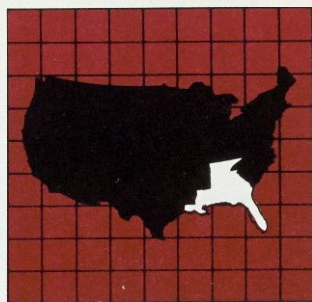


# Economic Review



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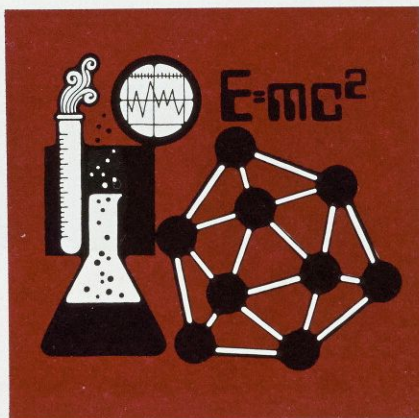
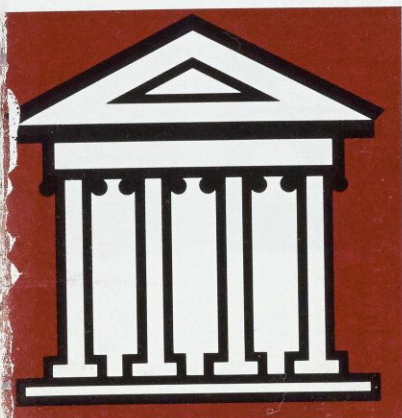
Special  
Section

## DEPOSIT INSURANCE

Deposit Protection,  
Deregulation  
and Market Discipline

## THE DOLLAR Is it "Overvalued"?

## BIOTECH Implications for Southeast





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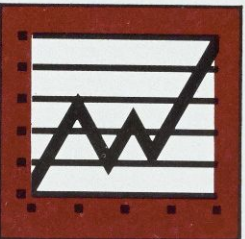
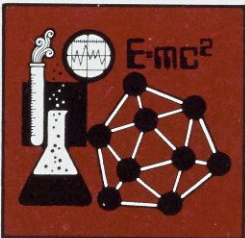
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## Three Articles on Deposit Insurance: Problems and Solutions

Monetary policy cannot function well in an unstable financial system. The transmission mechanism for monetary policy—a system of financial institutions—works less effectively in passing along to the economy the influence of changes in reserves and reserve requirements. When the system is unstable, institutions and people behave so differently, that the monetary authority has far less confidence in the eventual effects of its actions. Public confidence may be reduced to such an extent that monetary policy actions have less impact. Most western nations have witnessed such disruptions.

At least in part because its policies are inhibited by financial instability, the Federal Reserve is charged with maintaining a safe and stable financial system. The Fed, however, does not have full responsibility for this national goal. It shares the duty with the federal corporations that provide insurance for deposits at commercial and savings banks, savings and loan associations and credit unions. That insurance complements the Federal Reserve's control of the reserves on which money is based, helping to preserve the public's confidence that deposit money backed by those reserves is safe and will be available when needed.

In recent years, rapid changes in our financial system, in conjunction with a wrenching business cycle, have caused observers to question the purposes of this system of deposit insurance and its capacity to achieve financial stability in an era of deregulated financial institutions. Some have suggested that alternative insurance systems might better achieve the purposes of deposit insurance. The questions culminated in instructions by Congress in the Garn-St Germain Act for the deposit insurance agencies to assess the present system and to propose ways to improve it. Their reports were issued about a year ago. (They are summarized in Larry D. Wall, "The Future of Deposit Insurance: The Insuring Agencies' Proposals," in last month's issue of this **Review**, pp. 43-57.)

Since these reports were submitted, many forums have discussed problems of the insurance system. The thread that seems to tie these discussions together involves the exercise of discipline on risk-taking by institutions that are subsidized by deposit insurance and that have rarely been allowed to fail. In a competitive environment these institutions cannot be expected to exercise such discipline to the full benefit of the public.

The following three articles deal with several facets of discipline in the current deposit insurance system. The first is a discussion of the efficacy of public disclosure as a method of enlisting uninsured depositors as regulators of risk taking—punishing risk-taking without compensating reward in the market for stocks and liabilities.

The second article takes up so-called brokered deposits. These deposits are an innovation in the market for bank and thrift certificates of deposits—an innovation that uses one of the insurance system's basic features to avoid market discipline. Some deposit brokers now offer investors a service that divides large deposits into lots of \$100,000 or less and disperses them among institutions so that the depositor has no more than the insured maximum at any institution. The deposit insurers, the Congress and other regulators are quite concerned about this practice and propose to regulate it. The general practice of deposit brokerage has many potential benefits, however. Regulating it directly may be costly in terms of benefits lost. It may also be very difficult.

While the first two articles point up specific issues in the deposit insurance system, the third presents a general critique of reform suggestions made by the FDIC, the FHLBB and the NCUA in their reports to Congress last spring. It deals with issues of market and regulator discipline and with the relevance of reform proposals to goals of the insurance system. The article also presents some proposals of its own for strengthening market discipline.

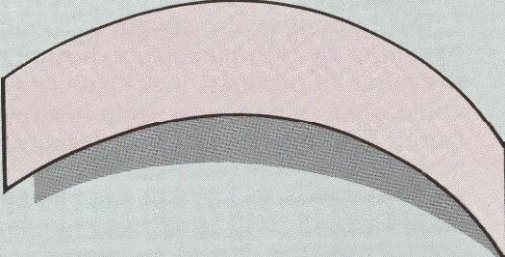
As a group, the articles underline the reasons for concern about our deposit insurance system. They analyze major problems that any reform must face, and they point toward viable alternatives to the present system.

—B. Frank King



Devising ways to control banks' risk-taking is an essential function of deposit insurers and other bank regulators.<sup>1</sup> Deposit insurance allows those who hold a majority of banks' liabilities to ignore the institutions' financial condition. The practice of merging failing banks into sound ones allows many other liability holders to act as if they were insured depositors. Many elements of market discipline that restrain other businesses are unavailable to encourage banks to limit their risk-taking. Yet, if the public-policy goals of a safe and stable financial system are to be achieved, risk-taking must be controlled.

In light of recent competitive developments that give banks more incentives to take risks, their federal insurer—the Federal Deposit Insurance Corporation (FDIC)—has recommended additional disclosure of the financial condition of individual banks to enlist the public's help in monitoring and controlling banks' risk-taking.<sup>2</sup> As



## Financial Disclosure and Bank Failure

the deposit insurance system is currently organized, however, greater disclosure is unlikely to produce greater market discipline. If shareholders expect greater returns from greater risk, they may not be induced by more information to exercise greater discipline. Banks' liability-holders are generally uninterested in banks' financial condition because they have little risk of loss. Under these conditions, expanding disclosure may increase costs to the disclosing banks more than it will benefit the public. Changes in the present system, however, hold the potential to make increased disclosure an effective policy.

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<sup>1</sup>Hereafter the term "banks" is used to refer to depository financial institutions generally.

<sup>2</sup>Federal Deposit Insurance Corporation, 1983.

Greater disclosure of banks' financial conditions—as proposed by the FDIC—is unlikely to produce greater market discipline. Changes in the present deposit insurance system, however, might make increased disclosure effective.



## Recent Concern About Bank Failures

The failure of a bank or other financial institution is but a point on a continuum of risk. At one end is the high probability that the owners will achieve a greater than expected increase in wealth; at the other is the failure of the enterprise and loss of the owners' investment. What is usually termed a bank failure is towards this other end of the continuum. In most failures, supervisory authorities generally step in and reorganize the troubled bank. This reorganization usually entails loss to the owners, the supervisory authorities and the employees, and can impose costs on uninsured depositors and other customers. Consequently, while failure is but a point on the continuum between great success and total loss, it is an important point indeed.

The phenomenon of bank failure is as old as banking itself. Therefore, we should consider first why there appears to be more supervisory interest in bank failures now than in the recent past and whether this concern seems to be justified. If one looks only at the number of banks that have failed in recent years, there seems to be reason for concern. The number of failures or FDIC-assisted mergers reflects a substantial increase. Compared with the three commercial bank failures per year from 1943 through 1974 and the 12.9 per year from 1975 into the early 1980s, the 34 in 1982 and 48 in 1983 appear worrisome. That seems particularly true considering the large number of thrift associations that have merged with the support of the Federal Savings and Loan Insurance Corporation (FSLIC) since 1980.<sup>3</sup> But when we recall that over 600 banks failed each year during the 1920s, the recent number seems small. Furthermore, the considerably larger number of failures during the 1920s brought no significant reforms or even vociferous demands for changes in banking supervision. It is possible, therefore, that the current increase over the post-World War II failure rate actually is desirable, since failure is a necessary attribute of dynamic, innovative markets.

However, the enactment of deposit insurance in 1933 changed the environment of the 1920s profoundly. Previously, depositors knew that their funds were at risk. Consequently, they had reason to monitor their banks. What's more, banks were not restrained legally in the interest

they could pay depositors. Hence, depositors had both negative and positive reasons to assess the risks undertaken by bankers, and bankers had reason to be concerned about the depositors' perceptions.

Initially, federal deposit insurance did not absolve all depositors of concern about the risks that banks might take, since the amount guaranteed per account was limited at first to only \$2,500. But severe restrictions on new bank charters and increased supervision reduced the risk of failure considerably. Restrictions on entry also served to increase the cost of failure to bank owners, since the value of their charters generally was greater than it would have been with free entry, and almost certainly would be lost if failure occurred.

The authorities also sought to reduce the risk of failures by maintaining and further restricting the range of products that financial institutions could offer. In particular, thrift institutions were barred from offering checking accounts, business loans unrelated to real estate, and (for the most part) consumer loans. Commercial banks were not permitted to engage in most securities underwriting and trades. These constraints kept bankers from straying beyond activities that they and their examiners knew well.<sup>4</sup> While these policies and practices appear to have been sufficient to prevent most failures, the environment since the late 1970s has altered this situation.

Two phenomena helped change the environment by increasing competition in markets that banks dominated. The principal one is inflation-driven high nominal interest rates. These high rates increased the opportunity value obtainable by other institutions from avoiding regulatory constraints on interest rates, thereby encouraging them to begin offering banking services. Brokerage houses, for instance, introduced money market mutual funds and interest-bearing money management accounts. The other change is more effective and less costly technology for transferring financial assets. As a consequence, third-party transfer services (in effect, demand deposits) were offered successfully by nonbanks, and government-insured deposits could be sold nationwide by brokers. The 1980 increase in insurance on accounts with balances up to \$100,000 and the removal early in the 1980s of interest rate ceilings on most time

<sup>3</sup>McGuirk, 1983, indicates that the FSLIC has participated in 150 assisted mergers since 1980.

<sup>4</sup>Other reasons for and effects from imposing or continuing the restraints probably were more important (see Benston, 1982a).



deposit accounts permit people to make large investments at market interest rates without concern about the risks taken by the depository institution. The insuring agencies' long-time practice of liquidating only small institutions largely removes uninsured depositors' concern for most institutions' safety.

The entry of nonbanks into activities previously reserved to chartered and (mostly) insured banks also increased the risk of bank failure by reducing bank owners' incentives to avoid failure. This is not to say that the owners and managers of banks are indifferent to failure. But increased and then almost unrestricted entry into their markets have reduced the value of their charters. This is particularly true for banks that operate in unsheltered markets, such as the large, money center banks that face competition from a wide range of institutions, both domestic and foreign.

## The Role of Disclosure

Disclosure of the financial condition and operations of individual banks has been put forth as a means of averting excessive risk-taking. Advocates contend that expanded disclosure can prevent or reduce risk-taking by bankers and enhance the ability of depositors and investors to assess the risks taken.

Disclosure to supervisory authorities has long been a means by which banks are regulated. In particular, banks report to the regulators their balance sheets, income statements and detailed schedules of transactions with related parties. In addition, field examinations provide the authorities with additional information. Bovenzi, et al. (1983) and Korobow and Stuhr (1983) show that this information, together with or replaced by publicly available data, can be used effectively for predicting bank failures and possible financial distress.

The general public also has relied on the release of financial information, since banks have long been required to publish their balance sheets. Many banks also have provided depositors and the general public with more detailed balance sheets and income statements voluntarily. Since 1978, banks have had to publish the income statements they file with the banking authorities. However, banks as such are not subject to the Securities Exchange Act of 1934. Therefore, only bank holding companies are required to report

publicly as do other corporations.<sup>5</sup> As Coulson (1983) delineates, bank holding companies are required to publish detailed information about the past-due status and concentration of their loans, dealings with insiders and sources of revenue.

The question now raised by the FDIC and others is whether increased public disclosure of banks' financial operations and even of the evaluations made by examiners and supervisors would be helpful in controlling risks that banks might take. This question can be analyzed first by delineating the parties that might be interested in evaluating bank risk and then examining the nature of their concerns. As the analysis shows, their concerns are importantly different.

## Four Groups Concerned About Disclosure

Four interested groups are: (1) the deposit insurers—the FDIC, Federal Savings and Loan Insurance Corporation and National Credit Union Share Insurance Fund (NCUSIF), and the other supervisory agencies closely related to them—the Comptroller of the Currency, the Federal Reserve, the Federal Home Loan Bank Board, the National Credit Union Administration, and the state banking departments; (2) uninsured depositors—those with accounts over \$100,000; (3) ordinary creditors—for example, bondholders and banks with loan participations; and (4) stockholders—residual claimants to the net assets of banks.

**Stockholders:** They lose if their bank's managers or others perpetrate fraud upon them. This is the risk with which they are primarily concerned. Stockholders of all corporations face this risk, except that it generally is easier to remove resources from banks fraudulently, money being the most "fenceable" of assets. Hence, disclosure of loans to related parties is of interest to bank stockholders.

However, shareholders are not otherwise opposed to their bank taking risks, as long as the risks are offset by expected gains. Stockholders can eliminate the risk from owning any particular investment by holding a diversified portfolio of assets, though this may be costly for stockholders who have a large proportion of their

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<sup>5</sup> See Coulson, 1983, for a description of the SEC's reporting requirements.



assets invested in controlling interest in a smaller bank. However, when a government agency such as the FDIC or FSLIC accepts the risk of failure for a premium that is less than sufficient to cover that risk—that is, when the premium is not directly related to the risks undertaken—stockholders benefit from their banks taking greater than normal risks. It is a situation best described as “heads the stockholders win, tails the FDIC or FSLIC loses.” Thus, the stockholders of banks will logically prefer risk, knowing it offers the promise of greater returns.

Disclosure of risk, then, is useful to stockholders as a means of identifying banks likely to have a greater variance of returns and to compensate shareholders for accepting that greater variance. In this regard, the stockholders benefit when they and other investors can secure information about risk conveniently and inexpensively. Thus, it is desirable to have some uniformity in the type and format of information disclosed. But stockholders also must be concerned with the cost of disclosure to the bank. This cost includes informing competitors, customers and regulators of the bank's strategies and condition when this disclosure might work against the institution. Auditing data and presenting and explaining it to users and the curious also can be costly. A management that operates a bank in the interest of its shareholders must weigh the benefits and costs of disclosure as it weighs benefits and costs of other decisions. Therefore, the authorities would seem to express their concern for the well-being of stockholders best by mandating only financial disclosure that reduces the probability and extent of fraud or of misinforming shareholders and the cost to investors of using information.<sup>6</sup>

**Ordinary Creditors:** Unlike the stockholders, who prefer non-fraud risk when compensated, creditors could be useful to the regulatory authorities as monitors of bank risk-taking. The creditors' returns are effectively limited at the top since, in the absence of capital gains resulting from unexpected changes in interest rates, they can expect to receive no more than the amount agreed to contractually. But they can lose their entire investment. Hence, they have reason to

be concerned about the variance in the returns earned by banks, and will price their contracts with the banks accordingly.

Banks similarly have reason to assure their ordinary creditors that the risks undertaken will be no greater than the creditors expect. If the banks are unable to convince them, the creditors are likely to insist on interest rates that compensate them for the risks to which they might be subject. This situation is no different from that faced in any debtor-creditor arrangement. Consequently, if a bank's management discloses honestly, it is likely to disclose voluntarily the optimal amount of financial information.<sup>7</sup> Management, it must be admitted, has incentive not to disclose honestly when disclosure would raise its costs of liabilities or might cause the withdrawal of uninsured deposits.

Since any additional disclosure required is likely to be more costly than beneficial (on the margin) to the creditors and to the stockholders, it would seem preferable for the regulatory authorities to forebear from imposing more rules. The authorities could benefit, though, from observing the types of data that unsecured creditors and analysts request from banks. Most importantly, the regulatory authorities could obtain information from observing the risks assessed by creditors. This information is available from the market rates at which banks' nondeposit liabilities trade. The authorities also might get continuous reports on the interest rates and fees paid by a bank to other creditors.

**Uninsured Depositors:** At present, in almost all banks, deposit accounts with balances of more than \$100,000 are not insured. Hence, it would seem that depositors holding these accounts are a class of uninsured creditors. However, until the 1982 failure of the Penn Square Bank in Oklahoma, the government insurance agencies had in fact insured the deposit balances of almost all depositors. They did this by having the deposits of a failed bank assumed by another bank, either directly or through a merger (the practice followed for all large bank failures before and since Penn Square) or by paying off the insured depositors after many depositors with uninsured balances

<sup>6</sup>See Benston 1982b, for a further explication. In any event, the usefulness of these data to security analysts is questionable. By the time the financial statements are made public, astute analysts will have ferreted out the information from other sources.

<sup>7</sup>Economies of scale from imposed disclosure requirements are exceptions to this conclusion. However, I am not aware of any conditions that are not already obviated by the effects of deposit insurance and Federal Reserve

discount window and open market operations. Evidence of the existence of economies of scale might be obtained from the public's demand for such information as is published in the Federal Reserve's Uniform Bank Performance and Bank Holding Company Performance Reports, assuming that the price charged for the reports is not less than their cost of production and distribution.



had been able to withdraw their funds. Consequently, most depositors have reason to believe that all their funds are, **in fact**, guaranteed. Indeed, surveys reveal that depositors are little concerned with the risks taken by banks in which their funds are deposited.<sup>8</sup> Some evidence suggests that investors demand somewhat higher interest rates on large, negotiable certificates of deposit (CDs) issued by banks perceived to be riskier after a notable failure—for example, regional banks after Franklin National's failure and at least one large bank after the Penn Square failure.<sup>9</sup> Since the Penn Square liquidation, however, several deposit brokers have developed systems that allow them to distribute large time deposits in lots small enough to be insured entirely.<sup>10</sup> Recently proposed FDIC and FSLIC rules may eliminate these systems by limiting insurance to the first \$100,000 of a deposit spread by a broker among many banks. However, opposition to these rules is strong, and brokers and depositors are both inventive and sensitive to probable losses. Whether the proposed rules will eliminate the use of broker networks to spread and effectively insure large deposits is open to question.<sup>11</sup>

The FDIC has proposed to encourage uninsured depositors to monitor bank risk more aggressively by paying them off in merger transactions at only the estimated value of recoveries from a troubled bank. Since the FDIC's cost of recovery would be taken off the top, uninsured depositors would in all probability get less than their deposit balances. An evaluation of that proposal is detailed by Larry Wall in this **Review**. Briefly, the FDIC's proposal is unlikely to be beneficial because of the different reactions of demand and time depositors.

Demand depositors with balances that they believe might be lost as a consequence of a bank failure are likely to withdraw their funds as soon

as they suspect a failure.<sup>12</sup> These depositors have little incentive to engage in more than rumor monitoring—a condition reinforced by the lag between the end of a disclosure period and the actual disclosure of financial information. The financial system would face the prospect of bank runs, which deposit insurance was designed to prevent.

Time depositors would be at risk for balances over \$100,000. But, if the FDIC's proposal to limit the insurance on brokered deposits were withdrawn or avoided, bankers and brokers could get around the proposed limitation by packaging and selling portfolios, of whatever dollar amount desired, consisting of the fully insured CDs of many banks. The removal of effective deposit insurance on some portion of CD balances above \$100,000 is likely to convince them to go to this trouble.<sup>13</sup> Consequently, financial disclosure would play a small role with uninsured as well as insured depositors.

**Deposit Insurers:** Unlike others who use bank financial data, deposit insurers and the supervisory agencies on which they rely can gather information by examining records in the banks. These data are reported by field examiners and are used directly by their supervisors. In recent years, researchers and supervisors have experimented with early warning surveillance systems that use data reported by banks and examiners.<sup>14</sup> An analysis of the effectiveness of this information in predicting bank failures should provide evidence on the usefulness of financial data, in general, for this purpose.

Some indication of the ability of bank examiners to predict trouble may be obtained from the ratings they gave banks that failed in the examination just prior to their collapse. As part of a study conducted for the Hunt Commission,<sup>15</sup> I reviewed the records of all commercial banks

<sup>8</sup>Gilbert, 1983 p. 71, summarizes these surveys as follows: "Corporate treasurers choose their banking relationships primarily on the basis of services offered, availability of financing and convenience. Financial analysis of their banks is generally cursory in nature. Risk of loss is not an important consideration because of the size of the institutions they do business with and the perception that the government would bail out these institutions if they get into trouble."

<sup>9</sup>See Gilbert, 1983, pp. 71-73.

<sup>10</sup>See testimony of the federal regulatory agencies (J. Charles Partee, member of the Federal Reserve Board; C. T. Conover, Comptroller of the Currency, William M. Isaac, chairman of the Federal Deposit Insurance Corporation; Edwin J. Gray, chairman of the Federal Home Loan Bank Board and Edgar F. Callahan, Chairman of the National Credit Union Administration) before the Subcommittee on Financial Institutions, Supervision, Regulation and Insurance of the Committee on Banking, Finance and Urban Affairs, U. S. House of Representatives, October 27, 1983.

<sup>11</sup>For a detailed presentation and analysis of the spreading of deposits in insured lots by brokers and FDIC's reaction to this, see Caroline Harless

"Brokered Deposits: Issues and Alternatives," this **Review**, March 1984, pp. 14-25.

<sup>12</sup>Technically, funds would be withdrawn when the marginal cost of a withdrawal (which is small for demand deposits) is exceeded by the expected amount of loss times the probability of loss, all in present value terms.

<sup>13</sup>The combination of deposit insurance, improvements in technology, expanded marketing of CD's by brokers, and de facto as well as de jure deregulation of financial services have, I believe, substantially increased the risk of bank failure. In particular, Isaac reports that "many of the 72 commercial banks that failed between February 1982 and mid-October 1983 had substantial brokered deposits. Overall, brokered deposits constituted 16 percent of the total deposits held by the 72 banks that failed." The nature of these developments and some suggestions for a solution are presented in Benston, 1984.

<sup>14</sup>Bovenzi, Marino and McFadden, 1983, present a good review of much of this literature, as well as a report of their own research.

<sup>15</sup>The Presidential Commission on Financial Structure and Regulation.



that failed from January 1959 through April 1971. (Benston, 1973, Table XIII, p. 43.) Of these 56 banks, fully 59 percent had been rated "no problem." More recent evidence is presented in Bovenzi, Marino and McFadden (1983, Table 6). They related the numerical CAMEL (Capital, Assets, Management, Earnings, Liquidity) ratings given by the bank examiners to the 11, 17 and 45 banks that failed in fiscal 1981, 1982 and 1983. Banks considered to be no problem are assigned ratings of 1 or 2; banks rated 3 are "watched" by the Federal Reserve, "considered for formal administrative action" by the Comptroller, and presumably looked at closely by the FDIC; problem banks get ratings of 4 and 5.<sup>16</sup> The researchers report that CAMEL ratings of 1 and 2 (definitely no-problem) were given to 34 percent of the 73 banks that failed in the year prior to failure. Ratings of 1, 2 or 3 (probably no-problem) were given to 63 percent of these banks.<sup>17</sup> Two years before failure, 57 percent of the 60 failed banks on which researchers have data were rated by the examiners as definitely no-problem and 78 percent as definitely or probably no-problem. Thus, the examiners' record in identifying banks that will fail is far from perfect.

It also is interesting to note that the failure prediction models employed by Bovenzi, Marino and McFadden (1983) predict about as well when only publicly available information is used. They correctly predicted 64 percent of the 73 failures between July 1, 1980 and July 1, 1983 using call data available in the year before the failures. That compares with 67 percent when examination data were added to the model, 66 percent when CAMEL ratings 3, 4 and 5 were used, and only 37 percent for ratings 4 and 5. For data available two years before the failures, the model using only call data correctly predicted 50 percent of the failures. That compares with 58 percent from the model with the examination data included, 43 percent for the CAMEL ratings 3, 4 and 5 and only 22 percent for ratings 4 and 5. Thus, the more detailed and subjective examination data do not seem to add much in predicting failures.

An important reason for the imperfect forecasting ability of the early warning models that use publicly available financial data is that the principal cause of failure is fraud or misdealing. Of the 59 banks that failed from January 1959

through April 1971, fully 34 were rated "no problem" approximately one year before failure. As I reported, "a case-by-case analysis of the non-problem rated banks that failed reveals that, in 28 or 29 of the 34 cases, failure was due to embezzlement or change of management control between examinations" (Benston, 1973, p. 43). Fraud and self-dealing also played an important role in the failure of banks in previous periods.<sup>18</sup> Many of the largest bank failures in recent history also appear to have been the result of such practices. In such situations, publicly reported figures are likely to be deliberately misleading. While it seems reasonable to expect field examinations to reveal misreported data, they appear to have been relatively ineffective in this regard. One reason may be that the examiners do not audit the banks sufficiently for fraud and misreported data. Another reason is that the examiners' present performance may be as good as it should be considering the costs compared to the benefits of auditing.

Thus, without improved examination practices, the public disclosure of examination data would seem to be of little value to private analysts and investors. Indeed, considering that the examiners have the legal right to examine most of a bank's records and assuming that the examiners' efforts are cost-effective, their predictive performance suggests that more extensive public disclosure would not be worthwhile for identifying problem banks.

Were it not for the reasonable fear that bank failures will increase considerably, we might conclude that the supervisory and insurance agencies are doing as well as should be expected, given the marginal costs and benefits of improved monitoring and control of risks. Yet a number of factors are encouraging more than a few bankers to take risks deliberately. These factors include deposit insurance that removes the incentives for depositors to be concerned with banking operations and investments, the available technology that permits inexpensive packaging of insured CDs, the ability of brokers to market these CDs nationwide, consumers' increased acceptance of such investments, and the continuing deregulation of deposit banking. Consequently, a change in the present risk-monitoring procedures seems desirable.

<sup>16</sup>See Flannery and Guttentag, 1980, pp. 196-199 for a description and comparison of the way the three agencies use the CAMEL ratings.

<sup>17</sup>Analysis of 1, 2 and 3 rated banks as reported in letter of September 19, 1983 from John Bovenzi.

<sup>18</sup>See Benston, 1973 for details.



## Summary, Suggestions and Conclusions

Our analysis of the several potential users of bank financial data—stockholders, ordinary creditors, uninsured depositors, and the deposit insurers—reveals both coincidence and divergence of interests regarding the assessment of bank risk.

The stockholders' interests are consistent with the interests of the other users in the detection and prevention of fraud by banking officers. Financial data also help the investors assess risks and identify and purchase shares of riskier banks that compensate for the risk. But when the deposit insurance agencies undercharge for the risks assumed, stockholders benefit from banks seeking higher returns from riskier investments. Investors would be attracted to these banks.

Ordinary creditors, though, absorb the cost of risk; consequently, they attempt to arrange their returns to cover these costs. They have an incentive to use financial data to assess the risks. Importantly, the debtor banks have the same incentive, since they must compensate creditors (and stockholders) for risks the creditors perceive. Consequently, the financial data that most banks provide to creditors seem likely to be the optimal quality and quantity.

Uninsured depositors, though, are not like ordinary creditors, because the deposit insurance agencies, realistically speaking, provide them with insurance. Hence, they have little reason to be concerned with the riskiness of banks in which their funds are deposited. FDIC proposals to increase their concern by explicitly denying insurance protection for a fraction of their balances over \$100,000 are unlikely to be successful, at least not without cost. These proposals would enhance demand depositors' incentives to remove their funds upon a rumor of an impending bank failure. Thus, they would apply "market discipline" to the most volatile of banks' deposits. In addition, many, perhaps all, time depositors, currently can package their investments in portfolios of fully insured deposits of less than \$100,000 in many banks, thereby defeating the FDIC's proposal.

The deposit insurance agencies and other supervisory authorities remain those principally concerned about excessive bank risk-taking. The agencies use financial data gathered in field examinations and bank reports to assess and control the risks taken by banks. It appears, though, that they are able to predict only 37 percent to 66 percent of the failures (depending

on whether a CAMEL rating of 3 is considered a prediction of failure) from financial or examination data available in the year before failure.

Increased development and use of bank surveillance models appear warranted, since they already appear to be as effective as examiners in predicting failures. At the least, the models can serve to direct the examiners' efforts towards banks that are more likely to fail. But, considering how quickly brokers can sell the insured CDs of banks that, in turn, can quickly place the funds in risky investments, more current information is needed. The insurance agencies (and their surrogates, the other supervisory authorities), might increase their requirements for continuous reporting by banks. Additionally, they might direct their field examinations more specifically towards institutions that appear to have increased their deposits quickly or to have changed investment practices or control. Indeed, as of the September 30, 1983 call report, all of the federal banking agencies require banks to report the amount of funds obtained through money brokers. Revisions proposed for the March 1984 call also require disclosure of the amounts of brokered retail deposits. The FSLIC now requires associations that are in a "supervisory status" to limit the amount of brokered funds and to submit a monthly report giving the level of such deposits and the sources and uses of the funds.

The authorities also could provide banks with information that would permit them to assess their risks better. Bankers can obtain information from and about borrowers to estimate the risk incurred. However, it is difficult for bankers to learn about the indebtedness undertaken concurrently by borrowers, particularly when these borrowers intend to be deceptive and when they increase indebtedness after the date of the balance sheet they provide to banks. Anti-trust legislation constrains banks from exchanging such information. Banks lending to countries and foreign firms have found this lack of information vexing, particularly recently. Supervisory agencies also appear to have been unaware of the extent to which several banks sometimes extended loans to a single risky borrower. While each loan might be within acceptable risk limits, the sum of a company's or country's indebtedness may not be.

It would seem desirable, therefore, for the supervisory authorities to establish a central file of indebtedness by countries and risky large borrowers. The authorities could require banks



to report on their loans to such borrowers, and the information could be made available promptly to the banks (with identification of other banks excluded) and all supervisory agencies.

In addition, the authorities could look more to the private markets for indications of excessive risk-taking by banks. The bond market is one such important source of information. Changes in stock prices are a similar source, though increases in stock prices as well as decreases could signal greater risk-taking.<sup>19</sup> Perhaps the most important change would be to involve depositors in risk-monitoring. This could be accomplished and the considerable incentives towards risk-taking by banks brought about by deposit insurance could be mitigated by removing deposit insurance from time-dated deposits greater than, say, \$5,000 or \$10,000 per account.<sup>20</sup> Insuring these balances and limiting each saver to one insured account would spare depositors the burden of determining the risk of banking. If

they wished to hold larger investments free of default risk, they could purchase U.S. Treasury obligations or banks could offer privately issued insurance. The availability and cost of this insurance to banks, and the interest rates that banks would have to pay for the uninsured deposits, would provide the authorities with valuable information. Probably more important is the concomitant interest of depositors and private insurers in monitoring risk-taking by banks and the banks' collateral interest in avoiding excessive risks.

In the absence of such changes in the insurance system, it is likely that additional financial disclosure, as such, will prove costly and ineffective.

—George J. Benston

*This article is an augmented version of comments on disclosure made by the author at a workshop on bank surveillance held by the Federal Reserve Bank of Atlanta on September 12 and 13, 1983.*

<sup>19</sup>The Federal Reserve Board presently monitors the security prices of about 400 bank holding companies (Putnam, 1983).

<sup>20</sup>See Benston, 1984, for the more fully described proposal.

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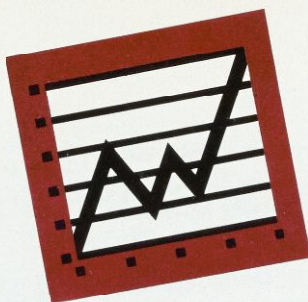
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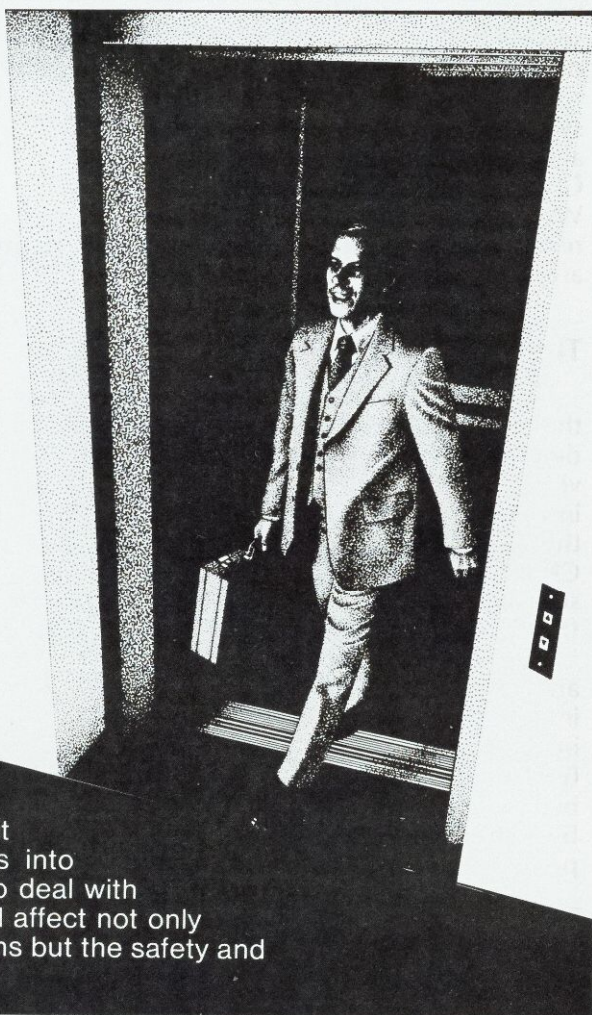
# Brokered Deposits: Issues and Alternatives

Brokers of banks' and thrift institutions' certificates of deposits (CDs) have been providing their services for over a decade. The merits of funding banks and thrifts with brokered CDs have been debated for about as long. Initially, the largest depository institutions used money brokers to secure large dollar amounts of uninsured CDs from institutional investors in a national marketplace. In those days, debate centered around whether big money center banks should be restricted to funding their lending needs from within the geographic locales of their existing branches and offices. It was not until the mid-1970s that the brokered funding practice began to catch hold in regional depository institutions. The small and middle-size institutions used this funding method infrequently until the late 1970s.

Not until the July 1982 failure of Penn Square Bank, N.A. in Oklahoma City and subsequent bank and thrift failures was national attention focused on the extent to which brokered funds were being used by problem institutions, and the exposure this presented to the federal insurance funds. Since the Penn Square failure, the development of practices that might abuse the present insurance system has further heightened concern about brokered deposits. The innovations that give the insuring agencies particular problems allow brokers to divide large deposits among insured institutions in insured lots of \$100,000 or less. These systems, which depend on computers for recordkeeping and quick response, allow

investors to remain fully insured whatever the size of their total CD investments.

Such systems call into question the purpose of deposit insurance and the methods used to discipline risk-taking by insured depository institutions. Attempts to regulate these systems also bring into question the benefits of CD brokerage to those who use it and to the public. Battle lines have formed among regulators, members of Congress, bankers and their trade organizations, and CD brokers, members of the securities brokerage industry and their trade groups. The



New networks, acting through "deposit brokers," skirt restrictions built into the deposit insurance system by dividing large deposits into smaller, insured lots. Controversy over how to deal with these innovations is growing; a solution could affect not only the flow of funds through depository institutions but the safety and structure of the financial system itself.



### What is a Brokered CD?

The term "brokered CD" generally means any negotiable or nonnegotiable certificate of deposit of a financial institution ("the deposit-seeking institution") purchased by an investor (which may be another financial institution for its own account, a money market fund, a pension fund, an insurance fund, a bank trust department acting as custodian, a corporation or an individual) through an intermediary third party. This third-party intermediary receives a fee or commission from the issuing financial institution and may act strictly as a "broker" (selling CDs as agent for the issuing financial institution), as a "dealer" (by purchasing CDs as principal), or as both (a "broker-dealer").

alternatives being considered affect not only the risk to investors and the way funds flow in and out of depository institutions and their markets, but also the safety, structure, participants and services provided by the financial services industries.

In order to get a grasp of the issues these systems create for deposit insurers and regulatory agencies, this article will describe the brokered CD market, its participants and their motivations. We will also focus on recent developments and regulatory viewpoints and will conclude with an analysis of the regulatory proposals.

## The Brokered CD Market

The brokered CD market consists of two parts: the institutional market where CDs are issued in denominations of \$100,000 or greater, and individual or "retail" markets where CDs are issued in denominations not exceeding \$100,000. In the latter market, a broker-dealer may purchase a CD issued by an insured financial institution and sell participations or interests in it to customers (See "What is a Brokered CD?")

As long as certain record-keeping requirements are observed, each investor's deposit, whether invested directly with the issuing depository institution or indirectly through a CD broker (including investment interest in a CD through a broker-dealer's participation program), is insured by either the Federal Deposit Insurance Corporation (FDIC) or the Federal Savings and Loan

Insurance Corporation (FSLIC) up to the maximum allowable \$100,000 per depositor. (To receive full insurance coverage, the aggregate deposits of an investor in any one insured depository institution cannot exceed \$100,000.)<sup>1</sup>

## The CD Money Brokers

Most industry experts estimate that some \$120 billion in CDs (insured and uninsured) outstanding at U. S. financial institutions have been placed by money brokers. Merrill Lynch, an active broker, estimates that \$100 billion of this amount is institutional funds while \$20 billion is brokered retail deposits.<sup>2</sup>

The CD brokerage industry, vaguely definable at best, includes a wide variety of players ranging in size from the sole proprietor with a desk and telephone to the largest national securities brokerage firms. Most of these major brokerage firms are now selling and making a market (primary and secondary) in CDs for both individuals (retail) and institutional investors. For the most part, only the top 40 or so commercial banks and some of the largest savings and loan associations are able to place their CDs in the institutional CD market. Most institutional CDs are negotiable and are traded in blocks significantly larger than the federal insurance maximum. Generally, institutional CDs are sold only by the largest national brokerage and regional brokerage firms.

Other large national brokers of CDs serve primarily regional, middle-size and small deposit-seeking financial institutions. Their primary activity is CD brokerage. Two of these firms—FAIC Securities Inc. and Professional Assets Management Inc.—have placed over \$12 billion and \$7 billion, respectively, in deposits of commercial banks and thrift institutions in 1983.<sup>3</sup> Most of the CDs sold through the brokers, which serve regional, medium and small institutions, are in \$100,000 increments, the maximum amount covered by federal insurance. Regional securities brokers also act as CD broker-dealers for select groups of regional financial institutions.

The list of CD brokers also includes trust departments of commercial banks, mutual funds, and diversified financial conglomerates. Even K Mart Corp. recently began offering applications

<sup>1</sup>FDIC, FHLBB Request for Comments on Brokered Deposits," *Washington Financial Reports*, The Bureau of National Affairs, Inc., Vol. 41, No. 17 (October 31, 1983) p. 670.

<sup>2</sup>Laura Gross, "Will Federal Broker Limits Cut Deposits?" *American Banker*, Vol. CXLIX, No. 10 (January 16, 1984) p. 1.

<sup>3</sup>Advertisements in various issues of *The Wall Street Journal* and *American Banker*.



**Table 1. Commercial Banks Reporting Brokered Deposits**  
(As of September 30, 1983)  
(in 000's)

	Percentage of Brokered Deposits to Total Deposits			Dollar Volume of Brokered Deposits			Assets		Deposits	
	Range	Mean	Median	Range	Means	Median	Mean	Median	Mean	Median
Top 25% in terms of the ratio brokered deposits to total deposits	8.51% to 90.99%	21.59%	17.15%	\$400 to \$1,215,100	\$81,030	\$9,300	\$765,463	\$45,707	\$496,208	\$39,877 <sup>1</sup>
Top 25% of terms of the dollar volume of brokered deposits	0.17% to 90.99%	14.69%	8.93%	\$8580 to \$1,215,100	\$138,544	\$41,278	\$4,065,686	\$1,546,848	\$2,684,697	\$1,212,640
All brokered deposit reporters (536 banks)	Less than 0.01% to 90.99%	7.16%	2.90%	\$1 to \$1,215,100	\$35,759	\$1,500	\$1,177,176	\$58,029	\$787,494	\$50,844

for retail CDs and money market deposits for a Michigan thrift through three of its stores in Florida.<sup>4</sup> A one-bank holding company in Miami recently applied to the Federal Reserve System for approval to establish a subsidiary that will broker CDs primarily to foreign investors.

All CD money brokers charge a fee or commission for providing their service. Deposit-seeking institutions pay the fee, which generally ranges from 25 to 100 basis points (annualized) per CD. Some firms have pre-established fees; others negotiate based on maturity dates and volume of the CDs being sold and on characteristics of the issuing institution.

## The Investors

Most investors in brokered CDs are financial institutions such as commercial and mutual savings banks, savings and loan associations, credit unions, money market funds, pension and profit sharing plans and insurance companies. Large corporations looking for liquidity and high yields and individuals also purchase CDs from brokers. An executive of a leading CD broker estimates that 40 percent of the CDs brokered by his firm are sold

to S&Ls, 20 percent to commercial banks, and the rest primarily to credit unions and pension funds.<sup>5</sup> With respect to individual investors, Merrill Lynch figures it has placed over \$10 billion in brokered retail deposits since it initiated this program in June 1982.<sup>6</sup>

## The Deposit Seekers

The deposit-seeking institutions are primarily commercial and mutual savings banks and savings and loan associations. Credit unions seldom raise funds in this manner, though there are scattered reports of brokers marketing their services to these institutions.<sup>7</sup>

The growth of brokered deposits outstanding has recently been phenomenal. According to the Federal Home Loan Bank Board (FHLBB), brokers "had brought in \$26 billion to thrifts as of October 1983, up from \$4.6 billion in June 1982."<sup>8</sup> The \$26 billion in brokered deposits would represent about 4.9 percent of total deposits insured by the FSLIC.<sup>9</sup> Indicating concern about future growth, Edwin J. Gray, chairman of the FHLBB, recently stated that at the current rate of growth, brokered deposits could account

<sup>4</sup>The Florida Comptroller's Office charged K Mart and the Michigan thrift with illegally conducting savings association business in Florida. A Florida court has declined to continue a temporary restraining order on this activity, saying that it did not constitute banking. K Mart agreed to remove the name of the Michigan thrift and the FSLIC logo from its advertisements. "K Mart Can Resume Selling S&L Services in Florida, Judge Rules," *The Wall Street Journal*, (February 21, 1984) p. 38.

<sup>5</sup>Telephone interview with William A. Goldsmith, Executive Vice President, Professional Asset Management, Inc., DelMar, California.

<sup>6</sup>Gross, *op. cit.*, p. 1.

<sup>7</sup>Edgar F. Callahan, chairman of the National Credit Union Association (NCUA) in testimony before the Housing Banking Committee's Subcommittee on Financial Institutions, Supervision, Regulation and Insurance in October 1983, stated that "the use of brokers to raise funds is quite isolated with respect to credit unions."

<sup>8</sup>Tim Carrington, "Stiff Restrictions on Deposit Brokerage For Banks and Thrifts Are Proposed," *The Wall Street Journal*, (January 17, 1984).

<sup>9</sup>The Public Information Office of the Federal Home Loan Bank Board, Washington, D. C. reported total FSLIC insured deposits were \$534.1 billion at year-end 1982.



**Table 2.** Distribution of Commercial Banks Using Brokered Deposits  
(As of September 30, 1983)

Asset Size	Brokered Deposit Reporters		Universe of Commercial Banks	
	Number*	Percent of Reporters	Number*	Percent of Total
Less Than \$50MM	241	44.96%	9725	67.02%
\$50MM – \$100MM	100	18.66%	2593	17.87%
\$100MM – \$300MM	62	11.57%	1504	10.37%
\$300MM – \$50MM	24	4.48%	254	1.75%
\$500MM – \$1B	11	2.05%	185	1.27%
\$1B – \$5B	68	12.69%	203	1.40%
Greater Than \$5B	30	5.60%	46	0.32%
Total	536	100.00%	14510	100.00%

\*Number that filed September 30, 1983 Report of Condition.

for more than one-third of all deposits in insured S&Ls.<sup>10</sup>

According to unedited call report data as of September 30, 1983, 536 commercial banks (3.7 percent of 14,510 reporting banks) indicated the use of brokered deposits. In the aggregate, these deposits amounted to \$19.2 billion, roughly 1.3 percent of total deposits outstanding in commercial banks.<sup>11</sup> The average ratio of brokered deposits to total deposits for banks reporting this source of funding was 7.16 percent (Table 1). Deposit compositions ranged from less than one percent to 91 percent brokered funds, while the absolute dollar levels ranged from one thousand to \$1.2 billion. With respect to the heaviest commercial bank users of this funding source (the top 25 percent in terms of the ratio of brokered deposits to total deposits), the average ratio was 21.6 percent or roughly three times the average for all brokered deposit reporters. Overall, 64 percent of commercial banks reporting brokered deposits had less than \$100 million in assets as of September 30 (Table 2). Brokered deposit data for commercial and mutual savings banks are unavailable prior to that date.

Thirteen of the 296 mutual savings banks reporting on September 30 reported brokered deposits. In the aggregate, these funds amounted to \$271.4 million, an insignificant portion of the total deposits of mutual savings banks at that date (Table 3). The average ratio of brokered deposits to total deposits for mutual savings banks reporting brokered deposits was 4.4 percent (somewhat less than the average for commercial bank users). Deposit compositions for mutual savings bank users of brokered funds ranged from less than one percent to 27.5 percent of total deposits (not nearly as broad a range as that for commercial bank users; dollar levels ranged from \$24000 to \$178.9 million). Most of the mutual savings banks reporting brokered deposits were less than \$500 million in asset size (Table 4). Based on the September 30 commercial bank and mutual savings bank data, brokered deposits account for as much as \$19.4 billion, approximately 1.6 percent of all deposits insured by the FDIC.<sup>12</sup> Details on the proportions of brokered retail deposits and brokered institutional deposits are not currently available; however, revisions proposed by the regulatory agencies

<sup>10</sup>Lisa J. McCue, "Agencies Propose Broker Limits," *American Banker*, Vol. CXLIX No. 11 (January 17, 1984), p. 17.

<sup>11</sup>In conducting additional research, it was noted that almost 20 percent of those commercial banks reporting brokered deposits at September 30, 1983 also reported an earnings loss for the nine month period.

<sup>12</sup>The Public Information Office of the Federal Deposit Insurance Corporation, Washington, D. C. reported total FDIC insured deposits of \$1,197.7 billion (June 1983 survey).



**Table 3. Mutual Savings Banks Reporting Brokered Deposits**  
(As of September 30, 1983)  
(in 000's)

	Percentage of Brokered Deposits to Total Deposits			Dollar Volume of Brokered Deposits			Assets		Deposits	
	Range	Mean	Median	Range	Means	Median	Mean	Median	Mean	Median
Top 25% in terms of the ratio of brokered deposits to total deposits	4.68% to 27.49%	16.71%	17.94%	\$2,600 to \$32,059	\$8,458	\$14,372	\$139,001	\$195,789	\$122,901	\$178,685
Top 25% in terms of the dollar volume of brokered deposits	0.52% to 17.94%	6.78%	1.89%	\$32,059 to \$178,901	\$84,145	\$41,475	\$6,998,325	\$9,366,182	\$5,889,948	\$8,044,282
All brokered deposit reporters (294 banks)	0.0045% to 27.49%	4.36%	0.55%	\$24 to \$178,901	\$20,880	\$1,355	\$2,057,028	\$456,760	\$1,755,124	\$407,379

**Table 4. Distribution of Mutual Savings Banks Using Brokered Deposits**  
(As of September 30, 1983)

Asset Size	Brokered Deposit Reporters		Universe of Mutual Savings Banks	
	Number*	Percent of Reporters	Number*	Percent of Total
Less Than \$50MM	2	15.38%	13	4.39%
\$50MM – \$100MM	1	7.69%	67	22.64%
\$100MM – \$300MM	3	23.08%	109	36.82%
\$300MM – \$500MM	1	7.69%	37	12.50%
\$500MM – \$1B	2	15.38%	32	10.81%
\$1B – \$5B	2	15.38%	33	11.15%
Greater than \$5B	2	15.38%	5	1.69%
Total	13	100.00%	296	100.00%

\*Number that filed September 30, 1983 Report of Condition.

beginning with the March, 1984 Report of Condition would allow both the public and the regulators to make this distinction.

## What are the Functions of the Brokered CD Markets?

### Why did these Markets Develop?

By most accounts, the institutional CD market originated in 1961 when the major money center

banks began issuing negotiable CDs. The negotiability feature provided liquidity—the crucial element needed to attract funds in a national marketplace. Initially, only the largest banks sought deposits. The CDs were issued in large, uninsured amounts, primarily to serve a wholesale market of large institutional investors. Only the largest financial institutions could solicit funds in this market because institutional depositors believed that the federal government would not let any of the largest institutions fail. Even today,



many of the regional banks and thrifts find it difficult to sell their long-term CDs in this market.<sup>13</sup>

In time, larger regional depository institutions, looking outside their traditional markets for funding, began to participate in the national CD market. Geographic limitations had kept many from soliciting the funding necessary to finance their growth. During the 1970s and early 1980s, inflation, high interest rates and deposit disintermediation to the money market funds (which offered the small investor market interest rates) drove some financial institutions to satisfy funding needs through issuing large uninsured CDs not subject to regulatory interest rate restrictions. Many larger regional financial institutions were able to establish contact with and buy funds directly from institutional investors. For others, the broker provided a valuable service in soliciting these funds.

Four events aided development of a brokered retail market: (1) Congress increased the level of deposit insurance from \$40,000 to \$100,000 in 1980. (2) The Depository Institutions Deregulation Committee ("DIDC") removed the requirement that fees paid to third-party brokers be included in interest rate calculations for the purposes of Regulation Q in 1981.<sup>14</sup> (3) In 1982, the DIDC deregulated interest rates on CDs of less than \$100,000 with maturities of 3 1/2 years or more and authorized these CDs to be issued in negotiable form. The negotiability feature permitted an active secondary market to develop for retail CDs, allowing individuals the benefits of liquidity and market rates enjoyed by institutional investors for 20 years.<sup>15</sup> (4) The potential of brokered funds increased dramatically again in October 1983, when the DIDC removed all remaining interest rate ceilings on retail deposits other than passbook and NOW accounts. These changes enabled financial institutions, as well as brokerage firms, to offer their customers federally insured CDs at various lengths of maturity down to seven days, without interest rate restrictions.

### What Services are Provided and Who Benefits?

CD brokers act as conduits among financial institutions; they have played and continue to

play an important role in our economy. Their services have benefited not only the banking system but the individual consumer as well. This brokered-deposit mechanism has:

1. Provided national sources of funding, an alternative for many sound and stable small, medium-sized and regional deposit-seeking institutions. Previously, market bias toward the largest banks and thrifts confined smaller institutions, regardless of financial condition, to their local regions for funding.

2. Facilitated the transfer of excess savings from savings-rich areas to areas short of funds to meet credit needs of individuals and businesses. For example, a bank with greater loan demand than it can meet through local deposits may sell one of its own certificates to another bank in an area with slack loan demand, allowing each institution to satisfy its customers' needs profitably. Without the use of a third party, the investor and the deposit-seeking institution probably would not know of each other's need. The CD broker allows small creditworthy and medium-size depository institutions to solicit funds in a national capital market from institutional investors as well as individuals.

3. Provided the deposit-seeking and the investing institutions greater flexibility in managing funds by allowing them to match more closely the maturities of assets with those of liabilities. The brokerage process allows smaller and medium-size banks and thrifts to raise funds with maturities longer than "overnight." This allows them to hedge more effectively against margin squeezes when overall interest rates and the cost of funding rise quickly.

4. Provided a quicker, more efficient, and often cheaper source of funding for deposit-seeking institutions than they can obtain within the local market. Many CD brokers have an elaborate distribution system or an exchange service that enables the transaction to occur almost immediately. The deposit-seeking institution often pays a higher rate for CDs placed through a broker than it would pay in its local market, but brokered deposits do not require additional investment in "bricks and mortar"

<sup>13</sup>November 28, 1983 letter from Roger M. Vasey, Chairman and President of Merrill Lynch Money Markets, Inc., to Hoyle L. Robinson, Executive Secretary of FDIC and the Director of the Information Services Section of the FHLBB, setting forth Merrill Lynch's response to the questions posed

by the November 1, 1983, Advance Notice of Proposed Rulemaking by the FDIC and the FHLBB.

<sup>14</sup>Dennis Jacobs, "Advice to Regulators: If It's Brokered, Fix It," *Savings Institutions* (December 1983) p. 33.

<sup>15</sup>Robert M. Vasey, *op. cit.*



for branch facilities, or increased expenditures for additional personnel or advertising. Additionally, for a small and middle-size bank or thrift, soliciting funds needed for a specific lending purpose in a national rather than a local market avoids possible competitive repercussions from bidding up the local cost of funding. (In certain cases, these funds also have proven to be more stable than funds derived locally.)

5. Increased the investment alternatives available for the institutional investor and for the small investor. Higher competitive rates and liquidity provided by an active secondary market are now available for the small investor through various broker retail deposit programs. The disparity between what institutional investors are able to command and what the individual investor can demand has been narrowed.

6. In conjunction with deregulation, CD brokerage has helped to reverse the flow of funds to the money market funds and other competitive investments. Merrill Lynch estimates that 30 percent of the deposits it has placed for banks and thrifts were transferred from money market funds that it sponsors.<sup>16</sup>

7. Increased the ability of regional banks and thrifts to compete with the largest financial institutions as they expand their efforts in soliciting individual deposits in a national marketplace. The improved competitive position of the regional banks lessens the possibility of deposit concentration in a few large money center banks.

### Broker Practices and Market Innovation

Three basic types of CD brokerage services are being offered today: simple brokering, deposit-listing services, and CD participation programs. All types allow investors the opportunity to disburse millions among insured institutions with no more than \$100,000 in any one institution. (Institutions have not fully taken advantage of this opportunity.)

Simple brokering can be accomplished in several ways, differing usually in the way funds flow: In the simplest method, the investor sends funds directly to the deposit-seeking institution, which has been notified by the broker of the impending transaction. The investor may, however,

send his funds to the CD broker who in turn transfers the funds to the deposit-seeking institution. The CDs are registered in the name of the brokerage firm as nominee or agent for the investor. A third variation on this theme is broker-arranged custodial programs. These programs allow the investor to send funds to a bank which, for a fee, acts as custodian for the investor. The custodian bank disburses the funds to the deposit-seeking institution and retains the safekeeping receipts issued by these institutions. The CDs are registered in the name of the custodian bank as custodian for the investor.

Of the deposit-listing services, the most advanced plan allows a deposit-seeking institution to call the broker's voice-response computer and state the quantities, rates and maturities (six maturities ranging from 30 to 360 days) it is offering to sell. Listings are automatically meshed with other current listings, sorted by rates and maturities, and made available to investors on a first-in, first-out basis. The broker's computer automatically eliminates institutions where the investor has already purchased a CD, buys no more than one \$100,000 CD from any of the listed deposit seeking institutions and selects those listed CDs paying the highest interest rate for the investor's maturity selection. Upon execution of the order, the broker transmits issuing instructions to a bank, which delivers the purchased CDs to the investor's designated custodian. The custodian transfers the investor's funds to the bank, which wires the proceeds to the deposit-seeking institutions.<sup>17</sup>

The third type of brokerage arrangement is the CD participation program offered by broker-dealers. In such a program, a broker-dealer purchases a CD from a deposit-seeking institution and sells interest in it to investors, generally individuals. The CD purchased is registered in the name of the broker as nominee for others. The broker's records, in turn, reflect the true ownership interest of the participants. Full insurance coverage flows through to each participant, provided all of the participant's accounts in that specific institution do not exceed \$100,000.

Other examples of market innovation include broker-arranged discount \$100,000 CDs and federally insured money market accounts that are available on demand. Discounted CDs provide

<sup>16</sup>Vasey.

<sup>17</sup>Promotional material provided by Karen Fawcett, Vice President, Harvey Baskins & Co.



an investor with federal insurance for both principal and interest. The insured money market accounts, which use a mutual fund in conjunction with a custodian bank arrangement, allow an investor the highest possible interest rate, federal insurance and the ability to choose maturities as short as overnight. (In some programs the interest rate is determined by the broker. Fund withdrawals are restricted, but the investor is not subjected to interest rate penalties, which would be the case had the investor redeemed a CD investment prior to maturity.)

## What Are The Issues?

Individual institutions' use of funds obtained through nontraditional means from nontraditional sources has long concerned regulatory authorities. The presence of these volatile funds in a bank often is linked to out-of-territory lending, loans of questionable value, or liquidity pressures. In the last year, the insurance funds in particular have grown increasingly concerned about the use of brokered funds and the rate of growth of this practice at problem institutions. FDIC Chairman William M. Isaac recently explained this concern, stating that "16 percent of total deposits of the 72 commercial banks that failed between February 1982 and October 1983 originated from money brokers."<sup>18</sup> At least 60 percent of the deposits in one of these failures had been placed by brokers. Similarly, brokered funds were a factor in 35 mergers of problem savings and loan associations in 1981-82.<sup>19</sup>

Increased regulatory concern today is based on the development of systems for dividing large deposits into insured lots. This concern springs from responsibilities for the safety of the financial system as a whole, as well as for individual institutions, and for assets of the unsophisticated depositor. Through CD brokers, insured institutions—even those with serious problems—have been able to attract large amounts from outside their traditional market areas. By parceling out funds in \$100,000 increments, brokers are able to offer investors full insurance protection. Some of these concerns are that this practice:

### 1. Erodes Market Discipline

Dividing deposits into insured lots reduces market discipline of banks' and thrifts' risk-taking by allowing depositors to make insured

deposits without regard to an institution's financial condition. Investors, without assessing the financial health of the deposit-seeking institution, can maximize the return on investment knowing that their deposits are completely underwritten by federal insurance. Little, if any, incentive exists for investors to avoid risky institutions. In certain cases, brokers have been accused of steering funds to problem banks deliberately in order to offer interest rates significantly above the market and to receive excessive brokerage fees.

The problem posed by multiple coverage also is related to the market discipline issue. The insurance funds are concerned that coverage provided to pension and other custodial deposits also "fails to encourage market and institutions' analysis in the placement of these deposits." Under current rules, multiple insurance coverage is provided for pension funds and other custodial deposits in which more than one individual has a beneficial interest. As a matter of practice, trustees and custodians normally limit deposits in insured institutions much the same way that CD brokers do in order to stay within the bounds of insurance coverage. This practice undermines market discipline, relieving fiduciaries of their obligation to analyze the financial condition of institutions in which they place deposits.

### 2. Protects Sophisticated Depositors

These brokered arrangement systems protect sophisticated depositors whom the system was not designed to protect. As seen by the deposit insurers, protecting unsophisticated depositors is a primary goal of insurance. But this goal is difficult to achieve unless sophisticated liability holders require insured institutions to temper their risk-taking. Setting a maximum insurance ceiling has been the principal method of distinguishing between sophisticated and unsophisticated depositors. Dividing large deposits among banks clearly makes the insurance maximum ineffective for this purpose. FDIC chairman William M. Isaac has charged that brokered deposits represent "an outright misuse of the federal deposit insurance system, which was designed to protect 'unsophisticated individuals' rather than customers of large intermediaries."<sup>20</sup>

<sup>18</sup>McCue, *op. cit.*, p. 17.

<sup>19</sup>"The Hot Money," *Forbes*, (January 2, 1984), p. 61.

<sup>20</sup>Carrington, *op. cit.*



## Other Problems

Other problems caused by broker deposit funding relate to traditional depository institutions' funding methods, the relationship between the depository institutions and the customers, and the unregulated nature of the CD broker industry.

Recently, FHLBB's Chairman Gray expressed concern that some newly chartered thrifts, instead of seeking deposits in their local markets, may become "sixth-floor type" operations using only brokered deposits to meet their funding needs. Some regulators have misgivings about securities industry competition with banks and savings and loan associations. They argue that the securities industry benefits from deposit insurance without having to pay the price of extensive regulation. They fear that, if the depositors can earn higher rates by buying an insured CD through a broker, the money brokers will erode the traditional relationships between depository institutions and depositors. If this occurs, depository institutions could become hostages of the national brokerage firms, dependent upon them for funds or subject to their requirements to make certain types of loans. The diverse, largely unregulated nature of the CD brokerage industry and the unclear relationship between broker and investor are other major concerns. What's more, implementation of the "DIC/FHLBB proposal might confuse customers who

would not necessarily know which CDs are protected by federal insurance. Representatives of the SEC have voiced concern about the CD money brokers. They have indicated that, if a reduction in deposit insurance for brokered CDs were contemplated, the SEC, because of its experience in dealing with similar matters, would be the logical regulator to assure that depositors were alerted to applicable insurance levels.

Federal Reserve Governor J. Charles Partee addressed the issue of SEC regulation in his October testimony by suggesting that thought be given to requiring registration and regulation of the brokerage firms, "perhaps along the line of the Investment Advisers Act of 1940 already being administered by the SEC."<sup>\*</sup>

Opponents of broker regulation argued that registration of CD brokerage firms with the FDIC/FHLBB or SEC is not necessary and would only serve to increase the cost of providing these services, raising the cost to the deposit-seeking institution. They contended that SEC regulation would only add another regulator to the picture and would delay the flow of needed information to deposit insurance agencies. Others argued for the formulation of a self-regulating body that would impose a code of ethics and method for disciplining CD brokers.

<sup>\*</sup>Federal Regulators . . ." *op cit*

### 3. Encourages Undue Growth and Risk-Taking

Broker arrangement programs allow depository institutions to grow rapidly whether or not their managers have the expertise to handle larger, more complex institutions. The availability of this funding method tests the asset/liability management skills of small and middle-size institutions and may encourage some speculative lending that could not be easily funded through traditional sources. Consequently, with excessive growth, the underlying net worth or capital position of these institutions can be diminished.

### 4. Postpones Demise of Failing Institutions

Brokered CD money has afforded some failing banks quick access to liquidity that was no longer available in the local market or through traditional funding means. In these cases, the broker, rather than the Federal Reserve System, becomes "the lender of last resort." A weak bank's accumulation of a large level of insured deposits derived through brokers not only postpones failure; it also influences the timing of closing by the chartering authority and the insurance funds' choice between merging institutions or paying off depositors when they close the institution. A significant volume of insured deposits can make the cost of a deposit pay-off prohibitive to the

insurance fund. Likewise, a dependency on brokered funds generally reduces a failing bank's attractiveness to prospective merger candidate. Thus, risk and exposure to the insurance fund are increased.

### 5. Increases Overall Exposure of the Insurance Funds

Pressures on the insurance funds created by a rise in insured deposits are a side effect of brokered deposit systems. These systems have the potential for converting a large volume of uninsured time deposits into insured deposits. Thus, they increase the ratio of insured deposits to the size of the insurance funds. Chairman Gray of the FHLBB emphasized recently that "insurance is finite" and that the insurance funds cannot serve as guarantor for the whole financial system (See "Other Problems").

## Regulator Positions and Proposals

The brokered deposits issue has arisen at a time of ferment in financial regulation. America's banking and savings institutions, as well as their regulatory bodies, have become the subject of considerable public and legislative scrutiny. Investigations and hearings following the demise



of Penn Square (the first time uninsured depositors stood to lose substantial sums in a deposit pay-off) and subsequent failures, focused on the need to identify causes and to reduce the chances of recurrence. Rightly or wrongly, attention has come to rest on the practices of CD brokers and brokered deposits, a common element in many of the failures.

Initially, the agencies reacted by changing the quarterly call report to allow themselves and the public to monitor this funding practice more frequently than they can through the examination process. This did not satisfy some critics. Last September, Rep. St Germain, chairman of the House Banking Committee, asked the five federal agencies to recommend a plan to control and monitor CD money brokers. Since that time, he has prodded the regulatory bodies to impose controls on these brokers rather than waiting for the "often times leisurely pace of rulemaking to run its course."<sup>21</sup>

Last October, chairman Isaac of the FDIC, in testimony before the House Banking Committee's Subcommittee on Financial Institutions' Supervision, Regulation and Insurance, stated that the FDIC and FHLBB were considering two avenues for limiting the abuse of brokered deposits: increased monitoring and supervision of brokerage activities and reduced insurance coverage for brokered deposits. He elaborated that either the brokers could be required to register with the insurance authorities (an approach that would require legislative approval) or the insurance authorities could increase their monitoring of banks and thrifts that use brokered funds. He indicated that his agency was considering several insurance coverage options: (1) removing insurance coverage from broker-arranged deposits; (2) treating brokers as a principal and limiting total insurance coverage to \$100,000 per broker; and (3) giving brokered deposits different insurance coverage, perhaps 75 percent coinsurance up to \$100,000.

Subsequent actions by the FDIC and FHLBB follow these options given by chairman Isaac. Until recently, regulatory agencies set explicit limits on the amount of brokered funds or other forms of "hot money" a financial institution could solicit consistent with "safety and soundness." In November, however, the FHLBB issued

new supervisory procedures restricting the use of brokered funds (to 5 percent of total deposits, including custodial deposits) by institutions subject to its regulation that do not meet net worth requirements. The FDIC also is enforcing its authority to limit the acceptance of brokered deposits by certain problem institutions.

On January 16, the FHLBB and the FDIC set in motion changes in insurance coverage for brokered deposits. They jointly requested comment on a proposed regulation that would limit insurance coverage to "a maximum of \$100,000 per insured bank or savings association for the total deposits placed by or through a single deposit broker." The agencies stated that deposit brokerage that parcels out deposits to gain insurance coverage is a misuse of the federal deposit insurance system and that:

deposit insurance was originally intended to establish stability and to promote confidence in the monetary and banking systems by protecting primarily small, relatively unsophisticated depositors in their relationships with banks and savings associations. It was never intended to protect investors seeking the highest yields available in money markets.

If the proposed rule is adopted, it "would become effective October 1 and would apply to basic brokering programs, certificate-of-deposit participation programs, deposit listing services and other brokerage-type transactions." According to the proposal, a "deposit broker" is:

any person or entity who is engaged in the business of placing deposits for others and an agent or trustee who establishes a deposit or member account in connection with an agreement with the institution to use the proceeds in the accounts to fund a prearranged loan.

The deposit broker definition would not, however, include salaried employees of depository institutions and "normal activities of trust departments of insured institutions," unless such activities were established to circumvent the proposed amendments. Insurance coverage available to pension funds, other employee benefit plans and irrevocable trusts would not be affected unless the deposits were placed by or through a deposit broker.<sup>22</sup>

<sup>21</sup>"Federal Regulators Testify on Brokered Deposits Issue," *American Banker*, (October 28, 1983), p. 4-9.

<sup>22</sup>Joint News Release—FHLBB and FDIC dated January 16, 1984. Request for comment on proposed regulation that would limit insurance of brokered deposits.



The agencies concluded that "deposit brokerage has a sufficiently adverse effect upon the depository institutions industry to warrant remedial regulatory action." They opted against "alternative regulatory action through increased monitoring and regulation of brokerage activity" at federally insured institutions and determined that absolute prohibition on the use of this funding method would be "unduly restrictive" and would eliminate the benefits to insured institutions of brokered funds. As an indication of the complexity of their problem, the agencies requested: (1) comments as to whether subsidiaries or networks or depository institutions should be included within the proposed definition of "deposit broker;" (2) comments on the treatment that should be given to institutions owned either directly or indirectly by entities that would fall within the proposed definition; (3) comments with respect to what other types of activities of agents should or should not be deemed to constitute deposit brokerage; and (4) comments on what regulatory steps should be taken to prevent misuses or circumvention of the proposed amendments through bearer-form CDs.<sup>23</sup>

## An Analysis of Insurers' Actions and Proposals

Quarterly brokered deposit information that insured depository institutions have begun to provide will greatly enhance the regulators' early detection systems. Rapid growth funded through brokered deposits will cause the supervising agency to investigate and, if necessary, to pursue corrective action. Although this may reduce use of brokered funding in some potentially troubled institutions, it alone does nothing to resolve the market discipline problem. For the most part, the regulatory response is after-the-fact, not preventive.

The deposit insurers' effort to limit weak institutions' use of brokered funding would also prove ineffective in restoring market discipline. Institutions may become dependent upon this funding method long before they become troubled or are recognized as weak. Attempting to control a funding method already in use by a troubled bank could further weaken its position. This alternative is unlikely to restore market discipline to most institutions because, overall, few depository institutions are classified as weak (and thus

subject to regulatory constraint) and few would expect to be.

It follows from the inadequacies of dealing only with troubled institutions that the FDIC and FSLIC would be compelled to search for a more general alternative. Their broader proposals of this January, however, are not without problems. If successful, they threaten to impose burdens on a market that developed to serve legitimate needs of deposit seekers, investors and the public. Moreover, these proposals seem likely to induce further innovations that will allow market participants to avoid regulatory and market discipline. The federal regulators have foreseen many of these problems and have received many industry comments upon the issues and alternatives. In testimony before the House Banking Committee's Subcommittee in October, all five representatives of the federal regulatory bodies pointed out the benefits and economic value of brokers and expressed concern for the issues and problems that the deposit brokerage activities have raised. All emphasized that solutions were just as complex as the issues.

The January 16 proposal to restrict insurance coverage to \$100,000 per broker, per insured institution would limit brokers' ability to place insured deposits. If the burden is severe, as seems likely, smaller institutions would be the most disadvantaged in their search for both liquidity and long-term funding. Indeed, the Securities Industry Association contends that the proposal would "virtually eliminate this smoothly functioning and economically useful market" and "without broker participation, only a handful of the largest banks and money-center thrifts, with massive branch systems and the capability, will be able to reach a national customer base."<sup>24</sup>

Tables 1-4 suggest that this could be a significant problem. Small and middle-size commercial and mutual savings banks are substantial users of this funding method. Except for the very smallest commercial banks (those with less than \$50 million in deposits), the proportion of all banks reporting that they use brokered deposits in each size category exceeds their respective population proportion. Furthermore, among commercial bank users, 50 percent have more than 2.9 percent of their total deposits in brokered funds. Some commercial banks are much more dependent on this method; the median proportion of total deposits taken from brokers in the top 25 percent of banks by dependence on brokered deposits is

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<sup>23</sup>Joint News Release, *op. cit.*

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<sup>24</sup>Advertisement in *The Wall Street Journal*, January 20, 1984.



17.15 percent. Of these most dependent commercial banks, more than half have deposits of less than \$51 million. The incidence of brokered deposits among mutual savings banks is much smaller; less than 5 percent of mutual savings banks reported using brokered deposits to meet funding needs.

Burdensome regulation on a market that developed to provide services buyers and sellers value tends to induce innovation to avoid the regulation. The brokered CD market is particularly complex; many potential arrangements are available for moving deposits in this market. Some of these were recognized by the insuring authorities in requesting comments on the regulations they proposed in January. Their list of avoidance measures included multiple broker subsidiaries designed to avoid the \$100,000 insurance per bank per broker rule, information (as distinct from brokerage) services, and use of bearer CDs. The potential list is probably considerably longer and the potential burden of regulation to meet innovations is considerable.

Direct regulation, with all of its problems, may not be the appropriate approach to brokered deposits. The problem that brokered CDs cause for the financial system—that of vitiated market discipline—arises from other features of our deposit insurance system. The flat-rate insurance premium, de facto insurance of all deposits through mergers of failing banks, and limited uninsured liabilities at many institutions all erode potential market discipline of insured institutions' risk-taking. Risk-related insurance premiums and coinsurance of uninsured deposits suggested by the FDIC in its review of the insurance system in 1983 or required levels of uninsured liabilities (see the article by Larry Wall in this **Review**) are among more inclusive proposals that would address discipline problems without attacking the CD market itself.

## Summary and Concluding Thoughts

Quick and easy solutions to issues raised by current brokered CD problems are not apparent. Dealing with brokered funding abuses by troubled banks on a case-by-case basis does not resolve

the systemic problem of market discipline. On the other hand, limiting the amount of insured funds that a depository institution can solicit through brokers penalizes the smaller depository institutions that are well run and financially sound but dependent upon the national marketplace to supply their funding needs. Broader regulations that limit federal insurance coverage on brokered CDs with respect to either the principal or his agent could damage a well established and useful national CD market. Again, the smaller depository institutions, many of them significant users of this funding method, would be disadvantaged. Funds may well run to the largest financial institutions. Limiting insurance coverage per broker per issuing institution adds a definitional problem, does not address other methods of soliciting "hot money" that also have played a role in failing bank scenarios, could cause investor confusion, and will encourage market innovators to find new ways to circumvent the new rules. More comprehensive methods of dealing with a broader market discipline problem may be more useful.

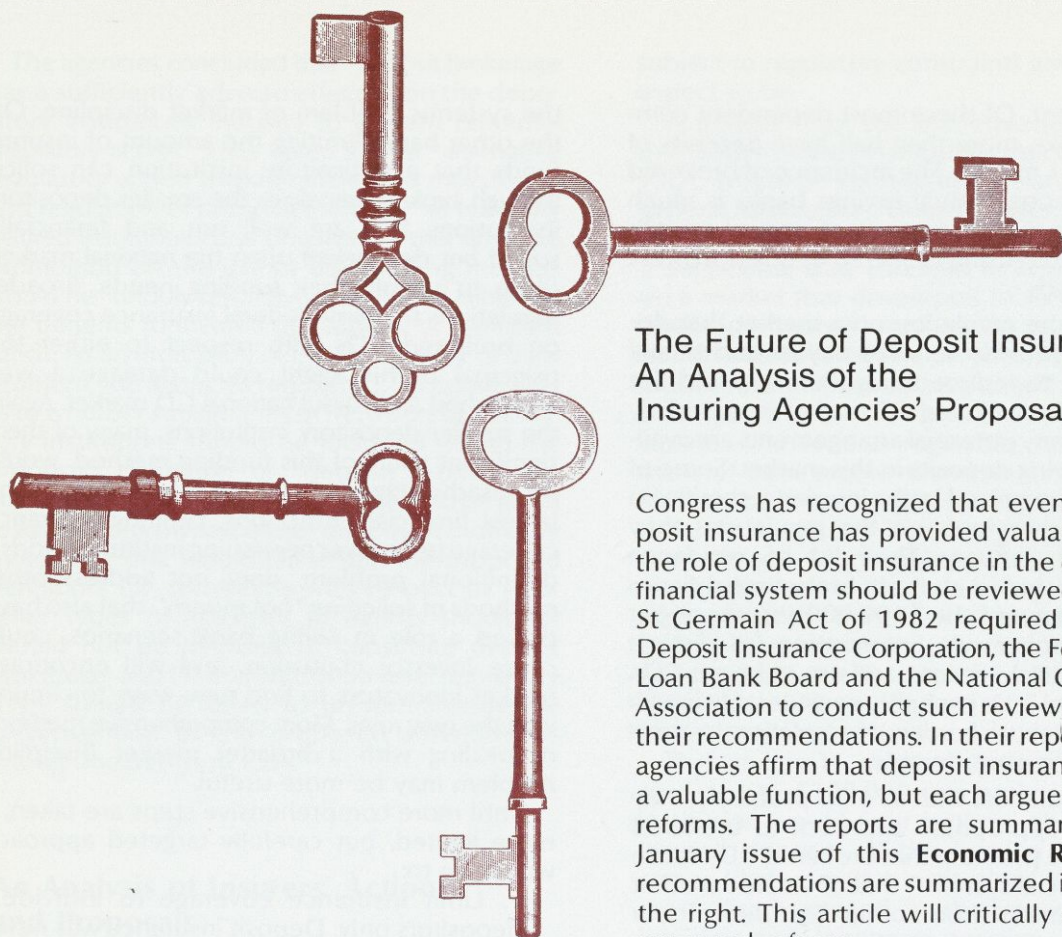
Until more comprehensive steps are taken, a more limited, but carefully targeted approach would be to:

1. Limit insurance coverage to individual depositors only. Deposit insurance was never designed to benefit sophisticated institutional investors, who have the capacity to exercise market discipline.
2. On a case-by-case basis, restrict weak institutions from gaining access to all forms of "hot money," including brokered deposits and funds solicited directly in the national marketplace.
3. Impose higher insurance premiums on institutions engaged in riskier lending or investment.
4. Require firms that broker CDs to register with the Securities and Exchange Commission. The SEC already has an effective registration mechanism. Besides, many of the CD brokers already are regulated by the SEC.

—Caroline T. Harless\*

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## The Future of Deposit Insurance: An Analysis of the Insuring Agencies' Proposals

Congress has recognized that even though deposit insurance has provided valuable benefits, the role of deposit insurance in the deregulating financial system should be reviewed. The Garn-St Germain Act of 1982 required the Federal Deposit Insurance Corporation, the Federal Home Loan Bank Board and the National Credit Union Association to conduct such reviews, and report their recommendations. In their reports, all three agencies affirm that deposit insurance performs a valuable function, but each argues for specific reforms. The reports are summarized in the January issue of this **Economic Review**; their recommendations are summarized in the box on the right. This article will critically evaluate the proposed reforms.

### Goals of Deposit Insurance

The agencies give several reasons for deposit insurance: protection of the money supply, protection of the payments mechanism, protection of small depositors, reduction in the cost of using money, protection of small financial institutions, provision of funds to mortgage markets and encouragement of credit unions. The FDIC and FHLBB assert that the major goal of deposit insurance should be the protection of the money supply and the payments mechanism, while the NCUA places more emphasis on protecting small depositors.

#### The Money Supply and the Payments System.

Protecting the money supply and the payments mechanism are important functions of deposit insurance. Depository institutions have a dominant position in both; hence, insurance can protect the money supply and the payments system by protecting those depository institutions.

While economists differ on how important the money supply is to the economy, virtually all

The current deposit insurance system encourages banks to take risks, and financial deregulation may be adding to that encouragement. The federal deposit insuring agencies have proposed reforms in the system. Congress will need to proceed with caution to ensure that the money supply and the payments system are protected without undue cost.



## Review of the Agencies' Recommendations

The three insuring agencies each proposed several deposit insurance reforms. All three insuring agencies said that insurance should be reformed to provide greater incentives for insured institutions to limit their risk exposure. The agencies also made some important recommendations on other specific insurance issues.

The FDIC favored a reduction in the effective coverage of deposits to give the private sector a greater incentive to monitor bank risk. The FDIC has handled most large bank failures through the purchase and assumption method, in which a healthy bank purchases some of the assets and assumes all of the deposits of the failed bank. This has had the effect of providing 100 percent deposit insurance to all deposits, including those with balances in excess of \$100,000. The FDIC discussed the possibility of reducing the coverage of balances in excess of \$100,000 and has subsequently announced that it will use a modified payout system at failed banks. Under this plan, when a bank fails, its uninsured depositors will receive an immediate advance equal to the amount the FDIC expects to recover for them. The FDIC would also return more money to the uninsured depositors if more funds are recovered than was expected.

The FDIC also proposed a fairly well developed variable rate deposit insurance premium plan. It said that the premium credit that banks receive should depend on their riskiness. The proposal called for a full credit for normal risk banks, a 50 percent credit for high risk banks, and no credit for very high risk banks. The FDIC expected the "vast majority of banks to be normal risk." The FDIC also provided a detailed discussion of how banks will be assigned to the three categories. The FDIC's variable rate insurance plan is not intended to influence bank risk positions, and will not do so because the size of the premium credit is too small. The FDIC does hope that its plan will bring greater equity to bank insurance premium payments by reducing the subsidy that normal banks provide to risky banks.

The FDIC argued that it should disclose supervisory actions taken against individual banks. The FDIC also argued that it should have sole responsibility for examining and insuring all banks and thrifts. If this part of the FDIC plan were implemented, then the FSLIC would be absorbed by the FDIC, which would also take over the Federal Reserve's and Comptroller of the Currency's examination responsibilities.

The FHLBB also supports variable rate deposit insurance premiums. Unlike the FDIC, however, the FHLBB wants its variable rate insurance premiums to influence insured institutions' risk exposure. The FHLBB report discussed the principles on which it would base variable rate insurance, but it did not provide any details on how its plan would work.

Private deposit insurance should be developed to provide additional coverage to government insured deposits, according to the FHLBB. The FHLBB would have the government insure deposits up to some minimum, with private insurance covering the excess. It also suggested some cap on private insurer's liability in case of a macro-economic policy failure. The FHLBB hopes that private insurers could substitute at least in part for government regulatory agencies in controlling insured institutions' risk. The FHLBB also proposed several measures intended to make thrift owners and managers more accountable for the risk position of their institution.

The FHLBB pointed out that many of the services provided to banks by several government agencies are consolidated for thrifts in the FHLBB. The FHLBB argues that consolidation of the services, such as chartering, examining and insuring in one agency is more efficient and facilitates the handling of failures. This leads the FHLBB to conclude that the bank regulatory agencies should be rationalized before the insurance funds are consolidated. The FHLBB report was written before its current chairman, Edwin J. Gray, took over. Gray is unambiguously opposed to agency consolidation.

The NCUA proposed two measures to reduce the risk exposure of credit unions: large accounts (over \$50,000) at credit unions should have insurance premiums and the first share of every credit union member should be uninsured. Most accounts at credit unions are small. The NCUA believes that the larger accounts are attracted by high interest rates at aggressive credit unions. It thinks that these aggressive credit unions are also taking on excessive risks to afford the high interest rates they pay. The NCUA would un insure the first share of all credit union members to give members greater incentives to monitor their credit union's risk.

The NCUA believes that private insurance is at least as good as government insurance for credit unions. The agency, therefore, proposes that federal credit unions be given the option of substituting private insurance for public insurance. The NCUA also believes that its fund is inadequate and it proposes a one-time assessment from credit unions to provide more resources to the fund. Credit unions would be assessed 1 percent of their insured shares to provide additional resources to the fund.

The NCUA is opposed to consolidating its insurance fund with the other funds, arguing that credit union interests would be ignored in an agency responsible for the banking and thrift industries.

agree that a stable supply of money is essential to a smoothly operating economy.

The payments mechanism is important because it contributes to the efficient transfer of money in the economy. Cash transactions are more efficient

than barter, but exchanging cash is inconvenient and expensive for many transactions. The cost of using cash can be particularly significant for large transactions. Today's payments systems (which are dominated by paper checks and wire transfers)



are convenient and less expensive. Depository institutions are important because they dominate third party payments transfer systems.

Deposit insurance, therefore, protects the money supply and the payments mechanism by maintaining public confidence in depository institutions. Depository institutions depend on public confidence. Without such confidence, depositors would withdraw their deposits. Insurance protects depository institutions by eliminating the incentive for people to redeem their deposits because it guarantees depositors that they will keep their funds, no matter what happens to their institution.

But deposit insurance does not provide complete protection of the money supply or the payments mechanism, because only depository institutions are insured. Insured depository institutions historically have had a dominant position in the money supply and payments mechanism, so the unprotected portion of both is small. This position has been eroding, however, and at some point in the future protecting insured depository institutions may not provide adequate protection to the money supply and payments mechanism.

Depository institutions' dominant position in the money supply appears to be more secure than their position in the payments system. If other features of the accounts are roughly similar, individuals have an incentive to place their money in insured depository institutions because of government deposit insurance. This incentive has only limited value, however, and individuals will move their money to nondepository institutions under the right circumstances. For example, money market mutual funds (MMMF) grew very rapidly during the late 1970s and early 1980s. MMMF growth was due in large part, however, to the interest rate restrictions imposed on depository institutions. When a money market account with no interest ceiling was authorized for insured institutions in 1982, some of the funds that had been in MMMFs returned to depository institutions. Thus, deposit insurance can help depository institutions maintain their de facto dominance of the money supply, but only if insured institutions offer competitive transaction accounts.

Depository institutions' virtually dominant position in the payments system is eroding. Depository institutions have a dominant role in checks and wire transfer, but the importance of checks in the

economy is being reduced through time.<sup>1</sup> Non-depository firms are playing a larger role in newer technologies such as ATMs and point-of-sale networks.<sup>2</sup>

If depository institutions lose their dominant position in the payments system, then deposit insurance will lose its ability to protect the system and other methods will have to be found to protect the payments mechanism.

**Cost of Using Money.** Deposit insurance also can reduce the information costs of using money.<sup>3</sup> In the absence of deposit insurance, any person or business wanting a checking account would need to evaluate the financial health of individual depository institutions. Furthermore, some individuals might be reluctant to accept checks drawn on weaker depository institutions and the cost of accepting checks would be substantial. Deposit insurance can reduce this cost by transferring the risk of loss and the responsibility for evaluating risks to the insuring body. This advantage of deposit insurance exists whether or not banks are vulnerable to financial panics. Individuals have an incentive to check on the financial health of depository institutions so long as bank failure can cause losses for depositors or those who receive checks, because banks can still fail due to insolvency.

**Other Benefits of Insurance.** In addition to these three general advantages, deposit insurance may benefit specific individuals and institutions. It may protect small, unsophisticated transaction account holders from loss. Many small depositors lack the ability to analyze financial institutions, and the costs of losing a small deposit can be important to them.

Deposit insurance also can help maintain the level of service in various local areas. If a depository institution fails, its community loses the services provided by the failed bank. Deposit insurance does not, however, guarantee that any community will receive a given level of service. It neither guarantees that a depository institution will be established in every community that desires one, nor that institutions will provide all the services desired by a community.

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<sup>1</sup>See the August 1983 issue of the **Economic Review** for a discussion of the future of checks and other payments systems.

<sup>2</sup>For example, Penney's is planning on using its communications network to carry payments information for unaffiliated corporations. See the November 1983 issue of **Transition**.

<sup>3</sup>See Merton for a discussion of the role of deposit insurance in reducing the costs of using money.



Deposit insurance also protects individuals' wealth. This raises problems, because insurance guarantees one investment, insured deposits, while leaving other forms of wealth at risk. Insuring wealth held as deposits results in those who hold a below-average proportion of their wealth in insured deposits subsidizing those who hold an above-average proportion of their wealth in insured accounts. Insuring deposits also increases the proportion of wealth placed in depository institutions. Any government deposit insurance system inherently guarantees some of the wealth of some individuals.

Some regard the ability of insurance to funnel wealth into insured institutions as an opportunity rather than a disadvantage. For example, the FHLBB notes that the FSLIC was originally created to maintain and improve the flow of funds to the housing industry, by lowering the cost of funds to institutions making mortgage loans. The question is whether deposit insurance is an efficient means of subsidy. The benefits of deposit insurance flow to all savings and loan customers whether or not Congress wants to subsidize them, including wealthy individuals who can buy unsubsidized houses. A direct subsidy would allow Congress to target its aid with greater efficiency.

Deposit insurance also provides benefits to two particular types of depository institutions: small institutions and credit unions. To the extent that depositors believe smaller institutions are riskier, in the absence of insurance they will favor larger institutions. The NCUA report notes that credit union officials believe insurance benefits them by helping in the competition for funds, encouraging sponsoring organizations to create new credit unions, and allowing credit unions to venture into new activities knowing that the insurance fund will handle any severe problems.

The desirability of using deposit insurance to benefit specific institutions seems questionable. The cost to society of allowing individual institutions to fail is relatively low, according to George Benston. The real price of not allowing depository institutions to fail, Benston argues, is that it allows inefficient firms to continue operating.<sup>4</sup>

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<sup>4</sup>See Tussig for an analysis of why banks should be allowed to fail. See also George Benston, "Deposit Insurance and Bank Failures."

## The Need to Reform Deposit Insurance

Deposit insurance provides several benefits to society, but it can also impose costs. The magnitude of those costs depends on the details of the deposit insurance system. At an extreme, a system of 100 percent insurance offered at no cost would provide a significant subsidy to institutions and their customers by having the government insurer absorb all risk of failure. Such a system also would encourage depository institutions to take on loans that yield a high return but are also very risky.<sup>5</sup> If the loans were paid off, the depository institution would profit. If the loans were not paid off, the insurer would cover the losses.

Three ways of reducing these costs of deposit insurance to society have been discussed recently: (a) some liabilities can be given less than 100 percent insurance, (b) premiums can be charged, and (c) regulations can be imposed to limit institutions' risk taking. All three methods are built into current laws providing for deposit insurance, but the agencies say that in practice these limitations have been ineffective. Each depositor is guaranteed insurance only on the first \$100,000, but most cases of failure have resulted in full deposit insurance for all depositors.<sup>6</sup> Insurance premiums have reduced the costs by making insured institutions bear the costs of ordinary failures. The agencies note, however, that insurance premiums have not limited institutions' risk exposure because the rates charged do not vary according to the bank's risk.

The FDIC and FHLBB reports argue that regulation has limited the risk exposure of insured institutions, but their reports offer only limited evidence to support this view. Furthermore, a case can be made that the institutions' management, rather than regulation, has limited their riskiness. For example, regulations do not prevent depository institutions from taking on enormous interest rate risk, but most have avoided doing so.<sup>7</sup> Furthermore, regulation generates incentives to innovate with substitutes that are not covered by regulation.<sup>8</sup> In some cases the regulations

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<sup>5</sup>A simple demonstration of the effect of deposit insurance on banks' incentives to take risks is given in Flannery. More analytic demonstrations are given by Kareken and Wallace, Merton and Sharpe.

<sup>6</sup>Other liability holders, such as subordinated debt holders, do suffer losses when an insured institution fails.

<sup>7</sup>Those institutions that did assume large interest rate risks, primarily thrifts, did so in large part because they were required to invest in long term, fixed rate mortgages.

<sup>8</sup>See Kane and Eisenbeis.



may actually weaken the ability of deposit insurance to protect the money supply by inducing innovations (like money market mutual funds) by uninsured firms. Regulations that limit depository institutions also impose costs on consumers because they limit consumers' options.

Another reason why banks can be expected to become more risky in a deregulated environment is given by George Benston elsewhere in this **Economic Review**. He notes that at one time many regulations protected banks from the competition of other banks and in some cases non-bank suppliers of financial services. This protection made a bank charter a valuable possession because it gave the owner an opportunity to earn an above-market rate of return. Aside from usual stockholder interest, bank owners were reluctant to take risks that might cause the bank to fail because that would mean giving up their valuable charter. Recent deregulation, however, has exposed banks to more competition and reduced banks' ability to earn an above-market rate of return. Presumably, this has lowered the value of the bank charter to its owners and increased their incentives to take risks. In other words, the franchise lost by bank owners is less valuable if their bank fails in a deregulated environment rather than in a heavily regulated environment.<sup>9</sup>

The old system of generally providing 100 percent de facto insurance coverage and no tiering (varying premiums according to bank risk) of insurance premiums provides an incentive for banks to take on excessive risk. Deregulation, as mentioned, may extend the problem by increasing insured institutions' ability and incentive to take risks. In this situation, some combination of increased incentives for private parties to monitor institutions' risk, risk-related premiums and increased regulation may be desirable to offset the incentives to take risk.

## Critique Of FDIC Insurance Reforms

The FDIC report argues that deposit insurance should protect the money supply, the payments system and small depositors. It further notes that the current flat rate premium schedule overcharges safe banks, and that the current system does not impose sufficient controls on insured institutions' risk. The FDIC report proposes that tiering insurance premiums would be more equitable,

and that the risk exposure of insured institutions would be reduced if private parties had a greater stake in the failure of insured institutions. The FDIC report, therefore, suggests several proposals for placing private parties at greater risk and the agency subsequently decided to implement one of the proposals, eliminating the 100 percent de facto insurance coverage on deposits.<sup>10</sup> Would proposals in the FDIC report enhance protection of the money supply or the payments system? Would they reduce the degree of bank risk?

The FDIC plan to tier insurance rates is indeed more equitable to banks. The current system makes the strongest banks pay as much as the weakest banks. The FDIC does not, however, depend on risk related premiums to reduce bank risks. The proposed differences in insurance premiums charged by the FDIC have typically amounted to less than 4 percent of banks' operating income before taxes, a relatively small proportion. Instead, the FDIC relies on a reduction in de facto insurance coverage to reduce bank risk exposure.

The FDIC proposes to reduce the effective coverage of deposits to \$100,000 in order to get large depositors to monitor the risk exposure of banks. Undoubtedly, some large depositors will evaluate bank risks and charge appropriate risk premiums as the FDIC wishes. The problem with the proposal is that large depositors can follow a variety of other strategies that will defeat the FDIC's intentions.

One of the problems is that the elimination of the de facto coverage of large depositors could provide them with more incentive to participate in bank runs. Deposit insurance reduces depositors' incentive to participate in runs by reducing their risk of loss. If insurance coverage is reduced then the incentive to participate in runs increases. The FDIC argues that its proposal does not impose large enough risks on depositors to induce bank runs. Two pieces of evidence suggest caution, however. First, large depositors already flee when an insured institution begins having financial difficulties because of the risk the FDIC will enforce the \$100,000 coverage limit.<sup>11</sup> Second, the FDIC estimates that its future expenses at failed banks will probably average 9

<sup>9</sup>This argument would be much stronger if it presented some evidence that regulation did increase the value of insured institutions' charters.

<sup>10</sup>FDIC plans are reported in Slater.

<sup>11</sup>For example, Sinkey reports that \$550 million in uninsured deposits were withdrawn from Franklin National prior to its failure.



or 10 percent of the failed bank's assets. This suggests that uninsured depositors may lose a large amount of money in future bank failures.

The FDIC proposal does provide uninsured depositors with immediate access to some of their funds, a condition that might reduce the potential for bank runs based entirely on depositors' concern for liquidity. The FDIC report includes no evidence, however, that bank runs are based primarily on depositors' concern for liquidity. Furthermore, the potential for losses of 9 to 10 percent might motivate rapid withdrawals by large depositors.

Another problem with the FDIC proposal is that it allows large depositors to substantially reduce their risk of loss by following a strategy that weakens the stability of the entire financial system. That is, large depositors can reduce their riskiness by holding all their deposits in demand deposits and very short term deposits. If large depositors did this, they would not need to monitor their bank's condition. Uninsured depositors could substantially reduce their risk by withdrawing their deposits when they heard a rumor about the bank having financial problems or about examiners visiting the bank. If many depositors followed this strategy, then the FDIC's plan would reduce the stability of banks while the agency still would bear the most risk of failure. The number of large depositors following this strategy will be reduced if long term rates are significantly higher than short term rates, but the number will be increased as the risk of bank failures increases.

The FDIC notes that its plan may have limited effectiveness at banks with few large deposits. The plan relies on uninsured depositors to reduce banks' risk exposure. A bank could avoid uninsured depositors' discipline, however, by minimizing its number of large accounts. Banks limiting their clientele to individuals and small businesses may have few accounts with balances over \$100,000. Elsewhere in this issue, Caroline Harless explains how brokered deposits can be used to avoid the \$100,000 limit. Thus, the uninsured deposit feature might not have much effect on the risk exposure of some banks.

These concerns do not imply that the money supply and payments system are in any danger. The Federal Reserve can still prevent a bank run from forcing banks to close by providing adequate liquidity to the financial system through open market operations. Congress and the financial system should recognize, however, that the FDIC

plans would shift more of the burden of protecting the financial system to the Federal Reserve.

## Critique of FHLBB Insurance Reforms

Thrifts, the FHLBB reports says, were originally given insurance to help maintain a steady flow of funds to the mortgage markets. The report predicts that some thrifts are going to reduce their role in the mortgage markets and begin to function more like commercial banks. This change will obviate somewhat the original reason for insuring thrifts, but also will provide a new set of reasons for insurance—the same reasons given for insuring commercial banks. The FHLBB proposes several measures to reduce thrift risk exposure: variable rate insurance premiums, partial reliance on private insurance, greater emphasis on legally enforcing the fiduciary responsibility of managers and directors, encouragement of mutual organizations to convert to stock organizations, and increased emphasis on capital adequacy.

The FHLBB notes that thrift insurance helps provide funds to the mortgage markets, but it does not argue that this role in itself justifies the continuation of deposit insurance. The report says that as thrifts gain more transaction accounts, the rationale for insuring thrifts will be the same as that for insuring commercial banks. But, so far, thrifts have not attracted a large volume of transaction accounts.<sup>12</sup> The FHLBB also discusses the protection that insurance provides to small institutions and depositors, but does not argue that these reasons are sufficient to justify continuing insurance.

The traditional case for insuring thrifts may appear to be weak, but withdrawing insurance is not a practical alternative. Thrifts with significant transaction accounts should be insured for the same reasons that banks are insured. If insurance were limited to thrifts with significant transaction accounts, then thrifts would maintain insurance by encouraging their time and savings depositors to convert to transactions accounts. Such a conversion would result in the continued deposit insurance for thrifts, but might also increase interest rate risk exposure. Conversion of accounts would increase thrifts' interest rate risk by shortening the maturity of their deposits while doing nothing about the long term nature of their mortgages.

<sup>12</sup>Transaction and Super Now Accounts were only 3.0 percent of deposits at savings and loans on March 31, 1983 according to Olin. She also reports that MMDAs accounted for 18 percent of their deposits.



The FHLBB report advances risk-related insurance premiums as an important means of reducing the risk exposure of the institutions it insures. The agency acknowledges that it cannot determine what premiums an insured institution should be charged to exactly offset the risks that it imposes on the FSLIC. The report also acknowledges that the existing empirical evidence to support such a risk-based system is weak. It nevertheless backs risk-related premiums as preferable to flat rate premiums.

Variable rate premiums charged by a government agency raise significant questions. One problem with government-determined insurance premiums is that correcting rate mispricing is costly. If a formula fails to measure risk adequately, then it can be corrected only through a costly appeal to Congress or the courts.

Another problem with variable rate government insurance is that appeals to the courts and Congress might be made on non-economic grounds. That is, the premiums set by the insuring agency might induce institutions to reduce their risk exposure, but they also might induce the institutions to look for other ways of reducing rates. Any action by a regulatory agency can be overturned by the courts or by Congress.<sup>13</sup> If a government agency set insurance premiums, then the premiums would be based not only on insured institutions' risk, but also on such legal and political factors.<sup>14</sup>

The FDIC and FHLBB reports' variable premium plans are both subject to these questions, but bear more heavily on the FHLBB plan. Problems with the FDIC premium formula are minor because the agency does not rely on risk-related premiums to control risk and because the differences in the rates charged are small. If the FHLBB risk penalties are significantly larger than those of the FDIC (which they should be given FHLBB objectives) then any problems in the FHLBB premium formula might affect thrifts' risk position and income more significantly.

The FHLBB "private insurance" proposal may increase the incentive for runs, even though it

also limits private insurers' liabilities. The FHLBB cannot guarantee that private insurers will have sufficient liquid funds to meet their obligations. If depositors were unsure of a private insurance company's ability to meet its entire obligation in a timely manner, they would presumably consider withdrawing their deposits from institutions rumored to be in trouble.<sup>15</sup>

The FHLBB's other proposals are unlikely to affect thrift risk positions significantly. Its proposal to enforce the fiduciary responsibility of thrift managers may discourage reckless behavior, but it is a relatively blunt tool for managing thrift risk exposure. A proposal to maintain capital adequacy at thrifts remains to be specified.

The FHLBB report also mentions the desirability of thrift conversions from mutual organizations to stock organizations. Conversion would help thrifts by making it easier for them to raise new equity capital, but it is not certain that it would reduce their risk exposure. The FHLBB notes that equity holders do not lose when a mutual organization fails (since the depositors are also the shareholders) but that stockholders lose when a stock organization fails. The FHLBB report concludes, therefore, that mutuals may be less sensitive to their risk exposure than stock organizations. In a stock organization, on the other hand, the stockholders stand to benefit from successful gambles. Thus it is not obvious that stock organizations will be less risky.

## Critique of NCUA Proposals

The NCUA report provides a strong case for reforming credit union share insurance. It favors allowing federal credit unions to substitute private insurance for government insurance, imposing higher premiums on large deposits, and creating a deductible for share insurance. The question is whether private insurance is an acceptable substitute for government insurance and whether higher premiums on large accounts and a deductible would reduce credit unions' risk exposure.

judgement. One government agency will still have to sift through the multitude of private sector opinions to determine an institution's risk. Many opinions of an institution's risk may be listened to, but insured institutions' premiums would still depend on the judgement of one agency. If institutions dislike that opinion, they still must engage in a costly legal or political appeal. Furthermore, if an insured institution does appeal to the courts or Congress, it can and probably will use noneconomic as well as economic arguments.

<sup>15</sup>This problem did occur for privately insured Mississippi savings and loans in the mid-1970s. See Leff and Park for a discussion of the Mississippi experience.

<sup>13</sup>An example of interference from the courts is the case of Biscayne Federal Savings and Loan. The owners of Biscayne Federal fought the FSLIC closure of their institution through the courts and won a preliminary ruling in their favor although the FSLIC won on appeal several months later. An example of the use of the political process to interfere in bank regulation is the pressure applied on bank regulators with regard to past due bank loans to farmers.

<sup>14</sup>The Bush Commission has suggested that variable rate insurance premiums are desirable but that the agencies should rely on private sector judgments to the extent feasible. Neither of the problems with government insurance premiums are avoided by relying on private sector



The NCUA report says that share insurance was originally provided to "...reward credit unions for a job well done and provide parity in insurance with other financial institutions." The NCUA then lists several advantages credit union officials believe they obtain from insurance. It does not specifically endorse any of the other advantages. These advantages generally embody subsidies, in one way or another, of credit unions by government insurance. The NCUA also argues that individuals should be able to have savings and transactions accounts required for routine needs at any institution without risk of loss. To meet this criterion, of course, the government would have to insure savings accounts at all institutions, which the NCUA proposes to do.

Credit union shares warrant insurance because they are a depository institution that offers a transaction account. Insuring credit union accounts would reduce the cost of using money to credit union members and would help protect the money supply.

The NCUA report maintains it is not important whether credit unions are insured by the federal government or private insurers; what matters is that they are insured. This raises the question of why government insurance of credit unions is needed if a private substitute is available. The NCUA answers that the government should be an "insurer of the last resort," maintaining that every credit union, no matter how risky, is entitled to insurance. An "insurer of the last resort" might be justified if the government wished to subsidize credit unions through share insurance or to protect wealth held at credit unions. Yet, as is noted above, subsidizing institutions and protecting wealth held in depository institutions are dubious justifications for insurance.

If the purpose of insuring credit unions, as with other depository institutions, is to protect the money supply and reduce the cost of transferring money, then private insurance is no substitute for government insurance. Private insurers' resources are limited, so these insurers are vulnerable to a loss of confidence. If shareholders lost confidence in the private insurer's ability, then the insurance would not be able to prevent a financial panic. Furthermore, depositors concerned about the safety of their money would have to evaluate both the credit union and its private insurer. Therefore private deposit insurance can neither protect the financial system from financial panic nor reduce the cost of using

money to the same degree as government insurance.

The NCUA proposal to increase insurance premiums on accounts above \$50,000 is not intended to affect the risk exposure of most credit unions. Whether this is a desirable measure for influencing the risk exposure of some credit unions depends on their role in our financial system. If credit unions are to become full-fledged competitors with other depository institutions, then the scaling of insurance premiums to account size would unnecessarily handicap their ability to compete. If, on the other hand, credit unions should serve only individuals of modest means, then such a scaling of premiums would both reinforce credit unions' role and reduce the risk exposure of some credit unions by discouraging them from seeking large deposits.

The proposal to eliminate insurance on the first share conflicts with the NCUA's stated purpose for deposit insurance without providing the NCUA with much protection. The agency argues that uninsuring one share would "...recreate, we believe, a greater sense of responsibility for the credit union among its members." The NCUA continues, however, that "An individual should be able to deposit a reasonable amount of funds ... without being required to constantly monitor the safety and soundness of the institution and worry about loss."<sup>16</sup> Thus, the proposal would have depositors (shareholders) monitor their credit union, but says that insurance is needed so that they will not have to monitor the credit union. Society benefits if people do not have to use their resources to monitor the safety of their transactions accounts. Another problem is that other depository institutions would offer fully insured accounts. If shareholders are concerned about the safety of their shares, they may shift funds to fully insured institutions. Those who decide to leave their funds in a credit union would be those least likely to care about their credit union's risk exposure.

## An Alternative Reform

Deposit insurance performs several valuable functions, but a poorly structured deposit insurance system also can impose significant costs. The current system needs to be reformed, but

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<sup>16</sup>Pages 2-6 of the NCUA report.



proposals to increase depositor exposure to risk, to charge risk-related premiums and to substitute private for public insurance all have significant problems. Fortunately, other reforms could reduce deposit insurance's cost while preserving its benefits. One appealing reform idea—that banks be required to carry more subordinated debt—is contained in the FDIC report.<sup>17</sup> Subordinated debt holders may lose their investment if a bank fails, so they have an incentive to monitor a bank's risk. Maturity requirements could be placed on subordinated debt so that the debt, unlike demand deposits and short term deposits, could not leave the bank at the first sign of trouble. Subordinated debtholders do not share in the benefits of bank risks that pay off, so they have no incentive to encourage the bank to take more risks.

A modest increase in required subordinated debt at insured institutions would encourage the institutions to decrease their risk exposure. A substantial increase would be even better because it would allow discipline imposed by private creditors to replace at least some of the discipline currently imposed by government regulation. Ideally, the requirements for the total of an institution's subordinated debt plus equity should be lifted to a point where the private sector bears virtually all the risk of failure. Such a shift would reduce the need for most other government safety and soundness regulations. Government regulation of institutions' equity capital position, for example, might be unnecessary. The financial markets could control depository institutions' equity capital positions as they do for most corporations.

An increase in subordinated debt seems to offer a logical long run solution, but it would take time to implement. The amount of subordinated debt that can be issued is limited by practical problems. Insured institutions' ability to sell subordinated debt is limited, as is the financial market's ability to absorb the debt.

Institutions' ability to sell the debt is limited by their financial strength and the effect subordinated debt has on the maturity of their funding. Some institutions, such as small, volunteer-run credit unions, may have problems finding investors interested in their debt. Other

institutions, especially some thrifts, are currently so weak financially that few would be interested in buying their subordinated debt.

Minimum maturity requirements placed on subordinated debt could cause problems for institutions that seek to maintain some balance in the maturity of their assets and their funding.<sup>18</sup> Currently, bank subordinated debt is required to have an original maturity of at least seven years. Furthermore, debt with a remaining time to maturity of less than five years is not given full weight.<sup>19</sup> This burden on insured institutions can be reduced in several ways. The existing requirements are longer than needed if the only concern is preventing funds from leaving a bank immediately prior to failure. The insuring agencies should be able to handle problem institutions in one year or less. Insured institutions could continue to be allowed to issue floating rate subordinated debt that would reduce any potential interest rate risk problems. Insured institutions also could adjust the maturity structure of their liabilities to offset some undesirable attributes of their subordinated debt funding. Finally, the burden imposed on banks could be reduced further by giving the insuring agencies the power to allow banks to retire their subordinated debt early and to repurchase their own stock if the bank has far more equity and subordinated debt than the standards require.

The financial markets probably could absorb more insured institutions' subordinated debt now, but they would need time to absorb enough subordinated debt and equity to transfer all the risk of failure to the private sector. In principle, the amount of equity plus subordinated debt needed to transfer virtually all the risk to the private sector depends on the government's policy for closing failed banks and the risk of a sudden large loss in the value of the banks' assets. If insured institutions were promptly closed when their economic worth reached zero, then the required private funds at risk would be smaller than if they were allowed to operate with negative economic worth. Similarly, if insured institutions have a well diversified asset portfolio, minimal interest rate risk and few contingent liabilities, then they will require relatively less private funds at risk because they are

<sup>17</sup>Horvitz also argues in a series of articles that subordinated debt is a better method of controlling bank risk.

<sup>18</sup>See Pringle for a discussion of the importance of banks' control over the maturity of their funding.

<sup>19</sup>These requirements are placed on subordinated debt that banks wish to include in the calculation of their total capital ratio. Subordinated debt with between 4 and 5 years to maturity is counted at 80 percent of its book value, debt with between 3 and 4 years counts 60 percent and so forth with debt maturing in less than one year being given no weight.



less likely to suffer a large sudden drop in their asset value.

The simplest solution may be to require a relatively large amount of equity plus subordinated debt, and require banks to meet certain diversification, interest rate risk and contingent liability requirements. Virtually all the risks would be shifted to the private sector if banks have equity and subordinated debt equal to 20 percent of their assets.<sup>20</sup> Finer calculation may reduce the percentage, which also might be lower under different examination and closing policies. Indeed, Bierwag and Kaufman point out that depositors and the FDIC would not be at risk if banks were closed immediately after their net worth fell to zero.

If 20 percent of assets were required, then a substantial amount of new issues would have to be sold. Under the proposal, commercial banks with assets in excess of \$100 million would be required to increase their subordinated debt plus equity from about \$104.4 billion to \$361.4 billion. A number of years would be required to develop a market for the subordinated debt and equity that banks would have to sell.

A substantial increase in insured institutions' subordinated debt is desirable even if all the risks of insured institutions' failure cannot be transferred to the private sector. Admittedly an increase in the subordinated debt requirements might have higher servicing costs and they will create some problems for banks liability management. Such an increase will, however, provide an incentive for the private sector to monitor bank risk in a way that is unavoidable (unlike limitations on deposit insurance coverage). Furthermore, increases in subordinated debt requirements do not increase the incentives for bank runs.

### **Private Sector Discipline: What About Multinational Banks?**

The FDIC report notes that uninsured depositors may exert little discipline on multibillion dollar institutions because they do not believe that such an institution would be allowed to fail.

As George Benston notes in this issue of the **Economic Review**, no plan to shift risk to private creditors and insurers will be fully effective if large institutions are not allowed to fail. Thomas Mayer analyzed the question of allowing large banks to fail and concluded that protecting depositor confidence may be an important reason for protecting large banks. He also argued, however, that such protection would not be needed if 100 percent deposit insurance existed.

Mayer's analysis suggests that the FDIC goal of protecting depository institutions from panics is inconsistent with its plan to rely on depositors to discipline insured institutions' risk position. The problems with the FDIC plan do not mean, however, that no system can be devised that simultaneously maintains depositor confidence while relying on private creditors to discipline bank risk exposure. One workable alternative would be a system of 100 percent insurance for all deposits together with a requirement for insured institutions to increase their use of subordinated debt. In this system, large banks could fail without affecting depositor confidence. Furthermore, this plan would accomplish the FDIC goal of encouraging the private sector to monitor bank risks.

Bevis Longstreth argues that large financial institutions have significant credit relationships with other financial institutions. He says allowing major institutions to fail could cause serious problems for the financial system. If large depository institutions are to be protected, one of several approaches could be taken to control their risk. One possibility is that no additional measures be taken to limit these institutions' exposure to risk. Insuring an institution's losses while allowing it to keep any profits encourages the institution to take on excessive risks. The multinational organizations might well follow this incentive.

Another possibility is that the risks could be controlled through a significant increase in regulation. This option also has problems, as evidenced by the success of money market mutual funds when bank interest payments were constrained. The money market funds were able to

<sup>20</sup>The 20 percent of assets figure is a rough approximation of the amount banks should be required to have and is based on three elements: the FDIC's expected costs in closing failed banks, the losses borne by shareholders at failed banks and a safety margin. The FDIC's report says that the FDIC's expenses had averaged 4 percent of bank assets between 1930 and 1980, but that the average has risen to 9 percent of assets in recent years. The FDIC says that it expects its costs in the future to remain around 9 to 10 percent. The losses borne by bank equity

holders and uninsured creditors vary by bank but a reasonable approximation for these losses might be 4 to 8 percent of bank assets. A 20 percent of assets standard thus exceeds probable losses at failed banks by at least a couple of percentage points. The amount of equity plus subordinated debt that is required if this alternative plan is adopted should obviously be based on a more careful analysis of expected losses at failed banks.



attract money that would otherwise have been deposited in insured institutions. This resulted in a large pool of highly liquid funds being controlled by uninsured institutions. If some financial institutions are to be insured and not others, that could raise the problem of competitive advantages for uninsured institutions.

A third possibility is that the risks could be controlled through risk-based insurance premiums. The problems with this option are that correcting errors in the government premium system would be expensive and that institutions would appeal their premiums on legal and political grounds as well as on economic grounds.

The fourth possibility is that private sector discipline could be strengthened through a dramatic increase in the **equity capital** standards applied to multinational institutions. An increase in the required equity capital at multinational institutions would increase private sector discipline because equity holders could suffer losses even if the institution were not closed. An increase in subordinated debt can only be an effective control on an institution's risk if the institution can fail, because subordinated creditors can suffer losses only if the institution fails. The problem with this option is that equity capital can be more costly for institutions to raise than subordinated liabilities. If multinational depository institutions were forced to raise excessive capital to replace subordinated liabilities, they might be placed at a competitive disadvantage vis-à-vis uninsured institutions.

Each of these options has significant disadvantages, which need to be weighed against the potential harm of closing a multinational institution.

## Financial Disclosure

All three agencies believe that financial disclosure is important if the private sector is to discipline bank risk taking. None of the three agencies favors the disclosure of examination findings, but the FDIC report urges that agency actions taken against insured institutions should be disclosed. The FDIC notes that the insuring agencies' authority to mandate disclosure is limited to information the agencies need for deposit insurance. The FDIC does not want the authority to mandate further disclosure because it holds that disclosure is the bank's responsibility. Bank managers, however, have an incentive to hide their mistakes both from the bank's creditors

and from stockholders. If the managers disclose their mistakes, they may receive lower bonuses or even lose their jobs. Government minimal standards would guarantee adequate disclosure.

The problem of management's incentive to hide its mistakes is not unique to depository institutions; all publicly traded firms have the same problems. The current system protects investors in public firms, including investors in bank holding companies and savings and loan holding companies, by requiring that their disclosure meet standards set by the Securities and Exchange Commission (SEC). If most of the burden for disciplining depository institutions were placed on the private sector, then the SEC's standards could provide a good model.

## Adequacy of the Insurance Funds

The FDIC says that its fund is adequate, the FHLBB thinks its fund may need to be increased and the NCUA argues that its fund must be increased. These funds must be evaluated from two different perspectives: the ability of the fund to handle a financial crisis and the amount of resources contributed by insured institutions to handle non-panic failures.

A fund's ability to handle a financial crisis is important if deposit insurance is expected to prevent financial panic. To prevent such a panic, the fund should have unquestionable resources and liquidity. The alternative to relying on deposit insurance to maintain public confidence is to rely on the Federal Reserve in its role as lender of last resort (LLR). The LLR can prevent panic situations either by making loans directly to troubled institutions or by providing liquidity to the financial system after the panic begins. The Federal Reserve has the ability to create money and, therefore, can create the resources needed to handle any financial panic.

Both the FDIC and FHLBB say that insurance should protect the money supply and payments mechanism. The FDIC does not acknowledge that this function could be performed by a lender of last resort. The FHLBB does, but it contends that action by the LLR is discretionary.

The current system, however, does not rely on deposit insurance alone to protect the money supply and payments mechanism. Deposit insurance has reduced the incentive for depositors to participate in financial panics, but large commercial banks have too many uninsured deposits



for insurance to stop all tendency towards panic.<sup>21</sup> The current system would be dependent on the LLR if the public lost confidence in large commercial banks because large accounts are not guaranteed 100 percent by insurance. The FDIC proposal to reduce effective coverage would shift even more of the responsibility for protecting the money supply and payments mechanism to the LLR. Therefore, the ability of the insurance fund to handle a financial panic is important but not crucial. The LLR, which has ultimate responsibility for protecting the system, would still be able to protect the financial system even if the insurance fund collapsed.

But there are other problems. The twin goals of preserving depositor confidence and trying to have large depositors discipline institutions are in fundamental conflict. The current system forces the LLR to choose which goal will be attained. It could expose depositors to risk by following its classical role of protecting the liquidity of the financial system in the event of a panic but ignoring the problems of individual institutions.<sup>22</sup> Then large depositors would occasionally lose confidence in some depository institutions. Alternatively, the LLR could protect confidence by providing loans to troubled institutions. These loans constitute a subsidy to the extent that the institutions could not borrow an equal amount on the open market at the same rate. If the market expected the LLR to provide funds at below market rates, then large depositors would be less effective in disciplining institutions.

Deposit insurance could prevent bank panics by itself if the public were confident that all deposits were insured. If the public felt that its deposits would not be at risk even if a bank failed, then it would have much less of an incentive to participate in a bank run. If 100 percent deposit insurance were adopted, the public's perception of the funds' ability to handle potential failures would be crucial. The current deposit insurance funds would be inadequate in a 100 percent insurance system because they do

not guarantee that they could honor their commitments on a timely basis.

The current insurance fund system has some problems that could weaken the public's confidence in its ability to weather serious financial problems. A fundamental problem is that it relies on insurance funds. This reliance could weaken depositor confidence by leading the public to believe that deposit insurance would disappear when the funds were exhausted. Another problem with the funds is that their resources and liquidity are not guaranteed under the current system. The FDIC recognizes the desirability of increasing its resources. It currently can borrow up to \$3 billion from the Treasury, but it would like to be able to borrow as much as the secretary of the Treasury thought was needed during an emergency. The FDIC proposal still does not guarantee that it will have adequate resources to handle any problem.<sup>23</sup> Furthermore, most of the insurance funds' assets are invested in Treasury securities, which may be hard to sell during a true financial panic. In order to guarantee the agencies both resources and liquidity, they must have access to as much money as it takes to handle all conceivable failures.<sup>24</sup>

The other dimension of the insurance funds' adequacy is their ability to meet routine failures without relying on funds from the Treasury. The FDIC and NCUA both make reasonable arguments about the ability of their respective funds to meet non-panic failures. The FHLBB does not say the FSLIC fund is inadequate, but it notes that the fund could have been exhausted if interest rates had returned to their 1981 levels for 1983 and 1984. The potential problems with the FSLIC fund are not, however, so much related to the fund's size as they are to the FSLIC's inability to close institutions with negative net economic worth. The FHLBB acknowledges that if the FSLIC had closed institutions when they first reached negative net economic worth, then the fund would never have been in danger. Instead the FSLIC waited until institutions had negative book value before closing them. No

<sup>21</sup>The FDIC report shows that over 25 percent of the deposits at banks with assets of \$1 billion or more is in accounts of \$100,000 or more. The percentage of funds in accounts that are not fully insured rises to 71 percent of total deposits at banks with assets of \$10 billion or more if foreign deposits are counted.

<sup>22</sup>See Humphrey and Keleher.

<sup>23</sup>Suppose as a purely hypothetical example, that several foreign countries with large debts to United States banks reneged on their debt and this made some large United States banks insolvent. The failure of several large banks could reduce the FDIC's fund to dangerously low levels. Suppose further that the Secretary of the Treasury became obsessed

with reducing the budget deficit and was unwilling to provide the FDIC with additional funds. Under these circumstances, the financial markets could become concerned about the strength of the banking system and a financial panic could begin. Even in this unlikely scenario, the financial system would not collapse because the Federal Reserve would almost certainly step in to provide liquidity to the financial system, but the FDIC would be powerless to stop such a panic.

<sup>24</sup>The insuring agency could be given access to the money directly by making it a part of the central bank or indirectly by giving it unlimited access to the Treasury and requiring the central bank to purchase new Treasury issues used to fund the insurance agency if necessary.



deposit insurance fund can be large enough to meet routine failures if economically bankrupt institutions are allowed to continue accumulating losses for extended periods before they are closed. Thus, there is merit in the idea that regulators use economic values rather than book (or accounting) values as much as possible.

The need for the funds to be able to handle a financial crisis is questionable. Large, uninsured depositors can lose money in a bank failure under the current and FDIC proposed systems. Therefore, these depositors have an incentive to panic regardless of the funds' ability to weather a financial crisis. If insurance were modified to protect large depositors, reforms would be needed to provide the funds with unquestionable resources and liquidity.

The agencies' recommendations appear reasonable with respect to the second dimension of fund adequacy, the ability of the fund to handle routine failures without Treasury assistance. The key point that emerges from analyzing the second dimension, however, is that regulators should use economic rather than accounting values where possible. No fund by itself can meet the losses a failed institution can generate if it is allowed to continue in operation.

## Agency Consolidation

The FDIC favors consolidating the examination functions of the Office of the Comptroller of the Currency and the Federal Reserve System, and the examination and insurance function of the FHLBB into the FDIC. The FHLBB concedes that there is some merit in consolidating the regulatory agencies, but it argues that the banking agencies should be rationalized before any functions are taken from the FHLBB. The NCUA flatly opposes consolidation. Our evaluation may shed some light on the relationship among deposit insurance, supervision and regulation, and the Federal Reserve's role as lender of the last resort.

The relationship between the insuring agencies and the lender of last resort depends on how potential financial panics are handled. In the abstract, if the deposit insurance system and the LLR have joint responsibility for preventing financial panics, then the Federal Reserve may need an important role in bank supervision and regulation. If, on the other hand, the federal government wants to limit the effect of panics, but does not seek to prevent financial panics,

then the LLR needs no supervision and regulation powers beyond those necessary to conduct monetary policy.

Complete confidence in depository institutions can be preserved by 100 percent deposit insurance or by LLR subsidies of failing institutions. In order for full insurance to be effective in maintaining depository confidence, the insuring agency must have unquestioned resources and liquidity. This implies that the Federal Reserve must be involved, because it is the only government body that can create money. At one extreme, the Fed's role might be limited to creating money at the insuring agencies' request, effectively turning monetary policy over to the insuring agency. Alternatively, the Federal Reserve could take over all of the functions of the insuring agencies and assume sole responsibility for handling financial crises.

The current deposit insurance system ultimately depends on potential LLR loans to preserve depositor confidence. Stripping the LLR of supervision and regulation functions in this environment would reduce its ability to recognize and avert potential serious problems. If an LLR without close involvement has difficulty recognizing the seriousness of potential problems, then it may underreact and fail to stop a panic situation, or overreact and provide subsidies where none are needed.

The Federal Reserve System maintains that its monetary policy responsibilities require that it be actively involved in bank supervision and regulation. Others argue that the Federal Reserve has no such need and that there is a potential conflict between the Fed's conduct of monetary policy and the Fed's bank supervision and regulation responsibilities.<sup>25</sup> Any redrawing of the Federal Reserve's responsibilities also will need to consider these issues.

## Conclusion

Congress picked an issue ripe for action when it asked the insuring agencies to review deposit insurance. The current insurance system provides incentives to take risks, and financial deregulation may be increasing banks' ability and incentive to

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<sup>25</sup>See Peterson for a review of the literature on this potential conflict of interest.



take risks. Congress needs to identify those functions that it wishes to have deposit insurance perform and then enact the system that will meet those functions at the lowest cost.

The FDIC and FHLBB stress the protection insurance provides to the financial system, especially the money supply and payments system. Both contend that the current system provides adequate protection but needs to be adjusted to reduce the incentives for insured institutions to take risks. The FHLBB proposes to do this through variable rate government insurance and private insurance. A variable rate government insurance, however, would make depository institutions dependent on one government agency's definition of risk, a definition that might be heavily influenced by political factors. Private insurance does not seem to provide a good substitute for government insurance because its capacity to handle failures is most suspect when the insurance is most needed, during periods of significant financial problems.

The FDIC argues that placing large depositors at risk will reduce the risks taken by insured institutions while preventing financial panics. In practice, any attempt by the government to place large depositors at risk will give them substantial incentives to participate in financial panics. The FDIC proposal, thus, shifts more of the burden of protecting the financial system to the Federal Reserve. The NCUA suggests that all shareholders (depositors) should bear some of the risk. To the extent the NCUA plan succeeds in getting shareholders to monitor credit union risk, it would create the same incentives for depositor anxiety as the FDIC plan.

—Larry D. Wall\*

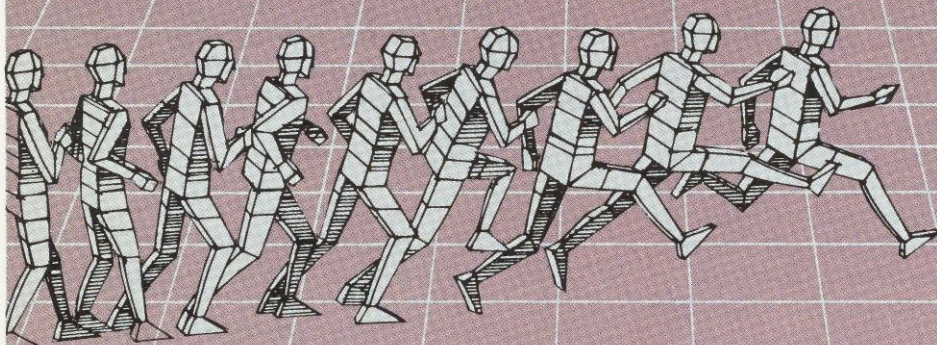
\*The author would like to thank George Benston, Leonard Lapidus and Samuel Talley for valuable discussions and B. Frank King and Robert Eisenbeis for comments on an earlier draft. The views expressed are those of the author and do not necessarily reflect the opinions of the individuals cited above.

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## The Advent of Biotechnology: Implications for Southeastern Agriculture

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"No new industry will make more of an impact on America...in the next 20 years than the gene-splicing business,..." **The Futurist**, June 1982.

Freezing weather! Two especially ominous words for southeastern crop producers in 1983. Unusual freezes both early and late in the year inflicted heavy damages on fruit and vegetable growers. Tender vegetables were virtually wiped out when a Christmas-day freeze reached all the way to the normally safe winter cropping areas of Florida.

If the tomato could somehow withstand the cold temperatures as does its cousin the Irish potato, the damage from untimely frosts

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Civilization may stand on the edge of a biotechnological revolution that could affect virtually every area of the environment. Because much research so far has focused on high value-per-acre crops like cotton and tobacco, the Southeast may be one of the first areas to benefit from the new research.



could be greatly diminished; even potato plants vary considerably in their ability to withstand freezes. What home gardener has not observed that a few plants appear relatively untouched by a freeze when next door neighbors along the row have turned black and fallen over? The difference is probably due to variations in the genetic material inside each living organism that determines its characteristics.

That genetic material, and progress researchers are making in changing it, now offers hope that frosts may one day be less destructive to such tender plants as tomatoes. In fact, wild tomato plants have been discovered growing in mountainous regions of South America that can withstand frosts.<sup>1</sup> But the fruit these freeze-hardy plants produce is a hard little inedible berry. And although domestic varieties of tomatoes can be crossed with this wild relative, the freeze-hardiness of the offspring seems of little value if the fruit is useless. Over limitless generations of selection and recrossing, plant breeders might eventually succeed in getting most of the desirable fruit qualities of domestic tomatoes and the characteristics of freeze-hardiness grouped together in one plant. But the immense excitement of biotechnology, and specifically genetic engineering, is the potential to shortcut this long, tedious, and usually disappointing selective breeding process.

Researchers believe they eventually will be able to identify the specific gene that induces freeze-hardiness in the wild tomato plant and transfer that genetic material directly into the nucleus of the cell of a domestic tomato. The resulting plant would retain its desirable fruit characteristics while incorporating the wild plant's cold resistance. Freeze-hardiness, as well as other favorable characteristics, would then be passed along in a natural way to its offspring.

The economic implications of this one achievement for the tomato plant alone are important for the winter-grown vegetable industry. But this only hints at the biotechnological developments already beginning to emerge on the agricultural scene. Although work of this nature is proceeding rapidly in both the plant and animal kingdom, we will confine this article to the background of biotechnological research and some of the more prominent developments relating to commercial

crop production. We also will suggest some implications for southeastern agriculture. Developments in the livestock industry will be explored in future issues.

## Biotechnology: What is it?

The science of genetics, which is the wellspring of biotechnology, originated with the Austrian monk Gregor Mendel, who in 1866 published the first "laws of genetics." Mendel's observations resulted from many years of working with generations of plants. In the more than 100 years since, science has uncovered how nature passes genetic information from generation to generation.

Biotechnology can be defined almost literally as the technology of life. The field embraces a variety of techniques by which organisms ranging from man to micro-organisms can be altered. Biotechnology ranges from such straightforward methods as tissue culture and cloning existing cells, to the more esoteric recombinant DNA, or genetic engineering that changes the basic nature of cells.

At present, tissue culture provides the most important application of biotechnology.<sup>2</sup> The technique has long been known, but only within recent years has it gone into widespread use. For crops such as tomatoes, tobacco, potatoes and sugarcane, the use of tissue culture occurs routinely; however, for other crops, such as grains, the technique has yet to be successfully adopted. In essence, the operation involves taking a minute amount of tissue from a plant, placing it in an ideal artificial environment, and growing it to the desired stage of development. The final result may be a full grown plant, or the process can be stopped at any stage short of that.

The benefits from tissue culture are enormous. For example, thousands of separate cell cultures can be started in a laboratory and subjected to some adverse variable such as drought. Those cultures surviving presumably would have stronger drought tolerance than others. A culture can be grown to a full size plant, providing selected material to plant breeders for use in developing new strains of crops. In addition, the genetic diversity observable in a laboratory of tissue cultures would require several acres if tested in

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<sup>1</sup>"The Race to Breed a 'Supertomato,'" *Business Week*, January 10, 1983, p. 34.

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<sup>2</sup>Robert Cooke, "Engineering a New Agriculture," *Technology Review* (May/June 1982), p. 26.



field grown plants.<sup>3</sup> Tissue culture has been especially helpful in forestry. Tree breeding historically has been a slow process taking several decades for the results of breeding experiments to be expressed. Tissue culture can speed up the process substantially.

Genetic engineering has the potential to become the most significant area of biotechnology, but it also is the most complex and controversial. Essentially it involves the introduction of genes to (or deletion from) an organism to give it some favorable characteristic that it can pass along to its descendants. The work done with tomatoes indicates how researchers may alter living cells to achieve some desired objective. Genetic transfer may allow researchers to engineer new plants with characteristics radically different from those now in existence.

One novel manner of looking at biotechnology is to consider it part of the on-going information revolution. The complexity of the information transfer process in biotechnology far exceeds that in computer technology. The transfer of genetic traits from parent to offspring is the passing of information between two succeeding generations, information that is more complexly coded than anything man has yet to invent. This information tells each cell of the succeeding organism what purpose it has in life.

When there is a breakdown in this transfer of information, the receiving organism will be altered from its parents. This alteration—a mutation—may be for better or worse, because the new entity could have some new desirable characteristic or some life threatening trait. Mutations occur rather frequently in nature, sometimes altering species. As the environment changes, organisms without the proper genetic make-up die out, while those with favorable mutations or necessary traits survive.

The science of biotechnology is concerned with assisting nature with the normal information transfer. Researchers take encoded information from one organism that has been broken down to its specific elements and insert it into other organisms. These entities then pass to their offspring not only the normal genetic information but also the added material that has then become part of the species characteristics. The advantage of biotechnology over natural transfers of genetic information is speed, plus the possibility of

adding desirable characteristics that might not otherwise be attainable. Mankind learned long ago that depending on nature alone for plant adaptation was a risky long term process. Even with science's help, traditional breeding programs often have taken years to pay off with new plants. Biotechnological applications someday could achieve successful transfer of desired genetic traits within months.

## Biotech's Development

In 1971 the first company (Cetus) was formed in Berkeley, California to engage in commercial development of genetic engineering (see time chart). Widespread research was also beginning in university labs. In 1975 a group of the world's leading scientists met in Monterey, California to establish safety guidelines for laboratory experiments in biotechnology. At the Asilomar Conference (as it became known) these scientists established strict laboratory rules and urged the scientific community to adopt these precautions. Later, the National Institutes of Health adopted the basic guidelines for all NIH-supported research and urged the voluntary compliance of all others.

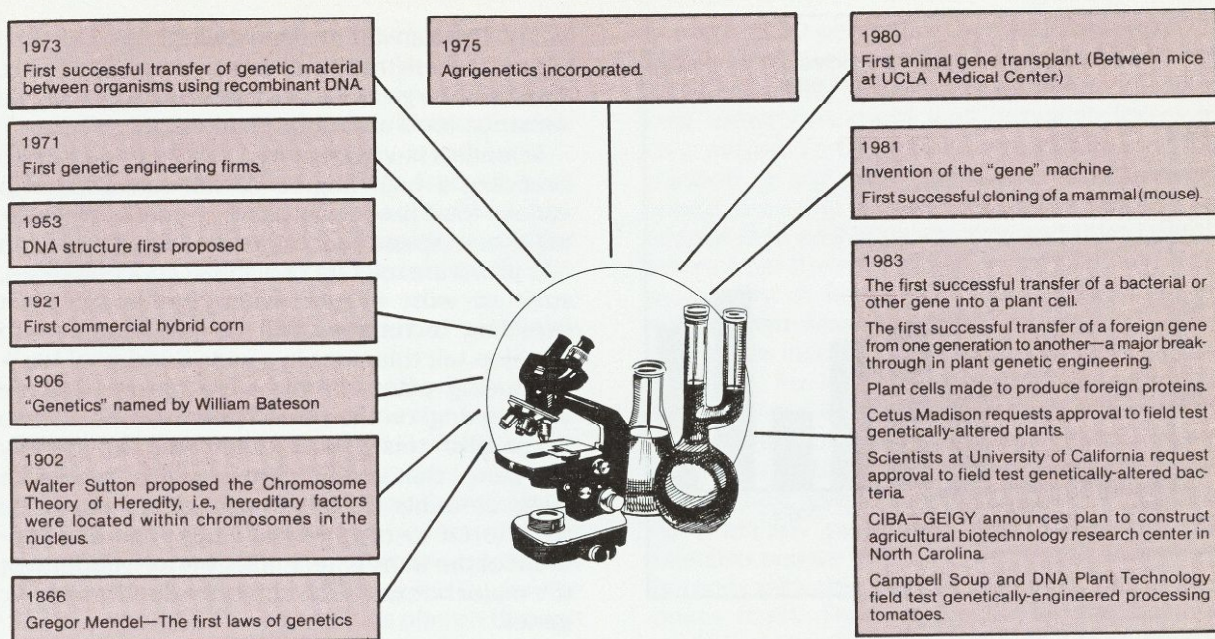
By the late seventies there were still only a few companies actively engaged in research in this field. One disincentive was the question of patentability of products. Firms were reluctant to spend the vast sums required unless they could retain control and reap the benefits from their developments. On June 16, 1980 this question was resolved when the U.S. Supreme Court concluded that laboratory creations could indeed be patented. Following this court decision, biotech firms multiplied rapidly in virtually every field of endeavor. Today well over 100 such firms exist, and many large established companies are conducting in-house research.

If there is any doubt that biotechnology is growing rapidly, consider these facts. From March 1971 to February 1972 only eight listings appeared in the Readers Guide to Periodical Literature under the heading "genetic research." In that same period the listing "plant genetics" did not even exist. A decade later, there were 74 entries under genetic research and 19 under the title plant genetics (Chart 1). And perhaps an even better indicator of the growth of its commercial potential can be gained from the Business Periodicals Index. In 1976 there were 18 listings under genetics but none for genetic engineering

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<sup>3</sup>Quick Book, Genetic Engineering of Plants. California Agricultural Lands Project, 1982.





or genetic engineering firms. Five years later there were 40 listings under genetic engineering and 35 under genetic engineering firms.

Genetics usually is thought of as complicated and technical, which probably accounts for the public's general lack of knowledge about it. At its simplest, however, it can be understood more readily. Every entity, plant or animal, is composed of building blocks called cells. Within each cell is an information system coded in a unique manner which, among other things, directs the cell to perform its primary function. For instance, the cells composing the stomach perform one duty, while brain cells perform another. Yet within every normal cell is all the information needed for the body to perform its functions. This information is stored in thousands of units called genes inherited from the organism's parents.

Genes do not set a precise characteristic but rather a range through which the environment also works to establish a trait. For example, genes provide a height range by which, under ideal conditions, the bearer will reach the upper limit of that range, but under less ideal conditions may be at the lower end of the range. Genes may someday be introduced that would provide the corn plant with the capability of reaching 20 feet high, but inadequate moisture could well reduce

the growth to no more than the ordinary five or six feet.

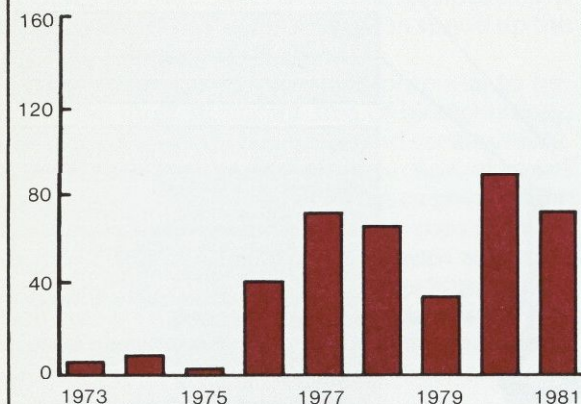
## Agricultural Impact

The Agricultural Revolution began in the late 19th century and has extended to the present. During that period, thanks to plant breeding, mechanization, the development of commercial fertilizers, and the invention of pesticides, yields of most crops doubled or tripled. As a result, less farmland today feeds more people.

As important and significant as the past 100 years have been to agriculture, the industry stands today on the edge of still another revolution. This new revolution will be the result of biotechnology, whose potential contribution to agriculture and a variety of other fields can hardly be overstated. Breeding of plants containing desired characteristics can be accelerated substantially. A variety of traits that have been extremely difficult, if not impossible, to aggregate in single individuals through cross breeding may now be developed more easily. Over the next quarter century it is possible that agriculture will undergo changes as far-reaching as any in its history. Those changes will affect both producers and consumers.



**Chart 1.** Genetic Research Articles  
March 1973-February 1982



Biotechnology could aid commercial production of agricultural plants in several ways. The most important are nitrogen fixation, plant photosynthetic enhancement, salt tolerance, improved plant varieties with increased protein content and resistance to diseases, insects, drought, and herbicides. Plants need nitrogen in order to grow. Although nitrogen abounds in the air space within the soil, plants cannot use it directly. Bacteria that grow on leguminous plants' roots absorb nitrogen and, combining it with other substances, produce nitrates the plant can use. Nitrogen fertilizers are applied to supply this food element to plants lacking this capability. A growing problem with such fertilizers, however, is the increased pollution from run-off and the rising cost of fertilizers that use large amounts of natural gas.

An improvement in the efficiency of plant photosynthesis also would represent a major development in agriculture. Plants presently convert one percent of the absorbed energy from sunlight into sugars. If farmers could achieve a conversion rate of 2 percent, a plant might double its rate of growth.<sup>4</sup> Obviously, acquiring that increase through ordinary breeding and selection would be a major task requiring many

years. The transfer of a genetic trait for improved photosynthesis could have an immediate impact. Even minute gains in conversion efficiency would enhance food and fiber production.

Scientists have devoted considerable effort to breeding a high degree of salt tolerance into various food-producing plants. Genetic engineering should speed success in this area. Because so few plants are tolerant of high salt concentrations, such as exist in sea water, traditional plant breeding techniques will be hard pressed to develop salt tolerance in a wide number of food-producing plants in the near future. Genetic engineering, on the other hand, may be able to accomplish this goal. If researchers can identify the genes that enable certain plants to tolerate large amounts of salt, those genes could be transferred to commercial crops. The development of the transfer technology is well underway; the major holdup is the ability to identify specific genes.

What would increased salt tolerance mean to producers? Coastal land that has been unusable or of limited use could support a commercial crop. Worldwide, literally millions of acres of arid lands adjacent to saline water could be utilized for food production for the first time. Within the Southeast, salt water encroachment into irrigation wells as fresh water is removed would be less of a problem if resistant plants were available. This single improvement would enable vast increases in world agricultural output.

One project that may come to earlier fruition than many others is the effort to implant specific herbicide resistance into certain crops. A single gene transfer from a species with known resistance may provide the recipient plant with the desired protection. If so, this relatively simple project could prove to be a valuable shortcut to efficient weed and grass control. This would be a particular boon to southeastern crop production where frequent rainfall encourages luxuriant growth of undesirable plants.

A clear implication of all of these potential innovations is that food and fiber production is likely to expand rapidly on a global basis. While that would be good news for producers who can get the jump on their competitors and be first to reap the benefits of increased output, the immediate prospects are less bright for multitudes of marginal producers around the world. Those lacking the means to afford the probable high cost of the new genetically-engineered plants

<sup>4</sup>Ray Vicker, "California College's Research Helps State Stay at the Forefront of Agricultural Developments," *Wall Street Journal*, January 13, 1981, p. 54.



may find the markets for their meager production swamped by the abundant supplies that can be produced with the advantages of new technology. Producers for export markets could also discover that new production in formerly uncultivable areas has supplanted the need for products from abroad. In short, demand for agricultural production is unlikely to grow as rapidly as output expands. The result would be additional dislocations of marginal producers who would be forced to search for other means of sustaining their livelihood.

Most developed countries passed through a similar adjustment process when the new technology of farm mechanization reduced the number of producers required to produce food and fiber for the population. Although the process was not without pain, most former farm workers eventually found jobs manufacturing products that enabled standards of living to rise for the whole populace. The capabilities offered through new biotechnology could eventually produce similar favorable transitions in regions of the world where food production currently strains and often fails to meet the needs of the population.

## How Close is the Future?

How close are we to some of these capabilities? One area of research in nitrogen fixation may have an early payoff. Allied Chemical is trying to increase the efficiency of nitrogen fixation in soybeans. Since soybeans naturally fix nitrogen, this should be accomplished with greater ease than in other non-fixing plants such as corn (Chart 2). With corn, it may take a decade or more before seed stock of strains with nitrogen fixing capabilities are commercially available. Research has begun in this area, however, and some results could occur soon. Biotechnica International, for example, recently requested permission to field test alfalfa with a modified strain of the bacteria responsible for nitrogen fixation. However, corn is probably the crop for which nitrogen fixation has the greatest interest and potential because of the vast quantities of nitrogen fertilizer applied by producers to attain current high yields. Some observers caution that corn plants that fix their own nitrogen are likely to lose

as much as 30 percent of their yield potential.<sup>5</sup> If the use of relatively expensive commercial fertilizer could be avoided or sharply reduced, however, cost reductions could well outweigh losses in crop output. Fertilizer prices could influence the tradeoff at any given time. The early benefits would probably accrue to farmers who could reduce their cost of production and shield themselves from the risks of high costs and uncertain availability of future nitrogen supplies tied to volatile petroleum markets.

In other instances, the future is indeed now. Consider, for instance, the application by two University of California scientists to test genetically altered microorganisms that can protect plants from frost until temperatures drop well below normal frost levels.<sup>6</sup> Chemically altered bacteria have already performed such a feat, but the scientists believe they have developed a modified bacteria with this desired capability that reproduces itself. Their goal is to let the bacteria multiply naturally and perform its intended task.



In addition, both public and private institutions are engaged in biotechnological research for the improvement of plants. Cetus Madison, a division of possibly the largest biotech firm in the United States, has requested permission to field test a variety of genetically altered crops including potatoes, tomatoes, cotton, tobacco, and soybeans.<sup>7</sup> As more money and energy are devoted to this research, minor plant improvements could

<sup>5</sup>*Agriculture 2000: A Look at the Future*, a study by Columbus Division, Battelle Memorial Institute, Battelle Press, Columbus, Ohio, 1983, p. 53

<sup>6</sup>Federal Register, Vol. 48, No. 106, June 1, 1983, p. 9441.

<sup>7</sup>*Ibid.* Vol. 48, No. 44, March 4, 1983, p. 9441.





**Agricultural research areas in which biotechnology may prove valuable:**

Nitrogen fixation in commercial crops  
 Plant photosynthetic enhancement  
 Improved protein in oilseeds  
 Improved salt water tolerance  
 Plant varieties with increased disease,  
 insect, herbicide resistance  
 Drought resistant plants  
 New methods of producing agricultural  
 inputs  
 Reduced time for new plant  
 development.

be announced in the near future. More important breakthroughs in plant genetics will take longer, yet additional major developments could occur within the present decade.

Many companies are understandably reluctant to reveal their specific areas of research, including the plants involved. The International Plant Research Institute reportedly is working on salt tolerance in plants; Calgene on herbicide resistance in cotton, Agrigenetics on a variety of plants; and Cetus Madison on cotton and tobacco, among others. Calgene's president, Norman Goldfarb, has said his firm is aiming for an herbicide-resistant cotton plant to be commercially available by 1989.<sup>8</sup>

Plant research is not limited solely to the genetic engineering firms. Scientists at Stanford and Cornell Universities have applied to field test genetically altered corn, tomato, and tobacco plants.<sup>9</sup> Many other laboratory projects have yet to reach the point of field testing. And neither is all research occurring in the United States; both

Europe and Japan have invested large sums in biotechnology.

Within the Southeast, biotechnological activity related to agriculture has been limited. In September, North Carolina state officials announced that CIBA-GEIGY will construct an agricultural biotechnology center at the Research Triangle Park near Raleigh, the center of the state's high-tech industries. The company, a major producer of chemical and agricultural products, plans research in plant biology to develop new products.

In Mississippi, Delta and Pine Land Company has commissioned the Cetus Madison Corporation to conduct research using genetic engineering to improve cotton yields.

A project at North Carolina State University is focusing on tissue culture of tobacco cells. The first goal is to identify tobacco cells resistant to a disease-causing fungal toxin. These cells are then placed in a growth medium and developed into plants. Eventually the plants will be used to develop a new disease-resistant variety of tobacco plant for farmers.

At Louisiana State University, work in tissue culture of rice and sugarcane is underway. One project concerns an attempt to develop a strain of rice not prone to lodging (flattening after inclement weather). In addition, research with sugarcane is proceeding to develop a technique for identifying plants with a particular virus.

University of Georgia professors are engaged in research involving tissue culture and recombinant DNA. The work underway ranges from forestry to commercial field crops. Perhaps most advanced is the work involving tissue culture of trees. At Georgia and at many other southern universities, research also is underway in other fields of biotechnology.

In other regions, developments are occurring that ultimately will affect farmers and consumers everywhere. For example, a group of major companies is sponsoring a Biotechnology Institute at Cornell University. The group will provide \$2.5 million dollars over a six year period. Kellogg, a major food processing company, invested \$10 million in Agrigenetics Corporation, a biotech firm devoted to agricultural research, in 1982. Kellogg hopes to develop strains of oats, rice, and wheat that have high protein content and minimize fertilizer use. Two companies with products

<sup>8</sup>Wall Street Journal, May 10, 1983, p. 6.

<sup>9</sup>Federal Register, Vol. 47, No. 184, September 22, 1982, p. 41925.



A partial list of biotech companies with agricultural research underway includes:

Phytogen, Pasadena, Ca.  
Molecular Genetics, Edina, Minn.  
International Plant

Research Institute, San Carlos, Ca.  
Cetus Madison, Berkeley, Ca.  
Genentech, San Francisco

Calgene, Davis, Ca.  
Agrigenetics, Denver.  
Advanced Genetic  
Sciences, Greenwich, Conn.  
Biotechnica  
International, Cambridge, Mass.

In addition to biotech firms, a number of major companies connected with agriculture have their own programs. A partial list includes:

Monsanto, St. Louis.  
CIBA-GEIGY, Greensboro, N. C.  
Du Pont, Wilmington, Del.

Allied Chemical, Morristown, N. Y.  
Eli Lilly, Indianapolis.  
Merck, Rahway, N. J.

for the agricultural industry, Monsanto and Du Pont, also are becoming heavily involved in biotechnology—Monsanto through a \$20 million investment in Biogen, Du Pont through the establishment of its own biotech program in 1980. Many other companies are conducting biotechnological research. Clearly, the majority of those engaged in research are not concerned solely with agriculture, but breakthroughs in any area are likely to have spillover effects in agriculture as well.

A published 1981 estimate of expenditures by a few major companies suggests that approximately \$450 million was budgeted for long-term agricultural research involving areas such as nitrogen fixation.<sup>10</sup> And in that same year Agrigenetics, based in Denver, is reported to have spent \$19 million on research. The government also is actively involved in biotechnological research. In 1979, for instance, the USDA had approximately \$5 million invested in this field, the National Institutes of Health was funding 717 separate projects while the National Science Foundation had 194 active grants involving genetic engineering. More recently, in 1983, the NSF spent \$43 million on basic plant science research. A division of USDA, the Cooperative State Research Service, supplied \$9 million through grants and funding for biotechnological research from 1980 through 1982. This money was utilized by universities and agricultural experiment stations.

State experiment stations are also believed to be funding biotech research at approximately \$45 million.

## The Technology

Typically, a new technology involves a function that only a few skilled individuals can perform. As time passes, the technology is transformed so that less skilled individuals can perform the same function, increasing the supply of the product. Biotechnology seems to be following the same pattern. As it slowly developed in the 1970s, only a few highly trained scientists could perform the experiments necessary for research and development. By 1980, when the Supreme Court's favorable ruling on patents encouraged genetic engineering, more researchers had become sufficiently skilled to undertake the research. Applications were further enhanced in 1981 with the development of a "gene machine" that can be programmed to construct segments of DNA for insertion into genes. Previously, that process could be done only by the painstaking work of highly skilled scientists.<sup>11</sup> The "gene machine" reduced the time and cost of gene construction by an estimated 80 percent. In addition to the obvious economic efficiency, the machine makes it much easier and faster for firms to undertake genetic engineering research.

<sup>10</sup>"Chip Off the Old Block," *Forbes*, March 2, 1981, p. 94.

<sup>11</sup>Marilyn Chase, "After Slow Start, Gene Machines Approach a Period of

Fast Growth and Steady Profits," *Wall Street Journal*, December 13, 1983, p. 33.



## Summary

Civilization stands on the edge of a biological revolution that seems likely to affect virtually every area of the environment. Science already has succeeded in altering both plants and micro-organisms. Some altered plants are in various stages of laboratory testing and some are even ready for field testing. Micro-organisms also have been created or altered to perform new functions or to perform old ones better. The implications of these accomplishments are tremendous.

In terms of agriculture, the Southeast may be one of the first areas to benefit from biotechnology because much of the research deals with high value per acre crops such as cotton and tobacco. Among row crops, the soybean, a major southeastern product, is a leading target of study. It appears that the impact of biotechnology on crops will come in two primary areas, cost and

yield. Reducing fertilizer and pesticide requirements will lower production costs, while yield increases may result primarily from improving photosynthetic efficiency.

When should farmers see the results of plant genetic research? Given the large amount of resources committed to the area, and the rapid strides made within the last year (see time chart, 1983), the first significantly genetically altered plants could be available commercially before 1990. By 1987, a number of plants with minor improvements could reach the marketplace. Within 20 years major breakthroughs in nitrogen-fixation of non-legumes are likely. Certainly within the next quarter to half century, agriculture will experience major change.

—W. Gene Wilson  
and Gene D. Sullivan

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# Is the Dollar Overvalued in Foreign Exchange Markets?

As the dollar has gained value relative to other currencies, foreign goods and services have become cheaper than domestic goods and services. It then becomes cheaper to import goods to the U. S. than to buy domestically. Similarly, U. S. exports suffer as higher exchange rates price domestic goods out of foreign markets.

Some have suggested that the dollar is "overvalued."<sup>1</sup> This term suggests that the dollar is valued at "too high" a price relative to foreign currencies. Under the present system of flexible exchange rates, it is unclear what this means. Under a system of flexible exchange rates, this simple interpretation of the term "overvalued" makes no sense.

## Foreign Exchange Markets

Since 1972, the dollar's value has been determined in a more-or-less free foreign-exchange market, by the demand for and supply of dollars relative to foreign currencies. The demand reflects the demand for money for transactions and as a store of value. In general, money demand for these purposes is a function of income and interest rates. This implies in turn that changes in income and interest rates in the relevant countries, as well as expectations

of the future demand and exchange values, affect the exchange rate. The supply of currency is determined largely by the monetary authorities in the two countries.

Chart 1 shows a demand curve and a supply curve for dollars relative to a foreign currency, say the Swiss franc.<sup>2</sup> In this figure,  $Mus/Msw$  is the quantity of domestic money relative to Swiss money, and  $e$  is the exchange rate—the value of Swiss francs relative to the dollar or the price of dollars in terms of Swiss francs.

Changes in demand or supply, or both, could account for the increase in the exchange rate. An increase in the **demand** for dollars relative to a foreign currency raises the exchange rate. In Chart 1a, this is shown by a shift in demand from  $d_1$  to  $d_2$  and an increase in the exchange rate from  $e_1$  to  $e_2$ . Similarly, a decrease in the **supply** of dollars relative to a foreign currency raises the exchange rate. In Chart 1b, this is shown by a shift in supply from  $s_1$  to  $s_2$  and an increase in the exchange rate from  $e_1$  to  $e_2$ . Hence, either a relative increase in the demand for dollars or a relative decrease in the supply of dollars, or both, could account for the increase in the exchange rate.<sup>3</sup>

The particular result above and its relative simplicity hinge on the precise theory used.<sup>4</sup> Nonetheless, one conclusion of any analysis is

<sup>1</sup>Examples are Art Pine, "Dollar's Gains May Be Justified By Strong U. S. Economy, Analysts Say," *Wall Street Journal*, August 5, 1983, p. 24 and "Exchange Rates: A Better Goose," *The Economist*, November 5, 1983, p. 77.

<sup>2</sup>The supply of money in the two economies is not affected by the change in the exchange rate. If this is correct, then the relative quantities of the two currencies are not affected by the increase in demand. The supply curve in Chart 2 could just as well be drawn with an upward slope without affecting the conclusion that an increase in the demand for dollars relative to foreign currencies raises the exchange value of the dollar.

<sup>3</sup>A relative increase in supply that tends to reduce the exchange rate may occur in combination with an increase in demand, but the exchange rate increases if the increase in demand is the dominating factor.

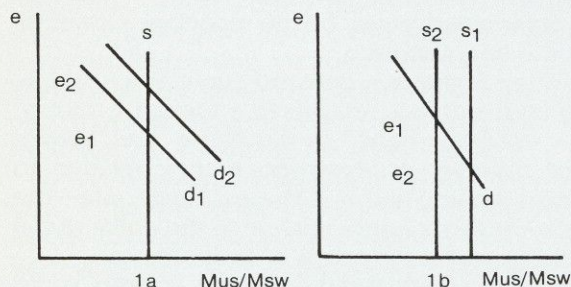
Similarly, a relative decrease in demand that tends to reduce the exchange rate may occur in combination with a decrease in supply, but the exchange rate increases if the decrease in supply is the dominating factor.

<sup>4</sup>This exposition is based on the monetary approach to exchange rates. For a brief overview of this theory, see Jacob A. Frenkel, "A Monetary Approach to the Exchange Rate: Doctrinal Aspects and Empirical Evidence," in *The Economics of Exchange Rates*, ed. by Jacob A. Frenkel and Harry G. Johnson (Reading, Massachusetts: Addison-Wesley Publishing Company, 1978). A thorough exposition with historical background is presented in Thomas M. Humphrey and Robert E. Keleher, *The Monetary Approach to the Balance of Payments, Exchange Rate Rates, and World Inflation* (New York: Praeger Publishers, 1983).

The recent rise in the value of the dollar does not necessarily mean that the dollar has been "overvalued" by foreign-exchange traders. Instead, evidence suggests that lower inflation and higher interest rates in the United States have been at least partly responsible for the dollar's rise.



**Chart 1.** Shifts in demand for and supply of currencies determine exchange rate.



Quantity of U. S. money relative to quantity of Swiss money.

sure: under a system of flexible or floating exchange rates, the foreign-exchange value of the dollar is determined by demand and supply, approaching the economist's ideal of a perfect market. In this ideal, transaction costs are low—clearly true for large blocs in this market.<sup>5</sup> In addition, information about current trading prices is readily available at low cost. As a result, prices of foreign exchange reflect buyers' and sellers' use of currently available information.

Given the information available to those trading in the foreign exchange market, the dollar cannot be "overvalued." The price of foreign exchange at any time reflects the relative demand for and relative supply of currencies, such that traders are willing to hold the various currencies at these prices. Hence, the prices must reflect the relative values in the exchange markets; a currency cannot be "overvalued."

One way prices **can** be overvalued is when a "bubble" occurs.<sup>6</sup> In general, the price of a good can be bid up because of factors changing the relative value of that good, or because the buyer expects to be able to resell that good at a higher price. A bubble occurs when the price of an asset is bid up on the expectation of future

price increases, without any basis for expecting changes in the underlying determinants of value—supply and demand. The tulip market in Holland in the early 1660s is a classic example of a bubble. The price of tulips was bid up to very high levels because buyers expected to be able to sell the tulips at even higher prices in the future, although there was no evidence that a fundamental determinant of demand or supply would change. Prices became so high, according to Charles Mackay, that one root of a relatively rare species of tulip was exchanged for a total of "two lasts (about 4,000 pounds each) of wheat, four lasts of rye, four fat oxen, eight fat swine, twelve fat sheep, two tons of butter, one thousand pounds of cheese, (and) a silver drinking cup."<sup>7</sup>

Trading this astounding total of commodities for one tulip root does not in and of itself constitute a bubble. The suggestion that this episode was a bubble is based on indications that, at least for a year or two, prices rose because buyers expected prices to be still higher in the future, yet no fundamental determinant of the demand for or supply of tulips had changed. Buyers were willing to pay a higher price than they would have been willing to pay otherwise because they expected to be able to sell even higher in the future.

Ultimately, because there was no intrinsic value supporting these tulip prices, the price of tulips was "overvalued," and prices collapsed. The mere fact that a price falls when it is expected to rise is not evidence of a bubble. This merely indicates that the expectation of a price rise was misguided. In general, a bubble occurs when prices rise based on expectations that do not reflect the expected changes in the fundamental determinants of prices.

We can estimate future expected exchange rates. The forward rate reflects expectations of future exchange rates. In the forward exchange market, it is possible to buy and sell foreign exchange for future (or forward) delivery at a price that is fixed today. While there is evidence that forward exchange rates cannot be interpreted as reflecting only the expected future

<sup>5</sup>Evidence on this question is presented by Jacob A. Frenkel and Richard M. Levich in "Covered Interest Arbitrage: Unexploited Profits?" *Journal of Political Economy* 83 (April 1975): 325-38 and "Transactions Costs and Interest Arbitrage: Tranquil Versus Turbulent Periods," *Journal of Political Economy* 85 (December 1977), 1209-26.

<sup>6</sup>For one possibility of a more precise definition, see Robert P. Flood and

Peter M. Garber, "Market Fundamentals versus Price-Level Bubbles: The First Tests," *Journal of Political Economy* 88 (August 1980), pp. 745-70.

<sup>7</sup>Charles Mackay, *Memoirs of Extraordinary Popular Delusions and the Madness of Crowds*, vol. I, (London: George Routledge and Sons, 1869), p. 87.



**Table 1.** Exchange Rates and Forward Exchange Rates in 1983  
(Units of Foreign Currency per Dollar)  
Annual Averages

	France	Germany	Japan	Switzerland	United Kingdom
Exchange Rate	7.63	2.56	238.16	2.10	.659
3-Month Forward Exchange Rate	7.69	2.53	236.28	2.08	.660

exchange rate, in the 1970s at least they were a better predictor of future rates than the most prominent economic theories of exchange markets.<sup>8</sup>

The prices of foreign exchange for future delivery have not been uniformly higher than the prices for current delivery. Table 1 shows the spot and three-month forward exchange rates for 1983.<sup>9</sup> (Note: Exchange rates are based on data through November.) To the extent that forward exchange rates can be interpreted as estimates of the exchange rate expected in the future, they are inconsistent with uniform expectations of future increases. This suggests that foreign-exchange rates have not uniformly been expected to increase and the dollar is not "overvalued" in the sense that the increase in the dollar is the result of a simple bubble.

A more demanding way of determining if the dollar is overvalued is to determine if its value is "too high" relative to the equilibrium value implied by an economic theory. If the theory is correct and the current exchange rate is greater than the predicted value, then presumably the market will at some point adjust to the exchange rate implied by the theory.

This meaning of "overvalued" assumes that analysts have a better theory of the foreign-exchange market than do foreign-exchange

traders. An immediate implication is that the analyst can capture substantial profits on the basis of this theory by selling dollars and buying foreign exchange before the prices adjust to the fundamentals.

Unfortunately, economists' knowledge is not sufficiently developed to permit such a strong conclusion. If the predictions of an economic theory are wrong, it is far more plausible that the theory is wrong than that the market is wrong. Besides, the empirical analysis of exchange rates is relatively undeveloped compared to most fields of economics. A recent study found that the most promising theories to date cannot predict exchange rates better than either the forward exchange rate or the assumption that exchange rates are random walks, i.e. that exchange rate movements on successive days are independent of one another and that the best estimate of tomorrow's prices is that they will be the same as today's.<sup>10</sup>

## Purchasing-Power Parity

The concept of "purchasing-power parity" provides another useful tool for examining market-determined exchange rates.

Purchasing-power parity is a widely accepted rough standard for exchange rates that has a long history.<sup>11</sup> This standard is based on the "law of one price": the proposition that, denominated in a common currency, wheat, steel, gold, or tradeable commodities in general should sell for the same price in different countries net of transportation costs, tariffs, and the implicit costs of quotas.<sup>12</sup> If a tradeable good sells for different prices net of these transfer costs in two countries for any substantial period, then it would be profitable to ship the good to the country with the higher sales price. This would increase supply in the country with the higher price, thereby lowering the higher price, and decrease supply in the country with the lower price, thereby raising that price. Such trade would occur until it was no longer profitable when the good sold for the same price net of

<sup>8</sup>Richard A. Meese and Kenneth Rogoff, "Empirical Exchange Rate Models of the Seventies," *Journal of International Economics* 14 (February 1983), pp. 3-24.

<sup>9</sup>The data are from a data tape produced by the International Monetary Fund and various issues of *International Financial Statistics*. The forward-exchange figures are annual averages based on three-month discounts on foreign exchange.

<sup>10</sup>Richard A. Meese and Kenneth Rogoff, *Ibid.*

<sup>11</sup>For an analytical discussion of purchasing-power-parity, see Lawrence H. Officer, "The Purchasing-Power-Parity Theory of Exchange Rates," *IMF Staff Papers* 23 (March 1976), pp. 1-60. For an excellent history of purchasing-power-parity, see Thomas M. Humphrey and Robert E. Keleher, *Ibid.*

<sup>12</sup>As used here, "quotas" included controls on currency and capital flows.



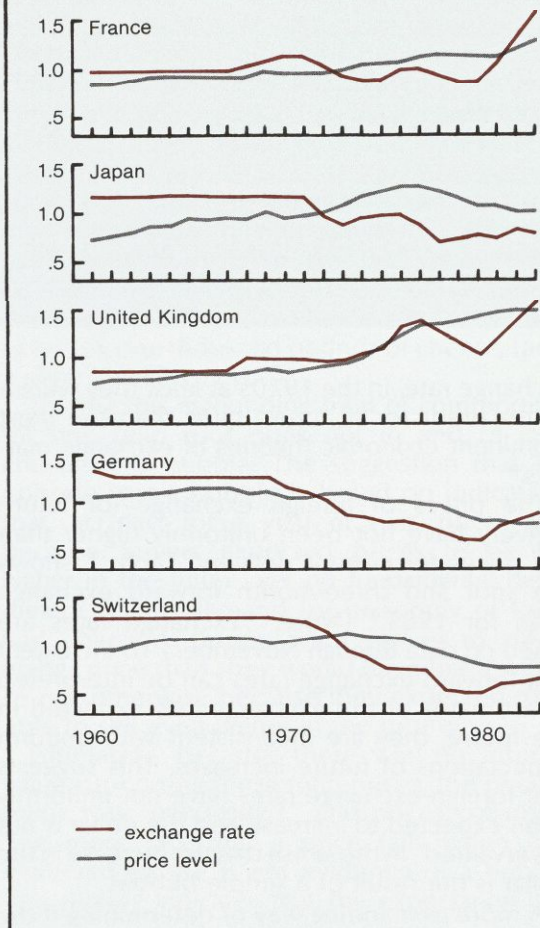
transfer costs. Because of this process of "arbitrage," prices net of transfer costs should generally be the same.

Purchasing-power parity is the application of the law of one price to the price of commodities in general, i.e. the price level. According to this theory, prices of foreign and domestic goods, as reflected in exchange rates, should equalize.<sup>13</sup> Purchasing-power parity implies that the exchange rate—the value of a foreign currency relative to the dollar—should track the ratio of the price of goods in terms of the foreign currency relative to the price of goods in terms of dollars. To the extent that purchasing-power parity fails to hold, the difference between the exchange rates and price ratios will provide an indication of the change in the relative cost of foreign and domestic goods to U.S. residents.

Chart 2 shows exchange rates and relative price levels from 1960 through 1983 for five countries.<sup>14</sup> For 1983, the exchange rates are based on data through November; the price indexes are based on data through October or November. France, Japan, the United Kingdom, and West Germany were the largest countries besides the U.S. in terms of exports from 1975 through 1979.<sup>15</sup> Switzerland is included in the analysis because of its relative price stability. The fixed-exchange rate period of the 1960s and early 1970s is included in addition to the more recent flexible-exchange-rate period in order to provide greater perspective. For each country, the exchange rate and the ratio of the country's consumer price index to the index for the U.S. are plotted. If purchasing-power parity held exactly, then the two lines in the graph would coincide. As is evident in Chart 2, there are substantial and persistent deviations from purchasing-power parity.

With the exception of Japan, purchasing-power parity is consistent with the general movements of exchange rates. In France and the United Kingdom, the level of prices increased more than in this country; the exchange rate increased. In Germany and Switzerland, the level of prices increased less than in the U.S.; the exchange rate decreased.

**Chart 2. Exchange Rates and Relative Price Levels of Five Countries from 1960 to 1983.**



Japan is an anomaly because prices rose relatively more in Japan than in the U.S. from 1960 to 1982, but the exchange rate was lower in 1982 than in 1960. As a result, compared to a situation in which purchasing-power parity held, the cost of Japanese goods to residents in the U.S. was greater than in 1960. Indeed, the cost of Japanese goods to U.S. residents increased

<sup>13</sup>See Milton Friedman and Anna J. Schwartz, *Monetary Trends in the United States and the United Kingdom*, (Chicago: University of Chicago Press, 1982), p. 6, pp. 289-92 for a long term analysis of the United States and the United Kingdom, and Richard A. Meese and Kenneth Rogoff, *Ibid.*, for an analysis of recent data.

<sup>14</sup>The exchange-rate and price-index data are from various issues of *International Financial Statistics*, July 1983 and *International Year-*

*book 1981*. The exchange rates are annual averages of daily rates. The price indexes are consumer price indexes or retail price indexes. The graphs in Chart 2 are scaled so that the means of the exchange rates and the ratio of price indexes for each country are at the same point on the vertical axes.

<sup>15</sup>"Introduction," *International Financial Statistics* (July 1983), p. 5.



steadily from 1960 through 1978. Only since 1978 has this cost decreased.<sup>16</sup>

These graphs suggest that purchasing-power parity does not indicate any unusual relationship between the domestic and foreign value of the dollar during the past couple of years. In Chart 2, the deviations of the exchange rates from those suggested by purchasing-power parity in 1983 are within the range of variation historically observed.

To be sure, we do not know the "correct" value of the exchange rate implied by purchasing-power parity. Exchange rates are the number of units of foreign currency per dollar and, as such, have a clear and precise unit of measure. Price indexes, on the other hand, are calculated with arbitrary base-year values, and ratios of these indexes also have arbitrary base-year values. Chart 2 is drawn so that the average exchange rates and the ratios of price indexes for 1960 through 1982 are at the same point on the vertical axis. If Chart 2 were drawn with the exchange rates and ratios of price indexes at the same point in 1979 or 1980 in particular, then the above statement that the deviations are not unusual would be incorrect. There is, however, no reason to pick these particular years as ones in which purchasing-power parity held.

## The Recent Increase in the Value of the Dollar

Rather than using an absolute standard such as purchasing-power parity, there is an alternative way of looking at the question of whether or not the dollar is overvalued. This consists of seeing if there is an explanation of why the value of the dollar has increased since 1979-80 that is reasonably consistent with the data.

Many plausible reasons exist for the recent increase. Two of the leading explanations are related to interest rates.<sup>17</sup> Nominal interest rates, which are reported every day in the financial press, are the sum of two components: the expected rate of inflation, plus the "real" (or inflation-adjusted) interest rate.

The first explanation for the recent increase in the value of the dollar is that because expected inflation has decreased in the U.S. relative to expected inflation in foreign countries, the demand for dollars has increased, thereby raising the value of the dollar.

The second explanation is that real interest rates in the U. S. have increased relative to real interest rates in foreign countries. The higher real interest rates attract a capital inflow into the U. S., which forces up the value of the dollar. This increase in the exchange rate raises the price of U. S. goods in foreign markets, thereby decreasing U. S. exports, while simultaneously lowering the price of foreign goods in the U. S. markets, thereby increasing U. S. imports.

These two explanations for the rising value of the dollar have conflicting implications for nominal interest rates—the sum of the expected real interest rate and the expected inflation rate. The first explanation suggests that, with a constant expected real interest rate, the nominal interest rate in the U.S. should decrease relative to foreign interest rates. The second explanation suggests that, with a constant expected inflation rate, the nominal interest rate in the U.S. should increase relative to foreign interest rates.

There is little evidence that the appreciation of the dollar in recent years is solely a result of a relative decrease in expected inflation in the U.S. In general, nominal interest rates in this country have not fallen substantially relative to foreign rates. Chart 3 shows the differences between nominal interest rates on three-month interbank loans in the U.S. and in each of the foreign countries for 1976 through 1983.<sup>18</sup> (Interest rates for 1983 are based on data through November.) Compared to 1979 and 1980 when the exchange rates were lowest, the nominal interest rate in 1983 was lower in the U.S. than in both France, where inflation has increased substantially, and Switzerland, which has had little inflation. The U.S. rate has decreased relative to the German rate, but this decrease is not

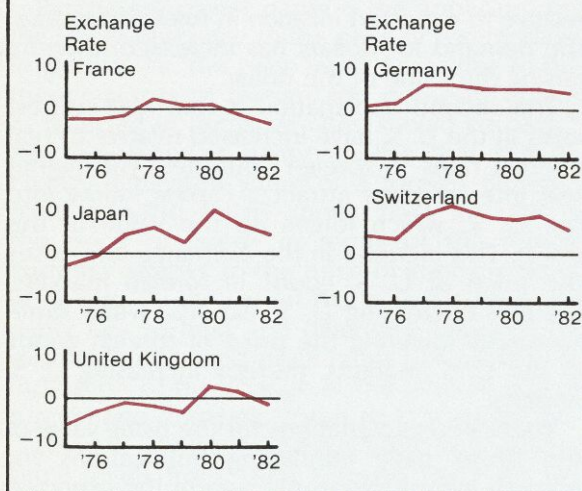
<sup>16</sup>There are a variety of possible reasons for this anomalous behavior including but not limited to changes in tariffs and subsidies, technological changes, the inclusion of non-tradeable goods such as housing in the indexes, and different weights in the two indexes assigned to goods with changing relative prices.

<sup>17</sup>There are other factors that may have played a part in the increase in the value of the dollar, such as deregulation of oil prices in the United States, which reduced the demand for imported oil in the United States. The analysis in this section is not intended to be comprehensive.

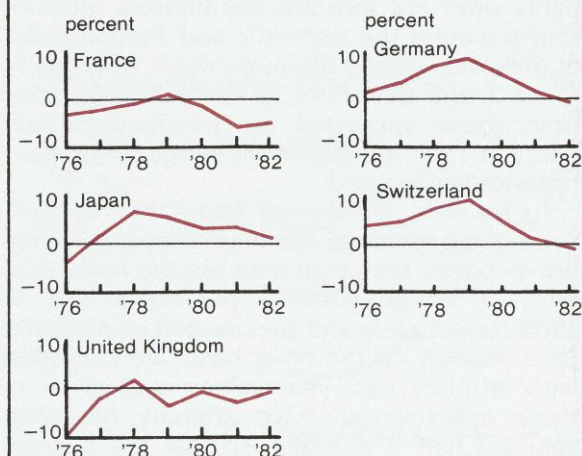
<sup>18</sup>The interest rates are annual averages of daily interest rates. For 1976 through 1981, they are from the Board of Governors of the Federal Reserve System, *Annual Statistical Digest 1970-1979, 1980, and 1981*. (Washington: By the author, 1980, 1981, and 1982 respectively), Tables 63, 68, and 69 respectively. The data for 1982 and 1983 are from various issues of the Federal Reserve *Bulletin*, Table 3.27. The interest rate for Japan is the interest rate on loans and discounts that can be called after being held over a minimum of two month-ends.



**Chart 3. Nominal Interest Rate Differentials**  
(U. S. minus Foreign Rates)



**Chart 4. Inflation Rate Differentials**  
(U. S. minus Foreign Rates)



substantial compared with past movements. Furthermore, for the same period, the domestic interest rate has increased relative to the United Kingdom rate. This is generally consistent with the proposition that the dollar has appreciated relative to foreign currencies because of a relative decline in expected inflation. It is not, however, clearly indicative that decreases in the relative interest rates were the cause of the increase in the value of the dollar relative to 1979 and 1980.

Furthermore, there is little indication that the appreciation of the dollar in recent years is solely a result of a relative increase in interest rates in the U.S. There is some support for this proposition relative to the United Kingdom, but interest rates in the other countries have fallen relative to U.S. interest rates.

Unfortunately, it is difficult to measure either the expected rate of inflation or the expected real rate of interest, which are the two components which form the nominal interest rate. What can be measured is the actual inflation rate, which equals the expected inflation rate plus the error in the projection of the inflation rate. This actual inflation rate can be used to

adjust the nominal interest rate to obtain the actual real interest rate. Such calculations can be useful if projections of inflation are sufficiently accurate. They can be quite misleading, however, if projections vary substantially from actual inflation. Because the data used are annual averages of three-month inflation rates, their broad movements are likely to track the movements of actual inflation.

Since 1978, the U.S. inflation rate has declined relative to the inflation rate for each of the foreign countries listed for comparison. Chart 4 shows the differences between the inflation rate in the U.S. and in each of the foreign countries for 1976 through 1982.<sup>19</sup> The inflation rates are calculated to correspond to the nominal interest rates in Chart 3. The interest rates generally are annual averages of three-month rates (at an annual rate) and indicate the number of dollars of interest per dollar loaned that will be received three months in the future. The inflation rates are annual averages of three-month rates (at an annual rate) and indicate the relative increase in prices three months in the future. Because only part of the 1983 inflation rate can be calculated as of the

<sup>19</sup>The inflation rates are based on monthly Consumer Price Indexes from an International Monetary Fund data tape and various issues of **International Financial Statistics**. The inflation rates are calculated to span the same time period as the interest rates above. The inflation rate for any month is the percentage change in the price level between that month

and three months in the future. Because nominal interest rates for three months are usually converted to an annual basis by multiplying by four, the inflation rates are converted to an annual basis by multiplying by four. (Compounding would have little effect on any of the figures.) The inflation rates in Figures 4 are annual averages of these inflation rates.



printing of this article, 1983 is not included in the figure.

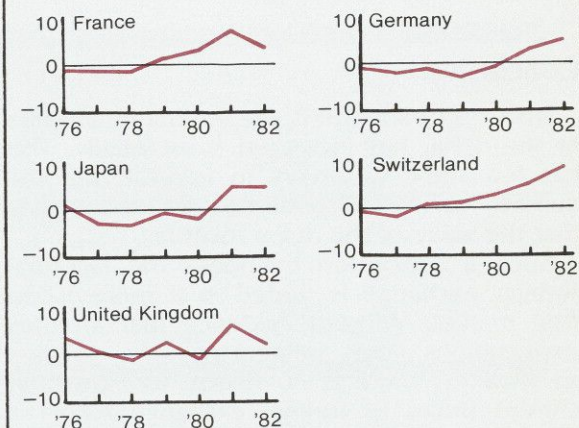
Inflation in the U.S. peaked relative to inflation in the cited countries in 1978 or 1979. The decline from that peak has in some cases been quite substantial. For example, in 1979 the inflation rate was about 8.1 percentage points higher in the U.S. than in Germany; in 1982, the inflation rate was virtually the same in the two countries. The decline from the peak difference of the relative inflation rate in the U.S. in 1978 or 1979 to the difference in 1982 is greater than 5 percentage points for all countries except the United Kingdom. Indeed, the decline in the U.S. inflation rate relative to the rate in Switzerland is greater than 10 percentage points. The inflation rates in the U.S. for 1978, 1979, and 1980 are substantially greater than rates in all of these countries except France and the United Kingdom. The only one of the five countries with a lower inflation rate than the U.S. in 1982 was Japan.

Whether or not each year-to-year change in relative inflation rates in Chart 4 was anticipated accurately (or at all), it is plausible that the expected inflation rate for the U.S. in 1982 relative to these foreign countries is lower than in 1978 through 1980. As a result, these data are consistent with an explanation of recent exchange-rate movements based on a decrease of the expected inflation rate for the U.S. relative to these foreign countries.

The puzzle from this point of view is the failure of nominal interest rates to reflect this relative decrease in the expected inflation rate in 1982. It is clear from Charts 3 and 4 that the relative decreases in the inflation rate are substantially greater than the relative decreases in nominal interest rates.

An implication of Charts 3 and 4 is that the real interest rate in the U.S. was relatively higher in recent years than in prior years. Chart 5 shows the differences between the real interest rate in the U.S. and in each of the foreign countries for 1976 through 1982.<sup>20</sup> With the exception of the United Kingdom, the real interest rates for the U.S. in 1981 and 1982 exceeded the foreign real interest rates by more than in prior years and in some cases

**Chart 5. Real Interest Rate Differentials (U. S. minus Foreign Rates)**



substantially more. It is plausible that the substantial relative decrease in U.S. inflation was largely expected by 1982. Since the nominal interest rate on a loan is known when the loan is made, it is also plausible that relatively high real interest rates also were at least partly expected by 1982. It may well be that the expected real rates were lower than the actual real rates, but it is possible that the expected real rate was relatively higher in the U.S. than in prior years.

The actual real interest rates on loans made late in 1983 cannot yet be calculated. Nonetheless, the real rates through July and August suggest that the relatively high real interest rates in the U.S. in 1981 and 1982 were transitory. The excesses of the U.S. over foreign real interest rates were 1.41, 1.73, 0.27, 2.57, and 0.45 percent for France, Germany, Japan, Switzerland, and the United Kingdom, respectively. All of these differentials were less than in 1982. This transitory aspect of the rise in the real interest rate was partly due to an unexpected decrease in inflation in the U.S. It is also possible that real interest rates rose in the U. S. and are returning to equality with foreign real interest rates because of the large capital inflows attracted

<sup>20</sup>These are calculated using the data in Figures 3 and 4. The formula  $r = [(1 + i) / (1 + \pi)] - 1$  where  $r$  is the real interest rate,  $i$  is the nominal interest rate, and  $\pi$  is the inflation rate, is used to calculate the real

interest rate for each month. Annual averages of the monthly real interest are then calculated.



by high real interest rates. The large capital inflows into the U.S. in 1982 and 1983 suggest that there is at least some truth to the second proposition.

## Conclusion

Since 1979 and 1980, the international value of the dollar has increased substantially. This has led some observers to suggest that the dollar is "overvalued" and frequently to conclude that the value of the dollar must fall.

Such a conclusion overlooks the fact that foreign exchange is traded in a more-or-less free market. Without evidence that arbitrary expectations are influencing the market significantly, there is no reason to think that current prices of foreign exchange reflect a bubble. Forward exchange rates provide no evidence of uniform expectations that the value of the dollar will increase further. This rules out relatively simple versions of bubble.

Two factors appear to be at least partly responsible for the rise in the dollar's value.

Since 1979 and 1980, inflation has decreased substantially in the U.S. relative to France, Germany, Japan, and Switzerland. These decreases are persistent and substantial, a factor which suggests that a decrease in the expected inflation rate has occurred and is partly responsible for the increasing value of the dollar. Real interest rates in the U.S. rose relative to real rates in these countries as well in 1981 and 1982, but recent data suggest that the increases were transitory. This is possibly because of capital attracted to this country by higher expected real interest rates in the U.S. Thus, it is plausible that the increased exchange rate is partly a result of higher real interest rates as well.

As we have seen, there are explanations of the recent increase in the dollar's value that are consistent with the expectations of traders in the foreign exchange market. Hence, it would be misleading to describe the dollar as overvalued in any sense of the word.

—Gerald P. Dwyer





# FINANCE

# STATISTICAL SUPPLEMENT

	JAN 1984	DEC 1983	JAN 1983	ANN. % CHG.		JAN 1984	DEC 1983	JAN 1983	ANN. % CHG.
\$ millions									
<b>UNITED STATES</b>									
Commercial Bank Deposits	1,351,110	1,321,567	1,245,791	+ 8	Savings & Loans**				
Demand	339,879	311,529	323,014	+ 5	Total Deposits	627,164	621,740	556,603	+ 13
NOW	88,716	87,186	68,433	30	NOW	18,709	18,983	13,454	+ 39
Savings	350,156	348,775	219,770	+ 59	Savings	174,733	175,774	124,374	+ 40
Time	619,835	610,635	663,834	- 7	Time	437,078	430,484	421,051	+ 4
Credit Union Deposits	60,793	61,185	52,276	+ 16	DEC		NOV	DEC	
Share Drafts	5,549	5,686	4,192	+ 32	Mortgages Outstanding	483,596	479,026	473,656	+ 2
Savings & Time	50,541	49,983	43,436	+ 16	Mortgage Commitments	32,331	34,332	17,964	+ 80
<b>SOUTHEAST</b>									
Commercial Bank Deposits	152,066	149,715	136,742	+ 11	Savings & Loans				
Demand	38,744	36,843	37,361	+ 4	Total Deposits	N.A.	N.A.	N.A.	
NOW	11,358	11,221	8,951	+ 27	NOW	N.A.	N.A.	N.A.	
Savings	39,298	39,171	23,731	+ 66	Savings	N.A.	N.A.	N.A.	
Time	67,269	66,525	69,905	- 4	Time	N.A.	N.A.	N.A.	
Credit Union Deposits	6,025	5,979	4,992	+ 21	DEC		NOV	DEC	
Share Drafts	502	500	369	+ 36	Mortgages Outstanding	68,866	68,791	67,016	+ 3
Savings & Time	5,096	5,105	4,262	+ 20	Mortgage Commitments	4,578	4,926	3,067	+ 50
<b>ALABAMA</b>									
Commercial Bank Deposits	15,930	15,698	14,914	+ 7	Savings & Loans**				
Demand	4,107	3,878	3,897	+ 5	Total Deposits	5,222	5,169	4,559	+ 15
NOW	1,040	1,022	802	+ 30	NOW	151	152	147	+ 3
Savings	3,210	3,211	2,080	+ 54	Savings	865	863	594	+ 46
Time	8,186	8,132	8,534	- 4	Time	4,242	4,201	3,847	+ 10
Credit Union Deposits	915	910	857	+ 7	DEC		NOV	DEC	
Share Drafts	89	88	72	+ 24	Mortgages Outstanding	3,846	3,791	3,685	+ 5
Savings & Time	719	785	734	- 2	Mortgage Commitments	288	289	247	+ 96
<b>FLORIDA</b>									
Commercial Bank Deposits	53,617	53,015	45,582	+ 18	Savings & Loans**				
Demand	13,550	13,196	13,216	+ 3	Total Deposits	53,387	53,821	49,137	+ 9
NOW	4,707	4,673	3,923	+ 20	NOW	2,119	2,194	1,600	+ 32
Savings	18,364	18,215	10,263	+ 79	Savings	14,591	15,022	10,524	+ 39
Time	18,417	18,209	19,257	- 4	Time	37,152	36,938	37,282	- 0
Credit Union Deposits	2,638	2,634	2,255	+ 17	DEC		NOV	DEC	
Share Drafts	253	254	197	+ 28	Mortgages Outstanding	41,223	40,809	39,268	+ 5
Savings & Time	2,114	2,088	1,789	+ 18	Mortgage Commitments	3,181	3,458	2,346	+ 36
<b>GEORGIA</b>									
Commercial Bank Deposits	22,248	21,743	20,234	+ 10	Savings & Loans				
Demand	7,458	7,045	6,696	+ 11	Total Deposits	N.A.	N.A.	N.A.	
NOW	1,509	1,486	1,206	+ 25	NOW	N.A.	N.A.	N.A.	
Savings	4,885	4,849	3,917	+ 25	Savings	N.A.	N.A.	N.A.	
Time	9,692	9,485	9,253	+ 5	Time	N.A.	N.A.	N.A.	
Credit Union Deposits	1,359	1,336	923	+ 47	DEC		NOV	DEC	
Share Drafts	75	73	41	+ 83	Mortgages Outstanding	8,326	8,259	8,641	- 3
Savings & Time	1,208	1,196	828	+ 46	Mortgage Commitments	477	503	182	+162
<b>LOUISIANA</b>									
Commercial Bank Deposits	25,722	25,121	24,179	+ 6	Savings & Loans**				
Demand	6,379	5,840	6,469	- 1	Total Deposits	8,970	8,949	8,176	+ 10
NOW	1,472	1,453	1,213	+ 21	NOW	198	197	139	+ 42
Savings	5,450	5,426	3,185	+ 71	Savings	2,406	2,421	1,488	+ 62
Time	13,105	12,947	13,829	- 5	Time	6,460	6,418	6,603	- 2
Credit Union Deposits	202	201	164	+ 23	DEC		NOV	DEC	
Share Drafts	22	23	11	+100	Mortgages Outstanding	8,046	8,109	7,394	+ 9
Savings & Time	195	194	154	+ 27	Mortgage Commitments	446	531	210	+113
<b>MISSISSIPPI</b>									
Commercial Bank Deposits	11,784	11,670	10,898	+ 8	Savings & Loans**				
Demand	2,542	2,429	2,487	+ 2	Total Deposits	2,545	2,534	2,508	+ 1
NOW	827	808	654	+ 26	NOW	107	100	75	+ 43
Savings	2,442	2,468	1,197	+104	Savings	498	505	336	+ 48
Time	6,320	6,304	6,779	- 7	Time	1,974	1,961	2,124	- 7
Credit Union Deposits	N.A.	N.A.	N.A.		DEC		NOV	DEC	
Share Drafts	N.A.	N.A.	N.A.		Mortgages Outstanding	2,035	2,048	2,033	+ 0
Savings & Time	N.A.	N.A.	N.A.		Mortgage Commitments	63	62	21	+200
<b>TENNESSEE</b>									
Commercial Bank Deposits	22,765	22,468	20,935	+ 9	Savings & Loans**				
Demand	4,708	4,455	4,596	+ 2	Total Deposits	6,765	7,359	6,667	+ 1
NOW	1,803	1,779	1,153	+ 56	NOW	180	218	136	+ 32
Savings	4,947	5,002	3,090	+ 60	Savings	1,354	1,504	903	+ 50
Time	11,549	11,448	12,253	- 6	Time	5,282	5,674	5,689	- 7
Credit Union Deposits	911	898	793	+ 15	DEC		NOV	DEC	
Share Drafts	63	62	48	+ 31	Mortgages Outstanding	5,390	5,775	5,995	- 10
Savings & Time	860	842	757	+ 14	Mortgage Commitments	185	205	153	+200

**Notes:** All deposit data are extracted from the Federal Reserve Report of Transaction Accounts, other Deposits and Vault Cash (FR2900), and are reported for the average of the week ending the 1st Wednesday of the month. This data, reported by institutions with over \$15 million in deposits as of December 31, 1979, represents 95% of deposits in the six state area. The major differences between this report and the "call report" are size, the treatment of interbank deposits, and the treatment of float. The data generated from the Report of Transaction Accounts is for banks over \$15 million in deposits as of December 31, 1979. The total deposit data generated from the Report of Transaction Accounts eliminates interbank deposits by reporting the net of deposits "due to" and "due from" other depository institutions. The Report of Transaction Accounts subtracts cash items in process of collection from demand deposits, while the call report does not. Savings and loan mortgage data are from the Federal Home Loan Bank Board Selected Balance Sheet Data. The Southeast data represent the total of the six states. Subcategories were chosen on a selective basis and do not add to total.

\* = fewer than four institutions reporting.

\*\* = FRASE deposits subject to revisions due to reporting changes.

N.A. = not available at this time.





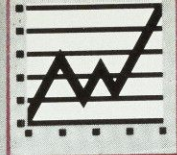
# CONSTRUCTION

	DEC 1983	NOV 1983	DEC 1982	ANN % CHG		DEC 1983	NOV 1983	DEC 1982	ANN % CHG
<b>12-month Cumulative Rate</b>									
<b>UNITED STATES</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	51,297	51,321	45,658	+ 12	Value - \$ Mil.	67,830	66,938	39,636	+ 71
Industrial Bldgs.	5,550	5,620	5,109	+ 9	Residential Permits - Thous.				
Offices	12,555	12,738	12,139	+ 3	Single-family units	891.2	884.0	537.5	+ 66
Stores	6,998	6,976	5,231	+ 34	Multi-family units	699.1	694.0	447.6	+ 56
Hospitals	2,045	2,108	1,818	+ 12	Total Building Permits				
Schools	858	876	800	+ 7	Value - \$ Mil.	119,126	118,259	85,295	+ 40
<b>SOUTHEAST</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	8,096	8,028	6,426	+ 26	Value - \$ Mil.	12,660	12,452	7,103	+ 78
Industrial Bldgs.	668	683	723	- 8	Residential Permits - Thous.				
Offices	1,942	1,867	1,384	+ 40	Single-family units	183.1	182.0	110.5	+ 66
Stores	1,329	1,279	927	+ 43	Multi-family units	160.7	156.7	86.3	+ 86
Hospitals	481	519	328	+ 47	Total Building Permits				
Schools	155	171	109	+ 42	Value - \$ Mil.	20,683	20,407	13,529	+ 53
<b>ALABAMA</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	526	535	399	+ 32	Value - \$ Mil.	434	424	239	+ 82
Industrial Bldgs.	33	28	63	- 48	Residential Permits - Thous.				
Offices	60	63	69	- 13	Single-family units	8.0	7.9	4.9	+ 63
Stores	94	90	64	+ 47	Multi-family units	8.0	7.8	4.3	+ 86
Hospitals	4	25	44	- 91	Total Building Permits				
Schools	9	9	8	+ 13	Value - \$ Mil.	960	959	639	+ 50
<b>FLORIDA</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	4,032	3,988	3,250	+ 24	Value - \$ Mil.	7,387	7,224	4,202	+ 76
Industrial Bldgs.	364	366	378	- 4	Residential Permits - Thous.				
Offices	897	878	679	+ 32	Single-family units	98.4	97.2	57.0	+ 73
Stores	753	713	493	+ 53	Multi-family units	88.8	86.6	51.5	+ 72
Hospitals	289	291	177	+ 63	Total Building Permits				
Schools	58	54	19	+205	Value - \$ Mil.	11,419	11,211	7,451	+ 53
<b>GEORGIA</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	1,341	1,296	982	+ 37	Value - \$ Mil.	2,405	2,398	1,366	+ 76
Industrial Bldgs.	163	181	145	+ 12	Residential Permits - Thous.				
Offices	445	396	225	+ 98	Single-family units	41.5	41.5	26.3	+ 58
Stores	155	147	82	+ 89	Multi-family units	25.4	25.4	13.0	+ 95
Hospitals	31	35	25	+ 24	Total Building Permits				
Schools	28	27	17	+ 65	Value - \$ Mil.	3,747	3,694	2,348	+ 60
<b>LOUISIANA</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	1,186	1,207	976	+ 22	Value - \$ Mil.	1,093	1,085	652	+ 68
Industrial Bldgs.	35	37	84	- 58	Residential Permits - Thous.				
Offices	374	366	300	+ 25	Single-family units	16.8	16.8	11.2	+ 50
Stores	131	134	151	- 13	Multi-family units	17.1	16.6	8.4	+104
Hospitals	119	123	32	+272	Total Building Permits				
Schools	49	70	50	- 2	Value - \$ Mil.	2,278	2,292	1,628	+ 40
<b>MISSISSIPPI</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	191	185	160	+ 19	Value - \$ Mil.	312	317	181	+ 72
Industrial Bldgs.	10	7	14	- 29	Residential Permits - Thous.				
Offices	18	19	16	+ 13	Single-family units	4.7	4.9	3.5	+ 34
Stores	38	39	38	0	Multi-family units	4.8	4.7	2.2	+118
Hospitals	19	18	5	+280	Total Building Permits				
Schools	6	7	4	+ 50	Value - \$ Mil.	503	502	341	+ 48
<b>TENNESSEE</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	820	817	659	+ 24	Value - \$ Mil.	1,029	1,004	463	+122
Industrial Bldgs.	63	64	39	+ 62	Residential Permits - Thous.				
Offices	148	145	95	+ 56	Single-family units	13.7	13.7	7.6	+ 80
Stores	158	156	99	+ 60	Multi-family units	16.6	15.6	6.9	+141
Hospitals	19	27	45	- 58	Total Building Permits				
Schools	5	4	11	- 55	Value - \$ Mil.	1,776	1,749	1,122	+ 58

## NOTES:

Data supplied by the U. S. Bureau of the Census, Housing Units Authorized By Building Permits and Public Contracts, C-40. Nonresidential data excludes the cost of construction for publicly owned buildings. The southeast data represent the total of the six states. The annual percent change calculation is based on the most recent month over prior year. Publication of F. W. Dodge construction contracts has been discontinued.





# GENERAL

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.		JAN 1984	DEC 1983	JAN 1983	ANN. % CHG.
<b>UNITED STATES</b>										
Personal Income (\$bil. - SAAR)	3Q	2,755.1	2,709.1	2,584.7	+ 7	Agriculture				
Taxable Sales - \$bil.		N.A.	N.A.	N.A.		Prices Rec'd by Farmers				
Plane Pass. Arr. 000's		N.A.	N.A.	N.A.		Index (1977=100)	143	140	128	+12
Petroleum Prod. (thous.)	JAN	8,675.5	8,619.3	8,680.5	- 0	Broiler Placements (thous.)	79,834	80,140	81,770	- 2
Consumer Price Index						Calf Prices (\$ per cwt.)	61.4	60.6	62.4	- 2
1967=100	JAN	305.2	303.5	293.1	+ 4	Broiler Prices (\$ per lb.)	36.9	33.7	25.8	+43
Kilowatt Hours - mils.	DEC	185.4	170.5	170.3	+98	Soybean Prices (\$ per bu.)	7.49	7.74	5.56	+35
						Broiler Feed Cost (\$ per ton)	243	240	202	+20
<b>SOUTHEAST</b>										
Personal Income (\$bil. - SAAR)	3Q	332.1	326.7	310.0	+ 7	Agriculture				
Taxable Sales - \$ bil.		N.A.	N.A.	N.A.		Prices Rec'd by Farmers				
Plane Pass. Arr. 000's	DEC	4,447.5	4,144.8	4,326.2	+ 2	Index (1977=100)	132	128	116	+14
Petroleum Prod. (thous.)	JAN	1,403.0	1,400.0	1,384.0	+ 1	Broiler Placements (thous.)	30,786	30,819	31,619	- 3
Consumer Price Index						Calf Prices (\$ per cwt.)	56.4	57.1	59.1	- 5
1967=100		N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	37.0	33.9	24.7	+50
Kilowatt Hours - mils.	DEC	27.8	26.7	26.1	+ 6	Soybean Prices (\$ per bu.)	7.75	7.79	5.66	+37
						Broiler Feed Cost (\$ per ton)	235	234	191	+23
<b>ALABAMA</b>										
Personal Income (\$bil. - SAAR)	3Q	36.8	36.2	34.2	+ 8	Agriculture				
Taxable Sales - \$ bil.	OCT	29.3	28.6	27.6	+ 7	Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. 000's	DEC	109.2	109.2	98.0	+12	(Dates: SEPT, SEPT)	1,419	-	1,443	- 2
Petroleum Prod. (thous.)	JAN	50.0	51.0	53.0	- 6	Broiler Placements (thous.)	10,366	10,475	10,530	- 2
Consumer Price Index						Calf Prices (\$ per cwt.)	57.3	57.3	58.4	- 2
1967=100		N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	36.5	32.5	24.5	+49
Kilowatt Hours - mils.	DEC	3.7	3.4	3.5	+ 6	Soybean Prices (\$ per bu.)	7.66	7.36	5.60	+37
						Broiler Feed Cost (\$ per ton)	270	270	205	+32
<b>FLORIDA</b>										
Personal Income (\$bil. - SAAR)	3Q	124.9	121.9	115.1	+ 9	Agriculture				
Taxable Sales - \$ bil.	JAN	74.3	73.9	67.4	+10	Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. 000's	DEC	2,258.6	1,972.1	2,253.8	+ 0	(Dates: SEPT, SEPT)	3,305	-	3,166	+ 4
Petroleum Prod. (thous.)	JAN	51.0	52.0	65.0	-22	Broiler Placements (thous.)	1,789	1,853	1,999	-11
Consumer Price Index - Miami						Calf Prices (\$ per cwt.)	60.5	61.3	60.8	- 0
Nov. 1977 = 100		165.0	164.0	157.9	+ 4	Broiler Prices (\$ per lb.)	36.0	33.0	25.0	+44
Kilowatt Hours - mils.	DEC	7.3	7.6	7.1	+ 3	Soybean Prices (\$ per bu.)	7.66	7.36	5.60	+37
						Broiler Feed Cost (\$ per ton)	260	260	215	+21
<b>GEORGIA</b>										
Personal Income (\$bil. - SAAR)	3Q	59.3	58.2	54.4	+ 9	Agriculture				
Taxable Sales - \$ bil.	3Q	41.1	40.4	39.3	+ 5	Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. 000's	DEC	1,647.4	1,610.9	1,568.9	+ 5	(Dates: SEPT, SEPT)	2,146	-	2,140	+ 0
Petroleum Prod. (thous.)		N.A.	N.A.	N.A.		Broiler Placements (thous.)	12,380	12,387	12,718	- 3
Consumer Price Index - Atlanta						Calf Prices (\$ per cwt.)	55.4	54.3	55.3	+ 0
1967 = 100		307.3	304.4	296.1	+ 4	Broiler Prices (\$ per lb.)	36.0	33.5	24.0	+50
Kilowatt Hours - mils.	DEC	4.6	4.1	4.1	+12	Soybean Prices (\$ per bu.)	7.67	7.62	5.56	+38
						Broiler Feed Cost (\$ per ton)	220	215	185	+19
<b>LOUISIANA</b>										
Personal Income (\$bil. - SAAR)	3Q	45.3	45.9	44.9	+ 1	Agriculture				
Taxable Sales - \$ bil.		N.A.	N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. 000's	DEC	258.8	272.7	247.7	+ 5	(Dates: SEPT, SEPT)	817	-	904	-10
Petroleum Prod. (thous.)	JAN	1,215.0	1,211.0	1,190.0	+ 2	Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Consumer Price Index						Calf Prices (\$ per cwt.)	56.0	58.7	59.6	- 6
1967 = 100		N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	38.0	36.0	26.0	+46
Kilowatt Hours - mils.	DEC	4.2	4.3	4.1	+ 2	Soybean Prices (\$ per bu.)	7.80	7.89	5.88	+33
						Broiler Feed Cost (\$ per ton)	295	290	255	+16
<b>MISSISSIPPI</b>										
Personal Income (\$bil. - SAAR)	3Q	21.1	20.8	19.8	+ 7	Agriculture				
Taxable Sales - \$ bil.		N.A.	N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. 000's	DEC	31.4	31.3	29.0	+ 9	(Dates: SEPT, SEPT)	1,161	-	1,207	- 4
Petroleum Prod. (thous.)	JAN	87.0	86.0	88.0	- 1	Broiler Placements (thous.)	6,251	6,153	6,372	- 2
Consumer Price Index						Calf Prices (\$ per cwt.)	54.6	57.8	61.9	-12
1967 = 100		N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	40.0	37.0	26.5	+51
Kilowatt Hours - mils.	DEC	1.9	1.8	1.8	+ 6	Soybean Prices (\$ per bu.)	7.70	7.88	5.58	+38
						Broiler Feed Cost (\$ per ton)	191	195	163	+17
<b>TENNESSEE</b>										
Personal Income (\$bil. - SAAR)	3Q	44.7	43.7	41.6	+ 7	Agriculture				
Taxable Sales - \$ bil.	DEC	38.2	37.7	35.1	+ 9	Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. 000's	DEC	142.1	148.6	128.8	+11	(Dates: SEPT, SEPT)	1,230	-	1,178	+ 4
Petroleum Prod. (thous.)	JAN	N.A.	N.A.	N.A.		Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Consumer Price Index						Calf Prices (\$ per cwt.)	54.5	53.6	58.0	- 6
1967 = 100		N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	35.0	32.5	22.5	+56
Kilowatt Hours - mils.	DEC	6.1	5.5	5.6	+ 9	Soybean Prices (\$ per bu.)	7.88	8.01	5.65	+39
						Broiler Feed Cost (\$ per ton)	225	225	181	+24

## Notes:

Personal Income data supplied by U. S. Department of Commerce. Taxable Sales are reported as a 12-month cumulative total. Plane Passenger Arrivals are collected from 26 airports. Petroleum Production data supplied by U. S. Bureau of Mines. Consumer Price Index data supplied by Bureau of Labor Statistics. Agriculture data supplied by U. S. Department of Agriculture. Farm Cash Receipts data are reported as cumulative for the calendar year through the month shown. Broiler placements are an average weekly rate. The Southeast data represent the total of the six states. N.A. = not available. The annual percent change calculation is based on most recent data over prior year. R = revised.



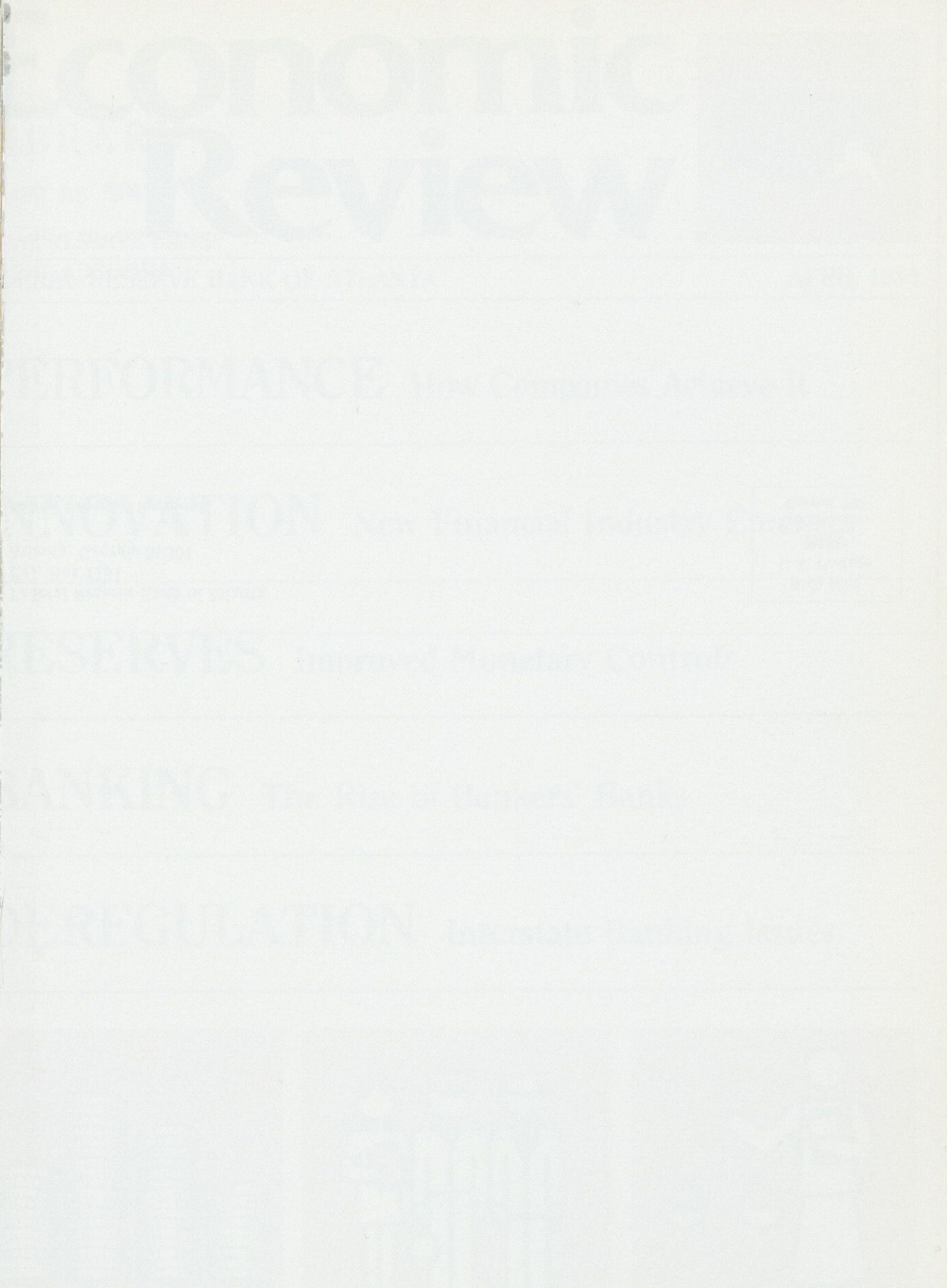


# EMPLOYMENT

	DEC 1983	NOV 1983	DEC 1982	ANN. % CHG.		DEC 1983	NOV 1983	DEC 1982	ANN. % CHG.
<b>UNITED STATES</b>									
Civilian Labor Force - thous.	111,795	112,147	110,477	+ 1	Nonfarm Employment- thous.	92,289	92,118	89,321	+ 3
Total Employed - thous.	102,803	103,018	98,849	+ 4	Manufacturing	19,225	19,262	18,159	+ 6
Total Unemployed - thous.	8,992	9,129	11,628	-23	Construction	4,077	4,248	3,786	+ 8
Unemployment Rate - % SA	8.2	8.4	10.8		Trade	21,298	20,942	20,824	+ 2
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	16,002	16,013	15,968	+ 0
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	20,062	20,051	19,149	+ 5
Mfg. Avg. Wkly. Hours	41.2	40.8	39.7	+ 4	Fin., Ins., & Real Est.	5,520	5,501	5,349	+ 3
Mfg. Avg. Wkly. Earn. - \$	373	366	345	+ 8	Trans. Com. & Pub. Util.	5,054	5,057	5,036	+ 0
<b>SOUTHEAST</b>									
Civilian Labor Force - thous.	14,685	14,712	14,207	+ 3	Nonfarm Employment- thous.	11,746	11,696	11,440	+ 3
Total Employed - thous.	13,383	13,358	12,668	+ 6	Manufacturing	2,224	2,223	2,135	+ 4
Total Unemployed - thous.	1,297	1,354	1,539	-16	Construction	656	660	629	+ 4
Unemployment Rate - % SA	9.0	9.5	11.0		Trade	2,851	2,804	2,758	+ 3
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	2,183	2,183	2,156	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	2,314	2,309	2,259	+ 2
Mfg. Avg. Wkly. Hours	41.5	40.9	40.7	+ 2	Fin., Ins., & Real Est.	675	671	652	+ 4
Mfg. Avg. Wkly. Earn. - \$	324	316	306	+ 6	Trans. Com. & Pub. Util.	698	700	702	- 1
<b>ALABAMA</b>									
Civilian Labor Force - thous.	1,763	1,775	1,720	+ 3	Nonfarm Employment- thous.	1,326	1,324	1,310	+ 1
Total Employed - thous.	1,546	1,552	1,453	+ 6	Manufacturing	335	335	326	+ 3
Total Unemployed - thous.	217	223	267	-19	Construction	61	61	58	+ 5
Unemployment Rate - % SA	12.8	13.1	15.7		Trade	276	271	273	+ 1
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	295	295	291	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	216	217	218	- 1
Mfg. Avg. Wkly. Hours	41.6	41.1	39.6	+ 5	Fin., Ins., & Real Est.	59	59	59	0
Mfg. Avg. Wkly. Earn. - \$	322	316	294	+10	Trans. Com. & Pub. Util.	71	71	70	+ 1
<b>FLORIDA</b>									
Civilian Labor Force - thous.	5,118	5,064	4,798	+ 7	Nonfarm Employment- thous.	4,015	3,969	3,834	+ 5
Total Employed - thous.	4,735	4,656	4,343	+ 9	Manufacturing	494	488	461	+ 7
Total Unemployed - thous.	383	408	455	-16	Construction	267	263	242	+10
Unemployment Rate - % SA	7.4	7.8	9.5		Trade	1,100	1,078	1,034	+ 6
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	653	651	638	+ 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	954	946	927	+ 3
Mfg. Avg. Wkly. Hours	42.4	41.2	41.4	+ 2	Fin., Ins., & Real Est.	303	299	284	+ 7
Mfg. Avg. Wkly. Earn. - \$	315	306	302	+ 4	Trans. Com. & Pub. Util.	235	234	239	- 2
<b>GEORGIA</b>									
Civilian Labor Force - thous.	2,679	2,689	2,670	+ 1	Nonfarm Employment- thous.	2,296	2,287	2,227	+ 3
Total Employed - thous.	2,502	2,502	2,461	+ 2	Manufacturing	515	515	495	+ 4
Total Unemployed - thous.	177	187	209	-15	Construction	108	110	103	+ 5
Unemployment Rate - % SA	6.8	7.2	8.1		Trade	560	550	540	+ 4
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	440	441	440	0
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	394	395	376	+ 5
Mfg. Avg. Wkly. Hours	42.3	41.8	40.4	+ 5	Fin., Ins., & Real Est.	121	121	118	+ 3
Mfg. Avg. Wkly. Earn. - \$	309	301	279	+11	Trans. Com. & Pub. Util.	149	148	146	+ 2
<b>LOUISIANA</b>									
Civilian Labor Force - thous.	1,899	1,925	1,855	+ 3	Nonfarm Employment- thous.	1,595	1,597	1,607	+ 0
Total Employed - thous.	1,708	1,716	1,640	+ 4	Manufacturing	190	193	199	- 5
Total Unemployed - thous.	191	209	215	-11	Construction	113	115	119	- 5
Unemployment Rate - % SA	10.4	11.4	12.0		Trade	375	371	372	+ 1
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	315	315	310	+ 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	307	307	305	+ 1
Mfg. Avg. Wkly. Hours	40.1	39.6	42.7	- 6	Fin., Ins., & Real Est.	80	80	79	+ 1
Mfg. Avg. Wkly. Earn. - \$	394	384	401	- 2	Trans. Com. & Pub. Util.	122	124	127	- 4
<b>MISSISSIPPI</b>									
Civilian Labor Force - thous.	1,027	1,044	1,051	- 2	Nonfarm Employment- thous.	801	799	794	+ 1
Total Employed - thous.	924	934	927	- 0	Manufacturing	207	207	198	+ 5
Total Unemployed - thous.	103	110	124	-17	Construction	37	38	40	- 8
Unemployment Rate - % SA	10.1	11.3	11.9		Trade	167	164	167	0
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	181	181	182	- 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	124	124	124	0
Mfg. Avg. Wkly. Hours	41.5	40.6	40.1	+ 3	Fin., Ins., & Real Est.	33	33	33	0
Mfg. Avg. Wkly. Earn. - \$	290	279	262	+11	Trans. Com. & Pub. Util.	39	39	39	0
<b>TENNESSEE</b>									
Civilian Labor Force - thous.	2,199	2,215	2,113	+ 4	Nonfarm Employment- thous.	1,713	1,720	1,668	+ 3
Total Employed - thous.	1,973	1,998	1,844	+ 7	Manufacturing	483	485	456	+ 6
Total Unemployed - thous.	226	217	269	-16	Construction	70	73	67	+ 4
Unemployment Rate - % SA	10.4	10.5	12.8		Trade	373	370	372	+ 0
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	299	300	295	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	319	320	309	+ 3
Mfg. Avg. Wkly. Hours	41.1	40.9	39.8	+ 3	Fin., Ins., & Real Est.	79	79	79	0
Mfg. Avg. Wkly. Earn. - \$	313	310	295	+ 6	Trans. Com. & Pub. Util.	82	84	81	+ 1

**Notes:** All labor force data are from Bureau of Labor Statistics reports supplied by state agencies.  
Only the unemployment rate data are seasonally adjusted.  
The Southeast data represent the total of the six states.  
The annual percent change calculation is based on the most recent data over prior year.







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