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Abstract

Concentration plays a key role in banking efficiency and stability, yet the literature lacks any long-run analysis of U.S. banking industry structure. This paper uses newly-collected archival data to provide the first study of banking concentration from the early years of the republic through 2019. While concentration was declining or stable before the mid-1920s, statistical tests identify a structural break thereafter, as concentration started steadily rising as a result of growth at the nation's largest five banks, particularly those located in New York City. A second structural break in the mid-1990s further accelerated the upward trend in concentration before slowing down during the Great Recession.

JEL Classification: G20, E44, N11

Keywords: bank concentration, Too Big To Fail

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1. Introduction

Banking industry concentration is a perennial concern as it affects commercial bank competition and efficiency, which may in turn influence investment and economic growth. Moreover, the concentration of funds in key financial institutions, more recently known as "too big to fail" or systemically important may lead to financial fragility and leave the system more prone to crises (Sprague 1910; Beck 2007, Strahan 2013). In the United States, funds have long concentrated in a few large banks in financial centers—most notably New York City—which in turn has magnified and transmitted idiosyncratic shocks to the entire nation through correspondent networks and counterparties (e.g., Mitchener and Richardson 2019).

Despite the importance of bank concentration, we know strikingly little about its long-run patterns. Scholars have estimated concentration ratios for a handful of years since the turn of the 20th century, but no study has established very long-term trends or pinpointed significant turning points.[1] The lack of studies on bank concentration before 1975 stems largely from the paucity of digitized data; itself a consequence of the huge number of banks in the system and the dispersion of data over hundreds of state reports for state-chartered banks and in archived reports of the Comptroller of the Currency for nationally-chartered banks.

We fill this gap by hand entering a novel data set of over 650,000 balance sheets and other archival documents from 1863 to 1980, which we link to Weber's (2005, 2008) antebellum bank balance sheet database and modern call report data from the Federal Reserve Bank of Chicago, to compute the first series of U.S. bank concentration ratios from the early years of the republic through today. Using our new data in structural break tests, we identify the mid-1920s as the start of the trend toward higher concentration and the mid-1990s as an acceleration of that

[1] For example, Janicki and Prescott (2006) and Fernholz and Koch (2017) provide detailed studies of changes in bank concentration after 1960 and 1980s respectively.

trend through the start of the Great Recession. Moreover, the results show that the increase in concentration stemmed from accelerating growth of the five largest banks—almost all located in New York City—rather than growth among the next largest 20 banks.

2. Data

The principal contribution of this paper is the compilation of over a century of novel bank-level data starting in 1863. From 1863 to 1939, we collect data on every national bank from the *Annual Report of the Comptroller of the Currency* and on all individual state banks and trust companies published by state regulators. Altogether, the over 650,000 individual balance sheets represent approximately 90% of system assets in any given year. For the period 1939-1980 we collect individual bank-level from the *Rand McNally Banker's Directory*. To extend the data as far back as possible, to 1800, we use Weber's (2005, 2008) database of annual balance sheets.[2] We also extend the data through 2019 using the Federal Reserve Bank of Chicago's call report data.

Finally, we obtain the total dollar amount of bank assets from 1800 through 2019 from official sources. We use the Comptroller of the Currency's *Annual Report* before 1896 and the Board of Governors data thereafter: *All Bank Statistics* (1896-1955), *Banking and Monetary Statistics* (1955-1970), and H.8 releases for the recent period. These data include all commercial banks in the country regardless of whether individual bank-data were publicly available.

3. U.S. Bank Concentration over Time

Concentration ratios before 1820 hold little meaning due to the scarcity of banks, so we focus the analysis on the period after 1820 (Figure 1). The 25-bank and 5-bank ratios display a u-

[2] We linearly interpolate missing observations for the cases of sporadic reporting gaps in any of the databases.

shaped pattern over time. While concentration ticked up in 1842 following the Panics of 1837 and 1839, it declined thereafter. Concentration then bottomed out at around 11% in the mid-1870s, it remained relatively stable between the 1870s and the early 1920s.

The mid-1920s marked a turning point to the first sustained increase in bank concentration, which continued throughout the period of study. The largest and fastest growing banks were in financial centers, especially New York City and therefore of concentration after 1924. Looking at the modern period, the trend in concentration continues with a particularly large increase after 1994 (which potentially corresponds to the passage of the Riegle-Neal Interstate Banking and Branching Efficiency Act). There is a slight leveling out of concentration in most recent decade after the Great Recession. Statistical tests of the 25-bank concentration ratio (Table 1) find significant structural breaks in bank concentration in 1924 and 1994 regardless of whether the antebellum period is included.

Matching the 25-bank ratio, the largest 5 banks were not a particularly large portion of the system until the rise in concentration after WWI. Indeed, even in 1914, the top 5 banks made up only 5.2% of all assets compared to the 9.3% share of the top 6-25 banks. In the mid-1920s, however, the top 5 banks become the primary drivers of the massive growth in concentration. In comparison, the top 6-25 banks do not see a jump in relative size compared to the rest of the distribution until the bank failures of the 1930s. As such, we can be sure that the top 5 banks were growing much larger than other large banks of the period.

Finally, we calculate the value of assets owned by New York City banks ranked in the top 25 in order to track the ascension of that city to the dominant banking center (Figure 2).[3] The Figure shows that New York City banks did not make up an outsized part of the financial system

[3] Because the largest banks were significantly larger than banks ranked below 25, similar patterns are obtained when using the top 25 New York City banks instead just those New York City banks that rank in the top 25 banks across the nation.

prior to 1857, generally comprising less than 5% of total system assets. However, the concentration of funds in the largest New York City banks rose over the late 1850s and particularly during the Civil War. The concentration ratio leveled out around 13% during the period 1870 to 1914 before a sudden acceleration during the 1920s and 1930s. After a decline during WWII, the concentration of funds in the largest New York City banks rose again in the 1950s and reached nearly 25% by 1980. Indeed, just the top banks in New York City account for about half of the growth in the 25-bank concentration ratio from 1952 through 2000.[4] However, in the early 2000s, there is a sudden drop in the concentration of assets in New York City caused by the largest New York City banks (e.g., JP Morgan Chase and Citibank) moving their headquarters to other locations.

4. Conclusion

Throughout history, the structure of the U.S. banking system has been touted for stimulating economic growth while also being blamed for promoting financial fragility and panics. Until now, economists have not examined long-run structural change of the entire banking system. In this paper, we have shown that concentration of the financial system followed a U-shaped pattern over the nearly 200-year timeframe. Further, we identify a structural break in concentration in the mid-1920s, which began an upward trend that persists today, and another break in the mid-1990s, which suddenly accelerated the upward trend through the start of the Great Recession. The data confirm the importance of New York City to overall bank concentration and show that its relative importance first grew during the Civil War period and then greatly expanded during the Roaring-20s before collapsing in importance as the banks

[4] The underlying data show that with the exception of the couple very large financial institutions in San Francisco and Los Angeles banks in other cities did not experience such a large jump in relative size over time.

moved their headquarters out of the city after 2002. Our data collection and analysis sets the stage for new research into the relationship between banking industry structure and financial market development; a key area of concern in both economic growth and the stability of the broader financial system.

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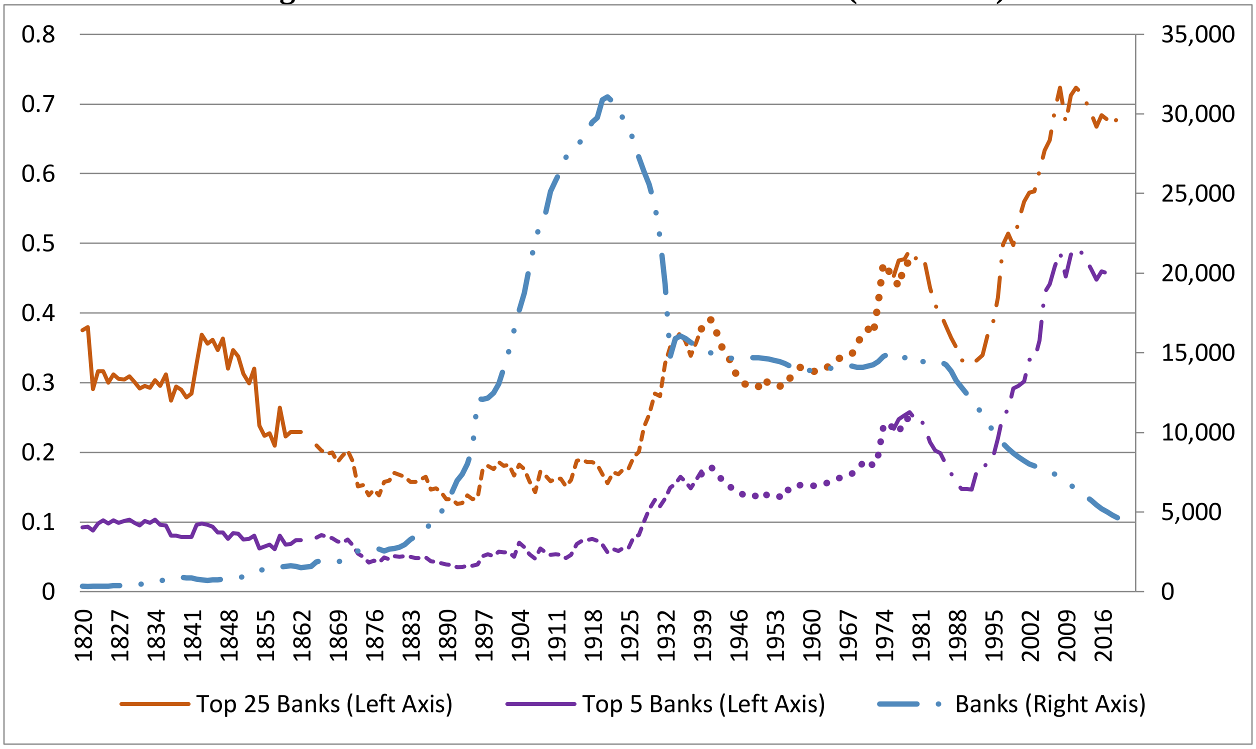
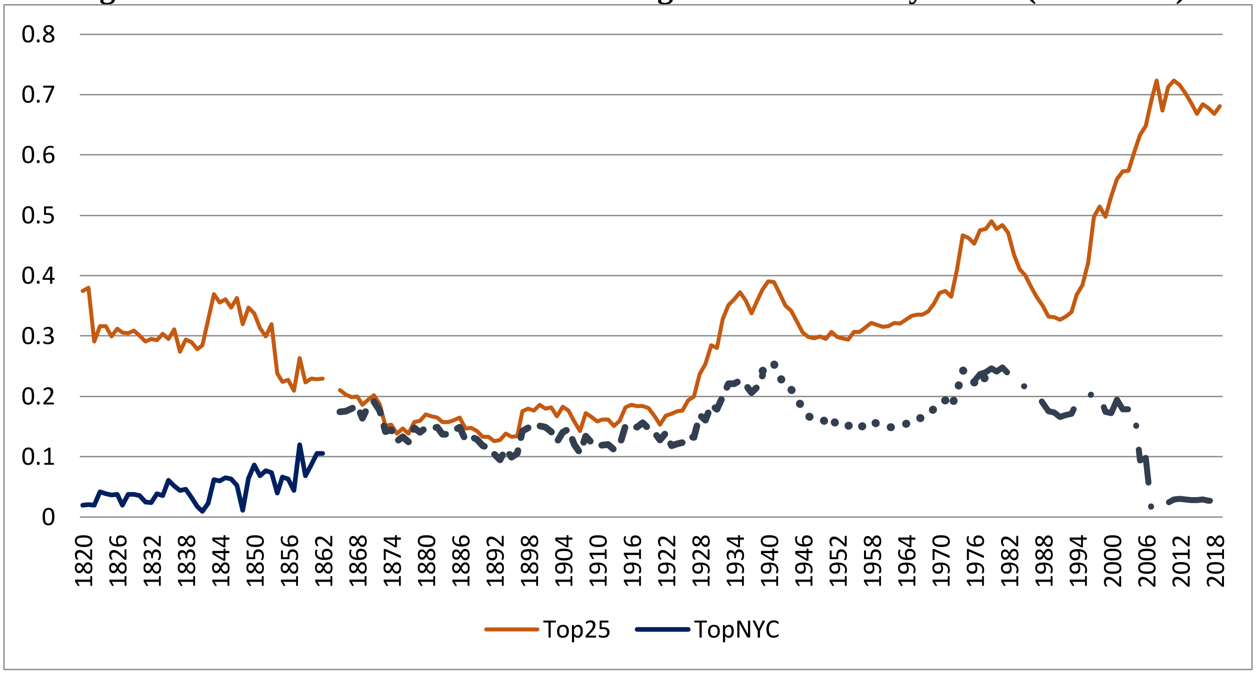
Figure 1: Bank Asset Concentration Ratios (1820-2019)



Notes: Figure contains the ratio of the assets in the largest 25 banks and largest 5 banks in the United States relative to the total assets and the number of banks by year. The various line styles for the concentration ratios denote where the data are coming from. See "Data" Section for details on sources.

Figure 2: Bank Asset Concentration in Largest New York City Banks (1820-2019)



Notes: Figure contains the ratios of the assets in the largest banks in the United States relative to the total assets. "Top25" denotes the largest 25 banks in the country. "Top NYC" denotes only the New York City Banks that are part of the top 25 banks in the country. See "Data" Section for details on sources.

Table 1: Structural Breaks in Concentration (1820-2019)

	Identified Breaks	
All Years		
Top 25 Banks	1924***	1994***
Top 5 Banks	1924***	1994***
Top NYC Banks	1856***	2003***
Post-1870		
Top 25 Banks	1924***	1994***
Top 5 Banks	1924***	1994***
Top NYC Banks	1926***	2003***
1870-1970		
Top 25 Banks	1926***	1943
Top 5 Banks	1912**	1926***
Top NYC Banks	1926***	1943***

Notes: Figures provides the dates of the two most significant structural breaks identified by a Clemente, Montañés, Reyes (1998) tests. The row headings provide the sample that the structural break tests were estimated using. * denotes significance at 10%; ** at 5% level and *** at 1% levels.