

Contractual Complexity in Debt Agreements: The Case of EBITDA*

Adam B. Badawi and Elisabeth de Fontenay

June 20, 2019

Abstract

The definition of EBITDA is among the most important parts of a credit agreement. This concept matters to borrowers and creditors because it frequently determines whether a borrower is in breach of its covenants in the loan, and it matters to regulators because it determines the amount of leverage a loan entails. While credit analysts and debt lawyers have commented on the differences in the definition of EBITDA, existing research on debt agreements has almost entirely ignored this variation and the consequences it has for understanding how debt agreements operate. We use supervised learning of income definitions in thousands of credit agreements to show that there is, indeed, massive variation in the definition of EBITDA and that a substantial proportion of these agreements inflate EBITDA by adding back income. In further analysis we show that expansive EBITDA definitions are more common among private equity borrowers and that banks appear to have allowed more permissive EBITDA definitions for non-private equity borrowers in the wake of the Federal Reserve's restrictive guidance on lending leverage. We show that there is a negative relationship between the permissiveness of EBITDA definitions and the amount of covenant slack in loans and that more permissive definitions are associated with higher loan spreads. Finally, we demonstrate that the best predictors of the content of income definitions are the past credit agreements of the borrower.

*Badawi, UC Berkeley Law School; de Fontenay, Duke Law School. We thank Ken Ayotte, Albert Choi, Jared Elias, and audiences at the Annual Meeting of the American Law and Economics Association and the BYU Winter Deals Conference for helpful comments and discussion.

1 Introduction

The extent to which a firm’s behavior is constrained by its debt covenants and the probability it will violate them are of critical importance to management, investors, and regulators. Both are difficult to assess, however, given that debt covenants—particularly for riskier borrowers—are highly complex and are tailored to the borrowing firm’s characteristics (Bradley & Roberts, 2004). Moreover, covenant language may vary widely across debt contracts, not only with borrower characteristics, but also with market movements (Choi & Triantis, 2013), the influence of lawyers and bankers, the relative bargaining power of borrowers and lenders (Choi & Triantis, 2012), and simple path-dependence. Although the literature increasingly acknowledges variation in covenant drafting (Demerjian & Owens, 2016; Frankel & Litov, 2007 [p. 16]; Zhang & Zhou, 2013 [p. 36]), empirical studies of debt covenants continue to use simple numerical proxies to measure the presence and tightness of covenants, effectively ignoring all of the underlying contract language used to draft them.

We show that the degree to which covenants vary in complexity and tightness has been substantially underestimated in the literature. Many of the major covenants in debt contracts today depend in some way on the borrower’s EBITDA, including in “covenant-lite” deals that do not include financial maintenance covenants. Yet this financial measure has no uniform definition across debt contracts. Originally intended as a measure of the borrower’s cash flows that is unaffected by financing choices, EBITDA as defined in credit agreements has evolved to a highly individualized metric that may bear little relation to the borrower’s actual cash flow. In many cases, the definition grants to the borrower so much discretion as to what is included that the borrower has substantial leeway to avoid a covenant violation.

In this study we extract EBITDA definitions from 4,170 credit agreements and combine this text with characteristics of the deal and information about the borrowers, lead banks, private equity sponsors, and law firms that are parties to the deal. Using text analysis we are able to show the sources that these parties draw from when they craft this contractual language. We are also able to categorize how permissive these definitions are. To do so, we hand-code a subsample of roughly ten percent of the definitions and use this hand-coded sample to train a model to make out-of-sample predictions about the permissiveness of every definition in the sample. We use this information to develop five primary findings.

First, we find very wide variation among the EBITDA definitions in the data sample, contrary to the implicit assumptions underlying related empirical studies. Second, we find

that these differences in language matter: there is significant variation in permissiveness as well, and the degree of permissiveness has increased overall over most of the sample period. Third, we identify factors that are associated with more permissive EBITDA definitions. Private equity sponsored deals are significantly more permissive than non-sponsored deals, all else equal. However, non-sponsored deals have been catching up to the private equity deals both in terms of covenant formulation and permissiveness, particularly in the wake of the 2013 Interagency Guidance on Leveraged Lending, which effectively barred banks from underwriting loans with leverage greater than six times EBITDA. Fourth, and relatedly, we show that there is a negative relationship between the permissiveness of EBITDA definitions and the amount of covenant slack in loan agreements, which suggests that the tightness of covenant levels and EBITDA definitions are substitutes. Finally, borrowers appear to value covenant uniformity across their own loan agreements through time more than standardization across similar borrowers and credits: a borrower's past deals are highly predictive of the EBITDA definition in the current deal. Private equity sponsors also appear to predict content, to a lesser degree.

These findings have significant implications for research, regulation, and market practice. The surge in corporate debt—particularly privately issued debt—over the last few decades has yielded a large literature on debt covenants, initially focused on their role in mitigating the agency conflict between shareholders and creditors (Jensen & Meckling, 1976; Smith Jr & Warner, 1979) and in allocating control rights in the firm (Aghion & Bolton, 1992; Baird & Rasmussen, 2006; Nini, Smith, & Sufi, 2012). A more recent strain examines the connection between the type or restrictiveness of covenants that are included in debt contracts and the ease with which they may be renegotiated (e.g., (Gârleanu & Zwiebel, 2009; Roberts & Sufi, 2009). For example, various changes in debt covenants over time (such as the proliferation of covenant-lite loans) have been tied to the major structural changes in the debt markets, such as the rise of syndication and securitization, which make loan renegotiation relatively more difficult (Demiroglu & James, 2010b). A consistent theme throughout is that debt covenants vary as to both type and restrictiveness (e.g., Leftwich (1983)), according to various borrower and lender characteristics.

The assumption in much of the theoretical and empirical literatures, however, is that covenants are effectively standardized, once borrower and lender characteristics are held constant. Empirical studies of corporate debt tend to distill a borrower's entire covenant package into one or more numerical proxies, such as a simple count of the financial covenants in the agreement (e.g., Christensen & Nikolaev (2012), Matvos (2013)) or the numerical cap or floor imposed by a given financial covenant (e.g., Li, Vasvari, &

Wittenberg-Moerman (2016), Demiroglu & James (2010a)). This effectively assumes that the corresponding financial measures (such as the leverage ratio or the interest coverage ratio) are defined uniformly across debt contracts. We show that this assumption is not plausible. Other studies attempt to side-step the problem by focusing on specific covenants, such as the net worth covenant, that are less subject to manipulation (e.g., Chava & Roberts (2008); Dichev & Skinner (2002)). The difficulty is that this approach ignores the variation in EBITDA-based covenants, which are by far the most widely used in credit agreements.¹ The most noteworthy exception to this assumption, and the paper that is closest to ours is Ivashina & Vallee (2019), who show that there is variation in the deductibles and carve outs that appear in the restrictive covenants in loan agreements. But that analysis does not focus on the different types of definitions of EBITDA, which are important because they are central to whether a firm breaches a financial covenant in the agreement.² Finally, it ignores the role that other market participants such as law firms and underwriters may have on covenant drafting and tightness. In particular, specific law firms have been shown to exert a material influence on corporate contract terms in similar contexts, such as mergers and acquisitions (Coates, 2016; Krishnan & Masulis, 2013) and IPOs (Coates, 2001; Romano & Sanga, 2017).

Our contribution to the literature is three-fold. First, we document the extraordinary amount of variation in the definition of EBITDA across debt contracts, such that covenant levels that are superficially the same across borrowers (a leverage ratio covenant of 3.0x, for example) cannot be meaningfully compared. Second, we identify the major factors that are associated with this variation: the identity of the borrower (which is consistent with Ganglmair and Wardlaw, 2017), whether the borrower is private-equity-owned, and the borrower and lender law firms. These findings are in contrast to recent claims that the loan market is moving toward greater standardization (Ayotte & Bolton, 2011; Bozanic, Loumiotis, & Vasvari, 2018). Finally, we identify a mechanism that drives changes to EBITDA definitions. When the Federal Reserve issued guidelines that sought to restrict lending leverage, we demonstrate that parties responded by expanding EBITDA definitions among a group (unsponsored borrowers) that previously used more restrictive EBITDA

¹Some researchers have noticed that accounting definitions vary across credit agreements. But to address these concerns researchers have either resorted to GAAP definitions (Demerjian & Owens, 2013), which can deviate substantially from the actual definitions in agreements, or have constructed subsamples of agreements that use GAAP definitions (Demiroglu & James, 2010a), which entails discarding a sizable number of agreements in the universe of credit contracts.

²Ivashina and Vallee do count EBITDA carve outs in their analysis of the ways parties can weaken debt agreements, but they do not differentiate these carve outs from other ones in their regression analysis. Rather, they aggregate all carve outs in each debt agreement.

definitions in their credit agreements.

The paper proceeds as follows. Part 2 provides background on the role of EBITDA in corporate debt contracts and on the Leveraged Lending Guidance. Part 3 describes our data sample, the mechanics of training our model, and provides summary statistics. Part 4 identifies the changes in income definitions over time, the factors associated with greater complexity and greater permissiveness of income definitions as well as the origin of the specific language used in the EBITDA definitions in our sample. Part 5 concludes. The Appendix describes the construction of our index for how permissive an EBITDA definition is relative to the standard GAAP definition.

2 Background

2.1 EBITDA in Debt Contracts

It would be difficult to overstate the importance of the definition of EBITDA in corporate debt today. Our focus here is on syndicated loan agreements, but the same principles apply to bond indentures, particularly in the high-yield space. We focus on three important roles that EBITDA plays in these agreements.

First, EBITDA figures prominently in the financial covenants in loan agreements. The most important and widely used financial covenants—such as leverage ratio covenants and interest (or fixed charges) coverage ratio covenants—typically use EBITDA as the scaling variable in the denominator or the numerator of the relevant ratio. In our sample, for example, 68.3% of loan agreements with any financial covenants include a maximum leverage ratio covenant and 65.3% include a minimum fixed charges or interest coverage covenant. Financial covenants play a crucial role in credit facilities: not only do they allow lenders to determine and limit the amount of risk they are taking on (for example, by preventing the borrower from taking on too much additional debt), they also act as early tripwires that warn lenders of a borrower’s deteriorating financial performance (Dichev & Skinner, 2002). Once a financial covenant is violated, the lenders may not only charge default interest, they may also exercise remedies including full acceleration of the debt, which gives them considerable power to renegotiate the deal with the borrower and intervene in the borrower’s governance.

Second, EBITDA often plays a role in the borrower’s “negative” covenants—that is, the covenants that specifically prohibit the borrower from taking certain actions, such as incurring debt, granting liens on its assets, making investments, paying dividends, or

buying back shares. A notable change in the syndicated loan market over the last 15 years has been the rise of so-called “covenant-lite” loans (Demiroglu & James, 2010a). Because covenant-lite loans do not include any financial covenants, one might think that leverage and other EBITDA-metrics are not key part of these loans. But that is not so. The leverage ratio (and therefore EBITDA) is critical for virtually every negative covenant in such deals, and the borrower likely has even greater incentives to manage the definition of EBITDA in covenant-lite loan deals than in deals that include financial covenants, for reasons discussed below.

Financial covenants are so-called “maintenance covenants,” in that they require the borrower to comply with a certain financial test throughout the term of the loan. Covenant-lite loans (and high-yield bonds), by contrast, typically use “incurrence covenants”: the negative covenants in such deals are drafted not as flat prohibitions (with fixed exceptions), as is typical, but rather as restrictions tied to the borrower’s financial performance. Specifically, the restrictions (on the borrower’s ability to incur debt, pay dividends, etc.) typically apply if only if the firm then exceeds—or would immediately thereafter exceed—a certain leverage ratio. In this way, EBITDA remains a major component of the borrower’s covenant package in covenant-lite deals. Moreover, with incurrence covenants the borrower need only satisfy the leverage ratio test at the exact time that it is seeking to take an otherwise prohibited action, such as incurring additional debt. Once the additional debt has been incurred, the borrower may subsequently violate the leverage ratio test without repercussion for the remainder of the loan term. Thus, a definition of EBITDA that is highly permissive from the borrower’s perspective will be particularly problematic for lenders in covenant-lite loans. Consider, for example, a definition of EBITDA that gives the borrower discretion to add large, speculative amounts to income on a one-off basis (such as projected cost savings or projected revenues). The borrower is thereby virtually assured of satisfying the leverage test in its incurrence covenants at the time that it wants to take an otherwise prohibited action (such as incurring additional debt), and, having achieved its goal, may thereafter return to a lower level of EBITDA (and higher leverage ratio). In a real sense, highly permissive EBITDA definitions mean that covenant-lite deals are not only void of financial covenants, but void of all negative covenants.

Third, and finally, the borrower’s EBITDA definition is often a determinant of the fundamental economics of loan deals, quite apart from its role in covenants. Many syndicated loans use performance pricing, with the applicable interest rate automatically adjusting based on specified changes in the borrower’s leverage ratio (Ball, Bushman, & Vasvari, 2008). Loan agreements may also tie various mandatory prepayment provisions

(such as the asset sweep) and the availability of incremental credit facilities to leverage-based tests.

2.2 Defining EBITDA

Given EBITDA's role, borrowers will always want their measured EBITDA to be larger, all else equal. One way to achieve this is through clever contract drafting: specifically, by defining EBITDA in the loan agreement as expansively as possible. In its ordinary conception, EBITDA (or Earnings Before Interest, Taxes, Depreciation and Amortization) is intended to be a measure of the borrower's cash flow that is unaffected by how the borrower is financed. Indeed, net income as defined under GAAP is a poor measure of cash flow, because it incorporates non-cash charges such as depreciation and amortization. Moreover, net income varies for firms depending on the extent to which they are financed with debt versus equity.³ Thus, in order to achieve a closer measure of cash flow that is comparable across firms, EBITDA traditionally begins with the borrower's net income, then adds back interest payments, taxes, depreciation and amortization, all as defined under GAAP.

Over time, however, loan agreements have gone well beyond the basic GAAP definition, in particular by allowing the borrower to add back to net income a wide range of additional charges (including many cash charges) and to simply increase EBITDA by amounts that were never deducted from net income in the first place. EBITDA definitions may also vary widely both as to the required timing for certain adjustments (such as the time period within which the borrower must begin implementing its plan, in order to add projected cost savings to EBITDA), and as to whether any add-back is unlimited or instead capped at a certain dollar amount. Lastly, an adjustment to EBITDA may be subject to independent verification or approval by the underwriter or a third party, or it may instead depend entirely on the borrower's good faith.

There are several points to be made about these more permissive EBITDA definitions. First, they may stray very far from the borrower's true cash position, given that the borrower is permitted to add back various major cash charges (even recurring ones such as sponsor management fees and public-company reporting costs) and to include increases in revenue or reductions in expenses that have not yet occurred and may never in fact be realized. Second, they may grant the borrower virtually unfettered discretion over the

³Debt financing affects net income under GAAP in two ways: interest payments on debt are deducted from net income, but they may also reduce the borrower's tax liability (given that interest is tax-deductible in the U.S., whereas shareholder payouts is not), which would partially increase net income.

precise value of its adjusted EBITDA at any given time.

How much does this matter? The IMF's 2018 Global Financial Stability Report (p.14) lists as a source of global risk that the share of U.S. syndicated loan deals with adjustments to EBITDA has increased substantially in the last two decades. Companies such as Avantor, GoDaddy, and WeWork have made headlines with their extraordinarily aggressive use of EBITDA language.⁴ In Avantor's case, its initial request to creditors would have resulted in increasing its EBITDA by 91%. Consider a less extreme hypothetical case, in which the borrower's EBITDA adjustments result in a 30% increase relative to the GAAP metric. If the borrower's leverage ratio under GAAP EBITDA would be 4x (that is, four times EBITDA), the EBITDA adjustments in its loan agreement would allow the borrower to reduce its leverage ratio down to nearly 3x, potentially allowing it to incur substantially more debt or to qualify for a lower interest rate under the loan. Clearly, these are cases where contract language matters a great deal.⁵

As discussed, the exant literature has focused almost exclusively on covenant levels—the numerical thresholds for the various financial tests in a credit agreement—rather than on the underlying covenant language. As such, it is silent as to the relationship between the two, as well as the circumstances in which parties might prefer more restrictive or more permissive covenant language. Ganglmair & Wardlaw (2017) apply text analysis techniques to a large sample of private credit agreements, in order to determine what proportion of the contract language in the covenant and default provisions is copied versus unique. In tying their results to the literature on incomplete contracts as a justification for covenants, however, the authors assume that greater complexity of contract language entails a more complete contract. This is not always the case. As discussed above, the most complex EBITDA definitions in our sample tend also to be the ones that grant the borrower the most unfettered discretion to calculate their EBITDA under the loan agreement. We therefore require a different theory to motivate the increasing use of highly

⁴WeWork likely had the most notorious EBITDA adjustment, in connection with its \$702 million bond offering in April 2018, in reporting its “community-adjusted EBITDA.” The metric effectively added back the entire cost of WeWork's sales (such as cash compensation, general and administrative costs, marketing expenses, and the design and development costs of its new locations). Even though WeWork at the time was losing money at an impressive pace, its adjusted EBITDA added up to \$233 million.

⁵The Financial Times reports the following regarding Blue Nile, a company that private equity sponsor Bain Capital was seeking to take private, by raising \$180 million in debt: “By one measure, Blue Nile's debt represented roughly four times its adjusted earnings before interest, taxes, depreciation and amorti[z]ation of \$45m. But by another, the actual reported ebitda of about \$19.3m, leverage was 9.3 times, according to one investor briefed on the presentation.” (Sujeet Indap and Eric Platt, Hot leveraged loan market puts ebitda ‘add-backs’ under scrutiny, The Financial Times (Feb. 9, 2017) available at <https://www.ft.com/content/ce5d0eee-eea0-11e6-930f-061b01e23655>).

permissive covenant language.

While we do not attempt to resolve this question here, we note that covenant levels appear prominently in the term sheets used to market the deal to the lending syndicate and are negotiated before the underwriting bank(s) commit to provide financing. By contrast, the definitions underlying these covenants only appear in the loan agreement itself and are typically negotiated only after the covenant levels have been set and the banks have committed to finance the deal. There are thus several conceivable explanations for highly permissive EBITDA definitions beyond the standard efficiency justifications, including opportunistic behavior by the borrower, agency costs between the lead bank(s) and the rest of the lending syndicate (Ivashina (2009); Bord & Santos (2015)), or regulatory arbitrage.

2.3 Leveraged Lending Guidance

In March of 2013, the OCC, the Federal Reserve, and the FDIC issued the Interagency Guidance on Leveraged Lending (hereinafter, the “Leveraged Lending Guidance”), which updated and replaced the last such guidance from 2001. The 2013 guidance, which applied to all national banks, federal savings associations, and federal branches and agencies of foreign banks, provided that such institutions should consider risk management practices that took into account leveraged loans. These regulators further clarified this guidance during a conference call in February 2015, where they identified several practices that would be considered “red flags”. These practices included debt-to-EBITDA ratios in excess of 6:1 and ‘large percentage’ EBITDA adjustments (Wilkie Farr, 2016).

Although it had a profound impact on the leveraged loan market, the Guidance proved relatively short-lived. In May 2017, the Federal Reserve Bank of New York released a report (Staff Report No. 815, subsequently published as Kim, Plosser, & Santos (2018)) examining the effects of the Leveraged Lending Guidance on the banking industry. The authors found that while the guidance was effective at reducing leveraged lending activity among the largest banks, it prompted a substantial increase in leveraged lending by non-banks, such that the overall effect on financial sector risk was uncertain. In light of this uncertainty and increasing objections by lawmakers, the OCC announced in February 2018 that banks need no longer comply with the Leveraged Lending Guidance, so long as they were reasonably capitalized.

Because of its bright-line prohibition on banks underwriting loans at more than 6x EBITDA, we predict one additional effect of the guidance, namely an acceleration of the permissiveness of EBITDA definitions during the period in which the banks were

complying with the guidance (roughly, 2014-2017). Particularly for loans near or above the 6x leverage cap, there would be a strong incentive to boost the borrower's EBITDA in order to bring the leverage ratio down to a permitted level, without any additional effort on the borrower's or the underwriter's part.⁶ We test this prediction in Part 4.2 of the paper.

3 Data

We obtain information on credit agreements issued from the middle of 2011 to the middle of 2018 from Practical Law. This source provides coded information about each agreement as well as a link to the relevant agreement on EDGAR. We use those links to download the text of each of contract. Practical Law groups loan packages issued to borrowers at the same time into a single observation. The initial sample contains 5,395 loan packages. We use a Python script to extract the definition of EBITDA from the agreement. We then hand check these definitions to ensure that we have correctly identified them. From this sample we are able to identify the EBITDA definition for 4,170 agreements. For some of our analysis we include data from the Loan Pricing Corporation's Dealscan database (described in Dichev and Skinner, 2002). We extract the CIK code from the credit agreement link and link that code to the appropriate firm in Compustat. We then use Compustat identifiers to link to Dealscan via the linking data provided by Chava and Roberts (2008). We are able to link to 2,741 loans through this process.

3.1 Categorizing EBITDA Definitions

There is substantial variation in EBITDA definitions. Some are quite simple, such as this definition from a 2015 asset-based loan to AeroCentury Corp. for \$130 million: "EBITDA means net income (loss), plus (a) interest expense, (b) depreciation, (c) tax expense and (d) amortization, calculated based on the trailing consecutive twelve(12) month period." Others are far more complex and add back a substantial amount of income. Take, for example, this 374 word definition in a 2012 \$825 million term loan that a subsidiary of Boyd Gaming Corporation used to finance an acquisition:

Adjusted ebitda means, for any period, the borrower and its restricted subsidiaries consolidated earnings before interest expense, taxes, depreciation,

⁶In discussions with lawyers specializing in leveraged lending, we were told that during this period underwriters would coach borrowers going to market to report lower leverage ratios by boosting their EBITDA with more aggressive adjustments.

amortization, non-cash rent expense, preopening expenses, share-based compensation expense, non-cash change in value of derivative instruments, interest costs associated with derivative instruments not otherwise included in interest expense, charges for the early retirement of debt, non-recurring non-cash losses (or gains), acquisition and merger related charges, and extraordinary items, all as determined in accordance with GAAP (ebitda), plus (a) cash dividends and distributions paid to the borrower and its restricted subsidiaries from any person that is not a restricted subsidiary, provided that the cumulative amount of such cash dividends and distributions included in consolidated adjusted ebitda shall not exceed the cumulative amount of the borrowers and its restricted subsidiaries share of the consolidated adjusted ebitda of such person, plus (or minus) without duplication, (b) the ebitda during such twelve month period for any restricted subsidiary acquired (or disposed of) by the borrower or any of its restricted subsidiaries (including the acquisition or disposition of substantially all of the assets of a person by the borrower or any of its restricted subsidiaries) during such period, in either case, plus (or minus) (c) any loss (or gain) arising from a change in GAAP, plus (d) losses, charges and expenses relating to the transaction incurred on or prior to the first anniversary of the funding date, including without limitation, measurement period adjustments, the effects of adjustments (including the effects of such adjustments pushed down to the borrower and its restricted subsidiaries) in any line item in such persons consolidated financial statements pursuant to GAAP resulting from the application of recapitalization accounting or purchase accounting, integration costs, personnel restructuring, relocation or integration costs, one-time compensation charges and the amount of any signing, retention and completion bonuses, and plus (e) the aggregate amount of management fees paid to boyd or one of its subsidiaries pursuant to any permitted management agreement by peninsula or any restricted subsidiary during such period and the aggregate amount of management fees paid to any person prior to the funding date pursuant to a management agreement and consistent with peninsulas past practices. consolidated adjusted ebitda shall exclude the ebitda of each unrestricted subsidiary and all subsidiaries of any unrestricted subsidiary.

And this is far from the longest definition in our sample. Several hundred definitions exceed one thousand words and a handful are more than two thousand words.

Individually coding thousands of EBITDA definitions is cost prohibitive. Instead, we

focus on two proxies for the permissiveness of the definitions. The first, and coarsest, proxy is a simple word count of the definitions. Our review of a sample of the definitions suggests that longer definitions are almost always more permissive than shorter definitions because much of the additional language adds income back to EBITDA. But because this is a rough proxy, we also use text analysis to make predictions about the content of each definition. For this second measure we use a naive Bayes classifier to develop out-of-sample predictions of the permissiveness of the definitions. This approach is similar to that taken by Buehlmaier & Whited (2018). The naive Bayes algorithm uses a bag-of-words approach to train a model of the likely permissiveness of the definition. We use term-frequency inverse document frequency (tfidf) of unigrams as the inputs, which should better identify document differences by placing stronger weights on terms that are unique to permissive and non-permissive definitions. In robustness checks we find little difference between using simple word counts and tfidf as the inputs to the naive Bayes model.

We hand-coded a sample of 419 definitions to train the model, which is roughly ten percent of the sample.⁷ We coded the sample using a permissiveness index that we explain in more detail in the appendix. This index is simply a count of the eight most common add backs that may be present in a given EBITDA definition. Figure 1 shows a distribution of index scores across the human-coded sample. As the figure shows, the three most common values for the index are two, three, and four, out of the possible eight. We train the model on all 419 definitions and then use that model to predict the index score of the definitions that we do not hand code. Figure 2 shows the distribution of predicted index scores. This histogram shows that the distribution of the predicted values is similar to the distribution of hand coded values.

To assess the performance of the out-of-sample predictions we conduct a k -fold validation test. This test uses $k - 1$ pieces of the hand coded sample to train a model that we use to predict the index values of the remaining piece. This process repeats until we have obtained a prediction for every hand-coded definition. We use 10-fold validation, which entails splitting the data into ten groups and using nine of them to predict the index scores for the remaining group. The Naive Bayes model predicts the correct index value 40.2% of the time, which is substantially better than the expected 27.1% accuracy from simply guessing the modal index value (3) for every definition. We also calculate the absolute value of the difference between the predicted index value and the actual index value. The mean of those differences is .861, which suggests that the model does quite well predicting

⁷Cross-validation studies suggest that the 419 definitions that we use is sufficient to train a model when a corpus is relatively uniform (Beleites, Neugebauer, Bocklitz, Krafft, & Popp, 2013).

the permissiveness of a given EBITDA definition.

Figure 3 shows the yearly average for EBITDA definition word counts and for the estimated probability that the definition is permissive. As the figure shows, both measures have increased over the course of the sample period until they decline in 2018. The figure shows the strong, but not perfect, correlation between the two measures.

3.2 Summary Statistics

Table 1 presents cross-tabulations of the permissiveness measures and other deal characteristics. Both word counts and predicted permissiveness generally increase with deal size. Secured loans are far more likely to have longer EBITDA word counts and greater predicted permissiveness of the EBITDA definition. Interestingly, we find that speculative grade loans are more likely to contain EBITDA definitions with higher word counts and higher predicted permissiveness than non-speculative grade loans. We also find that loans to borrowers sponsored by private equity funds are more likely to have permissive definitions of EBITDA. Given that private equity-owned borrowers tend to have higher leverage than otherwise comparable firms (Axelson, Jenkinson, Strömberg, & Weisbach, 2013) and are therefore more likely to be speculative grade, we cannot distinguish here which of the speculative rating or private equity sponsorship is driving EBITDA permissiveness. Practitioner accounts suggest that much of the innovation and expansion in EBITDA add-backs has been driven by private equity sponsors (Practical Law, 2018), a fact that remains undocumented and unexplained in the research literature.

Using a small sample of LBO financings, Achleitner, Braun, Hinterramskogler, & Tappeiner (2011) find that sponsored loans include more covenants than comparable non-sponsored loans, but that they each have greater slack. Private equity-sponsored borrowers distinguish themselves from non-sponsored borrowers in at least four respects that may affect their covenant packages. First, because they tend to be more leveraged, they may be more prone to agency costs, which would justify tighter covenants. Second, as repeat players in loan transactions, they may be able to reduce information asymmetry in the lending relationship, which would in this case justify less restrictive covenants (Ivashina & Kovner, 2011). Similarly, private equity sponsors with established reputations may also merit less restrictive covenants, by reducing agency and information costs (Demiroglu and James, 2010). Finally, private equity sponsors may receive preferential covenant terms as a result of the substantial fees that their transactions generate for the large banks (Ivashina and Kovner, 2011). Of these four hypotheses, only the last invites a distinction

between covenant levels and covenant language. The substantial fees generated by private equity-sponsored financings only benefit the underwriting bank(s) (the lead arranger), and not the remaining lending syndicate. Thus, agency costs among the lenders could prompt the lead bank to negotiate covenant types and levels in line with the borrower's credit risk, while simultaneously undercutting them through more permissive covenant definitions, which are arguably less salient to the syndicate members. We do not purport to resolve this question here.

Our primary interest in linking to the Dealscan data set is to obtain information about EBITDA-related covenants in the credit agreements. We use the two most common financial covenants that appear in the Dealscan database, maximum debt-to EBITDA ratio and the minimum interest coverage ratio (EBITDA/interest expense), as well as two other covenants that feature EBITDA (minimum debt service coverage and minimum EBITDA). We obtain these measures from Dealscan and use them to calculate the amount of slack in these covenants at loan origination. This slack captures the difference between the level of the relevant ratio at origination and the ratio specified in the contract. When a loan has more slack, the performance of the borrower must deteriorate more sharply before tripping the covenant. We calculate slack in the typical way, which is $slack_i = 1 - (AR_i/IR_i)$ for maximum ratios and $slack_i = 1 - (IR_i/AR_i)$ for minimum ratios, where IR is the level of the ratio at origination for loan i and AR is the threshold specified in the agreement for loan i . Larger values of *slack* imply more slack. Because it is difficult to compare the meaning of slack for debt-to-EBITDA and interest coverage covenants, we calculate the sample-wide deciles for the slack for each of these covenants. For loans with both of these covenants we use the lowest of the four deciles.

Table 2 provides summary statistics for the slack decile variable. The table reflects the well-known result that a byproduct of calculating slack in the manner we do is that smaller firms will tend to have larger values for the slack variable. This result is more pronounced for the smallest firms, but we have relatively few of those in our sample. Secured loans tend to have less slack, which is likely due to banks insisting on secured loans for riskier borrowers. Of particular interest is the finding that loans with more permissive EBITDA definitions tend to have less slack than those less permissive definitions. We explore that relationship more fully below.

Table 3 provides information about the involvement of law firms in the credit deal process. Practical Law provides this information when it is apparent in the text of the agreement, which is not always the case. Several items are clear from the table. First, there is relatively little overlap among firms that represent borrowers and those that represent

lead banks. This finding suggests that there is a fair amount of specialization among these firms. Second, this is a top-heavy market in that the firms doing the most deals are doing several times more deals than those near the bottom of the top ten list.

4 Results

We have three primary goals in analyzing the wide variation in the definitions of EBITDA in credit agreements. One is to understand what drives the permissiveness of EBITDA definitions. Doing so is a significant empirical challenge because this definition is likely to be jointly determined with many other aspects of a credit agreement. But there is an event during the course of our sample that helps to identify changes in the approaches to EBITDA. We expect that borrowers will generally seek to be as unconstrained by covenants as market conditions allow. Banks, however, may have competing motivations when it comes to EBITDA definitions. Restrictive definitions and low debt to EBITDA ceilings have all the well known benefits associated with restraining debtors. But Federal Reserve examiners also use debt-to-EBITDA to measure bank leverage. As discussed, the 2013 Leveraged Lending Guidance announced an intention by bank regulators to monitor leveraged lending more closely. In 2015, those regulators clarified this guidance by announcing that loans with debt-to-EBITDA ratios in excess of six would be “red flags.” To the degree that banks sought to have more leverage than recommended, one way to make the amount of leverage that loans entail more opaque is to expand the definition of EBITDA to include more income. In our analysis, we attempt to ascertain whether this shift in lending guidance coincided with a shift in the permissiveness of EBITDA definitions.

A second goal is to determine the associations between EBITDA definitions and other loan and firm characteristics. Following other studies of debt agreements we examine the relationship between our variable of interest—EBITDA permissiveness—and loan features such as covenant slack, the likelihood of loan securitization, and loan pricing. We also explore the associations between EBITDA permissiveness and firm characteristics such as firm leverage, firm size, and return on assets.

A final goal is to understand where this language originates. Previous work shows that the language of financial contracts is largely boilerplate with substantial dickering over the most important terms (Anderson & Manns, 2017).⁸ There are several plausible sources of

⁸We use the term “boilerplate” here to mean simply language that is copied from another agreement, regardless of how widely it is used. In the legal literature on contract drafting, by contrast, the term

this boilerplate: the borrowers and their law firms, the banks and their law firms, private equity sponsors, and similar documents available through EDGAR. In the analysis that follows we seek to identify the most common sources of this language.

4.1 The Leveraged Lending Guidance and EBITDA Definitions Over Time

Understanding what causes changes to EBITDA definitions is a complex task due to the number of variables that are simultaneously determined with those definitions. The Fed's leveraged lending guidelines do, however, provide a plausible shock to EBITDA definitions. These guidelines suggested that banks not issue loans that were more than six times the borrower's EBITDA. To the degree that banks wished to exceed those guidelines, there was an incentive to expand the definition of EBITDA to inflate the amount of cash flow used to determine leverage. While it is true that Fed bank examiners may be able to increase estimates of bank leverage based on permissive EBITDA definitions, we expect that the information asymmetry between examiners and banks may make it difficult to do so accurately.

We analyze the effect of the lending leverage guidelines on EBITDA definitions by using leads and lags variables to assess annual changes. We expect that, all else equal, loans issued after the Fed issued its guidance in March 2013 to have more permissive EBITDA definitions. This change would make it more desirable for banks to appear to be less leveraged by expanding the definition of EBITDA in loan agreements. Figure 4 shows the yearly average level of permissiveness for sponsored and unsponsored borrowers both before and after the issuance of the guidance in 2013. We break apart these two groups because the already-high level of permissiveness for sponsored loans may have placed more of a constraint on the desirability of even more permissiveness. The sponsored loans remain at roughly the same level of permissiveness throughout the sample, while the much more numerous non-sponsored loans increase in permissiveness over the course of the sample. The non-sponsored loans show two bumps in average EBITDA permissiveness, one in 2013 and another in 2016. Because the non-sponsored loans appear to have more bandwidth to expand their permissiveness, we focus on those loans in the analysis that follows.

Figure 5 depicts a more controlled assessment of the changes in the permissiveness of

“boilerplate” refers to standardized language that is so widespread in usage that it provides network and learning externalities (Kahan & Klausner, 1997).

EBITDA definitions. We use a regression where the dependent variable is the hand-coded value of the EBITDA index for the those loans in the training sample and the predicted EBITDA index for those loans in the test sample. The controls include indicators for each individual year in the sample, an indicator for a speculative loan, an indicator for a secured loan, the log of the deal size, and the leverage, log of total assets, and return on assets of the borrowing firm in the quarter of loan origination. We also include fixed effects for loan purpose, industry, and arranging bank and cluster the standard errors by industry. The figure plots the value of the coefficient for the indicator for year of loan issuance. There is a clear spike in the estimates of these coefficients between 2013 and 2014, which coincides with the issuance of the leveraged lending guidelines. All of the post-2012 coefficients are significantly different from zero and, as in Figure 4, there appears to be another bump post-2015.

Table 4 reports the results of regressions that are similar to those used to produce Figure 5. The regressions vary in the types of fixed effects they include, with the first specification using no fixed effects and the last including fixed effects for industry, loan purpose, and arranging bank. The coefficients for each individual year are similar across specifications and they corroborate the pattern observed in Figure 5. There was an increase in permissiveness in 2013 and that increase was stable through 2015, when there was another increase in permissiveness. The first increase is consistent with the issuance of the leveraged lending guidelines pushing parties to expand the definitions of EBITDA. The second increase, in 2016, occurred in the year following the guidance that debt-to-EBITDA ratios would be considered a red flag. This shift is consistent with banks becoming more comfortable with expanded EBITDA definitions in order to lower the debt-to-EBITDA ratios in leveraged loans. The Fed effectively abandoned its Leveraged Lending Guidance in 2018, but we do not have sufficient data to assess the effect of that shift. It could be that banks will begin to shift EBITDA definitions in response, but it is also possible that these definitions are “sticky” and thus it may take time for their content to shift.

It is also worth mentioning the value of some of the other variables. We find a strong positive relationship between deal size and the permissiveness of EBITDA definitions. We also find strong positive relationships between speculative grade loans, secured loans, borrowing firm leverage, and EBITDA definition permissiveness. These associations may indicate that EBITDA permissiveness tends to be larger for those loans that are to be riskier (to the degree that riskier loans are more likely to be secured). This account would be consistent with the view that banks sought to cloud the amount of leverage that their riskiest loans entailed.

4.2 EBITDA Definitions and Deal Characteristics

4.2.1 EBITDA Definitions and Financial Covenants

One reason that the definition of EBITDA is important in debt agreements is the role that it plays in financial covenants. As discussed above, the two most common covenants in the Dealscan database are the ratio of debt to EBITDA and the interest coverage ratio, both of which incorporate the definition of EBITDA. In this subsection we explore the relationship between the permissiveness of EBITDA definitions and the setting of financial covenants. In negotiating the presence and numerical thresholds of covenants, lenders presumably have an idea of how much or how little flexibility they are willing to grant to borrowers. When EBITDA definitions become more permissive for reasons unrelated to borrower financial condition, we expect banks to respond by tightening covenant thresholds. By doing so, banks keep roughly the same level of control over their borrowers.

In the previous subsection, we provided evidence that banks expanded the definition of EBITDA in response to the lending leverage guidelines issued by the Fed. Given this increase in EBITDA permissiveness, we expect banks to compensate by tightening covenant slack.⁹ Table 5 assesses the association between EBITDA permissiveness and covenant slack for unsponsored loans. As explained above, we calculate covenant slack for the maximum debt-to-EBITDA covenant, the minimum interest coverage ratio covenant, minimum debt service ratio, and minimum EBITDA. We calculate the sample wide decile for each covenant and use the lowest decile as an independent variable. We also include all the borrower variables used in Table 4 as well as two variables, maturity and whether the loan only includes a revolving credit facility, that we obtain from Dealscan. As the regressions in Table 5 show, we find the expected negative relationship between definition permissiveness and covenant slack. This relationship persists when we include fixed effects for year, industry, deal purpose, and arranging bank.

We also note the strong negative association between loan permissiveness and revolver-only loans. On average, these loans have stricter definitions of EBITDA than loan packages that include term loans. Revolver loans are less likely to be securitized and sold to non-bank investors such as CLOs (Ivashina & Sun, 2011) and are associated with more restrictive covenant packages (Bozanic et al., 2018). The increased agency costs that come with securitization may help to explain why banks are more comfortable with relaxed EBITDA definitions for loans that they expect to sell to non-bank investors. This result is consistent

⁹Banks have other ways to address the effect on the expansion of EBITDA on covenants. They could, for example, use covenants that are not tied to EBITDA. We do, however, still observe a substantial number of loans using EBITDA-based covenants after issuance of the lending guidelines.

with Ivashina and Vallee's finding that loans sold to CLOs tend to have more deductibles and carve outs than loans that banks retain. We note, however, that when we analyze another proxy for agency costs—the amount of the loan retained by the arranging bank—in unreported regressions, the coefficient is negative, but not statistically significant.

4.2.2 EBITDA Definitions and Loan Pricing

A natural question is whether borrowers must pay for laxer EBITDA definitions through an increase in the loan spread. Prior literature on debt agreements has shown associations between other deal features and loan spreads, such as covenant strength ((Bradley & Roberts, 2004)), the number of deductibles and carve outs in restrictive covenants (), and the presence of private equity sponsors (Demiroglu & James, 2010b). We expect a positive relationship between loan spreads and EBITDA permissiveness because we expect creditors to demand compensation for the increased risk that comes with a more relaxed definition of EBITDA. Borrowers may be willing to pay this increased cost for the flexibility that comes with a more permissive definition of EBITDA. That flexibility may allow the borrower to avoid violating a covenant that would have been tripped under a more strict definition of EBITDA.

Table 6 presents the results of regressions that use the all-in-drawn spread for each unsponsored loan as a dependent variable. This spread captures the spread of the loan over LIBOR as well as any fees charged by the lenders. We regress this spread on the EBITDA permissiveness index as well as the deal and firm controls that we use in earlier analysis. With only year fixed effects the EBITDA index variable is positive, but is not statistically significant. When we include industry fixed effects the that variable is statistically significant at the one-percent level and remains so with the inclusion of fixed effects for loan purpose and arranging bank. In the last three regressions, the coefficient is fairly large. It implies that a one-point increase in the permissiveness index is associated with a five to six point increase in spread basis points. These results are consistent with borrowers having to compensate creditors for increased flexibility in defining income.

4.3 Origins of EBITDA Definitions

One way to understand the dynamics underlying the definition of EBITDA is to identify the sources of definition content. In most legal documents drafted by sophisticated parties the text is a mix of boilerplate and language that the parties tailor for that specific transaction. Researchers have developed a number of techniques to distinguish between boilerplate

content and tailored content. These methods require identifying the potential sources of copying and ascertaining how similar a given piece of text is to those sources. For credit agreements, there are a number of plausible sources. The primary parties, the borrower firms and lending banks, will naturally have an interest in contract text. Loan sponsors, which are typically private equity firms, are also likely to care about the definitions of terms like EBITDA in loan agreements. As the claimants to the borrower’s equity, they are likely to press for some combination of a looser EBITDA definition and higher debt-to-EBITDA ceilings. Law firms are another likely source of boilerplate language. We are not aware of studies that examine the influence of law firms on credit agreements, but Hoberg and Hanley (2010) show that the law firm of the issuer and the law firm of the underwriter have a significant effect on the content of offering prospectuses.

To ascertain the source of EBITDA definitions we adapt a method developed by Hanley and Hoberg (2010). This method allows estimation of both the origin of boilerplate language and the degree to which the parties have tailored a document. In order to do so, we follow standard text cleaning protocols in the text analysis literature. We form a corpus of all EBITDA definitions in the relevant set of agreements.¹⁰ We then remove all stop words (as defined by R’s `quanteda` package), remove all numbers and punctuation, stem all words, and require that a word appear at least five times in the corpus and in at least five documents in the corpus. After this filtering, the corpus contains 2,530 unique words.

To conduct this analysis we need to ascertain the potential sources of boilerplate for the EBITDA definition. We differentiate between deals with private equity sponsors and those without private equity sponsors. For sponsored deals, we use the EBITDA definitions from all previous credit agreements prepared by the same sponsors, the same bank, the same borrowers, all previous credit agreements which involve the same sponsors and same borrowers, and all other credit agreements prepared within the previous 90 days. For non-sponsored deals, we use the EBITDA definitions from all previous credit agreements prepared by the same borrower, the same borrower law firm, the same bank and same bank law firm, and all other credit agreements prepared within the previous 90 days. Each potential source of boilerplate s , of S sources, contains K agreements. That source has word vectors $words_{tot,s,k}$, which we normalize by dividing by the sum of words in that vector: $norm_{tot,s,k}$. For each agreement i , we define the average normalized word vectors for the j th source of boilerplate ($norm_{s_j,i}$) as:

¹⁰There are some amended and restated agreements in the full sample. To ensure that we are using only newly drafted agreements for this analysis, we filter out any deal described as “amended.”

$$norm_{s_j,i} = \frac{1}{K} \sum_{k=1}^K norm_{tot,k} \quad (1)$$

For sources J , we then run the following regression (without an intercept) for each EBITDA definition (i.e., for each credit agreement):

$$norm_{tot_s,i} = a_{j_1,i} norm_{j_1,i} + \dots + a_{j_{max},i} norm_{j_{max},i} + \epsilon \quad (2)$$

In these regressions, each unique word in the corpus is an observation. This analysis compares the distribution of a word in a given EBITDA definition with the distribution of that word in each of the respective sources of boilerplate. The coefficients provide an estimate of the similarity between those word distributions. Presuming that we have identified the major sources of boilerplate, the residuals provide information about the amount of editing that the parties have done to the EBITDA definition. Larger residuals suggest that the word shares are deviating from boilerplate sources, which would be consistent with the parties tailoring language for the transaction. Following Hanley and Hoberg, we use the absolute value of the sum of the residuals as an indicator of the amount of tailoring in the definition.

Table 7 provides the means and standard deviations of each coefficient (given that we run a regression for each agreement) and the mean of the absolute value of the residuals for sponsored deals. We do not have a mean for all sources because for some of the agreements that source does not exist. For example, if the borrower has no other agreements that appear in the sample, we are unable to assess the influence of that source. Table 8 provides similar statistics for non-sponsored deals.

The absolute value of the residuals is similar for sponsored and non-sponsored deals, which suggests that both types of agreements see roughly equivalent amounts of tailoring of their EBITDA definitions. The sponsored deals appear to draw substantially more from recent agreements, although the mean of these coefficients for sponsored deals is not especially large at .222. The mean coefficients for previous agreements prepared by the banks suggest that this boilerplate plays a more influential role in non-sponsored deals relative to sponsored deals. This evidence is consistent with private equity sponsors playing an active role in the negotiating process, while non-sponsored borrowers defer more to the lead bank. The average of the coefficients for the amount of content borrowed from previous deals involving the same sponsors and deals involving the same sponsor and same borrower buttress this view. The average coefficient for language used by the same sponsor is .309, suggesting that sponsors push for their language to be used repeatedly.

Although the average coefficient for previous deals by just the same borrower is larger at .396, the large average coefficient for past deals with the same borrower and same sponsor suggests that these parties push to use the same definitions over and over again.¹¹ This evidence is also consistent with private equity sponsors having an influence on EBITDA definition content.

The correlations between the sources of boilerplate and document tailoring show some interesting associations. For the sponsored agreements, there is a strong negative association between document tailoring and borrowing from previous borrower agreements and previous agreements prepared by the same borrower and same sponsor. These facts suggest that when borrowers and sponsors are able to draw from their previous agreements they do not do further tailoring. This finding is also consistent with both borrowers, and to a lesser extent, sponsors, insisting on uniformity across the EBITDA definitions in their credit agreements. In contrast, when banks do so, there is substantial tailoring of the EBITDA definitions. The story is quite similar for non-sponsored agreements. There is a strong negative correlation between use of previous borrower definitions and document tailoring, while there is a strong positive correlation between use of previous bank definitions and tailoring.

5 Conclusion

In this study we show that EBITDA definitions in credit agreements have significantly more variation than previously appreciated. This finding poses several important questions about the mechanics of financial contracting. One is why is there so much variation in these key definitions when the literature expects to see standardization. Part of the answer might be a demand for uniformity across a given borrower's credit agreements—which is consistent with the evidence that we develop on the source of EBITDA definitions—but there are lingering questions about why we do not observe standardization across borrowers. Our finding that these definitions vary in how permissively they treat income points to several other open questions. We show that loans sponsored by private equity buyers have consistently more permissive EBITDA than unsponsored loans across our entire sample period. But it is unclear when this difference developed and why. More concretely, we are able to document an expansion of EBITDA definition permissiveness after the Fed's

¹¹It is important to note that the sample sizes are particularly small for the deals where there are previous deals involving only that borrower and previous deals involving the same borrower and same sponsor.

issuance its leveraged loan guidance. We suggest that this expansion occurred because banks sought to make their leverage more opaque through these definitions. We also show that, as definitions allowed more income to be included in EBITDA, lenders imposed financial covenant thresholds with less slack. This evidence is consistent with lenders seeking to make up for the additional flexibility permitted in these definitions through more restrictive covenants.

References

- Achleitner, A.-K., Braun, R., Hinterramskogler, B., & Tappeiner, F. (2011). Structure and determinants of financial covenants in leveraged buyouts. *Review of Finance*, 16(3), 647–684.
- Aghion, P., & Bolton, P. (1992). An incomplete contracts approach to financial contracting. *The Review of Economic Studies*, 59(3), 473–494.
- Anderson, R., & Manns, J. (2017). The inefficient evolution of merger agreements. *Geo. Wash. L. Rev.*, 85, 57.
- Axelson, U., Jenkinson, T., Strömberg, P., & Weisbach, M. S. (2013). Borrow cheap, buy high? The determinants of leverage and pricing in buyouts. *The Journal of Finance*, 68(6), 2223–2267.
- Ayotte, K., & Bolton, P. (2011). Covenant lite lending, liquidity and standardization of financial contracts. In K. Ayotte & H. E. Smith (Eds.), *Research handbook on the economics of property law* (pp. 174–189). Edward Elgar Publishing.
- Baird, D. G., & Rasmussen, R. K. (2006). Private debt and the missing lever of corporate governance. *University of Pennsylvania Law Review*, 154, 1209–1251.
- Ball, R., Bushman, R. M., & Vasvari, F. P. (2008). The debt-contracting value of accounting information and loan syndicate structure. *Journal of Accounting Research*, 46(2), 247–287.
- Beleites, C., Neugebauer, U., Bocklitz, T., Krafft, C., & Popp, J. (2013). Sample size planning for classification models. *Analytica Chimica Acta*, 760, 25–33.
- Bord, V. M., & Santos, J. A. (2015). Does securitization of corporate loans lead to riskier lending? *Journal of Money, Credit and Banking*, 47(2-3), 415–444.

- Bozanic, Z., Loumiotis, M., & Vasvari, F. P. (2018). Corporate loan securitization and the standardization of financial covenants. *Journal of Accounting Research*, 56(1), 45–83.
- Bradley, M., & Roberts, M. R. (2004). The structure and pricing of corporate debt covenants. *Working Paper*.
- Buehlmaier, M. M., & Whited, T. M. (2018). Are financial constraints priced? Evidence from textual analysis. *The Review of Financial Studies*, 31(7), 2693–2728.
- Chava, S., & Roberts, M. R. (2008). How does financing impact investment? The role of debt covenants. *The Journal of Finance*, 63(5), 2085–2121.
- Choi, A., & Triantis, G. (2012). The effect of bargaining power on contract design. *Virginia Law Review*, 1665–1743.
- Choi, A., & Triantis, G. (2013). Market conditions and contract design: Variations in debt contracting. *NYU L. Rev.*, 88, 51.
- Christensen, H. B., & Nikolaev, V. V. (2012). Capital versus performance covenants in debt contracts. *Journal of Accounting Research*, 50(1), 75–116.
- Coates, J. C. (2001). Explaining variation in takeover defenses: Blame the lawyers. *Calif. L. Rev.*, 89, 1301.
- Coates, J. C. (2016). *Why have m & a contracts grown? Evidence from twenty years of deals*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2862019
- Demerjian, P., & Owens, E. (2013). *Measuring financial covenant strictness in private debt contracts*. Working Paper.
- Demerjian, P. R., & Owens, E. L. (2016). Measuring the probability of financial covenant violation in private debt contracts. *Journal of Accounting and Economics*, 61(2-3), 433–447.
- Demiroglu, C., & James, C. M. (2010a). The information content of bank loan covenants. *The Review of Financial Studies*, 23(10), 3700–3737.
- Demiroglu, C., & James, C. M. (2010b). The role of private equity group reputation in lbo financing. *Journal of Financial Economics*, 96(2), 306–330.
- Dichev, I. D., & Skinner, D. J. (2002). Large sample evidence on the debt covenant hypothesis. *Journal of Accounting Research*, 40(4), 1091–1123.

- Frankel, R., & Litov, L. (2007). Financial accounting characteristics and debt covenants.
- Ganglmair, B., & Wardlaw, M. (2017). Complexity, standardization, and the design of loan agreements.
- Gârleanu, N., & Zwiebel, J. (2009). Design and renegotiation of debt covenants. *Review of Financial Studies*, 22(2), 749–781.
- Hanley, K. W., & Hoberg, G. (2010). The information content of ipo prospectuses. *Review of Financial Studies*, 23(7), 2821–2864.
- Ivashina, V. (2009). Asymmetric information effects on loan spreads. *Journal of Financial Economics*, 92(2), 300–319.
- Ivashina, V., & Kovner, A. (2011). The private equity advantage: Leveraged buyout firms and relationship banking. *The Review of Financial Studies*, 24(7), 2462–2498.
- Ivashina, V., & Sun, Z. (2011). Institutional demand pressure and the cost of corporate loans. *Journal of Financial Economics*, 99(3), 500–522.
- Ivashina, V., & Vallee, B. (2019). Weak credit covenants. *Available at SSRN 3218631*.
- Jensen, M. C., & Meckling, W. H. (1976). Agency costs and the theory of the firm. *Journal of Financial Economics*, 3(4), 305–360.
- Kahan, M., & Klausner, M. (1997). Standardization and innovation in corporate contracting (or "the economics of boilerplate"). *Virginia Law Review*, 713–770.
- Kim, S., Plosser, M. C., & Santos, J. A. (2018). Macroprudential policy and the revolving door of risk: Lessons from leveraged lending guidance. *Journal of Financial Intermediation*, 34, 17–31.
- Krishnan, C., & Masulis, R. W. (2013). Law firm expertise and merger and acquisition outcomes. *The Journal of Law and Economics*, 56(1), 189–226.
- Leftwich, R. (1983). Accounting information in private markets: Evidence from private lending agreements. *Accounting Review*, 23–42.
- Li, N., Vasvari, F. P., & Wittenberg-Moerman, R. (2016). Dynamic threshold values in earnings-based covenants. *Journal of Accounting and Economics*, 61(2-3), 605–629.
- Matvos, G. (2013). Estimating the benefits of contractual completeness. *The Review of Financial Studies*, 26(11), 2798–2844.

- Nini, G., Smith, D. C., & Sufi, A. (2012). Creditor control rights, corporate governance, and firm value. *Review of Financial Studies*, 25(6), 1713–1761.
- Roberts, M. R., & Sufi, A. (2009). Renegotiation of financial contracts: Evidence from private credit agreements. *Journal of Financial Economics*, 93(2), 159–184.
- Romano, R., & Sanga, S. (2017). The private ordering solution to multiform shareholder litigation. *Journal of Empirical Legal Studies*, 14(1), 31–78.
- Smith Jr, C. W., & Warner, J. B. (1979). On financial contracting: An analysis of bond covenants. *Journal of Financial Economics*, 7(2), 117–161.
- Zhang, C. X., & Zhou, S. (2013). Bond covenants and institutional blockholding. *Unpublished Manuscript*.

Appendix

Coding of EBITDA Definitions

This Appendix describes how the training sample of EBITDA definitions was coded, in order to create a measure of permissiveness.

We began with a randomly selected subsample of 419 loan agreements from our sample of 4,170 agreements that contained an EBITDA definition. We then read each definition individually and, taking as our base case the GAAP definition of EBITDA (which receives a value of one), we manually coded whether it included specific adjustments to GAAP EBITDA. More precisely, for each of the following seven adjustments to EBITDA, we coded (0 or 1) whether it was included in the definition:

- Non-cash charges
- Cash charges for extraordinary or non-recurring items
- Cash charges for restructuring
- Projected cost savings from synergies, restructurings, etc.
- Management/advisory fees payable to sponsor
- Fees and expenses related to acquisitions, investments, equity or debt issuances, etc.
- Miscellaneous additional addbacks

We then sum these up for each definition to create an aggregate score out of a possible 8 (with 8 being the most permissive, and 1 the least).

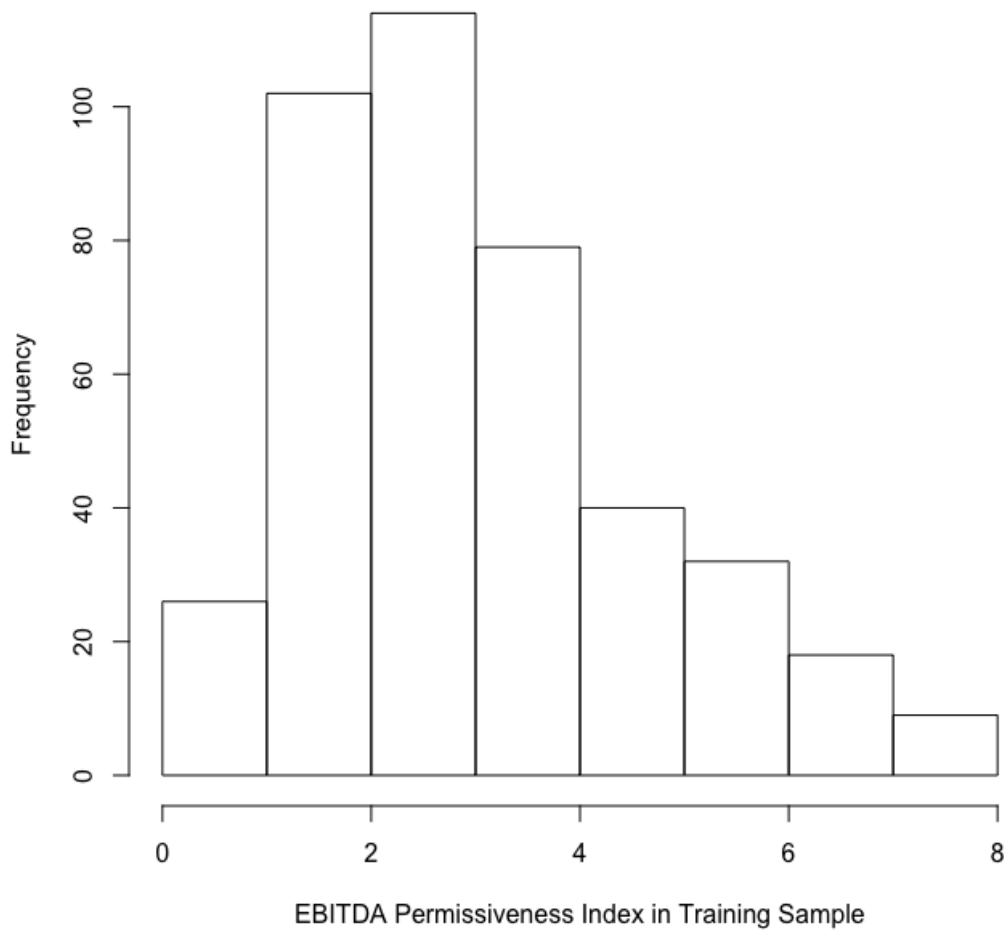


Figure 1: Distribution of EBITDA Permissiveness Index for Hand-Coded Sample

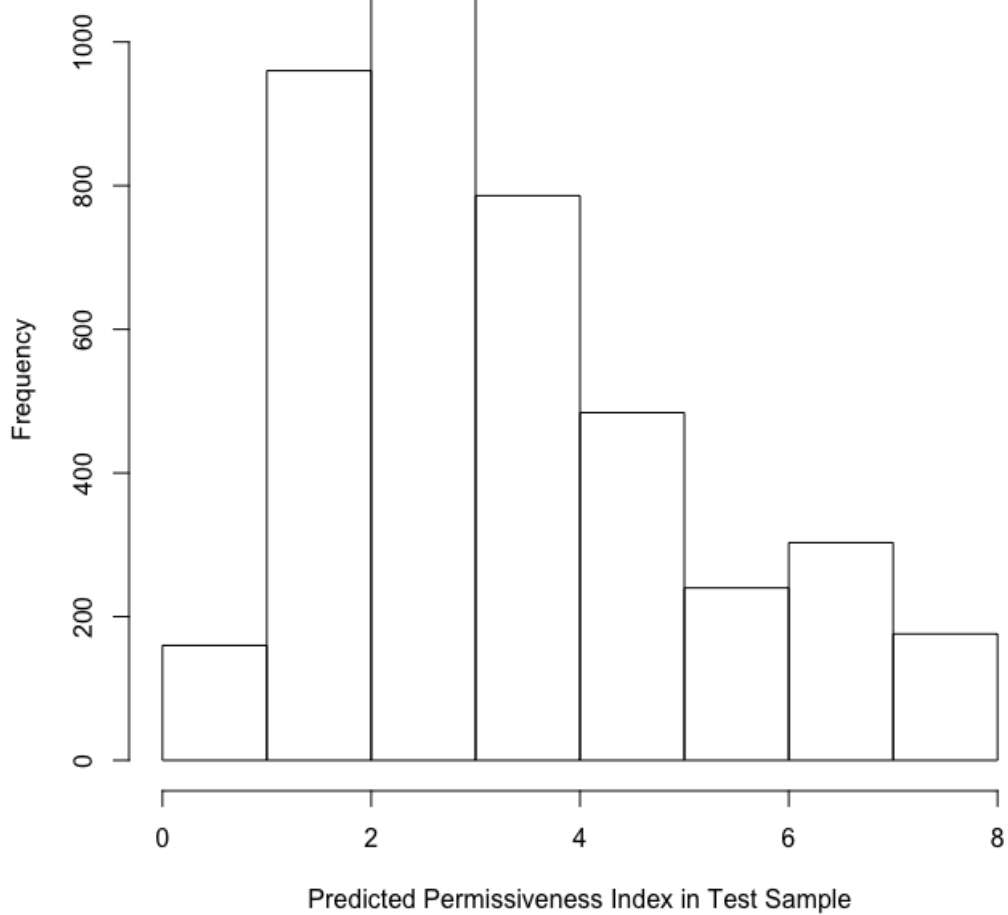


Figure 2: Predicted EBITDA Definition Index

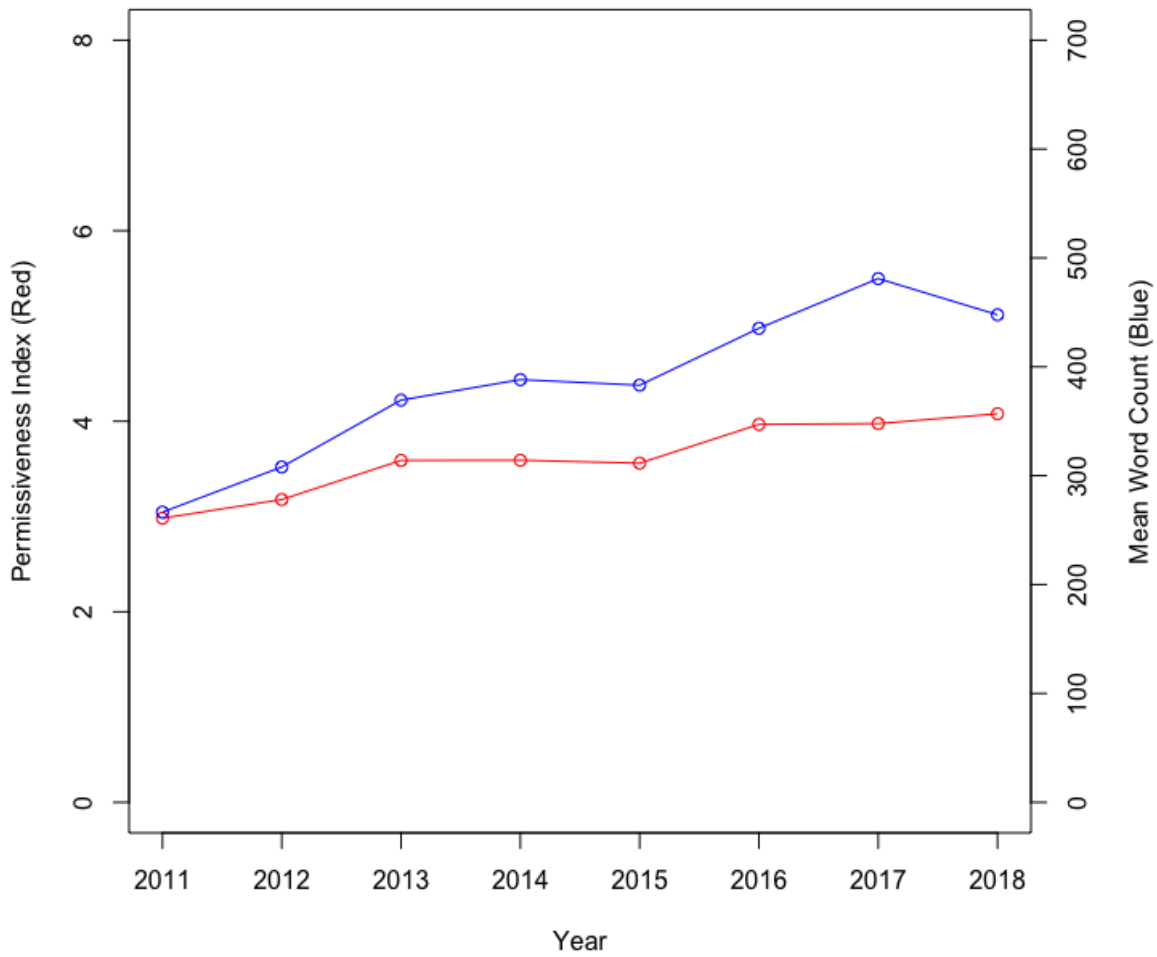


Figure 3: Mean Predicted Probability of Permissiveness and Word Count by Year for EBITDA Definitions

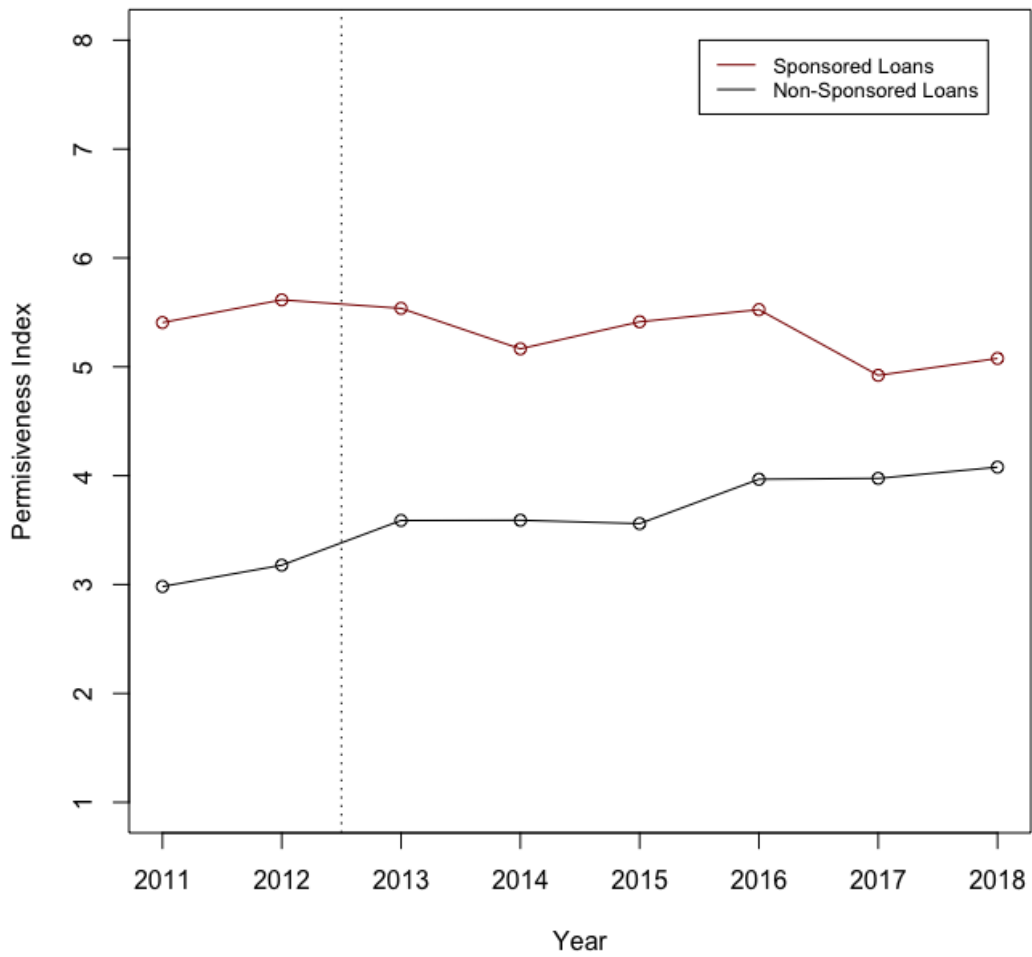


Figure 4: Permissiveness Index by Year (Red=Sponsored Loans, Black=Non-Sponsored Loans)

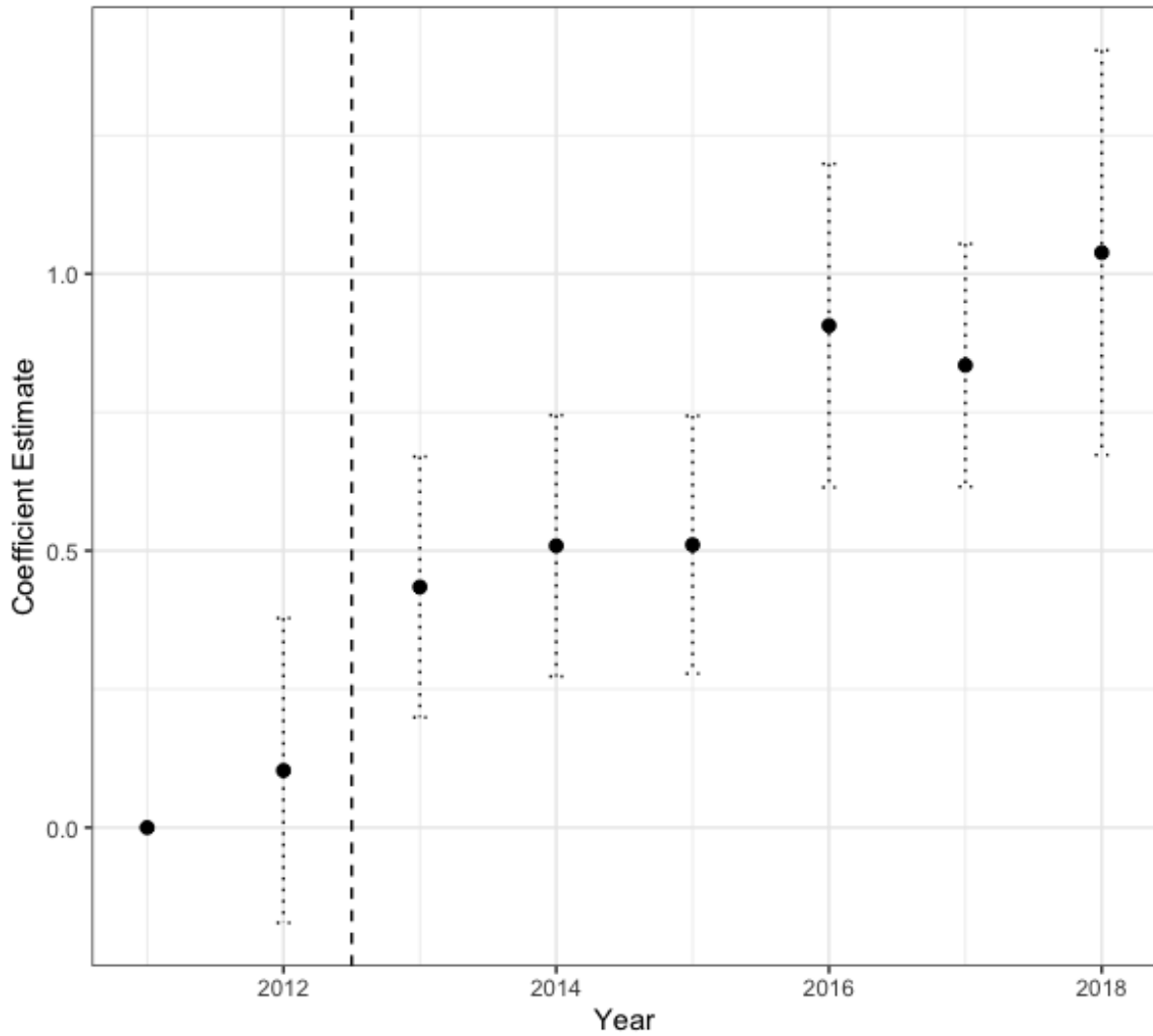


Figure 5: Leads and Lags for the Probability that a Credit Agreement Is Permissive

Note: The figures show the coefficient estimates for yearly indicator variables in an OLS regression of unsponsored loans where the dependent variable is the predicted (or actual) EBITDA permissiveness index. The other controls include an indicator for speculative loans, an indicator for secured loans, the log of deal size, log of borrower total assets, borrower leverage, and return on assets. The regression includes fixed effects for industry, loan purpose, and arranging bank and uses robust standard errors clustered by industry. The dotted lines indicate 95 percent confidence intervals. N=2,771.

Table 1: Table: Summary Statistics for EBITDA Definition Word Counts and Predicted Probability of Permissiveness

	WC Mean	WC SD	Index Mean	N
Deal Size				
Less than \$100M	332.0	264.3	3.44	587
\$100M to \$250M	405.0	355.2	3.68	884
\$250M to \$500M	433.4	360.2	3.82	974
\$500M to \$1B	436.7	369.4	3.84	879
More than \$1B	485.5	409.9	4.06	846
Secured				
No	279.1	195.8	3.06	1616
Yes	516.3	411.1	4.25	2554
Speculative Grade				
No	276.2	187.8	3.05	810
Yes	460.1	385.2	3.97	3360
Private Equity				
Sponsored Loan	760.7	487.8	5.37	531
Unsponsored Loan	375.3	312.0	3.56	3639
Permissiveness				
Low (Index ≤ 3)	239.9	151.3	2.41	2181
High (Index > 3)	626.6	415.7	5.30	1989

Table 2: Statistics for Covenant Slack Decile (Higher = More Slack)

	Mean	St.Dev.	N
Deal Size			
Less than \$100M	6.58	3.34	121
\$100M to \$250M	5.78	3.21	269
\$250M to \$500M	5.21	2.80	320
\$500M to \$1B	4.56	2.56	323
More than \$1B	4.55	2.53	320
Secured			
No	5.61	2.58	646
Yes	4.70	3.09	707
Speculative Grade			
No	5.18	2.34	348
Yes	5.12	3.07	1005
Private Equity			
Sponsored Loan	3.72	2.68	81
Non-Sponsored Loan	5.22	2.89	1272
Permissiveness			
Low (Index ≤ 3)	5.57	2.85	743
High (Index > 3)	4.61	2.87	610

Table 3: Top Ten Borrower and Lead Bank Law Firms in the Sample

	Deals
Borrower Law Firm	
Latham & Watkins LLP	190
Skadden Arps Slate Meagher & Flom LLP	138
Kirkland & Ellis LLP	102
Simpson Thacher & Bartlett LLP	102
Gibson Dunn & Crutcher LLP	71
Vinson & Elkins LLP	70
DLA Piper LLP	68
Jones Day	68
Sidley Austin LLP	64
Paul Weiss Rifkind, Wharton & Garrison LLP	59
Lead Bank Law Firm	
Cahill Gordon & Reindel LLP	143
Shearman & Sterling LLP	103
Simpson Thacher & Bartlett LLP	84
Latham & Watkins LLP	81
Cravath Swaine & Moore LLP	65
Davis Polk & Wardwell LLP	56
Riemer & Braunstein LLP	47
McGuireWoods LLP	43
King & Spalding LLP	38
Vinson & Elkins LLP	38

Table 4: Regressions of Loan Characteristics and EBITDA Definition Permissiveness

	Permissiveness Index			
	(1)	(2)	(3)	(4)
2012	0.133 (0.126)	0.146 (0.128)	0.123 (0.130)	0.103 (0.140)
2013	0.481*** (0.126)	0.499*** (0.124)	0.468*** (0.122)	0.434*** (0.120)
2014	0.549*** (0.129)	0.578*** (0.126)	0.494*** (0.121)	0.509*** (0.120)
2015	0.623*** (0.122)	0.545*** (0.110)	0.496*** (0.105)	0.511*** (0.119)
2016	0.938*** (0.146)	0.910*** (0.145)	0.859*** (0.151)	0.907*** (0.149)
2017	0.953*** (0.099)	0.930*** (0.103)	0.812*** (0.098)	0.835*** (0.112)
2018	1.091*** (0.181)	1.061*** (0.182)	0.968*** (0.186)	1.038*** (0.186)
Speculative Grade	0.362*** (0.121)	0.397*** (0.114)	0.324*** (0.106)	0.352*** (0.118)
Secured Loan	0.903*** (0.120)	0.885*** (0.103)	0.905*** (0.095)	0.852*** (0.103)
ln(Deal Value)	0.188** (0.087)	0.199*** (0.058)	0.169*** (0.047)	0.102** (0.052)
Leverage	0.531*** (0.167)	0.650*** (0.176)	0.487*** (0.167)	0.387** (0.152)
ln(Assets)	0.056 (0.076)	0.043 (0.053)	0.033 (0.052)	0.031 (0.055)
ROA	0.293 (0.422)	-0.058 (0.308)	-0.143 (0.299)	-0.193 (0.298)
Industry Fixed Effects	N	Y	Y	Y
Loan Category Fixed Effects	N	N	Y	Y
Bank Fixed Effects	N	N	N	Y
<i>N</i>	2,771	2,771	2,771	2,771
Adjusted R ²	0.141	0.215	0.248	0.282

Note: The dependent variable in these OLS regressions is the actual or predicted value of the EBITDA permissiveness index. The year variables are indicators for whether the loan was issued in that year, Speculative indicates a speculative grade loan, Secured indicates that the loan was secured by collateral of some type, ln(Deal Value) is the log of the deal value, Leverage is ratio of the borrowing firm's short term and long term debt to its total assets, ln(Assets) is the natural log of total assets, and ROA is the four-quarter trailing EBITDA divided by total assets. All regressions include robust standard errors, standard errors clustered by industry, and fixed effects as indicated. Statistical significance is denoted by: *p<0.10; **p<0.05; ***p<0.01.

Table 5: Regressions of EBITDA Definition Permissiveness and Covenant Slack

	Permissiveness Index				
	(1)	(2)	(3)	(4)	(5)
Slack	-0.067** (0.028)	-0.067** (0.029)	-0.069*** (0.025)	-0.072*** (0.026)	-0.058** (0.026)
Speculative Grade	-0.035 (0.151)	0.021 (0.155)	0.079 (0.150)	0.060 (0.143)	0.053 (0.160)
Secured Loan	0.730*** (0.151)	0.723*** (0.142)	0.718*** (0.124)	0.684*** (0.129)	0.654*** (0.145)
ln(Deal Value)	0.105 (0.109)	0.083 (0.106)	0.118 (0.092)	0.109 (0.097)	0.091 (0.097)
Leverage	-0.043 (0.294)	-0.104 (0.300)	0.087 (0.374)	0.116 (0.381)	-0.105 (0.401)
ln(Assets)	0.013 (0.090)	0.017 (0.091)	0.001 (0.083)	-0.002 (0.085)	0.011 (0.088)
ROA	-0.004 (0.544)	-0.001 (0.516)	-0.496 (0.575)	-0.522 (0.552)	-0.927 (0.625)
Maturity	0.008* (0.004)	0.008* (0.004)	0.004 (0.005)	0.005 (0.005)	0.003 (0.004)
Revolver Only	-0.569*** (0.091)	-0.512*** (0.091)	-0.390*** (0.088)	-0.337*** (0.116)	-0.387*** (0.122)
Year Fixed Effects	N	Y	Y	Y	Y
Industry Fixed Effects	N	N	Y	Y	Y
Loan Type Fixed Effects	N	N	N	Y	Y
Bank Fixed Effects	N	N	N	N	Y
N	1,238	1,238	1,238	1,238	1,238
Adjusted R ²	0.139	0.166	0.217	0.218	0.257

Note: The dependent variable in these OLS regressions is the actual or predicted value of the EBITDA permissiveness index. Slack is the lowest decile of the EBITDA-based covenants in the loan, Speculative indicates a speculative grade loan, Secured indicates that the loan was secured by collateral of some type, ln(Deal Value) is the log of the deal value, Leverage is ratio of the borrowing firm's short term and long term debt to its total assets, ln(Assets) is the natural log of total assets, ROA is the four-quarter trailing EBITDA divided by total assets, Maturity is the maturity of the loan in months, and Revolver Only indicates that the only facility in the package is a revolving credit facility. All regressions include robust standard errors clustered by industry and fixed effects as indicated. Statistical significance is denoted by: *p<0.10; **p<0.05; ***p<0.01.

Table 6: Regressions of EBITDA Definition Permissiveness and Loan Pricing

	All-In-Drawn Spread (in basis points)			
	(1)	(2)	(3)	(4)
EBITDA Index	4.307 (3.148)	6.001*** (1.886)	5.585*** (1.750)	5.075*** (1.285)
Year Fixed Effects	Y	Y	Y	Y
Industry Fixed Effects	N	Y	Y	Y
Loan Purpose Fixed Effects	N	N	Y	Y
Bank Fixed Effects	N	N	N	Y
<i>N</i>	1,963	1,963	1,963	1,963
Adjusted R ²	0.429	0.460	0.480	0.571

Note: The dependent variable in these OLS regressions is the all-in-drawn spread over LIBOR of each loan at issuance. EBITDA Index is the actual or predicted income permissiveness index. Included, but unreported variables, are speculative, which indicates a speculative grade loan, Secured, which indicates that the loan was secured by collateral of some type, ln(Deal Value), which is the log of the deal value, Leverage, which is ratio of the borrowing firm's short term and long term debt to its total assets, ln(Assets), which is the natural log of total assets, ROA, which is the four-quarter trailing EBITDA divided by total assets, Maturity, which is the maturity of the loan in months, and Revolver Only, which indicates that the only facility in the package is a revolving credit facility. All regressions include robust standard errors clustered by industry and fixed effects as indicated. Statistical significance is denoted by: *p<0.10; **p<0.05; ***p<0.01.

Table 7: Estimates of the Amount of Edited Content (Absolute Value of Sum of Residuals) and Copied Content (All Other Variables) for EBITDA Definitions

Variable	Mean	SD	N
Sponsored Deals			
Abs. Val. of Sum of Resid.	0.750	0.352	178
Agreements from last 90 days	0.222	0.507	178
Same Bank Only	0.306	0.573	174
Same Borrower and Same Sponsor	0.673	0.369	26
Same Borrower Only	0.396	0.428	37
Same Sponsor Only	0.309	0.396	156
Non-Sponsored Deals			
Abs. Val. of Sum of Resid.	0.794	0.446	1747
Agreements from last 90 days	0.124	0.677	1747
Same Bank Only	0.583	0.830	1747
Same Borrower and Same Law Firm	0.097	0.358	334
Same Borrower Law Firm Only	0.129	0.417	447
Same Borrower Only	0.735	0.350	678

Note: This table reports the mean and standard deviation of the absolute value of the sum of the residuals and of the regression coefficients across a group of OLS regressions designed to measure the degree of tailoring and of copying in a given EBITDA definition relative to potential precedent sources of boilerplate language. The procedure is adapted from Hanley and Hoberg (2010). Larger values of the absolute value of the sum of residuals suggest greater tailoring of the EBITDA definition, while larger regression coefficients suggest more copying from precedent sources. We report results separately for private equity sponsored deals and non-sponsored deals.

Table 8: Correlation Between Estimated Contract Tailoring and Estimated Use of Copied Content from Previous EBITDA Definitions

	Correlation with Tailoring Variable
Sponsored Deals	
Agreements from Last 90 Days	0.364
Same Bank Only	0.303
Same Bank and Same Sponsor	-0.918
Same Borrower Only	-0.732
Same Sponsor Only	-0.221
Non-Sponsored Deals	
Agreements from last 90 days	0.060
Same Bank Only	0.461
Same Borrower and Same Law Firm	-0.030
Same Borrower Law Firm Only	0.104
Same Borrower Only	-0.852

Note: This table reports the correlation coefficient between our estimate of the degree of copying from each potential precedent source of EBITDA definitions and our estimate of the degree of tailoring of the EBITDA definition. We report results separately for private equity sponsored deals and non-sponsored deals. For any given precedent source, a higher coefficient suggests that when the parties draw heavily from that source for their EBITDA language, they also choose to edit it very little.