THE JOURNAL OF FINANCE • VOL. LVI, NO. 6 • DEC. 2001

A Rose.com by Any Other Name

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ABSTRACT

We document a striking positive stock price reaction to the announcement of corporate name changes to Internet-related dotcom names. This "dotcom" effect produces cumulative abnormal returns on the order of 74 percent for the 10 days surrounding the announcement day. The effect does not appear to be transitory; there is no evidence of a postannouncement negative drift. The announcement day effect is also similar across all firms, regardless of the firm's level of involvement with the Internet. A mere association with the Internet seems enough to provide a firm with a large and permanent value increase.

The popular financial press has long argued that corporate name changes result in permanent value creation for firms. Analysts claim that investors prefer certain types of names, and that the value of a company's name should be reflected in the stock price. However, the academic literature has found little evidence that the announcement of a name change results in a positive stock price reaction for the firm. Karpoff and Rankine (1994) find that companies changing their names earn a statistically insignificant excess return of 0.4 percent over a 2-day window around the announcement date. They also find that corporate name changes do not correspond to changes in the covariances of the firm's stock returns with other firms' returns in the same industry nor do they correspond to changes in earnings. Bosch and Hirschey (1989) report that firms announcing name changes earn a statistically insignificant excess return of 1.62 percent in a 21-day period around the announcement date. They find a positive preannouncement effect followed by a negative postannouncement drift, which largely cancels the announcement effect.

We investigate the valuation effects of one particular form of corporate name change—those of companies who add ".com" to their names. A number of popular press articles have reported extremely large returns earned

* Cooper, Dimitrov, and Rau are from the Department of Finance, Krannert School of Management, Purdue University. We would like to thank Kent Daniel, Diane Denis, Dave Denis, Roberto Gutierrez, Ken French, and seminar participants at the Duke/University of North Carolina's Behavioral Finance/Bicycle Mini-Conference, Tilburg University, the 2000 European Financial Management Association meetings, the 2000 European Finance Association meetings, the 2000 Financial Management Association meetings, and the 2000 Berkeley Program in Finance for their helpful comments. We are especially thankful to an anonymous referee and to the editor, René Stulz, for many helpful suggestions that have greatly improved this paper.

by these companies (see, for example, Emshwiller (1999)). These articles suggest that the large increase in returns is due to a mania on the part of investors. This mania may be fueled in part by Internet day traders searching stock chat sites on the Internet looking for "hot" new Internet stocks and consequently creating a price pressure induced-bubble in these stocks.

If the large premiums for dotcom name changes are in fact related to a speculative mania, then it is not the first time in the history of financial markets that such manias have existed. For example, Mackay (1841) documents manias across time and in different markets, ranging from the Dutch tulip bulb craze in the 1630s to the South Sea Bubble in the 1710s. More recently, Sobel (1965) reports similar manias in the United States in the 1850s with railroad and mining stocks and in the 1960s with science and technology stocks. The common feature in all these manias appears to be that the industries are new "glamour" industries with both an enormous growth potential and uncertainty. Consequently, investors appear to be extremely anxious to buy shares of any firms that are involved in these industries. Investors may even be frantic to buy shares in firms that are at best, only loosely, if at all, connected to the current glamour industry.

Reports of the excesses in these times bear a striking resemblance to reports in the popular press on Internet-related stocks. For example, the *Wall Street Journal* reports that Computer Literacy, Inc., changed its name recently to fatbrain.com because customers kept forgetting or misspelling its Internet address computerliteracy.com. The shares of the company jumped by 33 percent to $20.75 the day before the company sent out an advisory about a name change, when leaks about the name hit Web chat forums (Wingfield (1999)). The desperation of investors to buy stock in the Internet business has also been reported in several articles. For example, Ewing (1999) reports in the *Wall Street Journal* that when AppNet Systems, Inc., filed for an initial public offering under the symbol APPN, investors began buying shares of Appian Technology, Inc., an inactive circuit manufacturer trading on the Nasdaq OTC Bulletin Board under the same APPN symbol, even before the IPO of AppNet Systems. Appian Technology earned returns of 142,757 percent in the two days after the filing, with over 7.3 million shares being traded compared with 200 shares the day before the filing. According to the *Wall Street Journal*:

> Net happy traders began touting APPN in chat rooms, apparently believing they were talking about AppNet. In a message posted Tuesday on Yahoo Finance's Hot OTC-BB Stock's ONLY chat room, an enthusiast participant calling himself lovepennys raved: "Just bought 50,000 shares, took 3 transactions to get it done, there r no shares out there, going to run big." . . . It isn't clear why investors thought they could trade shares in a company whose IPO is weeks away. (Ewing (1999))

In this paper, we investigate the effect of company name changes to Internet-related "dotcom" names on the company's stock price. Specifically, we examine the average changes in firm value across 95 firms that announced dotcom name changes during 1998 and 1999. We find dramatic increases in shareholder wealth when firms announce dotcom name changes. In contrast to Bosch and Hirschey (1989), who find a positive preannouncement effect followed by a negative postannouncement drift, we find that the increase in shareholder wealth around the announcement date remains permanent in the postannouncement period. These increases in shareholder wealth are robust to different measures of excess returns.

When we separate our sample into different categories of firms based on the degree of business the firm derives from the Internet, we find that the announcement-day effect is similar across firms. This suggests that market participants appear to apply a similar positive price premium across all companies changing their names to dotcom names, regardless of a company's level of involvement with the Internet.

Thus, although previous name change papers (Bosch and Hirschey, (1989) and Karpoff and Rankine (1994)) have concluded that there is little effect from corporate name changes on firm value, the huge changes in firm value that we document for dotcom name changes suggests that, at least for Internet-related firms, name changes are important. At this point in time, we cannot know with any degree of certainty if the increase in firm value for the dotcom firms is rational, perhaps due to investor expectations of large future payoffs to such firms, or if it is simply a speculative bubble that may deflate in the future. However, the fact that we see firms that derive apparently little or none of their revenue from the Internet experiencing large dotcom effects suggests some degree of investor irrationality.

The paper is organized as follows. In Section I, we discuss the unique data sources used to create the sample and describe the event study methodology. In Section II, we present the results, perform various robustness checks, and test various hypotheses related to the rationality of the dotcom name change effect. Section III concludes.

I. Data and Methodology

Our sample consists of all publicly traded companies on the NYSE, AMEX, Nasdaq, and the OTC Bulletin Board (OTCBB) that changed their names between June 1, 1998, and July 31, 1999.[1] The new name has to be either a dotcom name (e.g., Wareforce.com), a dotnet name (e.g., Docplus.net Corporation), or has to include the word Internet in it (e.g., Internet Solutions for Business Inc.) As reported in Table I, this results in an initial sample of 147 firms, only one of which, Speedus.com Inc., is listed on Nasdaq. The remain-

[1] We search for name changes in web sites such as http://www.otcbb.com/dynamic/; http://www.nasdaq.com/; or http://www.nyse.com/. See the Appendix for a complete listing of data sources.

Table I

Description of the Sample

This table describes the sample of companies that changed their names to dotcom names between June 1998 and July 1999. Firms are divided into subcategories based on their level of involvement with the Internet. The categories are: Category 1: Pure Internet companies; Category 2: Companies that have some prior involvement in the Internet and change their names to better reflect this involvement; Category 3: Companies which change their focus completely from non-Internet to Internet; Category 4: Companies whose core business is not Internet-related. Because of the difficulty in obtaining exact announcement dates, the announcement day (day zero) is defined as the first available information on the name change, whether from an announcement or effective trading day.

Initial number of firms in sample	147
Deleted due to mergers and acquisitions	37
Deleted due to new stock issuance, uncertain event date, spin-offs, going private before name change	15
Total number of remaining firms	95

	First of either effective or announcement dates
Total remaining firms after deletions	95
Category 1	29
Category 2	31
Category 3	25
Category 4	10

ing firms are listed on the Nasdaq OTC Bulletin Board. We exclude stocks that experience a contaminating news event such as a merger, issuance of stock, earning announcement, and so forth during the event window period. Since these are mostly extremely small capitalization companies, it is difficult to obtain current stock price information and company profiles from traditional academic sources such as CRSP, Compustat, and so on. Most of our sources of information on these companies are from the Internet. The Appendix reports the data sources utilized in our study.

We use published company profiles, SEC filings, and contemporaneous news releases, as well as the company home pages, to classify the firms in our sample into four major categories. We use these categories to determine what types of firms are most affected by name changes and why. These categories are:

1. Pure Internet companies, which do all their business on the Internet.
2. Companies that have some prior involvement with the Internet and change their names to better reflect this involvement.
3. Companies that change their focus from non-Internet related businesses to Internet-related.
4. Companies whose core business is not Internet-related.

The number of firms under each category is listed in Table I.

In many cases, we do not have information on the actual announcement date, or the earliest announcement we find coincides with the effective date[2] (the date when the firm actually started trading on the exchange under a different name).[3] In these cases, we also examine SEC records for name change filings. The SEC requires firms to file a form 8K when a company changes its name. However, the SEC does not currently punish firms that do not file. In fact, when we examined 8K forms, we could only find three firms in our sample that had filed with the SEC.[4] Because of this difficulty in obtaining exact announcement dates for many of the firms in our sample, we define the announcement day (day zero) as the first available information on the name change, whether from an announcement or effective trading day.[5] To the extent that the actual announcement day is before the date we use as our event date in our sample, our tests are biased towards accepting the null hypothesis of no abnormal returns in the event windows.

Stock price data for individual firms are collected from three independent sources, Financialweb.com, Bloomberg, and Dow Jones Interactive. Stock prices and volumes are adjusted for stock splits. Interestingly, one of our three data sources, Financialweb.com, belongs to our sample. We collect price and volume data for the 151-day period from $t = -30$ to $t = +120$ for the sample of 95 firms.

We then compute abnormal returns in two ways. First, we compute abnormal returns relative to a price-matched control group of firms selected from all OTCBB Internet firms that did not change their names between June 1998 and August 1999. Specifically, we identify, using the OTCBB website, Bloomberg company profiles, and firm names and websites, 207 Internet firms that did not change their names over this period. For each of the 95 firms in our dotcom sample, we then match the closest firm in the Internet non-name-change sample on price over a two-week window around the event date for the dotcom sample firm. We refer to this control group as

[2] The OTCBB requires that firms should provide notification of a name change in a letter sent prior to the effective date (there is no rule on the minimum amount of time prior to the effective date). It then includes all known name changes in a daily list at least one trading day before the effective change date specified in the letter. If a firm has already changed its name effectively, they include the new name of that firm as soon as possible. These daily lists are distributed to market makers before the effective dates so that they can adjust their records. The effective name change is usually the next trading day. Thus, there are two to five days between the time the letter with all pertinent information is received and the effective date, which is published on the OTCBB web site.

[3] The announcement dates were taken from the earliest newswire information releases regarding these changes. The sources of these releases are listed in the Appendix.

[4] The OTCBB introduced a new rule in January 1999, which states that companies that are delinquent in filing appropriate documents with the SEC will be delisted. However, there appears to be a transition period until this rule comes into force and, thus, most of our sample has not complied with filing the 8K forms.

[5] We also analyze the sample of firms for which we are able to identify announcement dates. In addition, we analyze firms for which day zero is defined as the effective date and firms for which day zero is defined as the effective date for firms with announcement dates. The results are qualitatively similar.

the "Internet control group." The abnormal return for each firm in our dotcom sample is then calculated as the difference between the returns it earns and the returns earned by its price-matched control firm.

We also compute market-adjusted abnormal returns relative to the AMEX Inter@ctive Week Internet index. The AMEX Inter@ctive Week Internet index (also known as the @Net Index) is a value-weighted index, created in August 1995, as a free service by the magazine Inter@ctive Week as a benchmark measure of the performance of Internet-related companies. The index, which originally comprised 37 companies in 1995, represents a broad range of companies involved in providing Internet infrastructure and access, developing and marketing Internet content and software tools, and conducting business over the Internet. Among the better known of the 51 current Index components are Cisco Systems (CSCO), America Online (AOL), Yahoo! (YHOO), Amazon.com (AMZN), and eBay (EBAY). Note that all figures quoted in the text reflect the first type of adjustment. Whenever we use the AMEX Index, we mention this explicitly.

II. Results

A. Descriptive Statistics

We could not find any name changes to dotcom names before June 1998. Since then, approximately seven firms per month have changed to dotcom names on average, with a clear increase in name changes in 1999. Most of our announcements cluster in the first five months of 1999, with over 70 percent of the firms in our sample announcing name changes during this period. The majority of dotcom name-change firms are firms that have some Internet-related business already and are changing their names to better reflect this focus (category 2), followed closely by category 1 firms, pure Internet companies.

We sort our data into four quartiles based on the −30 day price and volume, respectively, to examine the evolution of price and volume for the high and low price and volume companies respectively. Both the price per share and the average daily trading volume increase dramatically from before to after the name change, especially for the firms in the lowest price and volume quartiles. The average price per share for all firms 15 days before the announcement of the name change is \$2.79, increasing to \$4.20 on day +15. The average volume of shares traded for all firms is 58,943 on day −15, rising to 70,971 shares on day +15.

Most of these price increases come from our lowest price and volume firms. The average firm in the highest-price quartile (based on day −30 prices) increases in price from \$6.79 to \$7.32 over the −15 to +15 day window, an increase of 7.8 percent. In contrast, the average firm in the lowest-price quartile increases its share price from \$0.41 to \$1.11 over the same period, an increase of 170 percent. The average firm in the next-highest price quartile increases its share price from \$1.76 to \$3.19, an increase of 81 percent.

Similarly, when we sort our firms into quartiles based on day −30 volume, firms in the highest volume quartile increase their share price from $4.24 to $5.20, an increase of 23 percent. Firms in the two lowest-volume quartiles increase their average share price from $3.44 to $4.59 (quartile 2) and $1.70 to $3.25 (quartile 1), increases of 33 percent and 91 percent, respectively. Much of the increase in share price for the lowest volume quartile comes in the period immediately around the announcement date. Over the −2 to +2 day period, for example, firms in this quartile increase in price from $2.47 to $4.77, an average increase of 93 percent.

B. Do Firms That Change Their Names to Dotcom Names Earn Abnormal Returns?

Table II reports cumulative abnormal returns (CARs) relative to the price-matched Internet-control-group sample (Panel A) and to the AMEX Inter@ctive Week Internet index (Panel B) for various event windows for all firms and for the four firm categories. Each cell reports the average CAR across firms for the respective event windows and the associated t-statistics.[6] The CARs

[6] The abnormal returns, using the AMEX Inter@ctive Index, earned by each firm are computed as

$$AR_{it} = R_{it} - R_{mt}, \quad t = -30,\ldots,+30$$

where R_{it} is the return for firm i for day t and R_{mt} is the index return for that day. We then compute the cumulative abnormal return (CAR) for various event windows. For example, the event window from $t = -15$ to $t = -2$ is

$$CAR = \sum_{t=-15}^{-2} \sum_{i=1}^{N} \frac{AR_{it}}{N},$$

where N is the number of firms. This method implicitly assumes that the portfolio of stocks is rebalanced every period to give equal weighting in each security. The corresponding t-statistics that measure whether the CAR is significantly different from zero over the $t = l$ to $t = k$ window are calculated using the dependence adjustment method as described by Brown and Warner (1985) with a holdout period $t = -30$ to $t = -16$:

$$T = \sum_{t=l}^{k} AR_t \Big/ \sqrt{\sigma^2_{holdout} \times M},$$

where $\sigma^2_{holdout}$ is the variance of the abnormal return computed over the holdout period and M is the number of days from $t = l$ to k. Abnormal returns and t-statistics for the Internet-control-group adjustment are computed similarly, except that AR_t is calculated on the aggregate level:

$$AR_t = \frac{\sum_{i=1}^{N} R_{it} - \sum_{j=1}^{N} R_{jt}}{N},$$

where R_{it} and R_{jt} are the return on the dotcom firm i and its corresponding matched firm j from the Internet control sample for day t, and N is the number of firms.

Table II

Market-adjusted CARs Relative to OTCBB Intenet Firms and AMEX Inter@ctive Week Internet Index

This table reports market-adjusted cumulative abnormal returns, expressed in percent, relative to a price-matched control sample consisting of OTCBB Internet firms and to the AMEX Inter@ctive Week Internet index, respectively. The CARs are calculated for various event windows for companies that change their names to dotcom names, between June 1998 and July 1999. Each cell reports the average CAR across all firms for the respective event windows. *T*-statistics are reported in parentheses. *T*-statistics significant at the five percent level are bold. The categories are: Category 1: Pure Internet Companies; Category 2: Companies which have some prior involvement in the Internet and change their names to better reflect this involvement; Category 3: Companies that change their focus completely from non-Internet to Internet; Category 4: Companies whose core business is not Internet-related. We report *p*-values for tests of the null hypothesis of equality of means across firm categories and equality of medians across firm categories using an *F*-test and Kruskal and Wallis χ^2 test, respectively.

	Event Period						
	1	2	3	4	5	6	7
	−15 to −2	0 to 1	−2 to +2	+2 to +15	+1 to +30	+1 to +60	+1 to +120
Panel A: CARs Adjusted by Internet Control Group							
All (N = 95)	31	18	53	20	11	23	28
	(**4.53**)	(**7.31**)	(**13.13**)	(**3.30**)	(1.10)	(1.66)	(1.40)
Cat. 1 (N = 29)	23	27	36	30	46	59	44
	(**3.42**)	(**10.51**)	(**8.88**)	(**4.95**)	(**4.62**)	(**4.23**)	(**2.2**)
Cat. 2 (N = 31)	32	14	105	21	−7	−31	−74
	(**4.81**)	(**5.72**)	(**25.78**)	(**3.55**)	(−0.76)	(**-2.19**)	(**-3.7**)
Cat. 3 (N = 25)	21	9	14	7	−18	−2	40
	(**3.11**)	(**3.85**)	(**3.47**)	(1.09)	(−1.88)	(−0.18)	(**2.03**)
Cat. 4 (N = 10)	76	30	23	18	38	140	243
	(**11.11**)	(**11.83**)	(**5.77**)	(**2.92**)	(**3.87**)	(**9.94**)	(**12.15**)
F-test	0.226	0.874	0.484	0.732	0.209	0.005	0.000
χ^2test	0.719	0.882	0.007	0.568	0.410	0.004	0.000
Panel B: CARs Adjusted by AMEX Inter@ctive Internet Index							
All (N = 95)	42	25	63	12	10	30	42
	(**5.40**)	(**8.55**)	(**13.8**)	(1.59)	(0.89)	(1.90)	(1.86)
Cat. 1 (N = 29)	27	31	44	20	26	37	35
	(**3.46**)	(**10.8**)	(**9.54**)	(**2.59**)	(**2.33**)	(**2.31**)	(1.54)
Cat. 2 (N = 31)	44	19	115	13	−9	−7	−18
	(**5.78**)	(**6.67**)	(**25.1**)	(1.65)	(−0.82)	(−0.43)	(−0.79)
Cat. 3 (N = 25)	31	18	22	−2	−5	13	44
	(**4.03**)	(**6.36**)	(**4.70**)	(−1.3)	(−0.46)	(0.79)	(**1.98**)
Cat. 4 (N = 10)	101	38	42	22	53	153	214
	(**13.09**)	(**13.15**)	(**9.19**)	(**2.90**)	(**4.75**)	(**9.60**)	(**9.52**)
F-test	0.286	0.848	0.493	0.641	0.297	0.002	0.001
χ^2 test	0.461	0.614	0.001	0.383	0.102	0.001	0.006

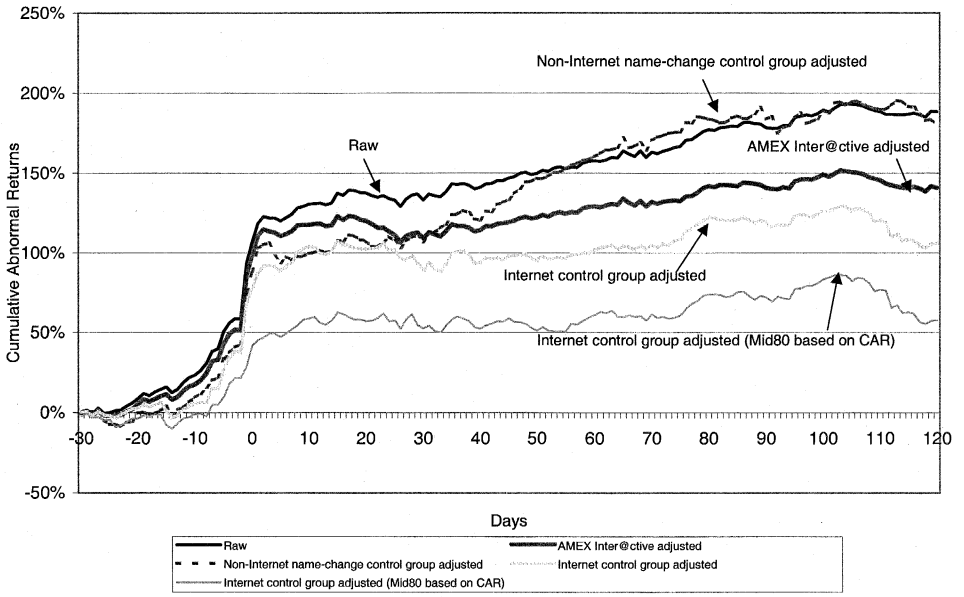

Figure 1. Cumulative abnormal returns earned around the announcement date by firms changing their names to dotcom names.

are also graphed in Figure 1. The dotcom effect is remarkably strong across all firms. The cumulative abnormal returns are positive and significant across event windows surrounding the announcement date, for firms announcing name changes between June 1998 and July 1999. For example, in Panel A of Table II, over the five-day period from day −2 to day +2, all firms earn a strongly statistically significant abnormal return of 53 percent. Over the entire 61-day period from day −30 to day +30, all firms earn a significant 89 percent, with a t-statistic of 6.2 (not reported in the table). We observe similar striking abnormal returns in all periods surrounding the announcement day.

Is the dotcom effect a candidate for a profitable trading strategy? To the extent that an investor can identify in real time the announcements and/or effective dates from the web sites in the Appendix, then the returns from the first few days after day zero suggest that the answer is yes. For example, on day +1, the firms earn an average excess return of 9 percent, and on day +2, the firms earn 4.51 percent. Thus, over the +1 to +2 period, a trader would have earned almost 14 percent (t-statistic = 5.30). Since we do not have intraday data, we cannot know the effects of the bid-ask spreads on our return calculations. Obviously, a judicious use of limit orders would be warranted in attempting to implement such a trading strategy.

Figure 1 and columns 5 through 7 of Table II show that when firms change their name to a dotcom name, the increase in firm value is permanent within the event window. For example, we do not see a significant reduction in

CARs from day +1 to day +120, suggesting that the firms do indeed experience a permanent value increase. There is no postannouncement negative drift, implying that the increase in value due to the name change is permanent. This is in contrast to Karpoff and Rankine (1994), who find that a small initial positive stock price reaction to name changes is reversed within a few trading days after the announcement date. It is also in contrast to Bosch and Hirschey (1989) who find a negative postannouncement drift.

C. Robustness Checks

C.1. Data Mining Concerns

One method to control for a Type I error—the false rejection of the null hypothesis of zero abnormal returns—is to perform a Bonferroni adjustment on the event study t-statistics. If we consider each event window in Table II (seven in total), each firm category (five in total), each of the two panels in Table II (adjusting returns by the Internet control sample and the AMEX Inter@ctive Week Internet index), and the fact that we also reproduced our analysis in Table II for three alternative event date definitions, then we examine 210 "event studies." Using the Bonferroni inequality, which provides a bound for the probability of observing a t-statistic of a certain magnitude with N tests that are not necessarily independent, we find that there is a less than 1.32×10^{-55} probability of obtaining a t-statistic of 25.78 for the category 2 firms in the −2 to +2 event window of Panel A in Table II. In addition, many of the t-statistics that we report greatly exceed the magnitude of the Bonferroni five percent t-statistic critical value of 3.82. Thus, the Bonferroni adjustments suggest that the results do not appear to be attributable to a Type I error.

C.2. Are the Results Robust to Outliers?

We also calculate the abnormal returns and t-statistics for samples that exclude the outliers, on the basis of the abnormal returns earned, and on the basis of the price and the volume of shares traded. To exclude outliers on the basis of the abnormal returns earned, we compute the overall CAR for each firm from the −30 to the +120 period and exclude all firms above the 90th percentile and below the 10th percentile. Similarly, to exclude outliers on price or volume, we exclude all firms above the 90th percentile and below the 10th percentile. Our results are robust to this trimming methodology. The greatest decrease in performance is seen when we exclude firms on the basis of the abnormal returns they earned over the entire −30 to +120 day period. Figure 1 shows that excluding the firms earning the highest and the lowest 10 percent of abnormal returns ("Internet control group adjusted Mid80 based on CAR") still earns the remaining firms a statistically significant average of 25 percent and 42 percent over the 5- and 11-day period, respectively, surrounding the announcement date. Excluding the firms with the lowest and highest −30 day price earns the remaining firms statistically

significant abnormal returns of 60 percent and 71 percent over the 5- and 11-day periods, respectively. Excluding the firms with the lowest and highest −30 day volume earns the remaining firms statistically significant abnormal returns of 70 percent and 95 percent over these two periods, respectively. In periods after the announcement of the name change, excluding the firms that earned the highest and lowest abnormal returns based on each firm's CARs over the −30 to +120 period earns the remaining firms insignificant abnormal returns of 3.1 percent, 26 percent, and 31 percent over the 1–30, 1–60 and 1–120 day periods, respectively. Thus, there is no evidence of a negative postannouncement drift even when we remove the more extreme observations.

C.3. Is This a Name Change Effect or Simply a Tiny Firm Effect?

Since most of our firms trade on the OTCBB, it is a fair assumption that these are very small firms. It may be possible that the existence of news, any news, for these tiny companies might have a positive effect on the stock prices of these companies if there was little trading or investor interest in them before the news of the name change.[7] To address this concern, we examine a similar group of non-Internet related companies that change their names/ticker symbols and check the price effects of these changes. We use these firms to create a control group, which we will refer to as the "non-Internet name-change" control group.[8]

This control group earns an insignificant abnormal return of two percent over the −30 to +30 event window. In Figure 1 we report the difference between the AMEX Inter@ctive Week Internet index-adjusted abnormal returns earned by the dotcom name change sample and the OTCBB index-adjusted abnormal returns earned by our non-Internet name change

[7] The *Wall Street Journal* (Buckman (1999)) reports, for example, that NEI WebWorld Inc., a Dallas printing company in bankruptcy proceedings and whose stock was involved in an alleged Internet stock scam, soared nearly 1,170 percent on December 16, a day after news of the alleged scheme broke. According to the *Wall Street Journal*, the reason for the surge was that the stock's name was in the news—even though the news was not positive. Apparently, the mere mention of NEI's name in the media seemed to prompt Web "momentum" investors to jump in, generating enough trading in the stock to propel its price through the roof.

[8] The name change control group is constructed by identifying all OTCBB firms over the May 1998 to August 1999 period that experience non-Internet related name changes. After eliminating firms with confounding events, our sample consists of 249 firms. For each of the 95 firms in our dotcom sample, we then match with the closest firm in the non-Internet name change sample on price over a two-week window around the event date for the dotcom sample firm. This results in a 95-firm control group. The CARs for this control group are calculated using an OTCBB constructed index. To construct the index, we eliminate all OTCBB firms that are either in the dotcom sample or in the control sample. This results in approximately 6,000 remaining firms. We then draw a random sample of 400 firms (sampling without replacement). Of the 400 firms, we delete those that have more than 50 percent missing return data over the sample period, giving us a final sample of 274 firms. Our OTCBB index is constructed by equally weighting all available daily returns for these 274 stocks.

control group. This difference is plotted in Figure 1 as the "non-Internet name-change control group adjusted" CAR. Over the 5- and 11-day period surrounding the announcement date, the dotcom firms earn significant excess returns of 64 percent and 72 percent, respectively, relative to the excess returns of the non-Internet name-change sample. One hundred and twenty days after the name change, the difference between the two samples is a statistically significant 180 percent. Thus, these results suggest that the dotcom name change effect is not simply attributable to the arrival of any news for small firms, but rather an Internet-related dotcom effect.

In addition, we also calculate capitalization-weighted CARs for the firms in our dotcom sample using an approximation for the firms' event-day capitalization. Since the event-day capitalization for our sample firms is not available, we estimate it using a later time period and then adjust backward. Specifically, we obtain each firm's number of shares from Bloomberg as of September 2, 2000. This data was available for 66 firms. We then back out the number of shares on the event date for these firms by taking into account any stock splits that have taken place between these two dates. Using this procedure, the average (median) market size for the firms in our sample on the event day was \$54.4 (\$28.3) million, with a lowest (highest) quartile breakpoint of \$17.65 (82.7) million. For these 66 firms, we estimated day −30 to +30 capitalization weighted CARs by weighting each firm's daily returns by the firm's relative capitalization, thus placing greater weight on the returns of the larger firms. The day −30 to +30 and day −5 to +5 AMEX Inter@active adjusted CARs were 59 percent (t-statistic = 3.34) and 27 percent (t-statistic = 3.67), respectively.

C.4. Do the Stocks Have High Betas?

From Table II, in the pre-event period of day −15 to day −2, firms exhibit a pre-event run-up in returns, earning a statistically significant CAR of 31 percent. This has several implications for our interpretation of the results. One explanation is that there may be some information leakage before the actual name change. Another explanation is that the actual announcement date is before the event date we identify for the firm. Both these explanations bias us towards accepting the null hypothesis that the sample firms do not earn excess returns in the event windows. A third explanation is that these companies may have high betas. Using the market model instead of the control group adjustment or a simple market adjustment to compute abnormal returns might be a better adjustment for risk in this case; perhaps this would have a negative impact on both the average excess returns and the statistical significance of the results.

Using the AMEX Inter@ctive Week Internet index, we first compute the betas for the 95 firm sample from days −90 to −31. Using the pre-event period to estimate betas, and applying a requirement that each firm have no more than 25 percent missing returns, we are able to compute betas for 19

of the 95 firms.[9] For these 19 firms, the average (median) beta is 0.74 (0.85), and the AMEX Inter@ctive market-model adjusted CAR for the −2 to +2 window is 35 percent (t-statistic = 5.48) and 62 percent (t-statistic = 6.42) for the −5 to +5 window. We also estimate market model abnormal returns using three other Internet indexes: the Dow Jones (DJ) Internet Commerce Index, the DJ Composite Index, and the DJ Internet Services Index. The results with these indexes are qualitatively similar to the AMEX Inter@ctive index adjustments. Hence our results are robust to various market model risk adjustments.

C.5. Is This Effect Caused by Momentum or the Bid-ask Bounce?

One alternate explanation for the high abnormal returns earned by our name change firms may simply be that they are due to momentum; firms with high excess returns before the name change continue to have them after the name change. As a simple check, we compute the correlation between the AMEX Inter@ctive Week Internet index-adjusted CAR earned by the firms over the day −30 to day 0 and the day +1 to day +30 period to be −0.059 (p-value = 0.571). Thus momentum does not seem to be driving the results.

Alternatively, the high abnormal returns earned by the name change firms may be driven by an upward bias in calculated CARs. This bias may be attributable to two sources: (1) a failure to adjust for transaction costs emanating from the bid-ask spread, and (2) a bid-ask bounce effect (Conrad and Kaul, 1993). To address these two issues, we follow two approaches.

First, we collect, when available, event date, day −30, and day +30 closing bid-ask spread data from Bloomberg for our full sample of 95 firms. We then estimate AMEX Inter@ctive Week adjusted CARs by inversely weighting each firm by its relative event day bid-ask spread (where the relative spread is calculated as $(ask_t - bid_t)/((ask_t + bid_t)/2)$). Second, we estimate an average excess holding period return (HPR) by calculating each firm's holding period return, subtracting the HPR of the Inter@ctive Week index, and then averaging across firms. To calculate each firm's HPR, we use the conservative assumption of "buying" at the day −30 ask price and "selling" at the day +30 bid price.

For the event date, day −30, and day +30, Bloomberg has bid-ask data for 90, 91, and 92 firms in our sample, respectively. The event-day average (median) relative bid-ask spread is a fairly large 24 percent (10.8 percent). However, the inversely weighted bid-ask spread CARs are still quite large,

[9] The market model results, using pre-event betas, are robust to variations on the nonmissing return screens ranging from requiring 50 percent to 75 percent nonmissing observations. We also estimate betas and the parameters of the market model using postevent data (days +31 to +180) for a subsample of 52 firms announcing their name change before April 1, 1999, a procedure that increases the number of firms for which we can calculate betas. For the 50 firms remaining, the average (median) beta is 0.20 (0.13), and the AMEX Inter@ctive market-model adjusted CAR for the −2 to +2 window is 192 percent (t-statistic = 14.14) and 202 percent (t-statistic = 10.05) for the −5 to +5 window.

at 158 percent (t-statistic = 5.73) for the day −30 to +30 window. The 158 percent is larger than the non-spread-AMEX Inter@ctive-adjusted CARs of 109 percent, suggesting that firms with smaller relative bid-ask spreads experience a greater dotcom effect. Our results with holding period returns are similar. The 60-day window average HPAR is 104 percent (t-statistic = 1.63). These results suggest that the dotcom effect is robust to a microstructure-induced upward bias in returns.

C.6. Is the Dotcom Effect Robust Across Shifts in Investor Sentiment?

In this section, we examine if reactions to dotcom name changes are robust across down and up market periods. During most of our sample period, from June 1998 to July 1999, the returns to Internet firms were on average quite high. Nonetheless, to examine the differences in the dotcom effect across up and down market periods, we compare the size of the dotcom effect across up and down periods by calculating the monthly index return for the AMEX Inter@ctive Week Internet index for each of the 15 months from June 1998 to July 1999 and ranking the months according to the average return on the index. We compute CARs for all firms with announcement dates in the top eight months (where the index earned monthly returns ranging from 6.6 percent to 34.6 percent). We repeated this procedure for those firms with announcement dates in the bottom seven months (where the index monthly returns ranged from −11 percent to 5.1 percent). Forty-five firms announced name changes in "up" months, while 50 firms announced name changes in "down" months. Over an 11-day window surrounding the name change, the firms earn 96 percent in the up months and 47 percent in the down months. The difference, although large in magnitude, is not significant, with a p-value of 0.4.

The first pronounced down market in the Internet industry, outside our 95-firm name change sample, occurred in the period March 27 through May 15, 2000, when the Inter@ctive Week index declined by 33 percent. We gathered a fresh sample of 17 firms that changed their names to dotcom names in this period, removing seven firms due to confounding events. These 10 firms earned market-adjusted abnormal returns relative to the Inter@ctive Internet Index of 174 percent in the 61-day window surrounding the announcement date. A Wilcoxon rank sum test fails to reject the null hypothesis that these abnormal returns are significantly different from the abnormal returns earned by the original 95-firm sample. Thus, the dotcom effect appears to be robust across up and down markets and even relatively strong, at least for these 10 firms, during the recent "plunge" in e-commerce stocks.

D. The Dotcom Effect: Is It a Rational Response or Evidence of an Irrational Bubble?

Is the dotcom effect a rational response from investors? It may certainly be the case that the majority of firms in our sample are small firms, neglected for the most part by analysts, and for which the vast majority of

investors are unaware of the firm's involvement with the Internet. The switching of the firm name to a dotcom name may serve as a swift, inexpensive method for a firm to signal its involvement with the Internet. Then, once investors realize that the firm is an Internet firm, they apply a "premium" to the company's stock. Of course, this implies that markets are not semi-strong efficient.

This kind of behavior has been reported elsewhere. Huberman and Regev (2001), for example, document that when a front page article in the *New York Times* on the potential of a new drug to cure cancer appeared, it caused the price of Entremed to rise from \$12.063 to \$52 in one day, an increase of 430 percent, even though this article was not "new" news. The breakthrough had been published in *Nature* and several newspapers more than five months earlier and the stock price change for the company was much milder then.

To ascertain the extent to which the dotcom effect is at least consistent with a loose definition of market efficiency, we develop a simple and admittedly ad hoc test. We examine the relation between abnormal returns and the extent to which the firm is indeed an Internet firm and how much of the firm's business is derived from the Internet. We might expect that firms whose core business is not Internet-related (category 4) should exhibit much lower returns than other firms; that firms for which the name change should be less of a surprise (category 1, pure Internet companies) should also have lower returns than other firms (since these firms already are Internet-related); and that firms for which the change to a dotcom name signals their switch to a larger emphasis on the Internet (categories 2 and 3) should have larger returns. Alternatively, if investors are rational but computationally constrained, they might not focus their attention on pure Internet firms unless these are brought to their attention due to the news coverage generated by the name change. Hence pure Internet companies (category 1) might earn the highest abnormal returns. This would be consistent with Klibanoff, Lamont, and Wizman (1998), who find that investors react more to net asset value for closed-end country mutual funds in weeks when salient news on the country is reported on the front page of the *New York Times*.

The results in Table II for the shorter horizon windows (columns one through four) are not consistent with any of these conjectures. There is no consistent pattern across different firm categories for different short-horizon event windows. When we formally test the null hypothesis of equality of CARs across firm categories, we are unable to reject the null. The bottom row of Table II provides parametric F-statistics and non-parametric Kruskal–Wallis test statistics to test this hypothesis. Across each short-horizon event window, we unanimously fail to reject the null for the F-test and only once reject it for the medians test.

When we examine longer horizon returns in Table II (columns five through seven), a clearer pattern emerges. We find that in two of the event windows, days +1 to +60 and days +1 to +120, we are able to strongly reject the null that all categories of firms have the same excess returns. This rejection is

consistent across Panels A and B. However, the returns across categories appear to run opposite to our hypothesis. In the +1 to +60 and +1 to +120 windows, category 4 firms, which we expected to earn the least returns, instead earn much higher returns.[10] Category 2 and 3 firms earn the lowest returns. Overall, the results across different firm categories suggest that in the shorter horizons, market participants appear to apply a similar positive price premium across all companies changing their names to dotcom names, regardless of a company's level of involvement with the Internet. In the longer horizon, and with the caveat that the sample size of the category 4 firms is very small, firms that have less involvement with the Internet have the greatest returns following a dotcom name change. Overall, a mere association with the Internet seems enough to provide a firm with a large and permanent value increase.

Do firms attempt to take advantage of a perceived investor passion for Internet stocks, clustering their name changes in "hot" market periods, akin to the hot issue market phenomenon (see Ritter (1984)) in IPOs? The majority of name changes in our samples occurred over four months (January to March 1999 and May 1999) when 60 firms in our sample announced changes to dotcom names. We compute the average abnormal returns earned by the firms in these months and compare these to the returns earned by the firms in the nonclustering months. In the months with less name change activity, the average day −30 to +30 Internet control group adjusted excess return is 15 percent. In the months with clustering of name changes, the firms earn average excess returns of 132 percent. The difference between the returns in high name change months versus low name change months is significant (t-statistic = 2.09, p-value = 0.04). This suggests that managers may also perceive the existence of hot market periods in investor sentiment for Internet stocks and cluster their name changes in these periods.

III. Conclusion

We find that companies that change their name to a dotcom name earn significant abnormal returns on the order of 53 percent for the five days around the announcement date.[11] The effect is not transitory; there is no postevent negative drift. These results contrast with evidence in previous literature on corporate name changes, such as Bosch and Hirschey (1989) or Karpoff and Rankine (1994) who find an insignificant excess return around the announcement date, with a positive preannouncement drift followed by a negative postannouncement drift.

[10] Since we only have 10 firms in category 4, one possibility is that these high returns earned by these firms over the 120-day period is driven by an outlier. In 6 of the 10 cases, however, the abnormal returns were over 240 percent, with the maximum being 578 percent.

[11] In a contemporaneous working paper, Lee (2000) also finds similar results in a sample of dotcom name changes. However, Lee focuses on the signaling effect from a dotcom name change, concentrating on differences across "image-only" and "strategic" name changes.

We argue that our results are driven by a degree of investor mania—investors seem to be eager to be associated with the Internet at all costs. This is supported by the fact that our announcement returns are similar across all firms, regardless of the company's actual involvement with the Internet. Evidence of investor mania seems especially true when we consider the finding that firms with little or no sales generated from the Internet experience the greatest long-horizon returns. The returns to firms announcing dotcom name changes are much greater returns during the months in which more name changes occur suggesting some degree of a "hot" name change period effect. A mere association with the Internet seems enough to provide a firm with a large and permanent value increase.

Whether what we document is a form of investor mania or whether investors are rational in pricing large expectations of future earnings from the Internet into the stock price will only become obvious over time. However, our evidence in this paper lends more support to the investor mania hypothesis than to the rational pricing hypothesis. In this sense, this paper adds to a growing body of evidence documenting irrational investor behavior, both at the aggregate and at the individual level.

Appendix

Table A1 reports the data sources used in the paper.

Table A1
Sources Used in the Paper

Nasdaq OTC Board	http://www.otcbb.com/dynamic/
Nasdaq listings	http://www.nasdaq.com/
Company profiles	http://www.hoovers.com/ http://www.siliconinvestor.com/ Bloomberg Company web pages
Company news	http://www.siliconinvestor.com/ Dow Jones Publications Library http://www1.newsalert.com/
Stock splits	http://investor.cnet.com/ Bloomberg
SEC filings	http://freeedgar.com/ http://www.sec.gov/edgarhp.htm
Historical prices	http://www.financialweb.com/ Bloomberg Dow Jones Interactive
Market capitalization	Bloomberg Datastream
Bid-ask spreads	Bloomberg

REFERENCES

Bosch, Jean-Claude, and Mark Hirschey, 1989, The valuation effects of corporate name changes, *Financial Management* 18, 64–73.

Brown, Stephen J., and Jerold B. Warner, 1985, Using daily stock returns: The case of event studies, *Journal of Financial Economics* 14, 3–31.

Buckman, Rebecca, 1999, In the wild world of Internet postings, sometimes bad news is good news, *Wall Street Journal*, December 17, C18.

Conrad, Jennifer, and Gautam Kaul, 1993, Long-term market overreaction or biases in computed returns?, *Journal of Finance* 48, 39–63.

Emshwiller, John R., 1999, Follow the dotted line: first up—then down, *Wall Street Journal*, March 3, C1.

Ewing, Terzah, 1999, Stock snafu hits traders on Internet, *Wall Street Journal*, April 1, C1.

Huberman, Gur, and Tomer Regev, 2001, Contagious speculation and a cure for cancer: A nonevent that made stock prices soar, *Journal of Finance*, 56, 387–396.

Karpoff, Jonathan M., and Graeme Rankine, 1994, In search of a signaling effect: The wealth effects of corporate name changes, *Journal of Banking and Finance* 18, 1027–1045.

Klibanoff, Peter, Owen Lamont, and Thierry A. Wizman, 1998, Investor reaction to salient news in closed-end country funds, *Journal of Finance* 53, 673–699.

Lee, Peggy M., 2000, What's in a name.com: The effects of ".com" name changes on stock prices and trading activity, Working paper, Emory University.

Mackay, Charles, 1841, *Extraordinary Popular Delusions and the Madness of Crowds* (Barnes & Nobles Books, New York).

Ritter, Jay R., 1984, The "hot issue" market of 1980, *Journal of Business* 57, 215–240.

Sobel, Robert, 1965, *The Big Board: A History of the New York Stock Market* (Free Press, New York).

Wingfield, Nick, 1999, It can become a pain to shift your name, even to Fatbrain.com, *Wall Street Journal*, March 29, B7.