Pension Benefit Guaranty Corporation

2022 Actuarial Report

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ACTUARIAL VALUATION REPORT- 2022 FISCAL YEAR

The 2022 Annual Report of the Pension Benefit Guaranty Corporation (PBGC) contains a summary of the results of the September 30, 2022 actuarial valuation. The purpose of this separate Actuarial Valuation Report is to provide greater detail concerning the valuation of future benefits than is presented in PBGC's Annual Report.

Overview of Valuation Results

PBGC calculated and validated the present value of future benefits (PVFB) for both the single-employer and multiemployer programs and of nonrecoverable future financial assistance (NRFFA) under the multiemployer program. Generally, except for the changes in interest and mortality assumptions, we used the same methods and procedures as in 2021 for the Single-Employer and Multiemployer Programs. These calculations reflect the present value of claims as of the date of the financial statements. They present a snapshot of the liabilities as of a point in time and do not include liability projections over the period after the date of the financial statements.

For the single-employer program, the liability as of September 30, 2022, consisted of:

(1) $81.1 billion for the 5,100 plans that have terminated: and

(2) $523.0 million for one probable termination.

Liabilities for "probable terminations" reflected reasonable estimates of the losses for plans that are likely to terminate in a future year. These estimated losses were based on conditions that existed as of PBGC's fiscal year-end. Management believes it is likely that one or more events after PBGC's fiscal year-end will occur, confirming the fact of the loss. In addition, the liability for reasonably possible terminations has been calculated and is discussed in a note to the financial statements of PBGC's 2022 Annual Report.

For the multiemployer program, the liability as of September 30, 2022, consisted of:

(1) less than \$500,000 for 10 pension plans that terminated before the passage of the Multiemployer Pension Plan Amendments Act of 1980 (MPPAA) and of which PBGC is trustee.

(2) \$1,550.8 million for estimable post-MPPAA losses due to financial assistance to 86 multiemployer pension plans that are currently receiving PBGC assistance: and

(3) \$839.2 million for probable estimable post-MPPAA losses due to financial assistance to 50 multiemployer pension plans that were probable to receive PBGC assistance in the future.

The results of the valuation (the present value of future benefits and nonrecoverable future financial assistance) are presented in Table 1 and are displayed in the graphs on pages 9 and 10.

Table 1:
Present Value of Future Benefits and Nonrecoverable Future Financial Assistance – 2022

	Number of Plans	Estimated Number of Participants (in thousands)	Liability (in millions)
I. Single-Employer Program			
A. Terminated plans			
1. Seriatim at fiscal year-end (FYE)	4,895	1,153	$66,571
2. Seriatim at DOPT, adjusted to FYE	45	46	1,425
3. Nonseriatim[1]	160	232	12,833
4. Missing Participants Program (seriatim)[2]	--	40	295
Subtotal	5,100	1,471	$81,124
B. Probable terminations (nonseriatim)[3]	1	1	523
Total[4]	5,101	1,472	$81,647
II. Multiemployer Program			
A. Pre-MPPAA termination (seriatim)	10	*	$**
B. Post-MPPAA liability (net of plan assets)			
1. Currently receiving assistance	86	81	1,551
2. Probable for assistance	50	63	839
Total[5]	146	144	$2,390

* Fewer than 500 participants
** Less than $500,000

Notes:
1) Liability for terminated plans includes an estimated liability of $17 million in settled litigation.

2) The Missing Participants Program refers to a liability that PBGC assumed for unlocated participants in standard plan terminations.

3) The net claims for the probable plans reported in the financial statements include $218 million for not yet identified probable terminations. The assets for probable plans, including the expected value of recoveries on employer liability and due and unpaid employer contributions claims, are $302 million. Thus, the net claims for probables as reported in the financial statements are $523 less $302 million, or $221 million.

4) The PVFB in the financial statements ($78,832 million) is net of estimated plan assets and recoveries on probables ($302 million), estimated recoveries on terminated plans ($128 million), and estimated assets of plans pending trusteeship ($2,885 million), or $81,647 million less $302 million less $128 million less $2,885 million equals $78,832 million.

5) The ARP of 2021 established Section 4262 of ERISA under which Special Financial Assistance (SFA) is provided to eligible multiemployer plans. Eligible plans can apply to PBGC for SFA sufficient to maintain solvency through the 2051 plan year and will not be required to repay the SFA. PBGC considered the impact of the ARP on the multiemployer inventory in decisions related to potential assumption updates resulting from the recent studies. PBGC results only reflect plans that were not eligible for SFA as of 9/30/2022.

Single-Employer Program

PBGC calculated the single-employer program's liability for benefits for each of the terminated plans and for each of the plans considered to be a probable termination using one of three methods:

(1) seriatim at fiscal year-end (FYE);

(2) seriatim at date of plan termination (DOPT), adjusted to FYE; and

(3) nonseriatim.

In addition, PBGC included liabilities for incurred but not reported (IBNR) plans, for the Missing Participants Program, and for the Collins Settlement.

Seriatim at FYE Method

The liability for each participant's benefit was calculated separately at FYE for plans for which PBGC had sufficiently complete and accurate data. This was termed the seriatim at FYE method. PBGC selected plans to be valued using the seriatim at FYE method according to two criteria:

(1) completeness - whether PBGC's computer system contained enough of the plan's participant records and whether enough of those records had been finalized; and

(2) accuracy - whether the participant's record contained enough of the critical elements of data that were necessary to perform an actuarial valuation.

For this valuation, these criteria were met by 4,895 pension plans (96% of the single-employer terminated plans) representing $66,571 million (82%) in liabilities and about 1,153,000 (78%) participants. This was an increase of 211 plans over the 4,684 plans valued seriatim at September 30, 2021. The critical discrepancy rates for 732 plans or 15.0% of the seriatim plans (1.0% higher percentage than last year) exceeded 5%. The overall critical discrepancy rate for the group of 4,895 seriatim plans was 1.6%, which is 0.1% higher than last year. A data discrepancy is considered critical if the value of the data element in discrepancy has a major impact on the liability associated with a benefit record.

Seriatim at DOPT Method

There were 45 plans for which a final seriatim valuation as of date of plan termination (DOPT) had been completed, but the Office of Benefits Administration of PBGC had not finished processing the case as of year-end (e.g., participant data had not been fully loaded into PBGC's computer database, or the data lacked too many critical elements to be valued by the seriatim at FYE method). When PBGC benefit calculations were finalized but not ready for seriatim valuation as of fiscal year-end, PBGC valued the plan's liability seriatim as of the plan's termination date and brought the total amounts forward to September 30, 2022, using the nonseriatim method outlined below. Because PBGC had finalized and valued these benefits for each participant and valued them using PBGC assumptions and regulations as of each plan's date of termination, these amounts are more accurate than similar calculations for plans whose benefits are not final.

Nonseriatim Method

If calculations of benefits provided by PBGC were not final, PBGC based the liability calculations on the plan's most recent actuarial valuation performed before the termination date that is available to PBGC. For the 160 terminated plans valued nonseriatim, PBGC obtained the liability for each plan as of the most recent available actuarial valuation date for each category of participant: retired, active, and terminated vested. These liabilities were adjusted to reflect such factors as:

(1) benefits accrued between the valuation and plan termination dates.

(2) differences between the interest rates assumed by the plans' actuaries and those assumed by PBGC.

(3) differences between the mortality, retirement age, and expense assumptions used by the plans' actuaries and those used by PBGC; and

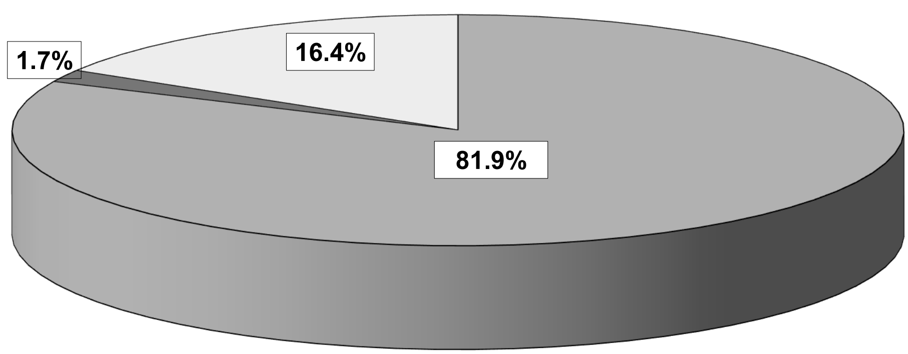
(4) the effect on the liability of time elapsed between the valuation date and September 30, 2022.

PBGC based the adjustment factors used in the nonseriatim procedure on its experience in routinely estimating the liability for benefits for administrative purposes.

Distribution of FYE 2022 Single-Employer Liability by Method of Calculation

Liability for Benefits: $81,647

(Dollars in Millions)



Seriatim at FYE: $66,866*

Seriatim at DOPT Adjusted to FYE: $1,425

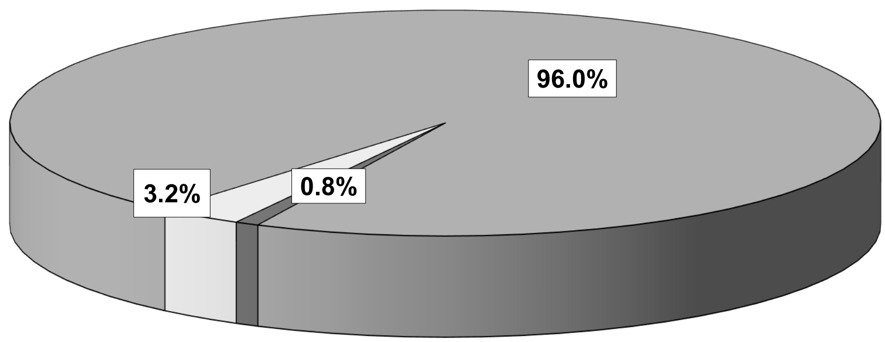
Nonseriatim: $13,356**

*Seriatim at FYE includes the Missing Participants Program

**Nonseriatim includes Probable terminations.

Distribution of FYE 2022 Single-Employer Plans by Method of Calculation

Total Plans: 5,101



- Seriatim at FYE: 4,895
- Seriatim at DOPT Adjusted to FYE: 45
- Nonseriatim: 161

***Nonseriatim includes Probable terminations.**

Missing Participants Program

The Missing Participants Program refers to a responsibility that PBGC has assumed under the Retirement Protection Act of 1994 to act as a clearinghouse for unlocated participants in standard plan terminations. As with other parts of PVFB, only the liabilities are shown here. Because plan administrators have transferred a corresponding asset amount to PBGC, the net increase in liabilities of PBGC due to this program, if any, will be negligible. Effective January 22, 2018, PBGC revised the existing program, as authorized by the Pension Protect Act of 2006, to establish similar programs for most defined contribution plans, multiemployer plans covered by the pension insurance system, and certain defined benefit plans that are not covered by PBGC guarantees. This valuation incorporates the impact of this change.

Collins Settlement

The Collins Settlement refers to the liability for benefits that PBGC incurred because of the settlement of a class action lawsuit during fiscal year 1996. This settlement provides benefits for participants in plans which terminated between January 1, 1976, and December 31, 1981, without having been amended to conform to ERISA's vesting requirements. The remaining liability under this settlement is included in the nonseriatim portion of the liability.

Multiemployer Program

There was a total of ten pre-MPPAA terminations, nine of which were granted discretionary coverage under the provisions of ERISA as passed in 1974. The remaining plan terminated when coverage under Title IV was mandatory (from August 1, 1980, until September 25, 1980). PBGC calculated the liability for these ten terminations under the seriatim at FYE method using the same assumptions as for the single-employer program.

The post-MPPAA portion of the liability represented the present value, as of September 30, 2022, of net losses that PBGC expected to incur from nonrecoverable future financial assistance to 136 pension plans of which 86 were insolvent (i.e., currently receiving PBGC financial assistance) and 50 were expected to become insolvent. The liability for each plan was calculated (using the cash flow method) as the present value of future guaranteed benefit and expense payments, net of the present value of future employer contributions and withdrawal liability payments. This liability was determined as of the later of September 30, 2022, and the actual or projected date of insolvency, and then discounted back to September 30, 2022, using interest only. The most recent available actuarial reports and information provided by representatives of the affected plans served as the basis for the valuations.

Projected benefit payments were estimated based on liabilities, current benefit payments and estimated average ages for actives, terminated vested and retirees from the most recent actuarial reports, combined with assumptions of retirement ages and of future rates of mortality and termination. Projected expense payments were estimated as a constant percentage of the projected benefit payments; this percentage is equal to the ratio of current expense payments to current benefit payments. The projected date of insolvency was then established using a cashflow model with initial assets, expense payments, contributions, and projected benefit and withdrawal liability payments as inputs, estimated when necessary.

The post-MPPAA liability of $2,390 million as of September 30, 2022, is about $627 million lower than it was a year earlier. The main reasons for the decrease in liabilities were due to the change in interest factors, expected assistance for new insolvent plans, and the change in the expected investment return from 4.98% to 6.54% for the first 10 years.

COVID-19 Note

There are certain assumptions that are or can potentially be impacted by the COVID-19 pandemic. Any impact to assumptions tied to current market conditions, such as interest rates and investment returns, is reflected in these assumptions. Any potential impact to other assumptions will be evaluated over time as events unfold and more data is analyzed.

Actuarial Assumptions, Methods, and Procedures

PBGC continues to review the actuarial assumptions used in the valuation to assure that they remain consistent with current market conditions in the insurance industry and with PBGC's experience. The actuarial assumptions, which are used in both the single-employer and multiemployer valuations, are presented in Table 2A. Assumptions concerning data that were not available are discussed in the data section of this report.

Beginning with the March 31, 2017, valuation, PBGC used spot rate yield curve interest factors to value PBGC's liabilities. For September 30, 2022, the spot rate yield curve starts with an interest factor of 5.12% in year 1 and changes as the future period for discounting gets longer until year 30 when the factor becomes 4.76% and is assumed to remain level thereafter. For September 30, 2021, the spot rate yield curve started with an interest factor of 0.44% in year 1 and changes as the future period for discounting gets longer until year 30 when the factor becomes 2.30% and is assumed to remain level thereafter. These interest factors are dependent upon PBGC's mortality assumptions. See PBGC Annual Performance & Financial Report 2022 for a more detailed discussion on interest factors.

Based on the results of a 2022 study of PBGC's Single-Employer Program mortality experience, an updated mortality assumption was adopted for the 9/30/2022 and subsequent Financial Statements. The study recommended the use of Pri-2012 Total Dataset Combined Male and Female Healthy Mortality tables with specific ten-year age band adjustments from ages 55 to 104 for healthy lives. The resulting tables are projected generationally using the most recent available mortality improvement scale, which is scale MP-2021. For the September 30, 2022, single-employer valuation, PBGC used the Pri-2012 Total Dataset Combined Male and Female Healthy Mortality tables with adjustments each projected generationally with scale MP-2021. The mortality tables used for healthy lives in the FY 2021 valuation are the adjusted RP-2014 Healthy Male and Female Mortality tables, with blended healthy annuitant and employee tables before age 50 each projected generationally with scale MP-2020.

Based on a 2021 Multiemployer Benefit Projection Study, we used projected benefit payments generated by plan actuaries and reported on the Schedule MBs as the best estimate of plan experience and set assumptions that best matched those projection payments. The Society of Actuaries published the Pri-2012 Mortality Table report in 2019, and the Pri-2012 tables reflect a significant amount of multiemployer experience. Based on the results of the 2021 Multiemployer Benefit Projection Study, the multiemployer mortality assumption was updated to the Pri-2012 blue-collar mortality rates. According to the projection methodology for annual updates, the mortality rates are projected generationally using the most currently available projection scale. Therefore, for the September 30, 2022, multiemployer valuation, these Pri-2012 mortality tables are projected generationally using Scale MP-2021 for both male and female mortality tables.

The SPARR (Small Plan Average Recovery Ratio) assumptions as shown in Table 2B were updated to reflect the SPARR calculated in FY2022. The FY2022 SPARR of 8.53% is used for the September 30, 2022, valuation.

Based on the results of a 2018 study of PBGC's case administration expenses, a new expense assumption was adopted for the 12/31/2018 and subsequent Financial Statements. The new expense reserve factors are significantly higher than the prior reserve factors primarily due to increased annual expenses, change in discount rate, and increased lag to complete tasks. The reserve factors are static and do not assume any future increases or decreases. The factors are intended to estimate a reserve for the entire inventory of plans and is not intended to predict costs for any one plan.

PBGC used the expense assumption for expenses in all terminated plans and single-employer probable terminations. The reserve for expenses was assumed to be 0.68% of the liability for benefits plus additional reserves for cases whose plan asset determinations, participant database audits, and actuarial valuations were not yet complete. The factors to determine the additional reserves were based on case sizes (large/small), number of participants, and time since trusteeship. The factors used in the expense reserve formula are shown in Table 2C.

During the 2022 fiscal year, PBGC improved the IPVFB system that calculates the liabilities to address some of the valuation audit findings. In this year we have made several improvements to reduce personally identifiable information (PII) in the benefit calculation and valuation system, improved the calculation of expected interest on a lump sum, improved the calculation process to exclude new Missing Participants adjustments, improved the nonseriatim and multiemployer cash flow valuation process, as well as improved the reports available for the analysis of our results. We continue our ongoing efforts to improve the quality of the seriatim data and, as in other years, made various changes to generally improve the accuracy, speed, security and auditability of the calculations as well as integrate with the evolving PBGC technologies.

Table 2A

Actuarial Valuation Assumptions

	Previous Valuation as of 9/30/2021							
Interest Factors	Spot Rate Yield Curve:							
	Period	Rate	Period	Rate	Period	Rate	Period	Rate
	1	0.44%	11	2.30%	21	2.49%	31	2.30%
	2	0.71%	12	2.33%	22	2.50%	32	2.30%
	3	1.07%	13	2.35%	23	2.49%	33	2.30%
	4	1.39%	14	2.38%	24	2.48%	34	2.30%
	5	1.65%	15	2.40%	25	2.46%	35	2.30%
	6	1.86%	16	2.42%	26	2.44%	36	2.30%
	7	2.01%	17	2.44%	27	2.41%	37	2.30%
	8	2.12%	18	2.46%	28	2.38%	38	2.30%
	9	2.20%	19	2.47%	29	2.34%	39	2.30%
	10	2.25%	20	2.49%	30	2.30%	40	2.30%

	Previous Valuation as of 9/30/2022							
Interest Factors	Spot Rate Yield Curve:							
	Period	Rate	Period	Rate	Period	Rate	Period	Rate
	1	5.12%	11	5.26%	21	5.59%	31	4.76%
	2	5.28%	12	5.27%	22	5.57%	32	4.76%
	3	5.44%	13	5.30%	23	5.54%	33	4.76%
	4	5.48%	14	5.33%	24	5.48%	34	4.76%
	5	5.47%	15	5.38%	25	5.41%	35	4.76%
	6	5.43%	16	5.43%	26	5.31%	36	4.76%
	7	5.37%	17	5.48%	27	5.19%	37	4.76%
	8	5.32%	18	5.52%	28	5.06%	38	4.76%
	9	5.28%	19	5.56%	29	4.91%	39	4.76%
	10	5.26%	20	5.58%	30	4.76%	40	4.76%

Table 2A

Actuarial Valuation Assumptions

	Previous Valuation as of 9/30/2021	Current Valuation as of 9/30/2022
Mortality Healthy Lives	**Single Employer:** RP-2014 Healthy Male Table times 1.09 and RP-2014 Healthy Female Mortality Table times 0.99, each projected generationally with Scale MP-2020. **Multiemployer:** Pri-2012 Male Blue-collar Mortality and Pri-2012 Female Blue-collar tables published by the SOA projected generationally using most recent projection scale published by the SOA, MP-2020.	**Single Employer:** Pri-2012 Total Dataset Combined Male and Female Healthy Mortality tables with adjustments, each projected generationally with scale MP-2021. **Multiemployer:** Pri-2012 Male Blue-collar Mortality and Pri-2012 Female Blue-collar tables published by the SOA projected generationally using most recent projection scale published by the SOA, MP-2021.
Disabled Lives Eligible for Social Security (SS) Disability Benefits	**Single Employer:** Healthy Male and Female Mortality Tables as described above, set forward 7 years for male lives and 8 years for female lives.	**Single Employer:** Pri-2012 Total Dataset Disabled Male with no Ages adjustment and Pri-2012 Total Dataset Disabled Female with Ages Set Forward 2 years, each projected generationally with scale MP-2021.
Disabled Lives Not Eligible for SS Disability Benefits	**Single Employer:** Healthy Male and Female Mortality Tables as described above, set forward 5 years for male lives and 7 years for female lives	**Single Employer:** Pri-2012 Total Dataset Disabled Male with Ages Set Back 3 years and Pri-2012 Total Dataset Disabled Female with Ages Set Back 2 years, each projected generationally with scale MP-2021
SPARR	Calculated SPARR through fiscal year ending 9/30/21.	Calculated SPARR through current fiscal year ending 9/30/22. See Table 2B for values and notes.
Retirement Ages	(a) Earliest possible for shutdown companies. (b) Expected retirement age (XRA) tables from 29 CFR 4044 for ongoing companies. (c) Deferred participants past XRA are assumed to be in pay status, retroactive to their XRA. To reflect lower likelihood of payment: (d) Unlocated deferred participants past age 65 are phased out over 3 years. (e) Located deferred participants are fully phased out past age 70. (f) Deferred participants in the Missing Participants Program are phased out over 10 years past age 70.	Same

Expenses	All terminated plans and single-employer probable terminations: 0.68% of the liability for benefits plus Additional reserves as shown in Table 2C for cases where plan asset determinations, participant database audits and actuarial valuations were not complete.	Same

Table 2B

Small Plan Average Recovery Ratio (SPARR) Assumptions

The SPARR is used in the calculation of the liability for benefits determined under section 4022(c) of ERISA, which provides participants with a portion of PBGC's recoveries. The SPARR has been determined by PBGC for terminations initiated in a given fiscal year based on actual recoveries and unfunded benefit liabilities for plan terminations initiated during a five-year averaging period. As of the end of fiscal year 2022, the SPARR had been calculated for plan terminations initiated in fiscal years 1991-2022. The FY 2022 SPARR is assumed for probable plans affected by future SPARRs.

Fiscal Year	SPARR	Fiscal Year	SPARR
1991	12.01%	2007	4.35%
1992	7.73%	2008	4.26%
1993	7.44%	2009	3.85%
1994	7.04%	2010	9.15%
1995	7.22%	2011	12.30%
1996	7.90%	2012	12.56%
1997	5.98%	2013	17.23%
1998	6.84%	2014	4.93%
1999	8.01%	2015	9.29%
2000	4.58%	2016	9.39%
2001	4.94%	2017	6.92%
2002	9.60%	2018	6.84%
2003	7.86%	2019	5.77%
2004	3.42%	2020	11.95%
2005	4.39%	2021	12.65%
10/1/05 – 9/15/06 9/16/06 – 9/30/06	4.13% 3.50%	2022	8.53%

Table 2C

Reserve Factors for Expenses

Large Plans (more than 100 participants)							
	Plan Asset Audit	Participant Data Audit	Actuarial Valuation				Interim Plan Processing
Years Since Trusteeship	Per Large Plan	Per Large Plan	Per Large Plan	Per Participant for the First 100	Per Participant for the Next 400	Per Participant for >500	Per Participant
0<=y<1	$134,940	$393,310	$190,990	$4,220	$710	$60	$2,680
1<=y<2	101,520	288,520	146,130	3,230	530	60	2,050
2<=y<3	71,020	200,070	106,100	2,340	390	40	1,490
3<=y<4	47,360	146,880	73,110	1,620	280	20	1,010
4<=y<5	31,850	101,590	46,980	1,040	180	20	650
5<=y	25,480	73,890	33,810	750	120	20	470

Small Plans (100 or fewer participants)							
	Plan Asset Audit	Participant Data Audit	Actuarial Valuation				Interim Plan Processing
Years Since Trusteeship	Per Small Plan	Per Small Plan	Per Small Plan	Per Participant	Per Participant	Per Participant for >500	Per Participant
0<=y<1	$134,940	$49,490	$190,990	$4,220	N/A	N/A	$2,680
1<=y<2	101,520	35,430	146,130	3,230	N/A	N/A	2,050
2<=y<3	71,020	26,450	106,100	2,340	N/A	N/A	1,490
3<=y<4	47,360	22,210	73,110	1,620	N/A	N/A	1,010
4<=y<5	31,850	17,150	46,980	1,040	N/A	N/A	650
5<=y	25,480	13,190	33,810	750	N/A	N/A	470

In addition to the reserve factors shown, an expense loading factor equal to 0.68% of the liability for benefits applies to both Large Plans and Small Plans.

Data Sources and Assumptions

The seriatim portion of this valuation was based on participant data maintained by PBGC's Office of Benefits Administration. For the seriatim liability, benefit amounts have been determined for each participant using plan documents, together with ERISA and PBGC regulations relating to guaranteed benefits and the allocation of assets. If specific data were not available for deferred vested participants under the seriatim method, participants were assumed to be married and to elect the qualified Joint and Survivor (J&S) benefit; wives were assumed to be four years younger than their husbands. When certain other data elements for a participant were missing, they were replaced by the average for the plan. When the plan average was not available, the average for all plans valued seriatim was used.

The nonseriatim liability was based on the plan's most recent actuarial valuation performed before the termination date that is available to PBGC. The valuation information generally was obtained from actuarial reports or Schedule SB or MB filings. For nonseriatim plans and probable terminations, provision generally has been made to reduce benefits to guaranteed levels. For Single Employer plans valued nonseriatim, the attained ages for active participants, terminated vested participants, and retired participants were assumed to be 55.1, 55.6 and 70.9 respectively when plan data were unavailable. For post-MPPAA Multiemployer plans that are terminated, the assumed age for terminated vested is 55. For ongoing plans, the assumed age for terminated vested is 54. For insolvent plans, the assumed age for terminated vested participants is 57. If there any active participants, the assumed age is 47 when plan data were unavailable.

Valuation Statistics

The FY 2022 valuation for the single-employer program included approximately 1,471,000 participants owed future payments in terminated plans as of September 30, 2022. Of these, about 960,000 participants from terminated single employer plans and 6 participants from pre-MPPAA multiemployer plans were receiving benefits from PBGC at fiscal year-end. As of September 30, 2022, in the pre-MPPAA plans there were 12 participants and for the post-MPPAA plans, there were approximately 81,000 participants that are currently receiving financial assistance (insolvent plans) and 63,000 participants in terminated and ongoing (probable) plans that are expected to receive financial assistance.

The average monthly benefit paid by PBGC for participants in pay status during FY 2022 was $560 (including supplemental benefits) for the single employer program and $117 for the multiemployer program in the ten pre-MPPAA plans.

Tables 3 through 6 summarize the detailed results of the seriatim and nonseriatim valuations for both the single-employer and multiemployer programs.

Table 3:
Liability for Pay-Status Recipients in "Seriatim at FYE" Method

	Single-Employer					Multiemployer			
Age	Number of Benefit Recipients**	Average Monthly Benefit	Average Supplemental Monthly Benefit	Liability (Millions)	Percent of Liability	Number of Benefit Recipients	Average Monthly Benefit	Liability (Millions)	Percent of Liability
Under 50	1,872	$139	$212	$66	*%	0	-	$0	0%
50-54	1,571	203	327	63	*%	0	-	0	0
55-59	14,630	399	95	1,040	2%	0	-	0	0
60-64	49,862	443	83	3,603	7%	0	-	0	0
65-69	142,168	552	127	11,542	23%	0	-	0	0
70-74	181,774	579	223	12,918	27%	0	-	0	0
75-79	172,271	608	357	11,098	22%	0	-	0	0%
80-84	123,120	609	171	6,119	12%	0	-	0	0%
85-89	74,117	565	46	2,517	5%	2	100	*	40%
Over 89	48,218	455	81	900	2%	4	126	*	60%
TOTAL	809,603	$563	$111	$49,866	100%	6	$117	*	100%

Notes:
*Liability is less than $500,000.
Not all recipients are receiving supplemental benefits.
Missing Participants Program liabilities and adjustments are not included.
Numbers may not add up due to rounding.

Table 4:
Liability for Deferred Participants in "Seriatim at FYE" Method

	Single-Employer					Multiemployer			
Age	Number of Benefit Recipients**	Average Monthly Benefit	Average Supplemental Monthly Benefit	Liability (Millions)	Percent of Liability	Number of Benefit Recipients	Average Monthly Benefit	Liability (Millions)	Percent of Liability
Under 40	330	$234	$0	$5	0%	0	-	$0	0%
40-44	4,397	229	0	79	0%	0	-	0	0
45-49	17,748	234	67	409	2%	0	-	0	0
50-54	43,155	268	102	1,479	9%	0	-	0	0
55-59	72,618	313	135	3,794	23%	0	-	0	0
60-64	83,434	364	131	6,733	40%	0	-	0	0
Over 64	38,855	349	122	3,771	23%	0	-	0	0
Other**	82,425	- -	- -	435	3%	6	-	*	100%
TOTAL	342,962	$339	$123	$16,705	100%	6	-	$*	100%

Notes
*Liability is less than $500,000.
** "Other" includes unlocatable participants and participants scheduled at year end for lump sum payments.
Missing Participants Program liabilities and adjustments are not included.
Numbers may not add up to totals due to rounding.

Table 5:
Seriatim at DOPT and Nonseriatim Liability

Plans with Final DOPT Benefits

	Number of Plans	Liability (millions)	Percent of Liability
A. Large	16	$1,353	9.3%
B. Other	29	$72	0.5%
Subtotal	45	$1,425	9.8%

Plans with Non-Final DOPT Benefits

	Number of Plans	Liability (millions)	Percent of Liability
A. Large	64	$12,597	86.5%
B. Other	96	$236	1.6%
Subtotal	160	$12,833	88.1%

Probable Plans

	Number of Plans	Liability (millions)	Percent of Liability
A. Large	1	$305	2.1%
B. Other	0	$0	0.0%
Subtotal	1	$305	2.1%
Total	206	$14,563	100.0%

Notes:

1) Numbers may not add up to totals due to rounding.
2) Large Final DOPT benefits refer to those benefits that PBGC has determined and valued seriatim as of DOPT for the plan. Non-Final DOPT benefits are estimates of final DOPT benefits.
3) Large plans in this table are those whose present value of Title IV benefits as of DOPT equals or exceeds $10 million.
4) The liability shown in this table does not include the liability for settlements.
5) The liability for Probable Plans is shown as a gross amount (i.e., plan assets and collections on employer liabilities are not subtracted from the benefit liabilities). Also, the liability does not include the liability for not-yet-identified probable terminations.

Table 6A:
Distribution of Single-Employer Liability (including 4022(c)) by Trusteeship Status, Recipient Status, and Valuation Method
(Dollars in millions)

Recipient Status	Seriatim/ Missing Participants	Nonseriatim/ Collins	Total Terminated Liability	Probables/ IBNR	Total Liability	Percent of Total Liability
Receiving Payments						
Trusteed	$49,897	$6,980	$56,877	$0	$56,877	69.7%
Pending Trusteeship	3	1,471	1,474	207	1,681	2.1%
Total	$49,900	$8,451	$58,351	$207	$58,558	71.8%
Not Receiving Payments						
Trusteed	$16,966	$4,707	$21,673	$0	$21,673	26.5%
Pending Trusteeship	0	1,100	1,100	316	1,416	1.7%
Total	$16,966	$5,807	$ 22,773	$316	$23,089	28.2%
All Payment Statuses						
Trusteed	$66,863	$11,687	$78,550	$0	$78,550	96.2%
Pending Trusteeship	3	2,571	2,574	523	3,097	3.8%
Total	$66,866	$14,258	$81,124	$523	$81,647	100.0%
Percent of Terminated	82.4%	17.6%	100.0%			
Percent of Total	81.9%	17.5%	99.4%	0.6%	100%	

Notes:

1) Recipient status for Seriatim and Missing Participants liabilities refers to status as of 9/30/2022. For Nonseriatim and Probable liabilities, recipient status refers to the status as of the most recent actuarial valuation report (date of plan termination if benefits are "final"). The term "final" is defined in the notes to Table 5.

2) The Probable liabilities are shown as gross amounts (i.e., plan assets and collections on employer liabilities are not subtracted from the liability for benefits).

Table 6B:
Distribution of Single Employer Participants (including 4022(c)) by Trusteeship Status, Recipient Status, and Valuation Method
(Participants in thousands)

Recipient Status	Seriatim/ Missing Participants	Nonseriatim	Total Terminated Participants	Probables	Total Participants	Percent of Total Participants *
Receiving Payments						
Trusteed	810	127	937	0	937	63.7%
Pending Trusteeship	0	23	23	1	24	1.6%
Total	810	150	960	1	961	65.3%
Not Receiving Payments						
Trusteed	383	112	495	0	495	33.6%
Pending Trusteeship	0	16	16	0	16	1.1%
Total	383	128	511	0	511	34.7%
All Payment Statuses						
Trusteed	1,193	239	1,432	0	1,432	97.3%
Pending Trusteeship	0	39	39	1	40	2.7%
Total	1,193	278	1,471	1	1,472	100.0%
Percent of Terminated	81.1%	18.9%	100.0%			
Percent of Total	81.0%	18.9%	99.9%	0.1%	100.0%	

Notes:

1) Recipient status for Seriatim and Missing Participants liabilities refers to status as of 9/30/2022. For Nonseriatim and Probable liabilities, recipient status refers to the status as of the most recent actuarial valuation report (date of plan termination if benefits are "final"). The term "final" is defined in the notes to Table 5.

2) Participant counts for IBNR and Collins are not included.

Reconciliation of Results

Table 7 reconciles the September 30, 2022, valuation with the September 30, 2021, valuation. It shows that the $31,169 million decrease in the liability for the Single Employer program was the net effect of:

(1) decreased liability from change in interest factors = ($24,061) million

(2) actual benefit payments = ($7,042) million

(3) increased liability for probable plans = $176 million

(4) change in mortality assumptions = $368 million

(5) new plan terminations as of the beginning of the year = $540 million

(6) expected interest on liability = $483 million

(7) other changes = ($1,631) million.

The Multiemployer columns reconcile the liability for the post-MPPAA financial assistance to insolvent plans. The liability for the pre-MPPAA terminated plans in FY 2022 is less than $500,000 and not included or shown in this table.

Table 7:
Reconciliation of the Present Value of Future Benefits (dollars in millions)

	Total Single Employer	Post-MPPAA Multiemployer
1. Liability at BOY (9/30/2021)		
(a) Present Value of Future Benefits for all Plans	$112,816	$3,017
(b) Liability for Probable Plans (gross liability including unreported)	(347)	(1,471)
(c) Liability for Unreported Terminated Plans and other settlements	(17)	0
(d) 9/30/2021 Liability for Terminated Plans (a + b + c)	$112,451	$1,545
2. Change in Valuation Software		
(a) Effect on Liability as of DOPT	$0	$0
(b) Projection of (a) from DOPT to BOY + post-DOPT changes	0	3
(c) Total (a + b)	$0	$3
3. Net New Plans and Missing Participant Liability		
(a) New Missing Participant Liability	$60	$0
(b) New Termination Inventory as of DOPT	494	552
(c) Deletions as of DOPT	0	0
(d) Projection of (b + c) from DOPT to BOY	46	0
(e) Total (a + b + c + d)	$600	$552
4. Nonseriatim Data Changes and Effect of DOPT Seriatim Valuation		
(a) Effect on Liability at DOPT	($4)	$14
(b) Projection of (a) from DOPT to BOY	18	0
(c) Total (a + b)	$13	$14
5. Actuarial Charges/Credits		
(a) Expected Interest	$483	$9
(b) Change in Interest Factors	(24,061)	(408)
(c) Change in Mortality Assumption	368	7
(d) Change in Method (Current Year: Seriatim at DOPT to Seriatim at FYE)	797	0
(e) Effect of Experience*	299	(27)
(f) Change in Other Assumptions (Expense, SPARR, PBGCC STD Rates)	(2,563)	3
(g) Total (a + b + c + d + e +f)	($24,679)	($416)
6. Expected Expense Payments	($237)	$0
7. Actual Benefit Payments	($7,042)	($147)
8. Liabilities at End of Period (9/30/2022)		
(a) Liability for all Terminated Plans = (1d) + (2c) + (3e) + (4c) + (5g) + (6) + (7)	$81,107	$1,551
(b) Liability for Unreported Terminated Plans and other settlements	17	-
(c) Liability for all Terminated Plans (a + b)	81,124	1,551
(d) Liability for Probable Plans (gross liability including unreported) **	523	839
(e) 9/30/2022 Present Value of Future Benefits for all Plans (c + d)	$81,647	$2,390

* Includes change from expected benefits $6,786 million to actual benefits $7,042 million in Total Single Employer.
Includes change from expected benefits $165 million to actual benefits $147 million in Post-MPPAA Multiemployer.
Actual does not include payments made by employers.
Numbers may not add up due to rounding.

** Includes $218 million for not yet identified probable terminations.
Financial statements show a probables liability of $523 million, less assets of $302 million, for a net claim of $221 million.
Includes $92 million for small reserves Post-MPPAA Multiemployer plans.
Numbers may not add up due to rounding.

<u>Statement of Actuarial Opinion</u>

This valuation has been prepared in accordance with generally accepted actuarial principles and practices and, to the best of my knowledge, fairly reflects the actuarial present value of the Corporation's liabilities for the single-employer and multiemployer plan insurance programs as of September 30, 2022.

In preparing this valuation, I have relied upon information provided to me regarding plan provisions, plan participants, plan assets, and other matters.

In my opinion, (1) the techniques and methodology used for valuing these liabilities are generally acceptable within the actuarial profession; (2) the assumptions used are appropriate for the purposes of this statement and are individually my best estimate of expected future experience, discounted using current settlement rates from insurance companies as determined by PBGC’s Policy Research and Analysis Department; and (3) the resulting total liability represents my best estimate of anticipated experience under these programs.

I, Scott G. Young, am the Chief Valuation Actuary of PBGC. I am a Member of the American Academy of Actuaries, a Fellow of the Society of Actuaries, and an Enrolled Actuary.

I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Scott G. Young

Scott G. Young, FSA, EA, MAAA
Fellow of the Society of Actuaries
Enrolled Actuary
Member of the American Academy of Actuaries
Chief Valuation Actuary and Department Director
Actuarial Services and Technology Department
Pension Benefit Guaranty Corporation

August 28, 2023