The "Dogs of the Dow" Myth*

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Abstract: The "Dogs of the Dow" (or "Dow Dog") investment strategy, is a popular investment strategy that promises huge abnormal returns for investors in the ten top yielding stocks from the Dow Jones Industrial Average (DJIA). However, periods of evident outperformance are balanced by periods of conspicuous underperformance. When strategy returns are adjusted for taxes and rebalancing costs. Dow Dogs perform in line with the DJIA over the 1961-98 period. As a result, there is no robust evidence of an average return anomaly tied to Dow Dogs.

The "Dogs of the Dow" Myth

1. Introduction

Whenever inexplicable patterns of abnormal stock-market returns are detected, an average-return anomaly is suggested. Such average-return anomalies may reflect market inefficiency. For example, a number of popular books, Websites and articles in the financial press purport to show above-average risk-adjusted returns for the ten stocks in the Dow Jones Industrial Average (DJIA) with the highest dividend yields. These suggestions of abnormal returns for high-yielding "Dogs of the Dow" or "Dow Dogs" might have gained some credibility because they appear compatible with studies in financial economics that document higher average rates of return for stocks with low price-earnings, price-cash flow, and price-book ratios; and low historical sales growth (see Davis, Fama, and French, 2000). Value stocks with low prices and low investor expectations tend to perform better than expected. Conversely, growth stocks with high prices reflecting optimistic investor expectations tend to underperform these high expectations.

Behavioral finance researchers like DeBondt and Thaler (1985), among others, use theories from the field of psychology to explain differential results for value and growth stocks in terms of investor overreaction to both good and bad information. According to such reasoning, investors become too optimistic in the case of growth stocks and too pessimistic in the case of value stocks. As Lee, Myers and Swaminathan (1999) argue, when intrinsic values are difficult to measure, or when trading costs are significant, the process by which price adjusts to intrinsic value takes time. From this perspective, price does not always reflect intrinsic value, and the relation between price and value is one of continuous convergence rather than static equality. Thus, when investors overreact to recent performance, they assign irrationally low values to value stocks and and irrationally high values to growth stocks. When the overreaction is corrected, value stocks have high returns and growth stocks have low returns.

On the other hand, important, regular and persistent abnormal returns that have no ready explanation in financial theory may simply reflect the limitations of that theory and traditional tests. The stock prices may be right, but popular asset pricing models may be wrong. Traditional applications of the Capital Asset Pricing Model and Arbitrage Pricing Theory may simply understate the special risks associated with value stocks. In that case, superior rates of return would simply reflect the greater risks associated with value stocks, and no true value effect anomaly would be present. This is precisely what Davis, Fama, and French (2000), among others, have found. Higher average returns on value stocks appear to be compensation for added risk. Their three-factor model uses the market portfolio and mimicking portfolios for factors related to size (market capitalization) and book equity-to-market equity (BE/ME) to describe returns. They find that such a model largely captures the average returns on portfolios formed on size, BE/ME, and other variables known to cause problems for the CAPM (earnings/price, cash flow/price, past sales growth, and long-term past return).

This theory and evidence give interesting perspective to popular suggestions of abnormal returns for high-yield Dow Dogs. Higher average returns for Dow Dogs might seem reasonable in the sense that such beaten-down stocks have low relative prices. As such, they also tend to have low price-earnings, price-cash flow, and price-book ratios. However, by virtue of the fact that Dow Dogs are in the DJIA, such companies cannot have relatively low market capitalizations. Whereas the value effect is commonly regarded as another manifestation of the small cap effect, superior performance for and large cap Dow Dogs would be inconsistent with the small cap phenomenon. Thus, it is inappropriate to

argue that popular suggestions of superior performance for Dow Dogs are a straightforward reflection of the well-known value effect. Moreover, large cap companies that pay high cash dividends tend to have relatively low risk. As such, it would seem difficult to argue that abnormally high rates of return for Dow Dogs would reflect a required risk premium.

This paper gives a simple, if not prosaic, explanation of the Dow Dog phenomenon. It appears that much of the perceived outperformance by Dow Dogs can be explained in terms of investment period selection problems, and data problems tied to the accurate measurement of portfolio returns. While there have been notable periods of outstanding relative performance for Dow Dogs, like 1973-74, there have also been periods of notable underperformance, like 1990. Rates of return on the Dow Dog portfolio also tend to be systematically overstated in the popular financial press. Moreover, popular financial promotions of the Dow Dog strategy fail to correctly anticipate the magnitude of transaction costs and taxes, and their harmful effects on strategy returns. After transaction costs and taxes, one cannot outperform a simple buy-and-hold strategy by focusing on high-yield stocks included within the DJIA over the 1961-98 period. Historically brief advantages for the high-yield Dow Dog strategy appear to be the types inexplicable patterns in annual returns that can be uncovered by diligent "data snooping" (see Sullivan, Timmerman, and White, 1999). Unfortunately, in the case of Dow Dogs, above-average annual returns that are inexplicable also tend to be reversible. There is no recent advantage to Dow Dog investing, even *before* taxes and transaction costs.

What makes this so-called anomaly fascinating, and this analysis worthwhile, is the enormous popularity of the Dow Dog strategy and the enthusiastic way in which it has been embraced by the public, investment professionals, and many academics. The tremendous popularity and wide acceptance of the Dow Dog strategy are an interesting commentary on present-day investment theory and practice. The paper is organized as follows. Section 2 discusses the popularity of the Dow Dog strategy as a manifestation of various data snooping problems. Section 3 explains the Dow Dog strategy and shows flaws in the myth. Section 4 serves to debunk the myth by showing that high-yield stocks contained within the DJIA fail to outperform index averages. Section 5 gives some conclusions and implications for investment theory and practice.

2. Data Snooping Problems

An important lesson from capital markets research is that there is a strong relation between portfolio risk and expected return. However, even when risk and return are accurately measured, researchers need literally decades of data to precisely test variations of factor pricing models. While years of daily price data on thousands of individual stocks are essential for precise capital markets research, the quantity of available data gives rise to a "data snooping" problem. As Jensen and Bennington (1970) write, "given enough computer time, we are sure that we can find a mechanical trading rule which "works" on a table of *random numbers*–provided of course that we are allowed to test the rule on the *same* table of random numbers which we used to discover the rule." (p. 470).

Thus, it should not be surprising that high-yield stocks in the DJIA might outperform the DJIA during the 1970s, or that low-yield DJIA stocks might outperform the DJIA during the 1990s. These are the types of inexplicable patterns that can emerge when reams of data from a perfectly efficient market are analyzed. If such mysterious patterns reverse in similarly puzzling ways, they pose no threat to the Efficient Markets Hypothesis (EMH). However, it would seriously damage support for the EMH

if sorting stocks by dividend yield, or any other publicly available criteria, could consistently give rise to above-average rates of return. Thus, while it would not be surprising that high-yield stocks in the DJIA might outperform the DJIA in the 1970s, if they continued to do so during the 1990s, that would in fact constitute an anomaly.

Data snooping problems in capital markets have at least three distinct manifestations. The simplest type of data snooping problem emerges when researchers study hundreds of daily, monthly, or annual returns on perhaps hundreds of stocks. Researchers sometimes proudly proclaim that large t-statistics are statistically significant even when, as any statistician knows, roughly 5% of the inconsequential variables in a study can show up as having a meaningful impact over large samples of data. When researchers routinely analyze the same sample of data, like *CRSP*, and focus on the same time frame, like the 1970s and 1980s, misleading inferences of robustness can be reinforced.[1]

A related data snooping problem exists to the extent that researchers and journal editors selectively publish "statistically significant" results. This is the well-known Type I versus Type II error in academic research. Being familiar with prior research, and the journal editorial process, researchers tend to focus on "significant" findings, and discard results when authors "don't find anything." When findings that fail to confirm prior results get discarded, incorrect perceptions of robustness get created. Potentially useful building blocks for the formation of future research questions also get cast aside.

Finally, data snooping can affect the types of questions addressed by the professional investment community and in academic research. Those who study financial markets do so in light of what others have done with similar data and investigative techniques. For example, research agendas on asset pricing have been shaped by previous interest in the role played by high-yield stocks and contrarian investment strategies. Armed with prior evidence and "statistically significant" empirical regularities, a veritable army of researchers is unleashed to comb through what appears to be a fertile field. No such similar enthusiasm can be detected for potentially more useful research on items of arguably more important marginal benefit (e.g., the role of intangible factors in asset pricing).

A particularly interesting example of the data snooping problem in financial research and in the popular financial press is given by the Dogs of the Dow myth.

3. The "Dogs of the Dow" Myth

3.1 Origin of the Myth

During August of 1988, a fascinating article titled "Study of Industrial Averages Finds Stocks With High Dividends Are Big Winners" appeared in *The Wall Street Journal*.[2] In that article, analyst John Slatter, then of Prescott, Ball & Turben, Inc., in Cleveland, Ohio, proposed a simple and intuitively appealing investment approach. Later dubbed the Dow Dog investment strategy, Slatter suggested that investors confine their stock-market selections to the ten top yielding stocks found among the thirty industrial giants included within the Dow Jones Industrial Averages (DJIA). According to Slatter, these "dogs" provide anything but dog-like returns. He offered evidence that a portfolio of high-yielding Dow stocks outperforms the DJIA by an eye-popping 7.59% per year (see Table 1)!

Over the years, the Dow Dog approach has generated significant and growing interest among both institutional and individual investors. The only calculation required is to compute the current dividend yield for all thirty DJIA components on the first trading day of the year. Then, rank the thirty DJIA stocks in descending order by dividend yield, buy the top ten yielding stocks, and maintain these

holdings until the first trading day of the new year. At that point this simple selection process is repeated. With an elementary dividend yield criterion, anyone can adopt the strategy. With only once-a-year rebalancing, transaction costs tied to brokerage commissions and capital gains taxes are kept at a minimum. Because membership on the list of high-yielding DJIA stocks tends to be quite stable, low portfolio turnover rates and modest transaction costs can be expected.

Given the promise of huge excess returns, and its appeal as a simple-to-execute contrarian investment philosophy, the wide and still-growing popularity of the Dow Dog strategy is easy to understand. A number of best-selling books extolling the virtues of the approach have also served to speed its acceptance, e.g., Michael O'Higgins and John Downs' (1991) *Beating the Dow*, Harvey C. Knowles III and Damon H. Petty's (1992) *The Dividend Investor*, and, most important, David and Tom Gardner's (1996) *The Motley Fool Investment Guide*. The Gardners have also been instrumental in extending the popularity of the Dow Dog strategy beyond the print media and into the cyberspace. The Gardners now claim that *1.5 million* Fools regularly visit with them online, another *4 million* Fools listen in on their syndicated radio program, and "countless" others read their newspaper columns and books.[3]

Of course, it is impossible to gauge the popularity of the Dow Dog investment strategy solely on the basis of books sales or the number of users logged onto AOL, or at popular Websites on the Internet. However, an indicator of the magnitude of investment dollars involved can be obtained by considering the size of mutual funds and investment trusts tied to the Dow Dog investment philosophy. For example, in 1991, Merrill Lynch launched the Defined Asset Funds: Select Ten Portfolio to buy Dow Dogs and has attracted more than *$10 billion* in assets. Unit trusts offered by other brokerages add billions of dedicated dollars under management to the Merrill Lynch total, e.g., A.G. Edwards' Target 10 Trust. With thousands of individual investors independently following the Dow Dog strategy, *Barron's* now estimates that as much as $20 billion, an amount larger than all but the top fifteen mutual funds, is currently committed to the Dow Dog strategy.[4]

Companies included within the DJIA averages are among the largest, most liquid, and heavily analyzed on Wall Street. Moreover, the Dow Dog method is a very simple investment strategy that employs widely scrutinized public data. Previous studies suggest an *unbelievable* level of excess returns. How could the market be so inefficient?

3.2 Flaws in the Myth

A simple check of figures employed in prior studies suggests that data errors, rather than market inefficiency, may provide at least a partial explanation for the perceived advantage of Dow Dogs. For example, Slatter shows a total return of 44.4% for the DJIA in 1974. This is plainly incorrect. The market didn't go up in 1974. Returns were negative in 1974 as the market concluded a long and painful bear market. If numbers like returns on the DJIA for 1974 are wrong, perhaps other harder to check numbers are incorrect as well.

Later studies show troubling inconsistency in Dow Dog returns *for identical time periods*. For example, Slatter's 27.3% annual rate of return for 1979 contrasts sharply with 1979 returns of 12.37%, 9.67%, 12.99% and 8.24% reported elsewhere (see Table 1).[5] In 1987, Slatter's 17.3% conflicts with 0.61%, 6.89%, 6.97% and 9.09% related in other studies. These are not small differences in a market that averages 10.27% (1979) and 5.93% (1987), as measured by *Barron's* estimate of the annual rate

of return for the DJIA (see Table 2). It is troubling when estimated returns for such an easily implemented strategy deviate wildly.[6]

Conceptual problems also may be responsible for at least some of the perceived premium earned by Dow Dogs. In the still-popular O'Higgins and Downs' book, for example, the authors employ arithmetic averages in the calculation of realized returns. In practice, return estimates tend to be biased upwards when arithmetic averages are used to study highly volatile portfolios. This stems from the fact that upward performance is unlimited, whereas downward performance is limited to -100%.[7] Thus, annual rates of return for Dow Dogs as reported by O'Higgins and Downs, among others, are upward biased.

Results from prior studies are also suspect because they fail to reflect transaction costs. The Dow Dog strategy involves picking stocks with higher than typical dividend yields, by definition. Like any high-yield approach, the method will necessarily involve higher-than-average income taxes on dividends, and therefore higher taxes on total realized returns. Such a high-yield approach will also involve annual portfolio rebalancing and brokerage commissions, bid-ask spread costs, and capital gains taxes that could be avoided if a simple buy-and-hold investment strategy were employed.

4. Debunking the Myth

4.1 Returns Before Taxes and Transactions Costs

The buy-and-hold investor seeking to mimic DJIA performance would simply purchase a portfolio containing the same number of shares of each component stock. For example, with a DJIA of 11,000, and a divisor of roughly 0.2, a round lot representing 100 shares of each DJIA component has a cost of approximately $220,000 before commissions. Given minimal discount brokerage commissions, a buy-and-hold strategy based upon the DJIA is a practical investment alternative for many investors. Even very small investors can mimic DJIA returns at minimal cost by purchasing units in trusts consisting of DJIA stocks (e.g., so called DJIA "Diamonds"). Thus, DJIA returns are a practical investment benchmark from which to compare the success of active investment strategies such as the Dow Dog approach.

A fair test of the Dow Dog investment strategy requires using data that is available to the typical investor, such as price and return information reported in *The Wall Street Journal*. Therefore, to test the Dow Dog investment strategy, this study measures expected dividends for the coming year as four times the actual dividend paid in the fourth quarter of the prior year, as reported in *The Wall Street Journal*, minus any special one-time dividends or stock dividends. This method was chosen over simply taking the total of the last four dividends paid because any dividend increases during the prior year would be known to the market and reflected in stock prices. This expected dividend was then divided by the first-day stock price to get the dividend yield for purposes of compiling various yield categories.

Individual stocks were "purchased" without commissions on the first trading day of the year -- January 2nd, 3rd, or 4th -- and formed into portfolios of ten stocks each. The high-yield portfolio consists of the ten highest yielding DJIA stocks. The middle-yield group includes the ten next-highest yielding DJIA stocks. The low-yield group contains the ten DJIA stocks paying the lowest dividend yield. Dividends paid throughout the year, including extra or special dividends, are added to the year-end price and then this total is divided by the initial price to calculate total returns as $R_{it} = ((P_{t+1} +$

$D_t)/P_t) - 1$). Stock dividends increase the number of shares sold at the end of the year. Spin-offs are recorded as if held from the time they were issued until the end of the year. Spun-off stocks are treated as if sold on the first trading day of the following year.

For the thirty-eight-year 1961-98 time frame, Table 2 shows arithmetic and geometric total returns for the DJIA, as reported in *Barron's*,[8] and for the Dow Dog portfolios. As might be expected, Dow Dogs appear to do extremely well on a relative basis during some years, like 1973-74, and poorly during others, like 1990. However, over the entire 1961-98 time frame, no consistent picture of superior performance for Dow Dogs is apparent. Before transactions costs, the geometric mean return for the Dow Dogs is 13.13%, or only 1.55% per year greater than the 11.35% annual return on the DJIA.[9] Notice that this very modest 1.55% excess return, calculated before taxes and transaction costs, is sharply lower than the Dow Dog return premium suggested in earlier studies (see Table 1). Therefore, the perceived premium to Dow Dog investing appears due to data sampling problems, coding errors and the bias of arithmetic averages.

4.2 Dow Dogs Don't Travel Well

For the moment, consider the possibilities facing transactions-cost efficient and tax-efficient institutional investors. A potential annual excess return of 1.55% could make the Dow Dog investment strategy worth pursuing if such advantages were stable and predictable. Unfortunately, they are not. As shown in Table 2, Dow Dogs outperform the DJIA portfolio in only 21 of 38 years during the 1961-98 period. Dow Dogs outperform the DJIA during only 3 of 7 five-year periods, and exhibit an edge during 2 of 3 ten-year periods. This return pattern is typical of equally performing comparison portfolios. Interestingly, positive above-average for the Dow Dog strategy seems to be a thing of the past. During the most recent decade, a total return penalty of -2.13% to Dow Dog investing is operative. This suggests that earlier above-average returns for Dow Dog investing, such as those reported by McQueen, Shields, and Thorley (1997), may have been a statistical oddity.

On the other hand, wide publicity tied to the Dow Dog strategy may have generated sufficient investment interest to cause the recent demise in the strategy's effectiveness. Remember, the public record confirms that at least $20 billion in investment dollars are dedicated to the Dow Dog strategy. This may be enough to affect market prices for Dow Dogs. As of November 30, 1999, the ten top-yielding DJIA stocks (by yield, and market capitalization) were: Philip Morris (7.30%, $62.4 billion), J.P. Morgan (3.01%, $23.7 billion), Eastman Kodak (2.84%, $19.0 billion), Caterpillar (2.80%, $17.1 billion), General Motors (2.78%, $48.5 billion), Du Pont (2.36%, $63.5 billion), Minnesota Mining (2.34%, $39.9 billion), Exxon (2.22%, $285.0 billion), International Paper (1.92%, $22.0 billion), and SBC Communications (1.89%, $182.5 billion). The median size of these high-yield components found within the DJIA is roughly $40 billion. Substantial targeted investments of, say, $2 billion (= $20 billion/10) per company represents buying pressure equal to 5% of median market capitalization, and may in fact be sufficient to affect the Dow Dog's investment performance during recent periods.[10]

4.3 Taxes and Transactions Costs

Of course, a fair test of the Dow Dog strategy over the entire 1961-98 period would consider both transactions costs and tax penalties tied to its implementation. Once-a-year portfolio rebalancing is necessary to begin each trading year with an equally-weighted portfolio of the ten highest yielding stocks in the DJIA. The most obvious need for rebalancing stems from the requirement to buy new

Dow Dogs while replacing previous selections that no longer qualify. On an *a priori* basis, one would expect that roughly three in ten Dow Dogs would be replaced per year. With thirty stocks in the DJIA, the Pr = .33 that any individual stock would fall within any given three-part subgroup defined according to dividend yield, or any other arbitrarily drawn characteristic. The actual portfolio turnover rate for Dow Dogs over the 1961-98 period is 3.027 stocks per year. This translates into a minimum 30.27% annual portfolio turnover rate. With typical round-turn bid-ask spread plus brokerage costs of 1%, this implies a 0.31% per year minimum performance penalty due to portfolio rebalancing necessary to add new Dow Dogs. Some rebalancing of positions in retained Dow Dogs will also typically be required. Positions need to be increased in underperforming Dow Dogs that will be retained during the coming year; positions need to be decreased in outperforming Dow Dogs that will be retained. With mean total return of 13.13% and a dividend yield of 5.7%, capital appreciation averages 7.43% per year for Dow Dogs. If all retained Dow Dogs appreciate by exactly that amount, no rebalancing of retained stocks would be necessary. At worst, average annual rebalancing of 7.43% of the market value of retained Dow Dogs is possible. If capital appreciation is randomly distributed about the mean, annual rebalancing of one-half of retained Dow Dogs would result in a minimal additional portfolio turnover rate of 2.59% (= (1- 30.27%) × (7.43%/2)), and added transaction costs of 0.03% per year. This implies a total return penalty due to rebalancing costs for the Dow Dog strategy of 0.34% (= 0.31% + 0.03%) per year. Therefore, on a conservative basis, rebalancing costs tied to a total portfolio turnover rate of 32.86% (= 30.27% + 2.59%) can be used to explain 0.34% in premium performance by the Dow Dog investment strategy.

In addition to transaction costs tied to necessary portfolio rebalancing, Dow Dog investors face higher income taxes and capital gains taxes than the buy-and-hold investor. Because Dow Dogs involve greater than typical dividend yields, by definition, this strategy involves higher than average taxes on investment income. The geometric mean of the dividend yield earned by Dow Dogs is 5.7%, or 1.85% per year more than the 3.85% mean dividend yield earned by the DJIA over this period. Thus, a state plus federal marginal tax rate of 40% on dividend income would explain 0.74% (= 0.4 × 1.85%) of the return premium earned by Dow Dogs. Added capital gains taxes are also relevant. A total portfolio turnover rate of 32.86% implies annual realization of capital gains on the order of 2.44% per year (= (13.13%-5.7%) × 32.86%). With a capital gains tax rate of 20%, a capital gains tax penalty of 0.50% (= 2.44% × 20%) per year is indicated for Dow Dog investors.

Thus, implementation of a Dow Dog investment strategy results in added annual brokerage costs of 0.34%, plus added income taxes on dividends of 0.74%, plus added capital gains taxes of 0.50% --- or 1.58% in annual transactions costs. These transaction costs are roughly equivalent to the previously unexplained excess returns of 1.55% per year for the Dow Dog strategy over the 1961-98 period.[11] Over the entire 1961-98 period, the entire perceived abnormal return to Dow Dog investing can be explained by taxes and transaction costs. After taxes and transactions costs, Dow Dog returns would then appear to mimic those for the DJIA. This is consistent with an efficient market expectation.

The prognosis gets worse for the small investor. For example, Merrill Lynch's Select Ten Portfolio features an initial sales charge of 1.00%, a deferred sales charge of 1.75% per year, and estimated annual operating expenses of 0.22%. Thus, after transaction costs and taxes, the Dow Dog

investment strategy is apt to result in a significant return penalty of 3 % per year (= 1.78% - 1.55% - 2.97%) for small investors.

4.3 Risk Adjustment Considerations

In judging the performance of the Dow Dog portfolio, or any such investment strategy, it is necessary to adjust portfolio returns for any significant differences in risk. On an *a priori* basis, it is conceivable that the high-yield characteristic of Dow Dog stocks might make such an investment strategy perceptibly less risky than the DJIA portfolio. Balancing this consideration is that fact that the Dow Dog portfolio consists of only 10 securities. Unlike the 30 components of the DJIA, which are selected for their broad industry representation, there is no assurance that Dow Dog selections reflect a broad mix of industries. Of course, whether or not the Dow Dog stocks are more or less risky than the DJIA is an empirical issue.

As shown in Table 2, the standard deviation of annual returns for the Dow Dog portfolio is 15.33% over the 1961-98 period, or virtually identical to the 15.10% standard deviation for the DJIA. On an empirical basis, there is little foundation for arguing that the Dow Dog portfolio is less (or more) risky than the DJIA. Their failure to outperform the DJIA cannot be made more appealing by obvious low-risk attributes of Dow Dogs.

5. Conclusions

Contrary to suggestions made in best-selling books, promotional literature from the brokerage community, and in cyberspace, one cannot outperform a simple buy-and-hold strategy with a Dow Dog portfolio of high-yield stocks from the DJIA. Any perception of a Dow Dog anomaly disappears when returns are properly calculated and both transaction costs and taxes are considered over a significant 1961-98 investment horizon.

Much of the false impression of market outperformance by Dow Dogs appears to have been fueled by especially good relative performance for Dow Dogs during the severe bear market of 1973-74 and throughout the 1970s. However, unusually poor relative performance for Dow Dogs is evident during other periods, like the 1990 bear market and throughout the 1990s. Such inexplicable patterns often emerge when investment professionals and academic researchers collectively snoop through reams of annual return data looking for market-beating strategies. Because above-average returns for the Dog Dog strategy mysteriously appear and then reverse, they pose no threat to the EMH.

In short, there is no convincing evidence to support the popular belief of superior investment performance for high-yielding stocks from the DJIA. An obvious implication is that unsophisticated investors have become unwitting victims of the "believing is seeing" fallacy. Desperately seeking simple market-beating investment strategies, they have enthusiastically embraced a plausible but ineffective investment philosophy. Additional implications may also be relevant.

As Fama (1998) notes, the recent finance literature seems to produce many long-term return anomalies. Widely noted imperfections in tests of the CAPM, APT and other asset pricing models have contributed to the discovery of a variety of inexplicable statistical patterns in historical returns. Some of these may be economic anomalies as well. However, many Wall Street professionals and financial economists, like novice investors, may have become too willing to accept suggestions concerning the grossest forms of market inefficiency.

Companies included within the DJIA are among the largest, most liquid, and most heavily analyzed on Wall Street. There has been incredible popular acceptance of the notion that one can earn 7%-8% abnormal returns on a portfolio of DJIA companies using a simple dividend-based strategy. Also incredible is the notion that modern financial markets could be that inefficient.

Footnotes

1. Of course, when researchers analyze the entire population of stock-return data, rather than samples of data, their failure to explain returns speaks directly to the issue of model misspecification and bias.

2. John R. Dorfman, "Study of Industrial Averages Finds Stocks With High Dividends Are Big Winners," *The Wall Street Journal*, August 11, 1988, p. 29.

3. See David Gardner, "Past, Present, & Future: All We Care About Now Is The Future," August 4, 1999, http://www.fool.com/portfolios/rulebreaker/1999/rulebreaker990804.htm

4. See Andrew Barry, "They Still Hunt," *Barron's*, January 5, 1998, 25-26.

5. See John R. Dorfman, p. 29; Michael O'Higgins and John Downs, p. 191-192 as updated in Andrew Barry, "Canny Canines," *Barron's*, December 13, 1993, p. 14, and Andrew Barry, "Faithful Friends," *Barron's*, December 26, 1994, p. 14; Harvey C. Knowles III and Damon H. Petty, p. 30; Merrill Lynch, *Defined Asset Funds: Select Ten Portfolio, 1999*, promotional material; *The Daily Dow* Website (address above); and http://www.dogsofthedow.com/dogyrs.htm.

6. McQueen and Thorley (1999) discuss similar data errors in the "Foolish Four" investment strategy, which is based on a subset of the highest yielding stocks in the DJIA.

7. If a stock appreciates by 100%, and then falls by 50%, the arithmetic average rate of return for two periods is 25% (= (100%-50%)/2). In reality, no net profit is made, and the actual geometric mean rate of return is 0% (= $((2.0 \times 0.5)^{0.5} - 1)$).

8. See *Barron's* January 2, 1995, MW 95, plus updates from recent issues.

9. Here the geometric mean of the difference between Dow Dog returns and the DJIA is 1.55% per year, while the simple difference between the geometric mean returns for the Dow Dogs and the DJIA is 1.78% per year. Because of compounding, the geometric mean of the differences is less than the difference of the geometric means.

10. These data do suggest a possibly effective trade tied to the Dow Dog strategy. At the turn of the year 2000, Chevron ($59.7 billion) and Goodyear ($5.1 billion) will be dropped from the 1999 Dow Dogs and be replaced by 2000 newcomers International Paper and SBC Communications. With roughly $2 billion each in targeted buying, International Paper and SBC Communications may enjoy some price strength tied to Dow Dog buying. Given its relatively modest market capitalization, price strength may be especially notable in the case of International Paper. With roughly $2 billion each in targeted selling, Chevron and Goodyear, especially, may be vulnerable to some price weakness tied to Dow Dog liquidation.

11. In the only other academic study to date, McQueen, Shields, and Thorley (1997) estimate a statistically significant but economically insignificant premium to Dow Dog investing of 0.95%, after taxes, transactions costs and risk adjustment.

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Table 1

Previously Estimated Annual Rates of Return For Equally-Weighted Portfolios of "Dow Dogs" and the DJIA, 1961-98

Prior studies suggest above-market returns from an investment strategy that focuses on the 10 highest-yield components of the DJIA. However, data errors, rather than market inefficiency, may provide a partial explanation. Transactions costs, like brokerage commissions and bid-ask spreads, and higher tax consequences tied to the technique are more than enough to overcome any perceived advantage, especially during recent years.

	Slatter		**O'Higgins & Downs (as updated in *Barron's*)**		**Knowles & Petty**		**Merrill Lynch**		***The Motley Fool***	
	Ten		**Ten**		**Ten**		**Ten**		**Ten**	
Year	**High-Yield**	**DJIA**	**High-Yield**	**DJIA**	**High-Yield**	**DJIA**	**High-Yield**	**DJIA**	**High-Yield**	**Dow 30**
1961									26.91%	22.74%
1962									-0.14%	-7.37%
1963									19.57%	23.03%
1964									20.28%	19.64%
1965									18.26%	17.32%
1966									-13.92%	-15.10%
1967									25.81%	21.95%
1968									14.47%	10.04%
1969									-14.41%	-8.91%
1970									2.01%	4.82%
1971									6.20%	9.01%
1972	3.30%	-14.40%			23.85%	18.10%	23.26%	18.21%	23.90%	16.72%
1973	-2.90%	-23.40%	3.94%	-13.12%	3.88%	-13.40%	-4.08%	-13.12%	3.89%	-10.86%
1974	58.90%	44.40%	-1.28%	-23.14%	1.02%	-23.40%	-2.40%	-23.14%	1.04%	-15.68%
1975	35.60%	22.30%	55.87%	44.40%	53.23%	44.40%	55.65%	44.40%	50.99%	44.24%
1976	1.10%	-13.20%	34.81%	22.72%	33.21%	22.30%	33.25%	22.72%	33.24%	29.20%
1977	3.30%	2.40%	0.93%	-12.71%	-1.03%	-13.20%	-2.90%	-12.71%	1.17%	-12.41%
1978	12.70%	10.20%	-0.13%	2.69%	2.40%	2.40%	-1.91%	2.69%	2.55%	2.52%
1979	27.30%	21.00%	12.37%	10.52%	9.67%	10.20%	10.48%	10.52%	8.24%	11.34%
1980	6.30%	-3.60%	27.23%	21.41%	27.53%	21.00%	24.69%	21.41%	31.23%	25.31%
1981	24.50%	26.00%	5.02%	-3.40%	2.68%	-3.60%	5.51%	-3.40%	4.25%	-3.26%
1982	41.10%	25.50%	23.58%	25.79%	20.68%	26.00%	23.79%	25.79%	20.85%	19.59%
1983	9.00%	9.00%	38.73%	25.65%	39.22%	25.50%	36.93%	25.68%	39.22%	35.63%
1984	23.30%	27.80%	7.64%	1.08%	6.27%	0.71%	5.41%	1.06%	6.36%	0.51%
1985	27.20%	26.60%	29.48%	32.78%	31.20%	31.14%	27.00%	32.78%	30.50%	29.77%
1986	6.30%	5.80%	32.08%	26.92%	28.12%	26.60%	32.96%	26.91%	26.20%	21.69%
1987	17.30%	6.40%	0.61%	6.02%	6.89%	5.80%	5.06%	6.02%	9.09%	11.96%
1988			26.14%	15.95%	18.22%	15.55%	22.44%	15.95%	17.96%	14.64%
1989			26.53%	31.71%	27.37%	30.75%	25.65%	31.71%	29.68%	31.97%
1990			-7.58%	-0.40%	-10.01%	-3.36%	-10.14%	-0.57%	-10.01%	-9.17%
1991			34.25%	23.91%			31.81%	23.93%	43.95%	31.48%
1992			7.86%	7.44%			6.44%	7.34%	6.24%	10.96%
1993			27.30%	16.80%			25.30%	16.72%	23.68%	17.96%
1994			4.10%	4.90%			1.95%	4.95%	2.43%	3.73%
1995			36.50%	36.40%			34.97%	36.48%	37.16%	36.66%
1996			27.90%	28.60%			26.34%	28.57%	27.47%	24.33%
1997			21.90%	24.90%			19.92%	24.78%	20.39%	22.32%
1998			10.70%	17.75%			8.55%	18.00%	11.66%	#NUM!
Average	**18.39%**	**10.80%**	**18.71%**	**14.45%**	**17.07%**	**11.76%**	**17.26%**	**14.58%**	**16.01%**	**#NUM!**
Std. Dev.	**16.92%**	**18.36%**	**15.91%**	**16.67%**	**16.41%**	**18.06%**	**15.98%**	**16.38%**	**15.63%**	**#NUM!**

Note: The Motley Fool compares Dow Dog performance with returns for an equally-weighted portfolio of DJIA stocks (the "Dow 30" portfolio).

Table 2

Total Returns for the DJIA and "Dow Dog" Portfolios, 1961-98

One cannot outperform a simple buy-and-hold strategy by focusing on high-yield stocks included within the DJIA. Much of the false impression of market outperformance by Dow Dogs is created by prior mistakes in rate of return calculations, and the common failure to accurately reflect transaction costs and taxes.

	DJIA		DD Advantage Before Transaction Costs		
Year	Total Return (from Barron's)	"Dow Dogs" Total Return	Annual	5-year periods	10-year periods
1961	21.82%	26.06%	4.24%		
1962	-7.24%	-2.48%	4.76%		
1963	20.07%	19.03%	-1.04%		
1964	18.14%	19.23%	1.09%		
1965	13.83%	16.64%	2.81%		
1966	-14.88%	-14.22%	0.66%		
1967	18.53%	24.22%	5.69%		
1968	7.59%	13.78%	6.19%	3.26%	
1969	-10.95%	-15.92%	-4.97%		
1970	8.58%	0.57%	-8.01%		
1971	9.58%	4.88%	-4.70%		
1972	17.74%	22.70%	4.96%		
1973	-12.43%	0.32%	12.75%	-0.28%	
1974	-21.45%	-2.95%	18.50%		
1975	42.71%	47.28%	4.57%		
1976	21.98%	32.97%	10.99%		
1977	-11.76%	0.97%	12.73%		
1978	2.88%	1.15%	-1.73%	8.79%	4.15%
1979	10.27%	6.40%	-3.87%		
1980	20.57%	28.41%	7.84%		
1981	-2.81%	2.21%	5.02%		
1982	24.77%	17.66%	-7.11%		
1983	24.74%	37.97%	13.23%	2.75%	
1984	1.26%	4.85%	3.59%		
1985	31.67%	27.72%	-3.95%		
1986	26.12%	24.73%	-1.39%		
1987	5.93%	7.45%	1.52%		
1988	15.52%	17.71%	2.19%	0.36%	1.54%
1989	30.70%	27.62%	-3.08%		
1990	-0.40%	-12.95%	-12.55%		
1991	23.32%	34.34%	11.02%		
1992	7.22%	2.94%	-4.28%		
1993	16.37%	22.80%	6.43%	-0.84%	
1994	4.89%	0.73%	-4.16%		
1995	35.75%	35.17%	-0.58%		
1996	28.04%	27.25%	-0.79%		
1997	24.36%	19.80%	-4.56%		
1998	17.75%	10.97%	-6.78%	-3.40%	-2.13%
Arith. Avg.	**12.39%**	**14.16%**	**1.77%**		
Geo. Mean	**11.35%**	**13.13%**	**1.55%**		
Std. Dev.	**15.10%**	**15.33%**	**6.87%**		