

Fair Value Accounting and Debt Contracting: Evidence from Adoption of SFAS 159

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ABSTRACT

We examine how fair value accounting affects debt contract design, specifically the use and definition of financial covenants in private loan contracts. Using SFAS 159 adoption as our setting, we find that a small but significant proportion of loans (14.5%) modify covenant definitions to exclude the effects of SFAS 159 fair values. Only a limited number of these modifications exclude assets elected at fair value (less than 7%), while all exclude liabilities elected at fair value. Notably, we document that covenant definition modification is unassociated with ex ante fair value elections. We find that covenant definition modification positively varies with common incentive problems attributed to fair value accounting and negatively varies with benefits attributed to fair value accounting. Our results suggest that fair value accounting is not

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uniformly detrimental for debt contracting and fair value adjustments are included when they are most likely to improve performance measurement.

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1. Introduction

Considerable debate exists in the literature regarding the usefulness of fair values in financial statements.¹ Proponents argue that fair values provide timely, value-relevant information to financial statement users (Barth, Beaver, and Landsman [2001], Barth [2004, 2006]). Opponents deem expansion of fair values a violation of the age-old principle of conservatism that requires reliable accounting measurements and, thus, decreases the usefulness of accounting for contracting (Watts and Zimmerman [1986], Holthausen and Watts [2001], Watts [2003], Kothari, Ramanna, and Skinner [2010]). In this study, we examine the relationship between fair value accounting and the design of debt contract covenants written directly on accounting values. Specifically, we study fair values for debt contracting and observe the revealed preferences of contracting parties to provide evidence of the usefulness of SFAS 159. More specifically, using SFAS 159 (ASC 825) as our setting, we examine how increases in fair value accounting affect the usage and definition of financial covenants in debt contracts.

Despite the importance of fair value expansion, very little direct evidence exists on the effects of fair values on debt-contracting practice; most prior studies examine the effects of broad shifts in standards on debt contracting (Kosi, Pope, and Florou [2010], Demerjian [2011], Ball, Li, and Shivakumar [2015], Florou and Kosi [2015]). These studies leave many important questions related to fair values and debt contracting unresolved. For example, what features of fair value reduce its contracting usefulness? Is it the lack of reliable measurement and the potential for opportunism introduced by fair value estimates? Are some fair values useful for contracting, but not others, and, if so, why?

We seek to address these questions by examining debt contracts in the period around the adoption of SFAS 159. SFAS 159 has two unique features that allow us to test hypotheses and draw conclusions that were unreachable in previously analyzed settings. First, debt contracts are available and observable for a large population of firms. This availability allows us to directly observe any changes in debt contract design before and after SFAS 159 adoption. Second, as we discuss in detail in section 2.2, the cost of adjusting SFAS 159 in contracts is very low. Disclosure requirements under

¹ A significant number of both academic and nonacademic articles concern the history and expansion of fair value accounting. In Appendix A, we discuss how fair value use in U.S. GAAP, including the adoption of SFAS 157 and 159, has expanded over time.

SFAS 157 and SFAS 159, which are unique among U.S. standards related to fair value, lower the costs associated with modification. If adjusting contracts for SFAS 159 was very costly, any observed change or lack of change in contracting practice around the standard would be difficult to interpret, as it could be a function of either a difference in the usefulness of accounting due to the standard or the high cost related to adjustment. The low cost of adjustment related to SFAS 159, however, allows us to disentangle these two effects and interpret any observed change in contracting as related to fair value.

We begin our analysis by comparing the net costs and benefits of several potential contractual responses to the expansion of fair value. We assess the options to exclude financial covenants affected by fair values, contractually restrict the election of fair value accounting, modify affected financial covenant definitions, or make no modifications to financial covenants. We construct hypotheses based on this analysis and test them by examining debt contracts before and after adoption of the standard. The premise underlying our research design is that changes in the usefulness of accounting from the expansion of fair values will alter contracting equilibria and reveal borrower and lender preferences through changes to debt contract terms.

Using a broad sample of private loan packages in the period surrounding SFAS 159 adoption, we find no evidence that the frequency of financial covenants in debt contracts changed following the expansion of fair value accounting. Because expanded fair value accounting could affect various accounting ratios differently, we also examine whether the inclusion of individual covenants (liquidity, debt, and earnings-based covenants) changed with the adoption of SFAS 159. Again, we find no evidence that SFAS 159 altered the inclusion of these covenants. Further, we find no evidence that debt contracts explicitly restrict firms' elections of fair value use under SFAS 159. If fair value always reduced the usefulness of accounting information for debt contracting and modifying accounting for fair values was prohibitively costly, we would expect to observe either a decline in the use of covenants affected by SFAS 159 or explicit restrictions on borrowers' use of fair value. Our empirical evidence, however, is inconsistent with this argument.

We next examine what we hypothesize to be the most likely response to SFAS 159 adoption: modifying financial covenant definitions. We find that a small but significant number of observations—14.5% of loans initiated from 2008 to 2012—explicitly exclude effects of SFAS 159 from definitions of accounting-based measures. Notably, the majority of exclusions apply specifically to liabilities, with only 26 contracts (fewer than 1%) that feature exclusion of SFAS 159 fair value adjustments related to assets. We draw two broad conclusions from these results. First, the relatively low frequency of exclusions suggests that debt-contracting parties do not, on average, consider fair value accounting under SFAS 159 to be particularly damaging to the contracting usefulness of accounting information. Second, the

asymmetric exclusion of fair value estimates suggests that fair value accounting for liabilities is more likely to be considered problematic for contracting than is fair value accounting for assets.

We also find that the decision to contractually exclude fair values from contract terms is not associated with *ex ante* or *ex post* decisions by firms to actually elect the fair value option. Conditional on borrowers' electing the fair value option prior to contract inception, only 15.6% of debt contracts exclude fair value from covenant definitions. This highlights two key points. First, lenders appear to be knowledgeable about the fair value option and modify financial covenants even when firms have *not* previously elected the fair value option. Second, the decision to exclude fair values from financial covenants is not a corner solution, but, rather, there is significant cross-sectional variation in contractual responses to the fair value option.

We next examine the cross-sectional determinants of the decision to exclude fair value estimates from covenant definitions. We find that borrowers with unreliable fair value estimates (e.g., larger proportions of Level 2 and 3 assets and liabilities) are more likely to have SFAS 159 adjustments excluded from covenant definitions. Similarly, borrowers with performance-pricing provisions, who may opportunistically elect the fair value option to reduce their cost of debt and extract wealth from creditors, are more likely to have fair value estimates excluded from covenant calculations. Further, revolving lines of credit, which can be drawn and elected at fair value when the borrower's credit risk increases, are also more likely to have fair value exclusions, consistent with increased risk of opportunistic reporting's affecting contract design.

Finally, we consider two circumstances under which expanded fair value accounting could provide contracting useful information. First, SFAS 159 may motivate firms to elect the fair value option to avoid the complex requirements of hedge accounting under SFAS 133. This has two advantages for debt contracting. First, fair value estimates provide information in the financial statements on the effectiveness of a firm's hedging activities and, thus, the ability of a firm to repay its claims. Additionally, SFAS 159 potentially reduces the costs of hedge accounting and, thus, promotes hedging, which reduces operating risk (Guay [1999]) and better aligns the interests of borrowers and lenders. We predict and find empirical evidence that borrowers in industries in which hedging is more frequent are less likely to have fair values excluded. Second, when monitoring a borrower's liquidity position is contractually valuable, fair value estimates can potentially improve the relevance of reported accounting numbers by providing information regarding the settlement value of short-term assets and liabilities. Consistent with this expectation, we find that credit agreements with liquidity covenants (current or quick ratios) are less likely to exclude fair values from covenant definitions.

Our study makes two primary contributions to the accounting literature. First, our results inform the ongoing debate on fair value accounting (e.g., Laux and Leuz [2009]). Although prior studies examine standard changes

and their effect on debt contracting, they focus on broad standard-setting changes, such as the shift to the “balance sheet perspective” in U.S. GAAP (Demerjian [2011]) or IFRS adoption (Kosi, Pope, and Florou [2010], Ball, Li, and Shivakumar [2015], Florou and Kosi [2015], Brown [2016]).² We provide evidence on how debt-contracting parties respond to fair value accounting and suggest that the standard is neither unambiguously good nor bad for debt contracting. Our setting also allows us to draw more direct inferences on the effect of fair value, as the broader settings used in prior work could be affected by changes beyond those related to fair value.

Second, our results suggest that, in most cases, despite the low costs of adjusting debt covenants to exclude the effects of fair values, debt-contracting parties do not view these effects as sufficiently harmful to warrant their removal. In those limited cases in which contracting parties write contracts to address fair values, they modify contractual definitions to exclude the effects of fair values from accounting-based provisions, such as financial covenants. In this regard, we find that the decision to modify covenant definitions varies predictably, both in cases in which we predict that fair values will decrease debt-contracting usefulness (greater incentive and opportunity to manipulate earnings and measurement uncertainty) or increase debt-contracting usefulness (greater opportunity to hedge and measure liquidity). These results provide a more nuanced perspective on fair value accounting as it pertains to debt contracting.

2. *Motivation and Hypotheses*

2.1 POTENTIAL COSTS AND BENEFITS OF FAIR VALUE ACCOUNTING IN DEBT CONTRACTING

The recent expansion of fair value accounting creates several potential benefits and costs for accounting-based covenants in debt contracts. First, reporting fair values may facilitate timely loss recognition, whereby the market may have information that management does not. In addition, a timely value, even if imprecisely estimated, may provide lenders with a more useful number than does historical cost. Although improved timeliness could be beneficial, fair values may capture information that is uninformative for debt contracting, such as transient shocks unrelated to a borrower’s future cash flows (Shivakumar [2013]). Allowing fair values based on unobservable inputs also grants managers increased reporting discretion, potentially leading to opportunistic reporting (Benston [2008], Kothari, Ramanna, and Skinner [2010]).

Reporting liabilities at fair value can have particularly perverse implications for debt contracting. Consider a borrower who takes a loan and

²To our knowledge, the only other study to examine debt contracting and fair values is that of Frankel, Seethamraju, and Zach [2008]. They examine how changes in goodwill accounting under SFAS 141 and 142 affect debt contracting and find that goodwill is useful for contracting, but this usefulness declined following the adoption of the new standards.

elects to account for the loan under the fair value option. Subsequently, suppose that the firm's financial prospects deteriorate. This leads to higher credit risk, lower expected future cash payments to the lender, and, hence, a lower fair value for the liability. Under fair value, the balance of the loan payable must be reduced, with the offsetting entry *increasing* earnings. As such, precisely when the lender desires to take action—when the borrower's creditworthiness deteriorates—reported indebtedness is decreasing (loosening leverage covenants) and earnings are increasing (loosening coverage covenants). In appendix B, we provide anecdotal evidence regarding the negative consequences of fair valuing liabilities.

Despite these abnormal implications, reporting liabilities at fair value is likely not unambiguously detrimental for contracting. For example, if a borrower settles a liability in conjunction with an offsetting asset (e.g., a hedging arrangement) or the value of a firm's liability changes for reasons unrelated to credit risk, and the debt can be refinanced or retired, the reported fair value provides information relevant to future cash flows. Ultimately, the net costs and benefits of fair value accounting for both assets and liabilities in debt contracting is uncertain and, thus, an empirical question.

2.2 CONTRACT DESIGN AND FAIR VALUE ACCOUNTING

Consistent with prior contract design studies, we build on the idea that debt contracts are the outcome of negotiations between borrowers and lenders (Leftwich [1983], Smith and Warner [1979]). Absent severe agency problems, debt contracts at initiation should represent the efficient contract in the sense that no scope for further trade exists between lenders and borrowers (Coase [1960]). In other words, borrowers and lenders are unable to reduce the net costs of borrowing any further. Although borrowers and lenders can theoretically select from an infinite menu of contracts, the number of economically plausible options with respect to the inclusion and definition of financial covenants, especially related to fair value accounting, is much more circumscribed.³ We consider four alternative contract designs: (1) excluding financial covenants affected by fair value,⁴ (2) including affected financial covenants but contractually restricting borrower choice in electing fair value accounting, (3) including affected financial covenants but modifying the definitions to exclude fair value estimates, and (4) including affected financial covenants without modifying covenant definitions (i.e., no observable change in contracting due to the standard). In

³ We acknowledge that borrowers and lenders may negotiate to change other aspects of contract design beyond financial covenants. For example, if an increase in fair value accounting increases borrower opportunism, it may be reflected in a higher interest rate. We restrict our attention to financial covenants because these provisions are directly affected by accounting information and, therefore, a very likely place to see contractual effects of fair value accounting.

⁴ Hereafter, we refer to financial covenants whose compliance may be affected by fair value estimates as "affected covenants."

the remainder of this subsection, we discuss the costs and benefits of each alternative and what we believe can be concluded from observing each alternative. In the following subsection, we consider the relative costs and benefits of these alternatives to develop our hypotheses.

All else equal, observing the exclusion of an affected financial covenant that otherwise would be included in the contract would lead to the most straightforward interpretation: an unambiguous decline in the usefulness of the covenant as a result of fair value. This also would imply that the lower bound on the cost of fair value accounting for debt contracting is the value of the previously included financial covenant; in other words, any benefits from having a covenant would be outweighed by the costs of adjusting the contract to remove the deleterious effects of fair value.

The second alternative available to contracting parties is to include covenants with unmodified definitions, but to agree to a provision that restricts the borrower's ability to adopt accounting standards that allow fair value.⁵ From a debt-contracting standpoint, this option is similar to modifying covenant definitions to remove the effects of fair value estimates. This approach, however, provides the benefit of reducing monitoring costs by eliminating the need to make non-GAAP adjustments in covenant calculations. In contrast, unlike covenant definition modification (which affects only debt contracting), restricting fair value adoption directly may have negative consequences for the borrower beyond debt contracting. For example, if reporting some assets at fair value provides useful information for equity investors, this restriction may reduce the liquidity of the borrower's equity.

The third option is modifying the definitions of financial covenants potentially affected by fair value estimates. Although contracting parties generally use GAAP definitions of financial terms as the starting point for debt contracts, descriptive evidence in the literature shows that covenant definitions are frequently modified away from purely GAAP-based definitions. For example, Demerjian and Owens [2016] demonstrate that the majority of covenants written on earnings (e.g., interest coverage, debt-to-earnings) are written on a modified EBITDA [earnings before interest, taxes, depreciation, and amortization] number defined in the debt contract, and Li [2016] shows that EBITDA is measured to exclude the effects of financing and investing decisions. Potential costs associated with modification include additional monitoring, reliability concerns associated with using unaudited or unrecognized financial statement numbers, legal uncertainty about the enforcement and interpretation of definitions, and tailoring in-

⁵ A restriction on the borrower's ability to elect the fair value option differs from a frozen GAAP provision (Beatty, Ramesh, and Weber [2002]). Our primary analysis examines debt contracts initiated after SFAS 159's effective date. Thus, the borrower will have the ability to elect the fair value option even under frozen GAAP. Similarly, electing fair value under SFAS 159 is not a change in accounting principle. As such, general restrictions on accounting changes cannot prevent a borrower from electing fair value under SFAS 159.

formation to specific features of the borrower. Potential benefits include an increase in the precision of financial covenants in detecting declines in the borrower's creditworthiness and reductions in unwanted false positives (e.g., spurious technical defaults).

As a final alternative, lenders and borrowers could continue to include affected financial covenants in debt contracts without modifying covenant definitions. Observing the continued inclusion of unmodified affected financial covenants would reveal one of two things. First, assuming that the costs of covenant modification are very low, the use of unmodified affected covenants would show that fair values are at a minimum not detrimental for debt-contracting purposes and potentially improve the usefulness of accounting for debt-contracting purposes. Second, if increased fair value accounting has a net negative impact on debt contracting, the use of unmodified affected covenants suggests that the cost of modifying the definition or restricting fair value election is higher than the cost of not modifying or restricting (and risking, e.g., opportunistic reporting).

2.3 HYPOTHESES

The SFAS 159 setting has two unique features that make it useful for testing the relationship between fair value accounting and debt contracting. First, debt contract detail is readily available and observable for a large sample of firms. This allows us to directly examine contract language and determine what response, if any, contracting parties made to the change in standards. Second, modifying covenant definitions to remove the effects of SFAS 159 is very low cost.⁶

To fully appreciate the low cost of modifying financial covenant definitions to exclude SFAS 159 fair values, compare the complexity of two contract clauses from a debt contract between Basic Energy Services, Inc. and a loan syndicate that includes Bank of America, Capital One, and Wells Fargo. This first clause modifies definitions to exclude the effects of some SFAS 159 accounting (emphasis added):

. . . for purposes of determining compliance with any covenant (including the computation of any financial covenant) contained herein, Indebtedness of the Borrower and its Subsidiaries shall be deemed to be carried at 100% of the outstanding principal amount thereof, and *the effects of FASB ASC 825 and FASB ASC 470-20 on financial liabilities shall be disregarded.*

⁶ SFAS 159 disclosure rules require firms to reconcile all instruments elected at fair value to historical cost, which likely reduces the cost of modifying covenant definitions. Compare the simplicity of altering financial covenants to exclude fair values under SFAS 159 to new fair values imposed under IFRS adoption. SFAS 159 modifications require only a very simple contract line item based only on a disclosure already required by GAAP. In contrast, adjusting definitions to exclude fair values new upon IFRS adoption would presumably require extensive contractual language and would likely require nontrivial monitoring and disclosure costs (e.g., additional nongovernment mandated auditing and the collection of additional accounting information).

This second clause is a common contractual definition for EBITDA from the same contract (emphasis added for various adjustments to GAAP-based net income):

Consolidated EBITDA: means, at any date of determination, an amount equal to Consolidated Net Income of the Borrower and its Subsidiaries on a consolidated basis for the most recently completed Measurement Period plus (a) the following to the extent deducted in calculating such Consolidated Net Income: (i) *Consolidated Interest Charges*, (ii) the provision for Federal, state, local and foreign *income taxes payable*, (iii) *depreciation and amortization expense*, (iv) other expenses reducing such Consolidated Net Income which *do not represent a cash item* in such period or any future period, (v) *stock-based compensation expenses* which do not represent a cash item in such period or any future period (in each case of or by the Borrower and its Subsidiaries for such Measurement Period), (vi) the *write-off of un-amortized deferred financing, legal and accounting costs* in connection with the refinancing of the Existing Senior Secured Notes, and (vii) tender *premiums, redemption premiums, fees, and other amounts expensed* in connection with the tender for and/or redemption of the Existing Senior Secured Notes and minus (b) the following to the extent included in calculating such Consolidated Net Income: (i) Federal, state, local and foreign *income tax credits* and (ii) *all non-cash items increasing Consolidated Net Income* (in each case of or by the Borrower and its Subsidiaries for such Measurement Period). Consolidated EBITDA shall be calculated for each Measurement Period, on a *Pro Forma Basis*, after giving effect to, without duplication, any *Material Acquisition* (as defined below) and any *Material Disposition* (as defined below) and, at the *Borrower's election, any other Acquisition or Disposition*, in each case, made during each period commencing on the first day of such period to and including the date of such transaction (the "Reference Period") as if such Acquisition or Disposition and any related incurrence or repayment of Indebtedness occurred on the first day of the Reference Period. As used in this definition, "Material Acquisition" means any Acquisition with Acquisition Consideration of \$3000,000 or more and "Material Disposition" means any Disposition resulting in net sale proceeds of \$10,000,000 or more.

Although this represents only one qualitative comparison, our reading and examination of many other contracts and financial covenant definitions suggest that these definitions are typical of those found in contracts. The simplicity of observed SFAS 159 modification language is consistent with a relatively low cost of modifying financial covenants to exclude the effects of SFAS 159.

Given the framework described in section 2.2, and our expectation of a low cost for modifying covenant definitions to exclude the effects of SFAS 159, we believe that it is unlikely that the costs of covenant modification outweigh the net costs of excluding a covenant altogether in the SFAS 159 setting. Alternatively, loan contracts could prohibit borrowers from electing fair value under SFAS 159. Assuming any additional benefits of fair values outside of debt contracting and a relatively low cost of definition

modification, however, we also view this option as unlikely. Therefore, in our first hypothesis, we predict that the inclusion of financial covenants does not change, and we do not expect to observe direct restrictions on fair value election following the adoption of SFAS 159.

We now consider the option to modify definitions of financial covenants affected by SFAS 159 fair values.⁷ If the effects of the standard are uniformly net negative for debt contracting and the costs of modifying definitions are sufficiently low, we would expect nearly all debt contracts to include clauses that remove fair values from debt covenant calculations. Conversely, if we assume that the cost of modifying definitions is nontrivial and the probability of SFAS 159 adoption is relatively low for any one firm, we should, at a minimum, expect to observe that debt contracts for those firms that actually elect SFAS 159 accounting modify the definitions of affected covenants. Therefore, in our second hypothesis, we predict that debt contracts exclude SFAS 159 fair values from financial covenant calculations.

In contrast to the argument that fair values are uniformly detrimental for debt contracting, the costs and benefits of fair value on debt contracting may vary cross-sectionally. One advantage of examining SFAS 159 directly is that we can identify specific aspects of the standard change that may both positively and negatively affect debt contracting.

One concern voiced by critics is that the voluntary nature of the fair value election decision will lead to increased opportunism by managers. Kothari, Ramanna, and Skinner [2010, p. 266] argue that a risk of increased fair value is “the potential for misuse when fair values are not verifiable.” They further note that the extent of this problem is likely to vary based on the item being measured, comparing marketable securities that trade on a liquid secondary market (verifiable) to instruments that do not trade on a market (unverifiable, and, hence, subject to manipulation). Although the reach of fair value accounting through SFAS 159 encompasses a wider range of assets and liabilities, the extent of this potential problem will vary cross-sectionally based on the reliability of the borrower’s fair value measurement; in other words, SFAS 159 increases the *opportunity* for borrowers to manipulate reported accounting, but this opportunity varies based on the verifiability of the fair value estimate.

⁷Our predictions related to covenant modification focus on the period after the adoption of SFAS 159. Lenders could have anticipated the effects of the standard and adjusted their contracts prior to the adoption date. We examine a sample of contracts from loans initiated prior to adoption of the standard, however, and find no cases of SFAS 159 exclusions. It is also possible that lenders could contractually require firms to provide data that allow them to make adjustments to covenants for GAAP fair values allowable prior to the adoption of SFAS 159. This reporting requirement would presumably come at a much higher cost pre-SFAS 159, and through an examination of contracts prior to SFAS 159 adoption, we find no evidence of this practice.

Similarly, other aspects of debt contract design can affect the borrower's opportunity to manipulate accounting via fair value. Certain types of loans (e.g., revolving lines of credit) allow discretion in the timing of the fair value election, while other types (e.g., term loans) provide no discretion. The ability to strategically time the fair value election decision provides the borrower with an additional opportunity to exploit fair value. In our third hypothesis, we predict that debt contracts are more likely to exclude SFAS 159 fair values from financial covenant calculations when the borrower has greater opportunity to manipulate fair value estimates.

Variation in borrower *incentives* to use fair value estimates opportunistically also affects the contracting usefulness of fair value accounting. For example, some debt contract provisions are indexed to an accounting metric (e.g., performance pricing), providing the borrower with incentives to manipulate reported accounting numbers to affect contractual outcomes. In our fourth hypothesis, we predict that debt contracts to borrowers with greater incentives to manipulate fair value estimates are more likely to have SFAS 159 fair values excluded from covenant definitions.

Finally, we consider cases in which SFAS 159 may improve accounting information for debt-contracting purposes. SFAS 159 allows firms to elect the fair value option for matched financial assets and liabilities to create a natural hedge in the income statement without requiring compliance with complex hedge accounting rules under SFAS 133. We anticipate that the effectiveness of a firm's hedging activities provides relevant information to lenders regarding the ability of the firm to repay its claim and, thus, improves the effectiveness of unmodified definitions of affected financial covenants. Derivative hedging reduces operating risk (Guay [1999]), which aligns the interests of borrowers and lenders to reduce the risk of insolvency. In addition, fair value estimates improve the relevance of reported accounting numbers by providing information regarding the borrower's liquidity and the market value of short-term assets and liabilities. Therefore, in our fifth hypothesis, we predict that borrowers who are more likely to engage in hedging and debt contracts with liquidity covenants are less likely to exclude SFAS 159 fair values from financial covenant calculations.

We note that proponents of a universally (or majority) net negative effect of fair values on debt contracting might argue that a lack of evidence in support of our first hypothesis could be the result of either a lack of understanding among lenders and borrowers of the effects of fair values on covenant definitions or significant agency conflicts, which result in suboptimal contract terms. Although this is a possibility, we believe that strong evidence in support of our third, fourth, and fifth hypotheses would run counter to such arguments, as these results would suggest that contracting parties are aware of the effects of fair values and respond appropriately to their relative costs and benefits.

3. Data

3.1 DATA SOURCES

We obtain a sample of private debt contracts surrounding the adoption of SFAS 159 from the Dealscan database.⁸ Dealscan contains detailed information about credit agreements, including the lender, borrower, face value, maturity, and types of covenants included in each loan. We measure all financial information available on Compustat as of the quarter immediately preceding the debt contract agreement date; if quarterly financial information is not available, we measure financial data as of the fiscal year-end prior to loan initiation. Our final sample contains 2,615 loan packages from 2008 to 2012 to test our hypotheses.

We classify financial covenants into two groups: covenants potentially affected by the fair values under SFAS 159 and unaffected covenants.⁹ Li [2010] provides empirical evidence that earnings-based covenants typically exclude transitory, noncash gains and losses from covenant definitions. Therefore, although firms may recognize fair value gains and losses in reported GAAP earnings, these noncash adjustments likely will not directly affect covenant calculations if financial covenants are based solely on income statement numbers. Covenants based on assets or liabilities may be affected, however, if creditors do not adjust covenant definitions to remove fair value adjustments. Therefore, we define observations as *Affected* if the loan package has any of the following covenants: debt-to-EBITDA, senior debt-to-EBITDA, debt-to-assets, senior debt-to-assets, debt-to-equity, debt-to-tangible net worth, net worth, tangible net worth, current ratio, and quick ratio covenants. Figure 1 illustrates the frequency of usage over time for affected financial covenants.

To test our first hypothesis, we measure whether fair value estimates are excluded from covenant calculations. Dealscan does not provide sufficiently precise detail to determine specific financial covenant definitions.¹⁰ Therefore, we search Securities and Exchange Commission (SEC) filings to hand-collect covenant definitions and determine fair value exclusions. We collect all private debt contracts in SEC filings with contract provisions

⁸We thank Michael Roberts for providing the data set that links the Compustat and Dealscan databases, available on his Web site. Refer to Chava and Roberts [2008] for additional details.

⁹Based on Dealscan's categorization, we classify the following covenants as financial: interest coverage, debt service coverage, fixed charge coverage, debt-to-EBITDA, senior debt-to-EBITDA, EBITDA, debt-to-assets, debt-to-equity, debt-to-tangible net worth, senior debt-to-assets, net worth, tangible net worth, current ratio, and quick ratio.

¹⁰Dealscan indicates what types of financial covenants are used but not specifics on their measurement. For example, although Dealscan may show a loan package that has an interest coverage covenant with the minimum threshold of five, it does not show the exact definition of either earnings (the numerator) or interest expense (the denominator). For further discussions of the limitations of Dealscan, see Dichev and Skinner [2002] and Demerjian and Owens [2016].

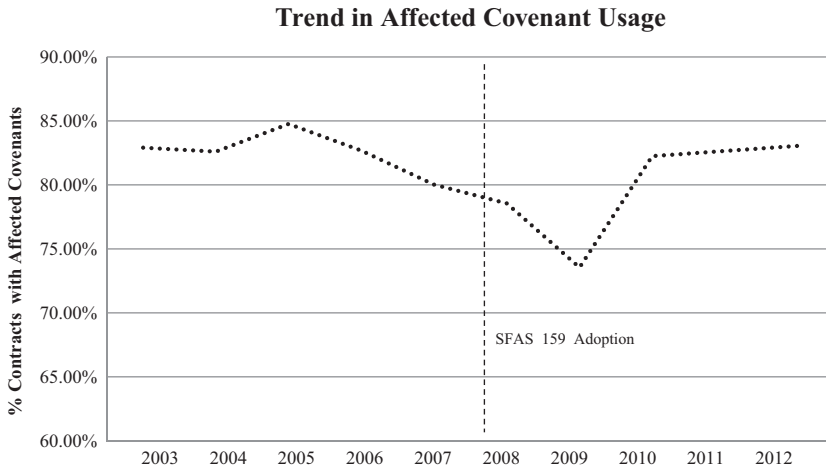


FIG. 1.—Financial covenant usage over time. This figure demonstrates the trend in usage of financial covenants in debt contracts available on Dealscan over the period 2003–2012. The fair value option became available after adoption of SFAS 159 on November 15, 2007.

with explicit reference to SFAS 159 and the fair value option. Specifically, we search for the following terms in the material contracts section (Exhibit 10) of SEC filings on 10-K Wizard: “SFAS 159,” “Statement of Financial Accounting Standards 159,” “ASC 825,” “Accounting Standards Codification 825,” “Accounting Standards Codification 825-10-25,” and “the fair value option.” For each contract identified, we read and record covenant definitions to determine whether fair value estimates are excluded from covenant calculations. We merge these data into Dealscan, using the borrower’s Central Index Key on Compustat and the debt contract date on Dealscan. These procedures result in 379 contracts on Dealscan that explicitly exclude fair value accounting estimates from covenant definitions. We provide an example of the contract language to remove fair value estimates in section 2.3.

3.2 EMPIRICAL PROXIES

We use two empirical proxies for borrowers with greater opportunities to manipulate covenant thresholds using the fair value option. First, we use an indicator variable equal to one for revolving lines of credit (*Revolver*). As previously discussed, the ability of the firm to record its own debt at fair value can have negative consequences for debt contracting by decreasing the likelihood of covenant violation when the borrower’s credit risk increases. This issue is even more problematic for revolving lines of credit, whereby borrowers may have the ability to opportunistically elect the fair value option for revolvers when the borrower experiences declining performance. Revolving lines of credit provide the borrower with access to a credit line that can be drawn and often is drawn only when a firm faces

financial distress or liquidity constraints (Norden and Weber [2010]). Because the fair value option election decision is made when the borrower draws down a loan and recognizes the commensurate liability, we expect an elevated moral hazard to opportunistically elect fair value for a revolving line of credit drawn in financial distress.¹¹

Second, we measure the reliability of the borrower's fair value estimates (*Unreliable FV*) as a proxy for the opportunity to manipulate accounting thresholds using fair value. Theory suggests that debt contracting requires reliable accounting measurements (Watts [2003], Kothari, Ramanna, and Skinner [2010]), and fair value estimates based on observable market prices (e.g. Level 1) are likely free of bias and not subject to opportunism. In contrast, unreliable Level 2 and 3 fair value estimates are based on management's assumptions and provide the borrower with greater opportunity to manipulate fair value estimates to remain in compliance with financial covenant thresholds. We calculate the borrower's Level 2 and 3 fair value estimates as a proportion of their total fair value estimates and define *Unreliable FV* as an indicator with a value of one if this proportion is above the sample median, and zero otherwise.¹²

Performance-pricing provisions index ex ante negotiated interest spreads to performance metrics, such as accounting ratios or credit ratings (Asquith, Beatty, and Weber [2005]).¹³ Performance pricing can potentially increase agency problems because the borrower has incentives to manipulate accounting information to directly affect an accounting-based performance-pricing metric or to indirectly influence the firm's credit rating. This opportunism results in direct wealth transfers from creditors by lowering interest rates below the contracted equilibrium, absent manipulation. Therefore, we measure an indicator variable equal to one if the debt contract includes a performance-pricing provision, and zero otherwise (*PP*).

Finally, we consider two cases in which fair value accounting may improve accounting information for debt contracting. First, we use an indicator variable equal to one for borrowers in industries that engage in extensive hedging as a proxy for expected future hedging activity (Nelson, Moffitt, and

¹¹ Under SFAS 159, the fair value option election must be made when a firm first recognizes the financial instrument on its balance sheet. Most debt instruments, such as bonds, term loans, and notes, require an immediate drawdown of funds, requiring the firm to make the fair value option election decision at contract initiation. This limits the ability of the borrower to opportunistically elect the fair value option.

¹² Untabulated analysis of the percentage of Levels 2 and 3 fair value estimates reveals that 34.1% of sample observations have 0% unreliable fair value estimates (i.e., no Level 2 or Level 3 instruments), while 26.5% of sample observations have 100% unreliable fair value estimates (i.e., all Levels 2 and 3 instruments). Therefore, we deemed the use of an indicator variable for high and low reliability more appropriate than the use of the continuous variable *%Unreliable Estimates*, included in table 1.

¹³ The most common performance metrics are debt-to-EBITDA and the borrower's S&P Senior Unsecured Debt Rating.

Affleck-Graves [2005], Bartram, Brown, and Fehle [2009]). *Hedge Industry* equals one if a firm belongs to the Fama–French chemical, mines, gas and oil, or utilities industries, and zero otherwise. Second, we measure an indicator variable (*Liquidity Covenant*) equal to one if the debt contract on Dealscan contains a current ratio covenant or a liquidity covenant, and zero otherwise.

3.3 DESCRIPTIVE STATISTICS

Table 1 presents descriptive statistics for sample observations. Of the contracts, 80.4% have an *Affected Covenant*, and 14.5% of sample loan contracts exclude fair value estimates following the adoption of SFAS 159. Notably, fewer than 1% of sample observations (26 loan packages) specifically exclude fair value estimates related to financial assets.¹⁴ We infer two things from this asymmetric treatment of assets and liabilities in covenant modification. First, creditors interpret valuation adjustments related to SFAS 159 as generally useful for financial assets (or at least not sufficiently detrimental to warrant exclusion). Second, creditors appear to understand the potentially perverse consequences of fair valuing liabilities and, in limited cases, focus on removing these effects from covenant definitions.

Untabulated analysis further reveals that creditors exclude fair value estimates from loan agreements with borrowers from 53 different two-digit SIC industries, while 54 different lenders exclude fair values from contract provisions, suggesting that this modification is a general trend and not restricted to particular industries or banks. In terms of the characteristics of the sample, the average borrower is large (average total assets of \$8.2 billion) with leverage of about 30%. Revolving credit facilities are part of 77% of sample loan packages, and 63% of packages include performance-pricing provisions. Level 1 fair value estimates are more common than either Level 2 or Level 3, with the mean (median) value of these latter two categories' comprising 47% (41.4%) of fair valued assets and liabilities in sample firms.

We present univariate correlations in table 2. These provide preliminary support for our hypotheses, including significant positive correlations between *Exclude* and both *PP* and *Revolver*, and negative correlations between *Exclude* and both *Hedge Industry* and *Liquidity Covenant*.

4. Empirical Results

4.1 CHANGE IN USE OF COVENANTS

We begin our empirical analysis by testing our first hypothesis, which concerns whether contracting parties change the use of covenants following the adoption of SFAS 159. We estimate the following probit

¹⁴ All 26 packages that exclude fair value assets also exclude fair value liabilities.

TABLE 1
Descriptive Statistics

Variable		25th		75th		
Variable	<i>N</i>	Mean	Percentile	Median	Percentile	SD
Dependent variables						
<i>Affected Covenant</i>	2,615	0.804	1.000	1.000	1.000	0.397
<i>FVO Restriction</i>	2,615	0.000	0.000	0.000	0.000	0.000
<i>Exclude</i>	2,615	0.145	0.000	0.000	0.000	0.352
Treatment variables						
<i>Revolver</i>	2,615	0.773	1.000	1.000	1.000	0.419
<i>% Unreliable Estimates</i>	2,615	0.470	0.000	0.414	1.000	0.445
<i>PP</i>	2,615	0.633	0.000	1.000	1.000	0.482
<i>Hedge Industry</i>	2,615	0.205	0.000	0.000	0.000	0.404
<i>Liquidity Covenant</i>	2,615	0.077	0.000	0.000	0.000	0.267
Control variables						
<i>Eligible FV Instruments</i>	2,615	0.596	0.383	0.518	0.713	0.343
<i>Debt-Restriction Covenant</i>	2,615	0.750	0.000	1.000	1.000	0.433
<i>Net Worth Covenant</i>	2,615	0.157	0.000	0.000	0.000	0.364
<i>Earnings Covenant</i>	2,615	0.703	0.000	1.000	1.000	0.457
<i>Total Assets</i>	2,615	8,202.490	536.389	1,696.160	5,075.060	38,780.690
<i>Leverage</i>	2,615	0.300	0.123	0.266	0.414	0.261
<i>ROA</i>	2,615	0.002	-0.001	0.009	0.019	0.081
<i>Rating Available</i>	2,615	0.518	0.000	1.000	1.000	0.500
<i>Lease</i>	2,615	0.055	0.004	0.018	0.049	0.117
<i>Contingent Liab</i>	2,615	0.161	0.000	0.000	0.000	0.368
<i>Unrealized GL</i>	2,615	0.000	0.000	0.000	0.000	0.003
<i>Syndicate Size</i>	2,615	0.600	0.000	0.000	0.693	1.112
<i>Capex Restrict</i>	2,615	0.171	0.000	0.000	0.000	0.376
<i>Institutional Tranche</i>	2,615	0.122	0.000	0.000	0.000	0.328
<i>Sweep Covenant</i>	2,615	0.334	0.000	0.000	1.000	0.472
<i>Dividend Restriction</i>	2,615	0.639	0.000	1.000	1.000	0.480
<i>Collateral</i>	2,615	0.595	0.000	1.000	1.000	0.491
<i>Debt Size</i>	2,615	5.409	4.605	5.521	6.397	1.394

This table reports descriptive statistics for all sample firms with available information in the intersection of the Dealscan and Compustat databases. Financial and loan-specific variables are used to determine the likelihood of including affected covenants in debt contracts, and the likelihood of excluding fair value estimates from covenant calculations. *Affected Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a leverage, debt-to-equity, debt-to-earnings, net worth, current ratio, or quick ratio covenant, and zero otherwise. *FVO Restriction*: indicator variable equal to one if the debt contract available on Dealscan explicitly restricts the borrower's fair value option election decision, and zero otherwise. *Exclude*: indicator variable equal to one if the debt contract available on Dealscan excludes fair value estimates in accordance with SFAS 159 from covenant calculations, and zero otherwise. *Revolver*: indicator variable equal to one if the debt contract available on Dealscan is a revolving credit facility, and zero otherwise. *% Unreliable Estimates*: ratio of a firm's Level 2 and 3 SFAS 157 fair value assets and liabilities to the total sum of SFAS 157 fair value assets and liabilities ($[(Compustat (aol2 + au\beta + lol2 + lu\beta) / (aapl1 + aol2 + au\beta + lqpl1 + lol2 + lu\beta))]$). *PP*: indicator variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *Hedge Industry*: indicator variable equal to one if the firm is in the chemicals, gas and oil, mining, or utilities industry (Fama-French industries 14, 28, 30, 31), and zero otherwise. *Liquidity Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a current ratio or quick ratio covenant, and zero otherwise. *Eligible FV Instruments*: total financial instruments on the balance sheet eligible for the fair value option ($Compustat\ rect + ivst + ivaeq + ivao + ap + dlc + dlrt$), scaled by total assets. *Debt-Restriction Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a leverage, debt-to-equity, debt-to-earnings, or debt-to-tangible net worth covenant, and zero otherwise. *Net Worth Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a net worth or tangible net worth covenant, and zero otherwise.

(Continued)

TABLE 1—Continued

Earnings Covenant: indicator variable equal to one if the debt contract available on Dealscan includes an interest coverage ratio, fixed charge, debt service, or minimum EBITDA covenant, and zero otherwise. *Total Assets*: total assets on Compustat. *Leverage*: total debt scaled by total assets. *ROA*: income before extraordinary items scaled by total assets. *Rating Available*: indicator variable equal to one if a firm has an S&P credit rating available on Compustat, and zero otherwise. *Lease*: sum of a firm's discounted future lease payments (Compustat *mrc1–mrc5*), scaled by total assets, discounted using a 10% discount rate. *Contingent Liab*: indicator variable equal to one if a firm has nonzero Compustat forward and future contracts (*clfe*), foreign exchange commitments (*clfs*), letters of credit (*clb*), guarantees (*clg*), interest rate swaps (*clis*), or loan commitments (*cllc*), and zero otherwise. *Unrealized GL*: absolute value of total unrealized securities gain/loss recognized in other comprehensive income (*cisecgl*) scaled by total assets. *Syndicate Size*: natural log of one plus the number of syndicate lenders in the syndicated debt contract available on Dealscan. *Capex Restrict*: indicator variable equal to one if the debt contract available on Dealscan includes a covenant restricting the level of capital expenditures, and zero otherwise. *Institutional Tranche*: indicator variable equal to one if the debt contract available on Dealscan has a term loan B or higher, and zero otherwise. *Sweep Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes an excess cash flow sweep, asset sales sweep, debt issuance sweep, equity issuance sweep, or insurance proceeds sweep, and zero otherwise. *Dividend Restriction*: indicator variable equal to one if the debt contract available on Dealscan includes a dividend restriction, and zero otherwise. *Collateral*: indicator variable equal to one if the debt contract available on Dealscan is secured, and zero otherwise. *Debt Size*: natural log of the face value of the debt contract on Dealscan.

TABLE 2
Correlation Matrix

	<i>Affected Covenant</i>	<i>Exclude</i>	<i>Unreliable FV</i>	<i>PP</i>	<i>Revolver</i>	<i>Hedge Industry</i>	<i>Liquidity Covenant</i>
<i>Affected Covenant</i>		0.124 <0.0001	0.070 <0.0001	0.183 <0.0001	0.018 <0.0001	0.149 <0.0001	0.143 <0.0001
<i>Exclude</i>	0.124 <0.0001		0.023 0.25	0.178 <0.0001	0.148 <0.0001	-0.118 <0.0001	-0.095 <0.0001
<i>Unreliable FV</i>	0.070 <0.0001	0.023 0.25		0.027 0.16	0.023 0.24	0.211 <0.0001	0.106 <0.0001
<i>PP</i>	0.183 <0.0001	0.178 <0.0001	0.027 0.16		0.165 <0.0001	0.040 0.04	-0.014 0.46
<i>Revolver</i>	0.018 0.37	0.148 <0.0001	0.023 0.24	0.165 <0.0001		0.036 0.07	0.088 <0.0001
<i>Hedge Industry</i>	0.149 <0.0001	-0.118 <0.0001	0.211 <0.0001	0.040 0.04	0.036 0.07		0.367 <0.0001
<i>Liquidity Covenant</i>	0.143 <0.0001	-0.095 <0.0001	0.106 <0.0001	-0.014 0.46	0.088 <0.0001	0.367 <0.0001	

This table reports correlation coefficients and *p*-values for all sample firms with available information in the intersection of the Dealscan and Compustat databases. Spearman correlation coefficients are presented below the diagonal; Pearson correlations are presented above the diagonal. *Affected Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a leverage, debt-to-equity, debt-to-earnings, net worth, current ratio, or quick ratio covenant, and zero otherwise. *Exclude*: indicator variable equal to one if the debt contract available on Dealscan excludes fair value estimates in accordance with SFAS 159 from covenant calculations, and zero otherwise. *Unreliable FV*: indicator variable equal to one if a firm's ratio of the level 2 and 3 SFAS 157 fair value assets and liabilities to total fair value assets and liabilities ($[(\text{Compustat } aol2 + au\mathcal{E} + lo\mathcal{E} + lu\mathcal{E}) / (aqp1 + aol2 + au\mathcal{E} + lqp1 + lo\mathcal{E} + lu\mathcal{E})]$) is above sample median, and zero otherwise; missing fair value estimates are set to zero. *PP*: indicator variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *Revolver*: indicator variable equal to one if the debt contract available on Dealscan is a revolving credit facility, and zero otherwise. *Hedge Industry*: indicator variable equal to one if the firm is in the chemicals, gas and oil, mining, or utilities industry (Fama-French industries 14, 28, 30, 31), and zero otherwise. *Liquidity Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a current ratio or quick ratio covenant, and zero otherwise.

regression model:

$$\begin{aligned}
Covenant_{it+1} = & \alpha_0 + \delta_1 Post + \delta_2 Eligible\ FV\ Instruments_{it} + \delta_3 PP_i \\
& + \delta_4 Revolver_i + \delta_5 Size_{it} + \delta_6 Leverage_{it} \\
& + \delta_7 ROA_{it} + \delta_8 Rating\ Available_{it} + \delta_9 Lease_{it} \\
& + \delta_{10} BS\ Covenant\ PriorDeal_i + \delta_{11} IS\ CovenantPriorDeal_i \\
& + \delta_{12} Syndicate\ Size_i + \delta_{13} Capex\ Restrict_i \\
& + \delta_{14} Institutional\ Tranche_i + \delta_{15} Sweep\ Covenant_i \\
& + \delta_{16} Dividend\ Restriction_i + \delta_{17} Collateral_i \\
& + \delta_{18} DebtSize_i + \varepsilon_{it+1}.
\end{aligned} \tag{1}$$

The dependent variable takes one of the two values: (1) *Financial Covenant*, an indicator variable equal to one, if the debt contract includes any financial covenant, or (2) *Affected Covenant*, an indicator variable equal to one, if the debt contract includes a financial covenant that could be affected by the fair value option, and zero otherwise. Our primary variable of interest, *Post*, is an indicator equal to one for loan packages initiated after SFAS 159's adoption date (November 15, 2007) and zero otherwise.¹⁵ A positive (negative) coefficient on *Post* indicates that covenant use increased (decreased) following SFAS 159.

We include numerous control variables for both firm and loan characteristics (for further details, see Demerjian [2011], Ball, Li, and Shivakumar [2015]).¹⁶ Firm characteristics include the magnitude of financial instruments eligible for the fair value option, borrower size, leverage, profitability, leasing activity, and debt rating availability prior to loan inception. Loan characteristics include indicator variables for revolving credit agreements, performance pricing, the class of financial covenant used in a prior deal (balance sheet or income statement, following Demerjian [2011]), whether a loan includes capital expenditure restrictions, an institutional tranche, sweep covenant, dividend restriction, collateral in the current deal, syndicate size, and loan facility size of the current loan. The test includes debt contracts available on Dealscan initiated in the three-year period prior to

¹⁵ We note that the exposure draft of SFAS 159 was initially released by the FASB on January 25, 2006, and the final standard was issued on February 2007. It is unclear ex ante when creditors perceive the prospective change in fair value accounting to potentially affect debt-contracting practice. Tabulated results use the SFAS 159 adoption date of November 15, 2007; however, untabulated analysis in the online appendix reveals that the results are qualitatively similar in economic magnitude and statistical significance if we select the SFAS 159 exposure release date or issue date to identify the postperiod.

¹⁶ Following Demerjian [2011], we exclude observations with no financial or nonfinancial covenants on Dealscan.

and following the passage of SFAS 159.¹⁷ We cluster standard errors by borrower to address potential temporal correlation of the error terms within each firm over time. The identification assumption of this analysis is that, by controlling for other known factors that affect covenant inclusion, we can attribute any change in covenant use to the new accounting standard.

The first (second) column of table 3 estimates the likelihood of including a financial (affected) covenant in the debt contract. Consistent with our expectations, the insignificant coefficient on *Post* in both columns suggests that contracting parties did not respond to SFAS 159 by changing the use of financial covenants. We perform power analysis to ensure that our sample size is sufficiently large to detect an economically meaningful change in the use of covenants. Based on our sample size of 1,865 debt contracts, the power to detect a 3% decline in the use of covenants is approximately 0.908. Therefore, we do not believe the insignificant coefficient on *Post* is due to insufficient power.

We also consider whether borrowers and lenders substitute into unaffected covenants (financial covenants that will not be directly affected by SFAS 159) or nonfinancial restrictive covenants following the expansion of fair value accounting, as these provisions may serve as substitutes for affected financial covenants. In untabulated analysis, we find no evidence that the use of unaffected covenants changes following the expansion of fair value accounting under SFAS 159.¹⁸

One limitation of this analysis is our inability to identify a control group of borrowers unaffected by SFAS 159 due to the ability of firms to elect virtually any financial instrument at fair value. As an alternative identification strategy, we form a control group by exploiting timing differences in fiscal year-end dates to identify a subset of debt contracts for which SFAS 159 will not be applicable. We identify 55 short-term debt contracts on Dealscan initiated following the announcement of SFAS 159 that mature before the standard was effective for the borrower. The contracting parties should be aware of the standard, but SFAS 159 is not applicable because the loan matures before the borrower reports a Form 10-K affected by the fair value option. We match these observations to a treatment group of contracts with a 10-K affected by SFAS 159 using propensity score-matching procedures based on the face value and maturity of the debt contract as well as

¹⁷ We restrict the sample to borrowers who obtained loans before and after the passage of SFAS 159 to demonstrate changes in contracting practice independent of changes in the borrower market.

¹⁸ In the online appendix, we also examine changes in the use of specific contract provisions. We do not find an increase in the use of capital expenditure covenants, sweep covenants, or dividend restrictions (table 3 in online appendix). We further examine the use of specific types of financial covenants: (1) liquidity covenants, (2) debt-restriction covenants, and (3) earnings-based covenants and find no change in the use of any of these covenants in the post-SFAS 159 period (table 2 in the online appendix). Finally, we find that the use of performance pricing provisions is unchanged in response to expanded fair value accounting (table 4 in the online appendix).

TABLE 3
Covenant Usage in the Pre- and Post-SFAS 159 Period

	Prediction	(1)		(2)	
		<i>Financial Covenant</i>		<i>Affected Covenant</i>	
		Coefficient	z-Stat	Coefficient	z-Stat
<i>Post</i>	?	-0.109	(-1.12)	-0.071	(-1.06)
<i>Eligible FV Instruments</i>		0.305	(1.25)	-0.285**	(-2.01)
<i>PP</i>		0.590***	(4.80)	0.456***	(4.17)
<i>Revolver</i>		0.424***	(3.17)	-0.040	(-0.33)
<i>Size</i>		-0.131**	(-2.28)	-0.101	(-2.16)
<i>Leverage</i>		-0.462	(-1.61)	0.228	(1.13)
<i>ROA</i>		1.304**	(2.10)	2.381***	(2.99)
<i>Rating Available</i>		0.338***	(2.60)	-0.112	(-1.07)
<i>Lease</i>		-0.502	(-1.02)	-0.852*	(-1.81)
<i>BS Covenant Prior Deal</i>		0.365***	(2.69)	0.786***	(7.40)
<i>IS Covenant Prior Deal</i>		0.412***	(3.33)	-0.125	(-1.34)
<i>Syndicate Size</i>		0.261***	(3.18)	0.326**	(5.51)
<i>Capex Restrict</i>		1.071***	(5.06)	0.435***	(3.54)
<i>Institutional Tranche</i>		-0.004	(-0.03)	0.510***	(4.38)
<i>Sweep Covenant</i>		-0.462***	(-3.28)	-0.179*	(-1.66)
<i>Dividend Restriction</i>		-0.217	(-1.49)	-0.069	(-0.61)
<i>Collateral</i>		-0.467***	(-2.67)	-0.726***	(-6.02)
<i>Debt Size</i>		-0.070	(-1.06)	-0.141***	(-2.72)
Constant		2.009***	(3.96)	2.124***	(5.85)
Number of observation		1865		1865	
Pseudo- R^2		0.283		0.194	

This table reports the results of a probit model testing the likelihood of including affected covenants in debt contracts in the three-year period surrounding the adoption of SFAS 159 on November 15, 2007. We require the firm to have at least one debt contract in the pre- and post-SFAS 159 period to estimate changes in debt-contracting practice, independent of changes in the borrowing market. In column 1 (2), the dependent variable in this model is equal to one if a debt contract available on Dealscan incorporates a financial covenant (affected) covenant, and zero otherwise. Standard errors are clustered by firm. We present coefficient estimates in the first column and z-statistics (in parentheses) in the second column.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. *Financial Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a leverage ratio, debt-to-equity ratio, net worth, current ratio, quick ratio covenant, interest coverage ratio, fixed charge, debt service, minimum EBITDA, or debt-to-earnings covenant and zero otherwise. *Affected Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a leverage, debt-to-equity, debt-to-earnings, net worth, current ratio, or quick ratio covenant, and zero otherwise. *Post*: indicator variable equal to one for all debt contracts on Dealscan initiated following the adoption of SFAS 159 on November 15, 2007, and zero otherwise. *Eligible FV Instruments*: total financial instruments on the balance sheet eligible for the fair value option ($Compustat\ nct + ivst + ivaeq + ivao + ap + dlc + dllt$), scaled by total assets. *PP*: indicator variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *Revolver*: indicator variable equal to one if the debt contract available on Dealscan is a revolving credit facility, and zero otherwise. All other control variables are defined in table 1.

on borrower size, leverage, and profitability prior to contract inception.¹⁹ In untabulated results, we find no evidence that debt contracts potentially subject to SFAS 159 are less likely to use an *Affected Covenant*.

¹⁹It is possible that the use of financial covenants is less important for this sample due to their short-term maturity; however, 79.1% of these contracts include a financial covenant, and 68.2% of these contracts include an *Affected Covenant*, suggesting that these covenants are important contract provisions for this sample of short-term debt contracts.

In summary, our first analysis provides no evidence that contracting parties reduced reliance on contract provisions based on accounting numbers in the post-SFAS 159 period. However, some caution is necessary in interpreting our results. Our sample period includes the aftermath of the financial crisis and the deep recession that followed, a major result of which was a reduction in credit availability (Ivashina and Scharfstein [2010]).²⁰ The economic situation may have altered the composition of borrowers in the market and changed the incentives for using covenants. Although we attempt to control for these changes, a correlated, unobserved factor may confound the inferences from these tests. Additionally, if we assume fair value is uniformly negative for debt contracting, it is possible that these negative consequences significantly reduce the likelihood of many firms electing the fair value option. Under this scenario, we may not observe a change in the use of financial covenants because the borrower's ability to opt out of the use of fair value accounting mitigates the possibility that it will negatively affect the contract. We return to this issue in section 4.3.

4.2 FAIR VALUE ACCOUNTING RESTRICTIONS

As discussed in section 2.2, debt contracts could explicitly restrict the borrower's fair value option election decision under SFAS 159. However, this restriction ignores any costs and benefits associated with the fair value option independent of the debt contract. Empirical results are consistent with our first hypothesis. As indicated in table 1, we do not find any debt contracts that explicitly restrict the borrower's use of fair value accounting (*FVO Restriction*) before or after the passage of SFAS 159.

4.3 DEBT COVENANT DEFINITIONS FOLLOWING SFAS 159

Descriptive evidence in table 1 demonstrates that a minority of contracts exclude fair value estimates. Specifically, 14.5% of loan packages initiated from 2008 to 2012 exclude fair value adjustments, providing initial evidence consistent with our second hypothesis.²¹ One potential reason for the relatively low frequency of fair value exclusion reported in table 1 could be the low probability that nonfinancial firms in our sample actually will elect the fair value option. To alleviate the concern that the relatively low frequency of fair value exclusion is driven only by a low ex ante probability of fair value option election, we identify a sample of all nonfinancial firms that have made the fair value option election. We select all 171 nonfinancial firms on Compustat by identifying the first period with nonmissing, nonzero fair

²⁰ In untabulated analysis in the online appendix, we use the credit contraction during the 2000 tech-bubble recession as a control group to mitigate the possibility that the financial crisis in 2007–2008 confounds our results. These results, reported in table 5 in the online appendix, indicate that the financial crisis does not affect our inferences.

²¹ Debt contracts that exclude fair value estimates generally eliminate the effects of SFAS 159 from the calculation of all financial ratios, including covenants and performance pricing provisions, where applicable.

TABLE 4
Private Debt Contracts of Firms Electing the Fair Value Option

Panel A: Fair value option election by financial instrument type for each debt contract			
Financial Instrument	<i>N</i>	% Sample	
Auction rate securities	57	51.8	
Investment assets	28	25.5	
Derivatives/hedging	10	9.1	
Debt	10	9.1	
Other assets and liabilities	5	4.5	
Total	110		

Panel B: Affected covenant usage and contracts excluding fair value		
Variable	<i>N</i>	% Sample
Total debt contracts	109	
Contracts with affected covenants	83	76.1
Contracts excluding the fair value option	17	15.6

Panel C: Fair value exclusion by financial instrument type			
Financial Instrument	Total Contracts	<i>Exclude FV</i>	% Contracts
Auction rate securities	57	10	17.5
Investment assets	28	2	7.1
Derivatives/hedging	10	0	0.0
Debt	10	3	30.0
Other assets and liabilities	5	2	40.0
Total	110	17	15.5

This table provides summary information for a sample of 109 private debt contracts to borrowers who elected the fair value option for financial instruments ex ante, prior to contract inception. We identify nonfinancial firms electing the fair value option based on nonmissing, nonzero fair value earnings in Compustat (*tfvce*). We then search for private debt contracts initiated following the fair value option election using 10-K Wizard.

value earnings (item *tfvce*) through 2012. For each firm, we then search for all private debt contracts initiated after the fair value option election using 10-K Wizard and hand-collect all private debt contracts disclosed in Exhibit 10 (material contracts). This procedure results in 109 private debt contracts from 70 unique borrowers initiated after the borrower's fair value option election. Using this sample of private debt contracts, we read and hand-collect data related to covenant use and the rate of fair value exclusion from these contracts.

The results are presented in table 4. Panel A of table 4 provides the financial instrument for which the borrower elected the fair value option.²² Although the majority of fair value option election decisions relate to assets (Auction Rate Securities and Investment Assets), 10 borrowers in our sample elect the fair value option for hedging purposes and 10 borrowers

²² One borrower in our sample elected the fair value option for both investment assets and long-term debt, providing a total of 110 fair value option elections among 109 individual debt contracts.

elect fair value for debt. Panel B provides the rates of affected covenant usage and fair value exclusion among these contracts. A total of 83 contracts (76.1%) include an *Affected Covenant*, similar to our overall sample composition in table 1 (80.4%). More importantly, only 17 (15.6%) of these contracts exclude fair value estimates from covenant definitions, similar to our overall sample (14.5%). This analysis provides evidence that the low frequency of fair value exclusion in our overall sample is not driven primarily by the low probability of the fair value option election for nonfinancial firms. Even when borrowers have previously made the fair value option election, only 15.6% of debt contracts exclude fair values.

Finally, panel C of table 4 provides descriptive evidence consistent with our third, fourth, and fifth hypotheses. Interestingly, no contracts exclude fair value estimates when the borrower uses the fair value option for hedging purposes. Further, when the borrower has previously elected the fair value option for assets (Auction Rate Securities and Investment Assets), only 14.1% of debt contracts exclude fair value estimates (14.1% = $(10 + 2)/(57 + 28)$). In contrast, when the borrower has elected the fair value option for liabilities (Debt and Other Assets and Liabilities), fair value exclusion is much more likely. Of these contracts, 33.3% exclude fair value from covenant calculations (33.3% = $(3 + 2)/(10 + 5)$), suggesting that contracting parties recognize the potential negative consequences of fair valuing liabilities for debt contracting.

We further investigate the likelihood of fair value exclusion using the full sample over the period 2008–2012 by estimating the following probit model:

$$\begin{aligned}
 Exclude_{it+1} = & \alpha_0 + \beta_1 Revolver_i + \beta_2 Unreliable\ FV_{it} + \beta_3 PP_i \\
 & + \beta_4 Hedge\ Industry_i + \beta_5 Liquidity\ Covenant_i \\
 & + \beta_6 Eligible\ FV\ Instruments_{it} + \beta_7 Debt\ Restriction\ Covenant_i \\
 & + \beta_8 Net\ Worth\ Covenant_i + \beta_9 Earnings\ Covenant_i \\
 & + \beta_{10} Size_{it} + \beta_{11} Leverage_{it} + \beta_{12} ROA_{it} \\
 & + \beta_{13} Rating\ Available_{it} + \beta_{14} Lease_{it} + \beta_{15} Contingent\ Liab_{it} \\
 & + \beta_{16} Unrealized\ GL_{it} + \beta_{17} Institutional\ Tranche_i \\
 & + \beta_{18} Sweep\ Covenant_i + \beta_{19} Dividend\ Restriction_i \\
 & + \beta_{20} Collateral_i + \beta_{21} DebtSize_i + \varepsilon_{it+1}.
 \end{aligned} \tag{2}$$

The dependent variable, *Exclude*, is an indicator variable equal to one if the debt contract excludes fair value estimates related to SFAS 159 from financial covenant definitions, and zero otherwise.

The first five independent variables in model (2) represent our variables of interest. We use *Revolver* and *Unreliable FV* to test our third hypothesis, *PP* to test our fourth hypothesis, and *Hedge Industry* and *Liquidity Covenant* to

test our fifth hypothesis. A positive (negative) coefficient on these variables indicates that fair value exclusion is more (less) likely as a result of differences in the variable of interest. Control variables are consistent with those used in the financial covenant tests presented in table 3; refer to variable descriptions in table 1 for additional details.

We present our primary regression results in table 5. In column 1, we use the sample of all debt contract packages over the period 2008–2012, and, in column 2, we restrict the sample to debt contracts with an *Affected Covenant*.²³ The coefficients for our variables of interest are significant in the hypothesized directions. Consistent with our third hypothesis, debt contracts are more likely to exclude fair value estimates when the borrower has greater opportunity to manipulate accounting numbers with fair value estimates (*Revolver* and *Unreliable FV*). Further, fair value exclusion is more likely when the borrower has greater incentive to use fair value estimates opportunistically (*PP*), consistent with our fourth hypothesis. In untabulated analysis, we replace *PP* with an indicator variable for accounting-based performance-pricing provisions and find consistent results (*Accounting PP* coefficient 0.537, p -value < 0.001). Finally, consistent with our fifth hypothesis, debt contracts to borrowers who are more likely to hedge (*Hedge Industry*) and debt contracts with liquidity covenants (*Liquidity Covenant*) are significantly less likely to remove fair value estimates from covenant calculations.

To assess the economic importance of our findings, we measure the marginal effects of the explanatory variables. These effects, reported in table 5, capture the increase in likelihood of a positive response for a one-unit change in the explanatory variable, with all other variables held at their means. The results suggest considerable economic importance; based on the results reported in column 2, our variables of interest lead to differences in the likelihood of exclusion of 17.6%, 4.2%, 13.9%, –11.4%, and –20.2% for *Revolver*, *Unreliable FV*, *PP*, *Hedge Industry*, and *Liquidity Covenant*, respectively.

In summarizing the results in tables 3 through 5, we find no evidence that debt contracts incorporate fewer financial covenants following the passage of SFAS 159 or restrict borrowers' election of SFAS 159. Rather, our findings show that a limited number of contracts modify financial covenant definitions to exclude fair values. We draw several conclusions from this analysis. First, of the potential responses, modification of covenant definitions appears to be the primary response to the changes brought about by

²³ In untabulated analysis in the online appendix, we use the Heckman two-stage estimation to mitigate the possibility that the decision to include an affected covenant affects our tests that examine the decision to exclude fair value from covenant definitions. For example, there may be an unobserved factor that drives the types of covenants that are included in debt contracts as well as the borrower's incentives related to reporting fair values. We discuss this empirical approach in detail in section 7 of the online appendix. All results are qualitatively similar to the tabulated results presented in the paper.

TABLE 5
Likelihood of Excluding Fair Value Estimates from Covenant Definitions

	(1)			(2)			
		<i>Exclude</i>			<i>Exclude</i>		
	Prediction	Coefficient	z-Stat	Marginal Effect	Coefficient	z-Stat	Marginal Effect
<i>Revolver</i>	+	0.767***	(6.40)	0.137	0.814***	(6.42)	0.176
<i>Unreliable FV</i>	+	0.170**	(2.39)	0.030	0.193**	(2.53)	0.042
<i>PP</i>	+	0.578***	(7.18)	0.103	0.642***	(7.16)	0.139
<i>Hedge Industry</i>	-	-0.481***	(-4.00)	-0.086	-0.527***	(-4.20)	-0.114
<i>Liquidity Covenant</i>	-	-0.841***	(-3.86)	-0.150	-0.935***	(-4.21)	-0.202
<i>Eligible FV Instruments</i>		0.213	(1.38)		0.208	(1.24)	
<i>Debt-Restriction Covenant</i>		0.528***	(5.23)		0.173	(0.93)	
<i>Net Worth Covenant</i>		0.005	(0.06)		-0.086	(-0.75)	
<i>Earnings Covenant</i>		-0.064	(-0.72)		-0.090	(-0.88)	
<i>Size</i>		-0.124***	(-2.88)		-0.130***	(-2.79)	
<i>Leverage</i>		-0.286	(-1.29)		-0.351	(-1.42)	
<i>ROA</i>		0.651	(1.46)		0.943**	(2.05)	
<i>Rating Available</i>		0.098	(1.08)		0.121	(1.22)	
<i>Lease</i>		0.135	(0.44)		-0.195	(-0.56)	
<i>Contingent Liab</i>		-0.264***	(-2.76)		-0.302***	(-2.97)	
<i>Unrealized GL</i>		-33.53	(-1.09)		-42.54	(-1.13)	
<i>Syndicate Size</i>		0.051*	(1.83)		0.030	(1.00)	
<i>Capex Restrict</i>		0.083	(0.88)		0.076	(0.73)	
<i>Institutional Tranche</i>		0.461***	(3.99)		0.455***	(3.75)	
<i>Sweep Covenant</i>		-0.100	(-1.13)		-0.143	(-1.43)	
<i>Dividend Restriction</i>		0.160*	(1.94)		0.189**	(2.23)	
<i>Collateral</i>		-0.056	(-0.61)		-0.035	(-0.36)	
<i>Debt Size</i>		0.104**	(2.22)		0.104**	(2.05)	
Constant		-2.321***	(-7.60)		-1.949***	(-5.19)	
Number of observation		2,615			2,102		
Pseudo-R ²		0.143			0.141		

This table reports the results of a probit model testing the likelihood of excluding fair value estimates from covenant calculations. Column 1 uses a sample of all debt contract packages in the intersection of Dealscan and Compustat initiated or amended over the period from 2008 to 2012, and column 2 restricts the sample to debt contracts with *Affected Covenants*. The dependent variable is an indicator variable equal to one if fair value estimates are excluded from covenant calculations, and zero otherwise. Standard errors are clustered by firm. We present coefficient estimates in the first column and z-statistics (in parentheses) in the second column.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. *Exclude*: indicator variable equal to one if the debt contract available on Dealscan excludes fair value estimates in accordance with SFAS 159 from covenant calculations, and zero otherwise. *Revolver*: indicator variable equal to one if the debt contract available on Dealscan is a revolving credit facility, and zero otherwise. *Unreliable FV*: indicator variable equal to one if a firm's ratio of the Level 2 and 3 SFAS 157 fair value assets and liabilities to total fair value assets and liabilities ($[(Compustat(ao2 + au\beta + lo2 + lu\beta)) / (aqpl1 + ao2 + au\beta + lqpl + lo2 + lu\beta)]$) is above sample median, and zero otherwise; missing fair value estimates are set to zero. *PP*: indicator variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *Hedge Industry*: indicator variable equal to one if the firm is in the chemicals, gas and oil, mining, or utilities industry (Fama-French industries 14, 28, 30, 31), and zero otherwise. *Liquidity Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a current ratio or quick ratio covenant, and zero otherwise. All control variables are defined in table 1.

SFAS 159 relative to more dramatic responses, such as excluding covenants or restricting fair value election. Second, this evidence supports our contention that modifying covenant definitions is fairly inexpensive, relative to the benefit of including the covenant. Third, specific borrower features dictate when fair value accounting should be addressed in the debt contract

design. From the combined evidence, we conclude that fair value accounting is not unilaterally harmful for debt contracting.

5. *Additional Analyses*

5.1 AMENDED CONTRACTS AND RENEGOTIATIONS

After contract inception, if conditions change and create an ex post surplus, borrowers and lenders will frequently renegotiate debt to contractually capitalize on the new surplus (Roberts and Sufi [2009a]). As discussed by Roberts and Sufi [2009b, p. 166], “such a surplus is most likely to occur when unanticipated or noncontractable states of the world occur.”²⁴ For debt contracts initiated prior to the adoption of SFAS 159, the expansion of fair value accounting under SFAS 159 represents an unanticipated event that potentially alters the contracting usefulness of reported accounting numbers. Therefore, if fair value is detrimental for contracting, we expect borrowers and lenders to renegotiate contracts initiated prior to the adoption of SFAS 159 to exclude fair value estimates from covenant definitions for loans.

We test the association between renegotiation and fair value exclusion using the same regression specification as in model (2). We select a sample of existing loans, initiated prior to adoption of the new standard, and maturing on or after the borrower’s fiscal year-end date following SFAS 159 adoption (to ensure at least one year of filing a 10-K subject to the new standard). This sample consists of 1,883 loan observations. The response variable, *Amend-Exclude*, takes a value of one if the loan was renegotiated and fair value estimates are excluded in the amended contract.²⁵

We present the results in table 6. Consistent with our third and fourth hypotheses, the coefficients on *Revolver*, *Unreliable FV*, and *PP* are positive and significant. In addition, the coefficient on *Hedge Industry* is negative and significant, consistent with our fifth hypothesis. However, the insignificant coefficient on *Liquidity Covenant* suggests that, all else equal, the presence of a current or quick ratio does not alter the probability of amending an existing debt contract to exclude the fair value option in the post-SFAS 159 period. Overall, these results are consistent with contracting parties excluding fair value estimates not only from loans initiated after SFAS 159 but also from loans initiated prior to the standard via renegotiation.

5.2 IMPACT OF DEBT CONTRACT PRINCIPAL AND MATURITY

We predict that revolving credit facilities increase the incentive problems associated with fair value estimates by providing the borrower with the ability to opportunistically elect the fair value option in financial distress. We

²⁴ Nikolaev [2015] further shows that various information frictions, including agency conflicts, are an important driver of ex post renegotiation.

²⁵ Loans that are renegotiated but still include SFAS 159 adjustments, or loans that are not renegotiated, receive a value of zero.

TABLE 6
Likelihood of Amending an Existing Debt Contract to Exclude Fair Value Estimates

	Prediction	Amend-Exclude	
		Coefficient	z-Stat
<i>Revolver</i>	+	1.026***	(3.11)
<i>Unreliable FV</i>	+	0.872***	(4.11)
<i>PP</i>	+	0.709***	(2.63)
<i>Hedge Industry</i>	–	–1.422***	(–4.43)
<i>Liquidity Covenant</i>	–	–0.329	(–0.67)
<i>Eligible FV Instruments</i>		–0.386	(–0.93)
<i>Debt-Restriction Covenant</i>		0.896**	(2.33)
<i>Net Worth Covenant</i>		–0.006	(–0.03)
<i>Earnings Covenant</i>		–0.279	(–1.22)
<i>Size</i>		–0.092	(–0.85)
<i>Leverage</i>		–0.995*	(–1.80)
<i>ROA</i>		–0.260	(–0.51)
<i>Rating Available</i>		0.477**	(2.46)
<i>Lease</i>		–1.847***	(–2.65)
<i>Contingent Liab</i>		–0.117	(–0.52)
<i>Unrealized GL</i>		–222.300	(–1.47)
<i>Syndicate Size</i>		–1.512***	(–9.19)
<i>Capex Restrict</i>		–0.275	(–1.33)
<i>Institutional Tranche</i>		–0.153	(–0.54)
<i>Sweep Covenant</i>		–0.526*	(–1.85)
<i>Dividend Restriction</i>		0.262	(1.06)
<i>Collateral</i>		0.554***	(2.66)
<i>Debt Size</i>		0.434***	(3.60)
Constant		–3.455***	(–4.39)
Number of observation		1,883	
Pseudo- R^2		0.599	

This table reports the results of a probit model testing the likelihood of excluding fair value estimates from affected covenant calculations using a sample of debt contracts in the intersection of Dealscan and Compustat. This test uses a sample of existing contracts initiated prior to the election of SFAS 159, and determines the likelihood of amending an existing contract to exclude fair value estimates from debt covenants. The dependent variable in this model is an indicator variable equal to one if fair value estimates are excluded from covenant calculations, and zero otherwise. Standard errors are clustered by firm. We present coefficient estimates in the first column and z-statistics (in parentheses) in the second column.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. *Amend-Exclude*: indicator variable equal to one if the debt contract available on Dealscan is amended to exclude fair value estimates in accordance with SFAS 159 from covenant calculations, and zero otherwise. *Revolver*: indicator variable equal to one if the debt contract available on Dealscan is a revolving credit facility, and zero otherwise. *Unreliable FV*: indicator variable equal to one if a firm's ratio of the Level 2 and 3 SFAS 157 fair value assets and liabilities to total fair value assets and liabilities ($[(Compustat(ao2 + au3 + lo2 + lu3)) / (aqpl + ao2 + au3 + lqp1 + lo2 + lu3)]$) is above sample median, and zero otherwise; missing fair value estimates are set to zero. *PP*: indicator variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *Hedge Industry*: indicator variable equal to one if the firm is in the chemicals, gas and oil, mining, or utilities industry (Fama–French industries 14, 28, 30, 31), and zero otherwise. *Liquidity Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a current ratio or quick ratio covenant, and zero otherwise. All control variables are defined in table 1.

expect the size of the borrower's credit line to affect this relationship. If the revolving credit facility is large relative to the borrower's size, electing the fair value option for the debt could have a material effect on ex post covenant compliance. Therefore, we expect the likelihood of excluding fair

value estimates in the presence of a revolving line of credit to be amplified for larger debt contracts. Further, holding operating volatility constant, borrowers with longer term loans are more likely to enter financial distress and, hence, more likely to draw on a revolving line of credit and potentially elect the fair value option opportunistically. Therefore, we expect a stronger association between *Revolver* and the likelihood of fair value exclusion for longer term loan facilities.

We supplement our primary probit specification with two new variables, *High Debt* and *High Maturity*.²⁶ *High Debt* (*High Maturity*) is an indicator equal to one for borrowers with a ratio of the face value of the new debt facility to total assets (term-to-maturity) greater than the sample median, and zero otherwise.^{27,28} We interact each of these variables with *Revolver*, and we expect a positive coefficient on each of these interaction terms. We present the regression results in table 7. Consistent with our expectations, the positive and statistically significant interaction of *Revolver* and *High Debt* (*High Maturity*) in column 1 (2) indicates that larger (longer term) revolving lines of credit are more likely to have fair value estimates excluded from covenant definitions. These results highlight the significant role of the moral hazard involved with revolving credit lines and the fair value option.

In untabulated analysis, we also consider the impact that the borrowers' creditworthiness at contract inception may have on the relationship between revolving credit facilities and the decision to exclude fair values from covenant definitions. The fair value option for revolvers can reduce the contracting usefulness of financial covenants only if the borrowers' creditworthiness deteriorates. Therefore, if the borrowers' creditworthiness at contract inception is sufficiently high, creditors may be less likely to exclude the impact of the fair value option from covenant definitions. To empirically test this relationship, we first estimate the borrowers' creditworthiness at contract inception based on the fitted value of a regression of credit ratings on total assets, return on assets, leverage, and indicators for loss-making firms, firms that pay dividends, and firms with subordinated debt in a manner similar to that of Barth, Hodder, and Stubben [2008] and Beatty, Weber, and Yu [2008]. We then create an indicator variable, *Investment Grade*, equal to one if the borrower's estimated credit rating is considered investment grade (i.e., above BBB-), and zero otherwise. We supplement the main probit specification with *Investment Grade* and the interaction of *Investment Grade* \times *Revolver*. Consistent with our expectations,

²⁶ In the online appendix, we estimate each of our cross-sectional tests using a linear probability model and find qualitatively similar results.

²⁷ The face value is the total borrowing capacity under the loan package, including undrawn capacity for revolving lines of credit. Therefore, this does not necessarily represent the actual borrowings under the loan package but, rather, the potential borrowings.

²⁸ For loan packages that contain multiple facilities, we calculate the facility weighted-average maturity of each debt contract in the loan package.

TABLE 7
Cross-Sectional Test Based on Debt Characteristics

	Prediction	(1)		(2)	
		Exclude		Exclude	
		Coefficient	z-Stat	Coefficient	z-Stat
<i>Revolver</i>	+	0.480***	(3.46)	0.406**	(2.50)
<i>High Debt</i>		-0.856***	(-3.25)		
<i>High Debt</i> × <i>Revolver</i>	+	1.001***	(3.85)		
<i>High Maturity</i>				-0.363*	(-1.63)
<i>High Maturity</i> × <i>Revolver</i>	+			0.748***	(3.22)
<i>Unreliable FV</i>	+	0.193**	(2.51)	0.198***	(2.60)
<i>PP</i>	+	0.648***	(7.21)	0.663***	(7.32)
<i>Hedge Industry</i>	-	-0.543***	(-4.36)	-0.518***	(-4.19)
<i>Liquidity Covenant</i>	-	-0.903***	(-4.13)	-0.864***	(-3.90)
<i>Eligible FV Instruments</i>		0.173	(1.04)	0.269	(1.58)
<i>Debt-Restriction Covenant</i>		0.186	(1.01)	0.142	(0.76)
<i>Net Worth Covenant</i>		-0.101	(-0.88)	-0.01	(-0.09)
<i>Earnings Covenant</i>		-0.081	(-0.79)	-0.087	(-0.85)
<i>Size</i>		-0.061*	(-1.75)	-0.113**	(-2.37)
<i>Leverage</i>		-0.284	(-1.13)	-0.334	(-1.34)
<i>ROA</i>		1.267***	(2.75)	0.998**	(2.20)
<i>Rating Available</i>		0.143	(1.42)	0.115	(1.15)
<i>Lease</i>		-0.232	(-0.65)	-0.261	(-0.71)
<i>Contingent Liab</i>		-0.283***	(-2.77)	-0.315***	(-3.09)
<i>Unrealized GL</i>		-43.950	(-1.18)	-41.450	(-1.10)
<i>Syndicate Size</i>		0.031	(1.03)	0.005	(0.19)
<i>Capex Restrict</i>		0.085	(0.80)	0.099	(0.94)
<i>Institutional Tranche</i>		0.560***	(4.44)	0.448***	(3.50)
<i>Sweep Covenant</i>		-0.120	(-1.20)	-0.156	(-1.54)
<i>Dividend Restriction</i>		0.182**	(2.13)	0.188**	(2.21)
<i>Collateral</i>		-0.044	(-0.45)	-0.023	(-0.24)
<i>Debt Size</i>				0.064	(1.25)
Constant		-1.673***	(-4.37)	-1.715***	(-4.27)
Number of observation		2,102		2,101	
Pseudo- R^2		0.148		0.153	

This table reports the results of a probit model testing the likelihood of excluding fair value estimates from a firm's debt covenant calculations based on the size and the maturity of the debt contract using a sample of all debt contract packages in the intersection of Dealscan and Compustat initiated or amended over the period from 2008 to 2012. The dependent variable in this model is an indicator variable equal to one if fair value estimates are excluded from covenant calculations, and zero otherwise. Standard errors are clustered by firm. We present coefficient estimates in the first column and z-statistics (in parentheses) in the second column.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. *Exclude*: indicator variable equal to one if the debt contract available on Dealscan excludes fair value estimates in accordance with SFAS 159 from covenant calculations, and zero otherwise. *Revolver*: indicator variable equal to one if the debt contract available on Dealscan is a revolving credit facility, and zero otherwise. *Unreliable FV*: indicator variable equal to one if a firm's ratio of the level 2 and 3 SFAS 157 fair value assets and liabilities to total fair value assets and liabilities ($(Compustat(aol2 + aul3 + lol2 + lul3) / (aqpl1 + aol2 + aul3 + lqpl1 + lol2 + lul3))$) is above sample median, and zero otherwise; missing fair value estimates are set to zero. *PP*: indicator variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *Hedge Industry*: indicator variable equal to one if the firm is in the chemicals, gas and oil, mining, or utilities industry (Fama-French industries 14, 28, 30, 31), and zero otherwise. *Liquidity Covenant*: indicator variable equal to one if the debt contract available on Dealscan includes a current ratio or quick ratio covenant, and zero otherwise. *High Debt*: indicator variable equal to one if the size of the average face value of the debt package scaled by total assets is above sample median, and zero otherwise. *High Maturity*: indicator variable equal to one if the average length (in months) of the debt package is above sample median, and zero otherwise. All control variables are defined in table 1.

we find a negative and significant coefficient on this interaction (coefficient -0.578 , z -stat -2.48), indicating that revolving credit facilities to borrowers with higher creditworthiness are significantly less likely to exclude fair value estimates from covenant definitions.

6. Conclusion

We examine the association between fair value accounting and debt contract design. Our empirical evidence, based on loans initiated before and after adoption of SFAS 159, show that the majority of contracts do not appear to respond to the new standard: Contracts continue to include financial covenants affected by the standard, without any restriction on fair value election or exclusion of fair value from contract definitions. We do find a small but significant number of contracts (14.5%) with definitions that explicitly exclude the effects of fair value adjustments related to SFAS 159. In addition, there is asymmetry in these exclusions, with the overwhelming majority's excluding fair value liabilities and not fair value assets. Our tests also show that borrowers with greater opportunities and incentives to manipulate fair value estimates are more likely to have fair value estimates excluded from covenant definitions. We also find that debt contracts to borrowers, who are more likely to engage in hedging and debt contracts with liquidity covenants, are less likely to have SFAS 159 fair value estimates excluded. Overall, the evidence suggests that, in many cases, fair values are useful for contracting, or at least are not sufficiently harmful to warrant their removal. Moreover, in the limited cases in which fair values are less useful, contracting parties identify those fair values and adjust contracts accordingly.

Prior literature demonstrates that changes in accounting standards affect the inclusion of financial covenants in debt contracts (Demerjian [2011], Ball, Li, and Shivakumar [2015]). Our evidence of limited modification of financial covenants—but no change in the use of financial covenants—shows that contracting parties responded differently to SFAS 159 than to the changes examined in prior studies. We believe there are two reasons for this difference. First, the settings examined in prior studies (the shift to the “balance sheet approach” and the adoption of IFRS) are broad reaching and, thus, may be too difficult or costly to address through modifying financial covenant definitions. SFAS 159, in contrast, has clearer, more specific implications for affected financial covenants, which reduces the cost and complexity of adjusting for fair values. Second, the concurrent adoption of SFAS 157 provides valuable information to contracting parties. This differs from broader standard changes, which lack the disclosures necessary to adjust financial covenants for fair values when desired by contracting parties.²⁹ This has important implications for standard setters as they consider future fair value adoptions and disclosure rules.

²⁹ Demerjian [2011] notes that the lack of disclosure related to the balance sheet approach makes it difficult for users to know which items to adjust.

Our study has a few limitations, so the results should be interpreted with caution. First, by examining contractual outcomes, our evidence is necessarily descriptive; that is, we cannot observe the underlying mechanism that links fair value accounting and contracting, only the association between the standard and contract design. Second, we are unable to fully observe or model the drivers of fair value elections, which limit our study's conclusions regarding the effects of fair value accounting. For example, firms that expect to incur the highest net costs from fair value may simply not elect the fair value option. Because these are the firms for which contractual modifications are most likely, this selection may cause our tests to fail to detect changes in contract design. Finally, our setting of SFAS 159 may limit the external validity of our results. This standard differs from other standards that expand use of fair value in a number of ways, including its optional nature and the detailed disclosures required by SFAS 157 and SFAS 159. To the extent that other U.S. fair value standards (or international standards) do not share these features, the generalizability of our findings may be limited.

APPENDIX A

Background on Fair Value Accounting Under U.S. GAAP

A.1 FAIR VALUE ACCOUNTING PRIOR TO SFAS 157/159

U.S. GAAP traditionally has used an historical cost accounting system, with assets and liabilities carried on the balance sheet at acquisition cost. Despite the historicity of this system, the conception of an alternative fair value accounting system is not recent, as evidenced by early standard-setting debates. For example, in ARB No. 43, the discussion of accounting for marketable securities notes the dissent of one member, who was in favor of reporting market prices instead of historical cost.³⁰ Although some early standard setting by the FASB addressed fair value, the standards generally favored historical cost accounting while invoking fair value measurement only to capture losses (but not gains). For example, SFAS 12 provided consistent rules for reducing the reported value of investments in equity securities where the market value had fallen below the historical cost, though increases in market values were not recorded. Early standards (e.g., SFAS 12) referred to market value as a price generated on an exchange or over-the-counter market.

With the adoption of SFAS 115 (ASC 320) in 1995, FASB moved toward more symmetric fair value accounting, allowing for investment carrying

³⁰ Perry E. Mason of the Committee on Accounting Procedure (the standard-setting body that preceded the APB and the FASB) believed that "the market value is the most significant figure in connection with marketable securities held as temporary investments of cash, and would prefer to show such securities in the accounts at their market value, whether greater or less than cost" (ARB No. 43, chapter 3A). He further assented that it was sufficient to report marketable securities at historical cost as long as the market value was included parenthetically on the balance sheet.

values to be written both down and up. As with SFAS 12, the standard required market prices generated on an organized exchange; absent a market price, investments were carried at historical cost. In the years subsequent to adoption of SFAS 115, FASB has moved increasingly toward fair value accounting. This movement has largely departed from rules that require that fair values be generated by organized exchanges. Examples include mortgage servicing rights (SFAS 122/ASC 948), hedging transactions (SFAS 133/ASC 815), and securitizations (SFAS 156/ASC 860). Standards related to impairments, such as for goodwill (SFAS 142/ASC 350) and fixed assets (SFAS 144/ASC 360), also have expanded the use of estimated fair values, whereby carrying values are based on management's estimated market values. The U.S. standard-setting movement toward fair value mirrors the international standard setting, where IFRS allows greater use of fair value, including symmetric fair value for property, plant, and equipment (IAS 16) and intangibles (IAS 38).

A.2 RECENT FAIR VALUE STANDARDS

A.2.1 SFAS 157/ASC 820. FASB issued SFAS 157 (ASC 820) in September 2006, to be effective November 2007. This standard formalizes a three-tiered hierarchy of fair value measurement. Level 1 uses quoted prices from an active market. This is the traditional definition of fair market value, often termed "mark-to-market." Level 2 allows reported values to be based on the quoted price of a comparable asset or liability; for example, the value of an illiquid mortgage-backed security could be estimated based on the quoted price of a similar security. Level 3 allows reported values based on unobservable inputs, including proprietary valuation models, granting Level 3 valuation the common sobriquet "mark-to-model." SFAS 157 also expanded the scope of disclosure for firms that report items at fair value. In footnotes, firms must disclose the amounts of different fair values by Level and the earnings impact of changes in fair values. The standard requires additional disclosure of items reported at Level 3, including sales, purchases, and settlement amounts, with discussion of the unobservable inputs and valuation method used.

A.2.2 SFAS 159/ASC 825. The FASB issued SFAS 159 (ASC 825) in February 2007, to be effective November 2007. This standard allows firms to record virtually all financial assets at fair value. In addition, firms can report liabilities at fair value, an expansion of fair value without precedent in the U.S. GAAP. Under the standard, firms are not required to report at fair value but, rather, have discretion to elect the fair value option. Moreover, the fair value option election is made on an instrument-by-instrument basis, allowing firms to select which securities to report at fair value. Firms cannot revoke fair value elections, however, and, therefore, cannot influence reported results by periodically shifting individual instruments between fair value and historical cost.

In terms of standard setting, SFAS 157 and SFAS 159 signal the FASB's intention to expand fair value accounting. In fact, SFAS 159 notes, "This

Statement is expected to expand the use of fair value measurement, which is consistent with the Board's long-term measurement objectives for accounting for financial instruments." Research on these standards has focused on financial firms (due to their extensive holdings of financial assets and liabilities) around adoption of SFAS 159. Evidence has been mixed, with some studies suggesting opportunistic reporting (Song [2008], Henry [2009]) and another inferring no opportunism (Chang, Liu, and Ryan [2011]). Evidence also has shown that firms elect the fair value option infrequently (Guthrie, Irving, and Sokolowsky [2011]).

APPENDIX B

PMI Group, Inc. Case Study

When a firm elects the fair value option for its own debt, the company records the balance of the liability at fair value and recognizes the periodic change in earnings. After the fair value option election, if a firm's credit risk increases, the fair value of the firm's own debt is lower than the historical cost of the contracted cash flows; therefore, the firm lowers the balance of the debt on the balance sheet and records a gain in the income statement. This journal entry increases covenant slack for both balance sheet and income statement covenants at the exact point in time when creditors would presumably want covenants to bind. The case of PMI Group, Inc. (PMI) provides an example of this issue in practice.

In September 2006, PMI issued two bonds, totaling \$400 million in principal. In the first quarter of 2008, upon initial adoption of SFAS 159, the company elected to record these bonds at fair value under the fair value option. At the time of the election, the company recorded a net gain of \$34.8 million to its beginning balance of retained earnings; all subsequent changes in the fair value of the debt were recognized in earnings. In addition to the bonds recognized at fair value, the company maintained an undrawn \$300 million revolving credit facility with Bank of America as the syndicate lead arranger. The revolver, as amended on March 17, 2008, contained two financial covenants: a minimum net worth covenant and a maximum debt-to-total capitalization ratio.³¹ Importantly, despite the fact that the company had made the fair value option election for its bonds prior to the amendment in March 2008, the revolving credit facility did not exclude from covenant calculations the fair value estimates in accordance with SFAS 159.

Throughout 2008–2011, PMI reported sizeable losses, which significantly increased its credit risk. As a result, PMI reduced the reported balance of its bonds by approximately \$170 million (42.5% of the face value) from the

³¹ We note that the revolving credit facility was later amended in 2009 to remove the debt-to-total-capitalization ratio covenant in favor of a credit-rating requirement and restriction on the ability of PMI to pay dividends.

time of the fair value option election to its final Form 10-Q (6/30/2011). Over this period, PMI increased reported earnings by a cumulative \$135.3 million, representing 5.2% of the cumulative reported loss. PMI ultimately filed for bankruptcy protection under Chapter 11 on November, 23, 2011. Based on a detailed review of the company's Form 10-K, Form 10-Q, and Form 8-K filings, we determined that PMI did not violate any covenants in the year prior to entering bankruptcy. Based on the magnitude of the reported fair value gains, it appears that PMI forestalled technical default due to decreasing its own liabilities.³² Therefore, lenders were not able to obtain control rights at exactly the point when their claim was at significant risk, that is, when the borrower was in financial distress. Although PMI may have ultimately filed for bankruptcy, transferring control rights to creditors at an earlier date through covenant violation may have allowed debt holders to preserve or at least increase the value of their claim. PMI emerged from Chapter 11 in 2013, after repaying approximately 29% of its outstanding debt at the bankruptcy filing.³³

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³² Note that we are not claiming that PMI maliciously elected the fair value option for their own debt to reduce the probability of transferring control rights to creditors in distress. This case merely illustrates the potential problems associated with this election for debt contracting purposes.

³³ Available at <http://www.law360.com/articles/447628/pmi-group-gets-green-light-to-see-votes-on-ch-11-plan>

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