

The Determinants of Accounting Choices in Troubled Companies

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This paper uses a multivariate regression analysis to examine the determinants of accrual accounting choices in 127 troubled firms. Troubled firms are defined as those that experienced three consecutive losses and reduced dividends. Most studies in positive accounting research examine samples of firms that include both healthy and financially distressed firms. These studies assume implicitly that contracting incentives have the same effect on the accounting choices of distressed firms as those of healthy firms and that the marginal cost of managing earnings is the same for both types of firms. This paper, however, focuses on troubled firms alone. The results provided in this paper suggest that firms in financial distress have incentives to adopt income-decreasing accounting choices in the year of a nonroutine top executive change. The results do not support earnings management due to binding debt covenants, union negotiations, or government lobbying, thus suggesting that for troubled firms the pay-offs from these types of earnings management are too low to influence managers' accounting choices.

Introduction

Agency theory views the firm as a nexus of contracts. The incentives of the contracting parties affect accounting choices because accounting numbers often are used in contracts and/or serve as monitoring mechanisms. This paper examines the determinants of accounting choices in 127 troubled firms.

Most studies in positive accounting research examine samples of firms that include both healthy and financially distressed firms (Skinner, 1993; Healy, 1985; Watts and Zimmerman, 1978). These studies assume implicitly that contracting incentives have the same effect on the accounting choices of distressed firms as those of healthy firms and that the marginal cost of manipulating income is the same for both types of firms.

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Recently, studies using samples partitioned according to the firm's financial condition have emerged and suggest that different incentives affect accounting choices in financially distressed firms. For example, DeAngelo, DeAngelo, and Skinner (1994) provide evidence that suggests that debt covenant violation may not be the primary incentive driving accounting choices of troubled firms' managers. Further, Gilson and Vetsuypens (1993) argue that managers expecting poor earnings to be more than temporary are faced with incentives to save the firm and preserve their jobs rather than to maximize their accounting-based bonuses. Moreover, Murphy and Zimmerman (1993) demonstrate that incoming CEOs deflate earnings only when poor financial performance precedes the year of replacement. Finally, managers of distressed firms may have incentives to adopt income-decreasing accounting choices to obtain concessions from labor unions and subsidies from governments (DeAngelo and DeAngelo, 1991; Jones, 1991).

Further, papers that investigate the accounting choice determinants of healthy and distressed firms in a single sample analyze only one determinant at a time, thus not controlling for correlated explanatory factors. Their samples comprise firms possessing particular characteristics of interest, such as firms experiencing management changes, firms undergoing governmental assistance investigations, or firms engaged in union negotiations. While certain of these factors may be associated with financial distress, those papers do not focus on troubled firms specifically. Finally, those studies do not employ sophisticated accrual expectation models to measure discretionary accruals, whereas this paper uses a modified version of Jones' (1991) model, as developed by Dechow, Sloan, and Sweeney (1995), and Hunt, Moyer, and Shevlin's (1996) model to measure unexpected accruals.

DeAngelo *et al.* (1994) examine the accounting choices of an explicit sample of troubled firms. They find that firms in financial difficulties exhibit large negative accruals in the first year of a dividend reduction. They also find that 87 percent of sample firms renegotiated contracts with labor unions or lenders, had a top executive change, or lobbied for government assistance during the dividend reduction year. They do not test empirically, however, the association between management accounting choices and the existence of each event. They provide only descriptive evidence about the occurrence of such events.

This paper provides a comprehensive analysis of the determinants of accounting choices for an explicit sample of troubled firms. By employing a multivariate regression analysis, this research provides evidence about the various incentives and trade-offs that troubled firms' managers face when making accounting choices. This issue is important to avoid making inappropriate generalizations from studies that include both healthy and distressed firms in their samples.

This paper also contributes to public accounting by providing auditors with information that may be used in auditing troubled firms' financial statements. Even though auditors are more likely to audit troubled firms more closely, they still have imperfect information about a specific firm's earnings components in the absence of earnings management, thus still leaving managers with some discretion in making accounting adjustments.

This study also benefits users of financial statements by providing them with information that may be helpful in processing the financial information of troubled firms. Investors, creditors, financial analysts, government representatives, union leaders, employees, and others make decisions based partly on financial statements and, therefore, must take into consideration managers' incentives to manage earnings.

Overall, the results provided in this paper suggest that firms in financial distress have incentives to adopt income-decreasing accounting choices in the year of a non-routine top executive change. The debt covenant, union negotiation, and government lobbying income-decreasing hypotheses are not supported in this paper, perhaps suggesting that for troubled firms, earnings management's pay-offs are too small to influence managers' behavior in these cases.

Literature Review and Hypotheses

This section reviews the literature about the accounting choices of troubled firms and contrasts it with research using mixed samples of firms.¹

Debt Covenant

One incentive that appears to influence managers' accounting choices is the firm's closeness to violating its debt covenant restrictions. The literature about the effect of debt covenant restrictions on mixed samples of firms shows that the closer the firm is to violating debt covenant restrictions, the more likely the firm's manager will adopt income-increasing accounting choices. [See Christie (1990) and Skinner (1993) for a summary of the evidence on this issue.]

Studies that analyze the effect of debt covenant violation/closeness on troubled firms' accounting choices yield mixed results. DeAngelo *et al.* (1994) investigate accounting choices in financially troubled firms that reduced dividends and assess whether accounting choices of troubled firms with binding debt covenants differ from those of troubled firms without such binding constraints. Their results show that distressed firms exhibit statistically significant income-decreasing abnormal accruals and that there are no notable differences across firms with and without binding covenants. According to the authors, these results suggest that financial trouble, rather than covenant violation per se, is the primary determinant of these firms' accruals. The authors argue that lower earnings, accompanied by a dividend reduction, may help managers convince outside parties to make concessions that would help the firm's difficult situation. The authors find that 87 percent of sample firms renegotiated contracts with lenders or labor unions, had management changes, or lobbied for government assistance during the dividend reduction year. They did not test the statistical association between managers' accounting choices and each of these incentives. This paper will provide such evidence.

¹ *Mixed samples of firms* refers to samples that include both healthy and distressed firms. These samples are random with respect to the financial conditions of the firms included in them. These samples, however, also meet some selection criteria (i.e., they are not purely random). This terminology will be used throughout this paper.

Moreover, Healy and Palepu (1990) also find no evidence of earnings management for firms with binding debt covenants (e.g., close to violating their dividend covenant restrictions). DeFond and Jiambalvo (1994) and Sweeney (1994), however, find that managers of firms reporting debt covenant violations in their annual report adopt income-increasing accounting choices in the years prior to the violation.

One potential explanation for these contradictory results could be that the models used in DeAngelo *et al.* (1994) and Healy and Palepu (1990) do not control fully for the effect of the firm's financial performance on the level of accruals. Further, the lack of control for other determinants potentially correlated with debt covenant violation (for example, management change) and the use of mixed samples of firms (i.e., not explicitly troubled) could explain the mixed results.

While managers of firms that are not in financial distress have incentives to make income-increasing accounting choices in the year of a covenant violation (to improve their bargaining power with lenders), managers of distressed firms have incentives to take discretionary write-offs (thus increasing the loss position of the firm) to improve the chances of convincing lenders of their willingness to deal with the firm's difficulties (DeFond and Jiambalvo, 1994; and DeAngelo *et al.*, 1994). DeAngelo *et al.* (1994) also contend that dividend reductions are likely to alert lenders about the financial difficulties of the firm, thus increasing lenders' perceived benefits from monitoring managers' accounting choices. Managers who try to relax debt covenant constraints would lose their credibility with lenders, thus putting at risk the firm's financing resources. Therefore, it is hypothesized that managers make income-decreasing accruals when debt covenants are binding. The formal hypothesis is as follows (stated in the alternative form):

- H₁: When a troubled firm has binding debt covenants, its managers are more likely to make income-decreasing accounting choices in the binding year.

Government Lobbying

In the literature, the traditional political sensitivity hypothesis states that the use of reported profits by politicians and regulators provides managers of firms facing higher political costs with an incentive to adopt income-decreasing accounting procedures. For mixed samples of firms, size usually is employed to proxy for political sensitivity because it is hypothesized that larger firms are more politically sensitive than are smaller firms (Watts and Zimmerman, 1986). Empirical tests generally support the hypothesis that larger firms are more likely to adopt income-decreasing procedures than are smaller firms (Watts and Zimmerman, 1990). The size proxy is a crude and indirect measure of political sensitivity, however, and may proxy for many other factors.

On the other hand, the analysis of troubled firms provides an opportunity to test the political sensitivity hypothesis directly. Jones (1991) examines whether firms that would benefit from import relief (via tariff increases or quota reductions) attempt to decrease earnings during import relief investigations by the United States International Trade Commission (ITC). The results obtained by Jones (1991) show significant

negative discretionary accruals for the year of the import relief investigation, but insignificant accruals for the year before the petition was filed. A limitation of her study is that her methodology does not control for correlated determinants of income-decreasing accruals.

The government lobbying hypothesis predicts that when a troubled firm is subject to import relief investigations or is engaged in any other form of lobbying with the local or federal government (e.g., seeking financial assistance, seeking loan guarantees, seeking antitrust clearance from the FTC), its managers are more likely to adopt income-decreasing accounting choices (Jones, 1991). A poorer financial situation (as portrayed by larger losses) is believed to increase the chances of getting some kind of government assistance or to increase the probability of receiving a favorable judgment because governments explicitly (or implicitly) use accounting numbers in reaching a decision. Moreover, Jones (1991) reports that interviews with ITC regulators reveal that the ITC does not adjust financial data for accounting procedures or accruals made by firms' managers. The ITC usually requests a firm's financial information for five years prior to the date the petition was filed. Managers, however, are unlikely to prepare for the governmental investigation and manage earnings prior to the year before the petition is filed. The formal hypothesis is as follows (stated in the alternative form):

- H₂: When a troubled firm initiates a governmental investigation by seeking governmental assistance or antitrust clearance, its managers are more likely to make income-decreasing accounting choices in the year before the petition was filed and in each year prior to the investigation's completion.

Management Change

Management change studies indicate that management turnover is more prevalent in financially distressed firms than in healthy ones (Gilson, 1989; Weisbach, 1988; Coughlan and Schmidt, 1985).

Pourciau (1993) investigates the relation between top executive changes and discretionary accruals. She examines nonroutine executive changes (such as resignations) because their environment provides more incentives for earnings management, as opposed to routine changes (such as retirements). Her results indicate that incoming executives adopt income-decreasing accruals in the year of the executive change. Contrary to expectations, however, departing executives do not adopt income-increasing accruals in the year before the management change.

Other studies look at the same issue and generally come to the same conclusion as Pourciau's (1993) study. Murphy and Zimmerman (1993) control for firm performance and the endogeneity of CEO turnover by using a system of simultaneous equations and find little evidence that outgoing CEOs adopt income-increasing accounting procedures. Murphy and Zimmerman (1993) find evidence that the new CEOs adopt income-decreasing discretionary accruals in the year of replacement when poor performance precedes the prior CEO's departure. In strongly performing firms and/or in firms for which the CEO retires as part of the normal succession process, the authors find no

evidence of earnings management. This result provides further evidence of the importance of examining separately healthy and troubled firms.

Finally, DeAngelo (1988) investigates proxy contest-induced management changes and finds that the new management takes an earnings bath after a successful proxy contest. The above studies generally show that new managers adopt income-decreasing accounting procedures in the year of a management change. None of the above studies, however, controls for other relevant explanatory factors.

The management change hypothesis predicts that when a troubled firm is going through a nonroutine change of top executive (CEO, president, or chairman), the incoming CEO is more likely to adopt income-decreasing accounting choices (Pourciau, 1993; Murphy and Zimmerman, 1993; DeAngelo, 1988). It is hypothesized that in the case of resignations, the departing and the incoming executives have differing interests. Therefore, the new executive is expected to adopt income-decreasing accruals in the year of the change to blame the poor performance on prior management and receive credit for any future improving performance of the firm. The formal hypothesis is as follows (stated in the alternative form):

- H₃: When a troubled firm experiences a nonroutine change of top executive, the incoming executive is more likely to make income-decreasing accounting choices in the year of the change.

Union Negotiations

Labor unions rely implicitly on accounting numbers when negotiating with the firm's management, thus providing an incentive for managers to manipulate earnings during labor talks. DeAngelo and DeAngelo (1991) examine adjustments in financial reporting by managers of the seven largest domestic steel producers during a period in which they sustained massive losses and negotiated substantial concessions from unionized labor. Their results indicate that managers adopt income-decreasing accruals when negotiating major concessions from labor unions. Liberty and Zimmerman (1986), who analyze a mixed sample of firms, fail to provide evidence consistent with managers depressing earnings during, or immediately preceding, labor talks.

Results from the above two studies may be contradictory due to their lack of control for other potential accounting choice determinants. Further, managing earnings during union negotiations may provide larger benefits for troubled firms as compared to routine negotiations for healthy firms.

The union negotiation hypothesis predicts that when a troubled firm is engaged in labor negotiations with its union, its managers are more likely to adopt income-decreasing accounting choices because labor unions rely implicitly on accounting numbers (DeAngelo and DeAngelo, 1991). It is believed that larger losses depict a more severe financial distress, thus increasing the chances of obtaining labor concessions (e.g., reduced wages, reduced benefits) from the labor union. Management has incentives to obtain labor concessions in order to reduce the firm's cash outflows, thus increasing the firm's chances of survival. It is hypothesized that managers of troubled firms manipulate earnings in the year preceding the beginning of the labor negotiations

and in any year during which a labor agreement was not reached yet (because labor talks spanned two financial years). This hypothesis assumes that labor unions are unable or unwilling to undo earnings management because the difficult financial situation of the firm makes larger losses more credible than lower income in times of prosperity. The formal hypothesis is as follows (stated in the alternative form):

- H₄: When a troubled firm is involved in contract negotiations with its labor union, its managers are more likely to make income-decreasing accounting choices in the year preceding and in each year during which the talks continue.

Methodology

Sample Selection and Data Sources

The sample is selected from firms with sufficient data available on Standard & Poor's Compustat annual expanded industrial, Compustat annual full coverage, and Compustat annual research databases. In order to be considered as troubled and selected in the sample, firms must report at least three consecutive years of negative net income or negative pre-tax operating income during the ten years from 1985 to 1994 and reduce cash dividends the year before the first loss year or during one of the three loss years.² The first year of dividend reduction, when there is more than one, is the year of interest in this paper (year 0) because the initial reduction should represent the time when managers came to view their firms' difficulties as more than temporary (DeAngelo *et al.*, 1994). DeAngelo, DeAngelo, and Skinner (1992) also present evidence that dividend reducers typically experience greater future earnings problems than do firms that do not reduce dividends. The sampling criteria exclude troubled firms whose managers manipulated earnings upward to a positive income position in any of the three consecutive loss years. Further, managers also may have adjusted earnings upward before the dividend reduction year, thus affecting the accrual expectation model estimates.

To be included in the sample, firms must have been healthy, i.e., they must have positive income and pay cash dividends in the year before the first annual loss. Therefore, the sampling criteria exclude firms that do not pay dividends at all (for example, high-technology firms), thus limiting the generalizability of the results. Further, utility and financial firms are excluded because contract incentives probably differ for these firms due to their highly regulated environments. Finally, firms that merged, were acquired, or went private in the two years following the dividend reduction year are excluded from the sample because their financial conditions are difficult to assess and their managers probably have faced different incentives to reduce dividends.

The approach in this paper is to not limit the sample to firms that subsequently went bankrupt. Following DeAngelo *et al.* (1994) and Lau (1987), a broader concept of financial distress, as portrayed by a reduction in dividends, is utilized. Further, the

² The sampling criteria are based on DeAngelo *et al.* (1994).

criteria used in this paper should result in a sample of firms for which managers acknowledged their firms' financial difficulties (by reducing dividends), which should improve the power of the analyses. Moreover, the use of these criteria will allow us to extend the work of DeAngelo *et al.* (1994) by selecting a comparable sample of troubled firms.

Annual reports, 10-K reports, and *The Wall Street Journal Index* are used to identify the years during which sample firms engaged in union negotiations, sought government assistance, and/or had a top executive change.

Regression Model

The hypotheses of interest in this paper are tested using a multivariate cross-sectional regression analysis to control for the potential confounding effects of other explanatory variables. Discretionary accruals for accounting year 0 (i.e., the dividend reduction year during which the firm's difficulties are hypothesized to be viewed as more than temporary by management) are regressed on the following set of explanatory variables (the predicted signs are indicated in the model):

$$(1) DA_{it} = a - b_1 COV_{it} - b_2 GOV_{it} - b_3 CEO_{it} - b_4 UNION_{it} + \varepsilon_{it}$$

where:

DA_{it} = The level of discretionary accruals in year $t = 0$ for firm i , where positive (negative) DA represents income-increasing (decreasing) accruals [per equations (3) and (5)];

COV_{it} = Debt covenant dummy variable in year $t = 0$ for firm i , where 1 = binding and 0 = nonbinding;

GOV_{it} = Government lobbying dummy variable in year $t = 0$ for firm i , where 1 = investigation or pre-investigation and 0 = no investigation;

CEO_{it} = Management change dummy variable in year $t = 0$ for firm i , where 1 = change and 0 = no change,

$UNION_{it}$ = Union negotiation dummy variable in year $t = 0$ for firm i , where 1 = negotiations or pre-negotiations and 0 = no negotiations; and

ε_{it} = Error term in year $t = 0$ for firm i .

Dependent Variable

The measure of accounting choices analyzed in this paper is discretionary accounting accruals because accrual management is believed to be more costly to detect and undo than switches in accounting methods.³ Moreover, accrual manipulation is a less costly means of transferring earnings between periods than changes in accounting methods (Healy, 1985). Furthermore, there is no valid measure of the discretionary portion of accounting method switches when the contracting and feasible reporting sets

³ The income effect of adopting a new accounting principle must be disclosed in the financial statements' footnotes, whereas the effect of changes in accounting estimates (or any other accrual) need not be disclosed (Wolk, Francis, and Tearney, 1992). Accounting write-offs, depending on the situation, may be easy to detect when presented as special items on the income statement.

both change over time in response to economic and institutional pressures (Schipper, 1989).

Accounting accruals are analyzed in an aggregate fashion, as opposed to examining each accrual individually, as managers are likely to manage any accrual and because it is difficult to determine which specific accruals are managed. Moreover, managers should be more concerned with the overall effect accruals have on earnings than with each individual effect (McNichols and Wilson, 1988). More specifically, noncurrent accruals and total accruals are analyzed in this paper. *Noncurrent accruals* are defined as net income minus working capital from operations⁴ in order to exclude changes in working capital accounts (e.g., accounts receivable, inventory, accounts payable) from the measure of accruals. Noncurrent accruals should lead to a measure of discretionary accruals that is free from the effect of any real decision on accruals (e.g., changes in working capital management policies to improve the financial situation of the firm). Therefore, this measure of discretionary accruals is designed to include only accruals that result from accounting decisions (DeAngelo *et al.*, 1994). On the other hand, *total accruals* are defined as net income minus cash flows from operations, thus including changes in working capital accounts.⁵

First, to control for the effect of the firm's economic performance on the level of noncurrent accruals, the noncurrent accrual model of Hunt *et al.* (1996) is used:

$$(2) \text{NCA}_{it} / \text{A}_{it-1} = \alpha_i + \beta_{1i} \left[\text{PPE}_{it} / \text{A}_{it-1} \right] + \beta_{2i} \left[\text{INTG}_{it} / \text{A}_{it-1} \right] + \beta_{3i} \left[\text{NCA}_{it-1} / \text{A}_{it-1} \right] + \varepsilon_{it}$$

where:

- NCA_{it} = Noncurrent accruals in year t for firm i ;
- PPE_{it} = Gross property, plant, and equipment in year t for firm i ;
- INTG_{it} = Intangibles in year t for firm i ;
- NCA_{it-1} = Noncurrent accruals in year $t - 1$ for firm i ;
- A_{it-1} = Total assets in year $t - 1$ for firm i ; and
- ε_{it} = Error term in year t for firm i .

Noncurrent discretionary accruals are defined as noncurrent accruals scaled by previous period total assets minus the level of nondiscretionary accruals predicted when using the above model's parameters [equation (2)]:

⁴ Working capital from operations is measured as Compustat Item 110, funds from operations, for firms not reporting a Statement of Cash Flows (prior to FASB #95). For firms reporting a Statement of Cash Flows (FASB #95), working capital from operations is measured as Compustat Item 123, income before extraordinary items, plus Item 125, depreciation and amortization, plus Item 124, extraordinary items and discontinued operations, plus Item 126, deferred taxes, plus Item 106, equity in net loss (earnings), plus Item 213, sale of property, plant, equipment, and investments—loss (gain), plus Item 217, other funds from operations.

⁵ Cash flows from operations is measured as Compustat Item 308, operating activities—net cash flow, for firms reporting a Statement of Cash Flows (FASB #95). For firms not reporting a Statement of Cash Flows (prior to FASB #95), cash flow from operations is defined as Compustat Item 110, funds from operations, minus the change in Item 2, accounts receivable, minus the change in Item 3, inventories, minus the change in Item 68, other current assets, plus the change in item 70, accounts payable, plus the change in Item 71, taxes payable, plus the change in Item 72, other current liabilities.

$$(3) \quad \text{NCDA}_{it}/A_{it-1} = \text{NCA}_{it}/A_{it-1} - \alpha_i - \beta_{1i} \left[\text{PPE}_{it}/A_{it-1} \right] - \beta_{2i} \left[\text{INTG}_{it}/A_{it-1} \right] - \beta_{3i} \left[\text{NCA}_{it-1}/A_{it-1} \right]$$

where:

NCDA_{it} = Noncurrent discretionary accruals for firm i in year $t = 0$ (i.e., dividend reduction year).

The other variables are defined as in equation (2) above.

Second, a modified version of Jones' (1991) accrual model (Dechow *et al.*, 1995) is used for total accruals. Dechow *et al.* (1995) show that this model has the highest power for detecting earnings management in a broad set of firms, as compared to other sophisticated and naive accrual models. They demonstrate that this model has the same specification level (i.e., level of type I error) as other accrual models. This model of total accruals is:

$$(4) \quad \text{TA}_{it}/A_{it-1} = \alpha_i \left[1/A_{it-1} \right] + \beta_{1i} \left[(\Delta \text{REV}_{it})/A_{it-1} \right] + \beta_{2i} \left[\text{PPE}_{it}/A_{it-1} \right] + \varepsilon_{it}$$

where:

TA_{it} = Total accruals in year t for firm i ;

ΔREV_{it} = Revenues in year t minus revenues in year $t - 1$ for firm i ;

PPE_{it} = Gross property, plant, and equipment in year t for firm i ;

A_{it-1} = Total assets in year $t - 1$ for firm i ; and

ε_{it} = Error term in year t for firm i .

Total discretionary accruals are defined as total accruals scaled by previous period total assets minus the level of nondiscretionary accruals predicted by using equation (4)'s parameters:

$$(5) \quad \text{TDA}_{it} = \text{TA}_{it}/A_{it-1} - \alpha_i \left[1/A_{it-1} \right] - \beta_{1i} \left[(\Delta \text{REV}_{it} - \Delta \text{REC}_{it})/A_{it-1} \right] - \beta_{2i} \left[\text{PPE}_{it}/A_{it-1} \right]$$

where:

TDA_{it} = Total discretionary accruals for firm i in the dividend reduction year $t = 0$; and

ΔREC_{it} = Accounts receivable in year t minus accounts receivable in year $t - 1$ for firm i .

The other variables are defined as in equation (4) above.

For both the noncurrent and the total accrual models, the model parameters are estimated for each firm over the maximum (available) number of years preceding the dividend reduction year [with a minimum of six years of valid data (DeFond and Jambalvo, 1994)]. Time-series models, as opposed to cross-sectional (industry) models, are preferable for distressed firms because industry-relative models have less power in detecting earnings management around events occurring in the same year for a large number of firms in the same industry [i.e., calendar-clustered events (Shivakumar, 1996)]. For example, import relief investigations usually are industry-specific and many firms in the same industry would be under governmental investigation at the same time.

Debt Covenant Variable

A troubled firm is classified as having binding debt covenants (i.e., the debt covenant dummy variable takes the value of one) when end-of-period unrestricted retained earnings (URE) are zero, or the annual report states that the firm is unable to pay dividends due to binding debt covenants, or URE plus cash dividends paid in the current year are strictly less than cash dividends paid in the preceding year.⁶

Government Lobbying Variable

Whether or not a troubled firm initiates a governmental investigation (import relief investigation, antitrust investigation, or lobbying against proposed legislation) is measured (using annual reports, 10-K reports, and WSJI) with a dummy variable that takes the value of one if the dividend reduction year is the year during which the firm was undergoing an investigation or the year preceding the beginning of the investigation and takes the value zero otherwise.

Management Change Variable

Using annual reports, 10-K reports and WSJI, a nonroutine change of top executive (resignation or proxy contest induced change) is indicated with a dummy variable that takes the value of one if the dividend reduction year is the first year during which the departing CEO (or president or chairman) does not have control over the year-end financial statements (using the financial statement's date as a cutoff) and takes the value of zero otherwise.

Union Negotiations Variable

Involvement in labor negotiations is measured with a dummy variable that takes the value of one if the dividend reduction year is the year during which labor talks were ongoing or the year preceding such talks and takes the value of zero otherwise. Annual reports, 10-K reports, and WSJI are used to classify firms in each category.

Results

Descriptive Statistics

The sample of troubled firms meeting the selection criteria consists of 127 firms. Table 1 shows that troubled firms' mean reduction in cash dividends is 47 percent of the prior year's cash dividends, whereas the mean net loss in the dividend reduction year is \$65.100 million. Moreover, the mean net loss increases over the two years following the dividend reduction year (\$131.069 million in year 1 and \$293.942 million in year 2), suggesting an increase in financial distress over time. The median net loss decreases in year 2 (from \$5.410 million in year 1 to \$3.690 million in year 2).

Further (not reported in the table), 42 firms (33 percent) had their first dividend reduction in the year before their first loss, whereas 44 (35 percent) reduced dividends

⁶ The criteria to classify firms as having binding debt covenants are based on DeAngelo *et al.* (1994).

Table 1—Descriptive Statistics for the Sample of Troubled Firms

	Min	Max	Median	Mean	Standard Deviation
Dividend Reduction ^a	0	146	0.360	4.809	15.560
Dividend Reduction % ^b	0.02	100	39.710	46.785	39.648
Income in Year 0 ^c	-2,827	543	-1.260	-65.100	327.204
Income in Year 1 ^d	-4,965	75	-5.410	-131.069	606.111
Income in Year 2 ^e	-23,497	361	-3.690	-293.942	2,202.757
Total Market Value of Equity ^f	0	50,821	38.390	796.412	4,864.564
Total Assets ^g	2	180,236	128.090	3,043.612	17,909.300

^a First reduction in total annual dividends during the three loss years (or the year before the three loss years) (in millions)

^b Dividend reduction percentage (as compared to prior year cash dividends)

^c Net income during the year of interest (i.e., dividend reduction year) (in millions)

^d Net income for the year after the dividend reduction year (in millions)

^e Net income for the second year after the dividend reduction year (in millions)

^f Market value of common equity at the end of the dividend reduction year (in millions)

^g Book value of total assets at the end of the dividend reduction year (in millions)

in the first loss year, 30 (24 percent) in the second consecutive loss year, and 11 (8 percent) in the third year. A large majority of troubled firms (68 percent) reduced dividends early in the financial distress period.

Table 1 also reveals that the mean total assets during the dividend reduction year is \$3.044 billion, whereas the median total assets is \$128 million, which indicates that the sample consists of large firms. For comparative purposes, the DeAngelo *et al.* (1994) sample experienced an average reduction in cash dividends of 25 percent and had a mean total assets of \$1.4 billion (median \$369 million). Assuming that the percentage reduction in cash dividends is indicative of the degree of financial distress, the sample of troubled firms drawn in this paper seems to be in greater trouble than the DeAngelo *et al.* (1994) sample.

As reported in Table 2, among the 127 troubled firms, 54 (43 percent) have binding debt covenants, 10 (8 percent) experienced a nonroutine top-level management change, 23 (18 percent) were involved in reported union negotiations, and 9 (7 percent) firms reportedly lobbied governments. Moreover, the mean level of noncurrent discretionary accruals (NCDA) is -0.001, and -0.013 for total discretionary accruals (TDA). Seventy-one firms (56 percent of the sample) have positive NCDA values, whereas 58 firms (46 percent) have positive TDA values. This suggests cross-sectional variation in the determinants of discretionary accruals (earnings management).

As indicated in Table 3, 55 firms (43 percent) belong to the manufacturing industry, whereas 25 firms (20 percent) come from the food and kindred products industry. This does not seem unreasonable for our economy, which is strongly dependent on manufacturing. Fifty-eight percent of the firms in the other services industry reduced their dividends in 1989-1990, whereas 50 percent of the transportation firms had their dividend reductions in 1990-1991, and 38 percent of the 55 manufacturing firms had theirs in 1990-1991. This suggests that financial distress tends to be clustered by industry/year, therefore indicating that cross-sectional accrual expectation models would lack power at detecting earnings management.

Table 2—Descriptive Statistics for Dependent and Independent Variables

Variables	Min	Max	Median	Mean	Std Dev.	Number of Observations > 0
NCD ^a	-0.699	0.375	0.007	-0.001	0.103	71
TDA ^b	-0.451	0.650	-0.008	-0.013	0.151	58
Cov ^c	na	na	na	na	na	54
CEO ^d	na	na	na	na	na	10
Union ^e	na	na	na	na	na	23
Gov ^f	na	na	na	na	na	9

^a Noncurrent discretionary accruals measured using the Hunt *et al.* model

^b Total discretionary accruals measured using the modified Jones model

^c Debt covenant dummy variable, where 1 = binding and 0 = nonbinding

^d Management change dummy variable, where 1 = change and 0 = no change

^e Union negotiation dummy variable, where 1 = negotiations and 0 = no negotiations

^f Government lobbying dummy variable, where 1 = investigation and 0 = no investigation

Table 3—Industry Clustering of the Sample and Distribution of Dividend Reduction Years

Two-Digit SIC Codes	Industry	Number of Firms	Percentage of Sample	Number of Observations (and % of industry) in the Two Most Frequent Dividend Reduction Years	
1-19	Agriculture, mining, and construction	15	11.8	3 (20%)	1992
				2 (13%)	1990
20-29	Food and kindred products	25	19.7	6 (24%)	1986
				5 (20%)	1988
30-39	Manufacturing	55	43.3	11 (20%)	1991
				10 (18%)	1990
40-47	Transportation services	6	4.7	2 (33%)	1991
				1 (17%)	1990
50-59	Wholesale and retail	19	15.0	4 (21%)	1988
				4 (21%)	1990
70-89	Other services	7	5.5	2 (29%)	1989
				2 (29%)	1990
Total		127	100.0		

Regression Results

The regression results (displayed in Table 4) indicate that the management change variable (i.e., CEO) is statistically significant (p -value = 0.029) for the noncurrent discretionary accrual variable only (NCD). This suggests that, when a troubled firm is experiencing a nonroutine change of top executive, the incoming executive is more likely to make income-decreasing accounting choices in the year of the change.

The debt covenant (Cov), union negotiation (Union), and government lobbying (Gov) hypotheses are not supported by the results (using either dependent variable).

Therefore, the assertion of DeAngelo *et al.* (1994) that deflated earnings may help managers convince outside parties (e.g., unions, governments) to make financial concessions is not supported by this paper's empirical evidence. Further, contrary to DeAngelo and DeAngelo's (1990) results, union negotiations during financial distress do not seem to provide stronger incentives to manage earnings than during financial prosperity. Finally, consistent with the DeAngelo *et al.* (1994) results, managers of

Table 4—Regression Results

The signs next to each independent variable indicate the predicted direction of managers' discretionary accounting choices in the dividend-reduction year (i.e., + for income-increasing and - for income-decreasing choices)

Independent Variable	Dependent Variable = NCDA ^a			Dependent Variable = TDA ^b		
	Parameter Estimate	t-test ^c	p-value	Parameter Estimate	t-test ^c	p-value
Intercept	0.015	1.155	0.250	-0.006	-0.337	0.737
Cov(-) ^d	-0.015	-0.813	0.209	-0.031	-1.145	0.127
CEO(-) ^e	-0.066	-1.915	0.029*	0.020	0.393	0.652
Union(-) ^f	-0.025	-0.933	0.176	0.047	1.208	0.885
Gov(-) ^g	-0.001	-0.033	0.487	-0.042	-0.712	0.239
F-stat. ^h = 1.434 p-value = 0.227 R-sq. ⁱ = 0.014				F-stat. = 0.828 p-value = 0.510 R-sq. = 0.000		

* Significant at the 0.05 alpha level or better

^a Noncurrent discretionary accruals measured using the Hunt *et al.* model

^b Total discretionary accruals measured using the modified Jones model

^c One-tailed t-test (except for the intercept which is a two-tailed test) of the following null hypothesis: parameter estimate = 0

^d Debt covenant dummy variable, where 1 = binding and 0 = nonbinding

^e Management change dummy variable, where 1 = change and 0 = no change

^f Union negotiation dummy variable, where 1 = negotiations and 0 = no negotiations

^g Government lobbying dummy variable, where 1 = investigation and 0 = no investigation

^h Test of the overall model significance

ⁱ Adjusted R-square which represents the percentage of the variation in the dependent variable explained by the variation in the independent variables, adjusted for the number of independent variables in the model

troubled firms with binding debt covenants do not appear to be managing earnings downward.

Table 4 also displays adjusted r-squares for both models. The model using NCDA as the dependent variable has a low adjusted r-square of 0.014, thus indicating that only 1.4 percent of the variation in the dependent variable is explained by the variation in the independent variables. This paper focuses on the determinants of accounting choices, as opposed to attempting to develop a complete theory of accounting choices.⁷ Therefore, the statistical significance of the variables, rather than the adjusted r-squares, is the relevant statistic in this case.

A correlation matrix is presented in Table 5. According to this table, the highest absolute Pearson correlation coefficient is 0.428 and pertains to the correlation between the union negotiation and the government lobbying variables. The other correlation coefficients are extremely low. Therefore, a priori, there does not seem to be any serious multicollinearity problem among the independent variables.

The results of Belsley, Kuh, and Welsch (1980) collinearity diagnostics are presented in Table 6. These results show that condition indices are all below 6.0.

⁷ The Tax Reform Act of 1986, which reduced corporate income tax rates, may have provided incentives to increase net operating losses (to maximize tax benefits) from 1986 through 1991 (Maydew, 1993). These tax incentives are unlikely to be correlated with the determinants analyzed in this paper, thus not affecting the interpretation of this paper's results.

Table 5—Correlation Matrix

P-values under the null hypothesis of Pearson coefficient = 0 are indicated in parentheses

	Cov	CEO	Union	Gov
Cov ^a	1.000 (0.00)			
CEO ^b	-0.015 (0.87)	1.000 (0.00)		
Union ^c	-0.074 (0.41)	0.090 (0.31)	1.000 (0.00)	
Gov ^d	-0.051 (0.57)	-0.081 (0.37)	0.428 (0.00)	1.000 (0.0)

^a Debt covenant dummy variable, where 1 = binding and 0 = nonbinding^b Management change dummy variable, where 1 = change and 0 = no change^c Union negotiation dummy variable, where 1 = negotiations and 0 = no negotiations^d Government lobbying dummy variable, where 1 = investigation and 0 = no investigation**Table 6—Collinearity Diagnostics^a**

Eigenvalue	Variance Proportions ^c					
	Condition Index ^b	Intercept	Cov ^d	CEO ^e	Union ^f	Gov ^g
2.216	1.000	0.069	0.031	0.031	0.069	0.046
1.121	1.406	0.023	0.077	0.154	0.094	0.293
0.882	1.585	0.026	0.151	0.668	0.046	0.001
0.475	2.160	0.005	0.023	0.124	0.674	0.660
0.306	2.689	0.877	0.691	0.022	0.117	0.000

^a These diagnostics were developed by Belsley, Kuh, and Welsch (1980)^b A condition index is the square root of the ratio of the largest eigenvalue to the individual eigenvalue^c A variance proportion is the proportion of the variance of the estimate accounted for by each principal component^d Debt covenant dummy variable, where 1 = binding and 0 = nonbinding^e Management change dummy variable, where 1 = change and 0 = no change^f Union negotiation dummy variable, where 1 = negotiations and 0 = no negotiations^g Government lobbying dummy variable, where 1 = investigation and 0 = no investigation

Therefore, the collinearity diagnostics do not indicate any serious multicollinearity among the independent variables.

Conclusions and Limitations

This paper analyzes the determinants of accounting choices in troubled firms. Such determinants only have been analyzed on a piecemeal basis in previous research.

The results suggest that distressed firms' managers have incentives to adopt income-decreasing accounting choices in the year of a nonroutine top executive change. Further, troubled firms with binding debt covenants do not have incentives to adopt income-decreasing accounting choices to influence lenders' perceptions of managers' motivation to deal with the problems at hand. This result is consistent with the evidence provided by DeAngelo *et al.* (1994), but contrary to the evidence on mixed samples of firms. Finally, the empirical results obtained in this paper do not support the hypotheses about income-decreasing incentives for troubled firms involved in union negotiations or government lobbying. The lack of empirical support for the government lobbying

hypothesis is contrary to the evidence on mixed samples of firms, thus suggesting that the benefits from managing earnings under these circumstances are smaller than the costs associated with larger losses (increased probability of bankruptcy).

The above results underscore the importance in empirical research of partitioning sample firms according to their degree of financial distress (e.g., distressed or healthy) because the firm's financial situation may influence managers' incentives to manage earnings. Furthermore, the above findings also suggest controlling for other relevant explanatory factors to prevent inappropriate interpretation of the parameters' estimates affected by omitted variables.

The results obtained in this paper provide auditors with evidence that may be employed in auditing distressed firms. Further, this paper provides financial statements' users with evidence that may affect their analyses of financial information of troubled firms.

This paper suffers from some limitations. First, the power of the analyses is contingent upon the accuracy of the method used to identify firms engaged in union negotiations, government lobbying, or having a change of top executive. Annual reports, 10-K reports, and *The Wall Street Journal Index* may not identify certain important activities or events. This limitation could explain the lack of significant results for the union negotiation and government lobbying variables.

Second, the modified Jones' (1991) model and the Hunt *et al.* (1996) model used to estimate discretionary accruals may lead to measurement error in discretionary accruals. To the extent that this measurement error is correlated with one of the explanatory variables, the probability of committing a type I error is increased.

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