

THE INFORMATION CONTENT OF FINANCIAL COLUMNS

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Chi-Wen Jevons Lee and Alfredo Moreno

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THE WHARTON SCHOOL

University of Pennsylvania

Philadelphia, PA 19104

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Chi-Wen Jevons Lee and Alfredo Moreno*

Wharton School
University of Pennsylvania
Philadelphia, PA. 19104
Telephone: 215-898-4895

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* Respectively, Associate Professor, University of Pennsylvania
and
Professor, Pontificia Universidad Catholica De Chile

ABSTRACT

This paper examined the information content of financial columns. Since the stock market is informationally efficient, no investor can extract excess returns by blindly following the advice of financial column. However, the labor market for financial columnist is competitive, a surviving columnist should provide some positive services. This paper demonstrated that a surviving columnist can provide consistently superior service in the short run but not in the long run. We also showed that the surviving columnist's advice is better than tossing a fair coin. Hence an investor with his own prior information should benefit positively from the financial column.

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I. INTRODUCTION

Financial analysis is an increasingly popular item in the public media. Many syndicated columns simply offer general descriptions of economic environment and market trend, but some provide very specific advice on investment. This paper intends to examine the information content of the specific investment advice in the public media.

Literature measures the information content and value of financial advice by calculating cumulative excess returns (CER).¹ When the CER is statistically insignificant, the financial advice is viewed as lacking information content. When the magnitude of CER is less than the transaction cost, then the financial advice is deemed worthless. We will show that this methodology is inadequate to detect the information content of a financial column in the public media.

According to Grossman and Stiglitz (1980), the smaller the cost of information, the higher will be the equilibrium percentage of individuals who are informed. Moreover, as more individuals are informed, the ratio of the expected utility of the informed to the uninformed is lower. Since the cost of accessing a financial column in the public media is nominal, we would expect that the CER should be statistically insignificant with negligible magnitude. On the other hand, the financial columnist commands a prestigious position with substantial pecuniary and nonpecuniary reward. In the highly com-

petitive market of financial columns, a surviving columnist must provide some real services. In this paper, we will examine the market equilibrium conditions of financial columns.

The paper is organized into five sections. Section II develops the market equilibrium conditions of financial columns. Section III describes the data and methodology. The empirical results are reported in Section IV. The final section discusses the implications of our empirical evidence.

II. MARKET EQUILIBRIUM OF FINANCIAL COLUMNS

The major function of a financial column is to expand its readers' information set; the incremental information set so provided is called advice. Useful advice is a subset of the equilibrium market information set which shows conditions of clearing the securities market.² When the advice is not a subset of the equilibrium market information set, it is useless and can even be harmful.

In a dynamic economy, the equilibrium market information set is revised from time to time. The advice that is a subset of the future equilibrium market information set is called innovative advice. Innovative advice does not have to be new in the sense that there is a null intersection with the reader's prior information set. When the innovative advice intersects with the reader's prior information set, the advice can increase the precision of the reader's assessment.³ Advice that is a subset of the past equilibrium market information set is called descriptive advice. When the securities market

is Fama-efficient in the weak form, descriptive advice will not benefit its readers financially.⁴ However, it would satisfy the reader's desire to "know" in the way a reader would be satisfied by the analysis of a ball game in a newspaper. In this paper, we are only concerned with the financial column that specializes in innovative advice.

A financial column may generate innovative advice through a lucky find in research or an insightful analysis. Lucky finds are random phenomena; only the insightful analysis can last in the long run. However, we assert that the financial column in the public media cannot consistently provide innovative advice in the long run. Because the financial column's analysis is publicly available at nominal cost, any systematic element in the analysis will be learned and duplicated in the securities market. This widespread duplication will reduce the innovative advice to descriptive advice. However those investors who can do knowledgeable analysis on their own can utilize the financial column's information to improve their assessment and to achieve excess returns. No investor who blindly takes the financial column's advice can make excess returns in the long run.

Now we have two propositions about the nature of the long-run equilibrium of the market of financial columns:

Proposition 1: In a competitive market, no financial column in the public media consistently provides innovative advice so that one can make excess returns by blindly taking the column's advice.

Proposition 2: In a competitive market, investors with rational expectations would not blindly follow the advice of financial columns in the public media.

In the long run, the cumulative excess returns (CER) derived from an investment strategy that blindly follows the advice of a financial column in public media would be negligible. However, it by no means implies that the advice of financial columns is worthless.

A financial columnist who writes for a reputable public medium enjoys good compensation, perquisites and prestige. There must be huge numbers of potential competitors who would like to take his place. The quality of content in the public media faces tough market tests continuously. To survive in this business, a columnist must provide a valuable service. His advice should be at least better than tossing a fair coin. Although the competition may be such that he cannot consistently provide innovative advice in the long run, he should have a record of providing innovative advice in the short run.

The loss function of a financial columnist is not symmetrical. The benefit of giving extremely good, innovative advice is usually less than the cost of giving an extremely bad, harmful advice. When an investor makes a killing, he does not attribute much credit to the financial column, but when he takes a bath, he assigns all the blame to the financial column. Hence, a surviving financial columnist is usually conservative in his advice. We would not expect to find a surviving columnist who consistently provides harmful advice over a prolonged

period of time. We now have two testable propositions:

Proposition 3: A surviving financial columnist should be able to consistently provide innovative advice over a prolonged period of time.

Proposition 4: A surviving financial columnist would not consistently provide harmful advice over a prolonged period of time.

III. DATA AND METHODOLOGY

A. Data

The case chosen for our study is the column of Heinz H. Biel in Forbes magazine. Born in Leipzig, Germany, Biel received a Ph.D. degree in Economics in 1930 when he was 22. He has been working as a financial analyst and investment banker on Wall Street since 1933. He started a regular column in the bi-weekly Forbes in 1950 and this column has continued to the present time. According to Forbes (Vol. 66, No. 9, 1950, p. 5), the purpose of Biel's column is to "deal exclusively with his advice on securities; what in his well-seasoned judgment are good 'buys'--why and when."

The reasons for choosing him for our case study are:

(1) he has written in almost every issue of the magazine since 1950, and therefore we can have a large sample of articles;

(2) his column survives more than 30 years of market tests and is an ideal case to test our propositions 3 and 4;

(3) in a large number of his articles, he gives unambiguous

advice about buying specific stocks.

Three criteria are used to select sample firms:

- (1) a clear signal is given by Biel to "buy";
- (2) the data of daily excess returns are available on the CRSP tape;
- (3) the firm has not been analyzed during the previous 30 trading days.

The selection according to the first two criteria produces a sample of 386 firms during 1962-1979. The third criterion reduces the sample to 374 firms to avoid confounding information. The daily excess returns data on the CRSP tape start from July 2, 1962.

Long-run performance of the financial column is measured in terms of the whole data period, 1962-1979. Short-run performance is measured in terms of four years. The sample is divided into four periods: the first period contains five and one-half years and the other three periods contain four years each. Table 1 summarizes our sample data.

Insert Table 1 Here

We do not have precise measurement on the announcement date, the first day in which the subscribers receive the magazine. Before 1978 the official publishing dates were every first and fifteenth of the month. Forbes magazine indicates that the announcement date was between four and twelve days before the official publication date. After 1978, the announcement date is more precise: the official publishing dates were

the first and third Mondays of each month and the announcement date was nine trading days before the official publishing date.

B. Methodology

We define Day 0, the announcement day, as the day that the financial column's advice becomes public information. Periods of thirty trading days before and after the announcement day are examined. The method for measuring the effect of financial advice is to calculate the excess returns of the stock recommended by the financial column for each of the 61 trading days surrounding the announcement day. The daily "excess" return is the daily return of a given stock in excess of the return on the portfolio of stocks with similar risk.

$$(1) \quad \widetilde{ER}_{it} = \widetilde{R}_{it} - \widetilde{R}_{pt}, \quad t = -30, -29, \dots, 29, 30$$

where: R_{it} is the realized return (including dividends, if any) of the i^{th} stock in day t ;

R_{pt} is the realized return of the portfolio of stocks with similar risk; and

ER_{it} is the daily excess return. A tilde (\sim) indicates random variable.

The data on \widetilde{ER}_{it} are available on the CRSP tape.

The variable \widetilde{ER}_{it} measures the relative price adjustment which reflects the adjustment of the equilibrium market information set. In this paper we are primarily concerned with the information content; the Fama-efficiency is presumed throughout the empirical examination. By sample design, Biel's advice always indicates favorable information about the security. When ER_{i0} is positive, i.e., the relative price of security i goes

up in day 0, the market agrees with Biel's advice. It therefore becomes a subset of the equilibrium market information set, namely, innovative advice. When ER_{i0} is zero, then the market may have already impounded Biel's advice into past equilibrium market information sets, or the market may perceive that Biel's advice is irrelevant and useless. An example of descriptive advice is that ER_{it} is positive for some $t < 0$. When ER_{i0} is negative, it implies that the market disagrees with Biel's analysis, which becomes harmful advice to its reader.

If ER_{i0} is always positive for all i , then we can infer that the market blindly follows Biel's advice; therefore, proposition 2 would be rejected. If $E(\tilde{ER}_{i0})$ is positive and larger than transaction cost and subscription cost, then it implies that Biel consistently provides innovative advice so that one can make net excess returns by blindly taking Biel's advice; hence, proposition 1 is rejected.

Literature applies the CER_t to measure the information content where CER_t is calculated according to equation (2):

$$(2) \quad CER_t = \sum_{\tau=-30}^t ER_{i\tau}, \quad t = -30, -29, \dots, 29, 30$$

The CER_t indicates the relative price movement of security i from 30 days before Biel's column becomes public to time t . If CER_t does not blip at $t = 0$, then it is inferred that there is a lack of information content. This methodology of testing information contents is a test of proposition 1 which is a strong definition of information content. In a long-run competitive equilibrium, we would not expect that a financial

column in the public media would have information content in this strong sense.

Propositions 3 and 4 are related to information content in a weaker sense. We can calculate the proportion of the sample that show ER_{i0} to be positive. If the financial column has no information content, then Biel's pick would be equivalent to tossing a fair coin. Hence, about half of ER_{i0} would be positive and half would be negative. Long-run competitive equilibrium would not allow a financial columnist to provide consistent innovative advice so that the long run CER_t would significantly blip up at $t = 0$, but proposition 3 does suggest that some shortrun CER_t could significantly blip up at $t = 0$. Proposition 4 suggests that CER_t could not plunge significantly downward at $t = 0$ for any prolonged period.

IV. EMPIRICAL RESULTS

After 1978 we set day 0, the announcement date, to be the ninth day before the official publishing date of Biel's column. Before 1978, since we do not have precise data about the announcement date, the actual announcement date can be between day -3 to day +5. In order to capture market reactions to Biel's column, we calculate the sum of excess returns from day -3 to day +5. Since the excess returns are calculated with respect to an equally weighted portfolio, half of all securities have positive excess return and the other half have negative excess returns. The proportions of samples with positive sum of excess returns are reported in column (2) of Table 2.

Insert Table 2 Here

If the columnist does not have any insight on securities so that he simply picks stocks by tossing a fair coin, then only 50 percent of his picks would result in positive excess returns. According to the last entry of column (2) in Table 2, of the whole sample, 55.9 percent of Biel's picks show an increase in relative price. The null hypothesis that Biel's advice is a random coin-tossing is rejected at a 5% significance level. There is some innovative advice in Biel's column. However, investors do not blindly follow Biel's advice. In fact, the market disagrees with Biel's column 44.1 percent of the time. Moreover, Biel's performance is not consistent throughout the 18 years under study. In the last period, 1976-1979, Biel, on the average, provides harmful information. We will discuss this phenomenon later.

To test proposition 1 that investors cannot profit by blindly taking Biel's advice, we calculate CER_t from day -3 to day +5. The results are reported in column (3) of Table 2. The long-run (18 years, 1962-1979) average excess returns from Biel's advice is 0.87 percent, which is not statistically significant at the 5% level and which is not enough to cover the transaction cost. To test propositions 3 and 4, we examine the CER_t of four subperiods. In the first period, the CER_t is statistically significant at the 5% level, but the magnitude of 2.74% barely covers the transaction cost. Those

who blindly follow Biel's advice would, on the average, lose 1.06 percent in the last period; however, the estimate is not statistically significant. Proposition 3 seems to be supported by the empirical evidence. At least in the first period, we have statistically significant evidence that Biel consistently provided innovative advice. It is also interesting to note that Biel's worst records were in the last period. Had the bad records appeared frequently in his earlier career, he might not have survived as a columnist. Proposition 4 is not significantly rejected by the evidence. Although Biel's records in the last period were not good, they were not statistically significant either in terms of relative frequency (column [2]) or in terms of magnitude (column [3]).

To acquire a more complete perspective about the relationship between Biel's advice and the equilibrium market information set, we plot CER_t from day -30 to day +30. Figure 1 illustrates the CER_t of the whole sample. The two vertical dashed-lines indicate the interval of actual announcement dates. The securities' relative prices move slightly upward after the announcement date; however, this is not significant. Figure 1 is consistent with propositions 1 and 2.

Insert Figures 1 and 2 Here

Figure 2 illustrates the first period. The CER_t moves upward before the announcement date and keeps on moving after the announcement date. It implies the existence of competitive information releases. Also, the investors do not blindly

trust Biel's advice. They utilize Biel's column to enrich their information set. If an investor could take Biel's analysis nine days in advance, he would make 5.3 percent excess return over a period of 22 trading days. This result is compatible with proposition 3. Figure 4 is similar to Figure 2. The investors may not be able to profit from blindly taking Biel's advice, but the analyses in Biel's column consistently provide innovative advice over a prolonged period.

Insert Figures 3 and 4 Here

Figure 3, which covers the second period, is consistent with propositions 1 and 2. Competition in the information market would prevent Biel's column from consistently providing innovative advice all the time. The second period seems to be a "dry" period for Biel's column. Figure 5 is similar to Figure 3. The market did not pay much attention to Biel's column in these two periods. There were hardly any relative price movements after the announcement date. Figure 5 also explains the negative CER_t reported in Table 2. During this period, Biel consistently recommends stocks with downward movements of relative prices. Since we do not have precise data about the announcement date, the downward drifting of CER_t between day -3 to day +5 may be due to the measurement errors in the announcement day. Fortunately, after 1978 we can pinpoint the announcement date precisely. Figure 6 illustrates the CER_t of 1978-1979. We can see that there is

no downward drifting of CER_t after day 0. Hence, we can infer (1) either that Biel's column stopped the downward drifting, hence Biel provided innovative advice, or (2) that Biel's recommendations were based on past stock price movements (i.e., he was a technicalist in this period) and the market ignored his advice. In either case, our evidence is compatible with proposition 4.

Insert Figures 5 and 6 Here

V. CONCLUDING REMARKS

Our empirical evidence indicates that investors could not consistently make excess returns by blindly following the advice of a financial column in the public media. The traditional approach of measuring informational content by the CER is not well developed. In a competitive market, some financial columns may be able to provide innovative advice some of the time, but no financial column could provide innovative advice all of the time. To detect the information content of a financial column in the public media, we should look into the relative frequency of innovative advice as well as the magnitude of CER.

Moreover, in a competitive market, the long-run magnitude of CER would be negligible, irrespective of the information content. To detect the information content, we should examine the short-run performance of a financial column. A surviving financial columnist would not consistently provide harmful

advice over a prolonged period. A surviving financial columnist should demonstrate a respectable track record to differentiate himself from the rest of the pack.⁵

Since the readers cannot reach financial gain by blindly following a financial column's advice, the value of Biel's column is not in his recommendations of stocks, but rather in the analyses given. Readers do not blindly follow his advice, but rather utilize the analyses to enrich their own information set in order to make more intelligent decisions.

Table 1
DATA SELECTION

Year	Sample Size			
	Articles	Firms	Firms discarded	Firms in sample
1962	2	9	-	9
1963	3	13	-	13
1964	10	32	2	30
1965	8	18	-	18
1966	3	12	-	12
1967	6	11	-	11
Subtotal, first period	32	95	2	93
1968	7	19	-	19
1969	9	33	1	32
1970	9	16	-	16
1971	11	29	1	28
Subtotal, second period	36	97	2	95
1972	9	26	-	26
1973	10	28	2	26
1974	6	14	-	14
1975	8	32	6	26
Subtotal, third period	33	100	8	92
1976	10	21	-	21
1977	12	31	-	31
1978	8	16	-	16
1979	10	26	-	26
Subtotal, fourth period	40	94	-	94
Total	141	386	12	374

Table 2
INFORMATION CONTENTS

Period	Sample size (1)	Percent of sample with positive sum of excess returns between days -3 and +5 (2)*	CER (%) from days -3 to +5 (3)*
1962-67	93	60.2 (1.97)	2.74 (2.32)
1968-71	95	57.9 (1.54)	0.56 (0.49)
1972-75	92	61.3 (2.17)	1.25 (1.04)
1976-79	94	43.6 (-1.24)	-1.06 (-0.93)
1962-79	374	55.9 (2.28)	0.87 (1.47)

*The figures in brackets are t-statistics. With degrees of freedom larger than 90, these t-statistics are approximately normally distributed.

Figure 1 1962-1979

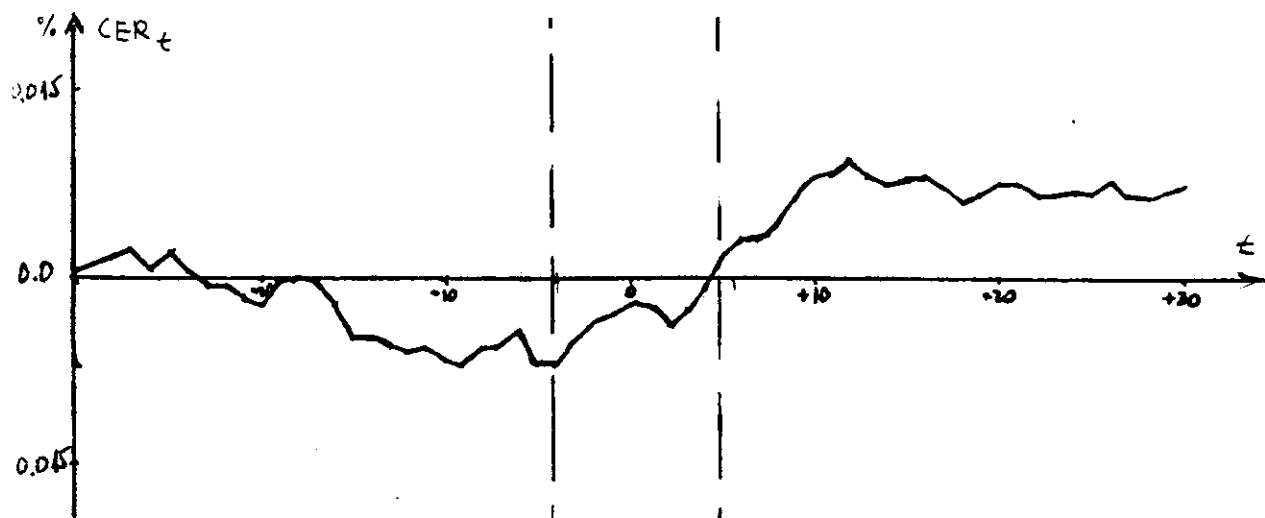


Figure 2 1962-1967

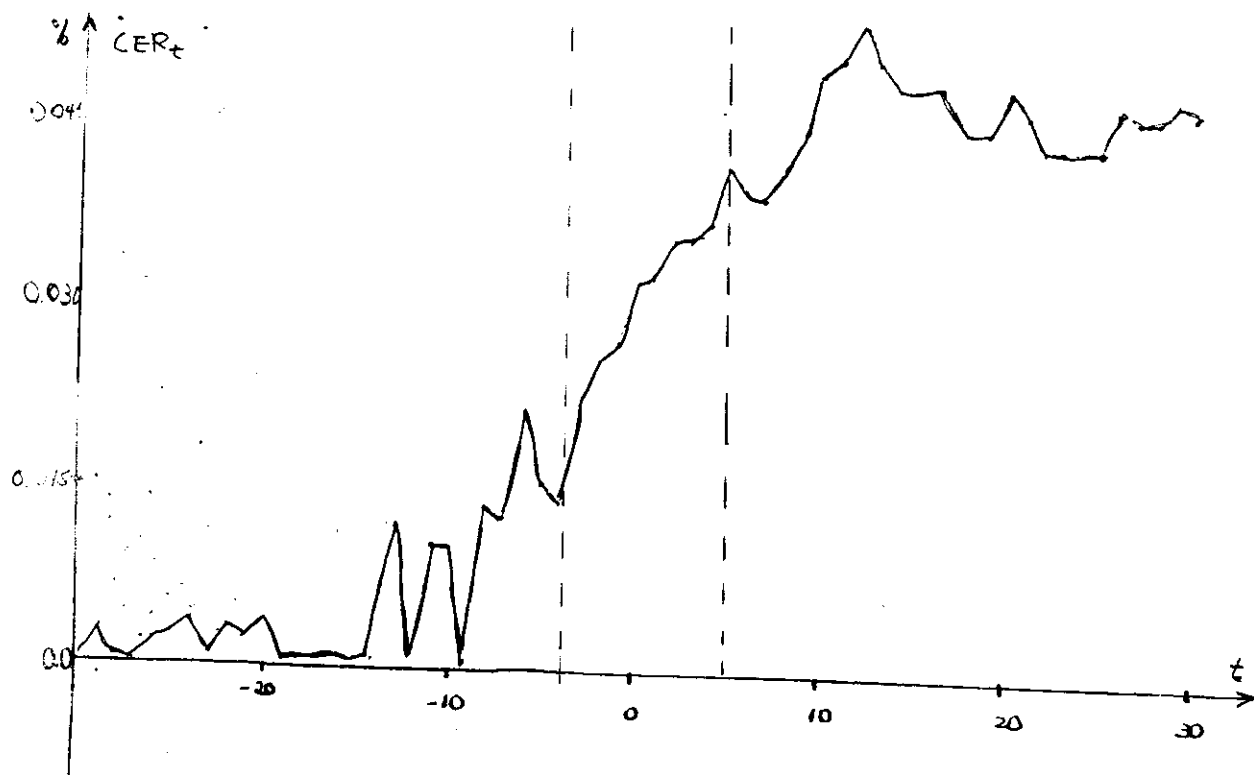


Figure 3 1968-1971

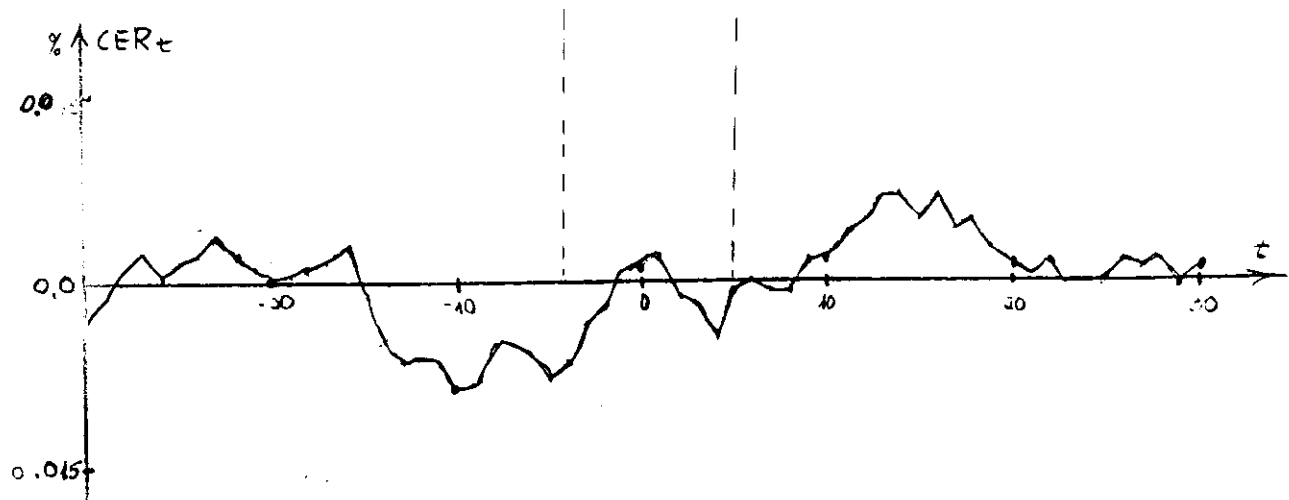


Figure 4 1972-1975

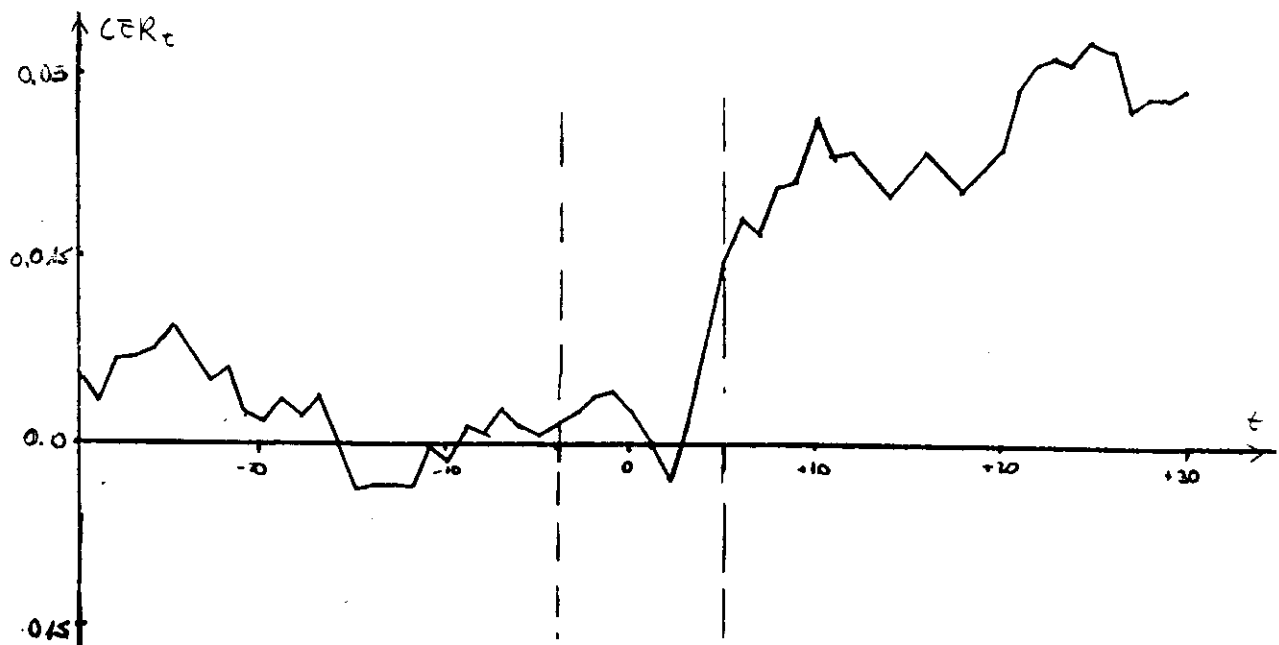


Figure 5 1976-1979

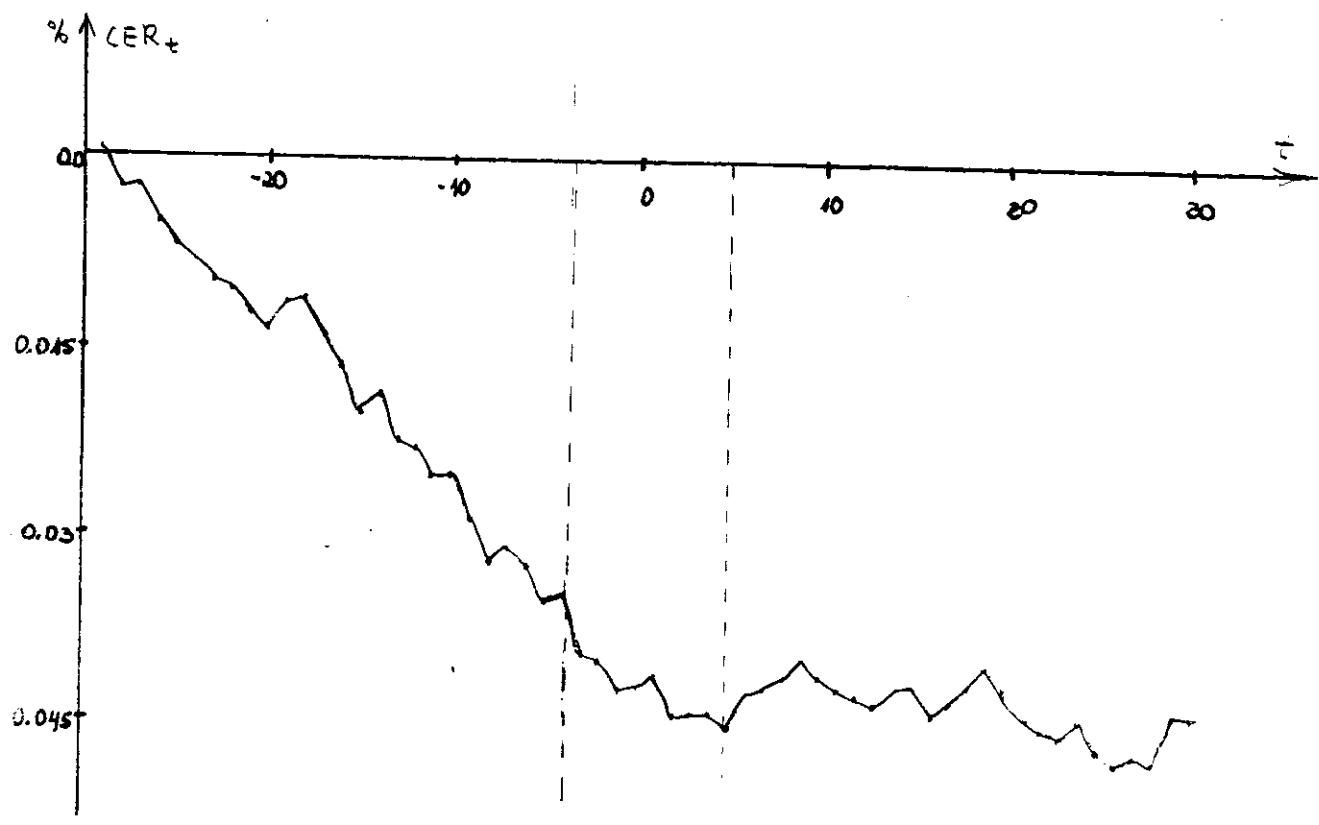
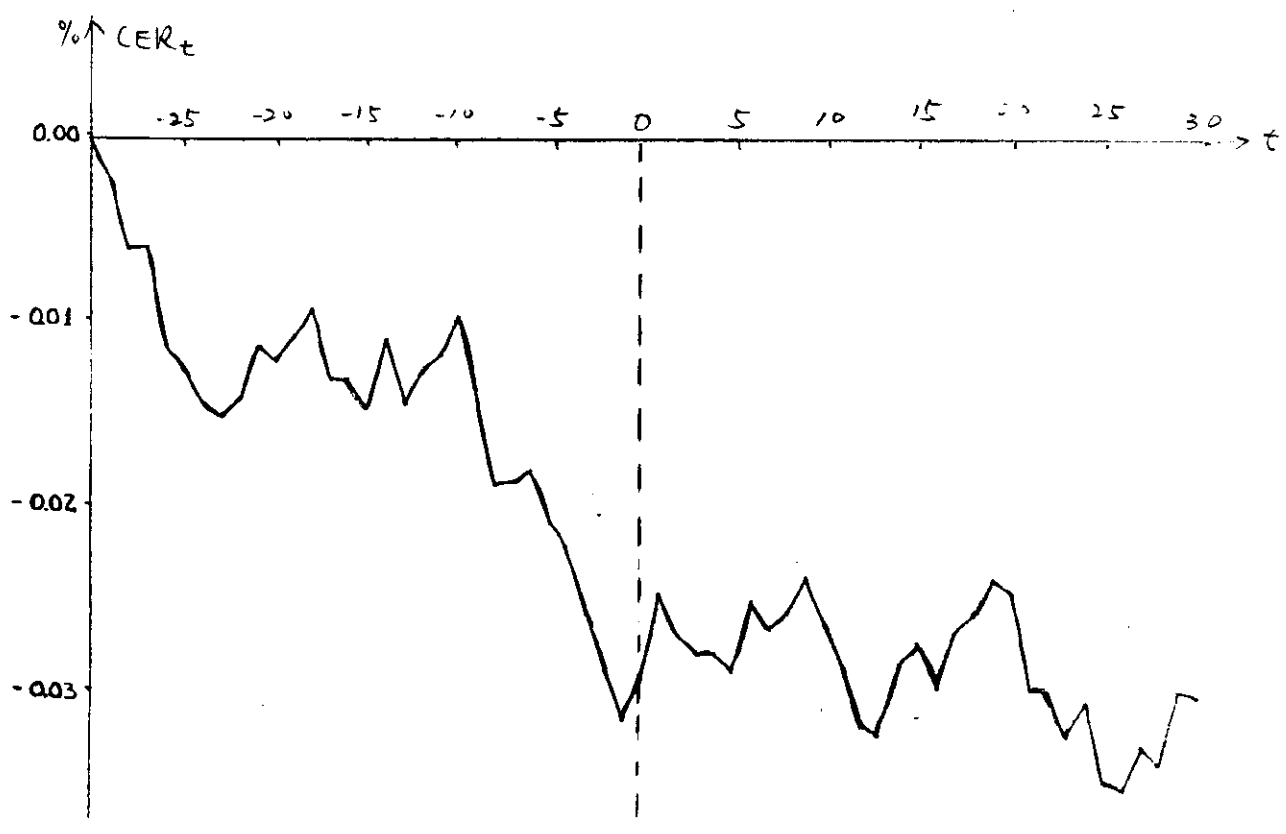


Figure 6 1978-1979



APPENDIX

Table A-1

FIRST PERIOD: 1962-1967

Article	Publication date	Companies cited that are examined in this study
1	9/15/62	First Charter Financial Dow Chemical
2	11/15/62	Westinghouse Electric Gamble Skogmo Corp. Philadelphia and Reading Corp. First Charter Financial Chrysler Corp. Avco Corp.
3	2/1/63	RCA Schlumberger Ltd.
4	4/1/63	General Motors Corp. Celanese Corp. Amerada Petroleum
5	12/15/63	RCA Zenith Motorola Magnavox Celanese Corp. National Airlines TWA Norwest Airlines
6	1/15/64	Reynolds Tobacco
7	2/1/64	Lockheed Aircraft McDonnell Aircraft Avco
8	2/15/64	Amsted Industries Beaunit Corp. General Telephone and Electronics
9	3/15/64	Columbia Broadcasting Metromedia Inc. Fruehauf Trailer International Harvester Phelps Dodge Corp.
10	4/15/64	Cerro Corp. National Steel U.S. Steel

Table A-1--Continued

Article	Publication date	Companies cited that are examined in this study
		International Paper Rayonier St. Regis Paper Co. B. F. Goodrich Co.
11	5/1/64	General Motors
12	6/1/64	American Commercial Barge Lines Rockwell Standard Standard Brands Paint
13	6/15/64	Ronson Corp. Revlon, Inc. Lehn and Fink Prod. Corp.
14	9/1/64	General Electric Co. Kendall Co.
15	9/15/64	Tri-Continental Corp. Paramount Pictures
16	1/15/65	Dobbs House Standard Brands Paints
17	2/15/65	International Minerals & Chemicals Deer & Co. Massey Ferguson Ltd. Chrysler Corp.
18	3/1/65	Western Union Corp.
19	4/1/65	Kennecott Copper Arvin Industry Udylite Corp. Phillips-Van Heusen
20	4/15/65	National Steel
21	6/15/65	American Telephone & Telegraph Control Data
22	9/1/65	The Times Mirror Co. TWA
23	12/1/65	International Harvester McDonnell Aircraft
24	8/15/65	Union Carbide Cities Service Atlantic Richfield Mobil Oil Standard Oil Industries Gillette

Table A-1 --Continued

Article	Publication date	Companies cited that are examined in this study
25	10/15/66	General Motors Maytag Book-of-the-Month Club
26	12/1/66	Gillette American Commercial Lines First Charter Financial
27	2/1/67	National Cash Register The Times Mirror Co.
28	3/1/67	American Telephone & Telegraph Beech Nut-Life Savers
29	3/15/67	Raytheon International Telephone & Telegraph Cities Service
30	5/1/67	Consolidated Edison of New York
31	5/15/67	National Distillers & Chemical Corp.
32	6/1/67	Fruehauf Corp. Sperry & Hutchinson

Table A-2

SECOND PERIOD: 1968-1971

Article #	Publication date	Companies cited that are examined in this study
1	3/15/68	Babcock & Wilcox Harvey Group, Inc. United Airlines National Airlines
2	5/1/68	Westinghouse Electric Corp. Boise Cascade
3	7/1/68	Westinghouse Electric Corp. Penn Central Co. Avco Corp.
4	7/15/68	Olin Mathieson Chemical
5	9/15/68	Bliss & Laughlin Wometco Enterprises, Inc. International Paper Emhart Corp.
6	11/15/68	Green Giant American Dual Vest F.D. Inc. Gemini F.D., Inc.
7	12/15/68	Interlake Steel, Inc. International Harvester Co.
8	1/15/69	I.B.M.
9	2/1/69	Southern Pacific
10	4/1/69	Procter & Gamble Co. Texaco, Inc. Crown Zellerbach Corp.
11	6/1/69	American Brands Phillip Morris, Inc. Reynolds Industries
12	9/1/69	Gulf Oil Corp. Avco Transamerica Canadian Pacific Ltd. Southern Pacific Southern Railway
13	9/15/69	Anaconda Co. Cerro Corp.

Table A-2 --Continued

Article #	Publication date	Companies cited that are examined in this study
14	10/1/69	RCA Westinghouse Electric Corp. Clark Equipment Corp. Caterpillar Tractor Corp. Blis & Laughlin
15	10/15/69	Sears Roebuck J. C. Penney Black & Decker I.T.T. Minnesota Mining Bristol-Myers Co. Atlantic Richfield Papercraft
16	12/1/69	British Petroleum Pacific Petroleum
17	1/2/70	Bendix Corp. Westvaco Corp.
18	2/1/70	Westinghouse Electric Corp.
19	4/15/70	Kellogg Corp.
20	8/1/70	Purolator, Inc. Eagle Picher Industries U.S. Tobacco Co.
21	9/15/70	Schlumberger Ltd. Halliburton Co. Pittston Co.
22	10/1/70	DuPont
23	10/15/70	Westinghouse Electric Corp. Tenneco, Inc.
24	11/1/70	Papercraft
25	11/15/70	Clorox Co. Johns-Manville
26	1/15/71	Chesebrough-Pond's, Inc. Smith, Kline & French Corp. Phillip Morris, Inc.
27	2/1/71	Dr. Pepper
28	2/15/71	Trans-Union Corp. Skyline Corp.
29	3/1/71	Communications Satellite Corp. Bendix Corp.

Table A-2--Continued

Article #	Publication date	Companies cited that are examined in this study
30	3/15/71	Penn Fruit Arvin Ind., Inc. Pittston Co. Eastern Gas & Fuel Associates
31	4/1/71	Household Finance Corp. Beneficial Corp. J. W. Mays, Inc.
32	4/15/71	Indian Head, Inc. National Presto Ind., Inc.
33	5/15/71	Studebaker-Worthington
34	8/1/71	Arvin Ind., Inc. Penn Fruit
35	8/15/71	Greyhound Corp. Loew's Corp. General Motors Trans-Union Corp.
36	12/15/71	Gannett Co. The Circle K Corp. Genuine Parts Corp.

Table A-3

THIRD PERIOD: 1972-1975

Article #	Publication Date	Companies cited that are examined in this study
1	2/1/72	Cities Service
2	4/1/72	Kroehler Mfg. Magic Chef Tappan Kirsch
3	4/15/72	Winn Dixie
4	5/1/72	Southern Pacific Southern Railways
5	5/15/72	Leaseway Transportation
6	8/15/72	Braniff Continental Airlines National Airlines TWA Western Airlines
7	11/15/72	Travelers International Harvester Papercraft Genuine Parts Corp.
8	12/1/72	Bethlehem Steel Anaconda Bucyrus Erie Harnischfeger
9	12/15/72	Union Camp International Paper Southern Pacific DuPont Gannett
10	1/15/73	Deere & Co. International Harvester Marcor Indian Head, Inc. Syntex
11	2/15/73	American Airlines Bausch & Lomb

Table A-3 --Continued

Article #	Publication date	Companies cited that are examined in this study
12	4/15/73	Pittston Co. Eastern Gas and Fuel Assoc. Kennecott Copper U.S. Steel Bethlehem Steel Corp. Anaconda Travelers Corp. Fannie Mae (Federal Natl. Mortgage)
13	5/1/73	I.T.T.
14	8/1/73	Owens Illinois Crown Zellerbach
15	8/15/73	Esmark, Inc.
16	9/1/73	Mobil Oil
17	10/15/73	I.B.M.
18	11/1/73	Amerada Hess Potlach Corp.
19	11/15/73	Manufacturer Hanover Corp. Beneficial Corp.
20	4/1/74	Maryland Cup Corp.
21	5/15/74	Tropicana Products Anderson Clayton & Co. Maryland Cup Corp. Esmark, Inc.
22	7/15/74	Royal Dutch Petroleum Co. Mobil Oil Standard Oil of California Texaco, Inc. Boeing Petrie Stores
23	8/15/74	Crane Co.
24	10/15/74	Royal Dutch Petroleum Co.
25	12/1/74	National Presto Industries
26	3/1/75	Union Carbide Haublein Winn-Dixie Stores
27	4/1/75	Diamond Shamrock
28	4/15/75	G. D. Searle Co. Ingersoll-Rand American Telephone & Telegraph I.B.M.

Table A-3 --Continued

Article #	Publication date	Companies cited that are examined in this study
29	6/1/75	Dow Chemical Monsanto Diamond Shamrock G. D. Searle Co.
30	8/1/75	Ingersoll-Rand Pullman, Inc. R. R. Donnelley & Sons
31	8/15/75	Anderson Clayton Diamond Shamrock Down Chemical Esmark General Signal Heublein G. D. Searle
32	12/1/75	Pullman
33	12/15/75	Harnischfeger Corp. Brockway Glass Royal Dutch Petroleum

Table A-4

FOURTH PERIOD: 1976-1979

Article #	Publication date	Companies cited that are examined in this study
1	1/15/76	Consolidated Edison of New York
2	2/15/76	Bank of New York, Inc. Citicorp Republic New York Corp.
3	3/1/76	Maytag Simmons Co. Masonite Corp.
4	5/15/76	Gould, Inc. Emhart Monsanto Haublein
5	6/15/76	Leaseway Transportation Corp. Federated Department Stores, Inc. Rollins, Inc. Maryland Cup
6	8/1/76	Gulf & Western Ind., Inc. Walter Kidde & Co., Inc.
7	8/15/76	Tropicana Products
8	9/1/76	Consolidated Edison of New York
9	12/15/76	Wisconsin Electric Power Co.
10	1/15/77	Gould, Inc. Emhart Corp. Colonial Penn Group, Inc. Phillip Morris, Inc. Xerox Corp. Arvin Ind., Inc.
11	2/1/77	General Foods
12	2/15/77	Pittston Co. St. Joe Minerals Eastern Gas & Fuel Assoc. Norfolk & Western Co. Chessie System, Inc. Burlington Northern, Inc.
13	6/1/77	General Electric Co.

Table A-4 --Continued

Article #	Publication date	Companies cited that are examined in this study
14	6/15/77	Union Pacific Southern Railways Norfolk & Western Chessie System
15	7/1/77	Monsanto Union Carbide
16	7/15/77	Avon Products, Inc. Phillip Morris
17	8/1/77	McDonald's Corp.
18	8/15/77	Revlon, Inc. Teledyne
19	11/15/77	I.B.M. Texas Utilities Wisconsin Electric Power Public Service Co. of Indiana, Inc.
20	12/1/77	Amerada Hess Corp.
21	12/15/77	Sears Roebuck
22	4/17/78	Texas Instruments, Inc. Burroughs Corp. Xerox Corp. Merck & Co., Inc. General Electric Co. Eastman Kodak
23	5/29/78	Boeing Co. NCR Corp.
24	7/10/78	Kidde Walter & Co., Inc.
25	7/24/78	Chessie System, Inc.
26	8/7/78	Heublein
27	8/21/78	Boeing Co. McDonnell-Douglas Corp.
28	9/4/78	Mobil Oil Corp. Phillips Petroleum Co.
29	11/13/78	Teledyne, Inc.
30	1/22/79	Dana Corp. I.B.M. Emerson Electric Co.
31	2/5/79	Eltra Corp. Rubbermaid

Table A-4 --Continued

Article #	Publication date	Companies cited that are examined in this study
32	2/19/79	McDonald's Corp.
33	3/5/79	Southern Natural Resources Tenneco, Inc. Raytheon Co.
34	3/19/79	Colonial Penn Group, Inc. Hospital Corp. of America
35	4/16/79	Echlin Manufacturing Co.
36	4/30/79	Amax Occidental Petroleum Corp. North American Coal Emhart Corp.
37	7/9/79	Marathon Oil Union Oil Phillips Petroleum Alco Standard Corp.
38	7/23/79	Weyerhaeuser Co. Georgia Pacific Louisiana Pacific Walter Jim Corp.
39	8/6/79	Kidde Walter & Co., Inc. Chase Manhattan Corp.

Table A-5
EXCESS RETURNS

Day	1962-1967	1968-1971	1972-1975	1976-1979	Total
-30	0.000782	-0.002769	0.005477	0.000840	0.001050
-29	0.002099	0.001379	-0.002109	-0.000123	0.000323
-28	-0.001642	0.002623	0.003266	-0.003187	0.000260
-27	-0.000469	0.001022	0.000414	0.000192	0.000293
-26	0.001130	-0.001680	0.000806	-0.002328	-0.000533
-25	0.000923	0.000987	0.004950	-0.002348	0.000370
-24	0.000878	0.000663	-0.003254	-0.000764	-0.000606
-23	-0.002982	0.001497	-0.001781	-0.001555	-0.001190
-22	0.002728	-0.001793	0.001543	-0.001165	0.000310
-21	-0.000549	-0.000664	-0.003558	-0.001658	-0.001597
-20	0.001292	-0.001194	-0.000987	-0.991281	-0.000547
-19	0.003289	0.000354	0.001531	0.001869	0.001754
-18	-0.000398	0.000178	-0.000860	0.000116	-0.000236
-17	0.000132	0.000967	0.000977	-0.002564	-0.000126
-16	0.000184	0.001146	-0.003557	-0.002627	-0.001198
-15	-0.000800	-0.003395	-0.003144	-0.004055	-0.002854
-14	0.002354	-0.003974	0.000131	0.001864	0.000077
-13	0.002185	-0.001912	-0.000282	-0.003509	-0.000894
-12	-0.001567	0.000245	0.000100	-0.000801	-0.000504
-11	0.000695	-0.000893	0.002991	-0.002121	0.000149
-10	-0.000136	-0.001959	-0.001087	0.000086	-0.000777
-9	-0.000971	0.000818	0.002696	-0.003557	-0.000264
-8	0.004328	0.003537	-0.000193	-0.003672	0.001004
-7	-0.000706	-0.000068	0.001939	0.001001	0.000536
-6	0.008300	-0.001155	-0.001607	-0.001155	0.001085
-5	-0.005143	-0.001976	-0.000619	-0.002710	-0.002614
-4	-0.002049	0.001571	0.000700	0.000272	0.000130
-3	0.007680	0.003287	0.000442	-0.004453	0.001734
-2	0.003253	0.000740	0.002156	-0.000713	0.001348
-1	0.001588	0.003373	0.000052	-0.002481	0.000641
0	0.005268	0.000468	-0.001850	0.000485	0.001096
1	0.000350	0.000966	-0.002347	0.000849	-0.000032
2	0.003247	-0.003172	-0.002921	-0.003432	-0.001597
3	-0.000291	-0.001210	0.004311	0.000343	0.000767
4	0.001820	-0.002784	0.006962	-0.000171	0.001415
5	0.004519	0.003978	0.005683	-0.001024	0.003275

Table A-5--Continued

Day	1962-1967	1968-1971	1972-1975	1976-1979	Total
6	-0.002060	0.000912	0.004006	0.002547	0.001345
7	-0.000380	-0.000598	-0.000765	0.000585	-0.000288
8	0.002147	-0.000435	0.003196	0.000820	0.001416
9	0.003359	0.003007	0.000876	0.001219	0.002121
10	0.004678	-0.000036	0.003258	-0.000719	0.001775
11	0.001351	0.002170	-0.000935	-0.001180	0.000361
12	0.002559	0.001318	0.000292	-0.000459	0.000928
13	-0.003117	0.001304	-0.001525	-0.000719	-0.001000
14	-0.001879	0.000236	-0.001973	0.001247	-0.000579
15	-0.000037	-0.001666	0.002017	0.000136	0.000098
16	0.000087	0.001812	0.001774	-0.002508	0.000288
17	-0.001295	-0.002711	-0.001263	0.001237	-0.001010
18	-0.002130	0.000342	-0.001762	0.001354	-0.000536
19	-0.000433	-0.002189	0.001829	0.001521	0.000168
20	0.003794	-0.000879	0.001189	-0.002102	0.000484
21	-0.002166	-0.000589	0.004788	-0.001791	0.000039
22	-0.002688	0.000467	0.001987	-0.001124	-0.000344
23	0.000169	-0.001635	0.000783	-0.000710	-0.000359
24	-0.000375	-0.000261	-0.000306	0.001741	0.000203
25	0.000103	0.000077	0.001293	-0.002233	-0.000198
26	0.003291	0.002716	-0.000713	-0.001254	0.001018
27	-0.000657	-0.001028	-0.004539	0.000698	-0.001366
28	0.000225	0.000568	0.000817	-0.000914	0.000171
29	0.001574	-0.002156	0.000144	0.003172	0.000676
30	-0.001464	0.001524	0.000879	0.000913	0.000469

Table A-6
CUMULATIVE EXCESS RETURNS

Day	1962-1967	1968-1971	1972-1975	1976-1979	Total 1962-1979
-30	0.000782	-0.002769	0.005477	0.000840	0.001050
-29	0.002881	-0.001390	0.003368	0.000717	0.001373
-28	0.001239	0.001233	0.006634	-0.002470	0.001633
-27	0.000770	0.002255	0.007048	-0.002278	0.001926
-26	0.001900	0.000575	0.007854	-0.004606	0.001393
-25	0.002823	0.001562	0.009804	-0.006954	0.001763
-24	0.003701	0.002225	0.006550	-0.007718	9.001157
-23	0.000719	0.003722	0.004769	-0.009273	-0.000033
-22	0.003447	0.001929	0.006312	-0.010438	0.000277
-21	0.002898	0.001265	0.002754	-0.012096	-0.001320
-20	0.004190	0.000071	0.001767	-0.013377	-0.001867
-19	0.007479	0.000425	0.003298	-0.011508	-0.000113
-18	0.007081	0.000603	0.002438	-0.011392	-0.000349
-17	0.007213	0.001570	0.003415	-0.013956	-0.000475
-16	0.007397	0.002716	-0.000142	-0.016583	-0.001673
-15	0.006597	-0.000679	-0.003286	-0.020638	-0.004527
-14	0.008951	-0.004653	-0.003155	-0.018774	-0.004450
-13	0.011136	-0.006565	-0.003437	-0.022283	-0.005344
-12	0.009569	-0.006320	-0.003337	-0.023084	-0.005848
-11	0.010264	-0.007213	-0.000346	-0.025205	-0.005699
-10	0.010128	-0.009172	-0.001433	-0.025119	-0.006476
-9	0.009157	-0.008354	0.001263	-0.028676	-0.006740
-8	0.013485	-0.004817	0.001070	-0.032348	-0.005736
-7	0.012779	-0.004885	0.003009	-0.031347	-0.005200
-6	0.021079	-0.006040	0.001402	-0.032502	-0.004115
-5	0.015936	-0.008016	0.000783	-0.035212	-0.006729
-4	0.013887	-0.006445	0.001483	-0.034940	-0.006599
-3	0.021567	-0.003158	0.001925	-0.039393	-0.004865
-2	0.024820	-0.002418	0.004081	-0.040106	-0.003517
-1	0.026408	0.000955	0.004133	-0.042587	-0.002876
0	0.031676	0.001423	0.002283	-0.042102	-0.001780
+1	0.032026	0.002389	-0.000064	-0.041253	-0.001812
+2	0.035273	-0.000783	-0.002985	-0.044685	-0.003391
+3	0.034982	-0.001993	0.001326	-0.044342	-0.002624
4	0.036802	-0.004777	0.008288	-0.044513	-0.001209
5	0.041321	-0.000799	0.013971	-0.045537	0.002066

Table A-6 --Continued

Day	1962-1967	1968-1971	1972-1975	1976-1979	Total 1962-1979
6	0.039261	0.999113	0.017977	-0.042990	0.003411
7	0.038881	-0.000485	0.017212	-0.042405	0.003123
8	0.041028	-0.000920	0.020408	-0.041585	0.004539
9	0.044387	0.002087	0.021284	-0.040366	0.006660
10	0.049065	0.002051	0.025542	-0.041085	0.008435
11	0.050416	0.004221	0.023607	-0.042265	0.008796
12	0.052975	0.005539	0.023315	-0.042724	0.009724
13	0.049858	0.006843	0.021790	-0.043443	0.008724
14	0.047979	0.007079	0.019817	-0.042196	0.008145
15	0.047942	0.005413	0.021834	-0.042060	0.008243
16	0.048029	0.007225	0.023608	-0.044568	0.008531
17	0.046734	0.004514	0.022345	-0.043331	0.007521
18	0.044604	0.004856	0.020583	-0.041977	0.006985
19	0.044171	0.002667	0.022412	-0.040456	0.007153
20	0.047965	0.001788	0.023601	-0.042558	0.007637
21	0.045799	0.001199	0.028389	-0.044349	0.007676
22	0.043111	0.001666	0.030376	-0.045473	0.007332
23	0.043280	0.000031	0.031159	-0.046183	0.006973
24	0.042905	-0.000230	0.030853	-0.044442	0.007176
25	0.043008	-0.000153	0.032146	-0.046675	0.006978
26	0.046299	0.002563	0.031433	-0.047929	0.007996
27	0.045642	0.001535	0.026894	-0.047231	0.006630
28	0.045867	0.002103	0.027711	-0.048145	0.006801
29	0.047441	-0.000053	0.027885	-0.044973	0.007477
30	0.045977	0.001471	0.028734	-0.044060	0.007946

FOOTNOTES

¹For reference on empirical studies about financial analysts' advice, please see Bjerring et al. (1983). Foster (1979) specifically studied the advice of a financial columnist in public media.

²When the market is cleared, the investors have homogeneous assessments on a given asset. The information sets that are consistent with market clearances are the equilibrium market information sets. If the market is informationally efficient, then the equilibrium market information set would generate an assessment as correct as would be generated by the union of the information sets privately available to each and every market participant. Verrecchia (1979) showed the conditions for the existence and uniqueness of an equilibrium market information set.

³Following Verrecchia (1980), we can model the information acquisition process as a statistical decision process. That is, suppose that at the end of a future period, nature draws from an urn a numbered ball that represents the returns on the security. For simplicity's sake assume that numbers on balls are normally distributed in the urn with known variance and unknown mean. A draw from an urn is called advice. There are many urns, of which only one will be drawn by the nature. The service of a financial analyst is to identify the correct urn and to draw as many balls as economically feasible. If the numbers drawn by the financial analyst are the same as the reader's prior information set, the estimation of mean will not be affected, but the estimation variance will be reduced. A draw from the correct urn is called innovative advice. A draw from incorrect urn is useless advice. If the drawing from the incorrect urn is inversely correlated with the drawing from the correct urn, then it is harmful advice.

⁴Fama-inefficiency indicates that the capital market is informationally efficient in Fama's (1970) sense.

⁵Foster's (1979) study was based on 15 articles and 28 firms. His result is consistent with proposition 3.

REFERENCES

- Bjerring, J.H., J. Lakonishok, and T. Vermaelen. "Stock Prices and Financial Analysts' Recommendations," Journal of Finance, March, 1983, pp. 187-204.
- Fama, E.F. "Efficient Capital Market: A Review of Theory and Empirical Work," Journal of Finance, May, 1970, pp. 383-417.
- Foster, G. "Briloff and the Capital Market," Journal of Accounting Research, Spring, 1979, pp. 262-274.
- Grossman, S.J. and J.E. Stiglitz. "The Impossibility of Informationally Efficient Markets," American Economic Review, Vol. 70, No. 3, June, 1980, pp. 393-408.
- Verrecchia, R.E. "A Proof of the Existence of 'Consensus Beliefs'," Journal of Finance, September, 1979, pp. 957-963.
- _____. "Consensus Beliefs, Information Acquisition, and Market Information Efficiency," American Economic Review, Vol. 70, No. 5, December, 1980, pp. 874-884.