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Highlights

- Auditors are sometimes required to report to lenders on covenant compliance.
- Empirical evidence on covenant compliance assurance clauses is presented.
- Clauses are associated with borrower and loan characteristics informed by agency and contracting theory.
- Contractual adjustments to GAAP net income are key determinants of audit demand.

ACCEPTED MANUSCRIPT

Private Lenders' Demand for Audit

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Abstract

We study the demand for audit in private lending agreements by examining whether the borrower's auditor is contractually required to assure lenders of borrowers' compliance with financial covenants. Auditors are required under general purpose financial reporting to review covenant compliance. However, by informing lenders directly that they have no knowledge of any default, auditors may increase their litigation risk. Consistent with predictions from contracting theory, we find that the existence of auditor covenant compliance assurance clauses is significantly associated with more complex contractual adjustments to GAAP net income, the extent of reliance on accounting information in the contract, the level of intangibility of the borrower's assets, the number of lenders and loan maturity. As well as reporting novel descriptive data on the extent of auditors' role in reporting directly to private lenders, we provide evidence on ways in which the audit market may enhance efficient contracting.

JEL classification: K22; M41; M44; M49

Keywords: Auditing; financial reporting; debt contracts.

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Private Lenders' Demand for Audit

1. Introduction

Accounting covenants are widely used in private lending agreements to mitigate conflicts of interest between shareholders and lenders. These covenants increase contracting efficiency by providing the basis for the optimal allocation of control rights when contracts are incomplete (Watts and Zimmerman, 1986; Roberts and Sufi, 2009a; Christensen and Nikolaev, 2012; Christensen et al., 2016).¹ Auditors are required to check borrowers' compliance with covenants in private lending agreements under GAAP. In particular, accounting and auditing standards require auditors to confirm the going concern assumption and to ensure the appropriate classification of debt as current or non-current, which entails checking covenant compliance. In addition to these standard obligations to verify compliance, however, auditors may offer a letter providing specific negative assurance directly to lenders by certifying that they have no knowledge of any default. What is unclear is whether this additional covenant compliance assurance occurs at random, or whether it can be explained by efficient contracting. To date, the literature has been largely silent on the conditions under which lenders seek such assurance from auditors.² We seek to address this question in this paper.

The fact that auditors report on borrowers' covenant compliance directly to lenders may be economically important because of its effects on auditor liability. Under the GAAP regime, auditors are not liable to lenders because lenders are regarded as non-contractual third parties to standard audit arrangements. Nevertheless, auditors may become liable to third parties depending on whether auditors are aware that financial statements are to be used for particular purposes by known parties, and whether there is any conduct by the auditors linking them to third parties (Feinman, 2015). Because they require auditors to write to lenders to state they have no

¹ In contrast, accounting covenants are rarely used in public debt markets (e.g. Beatty et al., 2012).

² Though Watts (1977, footnote 31) and Watts and Zimmerman (1986) cite examples of private lending agreements containing clauses requiring auditors to offer assurance on covenant compliance.

knowledge of any defaults on the covenants, auditor covenant compliance assurance clauses are likely to extend auditors' liability to lenders, even though there is no contract between them. This is because it will be more difficult for auditors to convince a court that they were not aware who they were reporting to and what their reports were to be used for.

We present novel descriptive evidence of auditors providing assurance to private lenders of borrowers' compliance with accounting covenants. If the standard GAAP regime is sufficient for lenders' needs, we do not expect to observe systematic associations between lenders' audit demands and borrower or loan characteristics. According to agency theory and the theory of incomplete contracting, information asymmetries and contracting efficiency should drive observed variation in lenders' demand for additional assurance. Agency theory predicts that covenants appear in debt contracts to reduce conflicts of interest between providers of equity and providers of debt (Jensen and Meckling, 1976; Smith and Warner, 1979). More recent insights based on the theory of incomplete contracting view accounting information as part of an efficient contracting regime, where financial covenants represent the contingency for the allocation of control rights (Christensen et al., 2016). We draw on these arguments and predict that lenders will demand auditor assurance of covenant compliance in an attempt to reduce agency problems and to enhance contracting efficiency. Such assurance involves reporting specifically to lenders on borrowers' compliance with the chosen set of contractual accounting definitions (Li, 2010). To test our predictions, we conduct a cross-sectional analysis of auditor covenant compliance clauses, using a large sample of private lending agreements retrieved from the SEC EDGAR archives for the period 1996 to 2012.

Around 35% of the 6,513 loan agreements in our sample are identified as containing an auditor covenant compliance assurance (CCA) clause. After adjusting for the total number of financial covenants in loan agreements, the use of CCA clauses is comparatively stable over our sample period. We do not find that the use of CCA clauses is concentrated among a few banks or industries – their use is widespread. When we explore the sources of the variation in the incidence

of CCA clauses, our results are inconsistent with the idea that they are randomly distributed across private lending arrangements. In particular, in various empirical specifications, we find that private lenders' demand for independent assurance by auditors is stronger when accounting measurement rules depart more from GAAP, when agreements rely more on accounting data (either in the form of more accounting covenants or accounting-based performance pricing provisions), when borrowers have high levels of harder-to-verify intangible assets, and when there are more lenders in the loan syndicate.

The paper makes several contributions to the literature. First and foremost, it provides novel empirical evidence that in addition to their standard obligations under GAAP, auditors play a role in ameliorating information asymmetries and enhancing contracting efficiency between borrowers and lenders. In addition to the information they receive via standard general purpose financial statements, lenders also often demand direct assurance from auditors that borrowers have conformed to the negotiated measurement rules specified in the contract. These results are consistent with Li's (2010) conjecture that more extensive departures from GAAP rules involve higher monitoring costs for lenders and may help explain why debt contracts often contain comparatively few accounting ratios (Christensen et al., 2016).³

Our results contribute to the contracting literature by indicating that covenant compliance assurance by auditors is associated with borrower and loan characteristics. Furthermore, our findings suggest that when it is deemed optimal by contracting parties, auditor covenant compliance assurance may facilitate contracting on the basis of intangible assets that are harder to verify (Frankel et al., 2008). Our results also contribute to the agency literature by showing that the number of lenders in loan syndicates is positively associated with explicit requirements for auditor assurance of covenant compliance. This may be due to reduced monitoring effectiveness

³ We do not study the magnitude of the additional costs associated with auditor CCA clauses. Identifying the costs from secondary data may be difficult for at least two reasons. First, the classification of the associated fees as audit or non-audit may be blurred in practice. Second, even though the additional audit costs may be high relative to the costs of contracting, they may be low (and thus hard to detect) relative to the fees paid for the main audit.

induced by large loan syndicates or because of higher renegotiation costs in the event of a misclassified covenant violation. Finally, and more broadly, our research contributes to the growing evidence on the importance and influence of private lenders as active participants in financial reporting and corporate governance mechanisms. Although several studies have examined the role of auditors in stock markets and public debt markets (e.g. Teoh and Wong, 1993; Mansi et al., 2004; Lou and Vasvari, 2013), evidence on their role in private debt markets remains scarce (Menon and Williams, 2016). This is in spite of reports that corporations raise more capital from banks than from public debt and equity markets combined (Ferreira and Matos, 2012; Nini et al., 2009; Sufi, 2007). Our findings thus contribute to the nascent literature demonstrating that banks exert influence over borrowers' corporate governance processes, even outside default states (Triantis and Daniels, 1995; Nini et al., 2012; Christensen et al., 2016).

Overall, our research indicates that auditors fulfill important functions in private debt markets in addition to their main responsibilities under GAAP. We emphasize at the outset, however, that although our analyses are guided by theory, our study is exploratory and as such, only allows us to document statistical associations, not causal relationships. As is common in this field, our results are vulnerable to concerns that different contractual features are determined simultaneously (Armstrong et al., 2010).

In section 2, we outline the regulatory and legal background to the auditor-lender relationship and review relevant prior literature. In section 3, we develop our hypotheses. Section 4 outlines our sample and data collection methods and describes our primary measure of private lenders' demand for audit. Section 5 presents our empirical results and we summarize and conclude in section 6.

2. Background and prior literature

2.1 Auditors' responsibilities under GAAP and legal liability

In the absence of any audit arrangements between contracting parties, auditors are required to test whether borrowers are in compliance with debt covenants as part of the annual audit under GAAP. In particular, ASC 470 *Debt* requires auditors to classify debt as current when clients violate any covenants set out in the loan agreement.⁴ Hence, unless the debt is already classified as current, auditors check borrowers' compliance with covenants as a matter of routine.

An important feature of the GAAP regime is that auditors' responsibility is to shareholders. This seems unsatisfactory from the point of view of lenders, who might seek legal redress from auditors with 'deep pockets' in the event of borrower default. Accordingly, clauses in private lending agreements often require auditors to report directly to creditors regarding borrowers' compliance with contractual terms. Auditing standards (for public issuers and non-issuers) recognize such obligations and offer guidance to auditors in specifying the limited nature and scope of this type of assurance. For public issuers, AS 3305 *Special Reports*, states:

... loan agreements usually also require the borrower to furnish annual financial statements that have been audited by an independent auditor. In some instances, the lenders ... may request assurance from the independent auditor that the borrower has complied with certain covenants of the agreement relating to accounting matters. The independent auditor may satisfy this request by giving negative assurance relative to the applicable covenants based on the audit of the financial statements.

This standard goes on to provide an example of a report that auditors may issue to lenders under such arrangements.⁵ There are two important features of this example: (i) it is addressed solely to the management of the borrower and a specific bank or lender; and (ii) it only offers negative assurance, i.e., it states that nothing came to auditors' attention that the borrower failed to comply with the covenants in the debt contract.

⁴ This applies whether covenants are written on GAAP or non-GAAP accounting measurement rules.

⁵ This is not just a US phenomenon. In the UK, the body representing the professional institutes - the Consultative Committee of Accountancy Bodies - has also issued guidance to auditors (CCAB, 2000).

It is generally accepted that in equity markets, auditors play an insurance role in addition to their information role (DeFond and Zhang, 2014). This is not necessarily the case in private debt markets, however, because lenders are regarded as third parties to the audit regime. As such, auditors are not liable to lenders unless certain conditions are met. The extent of auditors' liability to lenders depends on which of the four legal standard courts apply: (i) privity, (ii) near privity, (iii) restatement (or known users), or (iv) reasonable foreseeability.⁶

We expect covenant compliance assurance clauses to increase auditors' liability to lenders under the two most commonly applied standards – near privity and restatement.⁷ First, under a restatement approach, where inaccurate information supplied by auditors is reasonably relied on by creditors and banks (or other non clients), auditors are held liable, as long as the third parties relying on the reports are known to them (Scherl, 1994, p. 273). Because CCA clauses involve auditors writing to lenders, it will be difficult for them to argue that they were unaware that lenders were relying on the information they provide. Second, under near privity, while the CCA clauses may not automatically be sufficient to establish a direct relationship between the auditor and the lenders, courts sometimes interpret the necessary linking conduct as 'some communication or contacts demonstrating the accountant's awareness of the third party's

⁶ Strict privity is the most restrictive standard under which a third party can hold an auditor liable for negligence. This requires there to have been a direct contractual relationship between the auditor and the third party and is only adopted in a handful of states (Anatharaman et al., 2016). Near privity relaxes the direct contractual requirement, but (i) auditors must have been aware that their reports were to be used for a particular purpose; (ii) auditors must have known that the third party intended to rely on the reports; and (iii) there must have been linking conduct between the auditors and the third party, indicating that auditors understood the third party's reliance on their reports (Scherl, 1994; Pacini et al., 2000). Restatement further expands auditor liability for negligence, so that the auditor is not required to know the exact identity of the third party in order to be held liable; however, the third party must still belong to a limited group of persons for whose benefit and guidance the auditor supplies the information or knows that the recipient intends to supply it (Anatharaman et al. 2016). Reasonable foreseeability represents the broadest definition of third parties to whom the auditor is held liable. Under this standard, the auditor owes a duty to all those they should reasonably foresee as recipients from the company of the statements, as long as the recipients rely on the information for business purposes (Anatharaman et al., 2016).

⁷ Anatharaman et al. (2016) report that 21.6% of states follow near privity, while 62.7% follow the restatement approach. We do not expect CCA clauses to increase auditors' liability under a strict privity approach, because there is no contract between the auditor and the lenders. Under the most expansive reasonable foreseeable approach, it is unclear whether CCA clauses are necessary to impose liability on auditors. For example, auditors may be expected to foresee lenders' reliance on their reports without any direct correspondence between the parties.

reliance' (Feinman, 2015, p. 146). We expect CCA clauses to lead to direct communication between the auditor and the lenders, increasing the likelihood that courts will find auditors liable.

The recent case of GSP Finance versus KPMG illustrates that lenders place significant emphasis on the assurance provided by auditors – not just via a clean audit report (Menon and Williams, 2016), but also through their demand for confirmation of borrowers' compliance with financial covenants.⁸ This case also suggests that CCA clauses may increase auditors' litigation risk from lenders, even under a strict near-privity standard.

The case involved a credit facility of over \$525 million taken out by the borrower (Hicks Sports), \$67 million of which was supplied by GSP. The lending agreement contained clauses requiring the borrower's auditors, KPMG, to deliver to lenders (1) a clean audit report and (2) a letter of compliance with financial covenants, one of which limited borrower's consolidated total debt to \$600 million.

The borrower subsequently defaulted on the payment of the loan. KPMG were sued by GSP for providing a clean audit opinion *and* a letter stating that the borrower was in compliance, with the plaintiffs arguing that Hicks had exceeded the \$600 million debt threshold. The lenders argued that had the borrower's capital lease obligations been included within the definition of consolidated indebtedness (as they had been in previous years), Hicks would have surpassed its credit limit, allowing the lenders to exercise control rights that would have reduced their losses.

The letter of covenant compliance represents an important component of the litigation against the auditors in this case.⁹ The plaintiffs' testimony also reveals that the contractual

⁸ Details of the case are available on the web site of the New York Supreme Court (Docket no. 650841/2011).

⁹ The plaintiffs argued 'Because of its familiarity with the structure, terms, and purpose of the Credit Agreements, KPMG was aware that [the borrowers] would transmit both the independent auditor's report and the Compliance Letter to GSP and other lenders, which would rely on the audit opinion and Compliance Letter in assessing whether [the borrowers] had breached the Credit Agreement.' Ultimately, the auditors were successful in defending themselves in this case because their letter on covenant compliance was issued to 'noteholders' as a class, not to GSP as specific lenders.

requirement for auditors to confirm compliance with the covenants in the lending agreement was an important part of their decision to issue the loan.¹⁰

This discussion demonstrates that auditor covenant compliance clauses in lending agreements are likely to extend auditors' legal liability to lenders. If this is the case, contracting theory suggests that lenders' demand for such additional protection will vary according to the nature of the loan transaction and/or the characteristics of the borrower.

2.2 Contracting theory and prior literature

The use of accounting covenants in private debt contracts has traditionally been understood to be a manifestation of agency conflicts between lenders and shareholders. Such conflicts include the risk of excessive dividend payments, future debt issuance reducing the probability of repayment, asset substitution (where firms invest in riskier projects at the expense of debt-providers) and underinvestment (Jensen and Meckling, 1976; Smith and Warner, 1979; Armstrong et al., 2010). Financial contracting acts as a primary mechanism for reducing conflicts between agents (Roberts and Sufi, 2009a) and outputs of the accounting system often appear in debt contracts in the form of clauses on capital expenditures, asset sale restrictions, dividend payments, covenants linked to leverage ratios, net worth and cash flow sweeps (e.g. Nini et al., 2009). More recent theoretical insights view the presence of accounting figures in debt contracts as part of an efficient contracting regime, where accounting data act as contractible signals for the state-contingent allocation of control. The main purpose of accounting covenants in this context is to efficiently allocate control rights in the event of deteriorating borrower performance (Christensen et al., 2016).

Both agency and incomplete contracting interpretations suggest that the use of accounting numbers in debt contracts creates incentives for managers to distort accounting figures. Prior

¹⁰ They stated 'receipt of ongoing financial compliance audited by a known firm was a requirement of the deal and was a piece of the puzzle ... that would make us lend into a situation'.

research documents income-increasing accounting choices in the run-up to covenant violations (e.g. DeFond and Jiambalvo, 1994; Sweeney, 1994) and indicates that disputes with auditors often follow such choices (DeFond and Jiambalvo, 1993). Accordingly, auditors are reported to increase their fees in response to debt covenant violations, even in cases where borrowers' financial performance is not necessarily poor (Gao et al., 2016).

Potential conflicts surrounding debt covenant compliance have been analyzed in theoretical models where changes in control are triggered not necessarily by payment default, but by realization of verifiable states of the world (Aghion and Bolton, 1992; Roberts and Sufi, 2009a; Christensen et al., 2016). Studies often recognize that resulting incentive conflicts create a demand for independent state verification (e.g. Townsend, 1979; Roberts and Sufi, 2009a),¹¹ yet to date, there has been limited empirical evidence on whether, when and how this takes place.

Because the monitoring role of accounting in financial contracting differs from its typical 'valuation' role of informing equity and debt markets (Holthausen and Watts, 2001; Ball et al., 2015), the definitions of accounting data used in debt contracts regularly depart from GAAP (e.g. Leftwich, 1983; El-Gazzar and Pastena, 1990; Citron, 1992; Frankel et al., 2008), usually due to lenders' preferences for conservative and more verifiable accounting (Li, 2010; Li, 2013). For example, exclusions of intangible assets are common, because their values are often subjective and certain components (such as goodwill) have low liquidation values (Holthausen and Watts, 2001; Watts, 2003). Recent studies provide evidence consistent with debt markets' demand for conditional conservatism (Ball et al., 2008b; Beatty et al., 2008; Zhang, 2008) and lending terms (both price and non-price related) are sometimes more favorable when firms have higher accounting quality (Bharath et al., 2008).

¹¹ As noted by Christensen et al. (2016), incomplete contracting theory also recognizes that lenders, as well as borrowers, may behave opportunistically when holding decision rights. This perspective also points to a demand for independent verification of accounting data to determine where control lies, though this demand does not originate from lenders.

While conservatism may make accounting figures more suitable for contracting purposes, it may also be sub-optimal for control to shift to lenders where borrowers' financial position is strong, because violations involve costly renegotiation. Li (2013) shows that renegotiation costs can be significant drivers of accounting characteristics in debt markets. Hence, while conservative accounting may produce contracting benefits, a sufficient number of Type 1 errors (false positives) may also be costly (Armstrong et al., 2010; Lambert, 2010).

Demand for auditor assurance of covenant compliance may therefore originate in the negotiated measurement rules that adapt GAAP figures to make them more suitable for contracting. Although auditors are required to check compliance with covenants under the standard general purpose accounting regime, more complex accounting adjustments may involve more intensive monitoring when auditors face litigation risk from lenders.

In summary, private lenders may place demands on auditors for assurance of covenant compliance in addition to the main audit report prepared as part of general purpose financial reporting. Furthermore, in theory, agency-based incentive problems and contracting efficiency may be improved by independent and effective monitoring of covenant compliance.

Empirical research on auditors' role in private lending arrangements is scarce. In a recent exception, Menon and Williams (2016) report that firms with higher credit risk are more likely to be required in their lending agreements to have an audit report free of going concern modifications and to have contractual clauses restricting their choice of auditor. Chen et al. (2016) find that firms with modified audit opinions (particularly going concern opinions) face punitive changes to the price and non-price terms of their debt, and that auditor opinions convey additional information to lenders about borrower risk.¹² These studies do not investigate the

¹² In a previous version of a paper studying covenants requiring borrowers to supply lenders with various kinds of private communications, Carrizosa and Ryan (2016) examine clauses where lenders require management letters from auditors (these typically relate to internal control deficiencies). Carrizosa and Ryan (2016) report associations consistent with the view that such clauses (along with the other private communication channels) enhance lenders' monitoring of borrowers and compliance with loan contract terms.

extent to which auditors are obliged to provide lenders with independent assurance of borrowers' compliance with accounting-based covenants. Our paper seeks to address this gap in the literature.

3. Hypotheses development

Although our study is exploratory, we draw on prior theoretical and empirical research to develop our predictions. Our first prediction is that lenders' demand for audit will be higher where measurement rules for the accounting figures used in debt contracts depart more from the GAAP rules that auditors are already obliged to verify as part of their responsibilities to shareholders in the main audit.¹³ A long line of literature shows that debt contracts are based on tailored accounting rules (Armstrong et al., 2010), where the adjustments are designed to make accounting data more appropriate for contracting.¹⁴ Where modifications to GAAP are more extensive, we expect demand by lenders for additional covenant compliance assurance to be stronger. This is because lenders are likely to seek confirmation that the negotiated rules, as well as the GAAP rules, have been adhered to by the borrower. Our first hypothesis, stated in alternative form, is therefore:

H1: The presence of auditor covenant compliance assurance clauses is positively associated with the level of adjustments to GAAP in lending agreements.

Our second prediction is that lenders' demand for covenant compliance assurance will be an increasing function of the extent to which the lending agreement relies on accounting data, irrespective of the number of accounting adjustments. Reliance on accounting covenants is a distinctive feature of the private debt market (Christensen and Nikolaev, 2012; Nini et al., 2012; Roberts and Sufi, 2009a) and while the vast majority of private debt contracts contain some

¹³ We are very grateful to the reviewer for suggesting this argument.

¹⁴ There is extensive discussion in the literature about which measurement rules are appropriate for debt contracting. For instance, Li (2010) finds that stripping out transitory items is important, Li (2013) argues that conservatism is desirable, whereas Li (2016) reports that a focus on borrowers' operations, rather than investing activities, influences the choice of accounting measurement rules.

accounting-based covenants (Nini et al., 2012), empirical research shows that the number can vary significantly.¹⁵ More extensive use of accounting in lending agreements is likely to require detailed information on borrowers' internal accounting systems. Auditors are uniquely placed in having access to this information.

In addition to financial covenants, performance pricing provisions based on accounting data are common in private debt contracts (e.g., Asquith et al., 2005; 2006; Ball et al., 2008a). These provisions may affect borrowers' incentives to manipulate accounting figures (Armstrong et al., 2010). We therefore formulate the following alternative hypothesis, where the level of reliance on accounting data in our empirical analysis is measured by the number of financial covenants and the inclusion of accounting-based performance-pricing provisions in the lending agreement:

H2: The presence of auditor covenant compliance assurance clauses is positively associated with the level of reliance on accounting data in the lending agreement.

Our third prediction is that the demand for auditor covenant compliance assurance in private debt agreements will be higher when the valuation of assets is more subjective and when accounting data contain more 'soft' information (e.g. Watts, 2006). In our analysis, we capture this in two ways: the ratio of borrowers' intangible assets to total assets and the book to market ratio. We expect information asymmetries to be more pronounced for intangible assets because active markets for these assets do not exist (e.g. Barth et al., 2001), making them difficult to verify and to value objectively (Holthausen and Watts, 2001; Watts, 2006; Kothari et al., 2010). Moreover, disagreements in the valuation of intangible assets may arise between lenders and shareholders due to the information being used for different purposes by different capital providers (Kothari et al., 2010). This may lead to lenders attempting to monitor the measurement of intangibles via audit covenant checking requirements. Intangible assets are regularly excluded

¹⁵ Christensen and Nikolaev (2012) report that the number of performance covenants in a sample of over 12,000 lending agreements ranges from zero to six.

from accounting covenants (Armstrong et al., 2010), but it can sometimes represent more efficient contracting for them to remain in contractual asset definitions (Frankel et al., 2008). Beatty et al. (2008) find that intangible assets are often kept in covenant definitions and even where they are excluded, this does not necessarily satisfy lenders' demand for conservatism. Our third hypothesis is therefore:

H3: The presence of auditor covenant compliance assurance clauses is positively associated with the level of intangibility of the borrower's assets.

Our fourth prediction focuses on the quality of monitoring by lenders, measured by the size of the loan syndicate. There is extensive evidence in the finance literature that free-riding in information gathering/monitoring tends to be higher when there are more lenders (Dennis and Mullineaux, 2000; Esty and Megginson, 2003; Graham et al., 2008; Sufi, 2007; Kim et al., 2011; Lin et al., 2012). As noted by Sufi (2007), moral hazard problems are exacerbated in syndicated loans, because uninformed participants delegate monitoring responsibilities to lead arrangers, whose effort is unobservable and whose incentives may not be clearly aligned with those of the other participants. Hence, larger syndicates imply a greater demand for assurance by auditors that borrowers are in compliance with accounting covenants. Based on these arguments, we propose the following hypothesis:

H4: The presence of auditor covenant compliance assurance clauses is positively associated with the number of lenders in the loan syndicate.

Our fifth and final hypothesis relates to the maturity of the loan. Debt with shorter maturity is associated with reduced agency costs of debt because the firm's financial position is less likely to deteriorate materially over shorter periods. Lenders may choose to issue loans that are repayable on demand or over shorter, fixed periods instead of providing longer term loans with covenants (Rajan and Winton, 1995; Datta et al., 2005). For loans with longer maturity, covenants represent the primary mechanism through which lenders are able to intervene over the life of the loan, making it more important to seek assurance that borrowers are in compliance.

Consistent with this line of argument, prior research finds that longer maturity debt requires more monitoring by auditors when reporting to shareholders (Gul and Goodwin, 2010) and to lenders (Menon and Williams, 2016).¹⁶ We therefore propose the following hypothesis:

H5: The presence of auditor covenant compliance assurance clauses is positively associated with loan maturity.

An alternative explanation for the auditor clauses we observe is that they are ‘neutral mutations’, i.e., financial phenomena that serve no useful purpose but can persist indefinitely because they are benign (Miller, 1977). According to this view, however, we should observe no predictable associations between CCA clauses and the firm and loan characteristics covered by our discussion and hypotheses above. The following section outlines how we collect the data and constructed the measures used to test our predictions.

4. Sample construction

Our sample is based on data from three different sources. We begin by collecting data for all non-financial companies contained in the Compustat/CRSP annual database between 1996 and 2012. The starting year of 1996 is due to the need to obtain loan agreements from the SEC EDGAR system, which commenced collecting data in earnest in 1996 (Roberts and Sufi, 2009b). We collect data on lending agreements from Dealscan for the same period and use the Compustat-Dealscan link file (August 2012 version) provided by Chava and Roberts (2008) to form the common sample between these two sources.

In order to collect data on auditor covenant compliance assurance clauses (which are not recorded by Dealscan), we develop a Perl algorithm to identify and search corporate lending agreements in the EDGAR archive.¹⁷ We first use the program to identify 10-K, 10-Q and 8-K

¹⁶ Though Menon and Williams (2016) examine the effect of loan maturity on going concern covenants and large (‘Big 4’) auditor clauses, rather than auditors’ monitoring of covenant compliance.

¹⁷ We thank Andrew Leone for making his Perl code available for accessing the SEC data.

filings containing a loan contract, using the algorithm developed by Nini et al. (2009).¹⁸ We use Perl to obtain the date of the agreement from the contract because the date of filing with the SEC often bears little resemblance to the date the loan was initiated.

We initially identify 16,258 agreements over our sample period (excluding financial companies). When we merge this sample with the intersection of Compustat and Dealscan, we obtain 6,513 lending agreements.¹⁹ Because our initial sample is larger than the final sample, and because the appearance of firms in the Compustat/Dealscan intersection may not be random, where appropriate, we present descriptive statistics for both our initial and final samples.

We obtain our main measure of lenders' demand for audit by examining all lending agreements to identify auditors' responsibility for independently verifying compliance with covenants. Specifically, we search contracts for cases where auditors are required to offer assurance that borrowers are in compliance with the accounting covenants. An example of an auditor CCA clause is provided below.²⁰

*'With each of the audited Financial Statements delivered pursuant to Section 5.2(a), a **certificate of the independent certified public accountants** that examined such statement to the effect that they have reviewed and are familiar with this Agreement and that, in examining such Financial Statements, they did not become aware of any fact or condition which then constituted a Default or Event of Default with respect to a financial covenant, except for those, if any, described in reasonable detail in such certificate.'* (Applica Inc., December 8th, 2001)

¹⁸ The procedure involves searching for terms such as 'Credit Agreement', 'Loan Agreement' etc., followed by the words 'Table of Contents' in upper case in the next 60 lines of the file. Nini et al. (2009) find this to be the procedure that reduces the number of false positives in EDGAR.

¹⁹ We start our sample with 21,848 deals at the intersection of Dealscan-Compustat. After screening out duplicate observations and cases where we do not have all necessary variables for our analysis, this falls to 18,120. Of these, we obtain a final sample of 6,513 deals with full data and a loan agreement in EDGAR. This proportion is comparable to that obtained by Nini et al. (2009). When they examine a random sample of 200 unmatched observations, Nini et al. (2009) find that 41% of the unmatched observations appear in EDGAR, but typically do not contain a table of contents (which is an essential part of the search algorithm used), 23% are minor amendments to existing contracts considered by Dealscan as new loans, while for 37%, there is no contract in EDGAR, indicating that Dealscan obtains details directly from the parties arranging the loan. Importantly, after comparing observations matched and unmatched to EDGAR loan agreements, Nini et al. (2009) conclude that their data collection process does not result in any meaningful bias.

²⁰ Appendix B provides more examples of auditor clauses.

Importantly, in the absence of such clauses, a covenant compliance letter is still required, but is provided by the CEO or CFO without independent assurance by the auditor, as illustrated in the following example:

'Borrower shall provide ... a copy of the annual audited financial statements... together with a certificate of the chief financial officer, principal accounting officer or chief executive officer of Borrower, in the form of the Compliance Certificate, stating that, as of the date of such certificate, to the best of his knowledge, after reasonable inquiry, no event has occurred which constitutes a Default or an Event of Default, or, if a Default or an Event of Default has occurred and is continuing, a statement as to the nature thereof' (Atricure Inc., July 1st, 2008)

To identify and assess the nature of auditor CCA clauses, we first hand-collected and read 250 lending agreements. Based on this process, we developed a regular expression to automate our search. The regular expression is designed to capture cases where auditors are required to provide assurance of borrowers' compliance with covenants to lenders.²¹

For our additional analysis, we also developed a text search algorithm to identify Big 4 auditor clauses by searching for the names of the Big 4 (and their 'Big N' counterparts before they merged). To ensure the accuracy of our automated procedures, we hand-collected and checked a random sample of 200 lending agreements. The results of this process showed the code to be correct for 89% of both the auditor CCA clauses and auditor name clauses.²² This compares favorably with prior research using text search programs on debt contracts (e.g. Nini et al., 2009; Nini et al., 2012).

In order to assess the relationship between auditor clauses and different measurement rules (for H1), we next developed an algorithm to capture the extent of accounting-based adjustments to net income in the loan agreements. We focus on income-based covenants, since these are the most commonly occurring covenants in private lending agreements (Li, 2010;

²¹ Full details of the search algorithm are available from the authors on request.

²² When the program does not identify a CCA in the contract, we assume that compliance with the covenants is certified only by an appropriate officer of the borrower, such as chief financial officer or chief executive officer. Our checking of 200 randomly chosen contracts showed that the error rate of 11% was almost entirely due to cases where the contract did contain a CCA, but the program failed to identify it; that is, in almost all (98%) cases, the CCA = 0 classification was accurate.

Christensen et al., 2016). This program identifies the beginning and end of the contractual definitions of both net income and EBITDA and records the number words in the definitions, together with the number of separate accounting adjustments required (proxied by the number of times a single letter or number - Arabic or Roman - appears in the net income definition).

The measures for both net income and EBITDA definitions are aggregated in order to form an overall measure of the complexity of the adjustments that auditors have to check when signing the covenant compliance assurance letter. Li (2010) reports that net income appears either directly or indirectly in contracts through the use of EBITDA. An examination of the definitions in our sample of contracts revealed that the basis for EBITDA is typically ‘adjusted net income’ rather than GAAP net income. Auditors therefore have to provide assurance of compliance with covenants after assessing *both* adjusted net income and EBITDA. We manually checked a sample of 100 contracts and this procedure confirmed that the program is reasonably accurate. The correlation between the actual number of words in the contractual adjusted net income/EBITDA definitions and the number counted by the Perl program was 0.84.²³

5. Results

5.1 Empirical model

Our main analysis of lenders’ demand for audit is based on the following regression model, where all variables are defined in Appendix A:

$$\begin{aligned}
 CCA_CLAUSE_{it} = & \alpha_0 + \beta_1 ADJ_COMPLEX + \beta_2 INTANGIBILITY_{it-1} + \beta_3 \ln SYN_SIZE_{it} + \\
 & \beta_4 PERF_PRICE_{it} + \beta_5 MATURITY_{it} + \beta_6 DIVIDEND_{it-1} + \beta_7 ROA_{it-1} + \\
 & \beta_8 NUM_COV_{it} + \beta_9 LEVERAGE_{it-1} + \beta_{10} BOOK_MKT_{it-1} + \beta_{11} SPREAD_{it} + \\
 & \beta_{12} \ln FAC_AMT_{it} + \beta_{13} \ln MVAL_{it-1} + \beta_{14} REVOLVER_{it} + \beta_{15} CURRENT_{it-1} + \\
 & \beta_{16} Z_SCORE_{it-1} + \beta_{17} SP_RATED_t + \beta_{18} SECURED_{it} + year + industry + \varepsilon_{it}
 \end{aligned} \tag{1}$$

²³ Manual checking of the data revealed that, in a small number of cases, the program was not able to identify the end of the definition of adjusted net income/EBITDA. We therefore winsorised the raw data at the 99th percentile. Furthermore, because we expect the impact of more complex definitions to diminish as the length of the text describing the adjustments increases, we use the natural log of the number of words in the net income/EBITDA definitions. Our main conclusions are unaffected by using raw values, or by confining our analysis to values with a reasonable maximum number of words in the net income/EBITDA definitions (e.g. 500/800/1000 words).

CCA_CLAUSE is our primary measure of audit demand and is set to 1 if the auditor is required to report to lenders on the compliance certificate provided by the borrower to lenders, and 0 otherwise. We use two measures of the complexity of the adjustments to GAAP (*ADJ_COMPLEX*). The first is the natural log of the number of words used to define the income-based measure in the contract (*EBITDA_WDS*); the second is the number of clauses (i.e., separate instances of numerals or letters appearing in parentheses) in the same definition (*EBITDA_ADJ*). Our main models include a vector of control variables drawn from prior literature, as well as time and industry fixed effects.

5.2 Descriptive statistics

Table 1 provides descriptive statistics for our final sample. The table shows that 35% of lending agreements include a CCA clause requiring the borrower's auditor to provide lenders with assurance of borrowers' compliance with covenants. The remaining 65% of lending agreements still require a letter of covenant compliance from the borrower (i.e., when *CCA_CLAUSE* = 0), though this is to be signed only by company officers and not by auditors (see the examples provided in Appendix B and in Taylor and Sansone, 2007; p. 302). Table 1 also reveals that over half (52%) of the agreements contain a Big 4 auditor clause.

Table 1 reports the distribution of departures from GAAP in net income/EBITDA covenant definitions. The median and maximum for *EBITDA_WDS* are 4.78 and 7.33 respectively. These translate into a median of 119 words and a maximum of 1,531 words in defining contractual net income and EBITDA. The mean (median) number of adjustments (*EBITDA_ADJ*) is 5.18 (4). These figures indicate that the differences between contractual net income measures and GAAP net income are quite substantial.

Insert table 1 about here

The average loan facility in our sample is for \$356m, maturing at 44 months with 8 lenders. These figures are broadly comparable with those reported by Nini et al. (2012). Average total assets and market values are \$3,414m and \$3,179m respectively, while 41% of the lending agreements in our sample contain accounting-based performance pricing features. The ratio of intangible assets to total assets (*INTANGIBILITY*) has a mean of 0.16, ranging from zero to 0.91 and the mean spread over the relevant base rate is 1.87%.

Table 2 Panel A shows that, *inter alia*, contracts containing an auditor CCA clause include income measures that depart more significantly from GAAP, relate to smaller loans, have longer maturity and are more likely to include accounting-based performance pricing provisions. Borrowers with CCA clauses are typically smaller (*TOTAL ASSETS* and *MKT_VAL*), have higher leverage, have a higher proportion of intangible assets (*INTANGIBILITY*) and are less likely to have their debt rated.

Insert table 2 about here

Panel B of Table 2 reports the use of auditor CCA clauses by the top ten lead arrangers (when ranked by aggregate funds arranged over our sample period). This evidence reveals widespread variation in the reliance on auditor covenant compliance assurance clauses across different lenders. Hence, CCA clauses are not concentrated among particular banks and there is significant variation in their usage within banks.

Panels C and D of Table 2 show the distribution of CCA clauses across the Fama-French industries in our final ($n = 6,513$) and initial ($n = 16,258$) samples, respectively. Both samples indicate that while there is some variation, the proportion of contracts with a CCA clause is comparatively stable across industries. The exception is utilities, where the incidence is lower. Figure 1 (Graphs A and B) shows that *CCA_CLAUSE* follows a similar pattern over time in both our initial sample and in our final sample, though it is more volatile in our final sample, and lower in both samples in more recent years.

Insert figure 1 about here

Figure 2 shows how the average levels of adjustments to GAAP net income vary over time. Both the average number of words and the number of clauses have increased - from 2.1 (1.9) in 1996 to 3.97 (7.1) in 2012 for the mean log of the number of words (mean number of adjustments). This may reflect lenders' dissatisfaction with the recent changes to GAAP that are reported to have made accounting less suitable for contracting (Demerjian, 2011; Ball et al., 2015).²⁴

Insert figure 2 and table 3 about here

Table 3 reports the correlations between the variables included in our models. Most coefficients are statistically significant at the 1% level. The largest coefficients in absolute terms relate principally to firm and facility size and loan spread. Auditor CCA clauses are, *inter alia*, positively correlated with the departures of accounting measurement rules from GAAP, the propensity to require Big 4 auditors in the contract, loan maturity, the number of covenants, the level of intangibility, syndicate size, loan spread and the use of accounting-based performance pricing terms.

5.3 Cross sectional analysis of covenant compliance assurance clauses

Table 4 presents our main regression results for the cross-sectional determinants of *CCA_CLAUSE*. *CCA_CLAUSE* takes a value of 1 where auditors are required to provide assurance of borrowers' compliance with the financial covenants and 0 otherwise. All models have large values of Wald χ^2 statistics, which offers overall evidence to reject a null hypothesis that CCA clauses are 'neutral mutations'.²⁵ Columns (1) and (2) report results based on a pooled

²⁴ The simultaneous increase in the complexity of the adjustments and fall in the use of CCA clauses in recent years may seem inconsistent with our H1. However, there is also a fall in the average number of covenants in our sample over time (from 2.53 in 1996 to 1.46 in 2012), in line with Ball et al. (2015).

²⁵ Strictly, a model including only time effects could allow CCA clauses to represent neutral mutations. All our models include time-fixed effects.

logit regression, whereas columns (3) and (4) are based on random effects logit regression.²⁶

Models in columns (1) - (4) include industry and year fixed effects, while columns (5) and (6) report estimates for models with lead arranger fixed-effects.

Insert table 4 about here

Column (1) of Table 4 reveals that the level of complexity of the income measure used in the contract – *EBITDA_WDS*, measured as the natural log of the number of words in the contractual net income/EBITDA definition – is strongly and positively associated with lenders' demand for auditor assurance of borrowers' covenant compliance ($z = 8.13$). Column (2) shows that the coefficient estimate for our alternative measure of complexity of adjustments (*EBITDA_ADJ*) is also significant and positive at $p = 0.001$. These results are consistent with H1 and support the idea that more complicated measurement rules are associated with the existence of CCA clauses.²⁷ The extent to which accounting data feature in the contract – measured by the number of covenants and the use of accounting-based performance pricing – is also significantly positive at $p = 0.05$ (*NUM_COV*) and $p = 0.01$ (*PERF_PRICE*). This result is consistent with H2.

Columns (1) and (2) show that *INTANGIBILITY* is significantly and positively associated with the existence of a CCA clause, consistent with a need to provide lenders with higher levels of verifiability of intangible asset values. This offers support for H3. Table 4 also presents limited evidence (in column (1) at $p < 0.10$) that firms with higher book to market ratios are less likely to have auditors provide lenders with assurance on covenant compliance. Although the evidence is not as strong, it is consistent with the results on the intangibility of assets and suggests that

²⁶ A fixed-effects logit estimator is unsuitable in our study because the time-invariant nature of *CCA_CLAUSE* leads to our sample being decimated (e.g., see Lennox et al., 2013, footnote 30). However, the stronger results in the random effects models - which partially control for time-invariant company specific effects - suggests that our inability to estimate fixed effects models is not a major concern.

²⁷ In additional unreported analysis (available from the authors on request), we examined the impact of the contract using GAAP-based net income definitions by including a dummy variable, which indicates whether (1) or not (0) the contract included any adjustments (i.e., where *EBITDA_WDS* > 0 compared with *EBITDA_WDS* = 0). This results in a coefficient estimate (odds ratio) of 0.653 (1.92) with a z -statistic of 7.66, suggesting that the probability of a CCA clause being included when there are departures from GAAP is around twice as high as when GAAP net income figures are used.

lenders to firms with more growth opportunities are more likely to require additional auditor assurance.

The results in each of columns (1) - (4) in Table 4 suggest that larger loan syndicates are significantly more likely to require auditors to provide assurance of covenant compliance at $p < 0.01$. Hence, regardless of the estimator used, the coefficient for *lnSYN_SIZE* is consistently positive and significantly different from zero. This is consistent with H4 that less diligent monitoring due to large syndicates may be reduced by engaging independent auditors to assure lenders of covenant compliance.

Overall, for H1-H5, the standard logit results reported in columns (1) and (2) of Table 4 are reinforced by the random effects logit estimates in columns (3) and (4). The exceptions are the book to market ratio (*BOOK_MKT*), loan maturity (*MATURITY*) and accounting-based performance-pricing (*PERF_PRICE*), with the latter two being significant at $p = 0.05$ with the random effects estimator. Columns (5) and (6) confirm that our results are not driven by auditor assurance clauses being part of ‘boilerplate’ contracts written by particular banks: including lead arranger fixed effects does not affect our main inferences.²⁸

In untabulated analyses, we quantify the economic effects implied by the results in Table 4. When all predictors are set to their means, the probability of a contract containing a *CCA_CLAUSE* is 34%. Holding all other variables at their means, the predicted probability of the lending agreement containing a CCA clause increases substantially from 24% to 40% as *EBITDA_WDS* increases from the 25th percentile (which is 0 words) to the 75th percentile (280 words). Moving from the 25th to 75th percentiles for *INTANGIBILITY* (*lnSYN_SIZE*) increases the probability of having a CCA clause from 31% (from 29%) to 35% (to 38%). The corresponding

²⁸ The positive and significant parameter estimates for *SPREAD* are interesting, as noted by the reviewer. Higher interest rates may reflect lenders’ private information on higher levels of borrowers’ risk, which are likely to be associated with more covenant compliance checking by auditors. Consistent with this, the coefficient on *LEVERAGE* becomes statistically significant and larger when *SPREAD* is removed from some of our specifications. Hence, the effects of *LEVERAGE* seem to be incorporated into *SPREAD*. None of our other inferences are changed when we estimate the models without *SPREAD*.

increases for *NUM_COV* and *MATURITY* are 32%-34% and 32%-36%, respectively. These statistics indicate that the predictors in our main model have material effects on the probability that the lending agreement contains a CCA clause.

5.4 Simultaneous estimation of auditor demand with Big 4 auditor clauses

Recent research by Menon and Williams (2016) indicates that lenders' demand for audit is reflected in clauses that restrict borrowers' choice of auditor on the basis that larger (Big 4) auditors are more accurate and more able to compensate lenders in the event of litigation. In order to allow for simultaneous demand for covenant compliance assurance and clauses that restrict auditor choice, in Table 5, we estimate *CCA_CLAUSE* and *BIG4_CLAUSE* models simultaneously, using a bivariate probit estimator. This allows for any conditional correlation between the residuals of both models.

Insert table 5 about here

The primary conclusions we draw from the results in Table 5 are that the residuals are correlated across the *CCA_CLAUSE* and *BIG4_CLAUSE* equations (ρ is positive and significant at $p < 0.01$) but that our main inferences are unchanged when this cross-correlation is allowed for.²⁹ The coefficients for both *EBITDA_WDS* and *EBITDA_ADJ* remain significant and positive at $p < 0.01$ in all models. The coefficient for *INTANGIBILITY* is significantly different from zero at $p < 0.05$ in the *CCA_CLAUSE* equation, but is not significantly different from zero in the Big 4 model (column (2)), suggesting that higher levels of intangible assets manifest themselves in stronger demand for assurance of covenant compliance, but not for auditor-restriction clauses. Moreover, the use of accounting-based performance pricing measures remains positively associated with the use of CCA clauses, but is negatively associated with auditor

²⁹ We also conducted an extended analysis of auditor Big 'N' clauses by studying a wider set of audit firms (i.e., the top 30 firms in each year of our sample). The results of this analysis (available on request) are substantively the same as those using only the Big 4 audit firms.

restriction clauses.³⁰ The coefficient for *lnSYN_SIZE* is significant at $p < 0.01$ in all models.

Overall, Table 5 shows that our main inferences are unchanged when audit demand is simultaneously estimated with the auditor restriction clauses reported in Menon and Williams (2016) and that our results are robust to measuring private lenders' audit demand using Big 4 auditor clauses.

5.5 Effects of excluding intangibles from covenant definitions

Prior research shows that where intangible assets are inconvenient for contracting parties, it is common to exclude them from accounting definitions (Leftwich, 1983; Holthausen and Watts, 2001). Even where covenant definitions do not *explicitly* exclude intangibles, not all ratios are affected by movements in the values of intangible assets in either the balance sheet or income statement. This is the case for the debt to EBITDA ratio, for example, which is a very common covenant, featuring in around 60% of contracts in our sample. We therefore split our sample according to whether the covenants in the contract are affected by changes in the value of intangible assets. Specifically, we identified three types of covenants that are affected by movements in the values of intangible assets: maximum debt to equity, minimum equity to assets, and net worth.

If auditor assurance of compliance with covenants is more important where firms' assets are harder to verify and/or when there is likely to be more disagreement between lenders and shareholders over the value of intangibles, we expect the effect of *INTANGIBILITY* on the presence of CCA clauses to be more pronounced when the contract contains at least one covenant affected by the values of intangible assets. The results are presented in Table 6.

Insert table 6 about here

³⁰ The negative association between accounting-based performance pricing and Big 4 auditor restriction clauses is somewhat puzzling. One potential explanation is that companies with performance pricing based on accounting variables rather than bond ratings are typically smaller (because smaller companies are less likely to have bond ratings) and smaller firms are less likely to employ a Big 4 audit firm - and hence to have clauses restricting their auditor choice to the Big 4.

Our sample includes 1,171 contracts containing at least one covenant affected by the value of intangible assets (i.e., where *INTAN_COV* = 1). The vast majority (5,342) therefore contain covenants that are unaffected by intangible asset values, or have no covenants at all. Table 6 reports a coefficient estimate of *INTANGIBILITY* that is positive and significant at $p = 0.10$ for both samples, but is twice as large (0.914 *versus* 0.453) when covenant definitions are affected by intangible asset values. These results are consistent with the idea that auditor assurance of covenant compliance in debt contracts facilitates the inclusion of assets that are difficult to verify and/or may result in valuation disparities between capital providers, and may act as an alternative to the exclusion of such assets.³¹ To the extent that these assets may be relevant to lenders (Lambert, 2010), but are regarded as less reliable for contracting purposes (Holthausen and Watts, 2001; Watts, 2003; Kothari et al., 2010), auditor covenant compliance assurance clauses potentially represent an efficient contracting mechanism.

6. Conclusion

We investigate the demand for additional auditor assurance in private lending agreements. Our measure of demand is whether auditors are contractually required to report to lenders on borrowers' compliance with the financial covenants in the lending agreement. The clauses we examine have been identified in isolated cases in prior research (Watts, 1977; Watts and Zimmerman, 1986), but to date, they have not been subjected to systematic empirical investigation.

Auditors are required to check borrowers' compliance under the GAAP regime regardless of the contractual provisions we study. Auditing standards for covenant compliance assurance

³¹ These differences are economically significant based on our estimates. Moving from the 25th to 75th percentiles for *INTANGIBILITY* when *INTAN_COV* = 0 (*INTAN_COV* = 1) increases the probability of having a CCA clause from 30.2% (from 36.9%) to 32.6% (to 43.0%). Although the ratio of coefficients of roughly 2:1 is comparatively high, we caution against attaching too much significance to the difference between the coefficients and we do not test it statistically. Testing for differences between groups in logit regressions is a contentious issue in the statistics literature (e.g. Mood, 2010), and the standard errors of the individual parameters are relatively large, so any difference is likely to be marginal in statistical terms.

state that auditors are only to offer negative assurance to lenders and do not increase their work as a result of such obligations. On the other hand, by requiring reports be addressed to lenders, covenant compliance clauses are likely to increase auditors' litigation risk from lenders. Furthermore, agency theory and the financial contracting literature suggest that lenders' demand for covenant compliance assurance where auditors report directly to them should vary in a predictable way.

We develop and test hypotheses relating to factors likely to be associated with auditor covenant compliance assurance clauses. Our results indicate that auditors play an important role in reducing information asymmetries and enhancing contracting efficiency. Consistent with conjectures in prior research (Li, 2010), more complex adjustments to GAAP measurement rules are associated with increased requirements for monitoring by auditors. While we leave the investigation of the specific costs of extra monitoring to future research, it is possible that the additional assurance required for tailored measurement rules may help explain why debt contracts contain comparatively few (and relatively simple) financial covenants (Christensen et al., 2016).

Our results show that additional assurance of compliance is more common for firms with high levels of intangible assets. When covenants are affected by movements in intangible asset values, our results provide some support for the idea that auditors are more likely to be engaged to report to lenders on borrowers' compliance. These findings may help reconcile apparently contradictory reports in the literature that intangible assets are problematic for contracting purposes, yet they often remain in covenant definitions (cf. Holthausen and Watts, 2001; Kothari et al., 2010; Watts, 2003 and Frankel et al., 2008).

Larger loan syndicates are associated with higher levels of audit assurance, consistent with auditors being engaged to compensate for lower quality monitoring quality when there are more participants in the transaction (Dennis and Mullineaux, 2000; Esty and Megginson, 2003; Graham et al., 2008; Sufi, 2007; Kim et al., 2011; Lin et al., 2012). We also find that auditor

assurance of covenant compliance is positively associated with loan maturity and the level of reliance on accounting data in the contract.

Overall, these findings are more consistent with predictions from agency theory and contracting theory that CCA clauses represent an important and useful contracting device rather than ‘neutral mutations’ (Miller, 1977) that have no economic content but which remain in contracts because they do no harm.

Our results remain vulnerable to the criticism that contractual features are decided simultaneously, so we cannot infer causality from our models. Although our focus has been on identifying potential antecedents of additional reporting to lenders, other plausible relationships may explain the positive associations we observe. One such relationship is where features of the lending agreement (e.g. loan maturity and syndicate size) may be dependent on the accounting covenants in the contract being checked by auditors. It is also possible that other factors are simultaneously associated with the level of complexity of tailored measurement rules and demand for auditor covenant compliance assurance.

Future research could examine whether auditor covenant compliance assurance acts as a substitute for, or complement to, other accounting and corporate governance mechanisms and characteristics. Such research would contribute to the growing body of evidence on debt providers’ role in shaping corporate governance in general (Triantis and Daniels, 1995; Nini et al., 2012) and financial reporting in particular (Watts, 2003; Ball et al., 2008b).

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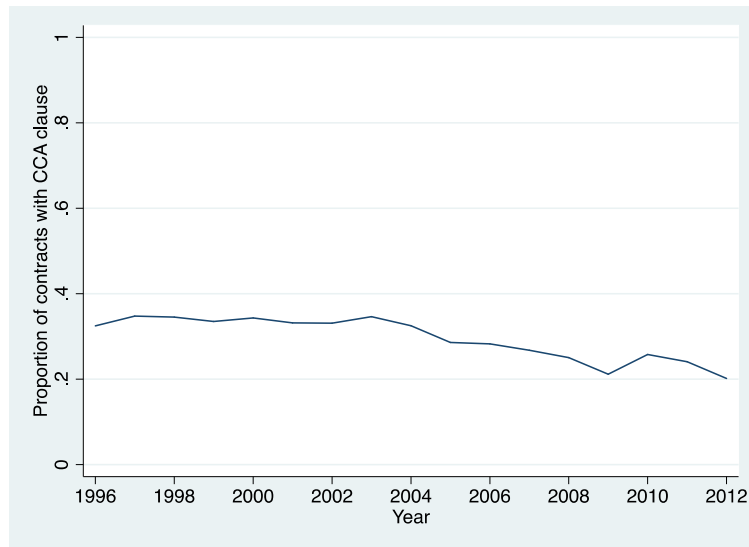
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Figure 1. Auditor covenant compliance assurance clauses over time

This figure illustrates the proportion of lending agreements containing a CCA clause. Graph A reports the proportion of contracts in each year with a CCA clause for our initial SEC sample ($n = 16,258$). Our initial sample comprises lending agreements identified by a text search program from the SEC 10-K, 10-Q and 8-K archives for 5,801 firms between 1996 and 2012. Graph B reports the proportion of contracts with a CCA clause for our final sample ($n = 6,513$). Our final sample comprises all lending agreements in our initial sample with data available for all necessary variables in Dealscan and Compustat.

Graph A: Covenant compliance assurance clauses for initial sample



Graph B: Covenant compliance assurance clauses for final sample

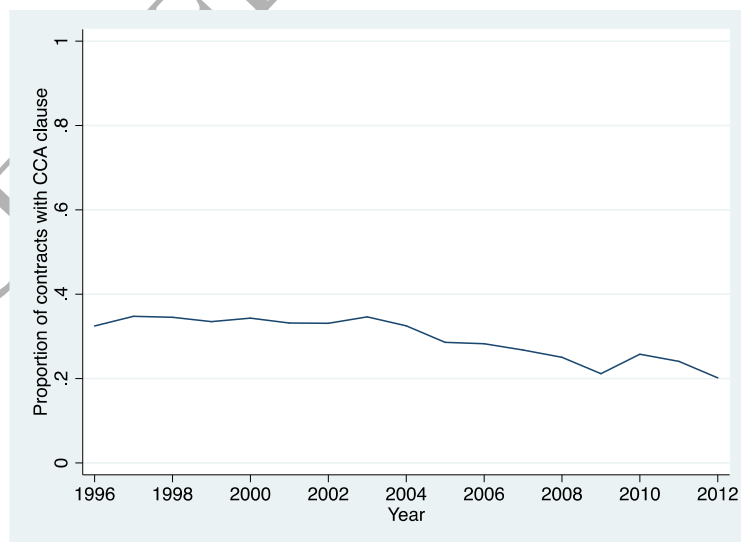
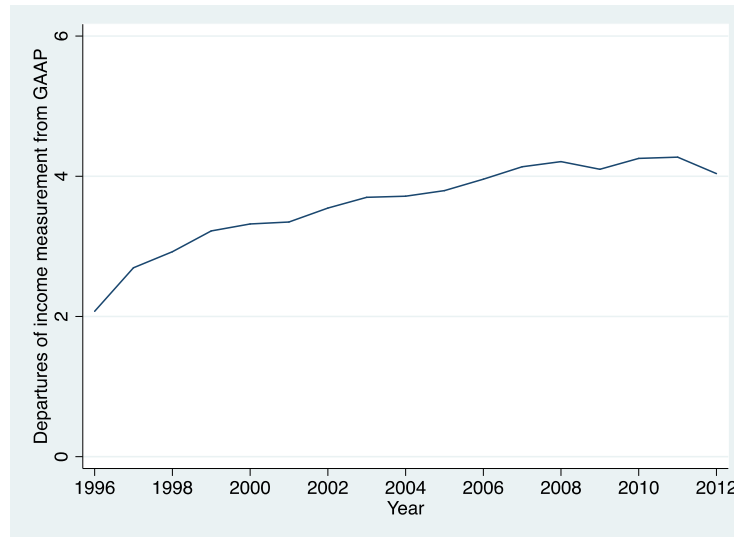


Figure 2. Modifications to GAAP in income definitions over time

This figure illustrates the average levels of modifications to GAAP in private lending agreements filed with the SEC in Form 10-K, 10-Q or 8-K between 1996 and 2012. Graph A reports the average (log) number of words in the contractual definition of adjusted net income and EBITDA. Graph B shows the average number of separate clauses in contractual definitions of adjusted net income and EBITDA. Both graphs are based on our final sample ($n = 6,513$).

Graph A: Number of words in contractual income definitions (natural log)



Graph B: Number of clauses in contractual income definitions

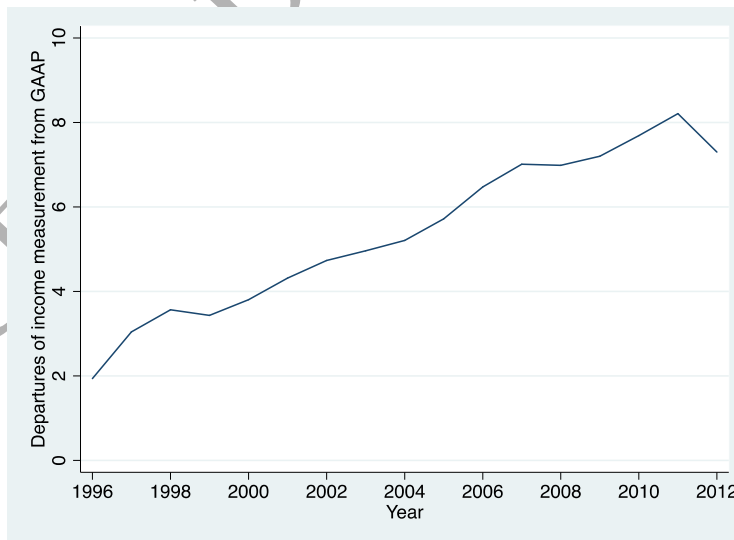


Table 1
Descriptive Statistics
(n = 6,513)

	<i>Mean</i>	<i>Std. Dev.</i>	<i>Median</i>	<i>Min.</i>	<i>Max.</i>
<i>CCA_CLAUSE</i>	0.35	0.48	0.00	0.00	1.00
<i>BIG4_CLAUSE</i>	0.52	0.50	1.00	0.00	1.00
<i>EBITDA_WDS</i>	3.56	2.58	4.78	0.00	7.33
<i>EBITDA_ADJ</i>	5.18	5.94	4.00	0.00	41.00
<i>INTANGIBILITY</i>	0.16	0.18	0.09	0.00	0.91
<i>SYN_SIZE</i>	8.27	7.97	6.00	1.00	141
<i>MATURITY (mths)</i>	44.12	20.43	48.00	1.00	252
<i>NUM_COV</i>	2.26	1.37	2.00	0.00	7.00
<i>SPREAD (basis pts)</i>	187.13	134.06	175.00	4.40	1450
<i>FAC_AMT (\$m)</i>	356.05	947.66	150.00	0.14	30,000
<i>REVOLVER</i>	0.81	0.39	1.00	0.00	1.00
<i>SECURED</i>	0.57	0.50	1.00	0.00	1.00
<i>PERF_PRICE</i>	0.41	0.49	0.00	0.00	1.00
<i>TOTAL ASSETS (\$m)</i>	3,414	10,284	748	1.27	275,644
<i>MKT_VAL (\$m)</i>	3,179	9,784	638	0.00	251,170
<i>ROA</i>	0.02	0.11	0.04	-0.55	0.24
<i>LEVERAGE</i>	0.24	0.19	0.21	0.00	0.91
<i>BOOK_MKT</i>	0.53	1.02	0.47	-6.27	4.16
<i>DIVIDEND</i>	0.01	0.01	0.00	0.00	0.10
<i>CURRENT</i>	1.95	1.22	1.67	0.31	7.75
<i>Z_SCORE</i>	3.54	3.18	2.88	-2.11	20.95
<i>SP_RATED</i>	0.48	0.50	0.00	0.00	1.00

This table presents descriptive statistics for the final sample included in our main regression models. The sample includes lending agreements identified by a text search program from the SEC archives for 2,819 firms between 1996 and 2012 with data in Dealscan and Compustat.

EBITDA_WDS, *ROA*, *LEVERAGE*, *Z_SCORE*, *DIVIDEND*, *BOOK_MKT* and *CURRENT* are winsorized at 1st and 99th percentiles.

Variable definitions are provided in Appendix A.

Table 2
Descriptive Statistics on Auditor Clauses

<i>Panel A: Means classified by Auditor Covenant Compliance Assurance (CCA) Clause Samples</i>					
	<i>(3)</i> <i>Contracts with a CCA clause</i> <i>(n =2,275)</i>		<i>(4)</i> <i>Contracts without a CCA clause</i> <i>(n =4,238)</i>		<i>Test for difference</i>
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>t</i> <i>(4)-(3)</i>
<i>EBITDA_WDS</i>	4.17	2.34	3.23	2.64	-14.17***
<i>EBITDA_ADJ</i>	6.23	6.08	4.62	5.78	-10.51***
<i>INTANGIBILITY</i>	0.18	0.19	0.15	0.18	-5.15***
<i>SYN_SIZE</i>	8.24	7.80	8.29	8.06	0.21
<i>MATURITY (mths)</i>	46.71	18.94	42.73	21.05	-7.53***
<i>NUM_COV</i>	2.56	1.35	2.10	1.36	-13.08***
<i>SPREAD (basis pts)</i>	199.66	126.06	180.41	137.70	-5.54***
<i>FAC_AMT (\$m)</i>	252.16	404	411.82	1133.03	6.50***
<i>REVOLVER</i>	0.85	0.36	0.79	0.41	-6.32***
<i>SECURED</i>	0.64	0.48	0.53	0.50	-8.74***
<i>PERF_PRICE</i>	0.52	0.50	0.36	0.48	-12.76***
<i>TOTAL ASSETS (\$m)</i>	1,854	3,885	4,251	12,346	9.02***
<i>MKT_VAL (\$m)</i>	1,716	3,655	3,964	11,755	8.89***
<i>ROA</i>	0.02	0.11	0.02	0.11	0.49
<i>LEVERAGE</i>	0.25	0.20	0.23	0.19	-4.66***
<i>BOOK_MKT</i>	0.52	1.05	0.54	1.00	1.08
<i>DIVIDEND</i>	0.01	0.01	0.01	0.01	4.21***
<i>CURRENT</i>	2.00	1.24	1.92	1.21	-2.56***
<i>Z_SCORE</i>	3.50	3.10	3.57	3.22	0.81
<i>SP_RATED</i>	0.44	0.50	0.49	0.50	4.22***

<i>Panel B: Distribution of CCA clauses by Top 10 Lead Arranger</i>					
	<i>Contracts with a CCA clause</i>		<i>Contracts without a CCA clause</i>		<i>Total</i>
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>
Bank of America	414	33.5%	820	66.5%	1,234
Barclays	6	15.0%	34	85.0%	40
BNP Paribas	8	17.0%	39	83.0%	47
Citi	127	23.6%	410	76.4%	537
Credit Suisse	67	48.9%	70	51.1%	137
Deutsche Bank	61	53.0%	54	47.0%	115
JP Morgan	225	43.8%	289	56.2%	514
Mitsubishi UFJ	0	0.0%	2	100.0%	2
RBS	6	17.1%	29	82.9%	35
Wells Fargo	83	24.5%	256	75.5%	339
Total	997	33.2%	2,003	66.8%	3,000

Table 2 (continued)*Panel C: Distribution of CCA clauses across Industries in Final Sample (n = 6,513)*

	<i>N</i>	<i>% of sample</i>	<i>% with a CCA clause</i>
Consumer Non-Durables	541	8.31	41.04
Consumer Durables	232	3.56	40.52
Manufacturing	1035	15.89	37.00
Oil, Gas, and Coal	514	7.89	29.77
Chemicals and Allied Products	229	3.52	29.26
Business Equipment	868	13.33	33.06
Telephone and Television Transmission	259	3.98	37.45
Utilities	294	4.51	21.09
Wholesale and Retail	1045	16.04	34.93
Healthcare, Medical Equipment, and Drug	463	7.11	34.13
Other (excluding Financial)	1033	15.86	37.46
Total	6,513	100	34.93

Panel D: Distribution of CCA clauses across Industries in Initial SEC Sample (n = 16,258)

	<i>N</i>	<i>% of sample</i>	<i>% with a CCA clause</i>
Consumer Non-Durables	1129	6.94	36.85
Consumer Durables	529	3.25	38.75
Manufacturing	2218	13.64	35.62
Oil, Gas, and Coal	1200	7.38	27.92
Chemicals and Allied Products	474	2.92	29.11
Business Equipment	1714	10.54	28.82
Telephone and Television Transmission	868	5.34	38.36
Utilities	1081	6.65	18.22
Wholesale and Retail	2419	14.88	33.69
Healthcare, Medical Equipment, and Drug	1072	6.59	30.88
Other (excluding Financial)	3554	21.86	30.98
Total	16,258	100	31.71

This table presents various summary statistics on auditor clauses contained in private lending agreements.

Panel A reports descriptive statistics for lending agreements with and without an auditor covenant compliance assurance clause (*CCA_CLAUSE*).

CCA_CLAUSE indicates whether the loan agreement contains a clause requiring the auditor to assure lenders of borrowers' compliance with the loan covenants.

Panel B shows the distribution of *CCA_CLAUSE* across the top arrangers in the syndicated loan market, where top arrangers are identified by the amount lent during our sample period according to historical league tables provided by Thomson One. Note that Panel B presents only the subsample of our data with a lead arranger classified as a 'top arranger'.

Panel C presents proportions of lending agreements with CCA clauses across Fama-French industries (excluding finance) for the final sample included in our main regression models. This sample includes 6,513 lending agreements identified by a text search program from SEC Forms 10-K, 10-Q and 8-K for 2,819 firms between 1996 and 2012 and with the necessary data in Dealscan and Compustat.

Panel D presents proportions of CCA clauses across Fama-French industries for our initial sample of 16,258 lending agreements for 5,801 firms between 1996 and 2012.

All variables are defined in Appendix A.

Table 3
Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	
<i>1-CCA_CLAUSE</i>	1										
<i>2-BIG4_CLAUSE</i>	0.094***	1									
<i>3-EBITDA_ADJ</i>	0.129***	0.086***	1								
<i>4-EBITDA_WDS</i>	0.173***	0.097***	0.754***	1							
<i>5-INTANGIBILITY</i>	0.064***	0.068***	0.196***	0.180***	1						
<i>6-lnSYN_SIZE</i>	0.021*	0.221***	0.063***	0.031**	0.133***	1					
<i>7-PERF_PRICE</i>	0.156***	-0.002	0.170***	0.241***	0.123***	0.028**	1				
<i>8-MATURITY</i>	0.093***	0.077***	0.174***	0.171***	0.118***	0.192***	0.259***	1			
<i>9-DIVIDEND</i>	-0.052***	0.076***	-0.076***	-0.116***	-0.02	0.168***	-0.090***	-0.031**	1		
<i>10-ROA</i>	-0.006	0.067***	0.005	0.026**	0.023*	0.219***	0.156***	0.109***	0.216***	1	
<i>11-NUM_COV</i>	0.160***	0.021*	0.101***	0.228***	0.028**	-0.070***	0.447***	0.086***	-0.158***	0.037***	
<i>12-LEVERAGE</i>	0.058***	0.082***	0.057***	0.020	0.080***	0.130***	-0.009	0.088***	-0.067***	-0.167***	
<i>13-BOOK_MKT</i>	-0.013	-0.052***	-0.037***	-0.011	-0.016	-0.061***	0.016	-0.011	-0.044***	0.086***	
<i>14-SPREAD</i>	0.068***	-0.091***	0.181***	0.138***	0.001	-0.345***	-0.059***	-0.061***	-0.235***	-0.390***	
<i>15-lnFAC_AMT</i>	-0.071***	0.201***	0.039***	-0.022*	0.089***	0.755***	-0.125***	0.147***	0.216***	0.223***	
<i>16-lnMVAL</i>	-0.091***	0.185***	0.003	-0.061***	0.140***	0.605***	-0.119***	0.039***	0.292***	0.370***	
<i>17-REVOLVER</i>	0.078***	-0.040***	0.115***	0.164***	0.02	-0.065***	0.224***	0.372***	-0.094***	-0.006	
<i>18-CURRENT</i>	0.032**	-0.062***	0.026**	0.053***	-0.057***	-0.176***	0.131***	0.054***	-0.050***	0.105***	
<i>19-Z_SCORE</i>	-0.010	-0.029**	0.011	0.037***	-0.044***	-0.049***	0.143***	0.006	0.109***	0.434***	
<i>20-SP_RATED</i>	-0.052***	0.179***	0.001	-0.079***	0.081***	0.467***	-0.260***	0.017	0.147***	0.021*	
<i>21-SECURED</i>	0.108***	-0.097***	0.156***	0.159***	-0.018	-0.301***	0.154***	0.096***	-0.293***	-0.271***	
	11	12	13	14	15	16	17	18	19	20	21
<i>11-NUM_COV</i>	1										
<i>12-LEVERAGE</i>	0.045***	1									
<i>13-BOOK_MKT</i>	0.025**	-0.084***	1								
<i>14-SPREAD</i>	0.089***	0.168***	0.018	1							
<i>15-lnFAC_AMT</i>	-0.247***	0.099***	-0.059***	-0.390***	1						
<i>16-lnMVAL</i>	-0.260***	-0.055***	-0.044***	-0.468***	0.742***	1					
<i>17-REVOLVER</i>	0.152***	-0.048***	0.049***	0.027**	-0.141***	-0.229***	1				
<i>18-CURRENT</i>	0.079***	-0.153***	0.082***	-0.041***	-0.180***	-0.084***	0.091***	1			
<i>19-Z_SCORE</i>	0.029**	-0.471***	-0.022*	-0.266***	-0.039***	0.204***	0.029**	0.447***	1		
<i>20-SP_RATED</i>	-0.201***	0.360***	-0.042***	-0.147***	0.536***	0.484***	-0.187***	-0.214***	-0.256***	1	
<i>21-SECURED</i>	0.270***	0.135***	0.043***	0.498***	-0.381***	-0.495***	0.227***	0.047***	-0.151***	-0.191***	1

This table reports Pearson's correlation coefficients for the full sample of 6,513 lending agreements. *, **, *** denote statistically different from zero at the 0.10, 0.05 and 0.01 levels, respectively. All variables are defined in Appendix A.

Table 4
Auditor Covenant Compliance Assurance (CCA) Clauses

Estimator	(1) <i>Logit</i>	(2) <i>Logit</i>	(3) <i>Logit</i> (<i>Random</i> <i>Effects</i>)	(4) <i>Logit</i> (<i>Random</i> <i>Effects</i>)	(5) <i>Logit</i> (<i>Lender</i> <i>Fixed Effects</i>)	(6) <i>Logit</i> (<i>Lender</i> <i>Fixed Effects</i>)
<i>EBITDA_WDS</i>	0.128*** (8.13)		0.270*** (8.62)		0.112*** (7.76)	
<i>EBITDA_ADJ</i>		0.040*** (6.32)		0.082*** (6.40)		0.041*** (6.86)
<i>INTANGIBILITY</i>	0.555** (2.48)	0.583*** (2.60)	1.267*** (3.14)	1.243*** (3.11)	0.377** (2.02)	0.386** (2.15)
<i>BOOK_MKT</i>	-0.050* (-1.70)	-0.047 (-1.60)	-0.08 (-1.46)	-0.071 (-1.34)	-0.047 (-1.60)	-0.044 (-1.53)
<i>lnSYN_SIZE</i>	0.214*** (4.42)	0.217*** (4.47)	0.320*** (3.78)	0.324*** (3.83)	0.182*** (3.44)	0.181*** (3.44)
<i>NUM_COV</i>	0.058** (2.07)	0.083*** (3.00)	0.163*** (3.05)	0.206*** (3.92)	0.061*** (2.75)	0.080*** (3.53)
<i>PERF_PRICE</i>	0.253*** (3.10)	0.276*** (3.35)	0.302** (2.03)	0.346** (2.35)	0.245*** (3.26)	0.244*** (3.22)
<i>MATURITY</i>	0.006*** (3.38)	0.006*** (3.42)	0.007** (2.10)	0.007** (2.22)	0.005*** (2.94)	0.005*** (3.04)
<i>DIVIDEND</i>	0.85 (0.30)	0.254 (0.09)	-2.618 (-0.51)	-3.535 (-0.71)	0.503 (0.19)	-0.129 (-0.05)
<i>ROA</i>	0.064 (0.20)	0.086 (0.26)	0.354 (0.56)	0.293 (0.47)	0.033 (0.09)	0.072 (0.20)
<i>LEVERAGE</i>	0.241 (1.12)	0.237 (1.10)	0.164 (0.41)	0.205 (0.52)	0.378** (1.98)	0.333* (1.76)
<i>SPREAD</i>	0.001*** (3.76)	0.001*** (3.54)	0.002*** (3.06)	0.002*** (2.79)	0.001*** (2.87)	0.001*** (2.62)
<i>lnFAC_AMT</i>	-0.131*** (-3.00)	-0.128*** (-2.96)	-0.146* (-1.85)	-0.146* (-1.88)	-0.171*** (-4.43)	-0.168*** (-4.43)
<i>lnMVAL</i>	0.017 (0.50)	0.011 (0.32)	0.035 (0.60)	0.031 (0.54)	-0.022 (-0.55)	-0.032 (-0.76)
<i>REVOLVER</i>	0.097 (1.06)	0.124 (1.37)	-0.056 (-0.36)	-0.008 (-0.05)	0.148* (1.67)	0.169* (1.94)
<i>CURRENT</i>	0.05 (1.55)	0.051 (1.57)	0.121** (2.06)	0.118** (2.05)	0.062** (2.23)	0.062** (2.25)
<i>Z_SCORE</i>	-0.002 (-0.15)	-0.002 (-0.15)	-0.025 (-0.91)	-0.022 (-0.82)	-0.000 (-0.01)	-0.001 (-0.04)
<i>SP_RATED</i>	-0.078 (-0.81)	-0.096 (-0.99)	-0.083 (-0.47)	-0.138 (-0.77)	-0.115 (-1.25)	-0.133 (-1.47)
<i>SECURED</i>	0.113 (1.34)	0.096 (1.12)	0.352** (2.30)	0.317** (2.09)	0.101 (1.57)	0.083 (1.27)
N	6,513	6,513	6,513	6,513	5,862	5,862
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	No	No
Arranger fixed effects	No	No	No	No	Yes	Yes
Wald χ^2	324.73	309.11	249.30	236.30	611.01	618.18
Prob. > χ^2	0.000	0.000	0.000	0.000	0.000	0.000

This table presents the coefficients from logistic regressions where the dependent variable is whether the loan agreement contained a clause requiring the audit firm to certify the borrower's compliance with financial covenants ($CCA_CLAUSE = 1$ when the clause contains an auditor covenant compliance assurance clause).

*, **, *** Denote statistically different from zero at the 0.10, 0.05 and 0.01 levels, respectively.

z- statistics based on firm-clustered standard errors are reported in parentheses.

Columns 1 and 2 are estimated via standard logit regression; Columns 3 and 4 are estimated using random effects panel logit regression; Columns 5 and 6 are estimated using conditional logit with lender fixed effects.

All variables are defined in Appendix A.

Table 5
Bivariate Probit Regression Models

	(1) CCA	(2) Big4	(3) CCA	(4) Big4
<i>EBITDA_WDS</i>	0.077*** (8.15)	0.074*** (7.74)		
<i>EBITDA_ADJ</i>			0.025*** (6.37)	0.025*** (6.64)
<i>INTANGIBILITY</i>	0.337** (2.46)	0.176 (1.26)	0.357*** (2.60)	0.189 (1.35)
<i>BOOK_MKT</i>	-0.031* (-1.70)	-0.050*** (-2.71)	-0.029 (-1.60)	-0.048*** (-2.63)
<i>lnSYN_SIZE</i>	0.127*** (4.38)	0.106*** (3.60)	0.129*** (4.45)	0.107*** (3.65)
<i>NUM_COV</i>	0.036** (2.10)	0.036** (2.08)	0.051*** (3.06)	0.051*** (2.98)
<i>PERF_PRICE</i>	0.155*** (3.11)	-0.121** (-2.50)	0.168*** (3.36)	-0.107** (-2.23)
<i>MATURITY</i>	0.004*** (3.32)	0.004*** (3.38)	0.004*** (3.38)	0.004*** (3.36)
<i>DIVIDEND</i>	0.467 (0.27)	3.506** (2.22)	0.147 (0.09)	3.200** (2.03)
<i>ROA</i>	0.039 (0.20)	0.175 (0.90)	0.049 (0.25)	0.191 (0.99)
<i>LEVERAGE</i>	0.155 (1.18)	0.081 (0.61)	0.153 (1.17)	0.081 (0.61)
<i>SPREAD</i>	0.001*** (3.73)	0.000** (2.32)	0.001*** (3.51)	0.000** (2.08)
<i>lnFAC_AMT</i>	-0.076*** (-2.90)	0.040 (1.50)	-0.075*** (-2.87)	0.040 (1.54)
<i>lnMVAL</i>	0.011 (0.54)	0.087*** (4.34)	0.006 (0.32)	0.082*** (4.13)
<i>REVOLVER</i>	0.056 (1.03)	-0.031 (-0.59)	0.072 (1.34)	-0.014 (-0.26)
<i>CURRENT</i>	0.031 (1.61)	-0.013 (-0.71)	0.031 (1.62)	-0.012 (-0.65)
<i>Z_SCORE</i>	-0.001 (-0.13)	-0.016* (-1.85)	-0.001 (-0.11)	-0.016* (-1.86)
<i>SP_RATED</i>	-0.051 (-0.87)	0.157*** (2.70)	-0.061 (-1.04)	0.145** (2.49)
<i>SECURED</i>	0.066 (1.27)	-0.080 (-1.53)	0.055 (1.05)	-0.089* (-1.71)
N	6513	6513	6513	6513
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
rho		0.122		0.131
Wald test rho = 0		(16.477)***		(19.201)***

This table presents the coefficients from jointly estimated bivariate probit (biprobit) regressions. The dependent variable in Columns 1 and 3 is whether the loan agreement contained a clause requiring the audit firm to certify compliance with financial covenants (*CCA_CLAUSE* = 1 when the clause contains an auditor covenant compliance assurance clause). The dependent variable in Columns 2 and 4 indicate whether (*BIG4_CLAUSE* = 1) or not (*BIG4_CLAUSE* = 0) the loan agreement contained a clause requiring a Big 4 audit firm to audit the financial statements.

*, **, *** Denote statistically different from zero at the 0.10, 0.05 and 0.01 levels, respectively.

z-statistics based on firm-clustered standard errors are reported in parentheses.

All variables are defined in Appendix A.

Table 6
Effects of Intangibles being Excluded from Covenant Definitions

	(1) <i>INTAN_COV</i> =1	(2) <i>INTAN_COV</i> =0
<i>INTANGIBILITY</i>	0.914*	0.453*
	(1.94)	(1.88)
N	1,171	5,342
Control variables included	Yes	Yes
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Wald Chi-square	124.31***	261.08***
Prob. > Chi-square	0.000	0.000

This table presents the coefficients from logistic regressions where the dependent variable is whether the loan agreement contained a clause requiring the audit firm to certify the borrower's compliance with financial covenants (*CCA_CLAUSE* = 1 when the agreement contains an auditor covenant compliance assurance clause). Columns 1 and 2 report estimates for subsamples of agreements which either contain (*INTAN_COV* = 1) or do not contain (*INTAN_COV* = 0) a covenant which is affected by variation in the value (or change in value) of intangible assets. *, *** Denote statistically different from zero at the 0.10 and 0.01 levels, respectively. z- statistics based on firm-clustered standard errors are reported in parentheses. All variables are defined in Appendix A.

Appendix A Variable Definitions	
<i>CCA_CLAUSE</i>	Binary variable equal to 1 if the loan agreement contains an auditor covenant compliance assurance clause that requires the auditor to sign the borrower's covenant compliance certificate, 0 otherwise.
<i>BIG4_CLAUSE</i>	Binary variable equal to 1 if the loan agreement contains a clause requiring a Big 4 audit firm to audit the annual financial statements, 0 otherwise.
<i>EBITDA_WDS</i>	The natural logarithm of the number of words used in the accounting adjustments in the lending agreement for the measurement of income. Words for both net income and EBITDA adjustments are counted and aggregated.
<i>EBITDA_ADJ</i>	The number of accounting adjustments in the lending agreement for the measurement of income counted by the number of clauses in the definitions. Clauses are counted where letters and/or (Arabic or Roman) numbers appear in parentheses in the definitions. Clauses appearing in the definitions of both net income and EBITDA adjustments are counted and aggregated.
<i>INTANGIBILITY</i>	Intangible assets divided by total assets. Observations with missing values for intangible assets are set to zero.
<i>lnSYN_SIZE</i>	The natural log of the number of lenders in the lending syndicate.
<i>PERF_PRICE</i>	Indicator variable that equals 1 if the loan agreement contains a performance pricing arrangement based on accounting data, 0 otherwise.
<i>MATURITY</i>	Loan maturity (in months).
<i>DIVIDEND</i>	Common dividends divided by total assets.
<i>ROA</i>	The ratio of income before extraordinary items to total assets.
<i>NUM_COV</i>	The number of covenants in the loan contract.
<i>LEVERAGE</i>	Long-term debt divided by total assets.
<i>BOOK_MKT</i>	The book value of equity divided by market value of equity.
<i>SPREAD</i>	The total annual all-in drawn spread (in basis points) paid for each dollar drawn down under the loan commitment.
<i>lnFAC_AMT</i>	The natural log of facility amount (in \$).
<i>lnMVAL</i>	The natural log of market value of equity.
<i>REVOLVER</i>	Indicator variable that equals 1 for revolving loans, and 0 for all other types of loans.
<i>CURRENT</i>	Current ratio (the ratio of current assets to current liabilities).
<i>Z_SCORE</i>	Altman's (1968) Z-score = 1.2 (Working Capital/Total Assets) + 1.4 (Retained Earnings/Total Assets) + 3.3 (Earnings Before Interest and Taxes/Total Assets) + 0.6 (Market Value of Equity/Book Value of Liabilities) + 0.999 (Net Sales/Total Assets).
<i>SP_RATED</i>	Indicator variable that equals 1 if the borrower has an S&P rating, and 0 otherwise.
<i>SECURED</i>	Indicator variable that equals 1 when the agreement is secured with collateral and 0 otherwise.

APPENDIX B

Examples of covenant compliance assurance (CCA) clauses

Type of Clause	Loan type/ Company Name/ Contract Date	Hyperlink	Extract
CCA to be undertaken by an auditor (CCA = 1)	Credit Agreement, Cardinal Health, Inc., March 30, 2000	http://www.sec.gov/Archives/edgar/data/721371/000095015200004012/000095015200-004012.txt	<i>accompanied by a certificate of said accountants that, in the course of their examination necessary for their certification of the foregoing, they have obtained no knowledge of any Default or Unmatured Default, or if, in the opinion of such accountants, any Default or Unmatured Default shall exist, stating the nature and status thereof.</i>
	Credit Agreement, Applica Incorporated, December 28, 2001	http://www.sec.gov/Archives/edgar/data/217084/000095014402002168/g74020ex10-18.txt	<i>With each of the audited Financial Statements delivered pursuant to Section 5.2(a), a certificate of the independent certified public accountants that examined such statement to the effect that they have reviewed and are familiar with this Agreement and that, in examining such Financial Statements, they did not become aware of any fact or condition which then constituted a Default or Event of Default with respect to a financial covenant, except for those, if any, described in reasonable detail in such certificate.</i>
	Credit Agreement, Albertson's, Inc., March 22, 2000	http://www.sec.gov/Archives/edgar/data/3333/000000333300000024/0000003333-00-000024.txt	<i>simultaneously with the delivery of each set of financial statements referred to in subsection (a), a statement of the Independent Auditor which reported on such statements (i) whether anything has come to their attention to cause them to believe that any Default existed on the date of such statements and (ii) confirming the calculations set forth in the Compliance Certificate delivered simultaneously therewith pursuant to subsection (c) ...</i>
CCA to be undertaken by a nominated /authorized officer (CCA = 0)	Credit Agreement, Atricure, Inc., July 1, 2008	http://www.sec.gov/Archives/edgar/data/1323885/000119312508145691/dex101.htm	<i>together with a certificate of the chief financial officer, principal accounting officer or chief executive officer of Borrower, in the form of the Compliance Certificate, stating that, as of the date of such certificate, to the best of his knowledge and after reasonable inquiry, no event has occurred which constitutes a Default or an Event of Default or, if a Default or an Event of Default has occurred and is continuing, a statement as to the nature thereof and the action which Borrower has taken or proposes to take with respect thereto and further setting out in such detail as is reasonably required by Lenders Borrower's compliance with the requirements of Article 7 and Sections 8.7 and 8.9.</i>
Examples of auditor name clauses			
Type of Clause	Loan type/ Company Name/ Contract Date	Hyperlink	Extract
Big 4 clause	Credit Agreement, Advance Auto	http://www.sec.gov/Archives/edgar/data/1158449/00011584	<i>within 90 days after the end of each fiscal year of Holdings, Holdings' audited consolidated balance sheets and related statements of operations, stockholders' equity and cash flows as of the end of and for such year, setting forth in each case in comparative form the figures for the previous fiscal year, all reported on by</i>

	Parts, Inc. and Advance Stores Company, Incorporated, October 5, 2006	4906000127/ex10-1.htm	<i>Deloitte & Touche LLP or other independent public accountants of recognized national standing</i> (without a “going concern” or like qualification or exception and without any qualification or exception as to the scope of such audit or other material qualification or exception) to the effect that such consolidated financial statements present fairly in all material respects the financial condition and results of operations of Holdings and its consolidated Subsidiaries on a consolidated basis in accordance with GAAP consistently applied ...
Big 4 clause	Credit Agreement, Akorn, Inc. and Akorn (New Jersey), Inc., January 7, 2009	http://www.sec.gov/Archives/edgar/data/3116/000095015209000158/c48618exv10w1.htm	.. as soon as available, but not later than ninety (90) days after the end of each fiscal year, a copy of the audited consolidated and consolidating balance sheets of the Borrowers and each of their Subsidiaries as at the end of such year and the related consolidated and consolidating statements of income or operations, shareholders’ equity and cash flows for such fiscal year, setting forth in each case in comparative form the figures for the previous fiscal year, and <i>accompanied by the unqualified opinion of any “Big Four” or other nationally-recognized independent public accounting firm reasonably acceptable to the Agent</i> which report shall state that such consolidated financial statements present fairly in all material respects the financial position for the periods indicated in conformity with GAAP applied on a basis consistent with prior years.