The Name Game: The Importance of Resourcefulness, Ruses, and Recall in Stock Ticker Symbols

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Abstract

This paper looks at the performance of stocks with clever ticker symbols during the years 2006 to 2018. Previous research demonstrated that a hypothetical portfolio of stocks composed purely of clever ticker symbols beat the market by a significant margin during the years 1984 to 2005 (Head et al., 2009). First, we build out and update the prior paper's findings by determining whether the trend continued for those stocks during the years 2006 to 2018. Second, using a similar methodology, we analyze the performance of a select group of NASDAQ stocks during the years 2006 to 2018 to determine whether a new collection of stocks with clever tickers replicates this trend. Our results indicate that the portfolio of clever-ticker stocks that was considered in 2009 beat the market in both the short- and long-term. Stocks with clever ticker symbols in the new NASDAQ subset of the stock market also performed substantially better than the market average and demonstrate the resiliency of this phenomenon, although the performance bump was significantly less pronounced. Because the clever-ticker effect contradicts the efficient market hypothesis, we apply neuroeconomic and behavioral economic perspectives to suggest possible reasons for the phenomenon.

I. Introduction

A BABY, a GEEK, and a COW all walk into a bar looking for some BEER and VINO. What happens next? They all beat the market. Previous research demonstrated that a portfolio of stocks with clever ticker symbols would have beaten the market by a substantial margin during the years 1984 to 2005 (Head et al., 2009) (hereinafter, the "2009 Study"). Despite these unexpected results, researchers have not directly investigated whether this holds in the years since 2005, or whether the firms addressed in the previous literature continued to perform well in the long run. Further, no one has examined whether this phenomenon holds within specific subsets of the stock market, such as NASDAQ, which is known for growth-oriented firms which are typically smaller than NYSE firms. We note that NASDAQ requires four or five characters for stock ticker symbols, in contrast to the NYSE, which requires three or fewer characters.

The objective of this paper is to fill this gap in the literature by re-examining the creativity and memorability of stock ticker symbols and their relation to stock prices. In doing so, we re-evaluate the tickers that were analyzed in the 2009 Study and update this analysis for the subsequent years through 2018 (2006-2018). Also, we replicate its methodology with a curated list of NASDAQ stocks with clever ticker symbols for the years 2006 to 2018. In taking this two-part analysis, we aim to test the resilience of the conclusions of the 2009 Study by investigating whether its conclusions hold in the long-term as well as its applicability to the NASDAQ subset of the stock market. To ensure consistency in the analysis, we use the same definition for a "clever" ticker symbol as in the 2009 Study: a ticker symbol is clever if it is related to the company's business in a witty way that makes the symbol memorable to investors. Two examples are BDAY (Celebrate Express Inc.) and SEED (Origin Agritech Limited). We hypothesize that (1) the clever tickers evaluated in the 2009 Study also performed better than the

market in the long run (2006-2018) and that (2) this phenomenon can also be observed during the same years (2006-2018) in the performance of clever tickers in a subset of the stock market, namely NASDAQ.

This paper is structured as follows: in Section II, we provide a brief overview of the literature. We describe our methodology in Section III. In Section IV, we review the results of our analysis. In Section V, we discuss these results and discuss new research in behavioral economics and related disciplines to suggest possible reasons for the results. We will conclude with a summary of the major results of our investigation.

II. Literature Review

Our work contributes to a growing body of literature on the effects of ticker symbols in the financial markets. The notion that stock ticker symbols influence stock performance contradicts the efficient-market hypothesis, which suggests that a stock's market price depends only on publicly available information and that investors cannot use this information to "beat the market." In a frictionless market with rational investors, a stock's price would be based on the company's expected cash flows and other valuation metrics, which have nothing to do with the company's ticker symbol. However, in the real world, the valuation of firms is often based on an imperfect judgment about open-ended issues, as company data is noisy and often delayed (Daniel et al., 1998). This uncertainty and lack of information frequently drive investors to use other metrics on their value assessments (Kahneman et al., 1982). Beyond these purposeful and calculated valuation methods, research suggests that investment decisions may also be swayed by inherent biases and other psychological factors. For example, extensive research indicates that stock ticker symbols matter in capital markets. One study demonstrated that early alphabet stocks

are traded more frequently than late alphabet stocks. This finding implies that ticker letter selection, which has nothing to do with standard metrics used to evaluate a company, may still affect firm value (Itzkowitz, 2015). This is following research by Alter and Oppenheimer (2006) which suggested that pronounceable ticker symbols improve IPO performance. Similarly, Anderson and Larkin (2012/2018) showed that when ticker symbols are actual words in the English language, their stock liquidity increases. Changing a ticker symbol after a company has already been associated with it can have negative consequences, as documented in a paper by Kadapakkam and Misra (2007) that noted declines in stock price following changes in ticker symbols.

Although behavioral economics and neuroeconomics are relatively young fields of research, they provide several possible hypotheses which help explain these phenomena. The leading theory on this topic argues that clever tickers heighten investors' recall of their respective companies, which is based on our understanding of human memory. Memory involves the acquisition, storage, retention, and retrieval of information (D'Esposito and Postle, 2015). Horner et al. (2015) revealed that when humans encode memories, all the separate elements that compose the memory are associated together via specific neurological mechanisms. If a ticker is easy to pronounce or clever, it is likely that the symbol invokes a sense of creativity and positivity when an investor reads or hears about it. This positive feeling—albeit entirely unrelated to the success or relevant financial characteristics of the company—may then be implicitly associated with the stock when the investor recalls details about it. Thus, the recall of a clever ticker may lead the investor to have an irrationally positive and confident feeling that the company is a good investment. Furthermore, positive arousal has been shown to induce memory broadening effects (Yegiyan and Yonelinas, 2011), which augment memory for peripheral

details and increase the chance that investors remember other relevant investment information about the company.

It has also been repeatedly demonstrated that experiences that elicit emotional arousal are remembered at higher rates than neutral experiences (Kensinger, 2009). In two psychological studies examining the relationship between arousal and memory, researchers noted that participates subjected to enhanced emotional experiences (established through readings of emotional stories) exhibited greater long-term memories than control subjects who were exposed to neutral stimuli (Cahill and McGaugh, 1995; Kensinger and Corkin, 2003). One could argue that ticker symbols invoke substantially smaller emotional arousals than purposefully-crafted stories, but this arousal-mediated enhancement has also been demonstrated to occur between individual words and when there are rapid changes between emotional and neutral stimuli (Anderson et al., 2006). This implicates that the proposed psychological effects could be induced by clever symbols, even when large numbers of tickers are compared and evaluated at the same time. Consequently, clever tickers are more likely to be remembered than tickers composed of random letters. Thus, the higher returns of clever tickers may be a combined consequence of two similar but distinct mechanisms: the emotional memory enhancement causes investors to recall clever tickers at higher rates than random tickers, and the heightened positive association with the clever tickers makes investors consider them more worthwhile investments.

III. Methods

III.i. Methodology for Updating the 2009 Study to Test Long-Term Effects

To determine whether the findings of the 2009 Study withstood the test of time and held in the long-term, we re-applied the methodology from the 2009 Study (which covered 1984-

2005) to the subsequent period of 2006 to 2018. In doing so, we updated the list of clever-ticker stocks from the 2009 Study as follows: The original study looked at 82 clever-ticker stocks for the time period 1984 to 2005, using the Center for Research in Security Prices (CRSP) Permnos to track the daily returns for these stocks and the CRSP market index, in both cases including all distributions. During these 22 years (1984-2005), some Permnos ended because of buyouts, mergers, bankruptcies, or other reasons. The clever-ticker portfolio began with 17 stocks on the first trading day of January 1984 and ended with 22 stocks on the last trading day of December 2005 (Table 1). We took this list of 22 stocks and applied the same method to this portfolio as in the 2009 Study, calculating the daily return for an equally weighted portfolio consisting of these clever-ticker stocks with daily returns in the CRSP database, and using a comparison portfolio consisting of stocks in the NASDAQ/NYSE portfolio constructed by CRSP. As in the original 2009 Study, capital gains taxes and transaction costs were ignored for both the clever-ticker portfolio and CRSP's NASDAQ/NYSE portfolio.

III.ii. Methodology for Testing in the NASDAQ Market.

To test whether the hypothesis holds in a specific subset of the stock market, namely NASDAQ, we used nearly the same method as the 2009 study, operating the CRSP database to collect approximately 13,000 ticker symbols for all companies that traded on the NASDAQ at any point between 2006 and 2018. From this list of tickers, two of the authors independently examined every symbol and noted each ticker that might be considered clever and memorable. Clever tickers included symbols such as PZZA and WIFI, respective tickers for Papa John's Pizza and Boingo Wireless. Eighty-seven percent of our selections coincided. The coincident tickers in both of our selections were then merged into a single list and reexamined to remove any funds and tickers that were just abbreviations of the company's name. After compiling the

final list of 69 tickers, we created an online survey that included a list of all tickers, their company names, and the following instructions:

> Stocks are traded using ticker symbols. Some are merely the company's name (GM, IBM); some are recognizable abbreviations of the company's name (MSFT for Microsoft, CSCO for Cisco); and some are unpronounceable abbreviations (BZH for Beazer Homes, PXG for Phoenix Footwear Group). Some companies choose symbols that are cleverly related to the company's business; for example, a company making soccer equipment might choose GOAL; an Internet dating service might choose LOVE. From the list below of ticker symbols, please select ten that are the cleverest, cutest, and most memorable.

We received 237 responses. The top 20 NASDAQ clever tickers with the most votes are listed in Table 2 and were used for our analysis. For each trading day from the beginning of 2006 to the end of 2018, we calculated the daily return for an equally weighted portfolio consisting of those clever-ticker stocks with daily returns in the CRSP database. As time passed, some clever-ticker stocks stopped trading for a variety of reasons (such as bankruptcy, merger, or buyout) and other clever-ticker stocks entered the CRSP database. The comparison portfolio consisted of the stocks in the NASDAQ portfolio constructed by CRSP. This portfolio also has had additions and deletions over time as stocks enter and leave the index. Capital gains taxes and transaction costs were ignored for both the clever-ticker portfolio and CRSP's NASDAQ portfolio.

IV. Results

IV.i. Long-term Returns for Stocks from the 2009 Study

We examined the daily returns for the 22 existing stocks from the 2009 Study from the beginning of 2006 until the end of 2018. Table 3 shows the mean and standard deviation of the daily returns for the clever-ticker portfolio and the CRSP market index portfolio. The t-value and two-sided p-value is shown in Table 3 are for a matched-pair t-test of the null hypothesis that the average difference is zero.

Our results support our hypothesis and suggest that clever tickers out-perform the market because the clever-ticker portfolio outperformed the CRSP market index by a substantial margin for both the first 22 years, 1984 to 2005, and for the subsequent 13 years, 2006 to 2018. Figure 1 shows the original tickers examined in the 2009 Study accumulated significantly more wealth than the market average in the long-run. Starting with $1 on the first trading day in 2006, the market index portfolio grew to $1.863 at the end of 2018, a 4.90 percent compounded annual return, while the clever-ticker portfolio grew to $5.027, a 13.22 percent compound annual return. Figure 2 shows the relative sizes of the clever-ticker portfolio and the CRSP market index. The two portfolios had comparable returns from 2006 through the financial crisis of 2007 to 2008, but the clever-ticker portfolio strongly outperformed the CRSP index beginning in 2009 and continuing to the end of the sample period. The superior performance of the clever-ticker portfolio was not due to the outstanding performance of a few stocks: 19 of the 22 clever-ticker stocks did better than the overall market.[1]

We investigated whether these excess returns could be explained by the Fama- French (1992, 1993) four-factor model,

$$R = \alpha + \beta_1 MKT + \beta_2 SMB + \beta_3 HML + \beta_4 UMD + \varepsilon$$

where

R = return on clever-ticker portfolio minus the return on Treasury bills

MKT = return on CRSP portfolio minus the return on Treasury bills

SMB = average return on three small portfolios minus the average return on three big portfolios (size factor)

[1] To highlight unlikeliness of this happening by random chance, if we assume that each of the 22 clever-ticker stocks had an independent, 0.50 probability of beating the market, the probability that 19 out of 22 would do so is only 0.0085.

HML = the average return on two value portfolios minus the average return on two growth portfolios (book-to-market factor)

UMD = average return on two high prior return portfolios minus the average return on two low prior return portfolios (momentum factor)

Table 5 shows that the clever-ticker portfolio had substantial positive alpha for both the initial 22-year period and the subsequent 13-year period, though the latter alpha is not quite statistically significant at the 5 percent level ($p = 0.075$), against perhaps due to the substantially smaller sample size. The last column are the estimated differences between the coefficient estimates in these two periods and the t-values for a test of the null hypotheses that there are no differences. The difference between the two alpha values is not statistically significant ($p = 0.30$). The differences between the estimated coefficients of three of the four Fama-French factors are significant at the 5 percent level, which is not surprising since the composition of the clever-ticker portfolio changed over time as clever ticker stocks came and went.

IV.ii. Short-term Results for the New Portfolio of NASDAQ Stocks

We examined the daily returns for these 20 stocks from the beginning of 2006 until the end of 2018 (Table 1). Table 4 shows the mean and standard deviation of the daily returns for the clever-ticker portfolio and the market index portfolio. The clever-ticker NASDAQ portfolio outperformed the market portfolio although the difference was not statistically significant at the 5 percent level. Overall, 13 of the 20 clever-ticker stocks did better than the market, seven did worse.

Figure 3 shows that starting with $1 on the first trading day in 2005, the market index portfolio grew to $2.649 at the end of 2018, a 7.99 percent compounded annual return, while the clever-ticker portfolio grew to $4.010, an 11.27 percent compound annual return. On average,

the relative performance continuously increased after 2009, and despite small divots, the clever ticket portfolio rarely dropped below the market average. Figure 4 shows the relative sizes of the clever-ticker portfolio and the market portfolio. In the years 2005 to 2018, the clever tickers consistently outperformed the market average, ranging between approximately equal to- and double the market portfolio wealth. The Fama-French four factor model estimates are in Table 6. The alpha is again substantial and positive, though not statistically significant at the 5 percent level.

V. Discussion

In this study, we used a two-part analysis to evaluate (1) whether the clever tickers evaluated by the 2009 Study continued to perform well in the long run and (2) whether a new collection of clever tickers would also yield the high-performance rates observed in previous literature. Our results were relatively consistent with our initial predictions, as both the old and new clever tickers beat the market, but not at a significant level.

Between the two research initiatives, we found several unexpected results that warrant further discussion. The fact that the old tickers continued to outperform the market over 35 years contrasts previous literature that claims clever tickers outperform the market in the short run, but that the stock price corrects itself over time (Zweig, 2007). The positive excess returns could not be explained away by the Fama-French 4-factor model. Overall, 32 of the 42 clever-ticker stocks beat the market (2-sided $p = 0.00094$). The clever ticker portfolio also appears to have higher volatility than the market index, but this likely reflects the expected heightened fluctuations of a smaller portfolio.

Our results partially deviated from our second hypothesis, because although the new tickers demonstrated higher earnings than the market average, the difference was not significant

and the out-performance was substantially lower than the tickers evaluated in the 2009 Study. This may be explained by the fact that we excluded NYSE symbols from our new clever tickers and the market portfolio. The 2009 Study incorporated both NASDAQ and NYSE tickers in its analysis, but its list of clever tickers disproportionately represented NASDAQ companies. This may be because NASDAQ symbols require 4 or 5 letters, but NYSE only allows three letters. The additional letters provide more opportunities for cleverness and creativity, so it makes sense that there would be a higher quantity of clever NASDAQ tickers than NYSE tickers. We also noted that NASDAQ has many technology companies, which may have more creative founders and investors that prioritize the "out of the box" thinking; this may, in turn, be characterized by clever ticker symbols. However, this was negated as potential factor because we examined the Standard Industrial Classification (SIC) codes for every company in our portfolio and found that no specific industry was overrepresented. Regardless of the reason, NASDAQ has a substantially higher number of clever tickers than NYSE which was reflected in the clever tickers examined by the 2009 Study. It was unclear whether the market index was weighted accordingly to represent the percentage of NASDAQ/NYSE companies, but if not, then the high performance of the study's clever tickers may have primarily been a consequence of NASDAQ outperforming NYSE.

For both the old and new sets of tickers, we noted that the clever symbols experienced a drop in value that was relatively proportional to the rest of the market in 2008. However, the clever ticker portfolios then bounced back and grew substantially faster than the market average in the years following the recession. This indicates that investors withdraw money from all stocks at relatively equal rates, but they invest in clever tickers at higher rates. This may be a result of the high recall rate and positive salience of clever tickers, which make their parent

companies top-of-mind when investors are brainstorming where to put their funds. It could also suggest that during times of economic distress people are more careful with their investments when money is tight and do not invest experimentally. Either way, while the clever tickers generally follow the market trends, their increases usually outweigh the drawdowns compared to the market averages.

One potential flaw in our survey methodology is that individuals may have selected businesses that they were familiar with instead of tickers that they found clever. For example, Papa John's Pizza (PZZA) received the most votes (125), while Allscripts Healthcare Solutions Inc. (MDRX) only received four votes. While both companies arguably exhibit similar levels of "cleverness" (both use tickers that relate to their own product offerings, pizza, and prescriptions), our survey respondents were likely more familiar with Papa John's as a brand than Allscripts. However, these selections likely reflect bigger forces that are also seen in the market at large. It is possible that clever tickers amplify the stock price of an already well-known establishment but do not affect the price of an unknown company. Clever tickers are often considered "clever" because they are metaphors or other short representations of the company's mission or product. However, if the investor does not know what the company does in the first place, then a clever ticker would not implicitly influence the investor's decision, no matter how impressive its symbolism. Further research is warranted to examine whether the clever-ticker effect is dependent on the company's name-brand recognition, but our survey responses would suggest that it may be a factor.

Overall, the clever-ticker portfolio substantially outperformed the CRSP market index for 35 years (1984 to 2018). This demonstrates that the companies with "clever" tickers are not

only outperforming the market in the short run but also in the long run, contrary to the view that the uptick in stock performance for these clever tickers is short-term (Zweig, 2007).

VI. Conclusion

In recent years, hundreds of companies have chosen clever ticker symbols. A clever symbol may signal creative and innovative company leadership; however, it could also be interpreted as a gimmick or marketing ploy by a company desperate for attention from investors. Our results show that a portfolio composed purely of clever ticker stocks outperformed the market by a substantial margin, on average. We demonstrate the resiliency of this, as our study tested these effects in the long term for the original stocks in the 2009 Study as well as for a new collection of clever tickers in the NASDAQ subset of the stock market. This long-run outperformance suggests that these companies were not just briefly successful due to gimmicks, but that there are more fundamental and sustainable forces at work. The durability of these effects suggest that the high performance of clever tickers demonstrates a strong contradiction of the efficient market hypothesis. We propose that the memorability and positive salience of clever tickers may contribute to this phenomenon by leading to disproportionally high recall rates and confidence from investors.

VI. Appendix

Table 1: Clever Ticker Portfolio at the End of 2005

BABY	Natus Medical	medical products for babies
BID	Sotheby's Holdings	auctions
BUD	Anheuser Busch	makes Budweiser beer
BOOM	Explosive Fabricators	explosives
BTU	Peabody Energy Corp	coal
CASH	Comdata Network	ATM networks
CAKE	Cheesecake Factory	restaurant and dessert chain
CHIC	Charlotte Russe Holding	teeny-bopper clothing
DNA	Genentech	gene research
FUN	Cedar Fair L P	amusement parks
GAIT	Langen Biomechanics Group	orthotics products company
GRIN	Grand Toys International	toy manufacturer
GRR	Asia Tigers Fund	closed-end investment company
JOB	General Employment Entrepreneurs	employment
LENS	Concord Camera Corporation	cameras
LUV	Southwest Airlines	low-fare airline
POPS	National Beverage Corp	beverages
ROCK	Gibraltar Industries	metal processing (Rock of Gibraltar)
TUTR	Plato Learning	computer and Web-based instruction
TINY	Harris & Harris Group	venture capital in tiny technology
WOOF	VCA Antech	veterinary services
YUM	Tricon Global Restaurants	quick-service restaurants

Table 2: NASDAQ Clever Ticker Portfolio. Top 20 tickers with votes in parenthesis:

PZZA (125)	Papa John's Pizza	pizza restaurant franchise
WIFI (121)	Boingo Wireless	mobile internet access
ZEUS (102)	Olympic Steel Inc.	steel processor bonding
BAGL (93)	Einstein Bros. Bagels	bagel and coffee chain
OINK (85)	Tianli Agritech Inc.	hog farming
KOOL (67)	Thermogenesis Corp.	biotech
LAVA (65)	Magma Design Automation	software
BOOM (64)	Dynamic Materials Corp	explosives
TUSK (62)	Mammoth Energy Services	construction and energy services
LENS (58)	Concord Camera Corp.	camera manufacturer
BDAY (53)	Celebrate Express Inc.	online party supplies, retailer
SHOO (53)	Madden Steven Ltd.	shoe manufacturer
SAVE (50)	Spirit Airlines	budget airline
PETS (50)	PetMed Express Inc.	online pet pharmacy
WATT (49)	Energous Corp.	wireless charging technology
SEED (48)	Origin Agritech Limited	agricultural technology
SALE (45)	RetailMeNot, Inc.	coupon websites
EYES (45)	Second Sight Medical Inc.	prosthetics for the blind
XRAY (45)	Dentsply Sirona	dental equipment
CHIC (39)	Charlotte Russe Holding Inc.	women's fashion brand

Table 3: Original Clever Tickers Daily Returns

		1984-2005	2006-2018
Clever-Ticker Portfolio			
	Mean	0.000918	0.000607
	Standard Deviation	0.01269	0.015054
Market Portfolio			
	Mean	0.000499	0.00035
	Standard Deviation	0.009788	0.012132
Difference			
	Mean	0.000419	0.000257
	Standard Deviation	0.011739	0.009114
	t-value	2.66	1.61
	Two-sided p-value	0.0079	0.1074

Figure 1: Accumulation of Wealth for the Original Clever-Ticker Portfolio Compared to the CRSP Market Index in the Long Run. Both indices consist of companies from NASDAQ and NYSE.

Figure 2: Original Clever-Ticker Portfolio Relative to CRSP Market Index in the Long Run. Both indices consist of companies from NASDAQ and NYSE.

Table 4: New Clever Tickers Daily Returns, 2006 to 2018

		2006-2018
Clever-Ticker Portfolio		
	Mean	0.000537
	Standard Deviation	0.016914
Market Portfolio		
	Mean	0.00035
	Standard Deviation	0.011914
Difference		
	Mean	0.000182
	Standard Deviation	0.011492
	t-value	0.940
	Two-sided p-value	0.347

Figure 3: Accumulation of Wealth for the New Clever Ticker Portfolio (NASDAQ) Compared to the Average Market Portfolio. Both indices consist of companies from NASDAQ.

Figure 4: New Clever-Ticker Portfolio (NASDAQ) Relative to Market Portfolio. Both indices consist of companies from NASDAQ.

Table 5: Original Tickers, Estimates of a Four-Factor Model

	1984-2005	2006-2018	Difference
Number of Observations	5552	3271	
Alpha	0.00049	0.00026	-0.00023
(3.45)	(1.78)	(1.04)	
MKT	0.81	0.88	0.07
(39.52)	(64.56)	(2.85)	
SMB	0.64	0.56	-0.09
(22.96)	(20.82)	(2.15)	
HML	0.28	0.17	-0.11
(7.48)	(5.97)	(2.29)	
UMD	−0.10	–0.10	0.00
(4.56)	(5.11)	(0.02)	
Adjusted R-squared	0.29	0.68	0.47

( ): t-values

Table 6: New Clever Tickers, Estimates of a Four-Factor Model

Alpha	0.00019
	(1.10)
MKT	0.91
	(55.68)
SMB	0.88
	(27.64)
HML	0.11
	(3.24)
UMD	−0.13
	(5.80)
Adjusted R-squared	0.62

( ): t-values

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