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Bank Liability Insurance Schemes Before 1865*

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ABSTRACT

Prior to the Civil War several states established bank liability insurance schemes of two basic types. One was an insurance fund, in which member banks paid into a state-run fund that would pay losses of bank creditors. The other was a mutual guarantee system, in which survivor banks were legally responsible for the liabilities of any bank that became insolvent. Both schemes did well at insuring bank creditors, but neither prevented bank panics. Bank failure rates were somewhat higher for banks that were part of these schemes. The experience with these schemes shows that regulatory incentives matter for controlling moral hazard. The schemes that provided the most control of moral hazard were those that had a high degree of mutuality of losses borne by all banks participating in the scheme.

Keywords: deposit insurance, moral hazard, banknotes

JEL:

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1. Introduction

The Federal Deposit Insurance Corporation (FDIC) was established by the Banking Act of 1933. According to Representative Henry B. Steagall, one of its principal proponents, the purpose deposit insurance was to provide the public with “money as safe as though it were invested in a government bond” and to “prevent bank failures, with depositors walking in the streets.”¹ Initially the FDIC insured deposits up to \$2500; this amount was increased to \$5000 in 1935.

The FDIC was not the first scheme to insure liabilities of banks in the United States, however. Beginning in 1909, eight states enacted deposit insurance programs. These programs came to an end in the 1920s. Even earlier, notes issued by national banks were explicitly guaranteed by the U.S. Treasury by provisions in the National Currency Act of 1863, which established the National Banking System. And prior to the establishment of the National Banking System, two states enacted schemes to insure the notes issued by banks and four states enacted schemes to insure all the liabilities of banks. It is these early bank liability insurance schemes that are the focus of this paper.

These early bank liability insurance schemes were of two basic types. One type was an insurance fund. In the insurance fund scheme, banks paid a percentage of capital to the state banking authority. This authority would then use this fund to reimburse the creditors of banks in the fund that became insolvent. Payments to creditors were capped by the amount in the fund. However, there was some mutualization of losses because banks that remained solvent (survivors) could potentially be required to make further contributions to the fund to restore it to its requisite level. Additional payments were made to creditors as the additional contributions to the fund by survivors were received. Three states - Michigan, New York, and Vermont - established such insurance funds.

The second type was a mutual guarantee system. This was a full mutualization of losses system in which the survivors in a group of banks were legally responsible for making good on the liabilities of any bank in the group that became insolvent. Payments to creditors of a failing bank were only limited by the market value of the assets of all banks in the system. Three states - Indiana, Ohio, and Iowa - established such mutual guarantee systems.

Although the motives behind the adoption of these insurance schemes were probably numerous and likely varied across the states that enacted them, it appears that at least two of the motives were to “prevent panic runs and pay real losses” (this from Golembe and Warburton (1958), p. II-7, f. 2), much the same as the reasons for the adoption of the FDIC as given by Representative Steagall.

My examination of the experience of this period shows that these schemes did not do well at achieving these objectives. None of schemes prevented bank panics and bank runs, and only the Indiana scheme prevented bank creditors from suffering losses.

That moral hazard could be a problem with bank liability insurance schemes was recognized from the beginning. According to Chaddock (1910) (p. 265), during the debate on the New York Safety Fund law

another representative, Mr. Hubbell, pointed out that the very existence of such a fund would relax “public scrutiny and watchfulness which now serve to restrain

¹*New York Times* May 21, 1933, and June 14, 1933.

or detect malconduct.”

All of the insurance schemes included some combination of supervision and regulation to attempt to control moral hazard.

In recent testimony before the House Financial Services Committee, Allan Meltzer stated:

We cannot have deposit insurance without restricting what banks can do. The right answer is to use regulation to change incentives - making bankers and their shareholders bear the losses. (U.S. Congress. House. Committee on Financial Services (2010))

The pre-Civil War experience with bank liability insurance schemes backs up Meltzer’s point. As I show, the incentives set up by the insurance scheme regulations were important for how well the moral hazard that accompanied any insurance schemes was contained.

However, the pre-Civil War experience with bank liability insurance schemes illustrates another important point about incentives. The incentives do not have to apply solely to the shareholders of the bank. All of the pre-Civil War bank liability insurance schemes had at least partial mutuality of losses borne by all banks participating in the scheme. Further, the evidence seems to suggest that degree of mutuality affected the outcomes. This result suggests that it could be useful to think about expanding the class of agents that could (should?) be made to bear losses from a bank’s behavior beyond the shareholders of that bank. For example, the experience with these insurance schemes suggests that the class could be expanded to include other banks if they were to have the power or authority to modify the incentives that a bank faces.

The paper proceeds as follows. In the next section, I give some brief details about the monetary and banking arrangements in the United States prior to the Civil War to provide context in which to understand the workings of the different insurance schemes. In Section 3, I describe the basic structure of the insurance fund scheme, and in Section 4, I do the same for the mutual guarantee schemes. In Section 5, I examine the outcomes of both schemes in terms of preventing bank panics. In Section 6, I do the same for bank failures, and in Section 7, I do the same for how well bank creditors were protected. In the concluding section, I discuss some lessons that the experience with these schemes might have for today.

2. Monetary and Banking Arrangements before 1865

During the period covered by this study, the United States was on a commodity money standard. The unit of account was the dollar, which was defined in terms of so many grams of fine silver and so many grams of fine gold. The governmentally issued money consisted of gold and silver coins (specie). There was no central bank. Changes in the stock of coins were determined by inflows or outflows of gold and silver due to exports or imports, and by the propensity of bullion holders to turn gold or silver into coins.

Coins made up only a small fraction of the circulating media of exchange, however. By far the predominant media of exchange were the notes issued by banks. Deposits were not a large or important part of the circulating medium until the late 1850s.

Virtually every bank in existence during this period issued its own notes. These notes were distinguishable by the issuing bank and were redeemable in specie on demand at that

bank.² A large number of banks were in existence during this period - for example, there were 356 banks (2.8 banks per 100,000 people) in 1830, 705 in 1840 (4.1 banks per 100,000 people) and 737 (3.2 banks per 100,000 people) in 1850. By 1860, this number had grown to 1,421 (4.5 banks per 100,000).³ To put these numbers in perspective, today there are 2.6 banks per 100,000 people.⁴ Bank regulation was on a state-by-state basis. In the majority of states, banks were restricted to a single location, although branching was permitted in some, mostly southern, states.

Two major bank panics occurred between 1830 and 1865, the period covered by this study. The first began in 1837 and took the form of two different periods of suspension. The first period of suspensions began on May 4, 1837, with banks in Natchez, Mississippi, suspending payments. The fear of bank runs with noteholders demanding specie for their notes soon led to banks in New York suspending on May 9 and banks in Philadelphia, and Boston suspending the next day. From there, the suspension spread to the rest of the country, and by May 19 virtually all banks in the country had suspended payments.⁵ These suspensions generally came to an end in the middle of 1838. The second wave of suspension began with banks in Philadelphia and North Carolina suspending on October 9, 1839. The suspensions soon spread to most of the rest of the country, although notable exceptions were the banks in New York and New England, which did not suspend.

The second major bank panic occurred in 1857. There is no consensus as to the cause, although a common explanation is the failure of the Ohio Life and Trust Company on August 24 of the year. Banks in Philadelphia suspended on September 25.⁶ Banks in New York suspended on October 13 and banks in Boston on the next day.⁷

In addition to these two major panics, a minor panic took place in December 1854.

A severe contraction followed the panic of 1837. It began in 1839 and lasted until 1843. There were also contractions in 1845 to 1846, 1847 to 1848, 1853 to December 1854, and June 1857 through December 1858.

3. Insurance Funds

In this section I discuss the insurance fund (sometimes called the Safety Fund) schemes that states enacted to insure bank liabilities. Such funds were established in three states: Michigan, New York, and Vermont. Here, I focus on New York and Vermont, because the Michigan fund was short-lived with “all but one of the participating banks closed within three years.” (Golembe and Warburton (1958), p. I-12)

The New York Safety Fund was established in 1829, the Vermont fund in 1831. Both funds technically lasted until 1863, although I will argue below that the New York fund

²Some banks also maintained accounts with banks in financial centers such as New York and Philadelphia for the redemption of their notes in those locations.

³All numbers are end of year.

⁴This calculation is based on the 7,948 FDIC-insured banks as of April 8, 2010.

⁵Note that bank suspensions during this period were not like the Bank Holiday in March 1833 when banks closed their doors. Suspended banks remained open for business but would not redeem their notes or deposits for specie.

⁶This is the date of that the Bank of Pennsylvania failed and there was a partial suspension by Philadelphia banks. There was a complete suspension the next day. Van Vleck (1967), p. 69.

⁷Van Vleck (1967), p. 73

essentially stopped providing insurance in 1842.

New York banks that were chartered after the Safety Fund law was passed were required to join the fund. A later law permitted banks to leave the Fund once their charter expired, but they could continue as banks only if they then became so-called free banks.⁸ Upon the expiration of its charter, a Safety Fund bank was entitled “to receive its proportional share of said bank fund . . .”⁹

In Vermont, banks chartered after 1831 were required to join the insurance fund. However, after 1841 newly chartered and rechartered banks could choose whether or not to join (newly chartered) or continue in (rechartered) the fund. If a bank chose not to participate in the fund, the bank’s directors had to post personal bonds equal to the bank’s capital. If a rechartered bank chose not to rejoin the Vermont fund, its contribution was returned as was the case with New York Safety Fund banks.

Both insurance funds had virtually the same basic structure. Both guaranteed all of the liabilities of banks. However, when a bank failed, creditors would not be paid by the fund until the liquidation of the assets of the failed bank had been completed. The one exception was that New York provided that noteholders, but not depositors or other creditors, would be paid immediately.

Banks that were part of the fund were required to pay a percentage of their capital into a fund managed by the state. These rates were 0.5% per year up to a maximum of 3% of capital in New York and 0.75% per year up to a maximum of $4\frac{1}{2}\%$ of capital in Vermont.

The insurance fund schemes in both states had at least partial mutualization of losses. Participating banks were subject to additional assessments at rates not exceeding those stated above if the fund was reduced by insurance payments to failed banks. These assessments continued until the funds returned to their requisite amounts, so that in effect banks could continue to be assessed without limit. However, I view the mutualization of losses under these schemes as partial for two reasons. First, there was a limit on how much a bank could be required to contribute in any year. Second, a bank could opt of the fund when its charter expired and get back at least part of its contributions to the fund even if the fund was not back up to the requisite level at that time.

The moral hazard problem with insurance was recognized before the New York Safety Fund law was passed, and the laws establishing the funds in these two states contained provisions to attempt to at least partially mitigate moral hazard. For one, banks participating in these insurance funds were subject to the following restrictions on their activities:

1. Notes were restricted to be no more than two times capital stock (shareholder equity) in New York and no more than three times capital stock in Vermont.
2. Total loans and discounts were restricted to be no more than 2.5 times capital stock in New York. Vermont had no such restriction.

⁸Free banks were those that did banking under the General Banking Law of 1837. Under this law, banks were permitted to issue notes, but only if they deposited state bonds with the New York banking authority such that the minimum of the market or par value of these bonds was greater than or equal to their note circulation. These banks were referred to as free banks because under this law, there was free entry into banking in the sense that a charter was not required. However, in no sense did free banking mean laissez-faire banking. Other states adopted laws with similar provisions and such banks were also referred to as free banks.

⁹Cleveland and State of New York (1857),§13, p. 33

3. Loans and discounts to directors were restricted to be no more than $\frac{1}{3}$ times capital stock in New York. Vermont had no such restriction.

A second provision was that the laws also established bank commissioners who were responsible for supervising the banks participating in the fund. The establishment of such supervisory agencies was an innovation at the time. The bank commissioners were given full access to bank records and were empowered to get injunctions to close banks that were either insolvent or had violated the law.

The supervision and regulation of the Safety Fund banks in both New York and Vermont, however, had two problems:

1. There were only three bank commissioners to supervise all the banks in the fund.
2. Commissioners did not have the power to close banks merely for bad banking practices.

Bank commissioners were prohibited from owning stock in any bank. As a result, they had no direct stake in the gains or losses from the activities of the banks they supervised.

4. Mutual Guarantee Systems

The second type of bank liability insurance schemes were mutual guarantee systems. Three states - Indiana, Ohio, and Iowa - had such systems. Because the Iowa system was in operation only for a short period of time, I will consider only the Indiana and Ohio systems.

All of the mutual guarantee systems went under the name of "State Bank of . . .," and the banks that were members of the systems were called branches. Thus, for example, the bank in Indianapolis that was a member of the Indiana system was called the "Indianapolis Branch of the State Bank of Indiana." The State Bank of Indiana had 13 branches. The State Bank of Ohio had 36 branches, although no more than 34 were in operation at any time. The State Bank of Indiana was in existence from 1834 until 1857, when its charter expired. It was replaced by the Bank of the State of Indiana, which was another mutual guarantee system. The State Bank of Ohio began in 1845 and lasted until 1863, when its branches converted to national banks.

Despite being called branches, the members banks of these systems were not really branches of a parent bank but were independent banks. Each branch had its own stockholders, issued its own notes that were redeemable only at that branch, and distributed profits (paid dividends) only to stockholders of that branch. The entity known as the "State Bank of . . ." did no actual banking business whatsoever.

The members of these systems were subject to the same types of restrictions on the note issuance, loans and discounts, and loans and discounts to directors as were the New York and Vermont banks discussed above. Stockholders State Bank of Indiana branches were also subject to double liability.

The supervision of the Branches was done by a state board comprising members appointed by the state legislature and *one director from each branch*. The state board had the power to close a branch, limit a branch's dividend payments, and restrict the ratio of its loans and discounts to capital. The board examined each branch two to three times per year.

The feature of these systems that made them different from the insurance funds is that each member of the system was mutually responsible for at least some of the liabilities

of the other banks in the system. In Indiana, the branches mutually guaranteed “all debts, notes, and engagements of each other.”¹⁰ In Ohio, the law stated that “[e]ach solvent branch shall contribute . . . to the sum necessary for redeeming the notes of the failing branch.”¹¹

My view of how these systems operated is that each branch was responsible for supervising (monitoring) the actions of the other Branches. As the monitor, it did *not* share in the profits (the upside) of another branch. The profits of a branch went strictly to the shareholders of that branch. However, it could possibly share the losses (the downside). In other words, the “regulators” had a direct, one-sided financial stake in the outcome of the branches they regulated. Further, a branch could not shirk its monitoring responsibility because it had to have one of its directors on the state board.

5. Bank Runs

In this section I consider whether either the insurance fund schemes or the mutual guarantee schemes prevented bank runs. During this time, banks could not legally suspend payment on their notes. However, in cases in which large numbers of banks in a city or state faced the possibility on not being able to redeem their notes on demand with becoming insolvent, banking authorities would permit widespread suspensions of payments to occur. I consider a bank run to have occurred if such a suspension of payments occurred.

By this measure, it is evident that these insurance schemes did not prevent bank runs during the panics of 1837 and 1857. However, the evidence also suggests that these schemes may have lessened the length of time that banks were suspended as well as the probability that they would suspend.

As mentioned above, banks in New York suspended payment on May 9, 1837. Thus, the presence of the New York Safety Fund did not prevent banks in New York from being run. Further, banks in Boston and the rest of New England suspended on May 10, so the Vermont insurance fund did not prevent the banks there from being run.

As was the case with New York and Vermont, the mutual guarantee system in Indiana did not prevent the branches from at least the potential of being run. During the Panic of 1837, the branches of the State Bank of Indiana also suspended in May 1837.

The evidence from the 1837 bank panic, however, suggests that there is a sense in which the insurance schemes might be considered to have mitigated bank runs in the sense of lessening the amount of time that they lasted and the likelihood of their occurrence. After suspending in May 1837, the banks in New York and New England resumed in May 1838. Banks in most of the rest of the country, including the branches of the State Bank of Indiana, did not resume until August of that year. Further, banks in most of the rest of the country, again including the State Bank of Indiana, suspended for a second time in October of 1839 and did not resume again until early to mid-1842. The banks in New York and New England did not suspend for a second time.

It is not clear how much of this early resumption and lack of second suspension can be attributed to the fact that the banks in New York and Vermont were part of insurance funds, however. A large number of banks in the New England were not part of any insurance scheme but had the same suspension and resumption pattern as the Vermont banks. It may

¹⁰State of Indiana (1849), sec. 9, p. 6

¹¹State of Ohio (1845), sec. 26, p. 35

be that the suspension pattern of the New England banks was due to their being part of the Suffolk Banking System which allowed banks to economize on their specie holdings. The Suffolk Banking System will be discussed in more detail later.

The only insurance scheme that was really in existence during the Panic of 1857 was the State Bank of Ohio. As will be shown below, the New York Safety Fund had essentially ceased being able to provide insurance, Vermont's insurance fund had almost no banks as members, and the State Bank of Indiana's charter had expired.¹²

The branches of the State Bank of Ohio did not suspend during this panic. However, the mutual guarantee scheme may have not been the reason that the branches did not suspend. The State Bank took actions to make it more difficult for noteholders to present notes for redemption. In particular, it permitted branches to pay out notes of other Branches (such a practice was usually prohibited) making it more difficult for notes to be presented for redemption. The help facilitate this "the clerk of the Board of Control, upon receiving notes from one Branch Bank, would return a mixed package of notes of other, distant, Branch Banks." (Golembe and Warburton (1958), p. VI-30)

6. Bank Failures

In this section, I present data on the failure rates of banks that operated under these insurance schemes. My general finding is that the failure rates for the insured banks were roughly the same as or somewhat higher than those of uninsured chartered banks in the same state and in similar states. However, the failure rates of the insured banks were lower than those of free banks in the same state.

A. New York

I first examine the failure rates for banks in the New York Safety Fund with those of uninsured chartered banks in the state and with banks in similar states that did not have insurance schemes.

During the period 1830 to 1843, which is roughly the period in which the New York Safety Fund was actually insuring banks, there were two other types of banks in existence in New York: chartered banks that had been exempted for participating in the Safety Fund and free banks, which were discussed above. The number of each of these types of banks that were in existence, the number of banks that failed, and the failure rates during this period are shown in Table 1. Although the failure rate for Safety Fund banks was higher than that for chartered banks that were not in the Safety Fund, the failure rate for Safety Fund banks was much lower than that for free banks, more than a quarter of which failed.

I next compare the failure rates for New York Safety Fund banks with those of banks in Massachusetts and Pennsylvania. These states were similar to New York because they had large populations, well-developed banking systems since at least the early 1800s, and a major financial center. Neither of these states had insurance schemes, however. Table 2 shows that the failure rate for New York Safety Fund banks was approximately the same as that for banks in Pennsylvania. However, it was almost twice the failure rate in Massachusetts.

¹²The branches of the Bank of the State of Indiana, the mutual guarantee insurance system that replaced the State Bank of Indiana when its charter expired in 1856, also did not suspend during this panic. Van Vleck (1967), p. 73, f. 17.

	Number	Failed	Failure Rate
Safety Fund, chartered	90	10	11.1
Non-Safety Fund, chartered	10	0	0
Free	91	24	26.4

Table 1: Failure rates for New York Safety Fund and non-Safety Fund banks, 1830-1843

State	Number	Failed	Failure Rate
New York Safety Fund	90	10	11.1
Massachusetts	134	9	6.7
Pennsylvania	52	5	9.6

Table 2: Failure rates for New York, Massachusetts, and Pennsylvania banks, 1830-1843

B. Vermont

I now make the same comparisons for Vermont banks for the time period 1832 to 1858. Table 3 compares the failure rate for Vermont banks when they were in the insurance fund with that for banks when they were not in the fund. The failure rate was more than twice as high for banks when they were in the insurance fund.

	Number	Failed	Failure Rate
Bank fund	22	2	9.1
Not in fund	41	2	4.9

Table 3: Failure rates for Vermont banks in and not in the insurance fund, 1832-1858

I next compare the failure rates for Vermont banks in the insurance fund with those of banks in Maine and New Hampshire. These were two states in the upper part of New England that were similar to Vermont but neither of which had insurance funds. The evidence in Table 4 shows that the failure rates for banks in these three states was quite similar.

C. Ohio

I now compare the failure experience of the branches of the State Bank of Ohio with that of similar banks in the state at the time. During the period in which the State Bank of Ohio was in existence, there were three other types of banks in the state.

1. “Old banks” – These were banks chartered before 1845 that operated under their old charters.
2. Independent banks – The law establishing the State Bank of Ohio also permitted banks to be organized under the same general restrictions as branches of the State Bank of Ohio except that instead of being part of the mutual guarantee system they had to

State	Number	Failed	Failure Rate
Vermont, insurance fund)	22	2	9.1
Maine	60	7	11.7
New Hampshire	28	2	7.1

Table 4: Failure rates for Vermont, Maine, and New Hampshire banks, 1832-1858

“deposit with and transfer to the treasurer of state certificates of the funded debt of this state, or of the United States, at least equal in amount to the amount of its capital stock . . .” (State of Ohio (1845), sec. 30, p. 36)

- Free banks – These were banks established after 1851 that operated under free banking laws similar to the New York law described above.

The failure experience of the State Bank of Ohio and these three other types of banks during the period 1845 to 1860 is given in Table 5. Old banks obviously had the highest risk of failure; the Free Banks the lowest failure rate. However, combining the failed banks with those that received aid, the table shows that the branches of the State Bank of Ohio fared worse than the Independent banks, which were the banks most similar to them in structure.

	Number	Failed	Failure Rate	Received Aid
State Bank Branches	36	4	11.1	6
“Old” banks	8	6	75.0	0
Independent banks	13	2	15.4	0
Free banks	15	1	6.7	0

Table 5: Failure rates for Ohio banks by type, 1845-1860

D. Indiana

There were no failures of the branches of the State Bank of Indiana. Thus, the experience of the branches of the State Bank of Indiana is an exception to my general finding is that the failure rates for the insured banks were roughly the same as those of similar banks in other states. In particular, Table 8 also shows that the failure experience of the branches of the State Bank of Ohio was noticeably worse than that of the branches of the State Bank of Indiana. I will have more to say about this in the final section of the paper.

7. Losses to Creditors and Survivor banks

In this section I examine whether insured bank creditors suffered losses under these insurance schemes and how much surviving solvent banks had to contribute to making up the losses of insured creditors of banks that failed. I consider each insurance plan in turn.

A. New York

Between 1837 and 1842, ten banks that were members of the New York Safety Fund made claims on the fund, and nine of these banks subsequently went out of business.¹³ The number of banks making claims each year, the total insured obligations of these banks, the amount in the Safety Fund at the beginning of the year, and the payments to insured creditors by year are shown in Table 6.

End of Year	Number making claims	Obligations of banks	Amount in Safety Fund	Claims against Fund
1837	1	\$221,000	\$545,000	\$36,000
1840	2	\$696,000	\$831,000	\$446,000
1841	4	\$2,392,000	\$572,000	\$1,724,000
1842	3	\$1,027,000	\$497,000	\$532,000

Source: Golembe and Warburton (1958) Tables II-39 and II-45

Table 6: Bank failures and state of the Safety Fund, 1837-1842

The table shows that the Safety Fund was large enough to pay the claims on it by the creditors of the banks that failed in 1837 and 1840. However, beginning with the four failures in 1841, the amount in the fund was no longer large enough to immediately pay all of the claims made on it by the creditors of the failed banks. The fund did make some payments to insured creditors in 1843, but due to a lack of funds, it did not make any payments to creditors in 1844.

Payments resumed in 1845 after the state issued slightly less than \$1 million in state bonds to make these payments, and all creditors of the failed banks were paid off by the end of 1847. Thus, in one sense no creditor suffered losses under the New York Safety Fund scheme.

However, in another sense at least some creditors suffered losses due to the time delay in receiving final payment from the fund. For example, consider the potential losses to holders of the notes of the banks that failed in 1841 and 1842. Between the time that one of these banks failed and July 1845 when payments to creditors were started from the proceeds of the sale of the bonds, the notes of these banks went at discounts of between 15 and 55 percent in New York City, with the most common discounts between 30 and 50 percent. To put these discounts in perspective, notes of similar banks went at discounts of between 0.375 and 0.75 percent. Thus, noteholders of these banks that wanted to redeem their notes relatively soon after the bank failed found that their insurance coverage was only between 45 and 85 percent.

Banks that were still members of the Safety Fund were assessed at the original assessment rate to pay off the bonds issued in 1845. They were not fully paid off until 1866.

The 1845 law under which these bonds were issued also stated that no new payments could be paid from the Safety Fund until the bonds were paid off. This is the basis for my argument that the Safety Fund stopped insuring banks after 1845.

¹³This bank was the Lockport Bank. It had financial difficulties in 1837.

B. Vermont

Two banks that were members of the Vermont insurance fund failed, and claims were made on the insurance fund in both cases. The claims of bank creditors were only fully paid in one case.

The first failure of an insured bank in Vermont was the Essex Bank in 1839. All of the creditors of this bank were paid in full. However, because the fund was not permitted to pay off creditors until the bank's receiver had finished disposing of the bank's assets, payments from the fund did not occur until 1851.

Banks that were members of the insurance fund were assessed at the the original assessment rate between 1852 and 1855 to replenish the fund after payments had been made to the creditors of this bank.

The second failure, that of the Danby Bank, occurred in 1857. Less than half of the \$31,000 in creditor claims on this bank that went to the insurance fund were paid, because the fund had only \$17,022 in it at the beginning of 1857.¹⁴

C. Ohio

No noteholders of a branch of the State of Ohio ever suffered a loss. Four branches did become insolvent, and the other Branches were called on to make good on the notes of these banks. Other Branches were assessed slightly over \$291,000 to redeem the notes of these failed branches

In addition, there were six cases in which branches were called on to make advances of funds to other branches that were experiencing operating difficulties even though they were not insolvent. The total amount solvent branches were assessed for this assistance was approximately \$350,000.¹⁵

An interesting aside is the argument that John Andrews, the president of the State Board, made in 1855 to rationalize making the advances to the branches that were solvent but in difficulty:

You are aware of the circumstances under which these advances are made, the object being to sustain the Branch during a period of general alarm, when [its] failure . . . would have, in all probability, carried several others with it. (as quoted in Golembe and Warburton (1958), p. VI-26)

Andrews' arguments sound very much like the arguments about preventing systemic risk made to justify some of the recent bailouts.

D. Indiana

Since no branch of the State Bank of Indiana ever failed, there were no losses to creditors, and solvent banks were never called on to make any payments to creditors of other banks.

8. Lessons

The experience with these bank liability insurance schemes makes two points: one about preventing bank runs and one about controlling moral hazard. With regard to the

¹⁴These numbers based on the calculations in Golembe and Warburton (1958), Tables 19 and 20.

¹⁵All figures on the assessments are from Golembe and Warburton (1958), Table 37.

first, this experience shows that, given standard banknote or deposit contracts, such schemes cannot prevent bank runs unless one of two conditions is met:

1. There is some authority outside of the banking sector that is empowered to impose ex post taxes on early withdrawers as in the Diamond-Dybvig deposit insurance system, or
2. There is some authority capable of printing a large quantity of stuff into which notes or deposits are supposedly convertible.

Neither of these conditions was met during this period. None of the banking authorities had the fiscal powers to impose ex post taxes on withdrawers, and the United States was on a commodity money standard. Hence, that these schemes did not prevent bank runs is not surprising.

One way to control the moral hazard that comes with insuring bank liabilities is to have some agent or group of agents capable of changing or regulating the behavior of banks that face the potential of bearing losses. These agents can be shareholders, as in Meltzer's testimony quoted in the introduction. Proposals to increase the amount of capital that banks are required to hold are aimed at increasing possible shareholder losses and thus give an incentive for shareholders to limit the risk that banks take. Requiring banks to issue some kind of contingent convertible debt could also give other agents incentives to regulate bank behavior.

The point that the experience with these bank liability insurance schemes makes about controlling moral hazard is that this agent or group of agents does not have to be restricted to shareholders or a class of creditors to the bank. All of the bank liability insurance schemes studied here had the feature of mutualization of losses but not mutualization of gains. That is, if a bank took a high risk-high return bet (loan, say) financed by debt, then its shareholders and only its shareholders would gain if the bet paid off. But if the bet did not payoff, it would be the shareholders of all the banks in the scheme that would lose. This set up the incentive for all other banks in the system to monitor the actions of the other banks in the scheme.

The difference between the insurance fund (Safety Fund) schemes and the mutual guarantee schemes of the State Bank of Indiana and the State Bank of Ohio is that the latter also gave survivors (banks that did not fail) the power to regulate the activities of member banks. This was done because a director of each bank in the system sat on the state board that had, and in fact utilized, this power. The Safety Fund banks had no such power, and the supervisors in these systems were explicitly prohibited from owning shares in any bank.

Thus, it might have been expected that the banks operating under the mutual guarantee schemes would have had lower failure rates than those in insurance fund schemes. This was definitely the case with the State Bank of Indiana. However, the results in Indiana and Ohio were different. There were no failures of any of its branches, and branches were never called on to make good on any losses. However, the experience of the State Bank of Ohio was different. There were failures of four branches, and surviving branches did have to cover some losses.

The reason for the different outcomes, in my opinion, is the difference in the amount of "skin in the game" of the branches of the two systems. It was much higher for the branches

of the State Bank of Indiana. To show this I computed the fraction of its capital that the average branch would have to pay creditors of an average failing branch, assuming the assets of the failing branch were worthless.

The results for branches of the State Bank of Indiana are shown in Table 7 in the column headed “Exposure.” Although these numbers vary between 8 and 38 percent, for the most part they are around 20 percent. What this means is that if one Branch were to fail and its assets were only enough to cover half of its outstanding liabilities, the every other Branch would be liable for an amount equal to 10 percent of its capital stock.

Date	Branches	Exposure	Date	Branches	Exposure
11/21/1835	10	30.8	11/21/1846	13	18.5
11/26/1836	11	37.8	11/20/1847	13	21.0
9/2/1837	11	25.3	11/17/1849	13	20.9
11/17/1838	13	16.4	11/16/1850	13	20.9
11/21/1840	13	12.5	10/31/1851	13	22.0
11/21/1841	13	12.5	11/2/1852	13	24.6
11/21/1842	13	8.0	10/31/1853	13	23.9
11/21/1843	13	11.9	10/31/1854	13	20.0
11/21/1844	13	15.8	10/31/1855	13	22.3
11/21/1845	13	18.7	10/31/1856	13	23.1

Table 7: Exposure of branches of the State Bank of Indiana, 1835-1856

In contrast, the exposure of branches of the State Bank of Ohio are shown in Table 8. The exposures are much lower than those for branches of the State Bank of Indiana, on the order of 5 percent. There were two reasons for this: the guarantee in the State Bank of Ohio system was only on banknotes and there were more branches over which to spread the losses.

Date	Branches	Exposure	Date	Branches	Exposure
2/1/1846	14	10.3	2/1/1856	33	5.7
11/1/1846	15	12.7	11/1/1856	33	5.6
5/1/1848	32	5.3	2/1/1858	29	5.1
11/1/1849	35	5.3	11/1/1858	33	5.2
2/1/1851	36	5.3	2/1/1860	32	5.4
2/1/1854	34	5.4	2/1/1861	33	5.4
11/1/1854	34	4.9			

Table 8: Exposure of branches of the State Bank of Ohio, 1846-1861

There is another system in place during the period that makes the point about expanding the group of agents capable of changing or regulating the behavior of banks that also face the potential of bearing losses from the banks it influences. This system was the

Suffolk Banking System that was in existence in New England. The system started in 1825, and by the early 1830s, most banks in New England had become members of the system. The system came to an end in 1858.

The Suffolk Banking System was not a bank liability insurance scheme. Instead, it was a regionwide net-clearing system for banknotes run by a single Boston bank, the Suffolk Bank. It worked as follows: Member banks were required to keep an interest-free deposit at the Suffolk Bank (or at one of the other Boston member banks) of 2 percent of capital. These accounts acted very much like the member bank reserve accounts operate at the Fed today. The Suffolk Bank accepted and net cleared all the bank notes its members deposited at par. If a bank had a net positive position, then the Suffolk Bank credited that bank's account with it. It debited the accounts of banks with net negative positions.

The benefit to banks from belonging to the system was that the net clearing feature allowed them to economize on the amount of specie and other reserves they had to hold to redeem their circulation. The way this occurred was that the Suffolk Bank permitted a bank running a negative net clearing positions to borrow from it in the form of an overdraft. That is, instead of returning its notes to a bank for specie, the Suffolk Bank would hold on to the notes and extend a loan to the bank. It would then return the notes as the borrowing bank paid off the overdraft, which the borrowing bank could do as its loans or other assets matured.¹⁶

However, if the debtor bank was unable to payoff the overdraft and the Suffolk Bank was unable to redeem at par the notes it had already accepted and credited to other member bank accounts, then Suffolk would take the loss. To give some idea of the potential magnitudes of these losses, the amount that the Suffolk Bank had due from other banks averaged about \$700,000 in the 1830s and 1840s, and the average amount increased to approximately \$1 million from 1850 to 1858. Its holding of notes of other banks averaged approximately \$450,000 in the 1830s, approximately \$525,000 in the 1840s, and \$700,000 from 1850 to 1858. To put these numbers in perspective, up to 1839 the capital stock of the Suffolk Bank was \$750,000; in the years following, it was \$1 million.

Thus, the Suffolk Bank had an interest in monitoring the actions of banks that were members of the system. And it did, as the following quote from a letter from the Suffolk Bank to the President of a Vermont bank, shows:

It appears evident from you letter of the 16th inst. that too large a portion of your loan is in accommodation paper, which cannot be relied upon at maturity to meet your liabilities. . . . [W]e hope you will take measures to change the character of you loan, and render it more available in case of need. (Whitney (1878), p. 35)

Further, the Suffolk Bank had to power to affect the behavior of member banks:

. . . a large part of the balance [due from other banks on the Suffolk's books] was in demand loans to the New England banks, being overdrafts bearing interest, for which the [Suffolk] bank held their circulating notes, payable on demand in specie, as collateral. And herein lay the great power of the Suffolk Bank. A pressure

¹⁶An additional benefit was that notes issued by members of the System exchanged at par throughout the region because of the Suffolk Bank's par-clearing policy for banknotes.

upon it from any cause induced it at once to notify the debtor banks to pay their overdrafts, on penalty of having their bills sent home for specie.(Whitney (1878), p. 37)

That the Suffolk Banking System may have had an effect on the behavior of New England banks is shown in Table 9 where I show the failure rates for banks in New England states in the top part of the table and those for banks in several other eastern states in the bottom part. The time period covered is 1830 to 1858 when the Suffolk Banking System was fully in operation. With the exception of the failure rate of Maine banks, the table shows that failure rates for New England banks were below those of other eastern states.

State	Number	Failures	Failure Rate
New England States			
Massachusetts	214	11	5.14
New Hampshire	28	2	7.14
Vermont	52	4	7.69
Maine	60	7	11.67
Other Eastern States			
New Jersey	86	8	9.30
New York (chartered)	100	14	14.00
Pennsylvania	95	15	15.79
Maryland	44	10	22.73

Table 9: Failure rates of banks in New England and other eastern states, 1830-1858

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