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# Contracting in the Dark: The rise of public-side lenders in the syndicated loan market☆

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ABSTRACT

We document a novel trend in syndicated lending where some participants voluntarily waive their rights to borrowers' private information. We posit that "public-side" lending emerged to facilitate broad lender participation in the syndicated loan market by mitigating concerns about the leakage of borrowers' private information into public securities markets. In line with this proposition, we find that public-side lending facilitates the loan market participation of lenders for which maintaining robust information barriers is particularly costly. Furthermore, while public-side lending increases within-syndicate information asymmetry, our findings indicate that it does not materially increase interest spreads and is associated with lower coordination costs among syndicate participants. Collectively, we document how debt contracting practices evolved to address frictions associated with the protection of borrowers' private information and the related changes in loan contracting equilibria.



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## 1. Introduction

An extant literature documents the importance of private information for borrower screening and monitoring in private lending (e.g., Diamond 1984; Fama 1985; Rajan and Winton 1995). In particular, information collected by lenders through private channels is at the core of the syndicated lending process as this information is more timely and comprehensive than publicly-available information (Bushman et al., 2010; Ivashina and Sun 2011b).[1] Although syndicate participants typically rely on lead arrangers for borrower screening and monitoring (Sufi 2007; Ball et al., 2008), their information disadvantage is mitigated through loan contract provisions that require borrowers to provide all members of the syndicate access to their private information (e.g., Carrizosa and Ryan 2017). Nevertheless, we document a novel trend in syndicated lending where some participants *voluntarily* waive their rights to borrowers' private information. These "public-side" lenders do not have access to the borrower's material nonpublic information (MNPI) and only receive information marked as "public" from the borrower (LSTA 2017).[2]

We conjecture that public-side lending emerged to resolve an important friction to the broad participation of lenders in the syndicated loan market − the protection of borrowers' private information disseminated to lending syndicates. While private information disclosed to the syndicate is intended solely to inform lenders' participation in the loan, the potential leakage of this information into public securities markets is a major source of concern for borrowers, lenders, and regulators (e.g., ISDA 2003; LSTA 2006, SEC 2012; Standard & Poor's 2020). Lenders can address this concern by establishing internal information barriers (i.e., Chinese Walls) that restrict the flow of information within an organization and separate private lending arms from areas of the organization that are involved in public securities. However, creating and maintaining these barriers requires substantial investments in internal controls, physical and functional separation of divisions, employee training, and procedures that govern communications across the barriers (Sargent 2005; LSTA 2006, 2017). An opportunity to remain on the public side of the information wall by opting out of accessing borrowers' private information eliminates the need for costly investments in internal information barriers and mitigates concerns about regulatory scrutiny associated with the potential failure of these barriers (e.g., Saxton and Spiro 2010). This should, in turn, facilitate lenders' participation in the syndicated loan market.

We identify loan syndicates with public-side lenders through the presence of a public-side lender clause in loan contracts filed by public borrowers with the Securities and Exchange Commission (SEC). The clause stipulates that some syndicate participants may opt not to receive MNPI and requires the borrower to designate information provided to the syndicate as either public-side or private information (LSTA 2017). While a limitation of reliance on this clause is that it only reflects the *potential* presence of public-side lenders, our discussions with syndicated loan market and legal experts indicate that this clause is included in a loan contract primarily when public-side lenders are present in the syndicate. We do, however, acknowledge that measuring public-side lender participation based on the presence of a public-side lender clause does not capture which participants are public-side lenders or reflect the intensity of their participation.

Our descriptive evidence suggests that an increasing number of loan syndicates include public-side lender clauses, growing from 6.5% of loans in our sample in 2004 to more than 50% in 2017. Motivated by this evidence, the objective of our paper is twofold. First, we seek to identify the economic and institutional factors associated with public-side lending and to examine whether it facilitates broader lender participation in the syndicated loan market. Second, we are interested in understanding how lacking access to borrowers' private information for a subset of syndicate participants influences the design and renegotiation of loan contracts.

Because public-side lenders cannot access private information to evaluate borrowers' creditworthiness, we expect that they will rely to a greater extent on lead arrangers' screening and monitoring. Consistent with this notion and that reputable lead arrangers more rigorously screen and monitor borrowers (e.g., Chemmanur and Fulghieri 1994a; Ross 2010), we find a positive association between public-side lender participation and lead arranger reputation, measured based on the lead arranger's total syndicated loan volume (e.g., Sufi 2007; Ball et al., 2008; Bushman and Wittenberg-Moerman 2012). We also find some evidence that public-side lender participation is more likely when loans are syndicated by lead arrangers with greater industry expertise (e.g., Lin et al., 2012; Berger et al., 2017), as measured by the lead's relative loan volume syndicated in the borrower's industry. Furthermore, because public-side lending facilitates regulatory compliance associated with the protection of MNPI, we predict and find that lenders are more likely to be on the public-side when there is more regulatory oversight, measured based on the number of insider trading investigations at local SEC offices associated with syndicate participants.

We next examine how the opportunity to remain on the public-side is associated with syndicate participation properties. First, because developing and maintaining internal information barriers is particularly burdensome for institutional investors (e.g., investment banks, collateralized loan obligations (CLOs), hedge funds, private equity funds, and mutual funds), and small and foreign banks (GAO 1997; Sargent 2005; Bushman et al., 2010; Massoud et al., 2011; Cyree 2016; Avci et al., 2018), we expect that these types of participants have a higher propensity to remain on the public side of the information wall. We test this prediction by identifying syndicate participants that we estimate to be public-side lenders based on the extent of

[1] This information includes monthly financial statements, projected financial information, covenant compliance reports, and requests for acquisitions and dispositions (e.g., Standard & Poor's 2020).

[2] The term "public-side" refers to lenders' internal information barriers that distinguish between borrowers' public and private information.

their participation in loans with public-side lender clauses. Our descriptive evidence shows that the vast majority of lenders classified as public-side lenders are either institutional investors, foreign banks, or small banks. We further corroborate this evidence by using an entropy-balanced model with firm and year fixed effects, and find a positive association between public-side lending and the loan participation of these types of institutions.

Second, we show that public-side lending is positively associated with the syndicate participation of institutional investors and small and foreign banks that are new to the loan market, suggesting that public-side lending facilitates entry to the market for lenders for which maintaining effective Chinese Walls is too costly. Third, we demonstrate that the ability to remain on the public-side is associated with a lower loan share retained by existing loan market participants, which indicates that public-side lending reduces the cost of syndicate participation. Fourth, and further corroborating our prior results, we show that public-side lending is associated with a larger number of participants in syndicated loan deals.

Building on the evidence that public-side lending facilitates broader lender participation in the loan market, we examine how public-side lending is associated with initial loan contract design. As discussed earlier, public-side lenders are subject to the risk of being informationally disadvantaged relative to other syndicate participants. On one hand, these lenders may be willing to accept this information risk because remaining on the public-side facilitates their syndicate participation, as evidenced by the greater entry of new participants into the loan market as well as the lower cost of syndicate participation. On the other hand, if the information risk associated with public-side lending is sufficiently high, these lenders may choose to participate in loans with contractual terms that mitigate their information disadvantage. For example, related to our evidence that public-side lenders rely to a greater extent on lead arrangers, these lenders may be attracted to loans with contractual provisions that facilitate lead arrangers' monitoring. In addition, public-side lenders may demand to be compensated for their information disadvantage by a higher interest spread (Ivashina 2009). Similarly, these lenders may demand that lead arrangers retain a larger share of the loan because having more skin in the game incentivizes lead arrangers to more intensively screen and monitor the borrower (e.g., Sufi 2007; Ivashina 2009).

To examine how public-side lending is associated with loan contract design, we not only rely on the presence of a public-side lender clause as in the previous analyses, but also construct a proxy for the intensity of public-side lenders' participation because the higher intensity can have a more pronounced influence on contractual terms. We base this proxy on the fraction of syndicate participants that we classify as public-side lenders. We show that both the presence and intensity of public-side lending are positively associated with the use of performance covenants and interest rate increasing performance pricing provisions. Because these contractual terms facilitate lead arrangers' monitoring (e.g., Roberts and Sufi 2009a; Christensen and Nikolaev 2012; Kang et al., 2021), these findings further support the notion that public-side lenders rely to a greater extent on lead arrangers. We next show that public-side lending is not associated with a higher interest spread, suggesting that public-side lenders are not compensated for their information disadvantage via loan pricing. We further find a positive association between the presence of public-side lenders and lead arranger share but this relation does not hold for the intensity measure.[3]

In addition to examining the ex-ante properties of loan contracts, we also examine the implications of public-side lending for ex-post contracting outcomes. Because contracting parties cannot perfectly predict all future states of the world, loan contracts leave scope for future renegotiation (e.g., Aghion and Bolton 1992). Importantly, prior literature demonstrates that higher information quality facilitates lender coordination during renegotiations (e.g., Gârleanu and Zwiebel 2009; Senbet and Wang 2012; Nikolaev 2018). Thus, it is possible that public-side lenders, who do not have access to the same information set as other syndicate participants, increase renegotiation costs by imposing frictions to within-syndicate coordination. Alternatively, because our tests of initial loan contract design suggest that public-side lenders rely to a greater extent on lead arrangers, these lenders may delegate their control rights to the lead arranger, which will, in turn, facilitate within-syndicate coordination because a smaller number of lenders will have to agree when renegotiating the loan terms (Gertner and Scharfstein 1991; Berglöf and Von Thadden 1994; Bolton and Scharfstein 1996; Saavedra 2018). We proxy for renegotiation costs based on the likelihood of renegotiations (e.g., Chu 2021) and find that public-side lending is associated with lower renegotiation costs. Specifically, we show that both measures of public-side lender participation are associated with a higher likelihood and frequency of loan renegotiations prior to maturity. Furthermore, these measures are positively associated with the likelihood and timeliness of renegotiations following idiosyncratic or macroeconomic triggering events, such as large changes in borrower profitability and GDP growth (Roberts and Sufi 2009a).

Finally, we shed light on whether public-side lender participation is indeed associated with less leakage of borrowers' private information into public securities markets. We proxy for information leakage based on the speed of price discovery in the equity market over the one-year period following a loan's origination. We estimate price discovery based on adjusted intraperiod timeliness over 63 trading days starting from 60 trading days prior to quarterly earnings announcement dates to 2 trading days after these dates (e.g., Bushman et al., 2010; Carrizosa and Ryan 2017; Blankespoor et al., 2018). We find that while the mere presence of public-side lenders in the syndicate is unrelated to this measure, the intensity of public-side lender participation is negatively associated with the speed of price discovery in the equity market. These findings provide some suggestive evidence that having a larger proportion of public-side lenders in the syndicate can curb the leakage of borrowers' private information into public securities markets.

[3] We acknowledge that because the presence of public-side lenders and the intensity of their participation are both measured with some noise, the null results in our analyses should be interpreted with caution.

Collectively, our findings indicate how public-side lending changes the contracting equilibria for all parties involved in syndicated lending – participant lenders, lead arrangers, and borrowers. This contractual innovation facilitates syndicate participation for lenders with weaker information barriers at the expense of private information access. Lead arrangers incur costs in relation to managing the distribution of information to public-side lenders and retaining a larger loan share, but broader lender participation in the loan market should enhance their ability to form syndicates. This will, in turn, allow lead arrangers to earn significant origination fees and to engage in the cross-selling of their highly profitable investment banking products and services (e.g., Drucker and Puri 2005; Ivashina and Kovner 2011; Fang et al., 2013; Standard & Poor's 2020; Kang et al., 2021). Additionally, borrowers incur costs in terms of managerial time and effort to designate MNPI before sharing any information with the syndicate, but gain access to a broader lender base in the syndicated loan market and are likely to experience relatively less leakage of their private information into public securities markets. Public-side lending further affects all contracting parties in the syndicate as it is associated with lower within-syndicate coordination costs, evidenced by both a higher likelihood and frequency of loan renegotiations as well as the syndicate's ability to respond in a timely fashion to changes in borrower-specific and macroeconomic conditions. The willingness of contracting parties to accept the trade-offs associated with public-side lending is reinforced by evidence on the significant growth of this contracting practice over the past two decades.

Our study makes two distinct contributions. First, we extend prior research that examines the use of borrowers' private information in syndicated lending (e.g., Vashishtha 2014; Christensen et al., 2016; Carrizosa and Ryan 2017; Dyreng et al., 2017; Dou 2020; Balakrishnan and Ertan 2021). We highlight the costs associated with syndicate participants' access to borrowers' private information and document a novel and economically important trend in which participants voluntarily opt out of receiving any MNPI. We show that public-side lending facilitates the protection of borrowers' private information disseminated to lending syndicates and thus allows for a broader participation of lenders in the syndicated loan market. In addition, while public-side lenders' decision to opt out of accessing MNPI increases within-syndicate information asymmetry, we find that it does not materially increase the interest spread and is associated with lower coordination costs among syndicate participants.

Second, we add to the growing literature on institutional investor participation in the syndicated loan market (Ivashina and Sun 2011a; Lim et al., 2014; Beyhaghi et al., 2019). We show how debt contracting practices evolved to accommodate these increasingly important players in the syndicated loan market, for which establishing and maintaining robust information barriers is particularly costly. Furthermore, prior research shows that institutional investors exploit borrowers' private information for insider trading in the equity market (e.g., Bushman et al., 2010; Ivashina and Sun 2011b; Massoud et al., 2011; Peyravan 2020). We extend these studies by highlighting the importance of public-side lending as a means to facilitate the flow of debt capital from institutional investors to public borrowers while mitigating concerns about the potential leakage of private information to the public side of the information wall.

## 2. Institutional background and related literature

Syndicated loans rely heavily on the flow of private information between borrowers and lenders (Taylor and Sansone 2007). While information exchanged between these parties is intended to remain confidential, there are substantial concerns with respect to the leakage of this information into public securities markets (e.g., Standard & Poor's 2020). Prior research corroborates these concerns by documenting that institutional investors trade in the equity market on private information obtained through lending syndicates (e.g., Bushman et al., 2010; Ivashina and Sun 2011b; Massoud et al., 2011; Landsman et al., 2017; Peyravan 2020).[4] Importantly, even in the absence of insider trading, a failure to protect borrowers' MNPI can result in a violation of Section 204 A of the Investment Adviser Act of 1940 (as revised in 2004) (SEC 2004; SIFMA 2020).[5] Thus, financial institutions are required to prevent the leakage of MNPI to all public-side areas of their organizations.

Historically, the main strategy to address these concerns was to set up information barriers (i.e., Chinese Walls) to seal off all public-side areas of the organization from receiving any MNPI (Miller 2008; LSTA 2017). Developing these barriers, however, requires substantial up-front investments as well as ongoing costs to maintain effective internal controls (Sargent 2005; LSTA 2006). A second and more novel strategy is for participants to join syndicates as "public-side" lenders. Under this strategy, a public-side lender avoids the burden associated with developing information barriers by waiving its rights to private information, thereby insulating its organization from receiving any MNPI about the borrower. Importantly, the choice to remain on the public side of the information wall rests solely with the syndicate participants. Our discussions with several loan market and legal experts that have extensive experience with public-side lenders corroborates the view that neither the borrower nor lead arranger can compel a lender to be on the public side.

These discussions also suggest that public-side lending was not a prevalent contracting practice prior to the mid-2000s and that certain institutional changes in the syndicated loan market around this period likely contributed to its

[4] Haselmann et al. (2022) report similar evidence on insider trading by informed lenders by documenting that universal banks in Germany, which include both commercial and investment banking arms, exploit borrowers' private information around important corporate events.

[5] In a recent case, on May 26, 2020, the SEC fined Ares Management LLC for failing to implement and enforce compliance policies and procedures to prevent the misuse of MNPI, which was obtained, at least partially, through a lending relationship (https://www.sec.gov/litigation/admin/2020/ia-5510.pdf).

emergence. One significant change relates to the influx of funds from non-bank institutional investors. By the early 2000s, the flow of institutional funds comprised a sizeable fraction of the total amount of funding in the syndicated loan market (e.g., Ivashina and Sun 2011a; Becker and Ivashina 2016; Aldasoro et al., 2022). The expansion of corporate credit provided by institutional investors prompted trade organizations, such as the International Swaps and Derivatives Association (ISDA) and the Loan Syndications and Trading Association (LSTA), to recognize that borrowers' private information may not be adequately protected. Historically, participants in syndicated loans consisted mainly of commercial banks, and information exchanged between the borrower and lenders remained confidential. However, relative to banks, institutional investors have weaker information barriers between their lending and trading desks because it is more costly for them to establish and maintain these barriers (Bushman et al., 2010; Massoud et al., 2011).[6]

Thus, in 2003, the Joint Market Practices Forum issued a statement of principles in which it expressed concern about credit market participants' access to and (mis)handling of firms' MNPI, and discussed strategies that financial institutions can adopt to mitigate concerns about the leakage of private information to their public trading desks (ISDA 2003).[7] In 2006, the LSTA issued its first statement of principles on the use of confidential information by loan market participants in which it outlined guidance on controls and procedures for the receipt, use, and communication of MNPI (LSTA 2006).[8] Similar concerns about the effectiveness of institutional investors' information barriers were voiced in institutional news outlets (e.g., GlobalCapital 2006).[9] Echoing this sentiment, Standard & Poor's (2006, p. 11) also notes that "… by 2006, there was growing concern among issuers, lenders, and regulators that this migration of once private information into public hands might breach confidentiality agreements between lenders and issuers and, more importantly, could lead to illegal trading."[10]

By the mid-2000s, this increased market pressure, together with heightened awareness about the importance of protecting borrowers' MNPI, encouraged institutional loan market participants, in cooperation with prominent lead arrangers and the LSTA, to seek effective mechanisms for safeguarding borrowers' private information. Because maintaining robust information barriers is particularly burdensome for these investors, a contracting mechanism that would allow syndicate participants to remain on the public side of the information wall via public-side lender clauses was devised. Importantly, the creation in 2002 of a secure virtual data room (VDR) by Intralinks, which is the primary technological platform for information management in the syndicated loan market, facilitated the incorporation and implementation of public-side lender clauses in loan contracts as it allowed for separate communication with public- and private-side lenders.

Motivated by these developments, we investigate the factors associated with lenders' choice to join syndicates as public-side lenders. We also study whether public-side lending indeed facilitates the participation of institutional investors in loan syndicates. Furthermore, we examine whether the ability to remain on the public-side facilitates the loan participation of other lenders, namely small and foreign banks, for which information barriers are also costly and less effective. Seyhun (2007) shows that the effectiveness of these barriers is substantially weaker for small, relative to large, financial institutions. GAO (1997), LaFond and You (2010), Cyree (2016), and Avci et al. (2018) draw similar conclusions about foreign, relative to U.S., banks, and highlight the higher cost of regulatory compliance in both foreign and small banks. Lastly, we examine how public-side lending is associated with the design and renegotiation of syndicated loan contracts.

## 3. Data and descriptive analyses

### 3.1. Sample, data sources, and descriptive statistics

We start by collecting all loan agreements from SEC filings reported on EDGAR from 1994 to 2017. We extract the text of loan agreements filed as an Exhibit 10 (i.e., a material contract under item 601(b) of Regulation S—K) attached to either Form 10-K, 10-Q, or 8-K. We retain contracts with typical loan agreement headings (e.g., "credit agreement," "loan agreement," etc.) following Nini et al. (2009). We identify the presence of public-side lender clauses by scanning the text of these agreements. Specifically, using Law Insider, we identify three key phrases that are commonly used in public-side lender clauses: "public-

[6] Institutional lenders, such as hedge funds, often employ few employees, with the same person usually trading in all the securities of a firm, which precludes effective information barriers (e.g., GlobalCapital 2006; Saxton and Spiro 2010). As one lawyer mentioned "… you can't put a Chinese Wall through someone's head." (Anderson 2006).

[7] The Joint Market Practices Forum is a collaborative effort of the Bond Market Association, the International Association of Credit Portfolio Managers, the International Swaps and Derivatives Association, and the Loan Syndications and Trading Association. It has been formed to address issues of common concern to member firms who transact in the credit derivatives and corporate debt securities markets.

[8] The LSTA updated its guidance in 2008 and 2017. In 2012, the SEC together with the Financial Industry Regulatory Authority and the New York Stock Exchange's Division of Market Regulation investigated whether information barriers prevent the leakage of MNPI through loan syndicates, among other channels, and identified trading desks and public security research divisions as areas where these barriers are most critical (SEC 2012).

[9] For example, in October 2006, The New York Times published an article on Movie Gallery, the second largest movie and game rental chain in the U.S. at the time. In early March of that year, the company had held a confidential conference call with its lenders, most of which were hedge funds, where the company's unfavorable financial position and covenant violations were discussed. The company's stock price dropped by 25% in the two days following the call despite the absence of any public news releases (Anderson 2006).

[10] Borrowers are concerned about the leakage of their MNPI for three primary reasons. First, trades by privately-informed lenders can reveal proprietary information and adversely affect borrowers' competitiveness. Second, trades by these lenders are likely to increase information asymmetry about the firm, which will, in turn, increase borrowers' cost of capital. The evidence in Peyravan and Wittenberg-Moerman (2022) shows that borrowers increase voluntary disclosures in order to mitigate these concerns and curb institutional lenders' insider trading opportunities. Third, borrowers are required to establish that the distribution of their MNPI is compliant with Regulation Fair Disclosure.

**Table 1**
Descriptive statistics.

| Variable | N | Mean | Q1 | Median | Q3 | Std Dev | Within-FE Std Dev |
|---|---|---|---|---|---|---|---|
| **Public-Side Lenders:** | | | | | | | |
| *PSIDE* | 4596 | 0.248 | 0.000 | 0.000 | 0.000 | 0.432 | 0.277 |
| *PSIDE Intensity* | 4596 | 0.347 | 0.000 | 0.000 | 0.000 | 0.832 | 0.588 |
| **Syndicate Participants:** | | | | | | | |
| *Inst. Investor Participant* | 4596 | 0.341 | 0.000 | 0.000 | 1.000 | 0.474 | 0.317 |
| *Foreign Bank Participant* | 4596 | 0.709 | 0.000 | 1.000 | 1.000 | 0.454 | 0.280 |
| *Small Bank Participant* | 4596 | 0.089 | 0.000 | 0.000 | 0.000 | 0.285 | 0.192 |
| *Non-Big-US-Bank Participant* | 4596 | 0.807 | 1.000 | 1.000 | 1.000 | 0.395 | 0.247 |
| *New Non-Big-US-Bank Participant* | 4596 | 0.090 | 0.000 | 0.000 | 0.000 | 0.287 | 0.209 |
| *Num Participants* | 4596 | 7.866 | 3.000 | 6.000 | 10.000 | 6.919 | 4.519 |
| **Regulatory Oversight:** | | | | | | | |
| *SEC Insider Trading Invest* | 4596 | 0.184 | 0.169 | 0.183 | 0.197 | 0.025 | 0.020 |
| **Loan Characteristics:** | | | | | | | |
| *High Lead Reputation* | 4596 | 0.812 | 1.000 | 1.000 | 1.000 | 0.391 | 0.142 |
| *Lead Ind Expertise* | 4596 | 0.102 | 0.053 | 0.086 | 0.132 | 0.081 | 0.042 |
| *Performance Covs* | 4596 | 1.111 | 0.000 | 1.000 | 2.000 | 1.006 | 0.596 |
| *PP Increasing Rate* | 4596 | 0.438 | 0.000 | 0.000 | 1.000 | 0.496 | 0.370 |
| *Retained Share* | 1300 | 17.500 | 9.040 | 12.902 | 20.000 | 14.087 | 7.114 |
| *Interest Spread* | 4364 | 5.032 | 4.723 | 5.027 | 5.416 | 0.646 | 0.382 |
| *Amendment* | 4596 | 0.734 | 0.000 | 1.000 | 1.000 | 0.442 | 0.343 |
| *Num Amend* | 4596 | 2.223 | 0.000 | 1.000 | 3.000 | 2.504 | 1.654 |
| **Borrower Characteristics:** | | | | | | | |
| *Size* | 4596 | 7.752 | 6.683 | 7.653 | 8.725 | 1.479 | 0.263 |
| *Tangibility* | 4596 | 0.329 | 0.115 | 0.241 | 0.526 | 0.261 | 0.041 |
| *Profitability* | 4596 | 0.133 | 0.090 | 0.125 | 0.170 | 0.109 | 0.037 |
| *MTB* | 4596 | 3.053 | 1.362 | 2.086 | 3.357 | 11.876 | 10.174 |
| *Leverage* | 4596 | 0.288 | 0.153 | 0.271 | 0.393 | 0.192 | 0.075 |
| *Ret Volatility* | 4596 | 0.122 | 0.081 | 0.109 | 0.146 | 0.062 | 0.028 |
| *Creditworthiness* | 4596 | 0.929 | 0.000 | 1.000 | 2.000 | 0.824 | 0.260 |
| *R&D Intensity* | 4596 | 0.361 | 0.000 | 0.000 | 1.000 | 0.480 | 0.091 |
| *Mgt EPS Forecast* | 4596 | 0.518 | 0.000 | 1.000 | 1.000 | 0.500 | 0.218 |
| *Follow* | 4596 | 11.278 | 5.000 | 10.000 | 16.000 | 8.544 | 2.359 |

This table reports descriptive statistics. All variables are defined in Appendix B.

side," "public side," and "public lender."[11] Using these phrases, we then establish whether or not a loan includes a public-side lender clause (three examples are provided in Appendix A).[12] In line with our discussion in Section 2 that public-side lender clauses were first introduced in mid-2000s, we observe the clause in loan contracts for the first time in 2004, thus establishing the start of our sample period.

We then match the loan agreements to DealScan (Chava and Roberts 2008), which results in 10,322 loan packages issued to public borrowers from 2004 to 2017. We remove 1645 packages originated by single lenders, 527 packages that do not have revolver or term loans, and 131 packages syndicated outside of the United States. We obtain financial statement data from Compustat, stock return data from CRSP, management and analyst forecasts from I/B/E/S, and macroeconomic data from the Federal Reserve Bank of St. Louis. Conditioning on data availability for our control variables results in 5279 loan packages. Further sample attrition is due to our within-firm research design, where we remove 683 singleton observations.[13] Our final sample comprises 4596 loan packages issued to 1259 borrowers.

Table 1 reveals that 24.8% of the sample loans include a public-side lender clause [*PSIDE*]. On average, loans in our sample include 7.9 syndicate participants [*Num Participants*]. Among these participants, 34.1% of loan contracts include non-bank institutional investors [*Inst. Investor Participant*], 70.9% include foreign banks [*Foreign Bank Participant*], and 8.9% include small banks [*Small Bank Participant*]. Furthermore, 81.2% of the sample loans are originated by high-reputation lead arrangers [*High Lead Reputation*], and, on average, 10.2% of the dollar volume of the lead arrangers' loans in the previous year are originated to firms that operate in the same industry as the borrower [*Lead Ind Expertise*]. Additionally, 43.8% include interest rate increasing provisions [*PP Increasing Rate*], and the average sample loan has 1.1 performance covenants [*Performance*

[11] Law Insider (https://www.lawinsider.com/) is an online service that provides the text of publicly available contracts, including loan agreements, and identifies different versions of common contractual terms and clauses.

[12] We manually examine 50 agreements that matched one of the three public-side lender phrases, and 50 that did not, and find that 99% of these agreements were classified appropriately.

[13] We examine and find some differences in firm attributes between the singletons and our final sample: borrowers in the singleton sample are smaller, have lower asset tangibility, are less profitable, have less creditworthiness, exhibit higher return volatility, have lower analyst following, and lower leverage. Loan contracts to singleton borrowers are also less likely to be syndicated by a reputable lead arranger, but are more likely to be syndicated by leads with higher industry expertise. Because of these differences and to mitigate generalizability concerns, we perform a robustness test in which we re-estimate model (1) with the inclusion of singletons and find similar results.

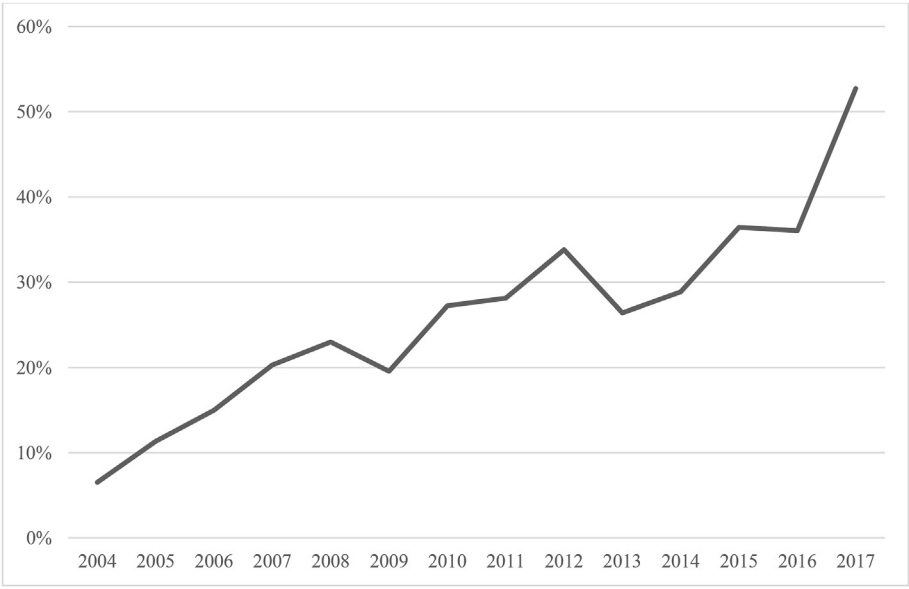


**Fig. 1. Public-Side Lender Clauses by Year.** This graph illustrates the percentage of syndicated loan contracts with public-side lender clauses in our sample over the 2004–2017 period.

*Covs*]. Borrowers in the sample are generally large and profitable prior to loan contract origination, with mean *Size* of 7.75 (corresponding to total assets of $2.3 billion), and mean profitability of 0.13 [*Profitability*]. To facilitate the interpretation of the economic significance of our findings discussed in further detail below, we also report the within-fixed-effect (borrower and year) standard deviation of all variables.

### 3.2. The rise of public-side lenders

To demonstrate the growing importance of the public-side lender phenomenon, in Fig. 1, we report the percentage of loans that include a public-side lender clause over our sample period. The percentage of sample loans that include the clause increases from 6.5% in 2004 to 36% (53%) in 2016 (2017). Fig. 2 reports the trend over the sample period in the percentage of loans with public-side lender clauses by loan size quartile. The figure shows that loans that contain this clause are pervasive in

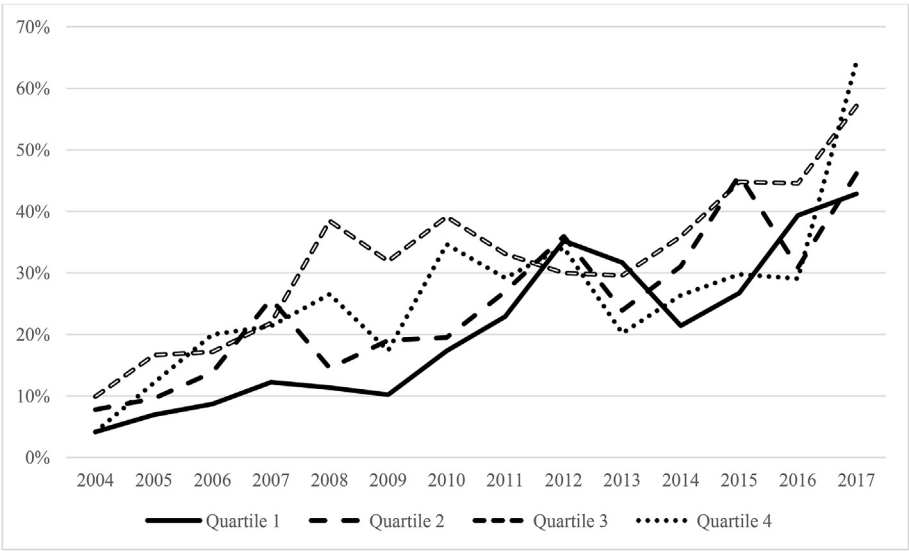


**Fig. 2. Public-Side Lender Clauses by Loan Size over Time.** This graph illustrates the percentage of syndicated loan contracts with public-side lender clauses by loan size over the 2004–2017 period. For each year in the sample, we quartile rank the size of the loan contract (in dollars) and report the percentage of loans with public-side lender clauses in each quartile for that year.

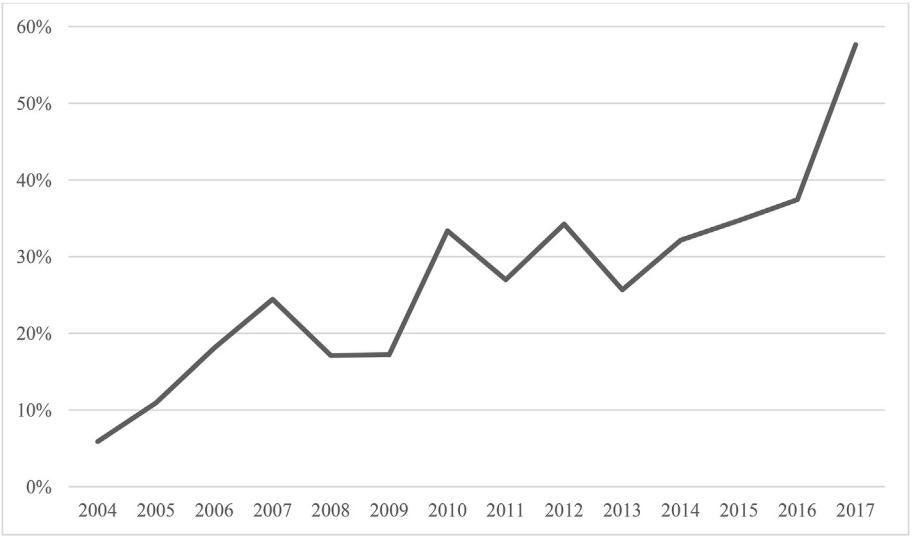


**Fig. 3. Dollar Volume of Loans with Public-Side Lender Clauses by Year.** This graph illustrates the percentage of dollar value of syndicated loan contracts with public-side lenders in our sample over the 2004–2017 period. For each year, we calculate the ratio of total loans issued with public-side lender clauses relative to all loans issued.

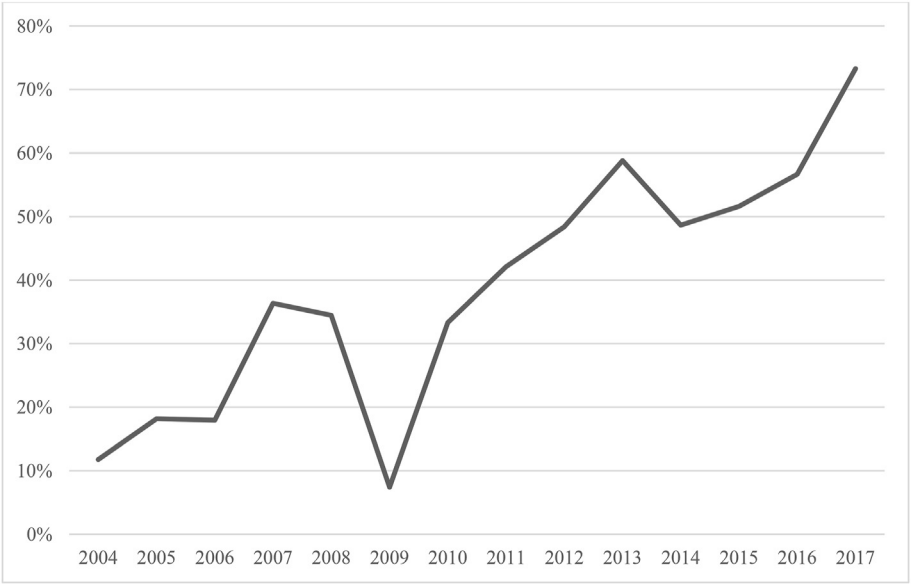


**Fig. 4. Lead Arrangers Issuing Loans with Public-Side Lender Clauses by Year.** This graph illustrates the percentage of lead arrangers in our sample that syndicate at least one loan contract with a public-side lender clause over the 2004–2017 period.

all four loan size quartiles. Fig. 3 similarly reports the percentage of the dollar volume of loans with public-side lender clauses relative to the total volume of syndicated loans issued within a given year. In the last two years of our sample period, the percentage of the dollar volume of these loans relative to the total volume of syndicated loans issued within a year reaches 37% and 58%, respectively. As demonstrated by all three figures, with the exception of the onset of the financial crisis, the occurrence of loans with public-side lender clauses increases steadily and substantially over our sample period.

To further convey the prevalence of public-side lending, Fig. 4 reports the percentage of lead arrangers in the sample that syndicate at least one loan deal with a public-side lender clause during the year. We show that 12% of lead arrangers originate one such loan in 2004, and this percentage increases to 57% (73%) of lead arrangers in 2016 (2017). We also explore the evolution of syndicate participants' involvement in loans with public-side clauses (untabulated). Early in our sample period, the majority of lenders do not participate in any loan with public-side lender clauses; however, by 2016 (2017), only 35% (37%) of participants are not involved in these loans.

Collectively, the descriptive evidence discussed above indicates that public-side lending has grown substantially in recent years and is now a widespread practice in the syndicated loan market.

## 4. Loan syndicates with public-side lender participation

### 4.1. Public-side lender participation in syndicated loans

We begin by examining the economic and institutional factors that are associated with public-side lending using the following model:

$$\begin{aligned} PSIDE = {} & \beta_1\, High\ Lead\ Reputation + \beta_2\, Lead\ Ind\ Expertise + \beta_3\, SEC\ Insider\ Trading\ Invest + \beta_4\, Size + \beta_5\, Tangibility \\ & + \beta_6\, Profitability + \beta_7\, MTB + \beta_8\, Leverage + \beta_9\, Ret\ Volatility + \beta_{10}\, Creditworthiness + \beta_{11} R\&D\ Intensity \\ & + \beta_{12}\, Mgt\ EPS\ Forecast + \beta_{13}\, Follow + \alpha_t + \varepsilon \end{aligned} \quad (1)$$

where all the variables are defined in Appendix B.

Since public-side lenders cannot use private information to assess the borrower's creditworthiness, we expect that they are more likely to participate in loans syndicated by more reputable lead arrangers because these arrangers conduct more rigorous pre-loan evaluations of borrowers and have greater monitoring expertise and ability to influence borrowers following the loan issuance (Chemmanur and Fulghieri 1994a, 1994b; Billett et al., 1995; Sufi 2007; Ross 2010; Bushman and Wittenberg-Moerman 2012). Following prior literature, we measure lead arranger reputation based on its market share (e.g., Sufi 2007; Bushman and Wittenberg-Moerman 2012; Lin et al., 2012). *High Lead Reputation* is an indicator variable equal to one if the lead arranger has at least a 2% average market share over the five-year period prior to loan originations. We also measure the lead arranger's expertise in the borrower's industry (*Lead Ind Expertise*) based on the proportion of the lead arranger's loan portfolio originated to firms in the borrower's Fama-French 12 industry out of the total loans arranged by the lead. We expect that lead arrangers with greater industry expertise are better equipped to monitor these borrowers.

Furthermore, we expect that syndicate participants are more likely to be concerned about allegations that their internal information barriers are inadequate when there is greater regulatory oversight of the potential misuse of MNPI. We measure the intensity of this oversight based on the number of SEC insider trading investigations outstanding prior to loan originations. Specifically, following Blackburne (2014), we identify the local SEC office associated with each sample participant and measure the number of insider trading investigations outstanding in the 12-month period prior to the loan inception date at each of these offices, scaled by the total number of investigations. We then average the scaled number of insider trading investigations at local SEC offices across all participants in the syndicate (*SEC Insider Trading Invest*).[14] We predict a positive association between public-side lender participation and the intensity of regulatory oversight.

We control for firm-specific characteristics, including the borrower's size [*Size*], asset tangibility [*Tangibility*], profitability [*Profitability*], growth opportunities [*MTB*], leverage [*Leverage*], volatility [*Ret Volatility*], and research and development [*R&D Intensity*]. We add an additional creditworthiness measure, which is equal to zero if the borrower is not rated by S&P, and is equal to one (two) if the borrower has a non-investment (investment) grade credit rating from S&P [*Creditworthiness*]. We also control for whether the firm discloses management earnings forecasts [*Mgt EPS Forecast*]. Finally, we control for equity analyst following [*Follow*] to capture the extent to which the borrower is covered by third-party information intermediaries.[15]

In column 1 of Table 2, we report the results from estimating model (1) using a logit model. This analysis allows us to examine across-firm variation in the economic and institutional factors that are associated with the presence of public-side lenders. Consistent with our expectations, we find a positive association between *High Lead Reputation*, *Lead Ind Expertise*, *SEC Insider Trading Invest* and *PSIDE*.[16] We then re-estimate model (1) using a linear model with borrower fixed effects. This analysis allows us to control for time-invariant borrower characteristics and explore the determinants of within-firm participation of public-side lenders. We report the results in column 2 of Table 2. We continue to find a positive association between *PSIDE* and both *High Lead Reputation* and *SEC Insider Trading Invest.* However, the coefficient on *Lead Ind Expertise* is no longer statistically significant. In terms of economic significance, the results in column 2 suggest that high-reputation lead arrangers are associated with approximately a 10.4% higher probability of the presence of public-side lenders in the syndicate, which represents approximately 37.5% of the within-fixed effect standard deviation of *PSIDE*.[17] Additionally, a

[14] We acknowledge that lenders are unlikely to have direct knowledge of the SEC's outstanding insider trading investigations, as they are typically not disclosed (e.g., Blackburne et al., 2021a, 2021b; Blackburne and Quinn 2023). However, lenders can learn about the intensity of SEC oversight because their outside legal counsels are usually in contact with SEC officials (e.g., Blackburne 2014) and many legal counsels employ former SEC staff, who are likely to retain strong connections with their prior SEC colleagues (e.g., deHaan et al., 2015).

[15] Our full sample includes 1259 borrowers, with 396 of these borrowers having both loans with and without public-side lender clauses. In untabulated analysis, we compare across observations in our sample that have within-borrower variation in *PSIDE* versus those that do not. We do not find significant differences between these two groups across most of the borrower fundamental characteristics, including *Size*, *Profitability*, *MTB*, *Leverage*, and *Creditworthiness*, but do observe some differences with respect to *Tangibility* and *Follow*.

[16] The results reported in column 1 of Table 2 also reveal that *PSIDE* is positively associated with borrowers' earnings forecasts (*Mgt EPS Forecast*) and analyst following (*Follow*), which suggests that private information such as earnings news via covenant compliance reports is relatively less important to syndicate participants when more earnings-related information is publicly available.

[17] We follow deHaan (2021) and calculate the standard deviation of each independent and dependent variable within fixed-effects groups.

**Table 2**
Public-side lender participation in syndicated loans.

| | (1) | | (2) | |
|---|---|---|---|---|
| | *PSIDE* | | *PSIDE* | |
| | Coefficient | z-stat | Coefficient | t-stat |
| *High Lead Reputation* | 1.531** | (2.52) | 0.104** | (2.33) |
| *Lead Ind Expertise* | 2.937*** | (3.26) | 0.034 | (0.33) |
| *SEC Insider Trading Invest* | 2.853*** | (3.26) | 0.484** | (2.46) |
| *Size* | −0.074 | (-1.61) | 0.000 | (-0.01) |
| *Tangibility* | −0.686*** | (-3.54) | −0.122 | (-1.36) |
| *Profitability* | 1.124 | (1.66) | 0.101*** | (2.88) |
| *MTB* | 0.001 | (1.31) | 0.000 | (1.02) |
| *Leverage* | 0.102 | (0.31) | −0.090 | (-1.50) |
| *Ret Volatility* | −1.349 | (-1.04) | −0.386*** | (-3.18) |
| *Creditworthiness* | −0.122** | (-2.41) | 0.001 | (0.04) |
| *R&D Intensity* | −0.031 | (-0.68) | 0.011 | (0.19) |
| *Mgt EPS Forecast* | 0.113** | (2.08) | 0.019 | (0.99) |
| *Follow* | 0.014** | (2.01) | −0.002 | (-1.17) |
| Borrower Fixed Effects | No | | Yes | |
| Year Fixed Effects | Yes | | Yes | |
| N | 4596 | | 4596 | |
| Pseudo/Adj. *R*-Squared | 0.097 | | 0.484 | |

This table examines the economic and institutional factors associated with the inclusion of public-side lender clauses in syndicated loan contracts. *PSIDE* is an indicator variable equal to one if the loan syndicate includes public-side participants, and zero otherwise. Column 1 reports the results of a logit model with year fixed effects and column 2 reports the results of a linear regression model with borrower and year fixed effects. Standard errors are clustered by lender. All variables are defined in Appendix B. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

within-fixed effect one standard deviation change in *SEC Insider Trading Invest* is associated with a modest increase that represents approximately 3.5% of the within-fixed effect standard deviation of *PSIDE*. Collectively, the evidence in Table 2 supports our proposition that public-side lenders rely to a greater extent on the screening and monitoring of lead arrangers, and that participant lenders are more likely to opt to remain on the public side of the information wall when there is greater regulatory oversight related to the misuse of private information.

We use the covariates from model (1) to set up an entropy-balanced design (Hainmueller 2012; Tubbicke 2022) that we employ in our subsequent analyses. We also verify that following entropy balancing, the moments of the covariates' distributions are not statistically different between *PSIDE* and non-*PSIDE* observations in our sample (untabulated).

### 4.2. Public-side lending and syndicate participation properties

We predict that the opportunity to remain on the public side of the information wall facilitates broader lender participation in the loan market. To test this conjecture, we examine how public-side lending is associated with various syndicate participation properties, including the types of participant lenders, the participation of lenders that are new to the loan market, the loan share retained by participants, and the number of syndicate lenders.

Developing robust information barriers is particularly burdensome for institutional investors and small and foreign banks. Therefore, we expect that these institutions are more likely to participate as public-side lenders. To proxy for whether a lender is on the public-side, for each participant in a given year, we estimate the fraction of loans with public-side lender clauses out of the total number of loans in which the lender participated. We then calculate the median of this fraction across all lenders during the year after removing lenders that do not participate in any loan deals with public-side lender clauses.[18] For loans with public-side lender clauses, we classify a participant as a public-side lender if, in the year the loan is issued, the participant's fraction of loans with public-side lender clauses is above the median value in that year.[19] We classify 655 syndicate participants as public-side lenders.

As we report in Panel A of Table 3, 145 of these lenders are institutional investors and 221 are foreign banks. In addition, the majority of U.S. banks that are classified as public-side lenders and for which we can measure their total assets fall in the two lowest bank size quintiles in the sample.[20] We acknowledge that we are unable to measure asset size for 86 U.S. banks classified as public-side lenders, representing 13% of the total number of participants classified as public-side lenders. Overall,

[18] We remove lenders with zero participation in loans with public-side lender clauses during the year because the inclusion of these lenders substantially biases the median value downward and overstates the estimated presence of public-side lenders, especially at the beginning of our sample period when the majority of lenders do not participate in loans with public-side lender clauses.

[19] We estimate that loan contracts with public-side lender clauses include 3.5 public-side lenders, on average.

[20] We employ the Schwert (2018) linking file to match U.S. banks to Compustat. Schwert (2018) matches those syndicated lenders to Compustat that originate at least 50 loans or at least $10 billion in loan volume, suggesting that the lenders that are not matched are likely to be relatively small. We further supplement the Schwert (2018) linking file with hand-collected data to match banks by name to either Compustat or banks' regulatory Call Reports.

**Table 3**
Public-side lenders and the type of syndicate participants.

*Panel A: Institution Types identified as Public-Side Lenders*

| | | |
|---|---|---|
| **Institution Type:** | | |
| Institutional Investor | | 145 |
| Foreign Bank | | 221 |
| US Bank: | | 258 |
| Bank asset size quintile 1 | 59 | |
| Bank asset size quintile 2 | 35 | |
| Bank asset size quintile 3 | 20 | |
| Bank asset size quintile 4 | 7 | |
| Bank asset size quintile 5 | 51 | |
| Bank asset size not available - smallest banks | 86 | |
| Other | | 31 |
| **Total Public-Side Lenders** | | **655** |

*Panel B: Public-Side Lender Clauses and the Type of Syndicate Participants*

| | (1) *Inst. Investor Participant* | | (2) *Foreign Bank Participant* | | (3) *Small Bank Participant* | | (4) *Non-Big-US-Bank Participant* | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient | t-stat | Coefficient | t-stat | Coefficient | t-stat | Coefficient | t-stat |
| *PSIDE* | 0.056*** | (2.83) | 0.065*** | (5.64) | 0.034** | (2.32) | 0.065*** | (4.16) |
| *High Lead Reputation* | 0.019 | (0.44) | 0.097** | (2.22) | 0.033 | (0.92) | 0.056 | (1.45) |
| *Lead Ind Expertise* | −0.047 | (-0.37) | 0.186 | (1.29) | −0.091 | (-1.11) | 0.135 | (1.02) |
| *SEC Insider Trading Invest* | 0.894 | (1.65) | −1.245 | (-1.22) | −0.025 | (-0.06) | −0.681 | (-0.58) |
| *Size* | 0.029 | (0.87) | 0.087*** | (3.80) | 0.006 | (0.61) | 0.048** | (2.51) |
| *Tangibility* | 0.082 | (0.64) | −0.081 | (-0.47) | 0.107 | (1.62) | −0.127 | (-0.58) |
| *Profitability* | −0.089 | (-0.61) | 0.234 | (1.19) | 0.156 | (1.18) | −0.053 | (-0.29) |
| *MTB* | −0.000 | (-0.25) | −0.000 | (-0.70) | −0.000 | (-0.46) | 0.000 | (0.16) |
| *Leverage* | 0.129** | (2.05) | −0.086 | (-1.40) | −0.024 | (-0.50) | −0.013 | (-0.26) |
| *Ret Volatility* | 0.087 | (0.28) | −0.290* | (-1.88) | −0.174 | (-1.41) | −0.058 | (-0.41) |
| *Creditworthiness* | 0.004 | (0.16) | 0.019 | (0.56) | 0.015 | (1.49) | 0.015 | (0.50) |
| *R&D Intensity* | 0.023 | (0.64) | 0.044 | (0.75) | −0.026 | (-1.51) | 0.039 | (0.57) |
| *Mgt EPS Forecast* | 0.012 | (0.38) | 0.064*** | (4.22) | 0.043*** | (4.08) | 0.010 | (0.77) |
| *Follow* | 0.001 | (0.36) | 0.002 | (0.74) | −0.003*** | (-3.42) | 0.003 | (1.63) |
| Borrower Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| Year Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| N | 4596 | | 4596 | | 4596 | | 4596 | |
| Adj. *R*-Squared | 0.392 | | 0.450 | | 0.307 | | 0.427 | |

*Panel C: Public-Side Lender Clauses, New Participants, and Syndicate Size*

| | **(1)** *New Non-Big-US-Bank Participant* | | **(2)** *Num Participants* | |
|---|---|---|---|---|
| | Coefficient | t-stat | Coefficient | t-stat |
| *PSIDE* | 0.046*** | (3.49) | 1.884*** | (4.20) |
| *High Lead Reputation* | −0.070** | (-2.34) | 0.799 | (1.33) |
| *Lead Ind Expertise* | −0.044 | (-0.39) | 2.148 | (1.19) |
| *SEC Insider Trading Invest* | 0.415** | (2.42) | −0.155 | (-0.04) |
| *Size* | −0.003 | (-0.25) | 2.157*** | (6.34) |
| *Tangibility* | −0.146* | (-1.88) | 2.966 | (1.62) |
| *Profitability* | 0.027 | (0.54) | 7.522*** | (3.83) |
| *MTB* | 0.000 | (0.87) | 0.003 | (0.81) |
| *Leverage* | 0.067* | (1.68) | −2.842*** | (-2.87) |
| *Ret Volatility* | −0.047 | (-0.88) | −8.934*** | (-3.11) |
| *Creditworthiness* | 0.007 | (0.50) | 0.261 | (1.08) |
| *R&D Intensity* | −0.050* | (-1.67) | 1.113 | (0.66) |
| *Mgt EPS Forecast* | 0.023 | (1.33) | 1.288*** | (4.50) |
| *Follow* | −0.003** | (-2.03) | −0.063*** | (-2.88) |
| Borrower Fixed Effects | Yes | | Yes | |
| Year Fixed Effects | Yes | | Yes | |
| N | 4596 | | 4596 | |
| Adj. *R*-Squared | 0.201 | | 0.478 | |

This table examines the association between public-side lender participation and the type of participants in syndicated loans. In Panel A, we provide descriptive statistics regarding the types of institutions classified as public-side lenders. In Panel B, we examine the association between the presence of public-side lender clauses in loan contracts and the type of participants in syndicated loans. In column 1 of Panel B, the dependent variable, *Inst. Investor Participant*, is an indicator variable equal to one if the loan includes a non-bank institutional participant. In column 2 of Panel B, the dependent variable, *Foreign Bank Participant*, is an indicator variable equal to one if the loan includes a foreign bank. In column 3 of Panel B, the dependent variable, *Small Bank Participant*, is an indicator variable equal to one if a bank participant in the syndicate has total assets in the bottom quintile of the annual bank asset distribution. In column 4 of Panel B, the dependent variable, *Non-Big-US-Bank Participant*, is an indicator variable equal to one if a participant in the syndicate is a non-bank institutional investor, foreign bank, or small bank. In column 1 of Panel C, the dependent variable, *New Non-Big-US-Bank Participant*, is an indicator variable equal to one if a loan syndicate includes an institutional investor, foreign bank, or small bank that has not participated in any other syndicate

prior to the 12-month period preceding the loan's origination date. In column 2 of Panel C, the dependent variable, *Num Participants*, is the number of participant lenders in the syndicate. *PSIDE* is an indicator variable equal to one if the loan contract includes a public-side lender clause, and zero otherwise. The models use entropy balancing, include borrower and year fixed effects, and cluster standard errors by lender. All columns are estimated using OLS. All variables are defined in Appendix B. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

we find that the vast majority of participants classified as public-side lenders are either institutional investors, foreign banks, or small banks, consistent with expectations.

We corroborate this descriptive evidence by estimating the association between the presence of public-side lenders and the type of syndicate participants using the following model[21]

$$\begin{aligned} \textit{Participant Type} = {} & \beta_1\, \textit{PSIDE} + \beta_2\, \textit{High Lead Reputation} + \beta_3\, \textit{Lead Ind Expertise} + \beta_4\, \textit{SEC Insider Trading Invest} + \beta_5\, \textit{Size} \\ & + \beta_6\, \textit{Tangibility} + \beta_7\, \textit{Profitability} + \beta_8\, \textit{MTB} + \beta_9\, \textit{Leverage} + \beta_{10}\, \textit{Ret Volatility} + \beta_{11}\, \textit{Creditworthiness} \\ & + \beta_{12}\textit{R\&D Intensity} + \beta_{13}\, \textit{Mgt EPS Forecast} + \beta_{14}\, \textit{Follow} + \alpha_f + \alpha_t + \varepsilon \end{aligned} \quad (2)$$

where *Participant Type* denotes indicator variables for *Inst. Investor Participant*, *Foreign Bank Participant*, *Small Bank Participant*, and *Non-Big-US-Bank Participant* (which jointly reflects the previous three participant categories). We conservatively classify as small bank participants only those in the bottom quintile of bank asset size.[22] We estimate model (2) using an entropy-balanced design based on covariates associated with the presence of public-side lender clauses in loan contracts in Table 2. Additionally, model (2) includes borrower fixed effects [$\alpha_f$] to control for unobservable time-invariant borrower characteristics that attract the participation of institutional investors, foreign banks, or small banks in syndicated loans.[23]

Consistent with our predictions, in columns 1–3 of Panel B in Table 3, we find a significant positive association between *PSIDE* and *Inst. Investor Participant*, *Foreign Bank Participant*, and *Small Bank Participant*. Economically, for example, the presence of public-side lenders is associated with approximately a 5.6% higher probability of the participation of institutional investors, which represents 17.7% of the within-fixed effect standard deviation of institutional participation. In column 4, we also show that *PSIDE* is positively associated with the probability of having either non-bank institutional investors, foreign banks, or small banks [*Non-Big-US-Bank Participant*] fund a loan. In line with the evidence reported in Panel A, these findings suggest that syndicate participants that benefit more from waiving their rights to access borrowers' private information are more likely to choose to be public-side lenders.[24]

Next, we test whether public-side lending facilitates new participation in syndicated loans for participants for which internal information barriers may be too costly (i.e., institutional investors and small and foreign banks). *New Non-Big-US-Bank Participant* as an indicator variable equal to one if a loan syndicate includes an institutional investor, foreign bank, or small bank that are new to the loan market, which we define as those that have not participated in any other syndicate prior to the 12-month period preceding the loan's origination date and re-estimate model (2) with this dependent variable.[25] In column 1 of Panel C of Table 3, we find a significant positive association between *PSIDE* and *New Non-Big-US-Bank Participant*. Specifically, we find that *PSIDE* is associated with an increase of approximately 4.6% in *New Non-Big-US-Bank Participant*, which represents approximately 22% of its within-fixed effect standard deviation.

We also examine the implications of public-side lending for participants that had already funded loans before opting to join a syndicate as a public-side lender (i.e., existing lenders). While existing lenders have already incurred the fixed costs of establishing Chinese walls, they incur ongoing costs to ensure the effectiveness of their information barriers. These costs may also include setting up internal controls and procedures specifically designed for each borrower. Because public-side lending

[21] We use a linear probability model due to concerns regarding a large number of fixed effects in nonlinear models (e.g., Maddala 1987; Greene 2004).

[22] In untabulated analysis, we obtain similar results if we also classify as small bank participants those banks for which asset size data are not available as well as those banks that are in the second size quintile.

[23] In untabulated analyses, we find that our results are unlikely to be affected by potential biases due to heterogeneous treatment effects in two-way fixed effect panel regressions (de Chaisemartin and d'Haultfœuille, 2020). We also follow Altonji et al. (2005) and Oster (2019) and assess the proportional importance that unobservable factors must have relative to observables in order to suppress the coefficient on *PSIDE* or *PSIDE Intensity* (discussed in Section 5) to zero. Our findings (untabulated) suggest that an omitted variable would have to have significantly higher importance relative to observables to influence our conclusions. To further mitigate the effect of unobservables on our findings, we estimate our tests with lead arranger fixed effects and obtain similar results (untabulated) across these and all subsequent analyses.

[24] In untabulated tests, we examine cross-sectional variation in the association between *PSIDE* and *New Non-Big-US-Bank Participant*. We construct an indicator variable, *High SEC Insider Trading Invest*, which reflects higher regulatory scrutiny and is equal to one if *SEC Insider Trading Invest* falls in the top tercile of our sample distribution, and zero otherwise. We interact *PSIDE* with *High SEC Insider Trading Invest* and find a significantly positive coefficient on this interaction term. This suggests that the association between the participation of lenders for which maintaining robust information barriers is too costly and public-side lending is more pronounced when SEC enforcement pressure is higher.

[25] An alternative approach to defining new participants would be to rely on the date of their very first participation in the syndicated loan market. Doing so, however, will be less effective in capturing the construct of interest. For example, if we measure new participations based on this alternative method, *New Non-Big US Bank Participant* would be coded as zero for a loan that is originated *immediately* following the lender's first loan, and thus will not accurately reflect the concept of a "new participant." Nevertheless, as a robustness test, we re-measure *New Non-Big US Bank Participant* by requiring the contract to be the first syndicated loan in which the lender participates. We continue to find a positive association between *PSIDE* and *New Non-Big US Bank Participant*.

eliminates the need for costly protection of a borrower's MNPI, it should reduce the cost of funding a loan, and this should, in turn, allow existing lenders to hold a smaller share of the loan if they opt to be on the public-side relative to when they are on the private-side. We test this prediction by examining the average retained share of existing lenders based on whether or not they opt to be on the public-side. We start this analysis with the 655 participants classified as public-side lenders. We retain only existing participants by eliminating from this set any new participant that did not participate in syndicated loans prior to its participation in a loan with a public-side lender clause.[26] We then identify all sample loans in which these existing lenders participated, and compare their loan share retained in public-side versus private-side deals. We find that existing syndicate participants hold on average 4.6 percent of the loan when they are on the public-side, whereas they hold 6.5 percent when they are on the private-side, and the difference between these shares is significant at the 1% level (untabulated).

Finally, we corroborate these findings by examining the association between *PSIDE* and the number of participants in the lending syndicate. Because the preceding evidence suggests that public-side lending facilitates entry into the syndicated loan market for new participants and reduces the cost of syndicate participation for existing lenders, we expect that *PSIDE* is positively associated with the number of participants in the syndicate. We test this prediction by re-estimating model (2) with the size of the lending syndicate (*Num Participants*) as the dependent variable. In column 2 of Panel C of Table 3, we find a significant positive association between *PSIDE* and *Num Participants*. Economically, *PSIDE* is associated with a 41.7% increase in *Num Participants* relative to the within-fixed effect standard deviation of this variable.

Collectively, our evidence indicates that public-side lending is positively associated with the participation of lenders for which maintaining effective Chinese Walls is too costly, eases entry into the loan market for these lenders, reduces the cost of participation for existing lenders, and is positively associated with the number of syndicate participants. These findings suggest that this contractual innovation facilitates broader lender participation in the syndicated loan market.

## 5. Public-side lending and loan contract design

We next examine how the presence of public-side lenders is associated with loan contract design. Because these lenders are subject to the risk of being informationally disadvantaged, they may be attracted to loans with contractual terms that mitigate their disadvantage or they may seek to be compensated through a higher interest spread or a higher loan share retained by the lead arranger. However, public-side lenders may be willing to accept this risk because remaining on the public-side facilitates their syndicate participation. We test these predictions using an entropy-balanced research design and estimating the following model:

$$\begin{aligned} \textit{Contract Term} = {} & \beta_1\, \textit{PSIDE Measure} + \beta_2\, \textit{High Lead Reputation} + \beta_3\, \textit{Lead Ind Expertise} + \beta_4\, \textit{SEC Insider Trading Invest} \\ & + \beta_5\, \textit{Size} + \beta_6\, \textit{Tangibility} + \beta_7\, \textit{Profitability} + \beta_8\, \textit{MTB} + \beta_9\, \textit{Leverage} + \beta_{10}\, \textit{Ret Volatility} + \beta_{11}\, \textit{Creditworthiness} \\ & + \beta_{12}\textit{R\&D Intensity} + \beta_{13}\, \textit{Mgt EPS Forecast} + \beta_{14}\, \textit{Follow} + \beta_{15}\, \textit{Inst. Investor Participant} + \beta_{16}\, \textit{Foreign Bank Participant} \\ & + \beta_{17}\, \textit{Small Bank Participant} + \alpha_f + \alpha_t + \varepsilon \end{aligned} \tag{3}$$

where *Contract Term* is *Performance Covs*, *PP Increasing Rate*, *Spread*, or *Retained Share*. We include the same controls and fixed effects as in model (2) and augment the model with controls for the presence of non-bank institutional investors, foreign banks, or small banks in the syndicate.

To study the implications of public-side lending for loan contract design, we consider not only the presence of public-side lenders in the syndicate [*PSIDE*], but also the intensity of public-side lenders' participation [*PSIDE Intensity*]. This is because a higher intensity is likely to influence loan contract terms more substantially. We measure *PSIDE Intensity* based on the fraction of participants that we classify as public-side lenders within the syndicate (as discussed in Section 4.2). Specifically, *PSIDE Intensity* takes the value of zero if the loan does not contain a public-side lender clause or if the syndicate does not include any participant classified as a public-side lender. For each loan that includes at least one participant classified as a public-side lender, we estimate the proportion of these participants in the syndicate. *PSIDE Intensity* takes the value of one, two, and three if the loan's proportion of participants classified as public-side lenders is in the bottom, middle, and upper tercile of the distribution among syndicates with at least one participant classified as a public-side lender.

First, we examine whether public-side lending is associated with the presence of contractual provisions that facilitate lead arrangers' monitoring and increase their ex-post control rights. Prior literature shows that performance covenants [*Performance Covs*] act as tripwires that allocate control rights to lenders when the borrower's performance deteriorates (Christensen and Nikolaev 2012; Christensen et al., 2016). Additionally, interest-increasing performance pricing provisions [*PP Increasing Rate*] can affect lenders' control rights by influencing the allocation of bargaining power between borrowers and lenders in renegotiations (Roberts and Sufi 2009a; Kang et al., 2021). When the performance pricing provision increases the interest rate, borrowers have incentives to renegotiate the loan, which will, in turn, allocate the control rights to lenders.

In columns 1 and 2 of Table 4, Panel A, we find a significant positive association between *Performance Covs* and both *PSIDE* and *PSIDE Intensity*. *PSIDE* is associated with a 16.2% increase in *Performance Covs,* which represents an increase of approximately 27.2% relative to the within-fixed effect standard deviation of *Performance Covs*. Furthermore, one within-fixed effect

[26] We identify new participation in the syndicated loan market similarly to how we measure *New Non-Big-US-Bank Participant* in Panel C of Table 3.

standard deviation change in *PSIDE Intensity* is associated with a 3.8% increase in *Performance Covs* relative to the within-fixed effect standard deviation of this variable. In columns 3 and 4, we also find a positive association between *PP Increasing Rate* and both *PSIDE* and *PSIDE Intensity*. Economically, *PSIDE* (a within-fixed effect one standard deviation change in *PSIDE*

**Table 4**
Public-side lenders and loan contract design.

*Panel A: Performance Covenants and Performance Pricing Provisions*

| | (1) *Performance Covs* | | (2) *Performance Covs* | | (3) *PP Increasing Rate* | | (4) *PP Increasing Rate* | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient | t-stat | Coefficient | t-stat | Coefficient | t-stat | Coefficient | t-stat |
| *PSIDE* | 0.162** | (2.47) | | | 0.169*** | (2.80) | | |
| *PSIDE Intensity* | | | 0.039** | (2.36) | | | 0.048*** | (5.36) |
| *High Lead Reputation* | 0.180* | (1.83) | 0.090 | (1.53) | 0.116** | (2.16) | 0.068* | (1.74) |
| *Lead Ind Expertise* | 0.905*** | (3.97) | 0.250 | (1.17) | −0.096 | (-0.61) | −0.069 | (-0.52) |
| *SEC Insider Trading Invest* | −0.458 | (-0.51) | −0.225 | (-0.38) | −0.978*** | (-2.95) | −0.892*** | (-3.03) |
| *Size* | −0.039 | (-0.76) | −0.059 | (-1.31) | 0.075** | (2.26) | 0.034 | (0.99) |
| *Tangibility* | −0.694** | (-2.28) | −0.169 | (-0.71) | −0.211 | (-1.28) | −0.000 | (-0.00) |
| *Profitability* | 0.145 | (0.52) | 0.032 | (0.35) | 0.347 | (1.38) | 0.186** | (2.13) |
| *MTB* | 0.000 | (0.16) | 0.000 | (0.27) | 0.000 | (0.58) | −0.000 | (-0.12) |
| *Leverage* | 0.142 | (0.69) | 0.021 | (0.11) | −0.159 | (-1.55) | −0.150* | (-1.93) |
| *Ret Volatility* | −0.840** | (-1.97) | −0.562** | (-2.20) | −0.392 | (-1.43) | −0.431* | (-1.69) |
| *Creditworthiness* | −0.034 | (-0.90) | −0.090* | (-1.87) | 0.028* | (1.81) | 0.038* | (1.77) |
| *R&D Intensity* | −0.070 | (-0.69) | 0.013 | (0.10) | 0.010 | (0.40) | 0.057** | (2.11) |
| *Mgt EPS Forecast* | 0.048 | (0.56) | 0.063 | (1.10) | 0.032 | (0.68) | −0.019 | (-0.56) |
| *Follow* | 0.003 | (0.53) | 0.007** | (2.08) | −0.000 | (-0.66) | −0.000 | (-0.34) |
| *Inst. Investor Participant* | 0.128*** | (2.73) | 0.130*** | (3.75) | −0.003 | (-0.11) | −0.020 | (-0.91) |
| *Foreign Bank Participant* | 0.043 | (0.43) | 0.059 | (0.89) | 0.077 | (1.56) | 0.085** | (2.26) |
| *Small Bank Participant* | 0.169*** | (2.80) | 0.100* | (1.87) | 0.119** | (2.10) | 0.081** | (2.03) |
| Borrower Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| Year Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| N | 4596 | | 4596 | | 4596 | | 4596 | |
| Adj. *R*-Squared | 0.509 | | 0.467 | | 0.267 | | 0.190 | |

*Panel B: Cost of Debt and Retained Share*

| | (1) *Interest Spread* | | (2) *Interest Spread* | | (3) *Retained Share* | | (4) *Retained Share* | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient | t-stat | Coefficient | t-stat | Coefficient | t-stat | Coefficient | t-stat |
| *PSIDE* | −0.000 | (-0.03) | | | 1.438* | (1.85) | | |
| *PSIDE Intensity* | | | 0.004 | (0.55) | | | −0.152 | (-0.17) |
| *High Lead Reputation* | −0.150*** | (-2.72) | −0.105** | (-2.27) | −7.788 | (-1.37) | −2.804 | (-0.90) |
| *Lead Ind Expertise* | 0.299*** | (2.68) | −0.001 | (-0.01) | −12.51 | (-1.28) | −9.449 | (-1.33) |
| *SEC Insider Trading Invest* | −0.738** | (-2.13) | −0.694** | (-2.24) | 107.6** | (1.97) | 73.78* | (1.74) |
| *Size* | −0.146*** | (-5.57) | −0.071** | (-2.01) | −1.573** | (-2.21) | −3.052*** | (-2.58) |
| *Tangibility* | −0.240** | (-2.17) | −0.214** | (-2.06) | −8.826 | (-1.29) | −5.376 | (-0.59) |
| *Profitability* | −1.505*** | (-8.07) | −0.576*** | (-6.68) | −5.915 | (-0.91) | −3.538 | (-0.68) |
| *MTB* | −0.000 | (-0.44) | 0.000 | (0.11) | −0.000 | (-0.04) | 0.046 | (1.38) |
| *Leverage* | 0.424*** | (5.41) | 0.561*** | (6.39) | 3.738 | (0.57) | 1.193 | (0.11) |
| *Ret Volatility* | 0.324** | (2.12) | 0.727*** | (4.05) | 2.543 | (0.09) | 11.99 | (0.48) |
| *Creditworthiness* | −0.031 | (-1.31) | −0.081*** | (-2.77) | 0.061 | (0.04) | 0.137 | (0.07) |
| *R&D Intensity* | −0.021 | (-0.36) | 0.057 | (0.96) | 1.830 | (0.86) | 0.399 | (0.18) |
| *Mgt EPS Forecast* | −0.035* | (-1.83) | −0.016 | (-0.53) | −1.490 | (-0.41) | 0.537 | (0.26) |
| *Follow* | 0.000 | (0.32) | −0.000 | (-0.04) | 0.059 | (0.60) | 0.089 | (0.81) |
| *Inst. Investor Participant* | 0.260* | (11.79) | 0.250* | (21.69) | −4.518*** | (-2.69) | −2.321 | (-1.56) |
| *Foreign Bank Participant* | −0.065** | (-2.31) | −0.082*** | (-3.90) | −8.984*** | (-3.16) | −11.42*** | (-5.44) |
| *Small Bank Participant* | 0.000 | (0.00) | −0.010 | (-0.54) | −5.276*** | (-2.64) | −5.934*** | (-3.38) |
| Borrower Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| Year Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| N | 4364 | | 4364 | | 1300 | | 1300 | |
| Adj. *R*-Squared | 0.755 | | 0.728 | | 0.573 | | 0.589 | |

This table examines the association between the presence of public-side lenders in the syndicate and initial loan contract design. In columns 1 and 2 of Panel A, the dependent variable, *Performance Covs*, is the number of performance covenants included in the loan contract. In columns 3 and 4 of Panel A, the dependent variable, *PP Increasing Rate*, is an indicator variable equal to one if the loan contract includes an increasing-rate performance pricing provision, and zero otherwise. In columns 1 and 2 of Panel B, the dependent variable, *Interest Spread*, is the natural log of the interest spread. In columns 3 and 4 of Panel B, the dependent variable, *Retained Share*, is the loan share retained by the lead arranger. *PSIDE* is an indicator variable equal to one if the loan contract includes a public-side lender clause, and zero otherwise. *PSIDE Intensity* is a rank variable ranging from zero to three and reflecting the intensity of public-side lender participation in the loan syndicate. The models use entropy balancing, include borrower and year fixed effects, and cluster standard errors by lender. All columns are estimated using OLS. All variables are defined in Appendix B. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

*Intensity*) is associated with an increase of approximately 45.7% (7.6%) relative to the within-fixed effect standard deviation of *PP Increasing Rate*. Collectively, these results are consistent with public-side lending being associated with greater use of contractual provisions that facilitate lead arrangers' monitoring. This evidence also echoes our earlier finding that public-side lenders are more likely to fund loans syndicated by reputable lead arrangers (Table 2).

Next, we examine whether public-side lenders are compensated for their information disadvantage through a higher interest spread. We re-estimate model (3) with interest spread [*Spread*] as the dependent variable and report the results in columns 1 and 2 of Panel B. We find an insignificant association between both *PSIDE* and *PSIDE Intensity* and the cost of debt. Finally, we examine whether public-side lenders demand that lead arrangers retain more skin in the game to incentivize the lead arranger to more intensively screen and monitor the borrower. We re-estimate model (3) using the loan share retained by the lead arranger [*Retained Share*] as the dependent variable. In column 3 of Panel B, we find some evidence supporting the notion that public-side lending is associated with a larger loan share retained by the lead arranger, as demonstrated by the positive coefficient on *PSIDE*. However, in column 4, we find an insignificant relation between this variable and *PSIDE Intensity*.[27]

## 6. Public-side lending and within-syndicate coordination costs

We complement our analyses of the ex-ante properties of loan contracts by examining the relation between public-side lending and ex-post contracting outcomes. Contracts are inherently incomplete because it is either impossible or too costly to anticipate all future states of the world (e.g., Aghion and Bolton 1992; Hart 1995). Thus, loan contracts leave scope for re-negotiations that allow contracting parties to modify contractual terms ex-post in response to unforeseen or uncontracted events (e.g., Roberts and Sufi 2009b). Because prior literature demonstrates that higher information quality facilitates lender coordination and helps resolve disagreements between lenders (e.g., Gârleanu and Zwiebel 2009; Senbet and Wang 2012; Nikolaev 2018), public-side lending may have important implications for loan renegotiations.

Public-side lenders, who do not have access to borrowers' MNPI and are informationally disadvantaged relative to other syndicate participants, may induce disagreements among lenders, thus increasing within-syndicate coordination costs and leading to higher costs of contract renegotiations.[28] However, our evidence thus far suggests that public-side lenders rely to a greater extent on lead arrangers' monitoring activities (Table 2 and Panel A of Table 4). Thus, if public-side lenders delegate their control rights to lead arrangers, coordination among syndicate lenders could in fact become easier, as a smaller number of lenders will have to agree on the revised loan terms (Gertner and Scharfstein 1991; Berglöf and Von Thadden 1994; Bolton and Scharfstein 1996; Saavedra 2018). This should, in turn, reduce renegotiation costs. To examine whether public-side lending is associated with renegotiation costs, we build on recent studies that show that renegotiation likelihood increases with a reduction in renegotiation costs (Chu 2021; Dyreng et al., 2021). Therefore, we posit that if public-side lending is associated with higher (lower) renegotiation costs, we should observe a lower (higher) likelihood and frequency of renegotiations in the presence of public-side lenders.

We measure loan amendments following Nikolaev (2018).[29] We estimate a regression model similar to model (3) with *Amendment* and *Num Amend* as dependent variables, where *Amendment* reflects whether a loan is renegotiated at least once before its stated maturity, and *Num Amend* is the number of times the loan is renegotiated.[30] We find in Table 5 that public-side lending is positively associated with both renegotiation proxies. In terms of economic significance, based on the results in column 1, the presence of public-side lenders increases the likelihood of renegotiation by approximately 14.3%, which represents an increase of 41.7% relative to the within-fixed effect standard deviation of *Amendment*. Similarly, based on the results reported in column 2, one within-fixed effect standard deviation change in *PSIDE Intensity* is associated with an increase of 2.2% in renegotiation likelihood, which represents an increase of 6.5% relative to the within-fixed effect standard deviation of *Amendment*. Thus, our findings are consistent with the notion that public-side lenders delegate their control

[27] We recognize that our analyses are subject to endogeneity concerns, and we acknowledge that we are not able to identify a credible instrument for *PSIDE*. However, to mitigate concerns related to multiple hypothesis testing in our empirical analyses, we apply the Romano and Wolf (2005) correction for the familywise error rate to address concerns about testing the effect of an independent variable(s) on multiple dependent variables. We find that our results documenting the association between *PSIDE* and the properties of the lending syndicate that we report in Panels B and C of Table 3 are robust to this correction (untabulated). Furthermore, when applying the Romano and Wolf (2005) correction to the analysis of initial loan contract design in Table 4, we continue to find a significant positive association between both *PSIDE* and *PSIDE Intensity* and the use of contractual provisions that facilitate monitoring (*Performance Covs* and *PP Increasing Rate*). However, the association between *PSIDE* and *Retained Share* reported in column 3 of Table 4, Panel B is no longer statistically significant. The correction does not affect the robustness of our renegotiation analyses (discussed in Section 6).

[28] Renegotiating nonmaterial amendments and waivers requires the approval of a simple majority of lenders, while changes to the primary loan terms (e.g., loan amount, maturity, interest rate, security, or collateral) often require a *unanimous* vote by all lenders (Roberts and Sufi 2009a; Standard & Poor's 2020).

[29] We identify loan amendments in two ways. First, we identify loan amendment agreements disclosed in an Exhibit 10 filing attached to form 10-K, 10-Q, or 8-K. Second, we identify loan agreements that reference prior agreements and state the amendment dates by identifying all dates contained within each loan document and extracting the 20 words before and after each date. Next, we examine whether these 20-word strings include the terms "waiver," "amendment," "amended," "restated," or "as amended" along with legalese including "dated," "dated as of," or "as of" to determine if the date is a valid renegotiation date. We match each amendment date to an original agreement if: (i) the origination date is included in the loan document, (ii) the amendment date is before the maturity date, and (iii) the amendment date occurs more than 90 days after the origination date.

[30] We include the same controls and fixed effects as model (3) and augment the model with additional controls for *Performance Covs* and *PP Increasing Rate*, which are both positively associated with public-side lending in Table 4.

**Table 5**
Public-side lenders and ex-post renegotiation.

| | (1) | | (2) | | (3) | | (4) | |
|---|---|---|---|---|---|---|---|---|
| | *Amendment* | | *Amendment* | | *Num Amend* | | *Num Amend* | |
| | Coefficient | t-stat | Coefficient | t-stat | Coefficient | t-stat | Coefficient | t-stat |
| *PSIDE* | 0.143*** | (11.46) | | | 0.505*** | (8.31) | | |
| *PSIDE Intensity* | | | 0.038*** | (5.66) | | | 0.127* | (2.37) |
| *High Lead Reputation* | 0.067 | (1.41) | 0.062* | (1.93) | 0.169 | (1.03) | −0.064 | (-0.34) |
| *Lead Ind Expertise* | −0.022 | (-0.18) | 0.020 | (0.12) | −0.029 | (-0.04) | −0.399 | (-0.58) |
| *SEC Insider Trading Invest* | −0.210 | (-1.01) | 0.126 | (0.43) | −0.038 | (-0.03) | 0.822 | (0.37) |
| *Size* | −0.045*** | (-3.29) | −0.020 | (-1.19) | −0.139 | (-0.76) | −0.079 | (-0.54) |
| *Tangibility* | 0.034 | (0.43) | −0.062 | (-0.37) | 0.463 | (0.77) | 0.315 | (0.43) |
| *Profitability* | −0.327 | (-1.42) | −0.109* | (-1.77) | −0.546 | (-0.41) | 0.266 | (0.45) |
| *MTB* | 0.000 | (1.10) | 0.000 | (0.77) | 0.001 | (0.56) | −0.001 | (-0.31) |
| *Leverage* | −0.111** | (-2.09) | −0.023 | (-0.43) | −0.061 | (-0.18) | 0.118 | (0.33) |
| *Ret Volatility* | 0.140 | (0.38) | 0.055 | (0.16) | −0.598 | (-0.30) | −0.308 | (-0.15) |
| *Creditworthiness* | −0.056*** | (-5.53) | −0.044*** | (-2.77) | −0.362*** | (-5.67) | −0.303** | (-2.22) |
| *R&D Intensity* | −0.038 | (-0.30) | −0.033 | (-0.38) | −0.064 | (-0.11) | −0.026 | (-0.05) |
| *Mgt EPS Forecast* | 0.031 | (1.52) | 0.016 | (0.61) | 0.091 | (0.71) | 0.112 | (0.88) |
| *Follow* | 0.005** | (2.05) | 0.002 | (0.80) | 0.028 | (1.42) | 0.022 | (1.13) |
| *Inst. Investor Participant* | 0.039*** | (3.86) | 0.028 | (1.52) | 0.237*** | (2.56) | 0.212** | (2.07) |
| *Foreign Bank Participant* | 0.011 | (0.42) | 0.030 | (1.06) | 0.253*** | (3.03) | 0.334*** | (3.19) |
| *Small Bank Participant* | −0.015 | (-0.41) | −0.032 | (-1.09) | −0.169 | (-1.09) | −0.255** | (-2.08) |
| *Performance Covs* | 0.016** | (2.13) | 0.030*** | (2.70) | 0.148 | (1.66) | 0.210*** | (3.00) |
| *PP Increasing Rate* | 0.044*** | (3.88) | 0.063*** | (4.46) | 0.233*** | (2.67) | 0.319*** | (5.59) |
| Borrower Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| Year Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| N | 4596 | | 4596 | | 4596 | | 4596 | |
| Adj. *R*-Squared | 0.266 | | 0.158 | | 0.395 | | 0.314 | |

This table examines the association between the presence of public-side lenders and the likelihood of ex-post renegotiations. In columns 1 and 2, the dependent variable, *Amendment*, is an indicator variable equal to one if the loan is renegotiated following loan contract origination, and zero otherwise. In columns 3 and 4, the dependent variable, *Num Amend*, is the count of the number of times the loan is renegotiated following loan contract origination. *PSIDE* is an indicator variable equal to one if the loan contract includes a public-side lender clause, and zero otherwise. *PSIDE Intensity* is a rank variable ranging from zero to three and reflecting the intensity of public-side lender participation in the loan syndicate. The models use entropy balancing, include borrower and year fixed effects, and cluster standard errors by lender. All columns are estimated using OLS. All variables are defined in Appendix B. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

rights to the lead arranger, thereby reducing within-syndicate coordination costs, and increasing the likelihood of ex-post renegotiations.

Prior literature also shows that renegotiations are triggered by changes in borrower-specific and macroeconomic conditions (Roberts and Sufi 2009a; Roberts 2015). Therefore, we further examine the likelihood of renegotiation in the year following these changes [*Amend_*1yr] as well as the timeliness of renegotiations relative to these events using a Cox proportional hazard model [*Amend_Lag*].[31] We first focus on five substantial negative triggering events: (i) an extreme negative price change (monthly returns $\leq -30\%$ during the quarter) as in Zhang (2008), (ii) a covenant violation (Nini et al., 2012), (iii) a one standard deviation decrease in the borrower's return on assets,[32] (iv) a one standard deviation increase in the borrower's debt-to-EBITDA ratio, and (v) a 25% decline in GDP growth. In the odd columns of Panel A of Table 6, we find that *PSIDE* is positively associated with the likelihood of renegotiation following all five negative triggering events. In the even columns, we also find that the hazard ratios for *PSIDE* are above one and statistically significant. In Panel B, we repeat these analyses using *PSIDE Intensity* and find qualitatively similar results for most of the negative triggering events.

In Table 7, we examine the relation between public-side lending and ex-post renegotiations following four positive triggering events: (i) an extreme positive price change (monthly returns $\geq -30\%$), (ii) a one standard deviation increase in the borrower's return on assets, (iii) a one standard deviation decrease in the borrower's debt-to-EBITDA ratio, and (iv) a 25% increase in GDP growth. In the odd columns of Panel A, which reports the results using *PSIDE*, we find statistically significant evidence that public-side lenders increase the likelihood of renegotiation for three of our four positive events. Additionally, in

[31] We measure *Amend_Lag* over a maximum of a one-year horizon following changes in borrower-specific and macroeconomic conditions (renegotiations beyond the one-year horizon are unlikely to be in response to the triggering events). However, in untabulated analysis, we find that our results are unchanged when we measure *Amend_Lag* until loan maturity. Additionally, we do not include fixed effects in the Cox proportional hazard model. In untabulated analysis, we find similar results using OLS with borrower and year fixed effects.

[32] We measure a one standard deviation change based on the distribution of borrowers' historical return on assets. Specifically, for each borrower in the sample, we measure the standard deviation of quarterly return on assets over the five-year period prior to loan contract inception. Then, for each quarter during which the loan is outstanding, we measure the difference between return on assets in the current quarter relative to the same quarter in the year prior to loan contract inception. We retain observations for this analysis if return on assets is at least one standard deviation lower than the year prior to loan contract inception. We follow a similar procedure for changes in the borrower's debt-to-EBITDA ratio and to identify the positive changes examined in Table 7.

**Table 6**
Public-side lenders and ex-post renegotiation following negative triggering events.

| *Panel A: PSIDE Measure* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *Price Shock* | | *Covenant Violation* | | *Std Dev ΔROA* | | *Std Dev ΔDebt/EBITDA* | | *25% ΔGDP Growth* | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| | *Amend_*1yr | *Amend_Lag* | *Amend_*1yr | *Amend_Lag* | *Amend_*1yr | *Amend_Lag* | *Amend_*1yr | *Amend_Lag* | *Amend_*1yr | *Amend_Lag* |
| | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) |
| *PSIDE* | 0.152*** | 1.255** | 0.107* | 1.545*** | 0.128*** | 1.159** | 0.163*** | 1.234*** | 0.133*** | 1.239*** |
| | (3.29) | (2.16) | (1.95) | (4.14) | (3.24) | (2.11) | (12.57) | (5.46) | (3.40) | (5.56) |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Borrower Fixed Effects | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| Year Fixed Effects | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| N | 1423 | 1578 | 730 | 813 | 5547 | 5752 | 8038 | 8213 | 7549 | 7699 |
| Adj./Pseudo *R*-Squared | 0.376 | 0.009 | 0.343 | 0.013 | 0.293 | 0.007 | 0.261 | 0.005 | 0.345 | 0.010 |
| *Panel B: PSIDE Intensity Measure* | | | | | | | | | | |
| | *Price Shock* | | *Covenant Violation* | | *Std Dev ΔROA* | | *Std Dev ΔDebt/EBITDA* | | *25% ΔGDP Growth* | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| | *Amend_*1yr | *Amend_Lag* | *Amend_*1yr | *Amend_Lag* | *Amend_*1yr | *Amend_Lag* | *Amend_*1yr | *Amend_Lag* | *Amend_*1yr | *Amend_Lag* |
| | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) |
| *PSIDE Intensity* | −0.001 | 1.033 | −0.012 | 1.080 | 0.032* | 1.113*** | 0.028** | 1.115*** | 0.012 | 1.126*** |
| | (-0.06) | (0.83) | (-0.27) | (1.33) | (1.79) | (3.46) | (2.55) | (5.36) | (0.40) | (5.68) |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Borrower Fixed Effects | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| Year Fixed Effects | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| N | 1423 | 1578 | 730 | 813 | 5547 | 5752 | 8038 | 8213 | 7549 | 7699 |
| Adj./Pseudo *R*-Squared | 0.271 | 0.004 | 0.236 | 0.008 | 0.263 | 0.007 | 0.242 | 0.005 | 0.324 | 0.008 |

This table examines the association between public-side lender clauses and the likelihood of ex-post renegotiations. Panel A (B) presents the results using *PSIDE* (*PSIDE Intensity*) as a proxy for the presence of public-side lenders. Columns 1 and 2 examine renegotiations following a negative equity shock (Zhang 2008). Columns 3 and 4 examine renegotiations following a covenant violation. Columns 5 and 6 examine renegotiations following a one-standard deviation decrease in the borrower's profitability (*ROA*) relative to the same quarter in the year prior to contract inception. Columns 7 and 8 examine renegotiations following a one-standard deviation increase in the borrower's Debt-to-EBITDA ratio relative to the same quarter in the year prior to contract inception. Columns 9 and 10 examine renegotiation following a 25% decrease in GDP growth relative to the same quarter in the year prior to contract inception. Columns 1, 3, 5, 7, and 9 use OLS with entropy balancing, include borrower and year fixed effects, and cluster standard errors by lender. *Amend_*1yr is an indicator variable equal to one if the loan is renegotiated in the one-year period following a negative triggering event, and zero otherwise. Columns 2, 4, 6, 8, and 10 use a hazard model with entropy balancing that estimates the probability that a renegotiation occurs at time T, given that renegotiation has not occurred prior to time T. *Amend_Lag* is the number of days between the quarter of the triggering negative event and the renegotiation date; we censor all observations that not have an amendment following the triggering event. *PSIDE* is an indicator variable equal to one if the debt contract includes a public-side lender clause, and zero otherwise. *PSIDE* Intensity is an index from zero to three reflecting the intensity of public-side lender participation in the syndicate. All variables are defined in Appendix B. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 7**
Public-side lenders and ex-post renegotiation following positive triggering events.

*Panel A: PSIDE Measure*

| | *Price Shock* | | *Std Dev ΔROA* | | *Std Dev ΔDebt/EBITDA* | | *25% ΔGDP Growth* | |
|---|---|---|---|---|---|---|---|---|
| | (1) *Amend_*1yr | (2) *Amend_Lag* | (3) *Amend_*1yr | (4) *Amend_Lag* | (5) *Amend_*1yr | (6) *Amend_Lag* | (7) *Amend_*1yr | (8) *Amend_Lag* |
| | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) |
| *PSIDE* | 0.019 | 1.054 | 0.210*** | 1.241* | 0.187*** | 1.314*** | 0.171*** | 1.083 |
| | (0.60) | (0.59) | (6.10) | (1.78) | (3.71) | (4.29) | (5.65) | (0.82) |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Borrower Fixed Effects | Yes | No | Yes | No | Yes | No | Yes | No |
| Year Fixed Effects | Yes | No | Yes | No | Yes | No | Yes | No |
| N | 2188 | 2324 | 3469 | 3689 | 3418 | 3575 | 7422 | 7534 |
| Adj./Pseudo *R*-Squared | 0.306 | 0.007 | 0.270 | 0.006 | 0.311 | 0.010 | 0.290 | 0.006 |

*Panel B: PSIDE Intensity Measure*

| | *Price Shock* | | *Std Dev ΔROA* | | *Std Dev ΔDebt/EBITDA* | | *25% ΔGDP Growth* | |
|---|---|---|---|---|---|---|---|---|
| | (1) *Amend_*1yr | (2) *Amend_Lag* | (3) *Amend_*1yr | (4) *Amend_Lag* | (5) *Amend_*1yr | (6) *Amend_Lag* | (7) *Amend_*1yr | (8) *Amend_Lag* |
| | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) | Coefficient (t-stat) | Hazard Ratio (z-stat) |
| *PSIDE Intensity* | 0.005 | 1.080 | 0.056*** | 1.075 | 0.060* | 1.205*** | 0.052*** | 1.037 |
| | (0.18) | (1.44) | (4.08) | (1.11) | (1.76) | (7.70) | (4.30) | (0.61) |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Borrower Fixed Effects | Yes | No | Yes | No | Yes | No | Yes | No |
| Year Fixed Effects | Yes | No | Yes | No | Yes | No | Yes | No |
| N | 2188 | 2324 | 3469 | 3689 | 3418 | 3575 | 7422 | 7534 |
| Adj./Pseudo *R*-Squared | 0.236 | 0.006 | 0.241 | 0.005 | 0.268 | 0.007 | 0.269 | 0.005 |

This table examines the association between public-side lender clauses and the likelihood of ex-post renegotiations. Panel A (B) presents the results using *PSIDE* (*PSIDE Intensity*) as a proxy for the presence of public-side lenders. Columns 1 and 2 examine renegotiation following a positive equity shock. Columns 3 and 4 examine renegotiations following a one-standard deviation increase in the borrower's profitability (*ROA*) relative to the same quarter in the year prior to contract inception. Columns 5 and 6 examine renegotiations following a one-standard deviation decrease in the borrower's Debt-to-EBITDA ratio relative to the same quarter in the year prior to contract inception. Columns 7 and 8 examine renegotiations following a 25% increase in GDP growth relative to the same quarter in the year prior to contract inception. Columns 1, 3, 5, and 7 use OLS with entropy balancing, include borrower and year fixed effects, and cluster standard errors by lender. *Amend_*1yr is an indicator variable equal to one if the loan is renegotiated in the one-year period following a positive triggering event, and zero otherwise. Columns 2, 4, 6, and 8 use a hazard model with entropy balancing that estimates the probability that a renegotiation occurs at time T, given that renegotiation has not occurred prior to time T. *Amend_Lag* is the number of days between the quarter of the triggering positive event and the renegotiation date; we censor all observations that not have an amendment following the triggering event. *PSIDE* is an indicator variable equal to one if the debt contract includes a public-side lender clause, and zero otherwise. *PSIDE Intensity* is an index from zero to three reflecting the intensity of public-side lender participation in the syndicate. All variables are defined in Appendix B. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 8**
Public-side lenders and equity price discovery.

| | (1) | | (2) | | (3) | | (4) | |
|---|---|---|---|---|---|---|---|---|
| | *IPT High* | | *IPT High* | | *IPT Rank* | | *IPT Rank* | |
| | Coefficient | t-stat | Coefficient | t-stat | Coefficient | t-stat | Coefficient | t-stat |
| *PSIDE* | −0.003 | (-0.21) | | | 0.045 | (1.34) | | |
| *PSIDE Intensity* | | | −0.014** | (-2.47) | | | −0.033** | (-2.13) |
| *High Lead Reputation* | 0.067 | (1.60) | 0.048** | (2.25) | 0.235** | (2.15) | 0.190*** | (2.96) |
| *Lead Ind Expertise* | 0.105 | (1.61) | 0.064 | (0.96) | −0.436** | (-2.31) | −0.113 | (-0.60) |
| *SEC Insider Trading Invest* | 0.048 | (0.14) | −0.154 | (-0.57) | −0.569 | (-0.50) | −0.178 | (-0.21) |
| *Size* | −0.020** | (-2.03) | −0.016 | (-1.31) | −0.060 | (-1.61) | −0.067** | (-2.21) |
| *Tangibility* | 0.027 | (0.30) | 0.049 | (0.62) | 0.552*** | (2.77) | 0.527*** | (4.11) |
| *Profitability* | 0.258** | (2.40) | 0.212*** | (6.26) | 0.608* | (1.75) | 0.502*** | (5.22) |
| *MTB* | −0.000 | (-1.52) | −0.000 | (-0.60) | −0.001** | (-2.37) | −0.000 | (-1.34) |
| *Leverage* | 0.102** | (2.03) | 0.046 | (1.33) | 0.257** | (1.97) | 0.150* | (1.71) |
| *Ret Volatility* | −0.054 | (-0.41) | −0.056 | (-0.58) | 0.111 | (0.36) | −0.011 | (-0.05) |
| *Creditworthiness* | −0.024 | (-1.41) | −0.015 | (-1.56) | −0.057 | (-0.80) | −0.037 | (-0.72) |
| *R&D Intensity* | −0.030 | (-0.72) | 0.009 | (0.27) | −0.003 | (-0.05) | 0.110 | (1.18) |
| *Mgt EPS Forecast* | 0.024** | (2.02) | 0.026*** | (2.67) | 0.046 | (1.57) | 0.038 | (1.29) |
| *Follow* | 0.000 | (0.99) | −0.001 | (-1.24) | 0.007** | (2.22) | 0.001 | (0.60) |
| *Inst. Investor Participant* | 0.002 | (0.17) | 0.005 | (0.37) | −0.009 | (-0.20) | 0.017 | (0.48) |
| *Foreign Bank Participant* | −0.019 | (-0.78) | −0.006 | (-0.30) | −0.058 | (-0.86) | −0.037 | (-0.72) |
| *Small Bank Participant* | 0.000 | (0.01) | 0.010 | (0.49) | −0.024 | (-0.35) | 0.040 | (0.80) |
| *Performance Covs* | −0.013*** | (-2.92) | −0.012*** | (-3.48) | −0.012 | (-1.14) | −0.008 | (-0.83) |
| *PP Increasing Rate* | 0.027*** | (2.90) | 0.025** | (2.31) | 0.070*** | (3.86) | 0.058* | (1.82) |
| Borrower Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| Year Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| N | 15,088 | | 15,088 | | 15,088 | | 15,088 | |
| Adj. *R*-Squared | 0.00 | | 0.00 | | 0.00 | | 0.00 | |

This table examines the association between public-side lenders and the speed at which information is impounded into borrowers' equity prices over quarterly earnings cycles following loan contract inception. In columns 1 and 2, the dependent variable, *IPT High*, is an indicator variable equal to one if the borrower's adjusted intraperiod timeliness (*Adj IPT*) is above the annual sample median, and zero otherwise. In columns 3 and 4, the dependent variable, *IPT Rank*, is the annual quartile rank of the borrower's adjusted intraperiod timeliness (*Adj IPT*). *PSIDE* is an indicator variable equal to one if the loan contract includes a public-side lender clause, and zero otherwise. *PSIDE Intensity* is a rank variable ranging from zero to three and reflecting the intensity of public-side lender participation in the loan syndicate. The models use entropy balancing, include borrower and year fixed effects, and cluster standard errors by lender. All columns are estimated using OLS. All variables are defined in Appendix B. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

the even columns, we report the hazard ratios, which are above one and statistically significant for return on assets (column 4) and debt-to-EBITDA shocks (column 6). We find similar but somewhat weaker results using *PSIDE Intensity* in Panel B.

Collectively, the findings in Tables 6 and 7 suggest that public-side lending increases the likelihood and timeliness of renegotiations following triggering events, further corroborating the view that public-side lenders do not impede loan re-negotiations but rather delegate their control rights to the lead arranger, leading to lower within-syndicate coordination costs.

## 7. Public-side lenders and the leakage of borrowers' MNPI

In our last set of analyses, we attempt to provide suggestive evidence on whether public-side lending is associated with less leakage of private information into public securities markets. We examine whether public-side lending is negatively associated with the speed of price discovery in the equity market. We estimate price discovery using an adjusted intraperiod timeliness (*Adj IPT*) measure following Blankespoor et al. (2018) and Blankespoor et al. (2020). The intuition underlying this measure is that it reflects the speed at which information in impounded into borrowers' equity prices over the span of quarterly earnings cycles in the one-year period following loan origination (e.g., Bushman et al., 2010; Carrizosa and Ryan 2017). It does so by capturing the area under the cumulative-price change curve over 63 trading days starting from 60 trading days prior to the earnings announcement date to 2 trading days after the earnings announcement date.[33]

The measure is further adjusted for overreaction or reaction more (less) than the final positive (negative) cumulative abnormal return.[34] Finally, to reduce potential measurement error associated with the estimation of *Adj IPT* (Bushman et al.,

[33] Bushman et al. (2010) and Carrizosa and Ryan (2017) measure intraperiod timeliness as the sum of the buy-and-hold abnormal stock return from 60 trading days prior to the earnings announcement date through day $m$ ($BHm$), divided by the buy-and-hold abnormal stock return from 60 days prior to the earnings announcement date to 2 trading days after the earnings announcement date ($BH_2$), for each day $m$ from −60 to 1, plus 0.5.

[34] The adjustment of Blankespoor et al. (2018) is based on the notion that cumulative returns could peak and then reverse to a smaller final cumulative return. A failure to adjust for overreactions and reversals could lead to inflated *IPT* estimates, suggesting timelier price discovery for firms with greater overreactions and reversals. The adjustment is performed by subtracting two times the overreaction area (once to cancel out its effect from *IPT* and once to penalize *IPT* for this overreaction price inefficiency).

2010; Noh et al., 2019), we construct two proxies. First, *IPT High* takes the value of one if the borrower's quarterly *Adj IPT* measure is above the annual sample median, zero otherwise. Second, *IPT Rank* is the annual quintile rank of the quarterly *Adj IPT* measure. For both proxies, higher values correspond to greater price discovery.

We report the results examining the association between public-side lending and *Adj IPT* in Table 8. In columns 1 and 3, we do not find a significant association between *PSIDE* and our *Adj IPT* measures. However, in columns 2 and 4, we find a significant negative association between *PSIDE Intensity* and *IPT High* and *IPT Rank*. To exemplify, the results reported in column 2 suggest that a within-fixed effect one standard deviation change in *PSIDE Intensity* is associated with approximately 1.7% lower equity price discovery relative to the within-fixed effect standard deviation of *IPT High* (0.482). To facilitate the interpretation of this economic effect, we benchmark it against the economic effect of *Mgt EPS Forecast*, because prior research demonstrates that voluntary disclosure is an important determinant of the speed of price discovery in the equity market (e.g., Bushman et al., 2010; Twedt 2016). *Mgt EPS Forecast* is associated with approximately 2.6% higher equity price discovery, which represents an increase of approximately 5.4% relative to the within-fixed effect standard deviation of *IPT High*. Overall, the evidence in Table 8 is suggestive of less leakage of borrowers' private information into equity prices when a larger fraction of the lending syndicate comprises of public-side lenders.

## 8. Conclusion

We document a novel trend in syndicated lending where some participants voluntarily waive their rights to borrowers' private information. The premise underlying public-side lending is that it facilitates broader lender participation in the loan market by resolving frictions associated with the protection of borrowers' MNPI. Consistent with this notion, we find that public-side lending facilitates the syndicate participation of lenders for which maintaining robust information barriers is particularly costly. We further find that, to mitigate their information disadvantage, public-side lenders rely to a greater extent on the lead arranger, as reflected in public-side lending being associated with reputable lead arrangers and the use contractual provisions that facilitate lead arrangers' monitoring. Finally, we show that public-side lending is associated with a higher likelihood and timeliness of renegotiations and relatively less leakage of borrowers' MNPI in public equity markets. Collectively, our findings suggest that public-side lending changes the contracting equilibria for borrowers, lead arrangers, and participant lenders.

We note, however, that our findings should be interpreted with caution for several reasons. First, we acknowledge that interrelated contract features and syndicate properties can be jointly determined and induce simultaneity bias in empirical tests. Second, we note that our estimates of public-side lending are subject to noise because the presence of a public-side lender clause does not definitively establish the presence of these lenders in the syndicate, nor does it identify the particular participants that are public-side lenders, or measure the intensity of their participation. Furthermore, while we identify and discuss institutional factors that explain the rise of public-side lending in mid-2000s, we believe that future research can explore the reasons as to why this contracting practice did not emerge earlier. Third, we note that our findings on the relation between public-side lending and the speed of equity price discovery may be influenced by actions and choices of borrowers with public-side lenders (e.g., voluntary disclosure as in Peyravan and Wittenberg-Moerman 2022). We leave it to future studies to extend our analyses of how public-side lending affects price discovery in the equity market as well as in other capital markets. Finally, we emphasize that the growth in public-side lending does not imply that lenders no longer exploit borrowers' private information. It is likely that some institutional investors continue to trade on this information and, in fact, may participate in syndicated loans primarily to obtain this information (Peyravan 2020; Kang 2022). Relatedly, the emergence of new sources of public information, such as big data, which reduce the information advantage that institutional investors obtain through lending relationships (e.g., Kang 2022), could lead to further growth in public-side lending. We believe that exploring how such innovations in information technology might affect this contracting practice is a fruitful avenue for future research.

## Appendix A. Examples of Public-Side Lender Clauses

### Example 1 – Extracted from Pinnacle West Capital Co. (2010) 10-K Exhibit 10.11.5:

The Borrower hereby acknowledges that certain of the Lenders may be **public-side Lender**s (i.e., Lenders that do not wish to receive material non-public information with respect to the Borrower or its securities) (each, a **Public Lender**). The Borrower hereby agrees that (w) all Communications that are to be made available to **Public Lender**s shall be clearly and conspicuously marked PUBLIC which shall mean that the word PUBLIC shall appear prominently on the first page thereof; (x) by marking Communications PUBLIC, the Borrower shall be deemed to have authorized the Agent, the Arranger and the Lenders to treat such Communications as not containing any material non-public information with respect to the Borrower or its securities for purposes of United States federal and state securities laws; (y) all Communications marked PUBLIC are permitted to be made available through a portion of the Platform designated as Public Investor; and (z) the Agent and the Arranger shall be entitled to treat any Communications that are not marked PUBLIC as being suitable only for posting on a portion of the Platform not marked as Public Investor. Notwithstanding the foregoing, the Borrower shall be under no obligation to mark any Communications PUBLIC. Notwithstanding anything to the contrary herein, the Borrower need not provide to any **Public Lender** any information, notice, or other document hereunder that is not public information, including

without limitation, the Notice of Borrowing and any notice of Default.

**Example 2 – Extracted from VCA Antech, Inc. 2010 10-Q Exhibit 10.1:**

Company hereby acknowledges that (a) the Administrative Agent will make available to the Lenders materials and/or information provided by or on behalf of Company hereunder (collectively, "Company Materials") by posting the Company Materials on SyndTrak Online or another similar electronic system (the "Platform") and (b) certain of the Lenders may be "**public-side**" Lenders (i.e., Lenders that do not wish to receive material non-public information with respect to the Credit Parties or their securities) (each, a "**Public Lender**"). Company hereby agrees that upon request by Administrative Agent it will use commercially reasonable efforts to identify that portion of the Company Materials that may be distributed to the **Public Lenders** and that (w) all such Company Materials shall be clearly and conspicuously marked "PUBLIC" which, at a minimum, shall mean that the word "PUBLIC" shall appear prominently on the first page thereof; (x) by marking Company Materials "PUBLIC," Company shall be deemed to have authorized the Administrative Agent and the Lenders to treat such Company Materials as not containing any material non-public information (although it may be sensitive and proprietary) with respect to the Credit Parties or their securities for purposes of United States Federal and state securities laws; (y) all Company Materials marked "PUBLIC" are permitted to be made available through a portion of the Platform designated "Public Investor; " and (z) the Administrative Agent shall be entitled to treat any Company Materials that are not marked "PUBLIC" as being suitable only for posting on a portion of the Platform not designated "Public Investor."

**Example 3 – Extracted from Education Management Corporation (2010) 8-K Exhibit 10:**

Company and each Lender acknowledge that certain of the Lenders may be "**public-side**" Lenders (Lenders that do not wish to receive material non-public information with respect to Holdings, its Subsidiaries or their securities) and, if documents or notices required to be delivered pursuant to Section 5.1 or Section 5.2 or otherwise are being distributed through IntraLinks/IntraAgency or another relevant website (the "Platform"), any document or notice that Holdings has indicated contains Nonpublic Information shall not be posted on that portion of the Platform designated for such **public-side** Lenders. If Holdings has not indicated whether a document or notice delivered pursuant to Section 5.1 or Section 5.2 contains Nonpublic Information, Administrative Agent reserves the right to post such document or notice solely on that portion of the Platform designated for Lenders who wish to receive material nonpublic information with respect to Holdings, its Subsidiaries and their securities.

## Appendix B. Variable Definitions

| Variable | Definition |
|---|---|
| *Amend_*1yr | An indicator variable equal to one if the loan contract is renegotiated in the one-year period following a triggering event, and zero otherwise. |
| *Amend_Lag* | Length (in number of days) between the quarter of the triggering event and the renegotiation date. We measure *Amend_Lag* over a maximum of a one-year horizon (or through loan maturity if a loan matures prior to the one-year period). |
| *Amendment* | An indicator variable equal to one if the loan contract is renegotiated at least once following loan contract origination, and zero otherwise. |
| *Creditworthiness* | A measure of a borrower's creditworthiness, equal to zero if the borrower is not rated by S&P, and equal to one (two) if the borrower has a non-investment grade (investment grade) rating from S&P. |
| *Follow* | The number of analysts following the firm during the most recent fiscal year (I/B/E/S). |
| *Foreign Bank Participant* | An indicator variable equal to one if the loan contract includes a syndicate participant classified as a foreign bank, and zero otherwise (DealScan). |
| *High Lead Reputation* | An indicator variable equal to one if the lead arranger has at least a 2% average market share over the five-year period prior to loan contract origination based on the Thomson Reuters League Tables, and zero otherwise (as in Bushman and Wittenberg-Moerman 2012). |
| *Inst. Investor Participant* | An indicator variable equal to one if the loan syndicate includes a non-bank participant or if the loan is Term Loan B or below, and zero otherwise. We identify non-bank participants by (i) the SIC code of the participant per DealScan, (ii) the classification per DealScan, and (iii) the classification/SIC code of the parent per DealScan. Non-bank participants include insurance companies, finance companies, mutual funds, private equity funds, hedge funds, collateralized debt obligations, pension funds, and any lender not classified as a commercial bank or investment bank. |
| *Interest Spread* | The natural log of the interest spread (DealScan). |

(*continued on next page*)

(*continued*)

| Variable | Definition |
|---|---|
| *IPT High* | An indicator variable equal to one if the borrower's quarterly adjusted intraperiod timeliness (*Adj IPT*) measure following Blankespoor et al. (2018) is above the sample median, and zero otherwise. We estimate the quarterly adjusted IPT (*Adj IPT*) as the area under the cumulative-price change curve over 63 trading days starting from 60 trading days prior to the earnings announcement date to 2 trading days after the earnings announcement date. We further adjust for overreaction or reaction more (less) than the final positive (negative) cumulative abnormal return by subtracting two times the overreaction area (once to cancel out its effect from IPT and once to penalize IPT for this overreaction price inefficiency). |
| *IPT Rank* | The quintile rank of the borrower's quarterly adjusted intraperiod timeliness (*Adj IPT*). |
| *Lead Ind Expertise* | The expertise of the lead arranger in the borrower's industry, measured as the ratio of the dollar volume of loans originated by the lead arranger to firms in the borrower's Fama-French 12 industry over the previous one-year period, scaled by the total dollar volume of loans originated by the lead arranger over the previous one-year period. |
| *Leverage* | Total debt (DLTT + DLC) scaled by total assets (AT) (Compustat). |
| *Mgt EPS Forecast* | An indicator variable equal to one if the firm issues a management EPS forecast within the 12-month period prior to the loan issuance (I/B/E/S). |
| *MTB* | Market value of equity (PRCC_F × CSHO) scaled by book value of equity (CEQ) (Compustat). |
| *New Non-Big-US-Bank Participant* | An indicator variable equal to one if the loan syndicate includes a new participant to the syndicated loan market that is an *Inst. Investor Participant*, *Foreign Bank*, or *Small Bank*, and zero otherwise. We identify a participant as new to the syndicated loan market if the participant never participated in a loan prior to the 12-month period preceding the loan's origination date. |
| *Non-Big-US-Bank Participant* | An indicator variable equal to one if the loan syndicate includes an *Inst. Investor Participant*, *Foreign Bank*, or *Small Bank*, and zero otherwise. |
| *Num Amend* | The count of the number of times the loan is renegotiated following loan contract origination. |
| *Num Participants* | Number of syndicate participants in the loan package (DealScan). |
| *Performance Covs* | The number of performance covenants included in the loan contract (DealScan). |
| *PP Increasing Rate* | An indicator variable equal to one if the loan contract includes an interest-rate increasing performance pricing provision, and zero otherwise (DealScan). |
| *Profitability* | EBITDA scaled by total assets (OIBDP/AT) (Compustat). |
| *PSIDE* | An indicator variable equal to one if the loan contract includes a public-side lender clause, and zero otherwise. |
| *PSIDE Intensity* | A rank variable ranging from zero to three and reflecting the estimated intensity of public-side lender participation in the loan syndicate. To identify public-side lenders, we estimate the fraction of loans with public-side lender clauses out of the total number of loans in which each participant lender participated. Next, we calculate the median value of this fraction across all lenders during the year after removing lenders that do not participate in any loans with public-side lender clauses. For loans with public-side lender clauses, we classify a participant as a public-side lender if, in the year the loan is issued, the participant's fraction of loans with public-side lender clauses is above the median fraction value in that year. *PSIDE Intensity* takes the value of zero if the loan does not contain a public-side lender clause or if the syndicate does not include any participant classified as a public-side lender. For each loan that includes at least one participant classified as a public-side lender, we estimate the proportion of these participants in the loan syndicate. *PSIDE Intensity* takes the value of one, two and three if the loan's proportion of participants classified as public-side lenders is in the bottom, middle, and upper tercile of the distribution among syndicates with at least one participant classified as a public-side lender. |
| *R&D Intensity* | An indicator variable equal to one if R&D expense scaled by total assets (XRD/AT) is above sample median, and zero otherwise (Compustat). |
| *Ret Volatility* | Standard deviation of monthly stock returns over the five-year period preceding the loan origination (CRSP). |
| *Retained Share* | The percentage of the loan retained by the lead arranger (DealScan). |
| *SEC Insider Trading Invest* | The average scaled number of SEC insider trading investigations in the 12-month period prior to the loan contract inception (Blackburne et al., 2021). Following Blackburne (2014), we identify the local SEC office associated with each participant lender in our sample and measure the number of insider trading investigations scaled by total investigations at same office over the 12-month period prior to the loan contract inception at each of these offices. We then average the number of scaled insider trading investigations at local SEC offices across all participant lenders in the loan syndicate. |
| *Size* | The natural log of total assets (AT) (Compustat). |
| *Small Bank Participant* | An indicator variable equal to one if a syndicate participant bank is in the bottom quintile of bank asset size, and zero otherwise. We rank bank asset size by year using Compustat data and the linking table provided by Schwert (2018). |
| *Tangibility* | Net property, plant and equipment scaled by total assets (PPENT/AT) (Compustat). |

## References


Aghion, P., Bolton, P., 1992. An incomplete contracts approach to financial contracting. Rev. Econ. Stud. 59 (3), 473–494.
Aldasoro, I., Doerr, S., Zhou, H., 2022. Non-bank lenders in the syndicated loan market. Bank for International Settlements (BIS) Quarterly Review 15–29 (March).
Altonji, J., Elder, T., Taber, C., 2005. Selection on observed and unobserved variables: assessing the effectiveness of Catholic schools. J. Polit. Econ. 113 (1), 151–184.
Anderson, J., 2006. As Lenders, Hedge Funds Draw Insider Scrutiny. The New York Times (October 16).
Avci, B., Schipani, C., Seyhun, H., 2018. Eliminating conflicts of interests in banks: the significance of the Volcker rule. Yale J. Regul. 35 (2), 343.
Balakrishnan, K., Ertan, A., 2021. Credit information sharing and loan loss recognition. Account. Rev. 96 (4), 27–50.
Ball, R., Bushman, R., Vasvari, F., 2008. The debt contracting value of accounting information and loan syndicate structure. J. Account. Res. 46 (2), 247–287.
Becker, B., Ivashina, V., 2016. Covenant-light Contracts and Creditor Coordination. Sveriges Riksbank Research Paper Series No, p. 325.
Berger, P., Minnis, M., Sutherland, A., 2017. Commercial lending concentration and bank expertise: evidence from borrower financial statements. J. Account. Res. 64 (2–3), 253–277.
Berglöf, E., Von Thadden, E., 1994. Short-term versus long-term interests: capital structure with multiple investors. Q. J. Econ. 109 (4), 1055–1084.
Beyhaghi, M., Nguyen, C., Wald, J., 2019. Institutional investors and loan dynamics: evidence from loan renegotiations. J. Corp. Finance 56 (June), 482–505.
Billett, M., Flannery, M., Garfinkel, J., 1995. The effect of lender identity on a borrowing firm's equity return. J. Finance 50 (2), 699–718.
Blackburne, T., 2014. Regulatory Oversight and Reporting Incentives: Evidence from SEC Budget Allocations. Working paper. Oregon State University.
Blackburne, T., Kepler, J., Quinn, P., Taylor, D., 2021a. Undisclosed SEC investigations. Manag. Sci. 67 (6), 3403–3418.
Blackburne, T., Bozanic, Z., Johnson, B., Roulstone, D., 2021b. The Regulatory Observer Effect: Evidence from SEC Investigations. Working paper. Oregon State University, Florida State University, George Mason University, and Ohio State University.
Blackburne, T., Quinn, P., 2023. Disclosure speed: evidence from nonpublic SEC investigations. Account. Rev. 98 (1), 55–82.
Blankespoor, E., deHaan, E., Zhu, C., 2018. Capital market effects of media synthesis and dissemination: evidence from robo-journalism. Rev. Account. Stud. 23 (1), 1–36.
Blankespoor, E., deHaan, E., Marinovic, I., 2020. Disclosure processing costs, investors' information choice, and equity market outcomes: a review. J. Account. Econ. 70 (2–3), 101344.
Bolton, P., Scharfstein, D., 1996. Optimal debt structure and the number of creditors. J. Polit. Econ. 104 (1), 1–25.
Bushman, R., Wittenberg-Moerman, R., 2012. The role of bank reputation in "certifying" future performance implications of borrowers' accounting numbers. J. Account. Res. 50 (4), 883–930.
Bushman, R., Smith, A., Wittenberg-Moerman, R., 2010. Price discovery and dissemination of private information by loan syndicate participants. J. Account. Res. 48 (5), 921–972.
Carrizosa, R., Ryan, S., 2017. Borrower private information covenants and loan contract monitoring. J. Account. Econ. 64 (2–3), 313–339.
de Chaisemartin, C., d'Haultfœuille, X., 2020. Two-way fixed effects estimators with heterogeneous treatment effects. Am. Econ. Rev. 110 (9), 2964–2996.
Chava, S., Roberts, M., 2008. How does financing impact investment? The role of debt covenants. J. Finance 63 (5), 2085–2121.
Chemmanur, T., Fulghieri, P., 1994a. Investment bank reputation, information production, and financial intermediation. J. Finance 49 (1), 57–79.
Chemmanur, T., Fulghieri, P., 1994b. Reputation, renegotiation, and the choice between bank loans and publicly traded debt. Rev. Financ. Stud. 7 (3), 475–506.
Christensen, H., Nikolaev, V., 2012. Capital versus performance covenants in debt contracts. J. Account. Res. 50 (1), 75–116.
Christensen, H., Nikolaev, V., Wittenberg-Moerman, R., 2016. Accounting information in financial contracting: the incomplete contract theory perspective. J. Account. Res. 54 (2), 397–435.
Chu, Y., 2021. Debt renegotiation and debt overhang: evidence from lender mergers. J. Financ. Quant. Anal. 56 (3), 995–1021.
Cyree, K., 2016. The effects of regulatory compliance for small banks around crisis-based regulation. J. Financ. Res. 39 (3), 215–246.
deHaan, E., 2021. Using and Interpreting Fixed Effects Models. Working Paper. University of Washington.
deHaan, E., Kedia, S., Koh, K., Rajgopal, S., 2015. The revolving door and the SEC's enforcement outcomes: initial evidence from civil litigation. J. Account. Econ. 60 (2–3), 65–96.
Diamond, D., 1984. Financial intermediation and delegated monitoring. Rev. Econ. Stud. 51 (3), 393–414.
Dou, Y., 2020. The debt-contracting value of accounting numbers and financial covenant renegotiation. Manag. Sci. 66 (3), 1124–1148.
Drucker, S., Puri, M., 2005. On the benefits of concurrent lending and underwriting. J. Finance 60 (6), 2763–2799.
Dyreng, S., Vashishtha, R., Weber, J., 2017. Direct evidence on the informational properties of earnings in loan contracts. J. Account. Res. 55 (2), 371–406.
Dyreng, S., Ferracuti, E., Morris, A., 2021. Renegotiation Costs and Contract Design. Working Paper. Duke University and Hong Kong University of Science and Technology.
Fama, E., 1985. What's different about banks? J. Monetary Econ. 15 (1), 29–39.
Fang, L., Ivashina, V., Lerner, J., 2013. Combining banking with private equity investing. Rev. Financ. Stud. 26 (9), 2139–2173.
Gârleanu, N., Zwiebel, J., 2009. Design and renegotiation of debt covenants. Rev. Financ. Stud. 22 (2), 749–781.
General Accounting Office (GAO), 1997. *Foreign Banks: Internal Control And Audit Weaknesses In U.S. Branches*. Report to the Subcommittee on Financial Institutions and Consumer Credit, Committee on Banking and Financial Services. United States General Accounting Office. House of Representatives. GAO/GGD-97-181.
Gertner, R., Scharfstein, D., 1991. A theory of workouts and the effects of reorganization law. J. Finance 46 (4), 1189–1222.
GlobalCapital, 2006. Hedge funds cause admin headache. (May 4). Available at: https://www.globalcapital.com/article/k595401hwjtb/hedge-funds-cause-admin-headache.
Greene, W., 2004. The behaviour of the maximum likelihood estimator of limited dependent variable models in the presence of fixed effects. Econom. J. 7 (1), 98–119.
Hainmueller, J., 2012. Entropy balancing for causal effects: a multivariate reweighting method to produce balanced samples in observational studies. Polit. Anal. 20 (1), 25–46.
Hart, O., 1995. Firms, Contracts, and Financial Structure. Clarendon Press.
Haselmann, R., Leuz, C., Schreiber, S., 2022. Know Your Customer: Relationship Lending and Bank Trading. Working Paper. Goethe-Universität Frankfurt and University of Chicago.
International Swaps and Derivatives Association (ISDA), 2003. Statement of Principles and Recommendations Regarding the Handling of Material Nonpublic Information by Credit Market Participants. Joint Market Practices Forum. Available at: https://www.isda.org/a/pqKME/jmpfStatement.pdf.
Ivashina, V., 2009. Asymmetric information effects on loan spreads. J. Financ. Econ. 92 (2), 300–319.
Ivashina, V., Kovner, A., 2011. The private equity advantage: leveraged buyout firms and relationship banking. Rev. Financ. Stud. 24 (7), 2462–2498.
Ivashina, V., Sun, Z., 2011a. Institutional demand pressure and the cost of corporate loans. J. Financ. Econ. 99 (3), 500–522.
Ivashina, V., Sun, Z., 2011b. Institutional stock trading on loan market information. J. Financ. Econ. 100 (2), 284–303.
Kang, J., 2022. Gone with the Big Data: Institutional Lender Demand for Private Information. Working Paper. Harvard Business School.
Kang, J., Williams, C., Wittenberg-Moerman, R., 2021. CDS trading and nonrelationship lending dynamics. Rev. Account. Stud. 26 (1), 258–292.
LaFond, R., You, H., 2010. The federal deposit insurance corporation improvement act, bank internal controls and financial reporting quality. J. Account. Econ. 49 (1–2), 75–83.
Landsman, W., Peña-Romera, F., Zhao, J., 2017. The Value of Lending to Bellwether Firms by Institutional Investors. Working Paper. University of North Carolina, Arizona State University, and Emory University.

Lim, J., Minton, B., Weisbach, M., 2014. Syndicated loan spreads and the composition of the syndicate. J. Financ. Econ. 111 (1), 45–69.
Lin, C., Ma, Y., Malatesta, P., Xuan, Y., 2012. Corporate ownership structure and bank loan syndicate structure. J. Financ. Econ. 104 (1), 1–22.
Loan Syndications and Trading Association (LSTA), 2006. Statement of Principles for the Communication and Use of Confidential Information by Loan Market Participants. LSTA, New York.
Loan Syndications and Trading Association (LSTA), 2017. Statement of Principles for the Communication and Use of Confidential Information by Loan Market Participants. LSTA, New York.
Maddala, G., 1987. Limited dependent variable models using panel data. J. Hum. Resour. 22 (3), 307–338.
Massoud, N., Nandy, D., Saunders, A., Song, K., 2011. Do hedge funds trade on private information? Evidence from syndicated lending and short-selling. J. Financ. Econ. 99 (3), 477–499.
Miller, S., 2008. Syndicated loans. In: Fabozzi, F. (Ed.), Handbook of Finance 1. John Wiley & Sons, pp. 325–337.
Nikolaev, V., 2018. Scope for renegotiation in private debt contracts. J. Account. Econ. 65 (2–3), 270–301.
Nini, G., Smith, D., Sufi, A., 2009. Creditor control rights and firm investment policy. J. Financ. Econ. 92 (3), 400–420.
Nini, G., Smith, D., Sufi, A., 2012. Creditor control rights, corporate governance, and firm value. Rev. Financ. Stud. 25 (6), 1713–1761.
Noh, S., So, E., Weber, J., 2019. Voluntary and mandatory disclosures: do managers view them as substitutes? J. Account. Econ. 68 (1), 101243.
Oster, E., 2019. Unobservable selection and coefficient stability: theory and evidence. J. Bus. Econ. Stat. 37 (2), 187–204.
Peyravan, L., 2020. Financial reporting quality and dual-holding of debt and equity. Account. Rev. 95 (5), 351–371.
Peyravan, L., Wittenberg Moerman, R., 2022. Institutional dual-holders and managers' earnings disclosure. Account. Rev. 97 (3), 343–371.
Rajan, R., Winton, A., 1995. Covenants and collateral as incentives to monitor. J. Finance 50 (4), 1113–1146.
Roberts, M., 2015. The role of dynamic renegotiation and asymmetric information in financial contracting. J. Financ. Econ. 116 (1), 61–81.
Roberts, M., Sufi, A., 2009a. Renegotiation of financial contracts: evidence from private credit agreements. J. Financ. Econ. 93 (2), 159–184.
Roberts, M., Sufi, A., 2009b. Financial contracting: a survey of empirical research and future directions. Annual Review of Financial Economics 1 (1), 207–226.
Romano, J., Wolf, M., 2005. Exact and approximate stepdown methods for multiple hypothesis testing. J. Am. Stat. Assoc. 100 (469), 94–108.
Ross, D., 2010. The “dominant bank effect:” How high lender reputation affects the information content and terms of bank loans. Rev. Financ. Stud. 23 (7), 2730–2756.
Saavedra, D., 2018. Syndicate size and the choice of covenants in debt contracts. Account. Rev. 93 (6), 301–329.
Sargent, C., 2005. The New Insider Trading? Investment Dealers' Digest Magazine (June 20).
Saxton, L., Spiro, V., 2010. The handling of material nonpublic Information in the U.S. and U.K. loan markets. London: Jones Day. Available at: https://www.martindale.com/legal-news/article_jones-day_1129322.htm.
Schwert, M., 2018. Bank capital and lending relationships. J. Finance 73 (2), 787–830.
Securities and Exchange Commission (SEC), 2004. *Investment Adviser Codes Of Ethics*. Release Nos. IA-2256. IC-26492; File No. S7-04-04. Available at: https://www.sec.gov/rules/final/ia-2256.htm.
Securities and Exchange Commission (SEC), 2012. Summary Report on Examinations of Information Barriers: Broker-Dealer Practices under Section 15(g) of the Securities Exchange Act of 1934. Office of Compliance Inspections and Examinations, Washington DC: SEC.
Securities Industry and Financial Market Association (SIFMA), 2020. Protecting firm and client information: MNPI and client confidentiality. 2020 C&L Annual Seminar: CLE Materials. Available at: https://www.sifma.org/wp-content/uploads/2020/03/TA6-NEW-Protecting-Firm-and-Client-Information-MNPI-and-Client-Confidentiality.pdf.
Senbet, L., Wang, T., 2012. Corporate financial distress and bankruptcy: a survey. Found. Trends® Finance 5 (4), 243–335.
Seyhun, H., 2007. Insider trading and the effectiveness of Chinese Walls in securities firms. Journal of Law, Economics & Policy 4 (2), 369–408.
Standard & Poor's, 2006. A Guide to the Loan Market (2006-2007) Edition. S&P Ratings Services.
Standard & Poor's, 2020. Leveraged Commentary & Data (LCD): Leveraged Loan Primer. S&P Global Market Intelligence Inc.
Sufi, A., 2007. Information asymmetry and financing arrangements: evidence from syndicated loans. J. Finance 62 (2), 629–668.
Taylor, A., Sansone, A., 2007. The Handbook of Loan Syndications and Trading. McGraw-Hill Professional.
Tubbicke, S., 2022. Entropy balancing for continuous treatments. J. Econom. Methods 11 (1), 71–89.
Twedt, B., 2016. Spreading the word: price discovery and newswire dissemination of management earnings guidance. Account. Rev. 91 (1), 317–346.
Vashishtha, R., 2014. The role of bank monitoring in borrowers' discretionary disclosure: evidence from covenant violations. J. Account. Econ. 57 (2–3), 176–195.
Zhang, J., 2008. The contracting benefits of accounting conservatism to lenders and borrowers. J. Account. Econ. 45 (1), 27–54.