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# The Reform of Federal Deposit Insurance

*Disciplining the Government and  
Protecting Taxpayers*

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JUN 11 1992

financial institutions are essential for the vitality of capitalism, both for its short-run stability and its long-run growth. We need to face the facts: Some of our financial institutions have not been doing a good job. We—and our children—are all having to pay the price. By now, there is a consensus that change is needed. The question is, will the reforms address the underlying and basic problems, or will they be superficial remedies, keeping the system going for a little longer, keeping in place the incentives that have already led to massive misallocations of resources, leaving untouched the root causes?

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# CHAPTER 1

## Getting the Incentives Right in the Current Deposit-Insurance System: Successes from the Pre-FDIC Era\*

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### MOTIVATION

There is a growing body of evidence that questions the desirability of deposit insurance, at least in its current form. Careful studies of the recent experiences of federal- and state-insured thrifts by Barth et al. (1989), Brewer (1989), Kane (1988), Horvitz (1989), and many others add credence to the view that insurance itself can be destabilizing. For example, bad initial realizations on investments were translated into a thrift and bank debacle in Texas because they were combined with high initial leverage and increased risk taking by troubled institutions, which responded to the initial adverse shocks by aggressively entering the speculative real estate loan market. High leverage and increased risk taking presumably were tolerated more than they would have been by depositors, absent

\*I thank the *Journal of Economic History* for permission to use part of "Is Deposit Insurance Necessary? A Historical Perspective."

insurance. By promoting excessive leverage and increased risk taking deposit insurance turned a bad situation into one much worse. The lack of political will by Congress and regulators to close insolvent institutions prolonged the "desperation" risk taking and further magnified losses to the insurance funds.

The renewed discussion of the purpose and proper structure of deposit insurance has focused attention on the history of financial intermediaries and their regulation. Historical evidence on the motivation and performance of pre-FDIC state-level bank liability insurance systems provides more than just additional examples of the sorts of problems observable today. First, the benefits of federal deposit insurance may only be appreciated from the perspective of earlier systems that lacked such protection. The goal of insurance has always been primarily preventative, and thus its successes are inherently invisible. Second, it is more difficult to isolate costs attributable to deposit insurance (in inducing greater risk-taking by member banks) when all banks are insured. Earlier experience with state-level insurance of a subset of banks provides unique "controlled experiments" in which the relative performances of insured institutions can be compared directly, within and across states, with those of uninsured banks under various regulatory regimes.

I will focus on four questions often raised in current debates over regulatory reform that historical evidence seems uniquely suited to address.

1. Was there a legitimate concern that motivated bank liability insurance?
2. Were there possible alternative solutions to this problem that were equally successful at a lower cost?
3. What specific aspects of historical bank insurance schemes contributed to their relative success or failure?
4. Which current proposals for reform are most attractive in light of the "lessons of history"?

#### WHY HAVE BANK LIABILITY INSURANCE?

Bank insurance in the United States began in 1829 with New York's Safety Fund system, which was inspired by the voluntary coinsurance arrangements of a group of Cantonese merchants. As Golembie (1960) argues convincingly, here and in all subsequent cases (including the FDIC), the primary intended function of liability insurance was to provide protection against the possible collapse of the payments system accompanying a banking panic.

To understand the potential benefits of insurance requires first, a the-

ory of how banking panics occur, and second, an explanation of how insurance, or other preventative measures, can prevent panics. Calomiris and Gorton (1991) review and evaluate the recent theoretical literature on banking panics in light of new evidence from the National Banking era. Calomiris and Schweikart (1991) provide complementary analysis of the Panic of 1857. The salient facts about panics during this period are the following: Few banks actually failed during panics, while practically all banks in the country were forced to suspend convertibility for some period of time (one to three months), during which their claims (notes or cashier checks) circulated at discounts (typically between 0.5 and 4 percent for New York City cashier checks during the National Banking era). Panics occurred at business-cycle, and seasonal, peaks, during which bank leverage was high and the variance of "news" about the state of the economy was greatest. Observable adverse shocks of sufficient magnitude prompted panics. Whenever commercial failures (seasonally adjusted) increased by more than 50 percent, and stock prices fell by more than 7.9 percent, during any three-month period, a banking panic immediately followed (see Table 1.1).

The challenge for theoretical models of banking panics is to explain why observable aggregate shocks with small eventual consequences for the banking system should cause widespread disintermediation and suspension of convertibility. Theory must also explain the optimality of the dependence on demandable debt to finance bank loan portfolios, since maturity-matched debt or equity would eliminate the first-come first-served rule for depositors that makes a panic physically possible.

Recent models have provided explanations for the occurrence of panics, and the existence of demandable-debt banking. Gorton (1989) argues that because bank loans are not marked to market, depositors are unable to discover which banks are most likely to be affected by an observable adverse shock. Under these circumstances, even if depositors know that only a small subset of banks are likely to fail in response to an observable shock, they may find it advantageous to withdraw their funds temporarily until the uncertainty over the incidence of the shock is resolved. Calomiris and Kahn (1991) and Calomiris, Kahn, and Krasa (1991) argue that despite the costs associated with demandable debt (that is, the potential for panics), it was optimal because of the discipline it placed on the banker during normal times, given asymmetric information (between depositors and their banker) about the banker's behavior. It is also possible to argue that demandable debt provided benefits during banking panics. By prompting suspension of convertibility it provided an incentive for banks speedily to resolve uncertainty about the incidence of a particular shock (see Gorton, 1989, and Calomiris and Gorton, 1991).

Thus in the presence of asymmetric information, occasional banking panics can occur "in equilibrium." The possibility of panics, however, is not necessarily inherent in banking. Many banking systems, within and

Table 1.1 Three-Month Periods of Unusual Stock Price Decline, 1871-1909

	Nominal Difference (percent)	Real Difference (percent)	Seasonal Difference Liabilities of Commercial Failures <sup>a</sup> (percent)
1873 (June-Sept.)	-7.9	-7.9	NA
1874 (Feb.-May)	-6.3	-4.0	NA
1876 (Feb.-May)	-7.9	-3.3	30.0
1877 (Jan.-Apr.)	-17.2	-12.9	-8.1 <sup>b</sup>
1880 (Feb.-May)	-8.3	-2.6	-11.5
1882 (Aug.-Nov.)	-5.6	-1.1	26.6 <sup>c</sup>
1883 (May-Aug.)	-5.4	-0.5	115.8 <sup>d</sup>
1884 (Feb.-May)	-12.6	-8.5	202.9
1884 (Aug.-Nov.)	-8.8	-4.5	-6.3 <sup>e</sup>
1886 (Feb.-May)	-5.0	-0.2	-27.3
1887 (May-Aug.)	-7.7	-6.5	168.4 <sup>d</sup>
1890 (July-Oct.)	-8.4	-13.3	50.3 <sup>e</sup>
1893 (Feb.-May)	-12.2	-7.4	428.3
1893 (May-Aug.)	-15.4	-6.6	389.2 <sup>d</sup>
1895 (Sept.-Dec.)	-10.2	-8.8	25.2
1896 (May-Aug.)	-13.1	-11.1	71.2
1900 (Apr.-July)	-7.4	-5.0	148.0
1902 (Sept.-Dec.)	-8.8	-13.6	-3.8
1903 (Feb.-May)	-9.5	-4.7	23.3
1903 (May-Aug.)	-12.9	-12.6	22.7
1907 (Jan.-Apr.)	-12.3	-13.1	-7.7
1907 (May-Aug.)	-7.1	-7.9	110.0
1907 (Aug.-Nov.)	-17.0	-14.7	143.5

a. Data on seasonal differences of business failures are for four-month periods ending the month after the corresponding stock decline, unless otherwise noted. Quarterly data exist for 1875-94; monthly data exist after 1894.

b. Uses average of first- and second-quarter data.

c. Uses average of third- and fourth-quarter data.

d. Uses average of second- and third-quarter data.

SOURCE: Charles W. Calomiris and Gary Gorton, "The Origins of Banking Panics," in *Financial Markets and Financial Crises*, ed. R. Glenn Hubbard (Chicago), 1991.

outside the United States, have managed to avoid banking panics. Gorton (1985, 1989), Gorton and Mullineux (1987), Calomiris (1989, 1991), Calomiris and Schweikart (1991), and Calomiris and Gorton (1991) have stressed that the risk of panics created incentives to form private coalitions or networks of banks to avert panics, or to lessen their costs. Panics could be averted if the coalition could credibly coinsure against the observable shock to the system. For example, if banks as a group agreed to bear the risk of any individual bank's default, then so long as depositors were

confident of the solvency of the group, they would have no incentive to withdraw their funds. The mutual benefit of such coinsurance is the avoidance of a banking panic and the consequent disruption to the banking system of commercial payments and credit.

Government insurance, of course, provides an alternative to private coinsurance that similarly removes the incentive for depositors to run their banks during periods when the incidence of aggregate shocks is uncertain. Government intervention is only necessary, however, if private coordination among banks is infeasible. This brings us to our second question: Why did alternative private solutions to the threat of banking panics provide insufficient protection to the banking system, particularly in the case of the United States?

### SUCCESSFUL ALTERNATIVES TO GOVERNMENT INTERVENTION AND THEIR LIMITS

Successful examples of the application of the principle of coinsurance by private groups of banks fall into two categories: branch-banking systems and city clearinghouse coalitions.

Branch banking reduced the threat of bank panics in two ways. First, opportunities for diversification for each bank lessened the probability that any aggregate shock would result in bank failures, and hence there was less opportunity for confusion about the incidence of default risk. Second, branching enhanced coordination by limiting the number of banks in any system, thereby promoting coordination during crises. With fewer banks, the incentive to monitor is greater (since the benefits from monitoring are shared). Furthermore, branching increased the ability of banks to monitor one another through multiple overlapping locations.

Within the United States branch banking, when it was allowed, was extraordinarily successful in dealing with the threat of panics. During the antebellum period, branch banking was confined almost exclusively to the South, where it thrived in Georgia, the Carolinas, Tennessee, and Virginia. As early as 1837, branching banks in the South coordinated their suspension and resumption on a regional basis (see Govan, 1936). In the Panic of 1857 there was similarly successful coordination at the state and regional level (see Calomiris and Schweikart, 1988, 1991). Calomiris and Schweikart (1988), and Gorton (1990) argue that the lower risk associated with branch-banking states in the South was reflected in lower discount rates on Southern bank notes in New York and Philadelphia (adjusted for other factors, such as bank leverage and distance). As we shall see below, the successes of branch-banking systems in limiting the rate of bank failure and improving the resiliency of a banking system to adverse disturbances are visible in the postbellum U.S. experience as well.

Evidence from other countries reinforces the view that unit banking

inhibits diversification and coordination among banks, and thereby promotes vulnerability to panics. Bordo (1985) provides a useful survey of banking and securities-market collapses in six countries from 1870 to 1933. Summarizing the literature, Bordo attributes to the absence of branch banking the peculiar vulnerability of the U.S. banking system. The panics experienced in the United States in the late nineteenth century were viewed as a curiosity in other countries. Recent studies of the Canadian branch-banking system provide an interesting contrast to the U.S. experience. Unlike the United States, Canada's banking system allowed nationwide branching from an early date and relied on coordination among a small number of large branching banks to resolve threats to the system, with the Bank of Montreal playing a central role in providing and coordinating interbank assistance. Breckenridge (1910) and Williamson (1989) show that bank failures were few, depositors' losses were relatively small, and suspension of convertibility never occurred. Schembri and Hawkins (1988) provide evidence that Canadian branches in the United States often served as safe havens during U.S. banking panics.

Beginning in 1853 with the New York City Clearing House Association, private self-regulating clearinghouse coalitions formed in cities provided many benefits of branch-banking systems. Banks agreed to make markets in each other's liabilities, to make interbank loans, and to coordinate suspensions and resummptions of convertibility to minimize disruption during panics. In all cases, self-imposed regulations and mutual monitoring kept members from "free riding" on collective coinsurance (see Gorton, 1985, and Gorton and Mullineux, 1987). Moreover, during crises, the fact that a member bank remained in the coalition signaled its creditworthiness to uninformed depositors. Because clearinghouses were confined to cities, and therefore represented only a fraction of the banking system, they were unable to rid the system of panics. Statewide, much less nationwide, self-regulating clearinghouses were infeasible because of the difficulty in coordinating behavior and enforcing regulations among many geographically isolated unit banks. In such a system the costs of monitoring may be prohibitive, and because the benefits of any bank's monitoring another bank are shared with all other banks in the coalition, coalitions of many banks cannot produce incentive-compatible interbank monitoring.

In summary, branch banking and clearinghouse coordination shared the important common features of collective self-regulation and incentive-compatible interbank monitoring, which ensured that banks could protect each other without creating perverse incentives for member banks to take on excessive risks. Member banks invested in interbank monitoring because their fortunes were interrelated, and because the size of the coalitions was small enough that the benefits to an individual bank from monitoring (which were shared) did not exceed the costs (which were private). Self-regulating coalitions of banks typically saw memberships of no greater than 40 banks. Physical proximity of member banks also enhanced inter-

bank monitoring. Clearly, the application of the principle of coinsurance and self-regulation was limited in the United States by prohibitions on branch banking. Unit banking laws meant that as the geographic scope of the economy expanded, so would the number of banks. In a system of several thousand banks, incentive-compatible monitoring becomes impossible. City bank coalitions persisted, and some states maintained state-chartered branch-banking systems alongside nationally chartered unit banks, but such partial coalitions were unable to prevent nationwide panics.

The destabilizing effect of unit banking—which creates more opportunities for confusion about the incidence of shocks, and limits the system's ability to coordinate in response to shocks—was understood as early as the antebellum period in the United States. Indeed, studies of the political history of deposit insurance show that it was the desire by special interest groups to preserve unit banking, and their political influence, that gave rise to the perceived need for deposit insurance, both in the antebellum and postbellum periods. It was understood that branching provided a more stable banking system than unit banking, and deposit insurance was developed as an alternative means to provide stability without giving up unit banking (see Golembe, 1960, and White, 1983). All six antebellum states that enacted liability insurance legislation were unit-banking states. In the antebellum branch-banking South neither government insurance nor urban clearinghouses developed. Similarly, the eight state insurance systems created from 1908 to 1917 were all in unit-banking states.

### RELATIVE SUCCESSSES OF DEPOSIT-INSURANCE SYSTEMS AND THEIR ALTERNATIVES

The variety of regulatory choices made at the state level allow one to evaluate the characteristics of successful and unsuccessful insurance systems, and to compare the performance of various regulatory regimes (unit banking with or without insurance, and branch banking).

#### Antebellum Successes and Failures

New York's Safety Fund was established in 1829, funded by limited annual contributions of members, and regulated by the state government. Losses severely depleted the accumulated resources of the fund from 1837 to 1841 until, in 1842, it ceased to be able to repay losses of failed banks, and thus ceased to provide protection to the payments system.

New York in 1838 created an alternative to the insured system through its free banking statute, and allowed Safety Fund banks to switch to that system. The depletion in membership of the insured system kept its losses

small during subsequent panics. After 1840 Safety Fund banks comprised a small and continually shrinking proportion of total banks and total bank assets. Losses were also limited by the 1842 restriction on coverage of member banks' liabilities to bank notes, thus excluding the growing liability base in deposits.

Ultimately, the small number of banks that chose to remain in the system, and make continuing annual contributions to its fund, did manage to repay in 1866 the obligations incurred some 30 years earlier; but this "success" was not anticipated in the intervening years (as shown by the high note discount rates attached to failed member banks' notes during the 1850s), and the fund did not protect current bank liabilities or the payments system *ex ante*, as it was intended to do.

Not only did the system fail to provide protection to the payments system, it suffered unusually large losses due to fraud or unsound banking practices during the period that it did provide protection to member banks. While a supervisory authority was established to prevent fraud and excessive risk-taking, supervision was ineffectual, and fraud and unsafe practices were common. Ten of 16 member-bank failures prior to 1842 (the period when insurance was still perceived as effective) were traceable to fraud or unsafe practices. Moreover, such problems were not detected until after they had imposed large losses on the fund.

The failure of the Safety Fund was not the fault of external shocks, severe as they were. In aggregate, banking capital was large relative to losses; and thus coinsurance among all New York banks would have been feasible (see Golembe and Warburton, 1958). Rather, it was the design of the insurance system that made it weak. Upper bounds on annual premiums prevented adequate *ex ante* insurance during panics, and ineffectual supervision allowed large risk-takers to free ride on other banks. Finally, adverse selection caused a retreat from the system through charter switching to the alternative free-banking system, once solvent banks realized the extent of losses.

Vermont and Michigan followed New York's example and suffered its problems. In Vermont, banks were even allowed to join and depart at will. It took only two bank failures to cause the dissolution of that system, one due to fraud and the other of a bank which joined the system after its prospects had deteriorated. Again, an incentive-compatible, broadly based system could have provided coinsurance among banks, but adverse selection and poor supervision prevented this.

Michigan's system, created in 1836, collapsed because it (like the other two systems) depended for its resources on accumulated contributions to the collective fund, which would be used to support banks during a crisis. The Michigan system had no time to accumulate a sufficient fund prior to the Panics of 1837 and 1839, and thus was unable to provide protection.

Not all antebellum experiments ended so disastrously as these three.

Indiana enacted a different sort of liability insurance plan in 1834, one based on the principles of self-regulation and unlimited mutual liability that would later be imitated by private clearinghouses. The Indiana system did not suffer the supervisory laxity or membership retreat of New York and Vermont, nor the illiquidity of Michigan and New York. Coverage was broad based and there was no problem attracting and keeping members. During its 30-year history no insured bank failed. There was a suspension of convertibility in 1837, and again in 1839, but this was the last time banks were even forced to suspend. During the regional panic of 1854-55 and the national Panic of 1857 all insured banks maintained operations and convertibility. During those same panics 69 of 126 nonmember, uncoordinated free banks failed in Indiana.

The Indiana system relied on bankers themselves to make and enforce laws and regulations through a Board of Directors, and, what was important, gave it authority to decide when to close a bank. Unlimited mutual liability provided bankers the incentive to regulate and enforce properly. The Indiana system was imitated in Ohio and Iowa, with similarly successful results. Ohio's law granted its Board of Control even greater authority than Indiana's Board, allowing it virtually unlimited discretionary powers during a banking crisis, including the right to force banks to make loans to one another. Interbank loans were successfully used during the Panic of 1857 to avoid suspension of convertibility. The insured banks, it seems, even came to the assistance of nonmember banks during the Panic, as indicated by flows of interbank loans. Only one Ohio bank failed during the crisis, and it was not a member of the insured system. Iowa's system was in place for a shorter and more stable period, but its operation was similarly successful.

Like clearinghouses, these three successful insurance schemes aligned the incentive and authority to regulate, and made insurance protection credible through unlimited mutual liability among banks. Like Southern branch banks in the Panics of 1837 and 1857 these systems were able to minimize systemic disruption through a coordinated, incentive-compatible response. They were brought to an end not by insolvency, but by federal taxation of bank notes designed to promote the National Banking System.

### The Second, Postbellum Wave of State Insurance

The eight deposit-insurance fund systems of the early twentieth century failed to learn the lessons of the antebellum experience; they repeated and compounded the earlier errors of New York, Vermont, and Michigan. Supervisory authority was placed in government hands, not with member banks, and often its use or disuse was politically motivated (see Robb, 1921). Furthermore, the numbers of banks insured were many more than in the antebellum systems (often several hundred), and as noted above, this

further reduced the incentive for a bank to monitor and report the misbehavior of its neighbor banks, since the payoff from detection was shared with so many, and the cost of monitoring was private.

During the halcyon days for agriculture, from 1914 to mid-1920, deposit insurance prompted unusually high growth, particularly of small rural banks on thin capital. The banks in insured states grew faster, were smaller, and had lower capital ratios than their state-chartered counterparts in fast-growing, or neighboring states. Tables 1.2 and 1.3 compare the growth, average size, and capitalization of insured state-chartered banking systems, first by comparing the highest growth insured and uninsured systems, and then by comparing insured-banking systems with neighboring uninsured state-chartered systems, and uninsured national-chartered banking in each of the states. Table 1.4 reports regression results that confirm the unusually high growth of state-chartered insured banks (controlling for other variables) relative to those of other agricultural states. A decomposition among voluntary and compulsory insur-

Table 1.2 High-Growth States: Insured versus Uninsured

	Assets 1914/ Assets 1920		Assets (\$000) per Bank in 1920		Capital/Total Assets, 1920	
	National Bank	State Bank	National Bank	State Bank	National Bank	State Bank
Arkansas	.408	.379	1020	456	.084	.085
Colorado	.522	.450	1801	460	.048	.083
Idaho	.341	.316	1088	487	.059	.077
Iowa	.507	.503	1301	562	.057	.067
Minnesota	.509	.406	1979	425	.054	.069
Missouri	.490	.540	5507	572	.063	.072
Montana	.495	.489	761	436	.077	.091
New Mexico	.501	.352	963	347	.073	.119
Wyoming	.314	.315	1365	300	.048	.090
Average	.454	.418	1755	448	.063	.084
Kansas	.463	.380	977	326	.066	.079
Mississippi	.506	.335	1843	664	.069	.066
Nebraska	.537	.335	1566	338	.057	.082
North Dakota	.485	.367	563	245	.068	.081
Oklahoma	.309	.259	1096	346	.060	.070
South Dakota	.400	.351	862	395	.053	.062
Texas	.414	.391	1588	375	.071	.112
Average	.447	.344	1231	391	.064	.078

SOURCE: Charles W. Calomiris, "Do Vulnerable Economies Need Deposit Insurance," in Philip Brock, ed., *If Texas Were Chile: Financial Risk and Regulation in Commodity-Exporting Economies* (Washington D.C., 1991).

Table 1.3 State-Chartered Regional Comparison: Insured versus Uninsured

	Assets (\$000) per Bank,		Capital/ Total Assets,	
	Assets, 1914/ Assets, 1920	1920	1920	1920
Arkansas	.379	456	.085	
Colorado	.450	460	.083	
Iowa	.503	563	.067	
Idaho	.316	487	.077	
Minnesota	.406	425	.069	
Missouri	.540	572	.072	
Montana	.489	436	.091	
New Mexico	.352	347	.119	
Wyoming	.315	300	.090	
Average	.417	450	.084	
Kansas	.380	326	.079	
North Dakota	.367	248	.081	
Nebraska	.335	335	.082	
Oklahoma	.259	346	.070	
South Dakota	.351	376	.062	
Texas	.391	374	.112	
Average	.347	334	.081	
Alabama	.553	543	.087	
Georgia	.412	534	.097	
South Carolina	.390	536	.085	
Average	.452	538	.090	
Mississippi	.335	664	.066	

SOURCE: Charles W. Calomiris, "Do Vulnerable Economies Need Deposit Insurance," in Philip Brock, ed., *If Texas Were Chile: Financial Risk and Regulation in Commodity-Exporting Economies* (Washington D.C., 1991).

ance laws reveals that the incentives to grow were especially pronounced in the compulsory insurance systems (where the potential for cross-subsidization, or free riding through excessive risk-taking, was highest).

When agricultural prices fell, insured banking systems suffered higher rates of decline than uninsured state-chartered banks in agricultural states, and showed an even greater difference in the asset shortfalls (relative to deposits) of insolvent banks. All the insurance-fund systems collapsed during the 1920s (see FDIC, 1956, for details). Insured systems also saw greater delays in closing and liquidating insolvent banks, forecasting the politically motivated delays during the current thrift crisis (see Calomiris, 1991).

The three states that had long-lived, free-entry, compulsory deposit insurance (which provided the worst and most prolonged incentives for

Table 1.4 Regression Results: Early Asset Growth of State-Chartered Banks<sup>a</sup>

Independent Variables	Coefficient	Standard Error	Significance Level
Intercept	0.156	0.468	0.741
National Bank Growth (Reserve Center) X	0.682	0.147	0.000
(National Bank Growth) <sup>b</sup>	-0.115	0.063	0.080
Growth in Land Values, 1914-20	0.526	0.334	0.127
Ratio of Farm to Nonfarm Population	-0.328	0.655	0.621
Presence of Voluntary Insurance	0.327	0.251	0.205
Presence of Compulsory Insurance	0.609	0.189	0.004
$R^2 = 0.683$			
$R^{-2} = 0.607$			

Dependent Variable: Growth in Total Assets of State-Chartered Banks, 1914-20

Independent Variables	Coefficient	Standard Error	Significance Level
Intercept	0.101	0.465	0.829
National Bank Growth (Reserve Center) X	0.681	0.147	0.000
(National Bank Growth) <sup>b</sup>	-0.132	0.060	0.038
Growth in Land Values, 1914-20	0.555	0.333	0.107
Ratio of Farm to Nonfarm Population	-0.283	0.654	0.669
Presence of Voluntary or Compulsory Insurance	0.518	0.165	0.004
$R^2 = 0.670$			
$R^{-2} = 0.607$			

a. Asset growth is defined as the log difference of total assets. All variables are defined at the state level for a sample of 32 agricultural states.

b. National bank growth in each state is used as a control for state-chartered bank growth. In reserve-center states, national bank growth may be larger, as it reflects growth of correspondent banks outside of the state as well. To control for this difference, I interact national banking growth with an indicator variable for states with reserve centers.

SOURCE: Charles W. Calomiris, "Do Vulnerable Economies Need Deposit Insurance," in Philip Brock, ed., *If Texas Were Chile: Financial Risk and Regulation in Commodity-Exporting Economies* (Washington D.C., 1991).

risk-taking) experienced the most drastic losses by far among the state- and national-chartered systems. While several state-chartered systems experienced shocks comparable to those of the three (North Dakota, South Dakota, and Nebraska), in no other cases were the asset shortfalls of insolvent banks nearly large enough to threaten the capital of the banking system as a whole (see Table 1.5). In contrast, these states showed shortfalls of between one and a half and five times remaining bank equity of state banks.

#### Contrasting the Performance of Insured and Branch Banking

The failures of deposit insurance systems stand in sharp contrast to their perceived political alternative, branch banking. States that allowed branch banking saw much lower failure rates, reflecting the unusually high survivability of branching banks, and responded well to the agricultural crisis by consolidating banks and expanding branching systems, where this was allowed.

From 1921 to 1929 only 37 branching banks failed in the United States, almost all of which operated only one or two branches. Branching failures were only 4 percent of branch banking facilities, almost an order of magnitude less than the failure rate of unit banks for this period. In states hard hit by the agricultural crisis, branch banks' failure rates were roughly a fourth those of unit banks. In Arizona, Mississippi, and South Carolina—three hard-hit states with statewide branching networks—existing branches survived especially well, and new entry into banking (allowed only in Arizona and South Carolina) was especially strong (see Calomiris, 1991, for details).

Table 1.6 reports regression results on bank growth from 1920 to 1926, and 1920 to 1930. States that permitted expansion of branching saw substantially higher (and statistically significant) asset growth relative to other states, controlling for other influences. A comparison across the two time periods shows that the influence of branching persisted, and grew stronger with the passage of time. The effect of the presence of deposit insurance was negative, but this mainly reflected a temporary retreat from the state systems until after the insurance laws were repealed. By 1930, previously insured state systems had recovered to roughly the same levels of assets as other unit-banking state systems.

Contemporaries often remarked on the unusual survivability and growth of branch banks in the face of the crisis. Many states altered their branch-banking laws in response to these observations. From 1924 to 1939 the number of (full or limited) branch-banking states rose from 18 to 36. Four of the eight states that previously had opted for deposit insurance were among those liberalizing their branching restrictions during this period.



Table 1.5 Estimated Asset Shortfalls of Failed Banks Relative to Remaining-Bank Equity in "Severe Failure" States

	National Banks					State-Chartered Banks					All Banks		
	Deposits of Suspended Banks (\$000), 1921-30 <sup>a</sup>	Number of Liq. Relative to Suspensions <sup>b</sup>	Avg. Size of Liq. Bks. Rel. to Susp. <sup>c</sup>	Rate of Asset Shortfall <sup>d</sup>	Estimated Shortfall <sup>e</sup>	Total Bank Equity (\$000), June 1930	Deposits of Sus. Banks, 1921-30 <sup>a</sup>	Liq./Susp. <sup>b</sup>	Size Ratio <sup>c</sup>	Rate of Asset Shortfall <sup>d</sup>	Estimated Shortfall <sup>e</sup>	Total Bank Equity (\$000), June 1930	Ratio of Shortfall to Equity <sup>f</sup>
Arizona	1,256	.67	.83	.50	349	3,815	15,056	.80	.06	.09	65	8,496	.03
Colorado	11,003	.94	.45	.40	1,862	13,776	12,187	.95	.95	.32	3,520	10,273	.22
Georgia	16,538	.84	.09	.49	613	39,064	46,318	.75	.70	.56	13,618	39,805	.18
Idaho	10,601	.81	.65	.53	2,958	4,612	9,185	.85	.63	.51	2,509	4,983	.57
Iowa	55,984	.79	.50	.31	6,855	35,750	138,995	.75	.66	.46	31,649	74,935	.35
Minnesota	28,338	.97	.59	.42	6,812	69,387	80,634	.77	.47	.52	15,174	38,417	.20
Montana	16,287	.87	.44	.66	4,115	9,999	31,361	.89	.47	.48	6,297	9,947	.52
Nebraska	13,695	.80	.94	.56	5,767	26,083	78,093	.85	1.04	.65	44,872	27,760	.94
North Dakota	17,438	.84	.80	.55	6,445	9,210	45,199	.92	1.05	.83	36,240	9,695	2.26
Oklahoma	27,364	.72	.70	.57	7,861	41,251	38,986	.79	.28	.44	3,794	11,493	.22
South Carolina	12,153	.92	.57	.49	3,123	11,665	50,970	.91	.58	.34	9,147	17,069	.43
South Dakota	21,109	.93	.60	.49	5,772	8,477	91,619	.77	1.00	.76	53,615	10,848	3.07
Wyoming	9,154	.91	.45	.30	1,125	4,819	7,536	.80	.48	.46	1,331	3,844	.28

a. Deposits are defined at the time of bank suspension.

b. The number of bank liquidations relative to suspensions measures the proportion of suspended banks that were liquidated.

c. The average size of liquidated banks is divided by the average size of suspended banks to produce this ratio.

d. The rate of asset shortfall equals 1 minus the ratio of the value of liquidated assets to deposit liabilities.

e. The estimated shortfall is the product of the preceding four columns.

f. The all-bank ratio of shortfall to equity divides estimated asset shortfall for state and national banks by the equity of surviving banks of both types.

SOURCE: Charles W. Calomiris, "Do Vulnerable Economies Need Deposit Insurance," in Philip Brock, ed., *If Texas Were Chile: Financial Risk and Regulation in Commodity-Exporting Economies* (Washington D.C., 1991).

## APPLYING HISTORICAL LESSONS TO CURRENT REFORM

### The Best of All Possible Worlds

I conclude that the most desirable means by which to achieve banking system stability would be unlimited branch banking, combined with the sort of privately administered formal insurance programs of antebellum Indiana, Ohio, and Iowa. Such a system would be adequate to protect the payments system from exogenous disturbances that could produce banking panics (Ely, 1990, has also proposed a bank coinsurance plan; see also related arguments in Calomiris and Kahn, 1990a, 1990b). The greatest threats to systemic stability historically were unit banking, and ill-conceived attempts to promote stability through government-controlled insurance that actually had quite the opposite effect.

The problems of moral hazard and adverse selection which arise in government-controlled deposit-insurance systems are likely to be much more pronounced in today's federal insurance system than in the earlier state programs I have examined. The state insurance systems of the 1920s limited interest paid on deposits, typically required ratios of capital to deposits in excess of 10 percent, and were funded only by the accumulated contributions of member banks. Today's federal insurance, in contrast, does not restrict interest, requires a trivial proportion of capital to deposits, and is supported by the full faith and credit of the federal government. Thus today's financial intermediaries can maintain higher leverage and attract depositors more easily by paying higher interest with virtually no risk of default. From this perspective the unprecedented losses of Texas banks and thrifts in the 1980s should come as no surprise. As in the 1920s there was a risky "upside" to bet on (this time oil rather than agriculture) and any "downside" losses would be shared through the put option inherent in deposit insurance.

Although it is likely that such a coinsurance system of branching banks, if allowed, would develop in the absence of government regulation mandating it, government involvement in regulating such a system still might be desirable. The government's role would be to regulate entry into coinsuring groups of banks, and encourage competition among multiple (say, three), groups of nationwide coinsuring branch banks. These groups would operate like today's futures market clearinghouses, with members regulating each other's behavior and insuring each other's commitments. If the banking system—like today's futures markets—consisted of several groups competing nationwide for business, problems of monopolization that would come from a single nationwide coinsuring group could be avoided.

One might also argue, notwithstanding the evidence from the 1920s

Table 1.6 Regression Results: Late Asset Growth and Bank Size of State-Chartered Banks<sup>a</sup>

Dependent Variable: Growth in Total Assets of State-Chartered Banks, 1920-6			
Independent Variable	Coefficient	Standard Error	Significance Level
Intercept	0.544	0.450	0.239
National Bank Growth (Reserve Center) ×	0.602	0.235	0.018
(National Bank Growth) <sup>b</sup>	0.178	0.098	0.084
Ratio of Farm to Nonfarm Population	-0.404	0.346	0.254
Growth in Land Values, 1920-5	0.037	0.541	0.946
Business Failure Rate, 1921-5	-0.040	0.038	0.308
Business Failure Rate, 1917-20	-0.040	0.038	0.308
Presence of Deposit Insurance (excluding Nebraska) <sup>c</sup>	-0.190	0.126	0.146
Out-of-city Branch Banking <sup>d</sup>	0.179	0.124	0.163
Within-city Branch Banking <sup>d</sup>	0.204	0.132	0.136
$R^2 = 0.601$ $R^{-2} = 0.462$			
Dependent Variable: Growth in Total Assets of State-Chartered Banks, 1920-30			
Independent Variable	Coefficient	Standard Error	Significance Level
Intercept	1.539	0.449	0.002
National Bank Growth (Reserve Center) ×	0.124	0.200	0.539
(National Bank Growth) <sup>b</sup>	0.078	0.115	0.502
Ratio of Farm to Nonfarm Population	-0.936	0.405	0.030
Growth in Land Values, 1920-30	-0.386	0.551	0.490
Business Failure Rate, 1921-9	-0.072	0.044	0.118
Business Failure Rate, 1917-20	-0.072	0.044	0.118
Presence of Deposit Insurance (excluding Nebraska) <sup>c</sup>	-0.065	0.140	0.647

Table 1.6 (Continued)

Dependent Variable: Growth in Total Assets of State-Chartered Banks, 1920-30			
Independent Variable	Coefficient	Standard Error	Significance Level
Out-of-city Branch Banking <sup>d</sup>	0.398	0.150	0.014
Within-city Branch Banking <sup>d</sup>	0.428	0.161	0.014
$R^2 = 0.625$ $R^{-2} = 0.495$			

a. Asset growth is defined as the log difference of total assets. All variables are defined at the state level for a sample of 32 agricultural states.

b. National bank growth in each state is used as a control for state-chartered bank growth. In reserve-center states, national bank growth may be larger, as it reflects growth of correspondent banks outside of the state as well. To control for this difference, I interact national banking growth with an indicator variable for states with reserve centers.

c. Nebraska's insured banks remained open long after they were known to be insolvent. Thus data for Nebraska on total assets of state-chartered banks overstate actual state-chartered bank assets for the 1920s. For this reason Nebraska was excluded from the group of insured states in these regressions.

d. The indicator variable for out-of-city branching takes a value of 1 for states that allowed branching outside the home city of the bank, 0 otherwise. The within-city indicator takes a value of 1 for states that allowed branching only within a bank's home city, 0 otherwise. source: Charles W. Calomiris, "Do Vulnerable Economies Need Deposit Insurance," in Philip Brock, ed., *If Texas Were Chile: Financial Risk and Regulation in Commodity-Exporting Economies* (Washington D.C., 1991).

reported here, that government should provide some ultimate protection against systemic collapse of the banking system—that is, against shocks greater than those that could be absorbed by banking group capital. To this end the government might establish an insurance arrangement with a "deductible." For example, coinsurance among banks would be relied on entirely for reimbursing depositors of the first banks that failed; the government would share increasingly in subsequent losses of failed banks. This would provide incentives for interbank discipline and for market discipline of banking coalitions as a whole without risking systemic collapse.

Moreover, it is likely the government would intervene in such crises even without an explicit commitment to do so. It would be best to have that commitment, and the conditions under which it might apply, spelled out in advance. This would limit ad hoc congressional intervention to serve special interests. Recent reform of deposit insurance in Chile provides an example of specific state-contingent government commitments for aid that depend on coinsurance from private parties (see Ramirez and Rosende, 1989).

An additional advantage to interbank coinsurance is the incentive it

would create *ex post* for banks to encourage the speedy closure of failed institutions. Historically, privately administered coinsuring groups of banks have acted promptly to close failed banks and thereby limited desperation risk-taking. If banks were given a stake in the losses of failed banks, they would close them rapidly, lacking the authority to do so, surviving group members would lobby politicians and regulators to close them. This would provide an important countervailing lobbying group to the failed bankers.

Would the existence of limited insurance of banking groups lead whole groups of banks to adopt high-risk strategies to take advantage of government insurance? It is extremely unlikely that an entire group of banks would opt for high risk. So long as banks' risks of failure remain somewhat independent, a coalition that would encourage risk would result in some banks subsidizing the large losses of those at risk of failing first. Any bank within the coalition would find it advantageous to have a riskier portfolio than the other banks in the coalition (to maximize the value of the put option). This would not be a tenable equilibrium, and thus one would expect coalitions to regulate and monitor in a way that discourages excess risk-taking.

### Assessing Other Regulatory Options

The proposal for reform outlined here is, of course, not the only reasonable possibility for improving the current insurance system. It is one of many possible ways of introducing private market "discipline" into the deposit-insurance system. By placing someone other than the taxpayers at risk when a bank fails, and by giving the actions of those parties some weight in determining whether a bank may continue operating, my proposal, like many others, reduces the potential for excessive risk-taking *ex ante*, and improves the procedure for closing banks *ex post*. It may be useful to compare and contrast my proposal with other means of introducing market discipline, and with proposals that try to resolve the incentive problems of deposit insurance in other ways.

Two of the most popular alternative proposals for introducing market discipline are those of the Federal Reserve Bank of Chicago (Keehn, 1989) and the Federal Reserve Bank of Minneapolis (Boyd and Rolnick, 1988). The Boyd-Rolnick proposal is essentially a resuscitation of the original (unimplemented) permanent plan for the FDIC, with some alterations. This plan would allow each citizen a single banking account insured 100 percent by the government, up to a limited amount. Beyond that, all accounts would be insured 90 percent.

It is important to note that the successful implementation of this plan would not require all depositors to monitor banks. Depositors could take out private policies with insurance companies specializing in monitoring

and rating banks, to cover their 10 percent exposure, and would pay varying premiums that would reward holding deposits in low-risk banks. An advantage of this plan is that it would not require the changes in the industrial organization of banking and the role of government regulation envisioned in my more radical proposal. Another advantage of the Boyd-Rolnick proposal is that it makes state-contingent government protection explicit, and thus does not invite *ex post* ad hoc policy intervention. A disadvantage of the plan is that it does not address the problem of *ex post* risk-taking, and the need to establish a credible closure rule for insolvent banks. The main disadvantage of the plan is that it may be very hard (perhaps impossible) to phase it in. Implementing the proposal would require a retreat from the protection currently provided to depositors. Not only would protection have to be reduced to one deposit per depositor, but to achieve a significant reduction in deposit risk exposure the government would have to limit coverage far below the current cap of \$100,000. Once such legislation became likely depositors in questionable institutions, or depositors who lack sufficient information to judge their banks' viability, would have an incentive to run their banks and place their funds in a safe haven.

The Chicago Fed subordinated-debt plan shares the Minneapolis Fed plan's advantage over my more radical proposal (no need for drastic reform of institutions) and avoids the main problems of the Minneapolis Fed plan. It also provides explicit rules for government insurance. According to the Chicago Fed proposal, banks would be forced to maintain subordinated debt equal to some percentage of outstanding deposits. Overlapping generations of maturing subordinated debt would provide an automatic means for shrinking or closing undesirable banks (they could no longer attract subordinated debt holders to replace maturing obligations). And existing subordinated debt holders could exert their influence to ensure that regulators would not prolong closure of banks with insufficient subordinated debt. By requiring increased capital in the form of subordinated debt, rather than equity, the proposal ensures that the increased capital of the banks will be held by investors who desire low risk. Banks too small to issue their own subordinated debt could rely on correspondent banks to serve the role of subordinated debt holders, with interbank risk leading to higher subordinated debt requirements by correspondents of small banks. This plan would be easy to implement, since it could be phased in over time without creating any incentives for runs. Furthermore, it would remove the "middleman" and allow informed institutional investors, rather than depositors to directly hold claims on banks (rather than insure the claims of depositors).

I am quite supportive of the Chicago Fed proposal, but I think a system of coinsuring self-regulating coalitions of branch banks provides a some-

what superior mechanism for protecting the system. Banks have lower costs of monitoring one another, and are better informed regarding trade-offs between monitoring a particular activity and constraining it by regulation (see Calomiris and Kahn, 1990b). Finally, banks could act more quickly to force an insolvent bank to close by excluding it from interbank clearings and other dealings.

Other popular proposals for reform that do not introduce market discipline into the deposit-insurance system fall into essentially two categories: improved government regulation and reduced coverage ("narrow-banking"). In my opinion, neither of these provides a viable alternative to introducing market discipline.

Proposals for improvements in government regulation (risk-based capital requirements, market value accounting where possible, and so forth) do not deal with one of the central problems identified by the historical (non)performance of government regulators. Regulators systematically commit errors of omission (because they lack incentives to spend resources on gathering information), or errors of commission (because the benefits to the regulator of remaining silent about violations exceed the benefits of reporting them—see Kane, 1988). Proposed changes in regulation will only be as good as the information regulators choose to collect and report. Unless something in the incentive structure of regulation changes, there is no reason to think these reforms will prevent another debacle in the future.

Narrow-banking proposals suffer from a similar political naïveté, and may be criticized on theoretical grounds, as well. These proposals advocate government insurance only for essentially riskless accounts (say, those backed by Treasury bills). The theoretical basis for this proposal is the view that the function of deposit insurance is to provide riskless assets to those who desire them. But other recent models discussed above—and historical evidence—run counter to this view. Deposit insurance is desired not only (or even primarily) because it provides a riskless asset to a segment of the population. Rather, some form of insurance (private or public) of risky bank liabilities is useful in averting panics. Isolating a small portion of the banking system's accounts and insuring these does not solve the problem of protecting the banking system from panics. Specifically, so long as banks provide liabilities of shorter maturity than their assets (as the analysis of Calomiris and Kahn, 1991, and Calomiris, Kahn, and Krasa, 1991, suggests they will), and banks hold portfolios that are not mark to marketable, banking panics will be a possibility. Unless the government removes the constraints on private coinsurance (unit-banking laws), or itself provides some means of insurance, it will leave unresolved the central problem deposit insurance was designed to deal with. Narrow-banking proposals also fail to provide an *ex ante* rule for government intervention in support of "uncovered" liabilities. As I have argued, this is undesirable because it invites ad hoc, politically motivated, discretionary policy by Congress.

### Political Considerations

One of the grim lessons of the last 150 years of banking regulation in the United States is the political power of the antibranching, prodeposit insurance political lobby, which has successfully defeated numerous attempts at reforming the banking system, and has succeeded in promoting and continuing unit banking with deposit insurance, regardless of its apparent costs. Certainly the policy debates of the 1930s which culminated in the establishment of the FDIC were informed by the failures of deposit insurance in the 1920s (see, for example, American Bankers Association, 1933). As in earlier cases, deposit insurance was chosen despite prior visible benefits from branch banking and costs from deposit insurance. Is there any reason to think substantive beneficial reform of deposit insurance or branch-banking laws, of the kind described above or any other kind, will be forthcoming?

I see three reasons for being hopeful. First, the unprecedented costs of the current thrift debacle are something new, and the consensus among regulators and economists (and legislative aides I have spoken with) is that substantive reform is necessary to limit costs in the future. Advocates of "market discipline" can help their case by emphasizing historical evidence for consensus in favor of this approach, as well. As Boyd and Rolnick argue, the original permanent plan for federal insurance and the stated intentions of Franklin Roosevelt indicate that insurance was never intended to provide complete government protection to banks.

Second, as the U.S. banking system faces increasing competition internationally and domestically from other intermediaries, the attraction of removing some restrictions on the activities of commercial banks becomes increasingly apparent. At the same time, the potential for excess risk-taking increases as the range of activities banks can pursue expands. Thus, absent substantive reform of deposit insurance, legislators will be forced to choose between growing costs due to excess risk-taking or declining competitiveness of U.S. banks. This should encourage legislators to solve the incentive problems inherent in the current deposit-insurance system.

The third point is of relevance to my more radical proposal for bank group coinsurance. The special interest group which has systematically (and successfully) opposed branch banking in the past has recently fallen on hard times. The silver lining in the cloud of banking difficulties recently has been a decline in the value of unit-bank charters, and a forced liberalization of unit-banking restrictions (often as a means to promote entry or acquisitions in the face of existing bank failures). Declining charter values and relaxation of some branching restrictions has reduced the power of the prounit-bank lobby. At the very least, declines in charter values have reduced unit banks' abilities to make continuing large political contributions. The history of U.S. banking regulation has been a sequence of

long-term regulatory responses to short-term disasters. Maybe this time that is good news.

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