

## The Ferraris and the Dogs of the S&P 1500: Winner and Loser Portfolios and the Efficient Market Hypothesis

Darrol J. Stanley\*

Michael D. Kinsman

Craig R. Everett

### Abstract

One persistent theme in investment management is that winners continue to perform well while losers represent a strong reversal possibility. Numerous studies have been conducted on this notion, and since investment strategy is situational, this paper reinvestigates this idea utilizing the S&P 1500. The results clearly indicate that such strategies do not outperform the market, thus reconfirming the efficient market hypothesis.

### I. Introduction

There is evidence that in the long-term prices reverse themselves for the entire stock market, especially when financial bubbles have been present. It would, therefore, be of interest to explore whether such price reversals occur on classes of stock within a market. For instance, are stocks that have gone up in value the most over the last period more likely to go down in value over the next period and vice versa?

This investigation is not the first paper to explore this topic. The literature is replete with articles and papers on the general topic of market under- and over-reaction to prior price changes. Chan (1988); Copra (1992); DeBondt (1985 and 1987); Daniel (1998); George (2004 and 2007); Hong (1999); Jagadeesh (1993 and 2001); Ritter (1988) and Roll (1983) all deal, in very different ways, with the topic of under- and over-reaction by investors.

However, the most relevant study related to this research effort is DeBondt and Thaler (1985). They investigated the concept of possible mispricing by constructing a “winner portfolio” of 35 stocks that had gone up the most in the past year, and a “loser portfolio” of 35 stocks that had gone down the most in the same period. Such portfolios were selected annually from 1933 to 1978, and DeBondt and Thaler then observed portfolio returns for the portfolios over the next 60 months. Their results indicated excess returns risk-adjusted for both sets of portfolios.

There are a number of criticisms of DeBondt and Thaler’s results. One objection is that the results are due to a limited number of stocks rather than a broader sample. A second is that results are time dependent—portfolios constructed at year end (December) outperformed portfolios constructed mid-year (June). Finally, many have questioned the length of the investigation noting that holding periods have substantially changed over the period, as more fully discussed below. The important thing to note in their study, however, is that the study reported excess returns in a market and, according to The Efficient Market Hypothesis (EMH), it should not have been able to come to that conclusion.

It would be of little value to review the numerous other papers dealing with this topic, since they are situational in different historical time periods employing different methodologies. Rather, this paper is designed to research one possible construct that can be criticized *a priori* on a number of points, since it is basically a modified replication of the DeBondt and Thaler paper of 1985.

## II. Research design

The authors decided to conduct the research utilizing the S&P 1500, an index that represents three key subsets: (1) Large capitalization stocks; (2) Mid-capitalization stocks; and (3) Small capitalization stocks. While one can argue that there should be tests within each of those subsets, it was decided that the S&P 1500 represents the investment population of most American investment advisors. An analysis conducted by the authors to support the use of the S&P 1500 noted that on December 31, 2013 (the ending period of the study) that of the approximately 4000 actively traded stocks in the US, institutions held 79% of the shares in the S&P 1500 index with a holding of 43% of the residual stocks. There were differences in the holdings of the institutions of the subsets to the S&P 1500 index (LC500 68%; MC400 82%; SC600 82%). One of the more difficult decisions in the research design was the time frame for holding the respective portfolios. Over time, the investment horizon of investors and investment managers has substantially shortened. Sy Harding (2011) noted that this trend to shorter holding periods began over fifty years ago. He cited the NYSE Factbook which noted that the average holding period in 1960 was 100 months (over eight years), but it had declined by 1970 to 63 months or approximately five years. By 1980, it had dropped to 33 months to be further reduced by 1990 to 26 months. The NYSE stated that by 2010 it had fallen to approximately six months. Other data supports that this is a global trend. John Melloy (2012) reported that the S&P 500 SPDR (SPY), the ETF which tracks the S&P 500 benchmark, is less than five days.

Clearly there is a major change in the time horizon of investors. The buy and hold strategy would appear outdated and perhaps dangerous to one's financial well-being. There are many possible reasons for this, but three would appear to stand out. The first is the end of fixed commissions and high trading costs. The second is the transformation of an investment culture to one of instant gratification. The third is the abandonment of the stock market by individual investors and the rise of high frequency traders.

From the three to five year time horizon of Graham-Buffett, today we see the truncated time horizon noted above. For this reason, a one year holding period was chosen by the authors as the longest time horizon individual (or value) investors would tolerate. It should be noted again that this time horizon is different than that of DeBondt and Thaler.

A second difficult decision was portfolio size for the study portfolios. Investment managers vary significantly in this regard. We acknowledged Benjamin Graham's concept (1973 and 1962) of a portfolio construction such that there should be no fewer than fifteen stocks, with no more than two stocks in any one industry. It was decided that the portfolios must be large enough to reduce an industry exposure but small enough to capture excess returns and that forty stocks provided the best trade-off between a diversified portfolio and the ability to potentially produce excess returns.

The decision was also made to ensure that the study examined a sufficiently long time horizon. This ensures that differing market conditions would have been faced so that no one run of either a bull or bear market would dominate the results. The time frame chosen was December 31, 1995 to December 31, 2013, which results in an eighteen year study that clearly was marked by diverse market activity. Stocks were selected solely on the basis of price performance over the preceding study year ending December 31<sup>st</sup>. Consequently, each period began with 40 stocks,

with the “Ferraris” being the best price performers (highest percent change in price) of the past year and the “Dogs” being the worst price performers of the same period. All stocks were equally-weighted. If a stock was delisted, those funds were reinvested in all the remaining stocks. Performance was calculated on a monthly basis and annualized for intermediate year periods.

Eugene Fama (1973) makes it quite clear that any results must be reported *after* transaction costs on a risk adjusted basis. Consequently, the results include transaction costs. The assumed round-trip transaction cost is 1%. While this might be high on large cap stocks, it could be low on mid and small cap stocks. A review of the S&P 1500 at December 31, 2013 (the end of the study) shows 63% of the stocks listed on the NYSE and 37% of the stocks listed on NASDAQ. Thus, the 1% assumption appears quite realistic. Data was provided by Ford Equity Research, Inc. Ford Equity Research is a subsidiary of Mergent, Inc., a noted provider of investment information. Ford Equity itself is predominately a provider of investment services to institutional investors.

The study utilized Ford’s HIPER platform with the above noted transaction cost with further adjustment to data for dividends. Dividends are assumed to be distributed at a rate of 1/12 of the annual dividend per month. It should be noted again that the actual study was performed on a monthly basis with final results produced on an intermediate year basis.

### III. Research results

**A. The Ferraris (Winning Portfolios).** The results of the Ferraris are noted in Table I. Since the holding period was one year, the information is provided on that basis. The coefficient of variation for the equally-weighted universe was 19.2%/12.5% or 1.54. This serves as the benchmark. The performance of this portfolio, without estimated transaction costs, was 28.1%/9.7% or 2.90. This is clearly inferior to the S&P 1500 universe equally-weighted. The average turnover was 97% which implies substantial transaction costs. The results, after estimated transaction costs, were 28.2%/8.7% or 3.24. This result is clearly inferior to the benchmark. See table I below.

**B. The Dogs (Losing Portfolios).** The results of the Dogs are noted in Table II. Against the benchmark coefficient of variation of 1.54, the losing portfolio results in a coefficient of variation of 44.1%/5.3% or 8.33. This is clearly inferior to the benchmark. With a portfolio turnover of 96%, the after transaction cost coefficient of variation is 44%/4.3% or 10.23. This is a substantially unfavorable relationship to the benchmark.

**C. The Dogs Long and the Ferraris Short.** One should also examine the results of a long-short position. In this case, the portfolio would be constructed by going long in the Dogs (representing reversal possibilities) and short in the Ferraris. The result of this investigation shows a very disappointing performance against the benchmark. The return is a negative 3.68% and the resulting coefficient of variation is 47.4%/-3.68% or -12.88. The results are not available on an after transaction basis, but we can estimate the transaction costs at about 2%, which increases the negative performance even more. One could also construct a long Ferrari and a short Dog portfolio. This was not done as it was not hypothesized in the research study. Pragmatically, after transaction costs, the results would approach zero with a very high standard deviation.

**Table I : The Ferraris (Winning Portfolio Results)**

Time period	S&P 1500	Ferraris performance	Ferraris performance with transactions costs	Ferraris percent turnover
12/95-12/96	21.3	20.2	20.1	3.9
12/96-12/97	28.3	40.2	38.9	94.6
12/97-12/98	6.7	24.5	23.3	94.9
12/98-12/99	11.0	69.7	68.2	90.5
12/99-12/00	15.0	-9.9	-10.8	94.7
12/00-12/01	13.4	-9.3	-10.3	98.7
12/01-12/02	-14.7	-17.7	-18.5	97.5
12/02-12/03	44.5	53.5	51.9	98.8
12/03-12/04	18.9	7.6	6.5	101.3
12/04-12/05	7.6	17.4	16.3	97.5
12/05-12/06	16.6	9.5	8.6	95.1
12/06-12/07	-1.7	1.9	0.9	103.9
12/07-12/08	-36.6	-47.6	-48.2	93.3
12/08-12/09	46.9	6.2	5.0	102.5
12/09-12/10	27.0	29.0	27.6	102.5
12/10-12/11	-1.6	-12.2	-13.1	98.7
12/11-12/12	18.0	18.8	17.7	100.5
12/12-12/13	39.2	36	34.7	95.6
12/95-12/13	729.9	426.7	345.5	
<b>Annual</b>	12.5	9.7	8.7	97.0
<b>Annual STD</b>	19.2	28.1	28.2	

**Table II: The Dogs (Losing Portfolio Results)**

Time period	S&P 1500	Dogs performance	Dogs performance with transactions costs	Dogs percent turnover
12/95-12/96	21.3	17.8	17.7	2.5
12/96-12/97	28.3	18.3	17.1	106.3
12/97-12/98	6.7	13.7	12.5	99.4
12/98-12/99	11.0	18.1	16.9	109.4
12/99-12/00	15.0	-26.3	-27.1	101.1
12/00-12/01	13.4	62.3	61.2	99.8
12/01-12/02	-14.7	-55.4	-55.9	105.2
12/02-12/03	44.5	148.9	146.6	97.2
12/03-12/04	18.9	3.2	2.2	94.7
12/04-12/05	7.6	-5.1	-6.1	98.8
12/05-12/06	16.6	18.3	17.3	94.7
12/06-12/07	-1.7	-23.9	-24.6	91
12/07-12/08	-36.6	-66.5	-66.7	97.3
12/08-12/09	46.9	137.5	135.2	95.9

12/09-12/10	27.0	25.5	24.4	101.3
12/10-12/11	-1.6	-22.4	-23.1	90.0
12/11-12/12	18.0	1.6	0.8	89.4
12/12-12/13	39.2	46.1	44.9	90.0
12/95-12/13	729.9	151.8	114.7	
<b>Annual</b>	12.5	5.3	4.3	96.0
<b>Annual STD</b>	19.2	44.1	28.2	

**D. Correlation.** The results should be observed in the context of the correlation of the three portfolios against the benchmark portfolio, shown in Table III below.

**Table III: Correlation Matrix**

	<b>Ferraris</b>	<b>Dogs</b>	<b>Dogs minus Ferraris</b>	<b>S&amp;P 1500</b>
<b>Ferraris</b>	1			
<b>Dogs</b>	0.53017	1		
<b>Dogs minus Ferraris</b>	0.039663	0.868253	1	
<b>S&amp;P 1500</b>	0.668976	0.843492	0.602594	1

**E. Other Risk and Return Parameters.** One could consider a large number of other risk and return parameters to evaluate and explain the results. Further, it could also provide insight on how to time the purchase of one portfolio or the other. While such timing was not part of the research design, it could be helpful on a pragmatic investment management basis. It was decided that aggregate data would not be particularly helpful in either case. Consequently, only data from highly meaningful years was calculated. The years selected were 2007, 2008, and 2009. They are noted below as Tables IV, V, and VI. In the appendix, the Ferraris and Dogs as of December 31, 2013 (the portfolios for 2014) can be noted for the same variables by name and industry.

It can be quickly observed from the data that there is a lack of consistency from year to year of both the Ferraris and Dogs. This makes an analysis rather difficult. It also allows one to see the extreme difficulty of relying on any statistic for additional market timing advantages. Thus, it is necessary for the reader to select those variables meaningful to them. The response to fundamental data should be noted. Stocks with high one year EPS growth did well while stocks with negative one year EPS growth rate did poorly. Clearly fundamental data was very important in stock price behavior.

It is first necessary to define certain of the variables. Adjusted beta centers on outliers. These outliers have been manually adjusted by Ford analysts. Unadjusted beta is the standard 60 month regression against the S&P 500 index. Alpha is calculated using the unadjusted beta regression over the same 60 months. Earnings Variability is an eight year regression of time and operating earnings per share. The standard error is then expressed as a percentage of the regressed eight year EPS estimate. A low number implies a high correlation of time and EPS.

**Table IV: 2007**

12/31/2007 Variable EW	S&P 1500		Ferraris		Dogs	
	Mean	STD	Mean	STD	Mean	STD
Adjusted Beta	1.05	0.28	1.14	0.26	1.19	0.26
Unadjusted Beta	1.26	0.68	1.34	0.7	1.7	0.66
Alpha	0.48	1.43	2.84	1.45	-1.44	1.42
Earnings Variability	78	310	108	183	78	114
Capitalization in Millions	10076	29419	14817	28896	1207	2138
Dividend Yield %	1.5	2	0.2	0.3	3.2	4.4
Institutional Holdings %	82	16	89	10	82	18
1 Year EPS Growth	15.5	61.1	64.1	82.9	-37.7	31.3
1 Year Sales Growth	11.7	18.8	23.1	23.9	0.3	18.2
Current Net Profit Margin	8.7	11.4	6.8	10.8	10.3	13.3
Current Return on Equity	5.9	6.9	5.9	6.5	4.3	6.3
Current Return on Equity	12.3	14.4	15.2	16.7	-3.6	16.8
Price to Earnings	28.8	54.1	54.9	46	12	10.1
5 Year Total Return	15.5	18	48.7	22.2	-7.2	16
1 Year Price Return	-0.3	38.5	128.1	53.1	-71.9	7

**Table V: 2008**

12/31/2008 Variable EW	S&P 1500		Ferraris		Dogs	
	Mean	STD	Mean	STD	Mean	STD
Adjusted Beta	1.09	0.31	0.69	0.2	1.35	0.26
Unadjusted Beta	1.22	0.57	0.58	0.42	1.93	0.68
Alpha	0.46	1.35	1.27	1.36	-1.92	1.36
Earnings Variability	87	400	63	126	255	776
Capitalization in Millions	66164	19839	1153	969	928	2151
Dividend Yield %	2.2	3.2	1.1	1.2	2.4	6.7
Institutional Holdings %	80	18	78	21	79	17
1 Year EPS Growth	10.5	51	19.9	43.3	-42.2	36.7
1 Year Sales Growth	10.8	23.5	11	14.9	-4.4	18
Current Net Profit Margin	7.5	13.3	5.8	19.2	0.6	24
Current Return on Equity	5.4	7.2	4.4	9.8	-0.7	12
Current Return on Equity	10	17.7	11.4	9.3	-14.8	23.3
Price to Earnings	18.2	36.7	22.8	14.2	5.7	3.9
5 Year Total Return	-1.9	16	8.6	15.3	-32.8	13
1 Year Price Return	-35.3	28.9	45.6	19.4	-88.3	3.7

**Table VI: 2009**

12/31/2009 Variable EW	S&P 1500		Ferraris		Dogs	
	Mean	STD	Mean	STD	Mean	STD
Adjusted Beta	1.07	0.31	1.4	0.26	0.96	0.26
Unadjusted Beta	1.25	0.65	2.26	0.81	0.97	0.63
Alpha	0.67	1.11	1.78	1.16	-1.15	1.33
Earnings Variability	110	372	304	355	170	276
Capitalization in Millions	7815	22478	4232	7310	2629	11872
Dividend Yield %	1.4	1.6	0.4	1.2	1.4	1.9
Institutional Holdings %	79	17	81	15	67	20
1 Year EPS Growth	-8.3	62.7	35.5	107	-50.8	32
1 Year Sales Growth	-7	19.9	-10.8	19.5	-9.2	15.4
Current Net Profit Margin	2	19.9	-19.4	30	-4.2	22.9
Current Return on Equity	1.6	14.3	-16.6	28.2	-2.1	16.4
Current Return on Equity	3.9	22.1	-3.4	27.2	-11.7	24.1
Price to Earnings	31.2	52.6	56.6	58.8	29	27.3
5 Year Total Return	0.8	13.1	0.9	19.1	-20.7	13.9
1 Year Price Return	42.1	67	311.1	127	-51.5	14.4

#### IV. Conclusion

The results of the study clearly indicated that holding winners and buying losers for a reversal in price is not a good investment strategy. It must be clearly understood that these results are achieved under very limiting conditions. The most serious restriction is the time frame in which the stocks were held, and this is especially true for the Dogs (the losing portfolio). It is entirely possible that they could produce excess returns over time frames longer than the one year holding period used in this study. However, it is likely that most investors would not be patient long enough to hold this portfolio even if this were the case in today's difficult economic environment.

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#### Authors

**Darrol J. Stanley\***, Professor of Finance and Accounting, Graziadio School of Business and Management, Pepperdine University, [darrol.stanley@pepperdine.edu](mailto:darrol.stanley@pepperdine.edu)

**Michael D. Kinsman**, Professor of Finance and Accounting, Graziadio School of Business and Management, Pepperdine University, [michael.kinsman@pepperdine.edu](mailto:michael.kinsman@pepperdine.edu)

**Craig R. Everett**, Assistant Professor of Finance, Graziadio School of Business and Management, Pepperdine University, [craig.everett@pepperdine.edu](mailto:craig.everett@pepperdine.edu)

\*corresponding author



**Appendix: Ferraris and Dogs for 2014, As Calculated from Ford’s EPIC Program, December 31, 2013**

	Company	Ticker	Industry	Exchange	Options	Adjusted	Unadjusted	Alpha	Earnings	Market	Div Yield	Shrs Held	1-yr Op	1-yr Sales	Net Profit	Return on	Return on	Current	5-yr Tot	Price Gain		
	Name	Symbol	Code	Indicator	Indicator	Beta	Beta		Variab	Cap (mil)	in %	by Inst(%)	EPS Growth	Growth	Margin Cu	Ass Cur	Eqty Cur	P/E	Ret(%/yr)	12 Mo		
1	AAON	AAON	Plumbing	O		0	1.12	1.21	1.01	30	1173	0.6	86	68.5	12.8	9.1	14.4	22.5	31.9	31.2	129.5	
2	ADVENT S	ADVS	Computer	O		1	0.88	0.68	1.98	51	1782	0	86	6.8	6.8	8.4	4.6	99.9	71.3	33.5	119.8	
3	AFFYMET	AFFX	Medical Sr	O		1	1.23	1.69	1.56	830	616	0	100	N/A	16.3	-3.4	-1.9	-14.9	N/A	25.4	170.3	
4	ANIKI	THANIK	Drugs	O		0	1.38	1.38	3.2	38	527	0	62	84.7	14.9	16.8	8.4	13.7	30.5	57.9	283.9	
5	ARKANSAS	ABFS	Trucking	O		1	1.63	1.93	-0.8	109	866	0.4	93	N/A	13.3	-0.4	-0.8	-0.7	N/A	5.3	252.7	
6	BOFI	HOLIBOFI	Savings &	O		0	0.94	0.82	4.64	19	1090	0	76	21	21.7	24.6	1.3	14.9	25.5	83	182	
7	BEST BUY	BBY	Specialty F	N		1	1.08	1.26	0.31	84	13798	1.7	71	-9.9	-7.1	-0.6	-1.5	-1	N/A	17.1	236.5	
8	CALAMP	CAMP	Electronic	O		1	1.19	1.31	7.14	268	996	0	84	0	32.4	28.5	34.1	35.7	21.4	107.4	236.2	
9	CAPELLA	ECPA	Misc. & Di	O		0	1.05	1.24	-0.61	20	824	2.1	70	-9.2	-1.7	8.2	16.2	18.3	24.7	1.9	135.4	
10	DXP	ENTE	DXPE	Industrial	O		0	1.17	1.26	2.53	44	1636	0	66	23.7	19.5	4.3	8.3	21.4	30.6	49.3	134.8
11	DELTA AIR	DAL	Airlines	N		1	1.23	1.46	1.14	813	23501	0.9	90	48.9	2.3	2.8	2.3	99.9	11.4	27.1	131.4	
12	DONNELLI	DRD	Publishing	O		1	1.55	2.12	-1.11	94	3685	5.1	88	-14.2	1	-6.4	-9	-99.9	N/A	15.9	125.6	
13	ENDO HE	ENDP	Drugs	O		1	1	0.95	1.22	93	7751	0	96	14.5	-1.2	-24	-11.1	-57.9	N/A	25	157.2	
14	FIFTH & P	FNP	Apparel	N		1	1.3	2.19	3.51	652	3935	0	10	N/A	14.1	-5	-8.3	-99.9	N/A	62.9	157.6	
15	FINANCIAL	FNGN	Fund Man	O		1	1.28	1.42	2.18	110	3502	0.3	92	40.5	28.6	10.1	6.1	8.4	133.6	N/A	150.5	
16	GT ADVAN	GTAT	Misc. & Di	O		1	1	1.24	1.82	197	1080	0	81	-99	-53.1	-8.9	-6.5	-97.7	N/A	22.8	187.8	
17	GREEN PL	GPPE	Chemicals	O		0	1.2	2.11	2.91	82	591	0.8	65	N/A	-8.6	0.2	0.6	8.5	13	41.6	145	
18	HCI	GROU	HCI	Insurance	N		0	0.85	0.93	3.53	13	615	2.1	60	121.2	52.3	20.9	10.1	34.4	9.7	N/A	157.3
19	HOME BA	HOMB	Banks	O		0	1.01	0.96	0.94	21	2428	0.8	58	15.9	8.3	28.1	1.5	12.8	29.9	26.2	126.2	
20	IGATE	IGTE	Computer	O		0	1.39	1.87	1.68	21	2341	0	56	86.3	5	4.7	2.7	99.9	32.4	41.8	154.7	
21	INVESTME	ITG	Securities	N		1	0.93	0.9	-0.22	457	746	0	78	166.7	1.6	-47.5	-10.9	3.5	51.4	3.2	128.4	
22	KAPSTONE	KKS	Paper Prod	N		0	1.4	1.99	3.2	33	2665	0	57	44.4	25.4	5.2	5.6	14.8	28.5	67.7	151.7	
23	KIRKLAND	KIRK	Specialty F	O		0	1.31	1.98	2.78	80	407	0	62	29.6	7.4	3.1	6.7	13	24.9	60	123.5	
24	LIGAND	PLGND	Drugs	O		1	0.98	0.89	2.39	936	1073	0	74	999.9	58.1	-6.1	-1.8	21.8	114.3	35.2	153.6	
25	MEDIDATA	MDSO	Medical Sr	O		0	0.81	0.68	3.36	93	3237	0	98	24.6	26.1	8.6	8.3	10.5	140.7	N/A	208.8	
26	METHOD	MEI	Electronic	N		1	1.37	1.74	1.04	103	1279	0.8	90	213.9	29.2	7.8	9.3	14.9	27.8	31.8	240.9	
27	MICRON	TMU	Semicond	O		1	1.34	1.41	2.74	176	22879	0	96	N/A	10.2	11.5	5.5	11.1	21.8	50.4	243.1	
28	NETFLIX	NFLX	Specialty F	O		1	0.74	0.6	5.89	52	21832	0	97	64	17.1	0.4	0.4	5.8	309.4	73.9	297.6	
29	SUPERVAL	SVU	Food Stori	N		1	1.19	1.22	-1.02	843	1892	0	91	-99	-20.7	-1.5	-2.4	-99.9	N/A	-8.8	195.1	
30	SALIX PHA	SLXP	Drugs	O		1	1.15	1.3	3.27	50	5657	0	96	-9.6	26.3	8.5	3.3	14.9	54.2	60	122.2	
31	SANTARUS	SNTS	Drugs	O		1	1.23	1.58	3.87	420	2145	0	78	359.1	76.4	8.1	10.8	48.2	19.4	70.4	191.1	
32	SUNEDISC	SUNE	Semicond	N		1	1.09	1.73	-0.75	524	3479	0	98	N/A	-22.3	-5.1	-2.8	-68.5	N/A	-3.3	306.5	
33	3D SYSTEM	DDD	Electronic	N		0	1.48	1.88	4.96	59	9553	0	70	43.5	42.7	12.2	6.4	5.2	202	98.9	161.3	
34	TOWERS	TW	Misc. & Di	N		1	0.67	0.52	1.42	15	9048	0.4	75	14.7	5	8.8	5.9	11.7	26.3	23.6	127	
35	TUESDAY	TUES	Specialty F	O		1	1.33	2.49	3.71	630	688	0	94	-99	4.2	-6.8	-17.6	-31.3	N/A	65.4	155.4	
36	VICOR	VICR	Electrical	O		1	1.29	1.7	-0.19	190	517	0	18	-99	-14.5	-1.7	-1.8	-9.5	N/A	15.5	147.6	
37	VIRTUSA	VRTU	Computer	O		0	1.28	1.27	2.43	31	1009	0	87	31.5	18.8	8.6	9.4	12.2	31.5	48.1	131.8	
38	VOXX INTL	VOXX	Electronic	O		1	1.71	2.64	-0.1	310	401	0	69	-0.9	7.4	2.8	2.8	6.8	13	25.2	148.1	
39	WAGEWO	WAGE	Misc. & Di	N		0	0.87	N/A	N/A	195	2057	0	0	75	28.5	6.8	2.3	8.9	106.1	N/A	233.9	
40	ZALE	ZLC	Specialty F	N		1	1.7	3.6	1.43	1330	517	0	75	N/A	1.1	0.1	0.1	1.5	225.3	20	283.7	
	AVERAGE DATA		A			1	1.18	1.49	2.03	253	4095	0.4	75	55.5	12.6	3.5	2.8	3.4	64.2	39.2	178.2	
	S&P 500	AS	SP500			0	1	1.07	0.44	55	34992	2	68	11.4	6.2	7.8	2.8	13.4	19.7	17.9	29.6	
	MID-CAP	MC	400			0	1.11	1.23	0.7	65	4011	1.4	82	11	8.7	4.5	2.7	9	27.2	21.8	31.6	
	SMALL-CAP	SC	600			0	1.14	1.33	0.76	152	1248	1.1	82	22.7	10.6	3.1	1.8	6.1	37.5	21.3	39.7	
	NASDAQ	1NQ	100			0	0.97	0.93	1.35	46	43393	1.3	68	9.6	16.6	12.9	8.6	18.8	20.7	25.7	35	

Company	Ticker	Industry	Exchange	Options	Adjusted	Unadjusted	Alpha	Earnings	Market	Div Yield	Shrs Held	1-yr Op	1-yr Sales	Net Profit	Return on	Return on Current	5-yr Tot	Price Gain		
Name	Symbol	Code	Indicator	Indicator	Beta	Beta		Variab	Cap (mil)	in %	by Inst(%)	EPS Growth	Growth	Margin Cu	Ass Cur	Eqty Cur	P/E	Ret(%/yr)	12 Mo	
1	ABERCR	ROIANF	Specialty	F N	1	1.42	1.62	0.05	44	2514	2.4	88	26.2	-1.9	5.1	7.7	8.2	18.2	14.2	-31.4
2	AEROPOS	TARO	Specialty	F N	1	1.04	1.16	-0.31	65	714	0	99	-99	-7.4	1.4	4.6	-21.2	N/A	0.5	-30.1
3	ALPHA NA	ANR	Coal	N	1	1.24	1.63	-2.66	422	1578	0	96	-99	-28.5	-35	-18.6	-20.2	N/A	-21.3	-26.7
4	AMER CA	ACC	Real Estati	N	1	0.66	0.59	0.06	48	3376	4.5	92	-23.9	46.7	14	1.3	1.8	71.6	12.4	-30.2
5	AMER EAC	AEO	Specialty	F N	0	0.92	0.91	0.38	33	2776	3.5	76	-16.2	-0.2	7.3	14.4	13.6	17.1	16.6	-29.8
6	AMER VA	AVD	Chemicals	N	1	0.57	0.2	2.37	127	697	0.8	69	41.1	18.2	11	10	17.5	15.4	24.7	-21.8
7	APPROACI	AREX	Oil Produc	O	0	1.22	1.58	0.66	168	753	0	91	42.9	25.6	6.1	0.9	1.1	107.2	19.5	-22.8
8	ARCH CO	ACI	Coal	N	1	1.26	1.61	-3.18	199	945	2.7	61	-99	-20.4	-16.4	-6.8	-25.4	N/A	-21.7	-39.2
9	ARQLE	ARQL	Drugs	O	0	1.09	1.5	-0.95	880	135	0	65	N/A	-61.2	-31.4	-8.4	-39	N/A	-6.4	-22.9
10	BLYTH INC	BTH	Cosmetics	N	1	1.12	1.37	0.63	76	174	1.8	45	-67.9	-20	0.3	0.9	-47.1	N/A	-2.7	-30
11	CBEYOND	CBEY	Telecomm	O	1	1.22	1.67	-2.85	145	206	0	79	-99	-4.3	-0.4	-0.7	-6.9	N/A	-18.3	-23.8
12	CENT GAR	CENTA	Chemicals	O	0	1.08	0.93	0.48	166	333	0	57	-88.6	-2.7	-0.1	-0.1	-0.5	N/A	13.3	-35.5
13	CINCINNA	CBB	Telecomm	N	1	1.13	1.26	0.17	73	740	0	78	-60	-9.6	0.2	0.1	-99.9	N/A	13.1	-35
14	CIRRUS LC	CRUS	Semicond	O	1	0.79	0.41	3.38	42	1297	0	65	48.4	64.1	15.6	19.4	22.1	9.3	36.7	-29.5
15	CLIFFS NA	CLF	Misc. Met	N	1	1.64	2.29	-1.35	233	4013	2.3	84	-36.5	-4.6	-16	-6.9	-28.6	N/A	3.3	-32
16	DICE HOLI	DHX	Computer	N	0	1.66	2.32	-0.32	315	408	0	82	-10.4	10.1	18.1	10	15.8	13.9	17.9	-21
17	EZCORP	EZPW	Finance & O	1	1.18	1.2	-1.57	40	635	0	86	-43.6	3.5	5.6	4.2	6	11.3	-6.7	-41.2	
18	EDWARDSE	EW	Medical Si	N	1	0.54	0.42	1.45	7	7194	0	80	30	11.1	14.9	12.7	25.4	18.7	21.4	-27.1
19	ELLIS PER	PERY	Apparel	O	0	1.21	1.99	1.28	72	248	0	68	-39.3	1.5	1.5	2	2.7	25.1	24.6	-20.9
20	FIRSTENE	FFE	Electric Ut	N	1	0.53	0.31	-1.15	25	13792	6.7	69	-4.4	-6.1	5	1.5	0.8	143.4	-6.2	-21
21	FOREST O	FST	Oil Produc	N	1	1.08	1.25	-2.28	1675	432	0	96	-22.5	-19.1	-99.9	-34.4	-99.9	N/A	-18.8	-46
22	FRANCESC	FRAN	Specialty	FO	1	1.52	N/A	N/A	92	773	0	87	23.1	24	15.7	41.2	57	16.7	N/A	-29
23	ION GEOPI	IO	Oil Well Et	N	1	1.81	3.75	-1.77	283	539	0	70	-99	-1.8	11.7	7.5	-99.9	N/A	5.2	-49.3
24	INTERDIGI	IDCC	Electronic	O	1	0.94	0.7	0.55	73	1215	1.4	65	-80.7	-51.8	39.8	24.9	7.1	31.4	6.4	-28.2
25	INTREPID	IPI	Chemicals	N	1	1.07	1.24	-0.95	29	1201	0	85	-50.4	-16	19.3	8.8	4.5	27.8	-3.6	-25.6
26	INTUITIVE	ISRG	Medical Si	O	1	1.12	1.37	0.65	3	14633	0	85	10	11.2	29.4	15.8	18.6	23	23.2	-21.7
27	IXIA	XXIA	Electronic	O	1	1.21	1.48	0.28	62	1010	0	73	63.3	28.5	10.9	5.5	4.6	44.4	16.2	-21.6
28	JAKKS PAC	JAKK	Recreator	O	1	0.83	0.63	-1.59	1132	150	0	60	N/A	-6.5	-16.3	-19.6	-99.9	N/A	-17.6	-46.3
29	LIQUIDITY	LQDT	Specialty	FO	0	0.81	0.42	2.5	24	727	0	99	-10.3	6.3	8	9.6	12.5	18	25.8	-44.5
30	NEWMON	NEM	Misc. Met	N	1	0.39	0.07	-0.14	46	11356	3.5	75	-46.3	-15	19	6.3	-6.1	N/A	-4.1	-50.4
31	PEABODY	BTU	Coal	N	1	1.18	1.36	-1.41	92	5269	1.7	78	-99	-12.1	-6.1	-3.1	-21	N/A	-3.9	-26.6
32	PENNEY J	JCP	Departme	N	1	1.33	1.77	-2.13	186	2787	0	81	N/A	-17.7	-7.6	-10.1	-99.3	N/A	-10	-53.6
33	RACKSPAC	RAX	Computer	N	0	1.07	1.21	2.32	4	5470	0	87	-6.9	19.5	7.9	8	9.2	58.4	40.8	-47.3
34	ROYAL GO	RGLD	Misc. Met	O	1	0.78	0.5	0.35	17	2967	1.8	80	-25.5	-3.6	24.4	2.4	2.6	50.6	3.4	-43.4
35	SOLARWIN	SWI	Computer	N	1	1.11	1.11	0.76	2	2845	0	90	24.3	24.2	29.9	15.5	18.2	31.8	N/A	-27.9
36	SPECTRUM	SPP1	Drugs	O	1	1.2	1.83	2.97	110	566	0	83	-99	-26.7	32.9	17.4	-4.6	N/A	47.1	-20.9
37	STRAYER	ESTRA	Misc. & Di	O	1	1.11	1.26	-3.87	33	372	0	89	-27.6	-9.4	12.2	30.1	74.1	7.2	-28.8	-38.6
38	TERADAT	TDC	Computer	N	0	0.74	0.57	1.77	4	7433	0	86	-3.6	2.5	15.2	13.2	18.3	20.2	27.7	-26.5
39	TOWER GI	TWGP	Insurance	O	1	0.88	0.73	-2.52	93	147	0	83	-99	0.2	-1.3	-0.5	-45.6	N/A	-24.8	-78.5
40	ULTRATEC	UTEK	Semicond	O	1	0.97	0.86	0.78	52	806	0	98	-57.2	-11.5	20	10.8	4.9	40.8	16.1	-22.3
	AVERAGE DATA		A		1	1.07	1.21	-0.18	180	2581	0.8	80	-14.2	-1.5	4.3	4.9	2.3	35.7	6.2	-33
	S&P 500 A	SP500			0	1	1.07	0.44	55	34992	2	68	11.4	6.2	7.8	2.8	13.4	19.7	17.9	29.6
	MID-CAP	MC400			0	1.11	1.23	0.7	65	4011	1.4	82	11	8.7	4.5	2.7	9	27.2	21.8	31.6
	SMALL-CAP	SC600			0	1.14	1.33	0.76	152	1248	1.1	82	22.7	10.6	3.1	1.8	6.1	37.5	21.3	39.7
	NASDAQ	1NQ100			0	0.97	0.93	1.35	46	43393	1.3	68	9.6	16.6	12.9	8.6	18.8	20.7	25.7	35