

The Decline of Secured Debt

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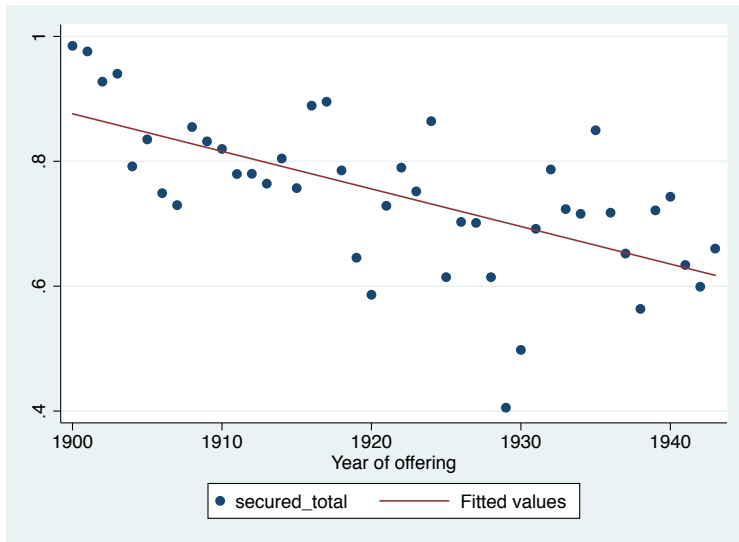
NBER Summer Institute, 2020

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.
- Commercial and Financial Chronicle Data (1922, 1927, 1932, 1937, 1957, 1967)
 - 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

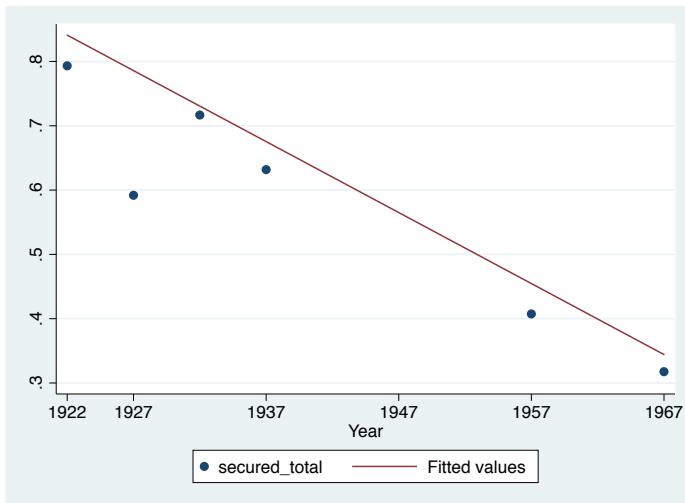
Hickman: Secured Share in Total Bond Issuance, 1900-1943



Secured Bonds Decline: by Industry

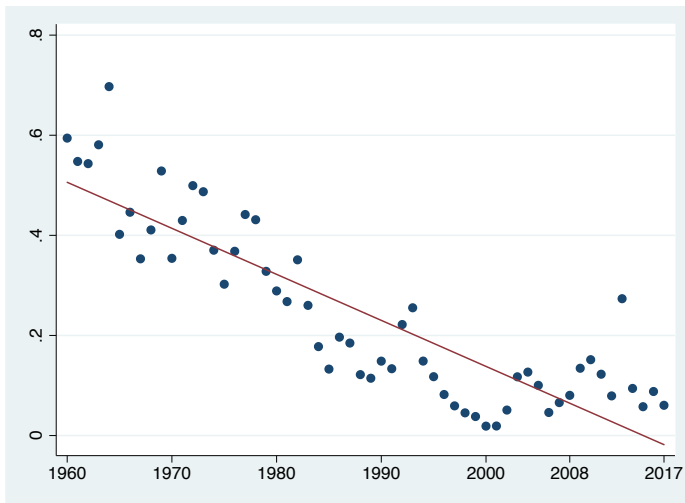
- Utilities: electric, gas, communication, street railways, and misc. utilities
 - secured share declines from 100% in 1900 to 74% in 1942
- Industrials: agriculture, construction, trade, services, and manufacturing
 - secured share declines from 100% in 1900 to 13% in 1943
 - shows steepest decline 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



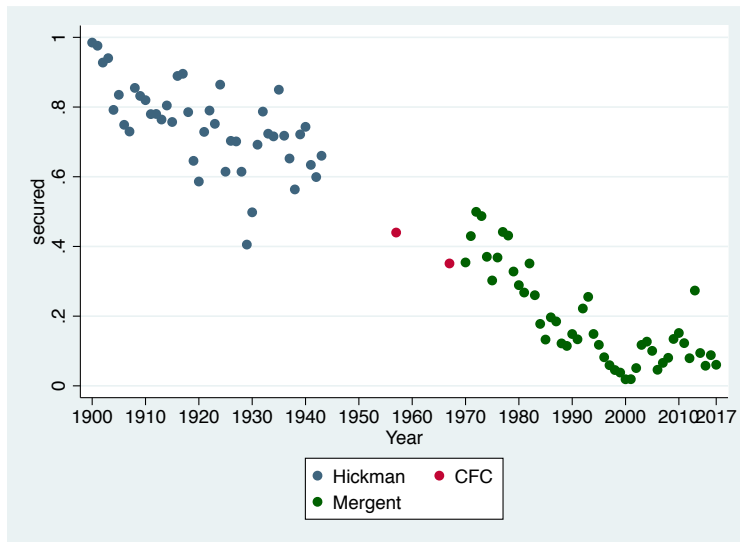
Secured bonds (% of value of issuance), 1922-1967

Mergent Bond Issuance



Secured bonds (% of value of issuance), 1960-2017

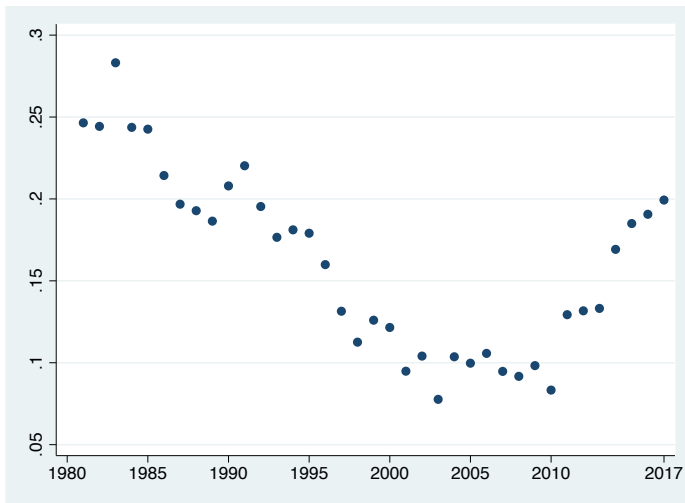
Putting It All Together



Secured Debt on Firm Balance Sheets

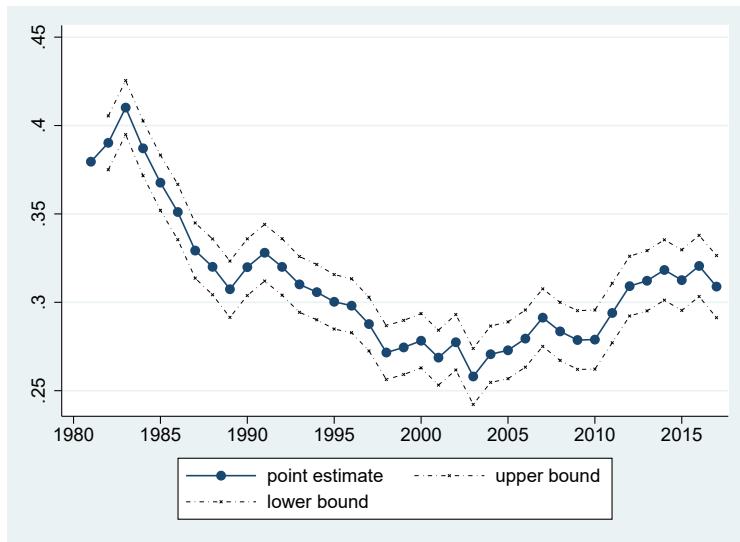
- Use information from Compustat that also includes bank loans.
 - Compustat reports “debt mortgages and other secured debt” starting in 1981.
 - includes capital leases but not operating leases
 - capitalizing operating leases does not change the basic pattern of decline
 - Focus on publicly traded U.S. firms (SIC 2000-5999).

Compustat Data



Median Firm-level Secured Debt (% of total debt), 1981-2017

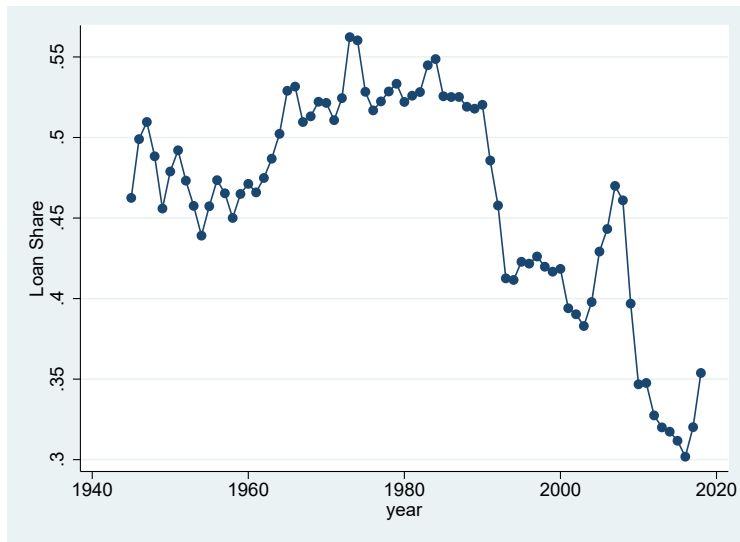
Controlling for Composition: Firm Fixed Effects Regression



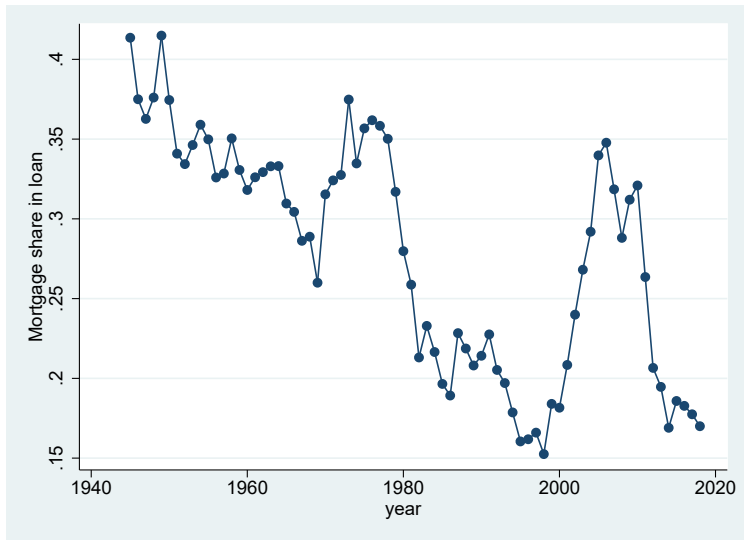
Secured Debt in the Earlier Period

- 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

Loans as a Share of Total Corporate Debt, 1945-2018



Commercial Mortgages as a Share of Total Corporate Loans, 1945-2018



- Small businesses rely on bank loans (Berger and Udell (1995, 1998)).
- We use data from the Survey of Small Business Finances (SSBF) for the years 1987, 1993, 1998, and 2003.
 - 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

Cyclicalities in the Issuance of Secured Debt

- 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.

Table: Cyclicalty of Secured Debt Issuance

Panel A: Secured Debt Share, Credit Spreads, and GDP Growth, 1960-2017				
Period	<u>1960-2017</u>	<u>1960-2017</u>	<u>1960-2017</u>	<u>1960-2017</u>
Δ Baa-Aaa spread	0.047*** (0.012)			
Δ Baa-Aaa spread > 0		0.049*** (0.012)		
Δ GDP growth			-1.232*** (0.405)	
Δ GDP growth < 0				0.031** (0.012)
Adjusted R^2	0.0543	0.0678	0.0345	0.0238
Observations	232	232	232	232
Panel B: Secured Debt Share, Credit Spreads, and GDP Growth, 1900-1943				
Period	<u>1920-1943</u>	<u>1920-1943</u>	<u>1900-1943</u>	<u>1900-1943</u>
Δ Baa-Aaa spread	0.077** (0.028)			
Δ Baa-Aaa spread > 0		0.112*** (0.033)		
Δ GDP growth			-0.344*** (0.094)	
Δ GDP growth < 0				0.068*** (0.023)
Adjusted R^2	0.222	0.308	0.225	0.157
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.
 - four major developments between 1909 and 1934: franchise tax, excess profit tax, accounting firm liability, Securities Act.

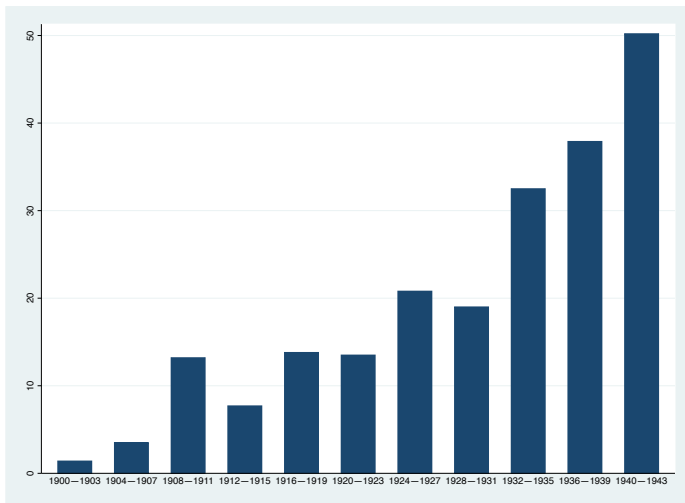
② Respecting Absolute Priority: Bankruptcy Law

- 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

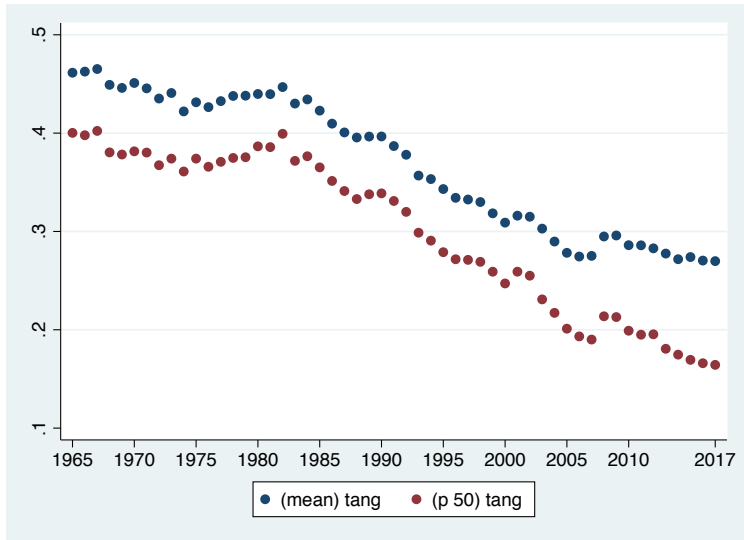
- Allows lenders to remain unsecured until security truly needed.
- Trust Indenture Act in 1939 put NPCs on a better footing.

4. Borrower Cash Flows: Greater Ability to Pay



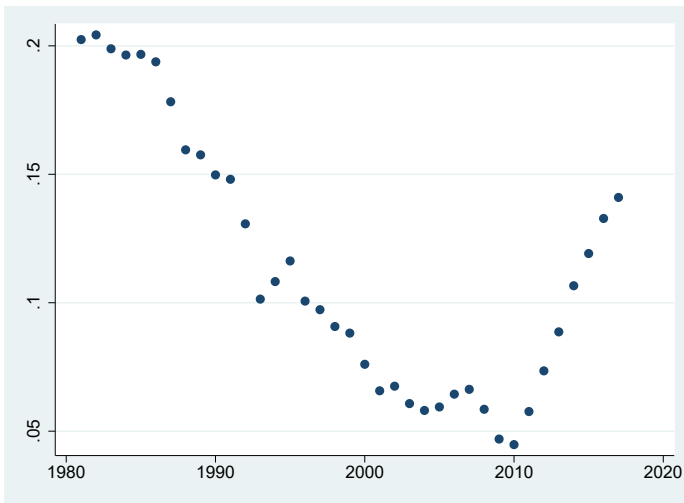
Proportion of Firms with Interest-Coverage Ratio > 3 , 1900-1943

5. Changes in the Nature of the Firm



Asset Tangibility Over Time, 1965-2017

Can Decline in Tangibility Explain Decline in Secured Debt?

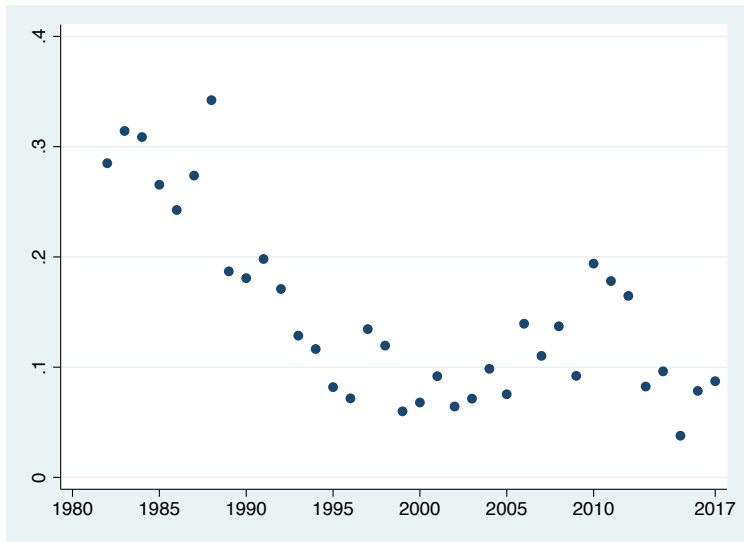


Median Ratio of Secured Debt to Tangible Assets, 1981-2017

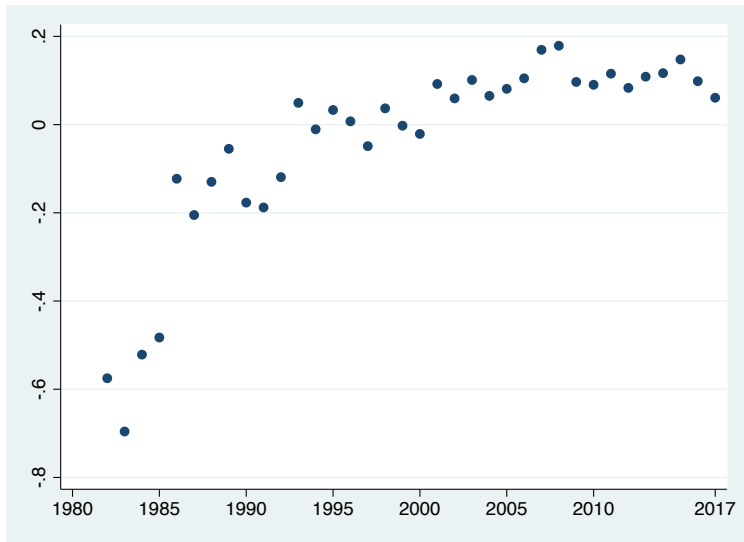
- Expansion in intangible assets spurred legal innovation
 - Changes to the UCC's Article 9 permitting securing intangible assets like intellectual property.
 - Mann (2018) shows that patents are often pledged as collateral
 - as of 2013, 28% of U.S. patenting firms had previously pledged patents as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

$$\begin{aligned} secured_{i,t} = & \alpha + \beta_1 size_{i,t-1} + \beta_2 Q_{i,t-1} + \beta_3 ROA_{i,t-1} \\ & + \beta_4 Tang_{i,t-1} + \sum_{t=1981}^{t=2017} \gamma_t year_t Tang_{i,t-1} + \epsilon_{i,t} \end{aligned}$$

Marginal Effect of Asset Tangibility on Secured Debt, 1981-2017



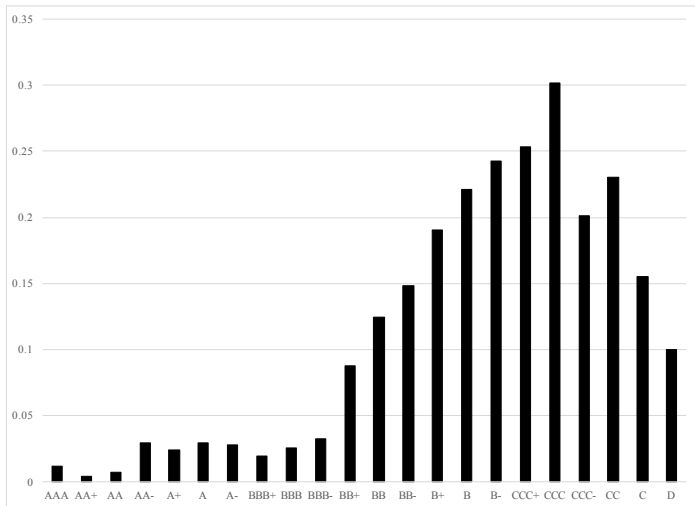
Marginal Effect of Intangible Assets on Secured Debt, 1981-2017



The Supply of Collateral: Loss of Financial Flexibility

- 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

Security and Credit Rating

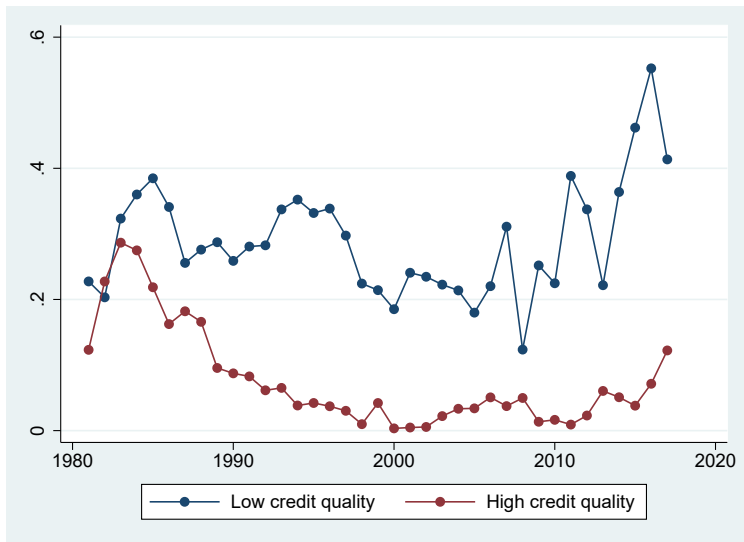


Secured Debt Regression

Table VI: Secured Debt and Firm Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\text{Log}(\text{assets})_{t-1}$	-0.054 *** (0.002)	-0.053 *** (0.002)	-0.039 *** (0.005)	-0.053 *** (0.002)	-0.002 (0.003)	-0.006 * (0.003)	-0.012 ** (0.006)	-0.006 ** (0.003)
Q_{t-1}	-0.031 *** (0.003)	-0.034 *** (0.003)	-0.009 ** (0.003)	-0.003 *** (0.003)	0.003 (0.005)	0.007 (0.005)	-0.002 (0.004)	0.006 (0.005)
$\text{Profitability}_{t-1}$	0.118 *** (0.012)	0.142 *** (0.012)	0.079 *** (0.015)	0.159 *** (0.012)	0.003 (0.002)	0.003 (0.003)	0.002 (0.002)	0.003 (0.003)
Tangibility_{t-1}	0.286 *** (0.018)	0.211 *** (0.022)	0.131 *** (0.029)	0.194 *** (0.023)	0.044 *** (0.010)	0.024 ** (0.012)	-0.0002 (0.014)	0.025 ** (0.012)
Leverage_{t-1}				0.082 *** (0.019)				
$\text{Credit Rating}_{t-1}$					0.019 *** (0.001)	0.018 *** (0.001)	0.010 *** (0.002)	0.017 *** (0.001)
Downgrade_{t-1}								0.014 ** (0.007)
Adjusted R^2	0.099	0.146	0.518	0.161	0.184	0.327	0.641	0.311
Observations	52,703	52,703	52,703	52,703	12,639	12,639	12,639	12,639
Number of firms	6,931	6,931	6,931	6,931	1,418	1,418	1,418	1,418
Fixed Effects								
industry	No	Yes	No	Yes	No	Yes	No	Yes
firm	No	No	Yes	No	No	No	Yes	No
year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Median Share of Secured Debt, 1981-2017



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...