

Term Structure of R.O.C. Treasuries ° Vasicek v.s. Cubic Exponential Spline Models

NSC 88-2416-H-002-016

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• D S H G D X O I H X V S J e m J o W O P (C) Y

Abstract

• S A H G S ° R S D S G W e p s S T T ° A e W S i c e k ° ° A
J ° A y / S D e S S S G V I D P C O U e O e S R

• S S D e p S D ° A L M K M D P e J I

A Hbootstrapping ° S H O D W S G V I ± Abstract ° G

Q P A T T S S G W e p s S ° ° R J C Y This project studied the term
S D e S T S S G V I D P C structure of R.O.C. Treasuries and drew

• S A e V a s i c e k & F o n g [1 9 8 2] S E the yield curve for this market. Due to the
V a s i c e k [1 9 7 7] ° J S G W e p s S ° ° R ° ° fact of insufficient bonds in Taiwan
y / S S G V I D P A e M A Q e S T T ° A Treasury market, the yield curve cannot be
J e W S J M K I e p o D A ° M A h ° O H obtained via directly bootstrapping bond
Calibration ° K I e S G J S P S G J S P ° S S data. This project relied on term structure
° D A G Z L ° A e p P A e ° ° R W ° models of interest rates to find out the
a A O M e S S e p A S S G T Z A S P T J Y yield curve. The studied models include
° ° J O e D T M J C S G W e p s S ° C the Vasicek and Fong (1982) model and

π I / P S G , ° V a s i c e k & F o n g the Vasicek (1977) model. Parameters in
[1 9 8 2] ° D ° ° ° J T W ° A e ° O e ° the Vasicek model are estimated with the
A O S G S e S A e N U V a s i c e k & F o n g calibration approach. One-factor and two-
[1 9 8 2] ° D ° ° ° ° J ° D ° ° ° S S G U factor Vasicek models are estimated. On
V a s i c e k S G J S P ° ° C the other hand, Vasicek and Fong's model

is estimated by the OLS approach and the
√ i R P S G W e p s S ° A S G V I D P A spline approach. Based on the estimated

The empirical evidence indicates that the linear model of Vasicek and Fong has the less deviation than their nonlinear model and Vasicek model. Moreover, Vasicek and Fong's nonlinear model also outperform Vasicek model.

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σ^2 is the variance of the error term ϵ_t . The model is estimated using the following equation:

$$r_t = \alpha + \beta_1 r_{t-1} + \beta_2 r_{t-2} + \epsilon_t$$
 where r_t is the return at time t , α is the intercept, β_1 and β_2 are the coefficients on the lagged returns, and ϵ_t is the error term. The model is estimated using the following equation:

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ડો. સુભાષી દેવે જિંદગીમાં ઘણું જ કંઈ

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1. Vasicek and Fong (1982) showed that the Vasicek model is not well suited for pricing long-maturity bonds. They proposed a model with a time-varying short rate, which is more flexible and can better fit the term structure of interest rates.

2. Vasicek and Fong (1982) also showed that the Vasicek model is not well suited for pricing short-maturity bonds. They proposed a model with a time-varying short rate, which is more flexible and can better fit the term structure of interest rates.

3. Vasicek and Fong (1982) also showed that the Vasicek model is not well suited for pricing intermediate-maturity bonds. They proposed a model with a time-varying short rate, which is more flexible and can better fit the term structure of interest rates.

4. Vasicek and Fong (1982) also showed that the Vasicek model is not well suited for pricing long-maturity bonds.

5. Vasicek and Fong (1982) also showed that the Vasicek model is not well suited for pricing short-maturity bonds. They proposed a model with a time-varying short rate, which is more flexible and can better fit the term structure of interest rates.

6. Vasicek and Fong (1982) also showed that the Vasicek model is not well suited for pricing intermediate-maturity bonds. They proposed a model with a time-varying short rate, which is more flexible and can better fit the term structure of interest rates.

7. Vasicek and Fong (1982) also showed that the Vasicek model is not well suited for pricing long-maturity bonds. They proposed a model with a time-varying short rate, which is more flexible and can better fit the term structure of interest rates.

8. Vasicek and Fong (1982) also showed that the Vasicek model is not well suited for pricing short-maturity bonds. They proposed a model with a time-varying short rate, which is more flexible and can better fit the term structure of interest rates.

9. Vasicek and Fong (1982) also showed that the Vasicek model is not well suited for pricing intermediate-maturity bonds. They proposed a model with a time-varying short rate, which is more flexible and can better fit the term structure of interest rates.

10. Vasicek and Fong (1982) also showed that the Vasicek model is not well suited for pricing long-maturity bonds. They proposed a model with a time-varying short rate, which is more flexible and can better fit the term structure of interest rates.

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II. Vasicek One-Factor Model

a. $\emptyset \in \text{Vasicek} \subseteq \mathbb{A} \subseteq \mathbb{B} \subseteq \mathbb{C} \subseteq \Delta$ ALPHA, MU, SIGMA, QQ, R_0

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$$- \geq \tilde{A} \otimes G \otimes B \otimes \underline{0} \Delta$$
$$- \geq \tilde{M} \in \mathcal{T} \subseteq \mathcal{B} \subseteq \underline{\mathcal{O}} \Delta$$
$$- \geq \tilde{A} \otimes G \otimes B \otimes \underline{\quad} \triangle \otimes \circ$$
$$- \geq \tilde{A} \otimes T \otimes S \otimes R \otimes U \otimes A \otimes B \circ$$

b. $\neq p_f$ Discount Rate

$$F(t,T) = \frac{1 - e^{-a(T-t)}}{a}$$

$$G(t,T) = (g + \frac{qS}{a} - \frac{S^2}{2a^2})(T - t - F(t,T)) + \frac{S^2 F(t,T)^2}{4a}$$

$$P(t,T) = e^{-rF(t,T) - G(t,T)}$$

c. ≠ p[≤ Ω § Q ≈ ≠ »

$$PRICE_{the} = \sum_{t=1}^T CF_t \cdot P(t, T) \quad T : CF \in \mathbb{R}^T \Delta$$

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1. ≠ p f ® ¨ § È• © § ¨ ¨ ~ ¢=t+v

$$2.\neq p\int t_{+1}\P \sim S Q \approx \text{\AA} \text{E} \text{S} \text{B} \text{f} Q \leq y_t$$

3. $\neq$ p f t, ¶ ~ § Q & Æ £ ¤ ¥ v_{t+1}

4. $y_{t+v} = v y_{t+1} + (1-v) y_t$

5. ß Q • € ₣ ≠ p f § Q S B € a Æ Ê

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(I) ± ශ්‍රී ලංකා රාජ්‍ය බැංකු සංගමයේ ව්‍යවස්ථාපිත බැංකු උපදේශන

සංඛ්‍යා	මුදල	මුදල අගය	Vasicek and Fong Model				One-Factor Vasicek Model	
			මුදල අගය	මුදල අගය (bp)	මුදල අගය	මුදල අගය (bp)	මුදල අගය	මුදල අගය (bp)
00851	10/20/95	84.30	83.69	25.40	83.77	22.30	83.75	23.11
00852	11/24/95	83.37	83.48	4.50	83.52	6.16	83.49	5.08
00853	12/22/95	105.76	104.79	16.98	104.81	16.62	104.89	15.31
00751	01/19/96	107.48	106.81	8.88	106.71	10.20	106.50	12.96
85308	04/26/96	107.44	106.74	9.18	106.43	13.36	106.50	12.46
85104	06/18/96	106.51	105.60	15.72	105.59	15.85	105.48	17.78
86101	09/24/96	108.96	107.37	20.35	107.25	21.82	107.27	21.57
86102	10/22/96	107.90	107.16	9.49	107.03	11.21	106.72	15.10
86103	11/19/96	104.79	104.92	2.22	105.03	4.21	104.82	0.59
86104	12/20/96	104.75	104.32	5.78	104.19	7.44	104.37	5.04

• මුදල අගය (bp) 11.85 12.92 12.90

(II) ± ශ්‍රී ලංකා රාජ්‍ය බැංකු සංගමයේ ව්‍යවස්ථාපිත බැංකු උපදේශන

සංඛ්‍යා	මුදල	මුදල අගය	Vasicek and Fong Model				One-Factor Vasicek Model	
			මුදල අගය	මුදල අගය (bp)	මුදල අගය	මුදල අගය (bp)	මුදල අගය	මුදල අගය (bp)
00851	10/20/95	84.30	83.55	31.30	83.60	29.40	83.59	29.75
00852	11/24/95	83.37	83.88	21.40	83.85	20.10	83.81	18.61
00853	12/22/95	105.76	104.45	23.00	104.43	23.38	104.55	21.26
00751	01/19/96	107.48	106.77	9.48	106.62	11.46	106.28	15.98
85308	04/26/96	107.44	106.33	14.66	106.13	17.31	105.99	19.22
85104	06/18/96	106.51	105.19	22.73	105.31	20.71	105.31	20.78
86101	09/24/96	108.96	107.37	20.35	107.25	21.82	107.27	21.57
86102	10/22/96	107.90	107.16	9.49	107.03	11.21	106.72	15.10
86103	11/19/96	104.79	104.92	2.22	105.03	4.21	104.82	0.59
86104	12/20/96	104.75	104.32	5.78	104.19	7.44	104.37	5.04

• මුදල අගය (bp) 16.04 16.70 16.79

(III) ± ୧୦ ମୁଦ୍ରା ଟଙ୍କା ଉପରେ ଉପରାବଦ୍ଧ

ସଂଖ୍ୟା	ମୁଦ୍ରା ଟଙ୍କା	ମୁଦ୍ରା ଟଙ୍କା ଆକାର	Vasicek and Fong Model				One-Factor Vasicek Model	
			ଓଲିମ୍ପିକ୍ ମୂଲ୍ୟ	ମୁଦ୍ରା ଟଙ୍କା (bp)	ଓଲିମ୍ପିକ୍ ମୂଲ୍ୟ	ମୁଦ୍ରା ଟଙ୍କା (bp)	ମୂଲ୍ୟ (bp)	ଆକାର (bp)
00851	10/20/95	84.30	83.34	40.50	83.34	40.30	83.32	40.95
00852	11/24/95	83.37	83.88	21.40	83.85	20.40	83.81	18.66
00853	12/22/95	105.76	104.45	23.05	104.41	23.66	104.51	21.93
00751	01/19/96	107.48	106.73	9.90	106.84	8.44	106.45	13.66
85308	04/26/96	107.44	107.01	5.67	106.78	8.73	106.67	10.18
85104	06/18/96	106.51	104.73	30.78	104.90	27.90	104.87	28.30
86101	09/24/96	108.96	107.40	19.88	107.30	21.21	107.41	19.86
86102	10/22/96	107.90	107.22	8.76	107.09	10.39	106.77	14.57
86103	11/19/96	104.79	105.07	4.80	105.19	6.85	104.93	2.53
86104	12/20/96	104.75	104.88	1.68	104.74	0.12	104.81	0.77

• ମୂଲ୍ୟ ଉପରେ ଉପରାବଦ୍ଧ (bp) 16.64 16.80 17.14

(IV) ± ୧୦ ମୁଦ୍ରା ଟଙ୍କା ଉପରେ ଉପରାବଦ୍ଧ ଏବଂ

ସଂଖ୍ୟା	ମୁଦ୍ରା ଟଙ୍କା	ମୁଦ୍ରା ଟଙ୍କା ଆକାର	Vasicek and Fong Model				One-Factor Vasicek Model	
			ଓଲିମ୍ପିକ୍ ମୂଲ୍ୟ	ମୁଦ୍ରା ଟଙ୍କା (bp)	ଓଲିମ୍ପିକ୍ ମୂଲ୍ୟ	ମୁଦ୍ରା ଟଙ୍କା (bp)	ମୂଲ୍ୟ (bp)	ଆକାର (bp)
00851	10/20/95	84.30	83.62	28.40	83.68	25.90	83.67	26.51
00852	11/24/95	83.37	83.68	12.90	83.68	13.10	83.65	11.87
00853	12/22/95	105.76	104.62	20.03	104.62	20.00	104.68	18.94
00751	01/19/96	107.48	106.79	9.19	106.66	10.84	106.42	14.05
85308	04/26/96	107.44	106.53	11.96	106.28	15.38	106.00	19.03
85104	06/18/96	106.51	105.40	19.23	105.45	18.33	104.82	29.22
86101	09/24/96	108.96	107.37	20.35	107.25	21.82	107.27	21.57
86102	10/22/96	107.90	107.16	9.49	107.03	11.21	106.72	15.10
86103	11/19/96	104.79	104.92	2.22	105.03	4.21	104.82	0.59
86104	12/20/96	104.75	104.32	5.78	104.19	7.44	104.37	5.04

• ମୂଲ୍ୟ ଉପରେ ଉପରାବଦ୍ଧ (bp) 13.96 14.82 16.19

1/31/96 § p		8.95	9.34	14.24	3.53							9.01
2/7/96	2/7/96	6.31	6.62	12.29	2.14							6.84
	2/8/96	8.30	8.61	13.77	2.14							8.21
	2/9/96	11.29	11.60	14.76	3.15							10.20
	2/10/96	11.28	11.59	15.74	4.15							10.69
	2/12/96	13.26	13.58	17.71	6.16							12.68
	2/13/96	26.25	26.57	28.69	23.17							26.17
2/7/96 § p		12.78	13.10	17.16	6.82							12.46
2/14/96	2/14/96	5.41	5.77	8.40	2.47							5.51
	2/15/96	8.40	8.76	11.39	4.47							8.26
	2/16/96	6.39	6.75	10.38	3.48							6.75
	2/17/96	6.38	6.74	10.36	3.48							6.74
	2/23/96	6.32	6.68	10.29	3.50							6.70
	2/24/96	13.31	13.67	11.28	4.51							10.69
	2/26/96	13.29	13.65	12.25	4.51							10.93
	2/27/96	11.28	11.64	10.24	2.52							8.92
2/14/96 § p		8.85	9.21	10.57	3.62							8.06
2/28/96	2/28/96	1.79	2.96	7.51	2.18							3.61
	2/29/96	1.25	0.07	4.49	0.82							1.66
	3/1/96	3.28	2.10	1.47	6.82							3.42
	3/2/96	1.32	0.14	2.45	6.81							2.68
	3/4/96	1.38	0.20	2.42	6.81							2.70
	3/5/96	1.58	2.76	5.40	4.80							3.64
2/28/96 § p		1.77	1.37	3.96	4.71							2.95
3/6/96	3/6/96	5.12	5.65	9.64	1.18							5.40
	3/7/96	3.89	3.37	2.62	4.81							3.67
	3/8/96	3.91	3.38	2.59	6.81							4.17
	3/9/96	3.92	3.40	1.56	6.80							3.92
	3/11/96	3.95	3.43	1.49	9.79							4.67
	3/12/96	10.97	10.44	12.52	19.78							13.43
3/6/96 § p		5.29	4.95	5.07	8.20							5.88
3/13/96	3/13/96	8.95	9.93	14.83	1.30							8.75
	3/14/96	6.08	5.10	6.82	8.70							6.68
	3/15/96	3.89	4.87	27.82	8.30							11.22
	3/16/96	21.86	22.84	37.81	16.31							24.71
	3/18/96	21.81	22.79	36.80	15.32							24.18
	3/19/96	21.78	22.76	39.79	16.32							25.16
3/13/96 § p		14.06	14.72	27.31	11.04							16.78

3/20/96	3/20/96	11.11	11.29	12.61	0.12							8.78
	3/21/96	9.10	9.29	11.59	1.12							7.78
	3/22/96	9.10	9.28	11.57	0.12							7.52
	3/25/96	10.08	10.26	13.51	5.88							9.93
	3/26/96	11.08	11.26	13.50	4.88							10.18
3/20/96 § p		10.09	10.28	12.56	2.42							8.84
3/27/96	3/27/96	8.19	8.32	8.95	6.95							8.10
	3/28/96	8.19	8.32	10.93	9.94							9.35
	4/1/96	9.17	9.31	11.85	11.90							10.56
	4/2/96	9.17	9.30	11.83	11.89							10.55
	4/5/96	8.16	8.29	10.77	10.86							9.52
	4/6/96	7.15	7.29	10.25	10.85							8.89
	4/8/96	7.14	7.28	10.71	11.33							9.12
	4/9/96	7.14	7.27	9.68	11.32							8.85
3/27/96 § p		8.04	8.17	10.62	10.63							9.37
4/10/96	4/10/96	6.05	6.40	10.85	5.21							7.13
	4/11/96	6.04	6.39	10.84	5.20							7.12
	4/12/96	2.03	2.38	6.82	1.20							3.11
	4/13/96	2.98	2.63	5.81	0.81							3.06
	4/15/96	3.00	2.65	5.78	0.82							3.06
	4/16/96	8.01	7.66	2.77	4.82							5.82
4/10/96 § p		4.69	4.69	7.15	3.01							4.88
4/17/96	4/17/96	4.68	5.11	12.94	7.91							7.66
	4/18/96	10.67	11.10	16.92	11.91							12.65
	4/19/96	16.66	17.09	18.91	14.90							16.89
	4/20/96	16.64	17.08	17.90	12.89							16.13
	4/22/96	16.62	17.05	17.87	12.88							16.11
	4/23/96	16.61	17.04	18.86	12.87							16.35
4/17/96 § p		13.65	14.08	17.23	12.23							14.30
4/24/96	4/24/96	7.11	7.39	11.24	7.30							8.26
	4/25/96	7.11	7.38	11.22	7.29							8.25
	4/26/96	7.10	7.38	11.21	7.28							8.24
	4/27/96	7.09	7.37	11.19	6.27	13.47						9.08
	4/29/96	7.07	7.35	11.16	6.26	9.15						8.20
	4/30/96	3.07	3.34	10.14	6.25	7.14						5.99
4/24/96 § p		6.43	6.70	11.03	6.78	9.92						7.98
5/1/96	5/1/96	7.28	7.64	15.83	3.60	5.71						8.01
	5/2/96	6.27	6.63	15.81	2.60	5.71						7.40

		5/3/96	7.26	7.62	15.80	3.60	5.71						8.00
		5/4/96	11.25	11.61	17.78	7.59	7.71						11.19
		5/6/96	11.23	11.59	17.76	7.59	7.71						11.18
		5/7/96	13.22	13.58	18.74	7.59	7.71						12.17
5/1/96 § p			9.42	9.78	16.95	5.43	6.71						9.66
5/8/96	5/8/96	5/8/96	8.43	8.75	11.57	4.52	4.87						7.63
		5/9/96	10.42	10.74	11.56	3.52	4.87						8.22
		5/10/96	12.41	12.74	11.54	4.51	4.87						9.21
		5/11/96	12.40	12.73	14.52	5.51	5.86						10.20
		5/13/96	12.38	12.71	16.48	5.50	5.86						10.59
		5/14/96	12.37	12.70	16.46	5.50	5.85						10.58
5/8/96 § p			11.40	11.73	13.69	4.84	5.36						9.41
5/15/96	5/15/96	5/15/96	8.99	9.41	10.81	3.51	3.97						7.34
		5/16/96	8.98	9.40	11.29	3.51	3.96						7.43
		5/17/96	7.97	8.39	9.77	3.50	3.96						6.72
		5/18/96	6.96	7.38	10.75	3.50	3.96						6.51
		5/20/96	6.93	7.35	10.72	3.49	3.95						6.49
		5/21/96	6.92	7.34	12.70	3.49	3.94						6.88
5/15/96 § p			7.79	8.21	11.01	3.50	3.96						6.89
5/22/96	5/22/96	5/22/96	7.71	8.13	10.51	3.69	4.32						6.87
		5/23/96	9.70	10.12	12.49	4.68	5.32						8.46
		5/24/96	10.68	11.11	12.47	4.68	5.31						8.85
		5/25/96	10.67	11.09	12.46	4.67	5.31						8.84
		5/27/96	10.65	11.07	11.42	4.66	5.29						8.62
		5/28/96	9.64	10.06	11.40	3.65	4.29						7.81
5/22/96 § p			9.84	10.26	11.79	4.34	4.97						8.24
5/29/96	5/29/96	5/29/96	8.83	9.38	9.98	3.70	4.31						7.24
		5/30/96	8.82	9.36	9.96	3.69	4.31						7.23
		5/31/96	10.80	11.35	11.94	3.69	4.30						8.42
		6/1/96	12.79	13.33	11.92	3.68	4.29						9.20
		6/3/96	12.76	13.30	13.39	3.67	4.28						9.48
		6/4/96	15.74	16.29	17.87	4.66	5.28						11.97
5/29/96 § p			11.62	12.17	12.51	3.85	4.46						8.92
6/5/96	6/5/96	6/5/96	10.49	11.21	14.61	4.08	3.09						8.70
		6/6/96	16.47	17.19	25.59	14.07	8.08						16.28
		6/7/96	15.45	16.17	23.57	14.06	7.07						15.26
		6/8/96	13.43	14.15	15.55	7.05	3.06						10.65
		6/10/96	13.39	14.11	15.51	7.03	3.04						10.62

	6/11/96	13.37	14.09	22.50	12.02	6.03						13.60
6/5/96 § p		13.77	14.49	19.56	9.72	5.06						12.52
6/12/96	6/12/96	8.34	9.46	12.66	4.59	4.47						7.90
	6/13/96	6.30	7.43	14.65	4.58	4.45						7.48
	6/14/96	6.27	7.39	15.64	4.56	4.43						7.66
	6/15/96	6.24	7.36	17.63	4.54	4.41						8.04
	6/17/96	6.18	7.30	17.60	4.50	4.38						7.99
	6/18/96	4.14	5.27	11.59	2.48	2.36						5.17
6/12/96 § p		6.25	7.37	14.96	4.21	4.08						7.37
6/19/96	6/19/96	6.14	7.10	10.73	2.69	3.78	14.27					7.45
	6/21/96	8.09	9.05	9.70	2.65	2.74	14.24					7.75
	6/22/96	6.06	7.02	5.68	0.63	1.72	10.23					5.22
	6/24/96	6.01	6.96	5.66	0.59	1.67	10.20					5.18
	6/25/96	9.98	10.94	6.64	2.57	1.65	10.18					6.99
6/19/96 § p		7.26	8.21	7.68	1.83	2.31	11.82					6.52
6/26/96	6/26/96	11.88	13.21	10.47	5.53	3.75	13.06					9.65
	6/27/96	12.84	14.17	8.46	5.50	3.73	11.05					9.29
	6/28/96	11.80	13.14	5.45	4.48	2.70	8.04					7.60
	6/29/96	8.77	10.10	3.45	2.46	2.68	5.03					5.42
	7/2/96	8.65	9.98	10.42	2.39	2.62	12.01					7.68
6/26/96 § p		10.79	12.12	7.65	4.07	3.10	9.84					7.93
7/3/96	7/3/96	8.31	9.74	11.17	4.06	3.36	11.57					8.04
	7/4/96	10.27	11.70	10.17	3.04	3.34	10.56					8.18
	7/5/96	11.23	12.66	13.16	5.02	5.32	13.55					10.16
	7/6/96	14.19	15.62	13.15	7.99	6.29	13.54					11.80
	7/8/96	14.10	15.53	13.14	7.95	6.25	13.53					11.75
	7/9/96	14.06	15.49	14.13	7.93	6.22	14.52					12.06
7/3/96 § p		12.03	13.46	12.49	6.00	5.13	12.88					10.33
7/10/96	7/10/96	8.30	9.93	11.26	4.94	4.11	12.92					8.58
	7/11/96	10.26	11.89	9.25	4.92	1.09	8.92					7.72
	7/12/96	10.21	11.84	12.24	3.90	3.07	9.91					8.53
	7/13/96	10.16	11.79	12.23	3.88	3.05	10.90					8.67
	7/15/96	10.07	11.70	12.21	3.84	3.01	10.88					8.62
	7/16/96	10.02	11.65	11.20	2.81	2.99	10.87					8.26
7/10/96 § p		9.84	11.47	11.40	4.05	2.89	10.73					8.40
7/17/96	7/17/96	9.65	11.19	10.83	4.08	5.43	11.62					8.80
	7/18/96	9.60	11.15	12.82	5.05	6.41	11.61					9.44
	7/19/96	9.56	11.10	13.81	6.03	6.39	12.60					9.92

	7/20/96	9.51	11.06	15.80	6.01	6.36	12.59					10.22
	7/22/96	9.43	10.97	15.78	5.96	6.32	12.57					10.17
	7/23/96	9.38	10.93	15.77	5.94	6.29	12.56					10.15
7/17/96 § p		9.52	11.07	14.14	5.51	6.20	12.26					9.78
7/24/96	7/24/96	8.29	9.58	12.28	4.25	5.29	10.23					8.32
	7/25/96	8.26	9.54	12.26	4.23	5.27	10.22					8.30
	7/26/96	11.22	12.51	13.24	5.21	5.25	10.20					9.61
	7/27/96	11.18	12.47	14.23	5.19	5.23	11.19					9.92
	7/29/96	13.11	14.40	18.20	5.15	6.19	11.15					11.37
	7/30/96	13.07	14.36	17.18	7.13	6.17	16.14					12.34
7/24/96 § p		10.86	12.14	14.57	5.19	5.57	11.52					9.97
7/31/96	7/31/96	14.19	15.54	10.97	3.62	3.48	10.44					9.71
	8/1/96	14.15	15.50	10.96	3.59	3.45	10.43					9.68
	8/2/96	14.11	15.47	10.95	3.56	3.42	10.42					9.66
	8/3/96	12.07	13.43	8.93	3.53	3.40	8.40					8.29
	8/5/96	12.00	13.35	7.91	3.48	3.34	7.38					7.91
	8/6/96	11.96	13.31	8.89	0.45	1.31	8.36					7.38
7/31/96 § p		13.08	14.43	9.77	3.04	3.07	9.24					8.77
8/7/96	8/7/96	13.76	14.94	11.81	3.46	1.33	8.80					9.02
	8/8/96	13.73	14.91	11.80	7.43	5.31	9.78					10.49
	8/9/96	16.69	17.87	12.78	8.40	8.28	11.77					12.63
	8/10/96	16.66	17.84	12.77	8.37	8.25	11.75					12.61
	8/12/96	16.59	17.77	12.73	8.32	8.19	11.72					12.55
	8/13/96	16.56	17.74	11.72	8.29	8.16	11.70					12.36
8/7/96 § p		15.67	16.85	12.27	7.38	6.59	10.92					11.61
8/14/96	8/14/96	10.11	11.66	9.96	2.88	2.83	8.68					7.69
	8/15/96	9.07	10.61	10.95	2.85	2.80	8.67					7.49
	8/16/96	9.02	10.57	11.94	4.82	2.77	7.66					7.80
	8/17/96	8.98	10.52	11.93	5.79	2.74	7.65					7.94
	8/19/96	8.89	10.43	11.91	5.73	2.68	7.63					7.88
	8/20/96	8.85	10.39	10.90	5.70	2.65	7.62					7.69
8/14/96 § p		9.15	10.70	11.27	4.63	2.75	7.99					7.75
8/21/96	8/21/96	8.31	9.98	8.81	2.62	1.19	5.49					6.07
	8/22/96	10.26	11.93	13.80	10.59	5.79	9.48					10.31
	8/23/96	10.22	11.89	14.78	15.57	11.76	13.47					12.95
	8/24/96	10.17	11.84	15.77	19.55	16.74	11.45					14.25
	8/26/96	16.07	17.74	21.74	26.51	21.70	16.42					20.03
	8/27/96	16.03	17.70	19.73	25.49	20.68	12.41					18.67

8/21/96 § p		11.84	13.51	15.77	16.72	12.98	11.45					13.71
8/28/96	8/28/96	8.57	9.89	8.96	4.24	0.39	0.05					5.35
	8/29/96	8.53	9.85	7.95	4.22	0.63	0.05					5.21
	8/30/96	8.49	9.81	9.95	6.19	0.35	0.06					5.81
	8/31/96	8.45	9.78	11.94	14.17	7.33	3.94					9.27
	9/2/96	3.38	4.70	12.93	14.13	6.29	1.93					7.23
	9/3/96	8.34	9.66	11.93	15.11	7.27	3.92					9.37
8/28/96 § p		7.63	8.95	10.61	9.68	3.71	1.66					7.04
9/4/96	9/4/96	3.75	5.04	8.72	8.90	5.24	1.17					5.47
	9/5/96	3.72	5.00	11.72	10.87	5.21	1.17					6.28
	9/6/96	3.68	4.96	12.72	12.85	5.19	1.17					6.76
	9/7/96	3.64	4.93	13.71	13.83	5.17	1.17					7.08
	9/9/96	3.57	4.85	11.71	10.78	5.12	1.16					6.20
	9/10/96	3.53	4.82	11.71	7.76	2.09	3.84					5.63
9/4/96 § p		3.65	4.93	11.72	10.83	4.67	1.61					6.24
9/11/96	9/11/96	4.37	5.54	9.78	8.55	3.12	6.42					6.30
	9/12/96	4.34	5.51	7.78	7.52	3.09	6.42					5.78
	9/13/96	4.30	5.47	9.78	9.50	3.07	6.42					6.42
	9/14/96	4.27	5.44	8.77	10.47	4.04	6.43					6.57
	9/16/96	4.20	5.37	11.26	12.42	3.99	6.44					7.28
	9/17/96	4.17	5.34	12.76	14.40	3.96	6.44					7.85
9/11/96 § p		4.28	5.45	10.02	10.48	3.55	6.43					6.70
9/18/96	9/18/96	3.20	4.45	9.37	11.15	1.99	8.16					6.39
	9/19/96	3.17	4.42	11.36	13.13	1.97	8.16					7.04
	9/20/96	3.13	4.38	12.36	15.10	3.94	6.17					7.51
	9/21/96	3.10	4.34	12.36	15.07	3.91	6.17					7.49
	9/23/96	3.03	4.27	10.36	15.01	3.85	6.17					7.12
	9/24/96	2.99	4.24	7.35	10.98	0.82	9.17					5.93
9/18/96 § p		3.10	4.35	10.53	13.41	2.75	7.33					6.91
9/25/96	9/25/96	1.68	3.11	9.82	4.84	4.64	7.69	26.42				8.31
	9/26/96	1.64	3.07	11.82	5.82	4.67	7.69	15.32				7.15
	9/30/96	1.48	2.90	11.84	5.72	4.77	7.68	15.22				7.09
	10/1/96	1.43	2.86	10.84	3.69	4.80	7.67	13.19				6.35
9/25/96 § p		1.56	2.99	11.08	5.02	4.72	7.68	17.54				7.23
10/2/96	10/2/96	1.57	2.94	9.98	4.18	4.26	8.30	13.81				6.43
	10/3/96	1.53	2.90	9.98	4.16	4.28	8.29	14.78				6.56
	10/4/96	1.49	2.86	10.98	4.13	4.31	8.29	14.76				6.69
	10/5/96	1.45	2.82	11.99	5.11	4.33	8.29	14.73				6.96

	10/7/96	1.37	2.74	12.99	6.06	4.38	8.29	14.68				7.22
	10/8/96	1.33	2.70	13.99	5.03	2.41	6.29	15.65				6.77
10/2/96 § p		1.46	2.83	11.65	4.78	4.00	7.96	14.74				6.77
10/9/96	10/9/96	1.17	-	9.21	5.47	4.89	10.56	13.29				6.37
	10/11/96	1.23	0.06	9.20	4.42	5.95	10.56	13.24				6.38
	10/12/96	1.27	0.10	9.20	4.39	5.97	10.56	13.21				6.39
	10/14/96	1.33	0.16	8.20	4.34	6.03	10.56	13.16				6.25
	10/15/96	1.37	0.20	8.20	4.31	6.05	10.57	13.13				6.26
10/9/96 § p		1.27	0.10	8.80	4.59	5.78	10.56	13.21				6.33
10/16/96	10/16/96	1.30	0.12	8.67	4.17	5.25	10.01	13.85				6.20
	10/17/96	11.33	10.15	22.33	35.86	35.28	32.01	31.18				25.45
	10/18/96	0.63	1.81	9.67	4.12	5.30	10.01	14.80				6.62
	10/19/96	11.70	1.78	9.67	4.09	5.33	10.01	14.77				8.19
	10/21/96	9.83	1.71	8.66	4.04	5.38	10.02	11.72				7.34
	10/22/96	9.84	1.68	7.66	3.02	5.41	10.02	9.69				6.76
10/16/96 § p		7.44	2.88	11.11	9.22	10.33	13.68	16.00				10.09
10/23/96	10/23/96	15.09	0.01	9.49	1.79	5.89	7.35	7.79	19.95			8.42
	10/24/96	13.11	2.03	2.49	2.24	7.92	9.35	1.77	2.49			5.18
	10/28/96	13.20	2.19	1.49	2.33	8.01	9.35	1.68	2.40			5.08
	10/29/96	9.22	6.23	7.51	4.35	12.03	15.35	4.35	3.63			7.83
10/23/96 § p		12.66	2.62	5.25	2.68	8.46	10.35	3.90	7.12			6.63
10/30/96	10/30/96	12.10	0.42	8.36	2.53	0.15	3.44	5.55	6.27			4.85
	11/1/96	12.14	0.51	11.36	4.48	1.80	1.44	7.50	8.23			5.93
	11/2/96	14.16	1.44	14.36	5.46	3.78	0.56	12.48	13.20			8.18
	11/4/96	14.19	1.35	14.36	5.41	3.73	0.56	12.43	13.16			8.15
	11/5/96	13.21	0.31	17.36	8.39	5.71	8.56	14.41	15.13			10.39
10/30/96 § p		13.16	0.81	13.16	5.25	3.03	2.91	10.47	11.20			7.50
11/6/96	11/6/96	11.71	0.55	8.76	0.35	1.93	0.02	6.91	7.66			4.74
	11/7/96	11.73	0.59	6.76	2.37	1.95	0.02	3.89	3.64			3.87
	11/8/96	11.75	0.63	7.76	2.39	1.98	0.03	4.86	5.61			4.38
	11/9/96	11.76	0.67	6.76	3.42	2.00	0.03	2.84	3.59			3.88
	11/11/96	11.80	0.74	6.76	3.47	2.05	0.03	2.79	3.54			3.90
11/6/96 § p		11.75	0.64	7.36	2.40	1.98	0.03	4.26	4.81			4.15
11/13/96	11/13/96	9.10	0.19	7.94	0.07	0.45	2.37	5.51	6.28			3.99
	11/14/96	8.12	0.84	7.94	1.96	0.47	2.37	4.49	5.26			3.93
	11/15/96	8.13	0.88	6.94	1.98	1.50	2.37	2.46	4.23			3.56
	11/16/96	8.14	0.92	5.93	4.01	3.52	0.36	0.43	1.21			3.07
	11/17/96	8.15	0.96	5.93	4.03	1.55	0.36	2.41	3.18			3.32

		11/18/96	8.17	1.00	5.93	4.06	3.57	0.36	0.38	1.16			3.08
		11/19/96	8.18	1.04	6.93	2.08	1.60	0.36	2.36	3.13			3.21
11/13/96 § p			8.28	0.83	6.79	2.60	1.81	1.22	2.58	3.49			3.45
11/20/96	11/20/96	8.16	0.29	8.42	1.10	0.51	1.95	4.66	5.47	0.54			3.46
	11/21/96	8.17	0.32	7.42	1.13	0.48	1.95	4.63	5.44	1.55			3.45
	11/22/96	8.18	0.36	7.41	1.16	0.45	1.94	2.61	3.42	1.55			3.01
	11/23/96	8.19	14.10	5.41	1.18	0.43	1.94	2.58	3.39	1.55			4.31
	11/25/96	8.22	7.82	5.41	1.23	0.38	1.94	2.53	3.34	1.56			3.60
	11/26/96	6.23	5.83	3.40	3.26	3.65	4.07	0.50	1.31	3.56			3.53
11/20/96 § p			7.86	4.79	6.25	1.51	0.98	2.30	2.92	3.73	1.72		3.56
11/27/96	11/27/96	8.96	8.55	7.84	0.27	0.36	1.55	3.43	4.17	1.10			4.03
	11/28/96	8.97	8.56	5.83	0.75	0.38	1.54	3.40	4.15	1.09			3.85
	11/29/96	8.98	8.57	5.82	0.77	0.60	1.53	4.38	5.13	2.09			4.21
	11/30/96	9.00	8.58	4.82	0.80	0.57	1.52	4.36	5.10	2.08			4.09
	12/2/96	9.02	8.61	4.80	0.84	0.52	1.51	4.31	5.05	2.06			4.08
	12/3/96	7.03	6.62	2.79	0.87	4.50	3.50	0.71	0.03	1.95			3.11
11/27/96 § p			8.66	8.25	5.32	0.72	1.16	1.86	3.43	3.94	1.73		3.89
12/4/96	12/4/96	4.16	4.11	8.60	2.34	0.39	2.79	3.23	3.95	1.88			3.49
	12/5/96	4.16	4.12	8.60	2.32	0.41	2.78	3.21	3.92	2.87			3.60
	12/6/96	4.17	4.12	8.59	1.30	0.43	0.77	3.19	3.90	0.14			2.96
	12/7/96	4.17	4.12	8.58	1.28	0.46	0.77	3.17	3.88	1.86			3.14
	12/9/96	4.17	4.12	8.57	1.23	0.50	0.76	3.12	3.83	1.85			3.13
	12/10/96	4.17	4.12	1.57	1.21	3.52	0.25	0.10	0.81	0.84			1.84
12/4/96 § p			4.17	4.12	7.42	1.61	0.95	1.35	2.67	3.38	1.57		3.03
12/11/96	12/11/96	6.79	6.60	6.91	3.87	0.05	4.29	3.54	4.23	5.56			4.65
	12/12/96	5.80	5.61	5.90	0.85	3.97	1.28	0.48	0.20	2.55			2.96
	12/13/96	5.80	5.61	5.89	0.83	3.99	1.27	0.50	0.18	2.54			2.96
	12/14/96	5.81	5.62	5.89	1.19	6.01	0.27	2.53	1.84	1.54			3.41
	12/16/96	5.82	5.63	5.87	1.24	6.06	0.25	2.57	1.88	1.52			3.43
	12/17/96	3.82	3.63	3.86	4.26	8.08	3.75	4.59	3.91	2.49			4.27
12/11/96 § p			5.64	5.45	5.72	2.04	4.69	1.85	2.37	2.04	2.70		3.61
12/18/96	12/18/96	2.83	2.81	7.42	3.25	0.59	0.65	2.86	3.55	2.68			2.96
	12/19/96	2.83	2.81	9.41	3.23	2.39	2.64	5.84	6.53	4.67			4.48
	12/20/96	2.83	2.82	8.39	3.21	2.37	2.63	5.82	6.51	4.66			4.36
	12/21/96	2.83	2.82	4.06	3.19	1.34	2.62	4.80	5.48	4.64	14.18		4.60
	12/23/96	2.84	2.82	5.10	3.15	1.30	2.60	4.76	5.44	4.62	6.71		3.93
	12/24/96	7.84	7.82	1.12	3.13	4.28	7.58	7.73	8.42	12.61	11.69		7.22
	12/26/96	7.84	7.82	1.15	3.08	5.24	7.56	8.69	9.38	13.58	10.65		7.50

	12/27/96	7.84	7.82	2.17	2.06	4.22	5.55	7.67	8.36	9.57	9.63	6.49
	12/28/96	7.84	7.82	3.19	1.04	1.19	2.54	4.65	5.33	8.56	6.60	4.88
	12/30/96	7.84	7.82	3.23	1.00	0.85	2.51	2.61	3.29	8.54	4.56	4.23
	12/31/96	7.84	7.82	4.25	2.02	1.87	2.50	1.58	2.27	7.52	3.54	4.12
12/18/96 § p		5.56	5.55	4.50	2.58	2.33	3.58	5.18	5.87	7.42	8.45	5.01
i p		8.42	8.11	11.01	5.68	4.42	6.88	7.18	4.93	3.66	8.45	7.47

TM § T 6 f NonLinear Vasicek and Fong Model ¶ 4 8 ¶ 5 2 96 ¶ ~ 6 a AE 5 B AE ¶ B 5 v
(bp) ≤ 6 p^m i

± f 3 Q	S Q ≈	S Q ≈										
		00851	00852	00853	00751	85308	85104	86101	86102	86103	86104	i ≠ p
12/27/95	1/4/96	13.18	13.69	11.92								12.93
	1/5/96	11.16	11.68	10.91								11.25
	1/6/96	9.15	9.66	2.91								7.24
	1/8/96	9.12	9.63	6.89								8.55
	1/9/96	10.10	10.62	7.88								9.53
12/27/95 S p p		10.54	11.06	8.10								9.90
1/10/96	1/10/96	9.78	10.17	11.72								10.56
	1/11/96	13.77	14.16	12.71								13.55
	1/12/96	15.76	16.15	16.70								16.20
	1/13/96	14.75	15.14	14.69								14.86
	1/15/96	14.72	15.12	14.66								14.83
	1/16/96	15.71	16.10	14.65								15.49
1/10/96 S p p		14.08	14.47	14.19								14.25
1/17/96	1/17/96	4.66	5.23	10.32								6.74
	1/18/96	5.65	6.21	9.31								7.06
	1/19/96	6.63	7.20	10.31								8.05
	1/20/96	6.61	7.18	10.30	13.48							9.39
	1/22/96	6.58	7.15	10.28	10.18							8.55
	1/23/96	5.56	6.13	8.27	10.17							7.53
1/17/96 S p p		5.95	6.52	9.80	11.28							7.97
1/24/96	1/24/96	5.13	5.63	10.82	3.04							6.16
	1/25/96	3.12	3.62	8.82	3.04							4.65
	1/26/96	1.10	1.60	5.81	0.04							2.14
	1/27/96	4.09	4.59	6.80	0.05							3.88
	1/29/96	4.06	4.56	6.78	0.05							3.86
	1/30/96	3.05	3.55	5.77	0.06							3.11
1/24/96 S p p		3.43	3.93	7.47	1.05							3.97
1/31/96	1/31/96	6.39	6.87	11.18	2.91							6.84
	2/1/96	6.38	6.85	11.17	2.91							6.83
	2/2/96	8.36	8.84	13.16	2.92							8.32
	2/3/96	10.35	10.83	16.15	4.92							10.56
	2/5/96	10.32	10.80	16.13	4.93							10.55
	2/6/96	13.31	13.79	17.12	4.94							12.29

1/31/96 § p		9.19	9.66	14.15	3.92							9.23
2/7/96	2/7/96	3.71	4.15	11.94	2.49							5.57
	2/8/96	5.70	6.14	13.42	2.50							6.94
	2/9/96	8.69	9.13	14.41	3.50							8.93
	2/10/96	8.68	9.12	15.40	4.50							9.43
	2/12/96	10.65	11.09	17.37	6.51							11.41
	2/13/96	23.64	24.08	28.35	23.51							24.90
2/7/96 § p		10.18	10.62	16.82	7.17							11.20
2/14/96	2/14/96	4.46	4.92	8.02	3.02							5.11
	2/15/96	7.45	7.91	11.01	5.02							7.85
	2/16/96	5.44	5.90	10.00	4.02							6.34
	2/17/96	5.42	5.88	9.99	4.02							6.33
	2/23/96	5.34	5.80	9.93	4.02							6.27
	2/24/96	12.33	12.79	10.92	5.02							10.27
	2/26/96	12.30	12.76	11.90	5.03							10.50
	2/27/96	10.29	10.75	9.89	3.03							8.49
2/14/96 § p		7.88	8.34	10.21	4.15							7.64
2/28/96	2/28/96	1.38	0.32	6.99	3.37							3.02
	2/29/96	4.41	3.35	3.98	0.37							3.03
	3/1/96	6.44	5.38	0.97	5.63							4.61
	3/2/96	4.48	3.41	1.95	5.63							3.87
	3/4/96	4.54	3.47	1.93	5.64							3.90
	3/5/96	1.57	0.50	4.91	3.64							2.66
2/28/96 § p		3.80	2.74	3.46	4.05							3.51
3/6/96	3/6/96	1.56	2.00	8.98	2.75							3.82
	3/7/96	7.45	7.01	1.96	3.25							4.92
	3/8/96	7.46	7.02	1.93	5.25							5.42
	3/9/96	7.48	7.04	0.91	5.25							5.17
	3/11/96	7.50	7.06	2.13	8.26							6.24
	3/12/96	14.51	14.07	13.15	18.26							15.00
3/6/96 § p		7.66	7.37	4.84	7.17							6.76
3/13/96	3/13/96	11.39	12.31	15.22	0.63							9.89
	3/14/96	3.64	2.72	7.21	9.36							5.73
	3/15/96	6.33	7.25	28.20	7.64							12.36
	3/16/96	24.31	25.23	38.19	15.65							25.85
	3/18/96	24.25	25.18	37.17	14.67							25.32
	3/19/96	24.23	25.15	40.16	15.67							26.30
3/13/96 § p		15.69	16.31	27.69	10.60							17.57

3/20/96	3/20/96	9.50	9.85	12.06	0.58							8.00
	3/21/96	7.49	7.84	11.04	0.43							6.70
	3/22/96	7.48	7.83	11.03	0.57							6.73
	3/25/96	8.45	8.80	12.98	6.55							9.20
	3/26/96	9.44	9.79	12.96	5.55							9.44
3/20/96 Σ p		8.47	8.82	12.01	2.74							8.01
3/27/96	3/27/96	7.02	7.50	6.25	10.71							7.87
	3/28/96	7.01	7.49	8.24	13.69							9.11
	4/1/96	7.95	8.43	9.17	15.63							10.30
	4/2/96	7.94	8.42	9.16	15.61							10.28
	4/5/96	6.90	7.38	8.11	14.56							9.24
	4/6/96	5.89	6.36	7.59	14.54							8.60
	4/8/96	5.86	6.34	8.06	15.01							8.82
	4/9/96	5.84	6.32	7.04	14.99							8.55
3/27/96 Σ p		6.80	7.28	7.95	14.34							9.09
4/10/96	4/10/96	5.37	6.00	8.77	7.99							7.03
	4/11/96	5.35	5.99	8.75	7.98							7.02
	4/12/96	1.34	1.97	4.74	3.97							3.01
	4/13/96	3.68	3.05	3.73	1.96							3.11
	4/15/96	3.72	3.09	3.70	1.95							3.12
	4/16/96	8.74	8.10	0.69	2.06							4.90
4/10/96 Σ p		4.70	4.70	5.06	4.32							4.70
4/17/96	4/17/96	4.04	4.66	11.36	10.32							7.60
	4/18/96	10.03	10.64	15.35	14.31							12.58
	4/19/96	16.01	16.62	17.34	17.30							16.82
	4/20/96	15.99	16.60	16.33	15.29							16.05
	4/22/96	15.96	16.57	16.30	15.27							16.03
	4/23/96	15.94	16.55	17.29	15.26							16.26
4/17/96 Σ p		13.00	13.61	15.66	14.63							14.22
4/24/96	4/24/96	6.93	7.47	8.74	10.92							8.52
	4/25/96	6.92	7.45	8.73	10.90							8.50
	4/26/96	6.90	7.44	8.71	10.89							8.49
	4/27/96	6.88	7.42	8.70	9.88	18.31						10.24
	4/29/96	6.85	7.39	8.67	9.85	13.32						9.22
	4/30/96	2.84	3.38	7.66	9.83	11.30						7.00
4/24/96 Σ p		6.22	6.76	8.54	10.38	14.31						8.68
5/1/96	5/1/96	8.18	8.69	14.59	4.51	6.73						8.54
	5/2/96	7.17	7.68	14.58	3.51	6.73						7.93

		5/3/96	8.15	8.66	14.57	4.51	6.73						8.52
		5/4/96	12.14	12.65	16.55	8.50	8.73						11.71
		5/6/96	12.11	12.62	16.53	8.50	8.72						11.70
		5/7/96	14.10	14.60	17.51	8.50	8.72						12.69
5/1/96 § p			10.31	10.82	15.72	6.34	7.73						10.18
5/8/96	5/8/96	5/8/96	7.34	8.03	8.46	7.14	8.28						7.85
		5/9/96	9.32	10.01	8.45	6.13	8.27						8.44
		5/10/96	11.30	11.99	8.43	7.12	8.25						9.42
		5/11/96	11.28	11.97	11.42	8.11	9.24						10.40
		5/13/96	11.24	11.93	13.39	8.09	9.22						10.77
		5/14/96	11.22	11.91	13.38	8.08	9.21						10.76
5/8/96 § p			10.28	10.97	10.59	7.45	8.75						9.61
5/15/96	5/15/96	5/15/96	7.93	8.65	8.06	5.95	7.08						7.53
		5/16/96	7.91	8.62	8.54	5.94	7.07						7.62
		5/17/96	6.88	7.60	7.03	5.92	7.06						6.90
		5/18/96	5.86	6.58	8.02	5.91	7.05						6.68
		5/20/96	5.82	6.54	7.99	5.89	7.03						6.65
		5/21/96	5.80	6.52	9.97	5.88	7.02						7.04
5/15/96 § p			6.70	7.42	8.27	5.92	7.05						7.07
5/22/96	5/22/96	5/22/96	6.20	6.90	8.02	5.94	7.25						6.86
		5/23/96	8.18	8.88	10.01	6.92	8.24						8.45
		5/24/96	9.16	9.86	9.99	6.91	8.22						8.83
		5/25/96	9.14	9.84	9.98	6.90	8.21						8.81
		5/27/96	9.10	9.80	8.95	6.87	8.19						8.58
		5/28/96	8.08	8.78	8.94	5.86	7.17						7.77
5/22/96 § p			8.31	9.01	9.32	6.57	7.88						8.22
5/29/96	5/29/96	5/29/96	8.50	9.21	7.60	5.87	7.11						7.66
		5/30/96	8.48	9.19	7.58	5.86	7.09						7.64
		5/31/96	10.46	11.17	9.57	5.85	7.08						8.83
		6/1/96	12.44	13.15	9.55	5.84	7.07						9.61
		6/3/96	12.40	13.11	11.03	5.81	7.05						9.88
		6/4/96	15.38	16.09	15.51	6.80	8.03						12.36
5/29/96 § p			11.28	11.99	10.14	6.01	7.24						9.33
6/5/96	6/5/96	6/5/96	10.10	10.93	12.95	5.80	5.29						9.01
		6/6/96	16.08	16.91	23.93	15.79	10.28						16.60
		6/7/96	15.06	15.88	21.92	15.77	9.26						15.58
		6/8/96	13.03	13.86	13.90	8.76	5.25						10.96
		6/10/96	12.99	13.81	13.87	8.73	5.22						10.92

	6/11/96	12.96	13.79	20.85	13.71	8.21						13.90
6/5/96 § p		13.37	14.20	17.90	11.43	7.25						12.83
6/12/96	6/12/96	9.57	10.54	12.53	4.76	4.51						8.38
	6/13/96	7.54	8.51	14.52	4.75	4.49						7.96
	6/14/96	7.51	8.48	15.50	4.73	4.47						8.14
	6/15/96	7.49	8.46	17.49	4.71	4.45						8.52
	6/17/96	7.43	8.40	17.47	4.68	4.42						8.48
	6/18/96	5.40	6.37	11.45	2.66	2.40						5.66
6/12/96 § p		7.49	8.46	14.83	4.38	4.12						7.86
6/19/96	6/19/96	6.67	7.41	10.76	2.74	3.77	14.50					7.64
	6/21/96	8.63	9.37	9.73	2.70	2.73	14.47					7.94
	6/22/96	6.61	7.35	5.71	0.69	1.71	10.45					5.42
	6/24/96	6.57	7.31	5.68	0.65	1.67	10.42					5.38
	6/25/96	10.55	11.29	6.67	2.63	1.65	10.41					7.20
6/19/96 § p		7.81	8.55	7.71	1.88	2.31	12.05					6.72
6/26/96	6/26/96	14.87	15.72	10.19	5.88	3.86	13.53					10.68
	6/27/96	15.85	16.69	8.18	5.86	3.84	11.52					10.32
	6/28/96	14.82	15.67	5.17	4.84	2.82	8.50					8.64
	6/29/96	11.80	12.64	3.16	2.82	2.80	5.49					6.45
	7/2/96	11.73	12.57	10.12	2.77	2.74	12.45					8.73
6/26/96 § p		13.81	14.66	7.36	4.43	3.21	10.30					8.96
7/3/96	7/3/96	12.96	13.83	10.69	4.31	3.32	11.89					9.50
	7/4/96	14.94	15.80	9.67	3.29	3.30	10.88					9.65
	7/5/96	15.91	16.78	12.66	5.27	5.28	13.87					11.63
	7/6/96	18.89	19.75	12.65	8.25	6.26	13.86					13.28
	7/8/96	18.84	19.70	12.63	8.21	6.22	13.83					13.24
	7/9/96	18.82	19.68	13.61	8.19	6.20	14.82					13.55
7/3/96 § p		16.73	17.59	11.99	6.25	5.10	13.19					11.81
7/10/96	7/10/96	13.07	14.03	10.84	5.34	4.20	13.36					10.14
	7/11/96	15.04	16.00	8.82	5.32	1.19	9.35					9.29
	7/12/96	15.01	15.97	11.81	4.30	3.17	10.33					10.10
	7/13/96	14.98	15.94	11.80	4.28	3.15	11.32					10.25
	7/15/96	14.93	15.89	11.77	4.25	3.11	11.29					10.21
	7/16/96	14.90	15.86	10.76	3.23	3.09	11.28					9.85
7/10/96 § p		14.66	15.62	10.97	4.45	2.99	11.16					9.97
7/17/96	7/17/96	10.37	11.93	10.68	4.22	5.27	11.91					9.06
	7/18/96	10.33	11.88	12.67	5.20	6.25	11.90					9.71
	7/19/96	10.28	11.84	13.66	6.18	6.23	12.88					10.18

	7/20/96	10.24	11.79	15.65	6.16	6.21	12.87					10.49
	7/22/96	10.15	11.70	15.62	6.12	6.17	12.85					10.44
	7/23/96	10.11	11.66	15.61	6.10	6.15	12.84					10.41
7/17/96 § p		10.25	11.80	13.98	5.66	6.05	12.54					10.05
7/24/96	7/24/96	9.58	10.54	12.31	4.24	5.18	10.46					8.72
	7/25/96	9.56	10.52	12.30	4.23	5.16	10.45					8.70
	7/26/96	12.53	13.49	13.28	5.21	5.14	10.43					10.01
	7/27/96	12.50	13.46	14.26	5.19	5.12	11.41					10.32
	7/29/96	14.45	15.41	18.23	5.15	6.08	11.38					11.78
	7/30/96	14.42	15.38	17.21	7.13	6.06	16.36					12.76
7/24/96 § p		12.17	13.13	14.60	5.19	5.46	11.75					10.38
7/31/96	7/31/96	19.38	20.21	10.35	4.11	3.67	10.72					11.41
	8/1/96	19.36	20.19	10.33	4.09	3.65	10.70					11.39
	8/2/96	19.34	20.16	10.32	4.06	3.62	10.68					11.36
	8/3/96	17.31	18.14	8.30	4.04	3.60	8.67					10.01
	8/5/96	17.27	18.09	7.26	3.99	3.55	7.63					9.63
	8/6/96	17.24	18.07	8.24	0.96	1.52	8.61					9.11
7/31/96 § p		18.32	19.14	9.13	3.54	3.27	9.50					10.48
8/7/96	8/7/96	17.44	18.23	11.32	3.78	1.47	8.97					10.20
	8/8/96	17.42	18.20	11.30	7.75	5.44	9.95					11.68
	8/9/96	20.40	21.18	12.28	8.73	8.42	11.93					13.82
	8/10/96	20.37	21.16	12.26	8.70	8.39	11.91					13.80
	8/12/96	20.33	21.11	12.22	8.65	8.34	11.87					13.75
	8/13/96	20.31	21.09	11.20	8.62	8.31	11.85					13.56
8/7/96 § p		19.38	20.16	11.76	7.71	6.73	11.08					12.80
8/14/96	8/14/96	17.71	18.67	8.80	3.54	3.21	8.72					10.11
	8/15/96	16.68	17.64	9.79	3.52	3.18	8.71					9.92
	8/16/96	16.65	17.61	10.77	5.49	3.16	7.69					10.23
	8/17/96	16.63	17.58	10.76	6.46	3.13	7.68					10.37
	8/19/96	16.57	17.53	10.73	6.41	3.08	7.64					10.33
	8/20/96	16.54	17.50	9.71	6.38	3.05	7.63					10.14
8/14/96 § p		16.80	17.76	10.09	5.30	3.14	8.01					10.18
8/21/96	8/21/96	15.29	16.17	9.32	2.42	1.43	6.41					8.51
	8/22/96	17.26	18.14	14.31	10.40	5.54	10.39					12.67
	8/23/96	17.24	18.12	15.29	15.38	11.52	14.37					15.32
	8/24/96	17.21	18.09	16.27	19.35	16.50	12.36					16.63
	8/26/96	23.16	24.04	22.24	26.31	21.46	17.32					22.42
	8/27/96	23.14	24.02	20.22	25.29	20.44	13.31					21.07

8/21/96 § p		18.88	19.76	16.28	16.53	12.82	12.36					16.10
8/28/96	8/28/96	16.08	16.88	7.21	5.79	1.79	0.84					8.10
	8/29/96	16.06	16.86	6.20	5.77	0.77	0.85					7.75
	8/30/96	16.04	16.83	8.19	7.75	1.75	0.86					8.57
	8/31/96	16.01	16.81	10.18	15.73	8.73	3.13					11.77
	9/2/96	10.97	11.76	11.16	15.69	7.69	1.11					9.73
	9/3/96	15.95	16.74	10.15	16.67	8.67	3.09					11.88
8/28/96 § p		15.19	15.98	8.85	11.23	4.90	1.65					9.63
9/4/96	9/4/96	13.29	14.05	6.49	10.73	6.90	0.09					8.59
	9/5/96	13.26	14.03	9.48	12.71	6.87	0.08					9.41
	9/6/96	13.24	14.01	10.47	14.69	6.85	0.07					9.89
	9/7/96	13.22	13.99	11.46	15.67	6.83	0.06					10.21
	9/9/96	13.18	13.94	9.45	12.62	6.79	0.04					9.34
	9/10/96	13.15	13.92	9.44	9.60	3.77	4.96					9.14
9/4/96 § p		13.22	13.99	9.47	12.67	6.34	0.88					9.43
9/11/96	9/11/96	12.66	13.36	7.75	10.16	4.61	7.46					9.33
	9/12/96	12.64	13.34	5.74	9.14	4.59	7.47					8.82
	9/13/96	12.62	13.32	7.73	11.11	4.56	7.48					9.47
	9/14/96	12.60	13.30	6.72	12.09	5.54	7.49					9.62
	9/16/96	12.56	13.26	9.20	14.04	5.49	7.51					10.34
	9/17/96	12.54	13.24	10.69	16.02	5.46	7.52					10.91
9/11/96 § p		12.60	13.30	7.97	12.09	5.04	7.49					9.75
9/18/96	9/18/96	12.68	13.45	6.94	12.91	3.64	9.53					9.86
	9/19/96	12.66	13.42	8.93	14.89	3.61	9.54					10.51
	9/20/96	12.64	13.40	9.92	16.86	5.58	7.54					10.99
	9/21/96	12.61	13.38	9.92	16.83	5.55	7.55					10.97
	9/23/96	12.57	13.34	7.90	16.78	5.50	7.57					10.61
	9/24/96	12.55	13.32	4.89	12.75	2.47	10.58					9.43
9/18/96 § p		12.62	13.39	8.08	15.17	4.39	8.72					10.39
9/25/96	9/25/96	14.83	15.61	5.91	7.15	2.41	10.29	26.99				11.88
	9/26/96	14.81	15.59	7.91	8.13	2.43	10.30	17.46				10.95
	9/30/96	14.72	15.50	7.89	8.03	2.53	10.31	17.36				10.91
	10/1/96	14.70	15.48	6.89	6.00	2.55	10.32	15.33				10.18
9/25/96 § p		14.77	15.55	7.15	7.33	2.48	10.31	19.29				10.98
10/2/96	10/2/96	13.67	14.44	5.80	6.82	1.61	11.12	16.49				9.99
	10/3/96	13.65	14.42	5.79	6.79	1.64	11.13	17.46				10.13
	10/4/96	13.63	14.40	6.79	6.76	1.66	11.13	17.44				10.26
	10/5/96	13.61	14.37	7.78	7.74	1.69	11.14	17.41				10.53

	10/7/96	13.56	14.33	8.77	8.69	1.74	11.15	17.36				10.80
	10/8/96	13.54	14.31	9.77	7.66	0.23	9.16	18.33				10.43
10/2/96 § p		13.61	14.38	7.45	7.41	1.43	10.81	17.42				10.36
10/9/96	10/9/96	10.89	11.56	5.95	7.14	3.24	12.86	14.92				9.51
	10/11/96	10.85	11.52	5.94	6.09	4.29	12.87	14.87				9.49
	10/12/96	10.83	11.51	5.93	6.07	4.32	12.88	14.84				9.48
	10/14/96	10.80	11.47	4.92	6.01	4.37	12.89	14.79				9.32
	10/15/96	10.78	11.45	4.91	5.99	4.40	12.90	14.76				9.31
10/9/96 § p		10.83	11.50	5.53	6.26	4.12	12.88	14.84				9.42
10/16/96	10/16/96	9.66	10.38	5.65	5.93	3.51	12.06	15.56				8.96
	10/17/96	0.36	0.36	25.36	34.10	33.54	34.07	29.46				22.46
	10/18/96	11.62	12.34	6.63	5.87	3.57	12.08	16.51				9.80
	10/19/96	4.10	12.32	6.63	5.85	3.59	12.08	16.49				8.72
	10/21/96	3.24	12.28	5.61	5.80	3.64	12.10	13.43				8.01
	10/22/96	3.26	12.26	4.61	4.77	3.67	12.11	11.41				7.44
10/16/96 § p		5.37	9.99	9.08	10.39	8.59	15.75	17.14				10.90
10/23/96	10/23/96	2.99	14.63	5.08	4.51	3.41	10.55	9.91	20.29			8.92
	10/24/96	5.02	12.61	1.92	0.49	5.43	12.56	3.89	4.55			5.81
	10/28/96	5.11	12.51	2.95	0.41	5.51	12.59	3.81	4.46			5.92
	10/29/96	9.13	8.49	11.96	1.61	9.54	18.59	2.21	1.56			7.89
10/23/96 § p		5.56	12.06	5.48	1.76	5.97	13.57	4.96	7.72			7.13
10/30/96	10/30/96	36.41	5.98	4.80	4.96	2.24	6.07	7.88	8.59			9.62
	11/1/96	36.52	5.88	7.79	6.92	4.19	4.08	9.83	10.55			10.72
	11/2/96	34.58	7.84	10.79	7.89	6.17	2.09	14.81	15.52			12.46
	11/4/96	34.69	7.74	10.77	7.85	6.12	2.10	14.76	15.48			12.44
	11/5/96	35.75	6.69	13.77	10.82	8.10	5.89	16.74	17.45			14.40
10/30/96 § p		35.59	6.83	9.58	7.69	5.36	4.05	12.80	13.52			11.93
11/6/96	11/6/96	6.84	12.02	4.80	1.51	0.11	2.92	8.68	9.43			5.79
	11/7/96	6.87	11.99	2.79	0.52	0.14	2.93	5.66	5.40			4.54
	11/8/96	6.89	11.97	3.78	0.54	0.16	2.93	6.63	7.38			5.04
	11/9/96	6.92	11.95	2.78	1.57	0.18	2.94	4.61	5.35			4.54
	11/11/96	6.97	11.90	2.76	1.61	0.23	2.95	4.56	5.30			4.54
11/6/96 § p		6.90	11.97	3.38	1.15	0.16	2.93	6.03	6.57			4.89
11/13/96	11/13/96	5.31	13.35	4.08	1.73	1.18	0.47	7.08	7.85			5.13
	11/14/96	6.33	12.32	4.07	0.29	1.16	0.48	6.06	6.82			4.69
	11/15/96	6.36	12.30	3.07	0.31	0.13	0.48	4.04	5.80			4.06
	11/16/96	6.38	12.27	2.06	2.34	1.89	2.49	2.01	2.78			4.03
	11/17/96	6.41	12.25	2.05	2.36	0.08	2.50	3.99	4.75			4.30

	11/18/96	6.43	12.22	2.04	2.39	1.94	2.51	1.96	2.73			4.03
	11/19/96	6.45	12.20	3.03	0.41	0.03	2.52	3.94	4.70			4.16
11/13/96	§ p	6.24	12.42	2.91	1.40	0.92	1.64	4.15	5.06			4.34
11/20/96	11/20/96	2.59	13.97	4.11	1.20	2.75	1.19	6.83	7.63	2.67		4.77
	11/21/96	2.61	13.94	3.11	1.17	2.73	1.20	6.80	7.60	3.68		4.76
	11/22/96	2.63	13.92	3.10	1.14	2.70	1.21	4.78	5.58	3.69		4.31
	11/23/96	2.66	5.90	1.09	1.12	2.68	1.22	4.75	5.55	3.70		3.19
	11/25/96	2.70	1.94	1.07	1.07	2.62	1.24	4.70	5.50	3.72		2.73
	11/26/96	4.72	3.96	0.94	0.96	1.40	7.25	2.67	3.47	5.73		3.46
11/20/96	§ p	2.99	8.94	2.24	1.11	2.48	2.22	5.09	5.89	3.87		3.87
11/27/96	11/27/96	10.05	9.20	4.67	1.68	1.05	0.90	4.83	5.58	0.73		4.30
	11/28/96	10.08	9.22	2.66	0.66	1.02	0.92	4.81	5.56	0.74		3.96
	11/29/96	10.10	9.25	2.64	0.63	2.00	0.93	5.79	6.53	0.24		4.23
	11/30/96	10.12	9.27	1.63	0.61	1.98	0.94	5.76	6.51	0.23		4.12
	12/2/96	10.17	9.32	1.60	0.56	1.93	0.97	5.72	6.46	0.20		4.10
	12/3/96	12.20	11.34	0.41	0.54	3.10	5.98	0.69	1.44	3.81		4.39
11/27/96	§ p	10.45	9.60	2.27	0.78	1.85	1.77	4.60	5.35	0.99		4.18
12/4/96	12/4/96	5.11	4.27	5.12	3.81	1.02	0.17	4.56	5.25	0.01		3.26
	12/5/96	5.13	4.29	5.11	3.79	1.00	0.16	4.53	5.23	1.00		3.36
	12/6/96	5.16	4.31	5.10	2.77	0.98	1.85	4.51	5.21	2.01		3.54
	12/7/96	5.18	4.34	5.08	2.75	0.96	1.86	4.49	5.18	0.02		3.32
	12/9/96	5.23	4.39	5.06	2.70	0.91	1.88	4.45	5.14	0.05		3.31
	12/10/96	5.25	4.41	1.95	2.68	2.11	2.90	1.42	2.12	1.06		2.66
12/4/96	§ p	5.18	4.34	4.57	3.08	1.16	1.47	3.99	4.69	0.69		3.24
12/11/96	12/11/96	9.92	8.92	3.25	5.79	1.93	1.62	5.37	6.05	3.75		5.18
	12/12/96	10.95	9.95	2.24	2.76	2.09	1.39	1.35	2.03	0.74		3.72
	12/13/96	10.98	9.97	2.22	2.74	2.11	1.40	1.33	2.00	0.72		3.72
	12/14/96	11.01	10.00	2.21	0.72	4.13	2.42	0.70	0.02	0.29		3.50
	12/16/96	11.07	10.06	2.19	0.68	4.18	2.44	0.74	0.06	0.31		3.53
	12/17/96	13.10	12.09	0.17	2.34	6.20	6.45	2.76	2.08	4.33		5.50
12/11/96	§ p	11.17	10.17	2.05	2.51	3.44	2.62	2.04	2.04	1.69		4.19
12/18/96	12/18/96	9.53	8.58	4.03	5.17	1.25	1.78	4.59	5.26	1.08		4.59
	12/19/96	9.55	8.61	6.01	5.15	4.23	0.21	7.57	8.24	3.06		5.85
	12/20/96	9.58	8.63	4.99	5.13	4.21	0.19	7.55	8.22	3.04		5.73
	12/21/96	9.61	8.66	1.33	5.11	3.19	0.17	6.53	7.20	3.03	14.48	5.93
	12/23/96	9.66	8.71	8.53	5.07	3.14	0.14	6.49	7.15	2.99	8.37	6.03
	12/24/96	4.69	3.74	4.55	5.05	6.12	5.12	9.47	10.13	10.98	13.35	7.32
	12/26/96	4.74	3.80	4.58	5.01	7.08	5.09	10.43	11.09	11.94	12.31	7.61

	12/27/96	4.77	3.82	5.60	3.99	6.06	3.07	9.41	10.07	7.92	11.29	6.60
	12/28/96	4.80	3.85	6.62	2.97	3.04	0.05	6.39	7.05	6.91	8.27	5.00
	12/30/96	4.85	3.90	6.66	0.92	1.00	0.02	4.35	5.01	6.87	6.23	3.98
	12/31/96	4.88	3.93	7.68	0.10	0.02	-	3.33	3.99	5.85	5.21	3.50
12/18/96 § p		6.97	6.02	5.51	3.97	3.58	1.44	6.92	7.58	5.79	9.94	5.65
i p		10.70	11.15	9.55	6.62	4.95	7.49	8.73	6.39	3.06	9.94	8.52

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± f 3 Q	S Q ≈	S Q ≈										
		00851	00852	00853	00751	85308	85104	86101	86102	86103	86104	i ≠ p
12/27/95	1/4/96	13.12	13.55	11.72								12.80
	1/5/96	11.11	11.54	10.71								11.12
	1/6/96	9.09	9.52	2.70								7.10
	1/8/96	9.07	9.50	6.69								8.42
	1/9/96	10.06	10.49	7.68								9.41
12/27/95 S ≠ p		10.49	10.92	7.90								9.77
1/10/96	1/10/96	11.40	11.91	11.16								11.49
	1/11/96	15.39	15.90	12.15								14.48
	1/12/96	17.37	17.89	16.14								17.13
	1/13/96	16.36	16.87	14.13								15.79
	1/15/96	16.33	16.84	14.11								15.76
	1/16/96	17.31	17.83	14.10								16.41
1/10/96 S ≠ p		15.69	16.21	13.63								15.18
1/17/96	1/17/96	3.57	4.14	11.15								6.29
	1/18/96	4.56	5.12	10.14								6.61
	1/19/96	5.54	6.10	11.13								7.59
	1/20/96	5.52	6.09	11.12	16.20							9.73
	1/22/96	5.49	6.05	11.09	12.83							8.87
	1/23/96	4.48	5.04	9.08	12.82							7.86
1/17/96 S ≠ p		4.86	5.42	10.62	13.95							7.96
1/24/96	1/24/96	5.93	6.40	8.07	12.32							8.18
	1/25/96	3.92	4.38	6.06	12.31							6.67
	1/26/96	1.91	2.37	3.04	9.30							4.16
	1/27/96	4.89	5.36	4.03	9.29							5.89
	1/29/96	4.87	5.33	4.01	9.27							5.87
	1/30/96	3.85	4.32	3.00	9.26							5.11
1/24/96 S ≠ p		4.23	4.69	4.70	10.29							5.98
1/31/96	1/31/96	7.46	7.96	7.76	14.33							9.38
	2/1/96	7.44	7.95	7.75	14.32							9.37
	2/2/96	9.43	9.93	9.74	14.31							10.85
	2/3/96	11.41	11.92	12.73	16.30							13.09
	2/5/96	11.38	11.89	12.71	16.28							13.07
	2/6/96	14.37	14.88	13.70	16.27							14.81

1/31/96 § p		10.25	10.76	10.73	15.30							11.76
2/7/96	2/7/96	4.69	5.27	8.48	11.86							7.58
	2/8/96	6.68	7.26	9.97	11.84							8.94
	2/9/96	9.66	10.24	10.96	12.83							10.92
	2/10/96	9.64	10.22	11.94	13.82							11.41
	2/12/96	11.61	12.19	13.92	15.80							13.38
	2/13/96	24.60	25.17	24.90	32.78							26.86
2/7/96 § p		11.15	11.73	13.36	16.49							13.18
2/14/96	2/14/96	6.33	6.80	4.87	10.16							7.04
	2/15/96	9.31	9.79	7.86	12.15							9.78
	2/16/96	7.30	7.78	6.84	11.14							8.27
	2/17/96	7.28	7.76	6.83	11.13							8.25
	2/23/96	7.20	7.68	6.77	11.07							8.18
	2/24/96	14.19	14.67	7.76	12.06							12.17
	2/26/96	14.16	14.64	8.74	12.04							12.40
	2/27/96	12.15	12.63	6.72	10.04							10.39
2/14/96 § p		9.74	10.22	7.05	11.22							9.56
2/28/96	2/28/96	0.72	1.61	4.04	10.76							4.28
	2/29/96	2.30	1.42	1.02	7.75							3.12
	3/1/96	4.33	3.44	1.99	1.74							2.88
	3/2/96	2.35	1.47	1.01	1.73							1.64
	3/4/96	2.40	1.52	1.04	1.70							1.67
	3/5/96	0.57	1.46	1.95	3.69							1.92
2/28/96 § p		2.11	1.82	1.84	4.56							2.58
3/6/96	3/6/96	2.53	3.43	5.16	8.16							4.82
	3/7/96	6.49	5.59	1.86	2.15							4.02
	3/8/96	6.52	5.62	1.87	0.14							3.54
	3/9/96	6.54	5.65	2.89	0.12							3.80
	3/11/96	6.60	5.70	5.92	2.90							5.28
	3/12/96	13.62	12.72	16.94	12.92							14.05
3/6/96 § p		7.05	6.45	5.77	4.40							5.92
3/13/96	3/13/96	14.93	15.51	10.58	13.32							13.59
	3/14/96	0.09	0.49	2.57	3.31							1.62
	3/15/96	9.90	10.47	23.56	20.30							16.06
	3/16/96	27.88	28.46	33.54	28.29							29.54
	3/18/96	27.85	28.42	32.52	27.27							29.02
	3/19/96	27.83	28.41	35.51	28.26							30.00
3/13/96 § p		18.08	18.63	23.05	20.13							19.97

3/20/96	3/20/96	8.74	9.37	10.38	5.98							8.62
	3/21/96	6.72	7.35	9.36	4.97							7.10
	3/22/96	6.70	7.33	9.35	5.96							7.34
	3/25/96	7.65	8.28	11.30	11.92							9.79
	3/26/96	8.63	9.26	11.29	10.90							10.02
3/20/96 § p		7.69	8.32	10.34	7.95							8.57
3/27/96	3/27/96	5.20	5.91	7.55	7.95							6.65
	3/28/96	5.18	5.89	9.54	10.94							7.89
	4/1/96	6.10	6.81	10.48	12.89							9.07
	4/2/96	6.08	6.79	10.46	12.88							9.05
	4/5/96	5.02	5.73	9.42	11.84							8.00
	4/6/96	4.00	4.71	8.90	11.82							7.36
	4/8/96	3.96	4.67	9.37	12.30							7.58
	4/9/96	3.94	4.65	8.36	12.29							7.31
3/27/96 § p		4.94	5.65	9.26	11.61							7.86
4/10/96	4/10/96	5.60	6.26	8.36	9.43							7.41
	4/11/96	5.58	6.24	8.35	9.42							7.40
	4/12/96	1.57	2.22	4.33	5.41							3.38
	4/13/96	3.45	2.80	3.32	3.40							3.24
	4/15/96	3.49	2.83	3.29	3.38							3.25
	4/16/96	8.51	7.85	0.28	0.63							4.32
4/10/96 § p		4.70	4.70	4.66	5.28							4.83
4/17/96	4/17/96	3.13	3.70	11.52	12.29							7.66
	4/18/96	9.11	9.69	15.51	16.28							12.65
	4/19/96	15.09	15.67	17.49	19.27							16.88
	4/20/96	15.08	15.65	16.48	17.26							16.12
	4/22/96	15.04	15.62	16.45	17.23							16.09
	4/23/96	15.03	15.60	17.44	17.22							16.32
4/17/96 § p		12.08	12.66	15.82	16.59							14.29
4/24/96	4/24/96	5.07	5.73	9.98	10.71							7.87
	4/25/96	5.05	5.71	9.96	10.69							7.85
	4/26/96	5.04	5.70	9.95	10.68							7.84
	4/27/96	5.02	5.68	9.94	9.67	17.15						9.49
	4/29/96	4.98	5.64	9.91	9.65	12.90						8.62
	4/30/96	0.96	1.62	8.89	9.63	10.89						6.40
4/24/96 § p		4.35	5.01	9.77	10.17	13.65						8.03
5/1/96	5/1/96	6.86	7.43	12.19	10.13	13.34						9.99
	5/2/96	5.84	6.41	12.17	9.11	13.33						9.37

		5/3/96	6.83	7.40	12.16	10.10	13.32						9.96
		5/4/96	10.81	11.38	14.15	14.09	15.30						13.15
		5/6/96	10.78	11.35	14.12	14.07	15.28						13.12
		5/7/96	12.76	13.33	15.11	14.06	15.27						14.11
5/1/96 § p			8.98	9.55	13.32	11.93	14.31						11.62
5/8/96	5/8/96	5/8/96	7.01	7.68	8.01	8.91	10.28						8.38
		5/9/96	8.99	9.66	8.00	7.89	10.26						8.96
		5/10/96	10.97	11.64	7.98	8.88	10.25						9.94
		5/11/96	10.95	11.62	10.97	9.87	11.24						10.93
	5/13/96	10.91	11.59	12.94	9.84	11.21							11.30
	5/14/96	10.89	11.57	12.92	9.83	11.20							11.28
5/8/96 § p			9.95	10.63	10.14	9.20	10.74						10.13
5/15/96	5/15/96	5/15/96	8.14	8.82	7.40	7.39	8.76						8.10
		5/16/96	8.12	8.81	7.89	7.37	8.75						8.19
		5/17/96	7.10	7.79	6.37	7.36	8.73						7.47
		5/18/96	6.08	6.77	7.36	7.35	8.72						7.26
		5/20/96	6.04	6.73	7.32	7.32	8.69						7.22
		5/21/96	6.02	6.71	9.31	7.31	8.68						7.61
5/15/96 § p			6.92	7.61	7.61	7.35	8.72						7.64
5/22/96	5/22/96	5/22/96	5.84	6.53	8.02	6.97	8.34						7.14
		5/23/96	7.83	8.51	10.00	7.95	9.32						8.72
		5/24/96	8.81	9.49	9.99	7.94	9.31						9.11
		5/25/96	8.79	9.47	9.97	7.93	9.30						9.09
		5/27/96	8.75	9.43	8.94	7.90	9.27						8.86
		5/28/96	7.73	8.41	8.93	6.89	8.26						8.04
5/22/96 § p			7.96	8.64	9.31	7.60	8.97						8.49
5/29/96	5/29/96	5/29/96	8.03	8.72	7.44	7.28	8.63						8.02
		5/30/96	8.01	8.70	7.42	7.27	8.62						8.00
		5/31/96	9.99	10.68	9.41	7.25	8.60						9.19
		6/1/96	11.97	12.66	9.39	7.24	8.59						9.97
		6/3/96	11.93	12.62	10.86	7.21	8.57						10.24
		6/4/96	14.91	15.60	15.35	8.20	9.55						12.72
5/29/96 § p			10.81	11.50	9.98	7.41	8.76						9.69
6/5/96	6/5/96	6/5/96	10.52	11.29	12.87	6.56	6.07						9.46
		6/6/96	16.50	17.27	23.86	16.55	11.06						17.05
		6/7/96	15.48	16.25	21.84	16.53	10.04						16.03
		6/8/96	13.46	14.23	13.82	9.52	6.03						11.41
		6/10/96	13.41	14.18	13.79	9.49	6.00						11.37

	6/11/96	13.39	14.16	20.77	14.48	8.98						14.36
6/5/96 § p		13.79	14.56	17.83	12.19	8.03						13.28
6/12/96	6/12/96	9.68	10.53	13.61	4.32	3.59						8.35
	6/13/96	7.66	8.50	15.59	4.31	3.58						7.93
	6/14/96	7.63	8.48	16.57	4.29	3.57						8.11
	6/15/96	7.61	8.46	18.56	4.28	3.56						8.49
	6/17/96	7.56	8.41	18.53	4.26	3.53						8.46
	6/18/96	5.54	6.38	12.51	2.25	1.52						5.64
6/12/96 § p		7.61	8.46	15.90	3.95	3.23						7.83
6/19/96	6/19/96	4.97	5.75	12.29	1.65	2.12	16.41					7.20
	6/21/96	6.93	7.70	11.26	1.63	1.09	16.38					7.50
	6/22/96	4.91	5.68	7.24	0.39	0.08	12.36					5.11
	6/24/96	4.86	5.64	7.21	0.42	0.05	12.33					5.09
	6/25/96	8.84	9.61	8.19	1.57	0.04	12.31					6.76
6/19/96 § p		6.10	6.88	9.24	1.13	0.68	13.96					6.33
6/26/96	6/26/96	13.38	14.22	12.04	4.39	1.63	15.95					10.27
	6/27/96	14.35	15.20	10.02	4.38	1.62	13.93					9.92
	6/28/96	13.33	14.17	7.01	3.37	0.60	10.91					8.23
	6/29/96	10.30	11.15	4.99	1.36	0.59	7.90					6.05
	7/2/96	10.23	11.07	11.95	1.32	0.56	14.85					8.33
6/26/96 § p		12.32	13.16	9.20	2.96	1.00	12.71					8.56
7/3/96	7/3/96	10.68	11.52	12.61	3.36	1.63	14.57					9.06
	7/4/96	12.65	13.49	11.60	2.35	1.62	13.56					9.21
	7/5/96	13.63	14.47	14.58	4.34	3.61	16.54					11.20
	7/6/96	16.61	17.45	14.57	7.32	4.59	16.52					12.84
	7/8/96	16.56	17.40	14.53	7.30	4.57	16.49					12.81
	7/9/96	16.53	17.37	15.52	7.29	4.56	17.48					13.13
7/3/96 § p		14.44	15.28	13.90	5.33	3.43	15.86					11.37
7/10/96	7/10/96	11.71	12.65	12.35	4.90	3.21	15.49					10.05
	7/11/96	13.68	14.62	10.33	4.88	0.20	11.48					9.20
	7/12/96	13.66	14.59	13.31	3.87	2.19	12.46					10.01
	7/13/96	13.63	14.57	13.30	3.86	2.17	13.44					10.16
	7/15/96	13.58	14.51	13.26	3.83	2.15	13.41					10.12
	7/16/96	13.55	14.49	12.25	2.82	2.13	13.39					9.77
7/10/96 § p		13.30	14.24	12.47	4.03	2.01	13.28					9.89
7/17/96	7/17/96	12.48	13.49	12.13	3.33	3.69	14.42					9.92
	7/18/96	12.45	13.46	14.11	4.32	4.67	14.40					10.57
	7/19/96	12.42	13.43	15.09	5.31	4.66	15.39					11.05

	7/20/96	12.40	13.40	17.07	5.30	4.65	15.37					11.37
	7/22/96	12.34	13.34	17.04	5.27	4.62	15.33					11.32
	7/23/96	12.31	13.32	17.02	5.26	4.61	15.32					11.31
7/17/96 § p		12.40	13.41	15.41	4.80	4.48	15.04					10.92
7/24/96	7/24/96	7.48	8.57	14.01	2.30	2.63	12.37					7.89
	7/25/96	7.45	8.53	13.99	2.29	2.62	12.35					7.87
	7/26/96	10.42	11.50	14.97	3.27	2.61	12.33					9.18
	7/27/96	10.39	11.47	15.96	3.26	2.59	13.32					9.50
	7/29/96	12.32	13.41	19.92	3.23	3.57	13.28					10.96
	7/30/96	12.29	13.38	18.90	5.22	3.56	18.26					11.94
7/24/96 § p		10.06	11.14	16.29	3.26	2.93	13.65					9.56
7/31/96	7/31/96	14.91	15.99	13.59	0.46	1.05	14.18					10.03
	8/1/96	14.87	15.96	13.57	0.45	1.07	14.16					10.01
	8/2/96	14.84	15.93	13.55	0.43	1.08	14.14					10.00
	8/3/96	12.81	13.90	11.53	0.42	1.10	12.12					8.65
	8/5/96	12.75	13.84	10.49	0.39	1.13	11.08					8.28
	8/6/96	12.72	13.81	11.47	2.62	3.14	12.06					9.30
7/31/96 § p		13.82	14.91	12.37	0.80	1.43	12.96					9.38
8/7/96	8/7/96	12.35	13.48	15.03	0.97	4.49	12.65					9.83
	8/8/96	12.32	13.44	15.01	3.01	0.51	13.63					9.65
	8/9/96	15.28	16.41	15.99	4.00	2.48	15.61					11.63
	8/10/96	15.25	16.38	15.97	3.98	2.46	15.59					11.61
	8/12/96	15.19	16.32	15.93	3.95	2.43	15.55					11.56
	8/13/96	15.16	16.28	14.91	3.94	2.42	15.54					11.38
8/7/96 § p		14.26	15.39	15.47	3.31	2.47	14.76					10.94
8/14/96	8/14/96	13.40	14.47	11.86	0.96	0.53	12.45					8.95
	8/15/96	12.37	13.44	12.84	0.95	0.55	12.43					8.76
	8/16/96	12.34	13.41	13.82	2.93	0.56	11.41					9.08
	8/17/96	12.31	13.38	13.80	3.92	0.58	11.39					9.23
	8/19/96	12.25	13.32	13.76	3.89	0.61	11.35					9.20
	8/20/96	12.22	13.29	12.74	3.87	0.62	11.33					9.01
8/14/96 § p		12.48	13.55	13.14	2.75	0.58	11.73					9.04
8/21/96	8/21/96	12.51	13.47	11.26	0.85	3.66	8.69					8.41
	8/22/96	14.48	15.44	16.24	8.84	3.33	12.67					11.83
	8/23/96	14.45	15.41	17.22	13.82	9.31	16.65					14.48
	8/24/96	14.42	15.38	18.20	17.81	14.30	14.64					15.79
	8/26/96	20.37	21.33	24.17	24.78	19.27	19.60					21.59
	8/27/96	20.34	21.30	22.15	23.77	18.26	15.58					20.23

8/21/96 § p		16.10	17.06	18.21	14.98	11.36	14.64					15.39
8/28/96	8/28/96	14.34	15.05	8.58	6.28	1.58	1.39					7.87
	8/29/96	14.32	15.03	7.57	6.27	0.57	1.37					7.52
	8/30/96	14.30	15.01	9.55	8.26	1.55	1.36					8.34
	8/31/96	14.27	14.99	11.54	16.24	8.54	5.34					11.82
	9/2/96	9.23	9.95	12.51	16.22	7.52	3.31					9.79
	9/3/96	14.21	14.93	11.49	17.20	8.50	5.30					11.94
8/28/96 § p		13.45	14.16	10.21	11.75	4.71	3.01					9.55
9/4/96	9/4/96	10.40	11.05	8.20	12.23	7.60	2.98					8.74
	9/5/96	10.38	11.03	11.19	14.22	7.59	2.97					9.56
	9/6/96	10.36	11.01	12.17	16.21	7.58	2.95					10.05
	9/7/96	10.34	10.99	13.16	17.19	7.56	2.94					10.36
	9/9/96	10.31	10.96	11.13	14.17	7.54	2.91					9.50
	9/10/96	10.29	10.94	11.11	11.15	4.52	2.11					8.35
9/4/96 § p		10.35	11.00	11.16	14.20	7.07	2.81					9.43
9/11/96	9/11/96	8.13	8.81	10.34	11.46	4.93	3.70					7.90
	9/12/96	8.11	8.79	8.32	10.44	4.91	3.72					7.38
	9/13/96	8.09	8.77	10.31	12.43	4.90	3.73					8.04
	9/14/96	8.07	8.75	9.29	13.42	5.88	3.75					8.19
	9/16/96	8.03	8.71	11.76	15.39	5.86	3.78					8.92
	9/17/96	8.01	8.69	13.24	17.37	5.84	3.80					9.49
9/11/96 § p		8.07	8.75	10.54	13.42	5.39	3.75					8.32
9/18/96	9/18/96	6.68	7.39	10.01	15.08	4.64	4.88					8.11
	9/19/96	6.66	7.37	12.00	17.06	4.62	4.90					8.77
	9/20/96	6.64	7.35	12.98	19.05	6.61	2.91					9.26
	9/21/96	6.62	7.33	12.96	19.03	6.59	2.93					9.24
	9/23/96	6.58	7.29	10.93	19.00	6.56	2.96					8.89
	9/24/96	6.56	7.27	7.91	14.99	3.55	5.98					7.71
9/18/96 § p		6.62	7.33	11.13	17.37	5.43	4.09					8.66
9/25/96	9/25/96	5.73	6.46	7.95	14.71	4.33	5.83	27.57				10.37
	9/26/96	5.71	6.44	9.94	15.69	4.31	5.85	22.93				10.12
	9/30/96	5.63	6.36	9.87	15.63	4.25	5.92	22.87				10.08
	10/1/96	5.60	6.33	8.85	13.61	4.23	5.94	20.85				9.34
9/25/96 § p		5.67	6.40	9.15	14.91	4.28	5.89	23.56				9.98
10/2/96	10/2/96	5.00	5.74	8.46	13.40	4.03	6.29	20.68				9.09
	10/3/96	4.98	5.72	8.44	13.38	4.02	6.31	21.66				9.22
	10/4/96	4.96	5.70	9.43	13.37	4.00	6.33	21.64				9.35
	10/5/96	4.94	5.68	10.41	14.35	3.98	6.35	21.63				9.62

	10/7/96	4.90	5.63	11.37	15.32	3.95	6.38	21.60				9.88
	10/8/96	4.88	5.61	12.36	14.30	5.94	4.40	22.58				10.01
10/2/96 § p		4.94	5.68	10.08	14.02	4.32	6.01	21.63				9.53
10/9/96	10/9/96	0.18	0.94	8.51	13.80	2.45	8.17	19.13				7.60
	10/11/96	0.13	0.90	8.48	12.77	1.42	8.21	19.10				7.29
	10/12/96	0.11	0.87	8.46	12.75	1.41	8.23	19.08				7.27
	10/14/96	0.07	0.83	7.42	12.72	1.37	8.26	19.05				7.10
	10/15/96	0.05	0.81	7.41	12.70	1.36	8.28	19.03				7.09
10/9/96 § p		0.11	0.87	8.06	12.95	1.60	8.23	19.08				7.27
10/16/96	10/16/96	0.89	1.64	7.88	12.11	1.76	7.83	19.44				7.36
	10/17/96	9.13	8.38	23.14	27.91	28.25	29.85	25.58				21.75
	10/18/96	2.85	3.60	8.85	12.08	1.73	7.86	20.41				8.20
	10/19/96	4.98	3.57	8.83	12.06	1.71	7.88	20.39				8.49
	10/21/96	12.93	3.53	7.79	12.03	1.68	7.92	17.36				9.03
	10/22/96	12.95	3.51	6.77	11.01	1.67	7.94	15.34				8.46
10/16/96 § p		7.29	4.04	10.54	14.53	6.13	11.55	19.75				10.55
10/23/96	10/23/96	9.16	7.54	5.25	9.81	1.49	8.40	14.22	20.62			9.56
	10/24/96	11.18	5.52	1.76	5.80	0.52	10.42	8.20	8.74			6.52
	10/28/96	11.27	5.44	2.84	5.73	0.59	10.49	8.13	8.68			6.65
	10/29/96	15.29	1.41	11.86	3.71	4.60	16.51	2.12	2.66			7.27
10/23/96 § p		11.73	4.98	5.43	6.26	1.80	11.46	8.17	10.18			7.50
10/30/96	10/30/96	5.05	11.61	3.17	9.55	6.21	5.51	10.90	11.44			7.93
	11/1/96	5.09	11.57	6.14	11.52	8.18	3.55	12.87	13.41			9.04
	11/2/96	3.11	13.55	9.12	12.50	10.16	1.56	17.85	18.39			10.78
	11/4/96	3.16	13.50	9.08	12.47	10.13	1.60	17.82	18.36			10.77
	11/5/96	4.18	12.48	12.07	15.45	12.11	6.38	19.80	20.34			12.85
10/30/96 § p		4.12	12.54	7.92	12.30	9.36	3.72	15.85	16.39			10.27
11/6/96	11/6/96	10.50	5.98	5.23	7.36	5.00	0.50	12.65	13.18			7.55
	11/7/96	10.52	5.96	3.21	5.35	4.99	0.51	9.64	9.17			6.17
	11/8/96	10.54	5.94	4.20	5.33	4.97	0.53	10.62	11.15			6.66
	11/9/96	10.57	5.92	3.18	4.32	4.95	0.55	8.61	9.14			5.91
	11/11/96	10.61	5.87	3.14	4.28	4.92	0.58	8.57	9.10			5.88
11/6/96 § p		10.55	5.93	3.79	5.33	4.97	0.53	10.02	10.35			6.43
11/13/96	11/13/96	8.90	7.86	4.52	6.83	5.47	1.82	10.14	10.68			7.03
	11/14/96	9.92	6.84	4.50	4.81	5.46	1.81	9.13	9.66			6.52
	11/15/96	9.94	6.82	3.48	4.79	4.44	1.79	7.11	8.64			5.88
	11/16/96	9.96	6.80	2.47	2.78	2.43	0.23	5.09	5.63			4.42
	11/17/96	9.99	6.78	2.45	2.76	4.41	0.25	7.08	7.61			5.17

		11/18/96	10.01	6.75	2.43	2.74	2.39	0.27	5.06	5.59			4.41
		11/19/96	10.03	6.73	3.41	4.73	4.38	0.28	7.04	7.58			5.52
11/13/96	§ p p		9.82	6.94	3.32	4.21	4.14	0.92	7.24	7.91			5.56
11/20/96	11/20/96	10.44	6.96	4.55	5.32	6.00	0.94	8.72	9.27	0.97			5.91
	11/21/96	10.46	6.94	3.53	5.31	5.99	0.93	8.71	9.25	0.05			5.69
	11/22/96	10.48	6.91	3.52	5.29	5.97	0.91	6.69	7.23	0.07			5.23
	11/23/96	10.51	1.31	1.50	5.27	5.95	0.89	6.67	7.22	0.09			4.38
	11/25/96	10.55	9.76	1.46	5.24	5.92	0.85	6.64	7.18	0.12			5.30
	11/26/96	12.57	11.78	0.56	3.23	1.91	5.17	4.62	5.17	2.14			5.24
11/20/96	§ p p		10.84	7.28	2.52	4.94	5.29	1.62	7.01	7.55	0.57		5.29
11/27/96	11/27/96	14.69	13.77	5.33	3.41	1.95	0.71	4.44	4.94	1.73			5.66
	11/28/96	14.72	13.79	3.31	2.39	1.93	0.69	4.43	4.93	1.71			5.32
	11/29/96	14.74	13.82	3.29	2.38	2.92	0.67	5.41	5.91	2.69			5.76
	11/30/96	14.77	13.85	2.27	2.36	2.90	0.65	5.40	5.90	2.67			5.64
	12/2/96	14.82	13.90	2.24	2.33	2.87	0.62	5.36	5.87	2.63			5.63
	12/3/96	16.85	15.92	0.22	2.32	2.14	4.40	0.35	0.85	1.39			4.94
11/27/96	§ p p		15.10	14.18	2.78	2.53	2.45	1.29	4.23	4.73	2.14		5.49
12/4/96	12/4/96	11.04	10.10	5.61	6.06	2.43	1.75	4.65	5.10	2.56			5.48
	12/5/96	11.07	10.13	5.59	6.05	2.42	1.73	4.64	5.08	3.54			5.58
	12/6/96	11.10	10.15	5.57	5.04	2.40	0.28	4.62	5.07	0.52			4.97
	12/7/96	11.12	10.18	5.56	5.03	2.39	0.30	4.61	5.06	2.51			5.20
	12/9/96	11.18	10.23	5.52	5.00	2.36	0.34	4.58	5.03	2.47			5.19
	12/10/96	11.20	10.26	1.50	4.99	0.65	1.35	1.57	2.02	1.45			3.89
12/4/96	§ p p		11.12	10.18	4.89	5.36	2.11	0.96	4.11	4.56	2.18		5.05
12/11/96	12/11/96	17.23	16.03	3.81	7.57	2.88	3.11	5.02	5.45	6.07			7.46
	12/12/96	18.26	17.07	2.79	4.56	1.13	0.09	1.01	1.44	3.05			5.49
	12/13/96	18.30	17.10	2.77	4.55	1.14	0.08	0.99	1.43	3.03			5.49
	12/14/96	18.33	17.14	2.75	2.53	3.15	0.94	1.02	0.59	2.01			5.38
	12/16/96	18.40	17.20	2.72	2.51	3.18	0.98	1.04	0.61	1.98			5.40
	12/17/96	20.43	19.24	0.70	0.50	5.19	5.00	3.06	2.62	2.04			6.53
12/11/96	§ p p		18.49	17.30	2.59	3.70	2.78	1.70	2.02	2.02	3.03		5.96
12/18/96	12/18/96	27.00	25.52	5.84	5.47	0.79	0.37	2.95	3.39	3.54			8.32
	12/19/96	27.05	25.56	7.82	5.45	3.78	2.36	5.94	6.38	5.52			9.98
	12/20/96	27.09	25.61	6.80	5.44	3.76	2.34	5.92	6.36	5.50			9.87
	12/21/96	27.13	25.65	0.18	5.43	2.75	2.32	4.91	5.35	5.48	9.25		8.85
	12/23/96	27.22	25.73	9.32	5.40	2.73	2.28	4.89	5.32	5.44	6.08		9.44
	12/24/96	22.26	20.78	5.34	5.39	5.71	7.26	7.87	8.31	13.43	11.07		10.74
	12/26/96	22.34	20.86	5.38	5.37	6.69	7.22	8.85	9.29	14.39	10.04		11.04

	12/27/96	22.39	20.90	6.41	4.35	5.68	5.20	7.83	8.27	10.37	9.03	10.04
	12/28/96	22.43	20.94	7.43	3.34	2.66	2.18	4.82	5.26	9.35	6.02	8.44
	12/30/96	22.51	21.03	7.47	1.31	0.64	2.15	2.80	3.23	9.31	3.99	7.44
	12/31/96	22.55	21.07	8.49	0.30	0.38	2.13	1.78	2.22	8.29	2.98	7.02
12/18/96 § p		24.54	23.06	6.41	4.30	3.23	3.26	5.32	5.76	8.24	7.31	9.19
i p		10.32	10.48	9.95	8.68	5.10	7.54	10.56	7.26	3.95	7.31	8.89