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THE REDISTRIBUTION OF
REACQUIRED CORPORATE COMMON STOCK

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By

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ABSTRACT

THE REDISTRIBUTION OF
REACQUIRED CORPORATE COMMON STOCK

By

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The purpose of this study is to analyze the reaction of common stock market prices to announcements of a redistribution of previously reacquired corporate common stock. The study is, as an examination of the announcement effect of newly released financial information, a test of the efficient market hypothesis in its semi-strong form.

The study also addresses the validity of the corporate anti-dilution strategy by which shares needed for distribution for various purposes are reacquired by the issuing company and then distributed.

The study population originated with the New York Stock Exchange (NYSE) monthly report of listed firms that experienced corporate common stock reacquisitions and/or redistributions from 1964 to 1977. Companies in the NYSE report which redistributed a quantity of shares ranging from 1% to 5% of their shares outstanding are

identified as the study's population. Redistribution by a firm of less than 1% of its shares outstanding is assumed to have insignificant effects on the firm's market price; redistributions greater than 5% necessitate concurrent reporting to the Securities and Exchange Commission. Defining the population by this range to eliminate insignificant transactions and duplicate reporting generated 417 announcements.

The testing methodology employed in this study is a time series analysis of daily stock price changes $\pm$ 30 days around the NYSE report announcement date. The Time Series Processor regression analysis program developed by the Massachusetts Institute of Technology is used to test the reaction of the data to the study's market model. Daily stock prices were obtained from the CRSP files of the University of Chicago's Center for Research in Security Prices.

The study's market model is based on the capital asset pricing model and is designed to explain the price relatives of companies engaging in share disposition decision (SDD) activity to those of the general market. The Standard and Poor's Corporation 500 Composite Index is used as a measurement of the general market. The model tests market efficiency in the context of the efficient market hypothesis through the null hypothesis that the share

price before the critical event is statistically equal to the share price after the critical event. The critical event in the study is the release date of the monthly NYSE report on SDD activity. The alternate hypothesis that reported SDD activity has a depressing effect on the share price is designed to test the claim that firms engage in SDD activity to prevent stock price dilution.

The study population is subdivided into four percentage categories of net shares redistributed to shares outstanding and four proportional categories of net shares redistributed to average daily trading volume. The resulting sixteen groups of observations form the basis for a test of the market model to identify significant relationships between SDD transaction size and price relatives.

The results of the study indicate the market model's price relatives for the SDD-transacting companies, while contrary to that of the general market, do not support the claim that SDD activity results in depressed share prices for the entire study population. But the subdivided data reveal a statistically significant share price decrease when the redistribution is between 3% and 5% of the shares outstanding and more than 22 times the average daily trading volume.

This study isolated and identified share redistribution activity levels which possess returns significantly different from the general market. The findings revealed the share redistribution activity levels which were large relative to outstanding shares and trading volume possess statistically signifiance negative share price responses. The evidence in this study indicated such large SDD activity may form the basis of a stock trading rule to achieve superior returns to that of the general market. For all SDD companies in the study popluation, however, the non-existence of superior or inferior returns implies that investors cannot apply a similar stock trading rule unconditionally to firms engaging in share redistributions.

DEDICATION

To my mother,
whose degree of spiritual encouragement,
academic direction, metaphysical optimism,
and strategic manuevering was a major force
in the completion of this work.

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CHAPTER I

INTRODUCTION

Background of Problem

During the past seventeen years, academic research and the popular financial press have demonstrated a proliferating interest in common stock reacquisitions. Many aspects of the corporate share reacquisition decision (SRD) have been widely discussed in the financial press and some of these have been subsequently examined by academic researchers. For example, the following financial press topics were later analyzed in the professional literature.[1]

a. share reacquisition during bear markets [76, 91, 101]
b. employment of tender offers in an SRD [93, 96]
c. reverse stock splits [97, 105]
d. increases in the market price [58, 59, 69, 72, 73]
e. reduction in the cost of capital [6]
f. SRD as a surrogate investment opportunity [6, 72, 88]
g. SRD strategy prior to merger activity [61, 95, 100]
h. retirement of reacquired common stock [82]
i. ethical and legal considerations of the SRD [44]
j. accounting for SRD transactions [35, 83]
k. lowering of shareholder transaction costs [27]
l. SRD as an alternative to a cash dividend [2, 102]

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[1] Discussion of significant studies is contained in the Prior Research section. For direct reference, however, the subsequent academic counterparts to the above articles in the financial press are, respectively, a. [75, 78, 92], b. [52, 53], c. [18], d. [14, 26, 53, 59, 77], e. [51], f. [2], g. [84], h. [20], i. [9, 34], j. [39, 57, 105], k. [54], and l. [12].

One frequently cited reason [22, 55, 67, 94, 99, 103] for share reacquisition that has not been similarly explored is the prevention of dilution upon the issuance[1] of additional shares for various purposes.[2] The common claim found in these articles is that some firms have a need to issue additional common shares and a concurrent desire to maintain an undiluted equity base, earnings per share, and market price. They enter into share reacquisition/redistribution programs for the expected non-negative effect on the company's price per share.

Examination of the price effects of the first portion of this two part corporate anti-dilution strategy has provided support to the claim that no significant price increase has occurred after reacquisition [14, 26, 53, 59, 77]. This study proposes to analyze the second portion of the strategy: the claim that issuance of reacquired common stock has no dilutive effect on the share price, by testing the announcement effect of the redistribution of reacquired corporate common stock.

Prior studies of announcement effects have tested the theory

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[1] Although commonly employed to describe reacquired common shares subsequently released into the marketplace, the term "reissued stock" is a misnomer because the reacquired shares have maintained their "issued" status and are not literally *reissued*. They are redistributed, released, redispositioned, but not reissued. See Chapter III, section A.2 for a discussion of this differentiation.

[2] See the Nature of Activity section for examples.

of efficient securities markets. This study contributes to that body of information by analyzing the effect of announcing a corporate share disposition decision (SDD).

In 1934, the New York Stock Exchange (NYSE) began requesting companies to report their trading activity in their own stock. The stock list department of the exchange has compiled a publicly available file of this reported activity, on a monthly basis, beginning with the May, 1940, report. The NYSE report's release date will be designated the critical event in this study and be the basis for the announcement investigation.

Statement of Purpose

The market price dilution that anti-dilution strategy (ADS) companies[1] are attempting to prevent is the $\frac{x}{1+x}$ share price decrease[2] that would result, *ceteris paribus*, from releasing authorized but unissued shares into the marketplace.[3]

There are two price movement situations which would indicate that this strategy was successful. The first case is the counterbalancing effect of a price increase after a share reacquisition decision (SRD) and a commensurate price decrease after a share disposition decision (SDD). The second case is no significant price decline after an SDD regardless of the price movement after an SRD.

Examination by others [14, 26, 53, 59, 77] of the frequent claim that an SRD would increase the market price per share [58, 59, 69, 72, 73] has provided support to reject that claim: no significant price increase has occurred after reacquisition. Thus, empirical evidence is insufficient to sustain the first case for a successful anti-dilution strategy.

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[1] Those companies which need to distribute additional shares of common stock and want to prevent dilution of their equity base and market price per share will be referenced as anti-dilution strategy (ADS) companies.

[2] See Figure 1-1 for the explanation of this proportional price decrease.

[3] See the Issue/Reissue Differentiation section for a discussion of the differences between the reissuance of reacquired shares and the issuance of new shares.

Eliminating the first case from consideration reduces the second situation to an examination of the share price movement for ADS companies around the SDD activity date. One of the purposes of this study is to address this issue of SDD activity on share prices by examining the price movements around the public announcements of such transactions.

In an efficient market, security prices fully reflect all available information. The information with which the market is concerned is divided into three subsets and is associated with a particular test of the three forms of the efficient market hypothesis (EMH). For the information subset of past security prices or returns history, weak form tests have supported the EMH.[1] For the second information subset of other obviously available public information (e.g., announcements of dividend policy, mergers, annual and quarterly reports, etc.), semi-strong form tests have been offered.[2] Lastly, the subset of monopolistic access to information by any investor is examined in strong form tests.

The empirical analysis of this study is directed at the test of the semi-strong form of the EMH. The NYSE's announcement of

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[1] See Fama [15] for a summary of the EMH tests.

[2] See Fama, Fisher, Jensen, and Roll [16], Pettit [33], as well as Melvin C. O'Connor's "On the Usefulness of Financial Ratios to Investors in Common Stocks," Accounting Review, April, 1973, and LeRoy D. Brooks' "Additional Evidence on the Market Reaction to Accounting Numbers," The Financial Review, 1977.

net share disposition belongs to the second information subset defined above; accordingly, this study's analysis of the effect on a company's share price of such publicly available information is a test of the semi-strong form of the EMH. Thus, the primary purpose of this research is to offer additional evidence about the validity of the EMH by estimating the speed and accuracy with which market share prices respond to announcements of corporate dispositions of previously reacquired common stock.

Figure 1-1

The Derivation of the Proportional Price Decrease $\frac{x}{1+x}$

Let x = the percentage of new shares issued to the shares outstanding prior to the new issue

P_o = the market price per share prior to the issue

P_1 = the market price per share after the issue

s = the number of shares outstanding prior to the issue

V = the market value of the firm

Then since $V = (P_o)(s)$ prior to the issue and assuming the market value of the firm does not change as a result of the issue, $V = (P_1)(s + x \cdot s)$ also.

Solving for P_1, $P_1 = \frac{V}{s + x \cdot s} = \frac{(P_o)(s)}{(s)(1+x)} = \frac{P_o}{1+x}$.

The decrease in price is expressed as

$$\Delta P = \frac{P_o - P_1}{P_o}$$

$$= 1 - \frac{P_1}{P_o} = 1 - \frac{\frac{P_o}{1+x}}{P_o} = 1 - \frac{1}{1+x}$$

$$= \frac{x}{1+x}$$

Design Outline

To ascertain whether the corporate anti-dilution strategy (ADS) has been successful, a time series statistical analysis of the ADS companies' price performance was made.[1] The procedures involved in generating the data base and applying the testing methodology are outlined below.

Procedure for Generating the Data Base

The population for this study consists of all New York Stock Exchange (NYSE) firms that experienced net share disposition activity between 1964 and 1977.[2] Net share disposition activity occurs when there is an excess of redistributed shares over reacquired shares in a given reporting quarter.

The NYSE reacquisition and disposition reports[3] [136] serve as the origin of the population. First, those companies which have a net decrease in their reacquired holdings are identified from the report.[4] Since the NYSE does not distinguish in its announcement between a reduction in holdings due to a redistribution and a reduction resulting from retirement of the shares, a second step in the

---

[1] The procedures to filter non-ADS companies from the data base and to test the study's hypothesis outlined in this section are employed in the Research Design section.
[2] The NYSE reports prior to 1964 did not include the amount of shares listed on the exchange (See Figure 1.1). This 14 year period contains major market movements in both directions and is employed in this study, as is the S&P 500 index, to explain market influence on individual share prices.
[3] See Figure 1.1 for a description of the NYSE report contents.
[4] There are 7,756 such transactions for the 1964-77 period.

Figure 1-2

Content of the New York Stock Exchange Monthly Report on Corporate Stock Reacquisitions and Redistributions

Period	Content
February, 1940 to March, 1953	Company name Class of stock Shares previously reported Shares per latest report
April, 1953	Company name Class of stock Increase in holdings Decrease in holdings Shares per latest report
May, 1953 to April, 1963	Company name Class of stock Shares previously reported Increase in holdings Decrease in holdings Shares per latest report
May, 1963 to October, 1975	Company name Class of stock Increase in holdings Decrease in holdings Shares per latest report Total shares listed on the exchange
November, 1975 to Present	Company name Class of stock Increase in holdings Decrease in holdings Shares per latest report Total shares listed on the exchange Shares per latest report as a percentage of total shares listed

population identification process is required to eliminate those companies which have retired their reacquired shares. The Securities and Exchange Commission (SEC) reports [140] indicate the motive for the transaction and are used in this study to identify retirements.

Defining the price performance of ADS companies as the relative price trend before and after the NYSE report date, a third filter is necessary to purge those share dispositions disclosed on other dates.[1] Distributions resulting from stock dividends or stock splits are identified through Moody's [135] and Standard and Poor's [142, 143] services. Since the SEC requires disclosure[2] of dispositions that return to market 5% or more of the shares outstanding, the proportion of shares redistributed to shares outstanding prior to the redistribution is calculated for all companies in the revised population. Those company transactions with a proportion greater than 5% have been reported elsewhere on a date other than the NYSE report date and are accordingly removed from this study's data base. The resulting population contains 6,073 transactions that have a net share

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[1] Since a time series analysis will be performed on the NYSE report's announcement date, companies which have had previous announcements of their share dispositions would constitute statistical 'noise' in the data base.

[2] Prior to February 29, 1977, disclosure was required on the SEC's Current Report (Form 8-K). A major amendment transferred the share disposition disclosure to the quarterly form 10-Q on that date. See the Federal Register, volume 42, number 6, January 25, 1977, page 4424 for details.

disposition announced through the NYSE report and form the data base for the announcement effect investigation.

The NYSE report is released monthly but companies are required to report to the exchange only on a quarterly basis. Thus a company's September, October, and November, 1978, activity would be forwarded to the exchange in December, 1978, and placed on the December, 1978, report. Since most firms observe a calendar quarter for their fiscal period, the January, April, July, and October reports contain the greatest activity.

The report is released regularly without cost by the NYSE through its Stock List Department to approximately 400 interested parties (e.g., member firms, institutions, individuals, and news reporting agencies). The NYSE maintains a subscription/distribution list for regular users, but any interested person or firm desiring a single copy of the monthly report may request it in person or by telephone.

The monthly report is released early in the fourth week to the previously mentioned distribution list. As a test of the semi-strong form of the efficient market hypothesis, this study investigates the flow of the announced SDD information to the marketplace through this NYSE release using the release date as the critical event. The designation of the release date as the study's critical

event is consistent with an investigation into the efficacy of the efficient market hypothesis. During the reporting quarter, there are many *distribution* dates on which the firms' reacquired shares are actually returned to the marketplace, but there is only one *announcement* date of such transactions.

Procedure for Applying the Testing Methodology

The price performance of the companies' shares in the study's population was examined using a time series analysis. First, daily stock prices[1] were obtained for ± 30 days around the New York Stock Exchange report date[2] for a total of 61 observations per share disposition decision transaction.

Next, Standard and Poor's Corporation Index of 500 common stocks was selected to represent the market movement and to explain any change in the stock price of an SDD company which may have been caused by the marketplace.

The working hypothesis of no price dilution as a result of an SDD transaction translates into the model's null hypothesis that the price trend before the critical event is statistically equal to the price trend after the critical event. The alternative hypothesis states that the announcement of the SDD activity had a depressing effect on the market price per share.

An expresssion for a multiple regression model was developed

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[1] These were obtained from the CRSP file of the University of Chicago's Center for Research in Security Prices [131].
[2] which is designated the "critical event" for design purposes.

through a series of regression equations to test the null hypothesis and provide evidence to evaluate the working hypothesis. A series of tests was performed on the model, with dummy variables for intercept and slope reaction, using the pooled share prices and their associated market indices. Analysis of the statistical significance of the variables' coefficients, autocorrelation, and homoscedascity then forms the basis for statements about the working hypothesis in the Analysis of Findings section.

CHAPTER II

PRIOR RESEARCH

The reacquisition of common stock necessitates a subsequent decision to reissue, retain, or retire the reacquired shares. The increased level of activity in net share disposition within the last fifteen years has followed the substantial growth in stock reacquisition and now provides a basis for organized study.[1] The treatment SRD/SDD activity has received in the three areas of the financial press, academic research, and finance textbooks is reviewed below.

Financial Press

Prior to the recent academic studies, belief developed [34, 58, 61] that there is a positive effect on security prices caused by a share reacquisition decision (SRD) and a negative effect caused by a share disposition decision (SDD). Proffered justification for the argument of increases in security prices includes the following:

a. the improvement of earnings per share which, assuming a constant price/earnings ratio, will result in a higher market price [61],

b. the lowering of the firm's cost of capital by increasing the debt to equity ratio and producing a higher value of the firm [34],

[1] SRD activity growth has been well documented elsewhere [20, 26, 48, 112] and SDD activity growth is documented in the Level of Activity section.

c. the investing in one's own stock when other opportunities have lower projected rates of return effecting a greater return on assets [34], and

d. the reduction of dividend payments without decreasing the per share dividend or necessitating an announced change in dividend policy.

The converses to the above justifications provide arguments for a negative price reaction to an SDD. Also offered as a reason for the negative price expectation is the impact of transferring shares from an 'issued but not outstanding' status to an 'issued and outstanding' basis [26].[1] Reacquired shares retain the classification of being issued and listed, but not outstanding. Authorized shares which have never been issued are not classified as issued, listed, or outstanding. Although there are other differences between newly issued stock and reacquired stock subsequently redistributed,[2] a negative earnings and price dilution effect has been associated with the share disposition decision.

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[1] This is not the same status change which results from releasing authorized but never previously issued shares: the dilution effect associated with using shares not previously issued is avoided. See the Issue/Reissue Differentiation section.

[2] The pre-emptive right does not apply on the release of reacquired shares and reacquired shares may be released without regard to par or stated value. Unissued shares may generally (except in California) not be issued for less than par value [9]. The Securities and Exchange Commission reporting rules also differ for these two conditions and are discussed in the Research Design section.

Leo A. Guthart, in his third paper on SRD/SDD activity, surveyed participating managements to ascertain reasons for such activity [22]. One prime motivation in undertaking such transactions was the desire of companies to avoid increasing their equity base in the future while honoring commitments for common stock: stock options, acquisitions, convertible debentures, warrants, and stock dividends. In summing the attitude expressed by many financial managers, Guthart wrote that to counteract the dilution caused by the issuance of new shares, corporations went into the market and bought back already outstanding shares to redistribute.

Guy Agrati, a manager of New York's Chemical Bank, advised that an SRD/SDD program would offset the dilution that would result from stock options, acquisitions, and convertible obligations of a company [55, pg. 36].

The most prolific SRD/SDD writer in the financial press is Anna Merjos, a vice president of Merrill, Lynch, Pierce, Fenner, & Smith. She has repeatedly maintained that an SRD/SDD strategy prevents dilution of earnings, equity, and share price when additional common stock is needed for mergers, acquisitions, stock options, employee stock purchase programs, or conversion of convertible preferreds or debentures [94, 99].

Likewise, other financial publications, such as *Financial World* [67], *The Magazine of Wall Street* [61], and *Business*

Week [58] have promulgated the dilution avoidance effect of SDD as a corporate strategy whenever the firm needs common stock for distribution.

Joel M. Stern, however, was the only financial press writer to question the popular concept of dilution prevention in a 1973 *Commercial and Financial Chronicle* article [103], but did not pursue it beyond one paragraph.

To summarize, the financial press - as represented by a wide background of interests - almost universally accepts and promotes the dilution prevention reasoning of companies engaging in SDD activity. A critical question then follows such acceptance and promotion: Is there evidence to support this position? The academic research outlined in the next section has begun to address this question.

Academic Research

The emphasis of academic research to date has centered on the share reacquisition decision (SRD) and not the share disposition decision: specifically, pre-SRD conditions and post-SRD effects, but not pre-SDD conditions and post-SDD effects.

In 1965, the first academic inquiry into corporate reacquisition activity was made by Richard A. Stevenson in a doctoral dissertation [45]. He examined 160 New York Stock Exchange (NYSE) industrial compnaies which reduced their outstanding common stock by at least one percent in any year from 1956 to 1963. His work has been cited in most subsequent studies as a pioneering effort into the previously unexplored area of corporate share reacquisition.[1]

Other organized doctoral research which followed Stevenson's spans a range of topics within the SRD and is outlined below:

a. a descriptive study of NYSE firms which repurchased a portion of their outstanding common stock between 1954 and 1965 [20],

b. a tabulation of advantages, disadvantages, characteristics, uses, and methods of reacquiring shares through a questionnaire study of 45% of 1,217 NYSE firms between 1951 and 1963 [34],

[1] The only previous academic research located was a 1927 J.D. thesis which examined the repurchase of stock from a legal viewpoint [36] and a 1934 article which reported on 40 repurchases occurring over a three year period [23].

c. a nonstatistical behavioral study of managerial, market, and investor problems associated with 152 cash tender offers from 1944 to 1965 [52],

d. a 1969 descriptive and historical study of the regulation surrounding the SRD [9].

e. an analysis of a questionnaire directed to 50 unlisted industrial companies from 1965 to 1968 [1],

f. a descriptive inquiry into the investment implications of share reacquisition from 1957 to 1968 [49],

g. a 1974 nonrigorous analytical investigation of the SRD to aid managerial decision making [14],

h. an empirical evaluation of the price impact of reverse stock splits for 44 listed companies during the period 1960 to 1973 [18], and

i. a test of market efficiency of the SRD for 227 listed companies which acquired their shares through either a tender offer or open market purchases [26].

The published articles in professional journals and research studies have concentrated on historical studies of actual price movements prior and subsequent to reacquisition [30, 37, 46, 53], valuation models examining the relationship of security prices and reacquisition activity [2, 12], volatility and risk measurement of securities subject to reacquisition [38, 41], and descriptive analyses of the scope and significance of reacquisition [22, 112]. The professional literature also includes studies on the behavioral charac-

teristics of reacquiring companies [32] and comparisons of the expectations and realizations of companies engaging in share reacquisition activity [48].

In some of these studies, evidence has been presented refuting the hypothesis that a SRD results in positive share price movements. Marks [26] has shown that superior returns have not been achieved by firms reacquiring their stock through tender offers or open market purchases. Escobar [14] found that repurchases of common stock did not have significant effect on share price relative to the rest of the market. Admission from corporate management that market reality has not met their share price expectations is also available: a Conference Board survey [48] of firms engaging in SRD reported that 63.1% of the respondents indicated little or no success achieved in their objective of supporting the price of their company's stock by reacquiring it. The other 36.9% of the managers queried categorized themselves as either only moderately successful (31.6%) or highly successful (5.3%) in achieving their price objective. Of all the reasons presented by management for reacquiring shares, the price objective pinnacled the Conference Board's list of "Little or No Success Achieved."

When the conclusions reached in the academic research are assimilated with the anti-dilution strategy proposed in the financial press, several questions form. For example, if

one of the prime motivations for corporations engaging in SRD/SDD transactions is dilution prevention when they honor the firm's common stock distribution requirements, then does the expected post-SDD share price decline really occur? More broadly, is it futile for management to engage in SRD/SDD anti-dilution strategy?

Other empirical investigations have attempted the measurement of market absorption and reaction to financial information released on identifiable dates and have related such absorption and reaction to the efficient market hypothesis (EMH). For example, Fama, Fisher, Jensen, and Roll [16] investigated the speed of common stock price adjustment to stock splits and anticipated dividend increases. They tested the validity of market efficiency through an analysis of price residuals around the announcement date.

Ray Ball and Philip Brown[1] assessed the speed at which prices respond to accounting income information in an EMH framework using monthly data twelve months prior and six months subsequent to their study's designated announcement date. Melvin C. O'Connor[2] analyzed the value of financial

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[1] See "An Empirical Evaluation of Accounting Income Numbers," Journal of Accounting Research, Autumn, 1968.

[2] See "On the Usefulness of Financial Ratios to Investors in Common Stock," Accounting Review, April, 1973.

ratios to predict future rate of return rankings as a test of market efficiency using one, three, and five year holding periods. R. Richardson Pettit [33] examined price effects of dividend announcements using daily data $\pm$ 10 days around the critical event and monthly data $\pm$ 20 months around the critical event.

Textbook Recognition

Textbook recognition of the extensive corporate participation in SRD/SDD activity has not been universally achieved in the past, but new entries into the basic finance course textbook market and recent revisions of older volumes have been addressing the issue. These works present the reasons why, and methods by which, corporations reacquire their own shares. Some introduce the SDD as well, but only the post-SRD/pre-SDD price effects are rigorously explored.

For example, R.W. Johnson [116, pg. 470] describes how a larger number of shares outstanding reduces the market price per share (i.e., through a stock dividend or a stock split) which can be extrapolated to the SDD when a similar increase in shares outstanding occurs.

Hampton [114, pg. 455] discusses the SDD for use in stock options and acquisitions only, but presents a case which effects a decrease in the price per share. Using his premise, assume a firm has 1,000,000 shares outstanding and a current market price of $40/share. If stock options are allowed up to 10,000 shares @ $20/share, then the post-SDD market price will be $40,000,000/1,010,000 shares, or $39.60/share. If the proceeds from the transaction increase the total value of the firm, then the new price per share will be $40,200,000 divided by 1,010,000 shares, or $39.80/share. In either case, there

is a post-SDD share price decline.

Solodolfsky and Olive [120, pg. 620, 624] indicate that the effect of an SDD is to decrease the market price of the common stock as a function of the increased number of shares outstanding.

Most recently, Kroncke, Nemmers, and Grunewald [117, pg. 410], in their revised edition, discuss the redistribution of reacquired stock "in mergers and acquisitions, for stock options, and for employee stock-purchase plans." Their example of a post-SRD share price rise resulting from fewer shares outstanding, higher earnings per share, and a constant price/earnings ratio, can be extended to the post-SDD situation of more shares outstanding, lower earnings per share, constant price/earnings ratio, and, therefore, lower price per share.

The question thus raised by the discussion above is "Is the post-SDD share price the same as the pre-SDD price?" If so, then is the share price decrease experienced by releasing previously reacquired shares a readjustment to outstanding share price levels prior to reacquisition and not an independent dilution? This study addresses the issue of whether there is a share price decline after SDD activity that is of a dilutive nature.

CHAPTER III

SHARE DISPOSITION ACTIVITY

Growth

Level of Activity

The increased level of net share disposition decision (SDD) activity can be measured by the number and value of reacquired common shares returned to the marketplace. While some firms both reacquire their shares from and return them to the market in the same fiscal quarter, there has been an increasing number of companies engaging in *net* SDD transactions. Net SDD levels are calculated by subtracting the number of shares reacquired, if any, from the number of shares returned to the 'outstanding' category during the same time period.

Table 3.1 was compiled from the data in the monthly NYSE reports [136] over the twenty year period 1958/1977. Since the concurrent reacquisition and disposition has a counterbalancing effect frequently resulting in either no, or a very small, net SDD, only those transactions that had a net SDD greater than 1% of total shares outstanding are included in the study.

The share volume figures in Table 3.1 represent companies' share distribution in excess of share reacquisitions, climbing tenfold from less than three million shares in 1958 to

Table 3-1

The Growth of Net Share Dispositions

Year	Volume[a]	Market Value
1958	2,734,027	$150,781,580
1959	5,041,580	265,287,930
1960	4,348,375	206,678,260
1961	5,389,425	294,909,330
1962	7,045,176	318,089,690
1963	5,522,490	280,155,910
1964	8,922,932	364,055,540
1965	9,112,750	369,066,370
1966	14,549,557	650,367,120
1967	18,349,237	796,359,620
1968	15,886,339	698,998,960
1969	14,026,178	572,268,140
1970	27,144,352	879,479,940
1971	19,466,542	687,168,860
1972	17,520,398	634,238,400
1973	19,280,378	653,604,880
1974	36,994,962	969,267,950
1975	26,028,913	777,223,250
1976	26,932,960	920,231,911
1977	29,491,530	931,637,433

[a]Source: New York Stock Exchange Monthly Reports [136]

Table 3-2

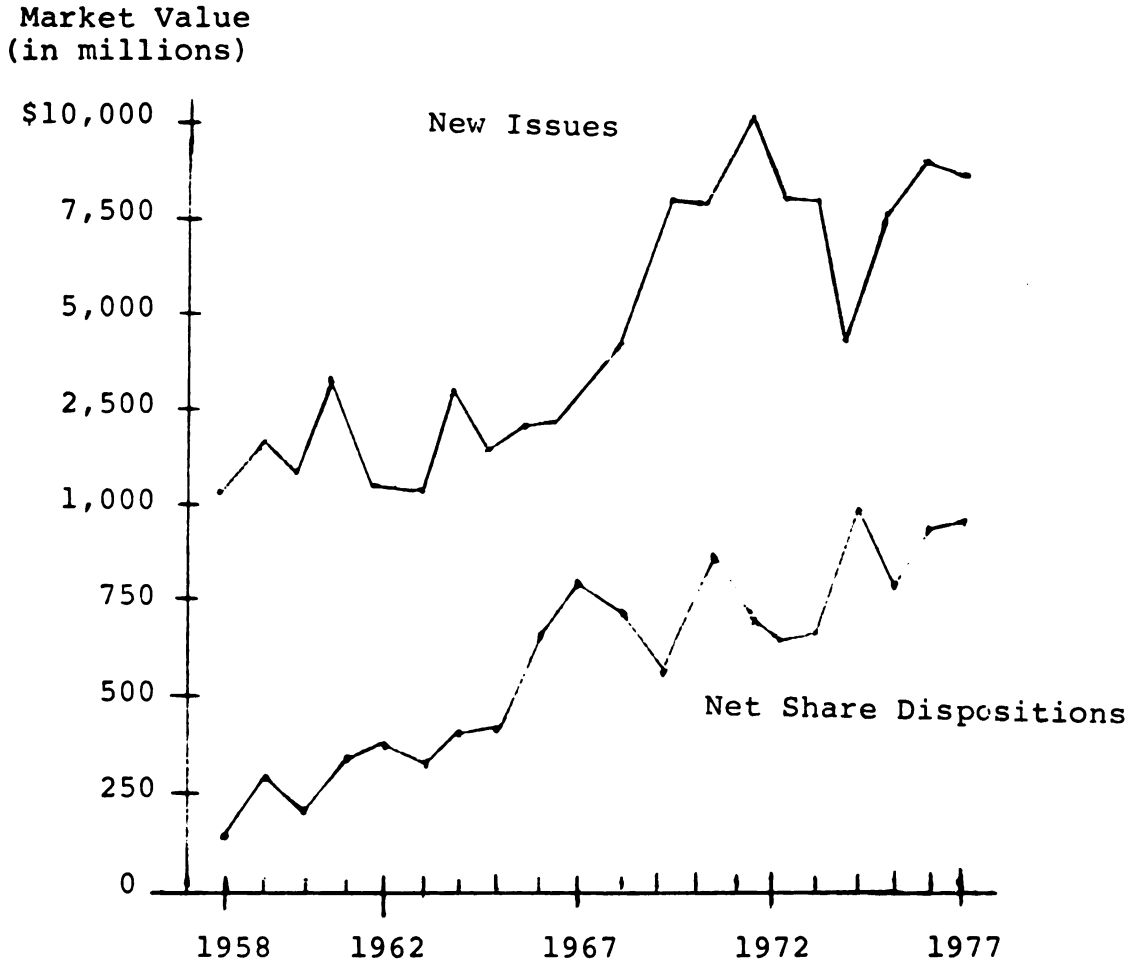
Comparison of Net Share Dispositions to New Issues

Year	Common Stock New Issues [a]	Net Share Dispositions to New Issues
1958	$1,334,000,000	11.30%
1959	2,027,000,000	13.09
1960	1,664,000,000	12.42
1961	3,294,000,000	8.45
1962	1,314,000,000	24.21
1963	1,022,000,000	21.41
1964	2,679,000,000	13.59
1965	1,547,000,000	23.86
1966	1,939,000,000	33.54
1967	1,959,000,000	40.65
1968	3,946,000,000	17.71
1969	7,714,000,000	7.42
1970	7,240,000,000	12.15
1971	9,291,000,000	7.40
1972	7,750,000 000	8.18
1973	7,642,000,000	8.55
1974	3,994,000,000	24.27
1975	7,405,000,000	10.50
1976	8,305,000,000	11.08
1977	8,135,000,000	11.45
Mean		16.06

[a]Source: The monthly *Federal Reserve Bulletin*, Table 1.47, New Security Issues.

Figure 3-1

Graph of Net Share Dispositions and New Issues[a]



[a]Source: Tables 3-1 and 3-2.

nearly 30 million shares in 1977. A similar growth in SDD activity is observed in the market value of the shares returned to market, where the average market price per share is used to approximate the aggregate value of the transactions.[1]

In table 3.2, the market value of new common stock issues is provided and compared to the market value of net share dispositions in table 3.1. The comparison, which is graphed in figure 3.1, reveals a commensurate increase in net SDD shares to new shares. The proportion of the shares returning to the marketplace ranges from 7.40% to 40.65% and averages over 16% of the issues entering the market for the first time. The average for the fourteen year period of this study, 1964 to 1977, is 16.45%.

Since the Federal Reserve data are compiled for companies listed on all exchanges and the SDD data are just for NYSE companies, the percentage is actually an understatement. Individual annual percentages are greater than shown in table 3.2 and the true average is above 16%

The importance of this comparison is that in the past twenty years, a significant source of common stock entering the

[1] This method of approximation was first used to measure SRD activity by Guthart in his frequently cited 1965 paper [21].

marketplace has been the reissuance of reacquired shares.

Issue/Reissue Differentiation

In the development of this study's hypothesis on the dilutive effect of a share disposition decision (SDD), it would be appropriate to identify the differences between the reissuance of reacquired shares and the issuance of new shares.

First, reacquired shares that are subsequently returned to the market have continually maintained their issued and listed status. The relationship of the status of common shares follows the pattern below:

$$S_a \geq S_i \geq S_l \geq S_o$$

where S_a = the number of shares authorized for issue

S_i = the number of shares authorized and issued

S_l = the number of shares listed

S_o = the number of shares outstanding

The total number of shares listed on an exchange is equal to the number of shares in the original issue plus additional shares issued thereafter which were authorized but not previously issued, listed, or outstanding. The share reacquisition decision (SRD) does not delist or retire the shares automatically; it temporarily transfers their status from authorized, issued, listed, and outstanding to authorized, issued, listed, and not outstanding. Since the prime reason for reacquisition is reissuance [56, p. 53],

unless reacquired shares are retired after reacquisition,[1] they are viewed by the marketplace as imminently returning to the outstanding category.

Second, newly issued shares must proceed through Securities and Exchange Commission (SEC) registration requirements that differ from those applicable to reissued shares. Specifically, disclosure of the number of shares involved in the redisposition is an *ex post facto* notice in the firm's annual 10-K report at the end of the firm's fiscal year. When the reissuance is greater than 5% of the shares outstanding or the accumulation of previously undisclosed reissued shares exceeds 5% of the shares outstanding, then reporting is required on a quarterly 10-Q form. Newly issued shares, however, must conform to more rigid *ex ante* disclosure rules through the registration requirements for previously unissued shares entering the public marketplace for the first time.[2]

Acknowledging the preceding two differences introduces a third: timing. The actual redisposition of reacquired shares may be realized immediately after a share disposition decision is made since the shares are already issued and listed whereas the disposition of newly

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[1] In a firm's announcement of the implementation of a share reacquisition program, the choice of retirement or reissuance is stated.

[2] Code of Federal Regulations, Title 17 (Commodity and Securities Exchanges), Chapter II (SEC), Part 240.

issued shares must observe the filing requirements of the SEC. Initial disclosure of a new issue is required before the disposition; disclosure of a reissuance is not. New issues also necessitate a new listing on the stock exchange in the form of an increase in the shares authorized for trading, whereas reissued shares maintain their listed status throughout the term of their reacquisition.

Also affecting the timing of the release of additional shares is the observance of the pre-emptive right in a new issue which is not present in a reissuance of reacquired stock [9, 25, 108]. This fourth differentiation between the two alternatives has substantial control implications as well. A firm's management, any current shareholder, or a group of shareholders may be interested in preventing dilution of control during a redisposition of previously reacquired common stock. The degree of control held after the reissuance will be a function of the number of shares returned to the marketplace, the amount of the reissued shares acquired by the interested party, the proportional control held prior to the SDD, and the percentage of the shares outstanding necessary for the desired level of control.[1]

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[1] See the Dilution of Control section for a discussion of this aspect of share redisposition.

A fifth distinction between new issues and redispositions is the number of transactions or offerings per year.[1] The number of new issue offerings marketed is substantially smaller than the number of transactions of reacquired shares that are redistributed. New offerings of seasoned issues, the subset of all new issues which is the direct alternative to redisposition under discussion, is by definition even smaller. The nature of the uses[2] of reacquired stock [22, 34, 48, 65, 111], as compared to the reasons[3] for issuing new shares [4], lends itself to a substantial amount of transactions.

Lastly, an important difference between the two alternatives is the market anticipation and related pricing effect that exist for reacquired shares, but not for authorized yet unissued shares. Information exists for the market to discount the return of reacquired shares to the outstanding category in the retention rather than the retirement of them.

The last distinction introduces the question of market anticipation for the redistributed shares. Specifically, in what direction does the market anticipate share price movement after an announced redistribution? There has been

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[1] The distinction here concerns the number of transactions, not the volume of transactions.

[2] See the Nature of Activity section for examples.

[3] See also Frank K. Reilly's article "New Issues Revisited" in the Winter, 1977, issue of *Financial Management* for a supportive bibliography.

evidence already presented[1] indicating some managements believe that share prices will decline after an announced redistribution. This claim is based upon a two part anti-dilution strategy in which shares are reacquired creating a share price increase and then returned to the market creating a commensurate price decrease. Further rationale for this downward price speculation includes the argument that the proceeds to the issuing firm from the redistribution may be lower than market value. This latter situation will lower the overall value of the firm and hence the price per share of the firm's common stock.

There also has been evidence presented[2] supporting the claim that stock prices do not rise after a share reacquisition. In fact, the findings show no significant price movement in any direction. This evidence is the basis for a claim that announced redistributions do not have significant price movement in either direction as well. Further rationale for this non-movement speculation includes the argument that the market has already discounted the return of the reacquired shares to the marketplace. Firms that reacquire common stock and do not retire them are expected to return them to the marketplace.

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[1] See the Prior Research section for references.
[2] See the Academic Research section for references.

Thus, there are two different share price anticipations existing in the marketplace on the matter of share redistribution. One expects a share price decline and the other anticipates no share price movement at all. This study addresses this conflict of divergent market expectations.

Nature of Activity

Anti-dilution Motives

The increase in corporate net share disposition decision (SDD) activity has resulted from management's desire to release common stock for a number of reasons. They include the supplying of shares for a convertible preferred stock issue without increasing the number of outstanding shares and avoiding the dilution of the common equity. For example, the Ethel Corporation said a 750,000 share repurchase, which is about 8.3% of its current common stock outstanding, was designed "primarily to offset future dilution from conversion of the outstanding shares of convertible preferred stock; the conversion of which has become more likely as the common stock dividend rate has increased."[1]

Another frequent use is in acquisitions, mergers, and stock swaps. In 1973, however, companies were forced to observe a minimum two year holding period on reacquired stock used in acquisitions where the firm wanted to use pooling-of-interest accounting for the business combination. Such firms as General Mills and the Sun Company announced share disposition programs to effect mergers, acquisitions, and swaps.[2]

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[1] *The Wall Street Journal*, March 7, 1977, pg. 2.
[2] General Mills: *Business Week*, April 4, 1977, pg. 110, and the Sun Company: *The Wall Street Journal*, November 22, 1976, pg. 6.

A third reason for redistributing shares is for employee stock purchase plans. Wachovia Corporation's open market purchase authorization of up to 350,000 shares of its common stock was for the distribution of shares for its employee stock purchase plan.[1]

Another employee redistribution involves employee stock ownership programs (ESOPs) instituted in accordance with the 1976 Tax Reform Act. Provisions of that act provide that a firm may use part of its investment tax credits each year through 1980 to obtain and distribute stock to its employees. For example, Dow Chemical purchased 186,700 shares of its common stock on the open market "to give them to its employees for free."[2]

Some SDD are involved in a work incentive compensation program. Levi Strauss & Company announced a program to award its employees, every five years, one share of company stock for each year of service, using reacquired common.[3] While some of the shares in a work incentive compensation program may be reversionary in nature,[4] they still possess

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[1] *The Wall Street Journal*, October 25, 1977, pg. 25.
[2] *The Wall Street Journal*, November 18, 1977, pg. 12.
[3] *The Wall Street Journal*, December 8, 1977, pg. 26.
[4] Kessler [25, pg. 647] describes the case for distributing shares of stock to employees as a temporary incentive devise which may require "the employee to surrender his shares upon termination of his corporate connection" because the basic reason for the stock "disappears once the latter leave the corporation's employ."

all other rights attributed to publicly held shares. Related programs found in this employee category are savings and stock bonus plans as well as awards in lieu of cash. CBS Inc.'s open market purchase of 500,000 common shares was for reissuance under shareholder-approved employee benefit/bonus plans.[1]

Redistribution of previously reacquired shares as an anti-dilution strategy has also been advanced in rights offerings, warrant offerings, stock dividends, stock splits, employee stock option plans, and employee pension plans.

Non-anti-dilution Motives

The anti-dilution reasons in the paragraphs above, which are offered by companies engaging in SDD activity, form the basis for investigating the post-SDD share price effect in this study. There are, however, other reasons[2] for, and effects of firms' participation in the share disposition decision. For example, SDD activity may be instituted to effect a change in the firm's capital structure quickly without a prospectus, and without going to the capital market. If there is a desired weighted average after tax cost of capital that management wishes to achieve, and injecting the previously reacquired shares into the marketplace will effect

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[1] *The Wall Street Journal*, September 15, 1977, pg. 9

[2] The motives may exist coincident with or disjoint from the anti-dilution reasons presented above.

that result, then a byproduct would be the optimization of the firm's cost of capital. The decrease of a firm's financial leverage may be desirable if the firm has been increasing its debt ratio in violation of restrictive covenants in a bond indenture or of some other indebtedness.

A second reason for engaging in SDD activity is to alter control of a company by redistributing shares to selected owners and circumventing the pre-emptive right. Although recognition of the pre-emptive right has been argued for distributions of previously reacquired shares,[1] there is no requirement to observe such a rule.[2] Maintenance of shareholders relative voting positions as in footnote 1 below, however, would require acceptance of the offer by all shareholders. If there was such uniform acceptance, then distribution of even small amounts of stock would necessitate fractional shares - one of the reasons frequently cited by management for the decision to reacquire shares initially. More recently, the American Bar Association Model Business Corporation Act allows management discretion on the distribution of reacquired

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[1] Kessler [25, pg. 672] recommends observance of the pre-emptive right and suggests that a "pro rata offer insures that relative voting positions will be maintained even when voting shares are involved."

[2] The first apparent court test of the SDD yielded a dictum stating that "shareholders had no pre-emptive rights when the corporation chose to sell the shares again." [Hartridge vs Rockwell, R.M. Chalt. 260 (Georgia 1828) cited in Nemmers [31, pg. 161]].

shares.[1] Also, the effect of redistribution of control may be to broaden the ownership base (e.g., when used in mergers and acquisitions, convertible preferred or bond issues, warrant sales, newly initiated employee stock purchase plans, or pension plans when the plan did not previously own stock in the employees' company). And lastly, there are some cases which would not broaden or narrow the ownership base, but merely maintain it, such as a stock split, stock dividend, rights offering, and stock options and employee pension plans where shares are already held and the increase is in proportion to that previous number of shares.

Another reason firms participate in SDD activity is to lower reported earnings per share. A firm might engage in SDD activity if it had an exceptionally profitable year and wanted to stabilize the appearance of earnings growth or if it had a targeted percentage growth (as measured by the earnings per share) and the interim year figures were in excess of that projection. Also, if a company wished to maintain a specified dollar dividend payout without lowering its dividend payour ratio, it could decrease the earnings per share component of the payout ratio to avoid stockholder requests for increased per share dividends.

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[1] Model Business Corporation Act by the Committee on Corporation Laws of the American Bar Association, sections 23 and 24.

If the shares redistributed are not restricted from trades in the public secondary markets, then another effect of an SDD is to increase the volume of trading activity in the firm's stock: the greater the number of shares outstanding, the higher the potential daily trading volume.

A further consideration for some firms is the saving of time and money undertaking an SDD versus a new issue to satisfy the company's requirements to distribute common shares for whatever purpose.

And lastly, some firms seek the SDD as a vehicle for raising additional cash. The pre-SDD period may be considered a temporary employment of excess cash or an alternative investment. Nevertheless, when shares are sold in the open market or through private programs, the cash position of a firm is increased.

Significance

Dilution of Control

A firm's management, any current shareholder, or a group of shareholders may be interested in preventing dilution of control during a redisposition of reacquired stock. Since there is no uniform observance of a pre-emptive right [9, 25, 108] in the share disposition decision (SDD), the degree of control held after the reissuance will be a function of the number of shares returned to the market,[1] the amount of the reissued shares acquired by the concerned party, the proportional control held prior to the SDD, and the percentage of the shares outstanding necessary for the desired level of control.

Management's position will be considered in developing a mathematical expression for the maximum number of shares in an SDD without loss of a specified percentage of control.

Let m = the percentage of the shares outstanding controlled by management

p = the percentage of the shares outstanding necessary for the desired degree of control

X = the total number of shares outstanding

M = the total number of shares outstanding controlled by management

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[1] Since the concerned party may be denied the option of any of the reissued shares, the desired post-reissuance degree of control will inherently depend on how much excess control it had before the SDD. This is discussed as case A in the model.

P = the total number of shares outstanding necessary for the desired degree of control

n = the percentage of the newly reissued shares controlled by management[1]

Y = the total number of newly reissued shares

' = post-reissuance status

Then

$$M = (m)(X)$$

$$P = (p)(X)$$

$$X' = X + Y$$

$$M' = (m)(X) + (n)(Y)$$

$$P' = (p)(X')$$

Note that m can result directly from the proportional ownership of the outstanding shares, $\frac{S}{X}$, where S is the number of shares outstanding owned by management or, when $\frac{S}{X} < p$, from the percentage of the shares controlled[2] by management in excess of those owned, $\frac{C}{X}$, where C is the number of shares outstanding controlled, but not owned, by management. Thus, $m = \frac{S}{X} + \frac{C}{X}$.

Now locate Y such that

$$M' = P'$$

---

[1] n is assumed to be less than p. Otherwise, reissuance of any amount of reacquired stock will increase the degree of management's control.

[2] i.e., shares maintained by management for others, proxies regularly voted for management, etc.

Substituting,

$$(m)(X) + (n)(Y) = (p)(X + Y)$$

$$Y = \frac{(m)(X) - (p)(X)}{p - n}$$

with an associated[1] maximum percentage increase i in the shares outstanding as $\frac{m - p}{p - n}$. Note that m is assumed to be greater than p in this model. Otherwise, management doesn't have any control now and, consequently, will not be losing it. If m < p, then management must purchase [(p)(X) - (S + C)] shares prior to the SDD for m to equal p and attain a minimum degree of control. If m = p, then m would have to apply to Y on either a *pro rata* basis or a proportion greater than m.

Several cases of participation in the reissuance program are possible:

A - Management can control none of the redistributed shares

B - Management can obtain partial control of the redistributed shares

C - Management can obtain entire control of the redistributed shares

These cases will be discussed in an example using the following values:

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[1] Since Y can be written as $(\frac{m - p}{p - n})(X)$, the coefficient of X represents the proportional maximum increase in the number of shares outstanding.

$X = 60,000,000$ shares

$m = 0.55$

$p = 0.51$

Thus, $M = 33,000,000$ shares

$P = 30,600,000$ shares

Case A

If management can control none of the redistribution, or $n = 0$, then

$$Y = \frac{(m)(X) - (p)(X)}{p}$$

$$= 4,705,882 \text{ shares}$$

Now,

$X' = 64,705,882$ shares

$M' = 33,000,000$ shares

$P' = 33,000,000$ shares

$i = 7.84\%$

Here, an SDD greater than 7.84% of the outstanding shares will result in a loss of $P' - P$ control shares[1] yielding a diluted control proportion of $m' = \frac{M}{X + Y}$.

[1] Since $m > p$ initially, $M - P$ represents the excess of shares controlled over those necessary for the desired level of control. After a reissuance greater than Y occurs, $(p)(X') > (m)(X)$, or $P' - M$ is the number of shares now needed by management to achieve its desired degree of control. Hence, total loss in the transaction is $(M - P) + (P' - M)$ or $P' - P$.

Case B

If management can obtain partial control n of the shares returning to the marketplace, then

for n = 40%, $$Y = \frac{(m)(X) - (p)(X)}{p - n}$$

$$= 21,818,181 \text{ shares}$$

Now

$$X' = 81,818,181 \text{ shares}$$

$$M' = 41,727,272 \text{ shares}$$

$$P' = 41,727,272 \text{ shares}$$

$$i = 36.36\%$$

A greater number of shares can be reissued than in case A since there is management participation in the redisposition. Any SDD consisting of 21,818,181 shares or less will secure management's control at or above the desired 51% level. However, if more than Y shares are reissued, then there will be a $P' - P$ share control loss resulting in an $M' < P'$.

In either case A or B, if more than Y shares are reissued, then in order to obtain the desired level of control, management must acquire $[(p)(X') - \{(m)(X) + (n)(Y)\}]$ shares, or the number of shares required for control less the combined total of the existing shares and additional shares controlled by management.

Case C

If management can obtain p or more control of the redistributed shares, then Y has no limit. Since $m > p$ initially, any increase in management's control by p or more will strengthen that control. Here, m' will have a value of $\frac{(m)(X) + (f)(Y)}{X + Y}$ where f is the percentage of redistributed shares controlled by management and $p \leq f \leq 1$. When Y is totally secured by management, $m' = \frac{(m)(X) + Y}{X + Y}$. Under any value of f, $m' \geq p$, or management maintains a proportion equal to or in excess of the required minimum for control. This follows from

$$m \geq p$$

$$(m)(X) \geq (p)(X)$$

$$(m)(X) + (f)(Y) \geq (p)(X) + (p)(Y)$$

$$M' \geq P'$$

$$\frac{M'}{X'} \geq \frac{P'}{X'}$$

$$m' \geq p'$$

$$\text{or}^1 \quad m' \geq p$$

However, in the other two cases, when the maximum number of shares computed are actually reissued, the post-redisposition percentage of shares controlled by management, m', is lowered to p.

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[1] $p' = p$, of course, since $p' = \frac{P'}{X'} = \frac{(p)(X')}{X'} = p$.

To illustrate,

$$m' = \frac{M'}{X'}$$

$$= \frac{(m)(X) + (n)(Y)}{X + Y}$$

Since $p = \frac{P}{X}$ before redisposition

and $= \frac{P'}{X'}$ after redisposition

$$p = \frac{P'}{X + Y}$$

But after the SDD, $P' = M'$

so $p = \frac{(m)(X) + (n)(Y)}{X + Y}$

$$= m'$$

It is possible, therefore, to determine the size of a SDD with respect to the growth, maintenance, or loss of control over a specified number of outstanding shares. The mathematical expressions developed above also indicate the strategy to follow when the concerned party does not possess the minimum level of control prior to a share redisposition.

Trafficking

The increased volume of SDD transactions was introduced earlier in the Level of Activity section. This heightened growth in a corporation's trading in its own common shares, or trafficking, has not been unnoticed by the Accounting Principles Board,[1] the Securities and Exchange Commission, or the Internal Revenue Service.

In August of 1970, the Accounting Principles Board (APB) issued Opinion Number 16 on business combinations which prohibited the use of the pooling-of-interests method of accounting for mergers in certain situations. Specifically, when any net share disposition for mergers results from direct share reacquisition to effect that exchange of stock, such transactions are deemed to be contrary to the idea of combining existing stockholder interests.

That opinion was the basis of an SEC ruling[2] which directed companies that had SRD/SDD activity during the two years prior to a business combination to account for the merger as a purchase rather than as a pooling of interests. Although the SEC interpretation includes all acquisitions of treasury stock during the specified two year period, "the SEC acknowledges that this presumption may be overcome if there is sufficient evidence of corporate intent to reacquire shares

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[1] Although the APB has been dissolved, its duties have been assumed by the Financial Accounting Standards Board.
[2] Accounting Series Release #146 on August 24, 1973.

for purposes other than business combinations (e.g., stock options, stock purchase plans, or stock dividends)." [48, pg. 25] Thus, unless a company could offer acceptable evidence that shares reacquired were to be redistributed in a preplanned manner, the SEC would consider them "tainted" for merger accounting purposes.

Separately, the IRS does not permit the regular reacquisition of common stock as an alternative to dividend payments. This tradeoff assumes the tax paid by the shareholder on the capital gain resulting from the sale back to the company is less than the tax paid by the same individual on the dividend received. This is indeed the case when stock reacquisition causes an increase in the value per share by the amount of the foregone dividend. Hampton [114, pg. 456] and Solomon and Pringle [121, pg. 552] offer examples of such shareholder benefits from repurchase of stock instead of dividend payments.

Since the IRS will treat any reacquisition deemed to be in lieu of a dividend accordingly, most companies justify continuous reacquisition programs on grounds "other than as an alternative to a dividend." [121, pg. 552] The strategy to fulfill frequent corporate common stock requirements through regular reacquisitions and redistributions can satisfy both the SEC and IRS condition mentioned above.

CHAPTER IV

RESEARCH DESIGN

Parameter Selection

There were 7,756 New York Stock Exchange (NYSE) announcements between January, 1964, and December, 1977, reporting net share dispositions. A share disposition decision (SDD) activity range of 1% to 5% of the total shares outstanding was established to identify the relevant transactions affected by the NYSE announcement.

Small percentage SDD transactions are assumed to have insignificant effects on the price movement and, accordingly, are purged from the data base. The rationale for this action also includes the assumption that if the SDD transactions greater than 1% do not have an announcement effect, then the activity in the less than 1% category will not have an effect either. Since the Securities and Exchange Commission (SEC) requires disclosure of redispositions that return to the market 5% or more of the shares outstanding, those companies transacting with a proportion greater than 5% are accordingly removed from this study's data base.[1]

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[1]The use of the range of 1% to 5% is also consistent with previous studies in treasury stock activity, such as Allen Young's study of the financial, operating, and security market parameters of repurchasing [51].

The resulting 1,683 announcements were then filtered by purging those companies which were included in the NYSE report due to the retirement of reacquired shares. This purge was accomplished by checking the records of the NYSE Stock List Department [124] and the SEC's 10-K reports [140] for disclosure of retired common stock. The NYSE Stock List Department includes share retirement as one item in its corporate *seriatim* file. Retirements are recorded in a firm's 10-K filing with the SEC in item #6 - Increases and Decreases in Securities Outstanding, in the Statement of Liabilities and Equities, or in the footnotes to the latter.

These announcements were further screened by eliminating those reported transactions which were concurrently explained by dividend disclosures through either Moody's [135] or Standard and Poor's [142] reporting service. Rationale for this exclusion includes the desire to focus on the singular effect of the NYSE announcement: share dispositions resulting from publicly reported stock dividends and stock splits are assumed to have been expected in the monthly NYSE release.

The remaining 417 announcements formed the basis of the population for this study. A complete list of the firms comprising the observed transactions is provided in Appendix A.

Data Sources

There are two important data items essential to this study: the announcement of share disposition activity and the market price movement around the announcement for both the transacting firm and a general market index.

Both the New York Stock Exchange and the American Stock Exchange (AMEX) were approached as sources of corporate share disposition decision (SDD) announcements. Although both exchanges were very cooperative in granting access to their files containing these transactions, the NYSE maintained separate records of the SDD announcements whereas the AMEX intermingled SDD reports with all other information maintained in its stock list department. The NYSE's announcement file is chronologically arranged by month and is an orderly, self-contained record of SDD activity. The AMEX file arrangement, however, reveals inconsistent reporting by the transacting firms and an incomplete master file. Thus, the more efficiently organized NYSE announcement file was selected as the source of SDD announcement information.[1]

The daily price and return file of the CRSP tapes from the Center for Research in Security Prices [131] were used to

[1] Unlike the NYSE, the AMEX does not regularly publish a summary of share reacquisition or disposition transactions in corporate common stock. Thus, the AMEX compilation and reporting procedure does not lend itself to an announcement effect study.

generate the market price per share, investment relatives required in the model, and the market composite information.

An examination of the companies included either in the NYSE reports or the smaller population of this study extracted from them reveals a heterogeneous mixture of firms by industry, asset size, and age. In Appendix B, the number of observations in the study are listed by the Standard Industrial Classification (SIC) industry codes. The firms span over 100 four-digit SIC categories with no one industry possessing more than 6% of the study's observations. Since many of the four-digit SIC categories are similar in nature, a broader industry grouping is provided using the first two digits of the SIC code. Lastly, in Appendix B, a distribution of observations by major division is offered.

Since this heterogeneous list extends beyond industrial corporations, the broader[1] Standard and Poor's 500 Composite Index was chosen as a measurement of market movement. Of the firms selected for the study,[2] 36.1% are included in the Standard and Poor's (S&P) index. This proportion not only makes the use of the S&P 500 a relevant measurement of market movement, but also prevents the market index from

---

[1] The S&P 500 Composite Index consists of 400 industrials, 40 utilities, 20 transportation firms, and 40 financial concerns.

[2] See Appendix A for a complete listing of all companies.

being completely dominated by the companies comprising the study population.

Methodology

The test of market efficiency has been described notationally[1] as

$$E(\tilde{P}_{i,t} \mid \Phi_{t-1}) = [1 + E(\tilde{r}_{i,t} \mid \Phi_{t-1})]\, P_{i,t-1} \qquad (1)$$

where E is the expected value operator

$\tilde{P}_{i,t}$ is the price of security i in time period t

Φ_{t-1} is the set of information which is the basis for the investigation as to whether the information is fully reflected in the price of security i at time period t-1.

$\tilde{r}_{i,t-1}$ is the investment relative of security i in time period t, or $(P_t - P_{t-1}) / P_{t-1}$

$P_{i,t-1}$ is the price of security i in time period t-1

$\sim$ denotes random variables in the time period t-1

In an efficient market, market prices are assumed to fully reflect all available information, Φ_{t-1}, and trading systems based only on information in Φ_{t-1} designed to yield expected returns in excess of equilibrium expected returns are accordingly disregarded.

---

[1] See, for example, Downes and Dyckman [8] or Fama [15].

Thus, if

$$x_{i,t} = r_{i,t} - E(r_{i,t} \mid \Phi_{t-1}) \tag{2}$$

then

$$E(x_{i,t} \mid \Phi_{t-1}) = 0 \tag{3}$$

which says the expected value of excess returns[1] on security i is zero, or the sequence $\{x_{i,t}\}$ is a "fair game" with respect to the information set $\{\Phi\}$.

To test the effect of the information contained in the net share disposition announcement on the common stock market price, a time series analysis[2] was performed on the population using the market model

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + u_{i,t} \tag{4}$$

where $R_{i,t}$ is the investment relative of security i in time period t, or $(P_t - P_{t-1}) / P_{t-1}$

$R_{m,t}$ is the investment relative of the market in time period t

α_i is the y axis intercept

---

[1] The excess return is the difference between the observed return on security i in time period t and the expected value of the return on security i projected in time period t.

[2] The econometric statistical package Time Series Processor, TSP, developed by the Massachusetts Institute of Technology was used in this study.

β_i is the slope coefficient which measures the response of the ith security's return to that of the market

$u_{i,t}$ is the random error term which possesses the usual characteristics of zero expectation, variance independence of t, serial independence, and is independently distributed to $R_{m,t}$

A series of TSP tests on the model was performed designating the critical event as the SDD announcement date around which the changes in the stock price were measured.

The logarithmic form of (4)

$$\ln R_{i,t} = \alpha_i + \beta_i \ln R_{m,t} + u_{i,t} \qquad (5)$$

was also developed to counter any skewness found in the investment relatives themselves.[1]

---

[1] Fama, Fisher, Jensen, and Roll [16] discovered their stock split announcement data had distributions for the price and market relatives skewed to the right. They also found the logarithmic form of the model appealing in that the sample residuals confromed well to the assumptions of the simple linear regression model. The distributions of the natural logarithms, however, were fairly symmetric which was desirable since symmetrically distributed variables present fewer estimation problems than models involving variables with skewed distributions.

The general time series analysis equation is

$$Y_t = X_t \Gamma + \varepsilon_t \qquad (6)$$

where the dependent variable Y_t, the SDD firm's investment relative in this study, is explained by the independent variables $X_t = \{X_{0t}, X_{1t}, X_{2t}, X_{3t}, X_{4t}\}$, their coefficients $\Gamma = \begin{bmatrix} a_0 \\ a_1 \\ a_2 \\ a_3 \\ a_4 \end{bmatrix}$ and an estimate of the residuals ε_t.

Equation (6) is used to generate a representation for the SDD analysis

$$Y_t = a_0x_{0t} + a_1x_{1t} + a_2x_{2t} + a_3x_{3t} + a_4x_{4t} + \varepsilon_t \qquad (7)$$

where $Y_t = R_{i,t}$ the investment relative of security i

$x_{0t} = 1$ unity

$x_{1t} = t$ time

$x_{2t} = R_{m,t}$ the investment relative of the market

$x_{3t} = D_t$ a dummy intercept

$x_{4t} = W_t$ a slope dummy

which yields

$$R_{i,t} = \alpha_i + a_1 t + \beta_i R_{m,t} + a_3 D_t + a_4 W_t + u_{i,t} \qquad (8)$$

The model expressed in equation (8) was used to test the null hypothesis that the market price before the critical event (c) is statistically equal to the market price after the critical event:

$$\hat{P}_{c-t} = \hat{P}_{c+t}$$

The alternate hypothesis states that the announcement of the SDD activity had a depressing effect on the market price:

$$\hat{P}_{c-t} > \hat{P}_{c+t} \qquad (9)$$

If the null hypothesis holds, then there is support to the claim that there is no price effect to the announced disposition of previously reacquired common stock. If the hypothesis is rejected, then there is evidence to support the alternative hypothesis that the market views negatively the return to the marketplace of reacquired shares.

The values of the independent variable t, time, range $\pm$ 30 days around the critical event for a total of 61 observations per SDD company. The test of the model involves determination of a trend before and after the announcement of SDD activity. Accordingly, sufficient observations were desired to identify the market's reaction to the NYSE

release without defining the time range so broadly as to include other events which also may influence the market price.

The intercept dummy assumes the following values:

$$\text{at } t < c, \quad D_t = 0$$

$$\text{at } t \geq c, \quad D_t = 1$$

This coding aligns the announcement date with the post-announcement period. The rationale for this positioning of the critical event includes compliance with the null hypothesis. The announcement is released by the NYSE during trading hours; consequently, closing prices on the announcement date would include any initial market reaction to the information. Since the hypothesis is not designed to test immediate market reaction, but to examine a 30 day trend of prices, statistical acceptance of the null hypothesis of price equality should not be adversely affected by the coding. But the alternate hypothesis of price inequality and the statistical rejection of the null hypothesis may be significantly influenced by the positioning of the announcement date.

The values of the slope dummy variable are as follows:

$$\text{at } t < c, \quad W_t = 0$$

$$\text{at } t \geq c, \quad W_t = t$$

where $W_t = (D_t)(t)$. The rationale for the positioning of the announcement date for the slope dummy are identical to those offered above for the intercept dummy variable.

The general times series analysis equation (6) was also used to develop a cross sectional analysis of the data. All observations were grouped accordingly to (1) their percentage of net shares redistributed to shares outstanding and (2) their proportion of net shares redistributed to average daily volume.[1] Table 4-1 displays the distribution of observations in this two way cross tabulation.

Each of the sixteen cells in table 4-1 was coded as a dummy variable $c_{i,j}$ where i = 1,2,3,4 for the rows and j = 1,2,3,4 for the columns. Equation (6) then becomes

$$R_{i,t} = \alpha_i + a_1 t + \beta_i R_{m,t} + a_3 c_{11,t} + \cdots + c_{44,t} + u_{i,t} \tag{10}$$

All data were coded on the following basis:

1.0 if the firm appeared in cell $c_{i,j}$ when

i = 1,2,3,4, and j = 1,2,3,4

0.0 otherwise.

[1] See Appendix A

Table 4-1

Distribution of Observations
in a Two-Way Classification[a]

Net Shares Redistributed to Average Daily Trading Volume (times)	Percentage of Net Shares Redistributed to Shares Outstanding				
	1 - 2%	2 - 3%	3 - 4%	4 - 5 %	Total
0 - 11	80	11	3	4	98
12 - 21	78	20	7	2	105
22 - 39	53	37	11	6	109
40 - ∞	29	33	26	17	105
Total	240	101	47	29	417

[a]Source: The study population, Appendix A.

The string of independent dummy variables in equation (10) was then used to test the data for significant coefficients. Smaller subsets of the study's entire population may contain data that react differently or more strongly to the study's model.

CHAPTER V

ANALYSIS OF FINDINGS

Presentation

The study's data were examined through equation (6) by first using the ordinary least squares (OLS) technique and then the Cochrane-Orcutt Iterative (CORC) routine of Massachusetts Institute of Technology's econometric statistical package TSP, Time Series Processor [112]. The degree of explanation of each independent variable on the model was measured separately and in various combinations generating a series of ten equations, enumerated in Figure 5-1. This series serves to explain stock price movement by *seriatim* examining individual relationships in the model culminating in equation (19). Equations (20) through (22) are verifications of the general market movement during the period of the study.

For example, equation (13) is represented in Figure 5-2 as

$$\hat{R}_t = \underset{(1.73)}{0.0025} - \underset{(-1.62)}{0.0015}\, t \qquad (23)$$

which indicates that the investment relatives of the study's companies decreased slightly over the study period. This decline is also visible in the plot of equation (23) in Figure 5-3. Although the statistics for equation (23)

Figure 5-1

A Listing of the Model's Equations

$$\hat{R}_t = a_o + a_1 t + u_t \quad (13)$$

which will explain the investment relative trend over time.

$$\hat{R}_t = a_o + a_1 t + a_2 R_{m,t} + u_t \quad (14)$$

which will explain the investment relative trend relative to the market over time.

$$\hat{R}_t = a_o + a_1 t + a_3 D_t + u_t \quad (15)$$

which will explain the investment relative trend intercept relative to the SDD announcement date.

$$\hat{R}_t = a_o + a_1 t + a_4 W_t + u_t \quad (16)$$

which will explain the investment relative trend slope relative to the SDD announcement date.

$$\hat{R}_t = a_o + a_1 t + a_2 R_{m,t} + a_3 D_t + u_t \quad (17)$$

which will explain the investment relative trend intercept relative to the announcement date and market conditions over time.

$$\hat{R}_t = a_o + a_1 t + a_2 R_{m,t} + a_4 W_t + u_t \quad (18)$$

which will explain the investment relative trend slope relative to the announcement date and market conditions over time.

Figure 5-1

(con't)

$$\hat{R}_t = a_o + a_1 t + a_2 R_{m,t} + a_3 D_t + a_4 W_t + u_t \quad (19)$$

which will explain the investment relative trend relative to all the independent variables.

$$\hat{R}_{m,t} = a_o + a_1 t + u_t \quad (20)$$

which will explain the market's investment relative trend over time.

$$\hat{R}_{m,t} = a_o + a_1 t + a_3 D_t + u_t \quad (21)$$

which will explain the market's investment relative trend intercept relative to the announcement date.

$$\hat{R}_{m,t} = a_o + a_1 t + a_4 W_t + u_t \quad (22)$$

which will explain the market's investment relative trend slope relative to the announcement date.

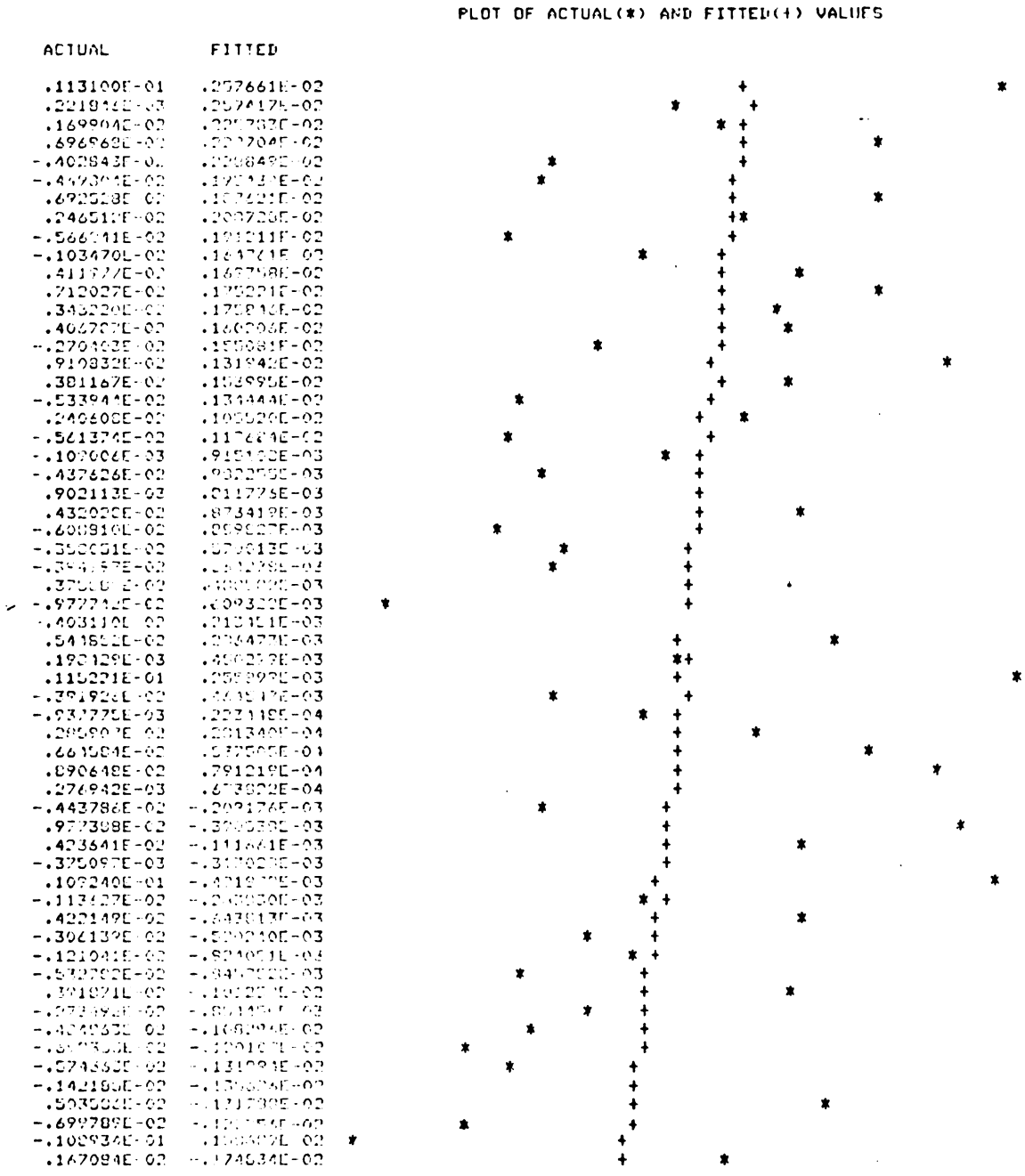
Figure 5-2

Statistics for Equation (23)

```
*************
SMPL =     1   60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
MEAN OF DEPENDENT VARIABLE IS             .000465

                       ITERATION                 RHO
                       *********                 ***

                              1            .0243172

FINAL VALUE OF RHO =         .0243172
NO. OF ITERATIONS =            1

STANDARD ERROR OF RHO =          .1301504
T-STATISTIC FOR RHO =          .1868389

      RIGHT-HAND                  ESTIMATED              STANDARD                  T-
       VARIABLE                  COEFFICIENT              ERROR                STATISTIC
        C                            .002515               .001456              1.727801
        T                           -.000068               .000042             -1.621153
R-SQUARED =   .0472      CORRECTED R-SQUARED =    .0305
F-STATISTIC(  1.,  57.) =           2.821736
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =   1.9998
NUMBER OF OBSERVATIONS =  59.
SUM OF SQUARED RESIDUALS =              .001653
STANDARD ERROR OF THE REGRESSION =              .005385
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

 .00000          -.00000
-.00000           .00000
R-SQUARED IN TERMS OF CHANGES =   .4906
```

Figure 5-3

Graph for Equation (23)



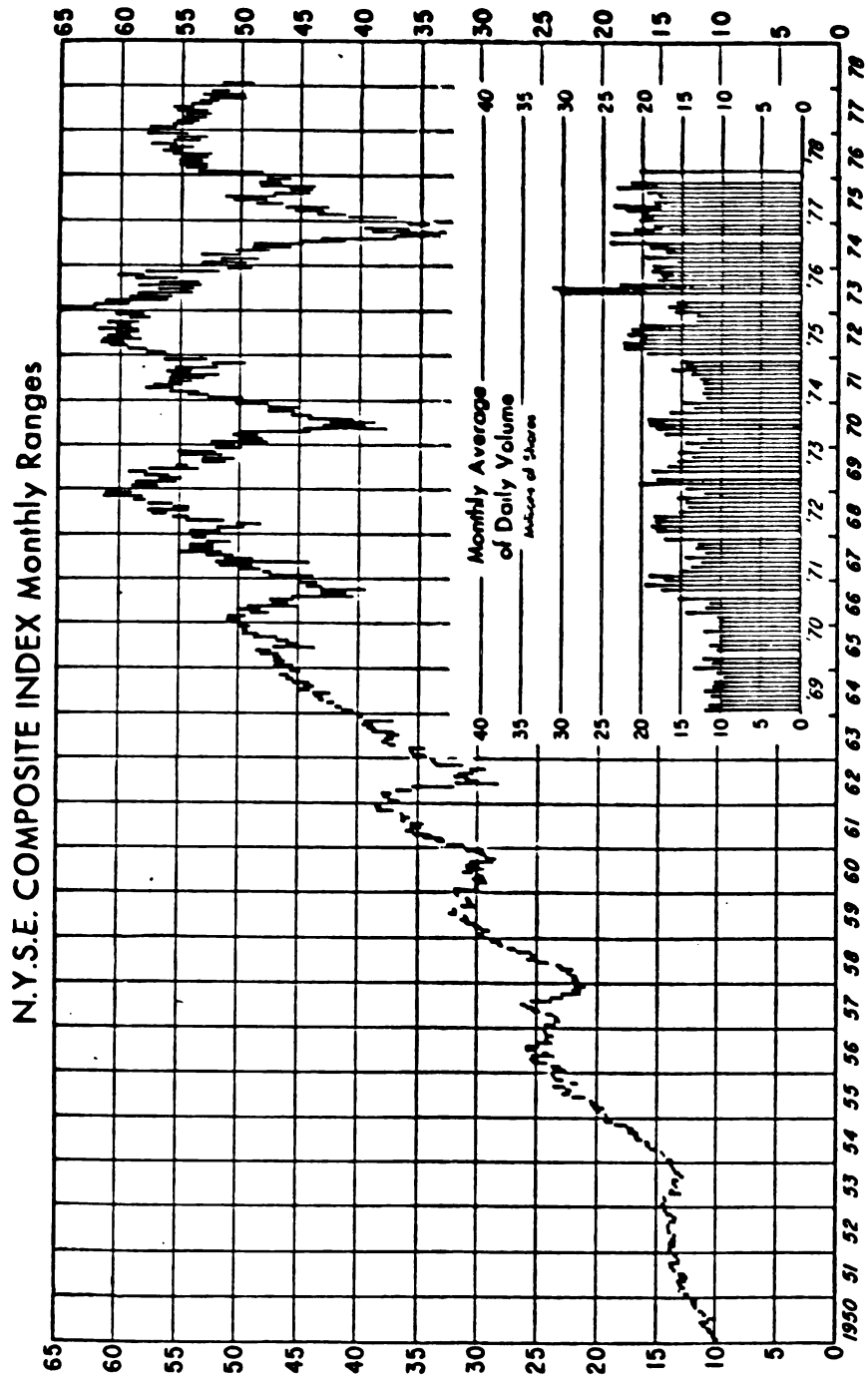
are not statistically significant, the direction of the investment relatives and their associated market prices is opposite that of the general market movement as measured by the Standard and Poor's (S&P) 500 Composite, the New York Stock Exchange (NYSE) Composite, and the Dow Jones Industrial (DJI) Index. Figure 5-4 displays the history of the broad NYSE index movement including the study's 1964 - 1977 period. Likewise, Figure 5-5 indicates the trading range of the DJI index. Although both graphs of market price activity contain advancing market movements as well as declining ones, the fourteen year trend is a positive one.

The S&P 500 Composite reveals a similar trend with an increase in the index from 69.87 in 1964 to 94.75 in 1977. Thus the market indices confirm the results of the model's market equations (20) through (22) and reveal a 10% increase through the DJI index, a 25% increase through the NYSE index, and a 35% increase through the S&P index during the same time period that this study's SDD companies experienced a downward movement.

Figure 5-2 provides an illustration of TSP's statistical information to validate the explanation of the relationship of the variables. In the initial iterations using the OLS routines, positive autocorrelation was revealed in the

Figure 5-4

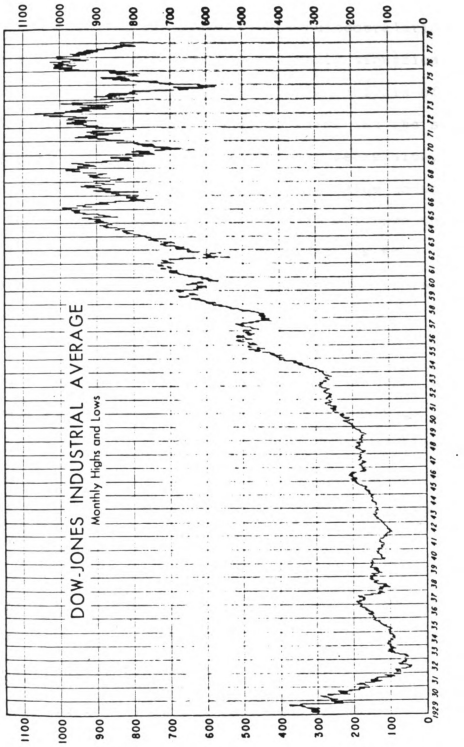
New York Stock Exchange Composite Index



Source: *Moody's Handbook of Common Stocks*, Spring, 1978, Moody's Investor Services, New York. (used by permission)

Figure 5-5

Dow Jones Industrial Index



Source: *Moody's Handbook of Common Stocks*, Spring, 1978, Moody's Investor Services, New York. (used by permission)

Durbin-Watson test. To correct for this, the same model and data were run using the CORC technique. As verified by a second application of the Durbin-Watson test, CORC removed the statistically significant autocorrelation while yielding like sign and statistically significant coefficients in the regression model. An anlysis of the statistical error is accomplished by examining the sum of squared residuals, standard error of the regression, and the variance/covariance matrix. The low value in the latter two statistics from Figure 5-2 is evidence that there is no heteroscedascity in the model, or no explanation is needed from the variance since it is constant.

Such measurements of explanation, autocorrelation, and error were evaluated in each regression expression in Figure 5-1 as the analysis progressed toward the complete market model in equation (19). The values and graphs of the residuals of the model's equations are contained in Appendix C.

Using the data in equation (14) to relate the investment relatives from the market index to the stock prices of the study's companies, the following relationship is found:

$$\hat{R}_t = \underset{}{0.0032} - \underset{(2.71)}{0.0001\ t} + \underset{(-2.02)}{1.1365\ R_{m,t}} \qquad (24)$$
$$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad (5.07)$$

The statistically significant coefficients of the market index variable indicate that there is some explanative value in the index and that it should be retained in the full model, equation (19). The statistics for equation (24) are offered in Figure 5-6 and the graph is presented in Figure 5-7. Since the coefficient of the market index variable is positive and significant, and the slope of equation (23) is negative, it could be interpreted that the evidence suggests the effect of the market was to raise the rate of decline in the study's companies' investment relatives during the period studied.

Next, two applications of the data to the equation series in Figure 5-1 tested the interaction of the announcement date with the price trend's intercept and slope. For the intercept, the statistics from Figure 5-8 for equation (15) yield

$$\hat{R}_t = \underset{(3.36)}{0.0045} - \underset{(-3.76)}{0.0003}\, t + \underset{(3.17)}{0.0076}\, D_t \qquad (25)$$

To illustrate the shift in the intercept that occurs at the announcement date, equation (25) is recomputed for the two possible values of D_t.

At $t < c$, $D_t = 0$ and equation (25) becomes

$$\hat{R}_t = 0.0045 - 0.0003\, t \qquad (26)$$

Figure 5-6

Statistics for Equation (24)

```
*************
SMPL =      1    60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
   SPI
MEAN OF DEPENDENT VARIABLE IS             .000465

                       ITERATION              RHO
                       *********              ***

                           1             -.0263255

FINAL VALUE OF RHO =        -.0263255
NO. OF ITERATIONS =           1

STANDARD ERROR OF RHO =        .1301430
T-STATISTIC FOR RHO =        -.2022802

     RIGHT-HAND                 ESTIMATED            STANDARD               T-
      VARIABLE                  COEFFICIENT           ERROR              STATISTIC
      C                            .003152            .001163             2.711253
      T                           -.000068            .000034            -2.020208
      SPI                         1.136540            .224360             5.065690
R-SQUARED =    .3449      CORRECTED R-SQUARED =    .3215
F-STATISTIC(  2.,  56.) =         14.739278
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =   2.0235
NUMBER OF OBSERVATIONS =  59.
SUM OF SQUARED RESIDUALS =          .001136
STANDARD ERROR OF THE REGRESSION =          .004505
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

 .00000         -.00000          .00003
-.00000          .00000          .00000
 .00003          .00000          .05034
R-SQUARED IN TERMS OF CHANGES =    .6497
```

Figure 5-7

Graph for Equation (24)

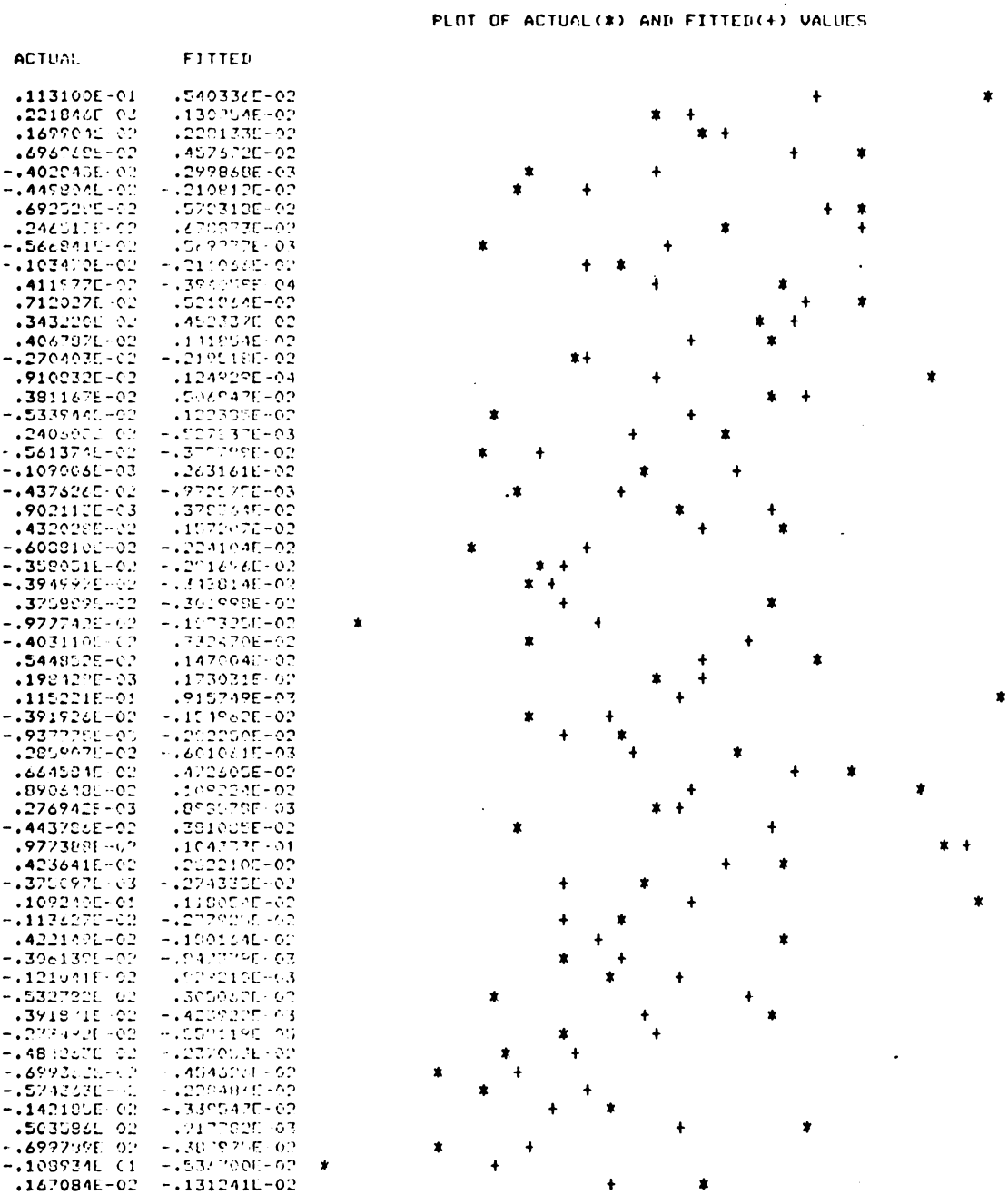


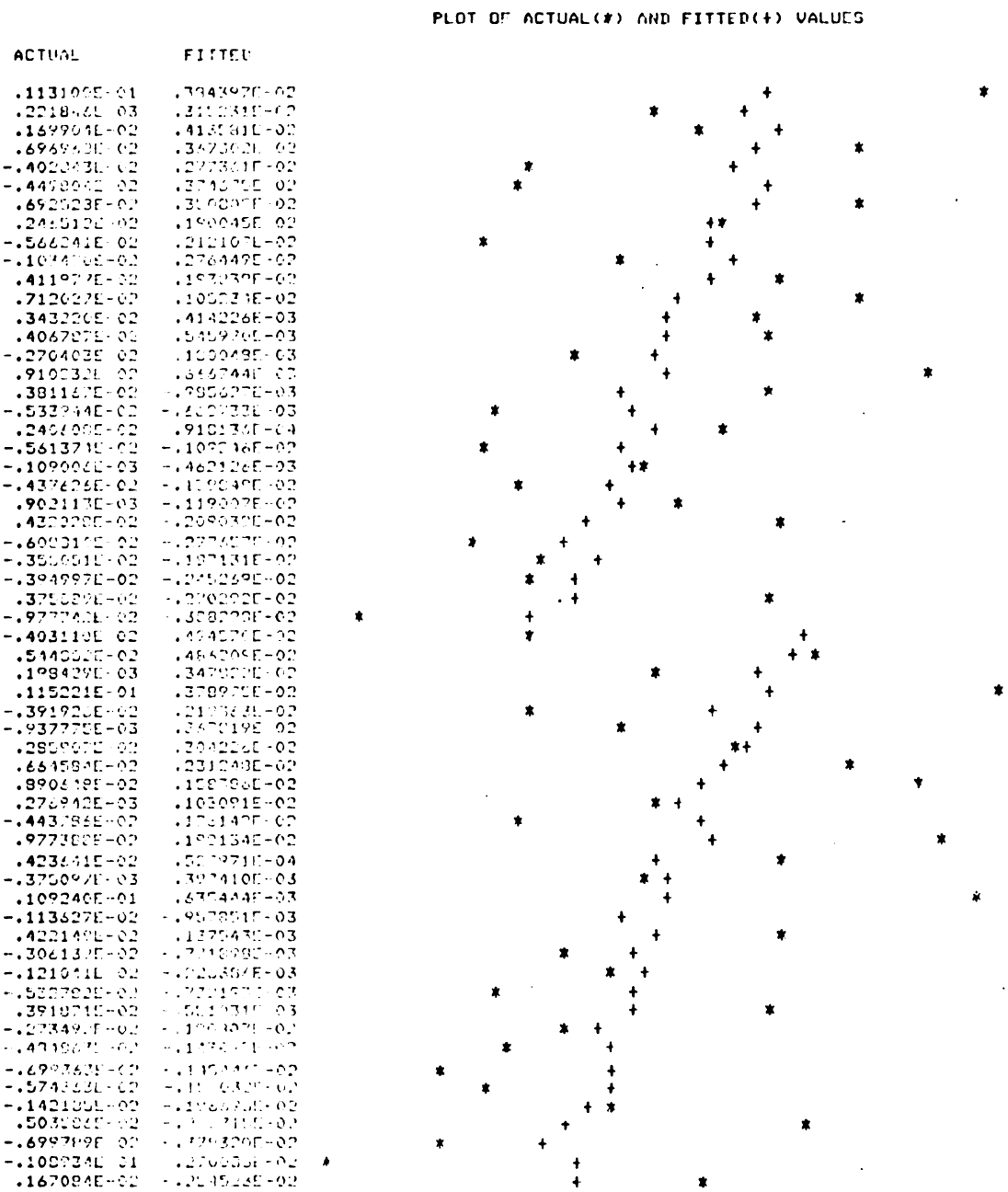
Figure 5-8

Statistics for Equation (25)

```
*************
SMPL =      1   60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
   DUMMY
MEAN OF DEPENDENT VARIABLE IS              .000465

                       ITERATION                RHO
                       *********                ***

                           1              -.1151011

FINAL VALUE OF RHO =       -.1151011
NO. OF ITERATIONS =          1

STANDARD ERROR OF RHO =        .1293236
T-STATISTIC FOR RHO =       -.8900240

      RIGHT-HAND                 ESTIMATED              STANDARD                T-
       VARIABLE                 COEFFICIENT              ERROR              STATISTIC
         C                          .004492             .001336              3.362173
         T                         -.000263             .000070             -3.755813
       DUMMY                        .007563             .002389              3.166562
R-SQUARED =   .1759     CORRECTED R-SQUARED =   .1465
F-STATISTIC(  2., 56.) =          5.976576
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =   2.0332
NUMBER OF OBSERVATIONS =  59.
SUM OF SQUARED RESIDUALS =           .001429
STANDARD ERROR OF THE REGRESSION =           .005052
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

 .00000          -.00000            .00000
-.00000           .00000           -.00000
 .00000          -.00000            .00001
R-SQUARED IN TERMS OF CHANGES =   .5594
```

Figure 5-9

Graph for Equation (25)



At $t \geq c$, $D_t = 1$ and equation (25) becomes

$$\hat{R}_t = 0.0121 - 0.0003\ t \qquad (27)$$

This shift is visibly evident in the graph of equation (25) in Figure 5-9.

Likewise, for the slope test on equation (16), the statistics from Figure 5-10 yield

$$\hat{R}_t = \underset{(3.11)}{0.0054} - \underset{(-2.95)}{0.0003\ t} + \underset{(2.44)}{0.0002\ W_t} \qquad (28)$$

The statistical significance of the slope coefficient in equation (28) is support for the claim that there is a shift in the slope of the companies' investment relative trend line and associated market price at the announcement date. This shift is revealed by recalculating equation (28) for the two possible values of W_t.

At $t < c$, $W_t = 0$ and equation (28) becomes

$$\hat{R}_t = 0.0054 - 0.0003\ t \qquad (29)$$

At $t \geq c$, $W_t = t$ and equation (28) becomes

$$\hat{R}_t = 0.0054 - 0.0001\ t \qquad (30)$$

Figure 5-11 displays the downward movement through the

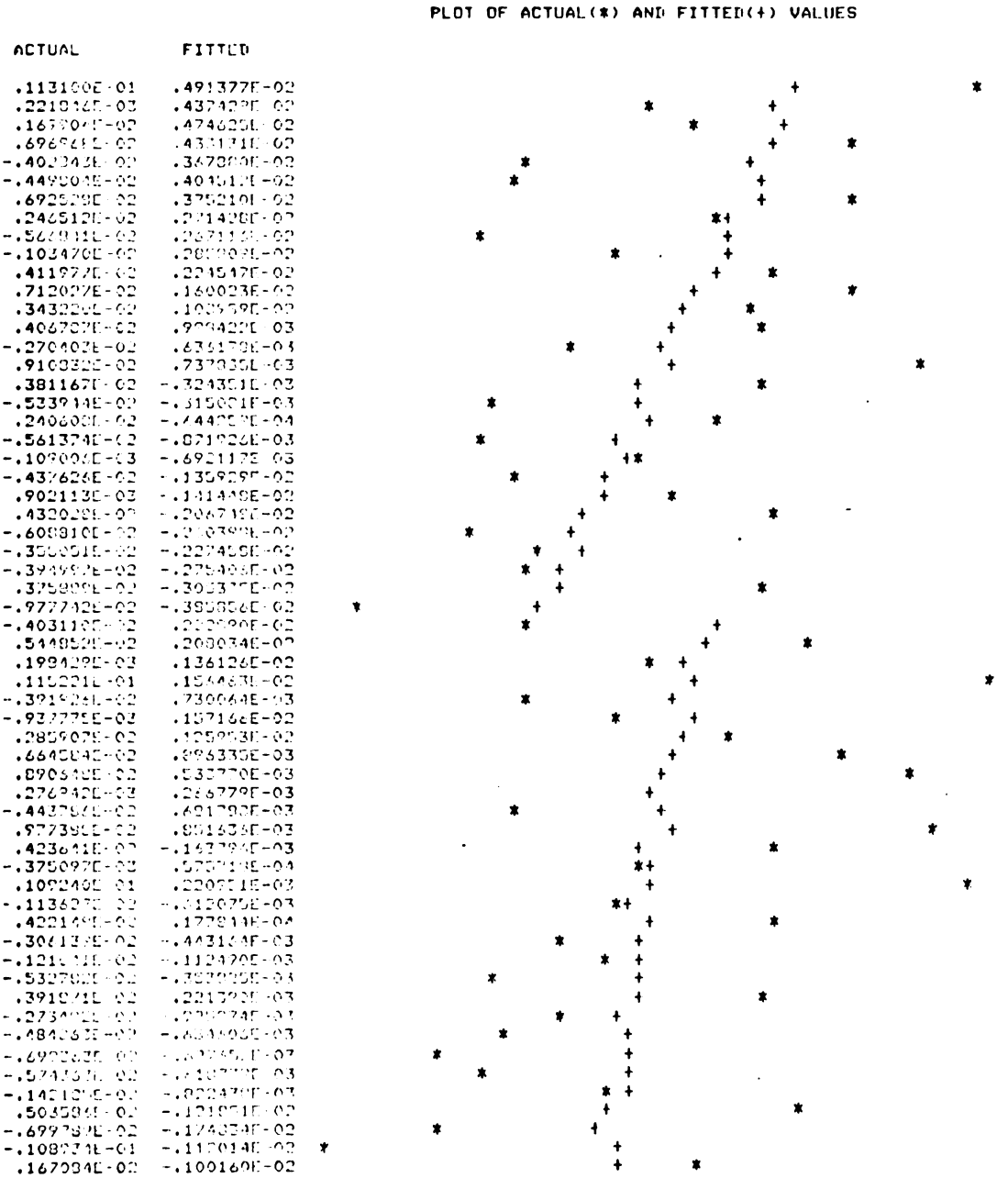
Figure 5-10

Statistics for Equation (28)

```
*************
SMPL =     1   60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
   W
MEAN OF DEPENDENT VARIABLE IS            .000465

                  ITERATION               RHO
                  *********               ***

                          1          -.0626252

FINAL VALUE OF RHO =        -.0626252
NO. OF ITERATIONS =           1


STANDARD ERROR OF RHO =         .1299334
T-STATISTIC FOR RHO =         -.4819797

      RIGHT-HAND              ESTIMATED              STANDARD                T-
       VARIABLE              COEFFICIENT              ERROR              STATISTIC
         C                        .005372             .001726             3.112075
         T                       -.000303             .000103            -2.953920
         W                        .000185             .000076             2.443103
R-SQUARED =    .1324     CORRECTED R-SQUARED =    .1014
F-STATISTIC(  2., 56.) =           4.271644
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =   2.0080
NUMBER OF OBSERVATIONS =  59.
SUM OF SQUARED RESIDUALS =             .001505
STANDARD ERROR OF THE REGRESSION =             .005184
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

 .00000          -.00000            .00000
-.00000           .00000           -.00000
 .00000          -.00000            .00000
R-SQUARED IN TERMS OF CHANGES =   .5361
```

Figure 5-11

Graph for Equation (28)



slope before and after the announcement date. The combined two last tests of the model's equations (15) and (16) are evidence that there is explanative value at the critical event of the SDD activity announcement date in the investment relatives trend of participating companies' common stock.

The next two equations tested from the model, equations (17) and (18), examine the relationship of three independent variables: time, the market relative, and one of the dummy variables. Applying the data to equation (17) generates the statistics in figure 5-12 and appears as

$$\hat{R}_t = \underset{(3.32)}{0.0040} - \underset{(-2.42)}{0.0001}\, t + \underset{(4.14)}{0.9799}\, R_{m,t} + \underset{(1.59)}{0.0037}\, D_t \qquad (31)$$

There is not sufficient significance in equation (31)'s intercept coefficient to support the full model and it collapses to equation (24).

Using the data to test equation (18), the statistics as presented in figure 5-13 generate

$$\hat{R}_t = \underset{(2.83)}{0.0043} - \underset{(-1.77)}{0.0002}\, t + \underset{(4.40)}{1.0404}\, R_{m,t} + \underset{(1.12)}{0.0001}\, W_t \qquad (32)$$

As with equation (31), the lack of statistical significance precludes support of equation (32) and no conclusions can

Figure 5-12

Statistics for Equation (31)

```
*************
SMPL =      1    60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
   SPI
   DUMMY
MEAN OF DEPENDENT VARIABLE IS              .000465

                       ITERATION              RHO
                       *********              ***

                           1             -.0866945

FINAL VALUE OF RHO =        -.0866945
NO. OF ITERATIONS =           1

STANDARD ERROR OF RHO =       .1296987
T-STATISTIC FOR RHO =       -.6684300

      RIGHT-HAND                  ESTIMATED             STANDARD                T-
       VARIABLE                  COEFFICIENT             ERROR              STATISTIC
       C                             .004037            .001215              3.323291
       T                            -.000163            .000067             -2.421601
       SPI                           .979928            .236538              4.142797
       DUMMY                         .003724            .002346              1.587393
R-SQUARED =    .3714      CORRECTED R-SQUARED =    .3371
F-STATISTIC(  3., 55.) =          10.829842
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =   2.0287
NUMBER OF OBSERVATIONS =  59.
SUM OF SQUARED RESIDUALS =               .001090
STANDARD ERROR OF THE REGRESSION =           .004453
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

 .00000          -.00000          -.00003           .00000
-.00000           .00000           .00001          -.00000
-.00003           .00001           .05595          -.00022
 .00000          -.00000          -.00022           .00001
```

Figure 5-13

Statistics for Equation (32)

```
*************
SMPL =     1   60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
   SPI
   W
MEAN OF DEPENDENT VARIABLE IS            .000465

                       ITERATION                  RHO
                       *********                  ***

                           1            -.0582187

FINAL VALUE OF RHO =        -.0582187
NO. OF ITERATIONS =           1

STANDARD ERROR OF RHO =         .1299681
T-STATISTIC FOR RHO =         -.4479464

      RIGHT-HAND                 ESTIMATED              STANDARD               T-
       VARIABLE                 COEFFICIENT              ERROR              STATISTIC
       C                            .004313              .001522             2.834166
       T                           -.000168              .000095            -1.774013
       SPI                         1.040440              .236076             4.407225
       W                            .000079              .000070             1.120694
R-SQUARED =    .3583      CORRECTED R-SQUARED =    .3238
F-STATISTIC(  3.,  55.) =        10.258858
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =    2.0209
NUMBER OF OBSERVATIONS =  59.
SUM OF SQUARED RESIDUALS =             .001112
STANDARD ERROR OF THE REGRESSION =              .004497
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

  .00000        -.00000        -.00006        .00000
 -.00000         .00000         .00001       -.00000
 -.00006         .00001         .05573       -.00001
  .00000        -.00000        -.00001        .00000
R-SQUARED IN TERMS OF CHANGES =    .6572
```

be offered.

The evidence presented in the analysis of regression above leads to the full model and its test, equation (33):

$$\hat{R}_t = \underset{(2.38)}{0.0038} - \underset{(-1.51)}{0.0001}\, t + \underset{(4.11)}{0.9812}\, R_{m,t} + \underset{(1.09)}{0.0048}\, D_t - \underset{(-0.29)}{0.0001}\, W_t$$

Equation (33), the test of the full market model, contains statistically significant coefficients for its intercept and market relative, but not for the other variables. All statistics are presented in figure 5-14 and the graph of equation (33) is offered in figure 5-15. Collapsing equation (33) around the announcement date by substitution of value for the dummy variables yields the following:

At $t < c$, $D_t = 0$, $W_t = 0$, and equation (33) becomes

$$\hat{R}_t = 0.0038 - 0.0001\, t + 0.9812\, R_{m,t} \qquad (34)$$

At $t \geq c$, $D_t = 1$, $W_t = t$, and equation (33) becomes

$$\hat{R}_t = 0.0086 - 0.0001\, t + 0.9812\, R_{m,t} \qquad (35)$$

The above relationship before and after the critical event shows minimal change in the intercept and none in the slope at the announcement date. The slope of the full model is negative both before and after the critical event while the market index relative maintained a positive slope. The two derivatives of equation (33) lend support to the claim that there was no significant drop in market price on the SDD

Figure 5-14

Statistics for Equation (33)

```
**************
SMPL =      1   60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
   SPI
   DUMMY
   W
MEAN OF DEPENDENT VARIABLE IS           .000465

                      ITERATION              RHO
                      *********              ***

                          1            -.0880229

FINAL VALUE OF RHO =        -.0880229
NO. OF ITERATIONS =           1

STANDARD ERROR OF RHO =          .1296836
T-STATISTIC FOR RHO =         -.6787516
```

RIGHT-HAND VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	.003751	.001575	2.381377
T	-.000144	.000095	-1.514554
SPI	.981201	.238558	4.113053
DUMMY	.004787	.004360	1.098012
W	-.000037	.000127	-.290078

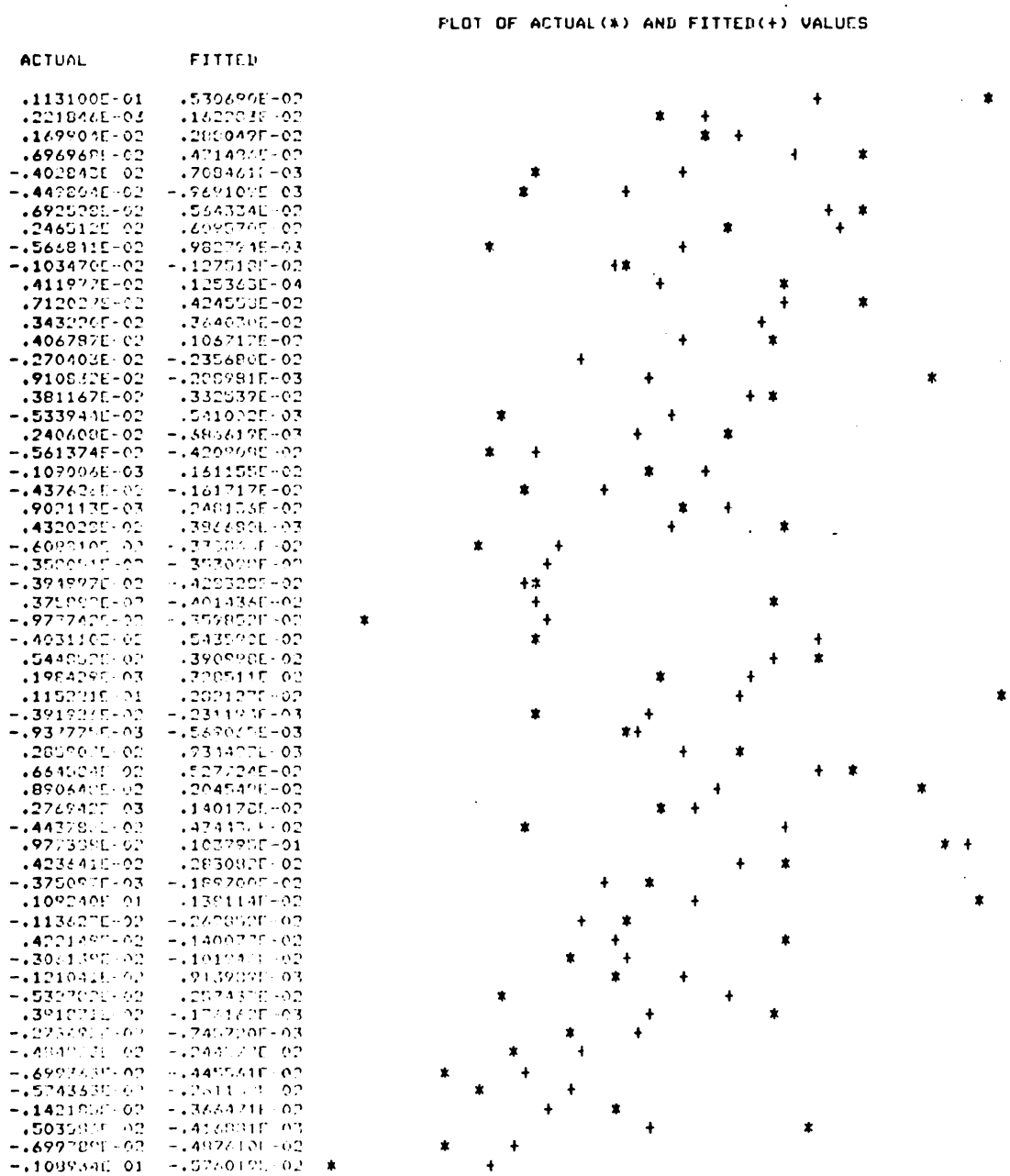
```
R-SQUARED =    .3723       CORRECTED R-SQUARED =     .3258
F-STATISTIC(   4., 54.) =          8.008250
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =    2.0301
NUMBER OF OBSERVATIONS =  59.
SUM OF SQUARED RESIDUALS =              .001089
STANDARD ERROR OF THE REGRESSION =              .004490
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS
```

.00000	-.00000	-.00003	-.00000	.00000
-.00000	.00000	.00001	.00000	-.00000
-.00003	.00001	.05691	-.00020	-.00000
-.00000	.00000	-.00020	.00002	-.00000
.00000	-.00000	-.00000	-.00000	.00000

R-SQUARED IN TERMS OF CHANGES =   .6644

Figure 5-15

Graph for Equation (33)



announcement date for the entire set of observations.

The cross sectional model developed in equation (10) was then used to test for significance of the same data by groups according to the percentage of net shares redistributed to shares outstanding and the proportion of shares redistributed to average daily trading volume. The results are summarized in table 5-1 and the graph of equation (10) is presented in figure 5-16.

Of the sixteen dummy variables expressed in the equation, five contain statistically significant coefficients: c_{22}, c_{33}, c_{34}, c_{43}, and c_{44}. Four of these variables correspond to the quadrant in table 5-1 where the share disposition activity is highest relative to both the shares outstanding and the average daily volume. The findings lend support to the claim that there is a significant decrease in market price when SDD activity is large relative to the volume of the transactions and of the holdings.

The investment relative of the market index (coded SPI) possesses a positive-signed coefficient indicating an upward effect on share prices. Conversely, the coefficient for time t in the model is negative indicating a decreasing price trend overall for the data. The coefficient for the market relative is statistically significant at the $\alpha = .05$

Table 5-1

Statistics for Equation (10)

Variable	Explanation		Coefficient	t-Statistic
α	constant y-intercept		0.0051	1.13
t	time		-0.0014	-1.87
$R_{m,t}$	market index		0.5744	2.38
c_{ij}	net shares redistributed to shares outstanding (percent)	average daily trading volume (times)		
c_{11}	1 - 2	0 - 11	0.0121	1.44
c_{21}	1 - 2	12 - 21	0.0008	1.54
c_{12}	2 - 3	0 - 11	0.0029	1.20
c_{22}	2 - 3	12 - 21	0.0047	2.09
c_{13}	3 - 4	0 - 11	0.0007	0.81
c_{23}	3 - 4	12 - 21	-0.0005	-1.36
c_{14}	4 - 5	0 - 11	0.0001	1.26
c_{24}	4 - 5	12 - 21	-0.0042	-1.81
c_{31}	1 - 2	22 - 39	-0.0002	-0.96
c_{41}	1 - 2	40 - ∞	-0.0089	-1.01
c_{32}	2 - 3	22 - 39	-0.0021	-1.42
c_{42}	2 - 3	40 - ∞	-0.0016	-1.47
c_{33}	3 - 4	22 - 39	-0.0091	-2.67
c_{43}	3 - 4	40 - ∞	-0.0083	-3.33
c_{34}	4 - 5	22 - 39	-0.0187	-1.98
c_{44}	4 - 5	40 - ∞	-0.0203	-2.11

Figure 5-16

Graph for Equation (10)

level, but the coefficient for the time variable is not. These results are consistent with the findings of the full model in equation (33).

The other eleven cells in table 4-1, as evidenced by the response of the data to the cross sectional analysis, have no statistically significant coefficients. When they were collapsed into the reduced equation (14), the results indicated that there was no significant price drop for the entire group of observations collectively.

Cell c_{22} indicates a negative share price response to redistribution, but the upper right quadrant in which it lies does not possess sufficient significance to support a claim of share price movement for small levels of redistributed common stock.

Evaluation

The purpose of testing the preceding model was to provide evidence on the common stock price response to announced share disposition decision (SDD) activity. The results support the claim that there is a downward trend in the market price of shares of companies engaging in SDD activity over the fourteen year period of the study. Further, the results indicate a significant relationship between the size of the SDD activity and share price declines after the SDD announcement date. But there is no support to the claim that there is a downward shift for the entire population at the announcement date itself.[1]

Evaluating the data in terms of relative proportion to shares outstanding and trading volume, a significant relationship was revealed. SDD firms that have a large number of shares involved in the SDD activity relative to shares outstanding and trading volume possess a different price relative behavior than firms which have a small number of shares involved.

Those firms experiencing a SDD level of activity which is 3% to 5% of the shares outstanding and greater than 22 times

---

[1] Tests performed but not presented in the preceding section revealed statistically significant negative price reaction at the critical event for some individual years, however.

the average daily volume also experienced a significant price decrease. Firms having smaller levels of SDD activity relative to outstanding shares and trading volume possessed no significant share price movement.

This reaction of a small subset of the study population challenges the claim made for the entire population. The evidence supports the claim that while the New York Stock Exchange announcement of SDD activity does not result in a price decrease for all transactions in the study, the announcement does effect a negative price adjustment in certain transactions. The speed with which the market reacts to the population subset may be interpreted as support of the efficient market hypothesis that stock prices adjust rapidly to fully reflect all available information.

One interpretation of the evidence is that the market has not only anticipated the net share disposition prior to the NYSE public information release, but also anticipated it *correctly*. The results in the preceding section indicate that at the announcement date, there was no significant movement in the SDD companies' market prices. The results obtained from using the announcement date as the study's critical event lend support to conclude that the stock market is efficient with stock prices fully reflecting all available information.

Additional evidence for the claim of efficiency was provided by varying the critical event around the NYSE announcement date. To ascertain whether there was a time lag effect in this information, the same series of tests on the model was performed redefining the critical event as the announcement date $\pm$ 1 day and $\pm$ 1 week. The statistics for the additional iterations' equation equivalent to the full model equation (33) are provided in figures 5-17 to 5-20. They, as well as the statistics and graphs for the iterations' other equations not presented, indicate that there is no stronger reaction of the market price on a date close to the announcement date. This provides further support for the claim that the market fully reflects the information contained in the NYSE report.

The implication of the additional tests is that an investor acting on the information would not have experienced, within the first month, a price movement yielding significant returns compared to the market. Accordingly, since the announcement information is completely absorbed by security prices before, on, and after the critical event, the market is said to fully reflect that information.

The results of the study may also be interpreted to represent the NYSE announcement as a confirmation to the

---

[1] For example, the dummy variable assumed a value of either 1.0 or 0.0 and some investment relatives had zero or negative values.

Figure 5-17

Statistics for Equation (33) with One Day Lead

```
**************
SMPL =      1    60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
   SPI
   DUMMY
   W
MEAN OF DEPENDENT VARIABLE IS              .000465

                    ITERATION              RHO
                    *********              ***

                           1          -.1258979
                           2          -.1263902

FINAL VALUE OF RHO =        -.1263902
NO. OF ITERATIONS =           2

STANDARD ERROR OF RHO =          .1291449
T-STATISTIC FOR RHO =         -.9786697

      RIGHT-HAND              ESTIMATED          STANDARD            T-
       VARIABLE              COEFFICIENT          ERROR          STATISTIC
       C                         .004083          .001436          2.842977
       T                        -.000179          .000083         -2.149940
       SPI                       .917577          .223028          4.114177
       DUMMY                     .007762          .004288          1.810208
       W                        -.000070          .000118          -.589023
R-SQUARED =    .4139      CORRECTED R-SQUARED =    .3705
F-STATISTIC(   4., 54.) =          9.534046
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =    2.0325
NUMBER OF OBSERVATIONS =   59.
SUM OF SQUARED RESIDUALS =           .001017
STANDARD ERROR OF THE REGRESSION =         .004339
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

 .00000        -.00000         -.00001         -.00000          .00000
-.00000         .00000          .00000          .00000         -.00000
-.00001         .00000          .04974         -.00019          .00000
-.00000         .00000         -.00019          .00002         -.00000
 .00000        -.00000          .00000         -.00000          .00000
R-SQUARED IN TERMS OF CHANGES =    .6866
```

Critical event = announcement date - one day

Figure 5-18

Statistics for Equation (33) with One Day Lag

```
SMPL =      1   60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
   SPI
   DUMMY
   W
MEAN OF DEPENDENT VARIABLE IS           .000465

                       ITERATION              RHO
                       *********              ***

                              1          -.0495902

FINAL VALUE OF RHO =       -.0495902
NO. OF ITERATIONS =          1

STANDARD ERROR OF RHO =         .1300287
T-STATISTIC FOR RHO =        -.3813791

      RIGHT-HAND                ESTIMATED             STANDARD              T-
       VARIABLE                COEFFICIENT             ERROR             STATISTIC
       C                          .003174             .001692             1.876288
       T                         -.000081             .000105             -.773746
       SPI                       1.095770             .240630             4.553753
       DUMMY                      .002002             .004324              .463056
       W                         -.000030             .000134             -.222228
R-SQUARED =    .3481      CORRECTED R-SQUARED =    .2998
F-STATISTIC(  4., 54.) =             7.207508
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =   2.0265
NUMBER OF OBSERVATIONS =  59.
SUM OF SQUARED RESIDUALS =             .001131
STANDARD ERROR OF THE REGRESSION =            .004576
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

 .00000      -.00000      -.00003      -.00000       .00000
-.00000       .00000       .00001       .00000      -.00000
-.00003       .00001       .05790      -.00014      -.00000
-.00000       .00000      -.00014       .00002      -.00000
 .00000      -.00000      -.00000      -.00000       .00000
  R-SQUARED IN TERMS OF CHANGES =   .6514
```

Critical event = announcement date + one day

Figure 5-19

Statistics for Equation (33) with One Week Lead

```
**************
SMPL =      1   60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
   SPI
   DUMMY
   W
MEAN OF DEPENDENT VARIABLE IS              .000465

                        ITERATION                   RHO
                        *********                   ***

                                1            -.0742137

FINAL VALUE OF RHO =        -.0742137
NO. OF ITERATIONS =          1

STANDARD ERROR OF RHO =        .1298299
T-STATISTIC FOR RHO =        -.5716223

      RIGHT-HAND               ESTIMATED           STANDARD            T-
       VARIABLE               COEFFICIENT           ERROR          STATISTIC
       C                          .003053          .001467          2.081030
       T                         -.000081          .000074         -1.091355
       SPI                       1.015557          .234146          4.337270
       DUMMY                      .008753          .005976          1.464636
       W                         -.000165          .000140         -1.180040
R-SQUARED =    .3711     CORRECTED R-SQUARED =    .3245
F-STATISTIC(  4., 54.) =       7.964718
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =   2.0281
NUMBER OF OBSERVATIONS =   59.
SUM OF SQUARED RESIDUALS =               .001091
STANDARD ERROR OF THE REGRESSION =              .004495
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

 .00000        -.00000        .00001        -.00000        .00000
-.00000         .00000        .00000         .00000       -.00000
 .00001         .00000        .05482        -.00037        .00001
-.00000         .00000       -.00037         .00004       -.00000
 .00000        -.00000        .00001        -.00000        .00000
   R-SQUARED IN TERMS OF CHANGES =   .6637
```

Critical event = announcement date - one week

Figure 5-20

Statistics for Equation (33) with One Week Lag

```
*************
SMPL =      1    60
COCHRANE-ORCUTT ITERATIVE TECHNIQUE

VARIABLES...

   REL
   C
   T
   SPI
   DUMMY
   W
MEAN OF DEPENDENT VARIABLE IS            .000465

                       ITERATION             RHO
                       *********             ***

                               1          -.0446895

FINAL VALUE OF RHO =       -.0446895
NO. OF ITERATIONS =           1

STANDARD ERROR OF RHO =         .1300588
T-STATISTIC FOR RHO =        -.3436095

      RIGHT-HAND               ESTIMATED              STANDARD               T-
       VARIABLE               COEFFICIENT              ERROR             STATISTIC
       C                         .003562              .001836             1.940039
       T                        -.000118              .000129             -.914959
       SPI                      1.131656              .226889             4.987699
       DUMMY                     .000918              .003665              .250382
       W                         .000022              .000148              .149660
R-SQUARED =    .3494     CORRECTED R-SQUARED =    .3012
F-STATISTIC(  4.,  54.) =          7.249025
DURBIN-WATSON STATISTIC (ADJ. FOR  0. GAPS) =   2.0221
NUMBER OF OBSERVATIONS =  59.
SUM OF SQUARED RESIDUALS =               .001129
STANDARD ERROR OF THE REGRESSION =               .004572
ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

 .00000        -.00000         .00001        -.00000         .00000
-.00000         .00000         .00000         .00000        -.00000
 .00001         .00000         .05148         .00005        -.00000
-.00000         .00000         .00005         .00001        -.00000
 .00000        -.00000        -.00000        -.00000         .00000
 R-SQUARED IN TERMS OF CHANGES =   .6521
```

Critical event = announcement date + one week

marketplace that the corporate common stock reacquired for later distribution has indeed been distributed (i.e., returned to the outstanding category). There may be an anticipation effect resulting from company announcements correlated with or before the NYSE report. To the extent that the systematic change in the firm's share price was caused by such concurrent or early announcements by the firm itself, the anticipation effect is consistent with an efficient market.

The attempt to utilize logarithms in the model proved inappropriate for two reasons. First, the investment relatives were not all positive values and some logarithmic operations resulted in error messages of undefined arithmetic computations with the results set to zero by the TSP program.[1] Second, the investment relatives were not skewed, necessitating an alternate way of describing the study's data.

CHAPTER VI

SUMMARY

Conclusions

One purpose of this study was to provide evidence to support or refute the claim that there is a market price change resulting from the announcement of a redistribution to the marketplace of reacquired common stock. Specifically, this study was to find (1) whether there is a downward price adjustment conforming to the frequently cited[1] two-part corporate anti-dilution strategy and (2) whether market prices fully reflect the information of redistribution in an efficient market hypothesis (EMH) framework.

The results offer evidence to support the claim that a negative price adjustment occurs after an announcement of redistribution activity for companies engaged in large redistributions relative to both their shares outstanding and trading volume. For a more inclusive set of observations, the results offer evidence to refute the claim that a negative price adjustment occurs after an announcement of redistribution activity. The rejection of the alternate hypothesis expressed in equation (9) implies that the share disposition decision (SDD) activity did not have a depressing effect on the market price.

[1] See page 2 and pages 38 to 40.

The evidence for the full set of data observations lends support to a claim of an efficient market. From the absence of significant negative price reaction to the announcement, it may be concluded that there is a full reflection of the small levels of SDD transactions in the share price prior to, as well as after, the announcement date.

The evidence for the subdivided set of data observations is not as supportive of the efficient market hypothesis. From significant share price adjustments to an announcement of relatively large levels of SDD transactions, it appears that there is an opportunity for an investor to generate superior returns to the general market by following a stock trading rule based on the announced redistribution.

The conclusion drawn from this evidence, however, must be framed in the context of the definition of the study's critical event: the date of the share redistribution is not designated the critical event, the date of the *announcement* of the redistribution is. Conclusions made from the analysis of findings must be phrased to reflect this designation. Statements offered about the share price performance resulting from corporate SDD activity are more correctly stated as being about share price performance resulting from SDD activity as measured by the surrogate announcement of such activity.

Implications

The results of this study indicate there is evidence not to follow an anti-dilution strategy in redistributing shares to the marketplace unless the transaction is of a certain magnitude relative to the shares outstanding and trading volume. As the second half of a two-step corporate anti-dilution strategy, these findings extend the research performed by others[1] on the first half: the share price performance resulting from reacquisition.

The previous research provided evidence to refute the anti-dilution strategy claim that there is a positive share price reaction to share reacquisition decision (SRD) activity. This study's findings offer evidence to refute the anti-dilution strategy claim that there is a negative share price reaction to the share disposition decision (SDD) activity at certain proportional levels of SDD transactions. One implication from combining the results of both research areas is that management in the achievement of its corporate objectives should not engage unilaterally in SRD/SDD activity and expect to avoid dilution.

Further, the combined research results are consistent with the efficient market hypothesis that share prices

---

[1] See page 2 for examples.

fully reflect all available information. Since the returns of the SDD transacting companies, as measured by the market model,[1] are not statistically significant to those of other firms, the marketplace cannot be said to be inefficient. For those firms engaged in large SDD activity relative to shares outstanding and trading volume, the study's statistically significant negative returns are not as supportive of the claim that share prices reflect the information available in the NYSE announcement in an efficient manner.

This study isolated and identified share redistribution activity levels which possess returns significantly different from the general market. The findings revealed the share redistribution activity levels in the lower right quadrant of exhibit 1 possess statistically significant negative share price responses. The evidence in this study indicated large SDD activity relative to shares outstanding and trading volume may form the basis of a stock trading rule to achieve superior returns to that of the general market. For all SDD companies in the study population, however, the nonexistence of superior or inferior returns implies that investors cannot apply a similar stock trading rule unconditionally to firms engaging in share redistributions.

---

[1] See page 59 for the development of the study's market model, the capital asset pricing model.

Contributions

This study provides new research and evidence in an area of common stock activity that has had little research effort to date: the redistribution of reacquired corporate common stock. In addition to documenting the increased level of SDD activity, it analyzes the impact on share prices of the announcement of the decision to return previously reacquired common stock to the marketplace in a context of market efficiency and as a test of a corporate anti-dilution strategy.

The research offers support to the efficient market hypothesis that the market is efficient in adjusting rapidly to new information about a company's stock through a test of the semi-strong form of the hypothesis. Its results complement earlier studies of a related theme refuting the claim that share prices increase after a share reacquisition and decrease after a share resdistribution.

Limitations

The results and implications of this study are, by definition, constrained by the time period, data population, and methodology selected. Although the fourteen year span incorporated major market movements in both directions,[1] using the results of *ex post* data to make *ex ante* generalizations must be approached cautiously and may not be relevant if the market moves outside the trading range witnessed in this study.

Also, the limitation of data ± 30 days around the NYSE announcement date was designed to emphasize the immediate effect of the reported SDD activity. Relaxing that restriction by broadening the time period around the critical event will provide additional evidence to support or refute the claim that capital markets are efficient and the claim that companies engage in share redistribtion to effect an anti-dilution strategy in their common stock.

Further, the date of the share redistribution is not designated as the critical event, the date of the announcement of the redistribution is. The results are accordingly applicable to share price movement around the announcement of an activity rather than the activity itself.

---

[1] See figures 5-4 and 5-5.

Statements made and conclusions drawn about share price movement due to the activity are actually extensions of the reaction from the date of the activity announcement.

For a test of the announcement effect of a publicly released report, the study's population was appropriately based on the firms in the released report. The elimination of some firms[1] found in the report naturally limits the results of the analysis to the remaining companies in the data set. For example, firms with SDD activity below 1% of the company's outstanding shares were purged from the study population. If the assumption that these small percentage transactions are insignificant is not acceptable, then the data base may be expanded in subsequent research to include firms with SDD activity below 1%

The selected model and testing methodology are well suited for the stated purpose of this study: to analyze the stock price movement around an announcement date of companies engaging in a particular financial transaction. The set of equations in figure 5-1, and the time series calculations performed on them, measure the direction and magnitude of the trend before and after the critical event. The analysis is therefore restricted to the hypothesis formulated by the model and to the statistics provided by the time series

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[1] See page 53 for parameter selection.

program. Alternate hypotheses would yield additional infomation about the announcement data complementing or extending the original model and its results. Likewise, the generation of alternate statistics would provide additional support to the model's hypotheses.

Recommendations

Further academic research using the data base of net share dispositions may take several directions. Additional announcement effects on market prices may be explored by dichotomizing share disposition decision (SDD) firms into those that received a cashflow from the SDD activity (e.g., employee stock ownership programs (ESOP), executive stock options, etc.) and those that did not (e.g., award programs, stock dividends, etc.). The dollar amount received by the firm could also be compared to the market value for relationships since some users of the reacquired shares may be at market value (e.g., mergers, acquisitions, etc.) and some may be exercised below market value (e.g., executive stock options, warrant offerings, etc.).

Isolating firm characteristics through factor analysis may identify uniqueness among the SDD companies and aid in the explanation of reactionary differences in market prices to SDD activity. For example, those companies announcing the disposition method of their reacquired shares may be grouped for analysis by method (e.g., stock dividend, exercised warrant, employee stock purchase plans, etc.).

The ethics of SDD activity may be examined from the viewpoint of pre-emptive right circumvention. The common stock rights clause in a corporate charter may state that the pre-emptive

right must apply to *previously unissued shares*, but not to *reissued shares*.

The regulations surrounding net share dispositions may be examined for effects. For example, what proportion of company employee stock ownership plans deny the right of private sale or other disposition of the shares by the employee? Do any corporate debt instruments have restrictive covenants prohibiting or limiting the reacquisition and/or disposition of reacquired stock?

This study's prior research section disclosed a previously held belief that share reacquisition had a positive price effect and share disposition had a negative one. A survey of corporate management may be performed to compare the reasons now versus the early 1960's for reacquisition and subsequent disposition of their firm's own common stock.

An investigation may be made to determine the degree of correlation, if any, between SDD activity and insider trading activity. Also, what is the effect, if any, of the share reacquisition decision and/or subsequent share disposition decision on the firm's credit ratings as an investment attraction? Does SRD/SDD activity have any effect on other companies' share prices in the same industry?

The common stock SDD analysis presented in this study may be extended to the companies engaging in preferred share reacquisition/share retirement activity. In addition to examining the price effects and announcement effects of preferred stock reacquisition/retirement activity, investigation may be made to address the issue of circumvention of the call provision. Specifically, is preferred stock reacquired in the market and retired in lieu of employing the call option?

APPENDICES

APPENDIX A

THE STUDY POPULATION

Appendix A

THE STUDY POPULATION

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1964			
Allied Products	47,200	4.65%	77.00
Allis-Chalmers	112,500	1.27	11.43
American Can	170,975	1.06	14.88
American Enka	44,210	1.69	12.88
Avnet Electronics	59,141	1.93	12.13
Baxter Labs	40,414	1.50	11.04
Becton,Dickinson	96,234	3.23	44.78
Berman Leasing	21,808	2.00	26.40
Blaw Knox	32,300	1.64	16.45
Borden Co	210,900	1.93	93.61
Bulova Watch	42,080	2.28	4.81
Consolidated Foods	85,059	1.70	29.72
Eagle-Picher	22,365	1.12	31.15
Fairmont Foods	60,782	2.00	38.74
Fawick	47,143	4.01	86.51
General Amer Oil	69,635	1.89	18.47
General Mills	118,443	1.57	35.84
Hart Schaffner	19,625	1.70	41.93
Hertz	91,396	2.50	17.19

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1964			
Hess Oil	100,000	1.60	42.35
Intl Shoe	80,729	2.30	27.61
Kerr-McGee	94,869	1.48	17.75
Lehn & Fink	17,563	1.51	16.68
Miles Labs	100,000	2.51	64.47
Miss River Fuel	154,341	3.92	74.92
Pacific Intermtn	34,083	2.00	17.39
Purolator	24,950	1.30	7.63
Ryan Aero	18,600	1.30	32.80
Stauffer Chem	126,374	1.34	41.34
J.P. Stevens	99,135	2.09	29.00
20th Century Fox	101,834	4.00	20.18
1965			
American Metal	16,900	1.21	21.61
Associated Spring	13,902	1.26	14.41
Avco	431,600	3.25	29.14
BVD	43,974	1.39	11.72
Combustion Engr	36,903	1.18	10.11
Cook Coffee	61,718	4.06	30.19
Crane Co	36,600	3.29	57.46
Diamond Intl	244,786	2.59	73.29

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1965			
Eastern Gas	38,811	2.87	54.74
Engelhard	22,200	1.11	18.12
Eversharp	41,633	2.02	9.63
Foote Cone	23,506	1.55	10.08
Gen Refractories	34,300	1.18	9.24
Hammermill	26,953	1.47	24.93
Harsco	40,405	1.13	23.84
Hertz Corp	41,551	1.13	8.21
Hess Oil	107,587	1.15	14.24
Intl Mining	58,284	2.30	7.06
Johnson & Johnson	70,713	1.19	84.58
Lorillard	67,094	1.02	17.30
MSL Industries	18,100	1.18	3.37
Parker Pen	23,568	1.90	32.78
Phillips Petro	643,947	1.96	53.90
Rorer William H	36,465	1.09	8.92
Textron	122,545	2.28	24.97
1966			
American Tobacco	1,062,772	4.19	103.42
Bates Mfrg	50,000	3.97	31.87
Carey Philip	12,684	1.26	16.65

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1966			
Combustion Engr	34,877	1.06	4.43
Continental Ins	343,275	2.95	73.30
Cook Coffee	42,222	2.65	37.10
Crown Cork & Seal	54,802	1.37	21.84
Dymo Industries	40,002	1.91	7.19
Eastern Gas	29,376	2.15	86.40
Foote Cone	37,170	1.73	17.72
Glidden	84,700	1.33	39.52
Hammermill	33,000	1.77	34.92
Hercules	242,449	1.26	29.78
Hershey Chocolate	106,017	2.40	56.54
Hess Oil	129,074	1.38	14.79
Howmet Corp	115,143	3.65	18.21
Kinney Services	25,000	1.45	20.96
Koppers Co	47,834	2.11	22.83
Lear Sigler	49,434	1.15	5.34
National Distiller	204,300	1.65	36.20
Norris Industries	96,569	3.80	46.05
Norton Co	95,500	1.71	89.17
Paramount Pictures	28,915	1.83	8.22
Parker Pen	25,484	2.02	45.35
Purolator	75,725	4.02	93.84

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1966			
Rheem Mfrg	38,294	1.89	5.77
Textron	155,208	1.26	21.87
Tootsie Roll	49,224	2.95	89.92
United Industrial	21,495	1.01	1.96
Warner-Lambert	368,867	1.59	53.44
Woodward Iron	54,950	1.79	93.29
1967			
Amphenol	40,162	1.36	1.65
Atlantic Richfield	200,000	1.76	23.76
Beatrice Foods	135,312	1.53	44.36
Bell & Howell	80,000	1.94	5.54
Bulova Watch	20,327	1.01	5.54
Chicago Pneumatic	80,800	1.69	25.01
Continental Ins	408,682	3.67	44.83
Cook Coffee	28,521	1.74	20.27
Devilbiss Co	17,271	1.13	55.36
Diamond Intl	246,482	2.54	62.89
Eagle-Picher	65,834	3.25	51.88
Eastern Gas	32,975	2.44	70.01
E G & G Inc	24,600	1.45	1.22
Electric Bond Share	91,531	1.88	27.06

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1967			
Federal-Mogul	63,158	1.22	24.92
Foremost Dairies	258,778	3.33	14.75
Helme Products	26,800	1.85	21.30
Hoover Ball	153,850	4.27	115.94
Keller Industries	44,695	2.72	24.41
Lear Sigler	82,559	1.84	4.99
Liggett & Myers	67,616	1.76	36.71
Miles Labs	52,500	1.24	10.46
Minerals & Chem	55,923	1.18	5.38
Montana Power	220,888	2.96	43.46
Olin Mathieson	660,102	4.54	67.11
Reynolds Tobacco	551,200	1.40	36.89
Rheem Mfrg	24,155	1.19	1.87
Schlumberger	83,304	1.10	17.05
Sunray DX	226,059	1.24	9.86
Tandy Industries	57,413	4.71	8.69
Texas Industries	32,000	1.71	18.24
United Shoe	24,130	1.08	15.52
US & Foreign SE&UR	75,615	2.34	52.36
United Whelan	20,636	1.69	5.13
Univ Leaf Tobacco	43,625	1.86	30.13
Varian Associates	100,000	1.63	5.57

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1967			
Wallace & Tierman	69,996	1.69	29.30
Warner & Swasey	39,000	1.17	6.49
Wometco Enterp	36,966	2.74	16.06
1968			
American News	17,011	1.11	9.44
Amer Ship Building	39,883	3.33	4.15
Amer Standard	352,865	3.49	22.49
Asso Transport	17,565	1.14	2.10
Certainteed Prod	150,000	4.24	8.14
Clevite	28,297	1.50	5.18
Cluett, Peabody	95,675	1.49	13.45
Colorado Intrst Gas	98,300	2.54	15.96
Continental Ins	475,000	4.28	33.73
Conwood Corp	26,020	1.90	42.73
Eastern Gas	139,423	3.36	91.73
Ex-Cell-O	74,546	1.02	18.90
Foote Cone	62,329	2.98	62.20
Foremost-McKesson	510,274	4.99	33.95
Garlock	51,330	2.81	37.91
Harsco	154,300	2.00	26.19
Hotel Corp of Am	127,387	4.97	6.28

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1968			
Indian Head Inc	38,300	1.33	11.50
Joy Mfrg	46,122	1.02	10.13
Lytton Finance	34,631	1.36	2.22
McCrory	95,839	2.02	15.21
Meredith Corp	29,955	1.11	13.49
National City Lines	15,625	1.44	24.49
Northwest Bankcorp	75,500	1.34	86.19
St Regis Paper	154,935	1.15	8.88
Seeburg	50,143	2.01	2.13
Singer	195,079	1.83	18.24
Tenneco	852,610	1.63	34.08
Tishman Realty	21,980	1.32	19.56
Tootsie Roll	23,080	1.30	18.43
Torrington Co	78,750	2.43	30.57
Tri Continental	162,200	1.05	20.17
USM	51,280	1.16	17.74
US Pipe & Foundry	127,300	3.60	13.04
Univ Leaf Tobacco	35,200	1.50	30.77
1969			
Acme Markets	81,250	2.68	37.93
Amer Distilling	50,930	3.53	73.49

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1969			
American News	51,317	3.10	12.81
Amer Standard	164,066	1.54	8.66
Ancorp National	18,939	1.18	7.41
Becton,Dickinson	166,668	1.03	19.88
Bliss & Laughlin	27,600	1.02	17.52
Cabot Corp	51,200	1.02	18.91
Canal-Randolph	45,450	3.03	56.18
Corn Products	443,969	1.98	35.54
Dayco Corp	47,500	1.64	24.57
Del Monte	129,218	1.12	22.94
DiGorgio Co	25,122	1.37	5.24
Diners Club	49,972	2.47	18.77
Dresser Ind	348,334	3.75	39.48
Eagle-Picher	46,854	1.06	20.43
Eastern Gas	232,896	2.69	13.35
Franklin Stores	41,330	2.71	16.11
Garlock	66,052	3.55	98.29
Genesco	134,834	1.41	14.86
Handy & Harmon	23,793	1.16	29.27
Kroger	135,500	1.03	7.93
MCA	240,000	3.02	26.07
Mead	92,086	1.56	8.72

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1969			
McCrory	112,200	2.50	31.78
National Presto	42,104	2.89	25.09
Neptune Meter	39,500	1.63	12.64
Pueblo Super	36,515	1.77	10.58
Staley AE	58,752	2.28	52.32
Textron	313,079	1.15	15.29
USM	63,085	1.41	21.61
Upjohn	343,746	2.34	22.41
US Gypsum	120,000	1.46	14.11
Wallace & Tierman	49,645	1.07	17.02
1970			
Alberto-Culver	79,184	1.73	9.19
Amer Standard	285,230	2.37	16.07
Borden	326,600	1.15	19.79
Brown Shoe	147,475	2.16	89.05
CNA	1,329,883	4.69	73.61
Cenco	49,412	1.30	9.54
CPC Intl	418,948	1.79	34.67
Consolid Freight	126,434	2.27	33.12
Continental Can	700,000	3.78	54.37
Cummins Engine	60,801	1.01	36.43

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1970			
Curtiss-Wright	183,935	2.26	30.20
Dayco Corp	52,287	1.78	44.12
Del Monte	170,000	1.44	44.35
Dentsply Intl	22,750	1.23	9.62
DiGorgio Corp	121,323	1.95	59.13
Fed Sign & Signal	32,000	2.10	29.57
Ferro	51,435	1.57	36.48
Franklin Stores	31,489	1.95	17.49
Gerber Products	178,567	2.16	35.91
Harsco	226,700	2.96	126.65
Interco Inc	197,374	2.72	60.12
Koppers Co	144,461	2.98	69.22
Lamson & Sessions	26,354	1.92	47.92
Martin Marietta	371,191	1.62	22.28
Monogram Ind	81,424	1.58	8.97
Morris Philip	322,164	1.38	18.53
Olin	535,123	2.35	60.48
Oxford Ind	98,800	4.54	217.14
Pullman	78,739	1.63	38.73
Rockwell Mfrg	78,600	1.32	35.81
Standard Intl	123,687	3.56	72.89
Super Valu Stores	26,500	1.30	20.11

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1970			
UGI	42,168	1.14	13.52
USM	203,198	4.43	104.26
United Fruit	311,318	3.93	173.73
US Industries	422,357	1.90	22.99
US Smelt Refinery	36,500	1.41	11.32
Wallace-Murray	78,520	2.90	38.62
Weyerhaeuser	1,135,637	1.91	45.77
Winn-Dixie Stores	134,005	1.67	57.17
Wometco	140,035	3.72	76.15
1971			
Aetna Life	385,000	1.46	10.76
Amerace	40,200	1.69	46.26
Ametek	52,000	1.02	15.05
Ancorp National	28,725	2.02	27.41
Apache	84,439	2.92	23.38
Bard CR	88,056	2.17	25.37
Belding Heminway	39,272	3.07	15.44
Brown Shoe	335,556	4.62	87.73
Continental Can	1,265,349	4.61	50.65
Eagle-Picher	45,514	1.03	25.19
Eastern Gas	260,050	2.68	12.47

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1971			
Ferro Corp	50,000	1.49	8.53
Firestone Tire	776,740	2.67	44.11
Foremost-McKesson	250,089	2.01	14.51
Garlock	63,158	3.25	72.02
Gen Amer Transport	303,675	2.69	33.90
Gen Port Cement	140,400	2.30	16.66
Joy Mfrg	79,533	1.70	8.63
Katy Industries	86,902	1.94	13.79
Kinney Services	141,213	1.18	3.80
Londontown Mfrg	23,660	1.56	9.93
Reliance Elec	80,096	1.28	8.83
Revlon	149,373	1.18	11.63
Schering Plough	376,042	1.51	19.52
Scot Lad Foods	28,021	1.34	7.05
Stand Prudential	55,128	1.11	10.45
Trans Union	111,984	1.18	19.95
Univ Computing	75,000	1.03	2.28
Ward Foods	63,448	2.03	12.59
Warnaco	135,580	3.97	39.41
Watkins-Johnson	100,000	3.45	5.48

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1972			
Amer Distilling	43,950	3.00	56.20
Ancorp National	44,740	3.03	45.98
Apache Corp	44,441	1.47	16.06
Archer-Daniels	125,195	3.93	43.70
Borg-Warner	296,411	1.61	24.86
Dover Corp	78,600	1.76	27.08
Equimark	98,563	2.63	74.00
Esquire	51,872	2.23	24.87
First Penn Corp	126,111	1.05	23.54
Halliburton	178,523	1.03	12.06
Levitz Furniture	450,000	2.67	9.00
Libbey-Owens	113,800	1.05	7.84
Liggett & Myers	163,166	2.05	16.40
MCA	152,110	1.86	41.63
Reliance Elec	86,142	1.30	7.55
Royal Crown Corp	171,108	2.49	9.83
Seagrave Corp	32,317	2.50	13.44
Scott & Fetzer	111,565	1.65	7.34
Sparton Corp	27,862	1.56	18.76
Suburban Propane	30,127	1.07	8.44
Univ Computing	298,776	4.00	8.23
Wallace-Murray	75,001	2.62	43.23

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1972			
Winn-Dixie Stores	128,040	1.52	19.07
Wometco Enterp	164,824	4.24	38.80
1973			
Arlen Realty	538,025	2.68	47.46
Castle & Cooke	186,393	1.44	35.53
Crocker National	207,835	2.03	28.00
Crown Cork & Seal	836,547	4.61	72.45
Dana Corp	230,575	1.70	53.39
Donaldson Luf	107,950	2.54	39.51
Eagle-Picher	52,593	1.24	40.12
Eastern Gas	269,977	2.98	11.30
Evans Products	369,700	2.28	33.92
Fidelity Union Bank	77,451	2.70	134.70
Foote Cone	30,468	1.43	24.01
Gamble-Skogmo	106,061	2.53	16.34
Gen Amer Invt	51,000	1.07	19.98
Gen Amer Transport	160,684	1.39	18.73
Ill Central Ind	583,704	4.66	63.92
Intl Harvestor	298,453	1.09	11.57
Johns-Manville	230,019	1.27	9.72
Keene Corp	175,380	4.75	35.61

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1973			
Marcor	324,909	1.18	15.66
McGraw Edison	244,188	1.64	34.67
Nat Aviation	65,700	1.54	24.71
Nat City Lines	28,900	1.38	11.32
Norton Co	119,140	2.26	35.02
Ponderosa System	54,435	1.24	1.25
Ryder System	172,040	1.39	9.30
Sunstrand Corp	67,799	1.24	6.21
Teledyne	397,545	1.25	18.31
UV Industries	28,800	1.09	5.78
United Industrial	25,700	2.10	23.66
US Industries	436,688	1.50	15.48
VSI Corp	115,767	3.89	95.91
Veeder Industries	39,925	3.24	36.23
Ward Foods	71,297	2.14	14.53
Witco Chemical	75,260	1.48	25.82
1974			
Amer Medicorp	400,000	4.19	46.84
Apache Corp	38,144	1.08	14.17
Belding Heminway	74,335	2.64	35.18
Castle & Cooke	169,162	1.30	39.47

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1974			
Chromalloy Amer	147,922	1.48	32.95
Continental Corp	370,082	1.47	34.71
Cooper Ind	153,718	3.67	25.59
Crown Cork & Seal	789,200	4.45	97.23
Emhart Corp	189,651	3.81	56.18
Fred S. James	187,802	4.35	133.95
Harcourt Brace	43,168	1.10	42.36
Harsco	100,000	1.20	51.07
Litton Ind	647,714	2.03	26.51
MacDonald E F	82,350	2.24	30.85
Marathon Mfrg	40,800	1.10	20.13
McLouth Steel	60,000	1.72	14.85
Metromedia	106,534	1.67	16.85
Northwest Ind	121,000	1.85	26.25
Pioneer Gas	160,000	2.20	9.88
Pope & Talbot	103,495	3.61	51.11
Quaker State Oil	199,314	1.41	35.15
Richardson-Merrill	528,402	2.33	65.84
Servomation	109,499	2.24	40.15
Sun Oil	443,798	1.22	83.15
Tappan Co	109,574	3.72	38.76
UGI Corp	56,560	1.38	38.19

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1974			
US Tobacco	202,800	2.46	75.59
1975			
Albertson's	84,081	1.34	18.23
Amer Bakeries	34,660	2.16	20.21
Ameron	56,055	2.53	24.95
Anderson Clay	180,111	2.97	58.80
Belding Heminway	100,370	3.50	82.27
Castle & Cooke	251,975	1.82	29.43
Crouse-Hinds	55,630	1.28	13.61
Fairmont Foods	44,900	1.13	44.37
General Host	50,000	3.20	16.40
Gulf & Western	643,818	4.50	21.95
Kirsch Co	31,728	1.30	14.94
Liggett & Myers	108,332	1.32	28.08
Marlennan	150,488	1.13	9.97
Northwest Ind	184,183	2.91	10.02
Norton Co	104,879	1.95	42.55
Penn-Dixie Ind	101,898	2.18	37.31
Rollins Inc	517,795	4.06	66.03
St Joe Mineral	284,762	1.43	12.40
Trans Union	176,464	1.75	18.29

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1975			
US Home Corp	170,638	1.85	12.17
Univar Corp	59,371	2.78	48.59
Varian Asso	102,086	1.49	2.20
Warnaco	115,000	3.23	44.80
Warner Co	74,200	2.65	129.04
Witco Chemical	54,565	1.01	22.71
Woods Corp	27,540	1.04	3.14
1976			
Amer Bakeries	34,010	2.10	16.39
Amer Standard	306,496	2.61	14.29
Conwood Corp	45,280	3.11	9.45
Eagle-Picher	64,764	1.35	28.36
Esmark	232,437	1.33	18.50
Fred S. James	61,000	1.33	22.09
Fuqua Industries	132,500	1.51	3.66
Globe-Union	22,896	1.12	3.08
Hospital Affliates	89,796	4.08	24.71
INA Corp	841,438	3.70	39.37
Inland Steel	205,875	1.04	11.19
Interpublic Group	30,998	1.37	18.89
Liberty Corp	152,638	2.31	48.97

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1976			
MCA	190,642	2.24	9.43
McKee Arthur	17,486	1.15	8.76
Mead Corp	339,081	2.34	11.98
Pet Inc	250,000	3.90	52.81
Stone & Webster	90,400	2.42	30.04
Studebaker Worth	105,695	3.12	43.41
Varian	101,572	1.44	5.87
Vulcan Materials	116,191	2.11	27.00
Winn-Dixie Stores	144,033	1.08	29.94
Zale	115,490	1.39	10.67
1977			
Amcord	235,000	3.89	41.54
Amer Brands	467,177	1.82	36.30
Amer Gen Ins	407,481	1.96	17.12
Ametek	52,845	1.04	5.89
Bard CR	103,718	1.11	3.55
City Investing	800,000	3.73	21.90
Cole National	23,456	1.07	11.29
Culligan Intl	96,000	3.00	25.47
Entex	231,566	2.83	64.59
Fred S. James	58,659	1.03	12.18

Company	Net Shares Redistributed	Percentage of Net Shares Redistributed to Shares Outstanding	Proportion of Net Shares Redistributed to Average Daily Trading Volume
1977			
Norton	82,200	1.52	13.59
Premier Ind	109,988	1.57	72.46
Standex Intl	58,957	2.09	41.26
Studebaker Worth	77,252	1.28	5.10
Tandycrafts	77,520	1.87	19.28
Triangle Pacific	29,050	1.60	15.84

APPENDIX B

THE NUMBER OF OBSERVATIONS IN THE STUDY BY INDUSTRY

Appendix B

THE NUMBER OF OBSERVATIONS IN THE STUDY BY INDUSTRY

4 Digit SIC	Industry Name	Number of Observations
1211	Bituminous Coal & Lignite Mining	9
1311	Crude Petroleum & Natural Gas	4
1520	General Building Contractors	1
1531	Operative Builders	1
1600	Construction - Nonbuilding	1
2000	Food & Kindred Products	5
2010	Meat Products	2
2020	Dairy Products	5
2030	Canned Fruits & Vegetables	4
2046	Wet Corn Milling	2
2050	Bakery Products	2
2065	Candy & Other Confectionery	3
2070	Fats & Oils	2
2085	Distilled Beverages	3
2086	Soft Beverages	4
2111	Cigarettes	9
2200	Textile Mill Products	4
2300	Apparel	8
2400	Lumber & Wood Products	3
2510	Household Furniture	1
2600	Paper & Allied Products	5

2650	Paperboard Containers & Boxes	2
2721	Periodicals & Publishing	1
2731	Books & Publishing	1
2800	Chemicals & Allied Products	4
2810	Industrial Inorganic Chemicals	2
2830	Drugs	4
2844	Perfumes & Cosmetics	2
2890	Misc Chemical Products	3
2911	Petroleum Refining	8
2950	Paving & Roofing Materials	2
3000	Rubber & Plastic Products	4
3079	Misc Plastic Products	2
3140	Footwear Except Rubber	4
3210	Flat Glass	2
3221	Glass Containers	4
3241	Cement Hydraulic	2
3270	Concrete Gypsum & Plaster	3
3290	Abrasive Asbestos	6
3310	Blast Furnaces & Steel Works	4
3341	Secondary Smelting	4
3350	Rolling & Draw Nonferrous Metal	1
3390	Misc Primary Metal Products	1
3430	Heating Equip & Plumbing Fixtures	6
3449	Misc Metal Work	2
3452	Bolts Nuts & Screws	3
3480	Ordnance & Accessories	1

3494	Valves & Pipe Fittings	1
3499	Fabricated Metal Products	1
3510	Engines & Turbines	2
3520	Farm & Garden Machinery	1
3533	Oil Field Machinery	4
3540	Metalworking Machinery	2
3550	Special Industry Machinery	5
3560	General Industrial Machinery	4
3580	Refrig & Service Industry Machinery	1
3610	Elec Transmission & Distr Eq	5
3630	Household Appliances	4
3640	Electric Lighting & Wiring Equip	1
3662	Radio & TV Transmitting Equip	1
3670	Electronic Components & Acce	4
3679	Electronic Components N E C	4
3699	Electrical Machinery	1
3713	Truck & Bus Bodies	2
3714	Motor Vehicle Parts	9
3730	Ship/Boat Building/Repairing	1
3760	Guided Missiles & Space Vehicles	2
3811	Engr Lab & Research Equip	3
3841	Surg & Medical Instruments	6
3843	Dental Equip & Supplies	1
3861	Photographic Equip & Supplies	1
3870	Watches Clocks & Parts	2
3940	Toys & Amusement Sport Goods	2

3950	Pens Pencils & Other Office Materials	2
4011	Railroads	1
4210	Trucking	4
4700	Transportation Services	1
4830	Radio & TV Broadcasters	1
4912	Electric Utilities	1
4922	Natural Gas Transmission	1
4924	Natural Gas Distribution	2
5050	Wholesale Metals & Minerals	1
5063	Wholesale Electric Apparatus	1
5099	Wholesale Durable Goods	1
5120	Wholesale Drugs	2
5140	Wholesale Groceries	3
5199	Wholesale Nondurable Goods	2
5211	Retail Lumber	1
5311	Retail Department Stores	3
5411	Retail Grocery Stores	5
5712	Retail Furniture Stores	1
5812	Retail Eating Places	1
5944	Retail Jewerly Stores	1
5962	Retail Automatic Merchandising	1
5999	Retail Stores N E C	2
6023	Banks - Regional Eastern	2
6025	Banks - Regional Midwestern	1
6027	Banks - Regional West Coast	1
6200	Security & Commodity Brokers	1

6312	Life Insurance	2
6332	Property & Casualty Insurance	3
6400	Insurance Agents	3
6500	Real Estate	1
7311	Advertising Agencies	5
7392	Management Consulting	1
7393	Detective & Protective Agencies	1
7500	Automotive Repair	1
7810	Motion Picture Production	5
8060	Hospitals	2
8911	Engr & Architect Agencies	1
9997	Conglomerates	17

2 Digit SIC	Major Group Name	Number of Observations
12	Bituminous Coal & Lignite Mining	9
13	Oil & Gas Extraction	4
15	Building Construction	2
16	Construction Other Than Building	1
20	Food & Kindred Products	32
21	Tobacco Manufactures	9
22	Textile Mill Products	4
23	Apparel	8
24	Lumber & Wood Products	3
25	Furniture & Fixtures	1
26	Paper & Allied Products	7
27	Printing & Publishing	2
28	Chemicals & Allied Products	15
29	Petroleum Refining	10
30	Rubber & Misc Plastics	6
31	Leather & Leather Products	4
32	Stone Clay Glass & Concrete	17
33	Primary Metal Industries	10
34	Fabricated Metal Products	14
35	Machinery	19
36	Electrical & Electronic	20
37	Transportation Equip	14
38	Measuring & Analyzing Instruments	17
39	Misc Manufacturing Industries	4

40	Railroad Transportation	1
42	Motor Freight Transportation	4
47	Transportation Services	1
48	Communication	1
49	Electric Gas & Sanitary Services	4
50	Wholesale Trade - Durable Goods	3
51	Wholesale Trade - Nondurable Goods	7
52	Retail Trade - Building Materials	1
53	Retail Trade - General Merchandise	3
54	Retail Trade - Food Stores	5
57	Retail Trade - Furniture	1
58	Retail Trade - Eating & Drinking	1
59	Misc Retail Trade	4
60	Banking	4
62	Security & Commodity Brokers	1
63	Insurance	5
64	Insurance Agents	3
65	Real Estate	1
73	Business Services	7
75	Automotive Repair	1
78	Motion Pictures	5
80	Health Services	2
89	Misc Services	1
99	Nonclassifiable Establishments	17

SIC Division	Division Name	Number of Observations
A	Agriculture	0
B	Mining	13
C	Construction	3
D	Manufacuturing	291
E	Transportation & Communication	11
F	Wholesale Trade	10
G	Retail Trade	15
H	Financial Insurance & Real Estate	14
I	Services	16
J	Public Administration	0
K	Nonclassifiable Establishments	17

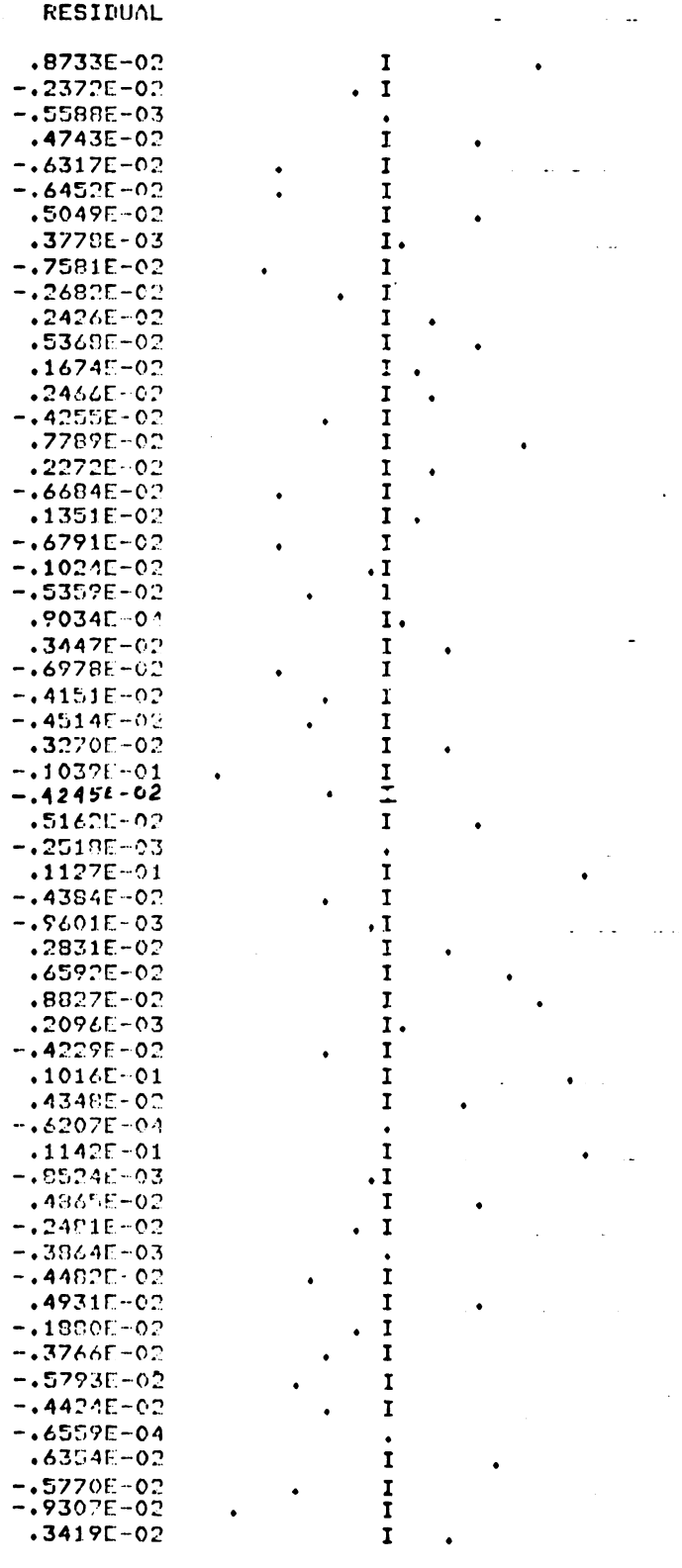
APPENDIX C

RESIDUALS OF THE MODEL'S EQUATIONS

Appendix C

Residuals of the Model's Equations

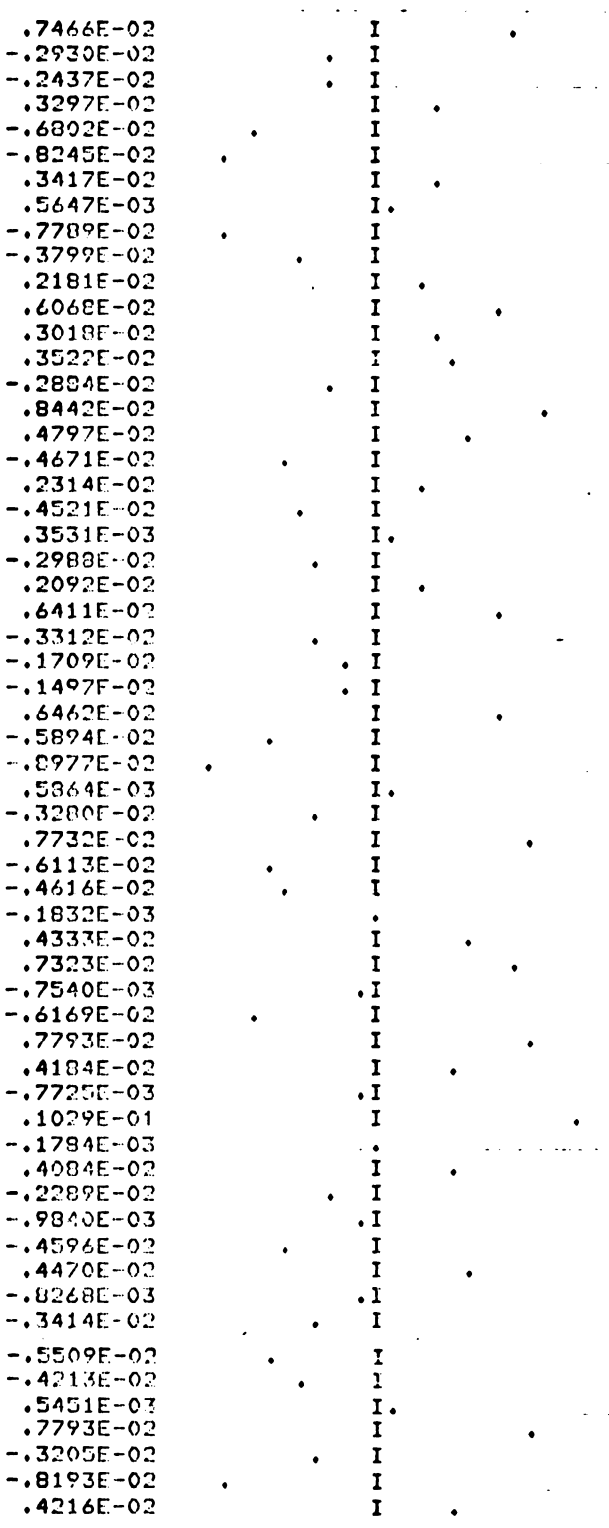
PLOT OF RESIDUALS - **Equation (23)**



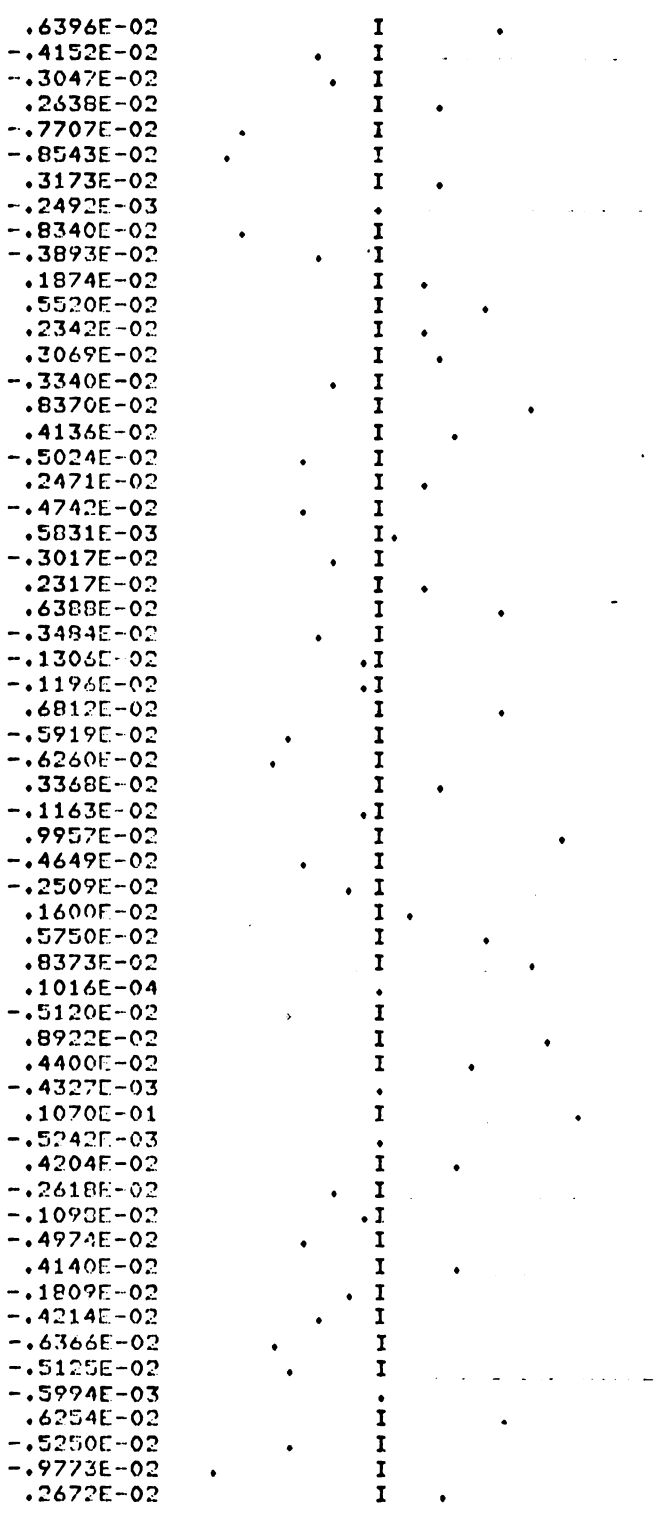
PLOT OF RESIDUALS - Equation (24)

RESIDUAL	
.5907E-02	I
-.1081E-02	I
-.5823E-03	I
.2393E-02	I
-.4328E-02	I
-.2390E-02	I
.1142E-02	I
-.4324E-02	I
-.6238E-02	I
.1126E-02	I
.4159E-02	I
.1902E-02	I
-.1091E-02	I
.2649E-02	I
-.5088E-03	I
.9096E-02	I
-.1258E-02	I
-.6563E-02	I
.2934E-02	I
-.1816E-02	I
-.2741E-02	I
-.3404E-02	I
-.2882E-02	I
.2748E-02	I
-.3847E-02	I
-.6635E-03	I
-.5118E-03	I
.6779E-02	I
-.7904E-02	I
-.7356E-02	I
.3978E-02	I
-.1532E-02	I
.1061E-01	I
-.2370E-02	I
.1885E-02	I
.3460E-02	I
.1920E-02	I
.7814E-02	I
-.6216E-03	I
-.8249E-02	I
-.6594E-03	I
.1714E-02	I
.2368E-02	I
.9743E-02	I
.1643E-02	I
.6023E-02	I
-.2214E-02	I
-.2140E-02	I
-.8378E-02	I
.4343E-02	I
-.2729E-02	I
-.2478E-02	I
-.2447E-02	I
-.3459E-02	I
.1974E-02	I
.4118E-02	I
-.3118E-02	I
-.5526E-02	I
.2983E-02	I

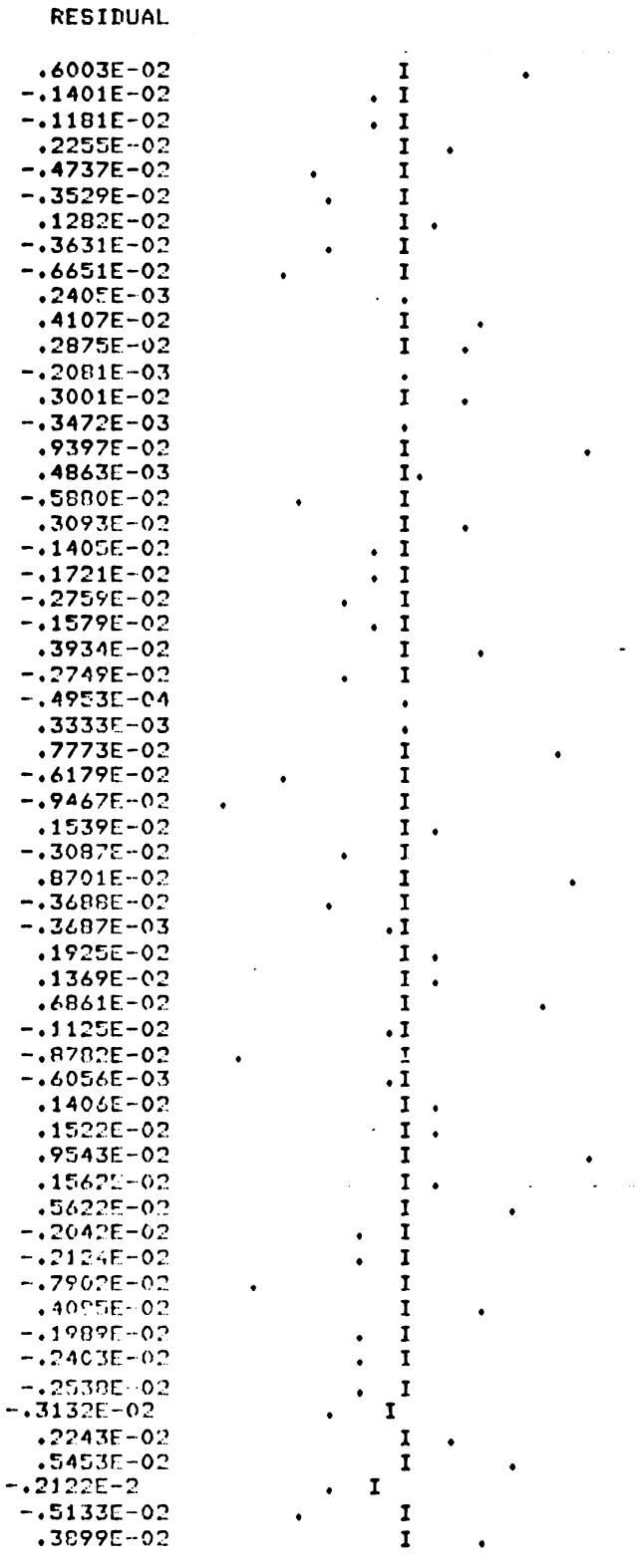
PLOT OF RESIDUALS - Equation (25)



PLOT OF RESIDUALS - Equation (28)



PLOT OF RESIDUALS - **Equation (33)**



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CHAPTER VII

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