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An Economic Perspective on the 8th District

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Should Government Continue To Subsidize Farmers?

Pension Insurance: Is There a Crisis on the Horizon?

The Changing Face of Life Insurance

THE EIGHTH FEDERAL RESERVE DISTRICT



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Pieces of Eight—An Economic Perspective on the 8th District is a quarterly summary of agricultural, banking and business conditions in the Eighth Federal Reserve District. Single subscriptions are available free of charge by writing: Research and Public Information Department, Federal Reserve Bank of St. Louis, Post Office Box 442, St. Louis, MO 63166-0442. The views expressed are not necessarily official positions of the Federal Reserve System.

Is There Still a Farm Problem?

by Kevin L. Kliesen Kevin B. Howard provided research assistance.

Misleading statistics—or statistics that are abused by politicians—are the source of much of the ''farm crisis'' of the last half century.

-James Bovard¹



A s the above quotation suggests, not everyone is convinced that the agricultural sector has been beset by serious problems. Nonetheless, for almost six decades, the federal government has formulated policies to increase the welfare of the farm sector relative to the nonfarm sector. These policies were originally implemented because farm income levels substantially trailed nonfarm income levels, a dilemma that came to be known as the "farm problem."

This article examines the current economic status of the farm sector to determine what indicators of farm income might suggest about the future course of governmental policies to assist this sector. In addition, the article briefly examines the underpinnings of increased government assistance to agriculture and the evolution of the agriculture sector since the 1930s.

The Economic and Political Basis for Government Involvement in Agriculture

The farm problem has traditionally been associated with the tendency of market-determined farm prices to decline over time. This downward pressure on commodity prices reflects a tendency for the supply of agricultural products to have increased faster than the demand for them. In turn, "low" commodity prices caused farm income to grow more slowly than nonfarm income. As a result, the federal government has implemented policies to redistribute income back to the farm economy.

Prior to 1933, government intervention in the agricultural sector was minimal and focused primarily on policies to expand overseas markets or provide adequate bank credit to farmers. Beginning with the Agricultural Adjustment Act of

1933, however, the federal government assumed a more active role in agriculture. Its policies have included various price support and production control initiatives, as well as various credit subsidization measures.²

Although intended to remedy the farm problem, the rationale for government intervention into agriculture stemmed from a broader context, based principally on the ideals of "Jeffersonian agrarianism" and the "agricultural creed." These two pillars of agricultural interventionism rest on the notions that (1) all commerce evolves from agriculture, (2) the rural way of life is superior to all others and (3) a democratic society is best anchored on a foundation of small, independent farmers.³ Given the predominant agrarian history of our country, many argued that farming was a way of life that deserved special protection. In the years since the Depression, however, the agricultural sector has changed dramatically.

The Changing Nature of the Agricultural Sector

For much of U.S. economic history, agriculture was a relatively important sector in terms of employment and output. Over time, however, the U.S. economy has evolved from being agriculturalbased to industrial-based to, currently, servicebased. This changing composition of output has precipitated a movement of economic resources out of agricultural production. For example, farm employment as a percent of total employment has steadily fallen over the years, from about 13.5 percent in 1947 to 2.5 percent in 1991. Over the same period, the number of farms declined by more than one-half, to its current 2.1 million.

Further evidence of agriculture's relative decline in economic importance can be seen by examining farm output as a percent of the nation's total output (measured as gross domestic product). From 1929 to 1990, inflation-adjusted (or real) farm output as a percent of total real output has decreased from about 7.7 percent to 1.9 percent.⁴ Thus, while the domestic food and fiber industry may account for as much as 20 percent of total output and slightly more than 20 percent of total labor force employment, its actual production aspect—that is, the growing and harvesting of farm commodities—accounts for substantially less.⁵

Fewer Farmers Feeding More People: The Benefits of Increased Productivity

Increases in productivity allow more output to be produced with fewer resources. Agriculture is a good example of this fundamental principle:

Figure 1

(1982 = 100)120 110 100 90 Nonfarm 80 70 Farm 60 50 40 1950 55 60 65 70 75 80 85 1990

Index of Farm and Nonfarm Productivity

Figure 2 Index of Real Prices Received by Farmers



Productivity advances in the farm sector have enabled fewer people to produce a larger quantity of output, freeing redundant resources to migrate to other sectors. In fact, since 1970, farm productivity growth has outpaced nonfarm productivity growth, rising at a 2.2 percent annual rate, while nonfarm productivity has grown at a 1.2 percent rate. This gap has widened further since 1980, as farm productivity grew at a 2.9 percent rate, while nonfarm productivity grew at a 1.1 percent rate (see figure 1).

Productivity is a key determinant of the income received by a specific resource. This insight reflects the fact that more productive resources tend to receive higher pay. As discussed below, rising productivity in agriculture has likely affected the relative growth of farm income vs. nonfarm income since the 1970s.

Characterizing the Farm Problem

Figure 2 illustrates one of the key elements of the farm problem-declining real farm commodity prices. Relative to the gross national product (GNP) implicit price deflator, commodity prices received by farmers have fallen steadily over the years. While the broad index of nominal farm prices received by farmers has risen at an annual rate of 2.3 percent since 1910, the broad measure of aggregate prices has risen at an annual rate of 3.5 percent. Thus, in real terms, farm commodity prices have fallen at an annual rate of about 1.2 percent per year. This trend, which may be disconcerting to some, is a direct consequence of the continual productivity advancements made by the agricultural sector over time and should, thus, be viewed in the context of this development.

Table 1 illustrates the other primary characteristic of the farm problem—the level of farm income relative to nonfarm income. The nominal median farm household and nonfarm household incomes are shown for selected years since 1945. During much of the post-World War II period, median farm household income averaged approximately one-half of median nonfarm household income. Not until the late 1960s and early 1970s did farm income reach 70 percent of nonfarm income on a sustained basis. Median farm income has continued to grow faster than median nonfarm income, so that it is now 6 percent higher than nonfarm income (see table 1).⁶

Certainly, increased expenditures on federal farm programs since 1983 have narrowed the difference between farm and nonfarm household income. For example, from 1945 to 1982, government payments constituted 8.4 percent of net cash income (NCI).⁷ With the onset of the farm crisis in the early 1980s, however, government payments as a percent of nominal NCI jumped to 30.3 percent in 1987 and have averaged 17.8 percent since 1983. This is only a partial answer, though. The primary reason for increased farm income relative to nonfarm income is a direct result of faster growth in farm productivity. In stark terms, increased productivity means fewer farmers and larger incomes.

The Fallacy of Low Farm Incomes

Although comparisons of median farm and nonfarm income are instructive, they are somewhat inadequate for comparing actual levels of farm and

Րable 1 Median Money Income of Farm vs. Nonfarm Households, 1945-90										
Population	1945	1955	1965	1975	1985	1986	1987	1988	1989	1990
Farm (\$/year)	1,291	2,111	4,122	10,845	20,166	21,655	24,978	24,222	28,824	31,589
Nonfarm (\$/year)	2,595	4,840	7,060	13,829	23,703	24,979	26,086	27,280	28,908	29,901
Farm/nonfarm (percent)	49.7	43.6	58.4	78.4	85.1	86.7	95.8	88.8	99.7	105.6

SOURCE: U.S. Department of Commerce: Bureau of the Census, *Money Income and Poverty Status of Families and Persons in the United States* (Washington, D.C.: U.S. Government Printing Office, various years).

nonfarm income.⁸ This is primarily because farms come in many sizes. Table 2 details the breakdown of average farm household income by size during the period 1987-90.⁹ Clearly, farm size is directly associated not only with the farm's net cash income, but with the farmer's equity position as well. Three additional points can be gleaned from table 2.

First, according to the USDA, there were approximately 2.1 million farms in 1990.¹⁰ This is somewhat misleading, however, because nearly 85 percent of these farms sell less than \$100,000 in commodities in a year. In fact, the vast majority of these, a little more than 1.5 million, are essentially small, part-time farmers—also known as "hobby farmers." The remaining farms in this category, those with \$40,000 to \$99,999 in sales, are essentially what we know as the small, full-time, family farmers. While farms with sales less than \$100,000 represent the bulk of the nation's farms in numerical terms, they are relatively minor in terms of production, generating about 18 percent of total farm income.

The nation's most important producers of food and fiber, on the other hand, are those farms that grow and sell more than \$100,000 in a year. These are the largest and most efficient producers of U.S. farm output, and, accordingly, they garner over 80 percent of total farm income.

Second, a common misconception is that the sale of agricultural commodities is the sole source of income for the farm household. As table 2 suggests, off-farm income (for example, from a working spouse or investment income) significantly adds to farm household income. Therefore, when properly included, farm household income is substantially above the median nonfarm household income. For instance, the small, full-time farmer (those in \$40,000 to \$99,999 sales class) earned about \$47,000 per year, while the larger, family farmer (sales between \$100,000 and \$250,000)

earned nearly \$88,000 per year during the 1987-90 period. By this measure, the family farmer still earns significantly more than their nonfarm counterparts. Moreover, this conclusion would hold even if gov-ernment income support payments were excluded.¹¹

Finally, the equity position of each farm size is substantial. Although the largest farms have the largest net worth per farm, even the part-time farmers have considerable equity. For the broadly defined, full-time, family farmer (assuming commodity sales of between \$40,000 and \$250,000), their net worth is substantially above the median household net worth of \$72,768, which represents the median net worth of all U.S. *owner*-occupied households as of 1988. In contrast, the median net worth for all U.S. households in 1988, including those who do not own their own homes, was \$35,752.

Conclusion

Since 1933, government assistance to the agricultural sector has been predicated on the notion of not only preserving our agricultural heritage-by preserving the "family farmer"-but also on the notion that farmers did not earn incomes comparable to their nonfarm counterparts. While this may have been the case during much of this period, the evidence presented here suggests that the "farm problem"-at least the latter aspect of it-no longer holds. Moreover, this conclusion would hold even if government farm payments were excluded. This fact, while often overlooked, reflects productivity growth in the farm sector, which has allowed fewer farmers to produce an ever-increasing share of our nation's output of agricultural products. Thus, governmental policies to bolster farm incomes may be both anachronistic and unnecessary.

Table 2

Number of Farms, Farm Income, Off-Farm Income and Farm Equity by Sales Class, 1987-90

Sales class	Number of farms ¹	Net cash income per farm²	Off-farm cash income per farm²	Total farm household income ³
Less than \$20,000	1,254,000	\$ - 296	\$30,856	\$ 30,559
\$20,000 to \$39,999	259,000	10,186	25,831	37,017
\$40,000 to \$99,999	306,000	26,896	19,778	46,674
\$100,000 to \$249,999	214,000	70,442	17,497	87,939
\$250,000 to \$499,999	64,000	152,393	26,573	178,966
\$500,000 to \$999,999	27,000	273,187	25,646	298,833
\$1,000,000 and over	16,000	1,358,956	28,250	1,386,206
		Total farm		
	Government	income less	Equity	
	payments	government	per farm	
Sales class	per farm ²	payments	household ^{2,4}	
Less than \$20,000	\$ 469	\$ 30,090	\$ 190,000	
\$20,00 to \$39,999	3,887	33,130	368,750	
\$40,000 to \$99,999	9,150	37,524	468,000	
\$100,000 to \$249,999	21,262	66,677	758,750	
\$250,000 to \$499,999	37,809	141,157	1,194,250	
\$500,000 to \$999,999	45,172	253,661	1,653,250	
\$1,000,000 and over	42,787	1,343,419	3,857,250	

¹Measured as of 1990.

²Measured as the average of the years 1987 to 1990 in nominal dollars.

³Sum of net cash income and off-farm income.

⁴Includes operator households.

SOURCE: Economic Indicators of the Farm Sector: National Financial Summary, 1990 (United States Department of Agriculture, November 1991).

¹*The Farm Fiasco* (Institute for Contemporary Studies, 1991), p. 43.

²See Clifton B. Luttrell, *The High Cost of Farm Welfare* (Cato Institute, 1989), for a discussion of the recent history of U.S. farm programs.

³Ronald D. Knutson, J.B. Penn and William T. Boehm, *Agricultural and Food Policy* (Prentice-Hall, 1983), chapter 1.

⁴See *Economic Report of the President* (Government Printing Office, February 1991), Table B-9.

⁵The food and fiber industry is broadly defined here to "embrace all activities from the provision of farm inputs through commodity production and onto final consumption." See *Economic Report of the President* (Government Printing Office, February 1987), p. 148.

⁶D. Gale Johnson has estimated that, because of factors such as consumption of home-produced products and a rural lifestyle, farm and nonfarm incomes will be approximately equal when farm incomes reach 75 percent to 80 percent of nonfarm incomes. See D. Gale Johnson, "Agricultural Policy Alternatives for the 1980s," in *Food* and Agricultural Policies for the 1980s, D. Gale Johnson, ed. (American Enterprise Institute, 1981), p. 189. ⁷Net cash income (NCI) is the difference between gross cash income and cash expenses. This measure is analogous to household income because farmers use NCI to purchase farmland and farm equipment, retire debt and meet family expenses.

⁸See Jeffrey D. Karrenbrock, "Potential Pitfalls of Interpreting Farm Income Data," *Pieces of Eight*, Federal Reserve Bank of St. Louis (June 1990), pp. 10-13.

⁹For consistency, 1987 is used as the initial period because that is when USDA began to include measures of farm income by sales class of \$1 million and over. Before 1987, the largest classification was \$500,000 and up. This break in the data, therefore, causes a substantial income decline in the \$500,000 to \$999,999 sales class between 1986 and 1987.

¹⁰The U.S. Department of Agriculture (USDA) defines a farm as an establishment that sold or would have sold \$1,000 worth of agricultural products in one year. At current yields and prices, this represents production from about four acres of corn.

¹¹The total farm household income number listed in table 2 is only an approximation and not an actual number. This is because off-farm income is derived from estimates published by the Bureau of Census.

Pension Insurance: A Crisis on the Horizon?

by Adam M. Zaretsky

Thomas A. Pollmann provided research assistance.

"If we are not to ignore the lessons of the past, the time to act is now, before inaction increases dramatically the cost of [the] PBGC's losses." —Lynn Martin, U.S. Secretary of Labor

ith current attention focused on the government's bailout of the savings and loan industry, it is easy to overlook other industries where the potential for a similar failure exists. Actually, whenever a government agency insures the actions of private firms, the possibility of a taxpayer bailout is present. One such industry is pension insurance.

Since 1974, the U.S. federal government, through an agency of the Department of Labor, has been insuring private pension plans against termination and underfunding. The government originally engaged in pension insurance, as it did deposit insurance, with the intention of protecting participants against firm abuse. This well-intentioned regulation, however, can result in the abuse being transferred from the insured parties to the insurer, the federal government.

Pension Insurance Background

The Employee Retirement Income Security Act (ERISA) of 1974 created standardized funding and vesting guidelines for private pension plans operated by firms. (See the shaded insert on page 6 for definitions of terms related to pension plans.) Before ERISA, there were no standards, creating much uncertainty among workers. For example, in 1965, 40 percent of pension participants were in plans that awarded vesting only at normal retirement age, usually 65. This meant that if the worker was fired just before retirement, which occurred frequently, he lost all of his expected benefits.¹ Firms could also simply terminate their pension plans, leaving participants without any benefits. Underfunding was another problem, especially at unionized organizations, leaving participants with either severely reduced or no benefits.²

To reduce the uncertainty associated with possible termination or underfunding, ERISA established the Pension Benefit Guaranty Corporation (PBGC), a government-sponsored enterprise charged with overseeing and insuring pension plans. Essentially, the PBGC guarantees workers that, should their insured pension plans terminate, they will receive the basic benefits—regular retirement, death and disability—promised under the plan up to a prescribed monthly cap (about \$2,300), even if the plan is underfunded. Currently, the PBGC insures approximately 95,000 pension plans covering nearly 40 million American workers and retirees.³

The PBGC's growing losses have eclipsed the revenues it collects from premium payments, as more and larger firms have declared bankruptcy with underfunded pension plans. The program's steadily increasing deficits, shown in the figure on page 7, reflect this trend. (The large spike in 1986 results from the terminations of the LTV Corporation's largely underfunded pension plans. Without LTV's terminations, the 1986 deficit probably would have been about \$1.3 billion.) In addition, more firms today with active pension plans have low funding ratios than before, exposing the PBGC to potentially severe losses.

This growing tendency of firms relying on the PBGC to salvage their underfunded pensions worries many at the PBGC and the Labor Department, the PBGC's jurisdictional director. As implied by Secretary Martin's comment, the potential for another S&L type crisis exists, because, ultimately, any monies paid out by the PBGC in excess of its collections must be provided by U.S. taxpayers.

To fully understand the operations and potential problems of the PBGC, a knowledge of the types of pension plans available is necessary. With this as a foundation, we can then describe the nature and evolution of the PBGC's worries.

Private Pension Plans: A Primer

Pensions are a means through which firms defer a portion of their employees' compensation for the employees' use in retirement.⁴ Firms defer compensation through either defined contribution or defined benefit pension plans. Defined contribution plans guarantee an annual contribution into the employee's account by the firm. Defined benefit plans guarantee the employee an annuity at retirement, the amount of which usually depends on the worker's average salary and final tenure.

By their nature, defined contribution pension plans accrue assets at the same rate they accrue liabilities. Each additional year a worker is with

Pension Plan Terminology and Definitions

Defined benefit: A pension plan stating either (1) the benefit to be received upon retirement or (2) the method used in calculating the retirement benefit.

Defined contribution: A pension plan under which an annual contribution is made with no promise for a specific retirement benefit sometimes known as a tax-deferred savings plan.

Funding: The employer's contribution of assets into the pension fund to cover the liabilities accrued by the plan's participants. A plan is "underfunded" when there are not enough assets in it to cover the accrued liabilities.

Multiemployer plans: Collectively bargained (union) plans involving more than one unrelated employer.

Single-employer plans: A one-company plan covering only workers at that company. The majority of plans in the United States, and the plans to which this article refers, are of this type.

the firm adds an extra year's worth of liabilities to the worker's account, which is then exactly offset by the firm's contribution of funds. Thus, defined contribution pension plans are always fully funded. The employee's final benefit depends only upon the amount of the firm's and, possibly, the employee's contributions into the plan, adjusted for the rate of return earned on the assets into which these funds are invested. Consequently, participants encounter market risk but not termination or underfunding risk; as a result, defined contribution pension plans are not subject to the funding guidelines under ERISA. These plans, however, are regulated by ERISA's vesting requirements.

Defined benefit pension plans also accrue liabilities over time, but these liabilities are actuarial (statistically calculated) rather than fixed-dollar. Contributions of assets to compensate for the liabilities are made less regularly, as only a portion of the total liabilities ever need to be funded at any particular time. Although ERISA requires mandatory funding, the law gives firms considerable latitude in selecting the values of the actuarial parameters, such as the interest rate, retirement age and mortality assumptions, used to determine the required minimum contribution. The actual benefit

Terminations:

Distress: A termination by the firm because of bankruptcy or necessity of survival; must be proven to either the PBGC or the bankruptcy court.

Involuntary: A termination by the PBGC to protect the plan's participants from losses due to severe underfunding.

Standard: A termination of a fully funded plan after the firm has complied with all legal requirements regarding notification of plan participants and the PBGC and has paid all benefits earned by participants.

Vesting:

The plan participant's non-forfeitable legal right to all accrued benefits (under defined benefit plans) or accrued balances (under defined contribution plans) of the pension by completing a specified number of years of service, even if the participant leaves the firm before the minimum age specified by the plan.

Cliff vesting: Full (100 percent) vesting after a fixed number of years with no (0 percent) vesting before that time.

Graduated vesting: Increasing levels of vesting with increasing years of service.

the worker receives, however, is determined by the firm's pension benefit formula—hence, a defined benefit—regardless of the return the plan's assets receive from their investment. This accounts for the regulation of funding.

The vesting rights of defined benefit plans are also regulated by ERISA because, by their nature, these plans can affect worker turnover at a firm. Under defined benefit pension plans, the amount of the annuity received at retirement is directly related to tenure with the firm, creating an incentive for workers not to change jobs too often. Without standardized guidelines, firms may delay vesting to encourage long tenures, converting the pension claim into a reward for service rather than recognizing it as a part of total compensation. As we have already seen, however, before ERISA, the promise of a reward did not guarantee its existence at retirement.

This vesting and tenure argument also suggests that workers indefinitely laid off from jobs lose not only their current compensation, but also the expected increase in their deferred compensation commensurate with tenure. Even if the employees are vested, the portability of the pension—the ability to transfer liabilities from one plan to another—



determines the amount of the loss incurred. If the pension rights are not portable, the financial losses can never be recouped in a new pension plan. Nevertheless, recent modifications of the vesting rules, legislated by the Tax Reform Act of 1986 (see shaded insert on page 8 for a summary of these amendments), created an implicit separation cost for the firm, the pension liability, thereby decreasing the probability of a firm-initiated separation after vesting.

Some Basic Problems Facing the PBGC

According to the PBGC's 1991 Annual Report, "This year has seen the largest losses from terminations in our 17-year history."⁵ These losses included \$700 million from seven Eastern Air Lines pension plans and more than \$900 million from Pan American World Airways. At the end of fiscal 1991 (September 30, 1991), the PBGC had a deficit in the single-employer insurance fund of about \$2.5 billion, with projections of up to \$18 billion by the end of the decade. Offsetting the current deficits were surpluses in the multiemployer insurance fund of only \$187 million.

According to the PBGC's 1991 survey of its top 50 firms with underfunded plans, the first 10 have funding ratios below 50 percent. The total amount of underfunded liabilities, which the PBGC classifies as "probable" or "reasonably possible," approximate \$21.5 billion, a greater than 50 percent increase between 1989 and 1990.⁶ This represents an overall underfunding ratio of 25 percent. The PBGC continually monitors the progress of firms in these categories.

One problem facing the PBGC is the moral hazard associated with any insurance scheme.⁷ A firm generally will underfund its pension plans as its financial situation deteriorates. Oftentimes, a firm, foreseeing a bankruptcy, will purposely allow its pensions' assets to dwindle, knowing that the PBGC will have to assume the losses.

The most prominent example of this strategy is the LTV Corporation, which had three pension

Minimum Vesting Requirement Reforms Under the Tax Reform Act of 1986 (Amending ERISA)

Single-employer plans:

Cliff: The participant has a non-forfeitable right to 100 percent of the accrued benefit derived from employer contributions upon the participant's completion of five years of service.

Graduated: The participant has a non-forfeitable right to at least 20 percent of the accrued benefit derived from employer contributions after three years of service, increasing by 20 percent with each additional year of service until 100 percent after seven years of service.

Special rule: Eligibility cannot be conditioned on more than two years of service; should this rule exist at a firm, full and immediate vesting must occur after two years of service.

Multiemployer plans:

Full (100 percent) vesting must occur after 10 years of service.

The above rules became effective for all plan years beginning after December 31, 1988.

SOURCE: U.S. Congress. Joint Committee on Taxation. Summary of Conference Agreement on H.R. 3838 (Tax Reform Act of 1986), (Government Printing Office, 1986).

plans, underfunded by about \$2.5 billion, terminated by the PBGC in 1987. Subsequently, LTV established new, almost identical, plans in their place. The PBGC sued LTV, arguing that the follow-on plans constituted a clear abuse of the system. The PBGC also restored the terminated plans to full active status after an improvement in LTV's financial condition, making LTV again responsible for them. The New York District Court, in a decision upheld by the State Court of Appeals, disallowed this restoration and ruled that the follow-on plans did not constitute an abuse of the system. Then, in June 1990, the U.S. Supreme Court overturned this decision and ordered the lower court to issue a new ruling.⁸

Adding to the legal complications, a U.S. District Court, in September 1991, denied the PBGC bankruptcy priority status, which would have allowed it the same rights as the IRS in recovering claims, and ruled that LTV may not be forced to fund a fourth terminated pension plan while in bankruptcy.⁹ This ruling still stands, although legislation has been proposed to overturn it. This example demonstrates the moral hazard faced by the PBGC from any firm that chooses to declare bankruptcy, especially when one of the firm's goals is to eliminate its pension liabilities. The next example also demonstrates this.

Continental Airlines Holdings, Inc. (formerly Texas Air) is the parent company of Continental Airlines and the now-defunct Eastern Air Lines. When Eastern declared bankruptcy and had seven pension plans terminated, the PBGC was able to hold Continental jointly responsible for the pension liabilities with Eastern and negotiated a settlement plan. After making an initial payment in September 1990, however, Continental was unable to provide adequate collateral to meet its remaining obligations. In December 1990, it filed for bankruptcy. This action resulted in the PBGC being responsible not only for Eastern's pensions, but also for an additional \$183 million shortfall from Continental's own underfunded plans.¹⁰

As a response to the moral hazard, the Pension Protection Act of 1987 required for the first time that firms with underfunded pensions pay a variable-rate premium based on the degree of underfunding. The Act also increased the fixed-rate premium for all plans (fully funded and underfunded). The cap for the total premium (fixed- plus variable-rate) was increased again in 1991 to \$72 per plan participant from \$50. The PBGC fears, though, that any further increase in its premium may "eventually drive out the least risky, better funded plans. [The] PBGC has already seen a large exodus of small plans."11 Thus, it is possible that the insurance can make it too costly for a firm to maintain a defined benefit pension, resulting in its termination and replacement with a defined contribution pension plan. In addition, because most covered pension plans are well-funded and because the PBGC's revenues come from collected premiums, the well-funded plans are, in effect, subsidizing the underfunded plans. This could lead to a second problem at the PBGC, adverse selection, where only firms that underfund keep their defined benefit plans.12

Where Do We Go From Here?

While the potential losses from underfunded pension plans amount to only a fraction of the losses experienced from savings and loan institutions, the likelihood for a burdensome bailout does exist. James Lockhart III, Executive Director of the PBGC, testified to Congress in February 1991 that, while the PBGC has enough cash to last for a decade, it will need to acquire more assets if it has to continue salvaging the pensions of large companies.¹³ If such losses cannot be contained, individuals will likely lose some of the income promised to them under the original employment agreement and owed as compensation for work already performed. Couple this with workers' increasing dependence on pensions as their sole retirement income (except for Social Security), and this predicament becomes all the more serious.

- ¹See Richard A. Ippolito, 'A Study of the Regulatory Effect of the Employee Retirement Income Security Act,' *Journal of Law and Economics* (April 1988), p. 101.
- ²In an October 1985 *Journal of Law and Economics* article, "The Economic Function of Underfunded Pension Plans," Richard A. Ippolito argued that firms purposely underfunded their pension plans before ERISA to gain an edge when bargaining with unions.

³See the PBGC's press release, "Top 50 List Shows Increased Underfunding," November 25, 1991.

⁴For our purposes, retirement means any separation of the worker from the firm after vesting. Minimum age requirements must be satisfied to receive the benefits.

⁵See PBGC, Annual Report, p. 3.

⁶The terms ''probable'' and ''reasonably possible'' are Financial Accounting Standards Board (FASB) nomenclature. Probable signifies that a loss is likely to occur, The basic problems facing the PBGC, moral hazard and adverse selection, are the same as for any other insurance company; however, it is the taxpayer who ultimately incurs any losses not recovered from the defunct plans or through premiums suffered by *this* insurance company. Therefore, firms, government and, especially, workers, must maintain a watchful eye on pension plans to ensure that each party keeps its part of the bargain.

while reasonably possible means that a firm has an underfunded plan and is experiencing significant financial problems.

⁷Moral hazard is an increase in the chance of a loss brought about by a change in behavior because of insurance. Insurance companies usually require deductibles and copayments to offset moral hazard.

⁸PBGC 1990 Annual Report, p. 13.

⁹PBGC 1991 Annual Report, pp. 18-19. ¹⁰Ibid, p. 19.

- ¹²Adverse selection occurs when only risky clients opt into an insurance program and safer clients opt out. This results in higher premiums because the insurance company expects larger losses.
- ¹³See "The Protector of Pensions Develops Its Biceps," Business Week (March 11, 1991), p. 80.

¹¹Ibid, p. 14.

ederal Reserve Bank

Is There Less Assurance in Life Insurance?

by Michelle A. Clark Thomas A. Pollmann provided research assistance.

merican life insurance companies escaped much of the financial trauma experienced by other financial institutions during the 1980s. It appears, however, that financial problems in the industry may have just been delayed rather than avoided. Several large life insurance companies have been taken over by regulators in the past year, leaving consumers uncertain about the security of their policies and investments. Many of the industry's problems can be traced to changes in its business practices during the past two decades. These changes have cast doubt on the quality of industry assets, the adequacy of regulation and the soundness of policy and benefit guaranty funds-the same issues at the heart of recent thrift and banking shakeouts.

The Transformation of an Industry

The essential function of life insurance firms has changed little since their inception: They collect premiums from policyholders in exchange for protection (for the policyholder and designated others) against the risk of financial loss in case of death, disability or old age. Life insurance firms invest the excess of annual premiums paid by policyholders (and investment income) over annual payouts to policyholders and beneficiaries in the nation's money and capital markets. This investment is significant: Life insurance companies were the source of about one-fifth of net funds to the U.S. money and capital markets in 1990, just slightly less than the amount provided by commercial banks. Almost 400 million life insurance policies were in force in the United States in 1990, with an estimated value of \$9.39 trillion. The average amount of life insurance per U.S. household was \$98,400 in 1990. Americans are estimated to spend slightly more than 6 percent of their disposable income on life insurance products.

In 1990, the U.S. life insurance industry comprised about 1,200 active, chartered companies. Mutual insurance companies are about 5 percent of that total, yet they account for about one-half of the industry's \$1.41 trillion in assets.¹ Most of the industry's largest companies, like Prudential and Metropolitan Life, are organized as mutuals. Regardless of organization, however, all life insurance firms have transformed the way they do business—on both sides of the balance sheet.

New Products

Until the post-World War II era, life insurance companies' major business was the sale of permanent (or whole life) insurance policies.² As stock prices increased and fears of another stock market crash dissipated in the 1950s, term life insurance policies became popular; they were cheaper per dollar of coverage than whole life insurance, leaving consumers more dollars to invest in stocks and other financial products that could be used to finance retirement.³ A popular slogan of the period was "buy term and invest the rest."⁴

Insurance firms responded to the changing economic climate by establishing non-insurance units, like mutual fund subsidiaries, and offering policies, like variable annuities, to satisfy consumer demand for higher-yielding products.⁵ These new business lines allowed consumers to reap gains from the rejuvenated stock market while mitigating the risk associated with individual stock purchases. Similar innovations resulted in enormous growth in the pension component of the life insurance business. In 1969, life insurance products made up 69.4 percent of the industry's liabilities while annuities and pension products contributed another 26 percent; by 1989, the share of life insurance products declined to 29.9 percent while that of annuities and pensions had risen to 66.6 percent.

These changes in product mix had corresponding effects on industry income. In just two decades, income from annuity products rose from 8 percent to about one-third of the total, while life and health insurance premiums shrank from two-thirds to one-third of industry income over the period. Over the 1980-89 period, premium income from group annuities increased four-fold, accounting for the largest portion of premium income; income from various individual annuities increased almost eight-fold over the period.

Another important change on the liabilities side of the business has been the movement from fixed-dollar to interest-sensitive products. The roots of this change lie in the high inflation and high interest rate environment of the late 1970s and early 1980s. Double-digit inflation caused policyholders to doubt the future purchasing power of their fixed-dollar policies, making the bill and bond markets relatively more attractive. Insurance firms, recognizing that inflation and interest rate uncertainty would severely damage their profitability, began offering policies with terms and benefits tied to movements in interest rates. These products—

Composition of U.S. Life Insurance Industry Assets



SOURCE: American Council of Life Insurance, 1991 Life Insurance Fact Book Update

universal life, variable life and flexible premium variable life—made the size of the death benefit or annual premium flexible over the life of the policy, depending on the investment performance of industry assets.

On the annuity side of the business, products such as guaranteed investment contracts (GICs) became popular, especially with corporate pension plans. GICs promise investors a specific interest rate over a set period of years, much like a bank certificate of deposit; GICs usually pay a higher interest rate but lack the deposit insurance of bank products. Because their payout structures were less predictable than their traditional counterparts, their growth led to changes in the asset side of the industry, which are detailed below.

In Search of Higher Yields

The switch toward interest-sensitive products required dramatic changes in the industry's investment strategy. The biggest concern was the industry's mismatch of assets and liabilities: Liabilities were becoming increasingly short-term and more liquid, but were being funded by assets that were predominantly long-term and illiquid. At the same time, other financial institutions competed for the accounts of investment-oriented customers, pinching profit margins on interest-sensitive products and making the industry's payout structure even less predictable.

To solve these problems, life insurance firms changed the way they invested their premiums. Previously, their strategy was to buy long-term securities in the capital market (preferably bonds, mortgages and some stock), then hold these assets until maturity. The new strategy entailed investing in assets with shorter maturities (like government securities). To accommodate an increasingly uncertain payout schedule, life insurance companies purchased more securities in the open market, rather than the private placement market, providing them with more liquid instruments.⁶ The quest for higher yields entailed investing in riskier assets, like commercial real estate and below-investment-grade bonds.

The move toward higher-yielding, more liquid investments by life insurance companies is illustrated in the figure at left, which shows the composition of industry assets in 1970 and 1990. Mortgages and corporate bonds continue to make up the bulk of industry assets, but their relative importance has declined: Their combined share dropped from 71 percent in 1970 to 61 percent in 1990. The decline, however, was concentrated in mortgage holdings, which fell by roughly half to 19 percent; corporate bond holdings rose slightly, from about 35 percent to 41 percent over the period.

The decline in mortgage holdings can be partially attributed to the desire to hold more liquid assets. As with other financial intermediaries, insurance companies have substituted the mortgagebacked securities of such government agencies as Fannie Mae and Freddie Mac for mortgages, a trend which largely explains the tripling of government securities in the industry's asset portfolio since 1970. Because of this substitution, insurance firms have been left with a higher concentration of nonresidential mortgages in their portfolios. Nonresidential mortgages-on office buildings, hotels and other commercial real estate-have experienced much higher delinquency rates over the last decade than their residential counterparts. Indeed, the increasing concentration of commercial real estate mortgages combined with a trend toward higheryielding, but more risky, equity investments in commercial real estate projects are at the root of many of the life insurance industry's current problems.

The taking on of additional risk in the hope of higher returns also occurred in the industry's bond portfolio, as a number of companies invested heavily in non-investment-grade bonds, more popularly known as junk bonds. Excessive concentrations of junk bonds led to insolvency and regulatory takeovers of parts of two of the industry's giants. The California and New York units of the Executive Life Insurance Company and the California and Virginia holding units of the First Capital Life Insurance Group were closed by state regulators in 1991; in both cases, the firms held about 50 percent of their investment assets in junk bonds.

The State of Regulation

The nation's life insurance companies are regulated by the states in which they are licensed (or domiciled). State insurance commissioners are charged with monitoring sales practices and the adequacy of liquid assets to cover losses, as well as restricting the amount of risky assets that firms can hold. Insurance laws can vary substantially across states; however, the vast majority of state insurance laws conform to those of New York state.⁷ The National Association of Insurance Commissioners (NAIC), a trade group for state insurance regulators, works to coordinate the standards and laws of individual states.

From 1975 through 1990, 176 life insurance firms failed, but 80 percent of these failures occurred after 1982. And the recent regulatory takeover of the nation's 18th-largest insurance firm—Mutual Benefit Life—has heightened fears about the financial health of the whole industry and the ability of state regulators to deal with any large-scale runs or failures. Critics point to infrequent and outdated financial exams, low levels of capital and surplus relative to premiums, and a lack of consistency among state insurance laws as key industry problems.

Making Good on a Guaranty

One of the areas of greatest regulatory concern is the adequacy of the industry's guaranty funds. Since the early 1970s, life insurance firms have had their own form of "deposit insurance" through state insurance guaranty funds. These funds were designed to satisfy the benefit claims of policyholders and annuitants that exceed the liquidated value of assets of an insolvent firm. Only the District of Columbia lacks a state guaranty fund. All licensed firms within a state are assessed an amount proportional to their market share in the state to cover the deficiency; however, individual states place annual limits on the amount that can be assessed (usually a percentage of premium income), making it possible that payments to claimants could be delayed by several years in the event of a large failure.

The takeovers of large firms like Mutual Benefit Life have drawn attention to other inade-

quacies of the current guaranty fund system. The General Accounting Office (GAO) documented many of these drawbacks in a recent report.⁸ One of the GAO's greatest concerns is the system's unequal coverage of claimants across states. It is entirely possible that policyholders of the same failed multistate company may be treated differently; this can occur because state funds vary regarding the circumstances under which coverage is provided, the types of policies protected, and ceilings on claims and benefit payments. To illustrate, table 1 highlights the provisions of state guaranty funds for Eighth District states.

Scope of Coverage. Nationally, as of October 1991, funds in only six states provided coverage to all policyholders (regardless of where they live) of failed insurers licensed in the fund's state.⁹ The vast majority of funds, including those of all District states, conform to an NAIC model that provides coverage only to state residents; nonresidents of many states are covered only when certain conditions are met. Although noncoverage has rarely occurred, the specter of increased failures has many policyholders—and policymakers—worried.

Product Coverage. Most insurance products are covered similarly across states. The major exception is unallocated annuities-annuities that are not issued to or owned by individuals. Life insurance GICs, which make up a substantial portion of the defined contribution plans of U.S. companies, are often unallocated. Because defined contribution plans do not provide a specified benefit to individual participants and are not guaranteed by the Pension Benefit Guaranty Corporation, employees participating in plans that invest in the GICs of failed insurers will see proportionate losses in the value of their retirement savings if the contracts are not covered by guaranty funds or are subject to some maximum. Three District state funds do not cover these investment contracts; outside the District, 13 states specifically exclude these GICs from fund coverage. Another 15 states make no provision, hence, coverage is uncertain.

Coverage Limits. The maximum coverage for various insurance products of District firms is also outlined in table 1. While coverage limits on life and other benefits, annuities and policy cash values are fairly uniform throughout the District (and the nation), the limits on unallocated annuities, where applicable, vary substantially across states. Residents of Indiana, for example, would receive a maximum benefit of just \$100,000 on an unallocated annuity of a failed insurer, while residents of Illinois and Mississippi could receive \$5 million.

Conclusion

U.S. life insurance companies, like other financial intermediaries, have undergone major

Table 1

Basic Provisions of State Life Guaranty Funds in Eighth Dis	District	States
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		Limits of Guaranty Fund Liability						
State	Unallocated annuities covered?	Life benefits	All annuities	Benefits	Policy cash value	Unallocated annuities		
Arkansas	Yes	\$100,000	\$100,000	\$300,000	\$100,000	\$1,000,000		
Illinois	Yes	300,000	100,000	300,000	100,000	5,000,000		
Indiana	Yes ¹	Not specified	Not specified	300,000	100,000	100,000		
Kentucky	No	300,000	100,000	Not specified	100,000	N/A		
Mississippi	Yes	300,000	100,000	300,000	100,000	5,000,000		
Missouri	No	300,000	100,000	300,000	100,000	N/A		
Tennessee	No ²	300,000	100,000	300,000	100,000	N/A		

N/A = not applicable.

¹Guaranty fund law is silent on coverage of unallocated annuities. Guaranty fund coverage was ordered by court decision.

²According to the NAIC, unallocated annuities are covered only if qualified under provisions of the Employee Retirement and Income Security Act.

SOURCE: National Association of Insurance Commissioners and the National Organization of Life and Health Insurance Guaranty Associations.

changes during the last two decades. More volatile inflation and interest rates combined with a more competitive business climate have forced the industry to offer more sophisticated insurance and pension products to consumers and businesses. To meet the liquidity demands of its customers, the industry has substituted short-term for longer term assets. To earn an adequate rate of return, the industry has increased its investments in high-yielding but riskier assets like commercial real estate and junk bonds. Downturns in both of these markets in the latter half of the 1980s led to losses for many firms and an increased number of insolvencies.

The recent failures of several of the industry's largest companies have sparked legislative reform efforts in several states and proposals for federal oversight of the industry. Of particular concern to policymakers is the lack of uniformity in state insurance laws and the possibility that consumers who depend on life insurance investments for retirement may suffer losses. While the scope of industry reform is uncertain at this point, most observers expect consumer protection to be at the forefront of regulatory and legislative changes.

¹Stock companies make up the other 95 percent of U.S. life insurance companies.

²Whole life insurance policies have a constant premium for the duration of the policy. In the policy's early years, the size of the premium exceeds the amount required to insure against death because the probability of death is low. The policy thus builds up a cash value, which is depleted in later years when the constant premium falls below the amount needed to insure against death, whose probability is now higher. Whole life policyholders can borrow against the cash value of the policy or claim it by canceling the policy.

³Term insurance policies, unlike whole life policies, do not build up a cash value (and thus have no savings component) because the premium in any given year is exactly equal to the amount necessary to insure against death during the term.

⁴See Richard W. Kopcke and Richard E. Randall, eds., *The Financial Condition and Regulation of Insurance Companies: Proceedings of a Conference Held in June* 1991 for a thorough analysis of industry changes.

⁵An annuity policy will pay out either death benefits or living cash benefits and can be purchased for an in-

dividual or a group. The purpose of an annuity is to guarantee income at some point in the future, such as retirement. Interest earned by the annuity holder is taxdeferred until withdrawal. Variable annuities are denominated in variable units, rather than fixed dollar amounts. The units are then invested in a pool of common stock. Annuity payments thus rise and fall with the value of the underlying stock and dividend flows.

⁶A private placement is a transaction in which the borrower and the (insurance) firm directly negotiate a loan.

⁷New York passed the first comprehensive insurance law in 1849 and set up the nation's first state insurance department in 1859. New York became a model for other states, largely because companies that wanted to sell insurance to New York residents were required to abide by the state's laws.

⁸See "Insurer Failures: Life/Health Insurer Insolvencies and Limitations of State Guaranty Funds," United States General Accounting Office, March 1992.

⁹These states also cover their own residents when an out-of-state insurer fails, if the insurer's home state does not provide such coverage.

Eighth District	t Busine	ess and the second s					
	Level	Compo	ounded Annua	ded Annual Rates of Change			
		I/1991-	II/1991-				
	II/1992	II/1992	II/1992	1991 ¹	1990 ¹		
Payroll Employment (thousands) United States District Arkansas Little Rock Kentucky Louisville Missouri St. Louis Tennessee Memphis	108,435.0 6,908.9 960.6 258.9 1,484.0 488.6 2,287.7 1,154.5 2,176.6 471.0	1.1% - 1.7 1.2 - 1.3 - 1.4 - 1.7 - 2.5 - 1.2 - 2.2 - 2.4	0.2% 0.8 3.1 1.0 1.1 0.4 - 0.2 - 0.4 0.6 - 1.7	- 1.3% - 0.8 1.4 1.6 0.0 1.9 - 2.1 - 1.9 - 0.8 0.8	1.3% 1.8 3.4 3.2 2.7 2.7 1.3 0.6 1.2 1.0		
Manufacturing Employment (thousands) United States District Arkansas Kentucky Missouri Tennessee	18,259.0 1,434.4 239.1 282.8 410.5 502.0	- 0.5% - 1.0 1.2 1.2 - 2.1 - 2.4	- 1.0% 0.8 2.6 2.1 - 0.9 0.8	- 3.5% - 3.3 0.6 - 2.7 - 5.2 - 3.7	- 1.7% - 0.1 0.8 1.2 - 0.5 - 0.8		
District Nonmanufacturing Employment (thousands) Mining Construction FIRE ² Transportation ³ Services Trades Government	44.1 275.3 339.3 404.3 1,637.4 1,625.8 1,148.7	- 5.3% - 7.2 - 1.7 - 1.8 0.0 - 0.6 - 3.7	- 6.0% - 0.1 - 0.4 - 0.3 1.9 0.7 0.0	- 8.6% - 6.8 - 0.5 - 0.3 1.8 - 1.2 1.0	1.8% 0.4 1.1 1.7 4.5 1.0 2.6		
Deel Devered Is some 4 and	l/1992	IV/1991- I/1992	l/1991- l/1992	1991	1990		
Keal Personal Income [*] (billions United States District Arkansas Kentucky Missouri Tennessee	\$3,556.6 198.4 26.4 43.2 68.4 60.4	2.4% 3.9 9.6 3.8 2.4 3.4	1.2% 2.3 2.7 3.3 1.3 2.4	- 1.1% - 0.4 0.8 0.0 - 1.5 0.2	1.1% 0.8 1.2 1.7 0.0 0.9		
			Levels				
Unemployment Rate United States District Arkansas Little Rock Kentucky Louisville Missouri St. Louis Tennessee Memphis	7.5% 6.4 7.4 6.3 5.7 4.8 6.4 6.7 6.5 6.0	7.2% 6.6 7.1 6.2 6.9 5.4 5.7 6.3 7.1 6.1	6.7% 6.8 7.3 6.3 7.4 6.1 6.6 6.8 6.5 5.5	1990 5.5% 5.8 6.9 5.9 5.9 5.1 5.7 5.9 5.2 4.5	1989 5.3% 5.8 7.2 6.3 6.2 5.5 5.5 5.5 5.5 5.1 4.7		

Note: All data are seasonally adjusted. On this page only, the sum of data from Arkansas, Kentucky, Missouri and Tennessee is used to represent the District.

¹Figures are simple rates of change comparing year-to-year data.

²Finance, Insurance and Real Estate

³Transportation, Communications and Public Utilities ⁴Annual rate. Data deflated by CPI-U, 1982-84 = 100.

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U. S. Prices

	Level	I Compounded Annual Rates of Change				
	II/1992	l/1992- ll/1992	II/1991- II/1992	19911	1990 ¹	
Consumer Price Index (1982-84=100)						
Nonfood	140.3	4.1%	3.6%	4.5%	5.3%	
Food	137.5	0.6	0.5	2.9	5.7	
Prices Received by Farmers (1977=100)						
All Products	140.7	-0.8%	-6.6%	-2.3%	1.1%	
Livestock	156.3	5.3	-4.9	- 5.3	6.4	
Crops	123.7	- 10.8	-9.5	2.4	-5.4	
Prices Paid by Farmers (1977=100)						
Production items	174.0	7.2%	-0.6%	1.5%	2.3%	
Other items ²	191.0	4.3	1.1	2.7	3.4	

Note: Data not seasonally adjusted except for Consumer Price Index.

¹Figures are simple rates of change comparing year-to-year data.

²Other items include farmers' costs for commodities, services, interest, wages and taxes.

Eighth District Banking

Changes in Financial Position for the year ending June 30, 1992 (by Asset Size)

	Less than \$100 million	\$100 million - \$300 million	\$300 million - \$1 billion	More than \$1 billion
SELECTED ASSETS				
Securities	1.6%	11.1%	20.7%	49.8%
U.S. Treasury &				
agency securities	3.1	14.9	27.7	61.5
Other securities ¹	-4.3	-0.8	-2.8	14.2
Loans & Leases	-2.3	-1.7	3.4	11.3
Real estate	1.9	1.6	10.1	20.4
Commercial	-9.6	- 10.0	- 7.9	6.0
Consumer	-7.4	-3.4	5.4	10.8
Agriculture	2.5	18.6	18.1	44.0
Loan loss reserve	1.4	0	10.0	24.1
Total Assets	- 1.9	2.1	6.4	17.6
SELECTED LIABILITIES				
Deposits	-2.2%	1.9%	5.9%	16.4%
Nontransaction accounts	- 4.9	-0.6	5.4	12.0
MMDAs	15.1	12.2	15.8	32.8
Large time deposits	- 13.3	- 11.7	- 15.6	-23.6
Demand deposits	1.6	4.2	- 1.5	24.2
Other transaction accounts ²	10.0	14.3	16.7	34.5
Total Liabilities	-2.2	1.6	6.0	17.4
Total Equity Capital	1.0	7.7	10.8	20.1

Note: All figures are simple rates of change comparing year-to-year data. Data are not seasonally adjusted. Note that some changes are inordinately large because of thrift acquisitions by large District banks in 1991.

¹Includes state, foreign and other domestic, and equity securities.

²Includes NOW, ATS and telephone and preauthorized transfer accounts.

	(D) ASSEC 0/2C) Fighth District			United States			
	11/92	II/91	11/90	11/92	II/91	11/90	
EARNINGS AND RETURNS							
Annualized Return on Averag	e						
Assets							
Less than \$100 million	1.23%	.83%	1.07%	1.03%	.95%	.83%	
\$100 million - \$300 million	1.23	1.02	1.06	1.08	.83	.96	
\$300 million - \$1 billion	1.09	.98	1.05	.98	.78	.82	
\$1 billion - \$5 billion	1.03	.97	.88	.87	.57	.61	
\$5 billion - \$15 billion	1.07	.78	.72	1.11	.33	.58	
Agricultural banks	1.32	1.15	1.15	1.29	1.07	1.05	
Annualized Return on Averag	e						
Equity							
Less than \$100 million	13.77%	9.40%	11.69%	11.42%	10.73%	9.16%	
\$100 million - \$300 million	14.52	12.53	13.18	13.08	10.43	11.97	
\$300 million - \$1 billion	13.46	12.58	13.23	12.87	10.34	11.07	
\$1 billion - \$5 billion	15.24	14.46	13.37	11.75	8.47	8.96	
\$5 billion - \$15 billion	15.96	12.52	11.13	16.32	5.47	9.90	
Agricultural banks	13.78	12.26	12.32	13.70	11.58	11.40	
Net Interest Margin ¹							
Less than \$100 million	4.62%	4.31%	4.29%	4.91%	4.61%	4.61%	
\$100 million - \$300 million	4.49	4.25	4.25	4.82	4.61	4.66	
\$300 million - \$1 billion	4.58	4.39	4.47	4.84	4.58	4.67	
\$1 billion - \$5 billion	4.24	4.30	4.15	4.60	4.44	4.38	
\$5 billion - \$15 billion	4.06	3.65	3.67	4.70	4.22	4.25	
Agricultural banks	4.50	4.23	4.19	4.57	4.31	4.33	
ASSET QUALITY ²							
Nonperforming Loans ³							
Less than \$100 million	1.36%	1.60%	1.65%	1.88%	2.22%	2.03%	
\$100 million - \$300 million	1.43	1.81	1.76	2.06	2.21	1.98	
\$300 million - \$1 billion	1.39	1.62	1.44	2.35	2.64	2.33	
\$1 billion - \$5 billion	1.37	1.65	1.46	2.96	3.44	2.49	
\$5 billion - \$15 billion	2.02	2.62	2.23	3.38	4.79	3.05	
Agricultural banks	1.61	1.79	1.79	1.79	1.87	1.95	
Loan Loss Reserves	1 500/	4 470/	4 400/	4 700/	4.050/	1.050/	
Less than \$100 million	1.56%	1.47%	1.46%	1.72%	1.65%	1.65%	
\$100 million - \$300 million	1.62	1.59	1.51	1.73	1.64	1.49	
\$300 million - \$1 billion	1.63	1.53	1.39	2.00	1.85	1.71	
\$1 billion - \$5 billion	1.96	1.83	1.81	2.74	2.44	1.88	
\$5 billion - \$15 billion	2.29	1.94	1.63	2.94	2.89	2.29	
Agricultural banks	1.62	1.60	1.64	1.84	1.83	1.88	
Net Loan Losses ⁴	040/	500/	4 70/	400/	000/	000	
Less than \$100 million	.31%	.53%	.17%	.49%	.66%	.26%	
\$100 million - \$300 million	.41	.52	.20	.54	.71	.28	
\$300 million - \$1 billion	.50	.67	.25	.75	.90	.38	
\$1 billion - \$5 billion	.76	.69	.37	1.33	1.44	.51	
\$5 billion - \$15 billion	.88	1.06	.37	1.30	1.67	.80	
Agricultural banks	.34	.35	.13	.34	.32	.20	

Performance Ratios (by Asset Size)

Note: Agricultural banks are defined as those banks with a greater than average share of agriculture loans to total loans.

¹Interest income less interest expense as a percent of average earning assets

²Asset quality ratios are calculated as a percent of total loans. ³Nonperforming loans include loans 90 days or more past due and nonaccrual loans.

⁴Loan losses are adjusted for recoveries and are annualized.