

THE ROLE OF DEBT COVENANTS IN ASSESSING THE
ECONOMIC CONSEQUENCES OF LIMITING
CAPITALIZATION OF EXPLORATION COSTS

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ABSTRACT

Several studies have hypothesized that economic consequences of mandated accounting procedures arise through impacts on firms' accounting-based loan covenants. However, this research has involved very little direct examination of the loan contracts.

This study directly examines how public and private loan agreements were affected by a mandated accounting procedure. The study is based on 24 loan agreements of 18 oil and gas firms that recorded writeoffs for the first quarter of 1986, as a result of an SEC decision on May 6, 1986. The main finding is that, even for a mandated accounting procedure that caused large financial statement impacts and some technical violations, there were no direct and immediate cash flow impacts for the affected firms. This result casts doubt on the importance of any economic consequences of mandated accounting procedures that might operate through impacts on debt covenants.

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THE ROLE OF DEBT COVENANTS IN ASSESSING THE ECONOMIC CONSEQUENCES OF LIMITING CAPITALIZATION OF EXPLORATION COSTS

Much research during the past decade has focused on the economic consequences of accounting procedures mandated by standard-setting bodies such as the SEC, the FASB, and the APB. It is hypothesized that these mandated procedures have potential stock price effects through their impacts on firms' accounting-based contracts, particularly loan covenants.

Mandated accounting procedures may affect loan agreements by reducing or eliminating "slack" in accounting-based covenants. "Slack" is defined as the nearness to restrictions imposed by loan covenants. The reduction of slack can lead to two types of negative economic consequences. First, the probability of technical default increases, potentially precipitating renegotiation or refinancing of the loan on less favorable terms. Second, in order to restore slack, managers may adopt investment, financing, or accounting policies that would not otherwise be optimal.

Evidence of economic consequences operating through debt covenants has usually been weak. However, the evidence is difficult to interpret, both in studies that find indications of such consequences (e.g., Lys [1984]), and in studies that do not. One reason is that researchers have not gone beyond readily-accessible stock price and financial statement data to examine directly the debt contracts supposedly affected by the mandated accounting procedure.¹

¹Some studies report associations between the stock price effects and proxies for the importance of debt covenant violations. For example, Lys [1984] uses the debt-equity ratio and the variance in the value of the firm as an indicator of the probability of default. (See Press and Weintrop [1988] for an analysis of the use of leverage ratios to proxy for nearness to constraints.) However, even this approach is crude. There is no check to assure that the debt agreement includes accounting-based covenants, or that the covenants would be affected by the accounting change in question. Furthermore, with the exception of impacts on the inventory of payable funds, Lys (and others) made no direct attempt to measure the impact of the accounting change on slack in the loan covenants.

This study directly examines how public and private loan agreements were affected by a ruling of the SEC in May 1986. The ruling, which limited capitalization of exploration costs by full cost oil and gas firms, was selected to increase the likelihood of detecting important consequences operating through debt covenants. Specifically, the ruling (1) was purported to have large financial statement impacts for many firms, (2) was unexpected, (3) was issued *after* the close of the fiscal period to which it applied (but prior to the release of financial statements), and therefore, too late for firms to alter operating and financing decisions in order to mitigate its impact.

If we cannot detect any effects of this SEC ruling, even after detailed examination of the public and private loan agreements, this should cast some doubt on the importance of any economic consequences of mandated accounting procedures that might operate through impacts on debt covenants.

The May 1986 SEC Decision on Oil and Gas Accounting

Oil and gas exploration companies are often permitted, under the full cost method, to capitalize exploration costs even when exploration leads to a dry hole. However, those capitalized costs cannot exceed a ceiling that depends on the estimated present value of proved oil and gas reserves. The constraint imposed by this ceiling was substantially "tightened" in the first quarter of 1986, when oil prices plummeted from \$26/bbl to \$14/bbl.

In April 1986, the Office of the Chief Accountant (OCA) of the SEC proposed a temporary reprieve for the oil and gas industry. The OCA recommended that firms be permitted to implement the ceiling rule based on the expected price at the end of the year, instead of recording writedowns on the basis of current oil prices. Firms that projected a rebound in oil prices could thus avoid all or part of the writedown in the first quarter; if prices did in fact rebound, there would be no writedown at all.

The SEC unexpectedly rejected the OCA proposal in a meeting of the Commissioners held on May 6, 1986.² This decision was widely covered in the press, and was labelled as a "shock" by the *Wall Street Journal* (May 7, 1986, pp. 1 and 4), and a "surprise" by *The New York Times* (May 7, 1986, p. 1 of business section) and *The Oil Daily* (May 8, 1986, p. 2). SEC Commissioner John Shad acknowledged that some companies would "end up with negative net worth" as a result of the decision, and that "that may trigger loan defaults." (*The Wall Street Journal*, May 7, 1986, p. 4.) As expected, first quarter reports issued in the following days did indeed include large writedowns, and some technical defaults were reported.³ Since oil prices continued to fall through the second quarter of 1986, additional writedowns were required then.

Research Goal and Summary of Results

The goal of this study is to assess the consequences of the May 1986 SEC ruling on firms' loan covenant slack, and whether the ruling caused direct and immediate cash flow effects (e.g., renegotiation or refinancing of loans). We assess the economic consequences of the SEC ruling both directly, through examination of public and private loan agreements, and indirectly, by analyzing stock price behavior.

Overall, we find that there were few technical violations, and no apparent immediate cash flow impacts for the affected firms, even for a mandated accounting procedure that caused large financial statement impacts. First, seven of the 24 loan agreements we studied did not include accounting-based covenants. Second, ten others included only accounting-based

²That the reversal was unexpected was confirmed in conversations with Gregg Jarrell, then Chief Economist of the SEC, and with a member of Chief Accountant's staff. The reversal occurred at the urging of Jarrell, who argued that oil futures prices indicated no basis for expecting a rebound in oil prices.

³At least three companies reported that the writedown resulted in technical default on certain loan agreements. (See *The Oil Daily*, May 27, 1986, p. 1, and *The Wall Street Journal*, April 2, 1986, p. 13.) A fourth company reported that the writedown would have caused technical violation except that a waiver of its net worth requirement had already been negotiated. (*The Wall Street Journal*, May 7, 1986, pp. 1 and 4.)

covenants that either were not affected by the SEC decision, or else were already in technical violation prior to the ruling. Consequently, we observed a reduction in loan covenant slack for only seven (29 percent) of the 24 loans in our sample. Moreover, only in two cases was the SEC decision the sole cause of technical violation. Even in these extreme cases there was no apparent cash flow impact, because the creditors waived the violations.

The apparently minimal economic consequences of the May 1986 SEC decision are corroborated by a nonnegative stock price reaction, even for the firms whose loan agreements were most affected by the ruling.

The rest of the paper is organized as follows. Section I describes the initial selection of 80 firms, and the behavior of their stock returns around the time of the SEC decision. From this initial sample, we construct a subsample of 18 firms, for which we obtained 24 public and private loan agreements. Section II provides some descriptive evidence about the loan agreements, and discusses the potential for the loan covenants to be affected by the SEC decision. Section III discusses the economic consequences of the SEC decision, including the impact on loan covenant slack, the effects of technical violations, and the stock price behavior of that subset of firms whose loan covenants were most affected. Section IV presents some conclusions.

I. DESCRIPTION OF SAMPLE, AND PRELIMINARY STOCK PRICE ANALYSIS

This study employs two samples, one of which is a subset of the other. Our *initial sample* includes 80 oil and gas firms, and provides the basis for our preliminary analysis of the stock price reaction to the SEC decision. Our *final sample* is the focus of our study of loan agreements; it includes 18 firms.

The Initial Sample

The initial sample was selected as follows. We identified 383 firms whose two-digit SIC code was 13 (Oil and Gas Extraction) on the Compustat Primary, Secondary, Tertiary, and Full Coverage files (including OTC firms as well as those traded on exchanges). Of these, we were able to obtain daily stock price data for 198 firms from the Dow Jones Market Analyzer. The Market Analyzer provides historical stock quotes for securities listed on the New York, American, Pacific, and Midwest exchanges, as well as National Market and selected non-National Market NASDAQ securities.

The group of 198 firms was reduced to our initial sample of 80 as follows. We deleted 46 firms whose fiscal years ended in March through June, because the May SEC decision to use current oil prices rather than projected end-of-fiscal year oil prices in calculating the writedown could not have much effect on firms whose fiscal years were already completed, or near completion. We also eliminated 20 non-domestic firms, and five firms that were not involved in oil and gas exploration during 1986. Finally, we deleted 47 firms with no trading activity on the day of the SEC decision (May 6, 1986). Some of these 47 firms could have been retained, if we were to analyze an event window longer than one day. However, we chose not to follow that approach because (1) our goal is to identify firms most likely to have been affected by the SEC decision, and lack of trading is an indication of no effect, and (2) use of a multi-day event window is problematic, due to potentially confounding events (to be discussed) on the day before and the day after the SEC decision.

The initial sample of 80 firms includes 44 using the full cost method, and 36 using the successful efforts method. Of the 44 full cost firms, 31 recorded writedowns in accordance with the procedure required by the May 6 SEC decision.

The Final Sample

Our final sample of 18 firms represents those from among the 31 full cost writedown firms in the initial sample, for which we were able to obtain public and/or private loan

agreements. Because it is costly to obtain and difficult to analyze such agreements,⁴ our goal was to seek only one public and one private agreement per firm. Ideally, we would have selected the loan agreement for which the SEC decision imposes the greatest costs. However, since that determination cannot be made *ex ante*, we sought the available agreements representing the largest dollar amount. Our assumption was that the cost of technical violation or a reduction in slack is likely to be higher for agreements representing larger relative dollar amounts.

Public debt issues were identified using Moody's Bond Record, Moody's Industrial Manual, and Moody's OTC Industrial Manual. Ten of the 31 full cost writedown firms had public debt outstanding throughout 1986. For nine of these ten firms, we obtained from Bechtel Information Services or Disclosure Inc. the bond indenture representing the largest possible dollar amount outstanding as of the 1985 fiscal year-end. The largest public debt issue for the remaining firm represented less than 0.5% of total assets, and thus we did not order the indenture for this issue.

Private loan agreements were identified for each firm by reviewing the 1986 Form 10-K Part IVs ("Exhibits, Financial Statement Schedules, and Reports on Form 8-K"). Twenty of the 31 full cost writedown firms listed private loan agreements (dated on or before December 31, 1985) as exhibits to the Form 10-K. Loan agreements were available from Bechtel Information Services or Disclosure Inc. for 15 of the 20 firms; in each case, we selected the largest of the available loans.

In summary, we obtained loan agreements for nine of the ten firms with public debt, and for 15 of the 20 firms that reportedly filed private loan agreements with the SEC. Because six firms belonged to both groups, the total number of firms in the final sample is 18.

⁴The analysis of these agreements requires the assistance of someone having either legal training (which we had in this case) or extensive experience in the business.

Preliminary Stock Price Analysis

Figure 1 presents a plot of cumulative market model residuals for our initial sample. Plots are presented for the portfolio of 36 successful efforts firms, the portfolio of 44 full cost firms, and the portfolio of 31 full cost writedown firms. If the SEC decision had negative economic consequences for the affected firms, we would expect the returns around May 6 to be lower for the full cost portfolios (or at least for the writedown portfolio) than for the successful efforts portfolio. However, a review of Figure 1 does not indicate any such reaction to the May 6 decision.

[Insert Figure 1 about here]

Statistical tests of significance confirm this conclusion. To test for a significant reaction, we estimated the following regression model:

$$R_{FC-SE,t} = \alpha + \beta R_{MKT,t} + \eta X_t + \varepsilon_t$$

$R_{FC-SE,t}$ is the return for day t on a portfolio with a long position in the 31 full-cost writedown firms and a short position in the 36 successful efforts firms. $R_{MKT,t}$ is the value-weighted return on the S&P 500 index for day t , and X_t is a 0/1 event dummy variable. The null hypothesis tested was $H_0: \eta = 0$. The parameter associated with the May 6 event dummy variable was negative (-.002) but insignificant ($t=-.15$). Results were also insignificant when a May 7 event dummy variable was used instead, as well as when returns for all 44 full cost firms were included.

Even though we observe no significant difference between the behavior of full cost and successful efforts firms, there is an overall positive drift in the cumulative average residuals for both groups, from day -2 (Friday, May 2) through day +4 (Monday, May 12). A likely explanation for the drift is the approval by the Senate Finance Committee of the predecessor of the 1986 Tax Reform Act. Although the bill did little to change tax laws specific to oil and gas firms, that in itself was probably considered good news. If so, the stock price impact would be expected around day -1, as two influential members of the Senate Finance Committee pushed

for the exemption of the oil and gas industry from general restrictions on tax shelters (*Wall Street Journal*, May 2, pp. 1,3; and May 6, p. 3), and around day + 1, as the news of the Committees decision was made public. (The final impediments to approval were removed late on the night of May 6 (day 0), after the close of trading.)

The possibility of an important confounding event makes it impossible to draw firm conclusions from the stock price analysis. Nevertheless, our preliminary analysis certainly provides no indication that the full-cost writedown firms were more negatively affected during the period of the SEC decision than the successful efforts firms.⁵ We will take a closer look at stock price behavior around the time of the SEC decision, after identifying those firms whose loan covenants were most affected by that decision.

II. DESCRIPTION OF THE LOAN AGREEMENTS AND COVENANTS

A mandated accounting procedure can have economic consequences through impacts on loan covenants only if the loan agreements contain accounting-based covenants, and only then if the specific accounting variables contained in the covenants are affected by the mandated accounting procedure. Here, we provide some descriptive evidence about the loan agreements in our sample, and show that most of them contain covenants that could potentially be affected by the 1986 SEC decision on oil and gas accounting.

In addition to providing information bearing on the impact of the SEC decision, this section presents evidence that complements the prior descriptions of accounting-based loan covenants in Smith and Warner [1979] and Leftwich [1983]. Although our sample is small and nonrandom, the evidence may represent an important addition to the literature. The reason is that Leftwich and Smith and Warner relied principally on Commentaries, the

⁵A study conducted by the Office of the Chief Economist, U.S. Securities and Exchange Commission [1986] reached a similar conclusion. However, the SEC study was based on security price changes during windows ranging from one to several weeks. Rather than estimate a security returns regression model with the market return included as a regressor, the study examined net-of-market share price changes.

standard reference manual used to draft debt agreements, rather than on a direct examination of loan agreements themselves. (However, Leftwich did examine ten private loan agreements from five private lenders to ensure that the accounting-based covenants in Commentaries are representative of practice.)

Types of loan agreements in the sample

Thirteen of the 15 private loan agreements represent bank borrowings; the other two are from non-bank financial institutions. The nine public loan agreements all represent subordinated debentures. The private loan agreements have shorter durations than the public loan agreements (five years versus 15 years, on average). Another difference concerns security; 13 of the 15 private loans are secured, while none of the public debt issues are. The reader should keep in mind that differences between public and private loans noted later may reflect differences in these underlying characteristics, rather than the public-private distinction *per se*.

Frequency of the Use of Accounting Variables in the Loan Covenants

Table 1 indicates how many of the 24 loan agreements in our sample include accounting-based covenants. Some of the accounting variables used in these covenants are not calculated in accordance with GAAP, and are therefore less likely to be affected by rulings from regulatory bodies pertaining to GAAP. To help readers assess the potential impact of a mandated accounting procedure on the loan agreements in our sample, we classify the agreements according to the degree to which they are based on GAAP, on "modified GAAP," or are completely "outside of GAAP."

[Insert Table 1 about here]

We classify an accounting-based constraint as "modified GAAP" if it uses GAAP-based numbers which are then adjusted. For example, we classify the net worth covenant in Universal Resources' (private) credit agreement as modified GAAP. This covenant uses a net worth computation which excludes goodwill and other intangible assets, but otherwise follows

GAAP. An accounting-based covenant is classified as "outside of GAAP" if it uses a financial variable whose computation is totally independent of GAAP. All covenants in our sample classified as outside of GAAP are based on the present value of oil and gas reserves.

Table 1 indicates that 17 (71 percent) of our 24 debt contracts do include at least some accounting-based loan covenants. Such covenants occur with about the same frequency for private loans (11 of 15, or 73 percent) and for public debt (six of nine, or 67 percent).

Among those contracts that include accounting-based covenants, Table 1 shows that eight (73 percent) of the private loan agreements and two (33 percent) of the public debt contracts contain covenants based on GAAP. Covenants using modified GAAP or outside of GAAP accounting numbers are also common in this sample. Among those with accounting-based covenants, nine (82 percent) of the private loan agreements and five (83 percent) of the public debt contracts include at least one covenant classified as modified GAAP. Covenants classified as outside of GAAP appear in five loan agreements (three public and two private). Since the type of outside of GAAP covenant appearing in our sample occurs only in extractive industries, our conclusion about the relative frequency of outside of GAAP accounting-based loan covenants does not generalize to other types of industries.

Our finding that most private loan agreements include covenants classified as modified GAAP is consistent with Leftwich [1983]. In contrast, similar evidence in our sample concerning public debt is inconsistent with Smith and Warner [1979] and several later researchers who reference that work. While evidence from our small sample is only suggestive, it may be the only evidence gathered to date, since the Smith and Warner conclusions were not based on direct study of actual debt contracts.

In summary, Table 1 indicates that the majority of the loan agreements in our sample include accounting-based covenants, with at least one covenant in each of those agreements based on GAAP or modified GAAP. When private and public loan agreements are considered simultaneously, 15 (83 percent) of the 18 sample firms hold debt with accounting-based loan

covenants. To that extent, there is an indication that the loan agreements could potentially be affected by a mandated accounting procedure.

Types of accounting-based covenants

Table 2 describes the *types* of accounting-based covenants found in the public and private loan agreements. Covenants are classified as either affirmative or negative. We define an affirmative covenant as one that can directly result in an event of default, unless waived by the creditor. In contrast, a negative covenant precludes or limits certain actions--most frequently, the paying of dividends. When slack in a negative covenant is eliminated, managers must choose between foregoing the precluded action, or taking the action and triggering default.

[Insert Table 2 about here]

Table 2 indicates that accounting-based covenants in our sample are most frequently affirmative in private loans, and negative in public debt contracts. Thus, while elimination of slack in the private agreements could lead directly to a technical violation, that would typically be the case in the public debt contracts only if managers choose not to forego the action prohibited by the covenant. Although forgoing an action can be costly, a choice between technical violation and a foregone action (ie, the choice available with a negative covenant) cannot be more costly than an automatic technical violation (which will occur with affirmative covenants). In that specific sense, technical violations of accounting-based covenants in a private loan agreement can be more serious than technical violation of accounting-based covenants in a public debt contract.

If the observed frequencies of affirmative and negative covenants for private and public debt hold in general, prior researchers may have had an incomplete understanding of the differences between public and private debt. For example, several have hypothesized that the cost of technical violation is higher for public debt than private debt (e.g., Leftwich [1983], Collins, Rozeff, and Dhaliwal [1981], Lys [1984], Watts and Zimmerman [1986]), because it

would be more costly to renegotiate covenants for public debt. However, a complete comparison of the cost of technical violation must consider not only the cost of renegotiation, but also the nature of the constraints, which may systematically vary for debt issues having different characteristics.

Table 2 also provides some information about the specific form of affirmative and negative covenants. The most common affirmative covenants require maintenance of particular ratios of debt to equity and current assets to current liabilities, and particular levels of working capital. The most common negative covenant restricts the payment of dividends, usually according to an "inventory of payable funds" criterion.⁶ These findings are consistent with Zinbarg [1975], Castle [1980], and with the emphasis in Commentaries on working capital, assets/liabilities, and dividend restrictions.

Several types of accounting-based covenants, such as those based on working capital, cash flow, and the current ratio, are not potentially affected by the SEC's ruling on capitalized exploration costs. Certain covenants which are based on modified GAAP or outside of GAAP definitions of net income or assets are also unaffected. Nevertheless, it is still true that 18 (50 percent) of the 36 accounting-based covenants in our sample are potentially impacted by the SEC decision. For private loans, Table 2 shows that 11 covenants (nine affirmative and two negative) are based on accounting variables that might be affected. Eight (73 percent) of the 11 private loan agreements are potentially affected. For public loans, seven covenants (one affirmative and six negative (all dividend restrictions)) may be affected by the writedown, and all six public loan agreements with accounting-based covenants are potentially impacted.

When private and public loan agreements are considered together, 12 (67 percent) of the 18 firms represented in our sample have loan agreements which contain accounting-based covenants that would potentially be affected by the SEC decision. Therefore, even though

⁶See Commentaries [1971, pp. 401--21], Smith and Warner [1979], and Watts and Zimmerman [1986, p. 211] for descriptions of the typical "inventory of payable funds" computation. Generally, this inventory depends on cumulative net income (or occasionally working capital) earned after the debt issue plus stock sales, net of dividend payments and stock repurchases made after the issue.

many covenants are not affected by the full cost ceiling writedown, the SEC decision *did* potentially impact most of the firms in our sample.

III. THE ECONOMIC CONSEQUENCES OF THE SEC DECISION

The Financial Statement Impact of the SEC Decision

Table 3 summarizes the financial statement impact of the ceiling writedown for our sample. We present information for the first quarter of 1986 and for the year.⁷

The financial statement impact of the writedown was often large. Table 3 shows that the writedowns ranged up to 132 percent of net worth and 32 percent of total assets in the first quarter of 1986, and up to even larger amounts for fiscal 1986. The median writedown was 29 percent (83 percent) of net worth, and ten percent (20 percent) of total assets for the first quarter (fiscal year). We do not present the writedown as a fraction of net income before the writedown, since 15 of the 18 firms would have reported annual losses even in the absence of a writedown. However, for the remaining firms, the median writedown was 582 percent (353 percent) of net income for the first quarter (fiscal year).

[Insert Table 3 about here]

Since the writedowns reported in Table 3 are large, there is a potential for the SEC decision to have materially affected loan covenant slack, or even to have caused technical violation. If we cannot demonstrate that economic consequences resulted in this case, it is questionable whether other mandated accounting procedures can have such consequences.

⁷Annual figures are included because writedowns during the remainder of the year largely resulted from the SEC's May 6 decision. Many oil and gas firms continued to record writedowns after the first quarter of 1986, as oil prices fell to \$11/bbl by late June. Some, if not all of these writedowns directly resulted from the May 6 SEC decision. Without that decision, a firm could have at least postponed part of the writedown by simply forecasting a rise in oil prices by year's end. Furthermore, since oil prices rebounded to \$16/bbl by the end of 1986, we now know that such a forecast would have been partially realized; therefore at least part of the writedown would have been postponed permanently.

Impact of the SEC Decision on Debt Covenants

Tables 4, 5 and 6 describe the impact of the ceiling writedown on slack in accounting-based covenants of the 24 sample loan agreements. For each accounting-based covenant potentially affected by the writedown, we calculated not only the actual amount of slack remaining after the writedown, but also the amount of slack that would have existed without the writedown.⁸ Tax effects were included if applicable. The percentage change in slack caused by the writedown was then computed as $[(\text{slack "as if" no writedown}) - (\text{slack including writedown})] / (\text{slack "as if" no writedown})$.

Table 4 presents results for the fiscal quarter ending March 31, 1986; Table 5 provides similar data for the entire 1986 fiscal year. Our discussion focuses on Table 4 results, since these may represent the best estimates of the impacts expected at the time of the SEC decision. However, *ex post* we know that since oil prices continued to fall in the second quarter, the SEC decision ultimately had additional impacts for the fiscal year as a whole, as described in Table 5. The overall impact of the SEC decision on loan covenant slack shown in Table 5 is similar to that in Table 4, but is larger, and affects an additional firm. Table 6 presents an overall summary for each loan agreement.

[Insert Tables 4, 5 and 6 about here]

Impact of slack in private loan agreements. Table 4 indicates that in four of the 15 private loan agreements (Federated Natural Resources Corp., Patrick Petroleum Co., Universal Resources Corp., and Wichita Industries), slack was reduced in at least one covenant. For two of these firms, slack was completely eliminated, and technical violations resulted.

Impact of slack in public loan agreements. Loan covenant slack was also affected in three of the nine public loan agreements. As shown in Table 4, the writedown reduced dividend

⁸The amount of slack existing for a particular covenant was measured in terms of the actual units used in that covenant. For example, slack in a dividend constraint was estimated as the amount available for payment of cash dividends under the terms of the covenant. If the ceiling writedown reduced the amount available for dividends, slack was also reduced by this dollar amount. When constraints were expressed in terms of ratios, as in a debt to equity constraint, slack was measured in terms of that ratio.

slack in two cases (MCO Holdings, Inc. and Wainoco Oil Co.), and completely eliminated dividend slack in the other (Damson Oil Corp.). The public loan agreement for MCO Holdings, Inc., had a second covenant (a net worth restriction) that also was affected by the writedown.

The added restrictions on payment of cash dividends do not seem to have affected dividend policy for MCO Holdings, Wainoco Oil, or Damson Oil. All three companies were following policies of retaining funds for expansion, reduction of long term debt, and other uses. None of them had paid cash dividends to common stockholders since 1982 or before, even though dividend restrictions were usually not material. Each company stated in its 1985--1987 Form 10-Ks that a policy of *not* paying dividends was in effect.

In summary, the 1986 first quarter ceiling writedown reduced or eliminated slack, or caused technical violation, in seven of the 24 private and public debt contracts. Each of the seven affected a different firm. Therefore, seven (39 percent) of the 18 sample firms had a reduction in debt covenant slack, based on the loan agreements we studied.

For three firms, slack in at least one covenant was completely eliminated. One of them (Damson Oil Corp.) had slack eliminated in a dividend restriction covenant of a public debt contract. However, since the firm had not been paying dividends anyway, the elimination of slack did not lead to a technical violation, and appears not to have altered management policy. For the other two firms (Wichita Industries, Inc. and Universal Resources Corp.), the writedown caused actual technical violations of affirmative covenants in private loan agreements.

We conclude that the SEC decision and the ensuing writedowns did have a material financial statement impact for many full cost firms, and almost one-half of them had a reduction in debt covenant slack as a result. However, only two of the 18 sample firms experienced technical violation of a loan agreement as a direct result of a writedown.

The Economic Consequences of Technical Violation

In general, it is difficult to assess the costs of a mandated accounting procedure that arise through reduction in debt covenant slack. However, we can make some statements about the costs of the most extreme case--where slack is completely eliminated and technical violation occurs.

Several conditions must be met for a mandated accounting change to cause a technical violation; even then, additional conditions must hold before the technical violation leads to an event of default and action by the creditor. We have already considered the conditions necessary for technical violation; that is, we have divided firms into four categories:

- I. Firms that have loan agreements which contain accounting-based covenants (15 of 18 firms);
- II. Firms in Category I that are potentially affected by the accounting procedure at issue (13 firms);
- III. Firms in Category II that are affected by the accounting procedure at issue to such an extent that slack is completely eliminated (three firms); and
- IV. Firms in Category III which experience a technical violation. This occurs if slack falls below zero with respect to an affirmative covenant (two firms), or if a prohibited action is taken with respect to a negative covenant (no firms).

Even firms in category IV would not necessarily be subject to any action by the creditor. For public debt, an event of default generally occurs only if the technical violation continues without remedy for 30 days after the trustee has given written notice of the violation to the borrowing company. (See Commentaries [1971, Article 5] for details.) An event of default can be avoided even when a technical violation goes unremedied for long periods, if the trustee chooses not to deliver the notice. The trustee can withhold notice of default from registered holders of debt if the trustee decides that so doing is in their best interests. (See Commentaries

[1971, pp. 252, 253].) Even if such a notice is delivered, the debt holders could conceivably vote to waive the default provisions, although this would clearly be a costly process.

When a technical violation occurs for private debt, default generally follows automatically only if the violation continues, without remedy, for a specified period (usually 30 days), although specific conditions required for default vary. If an event of default occurs, the lender may agree to waive the default or amend the loan agreement. For private loan agreements, Smith and Warner [1979] state that at least one large lender waives 95 percent of the debtor-initiated requests for loan amendments, because they involve no increased risk for the creditor. Fogelson [1978, p. 777] says that:

"Where changes in accounting principles cause disruption in loan covenants, institutional lenders have in the past waived defaults and modified the affected covenants to accommodate the new principles. Amendments and waivers are relatively easy to accomplish, since the borrower need only communicate with the lender, or the lead lender of a group of institutional lenders, and negotiate the amendment or waiver."

Our data are consistent with these claims. First, we found evidence of periodic revisions in our sample of private loan agreements. For these 15 agreements, exhibits to the Form 10-Ks indicate that amendments were made, on average, every 18 months. This estimate is conservative, since there is no requirement that all amendments be included as exhibits in the Form 10-Ks.

Second, the lenders provided waivers in both cases where the ceiling writedown resulted in technical violation. Wichita Industries reported in both a May, 1986 news release and in a *Wall Street Journal* article (April 2, 1986, p. 13) that the first quarter writedown of oil reserves would result in technical default. In the Form 10-K for fiscal 1986, the company said that the lender had waived acceleration of the due date of the obligation through December 31, 1987. The other firm (Universal Resources Corp.) reported in its April 30, 1986 Second Quarter Report that asset write-downs (90 percent of which consisted of the ceiling writedown) had led to default under certain covenants of its bank loan agreement. However, it also reported that it had received the necessary waivers from its lender.

Although technical violations in private loan agreements may be waived in most cases, exceptions might arise where (a) the debtor faces financial distress and (b) the creditor could justifiably claim that the violation reflects a substantive economic deterioration in the debtor's financial position. In such cases, the creditor might desire to take steps to reduce its exposure. These circumstances might characterize the oil and gas industry in 1986, during which 15 of our 18 sample firms reported losses. However, none of these firms reported such actions by creditors in response to covenant violations.

In some lending agreements in our sample, there is yet another reason to doubt the economic importance of technical violations resulting from mandated accounting procedures: for secured loans, the lender often has the right to reduce the borrowing base if it judges that such action is appropriate.⁹ A reduction in borrowing base by itself may result in default, and reduces the reliance of creditors on other covenants.

In summary, even though the SEC ruling had a large financial statement impact for several firms, it seems to have caused minimal economic consequences through its impact on loan covenants. Two firms did disclose that the writedown had led to technical default, but the lenders took no immediate action. This suggests that the economic consequences of certain other mandated accounting procedures may also be minor, at least in terms of their impact on debt covenant slack.

⁹Ten of the 15 private loan agreements we reviewed include discussions concerning the borrowing base. Seven of these ten gave the bank(s) "sole discretion" to determine the borrowing base. For example, Houston Oil Fields Company's Loan Agreement Dated July 3, 1985 defines borrowing base as follows:

"Borrowing Base" shall mean the determination by Bank, in its sole discretion, of the collateral value of the producing oil and gas properties of Borrower which are subject to a first mortgage lien in favor of the Bank which determination will conform with the normal lending procedures of Bank and sound banking practices.

Stock Price Effects for Firms Partitioned by Impacts on Covenants

The above discussion suggests that the economic consequences of the May 6 SEC decision were minimal, at least as they operate through loan agreements. We now check to see if this suggestion is corroborated by analysis of the stock price behavior of firms whose loan agreements were potentially most affected by the decision.

Figure 2 presents a plot of cumulative market model residuals for the portfolio of 18 full cost firms for which debt contracts were obtained. We then further partition those 18 firms. One plot is presented for the 13 firms with accounting-based covenants potentially affected by the writedown, a second is presented for the three firms whose slack on at least one covenant (affirmative or negative) was completely eliminated by the writedown, and a third is presented for the two firms placed in technical default solely as a result of the writedown.

On May 6, the abnormal returns were actually *highest* (9.0 percent) for portfolio of two firms placed in technical default. The corresponding abnormal return was 6.6 percent for the three-firm portfolio, and 1.6 percent for the 13-firm portfolio. During the next two days, the two- and three-firm portfolios continued to have higher abnormal returns than the other full-cost portfolios.

[Insert Figure 2 about here]

Since it is difficult to imagine that the SEC decision had a positive impact on the affected firms, the results in Table 2 suggest that a confounding effect is present. The most likely explanation is that an impact resulted from the tax legislation discussed in Section I.¹⁰ In any case, there is clearly no evidence in Figure 2 that the SEC decision had *negative* economic consequences, even for those firms whose loan covenants were most affected. If such negative consequences occurred, they must have been overwhelmed by other factors affecting stock returns at the same time.

¹⁰As discussed in Section I, security price effects of the legislation are expected on days +1 and -1 relative to the May 6 SEC decision. However, it is possible that security prices on surrounding days, including May 6, were also affected.

A Comment on Research on Other Mandated Accounting Procedures

A natural question concerns why we observe no apparent economic consequences (via debt covenants) of the 1986 SEC decision, even though several prior researchers (e.g., Lev [1979], Collins and Dent [1981], Lys [1984]) have documented a significant stock price reaction to the 1977 FASB decision on full cost accounting. In considering this question, it is useful to reexamine some evidence in the Lys [1984] study of the 1977 decision.

Lys [p. 55] estimates that if all debt held by full cost firms in his sample were placed in default and all creditors demanded refinancing at the then current market rates, the cost (increase in the value of the debt) would be, on average, 2.5 percent of the value of common equity. This should then represent an upper bound on the cost of debt covenant violations as a result of the FASB decision. Since few full cost firms would have technical violations for any debt issues resulting from the decision (Foster [1980]), the actual expected cost could be far less than this upper bound, and might not be detectable in a stock price study. This casts doubt on whether bond covenant effects could explain either the 1.7 percent average decline in share value for full cost firms on the event day (July 19, 1977), or the 4.2 percent decline over the three-day window around that date, as reported by Lys. In fact, the security price behavior may have been caused by confounding news events related to legislation affecting the oil and gas industry. (For example, *The Wall Street Journal*, July 22, 1977, p. 1, reported favorable prospects for passage of President Carter's energy bill, which would have had an adverse impact on oil and gas producers.)

IV. CONCLUSIONS

In this study, we have directly examined how public and private loan agreements were affected by a mandated accounting procedure. The sample is small (24 loan agreements for 18 firms) and is restricted to a unique industry, so readers should be careful in interpreting the evidence. Nevertheless, to our knowledge, the sample is larger than that in any published

study of actual public and private loan agreements, and provides the basis for the first detailed examination of how such agreements were impacted by a mandated accounting procedure.

There are several reasons why, if mandated accounting procedures can have important consequences on existing loan agreements, we should have been able to detect them in this case. First, the financial statement impacts of the SEC decision studied here were large. Second, the decision was a surprise, and was rendered at a time when it was too late for firms to take actions to avoid any technical violation that might be brought about through application of the mandated procedure. Third, in this case creditors could justifiably claim that technical violations reflected a substantive economic deterioration in the debtors' financial positions.

Despite the existence of these conditions, we find no evidence of direct cash flow implications via loan covenant violations. Even where technical violations occurred, the creditors took no action as a result. Our findings cast further doubt on the importance of any economic consequences of mandated accounting procedures that might operate through impacts on existing debt contracts.

TABLE 1

Use of GAAP, Modified GAAP, and Outside of GAAP Accounting-Based Covenants
in Public and Private Loan Agreements

	Number of Loan Agreements		
	Private Debt	Public Debt	Total
GAAP Only	2	1	3
Modified GAAP Only	2	2	4
Both GAAP and Modified GAAP	4	1	5
Both Modified GAAP and Outside of GAAP	1	2	3
All three types	<u>2</u>	<u>0</u>	<u>2</u>
At least one covenant based on GAAP or Modified GAAP	11	6	17
No Accounting-Based Covenants	<u>4</u>	<u>3</u>	<u>7</u>
Total Number of Loan Agreements	15	9	24

TABLE 2

Use of Accounting-Based Affirmative and Negative Covenants¹

	Number of Covenants		
	Private Debt	Public Debt	Total
Affirmative Covenants			
Potentially Affected by Writedown			
Maintenance of Consolidated Net Worth	3	1	4
Maintenance of Liabilities to Shareholders' Equity Ratio	<u>6</u>	<u>0</u>	<u>6</u>
	9	1	10
Not Potentially Affected by Writedown			
Maintenance of Consolidated Net Worth ²	1	0	1
Maintenance of Working Capital	4	0	4
Maintenance of Net Cash Flow	2	0	2
Maintenance of Current Ratio	5	0	5
Maintenance of Interest Coverage ³	1	0	1
Maintenance of Assets to Liabilities Ratio ⁴	<u>1</u>	<u>1</u>	<u>2</u>
	14	1	15
Negative Covenants			
Potentially Affected by Writedown			
Restrictions on Dividends (based on cumulative net income)	<u>2</u>	<u>6</u>	<u>8</u>
	2	6	8
Not Potentially Affected by Writedown			
Restrictions on Dividends (based on working capital)	1	0	1
Restrictions on Loans and Advances (based on an outside of GAAP definition of net income)	1	0	1
Restrictions on Superior Indebtedness (based on an outside of GAAP estimate of future net income)	<u>0</u>	<u>1</u>	<u>1</u>
	2	1	3

¹ An affirmative covenant is one that specifies limits (floors or ceilings) on accounting-based ratios, levels, or flows. Negative covenants preclude or limit certain actions unless certain conditions are met.

² In this modified GAAP covenant, the net worth constraint is defined such that slack is unaffected by net income earned after 1984.

³ This covenant uses a definition of net income based on modified GAAP, in which non-cash expenses are added back to net income computed according to GAAP. As a result, the covenant is not potentially affected by the full cost ceiling writedown.

⁴ Both covenants state that the ratio of net tangible assets to debt must exceed a specified ratio. Net tangible assets are as per GAAP after deducting intangibles, oil and gas properties at book value, and certain other assets.

TABLE 3

Magnitude of Writedown for Full Cost Firms With Sample Covenants¹

	Writedown 3/31/86 Form 10-Q			Writedown 1986 Form 10-K		
	\$ (Mill.)	% of Net Worth	% of Total Assets	\$ (Mill.)	% of Net Worth	% of Total Assets
Apache Corp.	0.00	0	0	29.50	13	4
Chaparral Res., Inc.	1.15	11	11	10.26	135	78
Chapman Energy Inc.	17.02	100	22	27.00	NA ²	43
Convest Energy Corp.	0.00	0	0	2.19	35	17
Damson Oil Corp.	68.50	116	24	69.40	157	28
Ensource, Inc.	14.50	32	9	28.30	73	20
Federated Nat. Res. Corp.	3.60	36	9	6.05	72	16
Galaxy Oil Co.	0.00	0	0	4.00	86	27
Houston Oil Fields Co.	0.00	0	0	10.59	104	23
MCO Holdings, Inc.	8.00	9	1	23.00	31	4
Patrick Petroleum Co.	8.10	21	14	8.1	24	16
Pogo Producing Co.	91.30	69	13	95.75	89	14
Reading & Bates Corp.	0.00	0	0	33.10	17	4
Transco Energy Co.	247.27	26	16	284.69	32	19
Universal Res. Corp.	63.50	70	32	89.75	117	45
Wainoco Oil Co.	11.00	65	7	22.00	165	15
Wichita Industries, Inc.	5.55	132	26	5.68	169	69
Wilshire Oil Co. of Tex.	8.50	55	14	15.40	83	23
Mean	30.44	41	11	42.49	82	26
Median	8.05	29	10	22.50	83	20

¹ Percentages are based on net worth and total assets which would have existed in the *absence* of a writedown.

For Universal Resources Corp., which has an October 31 fiscal year end, quarterly data are reported for the fiscal quarter ending April 30, 1986. For Chaparral Resources, Inc., which has a November 30 fiscal year end, quarterly data are reported for the fiscal quarter ending May 31, 1986.

² Not applicable—net worth is negative.

TABLE 4. IMPACT OF SEC DECISION ON SLACK IN DEBT COVENANTS FOR THE FISCAL QUARTER ENDING MARCH 31, 1986

Private Loan Agreements	Affirmative Covenants*		Negative Covenants*
	Net Worth	Liab./ Sh. Equity	Dividends
Affected by Writedown:			
Federated Natural Res. Corp.	-15%	---	---
Patrick Petroleum Co.	NA	-6%	---
Universal Resources Corp.	---	-100% (W)	---
Wichita Industries	-100% (W)	-100% (W)	-100% (W)
Not Affected by Writedown:			
Chaparral Resources, Inc.	---	---	---
Chapman Energy Inc.	---	NM	---
Ensource Inc.	---	---	NM
Pogo Producing Co.	---	---	NA
Wilshire Oil Co. of Texas	NM	NM	---
Convest Energy Corp.	No First Quarter Writedown		
Houston Oil Fields Co.	"		
Damson Oil Corp.	No Accounting-Based Covenants		
MCO Holdings, Inc.	"		
Transco Expl. Partners Ltd.	"		
Wainoco Oil Corp.	"		
Public Loan Agreements			
Affected by Writedown:			
Damson Oil Corp.	---	---	-100%
MCO Holdings, Inc.	-13%	---	-15%
Wainoco Oil Co.	---	---	-33%
Not Affected by Writedown:			
Chapman Energy, Inc.	---	---	NM
Galaxy Oil Co.	---	---	NM
Universal Resources Corp.	---	---	NM
Apache Corp.	No Accounting-Based Covenants		
Pogo Producing Co.	"		
Reading and Bates Corp.	"		

*Certain accounting-based covenants appearing in our sample were not affected by the ceiling writedown. They are: current assets/liabilities, working capital, cash flow, current ratio, interest coverage, superior debt, and limitations on loans. The latter two are negative covenants; the others are affirmative.

--- --No such accounting-based covenant exists in the agreement.

NA--Magnitude of slack was not affected by ceiling writedown.

W--Writedown resulted in technical violation, but creditor subsequently waived the affected covenant.

NM--Technical violation (or zero slack for dividends) existed, even without the effect of the full cost ceiling writedown.

TABLE 5. IMPACT OF SEC DECISION ON SLACK IN DEBT COVENANTS FOR FISCAL 1986

Private Loan Agreements	Affirmative Covenants*		Negative Covenants*
	Net Worth	Liab./ Sh. Equity	Dividends
Affected by Writedown:			
Federated Natural Res. Corp.	-23%	---	---
Patrick Petroleum Co.	NA	-8%	---
Universal Resources Corp.	---	?	---
Wichita Industries	-100% (W)	-100% (W)	-100% (W)
Wilshire Oil Co. of Texas	NM	-100%	---
Not Affected by Writedown:			
Chaparral Resources, Inc.	---	---	---
Chapman Energy Inc.	---	NM	---
Ensource Inc.	---	---	NM
Pogo Producing Co.	---	---	NA
Convest Energy Corp.	---	---	---
Houston Oil Fields Co.	---	NM	---
Damson Oil Corp.	No Accounting-Based Covenants		
MCO Holdings, Inc.	"		
Transco Expl. Partners Ltd.	"		
Wainoco Oil Corp.	"		
Public Loan Agreements			
Affected by Writedown:			
Damson Oil Corp.	---	---	-100%
MCO Holdings, Inc.	-80%	---	-61%
Wainoco Oil Co.	---	---	-100%
Not Affected by Writedown:			
Chapman Energy, Inc.	---	---	NM
Galaxy Oil Co.	---	---	NM
Universal Resources Corp.	---	---	NM
Apache Corp.	No Accounting-Based Covenants		
Pogo Producing Co.	"		
Reading and Bates Corp.	"		

*Certain accounting-based covenants appearing in our sample were not affected by the ceiling writedown. They are: current assets/liabilities, working capital, cash flow, current ratio, interest coverage, superior debt, and limitations on loans. The latter two are negative covenants; the others are affirmative.

--- --No such accounting-based covenant exists in the agreement.

NA--Magnitude of slack was not affected by ceiling writedown.

W--Writedown resulted in technical violation, but creditor subsequently waived the affected covenant.

NM--Technical violation (or zero slack for dividends) existed, even without the effect of the full cost ceiling writedown.

?--Percentage change in slack could not be calculated because Form 10-K did not disclose necessary data. However, Form 10-K did not indicate the presence of any technical violations.

TABLE 6. SUMMARY OF IMPACT OF SEC DECISION ON SLACK IN DEBT COVENANTS*

Private Loan Agreements

Affected by Writedown:

Federated Natural Res. Corp.	Slack Reduced in One Covenant
Patrick Petroleum Co.	"
Wilshire Oil Co. of Texas	Slack Eliminated in One Covenant
Universal Resources Corp.	Technical Violation, Waived by Lender
Wichita Industries	"

Not Affected by Writedown:

Chaparral Resources, Inc.	No Impact
Chapman Energy Inc.	"
Convest Energy Corp.	"
Ensource Inc.	"
Houston Oil Fields Co.	"
Pogo Producing Co.	"
Damson Oil Corp.	No Accounting-Based Covenants
MCO Holdings, Inc.	"
Transco Expl. Partners Ltd.	"
Wainoco Oil Corp.	"

Public Loan Agreements

Affected by Writedown:

MCO Holdings, Inc.	Slack Reduced in One Covenant
Damson Oil Corp.	Slack Eliminated in One Covenant
Wainoco Oil Co.	"

Not Affected by Writedown:

Chapman Energy, Inc.	No Impact
Galaxy Oil Corp.	"
Universal Resources Corp.	"
Apache Corp.	No Accounting-Based Covenants
Pogo Producing Co.	"
Reading and Bates Corp.	"

*This table shows the impact from the greater of either the first quarter of 1986 or fiscal 1986.

Figure 1
Cumulative Abnormal Returns
for Full Cost and Successful Efforts Portfolios

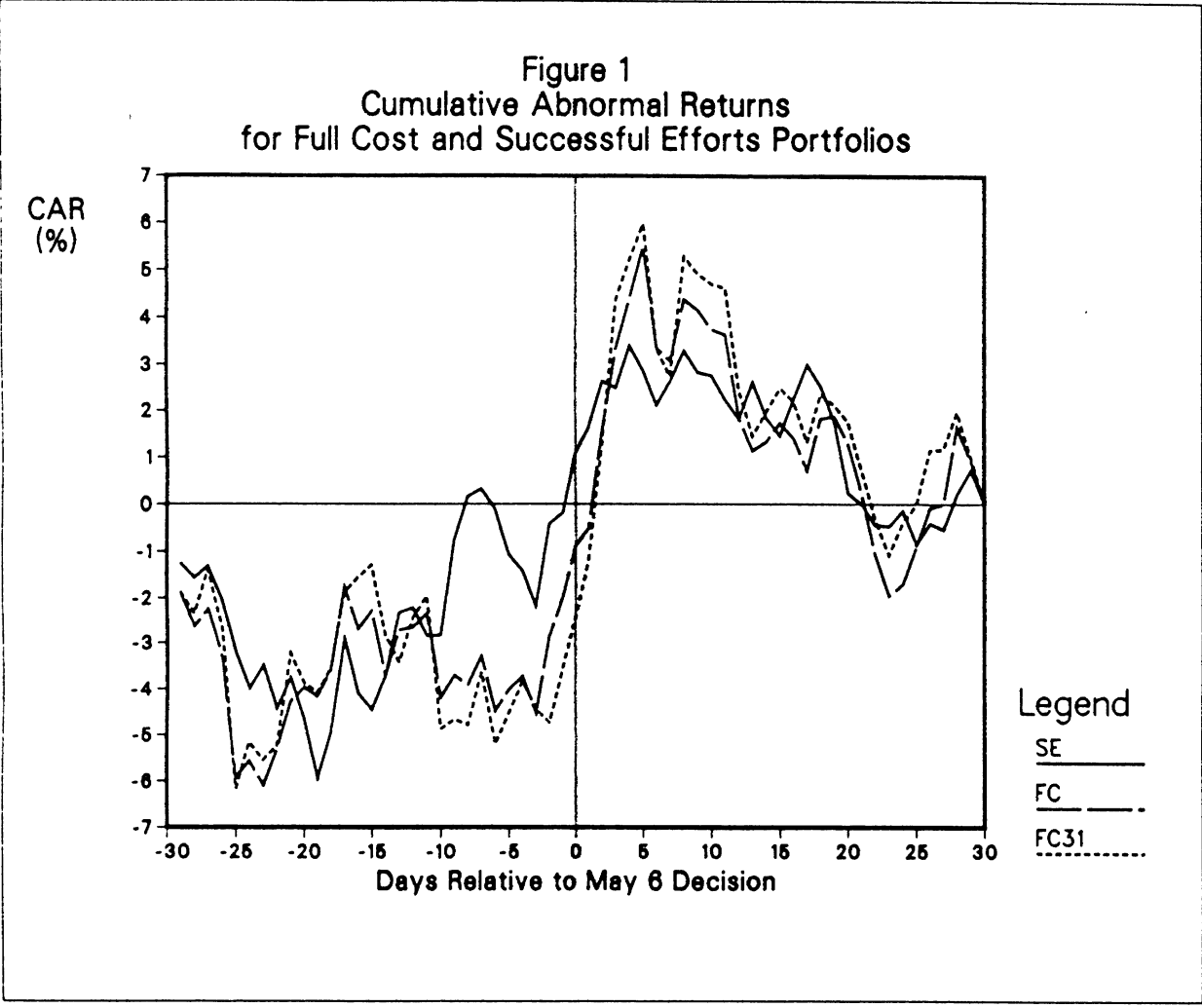
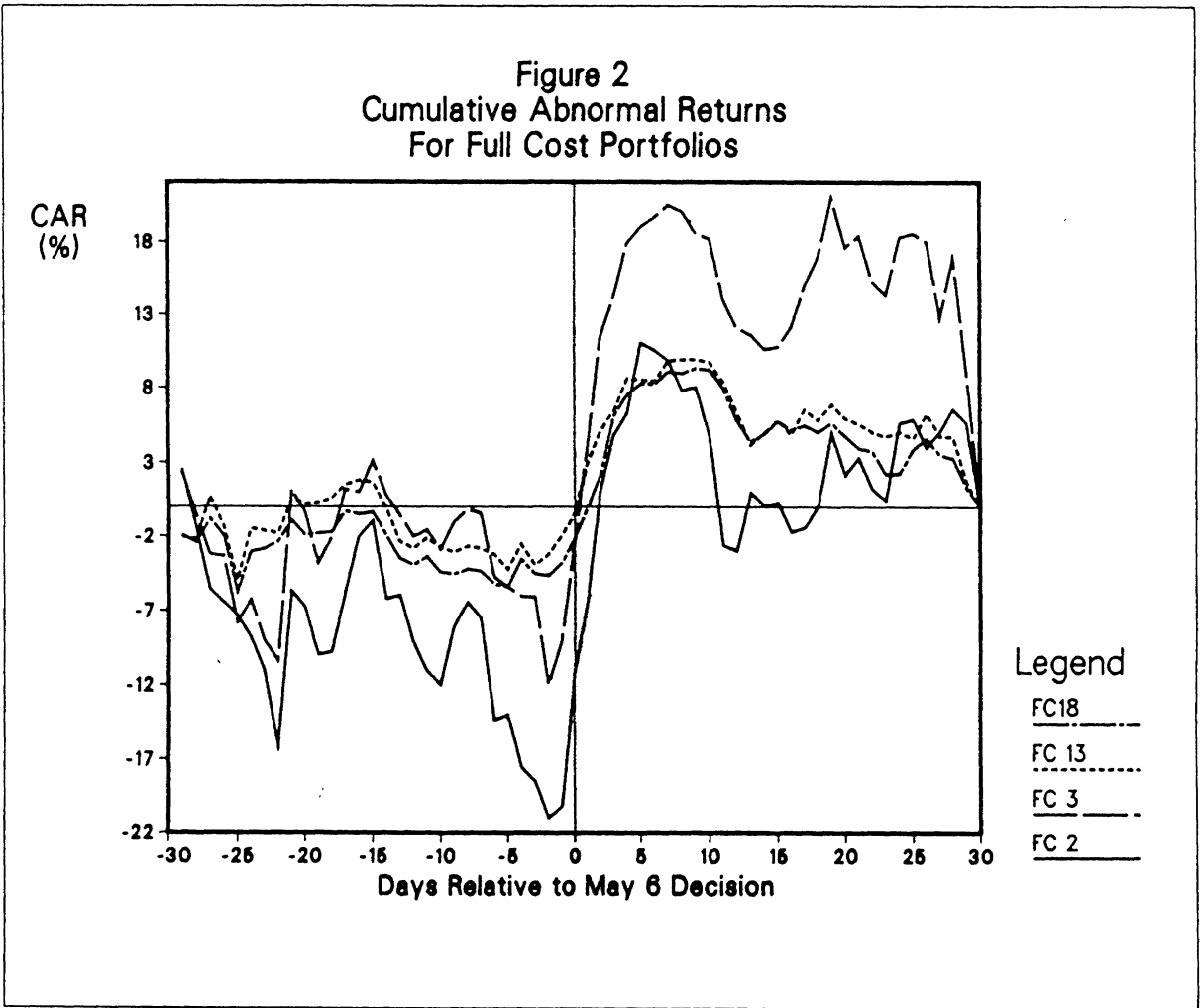


Figure 2
Cumulative Abnormal Returns
For Full Cost Portfolios



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