FDIC Center for Financial Research Working Paper

No. 2006-07

Did the Introduction of Fixed-Rate Federal Deposit Insurance Increase Bank Risk?

August 2006

FDIC CFR
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Abstract

We investigate whether the introduction of fixed-price U.S. federal deposit insurance increased the risk-taking of banks. We examine 70 financial institutions and find that banks in general became more risky after the introduction of deposit insurance. However, a subset of well-performing banks reduced their risk. Deposit insurance helped to bring about stability in that depositors did not discriminate between weaker and stronger banks. Although investors did not see deposit insurance as a net subsidy to the banking industry, investors believed deposit insurance would allow smaller banks to compete better against bigger banks. While deposit insurance allowed greater risk-taking among some banks, it also brought more stability and competition within the banking industry.

August 28, 2006

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We are grateful for financial support from the FDIC Center for Financial Research. We also thank participants of seminars at FDIC and Baruch College as well as Yakov Amihud for comments.

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1. Background and motivation

Although the stated purpose of federal deposit insurance was to protect small depositors, the introduction of deposit insurance – especially fixed-rate insurance – may have created some unintended consequences. Weak and risky banks were relatively more vulnerable to failure than other banks, and as a result benefited more from deposit insurance than well capitalized and well managed banks. Furthermore, banks may have changed behavior as a result of deposit insurance. By moving to explicit deposit insurance, the U.S. government also made safety net boundaries ex-ante explicit. Our study examines whether the setting of ex-ante explicit boundaries affected the risk-taking of U.S. banks.

In this paper, we investigate empirically whether the original 1933 federal U.S. deposit insurance scheme was mispriced, i.e. that more risky banks paid too low premiums relative to safe banks. We also seek identify the types of banks that received an insurance subsidy (as well as the value of any such subsidy).

Understanding whether explicit deposit insurance influenced the risk-taking of banks is important for several reasons. Many emerging economies, especially in Asia, have no explicit deposit insurance scheme, e.g. China and Indonesia. Our research concerning the introduction of explicit deposit insurance in the United States may be instructive in predicting what might happen if these countries adopt such a scheme, both in terms of the stability of their banking systems as well as the risk-taking behavior of their individual banks.

Importantly, deposit insurance was introduced in the United States during a time of financial and economic crisis when many banks that might normally be considered safe were highly vulnerable to failure. Our research, therefore, reveals the implications of introducing deposit insurance during a financial crisis. Indeed, in many emerging market countries, this is precisely what has been done. For example, Schumacher (2000) discusses the introduction of deposit insurance in Argentina during a bank crisis. Investors and depositors both reacted positively when deposit insurance was first introduced (in April 1995), however, the insurance system was poorly funded. By June 1995, depositors began withdrawing funds from weak banks and re-depositing funds in stronger banks. That is, even with the existence of deposit insurance, depositors remained concerned that weak banks might fail. Kane and Wilson (1998) examine the market reaction to the 1933 U.S. announcement of deposit insurance legislation during a crisis period. Although they find that the announcement of deposit insurance benefited large banks more than small banks, they do not look at long-term effects. Our paper differs from theirs by examining the evolution of bank equity investors' reactions, after deposit insurance was introduced, as well as the long-term effects of deposit insurance on the risk-taking of banks. Moreover, we relate investor reaction to the extent of a bank's risk. Finally, we analyze the impact of the introduction of ex-ante explicit deposit insurance on non-bank financial institutions.

2. The introduction of deposit insurance

The Banking Act of 1933, which created deposit insurance, included several elements. Under a temporary plan for deposit insurance, banks were to contribute one half of one percent of their insurable deposits to provide the capital stock for the Federal

Deposit Insurance Corporation (FDIC). Half of the payment was due when the Act went into effect on January 1, 1934, and the other half was payable only if the FDIC requested the money. The FDIC set up the Federal Deposit Insurance Fund, which provided reimbursement up to $2,500 for depositors of closed banks. The Act also stipulated that a permanent fund be adopted on July 1, 1934. The permanent fund was to access banks on an as-needed basis. Regulation Q was also introduced in the Banking Act of 1933, putting a ceiling on the interest rates for deposits. The Act mandated that banks pay zero percent on demand deposits and that the FDIC set the (adjustable) ceiling rate for time and savings deposits. In addition to establishing deposit insurance, the Act (in Section 20) separated commercial banks from investment banks. The Act also stipulated the termination of double liability for bank stockholders, which went into effect on July 1, 1937.

The passage of the Banking Bill on June 14, 1933 came as a surprise to many investors. Indeed, in the week prior to actual passage, stock prices of large banks rose upon the expectation that the Bill would not be passed.[1]

Deposit insurance became permanent with the passage of the Banking Act of 1935. However, the actual permanent plan differed from the plan put forth in the Banking Act of 1933. Instead of the as-needed funding put forth in the original legislation, the actual permanent plan stipulated that banks pay an annual fixed premium – one-twelfth of one percent (8.33 basis points) of total deposits. Although discussion of pricing deposit

[1] On June 11, 1933, the New York Times reported that the aggregate value of 16 leading banks had increased by 13.9 per cent. On June 14, the Times reported, "The upsurge in the bank stocks last week was based on the belief that nothing would be done about the Glass Banking Bill," but that the passage of the Bill resulted in a decline in the value of bank stocks.

insurance on an actuarial basis occurred in 1934,[2] the final legislation required that funds for the FDIC be raised according to the fixed-rate schedule.

3. Hypotheses

The first hypothesis we test is whether the market valued the stocks of weak or more vulnerable banks more highly than safe bank stocks, when deposit insurance was introduced. We hypothesize that vulnerable banks experienced the greatest benefit of an explicit (and fixed per dollar) premium deposit insurance scheme, reflecting their ability to shift risk from themselves to regulators (the FDIC Insurance Fund).

> *H1: The stock market valued vulnerable banks more highly upon the announcement of the introduction of deposit insurance than safe banks.*

Besides the influence of the 1933 introduction of deposit insurance on bank stock returns, we also examine its influence on bank risk. Specifically, an explicit deposit insurance scheme with a fixed-rate premium schedule results in deposit insurance being underpriced for vulnerable banks and overpriced for safe banks. Under such circumstances, the safe banks end up subsidizing the weaker ones. Saunders and Wilson (1995) document the concerns safe banks had about subsidizing poorly managed and weak banks. Safe banks believed deposit insurance – especially deposit insurance with a flat premium schedule – would force safe banks to pay for the mistakes of weaker ones. Using an unlimited-term option pricing model proposed by Merton (1978) and Pennacchi (1987) and assuming no double liability of stockholders, Saunders and Wilson find that the flat premium rate of one-twelfth of one per cent of the value of insured deposits that

[2] See "Actuarial Basis Mapped for FDIC" in the New York Times, August 9, 1934.

was put in place in 1935 would not have covered the costs of the insuring deposits during the 1927 to 1932 time period. Further, vulnerable banks have the incentive to become even more risky as the result of the risk-shifting (moral hazard) incentives prevalent in an explicit fixed price/premium deposit insurance scheme. Our second hypothesis is therefore:

> *H2: Vulnerable banks became more risky as a result of risk-shifting following the introduction of fixed-price deposit insurance.*

We next test the influence of deposit insurance on deposit flows. Saunders and Wilson (1996) show that a significant number of depositors between 1929 and 1933 were informed about the health of the banks they used for their deposits. After the 1933 introduction of deposit insurance, smaller relatively uninformed depositors would also be less concerned about the solvency of their depositing institutions. This leads to our third hypothesis:

> *H3: Deposits at vulnerable banks increased after the introduction of deposit insurance relative to deposits at safe banks.*

Finally, we test the influence of the announcement of deposit insurance on non-bank financial institutions, specifically insurance companies. We choose insurance companies as a benchmark, because they accepted deposit-like instruments. If the market perceived deposit insurance to be a subsidy to banks in general vis-à-vis other non-bank financial institutions (NBFI) that accept deposit-like instruments, then shareholders in such institutions would perceive it s introduction as a negative event.[3] Thus, hypothesis 4 is:

[3] Since savings banks were insured by the Federal Savings and Loan Insurance Corporation beginning in 1933, we exclude savings banks from our analysis.

H4: Non-bank financial institutions were affected negatively upon the introduction of federal deposit insurance.

4. Empirical Results

4.1 Event Study

To study the market's reaction to the introduction of deposit insurance, we use an event study methodology controlling for two factors: the market return and the change in interest rates. (See Flannery and James (1984).) Specifically, we determine the relationship between bank *i*'s stock return and the market's stock return as well as a factor that measures interest rates changes:

$$\text{Bank } i\text{'s stock return} = \alpha + \beta_1(\text{market stock return}) + \beta_2(\text{interest rate changes}) + \varepsilon. \quad (1)$$

We use weekly data from 1932, the year before deposit insurance was introduced, to determine the values of α, β_1 and β_2. Weekly stock prices for individual banks as well as the market index come from *The Commercial and Financial Chronicle* and in particular from the following sections of the publication: "New York Bank Stocks," "Chicago Bank Stocks," "Trust Companies," and "Insurance Companies" as well as banks that were traded on other regional exchanges. (See Appendix 1 for the list of banks and trusts in the sample.) We determine whether a particular financial institution received deposit insurance using the "Cardfile DB – Banks insured since 1934," which we received from the FDIC. One bank, the Chicago Bank of Commerce, and one trust bank, Mercantile Bank and Trust, did not receive deposit insurance and were therefore excluded from our sample. Moreover, the Chicago Bank of Commerce ceased operations in November 1932

and the Mercantile Bank ceased operations in April 1933, making analysis of these banks impossible.

We use several interest rate series in our analysis to measure the second (interest rate) factor in the market model of equation 1. Weekly interest rates come from the Federal Reserve Board's Banking and Monetary Statistics (1943). We control for interest rate change using alternatively weekly changes in the three-month Treasury bill rate and the ten-year Treasury bond rate. Since we find only monthly rates for some of these measures (see the Federal Reserve Website (2004)), we use the same rate for the weeks within a given month. We calculate the abnormal return as:

Abnormal return to bank i = bank i's actual return – [α +

$$\beta_1(\text{market's stock return}) + \beta_2(\text{interest rate changes})] \qquad (2)$$

and the weekly cumulative abnormal return for the years 1933 through 1935 as:

$$\text{CAR} = \sum_{j=1}^{n} \text{abnormal return to bank } i \text{ for week } j. \qquad (3)$$

4.2 Time Pattern of CARs

In Figure 1, we plot the average CAR for our portfolios of bank, trust, and insurance company stocks and identify the dates of specific events, starting in January 1933 and ends in December 1935.[4] As can be seen, banks, trusts, and insurance company CARs moved in tandem until May 1933 when the returns on trusts fell dramatically compared to banks and insurance companies and continued to decline from the second half of 1933 through 1935. The returns on banks paralleled those of insurance companies throughout the latter half of 1933 and through 1934 and 1935. Insurance company cumulative

[4] The interest rate we used to determine the CARs in the charts reported in this paper is the three-month Treasury Bill, although analysis using other interest rates did not alter the results.

excess returns, however, faired better than banks throughout 1934 and 1935, suggesting that banks as a group did not receive a net subsidy relative to non-bank financial institutions as a result of deposit insurance.

[Figure 1 approximately here.]

We next look at the timeline of CARs for subgroups of banks and trusts based on pre-insurance size, capitalization, and volatility. Accounting data for banks and trusts come from Poor's Bank, Government, and Municipal Volume (1935). We divide each financial institution group into three sub-groups and calculate the holding period CAR for each portfolio for each week from January 1933 to December 1935, that is, one year prior to the introduction of deposit insurance to two years following its implementation. We plot the CARs for the three groups, each of which includes approximately 19 institutions.

We show the results of portfolios based on asset size in Figure 2. The smallest banks and trusts enjoyed the highest CARs between 1933 and 1935, followed by medium-sized institutions. Large institutions steadily lost ground during the years we examined. These observations suggest at least two possibilities: Either small banks were ex-ante more vulnerable than large banks prior to the introduction of deposit insurance or that deposit insurance generated a subsidy effect that helped small banks compete with large banks.

[Figure 2 approximately here.]

Further analysis shows that smaller banks and trusts tended to be well capitalized, i.e. have a higher capital to asset ratio. To determine whether size and capitalization are related, we calculate the median asset size of the banks and trusts in our sample based on data from 1932. We then determine which institutions were above and below the median size levels. We conduct the same analysis for the capital ratio of the institutions. In Table 1, we show the results of a 2x2 matrix of asset size against capital ratio. If smaller banks are better capitalized than larger banks, we expect to see more observations in the off-diagonal cells. We indeed find more observations in the off-diagonal cells, and we can reject randomness with a χ^2 test ($p = 0.0002$).

[Table 1 approximately here.]

Consequently, we divide banks and trusts into three groups according to their capital ratios and then average the returns for each group. In Figure 3, we show the average CAR over time for the portfolios of banks and trusts with the lowest, middle and highest capital ratios. Banks with strong capital ratios faired the best, followed by institutions with weak capital ratios. Institutions with capital ratios in the middle faired least well.

[Figure 3 approximately here.]

We next divide the sample according to a second measure of riskiness, namely the financial institution's pre-insurance return volatility, measured as the standard deviation of its returns during 1932. From Figure 4, it appears that banks and trusts with the lowest

return volatility in 1932 faired the best, whereas the returns on institutions with medium and high volatility continuously declined between 1933 and 1935. As with the result found for the capital-assets ratio, the market appeared to believe that the least vulnerable banks would use the protection that deposit insurance afforded most productively. That is, deposit insurance would keep strong banks strong.

[Figure 4 approximately here.]

The results from the CARs over the 1933 to 1935 period suggest that deposit insurance actually helped safer banks – those with strong capital and low pre-insurance volatility – while riskier banks continued to fair poorly.

4.3 Cross-sectional analysis (Tests of H1)

To examine the relationship between return and measures of risk or vulnerability, we regress the abnormal return from the week of the deposit insurance announcement cross-sectionally on measures of bank vulnerability such as capitalization, bank size, return volatility, and stock return in the year before the enactment of deposit insurance legislation:

$$AR_j = \alpha + \beta_1(\text{pre-insurance capital/asset ratio})_j + \beta_2(\text{size})_j + \beta_3(\text{volatility of pre-insurance returns})_j + \beta_4(\text{pre-insurance performance})_j. \quad (4)$$

Hypothesis 1 is that abnormal returns are likely to be higher for banks (and trusts) that have lower capital ratios, higher pre-insurance volatility and lower pre-insurance performance. We expect that any higher abnormal returns will be the result of a subsidy

deposit insurance provides to ex-ante weaker institutions. That is, under a fixed-premium deposit insurance system, strong banks and trusts will overpay for deposit insurance while weak banks and trusts will receive a subsidy. In Table 2, we show the results of our tests of H1. Overall, we find some support for our hypothesis in that banks with relatively weak pre-insurance performance experienced positive abnormal returns upon the announcement of deposit insurance as did smaller banks. Importantly, large, New York institutions were negatively affected by the passage of deposit insurance legislation.

[Table 2 approximately here.]

4.4 Controlling for other Bank Act/Glass-Steagall reforms

The passage of the Banking Act of 1933 (Glass-Steagall) included many reforms. Besides deposit insurance, Section 20 of the Act separated commercial and investment bank activities. Interest payments on deposits were eliminated as was the double liability of bank stockholders. Since each of these provisions could affect stockholder returns of banks, we investigate each of them further below.

First, we examine whether the separation of investment banking from commercial banking influenced the market's reaction to the passage of the Act covering the introduction of deposit insurance. To do so, we add a dummy variable to model (4). The dummy is one if the bank also performed investment bank functions or owned an investment bank subsidiary.

$$CAR_j = \alpha + \beta_1(\text{capitalization})_j + \beta_2(\text{size})_j + \beta_3(\text{pre-insurance return volatility})_j + \beta_4(\text{pre-insurance performance})_j + \beta_5(DUM)_j. \quad (5)$$

where DUM = 1 if the bank also had an investment bank subsidiary.

In Column (2) of Table 2, we show that having an investment bank subsidiary did not influence the market's reaction to the passage of the Act introducing deposit insurance.

To determine whether the elimination of interest payments on demand deposits influenced stock returns, we add to the basic model the ratio of a bank's total deposits to total assets. If the sign of its coefficient is positive, then part of any appreciation in stock price upon the passage of deposit insurance legislation could be due to the mandatory elimination of interest on demand deposits. Additionally, the coefficient could be positive if the market perceived deposit insurance as providing a net subsidy to those banks more reliant on deposits. We show in Table 2 that neither the total amount of deposits (column 3) nor the ratio of deposits to assets (column 4) affected the stock market's reaction to the introduction of deposit insurance.[5]

4.5 Return Volatility (Test of H2)

To test the impact of the introduction of deposit insurance on return volatility, we run the market model before and after the introduction of deposit insurance. We examine R^2, which measures the extent to which a bank being is integrated with the market in general (see Morck, Yeung and Yu (2000)). If banks took relatively more idiosyncratic risks after the introduction of deposit insurance, the average R^2 should decline. In Table

[5] Double liability meant that stockholders could be called upon to pay up to the par value of their shares should the bank in which they invested become insolvent. Although the Banking Act of 1933 specified that the double liability of bank stockholders would be eliminated "when the Act goes into effect," double liability was not eliminated until July 1, 1937. Indeed, debate surrounded the elimination between 1933 and 1937, including a bill to repeal the elimination. Bank stockholders were still liable if their banks became insolvent during the time of our study. Although deposit insurance went into effect on January 1, 1934, stockholders were sometimes called upon to pay when a bank became insolvent. Therefore, during the time of our study, stockholders were not reacting to the elimination of double liability. Even the anticipation of the elimination did not release stockholders from their obligations.

3, we show that average R^2 from the market model decreased significantly in the calendar years 1934 and 1935 compared with 1932. These results are consistent with banks and trusts taking on additional idiosyncratic risk exposures after the introduction of deposit insurance.

[Table 3 approximately here.]

As an additional test of the effect of volatility, we compare the volatility of stock market returns for banks and trusts (σ_{bank_it}) in 1934 and 1935, i.e. after the introduction of deposit insurance, with the volatility of their returns in 1932. The returns for each institution are standardized by the market's volatility (σ_{market_t}):

$$\text{standardized volatility ratio} = \sigma_{bank\_it} / \sigma_{market\_t}. \quad (6)$$

We find that standardized volatility ratio increases by a statistically significant 0.9031 (t=5.93). This result suggests that, on average, banks and trusts increased their riskiness after the introduction of deposit insurance.

We report cross-sectional analysis of banks' return volatilities in Column 1 of Table 4. Banks that performed relatively well in 1932 decreased their volatilities and became relatively less risky after the introduction of deposit insurance.

[Table 4 approximately here.]

4.6 Depositor behavior (Test of H3)

To test whether deposits increased in vulnerable banks more than in safe banks, we compare deposits before and after the introduction of deposit insurance and test whether vulnerable banks had an abnormally positive increase in deposits. We know from Saunders and Wilson (1996) that depositors from 1929 to 1933 removed money from banks that were about to fail at a greater rate than from healthy banks. If we see less of a run off from vulnerable banks after the introduction of deposit insurance, the results would be consistent with depositors believing deposit insurance would stabilize weaker banks.

To test whether deposits returned to weak banks, we tabulate 2x2 matrices of changes in deposit to asset ratios between 1932 and 1936 against vulnerability. Although our previous analysis examines stock returns through 1935, stock market reactions tend to be more immediate than accounting measures. We chose 1936 as the year for our post-insurance accounting analysis so as to allow depositors time to observe and to comprehend the influence of deposit insurance. We expect the change in deposits to be above the median of our sample for banks that fall below the median in terms of strength, namely their capital ratios in 1932. That is, in Table 5, where we tabulate the changes in bank deposits against volatility of stock returns in 1932, we expect more observations in the off-diagonal cells.

Using a χ^2 test, we find evidence that by 1936 depositors treated weak banks the same as strong banks. In Table 5, we show that deposits flowed into vulnerable as well as strong banks after the introduction of deposit insurance.

[Table 5 approximately here.]

4.7 Externality effect of FDIC insurance on other financial institutions (Test of H4)

We test whether non-bank financial firms were affected by deposit insurance by examining non-bank financial firms that had deposit-like accounts. We use life insurance companies as a benchmark for several reasons. Life insurance companies competed with banks for financial assets. Moreover, the Reconstruction Finance Corporation granted emergency loans to both banks and insurance companies so that any positive benefit from the RFC loans for banks would also be seen for life insurance companies. In the early 1930s, no other federal legislation pertaining to insurance companies was enacted.

We examine the CARs of the top 19 life insurance companies based on their assets in 1933. If the market believed deposit insurance was a subsidy to banks, then non-bank financial institutions such as insurance companies would have had negative CARs as their relative competitive position worsened. If, on the other hand, the market perceived deposit insurance to generate positive externalities that would strengthen the financial industry in general, the CARs of insurance companies would be positive.

In Figure 1, we show that CARs for life insurance companies were not only positive, but also consistently higher than CARs for banks and trusts. We present more specific tests in Table 6, where we show abnormal returns at the end of the week that the Glass-Steagall Act was passed as well as CARs two years after the passage. Upon passage of the bill, the market reaction was muted in that abnormal returns for banks, trusts and insurance companies were not statistically significantly different from zero two years after the establishment of deposit insurance. CARs to insurance companies and

banks were not statistically different. However, insurance companies CARs were statistically greater than trusts. Therefore, the market did not appear to believe that deposit insurance provided a net subsidy to banks and trusts relative to the indirect (financial stability) benefits received by insurance companies. These results suggest that overall, deposit insurance contributed in bringing stability to the financial services industry.

Conclusion

We examine the reaction of banks, investors and depositors to the introduction of U.S. federal deposit insurance. In particular, we address the question of whether banks changed their levels of risk and whether investors or depositors noticed. We also seek to determine whether deposit insurance was mispriced and how any mispricing affected the riskiness of the banking system.

We analyze abnormal returns to 70 publicly-traded banks, trusts and insurance companies generated upon the passage of deposit insurance legislation. We find that smaller banks with relatively weak pre-insurance performance experienced positive abnormal returns while large, New York institutions with relatively few retail deposits experienced negative returns. Since smaller banks in general were better capitalized than larger banks, our results suggest that the market believed deposit insurance would allow smaller banks to compete better with larger institutions.

Examining the "fit"[6] of the market model before and after passage of legislation, we find that the fit decreased significantly after passage. This result suggests banks in general were more inclined to increase their idiosyncratic risk post the introduction of

[6] That is, we examine the "R^2" of the model (see Morck, Yeung and Yu (2000)).

deposit insurance. However, banks that performed relatively well prior to the passage of deposit insurance legislation reduced their return volatility and became relatively less risky after deposit insurance.

Comparing deposits before and after the passage of deposit insurance, we find depositors did not favor stronger institutions over weaker banks.

Comparing returns to banks and trusts with returns to insurance companies, we find that short-term returns among these groups were not statistically significantly different. However, long-term returns to insurance companies were significantly higher than returns to trusts but no different from banks.

Our results suggest that fixed premium deposit insurance was indeed mispriced. Although deposit insurance brought some stability to the financial system in that depositors regarded weak banks to be as safe as strong banks, banks in general became riskier. Banks that performed well before deposit insurance became less risky and subsidized riskier banks. Our results also suggest that the market did not perceive deposit insurance to be a net subsidy to publicly traded banks compared with other financial firms. However, investors favored smaller banks that performed poorly before the introduction of deposit insurance. Perhaps deposit insurance did offer a subsidy to the subset of smaller banks that had poor pre-insurance performance.

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Figure 1

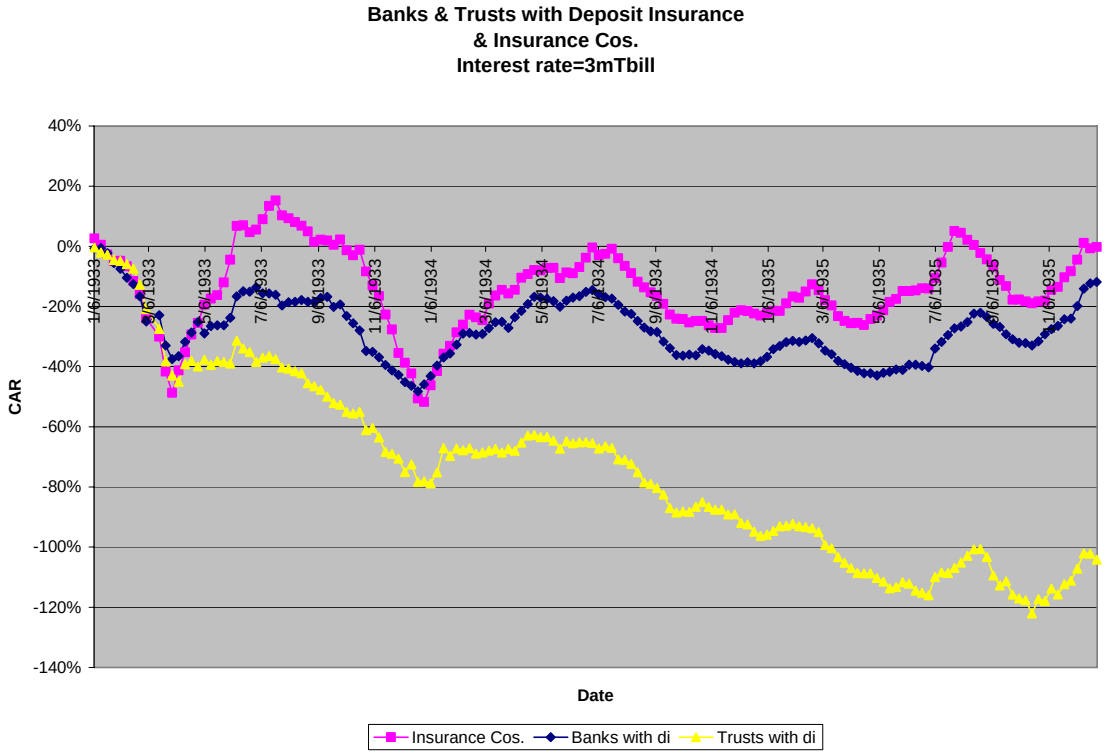

Figure 2

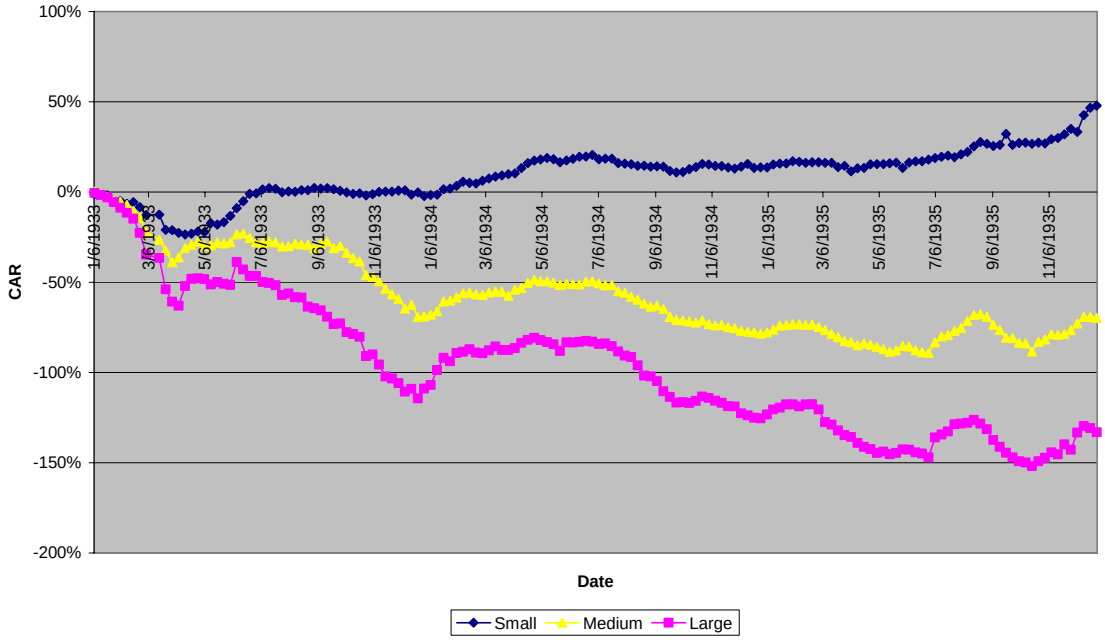

Figure 3

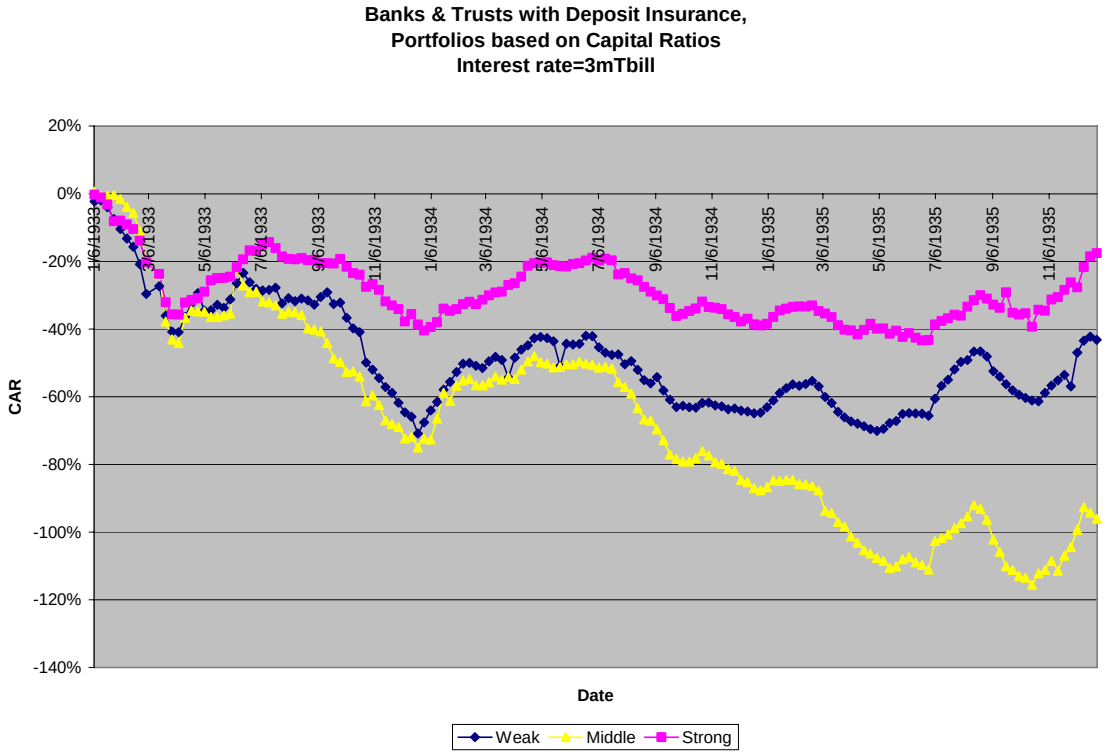

Figure 4

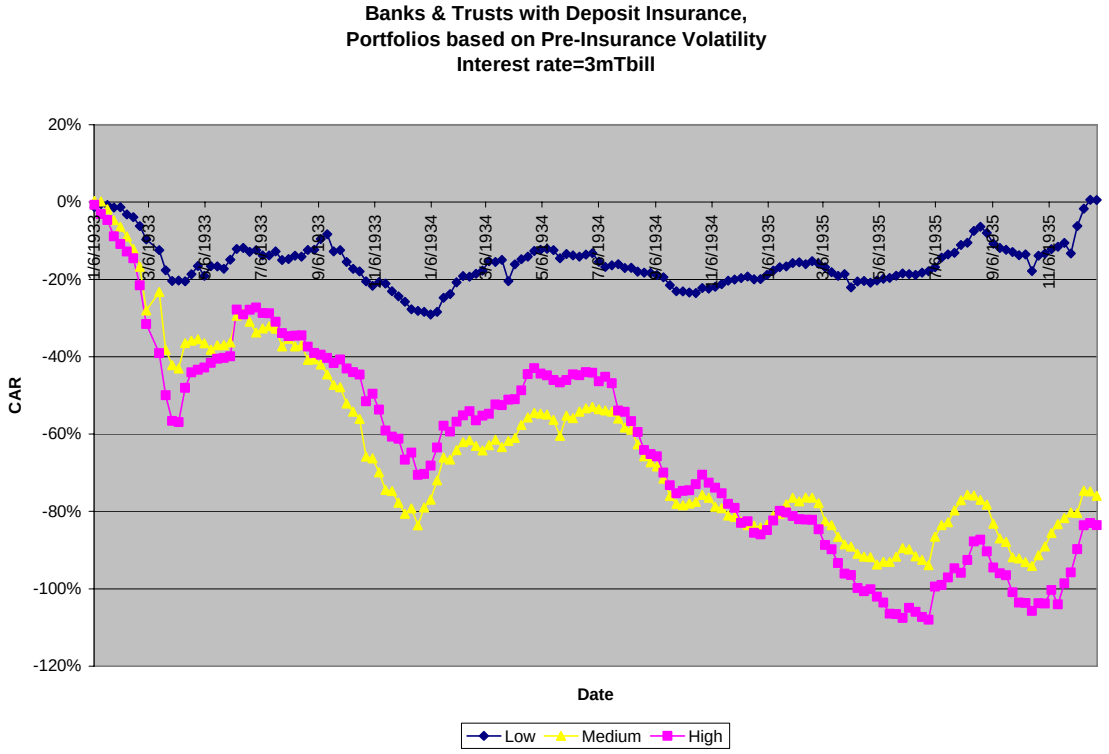

Table 1

Panel A: Matrix of size, measured in assets, and capitalization, measured as book equity to book assets, in 1932.

		Size, 1932		
		Below median	Above median	Total
	Below median	12.50%	37.50%	50.00%
Capitalization, 1932	Above median	37.50	12.50	50.00
Total		50.00	50.00	100.00

H_0 : 25% of observations in each cell $\chi^2 = 14.00$, df = 1, p = 0.0002.

Panel B: Matrix of pre-insurance performance, measured bank stock performance in excess of market stock performance, and capitalization, measured as book equity to book assets, in 1932.

		Pre-insurance performance, 1932		
		Below median	Above median	Total
	Below median	28.57%	21.43%	50.00%
Capitalization, 1932	Above median	21.43	28.57	50.00
Total		50.00	50.00	100.00

H_0 : 25% of observations in each cell $\chi^2 = 1.14$, df = 1, p = 0.2850.

Table 2: Cross-sectional analysis of abnormal returns upon the passage of the Banking Act of 1933, which included legislation for deposit insurance as well as the separation of commercial and investment banking and removal of interest on deposits. We calculate abnormal returns using a two-factor market model, specifically the market returns and changes in yields in interest rates. We use the three-month Treasury bill rate as the interest rate.

Variable	(1)	(2)	(3)	(4)
	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Constant	0.4403*** (0.00)	0.4700*** (0.00)	0.4739** (0.03)	0.4471*** (0.00)
Capitalization, 1932	-0.0793 (0.75)	-0.0834 (0.74)	-0.0818 (0.74)	-0.0622 (0.83)
Size, 1932	-0.0221*** (0.00)	-0.0242*** (0.00)	-0.0240** (0.05)	-0.0222*** (0.00)
Volatility, 1932	0.0247 (0.34)	0.0260 (0.32)	0.0236 (0.38)	0.0237 (0.40)
Performance, 1932	-0.0758** (0.02)	-0.0782** (0.02)	-0.0756** (0.02)	-0.0736** (0.04)
Trust, dummy	0.0318 (0.76)	0.0338 (0.43)	0.0331 (0.45)	0.0312 (0.48)
New York, dummy	-0.0844*** (0.01)	-0.0826*** (0.01)	-0.0859*** (0.01)	-0.0881*** (0.00)
Investment bank dummy		0.0150 (0.79)		
Total deposits, 1932			0.0000 (0.78)	
Deposits to Assets, 1932				-0.0026 (0.73)
N	51	51	51	51
Adjusted R^2	0.2871	0.2747	0.2713	0.2718

***(**, *) = statistically significant at the 1% (5%, 10%) level.

Table 3: Changes in R^2 of the market model.

	N	R^2 (t-statistic)	Adjusted R^2 (t-statistic)	Difference from R^2, 1932 (t-statistic)	Difference from Adjusted R^2, 1932 (t-statistic)
Average for 1932, matched sample	56	0.2328*** (7.48)	0.1940*** (5.90)		
Average for 1934 and 1935	56	0.0843*** (6.19)	0.0637*** (4.53)	-0.1485*** (-5.98)	-0.1304*** (-5.00)
Average for 1934	56	0.1407*** (7.34)	0.0972*** (4.71)	-0.0921*** (-3.59)	-0.0968*** (-3.64)
Average for 1935	56	0.1010*** (7.65)	0.0600*** (4.24)	-0.1318*** (-5.08)	-0.1340*** (-4.92)

*** = statistically significant at the 1% level.

Table 4: Cross-sectional analysis of change in volatility between 1932 and 1936.

	Dependent variable: change in standardized volatility
Variable	Coefficient (p-value)
Constant	-1.4917 (0.46)
Capitalization, 1932	3.0379 (0.27)
Size, 1932	0.1371 (0.20)
Volatility, 1932	-0.5586 (0.14)
Performance, 1932	-1.0290* (0.06)
Trust, dummy	0.5618 (0.23)
New York, dummy	-0.2354 (0.57)
Investment bank, dummy	0.2348 (0.56)
N	51
Adjusted R^2	0.2216

***(**, *) = statistically significant at the 1% (5%, 10%) level.

Table 5

Matrix of change in deposits between 1932 and 1936 and capitalization in 1932.

		Change in deposits between 1932 and 1936		
		Below median	Above median	Total
Volatility, 1932	Below median	26.2%	23.8%	50.00%
	Above median	23.8	26.2	50.00
Total		50.00%	50.00%	100.00%

H_0 : 25% of observations in each cell $\chi^2 = 0.10$, df = 1, p = 0.7576.

Table 6: Abnormal returns upon passage of legislation and through 1935.

Panel A: Abnormal returns

	Number	AR, Upon passage of legislation	Cumulative AR, June 16, 1933 to December 31, 1935
All firms	70	0.0015	-0.2339***
		(0.10)	(-2.97)
Insurance companies	19	0.0101	-0.0199
		(0.23)	(-0.13)
Banks	29	0.0170	0.0481
		(0.89)	(0.43)
Trusts	22	-0.0263	-0.7286***
		(-1.41)	(-5.94)

Panel B: Differences between groups

Insurance companies	-0.0068	-0.0679
vs. banks	(-0.15)	(-0.37)
Insurance companies	0.0364	0.7088***
vs. trusts	(0.78)	(3.67)

Appendix I: List of Banks and trusts in our sample.

New York Banks
Bank of Manhattan Co.
Bank of Yorktown
Bensonhurst Natl
Chase
Citizens Bank of Brooklyn
City (National)
Commercial Nat Bank & Trust
Fifth Avenue
First National of NY
Flatbush National
Fort Greene
Grace National Bank
Harbor State Bank
Harriman Nat Bk & Trust
Kingsboro National Bank
Lafayette National
Liberty Nat Bank and Trust
Manhattan Company
Merchants
Nat Bronx Bank
Nat Safety Bank & Trust
National Exchange
Peoples National (NY)
Public Nat Bank & Trust
Richmond National
Sterling Nat Bank & Trust
Textile Bank
Trade Bank
Washington National Bank
Yorkville (Nat Bank of)

Chicago Banks
Continental Ill Bank & Trust
First National
Harris Trust & Savings
Northwest Bancorp
Northern Trust co. (IL)
Peoples Trust & Savings Bank
Strauss(American)Nat Bank & Trust

California Banks
Anglo California National Bank
Anglo California Trust
Bank of California
California Bank
Citizens National Bank(LA)
Farmers & Merchants National Bank (LA)
Fidelity & Deposit
Security First National Bank of LA
Union Bank and Trust (LA)
Wells Fargo Bank
Western National Bank (MD)

Trusts
Banca Commerciale Italiana Trust
Bank of New York & Trust
Bank of Sicily Trust
Bankers
Bronx County
Brooklyn
Central Hanover
Chemical Bank & Trust
Clinton Trust
Colonial Trust
Cont Bank & Trust New
Corn Exchange Bank & Trust
Empire
Fulton Trust
Guaranty Trust
Hibernia Trust
Irving Trust
Kings County Trust
Manufacturers Trust
Mercantile Bank & Trust
New York
Trust Co of NA
Underwriters Trust
United States