The Dividend-Clientele Controversy and the Tax Reform Act of 1986

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Abstract

Several recent studies employ the Tax Reform Act of 1986 (TRA) to reexamine the dividend tax clientele hypothesis. Because TRA effectively equalized the rate of taxation between dividends and capital gains, its implementation should provide a platform for resolving this controversy. Instead, reported results remain sharply divergent. This study attempts to shed new light on the dividend-clientele question through use of a method that carefully matches pre- and post-TRA dividend activity and avoids problems associated with the distribution of data. No significant or systematic changes in the ex-dividend price behavior of common stocks as a result of the Tax Reform Act of 1986 are reported.

Introduction

The Tax Reform Act of 1986 (P.L. 99-514) is categorized as the most extensive overhaul of the United States tax code in 30 years as well as the most fundamental reform of the federal tax structure in history (Joint Committee on Taxation, 1987). One of the major changes involves the taxation of capital gains relative to dividend income for individual investors. Prior to the Tax Reform Act, the top individual tax rate for all taxable ordinary income, including dividends, was 50 percent. On the other hand, because there was a 60 percent deduction for capital gains, the top effective individual tax rate for capital gains was only 20 percent. The Tax Reform Act eliminated the 60 percent deduction for capital gains; beginning in 1987, all taxable investment income (whether capital gains or dividends) was taxed at the same rate, up to a top rate of 28 percent.[1] Effectively, the tax rate on capital gains rose while the tax rate on dividends fell.

The relationship between dividends and taxes is the subject of much study and debate in the financial economics literature. Campbell and Beranek (1955) were among the first to observe that because the ex-dividend day stock price

[1]The lower tax rates were phased in during 1987. The Tax Reform Act also eliminated a provision that allowed individuals to exclude the first $100 ($200 for a joint return) of dividend income.

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decline is less than the amount of the dividend on average, tax-induced dividend clienteles may exist. Elton and Gruber (1970) use dividends and price changes on ex-dividend days to document the tax clientele effect more rigorously, as well as to compute marginal tax rates.[2] They find that as the dividend yield increases, the ex-dividend day price drop increases relative to the dividend.

Miller and Scholes (1978) argue that the Elton and Gruber analysis does not take into account such factors as short-term trading activity and the impact of tax-exempt investors (such as pension funds). They suggest that the positive relationship between dividend yield and ex-dividend day relative price changes can be explained and demonstrate that individual investors need not pay more than the capital gains tax rate on cash dividend receipts.

Other researchers have attempted to replicate Elton and Gruber's findings with mixed results. Kalay (1982) removes two potential biases from the Elton and Gruber methodology and obtains a similar outcome.[3] Barclay (1987) examines the ex-dividend behavior of U.S. stocks before and following the implementation of the U.S. federal income tax in 1913. Using a variation of the Elton and Gruber methodology, his findings generally support the tax clientele hypothesis.[4]

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[2] The Elton and Gruber statistic (EG) is defined as:

$$\frac{(Pb - Pa)}{D},$$

where:

Pb = Stock price prior to the ex-dividend date;
Pa = Ex-dividend day stock price; and
D = Dividend.

Elton and Gruber argue that:

$$EG = \frac{(1 - Td)}{(1 - Tg)}$$

where:

Td = Marginal tax rate on dividends; and
Tg = Marginal tax rate on capital gains.

Prior to 1987

$Tg = .4(Td)$,

$$Td = \frac{(1 - EG)}{(1 - .4EG)}.$$

[3] Kalay also argues that meaningful marginal tax rates cannot be computed from EG statistics. In addition, see Elton and Gruber's comment on Kalay's findings, as well as his response (Elton, Gruber, and Rentzler, 1984; Kalay, 1984).

[4] Eades, Hess, and Kim (1984) and Robin (1991) examine ex-dividend day rates of return and find evidence consistent with the tax clientele hypothesis. Other studies, such as Black and

By contrast, Lakonishok and Vermaelen (1983) in an investigation of the ex-dividend behavior of stocks listed on the Toronto stock exchange before and after significant changes in Canadian tax law find evidence that contradicts the tax clientele hypothesis. Skinner and Gilster (1990) further argue that the tax clientele effect identified by prior studies may be an industry yield effect. Using dividend and price data from 1980 through 1985 and the basic Elton and Gruber methodology, they find a strong positive relationship between EG statistics and dividend yield. They find that once utility companies (with their generally high dividend yields) are separated from nonutilities, the positive relationship between dividend yield and the EG statistic disappears; the relationships in both subsamples appear to be almost random.[5]

Two other recent studies examine the tax clientele hypothesis in light of the 1986 Tax Reform Act and reach opposite conclusions. Robin (1991) examines the impact of TRA on ex-dividend day rates of return, arguing that the tax clientele hypothesis would predict a drop in ex-dividend day rates of returns following implementation of the 1986 TRA. His findings generally support this argument. By contrast, Michaely (1991), using a variation of the Elton and Gruber methodology, finds that TRA had little impact on ex-dividend day behavior. This dichotomy of empirical findings leaves the issue of tax clienteles unresolved.

This paper examines the controversy over the tax clientele hypothesis and the Tax Reform Act of 1986 using a similar methodology, but a much more carefully selected sample. One focus of the paper is determining whether any evidence of a systematic change in ex-dividend behavior exists as a result of the 1986 TRA. A sample of companies that paid taxable common stock dividends in both 1984 and 1988 is used. Employing a variation of the Elton and Gruber methodology, statistics measuring ex-dividend behavior are computed for both years. The statistics then are compared to determine whether there is any evidence of a systematic shift in ex-dividend behavior.

Sample Design and Data Description

In order to the test the impact of the Tax Reform Act of 1986 on ex-dividend day behavior, a sample of companies whose common stock dividends are subject to uniform and pure tax treatment is assembled. The Center for Research in Security Prices (CRSP) daily master file is used to identify all dividend-paying firms that meet the following criteria:

Scholes (1974) and Litzenberger and Ramaswamy (1979), examine the relationship between dividends and taxes in the context of asset pricing models.

[5]Other studies examine the tax clientele hypothesis by a direct analysis of stock ownership. The most notable of these studies is Lewellen, *et al.* (1978), who find no evidence of tax clienteles.

- Each dividend payment must be classified as *regular quarterly* and must be declared in United States currency;
- The company must have paid such regular quarterly dividends in all four quarters of both 1984 and 1988;
- No other dividend activity may have occurred in conjunction with the regular quarterly cash payment in any quarter during either of the two years.

These screens eliminate companies that paid year-end extras, any other form of specially designated cash dividend, or any distribution of stock. Foreign firms, whose dividends may have confounding tax effects, are eliminated. The screens also eliminate utility company dividends that qualify for any form of special treatment (such as dividend reinvestment plans qualifying under Section 305(e) of the tax code). It should be noted that this screening process ensures that the sample of firms for each year under study is identical, with the two years' observations constituting a matched pairs comparison between companies and years. Further, certain companies with volatile dividend policies may have been eliminated.[6]

These screens produce a sample of 664 companies and 2,656 quarterly dividend observations for both 1984 and 1988. For each observation the stock price the day before the ex-dividend date (Pb), the stock price on the ex-dividend date (Pa), the dividend amount (D), and the CRSP equally weighted market return are collected.

The sample is divided into utility and nonutility subsamples. The utility subsample consists of 28 companies and 112 quarterly dividends, and the nonutility sample consists of 636 companies and 2,544 quarterly dividends for each quarter.[7] The size of the utility subsample is limited due to the exclusion of Section 305(e) companies, many of which are large and well known. The exclusion of Section 305(e) companies serves to maintain the integrity of the sample, as even large, well-known utilities that paid Section 305(e) dividends were not subject to the standardized tax laws in 1984. Their inclusion in any comparative study would obscure the results by definition.

The years 1984 and 1988 are chosen as representing periods before and following the Tax Reform Act. The objective is to examine periods as close to the passage of the act as possible, with a minimum of potentially complicating factors. During both 1985 and 1986 TRA was working its way through the

[6]It is possible that these screens may introduce some biases into the final sample. Any biases should have no effect on the hypotheses being tested, however, as the shift in ex-dividend behavior is being tested through the matched pairs construction.

[7]There are 187 utility companies (SIC codes 4900 through 4950) listed on the CRSP database. Of these, 104 paid Section 305(e) dividends, 15 failed to pay dividends in all four quarters of both 1984 and 1988, and 40 paid dividends in multiple forms. These screens reduced the utility subsample to 28 companies.

legislative process which may have influenced the ex-dividend behavior of common stocks.[8] TRA was phased in during 1987. Therefore, 1988 was the first year all major provisions of the act were in force without complication. There were several minor adjustments to the tax code in 1988 and 1989; however, these changes had no effect on the tax treatment of dividends relative to capital gains for individual investors.

Empirical Analysis and Results

Methodology

Elton and Gruber (1970) contend that if an investor is indifferent between selling shares of stock on the ex-dividend day versus the day prior to the ex-dividend day, the after tax cash flow received from either transaction must be the same. Their contention can be stated as:

$$Pb - Tg(Pb - Pk) = Pa - Tg(Pa - Pk) + D(1 - Td); \text{ and}$$

$$\frac{(Pb - Pa)}{D} = \frac{(1 - Td)}{(1 - Tg)},$$

where:

Pb = The stock price the day prior to the ex-dividend date;
Pa = The stock price on the ex-dividend date;
Pk = The price at which the stock was purchased;
D = Dividend amount;
Tg = Tax rate on capital gains; and
Td = Tax rate on dividends (ordinary income).

The Elton and Gruber statistic (EG) for an individual stock is defined as (Pb - Pa)/D. Elton and Gruber argue that if capital gains are taxed at a lower rate than are dividends, mean EG statistics should be less than one and positively related to dividend yield.

Kalay (1982), Barclay (1987), and others have noted that a potential downward bias exists in the Elton and Gruber statistic if Pb and Pa are estimated by using a stock's closing price on consecutive days. This is because on a typical trading day a stock's expected return is positive. Barclay suggests that the most

[8]There was some speculation in the press concerning changes in investor preferences for dividends as a result of the pending Tax Reform Act. See, for example, "Tax Law Changes Prompt Dividend Actions," *Wall Street Journal* (November 10, 1986), p. 47.

straightforward way of correcting this problem is by adjusting ex-dividend day closing prices by the change in the market index for that day. To remove any such bias, therefore, all EG statistics reported in this study have been adjusted by the change in the CRSP equally weighted index.

The tax clientele hypothesis predicts that a positive relationship between EG statistics and dividend yield will exist. The tax clientele hypothesis also predicts that average EG statistics should be less than one for 1984. This research tests for these effects and also tests the hypothesis that if tax clienteles do exist, a systematic shift in EG statistics should occur across years surrounding implementation of the Tax Reform Act. The 1986 TRA effectively lowered the tax rate dividends for individuals, while simultaneously increasing the tax rate on capital gains. The tax clientele hypothesis would predict that adjusted EG statistics computed following the implementation of the TRA should be closer to one on average. Therefore, as with prior studies, adjusted Elton and Gruber statistics are arranged by dividend yield (divided into deciles) for both 1984 and 1988.

Unlike prior studies, however, nonparametric tests are employed to accommodate the matched pairs construction and avoid statistical problems relating to data distributions.[9] If systematic shifts in tax clientele behavior are observed to exist, the matched pairs tests are more likely to highlight these changes, whereas parametric testing may not.

Principal Findings

Tables 1 and 2 report adjusted Elton and Gruber statistics for 1984 and 1988, respectively, arranged by dividend yield decile. Evidence contradicting the tax clientele hypothesis in both years generally is found. Results of the Wilcoxon signed rank test of whether the median EG statistic is significantly different from one is given for each yield decile.In addition, the Spearman rho and Kruskall-Wallis chi-square statistics are reported for each year. The Spearman rho measures the correlation between EG statistics and dividend yield, and the Kruskall-Wallis statistic tests for differences in medians across yield deciles. Results are given for the entire sample as well as for the two subsamples (nonutility and utility companies).

The findings reported in Table 1 for 1984 show only a weak positive relationship between median adjusted EG statistics and dividend yield for the entire sample. Median EG statistics decline for only the first five deciles and begin to trend upward for the second five deciles. The decile comprising the smallest dividend-yielding stocks (decile 10) has the largest median adjusted EG statistic

[9]Kalay (1982), Lakonishok and Vermaelen (1983), and Barclay (1987) have noted various distributional problems with EG statistics.

(1.3203). Furthermore, in nine of the ten deciles the hypothesis that the true median equals one cannot be rejected. The Spearman rho equals .028 (which is not statistically significant), indicating little correlation between EG statistics and dividend yield. While the Kruskall-Wallis chi-square statistic is statistically significant (p-value equals .0453), indicating significant differences in medians across deciles, the lack of a systematic pattern is inconsistent with the existence of tax clienteles.

The industry effect reported by Skinner and Gilster (1990) is shown clearly once utility companies are separated from nonutility companies. With the exception of the smallest yield decile, median adjusted EG statistics for nonutilities are less than one. Median EG statistics for utilities, on the other hand, exceed one in eight of the ten yield deciles. In spite of these differences, however, no evidence of a systematic pattern in EG statistics exists for either nonutilities or utilities. Rarely can the hypothesis that the true decile median equals one be rejected. The Spearman rho coefficients are positive (.016 and .161, respectively), but are not statistically significant, indicating no significant correlation between EG statistics and dividend yield for either subsample.

The 1988 findings are similar to the 1984 findings; strong evidence contradicting the tax clientele hypothesis is found. For the entire sample, the relationship between adjusted EG statistics and dividend yield appears to be almost random. In seven of the ten yield deciles the hypothesis that the true median adjusted EG statistic equals one cannot be rejected. The Spearman rho coefficient equals .021 (not statistically significant), indicating no evidence of significant correlation between EG statistics and dividend yield. Even the Kruskall-Wallis chi-square statistic indicates no significant differences in medians across yield deciles (p-value equals .1030).

Once utility companies are separated from nonutilities, the industry effect again becomes evident; in only one of the ten yield deciles is the median adjusted EG statistic greater than one for nonutilities. By contrast, for utility companies, median EG statistics exceed one in eight of the ten deciles. For both subsamples, however, in only one decile is the EG statistic significantly different from one, and the overall relationship between the EG statistic and dividend yield is essentially random. For example, the Spearman rho coefficient for nonutilities is virtually zero (.009).

The results reported in Tables 1 and 2 are inconsistent with the results found by Elton and Gruber (1970), Kalay (1982), and Barclay (1987). All three studies find positive, significant correlations between dividend yield and EG statistics (whether adjusted or unadjusted), suggesting the existence of tax clienteles.[10]

[10]It should be noted that not all the correlation coefficients calculated by Kalay were statistically significant. When EG statistics were adjusted by the change in the market index, the resulting correlation coefficient between adjusted EG statistics and dividend yield equaled .032 with a corresponding p-value of approximately .18.

The current findings are more consistent with the argument advanced by Miller and Scholes (1978) and the empirical results reported by Lakonishok and Vermaelen (1983) and Skinner and Gilster (1990) that question the existence of tax clienteles. Skinner and Gilster suggest that the tax effect is an industry effect. For example, while Skinner and Gilster do not compute correlations between EG statistics and dividend yield directly, their results strongly suggest that the positive relationship found for all companies disappears once utilities are separated from nonutilities. A similar industry effect is found in the current research, but no evidence is found of a positive relationship between adjusted EG statistics and dividend yield even when utilities and nonutilities are examined together.[11]

Table 3 reports the matched pairs comparison of adjusted Elton and Gruber statistics. The results provide little evidence of significant or systematic shifts in ex-dividend behavior as a result of the Tax Reform Act of 1986 and further contradict the tax clientele hypothesis.[12] Adjusted EG statistics for the years 1984 and 1988 are matched by both company and quarter. The statistics for each of the years are arranged by 1984 dividend yield decile, and medians are computed.[13] The Wilcoxon signed rank tests of significant differences in the matched pairs between 1984 and 1988 are reported for each yield decile. Results are given for the entire sample as well as for the two subsamples.

The 1986 TRA effectively lowered the tax rate on dividends relative to capital gains. As a result, the tax clientele hypothesis would predict that 1988 median adjusted EG statistics should shift toward one. For the entire sample, median adjusted EG statistics shift toward one in six of the ten dividend yield deciles (as well as the grand median across all deciles). None of these changes, however, are statistically significant. Only for the decile comprising the highest dividend-yielding stocks (decile one) can the hypothesis that the 1984 and 1988 medians (.9327 and 1.0691, respectively) are equal be rejected (the corresponding Z-statistic equals 2.245). This result is driven by the nonutility subsample; the median adjusted EG statistic for decile one increases from .9167 to 1.0634 (with a corresponding Wilcoxon Z-statistic of 2.322). No other changes in the matched pairs between 1984 and 1988 are statistically significant in either subsample.

[11]Skinner and Gilster also found decile means to be significantly different from one (they did not compute medians). In contrast, this research is unable to reject the hypothesis that true decile medians equal one in most cases.

[12]Matched pairs tests of adjusted EG statistics comparing the 1982 through 1984 preperiod versus the 1988 through 1990 postperiod also were conducted. Results were virtually identical to those reported in Table 3 and are available from the authors.

[13]The 1988 EG statistics reported in Table 3 are arranged by 1984 yield decile for purposes of the matched pairs comparison. As a result, the 1988 medians reported in Table 3 differ from those reported in Table 2.

For example, across all yield deciles the median adjusted EG statistic for nonutility companies increases from .7405 to .8271, but its corresponding Z-statistic (.074) indicates that this change is not statistically significant.

These results suggest that the Tax Reform Act of 1986 had little effect on ex-dividend behavior and raise further questions about the tax clientele hypothesis. The findings are similar to those reported by Lakonishok and Vermaelen (1983) who find no significant change in ex-dividend behavior as a result of a major change in Canadian tax laws in 1971 that effectively increased the tax rate on dividends relative to capital gains. The current results also support the finding of Michaely (1991) that the 1986 Tax Reform Act had no apparent impact on the ex-dividend behavior of U.S. common stocks.

This is in sharp contrast to the results reported by Robin (1991). Using a sample of all common stock cash dividends paid between 1984 and 1988, Robin finds a statistically significant drop in average ex-dividend day rate of returns from the 1984 through 1986 preperiod to the 1987 through 1988 postperiod. Robin argues that this drop was predicted by the tax clientele hypothesis, consistent with the equalization of tax rates on dividends and capital gains. He includes data from 1985 and 1986 when TRA was working its way through the legislative process, however, and uses data from 1987 when all provisions of the TRA were not yet in effect. Further, his sample is not screened for potentially confounding tax effects (e.g., dividends qualifying under Section 305(e) of the tax code).

Summary and Conclusions

This paper reexamines the tax clientele controversy in light of the Tax Reform Act of 1986. One of the provisions of this law effectively increased the tax rate on capital gains for individual investors while reducing the tax rate on dividends. These changes in the tax code may have led to changes in the ex-dividend day behavior of common stocks.

Several studies, most notably Elton and Gruber (1970), Kalay (1982), Barclay (1987), and Robin (1991), examine the ex-dividend day behavior of common stocks and find support for the tax clientele hypothesis. They find, for example, positive correlations between dividend yield and various measures of ex-dividend day behavior (e.g., EG statistics). Other studies, such as Miller and Scholes (1978), Lakonishok and Vermaelen (1983), Skinner and Gilster (1990), and Michaely (1991), question the existence of tax clienteles. Skinner and Gilster, for example, find no correlation between EG statistics and dividend yield once utility companies are separated from nonutility companies.

Using a carefully screened sample of common stocks that paid ordinary, taxable dividends in both 1984 and 1988 and a variation of the Elton and Gruber

methodology, this research obtains results that generally contradict the tax clientele hypothesis. The relationships found between dividend yield and adjusted EG statistics are weak and inconsistent for both 1984 and 1988. Rarely can the hypothesis that true median adjusted EG statistics (arranged by dividend yield decile) are equal to one be rejected. A similar industry effect is found; utilities have higher adjusted EG statistics on average than do nonutilities. Even examinations of the subsamples, however, reveal evidence contrary to the tax clientele hypothesis. Further, consistent with Michaely (1991), few significant or systematic changes are observed in the ex-dividend behavior of common stocks as a result of the implementation of the Tax Reform Act of 1986.

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Table 1
1984 Elton and Gruber Statistics
Arranged by Dividend Yield Decile

Adjusted Elton & Gruber statistics are arranged by dividend yield decile. The Z-statistic reports the result of the Wilcoxon signed rank test of whether the median EG statistic for each decile is significantly different from one. The Spearman rho is the correlation between dividend yield and EG statistic for all observations. The Kruskall-Wallis chi-square statistic tests for differences in medians across deciles. Results are reported for the entire sample as well as for the two subsamples. n is the number of observations, and c is the number of companies.

Yield Decile	Average Quarterly Yield	Adjusted EG Statistic Median	Z-statistic
	A. Entire Sample (n = 2,656; c = 664)		
1	.0196	.9327	1.528
2	.0141	.8351	1.725
3	.0120	.8097	.451
4	.0106	.7554	3.091[a]
5	.0094	.5936	.671
6	.0084	.6880	.390
7	.0071	.6673	1.375
8	.0058	.5981	.406
9	.0045	.6383	1.852
10	.0026	1.3203	.611
	Spearman rho = .028, p-value = .1535		
	Kruskall-Wallis chi-square = 17.23, p-value = .0453		
	B. Nonutility Companies (n = 2,544; c = 636)		
1	.0192	.9167	.587
2	.0136	.7796	1.688
3	.0115	.7827	1.495
4	.0101	.6883	.294
5	.0089	.5835	2.810[a]
6	.0078	.6293	.840
7	.0066	.6337	1.155
8	.0053	.5805	.799
9	.0040	.6390	1.692
10	.0022	1.4671	.414
	Spearman rho = .016, p-value = .4198		
	Kruskall-Wallis chi-square = 17.96, p-value = .0356		
	c. Utility Companies (n = 112; c = 28)		
1	.0278	1.2238	.650
2	.0258	1.1083	1.417
3	.0239	1.0088	1.004
4	.0221	1.3425	.095
5	.0210	1.0666	.639
6	.0199	1.2179	.934
7	.0190	1.2501	.001
8	.0173	1.2909	.284
9	.0153	.4607	.714
10	.0113	.5247	1.039
	Spearman rho = .161, p-value = .0900		
	Kruskall-Wallis chi-square = 9.43, p-value = .3983		

[a]Z-statistic significant at the .01 level

Table 2
1988 Elton and Gruber Statistics
Arranged by Dividend Yield Decile

Adjusted Elton and Gruber Statistics are arranged by dividend yield decile. The Z-statistic reports the result of the Wilcoxon signed rank test of whether the median EG statistic for each decile is significantly different from one. The Spearman rho is the correlation between dividend yield and EG statistic for all observations. The Kruskall-Wallis chi-square statistic tests for differences in medians across deciles. Results are reported for the entire sample as well as for the two subsamples. n is the number of observations, and c is the number of companies.

Yield Decile	Average Quarterly Yield	Adjusted EG Statistic Median	Z-statistic
	A. Entire Sample (n = 2,656; c = 664)		
1	.0166	1.0101	.790
2	.0117	.9372	.087
3	.0100	.8064	1.979[b]
4	.0090	.8018	2.598[a]
5	.0081	.7050	1.810
6	.0073	.7969	1.123
7	.0062	.6229	1.438
8	.0053	.6272	.606
9	.0041	1.1808	.434
10	.0022	.9695	2.088[b]
	Spearman rho = .021, p-value = .3407		
	Kruskall-Wallis chi-square = 14.59, p-value = .1030		
	B. Nonutility Companies (n = 2,544; c = 636)		
1	.0164	.9906	1.052
2	.0114	.9008	.214
3	.0097	.7621	1.773
4	.0086	.7905	2.280[a]
5	.0077	.6678	1.541
6	.0068	.7481	.793
7	.0058	.6056	1.365
8	.0049	.6107	.670
9	.0037	1.1600	.614
10	.0020	.9884	1.797
	Spearman rho = .009, p-value = .6368		
	Kruskall-Wallis chi-square = 15.46, p-value = .0790		
	c. Utility Companies (n = 112; c = 28)		
1	.0225	1.1803	1.299
2	.0190	1.3367	.001
3	.0184	1.1452	.473
4	.0180	1.0665	1.039
5	.0174	1.1681	1.123
6	.0168	1.1287	.085
7	.0158	1.2458	.850
8	.0149	.9619	.274
9	.0129	1.3490	.274
10	.0076	.4016	1.606
	Spearman rho = .089, p-value = .3586		
	Kruskall-Wallis chi-square = 4.57, p-value = .8698		

[a]Z-statistic significant at the .01 level
[b]Z-statistic significant at the .05 level

Table 3
Matched Pairs Comparison of 1984 and 1988 Elton and Gruber Statistics Arranged by 1984 Dividend Yield Decile

Adjusted Elton & Gruber statistics for both 1984 and 1988 are matched by both company and quarter. The statistics are arranged by 1984 dividend yield decile, and medians are calculated.[a] The Z-statistic reports the results of the Wilcoxon signed rank test of whether the matched pairs are significantly different between the two years. Results for the entire sample as well as for the two subsamples are reported. n is the number of observations, and c is the number of companies.

Yield Decile	Median EG Statistic 1984	Median EG Statistic 1988	Wilcoxon Z-statistic
	A. Entire Sample (n = 2,656; c = 664)		
1	.9327	1.0691	2.245[b]
2	.8351	.9493	.435
3	.8097	.7911	1.599
4	.7554	.8181	.717
5	.5936	.6381	.045
6	.6880	.8503	.431
7	.6673	.4575	.085
8	.5981	1.0201	.215
9	.6383	1.0460	.993
10	1.3203	.9695	1.634
All Deciles	.7629	.8621	.212
	B. Nonutility Companies (n = 2,544; c = 636)		
1	.9167	1.0634	2.322[b]
2	.7796	.9256	.811
3	.7827	.7581	1.365
4	.6883	.7545	.569
5	.5835	.6626	.415
6	.6293	.7918	.559
7	.6337	.3862	.286
8	.5805	.8964	.246
9	.6390	1.0355	1.174
10	1.4671	.8681	1.319
All Deciles	.7405	.8271	.074
	c. Utility Companies (n = 112; c = 28)		
1	1.2238	1.4281	.162
2	1.1083	1.2311	.417
3	1.0088	1.1660	.714
4	1.3425	1.0245	1.187
5	1.0666	.5287	.714
6	1.2179	1.0332	.400
7	1.2501	1.0904	.822
8	1.2909	1.3367	.456
9	.4607	1.2458	.661
10	.5247	1.3490	.001
All Deciles	1.1154	1.1346	.552

[a]The 1988 EG statistics in Table 3 are arranged by 1984 yield deciles for purposes of the matched pairs comparison. As a result, the 1988 medians reported in this table differ from those reported in Table 2

[b]Z-statistic significant at the .05 level