

THE EFFECT OF CORPORATE NAME CHANGES ON SHAREHOLDER WEALTH

Stephen P. Ferris, Virginia Polytechnic Institute and State University

ABSTRACT

This paper analyzes in the Agency-Signaling context of Jensen and Meckling (1976) and Spence (1973) non-merger corporate name changes over 1983-1985. Using an event-study methodology, the results suggest that changes in corporate identities serve in some circumstances as signals to the market of increased operational efficiencies, enhanced investment opportunities and the acquisition of superior managerial ability. The form and frequency of the name change however, was found generally to be insignificant.

I. INTRODUCTION

A potentially significant event for any corporation is the change in its official appellation. This is because the new name may indicate major changes in the firm's policies and strategies. A name change may be accompanied by critical decisions affecting factors such as liability composition, asset structure, investment schedules or geographical sales expansion. In some cases, the effect of a name change can be dramatic for the firm's shareholders. When United Airlines parent UAL Inc. recently changed its name to Allegis Corp., its stock price fell 8.8% during the next 6 trading days while five of its competitors were declining an average of only 1.8%. Unisys Corp., the new name for the Burroughs and Sperry combination exceeded the Standard and Poor's Corporate 500 Index by 18.1 percentage points since its rechristening in November 1986 through the first quarter of 1987.

The management literature, however has failed to produce any systematic examination of the impact of corporate name changes. Using financial performance criteria this study examines in an agency-signaling framework the effect of corporate name

changes on shareholder wealth.

II. THEORETICAL CONTEXT

Beginning as early as Adam Smith (1776), economists have been concerned with the proper incentive and motivation of managers who own no equity in the firm. One outcome of these concerns has been the development of "behavioral" or "managerial" theories of the firm. Represented by the studies of Baumol (1959), Simon (1959), Cyert and March (1963) and Williamson (1964) this approach rejects the classical model of an entrepreneurial owner-manager who operates the firm solely to maximize profits. Rather this behavioral theory of the firm emphasizes the motivations of a manager who does not own in trying to develop a modern theory of corporate management.

More recent contributions to this theory, however, have continued to reject the classic model, but impose classical constraints of economic behavior on the managers of the firm. Developed by Alchian and Demsetz (1972), Jensen and Meckling (1976) and Ross (1977) and referred to as Agency Theory this approach views the firm as

a team whose members act from an enlightened self interest, but realize that their fortunes are partially dependent upon the team's survival in competition with other teams. An important aspect of agency theory represented in these studies is the asymmetry in information available to a firm's owners and managers. Specifically, since not all the actions of a manager are directly observable by the stockholders, there is a potential for conflict of interest as both sets of participants pursue their individual self interest. We thus arrive at a characterization of the firm where the shareholders are the owners and the managers are agents hired to serve the owners, but are motivated by their self-interest.

How can this principal-agent conflict be eliminated or at least reduced given the asymmetry of information between participants? The agents also have an interest in reducing this cost, since as Akerlof (1970) noted, that in the absence of specific information about a product's quality, outsiders (i.e., principals) will evaluate all products (i.e., managers) identically. The obvious incentive for "inferior" agents to promote themselves as "superior" agents will prompt the truly superior agents to exit the market and thereby cause a decline in the mean quality of agents remaining in the market.

Spence (1973) suggests that under certain circumstances, it is possible for agents to "signal" their true quality. One such signal in the market for managers might be higher education. Expanded in the studies by Leland and Pyle (1977), Myers (1977) and Bhattacharya (1979) this Signaling Hypothesis contends that economic information uniquely possessed by management will be conveyed to the shareholders through various signals. More direct communications may be infeasible due to legal liability, restrictions in the bond indentures, capital market conditions or the competitive environment.

Corporate name changes will thus be examined as a signal sent by the firm's management to its owners in response to the problem of asymmetric information. A corporate name change could signal a variety of different information to the firm's owners and its potential owners in the capital market. A new investment policy and schedule may be signaled or it may indicate new investments will be available in the future. It may signal a change in organization structure or an expansion in the geographical distribution of its product. A name change may also indicate the firm is fundamentally altering its balance sheet. Its liabilities may be restructured with different maturities or its debt may be consolidated and refinanced. A change in the firm's name may signal a restructuring of assets, with possibilities for expansion, diversification or divestment.

III. METHODOLOGY

A. DATA

The total sample of firms considered for this study consisted of all New York (NYSE) and American Stock Exchange (AMEX) companies whose equities were traded between 1983 and 1985. For each of these years, approximately 2500 companies satisfied this requirement. The *Wall Street Journal Index* provided citations to news articles concerning corporate name changes, allowing an announcement date to be set. To the extent that capital market investors learned of the name change from other sources or the information was leaked prior to public disclosure this study will be less able to determine the effect of the name change on shareholder wealth. Yet, the *Wall Street Journal Index* is used quite routinely in assigning announcement dates for a variety of corporate activities. Ball and Brown (1968) and Beaver (1968) used it to examine corporate earnings announcement while Kaplan and Roll (1972) analyzed the impact of the announce-

ment of changes in firm accounting procedures. More recently, Aharony and Swary (1980) used the *Wall Street Journal Index* to examine earnings and dividends announcement effects while Asquith (1983) studied the impact of notification of merger and acquisition activity.

Over this three year period there were over 3500 name changes. In order to decompose the total sample for study, a number of items were checked in each story. The first set of items concerned the nature of the actual change. It was determined whether this was the first, second or the most recent of multiple name changes by the firm. The character length of the new name was also calculated in order to determine whether the name change resulted in a longer or shorter new name. If the new name was a fictitious word it was so noted. I also noted if the new name had a "high tech" sound to it. Although a subjective classification, there is an anecdotal set of guidelines.

The second set of criteria noted from the *Wall Street Journal* stories concerned various firm financial and managerial factors associated with the name change. Articles up to 6 months following the announced name change were scrutinized for alterations in the firm's asset structure due to divestment, diversification or expansion activity. Asset expansion due to mergers, however, was excluded. Because the announcement of a corporate name change due to merger is typically made subsequent to the announcement of the merger itself, any results obtained may be confounded by lingering merger effects.

Any announcement of liability restructuring or debt rescheduling following the name change was also recorded. In a number of cases, organizational and managerial changes were announced following the change in the company name. These changes included

increased centralization/decentralization of firm operations, new divisional or unit alignment and the hiring of senior managerial personnel.

Stock return data for the companies in the sample was obtained from the Daily Stock Master computer tape distributed by the Center for Research in Security Prices (CRSP) at the University of Chicago. The CRSP tapes contain the daily return on all NYSE and AMEX issues after correcting for dividend and stock split distributions. In the absence of these supplemental distributions, the return is measured as simply the percent change in the daily price of the stock.

B. MARKET CAPITALIZATION, EFFICIENCY AND ABNORMAL RETURNS

Capital market data were used to measure the impact of a name change on the firm's performance. Since the market value of a firm represents the capitalized value (i.e., present value) of both current as well as more distant earnings, it is a better measure than accounting income in assessing the impact of an event. If for example, management adopts a new investment policy with favorable implications for future earnings, then the market will respond positively. Accounting measures of performance, however, will be unable to reflect this future profitability. Furthermore, the numerous accounting procedures, available in reporting depreciation, valuation of inventory and disclosing lease and pension obligations can artificially increase accounting income figures without any increase in real economic earnings. Thus, an analysis of short-run capital market responses can capture the impact of an event even though that event may be designed to enhance the firm's long-run profitability.

Beginning with the research of Working (1934) and Kendall (1953) there has been a long history of the development of the idea that stock prices

respond nearly instantaneously to the release of new information. Extensively tested (see Fama, 1970) and remarkably robust, this theory of an informationally efficient market contends that stock prices reflect all publicly available information. Prices change when information is released that has economic meaning for the individual firm. This may mean information about the aggregate economy, the firm's industry or the firm itself. Regardless of the nature of the information, an efficient capital market will evaluate the data and stock prices may either rise or decline.

Since stock prices reflect the market's evaluation of new information, the impact of a name change can be assessed by an analysis of the stock returns series around the announcement of a change. This approach is referred to as an "event-study" and the methodology has been rigorously examined by Brown and Warner (1980). After setting general market movements from the stock return, the pattern of the remaining or abnormal returns is analyzed around the announcement date of the event. In the absence of an event with economic content, the abnormal returns should be approximately zero. For favorable events, these abnormal returns should be positive while unfavorable events should produce negative abnormal returns. Because there is always the possibility of disclosure of the name change prior to its announcement in the *Wall Street Journal*, these abnormal returns were also examined over the 2 month period prior to the *Wall Street Journal's* announcement.

Without dividends, a return is defined as the percent change in its price. Thus on day t , the return for a stock is:

$$R_t = (P_t - P_{t-1})/P_{t-1} \quad (1)$$

In order to calculate our abnormal returns, however, we must first determine what constitutes a "normal" return. Based upon the work of Sharpe (1964) and Lintner (1965), a normal return for firm i on day t was defined as:

$$\hat{R}_{i,t} = \hat{\alpha}_i + \hat{\beta}_i R_{m,t} \quad (2)$$

where $\hat{\alpha}_i$, $\hat{\beta}_i$ are estimated regression coefficients and $R_{m,t}$ is the daily return on broad based market index portfolio.

Consequently, we can define the daily abnormal return as the daily observed return less the daily 'normal' or equilibrium return:

$$AR_{i,t} = R_{i,t} - \hat{R}_{i,t} \quad (3)$$

If the observed stock returns were not adjusted for overall market activity by subtracting out the normal component (i.e., $\hat{R}_{i,t}$) then part of the stock price response attributed to a name change would actually be due to movements in various macroeconomic variables.

Name changes occur throughout the year. The event-study approach requires, however, that the events be aligned with respect to event time rather than calendar time. Thus $t=0$ refers to the date on which the name change was announced in the *Wall Street Journal* while $t=-1$ represents one trading day before the event announcement and $t=+2$ is the second trading day after the announcement. The average impact of a name change on a given event date is estimated by summing cross-sectionally:

$$\overline{AR}_t = \sum_{i=1}^N \frac{AR_{i,t}}{N} \quad (4)$$

where:

\overline{AR}_t = average abnormal return on event day t

$AR_{i,t}$ = abnormal return on stock i for event t as defined in equation 2
 N = number of name changes

In order to measure the impact of a corporate name change over a time interval, a cumulative average abnormal return is calculated. A cumulative average abnormal return is estimated by summing the average abnormal return over the specified interval. For example, the cumulative average abnormal return for a 3 trading day window around the announcement date would be computed as:

$$CAR = \sum_{t=-3}^3 \overline{AR}_t$$

IV. EMPIRICAL RESULTS

The empirical analysis of the impact of corporate identity changes on shareholder wealth was undertaken in two stages. In the first stage, a number of subsamples of the data were created based upon the nature of the actual name change. These name changes were not associated with any change in managerial or economic activity. In the second stage, the subsamples were constructed on the basis of some economic or managerial activity announced with the name change.

A. RESULTS FOR NAME CHANGES NOT ASSOCIATED WITH CHANGES IN ECONOMIC OR MANAGERIAL ACTIVITIES

The announcement day results for the total sample provided in Table 1 indicate a mean abnormal return of approximately 1/10 of 1%. But given the variability in stock returns as measured by the standard deviation, this abnormal return is statistically indistinguishable from zero. The cumulative average result for days $t=-2$ through $t=+2$ is also statistically insignificant.

In any event study, one must allow for the possibility that information concerning the event was leaked prior to its official disclosure. To examine this possibility, cumulative abnormal returns were computed for both the first and second months preceding the announcement date of the name change. For neither the total sample nor any of the subsamples examined

were these CAR's significant. This suggests that either very little advance disclosure of the name change occurred or if it did its impact on stock returns is too small to detect. This later suggestion tends to be consistent with the results found for various subsamples.

The results presented in Table 1 indicate that the stock market ignores the frequency of changes in a firm's name. The announcement day results for both first-time and multiple name changes were insignificantly different from zero. This result may be viewed as surprising in light of arguments which contend that multiple name changes confuse investors and distort perceptions of corporate identity.

Samples constructed on the basis of whether a change either lengthened or shortened a firm's name also failed to produce a significant result. Anecdotal evidence (Chajet, 1984) had suggested that long names were awkward, hindered marketing efforts, failed to create a meaningful visual impact and probably were unmemorable.

Finally, subsamples of firms using either fictitious words or "high-tech" words as names were created. Fictitious-word names were checked against the *Oxford English Dictionary*, while the assignment of a high tech classification was necessarily more subjective. Dreman (1977) and Manuso (1978) have suggested names with suffixes such as "onics," "ex" or "ix" as qualifying for the high tech category. Using this naive algorithm, a subsample

of high-tech named firms was generated. Although the results for this portfolio were statistically insignificant, the t statistic approached significance and was the highest of any calculated in Table 1.

A company's stock price should respond favorably to the announcement of a corporate rechristening to a high-tech identity if that new name signals the existence of profitable new investments. These new investments should then translate into increased earnings available to the firm's shareholders. In order to examine whether these changes to high-tech names signalled the increased availability of profitable investment opportunities or were merely cosmetic, this subsample of high-tech name changes was further subdivided. Individual firm earnings per share (EPS) for the year before the name change and the year following the change were obtained from MOODY'S MANUAL. In order to filter out normal variations in EPS (see Graham, 1963), only changes in EPS of 10% or greater in either direction were used for classification. Firms experiencing an increase in EPS of 10% or greater were assigned to the Increased EPS category, while those companies whose EPS fell by 10% or more were classified as Decreased EPS firms. The results of this analysis are presented in Table 2.

The mean abnormal returns in Table 2 are consistent with information signalling by corporate name changes to high-tech identities. Furthermore, these results indicate that the market is not fooled and is able to discriminate between those firms whose name change really does imply an increase in profitable investment and those that do not.

By dividing the total sample of high-tech name changes into Increased EPS and Decreased EPS subsamples, I am better able to identify those firms that did in fact enjoy an increase in profitability. For those firms assigned to the Increased EPS category, the

shareholders received over a 4% abnormal return on the day of the announcement of the name change while for the five-day announcement period the cumulative abnormal return was nearly 9%. For those firms in the Decreased EPS subsample, shareholders' wealth fell by 2.2% on the announcement date, while over the entire five-day period their wealth declined by 5.76%. These results indicate the market is able to determine which high-tech name changes signal increased future profitability presumably driven by new technological investments and those name changes which are cosmetic and not accompanied by enhanced investment opportunities.

B. RESULTS FOR NAME CHANGES ASSOCIATED WITH CHANGES IN ECONOMIC OR MANAGERIAL ACTIVITIES

In this section, results are presented for name changes that were announced prior to various changes in economic or managerial activities. The event time results are presented in Table 3.

The first set of results analyze the effect of name changes associated with asset restructuring activities. Corporate name changes due to asset diversification by the firm fail to significantly affect shareholder wealth. This is hardly surprising since a firm's shareholders can diversify themselves and the market will not offer a premium for a diversified firm. The results for asset growth and contraction, however, indicate that the market does take notice of those name changes. The t statistic on the announcement day of a name change that is later followed by asset expansion is significant at $\alpha = 0.10$ while for asset divestments the t statistic is significant at $\alpha = 0.05$. Furthermore, the cumulative abnormal return for asset divestments/spin-offs is significant and measures approximately -6.5%. These findings suggest that divestment and asset contraction activities more sev-

TABLE 1
Mean Abnormal Returns for Corporate Name Changes Not Associated
With Changes in Economic/Managerial Variables

Nature of the Name Change	Mean Abnormal Return Event Time			CAR
	t=-1	t=0	t= +1	(t=-2 thru t= +2)
Total Sample	0.00413 (0.829)	0.00108 (0.389)	0.00209 (0.727)	0.00936 (1.074)
First Name Change	0.00026 (0.395)	-0.00272 (-0.935)	-0.00075 (-0.255)	-0.00523 (-0.834)
Second or More Name Change	0.00032 (0.894)	0.00544 (1.358)	0.00612 (0.741)	0.01083 (1.304)
Increase in the Name's Number of Characters	-0.00606 (-1.174)	0.00173 (0.512)	-0.00194 (-0.722)	0.00014 (0.882)
Decrease in the Name's Number of Characters	0.00604 (1.198)	-0.00028 (-0.806)	0.00176 (0.398)	0.00832 (1.119)
Name Changed to a Fictitious Word	0.00336 (0.724)	0.00463 (0.812)	-0.00675 (-1.086)	0.00412 (1.097)
Name Changed to a "High Tech" Word	0.00872 (1.551)	0.01837 (1.884)	0.00217 (1.335)	0.02092 (1.651)

t statistics are provided in parentheses

TABLE 2
Mean Abnormal Returns for High Tech Corporate Name Changes
Classified By Subsequent Earnings Per Share (EPS) Growth

Change in EPS	Event Time			CAR
	t=-1	t=0	t= +1	(t=-2 thru t= +2)
Increase in EPS	0.0194 (2.134)*	0.0432 (2.628)*	0.0203 (2.001)*	0.08912 (2.837)*
Decrease in EPS	-0.0173 (-1.793)	-0.0222 (-2.375)*	-0.0196 (-2.113)*	-0.0576 (-2.489)*

t statistics are provided in parentheses
 *indicates statistical significance at $\alpha=0.05$

erely affect shareholder wealth than undertakings in the opposite direction. These asymmetric results may be seen as puzzling, unless investors in the aggregate tend to view asset expansion as incorporating at least some marginally attractive projects while divestments and spin-offs are seen as efficient scaling and loss-cutting activities.

The results for liability restructuring by the firm are also significant. Liability restructuring is essentially an investment decision. That is, the firm will determine whether it is profitable to refinance or replace the existing maturity structure of its debt given current yields in the marketplace. Thus the announcement of a liability restructuring can be viewed as the announcement of the adoption of a profitable investment project, making these results consistent with those reported in Table 2.

Geographical expansion and new market penetration by firms should exert a positive influence on earnings as sales presumably increase. The results in Table 3 for name changes accompanied by an announced geographical expansion, however, reveals only a weak significance on the announcement day. This may be due to the fact that many firms have already established de facto expanded operations and are involved in the new market long before any public announcement of expanded geographical operations is made.

The last variable accompanying the corporate name change by which the data was subsetted were changes in organizational/managerial structure. More specifically, any corporate name change followed by a change in top management personnel (e.g., CEO), a new divisional structure, operating unit realignment or a change in the decentralization/centralization of corporate decision making was assigned to this cell. The results obtained were statistically insignificant and suggest that these changes have no economic impact.

Yet, small firms may have different control and decision making structures than larger firms, making a more distinct separation of the data by organization context necessary. To control approximately for organizational context, name changes associated with organizational/managerial activities were classified on the basis of firm size. Specifically, firm size was measured by the firm's stock market capitalization (i.e., market price of the stock x number of shares outstanding). This subsample was then divided into thirds based upon firm market capitalization values at the time of the name change announcement. Those firms in the top third were assigned to the large category, the middle third to the intermediate classification and the bottom third were classified as small firms. The results of this stratification are presented in Table 4.

These findings reveal that, on average, managerial and organizational restructuring associated with name changes are only effective for small firms. Large and intermediate size firms fail to respond in any significant way to these announced name changes followed by managerial or organizational restructuring. These results suggest that modifications of organizational structure or major changes in management personnel have their most pronounced economic effect in relatively small firms. This may be due to the fact that the increased efficiencies and superior administrative skills anticipated from these changes can be more quickly realized in a small firm. This in turn would have a favorable impact on the firm's projected earnings.

V. SUMMARY AND CONCLUSION

Changes in corporate identities have long been viewed as merely cosmetic attempts by management to alter investors' attitudes. The view has been that a company name change is merely putting the same wine in a different bottle. But a company name change

TABLE 3
Mean Abnormal Returns for Corporate Name Changes Associated
With Changes in Economic/Managerial Variables

Economic/Managerial Variable Associated With The Corporate Name Change	Mean Abnormal Return Event Time			CAR (t=-2 thru t= +2)
	t=-1	t=0	t= +1	
Asset Restructuring				
Asset Expansion	0.00134 (1.431)	0.01738 (1.858)**	0.00325 (1.203)	0.02193 (1.566)
Asset Divestment/Spin-off	-0.01166 (-1.407)	-0.0228 (-1.998)*	-0.01547 (-1.018)	-0.06462 (-2.013)*
Asset Diversification	0.00412 (0.822)	0.00128 (0.389)	0.00209 (1.072)	0.01003 (1.001)
Liability Restructuring	0.01778 (2.109)*	0.03017 (2.225)*	0.01843 (1.877)	0.0741 (2.348)*
Geographical Expansion	0.00832 (1.432)	0.01933 (1.883)**	0.01778 (1.663)	0.0328 (1.761)
Organizational/Managerial Restructuring	0.00993 (1.038)	0.01043 (1.449)	0.00892 (1.007)	0.0115 (0.972)

t statistics are provided in parentheses

*indicates statistical significance at $\alpha=0.05$

**indicates statistical significance at $\alpha=0.10$

TABLE 4
Mean Abnormal Returns for Corporate Name Changes Associated With
Organizational/Managerial Restructuring Classified By Firm
Stock Market Capitalization

Firm Market Capitalization Size	Mean Abnormal Return Event Time			CAR (t=-2 thru t= +2)
	t=-1	t=0	t= +1	
Small	0.00853 (1.158)	0.02764 (2.124)*	0.02395 (2.075)*	0.06361 (2.249)*
Intermediate	0.00745 (1.002)	0.01883 (1.652)	0.00466 (0.983)	0.01942 (1.177)
Large	0.00034 (0.882)	0.00830 (1.044)	0.00537 (1.291)	0.01222 (1.098)

t statistics are provided in parentheses

*indicates statistical significance at $\alpha=0.05$

may be substantive, it may involve putting a different wine in that new bottle. In the agency framework of Jensen and Meckling, managers are characterized by possessing superior information relative to the firm's shareholders. One way managers can convey information to shareholders is through the concept of signalling as developed by Spence. This paper has examined through an event-study methodology the hypothesis that a corporate name change can serve as a signal to the capital market regarding future firm profitability. An event-study methodology incorporates the advantage of mea-

suring over a relatively short time period the anticipated long term impact of a change in corporate identity. The results of this analysis indicate that name changes can serve as signals of enhanced investment opportunities or of economic/managerial activities (e.g., asset divestment, divisional restructuring) that will positively influence anticipated earnings. The actual characteristics of the new name, however, were found to be insignificant in affecting investors' perceptions of firm value. That is, the form of the signal (e.g., longer new name, shorter new name) did not matter.

REFERENCES

1. Aharony, J. and I. Swary, "Quarterly Dividend and Earnings Announcements and Stockholders' Returns: An Empirical Analysis, *Journal of Finance*, 35, (January, 1980), pp. 1-12.
2. Akerlof, G., "The Market for Lemons: Qualitative Uncertainty and the Market Mechanism," *Quarterly Journal of Economics*, 89, (August, 1970), pp. 488-500.
3. Alchian, A.A. and H. Demsetz, "Production, Information Costs, and Economic Organization," *American Economic Review*, 62, (December, 1972), p. 777-795.
4. Asquith, P., "Merger Bids, Uncertainty, and Stockholder Returns," *Journal of FINANCE*, 11, (January, 1983), pp. 51-83.
5. Ball, R. and P. Brown, "An Empirical Evaluation of Accounting Income Numbers," *Journal of Accounting Research*, 6, (Autumn, 1968), pp. 159-178.
6. Baumol, W.J., *Business Behavior, Value and Growth* New York: Macmillan 1959.
7. Beaver, W., "The Information Content of Annual Earnings Announcements," *Empirical Research in Accounting: Selected Studies*, 1968, supplement to Vol. 7, *Journal of Accounting Research*, pp. 67-92.
8. Bhattacharya, S., "Imperfect Information, Dividend Policy, and the Bird in Hand Fallacy," *Bell Journal of Economics*, 10, (Spring, 1979), pp. 259-270.
9. Brown, S.J. and J.B. Warner, "Measuring Security Price Performance," *Journal of Financial Economics*, 8, (July, 1980), p. 205-258.
10. Chajet, C., "What Does your Firm's Name Say to Customers," *Nation's Business*, (June, 1984), pp. 38-39.
11. Cyert, R.M. and J.G. March, *A Behavioral Theory of the Firm*, Englewood Cliffs: Prentice-Hall, 1963.
12. Dreman, David. *Psychology and the Stock Market*. New York: Amacom, 1977.
13. Fama, E.F., "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance*, 10, (Spring 1970), pp. 259-270.
14. Graham, Benjamin et. al. *Security Analysis*. New York: McGraw-Hill, 1962.
15. Jensen, M. and W. Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure," *Journal of Financial Economics* 3, (October, 1976), pp. 305-360.
16. Kaplan, R.S. and R. Roll, "Investor Evaluation of Accounting Information: Some Empirical Evidence," *Journal of Business*, 45 (April, 1972), pp. 225-257.
17. Kendall, M.G., "The Analysis of Economic Time Series, Part I: Prices," *Journal of the Royal Statistical Society*, 96, (Part I, 1953), pp. 11-25.

Continued on Page 110