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# FRBSF WEEKLY LETTER

July 25, 1986

## Bank Runs

Concern over runs on banks and thrifts has led these institutions to be singled out as "special" in the U.S. economy. In last week's *Letter*, we argued that banks' (i.e., all depository institutions) role as providers of payment services might justify such concern.

Historically, significant changes in public policy toward banks have come from widespread bank runs. As a result of the banking panic of 1907, for example, the Federal Reserve was established to act as the lender-of-last-resort to the banking industry to help prevent runs. Some years later, the banking panics of the 1930s led to the creation of federal deposit insurance to reduce depositors' fears about the safety of their funds. In 1985, "bank holidays" for thrifts covered by state-sponsored insurers in Ohio and Maryland again raised calls for changes, including the establishment of mandatory federal deposit insurance for all depository institutions.

In this *Letter*, we examine what makes banks vulnerable to runs, discuss current safeguards, and suggest some alternative approaches to solving the problem of bank runs.

### Liquidity

Some analysts argue that bank runs arise from the illiquidity of bank assets compared to liabilities. In particular, banks fund longer-term assets, many of which cannot be readily sold in the market, with deposits that are available on demand or with relatively short notice. When a large unexpected volume of withdrawals occurs, a bank that cannot meet the demand with existing reserves and highly marketable assets must try to sell less marketable assets (or borrow against them). The result can be sizable losses that lead to bank failures and a disruption of the banking system and the economy in general.

Concern over the liquidity of bank liabilities and the illiquidity of their assets served as the foundation for legislation that gave the Federal Reserve lender-of-last-resort authority when it was established in 1913. Specifically, the legislation intended the Federal Reserve to supply

liquid reserves ("elastic" currency) to banks to meet the public's demand to convert deposits to currency. To do this, the Federal Reserve would accept certain bank assets as collateral against "discount window" loans.

The intended function of the lender-of-last-resort was to reduce the cost to the banking system of meeting unexpected deposit withdrawals. While this may be possible, a lender-of-last-resort does not necessarily eliminate the potential for bank runs because bank runs involve more than bank liquidity.

### Risk

The existence of risk is also necessary for bank runs to occur. When a bank incurs losses that exceed stockholder equity, it becomes unable to repay its obligations to depositors. As depositors perceive the potential for such losses, they will attempt to withdraw their funds (which are redeemable at par or face value) before other depositors in order to avoid any personal loss.

Losses sustained by banks result primarily from their exposure to interest rate and credit risk, fraud, and insider abuse. The Federal Reserve was not intended to provide a general indemnification to bank stockholders or depositors from losses connected with these types of bank risk. Indeed, when it makes loans, the Federal Reserve must require full collateral. This means that when banks borrow at the discount window of the Federal Reserve, their assets are discounted to reflect changes due to movements in market interest rates and variations in asset quality. Thus, with the lender-of-last-resort providing only liquidity, depositors could remain at substantial risk of loss and have good reason to run on troubled banks.

### Ill-defined property rights

A depositor's incentive to withdraw funds when the solvency of a bank is in question comes from being able to escape liability for losses should the bank fail. Simply put, those depositors able to withdraw funds before a bank is closed can avoid losses entirely, while those that do not

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withdraw in time bear a greater than proportional share of the losses. This uncertainty over individual liability represents a problem of poorly defined property rights. In effect, depositors who withdraw "early" take property away from other depositors.

Economists have long argued that whenever property rights are not well-defined, private markets fail to operate efficiently. It follows then that public policy measures that remove the ambiguities regarding property rights can enhance efficiency. In the case of bank runs, this means removing the uncertainty about who will be liable for the losses of an insolvent bank.

## Deposit insurance

Uncertainty over depositor liability was virtually eliminated with the institution of federal deposit insurance in the 1930s despite limits on coverage. The temporary deposit insurance plan enacted in 1933 provided for insurance coverage of up to \$2,500, and deposit coverage also was limited in the 1935 legislation that authorized a permanent federal deposit insurance system.

Even with limited coverage, deposit insurance was effective because, as Friedman and Schwartz have argued in their *Monetary History of the U.S.*, deposit insurance was intended to be much broader than what was implied by the statutes. This view is consistent with how deposit insurance actually has been administered. Throughout most of its 50-plus year history, federal deposit insurance gave virtually all depositors *de facto* coverage. With little or no uncertainty regarding liability, depositors have had little reason to run.

The stability of the banking system since the 1930s attests to the ability of deposit insurance to prevent runs. In recent years, federal deposit insurance is widely credited with keeping confidence in the banking system, even though close to 500 banks and savings and loans have failed since 1980. Events in Ohio and Maryland in 1985 highlighted the effectiveness of federal deposit insurance. Federally insured institutions were completely insulated from the turmoil created by the failure of thrifts covered by insurance systems chartered by those two states.

## No panacea

Even though the federal deposit insurance system has been successful in preventing runs, the Federal Deposit Insurance Corporation (FDIC) briefly pursued a policy of *not* covering losses for depositors with balances that exceeded the statutory maximum (currently \$100,000). This policy was reflected in the experimental "modified payout plan" designed to put large depositors at risk. The plan was initiated in early 1984 and effectively terminated in May of that year in the wake of the Continental Illinois Bank crisis.

In attempting to increase the risk of loss to some depositors, the FDIC was exploring one way to cope with the complication that deposit insurance's success has created problems of its own. In particular, insurance has removed the incentive for depositors to monitor the "prudence" of banking institutions, and thereby eroded the market discipline that would otherwise constrain the risk-taking behavior of banks.

Moreover, under the federal deposit insurance system as it has been administered, banks pay the same insurance premium rates regardless of the riskiness of their portfolios. This gives banks an incentive to take on more risk than they would in the absence of insurance. The cost of this excess risk-taking is borne most immediately by the deposit insurance funds, and ultimately by the general taxpaying public. Thus, deposit insurance, in solving the bank run problem by eliminating depositor liability, creates a distortion by shifting the liability to the insurance fund and the public.

While the potential distortions to risk-taking are widely recognized, increasing risk to large depositors and the other so-called "market discipline" approaches (including co-insurance) do not appear to be acceptable policy options. Regulators are concerned that shifting risk to depositors when banks still finance a sizable portion of their assets with liquid deposits will only reintroduce the problem of bank runs.

## Another perspective

The problem of bank runs and the incentive for excessive risk-taking both result from poorly defined property rights. Thus, both problems could be solved simultaneously by clearly defi-

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ning property rights in the event of a bank insolvency. One way to define property rights would be to keep depositors from escaping their share of bank losses by being the first to withdraw. To do this, the liability connected with liquid deposits would have to be extended for some period beyond the time of withdrawal. That is, both present and certain past depositors of an individual bank would be kept at risk in the event the bank failed. With the threat of an *ex post* levy, a depositor would view his losses as independent of his decision to withdraw funds and thus would have no reason to run.

As a practical matter, a working definition of when a depositor's liability ended — that is, what constitutes a past depositor — would have to be devised. Also, a government agency might be required to enforce the *ex post* levies on depositors. However, federal deposit insurance, with its undesirable side effects on risk-taking, would not be necessary. With well-defined property rights, depositors would demand higher interest rates from riskier banks and thus impose a check on bank risk-taking.

Enforcing depositor liability for losses might be difficult because of operational or, what is more likely, political complications. If so, a second solution to the property rights problem would be to shift the liability for losses to equity holders of banks. In other words, bank owners would have to bear all the losses. If this could be accomplished, depositors would be protected just as they are with full deposit insurance. Yet, since bank equity holders would bear all potential losses, they would have no incentive to take excessive risks.

Under the current regulatory and legal framework, bank stockholders bear all losses only if regulators close a troubled institution before its net worth, measured on a market value basis, falls below zero. Historically, regulatory agencies have tended to give problem institutions an opportunity to regain their financial health and have defined bank solvency in terms of book value. Together, these practices more or less

ensure that, when an institution is finally closed, it will have negative net worth. Thus, neither depositors nor equity holders now fully bear the losses of failed banks.

For market discipline via equity holders to be effective, several changes would be needed. One is to give the regulatory agencies the power and incentives to close depository institutions more swiftly. Even so, it is likely that some failed banks would have negative net worth. It may also be desirable, therefore, to hold bank equity holders liable for losses exceeding their original investment. In fact, something similar to this approach was actually in effect prior to the 1930s, when stockholders of nationally chartered banks could be held liable for losses up to twice the amount of paid-in capital. Alternatively, if equity holders were held liable for all losses, they would have the incentive to close their institution before losses mounted.

#### **Conclusion**

Depositor runs are generally regarded as problems of bank liquidity. However, by itself, providing liquidity to banks does not eliminate the problem of runs. Banks incur losses from exposure to various types of risk, and the liquid nature of much of their funds gives a depositor the means to escape the liability for losses usually borne by a debtholder.

Federal deposit insurance has been successful in preventing runs by virtually eliminating depositor risk. But it has also created incentives for excessive risk-taking by banks. It has done so by shifting the liability for bank losses to the insurance fund and, ultimately, the taxpaying public, and away from those with close ties to the bank — its depositors and stockholders. The problem of runs could be solved without the drawbacks of the current insurance system by enforcing liabilities for losses more stringently so that depositors cannot avoid them merely by withdrawing funds, or by taking steps to make sure equity holders are held liable for all bank losses.

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Opinions expressed in this newsletter do not necessarily reflect the views of the management of the Federal Reserve Bank of San Francisco, or of the Board of Governors of the Federal Reserve System.

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**BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT**

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount	Change	Change from 7/3/85	
	Outstanding 7/2/86	from 6/25/86	Dollar	Percent <sup>7</sup>
Loans, Leases and Investments <sup>1 2</sup>	200,473	220	7,075	3.6
Loans and Leases <sup>1 6</sup>	182,637	330	8,087	4.6
Commercial and Industrial	51,510	— 217	— 165	— 0.3
Real estate	66,222	— 347	2,701	4.2
Loans to Individuals	39,364	— 11	4,650	13.3
Leases	5,570	— 11	182	3.3
U.S. Treasury and Agency Securities <sup>2</sup>	10,505	122	— 1,497	— 12.4
Other Securities <sup>2</sup>	7,330	— 232	483	7.0
Total Deposits	209,892	9,537	8,013	3.9
Demand Deposits	56,142	7,359	5,624	11.1
Demand Deposits Adjusted <sup>3</sup>	37,163	3,370	6,236	20.1
Other Transaction Balances <sup>4</sup>	16,784	914	2,581	18.1
Total Non-Transaction Balances <sup>6</sup>	136,966	1,264	— 191	— 0.1
Money Market Deposit Accounts—Total	47,096	539	2,441	5.4
Time Deposits in Amounts of \$100,000 or more	35,581	— 87	— 2,425	— 6.3
Other Liabilities for Borrowed Money <sup>5</sup>	22,753	795	— 119	— 0.5
<b>Two Week Averages of Daily Figures</b>	Period ended 6/30/86	Period ended 6/16/86		
<b>Reserve Position, All Reporting Banks</b>				
Excess Reserves (+)/Deficiency (—)	123	59		
Borrowings	80	15		
Net free reserves (+)/Net borrowed(—)	43	44		

<sup>1</sup> Includes loss reserves, unearned income, excludes interbank loans

<sup>2</sup> Excludes trading account securities

<sup>3</sup> Excludes U.S. government and depository institution deposits and cash items

<sup>4</sup> ATS, NOW, Super NOW and savings accounts with telephone transfers

<sup>5</sup> Includes borrowing via FRB, TT&L notes, Fed Funds, RPs and other sources

<sup>6</sup> Includes items not shown separately

<sup>7</sup> Annualized percent change