# The Bond-Loan Spread

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# Firm Financing

- Firms financing sources are at the core of Macro-Finance research
- Yet, we have limited granular empirical evidence on prices and quantities
- New security-level database of US firms financing with bank loans and bonds

# Firm Financing

- Firms financing sources are at the core of Macro-Finance research
- Yet, we have limited granular empirical evidence on prices and quantities
- New security-level database of US firms financing with bank loans and bonds

1. Why and when do firms finance with loans and/or bonds?
2. How does the financing choice depend on firm characteristics?
3. What are the aggregate implications?

# The Bond-Loan Spread

- Bank loans are about 200 basis points cheaper than corporate bonds
- Loans tend to be collateralized while bonds tend to be unsecured
- This Bond-Loan spread is increasing in the default probability
- Bond issuers have: more assets, higher leverage, more intangibles

# A Macro-Finance Model of the Bond-Loan Spread

- **Dynamic corporate finance model**
  - Secured debt, subject to a collateral constraint
  - Unsecured debt
  - Equilibrium default

# A Macro-Finance Model of the Bond-Loan Spread

- **Dynamic corporate finance model**
  - Secured debt, subject to a collateral constraint
  - Unsecured debt
  - Equilibrium default
- **Quantitative results**
  - The model can explain the bond-loan spread
  - Counterfactual assessment of costs and benefits of unsecured debt markets:
    - Benefits: ex-post insurance
    - Costs: ex-ante lack of commitment hurts borrowers in the secured market

# Empirical Analysis

# Bonds & Loans

- Security-level panel (i.e, at the loan and bond level) with firm financial data
- Loans
  - Loan and firm financial data from the FR Y-14Q, H.1 schedule, 2013Q1-2022Q4
  - Data from the largest 33 banks
    Banks with more than $50 ($100) billion in total consolidated assets in 2013-2019 (2019-2022)
  - Loan facilities with committed exposures of $1 million or more
- Bonds
  - Bond data from the Mergent Fixed Income Securities Database (FISD)
- Firm-level panel with: (i) aggregate balance sheet, (ii) individual securities

▷ Defining Firms ▷ Sample Selection

# Bond-Loan Spread

$$R_{f,t,s} = \alpha_{f,t} + \gamma \mathbb{I}(\text{security}_{f,t,s} = \textit{loan}) + \Gamma X_{f,t,s} + \varepsilon_{f,t,s}$$

- $R_{f,t,s}$ is the interest rate paid by firm $f$ in quarter $t$ on security $s$
- $\alpha_{f,t}$ is a firm-quarter fixed effect
- Bond-Loan spread $\gamma$: difference in interest rate of loans relative to bonds
- $X_{f,t,s}$ controls: maturity, amount, collateral, default probability

# The Bond-Loan Spread

| | (1) |
|---|---|
| Maturity | 4.7528*** |
| | (0.024) |
| Amount | -0.0029*** |
| | (0.000) |
| Loan | -208.1245*** |
| | (0.528) |
| Constant | 493.4904*** |
| | (0.586) |
| Observations | 3,001,118 |
| Adjusted $R^2$ | 0.626 |
| Firm-Time FE | Yes |

# The Bond-Loan Spread

| | (1) | (2) |
|---|---|---|
| Maturity | 4.7528*** | 4.7301*** |
| | (0.024) | (0.024) |
| Amount | -0.0029*** | -0.0028*** |
| | (0.000) | (0.000) |
| Loan | -208.1245*** | -216.1415*** |
| | (0.528) | (0.533) |
| Collateral Share | | 14.1530*** |
| | | (0.256) |
| Constant | 493.4904*** | 491.5268*** |
| | (0.586) | (0.589) |
| Observations | 3,001,118 | 3,001,118 |
| Adjusted $R^2$ | 0.626 | 0.627 |
| Firm-Time FE | Yes | Yes |

# The Bond-Loan Spread

| | (1) | (2) | (3) |
|---|---|---|---|
| Maturity | 4.7528*** | 4.7301*** | 4.2357*** |
| | (0.024) | (0.024) | (0.020) |
| Amount | -0.0029*** | -0.0028*** | -0.0023*** |
| | (0.000) | (0.000) | (0.000) |
| Loan | -208.1245*** | -216.1415*** | -199.0460*** |
| | (0.528) | (0.533) | (0.476) |
| Collateral Share | | 14.1530*** | |
| | | (0.256) | |
| Default Probability | | | 97.4141*** |
| | | | (0.943) |
| Constant | 493.4904*** | 491.5268*** | 505.2322*** |
| | (0.586) | (0.589) | (0.549) |
| Observations | 3,001,118 | 3,001,118 | 4,234,959 |
| Adjusted $R^2$ | 0.626 | 0.627 | 0.657 |
| Firm-Time FE | Yes | Yes | No |
| Firm FE | No | No | Yes |
| Time FE | No | No | Yes |

# The Bond-Loan Spread

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Maturity | 4.7528*** | 4.7301*** | 4.2357*** | 4.2161*** |
| | (0.024) | (0.024) | (0.020) | (0.020) |
| Amount | -0.0029*** | -0.0028*** | -0.0023*** | -0.0023*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Loan | -208.1245*** | -216.1415*** | -199.0460*** | -205.5836*** |
| | (0.528) | (0.533) | (0.476) | (0.478) |
| Collateral Share | | 14.1530*** | | 11.6811*** |
| | | (0.256) | | (0.202) |
| Default Probability | | | 97.4141*** | 97.5033*** |
| | | | (0.943) | (0.944) |
| Constant | 493.4904*** | 491.5268*** | 505.2322*** | 502.9894*** |
| | (0.586) | (0.589) | (0.549) | (0.552) |
| Observations | 3,001,118 | 3,001,118 | 4,234,959 | 4,234,959 |
| Adjusted $R^2$ | 0.626 | 0.627 | 0.657 | 0.658 |
| Firm-Time FE | Yes | Yes | No | No |
| Firm FE | No | No | Yes | Yes |
| Time FE | No | No | Yes | Yes |

# The Default Elasticity of the Bond-Loan Spread

- Loans are cheaper than bonds
- How does this spread varies with risk?
- Banks report the default probability
- Do riskier firms have larger spreads?

# The Default Elasticity of the Bond-Loan Spread

| | (1) |
|---|---|
| Default probability | All |
| Maturity | 4.2357*** |
| | (0.020) |
| Amount | -0.0023*** |
| | (0.000) |
| Loan | -199.0460*** |
| | (0.476) |
| Default Probability | 97.4141*** |
| | (0.943) |
| Constant | 505.2322*** |
| | (0.549) |
| Observations | 4,234,959 |
| Adjusted $R^2$ | 0.657 |
| Firm-Time FE | No |
| Firm FE | Yes |
| Time FE | Yes |

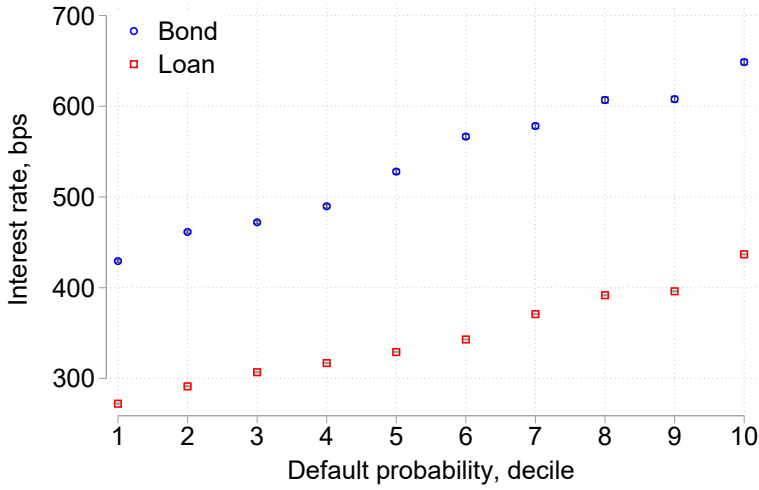
# The Default Elasticity of the Bond-Loan Spread

| | (1) | (2) |
|---|---|---|
| Default probability | All | Below p10 |
| Maturity | 4.2357*** | 6.7166*** |
| | (0.020) | (0.068) |
| Amount | -0.0023*** | -0.0363*** |
| | (0.000) | (0.005) |
| Loan | -199.0460*** | -124.0336*** |
| | (0.476) | (3.127) |
| Default Probability | 97.4141*** | |
| | (0.943) | |
| Constant | 505.2322*** | 343.1024*** |
| | (0.549) | (3.672) |
| Observations | 4,234,959 | 248,466 |
| Adjusted $R^2$ | 0.657 | 0.541 |
| Firm-Time FE | No | Yes |
| Firm FE | Yes | No |
| Time FE | Yes | No |

# The Default Elasticity of the Bond-Loan Spread

| | (1) | (2) | (3) |
|---|---|---|---|
| Default probability | All | Below p10 | Above p90 |
| Maturity | 4.2357*** | 6.7166*** | 3.7603*** |
| | (0.020) | (0.068) | (0.059) |
| Amount | -0.0023*** | -0.0363*** | -0.0006*** |
| | (0.000) | (0.005) | (0.000) |
| Loan | -199.0460*** | -124.0336*** | -301.9200*** |
| | (0.476) | (3.127) | (1.257) |
| Default Probability | 97.4141*** | | |
| | (0.943) | | |
| Constant | 505.2322*** | 343.1024*** | 613.2469*** |
| | (0.549) | (3.672) | (1.326) |
| Observations | 4,234,959 | 248,466 | 730,199 |
| Adjusted $R^2$ | 0.657 | 0.541 | 0.701 |
| Firm-Time FE | No | Yes | Yes |
| Firm FE | Yes | No | No |
| Time FE | Yes | No | No |

# The Default Elasticity of the Bond-Loan Spreads



# Robustness & Additional Empirical Results

- At origination date ▷ Detail
- Loan types: credit lines and syndicated loans ▷ Detail
- Bond types ▷ Detail
- Interest rate spreads ▷ Detail
- Only secured loans and unsecured bonds ▷ Detail
- Firm characteristics ▷ Detail
- Which firms issue bonds? ▷ Detail

# Macro-Finance Model: Secured and Unsecured Debt

# Macro-Finance Model: Secured and Unsecured Debt

- Standard firm dynamic investment problem
- Standard elements: Capital adjustment costs, equity issuance costs
- New: Borrowing in secured and unsecured debt markets with equilibrium default

# Production and Investment

- Static profits

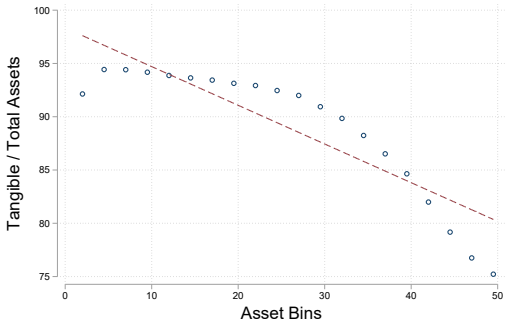
$$\pi(z,k) = \max_{n} \quad zk^{\alpha}n^{\eta} - wn - \gamma$$

- Standard capital accumulation with convex adjustment costs:

$$k' = (1-\delta)k + i$$

$$\mathcal{A}^{K}(k',k) = \frac{\zeta}{2}\left(\frac{k'-k}{k}\right)^{2} k$$

# Larger firms have a larger share of intangible capital




- Tangible and intangible capital

$$k = k^T + k^I$$

- Reduced-form level of intangibles
  (best fit of the data)

$$\frac{k^T}{k} = \min\left\{\max\left\{\beta_0 - \beta_1 \log k, 0\right\}, 1\right\}$$

▷ Data ▷ Estimation

# Secured Debt

- Secured debt, called loans $l'$, subject to collateral constraint

$$l' \leq \phi_l k^{T'}$$

- The price schedule for loans is

$$q^l\left(z, k', l', b'\right) = \frac{\mathcal{P}\left(z, k', l', b'\right)}{1+r} + \frac{1-\mathcal{P}\left(z, k', l', b'\right)}{1+r}\psi^l \frac{\min\left\{k^{T'}, l'\right\}}{l'}$$

where $\mathcal{P}$ is the repayment probability, $r$ is the lender's risk-free interest rate, and $\psi^l$ captures the recovery given default.

# Unsecured Debt

- Unsecured debt, called bonds $b'$
- Secured debt (loans, $l'$) has priority over unsecured debt (bonds, $b'$)
- The price schedule for bonds is

$$q^b\left(z,k',l',b'\right)=\frac{\mathcal{P}\left(z,k',l',b'\right)}{1+r}+\frac{1-\mathcal{P}\left(z,k',l',b'\right)}{1+r}\psi^b\frac{\min\left\{\max\left\{k^{T'}-l',0\right\},b'\right\}}{b'}$$

where $\psi^b$ captures the recovery given default.

# Costly Equity Issuance

- Let *div* denote firm dividends:

$$div = \pi(z,k) + (1-\delta)k - k' - \mathcal{A}^K(k',k) - l + q^l(z,k',b',l')l' - b + q^b(z,k',b',l')b'$$

- Firms with negative dividends are subject to convex equity issuance costs (Hennessy Whited 07)

$$\mathcal{A}^D(div) = \frac{\xi}{2}\max\{-div, 0\}$$

# Default

- Firm decides to repay its debt obligations or default:

$$V(z,k,l,b,\varepsilon^P,\varepsilon^D) = \max\left\{V^P(z,k,l,b)+\varepsilon^P, V^D(z,k,l,b)+\varepsilon^D\right\}$$

  where $V^P$ is the value of repayment and $V^D$ is the value of default, $V^D = 0$

- $\varepsilon$ are i.i.d. extreme-value preference shocks, with scale parameter $\kappa$
- Repayment probability

$$\mathcal{P}(z,k,l,b) = \frac{\exp[V^P(z,k,l,b)/\kappa]}{1+\exp[V^P(z,k,l,b)/\kappa]}$$

- Expectation with respect to the extreme-value shocks

$$\mathcal{V}(z,k,l,b) \equiv \mathbb{E}_\varepsilon[V(z,k,l,b,\varepsilon^P,\varepsilon^D)] \quad = \kappa\log\{1+\exp[V^P(z,k,l,b)/\kappa]\}$$

# Firms' Problem

$$V(z,k,l,b) = \max_{k',l',b'} div - \mathcal{A}^D(div) + \beta \mathbb{E}\left[\mathcal{V}(z',k',l',b')\right]$$

subject to

$$\begin{aligned} div = {} & \pi(z,k) + (1-\delta)k - k' + \mathcal{A}^k(k',k) \\ & - l - b + q^l(z,k',l',b')\, l' + q^b(z,k',l',b')\, b' \\ l' \leq {} & \phi_l k^{T'} \end{aligned}$$

# The Bond-Loan Spread

- Assume that loans have higher recovery given default, $\psi^l \geq \psi^b$
- Result: Bonds are more expensive than loans

$$q^b(z, k', b', l') < q^l(z, k', b', l')$$

- Qualitatively: the model generates a positive bond-loan spread
- Next: Evaluate the quantitative relevance

# Pecking Order

- Pecking order: Let total debt be $d = l + b$

$$l = \min\left\{\phi_l k^T, d\right\}$$
$$b = \max\{0, d - l\}$$

- First borrow in loans
- Only issue bonds if collateral constraint is binding
- Only need $d$ as state variable!

# Quantitative Evaluation

# Preliminary calibration

| Description | Parameter | Value | Source/Target |
|---|---|---|---|
| External | | | |
| Capital share | $\alpha$ | 0.3000 | Standard |
| Labor share | $\eta$ | 0.6000 | Standard |
| Depreciation rate | $\delta$ | 0.1200 | Standard |
| Wage | $w$ | 1.0000 | Normalization |
| Capital adjustment costs | $\zeta$ | 2.0000 | Cooper Haltiwanger 2006 |
| Equity issuance cost | $\xi$ | 0.3900 | Hennessy Whited 2007 |
| Interest rate | $r$ | 0.0400 | Standard |
| Productivity, persistence | $\rho_z$ | 0.9500 | Standard |
| Productivity, volatility | $\sigma_z$ | 0.1500 | Standard |
| Recovery given default, loans | $\psi_I$ | 0.6895 | Y14 Data |
| Recovery given default, bonds | $\psi_B$ | 0.0000 | Normalization |
| Preference shocks, scale | $\kappa$ | 0.0500 | Normalization |
| Internal | | | |
| Average productivity | $\bar{z}$ | 0.9452 | Mean capital |
| Discount factor | $\beta$ | 0.8921 | Leverage |
| Fixed costs | $\gamma$ | 0.0108 | Default probability |
| Collateral constraint | $\phi_I$ | 1.1598 | Loan to tangible capital |

# Model vs Data

| | Model |
|---|---|
| *Target* | |
| Mean capital | 0.91 |
| Mean leverage | 0.52 |
| Mean default probability | 0.06 |
| Mean loan to tangible capital | 0.47 |
| *Non-Target* | |
| Mean tangible share | 0.84 |
| Mean Bond-Loan spread, bps | 389 |

- The model over-predicts the bond-loan spreads
- Additional forces may mitigate it

# Counterfactual: Unsecured Debt

**Is unsecured debt good or bad?**

- Ex-ante: Lack of commitment
- Ex-post: Extra borrowing
- Second-best

# Counterfactual: Unsecured Debt

**Is unsecured debt good or bad?**

- Ex-ante: Lack of commitment
- Ex-post: Extra borrowing
- Second-best

| | With | Without |
|---|---|---|
| Capital | 0.91 | 1.24 |
| Leverage | 0.52 | 0.44 |
| Default probability | 0.06 | 0.05 |
| Loan to tangible capital | 0.47 | 0.55 |
| Tangible share | 0.84 | 0.83 |
| Market capitalization | 0.79 | 1.12 |

Without unsecured debt markets:

- Lower leverage and default
- Higher market capitalization and capital

# Conclusion

- New security-level database of US firms issuing both bank loans and bonds
- Loans are, on average, 208 basis points cheaper than bonds
- Macro-Finance Model of Bond-Loan Spread with secured and unsecured debt
- The model can explain the bond-loan spread
- Counterfactual assessment of costs and benefits of unsecured debt markets

# Appendix

# Data

# Sample Selection

- Keep bonds/loans with U.S. location and USD/missing currency
- Drop bonds/loans with NAICS 52, 92, 5312, 551111, or missing
- Drop loans that are classified as municipal or foreign
- Drop loans with current date after maturity date or before origination date
- Drop loans with utilized exposure negative, committed exposure negative or zero, or utilized exposure greater than committed exposure
- Drop loans with negative total assets, liabilities, short term debt, long term debt, or cash marketable securities
- Drop loans if total debt is greater than total liabilities or cash marketable securities are greater than total assets
- Drop bonds that are convertible
- Keep bonds for which we have a firm match in the Y-14

▷ Back

# Defining a Firm

- Start with defining a firm by TIN in Y-14
- We use S&P's Business Entity Cross Reference Service (BECRS)
  - Create a list of ultimate parents
  - Each CUSIP associated with ultimate parent in given quarter is one firm
  - Merge to FISD and Y14 using CUSIP
- In Y-14, firm grouped by TIN if unmatched
- In FISD, keep only if matched

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# Tangible Capital

- For any observation of tangible or total assets that is zero, we change the observation to missing.
- We then winsorize tangible and total assets at the .05% level.
- We generate the tangible share of assets, $k^T/k$, as tangible assets over total assets.
- We change to missing any values of $k^T/k$ that are less than zero or greater than 100.
- For each quarter, we calculate the mean of total assets.
- We then normalize total assets using the values from the previous step.
- We then take the log of the normalized total assets
- We then regress $k^T/k$ on a constant using a quarter fixed effect. We subtract the fixed effect from $k^T/k$ to create a "clean" $k^T/k$
- Finally, we regress the "clean" $k^T/k$ on the log normalized total assets.

▷ Back

# Tangible Capital

Table 1: Tangible Capital

| | (1) |
|---|---|
| log(TotalAssets) | -2.5368*** |
| | (0.013) |
| Constant | 79.8168*** |
| | (0.058) |
| Observations | 626126 |
| Adjusted $R^2$ | 0.087 |

Standard errors in parentheses

▷ Back

# At Origination

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Maturity | 2.4333*** | 2.3883*** | 1.7683*** | 1.6844*** |
| | (0.101) | (0.101) | (0.092) | (0.092) |
| Amount | -0.0011*** | -0.0011*** | -0.0008*** | -0.0008*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Loan | -140.2879*** | -145.6905*** | -121.4976*** | -129.1849*** |
| | (3.132) | (3.151) | (2.340) | (2.351) |
| Collateral Share | | 9.3692*** | | 13.8665*** |
| | | (0.958) | | (0.777) |
| Default Probability | | | 198.1029*** | 197.9445*** |
| | | | (6.815) | (6.812) |
| Constant | 449.8341*** | 448.8885*** | 446.8119*** | 444.7404*** |
| | (3.191) | (3.203) | (2.509) | (2.523) |
| Observations | 153279 | 153279 | 202825 | 202825 |
| Adjusted $R^2$ | 0.758 | 0.758 | 0.648 | 0.649 |
| Firm-Time FE | Yes | Yes | No | No |
| Firm FE | No | No | Yes | Yes |
| Time FE | No | No | Yes | Yes |

▷ Back

# Loan Type

| | (1) | (2) | (3) |
|---|---|---|---|
| Loan | -205.5836*** | | |
| | (0.478) | | |
| Term Loan | | -197.4364*** | |
| | | (0.486) | |
| Credit Line | | -216.1840*** | |
| | | (0.477) | |
| Non-syndicated | | | -191.1850*** |
| | | | (0.527) |
| Syndicated | | | -215.5527*** |
| | | | (0.472) |
| Constant | 502.9894*** | 502.4497*** | 495.7205*** |
| | (0.552) | (0.550) | (0.564) |
| Maturity | 4.2161*** | 4.2396*** | 4.2346*** |
| | (0.020) | (0.020) | (0.020) |
| Amount | -0.0023*** | -0.0022*** | -0.0020*** |
| | (0.000) | (0.000) | (0.000) |
| Default Probability | 97.5033*** | 97.5788*** | 98.0871*** |
| | (0.944) | (0.944) | (0.948) |
| Collateral Share | 11.6811*** | 11.6417*** | 9.8471*** |
| | (0.202) | (0.201) | (0.202) |
| Observations | 4234959 | 4234959 | 4234959 |
| Adjusted $R^2$ | 0.658 | 0.659 | 0.659 |
| Firm-Time FE | No | No | No |
| Firm FE | Yes | Yes | Yes |
| Time FE | Yes | Yes | Yes |

▷ Back

# Bond Type

| | | | |
|---|---|---|---|
| Callable | 21519 | -266.85 | -66.86 |
| | | (1.18) | (1.13) |
| Putable | 412 | -206.25 | -81.08 |
| | | (.48) | (2.6) |
| Asset Backed | 212 | -204.8 | 97.18 |
| | | (.48) | (3.63) |
| Covenants | 15956 | -242.88 | -53.02 |
| | | (.71) | (.71) |
| Rule 144a | 6817 | -186.15 | 60.53 |
| | | (.53) | (.73) |
| Total | 25375 | | |

▷ Back

# Interest Rate Spread

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Maturity | 1.2685*** | 1.2282*** | 1.1494*** | 1.1124*** |
| | (0.023) | (0.023) | (0.020) | (0.020) |
| Amount | -0.0031*** | -0.0030*** | -0.0023*** | -0.0023*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Loan | -202.0841*** | -214.8617*** | -194.2999*** | -205.4690*** |
| | (0.552) | (0.562) | (0.498) | (0.504) |
| Collateral Share | | 23.0201*** | | 20.2783*** |
| | | (0.284) | | (0.224) |
| Default Probability | | | 104.6384*** | 104.7486*** |
| | | | (1.025) | (1.026) |
| Constant | 361.4243*** | 358.1706*** | 365.6466*** | 361.7331*** |
| | (0.597) | (0.600) | (0.560) | (0.563) |
| Observations | 3059549 | 3059549 | 4298093 | 4298093 |
| Adjusted $R^2$ | 0.536 | 0.538 | 0.591 | 0.592 |
| Firm-Time FE | Yes | Yes | No | No |
| Firm FE | No | No | Yes | Yes |
| Time FE | No | No | Yes | Yes |

▷ Back

# First-Lien Senior Loans and Senior Bonds

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Maturity | 4.6992*** | 4.7004*** | 4.1366*** | 4.1383*** |
| | (0.027) | (0.027) | (0.022) | (0.022) |
| Amount | -0.0041*** | -0.0041*** | -0.0032*** | -0.0032*** |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| Loan | -183.8354*** | -175.9216*** | -172.1142*** | -163.7405*** |
| | (0.704) | (0.794) | (0.616) | (0.693) |
| Collateral Share | | -8.8746*** | | -9.5330*** |
| | | (0.453) | | (0.384) |
| Default Probability | | | 92.7939*** | 92.7076*** |
| | | | (0.974) | (0.974) |
| Constant | 480.7625*** | 481.1134*** | 488.6644*** | 489.2799*** |
| | (0.754) | (0.756) | (0.681) | (0.683) |
| Observations | 2319895 | 2319895 | 3475760 | 3475760 |
| Adjusted $R^2$ | 0.616 | 0.616 | 0.656 | 0.656 |
| Firm-Time FE | Yes | Yes | No | No |
| Firm FE | No | No | Yes | Yes |
| Time FE | No | No | Yes | Yes |

▷ Back

# Secured Contracts

| | Unique securities | Share, % |
|---|---|---|
| Loans | 400,519 | |
| First-lien senior | 324,251 | 81 |
| Other | 76,268 | 19 |
| Bonds | 22,431 | |
| Senior bond | 18,986 | 85 |
| Other | 3,445 | 15 |

# Firm Characteristics

| | mean | sd | p10 | p50 | p90 |
|---|---|---|---|---|---|
| Share of Firms with Bonds | 5.19 | 22.18 | 0.00 | 0.00 | 0.00 |
| Loan Share, $l/(l+b)$ | 96.65 | 16.13 | 100.00 | 100.00 | 100.00 |
| Loan Share given $b > 0$ | 35.47 | 32.67 | 0.25 | 27.16 | 85.41 |
| Leverage | 67.16 | 25.58 | 34.71 | 67.30 | 95.37 |
| Tangible Share of Assets | 89.08 | 19.19 | 60.29 | 98.67 | 100.00 |
| Total Assets ($ mil) | 1,719.78 | 14,980.05 | 3.60 | 23.92 | 1,092.05 |
| LGD | 28.67 | 15.52 | 5.00 | 30.00 | 47.01 |
| Probability of Default | 2.50 | 7.87 | 0.16 | 0.78 | 4.05 |

▷ Back

# Probability of Issuing Bonds

| | (1) | (2) |
|---|---|---|
| Assets | 5.1509*** | 4.6932*** |
| | (0.023) | (0.025) |
| Leverage | 6.8536*** | 7.0361*** |
| | (0.244) | (0.331) |
| Liquidity Ratio | 0.7604 | 1.0477 |
| | (0.521) | (0.738) |
| Tangible / Total Assets | -2.3015*** | -3.4520*** |
| | (0.214) | (0.267) |
| Long Share of Debt | 0.1414*** | -0.2164*** |
| | (0.038) | (0.048) |
| Constant | -87.6914*** | -78.5879*** |
| | (0.513) | (0.545) |
| Observations | 621647 | 615726 |
| Adjusted $R^2$ | 0.290 | 0.365 |
| Time FE | Yes | No |
| Time-NAICS FE | No | Yes |

- Larger
- With less tangible assets

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