Routledge
Taylor & Francis Group

A Face Can Launch a Thousand Shares—And an 0.80% Abnormal Return

Matteo P. Arena

Marquette University

John S. Howe

University of Missouri-Columbia

In this paper we examine the market reaction—price and volume—to the appearance of a firm in the Who's News column of *The Wall Street Journal*. We differentiate between those firms whose articles are accompanied by a picture of an executive and a control set of firms whose articles on the same day are not accompanied by a picture. The results show a more pronounced market reaction to the "cum picture" articles, consistent with the incomplete information theory of Merton [1987] and the heuristic-based familiarity hypothesis. There is no evidence of significant long-run abnormal performance for the sample firms.

Keywords: Familiarity bias, Event study, Wall Street Journal

INTRODUCTION

Recent empirical evidence suggests that in many circumstances investors choose stocks based on behavioral heuristics and familiarity instead of rational strategies such as hedging and diversification. Most of the recent literature on the effect of familiarity on the stock selection process may be considered an evolution of Merton's [1987] classic paper on market equilibrium and incomplete information. Merton posits that an investor knows only a small portion of the total number of securities available in the market. More recently, Odean [1999] argues that investors cannot analyze the entire security population and thus trade securities that for some reason draw their attention. Barber and Odean [2006] provide evidence that individual investors are more likely to buy stocks that receive media coverage. Kaniel, Starks and Vasudevan [2006] find that news coverage can have a greater effect on mutual fund flow than the fund's most recent performance.

Consistent with Merton's model, Huberman and Regev [2001] present a case that suggests that investors tend to trade on information that provides familiarity but is not "new" news. When the *New York Times* presented on its front page an article about Entremed's research on a new drug that could potentially cure cancer, its stock rose 430% in one day, even though the news had been divulged in *Nature* and in various newspapers more than five months earlier.[1]

The tendency of investors to purchase stocks with which they are familiar is known as familiarity bias. Two causes of familiarity are proximity (Ivkovic and Weisbenner [2005], Loughran and Schultz [2005], Huberman [2001], Benartzi 2001]) and brand recognition (Frieder and Subrahmanyam [2005], Grullon, Kanatas and Weston [2003]).

Massa and Simonov [2005] distinguish between heuristic-based familiarity (also called "pure familiarity") and information-based familiarity. Heuristic-based familiarity is consistent with psychology studies that show that the saliency bias affects individuals who are interpreting data and making decisions. This bias is the propensity to rely on information that is salient or often mentioned while ignoring information that is equally important but less visible. Alternatively, information-based familiarity is based on the assumption that investors buy and hold those securities about which they have enough information. Massa and Simonov [2005] state that "the portfolio information under information-based familiarity is observationally equivalent to that under exogenous portfolio constraints as information about a stock affects investment decision by altering the perceived expected pay-off in a rational portfolio decision."

Address correspondence to John S. Howe, Missouri Bankers Chair and Professor of Finance, University of Missouri-Columbia, 447 Cornell Hall, Columbia, MO 65211. E-mail: howe@missouri.edu

In this paper we test the validity of the heuristic-based familiarity hypothesis by making use of the laboratory provided by the *Who's News* section of *The Wall Street Journal (WSJ)*. *Who's News* is a daily column of the *WSJ* that presents articles related to changes in management of U.S. firms.[2] Figure 1 shows a typical *Who's News* column. Frequently, *Who's News* columns feature a picture of a top corporate manager who is the focus of one of the articles. Since the presence of a picture increases the familiarity that individual investors perceive regarding a particular stock but provides no information, this study allows us to analyze the impact of heuristic-based familiarity on stock selection without the confounding presence of information-based familiarity.

Our analysis shows that firms that are the subject of a *Who's News* article with a picture enjoy positive and significant abnormal short-horizon returns and abnormal turnover around the article date when compared to firms that are covered by *Who's News* articles without a picture. These results persist even after controlling for differences in ex-ante visibility and information content of the news between firms in articles with picture and firms in articles without picture. We find no evidence of significant long-run abnormal performance for the sample firms. Our results are consistent with the heuristic-based familiarity hypothesis and support the presence of the saliency bias in investment decisions.

DATA SELECTION

Sample

We form our sample by selecting public firms that are the subject of a *Who's News* article with a picture between January 1996 and December 1998. In this three-year interval, this column appears 745 times. Of these 745 columns, 185 (25%) contain at least one picture, and fewer than 5% of them contain two or more pictures. Because some of the articles accompanied by a picture discuss two firms, the initial sample size is 222. We eliminate from the sample four nonprofit organizations and 38 firms that are not available on the CRSP database at the time of the article. Of the remaining 187 firms, 38 firms are covered by more than one article. We use the firm's first appearance as the event date. After removing second and third appearances, the final sample consists of 119 CRSP firms and 114 Compustat firms.

Matching Firms

We create two control samples. To construct the first control sample (Control 1), we select for each sample firm a control firm mentioned in the same day's *Who's News* column but without a picture. Among these potential control firms, we choose the firm that is covered in an article of size comparable to the article with picture.[3]

This matching strategy allows us to isolate the effect of the presence of a picture from the effect of the informational content of the article as proxied by article size. Since not all *Who's News* columns present an article without a picture of similar size to the one with a picture, we cannot pair all the sample firms with matching firms. Of the 119 sample firms, we are able to match 60 of them.

To construct the second control sample (Control 2), we match the articles with a picture with articles without a picture, independent of article size. Control 2 contains all the firms of Control 1 plus another 62, a total of 112 firms. The 7 sample firms that do not have a match are in a *Who's News* column that presents only their article.

Control 1 is a more precise control sample since the firms are matched by article size and the size of the *Who's News* article may be related to the importance of the information contained. The drawback of Control 1 is the small sample size. Control 2 is a larger sample but 62 firms out of 112 are not matched by article size.

SAMPLE AND CONTROL FIRMS' CHARACTERISTICS

In this study we measure the effect of the visibility generated by a picture on stock returns and turnover. However, the *Wall Street Journal* might preferentially assign a picture to a firm that is highly visible *ex-ante*. Therefore it is important to identify this possible source of endogeneity and to control for it. Firm characteristics that are potentially related to ex-ante visibility are firm size, market-to-book ratio, firm age, and past stock performance. We measure firm size as the market value of equity, calculate the market-to-book ratio by dividing the market value of equity by the book value of equity, measure firm age as the number of years since the CRSP listing date, and measure past performance as the abnormal cumulative stock return for the year preceding the article calculated by subtracting the monthly return of the CRSP equally-weighted index from the monthly return of the firm's stock.

In Table 1 we present the means, medians, and differences of means and medians for the sample, Control 1, and Control 2 firms. Control firms are significantly smaller than sample firms and significantly underperform compared to sample firms. The mean (median) market capitalization for the sample firms is $18.1 billion ($7.1 billion), while the mean (median) market capitalization of Control 1 and Control 2 firms is $3.5 billion and $7.3 billion ($1.1 billion and $1.3 billion). The mean (median) abnormal stock return of the sample firms for the year preceding the article is 0.19% (−2.77%), while the mean (median) abnormal stock return of Control 1 and Control 2 firms is −13.86% and −13.74% (−15.06% and −15.65%).

Even though the t-tests of the means and the Wilcoxon tests of the medians do not present any significant difference in age and market-to-book between the sample and the control firms, the significant differences in size and past

WHO'S NEWS

Boone Pickens Has Agreed to Step Down As Chairman of Mesa, Firm He Founded

By ALLANNA SULLIVAN
Staff Reporter of THE WALL STREET JOURNAL

Boone Pickens has agreed to step down as chairman and chief executive officer of Mesa Inc., the oil and gas company he founded 40 years ago and that has been straining for several years under the weight of more than $1 billion in debt.

Mr. Pickens, who earlier this year warded off a takeover effort spearheaded by a onetime protégé, told employees in a letter that "with our recapitalization program on track, it is time to begin looking for a new CEO."

But people familiar with the situation said 68-year-old Mr. Pickens had been asked some time ago to resign to allow longtime friend, Richard Rainwater, the investor who is managing Mesa's debt-reduction campaign, to install his own team. The announcement of Mr. Pickens's resignation coincided with the launch yesterday of a roadshow during which Mr. Rainwater will seek to obtain commitments for the purchase of $50 million in debt securities, which would be used to refinance Mesa's debt.

"It was only a matter of time" before

Boone Pickens

water proposal.

Neither Mr. Rainwater nor Mr. Batchelder could be reached to comment on Mr. Pickens's resignation. Mr. Pickens, who crafted the one-page letter to employees late Tuesday night, declined requests for an interview.

Though Mr. Batchelder doesn't own any stake in Mesa, he continues to advise dissident shareholder Dennis Washington, an investor from Montana who owns 3.5 million Mesa shares, or about 6% of the company. Another client of Mr. Batchelder's, entertainment mogul Marvin Davis, has sold most of his Mesa holdings.

Mr. Pickens relinquished the helm of Mesa, based in Irving, Texas, said Rosario Ilarqua, an analyst with Rothschild Inc. in New York. "Boone is not the type of person to be a No. 2 man."

Mr. Pickens, who owns 7.3% of Mesa's common shares, turned to Mr. Rainwater in late February, during a crusade by dissident shareholders to break up Mesa and sell it off piecemeal to pay down the debt. That effort, which would surely have wrested from Mr. Pickens control of any part of Mesa, was led by David Batchelder, a former top Mesa executive and once a student of the hostile-takeover strategies for which Mr. Pickens became famous in the 1980s.

Yesterday, in New York Stock Exchange composite trading, Mesa common closed at $3.625, up 12.5 cents, or 3.6%. Volume soared to 1.1 million shares, compared with average daily volume of 296,615 shares.

Under the terms of the Rainwater deal with Mr. Pickens, Mr. Rainwater will purchase $133 million of convertible preferred stock and provide a standby commitment for a $132 million rights offering of convertible preferred stock. With that, Mr. Rainwater will wind up with at least 32% of Mesa. And depending on the level of interest that current Mesa shareholders have in the rights offering, he could end up controlling as much as 64% of the company.

Mesa shareholders, who are to meet later this month, must approve the Rain-

---

Scientist Vapnek Plans to Retire From Amgen Inc.

By RHONDA L. RUNDLE
Staff Reporter of THE WALL STREET JOURNAL

Daniel Vapnek, a scientist who has guided Amgen Inc.'s research since joining the biotechnology company in 1981, said he plans to retire as senior vice president, as soon as Amgen selects his successor.

"This is a good time to leave. The company is in excellent shape from every perspective," said Dr. Vapnek, who is 57 years old. Amgen said several internal candidates will be considered to succeed Dr. Vapnek. Analysts said they expected a smooth transition.

Amgen shares were little changed after the announcement, falling 50 cents to $59 in Nasdaq Stock Market trading yesterday.

During Dr. Vapnek's tenure, Amgen discovered and developed two drugs, Epogen and Neupogen, which are widely used respectively by kidney-disease and cancer patients. Amgen, based in Thousand Oaks, Calif., also has 12 drugs in various stages of human clinical trials, including experimental treatments for Lou Gehrig's disease, Parkinson's disease and obesity.

Dr. Vapnek said he became Amgen's 35th employee after he was recruited by Amgen's first employee and president,

George Rathmann. Dr. Vapnek had been a professor of genetics and microbiology at the University of Georgia in Athens. Biotechnology "was just a developing field at the time, and Amgen had more projects than scientists," Dr. Vapnek said. Dr. Rathmann left Amgen several years later and started another biotech company.

"One of Dr. Vapnek's first assignments as director of research was to help Amgen's management identify the most promising projects and to pare back those with less potential. Fortunately, one of the projects to survive the cut was the search for the gene for erythropoietin, a protein made in the kidneys that stimulates the production of red blood cells. In 1983, led by Fu-Kuen Lin became the first to clone the gene, leading to the development of Epogen.

[Amgen] will continue to benefit from Dan's advice and insights in his new consulting capacity," after a transition period, said Gordon Binder, chairman and chief executive. As one of Amgen's large individual stockholders, Dr. Vapnek could easily afford to quit working. But, he says: "I don't see myself as getting on a boat and cruising around the world. I would still like to remain actively involved.

WPI GROUP Inc. (Manchester, N.H.) — Dennis Deegan, most recently executive vice president and chief financial officer of this maker of hand-held computers, was named to the new position of president and chief operating officer. Mr. Deegan, 51 years old, also was named a director, expanding the board to seven members. The company said it plans to name a new finance chief "shortly."

L.S. STARRETT Co. (Athol, Mass.) — Richard B. Kennedy, was elected to the board of this maker of measuring tools. Mr. Kennedy is a vice president at Norton Co., Worcester, Mass. He succeeds J. Richard Bullock, who is retiring from the board, the company said.

ALDEN ELECTRONICS Inc. (Westborough, Mass.) — Arnold A. Krall, 52 years old, will step down as president and chief executive officer of this electronics concern within the next three months to "pursue new opportunities," the company said. He is expected to be succeeded by Robert J. Wentworth, currently vice president. Mr. Wentworth, 41, was given the additional duties of chief operating officer.

FIGURE 1   Example of *Who's News* column

TABLE 1
Descriptive Statistics – Ex-ante Visibility.

		Sample	Control 1	Control 2	Sample - Control 1	Sample - Control 2
Size ($M)	Mean	18149	3497	7323	20145***	11245***
	t-value				(4.08)	(3.02)
	Median	7120	1126	1317	7844***	3955***
	p-value				(0.000)	(0.000)
Market-to-book	Mean	2.56	2.61	2.37	0.65	0.20
	t-value				(0.48)	(0.56)
	Median	3.18	2.83	2.52	0.15	0.42
	p-value				(0.923)	(0.191)
Age (years)	Mean	28	25	23	6.38	4.33
	t-value				(1.29)	(1.41)
	Median	24	15	13	0.92	0.46
	p-value				(0.244)	(0.191)
Past performance (%)	Mean	0.19	−13.86	−13.74	17.72	14.81**
	t-value				(1.63)	(2.15)
	Median	−2.77	−15.06	−15.65	19.66**	12.99***
	p-value				(0.032)	(0.009)

Note: This table presents univariate statistics on ex-ante visibility characteristics for sample firms, Control 1 firms, and Control 2 firms. We measure firm size as the market value of equity, we calculate the market-to-book ratio by dividing the market value of equity by the book value of equity, we measure firm age as the number of years since the CRSP listing date, and we measure past performance as the abnormal cumulative stock return for the year preceding the article. The t-values refer to two-sample t-tests of the mean, and the p-values refer to Wilcoxon-Mann-Whitney non-parametric tests for the median. ***, **, and * indicate two-sided significance at the 1%, 5%, and 10% level.

performance suggest that the *WSJ* is more likely to assign a picture to a firm that is more visible ex-ante and perform better (i.e., characterized by larger market capitalization and higher abnormal returns). We control for our proxies of ex-ante visibility in the event study regressions presented later.

EVENT STUDIES

Returns

We calculate the daily abnormal returns for a single firm (AR_{it}) by subtracting the return of each matching firm (or market index) from the daily return of each sample firm. We obtain the cumulative abnormal returns (CARs) by averaging the daily abnormal returns and then adding the daily averages over the event period of interest. This method, analogous to the one applied by Cooper, Dimitrov and Rau [2001], is based on the assumption that the stock portfolio is rebalanced every period to equally weight each security.

We compute *t*-statistics to assess the statistical significance of the CARs by using the Brown and Warner [1985] dependence adjustment method with a holdout period that goes from the trading day −30 to the trading day −16:

$$t = \sum_{t=i}^{m} AR_t / \sqrt{\sigma^2 * N}$$

where *i* is the first day of the event period under analysis, *m* is the last day of the event period under analysis, *N* is the number of trading days of the event period, and σ^2 is the variance of the abnormal returns of the holdout period.

Table 2 shows the event study return results. The cumulative returns for the sample firms are positive and significant for all event periods examined. The cumulative abnormal returns calculated by subtracting the CRSP value-weighted index from the sample firm returns are significant at the 1% level in the five days (2.35%) and three days (1.77%) around the event date.

The day before the *WSJ* article is possibly the day in which the firm announces a change in management and occasionally other significant news; in this case, the return of day −1 reflects the market reaction to this information. To control for this issue, we report the CAR for day 0 to day +1. The CAR for these two days (0.80%) is positive and significant at the 5% level.

Removing the return of day −1 does not completely eliminate the confounding effect of information contained in the article and does not control for the increased familiarity that comes with appearing in the *WSJ*. To examine the effect of the picture independent of any associated information, we calculate the abnormal returns by subtracting the returns of the control firms from the returns of the sample firms. When we use Control 1, the CAR is still positive and significant at the 1% level for the five and three days around the article and positive at the 10% level for the two days starting from the article day. When we calculate the CARs using Control 2, the returns are positive and significant at the 10% level for the five and three days around the article and positive but not significant for the two days starting from the article day.

TABLE 2
Event Returns.

	Event Period							
	−15 to −2	−2 to +2	−1 to +1	0 to +1	+2 to +15	0 to +21	0 to +42	0 to +84
Sample (N = 119)	2.53**	2.78***	2.01***	0.85**	2.14*	3.54***	5.75***	9.37***
	(2.13)	(3.93)	(4.01)	(2.08)	(1.81)	(2.38)	(2.77)	(3.21)
Sample − vwret (N = 119)	0.98	2.35***	1.77***	0.80**	0.28	0.93	1.01	0.18
	(0.90)	(3.62)	(3.52)	(1.96)	(0.26)	(0.68)	(0.53)	(0.07)
Sample–Control 1 (N = 60)	3.50*	4.08***	3.74***	1.43*	−1.49	−0.09	2.11	2.09
	(1.75)	(3.42)	(4.05)	(1.90)	(−0.74)	(−0.04)	(0.60)	(0.43)
Sample–Control 2 (N = 112)	1.62	1.82*	1.51*	0.69	−0.88	0.23	−0.13	−2.39
	(0.93)	(1.74)	(1.87)	(1.04)	(−0.50)	(0.10)	(−0.04)	(−0.55)

Note: This table presents the percent cumulative returns for a sample of firms that are the subject of *Who's News* articles with picture in year 1996, 1997, or 1998. The cumulative returns are calculated for several event periods centered on the date of the article. The first row presents the raw cumulative returns for the sample firms. The other columns present the cumulative abnormal returns (CARs) when the CRSP value-weighted index returns, or the control firms' returns, are subtracted from the sample firms' returns. The t-statistics are reported in parenthesis. ***, **, and * indicate two-sided significance at the 1%, 5%, and 10% level.

Overall the results presented in Table 2 show firms that are the subject of an article with a picture enjoy higher abnormal returns around the event day than firms that are the subject of a similar article without a picture. This evidence supports the heuristic-based familiarity hypothesis.

The intermediate term cumulative abnormal returns for the first month after the article (from trading day 0 to trading day +21), the first two months after the article (from trading day 0 to trading day +42), and the first four months after the article (from trading day 0 to trading day +84) suggest that the increase in value attributable to the picture is not permanent. The cumulative abnormal returns are not significantly different from zero for the periods (+2, +15), (0, +42), and (0, +84). However, when we subtract the returns of Control 1 firms form the returns of sample firms (e.g., "Sample − Control 1"), the intermediate term returns from day 0 to +42 and from day 0 to +84 are larger than the event return of day 0 to +1 (2.11% and 2.09% versus 1.43%). This intermediate term evidence partially suggests the presence of a picture might have in some cases a lasting impact on firm value for at least four months after the article. We provide evidence on long–run performance (i.e., three-year buy-and-hold abnormal returns) in Table 6.

Returns Controlling for Ex-ante Visibility and Article Content

As shown in Table 1, larger firms and firms that perform better are more likely to be selected by the *WSJ* for an article with picture. Moreover, it is possible that the *WSJ* chooses to displays pictures of firms that experience favorable news. In the OLS regressions presented in Table 3 we control for the firm-characteristic differences and the possible article content differences between sample and control firms.

The dependent variable of our regressions is the difference in cumulative abnormal returns for the (0, +1) period between sample firms and control firms. The independent variables related to ex-ante visibility (i.e., firm characteristics) are the difference between the logarithm of the market capitalization of sample firms and control firms (*Size diff*), the difference between the market-to-book ratio of sample firms and control firms (*MB diff*), the difference between the logarithm of the years since the CRSP listing date of sample firms and control firms (*Age diff*), and the difference between the abnormal cumulative stock return for the year preceding the article of sample firms and control firms (*Past_Perf diff*). The independent variables related to the information content of the article are three indicator variables (*Event diff, Position diff, Event_CEO diff*). *Event diff* is equal to one (minus one) if the article relative to the sample firm is about a positive (negative) event and the article relative to the control firm is about a negative (positive) event, and it is equal to zero if both articles are about positive or negative events. Positive events comprise promotions and new hirings; negative events comprise dismissals, resignations, hospitalizations, and indictments. *Position diff* is equal to one (minus one) if the article relative to the sample firm is about an executive in a higher (lower) hierarchical position than the executive presented in the article relative to the control firm, and it is equal to zero if the executives presented in the sample and control firm articles occupy the same position in their companies.[4] *Event_CEO diff* is equal to *Event diff* if the sample or control firm article focuses on the CEO of the company, and zero otherwise. *Event_CEO diff* allows us to jointly control for the executive position and the event described in the article.

Table 3 shows that, after controlling for our ex-ante visibility and information content proxies, the (0, +1) cumulative abnormal returns of sample firms are 1.1–1.2% higher than the cumulative abnormal returns of Control 2 firms and 2.1–2.2% higher than the cumulative abnormal returns of Control 1 firms. The intercepts of all regressions are statistically

TABLE 3
Event Study – OLS Regressions.

	Sample-Control 2		Sample-Control 1	
	(1)	(2)	(3)	(4)
Intercept	0.011*	0.012*	0.021*	0.022*
	(1.29)	(1.41)	(1.38)	(1.47)
Size diff	−0.005*	−0.005*	−0.006	−0.007
	(−1.49)	(−1.61)	(−0.95)	(−1.22)
MB diff	−0.003	−0.003	−0.015	−0.007
	(−0.27)	(−0.25)	(−0.85)	(−0.69)
Age diff	0.011***	0.012***	0.010	0.011*
	(2.18)	(2.31)	(1.28)	(1.44)
Past_Perf diff	−0.008	−0.007	−0.006	−0.005
	(−0.74)	(−0.69)	(−0.44)	(−0.38)
Event diff	0.004		0.001	
	(0.43)		(0.11)	
Position diff	−0.001		0.001	
	(−0.12)		(0.07)	
Event_CEO diff		0.010		0.014
		(0.79)		(0.67)

Note: This table presents the coefficients of OLS regressions in which the dependent variable is the difference of cumulative average abnormal returns (CAARs) for the article day and the following day (interval [0,1]) between the sample firms and the matched control firms. *Size diff* is the difference between the logarithm of the market capitalization of the sample firms and control firms. *MB diff* is the difference between the market-to-book ratio of the sample firms and control firms. *Age diff* is the difference between the logarithm of the years since the CRSP listing date of the sample firms and control firms. *Past_Perf diff* is the difference between the abnormal cumulative stock return for the year preceding the article of the sample firms and control firms. *Event diff* is equal to 1 (−1) if the article relative to the sample firm is about a positive (negative) event and the article relative to the control firm is about a negative (positive) event, and it is equal to 0 if both articles are about positive or negative events. Positive events comprise promotions and new hirings, negative events comprise dismissals, resignations, hospitalizations, and indictments. *Position diff* is equal to 1 (−1) if the article relative to the sample firm is about an executive in a higher (lower) hierarchical position than the executive presented in the article relative to the control firm, and it is equal to 0 if the executives presented in the sample and control firm articles occupy the same position in their companies. *Event_CEO diff* is equal to *Event diff* if the sample or control firm article focuses on the CEO of the company, and 0 otherwise. The t-statistics are reported in parenthesis. ***, **, and * indicate one-sided significance at the 1%, 5%, and 10% level.

significant at the 10% level. The results of Table 3 show the presence of a picture in the *Who's News* article has a statistically significant positive effect on event returns above and beyond the effect on returns due to higher ex-ante visibility of firms cum-picture, as proxied by size, market-to-book, age, and past performance. Moreover, the results of Table 3 show the possible difference in the news between articles with and without pictures is not what drives the significant difference in abnormal returns.

Turnover

To calculate the abnormal turnover around the article date we adopt the method suggested by Campbell and Wasley [1996].

The initial measure of daily turnover for each sample stock ($T_{i,t}$) is the daily ratio between number of shares traded multiplied by 100 and shares outstanding. To remove the skewness that characterizes turnover, we log-transform our raw measure of turnover after the addition of a constant of 0.000255.[5]

We calculate abnormal turnover using the market model:

$$t_{i,t} = T_{i,t} - (\alpha_i + \beta_i T_{m,t}) \tag{1}$$

where we obtain α_i and β_i using ordinary least squares estimation. We measure market volume for a given day t ($T_{m,t}$) as the equally-weighted average of $T_{i,t}$ for all the securities covered by CRSP in any given day. We apply the same procedure for the sample firms, Control 1 firms, and Control 2 firms.

Table 4 presents the univariate tests on abnormal turnover for the day of the article and the two-day period starting from the day of the article (0, +1). Both results for day 0 and (0, +1) window show that the sample firms experience significant abnormal turnover. The mean abnormal turnover

TABLE 4
Abnormal Turnover.

	Window	Mean	Median	t-value	n
Sample	0	18.98***	4.60	4.83	119
	0, +1	16.15***	3.68	5.10	119
Sample w/Control 1	0	16.45***	4.81	3.03	60
	0, +1	14.39***	1.59	3.21	60
Sample w/Control 2	0	18.71***	4.51	4.63	112
	0, +1	15.84***	3.26	4.88	112
Control 1	0	9.50**	−0.87	2.21	60
	0, +1	4.62	−0.05	1.47	60
Control 2	0	6.26***	0.33	2.65	112
	0, +1	4.44**	0.22	2.27	112
Sample – Control 1	0	6.95*	0.51	1.67	60
	0, +1	9.77**	3.11	2.20	60
Sample – Control 2	0	12.45***	4.69	2.74	112
	0, +1	11.40***	4.39	3.22	112

Note: This table shows the results of univariate tests on abnormal turnover. The initial measure of daily turnover for each sample stock ($T_{i,t}$) is the daily ratio between number of shares traded multiplied by 100 and shares outstanding. We log-transform this raw measure of turnover after the addition of a constant of 0.000255. We calculate abnormal turnover using the market model: $t_{i,t} = T_{i,t} - (\alpha_i + \beta_i T_{m,t})$ where α_i and β_i are obtained via ordinary least squares estimation. The market volume measure for a given day t ($T_{m,t}$) is measured as the equally weighted average of $T_{i,t}$ for all the securities covered by CRSP in any given day. We apply the same procedure for the sample firms, Control 1 firms, and Control 2 firms. The sample is formed by 119 CRSP firms that are the subject of a *Who's News* article with picture between January 1996 and December 1998. The 60 Control 1 firms are the subjects of *Who's News* articles without picture of size comparable with the size of the articles with picture of the sample firms. The 112 Control 2 firms are the subjects of *Who's News* articles without picture of size of any size. The seven sample firms that do not have a match are the ones that are in a *Who's News* column that present only their article. Panel A reports the results for the three days around the article date (event days −1, 0, and +1). ***, **, and * indicate significance at the 1%, 5% and 10% level.

of the entire sample is 18.98% for day 0 and 16.15% for the (0, +1) interval; both turnover measures are significant at the 1% level.

The abnormal turnover of the Control 1 and Control 2 firms for day 0 is also positive and significant but of lower magnitude than the sample firms (9.50% and 6.26%). The abnormal turnover for the (0, +1) interval is significant for the Control 2 firms but not for the Control 1 firms.

The results of Table 4 also show that the sample firms experience significant abnormal turnover even when compared to the control firms. The t-tests of the difference between the abnormal turnover of the sample firms and the control firms (both Control 1 and Control 2) indicate that even controlling for the turnover of the control firms, the abnormal turnover of the sample firms around the article date is positive and significant. The difference between the abnormal turnover of the sample firms and the Control 1 firms is 6.95% (significant at the 10% level) for day 0 and 9.77% (significant at the 5% level) for days (0, +1). Similarly, the difference between the abnormal turnover of the sample firms and the Control 2 firms is 12.45% (significant at the 1% level) for day 0 and 11.40% (significant at the 1% level) for days (0, +1).

Figure 2 shows the average turnover over the six months around the article for the sample firms, the Control 1 firms, and the Control 2 firms. To calculate the daily average turnover, we divide the turnover of stocks traded on NASDAQ by two to correct for the double counting of NASDAQ stocks. The figure shows that the sample firms are characterized by higher turnover than the control firms for the entire six months around the article. In other words, firms whose article is accompanied by a picture are more "popular" than firms whose article is without a picture. However, this issue does not influence the results in Table 2 because we calculate abnormal turnover by using the market model; therefore, we control for the "normal" turnover of each sample and control firm. The figure also shows that turnover significantly increases around the day of the article for the sample firms but not for the control firms.[6]

Overall, our tests of abnormal turnover show that the presence of a picture in a *Who's News* article significantly increases the trading volume of that company's stock. Consistent with the heuristic-based familiarity hypothesis, this result maintains its significance even when we control for the information contained in the article.

Turnover Controlling for Ex-ante Visibility and Article Content

To verify that the abnormal turnover at the time of the articles is not exclusively motivated by ex-ante visibility or the information content of the articles, we estimate OLS regressions with the difference of abnormal turnover between sample and control firms for days (0, +1) as dependent variable. As in the regressions presented in Table 3 the dependent variables

TABLE 5
Abnormal Turnover – OLS Regressions.

	Sample-Control 2		Sample-Control 1	
	(1)	(2)	(3)	(4)
Intercept	0.199***	0.270***	0.266***	0.228*
	(2.18)	(2.86)	(2.00)	(1.62)
Size diff	−0.004*	−0.021*	−0.016*	−0.033
	(−0.11)	(−0.57)	(−0.32)	(−0.59)
MB diff	0.178*	0.150	0.125	0.160
	(1.48)	(1.20)	(0.78)	(0.93)
Age diff	−0.021	0.003	−0.013	0.037
	(−0.42)	(0.06)	(−0.19)	(0.50)
Past_Perf diff	0.139	0.131	0.077	0.090
	(1.27)	(1.16)	(0.62)	(0.68)
Event diff	0.269***		0.338***	
	(2.94)		(2.86)	
Position diff	0.138*		0.221*	
	(1.32)		(1.47)	
Event_CEO		0.084		0.293*
		(0.63)		(1.50)

Note: This table presents the coefficients of OLS regressions in which the dependent variable is the difference of abnormal turnover for the article day and the following day (interval [0,1]) between the sample firms and the matched control firms. *Size diff* is the difference between the logarithm of the market capitalization of the sample firms and control firms. *MB diff* is the difference between the market-to-book ratio of the sample firms and control firms. *Age diff* is the difference between the logarithm of the years since the CRSP listing date of the sample firms and control firms. *Past_Perf diff* is the difference between the abnormal cumulative stock return for the year preceding the article of the sample firms and control firms. *Event diff* is equal to 1 (−1) if the article relative to the sample firm is about a positive (negative) event and the article relative to the control firm is about a negative (positive) event, and it is equal to 0 if both articles are about positive or negative events. Positive events comprise promotions and new hirings, negative events comprise dismissals, resignations, hospitalizations, and indictments. *Position diff* is equal to 1 (−1) if the article relative to the sample firm is about an executive in a higher (lower) hierarchical position than the executive presented in the article relative to the control firm, and it is equal to 0 if the executives presented in the sample and control firm articles occupy the same position in their companies. Event_CEO diff is equal to *Event diff* if the sample or control firm article focuses on the CEO of the company, and 0 otherwise. The t-statistics are reported in parenthesis. ***, **, and * indicate one-sided significance at the 1%, 5%, and 10% level.

are proxies for ex-ante visibility (*Size diff, MB diff, Age diff,* and *Past_Perf diff*) and the information content of the article (*Event diff, Position diff,* and *Event_CEO diff*). Table 5 presents the results.

Table 5 shows that, after controlling for our ex-ante visibility and information content proxies, the (0, +1) cumulative abnormal turnover of sample firms is significantly higher than the cumulative abnormal returns of Control 2 and Control 1 firms. These results corroborate the univariate statistics presented in Table 4 and show that the presence of a picture in the *Who's News* article has a statistically significant positive effect on turnover above and beyond the effect attributable
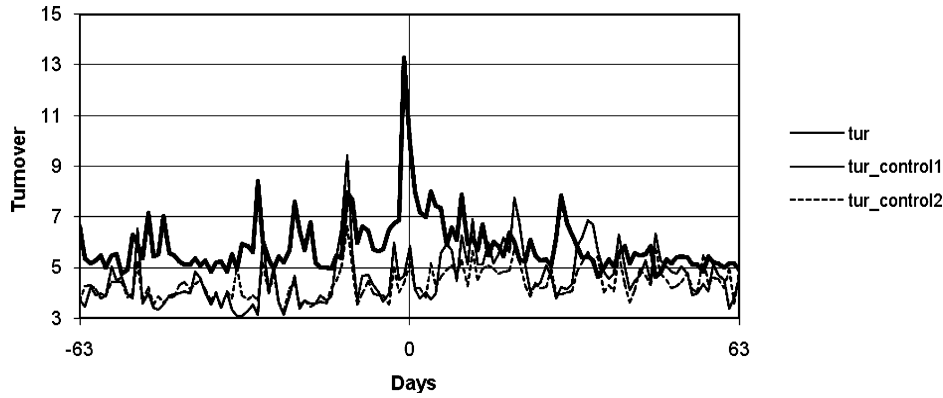
FIGURE 2   Turnover around article dates. *Note:* This figure shows the average turnover of the 119 sample firms ('tur'), of the 60 Control 1 firms ('tur_control1'), and of the 114 Control 2 firms ('tur_control2') in the 126 trading days around the article date (day 0).

to higher ex-ante visibility or more positive news for firms cum-picture.

LONG-TERM ABNORMAL RETURNS

Method

In this section we analyze the long-term abnormal returns of the sample firms and compare them to the abnormal long-term stock returns of the control firms to verify if the effect of the picture in *Who's News* articles persist in the long-term.

Specifically, we examine whether long-term returns in the three years following the articles are positive and significantly different from zero. Using the CRSP daily database, we consider each sample firm from the month that follows the date of the article until the earlier of either its delisting month, or the third year anniversary from the month of its appearance on the *Who's News* column.

As noted by Fama [1998] and Mitchell and Stafford [2000], the buy-and-hold method does not account for cross-sectional dependence in returns. We address this issue by estimating three-year abnormal returns using the calendar-time portfolio method advocated by Fama [1998].

TABLE 6
Three-Year Buy-and-Hold Abnormal Returns.

	alpha	Mkt-RF	SMB	HML	Implied AR (%)
Delisitng-Adjusted Calendar Time Portfolios - Value Weighted					
Full Sample	0.84***	1.06***	−0.26***	−0.05	35.09
	(2.67)	(3.62)	(−3.41)	(−0.53)	
Sample w/ Control 1	1.08***	0.98***	−0.30***	−0.15	46.95
	(2.69)	(3.75)	(−3.58)	(−1.58)	
Control 1	1.31**	1.08***	1.12	0.45**	59.88
	(2.18)	(3.85)	(0.92)	(2.33)	
Difference	−0.27	−0.07	−0.42***	−0.57***	−9.27
	(−0.39)	(−0.63)	(−2.74)	(−2.76)	
Sample w/ Control 2	0.87***	1.05***	−0.26***	−0.07	36.40
	(2.72)	(3.50)	(−3.41)	(−0.73)	
Control 2	0.53	1.06***	−0.16	0.20	20.87
	(1.46)	(3.98)	(−1.43)	(1.21)	
Difference	0.39	−0.02	−0.09	−0.28*	14.88
	(0.93)	(−0.16)	(−0.86)	(−1.90)	

Note: This table presents calendar time portfolio abnormal returns obtained by using the Fama and French (1993) three-factor model: $R_{p,t}\text{-}R_{f,t} = \alpha + b(R_{m,t} - R_{f,t}) + s\text{SMB}_t + h\text{HML}_t + \varepsilon_{p,t}$. We correct the standard errors of the regressions for heteroskedasticity and autocorrelation using the quadratic spectral kernel as suggested by Andrews [1991]. The implied abnormal return ("implied AR") is the estimated average buy-and-hold return obtained from earning the intercept return for 36 months $[(1+\alpha/100)^{36}-1]$. We obtain the calendar time portfolio abnormal returns using Shumway [1997] correction for firms that delist for performance reasons. The t-statistics are reported in parenthesis. ***, **, and * indicate significance at the 1%, 5% and 10% level.

For each calendar month in our sample period, we form a portfolio of the sample firms that were the subject of a *Who's News* article with picture during the last 36 months. We exclude those months with fewer than 10 firms in the portfolio. We value-weight the returns of the stocks in each monthly portfolio.[7] We calculate calendar-time abnormal returns using the correction proposed by Shumway [1997] and Shumway and Warther [1999] to control for the returns of firms that delist for performance reason (i.e., bankruptcy or failure to meet capital requirements) during the period of interest. We impose -30% as the last return for NYSE and AMEX firms and -55% as the last return for NASDAQ firms that delist for performance reasons during the three years following the article. We then regress the monthly portfolio excess returns on the three Fama and French [1993] factors.

We repeat the same procedure to calculate the portfolio abnormal long-term returns of Control 1 and Control 2 firms. To investigate if the difference of the portfolio abnormal returns between the sample firms and the control firms, we regress the difference in the monthly portfolio excess returns between the sample and Control 1 and between the sample and Control 2 on the three Fama and French [1993] factors. We present the results in Table 6.

The calendar-time regression indicates that the average abnormal monthly return for the full sample is 0.84%, which is statistically significant at the 1% level.[8] The corresponding 3-year abnormal return obtained by earning the intercept for 36 months is 35.1% $[(1 + 0.0084)^{36} - 1]$. The 3-year abnormal return for the Control 1 is 59.88% and statistically significant, while the 3-year abnormal return for the Control 2 firms is 20.87% but not statistically significant.

The difference of the 3-year abnormal returns between the sample portfolio and the Control 1 portfolio is negative (-9.27%) but not significant. Alternatively, the difference of the 3-year abnormal returns between the sample portfolio and the Control 2 portfolio is positive (14.88%) but not significant. The lack of significance in the difference of the long-term abnormal returns between the sample and the control firms show that the effect of the picture in *Who's News* articles does not have a long-term effect on stock performance.

CONCLUSION

Recent empirical literature shows that investors focus on stocks of which they are most aware. The effect of familiarity on the stock selection process can be a consequence of behavioral biases or of differential access to information. We test the effect of familiarity on the stock selection process by analyzing the market reaction to the appearance of firms on the *Who's News* column of *The Wall Street Journal*. Focusing on the articles accompanied by a picture, our test removes the informational dimension of familiarity and allows the anal-

ysis of the effect of the saliency bias on the stock selection process in isolation.

We find that the "cum-picture" articles are accompanied by a higher short-horizon price reaction and higher turnover than articles "ex-picture." These results maintain their significance even after controlling for proxies of ex-ante visibilities and information content of the articles. We find no evidence of long-horizon abnormal returns for the sample firms. Our results are consistent with the findings of Bertrand, Karlan, Mullainathan, Shafir and Zinman [2005], who analyze the effect of the presence of a photograph in loan solicitation letters. They show that a photo on a solicitation letter has more impact on the "take up" rate than does a lower interest rate.

Overall, our results show that familiarity has an effect on the stock selection process even when it is not associated with information. Our study is consistent with the heuristic-based familiarity hypothesis. Even though in many circumstances familiarity is associated with an informationally efficient selection of securities (Massa and Simonov [2006], Ivkovic and Weisbenner [2005]), behavioral heuristics have significant influence on the stock selection process.

NOTES

1. On a related note, Antweiler and Frank (2004) analyze messages in Internet chat rooms regarding stocks. They find a significant relation between message activity and trading volume and message activity and return volatility. Tetlock [2007] studies the interactions between the media and the stock market using daily content from the "Abreast of the Market" *Wall Street Journal* column. He finds that high media pessimism predicts downward pressure on market prices followed by a reversion to fundamentals.
2. The *Who's News* column was daily over our sample period. It became weekly on October 17, 2000, and resumed a daily periodicity in 2006.
3. *Who's News* articles belong to either one of two groups depending on size. Some of the articles consist of several paragraphs while others consist of only one paragraph. Since all the articles with pictures have more than one paragraph, we match the sample firms with firms covered in "multi-paragraph" articles without pictures.
4. The hierarchical order from the highest to the lowest position is: (1) CEO and chairman; (2) CEO; (3)

chairman; (4) CFO, COO, president, or a combination of the three positions; and (5) vice-president, regional president, other top executive, or director.

5. The addition of the constant prevents taking the logarithm of zero in days of zero trading volume (Cready and Ramanan [1991]).

6. As a robustness check, in an unreported test we regress the difference of abnormal turnover between sample and control firms on the difference of our ex-ante visibility proxies (size, market-to-book, age, and past performance) between sample and control firms. The intercepts of these regressions are positive and statistically significant.

7. The results do not significantly change when we weight the returns equally.

8. We calculate standard errors using the quadratic spectral kernel recommended by Andrews [1991] to correct for heteroskedasticity and autocorrelation.

REFERENCES

Antweiler, W. and M.Z. Frank. "Is All That Talk Just Noise? The Information content of Internet Stock Message Boards." *Journal of Finance*, 59, (2004), pp. 1259–1294.

Barber, B.M. and T. Odean. "All that Glitters: The Effect of Attention and News on The Buying Behavior of Individual and Institutional Investors." *Review of Financial Studies, 21* (2008), pp. 785–818.

Benartzi, S. "Excessive Extrapolation and The Allocation of 401(K) Accounts to Company Stock." *Journal of Finance*, 56, (2001), pp. 1747–1764.

Bertrand, M., D. Karlan, S. Mullainathan, E. Shafir and J Zinman. "What's Psychology Worth? A Field Experiment In The Consumer Credit Market. Working Paper, University of Chicago." (2005).

Brown, S.J. and J.B. Warner. "Using Daily Stock Returns: The Case of Event Studies." *Journal of Financial Economics*, 14, (1985), pp. 3–31.

Campbell, C.J. and C.E. Wasley. "Measuring Abnormal Trading Volume for Samples of NYSE/ASE and NASDAQ Securities Using Parametric and Nonparametric Test Statistics." *Review of Quantitative Finance and Accounting*, 6, (1996), pp. 309–326.

Cooper, M.J., O. Dimitrov and P. Raghavendra Rau. "A rose.com by Any Other Name." *The Journal of Finance,* 56, (2001), pp. 2371–2388.

Fama, E.F. "Market Efficiency, Long-Term Returns, and Behavioral Finance." *Journal of Financial Economics,* 49, (1998), pp. 283–306.

Fama, E.F. and K.R. French. "Common Risk Factors in the Returns on Stocks and Bonds." *Journal of Financial Economics,* 33, (1993), pp. 3–56.

Frieder, L. and A. Subrahmanyam. "Brand Perceptions and the Market for Common Stock." *Journal of Financial and Quantitative Analysis,* 40, (2005), pp. 57–85.

Grullon, G., G. Kanatas and J.P. Weston. "Advertising, Breadth of Ownership, and Liquidity." *Review of Financial Studies,* 17, (2003), pp. 439–461.

Huberman, G. "Familiarity Breeds Investment." *Review of Financial Studies,* 14, (2001), pp. 659–680.

Huberman, G. and T. Regev. "Contagious Speculation and a Cure for Cancer: A Non-Event that Made Stock Price Soar." *The Journal of Finance,* 56, (2001), pp. 387–396.

Ivkovic, Z. and S. Weisbenner. "Local Does as Local is: Information Content of the Geography of Individual Investors' Common Stock Investments." *Journal of Finance,* 60, (2005), pp. 267–306.

Kaniel, R., L.T. Starks and V. Vasudevan. "Headlines and Bottom Lines: Attention and Learning Effects From Media Coverage of Mutual Funds." *Working Paper.* (2006).

Loughran, T. and P. Schultz. "Liquidity: Urban Versus Rural Firms." *Journal of Financial Economics,* 78, (2005), pp. 341–374.

Massa, M. and A. Simonov. "Behavioral Biases and Investment." *Review of Finance*, 9, (2005), pp. 483–507.

Massa, M. and A. Simonov. "Hedging, Familiarity and Portfolio Choice." *Review of Financial Studies,* 19, (2006), pp. 633–685.

Merton, R.C. "A Simple Model of Capital Market Equilibrium with Incomplete Information." *The Journal of Finance,* 42, (1987), pp. 483–510.

Mitchell, M.L. and E. Stafford. "Managerial Decisions and Long-Term Stock Price Performance." *Journal of Business,* 73, (2000), pp. 289–329.

Odean, T. "Do Investors Trade Too Much?" *American Economic Review,* 89, (1999), pp. 1279–1298.

Shumway, T. "The Delisting Bias in CRSP Data." *Journal of Finance,* 52, (1997), pp. 327–340.

Shumway, T. and V.A. Warther. "The Delisting Bias in CRSP's NASDAQ Data and its Implications for the Size Effect." *Journal of Finance,* 54, (1999), pp. 2361–2379.

Tetlock, P.C. "Giving Content to Investor Sentiment: The Role of Media in the Stock Market." *Journal of Finance, 62*, (2007), pp. 1139–1168.