

Why do Sovereign Borrowers Post Collateral? Evidence from the 19th-Century.

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Motivation

Key question: What is the relation between contracts and enforcement?

- ▶ Classical view: Contracts exist within institutional frameworks of formal or informal enforcement (e.g. North, 1990; Greif, 1992; Miao, Niu & Noe, 2021).
- ▶ Reference point view: Even *in the absence* of enforcement, contracts have an important role as means of coordination (Hart & Moore, 2008).

We focus on the use of collateral clauses by sovereigns.

- ▶ This is a rising practice, particularly in Chinese loans to developing countries (e.g. Gelpern et al., 2021). Difficult to study due to scarce *current* data.
- ▶ Sovereign hypothecation has a long history (Daru, 1821; Coleman, 1936). Historical data more abundant.

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Why back unenforceable debt with unenforceable collateral clauses?

Collateral and sovereign collateral

Borrowers relying on working enforcement institutions post collateral to:

- ▶ Provide a costly signal of quality ([Besanko & Thakor, 1987](#); [Chan & Thakor, 1987](#); [Boot et al., 1997](#)). Repossession is central.
- ▶ Increase own losses upon default, committing to high efforts ([Aghion & Bolton, 1997](#); [Holmstrom & Tirole, 1997](#)). Repossession is central.

Puzzle: Repossessing sovereign property is difficult. Past explanations:

1. A mistake, or an outright scam ([Jenks, 1927](#); [Coleman, 1936](#); coherent with [Gennaioli, Shleifer & Vishny, 2012](#)).
2. Pledging tradable located out of the sovereign's reach allowed enforcement ([Vizcarra, 2009](#); [Chabot & Santarosa, 2017](#)).

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We stress, instead, information provision

Study 1869 Court of Chancery ruling against guano repossession.

- ▶ Ruling suggests limits of pledging tradables. Neither enforcement.
- ▶ Lack of reaction in yields suggests that investor knew. Nor a scam.

Collect a dataset on historical sovereign bonds.

- ▶ New library of prospectuses, plus yields panel dataset.
- ▶ New data on sovereign's fiscal transparency.

Show evidence that non-enforceable pledges commanded a premium.

Suggest pledges contributed wealth information and informal covenants.

Findings in context

Literature on sovereign borrowing and immunity: Eaton & Gersovitz (1981); Bulow & Rogoff (1989); Fratianni (2006); Vizcarra (2009).

- ▶ Suggest that information collection and set-up of informal covenants can explain systematic employment of collateral clauses.
- ▶ Especially by “new” sovereign lenders (China). Such contracts are accountability institutions in the making.

Literature on the use of collateral by privates: Besanko & Thakor (1987); Holmstrom & Tirole (1997); Gorton & Ordóñez (2014); Calomiris et al. (2017).

- ▶ We study the use of collateral in a no-enforcement environment and suggest a role of collateral independent of enforcement institutions and their quality.
- ▶ Coherent with recent work showing that improved ICT reduces the need for collateral in a weak enforcement environment (Gambacorta et al., 2020).

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Sovereign collateral clauses remain an open question.

Could exports pledges circumvent immunity?

Posting collateral today for a large transaction:

- ▶ Use a *Central Security Depository*'s services. The CSD stores the collateral, updates ownership records and has the *legal power* to punish breach of contract.
- ▶ May movable, tradable assets pledges have played a similar role?

Smith v. Weguelin case:

- ▶ In 1867, Smith, a creditor of Peru, brought the *Compañía de Consignation de Guano* (Peruvian agent) in front of the British Chancery Court.
- ▶ Plaintiff's counsel, Westlake, tried to argue that the hypothecation created a trust, with agents trustees of the bondholders ← Pledge constituted a CSD?

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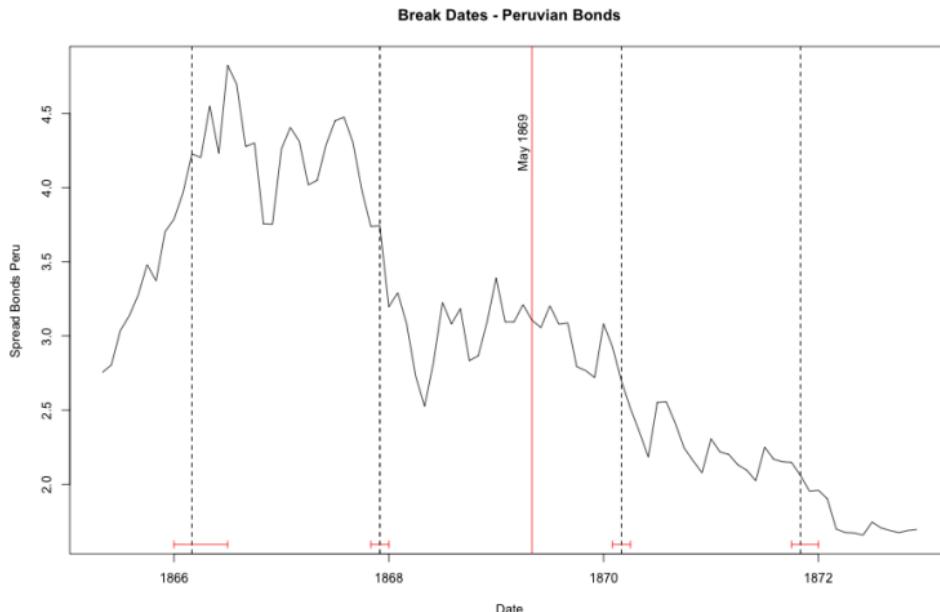
Could exports pledges circumvent immunity?

May 27, 1869, the decision by Lord Romilly says NO:

"The Consignment Company are bound to follow the directions of the Government, and to account to the Government. If the Consignment Company misapply the proceeds, they are accountable to the Government, and to no one else. The Peruvian Government are not here, and are not amenable to this jurisdiction [...] And if the Court make such an attempt [i.e., to interfere], it would fall into this dilemma: either it would simply make itself ridiculous in attempting what is impossible, or [...] it might alter the relation between the two countries, and enable a bondholder by the aid of the Court of Chancery practically to declare war against a foreign country..."

Investor already priced it → Were not scammed

Widely publicized, yet not a structural break in the relevant spread series.



Effects on other bonds?

A new dataset to explore collateral clauses.

A new dataset to explore collateral clauses

Parse bond list by the *Council of Foreign Bondholders*.

- ▶ Objective: obtain date of issuance on the London Stock Exchange.

Download prospectuses from *British Newspapers* and *The Times* archives.

- ▶ Result: 117 bonds issued 1849 to 1875, 68 with collateral clauses.

Collect 792 yearly price entries from *The Course of Exchange*.

- ▶ Use prospectuses' maturities to build panel of yields.

Use *The Statesman Yearbook* to document budget transparency.

Descriptives

Exemplar case I: Imperial Moorish Loan of 1862

- Quantified resources, reducing info asymmetries ex-ante.
- Eased monitoring, reducing moral hazard ex-post.

1. In virtue of a convention between his Majesty the Emperor of Morocco and her Majesty the Queen of Great Britain, concluded at Tangier, the 24th of October, 1861, having for object to assist his Imperial Majesty in the fulfilment of his obligations to her Catholic Majesty the Queen of Spain, and thereby to secure the prompt evacuation of Tetuan, it is proposed to raise a loan of £426,000 sterling, in bonds amounting to £501,200, on the terms stated above.

2. By the stipulations of the said convention the Emperor of Morocco, on his part, binds himself to hypothecate, as security for the due payment of the interest and sinking fund on this Loan, 50 per cent. of the customs revenues of all the ports of the Moorish Empire; and her Britannic Majesty, on her part, undertakes to appoint Special Commissioners charged to receive the customs duties so hypothecated.

3. Her Britannic Majesty's Government will, each half-year, pay in Morocco, to the agents of the Contractors of the Loan, ~~and of the funds to be received by the said special commissioners,~~ a sum sufficient to meet the interest and sinking fund, six weeks before the same become payable in London. When the Loan has been extinguished any funds which may remain in the hands of the Commissioners are to be transferred to his Majesty the Emperor of Morocco.

4. Her Majesty's Government are not liable for the payment of a larger sum of money than that which they receive from the customs duties so hypothecated, but which duties her Majesty's Government engage to receive in the manner above mentioned. The remaining 50 per cent. of the customs duties of the Moorish Empire are assigned to Spain, pending the fulfilment of a treaty at present in force between the Queen of Spain and the Emperor of Morocco.

5. The average amount for the last five years of the customs revenues collected at the principal ports of the Moorish Empire, viz., Tetuan, Tangier, Larache, Rabat, Casablanca, Mazagan, Saffi, Mogador, &c., was £322,904 per annum, as shown by a certified consular return of trade in the hands of the Contractors.

6. It follows from the foregoing, that as security for the interest and Sinking Fund of this Loan, amounting together to about £38,000 per annum, there is an annual sum assigned, under the convention, to her Majesty's Commissioners, of more than £160,000.

7. The resources of Morocco are very great. The empire is free from foreign or home debt, and each of its provinces supports its own army.

8. The terms of issue are as follows:—

10 per cent.	to be paid on application.
15 "	on allotment.
20 "	on 10th February, 1862.
20 "	on 10th March "
20 "	on 10th April "

85 per cent.

The Loan will bear interest from the 1st February, 1862.

Subscribers have the option of paying the instalments in anticipation, and will be allowed a discount of $\frac{1}{4}$ per cent. per annum; but in default of due payment of the respective instalments all previous payments will be liable to forfeiture.

Venezuela Barings 1862 Loan: Monitoring in action

Article reporting on prospectus

"Messrs. Baring Brothers and Co. will despatch a confidential agent to Venezuela, for the purpose of ensuring the due and faithful application of the funds to the relief of the Government from the heavy liabilities existing on the customs revenues, and to secure the due receipt of the proportion hypothecated for the payment of the foreign bondholders, and to remit the same monthly to London. For this purpose Messrs. Baring Brothers and Co. have obtained the permission of Earl Russell, her Majesty's Secretary of State for Foreign Affairs, to invite the British Consul-General in Venezuela to act as their agent for a limited period, and as their representative, for the purpose of forwarding to them the portion of the customs receipts which is pledged by the Venezuelan Government to the British bondholders, with the clear understanding that this temporary arrangement will be of a private character between her Majesty's Consul-General and Messrs. Baring Brothers and Co. ; and that her Majesty's Government is in no way responsible for anything connected either with the receipt or transmission of the funds in question.

"It is understood that no part of the proceeds of this loan will become payable to the Government of Venezuela until her Majesty's Consul-General, if he consents to act, and the agent of Messrs. Baring Brothers and Co., shall have satisfied themselves of the validity of the proposed mortgage of 55 per cent. of the customs revenues of La Guayra and Puerto Cabello; and that the money to be

Report by the agent

The following with respect to the Venezuelan, New Granadian, and Mexican debts was posted to-day in the Stock Exchange :

Venezuela Debt.—Messrs. Baring Brothers and Co. have received advice from their agent in Venezuela, under date 9th instant, of the undermentioned collections on account of the 55 per cent. import duties assigned to the bondholders, viz. :

<u>One week, from Custom-house, Puerto Cabello</u>	<u>\$5,020 74</u>
<u>Two weeks</u>	<u>" La Guayra .. 38,727 83</u>

\$43,748 57

New Granada Debt.—Messrs. Baring Brothers and Co. have received the following remittances on account of New Granada dividends :

<u>From Custom-house, Santa Marta</u>	<u>£1,793 4 3</u>
<u>" San José de Cucuta</u>	<u>1,352 13 1</u>

£3,145 17 4

Mexican Debt.—Messrs. Baring Brothers and Co. have received by this mail, on account of Mexican dividends, \$64,479 86.

August 30, 1864.

“Type II” bonds: Attempts at immunity breach

Inspecting clauses, we find a minority of potentially enforceable ones.

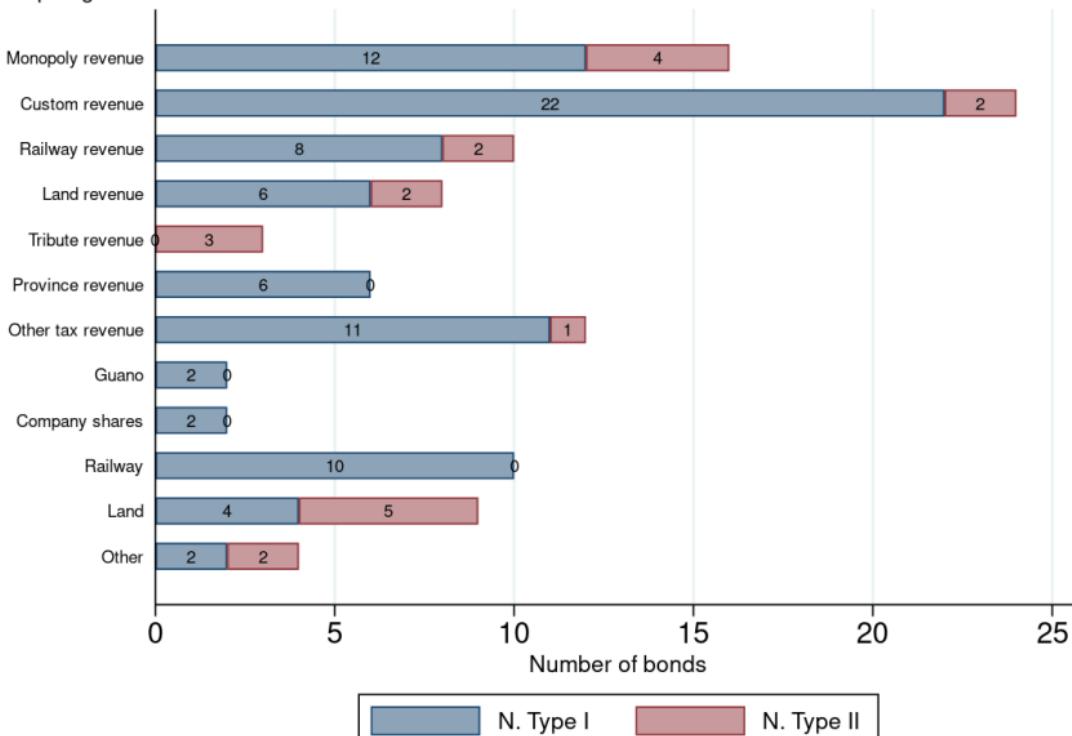
- ▶ *Bolivian 1872 Loan, Italian State Domain 1865 and Tobacco 1868 Loans, Spanish 1870 Quicksilver Loan and 1871 National Land Loan* all used either mortgages or trust to create a non-sovereign entity whose property could be repossessed, at least in theory.
- ▶ *Ottoman Egyptian Tribute Loans of 1854, 1855, 1871* and the *Commission of the Danube Loan of 1869* bound the debtor through international law. Direct responsibility toward other sovereigns.
- ▶ *Egyptian Khedive's Private Loans of 1866, 1867, 1870* hypothecated the head of state's private wealth.

Either lowered the sovereign or elevated the borrower.

→ Created a more leveled borrowing field.

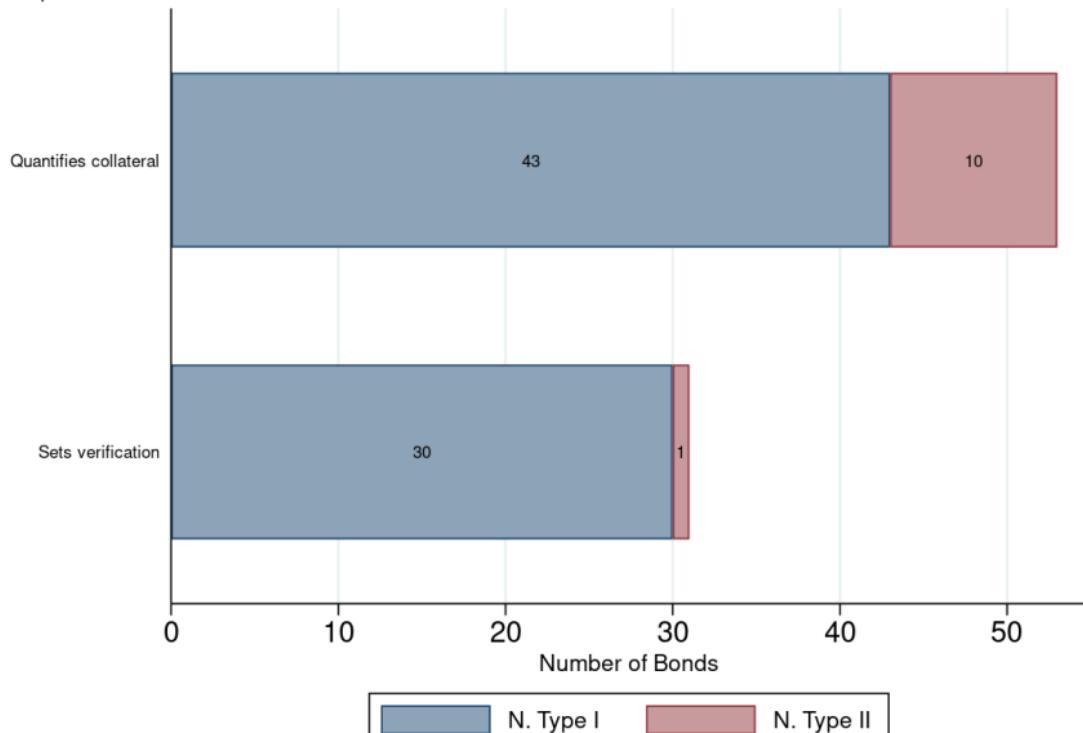
What was in the pledges?

Item pledged



Execution did not overlap with other features

Prospectus Characteristics



Evidence that collateral clauses were priced.

Did investor price clauses?

Challenges:

1. Riskier sovereigns are likely to employ such clauses.
2. We must make sure to only consider “Type I”’s bonds.
3. Do we depend on judgement calls in defining Type II?

We borrow from municipal bonds literature:

$$\text{Yield Spread}_{bcyt} = \alpha + \eta_t + \beta \text{Collateral}_{.bcy} + \Gamma X_{bcyt} + \epsilon_{bcyt}$$

Where ϵ_{bcyt} is clustered at the *cy* level (other clustering schemes work out).

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- ▶ We address sovereign specific risk with sovereign-FE.
- ▶ Archival work ensures we leave arguably enforceable clauses out.
- ▶ We present specification charts for robustness to Type II definition.

Did investor price clauses? Evidence they did:

$$\text{Yield Spread}_{bcyt} = \alpha + \eta_t + \beta \text{Collateral}_{.bcy} + \Gamma X_{bcyt} + \epsilon_{bcyt}$$

Riskier hypothesized *Dependent variable:* Yield Spread

All Hypothecations	4.61*** (5.60)	4.542*** (5.97)	3.743*** (6.15)	3.523*** (5.19)	3.312*** (2.95)
Type II	-2.851*** (-2.73)	-2.727*** (-2.79)	-2.778*** (-2.87)	-2.553** (-2.61)	-2.498** (-2.49)
Year FE	✓	✓	✓	✓	✓
R ²	.2216	.2226	.2568	.2608	.2614
Observations	726	726	726	726	726

It helped *Dependent variable:* Yield Spread

All Hypothecations	-.8742*** (-3.27)	-.8433*** (-2.85)	-.9245*** (-2.75)	-.1061*** (-3.13)	-.1239*** (-2.97)
Type II	-1.655** (-2.21)	-1.742** (-2.34)	-1.941*** (-2.72)	-1.843*** (-2.64)	-1.374*** (-3.24)
Year FE	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓
R ²	.7533	.7552	.7601	.7607	.77
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Controls: Perpetuity dummy; log(volume); log(maturity); purpose in the prospectus; prestigious underwriter

Exclude Type II

Not due to FE sample

Low maturity exclusion

Type II definition

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Type II definition

Evidence that clauses substituted for information.

Is the information/collateral substitution still there?

Standard way collateral pledges reduce info asymmetry:

- ▶ Borrowers have private info on repayment probability.
- ▶ Collateral that can be repossessed provides a costly signal.
- ▶ Classic financial econ theory (e.g. Besanko & Thakor, 1987).

Implies substitution between information and collateral in the data.

- ▶ Documented, for example, by Berger, Frame & Ioannidou, 2011.

We claim direct disclosure played a role similar to enforcement.

→ We should observe the same substitution.

Is the information/collateral substitution still there?

Substitution with what?

Alternative info (Spain entry of *The Statesman Yearbook*, Vol. 1867):

Revenue and Expenditure.

The revenue of the kingdom is raised by a system of direct and indirect taxation, stamp duties, and Government monopolies. The direct taxes are imposed on landed property, houses, live stock, industry, commerce, registration acts, titles of nobility, mortgages, and mineral produce. The indirect taxes on foreign imports, articles of consumption, tolls, bridge and ferry dues.

The **revenue returns for the financial year 1864-65** were as follows:—

	Escudos	£
Direct taxes	54,192,109	5,419,210
Indirect taxes	47,236,773	4,723,677
Stamps	85,663,756	8,566,375
Government property	7,769,835	776,983
Colonial revenue	393,031	39,303
Treasury bonds	5,961,004	596,100
Other stock	1,068,487	106,848
	202,284,995	20,228,496

The budget for the year 1864-65 anticipated a revenue of 214,505,887 escudos, or 21,450,588£., whereas the amount realised was only 202,284,995 escudos; showing a deficit, therefore, of 12,220,390 escudos, or 1,222,039£. This was accounted for by a falling-off in the customs, consumption duties, registration fees, the powder monopoly, the tax on the number of railway passengers, and the colonial revenue.

The following is an abstract of the budget for 1866-67, as presented to the Cortes by the Minister of Finance:—

ESTIMATED ORDINARY EXPENDITURE.

	£
Civil List	458,500
Tax collecting charges	4,739,922
Public debt	155,238
Administration of Justice	1,602,252
Passive State charges	31,773
	6,987,685
Government departments	14,946,145
	21,533,830

ESTIMATED ORDINARY REVENUE.

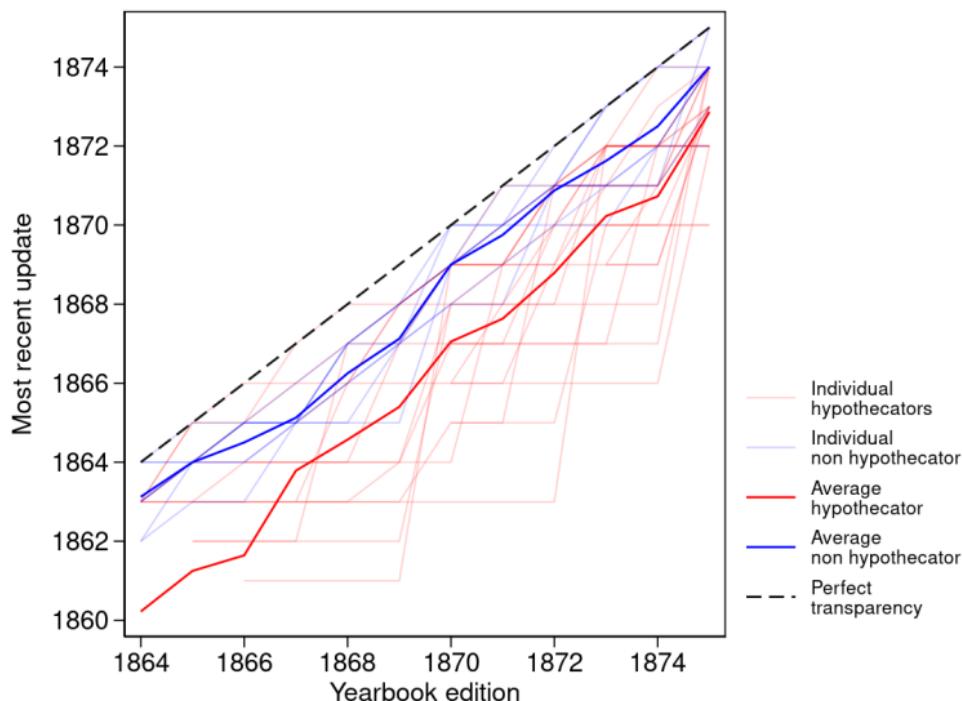
	£
Direct taxes	2,836,500
Indirect taxes	5,532,687
Stamp duties	8,665,691
State property	773,772
Colonial revenues	1,227,625
Treasury profits	160,000
	22,195,275

Total estimated expenditure	21,533,830
Total estimated revenue	22,195,275

Estimated surplus	661,445
Total extraordinary expenses	4,835,463
Total extraordinary revenue	4,650,133

Estimated deficit	185,330
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$\text{Corr}(\text{Collateral clauses, Information}) < 0?$



Corr(Clauses, Info|Issuance activity_{cy}, Risk_{cy}) < 0?

$$\text{Last Issuance Hypothecated}_{cy} = \alpha + \beta \text{Information}_{cy} + \Gamma X_{cy} + \epsilon_{cy}$$

Dependent variable: Recent data

Recent data	-.3032*** (-5.89)	-.3144*** (-6.13)	-.2399*** (-4.62)	-.2968*** (-3.98)	-.2825*** (-3.75)
R ²	.0781	.1049	.274	.1755	.1827
Observations	372	372	341	154	154

Dependent variable: Updated data

Updated data	-.1708*** (-3.29)	-.1784*** (-3.44)	-.2024*** (-4.31)	-.2028** (-2.59)	-.1923** (-2.47)
R ²	.0281	.0518	.2678	.1288	.1421
Observations	372	372	341	154	154

Dependent variable: How old is the data

How old is the data	.0575*** (4.75)	.057*** (4.62)	.0498*** (3.47)	.1384*** (8.81)	.1353*** (8.62)
R ²	.1063	.1092	.2601	.2755	.2824
Observations	297	297	280	153	153

Controls: Dummy for recent bond issuance; lag vol. weighted yields, lag Maddison GDPPC.

Prestigious underwriters

Further robustness

After Honduras scandal, false info became a crime

Belief in info quality was key to this mechanism.

Veldkamp (2006) suggests this must have been a fragile equilibrium.

In 1872, *The Economist* brought evidence of low info quality:

- ▶ Honduras borrowed hypothecating ambitious isthmus railway.
 - ▶ Turned out that the revenue flow did not match trade statistics.
 - ▶ Arrangers involved in “puffing” the mahogany reserves of Honduras.
- Trust in pledges collapsed.

Hypothesized yields explode

Shock only affected Type I

After Honduras scandal, false info became a crime

Regulators ignored enforcement in handling the situation.

Attempt at passing Sheridan Bill (1875), asking prospectus registration.

Aborted on fear Parliament would be responsible for prospectuses info.

Stock Exchange directly issues a new regulation asking:

“a statutory declaration be required from Contractors & agents”.

→ False info in prospectuses = perjury, civil and criminal consequences.

Hypothesized yields explode

Shock only affected Type I

Conclusions.

Take away

We study a type of informal enforcement arrangement:

- ▶ Sovereign debt prospectuses including collateral clauses.
- ▶ Old practice which is making a comeback.

We focus on the 19th-Century:

- ▶ At difference with current sovereign hypothecations, complete data.
- ▶ Legal setting clearer, stressing immunity → isolate one mechanism.

We suggest: information disclosure plus decrease in monitoring costs.

Coherent with current employment of clauses by “new” lenders.

Alternative rationalization of collateral when enforcement is weak.

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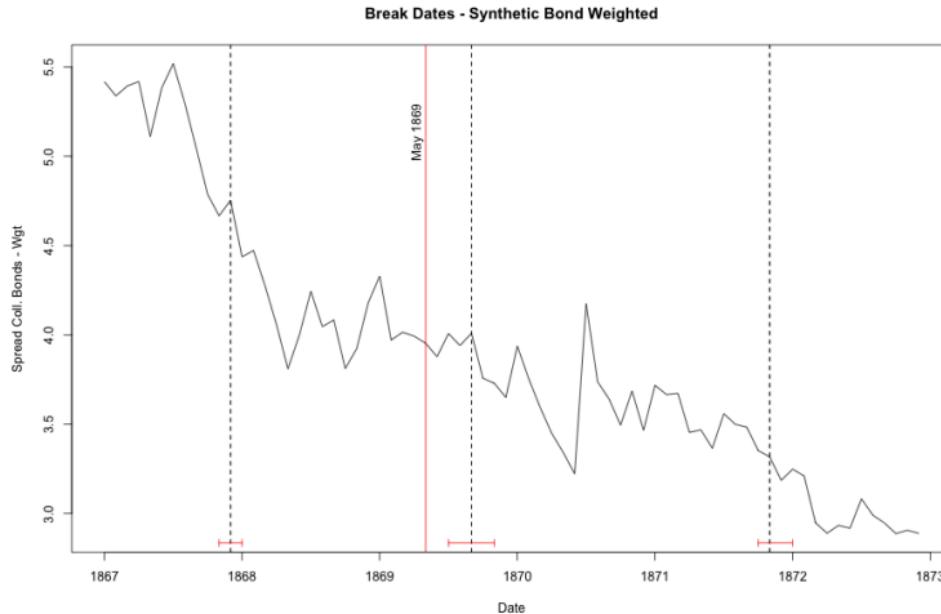
Coherent with current employment of clauses by “new” lenders.

Alternative rationalization of collateral when enforcement is weak.

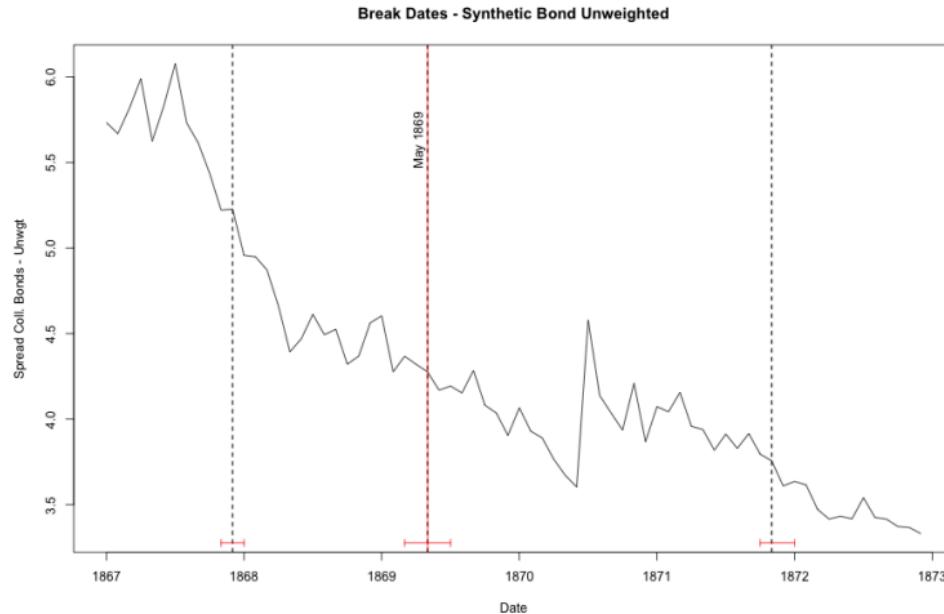
Thank you for your attention!

Back-up

Decision spillover, weighted portfolio



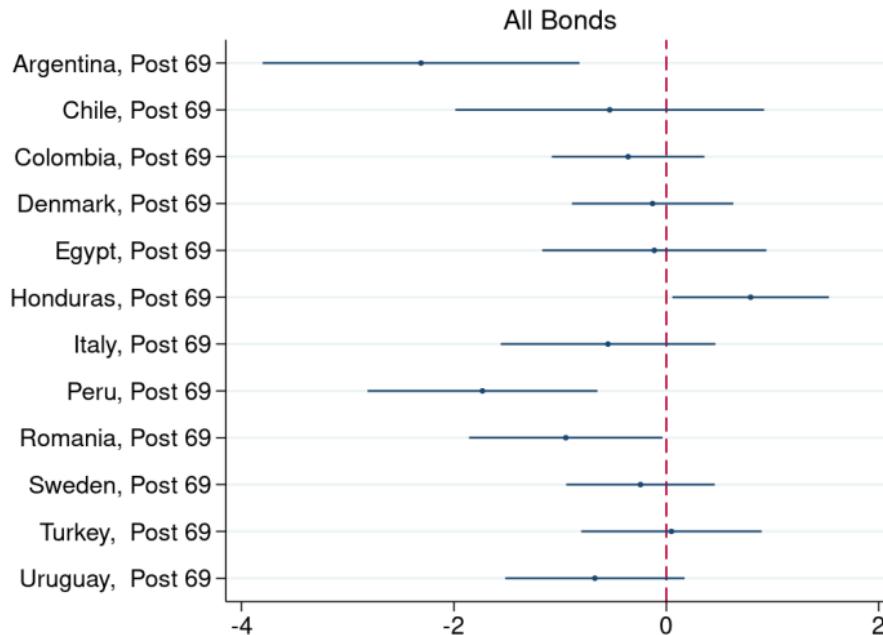
Decision spillover, unweighted portfolio



Back

Decision spillover, yearly panel

$$\text{Yield Spread}_{bcyt} = \alpha_c + \eta_t + \beta_b \text{Post.1869}_y * \text{Collateral}_{cy} + \Gamma X_{bcyt} + \epsilon_{bcyt}$$



Descriptives

Non-Hypothesized

	Mean	S.D.	Min	Max	N.
Purpose	0.449	0.503	0.000	1.000	49
Yield at Issuance	6.218	1.553	4.396	11.494	41
Prestigious Underwriter	0.531	0.504	0.000	1.000	49
Bond Volume	9.065	19.775	0.358	120.000	49
Maturity	44.230	23.649	4.000	100.000	37

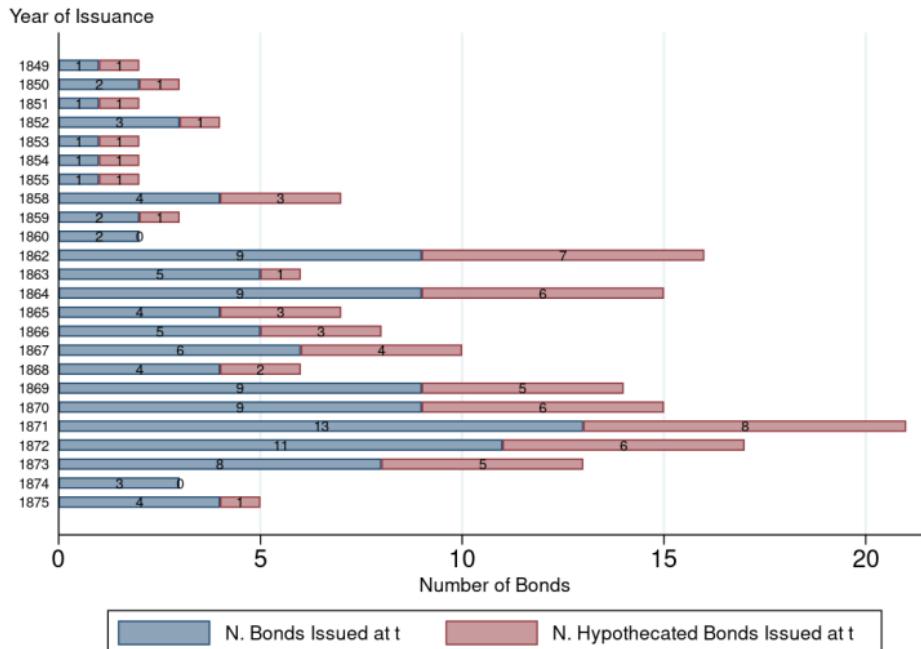
Type I Hypothesations

	Mean	S.D.	Min	Max	N.
Purpose	0.679	0.471	0.000	1.000	56
Yield at Issuance	7.797	1.886	4.301	12.500	49
Prestigious Underwriter	0.054	0.227	0.000	1.000	56
Bond Volume	5.113	8.553	0.200	36.800	56
Maturity	29.161	22.462	1.500	100.000	56

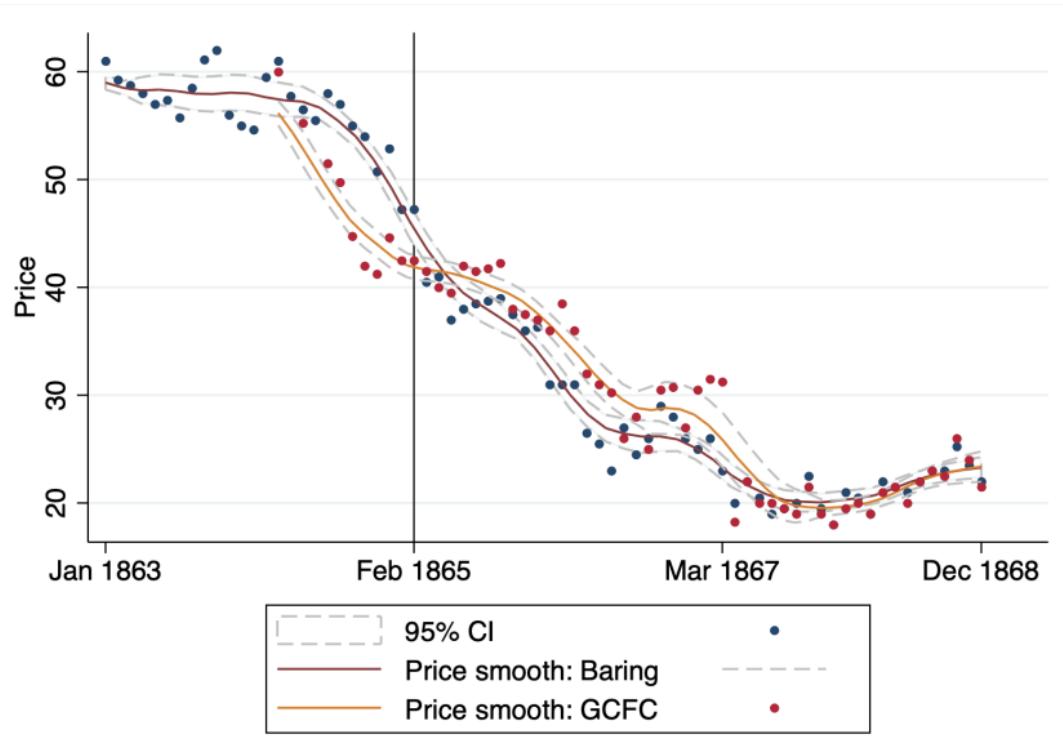
Type II Hypothesations

	Mean	S.D.	Min	Max	N.
Purpose	0.417	0.515	0.000	1.000	12
Yield at Issuance	7.211	1.942	3.908	10.000	11
Prestigious Underwriter	0.167	0.389	0.000	1.000	12
Bond Volume	11.253	26.163	0.135	94.005	12
Maturity	27.417	24.898	7.000	100.000	12

The foreign debt boom



Barings (conf. agent) vs GCFC (no conf. agent)



Type II exclusion does not change the result

$$\text{Yield Spread}_{bcyt} = \alpha + \eta_t + \beta \text{Collateral}_{.bcy} + \Gamma X_{bcyt} + \epsilon_{bcyt}$$

Panel A
Dependent variable:

Yield Spread
Yield Spread
Yield Spread
Yield Spread
Yield Spread

Type I	4.611*** (5.60)	4.564*** (6.04)	3.659*** (6.33)	3.361*** (4.87)	3.401*** (2.67)
Year FE	✓	✓	✓	✓	✓
R ²	.2234	.2238	.2595	.2641	.2642
Observations	644	644	644	644	644

Panel B
Dependent variable:

Yield Spread

Type I	-.6651*** (-3.56)	-.6469*** (-3.20)	-.6804*** (-2.80)	-.8177*** (-3.05)	-.8954*** (-2.86)
Year FE	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓
R ²	.7759	.7762	.7785	.779	.7797
Observations	644	644	644	644	644

Controls: Perpetuity dummy; log(volume); log(maturity); purpose in the prospectus; prestigious underwriter

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[Back to III](#)

Premium is not due to FE sample selection

$$\text{Yield Spread}_{bcyt} = \alpha + \eta_t + \beta \text{Collateral}_{.bcy} + \Gamma X_{bcyt} + \epsilon_{bcyt}$$

Panel A*Dependent variable:* Yield Spread

All Hypothecations	1.783*** (3.53)	1.356** (2.62)	1.33*** (2.72)	1.085* (2.02)	.9344 (1.63)
Type II	-.4475 (-0.53)	-.9876 (-1.11)	-1.048 (-1.23)	-.7535 (-0.97)	-.6765 (-0.97)
Year FE	✓	✓	✓	✓	✓
R ²	.1644	.2917	.3055	.3229	.3432
Observations	334	334	334	334	334

Panel B*Dependent variable:* Yield Spread

All Hypothecations	-.4534*** (-3.76)	-.3865** (-2.38)	-.4938* (-1.96)	-.793** (-2.36)	-.9755** (-2.36)
Type II	-1.321 (-1.68)	-1.407* (-1.78)	-1.573** (-2.08)	-1.279* (-2.00)	-1.09** (-2.51)
Year FE	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓
R ²	.5932	.6042	.6369	.6508	.6888
Observations	334	334	334	334	334

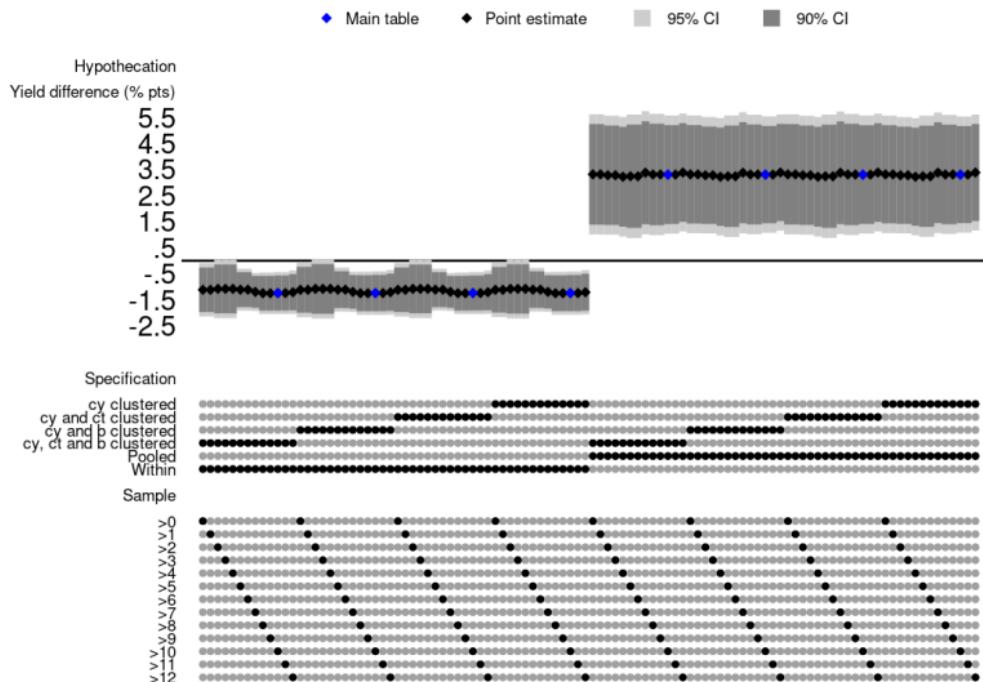
Controls: Perpetuity dummy; log(volume); log(maturity); purpose in the prospectus; prestigious underwriter

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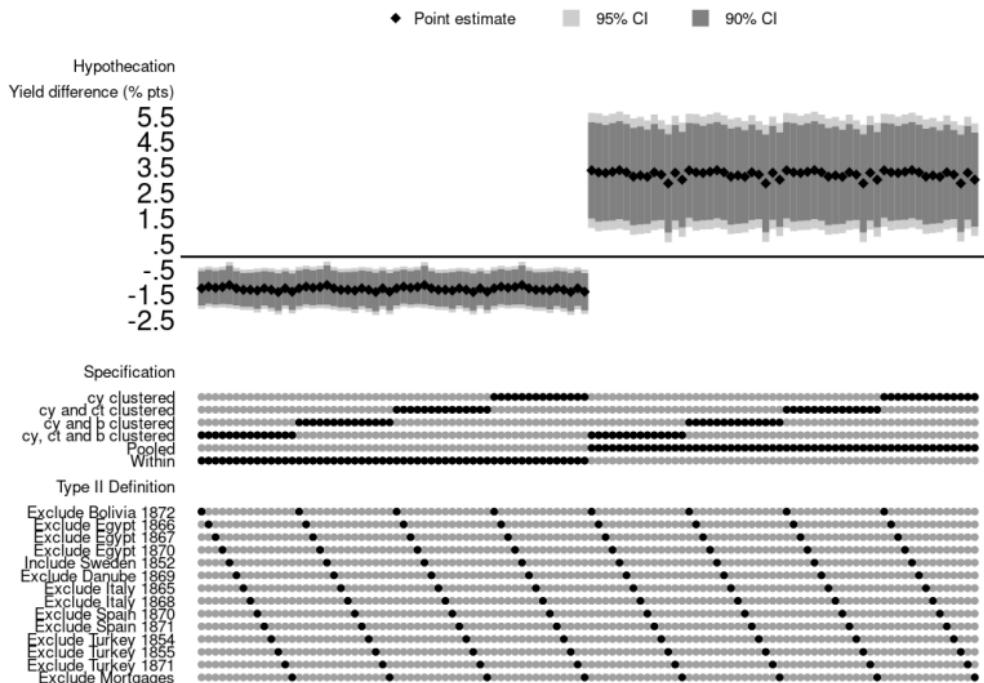
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Robustness to sample and clustering



Robustness to Type II definition



Hypothection and prestigious underwriters

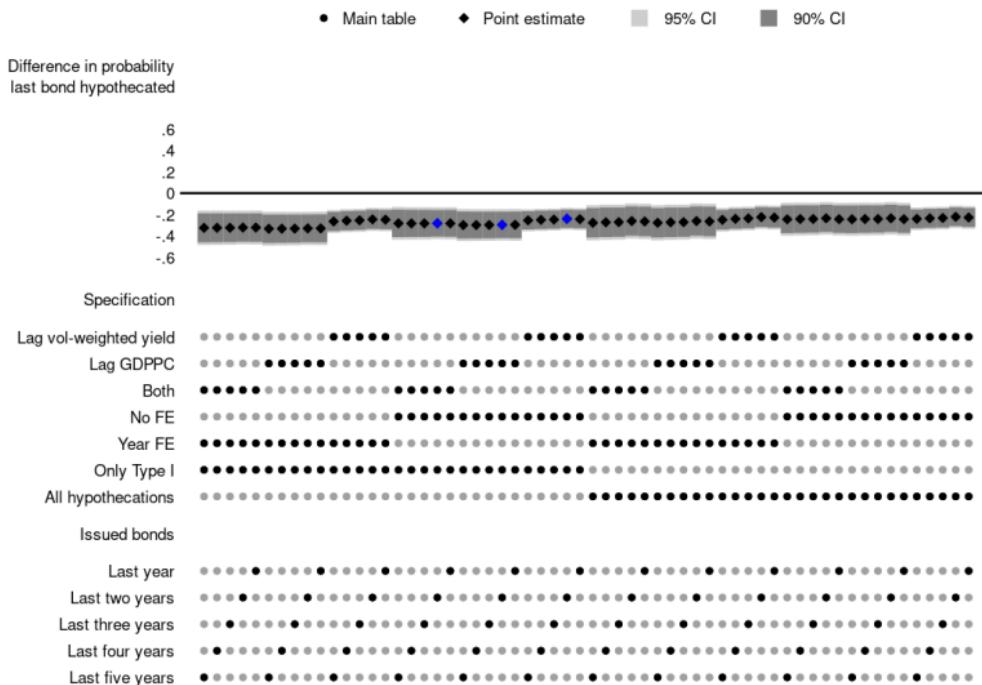
Last Issuance Hypothecated_{cy} = $\alpha + \beta$ Recent prestigious issuance_{cy} + ΓX_{cy} + ϵ_{cy}

<i>Info control:</i> Recent info					
Recent prestigious	-.3505*** (-6.17)	-.5334*** (-8.25)	-.5027*** (-7.68)	-.4058*** (-5.21)	-.4104*** (-5.29)
R ²	.1265	.2	.3575	.2306	.2391
Observations	372	372	341	154	154
<i>Info control:</i> Updated					
Recent prestigious	-.3864*** (-6.97)	-.5711*** (-8.91)	-.5006*** (-7.40)	-.4543*** (-5.58)	-.4552*** (-5.60)
R ²	.0868	.1604	.3491	.1992	.2127
Observations	372	372	341	154	154
<i>Info control:</i> Info distance					
Recent prestigious	-.3628*** (-6.91)	-.4832*** (-7.48)	-.4487*** (-6.51)	-.3386*** (-4.71)	-.3409*** (-4.73)
R ²	.1693	.2008	.3377	.3143	.3216
Observations	297	297	280	153	153

Controls: Dummy for recent bond issuance; lag vol. weighted yields, lag Maddison GDPPC.

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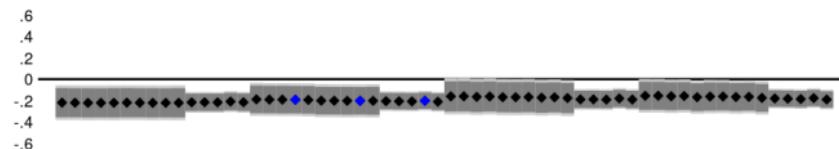
Info robustness: Recent info



Info robustness: Updated info

- Main table
- ◆ Point estimate
- 95% CI
- 90% CI

Difference in probability
last bond hypothecated



Specification

Lag vol-weighted yield

Lag GDPPC

Both

No FE

Year FE

Only Type I

All hypothecations

Issued bonds

Last year

Last two years

Last three years

Last four years

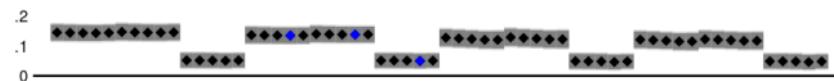
Last five years

Info robustness: Info distance

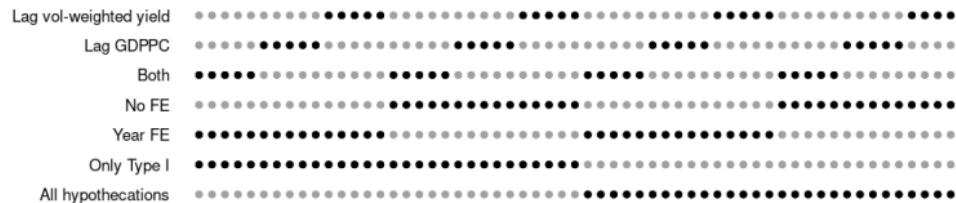
- Main table
- ◆ Point estimate
- 95% CI
- 90% CI

Difference in probability

last bond hypothecated



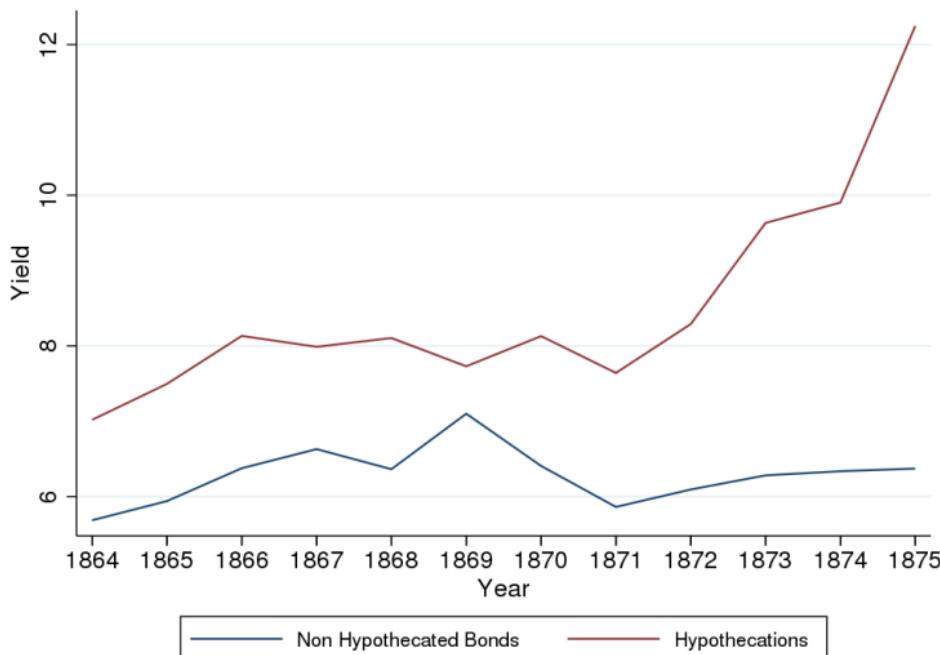
Specification



Issued bonds



1872 market bust



Shock only affected Type I, also performing bonds

$\text{Yield Spread}_{bcyt} = \alpha + \eta_t + \beta \text{Collateral}_{.bcy} + \gamma \text{Collateral., Post } 72_{bcy} + \Gamma X_{bcyt} + \epsilon_{bcyt}$

Dependent variable: Yield Spread				
All Hypothecations	-2.396*** (-3.67)		-.9674** (-2.45)	
Type II	-.0171 (-0.04)		-.1025 (-0.18)	
Bond default	2.638*** (3.19)		.7572 (0.76)	
Type I, Post	2.534*** (3.12)	3.005*** (3.38)	.2872 (0.83)	.7001* (1.75)
Type II, Post	-2.336*** (-2.78)	-2.844*** (-3.24)	-2.038** (-2.09)	-2.444** (-2.47)
Bond default, Post			4.124*** (4.64)	3.993*** (4.24)
Country and Year FE	✓		✓	
Bond and Year FE		✓		✓
R ²	.7937	.8133	.8206	.8356
Observations	726	722	726	722

Controls: Perpetuity dummy; log(volume); log(maturity); purpose in the prospectus; prestigious underwriter

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