

# PENSION INSURANCE DATA BOOK 1998



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## Overview

The Pension Benefit Guaranty Corporation (PBGC) was established by the Employee Retirement Income Security Act of 1974 to ensure that participants in defined benefit plans receive their pensions even if their plans terminate without sufficient assets to pay promised benefits. Separate insurance programs protect participants in single-employer and multiemployer plans.

PBGC has published the *Pension Insurance Data Book* annually since 1996 to present detailed statistics on PBGC operations and benefit protection. For the first time, the *Data Book 1998* includes data on the PBGC multiemployer pension insurance program as well as updates of the single-employer data presented previously.

In addition to tabular presentations of current and historical data, this edition features two articles on critical topics for the future of PBGC. The first article focuses on trends in retirement plan choice in the private sector, particularly the shift away from defined benefit plans, which are insured by PBGC, and the reasons behind this change. The second article describes the Pension Insurance Modeling System (PIMS), an advanced simulation model designed to improve the accuracy of PBGC's estimation of its risk and exposure.

We have included in Appendix S all the tables from last year's edition relating to PBGC's single-employer program, but rearranged them into subject categories to make it easier for the reader. Because this represents a change in the ordering of tables from previous years, we have provided an index relating each table to its respective table number in prior editions at the back of the book. We have also, for the first time, included tables of multiemployer data in Appendix M.

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# Trends in Defined Benefit Plans

## *Executive Summary*

*Since the early 1980s, there has been a gradual shift away from defined benefit plans in the private sector. Unless otherwise indicated, the data discussed in this chapter describes these trends for single-employer pension plans and participants. These trends, which generally are unfavorable to the defined benefit universe, are partly due to shifts in employment patterns, but there has been an equally strong reduction in employer preference for defined benefit plans in all sectors of the economy.*

This chapter describes the trend away from defined benefit plans among private single-employer pension plans. The number and size distribution of plans, and the number and composition of participants in these plans, have changed markedly since 1980.

## The Trend in Number of Plans

**Figure 1** shows the number of plans insured by PBGC from 1980 to 1998. The number peaked in 1985 at about 112,000. Since then there has been a sharp decline to about 42,000 plans in 1998. The reduction has not been proportional across all plan sizes. Plans with fewer than 100 participants have shown the most marked decline, from about 90,000 in 1985 to about 27,000 in 1998. There also has been a sharp decline for plans with between 100 and 999 participants. In 1985, there were more than 18,000 plans in this size range but, by 1998, only about 11,000 were operating, a reduction of about 40 percent. These numbers are shown in panel a of **Figure 2**.

Panel b of the figure shows the number of large plans over time. In marked contrast to the trends for plans with fewer than 1,000 participants, the number of plans with more than 1,000 participants has shown modest growth. Since 1980, the number of plans with between 1,000 and 9,999 participants has grown by about 15 percent, from 3,223 to 3,713 in 1998. The number of plans with at least 10,000 participants has grown from 349 in 1980 to 544 in 1998, an increase of over 50 percent; most of this growth has occurred since 1985.

The growth in the number of large plans is attributable to two factors. First, the rapid increase in inactive participants (retirees and separated vested participants) has pushed some plans into higher size categories (see below). Second, there has been considerable plan merger activity over the period.<sup>1</sup>

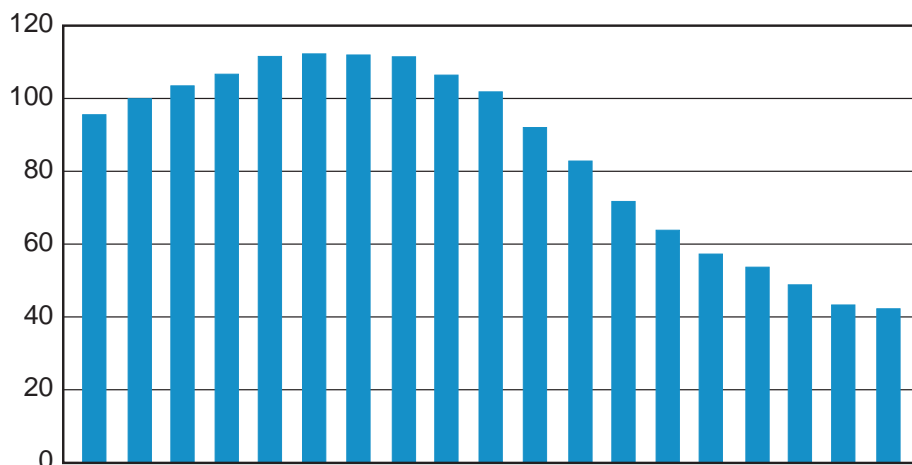
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<sup>1</sup> We selected a random sample of 250 plans with at least 500 participants in 1987 and tracked their disposition through 1995. We confirmed that plan mergers and growth in inactive participants each explained a substantial portion of the increase in the number of large plans.

Figure 1

### Number of Insured Single-Employer Plans, 1980-1998

Thousands of plans

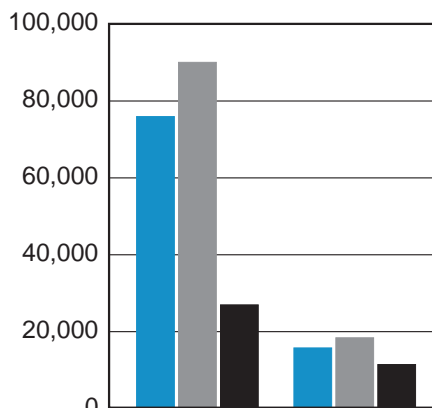


Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Thousands	95.4	99.9	103.4	106.7	111.5	112.2	111.9	111.4	108.3	101.7	91.9	82.7	71.6	63.8	57.0	53.6	48.7	43.9	42.3

Figure 2

### Number of Insured Plans by Size, Selected Years

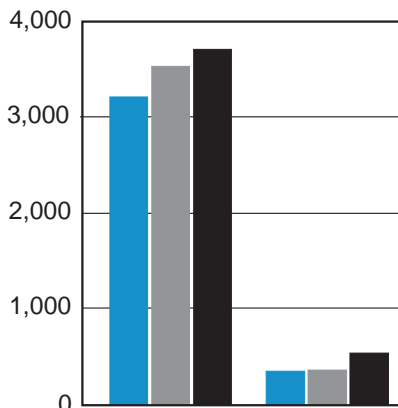
Count



Size category	Under 100	100-999
1980	75,916	15,951
1985	90,061	18,233
1998	26,817	11,260

a

Count



Size category	1000-9999	10000 or more
1980	3,223	349
1985	3,560	354
1998	3,713	544

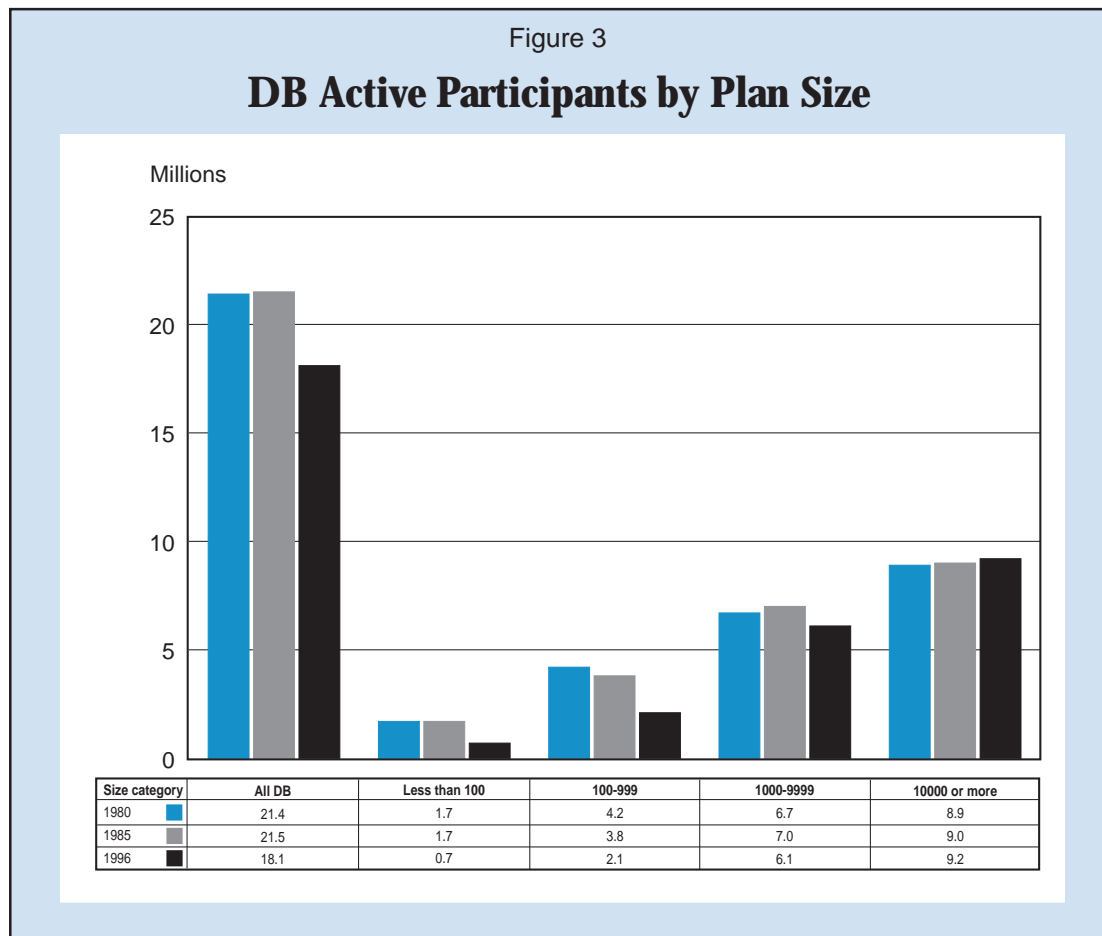
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## The Trend in Number of Participants

In contrast to the dramatic reduction in the total number of plans, the total number of participants in defined benefit plans has shown modest growth. In 1980, for example, there were 27.6 million participants in defined benefit plans. By 1996, this number had increased to almost 33 million.

These numbers, however, mask the negative trend in the defined benefit system because total participants include not only active workers but also retirees (or their surviving spouses) and separated vested participants. The latter two categories of participants are reflective of past coverage patterns in defined benefit plans. A better forward-looking measure is the trend in the number of active participants: these are workers earning pension accruals currently. Here, the numbers are far less encouraging.

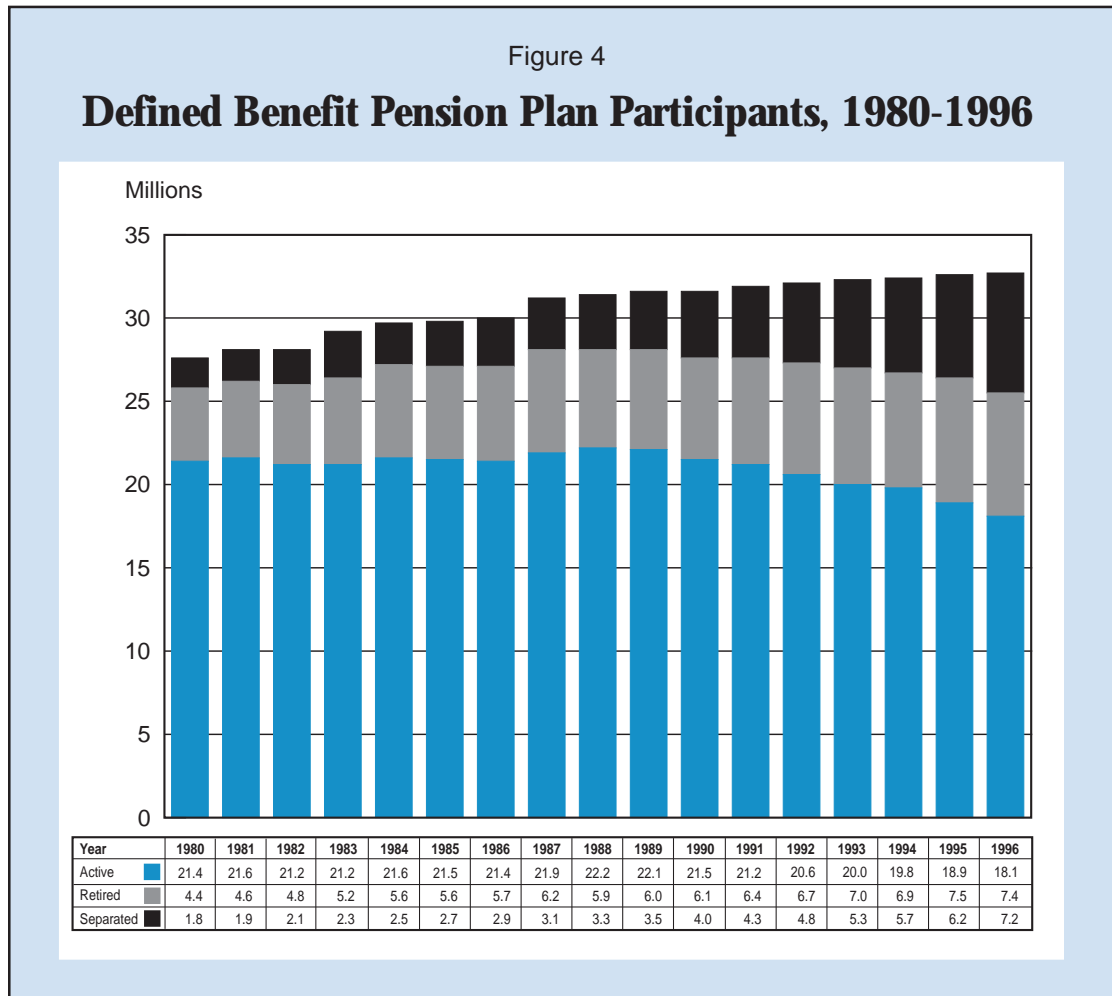
**Figure 3** shows the total number of active participants in the four plan-size categories for selected years.<sup>2</sup> Since PBGC data do not reflect the breakout of participants by type,



<sup>2</sup> Size categories are measured by the number of active participants.

we rely on form 5500 data, which are available through 1996. In 1980, about 73 percent of all active participants in insured single-employer defined benefit plans were in plans covering at least 1,000 workers; by 1996, this percentage had grown to almost 85 percent. Thus, small- and medium-sized plans are becoming progressively less important in the defined benefit system, in terms of both number of plans and number and percent of all active participants.

**Figure 4** shows the composition of participants by type. The bottom portion of the bar distributions denotes the number of active participants. The middle and top portions denote retirees and separated vested participants, respectively. It is apparent from inspection that the number of active participants has been declining since the late 1980s. In 1988, there were 22.2 million active participants in DB plans; by 1996, this number had fallen to 18.1 million, a decrease of almost 20 percent. At the same time, the number of inactive participants has been growing at a rate sufficient to more than offset the decline in workers in the system. This trend means that the maturity level of the defined benefit system has been rapidly increasing.

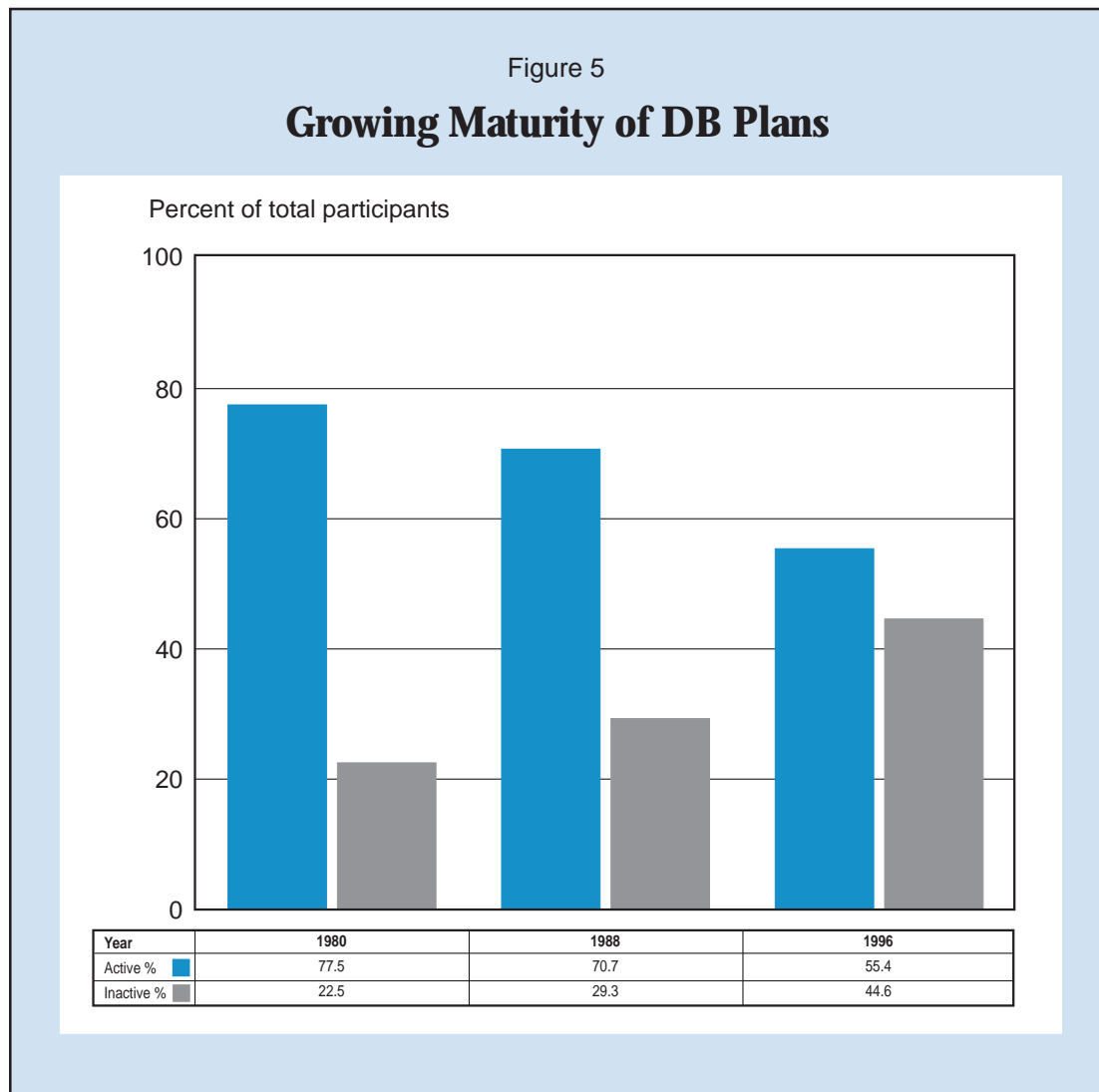




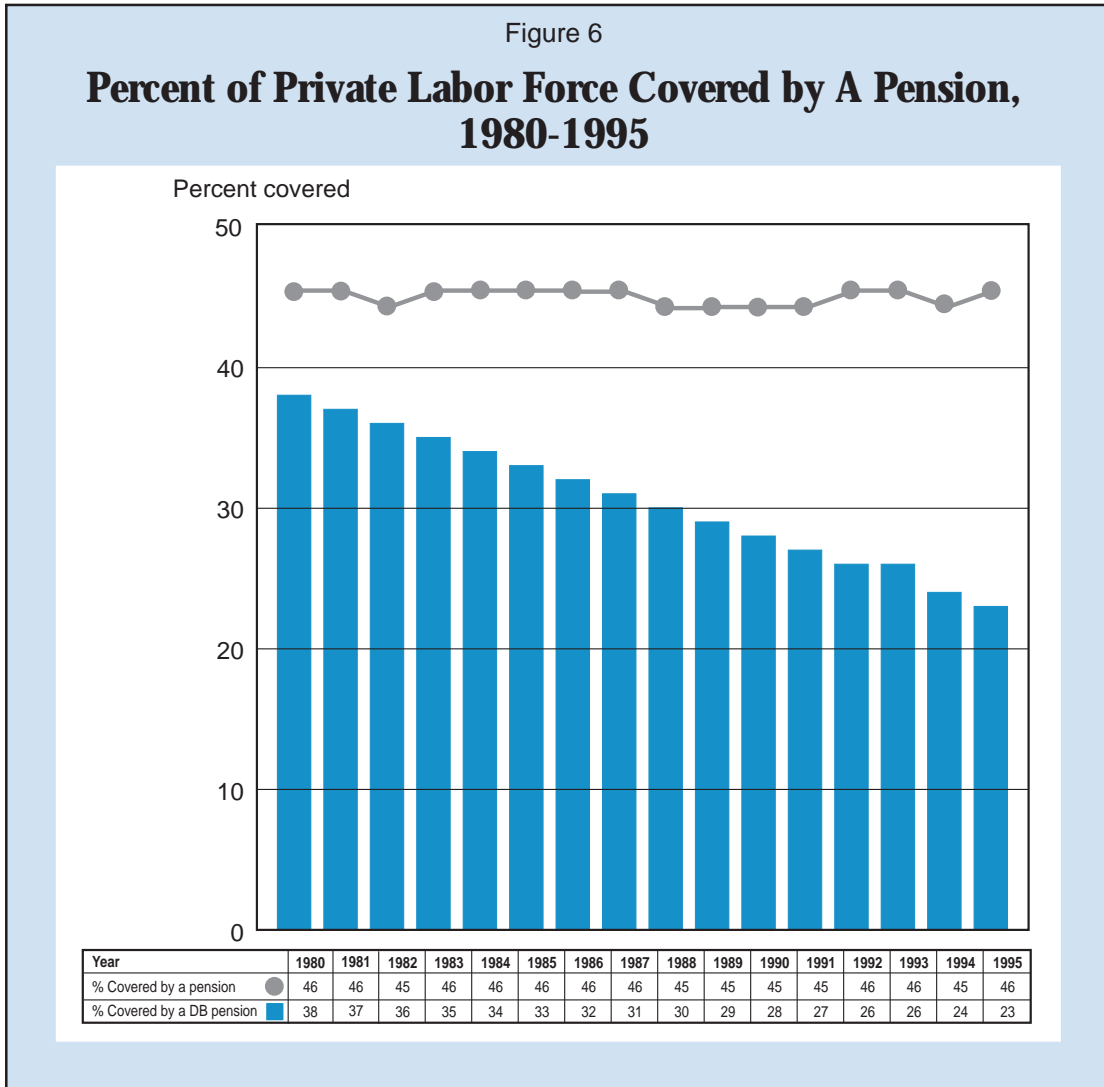
For example, in 1980, inactive participants accounted for only 22 percent of total participants in defined benefit plans; by 1988 this number had increased to 29 percent. By 1996, almost 45 percent of the participants in defined benefit plans were inactive participants (see **Figure 5**). If this trend continues, active workers in these plans soon will be a minority of participants.

## Percent of Covered Workers

The reduction in absolute numbers of active workers covered by defined benefit plans takes on even more significance when consideration is given to the overall growth in the labor market. Since 1980, the private labor force has grown at the rate of about 1.8 percent per year. The pension-covered private work force grew at about the same rate.



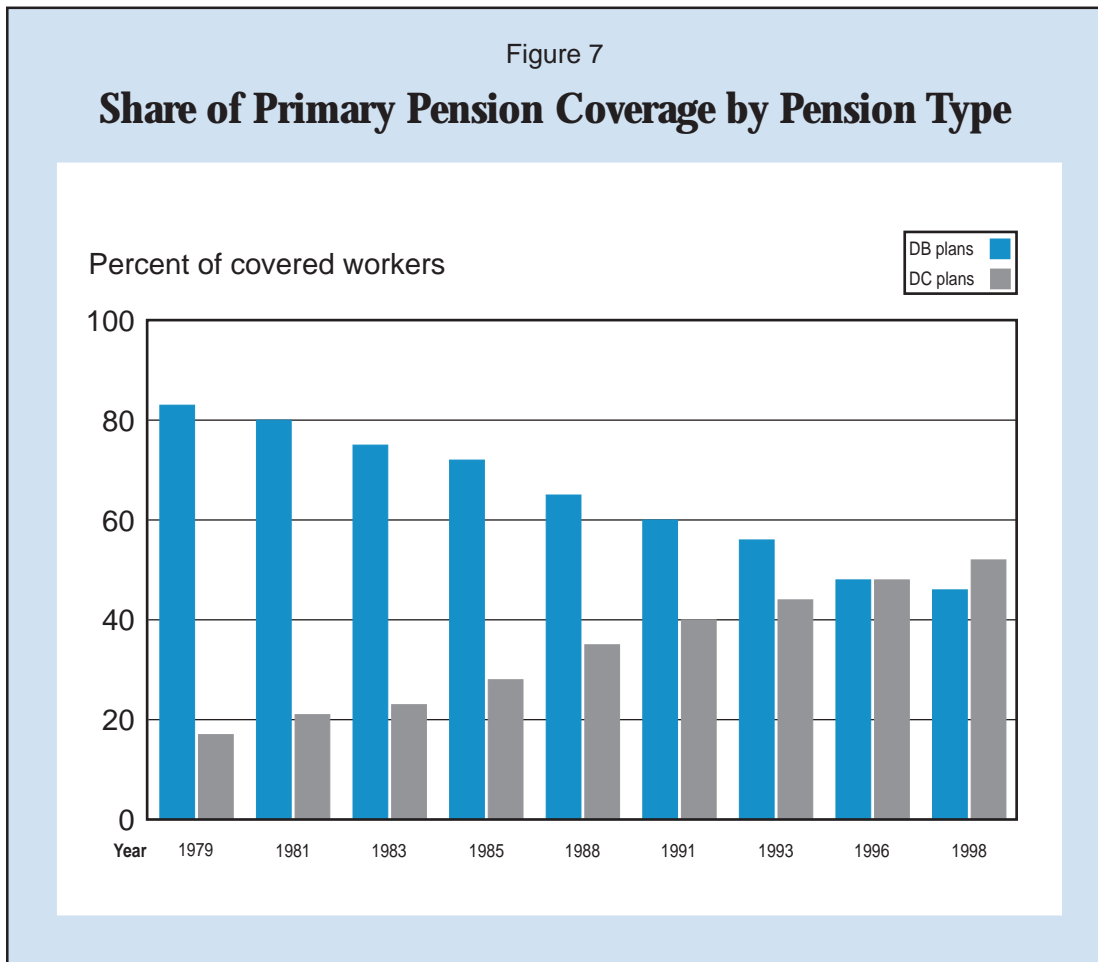
Hence, the overall pension coverage rate remained at approximately 45 percent.<sup>3</sup> In this context, the absolute reduction in defined benefit coverage of workers implies a dramatic reduction in the share of workers covered by these plans. In 1980, for example, including workers covered by multiemployer plans, 38 percent of private-sector workers were covered by a DB plan. By 1995, this number had fallen to only 23 percent (see **Figure 6**).



<sup>3</sup> See U. S. Department of Labor, Pension Plan Bulletin, No. 7, Spring 1998, table E4. These data include part- and full-time workers. If only full-time workers are counted, the coverage rate is approximately 50 percent.

**Figure 7** shows primary coverage rates for single-employer pensions by plan type over the period 1979 to 1998. At the beginning of this period, defined benefit plans were the primary pensions for over 80 percent of pension-covered private sector workers. By 1998, this share had fallen to less than 50 percent. Much of the growth in defined contribution coverage comes from a special kind of defined contribution plan, the 401(k) plan, introduced in the early 1980s.

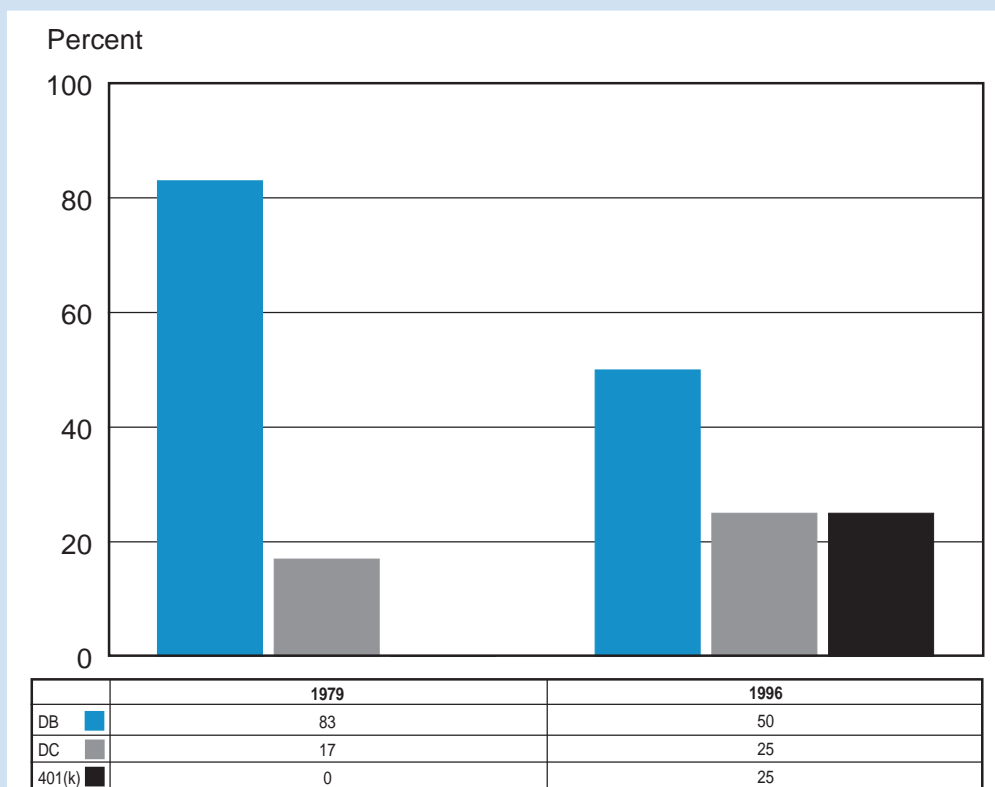
In particular, over this period, traditional defined contribution plans (that is, those without a 401(k) component) increased their share of covered workers in the primary pension market from 17 to 25 percent. More dramatically, 401(k) plans, which were nonexistent in 1979, had captured 25 percent of the primary pension market by 1996. That is, in 1996, one in every four covered workers in the single-employer universe was covered primarily by a 401(k) plan (see **Figure 8**).<sup>4</sup>



<sup>4</sup> This number excludes workers who had a 401(k) plan but chose not to contribute. The U. S. Department of Labor does not include non-contributors in their pension-covered counts.

Figure 8

## Primary Coverage 1979 and 1996



### Employment Shifts and Preference Changes

Part of the shift away from defined benefit plans reflects employment shifts from traditional defined benefit firms and industries (for example, large, unionized firms in the manufacturing sector) to firms and industries that traditionally favored defined contribution plans (for example, smaller, nonunion firms in the service sector). Several studies have estimated that upwards of 50 percent of the lost defined benefit share may be attributable to these shifts. The remainder of the shift is attributable to changes in employer preferences away from defined benefit plans in all sectors of the economy. While these preference shifts are somewhat different across sectors, the overall direction is the same in virtually every category of plan coverage.

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# Pension Insurance Modeling System: An Introduction

## *Executive Summary*

*The Pension Insurance Modeling System (PIMS) is a stochastic simulation model developed by PBGC to quantify its risk and exposure over the long run. Like other insurers of catastrophic risk (such as those that cover hurricanes and earthquakes), PBGC is vulnerable to large losses that occur with relatively low probabilities. In these kinds of insurance, past claims are not necessarily a good guide to possible future experience. It is more informative to model the underlying processes that give rise to claims and to take advantage of state-of-the-art computer technology to assess future potential problems. PIMS cannot predict future experience but it can assign probabilities to various potential future loss levels and assist the agency in making assessments about policy alternatives.*

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Historically, PBGC has forecast its future financial position by assuming that past experience captures the full risk facing the program. Two forecasts (which have been published in the agency's annual report) have reflected the average of past claims. One reflected claims over PBGC's entire history (forecast 'A'); the other reflected PBGC's more recent history (forecast 'B'). Forecast 'C' took a different approach. It assumed that all pensions sponsored by companies with below-investment-grade bond ratings would present claims to PBGC over the ensuing ten years. None of the forecasts assigned probabilities to the results.

In its 1998 Annual Report, PBGC moved to a new and analytically more powerful tool to assess risk. The Pension Insurance Modeling System — PIMS — is a stochastic (randomly determined) simulation model designed to quantify the amount of risk facing the program. The model does not predict future claims. Rather, by fully exploiting the historic relationships of key economic variables, the model assigns probabilities to various levels of potential claims.

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## The Essence of the Problem

The dominant problem in assessing PBGC's risk is the large variance in potential claims. In many lines of insurance, claims per annum are predictable within a small range. Fire insurance is a good example. Each insured house has a relatively small value and most fires are random events that affect only one house or a handful of insured houses. In most years,  $x$  percent of insured houses will suffer serious fire damage per period, with very little variance.

At the other extreme, catastrophic insurance tends to experience wide fluctuations in claims. Hurricane and earthquake insurance are good examples. In most years, damages are quite low. Occasionally a big event occurs, like Hurricane Andrew or the San Francisco earthquake. These are low probability events but, when they occur, they have catastrophic consequences. In these kinds of insurance, losses over past periods may not provide much information about future potential loss levels.

The events that PBGC insures against also have the possibility of catastrophic outcomes. There are two ways in which catastrophic loss levels can occur. First, in periods of poor equity returns, exposure and bankruptcies tend to increase, creating the potential for substantial claims. We call this systematic, or market, risk. Second, some companies can incur adverse financial conditions independent of market returns. Since many insured plans are very large, a small number of bankrupt plan sponsors can generate large claims. We call this idiosyncratic, or random, risk.

Presumably, the probability of a catastrophic event is low, but the losses that could occur in these events arguably dominate PBGC's potential future costs. The rarity of catastrophes means that historical loss events are of limited use in gauging the probabilities of claims levels that might arise in future periods.

## The General Approach

When historical data do not adequately describe the insurance risk, a commonly accepted alternative is to model the process that generates uncertainty in the insurance. For example, in the case of hurricane insurance, weather models can be used to simulate thousands of possible hurricane 'seasons.' While these simulations cannot predict when and where hurricanes will develop, they can assess the probabilities that hurricane damage can approach particular levels.

PIMS does for pension insurance what weather models do for hurricane insurance. Given the low probability of bankruptcy and the large number of underfunding paths that could be observed over some time period, we can learn very little by simply observing our history. PBGC's experience is the result of one particular historical path of stock

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returns and interest rates, and a few large firms that entered bankruptcy. But other information is available to help us quantify the amount of risk facing the program.

Looking forward, many paths of underfunding are possible, and many combinations of bankruptcies are possible within any path of underfunding. We do not know which particular underfunding path will develop, nor do we know which particular firms might enter bankruptcy. If we are willing to assume, however, that the process that generates historical volatility in key variables is reasonably representative of the process that governs future volatility, we can evaluate the likelihood that various economic scenarios can develop. By modeling real pension plans and incorporating minimum funding rules, we can quantify the likelihood that various levels of exposure can develop under these conditions.

In short, while historical data do not predict future losses, they reveal information that can be used to establish probabilities that certain exposure levels can develop. By evaluating historical bankruptcy data in the same way, we can quantify the potential loss distribution that characterizes insurance coverage.

## Stock Returns and Interest Rates

The most important variables in the model are stock returns and interest rates. Historically, the mean real stock return is about 9 percent per year with a standard deviation of 21 percent.<sup>1</sup> Stock returns are independent from one period to the next. This means that we can think of the process as loading an urn with lots of balls, each assigned a return that comes from a distribution that reflects past experience. To determine a simulated sequence of stock returns, PIMS does the equivalent of selecting balls at random from this urn.<sup>2</sup>

Unlike stock returns, interest rates are correlated over time. We do not observe interest rates of 6 percent one year followed by a 20 percent interest rate the next year and then 2 percent the year after, and so on. But interest rates can gradually move from 6 percent to either 20 percent or 2 percent over several years.

While there are many ways to model interest rates, one easy way that preserves the general character of movements of these rates over time is a simple ‘random walk’ model. This model says that the interest rate next year is expected to be equal to the interest rate this period, plus or minus some random amount. To obtain a distribution of these

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<sup>1</sup> The real stock return equals the nominal return, minus the inflation rate. The average return is measured over the period 1926-1997. The mean real return is the simple average of all returns observed over the period. About 95 percent of the returns are within two standard deviations of the mean.

<sup>2</sup> In this analogy, the balls would be replaced after each draw.

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random amounts, we calculate the observed changes in interest rates between years over a long period of history and load this information in the data base. Each year of a simulation, PIMS makes a random draw of these “noise” terms to generate some change in interest rates each year.<sup>3</sup>

## Bankruptcy Rates

The second component of claims events is bankruptcy. When a firm with an underfunded pension plan enters bankruptcy and is in sufficiently poor financial health, underfunding can become a claim against PBGC.

We can observe historical bankruptcy rates among firms that sponsored defined benefit plans over the period 1980-1997. Typical bankruptcy rates for sponsors of defined benefit plans were around one percent per year, less for very large firms, more for smaller firms. The probability also varied as a function of the sponsor’s key financial ratios. In particular, the firm’s likelihood of bankruptcy was lower the higher its equity-to-debt ratio and the higher its cash flow as a percent of company assets. Bankruptcy probabilities also varied significantly over time as a function of overall economic conditions.

PIMS models bankruptcies in the following way. We measure the historical relationship between the probability of bankruptcy and firms’ financial ratios and levels of employment. We also calculate the amounts by which firms’ employment levels and financial ratios can change from period to period, and load this information into the data base. When each firm is simulated each period, its employment level can either increase or decrease and its financial ratios can either improve or deteriorate. The sponsor’s simulated employment level and its simulated financial ratios determine its probability of bankruptcy in any given period.

In this way, we calculate each firm’s chances of going bankrupt each period in the simulation. Each firm has a varying probability of bankruptcy during each year of every scenario; in some scenarios, a firm might develop serious financial difficulty, increasing its odds of going bankrupt, or it might experience a financial turnaround and become a very low risk to the pension insurer.

The model determines which firms enter bankruptcy by using a stochastic process. That is, if a firm has a one percent chance of bankruptcy then it draws a ball from an urn

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<sup>3</sup> This specification of interest rates has three attractive properties: (1) the expected future interest rate is equal to the (observed) interest rate at the start of the simulation, (2) the simulated rate can follow an infinite number of orderly paths over time, and (3) the variance of the simulated interest rate increases with time so that interest rates in period ten of the simulation can drift quite far from the starting point (in either direction), reflecting growing uncertainty of interest rates far in the future.



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filled with 100 balls numbered 1 to 100. If it draws the ball marked '1' then it enters bankruptcy. If it draws a ball numbered 2 or higher, it survives to experience the next period, at which point it is reevaluated, and so on. We assume that, in a bankruptcy in the simulation, any pension plan that has a funding ratio less than 80 percent (on a termination basis) becomes a claim to PBGC.<sup>4</sup>

## Pension Data

The PIMS data base has approximately 400 pension plans, sponsored by about 250 firms, which represent about 50 percent of liabilities and underfunding in the defined benefit plan system. Each plan is loaded in the data base in great detail, so that we can realistically model plan liabilities. Each plan is assigned an asset allocation so that pension asset returns can be modeled given any combination of simulated interest rates and stock returns.<sup>5</sup> The key financial ratios of the plan sponsors also are recorded in the data base.

The plans in the data base represent about half of the liabilities and underfunding among the insured universe. To achieve a universe estimate, we assign one 'partner' plan to each PIMS plan. This mirror plan is identical to its partner plan in the PIMS data, but its sponsor's financial condition changes independently over time. In this way, the model delivers results that are representative of the universe.<sup>6</sup>

## The Simulation

We draw a series of stock returns and interest rates for 10 simulated years. We call this an economic scenario. Each plan sponsor is simulated in the scenario; each draws new financial ratios and employment levels every year and has some assigned bankruptcy probability based on these values. The model determines stochastically if the firm enters bankruptcy during the scenario.

We also model each sponsor's pension plan during the scenario. The equity return

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<sup>4</sup> Pension plans with funding ratios in excess of 80 percent are assumed to become sufficient terminations.

<sup>5</sup> Briefly, we exploit information from the historic form 5500 pension plan annual reports (over the period 1980-1995) to infer investment returns for a sample of pension plans compared to market returns. This exercise yields estimates of asset allocations across pension plans. Using this information, we assign each firm a different asset allocation at the start of every scenario.

<sup>6</sup> We check various key variables to make sure the sample is correctly calibrated. For example, the overall predicted probability is calibrated, if necessary, to properly reflect bankruptcy probabilities of all DB plan sponsors in the Compustat data. In addition, we check the flat and variable rate premium (VRP) revenues against PBGC collections to ensure that starting values correctly reflect overall premium revenues.

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and interest rate draws affect pension assets and liabilities; so do movements in the firm's simulated employment level. By also including the minimum funding rules, we can calculate paths in underfunding that could occur within the constraints of the existing funding rules. If a plan sponsor enters bankruptcy in the model, then we calculate underfunding for guaranteed benefits in its pension plan(s). If any plan meets the 80 percent (or less) funding criterion, it becomes a claim on PBGC.

To increase the amount of information gained from each economic scenario, each plan sponsor is 'cycled' several times through the scenario with different draws on its financial ratios. In this way, many different firms have a chance to enter bankruptcy given a particular sequence of equity returns and interest rates. Experiments show that the model requires 3,000 simulations (300 scenarios, 10 cycles each) to generate stable results.

## Claims Potential

The results are characterized by a wide variance. Median claims are about \$600 million per annum (expressed in today's dollars), meaning that half of the simulations produce results higher than this, and half below. The mean level of claims (that is, the average claim) is much higher, more than \$900 million per year. The mean is higher because there is a chance under some scenarios that claims could reach very high levels. For example, under the model, there is a 10 percent chance that claims could exceed \$2.1 billion per year. While changes in the underlying input assumptions alter the results, the general character of the distribution survives extensive sensitivity tests.

The last result is intuitive. If a few large firms that have lots of underfunding fall into severe financial difficulty, a 'tail event' can occur. Similarly, if a bad economic scenario is encountered, underfunding and bankruptcy rates can escalate rapidly, causing a severe tail event.

In reality, we will pass through one particular economic scenario over the next 10 years and we have no idea which one it might be. Further, given this scenario, any number of bankruptcy combinations could arise, some of which cause few problems for the pension insurer and others that cause large losses. Many right-tail events in PIMS arise because either stock values or interest rates (or both) fall.

## Systematic Risk

The relationship between interest rates and stock returns has an important effect on claims. In general, the worst simulated outcomes tend to occur in scenarios characterized by low stock returns or low interest rates. This is the "systematic risk" in pension insurance.

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## Idiosyncratic Risk

In addition to systematic risk, the program also faces idiosyncratic risk. This is the risk that some plan sponsors (or industries) that have lots of pension underfunding incur severe financial difficulty. It is possible for the agency to experience a run of claims, independent of market conditions.<sup>7</sup> Some ‘tail events’ are attributable to this kind of risk, and some are attributable to both idiosyncratic financial difficulties of some large firms and overall unfavorable economic conditions. It turns out that about half of the variation in potential claims is explained by movements in stock returns and interest rates; the rest is attributable to idiosyncratic risk.

## PBGC’s Financial Position

In order to generate the agency’s future financial position, we need to take into account its premiums, expenses, and investment returns.

Premiums in PIMS reflect a projected change in mortality table, together with the increase in the variable rate premium (VRP) interest rate to 100 percent of the 30-year Treasury bond rate, as provided by the Retirement Protection Act of 1994. For purposes of projections, we assume that flat-benefit plans with funding ratios above 90 percent (on a current liability basis) will set their ERISA full funding limits so that they do not pay the VRP. The flat rate premium of \$19 per participant is not indexed to inflation and, thus, its value gradually falls in real terms. Owing to the VRP component, premiums can vary substantially depending on market conditions. PBGC expenses in PIMS depend on the number and size of claims that arise in each simulation.<sup>8</sup>

Finally, the simulations assume that PBGC allocates one-third of its assets to equity securities and that it maintains a bond portfolio that immunizes its liabilities against interest rate risk.<sup>9</sup>

The mean outcome is an \$8.8 billion surplus in 2008 (in present value terms). However, the model also shows the potential for significant downside outcomes. In particular, there is nearly a 20 percent chance that the agency could return to a deficit in

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<sup>7</sup> The variance around these loss distributions is higher when equity returns are low.

<sup>8</sup> Several PBGC actuaries have worked on the expense formula for PIMS. The result is a function of the existing level of liabilities, a natural depreciation of these costs over time (as each case moves through the process), and the number of new cases in the simulation.

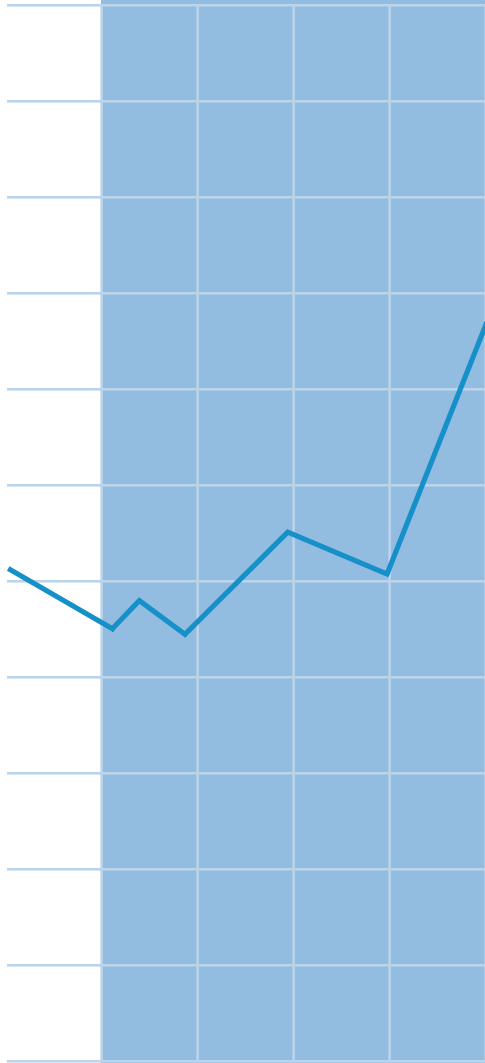
<sup>9</sup> The liabilities are immunized by purchasing sufficient amounts of zero-coupon Treasuries. We then pursue the goal of one-third equities in the portfolio. This ratio corresponds closely to the 33 percent share that characterized the PBGC portfolio as of yearend in fiscal year 1998. In the event that insufficient trust assets exist to reach one-third, we set the equity component to the maximum allowable limit. Any assets remaining after satisfying these two goals are invested in one-year Treasury bills.

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the next 10 years and a 10 percent chance that the deficit could exceed \$6.3 billion in 2008. These outcomes are most likely if the economy performs poorly, in which case PBGC may experience both large claims and significant investment losses.

## **Concluding Remarks**

The forecast methodology that PBGC used in prior years relied on a limited amount of information, primarily past claims experience. In effect, it assumed that the same economic conditions that prevailed in past years would repeat themselves and, further, that the frequency and size of claims experienced under these conditions also would be the same. PIMS recognizes the possibility that thousands of different paths of stock returns and interest rates could develop over future years and that many different claims sequences could occur within any given economic scenario. By quantifying a fuller range of uncertainty, the model helps PBGC assess its financial vulnerability from future events that may be significantly different than those that have characterized its history.



# APPENDIX S

## *Single-Employer Data Tables*

Table S-1

## Net Financial Position of PBGC's Single-Employer Program (1980-1998)

Fiscal Year	Assets (in millions)	Liabilities (in millions)	Net Position (in millions)
1980	\$467	\$561	-\$95
1981	515	704	-189
1982	835	1,168	-333
1983	1,085	1,608	-523
1984	1,063	1,525	-462
1985	1,155	2,480	-1,325
1986	1,740	5,566 *	-3,826 *
1987	2,163	3,712	-1,549
1988	2,422	3,965	-1,543
1989	3,059	4,183	-1,124
1990	2,797	4,710	-1,913
1991	5,422	7,925	-2,503
1992	6,381	9,118	-2,737
1993	8,267	11,164	-2,897
1994	8,281	9,521	-1,240
1995	10,371	10,686	-315
1996	12,043	11,174	869
1997	15,314	11,833	3,481
1998	17,631	12,619	5,012

Source: PBGC Annual Report (1980-1998).

1986 values include \$1.8 billion in liabilities that were subsequently returned by a Supreme Court ruling to a reorganized LTV Corporation.

Due to rounding of individual items, rows may not add across.

This table was previously titled A-1 in Pension Insurance Data Book 1997.

Table S-2

## PBGC Premium Revenue, Benefit Payments, and Expenses (1980-1998) Single-Employer Program

Fiscal Year	Total Premium Revenue (in millions)	Benefit Payments (in millions)	Administrative & Investment Expenses (in millions)	Premiums Minus Benefits Paid and Expenses (in millions)
1980	\$71	\$37	\$20	\$14
1981	75	57	21	-3
1982	80	94	24	-38
1983	82	137	27	-82
1984	81	169	30	-118
1985	82	170	33	-121
1986	201	261	33	-93
1987	268	300	36	-68
1988	465	356	48	61
1989	603	353	45	205
1990	659	369	63	227
1991	741	514	71	156
1992	875	634	97	144
1993	890	678	107	105
1994	955	719	135	101
1995	838	761	138	-61
1996	1,146	790	150	206
1997	1,067	823	155	89
1998	966	847	158	-39

Source: PBGC Annual Report (1980-1998).

Due to aggregation and rounding of individual items, figures may not add up to totals in other tables.

This table was previously titled A-20 in Pension Insurance Data Book 1997.

Table S-3

## PBGC Benefit Payments, Payees, and Deferred Payees (1980-1998) Single-Employer Program

Fiscal Year	PERIODIC PENSION PAYMENTS				LUMP SUM PAYMENTS			ALL PAYMENTS		
	Total (in millions)	Payees in Year (in thousands)	Average Monthly Payment	Median Monthly Payment	Total (in millions)	Payees in Year (in thousands)	Average Payment	Total (in millions)	Payees in Year (in thousands)	Deferred Payees (in thousands)
1980	\$34	28	\$124	\$91	\$3	2	\$1,623	\$37	30	25
1981	50	36	129	87	7	5	1,484	57	41	33
1982	79	51	165	79	15	5	2,938	94	56	55
1983	129	55	206	96	8	3	2,511	137	58	74
1984	166	65	232	112	3	1	1,942	169	66	83
1985	166	75	226	128	4	2	1,782	170	77	94
1986	259	91	275	141	2	1	2,188	261	92	99
1987	298	110	248	174	2	1	1,770	300	111	104
1988	347	110	265	178	9	2	3,515	356	112	104
1989	342	107	261	180	11	5	3,051	353	112	109
1990	356	110	262	184	13	6	2,437	369	116	115
1991	499	140	338	189	15	6	2,558	514	146	183
1992	617	150	359	232	17	6	3,078	634	156	184
1993	665	157	379	234	13	5	2,686	678	162	188
1994	699	170	359	238	20	7	2,818	719	176	198
1995	739	182	344	232	22	6	3,335	761	187	210
1996	770	199	328	225	20	7	2,757	790	206	240
1997	800	204	316	212	23	9	2,629	823	213	260
1998	826	208	313	208	21	9	2,198	847	216	263

Sources: PBGC Participant System (PRISM), fiscal year calculations, PBGC Management Reports, and PBGC Benefit Payment Reports.

Lump Sum payments include cash outs of pensions with de minimus present values and back payments to current pensioners.

Since some payees received both pensions and lump sum payments, total number of payees may be less than the sum of pensioners and lump sum recipients.

Excludes participants in probable termination status as of end of fiscal year.

Annual deferred payee totals have been adjusted to reflect subsequent improvements in data quality.

This table was previously titled A-2 in Pension Insurance Data Book 1997.



Table S-4

## PBGC Payees and Benefit Payments by Industry (1998) Single-Employer Program

Industry	Payees		Benefit Payments		Mean Monthly Pension	Median Monthly Pension
<b>AGRICULTURE, MINING, AND CONSTRUCTION</b>	<b>5,331</b>	<b>2.5%</b>	<b>\$20,798,654</b>	<b>2.5%</b>	<b>\$317</b>	<b>\$249</b>
<b>MANUFACTURING</b>	<b>134,458</b>	<b>62.3%</b>	<b>476,217,451</b>	<b>56.2%</b>	<b>289</b>	193
Apparel and Textile Mill Products	19,370	9.0%	27,619,642	3.3%	114	66
Fabricated Metal Products	14,877	6.9%	48,154,410	5.7%	268	202
Food and Tobacco Products	5,508	2.6%	14,309,652	1.7%	211	160
Machinery and Computer Equipment	22,166	10.3%	74,341,895	8.8%	275	213
Motor Vehicle Equipment	4,736	2.2%	14,193,066	1.7%	249	203
Primary Metals	43,542	20.2%	230,570,251	27.2%	431	381
Rubber and Miscellaneous Plastics	6,553	3.0%	22,069,796	2.6%	279	235
Other Manufacturing	17,706	8.2%	44,958,739	5.3%	171	129
<b>TRANSPORTATION AND PUBLIC UTILITIES</b>	<b>55,319</b>	<b>25.6%</b>	<b>306,920,702</b>	<b>36.2%</b>	<b>466</b>	<b>342</b>
Air Transportation	42,894	19.9%	274,680,436	32.4%	538	407
Other Transportation	12,363	5.7%	32,150,530	3.8%	216	166
Public Utilities	62	*	89,735	*	117	100
<b>WHOLESALE TRADE</b>	<b>5,619</b>	<b>2.6%</b>	<b>12,357,264</b>	<b>1.5%</b>	<b>213</b>	<b>131</b>
<b>RETAIL TRADE</b>	<b>7,555</b>	<b>3.5%</b>	<b>9,975,521</b>	<b>1.2%</b>	<b>108</b>	<b>63</b>
<b>FINANCE, INSURANCE, AND REAL ESTATE</b>	<b>1,298</b>	<b>0.6%</b>	<b>4,079,675</b>	<b>0.5%</b>	<b>264</b>	<b>147</b>
<b>SERVICES</b>	<b>6,025</b>	<b>2.8%</b>	<b>16,079,685</b>	<b>1.9%</b>	<b>230</b>	<b>143</b>
<b>NON-PROFIT ORGANIZATIONS</b>	<b>288</b>	<b>0.1%</b>	<b>341,492</b>	<b>*</b>	<b>98</b>	<b>52</b>
<b>TOTAL</b>	<b>215,893</b>	<b>100.0%</b>	<b>\$846,770,445</b>	<b>100.0%</b>	<b>\$313</b>	<b>\$208</b>

Sources: PBGC Participant System (PRISM), fiscal year calculations, and PBGC Management Reports.

Due to aggregation and rounding of individual items, totals may not add up to totals in other tables and percentages may not add up to 100 percent.

\*Less than .05%.

This table was previously titled A-4 in Pension Insurance Data Book 1997.

Table S-5

**PBGC Payees and Benefit Payments by Gender and Age (1998)  
Single-Employer Program**

Age	TOTAL PERIODIC PENSION PAYEES			MALE			FEMALE		
	Payees		Average Monthly Pension	Payees		Average Monthly Pension	Payees		Average Monthly Pension
Younger than 60	29,356	100.0%	\$331	20,638	70.3%	\$386	8,718	29.7%	\$225
60 - 64	32,571	100.0%	387	24,144	74.1%	447	8,427	25.9%	222
65 - 69	39,665	100.0%	359	27,505	69.3%	434	12,160	30.7%	190
70 - 74	41,813	100.0%	332	26,750	64.0%	416	15,063	36.0%	179
75 - 79	33,861	100.0%	292	19,518	57.6%	390	14,343	42.4%	155
80 - 84	20,121	100.0%	241	11,075	55.0%	326	9,046	45.0%	134
85 and Older	10,186	100.0%	185	5,085	49.9%	250	5,101	50.1%	115
<b>TOTAL</b>	<b>207,573</b>	<b>100.0%</b>	<b>\$313</b>	<b>134,715</b>	<b>64.9%</b>	<b>\$397</b>	<b>72,858</b>	<b>35.1%</b>	<b>\$176</b>

Sources: PBGC Participant System (PRISM), fiscal year calculations, and PBGC Management Reports.

Due to rounding of individual items, totals may not add up exactly to totals in other tables and percentages may not add up to 100 percent.

This table was previously titled A-5 in Pension Insurance Data Book 1997.

Table S-6

**PBGC Payees and Benefit Payments by Size of Payment (1998)**  
**Single-Employer Program**

Monthly Payment	Periodic Pension Payees		Periodic Pension Payments	
Less than \$50	22,656	10.9%	\$8,446,400	1.0%
\$50 - \$99	34,964	16.8%	32,712,078	4.0%
\$100 - \$149	23,921	11.5%	36,869,532	4.5%
\$150 - \$199	19,272	9.3%	41,805,604	5.1%
\$200 - \$249	15,913	7.7%	44,429,561	5.4%
\$250 - \$299	12,010	5.8%	41,141,154	5.0%
\$300 - \$349	10,924	5.3%	44,475,645	5.4%
\$350 - \$399	9,239	4.5%	43,710,828	5.3%
\$400 - \$449	9,242	4.5%	49,935,110	6.0%
\$450 - \$499	7,699	3.7%	46,748,220	5.7%
\$500 - \$549	6,766	3.3%	45,779,194	5.5%
\$550 - \$599	5,841	2.8%	42,975,407	5.2%
\$600 - \$749	12,285	5.9%	105,901,180	12.8%
\$750 - \$999	9,375	4.5%	103,120,506	12.5%
\$1,000 - \$1,499	5,230	2.5%	78,961,184	9.6%
\$1,500 or More	2,236	1.1%	59,065,845	7.2%
TOTAL	207,573	100.0%	\$826,077,448	100.0%

Sources: PBGC Participant System (PRISM), fiscal year calculations, and PBGC Management Reports.

Due to aggregation and rounding of individual items, totals may not add up exactly to totals in other tables and percentages may not add up to 100 percent.

This table was previously titled A-6 in Pension Insurance Data Book 1997.

Table S-7

## PBGC Payees and Benefit Payments by Date of Plan Termination (1998) Single-Employer Program

Fiscal Year of Plan Termination	Payees Receiving Payment		Benefit Payments	
Prior to 1980	15,024	7.0%	\$23,023,318	2.7%
1980	4,949	2.3%	11,313,749	1.3%
1981	8,107	3.8%	13,990,440	1.7%
1982	15,694	7.3%	47,526,205	5.6%
1983	11,007	5.1%	41,838,332	4.9%
1984	2,052	1.0%	4,808,335	0.6%
1985	7,986	3.7%	23,915,798	2.8%
1986	20,341	9.4%	103,497,913	12.2%
1987	8,333	3.9%	31,286,630	3.7%
1988	9,799	4.5%	35,102,142	4.1%
1989	7,225	3.3%	18,405,719	2.2%
1990	6,723	3.1%	19,413,038	2.3%
1991	45,439	21.0%	268,263,015	31.7%
1992	15,853	7.3%	67,313,174	7.9%
1993	5,321	2.5%	17,022,547	2.0%
1994	12,123	5.6%	59,098,431	7.0%
1995	5,514	2.6%	25,488,089	3.0%
1996	9,077	4.2%	24,463,956	2.9%
1997	4,654	2.2%	9,721,196	1.1%
1998	672	0.3%	1,278,418	0.2%
TOTAL	215,893	100.0%	\$846,770,445	100.0%

Sources: PBGC Participant System (PRISM), fiscal year calculations, and PBGC Management Reports.

Due to rounding of individual items, totals may not add up exactly to totals in other tables and percentages may not add up to 100 percent.

This table was previously titled A-7 in Pension Insurance Data Book 1997.

Table S-8

**PBGC Payees and Benefit Payments by Size of Trusteed Plan (1998)  
Single-Employer Program**

Number of Plan Participants	Payees				Average Monthly Pension Payment	Median Monthly Pension
			Payments (in millions)			
Under 100	16,806	7.8%	\$40.1	4.7%	\$195	\$126
100 - 499	43,148	20.0%	110.8	13.1%	208	140
500 - 999	29,773	13.8%	93.1	11.0%	249	144
1,000 and Over	126,166	58.4%	602.8	71.2%	379	288
TOTAL	215,893	100.0%	\$846.8	100.0%	\$313	\$208

Sources: PBGC Participant System (PRISM), fiscal year calculations, and PBGC Management Reports.

Due to aggregation and rounding of individual items, totals may not equal those in other tables and percentages may not add up to 100 percent.

This table was previously titled B-1 in Pension Insurance Data Book 1997.

Table S-9

## Bankruptcies and Underfunding Among Publicly Traded Firms (1980-1997)

Year	Total Bankruptcies	Bankrupt Firms With Fully Funded Defined Benefit Plans Only		Bankrupt Firms With Any Underfunded Defined Benefit Plans	
1980	86	25	29.1%	1	1.2%
1981	76	30	39.5%	2	2.6%
1982	93	23	24.7%	3	3.2%
1983	86	22	25.6%	6	7.0%
1984	113	23	20.4%	1	0.9%
1985	128	35	27.3%	1	0.8%
1986	128	30	23.4%	7	5.5%
1987	95	20	21.1%	3	3.2%
1988	122	26	21.3%	5	4.1%
1989	150	29	19.3%	8	5.3%
1990	149	45	30.2%	9	6.0%
1991	145	41	28.3%	5	3.4%
1992	99	24	24.2%	3	3.0%
1993	114	27	23.7%	6	5.3%
1994	60	15	25.0%	0	0.0%
1995	94	20	21.3%	5	5.3%
1996	69	12	17.4%	4	5.8%
1997	105	23	21.9%	1	1.0%
TOTAL	1,912	470	24.6%	70	3.7%

Sources: Standard and Poor's Compustat Data and New Generations Database and Yearbook, various issues.

Table does not reflect any PBGC claims experience.

This table was previously titled A-8 in Pension Insurance Data Book 1997.

Table S-10

## PBGC Terminations, Claims, and Underfunding (1975-1998) Single-Employer Program

Fiscal Year	Standard Terminations	Trusteed Terminations	Assets (in millions)	Liabilities (in millions)	Gross Claims (in millions)	Recoveries (in millions)	Net Claims (in millions)	Total Single-Employer Underfunding (in millions)	Single-Employer Gross Claims as a Percentage of Underfunding
1975	2,470	100	\$18.9	\$56.0	\$37.2	\$5.1	\$32.1	—	—
1976	8,932	171	41.6	87.9	46.3	28.5	17.8	—	—
1977	7,202	130	17.2	51.8	34.6	9.2	25.4	—	—
1978	5,158	103	43.3	124.4	81.1	8.9	72.2	—	—
1979	4,810	82	31.3	77.3	46.0	7.2	38.8	\$35,910	0.1%
1980	3,933	104	74.3	166.5	92.3	32.2	60.1	20,156	0.5%
1981	4,949	137	67.1	174.3	107.2	39.3	67.9	12,043	0.9%
1982	6,003	131	145.6	456.2	310.7	44.3	266.4	10,263	3.0%
1983	6,730	149	210.8	412.0	201.3	40.5	160.8	11,783	1.7%
1984	7,621	99	19.5	48.1	28.6	3.5	25.1	9,876	0.3%
1985	8,635	115	40.1	261.3	221.2	14.5	206.7	11,182	2.0%
1986	6,829	132	275.4	1,164.0	888.6	81.1	807.5	14,719	6.0%
1987	10,865	105	139.8	350.7	211.0	32.7	178.3	20,692	1.0%
1988	10,790	99	109.5	379.5	270.0	20.7	249.3	22,341	1.2%
1989	11,400	84	79.8	197.0	117.2	12.4	104.8	26,340	0.4%
1990	11,800	100	108.1	228.0	119.9	7.7	112.2	35,689	0.3%
1991	8,600	168	1,482.7	2,961.7	1,478.9	228.9	1,250.1	34,485	4.3%
1992	6,670	150	247.7	856.1	608.3	79.1	529.2	47,528	1.3%
1993	5,320	117	123.3	262.9	139.6	15.0	124.5	59,622	0.2%
1994	3,950	123	302.0	737.5	435.5	29.0	406.4	75,569	0.6%
1995	3,870	107	231.7	369.3	137.6	9.0	128.6	37,278	0.4%
1996	3,809	76	241.6	392.5	150.9	23.8	127.2	83,071	0.2%
1997	3,497	50	426.3	638.7	212.4	3.2	209.2	—	—
1998	2,475	23	87.6	138.6	51.1	1.3	49.7	—	—
TOTAL	156,318	2,655	\$4,565.0	\$10,592.4	\$6,027.4	\$777.1	\$5,250.3	—	—

Sources: PBGC Fiscal Year Closing File (9/30/98) and PBGC Case Administration System.

Due to rounding of individual items, values may not add up exactly across columns.

Claims figures shown in this table are calculated on a plan basis and identified with fiscal year of plan termination for each plan.

1975 termination and claims values are for 7/1/74 to 6/30/75. 1976 values are for 7/1/75 to 9/30/76. For 1977 on, values are for 10/1 of the prior calendar year to 9/30 of the current calendar year.

The annual numbers of trusteed terminations shown in this table may differ from those reported elsewhere, as they reflect the fiscal year of plan termination, rather than the fiscal year in which the loss is recorded.

Values are subject to change as PBGC completes reviewing, establishes termination dates, and determines recoveries.

This table was previously titled A-9 in Pension Insurance Data Book 1997.

Table S-11

**PBGC Single-Employer Claims (1975-1998)**

<b>Fiscal Year</b>	<b>Total Claims</b>	<b>Claims of Top 10 Firms and Percent of Total Annual Claims</b>		<b>Other Claims and Percent of Total Annual Claims</b>	
1975	\$37,180,226	—	—	\$37,180,226	100.0%
1976	46,275,083	—	—	46,275,083	100.0%
1977	34,590,634	—	—	34,590,634	100.0%
1978	81,063,181	—	—	81,063,181	100.0%
1979	46,020,124	—	—	46,020,124	100.0%
1980	92,288,503	—	—	92,288,503	100.0%
1981	107,153,344	—	—	107,153,344	100.0%
1982	310,664,367	—	—	310,664,367	100.0%
1983	201,295,912	—	—	201,295,912	100.0%
1984	28,592,090	—	—	28,592,090	100.0%
1985	221,165,990	\$180,568,290	81.6%	40,597,700	18.4%
1986	888,607,011	722,321,849	81.3%	166,285,161	18.7%
1987	210,973,021	35,566,557	16.9%	175,406,464	83.1%
1988	270,033,406	186,046,772	68.9%	83,986,634	31.1%
1989	117,228,891	—	—	117,228,891	100.0%
1990	119,910,562	—	—	119,910,562	100.0%
1991	1,478,944,981	1,307,583,787	88.4%	171,361,194	11.6%
1992	608,322,643	468,852,553	77.1%	139,470,090	22.9%
1993	139,592,942	—	—	139,592,942	100.0%
1994	435,472,125	267,727,965	61.5%	167,744,160	38.5%
1995	137,594,312	—	—	137,594,312	100.0%
1996	150,935,816	—	—	150,935,816	100.0%
1997	212,410,983	—	—	212,410,983	100.0%
1998	51,074,383	—	—	51,074,383	100.0%
<b>TOTAL (1975-1998)</b>	<b>\$6,027,390,530</b>	<b>\$3,168,667,773</b>	<b>52.6%</b>	<b>\$2,858,722,756</b>	<b>47.4%</b>

Sources: PBGC Fiscal Year Closing File (9/30/98) and PBGC Case Administration System.

Due to rounding, percentages may not add up to 100 percent.

Claims figures in this table are calculated on a plan basis.

Annual claims for Top 10 firms are summations of all claims in that fiscal year associated with the Top 10 firms.

Values are subject to change as PBGC completes reviewing, establishes termination dates, and determines recoveries.

See Table S-12 for a list of the Top 10 firms with the largest value of claims.

This table was previously titled A-10 in Pension Insurance Data Book 1997.



Table S-12

## Top 10 Firms Presenting Claims (1975-1998) Single-Employer Program

Top 10 Firms	Number of Plans	Fiscal Years of Plan Terminations	Claims (by firm)	Vested Participants	Average Claim Per Vested Participant	Percent of Total Claims (1975-1998)
1 Pan American Air	3	1991, 1992	\$776,745,843	37,472	\$20,729	12.9%
2 Eastern Air Lines	7	1991	552,730,569	51,182	10,799	9.2%
3 Wheeling Pitt Steel	7	1986	495,235,029	22,144	22,364	8.2%
4 Sharon Steel	5	1994	232,192,487	6,886	33,720	3.9%
5 LTV Republic Steel	1	1986	221,920,051	8,208	27,037	3.7%
6 Kaiser Steel	4	1987, 1988	221,613,329	8,403	26,373	3.7%
7 CF&I Steel	1	1992	220,839,313	4,239	52,097	3.7%
8 Allis-Chalmers*	11	1985, 1986	185,735,060	9,055	20,512	3.1%
9 Uniroyal Plastics	1	1992	142,705,203	5,212	27,380	2.4%
10 Blaw-Knox	6	1992, 1994	118,950,890	5,659	21,020	2.0%
Top 10 Total	46		3,168,667,773	158,460	19,997	52.6%
All Other Total	2,609		2,858,722,756	468,983	6,096	47.4%
TOTAL (1975-1998)	2,655		\$6,027,390,530	627,443	\$9,606	100.0%

Sources: PBGC Fiscal Year Closing File (9/30/98), PBGC Case Administration System, and PBGC Participant System (PRISM).

Due to rounding, percentages may not add up to 100 percent.

Data in this table has been calculated on a firm basis and includes all plans of each firm.

\* Does not include 1997 termination of plan sponsored by the reorganized Allis-Chalmers Corporation.

This table was previously titled B-2 in Pension Insurance Data Book 1997.

Table S-13

**PBGC Claims by Plan Funding Ratio at Termination (1975-1998)  
Single-Employer Program**

Funding Ratio	Claims	
Under 25%	\$2,990,105,377	49.6%
25% - 49%	1,523,815,331	25.3%
50% - 74%	1,368,634,921	22.7%
75% and Over	144,834,901	2.4%
TOTAL	\$6,027,390,530	100.0%

Sources: PBGC Fiscal Year Closing File (9/30/98) and PBGC Case Administration System.

Calculations represent aggregated claims over the period 1975-1998.

Values and distributions are subject to change as PBGC completes reviewing, establishes termination dates and determines recoveries.

Funding ratios are calculated as the ratio of trust plan assets to plan benefit liabilities before recoveries from employers.

Due to rounding of individual items, percentages may not add up to 100 percent.

This table was previously titled A-11 in Pension Insurance Data Book 1997.

Table S-14

### Average Claim per Vested Participant by Plan Size (1975-1998) Single-Employer Program

Number of Plan Participants	Vested Participants	Plans	Claims		Average Claim Per Participant	Claims (1998 Dollars)		Average Claim Per Participant (1998 Dollars)
Under 100	61,253	1,731	\$313,420,363	5.2%	\$5,117	\$437,085,069	5.3%	\$7,136
100-999	239,807	824	1,456,663,768	24.2%	6,074	2,067,347,116	25.2%	8,621
1,000-4,999	181,498	88	1,784,383,424	29.6%	9,831	2,501,672,387	30.5%	13,783
5,000-9,999	61,195	8	1,047,617,131	17.4%	17,119	1,423,819,622	17.4%	23,267
10,000 and Over	83,690	4	1,425,305,844	23.6%	17,031	1,768,042,103	21.6%	21,126
TOTAL	627,443	2,655	\$6,027,390,530	100.0%	\$9,606	\$8,197,966,297	100.0%	\$13,066

Sources: PBGC Fiscal Year Closing File (9/30/98), PBGC Case Administration System, and Bureau of Labor Statistics.

Claim values and distributions are subject to change as PBGC completes reviewing, establishes termination dates and determines recoveries.

Claims calculations represent aggregated and average counts of plans, claims, and participants over the period 1975-1998.

Due to rounding of individual items, percentages may not add up to 100 percent.

Claims in 1998 dollars are calculated using Consumer Price Index - Urban Consumers.

This table was previously titled A-12 in Pension Insurance Data Book 1997.

Table S-15

### PBGC Claims by Industry (1975-1998) Single-Employer Program

Industry	Total Claims 1975-1998		Claims 1998	
<b>AGRICULTURE, MINING, AND CONSTRUCTION</b>	<b>\$115,140,473</b>	<b>1.9%</b>	—	—
<b>MANUFACTURING</b>	<b>3,884,808,987</b>	<b>64.3%</b>	<b>\$22,018,925</b>	<b>43.1%</b>
Chemical and Allied Products	68,434,893	1.1%	—	—
Fabricated Metal Products	424,481,707	7.0%	—	—
Food and Tobacco Products	116,736,517	1.9%	—	—
Machinery and Computer Equipment	571,862,668	9.5%	2,432,736	4.8%
Motor Vehicle Equipment	199,928,821	3.3%	—	—
Paper and Allied Products	36,186,804	0.6%	13,443,103	26.3%
Primary Metals	1,823,027,273	30.2%	—	—
Rubber and Miscellaneous Plastics	218,979,081	3.6%	—	—
Other Manufacturing	425,171,223	7.1%	6,143,086	12.0%
<b>TRANSPORTATION AND PUBLIC UTILITIES</b>	<b>1,646,690,212</b>	<b>27.3%</b>	—	—
Air Transportation	1,447,043,203	24.0%	—	—
Other Transportation and Utilities	199,647,009	3.3%	—	—
<b>WHOLESALE TRADE</b>	<b>63,272,827</b>	<b>1.0%</b>	<b>1,626,176</b>	<b>3.2%</b>
<b>RETAIL TRADE</b>	<b>116,265,478</b>	<b>1.9%</b>	<b>25,199,125</b>	<b>49.3%</b>
<b>FINANCE, INSURANCE, AND REAL ESTATE</b>	<b>24,899,377</b>	<b>0.4%</b>	—	—
<b>SERVICES</b>	<b>176,313,176</b>	<b>2.9%</b>	<b>2,230,157</b>	<b>4.4%</b>
<b>TOTAL</b>	<b>\$6,027,390,530</b>	<b>100.0%</b>	<b>\$51,074,383</b>	<b>100.0%</b>

Sources: PBGC Fiscal Year Closing File (9/30/98) and PBGC Case Administration System.

Values and distributions are subject to change as PBGC completes reviewing, establishes termination dates and determines recoveries.

Due to rounding of individual items, percentages may not add up to 100 percent.

This table was previously titled B-3 in Pension Insurance Data Book 1997.

Table S-16

## PBGC-Covered Single-Employer Plan Participants (1980-1998)

Year	Total Covered Participants (in thousands)	In Plans with 10,000+ Participants (in thousands)	In Plans with 5,000-9,999 Participants (in thousands)	In Plans with 1,000-4,999 Participants (in thousands)	In Plans with 250-999 Participants (in thousands)	In Plans with 100-249 Participants (in thousands)	In Plans with 25-99 Participants (in thousands)	In Plans with <25 Participants (in thousands)
1980	27,518	12,044	2,833	5,776	3,852	1,436	1,064	513
1981	28,076	12,304	2,894	5,900	3,901	1,455	1,094	528
1982	28,182	12,190	2,867	6,077	3,979	1,484	1,069	516
1983	28,701	12,770	2,908	6,030	3,839	1,536	1,090	528
1984	29,637	12,707	3,010	6,503	4,146	1,588	1,131	552
1985	29,809	12,724	3,164	6,579	4,032	1,585	1,164	561
1986	30,043	12,800	3,236	6,596	4,104	1,593	1,155	559
1987	31,200	13,522	3,168	6,728	4,434	1,644	1,166	538
1988	31,461	13,820	3,141	6,844	4,401	1,581	1,150	524
1989	31,574	14,253	3,356	6,881	3,984	1,492	1,108	500
1990	31,633	14,336	3,351	6,989	4,064	1,429	1,023	441
1991	31,851	14,759	3,433	6,945	3,968	1,415	946	385
1992	32,056	15,416	3,520	6,997	3,694	1,276	825	328
1993	32,271	15,895	3,617	7,000	3,552	1,176	758	273
1994	32,372	16,258	3,814	6,942	3,292	1,120	698	248
1995	32,634	16,934	3,771	6,908	3,136	1,062	625	198
1996	32,724	17,076	3,843	6,896	3,128	1,005	591	185
1997	33,214	18,046	3,787	6,767	3,008	919	527	160
1998	33,209	18,981	3,841	6,434	2,684	745	403	121

Source: PBGC Premium Filings, various years.

1998 figures are estimates from PBGC internal calculations.

1997 estimates reported last year have been updated to reflect actual premium filings.

This table was previously titled A-13 in Pension Insurance Data Book 1997.

Table S-17

**PBGC-Insured Single-Employer Plans (1980-1998)**

Year	Total Insured Plans	Insured Plans with 10,000+ Participants	Insured Plans with 5,000-9,999 Participants	Insured Plans with 1,000-4,999 Participants	Insured Plans with 250-999 Participants	Insured Plans with 100-249 Participants	Insured Plans with 25-99 Participants	Insured Plans with <25 Participants
1980	95,439	349	365	2,858	7,439	8,512	19,069	56,847
1981	99,892	344	360	3,010	7,803	8,928	19,956	59,491
1982	103,423	393	411	2,965	8,142	9,316	20,646	61,550
1983	106,668	377	413	2,908	8,006	9,676	21,123	64,165
1984	111,491	386	428	3,178	8,470	10,005	21,891	67,133
1985	112,208	354	435	3,125	8,230	10,003	22,609	67,452
1986	111,944	379	447	3,158	8,186	9,859	22,442	67,473
1987	111,351	411	450	3,276	9,036	10,339	22,373	65,466
1988	108,279	412	446	3,314	8,799	9,965	22,028	63,315
1989	101,724	427	462	3,211	8,057	9,395	21,113	59,059
1990	91,899	458	477	3,400	8,085	8,976	19,464	51,039
1991	82,717	495	493	3,353	7,986	8,867	17,888	43,635
1992	71,589	505	504	3,367	7,402	7,991	15,410	36,410
1993	63,778	504	517	3,336	7,064	7,358	14,392	30,607
1994	57,010	524	553	3,361	6,682	6,941	13,100	25,849
1995	53,589	528	559	3,308	6,743	6,850	11,674	23,927
1996	48,748	531	556	3,280	6,217	6,225	10,931	21,008
1997	43,902	563	550	3,199	5,962	5,734	9,822	18,072
1998	42,334	544	555	3,158	5,782	5,476	9,296	17,523

Source: PBGC Premium Filings, various years.

1998 figures are estimates from PBGC internal calculations.

1997 estimates reported last year have been updated to reflect actual premium filings.

This table was previously titled A-14 in Pension Insurance Data Book 1997.

Table S-18

## PBGC-Insured Single-Employer Plans, Participants, and Premiums by Industry (1998)

Industry	Covered Participants		Premiums		Insured Plans	
<b>AGRICULTURE, MINING, AND CONSTRUCTION</b>	<b>655,249</b>	<b>2.0%</b>	<b>\$19,426,108</b>	<b>2.0%</b>	<b>3,110</b>	<b>7.3%</b>
<b>MANUFACTURING</b>	<b>16,935,063</b>	<b>51.0%</b>	<b>503,219,557</b>	<b>52.1%</b>	<b>13,870</b>	<b>32.8%</b>
Chemical and Allied Products	1,760,608	5.3%	51,901,625	5.4%	1,079	2.5%
Fabricated Metal Products	1,045,785	3.1%	33,788,412	3.5%	2,596	6.1%
Food and Tobacco Products	1,356,436	4.1%	37,141,049	3.8%	1,111	2.6%
Machinery and Computer Equipment	1,480,357	4.5%	38,596,868	4.0%	1,348	3.2%
Motor Vehicle Equipment	1,895,000	5.7%	49,108,435	5.1%	496	1.2%
Paper and Allied Products	793,916	2.4%	20,167,811	2.1%	727	1.7%
Primary Metals	892,139	2.7%	37,807,545	3.9%	750	1.8%
Rubber and Miscellaneous Plastics	444,003	1.3%	12,215,642	1.3%	627	1.5%
Other Manufacturing	7,266,820	21.9%	222,492,171	23.0%	5,136	12.1%
<b>TRANSPORTATION AND PUBLIC UTILITIES</b>	<b>3,798,267</b>	<b>11.4%</b>	<b>128,881,621</b>	<b>13.3%</b>	<b>1,824</b>	<b>4.3%</b>
Air Transportation	617,087	1.9%	36,540,325	3.8%	115	0.3%
Other Transportation	583,415	1.8%	22,202,266	2.3%	718	1.7%
Public Utilities	2,597,765	7.8%	70,139,030	7.3%	992	2.3%
<b>WHOLESALE TRADE</b>	<b>655,070</b>	<b>2.0%</b>	<b>19,029,148</b>	<b>2.0%</b>	<b>3,371</b>	<b>8.0%</b>
<b>RETAIL TRADE</b>	<b>2,224,494</b>	<b>6.7%</b>	<b>62,339,186</b>	<b>6.5%</b>	<b>2,441</b>	<b>5.8%</b>
<b>FINANCE, INSURANCE, AND REAL ESTATE</b>	<b>4,025,021</b>	<b>12.1%</b>	<b>101,760,788</b>	<b>10.5%</b>	<b>4,853</b>	<b>11.5%</b>
<b>SERVICES</b>	<b>3,963,385</b>	<b>11.9%</b>	<b>103,012,288</b>	<b>10.7%</b>	<b>8,161</b>	<b>19.3%</b>
<b>NON-PROFIT ORGANIZATIONS</b>	<b>952,153</b>	<b>2.9%</b>	<b>28,331,305</b>	<b>2.9%</b>	<b>4,703</b>	<b>11.1%</b>
<b>TOTAL</b>	<b>33,208,701</b>	<b>100.0%</b>	<b>\$966,000,000</b>	<b>100.0%</b>	<b>42,334</b>	<b>100.0%</b>

Source: PBGC Premium Filings.

Due to aggregation and rounding of individual items, totals may not add up to totals in other tables and percentages may not add up to 100 percent.

This table was previously titled A-16 in Pension Insurance Data Book 1997.

Table S-19

### PBGC-Covered Single-Employer Plan Participants by Participant Status (1980-1996)

Year	Active Participants	Retired Participants	Separated Vested Participants
1980	77.6%	16.0%	6.4%
1981	76.8%	16.3%	6.8%
1982	75.3%	17.2%	7.5%
1983	73.8%	18.0%	8.2%
1984	72.8%	18.8%	8.4%
1985	72.2%	18.7%	9.1%
1986	71.3%	19.1%	9.6%
1987	70.1%	19.8%	10.1%
1988	70.6%	18.9%	10.5%
1989	70.1%	18.9%	11.0%
1990	68.1%	19.4%	12.6%
1991	66.4%	20.1%	13.5%
1992	64.2%	20.9%	14.9%
1993	61.9%	21.6%	16.5%
1994	61.2%	21.3%	17.5%
1995	58.0%	22.9%	19.1%
1996	55.4%	22.7%	21.9%

Source: Internal Revenue Service Form 5500 Series Filings for single-employer plans with 100 or more participants.  
Due to rounding of individual items, rows may not add up to 100 percent.



Table S-20

## PBGC-Insured Single-Employer Plans and Participants by Total Premium Paid (1998)

Total Premium Per Participant	Plans	% of Variable Rate Premium-Paying Plans		Participants	% of Participants in Variable Rate Premium- Paying Plans	
		% of All Plans	% of All Participants			
\$19 (NO VARIABLE RATE PREMIUM PAID)	27,261	—	64.4%	27,710,497	—	83.4%
\$19.01 - \$28.99	1,901	12.6%	4.5%	746,653	13.6%	2.2%
\$29.00 - \$38.99	1,834	12.2%	4.3%	763,168	13.9%	2.3%
\$39.00 - \$48.99	1,609	10.7%	3.8%	573,042	10.4%	1.7%
\$49.00 - \$58.99	1,380	9.2%	3.3%	451,622	8.2%	1.4%
\$59.00 - \$68.99	1,161	7.7%	2.7%	693,179	12.6%	2.1%
\$69.00 - \$78.99	979	6.5%	2.3%	292,609	5.3%	0.9%
\$79.00 - \$88.99	831	5.5%	2.0%	420,465	7.6%	1.3%
\$89.00 - \$98.99	646	4.3%	1.5%	309,078	5.6%	0.9%
\$99.00 - \$108.99	526	3.5%	1.2%	227,986	4.1%	0.7%
\$109.00 - \$118.99	472	3.1%	1.1%	179,944	3.3%	0.5%
\$119 or More	3,734	24.8%	8.8%	840,458	15.3%	2.5%
TOTAL VARIABLE RATE PREMIUM PAYERS	15,073	100.0%	35.6%	5,498,204	100.0%	16.6%
TOTAL ALL PLANS	42,334	—	100.0%	33,208,701	—	100.0%

Source: PBGC Premium Filings.

Due to rounding of individual items, percentages may not add up to 100 percent.

This table was previously titled A-18 in Pension Insurance Data Book 1997.

Table S-21

**PBGC Premium Receipts by Size of Plan and Type of Premium (1998)  
Single-Employer Program**

Number of Plan Participants	Flat Rate Premium		Variable Rate Premium		Total Premium	
Under 100	\$9,951,353	1.6%	\$17,223,235	5.1%	\$27,174,589	2.8%
100 - 499	33,593,325	5.3%	37,620,901	11.2%	71,214,226	7.4%
500 - 999	31,547,529	5.0%	26,996,473	8.1%	58,544,003	6.1%
1,000 and Over	555,873,112	88.1%	253,194,071	75.6%	809,067,183	83.8%
TOTAL	\$630,965,319	100.0%	\$335,034,681	100.0%	\$966,000,000	100.0%
PERCENT OF TOTAL		65%		35%		100%

Source: PBGC Premium Filings.

Due to aggregation and rounding of individual items, premium totals may not equal those in other tables and percentages may not add up to 100 percent.

"Percent of Total" represent proportions of Flat Rate and Variable Rate Premiums, respectively, of Total Premiums.

This table was previously titled A-19 in Pension Insurance Data Book 1997.

Table S-22

### PBGC-Insured Single-Employer Plans and Participants by Variable Rate Premium Status (1992-1998)

Beginning of Year	Plans Paying Variable Rate Premium	Plans Paying Flat Rate Premium Only	Participants In Plans Paying Variable Rate Premium	Participants In Plans Paying Flat Rate Premium Only	Variable Rate Premium Interest Rate*
1992	30.8%	69.2%	27.4%	72.6%	6.16%
1993	36.4%	63.6%	24.9%	75.1%	5.95%
1994	43.1%	56.9%	34.2%	65.8%	5.00%
1995	38.5%	61.5%	23.8%	76.2%	6.30%
1996	46.8%	53.2%	32.1%	67.9%	4.85%
1997	37.0%	63.0%	19.4%	80.6%	5.24%
1998	35.6%	64.4%	16.6%	83.4%	5.09%

Source: PBGC Premium Filings.

\* Interest rates for valuing vested benefits for PBGC Variable Rate Premium for plans with premium payment years beginning in January of the respective year. This table was previously titled B-8 in Pension Insurance Data Book 1997.

Table S-23

## Funding of PBGC-Insured Single-Employer Plans (1980-1996)

Beginning of Year	Assets (in millions)	Liabilities (in millions)	Funding Ratio	Underfunding (in millions)	Overfunding (in millions)	PBGC Rate*
1980	\$259,810	\$211,817	123%	\$20,156	\$67,894	8.50%
1981	309,969	212,072	146%	12,043	114,676	9.75%
1982	331,540	206,303	161%	10,263	135,500	10.75%
1983	376,732	241,010	156%	11,783	147,505	9.75%
1984	457,644	280,695	163%	9,876	186,825	9.75%
1985	500,673	308,617	162%	11,182	203,238	9.75%
1986	619,490	406,118	153%	14,719	228,091	8.50%
1987	644,239	463,255	139%	20,692	201,676	7.50%
1988	640,741	450,844	142%	22,341	212,238	8.25%
1989	696,146	517,226	135%	26,340	205,260	7.75%
1990	837,131	604,047	139%	35,689	268,773	7.25%
1991	848,251	687,896	123%	34,485	194,840	7.25%
1992	915,722	771,421	119%	47,528	191,829	6.25%
1993	951,972	844,803	113%	59,622	166,791	6.40%
1994	1,001,129	936,698	107%	75,569	140,000	5.65%
1995	1,032,503	887,730	116%	37,278	182,050	7.15%
1996	1,198,221	1,134,194	106%	83,071	147,098	5.30%

Source: Internal Revenue Service Form 5500 Series Filings for single-employer plans with 100 or more participants.

\* Vested liabilities have been adjusted to an interest rate that, along with an assumed mortality table, reflects the cost to purchase an annuity at the beginning of the relevant year.

The assumed mortality table was UP-84 for 1980-1992 and GAM-83 for 1993-1996.

This table was previously titled A-21 in Pension Insurance Data Book 1997.

Table S-24

## Funding of Underfunded PBGC-Insured Single-Employer Plans (1980-1996)

Beginning of Year	Assets (in millions)	Liabilities (in millions)	Underfunding (in millions)	Funding Ratio	PBGC Rate*
1980	\$53,840	\$73,996	\$20,156	73%	8.50%
1981	31,587	43,630	12,043	72%	9.75%
1982	29,967	40,230	10,263	74%	10.75%
1983	37,037	48,820	11,783	76%	9.75%
1984	26,208	36,084	9,876	73%	9.75%
1985	28,722	39,904	11,182	72%	9.75%
1986	41,780	56,499	14,719	74%	8.50%
1987	62,942	83,634	20,692	75%	7.50%
1988	68,920	91,261	22,341	76%	8.25%
1989	99,682	126,022	26,340	79%	7.75%
1990	95,068	130,758	35,689	73%	7.25%
1991	147,301	181,786	34,485	81%	7.25%
1992	172,372	219,900	47,528	78%	6.25%
1993	215,695	275,317	59,622	78%	6.40%
1994	308,516	384,085	75,569	80%	5.65%
1995	218,493	255,771	37,278	85%	7.15%
1996	493,597	576,668	83,071	86%	5.30%

Source: Internal Revenue Service Form 5500 Series Filings for single-employer plans with 100 or more participants.

\* Vested liabilities have been adjusted to an interest rate that, along with an assumed mortality table, reflects the cost to purchase an annuity at the beginning of the relevant year.

The assumed mortality table was UP-84 for 1980-1992 and GAM-83 for 1993-1996.

This table was previously titled A-22 in Pension Insurance Data Book 1997.

Table S-25

## Funding of Overfunded PBGC-Insured Single-Employer Plans (1980-1996)

Beginning of Year	Assets (in millions)	Liabilities (in millions)	Overfunding (in millions)	Funding Ratio	PBGC Rate*
1980	\$205,970	\$138,076	\$67,894	149%	8.50%
1981	278,382	163,706	114,676	170%	9.75%
1982	301,573	166,073	135,500	182%	10.75%
1983	339,695	192,190	147,505	177%	9.75%
1984	431,436	244,611	186,825	176%	9.75%
1985	471,951	268,713	203,238	176%	9.75%
1986	577,710	349,619	228,091	165%	8.50%
1987	581,297	379,621	201,676	153%	7.50%
1988	571,821	359,583	212,238	159%	8.25%
1989	596,464	391,204	205,260	152%	7.75%
1990	742,063	473,289	268,773	157%	7.25%
1991	700,950	506,110	194,840	138%	7.25%
1992	743,350	551,520	191,829	135%	6.25%
1993	736,277	569,486	166,791	129%	6.40%
1994	692,613	552,613	140,000	125%	5.65%
1995	814,009	631,959	182,050	129%	7.15%
1996	704,624	557,526	147,098	126%	5.30%

Source: Internal Revenue Service Form 5500 Series Filings for single-employer plans with 100 or more participants.

\* Vested liabilities have been adjusted to an interest rate that, along with an assumed mortality table, reflects the cost to purchase an annuity at the beginning of the relevant year.

The assumed mortality table was UP-84 for 1980-1992 and GAM-83 for 1993-1996.

This table was previously titled A-23 in Pension Insurance Data Book 1997.

Table S-26

### Concentration of Underfunding in PBGC-Insured Single-Employer Plans (1990-1996)

Beginning of Year	Total Underfunding (in millions)	10 Plans With the Highest Underfunding (in millions)		Next 40 Plans Underfunding (in millions)		All Others Underfunding (in millions)	
1990	\$35,689	\$14,119	39.6%	\$6,487	18.2%	\$15,083	42.3%
1991	34,485	14,067	40.8%	6,884	20.0%	13,534	39.2%
1992	47,528	21,610	45.5%	7,818	16.4%	18,100	38.1%
1993	59,622	25,894	43.4%	9,337	15.7%	24,392	40.9%
1994	75,569	28,658	37.9%	10,310	13.6%	36,601	48.4%
1995	37,278	6,535	17.5%	7,921	21.2%	22,822	61.2%
1996	83,071	13,850	16.7%	16,410	19.8%	52,810	63.6%

Source: Internal Revenue Service Form 5500 Series Filings for single-employer plans with 100 or more participants.

Due to rounding of individual items, percentages may not add up to 100 percent.

Vested liabilities have been adjusted to an interest rate that, along with an assumed mortality table, reflects the cost to purchase an annuity at the beginning of the relevant year.

The assumed mortality table was UP-84 for 1990-1992 and GAM-83 for 1993-1996.

This table was previously titled B-7 in Pension Insurance Data Book 1997.

Table S-27

## Participants and Funding of PBGC-Insured Single-Employer Plans by Funding Ratio (1996)

Funding Ratio	Participants		Total Liabilities		Underfunding		Overfunding	
	(in thousands)		(in millions)		(in millions)		(in millions)	
Under 40%	93	0.3%	\$2,535	0.2%	\$1,720	2.1%	—	—
40% - 49%	119	0.4%	2,588	0.2%	1,425	1.7%	—	—
50% - 59%	477	1.5%	16,623	1.5%	7,269	8.8%	—	—
60% - 69%	1,319	4.0%	39,605	3.5%	13,451	16.2%	—	—
70% - 79%	3,258	10.0%	91,556	8.1%	22,362	26.9%	—	—
80% - 89%	5,636	17.2%	186,475	16.4%	27,334	32.9%	—	—
90% - 99%	5,609	17.1%	237,286	20.9%	9,509	11.4%	—	—
100% - 109%	4,074	12.5%	144,127	12.7%	—	—	\$6,580	4.5%
110% - 119%	4,069	12.4%	124,208	11.0%	—	—	18,655	12.7%
120% - 129%	2,802	8.6%	132,086	11.6%	—	—	32,737	22.3%
130% - 139%	2,176	6.6%	65,216	5.7%	—	—	22,989	15.6%
140% - 149%	791	2.4%	27,518	2.4%	—	—	12,063	8.2%
150% and Over	2,302	7.0%	64,371	5.7%	—	—	54,073	36.8%
<b>TOTAL</b>	<b>32,724</b>	<b>100.0%</b>	<b>\$1,134,194</b>	<b>100.0%</b>	<b>\$83,071</b>	<b>100.0%</b>	<b>\$147,098</b>	<b>100.0%</b>

Source: Internal Revenue Service Form 5500 Series Filings for single-employer plans with 100 or more participants.

Due to rounding of individual items, dollar totals may not add up to totals in other tables, and percentages may not add up to 100 percent.

Vested liabilities have been adjusted to an interest rate that, along with the GAM-83 mortality table, reflects the cost to purchase an annuity at the beginning of 1996.

This table was previously titled B-4 in Pension Insurance Data Book 1997.



Table S-28

## Various Measures of Underfunding in PBGC-Insured Single-Employer Plans (1990-1998)

Beginning of Year	(A) Form 5500 Filings <small>(in billions)</small>	(B) Top 50 / Compustat <small>(in billions)</small>	(C) Variable Rate Premium <small>(in billions)</small>	(D) Section 4010 Filings <small>(in billions)</small>	(E) Reasonably Possible <small>(in billions)</small>
1990	\$35.69	\$26.78	\$41.28	—	\$8.00
1991	34.48	32.80	43.32	—	13.00
1992	47.53	38.19	53.66	—	12.36
1993	59.62	53.07	43.80	—	13.06
1994	75.57	71.00	65.67	—	18.23
1995	37.28	31.39	33.37	—	14.56
1996	83.07	63.68	82.23	\$38.10	22.47
1997	—	—	51.57	28.70	20.73
1998	—	—	37.23	25.20	15.38

*Definitions:*

(A) Underfunding calculated from IRS Form 5500 filings.

(B) Data collected from companies in the preparation of the PBGC Top 50 list of largest underfunded plan sponsors.  
Data for other firms is obtained from Standard & Poor's Compustat.

(C) Underfunding data from PBGC premium filings used to calculate the Variable Rate Premium.

(D) Data from filings made under Section 4010 of ERISA, which requires that companies annually provide PBGC with information on their underfunded plans, if the firm's aggregate underfunding exceeds \$50 million, or there is an outstanding lien for missed contributions exceeding \$1 million or an outstanding funding waiver of more than \$1 million.  
Firms and plans included in the total may differ from year-to-year.

(E) Underfunding for plan sponsors with less than investment grade bond ratings.

This table was previously titled B-5 in Pension Insurance Data Book 1997.

Table S-29

## Funding of PBGC-Insured Single-Employer Plans by Industry (1996)

Industry	Funding Ratio	Total Liabilities (in millions)		Underfunding (in millions)		Overfunding (in millions)	
<b>AGRICULTURE, MINING, AND CONSTRUCTION</b>	<b>102%</b>	<b>\$16,502</b>	<b>1.5%</b>	<b>\$1,292</b>	<b>1.6%</b>	<b>\$1,584</b>	<b>1.1%</b>
<b>MANUFACTURING</b>	<b>99%</b>	<b>626,714</b>	<b>55.3%</b>	<b>54,252</b>	<b>65.3%</b>	<b>47,298</b>	<b>32.2%</b>
Chemical and Allied Products	102%	61,216	5.4%	4,634	5.6%	5,556	3.8%
Electronic, Electrical Equipment	106%	71,545	6.3%	6,348	7.6%	10,643	7.2%
Fabricated Metal Products	92%	24,375	2.1%	3,840	4.6%	1,876	1.3%
Food and Tobacco Products	99%	31,800	2.8%	2,811	3.4%	2,502	1.7%
Machinery and Computer Equipment	100%	69,117	6.1%	2,930	3.5%	2,657	1.8%
Motor Vehicle Equipment	98%	117,912	10.4%	6,517	7.8%	4,147	2.8%
Paper and Allied Products	100%	23,068	2.0%	2,253	2.7%	2,186	1.5%
Petroleum Refining	101%	27,913	2.5%	1,969	2.4%	2,237	1.5%
Primary Metals	81%	42,124	3.7%	9,035	10.9%	822	0.6%
Scientific and Medical Instruments	89%	14,007	1.2%	1,909	2.3%	432	0.3%
Other Manufacturing	102%	143,638	12.7%	12,005	14.5%	14,240	9.7%
<b>TRANSPORTATION AND PUBLIC UTILITIES</b>	<b>120%</b>	<b>218,725</b>	<b>19.3%</b>	<b>8,852</b>	<b>10.7%</b>	<b>51,716</b>	<b>35.2%</b>
Air Transportation	92%	28,861	2.5%	3,317	4.0%	1,007	0.7%
Other Transportation	101%	16,106	1.4%	1,524	1.8%	1,668	1.1%
Public Utilities	126%	173,759	15.3%	4,011	4.8%	49,042	33.3%
<b>WHOLESALE TRADE</b>	<b>113%</b>	<b>13,505</b>	<b>1.2%</b>	<b>1,190</b>	<b>1.4%</b>	<b>2,962</b>	<b>2.0%</b>
<b>RETAIL TRADE</b>	<b>96%</b>	<b>21,236</b>	<b>1.9%</b>	<b>2,646</b>	<b>3.2%</b>	<b>1,864</b>	<b>1.3%</b>
<b>FINANCE, INSURANCE, AND REAL ESTATE</b>	<b>112%</b>	<b>115,148</b>	<b>10.2%</b>	<b>6,866</b>	<b>8.3%</b>	<b>20,141</b>	<b>13.7%</b>
<b>SERVICES</b>	<b>112%</b>	<b>96,507</b>	<b>8.5%</b>	<b>6,350</b>	<b>7.6%</b>	<b>17,765</b>	<b>12.1%</b>
<b>NON-PROFIT ORGANIZATIONS</b>	<b>108%</b>	<b>25,856</b>	<b>2.3%</b>	<b>1,622</b>	<b>2.0%</b>	<b>3,768</b>	<b>2.6%</b>
<b>TOTAL</b>	<b>106%</b>	<b>\$1,134,194</b>	<b>100.0%</b>	<b>\$83,071</b>	<b>100.0%</b>	<b>\$147,098</b>	<b>100.0%</b>

Source: Internal Revenue Service Form 5500 Series Filings for single-employer plans with 100 or more participants.

Due to rounding of individual items, percentages may not add up to 100 percent.

Vested liabilities have been adjusted to an interest rate that, along with the GAM-83 mortality table, reflects the cost to purchase an annuity at the beginning of 1996.

This table was previously titled B-6 in Pension Insurance Data Book 1997.

Table S-30

## Pension Funding Data for PBGC-Insured Single-Employer Plans by State (1996)

STATE/REGION	OVERFUNDED			UNDERFUNDED			TOTAL	
	Assets (in millions)	Liabilities (in millions)	Overfunding (in millions)	Assets (in millions)	Liabilities (in millions)	Underfunding (in millions)	Assets (in millions)	Liabilities (in millions)
<b>NEW ENGLAND</b>	<b>\$75,666</b>	<b>\$60,968</b>	<b>\$14,697</b>	<b>\$36,929</b>	<b>\$43,007</b>	<b>\$6,078</b>	<b>\$112,595</b>	<b>\$103,976</b>
Connecticut	54,877	43,579	11,297	24,374	28,106	3,731	79,252	71,685
Maine	699	571	128	575	682	107	1,274	1,253
Massachusetts	15,256	12,773	2,484	9,306	11,040	1,734	24,562	23,813
New Hampshire	711	603	108	775	948	173	1,486	1,551
Rhode Island	3,893	3,246	646	1,624	1,921	297	5,517	5,168
Vermont	230	196	34	274	311	37	503	507
<b>MID-ATLANTIC</b>	<b>253,245</b>	<b>204,777</b>	<b>48,470</b>	<b>181,638</b>	<b>213,587</b>	<b>31,949</b>	<b>434,883</b>	<b>418,364</b>
Delaware	2,990	2,217	773	2,468	2,770	302	5,458	4,987
District of Columbia	8,523	6,761	1,762	4,606	5,313	707	13,129	12,074
Maryland	15,934	13,831	2,103	7,121	8,196	1,075	23,055	22,027
New Jersey	67,509	55,286	12,223	27,785	32,590	4,804	95,295	87,875
New York	122,535	98,773	23,762	75,734	84,903	9,168	198,270	183,676
Pennsylvania	25,094	19,314	5,781	52,865	66,532	13,668	77,958	85,846
Virginia	10,096	8,180	1,915	10,226	12,191	1,966	20,322	20,371
West Virginia	565	415	150	831	1,091	260	1,396	1,507
<b>SOUTHEAST</b>	<b>64,540</b>	<b>50,331</b>	<b>14,209</b>	<b>34,408</b>	<b>40,675</b>	<b>6,267</b>	<b>98,948</b>	<b>91,007</b>
Alabama	2,153	1,745	408	993	1,177	183	3,147	2,922
Arkansas	1,052	889	163	224	290	66	1,276	1,180
Florida	6,287	4,413	1,876	5,849	7,246	1,397	12,136	11,658
Georgia	24,473	18,178	6,296	12,337	14,058	1,721	36,810	32,235
Kentucky	2,731	2,270	460	1,954	2,235	281	4,685	4,505
Louisiana	3,182	2,582	600	1,944	2,146	203	5,126	4,728
Mississippi	825	662	162	197	229	32	1,021	891
North Carolina	9,844	7,954	1,889	5,759	6,576	817	15,602	14,530
South Carolina	2,069	1,778	291	2,793	3,808	1,014	4,863	5,586
Tennessee	11,924	9,860	2,065	2,358	2,912	553	14,283	12,771
<b>GREAT LAKES</b>	<b>141,609</b>	<b>109,642</b>	<b>31,968</b>	<b>174,527</b>	<b>200,517</b>	<b>25,990</b>	<b>316,136</b>	<b>310,159</b>
Illinois	49,906	35,898	14,008	40,880	49,081	8,201	90,787	84,979
Indiana	5,904	4,285	1,619	7,654	8,961	1,307	13,558	13,245
Michigan	38,624	32,827	5,797	79,373	85,754	6,381	117,997	118,580
Minnesota	9,119	6,974	2,146	14,838	18,296	3,458	23,957	25,270
Ohio	30,888	24,222	6,666	23,195	28,203	5,008	54,083	52,425
Wisconsin	7,168	5,436	1,732	8,587	10,222	1,636	15,754	15,659

Table S-30 (continued)  
**Pension Funding Data for PBGC-Insured Single-Employer Plans by State (1996)**

STATE/REGION	OVERFUNDED			UNDERFUNDED			TOTAL	
	Assets (in millions)	Liabilities (in millions)	Overfunding (in millions)	Assets (in millions)	Liabilities (in millions)	Underfunding (in millions)	Assets (in millions)	Liabilities (in millions)
<b>MIDWEST</b>	<b>\$23,818</b>	<b>\$18,839</b>	<b>\$4,978</b>	<b>\$12,398</b>	<b>\$14,391</b>	<b>\$1,993</b>	<b>\$36,216</b>	<b>\$33,230</b>
Iowa	2,642	1,974	668	2,485	2,985	500	5,127	4,958
Kansas	3,885	3,388	496	739	882	142	4,625	4,270
Missouri	15,366	11,832	3,534	8,083	9,256	1,173	23,450	21,088
Nebraska	1,569	1,335	234	1,007	1,173	165	2,576	2,507
North Dakota	203	182	21	80	92	12	282	273
South Dakota	154	129	25	4	4	1	157	133
<b>SOUTHWEST</b>	<b>40,219</b>	<b>32,512</b>	<b>7,706</b>	<b>24,177</b>	<b>28,340</b>	<b>4,163</b>	<b>64,396</b>	<b>60,852</b>
Arizona	1,874	1,710	163	1,704	1,908	204	3,578	3,618
New Mexico	2,122	1,236	886	385	429	44	2,507	1,665
Oklahoma	1,877	1,546	330	1,590	1,894	304	3,466	3,440
Texas	34,347	28,019	6,327	20,498	24,109	3,611	54,845	52,128
<b>ROCKY MOUNTAIN</b>	<b>16,198</b>	<b>12,515</b>	<b>3,682</b>	<b>4,916</b>	<b>5,767</b>	<b>851</b>	<b>21,114</b>	<b>18,282</b>
Colorado	11,026	7,949	3,078	3,144	3,654	510	14,170	11,603
Idaho	1,619	1,463	155	723	858	134	2,342	2,321
Montana	249	191	58	31	34	3	280	225
Nevada	393	333	60	401	480	80	794	814
Utah	2,852	2,556	295	579	699	120	3,431	3,255
Wyoming	59	23	35	38	42	4	96	65
<b>PACIFIC</b>	<b>87,409</b>	<b>66,550</b>	<b>20,858</b>	<b>24,080</b>	<b>29,612</b>	<b>5,532</b>	<b>111,489</b>	<b>96,163</b>
Alaska	123	100	24	88	103	15	211	202
California	67,770	49,910	17,859	18,482	22,838	4,356	86,252	72,749
Hawaii	1,678	1,216	463	631	752	121	2,309	1,968
Oregon	2,234	1,883	350	2,151	2,715	564	4,385	4,599
Washington	15,604	13,441	2,163	2,728	3,205	477	18,332	16,646
<b>U.S. TERRITORIES</b>	<b>1,920</b>	<b>1,390</b>	<b>530</b>	<b>523</b>	<b>772</b>	<b>249</b>	<b>2,443</b>	<b>2,162</b>
American Samoa	*	*	*	2	2	*	2	2
Guam	*	*	*	4	4	*	4	4
Puerto Rico	1,917	1,388	529	508	751	244	2,425	2,140
Virgin Islands	2	2	*	10	14	5	12	16
<b>TOTAL</b>	<b>\$704,624</b>	<b>\$557,526</b>	<b>\$147,098</b>	<b>\$493,597</b>	<b>\$576,668</b>	<b>\$83,071</b>	<b>\$1,198,221</b>	<b>\$1,134,194</b>

Source: Internal Revenue Service Form 5500 Series Filings for single-employer plans with 100 or more participants.  
 Due to rounding of individual items, totals may not exactly equal those in other tables or add up exactly across columns.  
 Vested liabilities have been adjusted to an interest rate that, along with the GAM-83 mortality table, reflects the cost to purchase an annuity at the beginning of 1996.  
 Funding data is reported by state of plan administration.  
 \*Less than \$500,000.  
 This table was previously titled B-9 in Pension Insurance Data Book 1997.

Table S-31  
**PBGC Single-Employer Pension Data by State\* and Region**

STATE/REGION	CLAIMS 1975-1998		COVERAGE 1998		BENEFITS PAID 1998		
	Plans	Claims	Plans	Participants	Payees	Payments	Mean Monthly Pension
<b>NEW ENGLAND</b>	<b>336</b>	<b>\$408,032,181</b>	<b>3,318</b>	<b>1,896,216</b>	<b>14,403</b>	<b>\$40,713,499</b>	<b>\$227</b>
Connecticut	90	232,687,295	1,213	710,665	4,791	15,369,869	257
Maine	7	837,575	151	146,118	1,201	2,244,955	146
Massachusetts	176	110,203,068	1,436	717,308	5,310	14,572,925	220
New Hampshire	15	9,091,990	189	142,797	1,111	3,992,632	288
Rhode Island	39	34,578,925	226	109,589	1,334	2,418,089	140
Vermont	9	20,633,328	103	69,739	656	2,115,029	294
<b>MID-ATLANTIC</b>	<b>919</b>	<b>3,134,799,361</b>	<b>14,098</b>	<b>7,432,107</b>	<b>55,604</b>	<b>216,943,797</b>	<b>309</b>
Delaware	4	4,392,433	213	166,044	525	2,007,640	303
District of Columbia	11	3,551,235	323	49,813	161	534,038	287
Maryland	59	63,707,269	811	713,987	2,123	8,993,727	343
New Jersey	145	136,735,470	2,619	1,122,454	5,736	19,442,757	278
New York	370	1,877,754,233	5,973	2,231,624	14,431	55,870,856	303
Pennsylvania	260	546,648,366	2,987	1,687,003	25,538	103,984,899	320
Virginia	27	9,179,476	918	1,158,983	3,734	11,255,210	245
West Virginia	43	492,830,879	254	302,199	3,356	14,854,669	347
<b>SOUTHEAST</b>	<b>198</b>	<b>173,848,039</b>	<b>4,765</b>	<b>6,210,029</b>	<b>49,412</b>	<b>209,776,244</b>	<b>346</b>
Alabama	15	9,809,683	335	385,221	3,035	7,790,203	210
Arkansas	9	6,672,938	202	215,856	1,196	2,693,308	189
Florida	45	47,818,256	1,055	1,514,318	21,638	121,578,110	455
Georgia	29	39,500,246	725	973,015	6,823	32,823,319	393
Kentucky	12	6,665,571	420	531,340	1,948	4,428,810	178
Louisiana	20	11,460,248	352	528,018	1,549	4,848,426	257
Mississippi	6	2,172,893	165	179,327	976	1,872,130	162
North Carolina	26	9,895,410	705	906,598	4,404	14,977,500	275
South Carolina	5	59,414	289	454,959	2,806	7,311,418	207
Tennessee	31	39,793,380	517	521,377	5,038	11,453,021	188
<b>GREAT LAKES</b>	<b>770</b>	<b>1,418,892,401</b>	<b>9,690</b>	<b>7,123,266</b>	<b>58,039</b>	<b>222,042,225</b>	<b>304</b>
Illinois	175	198,397,006	2,761	1,710,248	7,878	23,482,679	242
Indiana	73	51,677,050	855	710,665	9,318	33,417,037	282
Michigan	205	222,438,474	1,892	1,285,176	10,702	36,604,191	277
Minnesota	27	114,453,212	662	690,742	3,483	12,722,586	284
Ohio	227	555,942,136	2,538	1,677,040	21,778	99,741,678	361
Wisconsin	63	275,984,523	982	1,049,395	4,880	16,074,054	259

Table S-31(continued)  
**PBGC Single-Employer Pension Data by State\* and Region**

STATE/REGION	CLAIMS 1975-1998		COVERAGE 1998		BENEFITS PAID 1998		
	Plans	Claims	Plans	Participants	Payees	Payments	Mean Monthly Pension
<b>MIDWEST</b>	<b>86</b>	<b>\$140,031,404</b>	<b>1,800</b>	<b>1,846,403</b>	<b>8,628</b>	<b>\$27,301,698</b>	<b>\$255</b>
Iowa	28	86,208,544	498	375,258	5,840	19,241,285	256
Kansas	19	28,860,567	254	361,975	646	2,102,269	341
Missouri	33	17,542,417	721	797,008	1,754	4,587,938	212
Nebraska	4	7,291,143	220	202,574	296	997,358	265
North Dakota	2	128,733	63	56,454	39	141,914	219
South Dakota	0	0	44	53,134	52	230,934	355
<b>SOUTHWEST</b>	<b>118</b>	<b>169,542,976</b>	<b>2,603</b>	<b>2,905,761</b>	<b>9,741</b>	<b>36,357,139</b>	<b>299</b>
Arizona	20	6,456,893	518	458,280	1,690	6,845,524	326
New Mexico	6	10,377,511	146	142,797	548	2,272,142	324
Oklahoma	15	39,747,401	296	292,236	1,051	3,264,281	247
Texas	77	112,961,171	1,643	2,012,448	6,453	23,975,193	297
<b>ROCKY MOUNTAIN</b>	<b>35</b>	<b>239,280,248</b>	<b>891</b>	<b>1,026,148</b>	<b>4,743</b>	<b>28,195,913</b>	<b>467</b>
Colorado	12	223,705,276	395	371,937	2,688	20,657,762	596
Idaho	6	12,480,578	93	106,268	642	1,879,063	228
Montana	3	252,370	58	96,305	95	350,453	294
Nevada	6	550,184	115	192,611	706	3,105,133	347
Utah	7	1,579,727	199	179,327	537	1,930,946	298
Wyoming	1	712,113	31	79,700	76	272,557	283
<b>PACIFIC</b>	<b>182</b>	<b>332,757,507</b>	<b>5,024</b>	<b>4,702,117</b>	<b>13,374</b>	<b>57,235,656</b>	<b>344</b>
Alaska	4	3,106,217	39	53,134	35	117,013	261
California	130	267,242,102	3,864	3,380,410	10,340	44,668,581	347
Hawaii	15	16,261,286	319	116,231	1,068	5,017,239	372
Oregon	17	35,301,249	329	308,841	803	2,510,554	256
Washington	16	10,846,653	473	843,501	1,128	4,922,269	350
<b>PUERTO RICO</b>	<b>11</b>	<b>10,206,411</b>	<b>138</b>	<b>65,537</b>	<b>1,149</b>	<b>4,689,429</b>	<b>320</b>
<b>U.S. TERRITORIES</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>1,116</b>	<b>80</b>	<b>422,681</b>	<b>844</b>
<b>FOREIGN COUNTRIES</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>719</b>	<b>3,092,164</b>	<b>340</b>
<b>TOTAL</b>	<b>2,655</b>	<b>\$6,027,390,528</b>	<b>42,334</b>	<b>33,208,700</b>	<b>215,892</b>	<b>\$846,770,445</b>	<b>\$313</b>

Sources: PBGC Fiscal Year Closing File (9/30/98), Employee Benefits Supplement to the April, 1993 Current Population Survey, and PBGC Case Administration System.  
 PBGC Premium Filings, and PBGC Participant System (PRISM), fiscal year calculations.  
 Due to rounding of individual items, totals may not equal those in other tables.  
 \*Claims data by state of plan administration; benefits and coverage data by state of payee residence.  
 This table was previously titled B-10 in Pension Insurance Data Book 1997.

Table S-32

## PBGC Maximum Guaranteed Benefits Single-Employer Program

Year of Plan Termination	Maximum Monthly Guarantee	Maximum Annual Guarantee
1988	\$1,909.09	\$22,909.08
1989	2,028.41	24,340.92
1990	2,164.77	25,977.24
1991	2,250.00	27,000.00
1992	2,352.27	28,227.24
1993	2,437.50	29,250.00
1994	2,556.82	30,681.84
1995	2,573.86	30,886.32
1996	2,642.05	31,704.60
1997	2,761.36	33,136.32
1998	2,880.68	34,568.16
1999	3,051.14	36,613.68

*The Employee Retirement Income Security Act of 1974 (ERISA) mandates that the maximum guaranteed amount be adjusted annually based on changes in the Social Security contribution and benefit base.*

*The maximum guarantee applies to workers who retire at age 65 or later.*

*Maximum guarantees are reduced for retirees taking earlier retirement or electing survivor's benefits.*

*In some instances, where a pension plan has adequate resources or PBGC recovers sufficient amounts, a participant may receive benefits in excess of the maximum guarantee.*

*This table was previously titled B-11 in Pension Insurance Data Book 1997.*

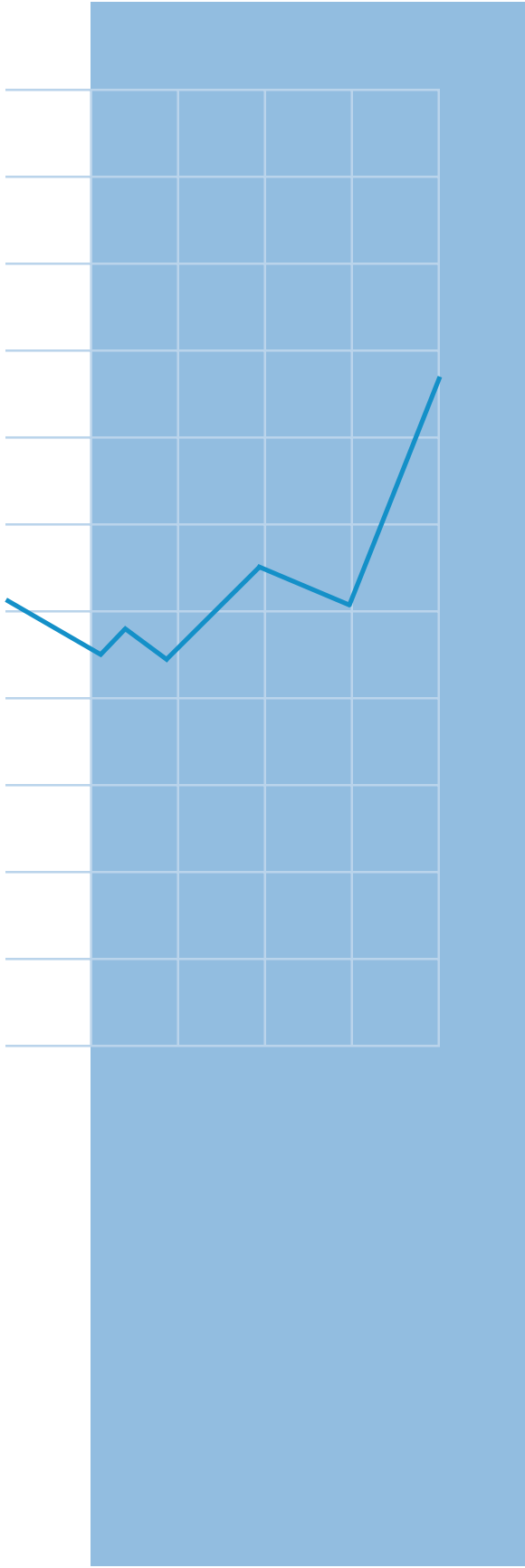
Table S-33

### Premium Schedule of PBGC's Single-Employer Program

For Plan Years Beginning	Flat Rate Premium (per participant)	Variable Rate Premium
September 2, 1974 - December 31, 1977	\$1.00	—
January 1, 1978 - December 31, 1985	2.60	—
January 1, 1986 - December 31, 1987	8.50	—
January 1, 1988 - December 31, 1990	16.00	\$6 per \$1,000 of unfunded vested benefits (Maximum of \$34 per participant)
January 1, 1991 - June 30, 1994	19.00	\$9 per \$1,000 of unfunded vested benefits (Maximum of \$53 per participant)
July 1, 1994 - June 30, 1995	19.00	\$9 per \$1,000 of unfunded vested benefits (Maximum of \$53 per participant plus 20% of uncapped variable premium in excess of \$53 per participant)
July 1, 1995 - June 30, 1996	19.00	\$9 per \$1,000 of unfunded vested benefits participant plus 60% of uncapped variable premium in excess of \$53 per participant)
On or After July 1, 1996	19.00	\$9 per \$1,000 of unfunded vested benefits (No maximum)

*This table was previously titled B-12 in Pension Insurance Data Book 1997.*





# APPENDIX M

## *Multiemployer Data Tables*

Table M-1

## Net Financial Position of PBGC's Multiemployer Program (1980-1998)

Fiscal Year	Assets (in millions)	Liabilities (in millions)	Net Position (in millions)
1980	\$21	\$30	-\$9
1981	28	29	-1
1982	40	29	11
1983	52	46	6
1984	61	44	17
1985	78	52	27
1986	98	54	45
1987	114	45	68
1988	129	37	92
1989	161	37	123
1990	190	58	132
1991	238	75	163
1992	283	114	169
1993	407	131	276
1994	378	181	197
1995	477	285	192
1996	505	381	124
1997	596	377	219
1998	745	404	341

Source: PBGC Annual Report (1980-1998).

Due to rounding of individual items, rows may not add across.

Table M-2

## PBGC Premium Revenue, Benefit Payments, and Expenses (1980-1998) Multiemployer Program

Total Fiscal Year	Premium Revenue (in millions)	Benefit Payments (in millions)	Administrative & Investment Expenses (in millions)	Premiums Minus Benefits Paid Expenses (in millions)
1980	\$5	\$4	\$2	-\$2
1981	12	4	2	5
1982	13	5	3	5
1983	13	4	3	6
1984	12	4	3	6
1985	14	4	4	7
1986	15	3	4	8
1987	17	3	3	10
1988	17	3	4	11
1989	20	3	3	15
1990	21	2	2	17
1991	23	2	*	21
1992	23	2	*	21
1993	23	2	*	21
1994	23	2	*	21
1995	22	2	*	20
1996	22	2	*	20
1997	23	1	*	22
1998	23	1	*	22

Source: PBGC Annual Report (1980-1998).

\* Less than \$500,000.

Due to aggregation and rounding of individual items, figures may not add up to totals in other tables.

Table M-3

## PBGC Payees and Benefit Payments (1980-1998) Multiemployer Program

Fiscal Year	Payees in Year	PERIODIC PENSION PAYMENTS		
		Total (in millions)	Average Monthly Payment	Median Monthly Payment
1980	4,100	\$4	\$77	\$45
1981	4,000	4	83	45
1982	3,800	5	86	45
1983	3,500	4	89	45
1984	3,400	4	93	45
1985	3,100	4	91	45
1986	3,250	3	91	45
1987	2,800	3	92	45
1988	2,500	3	93	45
1989	2,310	3	95	45
1990	2,170	2	97	50
1991	1,990	2	98	51
1992	1,760	2	98	52
1993	1,590	2	99	53
1994	1,420	2	102	55
1995	1,300	2	102	55
1996	1,130	2	104	55
1997	1,000	1	102	55
1998	855	1	104	55

Sources: PBGC Participant System (PRISM), fiscal year calculations, PBGC Management Reports and PBGC Benefit Payment Reports.  
Payments made on a quarterly, semi-annual, or annual basis were converted to their monthly equivalent.  
Due to rounding of individual items, columns may not add up.

Table M-4

**PBGC-Covered Multiemployer Plan Participants (1980-1998)**

<b>Year</b>	<b>Total Covered Participants</b> (in thousands)	<b>In Plans with 10,000+ Participants</b> (in thousands)	<b>In Plans with 5,000-9,999 Participants</b> (in thousands)	<b>In Plans with 2,500-4,999 Participants</b> (in thousands)	<b>In Plans with 1,000-2,499 Participants</b> (in thousands)	<b>In Plans with 500-999 Participants</b> (in thousands)	<b>In Plans with 250-499 Participants</b> (in thousands)	<b>In Plans with &lt;250 Participants</b> (in thousands)
1980	7,997	5,072	925	751	731	299	147	71
1981	8,150	5,151	960	781	759	281	145	74
1982	8,475	5,404	1,026	776	746	305	145	72
1983	8,384	5,438	934	774	727	302	139	71
1984	8,059	5,119	973	739	719	306	136	67
1985	8,209	5,376	857	761	729	283	136	66
1986	8,154	5,316	879	746	731	288	129	64
1987	8,256	5,443	908	718	709	293	124	61
1988	8,294	5,453	917	739	704	295	127	58
1989	8,426	5,557	918	767	702	302	124	56
1990	8,534	5,731	891	757	695	290	121	48
1991	8,710	5,997	874	731	665	285	110	47
1992	8,780	6,105	830	734	672	276	115	49
1993	8,657	5,991	869	711	657	270	111	49
1994	8,559	5,933	861	703	639	263	112	50
1995	8,707	6,034	894	719	645	258	111	46
1996	8,860	6,196	933	666	659	257	108	41
1997	8,884	6,216	929	696	657	248	101	38
1998	8,848	6,210	927	674	649	249	101	38

Source: PBGC Premium Filings, various years.  
1998 figures are estimates from PBGC internal calculations.

Table M-5

**PBGC-Insured Multiemployer Plans (1980-1998)**

Year	Total Insured Plans	Insured Plans with 10,000+ Participants	Insured Plans with 5,000-9,999 Participants	Insured Plans with 2,500-4,999 Participants	Insured Plans with 1,000-2,499 Participants	Insured Plans with 500-999 Participants	Insured Plans with 250-499 Participants	Insured Plans with <250 Participants
1980	2,244	120	131	211	452	420	404	506
1981	2,272	121	135	221	479	392	399	525
1982	2,289	125	142	218	468	420	396	520
1983	2,285	134	132	218	454	418	385	544
1984	2,223	127	138	209	451	430	381	487
1985	2,188	137	124	216	459	402	376	474
1986	2,153	135	127	213	461	405	362	450
1987	2,098	139	131	205	438	408	344	433
1988	2,081	137	133	213	436	409	351	402
1989	2,060	137	131	217	430	417	337	391
1990	1,983	140	127	214	428	402	332	340
1991	1,926	145	127	207	414	401	302	330
1992	1,936	150	121	210	418	386	310	341
1993	1,900	143	126	204	412	378	302	335
1994	1,880	141	125	202	403	369	302	338
1995	1,853	144	129	206	405	359	297	313
1996	1,806	148	137	191	406	354	290	280
1997	1,775	149	135	196	401	341	272	281
1998	1,754	149	135	191	396	343	270	270

Source: PBGC Premium Filings, various years.  
1998 figures are estimates from PBGC internal calculations.

Table M-6

## PBGC-Insured Multiemployer Plans and Participants by Industry (1998)

Industry	Covered Participants		Insured Plans	
<b>AGRICULTURE</b>	<b>67,084</b>	<b>0.8%</b>	<b>14</b>	<b>0.8%</b>
<b>MINING</b>	<b>204,145</b>	<b>2.3%</b>	<b>11</b>	<b>0.7%</b>
Coal Mining	189,781	2.1%	5	0.3%
Other Mining	14,364	0.2%	7	0.4%
<b>CONSTRUCTION</b>	<b>3,059,520</b>	<b>34.6%</b>	<b>945</b>	<b>53.9%</b>
General Contracting	603,921	6.8%	108	6.1%
Heavy Construction	378,235	4.3%	63	3.6%
Plumbing, Heating and Air Conditioning	311,181	3.5%	176	10.0%
Electrical Work	634,156	7.2%	133	7.6%
Masonry, Brick and Stonework	164,215	1.9%	142	8.1%
Carpentry	316,765	3.6%	85	4.8%
Roofing and Sheet Metal Work	229,914	2.6%	66	3.7%
Other Construction	421,134	4.8%	172	9.8%
<b>MANUFACTURING</b>	<b>1,375,519</b>	<b>15.5%</b>	<b>239</b>	<b>13.6%</b>
Food and Tobacco Products	233,739	2.6%	35	2.0%
Apparel and Textile Products	321,963	3.6%	18	1.0%
Paper and Allied Products	77,519	0.9%	8	0.4%
Printing and Publishing	234,141	2.6%	47	2.7%
Furniture and Fixtures	58,996	0.7%	5	0.3%
Machinery and Computer Equipment	169,087	1.9%	10	0.5%
Electrical and Electronic Equipment	68,318	0.8%	10	0.6%
Other Manufacturing	211,757	2.4%	107	6.1%
<b>TRANSPORTATION AND PUBLIC UTILITIES</b>	<b>1,463,080</b>	<b>16.5%</b>	<b>158</b>	<b>9.0%</b>
Trucking	1,214,624	13.7%	70	4.0%
Water Transportation	130,087	1.5%	46	2.6%
Other Transportation	89,599	1.0%	36	2.1%
Public Utilities	28,770	0.3%	7	0.4%
<b>WHOLESALE TRADE</b>	<b>210,632</b>	<b>2.4%</b>	<b>54</b>	<b>3.1%</b>
<b>RETAIL TRADE</b>	<b>1,224,609</b>	<b>13.8%</b>	<b>118</b>	<b>6.7%</b>
<b>FINANCE, INSURANCE, AND REAL ESTATE</b>	<b>3,834</b>	*	<b>8</b>	<b>0.4%</b>
<b>SERVICES</b>	<b>1,239,354</b>	<b>14.0%</b>	<b>207</b>	<b>11.8%</b>
<b>TOTAL</b>	<b>8,847,777</b>	<b>100.0%</b>	<b>1,754</b>	<b>100.0%</b>

Source: PBGC Premium Filings.

Due to aggregation and rounding of individual items, totals may not add up to totals in other tables and percentages may not add up to 100 percent.

\*Less than .05%.

Table M-7

### PBGC-Covered Multiemployer Plan Participants by Participant Status (1980-1996)

Year	Active Participants	Retired Participants	Separated Vested Participants
1980	75.9%	17.7%	6.5%
1981	73.7%	19.1%	7.3%
1982	72.9%	18.6%	8.6%
1983	68.6%	21.7%	9.7%
1984	66.5%	23.1%	10.4%
1985	66.1%	22.6%	11.4%
1986	63.7%	23.2%	13.1%
1987	62.3%	24.1%	13.6%
1988	61.1%	24.5%	14.4%
1989	61.3%	24.6%	14.1%
1990	58.6%	25.2%	16.2%
1991	57.2%	26.3%	16.5%
1992	54.6%	27.6%	17.8%
1993	53.5%	28.0%	18.4%
1994	53.4%	28.0%	18.6%
1995	51.5%	29.1%	19.4%
1996	50.3%	30.0%	19.7%

Source: Internal Revenue Service Form 5500 Series Filings for multiemployer plans with 100 or more participants.  
Due to rounding of individual items, rows may not add up to 100 percent.



Table M-8

### Funding of PBGC-Insured Multiemployer Plans (1980-1996)

Beginning of Year	Assets (in millions)	Liabilities (in millions)	Funding Ratio	Underfunding (in millions)	Overfunding (in millions)	PBGC Rate*
1980	\$40,363	\$52,123	77%	\$17,887	\$6,126	8.50%
1981	46,342	53,282	87%	13,068	6,129	9.75%
1982	55,073	57,477	96%	11,560	9,156	10.75%
1983	64,202	64,410	100%	11,221	11,013	9.75%
1984	73,932	69,865	106%	10,282	14,350	9.75%
1985	88,182	75,942	116%	6,432	18,672	9.75%
1986	107,259	93,436	115%	7,687	21,511	8.50%
1987	121,080	111,259	109%	10,079	19,900	7.50%
1988	126,963	109,882	116%	8,240	25,321	8.25%
1989	135,654	121,915	111%	8,635	22,374	7.75%
1990	166,348	156,149	107%	11,574	21,773	7.25%
1991	165,734	160,370	103%	13,068	18,432	7.25%
1992	184,670	187,829	98%	17,835	14,676	6.25%
1993	197,461	202,177	98%	19,864	15,148	6.40%
1994	206,625	225,982	91%	29,193	9,837	5.65%
1995	209,947	218,458	96%	22,726	14,216	7.15%
1996	238,571	270,551	88%	40,019	8,039	5.30%

Source: Internal Revenue Service Form 5500 Series Filings for multiemployer plans with 100 or more participants.

\* Vested liabilities have been adjusted to an interest rate that, along with an assumed mortality table, reflects the cost to purchase an annuity at the beginning of the relevant year. The assumed mortality table was UP-84 for 1980-1992 and GAM-83 for 1993-1996.

Table M-9

## Funding of Underfunded PBGC-Insured Multiemployer Plans (1980-1996)

Beginning of Year	Assets (in millions)	Liabilities (in millions)	Underfunding (in millions)	Funding Ratio	PBGC Rate*
1980	\$24,819	\$42,706	\$17,887	58%	8.50%
1981	25,599	38,668	13,068	66%	9.75%
1982	22,301	33,861	11,560	66%	10.75%
1983	27,287	38,508	11,221	71%	9.75%
1984	22,515	32,798	10,282	69%	9.75%
1985	22,813	29,246	6,432	78%	9.75%
1986	27,035	34,723	7,687	78%	8.50%
1987	29,782	39,861	10,079	75%	7.50%
1988	29,802	38,042	8,240	78%	8.25%
1989	34,845	43,480	8,635	80%	7.75%
1990	56,512	68,086	11,574	83%	7.25%
1991	62,563	75,631	13,068	83%	7.25%
1992	93,790	111,625	17,835	84%	6.25%
1993	95,331	115,195	19,864	83%	6.40%
1994	128,718	157,911	29,193	82%	5.65%
1995	118,707	141,434	22,726	84%	7.15%
1996	168,347	208,366	40,019	81%	5.30%

Source: Internal Revenue Service Form 5500 Series Filings for multiemployer plans with 100 or more participants.

\* Vested liabilities have been adjusted to an interest rate that, along with an assumed mortality table, reflects the cost to purchase an annuity at the beginning of the relevant year. The assumed mortality table was UP-84 for 1980-1992 and GAM-83 for 1993-1996.

Table M-10

### Funding of Overfunded PBGC-Insured Multiemployer Plans (1980-1996)

Beginning of Year	Assets (in millions)	Liabilities (in millions)	Overfunding (in millions)	Funding Ratio	PBGC Rate*
1980	\$15,543	\$9,417	\$6,126	165%	8.50%
1981	20,743	14,614	6,129	142%	9.75%
1982	32,772	23,615	9,156	139%	10.75%
1983	36,915	25,902	11,013	143%	9.75%
1984	51,417	37,067	14,350	139%	9.75%
1985	65,368	46,697	18,672	140%	9.75%
1986	80,223	58,713	21,511	137%	8.50%
1987	91,298	71,398	19,900	128%	7.50%
1988	97,161	71,840	25,321	135%	8.25%
1989	100,809	78,435	22,374	129%	7.75%
1990	109,836	88,062	21,773	125%	7.25%
1991	103,171	84,739	18,432	122%	7.25%
1992	90,880	76,204	14,676	119%	6.25%
1993	102,130	86,981	15,148	117%	6.40%
1994	77,907	68,070	9,837	114%	5.65%
1995	91,240	77,024	14,216	118%	7.15%
1996	70,224	62,185	8,039	113%	5.30%

Source: Internal Revenue Service Form 5500 Series Filings for multiemployer plans with 100 or more participants.

\* Vested liabilities have been adjusted to an interest rate that, along with an assumed mortality table, reflects the cost to purchase an annuity at the beginning of the relevant year. The assumed mortality table was UP-84 for 1980-1992 and GAM-83 for 1993-1996.

Table M-11

## Concentration of Underfunding in PBGC-Insured Multiemployer Plans (1990-1996)

Beginning of Year	Total Underfunding (in millions)	10 Plans with the Highest Underfunding (in millions)		Next 40 Plans Underfunding (in millions)		All Others Underfunding (in millions)	
1990	\$11,574	\$6,760	58.4%	\$2,791	24.1%	\$2,023	17.5%
1991	13,068	7,906	60.5%	3,123	23.9%	2,038	15.6%
1992	17,835	9,500	53.3%	4,411	24.7%	3,923	22.0%
1993	19,864	10,348	52.1%	4,927	24.8%	4,590	23.1%
1994	29,193	13,575	46.5%	7,012	24.0%	8,606	29.5%
1995	22,726	11,340	49.9%	6,236	27.4%	5,150	22.7%
1996	40,019	16,157	40.4%	10,900	27.2%	12,962	32.4%

Source: Internal Revenue Service Form 5500 Series Filings for multiemployer plans with 100 or more participants.

Due to rounding of individual items, percentages may not add up to 100 percent.

Vested liabilities have been adjusted to an interest rate that, along with an assumed mortality table, reflects the cost to purchase an annuity at the beginning of the relevant year. The assumed mortality table was UP-84 for 1990-1992 and GAM-83 for 1993-1996.

Table M-12

### Participants and Funding of PBGC-Insured Multiemployer Plans by Funding Ratio (1996)

Funding Ratio	Participants (in thousands)		Total Liabilities (in millions)		Underfunding (in millions)		Overfunding (in millions)	
Under 40%	129	1.5%	\$2,332	0.9%	\$1,566	3.9%	—	—
40% - 49%	221	2.5%	4,974	1.8%	2,528	6.3%	—	—
50% - 59%	134	1.5%	4,302	1.6%	1,910	4.8%	—	—
60% - 69%	1,199	13.5%	43,038	15.9%	14,378	35.9%	—	—
70% - 79%	1,604	18.1%	39,545	14.6%	9,352	23.4%	—	—
80% - 89%	1,793	20.2%	41,997	15.5%	6,346	15.9%	—	—
90% - 99%	1,835	20.7%	71,930	26.6%	3,939	9.8%	—	—
100% - 109%	1,197	13.5%	37,085	13.7%	—	—	\$1,954	24.3%
110% - 119%	466	5.3%	13,304	4.9%	—	—	1,982	24.6%
120% - 129%	181	2.0%	8,335	3.1%	—	—	2,206	27.4%
130% - 139%	22	0.3%	1,725	0.6%	—	—	595	7.4%
140% - 149%	26	0.3%	337	0.1%	—	—	148	1.8%
150% and Over	54	0.6%	1,647	0.6%	—	—	1,155	14.4%
<b>TOTAL</b>	<b>8,860</b>	<b>100.0%</b>	<b>\$270,551</b>	<b>100.0%</b>	<b>\$40,019</b>	<b>100.0%</b>	<b>\$8,039</b>	<b>100.0%</b>

Source: Internal Revenue Service Form 5500 Series Filings for multiemployer plans with 100 or more participants.

\*Vested liabilities have been adjusted to an interest rate that, along with the GAM-83 mortality table, reflects the cost to purchase an annuity at the beginning of 1996.

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*Pictorial representations of selected data in these tables are available on the PBGC website: [www.pbgc.gov](http://www.pbgc.gov).*

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