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APPENDIX I

TABLE A

Recognition of Business Cycle Peaks and Troughs, 1919–1929, Six Forecasting Services [a]

	Months Before (–) or After (+) NBER Peak or Trough												
	–6	–5	–4	–3	–2	–1	0	+1	+2	+3	+4	+5	+6
Direction of Change													
4 Peaks [b]													
% Correct	25	24	47	47	53	52	52	57	65	76	55	45	73
% Neutral	58	59	41	47	35	30	30	35	26	18	45	55	18
% Wrong	17	18	12	6	12	17	17	8	8	6	0	0	9
Total [d]	100	100	100	100	100	100	100	100	100	100	100	100	100
4 Troughs [e]													
% Correct	42	44	39	41	41	55	77	77	73	82	64	67	67
% Neutral	58	44	56	55	55	36	18	9	23	18	36	33	33
% Wrong	0	11	6	5	5	9	5	14	5	0	0	0	0
Total [d]	100	100	100	100	100	100	100	100	100	100	100	100	100
8 Peaks and Troughs [b,c]													
% Correct	33	34	43	44	46	53	64	67	69	79	59	53	71
% Neutral	58	51	49	51	46	33	24	22	24	18	41	47	24
% Wrong	8	14	9	5	8	13	11	11	7	3	0	0	6
Total [d]	100	100	100	100	100	100	100	100	100	100	100	100	100
Correctness of Forecasts [e]													
4 Peaks	8	6	2	7	4	5	3	4	7	4	8	7	10
4 Troughs	5	3	4	4	3	7	10	9	12	12	12	11	7
8 Peaks and Troughs	7	5	3	5	3	6	7	7	9	8	10	9	8

TABLE B

Accuracy of Dating Cyclical Peaks and Troughs, 1948–61

Month	Eight Analysts, All Scores		Eight Analysts, Scores Based on Actual Forecasts [a]		"Best" Analyst 1948–61	"Worst" Analyst 1948–61	Two Analysts (Indicators Approach) 1957–61
	Four Troughs	Four Peaks	Four Troughs	Four Peaks			
−3	17	4	23	3	35	0	16
−2	22	6	35	28	31	3	17
−1	29	5	42	17	38	3	20
0	34	6	49	10	47	16	12
1	40	8	54	38	47	35	12
2	43	5	69	36	60	25	25
3	52	5	69	18	60	25	53
4	56	10	81	27	60	25	71
5	68	19	90	53	69	25	76
6	71	23	86	63	72	25	78

[a] Averages shown include positive scores not based on actual forecasts that meet the following conditions: (1) month of forecast +2 or later; (2) forecast of date of turn not revised during scoring period; (3) certainty score in same month 75 or higher. In computing the averages, the individual scores for each month were averaged, and the averages for each month were weighted equally in computing the average shown above.

TABLE C

Degree of Certainty of Forecasts of Cyclical Peaks and Troughs, 1948–61

Month	Eight Analysts		"Best" Analyst 1948–61	"Worst" Analyst 1948–61	Two Analysts (Indicators Approach) 1957–61
	Four Troughs	Four Peaks			
−3	38	21	47	19	30
−2	48	28	58	26	33
−1	52	34	60	25	40
0	53	36	58	29	42
1	61	40	63	40	43
2	69	47	72	45	52
3	81	51	77	54	68
4	87	69	83	67	82
5	94	79	95	68	90
6	97	86	93	73	97

TABLE D

Comparison of Scores for Accuracy of Dating at Four Peaks and Four Troughs, 1948–61
(averages of eight analysts)

	Peaks				Troughs			
Month	1948	1953	1957	1960	1949	1954	1958	1961
−3	0	13	1	0	11	0	29	27
−2	3	13	6	0	19	13	28	29
−1	0	13	6	0	24	25	15	51
0	0	16	6	0	38	29	13	58
1	10	15	6	0	28	35	10	88
2	0	16	4	0	31	40	20	82
3	0	20	0	0	31	48	35	93
4	3	31	5	0	31	53	41	100
5	6	47	22	0	31	63	76	100
6	6	55	22	10	39	65	81	100

TABLE E

Comparison of Scores for Degree of Certainty at Four Peaks and Four Troughs, 1948–61
(averages of eight analysts)

	Peaks				Troughs			
Month	1948	1953	1957	1960	1949	1954	1958	1961
−3	12	25	32	13	29	48	37	37
−2	27	34	32	20	40	61	47	45
−1	34	40	36	25	47	68	41	52
0	37	46	37	23	52	70	40	52
1	45	45	39	28	55	73	45	70
2	52	57	45	32	66	75	57	79
3	53	66	47	38	81	83	71	90
4	72	82	68	52	75	93	83	98
5	80	86	88	60	83	96	95	100
6	90	91	95	70	90	98	98	100

TABLE F

Recognition Scores in Vicinity of 1957 Peak: Comparison of Indicators Approach with Eclectic Approach

Month	Eight Analysts (Eclectic Approach)	Two Analysts (Indicators Approach)	"Best" Eclectic
		Accuracy of Dating	
−3	1	0	0
−2	6	0	0
−1	6	0	0
0	6	0	0
1	6	0	0
2	4	0	0
3	0	0	0
4	5	0	0
5	22	4	75
6	22	13	75
		Degree of Certainty	
−3	32	45	35
−2	32	45	10
−1	36	53	15
0	37	50	15
1	39	48	20
2	45	50	35
3	47	63	35
4	68	75	35
5	88	85	95
6	95	98	100

TABLE G

Recognition Scores in Vicinity of 1958 Trough: Comparison of Indicators Approach with Eclectic Approach

Month	Eight Analysts (Eclectic Approach)	Two Analysts (Indicators Approach)	"Best" Eclectic
		Accuracy of Dating	
−3	29	38	75
−2	28	38	75
−1	15	10	0
0	13	0	75
1	10	0	75
2	20	0	75
3	35	23	75
4	41	100	75
5	76	100	75
6	81	100	100
		Degree of Certainty	
−3	37	28	90
−2	47	30	85
−1	41	30	70
0	40	18	80
1	45	20	85
2	57	35	100
3	71	60	100
4	83	83	100
5	95	93	100
6	98	98	100

TABLE H

Recognition Scores in Vicinity of 1960 Peak: Comparison of Indicators Approach with Eclectic Approach

Month	Eight Analysts (Eclectic Approach)	Two Analysts (Indicators Approach)	"Best" Eclectic
		Accuracy of Dating	
−3	0	0	0
−2	0	0	0
−1	0	31	0
0	0	0	0
1	0	3	0
2	0	0	0
3	0	90	0
4	0	85	0
5	0	100	0
6	10	100	0
		Degree of Certainty	
−3	13	15	10
−2	20	20	30
−1	25	33	25
0	23	48	20
1	28	48	15
2	32	53	20
3	38	58	35
4	52	75	45
5	60	90	65
6	70	95	40

TABLE I

Recognition Scores in Vicinity of 1961 Trough: Comparison of Indicators Approach with Eclectic Approach

Month	Eight Analysts (Eclectic Approach)	Two Analysts (Indicators Approach)	"Best" Eclectic
		Accuracy of Dating	
−3	27	25	100
−2	29	31	0
−1	51	38	100
0	58	48	100
1	88	45	100
2	82	100	100
3	93	100	100
4	100	100	100
5	100	100	100
6	100	100	100
		Degree of Certainty	
−3	37	33	75
−2	45	38	85
−1	52	43	85
0	52	50	75
1	70	55	100
2	79	70	100
3	90	90	100
4	98	95	100
5	100	93	100
6	100	98	100

TABLE J

Rankings of Eight Analysts According to Their Mean Certainty Score at Eight Cyclical Turns [a]

	Peaks				Troughs			
Analysts	1948	1953	1957	1960	1949	1954	1958	1961
A	6	4	5	6	2	3	3	6
Best	4	1	7	7	1	1	1	1
C	7	8	8	8	6	2	8	7
D	3	5	2	2	5	7	6	4
E	1	2	1	1	8	6	4	3
F	2	3	6	3	7	8	2	2
G	8	6	3	4	3	4	4	5
H	5	7	4	5	4	5	7	8

[a] The mean certainty score is an average of the scores over the 10-month span beginning 3 months before the turn and ending 6 months later.

Note: The coefficient of concordance (W) measures the degree of consistency among the rankings of the forecasters' performance at each turn. It is defined as

$$W = \frac{S}{\frac{1}{12}m^2(n^3 - n)},$$

where m denotes the number of rankings and n the number of items to be ranked (in the present case, m is the number of turns and n, the number of forecasters), and S denotes the sum of the squares of the deviations about the mean value of the sums of the ranks. S attains a maximum value of $\frac{1}{12}m^2(n^3 - n)$, and $W = 1$, for the case in which the m rankings are identical. That is, if there were perfect consistency, each forecaster would have the same rank for each turn, and W would equal 1. If there were no consistency in the forecasters' performances, W would equal zero. On the theory underlying the measurement of concordance, see M. G. Kendall, *Rank Correlation Methods*, London, 1948, Chapter 6.

For all eight turns, W equals .256; for troughs only, W equals .451; and for peaks only, W equals .622. According to a test based on Fisher's Z-distribution each of these three coefficients is significantly different from zero at the 5 per cent level. This means there is only a 5 per cent probability that the observed consistency in performances arises merely from chance. This test is based on a table given in Milton Friedman, "A Comparison of Alternative Tests of Significance for the Problem of m Rankings," *Annals of Mathematical Statistics*, March 1940 (reprinted in Kendall, *Rank Correlation Methods*, Appendix Table 6).

I am indebted to Rosanne Cole, of the NBER, who performed the test and analyzed the results.