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## The Role of Interlocking Directorates in Historic Bank Crises in France

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# The Role of Interlocking Directorates in Historic Bank Crises in France

## Abstract

Banking crises have never failed to mark the history of countries around the globe as they are key components of any economy. Relative to the other countries of continental Europe, France experienced an early development of its financial institutions which is attributed to its early industrialization. A shift in the nature of banking crises was observed in France around 1895, and the project seeks to study the change in banking networks and its role in the stabilization of the French banking system.

France experienced a major credit crisis in 1930-1931. However, the extent and implications of this crisis were never evaluated empirically due to an absence of information and data since there was no banking regulation at the time. Although the big banks were relatively untouched during the crisis, new data from 400 small banks shows the rest of the banking system underwent two waves of panic: one towards the end of 1930 and one towards the end of 1931. The current project seeks to expand on the analysis of the past research on bank crisis using the relatively new 'interlocking directorates' technique.

Examining interlocking directorates focuses on the relationships between financial banks, insurances, industrial firms, and other sectors in France across metropolitan, colonial, and foreign regions. The rationale of studying interlocking directorates within the French banking system is based on various advantages and disadvantages with asymmetries of information issues.

## Keywords

Interlocking directorates, directorates, economics, stocks, France, banking, credit crises, banking crises, crises, networks, network analysis

## Disciplines

Business | Economic History | Finance | International Business | International Economics | Macroeconomics | Other Economics | Public Economics | Regional Economics

Fabio Tessiore

14 September 2020

## **WRAP Report 2020 - Paris School of Economics**

### **Thank you**

I would like to begin by thanking all of the parties involved in making my experience and research assistantship possible. Thank you to the World Research and Assistantship Program including Dr. Utsav Schurmans and Prof. Simone Marinesi for granting me the scholarship and helping me reach out to foreign professors. I would also like to thank Prof. Angelo Riva and Prof. Elisa Grandi for their kind support and guidance throughout my assistantship and research.

### **Collaboration with Research Project on**

### **“Analysis of the Role of Interlocking Directorates in Bank Crises in France during the late 19th to 20th Century”**

*World Research Assistantship Program Summer 2020 under the tutoring of Prof. Angelo Riva and Prof. Elisa Grandi*

Banking crises have never failed to mark the history of countries around the globe as they are key components of any economy. Relative to the other countries of continental Europe, France experienced an early development of its financial institutions which is attributed to its early industrialization. The project focuses on examining the banking crises in France under the gold standard from 1873-1913 and the interwar period. Learning from the 1882 crisis of the Union Générale, The French Central Banks bailed out for the first time a systemic banking institution, the Comptoir d'Escompte, in 1889 (Hautcoeur et al., 2014). Hautcoeur et al., 2014 highlights the importance of networks in the banking system to explain the failure of the Comptoir.

New data sheds light on the continued banking crises up until 1914. However, the size of the insolvent banks decreased greatly, starting in 1896. After the 1890s, there were no insolvencies of systemic banks until the Great Depression era (Baubeau et al., 2020). A shift in the nature of banking crises was observed in France around 1895, and the project seeks to study the change in banking networks and its role in the stabilization of the French banking system.

France experienced a major credit crisis in 1930-1931. However, the extent and implications of this crisis were never evaluated empirically due to an absence of information and data since there was no banking regulation at the time. The literature on the topic focused on the balance sheets of the easily available balance sheets of the four to six major banks and did not show major banking issues. With the introduction of new datasets that included balance sheets from a range of 400 banks, the credit crisis was shown to have started earlier and has been more severe than was previously believed: the fall in deposits and credit is on the same scale as in the countries most affected by the crisis, such as the United States and Germany. The big commercial banks of the time were much less affected compared to the smaller regional banks. The population on average withdrew their funds from banks and instead deposited their capital into state-guaranteed savings institutions and the central bank once the panic became evident towards the end of 1930 in search of safety (Baubeau et al., 2020). However, these saving institutions were not entitled to lend to business, but only to the French government. The shift in deposits led to a decrease in business lending, exacerbating the problem. Policies to remedy crises were not prevalent during this period because of the “gold standard mentality”. Since all of the money that was deposited into the central bank and saving institutions was used to reduce public debt and increase gold reserves, a credit crunch and an economic crisis ensued in the years following the 1930 crisis.

Banking panics in France during the Great Depression of the 1930s were thought to be less severe due to the lack of economic consequences recorded after the crisis according to previous research. These conclusions were based on data that stems from computing bank credit and deposits relying on the balance sheet of the four to six largest commercial banks, but a more accurate analysis, based on observation of smaller banks revealed that this does not paint a similar picture for the smaller banks. Although the big banks were relatively untouched during the crisis, new data from 400 small banks shows the rest of the banking system underwent two waves of panic: one towards the end of 1930 and one towards the end of 1931.

Prof. Riva and Prof. Grandi, who is a postdoctoral fellow at CNRS-Paris School of Economics, as well as other scholars, have worked to create expand the interwar database and open new perspectives for research of French bank crises. They sought to aggregate long-run, high quality, and harmonized data in order to better understand different aspects of French financial history within the framework of the Equipment of Excellence of Data for Financial History (Equipex DFIH: <https://dfih.fr/>). The Equipment of Excellence of Data for Financial History (Equipex DFIH) aims to develop a comprehensive database on firms listed on French markets from 1796 to 1976 (Ducros et al., 2018) and on the French banking system. The database collects market data and additional data on firms such as the date of foundation, headquarters, sector, governance rules, directorates, balance sheets, etc. The architecture of the database is based on two main sources. The first source is the official list of the Paris Bourse providing information on the assets and the second source is the official and private yearbooks providing information the issuers collected from the archives of the CAC in Paris and Banque de France (Ducros et al., 2018). Data on the French banking system are completed with other archival and printed sources.

The current project seeks to expand on the analysis of the past research on bank crisis using the relatively new ‘interlocking directorates’ technique.

Prof. Riva, who is a private professor of finance at the European Business School and affiliate professor of Economics at the Paris School of Economics, and his team seek to better understand the historical crises in French history through the examination of interlocking directorates. Examining interlocking directorates focuses on the relationships between financial banks, insurances, industrial firms, and other sectors in France across metropolitan, colonial, and foreign regions. The definition of an interlock is the link created between two firms when an individual belongs to the board of directors of both corporations (Rinaldi and Vasta, 2002). Furthermore, network analysis allows to compute centrality measures to specify the strength or weakness of the connections. The rationale of studying interlocking directorates within the French banking system is based on asymmetries of information issues and could be explained as follows. Firstly, it could be easier for a firm, being it a financial or non-financial firm, to get credit from financial institutions if the firm is interlocked with these financial institutions. Interlocking could ensure the smooth flow of information between the lender and the borrower and thus decrease information asymmetries. Alternatively, interlocking could create room for the work of conflict of interest; in this case, the lender would get an excessive risk on the borrower; if the borrower defaults, contagion can spread faster and cause greater negative reactions throughout the system.

### **My Contribution to the Project**

I participated in the World Research Assistantship Program sponsored by Wharton for 11 weeks from May 18th to July 31st. During my stage as a research assistant for Prof. Riva, I

worked remotely to carry out various data processing, computations, and analysis assignments.

My tasks consisted mainly of:

- 1) cleaning and harmonization of data on banks' insolvencies; computations on data
- 2) cleaning and harmonization of data on banks' interlocking directorates
- 3) cleaning and harmonization of market data (prices, dividends...); computation on data
- 4) cleaning and harmonization of balance sheet data; computations on data.
- 5) data extraction / insertion from Oracle Database.

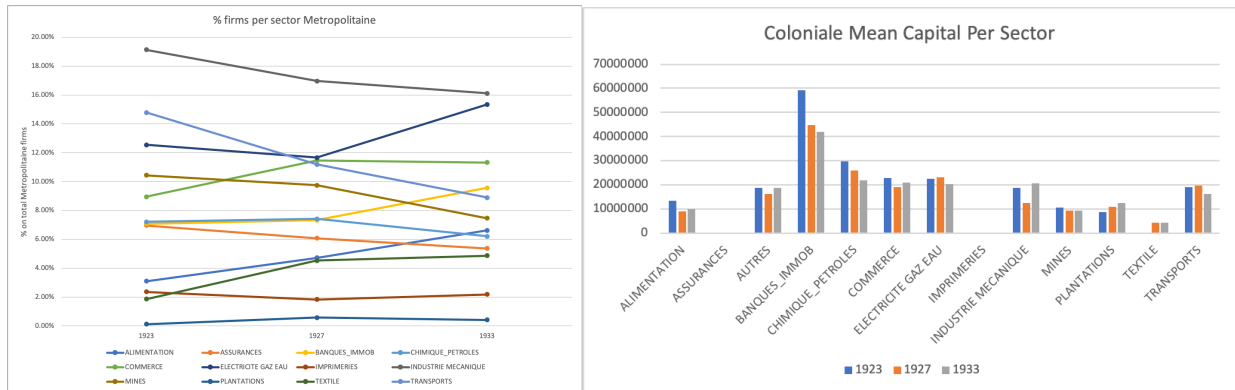
I worked very closely with Prof. Grandi who would assign me new tasks, answer my questions, and teach me about the project and current research being conducted. One of my first assignments involved me cleaning and harmonizing data directly from scanned pages of annual reports from the archives. This included manually entering data such as the names of members of the board of different companies and their positions into an excel file for the DFIH database. This allowed me to familiarize myself with the sort of datasets being used which enabled me to better understand the next tasks. Later assignments involved the identification of firms in a given year, whether they were registered on the public or private markets, based on a description recorded in the annual reports collected in the archives. Prior to starting the assistantship, I enrolled in a beginner's language course in French online for four weeks before starting the project (kindly sponsored by the Huntsman Program grant) to be able to better read and understand the French language. It was very useful and I found that I could read all of the material on the annual reports and yearbook descriptions without problems. An interesting moment that struck me when tasked with manually cleaning and entering data from annual reports was that I came across a firm that loaned capital to a "Monsieur Eiffel" for the construction of a tower.

With all of my assignments, I was able to automate the process using excel. I became very familiar with many excel formulas such as vlookup, countifs, ifs, and sumifs among others, creating simple and intricate ways to sort, search, and count various relevant data points. Halfway through the assistantship, I started to conduct preliminary network analysis on datasets in excel working with corporations and their links across different sectors (e.g. banks, insurance, chemical and oil) and also across regions. The firms I worked on were headquartered in different regions: the metropolitan French area, colonial French territories, and finally foreign firms from all around the world. My analysis also extended to include different types of currencies and the capital issues for each firm, dividing among regions and sectors once again. Most of the connections of interest were between metropolitan and colonial firms, and it was fascinating to see how the links were distributed over time periods such as from 1912 to 1940.

After the first month, I gained a better understanding of the project and my role. My job was to explore potential hypotheses that Prof. Grandi would discover based on her findings. I would conduct the initial analysis on the data that would help give a direction in future projects. I would test the hypotheses and prepare the data to then be able to go further in-depth with the network analysis if the conditions seemed favorable. With the permission of Prof. Riva and Prof. Grandi, I was able to travel to Paris since I was already going to be traveling to Europe to visit my family. I worked with Prof. Grandi and the team in person, strictly adhering to all safety guidelines and best practices for the final two weeks of the assistantship.

During this period, my tasks evolved to creating more graphs and charts to illustrate the evolution of different datasets throughout time periods. Towards the end, I created various scatter plots and other charts to try to find correlations between sectors and regions as the number of connections and nodes change in a given time period.





*Examples of charts graphing the number of firms and capital per sectors and regions*

I was tasked with the reorganization of data of metropolitan, colonial, and foreign corporations and performed analysis to adapt the data to the statistical tests that needed to be done. I found it fascinating to learn from one of the team members about the network analysis that she would run using the R software that I learned to use in my STAT 422 course at Wharton the previous semester. She conducted a network connectivity analysis of the system. The study of this new data from the archives allowing for interlocking directorates network analysis is in process and I was happy to be able to be a part of the data management and prepare the data for further analysis.

### **Conclusion and Continuation of the Collaboration**

In the future, I will be continuing this collaboration and providing more analysis of the current project. Prof. Grandi and I agreed that I would conduct deeper analysis and research later as I have a solid understanding of the data involved and the objectives of the research. I am currently learning more R and Python to be able to provide a broader range of technical skills to the team. Overall, I feel that I learned a great deal of technical skills as well as information about French economic history. I enjoyed learning about interlocking directorates and the insights that network analysis can provide in connected systems such as that among French businesses in the

1800s and 1900s. It was a pleasure and an honor working with Prof. Riva, Prof. Grandi, and the rest of the team who were all extremely kind and welcoming.

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