Price-earnings relatives - a new twist to the low-multiple strategy

John W. Peavy, III
Southern Methodist University

David A. Goodman
Southern Methodist University

Follow this and additional works at: https://scholar.smu.edu/business_workingpapers

Part of the Business Commons

This document is brought to you for free and open access by the Cox School of Business at SMU Scholar. It has been accepted for inclusion in Historical Working Papers by an authorized administrator of SMU Scholar. For more information, please visit http://digitalrepository.smu.edu.
PRICE-EARNINGS RELATIVES — A NEW TWIST TO THE LOW-MULTIPLE STRATEGY

Working Paper 81-120*

by

John W. Peavy, III

and

David A. Goodman

John W. Peavy, III
Assistant Professor of Finance
Edwin L. Cox School of Business
Southern Methodist University
Dallas, Texas 75275

David A. Goodman
Associate Professor
Management Science and Computers
Edwin L. Cox School of Business
Southern Methodist University
Dallas, Texas 75275

*This paper represents a draft of work in progress by the authors and is being sent to you for information and review. Responsibility for the contents rests solely with the authors. This working paper may not be reproduced or distributed without the written consent of the authors. Please address all correspondence to David Goodman.
PRICE-EARNINGS RELATIVES - A NEW TWIST TO THE LOW-MULTIPLE STRATEGY

Latest computer research findings show that there is a new investment strategy which promises the investor high returns at relatively low risk. This strategy is a new twist to the now popular but once forbidden low P/E multiple approach. The new twist is called the price-earnings relative or PER. As we will see later, our study shows that a low PER investment strategy can produce higher returns at lower risk than the more traditional approaches.

In order to better understand how and why the PER investment approach works, it is important to trace some of the events leading up to the PER concept.

Once upon a time, in a long-forgotten era of soaring stock prices, an astute disciple of fundamental securities analysis cautioned that many investors and analysts alike were existing in an investment fairyland. In his 1949 classic, *The Intelligent Investor*, Benjamin Graham maintained that stockmarket participants are inclined to overreact to future corporate prospects. In the process, these otherwise rational investors would often engage in a sort of "psychic" investing -- rallying around the most favorably viewed stocks, and frequently chasing those coveted issues to exorbitant prices based on the premise that another buyer could always be found at an even higher level.

Meanwhile, the least attractively regarded stocks would be relegated to an investors' graveyard -- to be avoided regardless of price.

Such overreactions manifest in the phenomenon that the fashionable stocks are propelled to prices that are too steep, while the banished issues are apathetically priced too low. This disparity becomes most evident when observing the price-earnings ratios of the two categories of stocks. The fashionable stocks tend to sport lofty P/E ratios while the less popular issues possess meager multiples.
"Two-Tier' Market Revisited

The now infamous two-tier market of 1971-1972 provides recent confirmation of Graham's overreaction theory. During that time investors singled out approximately four dozen large-capitalization, above-average growth companies and engaged in a titanic bidding warfare for those precious securities. Prices of these "nifty fifty" growth stocks escalated to dizzying heights. In 1972, Avon, Disney, and Polaroid, to name a few, all sold at prices in excess of 80 times earnings. At one point, the total market value of Avon exceeded that of the entire domestic steel industry. But price was not a major concern. No matter how much you paid for one of these elite issues, you would prosper -- or so the theory went -- because growth would eventually bail you out. Of course, we all know that this speculative binge went the way of prior manias. The collapse of the nifty fifty was sudden and cruel. By 1974, Avon, Disney, and Polaroid had lost more than eighty percent of their peak market values. Even regal IBM, the epitome of a "one-decision" stock, had more than half of its market value lopped off.

The two-tier market was certainly not the first speculative binge, nor will it likely be the last. But it does vividly portray the risks of driving prices to extremes -- no matter how attractive the underlying company. More and more market analysts, having witnessed the brutality in which speculative bubbles are burst, subscribe to Graham's stringent valuation theories. In particular, some of these analysts, who are labeled "contrarians," advocate that investors should confine their purchases to quality, low-multiple stocks while avoiding high-P/E issues. These contrarians argue that high-multiple stocks have considerably greater downside price risk than do their low-P/E counterparts. In effect, a low-P/E stock has already been pushed to the
depths of price so how much lower can it go? On the other hand, a high multiple stock that falls from investor favor has a considerable distance to decline before it reaches a more normal multiple level.

If Graham's early overreaction hypothesis is valid, then the basically ignored lowest P/E stocks are presumably over-depressed and should eventually adjust upwards to a more normal level. Such adjustments should lead to higher-than-normal returns. On the other hand, the over-inflated, high-PE's should at some time collapse to lower and more realistic levels, thereby depressing returns from these stocks.

**Staying Out of Trouble**

An investment strategy that reflects a contrarian's viewpoint is one that concentrates on a diversified portfolio of selected low-multiple issues. The advantages of this strategy are twofold. First, only stocks with depressed P/E's will be selected -- thus limiting downside price risk (assuming, of course that these firms are chosen based upon their ability to maintain earnings at a respectable level). Second, high-multiple securities are avoided. Therefore, the investor removes the possibility of experiencing a staggering loss due to a multiple collapse. While the investor runs the risk of owning a stock that may be a lackluster performer for some time, he nevertheless stays out of serious financial trouble by avoiding those high-P/E stocks that have the potential of nosediving once the fickle investment community becomes disenchanted with them.

The overriding question becomes: can one really achieve higher-than-normal returns by adhering to a diversified, low-multiple investment strategy? Indeed, two earlier Barron's articles ("Watch Those Multiples," February 28, 1977 and "For Widows and Orphans," December 3, 1979) address this query and document the notion that low P/E portfolios over long time periods actually do
outperform both the market and high-P/E portfolios. Other studies published in academic and practitioner journals have arrived at similar conclusions.

These studies, however, have often been criticized because they do not consider two crucial factors that might bias their findings. In particular, prior studies neglect to compensate for the impact that risk and industry considerations could have on investment returns. We shall attempt to devise an investment strategy that compensates for these possible biases. But first, we shall take a look at how these non-P/E-related factors could influence portfolio returns.

Risk/Return Tradeoffs

Several studies made during the 60's by competent professionals presented the first evidence that low-P/E stocks generate abnormally high returns. These studies revealed that indeed investors did overreact to corporate prospects by attributing lower-than-deserved P/E's to less glamorous stocks; however, he also discovered that the market eventually tended to rectify this overreaction by pushing the multiple to a higher and more realistic level. The results indicated that in the long run the lowest ratio stocks not only dramatically outperformed the higher P/E stocks, but also significantly "beat the market.

At approximately the same time that these low-P/E studies were appearing, other professionals pointed out that some stocks are riskier than others. They theorized that the return one can expect on any stock should be proportional to how risky the stock is in relation to the average stock. The now well-known "beta" factor was developed to gauge the risk of a particular stock. A beta of one designates a stock with price volatility comparable to that of the market, while a beta larger than one indicates volatility that is greater than the market's (vice versa for a beta less than one).
Thus, an investor would logically expect that a particular stock would generate a higher-than-market return if that stock has a higher-than-market beta. Accordingly, the findings that low-P/E stocks produce higher-than-market returns is not surprising if one believes that these low-ratio stocks are riskier (high betas) than the market average. In that event the excess returns generated by low-multiple stocks would merely be a deserved risk premium that the investor demands for tolerating greater-than-market risk. In this sense, observing that low-multiple stocks outperform the market averages would be no more unusual or unexpected than seeing that A-rated bonds provide higher yields than AAA-rated issues. Unfortunately, none of these low-P/E studies incorporated risk considerations into their analyses and therefore their discovery of high returns for low-P/E stocks was not necessarily significant.

Industry Biases

Another possible deficiency of these earlier P/E studies was that they neglected to compensate for the tremendous influence that industry considerations can have on price-earnings ratios. Some industries, such as the one comprised of food companies are typified by low-multiple securities, whereas other industries (electronics, for example) contain numerous high-P/E issues. Thus a typical low-P/E portfolio would most likely contain proportionately more securities from characteristically low-ratio industries, while containing only a sparse sampling of stocks from high-P/E industries. Accordingly, most food company stocks, for example, would tend to cluster in low-P/E portfolios, whereas most electronics stocks would be entered into high-P/E portfolios. The implications of this type of portfolio construction are obvious: any
detected return differences between high- and low-multiple portfolios might be caused by variances in industry performance rather than the P/E level.

Our study compensates for industry bias by introducing a new type of earnings multiple which we shall call the price-earnings relative, or PER. The PER is an index of the P/E ratio of a stock relative to that of its industry, and is calculated by dividing a given stock's P/E by the average P/E ratio for its related industry group. A PER of 1.0, therefore, would indicate that a stock's P/E is typical of its industry average. In this manner, an electronics stock with a P/E ratio of 10, for example, could have a lower PER than a food stock with a P/E of 6 because the electronics stock's P/E is lower relative to its industry norm.

Looking Back

We undertook a study to determine if portfolios comprised of low-PER securities do indeed provide superior rates of return. We analyzed forty stocks from each of the electronics (high P/E's), paper/container (average P/E's), and food (low P/E's) industries. The P/E ratio of each observed security was computed quarterly from the beginning of 1970 to mid-year 1980. The numerator of this ratio is the closing market price per share at the end of the quarter and the denominator is the sum of the four most recently reported quarterly earnings per common share (fully diluted). We then converted the resultant P/E to a PER by dividing by the appropriate industry average P/E for that quarter.

We arranged these stocks into ten separate portfolios, or deciles, according to their PER magnitude. Decile one contains the lowest 10% of PER's; decile ten the highest. Both capital gains (losses) and dividends were included in calculating the quarterly returns for each decile. We repeated the experiment three different times. First, portfolios were adjusted every three
# ANNUALIZED COMPOUND RATES OF RETURN

January 1, 1970 - June 30, 1980

<table>
<thead>
<tr>
<th>Decile</th>
<th>Three Months</th>
<th></th>
<th></th>
<th>Six Months</th>
<th></th>
<th></th>
<th>One Year</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual Return</td>
<td>PER</td>
<td>Average</td>
<td>Annual Return</td>
<td>PER</td>
<td>Average</td>
<td>Annual Return</td>
<td>PER</td>
<td>Average</td>
</tr>
<tr>
<td>Lowest PER</td>
<td>1</td>
<td>31.64</td>
<td>.48</td>
<td>1.07</td>
<td>26.10</td>
<td>.48</td>
<td>1.07</td>
<td>23.69</td>
<td>.48</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>18.52</td>
<td>.63</td>
<td>1.03</td>
<td>15.86</td>
<td>.63</td>
<td>1.03</td>
<td>17.45</td>
<td>.63</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>16.64</td>
<td>.72</td>
<td>1.02</td>
<td>16.20</td>
<td>.72</td>
<td>1.02</td>
<td>18.78</td>
<td>.72</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>19.12</td>
<td>.80</td>
<td>.99</td>
<td>18.42</td>
<td>.80</td>
<td>1.00</td>
<td>18.91</td>
<td>.80</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>18.40</td>
<td>.88</td>
<td>.98</td>
<td>18.66</td>
<td>.88</td>
<td>.97</td>
<td>17.43</td>
<td>.88</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>11.36</td>
<td>.97</td>
<td>.97</td>
<td>9.52</td>
<td>.97</td>
<td>.97</td>
<td>12.92</td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>8.44</td>
<td>1.06</td>
<td>.99</td>
<td>9.60</td>
<td>1.06</td>
<td>.99</td>
<td>12.25</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>5.60</td>
<td>1.19</td>
<td>1.01</td>
<td>5.62</td>
<td>1.19</td>
<td>1.01</td>
<td>8.07</td>
<td>1.19</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>10.00</td>
<td>1.39</td>
<td>1.05</td>
<td>11.06</td>
<td>1.39</td>
<td>1.05</td>
<td>10.75</td>
<td>1.40</td>
</tr>
<tr>
<td>Highest PER</td>
<td>10</td>
<td>2.20</td>
<td>1.97</td>
<td>1.16</td>
<td>3.24</td>
<td>1.97</td>
<td>1.15</td>
<td>5.47</td>
<td>1.98</td>
</tr>
</tbody>
</table>
months, then every six months, and finally every year to reflect shifts in PER rankings. Thus, for example, if a stock's PER increased beyond the boundaries of its group, that stock would be "sold" at the end of the appropriate "switching" period and replaced with the lowest PER issue from the next highest decile. The "sold" stock would then advance to a higher PER decile and be "bought" for that portfolio. The accompanying table presents the annual return, average PER, and average beta for each decile portfolio.

The Right Route

A glance at our table reveals some interesting insights. For each of the three portfolio switching periods, the typical first decile stock's P/E was less than half that of its respective industry norm -- i.e., a PER below 0.5. What does this suggest? A widely-touted investment axiom contends that a P/E is no more than a barometer gauging collective investor expectations regarding a stock's outlook. The higher the multiple the more favorable the prospects. Then doesn't it follow that decile 1 securities receive low relative multiples because investors envision less-than-desirable prospects for those issues? One would certainly think so.

But how perceptive are these investors? Another look at our table provides a surprising answer. Clearly the low-PER deciles provided superior returns as compared to the high-PER groups. For example, employing quarterly portfolio adjustments, decile 1 returned 31.64% annually, substantially outdistancing decile 10's lethargic 2.20% yearly return. In fact, the portfolio returns declined consistently as the average PER increased.

These findings may come as sacrilege to those investment gurus who preach a strategy of accumulating the stocks of highly visible firms with superior earnings prospects. But often too many gurus worship too few stocks. The
implication is obvious. Those sacrosanct issues may be driven to heavenly heights while the castouts languish in an investor purgatory.

Enter Mr. Graham and his overreaction theory. His message, though far from glamorous, is strikingly appropriate. Avoid those revered stocks. Their prices, already reflecting outstanding growth potential, are too vulnerable to any disappointment that may disillusion investors. To illustrate, look at decile 10 stocks. On average, these favorites sold at almost twice the normal P/E ratio of their respective industries. If investor expectations regarding one of these stocks wanes, causing the P/E to adjust to an average level, then the outcast issue's price would almost halve. Or even worse, if its new unpopularity is coupled with an actual earnings collapse, the price deterioration could be far more staggering. Apparently enough of the once-heralded stocks of the seventies fell from investor favor to cause the high-PER portfolios to consistently underperform both the market and the low-PER issues.

But consider the low-PER securities. What worse can happen? These stocks have already been exiled to an investor dungeon. Unlike the glamour issues, bad news is expected. Such expectations have already depressed prices so bad news really doesn't have that much additional impact. In effect, these stocks don't have that much to lose. Just as the glamour issues were viewed with too much optimism, the outcasts were frequently regarded too negatively. Apparently enough pleasant surprises happened to produce superior investment returns for these outcasts.

A Beta Way

So low-PER stocks produce above-average returns. To determine if this finding is noteworthy, we still must address the problem of risk. After all, higher returns are to be expected if risk is also higher. Risk has always
been an elusive concept and possibly that is why it is often avoided in studies like this. But risk is important -- maybe even more so than return. Admittedly there is no consensus of opinion about how to define risk. Nevertheless, an increasingly popular definition identifies risk as the potential volatility of a security's returns. More volatility translates to more risk.

As mentioned earlier, a stock's beta measures its volatility relative to that of the market. For purposes of our analysis, let's assume that beta is an adequate surrogate for the riskiness of a stock. The higher the beta the greater the risk. Referring again to our table, one can observe a revealing pattern in the array of beta risk among the PER deciles. In particular, three features of these patterns emerge: (1) the high beta portfolios group at both the low and high deciles, (2) the portfolio betas decelerate while moving from decile 1 toward the middle deciles, then accelerate as the movement advances toward decile 10, and (3) the average beta is higher at decile 10 than decile 1. This pattern implies that the risk of a stock increases as its P/E ratio becomes more dissimilar from its industry average P/E. Furthermore, this risk appears to increase at an accelerating rate with the highest risk associated with those securities whose P/E's are farthest from the industry mean.

Under these conditions, one would predict higher returns for the high and low PER portfolios (higher risk deserves higher return). An examination of our table, however, clearly shows that these results do not materialize. The most blatant contradiction to this idea can be observed by comparing the returns of the lowest versus the highest PER portfolios. Decile 1 substantially outperforms decile 10, even though decile 1 possesses slightly less beta risk. Thus, our results are strengthened. Low decile stocks outperform high PER securities and they do so without exposing the investor to additional risk.
We decreased the frequency of altering portfolio composition to determine if these same results occurred when portfolio changes were made less often. Our table shows what happens when semiannual and annual switching were used. Just like with quarterly switching, the lowest PER decile provided the largest return. Also, the portfolio returns generally declined as the PER increased. These results conform to those experienced by the quarterly adjusted portfolios.

However, another pattern emerged. As the frequency of portfolio changing decreased, the returns generated by the lowest decile group declined while the returns of the highest decile increased. As a result, the spread between the returns for decile 1 and decile 10 narrowed as the frequency of portfolio alteration diminished. Seemingly, more frequent updating of low PER portfolios, i.e., more rapid deletion of stocks whose PER's have advanced beyond the decile boundary, is useful for enhancing portfolio returns.

Summing It Up

Our findings show that the investor may achieve substantially higher than average returns by adopting a strategy of selecting stocks whose P/E ratios are low in relation to their industry average. A well diversified portfolio of such stocks yielded returns well above the normal premium predicted by their risk level. At the same time, such a portfolio exhibits less than average downward risk.

The low PER portfolio should be reviewed each quarter (each time company earnings are reported) to monitor any significant shifts in PER's. Our experience indicates that about one quarter of the portfolio will need to be rolled over at that time. An alternative strategy is to adjust the portfolio once each year. Returns are lower here but are partially offset by reduced transaction costs and tax advantages.
The following papers are currently available in the Edwin L. Cox School of Business Working Paper Series.

79-100  "Microdata File Merging Through Large-Scale Network Technology," by Richard S. Barr and J. Scott Turner

79-101  "Perceived Environmental Uncertainty: An Individual or Environmental Attribute," by Peter Lorenzi, Henry P. Sims, Jr., and John W. Slocum, Jr.


80-100  "Implementing the Portfolio (SBU) Concept," by Richard A. Bettis and William K. Hall

80-101  "Assessing Organizational Change Approaches: Towards a Comparative Typology," by Don Hellriegel and John W. Slocum, Jr.

80-102  "Constructing a Theory of Accounting--An Axiomatic Approach," by Marvin L. Carlson and James W. Lamb

80-103  "Mentors & Managers," by Michael E. McGill

80-104  "Budgeting Capital for R&D: An Application of Option Pricing," by John W. Kensinger

80-200  "Financial Terms of Sale and Control of Marketing Channel Conflict," by Michael Levy and Dwight Grant


80-301  "Controlling the Performance of People in Organizations," by Steven Kerr and John W. Slocum, Jr.

80-400  "The Effects of Racial Composition on Neighborhood Succession," by Kerry D. Vandell


80-801  "Comparison of the EEOCC Four-Fifths Rule and A One, Two or Three σ Binomial Criterion," by Marion Gross Sobol and Paul Ellard

80-900  "Bank Portfolio Management: The Role of Financial Futures," by Dwight M. Grant and George Hempel

80-902  "Hedging Uncertain Foreign Exchange Positions," by Mark R. Eaker and Dwight M. Grant

80-111 "Sources of Performance Differences in Related and Unrelated Diversified Firms," by Richard A. Bettis

80-112 "The Information Needs of Business With Special Application to Managerial Decision Making," by Paul Gray

80-113 "Diversification Strategy, Accounting Determined Risk, and Accounting Determined Return," by Richard A. Bettis and William K. Hall

80-114 "Toward Analytically Precise Definitions of Market Value and Highest and Best Use," by Kerry D. Vandell

80-115 "Person-Situation Interaction: An Exploration of Competing Models of Fit," by William F. Joyce, John W. Slocum, Jr., and Mary Ann Von Glinow

80-116 "Correlates of Climate Discrepancy," by William F. Joyce and John Slocum

80-117 "Alternative Perspectives on Neighborhood Decline," by Arthur P. Solomon and Kerry D. Vandell

80-121 "Project Abandonment as a Put Option: Dealing with the Capital Investment Decision and Operating Risk Using Option Pricing Theory," by John W. Kensinger

80-122 "The Interrelationships Between Banking Returns and Risks," by George H. Hempel

80-123 "The Environment For Funds Management Decisions In Coming Years," by George H. Hempel

81-100 "A Test of Gouldner's Norm of Reciprocity In A Commercial Marketing Research Setting," by Roger Kerin, Thomas Barry, and Alan Dubinsky

81-200 "Solution Strategies and Algorithm Behavior in Large-Scale Network Codes," by Richard S. Barr

81-201 "The SMU Decision Room Project," by Paul Gray, Julius Aronofsky, Nancy W. Berry, Olaf Helmer, Gerald R. Kane, and Thomas E. Perkins

81-300 "Cash Discounts To Retail Customers: An Alternative To Credit Card Performance," by Michael Levy and Charles Ingene

81-400 "Merchandising Decisions: A New View of Planning and Measuring Performance," by Michael Levy and Charles A. Ingene


81-600 "Managerial Uncertainty and Performance," by H. Kirk Downey and John W. Slocum, Jr.

81-601 "Compensating Balance, Rationality, and Optimality," by Chun H. Lam and Kenneth J. Boudreaux


81-800 "The Chinese-U.S. Symposium On Systems Analysis," by Paul Gray and Burton V. Dean


81-900 "Forecasting Industrial Bond Rating Changes: A Multivariate Model," by John W. Peavy, III

81-110 "Improving Gap Management As A Technique For Reducing Interest Rate Risk," by Donald G. Simonson and George H. Hempel


81-112 "The Significance of Price-Earnings Ratios on Portfolio Returns," by John W. Peavy, III and David A. Goodman

81-113 "Further Evaluation of Financing Costs for Multinational Subsidiaries," by Catherine J. Bruno and Mark R. Eaker

81-114 "Seven Key Rules For Successful Stock Market Speculation," by David Goodman

81-115 "The Price-Earnings Relative As An Indicator of Investment Returns," by David Goodman


81-117 "Sequential Information Dissemination and Relative Market Efficiency," by Christopher B. Barry and Robert H. Jennings

81-118 "Modeling Earnings Behavior," by Michael F. van Breda


81-120 "The Price-Earnings Relatives - A New Twist To The Low-Multiple Strategy," by David A. Goodman and John W. Peavy, III.