Cooperation and the Value of Social Connections:

Evidence from the Chinese Banking Sector in the 1930s

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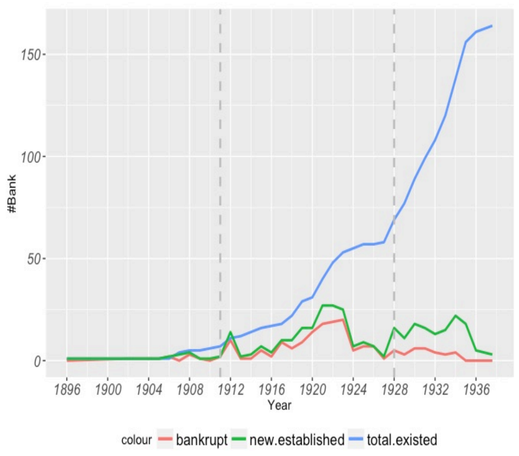
Introduction

Cooperation and links between firms, and in particular banks, have been a topic for economic and financial historians. This paper asserts that board connections among banks served as a network of inter-banking cooperation, that positively impacted the financial performance of the involved enterprises.

- **Research Question**: whether director sharing contributed to the overall performance of Chinese modern banks?
  - The analysis shows that banks with and without director sharing are statistically different in term of asset size, age, staff numbers, RoA and profit per staff.
  - The empirical results elucidate a high positive correlation between bank's profitability and its connections with rivals through interlocking directors. The outcome provides a reasonable explanation about the success of Chinese banking sector in the 1930s

Historical Background

The Chinese modern banking sector developed rapidly in the Republican Era



The first Chinese modern bank was established in 1897. During the time span of political turbulence from 1912 to 1927, a total of 266 new banks opened for business, around eighteen each year. The Nanjing decade (1927-37) provided another "golden decade" for China's economy and the number of newly established financial institutions maintained momentum while the bankrupt rate declined sharply.

Figure 1. The number of Chinese modern banks from 1896 to 1937

Director sharing in the banking sector was prevalent, particular in the 1930s

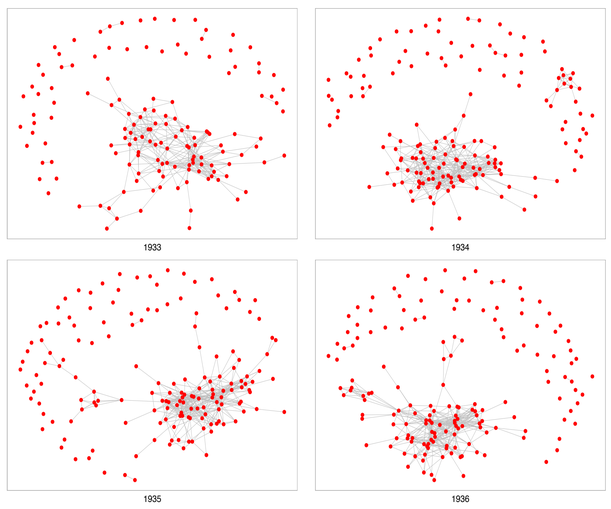


Figure 2 shows the bank networks from 1933 to 1936 created by common personnel, where nodes represent individual banks while the edges are boardroom connections based on shared directors.

The isolated banks were mainly small and rural banks that were located outside the major financial centres.

Figure 2. Bank boardroom network from 1933 to 1936

- My estimating equation takes the form (Panel with fixed effects):

$$Performance_{i,t} = \beta_0 + \beta_1\, Board\_connectedness_{i,t} + Bank\_Characteristics_{i,t} + FE_i + FE_t + \varepsilon_{i,t}$$

  - $Performance_{i,t}$: *Return on Assets (RoA) and Protfit per staff*
  - $Board\_connectedness_i$: four centrality measures to capture an individual bank's position in the boardroom network, namely *Degree, Closeness, Betweenness, and Eigenvector centrality.*
  - $Bank\_Characteristics_{i,t}$: *Bank level controls.*

- The annual inter-bank networks from 1933 to 1936, which are used in the empirical analysis, are based on the board compositions of 209 Chinese banks involving 3,060 individuals. Data resources are including:
  - Bank Annual (1934-1937), an official record of annual financial statistics,
  - Director level data, such as middle name, birthplace, and age, which are used to help identify individual managers, have been collected from various biographies and related sources

Working paper version with references available under:
http://lingyukong.info

Banking network statistics

Interlocking were the mainstream in the banking sector as the table below shows.

Panel A: Descriptive Statistics bank network	1933	1934	1935	1936
#Banks	142	159	164	163
#Links	329	458	424	416
#Isolated Banks	41	45	54	58
Network density	0.033	0.036	0.033	0.032
Panel B: Summary statistics of central component				
#Banks	88	89	102	94
Avg. path length	3.026	2.512	3.396	2.903
Diameter	9	8	12	9
Clustering coeff.	0.41	0.40	0.41	0.41

Results

The empirical outcome offers evidence that a more central location within the sector as measured by the closeness centrality network measure was associated with a better financial performance.

	Dependent variable:							
	RoA				Profit per capita			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Degree	0.001 (0.001)				0.068 (0.114)			
Closeness		0.007* (0.003)				0.651** (0.321)		
betweenness			−0.007 (0.126)				0.648 (11.574)	
Eigenvector				0.003 (0.009)				0.526 (0.845)
Size	−0.005*** (0.002)	−0.005*** (0.002)	−0.005*** (0.002)	−0.005*** (0.002)	0.805*** (0.156)	0.786*** (0.154)	0.815*** (0.156)	0.820*** (0.155)
D/S ratio	−0.003 (0.003)	−0.002 (0.003)	−0.003 (0.003)	−0.003 (0.003)	0.533** (0.264)	0.566** (0.262)	0.538** (0.266)	0.522* (0.266)
#Covered cities	−0.001 (0.001)	−0.001 (0.001)	−0.001 (0.001)	−0.001 (0.001)	−0.211** (0.090)	−0.214** (0.089)	−0.213** (0.091)	−0.204** (0.091)
Age	−0.004 (0.003)	−0.003 (0.003)	−0.003 (0.003)	−0.003 (0.003)	−0.303 (0.258)	−0.278 (0.251)	−0.273 (0.254)	−0.278 (0.253)
lag(RoA)	0.203*** (0.052)	0.211*** (0.052)	0.201*** (0.052)	0.202*** (0.052)				
lag(profit)					−0.182*** (0.063)	−0.167*** (0.063)	−0.183*** (0.063)	−0.184*** (0.063)
#staff	−0.0002 (0.004)	0.0001 (0.004)	−0.0001 (0.004)	−0.0004 (0.004)	0.796** (0.342)	0.829** (0.339)	0.800** (0.345)	0.770** (0.346)
Individual fix effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fix effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	334	334	334	334	334	334	334	334
R^2	0.130	0.143	0.129	0.130	0.259	0.271	0.258	0.259
Adjusted R^2	0.087	0.095	0.086	0.086	0.172	0.180	0.171	0.172
F Statistic (df = 7; 222)	4.752***	5.300***	4.703***	4.720***	11.094***	11.817***	11.027***	11.100***

Discussion

- Closeness differs from other centrality measure, pointing towards influence of whole network rather than just neighbours.
- A difference-in-means test between banks with and without busy directors highlights the systematic difference in firm Characteristics.
- Board Busyness, share of directors involved in IDs, delivers similar results, pointing to operational know-how transmission as important effect.
- Most-connected banks statistically tended to be connected with banks who held more assets, and network neighbour banks are more likely those with higher leverage and lower liquidity.

Conclusions

This study shows that modern Chinese banks were not isolated islands within the sector during the Nanjing decade.

- Board interlocks were prevalent among Chinese financial institutions, so they offered systematic benefits for involved banks.
- The study expands on the current literature by demonstrating that interlocking directorates offered financial performance improvements in historical development context.
- The paper points towards operational know-how as an important aspect of information transmission in Chinese context.

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