PBGC
Pension Benefit
Guaranty Corporation

Projections Report
FY 2024

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FIGURES

FREQUENTLY USED ABBREVIATIONS

ARP	American Rescue Plan Act of 2021
ERISA	Employee Retirement Income Security Act of 1974, as amended
FY	Fiscal Year
ME	Multiemployer
MP-2021	Mortality Projection − 2021 Mortality Improvement Scale
MPRA	Multiemployer Pension Reform Act of 2014
PBGC	Pension Benefit Guaranty Corporation
PIMS	Pension Insurance Modeling System
SE	Single-Employer
SFA	Special Financial Assistance
VBL	Vested Benefit Liability
VRP	Variable Rate Premium

EXECUTIVE SUMMARY

The Pension Benefit Guaranty Corporation (PBGC) insures participants' pension benefits in private-sector defined benefit pension plans. PBGC operates two insurance programs — one for multiemployer plans and one for single-employer plans. The programs are legally separate and operationally and financially independent, with different benefit guarantees and different sources and means of funding. This report projects the financial status of both programs under a range of future financial scenarios through FY 2034 (September 30, 2034); additional projections are made through FY 2064 for the Multiemployer Program.

Figure 1 summarizes the results for the 10-year projection of each program's net financial position.

Figure 1 – PBGC Projected Net Financial Position at the End of FY 2034 Nominal Value ($ billions)		
	Multiemployer Program	**Single-Employer Program**
Mean	($1.6)[a]	$105.3[b]
Median	$7.4	$104.8
15th to 85th Percentile	($6.2) - $9.0	$93.2 - $117.3

a) The negative $1.6 billion projected mean net financial position consists of $10.0 billion in assets and $11.6 billion in liabilities. While the mean is negative, most scenarios (75 percent) project a positive net position for FY 2034.

b) The $105.3 billion projected mean net financial position consists of $168.9 billion in assets and $63.6 billion in liabilities.

It is important to note that, even when PBGC's programs are financially healthy, participants may face benefit reductions upon insolvency of a multiemployer plan or termination of an underfunded single-employer plan if plan-level benefits exceed PBGC's guarantees. In particular, Multiemployer Program guarantee levels are not adjusted for inflation while plan benefits increase with economic growth as new generations of workers participate and retire under more recent collective bargaining agreements.

MULTIEMPLOYER PROGRAM

The financial outlook for PBGC's Multiemployer Program improved compared to last year's report, and the Program is likely to remain solvent for the next 40 years. The improvement was driven by better projected funding levels for plans covered by PBGC's insurance program than in last year's model.

This report measures projected outcomes based on data updated through December 31, 2024. Subsequently, in April 2025, the U.S. Court of Appeals for the Second Circuit (Second Circuit) issued a decision that could affect whether more plans could become eligible for Special Financial Assistance (SFA). On December 12, 2025, the U.S. Solicitor General and PBGC filed a petition seeking Supreme Court review of the Second Circuit's decision. The results shown in this report do not include any potential expansion of SFA eligibility.[1]

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[1] See section **Post-Measurement Events Regarding SFA Eligibility for Terminated Plans**. Note that any expansion of SFA Program eligibility only generates a relative increase in the projected assets and likelihood of solvency for the traditional Multiemployer Insurance Program.

Projected Net Financial Position (Assets vs. Liabilities)

In most scenarios the Multiemployer Program net position is projected to increase from the positive $2.1 billion reported net position on September 30, 2024; in half the scenarios, the projected value is $7.4 billion or greater. However, the average (mean) across all scenarios declines by $3.7 billion over 10 years to a mean projected net position of negative $1.6 billion.[2] As with last year's report, the potential for very large claims generates large negative net positions and these scenarios pull the overall projected average down.

Projected Solvency (Ability to Pay Full Guarantees)

PBGC's Multiemployer Program is expected to stay solvent in all scenarios during the 10-year period ending September 30, 2034. SFA paid to financially troubled plans delays the insolvency of those plans and any claims they might make on the Program. This year's report shows improved projections of solvency for the Program over a 40-year period; specifically, in this year's report 67 percent of scenarios show solvency beyond FY 2064, the final year of the projection period, compared to 61 percent beyond FY 2063 in last year's report. However, the most pessimistic of the 500 stochastic scenarios projects multiemployer fund depletion in FY 2039. Uncertainty about the duration of solvency is driven primarily by future investment performance, contribution income, and the level of future benefit payments in covered plans.

SINGLE-EMPLOYER PROGRAM

The financial outlook for PBGC's Single-Employer Program continues to be very strong. The Single-Employer Program is projected to remain in a positive net financial position over the next decade in all modeled scenarios, and significant growth in net position is projected.

Projected Net Financial Position (Assets vs. Liabilities)

The Single-Employer Program projections show an increase in the mean net financial position of $51.1 billion—from $54.2 billion (the reported net position on September 30, 2024) to an average projected $105.3 billion on September 30, 2034.[3] The growth expected in the net position is primarily due to projected premiums exceeding projected claims and projected earnings on the surplus assets. Due to the current level of the net position and the high level of projected premium income, the potential for a negative net position is very low. No model outcomes show a projected negative net position, including scenarios with very high projected claims. Even under a separate stress test in which a major market downturn is coupled with a high level of claims designed to represent PBGC's highest claim period in the early 2000s, the net position remains positive and improves over the course of the 10-year projection.

Projected Solvency (Ability to Pay Full Guarantees)

PBGC's Single-Employer Program is expected to stay solvent indefinitely. There are no model scenarios in which Single-Employer Fund assets become fully depleted during the projection period.

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[2] Nominal projected value. Prior Projections Reports showed projected results on a present value basis. On a present value basis, the 2034 projected mean present value would be negative $1.4 billion in 2024 dollars.

[3] Nominal projected value. Prior Projections Reports showed projected results on a present value basis. On a present value basis, the 2034 projected mean present value would be $74.5 billion in 2024 dollars.

ABOUT THIS REPORT

PBGC's annual Projections Report is required by section 4008 of the Employee Retirement Income Security Act, as amended, (ERISA) to be an "actuarial evaluation of the expected operations and status of [PBGC's] funds." The purpose of the report is to provide an actuarial evaluation of the future financial status of PBGC's Multiemployer and Single-Employer Programs. It does so by projecting solvency (ability to make required payments) and net financial position (balance sheet assets minus liabilities) for the two programs in a variety of simulated future conditions. A negative net position does not imply a projected insolvency.

The results in this report were developed based on PBGC and plan data available on or before September 30, 2024, economic data as of December 31, 2024, and SFA application activity through December 31, 2024.[4] The projections start with PBGC's FY 2024 Annual Report and forecast results under a range of future economic scenarios.[5] The projections reflect current law as of December 31, 2024, and assume no future changes in the law.

The SFA Program is funded by an appropriation from general revenues through periodic transfers from the U.S. Treasury Department. This report provides estimates of the aggregate amount of SFA payments to be distributed by PBGC but does not show SFA outlays on an annual basis. The timing of SFA payments to eligible plans depends on the timing of plans' SFA applications and PBGC approvals.

PBGC uses two stochastic models to develop the projections in this report: the Multiemployer Pension Insurance Modeling System (ME-PIMS) and the Single-Employer Pension Insurance Modeling System (SE-PIMS). Both systems share a common set of probabilistic distributions of investment returns, interest rates, and other variables to estimate a range of possible future outcomes. The ME-PIMS model runs 500 total scenarios and the SE-PIMS model runs 5,000 total scenarios.[6] This report uses averages and ranges to summarize the results of the stochastic simulations.

The projections shown are estimates, not predictions. They reflect a reasonable range of values that result from assumptions about many factors, including:

- Inflation and wage growth

- Interest rates (e.g., 30-Year Treasury yields, corporate bond yields)

- Equity returns

- Plan sponsor decisions about contributions

- Multiemployer plan applications under the SFA Program

- Single-employer plan sponsor bankruptcies

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[4] The use of economic data as of December 31 following the fiscal year end date improves the model's projection of single-employer variable rate premium revenue in the following year (because most plans' variable rate premium requirements are based on funding levels as of January 1).

[5] The financial statements in the FY 2024 Annual Report were prepared in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) and utilize data and assumptions available as of September 30, 2024 (the end of FY 2024).

[6] Both models use the same 500 economic scenarios, but the SE-PIMS model runs each of these 500 scenarios under 10 bankruptcy simulations.

In addition, many aspects of individual plans and the complex rules that govern the private employment-based pension system in the United States are simplified or disregarded to create a working model. **The actual results that ultimately occur in future years will vary, potentially significantly, from the mean and median projections in this report.**

WIDE RANGE OF POSSIBLE OUTCOMES

To illustrate the uncertainty of future outcomes, this report shows a range of results associated with a given set of assumptions. These include the mean (i.e., average) and median (i.e., middle) values, as well as percentile results along the distribution of outcomes. To demonstrate potential variation, the 85th percentile (15 percent of the outcomes are higher [more favorable]), the median value (50th percentile), and the 15th percentile (15 percent of outcomes are lower [less favorable]) are shown. During a period of 10 or more years, it is possible that actual results will, at times, fall outside this 15th – 85th percentile range. The report also shows results for the 1st and 99th percentiles to provide a sense of the broad range of potential outcomes.

FINANCIAL OBLIGATIONS

The report presents two types of financial measures:

- Liabilities—The present value, at a specific point in time, of the projected guaranteed retirement benefits provided by PBGC for the lifetime of participants and their beneficiaries. PBGC's liabilities are compared to its assets to determine a net position.

- Cash flows—The benefit payments or financial assistance payments (traditional and special)[7] expected to be disbursed by PBGC during each year of the projection period. Cash flows provide the basis for examining PBGC solvency.

Claims are newly recorded liabilities reduced by any associated plan assets and cash recoveries from plan sponsors for a plan that PBGC takes over.[8] Claims are recorded when the payment of guaranteed benefit amounts is deemed "probable."[9] Claims occur only when a plan does not have enough assets to pay benefits up to the level guaranteed by PBGC. PBGC's liabilities include amounts for claims where PBGC is already helping and estimated amounts for probable claims yet to be incurred.

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[7] Traditional financial assistance is paid to plans that run out of money to enable them to pay guaranteed benefits under ERISA Section 4261. SFA is paid to eligible plans under ERISA Section 4262. This report shows traditional financial assistance directly in the exhibits, but SFA only indirectly through its impact on future claims.

[8] Asset recoveries occur only with respect to single-employer claims events and are not applicable for the Multiemployer Program.

[9] Based on the definition under the Financial Accounting Standards Board's Accounting Standards Codification Topic 450 "Contingencies."

The insurable event giving rise to a claim and the coverage provided is different for the Single-Employer Program and the Multiemployer Program:

- *Single-Employer Program*—The insurable event is termination of an underfunded plan, generally where the sponsor is in financial distress (e.g., bankruptcy of a company that sponsors a plan without enough assets to cover all future benefits up to the level guaranteed by PBGC).[10]

- *Multiemployer Program*—The insurable event is plan insolvency, typically the drawdown of all assets in the plan, such that there is not enough money to pay full benefits for the next year. For accounting purposes, multiemployer claims are generally booked as probable losses when a plan is projected to be within 10 years of insolvency.

Discussions of PBGC's net position reflect a comparison of liabilities to assets as of a certain date. The PIMS models estimate liabilities and assets on PBGC's books in various future economic scenarios.

"Benefit payments" in the Single-Employer Program and "financial assistance" in the Multiemployer Program mean the amount PBGC is projected to pay to participants or a multiemployer plan during that year, respectively, regardless of when a plan failed. The solvency projection for each PBGC program is based on the sufficiency of assets, investment returns, and premiums to meet PBGC's benefit payment/financial assistance obligations and expenses for a particular year. This report uses the term "insolvent" to mean lacking the funds to pay benefits/assistance and expenses for a year. PBGC can have a negative net position but still not be insolvent by this definition.

Note that previous versions of the Projections Report showed projected results on a "present value basis," with future amounts represented in today's dollar values. This report changes the convention and provides projected results on a "nominal basis," with future amounts represented by future dollar values, not discounted back to today's dollars. This is consistent with external projections of PBGC's cash flows.

ABOUT THE PIMS MODELS

The PIMS models are unique and complex. They were designed specifically for estimating the information in this report and other related analyses. The models are regularly revised to reflect changing laws, changes in anticipated plan sponsor behavior, and changes in other actuarial assumptions.

While both ME-PIMS and SE-PIMS simulate some demographic and economic factors at least 20 years into the future, they do not model all longer-term sources of uncertainty affecting the pension system.[11]

The estimated Multiemployer Program deficits and financial assistance shown in this report assume that PBGC will provide financial assistance in accordance with the current level of guaranteed benefits. This evaluation assumes no changes in current law with respect to guarantee levels after September 30, 2024, for both multiemployer plans and single-employer plans.

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[10] Terminations that result in claims on the Single-Employer Program can be a "distress" termination initiated by the plan administrator when the plan sponsor and its controlled group meet certain conditions of financial distress under ERISA Section 4041 or, alternatively, an "involuntary" termination initiated by PBGC based on criteria specified under ERISA Section 4042.

[11] For more information on PIMS, including links to user publications and peer review papers, see the PIMS webpage pbgc.gov/about/projections-report/pension-insurance-modeling-system.

MULTIEMPLOYER PROGRAM

MULTIEMPLOYER PROGRAM OVERVIEW

Multiemployer pension plans are maintained pursuant to one or more collective bargaining agreements between at least one labor organization and more than one employer that are generally in the same industry or members of a trade association. PBGC's Multiemployer Program covers approximately 11 million participants in about 1,335 plans.

The Multiemployer Program is legally distinct from, and operates differently than, PBGC's Single-Employer Program. When a multiemployer plan has insufficient funds to pay full benefits (referred to as "insolvent"), PBGC does not take over the administration of the plan. Rather, PBGC provides traditional financial assistance directly to the plan to cover participants' guaranteed benefits and plan administrative expenses. This financial assistance is provided as loans to plans; prior to the SFA Program these loans were rarely repaid by plans.

Other differences between the features and obligations of the Multiemployer Program and the Single-Employer Program include premiums and guarantees. Multiemployer plans' PBGC premium rates are lower than those for single-employer plans and are based solely on participant count. The amount and structure of PBGC's benefit guarantees also differ significantly, with the multiemployer guaranteed benefit levels not indexed to inflation and the guaranteed amount generally much lower for multiemployer plans. Multiemployer Program assets are separate from Single-Employer Program assets, and assets from one program cannot be used to fund obligations of the other program.

In the decade following the financial crisis of 2008, a sizable segment of multiemployer plans faced near-term insolvency due to severe underfunding. The American Rescue Plan Act of 2021 (ARP), enacted in March 2021, provides significant funding to the most financially distressed multiemployer plans, thereby extending the projected solvency of these plans.[12] This improved the financial status of the Multiemployer Program.

Figure 2 shows improvement in the 10-year projected financial condition of the Multiemployer Program from the prior (FY 2023) projections. Updates to the FY 2024 ME-PIMS model, including data, assumptions, and capital market expectations collectively improved projected multiemployer plan funded levels. Improved plan funding decreases projected claims resulting in a net improvement to the projected financial condition. The changes in results are detailed in the section **Multiemployer Reconciliation of FY 2023 Projections to FY 2024 Projections**.

Note that the results shown within the report are generally measured as of December 31, 2024, and exclude the effect of subsequent events, including any potential impact of litigation related to the April 2025 Second Circuit decision in *Board of Trustees of the Bakery Drivers Local 550 and Industry Pension Fund vs. Pension Benefit Guaranty Corporation*. For more information on this subsequent event, see the section **Post-Measurement Events Regarding SFA Eligibility for Terminated Plans**.

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[12] ARP also increased premium rates for multiemployer plans beginning in 2031.

Figure 2 – Projected Change in Multiemployer Program Key Financial Results ($ billions)		
	FY 2023 Projections	**FY 2024 Projections**
Expected FY 2034 Mean Net Financial Position (Shown as Nominal Projected Values)	($8.4)[a]	($1.6)
Likelihood of 40-year Solvency	61%	67%
Mean Projected Total SFA Outlays	$79.6	$79.1[b]

a) The projected FY 2034 mean net financial position based on the FY 2023 Projections Report, adjusted to reflect the passage of time. This is shown in line 3 of **Figure 9** of this report.

b) The $79.1 billion mean projected SFA includes $76.8 billion in approved or requested SFA based on application activity through December 31, 2024. The remaining $2.3 billion is estimated using the ME-PIMS model.

The projected mean of the FY 2034 net position is negative $1.6 billion in nominal terms, which is negative $1.4 billion in present value terms.[13]

STATUS OF THE SFA PROGRAM

ARP established section 4262 of ERISA under which SFA is provided to eligible multiemployer plans.[14] Eligible plans can apply to PBGC for SFA in the amount required for the plan to pay all benefits due through the end of the last plan year ending in 2051, based on a deterministic projection subject to certain prescribed assumptions and methods.[15] For plans that adopted a benefit suspension under the Multiemployer Pension Reform Act of 2014 (MPRA) (ERISA section 305(e)(9)), or for eligible insolvent plans that suspended benefits (under ERISA section 4245(a)), the SFA includes make-up payments of suspended benefits for participants and beneficiaries who are in pay status at the time SFA is paid, and suspended benefits must be reinstated for all participants as of the effective date of the SFA payment. For eligible insolvent plans, SFA also includes the amount needed to repay the loan from PBGC for traditional financial assistance paid during the period of the plan's insolvency.

Plans that receive SFA continue to be covered under PBGC's Multiemployer Program. The receipt of SFA does not impact a plan's ability to apply for traditional financial assistance payments under section 4261 of ERISA if the plan becomes insolvent in the future. By receiving SFA, these plans agree to abide by certain restrictions and conditions required by statute and PBGC's SFA regulation.

For purposes of the projections summarized in this report, the FY 2024 ME-PIMS model uses the latest SFA amounts approved or requested in SFA applications as of December 31, 2024.[16] As of December 31, 2024,

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[13] For results presented as present values in this report, the discount rate used to adjust nominal values is the simulated 30-year Treasury rate generated for the particular year and economic path.

[14] Eligibility for SFA is limited by law to certain financially distressed multiemployer plans; refer to ERISA section 4262(b) and section 4262.3 of the SFA regulation for more information.

[15] For plans that adopted a benefit suspension under MPRA (ERISA section 305(e)(9)), the SFA determination is subject to additional calculation procedures under section 4262.4(a)(2) of the SFA regulation.

[16] Includes interest to the actual or assumed date of SFA payment.

PBGC had approved $69.8 billion in SFA distributed to 105 plans.[17] Additionally, as of December 31, 2024, there were 28 applications under review by PBGC, requesting a total of approximately $3.6 billion in SFA. **Figure 3** below provides a summary of application activity through December 31, 2024, and includes the number of plans that had requested to join PBGC's SFA Waiting List in order to apply at a future date.

Figure 3 – SFA Application Status as of December 31, 2024[a]				
	Approved	**Under Review**	**Withdrawn**	**SFA Waiting List**
Number of Plans	105	28	14	50
Aggregate SFA Amount[b] (Approved or Requested)	$69.8 billion[c]	$3.6 billion	$3.5 billion	N/A
Aggregate Participant Count	1,233,297	351,287	247,832	112,922

a) The most recent SFA application information can be accessed on PBGC's website: pbgc.gov/arp-sfa/sfa-applications.
b) The amount of SFA for approved plans shows the amount paid, including traditional financial assistance loan repayments and interest to the payment date. The amount of SFA for plans under review shows the amount requested, which excludes any applicable loan repayments and interest to the payment date.
c) The $69.8 billion amount does not reflect repayments made by plans to the U.S. Treasury to account for participant census data adjustments. As of December 31, 2024, these repayments totaled $0.2 billion from 33 plans.

The FY 2024 ME-PIMS model does not vary the SFA amounts stochastically for plans that have already applied.[18] The SFA amounts requested for applications under review at this time are subject to change should these applications be subsequently withdrawn or denied, but the requested amount is likely to be closer to the final approved amount than an SFA amount otherwise estimated by PBGC.

Under the statute, plans must make an initial application for assistance by December 31, 2025; for this purpose, PBGC will accept a "lock-in" application that does not include the amount requested but specifies the date as of which the plan will measure its assistance needs. For plans that have not already applied for SFA as of December 31, 2024, ME-PIMS models plan eligibility and estimates SFA amounts in 500 stochastic scenarios.[19] The SFA projections included in this report reflect available data for all multiemployer plans through the 2022 plan year, which narrows the estimated range of plans expected to be eligible for SFA. Although certain plans are already expected to be eligible for SFA based on the available data, additional plans could be identified as eligible as more information becomes available to PBGC. The estimated SFA amounts

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[17] 35 of the 105 plans were approved in two installments to reflect changes between PBGC's Interim and Final Rule; in total an additional $1.8 billion was provided to plans originally approved under the terms of PBGC's Interim Final Rule. The $69.8 billion amount does not reflect repayments made by plans to the U.S. Treasury to account for participant census data adjustments. As of December 31, 2024, these repayments totaled $165 million from 33 plans.

[18] For plans that have already been approved and paid SFA, the amounts used in the projections do not reflect any estimated repayment amounts to the U.S. government to correct for inaccurate participant census data based on new death audit requirements. These repayments have totaled less than 1% of the initial SFA payment and have minimal impact on the projections.

[19] SFA amounts for each eligible plan are estimated stochastically with the exception of plans that have submitted an application as of December 31, 2024. For eligible plans that have submitted an application to PBGC, the amount requested in the latest application (either approved or under review) is used.

can vary by stochastic trial, but the model does not vary a plan's starting asset value or interest rates if the plan submitted a lock-in application by December 31, 2024.

Updated SFA Program Estimates

PBGC now estimates the total amount of SFA to be paid out under the program to be approximately $79.1 billion. This is a decrease of $0.5 billion from the $79.6 billion estimated in last year's report, which is due to updated data and revised applications submitted to PBGC.

Most of the total estimated SFA has already been either approved and paid out or requested and under PBGC review. The $76.8 billion in SFA that was either approved, under review, or withdrawn as of December 31, 2024, amounts to over 97 percent of the $79.1 billion in projected mean SFA, which leaves a much smaller amount of SFA that is subject to any stochastic variation in the model.[20]

Estimated future SFA amounts generated by the ME-PIMS model are subject to stochastic variability only with respect to potential economic outcomes. The model does not attempt to quantitatively capture any unexpected differences in plan data and assumptions used in future plan applications for SFA. Therefore, the aggregate SFA amount remains uncertain and could reasonably differ from the $79.1 billion estimate, primarily due to the following:

- ME-PIMS generally relies on publicly available plan-level information that is reported in arrears and does not include sufficiently detailed information about demographic data, expected plan benefit payments, and expected contribution income for direct use in the model.

- Plan sponsors and actuaries can change certain assumptions (other than the interest rate) for purposes of determining SFA if previous assumptions are no longer reasonable.

- Plan experience through the SFA application date could impact the amount of SFA that is requested.

- Some plans may need to submit a revised application with an updated SFA amount.

- Eligibility for SFA must be demonstrated by each plan, so the total group of eligible plans is not known with certainty.

MULTIEMPLOYER PROGRAM SOLVENCY

ARP has delayed and may avert the insolvency of PBGC's Multiemployer Program. As in last year's report, the current ME-PIMS model projects that the Multiemployer Program will likely remain solvent through the ME-PIMS 40-year projection period (in this year's report through FY 2064). Furthermore, the results in this year's report show an improvement from last year's projections. However, if plan experience is worse than our assumptions, plans may become insolvent earlier than expected and, in turn, accelerate the insolvency of the Multiemployer Program. While the focus of this report is a 10-year projection, a 40-year PBGC solvency analysis is included to show the range of potential longer-term solvency scenarios.

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[20] The $76.8 billion includes interest to the payment date for approved applications as well as traditional financial assistance loan repayments.

An illustration of PBGC's multiemployer fund balance provides insight into the factors that influence the Multiemployer Program solvency projection. **Figure 4** compares the projected Program assets at the end of each fiscal year to the projected premium income and projected average traditional financial assistance payments for each fiscal year.[21]

Figure 4 – PBGC Multiemployer Fund Assets, Traditional Financial Assistance Payments, and Premiums by Fiscal Year

(Nominal Dollars)
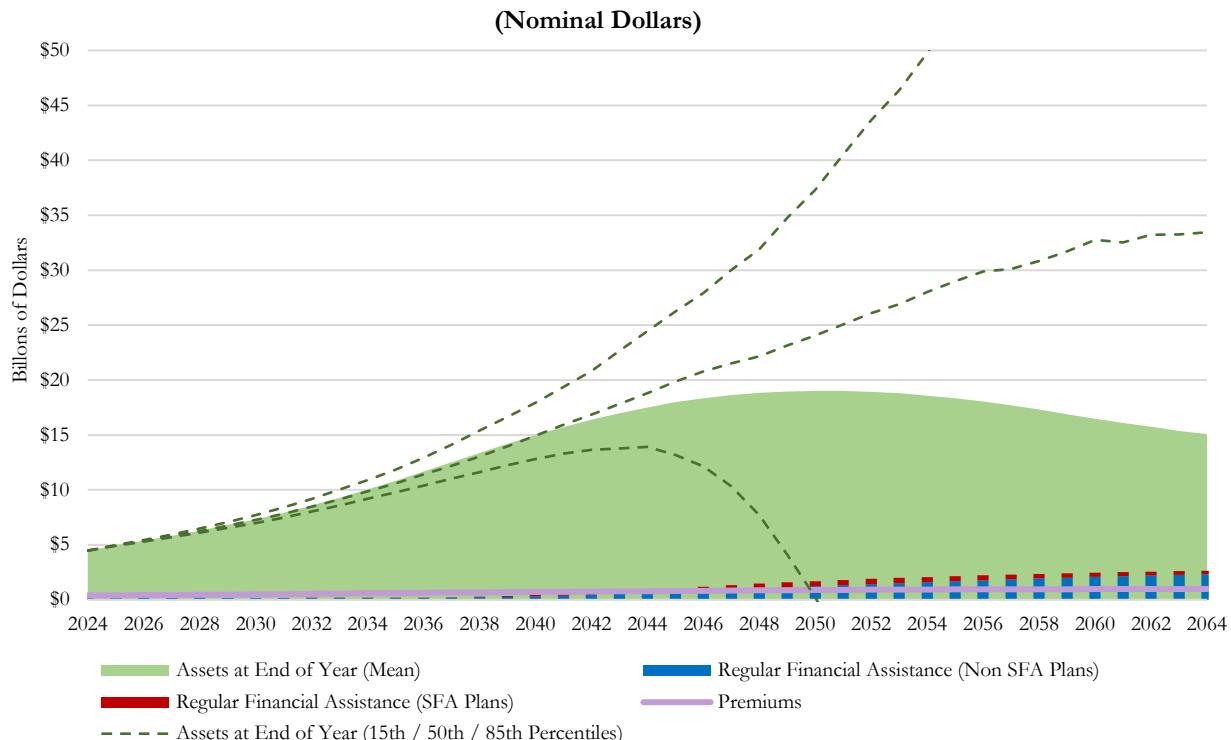
In **Figure 4**, mean projected values are shown as solid elements. The mean projected Multiemployer Program asset balance is shown in light green, premiums in light purple and the bars illustrating the mean annual traditional financial assistance payments are broken out between financial assistance to plans that previously received SFA (red portion of bars) and financial assistance to plans that did not receive SFA (blue portion of bars). Mean values represent the average across both favorable scenarios in which plans remain solvent and unfavorable scenarios in which plans begin receiving financial assistance earlier than expected.

The mean projected annual income from premiums and investment returns exceeds the mean projected annual traditional financial assistance payments and PBGC administrative expenses in most years of the projection. By the 2050s, the mean value of PBGC's projected multiemployer fund balance peaks and then begins to decrease slightly as plans begin to go insolvent and start drawing traditional financial assistance

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[21] Assets are shown as of a point in time—the end of the fiscal year—and compared with the cash flow generated due to premiums and financial assistance for that following year. Items of lesser significance, including investment income and administrative expenses, are not shown. PBGC's actual and projected outlays for SFA are reflected in the projected timing of individual plan insolvencies but are not illustrated in **Figure 4**, which shows a projection of assets and cash flows of PBGC's traditional insurance program for multiemployer plans.

from PBGC's Multiemployer Program at greater levels. Roughly 20 percent of the projected traditional financial assistance is expected to be provided to plans that have (or are projected to have) received SFA.

Superimposed on the solid elements of the chart are three dashed green lines that illustrate the percentile distribution of projected multiemployer fund asset balances under the model. The top dashed line represents the 85th percentile of results, the middle-dashed line the 50th percentile, and the bottom dashed line the 15th percentile.[22] In the 15th percentile results, PBGC's multiemployer fund balance approaches depletion at the end of FY 2050 and is projected to be fully depleted in FY 2051. In the 50th and 85th percentile results, PBGC's multiemployer fund balance is projected to remain solvent beyond FY 2064.

Figure 4 shows a wide range of solvency outcomes for the Multiemployer Program, but there is overall improvement from last year's projections. In last year's projections, the mean asset value was approximately $6 billion at FY 2063, the end of the 40-year projection period for that report. In this year's projections, the mean asset value is approximately $15 billion at FY 2064. Similar to last year's report, this year's median projection also shows the Multiemployer Program remaining solvent beyond FY 2064. The higher traditional financial assistance payments in the worst scenarios have a larger influence on the mean result because they are large enough to more severely deplete PBGC's reserve assets, even when averaged with the smaller traditional financial assistance payments from the favorable scenarios. In the median projection, the acceleration of PBGC traditional financial assistance payments begins at a later point than in the mean results.

A significant driver of the improvement in the projected solvency of the Multiemployer Program is the improvement in projected funding levels of covered plans due to higher than expected plan asset values. The initial value of plan assets reported in the 2022 Form 5500 plan filings were higher than last year's ME-PIMS model had projected them to be in 2022. Also, market returns for 2024 exceeded the average of projected rates of return for 2024 in last year's model. This favorable asset experience is partially offset by lower assumed asset returns projected in future years. However, the net impact of the data and assumptions pertaining to plan assets is an improvement in future plan funded levels that forestalls insolvencies and claims to the Multiemployer Program.

Projected traditional financial assistance in **Figure 4** is also lower than in last year's report, which is the result of higher plan funded levels. Similar to last year's report, the majority of projected traditional financial assistance payments are expected to be provided to plans that do not receive SFA.

The projected outcomes for plans that receive SFA are generally favorable. After the sharp rise in interest rates over the past two years, higher future fixed income and equity returns are expected in the future for all plans. For SFA plans, these higher returns exceed the level of the fixed rate of return used to calculate the SFA amount, which could extend plan solvency beyond 2051.[23]

The projected solvency of the Multiemployer Program over this extended period is highly uncertain. The median projected solvency period for the Multiemployer Program is more than 40 years and a wide range

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[22] In the last year's report, percentile values were shown at the 25th, 50th and 75th percentiles.

[23] The higher interest rates have a greater impact on projected future asset returns used in the plan's solvency projection after the receipt of SFA than on the interest rates used in the SFA calculation, which are averaged over 24 months. The majority of ongoing plans that are expected to apply for SFA in the future already submitted a lock-in SFA application to PBGC, which results in use of interest rates effective in early 2023.

of outcomes can materialize over that long period of time. **Figure 5** illustrates the wide distribution of these outcomes.[24]

Figure 5 – Projected Assets of PBGC Multiemployer Program (Mean and Percentile Scenarios)

PBGC Multiemployer Program Assets Shown in Nominal Dollars as of the End of Each Fiscal Year
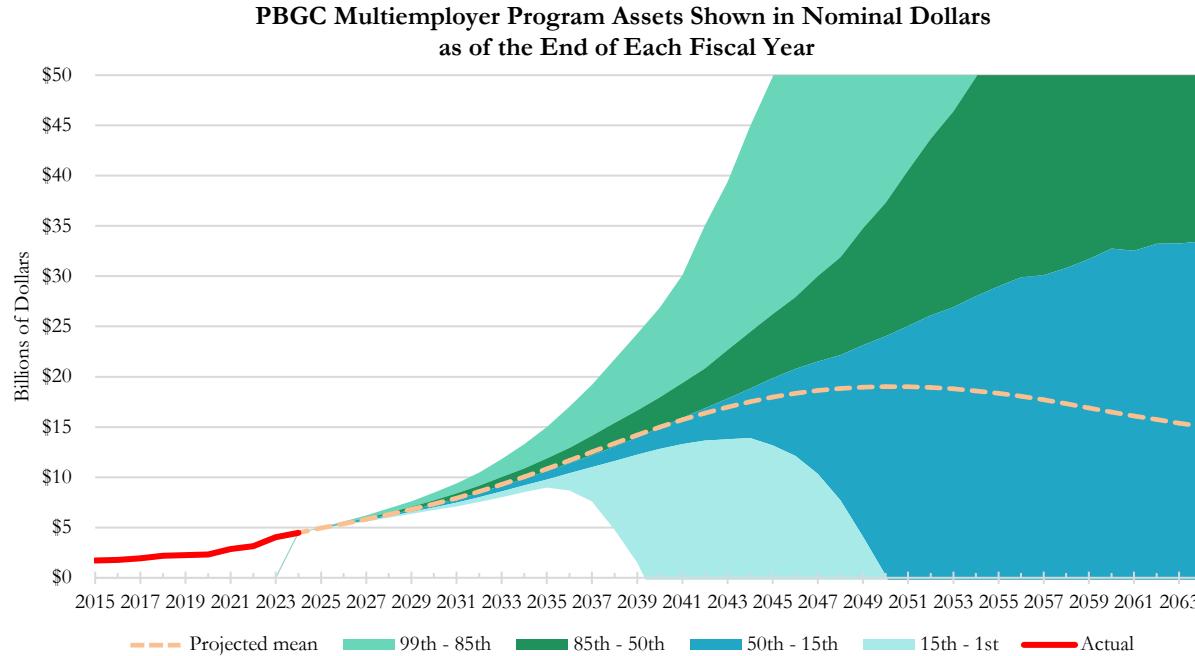
Figure 5 compares the Multiemployer Program asset values for the previous decade (red line) with the projections from our model. The mean projected asset value (dotted yellow line) matches the green area in **Figure 4.** The fan of values shows a range of projected values at various percentiles. Asset values from the 1st percentile to the median are shown in blue (1st to 15th in light blue, 15th to 50th in dark blue). Projected asset values from the median to the 99th percentile are shown in green.

At the 1st percentile, Multiemployer Program assets are depleted during FY 2039, which is the same as last year's report.[25] In these highly unfavorable scenarios, there are poor investment returns in the years closely following SFA payments and asset returns underperform compared to the deterministic projections included in the SFA applications, resulting in plan insolvency before 2051. The worst-case scenarios in this report are similar to last year's report.

In 67 percent of scenarios, the Multiemployer Program remains solvent beyond FY 2064. In these scenarios, financial markets have generally favorable investment returns in the decade following SFA payments when asset balances are high, allowing these plans to remain solvent past 2051. These scenarios have low levels of claims that are exceeded by PBGC premium revenues, which are indexed to wage growth.[26]

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[24] PBGC assets shown in **Figure 4** and **Figure 5** exclude the SFA Program funds, given their pass-through structure.

[25] In the worst scenario out of 500 scenarios, PBGC's Program fund is depleted during FY 2039.

[26] ME-PIMS assumes that plans receiving SFA do not implement any benefit increases for past service.

A large number of plans are submitting SFA applications using an SFA measurement date of December 31, 2022.[27] While assets for these plans incurred large investment losses in 2022, these losses are recovered in the SFA application calculations to the extent the plan needs the recovery to pay all benefits through 2051. Furthermore, SFA is not reduced for any rebound in assets that remained invested and benefited from the strong plan asset performance in 2023 and 2024 because those gains were incurred after the SFA measurement date.

Although investment returns play a significant role in driving the wide range of stochastic outcomes, additional factors contribute to the uncertainty of the Multiemployer Program's solvency. One such factor is the level of future employer contributions to ongoing plans, driven by increases in contribution rates and contribution base units (e.g., hours worked). This year's report includes a scenario that demonstrates the sensitivity of results to changes in plan contribution income. Changes to plan demographics, future benefit accruals, and liability gains/losses also play an important role.

MULTIEMPLOYER PROJECTIONS OF NET FINANCIAL POSITION

The new projections show an improvement in the Multiemployer Program's 10-year mean projected net financial position, from negative $6.1 billion[28] at the end of FY 2033 in last year's report to negative $1.6 billion at the end of FY 2034 in this year's report.

Last year's report projected the mean net position to gradually decline from positive $1.5 billion as of September 30, 2023, to an estimated negative $6.1 billion at the end of FY 2033. The Multiemployer Program's actual FY 2024 net position improved to positive $2.1 billion as of September 30, 2024. This year's projection shows a gradual decline in the mean net position over the next 10 years to negative $1.6 billion.

Figure 6 shows the actual and 10-year projected net position for the Multiemployer Program. As in **Figure 5**, the past 10 years of actual reported numbers are shown as a red line (in this graph the actual reported net position) and the mean and fan of percentile outcomes for net position are shown for the next 10 years. Although the mean projected net position as of FY 2034 is negative, most projection scenarios show a modest positive net position. The mean net position is lower than the median because the range of projected outcomes is unevenly distributed. The magnitude of potential deficits in the worst scenarios is significantly greater than the magnitude of potential positive net positions in the most favorable scenarios. Under the worst scenarios, severe market losses accelerate potential insolvencies for plans that received SFA, as well as for plans that never received SFA. Such market losses lead to a high level of new PBGC claims and a substantial negative net position. The potential for financial upside is much more limited. In favorable scenarios, PBGC does not incur many new claims by the end of FY 2034, but the low level of multiemployer premiums means that the Multiemployer Program's net position does not improve significantly.

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[27] Of the 112 lock-in applications submitted to PBGC as of December 31, 2024, 103 were submitted in March 2023 and "locked in" a December 31, 2022, SFA measurement date.

[28] Nominal mean value of 2033 projected net position. The present value of Multiemployer Program's 10-year mean projected net financial position shown in the FY 2023 Projections Report was negative $4.7 billion.

Figure 6 – Multiemployer Program Projected Net Financial Position
(Mean and Percentile Scenarios)

Historical Experience 2015-2024 and 2025-2034 Projections (Nominal Values)
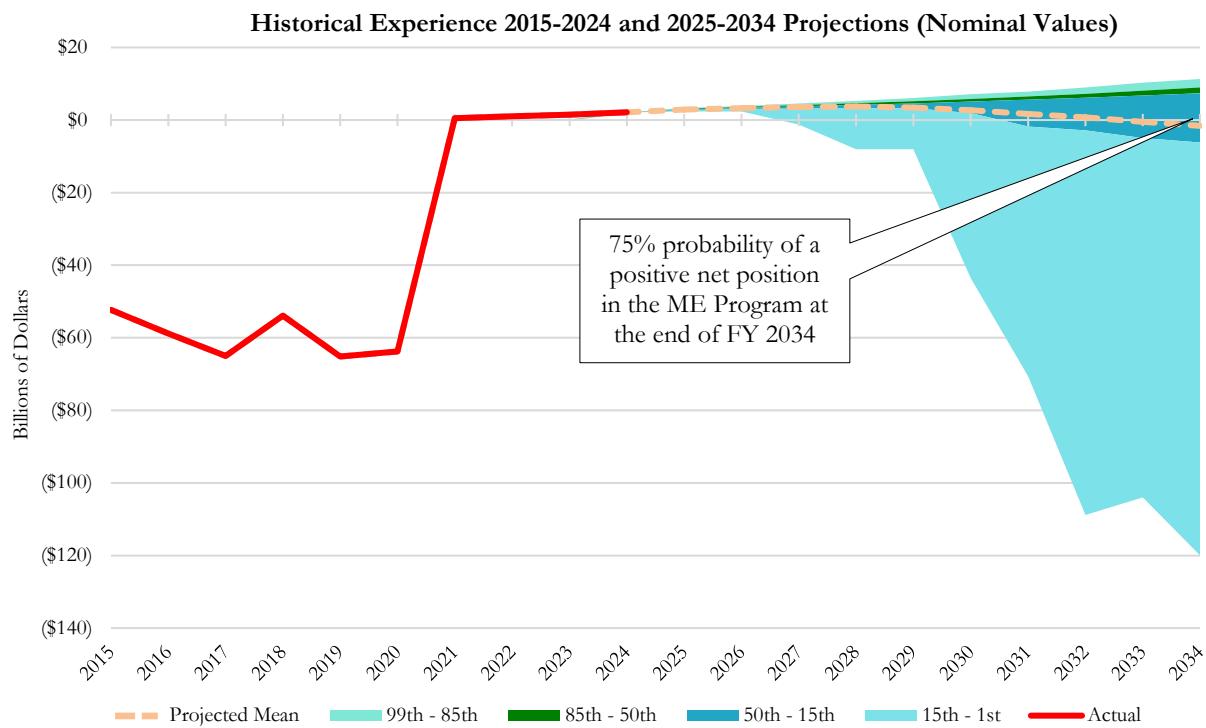
These projections assume no changes in the level of the Multiemployer Program guarantee, which is not indexed to inflation under ERISA. The projected net position is the future financial assistance, less assets, plus any unfunded liabilities for prior years carried forward with interest. The adjustment for unfunded liabilities reflects accumulated traditional financial assistance in years prior to the projection date.

A significant majority of scenarios reflect only a modest positive or negative net position by the end of FY 2034. However, the long, negative tail of the distribution illustrates the wide range of possible deficit outcomes that is consistent with the wide distribution shown in **Figure 6** under the 1st to 15th percentile results. These unfavorable outcomes in the left tail have a low probability before FY 2034, but large negative net positions would become more likely if the projection were extended beyond FY 2034 (as the projection year approaches 2051).[29]

Figure 7 shows the full range of projected outcomes for the net position of the Multiemployer Program in FY 2034. This includes the scenarios that fall below the 1st percentile and above the 99th percentile. For each value of PBGC's projected net position along the horizontal axis, the height of the line shows the frequency of that net position.

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[29] Section 4262(j)(1) of ERISA requires SFA to be the amount necessary for the plan to pay all benefits through 2051. As a result, the incidence of new PBGC claims is expected to increase over time as the 10-year measurement period for purposes of classifying probable losses approaches 2051.

Figure 7 – Potential FY 2034 Multiemployer Program Net Financial Position

(Nominal Values)
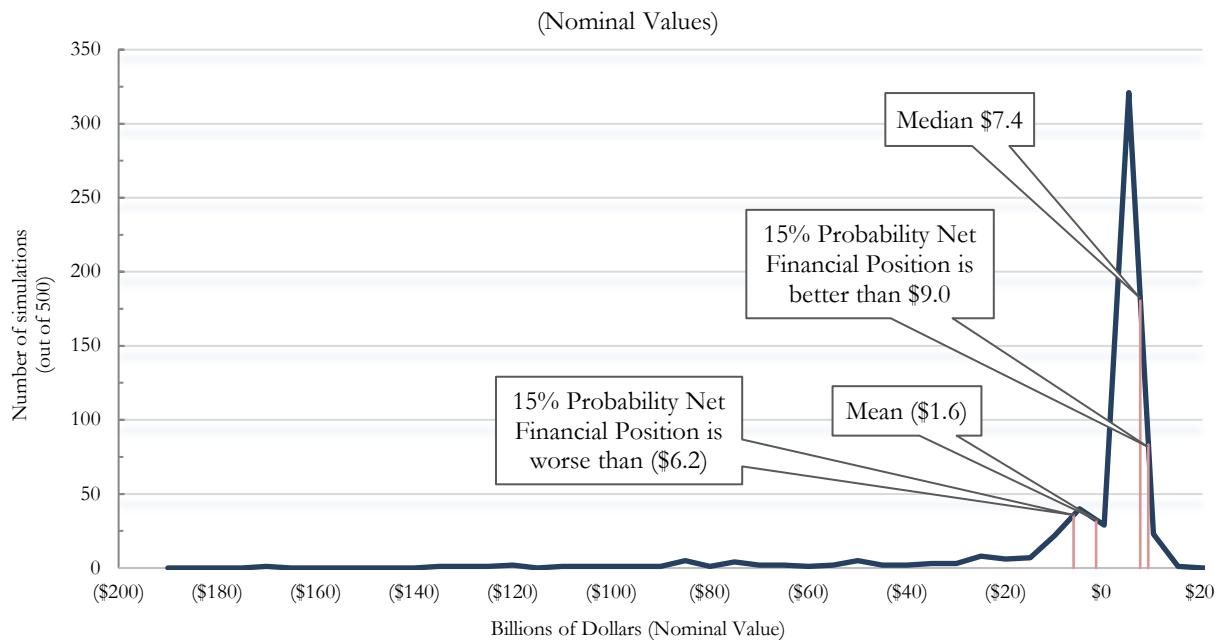
The Multiemployer Program remains exposed to significant risk going forward. Many plans and industries continue to face ongoing challenges, such as fewer active workers and declining contributions. Although SFA will bolster the financial position of eligible plans, future developments in some industries that sponsor these plans could limit their sustainability, leaving workers and retirees in poorly funded plans exposed to continued risks to the security of their benefits, and risk of loss for the multiemployer system.

VARIABILITY IN MULTIEMPLOYER PROGRAM FINANCIAL POSITION

As described above, there is uncertainty in PBGC's Multiemployer Program projections. **Figure 8** shows the mean net financial position and liabilities, along with the results for the 15th to 85th and 1st to 99th percentiles and the range of outcomes for factors that have a significant impact on the FY 2034 net financial position. The considerations related to each factor are explored in the rest of this section.

Figure 8 – Variability in FY 2034 Multiemployer Net Financial Position Nominal Value ($ billions)			
	Mean	**15th – 85th Percentile Range**	**1st – 99th Percentile Range**
PBGC Net Financial Position			
1. FY 2024 Actual	$2.1	$2.1	$2.1
2. FY 2034 Projected	($1.6)[a]	($6.2) – $9.0	($120.0) – $11.3
Nominal Value of Financial Activity Expected During FY 2025-2034			
3. Net New Claims[b]	($9.6)	$0.0 – ($14.4)	$0.0 – ($112.2)
4. Premiums[c]	$4.9	$4.8 – $5.0	$4.7 – $5.2
5. Asset/Liability Net Growth from Returns/Interest[d]	$1.0	$0.1 – $2.6	($14.7) – $6.3
6. Traditional (non-SFA) Financial Assistance Payments	$1.7	$1.6 – $1.7	$1.6 – $2.1

a) If expressed in present value terms, the mean projected net financial position for FY 2034 is negative $1.4 billion.

b) Net new claims are the nominal value of future financial assistance at the time plan insolvency becomes probable by 2034. Approximately 32 percent of new claims are projected to come from plans expected to receive SFA.

c) Premiums plus $4.5 billion in assets as of September 30, 2024, are available to make periodic, traditional financial assistance payments to insolvent plans during the projection period.

d) Multiemployer fund assets projected to grow from returns on 30-Year Treasuries, and liabilities projected forward using a projected single-equivalent liability interest rate. Includes growth on premiums and claims projected from FY 2025 – 2034.

Figure 8 shows estimates of PBGC's net position at the end of the 10-year projection in this report. The variability in results in this table comes primarily from uncertainty around future claims, and to a smaller degree the uncertainty around premium income and investment returns on PBGC assets.[30] Within the central 70 percent of scenarios (between the 15th to 85th percentile range of outcomes), the Multiemployer Program's projected financial position in FY 2034 varies by $15.2 billion.

Net New Claims

In the Multiemployer Program, a new claim is booked when an ongoing plan expects to exhaust plan assets and require traditional financial assistance within the following 10 years.[31] A plan that exhausts its assets may terminate via mass withdrawal but is not required to do so. For modeling purposes, ME-PIMS assumes that 60 percent of plans that become insolvent terminate through mass withdrawal and the remaining 40 percent of plans remain ongoing. The amount of the claim is the present value of all future traditional financial assistance payments expected to be made to the plan. The financial assistance payments are estimated by calculating the difference between projected annual plan outlays (i.e., benefit payments at the PBGC guarantee level and plan administrative expenses) and projected annual plan income (i.e., employer contributions and withdrawal liability payments) in each future year following the exhaustion of plan assets.

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[30] The Multiemployer Program faces other sources of variability not directly included in this table, including the model sensitivities shown in sections below.

[31] A new claim can also be generated when an underfunded plan terminates via mass withdrawal, but in the ME-PIMS model no plans are assumed to go through mass withdrawal prior to insolvency.

Net new claims are offset by the value of liabilities removed from the books if a plan's financial condition improves and financial assistance is no longer expected to be needed within a 10-year timeframe.

As shown in **Figure 8** above, the mean net new claims are about $9.6 billion over the next 10 years. While the median level of net new claims during this period is only $0.7 billion, it reaches $112.2 billion at the 99th percentile scenario.[32] This demonstrates that in the most unfavorable scenarios the Multiemployer Program's financial position could revert back to its pre-ARP levels.

The enactment of ARP in 2021 helped financially troubled multiemployer plans that had been booked as liabilities or may have generated new claims in the coming years. Consistent with **Figure 6** and **Figure 7**, few new claims are projected in the next 10 years because SFA is expected to forestall plan insolvencies beyond FY 2044 even in many scenarios where returns are unfavorable. However, in scenarios with poor outcomes, some plans that were "unbooked" after the enactment of ARP are projected to become "rebooked" by FY 2034, which drives up the mean claims amount. The two most significant risk factors for plans becoming "rebooked" are:

- Unfavorable investment returns: Unfavorable asset performance for both SFA and non-SFA assets, particularly during the initial projection years, will accelerate plan insolvencies. Financially troubled plans have limited capacity to recoup large losses when the annual cash outflows are a large percentage of the remaining assets. Asset performance is likely to be correlated between plans, so lower investment returns could have a significant detrimental impact on the solvency of all plans in the program and thus the Multiemployer Program's future net position.
- Lower-than-expected future contribution income: Multiemployer plan contribution income is driven by the size of the workforce as measured by contribution base units (CBUs) and contribution rate(s). CBU experience is impacted by several factors, such as local and national labor market conditions, industry outlook, non-union competition, local business conditions, technology, productivity and job automation, and employer withdrawals. These factors are difficult to predict over long-time horizons. The level of CBUs could deviate significantly from the plan's projections in its SFA application (and from the assumptions used in ME-PIMS). A decline in contribution income could accelerate a plan's insolvency and generate a new PBGC claim. A sensitivity analysis was conducted in which the model's CBU assumption was lowered in order to test the impact on the projection results. The sensitivity analysis is described later in this report.

Premium Income

PBGC premium rates are set by Congress. Unlike the premium rates for the Single-Employer Program, premium levels in the Multiemployer Program do not vary based on a plan's funded position. The Multiemployer Program premium is solely a flat rate premium that is determined based on a plan's participant count and future indexation based on the National Average Wage Index.[33] Consequently, because total participant headcounts do not fluctuate significantly during the projection period, there is little variability in expected multiemployer premium income.

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[32] Last year's 99th percentile level of projected net new claims over the 10-year period was a present value of $86.3 billion in 2023 dollars. This year's results are reported instead as nominal values. For comparison, the present value of the 99th percentile level of projected net new claims over the 10-year period in this year's model in 2024 dollars is $86.4 billion.

[33] Per ARP, the premium projections include an increase in the annual flat rate premium to $52 per participant beginning in 2031.

As shown in **Figure 8** above, the mean premium income is about $4.9 billion over the next 10 years and varies by only $0.5 billion between the 1st and 99th percentile outcomes.

Investment Outcomes

Since 1980, PBGC does not trustee multiemployer plans. Multiemployer Program assets are held in a Revolving Fund, which collects premium income and pays out financial assistance loans under Section 4261. Unlike the Single-Employer Program, where a claim typically requires PBGC to take on both assets and liabilities of a terminating plan, in the Multiemployer Program plans are insolvent at the time of a claim. PBGC receives no plan assets and PBGC establishes a liability for providing financial assistance loans to the plan (which are not generally repaid except when plans receive SFA). By law, the Revolving Fund assets must be invested in U.S. Treasuries. Because there are no investments in return-seeking assets, the range of projected future return outcomes for most scenarios is narrow. The projected returns are dependent on the Treasury yields projected in ME-PIMS. The $21.0 billion range in the asset/liability gain/(loss) between the 1st and 99th percentiles is driven by scenarios with extreme changes in interest rates over the next 10 years, and the corresponding impact on the present value of PBGC liabilities.

MULTIEMPLOYER RECONCILIATION OF FY 2023 PROJECTIONS TO FY 2024 PROJECTIONS

Figure 9 provides a detailed reconciliation of the changes in estimates of the Multiemployer Program's net financial position from last year's FY 2023 projections to this year's FY 2024 projections. ME-PIMS projections of PBGC's multiemployer obligations result in a mean net financial position of negative $1.6 billion for FY 2034. This is an improvement of $6.8 billion from the previous projection of negative $8.4 billion for FY 2034. As shown by row 4 of **Figure 9**, each category of the changes to this year's model resulted in an improvement to the projected FY 2034 net position. The improvement was primarily driven by improved plan funded positions stemming from better-than-expected plan asset performance.

Figure 9 – Reconciliation of Changes in Multiemployer Projection Results Nominal Value at the End of FY 2034 ($ billions)	
1. Nominal Value of FY 2033 Mean Net Financial Position from FY 2023 Projections Report	($6.1)[34]
2. Passage of Time	(2.3)
3. Expected FY 2034 Mean Net Financial Position [(1) + (2)]	($8.4)
4. Changes	
a) New Plan and PBGC Data (including from SFA applications)	4.2
b) New Economic Data and Assumptions	0.7
c) Model Improvements	0.1
d) Other Assumption Changes	1.8
e) Total Changes [(4a)+(4b)+(4c)+(4d)]	$6.8
5. Nominal Value of FY 2034 Mean Net Financial Position [(3) + (4e)]	**($1.6)**

Note: The order of changes impacts the magnitude of each individual change but not the sum of all changes.

Explanations of the changes in the mean net position shown in **Figure 9** are:

Passage of Time. The FY 2023 report projected a nominal mean net position of negative $6.1 billion in FY 2033. To compare with the FY 2024 report, which projects to FY 2034, the FY 2023 projections are rolled forward one additional year. In addition, the FY 2024 projection includes one additional year of projected new insolvencies compared to the FY 2023 projection (i.e., those in the FY 2024 projection are projected to become insolvent through FY 2044, whereas the FY 2023 projection only includes projected insolvencies through FY 2043). The effect of the roll forward from 2023 to 2024 is to make the net position more negative by $2.3 billion.

New Plan and PBGC Data. Changes in the starting data between FY 2023 and FY 2024 reflect new plan data provided on plans' Forms 5500. The FY 2024 data also includes data from SFA applications submitted as of December 31, 2024, including SFA amounts as well as projected benefit payments and withdrawal liability income.[35] Additionally, the model reflects zone status certification data through plan year 2024. The primary cause of the improvement in the projections due to new plan data is that the initial plan asset values reported in the 2022 Form 5500 plan filings were higher than last year's ME-PIMS model had projected them to be in 2022. A similar finding was presented in last year's report. The combined effect of the new data is an increase in the projected net position of $4.2 billion.

New Economic Data and Assumptions. The updated economic data and assumptions in FY 2024 slightly improved the projected net position. Market returns for 2024 exceeded the average rates of return for 2024 projected in last year's stochastic model. Additionally, the assumed relationship between interest rates on

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[34] Present value of FY 2033 Mean Net Financial Position from FY 2023 Projections Report was negative $4.7 billion.

[35] For plans that submitted a lock-in application, the model estimates SFA based on plan information as of December 31, 2022. Information about the SFA Waiting List and lock-in applications can be found: pbgc.gov/arp-sfa/sfa-application-guidance-non-priority-group-plans.

corporate bonds and the interest rates PBGC will use to calculate its net position was changed. This update to the "single-equivalent interest discount factor" resulted in higher discount factors and therefore a decrease to the projected PBGC liabilities. These changes were partially offset by lower assumed asset returns projected in future years based on updates to the PIMS' capital market assumptions. The combined impact of the new economic data and assumptions is an increase in the projected net position of $0.7 billion.

Model Improvements. Various programming refinements were made to the ME-PIMS model in conjunction with this report. None of these changes are material, and they are described in the **Appendix** of this report. The combined effect of these updates increases the projected net position by $0.1 billion.

Other Assumption Changes. Modifications to assumptions include an update to (1) asset allocations, (2) discount rate for calculating SFA for plans that did not submit a lock-in application by December 31, 2024, and (3) the mortality tables and improvement scales for determining plan cash flows. Details about each of these assumption changes can be found in the **Changes from the Prior Year** section of the **Appendix**. Reflecting these changes increases the projected net position by $1.8 billion.

SENSITIVITY OF CHANGES TO THE MULTIEMPLOYER MODEL

Employer Contributions

The level of employer contributions made to multiemployer pension plans has a significant impact on the future funded position of these plans, and therefore to PBGC's exposure to future claims. While plans are subject to minimum funding requirements under IRC Section 431, actual contributions made are primarily driven by CBUs (typically hours worked by active participants) and negotiated contribution rates. Should a plan's covered work levels decrease, the resulting drop in contributions can lead to challenges satisfying minimum contribution requirements and to financial distress. Declining work levels for many participating employers in the years following the 2008-2009 financial crisis were a significant contributing factor to the multiemployer crisis that led to reform efforts under MPRA and then to the enactment of the SFA Program.

Looking ahead, future employer contribution levels are uncertain and continue to pose a significant risk to the projected outcome of PBGC's Multiemployer Program. Although the results in **Figure 4** above show that the program is likely to remain solvent for more than 40 years, lower-than-expected employer contributions can lead to adverse projection outcomes. **Figure 10** below shows how the range of projected outcomes varies if the modeled assumption for the CBU changes is reduced by one percent annually for all plans.[36]

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[36] For reference, a previous PIMS peer review analysis included aggregate annual CBU changes from 2000–2019. The average participant-weighted CBU change in 2000–2019 was -0.70% per year: -0.25% per year in 2000–2009 and -1.15% per year in 2010–2019. The analysis can be found here: pbgc.gov/sites/default/files/me-active-participants.pdf

Figure 10 – PBGC Multiemployer Fund Assets, Traditional Financial Assistance Payments, and Premiums by Fiscal Year

Sensitivity Analysis: Average Assumed CBUs Reduced by 1.0% Annually

(Nominal Dollars)
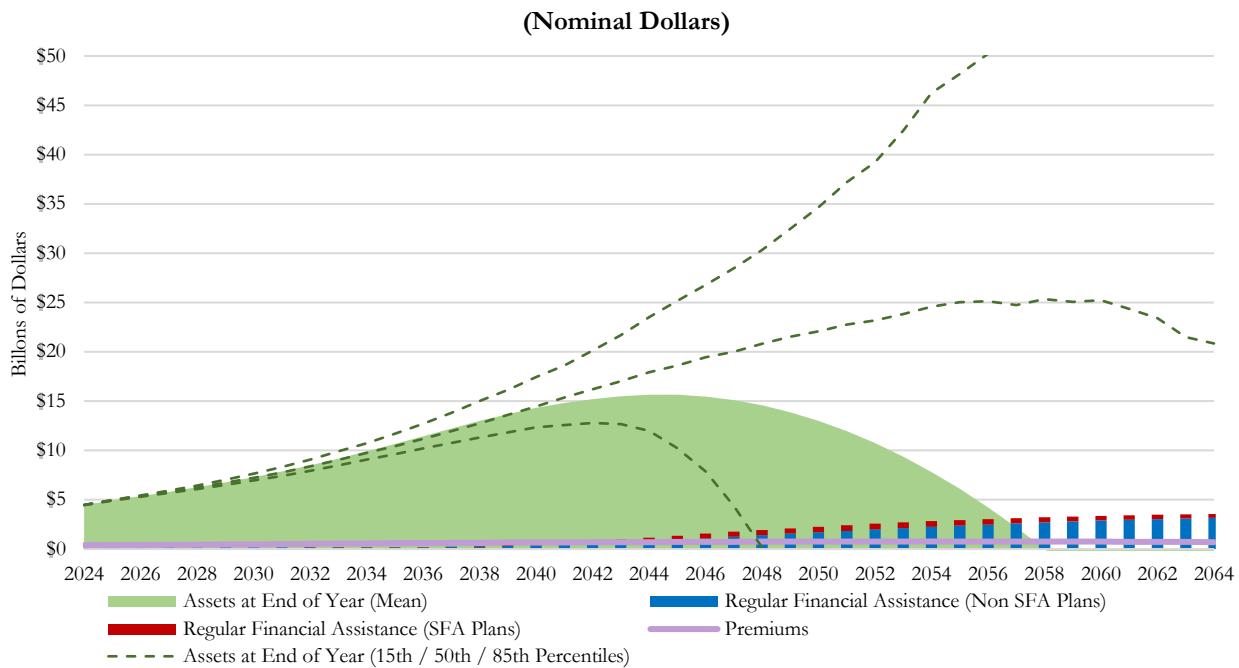
Under the alternative CBU assumption, **Figure 10** shows that PBGC's multiemployer fund would be projected to be depleted in FY 2058 at the mean. This constitutes an acceleration of the projected insolvency date relative to the baseline model assumption, which is projected to remain solvent beyond FY 2064, and highlights the risk that remains in the Multiemployer Program. The 2008–2009 financial crisis showed that poor economic conditions can have a detrimental impact on both plan asset returns and incoming employer contributions at the same time. Should a similar type of event transpire in the future, **Figure 10** shows that it could result in renewed financial stress for multiemployer plans and PBGC's multiemployer fund.

Discount Rate

The sensitivity information provided below relates to the discount rate used to calculate the present value of PBGC's projected traditional financial assistance payments. Only the discount rate for calculating PBGC liability values was changed; no other related variables, such as inflation or asset returns, are changed in the sensitivity calculations below. The information is presented as nominal values in FY 2034.

Figure 11 – Sensitivity of Net Financial Position to Discount Rate Changes Nominal Value at the End of FY 2034 ($ billions)			
	+50 Basis Points	**Baseline**	**-50 Basis Points**
FY 2034 Multiemployer Net Financial Position	($0.3)	($1.6)	($3.2)

If market prices for annuities were based on discount rates 50 basis points higher than in the baseline projections, the mean nominal value of the FY 2034 Multiemployer Program net position would improve by $1.3 billion. Discount rates 50 basis points lower would worsen the mean net position by $1.6 billion in FY 2034.

POST-MEASUREMENT EVENTS REGARDING SFA ELIGIBILITY FOR TERMINATED PLANS

Subsequent to the December 31, 2024 measurement date of this report, on April 29, 2025, the Second Circuit issued a decision reversing in part the court below and ruling that a plan terminated by mass withdrawal before 2020 is not *per se* ineligible to receive SFA. The impact of this decision could, hypothetically, increase the number of plans eligible for SFA by including certain plans that PBGC has not considered potentially eligible for SFA.[37] On December 12, 2025, the U.S. Solicitor General and PBGC filed a petition seeking Supreme Court review of the Second Circuit's decision.

Over the months since the Second Circuit's decision up until the December 31, 2025 statutory deadline for filing an initial application, 92 terminated plans have submitted an initial "lock-in" application. These plans cover approximately 0.1 million participants, compared to the total of approximately 1.9 million participants shown in **Figure 3** based on application data as of December 31, 2024.

Most of the 92 terminated plans are smaller than the ongoing plans eligible for SFA. If, however, these plans apply for and receive SFA, it would increase the projected assets of the Multiemployer Program and the likelihood that the Program will remain solvent beyond FY 2064. This is because a large portion of SFA for terminated insolvent plans would include repayment of prior PBGC financial assistance loans. Additionally, for an extended period, the increased PBGC revolving fund would no longer be making future traditional financial assistance payments to terminated plans which would have been required absent the receipt of SFA. Litigation regarding the potential eligibility of terminated plans to receive SFA remains unresolved as of the date of this report. Whether and to what extent terminated plans become eligible for SFA will impact the affected plan participants, taxpayer expenditures on the SFA Program, and the financial outlook for PBGC's multiemployer fund.

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[37] The ruling issued in *Board of Trustees of the Bakery Drivers Local 550 and Industry Pension Fund vs. Pension Benefit Guaranty Corporation* interprets the SFA eligibility criteria under ERISA 4262(b)(1)(A) to not *per se* exclude plans that terminated via mass withdrawal before 2020. The Second Circuit panel reversed in part the decision of the U.S. District Court for the Eastern District of New York that affirmed PBGC's interpretation of the statute and the denial of the Plan's SFA application.

SINGLE-EMPLOYER PROGRAM

SINGLE-EMPLOYER PROGRAM OVERVIEW

PBGC's Single-Employer Program covers defined benefit pension plans that generally are sponsored by a single private-sector employer. The Single-Employer Program covers about 19.4 million participants in about 23,000 pension plans. The Single-Employer Program's financial status has evolved from historical deficits to a positive net financial position projected to grow over the next 10 years. None of this year's projected scenarios result in PBGC's Single-Employer Program running out of money or entering a negative net position within the next 10 years. The projected growth in the net financial position over the upcoming 10-year period is due to expected premium revenue exceeding the cost of expected claims and expected investment returns exceeding the interest growth on liabilities.

The projections shown in this report start from PBGC's existing assets and liabilities as of September 30, 2024. However, because the variable rate premium (VRP) for the majority of single-employer plans is based on interest rates and assets as of January 1, the projection incorporates actual economic and PBGC financial experience for the quarter ending December 31, 2024. SE-PIMS is used to project:

- Future premium income,

- Assets and liabilities for single-employer plans that may become future PBGC claims and increase PBGC's net benefit obligations (assets include plan assets and additional assets that may be recovered from the sponsors of terminating plans),

- Future bankruptcies of plan sponsors that can result in PBGC claims if any of the plans are underfunded,

- Liabilities for plans currently trusteed by PBGC, and

- Future investment income on PBGC assets, based on PBGC's investment policy and asset allocations.

SINGLE-EMPLOYER PROJECTIONS OF NET FINANCIAL POSITION

The FY 2024 projections show that the Single-Employer Program net financial position is likely to continue to improve. This pattern is similar to the projection reported last year.

Figure 12 shows PBGC's actual net position for the preceding 10 years (FY 2015 to FY 2024) and selected ranges of projected net positions for the next 10 years. As shown in the FY 2024 Single-Employer Program financial statements, assets of $146.1 billion and liabilities of $92.0 billion result in a positive net position of $54.2 billion at the beginning of the projection period. The widening cone of results shows that uncertainty increases as the time horizon lengthens. The mean projected net position in FY 2034 is $105.3 billion, in nominal dollar values, which is an increase of $4.9 billion from the comparable number in the FY 2023 report. Expressed in present value terms, the mean projected net position in FY 2034 is $74.5 billion.

Figure 12 – Single-Employer Program Projected Net Financial Position (Mean and Percentile Scenarios)

Historical Experience 2015-2024 and 2025-2034 Projections (Nominal Dollars)
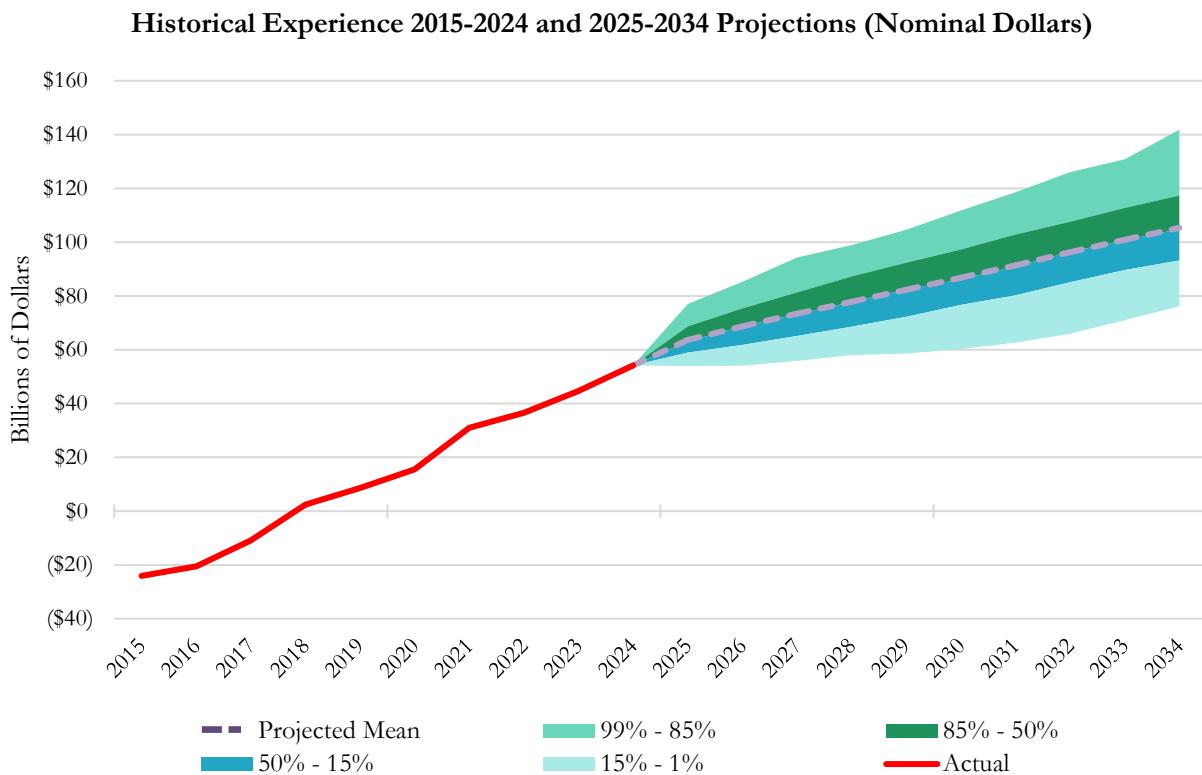
PBGC's net position is projected to improve over the 10-year period because premiums are projected to exceed claims, as they have in the recent past, and because investment returns are expected to exceed the interest growth on liabilities.

Figure 13 shows the full range of the 5,000 outcomes projected by the model for PBGC's Single-Employer Program's financial position for FY 2034. This includes the scenarios that fall below the 1st percentile and above the 99th percentile. For the Single-Employer Program projection, there are no scenarios that result in a negative net position. For each value of PBGC's projected net position along the horizontal axis, the height of the curve shows how many scenario paths have that net position as a result. The higher the curve, the more simulations have results at that point in the distribution. The further any point is to the right of the curve, the better the financial position associated with that point.

Figure 13 – Potential FY 2034 Single-Employer Program Net Financial Position
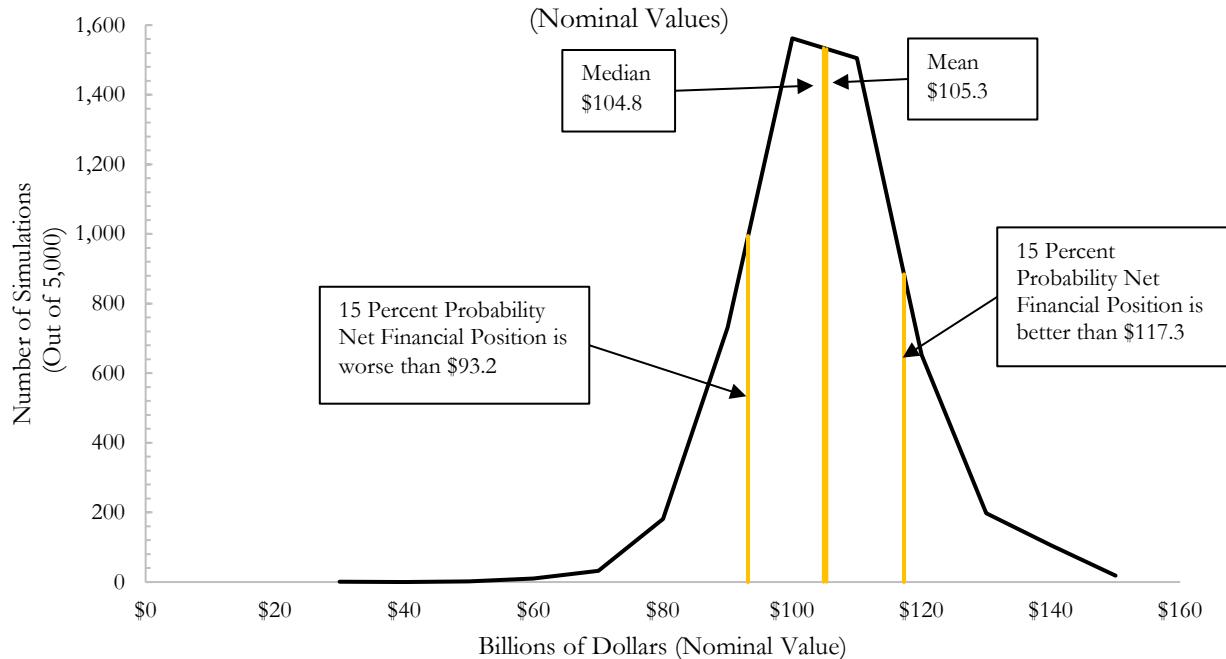
Vertical lines on the graph show the nominal value of PBGC's projected FY 2034 net position at the 15th and 85th percentiles and the mean and median values of projected net positions. The median is a $104.8 billion net position in FY 2034, while the mean is a $105.3 billion net position. The potential range of results for the FY 2034 net position ranges from $32.0 billion to $147.8 billion.

In the most adverse scenario, resulting in a $32.0 billion projected net position, multiple years of poor equity returns and low interest rates significantly increase plan underfunding while the random bankruptcy draws produced by the model result in highly elevated claims ($56 billion over ten years). This results in the unusual scenario where claims exceed the increased premium income ($46 billion over ten years) due to the poor economic environment. Unlike other projection scenarios with poor asset returns where an increase in projected VRPs more than offsets the increase in projected claims, the random bankruptcy experience generated in this model scenario results in a particularly high level of claims ($56 billion over ten years).

The distribution of outcomes illustrated in **Figure 12** and **Figure 13** shows a similar range of projected results as the FY 2023 Projections Report after reflecting that values in this year's report are displayed in nominal dollars rather than in discounted present value terms.

VARIABILITY IN SINGLE-EMPLOYER FINANCIAL POSITION

As described above, there is uncertainty in PBGC's Single-Employer Program projections. **Figure 14** shows the mean net financial position and liabilities, along with the results for the 15th to 85th and 1st to 99th percentiles and the range of outcomes for factors that have a significant impact on the FY 2034 net financial position. The considerations related to each factor are explored in the rest of this section.

Figure 14 – Variability in 2034 Single-Employer Net Financial Position Nominal Value ($ billions)			
	Mean	**15th – 85th Percentile Range**	**1st – 99th Percentile Range**
PBGC Net Financial Position			
1. FY 2024 Actual	$54.2	$54.2	$54.2
2. FY 2034 Projecteda	$105.3a	$93.2 – $117.3	$76.2 – $141.8
Nominal Value of Financial Activity Expected During FY 2025 – FY 2034			
3. New Claims	($4.7)	($0.5) – ($8.8)	($0.0) – ($27.5)
4. Premiumsb	$33.4	$23.1 – $46.3	$21.3 – $70.6
5. Asset/Liability Net Growth from Returns/Interestc	$22.5	$7.5 – $37.2	($12.8) – $63.7
6. Benefits Paid	$77.4	$73.1 – $81.8	$72.3 – $97.1

a) If expressed in present value terms, the mean projected net financial position for FY 2034 is $74.5 billion.

b) $33.4 billion mean premium income is the sum of $19.1 billion in flat-rate premium income and $14.3 billion in variable-rate premium income. The variability in premium income is largely attributable to VRPs.

c) Single-employer Fund assets are projected to grow from returns based on the modeled investment policy (85% liability-driven investments and 15% return-seeking assets), and liabilities are projected forward using a single-equivalent liability interest rate. Includes growth on premiums and claims projected within FY 2025 – 2034 period.

Figure 14 shows the nominal value of PBGC's estimated net position at the end of the 10-year projection in this report. The variability in results comes from the uncertainty around future claims and premium income, which fluctuate with changes in plans' underfunding, and investment returns on the portion of PBGC assets not matched to PBGC's benefit liabilities.[38] Within the 15th to 85th percentile range of outcomes, the Single-Employer Program's projected financial position in FY 2034 varies by $24.1 billion. The overall increase in the ranges of results compared to last year's report is primarily due to a change in reporting from present values to nominal values.

Bankruptcy and New Claims

When companies in bankruptcy or financial distress terminate their underfunded plans, that underfunding is the basis for a new PBGC claim. A claim is the excess of the present value of the plan benefits that PBGC is expected to pay over the value of the plan's assets and any recovery from the sponsoring firm. A "new claim" is the claim for a plan that was not included in the most recent financial statements.[39] **Figure 15** shows the mean and the range of outcomes for new claims.

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[38] Some of the variability associated with PBGC Asset/Liability gains and losses is due to model limitations on how PBGC assets are matched to PBGC liabilities. This year's SE-PIMS model was updated to improve this methodology.

[39] No specific determination of future "probable" claims is included in the projections for single-employer plans because the model does not attempt to predict future short-term PBGC accounting classifications of troubled plans that are close to terminating but have not yet terminated.

In **Figure 15**, the full shaded area represents the 1ˢᵗ to 99ᵗʰ percentile level of claims and the inner banded areas shown in dark green and dark blue represent the range of outcomes between the 15ᵗʰ to 85ᵗʰ percentiles.[40] The projections displayed for net new claims are for each year's results, so patterns in the amount of variability reflect long-term trends rather than cumulative effects. The projections show a downward trend in expected claims over the 10-year period, largely due to continued projected improvements in plan funding resulting from expected plan contributions and projected plan asset returns exceeding growth in plan liabilities. Recent improvements in plan funded levels, as well as the projected continued improvements, are illustrated in **Figure 22** of this report. The very high level of claims at the 99ᵗʰ percentile tend to be related to economic crisis scenarios where both the volume of bankruptcies and the amount of pension underfunding increase significantly at around the same time. Scenarios with low levels of claims have favorable economic environments, where both plan underfunding and the likelihood of plan sponsor bankruptcies are low.

Figure 15 – Single-Employer Program Net New Claims
(Mean and Percentile Scenarios)

Historical Experience 2015-2024 and 2025-2034 Projections (Nominal Dollars)
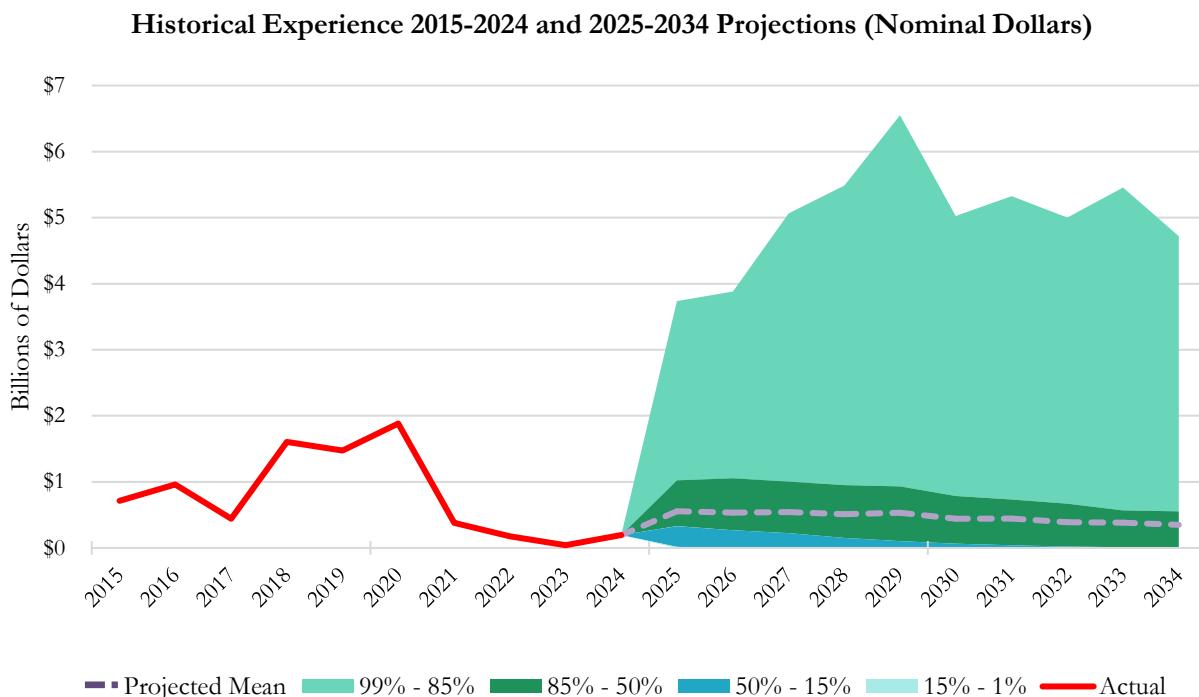
Figure 14 and **Figure 15** both show a low level of projected claims in favorable projection scenarios (approximately $0.5 billion total from FY 2025 to FY 2034 at the 15ᵗʰ percentile). This claims level is significantly smaller than claims historically incurred by PBGC even during periods of low claims. This is primarily due to better plan funded levels and the assumption that, in the event of a bankruptcy, well-funded plans will terminate via standard terminations rather than generate PBGC claims. The level of claims in the

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[40] **Figure 15** does not include claims for plans currently booked by PBGC, but not yet terminated ("Probable" plans). Since these plans had not terminated as of September 30, 2024, their claims are not included in the historic claims and they are excluded from the projections of future claims (since they are reflected in the balance sheet values that are projected forward in PIMS).

worst-case scenarios (approximately $27.5 billion total from FY 2025 to FY 2034 at the 99th percentile) is approximately $26.7 billion lower than the Single-Employer Program's net position on September 30, 2024.[41]

Investment Outcomes

When PBGC trustees a single-employer plan, the plan's assets are transferred to PBGC's Trust Fund, as are any additional assets recovered from the sponsor during bankruptcy proceedings. Premium income received is invested in PBGC's Revolving Funds, which are invested in Treasury securities. The total pool of Single-Employer Program assets is invested according to PBGC's investment policy, which employs a liability-driven strategy where most of the change in liability due to interest rate changes will be mirrored by changes in the asset value. Thus, although the investment returns for PBGC's assets are somewhat volatile, positive investment returns tend to offset increases in the value of PBGC's liabilities, and negative investment returns tend to offset decreases in the value of PBGC's liabilities. PBGC's investment policy limits return-seeking investments to no more than 15 percent of total assets.

Figure 14 shows that, on average, accumulated investment returns on PBGC assets (including returns on premium receipts and plan assets trusteed from FY 2025 through FY 2034) are projected to exceed the interest growth on liabilities (including growth on new claims liabilities incurred from FY 2025 through FY 2034) by $22.5 billion over the next 10-year projection. The outcome ranges from a gain of $7.5 billion to a gain of $37.2 billion in the 15th to 85th percentiles. The variability is driven primarily by the volatility in projected returns for the 15 percent portion of PBGC investments in return-seeking assets, and to a lesser extent by simplifications in the modeling of PBGC's liability-hedging assets.

Premium Income

PBGC's premium structure and levels are set by Congress. Fixed rate premium income changes with the number of plan participants and VRP income varies with plan underfunding, the number of plan participants, and premium increases based on average wage levels in the economy. For example, fixed rate premiums decrease when plans terminate, pay lump sums, or transfer plan liabilities by purchasing insured group annuity contracts for participants. VRPs increase when plan underfunding increases, for example, due to investment losses or declines in interest rates.

Single-employer plans have collectively improved their funded status over recent years as interest rates have increased, and plan assets have enjoyed favorable returns. The improvement in funded status leads to a reduction in PBGC's projected VRP income. Over the past decade, most of the Single-Employer Program's premium income has come from VRPs. In the future, most premium income is projected to come from flat rate premiums.

Both premium and claims levels are impacted by the state of the economy. In adverse market conditions, claims are expected to rise as plan sponsors become financially distressed, but premiums are also expected to rise due to increased plan underfunding. **Figure 16** below illustrates this dynamic.

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[41] The $27.5 billion is the 99th percentile of cumulative claims over the 10-year period and not the sum of 10 individual years of 99th percentile claims levels.

**Figure 16 – Single-Employer Program Projected Premiums and Net New Claims
(Percentile Scenarios Ranked by Net New Claims)**
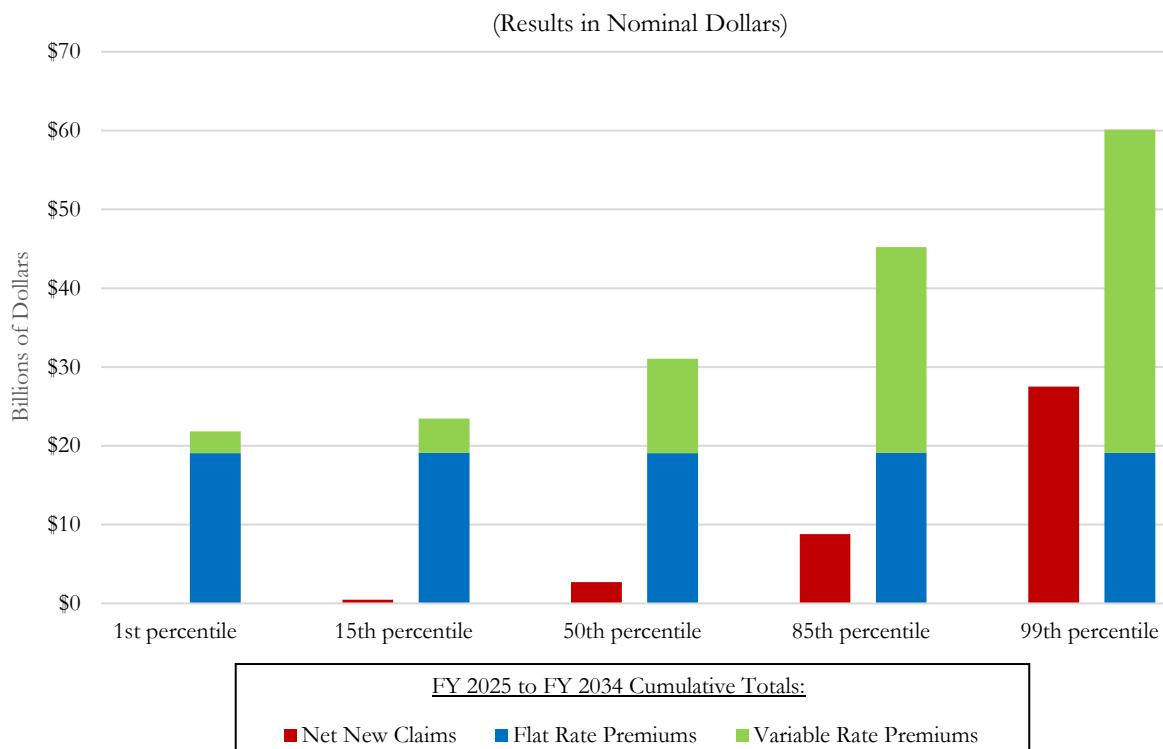
Note: The percentiles shown above are for projected 10-year cumulative net new claims. To better compare projected premiums and claims, the corresponding premium values are "smoothed" by averaging the 10-year cumulative premiums of the 50 scenarios closest to each of the individual claims scenarios.

Figure 16's horizontal axis displays the results by the distribution of 10-year cumulative claims (shown in red bars), from the 1st percentile on the left to the 99th percentile on the right. Corresponding 10-year cumulative premium levels (represented by the stacked bars in blue and green) are shown alongside claims. Across the entire distribution of projected claims levels, the corresponding premiums are higher. The difference between the two bars, which is $21.8 billion at the 1st percentile and increases to $32.6 billion at the 99th percentile, illustrates a key driver of the overall 10-year growth in PBGC's net position.

Generally, in scenarios with adverse market conditions (e.g., the 99th percentile of claims on the right side of the chart), the increase in VRP income exceeds the increase in claims. This means that the scenarios that most improve PBGC's financial position tend to have poor economic and market outcomes. Combined with PBGC's liability-driven investment strategy, discussed below, the VRP structure dampens volatility and mitigates risk in the Single-Employer Program.

SINGLE-EMPLOYER RECONCILIATION OF FY 2023 PROJECTIONS TO FY 2024 PROJECTIONS

Figure 17 provides a reconciliation of the projection results due to changes in the model and data from last year's projections to the FY 2024 projections. The mean projected position at the end of the projection period increased by about $4.9 billion, to a nominal value of the projected net position of $105.3 billion. This results from an expected $5.6 billion increase due to the passage of time, along with various partially offsetting changes due to updated data and changes to the economic assumptions that decrease the mean net position by $0.7 billion.

Figure 17 – Reconciliation of Changes in Single-Employer Projection Results Nominal Value at the End of FY 2034 ($ billions)	
1. Nominal Value of FY 2033 Mean Net Financial Position from FY 2023 Projections Report	$100.4
2. Passage of Time	5.6
3. Expected FY 2034 Mean Net Financial Position [(1) + (2)]	$106.0
4. Changes	
a) New Economic Data and Assumptions	2.9
b) New Plan, Sponsor, and PBGC Data	(3.7)
c) Model Improvements	0.1
d) Other Assumption Changes	0.0
e) Total Changes [(4a)+(4b)+(4c)+(4d)]	$(0.7)
5. **Nominal Value of FY 2034 Mean Net Financial Position [(3) + (4e)]**	**$105.3**

Note: The order of changes impacts the magnitude of each individual change but not the sum of all changes.

Passage of Time. The FY 2023 report projected a nominal net position of $100.4 billion in FY 2033. To compare with the FY 2024 report, which projects to FY 2034, the FY 2023 projections are rolled forward one additional year. The effect of the additional year of projection is an expected increase of $5.6 billion in the projected net position to $106.0 billion.

New Economic Data and Assumptions. The different economic climate in FY 2024 compared to FY 2023 resulted in changes to the economic assumptions which impacts the projections in multiple ways. Plans generally enjoyed favorable 2024 investment returns, which reduced both the projected VRP income and future claims. This impact is more than offset by a reduction in assumed projected future asset returns, which increases both the projected VRP income and future claims. In each case, mean projected premiums are impacted more than claims. The net effect of these changes was a $2.9 billion increase in the projected net position.

New Plan, Sponsor, and PBGC Data. Changes in the starting data between FY 2023 and FY 2024 reflect new plan data provided on plans' Forms 5500 and updates to incorporate PBGC's September 30, 2024, net position. In combination, reflecting the data reduced the projected 2034 net position. PBGC's actual net

position of $54.2 billion was $2.9 billion lower than would have been projected using last year's model (updated with new economic data described in the previous paragraph), primarily due to smaller excess PBGC investment growth. This difference, accumulated over time to 2034, and offset by a small increase in the projected net position due to updates in plan and plan sponsor data, decreases the projected net position by $3.7 billion.

Model Improvements. There were several improvements to the SE-PIMS model, but these were primarily designed to improve the operation of the model. None of them substantively affected PBGC's projected net position. The combined effect of the model changes is a $0.1 billion increase in the projected net position.

Other Assumption Changes. The mortality assumptions for minimum funding purposes are unchanged from last year's projection report. However, for purposes of determining PBGC liabilities and for modeling year-to-year projected plan mortality experience, minor changes were made to the assumed temporary adjustment factors used to account for excess mortality due to COVID-19. These temporary adjustments are no longer assumed after 2024 and were reduced for 2023 and 2024 to be consistent with the assumption used in PBGC's September 30, 2024, financial statements. On a rounded basis, these changes did not impact the year 10 projected net position.

SENSITIVITY OF CHANGES TO SINGLE-EMPLOYER MODEL'S DISCOUNT RATE

The sensitivity information provided below relates to the discount rate for PBGC obligations. Only the discount rate for calculating PBGC liability values is changed; no other related variables, such as inflation or asset returns, are changed in the sensitivity calculations. The information is presented as nominal net financial position projected at the end of FY 2034.

Figure 18 – Sensitivity to Discount Rate Changes in Single-Employer Results Nominal Value at the End of FY 2034 ($ billions)			
	+50 Basis Points	**Baseline**	**-50 Basis Points**
FY 2034 Single-Employer Net Financial Position	$105.9	$105.3	$104.7

If market prices for annuities were based on discount rates 50 basis points higher than in the base projections, the mean Single-Employer Program net position at the end of FY 2034 would improve by $0.6 billion. Discount rates 50 basis points lower would decrease the mean present value of the net position by $0.6 billion.

SENSITIVITY OF CHANGES TO SINGLE-EMPLOYER MODEL'S ASSUMED PLAN DE-RISKING ACTIVITY

Figure 19 shows the estimated impact to the projected financial position if the assumed level of certain plan de-risking actions were doubled. These de-risking actions include retiree bulk annuity purchases and voluntary standard terminations. For bulk annuity purchases, the baseline model assumes in each year that there will be

an eight percent chance that a plan above 80 percent funded will transfer 40 percent of its retiree liability to an insurance company. Voluntary standard terminations are modeled using parameters from an econometric analysis, based on the funded level of the plan, participant count, and whether the plan continues to offer future benefit accruals. Additional details about these baseline assumptions are described in the **Appendix** of this report. The sensitivity scenarios are shown both in isolation and in combination and include the estimated aggregate reduction in participants attributable to these events.[42]

Figure 19 – Sensitivity to Increases in Plan De-Risking Activity Nominal Value ($ billions)				
Mean Results: FY 2025 – FY 2034	**2025-2034 Participant Reduction[a] (millions)**	**2025-2034 Premiums Received**	**2025-2034 New Claims Incurred**	**FY 2034 Mean Net Financial Position**
Baseline Report Results	2.3	$33.4	($4.7)	$105.3
1. Double the Assumed Retiree Annuity Purchases only	3.8	$31.7	($4.7)	$103.6
2. Double the Assumed Voluntary Standard Terminations only	2.7	$32.9	($4.6)	$104.9
3. Double both the Assumed Retiree Annuity Purchases and Voluntary Standard Terminations	4.1	$31.3	($4.7)	$103.2

a) Includes only participant reductions related to assumed standard plan terminations and bulk retiree annuity purchases, and not participant reductions related to other causes such as demographic changes or lump sums windows.

The results shown in **Figure 19** above illustrate that elevated plan de-risking activity does not have a significant impact on the projected financial health of the Single-Employer Program. The 10-year cumulative decrease in projected premium income due to a reduced participant count is less than $2.1 billion in each sensitivity scenario, which is less than 10 percent of projected premium income. The increased retiree bulk annuity purchases result in a small (less than $0.1 billion) increase in claims due to plans dropping below 80 percent funded after de-risking which triggers a claim upon projected bankruptcy in SE-PIMS. Although **Figure 19** only shows the mean results, the impact of changes in de-risking activity on the projected FY 2034 net position is similar even under adverse scenarios (less than $3 billion at both the 1st and 15th percentile outcomes).

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[42] The assumption for retiree annuity purchases was doubled by changing only the probability that a plan above 80 percent funded will undergo a bulk retiree annuity buy-out transaction, from 8 percent to 16 percent. The assumption for voluntary standard terminations was doubled by changing only the intercept term in the regression formula from the econometric analysis referenced in this report's **Appendix** from -2.838 to -2.100.

SINGLE-EMPLOYER STRESS TEST SCENARIO

All scenarios in the current SE-PIMS model project a positive net position in FY 2034. The variability in future net position is dampened because decreases in plan funding positions associated with high claim amounts also result in increases in VRP revenue. However, the baseline SE-PIMS scenarios may not capture the level of extreme events that PBGC could face in the future. Thus, it is informative to consider extreme events that may pose risks to the financial health of the Single-Employer Program. The following describes PBGC's modeling approach and summary projection results for an illustrative example designed to stress test the financial resiliency of the Single-Employer Program.

Annual claims incurred by the Single-Employer Program have not exceeded $2.0 billion in a single year since 2009. Claims typically follow bankruptcies which often spike during and after recessions. For example, the highest period of claims for the Single-Employer Program spanned 2001 to 2006, overlapping and following the 2000-2002 recession, when single-employer claims totaled $28.2 billion.[43] Prior to this period of high claims, plan funding had improved significantly and, like today, many plans were fully funded. Approximately two-thirds of the claims from 2001 to 2006 ($18.9 billion) are due to 6 of the 10 largest claims events in PBGC's history.[44] The magnitude of the total claims during this 6-year period, adjusted to reflect the same percentage of overall liabilities in today's single-employer universe of plans, would be roughly $30 billion, which is still less than PBGC's positive net position as of September 30, 2024.

A stress scenario was designed to represent a similar high-claims event with a market downturn and elevated rates of bankruptcy. The scenario includes a one-time 35.2 percent drop in equity values for PBGC and plan assets (resulting in a 20 percent reduction in the median asset return for plans in the first year of the projection) without a subsequent corresponding rebound, and increases in bankruptcy rates such that PBGC incurs roughly $32 billion in new claims from FY 2025 through FY 2030.[45] The claims are concentrated in the first several years of the projection, similar to concentrated multi-year periods of claims in the past. All other model assumptions and methods in SE-PIMS remain unchanged from the primary run described in this report.

Figure 20 shows the mean projection of assets and liabilities in nominal terms of PBGC's Single-Employer Program under both the stress test (dotted lines) and the baseline assumptions used for the rest of this report (solid lines). The projected PBGC net position (blue columns) is the margin between PBGC assets (green lines) and PBGC liabilities (red lines).

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[43] Annual historical claims for the Single-Employer Program are shown in Table S-4 of PBGC's **2023 Pension Insurance Data Tables**.

[44] These 10 firms are shown in Table S-5 of PBGC's **2023 Pension Insurance Data Tables**.

[45] For modeling purposes, a -20 percent plan asset return was generated by assuming a -35.2 percent return on equities, and the claims level was generated by assuming that plan sponsors with a credit rating of B+ or lower have a 40 percent probability of bankruptcy in each year of the projection. The objective of the modeling is not to identify or predict the most likely type of scenario under which bankruptcies may occur, but to produce a total level of claims close to $30 billion during the first six years of the projection period. This level of claims is in line with the highest level of claims in any single scenario in PBGC's baseline stochastic modeling and is consistent with PBGC's 2001-2006 high-claims event, adjusted for the change in total liabilities in the single-employer universe. The $32 billion in claims over six years is more than the $30 billion in claims that seeks to represent the 2001 to 2006 claims period, but uses the same economic stressors as the stress tests in the FY 2021, FY 2022, and FY 2023 Projections Reports.

Figure 20 – PBGC Single-Employer Program Assets and Liabilities by Fiscal Year under Stress Test[a]

(Mean Results in Nominal Dollars)
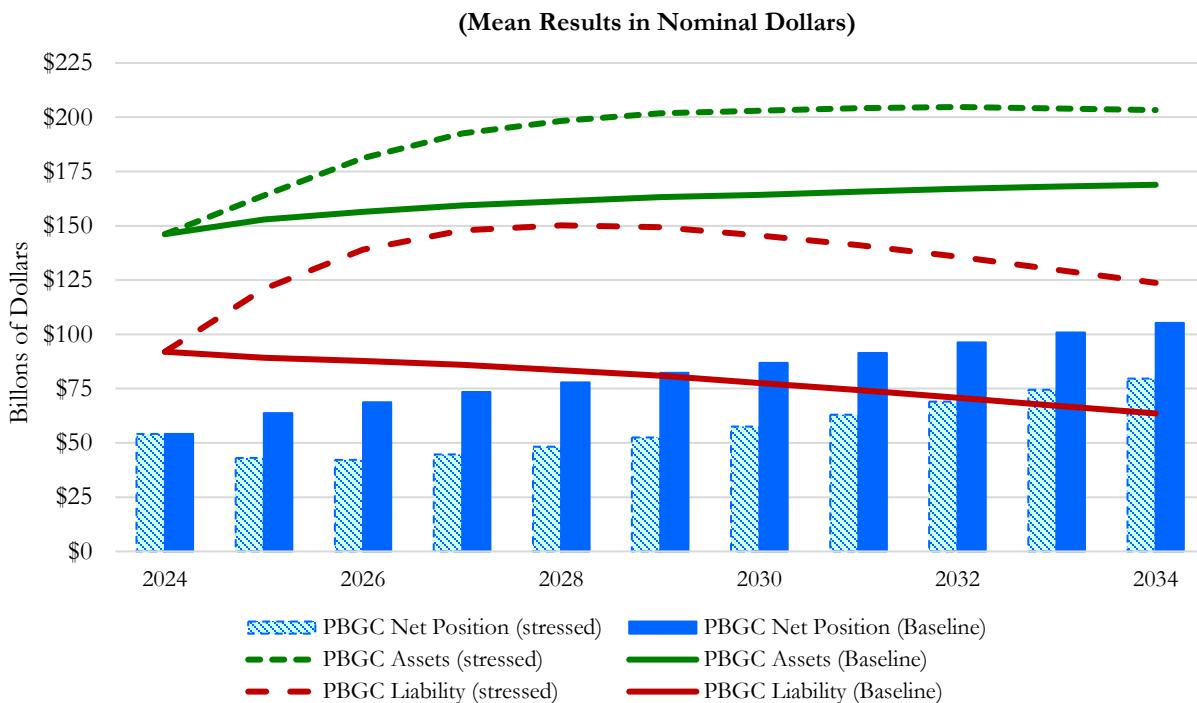
a) The "Stress Test" assumes for all stochastic scenarios: (1) a 35.2 percent drop in equity values resulting in a 20 percent reduction in median plan asset returns in the first projection year; and (2) a 40 percent probability of bankruptcy in each projection year for firms with bond ratings of B+ or lower. All other assumptions and methods are consistent with those modeled under SE-PIMS and described in the **Appendix**.

Under the stress test shown in **Figure 20**, the dashed blue column shows a $12.0 billion decrease in the positive net position during the first two years of the projection: from PBGC's actual starting net position of $54.2 billion in FY 2024 to $42.2 billion in FY 2026. This initial drop is primarily due to the influx of new claims early in the period, as nearly two-thirds of plan sponsors with a B+ or lower rating go bankrupt in the first two years of the projection. Unfavorable performance in PBGC's trusteed asset pool in the first year of the projection also contributes to the decline in net position. After that, the Single-Employer Program's mean net position improves each year due to higher variable-rate premium income resulting from lower plan funded levels following the initial asset decline. Additionally, the projected claims decrease as the number of plan sponsors with a B+ or lower rating quickly diminishes.

Despite the unfavorable experience in the stress test (the large equity drop coupled with significant bankruptcy events), Single-Employer Program assets increase by roughly $56 billion in the first 5 years of the projection period. This is primarily due to the influx of assets from newly trusteed plans. PBGC would also take on liabilities that exceed the level of these assets, as reflected in the net position line. After the first several years, the Single-Employer Program's liabilities drop as PBGC makes benefit payments. Corresponding Single-Employer Program assets are projected to level out as premiums from ongoing plans

and investment earnings on the larger pool of risk-seeking assets offset benefit payments to participants in trusteed plans.

Figure 21 – Projected Changes to PBGC Claims and Premiums under Stress Test Nominal Value ($ billions)			
Mean Results – FY 2025 – FY 2034	Baseline	Stress Test	Increase
New Claims	($4.7)	($35.3)	($30.6)
Premiums	$33.4	$49.1	$15.7
Nominal Value of FY 2034 Net Position	$105.3	$79.7	($25.6)

Figure 21 summarizes the difference in 10-year total projected premiums and claims between the baseline SE-PIMS run and the stress test. The $30.6 billion increase in claims is almost double the $15.7 billion increase in premiums during this period, which accounts for most of the roughly $25.6 billion[46] reduction to the FY 2034 net position for this stress test. However, **Figure 21** also shows that projected premiums are still expected to exceed projected claims from FY 2025 through FY 2034. The projected net position following the period of elevated claims is higher than in last year's stress test.

The stress test scenario described in this report section is illustrative and not intended to be predictive of future experience. Despite the resemblance to actual experience in 2001 to 2006, a future event of this magnitude appears unlikely. The scenario is intended to provide insight into the financial resiliency of the Single-Employer Program even in extreme circumstances.

SINGLE-EMPLOYER PLAN UNIVERSE: PROJECTED UNDERFUNDING

One way to look at risk exposure for PBGC is the level of underfunding in plans. As previously discussed in this report, high levels of underfunding increase VRP revenue. However, plans that are underfunded also increase both the size and risk of new claims. The following exhibits illustrate selected stochastic ranges of projected aggregate underfunding for single-employer plans. **Figure 22** presents a 10-year stochastic projection of plan underfunding based on the same baseline assumptions that are used in this report for projecting the PBGC Single-Employer Program's net financial position. **Figure 23** presents a similar projection of plan underfunding, except that plan sponsors are assumed to only contribute the minimum amount required by law.

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[46] Additionally, there is a $2.9 billion decrease in the projected net position due to PBGC asset/liability losses, caused in large part by investment losses resulting from the assumed 35.2 percent decline in equities, offset by additional investment income on the influx of assets from newly trusteed plans.

Figure 22 – PBGC-Insured Single-Employer Plan Underfunding
Plan Termination Basis: SE-PIMS Baseline
(Mean and Percentile Scenarios in Nominal Dollars)
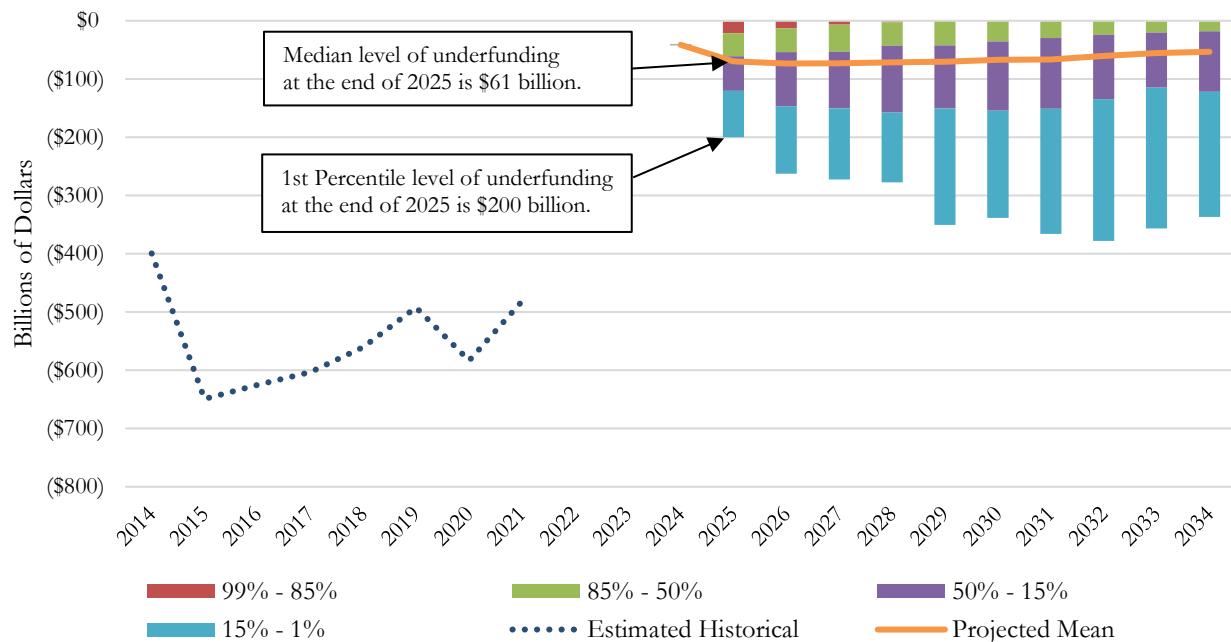
Note: The estimated historical levels of underfunding from 2014 through 2021 are shown in Table S-44 of PBGC's **2022 Pension Insurance Data Tables**. These values are based on adjusting plan liabilities reported on Form 5500 filings to estimate liabilities on a plan termination basis. The projected levels of underfunding on and after 2024 are estimated using SE-PIMS, and its model of future plan cash flows discounted to estimate liabilities on a plan termination basis. There are no Estimated Historical values shown from 2022 through 2024 because Form 5500 data for these plan years is not available at the time of this analysis.

In 2021, based on Table S-44 of PBGC's **2022 Pension Insurance Data Tables**, system-wide underfunding in single-employer plans is estimated to have totaled $482 billion. By the end of 2024, as projected by SE-PIMS, underfunding is estimated to have dropped to approximately $41 billion. There is a large jump from the adjusted reported funding levels at the end of 2021 to the modeled numbers beginning in 2024. This jump reflects improvements in funding from a significant rise in interest rates beginning in 2022 as well as favorable asset returns.

Both the mean and median levels of projected underfunding illustrated in **Figure 22** show that the significant improvement in the financial status of single-employer plans is projected to be sustained into the future. Despite an increase of approximately $30 billion in mean underfunding in 2025, the mean and median level of underfunding is projected to remain below $100 billion for the entire 10-year period. The initial reduction in funded levels is primarily due to the PIMS model assuming a decrease in interest rates in 2025.[47] Funding levels are subsequently projected to improve over the remainder of the projection period as asset returns

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[47] A downward trend in interest rates is assumed during the projection period as described in the **Appendix**. PIMS assumes changes in rates are steeper in the early years of the projection.

outpace liability growth and plans are assumed to make contributions in excess of the value of new benefit accruals.

Additionally, the full range of stochastic outcomes shows only a minimal likelihood of returning to higher levels of underfunding, with a less than one percent chance of reaching $400 billion in aggregate underfunding over the next 10 years. Overall, **Figure 22** shows that using PBGC's baseline assumption for employer contribution behavior, PBGC's risk exposure is projected to be generally constrained and explains the modest level of future claims projected in this report.

Under extreme economic conditions, it is possible that plan sponsors may be unwilling or unable to contribute more than the minimum required. **Figure 23** below illustrates a similar 10-year stochastic projection of aggregate plan underfunding based on the same baseline assumptions used in **Figure 22** except that sponsors are assumed to contribute only the minimum amount required under the law.

**Figure 23 – PBGC-Insured Single-Employer Plan Underfunding
Plan Termination Basis: Assuming Plans Contribute Only the Minimum Required Amount
(Mean and Percentile Scenarios in Nominal Dollars)**
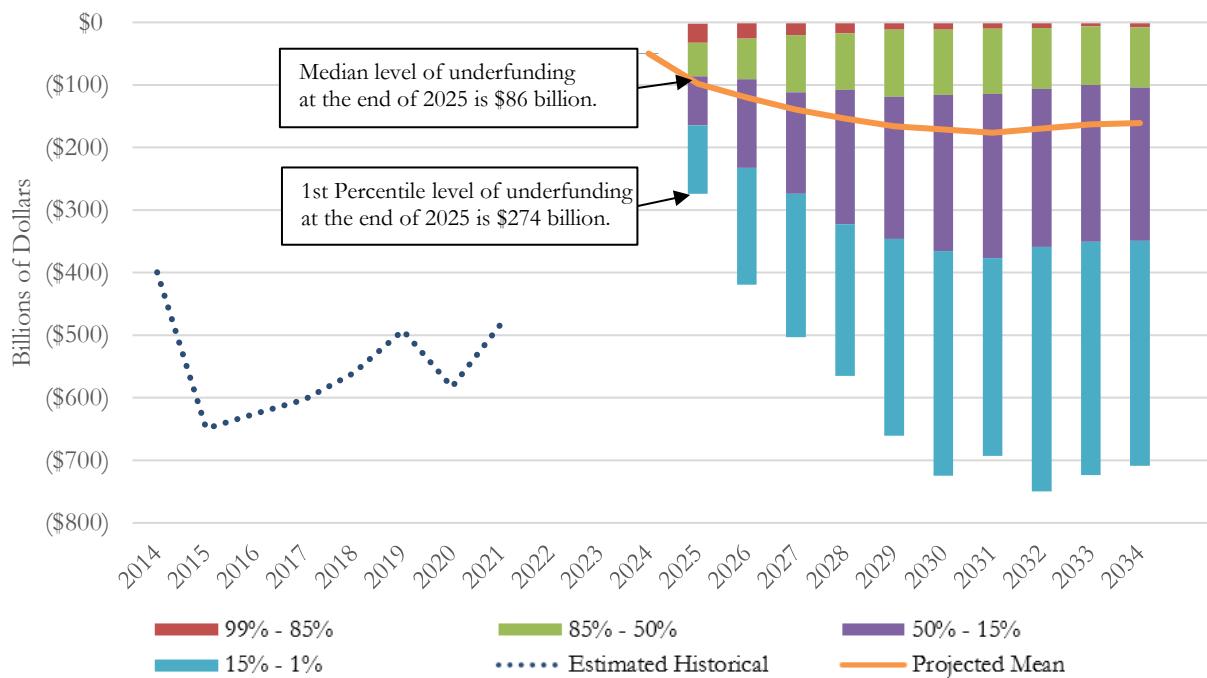
Note: The estimated historical levels of underfunding from 2014 through 2021 are showing Table S-44 of PBGC's **2022 Pension Insurance Data Tables**. These values are based on adjusting plan liabilities reported on Form 5500 filings to estimate liabilities on a plan termination basis. The projected levels of underfunding on and after 2024 are estimated using SE-PIMS, and its model of future plan cash flows discounted to estimate liabilities on a plan termination basis. There are no values shown from 2022 through 2024 because Form 5500 data for these plan years is not available at the time of this analysis.

Compared to the baseline projections in **Figure 22**, the results in **Figure 23** show more than double the level of projected underfunding in the mean and median outcomes. Additionally, the range of outcomes is significantly wider under unfavorable projection scenarios. Aggregate underfunding reaches over $350 billion

in more than 15 percent of scenarios and can reach over $700 billion at the 1st percentile. Therefore, the results in **Figure 23** serve as a useful point of reference when evaluating the sensitivity of PBGC's future risk exposure to employer contribution behavior.

STATEMENT OF ACTUARIAL OPINION

We, the undersigned, certify that this actuarial evaluation has been prepared in accordance with generally accepted actuarial principles and practices and, subject to the disclaimers herein, to the best of our knowledge, fairly reflects the possible distribution of projected outcomes relative to the operations and status of the PBGC's Single-Employer Program and Multiemployer Program as of September 30, 2024.

The PIMS models are unique in their purpose to model the entire universe of private sector pension plans in the United States as well as PBGC's financial position. Because of that, some aspects of the modeling require methods not typically applied in actuarial practice. Examples include but are not limited to the following: extrapolating results based on a sample of plans, bankruptcy modeling, development of plan benefit payments without participant census data, and estimating behaviors such as single employer contributions and de-risking decisions and multiemployer contribution rate changes and withdrawal payments. Assumptions related to future behaviors may not accurately represent actual future behaviors but have been developed based on research and analysis and are believed to be reasonable. In addition, the broad scope of the models requires simplified approaches to key factors such as capital markets modeling and mortality assumptions.

In preparing this evaluation, we have relied upon information provided to us regarding plan and participant data, plan sponsor financial information, historic asset yield and bankruptcy information and other matters, including certain economic and application data updated through December 31, 2024. We have reviewed this information for reasonableness as appropriate based on the purpose of the evaluation. The responsibility for the source information obtained from Forms 5500 and elsewhere rests with the preparers of these data.

Additionally, we have relied on actuaries, programmers, and modelers from PBGC as well as external contractors to maintain, enhance, and run the PIMS models to generate the results used in this report. This includes additional reliance on PBGC actuaries and economists to help develop the assumptions and methods used within the PIMS models.

Subject to the disclaimers herein, in our opinions,

(1) The techniques and methodology used are generally acceptable within the actuarial profession.

(2) The assumptions used are appropriate for the purposes of this report.

(3) The resulting evaluation represents a reasonable estimate of the possible distribution of projected outcomes relative to the operations and status of these programs.

The undersigned are available to discuss the material in this report.

I, Christopher M. Bone, am the Director of PBGC's Policy, Research and Analysis Department (PRAD). 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.

I, Kevin M. Muse, am a supervisory actuary in PBGC's Policy, Research and Analysis Department (PRAD). I am 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.

Christopher M. Bone, FSA, EA, MAAA
Director, Policy, Research and Analysis Department, PBGC

Kevin M. Muse, FSA, EA
Supervisory Actuary, Policy, Research, and Analysis Department, PBGC

APPENDIX

OVERVIEW OF PIMS

The analysis in this report uses ME-PIMS and SE-PIMS, which model the universe of pension plans in the U.S. to project PBGC's financial position. They use data reported by multiemployer plans and a sample of single-employer pension plans to estimate the plans' future funding status. Both models project financial outcomes by running many simulations for 20 years into the future (40 years for some multiemployer outcomes). Each simulation starts with known facts about the economy, the universe of PBGC-insured plans, and PBGC's financial position. The models then introduce random year-by-year changes to simulate economic fluctuations, producing 500 simulations for alternate economic paths through time. The models recognize that all single-employer plan sponsors have some chance of bankruptcy, that all multiemployer plans have some chance of insolvency, and that these probabilities change over time depending on a variety of factors.

Neither PIMS model attempts to model all plan sponsor behavior. However, each model does anticipate certain responses in some key areas. ME-PIMS reflects anticipated employer and plan sponsor behavior through contribution-rate assumptions related to zone status, future changes to benefit accruals, MPRA applications, and SFA-related assumptions. SE-PIMS reflects anticipated plan sponsor behavior related to contributions, standard terminations, and bulk annuity purchases for retirees. Plan sponsor behavior is inherently difficult to model and can change in unforeseeable ways as conditions change. This is a limitation of the PIMS models which could be material if certain plan sponsor actions deviate significantly from the assumptions used in the model.

PBGC is not aware of any material inconsistencies among the assumptions used in the PIMS models, nor of any unreasonable output resulting from the aggregation of assumptions.

Future Outcomes Are Expressed in Nominal Value Terms

Prior Projections Reports generally expressed future financial outcomes in present value terms (i.e., discounted back to the end of FY 2024). This report generally shows nominal values (values discounted to the end of FY 2034 or any intervening year are described as "nominal values" in this report). Results are explicitly noted as expressed in nominal or present value terms. Present values increase when interest rates go down and vice versa.

The uncertainty in future interest rates is modeled in both versions of PIMS. Therefore, interest rates change in each year in each simulation. Where values are shown in present value terms, simulation outcomes are discounted based on the 30-year Treasury bond yields projected for that simulation, regardless of whether the underlying simulated cash flows are generated from holdings of equities, corporate bonds, or U.S. Treasury bonds.

How Projections Compare to PBGC's Financial Statement Liabilities

PIMS treats the most recent PBGC financial statement liabilities as the starting point and estimates how they may vary in the future, adding the effects of projected new claims, benefit payments, and asset returns. The projections of future financial statement information in this report explicitly determine liabilities for plans that

are projected to be "probable for financial assistance" (multiemployer), and for plans projected to "actually terminate" (single-employer).

Capital Market Assumptions

The following economic variables are stochastically projected using the same economic scenario generator sub-model for both versions of PIMS:

Interest Rates, Stock Returns, and Related Variables. These variables are determined by the underlying means, standard deviations, and correlation matrix established for the PIMS projections (see **Figure A-1**). Related variables include inflation, wage growth, and increases in benefits for flat-dollar plans.

- Interest rates are represented by the 30-year Treasury yield. They are modeled as correlated over time and with an underlying trend based on the difference, at the start of the simulation, between the 30-year Treasury yield and the expected rate of future inflation. For the 10-year period ending December 31, 2024, monthly values of the 30-year Treasury yield averaged 90 basis points higher than the breakeven inflation rate on 30-year Treasury inflation indexed securities. The trend incorporated in the model adjusts the distribution of projected Treasury yields such that the median projected yield approaches this 90-basis point spread over the median projected inflation rate. The inflation assumption for this year's report is based on CBO's 10-Year Economic Projections released in January 2025.[48] Each year's median PIMS inflation rate is modeled to align with the corresponding rate from the CBO projection through 2034 (the first 10 years of the CBO projection), up to an ultimate median rate of 2.2%. Incorporating the 90-basis point spread between inflation and the 30-year Treasury yield results in the projected median value of the ultimate 30-year Treasury yield trending toward 3.1%. The trend rate is estimated using data from the period 1993–2021. The Treasury yield for a given period is expected to be equal to the yield for the prior period, plus the underlying trend adjustment, and plus or minus a randomly generated number of basis points. The underlying trend for this year's report results in a projection of generally falling interest rates, but at any point on a given projected path, interest rates can either rise or fall depending on the randomly generated component of interest rate changes. The range of projected yields increases with the number of years projected. For SE-PIMS, which conducts 10-year projections for this report, there are no constraints limiting the range of projected Treasury yields. For ME-PIMS, which conducts 40-year projections for this report, yields are constrained in the amount by which they can exceed 10.0% or be lower than 0.85%.

- Corporate bond yields and stock returns are modeled based on risk premiums. Credit spreads on investment-grade corporate bonds, relative to 30-year Treasury yields, are assumed to regress toward an historical mean value with no stochastic variation. Excess stock returns, relative to 30-year Treasury returns, are assumed to be independent from one period to the next. Mean reversion in expected Treasury yields during the projection period results in additional gains or losses to Treasury returns which pass through to measured excess stock returns. Previously, the average risk premium for the first 20 years of the projection was fit to an historical average. For this report, the average risk premium is fit to the targeted level in years 11–20 and phased in to this level in years 1–10 through the mean reversion of bond yields. This makes stock returns more realistic when the equity risk premium

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[48] The inflation assumption is based specifically on the Consumer Price Index, All Urban Consumers (CPI-U), available: cbo.gov/system/files/2025-01/51135-2025-01-Economic-Projections.xlsx.

is very high or very low at the start of the projection. To determine a simulated sequence of excess stock returns, the model randomly draws returns from a distribution that reflects historical experience from 1977–2023. Stock returns are more likely to be high when the Treasury yield is falling and vice versa. The random draws affecting the bond yields and stock returns use correlations based on historical data.[49] The constraint on projected Treasury yields in ME-PIMS also affects the projection of stock returns.

- Annual wage growth is assumed to have two components: inflation (as described above) and a fixed productivity growth factor applied to each PIMS projected year. The productivity growth factor is derived from the relationship between inflation and average real wage growth over the projection period reported in CBO's 10-Year Economic Projections.[50] Average real wage growth for a given year is calculated from CBO's projections as the growth in wages and salaries (plus proprietor's income) divided by civilian employment, less inflation.

PIMS Representation of Plan Asset Allocation. The asset allocation for all plans is represented by a combination of three economic variables available in both SE-PIMS and ME-PIMS (S&P 500 Return, 30-Year Treasury Return, and 30-Year Treasury Yield). The return on the plan's portfolio is based on the combination of the three variables. The SE-PIMS allocation is based on an internal study of historical asset returns among large plans that estimated the mixture of the three available economic variables that best fit those historical returns, with returns adjusted down by 2.5 basis points. The ME-PIMS allocation is based on an internal analysis of plan allocations from Form 5500 data that uses characteristics of the asset classes, such as expected returns, correlations, and estimated durations, to fit the data to the three available economic variables.[51] The mapping of the plan asset allocation used in SE-PIMS and ME-PIMS is shown in the table below.

Mapping of Plan Asset Allocation

	S&P 500 Return	30-Year Treasury Return	30-Year Treasury Yield	Total
SE-PIMS	48%	22%	30%	100%
ME-PIMS*	74%	12%	14%	100%
ME-PIMS - SFA Assets*	23.5%	36%	40.5%	100%

* Except for the largest plan to receive SFA, where the assumed asset allocation is 100% fixed income, which is represented by a 15%/40%/45% allocation to the factors above.

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[49] The analysis is based on data from 1973 to 2007. This assumption was subsequently reviewed by PBGC in conjunction with the FY 2023 Projections Report; it was determined that the estimate derived in that time frame is still representative of current correlation rates.

[50] The CBO's 10-Year Economic Projections are available at: cbo.gov/system/files/2025-01/51135-2025-01-Economic-Projections.xlsx.

[51] PBGC updated this internal analysis based on more recent Form 5500 filing data. The updated analysis resulted in a decrease to the allocation to the 30-Year Treasury Yield and an increase to the allocation to the 30-Year Treasury Return and S&P 500 Return.

Plans with SFA. Plans that receive SFA are assumed to allocate their non-SFA assets consistent with the average allocation from the most recent Form 5500 Schedule R, as shown in the table above. Based on review of SFA Statements of Compliance, SFA assets are assumed to be invested conservatively—10% of SFA allocated to U.S. equity securities and 90% to investment grade fixed income, which is represented by the 23.5% / 36% / 40.5% allocation to the three economic variables shown in the above table.

PIMS Projection of PBGC Single-Employer Program Assets. PBGC Single-Employer Program assets are modeled separately for the revolving fund and the trust fund. Revolving fund assets are modeled to be invested entirely in U.S. Treasuries, as required by the current investment policy. Trust fund assets are assumed to consist of the Single-Employer Program's entire 15% allocation to return-seeking assets (which results in the allocation to return-seeking assets within the trust fund itself exceeding 15%), with the remainder of the fund invested in U.S. corporate bonds. Returns on return-seeking assets are represented by the "S&P 500 Return" economic variable. PBGC's fixed income investment strategy seeks to hedge a certain percentage of its interest rate risk based on the overall PBGC funded ratio. To model this hedging strategy, estimated Treasury and corporate bond yield curves are derived by fitting PBGC's modeled 30-year Treasury yield and long-term bond yield to an average yield curve shape based on data from 2003-2018. Using these yield curves, bond returns are derived based on PBGC's estimated target duration.

PIMS Projection of PBGC Multiemployer Program Assets. PBGC Multiemployer Program assets are assumed to be invested entirely in U.S. Treasuries, as required by law. The assumed return is determined based on the yield and changes in the yield of 30-year Treasuries.

ME-PIMS

ME-PIMS — Overview

Each fiscal year-end, PBGC analyzes insured large (over 35,000 participants) and medium (between 2,500 and 35,000 participants) multiemployer plans to identify those ongoing plans that might become claims against the Multiemployer Program. In determining whether an ongoing plan should be recorded in PBGC's year-end financial statements, PBGC evaluates whether the plan is likely to become insolvent within the next 10 years in which case it is labeled "probable" and booked as a liability and income statement expense.[52] In addition, PBGC discloses the aggregate dollar amount of those multiemployer plans projected to become insolvent within the next 11 to 20 years, which are labeled "reasonably possible."

To estimate future claims against the Multiemployer Program that are not already booked in the current financial statements, ME-PIMS projects, separately for each simulation, a plan's funding status, cash flow, asset base, and change in the contribution base, to determine whether that plan would be booked as a liability according to the criteria described above.

ARP has been reflected in the FY 2024 ME-PIMS projections by assuming that all plans that become eligible for SFA under section 4262(b) of ERISA by the 2022 plan year will apply for and receive SFA payments. Current estimates of projected SFA payments are not shown in this report as obligations of PBGC, nor are the payments included in the cash flow exhibits (unless specifically noted). However, plan solvency forecasts,

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[52] PBGC applies this rule to determine whether to book a liability for an ongoing plan; terminated plans may generate a booked liability if insolvency is anticipated within 20 years.

projected PBGC liabilities, and traditional financial assistance reflect actual and estimated SFA payments to eligible and approved plans.

ME-PIMS — Data

The model uses Form 5500 data for each plan in the universe of multiemployer plans, including terminated and insolvent plans. Selected numeric entries from Schedules MB, R, and H/I are downloaded from the Form 5500 datasets to the PIMS database.

A sample of plans for which PBGC has complete data, information on plan provisions, demographics of active workers, and plan assumptions as to future demographic changes, is used to impute data to other plans of similar size, demographics, or industry, as appropriate. A brief description of the methodology follows:

- Plans in the current year's ME-PIMS database are categorized into major industries.

- Within each industry, the 25th percentile, the 75th percentile, and the median active-to-inactive ratios are determined.

- For each plan not in the sample, the downloaded data is extended by imputing plan provisions, census information, and assumptions from the closest match to the 25th percentile, the 75th percentile, or median active-to-inactive ratio.

- The set of sample plans and the closest matches were updated from the prior year.

Contributing employers' information is not generally available and thus not used in this model; all contribution information used in this report is on a plan level.

Data is reviewed for outliers and missing fields. Data on critical and declining zone status plans is supplemented with participant notices and other information available to PBGC. The FY 2024 ME-PIMS model uses zone status certification data provided by the IRS for plan years 2020 through 2024. Plan location is determined using the address data shown in the Basic Plan Information section of the Form 5500.

Data on withdrawal liability payments. For plans that have applied to PBGC for SFA, the model uses the projected withdrawal liability payments included in the calculation of SFA. Otherwise, for a subset of plans, withdrawal liability payment data was obtained from the 2022 or 2021 Schedule MB attachments. For critical and declining plans or plans with greater than 5,000 participants with a greater than 30% change in contributions, market value of assets, actuarial value of assets, total liabilities, current liability normal costs, benefit payments, or total headcounts compared to last year, data was obtained from the 2022 Schedule MB attachments or audit statements. For plans with less than 5,000 participants or plans otherwise not reviewed, an average of the larger plans noted above was used to estimate the withdrawal liability payments. This average was calculated separately for construction industry plans vs "other" plans—with "other" plans further categorized between green/endangered status plans and critical (including declining) status plans.

Data on regular ongoing employer contributions. For all plans, a per capita contribution rate based on the total contributions less withdrawal liability payments (whether actual or modeled) is calculated based on average active participant counts.

Data used from SFA applications. For plans that have applied to PBGC for SFA, some of the cash flow data provided in Template 4 of the application was used in ME-PIMS for the FY 2024 projections. This

includes projected benefit payments for retirees and terminated vested participants, which were extrapolated beyond plan year 2051 and calibrated to the current liability reported in the 2022 Schedule MB filing. It also includes the projected aggregate withdrawal liability payments. Where available, more updated data provided by plans in SFA annual compliance filings to PBGC was used. In addition to data from applications, the model incorporates data from the SFA Waiting List and lock-in applications to improve the estimated timing and amount of SFA payments for non-priority group plans.

Plans that have already been booked in PBGC's financial statements. PBGC collects additional data for these plans, which is subject to confidential treatment requests under 29 CFR 4901.24. This information is used to supplement/override the data treatment described above.

ME-PIMS — General Methodology

ME-PIMS projects PBGC's potential net financial position by simulating 500 economic paths and evaluating claims, premiums, expenses, PBGC's investment returns, and the impact of changes in interest rates along each path. The probability of any particular outcome is estimated by dividing the number of simulations with that outcome by 500, the number of economic simulations for multiemployer plans.

In each simulation, the model generates 40-year projections for each plan under each of the 500 economic scenarios. The model first generates future benefit payment streams and future normal cost streams from a simulated census. These cash flow streams are then projected forward year-by-year, assuming experience matches the events modeled along each simulated path and that the demographics of future hires are the same as the current active distribution. Projected benefit accruals are adjusted to reflect assumed benefit formula changes (e.g., to a 1% of contribution formula or the removal of early retirement subsidies upon a plan entering critical status) and active population changes.

There is typically a long lag between PBGC's booking of a multiemployer plan and the start of PBGC's financial assistance payments. Payments from PBGC begin only after the plan has depleted its assets. In ME-PIMS' simulation of the Multiemployer Program, a plan can be booked as a probable claim in one year of a projection and then, if the plan's condition improves sufficiently in the simulation, it can become "un-booked" (in the model) in a later year. Conversely, a plan's condition can deteriorate further following the booking.

ME-PIMS — Plan Sponsor Behavior with Respect to MPRA

Multiemployer funding rules create situations where plans may make decisions based on funded status, projected insolvency, or other factors. These behavioral adaptations are modeled to a limited extent in ME-PIMS.

The model assumes that plans in critical status will increase contribution rates and make other plan changes. These assumptions are different for critical status plans that are projected to receive SFA or to "exhaust all reasonable measures" in the future. All critical and declining status plans are assumed to have exhausted all reasonable measures.

The model also reflects suspensions of benefits and partitions for plans projected to be critical and declining after 2024 based on the simulated financial status of the plan in each simulation. Plans that are critical and declining and do not receive SFA prior to 2030 are assumed to make a decision in 2030 whether to apply for

benefit suspensions and/or partitions based on the model's assumptions regarding partition and benefit suspension probabilities. The decision test is repeated in 2040, 2050, and 2060 for plans that do not receive SFA and do not suspend or partition benefits prior to the test. Plans projected to receive a partition remain in partition status throughout the projections. Plans that receive SFA are not eligible to apply for a benefit suspension or partition under MPRA.

See the **ME-PIMS Assumptions** section below regarding Benefit Suspensions and Partition for further details.

ME-PIMS models SFA but does not separately model other forms of PBGC financial assistance, such as facilitated merger assistance.

ME-PIMS — Cash Flow Development

ME-PIMS uses information reported on the Form 5500 to develop benefit payment projections by current participant status, which are calibrated to each plan's reported current liability and benefit payments, as well as its normal cost.

Active participant scatters and decrement assumptions are used for 860 plans in this year's report, of which data for approximately 350 plans was collected within the past year. The model uses this data to simulate active census data for the remaining multiemployer plans based on industry and the plan's active-to-inactive ratio. Cash flows for active participants are generated based on the decrement for each of the active age and service cell combinations.

For inactive participants, a different process is used since inactive participant age/service data is not available for all plans. A simplified calibration process extrapolates inactive participants from a census distribution of a large multiemployer plan using each plan's estimated accrual rates and inactive participant count. Across-the-board shifts in the largest multiemployer plan's inactive census distribution by age and service are then applied to match the current liability reported on Schedule MB of Form 5500. This is done separately for terminated vested participants and for in-pay retirees and beneficiaries.

For plans that have applied to PBGC for SFA, the projected benefit payments for retirees and terminated vested participants provided in Template 4 of the application were used in the cash flow development process. The projected benefit payments were extrapolated beyond plan year 2051 and subsequently adjusted on a pro rata basis across all projection years to calibrate to the current liability reported in the 2022 Schedule MB filing.

Additionally, projected benefit payments reported on Schedule MB of Form 5500 were used for approximately 200 plans to adjust benefit payments for active, retirees and terminated vested participants used in the model.

ME-PIMS — Assumptions

In addition to the economic variables described above, the modeling of changes to plan active populations is stochastically projected:

Plan Demographics. Starting with the plan's active participant population data from the Form 5500 (grouped by age and service bands), the distribution of active participants for each plan in the future varies according to that plan's actuarial assumptions regarding retirement, disability, and termination of employment. Age and service also vary over time due to hiring assumptions that are determined separately in each scenario of the projections. Hiring patterns vary with stochastic projections; the general assumption is that a plan's historical hiring distribution continues and hiring occurs so that the size of the active population continues at the same trend after plan decrements (retirement, termination of employment, disability) take place.

ME-PIMS does not currently assume industry-specific employment trends. The model incorporates annual variability, with the assumed rate of decline in the active multiemployer population depending on the plan's zone status. The mean net decrease in the active multiemployer population per year across all simulated scenarios is as follows:

- Green Zone (Neither Endangered nor Critical) plans – 1.0%

- Endangered plans – 2.5%

- Critical plans that do not receive SFA – 3.0%

- Critical plans that do receive SFA – 2.0% through 2031 and 1.0% beginning on 2032 and thereafter

- Critical and Declining plans – 5.1%

These assumptions were developed based on a 2021 study of Form 5500 data spanning from 2010 through 2019 as well as assumptions used on SFA applications.

The following non-stochastic assumptions are also used in ME-PIMS projections:

Mortality. The model uses the Pri-2012 Blue Collar Mortality Table, projected to 2032 for retirees and beneficiaries and to 2039 for active and terminated vested participants with the MP-2021 Improvement Scale. This table is a very close proxy to the table used in PBGC's September 30, 2024, financial statements, and is based on a mortality experience study of PBGC-insured participants.[53]

Additional temporary adjustments are assumed for anticipated excess mortality due to COVID-19 as follows: 2021: 16%, 2022: 8%, 2023: 3%, 2024: 1.2%, 2025 and beyond: 0%. This assumption is based on the same mortality experience study of PBGC-insured participants.

Credit Balances. Each plan's credit balance is increased each year by the plan's valuation interest rate and increased/decreased by the amount by which modeled contributions are greater/less than the minimum otherwise required.

Per Capita Contribution Rate Increases. The annual estimated per capita contribution growth rate is projected as follows:

- Green Zone (Neither Endangered nor Critical) plans – Assumes a rate of increase based on a target rate, with the increases capped at 5.0% per year. The target rate, when multiplied by the active participant count, equals the normal cost plus a 12-year amortization of unfunded liabilities (ignoring

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[53] The mortality assumption used in the determination of financial statement liabilities uses the separate Pri-2012 Blue Collar mortality tables for Retirees and Contingent Survivors. For purposes of the projections used in this report, ME-PIMS has a simplified approach of using the Pri-2012 Blue Collar Nondisabled Annuitant tables for annuitant mortality.

credit balances) in three years from each projected valuation anniversary date. The current contribution rate is assumed to increase levelly over three years to achieve the target rate, subject to the maximum increase rates noted.

- Endangered plans – Assumes that plans implement a funding improvement plan that includes contribution rate increases estimated to avoid a funding deficiency and achieve a 33% better funded ratio in 10 years, with a maximum 8% per year increase in per capita contribution growth for up to 12 years. Per capita contribution growth is lowered to inflation after 12 years, or when the cumulative cap is hit.

- Critical plans (except for those projected to receive SFA) – Assumes that plans implement a rehabilitation plan that includes contribution rate increases estimated to eliminate the funding deficiency and bring the plan to 80% funded in 10 years, with a maximum of 8% per year increase in per capita contribution growth for up to 12 years. Per capita growth is lowered to inflation after 12 years, or when the cumulative cap is hit.

- Critical and Declining plans (except for those projected to receive SFA) – Assumes a 2.5% contribution rate per year increase.

- Plans projected to receive SFA – Future contribution rates are assumed to remain level through 2051 and are based on the assumptions described above following 2051.

Per capita contributions for all plans will be further limited to a multiple of the 2019 baseline per capita contribution (based on contributions divided by active participant count from the 2019 Schedule MB), after which inflation/wage growth becomes the underlying increase rate. The multiple is assumed to be 1.25 for plans that receive SFA, 1.50 for plans that are currently in Endangered or Critical status that do not receive SFA, and 2.00 for all other plans.

These assumptions were developed based on an analysis of historical Form 5500 Schedule MB data from 2009 to 2018, as well as professional judgment related to the cumulative level of contribution rate increases that are deemed to be sustainable for plans.

Plan Administrative Expenses. Expenses are calculated as prior year administrative expenses, excluding investment expenses, increased by 2% per year, and capped at a percentage of each year's projected benefits (the cap ranges from 6% to 15%, depending on plan size). The increase in the flat rate premium to $52 in 2031 (an increase of approximately $7) is added to the above-calculated expense starting in 2031. This assumption is consistent with PBGC's assumptions guidance for SFA calculations.

Benefit Improvements. For green zone plans with a flat dollar benefit formula, benefit increases are assumed to track changes in wages over time. Only future service benefits are increased – no past service benefit improvements are assumed.

Benefit Improvement Restriction. It is assumed that critical and endangered status plans do not adopt future benefit improvements due to restrictions under Rehabilitation Plans or Funding Improvement Plans, respectively.

Withdrawal Liability Payments. For currently terminated and insolvent plans and certain previously-booked plans, a schedule of payments is received from the plan administrators—such payment schedules are

then discounted for the possibility of non-payment (predominately due to the potential bankruptcy of a withdrawn employer). The scheduled payments are assumed to "decay" by 2% per year. For all other plans, the prior year actual or modeled withdrawal liability payments are assumed to decline by 30% in the first year (recognizing the one-time nature of lump sum settlements of withdrawal liability that are or may be included in the total withdrawal liability payments) and phase-out over 15 years. Future withdrawals are modeled, and such payments are assumed to phase out over 20 years. These assumptions were based on internal studies conducted by PBGC based on the payment information for terminated and insolvent plans.

Mass Withdrawal. In the model, no plans are assumed to go through mass withdrawal prior to insolvency. Upon insolvency, 60% of plans are assumed to go through mass withdrawal; the remaining 40% of plans are assumed to remain ongoing. These percentages are based on recent experience. In the case of mass withdrawal, initial year payment assessments by the plan from withdrawn employers are estimated at 120% of the most recent projected year regular contributions, with an adjustment to remove contribution rate increases made after 2014 while the plan is in Endangered or Critical Status. It is assumed that only 70% of employers will commence withdrawal liability payments in the first year. After the first year, withdrawal liability payments are assumed to decay over 20 years from the first year. The assumptions about mass withdrawal liability payments were based on studies conducted by PBGC using the payment information for terminated and insolvent plans and specific payment information.[54] In the case of an ongoing insolvent plan, contributions are assumed to decline by 10% (from the prior year) in the first year of insolvency and then decrease by 5% per year thereafter.

PBGC Premiums. Premiums are paid in accordance with current law (including the increase in the flat rate premium to $52 in 2031 under ARP) out of plan assets. There is no allowance for write-offs of uncollectable premiums or for the fact that a portion of the premium collected is not credited with interest under MPRA.

Discounting Future Claims. Future claims are valued using a single-equivalent interest discount factor (under each scenario) that models the curve of interest factors described in PBGC's financial statements (using the simulated long-term corporate bond rate generated for the particular year and economic path minus 27 basis points). Those factors are based on a survey of private-sector annuity market prices, and the 27 basis-point adjustment was developed based on internal analysis of the relationship between the long-term corporate bond and Treasury rates and the single-equivalent interest discount factor.

Assumptions about Benefit Suspensions and Partitions. By law, plans receiving SFA are not permitted to implement suspensions or partitions. For non-SFA plans, it is assumed that there is a 12% likelihood that a critical and declining status plan (if it is projected to meet the long-term insolvency test without a partition) will apply for suspension alone; and a 3% likelihood that it will apply for both a benefit suspension and a partition (if it is also projected to pass the long term loss test, it is assumed that it can also pass the "non-impairment test"). The test is applied by the model only in 2030, 2040, 2050, and 2060. These probabilities were estimated based on the ratio of plans with approved MPRA applications to the total number of eligible plans from 2016 to 2020. The determination of benefit suspension and partition amounts is based on the following process and assumptions:

- In a partition, the guaranteed portion of benefits for some participants is spun off to a separate, insolvent plan, for which PBGC will provide financial assistance. PIMS uses the input cash flows to

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[54] The studies were conducted prior to adoption of these changes in the FY 2020 Projections Report.

calculate the maximum suspension level (110% of PBGC's guarantee, with special protections for certain retirees).

- The assumed average return on plan assets used in MPRA solvency tests is 5%.

- Plans that have gone through a benefit suspension will be re-tested every five years. Deterioration in financial conditions will allow plans to further suspend benefits up to a limit of 110% of PBGC's guarantee. To be conservative, a lower asset return of 4.5% is used to test for suspension percentage changes.

Assumptions Specific to SFA Determination. The FY 2024 ME-PIMS projection assumes that all plans that become eligible for SFA by the 2022 plan year will apply. Plans that terminated via mass withdrawal prior to the 2020 plan year are not assumed to receive SFA.

ME-PIMS determines SFA eligibility in the model using plan information reported in the Form 5500 filings from 2020 through 2022. There are a limited number of plans for which the plan filing data is not available in certain years. In these situations ME-PIMS estimates values for the missing data, and uses the following modified eligibility criteria to account for situations in which plans that are very close to meeting the eligibility criteria under ERISA section 4262(b) may end up being eligible based on actual circumstances that arise in their 2022 plan years:

- For purposes of determining a plan's zone status for SFA eligibility (only if a plan's zone status for a particular year is not included in the data for plan years 2020 through 2022 as provided by the IRS):
  - Projected contributions are reduced by 5% per year for the first two years, and
  - The solvency threshold for determining critical and declining status is changed to 25 years instead of 20 years.

- The threshold for modified funding percentage is changed to 45% instead of 40%.

For plans that have applied to PBGC as of December 31, 2024, but have not yet been approved, payment is assumed to be made in calendar year 2025. For plans that have not yet applied for SFA but are expected to be eligible, the assumed timing of SFA application submissions is based in part on the SFA Waiting List posted on PBGC's website as of December 31, 2024. Assumed application submissions are spread out through the end of 2026, which is the final year that revised applications may be submitted under ARP. For modeling simplicity, all SFA applications are assumed to be approved in the first filing.

ME-PIMS estimates SFA amounts stochastically for plans that have not yet applied to PBGC as of December 31, 2024. For plans that have already applied, ME-PIMS uses the amount requested in the most recent application, whether or not the application has been approved, with interest to the assumed payment date.

For plans that have not yet applied to PBGC as of December 31, 2024, ME-PIMS is programmed to replicate a plan's SFA application in each model scenario under which the plan is projected to be eligible for SFA. The initial data used as the basis for the application's SFA calculation is based on the ME-PIMS projection to the assumed application date. The SFA is then calculated using a deterministic projection based on assumptions as follows:

- Interest Rates:

- - o For plans that submitted a lock-in application, interest rates are determined based on the lock-in application date, which is treated as initial application date.
    - o For plans that did not submit a lock-in application:
      - ▪ For non-SFA assets, the lesser of 7.35% or the interest rate shown on the 2019 Schedule MB. The 7.35% rate is rounded based on the third segment rate as of December 31, 2024, plus 200 basis points (per 4262.4(e)(1) of the PBGC's SFA regulation).
      - ▪ For SFA assets, the lesser of 5.90% or the interest rate shown on the 2019 Schedule MB. The 5.90% rate is rounded based on the average of first, second and third segment rates as of December 31, 2024, plus 67 basis points (per 4262.4(e)(2) of the PBGC's SFA regulation).

- CBU decline after the measurement date: 2% per year for the first 10 years, 1% per year thereafter.

- Contribution rate increases after measurement date: none.

- Mortality: the same mortality assumption used for other ME-PIMS projection purposes.

- Administrative expenses: the same administrative expenses assumption used for other ME-PIMS projection purposes.

- Withdrawal liability payments – same as the standard ME-PIMS assumptions. This assumes that future employer withdrawal experience for plans that receive SFA is not impacted by the receipt of SFA, which is consistent with intent of the conditions placed on withdrawal liability calculations under PBGC's Final Rule.

- Other assumptions: no changes from the assumptions used for other ME-PIMS projection purposes.

The assumptions used for the estimated SFA calculations are consistent with PBGC's SFA assumptions guidance document.

Plan Demographics to Facilitate Cash Flow Modeling. To determine cash flows, ME-PIMS utilizes the following assumptions:

- Proportion of population assumed to be male: 75%.

- Age difference: females three years younger than their male spouses.

- Proportion of active population assumed to elect a joint and survivor payment form: 60%.

- Proportion of current retirees assumed to be receiving a joint and survivor payment form: 30%.

- Proportion of terminated vested participants assumed to elect a joint and survivor payment form: 35%.

- Joint and survivor payment form: joint and 50% survivor benefit.

- Proportion of participants assumed married for pre-retirement death benefit: 80%.

- Conversion factors based on PBGC rates for the joint and 50% survivor benefit: 0.9150 for both male and female participants.

Bipartisan American Miners Act. This legislation authorized regular federal funding for the United Mine Workers Association 1974 Pension Plan and amended current law provisions related to federal funding for United Mine Workers retiree health benefits. Since federal funding is the principal source of solvency for this plan going forward, solvency projections for this plan are sensitive to variations in the expected amounts of future federal transfers to the plan. However, the amounts of future federal funding available for the United Mine Workers Pension Plan are not known with certainty because the amounts available for the pension plan depend on the amounts needed each year by certain United Mine Worker retiree health plans, among other things.

Estimated expected transfers to the United Mine Workers Plan used for the projections in this report are the same as those forecasted in the 2025 President's Budget.[55] There are no estimates of transfers to the pension plan beyond FY 2034, so for purposes of the projections in this report, the estimated transfer amount is assumed to stay level after FY 2034 until the United Mine Workers Plan is fully funded.

SE-PIMS

SE-PIMS — Overview

The amount of PBGC's claims under the Single-Employer Program depends on two factors: (1) the underfunding in pension plans that PBGC insures (i.e., exposure) and (2) the likelihood that corporate sponsors of these underfunded plans will encounter financial distress that results in bankruptcy and plan termination (i.e., the probability of claims). Claims are sensitive to interest rates and investment returns, contributions, benefit changes, industry changes, and economic conditions which impact bankruptcies.

SE-PIMS starts with PBGC's current net financial position and data on the funding status of over 500 of the largest plans, with results for this group scaled up to represent the full single-employer universe. The model produces 5,000 simulations (500 economic paths for each of the 10 bankruptcy simulations). The probability of any particular outcome is estimated by dividing the number of simulations with that outcome by 5,000. The model uses funding and premium rules as prescribed by current law.

SE-PIMS — Data

SE-PIMS uses the data for over 500 actual plans, sponsored by more than 300 companies. These plans represent about two-thirds of the liability in the single-employer defined benefit system measured from the 2022 Form 5500 filings. SE-PIMS also reflects contribution data from later years' Form 5500 filings to the extent available when the initial results are generated.

The database includes:
- Plan demographic statistics,

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[55] As shown in Item 601 "General Retirement and Disability Insurance" as part of Table 22-12 available: whitehouse.gov/wp-content/uploads/2024/03/22-12_fy2025.pdf.

- Plan benefit structure,

- Asset values,

- Liabilities,

- Actuarial assumptions, and

- Plan sponsor financial information.

Plan data are downloaded from Schedules SB, R, H, and I of the most recent Form 5500 into the PIMS database. In addition, information on plan provisions, demographics of active workers, and plan assumptions for future demographic changes are manually entered and reviewed against signed forms and attachments. If demographic information is missing for a particular plan, data from other plans of similar size, demographics, or industry is used for that plan.

The plans included are primarily those with the largest plan liabilities where (1) sufficient data is available on the sponsor for the SE-PIMS bankruptcy probability model and (2) plan details can be sufficiently captured in the SE-PIMS model.

Financial and market data on firms is obtained from Compustat which is provided by S&P Global Market Intelligence and linked to plan sponsors. Where there is missing data for a plan sponsor, data is imputed using industry averages, averages for plan sponsors of comparable size, or other measures.

Historical economic data is gathered from the Federal Reserve Economic Database tables, Interest Rate Tables provided by the Internal Revenue Service, and SBBI® Yearbooks. Data on PBGC's historical financial position is based on PBGC sources, which also supply the information published in PBGC's Pension Insurance Data Tables.

PBGC reviews the economic inputs (annual returns of stock and bond market indices, other historical data, generated stochastic paths), regulatory inputs (various Internal Revenue Code pension plan limits and information regarding CPI and national average wage growth), firm data (plan affiliation, firm economic data, weight as part of sample universe), and plan data (Form 5500 data and adjustments) for missing or inconsistent data.

SE-PIMS — General Methodology

The SE-PIMS sample is weighted (scaled up) to represent the full universe of PBGC-insured, single-employer plans. The weighted sample represents total liabilities and underfunding, and the distribution of funding levels among plans in the PBGC-insured universe based on data available as of the preceding spring. SE-PIMS simulates contributions, premiums, and underfunding for these plans.

The weighting process uses scaled copies of the plan sponsors' business (called "partners") and their pension plans. Each partner begins each simulation with the financial conditions copied from their source sponsors but are scaled in relation to the size of each sponsor's balance sheet entries and employment. The financial conditions and bankruptcy experience for each partner is projected separately. Because the SE-PIMS sample is drawn from larger than average plans and corporations, each partner (sponsor and plan size) is scaled to one-fifth the size of its source. The one-fifth ratio was estimated to be the approximate ratio of the average

size for all publicly traded defined benefit plan sponsors not included in the PIMS sample to the average size of the plan sponsors in the SE-PIMS sample.

Partners are allocated to sponsors in SE-PIMS to create a weighted sample that approximates the distribution of plan liabilities by funding status in the insured universe. For example, the weighted sample's total value of plan liabilities among plans that are 70 to 80% funded is compared to the same total for the insured universe, and similarly for plans that are 60 to 70% funded (if any), 80 to 90% funded, 90 to 100% funded, etc. Partners are allocated for the best fit to the entire distribution.

SE-PIMS also uses each employer's financial information as the starting point for assigning probabilities of bankruptcy.

Projections of claims against the Single-Employer Program are made stochastically. Claims are modeled by simulating the occurrence of bankruptcy for plan sponsors. The model reflects the relationship from 1980 to 1998 between the probability of bankruptcy and variables representing financial health, such as debt-to-equity ratio, cash flow, firm equity, and employment.[56] For each period, the model assigns random changes in each of these variables for each firm, which are correlated with changes in the economy. The simulated financial health variables determine the probability of bankruptcy for that year.

SE-PIMS models contributions from plan sponsors based on meeting minimum funding requirements, avoiding VRPs, maintaining or regaining prior funding levels (based on liability measurements used in corporate financial accounting), and incentives to attain a funding threshold that eliminates restrictions on the accelerated benefit payments. When sponsors are simulated to experience bankruptcy, the model retroactively overrides modeled contributions for the three years prior to bankruptcy to assume zero contributions for those years.

SE-PIMS — Assumptions[57]

The following variables are stochastically projected:

Sponsor Financial Health Variables. Debt-to-equity ratio, cash flow, firm equity, and employment.

Active Hiring Patterns. Starting with plans' population data from Form 5500, the distribution of active participants for a plan varies throughout the forecast according to that plan's actuarial assumptions regarding retirement, disability, and termination of employment. Age and service also vary over time due to hiring patterns that are determined separately in each simulated path of the projections. Unless the plan is closed to new entrants, PIMS assumes a stationary mean active participation level for the plan. The distribution of ages and benefits for retired and terminated vested participants are imputed from long-term projections of the starting active population and normalized to the actual counts furnished by the Schedules SB. For simplicity, all participants are assumed to be male and are assumed to elect straight life annuities.

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[56] The FY 2017 independent PIMS peer review, required by the Moving Ahead for Progress in the 21st Century Act (P.L. 112-141), titled "Bankruptcy and Mass Withdrawal Modeling in PIMS", dated October 1, 2019, collected updated bankruptcy data through 2017 which verified the appropriateness of the model assumptions.

[57] For additional information on SE-PIMS and the assumptions used in running the model, see pbgc.gov/sites/default/files/legacy/docs/PIMS-Overview-2011.pdf.

Probability of Bankruptcy. Sponsors are subject to a random chance of bankruptcy in each year of the projection. The probability of bankruptcy is based on the relationship between bankruptcies and various measures of companies' financial health. The bankruptcy risks generated for PIMS are compared to market indices, and the largest outliers have their modeled risk recalibrated to equal the mean of the market estimate of bankruptcy risk for their class of bonds. Bankruptcy probability formulas generally do not vary by industry.[58] In bankruptcy, plans with modest levels of underfunding are less likely than severely underfunded plans to result in claims on PBGC. Thus, for modeling purposes, a plan presents a loss to participants and/or the pension insurance program if its sponsor is simulated to experience bankruptcy and the plan is less than 80% funded on a termination liability basis. If the sponsor of a plan is simulated to experience bankruptcy and the plan is more than 80% funded on a termination liability basis, the plan is assumed to be terminated through the standard termination process without becoming a claim for PBGC. The assumed 80% threshold used for this purpose was developed based on internal PBGC analysis of historical claims experience.

Voluntary Standard Terminations of Pension Plans. In addition to the above-mentioned standard terminations related to bankruptcy, SE-PIMS assumes some plans will choose to go through the standard termination process. The probability of a voluntary standard termination is determined using a regression formula, based on the funded level of the plan, participant count, and whether the plan continues to offer future benefit accruals.[59]

Retiree Annuity Purchases. In each projection year, for plans that have an AFTAP of at least 80%, SE-PIMS assumes that there will be an 8% chance that the plan will undergo a bulk retiree annuity buy-out transaction to transfer 40% of its retiree liability to an insurance company. No more than 50% of plan assets is assumed to be available for an annuity purchase transaction. The model allows more than one such event during the projection. This assumption is based on an internal analysis of the de-risking information provided in the most recent several years of premium filings and the observed trend in participant count changes.

The following non-stochastic assumptions are also used in SE-PIMS projections:

Adjustment to Claims Amount. When sponsors are simulated to experience bankruptcy, the model retroactively overrides modeled contributions for the three years prior to bankruptcy to assume zero contributions for those years. The model then assumes PBGC recovers 5% of the resulting gross claim amount.

Mortality.[60] For the present value of PBGC benefit payments: separate tables depending on whether benefit payments have commenced as follows:

- Annuitants: Pri-2012 Total Dataset Retiree male table with specific 10-year age band adjustments from ages 55 to 104.
- Non-Annuitants: Pri-2012 Total Dataset Employee male table with ages set forward three years.

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[58] SE-PIMS makes an exception for the financial and utilities industries, where relatively high degrees of leverage are considered not to signal a risk of bankruptcy. SE-PIMS also increases the bankruptcy probabilities of a few large companies whose model probabilities greatly underestimate the risk of bankruptcy as measured by their bond ratings.

[59] Based on the "preferred" approach described on pages 38-39 of the PIMS Peer Review report entitled "Single-Employer Risk Transfer Activities": pbgc.gov/sites/default/files/se-risk-transfers.pdf.

[60] PBGC uses a mortality table based on the actual experience of trusteed plan populations with generational projections to determine the pension benefit liability in the Annual Report.

- Mortality Improvement: MP-2021.

These assumptions, including the specific ten-year age band adjustments, match the mortality assumptions used for healthy male participants in PBGC's September 30, 2024, financial statements which is based on a mortality experience study of PBGC-insured participants.

For the sample plans' year-by-year experience mortality: the same mortality assumptions as above along with the following temporary adjustments for assumed excess mortality: 2021: 16%, 2022: 8%, 2023: 3%, 2024: 1.2%. The excess mortality rates for these years were based on the excess mortality rates published by the Society of Actuaries in Section 3.2 of the RPEC 2023 Mortality Improvement Update.

For purposes of determining minimum funding requirements

- Prior to 2024: RP-2006 male (with separate annuitant and non-annuitant tables) generationally projected from 2006 using the following mortality improvement scales as under IRC Section 430:
  - 2023: MP-2021
  - 2022: MP-2020
  - 2021: MP-2019
  - 2020: MP-2018
- 2024 and later: Pri-2012 male (with separate annuitant and non-annuitant tables) generationally projected from 2012 using 2024 Adjusted MP-2021 (per Treasury regulation § 1.430(h)(3)-1(b)(1)(iv)(A)). The adjustment to MP-2021 eliminates any mortality improvement during 2020, 2021, 2022, and 2023 (while retaining any projected mortality deterioration for those years), and caps future improvements at 0.78% (based on SECURE 2.0).

It is assumed that plans that reported use of a substitute mortality table use mortality rates 9% higher than the statutory mortality table rates otherwise assumed for funding.[61]

Contributions and Credit Balances. Contributions are assumed to be driven by incentives such as complying with minimum funding requirements, reducing the VRP, and maintaining funded status at certain levels that are potentially based on accounting, termination, or other liability measures. The primary funded ratio measure assumed for the VRP reduction behavior is the vested benefit liability (VBL) used to determine the VRP. The VBL without regard to 24-month averaged interest rates under the Alternative Premium Filing Method (Standard VBL) is used to measure funding status for other purposes. The statutory minimum required contribution (reflecting maximum allowable credit balance usage) is assumed to be a floor. For plan sponsors that experience bankruptcy in the projections, contributions for the three years prior to bankruptcy are reduced to zero.

Plans that are not required to pay a VRP because of funding above 100% of the Standard VBL are assumed to be motivated by different factors than plans that have not funded to that level. The Standard VBL funded level changes throughout the projection period, thus the factors motivating contribution behavior and the parameters used to determine projected contribution amounts also change.

Plans funded above 125% of Standard VBL are assumed to make no contributions.

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[61] The nine percent mortality load assumption for plans using substitute tables for funding is based on a PBGC analysis conducted October 2015 that relies on data regarding variation in mortality by plan from the Society of Actuaries RP-2000 mortality study.

Plans funded from 100% to 125% of Standard VBL within the last three years are assumed to make the largest of the following contributions.

- Normal cost based on the premium interest rate under the Standard filing method;

- The amount needed to eliminate a portion of the Standard VBL deficit relative to the highest Standard VBL funded ratio in the last three years—30% of the deficit for plans funded below 110% of Standard VBL, 20% for plans funded above 115% of Standard VBL, otherwise 25%; or

- For plans in which the VBL funded percentage falls below 100%, the amount needed to fully fund the VBL over 1–4 years for plans funded above 80% of VBL, or over 7–10 years for plans funded below 80% of VBL.

Sponsors of plans that have not been funded above 100% of the VBL in any of the past three years are assumed to make contributions that reflect a combination of possible contribution behaviors based on the plan's Adjusted Funding Target Attainment Percentage (AFTAP) or VBL funded ratio, as shown in the tables below. The combination of contribution behaviors represents that plan sponsors in the same circumstances may use different contribution approaches.

- Sponsors of plans that have an AFTAP below 80% make contributions based on the following combinations of possible contribution behaviors:

AFTAP	Contribution Behavior Percent of Plan Sponsors Assumed to Use Behavior	
	Increase AFTAP to 80%	Minimum Required Contribution (MRC) only, using 90% of available credit balance
0% – 70%	0%	100%
70% – 75%	50%	50%
75% – 80%	100%	0%

- All other sponsors of plans make contributions based on the following combinations of possible contribution behaviors:

Contribution Amount	Contribution Behavior/Target
Max of the two contribution targets times the VRP factor	Fully fund VBL over 1-4 years for plans above 80% VBL funded, over 7-10 years for plans below 80% VBL funded
	Eliminate 30% of the deficit relative to highest Standard VBL funded ratio in last 3 years
Plus: the following contribution target times [100% minus the VRP factor]	MRC, using 90% of available credit balance

The VRP factor is based on the "effective" VRP rate, i.e., the VRP rate adjusted for the impact of the VRP cap. The VRP factor is equal to 50% if the effective VRP rate is $30 per $1,000 unfunded VBL and is adjusted for different effective VRP rates. The adjustment is based on an interpolation between the 50% VRP factor and either a 100% VRP factor at $100 effective VRP rate and a 0% VRP factor at $0 effective VRP rate.[62]

Actual contributions for 2023 and 2024 were incorporated for plans that had more recent filings than the 2022 Form 5500.

The assumption for plan contribution levels was based on an internal PBGC analysis, summarized by a February 2021 memorandum available on PBGC's website.[63]

Form of Payment. Except for certain active participants in cash balance plans, SE-PIMS assumes all benefits will be paid as single life annuities. It is assumed that cash balance plans will pay participants the full accrued benefit (i.e., the account balance) as a lump sum upon termination or retirement unless benefit restrictions apply (see below).

Benefit Improvements. For flat-dollar plans, benefit multipliers are assumed to increase annually by the rate of inflation and productivity growth. For salary-related plans, the benefit formula is assumed to remain constant, but annual salary increases are reflected based on the rate of inflation, productivity growth, and a factor representing merit and seniority.

Benefit Restrictions. The statute provides that certain benefit restrictions apply if a plan's AFTAP is less than a specified percentage and unadjusted assets are less than Target Liability. Liabilities underlying the AFTAP calculation are determined using stabilized discount rates. Assets are generally the actuarial value of assets, reduced by credit balances when the actuarial value of assets does not exceed liabilities. The benefit restriction provisions of section 436 of the Internal Revenue Code are reflected as follows:

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[62] The effective VRP rate cannot exceed $52, but $100 is used as the endpoint for purposes of the interpolation (i.e., 65.71% is the largest VRP factor at a $52 VRP rate).

[63] The memo is available at: pbgc.gov/sites/default/files/contribution-policy-assumption-memo.pdf. Updates to the assumption were made to this year's SE-PIMS model, as described in the **Changes from the Prior Year** section of the Appendix below.

- Benefit Improvement Restriction. The benefit improvement restriction (<80% funded) applies to benefit increases above the average wage increase and PIMS projects benefit increases at the same rate as wage increases, so the benefit improvement restriction is not applicable for SE-PIMS.
- Lump Sum Payment Restriction. The lump sum benefit payment restriction is reflected to the extent a cash balance plan is projected to have an AFTAP below 80%.
- Benefit Accrual Restriction. Plans with funding percentages below 60% are assumed to freeze benefits and to remain frozen even if the percentage increases above 60% in the future.

Credit Balance Waivers. Because assets underlying the AFTAP calculation are reduced by credit balances unless assets exceed liabilities (see above), sponsors are permitted, or in some cases required, to reduce ("waive") credit balances to the extent needed to avoid benefit restrictions. SE-PIMS assumes that sponsors will choose to waive credit balances to the extent necessary to avoid freezing benefits when funding drops below the 60% threshold. In addition, all plans are assumed to waive credit balances to the extent necessary to achieve 80% funding, if possible.

PBGC Premiums. SE-PIMS models premiums based on current law. There is no allowance in premium projections for write-offs of uncollectable premiums. Premiums are assumed to be paid by the employer rather than from the plan assets. Furthermore, it is assumed that 64% of premiums expected for plan years beginning in a calendar year are reflected as premiums receivable in PBGC financial statements on September 30 of the same year.[64]

PBGC Guarantee Limits. SE-PIMS models the level of benefits that PBGC will pay in projected claims as the lesser of participants' vested benefit levels and PBGC's maximum guarantee level. Circumstances where benefits might be further limited, or where PBGC might be required to pay more than the maximum benefit guarantee level, are not modeled.

PBGC's Assets. PBGC's investment policy as of September 30, 2024, is assumed to remain unchanged, with 15% allocated to return-seeking assets throughout the projection period.[65]

Discounting Future Claims. Future claims are discounted with a single interest factor (under each scenario) representing the curve of interest factors described in PBGC's financial statements (using the simulated long-term corporate bond rate generated for the particular year and economic path minus 27 basis points). These factors are based on a survey of private-sector annuity market prices.

Determining Discounted Future Present Values Shown in Report Tables. For results presented as present values in this report, the discount rate used to adjust nominal values is the simulated 30-year Treasury rate generated for the particular year and economic path.

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[64] For simplicity, the model does not reflect the one-time acceleration of the premium due date by one month for the 2025 premium filing. This would not have a significant impact on the projection results.

[65] PBGC's investment policy can be found: pbgc.gov/sites/default/files/april-2019-ips-pbgc.pdf.

SAMPLE STATISTICS FROM FY 2024 RUNS IN ME-PIMS AND SE-PIMS

The following tables show selected output statistics from runs of ME-PIMS and SE-PIMS for this report.

Figure A-1
Arithmetic Means, Standard Deviations, and Correlations of Key Financial Market Values

FY 2024 Single-Employer Model Runs[a] (Across 2025-2034 for 500 Economic Paths)			
	Long-Term Treasury Yield	**Return on 30-year Treasury Bonds**	**Stock Market Return**
Arithmetic Mean	3.5%	6.2%	8.0%
Standard Deviation	1.2%	9.7%	19.8%
Correlations:			
Long-Term Treasury Yield	1.00	-0.21	-0.01
Return on 30-year Treasury Bonds		1.00	0.20
Stock Market Return			1.00

a) ME-PIMS yields economic returns within 0.2% and correlations within 0.01 of the single-employer results.

Figure A-2
Arithmetic Means and Standard Deviations of Market Rates Derived from Projected Long-Term Treasury Yields

FY 2024 Single-Employer and Multiemployer Model Runs (Across 2025-2034 for 500 Economic Paths)			
	Long-Term Corporate Rate	**Inflation Rate**	**Wage, Salary, and Flat Benefit Growth Rate**
Arithmetic Mean	4.6%[a]	2.4%	3.6%
Standard Deviation	1.2%	1.2%	1.2%

a) The discount rate used to value PBGC liabilities and claims is this rate less 27 basis points for both insurance programs.

Figure A-3

FY 2024 Model Projected Plan Returns

(Across 2025-2034 for 500 Economic Paths)

	Single-Employer	Multiemployer[a]
Arithmetic Mean	6.3%	7.1%
Geometric Mean	5.8%	6.2%
Standard Deviation	10.2%	14.9%

a) The projected plan return shown for ME-PIMS is for assets in non-SFA plans.

Figure A-4

Projected Annual Bankruptcy Probabilities[a]

FY 2024 Single-Employer Model Runs (Across 2025-2034 for 500 Economic Paths)	
Arithmetic Mean	0.5%
Standard Deviation	1.6%

a) The bankruptcy probability modeling methods and results are described in Boyce, S. and Ippolito, R.A. (2002), The Cost of Pension Insurance. Journal of Risk and Insurance, 69: 121–170. doi: 10.1111/1539- 6975.00012.

Figure A-5

Annual Rate of Plans' Projected Insolvency

FY 2024 Multiemployer Model Runs (Across 2025-2034 for 500 Economic Paths)	
Arithmetic Mean	0.2%
Standard Deviation	0.2%

CHANGES FROM THE PRIOR YEAR

FY 2024 ME-PIMS includes the following changes from the FY 2023 Projections Report:

Model Improvements. The behavioral assumption regarding decisions by plans that did not receive SFA and become Critical and Declining in the future to apply for MPRA suspensions and partitions was updated. The potential decision points were expanded to be made every 10 years starting in 2030. Last year's model assumed a one-time decision in 2030.

SFA Assumptions. For plans that are projected to receive SFA in the model but did not submit a lock-in application to PBGC as of December 31, 2024, the calculation of SFA uses an assumed SFA interest rate of 5.90% and an assumed non-SFA interest rate of 7.35%. These rates were 4.85% and 6.50% respectively for plans that had not submitted a lock-in application as of December 31, 2023, in the last year's model.

Asset Allocation for Plans Receiving SFA. Non-SFA asset allocation is assumed to align with the average allocation reported in the most recent Form 5500. In last year's model non-SFA assets were assumed to be reallocated to get as close as possible to an overall assumed "policy" allocation, which included SFA assets and their restrictions.

SFA assets are assumed to be invested more conservatively, with a larger portion (90%) allocated towards investment grade fixed income as compared to last year's model (67%) where the maximum allowable portion of SFA assets was assumed to be invested in risk-seeking assets (33%). This update was made based on an analysis of SFA annual compliance filings for plans that have already been paid SFA.

Mortality Assumptions. The additional temporary adjustments assumed for anticipated excess mortality due to COVID-19 for calculating the present value of PBGC benefit payments, and for modeling year-to-year projected mortality experience in the ME-PIMS projections were updated to be consistent with the assumption used in PBGC's September 30, 2024, financial statements. Otherwise, the underlying base mortality assumptions remain the same as last year.

FY 2024 SE-PIMS includes the following changes from the FY 2023 Projections Report:

Model Improvements. The programming refinements made to the SE-PIMS model for FY 2024 generally did not affect overall results but added parameters to allow for additional modelling flexibility and extra output. However, some changes were made to rounding conventions to make the model run more consistently and reduce the risk of error. This resulted in a slight increase in the projected net position (less than 0.1% at year 10).

Mortality Assumptions. The additional temporary adjustments assumed for anticipated excess mortality due to COVID-19 for calculating the present value of PBGC benefit payments, and for modeling year-to-year projected mortality experience in the SE-PIMS projections were updated to be consistent with the assumption used in PBGC's September 30, 2024, financial statements. Otherwise, the underlying base mortality assumptions remain the same as last year.

For purposes of determining minimum funding requirements, there were no changes in the mortality assumptions.

Discounting Future Claims. For both PIMS models, the assumed difference between the long-term corporate rate and the PBGC discount rate changed from 68 basis points in each scenario to 27 basis points in this year's report.

Economic Assumptions. Both PIMS models include updated economic assumptions as noted in the **Capital Market Assumptions** above. The major assumptions are summarized below. The rates shown are the arithmetic mean of the first 10 years of the projection.

Figure A-6		
Economic Assumption Changes for FY 2024 Report **10-Year Arithmetic Mean for Single-Employer and Multiemployer Model Runs**		
	FY 2024	**FY 2023**
Long-Term Treasury Yield [a]	3.5%	3.5%
Return on 30-year Treasury Bonds [a]	6.2%	5.3%
Stock Market Return [a]	8.0%	9.1%
Long-Term Corporate Rate	4.6%	4.5%
Inflation Rate	2.4%	2.5%
Wage, Salary, and Flat Benefit Growth Rate	3.6%	3.7%
Projected SE Plan Returns	6.3%	6.6%
Projected ME Plan Returns [b]	7.1%	7.7%
Annual Bankruptcy Probability for SE Plans	0.5%	0.6%
Annual Rate of Plans' Projected Insolvency for ME Plans	0.2%	0.2%

a) ME-PIMS yields economic returns within 0.2% of the Single-Employer Model.
b) The projected plan return shown for ME-PIMS is for assets in non-SFA plans.

MEASUREMENT DATE AND SUBSEQUENT EVENTS

The results in this report were developed based on PBGC and plan data available on or before September 30, 2024, economic data as of December 31, 2024, and SFA application activity through December 31, 2024. The projections start with PBGC's FY 2024 Annual Report and forecast results under a range of future economic scenarios. The projections reflect current law and assume no future changes in the law.

Subsequent to the measurement date, in April 2025 the U.S. Court of Appeals for the Second Circuit issued a ruling regarding eligibility for SFA of a plan terminated by mass withdrawal before 2020. On December 12, 2025, the U.S. Solicitor General and PBGC filed a petition seeking Supreme Court review of the Second Circuit's decision. Results in this report do not assume any impact of the Second Circuit decision.

No other events occurring after the measurement date were reflected in this report.