

**The Nature of Banking, Information-Insensitive  
Balance Sheets,  
And  
Excess Reserves After the Bank Holiday of 1933**

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# **The Nature of Banking, Information-Insensitive Balance Sheets, And Excess Reserves After the Bank Holiday of 1933**

## **1. Introduction**

One of the most curious episodes in U. S. banking history was the unusually large accumulation of excess reserves (assets not explicitly bearing interest) that began shortly after the Bank Holiday of March 9, 1933. This continued unabated until 1941.

The behavior of the aggregate quantity of excess reserves is seen in Figure 1. Bordo (September 30, 2009) reports that excess reserves represented over 50 percent of total reserves in 1935. Elsewhere, Mounts, Sowell and Saxena (2000) find that excess reserves at the country bank level averaged over 26 percent of total assets rising to over 31 percent by 1941.

The magnitude of this unique, persistent, yet seemingly noneconomic activity suppressed the money multiplier and contributed to the long duration of the recovery making it largely dependent on growth in “outside” money. However, little mention is made of this accumulation in other explanations of the duration and the multiplier. (see Romer, 1992)

At the time, it was feared by government officials that excess reserves could lead to future inflation, hampering policy making by the

Board and Treasury (Lindley, 1985 and Meltzer, 2003). Yet, Meltzer (2003) notes:

There is no evidence of a study by the Board or the Reserve banks to understand why banks held large excess reserves.

Literature addressing the accumulation includes the protective-liquidity hypothesis (Friedman and Schwartz, 1963, pp. 534–42), the inertia-effect hypothesis (Morrison, 1966), the brokerage fee hypothesis (Frost, 1971), and the signaling hypothesis (Calomiris and Wilson, 1996; Ramos, 1996). In each of these it is argued in one way or another that cash performed some function for banks during the 1933-1941 period that it did not provide before 1934 or after 1941. Elsewhere, Mounts et al (2000) and Lindley et al (2001) added that the accumulation resulted from significant adjustment costs of converting deposits into revenue-producing assets during this period.

In this paper we consider a new explanation for the accumulation. This new approach is motivated by the unprecedented accumulation of excess reserves that began in September 2008. As shown in Figure 2, between September 2008 and the present, over \$900 billion of excess reserves have been accumulated by the banking system virtually absorbing the entire expansion of the monetary base produced by the Federal Reserve driving the money multiplier to one.

During this recent period, much has been made of information issues as measured by what Taylor (2008) refers to as counter-party

risk. We also recognize the recent work of Gorton (2009) addressing the promulgation of the banking panic of 2007. While his work addresses the development and impact of shadow banking, his emphasis on the informational sensitivity in the balance sheet of these institutions offers insight into the behavior of banks during the 1930s.

Recognizing the role that information issues played in the Great Depression is not new. Bernanke's (1983) paper on the costs of credit intermediation represents a possible avenue that connected monetary shocks to turmoil in the real sector. This link was the ability (or inability) of bankers to differentiate 'good' and 'bad' loans.

In this paper we argue that the banking panic of March 1933 reflects many of the attributes described in Gorton's (2007) model of the banking panic of 2007 and in his review of the panic of 1907. The effects of the 1933 panic lingered and were compounded by the closings associated with the bank holiday. From this perspective, excess reserves were accumulated as informational issues raised the target level of reserves above the legal limits set by the Federal Reserve. The accumulation may also represent an attempt to create an implicit clearinghouse system that had been, in large part, supplanted by the creation of the Federal Reserve. Understanding why an individual bank conducted its banking business so that excess reserves

were accumulated, requires a focus on individual banking units, rather than on banking as an industry participating in “national” markets.

Section 2 develops the general microeconomic theory of the banking firm. Section 3 describes the banking panic of 2007. The banking environment after the bank holiday of March 1933 is presented in Section 4. Section 5 describes the data and our empirical approach. A conclusion follows in the closing section.

## **2. The Nature of Banking and the Balance Sheet**

As noted, much of the pertinent literature focuses on the aggregate banking system lending on a national credit market rather than on individual banks. Although this approach is useful for policy analysis, it is not useful for analyzing the excess reserve issue.

A national view ignores the very nature of the banking business. National markets (e.g., government securities market) are built around homogeneous instruments. In these markets, excess demand (supply) in one geographic area is quickly, and usually profitably, eliminated by actions of dealers and traders. Banks, especially banks of the 1930s, did not operate in a national market or even a regional market. There were many states that did not permit branch banking. Thus, then more than now, the banking business was largely a local

phenomenon with most loans made to small businesses and individuals.

It is well documented in the literature that, on the asset side of their balance sheet, banks have an advantage lending to small borrowers. Banks possess unique information about individual borrowers and are able to monitor the borrower's behavior. Small borrowers value the financial intermediation provided by an individual bank because they cannot access larger debt markets. In the end, banks have a comparative advantage in dealing with the asymmetric information issues associated with small borrowers.

Sealey and Lindley (1977) model bank behavior and the production of financial intermediation along the same framework as other producers. In their approach, deposits are an input into the production process while loans (and purchased securities) are viewed as output. Banks, however, have a fixed factor production function (i.e., there is no marginal substitution for the input "loanable funds"). As a result, the profit-maximizing level of output (loans and securities) is determined prior to determining the level of inputs (deposits).

Implicit in this model is an assumption that banks make loans within a local, market-determined lending area. This results in loan markets and deposit-gathering markets that are, in large part, spatially balanced. This is to say, many, but not all, of a bank's

demand deposit customers are also loan customers. Alternatively, many, but not all, loan customers are also depositors. This is one way the banker addresses the informational issues that are fundamental to the nature of the banking enterprise. Information about borrowers can be gleaned from their behavior as depositors and vice versa. There is, to some degree, an informational balance in the sides of a bank's balance sheet.

### **3. The Banking Panic of 2007**

Both Gorton (2009) and Taylor (2008) address the current financial crisis. Taylor makes the case that the crisis was precipitated by information problems. This is seen in the counter-party risk reflected in the LIBOR spreads shown in Figure 3. These spreads reflect the impact of monetary excesses, risk-taking excesses promoted by housing policies, and faulty credit ratings of securitized obligations.

Gorton argues that it is important to see the current crisis as a banking panic similar to those in the first third of the 20<sup>th</sup> century. The banking panic of 2007 was not, however, at the retail level but in the financial sector referred to as 'shadow banking'. He argues that the shadow banking industry had many attributes similar to retail banking prior to the establishment of the FDIC.

While the unique nature of commercial banking is described by their ability to deal with asymmetric information and lending on the asset side, Gorton addresses the unique character of the liability side of a bank's balance sheet. Banks are special in that they create a liability, demand deposits, which is informationally insensitive. This means that traders cannot benefit from the presence of asymmetric information. Demand deposits trade at par and may be cashed at full value at the bank. This attribute is accepted in the market place. A bank panic occurs when demand deposits lose this attribute – they become informationally sensitive. With this, these banks could not meet their obligations and the system became insolvent.

The informational character of demand deposits can be described in the context of the banking panic of 1907. Prior to the creation of the Federal Reserve, banks used a system of clearinghouses to clear checks and, more importantly, address the convertibility of demand deposits during runs and panics. In the panic of 1907, convertibility was stopped and claims on the clearinghouse were issued. Gorton shows how these certificates reintroduced informational insensitivity to demand deposits and return informational insensitivity to the banking balance sheet.



#### **4. Banking and Bank Panics in the 1930s**

As stated above, banking in the 1920s and 1930s can be viewed as having a spatial dimension. The market from which a bank collected deposits was very similar to the lending market. Based in the general banking literature and the recent work of Gorton (2008) and others, during periods of normal banking operations, bankers dealt with the problem of adverse selection in their loan portfolios and developed informationally insensitive demand deposits. In a sense, the overlap of the two markets led to a balance in the information contained in both sides of their balance sheets.

The runs of the 1920s and 30s can be seen in this context as the result of changes in the informational relationships bankers sought to maintain in their balance sheets. Banking customers, prompted by events in the real sector, no longer viewed their demand deposits as informationally insensitive and they could not differentiate between good and bad banks. Hence, runs began and panic was the result of contagion. Insolvency resulted as banks could not meet their obligations and as loans did not perform or could not be sold to raise the needed capital to meet the demands of depositors.

Given the insolvency of the system and the extent of the panic, Roosevelt declared a banking holiday on March 9, 1933. National inconvertibility was declared. Next, with the establishment of the FDIC,

informational insensitivity was returned to demand deposits at least from the view of depositors. Yet bankers still needed to manage their balance sheets - the issues of adverse selection on the asset side had to be balanced with the informational insensitivity of liabilities. The FDIC did not replace the production of financial intermediation by bankers. It simply redefined how bank insolvency would be addressed.

Starting with the holiday, banking authorities at the federal and state level began an inspection of all banks. Banks could not reopen unless licensed by authorities. In the end, 3000 banks did not reopen. This was in addition to the thousands that closed over the 1920s. (See Walter, 2005)

The mass closing fundamentally altered the spatial nature of the banking system described above. The deposit market became significantly larger than the lending market especially for small rural banks.

Until economic conditions significantly improved to change expectations and the role of the new FDIC established, banks probably continued to see their deposits as only relatively informationally insensitive. In addition, remaining performing loans continued to need monitoring and the expanded lending market increased the amount of adverse selection in a bank's decision nexus. This was compounded by the fact that the Federal Reserve did very little to expand the

monetary base or to perform its initial task of providing an elastic currency. While it is clear that the creation of the Fed ended many of the functions of the system of clearinghouses, it is also clear that the Fed did not perform the duties it had displaced.

Given the larger problems of adverse selection associated with a larger lending market and given the small market for government securities, the only asset that offered a large source of informational insensitivity was excess reserves. In a sense, the accumulation of excess reserves of the 1930s may have resembled attempts to create the certificates of the previous system of clearinghouses.

Anecdotal evidence for this view is offered by the fact that these cash assets were held at other banks, not in the Federal Reserve district banks. This suggests that runs were not feared and that the pyramiding of reserves was not a concern. Next, excess reserves continue to grow toward higher target levels even after the two increases in the reserve requirements in 1936 and 1937. Loans and securities were adjusted to meet the new reserve requirements, not excess reserves. This points to the idea that excess reserves were performing some unique function required by the ever-increasing amount of demand deposits.

## 5. Empirical Considerations

Data is taken from the historical Banking and Monetary Statistics. They may be found in PDF form at <http://fraser.stlouisfed.org/publications/bms/>.

While several empirical points are presented in the accompanying PowerPoint, a few points will be made here using aggregate data series of the time. First, tests for Granger causality indicate that the gold inflows drove the increase in bank deposits after 1930. The increase in deposits Granger causes the increase in reserves. Other orders do not point to causal relationships.

Next, Granger causality is not indicated in any ordering of bank reserves, securities and loans. Each of these asset categories seems to be driven by independent processes. This also suggests that there was little asset substitution. With adverse selection issues and their high default and liquidity risk, loans did not offer the informational insensitivity required by the ever-increasing level of deposits. Also, given some level of interest rate risk, securities only offered high returns if held to maturity (see Cecchetti), thereby being too illiquid to support the growing level of demand deposits.

Were banks implicitly trying to recreate a clearinghouse environment? Figure 4 shows the growth in interbank deposits and reserves. Interbank deposits show measurably higher growth rates

starting in 1929. In addition, there is Granger causality from interbank deposits to the growth in reserves. This may be consistent with the clearinghouse arguments if Fed policy is seen as beginning to fail more significantly relative to the coming downturn.

## **6. Conclusion**

The purpose of this paper has been to offer a new perspective into the accumulation of excess reserves after the bank holiday of March 1933. This perspective is developed from the literature addressing the shadow bank panic of 2007. The informational nature of the balance sheets of banks has been used to argue that excess reserves represented the asset that could informationally balance the growing level of demand deposits. Evidence suggests that banks may have been trying to recreate clearinghouse functions that existed prior to the establishment of the Federal Reserve.

Figure 1

Cash Assets During the 'Old'

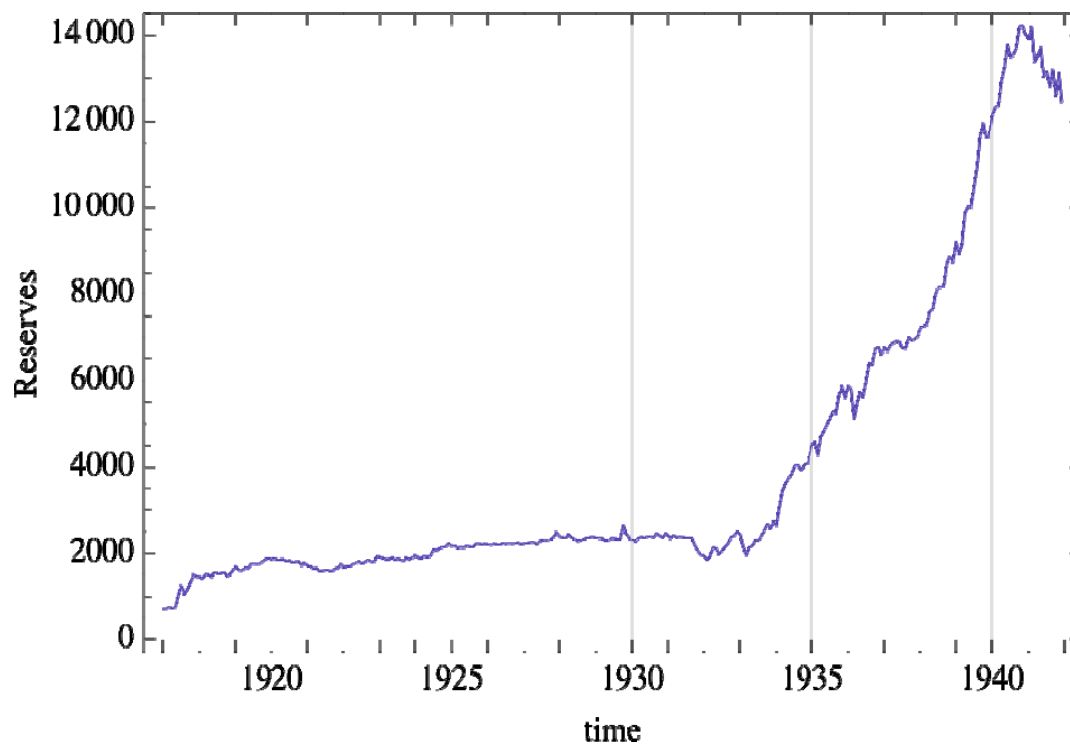
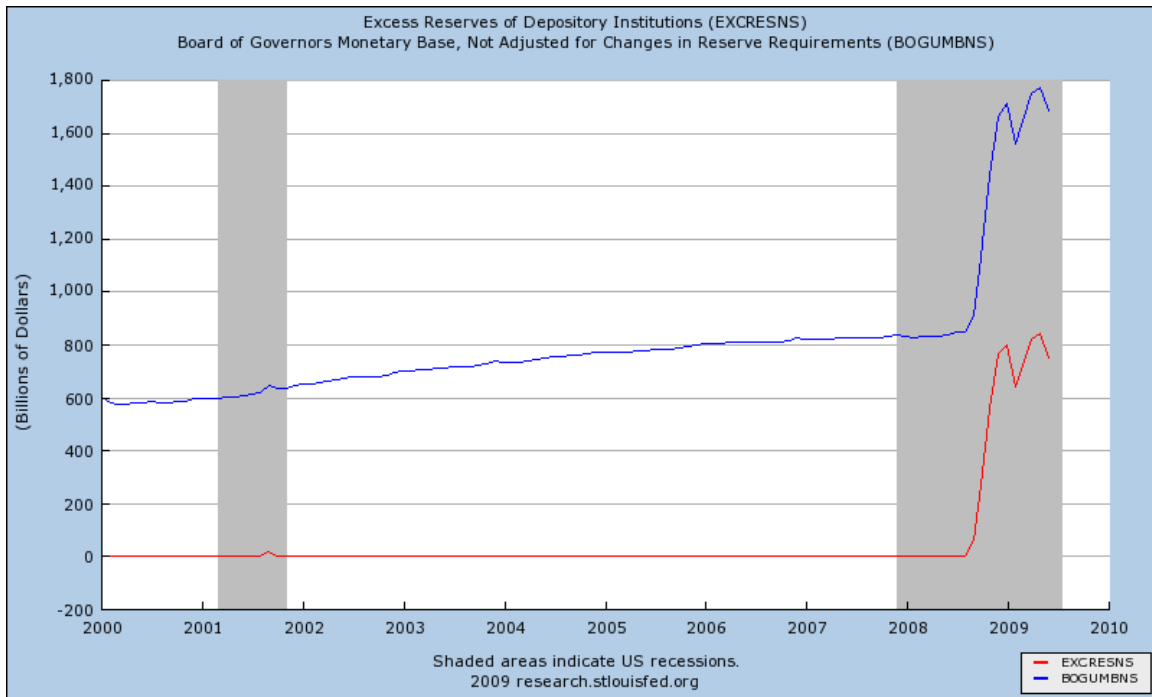


Figure 2

### Excess Reserves During the 'Now'



Top line is the monetary base. The bottom line is excess reserves.

Figure 3

Counter-Party Risk as Seen in Libor Spreads

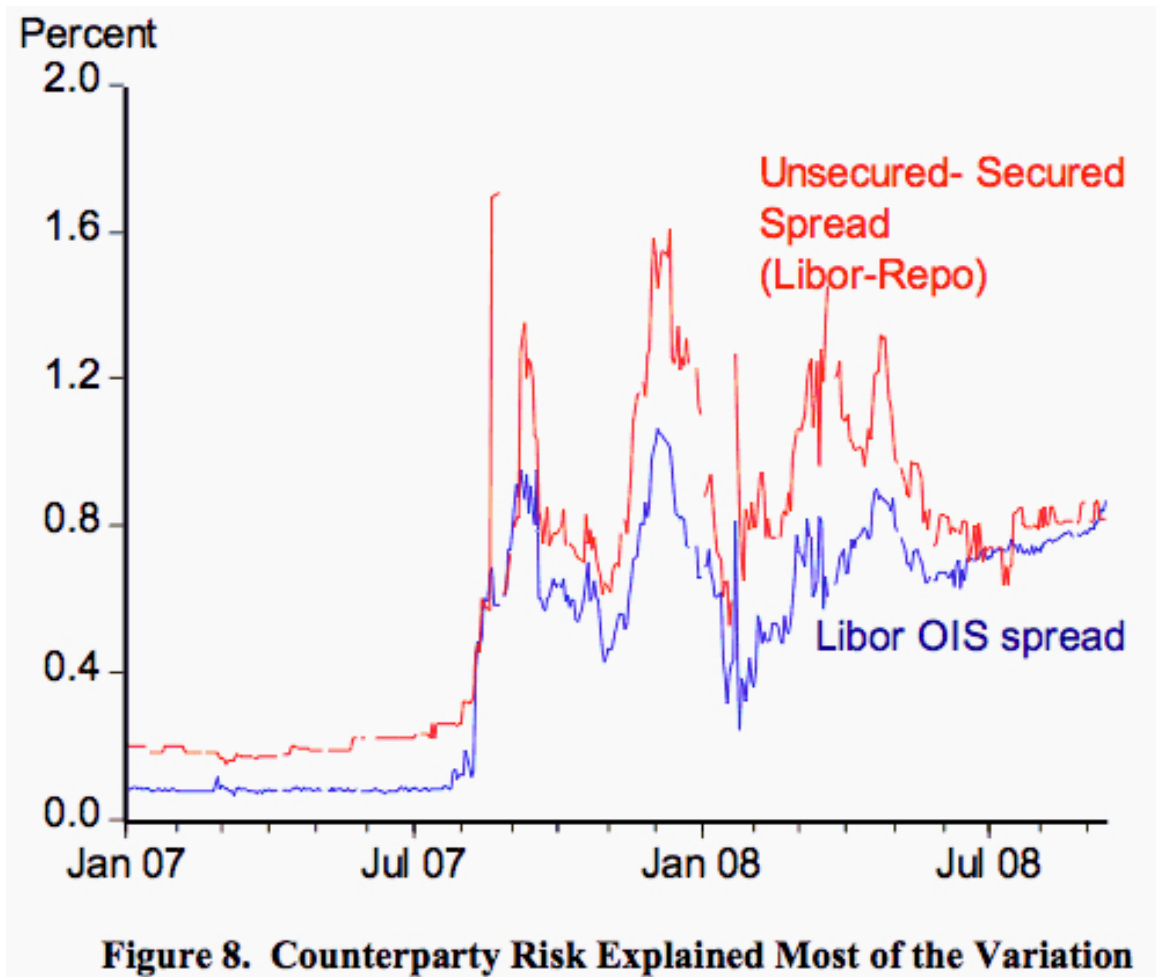
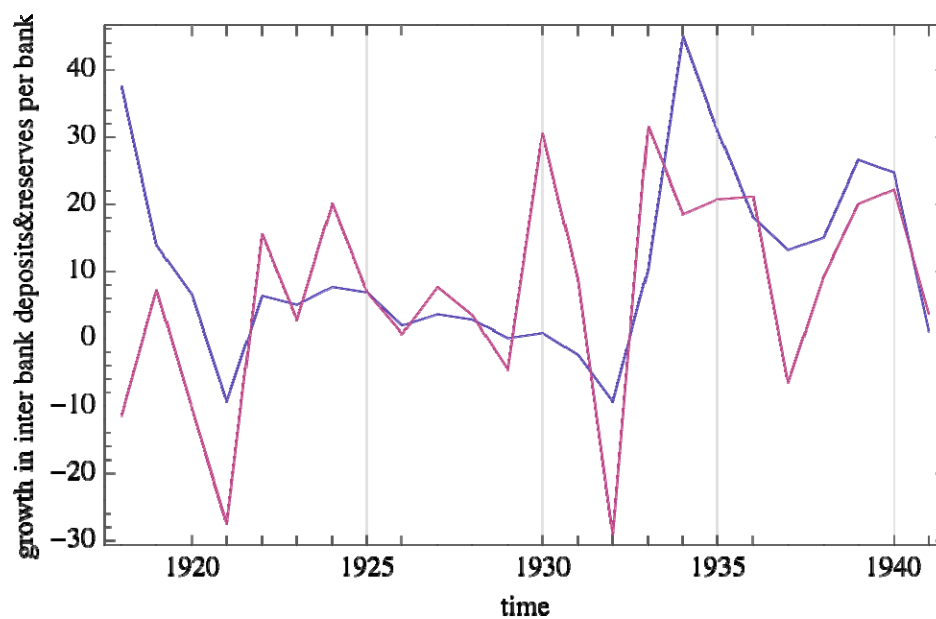




Figure 4

Growth in Interbank Deposits and Reserves Per Bank



The initial top line is the growth in reserves while the bottom line is the growth in interbank deposits.

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