Economics 210A
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Lecture 9
Financial Markets and Intermediation

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I. OVERVIEW

Issues

- How did financial markets function in (roughly) the 19th century?

- To the degree they were imperfect, did this matter for investment and growth?

Papers

- Differ substantially in style—from highly historical to modern finance methods.

- Cover a range of time periods, countries, and institutions.

II. Naomi Lamoreaux

"Banks, Kinship, and Economic Development: The New England Case"

Issues

- Usual view is that financial markets in New England in the early 19th century did not work well.
    - Banks were small and localized; didn't seem to make loans to industry; rampant nepotism.
- Lamoreaux reevaluates this evidence.
    - Basic argument is that they were not like modern banks, but nevertheless worked well.

Methodology

- Primary sources:
  - Bank records: minutes of meetings, lists of shareholders, balance sheets, lists of loans, etc.
- What does she do with these records?
  - Finds out who was investing in banks and who they were making loans to.
- Strengths and weaknesses?

Characteristics of Early New England Banks

- Dominated by families (80% of loans to kinship group).
- Maturation of family networks in shipping enterprises.
- Not really banks, but investment pools (54% of loanable funds were invested capital).

TABLE 2
BALANCE SHEET FOR MASSACHUSETTS BANKS IN 1835

	Millions of Dollars	Percent of Total
Liabilities		
Capital stock	$30.41	54.0%
Bills in circulation	9.43	16.7
Net profits	1.06	1.9
Due to other banks	3.49	6.2
Deposits	11.92	21.2
Total	56.31	100.0
Assets		
Specie	1.14	2.0
Real estate	0.92	1.6
Bills of other banks	2.10	3.7
Due from other banks	3.80	6.7
Loans and discounts	48.34	85.9
Total	56.30	100.0

Source: Massachusetts, Secretary of the Commonwealth, *Abstract from the Returns of Banks in Massachusetts* (Boston, 1835).

From: Lamoreaux, "Banks, Kinship, and Economic Development"

Do You Believe Lamoreaux's Characterization of New England Banks?

- Pretty convincing and detailed evidence.
- Could there be selection bias in the institutions for which she has records?
- Does she generalize too much from limited records?

What Were the Effects of Early New England Banks?

- Depositors were usually protected.
- Were they good investment pools?
  - Would investors have preferred that they were more diversified?
- Did the banks get funds to manufacturing?
- Did banks help industry in ways other than by loaning money?

TABLE 1

STATE-CHARTERED BANKS IN NEW ENGLAND, 1784–1860

Date	Number	Capital (in millions)
1790	1	$ 0.80
1800	17	5.50
1810	52	15.49
1819	84	16.48
1830	172	34.72
1837	323	69.66
1850	300	62.87
1860	505	123.56

From: Lamoreaux, “Banks, Kinship, and Economic Development”

Possible Failings

- Might loans to family members have crowded out more useful investment projects?
- Lamoreaux says free entry and competition prevented this.
- Do you agree?

III. J. Bradford DeLong

"Did J. P. Morgan's Men Add Value? An Economist's Perspective on Financial Capitalism"

How Did J. P. Morgan and Other Major Investment Banks Earn Sustained High Profits? Candidates:

Parasitic:

- Creating goods-market monopolies.
- Monopolizing finance.
- Colluding with managers to harm stockholders.
- Stock-picking.

Productive:

- Signaling.
- Monitoring services and management services.
- Promoting increasing returns to scale activities.

Data

- 20 Morgan-related firms and 62 unrelated firms.
- A variety of financial variables:
  - Current stock value.
  - Value of capital stock, as indicated by excess of assets over liabilities.
  - Par value (the price at which stocks were originally issued).
  - Profits/share (a measure of earnings).

Table 6.1 **The Value of Having a Morgan Partner as a Board Member**

Independent Variables					
Morgan Partner[a]	Utility Company?	Other Variables		Adjusted R^2	SEE
0.259				0.021	0.834
(0.161)					
0.270*	0.281			0.038	0.830
(0.161)	(0.197)				
0.253*	0.107	−1.834*	Earnings/price	0.270	0.730
(0.144)	(0.175)	(0.304)			
0.375*	0.441*	1.680*	Log book/par value	0.180	0.777
(0.151)	(0.186)	(0.374)			
0.055	0.155	0.569*	Log earnings/book	0.236	0.726
(0.102)	(0.124)	(0.073)			

Source: As described in text.

Note: Dependent variable is log of average 1911–12 stock price relative to book value (eighty-two observations, including twenty Morgan companies). Standard errors in parentheses.

[a]Corporate board contains a partner of J. P. Morgan and Company.

*$P(t) < .05$ (one-tailed).

From: DeLong, "Did J. P. Morgan's Men Add Value?"

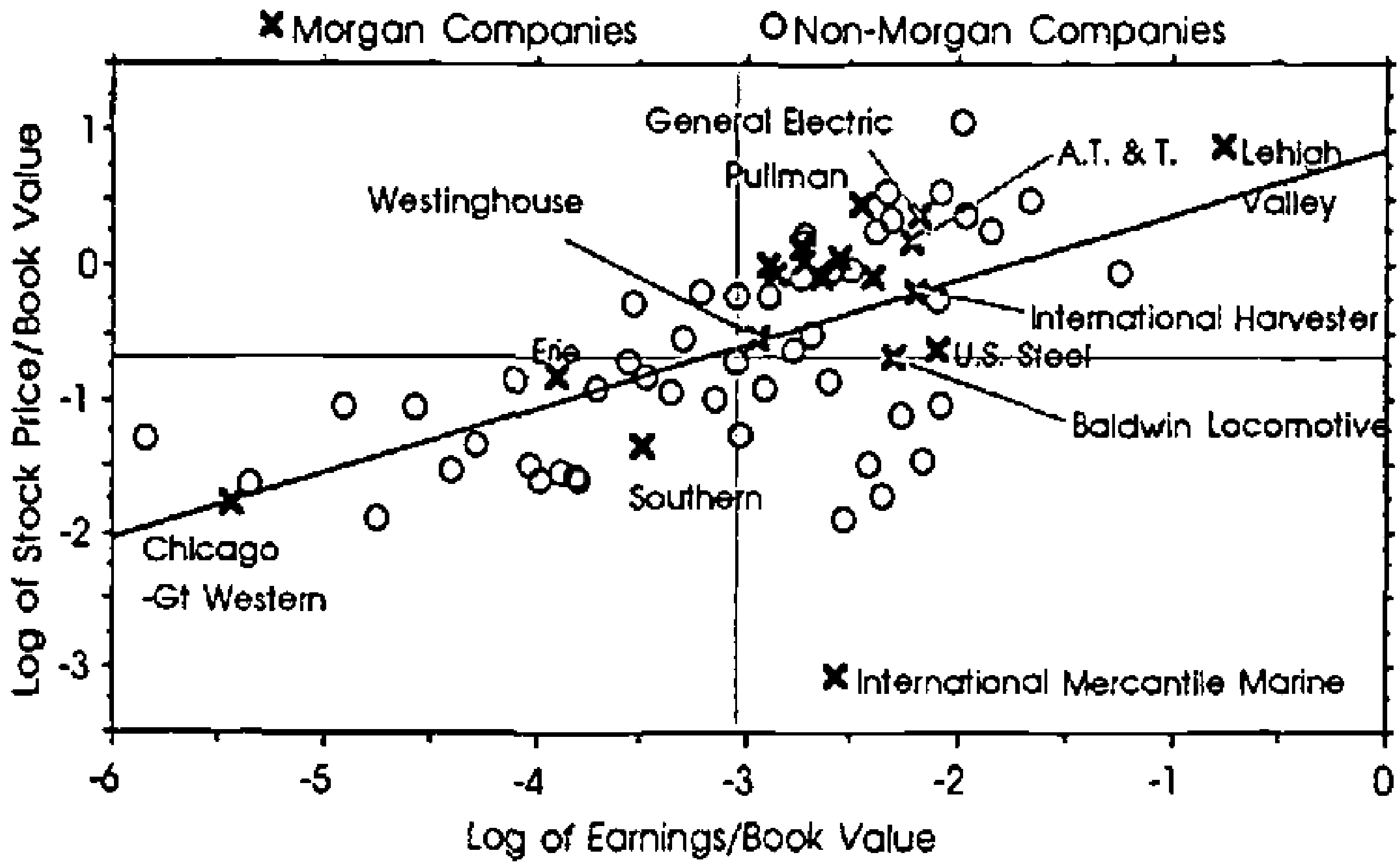

Fig. 6.1 Relative prices and earnings of Morgan and non-Morgan companies, 1910–12

From: DeLong, “Did J. P. Morgan’s Men Add Value?”

Interpretation

"This suggests that, to the extent that Morgan partners added value, they did so by making the companies they monitored more profitable, not by significantly raising the share price paid for a company of given profitability."

Case Studies: International Harvester and AT&T

- What can we learn from the case studies?
- DeLong argues that they can bring in a range of additional evidence, some of it qualitative, that sheds light on what Morgan actually did.
- Findings: in both cases, Morgan was actively involved in choosing management, but not in micro-managing the firm.
- But: in both cases, Morgan's role also created larger firms, and so promoted both monopoly power and (if they were present) increasing returns.

Conclusion

- Raises an important and often overlooked set of questions.

- Sheds a little light on them.

IV. Peter Koudijs

"The Boats That Did Not Sail: Asset Price Volatility in a Natural Experiment"

Forces That Potentially Move Asset Prices

- Public information about fundamentals.
- Private information about fundamentals.
- Liquidity and willingness to bear risk.
- Sentiment/irrationality.

Asset Prices

A simple model might lead to an expression for the price of an asset of the form:

$$P_t = F_t + \frac{S_t}{\alpha},$$

with *F* a random walk and *S* mean-reverting (and mean zero), where:

- F_t is the expectation of fundamentals given publicly available information;
- S_t is a measure of sentiment or liquidity demand;
- $\alpha > 0$ is a measure of the market's "depth" or "risk-bearing capacity."

18th Century Financial Markets in London and Amsterdam

- Sophisticated financial markets with many modern features (futures, options, shorting, margins) in both cities.

- Some British securities were traded in both markets.

Advantages of This Setting

- Koudijs can identify arrival of news from London to Amsterdam.

Figure 1: Map North Sea Area

From: Koudijs, "The Boats That Did Not Sail"

Figure 2: Examples news arrival

(A): Announcement Prime-Minister Fox, November 18, 1783

From: Koudijs, "The Boats That Did Not Sail"

Advantages of This Setting (continued)

- Koudijs can identify arrival of news from London to Amsterdam.
- Argues that in the periods he focuses on, virtually all relevant news came from London.
- Why 1771–1777 and 1783–1787?
- How important are the weather-related delays in information transmission?
- Concerns?

Evidence That Developments in Amsterdam Did Not Affect Prices in London

- Institutional/qualitative.
- Statistical #1: No evidence that developments in the Dutch Republic had substantial effects on prices of British securities.
- Statistical #2: No evidence of a substantial impact of price movements in the Amsterdam market on London prices.

Table 3: Response to news, Amsterdam and London

	AMS (response to LND) $\Delta p_t^{AMS,boat}$			LND (response to AMS) $\Delta p_t^{LND,boat}$		
	EIC	BoE	3% Ann.	EIC	BOE	3% Ann.
Observed LND return (Δp_{s-1}^{LND})	0.380 (0.041)***	0.425 (0.058)***	0.464 (0.070)***			
Past AMS return (Δp_{s-2}^{AMS})	−0.021 (0.038)	−0.004 (0.003)	−0.042 (0.039)			
Observed AMS return (Δp_{s-1}^{AMS})				0.056 (0.033)*	0.053 (0.038)	0.064 (0.033)*
Past LND return (Δp_{s-2}^{LND})				−0.026 (0.035)	−0.068 (0.052)	−0.056 (0.036)
Constant	0.054 (0.032)*	0.018 (0.015)	0.035 (0.022)**	0.006 (0.032)	0.019 (0.019)	0.016 (0.017)
N	594	602	621	636	629	756
Adj. R^2	0.21	0.26	0.23	0.00	0.00	0.01

From: Koudijs, “The Boats That Did Not Sail”

Public Information Coming from London

- Prices will move when boats arrive.
- If public information coming from London were the only source of price movements: (1) Prices would change only when boats arrived; (2) When a boat arrived, the price would immediately jump to the reported London price.

Table 6: Benchmark results

		Δp_t^{AMS}				
		EIC	SSC	BoE	3% Ann	4% Ann
mean	boat ($B_t = 1$)	0.084	0.037	0.043	0.059	0.040
	no-boat ($B_t = 0$)	0.018	0.023	0.017	0.013	0.022
	(t statistic)	(1.526)	(0.456)	(1.032)	(1.350)	(0.635)
variance	boat ($B_t = 1$)	0.703	0.325	0.229	0.415	0.300
	no-boat ($B_t = 0$)	0.279	0.179	0.131	0.193	0.150
	(B-F statistic)	(42.3)***	(20.8)***	(24.8)***	(22.9)***	(30.4)***
skewness	boat ($B_t = 1$)	0.189	−0.030	0.169	0.279	−0.504
	no-boat ($B_t = 0$)	0.030	0.649	0.523	0.134	1.372
kurtosis	boat ($B_t = 1$)	7.52	8.52	7.99	11.08	10.39
	no-boat ($B_t = 0$)	8.68	7.88	10.95	8.27	10.86
% zero	boat ($B_t = 1$)	13.5	38.0	22.8	29.5	50.6
	no-boat ($B_t = 0$)	27.0	54.7	38.3	41.0	65.3
Obs	boat ($B_t = 1$)	681	681	681	681	680
	no-boat ($B_t = 0$)	481	481	481	481	481
$\frac{var(\Delta p_{t+d}^{AMS,no-boat})}{var(\Delta p_t^{AMS,boat})}$		0.397	0.550	0.575	0.466	0.498

From: Koudijs, “The Boats That Did Not Sail”

Private Information Coming from London

- Between boat arrivals, prices would move in the same direction in London and Amsterdam.

- When a boat arrives, prices in Amsterdam will move as if they were influenced by price moves in London after the boat had left.

Table 15: Private information: news and no-news returns

	Amsterdam boat returns ($\Delta p_t^{AMS,boat}$)			Amsterdam no-boat returns ($\Delta p_{t+d}^{AMS,no-boat}$)		
	EIC	BoE	3% Ann.	EIC	BoE	3% Ann.
London post-departure returns (Δp_s^{LND})	0.233	0.138	0.154	0.138	0.168	0.134
	(0.042)***	(0.050)***	(0.070)**	(0.034)***	(0.043)***	(0.051)***
London pre-departure returns (Δp_{s-1}^{LND})	0.373	0.405	0.486			
	(0.042)***	(0.054)***	(0.068)***			
Constant	0.045	0.025	0.031	0.006	0.003	0.006
	(0.028)	(0.017)	(0.021)	-0.024	-0.016	-0.019
N	622	640	669	467	465	479
Adj. R^2	0.286	0.250	0.254	0.053	0.066	0.034

From: Koudijs, "The Boats That Did Not Sail"

Liquidity and Sentiment in Amsterdam

- There would be mean-reverting price movements in Amsterdam unrelated to developments in London.

Table 9: Predictive regressions - EIC

	Panel (1): Future Amsterdam EIC returns (Δp_{t+T}^{AMS})					
	2/3 days	4/5 days	1 week	2 weeks	3 weeks	4 weeks
Current Amsterdam EIC	0.001	-0.010	-0.019	-0.035	-0.012	0.021
returns (Δp_t^{AMS})	(0.029)	(0.044)	(0.050)	(0.082)	(0.085)	(0.099)
Constant	0.032	0.063	0.092	0.174	0.255	0.341
	(0.018)*	(0.026)**	(0.032)***	(0.046)***	(0.058)***	(0.068)***
N	1540	1535	1530	1515	1500	1485
Adj. R^2	0.00	0.00	0.00	0.00	0.00	0.00

Table 10: Predictive regressions - BoE

	Panel (1): Future Amsterdam BoE returns (Δp_{t+T}^{AMS})					
	2/3 days	4/5 days	1 week	2 weeks	3 weeks	4 weeks
Current Amsterdam BoE	-0.049	-0.086	-0.049	0.009	0.032	0.154
returns (Δp_t^{AMS})	(0.036)	(0.044)**	(0.054)	(0.077)	(0.096)	(0.118)
Constant	0.027	0.056	0.079	0.155	0.233	0.315
	(0.012)**	(0.016)***	(0.020)***	(0.028)***	(0.036)***	(0.043)**
N	1540	1535	1530	1515	1500	148
Adj. R^2	0.00	0.00	0.00	0.00	0.00	0.0

Table 11: Predictive regressions - 3 % Annuities

	Panel (1): Future Amsterdam 3% Ann. returns (Δp_{t+T}^{AMS})					
	2/3 days	4/5 days	1 week	2 weeks	3 weeks	4 weeks
Current Amsterdam 3%	-0.107	-0.185	-0.200	-0.159	-0.149	0.027
Ann. returns (Δp_t^{AMS})	(0.034)***	(0.049)***	(0.063)***	(0.082)*	(0.102)	(0.122)
Constant	0.033	0.064	0.093	0.168	0.251	0.332
	(0.015)**	(0.020)***	(0.023)***	(0.032)***	(0.039)***	(0.046)***
N	1540	1535	1530	1515	1500	1485
Adj. R^2	0.01	0.02	0.02	0.01	0.00	0.00

From: Koudijs, “The Boats That Did Not Sail”

What This Leaves Out

- News about fundamentals originating in Amsterdam (from both public and private information).

- Liquidity and sentiment developments originating in London and transmitted to Amsterdam.

Framework (1)

Change in London price between departures of 2 boats:

$$\Delta P_s{}^{LND} = \eta_s + \varepsilon_s + u_s,$$

where η_s is public information that arrives during the interval, ε_s is information that was private at the start of the interval that is revealed during the interval, and u_s is a residual (liquidity and sentiment).

Framework (2)

Change in Amsterdam price when a boat arrives:

$$\Delta P_t^{AMS,boat} = \tilde{\eta}_t + \lambda_o \theta_t + v_t,$$

where $\tilde{\eta}_t$ is public information from the boat arrival (London public information; and information that had originally been private in London, become public in London, and had not yet become public in Amsterdam); $\lambda_o \theta_t$ is the component of London private information (ε_s) that was privately communicated to Amsterdam and quickly revealed through trading; and v_t is a residual (liquidity and sentiment).

Framework (3)

Change in Amsterdam price when no boat arrives:

$$\Delta P_{t+d}{}^{AMS,noboat} = \lambda_d \theta_{t+d} + v_{t+d},$$

where $\lambda_d \theta_{t+d}$ is the component of London private information (ε_s) that was privately communicated to Amsterdam and revealed through trading in this interval, and v_{t+d} is a residual.

Implications

This framework implies:

$$var\left(\Delta p_t^{AMS,boat}\right) = \underbrace{\sigma_{\tilde{\eta}}^2}_{cov\left(\Delta p_t^{AMS,boat},\Delta p_{s-1}^{LND}\right)} + \underbrace{\lambda_0\sigma_{\varepsilon}^2}_{cov\left(\Delta p_t^{AMS,boat},\Delta p_s^{LND}\right)} + \sigma_{v_t}^2 \qquad (5)$$

$$var\left(\Delta p_{t+d}^{AMS,no-boat}\right) = \underbrace{\lambda_d\sigma_{\varepsilon}^2}_{cov\left(\Delta p_{t+d}^{AMS,no-boat},\Delta p_s^{LND}\right)} + \sigma_{v_{t+d}}^2 \qquad (6)$$

Measuring the Role of Trading Costs and Liquidity

A calibrated model of market-makers' costs of holding inventories of securities and mean reversion in asset prices.

Table 17: Summary results

	EIC		BoE		3% Ann.	
	$var(\Delta p_t^{AMS})$	% total	$var(\Delta p_t^{AMS})$	% total	$var(\Delta p_t^{AMS})$	% total
Boat returns	0.703		0.229		0.415	
Attributed to:						
Public news	0.380	54.0%	0.129	56.4%	0.195	47.0%
Private information	0.277	39.3%	0.045	19.5%	0.060	14.6%
Trading costs	0	0%	0.049	21.6%	0.105	25.2%
Residual	0.047	6.7%	0.006	2.5%	0.055	13.3%
N	681		681		681	
No-boat returns	0.279		0.131		0.193	
Attributed to:						
Private information	0.110	39.4%	0.051	39.3%	0.052	26.9%
Trading costs	0	0%	0.049	37.7%	0.105	54.2%
Residual	0.169	60.6%	0.030	23.0%	0.036	18.9%
N	481		481		481	
All returns	0.528		0.188		0.323	
Attributed to:						
Public news	0.223	42.2%	0.076	40.2%	0.114	35.3%
Private information	0.208	39.4%	0.047	25.2%	0.057	17.6%
Trading costs	0	0%	0.049	26.3%	0.105	32.4%
Residual	0.097	18.5%	0.016	8.42%	0.047	14.7%
N	1162		1162		1162	

From: Koudijs, “The Boats That Did Not Sail”

Discussion/Evaluation