The Origination and Distribution of Money Market Instruments: Sterling Bills of Exchange During the First Globalization

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Motivations

- Safe and highly liquid money market instruments essential to functioning of any financial system
- The informational problem in money market instruments
- Money market instruments often consist of private bank debts backed by risky collateral
- Liquidity requires that agents do not question the value of the collateral
- Underlying debt needs to be information-insensitive (Dang, Gorton and Holmström, 2012; Gorton, 2012)

Gorton (2012)

"Markets are liquid when [...] no one knows anything about the collateral value and everyone knows that no one knows anything. In that situation it is very easy to transact."

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- Underlying debt needs to be information-insensitive (Dang, Gorton and Holmström, 2012; Gorton, 2012)
- Illustration: the 2007/08 financial crisis
- Repos, ABCP backed by MBS considered as quasi-money by market participants... until 2007 housing market collapse

This paper

- We study the origination and distribution of pre-WW1 money market instruments
- The Sterling Bill of Exchange
- An instrument of short-term trade finance
- High informational asymmetries between lenders (London bill holders) and debtors (private firms in UK or abroad)
- > Yet, sterling bill considered highly liquid money market instrument

Bills of Exchange's Liquidity

"Money is more readily advanced upon them than upon any other species of obligation."

Adam Smith (1776), Wealth of Nations, chapter 2

"With Britain on the Gold Standard ... [sterling] bills were the same as gold, as they could always be discounted in the London Discount Market, the proceeds converted into gold ... and the gold taken out of the country."

Gillett Brothers (1952), The Bill on London

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- We study the origination and distribution of pre-WW1 money market instruments
- The Sterling Bill of Exchange
- An instrument of short-term trade finance
- High informational asymmetries between lenders (London bill holders) and debtors (in UK or abroad)
- > Yet, sterling bill considered highly liquid money market instrument
- How were bills of exchange produced?
- What were the chains of origination and distribution?
- How were private debts transformed into highly liquid monetary instruments?

Outline

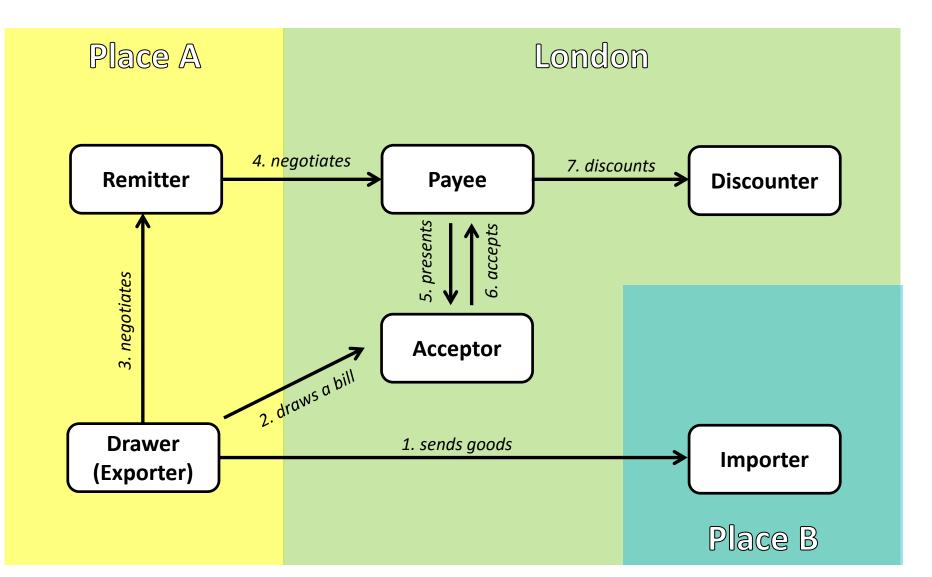
- I. The Bill of Exchange: description and background
- I. Source and Data
- I. Anatomy of the Money Market
- I. Conclusions

I. The Bill of Exchange Description and Background

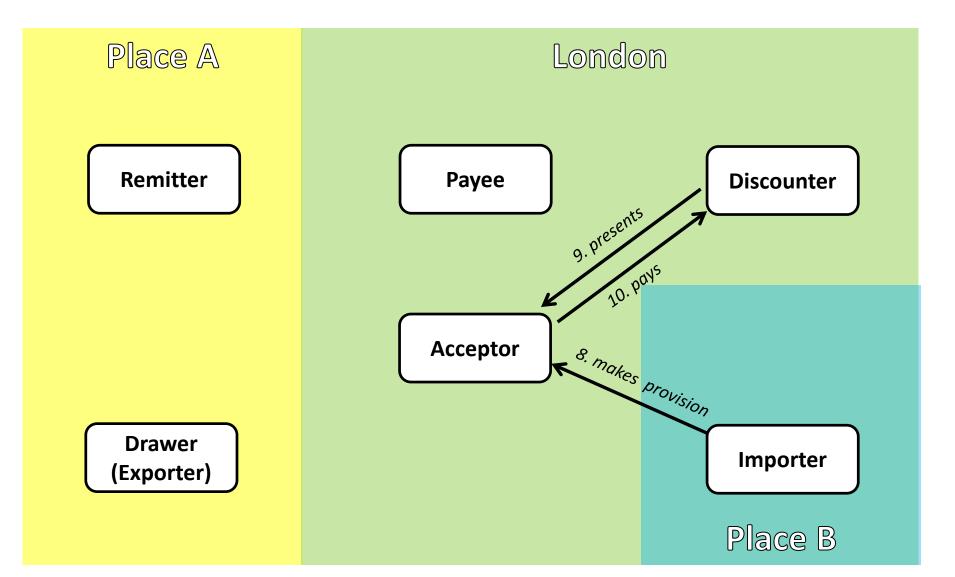
I. The Bill of Exchange

- Sterling bills
- Intermediaries involved in the origination/distribution
- A flexible instrument

Bill of exchange Origination and Distribution



Bill of exchange Maturity



I. The Bill of Exchange

- How sterling bills worked
- Intermediaries involved in the origination/distribution
- A flexible instrument
- The names on a bill
- Drawer = Borrower
- Acceptor = Guarantor
- Discounter = Lender

Sterling Bill, 01/1910

Payee 3, 1910 e the same to account ieraanad an Etrun An V. Jones - Co the d Acceptor Drawer

I. The Bill of Exchange

- How sterling bills worked
- Intermediaries involved in the origination/distribution
- A flexible instrument
- The names on a bill
- Drawer = Borrower
- Acceptor = Guarantor
- Discounter = Lender
- Who were the drawers/acceptors/discounters?
- Who produced information on the drawers/borrowers?

II. Source and Data

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- The Bank of England's Discount Ledgers
- Bank of England was a big player in the London bill market
- Ledgers report systematic information on all bills re-discounted by BoE
- Drawer's name/location; Acceptor's name; Discounter's name

Bank of England's Discount Ledgers

1 Shere AITVANCES. in annes 1632 Date of DISCOUNTS. DRAWER. Discount. Folio. ACCEPTORS PON OR DISCOUNTERS. Due. ADVANCES. Whener. WITH. UPON. WITH. UPON. Whentles 98326 7 13 469 15 10 164 000 Ray / 1 den 214 for 6 Marthedi 2 . 11 12. 859 14 6 T8469 15 196000 Roburno hat . for 7/ how the wear the Bandant Allinder ten te hatenal MM. 40 200 500 tello aver 25000 hierob W buch Efferents arbuthnotes 1000 Vien 6 31.006 9 -7 Im + -10 Schemming le 26 corro man FIS 11 211 220 1800 200 222 5726 in and a 232 F RUNERT 237 1800 Shered - Hours That any 14 -Guteray 6000 6600 11 212 Som 11/200 40060 1 2 2000 him -3.5 ule, 2 2 Educate Wallar Sune 44.368 302 4 % 42060 16 -304 6000 12-253 Them. 1419 216 9 3000 51649 11 1261 19 212 14 1674 15 - 23/5-2000 221 0629 3- Koch 221 kined 49974 18 5 aut 2300 204 iv an 19.000 20

Bank of England's Discount Ledgers

| | | | | | | DISCOUNTS | | | | | | ADVANCES | |
|-----------------|-----------------------|---------|----------|-----------------------------|--------------------|-----------|----|------|--------|----------|----------|-------------|-------|
| Whence Drawn | | Discoun | A | ACCEPTORS OR DISCOUNTERS | Due | WITH | | UPON | | WIT H | UPO N | | |
| | | • | | | | £ | S | d | £ | S | d | £ | £ |
| | | 1866 | | Brought Forward | | 98.326 | 15 | 1 | 13.469 | 15 | 10 | 164.0 00 | 8.000 |
| Bombay | Nicol W & Co | May 11 | - | National Discount Co | July 9 | | | | 5.000 | | | 32.00 | |
| | | May 11 | 214 | LOAN | Aug 9 | | | | | | | 0 | |
| Montevide o | Barthold E & Co | May 11 | 1674 | Melly Fargo & Co | May 24 | 859 | 14 | 6 | 18.469 | 15 | 10 | 196.0 00 | 8.000 |
| Bombay | Oriental Bank | | - | Union Bank of London | June 9 | 5.000 | | | | | | | |
| Bombay | Angers R | | - | London Joint Stock Bank | June 9 June | 920 | | | | | | | |
| Bombay | Robinson & Co | | - | North Western Bank | 29 | 2.000 | | | | | | | |
| Bombay | Robinson & Co | | - | North Western Bank | June 29 June | 2.000 | | | | | | | |
| Bombay | Robinson & Co | | - | North Western Bank | 29 | 2.000 | | | | | | | |
| Liverpool | North Western Bank | | - | Barclay & Co | July 9 | 1.000 | | | | | | | |
| Calcutta | Bank of Hindustan | | - | National Bank | July 11 | 2.500 | | | | | | | |
| Shanghai | Jardine M & Co | | - | Matheson & Co | Aug 1 | 2.500 | | | | | | | |
| Bombay | Oriental Bank | | - | Union Bank of London | Aug 10 | 2.500 | | | | | | | |
| Karachi | Finlay & Co | | - | Union Bank of London | Aug 10 | 1.000 | | | | | | | |
| Bombay | Nicol W & Co | | 1487 | Nicol D & Co | Aug 11 | 5.000 | | | | | | | |
| Bombay | Nicol W & Co | | " | Nicol D & Co | Aug 11 | 5.000 | | | | | | | |
| Colombo | Stewart G & Co | | - | Arbuthnot L & Co | Aug 16 | 1.000 | | | | | | | |
| | | | | | | 131.606 | 9 | 7 | | | | | |

II. Source and Data

- The Bank of England's Discount Ledgers
- Bank of England was a big player in the London bill market
- Ledgers report systematic information on all bills re-discounted by BoE
- Drawer's name/location; Acceptor's name; Discounter's name
- Our dataset
- Information on all individual bills rediscounted by the Bank of England during the year 1906
- 23,493 bills: 4,556 drawers; 1,439 acceptors; 145 discounters
- Allows reconstructing the network of agents involved in the origination of sterling bills
- Limitation
- We only observe bills rediscounted by the Bank of England
- Selection bias?

Ranking of Acceptors Chapman (1984) vs. BoE ledgers

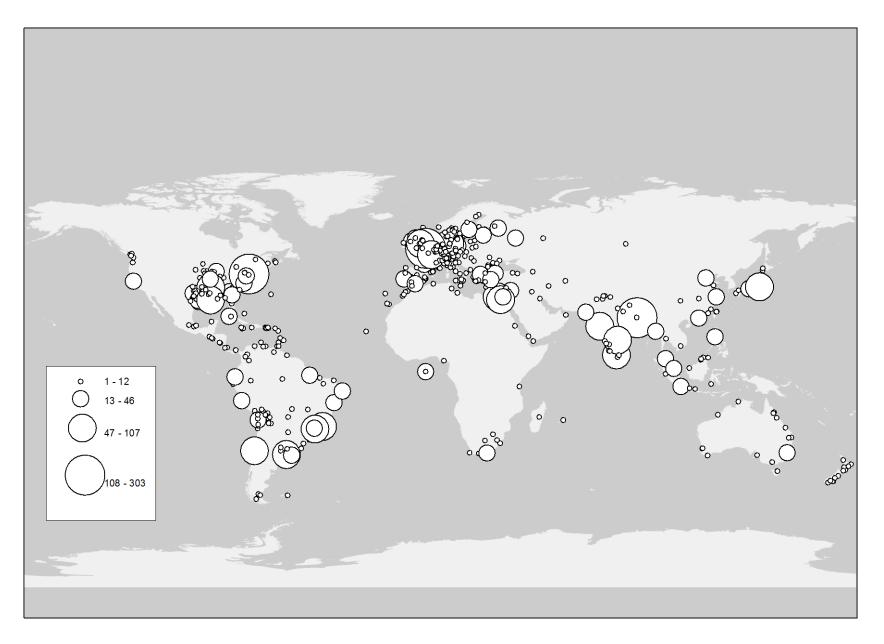
| 1906 | Chapman (1984) | BoE Ledgers – Nb of Discounters | BoE Ledgers – Nb of Drawers |
|-------------|-------------------|--|--------------------------------------|
| Kleinworts | 1 | 1 | 1 |
| Schröders | 2 | 2 | 3 |
| Barings | 3 | 3 | 4 |
| Rothschilds | 4 | 5 | 6 |
| Brandts | 5 | 4 | 2 |
| Hambros | 6 | 6 | 5 |
| Gibbs | 7 | 7 | 7 |

III. Anatomy of the Money Market

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- The geography of drawers/borrowers
- Where were the underlying debts originated?
- Wide **geographical dispersion**, esp. in Europe, America, India

The Geography of Drawers/Borrowers - 1906



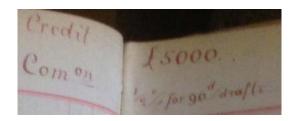
The Geography of Drawers/Borrowers - 1906



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- The geography of drawers/borrowers
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- Wide geographical dispersion, esp. in Europe, America, India
- How was the screening of such diverse borrowers done?
- Acceptors as relationship-bankers
- Acceptors were the guarantors of private international debts
- How acceptors worked: the case of *Kleinworts* & Sons

Kleinworts' Clients Ledgers



| 11 | | 112 | Credit |
|--|--|--|--|
| Dr. | Dentach - Westafrikanische Handelsgesellschaft | | Comon |
| 1906 John 22 March 23 Opel 30 May 24 Davat 25 1 30 | To brought forward 100 - and 11 - 10 - 100 - 121 100 - and 121 | 4645 | 634912 1000 1200 1500 1000 2300 |
| 102 15 202 4 202 4 | · · · · · · · · · · · · · · · · · · · | 465 560 2275 1845 1560 4550 | 15100 5 1 49 3 6 5000 5000 1000 1000 1000 1000 1000 100 |
| 2004 31 Dech 31 Sared 16 Zenne 18 30 | - 003 cage + pp | | 49 9 |

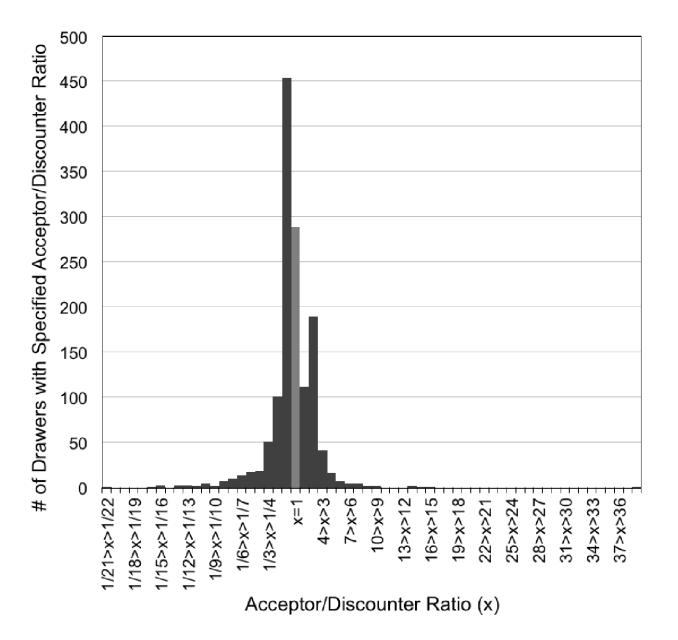
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|----|--|
| 2 | LandonmannLeder Haute & Polly |
| | Die O Felle ALTOWA |
| | |
| 8 | sonn Margund Privatleben auf und ging Bachden F. |
| 8 | Die renommirte Firma ist alt und ging nachdem Eduard Fleischmann and Marcus Beith über, welcher laut Eintragen hatte, auf den Schwis- ber Sohn Ernet Isaak Beith aut Eintragen den Schwis- |
| 1 | bie renommirte Firma ist alt und ging nachdem Eduard Fleischmann Bich 1898 und Privatleben zurückgezogen hatte, auf den Schwieger- ohn Marcus Beith über, welcher laut Eintragung vom 3.1.1906 Das Geschert |
| | |
| 14 | Sonn Marcus Beith über, welcher zurückgezogen hatte, auf den Schwieger- in Sohn Ernst Isaak Beith als Teilhaber laut Eintragung vom 3.1.1906 sein- Das Geschäft nimmt in der Branche am Platze ersten Rang ein und tielten Verhältnisse sind günstige. Das Betriebskapital stellt senäss. Das Grunstück an der Obigen Adresse gehört der Firma die Innabern als Obigen Adresse gehört der Firma sich schätzungsweise auf 700,000 M. Zahlungen erfolgen konditions- bie Firma gilt für ihre Ordress als Solvent. Persört der Firma tin der Branche an Solvent. Persört der Firma sich schätzungsweise auf 700,000 M. Zahlungen erfolgen konditions- |
| R | sich schätze ersten Rang datig. |
| 6 | emass. Des Burgeweise auf gangtige. Des Bu betrieben |
| 1 | semäss. Das Grundstige auf 700,000 M. Zahlungen erfolgen konditions- Die Firma gilt für ihre Ordres als solvent. <u>Persönlich werden</u> C-19.8.10-R13-K116 |
| | die Inhaber als in Ordres als Adresse mingen kondstillt |
| 5 | C-19.8 to a stuchtige und regivent. Parat der Firme |
| | |
| | Die Firma gilt nur hoe,000 M. Zahlungen erfolgen konditions- ne die Inheher ale tüchtige und respektable Kaufleute bezeichnet. C-19.8.10-R13-K118 |
| | and the second sec |

- Clients accounts ledgers (left)
- Credit insurance lines under which clients can draw bills
- Specified acceptance commission (here 0.5% per annum)
- List of all bills drawn under credit line
- Information books (top)
- Keep track of all information on foreign firms' position and reputation
- "On a personal note, the owners are described to us as competent and respectable merchants"

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- Acceptors were the guarantors of private international debts
- How acceptors worked: the case of *Kleinworts* & Sons
- Did acceptors solve the information problem?
- Relationship banking theory: *bilateral financing* preferred to *multilateral financing* for **information-sensitive** debts
- Drawers borrowed from large number of discounters/lenders but dealt with more limited number of acceptors/guarantors

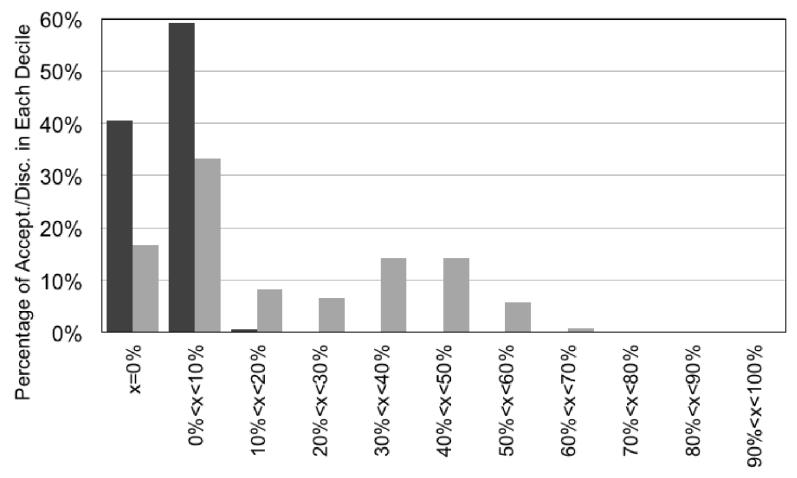
Acceptor/Discounter Ratio



Acceptors and Discounters per Drawer All drawers with more than one transaction

| | Mean | SE | Max. | Min. |
|--------------------------------|------|--------|-------|------|
| Acceptors | | | | |
| - Nb of acceptors per drawer | 2.81 | (0.08) | 38.00 | 1.00 |
| - % of all acceptors | 0.19 | (0.01) | 2.57 | 0.07 |
| Discounters | | | | |
| - Nb of discounters per drawer | 3.35 | (0.08) | 36.00 | 1.00 |
| - % of all discounters | 2.28 | (0.05) | 24.49 | 0.68 |

Shared Drawers/Borrowers



Percentage (x) of Fellows with which at least one Drawer is shared

Acceptors Discounters

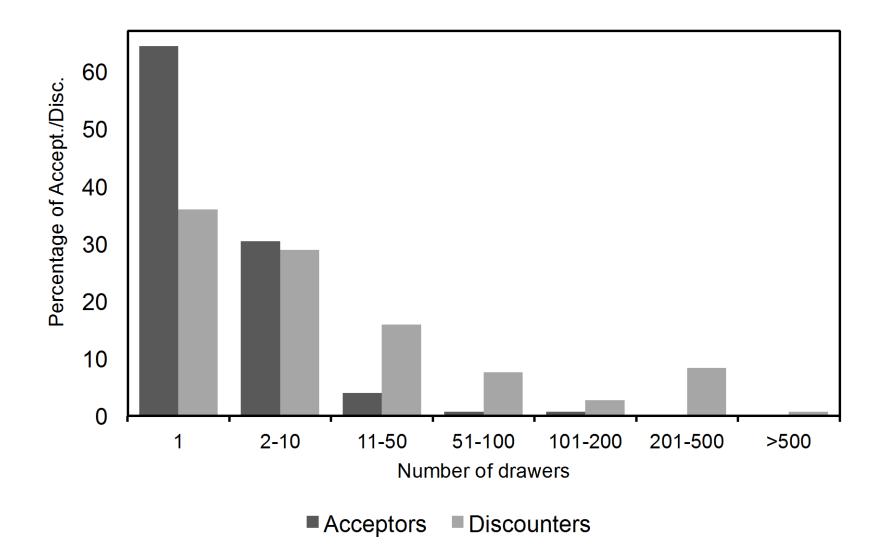
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- Suggests acceptors' guarantee made sterling bills informationinsensitive

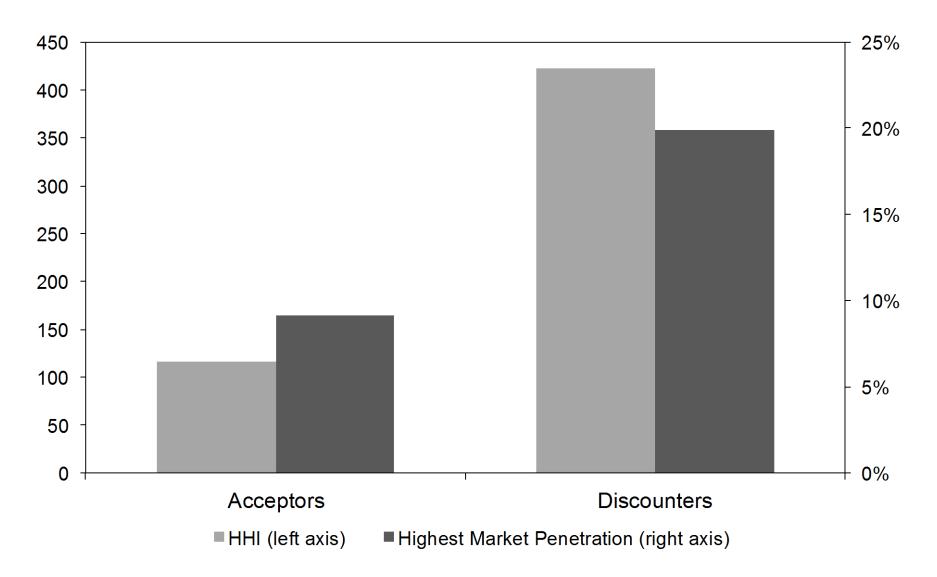
III. Anatomy of the Money Market

- Structure of the acceptance/debt insurance industry
- Reputational effects might have led to market concentration
- Chapman (1984): prior to WW1, acceptance market became increasingly concentrated around a few merchant banks
- We see a small number of large acceptors (acceptance houses) and a large number of very small acceptors (probably, merchants)

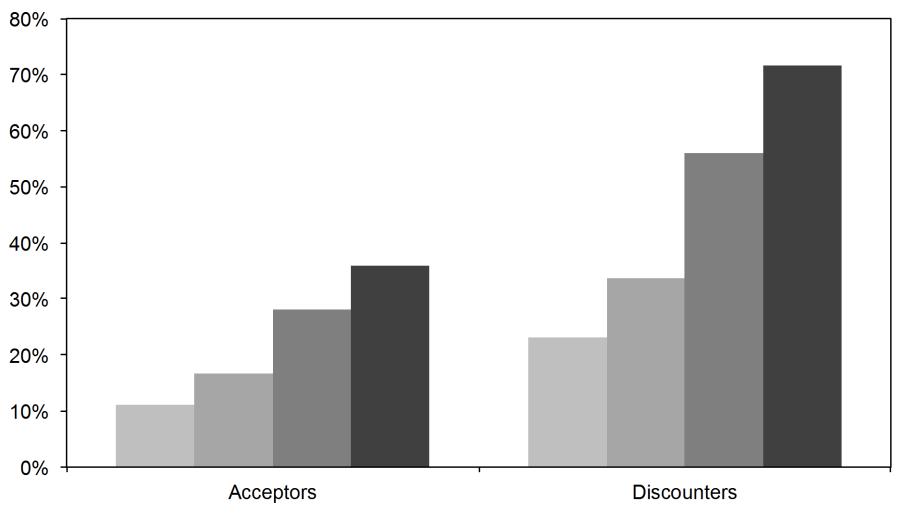
Frequency Distribution of Drawers By Acceptor and Discounter



Market Concentration/Penetration Acceptors vs. Discounters



Concentration Ratios Acceptors vs. Discounters

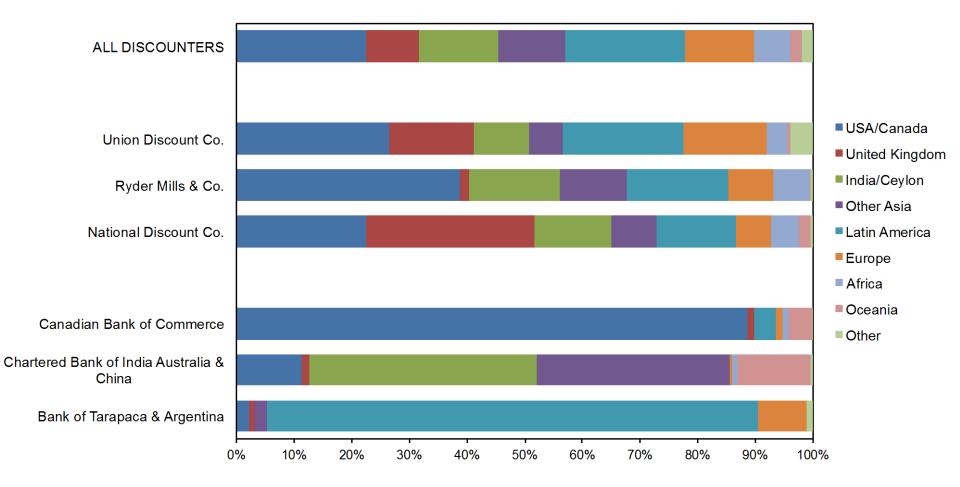


■ Top 3 ■ Top 5 ■ Top 10 ■ Top 15

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- Profiles of discounters
- Discounters/lenders could purchase bills on the market or obtain them through their network of correspondents
- Discounters/lenders with geographically diversified portfolio of bills (bill brokers)
- London branches of foreign banks had geographically concentrated portfolios of drawers

Discounters' Portfolios of Drawers



IV. Conclusions

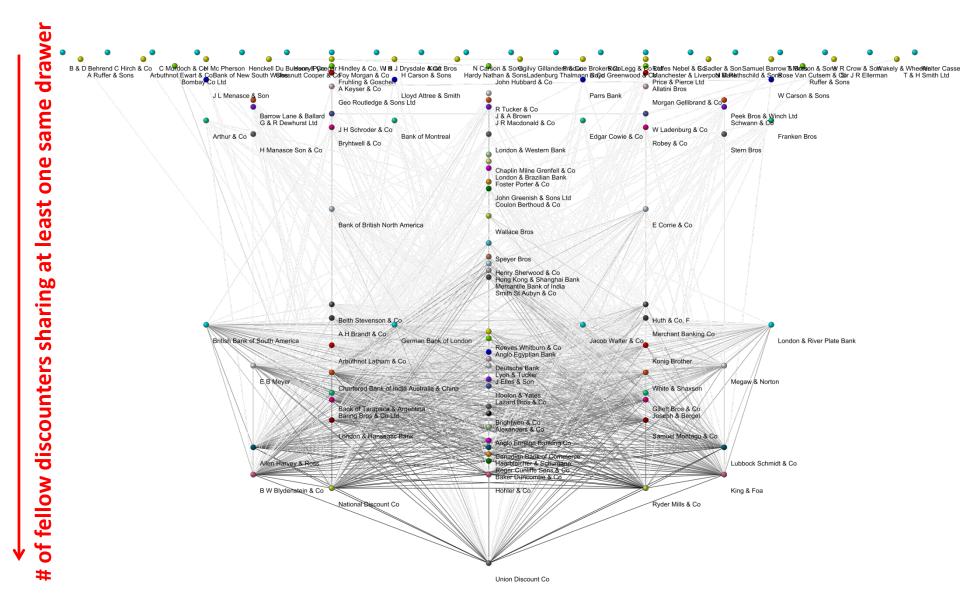
IV. (Preliminary) Conclusions

- An analysis of the structure of the London money market before WW1
- Great variety of borrowers and origination/distribution chains
- Crucial role played by acceptors/debt guarantors in producing private information on borrowers/debtors
- Acceptors' guarantee explains why bill holders had no incentive to "ask questions" about underlying debt
- Liquidity of sterling bills not altered unless bad shock affected the acceptors/guarantors' position (eg. 1914 and 1931 crises)
- Difference with today's money market instruments (eg. repo): underlying debt not only secured by borrowers' assets but guaranteed by a third party

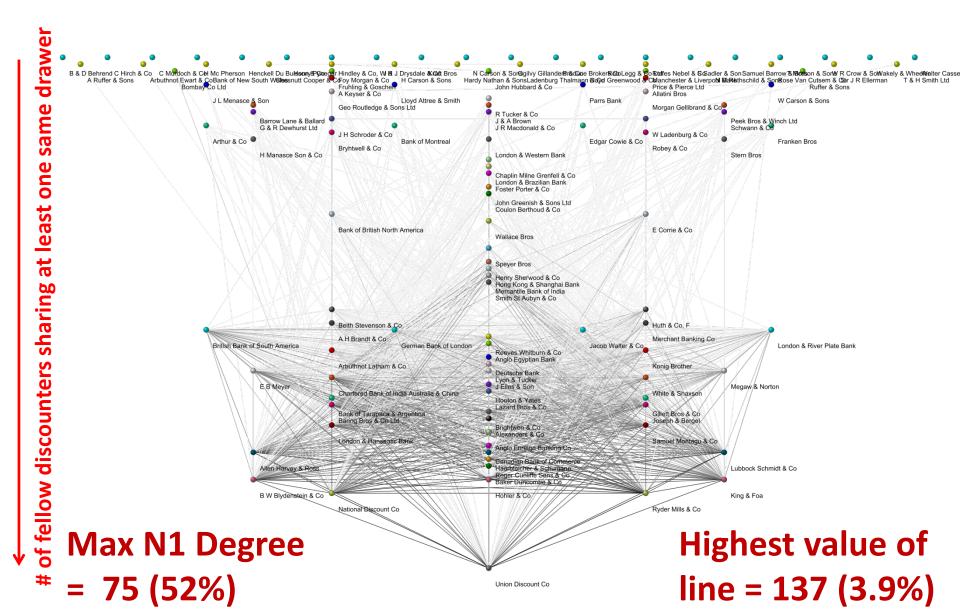
Gillett Brothers (1952)

"Notice will also be taken of the name of the drawer, even though it is on the name of the acceptor that the bill is judged."

Discounters' 2-Mode Network

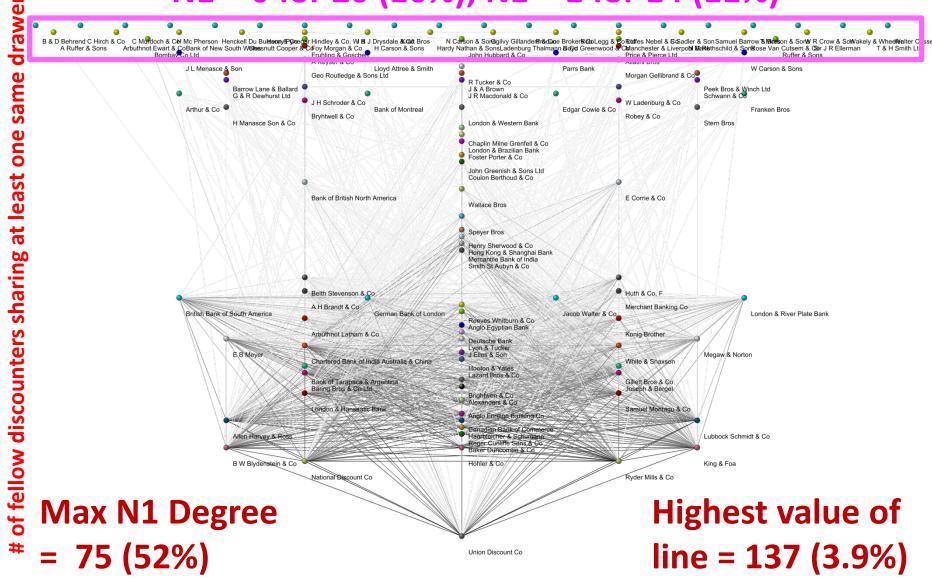


Discounters' 2-Mode Network

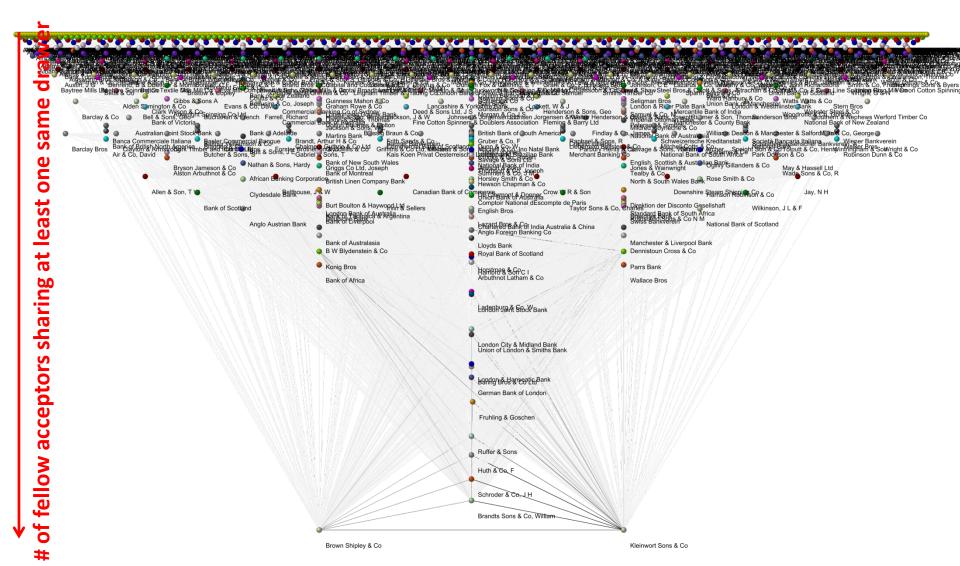


Discounters' 2-Mode Network

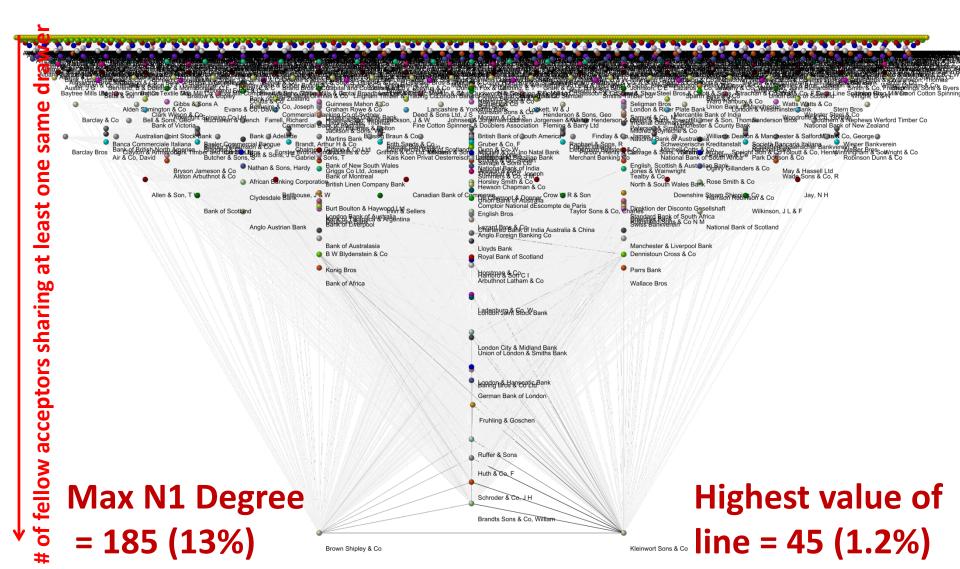
N1 = 0 for 20 (16%); N1 = 1 for 14 (11%)



Acceptors' 2-Mode Network



Acceptors' 2-Mode Network



Acceptors' 2-Mode Network

N1 = 0 for 582 (40%); N1 = 1 for 159 (11%)

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| g at least | Anglo Austrian Bank | energen Fank of Avertailin Bank of Australiasia Bank of Australiasia B W Blydenstein & Co Konig Bros Bank of Africa | Engins Bros Brand Bros Anglo Foreign Banking Co Lloyds Bank Royal Bank of Scotland | Mandadi, Bank of South Africa Switz Bank version Co N Mational Bank of Scotland Manchester & Liverpool Bank Dennistoun Cross & Co Parrs Bank Wallace Bros |
| s sharing | | | Landon City & Midland Bank Union of London & Smiths Bank | |
| fellow acceptors | | | Bannigy Bird Banegetin, Bank German Bank of London Fruhling & Goschen | |
| fellow a | Max N1 Degree | | Ruffer & Sons Huth & Co, F Schroder & Co, J.H Brandts Sons & Co, William | Highest value of |
| ₩ # | = 185 (13%) | Brown Shipley & Co | | Kleinwort Sons & Co line = 45 (1.2%) |