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

Olivier Accominotti (LSE)
Delio Lucena (University of Toulouse)
Stefano Ugolini (University of Toulouse)

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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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- Illustration: the 2007/08 financial crisis
  - **Repos**, **ABCP** backed by **MBS** considered as quasi-money by market participants... until 2007 housing market collapse
  - Investors started questioning the value of the collateral ➔ freeze of money markets and financial crisis

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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- **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

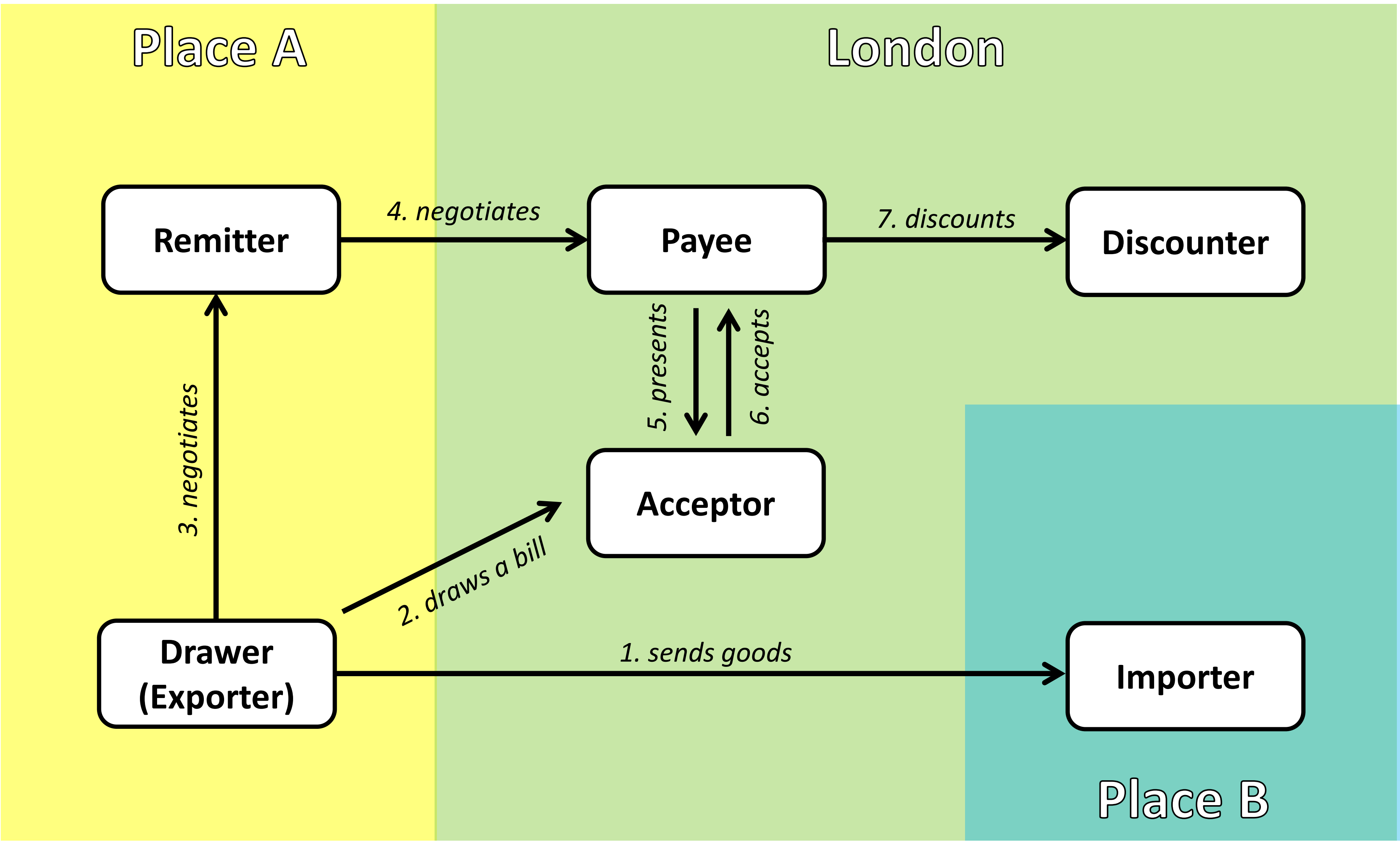
I. The Bill of Exchange

Description and Background

I. The Bill of Exchange

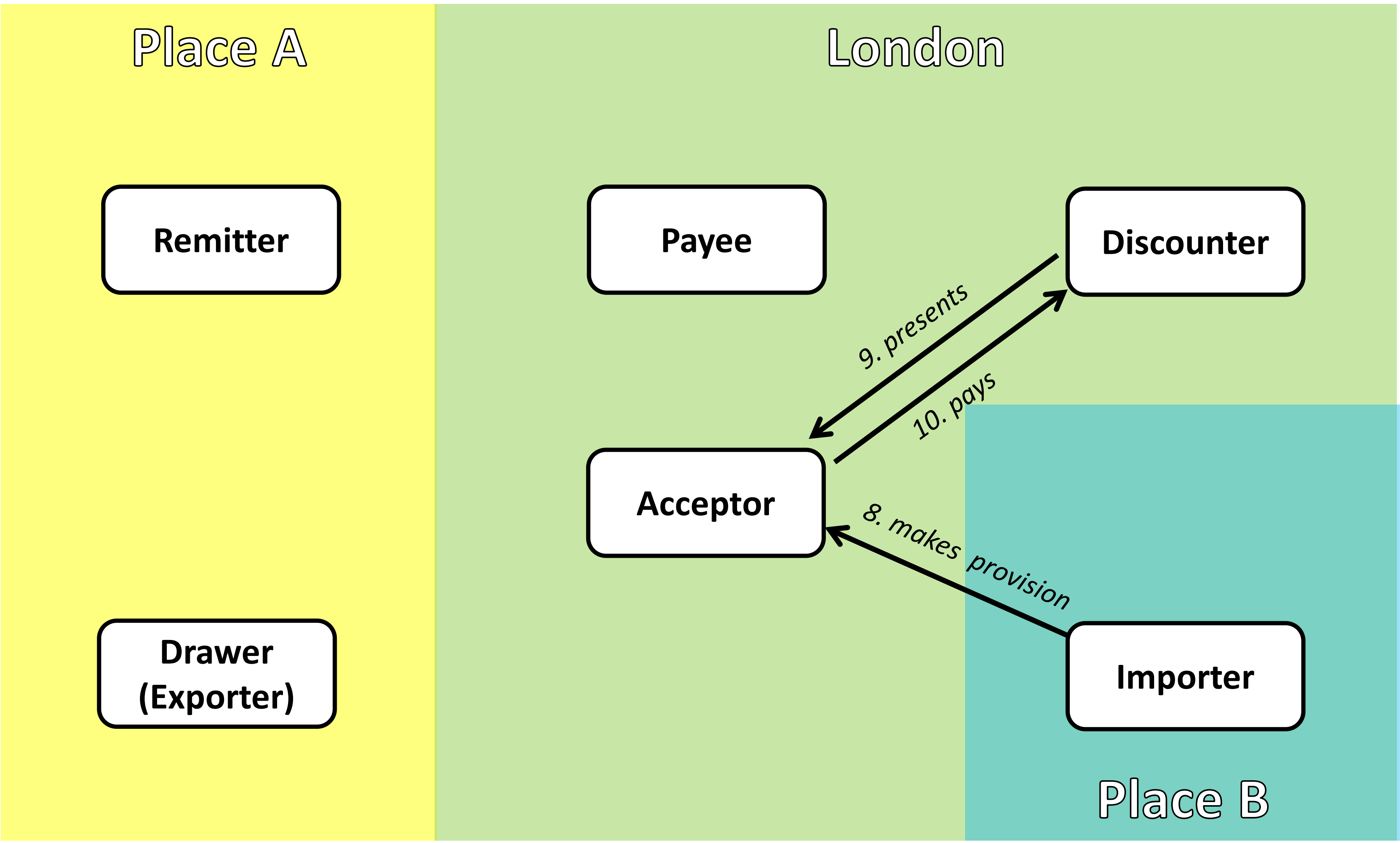
- Sterling bills
  - Intermediaries involved in the origination/distribution
  - A flexible instrument

Bill of exchange
Origination and Distribution



Bill of exchange

Maturity

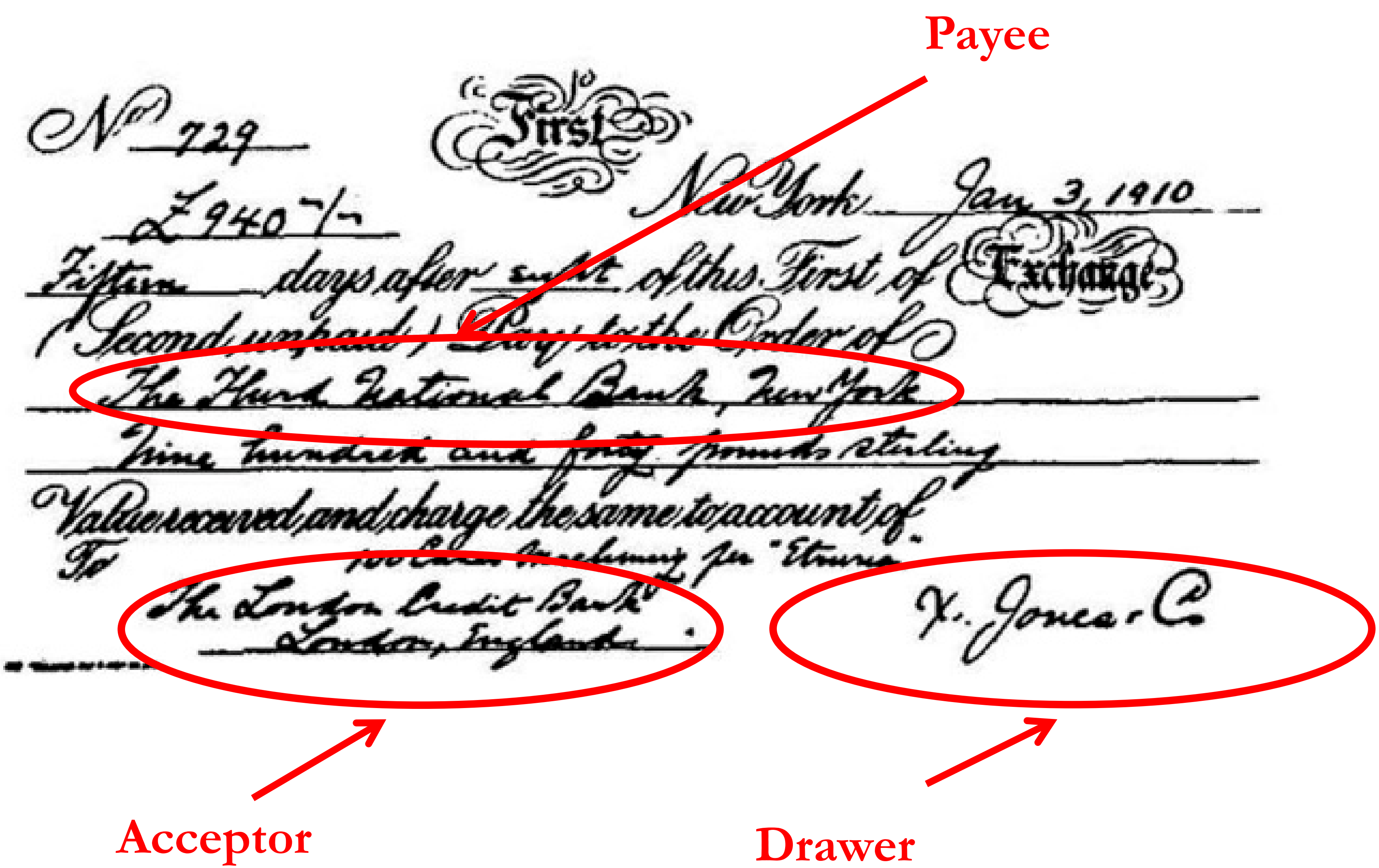


I. The Bill of Exchange

- 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



No. 729 — First

£940 —/— New York Jan. 3, 1910

Fifteen days after sight of this First of Exchange (Second unpaid) Pay to the Order of

The Hurd National Bank, New York

Nine hundred and forty pounds sterling

Value received and charge the same to account of

100 Cases Machinery per "Etruria"

To The London Credit Bank
London, England

X. Jones & Co.

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- The names on a bill
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- Who were the drawers/acceptors/discounters?

- Who produced information on the drawers/borrowers?

II. Source and Data

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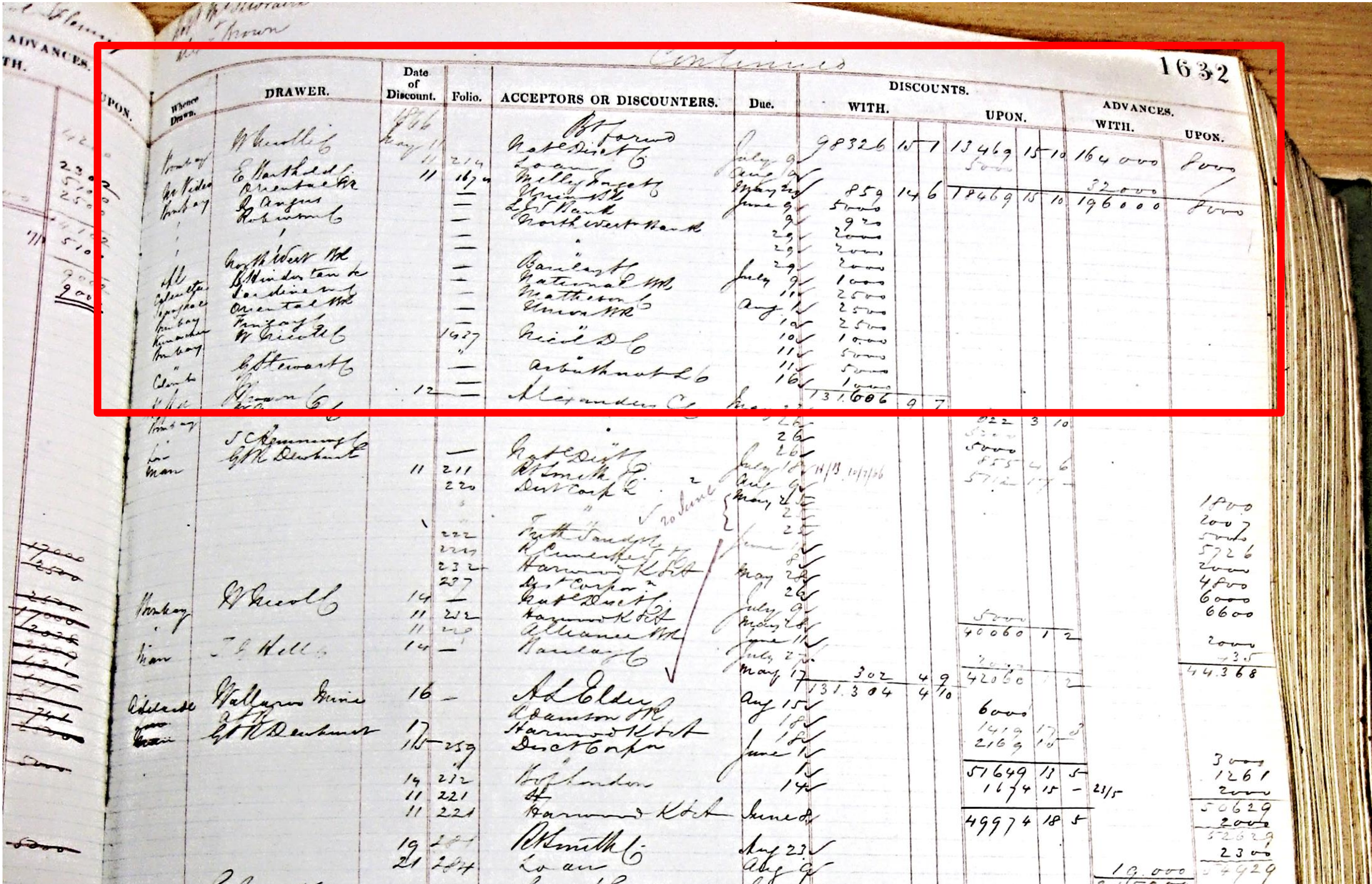
- The Bank of England’s *Discount Ledgers*
  - Bank of England was a **big player** in the London bill market
  - Ledgers report systematic information on all bills re-discounted by BoE
  - Drawer’s name/location; Acceptor’s name; Discounter’s name

Bank of England's *Discount Ledgers*



Bank of England’s *Discount Ledgers*

SMITH, FLEMING & CO.													F. 1632
						DISCOUNTS						ADVANCES	
						WITH			UPON			WITH	UPON
Whence Drawn	Drawer	Date of Discount	Folio	ACCEPTORS OR DISCOUNTERS	Due	£	s	d	£	s	d	£	£
		1866		*Brought Forward*		*98.326*	*15*	*1*	*13.469*	*15*	*10*	*164.000*	*8.000*
Bombay	Nicol W & Co	May 11	-	National Discount Co	July 9				5.000				
		May 11	214	LOAN	Aug 9							32.000	
Montevideo	Barthold E & Co	May 11	1674	Melly Fargo & Co	May 24	859	14	6	*18.469*	*15*	*10*	*196.000*	*8.000*
Bombay	Oriental Bank		-	Union Bank of London	June 9	5.000							
Bombay	Angers R		-	London Joint Stock Bank	June 9	920							
Bombay	Robinson & Co		-	North Western Bank	June 29	2.000							
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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*					

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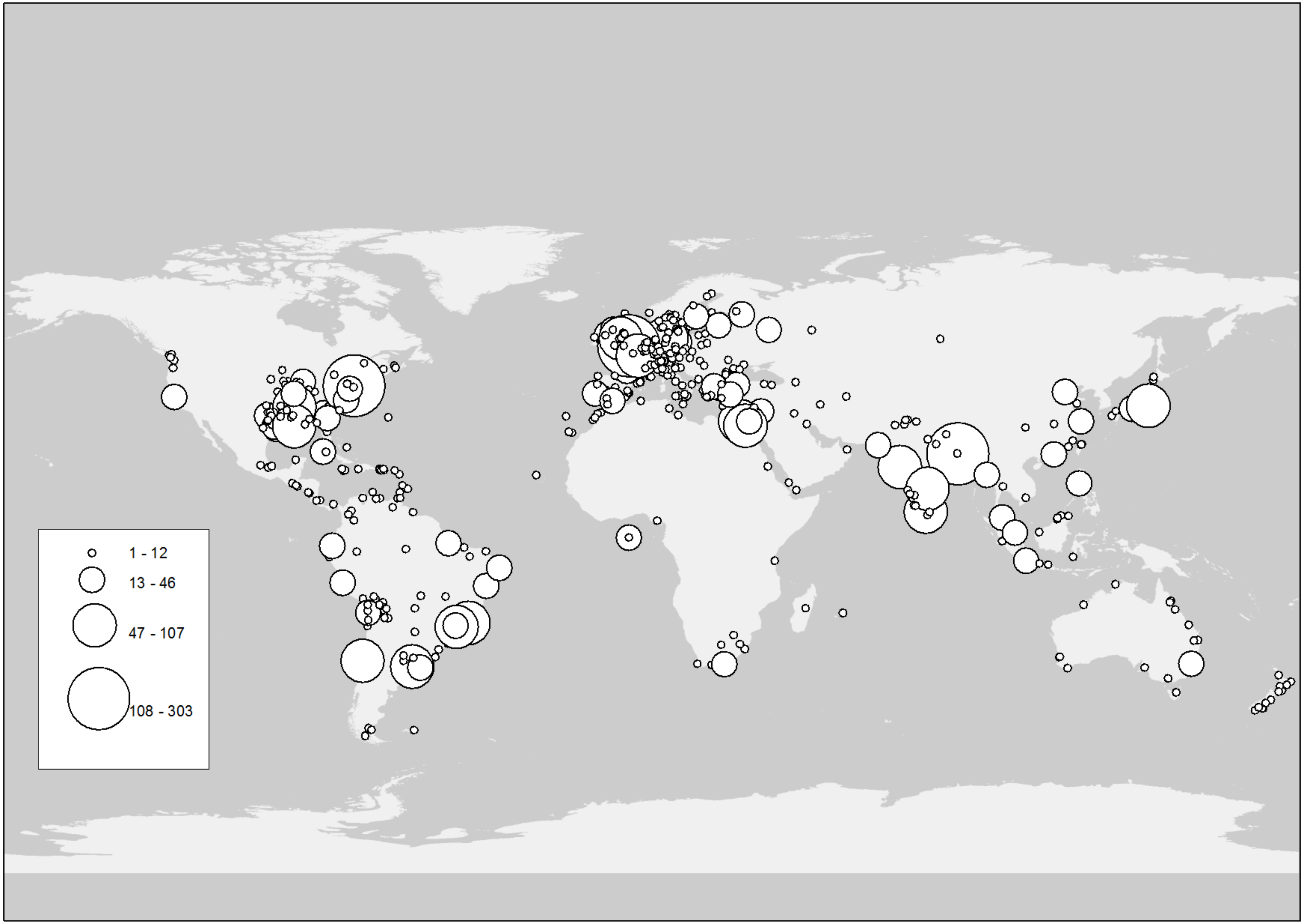
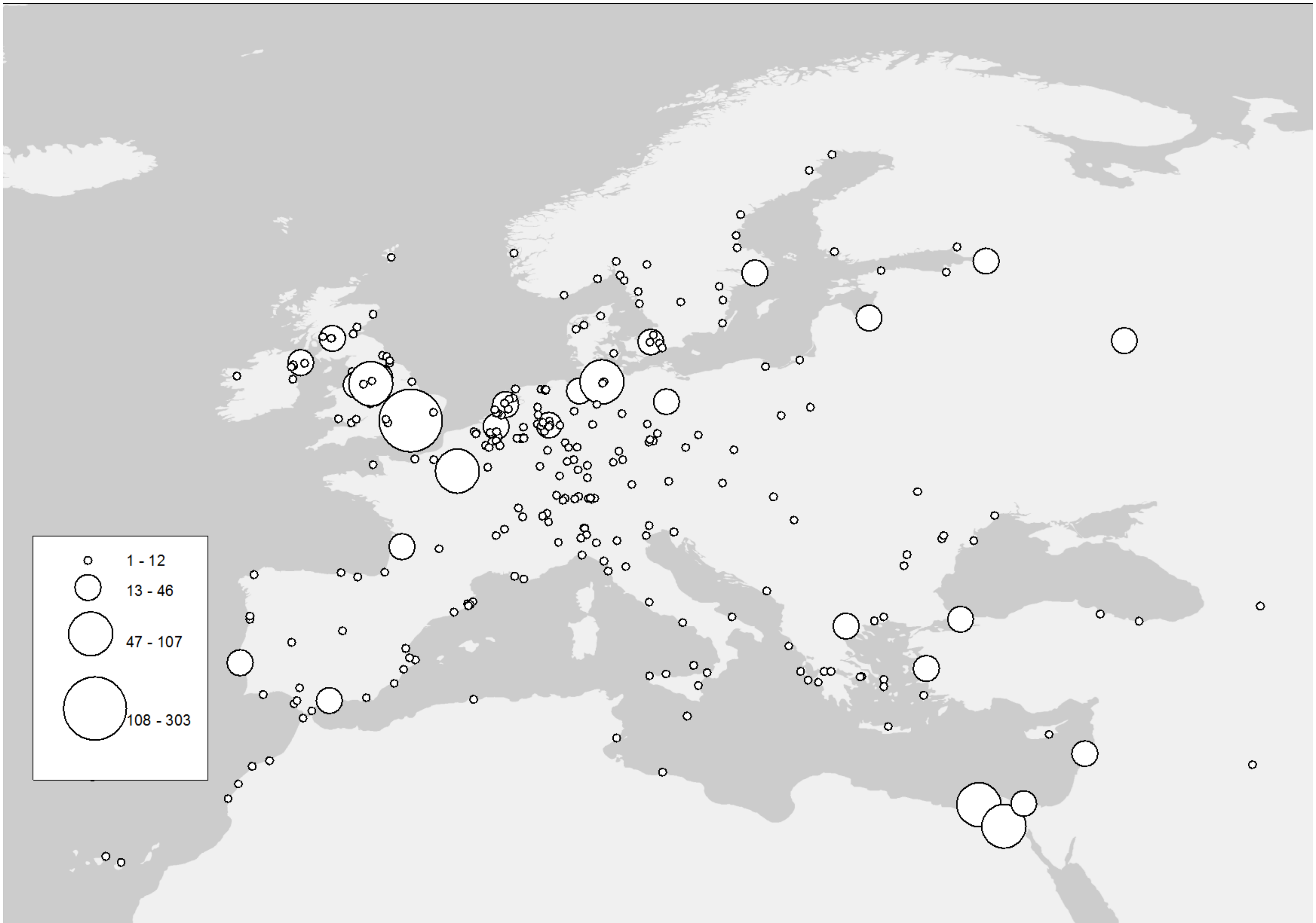
- The geography of drawers/borrowers
  - Where were the underlying debts originated?
  - Wide **geographical dispersion**, esp. in Europe, America, India

The Geography of Drawers/Borrowers - 1906



The Geography of Drawers/Borrowers - 1906



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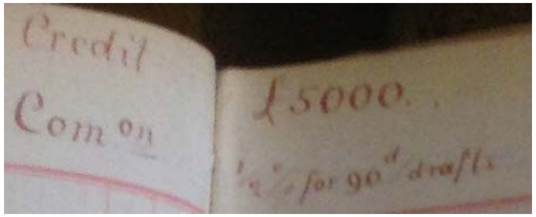
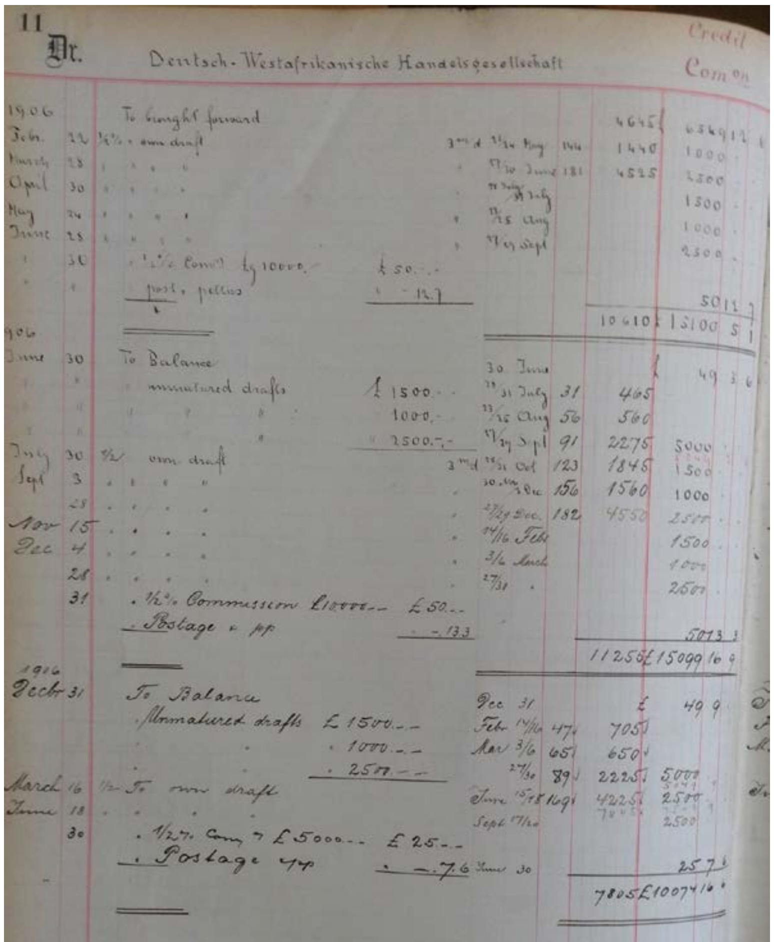
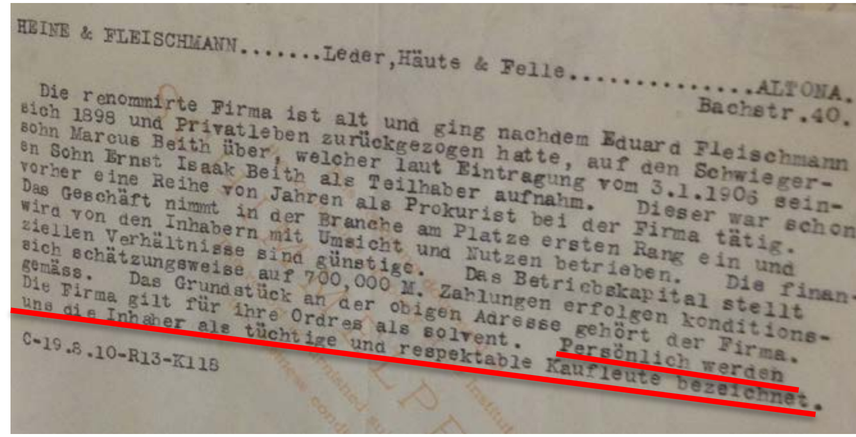
  - How was the screening of such diverse borrowers done?

- Acceptors as relationship-bankers
  - Acceptors were the guarantors of private international debts
  - How acceptors worked: the case of *Kleinworts & Sons*

Kleinworts’ Clients Ledgers







HEINE & FLEISCHMANN.......Leder,Häute & Felle..............ALTONA.
Bachstr.40.

Die renommirte Firma ist alt und ging nachdem Eduard Fleischmann sich 1898 und Privatleben zurückgezogen hatte, auf den Schwieger-sohn Marcus Beith über, welcher laut Eintragung vom 3.1.1906 sein-en Sohn Ernst Isaak Beith als Teilhaber aufnahm. Dieser war schon vorher eine Reihe von Jahren als Prokurist bei der Firma tätig. Das Geschäft nimmt in der Branche am Platze ersten Rang ein und wird von den Inhabern mit Umsicht und Nutzen betrieben. Die finan-ziellen Verhältnisse sind günstige. Das Betriebskapital stellt sich schätzungsweise auf 700,000 M. Zahlungen erfolgen konditions-gemäss. Das Grundstück an der obigen Adresse gehört der Firma. Die Firma gilt für ihre Ordres als solvent. Persönlich werden uns die Inhaber als tüchtige und respektable Kaufleute bezeichnet.

C-19.8.10-R13-K118

- 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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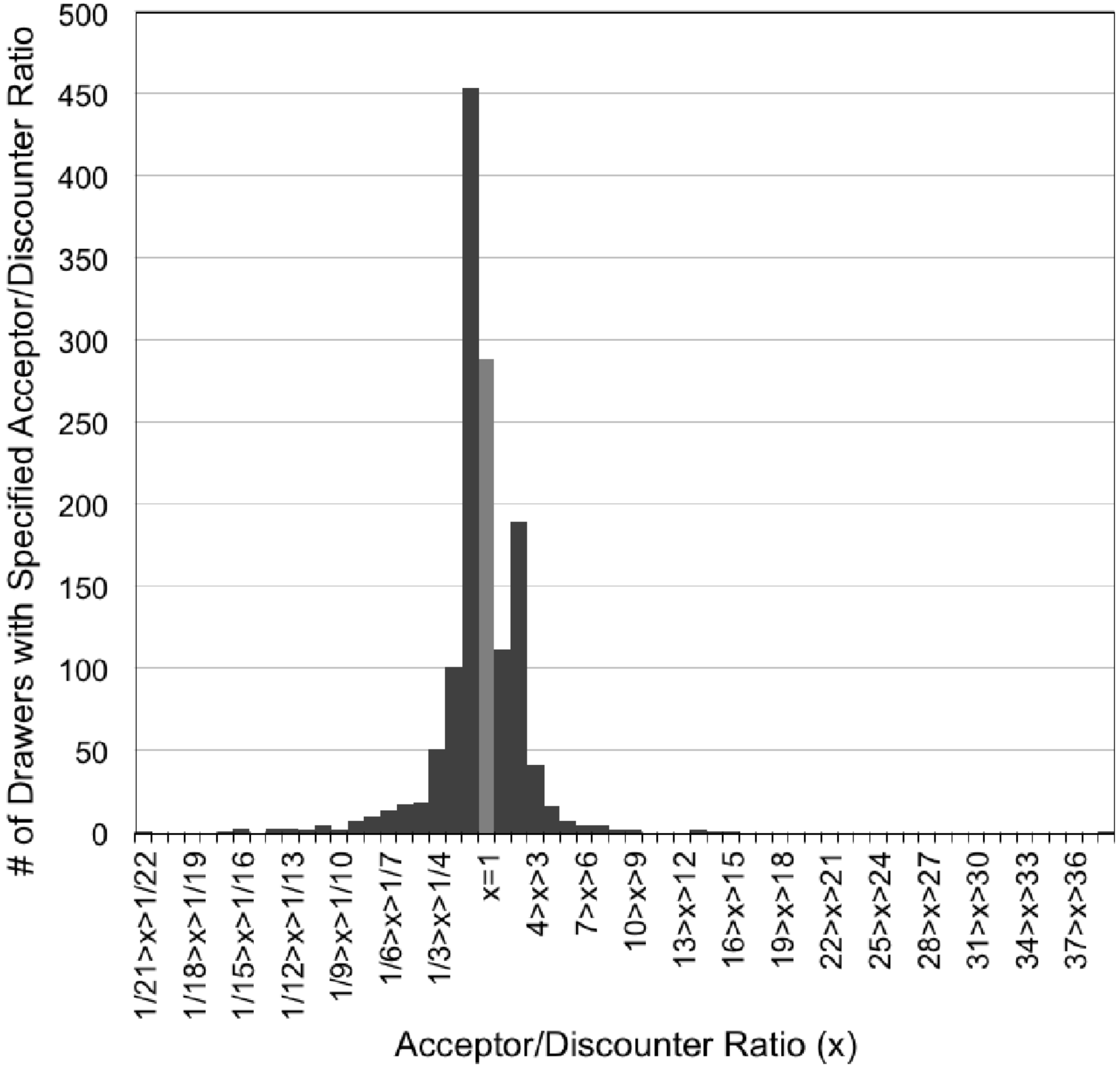
- Did acceptors solve the information problem?
  - Relationship banking theory: *bilateral financing* preferred to *multilateral financing* for **information-sensitive** debts
  - Drawers borrowed from large number of discounters/lenders but dealt with more limited number of acceptors/guarantors

Acceptor/Discounter Ratio

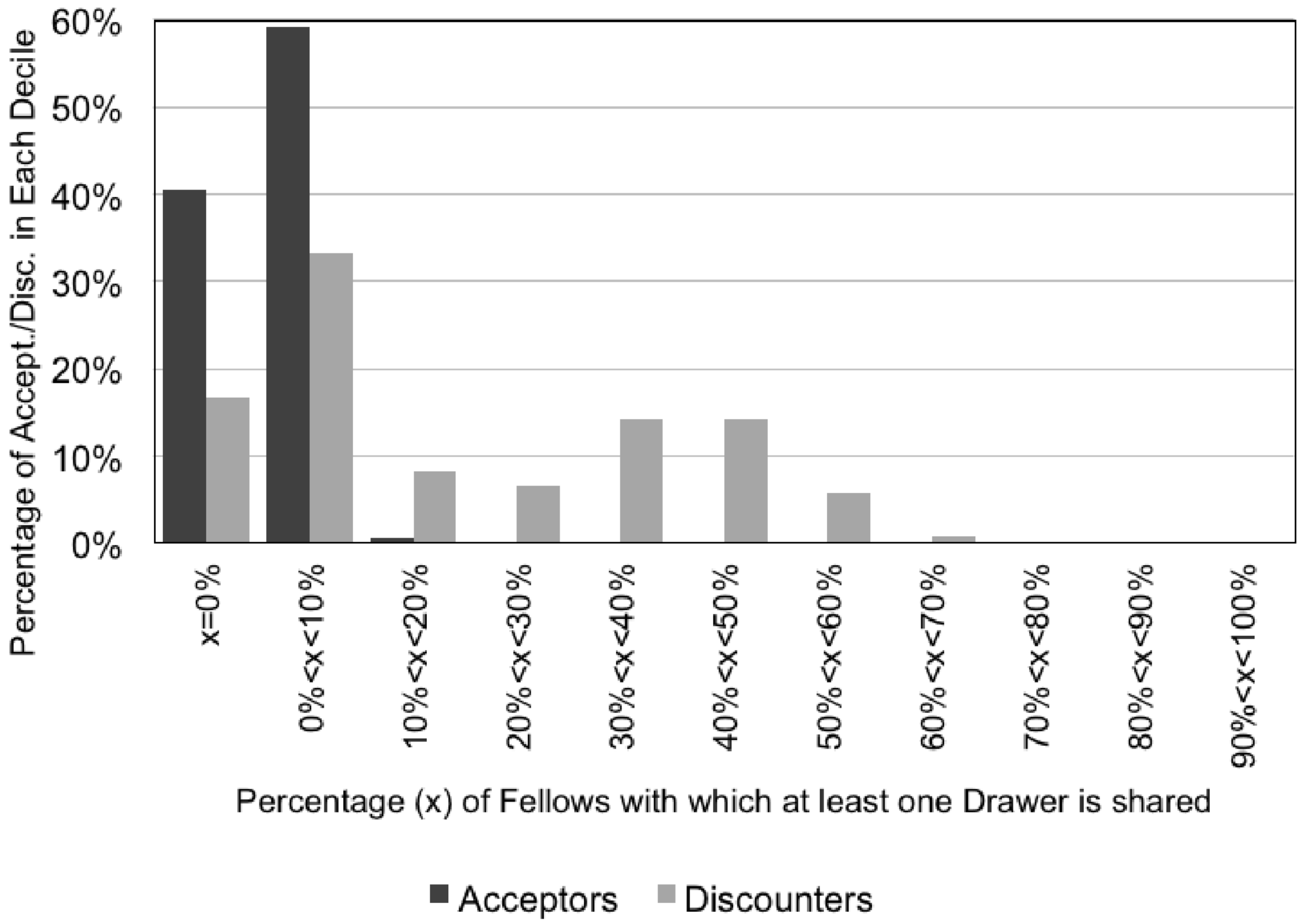


Acceptors and Discounters per Drawer

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



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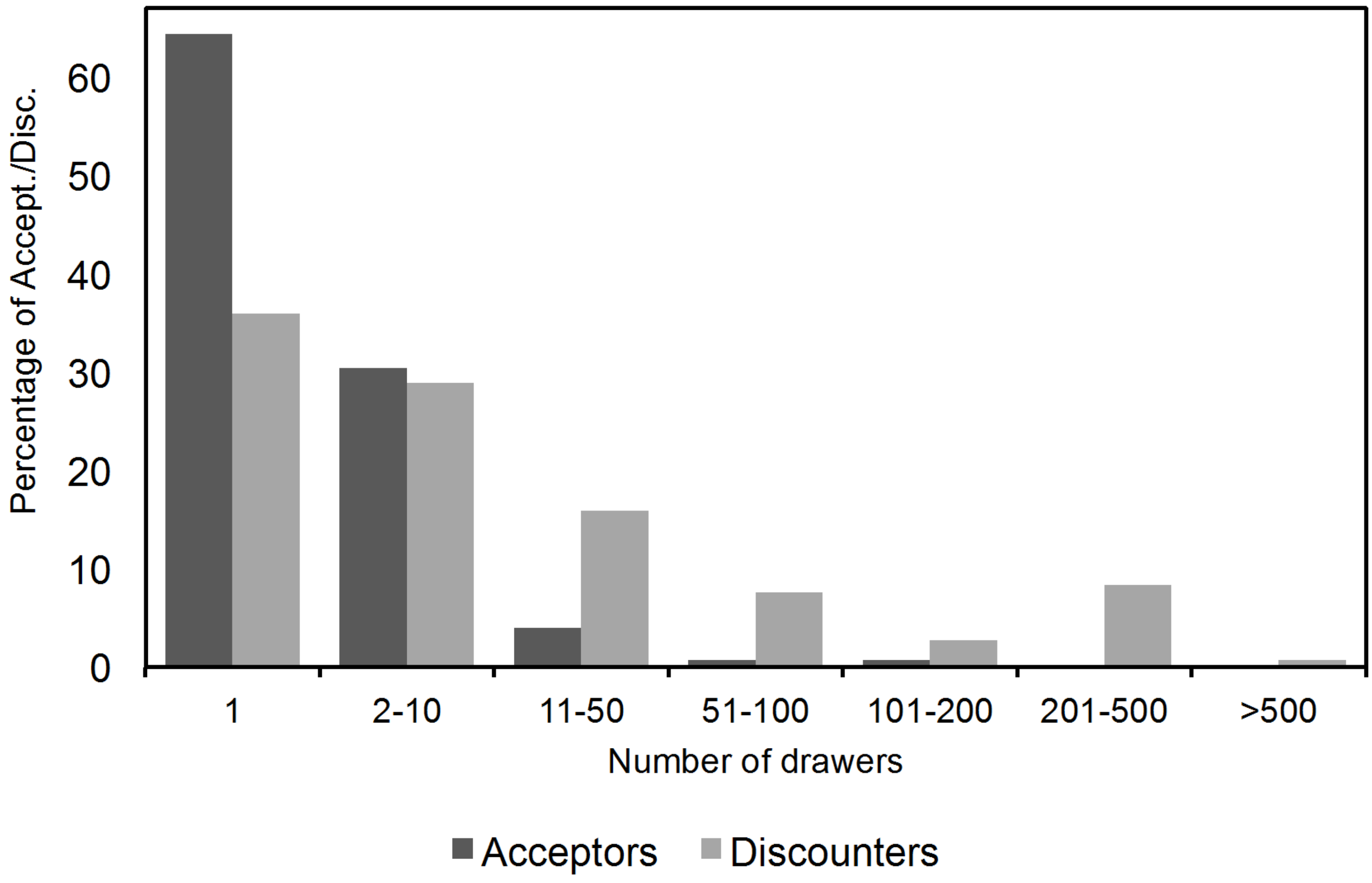
  - Suggests **acceptors' guarantee made sterling bills information-insensitive**

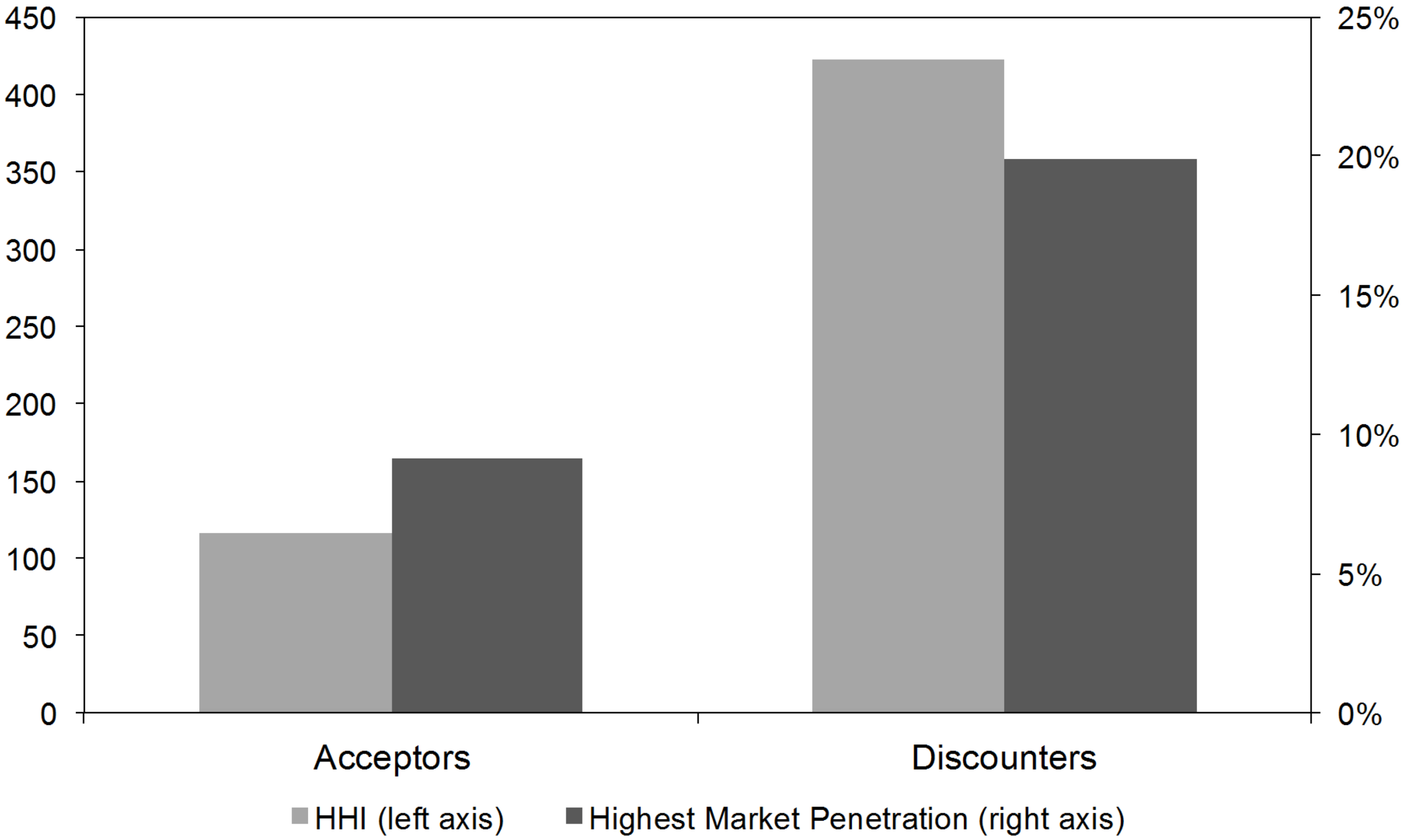
III. Anatomy of the Money Market

- 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**)

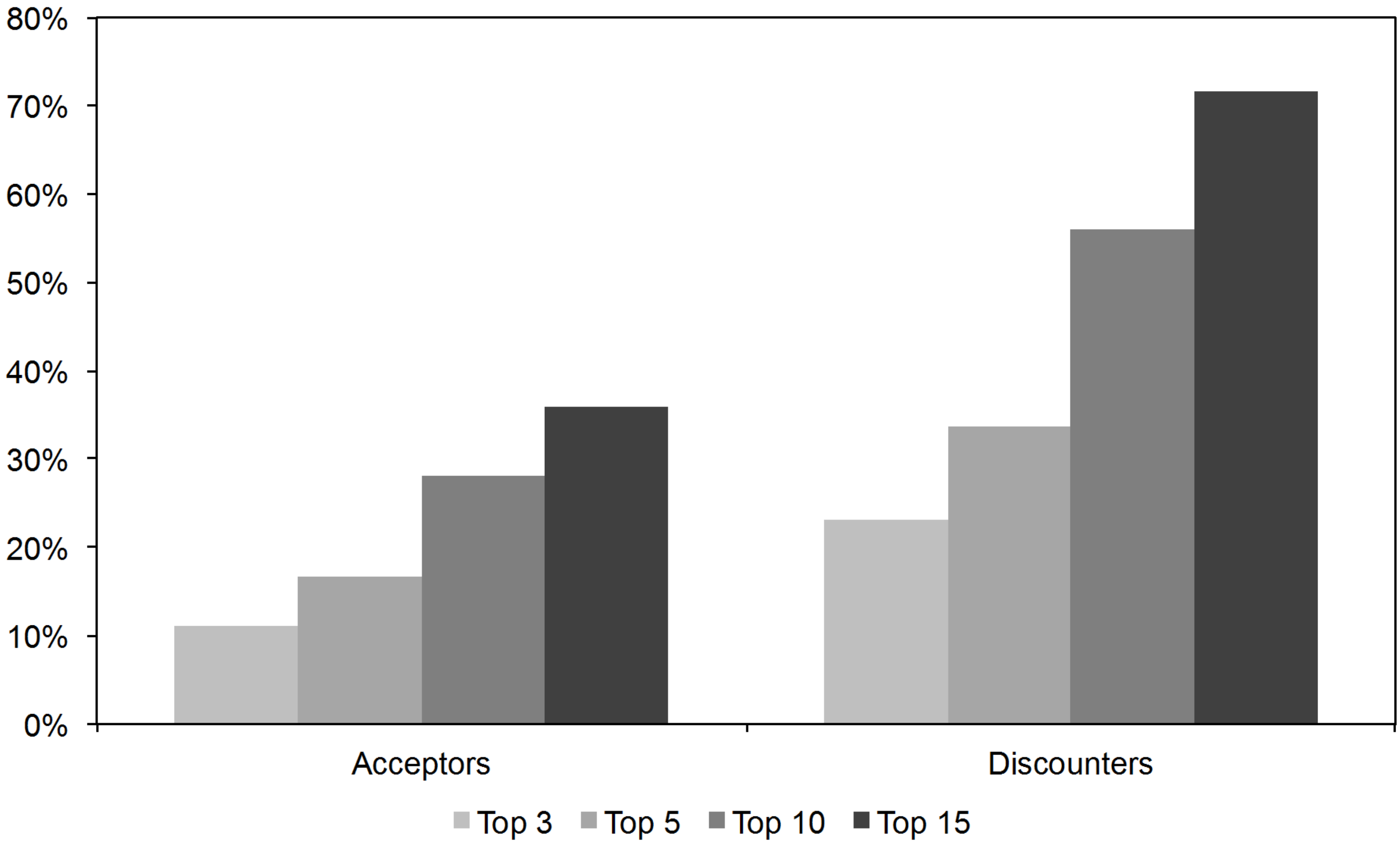
Frequency Distribution of Drawers By Acceptor and Discounter



Market Concentration/Penetration Acceptors vs. Discounters



Concentration Ratios
Acceptors vs. Discounters



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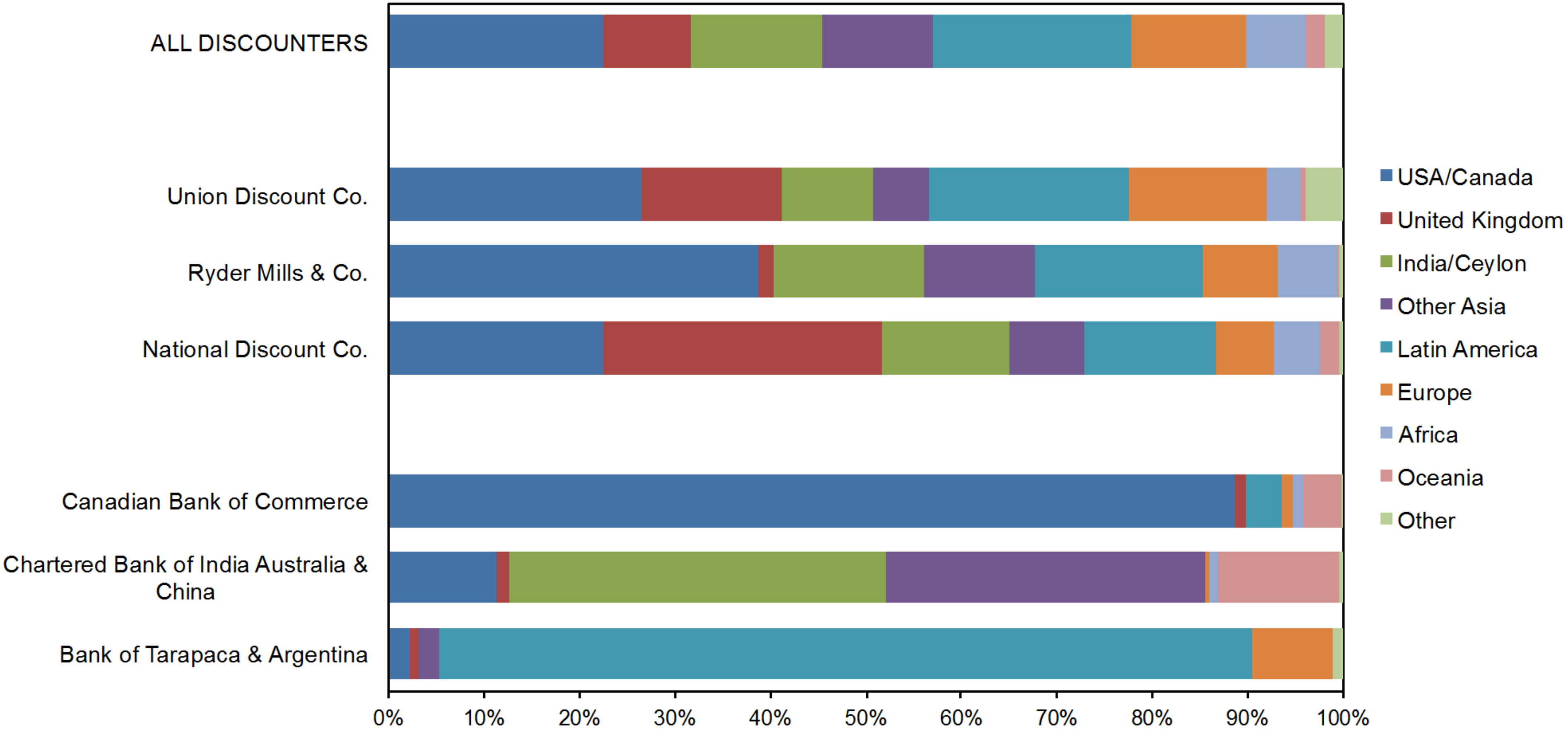
- Profiles of discounters
  - Discounters/lenders could purchase bills on the market or obtain them through their network of correspondents
  - Discounters/lenders with geographically diversified portfolio of bills (**bill brokers**)
  - London branches of foreign banks had geographically concentrated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

Discounters' Portfolios of Drawers



IV. Conclusions

IV. (Preliminary) Conclusions

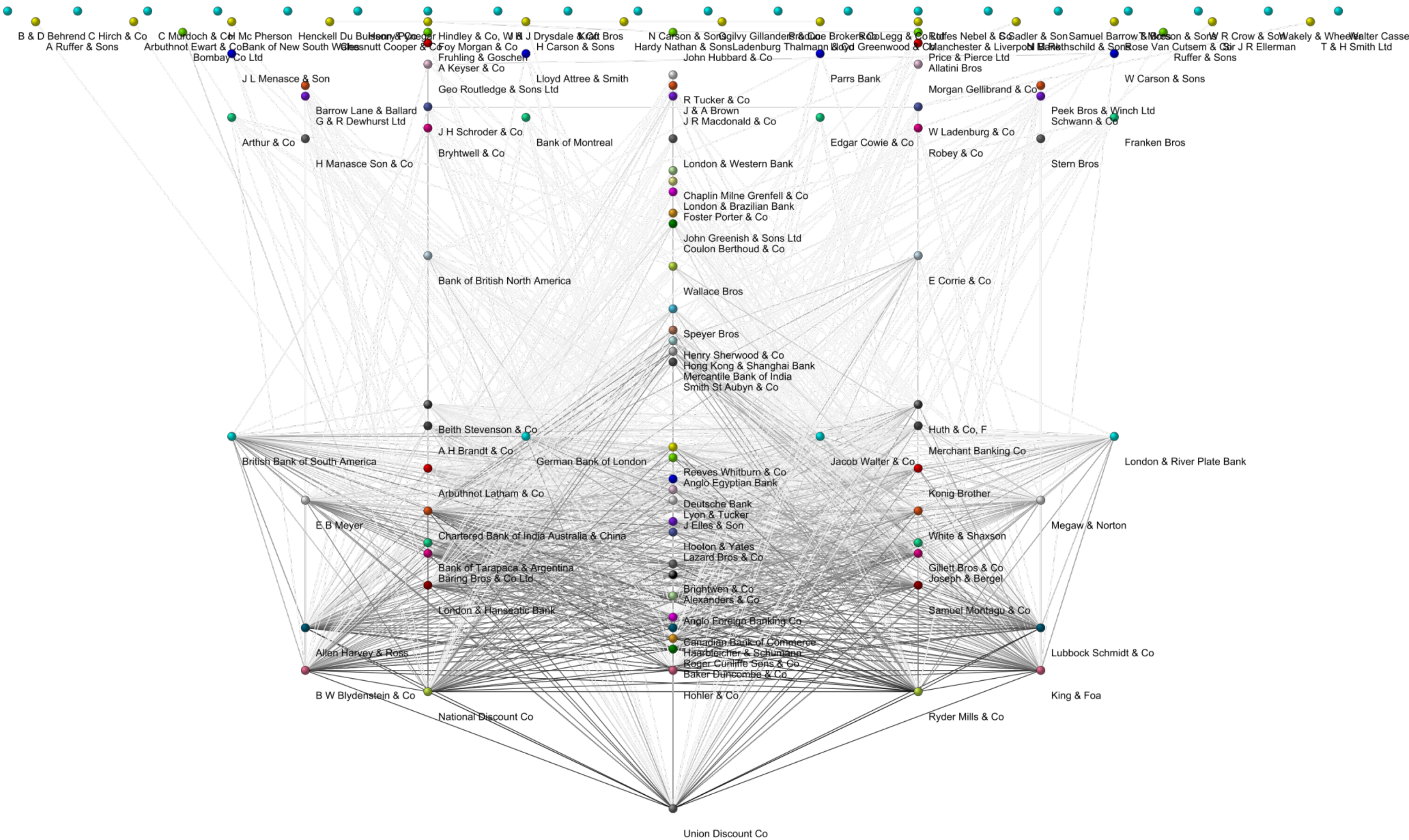
- An analysis of the structure of the London money market before WW1
- Great variety of borrowers and origination/distribution chains
- Crucial role played by acceptors/debt guarantors in producing private information on borrowers/debtors
- Acceptors' guarantee explains why bill holders had no incentive 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

of fellow discounters sharing at least one same drawer



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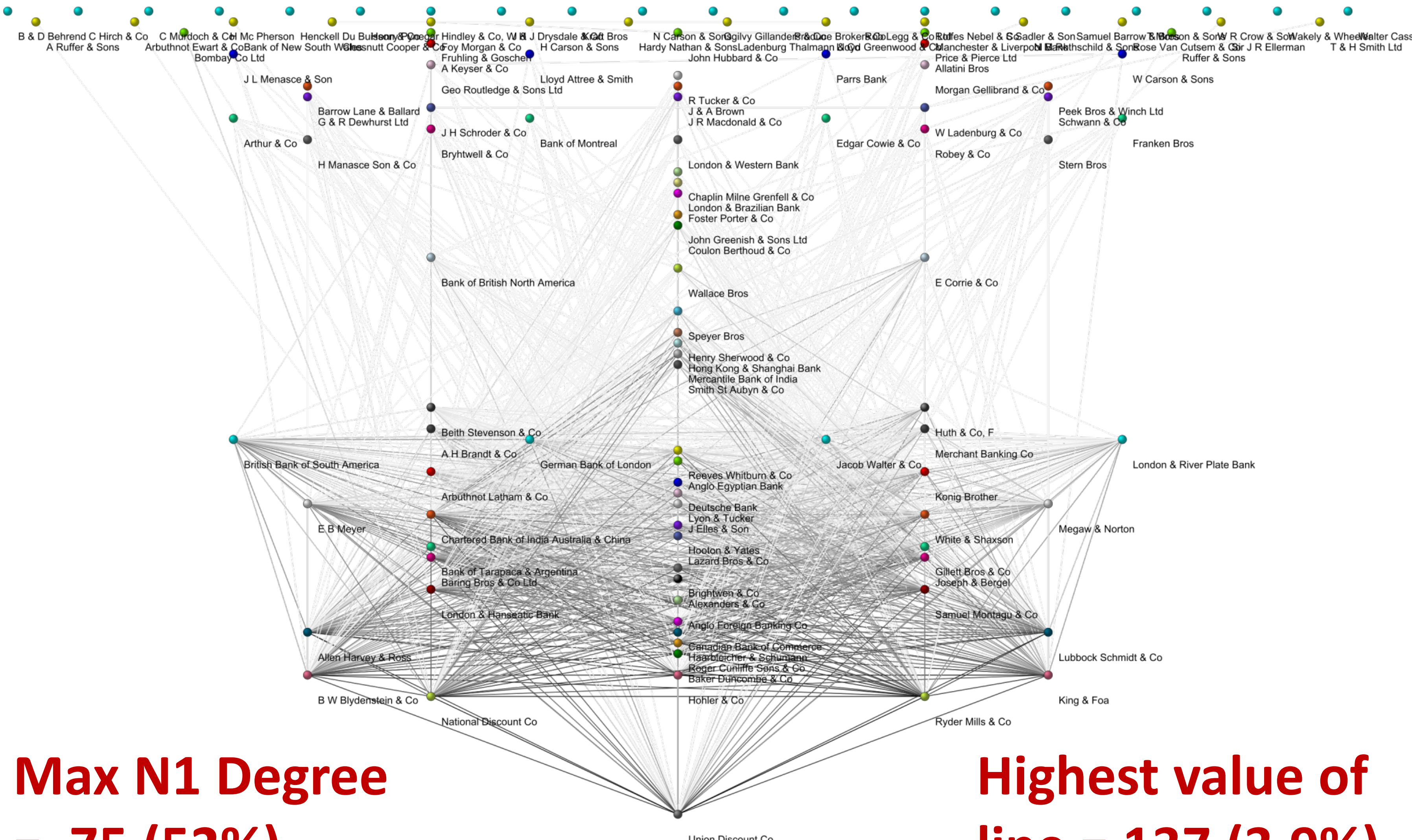


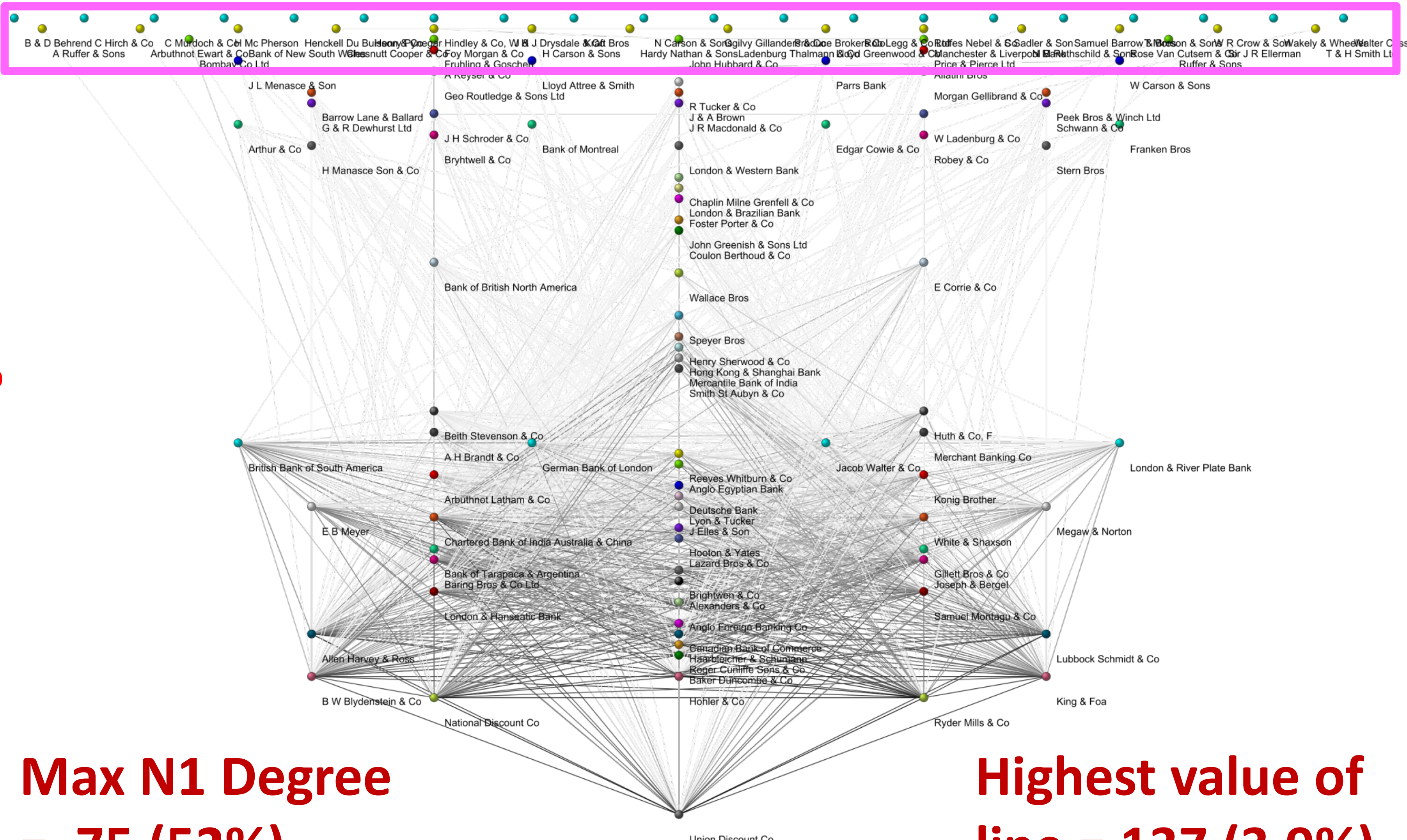
Max N1 Degree = 75 (52%)

Highest value of line = 137 (3.9%)

Discounters’ 2-Mode Network

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

of fellow discounters sharing at least one same drawer



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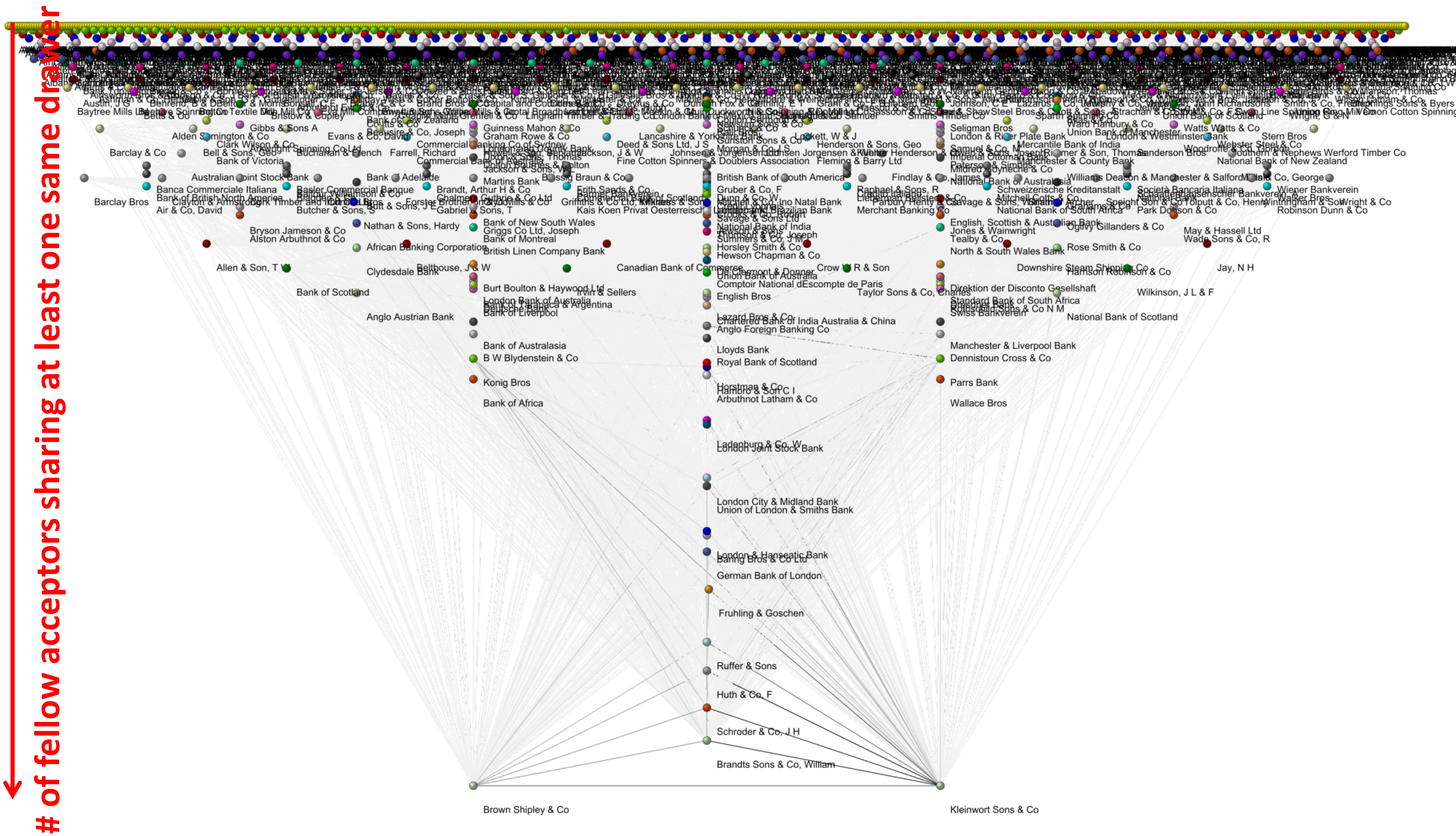
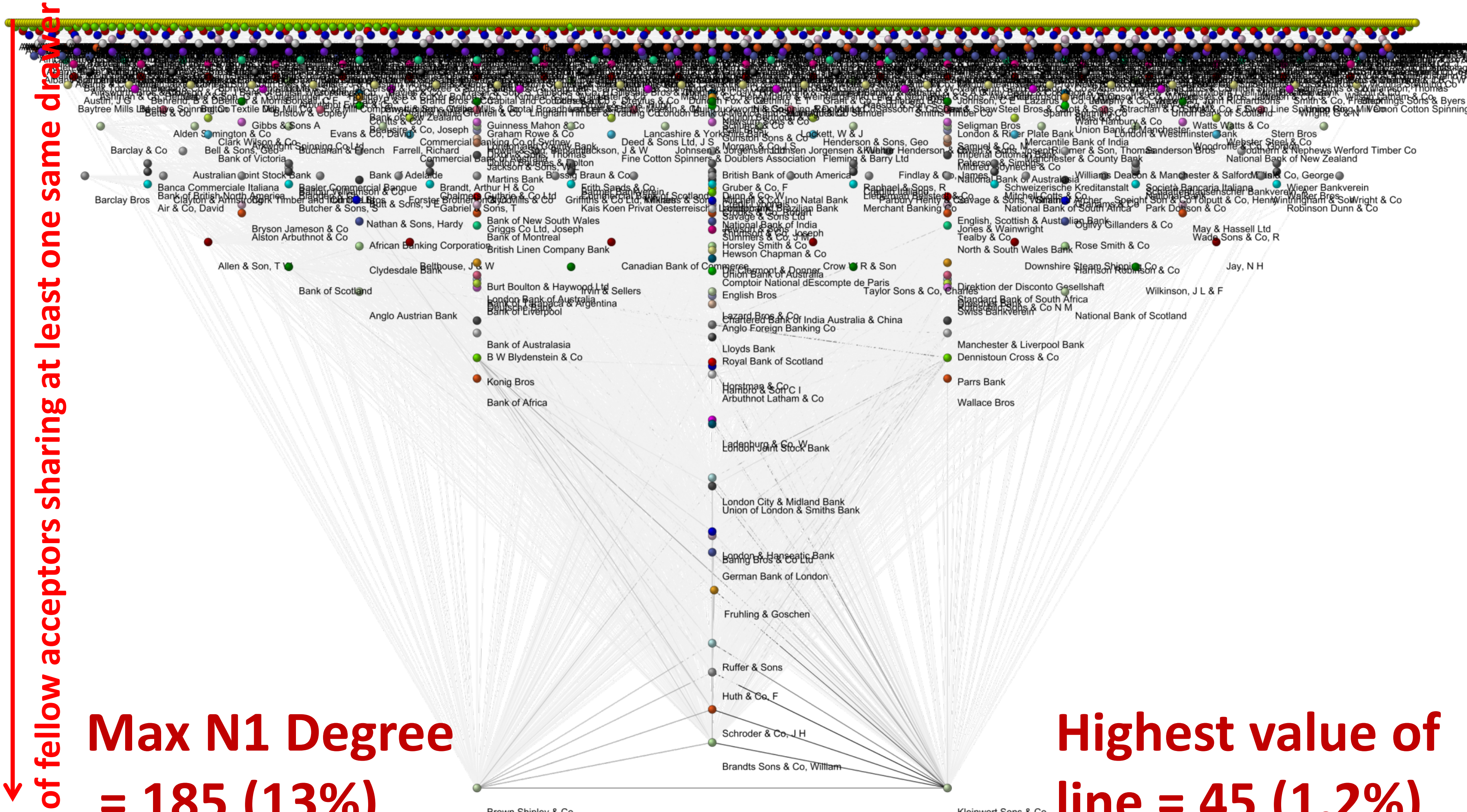
Acceptors’ 2-Mode Network



Acceptors’ 2-Mode Network

of fellow acceptors sharing at least one same drawer

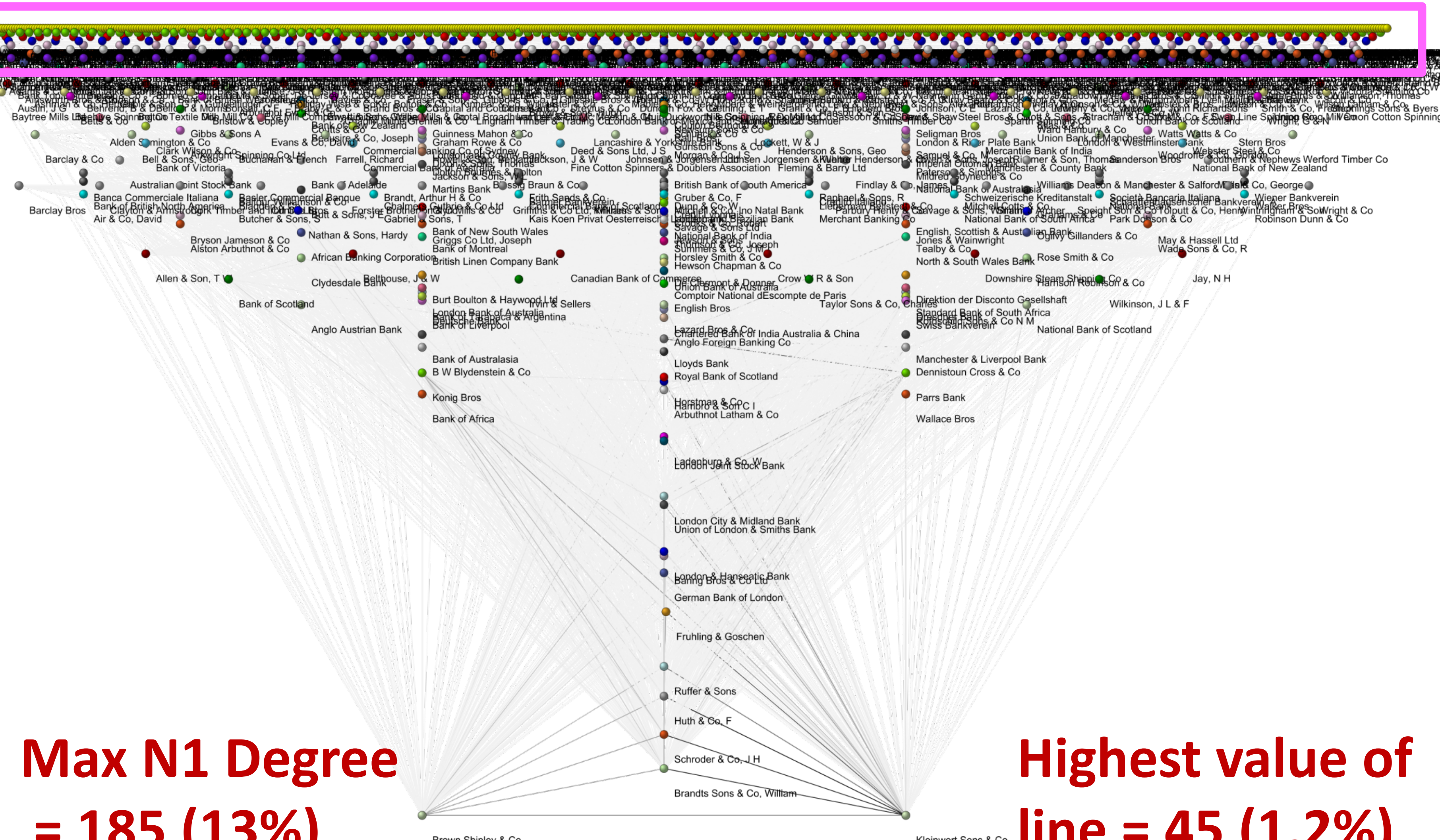


Max N1 Degree = 185 (13%)

Highest value of line = 45 (1.2%)

Acceptors' 2-Mode Network

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



# of fellow acceptors sharing at least one same drawer

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