cooperatives reversed their trading conduct more than one year after Kraft had become the leading seller-trader, suggesting that their reversals were a response to that of Kraft.

The shift in trading patterns occurred at the same time that the NCE became more important in the cheese price discovery process. During 1980-1987, cheese prices were strongly

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[1] From August 1986 through 1993, Kraft sold 2,043 loads and bought 22 loads. The 22 loads of blocks were evidently purchased for the purpose of influencing the price spread between blocks and barrels on the NCE, not because Kraft needed blocks at the time. Also, on two occasions Kraft bid to buy barrels; neither bid was filled. However, these bids evidently were made to *signal* its approval of an increasing price trend, not because Kraft needed more barrels. See Chapter 5, Section E. Thus, the above buyer-type actions were actually ancillary to Kraft's seller-trading activity, not the actions of a bona-fide buyer-trader.

influenced by the government price support program. There was little opportunity for firms trading on the NCE to have much influence. As support prices declined, cheese prices became more market driven. The volatility and range of cheese prices increased sharply during 1988-1993. In this environment, cheese companies had both greater opportunity and greater incentive to influence prices.

In sum, the trading patterns of leading cheese manufacturers and marketers during 1980-1987 is consistent with the hypothesis that leading traders use the NCE as an alternative outlet or source of cheese. Trading conduct during 1988-1993, however, is consistent with the hypothesis that some leading traders are motivated primarily by a desire to influence NCE prices.

E. Business Characteristics of Leading Traders

Differences in the business characteristics of leading traders help explain why some were primarily buyers and others primarily sellers on the NCE during 1988-1993. Essentially some traders benefit from higher NCE prices and some from lower NCE prices, other things being the same. To understand this concept, one must determine how an individual company's input costs and selling prices are related to NCE prices.

We examined the business characteristics of the nine leading traders on the NCE, who together accounted for 94 percent of all purchases and 94 percent of all sales during 1988-1993. Five of these traders--Kraft, Borden, Alpine Lace, Beatrice, and Schreiber--are primarily cheese marketers; three are agricultural cooperatives and major manufacturers of cheese: Mid-America, Land O' Lakes, and AMPI; and one is a broker: Dairystate Brands.

As cheese marketers, Kraft, Borden, Alpine Lace, Beatrice and Schreiber have certain characteristics in common. They all buy bulk cheese from manufacturers at NCE-based formula

prices. NCE prices also largely determine the cost of milk used in making cheese and thus are the dominant influence over the cost of cheese-making in supplier plants.

There are, however, significant differences among these five cheese marketers. Kraft, Borden, and Alpine Lace all sell cheese under their own brand names. Kraft sells about 75 percent of its finished cheese products to retailers under highly differentiated Kraft brands that command significant price premiums over lesser brands. Borden, the second largest marketer of branded processed cheese to retailers, sells nearly all of its cheese under the Borden brand, which also commands a substantial price premium over private label and weaker brands but a lower premium than Kraft brands.

Beginning in 1985, Kraft quit linking wholesale cheese prices to NCE prices and instead sold its brands at wholesale list prices, which frequently remain unchanged for many months. Since then there has been little correlation between NCE prices and the wholesale prices of either Kraft brands or those brands that often follow Kraft's prices. Although Kraft cannot set list prices entirely independently of other cheese brands, the relative strength of its brands gives it a significant degree of discretion in pricing. Like Kraft, Borden and Alpine Lace also sell finished product to retailers at list prices not coupled to NCE price.

Raw material inputs for processed cheese and finished natural cheese are predominantly bulk natural cheese and other dairy products. These inputs account for roughly 75 to 85 percent of the cost of finished cheese products. Profit margins for these three companies come mostly from the difference between the cost of cheese they buy or make and the wholesale price of finished product they sell. Since the bulk cheese they buy is priced off the NCE, and since the cost of bulk cheese constitutes such a large part of total manufacturing costs, Kraft, Borden and

Alpine Lace all have a strong financial interest in lower NCE prices, all else remaining the same. There is also documentary evidence that implies Kraft believed it could influence NCE prices.

Beatrice and Schreiber differ somewhat from the other three marketers in that neither has strong consumer brands for its finished cheese products. Beatrice sells its products predominantly as private label brands and weak company brands to food service companies, food retailers and industrial users. Schreiber, which is predominantly a processor and marketer of processed cheese products, makes a substantial majority of its sales to food service customers, particularly fast food chains. Most of its remaining sales are to food retailers, largely as private label or store brands and weak Schreiber brands. Therefore, both Beatrice and Schreiber sell to their customers at wholesale prices that are either formula-priced off the NCE or else which compete with products of other sellers that formula-price.

Since Beatrice and Schreiber apparently sell their products at essentially NCE-based formula prices rather than for a list price, both their buying and selling prices are expected to generally follow the NCE. Thus, their ultimate interest in the level of NCE prices is likely to differ from that of Kraft, Borden, and Alpine Lace. Even though a marketer may buy a good share of its bulk cheese,[2] the fact that it buys bulk cheese and sells processed cheese and cheese foods at NCE-based formula prices means it may profit from higher NCE prices. Since bulk cheese costs may represent 70 percent or less of the total cost for making *processed* cheese products, an increase in NCE price will increase the wholesale price of the finished products by more than the cost of making these cheeses, all else being the same.

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[2] Beatrice makes between 50 and 75 percent of its total cheese sales needs, although it buys practically all of the barrel cheddar used in making processed cheese. During 1988-1993, Schreiber bought the bulk of its cheese requirements (from committed suppliers, from the spot market, and the NCE).

Beatrice and Schreiber also may have other motives for NCE trading. Both were primarily buyers on the Exchange during both 1980-1987 and 1988-1993. Thus, their trading pattern has been consistent with that expected of a cheese marketer who looks to the Exchange as a supplemental source of supply. The NCE is often the lowest cost source of bulk cheese. Thus, both Beatrice and Schreiber have an incentive to buy when NCE prices are below those in the spot market. But the amount they can purchase is limited by how much their bulk cheese needs exceed the amount they get from committed suppliers. Both may also have purchased on the NCE in an effort to prevent decreases in the value of their inventories. However, both also appear to sometimes participate in bidding up prices in rising markets for the apparent purpose of raising NCE prices rather than expecting to buy since none of their bids are filled. On balance, however, the potential benefit of higher NCE prices to either company seems modest compared to the potential benefits marketers with strong brands may derive from lower NCE prices.

The three leading agricultural cooperative buyer-traders have two reasons for preferring higher NCE prices. First, the farmer-members of cooperatives benefit directly from higher prices for milk used in making cheese. Second, insofar as cooperatives sell some cheese under private label or weak brands of processed cheese, they have the same interests as Beatrice and Schreiber in higher NCE prices, although the potential benefits from this source are modest.

Since Dairystate is a broker, its interest in NCE prices presumably reflects those of its customers. Insofar as its customers are mostly small cheese manufacturers, it should be primarily a seller on the NCE, as it was during both 1980-1987 and 1988-1993. We are not satisfied, however, that we understand the motivation for much of Dairystate's NCE trading,

particularly its activity in prolonged rising or declining price trends when there is little or no real prospect of consummating a transaction.

In sum, the business characteristics of traders determine whether, other things being the same, they benefit from lower NCE prices or higher NCE prices. Based on our analysis of the business characteristics of leading traders, we hypothesize that the leading cheese traders fall into three categories: (a) traders benefitting from lower prices: Kraft, Borden and Alpine Lace; (b) traders benefitting somewhat from higher prices: Beatrice, Mid-Am, Schreiber, Land O' Lakes, and AMPI; (c) a trader with a neutral interest: Dairystate Brands. Thus, if traders use the NCE primarily to influence prices, their interests in the level of NCE prices explain why traders in category (a) are predominantly seller-traders and those in category (b) are predominantly buyer-traders.

F. Spot Trading as an Alternative to the NCE

Analysis of the "spot market" provides further evidence concerning the motives of leading traders on the NCE. Whereas the NCE centralizes trading at one location for about 30 minutes each Friday, the spot market is comprised of direct transactions at negotiated prices among cheese companies for the purpose of handling short-term shortages or surpluses. (As used here, the term "spot market" refers only to those spot sales made off the NCE, although the NCE is also a spot market.) During 1988-1993, 5 to 10 percent of *all* manufactured cheese (all types and ages) was sold in the spot market, whereas about 0.2 percent was sold on the NCE. The fact that spot sales substantially exceed NCE sales (even for the types sold on the NCE) raises a question as to whether the NCE is needed as an alternative source of supply and a place to dispose of surplus. Some of those believing this function of the NCE to be essential

evidently view it as a market of last resort, a place to which buyers or sellers turn because other alternatives are unavailable. This rationale for Exchange trading is most plausible for small cheese manufacturers with limited knowledge of market alternatives. However, even small cheese companies rely predominantly on the spot market in disposing of surplus cheese. And brokers selling for small companies use the spot market far more than the Exchange.

Limited knowledge of market alternatives is an implausible reason for large companies to trade on the Exchange. Such companies have quite extensive knowledge of market alternatives and frequent communication with prospective buyers and sellers.

Most cheese companies prefer the spot market because it has substantial advantages over NCE trading, including the following:

-- Spot traders are able to establish more precise delivery, age and quality specifications than are NCE traders.
-- Spot transactions may occur any time during the business week rather than during the typical NCE trading period of about 30 minutes each Friday.
-- NCE sales are F.O.B. within 200 miles of Green Bay. Plants located some distance from Green Bay may often avoid the freight charges associated with NCE transactions by trading in the spot market.
-- Spot traders need not pay the 0.25 cent per pound charge assessed to both the buyer and seller on NCE trades.
-- Spot market trading provides an opportunity to trade at prices not immediately known to competitors. In competitive markets, firms departing from the prevailing price generally do not wish to communicate this information to others.
-- The thinness of the market and its widespread use in formula pricing discourage large cheese manufacturers and marketers from using the Exchange *as an alternative outlet or source of supply* because doing so may adversely affect the price they pay or receive for contract purchases. Hence, the logical buyers and sellers in competitive cash auction markets are discouraged from using the NCE as bona fide buyers or sellers. Spot trades do not create this conflict because the prices of committed supply agreements are not linked directly to spot prices.

Given this list of spot market advantages, it is not surprising that NCE prices generally have been lower than spot market prices for comparable cheese. The lower prices can make the NCE an attractive, though less reliable, source of supply for buyers who need more cheese than they receive from committed suppliers. Of course, lower prices on the NCE do not explain why a large company would prefer to sell there. Indeed, it is difficult to identify any reasons why a large company would prefer to sell on the NCE rather than in the spot market, other than to influence the market price.

Kraft's publicly stated reasons for selling on the NCE are that (a) it always builds a surplus into its annual plan, and (b) it must take the entire output of its committed suppliers. But while Kraft always plans for some surplus--and occasionally has unplanned surpluses or shortages--these reasons explain neither its large sales on the NCE nor its exclusive seller-trader status from August 1986 through 1993. Analysis of Kraft's operations reveals that it can--and usually does--manage surpluses in one of three other ways: by reducing the amounts taken from committed suppliers (so-called "deprocurement"), by selling in the spot market, and by selling to the CCC when the option is available. For example, when in 1990-1991 Kraft faced the largest unplanned surplus in recent years, it sold a relatively minor part of the total surplus on the NCE. Most, if not all, cheese sold on the NCE could have been placed in inventory or sold more profitably to the CCC and in the spot market. Instead, Kraft chose to sell on the NCE at prices below the CCC support level. After prices rose above the support level in 1991, Kraft sold on the NCE for the apparent purpose of moderating an upward price trend.

On barrel and block sales for the entire 1987-1992 period, Kraft calculated that it *lost* an average of 2.40 cents per pound on NCE sales, *gained* an average 2.65 cents per pound on spot

sales, and *gained* an average of 0.19 cents per pound on CCC sales. Thus, there was a net differential of about 5 cents per pound between the loss from NCE sales and the gains from spot sales. (The comparisons include only sales of 40-pound cheddar blocks and 500-pound cheddar barrels, the cheese types sold on the NCE in 1988-1993.) To sell on the Exchange at a loss when other more profitable outlets are available constitutes trading against interest; i.e., it is irrational business conduct unless Kraft expected to influence NCE prices to its benefit. The profit-loss calculus to justify selling at such a loss is straightforward. Although Kraft lost about $1.5 million on NCE sales during 1987-1992, every 1 cent per pound reduction in NCE prices lowered Kraft's raw material procurement costs by over $10 million *annually*.

When considering whether or not the NCE as presently functioning is necessary as an alternative outlet, it is important to recall that a fragmented but geographically centralized cheese industry gave birth to the NCE and its predecessors in 1918. Since then manufacturing has become increasingly consolidated, with the number of cheese plants falling from about 4,000 in the early 1900s to 508 by 1987. Only 216 companies had annual sales over $100,000, the 50 largest of which made 82 percent of all natural and processed cheese shipments. Moreover, in 1920, two years after the predecessor of the NCE was established, Wisconsin accounted for 64 percent of the value of all cheese shipments; by 1994 Wisconsin's share of U.S. cheese production (in pounds) had declined to 30 percent. Over the period cheese production in the Western Region grew from about 6 percent to nearly 25 percent.

This geographic decentralization of manufacturing and decline in firm numbers, together with improved communications and transportation, has made obsolete a central cash auction market where buyers and sellers physically meet. Other food and nonfood manufacturing

industries have demonstrated that they can effectively manage unexpected shortages and surpluses without central cash markets, depending instead entirely on adjustments in supply, trades in spot markets, and inventory adjustments. Viewing the NCE in the context of the evolving cheese industry raises questions as to whether the NCE, as it currently functions, has become an anachronism.

G. Trading Activity of Leading Traders, 1988-1993

During 1988-1993 there was a cyclical pattern to cheese prices each year caused by seasonal variation in overall supply and demand conditions. Prices typically were lowest in February and March, the beginning of the flush production; prices typically rose thereafter until they peaked in late summer or fall.

Overall supply and demand conditions determine the broad contour of prices over each price cycle. But given the high inelasticity of short-run supply and demand, there often is a range of prices that will clear the market at each point on the cycle. This gives traders with market power a range within which they may influence the price established each week on the NCE. Such traders might not always seek the *lowest or the highest* price possible each trading session; rather, they might choose to periodically influence prices over a price cycle when they believed doing so would aid in achieving their profit goals.

Leading traders on the NCE may be divided into two groups based on their differing financial interests in the level of NCE prices, other things being the same. Kraft, Borden and Alpine Lace apparently benefit from lower NCE prices, whereas Beatrice, Mid-Am, Schreiber, Land O' Lakes and AMPI apparently benefit from higher NCE prices, other things remaining the same. During 1988-1993, leading traders in the first group were predominantly seller-traders

on the NCE, selling 1806 loads and buying 57 loads. Those in the second group were predominantly buyer-traders, buying 1947 loads and selling 93 loads. The two groups made 91 percent of all purchases and 86 percent of all sales. The leading seller-trader was Kraft, which made 74 percent of all sales, and the leading buyer-trader was Beatrice, which made 35 percent of all purchases.

Over each price cycle, the seller-traders, led by Kraft, usually traded most actively at price tops, price bottoms, and intermittently when prices were rising. At price bottoms, Kraft sometimes appeared to fill as many bids as required to keep prices at or near the seasonal low. Between a price bottom and the next price top, buyer-traders appeared to bid up the market, often with few consummated sales. During periods of rising prices, the seller-traders, led by Kraft, appeared to signal implicit approval of rising prices by not participating in trading, occasionally signaling explicit approval of rising prices by joining buyers in submitting bids, and signaling disapproval of rising prices by actively selling into a rising market, thereby moderating upward price trends. When seller-traders ceased selling, the upward price trend usually continued. At price tops Kraft often initially filled bids with the effect of slowing or stopping the upward trend. Thereafter, Kraft led in filling bids and in offering to sell as the market topped and began to subside. Once a downward price trend was established, Kraft frequently continued making offers to sell--often joined by Borden and Alpine Lace and sometimes by other traders. Generally, little actual selling was required to maintain a downward price trend, since with prices falling everyone in the marketing chain generally withheld purchasing, thereby delaying inventory accumulation until prices hit bottom. The apparent effect of seller-trader activity, led by Kraft, often was to shape the pattern of NCE prices over a price cycle.

The trading conduct of the two smaller seller-traders, Borden and Alpine Lace, differed from Kraft's in an important respect: whereas Borden made 30 percent of all offers to sell barrels during 1988-1993, it made only 4 percent of all barrel sales. Likewise, Alpine Lace made 30 percent of all offers to sell blocks but made only 5 percent of all block sales. The apparent explanation for these disparities in the pattern of offers and sales is that when buyer-traders began buying heavily, Borden and Alpine Lace generally became inactive, leaving Kraft to assume the losses that usually accompanied heavy selling. Thus, Kraft clearly dominated selling activity on the NCE.

Leading seller-traders were confronted by a small group of buyer-traders, led by Beatrice in barrels and Mid-Am in blocks. The buyer-traders were most active at price bottoms and during upward price trends. At price bottoms they exerted upward pressure on the market by covering offers (usually Kraft's) or making bids (usually filled by Kraft). Whenever Kraft stopped filling bids at a price bottom, buyer-traders actively bid up prices, usually with few or no sales, sometimes for many successive weeks. The buyer-traders appeared to be a less cohesive group than the seller-traders, since at times some buyer-traders sold when others were buying.

Overall trading patterns imply that the seller-trader activity exerted a downward influence on price, and the buyer-trader activity exerted an upward influence on price. For example, during the days Kraft and the other leading seller-traders were active on the NCE, prices *increased* during only 8 percent of the sessions, whereas they *decreased* during 43 percent of the sessions and *remained unchanged* during 22 percent of the sessions. And in 27 percent of

the sessions their selling activity *moderated upward price trends*. The same general pattern existed in block trading as in barrels.

The apparent influence of buyer-trader activity was the mirror image of leading seller-trader influence, but less pronounced in its effect. During the days leading buyer-traders were active, barrel prices *increased* on 45 percent of the days, *decreased* during 30 percent of the days, and *remained unchanged* on 25 percent of the days.

H. Kraft Trading Activity 1990-1992

An in-depth analysis of Kraft's trading activity during 1990-1992 provides insights into the apparent motives and consequences of Kraft's conduct, especially during cyclical price bottoms. For example, after a large price decline during January and the first week of February 1990, prices remained virtually unchanged for two months. The low prices apparently did not fully reflect market fundamentals but rather Kraft's persistent heavy selling on the NCE. Neither Kraft nor the industry had excess inventory at the time. Indeed, the market was quite tight with many cheese companies seeking supplemental supplies in the spot market. Market supplies would have been even tighter had not some companies apparently delayed building inventories because they feared prices might fall even lower. Whereas Kraft incurred losses on its NCE sales during this period, the evidence indicates that it often could have made profitable sales in the spot market.

The evidence does not support the idea that Kraft's large NCE sales during February-March 1990 were motivated primarily by a need to dispose of surplus cheese on the NCE. Kraft documents reveal that its top purchasing officials did not believe a surplus existed or loomed on the horizon. Insofar as Kraft had any short-term supply imbalances, these could have been

managed by increasing inventory modestly or by making more spot sales, the predominant methods used by Kraft and other large firms in handling surpluses in periods when price supports were not operative.

Although NCE barrel prices fell 30.5 cents per pound between the January high and the February and March lows, Kraft lowered its average net wholesale processed cheese prices by only 5 cents per pound during the same period. As a result, Kraft's gross profit margins on cheese reached record highs during February and March 1990.

This and other evidence presented in this analysis support the hypothesis that Kraft's trading activity was motivated primarily by a desire to influence NCE prices, not to dispose of surplus cheese. During 1990-1992, Kraft managed its surplus problem predominantly by reducing procurement of bulk cheese, selling in the spot market, and selling to the CCC when available. Kraft's overall NCE sales were *unprofitable*, whereas its spot and CCC sales were *profitable*. There is evidence that Kraft chose to sell cheese on the Exchange at a loss when it could have more profitably made the sales elsewhere. Such conduct constitutes *trading against interest*, the practice of purposely not selling at the profit-maximizing price. In the context of NCE trading, this implies the seller anticipates the unprofitable NCE sales will enhance company profits by lowering prices paid for bulk cheese purchased under NCE-based formula price contracts.

I. Econometric Analysis

In addition to the analyses of trader motives, overall trading patterns and the in-depth analysis of Kraft's conduct, we made several econometric analyses of NCE prices. The analyses sought to estimate quantitatively the relationship between NCE prices and various independent

variables. Two alternative estimating techniques were used in examining the relevant relationships.

The analyses tested the hypothesis that during 1988 through 1993, trading by Kraft and the other leading seller-traders had a negative influence on NCE prices, and that trading by leading buyer-traders had a positive influence on prices. The first analysis found a statistically significant *negative* relationship between NCE prices and leading seller-trader activity. The analysis found a very modest *positive*, but *not statistically significant*, relationship between NCE prices and the activity of leading buyer-traders.

The analysis implies that when at least one of the three leading seller-traders, dominated by Kraft, was active each week of a month, the average block and barrel price for the month was 4 to 5 cents per pound lower than if none of these traders had been active during the month. (These estimates are expressed in 1993 dollars.) So, if these traders were active during half of the weeks in a year, block prices would have averaged 2 to 2½ cents less for the entire year.

A separate analysis was made estimating Wisconsin Assembly Point (WAP) prices rather than NCE prices. This was done to determine whether the findings regarding NCE prices were representative of the actual transaction prices for the 90-95 percent of bulk cheese sold under committed supply agreements using NCE-based formula prices. These formulas typically include a premium over the relevant NCE price, with the size of the premium varying somewhat with changes in overall market conditions. Hence, NCE prices do not reflect precisely the actual transaction prices paid under committed supply agreements.

To determine whether this potential shortcoming of NCE prices significantly affected the relevance of our results, we substituted in our estimating equations average WAP prices, which

are the prices paid on spot transactions at Wisconsin assembly points. WAP prices generally are higher than NCE prices with the size of the premium influenced by market conditions. Our results using WAP prices are very similar to those using NCE prices. These results indicate that NCE prices are representative of the NCE-based formula prices for bulk cheese sold under committed supply agreements.

In sum, these analyses provide quantitative support for the hypothesis that the leading seller-traders--dominated by Kraft--were successful in reducing NCE prices when they participated in trading. In doing so they lowered the price of bulk cheese sold by cheese manufacturers at NCE-based formula prices. The trading activity of leading buyer-traders, however, had no statistically significant influence on prices.

J. Conclusions

The National Cheese Exchange and its predecessors have been subject to periodic criticisms and questions since their inception. It is easy to understand why. This tiny market in Green Bay, Wisconsin, operates for about 30 minutes each week with trades averaging 0.2 percent of total cheese volume during 1988-1993, yet the NCE price is used to formula-price virtually all bulk cheese transactions. This enormous leverage and the concentrated nature of trading raises questions of whether the NCE may be subject to manipulation for the benefit of some traders.

During the 1970s and through the mid-1980s, cheese prices were determined largely by government price supports for cheese; prices on the NCE seldom moved far from the CCC price. Thus, there was less opportunity and incentive for firms to manipulate the NCE. As price supports and CCC stocks declined, the role of the NCE in cheese pricing changed. Cheese prices

became increasingly market driven, price volatility increased sharply, and in this environment the potential pay-off from "managing" NCE prices increased.

During 1988-1993, the NCE apparently did not perform the functions expected of a *bona fide* cash auction market serving primarily as a supplemental outlet or supply. In *bona fide* cash agricultural auction markets, price determination is the *result* of trading, not the *purpose* of it. However, the evidence presented in this report provides considerable support for the hypothesis that during 1988 to 1993, leading seller-traders and, to a lesser extent, buyer-traders, engaged in trading primarily to influence NCE prices.

There is evidence that in recent years Kraft has been the market leader on the NCE. Whereas Kraft is the leading *buyer* of bulk cheese off the NCE, beginning in August 1986 Kraft became exclusively a *seller-trader* on the NCE. During 1988-1993 it made 74 percent of all barrel and block *sales* on the Exchange. In the important barrel market segment, which accounted for 68 percent of NCE sales, Kraft made 83 percent of all sales. Together with two other leading seller-traders, Kraft accounted for 88 percent of all barrel sales and 70 percent of all block sales.

Analysis of trading conduct during 1988-1993 indicates that Kraft's trading activity appeared to fashion the pattern of NCE prices *over each price cycle.* Kraft's sales on the Exchange were usually at a loss, whereas when it sold either in the spot market or to the CCC it generally made a profit (or incurred a smaller loss than on the NCE).

While Kraft was the dominant seller-trader on the NCE, it frequently was joined by Borden and Alpine Lace. These three seller-traders were frequently confronted by five leading buyer-traders, Beatrice, Mid-Am, Schreiber, Land O' Lakes and AMPI. The buyer-traders--

especially Beatrice and Mid-Am--often appeared to challenge Kraft's conduct at cyclical price bottoms and price tops, and to take turns bidding up prices during rising price trends. Insofar as cooperation occurred among buyers or among sellers, this may merely have reflected a shared interest in the level of prices; we found no evidence of collusive conduct among traders. The buyer-traders were a less cohesive group than the seller-traders, with some buying while others were selling.

The above characterization of trading conduct on the NCE implies that prices were established within the context of bilateral oligopoly, with Kraft acting as the dominant price leader, with two followers, confronted by five leading buyer-traders. Economic theory teaches that what actually happens under bilateral oligopoly depends upon the relative market power of the conflicting parties, including which party exercises price leadership. When power is evenly divided, the resulting prices *may* approximate competitive ones. If one side enjoys greater power than the other, the resulting prices will benefit the holders of greatest power. The study examined this issue by analyzing the conduct and performance of leading traders.

The analysis indicates that there was an imbalance in market power between buyer-traders and seller-traders, with the balance favoring Kraft and its followers. Kraft is the largest cheese company, the largest buyer of cheese off the NCE, and the leading seller on the NCE, especially in barrel cheddar cheese. We estimate that Kraft used 35 to 40 percent of all barrel cheese made in the United States in 1992,[3] practically all of which was purchased under

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[3] A 1989 Kraft document states that Kraft utilizes [... to ...] percent of the cheese produced in the U.S. Kraft General Foods, Inc., *Cheese Procurement Strategy*, Operations, December 6, 1989, KGF 2948, 2977. In November 1990, Kraft's cheese procurement director estimated that Kraft accounted for [...] percent of total U.S. cheese production. Kraft General Foods, Inc., Wayne Hangartner, "Jerome Cheese Company," November 8, 1990, KGF 3218, 3228. Information has been redacted from the report at this time pursuant to an agreement with Kraft General Foods, Inc., that there will be a subsequent

committed supply agreements at NCE-based formula prices. Kraft, in turn, uses this barrel cheese in processed cheese and cheese spreads, where Kraft accounts for about 60 percent of *retail* sales.

Kraft's large size in the cheese industry and dominance in NCE trading give it several *strategic competitive advantages* over traders and potential traders.[4] One competitive advantage derives directly from Kraft's position as the largest buyer of cheese off the NCE[5]. Each year Kraft builds some surplus into the amount of cheese it agrees to buy from committed suppliers.[6] In addition, it typically has first call on any excess cheese produced by committed suppliers, thereby controlling whether the cheese is sold in the spot market or on the NCE. Thus, Kraft has

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judicial resolution of a good-faith dispute over the trade secret status of the information.

4 A firm enjoys a strategic competitive advantage if it can employ strategies not available to other actual and potential market participants. Alexis Jacquemin, *The New Industrial Organization*, The MIT Press, 1987, 107-129; Michael E. Porter, *Competitive Advantage*, The Free Press, New York, 1985; T. Schelling, *The Strategy of Conflict*, Harvard University Press, 1960.

5 In an interview, Richard B. Mayer, Chairman-CEO of Kraft General Foods, Inc., reportedly said size "yields a lot of areas of *competitive advantage*" including "*incredible purchasing power*. Those types of advantages are very, very real." Emphasis added. J. Liesse and J. Dagnoli, "Goliath KGF Loses Steam After Merger," *Advertising Age*, January 27, 1992, p. 17.

Kraft included among the implications of being the largest cheese buyer the ability to get better information than others about overall market conditions. Kraft General Foods, *Cheese Procurement Strategy*, Operations, December 6, 1989, KGF 2948, 2990. It included among the strategies to maximize profits: developing superior information systems; establishing inventory strategic reserves; and influencing industry conditions to support Kraft business strategy. *Id.* 2993.

6 Kraft buys virtually all its barrel cheese needs from committed or spot suppliers. Kraft also can obtain additional barrel or block cheese from some of its committed supplier plants that can convert from making block to barrels. Such plants are referred to as "balancing" plants. If need be, these plants can supply additional barrels or blocks for trading purposes, thus contributing to Kraft's supply flexibility.

various methods of managing its surplus, which gives it the option of selling as much of the surplus on the NCE as best serves its interest.

Buyer-traders apparently do not have similar flexibility. Cheese marketers like Beatrice and Schreiber may plan each year to buy some cheese in the spot market and on the NCE. But the amount they can buy on the NCE may vary greatly from week to week. It is therefore risky for such marketers to plan on the NCE as a significant supply source. Since most marketers obtain 90-95 percent of their cheese under committed supply arrangements, this limits the extent to which they can buy cheese on the NCE.[7] Likewise, when selling on the NCE, Kraft often deals directly with cooperative cheese manufacturers that sell much of their bulk cheese (as committed suppliers or in the spot market) to Kraft and other cheese marketers. Although cooperatives often plan to buy some cheese in the spot market, their needs at a specific time may be quite are limited. Since they must ultimately sell any cheese purchased that exceeds their needs, they face the same problem as the proverbial coal mines of Newcastle. Moreover during 1988-1993, the leading cooperatives did not appear to coordinate their buying efforts on the Exchange. Land O' Lakes was an active seller-trader on a number of occasions. AMPI, the largest cheese cooperative, was the least active of the five leading buyer-traders, and on one

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[7] Of course, one option would be for a trader to buy at a low price on the NCE and sell at a higher price in the spot market. We have no evidence that this occurs frequently, although brokers may occasionally do so. Perhaps the reason for this is that buyer-traders believe the potential rewards are smaller than the potential risks. This is especially true at market tops and in declining markets, when a speculative buyer-trader may end up selling at a lower price in the spot market than he paid on the NCE.

At market bottoms, such speculative trading may be discouraged because continued heavy seller-trader activity may ultimately drive prices down even lower. Finally, other seller-traders that benefit from lower prices would not be inclined to *buy* on the NCE if doing so threatened to *increase* prices or slow decreases.

occasion sold heavily (while other buyer-traders were buying) on the Exchange, causing an historic drop in prices. Thus, the leading buyer-traders at times appeared to trade at cross purposes, an action which suggests that they constituted a less cohesive group than the seller-traders.

Kraft enjoys another strategic advantage over buyer-traders because of the asymmetry in market information among traders.[8] Kraft believes that its greater overall size and larger committed supplier base compared to other traders give it superior information regarding the size of industry inventories and overall supply/demand conditions. Other traders acknowledge that Kraft is the best informed trader, commanding the respect of both sellers and buyers. Because of Kraft's superior market knowledge, other traders hesitate to oppose Kraft's view of market conditions as implied by its trading conduct, especially during the turning points at the bottoms and tops of price cycles. When Kraft is active in a down market, traders with coincident interests often join in offering cheese; but traders with conflicting interests may remain on the sidelines because they suspect Kraft knows better than they such relevant facts as the size of industry inventories and shifts in aggregate supply and demand. A trader contemplating activity contrary to that of Kraft may believe such a strategy involves greater risk than going along with

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[8] The literature of strategic behavior includes asymmetry of information among rivals as an important factor conferring strategic advantage to a firm. David Encaoua, Paul Geroski and Alexis Jacquemin, "Strategic Competition and the Persistence of Dominant Firms," in Joseph Stiglitz and G. Frank Matthewson (ed.), *New Development in the Analysis of Market Structure* (1986), p. 55. Economic theory also suggests that asymmetric information facilitates cartel behavior. J.S. Feinstein, M.F. Block, and F.C. Nold, "Asymmetric Information and Collusive Behavior in Auction Markets," 74 *American Economic Review* (June 1985), 441-460. In a recent decision, the British Office of Fair Trading concluded that "asymmetries in information" constituted a significant barrier to entry. M.A. Utton, *Market Dominance and Antitrust Policy*, 1995, p. 130. See note 5 above regarding Kraft's superior market information.

Kraft. Such conduct may also be encouraged by the fact that all leading seller-traders have much slimmer profit margins than Kraft. The deference shown Kraft because of its superior market knowledge is a classic example of strategic advantage conferred by asymmetrical market knowledge.

Finally, Kraft gains competitive advantage because it buys so much cheese off the Exchange directly from actual and potential Exchange traders, a fact which may explain why important suppliers of Kraft have elected not to participate in trading. Only one (AMPI) of Kraft's leading suppliers during 1991-1992 traded on the Exchange in those years. This suggests that Kraft's leading suppliers were reluctant or unable to challenge Kraft on the NCE even though their interest in NCE price levels differed from Kraft's. No such constraints are placed on buyer-traders for whom Kraft is not a large customer off the NCE. Beatrice, Schreiber, Mid-Am and Land O' Lakes, the leading buyer-traders on the NCE, are not committed suppliers of Kraft, and they sell relatively little of their total bulk cheese output to Kraft. On the other hand, AMPI, an agricultural cooperative, the country's largest cheese manufacturer and a large committed supplier of Kraft, made far fewer purchases on the NCE than did Mid-Am, the nation's second largest cheese cooperative. AMPI's behavior is consistent with the expectation that firms selling relatively large amounts of cheese to Kraft off the Exchange are not likely (or able) to challenge Kraft's conduct on the NCE. Likewise, any trader that has a continuing business relationship with Kraft may cooperate with it on the NCE despite the fact that NCE prices seemingly have a neutral impact on the trader's profitability.

These various strategic competitive advantages are the source of Kraft's ability to exercise price leadership on the NCE. As Michael E. Porter observed, "industry leadership is

not a cause but an effect of competitive advantage."[9] No other trader on or off the Exchange enjoys these advantages, all of which derive from Kraft's large overall size and unique organizational structure. In this context, Kraft holds the balance of power. Of course, there may be times when supplies are so tight that Kraft is unable to depress prices on the NCE. Indeed, it may not be in Kraft's interest to do so at times, lest price be inadequate to bring forth a sufficient supply. But this only indicates, of course, that there are constraints on Kraft's ability to influence prices, a condition true even for a monopolist.

Kraft's potential influence over industrywide prices would be greatly diminished if it only *bought* from committed and spot suppliers and *sold* any surpluses in the spot market, since then its influence over price would be limited primarily to its buying power in the aggregate cheese market. Since Kraft's cheese requirements account for a quite modest share of total cheese production (approximately 15 to 20 percent),[10] it would have little unilateral control over price.

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[9] Michael Porter, *Competitive Advantage*, (The Free Press-Macmillan Inc.), 1985, p. 26. Emphasis in the original. David Encaoua, Paul Geroski, Alexis Jacquemin. "Strategic Competition and the Resistance of Dominant Firms: A Survey," in Joseph Stiglitz and G. Frank Mathewson, *New Development in the Analysis of Market Structure*, MIT Press, (1983) 79, 55-56. Steven C. Salop, "Strategic Entry Deterrence," *American Economic Review*, 69 (May 1979), 335-338. Michael E. Porter, *Competitive Advantage*, The Free Press, New York, 1985. Steven C. Salop (ed.), *Strategy, Predation and Antitrust Analysis*, Federal Trade Commission, Washington, D.C., September 1990.

[10] In a public document Kraft reports that in 1992 it accounted for about 20 percent of all cheese in the U.S., and 40-45 percent of all cheese sold through supermarkets. Dede Thompson Bartlett, Vice President and Secretary, Phillip Morris Companies Inc., to the Reverend Seamus P. Finn, O.M.I., February 24, 1992, enclosures, Kraft General Foods, Inc., "Share of the U.S. Dairy Industry," and "Facts about Kraft's Cheese Business."