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**From a “Normal Recession” to the
“Great Depression”: Finding the Turning
Point in Chicago Bank Portfolios,
1923-1933**

Natacha Postel-Vinay

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Department of Economic History
London School of Economics
Houghton Street
London, WC2A 2AE

Tel: +44 (0) 20 7955 7860
Fax: +44 (0) 20 7955 7730

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Abstract

This dissertation analyses the long-term behaviour of bank financial ratios from 1923 to 1933, focusing on a population of 193 Chicago state banks. These banks are divided into earlier and later failure cohorts. The main conclusion is that a turning point in banks' vulnerability is identifiable before the first banking crises, between the end of 1928 and June 1930. A second, related conclusion is that this upsurge in vulnerability (as expressed by such variables as retained earnings and other real estate) is made even more significant when considering banks' behaviour in the preceding decade. In almost all cases earlier failures behaved more riskily in the 1920s, which explains their earlier and higher vulnerability at the start of the depression.

Introduction

There are two main interpretations of the causes of the Great Depression in the US. The monetarist hypothesis focuses on banking crises. It posits that the first banking crisis (November 1930 to December 1930) was wholly responsible for turning what was until then a normal recession (according to this interpretation) into a full-fledged Great Depression. This crisis, thus described primarily as one of liquidity, was autonomously generated; that is, it was generated by nothing other than mass withdrawals in a “contagion of fear,” in the words of Friedman and Schwartz. The Federal Reserve was partly responsible for not alleviating the system, and the great fall in the money supply led to the most catastrophic slump in US history. The second hypothesis is the “real effects” one. In its early form as introduced by Temin, it focused exclusively on fundamental variables and emphasized a fall in consumption and investment. New research along these lines has

focused on fundamental problems as reflected in the state of banks; according to this view, banks were insolvent, not illiquid. Proponents of this second interpretation conclude that banks that failed indeed previously showed particularly weak balance sheets, sometimes even before the Great Depression's official start (October 1929). Many point out similarities between banks that failed in the 1920s as a result of the post-war shock in agriculture and Great Depression failures. This new development is certainly welcome in the debate, but it pushes to the background an important question: if the "autonomous" fall in the money supply during the first banking crisis was not a turning point, and if banks were indeed in fundamental turmoil beforehand, when did a normal recession turn into a "Great Depression"? Is there a point at which banks' portfolios took an unusually bad turn before the banking crises? My aim is to answer this question by focusing on the city of Chicago.

I chose the city of Chicago for two main reasons. First, Chicago area banks suffered one of the highest failure rates in the US, especially in the summers of 1931 and 1932.¹ Out of 193 state banks in June 1929, only 33 had survived up to June 1933. Even though Chicago's first devastating crisis was in June 1931, it also suffered from the first the November-December 1930 panic.² The other reason is that some of the best data on bank financial statements are available for Chicago state banks. State banks (as opposed to national banks) represented more than 80 per cent of all suspended banks,³ and although many reports were issued in other states those for Illinois are particularly detailed.

The dissertation analyzes the whole population of the 193 Chicago state banks present in June 1929, dividing them into two main groups: Great Depression survivors and failures. Failures are divided into four

¹ It had the highest failure rate of any urban area (Guglielmo, forthcoming).

² By December 1930 in Chicago there were already 37 fewer state banks than in June 1929, representing 19% of the total 193 banks.

³ See below on White (1984).

cohorts: June 1931 failures, June 1932 failures, June 1933 failures and all depression failures. Mean variables such as return on equity, reserve-deposit ratios and real estate loan shares are subject to comparison between the five cohorts. The aim for this thesis is to perform this comparison looking at 10-year time series, focusing on the evolution of survivors and failures from 1923 all the way up to 1933. Comparative research has already been conducted by other authors, but they all restricted themselves to mainly static comparisons at one or two points in time (often June 1929), without looking at long-term comparative trends. Division into cohorts, when performed, was also restricted to purely static analysis.

The main conclusion is that failures start on a new trend well before the first really damaging crisis in Chicago in June 1931, and even before the Friedman-Schwartz first banking crisis (during which Chicago was relatively less affected than, for example, New York) – usually between June 1929 and June 1930. The second conclusion is that early failures (the June 1931 failure cohort) were even weaker than late failures over most of the preceding decade (from 1923 to June 1929). This second conclusion gives additional support and shape to the claim in the present literature that failures in general were weaker at least just before the Great Crash.

Part 1 will give a substantial overview of the literature on the start of the Great Depression, which is extensive. In Part 2, the central part of the dissertation, I first focus on the evolution of financial ratios in the decade preceding the depression to determine the precise origin (both in time and in kind) of banks' vulnerabilities. In particular, the excessive recklessness of (especially early) failures will stand out, specifically in terms of real estate and risky asset investment during most of the decade. Then I look at the Great Depression itself to determine whether changes in trends are detectable before December 1930. Given banks' accumulated

weaknesses over the preceding decade, such changes can be seen as the first symptoms of considerable asset vulnerability. Finally, Part 3 is an attempt to explain why in the context of the Chicago business, construction and credit booms of the 1920s such weaknesses may have appeared and settled in. A conclusion will bring together these three parts.

1. Overview of the Literature

That the literature on the US Great Depression is enormous is no overstatement. The first challenge for a researcher on the Great Depression is to say where his or her project slots into this literature. Hence the literature review below is long, but necessarily so. Debate on the causes of the Depression started from its very onset, and since then the Great Depression has remained, in the words of Bernanke, “the Holy Grail of macroeconomics” (Bernanke, 2000, p.5). This is not to say that progress has not been made, and indeed research has helped establish new irrefutable facts: for example, the idea that, contrary to what had been thought for almost 40 years, the first banking crisis (November – December 1930) was regional in character and confined mainly to the north-centre of the US and New York City. Nevertheless some of the most important controversies, which mainly took form in the 1960s, have not been resolved. Among them is perhaps the greatest debate about the Great Depression: the issue of monetary, as opposed to fundamental, causes of the slump. In this debate the main protagonists are easily identifiable: on the one hand, the monetarists, led by Friedman and Schwartz, argue that a large autonomous fall in the money supply was responsible for unusually aggravating the slump; on the other hand, their opponents emphasise more fundamental problems that the Federal Reserve itself would have had a hard time resolving.

In the early form of the debate the question of the “precipitating factors” of the Depression was considered a crucial one. Most agreed that the starting point of the slump could be identified as the Wall Street Crash of October 1929. But most also agreed that although a decline in domestic product started at that point, it would not have led to the Depression as millions of Americans experienced it were it not for other factors. Milton Friedman and Anna Schwartz in particular, in their *Monetary History of the United States* emphasised that a “dramatic change in *character* [emphasis added]” in the recession occurred around what they identified as the “first banking crisis” (Friedman and Schwartz, 1963, p. 308). The primary cause of this first banking panic was contagion originating from a few bank failures in agricultural areas, a contagion which knew “no geographical limits” (ibid.). The special importance of the failure of Bank of United States in New York City on December 11, 1930 was highlighted, pointing to the disastrous psychological repercussions of such a notorious failure. Other “liquidity” crises followed the first one, notably in the summer of 1931, after Britain left gold in September, and in March 1933. The Federal Reserve’s role was seen as crucial in this interpretation. Handicapped by the recent death of former President of the Federal Reserve Bank of New York Benjamin Strong, the Federal Reserve found itself with no charismatic leader to manage operations and influence other Reserve Districts away from the Real Bills doctrine.⁴ Consequently, and partly also because of some confusion regarding the multiple roles of the Banks and the Federal Reserve Board, the Banks failed to reach consensus and often refused to expand the way the Bank of New York would have wanted. To alleviate the liquidity crises the Federal Reserve should have

⁴ The Real Bills doctrine was widely accepted among monetary policymakers from the inception of the Federal Reserve in 1913 up to and including the Great Depression. It stipulated that the economy followed natural cycles and that the Federal Reserve’s role was to follow these movements: if the economy expanded, the central bank should expand the money supply; if it contracted, it should contract. See Chandler, 1971, p.9.

expanded significantly; the fact that it did not (according to this view) was fatal for the US economy (see also Chandler, 1971, Wheelock, 1991).

Although the rises in the reserve-deposit and currency-deposit ratios were easily linked to the fall in the money supply through the money multiplier, the links between the latter and the fall in economic activity were less clear in Friedman and Schwartz's work. Bernanke realised the existence of this gap and elaborated a more complex theory of the propagation of monetary policy, which went much further than the simple quantity theory of money. He demonstrated that banking crises and bankruptcies both increased what he called the cost of financial intermediation; in other words, liquidity crises made it harder for banks to lend and the debt crisis also increased borrowing costs through the erosion of collateral. It was these higher borrowing costs which led to a fall in aggregate demand (Bernanke, 1983). Despite the theorisation of these important channels of monetary policy, and despite Bernanke's own awareness of the importance of bankruptcies for the erosion of collateral, he held on to the idea that it was first and foremost an "autonomous" liquidity crisis which led to a fall in the money supply:

For banks, it might well be argued that not only are failures relatively independent of anticipations about output, but that they are not simply the product of current and past output performance either: First, banking crises had never previous to this time been a necessary result of declines in output. Second, Friedman and Schwartz, as well as other writers, have identified specific events that were important sources of bank runs during 1930-33. These include the revelation of scandal at the Bank of the United States [sic] (...); the collapse of the Kreditanstalt in Austria (...), Britain's going off gold (...), and others, all connected very indirectly (if at all) with the path of industrial production in the United States (ibid., pp. 61-2).

He concluded by emphasizing that the “financial crisis contained large exogenous components” (ibid., p.62), and indeed that “with the first banking crisis, there came what Friedman and Schwartz called a ‘change in the character of the contraction.’” He also clearly asserted that “by late 1930, the downturn, although serious, was still comparable in magnitude to the recession of 1920-22; as the decline slowed, it would have been reasonable to expect a brisk recovery, just like in 1922” (ibid., p. 47).

When Temin wrote *Did Monetary Forces Cause the Great Depression?* (1976), he also had the question of the precipitating factors in mind: “We ask how events in 1930 differed from those in a short-term depression. Alternatively, what happened in 1930 that did not happen in, say, 1921 or 1938?” (Temin, 1976, p. 63). However, contrary to Friedman and Schwartz, and to Bernanke, he did not believe that a change in the character of the recession occurred in November 1930. He asserted that this change occurred slightly earlier in the year, and was linked to more fundamental changes in the economy than an autonomous liquidity crisis. Indeed, he attempted to demonstrate that what really caused a change in character of the Depression was an unusual fall in consumption, whose origin was yet to be determined. Unfortunately data on GNP, consumption and exports were only available on a yearly basis, and Temin could only compare year-to-year differences in those variables when he compared the Depression with the 1920-21 recession. He nevertheless established that although the change in GNP from 1928 to 1930 was almost equal to that between 1919 and 1921, the main difference was that consumption fell in 1930 while it significantly rose in 1921 (ibid., p. 65). He also noted that although the fall in investment was significant in both periods, the main component of the change in investment in 1930 was construction, as opposed to inventories for the earlier recession. He then conceded that the large fall in consumption in 1930 had “no satisfactory explanation”: that it may have been related to the fall in construction, to the stock-

market crash (although he downplays this option) or to a sharp decline in farm income (*ibid.*, p.83). Either way, he made a point of demonstrating that this fall occurred earlier than the first banking crisis; indeed he located a turning point around September 1930. To prove his point, he mainly referred to newspaper articles showing a mood change towards deep pessimism around that time (*ibid.*, p. 79).

As for bank failures, Temin explicitly first regretted that (as he believed) no data were available on individual banks. Then, he pointed to an inconsistency in Friedman and Schwartz's work: they mention that "the great surge in bank failures that characterized the first banking crisis after October 1930 may possibly have resulted from poor loans and investments made in the twenties" and then do not discuss this possibility (*ibid.*, p. 85, and Friedman and Schwartz, p. 355). He thus considered two separate causes of bank failures: either these banks had poor loans and investments, or they suffered from the agricultural distress. In the absence of any data on bank balance sheets, Temin's proxy for bad loans became "previous suspensions" (1920s suspensions). His proxy for agricultural distress was chosen to be "cotton income" as reflecting geographical location. He concluded that previous suspensions were not the culprit; proximity to the cotton market was (Temin, 1976, p. 90). When describing Bank of United States, he gave a slightly different picture: contrary to Friedman and Schwartz's strong assertions, this bank failed because of bad loans, especially in the real estate market (*ibid.*, p. 92). Temin thus was the first economic historian to draw attention to the insolvency (that is, the fundamental weaknesses) of the banks that failed in the Great Depression, as opposed to their mere illiquidity.

A few years later, data were recovered on individual bank balance sheets, and with them part of the debate on the Great Depression shifted in focus. Many continued researching the actions of the Federal Reserve and analysing the different interest rate policies of the Reserve Banks

(Brunner, 1981; Romer and Romer, 1989; Wheelock, 1991; Wicker, 1996; Romer and Hsieh, 2001; Eichengreen, 2004; and Meltzer, 2001). Others turned to the labour market and looked for an explanation of persistent high wages, a major culprit for the slow recovery (Cole and Ohanian, 1999; 2002; Bordo, Erceg and Evans, 2000; Ebell and Ritschl, 2008). But the new data on individual banks opened a new path for those trying to solve the insolvency (Temin) versus illiquidity (Friedman-Schwartz) debate. A number of economists started focusing exclusively on these balance sheets and on bank failures in order to better judge the possible inaccuracy of Friedman and Schwartz's hypothesis. The hypothesis tested today by economic historians of this inclination is whether the banks that failed during crises were in fact in deep trouble beforehand, thus conferring to mass withdrawals and panics only the role of "last straws." Several authors argue that these banks had been suffering from weak loans and investments well before they failed, and that there is little that the Federal Reserve could have done to alleviate the situation. However, most of these banking studies have occluded an important question, originally much emphasised by the first protagonists of the debate: the issue of the precipitating factors in the turning point from a normal recession to the Great Depression. If the banks that failed were indeed in deep trouble beforehand (often even before the start of the Depression as many authors point out), when did their troubles become unusually significant? And how did these troubles differ from the troubles they had experienced in the twenties? It will be seen that none of these new studies answer these specific questions, and that most confine themselves to determining whether banks suffered in general from insolvency or illiquidity problems. The question of the turning point has been pushed to the background, and for a good reason: first one needed to know whether or not insolvency problems indeed played a role in the collapse. Since this has arguably been established in many ways, now is a good time to go

back to the original question. Following is a brief summary of the literature focusing exclusively on bank insolvency.

There have been two main general studies looking at nationwide failures and determining their causes. The first one, by White (1984), focuses on national banks (as opposed to state-chartered banks) because at the time of writing it was the only data available. He regrets that this is the case since national banks accounted for only 12.4 percent of all suspensions, whereas state member and non-member banks made up 2.4 percent and 85.2 per cent of all suspensions (White, 1984).⁵ He thus takes advantage of the available annual data from the Comptroller of the Currency's *Annual Reports and Individual Statements of Condition of National Banks* to divide banks into two categories: banks that failed in the 1930 crisis and those that did not.⁶ He then conducts logit regressions to determine whether certain financial ratios on these banks' balance sheets one year prior to the crisis had a significant impact on their survival chances. Such financial ratios include, for example, total capital to assets, loans and discounts to assets and total deposits to assets. He concludes that, indeed, failures' balance sheets on December 31, 1929 strongly determined their success or failure during the first banking crisis. He repeats this exercise, this time looking at their 1928 and 1927 balance sheets. Again, he finds that as far back as 1927 these variables determined the survival of banks in November to December 1930. His main conclusion is that "the strong similarity in the sign and significance of the coefficients from year to year suggests that the causes of bank

⁵ Member banks are members of the Federal Reserve System. A bank suspension occurs when a bank is temporarily or permanently closed, as opposed to a failure which occurs when a bank will permanently close and receivers take control of it to dissolve it. White excluded suspended banks that reopened as they represented only a small proportion (White, 1984). Note also that White affirms that the causes of failure of state and national banks were generally similar, as they competed strongly with one another in almost all parts of the country (ibid.).

⁶ For the survivors White uses a stratified random sample of banks with similar assets from the same geographical locations.

failures did not change substantially as the nation entered the depression.” White thus delivers crucial conclusions as to the possibility of bank insolvency, and presents important information regarding the continuity of banks’ conditions from the onset of the slump up to and including the first banking crisis. However, he does not address the question that logically comes to mind when confronted to such evidence: if these ratios, even taken as early as 1927, were indeed important factors for bank failures, is there a point at which they were significantly weakened before the crisis itself?

The second countrywide study does not do a better job at answering this question. Calomiris and Mason (2003) study a national panel of the 8,707 member banks (out of 24,504 banks in total) from 1929 to 1933, using data on individual banks from the Office of the Comptroller’s *Reports of Condition* at two points in time, namely December 1929 and December 1931 (Calomiris and Mason, 2003).⁷ They apply a survival duration model which allows various variables (including aggregate and regional economic indicators) to determine chances and length of survival for each bank at various points in time. They conclude that the financial ratios indeed determine length of survival, at least for the first two Friedman-Schwartz crises. The only real exception is the fourth banking crisis (early 1933) which “saw a large unexplained increase in bank failure risk” (ibid., 2003). Although this analysis goes furthest in the analysis of survival duration and dynamics, it still fails to identify a point of deterioration in bank balance sheets. In the regressions in particular, there is not even a distinction between the possibly different impacts of 1929 and 1931 financial ratios. Moreover, like White, they do not analyse the behaviour of ratios over the preceding decade.

More recently, Richardson (2007) looks at a newly discovered qualitative dataset from the US National Archives containing

⁷ Member banks are members of the Federal Reserve System.

questionnaires on each member bank suspension hand-completed by Federal Reserve controllers. As interesting and indicative as these questionnaires may be, they but cannot provide as precise information as the balance sheet themselves. The questionnaires contain information on, for example, whether the primary cause of failure was large withdrawals or weak loans. But there is no way to check what process of inquiry led the controller to tick one box instead of another.⁸ Richardson nevertheless concludes that during banking crises the main reason for failure was mass withdrawals, but that weak loans were the primary cause in nonpanic windows. Unfortunately, this kind of information still cannot answer the question of the kind and timing of the precipitation factors.

Four published studies have related Chicago city bank failures to balance sheet variables (probably due to the quality of the data available and the magnitude of Chicago troubles). The first of these was published at the end of the Depression by Thomas (1935), and it seems that the data used there were only recovered some fifty years later.⁹ Relying on the *Statements of State Banks of Illinois*, Thomas compared the June 29, 1929 balance sheets of Great Depression surviving banks with 1931 failures. He found that for outlying Chicago banks (that is, those located outside the Chicago Loop), failures made more loans on real estate, had more assets invested in bank building and other real estate, and had accumulated relatively smaller surpluses. Fifty years later, Esbitt looked at the 1927, 1928 and 1929 balance sheets of 1930, 1931 and 1932 Chicago failures, using the same data source. He found that differences in mean variables between failures and survivors are only significant for 1931 failures. Banks failing in 1931 held fewer secondary reserves, had more invested in fixed assets, and had lower levels of earned capital than non-failing banks. He found that this was not the case for banks failing in

⁸ I have checked these questionnaires in the U.S. National Archives myself.

⁹ Indeed, Temin himself did not seem to be aware of their existence.

1930 and 1932, and failed to comment on the comparison between 1927, 1928 and 1929 balance sheets (Esbitt, 1986).

The most famous Chicago study is by Calomiris and Mason (1997), who compare the December 1931 balance sheets of banks that failed in the June 1932 panic with those that failed in 1932 before the panic and those that remained solvent from January to July. They use data on both state and national banks from the *Statements* as well as from the newly-discovered *Reports of Condition* from the Office of Comptroller of Currency. Their aim is to determine (with survival duration analysis) whether simple depositor hysteria in a panic moment really caused banks to fail. They find that this was not the case, and that indeed panic failures had more in common with other banks failing during 1932 than with survivors: they had lower market values to book values, lower ratios of reserves to demand deposits, lower ratios of retained earnings to net worth, and higher proportions of long-term debt. Finally, even more recently Guglielmo (forthcoming) looks at state banks in Chicago as well as the whole state of Illinois. He compares the June 29, 1929 balance sheets of all these banks (Great Depression failures and survivors) using similar methods as Esbitt (1986) and Calomiris and Mason (1997), and draws similar conclusions for Illinois banks inside and outside Chicago.

Again, none of these authors have attempted to map the evolution of these financial ratios before, during and after the first banking crisis. In the face of such evidence on the importance of balance sheet weaknesses (indeed, none of this evidence has been refuted as yet), it is difficult not to inquire into this issue. White (1984) and Esbitt (1986) seem to have come closest to this goal, by simply reporting differences in those variables for various reporting dates from June 1927 to December 1929. However, they fail to rigorously compare the evolution of these ratios, and do not include data on the whole 1923-33 period. Such is the aim of this

research, and the data as well as the results obtained are discussed in the following section.

2. Trends in Bank Balance Sheets

Introduction

The analytical core of this research will be a mapping of the evolution of 193 state bank balance sheets (by cohort) from December 1923 to June 1933 of both Great Depression survivors and failures. The last date for the core of this study will be June 1933 for two reasons. First, even if the focus is on the period preceding the first banking crisis, all data on banks until this date need to be collected to determine which survived and which failed. Second, when looking for a turning point it will be important to keep the post-crisis evolution in the background. This central part of the dissertation is divided into four main sections: 1) sources, 2) data organization (which deals with a) cohorts, b) consolidations and c) bank size and outliers), 3) analysis of (a) the 1920s, and (b) the 1929-1933 period. Some qualitative aspects of roaring Chicago in the post World War I era will be the subject of the last part of the dissertation (Part III, which also deals with the issue of bank regulation).

A turning point, in the sense of *the first point on a new long-term trend*, is hypothesised to have existed not only before Chicago was badly hit by a major banking crisis in June 1931, but even before the first banking crisis as identified by Friedman-Schwartz (the November-December 1930 crisis, by which Chicago was slightly less affected than other places in the US). In other words, I expect to see certain financial ratios starting a new downturn or upswing between June 1928 and June 1930. As the data are semi-annual, there is no data available between the end of June 1930 and the end of December 1930. Nevertheless, it will be seen that a turning point is already identifiable for a number of financial

ratios in June 1930 or before. There may be different turning points for different financial ratios.

Some of the financial ratios analysed in the 1920s section (for example, loans on real estate) differ from those analysed in the 1929-33 section (for example, bills payable and rediscounts to total assets). The reason is that often the relevant financial ratios during a crisis, when banks are less in control of the situation, are not necessarily the relevant ones in times of prosperity. For example, the evolution of the real estate loan share is of particular interest in good times (as it may show for instance a rise in risk-taking) but its evolution in bad times cannot really give any clues as to the actual worsening of the situation. A better variable for this question would be retained earnings to net worth, which indicates the recent profitability of a bank. Indeed, this ratio may have been quite high prior to the depression, and start decreasing during the depression.

The initial analysis of the 1920s (section 3a) will both support the significance of the turning points (that is, the degree of bank vulnerability they indicate) and help explain why they occurred. It will make a point of linking the 1920s analysis to the depression itself (section 3b). The coincidence of time of failure on the one hand (as represented by the different cohorts), and 1920s as well as depression variables behaviour on the other will act as a strong link between the two parts. Note that the issue of the representativeness of Chicago for the rest of the U.S. goes beyond the scope of this dissertation, although it will be discussed briefly at in Part III.

2.1 Sources

There are two main sources of data that are detailed enough for this kind of study. The most complete one is semi-annual and focuses solely on state-chartered banks (both member and non-member of the Federal Reserve System): it is the *Statements of State Banks of Illinois*, published

by the Illinois Auditor of Public Accounts. As mentioned earlier, there were other such *Statements* for other states, but those for Illinois are unusually detailed. Banks generally reported in June and December of each year, which allows me to look at balance sheets in all years from 1923 up 1933. I collected these data at the Library of Congress in Washington, D.C, on volumes starting from 1923 up to June 1933. There were five volumes missing for the 1920-23 period, and since they concern mainly the 1920-21 recession,¹⁰ this period is not examined here. At any rate, many of the banks that went through the Great Depression did not yet exist at that time, so the main analysis will focus on the 1923-1933 period.¹¹ Most of the other volumes for the years 1923-33 have been used, making sure that there was at least one data point for each year, and that all the semi-annual data points were reported starting in June 1928. Thus, the full dataset includes the following data points: December 1923, December 1924, June 1925, June 1926, June 1927, June and December 1928, June and December 1930, June and December 1931, June and December 1932 and June 1933. All *Statement* reports give asset book values.

Another major source of data used for this study was the *Rand McNally Bankers' Directory*, published in January and July of every year. The data were collected at the Federal Reserve Board Research Library in Washington, D.C. This is a recognised source for tracking down bank name changes and consolidations, as well as the type of consolidation (whether merger or acquisition) and date of the event. The *Statements* already provided elements of information in this respect, but the *Rand McNally* is much more detailed. The next section will explain how I dealt with these changes.

¹⁰ The NBER website defines this recession as lasting from the spring of 1920 to the summer of 1921. However, James (1938, p.939) and Hoyt (1933, p. 236) see the real recovery as starting only in early 1922.

¹¹ For example, of the 46 failures of June 1931 only 18 existed in May 1920, whereas 41 of them already existed by December 1923.

Finally, I should mention that there is another source of data which may have been used had it been available. The *Reports of Condition* from the Office of the Comptroller of Currency discovered for the first time by Calomiris and Mason about ten years ago focus on all member banks (both state and national) nationwide at disaggregated levels, and contain very detailed information on individual banks, including qualitative information. Unfortunately, the *Reports* are only available in microfilm from the Records Office at the Federal Reserve Board in Washington, DC, which members of the public can only retrieve filing a Freedom of Information Act request and paying a large amount.¹² At any rate, for my study these *Reports* may have proved insufficient: the extant reports for state member banks are available for the same dates as the *Statements* and are less complete since they include only state member banks, and for national member banks the only available reports are for December 1929 and December 1931 (which partly explains why Calomiris and Mason focused exclusively on these two reporting dates).¹³ There are no reports for 1930, which is a crucial year for this research. For the time being, my research will remain focused on the *Statements*. This should not be a problem because, as pointed out above, state banks accounted for 87.6 percent of all suspensions, whereas member banks accounted for only 12.4 percent of suspensions (White, 1984).

2.2. Data Organization

a) Cohorts

For the analysis of the Great Depression banks have been divided into five groups: survivors, June 31 failures, June 32 failures, June 33

¹² I filed the FOIA request which was approved. However for 18 Chicago state member bank call reports and 6 Chicago national member bank reports the cost of the microfilm rolls would have been \$600. For a CD of these call reports the cost would have been \$4,200 (email conversation with the Records Office).

¹³ Details of the available volumes are described by Mason (1998).

failures, and all depression failures.¹⁴ The survivor category includes only the banks present at every point in time from June 1929 to June 1933 inclusive. It is important that this category include the “existing in June 1929” condition as some banks (only a few) were created during the depression and failed soon after their creation. This system allows me to keep the same sample size at least over the whole depression period (see below on sample sizes). The same applies to the other cohorts, except for all depression failures. Indeed, although I have included the all depression failures in some of the graphs as an indication of a sort of “average” of all the failing cohorts, many would point out that this is not a consistent category. Since this cohort includes banks that failed along the way at different points in time, the sample size changes between each data points and the data tend to be biased upwards as we get closer to June 1933. Therefore, it seemed rational to include cohorts from every year that are exclusive in the sense that each cohort excludes the banks that failed before the “window of failure” for the whole cohort. For example, the June 1931 cohort does not include banks that had failed by December 1930. It only includes banks that had survived until December 1930 and failed between the start of 1931 and June of that year. And so on for the other cohorts. The choice of the windows of failure was necessarily somewhat arbitrary but not entirely so. Chicago suffered from banking crises in December 1930, but especially in the spring of 1931 and in the spring and early June of 1932. Thus selecting the banks that failed between December 1930 and June 1931 and banks that failed between December 1931 and June 1932 allows me to include banks that were especially affected by banking crises, so as not to bias the samples in a way that would include more “nonpanic” failures.¹⁵

¹⁴ Note that the June 1933 cohort will often be termed “June 1933 exclusive cohort” in order not to be confused with the all depression failure cohort.

¹⁵ The literature often differentiates between so-called “panic” and “nonpanic” failures.

Table 1 shows the different cohorts and their status at each of the reporting dates. It should be noted that for each cohort (except for the survivors) there is never a data point for the date by which banks failed. This is logical: as the banks no longer exist there is no data for these banks. Thus, for instance, the June 1931 failure curve will stop in December 1930, the June 1932 failure curve stops in December 1931, and so on. The table confirms that exactly the same sample size and content was kept during the years of the Great Depression for all cohorts except the all depression failures.

Table 1: The Great Depression Cohorts

Bank Existed ?	June 1929	Dec 1929	June 1930	Dec 1930	June 1931	Dec 1931	June 1932	Dec 1932	June 1933
Survivors	YES	YES	YES	YES	YES	YES	YES	YES	YES
June 1931 exclusive Failures	YES	YES	YES	YES	NO	NO	NO	NO	NO
June 1932 exclusive Failures	YES	YES	YES	YES	YES	YES	NO	NO	NO
June 1933 exclusive Failures	YES	YES	YES	YES	YES	YES	YES	YES	NO
ALL GD Failures	YES	YES OR NO	YES OR NO	YES OR NO	YES OR NO	YES OR NO	YES OR NO	YES OR NO	NO

Source: Statements of State Banks of Illinois.

For the 1923-1928 analysis (section 3a) each data point is based on those banks from the corresponding cohort that existed at the corresponding date. Often some of the banks that were part of a GD cohort were not present in every year from 1923 to 1928. For example,

there were 46 “1931” failures, but only 39 of them were present in June 1926. This number sometimes fluctuates between December 1923 and December 1928 due to the appearance and disappearance of one or more banks (in this example the fall to 39 banks was only temporary).¹⁶ I could have chosen to reduce the whole June 1931 cohort sample to 39 banks (since this is the lowest number of banks for this cohort in the 1920s) but I give priority to full population study in the years of the depression itself.¹⁷ Most of the time the loss in sample size is only between one and three banks, and the loss is not systematic in the sense that the sample size does not change according to a particular upward or downward trend, unlike in the depression. There are only two data points which seem “worrisome”: June 1926 for June 1931 and June 1933 failures, where the sample size temporarily falls by 5 and 4 banks respectively. This might bias these two data points upwards but there is no significant worry for the rest of the 1920s period. Moreover, the changes in sample size are counterbalanced by the extra accuracy gained by maximising the sample size at each data point during this period.

¹⁶ In some rare instances a bank could temporarily close and re-open. This happened for a few banks especially around June 1926.

¹⁷ For each variable the corresponding time series graph in section a) and b) spans the whole 1923-1933 period. Another option was to have a unique sample size for the 1920s which differed from the GD sample size. This is arguably less rigorous than including all the banks from the GD sample that were present at each data point.

Table 2. Great Depression Survivors and Failures, 1923-1933

	Number of Survivors	Number of June 1931 Failures	Number of June 1932 Failures	Number of June 1933 Failures (exclusive)	Number of ALL GD Failures	Failure Rate (as % of the 193 banks existing in June 1929)	Compound Failure Rate
Dec 1923	32	41	35	12	143		
Dec 1924	32	44	34	13	146		
June 1925	31	44	34	13	147		
June 1926	30	39	34	9	140		
June 1927	32	44	35	14	148		
June 1928	31	44	36	11	153		
Dec 1928	32	41	35	14	147		
June 1929	33	46	36	14	160	0%	0%
Dec 1929	33	46	36	14	147	7%	7%
June 1930	33	46	36	14	136	6%	12%
Dec 1930	33	46	36	14	123	7%	19%
June 1931	33	0	36	14	77	24%	43%
Dec 1931	33	0	36	14	57	10%	53%
June 1932	33	0	0	14	22	18%	72%
Dec 1932	33	0	0	14	17	3%	74%
June 1933	33	0	0	0	0	9%	83%

Source: Statements of State Banks of Illinois.

Table 2 shows the sample sizes for each cohort at various points in time.

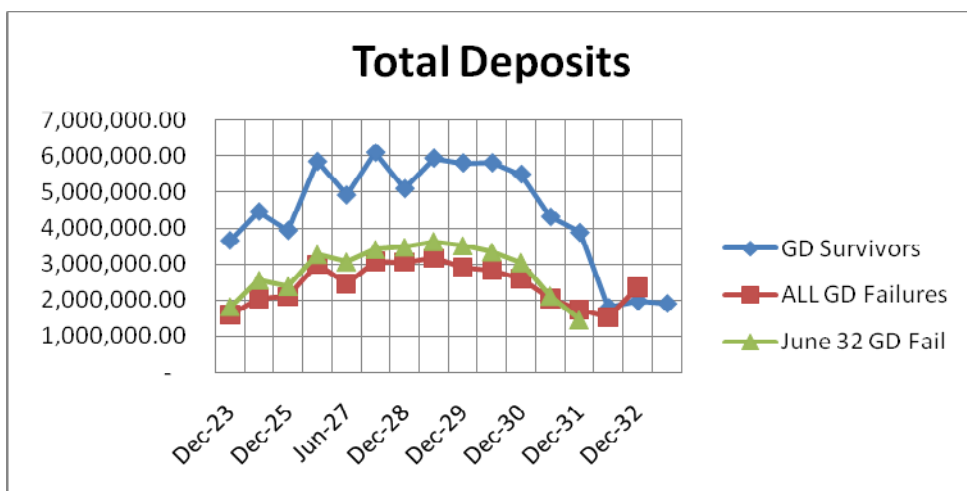
As is easily seen from this table, out of 193 banks which existed in June 1929, 160 banks failed and 33 banks survived. 46 banks failed between December 1930 and June 1931, 36 banks failed between December 1931 and June 1932 and 14 banks failed between December 1932 and June 1933. Although 19% of all banks had already failed by December 1930, the failure rate accelerated in the spring of 1931 where 24% of all banks failed in this six months period. This was the highest rate of failure, which then declined but was still substantial for example between December 1931 and June 1932 (18%).

Naturally, not only does the number of banks that failed matter, but also the amount of deposits at these banks. Figure 1 shows the fall in total deposits (demand plus time deposits) for survivors, all GD failures and June 1932 failures from June 1929 to June 1933. As mentioned earlier the all GD failure curve is to be handled with care. Nevertheless it allows us to have data points up to and including December 1932. This would also be the case if we included the June 1933 exclusive banks cohort but these 14 banks are certainly not the most representative of the failing banks sample.¹⁸ As the graph makes clear, the evolution of the rate of deposit loss for both survivors and failures corresponds quite closely to that of the failure rate (especially survivors and June 32 failures). Even banks that survived suffered large deposit losses during the periods where the failure rates were higher. The difference in levels between survivors and failures will not be subject to comment here.¹⁹

¹⁸ The point here is not to compare the different failing cohorts.

¹⁹ See section 1c for a discussion about bank size.

Figure 1: Total Deposits (Demand Plus Time Deposits) for Three Cohorts: GD Survivors, June 1932 Failures and all Depression Failures.



Source: Statements of State Banks of Illinois.

b) Name Changes and Consolidations

Creating cohorts is an essential way of keeping track of the same sample of banks, whether failures or survivors (aside from its advantages for economic analysis). Another essential feature of this aim is linked to name changes and consolidations. As previously mentioned, I had all the data needed for this purpose. Name changes were corrected in 26 instances. However, I still had to make decisions about whether to include a merger or acquisition in the failing or surviving categories.

Note first that some banks were closed at some point and then reopened. As Table 2 demonstrates, such banks were automatically excluded from the depression samples (there were very few of them) as was also done by White (1984).

A consolidation was “the corporate union of two or more banks into one bank which continued operations as a single business entity and under a single charter” (Richardson, 2007). During the depression, mergers were distinguished as “shotgun weddings,” as opposed to

takeovers which were part of the “purge and merge system” (James, 1938, p. 994). Both of these operations (merger and takeover) are usually considered in the literature as a major sign of weakness. Consequently, most authors include such consolidations as failures; that is, a bank that was taken over is usually considered a failure, and so are both of the banks that merged, even when the merger itself ended up surviving the Depression. For instance, Calomiris and Mason (2003) specify that their data “contain almost seventy different ways a bank can exit the dataset, ranging from all imaginable types of mergers and acquisitions to relatively simple voluntary liquidations and receiverships; [...] together, we term [them] failures.” The *Reports of Conditions* they used were more detailed in this respect, and I do not have data on “all types of mergers and acquisitions.” Nevertheless, the *Rand McNally* directory gives sufficient detail at least on whether a merger or a simple takeover occurred.

As in Calomiris and Mason (2003) I thought reasonable to count as failures banks that were taken over by other banks. This occurred in 14 cases from June 1929 onwards. The banks that were taken over before June 1929 are not taken into account in the sense that only the resulting consolidation should be part of a GD cohort. Exactly the same applies to pre-June 1929 mergers: only the resulting merger can be part of a GD cohort and thus only this bank will be tracked as early as possible in the 1920s. Table 3 shows the mergers that occurred from June 1929 onwards and whether the merger ended up failing or not. For the mergers that had failed by June 1933, the two original banks’ data are kept until they merge under a new name, at which point the new merger’s data are excluded from the dataset, making the two original banks failures at the time of consolidation. This can be justified on two grounds. One technical: it is impossible to include the new bank’s data as it cannot be part of any cohort starting in June 1929. The other theoretical: it can be argued that

two banks ending up failing as a merger were particularly weak at the time of merger.

Whether or not one should include a merger that ended up surviving is another matter. Contrary to what Calomiris and Mason claim, that such a merger should be categorised as a failure is not self-evident. Fortunately, in my dataset there was only one such merger in Chicago: the Central Republic Bank and Trust Co, a July 1931 consolidation of Central Trust Co of Illinois and of Chicago Trust Co. Eventually I chose to consider the two original banks as failures for the technical reason put forward above. Nevertheless, one should be aware that that there is an element of arbitrariness in this decision.

Table 3. Mergers between June 1929 and June 1933

Bank 1	Bank 2	New Merger	First Reporting Date	Failing?	Decision Made
The Foreman Trust and Savings Bank	State Bank	Foreman-State Trust and Savings Bank	Dec 1929	Yes, Jan 1931	Banks 1 and 2 FAILED
Roosevelt State Bank	Bankers State Bank	Roosevelt-Bankers State Bank	June 1930	Yes, Aug 1930	Banks 1 and 2 FAILED
Builders and Merchants State Bank	Capital State Savings Bank	Builders and Merchants Bank and Trust Co	Nov 1930	Yes, April 1931	Banks 1 and 2 FAILED
Central Trust Co of Illinois	Chicago Trust Co	Central Republic Bank and Trust Co	July 31	No	Banks 1 and 2 FAILED

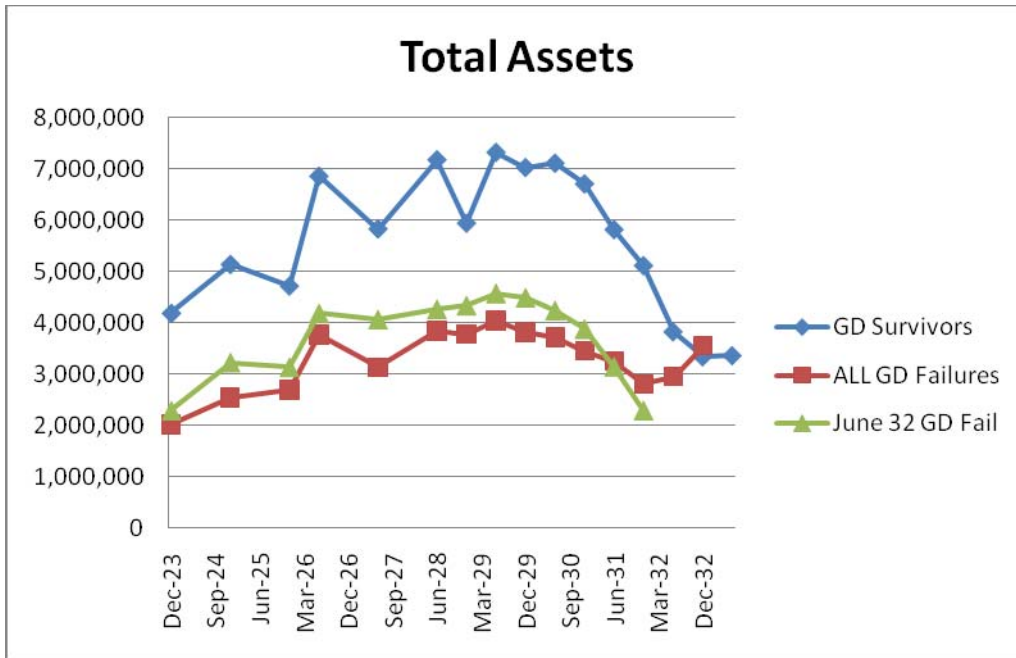
Source: Statements of State Banks of Illinois, and Rand McNally Bankers' Directory.

c) Bank Size and Outliers

This section deals with the problem of bank size and of outliers more generally.

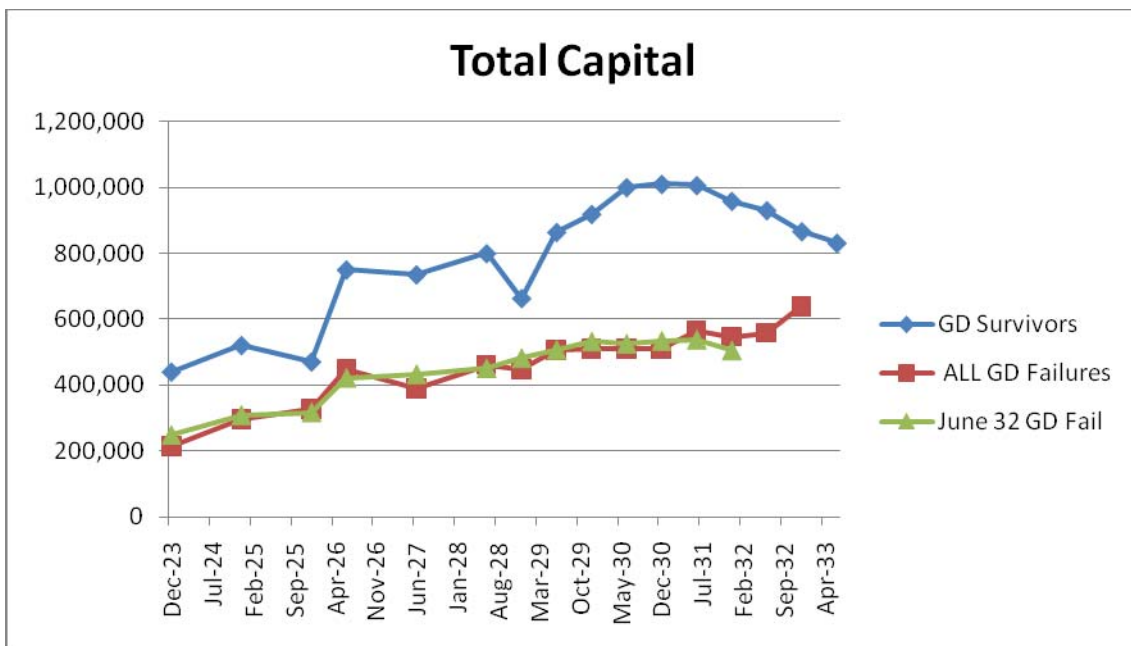
First of all, it should be noted that bank size is not necessarily a problem in the sense that it does not necessarily introduce bias in the results. Most of the time it does not because authors make a point of studying mainly financial *ratios* (for example, US government investments to total bonds and stocks). So even if a bank has, say, a larger proportion of US government bonds it does not indicate that this bank is larger (and has more US government bonds in terms of their absolute amount). When looking at the main indicators of bank size (total assets, total capital, and sometimes total deposits), it appears that larger banks did tend to have a higher survivor rate. However, one of the aims of this dissertation is precisely to show that this was certainly not the only reason for their survival (of course, it may be that there is a correlation between larger bank size and better management practices). Figure 1 above shows the difference in total deposits for survivors and failures. It appears that although survivors suffered very large deposit losses during the depression, in June 1929 the amount of deposits they had was almost twice as high as for June 32 failures. Figures 2 and 3 show a similar picture for the two main measures of bank size: total assets and total capital.

Figure 2: Total Assets for GD Survivors, June 1932 Exclusive Failures and all Depression Failures.



Source: Statements.

Figure 3: Total Capital (Capital, Surplus and Retained Earnings) for GD Survivors, June 1932 Exclusive Failures and all Depression Failures.



Source: Statements.

In both of these graphs the difference between survivors and failures is almost constant over time, except towards the end of the depression (where all depression failures that remain in the dataset become more similar to survivors). For both categories, assets and capital rose until the start of the depression, when assets started to fall and capital more or less continued its rise upwards, probably due to cautionary practices. Capital started to fall more for survivors from about December 1931, but not by as much as their assets fell. This may be due to less cautionary practices among survivors as they may not have feared for their assets as much as future failures did (this will be discussed in more detail below). As a side note, I should point out that when performing even a simple static analysis of survivors and failures, say in June 1929, pointing to total capital as an absolute amount is misleading if one wants to eliminate the size effect.²⁰ What should matter is the capital to total assets ratio, and it will be seen that contrary to what one would expect this was not a relevant variable in explaining failures (see section 3a).

The statistics on size effects for failure rates are quite telling, although one should not draw too strong conclusions about them. Table 4 shows the failure rate per size group.

Table 4. Relationship between Bank Size and Failure Rate between June 1929 and June 1933

Total Capital	Number of Banks	Number of Failures	Failure Rate
Less than \$250,000	87	77	89%
\$250,001-\$375,000	16	14	88%
\$375,001-\$800,000	45	36	80%
More than \$800,000	45	33	73%

Source: Statements.

²⁰ This was nevertheless done by Guglielmo (forthcoming).

From this table it appears that, contrary to Guglielmo's conclusions, there is indeed a relationship between size and failure, although this relationship is not very strong. True, whether big or small, banks had a large failure rate, always above 70%. Nevertheless, it is still noticeable that banks with less than \$250,000 in capital had 89% chances of failing, whereas banks whose capital went beyond \$800,000 "only" had a failure rate of 73%. There is in fact a large literature on whether bank size matters for failure rates. The last part of this dissertation (Part III) briefly deals with the issue of branch banking in the US, which was prohibited at the time in the whole state of Illinois. Many authors (including Calomiris and Mason, 2003) have shown that prohibition of branch-banking was an important cause of failure. Moreover, state banks were often smaller than national banks, which may explain their higher failure rate. It will be seen through anecdotal evidence that one reason why they may have been more vulnerable was not necessarily so much a lack of asset diversification due to geographic constraints as it was a lack of training and knowledge in management.

Although bank size in general does not introduce any bias in financial ratios, outliers do. Table 5 shows summary statistics per cohort in terms of total capital in June 1929.

Table 5. Summary Statistics, June 1929

Total Capital (\$)	GD Survivors	June 1933 excl. Failures	June 1932 Failures	June 1931 Failures
Sample Size	193	46	36	14
Mean	1,415,548	2,330,029	567,413	535,472
Median	791,418	684,122	435,440	334,079
Mean excluding Bottom & Top 5%	904,077	949,235	514,964	472,862
Upper Quartile	1,330,430	1,268,829	687,265	590,522
Lower Quartile	263,362	351,652	320,372	259,449
Upper 5% percentile	5,823,128	9,465,185	1,455,455	1,466,596
Lower 5% percentile	156,293	225,346	214,590	130,995
Standard Deviation	2,407,887	5,436,764	409,476	450,487
Coeff. Variation	1.70	2.33	0.72	0.84
Maximum	11,626,256	21,004,598	2,076,895	2,250,902
Minimum	124,742	225,000	181,904	121,326
Skewness	3.41	3.60	2.08	1.93
Kurtosis	11.96	13.21	4.86	3.97

Source: Statements.

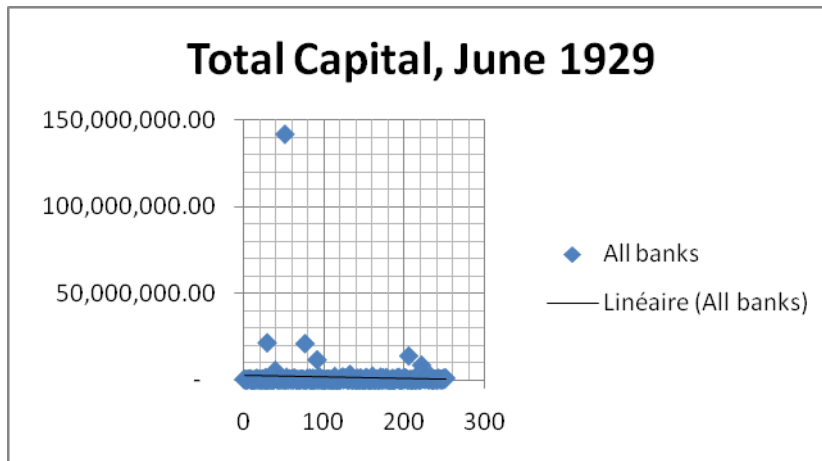
The way outliers bias the sample is quite clear from this table. First, in all four cases median total capital is lower than the mean, often substantially so. For example, for survivors, the mean total capital is \$1,415,548 which is almost twice the median (\$791,418). For June 1933 exclusive failures the comparison shows an even larger gap: the mean is almost three and a half times as big as the median. This pattern is similar for the other two cohorts but to a lesser extent. Even more impressively,

the upper quartile in the first two cohorts lies *below* the mean. This is evidence that a small number of very large values in comparison to the rest of the sample have brought the mean upwards to the extent that a simple mean is not representative of the totality of the banks. For June 1933 failures, for example, the mean is \$2,330,029 whereas the upper quartile is only \$1,268,829. For the other two cohorts the upper quartile is only slightly above the mean. The two cohorts that show the largest variation around their means are again the survivors and June 1933 cohorts, whose coefficients of variation are respectively 1.7 and 2.3. Although survivors' median is \$791,418 and their mean \$1,415,548, data points range from \$124,742 to \$11,626,256. A similar pattern is observable for the other three cohorts, although again the last show less variation. Finally, all three cohorts are skewed to the right, and all have a rather peaked distribution, especially the first two.

Thus, as the means do not seem to represent even the upper quartile of the distribution in many cases, it seems reasonable to look for a solution to exclude outliers. Of course, excluding outliers in banking is always problematic as half the outliers are particularly large banks, which often matter a lot in terms of their economic impact on depositors. When excluding outliers it is thus crucial to make sure to exclude only a few banks. However, there is always an element of arbitrariness in this process, and it would be wrong to hand pick a few banks rather than applying a systematic rule. One possibility is to use median values instead of means. A problem with this solution, however, is that it fails to take into account the skewness of the data to the right. At first it appeared reasonable to exclude the top and bottom 5 percent of the banks in terms of their total capital, which brought values closer to the median. However, it soon appeared that the outliers in total capital at one point in time were not necessarily the outliers in other financial items. This is illustrated by Figures 4 and 5, where it is apparent that the June 1929 outliers in total

capital are not the same as the June 1929 outliers in “other real estate.”²¹
 Only one bank is an outlier in both categories: the largest bank,
 Continental Bank of Illinois.

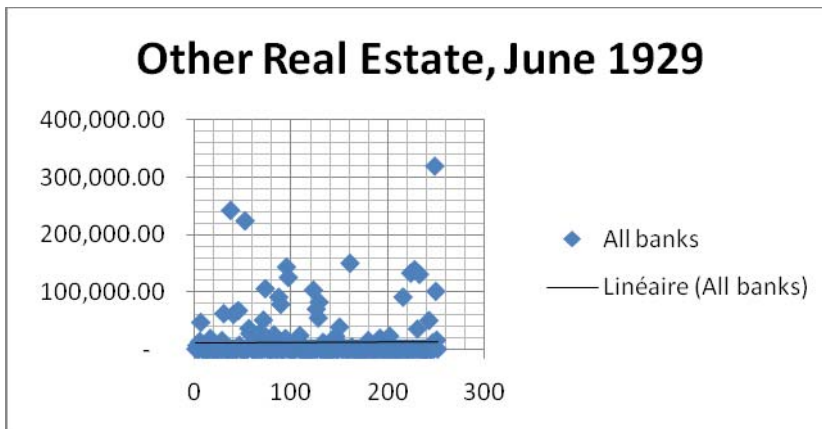
Figure 4: Scatter Plot for Total Capital in June 1929, all Banks.



The top ten values plotted are (in descending order): Continental Bank of Illinois, Central Trust Co of Illinois, First Union Trust and Savings, State Bank of Chicago, Harris Trust and Savings, The Northern Trust and Co, Chicago Trust Co, The Foreman Trust and Savings, The Peoples Trust and Savings, Madison-Kedzie Trust and Savings.

Source: Statements.

Figure 5: Scatter Plot for Other Real Estate in June 1929, all Banks.



The top ten values plotted are (in descending order): West Town State Bank, Chicago City Bank and Trust Co, Continental Bank of Illinois, Northwestern Trust and Savings, Home Bank and Trust Co, The West Side Trust and Savings, The Pullman Trust and Savings, Union Bank of Chicago, Humboldt State Bank, Fidelity Trust and Savings.

Source: Statements.

²¹ As will be demonstrated later this is a crucial variable (see section 3).

Therefore, I decided to exclude from the mean the bottom and top 5 percent, doing so for each category and for each cohort. This is a systematic way of excluding outlying values (which are not necessarily always the same banks) in every category. This way I also avoided excluding systematically the same banks, which can be argued to be a more rigorous way of dealing with outliers. As can be seen from Table 5 above, the “Mean excluding Bottom & Top 5%” row gives values which are always higher than the medians but lower than the means, and which are usually closer to the medians. This technique thus seems a good compromise between using means and using medians.

2.3. Trends in Bank Balance Sheets: 1923-1933

We are now ready to start the analysis of the time series. The following section focuses primarily on the pre-Great Depression era (from 1923 to around 1929), but does not exclude some early comments on the Great Depression itself. Most of the analysis of the depression will be conducted in the following section (section 3b). Part of the reason for this separation, as explained in the introduction to Part II, is that the relevant financial ratios at the beginning of a depression may differ from the relevant ones for the pre-depression era. At least this is what the data suggest in two ways. First, as will be shown below, long-run behaviour in the 1920s affected greatly the time of failure of the banks during the depression: early failures had behaved in a more risky way since as early as 1923, mid-depression failures had acted slightly less riskily, and late-depression failures had acted more like survivors for almost a decade. Second, the variables that start an upswing or a downturn after June 1929 which are relevant to the time of failure are often not the same as those marking banks' 1920s behaviour. However, often a link between the two is apparent; the link being thrown into light by the coincidence of the time of failure. A good example is real estate and “other” real estate (the amount

of repossessed property after foreclosures): for early failures the share of real estate was high in the 1920s, whereas its share of other real estate was low, while during the depression the former remained quite stable whereas the latter ratcheted up. With such evidence that the earlier a bank failed, the more it had invested in real estate in the 1920s and the more it was affected by foreclosures at the start of the depression, one can only conclude that, at least in this case, pre-depression behaviour affected in-depression health through a related variable. This also goes against what White (2009) recently argued: that mid-1920s bank behaviour (especially in real estate) had little or no effect on bank health in the crisis.

Thus, this section will focus primarily on such variables as capital to assets, fixed assets, US government investments, real estate, time deposits, other bonds and stocks, and the reserve-deposit ratio. The depression section will be primarily concerned with retained earnings to net worth, bills payable and rediscounts, and especially “other real estate.” Both sections will demonstrate that, on the one hand, the time of failure was greatly correlated with long-run portfolio management in the 1920s (especially with risky investment in less liquid assets), and, on the other hand, that the health of failures started to seriously deteriorate before the first banking crisis. So far, the literature had only demonstrated that failing banks had been weaker than survivors at a certain point before their time of failure. Sections 3 and 4 show for how long they had been weaker, when they became significantly more vulnerable, and which cohorts were weaker than others.

a) 1923-1928

In a recent paper, White (2009) criticizes various authors for “confounding the problems of the real estate bust with the Great

Depression.” One of these authors is Simpson (1933), a contemporary of the Great Depression who quite emphatically asserted that:

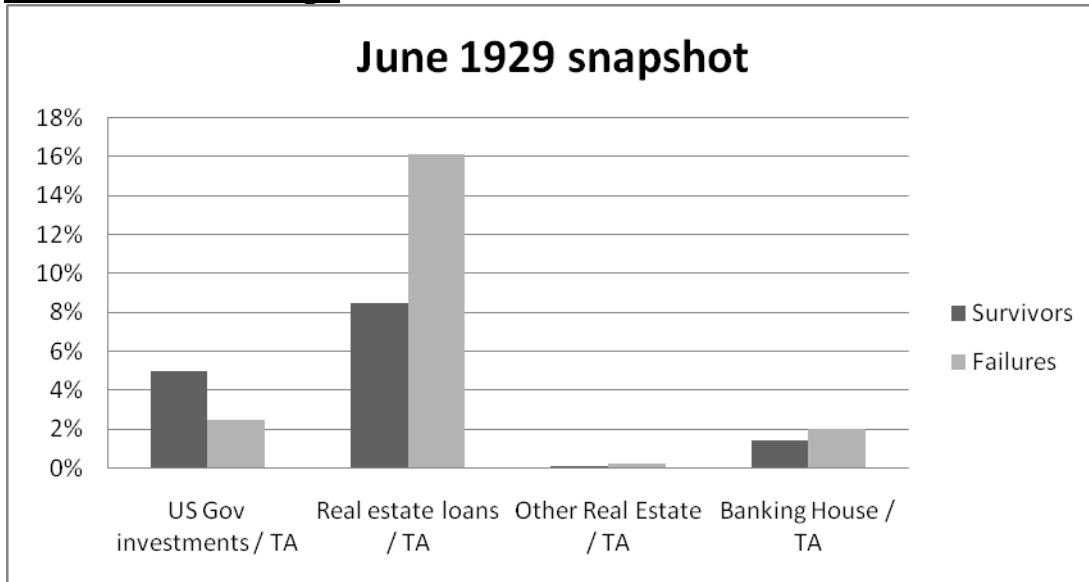
“(…) We can say this much: that real estate, real estate securities, real estate affiliations in some form, have been the single largest factor in the failure of the 4,800 [US] banks that have closed their doors during the past three years” (Simpson, 1933, p. 4).

Although the burst of the 1926 real estate bubble may not have been the “single largest” cause of the Great Depression, it seems odd to dismiss this factor entirely as White does. As will be demonstrated, this is especially true for the city of Chicago. Despite mainly focusing on static analysis, authors who have analysed bank balance sheets almost always conclude that the share of real estate loans is at least one determinant of failure. Talking about the United States as a whole, Temin (1976) already pointed to a fall in construction from 1927 as a crucial factor. He emphasised this point when discussing the case of the failure of Bank of United States in New York, and his idea was later corroborated by Lucia (1984).

Unfortunately, most authors have focused mainly on a comparative description of survivors and depression failures at one or two points in time, a type of analysis which can be improved to strengthen, for example, the argument about the relative importance of the real estate loan share or about the weakness of failures in general. Figure 6 shows the typical comparison of financial ratios in the literature. Note that some authors often add a logit regression to test for the actual survival or failure of a bank; others (especially Calomiris and Mason [2003]) add a survival

duration model to test the length of survival of a bank given its balance sheet at one or two data points.²²

Figure 6: Static Comparison of all Depression Failures and Survivors in June 1929 in Chicago



Showing US government bonds to total assets, real estate loans to total assets, other real estate to total assets, and banking house to total assets.

Source: Statements.

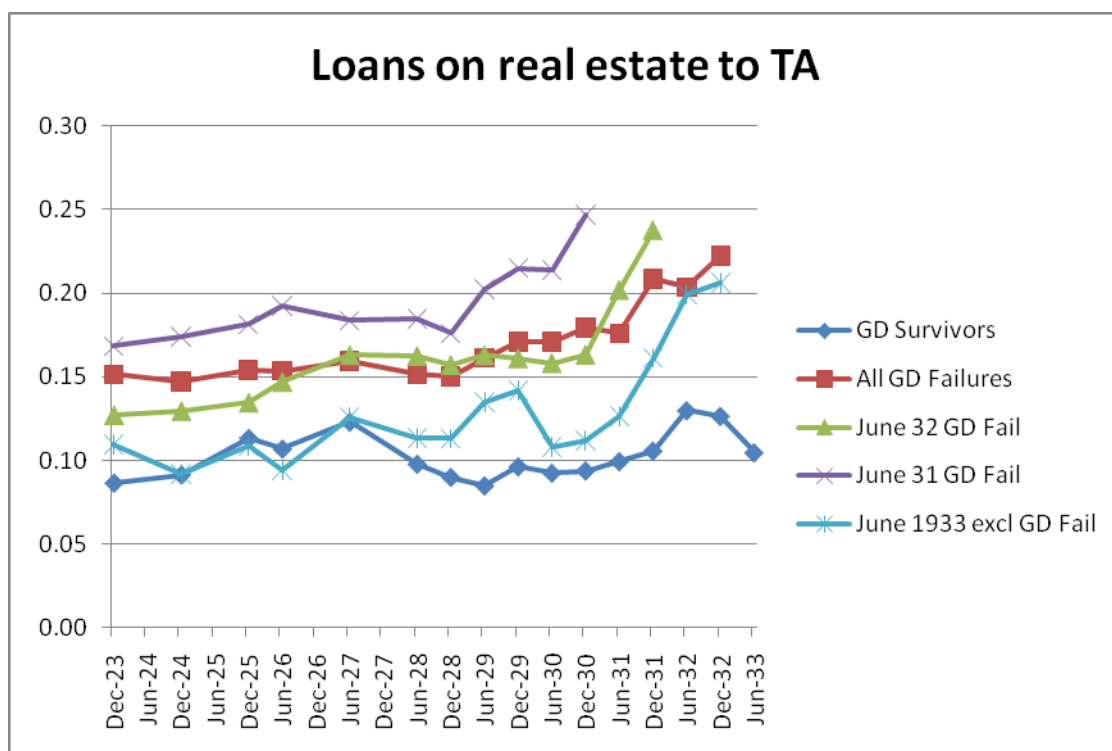
Although the exact meaning of each ratio will be discussed in more detail later, this June 1929 snapshot indeed shows the pre-depression weakness of depression failures in Chicago: they had fewer US Treasuries invested as a share of total assets, more real estate loans (which are considered less liquid than other types of loans), more other real estate, and they invested more in banking premises. Other variables often include the reserve-deposit ratio, other bonds and stocks to total assets, due to banks to total assets and bills payable and rediscounts to total assets. Again the same questions come to mind: how long had they

²² Recall that Calomiris and Masons's (2003) study goes furthest in the analysis of survival duration and dynamics. Nevertheless, as pointed out earlier they fail to analyse the evolution of financial ratios over time, whether in the 1920s or even during the depression, and only look at aggregate results of survival duration.

been carrying these assets? When did the gap between survivors and failures appear? What change in variables rendered failures particularly vulnerable once depression had started? Figures 7 to 11 give answers to the first two questions.

Figure 7 looks at the real estate loan share since 1923 for all five cohorts: survivors, all depression failures, June 1931 failures, June 1932 failures and June 1933 exclusive failures.²³ Here it is only given as a link to the previous bar chart. Note, as mentioned before, that the time series for the 1920s should be handled with care, as sometimes the sample size drops by one or two banks, up to a maximum of seven banks. This is necessary if one wants to keep the full sample size for the depression era (see section b).

Figure 7: Real Estate Loan Share, December 1923 to June 1933.



Source: Statements.

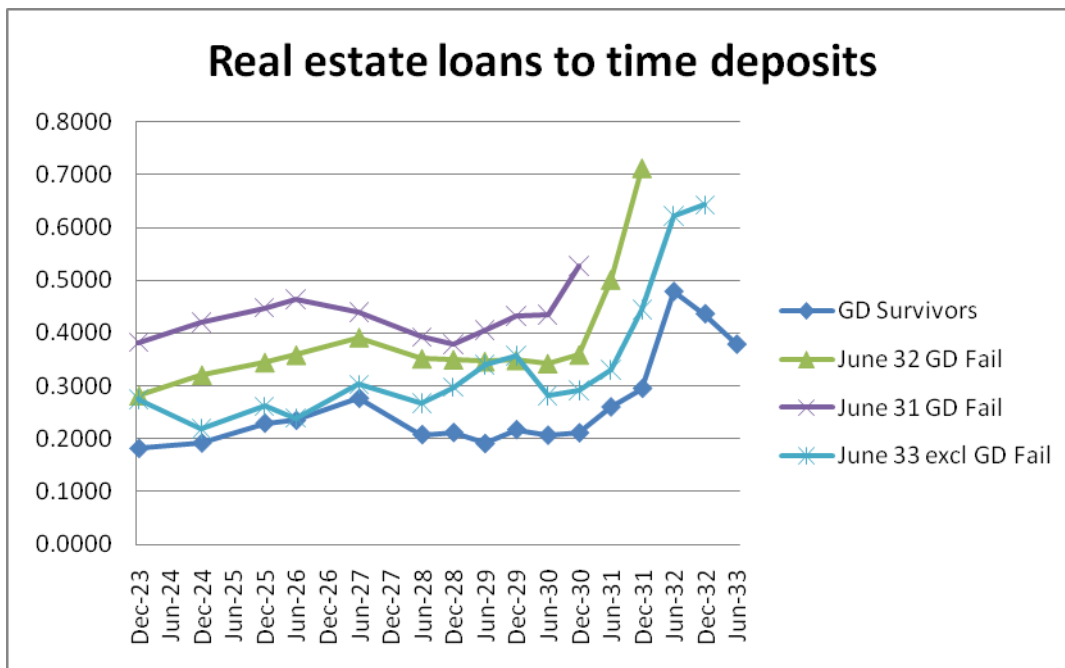
²³ Later on the “all depression failures” category will be dropped since (as was argued earlier) it is not a very rigorous sample.

Although I am mainly focusing on the pre-depression era here, the rise in the share of real estate loans after June 1929 should not be taken for granted as most banks suffered a large fall in assets. The pre-depression pattern is of great interest, however. First, it appears in general that survivors often had the lowest share during most of the 1920s, followed closely by June 1933 failures. June 1932 failures had a substantially higher share, and the June 1931 failures' share was even higher. This is outstanding evidence that the earlier the banks failed, the more they had invested in real estate in the previous decade, as early as 1923. Second, all cohorts reach a peak in real estate loan investment between 1925 and 1927, which corresponds to the peak in the real estate boom (see Part III for more information on real estate). June 1932 failures reach the peak later than June 1931 failures, but neither really depart from this peak afterwards, whereas survivors do. In particular, for survivors, the low December 1928 value cannot correspond to a rise in assets at this point since, as can be seen from Figure 2, total assets are relatively low at this point. In other words, survivors invested less in real estate from the beginning, experienced the peak but retreated from this peak more quickly than failures.

Rodkey, a professor of banking and investments writing in 1933, warned against pre-depression excesses, and in particular against excessive investment in real estate mortgages which are “notoriously unliquid [sic]” (Rodkey, 1933, p. 120). In particular, he pointed to many banks' flawed assumption that the investment of savings deposits (or time deposits) in such assets was justified because of the further assumption that time deposits were a “permanent fund under control of the banking system” (ibid.). He reminded these bankers that during a depression savings depositors withdraw “not only their current interest but also their principal” (ibid.). As Figure 8 shows, during the 1920s, the banks that invested the most in real estate actually also had the highest ratio of real

estate to time deposits, which shows that earlier failures misbehaved even according to their own (flawed) assumptions.²⁴

Figure 8: Real Estate Loans to Time Deposits, Four Cohorts (Excluding the all Depression Cohort).

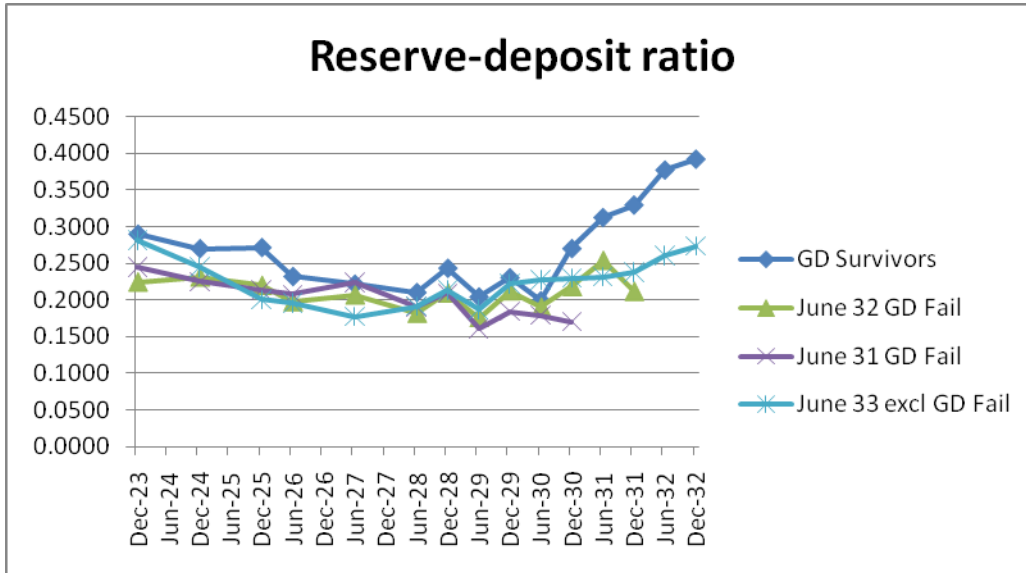


Source: Statement.

Another important indication of risky management is the bank’s share of asset reserves, both primary and secondary. Primary reserves include all cash items, including cash balances at other banks. Secondary reserves are earning assets of the highest quality and earliest maturity (usually one year or less). These include open-market commercial paper of the highest quality but also (and especially) short-term government bonds, which can quickly be converted into cash in an emergency. Figure 9 shows banks’ reserve-deposit ratio, which includes primary reserves and government bonds. Figure 10 shows in more detail the composition of the bond portfolio: the share of total bonds and stocks invested in government bonds.

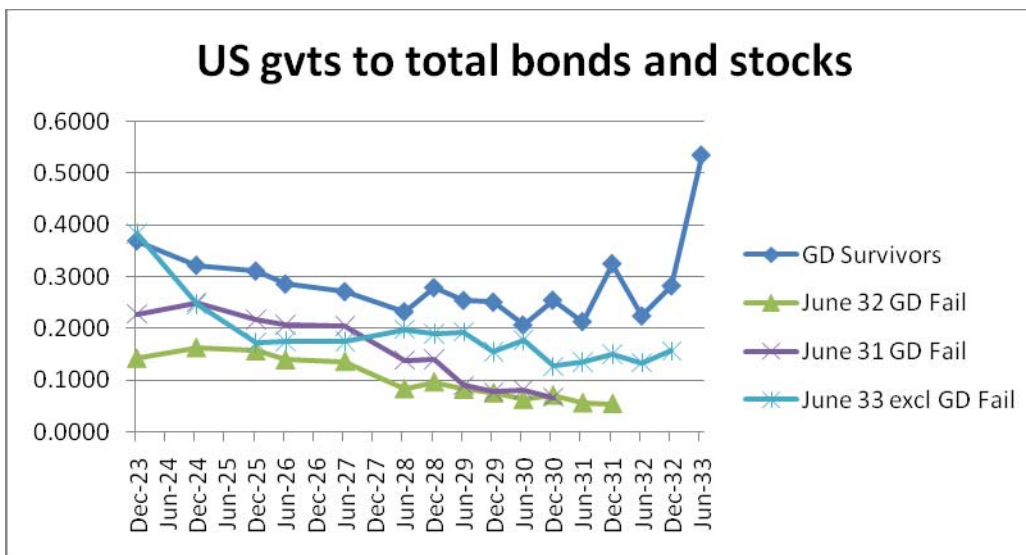
²⁴ The depression spike is very likely due to a substantial fall in time deposits.

Figure 9: The Reserve to Total Deposits Deposit Ratio
(Includes, Cash, Other Cash Resources, Due From Other Banks and US Government Investments).



Source: Statements.

Figure 10: US Treasury Bills to Total Bonds and Stocks.



Source: Statements.

The first thing to notice in Figure 9 is the general fall in the reserve-deposit ratio over the 1920s, for all cohorts. Without analysing it in detail, Guglielmo (forthcoming) showed a comparable graph which did not

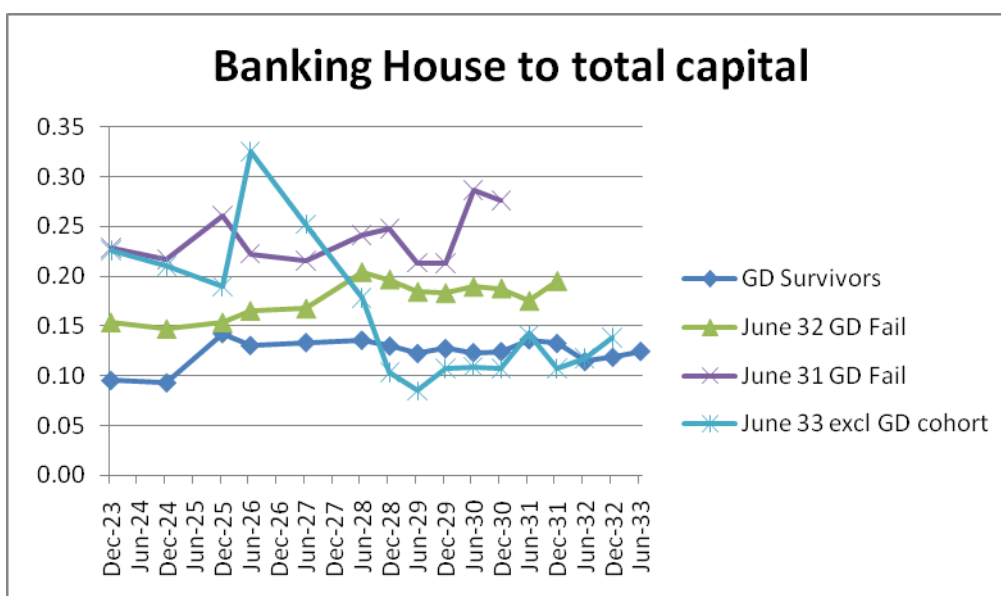
differentiate between survivors and failures. But this graph also shows that survivors almost always had a higher reserve-deposit ratio during the 1920s. As a side note, the rise for survivors during the depression shows to what extent their deposits could fall without making them fail. This graph nonetheless shows fewer differences between the various cohorts as Figures 6-8 did. The June 1933 ratio varied to a greater extent than those of the other two failing cohorts. The earliest failures did not seem to be worse off than later failures. Figure 10 shows larger gaps: although for survivors investments in US governments fell over the 1920s, their share was almost constantly four times larger than for June 1932 failures (and such was already the case in December 1923). Initially the earliest failures had a larger share than June 1932 failures, but the gap was almost reduced to nothing around December 1928 as they both declined. This tends to suggest that these failures took part more suddenly and more quickly in the stock market boom around that time. At this point late failures are very close to survivors, so that one can see a divergence between survivors and late failures on the one hand, and middle and early failures on the other. This confirms Rodkey's statement that "Failure to maintain adequate secondary reserves is probably the most common fault in American banking" (Rodkey, 1933, p. 159). One should note that with such a low share of US governments when entering the depression, the Federal Reserve would have found it difficult to bail out these banks had such been its desire. Such was not the case with survivors.

There are two notable issues concerning bonds and stocks. The first one is that, as Rodkey deplored, financial statements do not provide any information as to whether bonds are carried at, below, or above market prices. The other issue is that there is no information either on the maturity of US governments (which are not always short-term), and on the composition of "other bonds and stocks." Past authors have insisted on the development of bond investment for real estate. A study by Rodkey on

Michigan bank failures shows that 42% of their bond account was composed of real estate and construction bonds in December 1928, “a class of securities, which, under no circumstances, meet the fundamental tests of either soundness or liquidity” (Rodkey, 1933, p. 101). Another source gives only 23% for Chicago investment banks at this point, although it shows an increase of this percentage in 1925 to 37.5% (Bureau of Business Research, 1931), as opposed to 23.6% in industrial issues.²⁵

In addition, the financial statements provide data on investment in fixed assets, especially in the form of bank premises and other real estate. Since the latter will be studied in the next section, Figure 11 gives the proportion of “banking house” (“banking house, furniture and fixtures”) to total capital.

Figure 11: Banking House, Furniture and Fixtures to Total Capital.



Source: Statements.

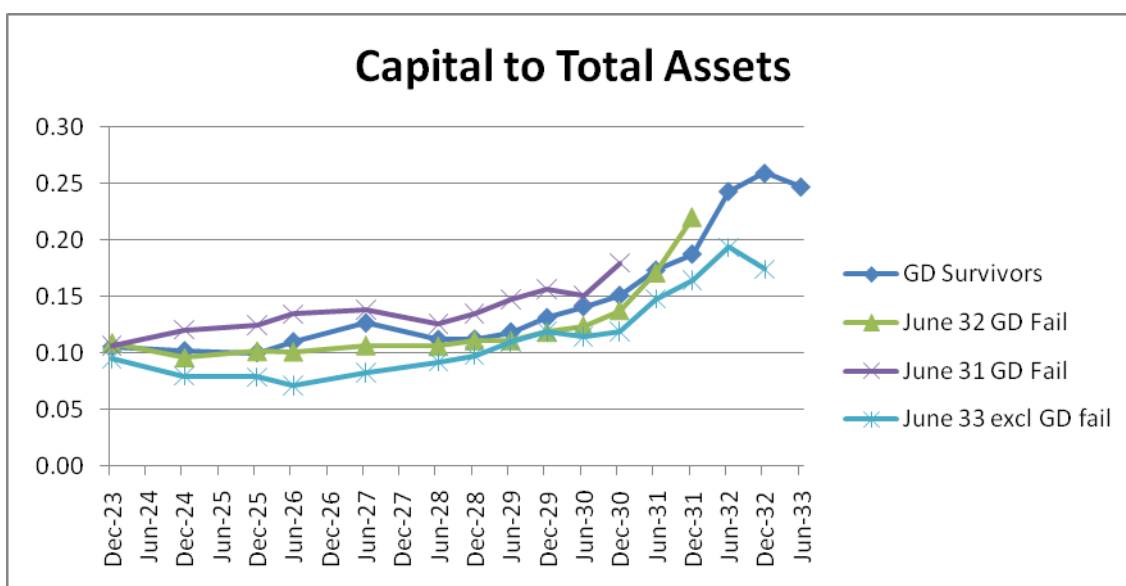
As its name indicates, this ratio represents the share of investment in the bank building and salaries. A large share is usually considered

²⁵ More discussion on real estate bonds in Part III.

excessive. If one ignores the 1926 spike for the June 1933 cohort,²⁶ the same pattern as in the other four graphs is apparent. Early failures always invested more in this type of asset, mid-depression failures invested slightly less, and survivors even less. Again, the difference is visible from the start of the time series. There was a peak in investment for early failures and survivors around December 1925, with little variation after this date until the depression. This is additional evidence of long-term risky behaviour among early and mid-depression failures.

Finally, a word of caution. One important variable for this pre-depression period has not been mentioned: the total capital to total assets ratio, as shown in Figure 12.

Figure 12: Total Capital (Capital Stock + Surplus + Undivided Profits) to Total Assets.



Source: Statements.

This graph would tend to suggest that the capital ratio is not a major cause of failure or survival. Although survivors had a higher ratio during

²⁶ This spike for the June 1933 cohort is perhaps due to the unusual fall in sample size at that time from 14 to 9 banks as mentioned in section 2a. In other graphs this spike appears also for June 1931 failures, probably for the same reason.

the 1920s than June 1932 and June 1933 exclusive failures, early failure had an even higher one. This weak correlation between the capital ratio and the time of failure is confirmed by many authors, who on average simply do not report this ratio in their analysis, or find it insignificant (White, 1984, Thomas, 1935, Esbitt, 1986, Calomiris and Mason, 1997, 2003, Guglielmo, forthcoming).

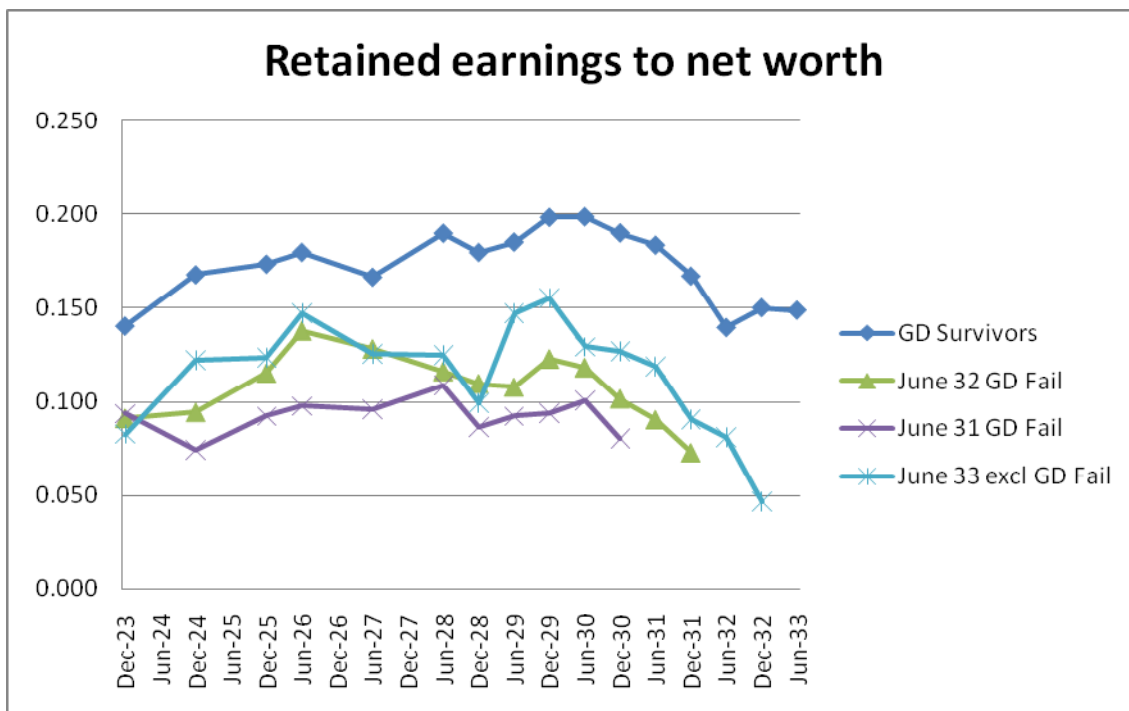
b) 1928-1933

If one looks again at the preceding graphs, this time focusing on the depression, it will be seen that the variables studied are not the best variables for measuring increasing distress. The ratio of real estate to assets changes as assets start falling (and assets themselves cannot be studied separately since they're an indication of size). Ratios including deposits are interesting at this time mostly because they reflect deposit losses, which again cannot be studied individually because of the size bias. The behaviour of US governments to total bonds and stocks during the depression was commented upon above. Finally, banking house expenditure is not highly relevant to a depression era. Fortunately, there are three other variables which can be studied and which turn out to be crucial for the depression-era analysis.

The first one is well-known as a measure of bank profitability, nowadays called retained earnings to net worth.²⁷ It is the ratio of retained earnings to total capital, and on 1929 financial statements the former category comes out as "undivided profits" or "the volume of recognised accumulated profits which have not yet been paid out in dividends" (Rodkey, 1944, p. 108; see also Van Hoose, 2010, p. 12). Figure 13 shows this ratio from 1923 to 1933.

²⁷ See Hefferman (1996), Guglielmo (forthcoming), Calomiris and Mason (1997, 2003).

Figure 13: Ratio of Retained Earnings to Net Worth (Undivided Profits to Total Capital).



Source: Statements

Note, first of all, that most cohorts' total capital starts declining in 1929 or 1930, which means that a decline in the retained earnings to net worth ratio is not due to this factor.²⁸ As in the previous section, the usual pattern is visible, with a higher ratio for survivors, a slightly lower ratio for late failures, and so on, from 1923-4 onwards. However Figure 13 is particularly interesting for the study of the depression itself. First, survivors' ratio starts falling later and more smoothly than all three other cohorts (in December 1930). By December 1930 the latter had already started to fall quite abruptly. The two late failures cohorts had started falling by June 1930, which can thus be identified as a turning point for these two cohorts. The early failures' ratio only really falls in December 1930, but it seems to have been particularly low for a long time, especially

²⁸ See Figure 3 for the trends in total capital, and recall that the "all depression" curve should not be taken for granted.

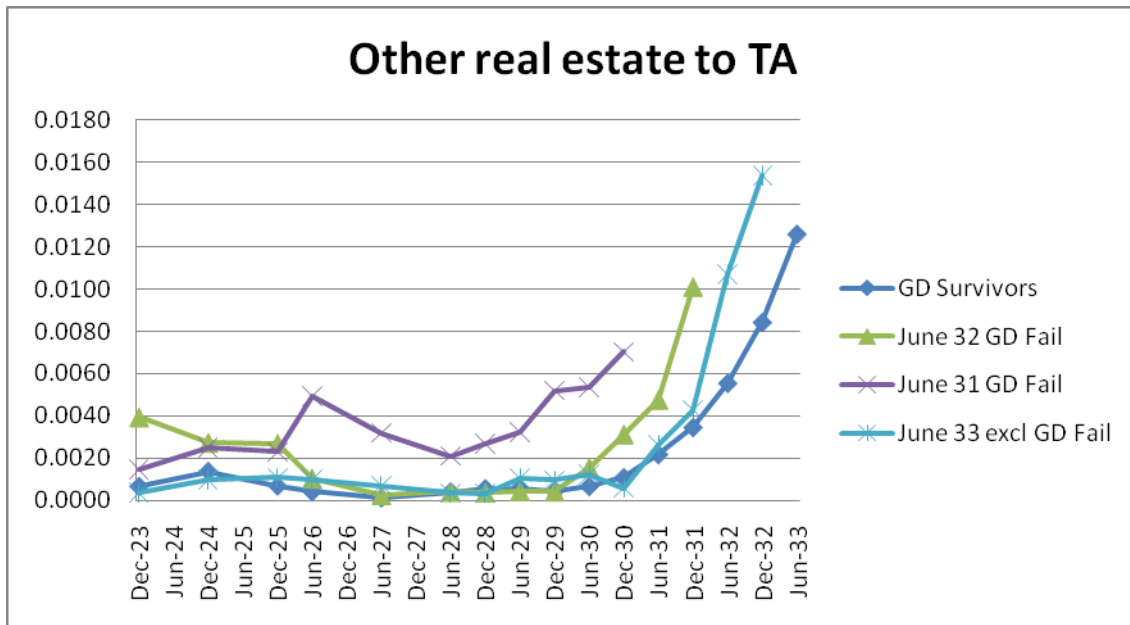
since December 1928 when it decreased substantially. Equally interesting is the fact that the top three cohorts' ratios peak in June 1926 (the first two will peak again around 1929), thereby showing a possible link between the peak in real estate and the peak in retained earnings. Both the June 1933 and June 1932 failures experience quite a sharp fall from 1926 onwards, only to rise again around the stock market boom. The June 1932 cohort ratio, in particular, rises by less during the stock market boom than during the real estate boom, as if it had started on its way down as early as June 1926, recovered briefly around October 1929 and then resumed its decline. Thus, this graph gives strong support to the argument that early failures became particularly vulnerable in terms of profitability even before the depression began, and that mid-depression and late failures started their decline before December 1930 (in June 1930), and even before that if we consider the mid-twenties peak.

Another telling variable for Chicago failures is that of "other real estate." Other real estate is an asset consisting of property repossessed by the bank in the face of real estate foreclosures. It is usually recognised by bankers as an undesirable asset and held only to minimize loan losses. As Rodkey indicated:

"Such holdings are (...) an indication of deficiency in earning power on the part of the borrower and a resulting market value of the property insufficient to cover the face of the mortgage. Such other real estate can be disposed of only at a loss to the bank, and this loss is likely to be considerable if it must be disposed of in order to provide additional liquid funds" (Rodkey, 1944, p. 127).

This variable should then be one of those variables representing a backfire effect of real estate investment in the 1920s (given the collapse in real estate, discussed in Part III). Figure 14 shows precisely this.

Figure 14: Other Real Estate to Total Assets.

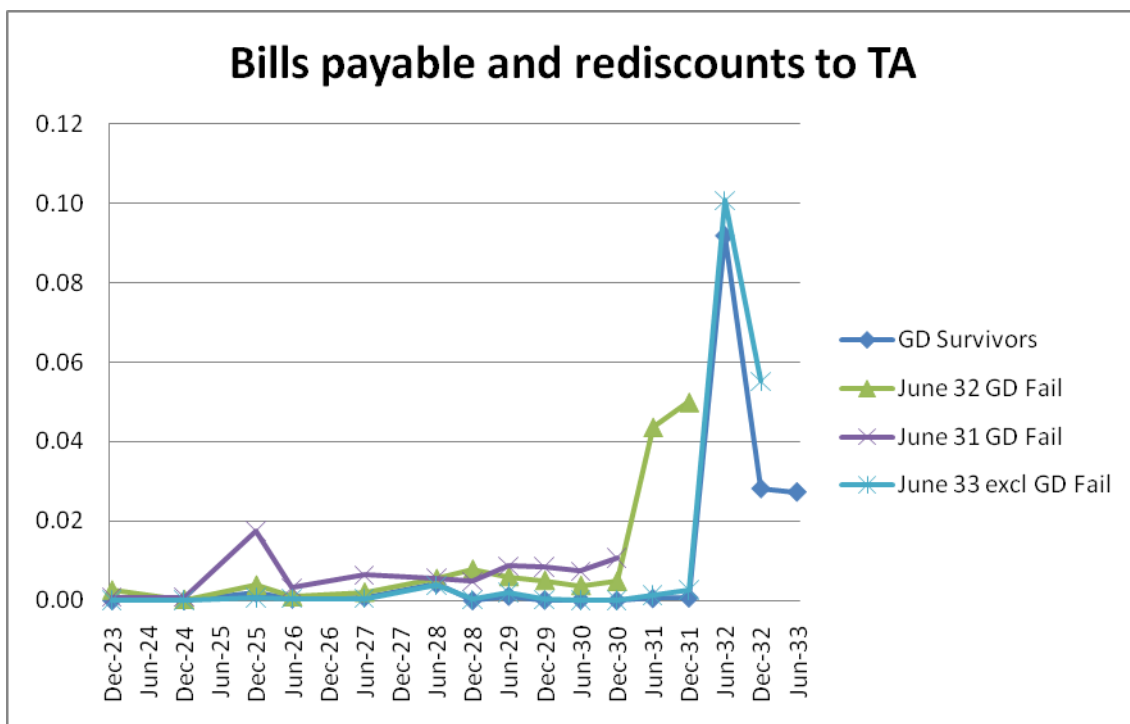


Source: Statements.

First, I should point out that the graph showing other real estate as an absolute value is almost the same, meaning that the effect of total assets on the ratio is negligible (probably due to the very small share of “other real estate” compared to other assets). Again, the usual pattern appears, although not so much in the 1920s since foreclosures only started to rise later on. The most striking feature of this graph is the coincidence of time of failure and time of rise in other real estate. The earliest failures’ ratio started to rise as early as December 1928 (see footnote 26 on the 1926 peak), the mid-depression failures’ starts rising in June 1930 (so before December 1930), and the later failures’ starts rising about the same time as survivors’, in December 1930 and June 1931. But the late failures’ ratio rose more abruptly than that of survivors’, which may partly explain their failure. Thus, at least for early and mid-depression failures, turning points are again identifiable before the end of 1930, that is, in June 1930 and December 1928.

Finally, I take a look at bills payable and rediscounts, a form of long-term, high interest debt, which is a good indicator of deposit withdrawals (but better than deposit withdrawals themselves since it is a ratio). This is due to the fact that when deposits are withdrawn from risky banks, they are forced to rely on high-cost, borrowed debt (Calomiris and Mason, 1997). Figure 15 shows the ratio for all four cohorts.

Figure 15: Bills Payable and Rediscounts to Total Assets.



Note: for this ratio variations in total assets again have little effect.
Source: Statements.

This graph shows banks' race for liquidity as they started losing deposits. Therefore, it is not surprising that for all banks the ratio only starts rising very late, and thus is not a good indicator a fundamental vulnerability. Nevertheless, it can still be seen that just as the depression started (around June and December 1929) early and mid-depression failures saw their ratio rise higher than usual, even before the massive withdrawals. This would tend to suggest that they were already identified

by the public as being less healthy, or simply that they already lacked liquidity for some other reason. As a side note, the June 1932 spike for survivors and late failures may be due to a Reconstruction Finance Corporation (RFC) plan to inject liquidity in banks that it thought sound during the June 1932 crisis (Calomiris and Mason, 1997).²⁹

To conclude, the evidence presented in Part II demonstrates the importance of 1920s long-term trends to explain the timing of failure during the depression: overall, earlier failures had been relying on more risky assets from as soon as December 1923. The earlier the failure, the riskier its behaviour had been in the 1920s. Moreover, turning points in bank vulnerability indicators are easily identifiable often as soon as the depression started (or even slightly before), which is especially true for early and mid-depression failures. In sum, the correlation between time of failure and both 1920s and in-depression variables gives strong support to the idea that long-term behaviour caused an increase in the vulnerability of banks at the start of the depression.

3. The Chicago Banking Landscape in the 1920s

Introduction

The aim of this part is to provide background qualitative (and sometimes quantitative) information on the 1920s Chicago banking landscape. Although some work has already been done in this direction by a number of authors, my aim is to shed light on the current state of knowledge while filling some gaps in the modern literature with reference to depression-era sources (Rodkey, 1935; 1944; Fisher, 1928; Hoyt, 1933; James, 1938; Simpson, 1933; Morton, 1944). Despite failing to

²⁹ As Calomiris and Mason (1997) remind readers, “it is important to keep in mind that the RFC was the only entity charged with helping avoid the insolvency of individual banks. At this time, Federal Reserve Banks did not view the prevention of bank insolvency as their mandate.”

rigorously analyze the impact of 1920s trends on bank failures, many economic historians have felt the need to look into that decade's regulatory and credit environment to provide some qualitative explanations of bank distress. For example, a number of them focused on the issue of branch banking prohibition as a possible cause of failure (Wheelock, 1995, Mitchener, 2003, Gambs, 1977, Carlson and Mitchener, 2006, Carlson, 2004, Calomiris and Wheelock, 1995). Others have looked more generally into credit booms (Robbins, 1934, Minsky 1986, Kindleberger, 1978, Galbraith, 1972, Eichengreen and Mitchener, 2003) and more particularly the real estate boom (White, 2009, and Guglielmo, forthcoming). The literature on the regulatory environment (and especially on branch banking in Illinois) is substantial and will be summarized briefly in the first section. The second section focuses on the Chicago credit boom fueled by a combined business and population boom. The modern literature for the 1920s on this topic is thin compared to the number of studies of Chicago in the depression, which may be precisely due to a lack of rigorous analysis of urban banking in this era.³⁰ Nevertheless, there is a sizeable contemporary literature, often from land economics. I should note that the issue of the representativeness of 1920s Chicago with respect to the rest of the US goes beyond the scope of this dissertation, and it will only be discussed briefly in some places.

3.1. The Regulatory Environment

“Chicago state banks had the highest failure rate of any urban area in the country during the Great Depression” (Guglielmo, forthcoming). Moreover, they had a higher failure rate than the rest of the state of Illinois

³⁰ The literature on rural banking is significantly larger since many failures in the 1920s occurred in rural areas. See Alston, Grove and Wheelock (1994) and Alston (1983). According to the former, “rural banks were twice as likely to fail as urban banks” in the 1920s.

(*ibid.*), a fact which goes against the common assumption that urban banks are more able to diversify their portfolio than rural ones.

One reason why this was the case may be the prohibition of branch banking in the whole state of Illinois. The main reason branch-banking is usually thought of as an advantage is that it allows portfolio diversification. For instance, Chicago banks are known to have invested substantially in office building and other urban real estate. It is therefore plausible that if these city banks had owned branches in the countryside they would have been able to diversify their loan and bond portfolios into agricultural loans (*ibid.*). According to Guglielmo, states that allowed branching had an average state bank failure rate of 34%, compared to 40% for states that had no branches at all. Of course, these figures hide the particularities of the different states, which may have had a higher failure rate for reasons independent of branch-banking prohibition. Although differences between the two types of states cannot have been very large, they are still noteworthy.

Branch banking can be contrasted to group or chain-banking as branches of the same bank can pool their assets and liabilities together. This is not true in the case of chain banking whereby different banks are affiliated through “interlocking directorates, common officers, or common stock ownership,” and thus keep separate their assets and liabilities (*ibid.*). In case there is a liquidity shortage at one of the banks in the chain, other member banks cannot simply transfer funds to that bank for help, a problem which does not even arise in the branch-banking system. This may partly explain the collapse of the Bain chain in June 1931 which triggered the banking crisis at that time (James, 1938, p. 994). However, many bankers still feared that if branch-banking was authorized a few of the largest banks of Chicago would monopolize the market in the whole state of Illinois. Thus it is in great part the activism of the Illinois Bankers’

Association which led to the official prohibition of branch-banking in Illinois in 1923 (*ibid.*, p. 955).

The lack of portfolio diversification was not necessarily directly due to the unit-banking system. Indeed, Rodkey points to the fact that many small bankers prior to the depression felt a moral duty to “meet all demands for good local loans” (Rodkey, 1944, p. 4). Moreover, it seems that the lack of portfolio diversification was not the only disadvantage of unit-banking. Rodkey blamed this system for fostering the incompetence of bank managers:

“This system leads naturally to a multiplicity of small banks under local control, owned locally, and operated usually by citizens of the home community who may or may not have some knowledge of the fundamental principles of sound banking” (Rodkey, 1935, p. 147).

Thus, by triggering the establishment of many small banks, unit-banking made it easier for inexperienced bankers to become managers.

Nevertheless, the debate on branch-banking has not completely ended. So far, at least four studies have shown that the branch-banking system was detrimental to bank survival during the depression. While Calomiris and Wheelock (1995) concede that it has usually been a good thing in U.S. history, they find that such was not the case in the Great Depression. Some of the largest branching networks collapsed in the 1930s, which may have been due to a form of moral hazard: branching banks thought they were better protected against local risk, and thus were less careful with their asset management (see also Carlson, 2001). Calomiris and Mason (2003) confirm the negative effect of branch-banking, and so does Carlson (2004). On the other hand, Mitchener (2003) finds a positive effect, while Gambs (1977) finds no effect at all.

Finally, a word on general supervision. Financial regulation in the 1920s and at the time of the depression was extremely lax, and Illinois was one of the states with the most lax legislation (Guglielmo, forthcoming). Despite having set a capital requirement of \$25,000 (which was quite high compared to other states), nothing ensured that banks followed this requirement in Illinois. And indeed, in June 1929 90% of state banks did not (ibid.). Also, the state was more or less silent regarding reserve requirements. Moreover, Rodkey deplored the competition between state banking departments and the federal Government for granting charters to promoters of new banks. This race to the bottom resulted in “laxity in the granting of new charters” and a “difficulty of limiting such charters to competent persons” (Rodkey, 1935, p. 147). Many states also “failed to recognize how vitally important the functions of bank examiners really [were]:”

“The niggardly salaries paid to examiners lead to a large turnover in the examining staff. Men leave the staff while still young and thus have no opportunity to develop the essential qualities which have been described. As a matter of fact, it is customary to look upon a place on the examining staff of most states, not as a life position, but merely as a stepping-stone to the vice-presidency of some particular bank” (ibid., p. 160).

In such conditions, one can understand that credit in the 1920s could flourish in all sorts of ways, which is the topic of the next section.

3.2. The Economic and Population Boom: the Expansion of Credit

Part II demonstrated that failing banks had been particularly reckless during the 1920s, especially in real estate, although the data do not allow one to see the evolution of the composition of other investments in detail (for example, public utilities versus industrial loans). Guglielmo

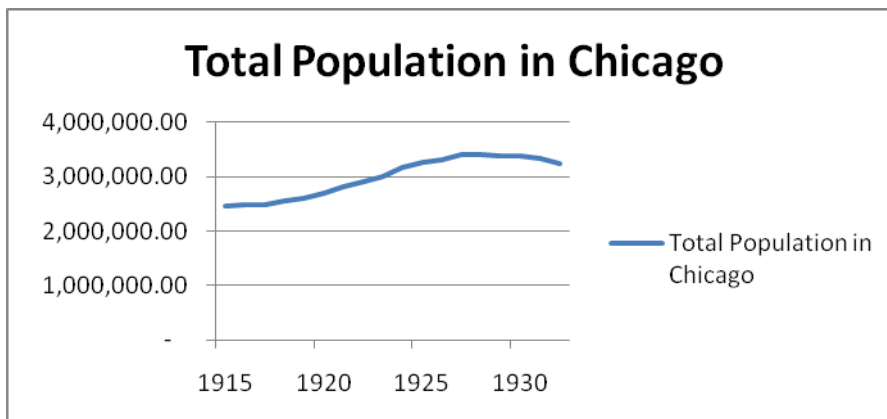
(forthcoming) gives information on the real estate boom but remains silent on the general economic boom. Moreover, he fails to assess the role of government in the real estate boom, and does not mention the role of life insurance companies and savings and loan associations, which had an important role in the increase in competition for credit agreements. This section attempts to bring all this information together with respect to Chicago.

a) The General Economic Boom

In the 1920s the US experienced a significant general business boom, which affected urban centres in particular (Hoyt, 1933, p. 235). Chicago was particularly well placed at the time because it lay next to large agricultural areas which experienced serious trouble after World War I. Indeed, Hoyt shows how both the return of soldiers and sailors and the coinciding fall in the price of foodstuffs during the 1920-21 crisis were conducive to the great expansion of Chicago both demographically and economically. The business and population boom fed on itself as workers were attracted by the higher wages of the city, including many black people from the South (ibid.).³¹ Figure 16 shows how the Chicago population increased by almost one half from 1918 to 1927.

³¹ In fact, the two largest banks in the U.S. operated and owned by black people were in Chicago: the Douglass National Bank and Binga State Bank (James, 1938, p. 955).

Figure 16: Population Growth in Chicago.



Source: Hoyt (1933, p. 483).

The excitement that the progress in economic activity and the near-constant arrival of new dwellers (at least in the first half of the 1920s) brought to the city led to an extremely fast development of credit, termed “financial elephantiasis” by a contemporary (James, 1938, p. 939). Eichengreen and Mitchener (2003) rigorously emphasize the interaction between the structure of the financial sector and the business boom. In particular, they show how the development of a market for consumer durables affected the expansion of credit: as vacuum cleaners, audio equipment and kitchen appliances appeared in department stores, consumers started to look for instalment purchase options. The rapid growth of instalment credit first started with nonbank institutions. For example, in 1919 General Motors established the General Motors Acceptance Corporation (GMAC) to finance the development of its mass market in motor vehicles. However, very quickly many sorts of financial institutions ended up competing for consumers’ credit. Moreover, the rise of new technologies contributed to the expansion of the financial sector as it led to unusual investor enthusiasm for their commercial potential and profitability. By the end of the 1920s “1,500 finance companies competed with commercial banks for a toehold in the market” (ibid.).

The importance of competition for the credit boom is a non-negligible issue. As will be seen in the next sub-section (on real estate), commercial banks competed with savings and loan associations as well as life insurance companies to offer mortgages. The negative effects of competition are often implied in the literature on branch-banking, and current literature on the topic in general is substantial.³² Excessive competition can promote excessive risk-taking, which was one reason why the post-depression Glass-Steagall Act introduced deposit rate ceilings (Van Hoose, 2010, p. 127). It may also lead to instability due to the “monkey-see-monkey do” mechanism: “if a rival extends a loan to the prospective borrower, the bank raises its estimate of the probability of project success for that borrower, thus creating a herding effect” (Ogura, 2006). However, other authors such as Carlson and Mitchener (2006) have shown that competition in the long run could lead to the exit of weak banks and a subsequent increase in stability. As Van Hoose makes clear, the evidence on the topic is “at best mixed” (Van Hoose, 2010, p. 129), but the issue should be seriously considered as a possible destabilizing effect of the 1920s credit boom.

b) Real Estate

The credit expansion in Chicago translated also in a substantial building boom, which may have been particularly strong in the Chicago area, although so far there has been no major academic study on 1920s real estate activity at a disaggregated level for the country as a whole.³³ There is outstanding evidence that the Chicago real estate boom was excessive in the sense that it reflected predictions of population increases

³² See, in particular, Van Hoose (2010) for a good literature review on the topic, pp. 126-9.

³³ White (2009) studies the question for the country as a whole but does not disaggregate into the various regions and cities of the US. For a journalistic account see Sakolski (1932).

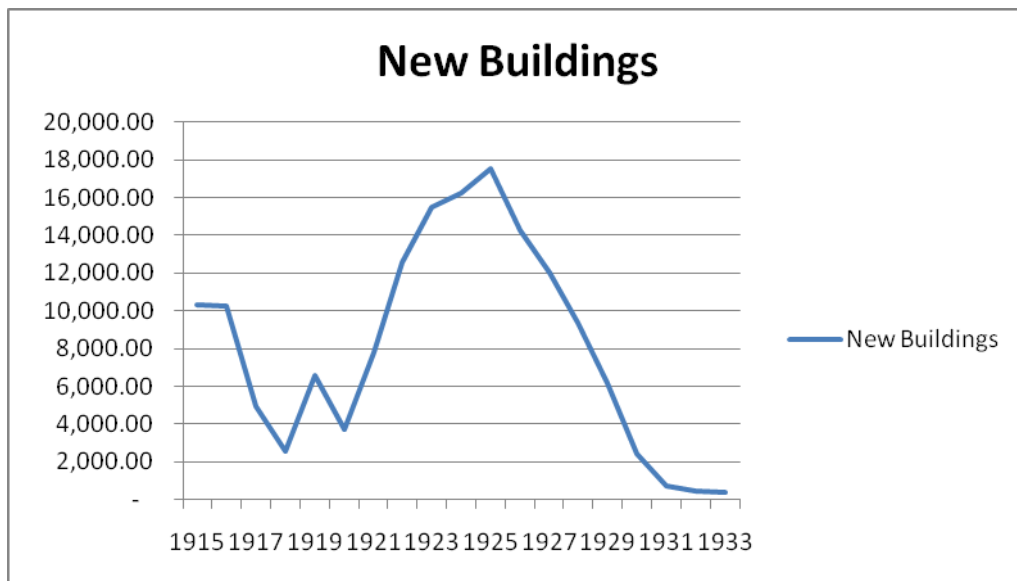
that went far beyond the actual increase. Hoyt posits that it is because Chicago's population started growing at an unusually rapid rate that investors imagined that a "new era" was born and that Chicago would have grown up to 18 million by 1974.³⁴ In 1928, Ernest Fisher, associate professor of real estate at the University of Michigan, studied real estate subdividing activity and found that "periods of intense subdividing activity almost always force the ratio of lots to population considerably above the typical" (Fisher, 1928, p. 3). His explanation was that "the only basis for decision is the position of the market at the time the manufacturer [makes] his plans," which leads to procyclicality. In real-estate prediction no room was made for a future slowdown in population growth. As can be seen in Figure 16, such a slowdown occurred in 1928, just before the start of the depression. To Hoyt, "the [real estate] cycle [was] generated largely by a sudden and unexpected increase in population, which was in turn due to a rush to take advantage of economic opportunities" (Hoyt, 1933, p. 403).

Figure 17 shows how the Chicago building boom reached a peak in 1925 and then receded abruptly. Figure 18 shows the ratio of new residents per new building from 1915 to 1930.³⁵

³⁴ Hoyt humorously depicts "distinguished scholars'" assessments of the situation, which were often quite surprising (Hoyt, 1933, p. 388).

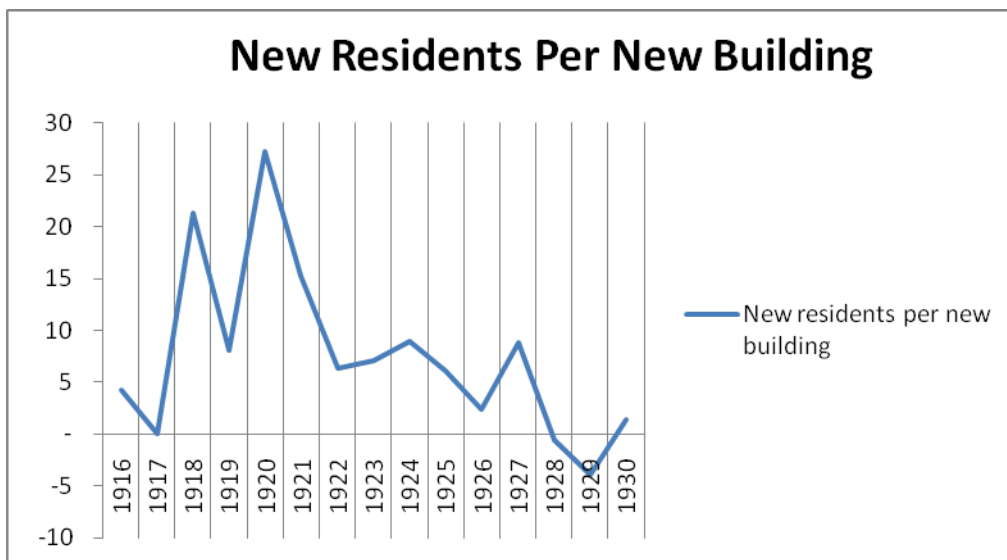
³⁵ This graph was made from data from Hoyt (1933, pp. 378, 475), but was presented for the first time by Guglielmo (2000).

Figure 17: Annual Amount of New Buildings in Chicago.



Source: Hoyt (1933, p. 475).

Figure 18: New Residents per new Building in Chicago.

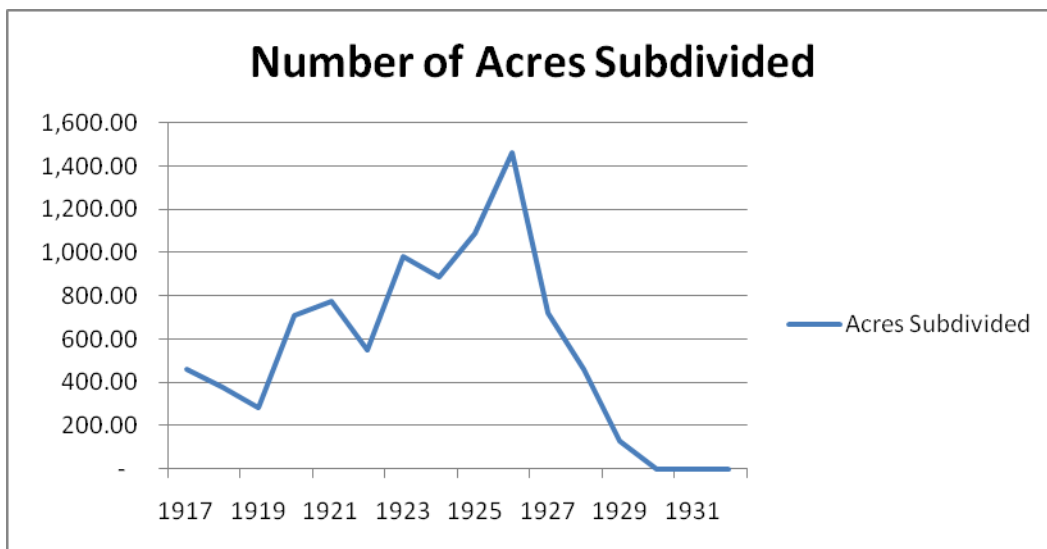


Sources: Hoyt (1933, pp. 378, 475) and Guglielmo (forthcoming).

Clearly, these graphs show the widening gap between new building construction (which is planned in advance of population increase) and

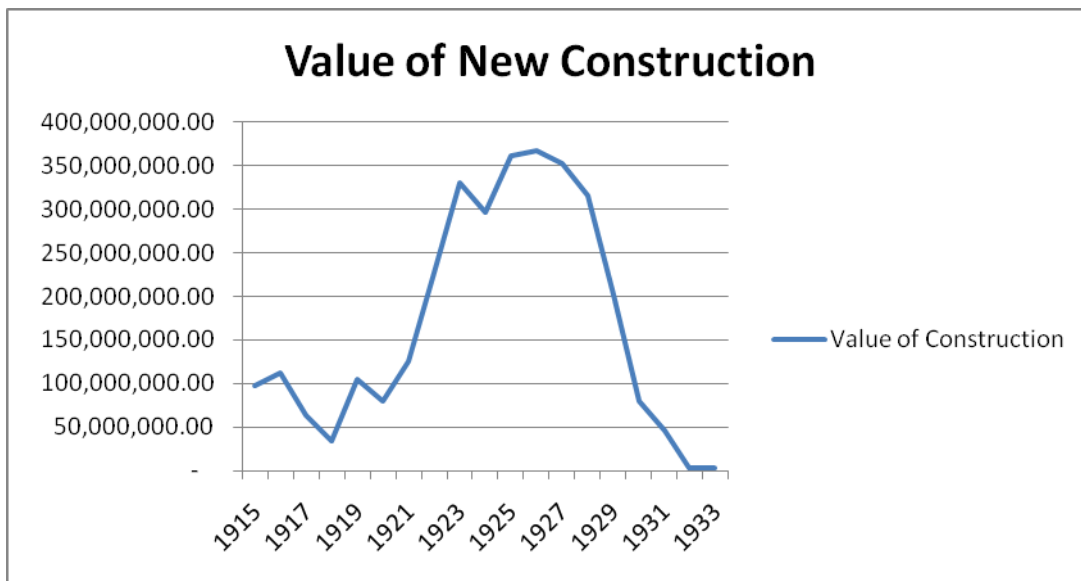
actual population arrival. There is a small rise in new residents per new building from 1922 to 1924, but even at the construction peak (1925) the ratio has already started going down. There is a short recovery in 1927, but an abrupt fall afterwards. Figure 19 shows the sharp rise and fall in the number of acres subdivided in the 1920s. As for new buildings, the fall is much sharper than the actual population slowdown, which shows the sudden realization of excess construction. Figure 20 shows a similar picture for the value of new construction in Chicago, which started falling in 1927 and entered a freefall in 1928 and 1929.

Figure 19: Number of Acres Subdivided Annually in the 1931 Limits of Chicago.



Source: Hoyt (1933, p. 479).

Figure 20: Annual Value of New Construction in Chicago (dollars).



Source: Hoyt (1933, p. 475).

The rise in construction was certainly helped by large extensions of credit. As companies switched from debt to equity financing, banks switched from investment in the more secure short-term commercial loans to riskier investments such as real estate and the stock market (Rodkey, 1944, p. 4). At the same time, the rise in the Chicago population also attracted bankers directly, so that most of the outlying Chicago banks created in the 1920s “were the outgrowths of the real estate boom” (James, 1938, p. 953). Promoters of real estate found that a bank was an “invaluable accessory” as it provided the funds necessary to finance a project while at the same time lending to the purchaser a substantial portion of the price. James concludes: “their soundness was intimately related to the building boom” (ibid.). Tables 6a and 6b show the rise in number and size of nonfarm mortgages for commercial banks competing with savings and loan associations and life insurance companies.

Tables 6a and 6b: Size of Nonfarm Mortgage Loans 1920-29, by Period Loan Made (dollar figures in thousands).

1- to 4- Family Homes						
Period made	Life insurance companies		Commercial Banks		Savings & Loan Association	
	No. of Loans	Av. Size	No. of Loans	Av. Size	No. of Loans	Av. Size
1920-24	851	\$4.4	714	\$3.9	551	\$2.7
1925-29	2061	5.4	1097	4.6	859	3

All Other Companies						
Period made	Life insurance companies		Commercial Banks		Savings & Loan Association	
	No. of Loans	Av. Size	No. of Loans	Av. Size	No. of Loans	Av. Size
1920-24	118	\$47.5	86	\$33.7	67	\$4.4
1925-29	239	70.1	160	20.4	86	4.9

Source: Morton, 1956, p. 48

Loans on real estate were not usually fully amortized, and were thus called “balloon” mortgages. White (2009) argues that this feature of the mortgage market, together with the prevailing low loan to value ratio (usually 50%), guaranteed the safety of these loans. However, Morton (the main source for quantitative information on 1920s real-estate lending) saw these balloon mortgages as particularly hazardous: “It was because of statutory restrictions that the practice grew of taking what reduction could be obtained in a mortgage loan at its maturity and then remaking it for another short span of years. (...) The debacle of the thirties proved beyond question that they were inadequate (...)” (Morton, 1956, p. 8). In addition, little attention was given to the ability of the borrower to meet his interest payments (Rodkey, 1935, p. 122). Consequently, while the

contract maturity between 1925 and 1929 was 3.7 years, the realized contract maturity became 8.8 years (ibid., p. 119, and Guglielmo, forthcoming).

Moreover, Hoyt emphasizes the wide impact of “shoestring” financing at the time which “swelled the number of new structures.” Very little capital was needed to erect a skyscraper (Hoyt, 1933, p. 383):

“Contractors (...) sometimes made an agreement to purchase a lot, put up a small deposit on the purchase price, drew plans for an elaborate structure, and on this basis secured a loan large enough to pay the balance due on the lot and to complete the building. Again several large Loop office buildings, such as the one at the southwest corner of Clark and Madison streets (...) were erected by parties who secured a ground lease and who virtually without any capital succeeded in securing a loan on a bond issue sufficient to erect a skyscraper” (ibid., p. 386).

Municipal governments often also took part in the general enthusiasm. Simpson (1933) gives examples of city officials and local municipalities having “a large order of sewer pipe (intended for the regular city streets) hauled out and spilled along the streets of a new subdivision, left there over the week-end to give an appearance of immediate activity, and then gathered up by the city trucks and hauled back to its original destination.”

Finally, the vast supply of funds in the 1920s was tapped by the sale of real estate bonds. According to Hoyt, such sales were greatly helped by the fact that the public had become familiar with bonds in general since the Liberty Loans campaign during World War I (Hoyt, 1933, p. 383). Large mortgages were split into bonds of denomination as low as one hundred dollars, which “vastly widened the market” (ibid.). Moreover, as a selling technique, banks promised to repurchase such securities from

dissatisfied customers, and they thus started to dangerously accumulate in their portfolios after 1925.

In sum, all these elements taken together may well explain the patterns described in Figure 14, which shows the sharp rise in banks' "other real estate" towards the end of the 1920s. Whether it is the most important cause of the financial breakdown in Chicago or simply a contributing factor is a subject for further debate.

Conclusion

Many authors had previously succeeded in showing the vulnerability of banks prior to their failure in the Great Depression. This dissertation showed when Chicago failures started to act in a more risky way and when their vulnerability became more acute. It also demonstrated that the time of failure coincided with a bank's risky behaviour in the 1920s on the one hand, and with earlier or deeper vulnerability after 1928 on the other. In particular, throughout the 1920s June 1931 failures had a higher real estate loan share than June 1932 failures, and June 1932 failures had a higher share than June 1933 failures. This was true for almost all other relevant variables, whether it be real estate to time deposits, the reserve-deposit ratio, US government bonds to total bonds and stocks or banking house to total assets. For the Great Depression era a turning point in banks' vulnerability is identifiable before December 1930 at least for early and mid-depression failures. Late (June 1933) failures tend to behave more like survivors. June 1930 is singled out as a critical point for June 1932 failures both in terms of retained earnings and other real estate. For earlier failures, the downturn started even earlier, sometimes as early as December 1928 (especially in other real estate), or December 1929 (for bills payable and rediscounts). For most cohorts retained earnings peaked around June 1926, sometimes

never going back to this level (at least for the June 1932 cohort). This tends to confirm an important role for real estate activity in 1920s in depression Chicago, on which the last part gave quantitative and anecdotal detail. Although bank size was a non-negligible aspect of failure rates, the analysis of financial ratios shows that this was certainly not the main one.

The issue of the representativeness of the Chicago population of state banks has only been hinted at here and there throughout the thesis, but it is an important one. In order to truly be able to assess, for example, the role of real estate in long-term bank behaviour one would have to compare the findings on Chicago with the rest of the country. This is of course a laborious task and would require that the data used here (and more) be available for the country as a whole, which is far from evident. Nevertheless, future research on the topic would be of great interest. Moreover, I have only applied mainly graphic analysis to an extremely complex problem, and other forms of analysis, perhaps more rigorous ones, should certainly be tried out. Finally, one thing that has not been done in this study is a comparison of the results of a similar analysis for the banks that failed throughout the 1920s with the current one (for depression failures). This would facilitate a test of the idea that depression failures differed from 1920s failures.

Overall, the dissertation has given shape and emphasis to the theory that banks during the Great Depression failed not because of sudden liquidity problems but because of fundamental weaknesses. It would be difficult, in light of the evidence presented here, to still argue that the main causes of bank failure were “autonomous liquidity shocks” due to a “contagion of fear.”

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