The Economic Consequences of Financial Constraints in a Crisis: Evidence from the SFAS 160 Rule*

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Abstract

This paper examines the economic effects of an accounting change to the definition of firm equity, which relaxed the financial constraints of a group of firms during the recent crisis. We find that firms benefitting from the shock, which were constrained in their financing, increased their total debt, were less likely to enter bankruptcy and increased their dividiend payouts; they also increased their losses. However, contraty to prior, empirical and theoretical work, we do not find any increase in investments or cash holdings. These results suggest that the financial constraints imposed on these firms were not inefficient, and their inadvertant relaxation did not have beneficial effects on firms.

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1 Introduction

The economic costs of financial frictions broadly and financial constraints on the borrowing ability of firms specifically have engendered a significant body of research. The health of the financial sector, a key vehicle for the provision of capital for firms, is indispensable for economic activity, and thus, naturally, questions arise as to the optimality of market equilibria and the implications of changing them. Prior work examines the impact and desirability of an exogenous, unaccounted for, change in the capital firms have at their disposal. A chief challenge confronted by this work is the inherent endogeneity in the determination of both the financial constraints and the subsequent reaction any change in them. Since firms facing the financial frictions are generally behaviorally different, it is hard to determine what aspects of their differential economic behavior can be attributed (causally) to the frictions. The investment opportunity set is jointly determined with the availability of external financing, debt maturity, and covenants (Billet, King and Mauer, 2005); capital is more readily available for better investments. Financially constrained firms may be constrained largely because their investment opportunity set is poor. Furthermore, when discrete thresholds exist (such as covenant requirements) which may trigger interventions in firm policy when violated, anticipatory behavior on the part of firms to avoid violations is expected and thus firms that end up in violation (or close to violation) may be special firms. A second challenge is that since exogenous shocks are therefore sought, and are rarely found in practice, prior research estimates local effects for the time and context under which the natural experiment is found. A reexamination of the phenomenon in different economic climates is thus required.

The background for this paper is the FASB 160 accounting change which took effect in December of 2008 and which reclassified non-controlling minority interest as equity on firm balance sheets. Firms with non-controlling minority interest had their equity increase - often significantly. One implication of this "accounting" increase in equity was to impact firms' closeness to violation of debt contract covenants stipulated in terms of firm equity. Firms constrained by covenants written in terms of equity that impacted the amount of debt they could hold were thus given an increase in debt capacity. As we show below, this increase in

debt capacity was largely exogenous to firms and lenders; it was not accounted for *ex ante* in debt contracts and did not engender renegotiation of contracts *ex post*. It was, however, exploited by the borrowing firms to increase their debt.

The timing of the shock - the recent financial crisis in which there was widespread debate concerning the adverse economic effects of the limitations on lending, and its exogeneity, renders it an informative natural experiment to examine the question of the economic consequences of financial constraints. Furthermore, the incidence of the shock on *some* firms (those that were constrained with covenants that were affected by the shock *and* that had minority interest), and at a specific quarter (quarter 4, 2008), naturally lends itself to a triple difference methodology, whereby we examine the change in the treated group controlling for the change in constrained firms as well as the change for firms with minority interest. We are able to examine firms constrained precisely by debt covenants related to firm equity, that were affected by the change and compare how they changed their economic behavior around the enactment of the rule compared to the behavior of the control groups and controlling for time and firm fixed effects.

We find, firstly, that firms most in need of financing and that stood to benefit most from the accounting change, exploited the increase in debt capacity to increase their debt. The financial frictions were thus binding and firms were indeed blocked from reaching their desired level of borrowing. These firms exploited the increase in debt capacity to increase their debt; the natural experiment resulted in an (exogenous) increase in debt. This can be seen neatly in Figures 4 through 6. However, given the timing of this change - an economic crisis - in contrast to findings by earlier research, firms did not use the extra capital to increase investments or to hoard cash, but rather poured it into the operating activities of the firm and, for some firms, increased the dividend payouts. While these decisions delayed bankruptcy, they also cause further losses to the firms. As we discuss below, as expected, the results illustrate how the implications of financial constraints are not uniform across firms and time. They suggest that the debt contracts, as they were, were not unduly restricting firms' economic activity, and the consequences of their relaxation were not necessarily beneficial to firms. We do not find evidence that the additional leverage and investment were optimal.

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These results provide motivation for creditors to take accounting-based covenant violations seriously (compare Chen and Wei, 1993, Roberts and Sufi (2009b)).

The rest of this paper is organized as follows: In section 2.1 we motivate this work and put it in the context of the existing literature; in section 2.2 we give the background for the SFAS rule and explain its incidence on firms; section 3 discusses the data and sample construction; in section 4 we detail our methodology; section 5 discusses the empirical findings and their implications, and section 6 concludes and discusses future research.

2   Background:

2.1   Market Imperfections, Financial Constraints and Economic Behavior

The imperfection of capital markets has a host of potential implications for firm behavior. This behavior may naturally vary in times of crisis.

The view taken in prior work generally suggests that firms' investment appetite is actively curbed by the constraints imposed on financing. Fazzari, Hubbard and Petersen (1988) show the importance of financial constraints on firm investment and dividend policy. Lamont (1997) shows that a negative oil price shock reduces spending of non-oil segments of oil based conglomerates; Rauh (2006) shows a sensitivity of investment to required mandatory pension contributions (see also Blanchard et al (1994) for case studies of major corporate lawsuits winnings). Recently, Campello, Graham and Harvey (2010) document survey evidence showing that financially constrained CFOs cut back on investments, used more cash, drew more heavily on lines of credit and sold assets. See Stein 2003 for a survey.

Our focus on debt covenants is motivated by prior research showing the relevance of covenant violations for exploring the link between financing and investments. The design and violation of these covenants affects agency conflicts between firms and lenders (see Tirole 2006, Jensen and Meckling (1976)). They are packaged into the contracts as a pledge

of state-contingent control rights (Chava and Roberts (2008)). Consequently, any slack in them should allow firms more freedom from the curbing will of the lenders. Covenants are ubiquitous in public and private financial contracts and private equity (see Smith and Warner (1979), Bradley and Roberts (2003) and Kaplan and Stromberg (2003)) and covenant violations occur frequently (see Dichev and Skinner (2002)). See table 1 for details in our data. The examination of the policing effects of covenants has indeed spurred a large literature (including Beneish and Press (1993, 1995a, 1995b), Chen and Wei (1993), Sweeney (1994), Dichev and Skinner (2002), Chava and Roberts (2008), Roberts and Sufi (2009)). Chava and Roberts (2008) show a decline in investments surrounding covenant violations, which they interpret as a control story, whereby covenant violations empower the creditors and curb the conflicting tendencies of firms (to invest); Nini, Smith and Sufi (2010) find a decline in investment, leverage, and payout when violations occur, and that there are explicit limits on capital expenditures primarily in private credit agreements. Roberts and Sufi (2009) document a decline in the issuance of debt. Beneish and Press (1995b) document that when a firm announces a covenant violation its stock price declines. In more recent work, Nini et al (2010) show that firm operating and stock price performance improve following covenant violation as a result of investment and decision-making restrictions imposed by creditors.

The recent financial crisis has engendered new research suggesting that firms' taste my be different in times of crisis. Bolton, Chen and Wang (2011), show, using a dynamic model, that liquidity management becomes an important tool for firms, as the marginal value of cash for a financially constrained firm relates to investment opportunities, cash holdings, leverage, external financing costs and hedging opportunities. Accordingly, firms build financial slack by accumulating cash with which they speculate and hedge. Firms choose their cash holdings with a desire to stay out of financial distress. This desire to accumulate cash is documented empirically in Almeida, Campello and Weisback (2004) who show that constrained firms save more cash from cash flows. Bates, Khale, and Stulz (2009) show that average cash-to-assets for U.S. industrial firms more than doubled from 1980 to 2006, and this trend is especially pronounced for firms with more idiosyncratic cash flow volatility. Recently, Campello, Graham and Harvey (2010) find that firms with more

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internal savings (cash) did better in the crisis (see also Duchin, Ozbas, and Sensoy 2010). Lin and Paravisini (2010), also find that exogenous credit shortages cause firms to hoard cash consistent with precautionary savings, and cash flows are decreased.

But what of the severely constrained firms facing defaults on debt and violations of covenants? Ivashina and Scharfstein (2010) find that since, in the crisis, external liquidity disappeared, firms drew down on their pre-existing lines of credits (LC) as liquidity insurance. At low levels of LC firms didn't spend their cash on investment (Campello 2011). Indeed, when firms are severely constrained and approaching distress they do not have the same flexibility in using capital for insurance, hedging and new investments. The examination of their economic behavior when given financial slack is thus an open empirical question we address in this work, upon the fertile ground of the SFAS accounting change.

2.2 SFAS 160: Motivation and Implications

In December 2007, the Financial Accounting Standards Board (FASB) issued a Statement of Financial Accounting Standards No. 160 (SFAS 160). The purpose of the statement was to modify the treatment of the noncontrolling/minority interest in a consolidated entity. Under US Generally Accepted Accounting Principles (GAAP), firms are required to consolidate entities which they control. Control is most commonly determined by ownership. In particular, if the parent firm owns more that 50% of a subsidiary, the firm is required to report consolidated financial statements.

Broadly speaking, consolidation means that the parent firm includes both the subsidiary's separable assets and liabilities as well as its own assets in its balance sheet. The subsidiary's revenues and expenses are consolidated with those of the parent firm. When the parent owns 100% of a subsidiary the firm parent naturally will fully consolidate the assets, liabilities, revenues and expenses of the subsidiary (excluding intercompany transactions). However, when a portion of the subsidiary's equity is not attributable to the parent a minority interest arises. The minority interest is the portion of the subsidiary equity not owned by the parent.

Prior to SFAS 160, the minority interest was reported in either the liabilities or in the

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mezzanine section (between liabilities and equity). Beginning in December 15 2008, firms are required to report the minority interest, now named noncontrolling interest in the equity section of the balance sheet.[1] The motivation for the rule was a desire to "improve the relevance, comparability, and transparency of the financial information that a reporting entity provides in its consolidated financial statements by establishing accounting and reporting standards for the noncontrolling interest in a subsidiary and for the deconsolidation of a subsidiary"(Statement of FAS 160). There was a desire for the full value of the subsidiaries balance sheet to be consolidated with that of the parent. In addition it represented a departure from past practices of firms differing in their inclusion of minority interest in either the liabilities or a mezzanine section of the balance sheet. This effect of this change can easily be illustrated using the balance sheet of the AES Corporation in Figures 1 and 2:

In 2008, the AES Corporation reported a minority interest of $3,418M, a total stockholders' equity of $3,669M, and $18,091M of total debt, resulting in a debt/equity ratio of 4.93. Its minority interests of $3,418M (of which $3,358M were non-controlling interests relevant to the accounting change) were in a mezzanine section of the balance sheet and not included in the equity tally. After the accounting change took effect at the end of 2008, the restated 2008 balance sheet filed with the 2009 balance sheet, now had a total equity of $7,027 (the sum of the $3,358M minority interest and the $3,669M of shareholder equity), reducing the debt to equity ratio to 2.57. This example illustrates how much slackness some firms' stood to gain in their debt covenants solely as a result of this accounting change.

The timeline for the enactment of the change can be seen in Figure 3. The potential impact of this change on leverage ratios did not go unnoticed in the accounting literature, both before the rule was passed and in the time subsequent to its enactment. Urbancic (2008) examines the balance sheets of the 50 largest U.S. corporations that reported minority interest for 2007 and finds that the lowest change in the debt-to-equity ratio to be 4.1%. For most of these firms the change was larger than 10%. Mulford and Quinn (2008) examine

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[1] To be precise, only nonredeemable non-controlling minority interest is included as equity. Redeemable non-controlling minority interests are considered liabilities (since those posessing them have the right, and the firm the liability to convert them) and therefore remain in the liability or mezzanine section of the balance sheet. However, since there was no distinction made before the change in minority interest, we are forced to use the entirety of the minority interest (which is generally redeemable).

the anticipated implications of the changes in FASB Statements 160 and 141(R) on 876 public firms reporting minority interests, and find measurable changes to some debt ratios, emphasizing that for some industries and firms theses changes can be significant[2]. See also Leone, 2008, and Detriech 2010. Even "Wells Fargo and ACLI questioned the usefulness of the proposed classification of equity... They expressed concern about the impact that classifying noncontrolling interests in consolidated equity will have on key financial and performance ratios" (FASB Exposure Draft, Comment Letter Summary)[3].

2.2.1 Was the Accounting Rule "Accounted" For?

By and large, the answer is no.

Covenants generally will not automatically readjust in response to mandatory accounting rule changes. Covenants generally use "rolling" GAAP as opposed to "frozen GAAP" (Leftwich 1983); the covenants reflect the accounting rules as they are at the time (as apposed to as they are at the time the contract is signed). Similarly, Frankel, Lee and McLaughlin (2010) document that frozen-GAAP agreements are uncommon because of potentially significant costs associated with converting financial statements to those that would exist under prior GAAP (arrangements) and keeping two sets of books". Regarding this specific change they find that in the pre-FAS 160 periods only 46 credit agreements, out of 450 examined (10.2%) excluded minority interest from the net worth covenants. And in the contracts examined in the post-FAS 160 period, this number was even lower - 30 out of 384 (7.8%)[4].

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[2]In particular, Mulford and Quinn (2008) document that "(1) shareholders' equity will increase by 2%, though 10% of the companies will see increases of over 25%; (2) income from continuing operations will increase by 3%, though 12% of the companies will see increases of over 25%; (3) liabilities to shareholders' equity will decline by 2%, though 10% of the companies will see declines of over 20%; and (4) times interest earned will increase by 1%, though 9% of the companies will see increases of over 10%."

[3]See http://www.fasb.org/project/FASB_Noncontrolling_Interests_CL_Summary.pdf for a summary of the comment letters associated with the SFAS 160 exposure draft.

[4]Mandatory accounting changes can also impose additional contracting costs because they increase the costs of the investigation and resolution of unintentional violations (Leftwich 1983, Watts and Zimmerman 1990).

In contrast to mandatory accounting changes, voluntary accounting changes enable borrowers to reduce the probability of covenant violation. However, prior literature found only limited evidence that borrowers change accounting methods to reduce this probability (e.g. Healy and Palepu 1990, and Sweeney 1994). For further discussion on manipulation of accruals that affect debt covenants see Defond and Jiambalvo (1994).

Several stock market event studies on the effect of mandatory accounting changes on debt covenants - under the assumption that the covenants did not adjust to incorporate the change. Lys (1984) documents a negative stock price reaction related to the increase in default risk of debt arising from the adoption of SFAS 19 requiring the use of full cost accounting for oil and gas exploration; Espahbodi, Espahbodi, and Tehranian (1995) document a positive stock price reaction associated with the adoption of the provision in SFAS 109 that allows the recognition of deferred tax assets. More recently, regarding this change, Frankel et al. (2010) document abnormal returns surrounding the release of SFAS 160 and further finds these returns to be increasing with the level of minority interest[5]. See figure 3 for the timeline for the accounting change and the corresponding stock market reaction.

Finally, despite the discussions surrounding the rule it was only in February of 2011 that Capital IQ send out a letter to its members cautioning that calculations should be reviewed and that the Compustat variables relating to noncontrolling minority interest and equity were updated to account for this change.

3   Data and Sample Construction

3.1   Identifying Constrained Firms

Prior work has confronted the challenge of identifying constrained firms in a variety of ways, including based on their size, their dividend payout ratios, their credit ratings, cash flow sensitivities and indicies which are a linear combination of the some of the above measures as well as others such as sales growth, sales, cash flows and assets (see for example Cleary 1999 Whited –Wu 2006, Fazarri, Hubbard and Petersen, 1988, Almeida, Campello and Weisbach 2004). These measures have been criticized. Kaplan and Zingales (1997, 2000) look at CEO's public statements and find that sensitivity of investment to cash flows is not monotonic in constraints, suggesting the cash flow sensitivities are not a reliable measure.

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[5]However, they did not examine the effect of firms that were constrained and "helped" by this change (as we do here). We are exploring this for future versions of the paper.

Hennessey and Whited (2007) show that existing measures of financial constraints are problematic since they are adjusted endogenously with financial constraints. Financing costs could thus lead to a decrease in measures of constraints. Motivated by the research cited above on the costs to the firms' of violations of covenants, we choose to identify constrained firms as those who either violated or a close to violating their debt covenants. We identify these firms in two ways:

The first is the list of violations covenant violations compiled by Nini, Smith and Sufi (2010)[6] (hereinafter the NSS sample). This list was obtained by searching 10K and 10Q filings from the EDGAR website, matched to Compustat, using a Perl script to look for words suggestive of a violation in the filings. It also formed the basis for the authors' work in Nini Smith and Sufi (2009, 2010). We consider as constrained, a firm that violated a covenant in the quarters preceding the enactment of the accounting change. Existing research suggests that indeed firms do not want to violate their covenants as these engender significant consequences (such as declines in investments, and increases in CEO turnovers). It is thus likely that firms violating covenants are in fact constrained to do so. However, this measure is imperfect for the purposes of our analysis since many of the violations may be of covenants written on measures that were not affected by the accounting change. In addition, these violations are identified by language in the 10K and 10Q filings suggesting there was a waiver, a modification, default or violation. They do not therefore allow us to zone in on precisely the firms most benefited by the change.

For the bulk of the analysis we therefore extract information on the specific covenants contained in Dealscan and using the link file created by Chava and Roberts (2008). We extract loan information from the Loan Pricing Corporation (LPC) Dealscan database. LPC describes the Dealscan database as having trillions of "large corporate and middle market commercial loans filed with the Securities and Exchange Commission or obtained through other reliable public sources. The size of the deals in the database may vary from $100,000 to as much as $13 billion. In addition to commercial loan information, LPC gathers an increasing number of private placements". Data are mostly from publicly held companies

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[6]For more on the data see the Data Appendix therein.

required to file with the SEC, as well as private companies with public debt securities traded that are required to file as well. There are also data on deals obtained from LPC's direct research, however, since we are interested in obtaining current accounting information we only use deals that can be matched to Compustat. We look at all loans in effect during our sample period (which is largely 2007-2009)[7]. For covenants that include mandatory accounting changes (such as SFAS 160), the equity section on the balance sheet increased while the liabilities section on the balance sheet declined, in the amount of the nonredeemable noncontrolling interest. Therefore, both the debt to equity and the leverage ratios decline (since equity in the denominator increased), both the net worth and the tangible net worth increase (since liabilities decreased while equity increased), and as a result, debt to tangible net worth decrease. It is on these covenants that we focus. We generally treat the covenant data similarly to Chava and Roberts (2008)[8]. When there are overlapping deals the relevant covenant is the tightest one. When the covenants adjust dynamically over the life of the loan, we linearly interpolate the covenant thresholds over the life of the loan.

We match these data to nonfinancial firms in the Compustat database and compare the covenant requirement as it is in effect at the time. Our unit of observation is a firm-quarter. As shown in Chava and Roberts 2008, the merged sample is similar to the Compustat universe. There is noise in this comparison since the Dealscan database contains aggregate information on the loans and does not adjust for any special definitions the contract may have[9]. However, we do not know of any systemic bias this would introduce. Table 2 describes the prevalence of these covenants in our matched sample.

We compare the firms' corresponding accounting variables to the requirements in the aforementioned covenants and use three measures. A firms is considered CLOSE to violation if it is within 30% of the covenant threshold; a firm is REALLYCLOSE to violation if it is within 10% of the covenant threshold, and a firm is a violator if its accounting variables

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[7]We experimented by using looking for violations after 2006 or after 2007 and found similar results.

[8]See the data appendix therein.

[9]As noted by Dichev and Skinner (2002) and Leftwich (1983) there may be some variance in the manner in which "debt" is defined in the covennants. This adds noise to our analysis. We chose to still include these covenants since much of the discussions on the adverse effects of the accounting change focused on the potential effects their adjustment. (MORE?)

breaches the covenant requirement. For example, if the covenant specifies a net worth requirement of 100M. A net worth below 130M is CLOSE to violation; below 110M is REALLYCLOSE to violation; and below 100M is in violation. Table 1 Panel B describes the prevalence of these thresholds.

3.2   Bankruptcies

We identify severe financial distress in three ways. The first is to examine whether firms are active or inactive in the Compustat databases. The second is to look at the matched firm in CRSP and examine whether the firm was in liquidation. Finally, we look at a sample of bankruptcies from Bloomberg and match them to our sample.

3.3   Data Description

Table 1 summarizes our Dealscan data. Panel A describes the sample of firm quarters with available covenant data. Of our sample, more than 9% of the firm-quarter observations have at least one covenant on dealscan. The number of observations with at least one covenant is 2,936, 2,914, and 2,601 in 2007, 2008, and 2009, respectively. Out of the sample of covenants, the most prevalent covenant is the leverage ratio, which constitutes between 3.7% and 4.1% of the sample or approximately 40% of the observations with at least one covenant. In contrast, the debt-to-equity ratio is much less popular (this ratio constitutes less than 0.21% of our sample). The second most prevalent covenant is the net worth, constituting between 3.34% and 3.69% of the sample. Tangible net worth constitutes between 2.3% and 2.54% of the sample. Finally, debt-to-tangible net worth populates between 1.2% and 1.4% of our sample.

Panel B of Table 1 shows that our sample is well populated, that is we have sufficient number of firms with minority interest and are constrained. We sort our sample into the three groups of financial constraints: violators, firms that are close to violating covenants, and firms that are really close to violating covenants.

The data shows that approximately 50% of the sample firms that are close to violating a debt covenant are already in violation. For example, in 2007, there are 456 firm-quarter observations of firms that are within 30% of the target financial ratio. Of these 229 are in violation of at least one of their covenants. Consistently, the majority of firms that are really close (within 10% of the target financial ratio) are in violation. For example, in 2008, out of 265 observations that are really close to violating a covenant, 226 are in technical violation.

Table 2 reports summary statistics of our sample firms. Panel A reports summary statistics for firms with minority interest and Panel B reports the summary statistics of our sample firms without minority interest. We separate our sample based on minority interest because firms with minority interest are likely to be different than firms without. This is because minority interest arises form acquisitions. Firms that engage in acquisitions are generally different than firms that do not. Firms that engage in merger and acquisition activities tend to be larger and more mature.

We note that our raw data is highly skewed. First, due to accounting conservatism, many accounting variables, such as earnings and book values are skewed. Second, this paper centers around distressed firms, our variables of interest may be skewed due to small scalars. See for example retained earnings in Table 2 Panel A. The fifth percentile is -2.868, the median is 0.107, and the 95th percentile is 0.618. The high negative values are due to very low retained earnings as well as to firms with highly negative retained earnings having low levels of assets. Therefore, we first check that our extreme observations were not data errors. Since the data did not include errors, we did not truncate the data. Furthermore, for our study of distressed firms some of the most important variation is in the "extremes".We, therefore, windsorize our data at the bottom and top 1%. As robustness, we estimated our regression without windsorizing. Most of our qualitative results hold, however the magnitude of the coefficients changes, at times quite markedly.

Table 2 shows that the sample of firms with minority interest is indeed significantly different than the sample of firms without minority interest. First, the median firm size of the minority interest sample is approximately $1.4 billion compared with $123 million for the sample of firms without minority interest. In addition, the sample of firms with minority

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interest has more debt. The median debt ratio is 24.6% for the sample of firms with minority interest compared with 14% for firms without minority interest. Firms with minority interest are also more profitable as evident by their higher retained earnings and higher operating cash flows. Finally, firms with minority interest, obviously, have more intangible assets. This is because intangible assets (goodwill and other intangible assets) are recognized only when they are acquired. Therefore, firms that engage in mergers and acquisitions have more recognized intangible assets. The bottom line is that firms with minority interest are different, which requires including this group as a separate control.

4 Methodology

As mentioned, we use a triple difference methodology. We are able to use this methodology because of the discrete event (the accounting change) that happened to a group of firms for which we have reasonable controls. Prior work (such as Robers and Sufi 2009), uses a longer time period and uses an identification strategy that relies on the ability to flexibly control for all relevant variables that jointly determine the outcome variables and covenant thresholds. In other words, the assumption is that once controls are introduced the violation is random (with respect to outcome variables). Our assumption is that the accounting change provided a discrete windfall of debt capacity since its incidence depended on the size of firms' minority interest, a variable which firms (and especially constrained firms) have little control over.

In all of our analysis we control for firm fixed effects and year-quarter dummies. This takes out the average firm specific characteristics. We then look at the effect of the outcome variable on the treated firms (firms with minority interest that were constrained, using one of the definitions above), while controlling for the average effects of firms with minority interest after the change, and the average effects of constrained firms on the outcome variables in the post period. We look at firms that were constrained at the time of the accounting change, and measure their minority interest at that time. In other words we hold firms' status as constrained or not, and their total minority interest fixed (both at the time of the accounting change) and compare the evolution over time of the outcomes variables with that

of the control groups[10]. Variables are generally scaled by assets, following past work, to control for scale. Our regressions thus will generally take the following form:

$$y_{it} = \alpha_i + \delta_t + X_{it} + Constrained_{2008} * POST + MIB_{2008} * POST + MIB_{2008} * Constrained_{2008} * POST + \varepsilon_{it}$$

where α_i are firm fixed effects, δ_t are year-quarter fixed effects, X_{it} are controls, $Constrained_{2008}$ is the relevant constraint measure, $POST$ is the period after 2008, and MIB is one the of measure of minority interest (either a dummy for having minority interest at all, or a continuous measure for the amount of minority interest). Given the firm fixed effects, the coefficient measures the change in the outcome variable engendered by the explanatory variables, where the focus is on the triple interaction term. The measure the change induced by the treated firms in the post period, and if indeed, as we argue the change in exogenous, this identifies the causal reduced form impact of the increase in debt capacity. Throughout the analysis we cluster the standard errors by firm to flexibly control for serial correlation.

5   Empirical Findings

The difference in difference methodology assumes a structural break in the differential effect on the treated group. To ensure that the difference in the post period is indeed the result of "jump" following treatment (as apposed to a monotonic increase over time which could also generate statistically significant coefficients, we begin with the pictures in figures 4, 5 and 6. Figure 4 plots the difference in total debt between constrained and unconstrained firms that have minority interest as well as the difference in total debt between constrained and unconstrained firms that do not have minority interest. For firms without minority interest, constrained firms added less debt compared with unconstrained firms. In contrast, for firms with minority interest, constrained firms raised more debt compared to unconstrained firms. These findings are consistent with firms increasing their debt when an exogenous shock

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[10]We note that an adjustment of minority interest for constained firms, such as by making acquisitions, is not exceedings likely. However, holding the treatment and control groups fixed provides a cleaner analysis.

increases their debt capacity by increasing the covenant slack.

Figure 5 studies the impact of minority interest on constrained and unconstrained firms. Unconstrained firms lower their debt if they have minority interest. In contrast, constrained firms raise debt if they have minority interest. The findings suggest that increases in debt capacity affect leverage only in firms that are constrained. This result is intuitive. Firms that are not constrained will not increase their leverage when their debt capacity increases as they already chose lower levels of debt. In contrast, highly levered firms are likely to raise additional debt if their debt capacity increases.

Figure 6 plots the difference between 1) Constrained minus unconstrained with minority interest ($DMIB_i = 1$) and 2) Constrained minus unconstrained without minority interest ($DMIB_i = 0$). The figure shows that the different between the groups increases after SFAS 160 was passed in 2008. These Figures all plot the residuals from a regression of total debt on firm and time fixed effects. The different plots represent both quarterly and yearly data show a distinct break in this relationship around treatment. The treated firms increase their debt relative to the control group and this increase spikes around the enactment of the rule. This pictures are comforting and show that the difference in differences is indeed the result of a break at the time of treatment. We not move to explore examine our regression analysis in detail.

5.1 SFAS 160, Minority Interest and Increase in Debt

We begin our empirical analysis by examining whether constrained firms with minority interest utilized the exogenous increase in debt capacity by increasing their debt. Specifically we test whether constrained firms with minority interest increased their short-term debt ($Debt_{i,t}^C$), long-term debt($Debt_{i,t}^{LT}$), and total debt($Debt_{i,t}^T$) post the adoption of SFAS 160 in 2008. Table 3 reports results where we define firms as constrained based on the number of covenant violations. We estimate the number of violations following Nini, Smith and Sufi (2010), as described above.

The results in Table 3 imply that firms with debt-covenant violations and minority in-

terest increase their short-term debt in the period following the adoption of SFAS 160. The coefficient on the interaction term, $MIB_i \times TV_{i,t} \times POST$, is positive and statistically significant when regressed on short-term debt. The estimated coefficient is 1.127 and the t-statistic is 2.57. Consistently, the coefficient on the interaction term is also positive when we use a dummy variable indicating that the firm has minority interest. The coefficient on the interaction term, $DMIB_i \times TV_{i,t} \times POST$, is 0.061 and the t-statistic is 3.07. Note that since we are interested in the exogenous effect of minority interest, we employ the minority interest at the end of 2008.

In contrast to short-term debt firms with debt-covenant violations and minority interest do not alter their long-term debt in response to the increase in debt capacity. The coefficient on the interaction terms not statistically distinguishable from zero. This result indicates that firms do not substitute between long-term debt and short-term debt. This result is also apparent when we use total debt as the dependent variable. The coefficient is positive and significant. In sum, our findings imply that firms with debt-covenant violations and minority interest increase their debt by increasing short-term debt in the period following the adoption of SFAS 160.

The Sample in Table 3 includes only firms that violated debt covenants. However, our sample is not restricted to covenants that are affected by the new accounting standards and has the limitations of applying the NSS sample to our application discussed above. For example, current ratio covenants are unaffected by the new accounting rules. In addition, the sample only includes firms that already violated a covenant. It excludes firms that are near violation. We therefore focus our analysis on firms with covenant information in dealscan. As we note above, we sort our sample into three groups of financial constraints ($Constrained_{i,t}$): violators, firms that are close to violating covenants, and firms that are really close to violating covenants.

We test whether firms that are close to or are in violations of covenants that are may be affected by minority interest, change their debt following the change in accounting. The results are reported in Table 4. Panel A uses the value of minority interest as the independent variable. Panel B uses an indicator variable to indicate that the firm has minority interest

prior to the accounting change. Given the focus on mean regressions, the former measure naturally gives more weight to the firms with higher levels of minority interest.

The results in Table 4 are consistent with the results in Table 3. The coefficient on the interaction term, $MIB_i \times Constrained_{i,t} \times POST$ and $DMIB_i \times Constrained_{i,t} \times POST$, are all positive. When we employ MIB_i, the coefficient varies from 0.319 to 0.965. The corresponding t-statistics vary from 1.19 to 3.40. When we use the indicator variable, $DMIB_i$, the coefficient varies from 0.012 to 0.061. The corresponding t-statistics vary from 0.91 to 4.43. The results are most significant for the group that is within 30% of the target covenant ratio ($Close_{i,t}$). The results are the weakest for the group of firms that are already in violation. For example, in the case for long term debt ($Debt_{i,t}^{LT}$), the coefficient increases from 0.319 for $MIB_i \times Violate_{i,t} \times POST$ to 0.386 for $MIB_i \times Close_{i,t} \times POST$. Moreover, the t-statistic increases from 1.50 to 2.38.

In contrast to the results in Table 3, firms seem to increase their overall debt by increasing both short-term and long-term debt. Therefore, the most robust results are obtained for total debt. While some coefficients on our variables of interest are insignificant for short-term debt and long-term debt, the coefficients are statistically significant *for all of our groups* of constrained firms. The t-statistics on our interaction term varies from 2.57 to 4.43, when we employ total debt as the dependent variable. We note, however, that our definition of long-term debt is based on US GAAP, which includes debt that is due within two years.

Note that these findings reflect the data in Figures discussed above.

5.2 Financial Performance

We proceed to test how the firms uses the proceeds from the additional debt. The results on debt can be thought of as a first stage of a two-stage least squares methodology, whereby we instrument for debt (which can be thought of as additional external capital to the firm) with the exogenous increase in debt capacity[11]. For the second stage (or the uses of this capital),

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[11] We will present two-stage-least-square results in future versions of this work. The reduced form results are, however, representative.

there are several possibilities. First, firms may take on additional debt to finance expected future losses. Note that our sample includes constrained firms such that losses are expected. Second, the firms can use the leverage for additional investments. Third, the firms can hold the cash so that it will be available if the firm required it in the future. Given the liquidity crises during our sample period, cash is very valuable to firms, as external liquidity became more scarce. Finally, firms may simply use the cash to pay dividends or repurchase stocks. This would reflect a simple transfer from lenders to shareholders.

In order to test the firms financial performance for firms with increased debt capacity, we employ three different measures: Net income excluding depreciation, net income and operating cash flows. The results are reported in Table 5. For brevity, Table 5 reports results only using an indicator for firms with minority interest, $DMIB_i$. Our findings indicate, weakly, that firms take on additional debt to finance its ongoing operations, which is performing poorly. The coefficient on our interaction term, $DMIB_i \times Constrained_{i,t} \times POST$, is negative only for our earnings based measures. The findings are significant at the 5% level only for the group of firms, which is within 30% of their target ratio ($Constrained_{i,t} = Close_{i,t}$). In contrast, our findings with respect to cash flows are insignificant. Thus, constrained firms with minority interest have lower profitability, but their operating cash flows are similar to the population.

Note that these findings are not robust, the coefficient is significant only for one group of firms and only when we employ $DMIB_i$. In unreported results, where we employ MIB_i in our interaction term, our findings become statistically insignificant.

5.3   Investments

In order to test whether firms use the cash from the additional debt to finance investments, we employ total long-term investments as a measure for firm's investments. The results are reported in table 6. We use the standard control variables from cash flows and macro Q. (see for example Rauh 2006). Our findings imply that firms do not use the cash for investments. In fact, the coefficient is negative and significant at the 10% or above in

for all groups of constrained firms. For example, the coefficient on the interaction term, $DMIB_i \times ReallyClose_{i,t} \times POST$, is -0.011 and the t-statistic is -2.52.

These results imply that increasing debt capacity exogenously does not increase investments. Financially constrained firms may even reduce investments when their debt capacity increases. These results may be specific to our sample as the sample period is 2007-2009, a period when firms overall reduced their investments and raised their cash holdings. Indeed, during our time period, we do not find that cash flows or macro q coefficients that are consisent with prior work examining the preceding decage. In times of crisis, when investment opportunities are slim, firms are not at a corner with regards to their investment objectives. The results we present here is consistent with a simple desire to "survive". It is possible that the investment bets become less attractive when firms obtain some more financing which affords them the freedom to avoid an all out blitz (reference).

5.4   Cash Holdings

Bates, Kahle and Stulz (2009) document that firms' cash holdings is rising over time in the US. Therefore, we test whether our sample firms increase their debt and hold cash. The results are reported in Table 7. Our results imply that constrained firms with minority interest did not increase their cash holdings. In fact, we find the opposite. The coefficient on $X_i \times Constrained_{i,t} \times POST$ is negative in all models. The coefficients are statistically significant when we employ an indicator variable for firms with minority interest ($X_i = DMIB_i$). Firms that were constrained did not use the same hedging and liquidity management that may be expected of some firms.

5.5   Bankruptcies

One possible outcome of the impact of SFAS 160 is that firms can avoid or at least postpone bankruptcy, when they are given more debt capacity. Consistent with this hypothesis, our findings suggest that constrained firms are less likely to enter into bankruptcy, post 2008, if they have minority interest. The coefficient on $X_i \times Constrained_{i,t} \times POST$ is negative and

statistically significant at the 10% level in all models. The coefficient varies from -0.008 to -0.249 and the t-statistic varies from -1.65 to2.23.

The results with respect to bankruptcy are more significant when we use the levels of minority interest rather than the indicator variable for firms with minority interest. This result implies that higher minority interest reduces the chances of bankruptcy post SFAS 160. This result is expected because higher minority interest reduces the likelihood that the covenants would be violated. We find consistent results across both the active/inactive measure and the bankruptcy measure from CRSP. We did not find enough power in the bloomberg sample, which contains very few bankruptcies for our sample. We are working to extend the sample of bankruptcies for future versions of the paper.

5.6   Dividends and Share Repurchases

Finally, we test whether stock holders took advantage of the exogenous increase in debt capacity. Specifically, we test whether constrained firms with minority interest increased their dividends and share repurchases. The results are reported in Table 9. Since the ability to distribute dividends is related to the size of shareholder equity, we only include the level of minority interest in the regression model ($MIB_i \times Constrained_{i,t} \times POST$). While we find no evidence of an increase in share repurchases, our findings indicate that constrained firms with minority interest increased their dividends.

Note that since most firms in our sample do not distribute dividends (see Table 2), our results are likely driven by the constrained firms that had minority interest and increased dividends post 2008. For example, HCA Holdings Inc, a private firms with public debt (went private in 2006), declared no dividends in 2008-9, but in 2010 declared $42.5of dividends per share ($4.257 B).[12] The firm paid the dividends using cash from operating activities ($3.085B for the year) and with net proceeds of $2.533 billion from their debt issuance and debt repayment activities. In particular, the firm issued $2.912 B long-term debt (the firm

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[12]HCA's non-controlling interest was $1.132 billion in 2010 where shareholders' equity (excluding non controlling interest) was negative $11.888 billion, and they were subject to maximum total leverage ratio covenant.

issued similar debt in 2009 as well) paid back $ 2.268 of long-term debt, and drew $1.889 from the revolving credit facility (despite having negative payments of $1.335B on the same credit facility in the previous year). They further spent $1.039B on cash flows from investment activities, and their cash holdings increased from $312 million in 2009 to $411 million in 2010. Hence, it clear that they could not cover the entire dividends and investment payment form the operating cash flow or from their cash and cash equivalents, and benefitted from their increase capital obtained through debt.

6   Conclusion and Discussion

In this work we exploit an accounting change which resulted in an increase of the equity firms with minority interest had on their balance sheets at the end of 2008. Using a triple difference methodology, we isolate the effect of an exogenous increase in debt capacity for the treated firms. We find, as expected, that constrained firms took advantage of this shock and increased their debt. We then move to explore the uses of these additional funds. The story that emerges from our analysis of all relevant Compustat accounting choice variables as well as bankruptcy measures, is different from prior research. We do not find a (positive) sensitivity of investment. Firms also do not use the funds to increase their cash reserves, but rather either distribute the funds to the shareholders or pour them into the (often failing) operations of the firm - causing further losses. In doing so, they are able to avoid or at least delay bankruptcies.

There are several possible explanations for our findings. Firstly, our focus is on constrained firms in a crisis. Investment opportunities were not abundant (especially to constrained firms) and there was much struggle for survival. This may indeed rationalize the different behavior. Secondly, our methodology is different. Rather than exploring a (quasi) discontinuity around the covenant violation, we look at a discrete shock. This identification strategy is markedly different and relies on different assumptions.

The implication of these findings naturally depend on the reason for their divergence from past work. Extrapolation from the reduced form analysis requires an assumption

of comparability between the in and out of sample periods and universe of firms. The recent crisis was not a repeat of anything experienced in the preceding decade. Our results, taken with those of prior work, therefore suggest that firms' response to an infusion of capital capacity differs depending on the economic climate in which they are in. This would therefore enrich our understanding of firm behavior and inform theoretical and structural models which are to be generalized across economic environments. Given the different identification in this paper, more work should be done to reexamine firm behavior under (different) exogenous shocks on the one hand and to understand firm behavior as they approach violations on the other.

The issue of the optimality of market-based financial constraints is at the heart of the current debates on stimulating the economy. The discussions on whether and how to infuse firms with capital, such as by encouraging lending, through tax breaks and credits, or other forms of subsidization, all require an understanding of the behavioral response to these policies. These discussions and future policies suggest avenues for future research, which will undoubtedly further contribute to the understanding of the rich mosaic of constrained firms' scramble for and response to capital, and the mechanisms for improving capital allocations.

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Appendix: An Example of The Impact of SFAS 141R and 160

Assume that firm P (the parent firm) acquires 80% of the equity shares of firm S (subsidiary) for $1000. P assesses that the fair value of the Noncontrolling interest (the value of the remaining 20% firm P has not acquired) is $200. P assesses the fair value of firm S's identifiable net assets (net assets = assets – liabilities) at $900 on the acquisition date. The book value of net assets (which is equal to the book value of equity) is $700.

6.1 Purchase Price Allocation Based on Old GAAP

Under the old accounting rules. The goodwill is the different between the purchase price and the majority share of fair value of identifiable net assets. The minority interest is the minority share of the subsidiary identifiable net assets. The minority interest in included in the Liabilities/Mezzanine section of the balance sheet. Under consolidation, the net identifiable assets of the subsidiary are consolidated based on fair value. The figure below summarizes the consolidation under the old GAAP rules.

6.2 Purchase Price Allocation Based on New GAAP

Under the new accounting rules. The goodwill is the different between the (purchase price + fair value of noncontrolling interest) and the fair value of identifiable net assets. The minority interest (now named Noncontrolling Interest) is the fair value of the noncontrolling interest. The noncontrolling interest is included in the equity section of the balance sheet. Under consolidation, the net identifiable assets of the subsidiary are consolidated based on their full fair value. The figure below summarizes the consolidation under the old GAAP rules.

<div style="border:1px solid black">

Old Standard:

Goodwill: $1000 - 900 \times 80\% = 280$

Minority Interest $= 20\% \times 700 = 140$ (Mezzanine/Liab.)

Net consolidated assets $= 700 + (900 - 700) \times 80\% = 860$

Cash ↓ (1,000)
Assets ↑ 860
Equity =
Mezzanine/Liab. ↑ (140)
Goodwill ↑ 280

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New Standard (141R and 160):

Goodwill: $(1000 + 200) - 900 = 300$

Noncontrolling Interest $= 200$ (Equity)

Net consolidated assets $= 900$

Cash ↓ (1,000)
Assets ↑ 900
Equity ↑ (200)
Goodwill ↑ 300

</div>

We hypothesize that firms will take advantage of the new accounting rules improving their financial leverage ratios. Specifically, we hypothesize that firms with minority interest that had previously violated and/or are close to violating their debt covenants would take advantage of this new accounting rule and increase their leverage. We expect to find a more significant effect of minority interest on leverage in firms with equity-based debt covenants, such as leverage ratios. In contrast, we do not expect to find results in cases where the debt covenants are unaffected, such as the current ratio (current asset/current liabilities).

Frankel, Lee and McLaughlin (2010) point out that the change in the balance sheet introduced by SFAS 160 potentially results in a wealth transfer from debt holders to equity holders. Consistent with this argument, we hypothesize that the passage of SFAS 160 should result in a positive stock price reaction for firms expected to gain from it. In particular, firms that violated or are close to violating debt covenants, and have significant minority interest are expected to be the primary beneficiaries from reallocating the minority interest into equity on the balance sheet.

Table 1: Data: This table reports the number of observations used in our analysis. Panel A reports the number of firm-quarter observations with available covenant information in dealscan. Panel B reports the number of firm-quarter observations for firms with minority interest that are also constrained. $Violate_{i,t}$ is an indicator variable that receives the value of 1 if the firm violated any of its debt covenant. $Close_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 30% of the target financial ratio. $ReallyClose_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 10% of the target financial ratio. Minority Interest (MIB_i) denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160).

Panel A: Number of Observations with Covenant Data						
Covenant	2007		2008		2009	
Has At least One	2,936	9.44%	2,914	9.76%	2,601	9.34%
Debt-to-Equity	62	0.20%	62	0.21%	52	0.19%
Debt-to Tangible Net Worth	374	1.20%	418	1.40%	352	1.26%
Net Worth	1,147	3.69%	1,083	3.63%	930	3.34%
Tangible Net Worth	778	2.50%	759	2.54%	640	2.30%
Leverage Ratio	1,151	3.70%	1,182	3.96%	1,141	4.10%
Total Observations	31,100	100%	29,871	100%	27,856	100%
Panel B: Number of Observations with Minority Interest and Constrained						
	2007		2008		2009	
$Close_{i,t}$	456		450		537	
$ReallyClose_{i,t}$	278		265		301	
$Violate_{i,t}$	229		226		253	

Table 2: Summary Statistics: This table reports summary statistics for the variables used in our analysis. $A_{i,t}$ denotes total assets for firm i in period t. $Debt^k_{i,t}$, where $k = \{C, LT, T\}$ denotes debt included in current liabilities, long-term liabilities and total debt, respectively. The debt measures are scaled by total assets. $Cash_{i,t}$ denotes cash and cash equivalents scaled by total assets. $CFO_{i,t}$ denotes the firm's operating cash flows scaled by beginning of period assets. $INV_{i,t}$ denotes invesment measured as total long-tem investments scaled by beginning of period total assets. $DIV_{i,t}$ and $REP_{i,t}$ denote the firm's dividend and share repurchases during the period, scaled by beginning of period assets. $INT_{i,t}$ denote intangible assets scaled by total assets. $WC_{i,t}$ denotes working capital, which we define as current assets minus current liabilities. $RE_{i,t}$ and $EQ_{i,t}$ denote retained earnings and total shareholder's equity, respectively. $MIB_{i,t}$ denotes minority interest (non-controlling interest post SFAS 160). Working capital, retained earnings, shareholders equity, and minority interest are all scaled by total assets. Panel A, reports summary statistics for firms with positive minority interest. Panel B reports summary statistics for firms with no minority interest.

Panel A: $MIB_{i,t} > 0$							
Variable	5%	25%	50%	75%	95%	Mean	Std
$A_{i,t}$	18.06	227.74	1,435.03	7,148.03	46,969.13	11,134.94	36,807.27
$Debt^C_{i,t}$	0	0.002	0.020	0.064	0.239	0.068	0.245
$Debt^{LT}_{i,t}$	0	0.034	0.179	0.331	0.605	0.220	0.221
$Debt^T_{i,t}$	0	0.102	0.246	0.395	0.682	0.293	0.395
$Cash_{i,t}$	0.004	0.030	0.080	0.178	0.491	0.138	0.164
$CFO_{i,t}$	-0.084	0.005	0.019	0.032	0.063	0.001	0.157
$INV_{i,t}$	0	0	0.010	0.047	0.226	0.046	0.092
$DIV_{i,t}$	0	0	0	0.003	0.020	0.004	0.008
$REP_{i,t}$	0	0	0	0	0.013	0.002	0.008
$INT_{i,t}$	0	0.024	0.185	0.514	1.025	0.312	0.340
$WC_{i,t}$	-0.144	0.016	0.120	0.277	0.590	0.114	0.723
$RE_{i,t}$	-2.868	-0.147	0.107	0.310	0.618	-0.913	9.343
$EQ_{i,t}$	-0.093	0.268	0.427	0.605	0.864	0.363	0.924

Panel B: $MIB_{i,t} = 0$							
Variable	5%	25%	50%	75%	95%	Mean	Std
$A_{i,t}$	0.782	21.856	123.35	695.87	6907.5	1682.54	7750.26
$Debt_{i,t}^{C}$	0	0	0.005	0.057	0.512	0.169	0.715
$Debt_{i,t}^{LT}$	0	0	0.035	0.252	0.661	0.167	0.268
$Debt_{i,t}^{T}$	0	0	0.140	0.355	1.095	0.368	0.958
$Cash_{i,t}$	0.001	0.028	0.128	0.372	0.851	0.239	0.269
$CFO_{i,t}$	-0.475	-0.039	0.011	0.029	0.073	-0.093	0.434
$INV_{i,t}$	0	0	0	0.007	0.169	0.029	0.092
$DIV_{i,t}$	0	0	0	0	0.014	0.002	0.007
$REP_{i,t}$	0	0	0	0	0.015	0.002	0.009
$INT_{i,t}$	0	0	0.036	0.337	0.958	0.218	0.325
$WC_{i,t}$	-1.032	0.010	0.195	0.440	0.802	-0.140	2.219
$RE_{i,t}$	-26.043	-1.792	-0.146	0.192	0.614	-7.043	30.463
$EQ_{i,t}$	-1.175	0.299	0.544	0.769	0.991	0.098	2.449

Table 3: Firm With Covenant Violations (Nini, Smith and Sufi, 2010): This table reports OLS coefficient estimates and t-statistics in parentheses below. $Debt_{i,t}^k$, where $k = \{C, LT, T\}$ denotes debt included in current liabilities, long-term liabilities and total debt, respectively. The debt measures are scaled by total assets. $POST$ is an indicator variable that receives the value of 1 for period after 2008. $TV_{i,t}$ denote total violations of debt covenants. MIB_i denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160). $DMIB_i$ is an indicator variable that receives the value of 1 if $MIB_i > 0$. The regression model includes firm fixed effects as well as quarter fixed effects. The standard errors are clustered by firm.

	$Debt_{i,t}^C$	$Debt_{i,t}^{LT}$	$Debt_{i,t}^T$	$Debt_{i,t}^C$	$Debt_{i,t}^{LT}$	$Debt_{i,t}^T$
$1/A_{i,t-1}$	0.003***	-0.000	0.004***	0.003***	-0.000	0.004***
	(6.36)	(-1.01)	(6.30)	(6.36)	(-1.00)	(6.30)
$Post$	0.025***	0.005*	0.037***	0.030***	0.005	0.044***
	(3.59)	(2.08)	(4.25)	(3.87)	(1.75)	(4.51)
$TV_{i,t} \times POST$	-0.013	-0.009	-0.024	-0.020	-0.007	-0.030
	(-1.21)	(-1.36)	(-1.48)	(-1.64)	(-0.98)	(-1.63)
$MIB_i \times POST$	-0.331**	-0.025	-0.444**			
	(-2.90)	(-0.30)	(-2.69)			
$MIB_i \times TV_{i,t} \times POST$	**1.127***	**-0.275**	**0.908**			
	(2.57)	**(-0.77)**	**(1.84)**			
$DMIB_i \times POST$				-0.032***	0.001	-0.045***
				(-3.99)	(0.35)	(-4.19)
$DMIB_i \times TV_{i,t} \times POST$				**0.061****	**-0.014**	**0.054***
				(3.07)	**(-0.91)**	**(1.99)**
N	82800	82802	82800	82800	82802	82800
R^2	0.756	0.801	0.786	0.756	0.801	0.786
$Adj - R^2$	0.727	0.778	0.762	0.728	0.778	0.762

Table 4: Firm With Dealscan Covenant Information: This table reports OLS coefficient estimates and t-statistics in parentheses below. $Debt^k_{i,t}$, where $k = \{C, LT, T\}$ denotes debt included in current liabilities, long-term liabilities and total debt, respectively. The debt measures are scaled by total assets. $POST$ is an indicator variable that receives the value of 1 for period after 2008. $Violate_{i,t}$ is an indicator variable that receives the value of 1 if the firm violated any of its debt covenant. $Close_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 30% of the target financial ratio. $ReallyClose_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 10% of the target financial ratio. MIB_i denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160). $DMIB_i$ is an indicator variable that receives the value of 1 if $MIB_i > 0$. The regression model includes firm fixed effects as well as quarter fixed effects. The standard errors are clustered by firm.

Panel A

	$Debt^C_{i,t}$	$Debt^C_{i,t}$	$Debt^C_{i,t}$	$Debt^{LT}_{i,t}$	$Debt^{LT}_{i,t}$	$Debt^{LT}_{i,t}$	$Debt^T_{i,t}$	$Debt^T_{i,t}$	$Debt^T_{i,t}$
$1/A_{i,t-1}$	0.003***	0.003***	0.003***	-0.000	-0.000	-0.000	0.004***	0.004***	0.004***
	(6.36)	(6.36)	(6.36)	(-1.00)	(-1.00)	(-1.00)	(6.30)	(6.30)	(6.30)
$Post$	0.025***	0.026***	0.027***	0.004	0.004	0.004	0.036***	0.037***	0.039***
	(3.69)	(3.73)	(3.87)	(1.65)	(1.67)	(1.72)	(4.24)	(4.28)	(4.42)
$Violate_{i,t} \times POST$	-0.033***			0.011			-0.030**		
	(-4.01)			(1.46)			(-2.96)		
$MIB_i \times POST$	-0.285*	-0.287*	-0.298*	-0.042	-0.044	-0.047	-0.414*	-0.419**	-0.434**
	(-2.49)	(-2.50)	(-2.57)	(-0.51)	(-0.54)	(-0.56)	(-2.56)	(-2.58)	(-2.64)
$MIB_i \times Violate_{i,t} \times POST$	**0.508**			0.319			**0.915***		
	(1.29)			(1.50)			**(2.57)**		
$ReallyClose_{i,t} \times POST$		-0.035***			0.007			-0.039***	
		(-4.83)			(1.11)			(-3.96)	
$MIB_i \times ReallyClose_{i,t} \times POST$		**0.464**			**0.377***			**0.930****	
		(1.34)			**(2.04)**			**(2.93)**	
$Close_{i,t} \times POST$			-0.040***			0.001			-0.048***
			(-6.21)			(0.14)			(-5.70)
$MIB_i \times Close_{i,t} \times POST$			**0.488**			**0.386***			**0.965****
			(1.65)			**(2.38)**			**(3.40)**
N	82800	82800	82800	82802	82802	82802	82800	82800	82800
R^2	0.756	0.756	0.756	0.801	0.801	0.801	0.786	0.786	0.786
$Adj - R^2$	0.727	0.727	0.727	0.778	0.778	0.778	0.762	0.762	0.762

Panel B

	$Debt^C_{i,t}$	$Debt^C_{i,t}$	$Debt^C_{i,t}$	$Debt^{LT}_{i,t}$	$Debt^{LT}_{i,t}$	$Debt^{LT}_{i,t}$	$Debt^T_{i,t}$	$Debt^T_{i,t}$	$Debt^T_{i,t}$
$1/A_{i,t-1}$	0.003***	0.003***	0.003***	-0.000	-0.000	-0.000	0.004***	0.004***	0.004***
	(6.36)	(6.36)	(6.36)	(-1.00)	(-1.00)	(-1.00)	(6.30)	(6.30)	(6.30)
$Post$	0.029***	0.030***	0.031***	0.004	0.004	0.004	0.042***	0.043***	0.045***
	(3.91)	(3.95)	(4.07)	(1.46)	(1.48)	(1.57)	(4.50)	(4.54)	(4.66)
$Violate_{i,t} \times POST$	-0.036***			0.009			-0.037**		
	(-3.82)			(1.09)			(-3.18)		
$DMIB_i \times POST$	-0.028***	-0.028***	-0.029***	-0.000	-0.001	-0.001	-0.042***	-0.043***	-0.044***
	(-3.59)	(-3.58)	(-3.56)	(-0.10)	(-0.15)	(-0.27)	(-4.07)	(-4.09)	(-4.11)
$DMIB_i \times Violate_{i,t} \times POST$	**0.031***			**0.012**			**0.057****		
	(2.25)			**(0.91)**			**(3.13)**		
$ReallyClose_{i,t} \times POST$		-0.039***			0.005			-0.044***	
		(-4.61)			(0.68)			(-4.19)	
$DMIB_i \times ReallyClose_{i,t} \times POST$		**0.030***			**0.017**			**0.060*****	
		(2.33)			**(1.43)**			**(3.58)**	
$Close_{i,t} \times POST$			-0.043***			-0.002			-0.056***
			(-5.84)			(-0.37)			(-5.77)
$DMIB_i, \times Close_{i,t} \times POST$			**0.030****			**0.017**			**0.061*****
			(2.87)			**(1.90)**			**(4.43)**
N	82800	82800	82800	82802	82802	82802	82800	82800	82800
R^2	0.756	0.756	0.756	0.801	0.801	0.801	0.786	0.786	0.786
$Adj - R^2$	0.727	0.727	0.727	0.778	0.778	0.778	0.762	0.762	0.762

Table 5: Earnings and Cash Flows: This table reports OLS coefficient estimates and t-statistics in parentheses below. $POST$ is an indicator variable that receives the value of 1 for period after 2008. $Violate_{i,t}$ is an indicator variable that receives the value of 1 if the firm violated any of its debt covenant. $Close_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 30% of the target financial ratio. $ReallyClose_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 10% of the target financial ratio. MIB_i denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160). $DMIB_i$ is an indicator variable that receives the value of 1 if $MIB_i > 0$. $Earn_{i,t}$ denotes earnings before extraordinary items. $CFO_{i,t}$ denotes the firm's operating cash flows. $Depr_{i,t}$ denotes depreciation and amortization. The regression model includes firm fixed effects as well as quarter fixed effects. The standard errors are clustered by firm.

	$Earn_{i,t}$ $+Depr_{i,t}$	$Earn_{i,t}$ $+Depr_{i,t}$	$Earn_{i,t}$ $+Depr_{i,t}$	$Earn_{i,t}$	$Earn_{i,t}$	$Earn_{i,t}$	$CFO_{i,t}$	$CFO_{i,t}$	$CFO_{i,t}$
$1/A_{i,t-1}$	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.001***	-0.001***	-0.001***
	(-8.45)	(-8.45)	(-8.45)	(-8.51)	(-8.51)	(-8.51)	(-8.92)	(-8.92)	(-8.92)
$Post$	0.015**	0.015**	0.015**	0.015**	0.014**	0.014**	0.000	0.000	0.000
	(3.14)	(3.11)	(3.03)	(3.03)	(3.00)	(2.92)	(0.21)	(0.19)	(0.15)
$Violate_{i,t} \times POST$	0.010*			0.010*			0.000		
	(2.39)			(2.44)			(0.07)		
$DMIB_{i,t} \times POST$	0.010*	0.010*	0.010*	0.011*	0.011*	0.011*	-0.001	-0.001	-0.001
	(2.26)	(2.26)	(2.28)	(2.41)	(2.41)	(2.42)	(-0.53)	(-0.51)	(-0.44)
$DMIB_{i,t} \times Violate_{i,t} \times POST$	-0.009			-0.009			0.001		
	(-1.49)			(-1.57)			(0.24)		
$ReallyClose_{i,t} \times POST$		0.009*			0.010*			0.001	
		(2.34)			(2.46)			(0.48)	
$DMIB_{i,t} \times ReallyClose_{i,t} \times POST$		-0.009			-0.010			0.000	
		(-1.59)			(-1.72)			(0.08)	
$Close_{i,t} \times POST$			0.008*			0.008*			0.002
			(2.01)			(2.16)			(0.86)
$DMIB_{i,t} \times Close_{i,t} \times POST$			-0.010*			-0.011*			-0.001
			(-2.01)			(-2.11)			(-0.42)
N	79750	79750	79750	79750	79750	79750	80019	80019	80019
R^2	0.684	0.684	0.684	0.684	0.684	0.684	0.637	0.637	0.637
$Adj - R^2$	0.650	0.650	0.650	0.650	0.650	0.650	0.597	0.597	0.597

Table 6: Long-Term Investments: This table reports OLS coefficient estimates and t-statistics in parentheses below. $POST$ is an indicator variable that receives the value of 1 for period after 2008. $Violate_{i,t}$ is an indicator variable that receives the value of 1 if the firm violated any of its debt covenant. $Close_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 30% of the target financial ratio. $ReallyClose_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 10% of the target financial ratio. MIB_i denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160). $DMIB_i$ is an indicator variable that receives the value of 1 if $MIB_i > 0$. $INV_{i,t}$ denotes total-long term investments scaled by beginning of period total assets. The regression model includes firm fixed effects as well as quarter fixed effects. The standard errors are clustered by firm.

	$INV_{i,t}$	$INV_{i,t}$	$INV_{i,t}$	$INV_{i,t}$	$INV_{i,t}$	$INV_{i,t}$
	$X_i = DMIB_i$			$X_i = MIB_i$		
$1/A_{i,t-1}$	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-1.26)	(-1.26)	(-1.26)	(-1.26)	(-1.25)	(-1.25)
$Post$	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.79)	(-0.83)	(-0.75)	(-1.01)	(-1.03)	(-0.94)
$Violate_{i,t} \times POST$	0.002			0.001		
	(1.12)			(0.55)		
$X_i \times POST$	0.002	0.002	0.003	0.095	0.095	0.095
	(1.25)	(1.29)	(1.35)	(1.77)	(1.78)	(1.77)
$X_i \times Violate_{i,t} \times POST$	**-0.010***			**-0.279**		
	(-2.12)			**(-1.63)**		
$ReallyClose_{i,t} \times POST$		0.003			0.001	
		(1.70)			(0.94)	
$X_i \times ReallyClose_{i,t} \times POST$		**-0.011***			**-0.291**	
		(-2.52)			**(-1.72)**	
$Close_{i,t} \times POST$			0.000			-0.001
			(0.19)			(-0.35)
$X_i \times Close_{i,t} \times POST$			**-0.009**			**-0.229**
			(-1.94)			**(-1.68)**
N	69340	69340	69340	69340	69340	69340
R^2	0.778	0.778	0.778	0.778	0.778	0.778
$Adj - R^2$	0.751	0.751	0.751	0.751	0.751	0.751

Table 7: Cash Holdings: This table reports OLS coefficient estimates and t-statistics in parentheses below. $POST$ is an indicator variable that receives the value of 1 for period after 2008. $Violate_{i,t}$ is an indicator variable that receives the value of 1 if the firm violated any of its debt covenant. $Close_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 30% of the target financial ratio. $ReallyClose_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 10% of the target financial ratio. MIB_i denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160). $DMIB_i$ is an indicator variable that receives the value of 1 if $MIB_i > 0$. $Cash_{i,t}$ dnotes cash and cash equivalents scaled by total assets. The regression model includes firm fixed effects as well as quarter fixed effects. The standard errors are clustered by firm.

	$Cash_{i,t}$	$Cash_{i,t}$	$Cash_{i,t}$	$Cash_{i,t}$	$Cash_{i,t}$	$Cash_{i,t}$
	$X_i = DMIB_i$			$X_i = MIB_i$		
$1/A_{i,t-1}$	0.000	0.000	0.000	0.000	0.000	0.000
	(4.71)	(4.71)	(4.71)	(4.71)	(4.71)	(4.71)
$Post$	0.003	0.003	0.002	0.006**	0.005**	0.004*
	(1.36)	(1.25)	(0.81)	(2.78)	(2.67)	(2.20)
$Violate_{i,t} \times POST$	0.034***			0.036***		
	(4.68)			(5.50)		
$X_i \times POST$	0.013***	0.013***	0.014***	0.010	0.011	0.019
	(4.29)	(4.28)	(4.38)	(0.16)	(0.16)	(0.29)
$X_i \times Violate_{i,t} \times POST$	-0.007			-0.397*		
	(-0.52)			(-2.44)		
$ReallyClose_{i,t} \times POST$		0.031***			0.032***	
		(5.28)			(6.01)	
$X_i \times ReallyClose_{i,t} \times POST$		-0.004			-0.285*	
		(-0.37)			(-1.98)	
$Close_{i,t} \times POST$			0.032***			0.030***
			(7.20)			(7.79)
$X_i \times Close_{i,t} \times POST$			-0.014			-0.332*
			(-1.68)			(-2.27)
N	82683	82683	82683	82683	82683	82683
R^2	0.847	0.847	0.847	0.847	0.847	0.847
$Adj - R^2$	0.830	0.830	0.830	0.830	0.830	0.830

Table 8: Bankruptcies: This table reports OLS coefficient estimates and t-statistics in parentheses below. $POST$ is an indicator variable that receives the value of 1 for period after 2008. $Violate_{i,t}$ is an indicator variable that receives the value of 1 if the firm violated any of its debt covenant. $Close_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 30% of the target financial ratio. $ReallyClose_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 10% of the target financial ratio. MIB_i denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160). $DMIB_i$ is an indicator variable that receives the value of 1 if $MIB_i > 0$. $Bankrupt_{i,t}$ is an indicator variable that receives the value of 1 if the firm declares bankruptcy during the period. The regression model includes firm fixed effects as well as quarter fixed effects. The standard errors are clustered by firm.

	$Bankrupt_{i,t}$	$Bankrupt_{i,t}$	$Bankrupt_{i,t}$	$Bankrupt_{i,t}$	$Bankrupt_{i,t}$	$Bankrupt_{i,t}$
	$X_i = DMIB_i$			$X_{i,t} = MIB_i$		$X_i = MIB_i$
$Post$	0.002	0.002	0.002*	0.002	0.002	0.002*
	(1.89)	(1.93)	(2.05)	(1.78)	(1.82)	(1.96)
$Violate_{i,t} \times POST$	0.008			0.006		
	(0.88)			(0.76)		
$X_i \times POST$	0.003	0.003	0.003	0.103	0.103	0.103
	(1.15)	(1.14)	(1.17)	(1.77)	(1.76)	(1.75)
$X_i \times Violate_{i,t} \times POST$	**-0.016**			**-0.249***		
	(-1.65)			**(-2.07)**		
$ReallyClose_{i,t} \times POST$		0.005			0.003	
		(0.70)			(0.56)	
$X_i \times ReallyClose_{i,t} \times POST$		**-0.013**			**-0.212***	
		(-1.70)			**(-2.17)**	
$Close_{i,t} \times POST$			0.001			-0.000
			(0.15)			(-0.12)
$X_i \times Close_{i,t} \times POST$			**-0.008**			**-0.172***
			(-1.81)			**(-2.23)**
N	82802	82802	82802	82802	82802	82802
R^2	0.000	0.000	0.000	0.001	0.001	0.001
$Adj - R^2$	0.000	0.000	0.000	0.001	0.001	0.001

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Table 9: Dividends and Share Repurchases: This table reports OLS coefficient estimates and t-statistics in parentheses below. $POST$ is an indicator variable that receives the value of 1 for period after 2008. $Violate_{i,t}$ is an indicator variable that receives the value of 1 if the firm violated any of its debt covenant. $Close_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 30% of the target financial ratio. $ReallyClose_{i,t}$ is an indicator variable that receives the value of 1 if the firm's financial ratio is within 10% of the target financial ratio. $MIB_{i,t}$ denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160). $DMIB_i$ is an indicator variable that receives the value of 1 if $MIB_i > 0$. $DIV_{i,t}$ and $REP_{i,t}$ denote the firm's dividend and share repurchases during the period, scaled by beginning of period assets. The regression model includes firm fixed effects as well as quarter fixed effects. The standard errors are clustered by firm.

	$DIV_{i,t}$	$DIV_{i,t}$	$DIV_{i,t}$	$REP_{i,t}$	$REP_{i,t}$	$REP_{i,t}$
$1/A_{i,t-1}$	-0.000	-0.000	-0.000	0.000	0.000	0.000
	(-0.80)	(-0.80)	(-0.81)	(0.24)	(0.24)	(0.23)
$Post$	-0.000*	-0.000**	-0.000**	-0.001***	-0.001***	-0.001***
	(-2.98)	(-2.99)	(-2.90)	(-7.26)	(-7.20)	(-6.97)
$Violate_{i,t} \times POST$	-0.000			-0.002**		
	(-1.40)			(-3.08)		
$MIB_i \times POST$	-0.004*	-0.004*	-0.004*	-0.000	-0.000	-0.000
	(-2.08)	(-2.07)	(-2.08)	(-1.02)	(-1.03)	(-0.81)
$MIB_i \times Violate_{i,t} \times POST$	**0.017***			**0.001**		
	(2.30)			**(0.62)**		
$ReallyClose_{i,t} \times POST$		-0.000			-0.002**	
		(-1.02)			(-2.94)	
$MIB_i \times ReallyClose_{i,t} \times POST$		**0.013**			**0.000**	
		(1.94)			**(0.47)**	
$Close_{i,t} \times POST$			-0.000			-0.001**
			(-1.10)			(-3.29)
$MIB_i \times Close_{i,t} \times POST$			**0.011**			**-0.000**
			(1.66)			**(-0.12)**
N	78985	78985	78985	80019	80019	80019
R^2	0.669	0.669	0.669	0.398	0.398	0.398
$Adj - R^2$	0.632	0.632	0.632	0.332	0.332	0.332

LIABILITIES AND STOCKHOLDERS' EQUITY

CURRENT LIABILITIES		
Accounts payable	$ 1,042	$ 1,067
Accrued interest	252	255
Accrued and other liabilities	2,660	2,626
Non-recourse debt—current portion	1,074	1,142
Recourse debt—current portion	154	223
Current liabilities of discontinued and held for sale businesses	—	169
Total current liabilities	5,182	5,482
LONG-TERM LIABILITIES		
Non-recourse debt	11,869	11,293
Recourse debt	4,994	5,332
Deferred income taxes—noncurrent	1,132	1,187
Pension and other post-retirement liabilities	1,017	921
Other long-term liabilities	3,525	3,754
Long-term liabilities of discontinued and held for sale businesses	—	79
Total long-term liabilities	22,537	22,566
MINORITY INTEREST (including discontinued businesses of $—and $—, respectively)	3,418	3,241
Commitments and Contingent Liabilities (see Notes 11 and 12)		
STOCKHOLDERS' EQUITY		
Common stock ($0.01 par value, 1,200,000,000 shares authorized; 673,478,012 issued and 662,786,745 outstanding at December 31, 2008 and 670,339,855 issued and outstanding at December 31, 2007)	7	7
Additional paid-in capital	6,832	6,776
Accumulated deficit	(8)	(1,241)
Accumulated other comprehensive loss	(3,018)	(2,378)
Treasury stock, at cost (10,691,267 and 0 shares at December 31, 2008 and 2007, respectively)	(144)	—
Total stockholders' equity	3,669	3,164
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$34,806	$34,453

Figure 1: Liabilities and Shareholders Equity for the AES Corporation 2008

LIABILITIES AND EQUITY

CURRENT LIABILITIES		
Accounts payable	$ 1,217	1,033
Accrued interest	271	244
Accrued and other liabilities	3,017	2,640
Non-recourse debt—current	1,759	917
Recourse debt—current	214	154
Current liabilities of discontinued and held for sale businesses	143	194
Total current liabilities	6,621	5,182
LONG-TERM LIABILITIES		
Non-recourse debt—noncurrent	12,642	11,625
Recourse debt—noncurrent	5,301	4,994
Deferred income taxes—noncurrent	1,090	1,115
Pension and other post-retirement liabilities	1,322	1,017
Other long-term liabilities	3,208	3,357
Long-term liabilities of discontinued and held for sale businesses	411	429
Total long-term liabilities	23,974	22,537
Contingencies and Commitments (see Notes 11 and 12)		
Cumulative preferred stock of subsidiary	60	60
EQUITY		
THE AES CORPORATION STOCKHOLDERS' EQUITY		
Common stock ($0.01 par value, 1,200,000,000 shares authorized; 677,214,493 issued and 667,679,913 outstanding at December 31, 2009 and 673,478,012 issued and 662,786,745 outstanding at December 31, 2008)	7	7
Additional paid-in capital	6,868	6,832
Retained earnings (accumulated deficit)	650	(8)
Accumulated other comprehensive loss	(2,724)	(3,018)
Treasury stock, at cost (9,534,580 and 10,691,267 shares at December 31, 2009 and 2008, respectively)	(126)	(144)
Total The AES Corporation stockholders' equity	4,675	3,669
NONCONTROLLING INTERESTS	4,205	3,358
Total equity	8,880	7,027
TOTAL LIABILITIES AND EQUITY	$39,535	$34,806

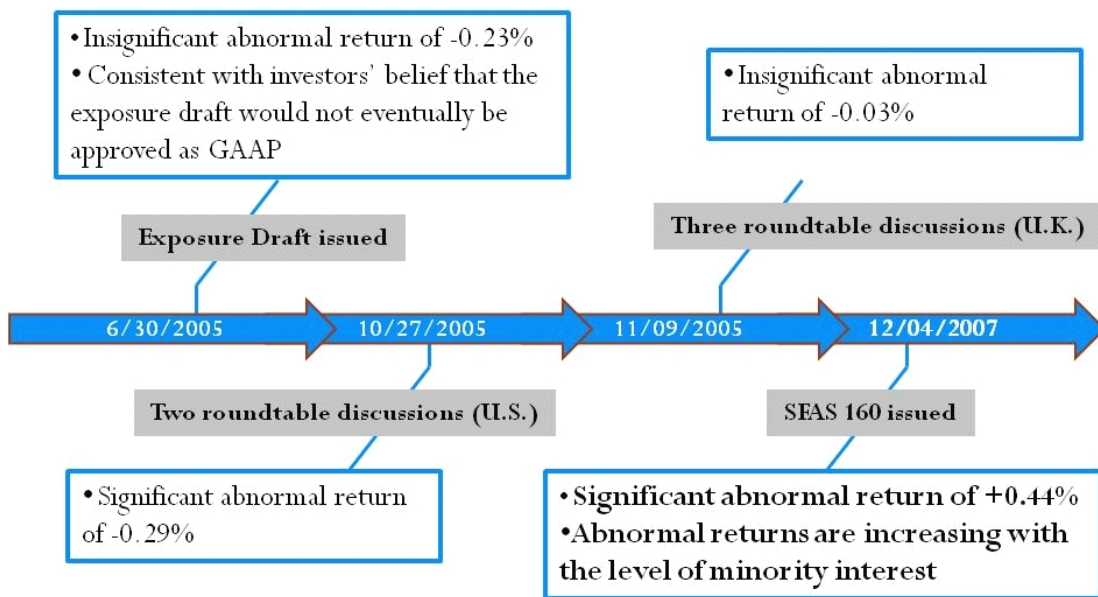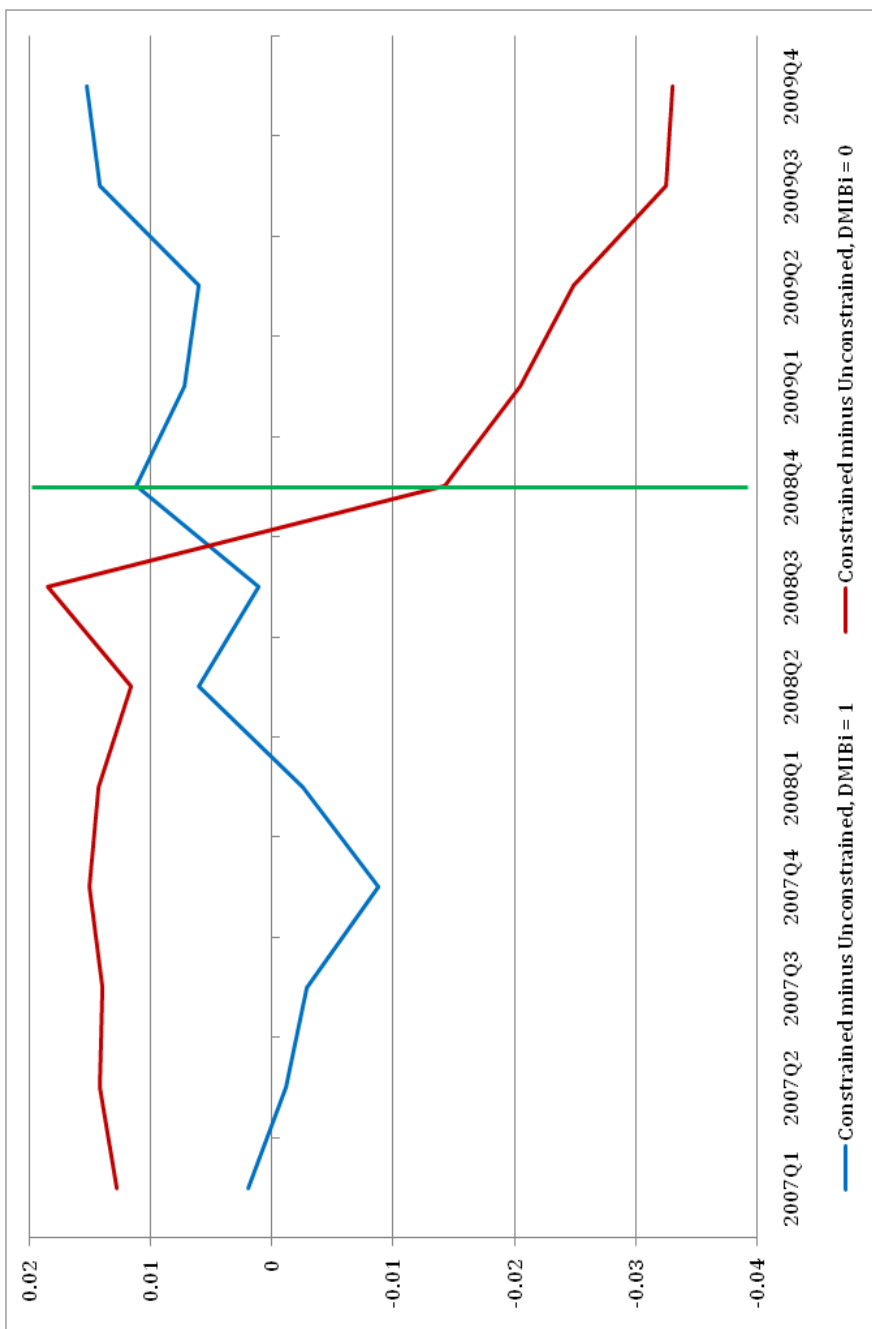Figure 2: Liabilities and Shareholders Equity for the AES Corporation 2009

- Insignificant abnormal return of -0.23%
- Consistent with investors' belief that the exposure draft would not eventually be approved as GAAP

- Insignificant abnormal return of -0.03%

Exposure Draft issued

Three roundtable discussions (U.K.)

6/30/2005   10/27/2005   11/09/2005   12/04/2007

Two roundtable discussions (U.S.)

SFAS 160 issued

- Significant abnormal return of -0.29%

- Significant abnormal return of +0.44%
- Abnormal returns are increasing with the level of minority interest

Figure 3: Timeline of SFAS issuance

Figure 4: This figure plots the average difference in residuals of a regression of total debt-to-asset ratio ($Debt^T_{i,t}$) on firm and quarter fixed effects. The figure plots the average residual per group. Constrained firms are defined based on $ReallyClose_{i,t}$, which is an indicator variable that receives the value of 1 if the firm's financial ratio is within 10% of the target financial ratio. MIB_i denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160). $DMIB_i$ is an indicator variable that receives the value of 1 if $MIB_i > 0$. The sample period is 2007Q1 until 2009 Q4 (three years).
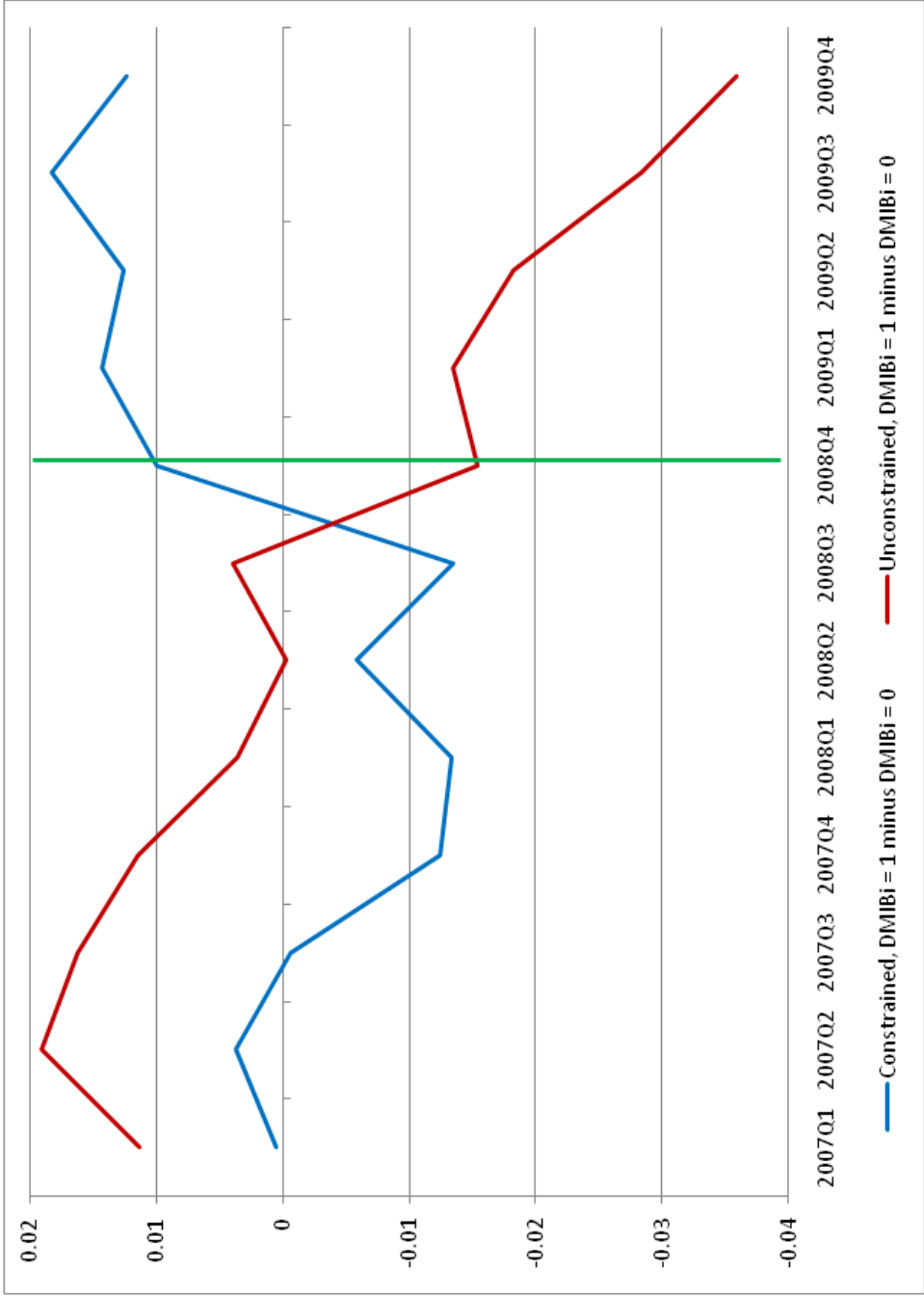
Figure 5: This figure plots the average difference in residuals of a regression of total debt-to-asset ratio ($Debt_{i,t}^{T}$) on firm and quarter fixed effects. The figure plots the average residual per group. Constrained firms are defined based on $ReallyClose_{i,t}$, which is an indicator variable that receives the value of 1 if the firm's financial ratio is within 10% of the target financial ratio. MIB_i denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160). $DMIB_i$ is an indicator variable that receives the value of 1 if $MIB_i > 0$. The sample period is 2007Q1 until 2009 Q4 (three years).
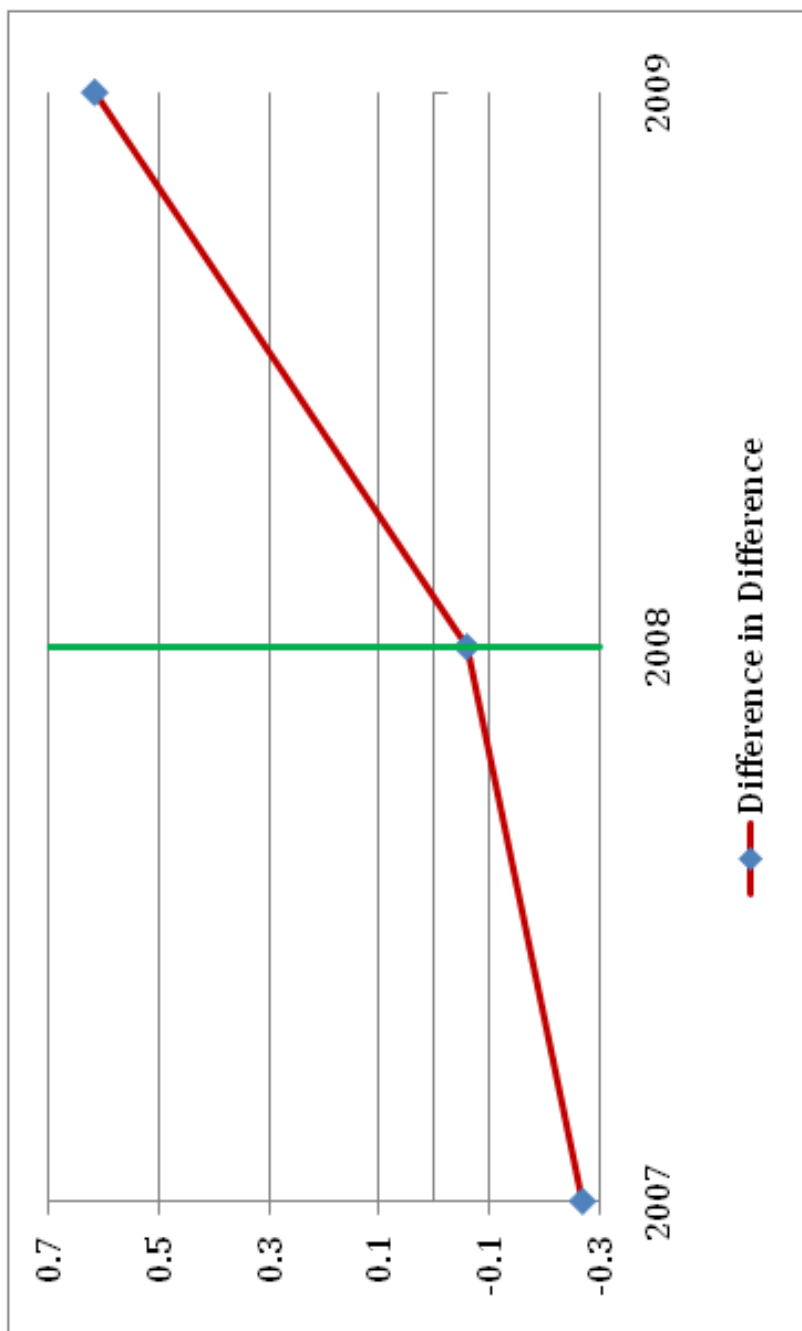
Figure 6: This figure plots the average difference in residuals of a regression of total debt-to-asset ratio ($Debt_{i,t}^T$) on firm and quarter fixed effects. The figure plots the average annual residual per group. Specifically, the figure plots the difference between 1) Constrained minus unconstrained with minority interest ($DMIB_i = 1$) and 2) Constrained minus unconstrained without minority interest ($DMIB_i = 0$). Constrained firms are defined based on $ReallyClose_{i,t}$, which is an indicator variable that receives the value of 1 if the firm's financial ratio is within 10% of the target financial ratio. MIB_i denotes minority interest (at the end of 2008) scaled by total assets (non-controlling interest post SFAS 160). $DMIB_i$ is an indicator variable that receives the value of 1 if $MIB_i > 0$. The sample period is 2007 until 2009 (three years).

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