CENTER ON
FEDERAL FINANCIAL
INSTITUTIONS

734 15TH STREET, NW
SUITE 502
WASHINGTON, DC 20005

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Douglas J. Elliott
202-347-5770
douglas.elliott@coffi.org

PBGC: Legislation May Not Restore Solvency

Proposed pension reform legislation alone is unlikely to restore the solvency of the Pension Benefit Guaranty Corporation (PBGC), according to COFFI's revised and expanded cash flow model of PBGC's finances. Without legislation, our base case shows PBGC needing an eventual rescue costing $92 billion, in today's dollars, considerably higher than the existing $23.3 billion deficit. H.R. 2830 and the original Administration proposal both appear likely to bring the rescue requirement down to $45-50 billion, in our base case. Although all models of the long-term future are subject to error, our analysis suggests that only extraordinarily favorable circumstances would completely eliminate the deficit, even under the proposed legislation.

The core problem is a longstanding structural gap between the level of premiums PBGC is allowed by Congress to charge and the level of risk placed on PBGC by the pension laws passed by Congress. The pension reform proposals on the table now should eventually eliminate this imbalance going forward, partly through premium increases, but mostly by imposing stricter pension funding requirements on plan sponsors. However, the medium-term appears to have such high losses "baked in" that we should expect PBGC's legacy costs to mount considerably from today's $23.3 billion deficit.

Table 1: PBGC rescue needed and date of cash exhaustion without rescue
($ billions in 2005 dollars)

Scenario	Current Law		H.R. 2830		Administration	
	Rescue	Cash Exhaustion	Rescue	Cash Exhaustion	Rescue	Cash Exhaustion
Base case	$92	2022	$49	2027	$45	2028
Of which, rescue related to:						
Years through 2014[1]	$51		$41		$34	
Years through 2024[1]	$63		$43		$38	

1. Assumes no new claims or premiums after this year, only payments from previous claims

If these numbers are alarming, they should be compared to preliminary results recently released from a Congressional Budget Office study. CBO concluded that, without legislation, PBGC's economic deficit would grow to $73 billion after the next decade of claims and $91 billion after 20

years. This compares to our model's prediction of $51 billion after a decade and $63 billion after 20 years, assuming both new claims and new premiums ceased at those points in time. These figures would be lowered by new legislation, but the analysis discussed in this paper demonstrates the improbability of fully restoring solvency.

A reader may be tempted to dismiss our model's findings by focusing on the Administration's proposal that PBGC's Board be allowed to set variable premium rates at whatever level is necessary to restore solvency over time. Unfortunately, there are strong limits to how much can be raised through variable premiums, since these revenues depend on the level of pension underfunding in the system. The great bulk of underfunding is at plans sponsored by quite creditworthy companies, who could choose to contribute enough to eliminate their underfunding if the variable premium becomes an appreciable cost. PBGC's finances likely would not benefit much from this sharp increase in systemwide funding levels, since the contributions would be coming from healthy companies that represent the least risk. The remaining weak companies that might have trouble funding more than the minimum do not have the collective financial resources to bear the full burden of paying for PBGC's legacy deficits, without themselves being driven into bankruptcy. Unlike variable premiums, fixed premiums could probably bring in sufficient revenue, if they were hiked dramatically, but no such legislative proposal has been offered. (See "PBGC: Premium Hike Possibilities" at www.coffi.org for a longer explanation.)

COFFI does not endorse or oppose any specific legislative proposal. We concentrate on providing policymakers and the public with analysis of the likely effects of possible reforms. Readers who are less familiar with PBGC and the pension system may wish to read some of COFFI's numerous papers on the topic, available at www.coffi.org, especially "PBGC: A Primer", "PBGC: When Will the Cash Run Out?", "PBGC: Updated Cash Flow Model from COFFI", "PBGC: Policy Options", and "H.R. 2830 versus Administration Proposals".

PBGC's solvency would be affected by four main factors in any new legislation:

- Tighter funding rules should reduce future underfunding and, thus, claims on PBGC
- More transparency and limits on raising benefits should discourage badly underfunded plans
- Premium changes would directly raise or lower PBGC revenue
- Plan freezes or terminations may increase or decrease, affecting claims and premiums

Quantifying the probable effects is complex and reliant on detailed actuarial estimates. Fortunately, there is sufficient information to put boundaries around the range of possibilities. This is feasible largely as a result of an in-depth actuarial analysis contained in a PBGC White Paper, published in April 2005 (see www.pbgc.gov.) The paper calculates the likely future path of funding levels and claims on PBGC under current law and if the Administration proposal became law. The resulting funding estimates also provide a good base for projecting future PBGC premiums, which are heavily influenced by systemwide levels of underfunding. The probable effects of H.R. 2830 can then be estimated based on these benchmarks, since there is a great deal of common ground between that bill and the original Administration proposal.

The analysis presented here is preliminary, given the need to extrapolate from several different sources of information that may not share identical base assumptions plus the considerable

guesswork as to how H.R. 2830's effects will compare with those of the Administration proposal. Nonetheless, we are confident in the broad conclusion. PBGC is unlikely to be restored to full solvency by either pension reform proposal, even though each would be a significant step in that direction.

Structure of COFFI's Model

COFFI has created a financial model of the PBGC's Single-Employer program, which accounts for almost all of PBGC's deficit. The model calculates the cash and investments available for the program as of the end of each year, going out 75 years. The key outputs are the date at which PBGC's cash and investments will be exhausted and the amount of money, in today's dollars, that would be necessary to prevent cash exhaustion from occurring within the 75-year horizon. The model does not calculate accounting figures such as PBGC's deficit, although there is a module to show the effect on the federal budget, since this is a modified cash flow figure. The core equation of the model is:

End of Year Cash & Investments = Beginning of Year Cash & Investments + Investment Income + Premiums + Assets Taken Over for New Claims + Bankruptcy Recoveries – Benefits Paid – Net Other Expenses

Naturally, the usefulness of the model depends on its ability to accurately estimate these key variables. A brief explanation of the modelling approach is given in this section. Much more is available at www.coffi.org in "PBGC: When Will the Cash Run Out?" and "PBGC: Updated Cash Flow Model from COFFI". The first paper should only be read in conjunction with the second, which explains many enhancements to the original model. The "Key Estimates" section below explains a number of additional refinements in the latest version.

Beginning of year cash & investments. For historical periods, this is taken from PBGC's Annual Report. For later years it is equal to cash & investments at the end of the previous year.

Investment income. The average of beginning and end of year cash & investments is multiplied by an investment rate. In the base case, the rate of investment return reflects current market rates and PBGC's target portfolio of 80% bonds and 20% stocks. Stocks are assumed to return 8%, although the model has an option to randomly vary annual returns around an average.

Premiums. See "Key Estimates," below, for an explanation of our newly refined methodology.

Assets taken over for new claims. The model determines this figure by taking the amount of new claims, explained below, and algebraicly combining it with an assumed ratio of claim assets to claim liabilities (generally around 55%.)

Bankruptcy recoveries. The base case assumes that 7% of underfunding is retrieved on each claim, after a delay of a few years. This is near recent historical levels.

Benefits paid. This key variable is determined in two parts. The most critical figure is the net present value of claims, which is determined as explained in "Key Estimates," below. The absolute dollar amount of each year's payment that will produce this net present value is calculated by applying one of four sample payout patterns. The base case uses a pattern based on PBGC's existing liabilities, but other cases can be run with faster or slower payouts. Faster payouts equalize the net present value by paying smaller absolute amounts than do longer payout patterns. Changing the payout pattern therefore may move the timing of cash exhaustion, but has little effect on the amount needed to rescue PBGC, which is based on net present values.

Net other expenses. Overhead expenses and claim-specific expenses are calculated based on the historical relationships between the size of pension payouts and these variables.

Key Estimates

Certain forecasts are critical to calculating the probable effects of H.R. 2830 and of the Administration proposal.

Aggregate pension liabilities systemwide. The total size of the private sector defined benefit system, as measured by dollars of liability, plays a substantial role in determining systemwide pension underfunding and also influences future claims on PBGC.

Our estimate has three components. First, we estimate the percentage of pension plans which are already frozen or will be frozen in the near future. (Frozen plans no longer credit employees with higher pensions for working more years.) This estimate is inherently subjective, but fortunately has less effect on PBGC finances than might appear to be the case, primarily since even frozen plans have liabilities to be paid off over many years. In fact, a 10 point change in the percentage of plans frozen produced only about a $1 billion change in the size of rescue needed by PBGC under current law.

Our base case assumed that 20% of plans would be frozen under current law and that this would rise to 40% under the Administration proposal, as firms react to tougher funding rules and higher premiums by exiting the defined benefit system through freezes. 25% of plans are assumed to be frozen under H.R. 2830. The figure is higher than under current law, due to tougher funding and premium requirements, but substantially less than under the Administration proposal, as many firms would likely find hybrid plans to be an attractive alternative. (Hybrid defined benefit plans are also insured by PBGC.) Note that our figures are based on the original Administration proposal, which did not address hybrid plans.

For simplicity, we assume no outright terminations. As several of our other papers argue, there are serious accounting and economic costs to paying an insurer to take over the pension liability. We believe virtually no large companies would choose termination over freezing in the near to medium term. This is consistent with the fact that only one large company has chosen a standard termination in the last decade. There are many standard terminations of smaller plans, but the aggregate size is small enough to ignore. To the extent that such terminations do occur, PBGC's financial situation would be worsened by a drop in premiums that would be only partially offset by a small decline in future claims from these healthy companies.

Second, we assume that pension liabilities in frozen plans will grow in the same manner as PBGC's existing liabilities were projected to do when PBGC last released future cash flow estimates (for Fiscal 2003 liabilities.) PBGC is equivalent to a frozen plan, since no new benefits are allowed to be earned.

Third, we assume that liabilities for active plans will grow at 2% per year more than the rate of participant growth, reflecting wage growth of 4% per year applied to the roughly 50% of participants who are active employees and therefore earn increasing benefits.

Number of participants in the defined benefit system. The per capita premiums charged by PBGC are directly determined by the number of participants in the private sector defined benefit system. We assume the number of participants in frozen plans changes at the same rate as the liabilities in these plans, since no accrual of new benefits exists to raise the growth rate. Ongoing plans are assumed to have participant growth of 0.5% a year, slightly below the most recently

reported 5-year average of 0.6% per year for the system as a whole, including frozen plans. Decreasing the rate by one point subtracts about $1 billion from the needed PBGC rescue in the reform scenarios. (The indirect effect on the size of the system more than makes up for the higher fixed premiums charged on participant count.)

Systemwide funding levels. The total level of underfunding in the system was determined by multiplying the total size of pension liabilities by one minus a funding percentage. Systemwide underfunding directly determines PBGC variable premiums and indirectly influences the level of future claims.

The PBGC White Paper forecasts funding percentages under current law and under the Administration proposal, assuming firms contribute the legal minimum. The annual estimates for the next decade appear to stabilize by the last forecasted year, so we assume those percentages remain constant for the out-years.

We are not aware of any in-depth analyses of future funding percentages under H.R. 2830. As a rough cut, we assume that funding levels under the minimum contribution test would rise three-quarters of the way from the White Paper's projections under current law to their projections under the Administration proposal. This relies on a belief that H.R. 2830's funding provisions are much more like the Administration's proposals than like current law. (H.R. 2830's proposals affecting funding levels move in the same direction as the Administration proposal, but sometimes are not as strict.)

PBGC's forecasts of funding percentages are based on "termination liabilities." We raise these by 5 to 7 points to reflect the different rules for calculating variable premiums, which include the use of a higher discount rate and other factors that reduce the reported liability.

Finally, we forecast the level of voluntary funding above the minimum required. This is a particularly difficult variable to estimate, as there is no past experience by which to judge, since many plan sponsors have been able to easily avoid variable premium charges under the current system while maintaining substantial levels of underfunding. Absent this flexibility, which is taken away under both proposals, firms are likely to react much more strongly to variable premium rates.

The author developed a simple, straight-line formula to estimate this effect, based on his nearly two decades of experience with private sector CEO's and CFO's. He believes the figures are reasonable and logically consistent, but they do represent his subjective judgement. The formula assumes that the first 0.25 points of variable premium rate are insufficient to cause any appreciable additional funding. After that, the level of underfunding is assumed to fall by 1/3 for each point of additional variable rate. This probably mildly underestimates the effect at low levels, since some companies may prefund to avoid even a 0.2% variable rate. On the other side, it probably modestly overestimates the reaction to high variable rates, since the formula implies that a 3.25% rate would cause all underfunding to disappear. However, it appears to operate reasonably within the most likely ranges of variable rates. The formula is only used for the reform proposals. A simple across-the-board estimate of 1 point is used under current law, since the effect of variable premiums appears to be low, but not non-existent, now.

Other premium-related assumptions. Current law allows a majority of underfunding to avoid being charged a variable premium (see "PBGC: Premium Hike Possibilities" on www.coffi.org for a more extended discussion.) We simulate this by assuming that the first 10 points of underfunding can totally avoid variable premiums, as will 30% of the remaining underfunding.

Variable premium rates are clearly defined under current law. H.R. 2830 is equally specific, except that the rate is indexed to wage growth and does not have an explicit cap. Since our projections extend out 75 years, we cap the variable rate at 3%, as a practical upper limit. (It would otherwise grow to about 14%.)

The Administration proposal does not name a variable rate, since it requested authority for PBGC's Board to set rates in the future. We do not know what those rates would be. The President's Budget Proposal did not help clarify this, as it assumed total dollar volumes of variable premiums that appear to exceed those practically achievable. (See "PBGC: Premium Hike Possibilities.") The gist of the problem is that rates would have to be so high that they would drive healthy firms to fund so heavily that the pool of underfunding would shrink too much to collect the targeted premiums on that underfunding.

As a proxy, we assume a premium rate of 2% of underfunding is the maximum politically feasible rate. A 2% rate, combined with our assumptions about the effect this would have on companies' choices about funding, would produce roughly the initial increase in premiums that the Administration included in its Budget Proposal, although the collections would drop rapidly after the first year as funding ratios are assumed to rise for other reasons. Since Congress emphatically rejected premium increases of this size, it is hard to envision a final rate being higher than this in the next few years, which are the only years likely to have enough underfunding to produce large premiums.

Were we to assume higher rates, the funding formula explained earlier would correspondingly raise the assumed funding percentages in the system in a manner that would substantially offset the additional premiums collected as a result of the higher rate on each dollar. Fortunately, the effect of the subjectivity of this estimate is reduced by the White Paper's finding that nearly full funding, on a premium calculation basis, would be achieved in the system by the 10th year. Thus, there would be little underfunding available to be charged premiums even under the minimum contribution assumption.

Claims on PBGC. The PBGC White Paper provides estimates of annual claims on PBGC over the next decade under current law and under the Administration proposal. (See "PBGC White Paper Implications," at www.coffi.org, for an explanation of how the reported figures indexed to 2005 levels were converted to absolute dollar amounts.) These claim levels appear sufficiently stable by the tenth year that we use them as a base for calculating the years beyond those provided by the White Paper. The base levels are raised by the growth rate of systemwide pension underfunding plus 0.5% per year to reflect the effects of wage inflation on PBGC's guarantee limits.

As with estimates of systemwide funding, we have to deal with the absence of detailed actuarial forecasts of claims under H.R. 2830. We have assumed that future claims under that bill will bear the same relationship to the claims under current law and under the Administration proposal as do the funding levels. That is, our base case assumes funding percentages under H.R. 2830 that

fall three-quarters of the way from projections for current law to those for the Administration Proposal. Therefore, we assume that future claims will fall three-quarters of the way in between. When we alter that percentage for sensitivity analyses it is altered identically in both formulas.

We also increase claims in all cases by a 20% factor to address the effects of "moral hazards" inherent in the structure of pension insurance. Troubled firms have incentives to take various actions that significantly increase pension underfunding. Empirically, it is clear that pension underfunding sharply increases in the final years of the life of pension plans that end up in distress terminations. PBGC does not factor this into its PIMS model, on which the White Paper numbers are based, resulting in a persistent downward bias in the PIMS estimates. Although rough, our 20% factor is in line with our understanding of the methodology used by the Congressional Budget Office in its recent study of PBGC's financial condition and prospects.

Revisions to other base case estimates. Certain other assumptions were revised for all cases on the basis of new information since the last time COFFI's model was revised. Interest rates are about 0.2 points lower, updated information has arrived for airline liabilities, and bankruptcy recovery rates, although still low, appear to be higher recently than our base assumption.

The claim and premium calculations explained above are more refined than in our earlier version of the model. The net effect of those changes by themselves has been to slightly increase estimates of PBGC's financial problems.

