The Decline of Secured Debt

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What We Do

- We document a steady decline in the issuance of secured debt by non-financial public U.S. firms over the twentieth century.
- We also document that the issuance of secured debt is counter-cyclical.
- We offer explanations for both phenomena.
  - some theories of collateral may have more bite than others
Hickman Data (1900-1943)
- W.B. Hickman was the director of the Corporate Bond Research Project at the NBER.
- Amassed data on bond issuance in the first half of the 20th century.

- A financial newspaper published from 1865 to 1987.
- In March 1921 began publishing monthly compilations of new capital flotations in the U.S.

Mergent Data (1960-2017)
- The Mergent Fixed Income Securities Database (FISD) is a database of publicly offered U.S. bonds.

Survey of Small Business Finances (SSBF), Flow of Funds, Compustat
Secured Bonds Decline: by Industry

- **Utilities**: electric, gas, communication, street railways, and misc. utilities
  - secured share declines from 100% in 1900 to 74% in 1942
- **Industrials**: agriculture, construction, trade, services, and manufacturing
  - secured share declines from 100% in 1900 to 13% in 1943
  - shows steepest decline among the three broad industry groups
- **Railroads**: passenger, freight and service
  - trend is mildly positive, and the data are noisier
  - observed trend is consistent with our explanations
Secured Bonds Issuance: CFC

Secured bonds (% of value of issuance), 1922-1967
Mergent Bond Issuance

Secured bonds (% of value of issuance), 1960-2017
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Putting It All Together

The diagram shows a scatter plot with the x-axis representing years from 1900 to 2017 and the y-axis representing secured debt. The data points are color-coded to represent three different sources: Hickman (blue), CFC (red), and Mergent (green).
Use information from Compustat that also includes bank loans.
- Compustat reports “debt mortgages and other secured debt” starting in 1981.
  - includes capital leases but not operating leases
  - capitalizing operating leases does not change the basic pattern of decline
- Focus on publicly traded U.S. firms (SIC 2000-5999).
Median Firm-level Secured Debt (% of total debt), 1981-2017
Controlling for Composition: Firm Fixed Effects Regression

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Secured Debt in the Earlier Period

- Could the decline before 1981 be explained by shifts in composition between bonds and loans issuance?
  - share of bank loan in total debt
  - secured share within bank loan
- Using Flow of Funds data going back to 1945 we argue that it is unlikely
Commercial Mortgages as a Share of Total Corporate Loans, 1945-2018

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- Six categories: Credit cards, Lines of credit, mortgages, motor vehicle loans, equipment loans, and other loans.

The share of secured debt has decreased steadily even for small businesses from 81% in 1987 to 65% in 2003.

- extensive margin: credit card vs equipment loans
- intensive margin: lines of credit
Summarizing the Facts

- Share of secured bond issuance has fallen over the 20th century.
- Secured share of total outstanding debt for firms in Compustat has fallen over the last twenty years of the 20th century.
- Secured share of bank loan seems to have fallen too.
  - Commercial mortgage in FoF data
  - Secured loan by small businesses
In addition to the secular decline in issuance of secured debt we also find a countercyclical pattern.

- Secured bond share showed a perceptible rise during the Great Depression.
- Similarly, we see increases in the share of secured debt in the recessions of 2001-2002 and 2007-2009.

- Run regressions of the share of secured debt on HP-filter detrended (i) Baa-Aaa spread; and (ii) log GDP.
### Panel A: Secured Debt Share, Credit Spreads, and GDP Growth, 1960-2017

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>∆Baa-Aaa spread</td>
<td>0.047*** (0.012)</td>
<td>0.049*** (0.012)</td>
<td>-1.232*** (0.405)</td>
<td>0.031** (0.012)</td>
</tr>
<tr>
<td>∆Baa-Aaa spread &gt; 0</td>
<td>0.112*** (0.033)</td>
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<td>-0.344*** (0.094)</td>
<td>0.068*** (0.023)</td>
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<tr>
<td>∆GDP growth</td>
<td>-0.344*** (0.094)</td>
<td>-0.344*** (0.094)</td>
<td>-0.344*** (0.094)</td>
<td>-0.344*** (0.094)</td>
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<tr>
<td>∆GDP growth &lt; 0</td>
<td>0.031** (0.012)</td>
<td>0.031** (0.012)</td>
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<td>0.031** (0.012)</td>
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</table>

| Adjusted $R^2$ | 0.0543 | 0.0678 | 0.0345 | 0.0238 |
| Adjusted Observations | 232 | 232 | 232 | 232 |

### Panel B: Secured Debt Share, Credit Spreads, and GDP Growth, 1900-1943

<table>
<thead>
<tr>
<th>Period</th>
<th>1920-1943</th>
<th>1900-1943</th>
<th>1900-1943</th>
<th>1900-1943</th>
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<tr>
<td>∆Baa-Aaa spread</td>
<td>0.077** (0.028)</td>
<td>0.112*** (0.033)</td>
<td>-0.344*** (0.094)</td>
<td>0.068*** (0.023)</td>
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<td>0.068*** (0.023)</td>
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</table>

| Adjusted $R^2$ | 0.222 | 0.308 | 0.225 | 0.157 |
| Adjusted Observations | 24 | 24 | 44 | 44 |
Theories of Collateral

- Collateral is of central importance in the theory of corporate finance
- Assets as alienable and immutable (Jackson and Kronman (1979))
  - But no need to offer security or perfect it. To explain security…
    - Assets may be sold and cash may be tunneled outside
    - Absolute priority may be violated
    - The firm may have multiple creditors
So What Led to the Decline of Secured Debt?

- Greater tolerance of lenders: over time creditors became more confident that the priority of their debt claims will be respected without the need for security upfront.
  - They continue to rely on it in downturns.
  - They rely on it when firms approach distress.
- Reluctance to provide security upfront by borrowers: do not want to lose financial flexibility by giving security upfront - the “dark side” of collateral.
Creditor Side Explanations

1 Better Information
   - Accounting and reporting has become more transparent and informative for lenders.

2 Respecting Absolute Priority: Bankruptcy Law
   - In the 19th and early 20th century, unsecured debt often got diluted by equity and other stakeholders.
   - Over time, the priority of unsecured debt was recognized by courts as well (triggered by the Supreme Court ruling in Boyd vs Northern Pacific in 1913).

3 Negative pledge clauses and affirmative covenant
   - Allows lenders to remain unsecured until security truly needed.
   - Trust Indenture Act in 1939 put NPCs on a better footing.
4. Borrower Cash Flows: Greater Ability to Pay

Proportion of Firms with Interest-Coverage Ratio $>3$, 1900-1943
5. Changes in the Nature of the Firm

![Asset Tangibility Over Time, 1965-2017](chart)

- (mean) tang
- (p 50) tang

Asset Tangibility Over Time, 1965-2017
Can Decline in Tangibility Explain Decline in Secured Debt?

Median Ratio of Secured Debt to Tangible Assets, 1981-2017
Expansion in intangible assets spurred legal innovation

- Changes to the UCC’s Article 9 permitting securing intangible assets like intellectual property.
- Mann (2018) shows that patents are often pledged as collateral
  - as of 2013, 28% of U.S. patenting firms had previously pledged patents as collateral

Regression:

\[
\text{secured}_{i,t} = \alpha + \beta_1 \text{size}_{i,t-1} + \beta_2 Q_{i,t-1} + \beta_3 \text{ROA}_{i,t-1} + \beta_4 \text{Tang}_{i,t-1} + \sum_{t=1981}^{t=2017} \gamma_t \text{year}_t \text{Tang}_{i,t-1} + \epsilon_{i,t}
\]
Marginal Effect of Asset Tangibility on Secured Debt, 1981-2017
Marginal Effect of Intangible Assets on Secured Debt, 1981-2017
Borrowers are reluctant to post collateral upfront

Similar in spirit to:

- Acharya, Almeida and Campello (2007) - repaying debt with cash can reduce financial flexibility
- Rampini and Viswanathan (2010) - young small constrained firms use all debt capacity while large firms hold back for a "rainy" day
- also see Li, Whited, and Wu (2016); Bjerre (1999); Schwarcz (1997)

Issue secured debt on a contingent basis for high-return needs.
- example: escape bankruptcy
### Table VI: Secured Debt and Firm Characteristics

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<td>Log(assets)$_{t-1}$</td>
<td>-0.054 ***</td>
<td>-0.053 ***</td>
<td>-0.039 ***</td>
<td>-0.053 ***</td>
<td>-0.002</td>
<td>-0.006 *</td>
<td>-0.012 **</td>
<td>-0.006 **</td>
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<td>(0.002)</td>
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<td>(0.005)</td>
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<td>(0.003)</td>
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<tr>
<td>Q$_{t-1}$</td>
<td>-0.031 ***</td>
<td>-0.034 ***</td>
<td>-0.009 **</td>
<td>-0.003 ***</td>
<td>0.003</td>
<td>0.007</td>
<td>-0.002</td>
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<td>Profitability$_{t-1}$</td>
<td>0.118 ***</td>
<td>0.142 ***</td>
<td>0.079 ***</td>
<td>0.159 ***</td>
<td>0.003</td>
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<td>0.002</td>
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<td>(0.012)</td>
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<td>(0.003)</td>
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<td>Tangibility$_{t-1}$</td>
<td>0.286 ***</td>
<td>0.211 ***</td>
<td>0.131 ***</td>
<td>0.194 ***</td>
<td>0.044 ***</td>
<td>0.024 **</td>
<td>-0.0002</td>
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<td>(0.018)</td>
<td>(0.022)</td>
<td>(0.029)</td>
<td>(0.023)</td>
<td>(0.010)</td>
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<td>Leverage$_{t-1}$</td>
<td>0.082 ***</td>
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<td>Credit Rating$_{t-1}$</td>
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<td>Downgrade$_{t-1}$</td>
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<td>Adjusted $R^2$</td>
<td>0.099</td>
<td>0.146</td>
<td>0.518</td>
<td>0.161</td>
<td>0.184</td>
<td>0.327</td>
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<td>Observations</td>
<td>52,703</td>
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<td>52,703</td>
<td>12,639</td>
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<td>Number of firms</td>
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This table reports the results of OLS regressions relating secured debt to firm characteristics. The dependent variable is secured debt/total debt and is defined using the following Compustat items: DM/(DLC+DLTT). All regressions include lagged values of the natural logarithm of book assets, Tobin's Q, profitability, and tangibility. Column (4) also controls for lagged firm leverage. Columns (5)-(8) control for S&P firm-level credit rating, and Column (8) includes a dummy variable that equals one if the firm has experienced a large downgrade. All regressions include year fixed effects. Columns (2), (4), (6), and (8) include industry fixed effects and Columns (3) and (7) include firm fixed effects. All regressions are estimated with heteroscedasticity robust standard errors that are clustered by firm and reported in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. 

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Conclusion

- We document a steady decline in the share of secured debt in the capital structures of publicly traded U.S. firms over the 20th century.
- The decline was likely driven by improvements in accounting, information, and legal protections that gave unsecured creditors greater confidence in their debt claims.
- Borrowers too preferred the financial flexibility from offering collateral on a contingent basis.
- We do not suggest that secured debt will disappear - it is still important for small businesses and in countries with less developed institutions.
- Intangible assets offer additional sources of collateral.
- It is too early to write an obituary for secured debt...