The Impact of *Barron's* Recommendations on Stock Prices

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We examine the impact on stock prices of purchase recommendations published in the popular financial weekly, Barron's. *The results show that the publication of this second-hand information has a positive and significant impact on stock prices at the time of publication. The abnormal returns quickly dissipate and the recommendations examined here do not provide superior returns over longer holding periods. The abnormal returns are related inversely to firm size. Overall, these findings expand the literature on the impact of second-hand information and show results consistent with prior studies of other sources of this type of information.*

INTRODUCTION

The term *second-hand information* refers to information that has been collected from public sources and manipulated or simply reported again by a public news source. Prior research documents the existence of abnormal returns upon the announcement of second-hand information in the form of analysts' recommendations published in a variety of business periodicals. These abnormal returns generally are found to be short-lived. Explanations of the abnormal returns associated with second-hand information include the fact that the market may be inefficient; that second-hand information increases attention focused on the company; that it increases the volume of trading, putting price pressure on the company's stock; and that it provides new information about the company's future prospects or reduces uncertainty associated with previous reports about the company.

The objective of this study is to provide additional evidence on the impact of second-hand information on stock prices. We examine a source of information heretofore untested in the finance literature: stock purchase recommendations contained in the widely read weekly business periodical *Barron's*. The different sources of information in *Barron's* allow us to examine additional explanations of the impact of second-hand information. We also explore the impact of firm size on the stock price reaction to the disclosure of second-hand information.

The results provide additional evidence that second-hand information has an impact on stock prices. Consistent with prior studies of other sources of second-hand information, the results show that *Barron's* recommendations have a substantial impact on stock prices

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but that the results do not persist into the future. We also find an inverse relationship between firm size and the abnormal returns associated with the second-hand information.

PRIOR STUDIES OF THE IMPACT OF SECOND-HAND INFORMATION

Several prior studies document the impact of second-hand information on securities prices. Groth, Lewellen, Schlarbaum, and Lease (1979) find positive abnormal returns associated with brokerage house recommendations. Bjerring, Lakonishok, and Vermaelen (1983) find positive abnormal returns associated with Canadian brokerage house recommendations. Davies and Canes (1978) and Liu, Smith, and Syed (1990) find positive abnormal returns around buy recommendations in the "Heard on the Street" column in the *Wall Street Journal* and negative abnormal returns around the column's sell recommendations. Copeland and Mayers (1982) and Stickel (1985) find positive abnormal returns around Value Line ranking changes. Glascock, Henderson, and Martin (1986) find positive abnormal returns associated with Heinz Biel's *Forbes* recommendations. Pari (1987) finds abnormal returns around guest recommendations made on the program *Wall Street Week.* Barber and Loeffler (1993) find evidence of positive abnormal returns associated with stock picks disclosed in the "Dartboard" column of the *Wall Street Journal.*[1]

The announcement period abnormal returns documented in these studies range from 0.66 percent to 3.53 percent. Studies that examine returns over longer post-announcement periods generally find that the abnormal returns diminish. For example, Barber and Loeffler (1993) and Davies and Canes (1978) find that about half of the initial stock price response is reversed within 25 trading days. Pari (1987) finds that six and twelve month holding period returns are below the market return and excess returns are negative for the recommended stocks over these periods.

There is no clear explanation why analysts' recommendations and the dissemination of second-hand information impact stock prices, but several alternatives have been offered. Copeland and Mayers (1982) interpret their Value Line findings as evidence against semi-strong form market efficiency. Grinblatt, Masulis, and Titman (1984) offer the attention hypothesis as a possible explanation of the abnormal returns associated with stock dividends and splits. They argue that certain actions call attention to the firm and trigger reassessments by analysts of its future cash flows. This explanation is similar to the neglected firm effect documented by Arbel and Strebel (1982, 1983). They find a persistent abnormal return associated with earnings announcements for firms followed by relatively few security analysts.

Another related hypothesis is the noise hypothesis of Black (1986) and Shleifer and Summers (1990). They argue that if some investors are not fully rational and their demand for risky assets is affected by their beliefs or sentiments that are not fully justified by fundamental news and that arbitrage—defined as trading by fully rational investors not subject to sentiment—is risky and therefore limited, then changes in investor sentiment are not fully countered by arbitrageurs and may affect security returns. The publication of analysts forecasts may alter investor sentiment about the affected firms.

[1] Barber and Loeffler (1993) provide a more detailed summary of the results of these prior studies.

Cornell and Shapiro (1987) discuss stakeholder theory and the implicit claims hypothesis. Under this hypothesis, the impact of new information on stock prices depends on the extent to which the new information is news to stakeholders (as opposed to only stockholders) and on the amount of organizational capital (the value of all future implicit [stakeholder] claims that the firm expects to sell). The impact of the new news on the perceptions of implicit claims may be affected by the credibility of the source of information. With regard to organizational capital, Cornell and Shapiro (1987) argue that abnormal returns are likely to be a decreasing function of firm size because the benefit of free publicity should not exceed the cost of directly disseminating the information.

Barber and Loeffler (1993) examine the price pressure and information hypotheses to explain stock price reactions to second-hand information. The price pressure hypothesis poses that analysts' recommendations create temporary buying pressure by naive investors which causes temporary abnormal returns. The information hypothesis poses that the analysts' recommendations reveal new material information that results in a fundamental revaluation of the security. They interpret their findings of an initial positive stock price reaction that partially reverses over the following month as support for both hypotheses.

All of these hypotheses have been offered as explanations for the impact of second-hand information on stock prices. Our objective is to provide further evidence of the impact of second-hand information. Because many of the competing hypotheses are not mutually exclusive, we do not test them individually.

DATA AND METHODOLOGY

Barron's is a popular financial news weekly. Sales exceed 250,000 issues each week to a readership that is 92 percent male. The typical reader has a median age of 52.9 years, median individual income of $71,000, and median household income of $89,000. Ninety-one percent of *Barron's* readers attended college, 78 percent completed college, and 36 percent have graduate degrees. Fifty-two percent of the readers are top managers, 16 percent are middle managers, and 29 percent are professionals (including analysts, brokers, and professional money managers). *Barron's* attracts well-educated readers who are likely to be actively managing or monitoring investments for themselves or others.

Weekly issues of *Barron's* often contain purchase recommendations for individual stocks from a variety of security analysts. The colorful commentary provided by the editor, Alan Abelson, in his "Up and Down Wall Street" column often includes a brief analysis of a stock worth buying. Other analysts' recommendations are featured in the "Investment News and Views" section, and feature articles often contain specific recommendations from professional analysts.

To evaluate the performance of *Barron's* recommendations, we compile a list of all firms listed on the New York Stock Exchange (NYSE), American Stock Exchange (ASE), or the National Association of Securities Dealers Automated Quotations system (NASDAQ) with stock purchase recommendations contained in the 52 weekly issues of *Barron's* during 1988.[2] The stock purchase recommendations come from two categories of

[2] 1988 is selected because we have *Barron's* and CRSP data readily available for the period and because it is a relatively short and homogeneous period in the market. Why do we examine only buy recommendations? Apparently optimism sells newspapers. Only 16 sell recommendations appeared in *Barron's* during the period studied. For information purposes we compute the abnormal returns associated with the sell recom-

columns in *Barron's*. First is the popular "Up and Down Wall Street" column, written each week by editor Alan Abelson. Second we examine buy recommendations from analysts contained in the "Investment News and Views" section or in featured interviews. Careful scrutiny of the weekly issues of *Barron's* yielded 144 purchase recommendations for firms that also have returns data on the Center for Research in Securities Prices (CRSP) tapes. The sample of recommendations and firm-specific price behavior is composed of 88 NYSE or ASE companies and 56 NASDAQ firms.[3]

Barron's is sent to press after the market closes on Friday afternoon. No information contained in the edition is disclosed prior to the market close. The issues are released early Saturday morning and arrive on newsstands later that morning. The issues are dated for the Monday after publication. This Monday (or Tuesday in the event of a Monday holiday) is used as the event date (day 0).

We use the standard event study methodology of Brown and Warner (1985) to compute the daily excess returns. Average daily abnormal returns are computed using a two step procedure. First, we estimate the parameters of a single factor market model for each firm. We use the returns for days -130 to -30 to estimate each firm's alpha and beta coefficients. Second, we compute the abnormal return on day t as:

$$(1)\ AR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{it}$$

where:

N = The number of observations (recommendations);
AR_{it} = $R_{it} - \alpha_i - \beta_i RM_t$;
R_{it} = The daily return for firm i on day t;
α_i, β_i = Parameters of the market model estimated over days -130 to -30; and
RM_t = The daily return on the CRSP equally weighted index (including dividends) on day t.

Cumulative abnormal returns (CAR) are computed as:

$$(2)\ CAR_{t_1,t_2} = \sum_{t=t_1}^{t_2} AR_t$$

where:

t_1 = The first day of the accumulation period; and

mendations. Eleven of the firms with sell recommendations have the necessary returns available on the CRSP tapes. All of the eleven recommendations were made by the editor, Alan Abelson. The day zero AR for these eleven recommendations is -0.925 percent with a Z-statistic of 2.001 (statistically significant at the 5 percent level).

[3] A detailed breakdown of the 144 individual firms is available from the authors.

t_2 = The last day of the accumulation period.

We test the abnormal returns for statistical significance using a Z-statistic as described in Mikkelson and Partch (1988).[4] The Z-statistic is computed as:

$$(3)\ Z = \frac{1}{\sqrt{n}} \sum_{i=1}^{N} \left[\frac{\sum_{t=t_1}^{t_2} AR_t}{\sqrt{\text{Var} \sum_{t=t_1}^{t_2} AR_t}} \right]$$

The denominator is the square root of the variance of the cumulative abnormal return of firm i. This variance is defined as:

$$(4)\ \text{Var}\left(\sum_{t=t_1}^{t_2} AR_{it} \right) = V_i^2 \left[T + \frac{T^2}{ED} + \frac{\sum_{t=t_1}^{t_2} RM_t - T(\overline{RM})^2}{\sum_{j=1}^{ED} (RM_j - \overline{RM})^2} \right]$$

where:

V_i^2 = The residual variance of firm i's market model regression;
T = The number of days in the cumulation period ($t_2 - t_1 + 1$);
ED = The number of days in the period used to estimate the market model; and
$\overline{RM}$ = The mean market return in the estimation period.

RESULTS

Table 1 shows the daily average abnormal returns (AR), cumulative abnormal returns (CAR), and their respective Z-statistics. Figure 1 shows the CARs for two weeks before and one month after the *Barron's* publication date. During the two weeks prior to the recommendation in *Barron's*, the ARs, with the exception of day -8, are not significantly different from zero. On the day that the *Barron's* information hits the market, day 0, there is a positive and significant AR of 2.1 percent.[5] The ARs are not significantly different from zero for the following month with the exception of day +12. The CARs for event days zero through +16 remain positive and significant. By the end of day +21, the CAR

[4] This Z-statistic adjusts for the dependence created by cumulating individual abnormal returns using a single set of estimates for alpha and beta. We also compute the Z-statistic used by Dodd and Warner (1983) which assumes independence. The Z-statistics are similar for both methods and none of the levels of significance reported are different if the Dodd and Warner method is used.

[5] When the results are split by exchange listing, we find a day zero AR of 1.52 percent for NYSE/ASE firms (Z-statistic = 6.32) and 3.0 percent (Z-statistic = 8.46) for NASDAQ firms. The larger reaction for NASDAQ firms is consistent with Grant (1980), Lease and Lewellen (1982), and Chari, Jagannathan, and Ofer (1988). Detailed results are available from the authors.

Table 1—Market Model Abnormal Returns (AR) and Cumulative Abnormal Returns (CAR) Stocks Recommended in *Barron's* During 1988 (Day 0 is *Barron's* Publication Date)

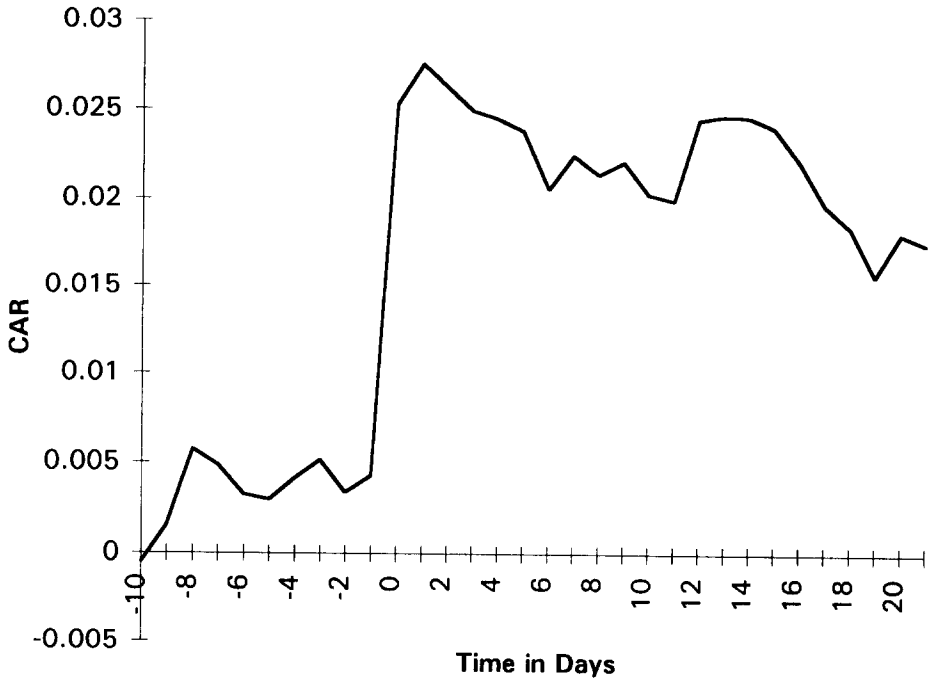
Day	AR	Z-STAT	CAR	Z-STAT
-10	-0.050%	-0.213		
-9	0.202%	0.986		
-8	0.422%	**2.349		
-7	-0.088%	-0.801		
-6	-0.162%	-1.319		
-5	-0.030%	-0.328		
-4	0.121%	0.602		
-3	0.101%	0.359		
-2	-0.182%	-0.331		
-1	0.095%	0.595		
0	2.096%	*10.221	2.096%	*10.221
1	0.225%	0.806	2.321%	*7.797
2	-0.131%	-0.619	2.191%	*6.009
3	-0.129%	0.024	2.062%	*5.216
4	-0.050%	-0.191	2.012%	*4.580
5	-0.065%	-0.700	1.947%	*3.895
6	-0.323%	-1.872	1.624%	*2.899
7	0.189%	1.044	1.813%	*3.081
8	-0.107%	-0.787	1.707%	*2.642
9	0.073%	0.780	1.780%	*2.753
10	-0.183%	-0.039	1.596%	*2.613
11	-0.036%	-0.041	1.561%	**2.490
12	0.451%	*2.870	2.011%	*3.188
13	0.019%	-0.517	2.030%	*2.934
14	-0.004%	-0.270	2.026%	*2.765
15	-0.060%	-0.508	1.966%	**2.550
16	-0.187%	-0.331	1.780%	**2.394
17	-0.239%	-1.593	1.540%	1.951
18	-0.133%	-0.515	1.407%	1.781
19	-0.280%	-1.167	1.127%	1.475
20	0.245%	1.649	1.372%	1.799
21	-0.058%	-0.558	1.314%	1.639

* Statistically significant at the 1 percent level
** Statistically significant at the 5 percent level

has declined to 1.3 percent and is no longer statistically significant. These results are comparable with Barber and Loeffler (1993) and other studies of the impact of second-hand information. The announcement in *Barron's* is associated with a positive and significant increase in the price of the stock. This increase declines substantially over the next month. There is no evidence of a run-up in stock prices in the days before *Barron's* is released which suggests that the information is not being leaked to the market prior to publication.

The sources and nature of the recommendations contained in *Barron's* provide an additional angle for assessing the value of analysts' recommendations. Neither Mr. Abelson nor the analysts report any hold-for-release or nonpublic information; both are reporting second-hand information. Because Mr. Abelson is not employed by anyone else, it seems likely that his recommendations represent a new opinion that is released to the market each Monday. On the other hand, professional security analysts are paid for their opinions. Therefore, it is likely that some subset of well-heeled clients already have gained access to the analysts' recommendations that subsequently appear on the pages of *Bar-*

Figure 1—Cumulative Abnormal Returns (CAR) Stocks Recommended in *Barron's* During 1988 (Day 0 is *Barron's* Publication Date)



ron's. If this is the case, Mr. Abelson's recommendations should have a larger impact on stock prices than the publication of analysts' recommendations.[6] Mr. Abelson is also a more neutral source of recommendations and may have more credibility. Following the reasoning of Cornell and Shapiro (1987), the impact of the second-hand information on the perceptions of implicit claims may be greater for a more credible source of information. Therefore, Mr. Abelson's stamp of approval may have more impact on stock prices than do the recommendations from analysts.[7]

Table 2 summarizes the abnormal returns for day 0 broken down by the source of the recommendation (Abelson's "Up and Down Wall Street" column versus analysts' recommendations). The abnormal returns are statistically significant at the 1 percent level for both groups. The recommendations from Abelson's "Up and Down Wall Street" column have a larger impact on share prices (2.9 percent) than do the analysts' recommendations

[6] Implicit in this statement is the assumption that Mr. Abelson's recommendations are considered as credible as those rendered by full-time security analysts.

[7] We are indebted to an anonymous referee for suggesting this line of reasoning.

Table 2—Market Model Abnormal Returns (AR) for Event Day 0 (Monday Date of *Barron's*) Stocks Recommended in *Barron's* During 1988

Source	Abnormal Returns
"Up and Down Wall Street"—Abelson	
AR	2.921%***
Z-Statistic	5.771*
Number of Firms	29
Firms With AR > 0	22 (76%)**
Analysts' Recommendations	
AR	1.888%***
Z-Statistic	8.539*
Number of Firms	115
Firms With AR > 0	88 (77%)**
Total—All Recommendations	
AR	2.096%
Z-Statistic	10.221*
Number of Firms	144
Firms With AR > 0	110 (76%)**

* Statistically significant at the 1 percent level
** Statistically greater than chance at the 1 percent level, determined using a binomial sign test
*** AR for "Up and Down Wall Street" is not statistically significantly different than AR for analysts' recommendations, determined by a two tailed T-test for difference in means

(1.9 percent), although the difference between the two groups is not statistically significant.

To extend and qualify these results, we examine the impact of firm size on abnormal returns. Two types of size effects are considered. First, Cornell and Shapiro (1987) argue that an implication of the implicit claims hypothesis is that abnormal returns should be a decreasing function of firm size. This also would be consistent with the neglected firm effect discussed by Arbel and Strebel (1982, 1983) which implies that information releases for firms that are followed by fewer analysts have a greater potential to reduce uncertainty regarding these firms' future prospects. We obtain size information (total assets at the end of 1988) from *Compact Disclosure* and the *Moody's* manuals. Data are available for 129 of the 144 firms in the sample. The 129 firms are separated into size quintiles, and the day zero average abnormal returns are computed for each quintile. The results, shown in Table 3, indicate that the *Barron's* effect is significant across size groups, but that it is also size dependent. The average abnormal returns increase monotonically as average firm size decreases. While there is a relationship between firm size and abnormal returns, the abnormal returns are statistically significant for all quintiles except quintile 1 (the largest 26 firms). (The AR for quintile 1 is statistically significant at the 8 percent level.) The inverse relationship between the AR and firm size is consistent with the implicit claims and neglected firm hypotheses.[8]

[8] Barber and Loeffler (1993) find that when volume and standard deviation of returns are considered, the size impact is not significant. Size may be proxying for liquidity, which they find to be inversely related to abnormal returns, providing additional support for the price pressure hypothesis.

Table 3—Average Abnormal Returns for Event Day 0 (Monday Date of *Barron's*) Stocks Recommended in *Barron's* During 1988 Broken Down by Size (Largest—Quintile 1 to Smallest—Quintile 5 Firms) (Firm Size is Total Assets in Thousands of Dollars)

Quintile	Number of Firms	Average Firm Size	AR	Z-STAT
1	26	$24,806,912	0.501%	1.777
2	26	$1,719,674	1.190%**	2.453
3	26	$497,196	1.467%*	3.269
4	26	$205,528	3.295%*	7.238
5	25	$66,227	3.468%*	5.328
All	129	$5,500,767	1.973%*	8.961

* Statistically significant at the 1 percent level
** Statistically significant at the 5 percent level

Second, Fama and French (1992) argue that firm size does a better job of explaining cross-sectional variation in returns than beta does. It is possible that there is a size bias driving the market model abnormal returns and that abnormal returns computed on a size-adjusted basis will not be significant. To test for a size bias, we compute size-adjusted abnormal returns. The methodology and results are shown in the appendix. The size-adjusted results are economically and statistically similar to the market model results.

We next investigate the long-run performance of the stocks recommended in *Barron's*. We use the methodology of Pari (1987) to compute holding period returns and abnormal returns for holding periods of one, three, six, and twelve months following the date that the recommendations appear in *Barron's*. Table 4 summarizes the results. The holding period return remains higher for the *Barron's* stocks for one month, is similar to the market portfolio for three and six months, and is less than the market return for a one year holding period. The *Barron's* stocks return less than the market for the six months prior to the announcement date. None of the differences, however, are statistically significant determined by a matched-pairs t-test for difference in means. The *Barron's* portfolio has an average alpha of -0.00053 and an average beta of 1.230769. Utilizing these parameters to compute an abnormal holding period return indicates a slight positive abnormal return for a one month holding period and increasingly negative abnormal returns for three, six, and twelve month holding periods. Our results are similar to those of Pari (1987) and indicate that the firms recommended in *Barron's* underperform the market over the six months prior to the recommendation, experience a substantial increase in value upon the announcement, and see an erosion of the increase in the post-event period. This initial positive reaction followed by an erosion is consistent with the price pressure hypothesis.

SUMMARY AND CONCLUSIONS

Stock purchase recommendations published in *Barron's* have a positive impact on prices of the recommended stocks. The effect is highly concentrated on the day that the *Barron's* information hits the market (day zero AR = 2.1 percent) and is highly significant (Z-statistic = 10.22). The results are robust when computed using a size-adjusted abnormal return. The fresh opinions of Alan Abelson (the editor) in our sample have a greater impact on prices than the recommendations of analysts. The difference, however, is not

Table 4—Holding Period Returns for Six Months and One Year For Stocks Recommended in *Barron's* During 1988, Holding Period Begins on Event Day 0 (Monday Date of *Barron's*)

Holding Period*	Return % *Barron's*	Return % Market
One Month	3.42%	2.77%
Three Months	5.63%	5.83%
Six Months	10.46%	10.41%
Twelve Months	19.40%	21.43%
Previous Six Months	2.24%	3.07%
Excess Returns**		
One Month	0.06%	-
Three Months	-1.49%	-
Six Months	-2.30%	-
Twelve Months	-6.92%	-
Previous Six Months	-1.49%	-

* None of the holding period returns for the *Barron's* portfolio are statistically significantly different from the market portfolio returns at the 5 percent level. We test for significance with a matched-pairs t-test for difference in means

** Excess returns are computed using the method of Pari (1987). The average alpha and beta for the *Barron's* portfolio are -0.00053 and 1.230769 respectively. These are used to compute an expected holding period return, which is then compared to the actual holding period return to determine the excess return

statistically significant. There is a clear inverse relationship between firm size and abnormal returns. Abnormal returns are statistically significant for all but the largest size quintile. The superior performance of stocks recommended in *Barron's* declines substantially in the month following the recommendation and there is no evidence that the effect persists over longer holding periods.

These results add to a growing body of research documenting the effects of second-hand information on stock prices. They are consistent with prior studies of the impact of second-hand information. Publication of this information in a well-known business periodical does have a substantial, yet short-term, impact on stock prices. The results are most consistent with the attention and price pressure hypotheses. The size relationship provides some support for the implicit claims and neglected firm hypotheses.

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APPENDIX—SIZE-ADJUSTED ABNORMAL RETURNS

The results in this study, and in the other referenced studies of the impact of second-hand information on stock prices, are derived using the well-known market model event study methodology, described in Brown and Warner (1985), to compute abnormal returns. Fama and French (1992) question the market model and argue that firm size does a better job of explaining cross-sectional variation in returns than beta does. It is possible that there is a size bias driving the market model abnormal returns and that abnormal returns computed on a size-adjusted basis will not be significant. To test for a size bias, we compute size-adjusted abnormal returns. In this appendix, we briefly describe the methodology for computing size-adjusted abnormal returns and show our results from Table 1 restated as size-adjusted returns.

DATA AND METHODOLOGY

Firm-size data is obtained as the total market equity, ME (a stock's price times shares outstanding) at the end of 1987 from the CRSP NYSE/ASE master tapes. The 1,450 firms with ME data available are sorted by size to determine decile breakpoints for ME. Daily size-decile returns are computed as the average return for the 145 stocks in each decile. ME data is also obtained for the firms in our sample. Each sample firm is then matched by ME to its appropriate ME size decile. Returns for the sample firms are lined up in event time with the appropriate corresponding size-decile returns and abnormal returns are computed as:

$$(A1)\quad AR_{it} = R_{it} - RD_{jt}$$

where:

R_{it} = The daily return for firm i on day t; and
RD_{jt} = The average return on the appropriate (decile j) ME size decile for firm i on day t.

The average abnormal returns and cumulative abnormal returns are computed using equations (1) and (2) and the size-decile returns from equation (A1). We test the abnormal returns for statistical significance using a standard Z-statistic, computed as the mean of the daily AR_{it} (or cumulative AR_{it}) divided by its standard deviation divided by the square root of the number of observations.

RESULTS

Table A1 shows the daily size-adjusted average abnormal returns (AR), cumulative abnormal returns (CAR), and their respective Z-statistics. During the two weeks prior to the recommendation in *Barron's*, the ARs are not significantly different from zero. On the day that the *Barron's* information hits the market, day 0, there is a positive and significant AR of 1.85 percent. The AR for day +1 is 0.49 percent, and is also significant. The ARs are not significantly different from zero for the following month with the exception of days +10 and +19 when they are negative and day +12 when they are positive. The CARs

Table A1—Size-Adjusted Abnormal Returns (AR) and Cumulative Abnormal Returns (CAR), Stocks Recommended in *Barron's* During 1988 (Day 0 is *Barron's* Publication Date)

Day	AR	Z-STAT	CAR	Z-STAT
-10	0.068%	0.309		
-9	0.137%	0.620		
-8	0.504%	1.872		
-7	-0.329%	-1.276		
-6	0.046%	0.225		
-5	-0.092%	-0.405		
-4	0.186%	0.814		
-3	0.290%	1.043		
-2	-0.360%	-1.628		
-1	0.091%	0.402		
0	1.850%	*5.939	1.850%	*5.939
1	0.491%	**2.336	2.341%	*6.101
2	-0.067%	-0.312	2.274%	*5.626
3	-0.066%	-0.301	2.207%	*4.657
4	-0.044%	-0.186	2.163%	*4.924
5	-0.306%	-1.561	1.857%	*4.181
6	-0.296%	-0.786	1.561%	*2.808
7	0.074%	0.402	1.635%	*2.832
8	-0.153%	-0.736	1.482%	**2.378
9	0.252%	1.294	1.734%	*2.747
10	-0.434%	**-2.359	1.300%	**2.047
11	0.277%	1.605	1.577%	**2.545
12	0.375%	**1.970	1.952%	*2.948
13	-0.080%	-0.379	1.872%	*2.686
14	0.099%	0.550	1.972%	*2.707
15	-0.151%	-0.774	1.821%	**2.540
16	0.087%	0.311	1.908%	**2.359
17	-0.299%	-1.445	1.608%	*2.067
18	0.145%	0.814	1.754%	*2.256
19	-0.347%	**-2.110	1.406%	1.810
20	-0.150%	-0.872	1.256%	1.657
21	0.195%	1.312	1.451%	1.887

* Statistically significant at the 1 percent level
** Statistically significant at the 5 percent level

for event days zero through +18 remain positive and significant. By the end of day +21, the CAR has declined to 1.45 percent and is no longer statistically significant

Overall, the size-adjusted results are economically and statistically similar to the market model results. The impact of Barron's recommendations on stock prices is not due to a size bias. This result is also relevant to other studies of second-hand information since they use a market model to compute abnormal returns. Finding a size-bias effect here would cast doubt on the results of other studies as well.