



The Value of a Quote

Stock market listing of sovereign bonds,
1872-1911

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Two questions and two hypotheses

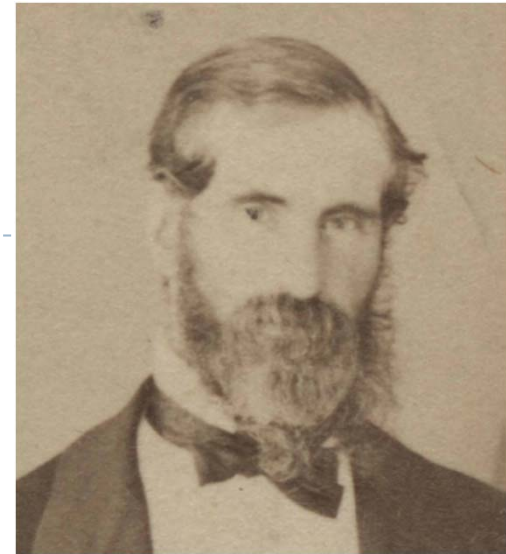
1. How did sovereign countries choose where to list their bonds before World War I?
2. And did it matter?

▶ Working hypotheses:

1. Listing in London allowed sovereigns to sell their bonds at higher prices
2. This initial listing advantage was outcompeted by Paris and Berlin over time



Hyde Clarke (1879)



London has, in fact, such advantages as a market, that in cases where the loan is really a foreign one, and taken up on foreign account, it has been found worth while to pay an English house a very large commission to lend its name for the issue. This was so with an Hungarian loan which had been taken by a German syndicate, and which, by being made of London issue, became worth 2 per cent. more. Other cases of this kind have occurred

Preview

1. Listing in London allowed sovereigns to sell their bonds at higher prices

On average, yields on bonds listed in London lower by 50 bps, 1870s-1910s

2. This initial listing advantage was outcompeted by Paris and Berlin over time

This London advantage starts large (100 to 150 bps) but converges to ~50 bps from mid-1890s

Despite all the progress in Paris and Berlin



Literature

Data

Methods

Results

Sequence

1. Related literature
2. Data
3. Methods
4. Results
5. Implications

Related studies

▶ History

- ▶ Alquist (2010), Chavaz and Flandreau (2017), Chambers et al. (2018)
- ▶ Flandreau (2013): 150-200 bps a lower bound

▶ Finance

- ▶ Broadening investors' base (Merton, 1987, Karolyi 2006), reducing market segmentation (Domowitz et al. 1997 and Miller 1999), and increasing liquidity (Domowitz et al. 1998 and Foerster and Karolyi 1999)

▶ Agency costs (information asymmetry)

- ▶ **Bonding** hypothesis: more demanding disclosure and legal obligations to list in major stock exchange reduces agency costs (Doidge et al. 2004)
- ▶ **Signalling** hypothesis: issuers choose more demanding markets to communicate higher quality (Fuerst 1998 and Moel 1999)

Data, 1872-1911

- ▶ Why 1872?
 - ▶ Data availability
 - ▶ 1873 Financial crisis
 - ▶ 1876 Select Committee
 - ▶ Test for dilution of London advantage
- ▶ 5 census dates
 - ▶ 1872, 1880, 1890, 1900, 1911
 - ▶ London, Paris, Berlin
 - ▶ 531 foreign sovereign bonds

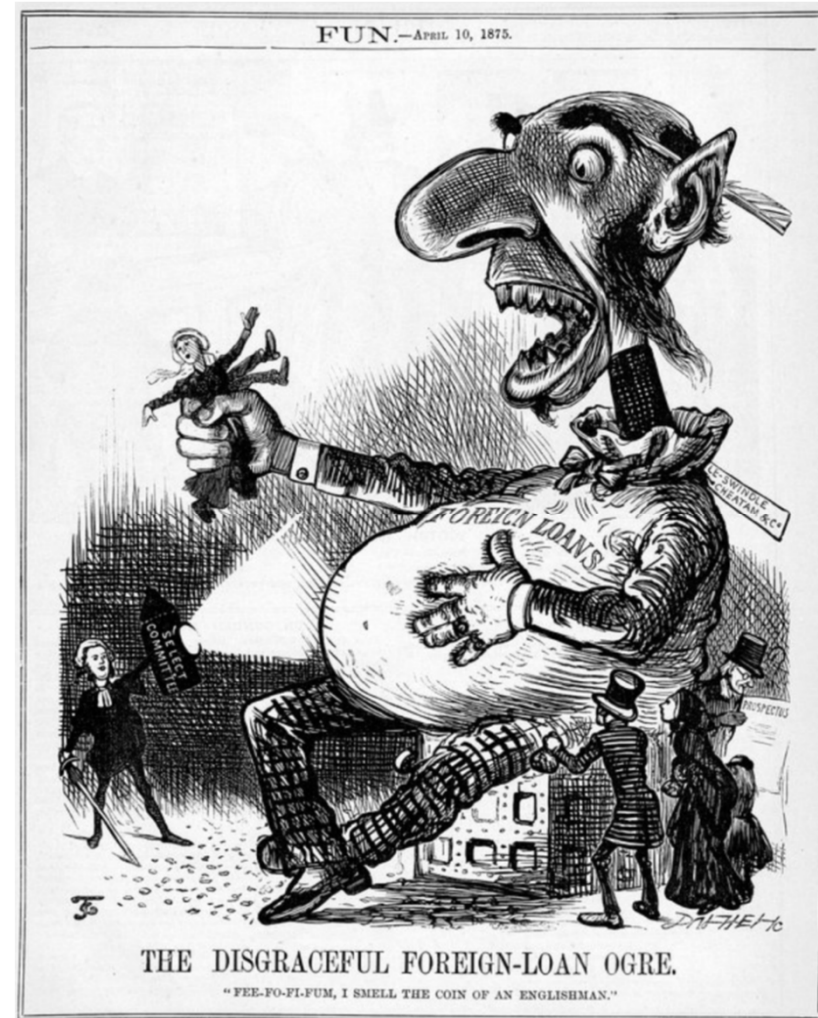
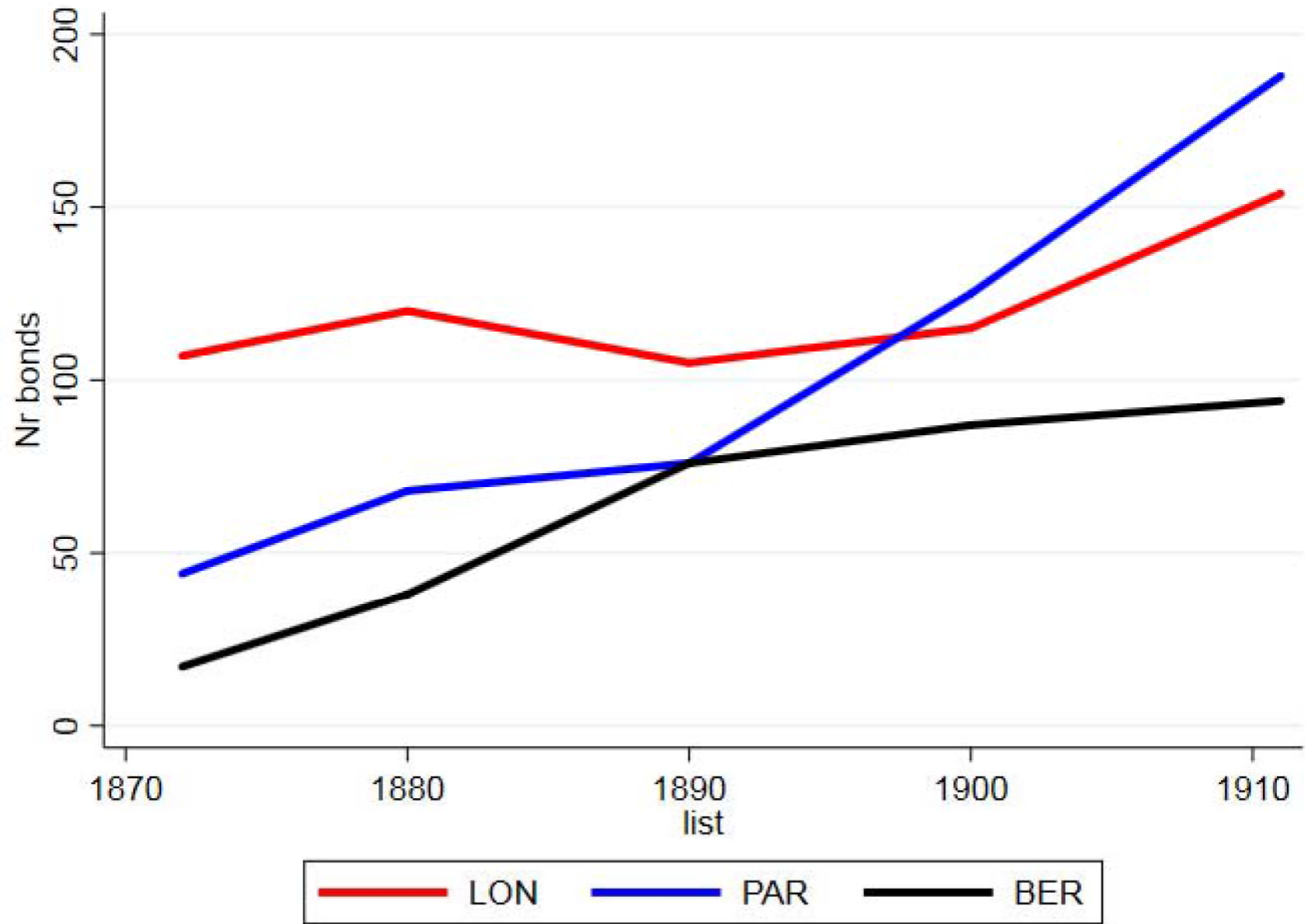
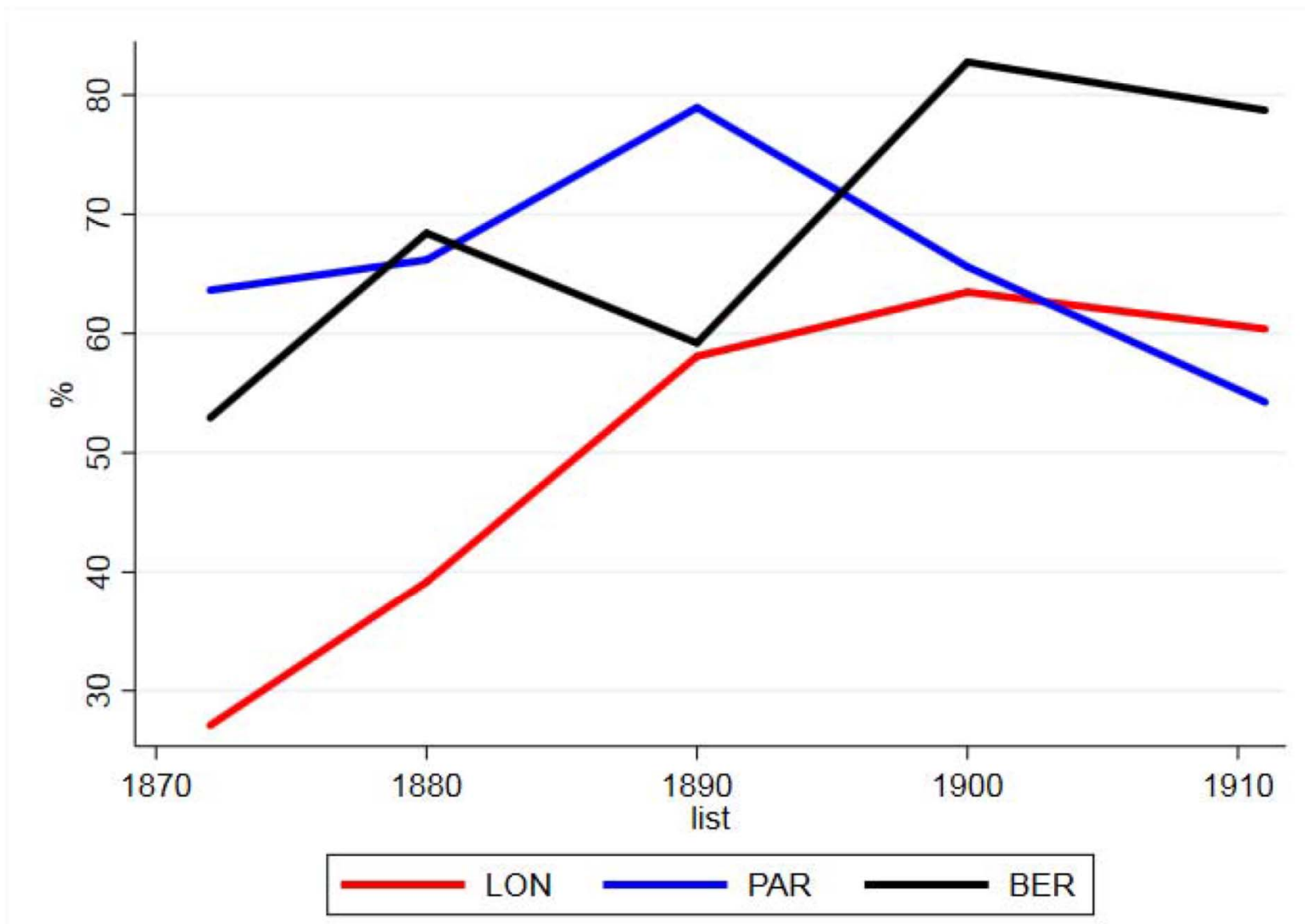


Figure 1 Evolution of total bond listings, 1872-1911



08/10/2020

Figure 2 Shares of cross-listings, 182-1911



Two inference problems

1. **Heterogeneity: bonds differed in many properties that influenced their prices**
 - Coupon, maturity, call options, exchange rate, seniority, guarantees
 - Need to match bonds on these
2. **Selection: countries sorted their listings by more favorable markets**
 - London not the 'home market' for all sovereigns
 - Changes over time: Russia (1889)
 - Need to address selection into treatment

Different countries



Same country but...



Fuji



Granny Smith

Coupon, maturity, call options, exchange rate, seniority, guarantees, market, bond



Equivalent bonds



Fuji



Braeburn

~~Coupon, maturity, call options, exchange rate, seniority, guarantees, market, bond~~



Same bond, different markets



Fuji



Fuji

~~Coupon, maturity, call options, exchange rate, seniority, guarantees, market, bond~~



‘Fuji-Fuji’

- A. Bonds initially listed only in Paris or Berlin and which later acquired a listing in London.
 - ▶ 5% Russia 1906: 23 bps
- B. The reverse case of bonds originally listed in London but later delisted from London.
 - ▶ 4% Russia gold 1889: insignificant
- C. Separate series of the same bond, which were only listed in separate markets (8)
 - ▶ 5% Japan 1907 – separate series for LON and PAR
 - ▶ Effectively prevented arbitrage (despite very efficient markets)
 - ▶ Way of banking syndicates to cooperate without eroding their local market power

E pluribus pauca

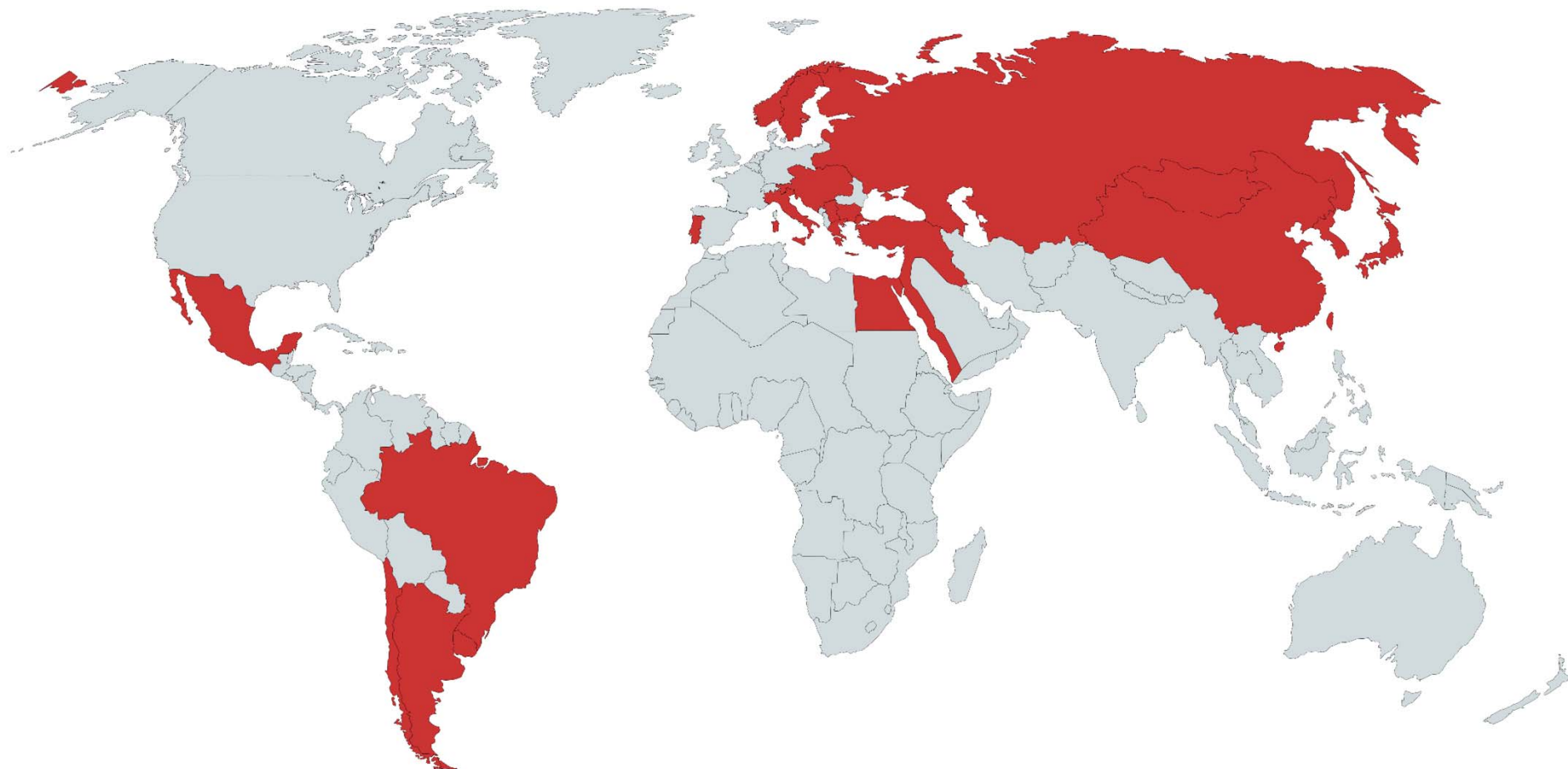
- D. Equivalent bonds listed in London and elsewhere
- ▶ 75 bond-pairs
 - ▶ We also observe each bond-pair over 12 different dates
 - ▶ Issue date, first price on the secondary market (if different), one, two and three weeks, one month, three, six, 12, 18, 24 and 36 months since issue
 - ▶ Overall: 85 pairs involving 17% bonds listed in LON, 11% in PAR, 9% in BER
 - ▶ Exploratory analysis (linear models)

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Dealing with selection

3 non-random features in sample construction:

1. Comparable bonds (matched on observables)

- ▶ Require same country listed in more than one market; this ignores selection into treatment

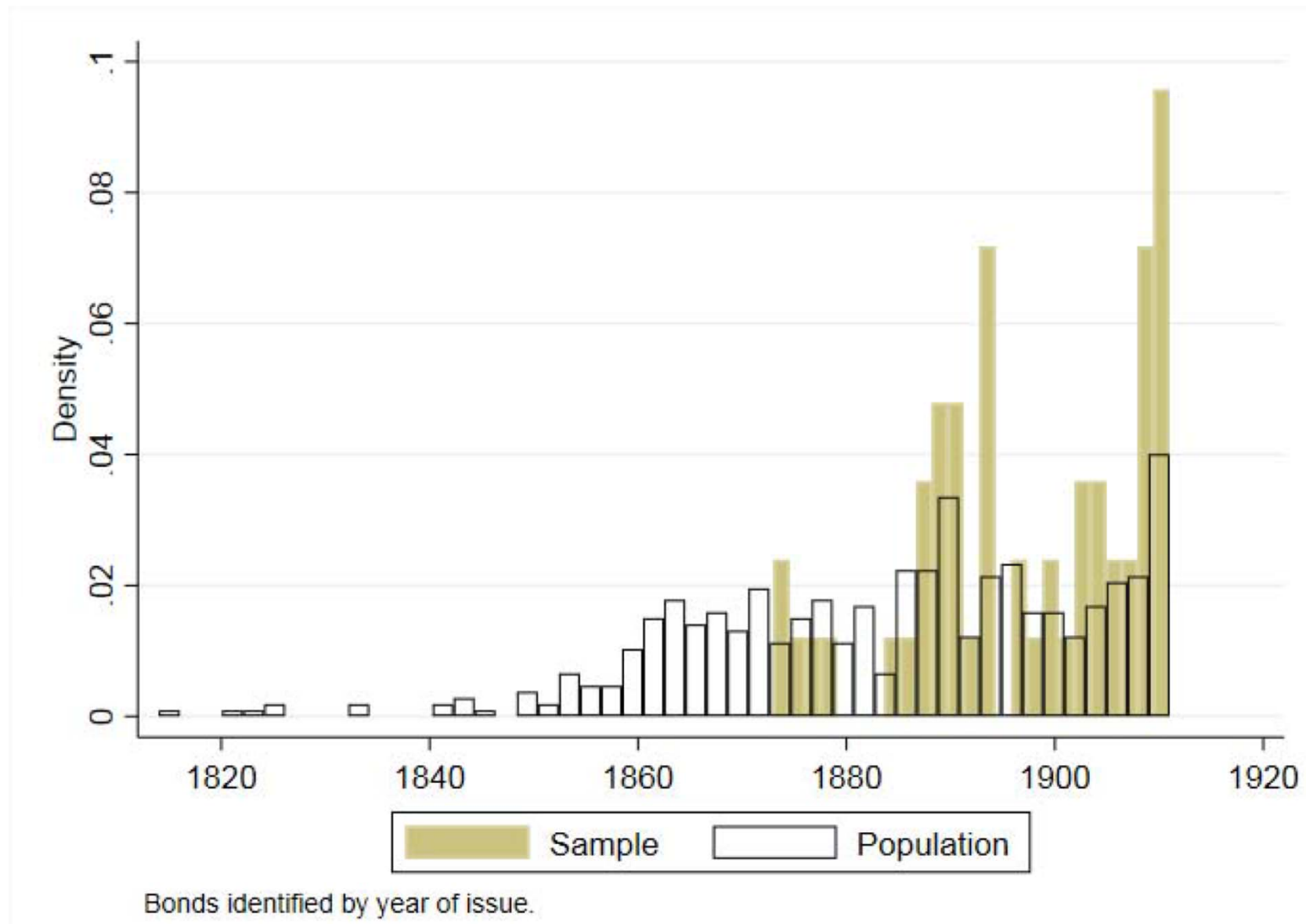
2. Time

- ▶ Sample is bunched in later part of estimation period

3. Repeated treatment

- ▶ Because of repeated bond observations for same country

Figure 6 Chronological distribution of sample and population of bonds listed 1872-1911



Treatment effects specification

$$y_1 = x' \beta_1 + \varepsilon_1 \quad (2)$$

$$y_0 = x' \beta_0 + \varepsilon_0 \quad (3)$$

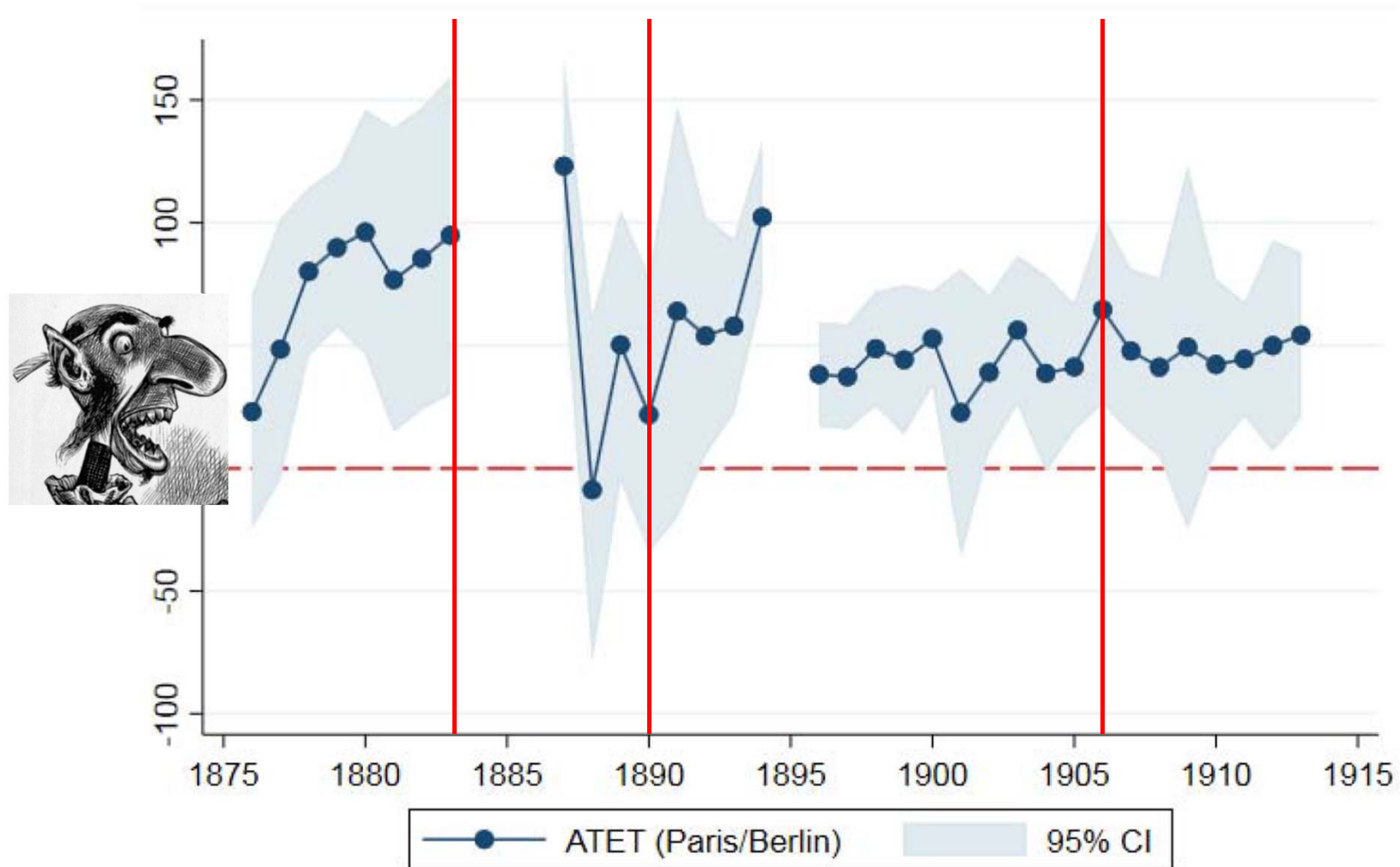
$$t = \begin{cases} 1 & \text{if } w' \gamma + \eta > 0 \\ 0 & \text{otherwise} \end{cases} \quad (4)$$

- ▶ $y_1(y_0)$ ytm of a bond listed in PAR/BER (LON)
- ▶ x' a vector of controls
- ▶ w' vector of variables predicting treatment (listing outside LON)
 1. Country characteristics: civil wars (0-1), nr of past defaults
 2. Dyadic: militarized interstate disputes (1-5); short-term interest rate in LON, PAR, BER; share in exports of GBR, FRA and DEU
 3. Lagged treatment to account for repeated treatment effects (Lechner and Miquel 2010)

Results (IPWRA)

Variables	(1) Yields (London)	(2) Yields (Paris/Berlin)	(3) Selection (Paris/Berlin)
ATET (Paris/Berlin vs. London)		48.998*** (3.180)	
$E(y t = 0)$ (London)	426.973*** (3.375)		
Nr. of past defaults			-0.075** (0.038)
Civil War			-0.098 (0.083)
Export share			0.058 (0.051)
Short run int. rate			-0.126*** (0.036)
Dispute (ordinal)			-0.131* (0.073)
Lag treatment			-0.485*** (0.107)
Constant	494.904*** (20.129)	534.264*** (14.410)	0.219*** (0.067)

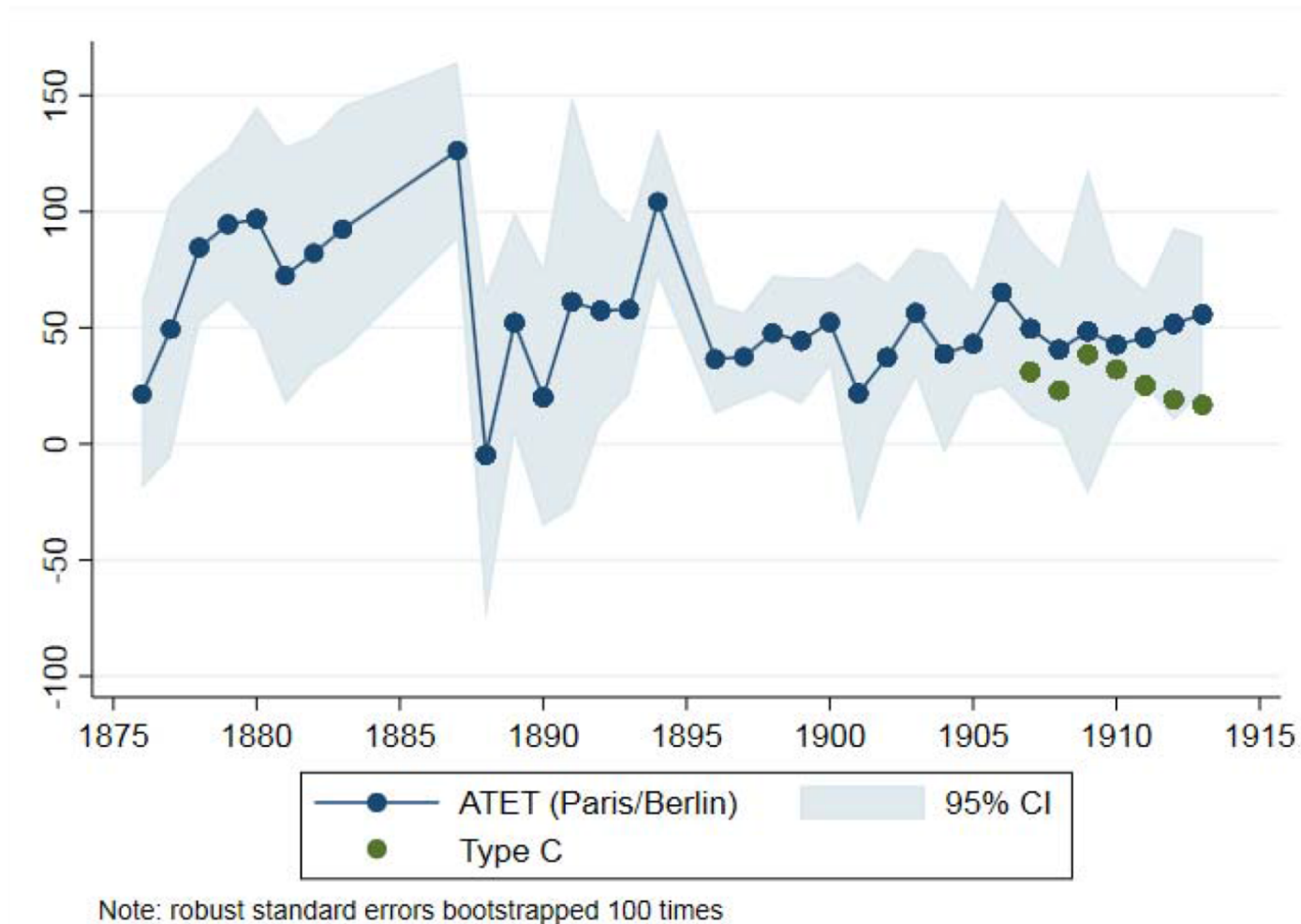
Figure 8 Median ATETs per year



Note: robust standard errors bootstrapped 100 times

Liquidity vs. arbitrage costs

Figure 11 ATETs compared with direct observations of liquidity premia



Implications

- ▶ Q2: ‘London advantage’ existed (hyp 1) and behaved as expected (hyp 2)
 - ▶ Eventually settling ~50 bps, a not irrelevant quantity
 - ▶ Corresponds to 10% increase in average bond prices
- ▶ Q1: Evidence of selection (sorting into more favourable markets)
 - ▶ But our setup cannot explain why: we only observe outcomes
 - ▶ Bonding vs. screening
 - ▶ Internal dynamics of underwriting syndicates; listing requirements