Stock Selection Based on Earnings Growth For Detecting High Returns on Stocks

Dr. A.M. Agapos, Finance, University of South Alabama

Abstract

In this study, stocks with consistently increasing earnings per share were analyzed. The intrinsic value of these selected equities was determined and classified as being over or undervalued. The results of the process showed that investors purchasing those stocks classified as undervalued, whose intrinsic value was above the market price, would have consistently earned above average returns.

Introduction

The aim of this paper is to test a relatively simple stock selection procedure based on the evaluation of certain fundamental investment information. Using this procedure, one of several which could be recommended and based on traditional analytical forms, sorts are made against performance criteria to screen a data base for securities with high levels of investment potential.

The process is simple and readily adaptable to personal computers and data bases connected by phone lines and available in public libraries. If the test of the stock selection procedure demonstrates returns at least as great as those of the market, then it and others of greater refinement are recommended for investors who now are more able than ever to have immediate access to sophisticated investment data bases.

The vast majority of investment research suggests that the stock market is reasonably semi-strong form efficient. It is not, however, perfectly semi-strong form efficient. The "day-of-the- week effect" documented by French [14] and Gibbons and Hess [15] is inconsistent with semi-strong form efficiency as is the "January effect" studied by Brown, Kliedon and Marsh [7], Kiem [20], Tinic and West [35] and Schultz [33]. Basu [3,4] observed a price-earnings anomaly. Joy, Litzenberger and McEnally [19] and Rendleman, Jones and Latane [30] have presented evidence that stock prices react to public announcements of earnings in many instances up to three months afterward.

Not many investors follow a systematic procedure in selecting common stocks for their investment portfolio.

Frequently, equities are selected without sound processes because the vast amounts of information available makes stock selection from a relevant information set the exception rather than the rule. Consequently, investors need a method of condensing vast amounts of information into a format that facilitates selecting stocks that will produce at least average returns. Accessibility to computer software and data bases can aid investors in selecting stocks that yield above average returns.

The Sorting Process

The sorting process has to be ongoing to allow investment decisions to be made with consistent and constant reappraisal of changing conditions. Two excellent sources of historical and forecasted earnings information are *Value Line* and *Barrons*, which reports the most recent quarterly earnings per share for the New York Stock Exchange (NYSE) stocks every week.

Constant changes in markets, economic conditions and information requires investors to reappraise their investment positions and decisions frequently. The first procedure in the stock selection process is to sort through all the industrial stocks on the NYSE (bank and utility stocks were omitted from the samples). An identification is made on those equities showing a six-year consistent growth-in-earnings pattern.

The second heuristic in the procedure specifies that when a sorted stock's next earnings per share (EPS) falls, the investor should either sell those shares he/she holds, or delete the company from the sorted sample. A

fall in EPS implies the earning's growth pattern has been interrupted, reflecting a negative impact in earnings expectations, but this does not mean a stock whose EPS growth has been disrupted should never be examined and evaluated again. Rather, it will be reexamined and reinstated into the population sample once it fits into the criteria of reestablishing a consistent growth of EPS for approximately six years.[1]

Because the market is semi-strong efficient, each individual stock can be over- or under- valued. When a stock's expected value (V_t) exceeds its market price (M_t) it is designated as under-valued; when its market price exceeds the expected value it is classified as over-valued.

The Theoretical Considerations

The classical evaluation approach of common stocks involves the discounting of expected future income streams to the present. Regardless of whether a "constant," "nonconstant," "segmented" or another type of valuation model is used, the same problems are encountered.

Applying valuation formulas is problematic in that future dividends, cash flows, and expected growth rates are difficult to forecast. Approaches such as Graham, Dodd and Cottle's Anticipation, Absolute and Relative Value [17] and those used by Value Line [8], et. al., evaluate stocks by using some method of estimating earnings per share, or by comparing them to an average or general market index over some period of time and deciding whether they are over- or under-priced.

However, the capital markets exhibit enough price efficiency so that any relevant information is rapidly and fully incorporated into the market price. Thus, price efficiency implies that the expected prices of a security (one period into the future based on conditional or current relevant information) is equal to today's price plus the expected return in the next period. This logic assumes that tomorrow's expected prices are random and should fully reflect today's relevant information.

It is not difficult for even small unsophisticated investors today to generate an adequate data base with a personal computer. Evaluating large groups of stocks that at one time or another are mispriced can be accomplished by implementing current price earnings into a computer software program, and recomputing expected market prices.

Determining a Stock's Expected Value

Latane and Jones [22] state that financial theory assumes that stock prices adjust to new information as it becomes available. New information in this work was described as "unexpected." Using Standard Unexpected Earnings (SUE) [22] as a measure of informational content of quarterly earnings, Latane and Jones found that there was a very significant relationship between SUE and abnormal stock returns.

Ball and Brown [2] showed that stock prices adjusted to earnings announcements. Additionally, Brown and Kennelly [4] found that quarterly earnings information also helped predict which stocks will yield abnormal returns. Kiger [21], on the other hand, showed that there was substantial change in stock volume and prices when quarterly earnings announcements were made.

Although there are investors who make abnormal returns, it is generally accomplished by purchasing securities before any other participants in the "market chain" obtain new information. These gains often occur when someone has a comparative advantage in processing information, creating a position in the information "chain" that allows them to purchase under-valued securities.[2]

Any new information can lead to changes in stock prices. However, those adjustments may not be smooth. In the short run, discrepancies in stock prices will occur which will generate above average rates of return.[3] It is assumed in this study that, at any point in time, a security has an expected value dependent on future earnings. This depends, as Fama[13] states, on fundamental factors such as the quality of management, industry outlook and the economy.[4] Since there is a lag in all information, there will also be disparities between expected and market value in the very short-run, which creates an opportunity to buy and sell mispriced securities.

Elton, Gruber and Gultekin [12] found conclusive empirical evidence that stocks with the highest growth in reported earnings also have the highest rise in stock prices. In another observation, Niederfhoffer and Regan [29] found stocks that performed poorly had earnings that declined dramatically, and stocks that performed well had increases in earnings.

Under the assumptions used here, one would also expect stock prices to increase in the future and investors to react accordingly.[5] In the same context, the role of surprise will cause stock prices to fall when the earnings per share fall after having maintained a consistent growth pattern. Joy, Litzenberger, and McEnally [19] find that stock prices adjusted very rapidly to

unfavorable earnings, but much slower when quarterly earnings reports were favorable.

Earnings-per-share and price-earnings ratios were used extensively in the model here. Concentration was given to EPS since the earnings multiplier is explicitly assumed to be relatively constant over time. Consequently, stock prices would generally move in line with the EPS variable, which has a very significant effect on future expectations and stock prices.

Other Aspects of Determining a Stock's Expected Value

A firm's management performs a critical role in establishing future earnings. If management's role and its impact on earnings could be quantified, another very important information source would be created. Suppose corporate leaders do not strive for maximum profits, earnings per share or maximizing stockholder's wealth, but instead attempt to generate earnings just high enough to keep their Board of Directors and stockholders happy. Then, corporate managers, in their attempt to derive satisfactory levels of profits, would "force" EPS (and thus dividends) to show unbroken growth patterns.[6] If investors could identify firms which experience increasing patterns in EPS, a conceivable advantage could be gained by those participating in the stock market. The role of surprise, in the same context, would cause stock prices to rise when earnings increase, but also cause stock prices to fall when earnings per share fall after having maintained a consistent growth pattern.

Another aspect investors should consider is that most security analysis is static rather than dynamic. Therefore, adjustments for changing economic and financial conditions should be made to stock price estimates. If earnings in period [n+1] exceed earnings in period n, then stock prices are expected to rise in the future. In a market that is semi-strong efficient, stock prices are constantly varying around their expected values. The technique employed here is designed to sort over- and under-valued stocks from a population. To test this, a valuation equation [Equation 1] is used to determine the expected value of each sorted stock. This model takes the average price-earnings ratio of each stock and multiplies it by the estimated future EPS. The expected value $\widehat{V}_t$ is compared to the market price M_t to determine whether a security is under- or over-valued.

Expected value $(\widehat{V}_t)$ is determined by:

$$\widehat{V}_t = \widehat{EPS}_{t+1} \left[\frac{\overline{P}_t}{\overline{EPS}_t} \right] \cdot \left[\frac{1}{1+K} \right]$$

Where:

$\widehat{EPS}_{t+1}$ = is the estimated earnings per share in the next time period, t+1,
$\overline{EPS}_t$ = is a six year average, in the next time period,
$\overline{P}_t$ is the average price over the last six years, and

$$\frac{\overline{P}}{\overline{EPS}}$$

covers a six-year moving average of each stock's price earnings ratio, using reported quarterly earnings per share, including extraordinary items for EPS_t and price in time t, and:

$$K = r_f + P_r$$

Where:

r_f = risk free rate of return, and
P_r = is a premium applied in the first sample, which uses the risk free rate of interest, depending on the term structure of interest rates. A second sample was sorted that is risk adjusted where an appropriate premium was added for beta.

The rationale for Equation 1 is that EPS will act as a precursor for changes in price, which are dependent on the growth in earnings. These, in turn, depend on whether the changes in expected future $\widehat{EPS}$ are either linear or exponential. However, the estimates of a stock's value need an additional variable and the valuation model incorporates a (K) that adjusts for changes in the economic cycle, inflation, money stock and market rates of interest.

A quick review of the sorting process begins by sorting a population of stocks to select those having consistent growth in EPS. Next, if the EPS of a selected stock falls, it is dropped from the sorting process. Thirdly, each selected stock is evaluated and categorized as over- or under-priced, using Equation 1. Finally, stocks should be purchased when $\widehat{V}_t > M_t$ and sold or sold short when $M_t > \widehat{V}_t$.

Procedure Testing and Empirical Results

Eight different sorts were made for eight sample starting points selected at random from the population of stocks listed on the New York Stock Exchange. Cross section quarterly stock prices were used to measure the rate of return.[7] The expected value V_t of each stock within the sorted sample was determined and separated into under-valued and over-valued groups. A quarterly rate of return (R) was calculated strictly on price appreciation (no short-selling or dividends were applied in the valuation) for both groups, and additionally for those stocks comprising the Dow Jones Industrial

Averages (DJIA).

The model employed is:

$$R = \frac{Pq - P1}{P1} \times 100$$

Where:

R = is the rate of return,

Pq = price of stock at each respective quarter.

P1 = market price of stock at the evaluation period if purchased on that date.

Applying the rates of return for each group to a linear equation:

$$R_t = a + bD1 + cD2 + e_t \qquad \text{(Equation 2)}$$
$$t = 1, 2, 3, 4$$

Where:

R_t = the rate of return for each variable in equation 2,

a = intercept variable for the rate of return of the stocks in the Dow Jones industrials,

D1 = dummy variable equal to 1 for under-valued securities derived by Equation 2, and 0 otherwise. Thus, b measures the rate of return made by holding these stocks relative to the Dow Jones industrial stocks,

D2 = the dummy variable equal to 0 for over-valued securities derived by Eq. 2, and 1 otherwise. Thus c specifies the rate of return by this group relative to the Dow Jones industrial stocks,

e = error term.

Coefficients, standard errors, and t's were computed for each sample from the date of the sort for five successive quarters. Each sample has a specific purchase date, at which the initial cost for each of the evaluated stocks was the closing price quoted in the *Wall Street Journal*. The rate of return, R was computed for each stock in the sample for each successive quarter for under-valued, over-valued and the Dow Jones industrials. Rates of return were computed for each stock in the first four samples without incorporating beta. Rates of return were calculated for each stock in the second set of four samples including beta. Taxes, dividends and transactions costs were omitted for simplicity.

The results of every sample are summarized with their levels of significance in tabular form in Table 1. A graphic representation is also shown in Figure 1. The standard errors, t's, DW and F statistics were omitted for the sake of brevity.[8]

Table 1 reflects the rates of return of 207 sorted stocks in Sample 1. In this sample, 81 of the under-valued stocks outperformed both the 96 over-valued and 30 Dow Jones stocks in every one of the five quarters. The over-valued stocks' mean rates of return fell 1.036% in the first quarter to -10.423%, but was statistically insignificant. The Dow Jones industrials dropped from -8.093% in the first quarter to over -15.707%, significant at 1% by the fifth quarter. The under-valued securities rose against a declining general market from 7.664% to 16.864% in the second quarter, to 15.451% in the third quarter and 15.130% in the fourth quarter (significant at 5%), and fell to 9.451% by the fifth quarter. The over-valued group's rate of return was not significantly different from 0, whereas the results for the under-valued sample were significant in every quarter except in the last.

Sample 2 gives somewhat mixed results for 206 sorted stocks. Note that the Dow Jones industrial stocks experienced a negative rate of return for all five quarters. The 78 under-valued stocks had rates of return less than the over-valued group in all five quarters and were significant. The over-valued group's results were not significant.

The 102 over-valued stocks in Sample 3 experienced significantly higher rates of return than the under-valued and Dow Jones industrial stocks during the first three quarters. In the fourth quarter, the rates of return reversed. Here the under-valued sample's returns of 25.014% were statistically significant at 1% compared to the over-valued group's return of 22.063% and DJIA's 12.815%. The fifth quarter showed a rate of return of 25.362% for the under-valued sample. This was higher than the 18.099% return experienced by over-valued securities and the -5.525% of the DJIA stocks.

Sample 4 reflects dramatic results. In it, 71 under-valued stocks significantly outperformed both the 73 over-valued sample and Dow Jones industrial stocks in every quarter. They showed a 21.526% rate of return by the fifth quarter as compared to 3.695% for the over-valued sample and -11.393% for the DJIA.
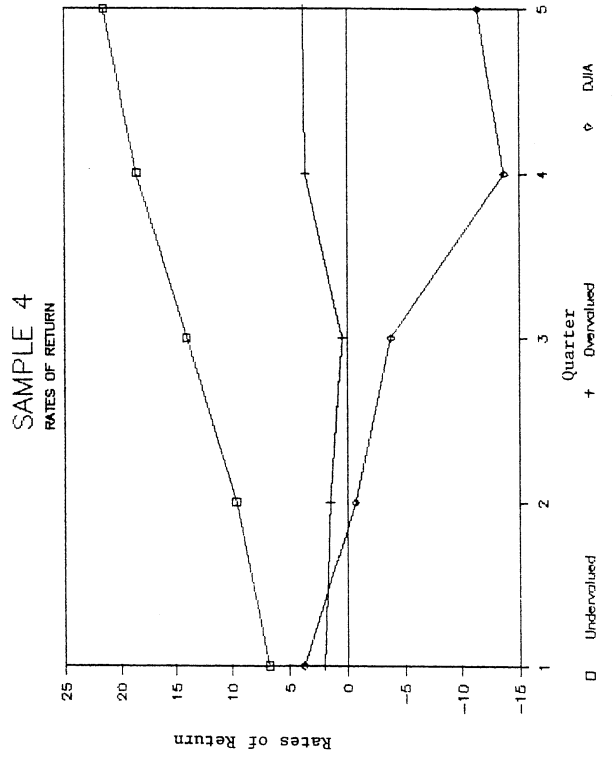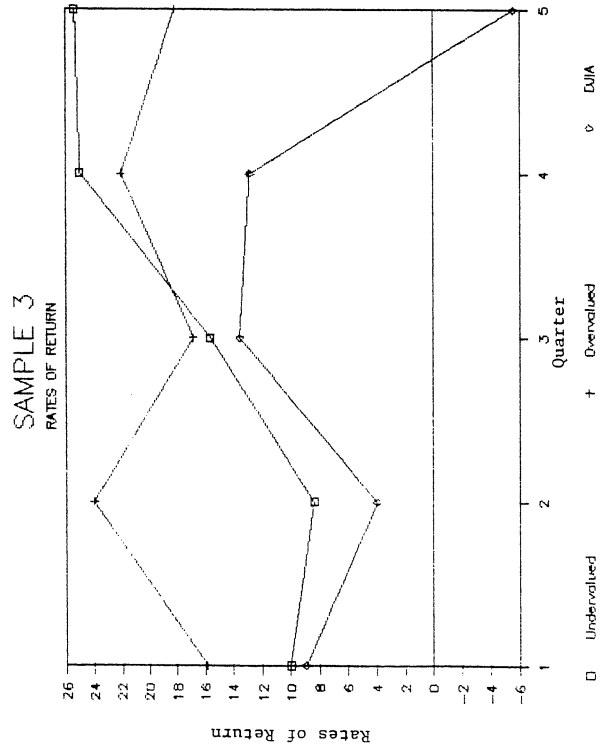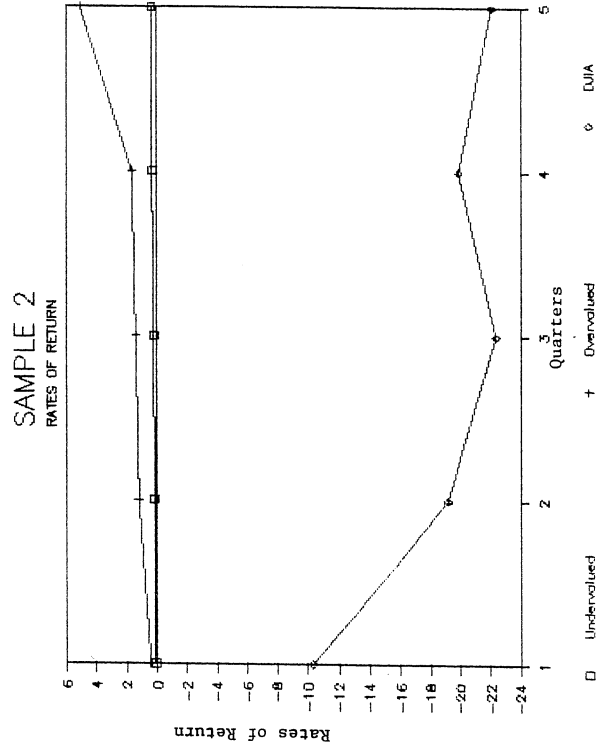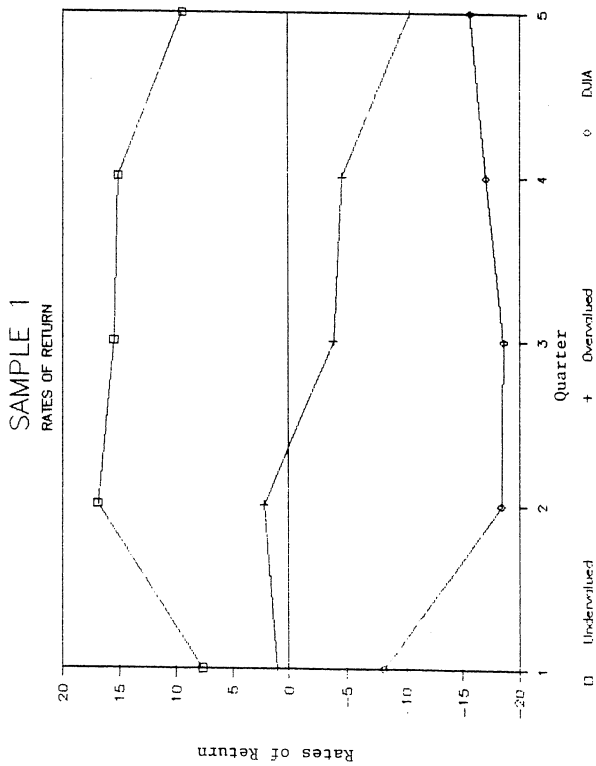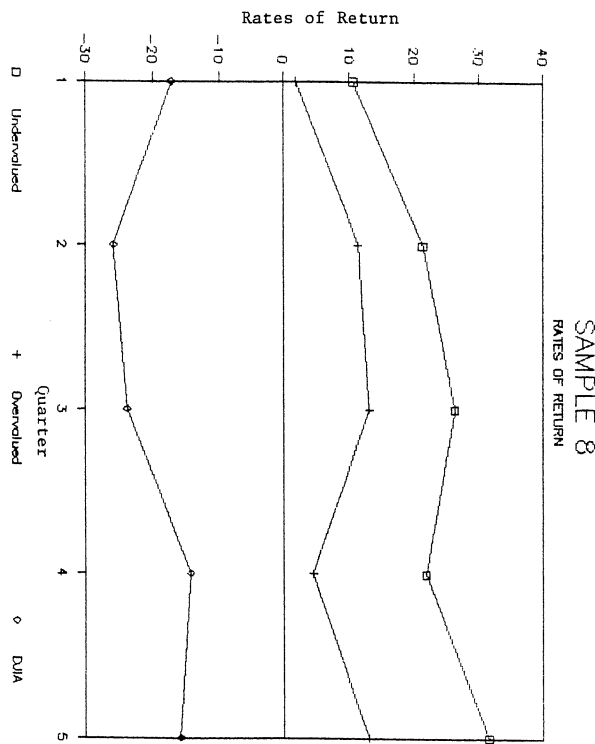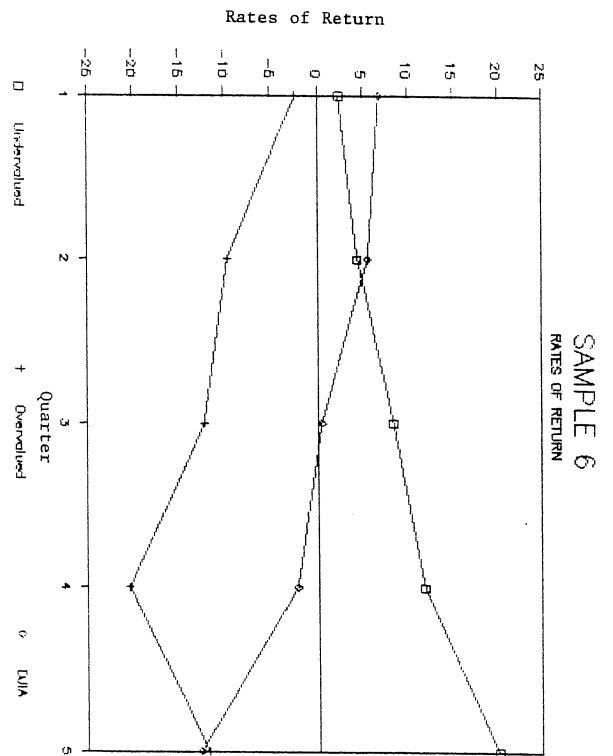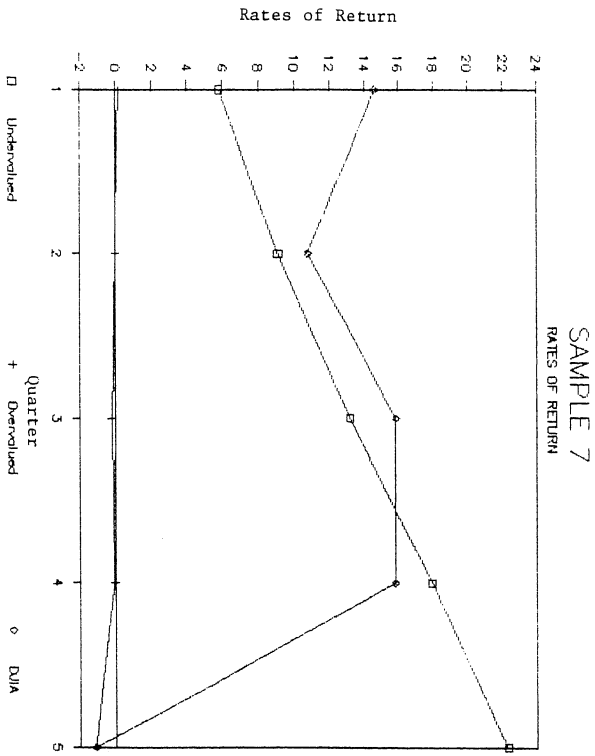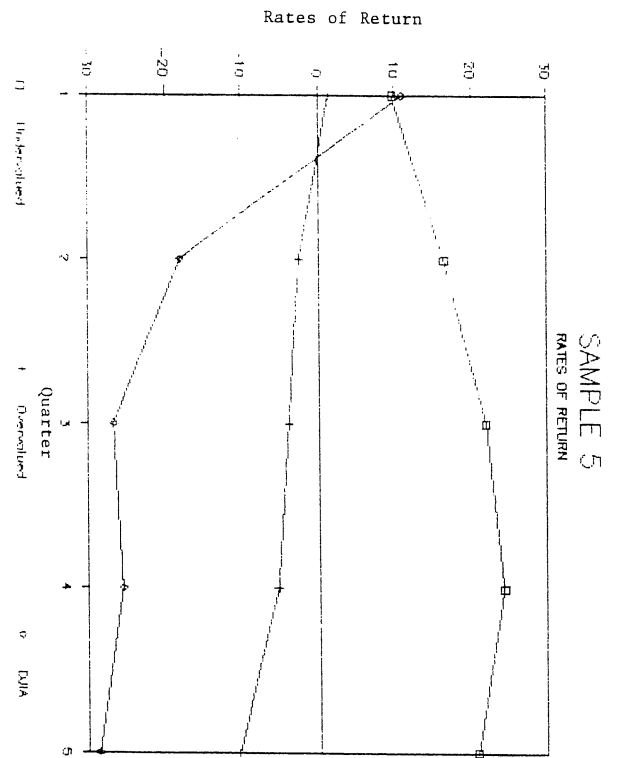
Samples 5 through 8 show the results of risk adjusting

Table 1

RATES OF RETURN OF UNDERVALUED, OVERVALUED AND DJIA INDUSTRIALS

	Not Risk Adjusted								Risk Adjusted							
	Sample 1		Sample 2		Sample 3		Sample 4		Sample 5		Sample 6		Sample 7		Sample 8	
	No.	RR	No.	RR	No.	RR	No.	RR	No.	RR	No.	RR	No.	RR	No.	RR
Quarter 1:																
Undervalued	81	7.6643 *	78	0.0932 *	75	10.0080 **	71	6.7910 *	73	9.75 **	75	2.48	74	5.79 **	90	10.58 **
Overvalued	96	1.0364	101	0.4321	102	15.7886 **	73	1.9815	119	1.39	141	-2.38	73	0.13	115	1.99
DJIA	30	-8.0926 **	30	-10.3610 **	30	8.9327 **	30	3.7519	30	-11.00 **	30	6.94	30	14.62 **	30	-17.16 **
Quarter 2:																
Undervalued	81	16.8641 *	78	0.1777 **	75	8.3512	71	9.5855 **	73	16.51 **	75	4.56	74	9.09 **	90	21.36 **
Overvalued	96	2.1989	101	1.2169	102	23.9800 **	73	1.4468	119	-2.48	141	-9.75	73	-0.03	115	11.28 **
DJIA	30	-18.4463 **	30	-19.1852 **	30	3.9852	30	-0.7192	30	-18.02 **	30	5.59	30	10.78 **	30	-25.80 **
Quarter 3:																
Undervalued	81	15.4511 **	78	0.2211 **	75	16.5567 **	71	13.9496 *	73	21.98 **	75	8.42	74	13.16 **	90	26.41 **
Overvalued	96	-3.8462	101	1.4282	102	16.7989 **	73	0.4103	119	-3.84	141	-12.21	73	-0.22	115	13.00 **
DJIA	30	-18.6270 **	30	-22.3508 **	30	13.5027 **	30	-3.8001	30	-26.73 **	30	0.52	30	15.87 **	30	-23.69 **
Quarter 4:																
Undervalued	81	15.1304 **	78	0.3186 **	75	25.0137 **	71	18.4952 **	73	24.35 **	75	11.88	74	17.92 **	90	21.84 **
Overvalued	96	-4.6127	101	1.6631	102	22.0634 **	73	3.5337 **	119	-5.30	141	-20.40 **	73	-0.09	115	4.52
DJIA	30	-17.0773 **	30	-19.9055 **	30	12.8152 *	30	-13.7072 *	30	-25.49 **	30	-2.23	30	15.82 **	30	-14.41 **
Quarter 5:																
Undervalued	81	9.4514	78	0.3899 **	75	25.3622 **	71	21.5263 **	73	20.84 **	75	20.11 **	74	22.30 **	90	31.58 **
Overvalued	96	-10.4232	101	5.1034	102	18.0999 **	73	3.6954	119	-10.44	141	-11.87	73	-0.28	115	13.03 **
DJIA	30	-15.7070 **	30	-22.0397 **	30	-5.5245	30	-11.3934 *	30	-28.64 **	30	-12.69 *	30	-1.14	30	-15.98 **

* Significant at 5%
** Significant at 1%

FIGURE 1

SAMPLE 5
RATES OF RETURN

SAMPLE 7
RATES OF RETURN

SAMPLE 6
RATES OF RETURN

SAMPLE 8
RATES OF RETURN

the stocks using beta. Risk adjusted returns indicate even more dramatic results. The under-valued sample had a mean return of 9.75% in the first quarter, 16.51% in the second, 21.98% in the third, 24.35% in the fourth and 20.84% in the fifth quarter. They were significant at 1% in all cases. The over-valued sample and the Dow Jones industrial stocks returns decreased at an increasing rate. The identical pattern holds for the stocks reported in Samples 6 through 8. Sample 6, however, showed poor levels of significance as compared to risk adjusted Samples 7 and 8. In the fourth quarter, Sample 7 had a 14.62% rate of return on the DJIA versus a 5.79% return on the under-valued stocks. However, by the fifth quarter the rate of return on under-valued stocks reached 22.30% compared to a -.28% for the over-valued group, and a -1.14% for the DJIA.

Sample 8 again shows a highly positive and significant rate of return for the under-valued sample. The under-valued stocks outperformed both the over-valued stocks and the DJIA in every quarter. These had initial rates of return of 10.58% which rose to 31.58% by the fifth quarter (significant at 1%). The over-valued stocks had rates of return that increased from 1.99% (statistically insignificant) to 11.28% (significant at 1%), to 13.00% (significant at 1%) by the third quarter. These fell to 4.52% (insignificant) in the fourth quarter and rose to 13.03% by the fifth quarter (significant at 1%). The Dow Jones industrial stocks had negative rates of return and were significant at 1% in all five quarters.

Conclusions

Because information, market and economic conditions are in a continual state of change, investors can use the information generated from these changes in order to reappraise their investment decisions. Sorting can be a very useful part of the reappraisal process because it is dynamic and ongoing. It allows investors to anticipate changes in information and expectations.

The findings of this study show that many of the equities selected by sorting the NYSE listed stocks were found to be mispriced at times. It was also found that high returns can be generated from those securities classified as under-valued or over-valued as compared to the DJIA.

The statistical tests in this paper show significant results, which are even more dramatic when the valuation process adjusts for risk using beta. These findings show how not only capital gains but above average rates of returns can be achieved.

FOOTNOTES

1   See Benjamin Graham and David L. Dodd, *Security Analysis* (McGraw-Hill Book Co., 1951), 3rd Edition, pp. 397-400. Graham and Dodd defined growth stocks as having earnings growth at the same rate as the GNP for at least five to seven years. We did not follow their definition to the letter, rather our criteria was more concerned with a continual increase in EPS, no matter how small. Six years of historical earnings are used as a time long enough to establish a "satisficing" pattern by management. A good record of earnings growth may not be high enough or fast enough or expand as fast as the industry or match market performance.

2   A number of tests contradict the existence of a perfectly efficient market. One of these, a recent working paper by the National Bureau of Economic Research analyzes the buy and sell decisions of brokerage firms from 1964 to 1970. This study concluded that investors following these recommendations earned about 2 percent above the broad stock market averages. A follow-up study found investors did better than the market average, especially if they acted prior to the formal recommendations on the "basis of informational leakages". See Kenneth L. Stanley, Wilber G. Lewellan and Gary G. Schlarbaum, "Further Evidence on the Value of Professional Investment Research", National Bureau of Economic Research, Reprint 217 (Spring, 1981), pp. 1-9.

3   Robert J. Schiller, "The Use of Volatility Measures in Assessing Market Efficiency", *Journal of Finance*, May, 1981, pp. 291-304.

4   Eugene F. Fama, "Random Walks in Stock Market Prices," *Financial Analysts Journal*, September-October, 1965, p. 55, and Burton G. Malkiel and John G. Cragg, "Expectations and the Structure of Share Prices," *American Economic Review*, LX, No. 4, September, 1970, pp. 601-17.

5   See Burton G. Malkiel, *A Random Walk Down Wall Street*, W.W. Norton, New York, 1981, p. 52, Jerome B. Cohen and Edward O. Zinbarge, *Investment Analysis and Portfolio Management*, Richard D. Irwin, Inc., Homewood, Illinois, 1967, P. 9, and op. cit., Graham and Dodd.

6   See Robert N. Anthony, "The Trouble with Profit Maximization," *Harvard Business Review*, November, 1960, pp. 121-134. Anthony states it is nonsense to assume corporate management is judged on profit maximization behavior. They are judged, and their bonuses paid, on the basis of improved or of comparisons against other managements; this is comparative, not a maximization idea.

7   The dates for sorting the sample data were randomly selected and were empirically tested for five successive quarters beginning June

21, 1980, February 5, 1981, April 25, 1981, and May 19, 1981, respectively. The dates for sorting the data for the beta risk adjusted samples were tested for five successive quarters beginning June 1, 1980, September 22, 1980, February 19, 1982 and April 1, 1983.

8   Available upon request from the author.

BIBLIOGRAPHY

1   Robert N. Anthony, "The Trouble with Profit Maximization," *Harvard Business Review*, November 1960, p. 131.

2   R. Ball and P. Brown, "An Empirical Evaluation of Accounting Income Numbers," *Journal of Accounting Research*, Autumn 1968, pp. 159-178.

3   S. Basu, "The Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratio," *Journal of Finance*, (June 1977), pp. 663-682.

4   _____, "The Relationship Between Earnings Yield, Market Value and Return for NYSE Common Stocks," *Journal of Financial Economics*, (June 1983). pp. 129-156.

5   F. Black and Myron Scholes, "The Effects of Dividend Yield and Dividend Policy on Common Stock Prices and Returns," *The Journal of Financial Economics*, May 1974, pp.1-22.

6   P. Brown and J. Kennelly, "The Informational Content of Quarterly Earnings: An Extension and Some Further Evidence," *Journal of Business*, July 1972, pp. 403-415.

7   P. Brown, A. W. Kleidon, and T. A. Marsh, "New Evidence on the Nature and Size Related Anomalies in Stock Prices: Further Empirical Evidence," *Journal of Financial Economics* (June 1983), pp. 33-56.

8   Jerome B. Cohen and Edward D. Zinbarg, *Investment Analysis and Portfolio Management*, Richard D. Irwin, Inc., Homewood, Illinois, 1967.

9   Lawrence S. Davidson and Richard T. Froyen, "Monetary Policy and Stock Returns: Are Stock Markets Efficient?," Federal Reserve Bank of St. Louis, *Review*, 64, March 1982, pp. 3-12.

10   Ali F. Durrat, "On Fiscal Policy and the Stock Market," *Journal of Money, Credit and Banking*, August 1988, Part I, pp. 353-363.

11   Ali F. Durrat, "Money and Stock Prices in West Germany and the United Kingdom: Is the Stock Market Efficient?," *Quarterly Journal of Business and Economics*, Winter 1987, pp. 20-35.

12   Edwin Elton, Martin Gruber and M. Gultekin, "The Usefulness of Analyst Estimates of Earnings," unpublished Manuscript, 1978, in Edwin J. Elton and Martin J. Gruber, *Modern Portfolio Theory and Investment Analysis*, Second Edition, John Wiley & Sons, New York, 1984.

13   Eugene F. Fama, "Random Walks in Stock Market Prices," *Financial Analysts Journal*, September-October, 1965, pp. 55-59.

14   K. French, "Stock Returns and Weekend Effects," *Journal of Financial Economics*, (March 1980), pp. 55-70.

15   M. R. Gibbons and P. Hess, "Day of the Week Effects and Asset Returns", *Journal of Business*, (October 1981), pp. 579-596.

16   Myron J. Gordon, "Dividends, Earnings and Stock Prices," *Review of Economics and Statistics*, 41, May 1959, pp. 99-105.

17   Benjamin Graham, David L. Dodd, Sidney Cottle, *Security Analysis*, Fourth Edition, McGraw-Hill Book Co., New York, 1962.

18   Stanley S.C. Huang, *Investment Analysis and Management*, Wintrop Publishers, Inc., Cambridge, Mass., 1981.

19   O. Maurice Joy, Robert Litzenberger, and Richard W. McEnally, "The Adjustment of Stock Prices to Announcement of Unanticipated Changes in Quarterly Earnings", *Journal of Accounting Research*, Autumn, pp. 207-2245.

20   D. B. Keim, "Size Related Anomalies and Stock Return Seasonality: Further Empirical Evidence," *Journal of Financial Economics*, (June 1983), pp. 3-32.

21   J. Kiger, "An Empirical Investigation of NYSE Volume and Price Reaction to Announcement of Quarterly Earnings," *Journal of Accounting Research* (Spring 1972), pp. 113-128.

22   Henry A. Latane and Charles P. Jones, "Standardized Unexpected Earnings - A Progress Report," *The Journal of Finance*, December 1977, pp. 1457-1465.

23   Henry A. Latane, Charles P. Jones and Robert D. Rieke, "Quarterly Earnings Reports and Subsequent Holding Period Returns," *The Journal of Business*, April 1974, pp. 119-132.

24   Henry Latane and Charles P. Jones, "Standardized Unexpected Earnings - 1971-77," *The Journal of Finance*, June 1979, pp.171-724.

25   Burton G. Malkiel, *A Random Walk Down Wall Street*, W.W. Norton and Co., New York, 1981.

26   Burton G. Malkiel, "Equity Yields, Growth and Structure of Share Prices," *American Economic Review*, December, 1963, pp. 1004-1031.

27   M.H. Miller and Franco Modegliani, "Dividend Policy, Growth the Valuation of Shares," *Journal of Business*, October, 1961, pp. 411-33.

28   Edwin H. Neave and John C. Wiginton, *Financial Management: Theory and Strategies*, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1981.

29   V. Niederhoffer and P. Regan, "Earnings Changes, Analyst's Forecasts, and Stock Prices," *Financial Analysts Journal*, 28, No.3 (May-June 1972), pp. 65-71.

30   R. J. Rendleman, C.P. Jones and H. A. Latane, "Empirical Anomalies Based on Unexepected Earnings and the Importance of Risk Adjustment," *Journal of Financial Economics* (November 1982), pp. 269-287.

31   Robert J. Schiller, "The Use of Volatility Measures in Assessing Market Efficiency," *Journal of Finance*,(May 1981), pp. 291-304.

32   William F. Sharpe, *Investments*, Second Edition, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1981.

33   P. Schultz, "Personal Income Taxes and the January Effect: Small Stock Returns Before the War Revenue Act of 1917: A Note," *Journal of Finance*, (March 1985), pp. 333-344.

34   Richard A. Stevenson and Edward H. Jennings, *Fundamentals of Investments*, Second Edition, West Publishing Co., St. Paul, Minn., 1981.

35   S. M. Tinic and R. West, "Risk and Return: January vs. the Rest of the Year", *Journal of Financial Economics*, (March 1985), pp. 561-574.

36   John Burr Williams, *The Theory of Investment Value*, Harvard University Press, Cambridge, Mass., 1938.