The Value Implications of Creditor Intervention*

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Abstract

We use violations of financial covenants in private credit agreements as indicators of increased creditor intervention and explore changes in stock prices and operating performance following the violation. We find that firms violating a loan covenant experience positive abnormal stock price performance in the months following the violation. Measured in either calendar time or event time, covenant violators earn abnormal returns on the order of 10 to 12% per year beginning within a month of the report of the violation and continuing for at least five years. Given the substantial increase in creditor control over financing and investment decisions that follows a covenant violation, we attribute the positive abnormal returns to increased monitoring and reduced management discretion. We show that violating firms tend to shrink in size following the violation and experience improvements in operating performance beyond that expected by firms with similar pre-event performance. Our analysis highlights the role that creditors play as informed corporate monitors and suggests that loan covenants serve to mitigate managerial agency costs.

Recent research has highlighted the role that corporate creditors play in determining the activities of their borrowers. Primarily via contract, creditors are able to control many of the financing and investment decisions made by firms. In this paper, we use the occurrence of a financial covenant violation in a credit agreement as an indicator of increased creditor intervention and examine the stock price and operating performance of the violator for several years subsequent to the violation.

Using a sample of 1,254 financial covenant violations reported by public U.S. firms during the period 1998 to 2006, we find that violating firms earn a statistically significant and economically large positive abnormal return in the months following the violation. These returns, measured either in calendar time or via traditional event study methods, are 10 to 12% higher than their risk-adjusted benchmarks. We also document that violating firms beat their industry and performance-adjusted counterparts across various measures of operating performance. In particular, violating firms experience abnormally large increases in sales and cash flow relative to their matched peers. Violating firms also reduce the size of the firm and the cost of goods sold by more than their peers, suggesting a rescaling of operations and an increase in efficiency.

A growing body of empirical evidence shows that banks use covenants as tripwires, subsequently increasing their monitoring activities and imposing stronger restrictions on management behavior through renegotiations following the violations. Banks impose more austere loan terms in the renegotiated contract, resulting in higher interest costs, lower borrowing amounts, and shorter maturities (Beneish and Press (1993), Sufi (2007), Roberts and Sufi (2008)), and contractually restrict the investment and financing activities of the violating firm (Beneish and Press (1993), Nini, Smith, and Sufi (2008)). As a direct result, firms that violate covenants cut investment expenditures (Chava and Roberts (2007), Nini, Smith, and Sufi (2008)) and reduce their issuance of new debt (Roberts and Sufi (2007)). The contribution of this paper is to demonstrate that intervention by lenders following a covenant violation results in improved borrower stock price and operating performance.

We glean our sample of covenant violators by searching SEC filings for disclosures that a firm has violated a financial covenant in a private credit agreement for the first time. Because our sample of

violators consists of publicly traded firms, we use stock returns subsequent to the violation to identify the value implications of the violation. In particular, under the assumptions that (a) stock returns incorporate all performance information that is public at the time of the filing, and (b) covenant violations are uncorrelated with additional unobserved indicators of positive future performance, our large sample estimates represent the causal effect that creditor intervention has on equity valuations.[1] Assigning a similar causal interpretation to our operating results is more difficult since we rely on an empirical model of expected performance that may omit relevant variables that are correlated with the covenant violation. However, we control quite flexibly for measures of past performance and find results that reinforce the stock price results.

Our results stand in contrast to existing empirical studies of the consequences of loan covenant violations. Sweeney (1994), DeFond and Jimabalvo (1994), and Beneish and Press (1993; 1995 a, b) find that violations are associated with greater subsequent accounting manipulation, poorer loan terms for the borrower, increased financial distress, and short-term declines in borrower wealth. These papers highlight some of the costs associated with covenant violations, but do not account for the possibility that the violations also force actions that improve borrower value.

A different line of literature argues that there are large direct and indirect costs associated with the financial restructurings of distressed firms (Altman (1984), LoPucki and Whitford (1993), Gilson (1997), Asquith, Gertner, and Scharfstein (1994), Opler and Titman (1994), and Hotchkiss (1995)). These papers would suggest that, to the extent that covenant defaults signal the onset of financial distress, companies should perform more poorly following the default. However, because covenant violations are quite common – Roberts and Sufi (2007) report that over one-quarter of public firms disclose a covenant violation between 1996 and 2005 – the correlation between a violation and severe financial distress is

[1] Because prices at the time of the violation should incorporate all *public* information, our model of stock returns should generate residuals that are uncorrelated with all information that is public at the time of the filing. In other words, if there is an omitted variable that is knowable by market participants that makes a covenant violation endogenous to risk-adjusted stock returns, that variable would warrant further research as it could be used to earn excess returns.

weak at best. Nevertheless, to the extent that there are significant costs associated with covenant violation, our results suggest that the concomitant benefits are larger.

Our findings are more in line with Andrade and Kaplan (1998), who study 31 leveraged buyouts that later become financially distressed, and attribute the observed performance declines in the LBO firms to economic problems rather than high leverage. Measured from the time of the LBO to the resolution of financial distress, Andrade and Kaplan (1998) find that their sample of distressed firms increase in value, with operating margins first declining and then rebounding following the resolution of distress.[2] We find a similar pattern in firm performance, as firms violating a covenant experience downturns in operating performance *prior* to the violation, but positive performance in the period following the violation. Overall, our large sample evidence suggests that early actions taken in response to financial covenant violations tend to precede a company turnaround rather than continued financial distress.

Our results also relate to the notion of *financial constraints*, or the idea that a reliance on external finance leads to lower investment levels than would otherwise be observed (e.g., Fazzari, Hubbard, and Petersen (1988), Whited (1992), Kaplan and Zingales (1997), Lamont (1997), Hennessy (2004), and Rauh (2006)). Much of this literature assumes implicitly that a reliance on external finance constrains firms from taking on positive NPV projects. In contrast, our results suggest that creditor intervention does not represent a constraint on shareholder value; instead, creditor intervention leads to value enhancing changes in firm investment and financing behavior.

The rest of the paper proceeds as follows. In the next section, we review the background and theoretical treatment of loan covenants and covenant violations. Section III discusses the data collection process. Sections IV and V present our results. Section VI concludes.

II. Background and Theory

Our goal is to isolate the effect of creditor intervention on shareholder value. In this section, we provide background on the creditor intervention implications of debt covenants and examine the theoretical reasons why creditor intervention could decrease or increase shareholder value.

A. Debt covenants

Debt covenants are conditions in credit agreements that either guide or limit the actions of the borrower. The borrower must comply with these covenants to avoid being in default of the agreement. In practice, covenants are divided into three broad categories: affirmative covenants, negative covenants, and financial covenants. *Affirmative* covenants require the borrower to take certain actions, such as meeting GAAP standards of accounting, submitting financial information to the lender on a timely basis, meeting all regulatory reporting demands, paying taxes, maintaining equipment, and remaining in compliance with the law. *Negative* covenants restrain the borrower from taking certain actions, such as altering the fundamental nature of the business, changing control of the company (including through acquisition), disposing of assets, making excessive capital expenditures, and paying dividends. *Financial* covenants are accounting-based risk and performance limits. These covenants are often included in the negative covenants section, or classified separately, and can consist of restrictions on company leverage, interest coverage, total fixed charges (including capital expenditures), and net worth.

While covenants are common to all types of debt agreements including bond and note indentures, they are more numerous, detailed, and tightly-set in private loan agreements (Kahan and Tuckman (1993), Verde (1999), Taylor and Sansone (2007)). Moreover, financial covenants in private loan agreements are typically *maintenance-based*, meaning that the borrower must be in compliance with the covenant on a regular basis, typically every fiscal quarter. Conversely, financial covenants in bond indentures are usually *incurrence-based*, meaning that the borrower need only be in compliance at the time of a specific event, such as issuing new debt.

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[2] See also Maksimovic and Phillips (1998) and Kaplan (1989a,b).

B. Covenant violations and creditor intervention

A violation of a covenant is an event of default that gives the debtholder the right to demand immediate repayment – or *accelerate* – the entire loan. In practice, debtholders rarely accelerate the loan, opting instead to use the right of repayment to initiate a renegotiation of the credit agreement. These renegotiations can lead to changes in the terms of the loan, higher levels of monitoring, and increased restrictions on the actions of the borrower. The following description of a loan covenant violation, reported by Digital Generation Systems Inc. in a 10-Q disclosure filed on November 9, 2005, provides some indication that the renegotiated loan contract is more restrictive (*italics* added for emphasis):

> As of September 30, 2005, the Company was not in compliance with the covenant related to its leverage ratio. On November 9, 2005, the Company received a waiver from its lenders as of September 30, 2005. In connection with securing this waiver, *certain other changes were made to the credit facility which, among other things*, reduced the amount that can be borrowed under the Company's revolving line of credit from $15.0 million to $4.5 million.

Inspection of the actual November 2005 amendment to the original credit agreement reveals that, beyond the $10.5 million reduction in the company's line of credit, the "other things" that changed in connection with the waiver included a 100 basis-point increase in the interest rate spread charged on the loan, stronger restrictions on dividend and intercompany payments, a 50% reduction in allowed capital expenditures, and a requirement that the company comply with its capital expenditures restrictions on a quarterly, rather than annual basis. These actions greatly increased lender control and monitoring of the borrower in response to the covenant violation.

According to a growing empirical literature, the response to the covenant violation by Digital Generations Systems is typical. Beneish and Press (1993) examine 91 responses to loan covenant violations from the 1980s and find that the follow-on contracts contain more restrictive loan terms (i.e., higher interest charges, lower borrower amounts, and shorter maturities) and new covenants restricting investment and financing. Beneish and Press (1993) conclude that, "increased lender control is an important effect of technical violation" (p. 234). Nini, Smith, and Sufi (2008) study the incidence in loan agreements of contractual restrictions on capital expenditures. They find that likelihood of observing a

capital expenditure restriction in a contract increases by 50% after a financial covenant violation and that 60% of the contracts amended in response to a covenant violation contain a capital expenditure restriction. Nini, Smith, and Sufi (2008) also show that the restrictions constrain actual capital expenditures relative to what they would have been without the restriction, and that borrowers subject to the restrictions have higher operating performance and market value once the restrictions are in place.

While Nini, Smith, and Sufi (2008) focus on the presence of capital expenditure restrictions, loan covenants can give creditors control of most facets of corporate decision-making. Indeed, new limits on acquisitions, changes in control, dividend payments, and new borrowings are also more likely to be observed in post-violation contracts. In short, contractual controls put in place following a covenant violation can give creditors a say in nearly all the corporate affairs of the borrower.

Lenders can also utilize their bargaining power following a covenant violation to extend their control beyond the contract itself. Baird and Rasmussen (2005) study the legal implications of creditor intervention and argue that creditors have far greater indirect control over the governance of a firm than is normally appreciated. They cite the example of Krispy Kreme Doughnut Corporation, where concessions following a covenant violation included replacing the CEO with a turnaround specialist. Baird and Rasmussen (2005) suggest such actions are likely widespread, as "lenders may need to do no more than make it understood that they will look more kindly on future waivers of loan covenants if a [chief restructuring office] with whom they have worked before is in place and cleaning shop."

C. The Value Implications of Creditor Intervention: Theory

Theoretical research on how creditor intervention affects shareholder value is ambiguous. In models highlighting the conflict between creditors and equityholders, creditor control could hurt equityholders by thwarting risky projects that benefit equityholders at the expense of creditors. Jensen and Meckling (1976) suggest that granting control rights, including through covenants that limit dividend payments, investment, and acquisitions, can reduce such wealth transfers, which would reduce the returns available to shareholders.

However, a number of models suggest that creditor intervention may benefit shareholders by constraining value-reducing managerial behavior. Jensen (1986) studies a firm in which information or contracting frictions prevent firm owners from controlling managerial discretion over company free cash flows. By forcing management to use debt in the capital structure (or by having managers voluntarily bond themselves by issuing debt), shareholders are able to commit management to make efficient accept/reject decisions with the capital raised through debt financing. In Jensen's (1986) model, debt acts as a disciplining mechanism because managers fear the transfer of control rights to lenders in the case of default, where the presumption is that lenders exert substantial control and may even fire current management. In a case study of the distressed company L.A. Gear, DeAngelo, DeAngelo, and Wruck (2002) extend Jensen's argument by showing that it is actually loan covenants, rather than interest payments, that constrain management.

In the model by Rajan (1992), corporate borrowers exhibit a bias towards continuing projects even when they are unprofitable, creating an agency cost that both lenders and borrowers would like to prevent ex ante. A lender who finances the project can monitor the project and step in to prevent bad projects when they threaten the lender's claim. As a result, monitoring by the lender prevents negative NPV investments and therefore increases the profitability of the firm and the value of the underlying claims. Although Rajan (1992) does not distinguish between managers and equityholders, the spirit of the model suggests that monitoring by lenders may benefit equityholders by limiting managerial agency costs.

Aghion and Bolton (1992) study a security design model in which contracts are written so that decision rights optimally shift from current management to an external financier when private benefits are most likely to distort the manager into inefficient decisions. Their most prominent example is when a possible outcome involves low monetary benefits and high managerial private benefits, giving managers an excess continuation bias, similar to Rajan (1992). If a contractible signal suggests that such an outcome is likely, then contracts give decision rights to the external financiers to curb excess

continuation. The decision rights in Aghion and Bolton (1992) are quite general and not limited to asset liquidation. As they note, it includes "decisions such as mergers, takeovers, [or] spinoffs" (p. 477).

Dewatripont and Tirole (1994) also design optimal financial contracts with a contractible signal but focus on ex ante managerial moral hazard as the friction. In their model, firm profit is contractible but is not a sufficient statistic to determine whether the manager has shirked. They assume that contracts can specify an investor intervention mechanism conditional on profit realizations, where intervention is costly for managers. The optimal contract specifies a high probability of creditor intervention following poor performance and a low probability of intervention following good performance.[3]

In sum, if the increase in creditor intervention limits equityholders from exploiting creditors, then we would expect violators to earn negative abnormal returns following the violation, as violators are less able to appropriate wealth from lenders. Alternatively, if creditor intervention serves as a governance mechanism that limits managerial opportunism, we would expect equityholders to benefit following the violation in the form of positive abnormal returns. Since these outcomes are not exclusive, the equity response to violations may be heterogeneous, leaving us to find the average response of stock price returns to a covenant violation.

III. Data

Our data collection begins with a search of all 10-K and 10-Q SEC filings that were filed between September 1996 and August 2006. We search for evidence in each filing that the firm has violated a loan covenant during the reporting period. Historically, the SEC has provided two lines of guidance on disclosing covenant violations to the public. Prior to 2003, the SEC allowed companies some discretion in determining whether the event of a covenant violation was material – thus requiring disclosure – when the contract breach could be "cured" prior to the filing of their next set of financial statements (SEC (1988)). A "cure" typically involves a contractual arrangement, such as a waiver or an amendment to the

[3] Garleanu and Zwiebel (2007) and Demarzo and Fishman (2007) also consider contracts that explicitly restrict borrower investment behavior. Garleanu and Zwiebel (2007) study how debt contracts with exogenously imposed investment restrictions influence the efficiency of renegotiation (see also Berlin and Mester (1992)). Demarzo and

loan agreement, relieving the borrower of threats for immediate payment acceleration. Under the earlier guideline, all uncured defaults at filing time had to be disclosed in the footnotes to the financial statements. More recent SEC clarifications require publicly traded companies to disclose all covenant violations, and probable violations, believed to have a material impact on company operations, independent of whether the breach is cured at the time of reporting (SEC (2003); see also Sufi (2007) and Roberts and Sufi (2007)). The upshot is that, prior to 2003, we will tend to pick up those covenant violations that could not easily be cured.

To identify the disclosure of a covenant violation, we employ text search programs that automatically analyze the contents of the 10-K and 10-Q filings. The programs search on 20 terms common to violation reports.[4] Upon locating a term, the programs download into a separate file the ten lines above and ten lines below the identified term. The resulting output file is hand-checked to verify whether a violation is actually being disclosed in the report.

This procedure allows us to identify whether a given firm is in violation of a one of its covenants on a quarter-by-quarter basis. Our search procedure also identifies firms that report that they were in danger of violating a covenant, but obtained a waiver that precluded a formal violation. The waiver comes in exchange for the more restrictive renegotiated contract. For ease of exposition, we refer both to actual violations and waivers as a "covenant violation." Although our search procedure does not guarantee that we identify all covenant violations, our hand-checking ensures that our sample of violating firms in fact did report a covenant violation.

We initially identify over 5,400 reports of violations. Many of these reports are repeated sequential disclosures of a violation by the same firm. The repeats occur because firms may take several

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Fishman (2007) derive an optimal compensation contract that rewards good-performing managers by allowing them to grow the firm through new investment, and penalizes bad performers by restricting investment growth.

[4] We search for the following 20 terms: "in violation of covenant", "in violation of a covenant", "in default of covenant", "in default of a covenant", "in technical violation of covenant", "in technical violation of a covenant", "in violation of financial covenant", "in violation of a financial covenant", "in default of financial covenant", "in default of a financial covenant", "in technical violation of financial covenant", "in technical violation of a financial covenant", "in technical default of financial covenant", "in technical default of a financial covenant", "not in compliance", "out of compliance", "received

quarters to cure the default, because further credit deterioration leads to additional violations, or simply because the firm chooses to disclose more than one quarter of its financial history in a given filing.[5] To focus our analysis on violations that represent genuine news, we limit our attention to *new* violations, defined for a given firm to be the first recorded indication of a violation following at least two years of filings with no report of a violation. With a record of violations beginning in August 1996, we generate new violations that were filed between September 1998 and August 2006. To limit attrition at the end of the sample, we focus on filings referring to new violations that occurred by the end of 2005. This initial sample includes 1,491 new violations.

We merge this sample of violators with accounting data from *Compustat* and stock price data from *CRSP*. Using a May 27, 2007 extract of quarterly financial statement data from *Compustat*, we merge the violation indicator data to *Compustat* using an IRS identification number. We limit the sample to non-financial firm-quarter observations between 1995:Q3 and 2007:Q4, a time period that is slightly wider than the period in which we observe covenant violations. We drop observations with missing data on contemporaneous or lagged values of assets, sales, or EBITDA. Finally, since we require an adequate measure of performance prior to the covenant violation, we require all firms to have four consecutive quarters of data on assets, lagged assets, sales, and EBITDA. This sample contains a total of 1,254 firm-quarters where the reporting firm is in violation of a covenant and has not been in violation during the previous two years.

Next, we collect stock return data from *CRSP* using the *CRSP* perm number retrieved from Compustat. We require each firm to have a sufficient number of usable stock returns before and after the violation to generate our performance measures. In our most limited sample, we have adequate returns data for 1,142 firms. In a sample that we use for cross-sectional analysis in section VI, we have 1,061

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waiver", "received a waiver", "obtained waiver", "obtained a waiver." See Sufi (2007) and Roberts and Sufi (2007) for additional information on how the initial sample of covenant violations is collected.

[5] Anecdotally, many of the reported violations are not unique, in that more than one report may refer to a violation of the same covenant at the same time.

firms for which we have both Compustat data and sufficient return data for 24 months following the violation.

A. Summary Statistics

Figure 1 provides a time series plot of when firms reported new violations during our sample period, set against aggregate corporate earnings measured over the same period. The fraction of firms in violation during a given quarter varies from a high of nearly 1% in the fourth quarter of 1998 to a low of about 0.5% in the second quarter of 2004. The fraction correlates negatively with corporate earnings, consistent with the idea that many of the violations trip cash-flow based financial covenants. The correlation also highlights that controlling for aggregate conditions is important in our performance analysis, because periods such as late 1998 and 2001 will be over-represented in our sample.

Table 1 provides an indication of the financial and operating condition of the firms violating a covenant in the quarter of the violation. Compared with other Compustat firms measured in the same quarter, firms in violation of a covenant have, on average, significantly lower ROA (EBITDA/Assets), significantly lower margins (EBITDA/Sales), and lower turnover (Sales/Assets). Violators are significantly more leveraged (Book Debt/Assets or Book Debt/EBITDA) and have much lower coverage (EBITDA/Interest Expense) than the average Compustat firm. Violating firms are also smaller in terms of assets and sales. Overall, the reported differences are substantial and show that firms in violation of a covenant tend to be smaller firms that are performing poorly and have relatively weak balance sheets.

The bottom panel of Table 1 shows that the performance of covenant violators declines over the four quarters prior to the violation. Perhaps most notably, while the assets of the average Compustat firm increases by 7%, firms that violate a covenant reduce their asset size by over 3%. Viewed differently, despite the weakness at the time of the violation, the sample of violators perform very close to average and are not exceptionally unhealthy four quarters before the violation.

B. Exiting from Compustat

Because our data are constructed from a sample of cash-constrained firms that are in technical default on a loan, we must take particular care that our results are not biased by selection. Namely, a substantial

number of covenant violators could drop out of the sample due to bankruptcy, liquidation, privatization, merger, or for other reasons.

Table 2 gives a sense for the attrition rates in our sample compared to the entire sample of Compustat fimrs. We code a firm as exiting the sample when it is either dropped from Compustat, or lacks data on EBITDA, sales, or assets. We cross-check exits with the CRSP delisting file by examining whether a CRSP delisting occurs within one year of the Compustat exit. When a Compustat exit matches a CRSP delisting, we record the CRSP reason for the delisting.[6] The CRSP data identifies delistings due to liquidations and mergers; we attribute all other exits to missing data.

We focus on exits within 4 quarters and 8 quarters of a violation and find no evidence that firms in violation of a covenant exit Compustat faster than other firms. In fact, the evidence in Table 2 suggests that violators are liquidated slightly less often, and merge more often, than other firms, both of which tend to be good news for shareholders. Missing data is a common reason for an exit from Compustat, but the incidence of such exits is very close for violators and all other firms. In sum, exit rates, particularly liquidation rates, do not appear excessively high for firms that violate covenants.

IV. Stock Price Performance of Firms Violating a Covenant

We now turn to measuring the performance of firms following the violation of a loan covenant. This section examines the stock price performance of violating firms in both calendar and event time. The calendar time estimates are derived by measuring the performance of a portfolio that buys and holds covenant violators beginning in the month after the covenant is disclosed in an SEC filing. We obtain the event time estimates using traditional event study methods centered around the month in which the violation is disclosed.

A. Calendar time estimates of abnormal performance

We begin by considering the performance of a *covenant violator portfolio* that buys and holds firms reporting a recent or potential covenant violation. Tracking the covenant violator portfolio allows us

to measure the stock price performance of new covenant violators in calendar time. The portfolio buys the stocks of the firms at the beginning of the month following the report of a violation and holds them as part of an equally weighted portfolio for *k* months following the purchase. The portfolio is rebalanced monthly, as new covenant violators are added and old violators are dropped at the end of their holding period.

The portfolio is also rebalanced following a firm exit from the sample through delisting. The return on a delisting stock in its final month is calculated assuming its final price is the delisting amount (*dlamt*) recorded in CRSP. The delisting amount is the value of the delisting share following an exchange or merger offer, or if no such information exists, the price of the stock on its last day of trade. The average stock of a firm that violates a covenant and later delists because of a merger earns 1.14% in its last month on the exchange. The average stock of firm that violates a covenant and later delists because it is liquidated experiences an average return in the last month of trading of -35%. In unreported results, we explore the impact of assuming that delistings due to liquidation result in a complete loss in value of the stock in the month that it delists. This assumption reduces the average monthly return on the covenant violator portfolio by about 0.2%, but does not otherwise influence the statistical significance of our results.

We begin the portfolio in October 1998 and follow the performance of the portfolio through December 2007, for a total of 111 months. Over the entire sample period, a total of 1,168 new covenant violators are included in the covenant violator portfolio. Figure 2 provides information on the composition of the portfolio over the sample period, assuming a 24-month holding period. Panel A graphs the number of stocks in the portfolio, by month. The portfolio begins in 1998 with relatively few violators, but accumulates them quickly, leveling off to an average of 300 stocks during the early 2000s, and between 200 and 225 stocks in the mid 2000s. Panel A reports the distribution of the number of months each firm is held in the portfolio. Consistent with the sample exit rates reported in Table 2,

[6] In very few cases is there CRSP delisting information and the firm exits Compustat more than a year from the delisting date. However, about one-half of all firms exiting from Compustat do not have any CRSP delisting

roughly 75% of the firms remain in the portfolio over the entire 24-month holding period, and only about 10% within their first year in the portfolio.

We judge the performance of the covenant violator portfolio using a Jensen's alpha methodology, measuring the returns of the covenant violator portfolio against a four-factor benchmark model. That is, we estimate the abnormal performance of the portfolio as the intercept α_p in the follow regression:

$$r_p = \alpha_p + X'B_p + \varepsilon_p, \qquad (3)$$

where r_p is the T *x* 1 vector of monthly returns on the covenant violator portfolio in excess of the one-month treasury bill rate, and X is the T *x 4* matrix containing the monthly observations on the four factors.

Our four factors include the three factors from Fama and French (1993), as well as a momentum factor. Specifically the factor returns are: (1) the monthly return on the equally weighted average index of NYSE/AMEX and NASDAQ stocks, measured in excess of the one-month treasury bill rate, (2) the average return on a small capitalization portfolio minus the average return on a large capitalization portfolio, (3) the average return on a value (high book-to-market) minus the return on a growth (low book-to-market) portfolio, and (4) the difference in the monthly return of stocks with high returns over the trailing 11 months and stocks with low returns over the trailing 11 months. All four monthly series are downloaded from Kenneth French's web-based data library.[7]

Figure 3 graphs the return on the covenant violator portfolio (solid line) from October 1998 through December 2007, assuming each stock is held for 24 months or to the point that the stock delists, whichever comes first. The covenant violator portfolio increases nearly 6-fold over the nine-year period, averaging a 2.17% gain per month, or 26.05% per year. By comparison, a mimicking portfolio constructed to have no abnormal performance but similar 4-factor risk weights (dashed line) increases only 2-fold over the period (0.9% per month or 10.78% per year).

Table 3 reports the average monthly abnormal performance of the covenant violator portfolio over various holding periods, using both the four factor model and a benchmark containing only the

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information.

excess return on an the NYSE/AMEX index. The results are consistent across the specifications. The estimates of average monthly abnormal performance hover around 1.0% per month, or about 12% per year, when measured against the four-factor model. The estimates are slightly higher against the one-factor benchmark. All estimates are statistically significant at the 10% level, and estimates over holding periods greater than one year are significant at the 5% level.

Figure 4 contains a scatter plot of the differences in the realized monthly portfolio return and the returns implied by the four-factor model. The figure gives a visual sense for the distribution of portfolio abnormal returns across the event months. The largest returns, both positive and negative, are observed in 2000, possibly as a result from the final run-up and then decline in stocks around the collapse of "dotcom" firms. More importantly, the mass of the estimates are consistently positive over the entire sample period, suggesting that the performance results reported in Table 3 are not driven by a particular subperiod of our sample.

B. Event time estimates of abnormal performance

Following the methodology developed by Thompson (1985) and Sefcik and Thompson (1986), we conduct our monthly event-time regressions in a multiple regression format,

$$r_i = a_i + X'B_i + \Delta_i'\Gamma_i + \varepsilon_i, i = 1,2,....., N. \qquad (2)$$

In (2), the T x 1 vector of monthly stock returns in excess of the one-month treasury bill rate for covenant violator i, r_i, is regressed on an intercept, a T x 4 set of benchmark monthly return factors X, and a T x (k_0 + k_1 + *1)* matrix of dummy variables that identify the k_0 months prior to the event, the event month, and the k_1 months after the event. We define the event month to be the month in which a firm reports a new covenant violation to the SEC. The coefficients B_i are a set of loadings on the m factors, and the coefficients Γ_i are the $k_0 + k_1 + 1$ monthly abnormal returns around firm i's report of a violation. The intercept a_i measures firm i's abnormal return in the non-event period.

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[7] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

For each violating firm, we estimate the parameters of equation (1) using all monthly return observations between September 1998 and December 2007. To be included in the event study regressions, we require that a covenant violator firm have at least ten months of useable return observations, and that at least three months of observations lie inside the event window. We account for firms that delist over this period by assuming that the delisting firm pays out the CRSP delisting amount (*dlamt)* in the month of the delisting, but check the sensitivity of our estimates to the assumption that all liquidating firms experience -100% return in the delisting month.

We estimate average abnormal returns (ARs) by calculating the mean of the estimates of Γ_i across the sample firms. Figure 5 summarizes the mean abnormal returns by plotting the average cumulative abnormal return (CAR) over the event window beginning 12 months prior to the event month and ending 24 months afterwards. We report the CAR using an index set equal to 1.0 in the event month. The figure shows that the covenant violators experience an abnormal decline in stock price performance in the year prior the violation, equal to roughly 20% over that year. The decline is consistent with a deterioration in company performance that ultimately leads to the firm triggering of a loan covenant. Beginning in the month immediately following the month of the reported violation, the stock price begins to climb, nearly monotonically, over the next two years. By month 24 following the event, the average covenant violator has earned a cumulative return that is 20% higher than the return implied by the four-factor benchmark.

We judge the statistical significance of the positive post-event CARs using standard error estimates that are robust to clustering. Specifically, we first group the covenant violator-level CAR estimates by month and calculate the mean CAR within the month. We then compute the standard error of the monthly CARs, weighted by the number of covenant violators within the month. This method provides a conservative adjustment for clustering since it excludes any information obtainable from within-month variation in CARs across covenant violators.

Table 4 reports the average monthly abnormal return estimates and their cluster-robust standard errors over a variety of event windows.[8] The first thing to note is that the AR estimate from the event month is negative and statistically significant. This finding is not necessarily surprising, as the event-month AR will incorporate information both about the events leading to the covenant violation and the violation itself. Moreover, evidence from Beneish and Press (1995) that documents a decline in stock prices in the days around the announcement of a covenant violation suggests that investors do not immediately impound future performance improvements into the stock price of a violator once a violation becomes public.

However, following the event month, CAR estimates are positive. Within 6 months of the violation report, violating firms are earning an average positive CAR of 1.1% per month (13.2% per year) that is statistically significant at the 1% level. This pattern persists over longer event windows, though abnormal returns appear to diminish beginning 12 to 24 months after the event.

Overall, the event time estimates of abnormal performance reinforce the findings from the calendar-time covenant violator portfolio. Namely, the average firm that violates a loan covenant experiences positive abnormal stock returns in the months following its first violation. In the next section, we examine whether violating firms show a similar improvement in operating performance, and investigate the operating changes that are associated with performance observed performance enhancements.

V. Operating Performance Following a Covenant Violation

We next examine the operating performance of violating firms compared with a control set of similar firms that are not in violation of a covenant. By measuring the operating performance of violating firms, we can both ascertain the extent to which cash-flow and accounting-based measures of performance reinforce our stock price results and use changes in operating performance to uncover where potential gains in post-event profitability occur.

[8] The number of observations used to estimate the CARs varies slightly by event window since the screens that exclude observations vary by window size.

A. *Matched Sample Construction*

Given the particularly strong deterioration in the operating performance of violators, it is important to compare their performance following the violation to firms with similar pre-event performance. Barber and Lyon (1996) have shown that cash flow-based measures of operating performance exhibit strong mean reversion, so we would bias our abnormal performance measures *upward* by not properly controlling for performance prior to the violation. We choose two non-exclusive sets of potential matches: firms with a similar level of performance and firms with a similar change in performance during the four quarters prior to the violation.

We begin the matching process by identifying a suitable pool of potential matches as all firms in the same industry (2-digit SIC code) with the same fiscal year.[9] From this set of potential matches, our first group of peers is all firms within 1% (plus or minus) of the level of ROA of the violating firm in the quarter of the violation. The second group of peers is all firms within 1% (plus or minus) of the change in ROA of the violating firm from four quarter before the violation to the quarter of the violation. These groups provide control firms that are similar in either the level or the change in operating performance as of the violation.

Table 5 provides summary statistics on our sample of violators and the matched samples. Among all 1,254 observations of new violations, we successfully find a control group based on the level of performance ("Matched Sample 1") for 1,246 observations and a control group based on the change in performance ("Matched Sample 2") for 1,213 observations. For the remaining observations, the pool of potential matches contains zero firms. Due to the importance of comparing firms with similar pre-violation performance, we exclude these unmatched observations from the matched sample analysis.

For each observation of a covenant violation, we construct a measure of abnormal operating performance in a particular quarter as

$$AP_{it} = (P_{it} - P_{i0}) - (\overline{MP_{it} - MP_{i0}}), \qquad (2)$$

[9] We want to avoid any potential seasonality in quarterly performance measures.

where P is the change in particular performance measure such as EBITDA / Assets, and MP is the sample mean of the change in the same measure for the set of matched firms. The subscript i indexes a violating firm and t indexes in event time relative to the covenant violation quarter, which is $t = 0$. We focus on changes in performance from the quarter of the violation and accumulate the abnormal performance measures for the four quarters following the violation, $\sum_{t=1}^{4} AP_{it}$, and eight quarters following the violation, $\sum_{t=1}^{8} AP_{it}$. All results are reported at an annual rate and should be interpreted as the one-year and two-year changes in performance relative to firms with similar pre-event ROA.

For the observations with matches, the control groups are very similar to the violators along a variety of observable characteristics. As shown in Table 5, Matched Sample 1 has average performance measures that are very close to the violators. Firms in Matched Sample 2 tend to have better performance, on average, but are very close in terms of the change in performance during the year prior to the violation (not shown). Two notable differences, however, are in the use of debt and the size of the firms. Covenant violating firms tend to have higher leverage and lower coverage ratios, likely reflecting the increased use of debt that contributed to the covenant violation. Covenant violating firms are also smaller, having only about one-third of the assets and sales of their non-violating counterparts.

As with the comparison to the full set of Compustat firms, exit rates are broadly similar between the violating firms and their matched peers. Most importantly, violating firms are not liquidated more often than their matches, again minimizing concerns about sample selection.

B. Abnormal Performance

Figure 6 plots the time series of mean ROA for our sample of violators and the two sets of control firms, plus the mean ROA across all firms in Compustat. During the four quarters prior to the violation, violators experience a precipitous decline in ROA, reflecting deterioration in performance that led to the violation. The violators matched peers also experience a deterioration in performance; by construction, the deterioration is very close for the peers matched on changes, and the level at the time of the violation is very close for the peers matched on levels. Following the violation, all three sets of firms experience

an increase in ROA, yet the increase appears largest for the violators.[10] We next examine formally the statistical and economic significance of the relative performance changes.

Table 6 presents summary statistics for three different measures of operating performance: ROA (EBITDA / Assets), margin (EBITDA / Sales), and turnover (Sales / Assets). The distributions of abnormal performance display a positive skew, as evidenced by the difference between sample means and sample medians. In order to account for potential non-normality in the sample, hypothesis testing for means is done using bootstrapped p-values.

The results in Table 6 show that the means and medians for all three abnormal operating performance measures are significantly positive. Compared with the Matched Sample 1, in the first year after the violation, the mean abnormal ROA is 1.6% per year, mean abnormal margin is 6.3% per year, and mean abnormal turnover is 2.1% per year. After two years out, mean ROA increases to 2.3% per year, and mean abnormal turnover rises to 5.3% per year. In all cases, these values are statistically significant at the 5% level, and most are significant at the 1% level. Median abnormal performance tends to be smaller than mean abnormal performance, but most measures are significantly different from zero according to signed rank test statistics. Measures of abnormal performance are largely similar when using Matched Sample 2.

To give a sense of the magnitude of these effects, it is useful to consider the mean levels of these performance measures across all public firms, as reported in Table 1 for the "Remainder of Compustat." At an annual rate, the mean ROA abnormal performance is about 21% of the mean ROA (1.6% / 4*1.9%) one year after the violation. The mean turnover abnormal performance is less than 10% of the mean turnover, but violating firms did not have particularly low turnover at the time of the violation. Put another way, violating firms very quickly close the gap in performance between them and the average

[10] Two factors contribute to the sharp increase in ROA immediately following the violation. First, general macroeconomic conditions tended to improve after many of our sample violations, which helped all firms. Second, we restrict the sample observations to be non-missing for four quarters prior to the violation but permit attrition immediately following the violation. This inclusion criteria generates an upward bias in performance since firms that persist tend to be better performers. This effect is mitigated when we examine changes since a firm must be in the sample in both periods to compute a change.

firm in their industry, and do so much faster than firms with similar poor performance. On average, firms that violate financial covenants experience a very real improvement in their operating performance during the two years after the violation.

The bottom three panels in Table 6 display 4-quarter and 8-quarter growth rates in assets, sales, and the cost of goods sold for the violators compared with their matched counterparts.[11] Within 1 year after the violation, the violators experience significant drops in assets, sales, and the cost of goods sold. By two years after the violation, the average violator has undergone a 16%-19% relative decrease in assets, a 14%-16% relative decrease in sales, and an 18%-20% decrease in the cost of goods sold. The improvements in performance documented above appear to be driven by a scaling back of operations.

C. Regression Analysis

To complement the matched sample results, we also use the entire set of Compustat firms and control for past performance parametrically in a regression. Specifically, we regress both the level and the first-difference of the three performance measures on event-time indicators of a covenant violation and a variety of control variables. The level regressions include firm level fixed-effects. To control for broad market conditions, we include industry-quarter dummy variables, and to control for the influence of past performance, we include four lags of the performance measures along with the second-, third-, and fourth-powers of the four lags. The full set of controls should provide the necessary flexibility to model the autocorrelation process. We include violation indicator variables for the four quarters prior to the violation, the quarter of the violation, and the eight quarters following the violation. Given all of the control variables, the effect of a covenant violation is identified by firm specific variation in the time series pattern of performance around violations, with flexible controls for the general time series pattern in performance. Since we do not require a matched sample, we include all 1,254 incidents of new covenant violations.

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[11] Relative growth rates are computed identically as the abnormal performance measures. The abnormal growth rate for each violator is the violator's growth rate less the average growth rate in the matched sample.

Table 7 reports the results. As expected, covenant violating firms significantly underperform during the four quarters prior to the violation and experience a sharp deterioration in the quarter of the violation. However, as with the matched sample results, violating firms significantly outperform their peers in the quarters following the violation. The coefficients in the first-difference specification indicate that violations are followed by particularly strong increases in ROA and turnover, which are particularly strong in the second, third, and fourth quarters following the violation. Based on the estimates from the level regressions, violating firms return to an average level of performance within a year after the violation.

The magnitudes of the estimated effects from the regressions are very close to the matched sample results. Adding up the estimated coefficients T+1 through T+8 in the first-difference regressions yields an estimate of the cumulative abnormal performance eight quarters after the violation, which is comparable to the estimates reported in Table 4. For ROA, the regression estimate is 1.5%, quite close to the estimate from the matched sample. For margin, the regression estimate is 3.5%, a bit smaller than the matched sample estimates. For turnover, the regression estimate is 4.5%, right in the range of the matched sample estimates. The cumulative performance measures out 4 and 8 quarters are statistically larger than zero with reasonable confidence and remain economically meaningful. In sum, the regression results bolster our conclusion that covenant violations are followed by significantly positive abnormal performance.

VI. Performance of Covenant Violators Grouped by Pre-event Performance

Not all covenant violations arise due to deteriorations in borrower performance. Indeed, some borrowers request a waiver of a restrictive covenant after operating performance gains because the covenants restrict their ability to continue to grow. Examples of such waived covenants that appear in our sample include covenants that impede the raising of new capital, the ability to acquire a new firm (or be acquired), and the ability to spend over a capital expenditure limit. One explanation of our performance results could be that the covenant violations are associated with good news for some firms and these firms

dominate the post-violation mean performance and return measures. To investigate this concern, we split our sample based on pre-violation performance to focus on particularly poor performing firms.

Specifically, we separate firms into two groups according to their average abnormal stock price performance in the year prior to the violation. "Losers" (748 firms) are firms that experience a negative abnormal return in the year prior to the violation, and "winners" (409 firms) are the remainder. This simple cut on the data is meant to identify firms where performance has declined in recent quarters and the violation is likely due to the deterioration. Although both sets of firms report covenant violations, we suspect that monitoring increases more substantially for the losers. If the increase in scrutiny is a cause for the change in performance, we expect to see larger abnormal performance in the group of losers.

Table 8 and Figures 6 and 7 show that calendar-time and event-time abnormal returns are starkly different for the two groups. Over the 24 months following the violation, the losers portfolio earns an average return of roughly 1.5% per month (18% per year) while "winners" earn a statistically insignificant 0.2% per month (2.4% per year). The event study results are similar, though the gap between losers (earning 2.0% per month) and winners (earning -1.1% per month) is even larger.

We obtain similar results using our measures of operating performance. Again, we split the sample into two groups based on their performance prior to the violation. We focus exclusively on ROA and define "losers" as firms where the average ROA over the quarter of the violation and the prior quarter is less than the average ROA over quarters two to four before the violation. "Winners" are all remaining firms; the sample has 843 (814) "losers" and 403 (300) "winners" with a successful match based on the level (change) of performance. Table 9 shows that the positive abnormal operating performance is concentrated in the loser subsample. Since we are cutting the sample on the change in ROA prior to the violation, we focus on the control group that is matched pre-event changes in ROA. Compared with "Matched Sample 2," the change in mean abnormal ROA is insignificantly different from zero for the winner sample but reaches 3.2% over the eight quarters following a violation for the losers. Compared with the full sample estimates, the estimated violation effect is about twice as big within the losers subsample. As we suspect that lenders increase their control rights and monitoring of firms with recent

deterioration, this result supports our interpretation that the positive abnormal performance is driven by actions taken by banks who use the covenant violation as a trip wire to increase their scrutiny of borrowers' activities.

VI. **Conclusion**

We offer evidence that firms in violation of a covenant in a private debt agreement outperform risk-adjusted benchmarks and peer firms not in violation of a covenant. Violating firms experience higher stock returns, earnings, and sales. Moreover, the positive performance is concentrated in firms with the largest deterioration in performance prior to the violation. Given the well-documented set of control rights given to creditors following a covenant violation, we interpret the evidence as suggesting that creditors serve a managerial governance role that benefits equityholders by increasing the value of the firm.

Perhaps this result is not surprising, given the extensive literature showing that financial intermediaries are valuable as delegated monitors of their borrower's actions and the existence of unresolved conflicts of interest between managers and equityholders in public companies. A fruitful area for future empirical research would be to document the full set of control rights that creditors can use to discipline management and how they interact with the tools available to equityholders. On the theoretical side, models of corporate governance should recognize the contractual control rights available to creditors in the optimal governance structure.

References

Aghion, Philippe and Bolton, Patrick, 1992. An incomplete contracts approach to financial contracting, *Review of Economic Studies* 59: 473-94.

Altman, Edward, 1984. "A further empirical investigation of the bankruptcy cost question," *Journal of Finance*.

Andrade, Gregor and and Steve Kaplan, 1998. "How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed," *Journal of Finance* 53: 1443-1494.

Asquith, Paul, Robert Gertner, and David Scharfstein, 1994. "Anatomy of financial distress: An examination of junk bond issuers," *Quarterly Journal of Economics*, 625-658.

Baird, Douglas and Robert Rasmussen, 2005, "Private Debt and the Missing Lever of Corporate Governance," U Chicago Law and Economics, Olin Working Paper No. 247.

Barber, Brad and John Lyon, 1996. "Detecting abnormal operating performance: The empirical power and specification of test statistics," *Journal of Financial Economics*, 41: 359-399.

Beneish, Messod and Eric Press, 1993. Costs of technical violation of accounting-based debt covenants," *The Accounting Review* 68: 233-257.

Beneish, Messod and Eric Press, 1995a. "The resolution of technical default," *The Accounting Review* 70: 337-353.

Beneish, Messod and Eric Press, 1995b. "Interrelation Among Events of Default," *Contemporary Accounting Research* 12: 57-84.

Berlin, Mitchell and Loretta Mester, 1992. "Debt Covenants and Renegotiation," *Journal of Financial Intermediation*, 2: 95-133.

Billet, Matthew, Mark Flannery, and Jon Garfinkel, 2006. "Are bank loans special? Evidence on the post-announcement performance of bank borrowers," *Journal of Financial and Quantitative Analysis*, 41(4): 733-752.

Chava, Sundheer and Michael Roberts, 2007. "How does financing impact investment? The role of debt covenants," *Journal of Finance*, forthcoming.

DeAngelo, Harry, Linda DeAngelo, and Karen Wruck, 2002. "Asset liquidity, debt covenants, and managerial discretion: the collapse of L.A. Gear," *Journal of Financial Economics*, 64, 3-34.

DeFond, M., Jiambalvo, J., 1994. "Debt covenant violation and manipulation of accruals," *Journal of Accounting and Economics* 17: 145-176.

Dewatripont, Mathias and Jean Tirole, 1994. "A theory of debt and equity: diversity of securities and manager-shareholder congruence," *Quarterly Journal of Economics* 109: 1027-1054.

Dichev, Ilia D. and Douglas J. Skinner, 2002. "Large sample evidence on the debt covenant hypothesis," *Journal of Accounting Research* 40: 1091 – 1123.

Fazzari, S.M., R.Glenn. Hubbard and Bruce.C. Petersen, 1988. "Financing Constraints and corporate investment." *Brookings Papers on Economic Activity*, pp. 141–195.

Garleanu, Nicolae and Jeffrey Zwiebel, 2007. "Design and Renegotiation of Debt Covenants," *Journal of Finance*, forthcoming.

Gilson, Stuart, 1997. "Transactions costs and capital structure choice: Evidence from financially distressed firms," *Journal of Finance* 52: 161-196.

Gilson, Stuart and Jerold Warner. "Private Versus Public Debt: Evidence from Firms that Replace Bank Loans with Junk Bonds." 2000.

Gomes, Armando and Gordon Phillips, 2007. "Why do firms issue private and public securities?, working paper, University of Maryland.

Hadlock, Charles and Christopher James, 2002. "Do Banks Provide Financial Slack?" *Journal of Finance* 57: 1383-1419.

Hennessy Christopher A., 2004. "Tobin's Q, Debt overhang, and investment." *Journal of Finance* 54: 1717-1742.

Hotchkiss, Edie, 1995. "Post-bankruptcy performance and management turnover," *Journal of Finance* 50:3-22.

James, Christopher, 1987. "Some evidence on the uniqueness of bank loans," *Journal of Financial Economics* 19, 217-235.

Jensen, Michael, 1986. "Agency costs of free cash flow," *American Economic Review* 76**,** 323–329.

Jensen, Michael C. and William H. Meckling, 1976. "Theory of the firm: Managerial behavior, agency costs, and capital structure," *Journal of Financial Economics* 3:305-360.

Kahan, Marcel and Bruce Tuckman, 1993. "Private vs. public lending: Evidence from covenants," Working paper, Anderson Graduate School of Management, UCLA.

Kaplan, Steven N., 1989a. "The effects of management buyouts on operations and value," *Journal of Financial Economics* 24: 217-254.

Kaplan, Steven N., 1989b. "Campeau's acquisition of Federated: Value created or value destroyed?" *Journal of Financial Economics* 25: 191-212.

Kaplan, Steven N., and Luigi Zingales, 1997. "Do investment-cash flow sensitivities provide useful measures of financing constraints?" *Quarterly Journal of Economics* 112:159−216.

Lamont, Owen, 1997. "Cash flow and investment: evidence from internal capital markets." *Journal of Finance* 52:83−109.

LoPucki, Lynn and William Whitford, 1993. "Patterns in the bankruptcy reorganization of large, publicly-held companies," *Cornell University Law Review* 78.

Maksimovic, Vojislav and Gordon Phillips, 1998. "Asset efficiency and reallocation decisions of bankrupt firms", *Journal of Finance* 53:1495-1532.

Myers, Stewart and Nicholas Majluf, 1984. Corporate financing and investment decisions when firm have information investors do not have, *Journal of Financial Economics* 13: 187-221.

Nini, Greg, David C. Smith, and Amir Sufi, 2008. Creditor control rights and firm investment policy, *Journal of Financial Economics,* forthcoming.

Opler, Tim and Sheridan Titman, 1994. "Financial distress and corporate performance," *Journal of Finance* 49: 1015-1040.

Rajan, Raghuram, 1992. "Insiders and outsiders: The choice between informed and arm's length debt," *Journal of Finance* 47: 1367-1400.

Rajan, Raghuram and Andrew Winton, 1995. "Covenants and collateral as incentives to monitor," *Journal of Finance* 47:1367-1400.

Rauh, Johsua D., 2006. "Investment and financing constraints: Evidence from the funding of corporate pension plans." *Journal of Finance* 56: 33-72.

Roberts, Michael and Amir Sufi, 2007. "Control rights and capital structure: An empirical investigation," working paper.

Sansone, Allison and Alicia Taylor, 2007. *The Handbook of Loan Syndications and Trading*, McGraw-Hill.

SEC, 2003. "Interpretation: Commission guidance regarding management's discussion and analysis of financial condition and results of operations," available at: http://www.sec.gov/rules/interp/33-8350.htm

Sefcik, S., and R. Thompson, 1986. "An approach to statistical inference in cross-sectional models with security anbormal returns as dependent variable," *Journal of Accounting Research* 24: 316-334.

Smith, Clifford, 1993. "A perspective on violations of accounting based debt covenants," *Accounting Review,* Vol. 68, No 2, 289-303.

Smith, Clifford and Jerome Warner, 1979. "On financial contracting: An analysis of bond covenants," *Journal of Financial Economics* 7: 117-161

Sufi, Amir, 2007. "Bank lines of credit in corporate finance: An empirical analysis," *Review of Financial Studies*, forthcoming.

Sweeney, Amy, 1994. "Debt covenant violations and managers' accounting responses," *Journal of Accounting and Economics* 17: 281-308.

Thompson, R., 1985. "Conditioning the return-generating process on firm-specific events: A discussion of event study methods," *Journal of Financial and Quantitative Analysis* 20: 151-168.

Verde, Mariarosa, 1999. "Loan preserve: The value of covenants, FitchIBCA loan products special report," available at www.fitchibca.com

Whited, Toni. 1992. “Debt, liquidity constraints, and corporate investment: evidence from panel data”, *Journal of Finance* 47:1425−1460.

Table 1
Summary Statistics for Firms Violating Covenants Compared with the Remainder of Compustat Firms

This table reports summary statistics for the sample of firms reporting "new" covenant violations in a 10-K or 10-Q SEC filing, where "new" means the firm did not report a violation during the previous eight quarters. To generate the "Remainder of Compustat" column, each violating firm is matched with all firms in the same 2-digit SIC code during the same quarter, and reported statistics are taken across all matches. Each Compustat firm must have 4 consecutive quarters of non-missing data on total assets, sales, and EBITDA. All ratios that are flows are reported in percentage points per quarter, and all ratios that are stocks are in percentage points. The "Difference" column reports the difference in mean and medians between the violator sample and total Compustat. ***, **, and * denote differences that are statistically different from zero at 1%, 5%, and 10% levels of significance, respectively.

	"New" Covenant Violators			Remainder of Compustat		Difference			
	N	Mean	Median	Mean	Median	Mean		Median	
Level at Violation									
EBITDA / Assets	1,254	0.6	1.3	1.9	1.9	-1.2	***	-0.6	***
EBITDA / Sales	1,254	-1.2	4.4	3.1	4.7	-4.3	***	-0.3	*
Sales / Assets	1,254	29.7	26.0	29.7	28.2	0.0	*	-2.2	**
Book Debt / Assets	1,254	27.7	25.9	24.3	22.2	3.5	***	3.8	***
Book Debt / EBITDA	1,254	7.4	4.4	6.4	5.1	1.0	**	-0.7	
EBITDA / Interest Expense	1,003	5.5	2.3	11.5	10.3	-6.0	***	-8.0	***
Assets ($ millions)	1,254	588.7	126.3	1,568.5	748.5	-979.7	***	-622.1	***
Sales ($ millions)	1,254	136.8	32.0	322.0	179.7	-185.1	***	-147.7	***
Change from 4 Quarters Before									
EBITDA / Assets	1,254	-1.7	-1.5	-0.3	-0.3	-1.4	***	-1.1	***
EBITDA / Sales	1,254	-6.2	-4.7	-0.1	-0.2	-6.1	***	-4.4	***
Sales / Assets	1,254	-1.7	-1.7	-0.1	-0.1	-1.6	**	-1.6	**
Book Debt / Assets	1,254	3.3	3.6	0.6	1.0	2.7	***	2.6	***
Book Debt / EBITDA	1,254	0.4	0.0	-0.1	-0.2	0.5		0.2	
EBITDA / Interest Expense	954	-5.7	-2.5	-0.5	-0.7	-5.2	***	-1.8	*
Assets (%)	1,254	-3.4%	4.9%	7.2%	8.9%	-10.6%	**	-4.0%	**
Sales ($ millions)	1,254	1.3%	-1.0%	5.3%	3.6%	-4.0%	**	-4.6%	**

Table 2
Sample Exit Rates for Firms Violating Covenants Compared with the Remainder of Compustat Firms

This table reports mean exit rates for the sample of 1,254 firms reporting a "new" covenant violation in a 10-K or 10-Q SEC filing, where "new" means the firm did not report a violation during the previous eight quarters. A firm exits Compustat when there is no observation for the relevant GVKEY or the observation is missing data on total sales, assets, or EBITDA. When an exit is not due to missing data, the CRSP delisting reason is used to classify the reason for the exit. In very few cases, the CRSP delisting date is more than a year from the Compustat exit, in which case the exit is classified as missing data. To generate the "Remainder of Compustat" column, each violating firm is matched with all firms in the same 2-digit SIC code during the same quarter, and reported statistics are taken across all matches. Each Compustat firm must have 4 consecutive quarters of non-missing data on total assets, sales, and EBITDA. The "Difference" column reports the difference in means between the violator sample and total Compustat. ***, **, and * denote differences that are statistically different from zero at 1%, 5%, and 10% levels of significance, respectively.

	"New" Covenant Violators	Remainder of Compustat	Difference	
Exit in 4 Quarters	11.6%	11.2%	0.4%	
Due to Liquidation	3.4%	3.6%	-0.2%	
Due to Merger	6.1%	4.9%	1.2%	***
Due to Missing Data	2.1%	2.7%	-0.6%	**
Exit in 8 Quarters	26.1%	25.0%	1.2%	
Due to Liquidation	5.7%	6.4%	-0.8%	**
Due to Merger	11.3%	8.9%	2.4%	**
Due to Missing Data	9.2%	9.6%	-0.5%	

Table 3
Calendar Time Estimates of Stock Price Performance Following a Covenant Violation

This table reports calendar time estimates of the stock price performance of a *Covenant Violator Portfolio* measured against a four-factor return model over the period 10/1/1998 to 6/30/2007. Stocks are added to the portfolio in the month following the first report of the covenant violation in a SEC 10-K or 10-Q filing, and are held in the portfolio for k months, or until they are delisted, whichever comes first. Delisting firms are assumed to earn the CRSP Delisting Amount in the month following the delisting, and zero afterwards. The portfolio is rebalanced monthly. Our sample includes 1,215 reported violations. The portfolio contains a maximum of 452 stocks of covenant violators at one point in time. The abnormal performance estimate α is the intercept from a regression of the monthly return on the covenant violator portfolio on four factor returns measured at a monthly frequency, all downloaded from http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/: (1) the excess return on the NYSE/AMEX market return, (2) the difference between the returns on small and big stocks, (3) the return performance of value stocks relative to growth stocks, and (4) the return performance of high momentum stocks relative to low momentum stocks. White (1980) heteroskedasticity consistent standard errors are in parentheses. ***, **, and * denote 1%, 5%, and 10% levels of significance, respectively.

	Holding period, k = 12 months		Holding period, k = 12 months		Holding period, k = 24 months		Holding period, k = 24 months		Holding period k = 60 months		Holding period, k = 60 months	
Abnormal performance (α)	0.012	*	0.009	*	0.011	**	0.010	**	0.012	**	0.010	**
	(0.006)		(0.005)		(0.005)		(0.004)		(0.005)		(0.004)	
Excess market return	1.193	***	0.781	***	1.880	***	0.862	***	1.166	***	0.834	***
	(0.146)		(0.183)		(0.130)		(0.148)		(0.126)		(0.146)	
Small minus big stocks			1.279	***			1.186	***			1.155	***
			(0.185)				(0.151)				(0.149)	
High minus low growth			0.219				0.265	*			0.141	
			(0.174)				(0.146)				(0.142)	
High minus low momentum			-0.598	***			-0.473	***			-0.455	***
			(0.201)				(0.154)				(0.154)	
Number of observations	104		104		111		111		111		111	

Table 4
Event Time Estimates of Stock Price Performance Following a Covenant Violation

This table reports event time estimates of stock price performance of firms violating a loan covenant by estimating the event-study monthly abnormal returns of stocks following the report of a loan covenant violation in their in a SEC 10-K or 10-Q filing. The estimates are for event months October 1998 through June 2006. Abnormal returns are measured against a four-factor return model. The factor returns, downloaded from http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/ and measured on a monthly basis, are: (1) the excess return on the NYSE/AMEX market return, (2) the difference between the returns on small and big stocks, (3) the return performance of value stocks relative to growth stocks, and (4) the return performance of high momentum stocks relative to low momentum stocks. Results are reported across individual stocks (Column (2)) and by clustering stocks by event month (Column (4)). Clustering-robust standard errors are in parentheses. ***, **, and * denote 1%, 5%, and 10% levels of significance, respectively.

	Event month [0]		Event months [+1, +3]		Event months [+1, +6]		Event months [+1, +12]		Event months [+1, +24]		Event months [+1, +60]	
Average monthly cumulative abnormal return	-0.021	**	0.007		0.011	***	0.011	***	0.009	***	0.007	***
	(0.009)		(0.006)		(0.004)		(0.003)		(0.002)		(0.002)	
Number of observations	1,154		1,158		1,135		1,138		1,142		1,144	

Table 5
Summary Statistics for Firms Violating a Covenant and their Matched Peers

This table reports summary statistics for the sample of firms reporting "new" covenant violations along with two matched samples. The matching process begins with all firms in the same industry (2-digit SIC code) with the same fiscal year. From this set of potential matches, "Matched Sample 1" includes all firms within 1% (plus or minus) of the level of ROA of the violating firm in the quarter of the violation. "Matched Sample 2" is all firms within 1% (plus or minus) of the change in ROA of the violating firm from four quarter before the violation to the quarter of the violation. All ratios that are flows are reported in percentage points per quarter, and all ratios that are stocks are in percentage points.

	"New" Covenant Violators N=1,246		Matched Sample 1 (level in violation quarter) N=1,246		Matched Sample 2 (change during prior 4 qrtrs) N=1,213	
	Mean	Median	Mean	Median	Mean	Median
EBITDA / Assets	0.624	1.303	0.658	1.446	1.225	1.682
EBITDA / Sales	-1.172	4.433	-2.307	6.508	0.007	4.722
Sales / Assets	29.701	26.056	27.769	26.094	28.375	26.382
Book Debt / Assets	27.595	25.898	23.827	21.860	23.268	21.508
Book Debt / EBITDA	7.466	4.398	6.475	5.419	5.830	4.823
EBITDA / Interest Expense	5.541	2.342	6.560	4.357	10.403	7.774
Assets ($ millions)	591	126	1,479	422	1,443	563
Sales ($ millions)	137	32	276	100	300	138
Exit in 4 Quarters	11%		13%		14%	
Due to Liquidation	3%		5%		5%	
Due to Merger	6%		3%		3%	
Due to Missing Data	2%		5%		6%	
Exit in 8 Quarters	26%		26%		24%	
Due to Liquidation	6%		9%		10%	
Due to Merger	11%		8%		0%	
Due to Missing Data	9%		9%		5%	

Table 6
The Abnormal Operating Performance of Firms Violating a Covenant, Against Matched Sample

This table reports mean and medial abnormal performance for the sample of firms reporting "new" covenant violations as compared with their matched peers. The matching process begins with all firms in the same industry (2-digit SIC code) with the same fiscal year. From this set of potential matches, "Matched Sample 1" includes all firms within 1% (plus or minus) of the level of ROA of the violating firm in the quarter of the violation. "Matched Sample 2" is all firms within 1% (plus or minus) of the change in ROA of the violating firm from four quarter before the violation to the quarter of the violation. All ratios are reported in percentage points per year. Abnormal performance is violator performance less the mean performance of matched firms. P-values for the mean are computed based on 10,000 bootstrap samples, and p-values for the median are based on a Wilcoxon signed-rank test.

Table 6 (continued)
Abnormal Operating Performance of Firms Violating a Covenant, Against Matched Sample

	Relative to Matched Sample 1 (level in violation quarter)					Relative to Matched Sample 2 (change during prior 4 qrtrs)				
	N	Mean	P-Value	Median	P-Value	N	Mean	P-Value	Median	P-Value
EBITDA / Assets										
4 Quarters Following	1,070	1.6	0.0%	0.9	0.1%	1,097	1.4	0.0%	0.8	0.1%
8 Quarters Following	863	2.3	0.0%	1.5	0.0%	892	1.5	0.0%	1.0	0.0%
EBITDA / Sales										
4 Quarters Prior	1,070	6.3	0.5%	0.4	36.5%	1,097	6.4	0.2%	2.4	0.1%
Violation Quarter	863	6.9	3.4%	0.8	31.3%	892	3.4	18.9%	4.4	3.2%
Sales / Assets										
4 Quarters Prior	1,070	2.1	1.1%	1.4	0.0%	1,097	0.7	45.0%	0.5	19.2%
Violation Quarter	863	5.3	0.0%	3.5	0.0%	892	3.3	2.0%	2.6	0.4%
Asset Growth										
4 Quarters After	1,070	-7.8%	0.0%	-7.5%	0.0%	1,097	-9.2%	0.0%	-7.0%	0.0%
8 Quarters After	863	-13.7%	0.0%	-19.4%	0.0%	892	-15.4%	0.0%	-16.5%	0.0%
Sales Growth										
4 Quarters After	1,070	-30.3%	0.8%	-7.5%	0.0%	1,097	-15.5%	0.2%	-7.3%	0.0%
8 Quarters After	863	-48.3%	2.3%	-15.9%	0.0%	892	-8.7%	6.9%	-14.0%	0.0%
Cost of Goods Sold Growth										
4 Quarters After	1,070	-5.3%	17.1%	-9.7%	0.0%	1,097	-8.3%	5.1%	-10.4%	0.0%
8 Quarters After	863	-7.4%	6.1%	-17.9%	0.0%	892	-15.1%	0.1%	-19.9%	0.0%

Table 7
The Abnormal Operating Performance of Firms Violating a Covenant: Regression Results

This table reports coefficient estimates from regressions of three performance measures (ROA, margin, and turnover) on indicators of covenant violations and control variables. The dependent variable is either the level ("Level") of the performance measure or the first difference ("First Dif") of the performance measure, expressed in units of percent per quarter. The level regressions include firm fixed effects. All regressions include industry-quarter indicator variables and fiscal-quarter indicator variables. All regressions also include 4 lags of the dependent variable, along with the second-, third-, and fourth-powers of the 4 lags of the dependent variable. For all regressions, the sample is all Compustat observations with 4 consecutive quarters of non-missing data on total assets, sales, and EBITDA, for a total of 156,677 firm-quarter observations. Standard errors are clustered by firm and reported in parentheses. ** and * denote 1% and 5% levels of significance, respectively.

	EBITDA / Assets		EBITDA / Sales		Sales / Assets	
	Level	First Dif	Level	First Dif	Level	First Dif
T-4	-0.185 *	-0.246 **	-0.100	-0.602	-0.665 **	-0.513 **
	(0.077)	(0.078)	(0.462)	(0.478)	(0.175)	(0.178)
T-3	-0.389 **	-0.434 **	-0.940 *	-1.451 **	-1.195 **	-0.955 **
	(0.074)	(0.075)	(0.443)	(0.457)	(0.168)	(0.170)
T-2	-0.320 **	-0.276 **	-0.771	-1.020 *	-1.011 **	-0.590 **
	(0.072)	(0.073)	(0.432)	(0.446)	(0.164)	(0.166)
T-1	-0.638 **	-0.554 **	-1.626 **	-1.825 **	-1.062 **	-0.584 **
	(0.071)	(0.073)	(0.429)	(0.442)	(0.163)	(0.164)
T	-1.121 **	-0.953 **	-4.529 **	-4.323 **	-1.154 **	-0.658 **
	(0.070)	(0.071)	(0.424)	(0.436)	(0.161)	(0.162)
T+1	-0.221 **	0.108	-0.451	0.455	-0.432 **	0.189
	(0.071)	(0.072)	(0.425)	(0.437)	(0.161)	(0.162)
T+2	0.033	0.342 **	0.574	1.581 **	0.136	0.775 **
	(0.070)	(0.071)	(0.422)	(0.435)	(0.160)	(0.161)
T+3	0.015	0.274 **	0.454	1.077 *	0.097	0.624 **
	(0.071)	(0.072)	(0.424)	(0.437)	(0.161)	(0.162)
T+4	-0.041	0.237 **	-0.153	0.220	0.002	0.462 **
	(0.071)	(0.072)	(0.427)	(0.440)	(0.162)	(0.163)
T+5	0.101	0.297 **	0.466	0.718	0.167	0.532 **
	(0.071)	(0.072)	(0.429)	(0.441)	(0.163)	(0.164)
T+6	-0.022	0.110	0.056	0.128	0.262	0.631 **
	(0.073)	(0.075)	(0.440)	(0.455)	(0.167)	(0.169)
T+7	-0.022	0.073	-0.345	-0.440	0.408 *	0.756 **
	(0.075)	(0.076)	(0.450)	(0.466)	(0.171)	(0.173)
T+8	0.000	0.079	-0.098	-0.218	0.383 *	0.571 **
	(0.077)	(0.079)	(0.462)	(0.479)	(0.175)	(0.178)
R^2	.746	.257	.815	.195	.918	.266

Table 8
Stock Price Performance of Firms Violating a Covenant, Grouped by Pre-Event Performance

This table reports average monthly abnormal return estimates following a covenant violation, grouped by the stock price performance of the firms prior to the violation. Abnormal returns are measured against a four factor return model cumulated beginning four quarters prior to the month of the violation report. The factor returns, downloaded from http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/ and measured on a monthly basis, are: (1) the excess return on the NYSE/AMEX market return, (2) the difference between the returns on small and big stocks, (3) the return performance of value stocks relative to growth stocks, and (4) the return performance of high momentum stocks relative to low momentum stocks. Firms that earn average abnormal returns that are negative in the year prior to the violation are "losers," while firms that earn average abnormal returns of at least zero over the year prior to violation are grouped as "winners." There are 748 firms in the loser group and 409 firms in the winner group. Averages are based firms reporting a covenant violation for the first time between October 1998 and June 2006. Panel A reports the event-time cumulative abnormal performance around the month in which the violation is reported. Panel B reports the calendar time performance of portfolios that separately buy and hold losers and winners for a three-year holding period, beginning in the month after the reported violation.

Panel A: Calendar Time Abnormal Performance, 24 month buy-and-hold return.

	Losers Portfolio		Winners Portfolio	
Abnormal performance (α)	0.015	***	0.002	
	(0.005)		(0.005)	
Number of Observations	111		109	

Panel B: Event-time abnormal performance, cumulative abnormal return over event window (+1, +24) months.

	Losers Portfolio		Winners Portfolio	
Average monthly cumulative abnormal return	0.020	***	-0.011	***
	(0.003)		(0.004)	
Number of observations	739		398	

Table 9
Operating Performance of Firms Violating Covenants Against Matched Sample, Grouped by Pre-Event Performance

This table replicates the results in Table 6 for two subsamples. "Losers" are defined as the subset of firms where the average ROA over the quarter of the violation and the prior quarter is less than the ROA over the quarters two to four before the violation (event time -4, -3, and -2). "Winners" are all other firms. The level (change) sample has 843 (814) "losers" and 403 (399) "winners." The statistics are mean and median abnormal performance. Abnormal performance is violator performance less the mean performance of matched firms. P-values for the mean are computed based on 10,000 bootstrap samples, and p-values for the median are based on a Wilcoxon signed-rank test.

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	Relative to Matched Sample 1 (level in violation quarter) N=1,246				Relative to Matched Sample 2 (change during prior 4 qrtrs) N=1,213			
	Mean	P-Value	Median	P-Value	Mean	P-Value	Median	P-Value
"Winners" EBITDA / Assets								
4 Quarters After	-0.9	8.5%	-1.0	6.0%	0.5	36.8%	0.1	80.7%
8 Quarters After	-0.9	20.4%	-0.7	31.9%	0.5	54.9%	0.2	64.2%
"Losers" EBITDA / Assets								
4 Quarters After	2.5	0.0%	1.5	0.0%	2.1	0.0%	1.2	0.0%
8 Quarters After	2.7	0.0%	2.6	0.0%	3.2	0.0%	2.0	0.0%

Figure 1
Time-Series Patterns in Loan Covenant Violations

The blue line in the figure displays the fraction of firms in Compustat that report a "new" financial covenant in a 10-K or 10-Q SEC filing, where "new" means the firm did not report a violation during the previous eight quarters. The red line displays the mean return on assets (EBITDA / book Assets) for all firms in Compustat. Both series are plotted as 4-quarter moving averages.

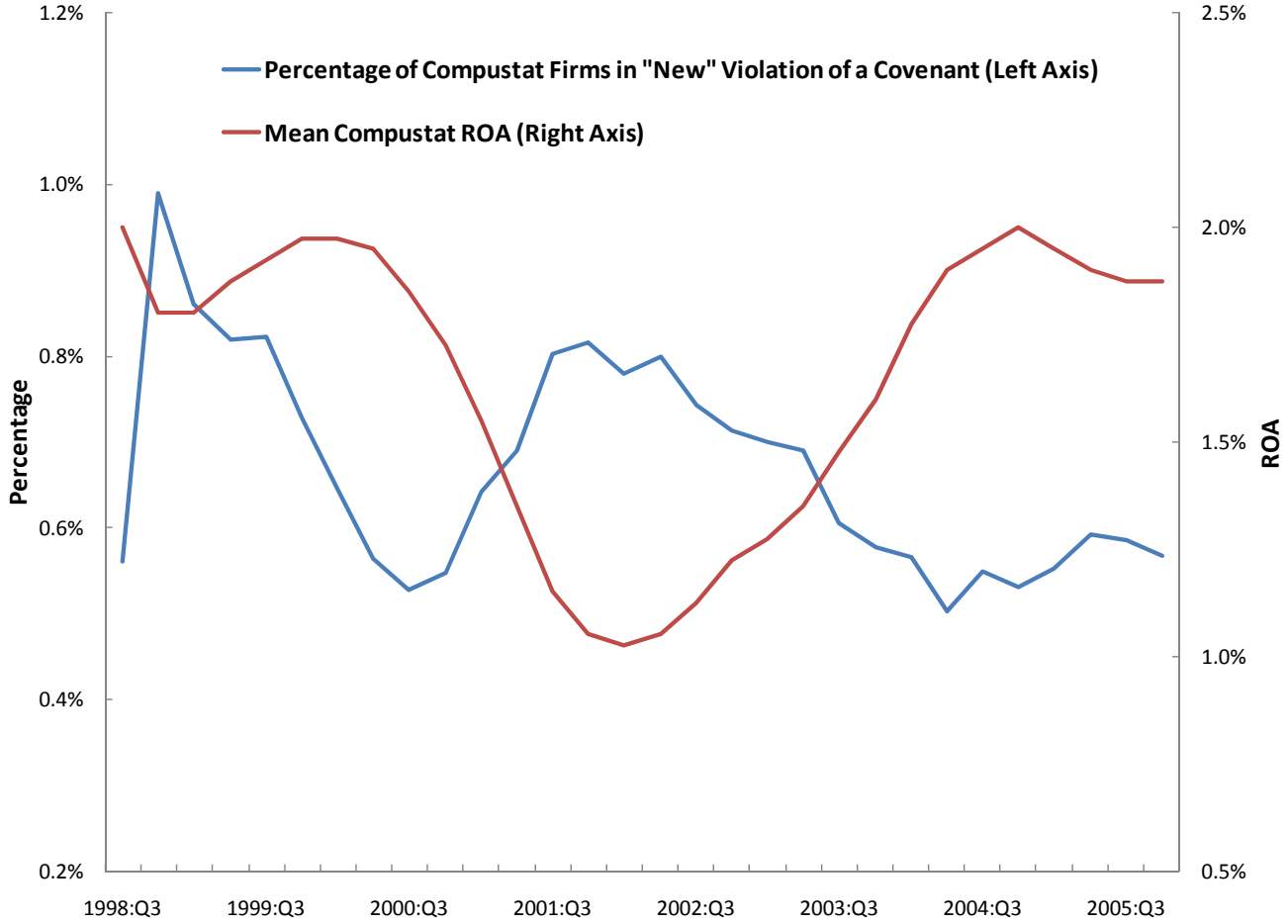
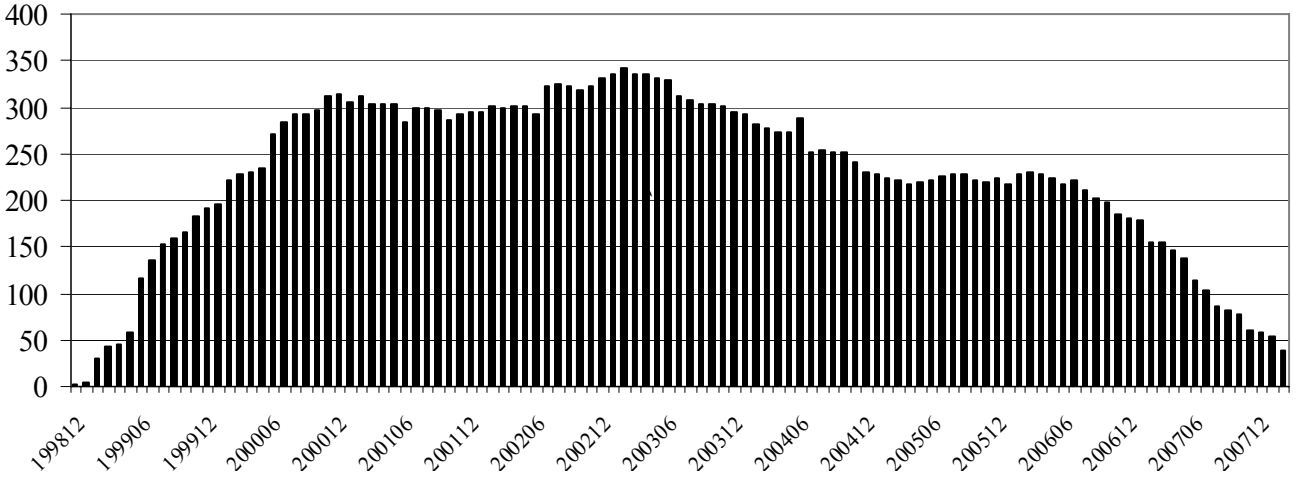


Figure 2
Information on the Composition of the Covenant Violator Portfolio with a 24-Month Holding Period

This figure reports information on the composition of the *Covenant Violator Portfolio*. The Covenant Violator portfolio is formed by holding an equally weighted set of stocks on firms that report new loan covenant violations in their SEC filings. The portfolio starts at the beginning of October 1998 and continues through December 2007. Stocks are added to the portfolio in the month following the first report of the violation and, for the figures below, are held in the portfolio for 24 months, or until they are delisted, whichever comes first. The portfolio is rebalanced monthly. Panel A reports the number of stocks in the portfolio by month. Panel B reports the distribution of the number of months each stock is in the portfolio. Over the course of the sample period, a total of 1,168 stocks are held in the portfolio.

Panel A: Number of stocks in the portfolio



Panel B: Number of months that stocks are in the portfolio

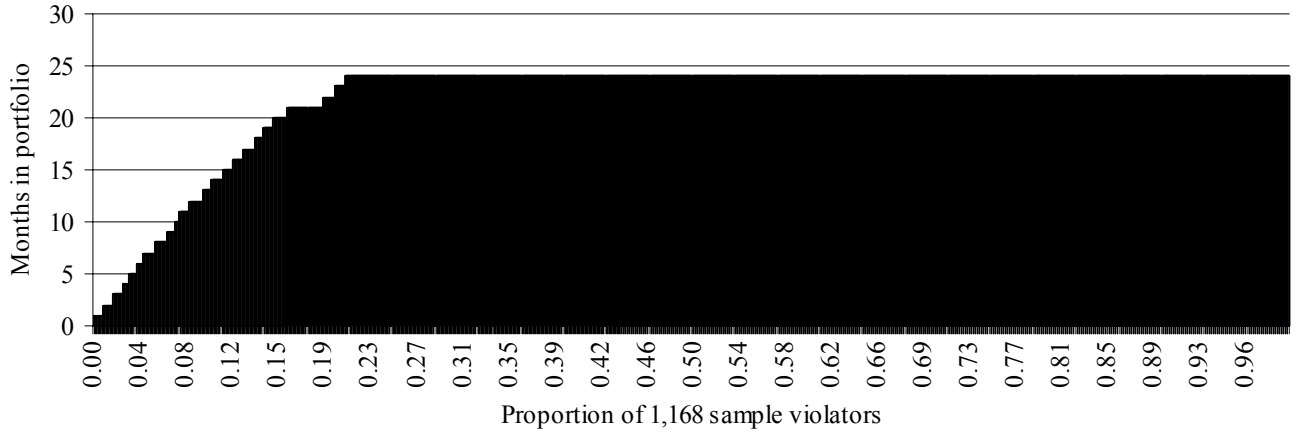
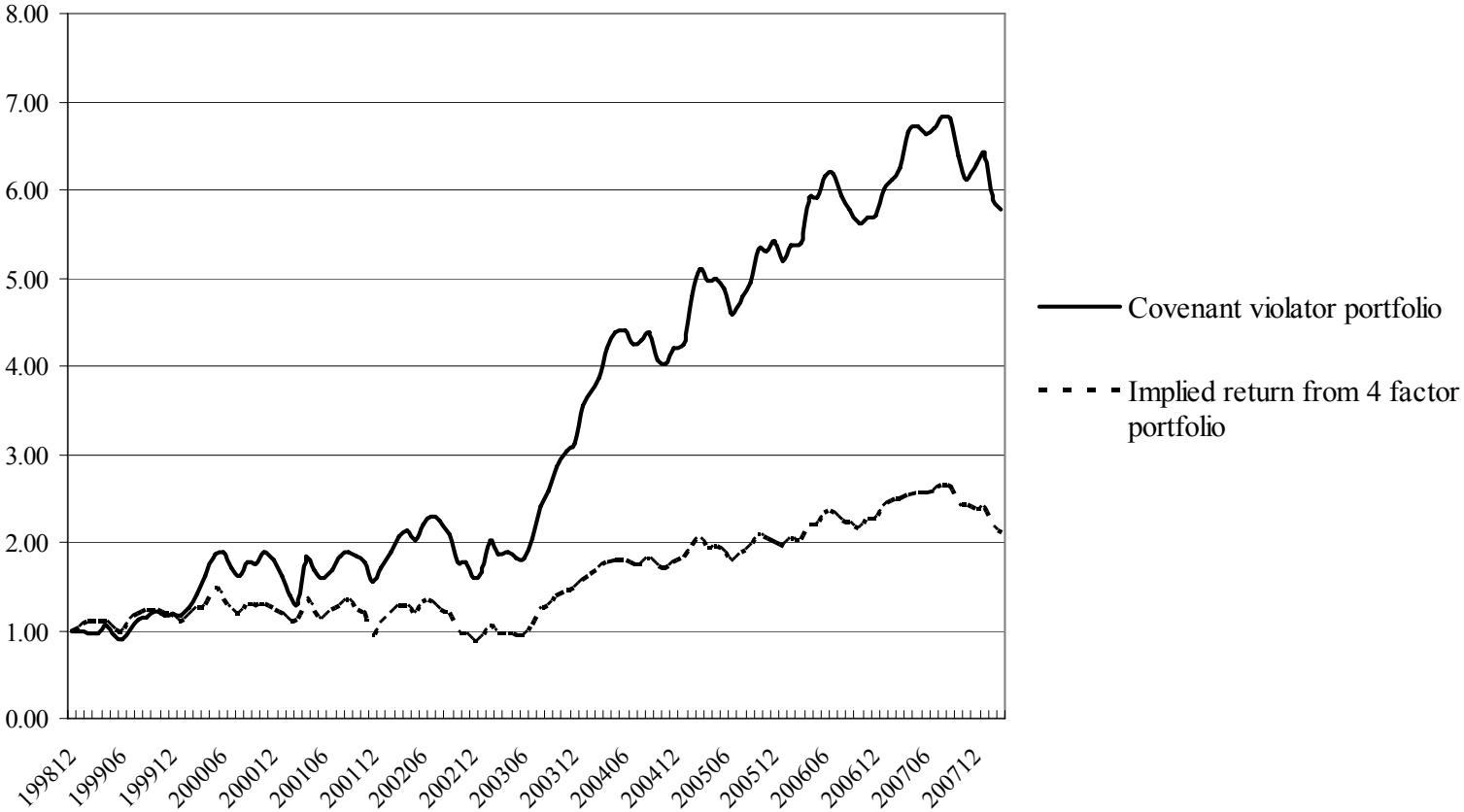


Figure 3
Monthly Performance of Covenant Violator Portfolio with a 24-Month Holding Period

This figure reports the total return performance of the c*ovenant violator portfolio* compared with the monthly return on a a four-factor return model with factor loadings equal to those estimated for the covenant violator portfolio. The factor returns, downloaded from http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/ and measured on a monthly basis, are: (1) the excess return on the NYSE/AMEX market return, (2) the difference between the returns on small and big stocks, (3) the return performance of value stocks relative to growth stocks, and (4) the return performance of high momentum stocks relative to low momentum stocks. The Covenant Violator portfolio is formed by holding an equally weighted set of stocks on firms that report loan covenant violations in their SEC filings. Stocks are added to the portfolio in the month following the first report of the violation and are held in the portfolio for 24 months, or until they are delisted, whichever comes first. Delisting firms are assumed to earn the CRSP Delisting Amount in the month following the delisting, and zero afterwards. The portfolio is rebalanced monthly.


8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
199812
199906
199912
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200012
200106
200112
200206
200212
200306
200312
200406
200412
200506
200512
200606
200612
200706
200712
Covenant violator portfolio
Implied return from 4 factor portfolio

Figure 4
Monthly differences in Realized Covenant Violator Portfolio Returns and Returns Implied by Benchmark Model

This figure reports the monthly differences in realized *covenant violator portfolio* returns and the returns implied by a four factor model with factor loadings equal to those estimated for the covenant violator portfolio. The factor returns, downloaded from http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/ and measured on a monthly basis, are: (1) the excess return on the NYSE/AMEX market return, (2) the difference between the returns on small and big stocks, (3) the return performance of value stocks relative to growth stocks, and (4) the return performance of high momentum stocks relative to low momentum stocks. The Covenant Violator portfolio is formed by holding an equally weighted set of stocks on firms that report loan covenant violations in their SEC filings. Stocks are added to the portfolio in the month following the first report of the violation and are held in the portfolio for 24 months, or until they are delisted, whichever comes first. Delisting firms are assumed to earn the CRSP delisting amount (*dlamt*) in the month following the delisting. The portfolio is rebalanced monthly.

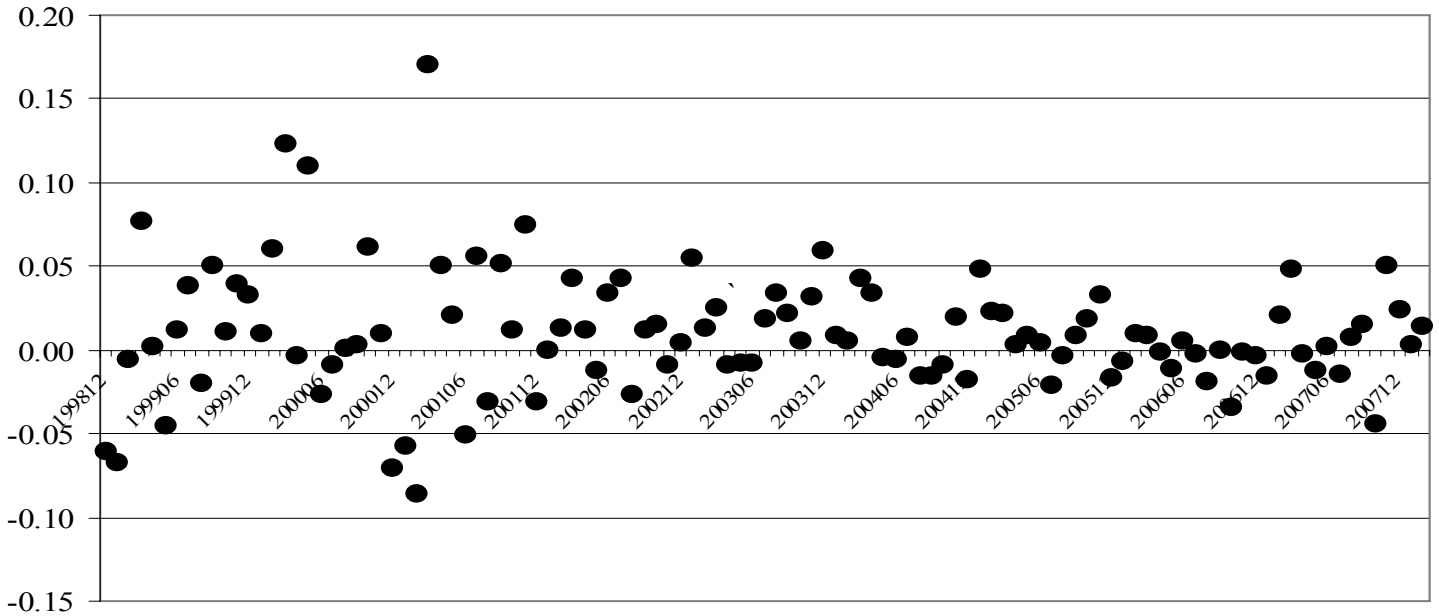

0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
199812
199906
199912
200006
200012
200106
200112
200206
200212
200306
200312
200406
200412
200506
200512
200606
200612
200706
200712

Figure 5
Monthly Abnormal Return Estimates of Performance of Firms Violating a Covenant, Measure in Event Time

This figure reports average monthly abnormal return estimates in the year leading up to a report of a loan covenant violation, and the two years following the violations. The average is based on the sample of 1,144 firms reporting a new covenant violation between October 1998 and June 2006 with at least ten months of useable return observations over the period, and at least three months of observations inside the event window. Abnormal returns are measured against a 4-factor benchmark portfolio and cumulated beginning 12 months prior to the month of the violation report and 24 months after the report. The factor returns, downloaded from http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/ and measured on a monthly basis, are: (1) the excess return on the NYSE/AMEX market return, (2) the difference between the returns on small and big stocks, (3) the return performance of value stocks relative to growth stocks, and (4) the return performance of high momentum stocks relative to low momentum stocks. Delisting firms are assumed to earn the CRSP delisting amount in the month following the delisting.

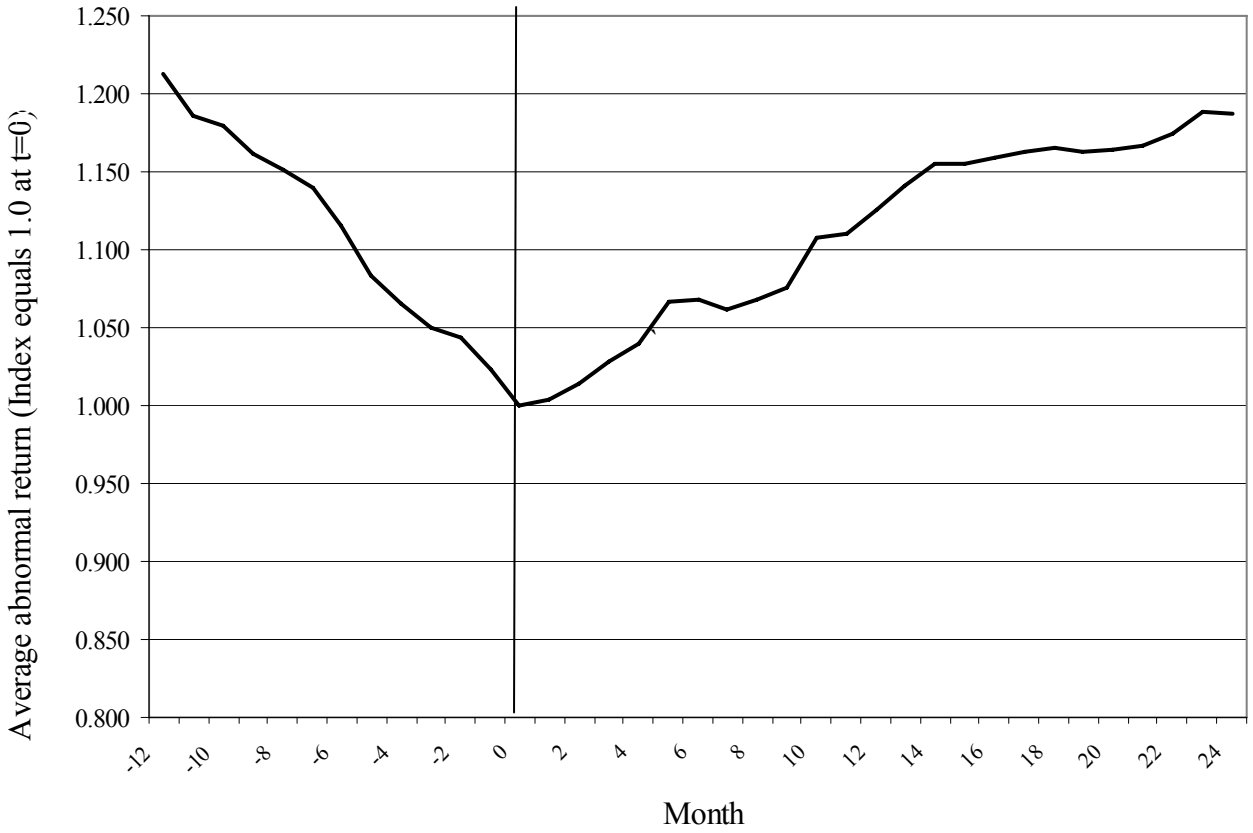

1.250
1.200
1.150
1.100
1.050
1.000
0.950
0.900
0.850
0.800
Average abnormal return (Index equals 1.0 at t=0)
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
14
16
18
20
22
24
Month

Figure 6
Calendar Time Monthly Performance of Firms Violating a Covenant, with Portfolios Formed by Pre-violation Performance

This figure reports the total return performance of two portfolios of covenant violators. The "losers" portfolio contains the shares of covenant violators that experience negative abnormal stock performance in the year prior to the violation; the "winners" portfolio contains the shares of covenant violators that experienced zero or better abnormal performance in the year prior to the violation. Stocks are added to each portfolio in the month following the first report of the violation and are held in the portfolio for 24 months, or until they are delisted, whichever comes first. Delisting firms are assumed to earn the CRSP Delisting Amount in the month following the delisting, and zero afterwards. The portfolio is rebalanced monthly. Our sample includes 748 losers stocks and 409 winners stocks.

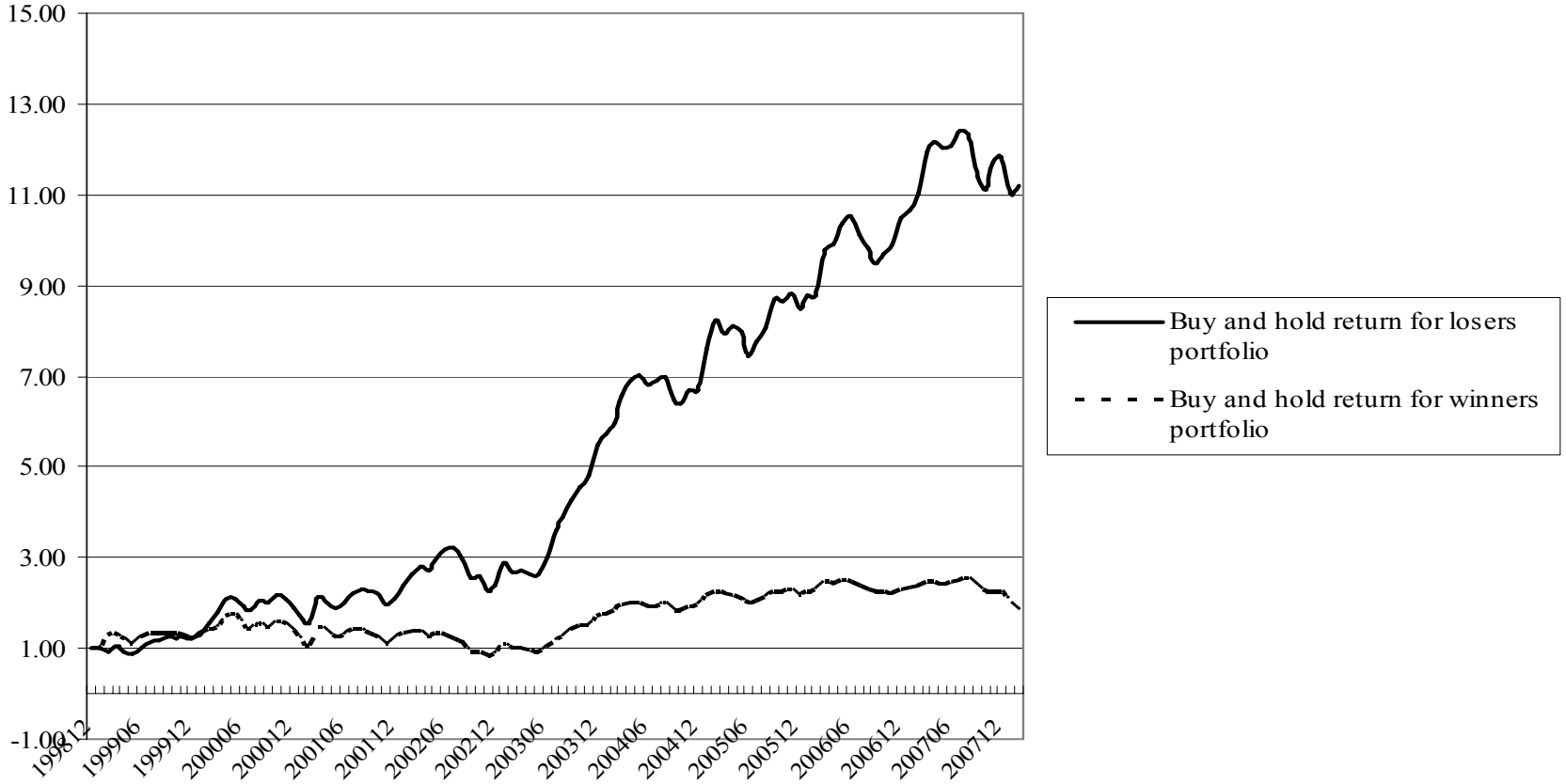


Figure 7
Event-Time Monthly Abnormal Return Performance of Firms that Violate a Covenant, Grouped by Pre-Violation Performance

This figure reports average monthly abnormal return estimates in the year leading up to a report of a loan covenant violation, and the two years following the violations, group by the stock price performance of the firms prior to the violation. Firms that earn average abnormal returns that are negative in the year prior to violation are "losers," while firms that earn average abnormal returns of at least zero over the year prior to violation are grouped as "winners." There are 748 firms in the loser group and 409 firms in the winner group. Averages are based firms reporting a covenant violation for the first time between October 1998 and June 2006. Abnormal returns are measured against a 4-factor portfolio and cumulated beginning four quarters prior to the month of the violation report. The factor returns, downloaded from http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/ and measured on a monthly basis, are: (1) the excess return on the NYSE/AMEX market return, (2) the difference between the returns on small and big stocks, (3) the return performance of value stocks relative to growth stocks, and (4) the return performance of high momentum stocks relative to low momentum stocks. Delisting firms are assumed to earn the CRSP delisting amount in the month following the delisting.

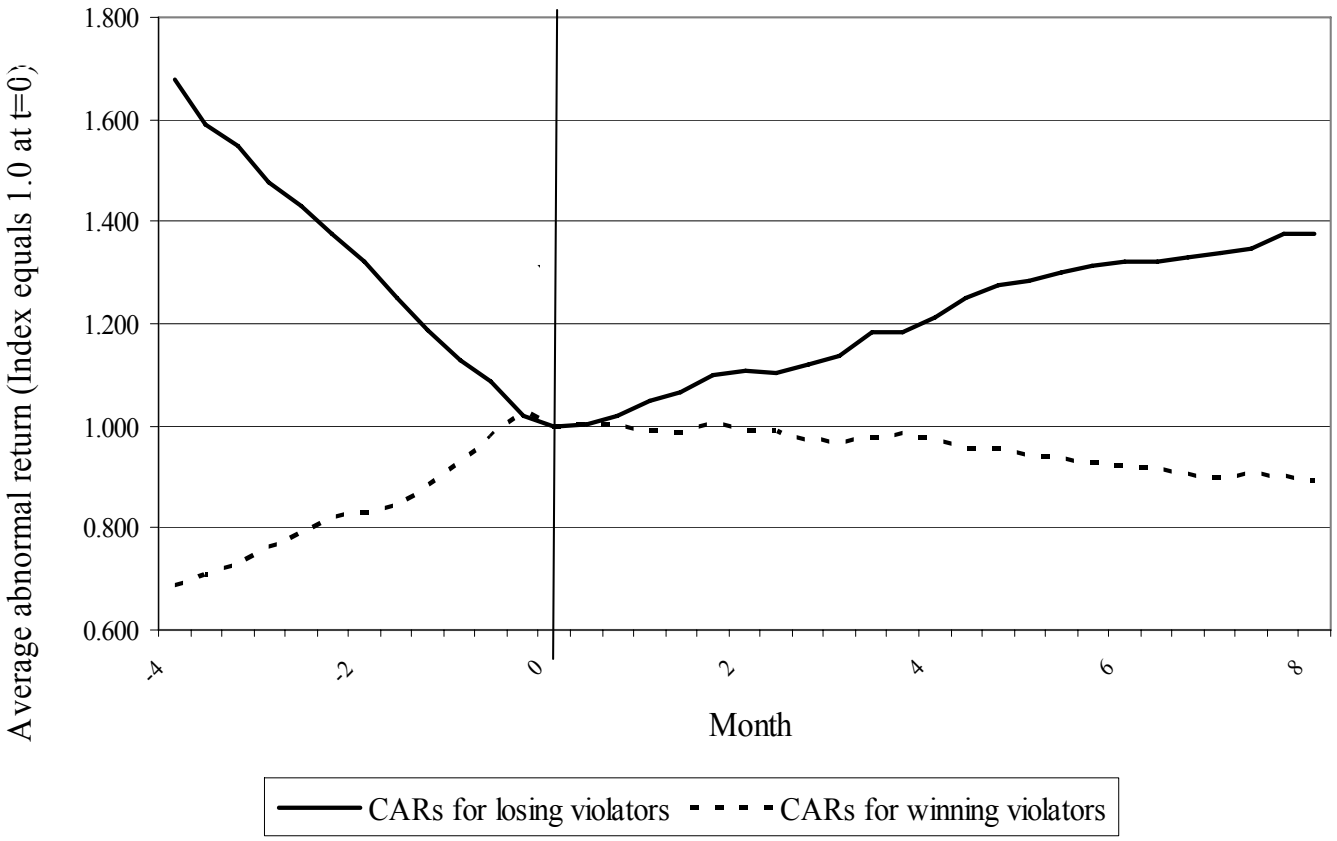
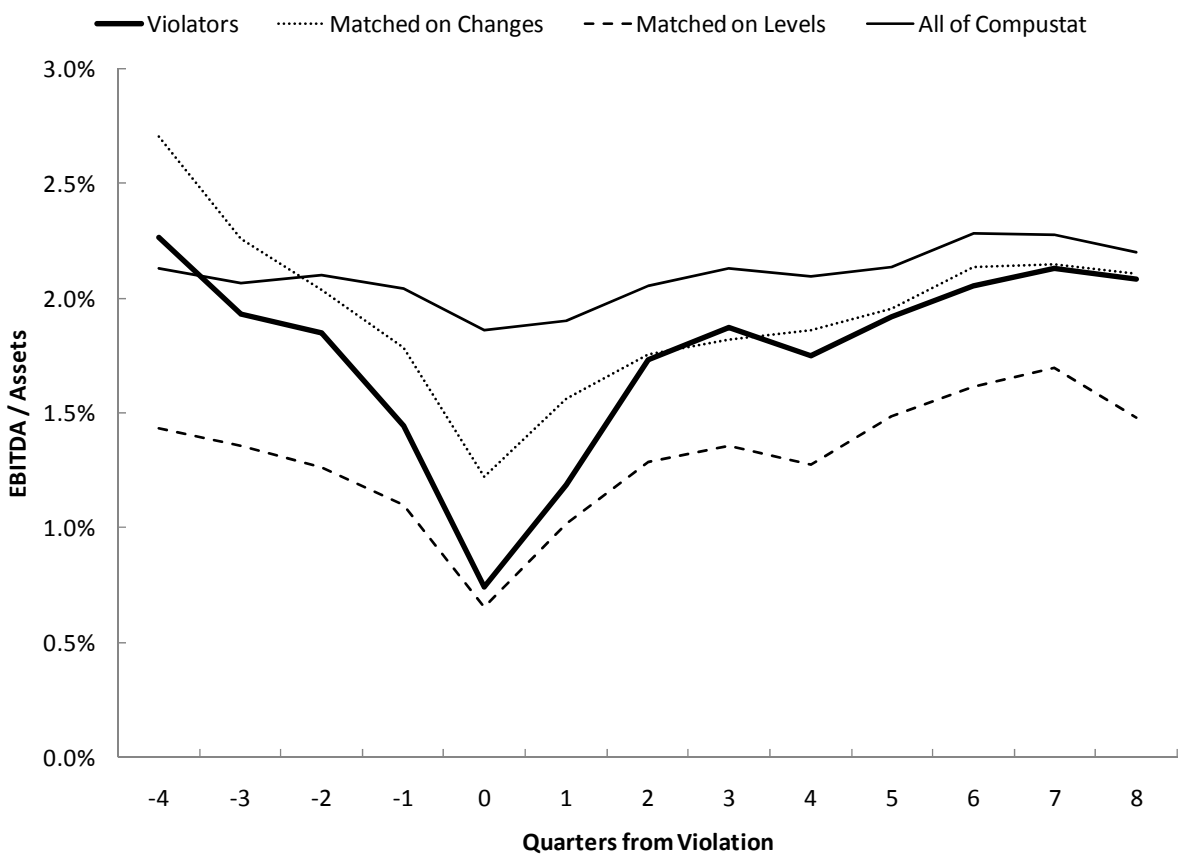

Average abnormal return (Index equals 1.0 at t=0)
1.800
1.600
1.400
1.200
1.000
0.800
0.600
-4
-2
0
2
4
6
8
Month
CARs for losing violators
CARs for winning violators

Figure 8
Operating Performance of Firms Violating a Covenant Compared with Matched Sample

The lines in the figure plot mean EBITDA / Assets for various subsets of firms in Compustat, displayed at a quarterly rate. The thick line is for firms reporting "new" covenant violations in a 10-K or 10-Q SEC filing, where "new" means the firm did not report a violation during the previous eight quarters. The dashed and dotted lines are for "Matched Sample 1" and "Matched Sample 2" described in Table 5. The thin line matches all firms in Compustat to the violating firms in the quarter of the violation, without consideration of prior performance. There is no adjustment for attrition in the sample, so changes in the levels reported here need not match changes reported in Tables 5 and 6.


Violators
Matched on Changes
Matched on Levels
All of Compustat
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
EBITDA / Assets
-4
-3
-2
-1
0
1
2
3
4
5
6
7
8
Quarters from Violation