

Voice

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NOW Accounts in the Southwest: A Break for Consumers, an Entry for S&L's, and a Test for Banks

By Patrick J. Lawler

The Depository Institutions Deregulation and Monetary Control Act of 1980 will likely do more to change the banking and thrift industries than any law enacted in the prior 40 years. One of the most important features of the new legislation is the nationwide extension to banks and thrift institutions of the authority to offer negotiable order of withdrawal (NOW) accounts.

The new authority, which will be effective December 31 this year, will give individuals and non-profit organizations the opportunity to use what are essentially interest-paying checking accounts. Based on the experience in the Northeast, where such accounts have been available in recent years, NOW's promise to be popular with consumers. They will also provide savings and loan associations an opportunity to break into a new market. And by increasing competition, they may raise bank costs and lower profits—at least temporarily.

NOW's have substantial market potential . . .

The idea of an interest-earning checking account is attractive from a consumer's point of view. As advertising spreads information about the availability and benefits of NOW's, most consumers will probably at least give consideration to putting some or all of their checking and savings account funds in NOW accounts.

At stake is a sizable sum of money. At the end of March 1980, checking deposits of individuals, partnerships, and corporations at banks in the

Eleventh Federal Reserve District totaled \$27.8 billion. A survey of District banks indicated that about a third of this money, or \$9.3 billion, was held by households. In addition, households held \$7.9 billion in bank savings accounts and about another \$9 billion in savings accounts at savings and loan associations or credit unions. The total is over \$26 billion.

Nevertheless, banks have been authorized to offer services similar to NOW's since 1978. But bank promotion and consumer interest have been limited. For almost two years banks have been permitted to offer automatic transfer service (ATS) to customers wishing to shift funds from a savings account to a checking account without making a specific request for each transfer.

These two accounts can function in virtually the same way as a single NOW account. For example, a customer might arrange with a bank to transfer from the savings to the checking account each day the exact amount of the checks charged that day. So at the end of each day the checking account balance would be zero. The customer need never put any other funds into the non-interest-earning checking account. All the customer's money would be in the interest-earning savings account.

But by the end of March 1980, total District funds in ATS accounts amounted to only \$172 million. This is a very small amount when compared with the \$26 billion in household savings and checking deposits—less than 1 percent. And

it is less than 2 percent of total household transaction balances (ATS plus checking deposits).

There are, however, several reasons to believe that NOW accounts will be more popular. First, until last March the legality of automatic transfer service was in doubt. Courts ruled that the Federal Reserve Board's approval was inadequate, that legislation was necessary to provide permanent authority for ATS. A temporary law was enacted, but final legislative approval did not exist until the Depository Institutions Deregulation and Monetary Control Act. Second, NOW accounts are cheaper for banks since only one account is necessary instead of two, which cuts processing costs substantially. Third, NOW accounts are easier to advertise and explain to consumers. A single account that pays interest and offers checking services is less complicated than the transfer arrangement involving two accounts. Finally and most important, NOW accounts, unlike ATS accounts, can also be offered by savings and loan associations. This may put substantial pressure on commercial banks to promote NOW's in order to remain competitive.

As advertising spreads information about the availability and benefits of NOW's, most consumers will probably at least give consideration to putting some or all of their checking and savings account funds in NOW accounts.

A number of thrifts have already proved themselves eager competitors. Even in advance of NOW legalization, some S&L's in Texas have taken advantage of legal and regulatory loopholes and begun offering varieties of interest-earning and non-interest-earning accounts on which checks may be drawn. By midsummer, deposits in such accounts were estimated to total roughly \$40 million. Federally chartered credit unions were empowered to offer share draft accounts in 1974. A survey of 72 of the 105 Texas credit unions offering such accounts at the end of last year showed share draft deposits of over \$128 million.

Thrifts should be strong competitors for transaction accounts in January when they can offer NOW accounts. Other features of the Deregulation

and Monetary Control Act further enhance the competitive position of federally chartered S&L's. The new law permits them to make consumer loans and to offer credit-card and trust services. Federal S&L's will be able to offer essentially the same "one-stop service" that banks have traditionally claimed as their exclusive province. And for now at least, they can offer an additional $\frac{1}{4}$ percentage point of interest on savings accounts and most small certificates of deposit.

. . . and make economic sense

Current regulations make it difficult for consumers to receive—and banks to offer—checking account services at a fair market price. NOW accounts will promote economic efficiency in two important ways. The prohibition of interest payments on personal checking accounts is effectively ended, and competition is strengthened by increasing the number of institutions that may offer checking accounts.

The inability of banks to make explicit interest payments has forced them to compete for checking deposits by paying implicit interest. That is, banks provide a wide range of services for their checking customers for free or well below cost. They are willing to do so because they can invest the funds held in checking accounts in earning assets. Thus, charges for check processing and monthly statements are low or nothing at all. Loan rates are sometimes lower, and bank wire services free, to checking customers. And customer convenience is emphasized by placing banks in prime locations and building drive-in facilities.

While consumers value these services and choose banks on the basis of them, both banks and their customers might be better off with NOW accounts. Consider, for example, a consumer with a free checking account. He writes checks whenever it is most convenient. Sometimes he is virtually indifferent between paying for something by check and paying by some other means. Yet the bank is not indifferent. Each check costs perhaps 10 or 15 cents to process.¹ If a customer writes 30 such checks in a year, the bank's cost might be \$3.75, but the consumer's benefit is minimal.

Now suppose the bank paid interest on account balances and charged the full cost of handling

1. Dale Osborne, "A Model of Demand Deposit Service Costs" (Unpublished, 1980).

each check. This hypothetical customer would write at least 30 fewer checks. The bank could afford to pay back as interest all the charges it collected plus some of the savings from processing fewer items. The bank would save money, and the customer would receive more in interest than he paid in fees. He would use his checking account less but would be better off overall.

Similar examples could be made of all the services provided below cost to checking customers. This implicit interest banks pay on checking balances costs banks more to provide than consumers value the benefits. Explicit interest, however, is valued equally by both. A dollar in interest payments costs the bank a dollar and is worth a dollar to the depositor.

The shortage of competitors, if it exists, will be lessened by the potential addition of about 380 savings and loan associations, with about 1,400 offices, to the roughly 2,000 banking offices in the Eleventh District already offering checking accounts.

Almost. Tax law presents a complication. Explicit interest is taxable, while implicit interest is not. Consumers in high tax brackets may be better off arranging an implicit service package with a bank in return for keeping money in a traditional checking account rather than an explicit interest-paying NOW account. Consumers in lower brackets should be better off with NOW's.

The ability of banks to offer NOW's, then, should improve economic efficiency if banks start charging closer to full cost for checking services. Both consumers and banks could benefit from this reduction in waste.

The other source of benefits is the increased competition created by allowing thrifts to enter the checking account market. Competition promotes economic efficiency by helping ensure that the relative prices of goods and services reflect their relative costs of production. If the price of a service is above its competitive level, it discourages the use of that service and wastefully encourages more costly alternatives.

While nearly everyone may share in the benefits from allowing interest payments on checking

accounts, new competition can only benefit consumers and the new competitors. Banks may suffer. How much depends on how competitive retail banking markets currently are. If they are very competitive, profits on checking business are very low. Thrifts would have relatively little incentive to enter the market, and it would be impossible to benefit consumers much without losing money. If these markets are not very competitive, checking accounts may be very profitable currently. Thrifts would have strong incentives to enter the market and offer higher implicit or explicit interest in order to attract customers. Consumers could benefit substantially, and banks would lose considerable business to thrifts or be forced to increase services or interest rates to meet the competition. Either way, their profits would decline.

There is some reason to suspect that the market for personal checking services is not as competitive as, for example, the market for wheat. Entry into the industry is restricted by chartering organizations (the Comptroller of the Currency and state banking authorities). In most of the Eleventh District, branch banking is prohibited. And the District has many small towns and cities not large enough to support even three banks. All these factors limit the number of competitors, which means less competition. But the shortage of competitors, if it exists, will be lessened by the potential addition of about 380 savings and loan associations, with about 1,400 offices, to the roughly 2,000 banking offices in the District already offering checking accounts.

NOW's have had impressive success in New England . . .

The New England states represent the most complete "experiment" with NOW's. State-chartered mutual savings banks in Massachusetts and New Hampshire began offering NOW accounts in 1972. The authority was extended to all depository institutions in those states at the beginning of 1974. By the end of February 1976, institutions in the other four New England states were also able to create NOW accounts. The accounts were legalized in New York State in November 1978 and in New Jersey in December 1979. But those developments are too recent to provide much information for analysis.

The growth of NOW's in New England has been extremely rapid. During the 4½ years from De-

TABLE 1

**NOW deposit growth has been quick in New England,
but overall market shares are nearly unchanged**

	Deposits (Billions of dollars)			Market shares (Percent)	
	Com- mercial banks	Thrift institu- tions ¹	Total	Com- mercial banks	Thrift institu- tions ¹
Total personal and business deposits					
December 1973	\$22.7	\$35.6	\$58.4	38.9	61.1
June 1978	30.7	51.4	82.1	37.4	62.6
Personal and business checkable deposits					
December 1973	10.8	.2	11.0	97.8	2.2
June 1978	12.9	1.4	14.3	90.2	9.8
Regular checking accounts					
December 1973	10.8	.1	10.9	99.0	1.0
June 1978	10.9	.2	11.1	98.2	1.8
NOW deposits					
December 1973	—	.1	.1	—	100.0
June 1978	2.1	1.2	3.3	63.3	36.7
Other personal and business deposits					
December 1973	11.9	35.4	47.3	25.2	74.8
June 1978	17.8	50.0	67.8	26.2	73.8
Personal passbook savings					
December 1973	5.8	24.4	30.2	19.2	80.8
June 1978	9.2	28.2	37.5	24.6	75.4

1. Mutual savings banks, savings and loan associations, cooperatives, and credit unions.
SOURCES: Federal Deposit Insurance Corporation.
Federal Home Loan Bank Board.
Federal Home Loan Bank of Boston.
Federal Reserve Bank of Boston.
National Credit Union Administration.

December 1973 to June 1978, NOW deposits mushroomed from around \$100 million to close to \$3.3 billion (Table 1). That represented an increase from 1.2 percent of all personal and business checkable deposits to 22.8 percent. Assuming that households in New England had a third of all regular checking deposits, as they do in the Southwest and the nation as a whole, 47 percent of all checkable personal deposits were in NOW accounts by mid-1978. These accounts have obviously been very popular. In the following two years, NOW deposits have increased more than \$1 billion, making them more popular with households than regular checking accounts.

Commercial banks have fared well in the competition for the new deposits in New England. Although thrifts had better than a 1½-year head start in two states, banks had attracted almost two-thirds of the NOW deposits by June 1978. In the following two years, they have maintained that share. But while banks had a near monopoly on

checking accounts in 1973, the introduction of NOW's allowed thrifts to increase their market share of checkable deposits from 2.2 percent to 9.8 percent. As a result, banks' share of total personal and business deposits declined. The drop was less than it might have been; banks were able to increase their share of other deposits, particularly savings deposits. This may have occurred because some consumers with a checking account at a commercial bank and a savings account at a thrift institution consolidated the two accounts by opening a single NOW account at a bank.

These data covering all of New England mask a significant difference between the two states that were first with NOW's and the four states that followed. One indicator of this dichotomy is the marked dissimilarity in market penetration between the two groups. By July this year, there were 93 NOW accounts for every 100 households in Massachusetts and more accounts than households in New Hampshire. But there were just 42 per 100

in Connecticut and Maine and only 20 per 100 in Rhode Island and Vermont.

The explanation appears to lie in the differing patterns of development in the two groups of states. Mutual savings banks had about a 1¹/₂-year head start in the two state originating NOW's and promoted them very heavily in an effort to increase deposits. Accordingly, prices for the new accounts were set below cost. Most savings banks offered the maximum interest on deposits (5¹/₄ percent), charged no service fees, and required no minimum balance. In 1974, when commercial banks were allowed to compete for NOW's, many offered similarly "free" accounts in order to be competitive. Households were attracted by the heavy advertising and low prices and quickly became familiar with NOW's.

By July this year, there were 93 NOW accounts for every 100 households in Massachusetts and more accounts than households in New Hampshire.

Later, minimum balances were increased. By the end of 1977, 60 percent of total NOW balances in Massachusetts and New Hampshire were in required-minimum-balance accounts. The average required balance was below \$500. Since then, more institutions have required minimum balances and some minimums have been raised, but the popularity of the accounts is assured. From an econo-

mist's viewpoint, explicit service charges would be a more efficient way to offset service costs than minimum balances, but few institutions have adopted them. Perhaps consumers perceive the indirect cost of holding extra funds in a low-yielding NOW account to be less onerous than direct charges.

The aggressive competition took a toll on commercial bank profits. In Massachusetts, bank income-to-assets ratios, which had been averaging 72 percent of the national average, dipped to less than 50 percent in 1976 and 1977 (Table 2). But banks that fought most aggressively for NOW balances may have helped themselves in the long run by maintaining or increasing their deposit shares. With the increase in minimum balances, profits have recovered somewhat. In the four states that introduced NOW's later, balances have grown less rapidly. Because banks and thrifts entered the market at the same time, there was not as great a shift in market shares. Banks were not under as much pressure to offer free accounts. Most banks started with minimum balances, expecting to keep their best customers and lose only marginal accounts. Thrifts were not as aggressive in their pricing terms either. As a result, bank profits held up much better in these states.

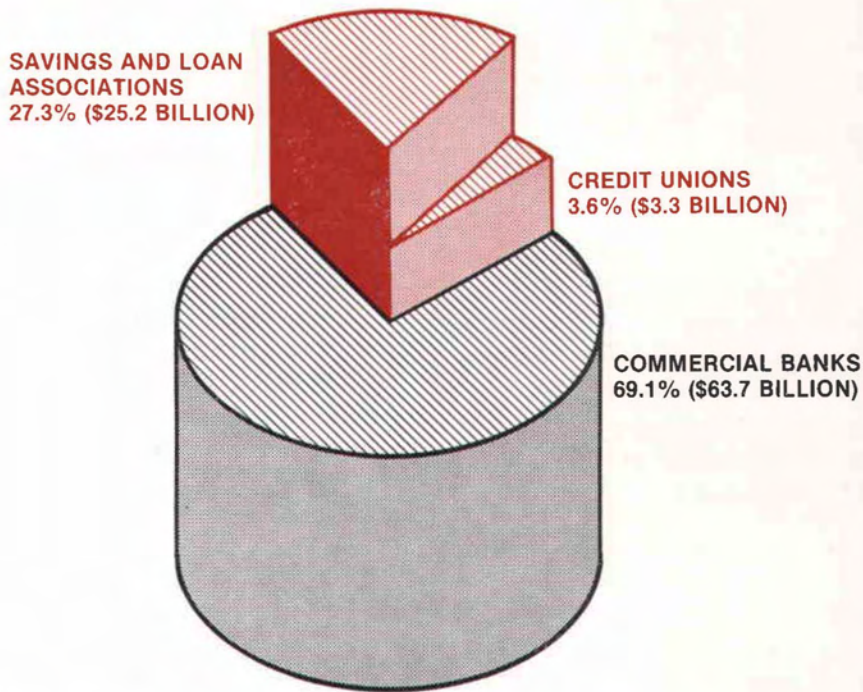
In fact, the decline in income-assets ratios probably overstates the effects of NOW's on profits. Other factors such as a severe recession and a declining industrial base also weakened earnings during the same period. Studies by Paulus and Woglom found that NOW's decreased aggregate net earnings of commercial banks by 3 percent, 12 percent, and 23 percent in Massachusetts and

TABLE 2
Commercial bank profits
in New England have generally suffered
from NOW account competition

	Median net income-to-assets ratios divided by the annual averages for all U.S. banks					
	1971-73 average	1974	1975	1976	1977	1978
Massachusetts . . .	.72	.50	.55	.46	.47	.61
New Hampshire . . .	1.00	.80	.69	.81	.83	.84
Connecticut . . . . .	.83	.74	.64	.51	.68	.72
Maine . . . . .	.99	.87	.99	.93	.96	.86
Rhode Island . . . . .	.63	.63	.67	.63	.90	.83
Vermont . . . . .	.98	.94	.93	1.00	.97	.89

SOURCES: Board of Governors, Federal Reserve System.
 Federal Reserve Bank of Boston.

Thrifts have a relatively small share of deposits in Texas



TOTAL PERSONAL AND BUSINESS DEPOSITS, DECEMBER 1979—\$92.2 BILLION

SOURCES: Federal Home Loan Bank Board.
National Credit Union Administration.
Federal Reserve Bank of Dallas.

New Hampshire in 1974, 1975, and 1976, respectively, and by 6 percent in the other four states in 1976.² A study by Asay and Kilcollin estimated a permanent decline of 25 percent in profits in the first two states but found no statistically significant decline for banks in the other states.³ This study also estimated a 5-percent increase in thrift profits in Massachusetts and New Hampshire.

Overall, the New England experience indicates the potential of NOW accounts to eventually take half the market for household checking services. Early results from the extension of NOW's to New York and New Jersey corroborate this conclusion. In their first 20 months of existence in New York, NOW's appear to have accumulated over a fifth of all household checking balances. Growth in New Jersey has been even faster. In the first six months

2. John D. Paulus, *Effects of "NOW" Accounts on Costs and Earnings of Commercial Banks in 1974-75*, Staff Economic Studies, no. 88 (Washington, D.C.: Board of Governors of the Federal Reserve System, 1976), and G. Woglom, *The NOW Account Experiment in 1976*, a Special Study of the Federal Reserve Bank of Boston (1977).

3. Michael R. Asay and Thomas Eric Kilcollin, "The Competitive Effects of NOW Accounts on Financial Institutions in New England," Research Papers in Banking and Financial Economics (Washington, D.C.: Board of Governors of the Federal Reserve System, Division of Research and Statistics, Financial Studies Section, 1980).

of 1980, NOW deposits there grew from zero to over \$450 million—about a sixth of total household checking balances.

But the pace of adjustment and the effects on market shares and profits have varied from state to state. Timing of the legal changes, experience, and the various state institutional frameworks have all influenced the growth of NOW accounts.

... but will face a different financial environment in the Southwest

The history of NOW accounts in New England in the 1970's is by no means a perfect guide to the future of NOW accounts in the Southwest in the 1980's. Important distinctions of both time and place must be made.

Changes in the national financial environment affecting NOW's have been substantial. When these accounts were first offered in New England, there had been no ATS accounts, no money market mutual funds, and no prior experience with interest-earning checking accounts. Market interest rates were lower, and NOW accounts could earn as much interest as savings accounts. Knowledge of the popularity of NOW's in New England and experience with ATS accounts, even though quite limited, will probably lead most southwestern institutions to offer NOW accounts at an early date. This should speed the adjustment process. Consumers should also be more familiar with NOW's, having heard about those in the Northeast or having considered opening an ATS account or a share draft account at a credit union.

Average bank earnings on personal checking accounts in the Eleventh District are relatively high. They have generally been more than three times the national average.

Higher market interest rates may slow the development of NOW's. High alternative yields could discourage consumers from putting funds in accounts limited to a 5¹/₄-percent return. The development of money market mutual funds as a convenient repository of liquid funds increases the significance of this possibility. But higher

market yields also increase financial institutions' returns from earning assets. If they pass on these earnings to consumers by setting low minimum balances, consumers will have little reason to seek better investments elsewhere.

Even more important, however, may be the structural differences in the banking and thrift industries in the Eleventh District as compared with New England. Branch banking is not allowed in most of this District, so there are more small banks. They may have more difficulty bearing the expense of advertising and of developing internal procedures for handling new accounts. However, banks that are owned by holding companies can expect some planning help from their central organizations.

Competition from thrifts may not be as strong in this District. While New England thrifts have over 60 percent of all personal and business deposits, in Texas—which accounts for 92 percent of the District's demand deposits—thrifts have only about 30 percent of total personal and business deposits (as indicated in the chart). So thrifts here are not in as strong a position to take away depositors.

But the potential gains from increased competition appear to be much greater in the Southwest than in New England. Average bank earnings on personal checking accounts in the Eleventh District are relatively high. They have generally been more than three times the national average (Table 3). By contrast, account earnings in New England have been very low, dropping sharply after the introduction of NOW accounts.

These data come from the Federal Reserve System's functional cost analysis survey. There are, of course, many problems associated with trying to allocate costs in an industry that uses the same inputs for many products. How should the cost of a bank's building be allocated between checking accounts and automobile loans, for example? The building is needed for each. Earnings are hard to allocate as well. Should the earnings of a bank's entire portfolio be allocated evenly across its different sources of funds? Or do banks, as is generally believed, invest checking funds differently from funds deposited in eight-year certificates? Other problems include the fact that the functional cost figures are average rather than marginal earnings; the sample is voluntary and, therefore, is probably biased; and the sample changes from year to year, so comparisons across years may not

TABLE 3**Earnings on checking accounts have been high in the Eleventh District**

	Net earnings per personal checking account					
	1973	1974	1975	1976	1977	1978
Eleventh District	\$2.74	\$2.83	\$5.21	\$1.65	\$2.92	\$3.13
First District (New England) . . . . .	.14	.65	-2.31	-1.01	-.88	.90
All 12 Federal Reserve districts . . .	1.42	.84	1.15	.54	.45	1.40

SOURCES: Board of Governors, Federal Reserve System.
Federal Reserve Bank of Boston.
Federal Reserve Bank of Dallas.

be reliable.

Nevertheless, the differences are large enough to be unexplainable by these statistical difficulties. Banks in the Eleventh District simply earn more for checking services than banks elsewhere, particularly in New England. This conclusion is supported by evidence on actual service charge schedules. Free checking accounts became common in the late 1960's in New England.⁴ Recent inquiries showed that they are still common, although since the rise of NOW accounts, required minimum balances of \$100 to \$200 are probably the norm. But in the Eleventh District much higher charges prevail. A survey of District banks conducted in 1978 showed an average service charge (or earnings forgone by holding a minimum balance) of about \$1.50 for customers writing 20

checks.⁵

The popularity of NOW accounts in New England is evident. Their success in the Southwest may be even greater. Overall, this region, like the rest of the nation, should benefit from NOW accounts. Their legalization represents a reduction in regulation that will make consumer financial markets more competitive and more efficient. The potential for benefit to consumers in terms of lower checking costs seems substantial. And the incentive for thrifts to promote NOW accounts vigorously is there. Since checking accounts appear to be so lucrative in this District, banks here have more to lose than those in New England if thrifts win away their customers. But if banks retain customers by paying interest and lowering service charges, that will cost profits too.

4. Steven J. Weiss, "Commercial Bank Price Competition: The Case of 'Free' Checking Accounts," *New England Economic Review*, Federal Reserve Bank of Boston, September/October 1969.

5. Dale Osborne and Jeanne Wendel, "The Surprising Variety of Checking Account Prices," *Voice of the Federal Reserve Bank of Dallas*, May 1978.

“Fed Quotes”

Brief Excerpts from Recent Federal Reserve Speeches, Statements, Publications, Etc.

“The course of policy our country has adopted this year is, indeed, heartening, but we are still a long ways from our objective of stable prices. If we do not persist in keeping the fight against inflation at the top of our priority list, the gains we have achieved to date—at heavy cost in terms of lost jobs and output—could easily be frittered away. For example, in recent weeks interest rates have moved up in response to increasing demands for money and credit. Cries of alarm have already begun to be heard. I share the view that interest rates should not rise enough to choke off recovery. But some rise in interest rates as the recovery proceeds is an inevitable part of a monetary policy strategy that puts primary emphasis on bringing inflation down over the long run.

“I believe we need a tax cut next year to offset the effect on tax burdens of the windfall profits tax, the scheduled increase in payroll taxes and the rise in marginal tax rates because of inflation. It should be of moderate dimensions, and targeted carefully to achieve anti-inflation benefits. If it has those characteristics it will make a positive contribution both to encouraging recovery and reducing inflation.

“We should be wary of claims that wholesale tax reductions will produce miracles on the supply side, and are therefore non-inflationary. Careful, well-documented work on the effects of supply-side cuts on output and productivity is largely confined to studies of the effects of business tax cuts on capital formation and productivity. Beyond that, supply-side economics is based about as much on conjecture as on empirical analysis. At this critical stage of the fight against inflation, we can ill afford to make large reductions in tax rates on the basis of untested hypotheses.

“The agenda of things that need to be done to regain price stability begins with the pursuit of prudent, carefully-designed fiscal and monetary policies. It does not end there. It is crucial that we make the fight against inflation a part of every governmental policy decision—whether it be energy policy, environmental and social regulations, import restrictions, loans to troubled industries, agricultural policies, or others. Consistent, anti-inflationary policies in all of these areas are essential to regaining price stability.”

Lyle E. Gramley, Member, Board of Governors of the Federal Reserve System (At the dinner following the dedication of the new Miami Branch Building, Miami, Florida, September 4, 1980)

"In its most significant decision, the DIDC [Depository Institutions Deregulation Committee] at the end of May adjusted the ceiling rates payable on both 6- and 30-month floating ceiling deposits—those deposits whose ceiling rates are tied to interest rates on comparable maturity Treasury securities. . . . The adjustments made increased the ceilings by changing their relationship to the corresponding Treasury securities yields and established minimum ceilings for each of the deposit categories.

"Several factors led us to take these actions. With respect to increasing the ceilings relative to Treasury securities, the primary objective was to improve the competitive position of all depository institutions, in order to attract funds at a time when the extreme pressures on institutions' earnings seemed to be subsiding. Savings and loan associations, mutual savings banks, and smaller commercial banks—all of which had been under liquidity pressure—are a primary source of credit for housing, agriculture, and small business. These institutions had been finding it increasingly difficult to compete with alternative market instruments for funds, particularly money market mutual funds and Treasury securities. . . . In that connection, I should note that yields on Treasury securities to which the deposit ceilings are related are typically significantly below other interest rates available in the market.

"I believe all of the DIDC members are sensitive to the reality of an environment in which the cutting edge of competition faced by depository institutions has been increasingly not among themselves, but with non-deposit instruments—and especially with new vehicles such as money market mutual funds. Funds diverted to the market or to money market funds do not directly find their way into important credit markets—especially for housing, agriculture, and small business—emphasized by the institutions. By allowing depository institutions the flexibility to offer higher returns, the changes made by the Committee should facilitate a larger increase in their deposits and, consequently, the flow of funds to the credit markets they serve. Moreover, the overall decline in interest rates occurring at the time the actions were taken, by easing the earnings pressures faced by many of these institutions, made them better able to offer the more competitive rates. In short, from the point of view of both economic recovery and concern with the long-run financial strength and competitive posture of depository institutions, it seemed to the Committee a desirable time for banks and thrifts to be placed in a stronger position to increase flows of small time deposits with floating ceilings."

Paul A. Volcker, Chairman, Board of Governors of the Federal Reserve System (Before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, August 5, 1980)

“Whatever the near-term course of the economy, we must not let our attention be distracted from the major long-term problem of inflation. Rising inflation over the last 15 years has created our difficulties. Inflation caused this recession, inflation will slow the recovery, and unless we get it under control inflation will generate a financial collapse which cannot help but result in major changes in our economic and political systems.”

“We are now at a critical point in our attack on inflation, a point where some people are urging a change in priorities and an easing up in anti-inflationary policies. To do so now would be foolish, for the fight to restore price stability is also the fight to achieve stable long-term growth of output, income, and employment. Unless we control inflation, we cannot generate the faith in the future which is necessary for consumers to save and businessmen to invest. Such a course is not painless. It requires a firm and courageous commitment to policies that may, in the short run, result in some lost output and employment. However, over the longer term, such policies will not only create job opportunities but, more importantly, can restore our country's basic strength and spirit.”

Frederick H. Schultz, Vice Chairman, Board of
Governors of the Federal Reserve System (Before
the Commonwealth Club of California, San Francisco,
California, August 15, 1980)

Small-Scale Production of Alcohol Fuel: Not Feasible for the Farmer

By Jennifer D. Miles

Ten years ago the United States imported relatively little oil. During the first half of 1980, this country imported an average of 5,603,000 barrels of oil per day. Events of the past decade, such as the increased effectiveness of the Organization of Petroleum Exporting Countries and the political instability in the Mideast, have greatly increased not only the cost of our imported fuel but our vulnerability to arbitrary supply interruptions as well.

These developments have created incentives for the United States to develop alternative sources of domestic energy. For example, the Federal Government has recently established a goal of 500 million gallons of annual U.S. production capacity for alcohol fuels by the end of 1981. Federal and state agencies have responded with a wide variety of programs, involving millions of dollars, to help meet this goal. Many of these programs include grants and insured and guaranteed loans for small on-farm alcohol plants. However, the present state of the technology of small-scale alcohol fuel production and marketing, as well as some problems with utilization, suggests that prospects for on-farm alcohol production are not bright at this time.

Many of the problems of on-farm production stem from the lack of small-scale technology able to compete economically with the established large-scale technology. Some of these problems include a significant decrease in yield of alcohol per bushel of grain, an unacceptable level of water

content in the alcohol produced, and a higher total cost of production than for the large producers.

Fuel alcohol production is an old idea

Since the early years of this century, schemes to use pure alcohol or alcohol-gasoline blends as motor fuel have arisen during periods of agricultural surplus and accompanying low prices or at times of real or predicted fuel shortages.

Farm leaders and alcohol distillers first advocated fuel alcohol production during a period of agricultural price decline in 1906. However, the availability of cheap gasoline from Oklahoma oil fields effectively destroyed the idea in the pre-World War I era.

Low-price surplus industrial alcohol from World War I and relatively high gasoline prices prompted Standard Oil Company to introduce a 25-percent blend into the Baltimore area in 1922-23. Difficulties in storage and transportation, coupled with consumer complaints of clogged fuel lines and carburetors, quickly terminated the venture. Other attempts to introduce alcohol blends in the 1920's met a similar fate. New discoveries of California and midcontinent oil brought a crude surplus, and significant improvements in thermal cracking technology enabled refiners to obtain greater gasoline yields from a barrel of crude oil. Moreover, the introduction of tetraethyllead nullified the octane-boosting advantages of alcohol.

TABLE 1

About 1.5 gallons of anhydrous alcohol are needed to supply the same energy as in a gallon of gasoline

Fuel	Energy content ¹ (Btu per gallon)
Alcohol	
160 proof	68,000
190 proof	81,000
Anhydrous (200 proof)	85,000
Gasohol (90 percent gasoline, 10 percent alcohol)	120,000
Gasoline	124,000
Diesohol (90 percent diesel fuel, 10 percent alcohol)...	134,000
No. 2 diesel fuel	140,000

1. Expressed in terms of the British thermal unit (Btu).

SOURCE: Alcohol-Fuel Symposium, Texas A&M University, July 1-2, 1980.

The sharp decline in prices of farm products during the Depression years revived interest in alcohol for fuel. In 1938, 18 million gallons of ethanol were produced at the Atchison Agrol Plant in Kansas and distributed to some 2,000 independent service stations in the region before the plant was shut down because of financial difficulties. This experimental plant proved the technical feasibility of a fuel alcohol plan but not the economic viability.

Alcohol fuels emerged next in Europe during World War II, when gasoline shortages were widespread. Germany converted much of its aircraft and other war machinery to alcohol fuels after its petroleum refineries were destroyed. The Brazilian government in recent years has purchased excess sugarcane for conversion to alcohol, enabling Brazil to lower the level of energy imports. Now the United States also is seeking to lower the level of oil imports through conversion of its surplus grains to alcohol fuels.

On-farm alcohol production offers a few advantages . . .

There are two main advantages of on-farm alcohol production. First, farmers can manufacture fuel alcohol for their own use from homegrown feedstocks, thereby providing an assured source of fuel for their farm machinery and vehicles. Second, production of alcohol is also viewed as providing an alternative marketing strategy by which farmers may dispose of grains when large supplies depress prices.

On-farm alcohol production can provide fuel to help meet a farmer's energy requirements. But engine modifications are necessary before straight farm alcohol or alcohol in combination with gasoline or diesel fuel can be used in tractors, trucks, or cars. Diesel engines cannot be run on pure alcohol because their fuel systems need lubrication, and while gasoline engines can be modified to run on alcohol alone, the probable fluctuation in water content of farm-produced alcohol would make performance unsatisfactory.¹ A blend of anhydrous alcohol and diesel fuel, called diesohol, can meet the specifications for diesel fuel. However, even a slight amount (0.13 percent) of water will cause the alcohol to separate from the diesel fuel.²

Alcohol can be compared with gasoline and diesel fuel as an energy source. About 1.5 gallons of anhydrous alcohol are needed to supply the same energy as in a gallon of gasoline, and about 1.7 gallons of alcohol are needed to provide the same energy as in a gallon of diesel fuel (Table 1). Therefore, the selling price of a gallon of alcohol cannot be compared with the price of a gallon of gasoline or diesel fuel without accounting for the differences in energy content.

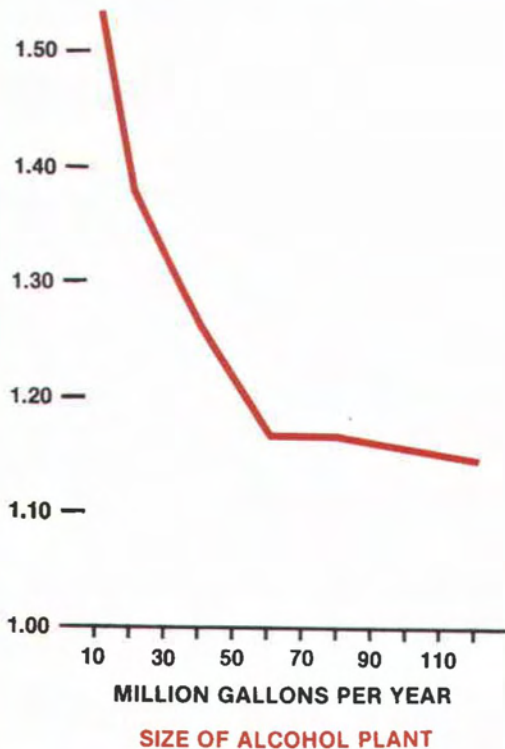
1. Engine Manufacturers Association, Alternate Fuels Committee, *Alcohol as an Engine Fuel* (Chicago: Engine Manufacturers Association, June 1980).

2. W. A. LePori and R. R. Davison, "Ethanol as a Fuel for Internal Combustion Engines—Spark Ignition and Diesel," in proceedings of Alcohol-Fuel Symposium, Texas A&M University, July 1-2, 1980.

CHART 1

Cost per gallon of alcohol produced decreases as plant size increases

COST OF ALCOHOL PRODUCED
1.60 DOLLARS PER GALLON —————



NOTE: Assumes a corn price of \$2.50 per bushel and includes credit for the value of by-products.

SOURCE: *Gasohol: Prospects and Implications* (By Ronald Meekhof, Mohinder Gill, and Wallace Tyner for the U.S. Department of Agriculture).

... but entails many problems ...

The fermentation and distillation of alcohol constitute a highly technical and tedious process. It requires constant monitoring and control of temperature, enzymes, acidity, and bacterial contamination to obtain a satisfactory yield.

Current fuel alcohol production processes use yeasts borrowed from the beverage industry, which selected them not just for alcohol production efficiency but for such factors as beverage flavor. The Northern Agricultural Energy Center of the U.S. Department of Agriculture is searching for organisms that can increase alcohol yield and convert starch to sugar without cooking.

Most on-farm distillation units yield only about 1.5 gallons of alcohol per bushel of corn, which is considerably less than the 2.5 to 2.7 gallons per bushel obtained in the large commercial plants. This difference is due, in part, to the lack of automation and precise control over such variables as temperature, acidity, and bacterial contamination.

The alcohol from small on-farm plants is typically about 160 to 170 proof instead of the 200 proof needed for mixing with gasoline to produce gasohol. Gasohol is a mixture of 90 percent unleaded gasoline and 10 percent anhydrous (200-proof) alcohol. The reason for using only anhydrous alcohol in the mixture is that any water present, either in the alcohol or in the fuel tank, will cause the alcohol and the gasoline to separate. The process used to completely remove water from alcohol is highly technical and expensive, however, and has not been perfected yet for small-scale units. Therefore, small-scale producers cannot individually provide a continuous source of 200-proof alcohol for marketing. This has led some oil companies to build their own plants to produce millions of gallons of anhydrous alcohol per year. The cost per gallon of alcohol declines as the plant size increases (Chart 1). Because of economies of size, more distillation capacity greatly increases plant capacity without proportionately increasing investment and operating costs.

Another problem for on-farm stills is the high cost of intermittent operation. The investment in facilities will be so large that the unit should be operated year-round to hold down overhead costs. For example, fixed costs account for 57 percent of total costs per gallon in a plant producing 6,000 gallons of alcohol per year and 23 percent of total costs in a plant producing 40,000 gallons per year.³

Variations in grain prices can have a dramatic effect on the costs of producing alcohol. For example, if the price of corn rises from \$2.50 per bushel to \$3.00, the total cost per gallon of alcohol at a plant producing 40 million gallons per year increases from \$1.26 to \$1.39, as shown in Chart 2. (This chart assumes that 2.6 gallons of alcohol and 16.8 pounds of distillers' dried grains are produced per bushel of corn and that Federal and state tax exemptions are not considered. The total cost includes a credit for sale of the distillers' dried grains produced as a by-product.) If grain prices rise high enough for farmers to make as much money by selling the grain as by converting it to alcohol, many of the small-scale alcohol plants may be idle.

Obtaining and installing the equipment for alcohol production require extensive research and most likely should include consultation with an engineer. Many farmers may find themselves in a unique situation when designing a plant. This design depends on such factors as existing buildings and equipment that could be utilized, the type of feedstock and energy source to be used, the production capacity desired, available capital and financing, and on-farm utilization or disposal of the alcohol and by-products.

No standard designs for small-scale units are available as yet. Many companies and suppliers claim to have designs, systems, and components for the small operator. However, some have little, if any, experience in the alcohol field, and many could be marketing unproved equipment and technologies, according to a USDA release.

... including red tape, safety matters, by-product disposal

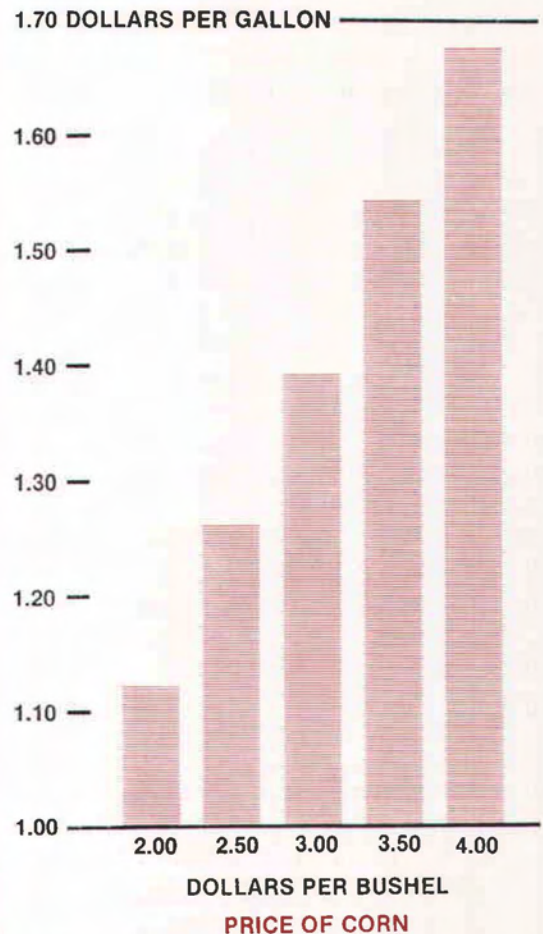
A time-consuming step toward producing fuel alcohol is to obtain the permits and licenses required by both the U.S. Bureau of Alcohol, Tobacco, and Firearms and the appropriate state alcoholic beverage agency. The Federal agency also has a bonding requirement if production is to exceed 5,000 gallons of 200-proof alcohol per year. Since the alcohol produced for use as fuel is tax-exempt, the alcohol must be denatured before it comes out of the still to prevent use as a taxable

3. Loyd K. Fischer, "The Economics of Producing Fuel Alcohol in Farm Size Plants," in proceedings of Alcohol-Fuel Symposium, Texas A&M University, July 1-2, 1980.

CHART 2

Cost per gallon of alcohol produced rises significantly as corn price rises

COST OF ALCOHOL PRODUCED



NOTE: Assumes a plant size of 40 million gallons per year and a yield of 2.6 gallons of alcohol per bushel of corn, with Federal and state tax exemptions not considered.

SOURCE: *Gasohol: Prospects and Implications* (By Ronald Meekhof, Mohinder Gill, and Wallace Tyner for the U.S. Department of Agriculture).

TABLE 2

Corn and grain sorghum are the feedstocks most likely to be used in the production of alcohol fuel in the next few years

Raw material	Gallons of 200-proof alcohol produced
Corn	2.6 per 56-pound bushel
Grain sorghum	2.6 per 55-pound bushel
Wheat	2.6 per 60-pound bushel
Cull potatoes (75 percent moisture)	28.8 per ton
Sugar beets	20.3 per ton
Sugarcane	17.0 per ton
Sugarcane molasses (55 percent sugar) ...	.4 per gallon
Sugar beet molasses (50 percent sugar) ...	.35 per gallon

SOURCE: Solar Energy Research Institute.

beverage. Although efforts are under way to streamline the procedure for obtaining permits and licenses, the paperwork is still a demanding task, and fees may also be required in some states.

Another consideration in the location, design, and construction of an alcohol plant is safety. Leaks, fumes, or grain dust can cause a fire or explosion. There is also the danger of scalding and burns from the steam needed in the alcohol production process. Carbon dioxide, one of the by-products of alcohol production, is a dangerous, odorless gas that can cause suffocation if proper precautions are not taken.

Carbon dioxide is produced at the rate of about 6 pounds per gallon of alcohol. In some operations, it can be collected and sold to local industries that can utilize it. The other main by-product of alcohol production is stillage—the mash from the fermentation of grains after removal of the alcohol, containing both distillers' solubles and other residue. When the stillage has the water removed, it is called distillers' dried grains. After fermentation and distillation, 1 bushel of corn (9 percent crude protein) will yield about 17 pounds of distillers' dried grains (27 percent crude protein), which can be used as a supplement for livestock.

Most small-scale alcohol plants cannot economically remove the large amount of water in the stillage, but they may locate a plant near a feedlot in order to feed the wet stillage directly to cattle. However, the water content may be a limiting factor in the quantity that could be successfully fed to livestock. Also, variations in moisture content of feeds present unique problems in formulating livestock rations.

The significant amounts of water used in the

alcohol production process (about 16 gallons of water per gallon of alcohol produced) can cause problems for small-scale plants. Water is needed for generating steam, cooling, and preparing mashes. Obviously, some sort of recycling system would be required unless both an inexpensive source of water and an acceptable method of disposal are available.

Cooperatives may be the solution

Many of the problems in small-scale alcohol production can possibly be resolved through the formation of cooperatives. If a number of farmers in a given area are interested in alcohol production, cooperatives could be formed in central locations that would have the facilities to dry the wet alcohol down to the anhydrous form. These cooperatives could then sell the anhydrous alcohol to oil companies for use in gasohol, mix their own gasohol or diesohol for sale to local residents or retailers, or route the alcohol back to farmers for on-farm uses. This type of cooperative could possibly provide a sufficiently large volume and continuity of supply to enable alcohol producers to capture a share of the fuel market.

Another type of cooperative might be organized to buy grain from farmers, produce anhydrous alcohol on a large scale, and either sell the alcohol for use in gasohol or make their own mixtures for commercial sale. A number of these cooperatives are being formed. They may contract ahead with farmers for grain supplies, thereby ensuring continuous operation of the plant and providing farmers an assured market for grains, such as corn, grain sorghum, and wheat.

The vast majority of fuel-grade alcohol is ex-

Federal and State Programs Fund Alcohol Production

The Farmers Home Administration is by far the largest source of funds for insured and guaranteed loans to alcohol producers, with a \$525 million allocation over the next two years for plants producing under 15 million gallons of alcohol annually. However, these loans do not cover working capital and are for projects that cannot obtain sufficient funding elsewhere. Also, priority consideration will be given to projects that use a primary form of energy other than petroleum or natural gas.

Through the Office of Alcohol Fuel of the U.S. Department of Energy, \$4 million is available for small-scale technology grants.

The Small Business Administration has a small business energy loan program that includes guaranteed and direct loan funds for the production of alcohol fuels from biomass.

The Crude Oil Windfall Profit Tax Act provides several tax incentives for alcohol production. One is the exemption of gasohol from the Federal excise tax of 4 cents per gallon on motor fuels. Since gasohol is 10 percent

alcohol, this is equivalent to 40 cents per gallon of alcohol. The act also provides a tax credit or refund where tax-paid gasoline is mixed with alcohol to produce the tax-exempt alcohol fuels. To be eligible, this "new" fuel must be either sold or used in the trade or business of the person making the mixture. Moreover, a 10-percent investment tax credit can be applied to equipment that converts biomass to alcohol for fuel purposes if such equipment does not use petroleum or natural gas products as a primary energy source.

Some states have allocated funds for research and development of alcohol fuel systems. Several—including Arkansas, Louisiana, New Mexico, and Oklahoma—have exempted gasohol from their states sales/excise taxes on gasoline.

Most major agricultural colleges and many universities are involved in some way in research and development of alcohol production through a variety of private and governmental funding programs. Texas A&M University and New Mexico State University are two such institutions that are setting up demonstration alcohol fuel plants for research and teaching purposes.

pected to be made in large plants, those producing 10 million to 100 million gallons per year.⁴ The cooperatives may compete effectively with the other large firms in the alcohol market while reducing much of the risk involved in small-scale on-farm alcohol production. They may also be in a better position than the small producer to utilize the by-products, such as stillage; cooperatives can economically dry the stillage to produce distillers' dried grains for sale as livestock feed.

At the present time, even the large-scale production of gasohol is not economic without Federal and state subsidies. For example, alcohol

produced with corn at \$3.37 per bushel (cash price for Chicago, September 30, 1980) in a 40-million-gallon-per-year plant costs \$1.50 per gallon. With the average wholesale price of gasoline at \$0.94 per gallon (September 30, 1980), gasohol at the wholesale level would cost \$1.00 per gallon. In this case, a subsidy of 6 cents per gallon of gasohol (60 cents per gallon of alcohol) would be required for gasohol to be competitive. The Federal gasoline excise tax exemption (4 cents per gallon of gasohol), the Federal investment tax and entitlement credits (estimated at 8 cents per gallon of gasohol for a plant producing 40 million gallons of alcohol per year), and additional state sales tax exemptions make gasohol commercially viable. Pending legislation for further subsidies plus improvements in technology may further stimulate the production and use of gasohol at current price levels.

4. William A. Rains, Executive Vice President, Roger Williams Technical and Economic Services, quoted in "Production of Alcohol for Use in Gasohol Expected to Swell," *Journal of Commerce*, September 3, 1980.

New member banks

Exchange National Bank, San Antonio, Texas, a newly organized institution located in the territory served by the San Antonio Branch of the Federal Reserve Bank of Dallas, opened for business September 2, 1980, as a member of the Federal Reserve System. The new member bank opened with capital of \$800,000 and surplus of \$800,000. The officers are: Alfonso J. Garza, Chairman of the Board; James Edward Ortiz, President and Chief Executive Officer; Charles E. Bailey, Vice President; Alan W. Crosby, Vice President; Norma J. Funari, Cashier; Elvira O. Nanez, Assistant Cashier; and Mike M. Hernandez, Marketing Officer.

Citizens National Bank, Victoria, Texas, a newly organized institution located in the territory served by the Houston Branch of the Federal Reserve Bank of Dallas, opened for business September 2, 1980, as a member of the Federal Reserve System. The new member bank opened with capital of \$1,250,000 and surplus of \$1,250,000. The officers are: Richard D. Cullen, Chairman of the Board; Robert A. Partain, President; Dale A. Loner, Vice President and Cashier; and John F. Stevenson, Vice President.

Woodforest National Bank, Houston, Texas, a newly organized institution located in the territory served by the Houston Branch of the Federal Reserve Bank of Dallas, opened for business September 5, 1980, as a member of the Federal Reserve System. The new member bank opened with capital of \$625,000 and surplus of \$625,000. The officers are: Clyde M. Speed, Chairman of the Board; Dr. Gerald D. Cobb, Vice Chairman of the Board; Albert B. Daigle, President; and Robert E. Marling, Vice President and Cashier.

New nonmember bank

Madison Bank & Trust Company, Richmond, Louisiana, a newly organized nonmember bank located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, opened for business September 22, 1980.

Regulatory Briefs and Announcements

Two Regulation B Interpretations Proposed

Two recently proposed interpretations of Regulation B (Equal Credit Opportunity) deal with the consideration of income in a credit evaluation and the selection and disclosure of reasons for adverse action on a credit application. These interpretations were made in view of requests received by the Federal Reserve Board to clarify how certain provisions of the regulation apply to the operation of numerical credit-scoring systems, but the Board has indicated that the proposals apply to judgmental systems as well.

In the first proposed interpretation, there are three basic principles that govern consideration of income under Regulation B. *First*, the regulation does not require consideration of income by a credit evaluation system. However, if income is considered at all by a credit evaluation system, a creditor must treat "protected" income—such as income derived from alimony, child support, separate maintenance, part-time employment, retirement benefits, or public assistance—at least the same as income from any other source. *Second*, where consideration of protected income would have no effect on the credit decision, the creditor is not required to consider it. *Third*, a creditor may consider, case by case, whether income of any kind will be received consistently and in a timely manner during the term of the credit extension.

The second interpretation of Regulation B regards the selection and disclosure of the reasons for adverse action on a request for credit. The proposed general principles require that the reasons for adverse action must relate to the factors actually scored or reviewed by the creditor. No factors may be arbitrarily excluded from the pool of factors subject to disclosure. However, other than the optimal disclosure (identifying the minimum adjustments an applicant would have to make

to be approved for credit), there is no one best method for selecting the reason for the adverse decision, nor is there an absolute number of reasons that should be disclosed. Whatever method of selecting reasons is used, the creditor must be consistent in the selection method used for all applications evaluated under the same procedures and standards, but he may change the method from time to time.

In addition to the interpretation in the second proposal, the Board is considering the desirability of encouraging or requiring creditors to indicate to the applicant the type of credit evaluation system used, whether judgmental or credit-scoring, and to describe briefly the method of selecting the principal reason(s) for adverse action.

Board Publishes New Regulation Z Interpretation

The Board of Governors of the Federal Reserve System has published an interpretation of Regulation Z concerning Truth in Lending disclosures permitted for renegotiable rate mortgages (RRM's). This staff interpretation represents an interim position on the types of disclosures to be made.

The interpretation deals with mortgage instruments having two essential characteristics: (1) a short-term loan secured by a long-term mortgage and (2) a lender's obligation to renew the short-term loan on the same credit terms except for a change in interest rate. Since RRM's contain features of both long-term variable rate transactions and short-term balloon payment loans, the Board has taken the interim position that disclosure can be either as a variable rate obligation or as a balloon payment obligation, which, if renewed, constitutes a refinancing.

Now Available

Recently issued Federal Reserve circulars, speeches, statements to Congress, publications, etc., may be obtained by contacting the Bank and Public Information Department, Federal Reserve Bank of Dallas, Station K, Dallas, Texas 75222, unless indicated otherwise.

Circulars

- Regulation Z—Truth in Lending: Deferral of Mandatory Effective Date of Amendment.** 4 pp. Circular No. 80-166 (September 2, 1980).
- Regulation B—Equal Credit Opportunity: Proposed Interpretations.** 12 pp. Circular No. 80-168 (September 8, 1980).
- Revised Regulation D [Reserve Requirements of Depository Institutions].** 84 pp., including pamphlet "The Monetary Control Act of 1980." Circular No. 80-170 (September 9, 1980).
- Monetary Control Act—Reserve Reporting.** 10 pp. Circular No. 80-171 (September 8, 1980).
- Proposed Pricing Schedule.** 41 pp. Circular No. 80-172 (September 12, 1980).
- 1980 Bank Telephone Directory.** 15 pp. Circular No. 80-175 (September 16, 1980).
- Amendments to Regulation T [Credit by Brokers and Dealers].** 1 p. Circular No. 80-177 (September 17, 1980).
- Amendment to Regulation Z [Truth in Lending].** 1 p. Circular No. 80-178 (September 18, 1980).
- Policy Statement (Bank Holding Company Participation in Forward Placement or Delayed Delivery Contracts and Interest Rate Futures Contracts).** 8 pp. Circular No. 80-179 (September 23, 1980).
- Monetary Control Act—Reserve Reporting.** 11 pp. plus reporting forms FR 2900 and FR 2950. Circular No. 80-180 (September 19, 1980).

Speeches and Statements

- Remarks by **Lyle E. Gramley** at the **Dinner Following the Dedication of the New Miami Branch Building**, Miami, Florida. 10 pp. September 4, 1980.
- Remarks by **Henry C. Wallich** ("American Banks During the 1970's and Beyond") at the **Roundtable on Credit Systems in the 1970's**, Perugia, Italy. 20 pp. September 5-7, 1980.
- Remarks by **Lyle E. Gramley** ("Pricing and Access to Federal Reserve Services") before the **1980 Southern Regional Operations and Automation Workshop**, New Orleans, Louisiana. 11 pp. September 8, 1980.
- Remarks by **Lyle E. Gramley** ("Supply-Side Economics: Its Role in Curing Inflation") before **Community Leaders in Seattle**, Seattle, Washington. 13 pp. September 11, 1980.
- Statement by **Frederick H. Schultz** before the **Small Business Oversight Subcommittee** of the Committee on Small Business, U.S. House of Representatives. 4 pp. September 23, 1980.
- Remarks by **Henry C. Wallich** ("The United States in the World Economy") at the **1981 Business Outlook Conference** sponsored by The Conference Board, New York City. 9 pp., including summary. September 25, 1980.

Pamphlets, Brochures, and Reports

- Federal Reserve Services.** Published by the Federal Reserve Bank of Cleveland. (A booklet reviewing Federal Reserve services available to depository institutions) 24 pp. August 1980.
- Report to the Congress Under the Financial Regulation Simplification Act of 1980.** Prepared by the Board of Governors of the Federal Reserve System. 14 pp. September 30, 1980.