Securities laws and the choice between loans and bonds for highly levered firms

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ABSTRACT

In contrast to bonds, levered loans do not require SEC registration. We show that this distinction plays an important role in firms' choice between funding through loans and bonds and helps understand why the market share of cov-lite loans has increased so much. Compared to cov-heavy loans, cov-lite loans are close substitutes for bonds in that they have similar covenants, have tighter bid-ask spreads, have more trading, and are more likely to be used to refinance bonds than cov-heavy loans. SEC-reporting firms that borrow using cov-lite loans are more likely to deregister subsequently. Non-reporting firms are more likely to borrow through highly levered loans than through bonds, even though maturities, amounts, covenants, and ratings are similar between the two sources of funding. As expected from theory, we find that the liquidity advantage of cov-lite loans over cov-heavy loans is highest for non-registered issuers where information asymmetries are greater.

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1. Introduction

There is a considerable literature that examines theoretically and empirically the choice of firms between borrowing from public markets and from banks. In this literature, reviewed in the next section, bank loans differ from bonds because banks monitor the borrower through covenants and have information that capital market investors do not have. This literature cannot explain why the typical leveraged loan outstanding is a cov-lite loan.[1] Like bonds but unlike traditional bank loans, cov-lite loans do not have maintenance covenants. The absence of maintenance covenants means that the lender cannot monitor the loan at regular intervals, so that compared to a traditional bank loan, a cov-lite loan is an unmonitored loan.

Partly or mostly because of data availability, the literature has heavily focused on choices made by public firms. We argue in this paper that the literature misses an important dimension of the choices made by firms. A firm can only issue public bonds if it registers these bonds with the SEC and commits to regular filings. Further, because of the trust indenture act, the firms that issue bonds publicly face severe limitations in restructuring these bonds. Such limitations do not exist for bank loans. Hence, borrowing from the markets would change drastically the public reporting requirements of a private firm. In contrast, borrowing in the form of a loan would have no impact on these requirements.

We investigate in this paper whether the different legal status of bonds and loans is an important factor in firms' decisions to borrow in the form of loans or through issuance of bonds. To simplify, we call regulatory arbitrage the use of the loan market by firms to raise funds without having to register with the SEC. We find that regulatory arbitrage plays an important role in firms' use of banks to raise funds and helps understand the dramatic growth of the cov-lite market.

There is now a large literature documenting the drop in IPOs in the 2000s and the decrease in the willingness of firms to be publicly listed (see Doidge, Karolyi, and Stulz (2013, 2017) and Gao, Ritter, and Zhu (2013)). It is often argued that firms shy from the public markets in part because going public

[1] http://www.leveragedloan.com/primer/#!covenant-lite-loans.

changes their disclosure obligations and puts them under the regulatory umbrella of the SEC. If the change in disclosure obligations leads firms to avoid going public, we would also expect private firms to refrain from issuing bonds publicly and would expect public firms that might want to go private to do the same. The role of SEC registration requirements in the decision of firms to borrow through loans instead of bonds is largely obscured by the fact that firm-level data is available almost exclusively for SEC registered firms. Any analysis of the decision to borrow through bonds or loans that uses a conventional database such as Compustat is limited to SEC registered firms. Yet, though the typical issuer of a bond is an SEC registered firm, the typical borrower through a highly levered loan is a private firm.

Historically, loans differed from bonds because loans were illiquid and held by banks which monitored borrowers while bonds were liquid and there was no bank-like monitoring for bond issuers. These sharp distinctions between loans and bonds started to disappear in the 1980s and the disappearance has accelerated. Now, firms that do not qualify for an investment-grade rating can borrow through loans that resemble bonds. These cov-lite loans enable firms to borrow in a way that is very similar to issuing a bond but without having to register the bond with the SEC and be subject to the disclosure requirements of securities laws and the trust indenture act. The development of the cov-lite loans has made it cheaper for firms to stay private in that it has made the financing opportunities of private firms closer to the financing opportunities of public firms.

If covenant-lite loans are advantageous for firms because they effectively constitute bond financing without the disclosure requirements and without the restructuring restrictions of public bonds, we would expect cov-lite loans to be relatively more favored by firms not traded on exchanges and by firms that are more likely to exit exchanges. We find that this is the case. Firms that borrow through cov-lite loans are less likely to be public firms than firms that borrow through cov-heavy loans or bonds. Further, a public firm that borrows through a cov-lite loan is much more likely to exit public markets than a firm that borrows through a cov-heavy loan or a bond. Strikingly, firms refinancing a bond are more likely to borrow through a cov-lite loan than through a cov-heavy loan. Again, this evidence is supportive of the view that bonds and cov-lite loans are substitutes in a way that bonds and cov-heavy loans are not.

By borrowing through a cov-lite loan, a firm escapes disclosure requirements that it would have if it issued a public bond. However, for the cov-lite loan to be a substitute for issuing a public bond, it should be tradeable like a public bond. With a cov-heavy loan, lenders monitor the borrower and hence have information that outsiders do not have. As a result, an adverse selection problem arises that can make the market for a loan less liquid or illiquid as shown in Parlour and Plantin (2008). In contrast, the lack of maintenance covenants reduces the adverse selection problem that results from the lenders being better informed and hence increases the liquidity of the loans. We compare the liquidity of cov-heavy and cov-lite loans. We find that cov-lite loans are substantially more liquid than cov-heavy loans. In particular, cov-lite loans start trading more quickly, have a higher break price, have lower bid-ask spreads, and trade more often. Consistent with an adverse selection problem, this liquidity advantage is greater for non-registered firms, which tend to be more opaque. Though we cannot directly compare the liquidity of cov-lite loans and the liquidity of high yield bonds, we show that the bid-ask spreads for cov-lite loans are not out of line with some estimates of trading costs for high-yield bonds.

As noted by Becker and Ivashina (2017), there is a cyclical pattern in cov-lite issuance. Specifically, cov-lite issuance increased sharply before the global financial crisis (GFC), essentially disappeared during the GFC and its immediate aftermath, and has since increased at a fast pace. The existence of such a pattern suggests that the costs and benefits of issuing cov-lite loans vary depending on business conditions. Diamond, Hu, and Rajan (2017) build a model where the value of maintenance covenants falls when liquidity is high as lenders are more concerned about the market value of a firm's assets than about their ability to appropriate its cash flows. We account for business conditions through year indicator variables and through a variable that measures the intensity of cov-lite issuance. We find as expected that a firm's probability of issuing a cov-lite loan increases when cov-lite issuance is more prevalent.

Our paper contributes to four literatures. First, there is a literature on the decrease in the number of listed firms. Our paper shows that firms' listing status and plans concerning that listing status if they are public affect their choice of debt financing and the structure of debt markets. The development of cov-lite loans is one factor that makes it less costly for firms to stay private or to delist voluntarily. Second, there

is a literature that investigates how firms decide between borrowing through loans and through bond issuance. By combining bond-like features with the regulatory advantages of a loan, cov-lite loans significantly expand the menu of choices available to firms. Third, there is a literature on loan trading and its implications for banks and borrowers. Fourth, there is an emerging literature on cov-lite loans. This literature so far focuses on the choice between cov-lite loans and cov-heavy loans as opposed to the use of cov-lite loans as substitutes for bonds.

We review the relevant literatures in the next section before developing our hypotheses. After presenting our data in section 3, we examine substitutability between bond issuance and cov-lite financing in section 4. In section 5, we show that cov-lite loans and cov-heavy loans differ in such a way that cov-lite loans are better substitutes for bonds. We conclude in section 6.

2. Review of the literature and hypothesis development

In this section, we briefly review the relevant literatures and develop our main hypotheses. We first discuss the theoretical and empirical literature on the choice between raising funds through bank loans and through bond issuance. We then turn to the small literature on cov-lite loans before formulating our main hypotheses.

2.1. The choice between bank loans and bonds

Diamond (1991) provides a theory of the choice between bank loans and bonds. In his model, lenders are concerned about moral hazard but this concern differs across firms. The concern is more important for young firms than for firms that have developed a reputation as good borrowers. When the concern about moral hazard is important enough, firms borrow through bank loans that are monitored in contrast to bonds.

The distinction between monitored and unmonitored sources of finance is central to the literature. It would be inefficient for individual bondholders to monitor firms as each bondholder is likely to hold a

small fraction of the bond issue (Berlin and Loeys (1988)). If monitoring is important, it is more efficient for a specialist to do so, namely a financial intermediary, and for investors to invest in the financial intermediary rather than in securities issued by corporate borrowers (Diamond (1984)). Covenants provide incentives for banks to monitor and enable them to take actions to reduce the risk of their loans (Rajan and Winton (1995)).

Coordination among bondholders makes renegotiation difficult. In addition, the Trust Indenture Act and bankruptcy laws complicate renegotiation by diffuse bondholders even more. In contrast, a loan held by a bank or a handful of lenders can be renegotiated more easily. Relatedly, specialized lenders such as banks have incentives to invest in making sure that they make the right decisions when a borrower is in distress, namely whether to renegotiate the loan or liquidate the firm (Chemmanur and Fulghieri (1994)).

Fama (1985) distinguishes between inside and outside debt. Bank loans are inside debt in that banks have access to information that public investors do not have. Banks acquire that information in a variety of ways that improve their ability to monitor. The fact that a bank has access to information that enables it to monitor more efficiently means that it will be willing to lend to a borrower with which it has a relationship in states of the world where arms-length investors will not be willing to lend (Bolton and Freixas (2000), Rajan (1992)). However, when banks have inside information, they effectively can hold up borrowers (Rajan (1992)). Consequently, firms may choose to have both bank debt and bonds in their capital structure.

The existing literature generally predicts that the safest firms issue bonds, less safe firms borrow from banks, and the least safe firms cannot borrow at all. Empirical evidence supports this view as Denis and Mihov (2003) find that "the primary determinant of the choice of debt source is the credit quality of the issuer."

More recent literature has emphasized business conditions and loan supply effects in the choice between bank loans and bonds. Becker and Ivashina (2014) show evidence that firms that can borrow both from banks and from the capital markets switch to the capital markets for their funding when lending standards by banks are tight and bank share prices are low. Erel, Julio, Kim, and Weisbach (2011) show

that the fund raising of non-investment grade borrowers is pro-cyclical, which implies that these borrowers raise fewer funds in tough times. Further, recent empirical literature shows that the riskiest firms often borrow from non-bank lenders (Chernenko, Erel, and Prilmeier (2018)).

2.2. The choice of covenants

The existing literature examines the determinants of the strictness of bank loan covenants for firms. A number of papers conclude that riskier firms have stricter covenants, which is consistent with the literature on bank loans discussed above (e.g., Berlin and Mester (1992), Billett, King, and Mauer (2007), and Rauh and Sufi (2010)). The literature also shows that maintenance covenants are frequently violated and that these violations have material implications for firm policies and firm performance (e.g., Chava and Roberts (2008), and Nini, Smith, and Sufi (2012)). Roberts and Sufi (2009) show that over 90% of contracts with maturities of more than one year have a major contract term renegotiated. When a major contract term is changed, the syndicate participants generally have to be unanimous in approving the change. One would expect, therefore, that the covenant package depends on the size of the syndicate. Saavendra (2018) shows that it does. Loans with larger syndicates have fewer covenants that reduce flexibility in good states, such as covenants limiting capital expenditures. Firms with longer relationships with lenders have looser covenants (Prilmeier (2017)). As for the literature on the volume of bank loans, the literature explores the role of supply effects on covenant packages. Murfin (2012) shows that banks experiencing recent defaults tighten the covenant packages, which he attributes to lenders reassessing their screening ability.

2.3. Why cov-lite loans?

The literature on cov-lite loans is extremely limited. Ayotte and Bolton (2011) model the choice between cov-heavy and cov-lite loans. In their model, loans are securitized, so that investors have to expend reading costs to learn about the loan. With a cov-lite loan, reading costs are low, but investors assume that any terms they do not know are adverse to them. With a cov-heavy loan, reading costs are

high, but investors have lower moral hazard costs. In good times, expected moral hazard costs are lower, so that cov-lite loans are more advantageous. In their model, cov-lite loans are more liquid than cov-heavy loans because of lower reading costs. The model predicts pro-cyclical issuance of cov-lite loans. It also predicts that cov-lite loans have higher credit spreads and are more likely to be securitized.

Billett, Elkamhi, Popov, and Pungaliya (2016) use a different approach based on the existence of two agency problems with loans. One problem is between the borrower and the lender; the other problem is between the bank and the non-bank investors. In their model, the number of covenants increases as the bank participation in a loan falls, but only up to some threshold level of bank participation. The logic for this result is that the bank's incentives to monitor fall as it holds a smaller share of the loan. An increase in the number of covenants increases the bank's incentive to monitor. However, if the bank's skin in the game is really low, it may be optimal for the loan to be a cov-lite loan as the monitoring costs may be too high compared to the benefits of monitoring for some types of loans. The bank's skin in the game will be pushed down if there is a lot of investor demand for loans or if the cost of capital for banks is high. In their model, cov-lite loans have higher spreads than cov-heavy loans. The authors find that cov-lite loans have higher spreads and that loans sponsored by private equity groups are more likely to be cov-lite loans because these groups have reputation incentives that reduce moral hazard risks for investors.

Becker and Ivashina (2017) test three explanations for the growth of cov-lite loans. The first explanation is that borrowers, following the crisis, learned that renegotiation costs are high and are willing to pay to obtain unmonitored loans. The second explanation is that coordination costs for monitoring when a loan is held by many institutional investors are high, so that it can be optimal to have an unmonitored loan. The third explanation is that investors are chasing yields, so that they would rather have a higher yield with fewer protections. They find results that are strongly supportive of the coordination cost hypothesis. Berlin, Nini, and Yu (2018) investigate a large set of levered loan contracts. Like Becker and Ivashina (2017), they conclude that cov-lite loans reduce renegotiation frictions. They argue that the typical levered loan package with a cov-lite loan also has a cov-heavy tranche not held by institutional investors. This tranche has the traditional monitoring associated with banks. Hence, cov-lite

packages put the lenders with a comparative advantage in monitoring, namely the banks, in charge of renegotiation.

Lastly, Diamond, Hu, and Rajan (2017) develop a theory where in boom times firm leverage depends mostly on the value of firm assets as debt can be repaid out of the proceeds from selling firm assets. In contrast, when liquidity goes away, loans are repaid out of cash flows and the pledgeability of cash flows becomes critical. Maintenance covenants increase pledgeability of cash flows, so that we would expect these covenants to be more important in periods of low liquidity. This theory suggests that covenant-lite loans are more likely to be issued in periods of high liquidity.

2.4. Hypotheses development

The existing literature focuses on the optimal choice of covenants conditional on the financing taking place through a loan. Cov-lite loans are unmonitored loans and hence are more similar to bonds than to traditional monitored banks loans. Why is it that firms fund themselves through cov-lite loans rather than bonds? If a loan and a bond have the same covenant package, a critical difference between a loan and a bond is that, under the current regulatory regime, a bond is a security while an investment in a syndicated loan is not (de Fontenay (2014)). Since a bond is a security, a bond issuance has to be registered with the SEC (though some exemptions exist) and a firm registering a bond offering with the SEC has to make periodic disclosures to the SEC. A firm that registers an offering with the SEC is subject to the anti-fraud provisions of the securities laws, so that it has different legal exposures from a private firm.

If a firm is a public firm subject to SEC regulation, issuing a bond does not change its periodic disclosure obligations. Hence, for such a firm, the fact that a loan is not a security has a limited disclosure benefit unless the firm expects that it might choose to deregister during the life of the bond. If the firm decides that it is better off private, it likely would have to buy back the bonds to avoid periodic disclosures, so that it would then have to raise funds through a leveraged loan. It is obviously easier for a firm that believes it likely that it will go private to raise funds through a loan in the first place.

Being subject to SEC regulation has both costs and benefits for firms issuing bonds. Investors benefit from greater protections, which can lead to a lower cost of funds. However, the disclosures required in the bond offering and the subsequent periodic disclosures have costs for firms. First, there are administrative costs. Second, there are potential competitive costs, as a firm may have to disclose information publicly that is useful to its current or potential competitors. If a private firm issues a bond to the public that requires it to register the offering with the SEC, it essentially becomes a public firm. Some firms choose to become public through bond issuance. Glushkov, Khorana, Rau, and Zhang (2018) find that 18% of firms going public do so through bond issuance from 1987 to 2016. Public firms are subject to the Sarbanes-Oxley Act, which imposes further obligations on firms. These obligations are controversial and many firms view them as costly.

The typical public firm is a firm listed on a major exchange. As shown by Doidge, Karolyi, and Stulz (2017), the propensity of firms to be listed in the US has fallen dramatically since 1997. Such a decrease in the propensity of firms to list must be the result of a decrease in the benefit from being listed and/or of an increase in the costs of being listed. If being public has become less attractive, it should make bond financing less attractive compared to bank loans for non-public firms. Firms that want to stop being SEC registered also would want to finance themselves with bank loans rather than bond issuance. If firms prefer bank loans to bond financing to avoid being SEC registered, we would expect them to choose bank loans that resemble bonds if such bank loans are available. Hence, using bank loan financing to avoid SEC registration should lead to the development of loan types that resemble public bonds closely. This leads to our first hypothesis:

H1. Regulatory arbitrage financing hypothesis. The desire to avoid SEC registration makes it more likely that a private firm or a firm that is likely to intend to deregister will borrow through loans rather than issue bonds and makes it more likely that if it borrows in the form of loans it will do so through a cov-lite loan.

Historically, public bond markets met large financing needs of companies. In the 19th century, the bond market was a major source of funding for railroads. Though small firms could meet their financing needs through bank loans, eventually, as a firm became large and established, it would have to access the bond market. Banks face regulatory limits and risk management limits on how much they can lend to a firm. If the amounts that firms can borrow through bank loans are smaller than what they can borrow through the bond market, then loans can help firms avoid SEC registration only up to a given size. It is therefore necessary to assess whether bonds and cov-lite loans are substitutes in terms of the amounts that can be raised. When banks are limited in how much of a loan they can hold, they can sell parts of the loan to non-bank investors. For the amount raised through loans to be comparable to amounts that can be raised through bonds, banks have to make investment in loans attractive to institutional investors so that they are substitutes for bonds.

Loans are better substitutes for bonds for institutional investors if they are tradable under conditions similar to bonds and if they are rated. The literature on the trading of loans predicts that when banks have valuable non-public information loan trading is limited because of the resulting adverse selection problem (Parlour and Plantin (2008)). With cov-lite loans, banks have less information than with cov-heavy loans because they do not monitor maintenance covenants. Hence, we would expect that cov-lite loans are more liquid than cov-heavy loans. Note that if cov-heavy loans were more liquid, then this would suggest that in some dimensions cov-heavy loans are better substitutes for bonds.

Our second hypothesis is therefore:

H2. Substitution hypothesis. Cov-lite loans are more likely to be rated and to trade similarly to bonds than cov-heavy loans.

3. The data

We create two samples: a leveraged loan sample and a speculative grade debt sample. The leveraged loan sample includes 5,560 loans by US issuers on the US leveraged loan market from January 1, 2005 through April 30, 2015.[2] Our main data source is Capital IQ Leveraged Commentary and Data (LCD). The sample is limited to deals that LCD reports as completed as of May 12, 2015 (the date of our data extract). The LCD database provides information on loan characteristics such as the size, yield spread, and maturity of each loan facility. Importantly, it identifies covenant-lite facilities and second lien facilities. Unlike data available to academic researchers in DealScan, the LCD data allow us to determine what portion of the loan amount actually represents new money and they contain information on the borrower's first lien bank loan rating along with the corporate credit rating. In addition, LCD focuses primarily on loan originations, with 83% of the recorded deals consisting entirely of new money and the remainder consisting of amendments. By contrast, for a random sample of 114 firms, Roberts (2015) finds that 59% of DealScan observations are originations and 41% are renegotiations, and DealScan does not distinguish between the two. To enhance comparability with bonds, for which only original issuance is observable, we limit the leveraged loan sample to originations.

The speculative grade debt sample includes both bonds and leveraged loans. Because 96% of covenant-lite loans are rated and fewer than 2% of covenant-lite loans have an investment grade rating, this sample focuses on all leveraged loans and bonds that have a speculative grade rating at the time of issuance. Bond issuance data during the sample period from January 1, 2005 through April 30, 2015 are taken from Mergent FISD. We exclude private placements, foreign currency bonds, global offerings, convertible, putable, and exchangeable bonds. We include bonds issued pursuant to Rule 144a. The speculative grade debt sample contains 7,759 deals, of which 4,413 are bonds.

[2] We exclude financial firms and utilities from both of our samples.

Following Billett et al. (2016), we classify all leveraged loans that contain a covenant-lite facility as covenant-lite.[3] The remaining leveraged loans are referred to as covenant-heavy. For bonds, we distinguish between public bonds that are registered with the SEC and bonds issued pursuant to Rule 144a. However, we note that domestic speculative-grade Rule 144a bonds are almost always subsequently registered with the SEC (Fenn (2000)).

Several of our analyses require matching LCD loan observations to DealScan. We match loans based on the identity of the borrower, identity of the lead arranger, approximate origination date,[4] as well as the size, yield spread, and maturity of the loan tranches. We require substantial overlap in tranche characteristics, but do not require all characteristics to match since the two databases may record the same loan differently. For example, DealScan contains tranche type classifications that are not reported as separate types in LCD, such as bridge loans or delay draw term loans, and whose mapping can be ambiguous. We are able to match 91% of LCD borrowers and 70% of LCD loan observations to DealScan. The most frequent reason for a failure to match is that, for about 20% of LCD loan observations, DealScan does not record any loan observation for that borrower within 180 days after the LCD launch date.

We match borrowers to Compustat based on name and date, making use of the *spedis* function in SAS along with manual verification of similar names in Capital IQ. For loans that match to DealScan, we also obtain matches to Compustat from the link file provided by Chava and Roberts (2008). Compustat borrowers are matched to Capital IQ using GVKEY. We perform another name match to link non-

[3] While covenant-lite loan facilities are generally structured as term loans B, roughly half of the deals that contain a covenant-lite facility also contain a revolving line of credit. Billett et al. (2016) examine 53 such revolvers in detail and conclude that 49% of revolvers accompanied by a covenant-lite facility have no maintenance covenants, 40% have "springing" maintenance covenants that are only tested if the revolver is drawn down beyond a certain threshold, and only 11% have traditional maintenance covenants. By contrast, in a recent paper, Berlin et al. (2018) argue that most covenant-lite loan facilities are accompanied by a tranche that does contain maintenance covenants. One reason for the difference in findings is that, as Berlin et al. (2018) show, firms that borrow using a covenant-lite term loan often already have a revolver with maintenance covenants in their capital structure. Further, Berlin et al. (2018) classify springing covenants as heavy, while Billett et al. (2016) classify them as lite. In any event, a borrower that has both covenant-lite and covenant-heavy loans at the same time can be compared to a borrower that issues both a bond and a traditional bank loan.

[4] Origination dates cannot be matched exactly since LCD reports the date on which a loan launches for syndication, while DealScan reports the date on which the deal closes, with launch dates reported only for a subset of the deals.

Compustat borrowers to Capital IQ since this database includes privately held firms. Of the 2,830 distinct borrowers in the leveraged loan sample, we are able to find 52% in Compustat and 98% in Capital IQ. Bankruptcy announcement dates are obtained from Capital IQ.

Two databases are used to gauge the liquidity of the leveraged loans in the secondary trading market. The CRSP mutual fund database provides information on loan shares held by loan participation mutual funds on a monthly basis along with mark-to-market prices as of the reporting date. Changes in shares held from month to month allow us to infer that a given mutual fund traded shares in the loan. We match loans to the CRSP mutual fund database using the security name indicated in CRSP. These data are consistently available from June 30, 2010 onwards.

We obtain secondary market loan pricing data from the Thomson Reuters/LSTA Mark-to-market pricing service. These data are available to us for the period of January 2010 through December 2016. We calculate bid-ask spreads as the difference between the average bid quote and the average ask quote divided by the average ask quote multiplied by 100. As a measure of market depth, the data also report on the number of brokers providing a quote. Figure 1 shows the evolution of total new money raised by speculative grade borrowers from 2005 through April 2015. To avoid undercounting covenant-heavy loans, which are more frequently unrated than cov-lite loans, we include unrated leveraged loans when constructing this graph even though we are not including them in the speculative grade sample. Note that unrated leveraged loans on average have a spread of 378 basis points above LIBOR (median of 350 basis points), comparable to the average loan of a B+ rated issuer (mean spread of 387 basis points, median of 375 basis points). Figure 1 shows that prior to the GFC, covenant-heavy loans were the most important source of debt funding for speculative grade borrowers. There was a brief first wave of covenant-lite loans immediately prior to the GFC, but issuance of such instruments ceased almost entirely during the GFC. Although bond markets recovered more quickly from the GFC than the leveraged loan market, after 2010 almost all growth on the speculative grade debt market is driven by covenant-lite loans.[5] By 2014,

[5] This effect is even more pronounced when excluding unrated leveraged loans.

the majority of leveraged loans are cov-lite loans, and total issuance volume of cov-lite loans is as large as total bond issuance.

4. Cov-lite loan issuance versus bond issuance

In this section, we investigate the regulatory arbitrage financing hypothesis. With this hypothesis, firms are more likely to raise funds with a cov-lite loan than a public bond if they are private or are likely to become private. To examine the hypothesis, we use our sample of speculative grade debt issuance, which includes both loans and bonds with a non-investment grade rating and excludes unrated issuers. Table 1 provides univariate comparisons of cov-lite loans with public bonds (Panel A) and Rule 144a private placements (Panel B). We first compare cov-lite loans and issuers to public bonds and issuers. A simple alternative hypothesis to the regulatory arbitrage hypothesis is that firms use cov-lite loans because the size of their debt issuance is too small to justify accessing the public bond market. Table 1 shows that there is no support for this alternative hypothesis as cov-lite loans are considerably larger than bonds. The average size of cov-lite loans in our sample is $839 million compared to $530 million for public bonds. It would make sense for a firm to use bank lending if the maturity of the debt is short. Though the maturity of cov-lite loans is shorter than the maturity of public bonds, the average maturity of cov-lite loans is slightly more than six years, so that maturity is not a reason for issuing a cov-lite loan instead of a bond. Practically all cov-lite loans are senior secured, while most bonds are senior unsecured. Among speculative grade borrowers, cov-lite loans have slightly higher ratings, with a median rating of B+ compared to B for bonds.

Some of the theories discussed in Section 2 predict that younger firms are more likely to use bank debt. However, there is no difference in the average or the median firm age between cov-lite issuers and bond issuers. For a subset of our speculative debt sample, issuers are SEC filers and we can obtain balance sheet data for them. Compared to bond issuers, cov-lite issuers that file with the SEC have similar firm size, lower pre-existing leverage, a higher current ratio, and lower asset tangibility in the form of

property, plant and equipment. Average profitability is the same between cov-lite issuers and bond issuers.

Panel B compares cov-lite loans and issuers to 144a bonds and issuers. The biggest difference between Panel A and Panel B is the size of the issue. The average and median sizes for cov-lite loans are much larger than for 144a bonds. For average size, the average cov-lite issue is for $839 million in contrast to the average size of a 144a bond issue of $484 million.

We now turn to a test of two key predictions of the regulatory arbitrage financing hypothesis: 1) cov-lite loans attract unregistered issuers, and 2) they attract issuers that intend to deregister. Table 2 suggests that both effects are present. In this table, we count issuers as unregistered if they were not previously registered with the SEC. An issuer is considered registered with the SEC if we are able to obtain data on total assets for the fiscal year prior to debt issuance. Although Compustat tracks substantially all publicly traded firms, the database does not adequately track firms registered with the SEC that do not have publicly listed equity. Therefore, we search for additional asset data in Capital IQ, examining the filing source to make sure that the asset data we find comes from an SEC filing. We are able to find additional asset data for 820 observations by non-public firms compared to the 1,141 observations that Compustat does track. Thus, Compustat tracks only about 58% of SEC registered firms with no public equity.

One reason a bond issuer might be registered with the SEC is because of the bond issue itself. Because the registration statement includes asset data for the previous two years, we would find asset data in Compustat/Capital IQ for an issuer who had not registered with the SEC prior to the bond issue. To assess accurately the choices of previously unregistered firms, we treat such privately held first-time bond issuers as unregistered. We identify them by checking whether asset data are already available three years prior to bond issuance and making sure that SDC does not report any initial public offering for the firm during those three years.[6] About 51% of cov-lite issuers are unregistered, compared to 42% of cov-heavy

[6] We do not apply this criterion to loan issuances since they do not create registration requirements. We do apply the same criterion to Rule 144a private placements since domestic issuers almost always register their privately placed bonds subsequent to issuance (Fenn, 2000). Note that, if anything, this may cause us to understate the difference in prior registration status between bond and loan issuers.

issuers, 28% of Rule 144a bond issuers and 15% of public bond issuers. In addition, among registered firms, cov-lite borrowers are much more likely to deregister within three years after debt issuance than other borrowers. About 26% of cov-lite issuers deregister subsequently, compared to 18% of cov-heavy issuers and about 11% of bond issuers.[7]

Existing theories of the decision to borrow through bank debt versus through bond issuance are not well-equipped to address the facts in Table 2. No theory we know of predicts that a cov-lite issuer is more likely to be a firm that does not currently file with the SEC or will stop filing within three years rather than a SEC filer. This is especially surprising since the opposite result holds for cov-heavy loan. A cov-heavy issuer is more likely to be a filer than a non-filer or a firm that will stop filing within three years.

Although the tabulation in Table 2 is suggestive, it is clear from Table 1 that issue characteristics and firm characteristics differ across the four types of debt instruments. To account for these differences, we model the choice between a cov-lite loan, a cov-heavy loan, a public bond and a Rule 144a bond using a multinomial logit model that controls for firm age, deal maturity and size, rating as well as year fixed effects. Table 3 reports relative risk ratios for the multinomial logit model with public bonds acting as the base outcome. The model includes indicator variables for unregistered firms and registered firms that deregister within three years after debt issuance, so that continuously registered firms act as the base group. Compared to continuously registered firms, unregistered firms are considerably more likely to issue cov-lite loans, with a relative risk ratio of 7.17. This estimate implies that the ratio of the number of cov-lite loans issued to the number of public bonds issued is 7.17 times larger for unregistered firms than for registered firms. Unregistered firms are generally more likely to issue loans than bonds, as evidenced by the relative risk ratio of 6.30 for cov-heavy loans. Although a Wald test of the difference in

[7] The reader may wonder whether firms deregister due to distress. We note that we attempt to capture only voluntary deregistrations by coding bankrupt issuers as not having deregistered. Within three years after issuance, 4% of bond issuers are bankrupt, compared to 2.2% of cov-heavy loan borrowers and 1.9% of cov-lite loan borrowers. For 176 deregistering loan borrowers we can also observe secondary market loan quotes. We examine the last known bid-ask midpoint up to three years after loan origination. We find that the loans of 9% of covenant-heavy borrowers that subsequently deregister are priced as distressed (i.e. less than 90 cents per dollar of principal), compared to 7% of covenant-lite loans.

coefficients between cov-lite and cov-heavy loans is not significant, in section 5 we show that this difference is statistically significant when controlling for additional loan characteristics that are not available for the bond sample.

Compared to registered firms, previously unregistered firms are also more likely to issue Rule 144a bonds, with a relative risk ratio of 2.12. This result is consistent with Fenn (2000), who argues that Rule 144a private placements are used by domestic corporations to quickly issue unregistered bonds that are subsequently registered. This mechanism is likely especially useful for firms without prior SEC registration. A Wald test shows that the relative risk ratio is significantly smaller for Rule 144a bonds than for cov-lite loans with a *p*-value reported as 0.000.

The results in Table 3 suggest that cov-lite loans are particularly attractive for registered firms that deregister subsequently to issuing the debt. Many of these firms likely know that they will deregister at the time of issuing the debt. Among such firms, the relative risk ratio for cov-lite issuance is 3.81, significantly larger than the ratio of 2.42 for cov-heavy loans (the Wald test *p*-value is 0.004) and 1.19 for Rule 144a bonds (*p*-value of 0.000). This result is consistent with the existence of a group of firms that want to deregister while still issuing an instrument that resembles a bond. The advent of cov-lite loans allows them to do so.

A few findings for the control variables are worth commenting on. First, cov-heavy issuers are younger than public bond issuers, while there is no difference in firm age across bond issuers and cov-lite issuers. This result is consistent with models that predict that younger firms may choose to issue monitored debt. Second, firms with very poor ratings are unlikely to issue either cov-lite or cov-heavy loans, but instead issue bonds. This result contrasts with the findings of Denis and Mihov (2004). The restrictions on banks from issuing loans to excessively risky firms during our sample period may help explain this result. The relative risk ratio for cov-lite (cov-heavy) issuance among issuers with a rating of B- is 0.43 (0.10). The relative risk ratios for loan issuance among issuers rated CCC+ or worse are close to zero, meaning that such loans are very rare. Compared to bonds, cov-lite loans are relatively more likely to be rated BB-, B+, or B, and cov-heavy loans are relatively more likely to be rated BB- or B+.

Rule 144a bonds appear to be issued by borrowers of lower credit quality than public bond issuers, and especially by borrowers with very poor credit ratings such as CCC+ or worse.

The analysis thus far suggests that cov-lite loans are in many ways similar to speculative grade bonds: they do not have maintenance covenants, they are large, they have long maturities, albeit about one year shorter than bonds, and unlike cov-heavy issuers, cov-lite issuers have the same firm age as bond issuers. However, for cov-lite loans to be useful substitutes for bonds from investors' perspective (H2), it is also important to assess whether the secondary market trading is as liquid for cov-lite loans as it is for bonds. It is difficult to compare directly the liquidity of loans vs. bonds since there is no database that tracks actual trade prices for loans. However, the LSTA/Thomson Reuters Mark-to-Market Pricing Service provides market-maker quotes for the secondary loan market, which we can compare to quoted spreads in the bond pricing literature. We obtain average quoted spreads for bonds from Chen, Lesmond, and Wei (2007). We use the average bid-ask spreads they report for noncallable bonds of maturity between one and seven years from 1995 through 2003 (with most quotes available from 2000 onwards). This maturity range matches well with our sample since 94% of sample loans have a maturity between one and seven years.

We then match our loans to the bond results in Chen, Lesmond, and Wei (2007) based on the rating. We compute the average bid-ask spread for both cov-lite loans and cov-heavy loans over the first three months, and the first, second, and third year after the launch date of the loan. A breakdown of spreads based on years since issuance is not available for bonds. Notice that Chen, Lesmond, and Wei use up-to-date bond ratings while our loan data is limited to at-issue ratings. To improve comparability, loans that are priced as distressed and likely would have been downgraded during the time period in question are excluded from the analysis. In Panel A, we classify a loan as distressed if it trades below 90 cents per one dollar of principal. In Panel B, loans are excluded if they trade below 95 cents. Note that these conservative criteria may cause us to overstate the difference between cov-lite loans and bonds, if anything. For a loan with five years to maturity, a drop in price to 90 cents represents a change in yield approximately equivalent to a downgrade from straight BB to B- (priced at LIBOR plus 284 basis points

and LIBOR plus 497 basis points, respectively, on average). A drop in price to 95 cents represents a change in yield about equal to a downgrade from straight BB to B+ (the latter being priced at LIBOR plus 387 basis points on average).

Table 4 shows that quoted spreads are very similar for covenant-lite loans and bonds. For BB rated debt, bonds have a quoted spread of 54 basis points compared to 58 basis points for cov-lite loans. Cov-heavy loans trade at a wider spread of 70 basis points. For B rated debt, bonds trade at a spread of 59 basis points, compared to 63 basis points for cov-lite loans and 77 basis points for cov-heavy loans. Note that statistical significance tests cannot be performed for bonds vs. loans since we do not have the underlying data on bonds. However, in section 5, we verify that the difference in liquidity between cov-lite loans and cov-heavy loans is statistically significant.

Table 4 also suggests that loans become slightly less liquid in the secondary loan market over time. This effect is more pronounced for B rated loans than BB rated loans. A comparison of Panels A and B suggests that a significant portion of the increase in average spreads over time is due to some loans deteriorating in credit quality rather than an actual widening of spreads for a given credit quality. For example, the median loan has a maturity of six years. If such a loan trades below 95 cents in its third year, this would represent a significant increase in its yield, which would likely be accompanied by a downgrade. When we exclude loans trading below 95 cents, spreads for loans with an at-issue rating of BB do not widen over time and spreads for B rated cov-lite loans widen only by five basis points from the first three months through year 3.

In sum, the results in this section suggest that cov-lite loans share many characteristics of bonds, but they are not accessible for firms with very poor credit quality or firms that cannot or are unwilling to secure the loans with firm assets. Consistent with the regulatory arbitrage financing hypothesis, cov-lite loans particularly appear to be issued by unregistered firms as well as registered firms that intend to deregister. Consistent with the substitution hypothesis, quoted spreads are similar for bonds and cov-lite loans.

5. Cov-lite loans versus cov-heavy loans

We now turn to comparing cov-lite loans with cov-heavy loans in more detail. Such a comparison will allow us to evaluate the substitution hypothesis, which predicts that cov-lite loans are better substitutes for bonds than cov-heavy loans. Because a richer set of variables is available for leveraged loans than for bonds, this allows us to establish that cov-lite loans are substitutes for bonds in ways that cov-heavy loans are not. In addition, this analysis allows us to assess how the differences in information asymmetries between banks and investors are related to differences in liquidity between cov-lite loans and cov-heavy loans. We would expect banks to have more of an information advantage for non-registered firms than for registered firms, as many registered firms are publicly listed firms and as registered firms file regularly with the SEC. Hence, the difference in liquidity due to the difference in adverse selection should be stronger for loans issued by non-registered firms.

Our leveraged loan sample includes all US leveraged loans from LCD from January 2005 through April 2015. Unlike the speculative grade debt sample, the leveraged loan sample consists of all loans found in LCD, including those that do not have a rating. This allows for a more accurate comparison between cov-lite loans and the full set of cov-heavy loans. In the first part of the section, we consider the decision to issue a cov-lite loan instead of a cov-heavy loan. In the second part, we compare the liquidity of cov-lite loans to the liquidity of cov-heavy loans.

5.1. The decision to issue a cov-lite loan instead of a cov-heavy loan

Table 5 shows univariate tests of differences between cov-lite and cov-heavy loans. Cov-lite loans are $310 million dollars larger, on average, than cov-heavy loans. Although some cov-heavy loans are large so that mean deal size is around $548 million, the median deal size of $302 million is smaller than the median deal size reported for bonds in Table 1. The maturity of cov-lite loans is about one year longer than the maturity of cov-heavy loans. Consistent with the substitution hypothesis, 96% of cov-lite loans

are rated, while only 65% of cov-heavy loans are rated. In further support of the substitution hypothesis, we find that 90% of cov-lite loans trade on the secondary market compared to 44% of cov-heavy loans.

Among traded loans, various indicators suggest that cov-lite loans are significantly more liquid. Time-to-break, which is the time from loan launch to the time the loan starts trading (referred to as the "break date" in industry parlance) is only 14 days for cov-lite loans compared to 20 days for cov-heavy loans. Cov-heavy loans are more than twice as likely to break into trading at a price below 99 cents on one dollar of principal. Because these instruments are floating rate and time-to-break is less than two months for 99% of sample loans, a low break price cannot be caused by changes in LIBOR and is unlikely to be caused by a change in borrower creditworthiness between loan launch and break date. Thus, a low break price is consistent with a liquidity discount.

We track secondary market loan trading volumes for loan participation mutual funds using the CRSP Mutual Funds database. In the average month, loan participation funds trade 1.4% of a cov-lite loan's principal compared to 0.9% for cov-heavy loans. We observe at least one trade for 60% of all calendar months for the average cov-lite loan compared to 41% for cov-heavy loans. Data from the LSTA/Thomson Reuters Mark-to-Market Pricing Service suggest that cov-lite loans have lower bid-ask spreads and attract more quotes from brokers.

We note that having more loan participation funds holding shares of a cov-lite loan could reflect that they prefer loans that are easily tradable, but it could also be that the presence of loan participation funds in the lending syndicate causes the loan to be structured as cov-lite because such loans have lower coordination costs (Becker and Ivashina (2017)). To account for this possibility, we collect the number of loan participation funds that *initially* report holding shares in the loan when it breaks into secondary market trading. We use this variable as a proxy for differences that may be due to coordination cost considerations. The average cov-lite loan has five loan participation funds in the syndicate, compared to two funds for the average cov-heavy loan.

We also report differences in a variety of other loan and firm characteristics. Cov-lite loans are more likely to be used in deals sponsored by private equity firms, especially the initial LBO financing, they are

less likely to include bank tranches such as revolvers or term loans A, and are more likely to include a second lien facility and be structured as asset based loans, which tend to be heavily collateralized typically by inventory and/or accounts receivable. Cov-lite loans are much less common among small firms, whether measured by firms' total assets or by LCD's middle market indicator. Even for this revised sample that includes unrated loans, cov-lite loans are more common among unregistered and deregistering firms and cov-lite issuers are older. Consistent with asset based lending practices, cov-lite loans are issued by firms with higher current ratios, but these firms also have higher pre-existing leverage and lower property, plant & equipment than cov-heavy issuers.

In Table 6, we investigate the role of SEC registration for the decision to issue a cov-lite loan instead of a cov-heavy loan. With the regulatory arbitrage hypothesis, firms issue cov-lite loans as substitutes for bonds to avoid SEC registration. In contrast, cov-heavy loans are not substitutes for bonds, and firms do not issue them to avoid SEC registration that would occur if they issued bonds. Columns (1) through (3) focus on firms that are registered with the SEC at the time of loan issuance and assesses whether cov-lite issuers are more likely to subsequently deregister. The results show that they are. Average marginal effects for cov-lite loans are positive throughout and turn statistically significant by the second fiscal year end after loan issuance. The average marginal effect of cov-lite issuance on being deregistered after three years is a 7.5 percentage point increase in the probability of being deregistered after three years, compared to a 19.1% baseline probability. Note that these deregistrations are voluntary deregistrations. Firms that disappear due to bankruptcy are not coded as deregistrations. Larger deals with longer maturities are less likely to result in deregistration, while sponsored deals, and particularly LBOs, are more likely to result in deregistration.

An important result in Table 6 is that bond refinancings are positively associated with immediate deregistration, but not with deregistration events that occur after the first year. If firms were to substitute loans for bonds to benefit from bank monitoring, they would use cov-heavy loans to refinance bonds. Instead, in column (4) we see that they are more likely to use a cov-lite loan for a bond refinancing. Refinancing a bond with a cov-lite loan is especially advantageous for a firm that plans to deregister since

the major difference between a cov-lite loan and a bond is that the bond requires SEC registration and the loan does not, so having an outstanding bond would be an obstacle to deregistering but an outstanding loan would not be. We see that firms that use a cov-lite loan to refinance a bond are more likely to deregister immediately.

Column (4) of Table 6 reports average marginal effects from a probit regression of cov-lite issuance on an unregistered firm indicator, a deregistering firm indicator, and control variables. Due to the lack of cov-lite issuance during the GFC, perfect predictability precludes the use of time fixed effects in a probit regression.[8] To remedy this issue, we calculate the prevailing percentage of cov-lite loans at the time of loan issuance, which corresponds to the percentage of loans issued over the past 60 days that are cov-lite loans. This variable very strongly predicts cov-lite issuance, which is supportive of the Diamond, Hu, and Rajan (2017) model. At the margin, a 1% increase in the prevailing percentage of cov-lite loans is associated with a 0.7% increase in the probability that the current loan is cov-lite. We also include the net percentage of senior loan officers that report a tightening of credit standards in the previous quarterly Fed loan officer survey, although this variable does not capture any additional information beyond that contained in prevailing cov-lite issuance. Column (4) of Table 6 shows that both unregistered and deregistering firms are more likely to take out cov-lite loans than cov-heavy loans. On average, being unregistered increases the probability of cov-lite issuance by 2.5 percentage points and being a deregistering firm increases the probability of cov-lite issuance by 4.0 percentage points relative to a baseline probability of 17.7%. Findings for control variables remain similar to those noted in Table 5, except that the sign on second lien facilities turns negative, likely because 95% of second lien facilities accompanied by a cov-lite loan are sponsored by a private equity firm. Consistent with the substitution hypothesis, when firms use a loan to refinance a bond, this loan is 4.2 percentage points more likely to be cov-lite.

[8] This problem does not apply to the multinomial logit in Table 3 since we do observe both bond issuances and cov-heavy issuances during the GFC.

5.2. Comparison of the liquidity of cov-lite loans and of cov-heavy loans

We now discuss the liquidity of cov-lite loans compared to cov-heavy loans. In Table 7, we ask whether cov-lite loans are more likely to be traded on the secondary loan market. We consider a loan to be traded if LCD reports a break price. Regardless of whether we consider all firms, only rated firms, or only registered firms with all financial data available in Compustat or Capital IQ, we find that cov-lite loans are significantly more likely to be traded. Using all loans, cov-lite loans are associated with a 15.9 percentage point increase in the probability of trading on the secondary market compared to a baseline probability of 52%. The marginal effects in column (2) suggest that cov-lite loans are as likely to trade for registered firms as they are for unregistered firms since the sum of the effects for registered plus the interaction of registered with cov-lite is indistinguishable from zero (Wald test *p*-value for probit coefficients of 0.252). The negative effect for registered firms suggests that cov-heavy loans of registered firms are even less likely to trade than cov-heavy loans of unregistered firms.

Next, we ask whether cov-lite loans break into secondary market trading more quickly. In Table 8, the dependent variable is time-to-break. As Table 8 shows, the average cov-lite loan breaks into trading one day earlier. This difference is significant although the economic magnitude is smaller than in the univariate tests reported in Table 5. The reason appears to be that cov-lite loans are strongly associated with sponsored deals, especially LBOs, and bond refinancings, all of which reduce the time-to-break, and they are negatively associated with the presence of revolvers and term loans A, which substantially increases the time-to-break. Table 8 reveals an interesting difference between cov-lite loans of registered issuers and those of unregistered issuers. Compared to cov-heavy loans, time-to-break is two days faster for cov-lite loans of unregistered issuers, but not faster for cov-lite loans of registered issuers. This finding appears consistent with theories pointing to a lower adverse selection problem of cov-lite loans compared to cov-heavy loans (Ayotte and Bolton (2011), Parlour and Plantin (2008)) as any potential information advantage of the arranging bank may be greater for unregistered issuers.

In Table 9, we examine break prices reported by LCD. The break price represents the first price at which the loan starts trading in the secondary market. As discussed earlier, break prices can be used as a

measure of liquidity so long as the instrument is floating rate and differences in break prices are not due to changes in creditworthiness before the loan breaks into trading. Table 9 shows that cov-lite loans break into trading at a price that is 0.24 cents higher per dollar of principal than cov-heavy loans. To further alleviate concerns about changes in creditworthiness, in an unreported regression, we exclude the 8% of loans with time-to-break of more than 30 days. We continue to find a difference of 0.23 cents.

Columns (6) through (10) report marginal effects from probit regressions of whether or not a loan breaks into trading below a price of 99 cents, which represents the 10^{th} percentile of the break price distribution. Cov-lite loans are 8.2% less likely to have a low break price than cov-heavy loans. The interactions of the cov-lite loan indicator with the registered indicator again suggest that the liquidity advantage of cov-lite loans over cov-heavy loans is stronger for unregistered issuers than for registered issuers, although the difference in break price between the two types of loans for registered issuers is still significant.

Tables 7 through 9 only assess whether cov-lite loans are more liquid immediately after loan origination, but do not make it possible to make statements about liquidity over the entire life of the loan. In Table 10, we use data from the CRSP Mutual Funds database to test whether covenant-lite loans trade more frequently than covenant-heavy loans. Data availability starts in June 30, 2010 and our download tracks loan trading until August 31, 2016. Loans originated prior to June 30, 2010 are excluded from this analysis.

We find that cov-lite loans are indeed traded more frequently. In Panel A, we calculate trading volume as the monthly absolute change in the holdings of principal each loan participation fund reports for a given loan. The average monthly percentage of total principal traded among loan participation funds is 0.3% higher for cov-lite loans than for cov-heavy loans, a large difference compared to the sample mean of 1.1%. We also find that there are 5% more months in which loan participation funds report at least one trade for a cov-lite loan than at least one trade for a cov-heavy loan. The average loan has at least one trade in 49% of all months between the first and last month that CRSP reports at least one fund holding shares in the loan. As before, the liquidity advantage appears stronger for cov-lite loans of

unregistered firms. The interaction between the cov-lite indicator and the registered firm indicator is negative and significant both in columns (2) and (7). In a Wald test for column (2), the liquidity advantage of cov-lite loans continues to be strongly significant even among registered issuers with a *p*-value of 0.000.

One problem with tracking trades using the absolute change is that we double count trades in which a loan participation fund acts as buyer and another fund acts as seller. To remedy this issue, Panel B only looks at purchases of principal as evidenced by an increase in the loan shares held. We continue to find that cov-lite loans are more liquid, and the difference continues to be larger for unregistered issuers.

In our last test, we use quote data from the Thomson Reuters/LSTA Mark-to-market Pricing Service to examine loan liquidity. Because these data are available to us starting in January 2010, the sample includes only those loans that were originated between January 2010 and April 2015. Panel A uses quoted bid-ask spreads as a measure of liquidity and Panel B uses the number of brokers providing quotes. One problem with measuring secondary market quotes for loans is that distressed loans have dramatically wider bid-ask spreads than non-distressed loans. There are also fewer brokers willing to provide quotes for such loans. Therefore, we control for the average bid-ask midpoint during the time period that the regression examines in each regression in Table 11. In addition, in columns (5) through (8), we exclude distressed loans, defined as loans with an average bid-ask midpoint below 90 cents per one dollar of principal. Panel A shows that covenant-lite loans have tighter bid-ask spreads than covenant-heavy loans. During the first three months of a loan's life, cov-lite loans of unregistered issuers have a four basis points tighter spread than cov-heavy loans of such issuers. The sample average spread is 74 basis points. By contrast, for registered issuers the bid-ask spreads of cov-lite loans and cov-heavy loans do not differ significantly, consistent with market makers having fewer concerns about adverse selection when SEC filings provide public information about the firm. Importantly, while the number of loan participation funds in the syndicate is positively associated with cov-lite issuance (see Table 5), it is not associated with tighter bid-ask spreads immediately after loan origination. This result suggests that the coordination cost motive of cov-lite issuance and liquidity effects are distinct from one another.

The longer we follow a loan, the more likely it is that the borrower's creditworthiness will change, so that an increasing fraction of loans will be priced as distressed. When including distressed loans, the liquidity advantage for cov-lite loans disappears after the first year. However, this is due to cov-lite loans facing a greater likelihood of being priced as distressed at some point during the loan's life.[9] Once we exclude distressed loans, cov-lite loans have consistently lower bid-ask spreads than cov-heavy loans throughout years 2 and 3 as well.

In Panel B, we analyze the number of quotes as a measure of market depth. Again, cov-lite loans attract more brokers than cov-heavy loans. Compared to a cov-heavy loan, a cov-lite loan has about a 20% probability of attracting a quote by one additional broker. The sample median loan has quotes from two brokers, with an average of 2.5. However, the pattern for the number of quotes does not perfectly match the pattern for bid-ask spreads. During the first year, unregistered issuers have more quotes for their cov-lite loans than their cov-heavy loans. However, in years 2 and 3, the difference is driven by registered issuers, which in general are covered by more brokers. Yet this pattern in market depth does not seem to affect the actual quotes provided as shown in Panel A.

Overall, the results in this section are consistent with both the regulatory arbitrage financing hypothesis and the substitution hypothesis introduced in Section 2. Unregistered issuers and those about to deregister are more likely to use cov-lite loans conditional on the credit rating of the issuer. Cov-lite loans are better substitutes for bonds than cov-heavy loans in that they are much more likely to be rated, much more likely to be traded on the secondary market, and all of our secondary market liquidity measures indicate that traded cov-lite loans are more liquid than traded cov-heavy loans. In addition, the fact that much of the liquidity difference is driven by unregistered issuers about whom information is

[9] Cov-heavy loans are more likely to be repriced following adverse developments for the borrower, which means that they are also more likely to trade close to par after such developments. Due to the lack of financial maintenance covenants, it is much more difficult to initiate renegotiation of cov-lite loans when the borrower's performance deteriorates. By contrast, a cov-heavy loan can be renegotiated to allow for an increase in the interest rate. If the interest rate is increased so that it again reflects the borrower's current creditworthiness, then the price of the loan should increase such that it again approaches one dollar per dollar of principal.

much harder to obtain is consistent with an adverse selection explanation for the difference in liquidity between cov-lite loans and cov-heavy loans.

6. Conclusion

Cov-lite loans are bond-like instruments in that they include incurrence covenants, but no maintenance covenants. In this paper, we examine whether firms use cov-lite loans as substitutes for bonds to avoid costs associated with having SEC registered securities. Compared to bond issuers as well as cov-heavy loan issuers, cov-lite loan issuers are less likely to be registered with the SEC and, if currently registered, much more likely to subsequently deregister. Firms that refinance a bond with a loan do so using a cov-lite loan.

We find that cov-lite loans are similarly tradeable compared to bonds. Like bonds, cov-lite loans are almost always rated. Quoted bid-ask spreads for cov-lite loans, but not cov-heavy loans, are similar to those reported in the literature for bonds. Various additional measures of secondary market liquidity suggest that cov-lite loans are significantly more liquid than cov-heavy bonds. The liquidity advantage of cov-lite loans is larger for unregistered issuers, consistent with financial covenants creating an adverse selection problem in secondary market trading.

Taken together, our results are consistent with the hypothesis that regulatory arbitrage is an important driver for the growth in cov-lite loans among leveraged borrowers.

Appendix A. Variable definitions

Variable	Definition	Source
Deal characteristics (loans and bonds)		
Deal size	Total deal amount combining all tranches of a deal, expressed in 2014 US dollars	LCD, Mergent FISD, Bureau of Labor Statistics
Maturity	Maturity of the debt expressed in years	LCD, Mergent FISD
Senior	Indicator equals one if the debt is senior, zero otherwise	LCD, Mergent FISD
Rating	Loans: First lien bank loan rating from S&P. Moody's rating substituted where not available. Corporate issuer rating substituted if no first lien rating available. Bonds: At-issue corporate issuer rating from S&P. Moody's rating substituted if unavailable. Fitch rating substituted if neither S&P nor Moody's available. Rating values: 0 indicates no rating. 1 indicates a rating of BBB- or better. 2, 3, 4, etc. indicate ratings of BB+, BB, BB-, etc. Ratings of CCC+ or worse have a value of 8.	LCD, Mergent FISD
Loan characteristics (not available for/applicable to bonds)		
Rated	Indicator equals one if the issuer has a rating, zero otherwise	LCD
Traded on secondary market	Indicator equals one if the issue has a break price	LCD
Time-to-break	Days elapsed between break date and loan launch date	LCD
Break price	Price at which loan breaks into trading on the secondary loan market	LCD
Break below 99	Indicator equals one if the break price is less than 99 cents on the dollar, zero otherwise	LCD
Initial # LP Funds	Number of loan participation funds that report holding shares of a loan within one month of the break date. Set to zero if no loan participation funds report holding shares.	CRSP Mutual Funds database
Average % principal traded	Average monthly percentage of the loan's principal traded by loan participation mutual funds.	CRSP Mutual Funds database

% months with trade	Percentage of months in which at least one loan participation mutual fund reports a change in the number of loan shares it holds	CRSP Mutual Funds database
Bid-ask spread	Average over a given period of the difference between the secondary market ask quote and bid quote for a loan divided by the ask quote and multiplied by 100	Thomson Reuters/LSTA Mark-to-Market pricing service
Number of quotes	Average over a given period of the number of brokers providing quotes for a loan in the secondary market	Thomson Reuters/LSTA Mark-to-Market pricing service
Sponsored	Indicator equals one if the loan is sponsored by a private equity firm. Includes initial LBO loans and refinancings.	LCD
LBO	Indicator equals one if the purpose of the loan is to finance a leveraged buyout. LBO loans are a subset of sponsored loans.	LCD
Bond refinancing	Indicator equals one if the purpose of the loan is to refinance a bond.	LCD
Revolver	Indicator equals one if the loan contains a revolving line of credit.	LCD
Term loan A	Indicator equals one if the loan contains a term loan A.	LCD
Second lien facility	Indicator equals one if the loan contains a second lien facility	LCD
Asset based loan	Indicator equals one if the loan is flagged as an asset based loan by LCD.	LCD
Middle market	Indicator equals one if LCD identifies the loan as a middle market loan. LCD states that loans are considered part of the middle market if the issuer has less than $50 million in EBITDA.	LCD
Firm characteristics		
Unregistered firm	No asset data available for the fiscal year prior to debt issuance in either Compustat or Capital IQ. In the case of bond issuance, asset data also cannot be available three years prior to the last fiscal year since availability of such data is likely to be caused by the registration of the bonds themselves.	Compustat, Capital IQ

Deregistering firm	Asset data is available for the fiscal year prior to debt issuance, but ceases to be available within three years after debt issuance.	Compustat, Capital IQ
Firm age	Year of debt issuance minus year the firm was founded. In the case of new legal entities created as a result of a spin-off, asset sale, or merger, the year the predecessor was founded is used.	Capital IQ, Google searches
Assets	Total book assets in $ millions expressed in 2014 US dollars.	Compustat, Capital IQ, Bureau of Labor Statistics
Leverage	Long-term debt plus debt in current liabilities divided by total assets.	Compustat, Capital IQ
Current ratio	Current assets divided by current liabilities.	Compustat, Capital IQ
Tangibility	Net property, plant and equipment divided by total assets.	Compustat, Capital IQ

The following variables are winsorized at the 1st and 99th percentile: maturity, leverage, current ratio, coverage ratio, and tangibility.

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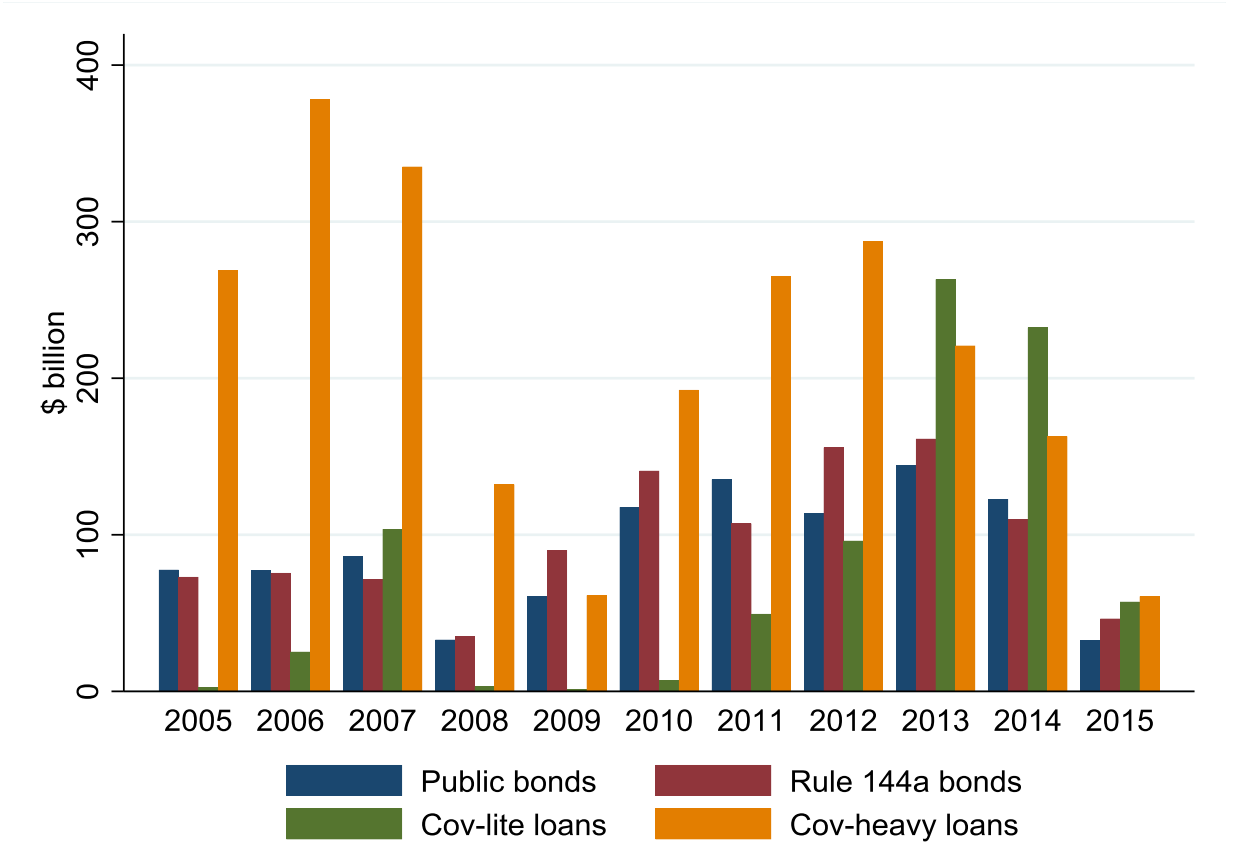

Figure 1: Total new money raised by speculative grade borrowers

This figure shows the total amount of new money raised each year by non-financial, non-utility speculative grade US issuers on the US leveraged loan market and the US public and Rule 144a bond markets. Loan data are from Capital IQ LCD and bond data are from Mergent FISD. A loan is defined as covenant-lite if it contains a covenant-lite facility, even if other facilities are present. Because 30% of borrowers on the leveraged loan market are unrated, issue volume for loans includes unrated issuers. The average loan by an unrated issuer has a spread of 378 basis points (the median is 350 basis points), comparable to the average loan of a B+ rated issuer (the mean spread is 387 basis points and the median is 375 basis points). Data for 2015 end on April 30, 2015 and the sample is limited to deals that LCD reported as completed as of May 12, 2015.

Table 1: Univariate differences between borrowers of covenant-lite loans and bond issuers

This table shows summary statistics for covenant-lite loans, public bonds, and Rule 144a bonds, respectively, as well as the results from *t*-tests for differences between covenant-lite loans and the two types of bonds. The covenant-lite sample includes covenant-lite loans issued by US issuers on the US leveraged loan market from January 1, 2005 through April 30, 2015. Loan data are from Capital IQ LCD, and the sample is limited to deals that LCD reported as completed as of May 12, 2015. A loan is defined as covenant-lite if it contains a covenant-lite facility, even if other facilities are present. The bond sample includes bonds issued by US corporate issuers from January 1, 2005 through April 30, 2015, taken from Mergent FISD. The bond sample excludes private placements, foreign currency bonds, global offerings, convertible, putable, and exchangeable bonds. Because the sample contains almost no covenant-lite loans rated better than BB+, to keep the two samples comparable only debt instruments rated BB+ or worse from either Standard & Poor's, Moody's or Fitch are included. *Maturity* and all financial ratios have been winsorized at the 1% and 99% levels. ***, **, and * indicate statistical significance at 1%, 5%, and 10%.

Panel A: Covenant-lite loans vs. public bonds

	Covenant-lite			Public bond				
	Obs.	Mean (St.dev.)	Median	Obs.	Mean (St.dev.)	Median	Difference in means (*t*-statistic)	Difference in medians (*z*-statistic)
Deal size (million)	920	839.443 (1081.679)	521.933	2044	529.616 (450.679)	400.296	309.826*** (8.37)	121.636*** (8.61)
Maturity	920	6.257 (0.856)	6.562	2044	7.608 (1.807)	7.526	-1.350*** (-27.60)	-0.964*** (-23.40)
Secured	495	0.992 (0.090)	1.000	2044	0.161 (0.368)	0.000	0.830*** (91.44)	1.000*** (35.43)
Senior	638	1.000 (0.000)	1.000	2044	0.869 (0.337)	1.000	0.131*** (17.52)	0.000*** (9.62)
Rating	920	5.143 (1.201)	5.000	2044	5.541 (1.915)	6.000	-0.398*** (-6.86)	-1.000*** (-7.85)
Firm age	913	45.055 (41.981)	30.000	2034	47.565 (40.748)	31.000	-2.511 (-1.51)	-1.000 (-1.50)
Assets (million)	454	13796.687 (120224.616)	2110.098	2003	9392.784 (47977.680)	2880.077	4403.903 (0.77)	-769.979*** (-4.89)
Leverage	454	0.481 (0.302)	0.476	2002	0.532 (0.275)	0.495	-0.051*** (-3.27)	-0.019*** (-3.23)

Current ratio	450	1.961	1.594	1980	1.834	1.488	0.126*	0.106***
		(1.387)			(1.567)		(1.70)	(3.65)
Profitability	450	0.124	0.111	1979	0.122	0.114	0.002	-0.003
		(0.078)			(0.078)		(0.44)	(-0.57)
Tangibility	453	0.241	0.157	1991	0.380	0.351	-0.139***	-0.195***
		(0.219)			(0.275)		(-11.61)	(-9.82)
Total observations	2964							

Panel B: Covenant-lite loans vs. Rule 144a bonds

	Covenant-lite			Rule 144a bond				
	Obs.	Mean (St.dev.)	Median	Obs.	Mean (St.dev.)	Median	Difference in means (*t*-statistic)	Difference in medians (*z*-statistic)
Deal size (million)	920	839.443	521.933	2369	483.904	362.087	355.539***	159.845***
		(1081.679)			(416.275)		(9.69)	(11.28)
Maturity	920	6.257	6.562	2369	7.678	8.016	-1.421***	-1.455***
		(0.856)			(1.698)		(-31.66)	(-26.10)
Secured	495	0.992	1.000	2369	0.212	0.000	0.780***	1.000***
		(0.090)			(0.409)		(83.65)	(33.13)
Senior	638	1.000	1.000	2369	0.907	1.000	0.093***	0.000***
		(0.000)			(0.291)		(15.61)	(8.01)
Rating	920	5.143	5.000	2369	5.808	6.000	-0.664***	-1.000***
		(1.201)			(1.818)		(-12.20)	(-12.43)
Firm age	913	45.055	30.000	2332	45.822	29.000	-0.767	1.000
		(41.981)			(41.858)		(-0.47)	(0.35)
Assets (million)	454	13796.687	2110.098	2095	8095.122	2274.337	5701.565	-164.239
		(120224.616)			(44738.428)		(1.00)	(-1.28)
Leverage	454	0.481	0.476	2094	0.498	0.465	-0.017	0.011
		(0.302)			(0.305)		(-1.08)	(-0.63)
Current ratio	450	1.961	1.594	2065	1.837	1.479	0.124*	0.115***
		(1.387)			(1.589)		(1.67)	(3.66)
Profitability	450	0.124	0.111	2038	0.126	0.118	-0.002	-0.007*
		(0.078)			(0.082)		(-0.53)	(-1.81)

Tangibility	453	0.241 (0.219)	0.157	2087	0.358 (0.274)	0.304	-0.118*** (-9.86)	-0.148*** (-8.28)
Total observations	3289							

Table 2: Issuer SEC registration status

This table presents issuer SEC registration status for the four types of debt instruments in the sample. An issuer is considered registered with the SEC if data on total assets at the end of the fiscal year prior to debt issuance is available in Compustat or in Capital IQ. If assets are available only in Capital IQ, the filing source reported by Capital IQ must be an SEC filing. In the case of bonds, the issuance of the bond itself may be the reason for SEC registration. The registration statement generally reports financial information for the past two years, and several months may pass between filing the registration statement and issuing the bond. Therefore, newly registered bond issuers with asset data available as of the past fiscal year, but no asset data available as of three years prior to the past fiscal year and no IPO reported in SDC during these three years are counted as unregistered prior to bond issuance. Among registered issuers, those that continue to file financial statements three years after debt issuance are considered to be continuously registered, while registered issuers that stop filing financial statements within three years after debt issuance are counted as deregistering. The sample period ranges from January 1, 2005 through April 30, 2015. Covenant-lite loans are taken from LCD and bonds are taken from Mergent FISD.

	Public bond	Rule 144a bond	Cov-lite	Cov-heavy
Unregistered	314 (15.36%)	658 (27.78%)	466 (50.65%)	1,023 (42.17%)
Registered	1,730 (84.64%)	1,711 (72.22%)	454 (49.35%)	1,403 (57.83%)
- thereof:				
Continuously registered	1,560 (90.17%)	1,512 (88.37%)	338 (74.45%)	1,154 (82.25%)
Deregistering	170 (9.83%)	199 (11.63%)	116 (25.55%)	249 (17.75%)
Total observations	2,044	2,369	920	2,426

Table 3: Multinomial logit regressions for the choice between different instrument types depending on SEC registration status

This table presents results from multinomial logit regressions modeling the choice between public bonds, rule 144a bonds, covenant-lite loans, and covenant-heavy loans. Public bonds act as the base group. The sample period ranges from January 1, 2005 through April 30, 2015. A rating worse than B- perfectly predicts that the issued instrument is a bond, thus instruments rated B- or worse are aggregated into one category to allow retaining those observations. Covenant-lite loans are taken from LCD and bonds are taken from Mergent FISD. Ratings are denoted by indicator variables, with a BB+ rating acting as the base group in the regressions. Standard errors are adjusted for clustering by firm and time. ***, **, and * indicate statistical significance at 1%, 5%, and 10%.

	Rule 144a bond	Cov-lite	Cov-heavy
	(1)	(2)	(3)
Unregistered	2.12***	7.17***	6.30***
	(6.61)	(8.17)	(9.08)
Deregistering	1.19	3.81***	2.42***
	(1.43)	(8.11)	(7.39)
Ln(Firm age)	0.98	0.93	0.84***
	(-1.22)	(-1.00)	(-2.92)
Ln(Maturity)	2.49***	0.01***	0.00***
	(3.78)	(-7.99)	(-14.18)
Ln(Deal size)	0.86***	2.01***	1.39***
	(-3.68)	(4.53)	(2.83)
BB	1.12	1.71	1.45
	(0.73)	(1.13)	(1.36)
BB-	1.45**	3.67***	2.15***
	(2.17)	(4.46)	(3.89)
B+	1.33*	4.78***	1.73*
	(1.92)	(4.93)	(1.85)
B	1.47***	3.58***	0.90
	(2.68)	(5.23)	(-0.39)
B-	1.46**	0.43***	0.10***
	(2.20)	(-3.77)	(-8.45)
CCC+ or worse	1.70***	0.03***	0.02***
	(4.50)	(-8.75)	(-12.73)
Year effects	Yes	Yes	Yes

Test unregistered (cov-lite) = unregistered (cov-heavy)	
Chi^2	1.70
p-value	0.192
Test unregistered (cov-lite) = unregistered (Rule 144a)	
Chi^2	31.18***
p-value	0.000
Test deregistering (cov-lite) = deregistering (cov-heavy)	
Chi^2	8.34***
p-value	0.004
Test deregistering (cov-lite) = deregistering (Rule 144a)	
Chi^2	60.56***
p-value	0.000
Observations	7645

Table 4: Comparison of bond and loan liquidity

This table shows average quoted bid-ask spreads (in basis points) for noncallable bonds, covenant-lite loans, and covenant-heavy loans, respectively. Average quoted spreads for bonds are taken from Chen, Lesmond, and Wei (2007), Table 1, Panel A. These are average bid-ask spreads for bonds of maturity between one and seven years from 1995 through 2003 (although the authors write that most quotes are available only from 2000 onwards). By comparison, the maturity of loans in our sample ranges from one year to seven years and four months. Since Chen, Lesmond, and Wei (2007) compute spreads in basis points vis-à-vis the bid-ask midpoint, we recompute our spreads the same way. For loans, spreads are broken down into average spreads over the first three months, first year, second year and third year after the launch date of the loan. A breakdown of spreads based on years since issuance is not available for bonds. Notice that Chen, Lesmond, and Wei (2007) use up-to-date bond ratings while our LCD data is limited to at-issue ratings. To improve comparability, loans that are priced as distressed – and would have likely been downgraded – during the time period in question are excluded from the analysis. In Panel A, a loan is judged to be distressed if the minimum of the bid-ask midpoint during the time period is below 90 cents per one dollar of principal. In Panel B, loans are excluded if the minimum of the bid-ask midpoint is below 95 cents per one dollar of principal. Note that for a loan with five years to maturity, a drop in price to 90 cents represents a change in yield approximately equivalent to a downgrade from straight BB to B- (priced at LIBOR plus 284 basis points and LIBOR plus 497 basis points, respectively, on average). A drop in price to 95 cents represents a change in yield about equal to a downgrade from straight BB to B+ (the latter being priced at LIBOR plus 387 basis points on average).

Panel A: Excluding loans priced below 90 cents

	Bonds	Covenant-lite loans				Covenant-heavy loans			
Rating	Year	First three months	1st year	2nd year	3rd year	First three months	1st year	2nd year	3rd year
BB+ through BB-	54.26	57.70	65.37	65.83	64.35	70.15	75.94	77.13	73.88
B+ through B-	58.76	63.08	68.47	76.76	75.48	76.56	85.73	92.56	94.37
Observations BB rated	178	115	112	96	64	243	249	216	150
Observations B rated	72	357	343	271	184	431	432	373	239

Panel B: Excluding loans priced below 95 cents

	Bonds	Covenant-lite loans				Covenant-heavy loans			
Rating	Year	First three months	1st year	2nd year	3rd year	First three months	1st year	2nd year	3rd year
BB+ through BB-	54.26	56.69	63.15	61.05	60.84	68.18	73.20	73.44	69.36
B+ through B-	58.76	61.83	66.16	70.81	66.62	75.76	81.44	87.13	87.04
Observations BB rated	178	113	104	87	59	234	224	200	134
Observations B rated	72	351	314	231	150	419	383	324	213

Table 5: Univariate Tests

This table shows summary statistics for covenant-lite and covenant-heavy loans, respectively, as well as the results from *t*-tests and Wilcoxon rank-sum tests for differences between the two groups. The sample includes loans issued by non-financial, non-utility US issuers on the US leveraged loan market from January 1, 2005 through April 30, 2015. Loan data are from Capital IQ LCD and the sample is limited to deals that LCD reported as completed as of May 12, 2015. A loan is defined as covenant-lite if it contains a covenant-lite facility, even if other facilities are present. *Maturity* and all financial ratios have been winsorized at the 1% and 99% levels. ***, **, and * indicate statistical significance at 1%, 5%, and 10%.

	Covenant-lite			Covenant-heavy				
	Obs.	Mean (St.dev.)	Median	Obs.	Mean (St.dev.)	Median	Difference in means (*t*-statistic)	Difference in medians (*z*-statistic)
Deal size (million)	986	858.678 (1113.305)	520.251	4574	548.375 (895.656)	301.849	310.304*** (8.199)	218.401*** (15.129)
Maturity	986	6.235 (0.889)	6.546	4346	5.481 (1.113)	5.650	0.755*** (22.896)	0.896*** (21.780)
Secured	525	0.992 (0.087)	1.000	2228	0.962 (0.192)	1.000	0.031*** (5.492)	0.000*** (3.558)
Rating	946	5.058 (1.337)	5.000	2957	4.568 (1.622)	5.000	0.490*** (9.293)	0.000*** (8.953)
Rated	986	0.959 (0.197)	1.000	4574	0.646 (0.478)	1.000	0.313*** (33.082)	0.000*** (19.485)
Traded on secondary market	986	0.901 (0.299)	1.000	4574	0.436 (0.496)	0.000	0.464*** (38.616)	1.000*** (26.471)
Time-to-break	886	13.788 (7.153)	13.000	1987	19.764 (10.819)	19.000	-5.977*** (-17.499)	-6.000*** (-16.429)
Break price	886	1.000 (0.010)	1.002	1989	0.999 (0.013)	1.002	0.001** (2.476)	0.000 (-0.689)
Break below 99	886	0.058 (0.233)	0.000	1989	0.127 (0.333)	0.000	-0.070*** (-6.434)	0.000*** (-5.606)
Initial # LP Funds	851	5.046 (5.681)	3.000	2065	1.969 (3.343)	0.000	3.076*** (14.777)	3.000*** (18.569)
Average % principal traded	767	1.392 (1.686)	0.995	1124	0.854 (1.188)	0.486	0.538*** (7.641)	0.509*** (11.052)

% months with trade	767	60.273 (28.125)	65.517	1124	40.507 (26.958)	35.714	19.766*** (15.260)	29.803*** (14.310)
Bid-ask spread (3 month average)	509	0.625 (0.263)	0.561	844	0.809 (1.174)	0.702	-0.184*** (-4.384)	-0.141*** (-9.620)
Bid-ask spread (1^{st} year average)	516	0.729 (0.410)	0.630	906	0.932 (1.190)	0.793	-0.204*** (-4.689)	-0.163*** (-10.515)
Bid-ask spread (2^{nd} year average)	470	1.008 (1.111)	0.727	840	1.127 (2.253)	0.832	-0.119 (-1.278)	-0.105*** (-4.518)
Bid-ask spread (3^{rd} year average)	350	1.307 (1.670)	0.758	583	1.494 (4.520)	0.847	-0.186 (-0.899)	-0.089* (-1.760)
Number of quotes (3 month average)	509	3.000 (1.901)	2.490	844	2.128 (1.547)	1.640	0.872*** (8.749)	0.850*** (10.264)
Number of quotes (1^{st} year average)	516	3.225 (1.962)	2.665	906	2.232 (1.551)	1.756	0.993*** (9.875)	0.909*** (11.597)
Number of quotes (2^{nd} year average)	470	3.085 (1.915)	2.532	840	2.193 (1.476)	1.755	0.891*** (8.744)	0.777*** (10.323)
Number of quotes (3^{rd} year average)	350	2.955 (1.951)	2.432	583	2.044 (1.386)	1.698	0.911*** (7.656)	0.733*** (8.801)
Sponsored	986	0.746 (0.435)	1.000	4574	0.539 (0.499)	1.000	0.208*** (13.219)	0.000*** (11.958)
LBO	986	0.244 (0.430)	0.000	4574	0.168 (0.374)	0.000	0.076*** (5.167)	0.000*** (5.635)
Bond refinancing	986	0.051 (0.220)	0.000	4574	0.025 (0.157)	0.000	0.025*** (3.441)	0.000*** (4.242)
Revolver	986	0.574 (0.495)	1.000	4574	0.761 (0.427)	1.000	-0.187*** (-11.006)	0.000*** (-11.950)
Term loan A	986	0.026 (0.160)	0.000	4574	0.190 (0.392)	0.000	-0.163*** (-21.127)	0.000*** (-12.656)
Second lien facility	986	0.210 (0.407)	0.000	4574	0.158 (0.365)	0.000	0.052*** (3.675)	0.000*** (3.940)
Asset based loan	986	0.128 (0.334)	0.000	4574	0.102 (0.303)	0.000	0.026** (2.245)	0.000** (2.392)
Middle market	986	0.097 (0.297)	0.000	4574	0.159 (0.366)	0.000	-0.062*** (-5.677)	0.000*** (-4.953)
Unregistered firm	986	0.509 (0.500)	1.000	4574	0.464 (0.499)	0.000	0.045*** (2.588)	1.000*** (2.591)

Deregistering firm	986	0.123	0.000	4574	0.096	0.000	0.027**	0.000**
		(0.328)			(0.295)		(2.341)	(2.508)
Firm age	978	45.064	30.500	4462	40.415	26.000	4.650***	4.500***
		(41.812)			(39.238)		(3.184)	(4.246)
Assets (million)	474	13146.794	2184.023	2400	9999.111	1286.036	3147.683	897.986***
		(117604.779)			(104071.607)		(0.542)	(7.579)
Leverage	474	0.466	0.462	2395	0.423	0.394	0.043***	0.069***
		(0.288)			(0.290)		(2.964)	(3.649)
Current ratio	480	1.989	1.614	2420	1.824	1.520	0.165**	0.094***
		(1.408)			(1.368)		(2.356)	(3.144)
Profitability	469	0.123	0.110	2383	0.127	0.118	-0.005	-0.008**
		(0.079)			(0.081)		(-1.128)	(-2.213)
Tangibility	473	0.248	0.163	2390	0.293	0.217	-0.045***	-0.054***
		(0.223)			(0.249)		(-3.919)	(-3.338)
Total observations	5560							

Table 6: Covenant-lite loans and SEC registration

This table reports average marginal effects from probit regressions examining the relation between covenant-lite loans and SEC registration and deregistration for the leveraged loan sample. We proxy for SEC registration by checking whether the borrower has data on total assets available in either Compustat or Capital IQ. If the data source is Capital IQ, we check that the data come from an SEC filing and not a non-SEC report. Columns (1) through (3) assess whether issuers of cov-lite loans are more likely to deregister subsequent to loan origination. Only firms that have asset data available at the end of the fiscal year prior to loan origination are included in these regressions. $Deregistered_{t+1}$ equals one if asset data are unavailable at the end of the fiscal year during which the loan is originated and zero if asset data continue to be available. Firms that disappear due to bankruptcy are coded as zero to focus on voluntary deregistrations. Column (4) includes all loans and assesses whether unregistered firms and firms that are about to deregister are more likely to issue covenant-lite loans. In column (4) firms are classified as deregistering if they deregister within three years after loan origination. The sample period is January 2005 through April 2015. Standard errors are adjusted for clustering by firm and time. ***, **, and * indicate statistical significance at 1%, 5%, and 10%.

	Deregistration			Cov-lite vs. cov-heavy
	(1) Dereg-istered$_{t+1}$	(2) Dereg-istered$_{t+2}$	(3) Dereg-istered$_{t+3}$	(4) Cov-lite
Covenant lite loan	0.023	0.041**	0.075***	
	(1.45)	(2.06)	(3.36)	
Unregistered firm				0.025**
				(2.27)
Deregistering firm				0.040**
				(2.18)
Ln(Maturity)	-0.018	-0.033***	-0.057***	0.248***
	(-1.51)	(-2.90)	(-2.96)	(10.35)
Ln(Deal size)	-0.015**	-0.020**	-0.024***	0.052***
	(-2.06)	(-2.49)	(-2.83)	(6.91)
Sponsored	0.053***	0.069***	0.079***	0.050***
	(3.79)	(5.75)	(4.82)	(3.06)
LBO	0.126***	0.144***	0.145***	0.049***
	(7.33)	(5.93)	(5.54)	(3.16)
Bond refinancing	0.032**	0.048	0.063	0.042***
	(2.03)	(1.57)	(1.51)	(2.59)
Revolver	0.036**	0.040**	0.032	-0.107***
	(2.11)	(2.43)	(1.58)	(-8.33)

Term loan A	-0.029*	-0.050**	-0.026	-0.140***
	(-1.78)	(-2.09)	(-1.32)	(-7.83)
Asset based loan	0.000	-0.003	0.009	0.048*
	(0.03)	(-0.16)	(0.43)	(1.90)
Middle market	0.023	0.045*	0.057*	-0.102***
	(1.30)	(1.81)	(1.81)	(-5.77)
Second lien facility	0.086***	0.107***	0.125***	-0.051***
	(6.42)	(5.31)	(5.16)	(-5.73)
Ln(Firm age)	-0.003	-0.000	-0.008	0.006
	(-0.40)	(-0.04)	(-0.92)	(1.04)
Prevailing % cov- lite				0.684***
				(18.53)
Fed net % tightening				0.000
				(0.41)
Rating effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	No
Observations	2809	2809	2809	5204

Table 7: Are covenant-lite loans more likely to trade?

This table reports average marginal effects from probit regressions predicting whether a loan trades on the secondary market. The dependent variable equals one if LCD records a break price for the loan, indicating that the loan broke into secondary market trading. The sample period is January 2005 through April 2015. Standard errors are adjusted for clustering by firm and time. ***, **, and * indicate statistical significance at 1%, 5%, and 10%.

	All firms		Rated firms	Registered firms	
	(1)	(2)	(3)	(4)	(5)
Covenant lite loan	0.159***	0.102***	0.171***	0.236***	0.232***
	(6.46)	(6.43)	(6.36)	(5.39)	(5.61)
Covenant lite x Registered		0.116***			
		(3.22)			
Registered		-0.078***			
		(-7.16)			
Ln(Assets)					-0.037***
					(-2.88)
Leverage					0.001
					(0.04)
Current ratio					-0.003
					(-0.50)
Ln(1+Coverage Ratio)					0.004
					(0.28)
Tangibility					-0.078*
					(-1.90)
Ln(Maturity)	0.169***	0.159***	0.243***	0.160***	0.128***
	(4.79)	(4.45)	(4.77)	(3.31)	(2.79)
Ln(Deal size)	0.171***	0.175***	0.180***	0.161***	0.185***
	(16.25)	(17.06)	(16.87)	(16.78)	(12.91)
Sponsored	0.083***	0.066***	0.057***	0.044***	0.039**
	(7.52)	(5.76)	(4.35)	(3.01)	(2.25)
LBO	0.021	0.020	0.034	0.018	0.016
	(1.13)	(1.07)	(1.17)	(0.94)	(0.73)

Bond refinancing	0.045 (1.38)	0.054* (1.65)	0.049 (1.62)	0.053 (1.62)	0.061** (1.97)
Revolver	-0.106*** (-17.30)	-0.112*** (-23.23)	-0.111*** (-16.40)	-0.136*** (-7.35)	-0.164*** (-7.85)
Term loan A	-0.250*** (-11.90)	-0.242*** (-11.29)	-0.239*** (-10.26)	-0.220*** (-11.24)	-0.229*** (-11.95)
Asset based loan	-0.120*** (-4.12)	-0.114*** (-4.09)	-0.130*** (-5.06)	-0.122*** (-3.35)	-0.116*** (-3.38)
Middle market	0.006 (0.30)	-0.004 (-0.18)	0.031 (1.59)	0.094*** (5.11)	0.069*** (3.23)
Second lien facility	-0.043*** (-3.16)	-0.052*** (-4.00)	-0.068*** (-3.22)	-0.063** (-2.33)	-0.072** (-2.52)
Ln(Firm age)	-0.007 (-0.71)	-0.004 (-0.43)	-0.009 (-0.86)	-0.010 (-0.60)	-0.004 (-0.27)
Rating effects	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes
Observations	5205	5205	3800	2558	2558

Table 8: Do covenant-lite loans break into secondary market trading more quickly?

The dependent variable is time-to-break, the number of days between the launch date of the loan and the first day on which the loan is traded in the loan trading market. The average is 17 days. The sample period is January 2005 through April 2015. Standard errors are adjusted for clustering by firm and time. ***, **, and * indicate statistical significance at 1%, 5%, and 10%.

	All firms		Rated firms	Registered firms	
	(1)	(2)	(3)	(4)	(5)
Covenant lite loan	-1.2707***	-2.0006***	-1.3860***	-0.6723	-0.6397
	(-3.60)	(-4.26)	(-3.97)	(-1.30)	(-1.11)
Covenant lite x Registered		1.4581			
		(1.64)			
Registered		-1.9056**			
		(-2.52)			
Ln(Assets)					-1.5049***
					(-3.94)
Leverage					-3.5636***
					(-4.46)
Current ratio					-0.0939
					(-0.42)
Ln(1+Coverage Ratio)					0.0322
					(0.12)
Tangibility					1.4118
					(1.17)
Ln(Maturity)	1.2756*	1.1700*	0.5757	2.6337***	1.4148
	(1.89)	(1.76)	(1.02)	(2.94)	(1.58)
Ln(Deal size)	-0.8337**	-0.6704**	-0.8111**	-0.8252**	0.3268
	(-2.44)	(-2.04)	(-2.45)	(-2.26)	(0.90)
Sponsored	-1.7040***	-2.0534***	-1.5538***	-1.9749***	-1.5589**
	(-2.98)	(-3.69)	(-3.12)	(-3.27)	(-2.48)
LBO	-1.2287**	-1.2370**	-1.2681**	-1.3714	-2.1725**
	(-2.26)	(-2.15)	(-2.28)	(-1.41)	(-2.36)
Bond refinancing	-2.3254***	-2.1299***	-1.9581***	-2.1911**	-1.8450**
	(-2.93)	(-2.71)	(-3.00)	(-2.05)	(-2.05)

Revolver	4.6006***	4.3735***	5.1098***	3.6367***	2.2905***
	(7.91)	(7.54)	(10.24)	(7.11)	(3.56)
Term loan A	3.1981***	3.2934***	2.5944***	3.0586***	2.8839***
	(3.10)	(3.09)	(2.66)	(3.32)	(3.00)
Asset based loan	2.3840**	2.4774**	1.9625**	3.7607**	3.4367**
	(1.98)	(2.03)	(2.06)	(2.31)	(2.26)
Middle market	4.6844***	4.5392***	4.4691***	4.6854***	3.5745***
	(9.49)	(8.98)	(7.43)	(7.82)	(4.14)
Second lien facility	2.3514***	2.0946***	2.6415***	2.0701***	1.6985**
	(3.45)	(3.30)	(4.04)	(2.62)	(1.97)
Ln(Firm age)	-0.4622**	-0.4011**	-0.4368**	-0.2272	-0.0392
	(-2.43)	(-2.04)	(-2.11)	(-1.13)	(-0.22)
Constant	28.5964***	28.7440***	25.5092***	32.2186***	40.4436***
	(10.47)	(10.98)	(5.97)	(6.57)	(8.28)
Rating effects	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes
Observations	2823	2823	2572	1367	1367

Table 9: Are break prices different for covenant-lite loans?

Break price is the price at which the loan starts trading in the secondary market, as reported by LCD. *Break below 99* indicates that the loan's break price is lower than 99 cents on the dollar, which is the 10th percentile of the break price distribution. Columns (1) through (5) report results from OLS regressions and columns (6) through (10) report average marginal effects from probit regressions. The sample period is January 2005 through April 2015. Standard errors are adjusted for clustering by firm and time. ***, **, and * indicate statistical significance at 1%, 5%, and 10%.

Dep. variable:	Break price					Break below 99				
	All firms		Rated firms	Registered firms		All firms		Rated firms	Registered firms	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Covenant lite loan	0.0024***	0.0033***	0.0024***	0.0021*	0.0022*	-0.0819***	-0.0925***	-0.0791***	-0.0515***	-0.0528***
	(3.05)	(5.16)	(2.81)	(1.92)	(1.87)	(-6.29)	(-8.18)	(-5.99)	(-3.63)	(-4.06)
Covenant lite x Registered		-0.0017*					0.0218**			
		(-1.85)					(2.13)			
Registered		0.0001					0.0007			
		(0.09)					(0.05)			
Ln(Assets)					-0.0000					0.0094*
					(-0.21)					(1.70)
Leverage					0.0017					-0.0365
					(1.52)					(-1.24)
Current ratio					-0.0002					0.0038
					(-0.66)					(0.68)
Ln(1+Coverage Ratio)					0.0001					-0.0016
					(0.26)					(-0.18)
Tangibility					-0.0012					0.0542**
					(-0.78)					(2.50)
Ln(Maturity)	-0.0007	-0.0007	-0.0000	-0.0009	-0.0008	-0.0257	-0.0245	-0.0680***	-0.0303	-0.0265
	(-0.35)	(-0.39)	(-0.02)	(-0.50)	(-0.50)	(-0.86)	(-0.82)	(-2.92)	(-0.97)	(-0.92)

Ln(Deal size)	0.0002	0.0003	0.0002	-0.0002	-0.0002	-0.0091	-0.0098	-0.0076	-0.0004	-0.0062
	(0.60)	(0.73)	(0.41)	(-0.52)	(-0.55)	(-0.70)	(-0.77)	(-0.61)	(-0.03)	(-0.58)
Sponsored	0.0006	0.0006	0.0006	0.0006	0.0004	-0.0119	-0.0114	-0.0026	-0.0053	-0.0002
	(0.70)	(0.71)	(0.68)	(0.71)	(0.44)	(-0.62)	(-0.59)	(-0.13)	(-0.29)	(-0.01)
LBO	-0.0021	-0.0021	-0.0018*	-0.0023	-0.0021	0.0564***	0.0568***	0.0543***	0.0599***	0.0541**
	(-1.52)	(-1.55)	(-1.66)	(-1.57)	(-1.51)	(3.15)	(3.21)	(3.38)	(2.61)	(2.27)
Bond refinancing	-0.0016	-0.0014	-0.0015	-0.0022	-0.0023	0.0287	0.0256	0.0322	0.0383	0.0356*
	(-1.16)	(-1.01)	(-1.12)	(-1.25)	(-1.36)	(1.38)	(1.30)	(1.54)	(1.64)	(1.91)
Revolver	-0.0001	-0.0001	-0.0003	-0.0004	-0.0004	-0.0134	-0.0126	-0.0091	-0.0222	-0.0132
	(-0.13)	(-0.16)	(-0.45)	(-0.39)	(-0.39)	(-0.82)	(-0.80)	(-0.56)	(-1.51)	(-1.04)
Term loan A	0.0018*	0.0018*	0.0020**	0.0022***	0.0021**	-0.0265	-0.0260	-0.0281	-0.0334	-0.0285
	(1.89)	(1.79)	(2.11)	(2.62)	(2.45)	(-0.77)	(-0.75)	(-0.72)	(-1.34)	(-1.19)
Asset based loan	-0.0030***	-0.0030***	-0.0029***	-0.0032**	-0.0031**	0.0519***	0.0518***	0.0512***	0.0561***	0.0542***
	(-3.01)	(-2.95)	(-2.80)	(-2.20)	(-2.11)	(5.11)	(5.09)	(6.68)	(4.72)	(4.54)
Middle market	-0.0018**	-0.0017**	-0.0020*	-0.0041***	-0.0039***	0.0194	0.0182	0.0165	0.0871***	0.0895***
	(-2.23)	(-2.15)	(-1.95)	(-3.11)	(-2.96)	(1.15)	(1.09)	(0.81)	(7.08)	(6.81)
Second lien facility	0.0002	0.0000	0.0001	0.0012	0.0010	0.0099	0.0120	0.0150	-0.0310	-0.0268
	(0.45)	(0.09)	(0.14)	(1.02)	(0.89)	(0.55)	(0.67)	(0.78)	(-1.22)	(-1.07)
Ln(Firm age)	0.0005*	0.0005**	0.0003	0.0002	0.0002	-0.0125**	-0.0127***	-0.0081	-0.0047	-0.0078
	(1.95)	(2.03)	(1.58)	(1.01)	(1.18)	(-2.57)	(-2.60)	(-1.23)	(-1.05)	(-1.59)
Constant	1.0089***	1.0087***	1.0068***	1.0177***	1.0181***					
	(217.99)	(217.38)	(199.17)	(181.20)	(194.00)					
Rating effects	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Industry effects	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Year effects	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Observations	2825	2825	2574	1369	1369	2825	2825	2574	1369	1369

Table 10: Do covenant-lite loans trade more frequently?

The dependent variables are the average percentage of a loan's principal that is traded monthly and the percentage of months in which at least one loan participation fund trades the loan. Only trades by loan participation funds are tracked. The sample period is June 30, 2010 through April 30, 2015 with loan trading tracked until August 31, 2016. Loans were matched to the CRSP mutual fund database based on the security name indicated in CRSP. *Initial # LP Funds* indicates the number of loan participation funds that hold shares in the loan after its first month of trading. If a loan is tracked by LSTA, but no loan participation fund reports holding the loan in CRSP, *Initial # LP Funds* is set to zero for that loan. Standard errors are adjusted for clustering by firm and time. ***, **, and * indicate statistical significance at 1%, 5%, and 10%.

Panel A: All trades

Dep. variable:	Monthly average % principal traded					% months with trade				
	All firms		Rated firms	Registered firms		All firms		Rated firms	Registered firms	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Covenant lite loan	0.297***	0.378***	0.294***	0.215**	0.195**	5.391***	7.432***	5.000***	2.951	3.077
	(6.67)	(6.58)	(7.00)	(2.17)	(2.56)	(5.55)	(6.80)	(4.96)	(1.34)	(1.46)
Covenant lite x Registered		-0.168***					-4.081**			
		(-2.74)					(-2.05)			
Registered		0.221***					0.386			
		(3.50)					(0.20)			
# LP Funds	0.078***	0.077***	0.078***	0.058***	0.055***	1.916***	1.925***	1.839***	1.782***	1.768***
	(5.32)	(5.20)	(5.36)	(3.62)	(4.00)	(11.47)	(11.71)	(10.26)	(8.80)	(8.72)
Ln(Assets)					0.339**					1.094
					(2.10)					(0.83)
Leverage					0.442					4.947**
					(1.34)					(2.52)
Current ratio					0.016					-0.220
					(1.28)					(-0.46)

Ln(1+Coverage Ratio)					0.034 (0.58)					-0.261 (-0.27)
Tangibility					-0.161 (-0.67)					2.451 (0.45)
Ln(Maturity)	0.336* (1.85)	0.341* (1.92)	0.346* (1.66)	-0.035 (-0.15)	0.424 (1.52)	15.177** (2.44)	14.932** (2.41)	19.225*** (3.04)	13.307 (1.33)	15.532 (1.48)
Ln(Deal size)	-0.446*** (-4.51)	-0.460*** (-4.66)	-0.463*** (-4.39)	-0.445*** (-4.20)	-0.664*** (-3.79)	4.784*** (7.79)	4.931*** (8.25)	4.937*** (7.71)	3.920*** (3.73)	3.054* (1.78)
Sponsored	-0.012 (-0.11)	0.031 (0.29)	-0.008 (-0.07)	0.110 (1.15)	0.084 (0.89)	-1.081 (-1.10)	-1.122 (-1.42)	-0.706 (-0.68)	-0.549 (-0.27)	-0.923 (-0.41)
LBO	-0.026 (-0.29)	-0.029 (-0.30)	-0.014 (-0.14)	-0.086 (-0.92)	0.019 (0.11)	2.711 (1.38)	2.403 (1.21)	2.241 (1.14)	8.232** (2.16)	9.633** (2.10)
Bond refinancing	0.091 (0.46)	0.066 (0.34)	0.063 (0.32)	-0.027 (-0.32)	-0.059 (-0.57)	-1.001 (-0.43)	-0.461 (-0.21)	-1.261 (-0.52)	-2.223 (-0.64)	-2.804 (-0.80)
Revolver	-0.369*** (-4.30)	-0.342*** (-3.95)	-0.396*** (-4.29)	-0.092 (-0.50)	0.173 (0.79)	-2.426* (-1.95)	-2.479** (-2.08)	-2.737** (-2.03)	-0.925 (-0.48)	0.113 (0.05)
Term loan A	0.005 (0.03)	-0.020 (-0.13)	0.009 (0.05)	-0.217 (-1.31)	-0.177 (-1.19)	-8.427*** (-3.98)	-8.732*** (-3.99)	-8.331*** (-3.46)	-9.999*** (-4.06)	-9.654*** (-3.37)
Asset based loan	0.129 (1.56)	0.113 (1.33)	0.115 (1.29)	-0.069 (-0.41)	-0.077 (-0.38)	1.087 (0.92)	0.983 (0.87)	1.172 (1.09)	-3.021 (-1.06)	-2.796 (-0.95)
Middle market	-0.619*** (-6.94)	-0.594*** (-7.30)	-0.708*** (-7.48)	-0.638*** (-6.94)	-0.384** (-2.07)	-9.573*** (-10.26)	-9.274*** (-11.94)	-9.797*** (-8.93)	-5.598 (-1.57)	-4.072 (-1.51)
Second lien facility	-0.109** (-2.32)	-0.090* (-1.93)	-0.122** (-2.37)	-0.226** (-2.43)	-0.156 (-1.63)	-2.616 (-1.54)	-3.066* (-1.85)	-2.347 (-1.54)	-5.668 (-0.97)	-5.706 (-0.98)
Ln(Firm age)	0.068* (1.65)	0.060 (1.38)	0.062 (1.51)	0.065 (1.23)	0.013 (0.23)	0.791 (1.07)	0.872 (1.22)	0.772 (1.30)	-0.431 (-0.35)	-0.389 (-0.37)

Constant	2.449***	2.431***	2.681***	2.726***	0.745	-6.842	-7.495	-25.069*	-20.081	-27.707
	(4.75)	(4.76)	(4.12)	(3.57)	(0.90)	(-0.44)	(-0.47)	(-1.92)	(-1.47)	(-1.44)
Rating effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1875	1875	1757	821	821	1875	1875	1757	821	821

Panel B: Purchases only

Dep. variable:	Monthly average % principal bought					% months with purchase				
	All firms		Rated firms	Registered firms		All firms		Rated firms	Registered firms	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Covenant lite loan	0.177***	0.225***	0.177***	0.125**	0.118***	3.108***	4.332***	2.907***	1.793	1.809
	(5.48)	(5.03)	(5.65)	(2.33)	(2.77)	(2.94)	(3.27)	(2.73)	(0.96)	(1.10)
Covenant lite x Registered		-0.099***					-2.464*			
		(-2.64)					(-1.71)			
Registered		0.105***					0.816			
		(3.33)					(0.50)			
# LP Funds	0.031***	0.031***	0.031***	0.022***	0.020***	2.064***	2.067***	2.001***	1.758***	1.739***
	(4.88)	(4.78)	(4.95)	(2.87)	(3.18)	(12.64)	(13.10)	(11.25)	(11.39)	(10.62)
Ln(Assets)					0.165**					1.890*
					(2.15)					(1.67)
Leverage					0.201					5.670*
					(1.19)					(1.80)
Current ratio					0.014***					0.397
					(3.34)					(0.65)

Ln(1+Coverage Ratio)					0.014 (0.46)					-0.584 (-1.02)
Tangibility					-0.010 (-0.08)					0.203 (0.06)
Ln(Maturity)	0.218** (2.41)	0.219** (2.48)	0.230** (2.25)	0.033 (0.37)	0.249* (1.84)	7.124* (1.84)	7.018* (1.84)	9.739** (2.42)	6.975 (1.05)	10.137 (1.35)
Ln(Deal size)	-0.210*** (-3.94)	-0.216*** (-4.02)	-0.219*** (-3.91)	-0.206*** (-3.58)	-0.312*** (-3.49)	5.249*** (11.23)	5.281*** (10.08)	5.491*** (10.59)	5.552*** (8.14)	4.231*** (3.55)
Sponsored	0.011 (0.17)	0.031 (0.50)	0.012 (0.19)	0.069 (1.56)	0.061 (1.43)	1.010 (1.25)	1.113 (1.43)	1.494* (1.74)	1.717 (1.24)	1.134 (0.79)
LBO	-0.015 (-0.28)	-0.017 (-0.32)	-0.007 (-0.11)	-0.043 (-0.87)	0.005 (0.06)	2.203 (1.52)	2.048 (1.44)	2.151 (1.49)	6.359*** (3.88)	8.409*** (4.23)
Bond refinancing	-0.016 (-0.17)	-0.025 (-0.26)	-0.032 (-0.34)	-0.066* (-1.73)	-0.085* (-1.69)	-1.922 (-0.98)	-1.731 (-0.89)	-2.036 (-1.02)	-3.168 (-1.30)	-3.881 (-1.58)
Revolver	-0.211*** (-3.89)	-0.199*** (-3.68)	-0.226*** (-4.03)	-0.050 (-0.55)	0.077 (0.73)	-4.453*** (-4.00)	-4.403*** (-4.00)	-4.844*** (-4.70)	-2.654*** (-4.00)	-1.062 (-0.85)
Term loan A	0.005 (0.06)	-0.008 (-0.11)	0.010 (0.12)	-0.101 (-1.17)	-0.078 (-0.97)	-7.030*** (-3.68)	-7.251*** (-3.74)	-7.056*** (-3.22)	-9.444*** (-3.69)	-9.004*** (-3.11)
Asset based loan	0.061 (1.34)	0.053 (1.14)	0.056 (1.14)	-0.040 (-0.46)	-0.044 (-0.42)	0.309 (0.34)	0.213 (0.23)	0.483 (0.57)	-3.483* (-1.81)	-3.289 (-1.48)
Middle market	-0.321*** (-5.57)	-0.308*** (-5.86)	-0.369*** (-5.78)	-0.366*** (-7.57)	-0.242*** (-3.20)	-7.086*** (-5.84)	-6.868*** (-5.98)	-7.691*** (-6.53)	-6.592** (-2.20)	-4.754** (-2.29)
Second lien facility	-0.052* (-1.79)	-0.045 (-1.57)	-0.054* (-1.75)	-0.126*** (-2.71)	-0.092* (-1.87)	-2.298* (-1.67)	-2.461* (-1.83)	-2.321* (-1.71)	-4.408 (-0.85)	-4.211 (-0.84)
Ln(Firm age)	0.041** (2.00)	0.038* (1.78)	0.038* (1.92)	0.052** (2.22)	0.026 (1.15)	0.374 (0.86)	0.389 (0.83)	0.244 (0.59)	-0.198 (-0.21)	-0.307 (-0.36)

Constant	1.049*** (4.65)	1.038*** (4.70)	1.152*** (3.81)	1.175*** (3.29)	0.193 (0.43)	-26.247*** (-3.10)	-26.614*** (-3.06)	-42.242*** (-4.38)	-33.667*** (-3.91)	-47.116*** (-3.00)
Rating effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1875	1875	1757	821	821	1875	1875	1757	821	821

Table 11: Do secondary market quotes indicate more liquidity for covenant-lite loans?

In Panel A, the dependent variable is the average of the difference between the average bid quote and the average ask quote for a loan divided by the average ask quote multiplied by 100. In Panel B, the dependent variable is the average number of brokers that supply a quote to the Thomson Reuters/LSTA Mark-to-Market pricing service. Four time periods are examined: the first three months after the loan's launch date, the first year, the second year, and the third year. The sample includes only those loans that were originated between January 2010 and April 2015 and are tracked by the Thomson Reuters/LSTA Mark-to-Market pricing service. If more than one of a loan's tranches is traded, we use the bid-ask spread of the largest tranche. *Initial # LP Funds* indicates the number of loan participation funds that hold shares in the loan after its first month of trading. If a loan is tracked by LSTA, but no loan participation fund reports holding the loan in CRSP, *Initial # LP Funds* is set to zero for that loan. *Average bid-ask midpoint* denotes the average of the bid-ask midpoint in cents on the dollar. *Revolver, Term Loan A, Term Loan C, Term Loan D or other,* and *Second Lien* are indicator variables capturing the type of the loan tranche that is tracked in LSTA. Term Loans B act as the base group. Columns (1) through (4) include all loans, columns (5) through (8) exclude loans whose bid-ask midpoint is below 90 cents on the dollar at some point during the respective period as well as debtor-in-possession loans. All bid-ask spreads are winsorized at the 1st and 99th percentiles. Standard errors are adjusted for clustering by firm and time. ***, **, and * indicate statistical significance at 1%, 5%, and 10%.

Panel A: Bid-ask spreads

	All loans				Non-distressed loans			
	3 months	Year 1	Year 2	Year 3	3 months	Year 1	Year 2	Year 3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Covenant lite loan	-0.0376**	-0.0400**	-0.0079	-0.1391	-0.0408**	-0.0492**	-0.0473***	-0.0512**
	(-1.99)	(-2.26)	(-0.21)	(-1.31)	(-2.37)	(-2.26)	(-2.70)	(-2.36)
Covenant lite x Registered	0.0151**	0.0430**	-0.0478	0.0728***	0.0213**	0.0510***	0.0174	0.0387
	(1.97)	(2.42)	(-0.82)	(2.79)	(2.29)	(2.76)	(1.15)	(0.69)
Registered	-0.0297***	-0.0367***	0.0035	-0.0520	-0.0320***	-0.0406***	-0.0461	-0.0465
	(-3.71)	(-3.06)	(0.09)	(-1.10)	(-6.76)	(-3.52)	(-1.20)	(-1.06)
Initial # LP Funds	-0.0022	-0.0003	-0.0032**	-0.0115***	-0.0021	-0.0009	-0.0025***	-0.0034***
	(-1.05)	(-0.14)	(-1.97)	(-2.80)	(-1.22)	(-0.58)	(-3.61)	(-3.44)

Average bid-ask midpoint	-0.0895*** (-6.03)	-0.1032*** (-8.77)	-0.1085*** (-13.10)	-0.1207*** (-26.31)	-0.1012*** (-6.01)	-0.1111*** (-6.53)	-0.1432*** (-4.98)	-0.1555*** (-9.10)
Ln(Maturity)	-0.0861* (-1.84)	-0.0407 (-1.03)	-0.0961 (-1.46)	0.0432 (0.19)	-0.0630 (-1.07)	-0.0609 (-1.00)	-0.1238** (-2.27)	-0.1468* (-1.80)
Ln(Deal size)	-0.0744*** (-5.57)	-0.0984*** (-3.71)	-0.1325*** (-5.03)	-0.1523* (-1.73)	-0.0736*** (-5.57)	-0.0799*** (-4.14)	-0.0686*** (-6.46)	-0.0459*** (-3.05)
Sponsored	-0.0050 (-0.20)	-0.0206 (-1.42)	-0.0090 (-0.34)	0.0352 (0.78)	-0.0030 (-0.13)	-0.0217 (-1.36)	-0.0649** (-2.12)	-0.0546*** (-3.43)
LBO	0.0128* (1.84)	0.0018 (0.16)	0.0113 (0.50)	-0.0920** (-2.02)	0.0123** (2.07)	-0.0066 (-0.50)	0.0210 (1.02)	-0.0106 (-0.40)
Bond refinancing	-0.0211** (-1.97)	-0.0418** (-2.40)	-0.1445*** (-4.88)	-0.2941** (-2.19)	-0.0274** (-2.31)	-0.0401* (-1.70)	-0.0819*** (-5.54)	-0.1464*** (-3.48)
Revolver	0.4866*** (6.53)	0.4710*** (7.62)	0.6004*** (3.15)	0.4610** (2.54)	0.4709*** (5.94)	0.4702*** (4.76)	0.3228*** (4.11)	0.2046** (2.09)
Term Loan A	0.0187 (0.64)	0.0424 (0.95)	0.0180 (0.39)	0.2036 (0.85)	0.0184 (0.57)	0.0301 (0.92)	0.0272 (0.87)	0.0271 (0.68)
Asset based loan	-0.0287 (-1.14)	0.0231 (0.85)	0.0483** (2.16)	0.1249* (1.72)	-0.0259 (-1.13)	0.0031 (0.12)	0.0300 (0.87)	0.0555 (1.27)
Middle market	0.0371* (1.87)	0.0650*** (4.62)	0.0577 (1.22)	0.0933 (0.62)	0.0365* (1.79)	0.0684*** (5.13)	0.0836*** (3.49)	0.0882*** (3.06)
Second lien	0.2416*** (5.10)	0.2607*** (7.01)	0.3157*** (2.92)	0.5746** (2.25)	0.2369*** (5.30)	0.2774*** (7.88)	0.3778*** (8.51)	0.3315*** (8.67)
Ln(Firm age)	-0.0175** (-1.98)	-0.0132 (-1.50)	-0.0161** (-2.15)	-0.0024 (-0.18)	-0.0186** (-2.15)	-0.0123 (-1.62)	-0.0083 (-1.23)	-0.0357*** (-3.21)

Constant	10.2834*** (6.61)	11.8137*** (9.70)	12.8497*** (13.64)	14.0008*** (64.51)	11.4101*** (6.63)	12.6519*** (7.20)	15.8551*** (5.56)	17.1462*** (9.62)
Rating effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1275	1336	1236	882	1260	1270	1098	733

Panel B: Number of quotes

	All loans				Non-distressed loans			
	3 months	Year 1	Year 2	Year 3	3 months	Year 1	Year 2	Year 3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Covenant lite loan	0.1647* (1.69)	0.1880*** (2.70)	0.0379 (0.39)	0.0198 (0.25)	0.1925* (1.94)	0.2257*** (3.39)	0.0787 (0.69)	0.0530 (0.78)
Covenant lite x Registered	0.0790 (0.57)	0.1318 (1.29)	0.3170*** (2.75)	0.2688** (2.08)	0.0607 (0.43)	0.1579 (1.59)	0.2965* (1.69)	0.2623 (1.39)
Registered	0.3988*** (3.50)	0.3704*** (5.39)	0.3168*** (2.86)	0.1782** (2.27)	0.4222*** (3.60)	0.3790*** (5.31)	0.2822** (2.29)	0.1580 (1.46)
Initial # LP Funds	0.0218* (1.71)	0.0346*** (4.52)	0.0359*** (5.34)	0.0358** (2.20)	0.0220* (1.76)	0.0370*** (4.99)	0.0369*** (3.52)	0.0349* (1.93)
Average bid-ask midpoint	0.0877* (1.82)	0.0115 (1.36)	0.0061 (1.52)	0.0104** (2.33)	0.1126 (1.48)	-0.0115 (-0.26)	0.0090 (0.19)	0.0394 (0.86)
Ln(Maturity)	0.1741 (0.40)	0.1689 (0.39)	0.1621 (0.80)	0.0339 (0.12)	-0.0535 (-0.13)	-0.0172 (-0.04)	0.2148 (0.69)	-0.1180 (-0.36)

Ln(Deal size)	1.2248***	1.2464***	1.0880***	1.0630***	1.2251***	1.2274***	1.0870***	1.0759***
	(9.15)	(9.62)	(11.42)	(6.43)	(9.22)	(8.79)	(10.29)	(6.14)
Sponsored	0.2069**	0.2189**	0.2245*	0.2593**	0.1932**	0.2285**	0.2564**	0.2955**
	(2.12)	(2.16)	(1.90)	(2.23)	(2.21)	(2.27)	(2.14)	(2.22)
LBO	0.1363	0.0234	-0.0124	-0.0453	0.1566	0.0539	-0.0406	-0.0131
	(1.10)	(0.21)	(-0.13)	(-0.38)	(1.21)	(0.51)	(-0.36)	(-0.09)
Bond refinancing	0.1272	-0.0155	0.1452	0.6066**	0.1446	-0.0265	0.0726	0.7753***
	(1.21)	(-0.19)	(1.03)	(2.44)	(1.59)	(-0.35)	(0.61)	(5.87)
Revolver	-2.2227***	-2.7153***	-2.7019***	-2.4230***	-2.2869***	-2.7308***	-2.6559***	-2.2731***
	(-5.24)	(-6.84)	(-11.40)	(-6.98)	(-4.69)	(-6.05)	(-9.20)	(-8.55)
Term Loan A	-1.4083***	-1.4644***	-1.3346***	-0.9319***	-1.4356***	-1.4774***	-1.2760***	-0.9232***
	(-2.89)	(-3.22)	(-3.91)	(-3.10)	(-2.91)	(-3.14)	(-3.61)	(-3.18)
Asset based loan	-0.2399***	-0.3213***	-0.4478***	-0.3914	-0.2272***	-0.3159***	-0.4338***	-0.4053***
	(-3.16)	(-2.93)	(-7.22)	(.)	(-3.13)	(-2.97)	(-4.72)	(-9.90)
Middle market	-0.0085	0.0097	-0.0560	-0.0568	-0.0129	0.0115	-0.0805	-0.0405
	(-0.05)	(0.08)	(-0.79)	(-0.70)	(-0.08)	(0.10)	(-0.75)	(-0.40)
Second lien	-0.4622**	-0.6130**	-0.4898*	-0.3256	-0.4501**	-0.6449***	-0.6618***	-0.4284*
	(-2.08)	(-2.34)	(-1.70)	(-1.17)	(-2.13)	(-2.82)	(-3.12)	(-1.73)
Ln(Firm age)	0.0370	0.0489	0.0364	-0.0049	0.0431	0.0415	0.0538	0.0044
	(0.65)	(1.22)	(0.94)	(-0.11)	(0.76)	(1.03)	(1.13)	(0.09)
Constant	-15.0832***	-7.2305***	-5.4363***	-5.3794***	-17.1773**	-4.2908	-5.8862	-7.9784*
	(-2.64)	(-5.66)	(-9.04)	(-5.64)	(-2.09)	(-0.96)	(-1.31)	(-1.81)
Rating effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1275	1336	1236	882	1260	1270	1098	733