

ISSUE ANALYSIS

Pension Funding Reform for Single Employer Plans



*An Analysis by the
Pension Practice Council and the Pension Committee
of the American Academy of Actuaries*

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Table of Contents

Executive Summary	1
Fundamental Principles for Guiding Pension Plan Reform	1
Executive Summary Chart	5
Encouraging Defined Benefit Plans	7
Principle Driven Reform: Approaches to Address the Weakness of the Current Funding Rules	
Solvency	9
I. Building a Better Solvency System	9
II. What Should the Funding Target Be?	10
III. Assumptions for Determining the Liability	13
Predictability	17
I. Financial Risk Management	17
II. Accommodate Business/Economic Cycle	19
III. Moderate Contribution Volatility	19
Transparency	26
Incentives to Fund	27
Avoidance of Moral Hazards	30
I. Risk-related Rules	30
II. Benefit Restrictions	32
Simplicity	36
Transition	39
Summary	39
<u>Appendices and Charts</u>	
Appendix A: Synopsis of Current Pension Funding Rules	40
Appendix B: Detailed Summary of IRC § 412 Minimum Funding	41
Appendix C: Details of a Possible Reformed IRC § 412 for Single Employer Plans	45
Appendix D: Definitions and Abbreviations	49
Chart I: Historical Asset and Liability Returns	
Chart II: The S&P 500 Stock in 1987 and 1988	
Chart III: Interest Rates in mid-2003	
Chart IV: Current Funding Rules	
Chart V: Funding Rules - Incremental Reform	
Chart VI: Funding Rules - Incremental Reform	
Chart VII: Funding Rules - Comprehensive Reform	

Pension Funding Reform for Single-Employer Plans¹—Executive Summary

The economic challenges of the past four years have tested U.S. pension funding rules like no other time since the funding rules were enacted in the 1970s. The unprecedented combination of very low interest rates and large declines in equity values has increased liabilities and decreased asset values simultaneously — cutting pension funding ratios almost in half between 2000 and 2003. Chart I shows how unusual this period was — only the Depression in the 1930s would have produced worse results. Considering what the economy has been through, it is fortunate that pension plans are not in worse condition. Nevertheless, the recent economic conditions have made the problems with the existing pension funding rules obvious to the four key stakeholders, and they all want the rules reformed.

- *Plan participants* at bankrupt companies have found that their pension plans were not as well funded as they thought, which reduced their pensions from the PBGC.
- *Employers* have found the pension funding rules unpredictable and volatile,² running counter to their business cycles and making it difficult to plan ahead. They are not flexible enough to allow necessary deductions³ or adequate funding margins in good years.
- *Shareholders* in many cases have found they did not fully understand the risks associated with the company defined benefit (DB) plan and how they may materially affect the health and recovery of the company.
- The *Pension Benefit Guaranty Corporation (PBGC)*, with its dramatically increased deficit, has found that the funding rules allow sponsors of underfunded plans to make promises they cannot keep, defer contributions,⁴ and avoid paying variable PBGC premiums.⁵

Funding reform must address the needs of these stakeholders. In addition, because the funding rules cannot solve all the problems, this paper discusses benefit design restrictions, PBGC premiums and priorities in bankruptcy, participant communications, and asset restrictions.

Finally, all parties involved (including actuaries, accountants, attorneys, and auditors) find the rules overly complex and lacking in transparency. The result is a dramatically weakened voluntary retirement system just as a large portion of the population is approaching retirement.

With these concerns in mind, and because of the knowledge of the past four years, the American Academy of Actuaries' Pension Practice Council put together a task force of leading actuaries from many different backgrounds to assess the pension funding rules. From these discussions, we have formulated seven “Fundamental Principles for Guiding Pension Funding Reform.”

There is one other major principle that pervades all discussions affecting retirement security, including funding reform, and that is the value to society of having a defined benefit system to meet the needs of the elderly. Employers, employees, the markets, and therefore the nation as a whole are all benefited by this defined benefit system, so we discuss this issue in more detail in the first section following the executive summary.

Fundamental principles for guiding pension funding reform: All proposals for pension funding reform should be assessed to see how they address the following seven principles for making a stronger defined benefit system.

¹ This paper covers fundamental principles for the funding reform of single-employer plans. A separate paper examines the reform of multiemployer plans, since those plans are so different.

² The increase in contribution caused by the deficit reduction funding rules can double, triple, or even more significantly increase the otherwise-payable contribution.

³ For example, in 2002, many employers wanted to contribute up to 100 percent of their accumulated benefit obligation (ABO) in order to avoid a significant impact to their net worth under FAS87, but they were not able to deduct it and were subject to an excise tax.

⁴ A contribution is not required if assets exceed the greater of 90 percent of current liability (CL) and the full funding limit (FFL). In addition, a credit balance can fully offset the need for a contribution in the current year, even if the plan is poorly funded.

⁵ This is due to the full funding limit being less than current liability when interest rates are low.

- **Solvency** – The funding rules should move us to a point where assets cover the market value of accrued benefit liabilities (ABL) within a reasonable time period. Policy-makers should also consider requiring an annual contribution until assets reach a higher threshold⁶ so that a funding margin (or surplus) is created to protect against future economic and demographic shocks. Funding when employers become weak may be too late. Such a change could also help create a funding discipline (instead of allowing funding holidays, which lull employers into neglecting to budget for plan contributions). In addition, these solvency rules should not be weakened in order to raise U.S. tax revenue.
- **Predictability and hedgeability** – Contributions should be more predictable so they can be budgeted in advance.
 - **Better financial risk management** – The funding rules should accommodate plans with risk hedging strategies such as immunized bond portfolios so their contributions are more predictable.
 - **Accommodate business/economic cycle** – Allow greater contributions in good years, so contributions could be reduced in difficult years.
 - **Moderate contribution volatility** – Contributions should not change radically due to small or moderate changes in assets or interest rates.
- **Transparency** – Users of the information (e.g., employees, employers, investors, and the PBGC) should be able to understand the financial position of the pension plan and its impact on their sponsor.
- **Incentives to fund; flexibility** – Sponsors should be able to deduct the unfunded ABL at year-end or any time. They should also be encouraged to fund their plans better by: 1) allowing them to build up funding margins in good years, without deduction and excise tax problems, and 2) by allowing them access to “super surpluses” for other purposes, such as employee health benefits, without reversion tax.
- **Avoidance of moral hazards** – The rules should not support the ability of weak employers to improve benefits (or take large risks) at the expense of another stakeholder (e.g. PBGC, its premium payers, U.S. taxpayers, or current and future employees).
- **Simplicity** – The rules should be easier to use and understand than the current complex rules.
- **Transition** – Sponsors need smooth transitions, including adequate time, to implement new rules so they will keep their DB plans.

Balancing the principles: There are inherent challenges in coordinating several of these principles. The primary objective of pension funding is solvency. Participants, employers, the PBGC, and shareholders are benefited by well-funded plans. However, many employers have said that if the solvency requirement forces them to invest solely in bonds, they will freeze and terminate their plans. While we often address employer concerns throughout this paper, it is only to ensure that the rules do not encourage employers to terminate their plans. Our primary goal is to encourage solvent DB plans. Good public policy would be negatively impacted by the termination of employer sponsored pension plans. Thus, recent proposals by both the administration and Congress recognize that satisfying each of the principles requires a balancing act; one cannot satisfy all the principles without compromise. Members of our council do not want to spur insolvent plans, nor do we want an overly burdensome solution that would lead to the elimination of DB plans. Employees could be hurt more by a freeze or termination of a DB pension plan than by occasions of insolvency. In addition, PBGC’s deficit will be difficult to eliminate if healthy employers drop their pension plans and stop paying premiums to the PBGC. Thus, balance is needed when applying principles of reform.

Incremental or comprehensive reform: There are essentially two alternative paths to take: incremental reform or comprehensive reform. Both have advantages and disadvantages, and both will provide substantial challenges. Incremental reform could get enacted sooner, but each change will have opponents who want exceptions and transition rules, increasing the opportunity for future problems. Indeed, many believe that constant small changes have made the rules too complex, which has given rise to calls for more comprehensive reform. Others point out that comprehensive

⁶ The higher threshold could reflect the plan’s contingent benefits and possible risks inherent in the plan’s assets, as discussed in the section on solvency. It could be the larger of an accrued liability using bond rates or a projected liability using ongoing interest rates (for times when bond rates are high).

overhaul could be a radical departure from current rules, which could create new problems that were never considered until tested in future economic climates.

The principles of solvency, contribution volatility, and predictability best illustrate the incremental versus comprehensive debate. We have provided a quick synopsis of possible incremental and comprehensive fixes here. More discussion is provided in the section on predictability.

Proponents of incremental reform note that their primary concern is the volatility caused by the deficit reduction contribution (DRC). The DRC can be much larger than the regular contribution when interest rates are very low.⁷ When some employers first encountered the DRC recently, it more than doubled their contribution. A suggestion for fixing that problem is to make the rules for the DRC and the regular contributions more similar. For example, the regular 412(b) contribution rules could speed up the amortization of liabilities,⁸ and could be extended up to 100 percent of current liability using the full funding limit override (FFL). Also, the DRC rules could be modified to gradually reduce the portion of the deficit that must be paid off each year,⁹ and they could be applied when plans are funded at 90 percent or even 100 percent of CL. However, not all proponents of incremental reform would support all these changes. For example, while the PBGC would be helped by required contributions (and premiums) up to 100 percent of CL, some employers tell us this would require too much of their financial resources directed into their plans, which they would rather use elsewhere.

Proponents of comprehensive reform note that having just one rule would eliminate the cliff caused by two rules. One suggestion, which is similar to just keeping the DRC rule, would require employers to contribute an amount equal to their deficit divided by 5 or 10 each year until eliminated. This formula could also be used when there is a surplus. When the funding margin reaches 5 or 10 times the normal cost, the contribution would be gradually reduced to zero. A similar (and better¹⁰) alternative would be to eliminate the DRC rules and just keep the regular minimum funding rules, use amortization periods of only 5 or 10 years, and discount the liability using bond rates.

Advocates of incremental reform are concerned that the regular ongoing rules promoted better funding in the past when bond rates were higher because the actuary assumed a lower long-term interest rate of around 8 percent. If the use of ongoing funding rules is dropped, perhaps consideration should be given to requiring funding margins in pension plans.

Other proponents of comprehensive reform would require the use of market assets and liabilities (i.e., no smoothing), but that would increase volatility dramatically.¹¹ Without smoothing, most employers say they would drop their DB plan in favor of a 401(k) arrangement (rather than invest the DB plan 100 percent in bonds). This is because their employees are willing to invest in stocks to get the equity premium (particularly their younger employees).

In response, advocates for comprehensive change have suggested limiting unusually large increases in the contribution. For example, the rules could specify that the contribution would increase or decrease by no more than 25 percent of the prior year's normal cost, or 2 percent of current liability, if greater. In fact, this, combined with the one-rule idea,

⁷ When interest rates were higher in the 1980s and 1990s, the DRC for most plans tended to be smaller than the original ERISA minimum contribution.

⁸ For example, the amortization periods could be reduced to 10 years (or 15 years if no lump sum is payable from the plan). This is discussed more under the sections on predictability and moral hazards.

⁹ For example, the DRC applicable percentage, which ranges from 30 percent (for a 60 percent funded plan) down to 18 percent (for a 90 percent funded plan), could be reduced slightly from 25 percent down to 10 percent, since 30 percent is faster than 5-year amortization.

¹⁰ We say "better" because the amortization of liabilities improves the chance that the target is reached in the time period desired, and because when interest rates are high, the amortization payment increases (just like a house mortgage). If the rule only required a contribution of 1/10th of the deficit, then in years when the interest rate exceeds 10 percent, the contribution would not even pay for the interest.

¹¹ Unless plan liabilities could be (and were) immunized with bonds.

could actually produce a smoother contribution than the incremental reforms. (See the discussion on the anti-volatility mechanism in the predictability section.) Others have suggested smoothing the contribution by smoothing the funding ratio in a DRC-type calculation.¹²

However, many stakeholders are nervous about contribution smoothing because it could someday be eliminated, and employers would then leave the DB system. There are also many other rules in addition to minimum contribution calculations that depend on plan assets and liabilities. If they are not smoothed, the other contribution rules and benefit restrictions could become volatile. For example, many employers contribute enough to be 100 percent funded so they do not have to make the accelerated quarterly contributions. If market values are not smoothed, employers might learn on Jan. 1st that they had to make quarterly contributions. This uncertainty would upset employer planning. Furthermore, if benefits are frozen when assets are below a certain funding level, then plan administration and employee communications could become very complicated. Thus, rules will be needed in these and many other places listed in the predictability section to eliminate these uncertainties. One possible solution might be to put the rules into effect if a plan is under a particular threshold for two consecutive valuations, and to allow plans to cure the problem through contributing enough to get over the threshold (or providing security). These issues are discussed more fully in the section on predictability — “Smoothing the Contribution – A Comprehensive Reform.”

The following paper provides detailed fixes for each of the principles, along with pros and cons for each fix. A summary can be found in the following chart. However, we encourage exploring the entire paper and invite feedback. You can reach us by contacting Heather Jerbi, the Academy’s senior pension policy analyst (202-785-7869; Jerbi@actuary.org).

¹² They would determine the funding ratio using market assets and liabilities (which accommodates immunized plans), and then average them over the past several years.

All stakeholders want pension funding rules fixed for various reasons. The American Academy of Actuaries has provided some possible alternatives below by principle. Some principles conflict with others, so balance will be needed. Since retirement plans (and particularly DB plans) provide so many advantages to employers, employees, and the nation, it is our hope that this legislation not further harm the nation's DB pension system. Encouraging DB plans should be a primary goal, particularly with the baby boomers so close to retirement.

Single Employer Principles	Possible Alternatives for Funding Reform (see advantages/ disadvantages in our paper)
<p>Solvency The funding rules should move us to a point where the market value of assets cover the market value of accrued benefit liabilities within a reasonable time period. Policy-makers should also consider requiring an annual contribution until assets reach a higher threshold so that a funding margin (or surplus) is created to protect participants and the PBGC from future economic and demographic shocks. Funding when employers become weak may be too late. These rules should not be weakened in order to raise U.S. tax revenue.</p>	<ul style="list-style-type: none"> • Require funding and PBGC premiums until assets reach 100 percent of accrued benefit liability (ABL). For example, increase full funding limit (FFL) override or deficit reduction contribution (DRC) exemption from 90 percent to 100 percent of ABL. • Possibly require a normal cost (present value of current year accruals) until assets reach a higher threshold (e.g., the greater of 130 percent of accrued benefit liability (ABL) and the ABL plus contingent liabilities. This would also encourage funding discipline. • Allow deductions until assets reach a still higher level, such as total present value of benefits, a termination liability, or 150 percent of ABL. • Charge a PBGC premium for unpredictable shutdown benefits, require security for them, fund them, or phase-in the guaranteed benefit from shutdown date (with delayed effective date). • Include lump-sum subsidies in current liability and allow plans to gradually eliminate the subsidy. • Restrict credit balance from offsetting normal cost in very poorly funded plans (unless a waiver is granted, benefits are frozen, or security is provided). Accumulate credit balance at actual plan return. • Allow the enrolled actuary (EA) to use (if justified) the most appropriate mortality table (including projection & collar information) and retirement assumptions (now that both the law and actuarial standards require each assumption be reasonable) instead of mandates, which are not responsive to changing experience and different characteristics of the plans and employers.
<p>Predictability and Hedgeability Contributions should be more predictable, so they can be budgeted in advance.</p> <p><i>Better financial risk management</i> The funding rules should accommodate plans with risk hedging strategies (such as immunized bond portfolios), so contributions are more predictable.</p> <p><i>Accommodate business/economic cycle</i> Allow greater contributions in good years so contributions can be reduced in difficult years. This can help minimize economic cycles for businesses and the nation.</p> <p><i>Moderate contribution volatility</i> Contributions should not change radically due to small or moderate changes in assets or interest rates.</p>	<ul style="list-style-type: none"> • Reduce uncertainty by passing legislation to permanently set the interest rate. • Permit plans subject to DRC to hedge interest rate risk and contribution volatility by allowing them to use current spot rates instead of 4-year average (in addition to using market value of assets). • Make the DRC and regular §412(b) funding rules more similar. <ul style="list-style-type: none"> ○ Shorten the §412(b) amortization periods to 10 years (15 if the plan has no lump sum provision). ○ Reduce the percentage of deficit paid off each year under DRC rules, especially if 4-year smoothing of interest rate is reduced. For example, reduce the DRC percentages by 5 percent so amortization faster than 5 years is not required. ○ Use one funding rule, either a simplified 412(l) DRC rule that pays 1/5 or 1/10 of deficit each year, or even better, the original §412(b) rules modified to use bond rates, and 5, 7, or 10-year amortization. • If assets and liabilities are no longer smoothed, create an anti-volatility mechanism (AVM). For example, cap the increase in the minimum contribution at 25 percent of the plan's normal cost, or 2 percent of the plan's accrued liabilities, if more. • For other contributions and benefit restriction thresholds in law, allow smoothing of: <ul style="list-style-type: none"> ○ Assets & liabilities; ○ Funding ratios; or ○ Gradual restriction based on funding level (i.e., 10 percent restriction at 90 percent funded and 40 percent restriction at 60 percent funded) or restrict only if funding ratio is inadequate for two consecutive valuations.

Single Employer Principles	Possible Alternatives for Funding Reform (see advantages/ disadvantages in our paper)
<p>Transparency Users of the information should be able to understand the current financial position of pension plan and its impact on their sponsor.</p>	<ul style="list-style-type: none"> • Require timely year-end disclosure (as in financial statements) with market value disclosure of assets, accrued benefit liabilities, and trends in funding ratios by plan for participants. • Require disclosure of funding policy and asset allocation by plan, so funding ratios at later dates can be estimated. • Simplify PBGC guarantees and § 4044 asset allocation rules to help participants understand the § 4011 notice, which discloses benefits that would be lost if plan terminated in distress.
<p>Incentives to Fund Flexibility Sponsors should be able to deduct the unfunded ABL at year's end or any time, and should be encouraged to better fund their plans by allowing them to build up funding margins in good years without deduction and excise tax problems, and by allowing them access to super surpluses for other purposes, such as employee health benefits, without reversion tax.</p>	<ul style="list-style-type: none"> • Improve plan asset margins by increasing deductible limits (e.g., to the greatest of 150 percent of CL, an ongoing liability, vested benefits for determining PBGC premium, year-end accumulated benefit obligation (ABO)) and allowing projection of §415 maximum benefits, and §401(a)(17) compensation. • Expand the §420 transfer rules to allow surpluses (above a high threshold) to be used for other employee benefit plans, such as employee health plans. This may be subject to bargaining. Allow other uses if representative employee groups approve it. Relax the 5-year maintenance rule in §420. • Allow small withdrawals if done gradually, prohibited within two years of a takeover, and done only when assets exceed a high threshold. • Retain the credit balance to encourage better funding in good years, but increase it with actual returns (not the valuation interest rate), as plan assets will always be as good or better by retaining it. • Security without current taxation for executive deferred compensation that mirrors employee plans
<p>Avoidance of Moral Hazards The rules should not support the ability of employers to improve benefits, or take large risks, at the expense of someone else (e.g., the PBGC, premium payers, U.S. taxpayers, or current or future employees).</p>	<ul style="list-style-type: none"> • Shorten amortization periods for amendments to 10 years (or 15 years if plan doesn't pay lump sums). • Tighten rules for sponsors with large underfunding relative to their plan liability. For example: <ul style="list-style-type: none"> ○ Increase the current 60 percent threshold for requiring security before allowing benefit improvements; ○ Freeze future benefit accruals and grow-ins; ○ Pay lump sums only to extent funded, or drop them (if replaced by a 20-year certain life annuity); ○ Might as well apply restrictions to healthy employers, as it will get them to improve funding levels. • As an alternative to PBGC terminating a plan, allow PBGC (or bankruptcy judge) to freeze benefits or guarantees of bankrupt sponsors if minimum contributions are not made. Work out a more flexible financing plan with employer (since PBGC's risks are reduced). • Restrict sponsors in reorganization from giving plan to PBGC. • Improve PBGC's position in bankruptcy proceedings (with delayed effective date). • Increase PBGC's per person premium by wage index.
<p>Simplicity The rules should be easier to understand and comply with than the current complex rules.</p>	<ul style="list-style-type: none"> • One funding rule and one amortization period. • Disconnect minimum funding rules from maximum deductibility rules. • Eliminate quarterly contributions, and require the full contribution soon after yearend. Allowing the return of some of the prior year's contribution without reversion tax could simplify this. • Allow single equivalent rate instead of yield curve. Do a cost-benefit analysis on using a yield curve.
<p>Transition Sponsors need smooth transitions to the new rules to halt the drop in DB plans.</p>	<ul style="list-style-type: none"> • Cap the increase in the minimum contribution at 25 percent of the plan's normal cost (or 2 percent of the plan's accrued liabilities, if greater).

Encouraging DB Plans

Defined benefit pension plans are the most cost efficient way for individuals to ensure their financial security in retirement due to the pooling of risks. Even with this efficiency, few DB plans existed in the United States until pension contributions and trust fund earnings were exempted from taxes. This tax advantage is not as costly to federal receipts as it initially appears because pensions are tax-deferred, not tax-exempt. Much of the tax advantage is returned to the government when pension benefits are taxed upon distribution.¹³

However, even with this tax advantage, employers may not keep their DB plans. They are switching to 401(k) plans, which not only get the same tax advantages, but also have the added advantage of laws that are much simpler, more flexible,¹⁴ and require less costly compliance. Thus the move to the exclusive use of 401(k) arrangements is partially due to an unlevel playing field. DB plans need to be encouraged because of the many advantages they provide to employees, employers, and therefore the nation. Pensions provide a consistent and efficient way for employees to prepare for their financial needs in retirement. They correct our myopic tendencies to spend now and delay saving until too late, but defined contribution (DC) plans might do this, too.¹⁵ So, why should DB plans be encouraged? We think the following list provides compelling reasons for maintaining (and enhancing) their tax advantages.

DB plans, in particular, are beneficial to *employees* for the following reasons:

- They generally provide benefits related to pre-retirement wage levels that workers can plan on;
- They reduce the investment, inflation, and interest rate risk to employees;
- They can avoid leakage risks¹⁶ to employees by denying pre- and post-retirement withdrawal;
- They eliminate most of the longevity risk through pooling (annuitization);¹⁷
- Employees are much more likely to participate in the company DB plan (in 401(k)s, employees generally must contribute in order to get any benefit);¹⁸ and
- Employees are much more likely to get a lifetime income from the DB plan (DC plans rarely pay out a lifetime income).

In addition, DB plans help *employers* with workforce management issues better than DC plans. For example, employers have found that with DC plans, employees retire faster than expected when markets are good, and much less when markets decline. This makes it difficult for employers to manage their workforces and plan ahead. DB plans help employers:

- Attract employees;

¹³ Lately, the pension plan tax advantage has been reduced, as a result of the capital gains and dividend tax rates being lowered to 15 percent (10 percent for lower income people). The tax advantage could be almost eliminated if proposals for “lifetime savings accounts” are implemented (and LSAs would not have the many important policy restrictions that pension plans have, such as preserving funds for retirement, providing benefits for spouses, providing benefits for most employees, etc.). The pension tax advantage would be totally eliminated if the U.S. tax system moved to a consumption based tax (e.g., national sales tax, VAT, or flat tax on wages).

¹⁴ For example, 401(k) arrangements (but not DB plans) can have pre-tax employee contributions, matching contributions from employers (and from government through IRC Sec. 25B for low-income employees), earlier payment of benefits for phased retirement, clearer rules for age discrimination than for cash balance plans, etc.

¹⁵ While the argument of individual empowerment for DC plans is attractive, the unrealized risk of outliving one’s financial resources is enormous and poorly understood. If individuals understood this risk the way they understand other insurance, more of them would seek the protection of DB plans over DC plans.

¹⁶ Leakage is the tendency for workers to spend their savings before retirement, or too quickly in retirement.

¹⁷ Individuals (not knowing when they will die) need more funds to provide a level income for the rest of their lives. The only way they can do it themselves (without an insurance company or pension plan) is to have enough money to last until age 100 or more. On the other hand, a pension plan with many participants can make a fairly accurate forecast of its lifetime pension payments by pooling the risks of a large group of participants, and not have to assume that everyone will live to age 100 (or more). Unfortunately, many people don’t take advantage of this efficiency, because (inter alia) they value cash over future payments. Since there are advantages to the country if people take annuities (e.g., less welfare costs for elderly people in poverty), it can be justified on financial reasons alone for the country to provide tax advantages to people who take lifetime pensions (e.g., reducing the income taxes on pension income).

¹⁸ While a DB plan covers almost all full-time, permanent employees at a company, only 70 percent of employees are likely to participate in the company 401(k), and only 16 percent of people contributed to IRAs when they were available to everyone in the early 1980s. Also, in both 401(k)s and IRAs, the participation rates of lower income people are quite low and the contributions are often insufficient.

- Retain employees through vesting rules and valuable benefits;
- Retire employees with dignity;
- Temper difficult layoffs by providing special early retirement benefits;¹⁹
- Avoid the accumulation of overly generous pensions that encourage employees to retire earlier than desired (an inefficient use of funds when markets do well).

And finally, DB plans are better than DC plans at providing the *country* with some very important advantages, which many people won't realize are lost until it is too late to regain them. For example, DB plans:

- Create a more financially secure population;
- Reduce welfare expenditures (that will happen many years from now when 401(k) participants use up their retirement funds too quickly);
- Provide for an orderly stream of consumption of goods and services to fuel economic growth;
- Provide a huge source of efficiently invested assets in our markets; and
- Defer taxable income into the future when this country needs it more.²⁰

Thus, we need to be careful that no further harm is caused to DB plans by revisions to the funding rules, or employers will switch to DC plans even faster. Many employers have already switched or are freezing their DB plans while contemplating a move to DC plans because of the current environment for DB plans in general, and cash balance plans in particular.

We also need to be careful when changing the equilibrium between retirement plans, annuities, and non-qualified investments. For example, when the tax rates on dividends and capital gains were reduced, it reduced the incentives for employers to have retirement plans and for individuals to buy non-qualified annuities. In the future, policy-makers may want to consider reducing the taxes on retirement and annuity distributions when they reduce the taxes on non-qualified investments.

In addition, we need to **level the playing field between DB and DC plans** so employers can choose the type of pension plan that meets both their needs and those of their employees. We also need to level the playing field so it makes sense for employers to choose both types of plans (as is common at most large employers) because 401(k) arrangements have some advantages that DB plans don't have. Ways to level the playing field, include:

- Allowing DB plans to have pre-tax employee contributions (without the complex rules currently existing for after-tax employee contributions);
- Allowing DB plans to have matching contributions from employers (and the tax credits from the government under IRC Sec. 25B for lower-income employees);
- Allowing DB plans to pay benefits upon phased retirement as early as 401(k) arrangements, or possibly as soon as age 55 or after 30 years of service (see our letter to the IRS on phased retirement at http://www.actuary.org/pdf/pension/irs_30dec02.pdf);
- Limiting the amount of an employee's account balance invested in company stock in DC plans to the same amount in DB plans;
- Taxing pension income the same as long-term investments (e.g., the capital gains tax rates);
- Clarifying how the Internal Revenue Code (IRC) applies to cash balance and other new hybrid DB plans;
- Making the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRAA) increases in pension limits permanent;
- Consider making Medicare primary for active employees over age 65 who are participants in a reasonably valuable DB plan. (In the future, workers may discover that phased retirement after age 65 is more important than earlier phased retirement.);
- Allowing plans to redefine the normal retirement age as the Social Security retirement age.

More ideas can be found in our DB(k) paper at www.actuary.org/pdf/pension.org/pdf/pension/dbk_jan03.pdf.

¹⁹ Many have suggested that the use of DB plan surpluses for early retirement windows helped make the United States competitive again after the difficult times in the 1980s when we thought Japan would overtake us.

²⁰ Social Security, Medicare, and Medicaid deficits after the baby boomers retire dwarf current budget problems.

Principle Driven Reform: Approaches to Addressing the Weakness of the Current Funding Rules

In the following pages we thoroughly discuss the seven principles. For each principle, we provide the funding problems that pertain to them and various suggested responses, along with their advantages and disadvantages.

Solvency

Most people suggest that the primary principle for funding reform should be solvency. If plans are solvent, employees can better plan for retirement, assess whether their current compensation package, including benefits, is adequate, and determine whether they need to save more. In addition, if plans are solvent, the risk that the DB plan can affect the core functioning of the business is reduced and shareholders can have a clearer understanding of a company's financial status. And finally, if *all* plans are solvent, then DB plan sponsors and taxpayers would not be at risk for paying the unsecured debts of other insolvent DB plan sponsors through increased PBGC premiums or a PBGC bailout.

I. Building a Better Solvency System

Should *all* plans be solvent, or just plans of weak sponsors? At a minimum, PBGC (and its premium payers) will want plans to be solvent when the sponsor fails, but that principle might only force higher contributions when companies are weak. This does not mean we should never look at a plan sponsor's fiscal health; but waiting until a plan sponsor is weak may be too late to get assets to fully fund plan benefits. The company may not have the resources anymore, and the increased contribution requirements could, in themselves, cause the company to fail.

In addition, a lenient funding rule for healthy companies could allow them to make future benefit promises they can't keep. Since healthy employers can become very unhealthy with little advance notice, most people agree that the rules should require *all* plans to be held to a solvency measure, whether the sponsor is weak or strong. This will help reduce the concerns about volatile contributions that are counter to the employer's business cycle. While it may be too difficult or too late to require weak companies to make larger contributions, other actions (such as benefit restrictions) can be taken to help the PBGC and the premium payers, which do not require greater resources from weak companies. We discuss these ideas later in the section on moral hazards.

Responsiveness to economic and demographic shocks: Many of the current funding provisions delay responding to difficult economic and demographic events. Assets and liabilities are smoothed, losses are amortized, the deficit reduction contribution does not kick in until the plan is worse than 90 percent funded, it has a volatility mechanism to delay it up to two years if it was recently over 90 percent funded, and the credit balance can offset contributions, also delaying a response. The funding rules can be more responsive to these shocks. Suggestions discussed later are to use market assets and liabilities, require contributions up to 100 percent of accrued liabilities, shorten periods over which liabilities must be paid, and restrict the use of the credit balance if a plan is very underfunded.

Modify credit balance rules: The PBGC has expressed its concern that plan sponsors can avoid a contribution by using a credit balance, even when their plans are very underfunded. The credit balance is the excess of contributions made in the past over required minimum contributions (with interest). It was created to encourage employers to contribute more in good years, so they can reduce contributions in difficult times. The credit balance allows plan sponsors to manage their cash flow. It helps contributions coincide with the employer's business cycles; they can contribute more during good years, less in difficult times.

The theory behind the credit balance is that the plan is no worse off than if the employer had just contributed the minimum. However, this theoretical basis of the credit balance does not fully work in practice because the credit

balance grows at the assumed interest rate, even when plan assets plummet. The rules do this for simplicity. To make the theory work, the credit balance should increase or decrease at the same rate as plan assets.²¹

Other ideas would be to not credit any interest on the credit balance, though the balance could still be too large if asset values declined. Credit balances could expire at the same time as tax carry-forwards. This would force sponsors to use it quickly, and discourage employers from making additional contributions.

The current administration has proposed eliminating the credit balance, but plan sponsors (particularly those who built up large credit balances recently) would see this as an unfair change to rules on which they relied. Such a proposal would discourage plan sponsors from contributing excess contributions in good years. In fact, the credit balance, with actual returns, does not hurt funding levels. Assets will always be better, or at least as good, if the employer had never contributed more than the minimum.

Thus, many note that the problem is not with the credit balance; the minimum contribution rules are too weak. If these rules were stronger, underfunded plans would not be able to build up such a large credit balance. For example, we could shorten the amortization periods for paying off new liabilities without eliminating the credit balance idea.

If necessary, a compromise would keep the credit balance, and restrict its use only for very underfunded plans. Congress could apply this prohibition to plans subject to the DRC,²² but that would make the contribution even more volatile in the year a plan becomes subject to the DRC rules. Unfortunately, wherever the threshold is set for this rule, it will make the funding rules more volatile and cyclical. To be responsive to this concern, policy-makers could gradually downgrade the ability to use the credit balance as the plan becomes more poorly funded. Alternatively, and preferably, it could be prohibited from offsetting just the normal annual contribution if the plan is underfunded. This alternative is not only simpler, it would eliminate the volatility concern, and it would encourage funding discipline (i.e., the normal cost would be payable to the plan in every year). If the plan sponsor found it could not make any contribution in the current year, they could still be permitted to apply for a minimum-funding waiver from the IRS (which could be automatic if the employer were willing to freeze benefits or provide security).

II. What Should the Funding Target Be?

Current rules require faster funding when assets are below 80 percent of current liability or if consistently below 90 percent of CL. Current liability is the present value of accrued benefits using smoothed bond rates. In addition, the current rules, called the full funding limit override, prohibit the full funding limit from being less than 90 percent of current liability. Contributions (and variable premiums) are generally required when assets are below this amount. There are several reasons that 90 percent was used instead of 100 percent. It was believed that the PBGC needed only 90 percent of CL to cover its guaranteed benefits; that ongoing companies invested in stocks didn't need to fund to 100 percent of CL (using a bond rate) if they would never terminate the plan; and that the additional "small" amount could be funded most of the time if and when it became necessary.

Is 90 percent of CL enough? The recent market conditions have shown that 90 percent of CL is not enough, because plans that were funded at 90 percent in 2000 could be funded at only 50 percent in early 2003. In addition, some very underfunded plans terminated by the PBGC were not required to contribute anything to their plans or pay a variable premium to the PBGC in the years leading up to their termination. This was because the full funding limit enabled them to avoid contributions and variable PBGC premiums as long as they were funded to 90 percent of CL.

²¹ The determination of the experience gain and loss would then have to reflect that. Because of its complexity, this rule should be implemented prospectively so it doesn't change the rules of the game in midstream. In addition, sponsors won't know the return on plan assets until they know the minimum required contribution at year-end. This could be remedied by reflecting the different return in the following year.

²² If the credit balance cannot be used to offset the DRC, then IRC Sec. 412(l)(8)(A) should be changed so it does not increase the unfunded CL by the credit balance.

Target 100 percent of accrued liabilities: To protect not only the PBGC, but also participants, the rules could set a target of 100 percent of accrued benefit liabilities (ABL). By this we mean the present value of accrued benefits determined by using bond rates and best estimates of other assumptions. If an insurance company were to promise the plan's benefits, it might use more conservative assumptions or even worst-case assumptions. This could dramatically increase the funding target from where it is now (90 percent of CL), so a compromise might be to use best estimate assumptions for now and require a regular annual contribution until it builds up a margin (as discussed in the next section).

The ABL could be used not only for minimum contributions, but also for all the thresholds in pension law. For example, there could be no benefit improvements without security unless assets exceed a certain percent of ABL. Vested (or guaranteed) ABL could be used for determining PBGC's variable premium. It should be noted that if required funding levels are increased, employers might respond by reducing benefit accruals. Thus, remedies for a stronger solvency criterion that will produce lower risk, may also result in lower benefits to participants to complete the risk-reward relationship.

Require annual contributions after target is met to create funding margin: There are advantages to making contributions even after the funding target is met for the following reasons:

- To build up a funding margin in case there are economic shocks in the future, such as stock market declines or lower interest rates, which increase liabilities;
- Funding ratios can drop dramatically due to demographic shocks when companies become weak due to employees taking greater advantage of subsidized early retirement benefits, subsidized lump sums, and shutdown benefits;
- Participants may live longer than expected due to continuing medical advances;
- Large salary increases in inflationary times can also cause large increases in liability;
- To develop a funding discipline and avoid the circumstances of the 1990s when employers had funding holidays for so long that they lost their funding discipline;
- Funding to accrued benefits can mean that contributions will increase if the workforce ages;
- A margin can help employers smooth out their contributions;
- Additional assets can be used to improve benefits or provide funding flexibility (i.e., reduced contributions in difficult years).

The last three reasons are important to employers, so they may decide to use ongoing funding targets for their funding policy. However, all the other reasons provide a rationale for the law to *require* funding margins for all plans. Even plans with immunized assets may need a funding margin for some of the above reasons (e.g., the second through fifth reasons).

An ongoing plan may never have to pay for all of the subsidized benefits listed above, so some employers have asserted that it does not make sense to include them in a plan's funding target. As a compromise, policy-makers could require the employer to pay an annual amount—the annual normal cost or the value of the current year's accruals—once the ABL target is funded rather than forcing them to fund all these worst-case scenarios. An example of this funding rule can be found in Chart VII at the end of the paper. The annual normal cost contribution could be required until assets exceeded one of the following thresholds:

- The ABL using earlier retirement ages;
- The at-risk liability in the administration's proposal;
- The ABL including something for contingent benefits;
- Termination liability (TL);
- The FFL in today's funding rules, which uses long-term expected interest rates;
- The present value of all future benefits using ongoing or expected long-term interest rates;
- The greater of 130 percent of ABL, where the 130 percent can be reduced for partially or fully immunized plans²³ and one of the above amounts, to provide a margin for demographic shocks;
- Another percentage (over 100 percent) of ABL that reflects the risks in the plan's assets (e.g., stocks) and

²³ The required funding margin could also be reduced if the plan sponsor was willing to convert all plan assets to an immunized bond portfolio if assets fell below a certain threshold such as 105 percent of liabilities, but this might be difficult to administer and monitor. What if sponsors didn't carry out the promise in time? Penalties for failure could be harsh.

liabilities (e.g., subsidized benefits), although this might be difficult to administer.

We have included some ongoing liability amounts in the above list. They can be larger than the market-based liabilities when interest rates are high. If interest rates were to fall, plans with equities could become underfunded,²⁴ so the PBGC may want a larger margin when interest rates are high, and an ongoing liability could help in those situations.²⁵ We can assist policy-makers in assessing which thresholds are most appropriate for their objectives. We would also encourage (not require) funding contributions above these amounts by increasing the deductible limits to amounts suggested in the section on incentives to fund. Such amounts might be the greater of 150 percent of ABL, the termination liability, or the present value of all benefits (PVB) using an ongoing interest rate.

We want to emphasize that this funding margin concept has an important collateral effect — creating a financial discipline for companies that have the option of not making contributions under the current funding rules following favorable investment cycles. Plan sponsors may be concerned that this rule could require contributions to build up a funding margin even in difficult times. If important, Congress can avoid this problem by retaining the rules for the credit balance and/or minimum funding waivers, which are discussed later under the flexibility principle.

Contribution phase-out: Contributions could be phased out more slowly than the way the current FFL rules work, which is a dollar-for-dollar cliff. Instead, the rules could reduce the normal cost by one-fifth of the extent to which assets exceed the threshold for the funding margin. This creates a funding margin equal to 5 times the normal cost.

Should we target ongoing liability? Our current rules fund to two targets: current liability and the full funding limit. The FFL is based on the Employee Retirement Income Security Act (ERISA) actuarial accrued liability (AAL), which uses projected pay levels, and sometimes projected service, so it can be larger than CL, and thus can create a funding margin. It was valuable for plans to have funding margins in the past, because when interest rates fell, liabilities increased faster than assets.²⁶ Funding margins also help employers smooth contributions over long periods and provide flexibility. Contributions can be reduced in difficult years, if necessary. Alternatively, if future rules require explicit funding margins (based on the above list), then policy-makers could drop the ongoing rules. It would be up to the employers to look at these former rules if they wanted to smooth out future contributions, but it would not be required.

Include lump-sum subsidies in liability calculations: Lump sums in the underfunded Polaroid pension plan reduced the plan's funding ratio because participants who elected lump sums got their full plan benefit, while those who elected annuity payments found that less of their benefits were covered by plan assets.²⁷ This had consequences for Polaroid retirees with large pensions when the plan was eventually trusted by the PBGC. Those participants still in the plan, including pensioners who were not permitted to take lump sums, got lower benefits from the PBGC than if the lump sums had not denuded the plan of much of its assets. Solutions for this problem are:

- Amend IRS Notice 90-11 to allow current liability to reflect the full subsidy inherent in lump-sum benefits;²⁸
- Require plan sponsors to also contribute the unfunded portion of actual lump sums distributed each year. However, this could create a volatile contribution;
- Charge a higher PBGC variable premium for plans with a lump-sum option and/or benefits greater than the PBGC maximum. Such plans can present more risk to the PBGC from employees who quit to take out their full lump sum and thus increase PBGC's unfunded guaranteed benefits;
- Restrict availability of lump sum payouts from underfunded plans to avoid a run on plan assets. The level could be restricted to a partial lump-sum payment based on the funded percentage of the plan, or an annual payment equal to that payable under the life annuity form (no lump sum until better funded);²⁹

²⁴ Pay-related plans could also experience large increases in liabilities if salaries continue to increase at higher rates.

²⁵ Unless PBGC could require plans to immunize when interest rates are high, or start falling.

²⁶ While long bonds might have increased as fast as the liabilities, the equities in the plans did not.

²⁷ This can also happen due to the payment of large shutdown benefits or early retirement window benefits.

²⁸ In other calculations, actuaries can make assumptions regarding the utilization of the various benefit elections.

²⁹ Unfortunately this could start a run on plan assets before it is effective. The desire to get lump sums (and the effect on the plan) might be reduced if it were effective when assets fall below 100 percent (or more) of accrued liabilities.

- Eliminate subsidies mandated in lump-sum benefits by allowing plans to use a more actuarial equivalent determination of the lump-sum amount, such as using one high-quality corporate bond rate;
- Allow plans to eliminate the lump sum option from the plan.³⁰ Not only can lump sums jeopardize the funding status of a plan, they also can undermine the fundamental concept of risk pooling. Because eliminating lump sums could eliminate a valuable right for unhealthy participants, Congress could require that the lump sum option be replaced by a 20-year certain life annuity.

We note that Congress could increase retirement security in the United States by discouraging the election of lump sums by participants. This could be done by giving annuities a relative tax advantage, placing an excise tax on lump sum distributions, and/or giving advantages to pension plans that don't pay lump sums.

Shutdown provisions and early retirement window benefits: Some pension plans have shutdown provisions and early retirement window benefits that sometimes double or more than triple benefit liabilities when a company partially or fully shuts down a facility. They are sometimes provided in union-negotiated plans for workers who are laid off by a shutdown and who may find it difficult to find comparable jobs. If the shutdown just involves one facility at a large employer, it can be funded in advance. Unfortunately, shutdown benefits that arise when an entire company closes are difficult to fund in advance, because (1) they could require significantly more money in the pension fund than would otherwise ever be needed if the company does not shut down, and (2) IRS deduction limits generally do not reflect the cost of these benefits until the shutdown occurs.

If it does not make sense to require that all shutdown benefits be funded in advance, then another suggestion is to allow plans to eliminate the provision. Others have suggested that the PBGC not guarantee shutdown benefits. A compromise might be to phase in the PBGC's guarantee of these shutdown benefits over five years from the shutdown date, not the date of the provision in the plan. This would guarantee facility shutdown benefits and avoid a situation where the PBGC feels it is necessary to unilaterally terminate a pension plan when a total shutdown appears imminent to avoid the possibility of covering the shutdown benefits. Currently, the PBGC guarantees these benefits if triggered before plan termination, except for some of the temporary supplements. Under this proposed change, if a whole company went under, workers might not receive their full shutdown benefits unless the company survived the five-year phase-in period, or if plan margins adequately covered shutdown benefits. Since this is a cut in current guaranteed benefit rules, a further compromise might be to delay the effective date of this provision for a number of years (e.g., 5 or 10 years) so that employees can bargain for alternative provisions.

Alternatively, the PBGC could charge a separate premium for the shutdown benefits based on the additional liability, and/or require faster funding by increasing funding margin requirements to include plan shutdown benefits. Another alternative would be for the PBGC to require the employer to post security for the unsecured value of these plan benefits, should the plan need the funds for these special benefits. Allowing security would avoid employers' concerns about putting too much money into the plan, and then not being able to avoid a reversion tax if the additional money is never needed.

III. Assumptions For Determining the Liability

Discount rates: The current funding rules determine the minimum contribution of an underfunded pension plan using a discount rate between 90 percent and 100 percent of a four-year average of high-quality long-term corporate bond rates. Some people strongly prefer using Treasury bond rates or Swap rates, because corporate bonds are subject to default.³¹ We

³⁰ Section 1.401(a)(4)-5(b)(3)(ii) of IRS regulations says plans must restrict lump sums to the top 25 employees (or all HCEs if desired) when a plan is funded less than 110 percent using current liability and the lump sums exceed 1 percent of the plan's CL.

³¹ Others suggested that long-term expected returns should be used because the PBGC takes over the plan and does not buy annuities, but instead will be around when stocks and interest rates revert to their means. However, the political process has moved on from that because we really do not know if assets and interest rates will revert to a mean (and we don't know what that mean would be). In addition, using ongoing rates can encourage employers to hold more stocks to justify higher expected return assumptions. It has other moral hazards, such as encouraging employers to increase benefits when they may not be affordable. It also would increase PBGC claims (because companies can put their plans to the PBGC in bad times, but not their surpluses in good times) and increase PBGC premiums to the premium payers.

assume that Treasury chose the high-quality corporate yield curve because:

- annuity prices and accounting rules are based on corporate bond rates;
- group annuity prices are difficult to estimate or specify in law;
- the Treasury yield curve will gradually be only 10 or 20 years long (since 30-year Treasuries are no longer being issued); and
- swaps are new, complex, and not understood by lawmakers and other stakeholders.

If stronger funding is desired, the corporate bond rates can be multiplied by, 90 percent or 95 percent, or reduced by 25 basis points or 50 basis points. These issues are discussed in our earlier papers on alternatives to the Treasury rate at http://www.actuary.org/pdf/pension/rate_17july02.pdf and the low Treasury rate at http://www.actuary.org/pdf/pension/treasurybonds_071101.pdf. In addition, we discuss whether to use a spot market rate or a smoothed rate in the section on predictability. The use of a yield curve versus a single equivalent rate is discussed in the section on simplicity.

Mortality assumptions: Current regulations require the use of the 1983 Group Annuity Mortality (GAM '83) table for determining current liabilities. This table needs to be updated. In fact, Internal Revenue Code (IRC) Sec. 412(l)(7)(ii) authorizes the Secretary of Treasury to change it after 1999 to one “based upon actual experience of pension plans and expected trends.” In a letter to the Secretary (which can be found at http://www.actuary.org/pdf/pension/mortality_123103.pdf), the Academy recommended (a) allowing EAs the ability to determine the appropriate mortality table for the plan because both our actuarial standards and the law now require the EA to use individually reasonable assumptions, or (b) requiring the RP2000 mortality table with projection (as modified by blue and white collar adjustments where appropriate).

Retirement Assumptions: The PBGC suggests that employees in two recent plan terminations retired sooner than projected by the plan’s actuary. The PBGC noted that the liabilities would have been much greater if its expected retirement assumptions had been used due to more employees taking subsidized early retirement benefits. The administration proposes mandating a particular retirement assumption for weak plans. For example, the PBGC retirement assumptions (earliest retirement age) could be required. However, there are reasons why PBGC’s assumptions might not be appropriate. For one, PBGC’s retirement assumptions may be better at approximating retirement rates for weak employers but not for ongoing plans. Even when a company is weak, many workers will not retire when first eligible for an early retirement benefit for a variety of reasons, including:

- Their wages are probably much higher than their pension, which provides an incentive to continue working;
- They get health care coverage while working, and may not if they retire early (or at least not the same level of company-provided health care);
- They may enjoy their job, or at least have a greater sense of worth from their current job than from retirement;
- They are more valuable and get paid more at their current employer than at a new employer;
- Their pension and savings are not large enough yet for them to afford retirement;
- A more subsidized benefit may be available at a later age.

While Congress could mandate retirement assumptions, such action would not be effective because pension plans (and the participants they cover) can be so different. Any rule would be inadequate because:

- Some plans provide very generous benefits at young ages (e.g., sports teams), while others provide small benefits and only at older ages.
- Some plans subsidize early retirement always, some plans do it periodically in windows, and others do not provide these subsidies at all.
- Some plans provide very valuable pension accruals at the older ages, which help retain workers, while some plans freeze accruals after a certain number of years, which discourages retention.
- Some employers terminate health care at retirement, which increases retention, and others do not.
- Some employees retire earlier than expected due to poor health or layoff, so prediction is not easy.

The administration may also propose requiring recent plan experience for the retirement assumption of ongoing

companies. However, that presents significant problems. Small and medium-sized employers may not have adequate experience, if any. In addition, future experience could differ from past experience. For some employers, the demographics of the employees nearing retirement could change; they may have less service and not be eligible for retirement subsidies, or the eligibility rules for the pension and retiree health plans could change. For example, if the employer decided to stop providing retiree health care, employees might delay retirement to age 65 when Medicare is available. We have also seen that employees seem more cautious about retiring recently, knowing that their 401(k) account may not be as secure as they once thought. Also, early retirement windows and/or workforce reductions that are not expected to continue in the future may have an impact on recent retirement experience.³² On the other hand, if the employer is having financial difficulty, employees may be laid off at younger retirement ages, and employees with benefits greater than the PBGC maximum may retire sooner if they can get a lump sum.

In fact, imminent employer failure may be the reason that assumptions appropriate for an actuarial valuation in 2000 may be out of date in 2003. For this reason, Congress might want to encourage or require employers to build a funding margin by contributing the annual normal cost (or the present value of accruals) until a higher threshold than ABL is reached (e.g., ABL using conservative retirement assumptions). As noted earlier, Treasury has proposed requiring sponsors with poor credit ratings to use earliest retirement assumptions. This would increase costs at the worst time, when they could be least afforded, so building up a funding margin to use in difficult times may be a better solution.

In summary, it will be difficult for the law to specify a bright-line retirement assumption that makes sense. Clearly, it is better in these areas for the law to set down the objectives and rely on the actuary's professional judgment to carry out the objectives — including anticipation of adverse business conditions where appropriate — than to impose a universal standard.

Thus, the professional judgment of the actuary to measure and predict retirement rates in an attempt to secure solvency protection for unexpected business and economic events should not be overridden. The EA, knowing the details of the plan and the plan's experience will make a better estimate than a static rule set in concrete, which could be grossly overstated or understated and difficult to change if found inadequate.³³ For example, policy-makers recently had difficulty in updating the interest rates for current liability, even though there was wide agreement on the solution.

If regulators are concerned with the assumptions being used by some plans, then perhaps the law could require the EA to attach an explanation to the Schedule B detailing the derivation of, or the basis for, the retirement assumptions. Large plans could be required to disclose recent retirement experience, and if the retirement assumption is not consistent with that experience, a justification could be required. A further compromise might be to require the assumptions proposed by the administration, unless the actuary is willing to certify and justify that a different retirement assumption is more likely to occur.

Summary: The funding target and funding margin could range from the present value of guaranteed benefits using a best-estimate interest assumption, all the way to the present value of the maximum termination liability including all subsidies and shutdown benefits using Treasury rates. The following chart summarizes possible elements in setting these two funding levels. We suggest that funding be targeted at 100 percent of ABL using bond rates and expected retirement ages, and require a minimum annual contribution equal to the normal cost (or the present value of accruals) until assets exceed the greater of 130 percent of ABL or the ABL including contingent event benefits.

³² For plans where windows are expected to occur in the future, we would suggest that Congress specifically allow the retirement assumption to reflect that. In the past, the IRS has disallowed deductions in such a case, since the plan document does not have the window in the plan until amended. This fix would allow employers to fund in advance for expected windows.

³³ If the enrolled actuary doesn't provide a reasonable estimate, he or she can be reported to the Joint Board for the Enrollment of Actuaries (JBEA) or the Actuarial Board for Counseling and Discipline (ABCD). Both the law and actuarial professional standards now require that each individual assumption must be reasonable. Using those two bodies to adjudicate inadequacies in assumptions will typically result in much more appropriate results than imposing a static rule that may not fit a plan's individual circumstances.

	Benefits	Possible Interest Rate	Retirement Assumption
Smallest	Guaranteed (or 90 percent of accrued)	Best estimate of expected returns	Normal retirement age
	100 percent of ABL	Corporate bond + 2 percent (proxy for expected)	Ongoing company Ongoing plan
To	ABL + contingent event benefits	Corporate bond rates	Best estimate of future experience
Largest	Termination (including shutdown benefits)	Group annuity rates	Termination
	Benefits using projected pay and all service	Treasury bond rates	Most subsidized age

Predictability and Hedgeability

Recently, employers have found their minimum contributions to the DB plan to be volatile and unpredictable. Minimum contributions could easily double, triple, or increase even further from one year to the next when stock values and/or discount rates decline and push a plan into the tougher deficit reduction funding rules.³⁴ As evidence, see the cliff at 80 percent funding in Chart IV — Funding Rules — at the end of this paper. There are several ways to encourage predictability. One is to permit and accommodate financial risk management — matching assets and liabilities — to smooth the contributions. Another is to smooth the contribution to give employers a more stable funding pattern. This can be done by making changes to the existing funding rules, and is discussed at the end of this section. In either case, the system needs to accommodate business and economic cycles. (One criticism of current DRC rules is that they are very cyclical). However, while smoothing is valuable for the predictability principle, it will have to be balanced with the primary principle: solvency.

I. Financial Risk Management

Hedging: One way to make the minimum contribution more predictable would be for plan sponsors to invest more in duration-matching bonds to reduce the interest rate risk. However, the DRC smoothing rules for the current liability interest rate make it difficult to hedge swings in interest rates. Allowing plan sponsors to use market rates to determine CL could help these plans hedge the consequent swings in contributions.³⁵ Investing more in duration-matched bonds helps hedge interest rate risk and reduces equity risks. Other risks we need to address are:

- **Longevity risks:** People are living longer. Large plans can pool these risks. While life spans do not normally change suddenly, medical breakthroughs could increase liabilities more than expected. Buying annuities from insurance companies could hedge this risk to the plan sponsor.
- **Inflation risks:** In final-pay pension plans, accrued liabilities increase each year by wage inflation for employees that remain active. A plan (even one immunized by bonds) may need a large increase in the contribution to pay for this, although a higher discount rate may offset some or all of it. Stocks can hedge this inflation risk over the long term, but can actually move in the opposite direction over the short term.³⁶ A career average pay plan can be immunized by investing in bonds, but would present problems when the employer wanted to update benefits to current salary levels. It would entail a large increase in liabilities all at once (unless benefit increases are made often, which would make it more like a final-pay plan). And finally, if accrued benefits are indexed to inflation until retirement (even if the employee terminates at an earlier date), then the plan could hedge the liability with inflation-indexed bonds. However, costs will be much higher, because inflation-indexed bonds have a very low real return.
- **Disintermediation:** Cash balance plans with guaranteed returns based on 30-year Treasury rates cannot be immunized. They could have account balances increase by, say, 6 percent, at the same time long Treasury bonds decreased in value due to interest rates going up. The plan would have to invest in shorter bonds to get a more steady return, but it would not be adequate because the interest rates on short bonds would be much lower than the long Treasury bonds. Thus, forcing bond immunization would make it difficult for cash balance plans to provide the investment returns employees are used to getting in their cash balance plans. Stock returns will most likely be positive and greater over the long run, but over the short term, they could create deficiencies, sometimes quite large ones. Stable value wraps from insurance companies and hedge funds may be helpful in this area.
- **Adverse selection of subsidized options by employees** (e.g., early retirement, supplements, lump sums, joint

³⁴ These rules not only require faster funding of a plan's deficit, they also require the plan to switch from discounting with the best estimate of future returns to discounting with the bond rate (which increases the liability and therefore the level of deficit that must be funded).

³⁵ Another advantage of reduced (or no) smoothing in assets and liabilities is greater transparency to participants. Accounting standards already require this greater transparency in disclosure for investors, but only for plans in aggregate. This would provide greater transparency for each plan.

³⁶ For example, in the 1970s stock-based variable annuity benefits decreased while inflation increased.

and survivor payment options), which often happen at the worst times. Eliminating these subsidies from plans, and/or making all options actuarially equivalent, would resolve this concern. However, it will not be easy to accomplish, especially in bargained plans, and some would consider this an overreaction, allowing financial interests to overrule benefit design issues. Another way to resolve this concern would be to use worst-case assumptions so the plan has enough assets, no matter what happens. As discussed earlier, though, ongoing employers would rather drop their DB plans than lock up possibly even more assets in the plan.

Thus, eliminating interest rate and equity risks may not be enough. Higher funding margins may be needed. Or alternatively, employers could reduce their subsidies for early retirement and their shutdown benefits prospectively.

Allow use of market liabilities in DRC: If the goal is to enable immunized plans to hedge, then plan sponsors should be *allowed* to use market values of liabilities (the liability using current bond rates, not smoothed rates). Currently, plan sponsors can change the asset valuation method to market, but plans subject to the DRC rules must use a smoothed value of liabilities. If they could elect to use market liabilities, just as they can elect to use market assets, the contribution volatility for immunized plans could be hedged for interest rate changes. Note that if the plan is hedged with Treasury bonds, the sponsor will want to use the Treasury yield curve, not the corporate bond yield curve, since they sometimes move in opposite directions.

However, restrictions on electing to use market liabilities may be needed. For example, the IRS might be concerned that a sponsor would take advantage of this option and use market liabilities only when it resulted in smaller contributions (e.g., when interest rates are rising). This is why IRS approval is currently required for asset method changes unless changes are only made once every 5 years. Those same rules could apply to electing market liabilities. The IRS might decide that it only makes sense to move to market on both assets and liabilities at the same time. It would also simplify the rules, if smoothed assets are used only with similarly smoothed liabilities, and market assets are used only with market liabilities.

In addition, plan sponsors may immunize only a portion of their liabilities (e.g., their retiree liability). In that case, they should be able to use market rates for just that portion of their liabilities and assets.

Should we require market liabilities in DRC? So far, we have only discussed *allowing* plans to use market liabilities. If all plans were *required* to use market liabilities, this elimination of smoothing would push sponsors to sell the plan's equities and buy an immunized bond portfolio; otherwise, contributions could become too volatile. Some believe this could dramatically hurt the equity market, at least in the short term, until financial markets had time to change corporate financial structures to meet different demands for bonds over equities and lower interest rates due to excess demand of bonds over the initial supply. And it would require a change from long-held fiduciary rules on prudent investment of assets to rules implicitly or explicitly forcing immunization. For these reasons, the administration appears to recognize that transition rules will be needed under this approach.

Some employers may be willing to invest their pension assets fully in bonds, which can take advantage of current tax laws that reduce taxes more by moving bonds into a pension plan than by moving in stocks. A paper by the Committee on the Investment of Employee Benefit Assets (CIEBA), however, noted that half of employers would drop their DB plans and switch to DC plans if the funding rules made it no longer feasible to invest plan assets in equities. Employees want the equity premium. Because we believe there are ways to enable the use of equities while still tightening the rules to reduce past abuses, we recommend rules not close this door to DB plans. If an employer, particularly a healthy one with a pension plan that is small for the size of the company, is willing and able to take on some equity risk in return for the probable reward of higher returns over the long term, then the system should be willing to allow that, particularly because most premium payers seem to want this ability.

In fact, the administration appears to recognize this concern, and may allow 90-day smoothing of the interest rates. However, if that is the only smoothing, 90 days is not enough to avoid volatile contributions, and it would just cause problems for plans with immunized assets. A cleaner solution would be to allow immunized plans the ability to use market liabilities.

II. Accommodate Business/Economic Cycle

In times of volatile markets, does it make sense for a sponsor to contribute, say, \$100 million in bad years and nothing at all in good years? Or, would it make more sense for the law to require a contribution of \$50 million in all four years? Allowing smoothing somewhere in the contribution calculation makes sense for funding policy. In fact, it not only helps employers, it helps the U.S. economy by being counter-cyclical. For example, without smoothing (or immunizing), cash needs for minimum contributions under current law exacerbate business and economic cycles. Currently, employers have to contribute more to their plans in difficult times,³⁷ limiting their ability to use the cash in other potentially more productive ways, such as hiring more workers.

Counter-cyclical rules are needed to keep vicious cycles (and virtuous cycles) from exacerbating themselves. While fully meeting this objective may be difficult, it would help if the cycles could be smoothed somewhat. Thus, Congress, in balancing societal goals along with the needs of all parties, may decide that keeping the credit balance rules and allowing smoothing somewhere in the contribution calculation is an important goal — a goal worth paying for. There may be an impact, especially since stock market risk cannot be diversified away and can offer opportunities for moral hazards. Smoothing can end up allowing plans to be less well funded in the bad years, when they are more likely to need PBGC's help. Allowing smoothing may also enable more employers to invest in stocks and keep their pension plans, but it probably will also require higher PBGC premiums.

Other suggestions that could reduce these cycles are to require that plans be immunized and maintain large funding margins. But as noted earlier, Congress will have to balance these suggestions with employers' willingness to sponsor pension plans.

III. Moderate Contribution Volatility

One minimum funding rule: The volatility problem could also be reduced if there were one set of minimum funding rules, not the two sets of rules that we have today (i.e., the regular IRC Sec. 412(b) funding rules that were the original rules and the DRC in IRC Sec. 412(l) that was added later). One suggestion, which is similar to just keeping the DRC rule, would require contributions equal to the plan's deficit divided by 5 or 10. However, contributing 1/10th of the deficit will not even pay for the interest if the interest rate is above 10 percent. A similar (and better³⁸) alternative would keep just the regular IRC Sec. 412(b) minimum funding rules and use amortization periods of only 5 or 10 years, use the traditional unit credit methods that fund the ABL, and discount the liability using bond rates.³⁹ (See the example in Chart VII.)

Some actuaries note that the ongoing rules (which the above ideas abandon) helped create funding margins in the 1980s and 1990s when interest rates were higher. However, it is unclear if the ongoing rules would help build margins in the future, if and when interest rates go back up. New thinking suggests that the ongoing interest rate should be higher than the bond rate. Thus, we need to discuss how to encourage or require funding margins in pension plans. For example, the rules could require the greater of a normal cost contribution equal to the present value of the current year's accruals until assets equaled 130 percent⁴⁰ of accrued benefit liability or the ongoing liability with an earlier retirement assumption.

Make the two minimum funding rules similar: The cliff in the funding rules could be reduced if the two sets of rules were made more alike by reducing the DRC percentages and/or extending the DRC rules to higher funding levels. This incremental reform would be a smaller change than going to one funding rule and could be set up to reduce the current funding cliff when DRC contributions are required. The chart below shows how the DRC rules could be modified to

³⁷ Recent economic problems provide some good examples of employers who were hit with large contribution increases at exactly the worst time, thus making them consider bankruptcy, or forcing them into it in some cases.

³⁸ We say better because amortization of liabilities ensures that the target is reached, and they adapt better to changing interest rates. When interest rates are high, the amortization payment increases, just like a house mortgage.

³⁹ To gradually phase out the normal cost contribution, the rules could drop the limit, which phases out the contribution dollar for dollar when assets exceed the accrued liability. Combining and offsetting amortization bases would also help this happen.

⁴⁰ This percentage could be reduced if the plan is well immunized by duration or cash matching bonds.

better phase into the 412(b) minimum funding rules. Unfortunately, as long as there are two funding rules, one using bond rates and one using ongoing interest rates, a cliff in the minimum contribution can occur.

You will note from Chart VI (at the end of this paper) that applying DRC funding rules at higher funding levels could increase the minimum contribution by a fair amount. So if a compromise is needed to get employer buy-in, policy-makers could require that just the DRC normal cost be payable. Alternatively, they could reduce the DRC “amortization factors” by a small amount. For example, the “applicable percentage” defined in IRC Sec. 412(l)(4)(C), which is multiplied by the unfunded current liability to determine a major portion of the DRC, could be changed slightly by replacing 30 percent with 25 percent in IRC Sec. 412(l)(4)(C). Thirty percent is faster than 5-year amortization, reducing it by 0.5 percent instead of 0.4 percent in (4)(C)(i). The resulting percentages would be as follows and would blend into the IRS Sec. 412(b) rules better:

DRC Rules			IRC Sec. 412(b) amortization factors			
Funding Ratio	Current DRC Rules	An Alternative	At interest rates of	30-yr amortization	10-yr amortization	5-yr amortization
60%	30%	25%	5%	7%	13%	23%
70%	26%	20%	6%	7%	14%	24%
80%	22%	15%	7%	8%	14%	24%
90%	18%	10%	8%	9%	15%	25%
100%	N/A	N/A	9%	10%	16%	26%

This could still be a large increase in minimum contributions from current rules, which don’t require a contribution (or premium) for certain plans funded over 90 percent. A more incremental fix would be to just increase the FFL override from 90 percent to 100 percent. That would require a contribution close to the ongoing normal cost, which would probably be less than a DRC contribution when interest rates were low. (See Chart V at the end of this paper.) Some sponsors are concerned that they would also have to pay a large variable premium, but if their plans are underfunded on a CL basis, they *should* have to pay a variable premium. However, the premium can be a lot larger than expected due to the lower interest rate used to determine the variable premium. The solution would be to determine the variable premium using the same discount rate as the one specified for CL.

Another way to make the two funding rules similar would be to rewrite them so the pay-off of liabilities occurs over a similar period. Under the current IRC Sec. 412(b) rules, liabilities are paid off over periods of five to 30 years, while the DRC rules fund deficits over three to seven years. The rules would be similar if the IRC Sec. 412(b) amortization periods were limited to 10 or 15 years at most, if the plans did not pay lump sums, and if the DRC “amortization” periods were increased to five or 10 years, for example. A period of at least five years is justified because the PBGC phases in its guarantees of new benefits over five years. To justify 10 years, some people have suggested a 10-year phase in of PBGC’s guarantees. (See a further discussion of this in the “shorten amortization periods” section under the moral hazards principle.)

In addition, the DRC and IRC Sec. 412(b) contribution rules would be similar if their interest rates were closer together. In fact, this is already happening. Actuaries have responded to recent economic developments by reducing their long-term interest assumptions to slightly below 8 percent on average, per the 2003 Mellon Assumptions Survey. Congress increased the DRC interest rate in temporary legislation enacted this past spring to 100 percent of the corporate bond rate.

More smoothing and higher funding targets: While many economists recommend marking to market, Baker and Weller⁴¹ have suggested *more* smoothing in the DRC interest rates, a 10- or 15-year average of interest rates,⁴² for

⁴¹ Economists Dean Baker and Christian Weller. “Smoothing the Waves of the Perfect Storm: Could Changes in Pension Funding Rules Ease the Burden on Pension Funds,” found at <http://www.lights.com/epi/virlib/Technical/2003/technical03.html>.

⁴² The 15-year straight average of 30-year Treasury rates would have been 6.70 percent in December of 2003 and 6.97 percent a year earlier. Interestingly, a graph of the 15-year averages isn’t much smoother than the four-year weighted average rates (except for very volatile unusual periods such as the early 1980s). However, the rate is not as low as the current rules, thus preserving some element of smoothing.

example, which is somewhat similar to ERISA's current use of ongoing assumptions. This greater smoothing would bring the DRC rates closer to the IRC Sec. 412(b) interest rates. Weller and Baker would also smooth *assets* over more than five years by moving them toward a long-term average price/earnings (P/E) ratio, averaging around 15 in the 20th century. Smoothing makes the asset and liability amounts path dependent (i.e., today's numbers depend on where they were in the past), and some people feel that is inappropriate. Weller and Baker's paper suggests that it is appropriate to pull assets down during bubbles like the one in the late 1990s. They would also pull assets up in recessions. In essence, they assume earnings would revert to more normal levels. Unfortunately, if the market is not expected to turn around, these smoothed asset amounts could be far from market; they might need to have a maximum corridor around true market values (e.g., 20 percent).

Proposals for smoother assets and liabilities could require higher funding targets in exchange for the greater smoothing. Higher funding margins could be achieved by using lower interest rates (e.g., 90 percent of average corporate bond rates or 105 percent of average Treasury rates), or increasing the target funding level from 90 percent to 100 percent of current liabilities. On the other hand, some are concerned that this would lessen the transparency of the figures. For example, in times of falling interest rates (like the past decade), a 15-year average could easily be 200 basis points higher than the actual rate, which means that market value of actual liabilities using current bond rates could be 25 percent higher than indicated in plan valuations. And, in times of increasing interest rates, actual liabilities could be 25 percent less than indicated in plan valuations. This approach may confuse unwary readers of the valuation, including some primary users.

One response to loss of transparency under this approach would be to require plan sponsors to disclose plan liabilities on a market basis so users could compare them with the market value of plan assets. In such a case, the smoothed assets and liabilities would only be used in the funding calculations.

In summary, greater smoothing would reduce the responsiveness to the market. Compared to today's rules, it would increase contributions when interest rates are high and reduce contributions when interest rates are low. If the plan were underfunded, it would be a concern for the PBGC and participants. On the other hand, if the rules also required higher funding targets, it could keep plan assets from falling too low. Anyone interested in this idea should model it to see its effects on funding levels.

Can employers handle less smoothing for funding? The administration has suggested dramatically reducing smoothing of assets and liabilities. Some actuaries have suggested a compromise of using only two-year weighted averages for the DRC interest rates, instead of the current four-year average, and tighter restrictions on assets, such as two-year smoothing of assets. Plan sponsors would be concerned, because less smoothing would increase volatility. A reduction in smoothing can decrease or increase costs. For example, if interest rates were to start rising, as many people are forecasting, less smoothing would increase the discount rate and actually lower contributions, possibly to zero, if the plan became fully funded on market rates. However, employers tell us that they do not want the volatility in either direction, even if it reduces or eliminates their contributions. They prefer more consistent, predictable contributions instead of smaller contributions.

Proponents of using market values note solvency is more important than smooth contributions so that costs are not shifted to others (such as the PBGC and its premium payers), benefits are secured, and risks to stockholders are minimized. However, if requiring market values causes employers to drop their DB plans, then participants will lose their benefit security and the PBGC will lose its healthy premium payers. In addition, opponents say smoothing could make sense if one believes that assets and interest rates will revert to a mean. The question is: what mean will they revert to?⁴³ Most people now agree that the stock market was overvalued in the 1990s, and plan sponsors didn't contribute as much to their plans as they should have. Using smoothed assets makes it more likely for plans to contribute in good years. Smoothing reduces bubbles in the markets. However, it is an inexact science.

⁴³ For example, Japan's Nikkei fell 16 years ago, and hasn't really come back. When and what will it revert to? There is a possibility it will not revert.

Others have suggested a tightened corridor of 90 percent to 110 percent around market value of assets. This would bring smoothed asset values closer to market values but could present problems. Current market levels suggest that the market was overvalued by more than 10 percent in the late 1990s, so 10 percent may be too tight a restriction. In addition, a tightened corridor around the market value of assets will make it more likely for smoothed assets to be outside the corridor, so smoothed assets would then swing as along with market assets, thus limiting the smoothing effect.

The administration's proposal to dramatically reduce smoothing of the discount rate would make current liability numbers more volatile and unpredictable than they already are. The original DRC rules were developed using smoothing, so they would need to be reconsidered in their entirety if smoothing were eliminated. With Treasury's proposal of 90-day smoothing, employers investing plan assets in stocks and bonds would not know in October whether they could afford their pension plan, whether they could afford new capital expenditures in the following year, or whether they would have to lay off employees. For example:

- Equities dropped by one-third in October of 1987, as shown in Chart II. If a pension valuation were performed right after the crash, the contributions would have been much larger. The next year there would have been a gain because the stock market recovered a fair amount, so there might not be any contribution required. Employers would much prefer a level contribution instead of a huge one followed by no contribution. If the valuation date had occurred at almost any other time, the plans would not have been affected, and the contributions would have been smooth. Thus, using market values can make a valuation very sensitive to blips in the market on the valuation date. This may be why the Treasury has suggested using 90-day averages for the interest rate. However, even 90-day smoothing of liabilities would be inappropriate if assets are determined at a single day's market value, especially for the bonds in the pension trust. A plan's bonds might exactly immunize 100 percent of the liabilities, but due to interest rate smoothing the liability could be recorded at 20 percent more or less than the assets, as shown by the next bullet.
- Chart III shows that interest rates changed by 150 basis points within two months in mid-2003. That could have changed liabilities by 20 percent for an average pension plan, again, easily changing the contribution by more than a factor of two, as demonstrated in Chart II, over the course of two months.
- A problem is caused by making all decisions on pension plans based solely on the results from just one day of a plan year. An alternative might be to perform a valuation every day in the year, add them up, and divide by 365. Of course, it would be prohibitively expensive to perform a valuation every day, but it does suggest a rationale for smoothing. A 90-day smoothing rule would not be a good predictor of the above result — more smoothing would be needed. This is similar to the way we use inflation statistics. We don't usually cite the annualized current rate (e.g., 12 times this month's rate); we are more likely to cite the inflation over the past year, which effectively smoothes the inflation rate over the past 12 months.
- Smoothing assets and liabilities does not change funding results much, if both assets and liabilities are increasing, as in the northeast quadrant of Chart I. Because the smoothed numbers will lag the actual market values, the underfunding may not be much different from the underfunding using market liabilities and market assets. This means the funding numbers won't be much different, either. The one time that smoothing does make a large (and detrimental) difference, is when liabilities are going up due to additional accruals and falling interest rates, and assets are falling due to falling equities. In this case, contributions using smoothed numbers may be much lower than if determined on a market basis. As seen in the southeast quadrant of Chart I, this kind of economy has happened in the past 78 years only during the Depression and the recent past. Thus, policy-makers have said they are discussing how the rules should be changed to fix the four percent of the time for which smoothing doesn't work as well. Of course, those are also the times when sponsors terminate their pension plans.

The CIEBA report suggested that three-fourths of large employers with DB plans would significantly reduce their allocations to stocks and buy longer duration bonds if smoothing were eliminated, because otherwise their contributions would become too volatile. While there are good reasons to do this, and many employers probably wish that they had done it in the past, it would have a harsh one-time effect on the markets: Unless gradually phased-in, it would hurt funding ratios for all plans. In addition, the report noted that half of employers would reduce or terminate their DB

plans if smoothing were eliminated. Rather, they could contribute to a 401(k) arrangement where employees could invest in stocks and get the equity premium. Thus, policy-makers considering a reduction in the smoothing of assets and liabilities should consider smoothing the minimum contribution as discussed next. Of course, using smoothing may mean that the PBGC will have to charge a higher premium.

Smoothing the contributions as a part of comprehensive reform: There is a more comprehensive reform that responds to both those who want to require market values in funding calculations and those who want less-volatile contributions. Management wants the ability to decide how much risk to take on; few want to invest solely in bonds and lose the potential higher expected returns that a diversified portfolio including equities can provide. If policy-makers want to eliminate the smoothing of the inputs to the funding calculations (i.e., the assets and liabilities), then using one funding rule and a contribution smoothing mechanism can reduce the volatility of contributions. We will call it an **anti-volatility mechanism (AVM)**.

For example, the law could limit the increase in the minimum contribution⁴⁴ from one year to the next to 25 percent of the annual normal cost. However, this could be too small an increase for plans with a small workforce and a proportionately greater number of retirees, so the limit could be 2 percent of the plan's accrued liability (ABL), if greater. This AVM actually smoothes the contribution *better* than any of the incremental reforms discussed earlier. In formula form, the current year's cap on the minimum contribution could be written as:

Last Year's Minimum + 25 percent of the Present Value of Current Year Accruals (or 2 percent of ABL if greater)

The 25 percent and the 2 percent are just examples and can be varied. Higher percentages for the AVM increase volatility and smaller percentages would lengthen the time to reach target-funding levels. We analyzed the use of 2 percent and 3 percent, and found that using 2 percent definitely smoothes the contributions better, and it quickly catches up to a model using 3 percent. That is because the limiting formula is cumulative. For example, the minimum contribution of a retiree-heavy plan would be larger by 2 percent of ABL in the first year, 4 percent in the second year, 6 percent in the third year, and so on. When we tested a 70 percent funded plan, we found that only the first one or two years were limited by the AVM, so the funding ratio does not increase as much in those first one or two years as it would without the AVM. By the 10th year, however, the funding ratios are less than 1 percent apart, and the funding ratio using the 2 percent AVM was only 0.4 percent different from using the 3 percent AVM.

We also investigated limiting decreases in the minimum contribution using this same formula by changing the plus sign "+" in the above formula to plus or minus sign "±". It may make sense when a plan is not overfunded. However, we found it should not be applied when the plan is overfunded because it forces plan-funding levels to become much too high.

In addition, rules could require that the minimum contribution never be less than the normal cost (or the cost of current year accruals) unless the plan's assets already exceeded the funding target, plus margin.

It would be interesting to compare alternative funding rules by determining what the appropriate PBGC premium would be under each, and then compare that with what the appropriate PBGC premium would be under the current funding rules, which smooth assets and liabilities. It is unclear which would be better at protecting the PBGC and preventing abuse.

Problems with contribution smoothing: The smoothing rule could be abused, unless certain restrictions are included. For example, we probably should not allow smoothing of the contribution for amendments that significantly improve benefits or add in a large group of new participants (say after a merger). The solution would be to revise the "last year minimum" amount in the formula to reflect the large benefit increase or new participants. The increase in the contribution due to larger benefits or new participants could still be smoothed by the use of the 5 or 10-year amortization period; in

⁴⁴ Before the use of the credit balance.

fact, new plans and large benefit increases may be the primary reasons for amortization, because the smoothing rule would take care of all the other smoothing needs.

In addition, plans could take advantage of contribution smoothing by encouraging the use of more equities, so policy-makers may want to disallow smoothing on equities if they exceed some threshold, such as 70 percent of total assets. That could gradually be reduced to a lower percentage if desired, but it would affect prudent investing rules that have been in effect for three decades.

Many have noted that a single funding rule might drop the use of an ongoing target, which helped keep plans solvent when interest rates dropped dramatically from their double-digit highs in the 1980s. Some would say this is really only a concern for employers. Others would say it is also a concern for the PBGC, unless they can require plans at weak employers to be immunized and funded faster, which is unlikely. This problem can be remedied by requiring contributions until assets reach a funding margin that is the greater of a liability calculated using a current interest rate and a liability calculated using an ongoing interest rate. Any comprehensive funding reform should be tested to see how it would handle the interest rate scenario of the 1980s.

There are other concerns with contribution smoothing:

- The smoothing rule could be eliminated in the future, in which case, many employers would drop their DB plans; and
- There are many other items in the law (besides minimum contributions) that will become more volatile, as discussed next.

Smoothing rules for thresholds: We discussed above how to smooth the minimum contribution if assets and liabilities are at market. However, assets and liabilities affect many other aspects of pensions besides the contribution, such as the thresholds for:

- Providing security for amendments under IRC Sec. 401(a)(29)
- The IRC Sec. 401(a)(33) prohibition on benefit increases while in bankruptcy
- Providing the ERISA Sec. 4011 notices to employees on plan funding
- The IRC Sec. 412(n) lien to the PBGC
- The IRC Sec. 412(c)(9)(B) use of prior year valuations
- The IRC Sec. 404(a)(1)(D) maximum deduction equal to the unfunded current liability
- The IRC Sec. 404(a)(7)(A)(ii) deduction for a combination of DB and DC plans
- The IRC Sec. 412(m)(1) quarterly contribution exemption
- The IRC Sec. 420 transfer of assets to retiree health plans
- The Code of Federal Regulations (CFR) Sec. 1.401(a)(4)-5(b)(3)(iv)(A) restriction on lump sums to the highly compensated or top 25
- The IRC Sec. 412(c)(7)(E) full funding override
- The exemptions from disclosure of funded current liability in ERISA Sec. 103(d)(11)

If the liability and asset numbers are not smoothed, then these contributions and benefit restrictions could become volatile. For example, many employers contribute up to the full funding limit, exempting them from PBGC variable premiums and employee notices. If assets and liabilities for this cutoff are not smoothed, then this contribution will be volatile and unpredictable. Other employers contribute enough not to have to make the accelerated quarterly contributions. In addition, if lump sums and benefits are frozen when assets are below a certain funding level, then plan administration and employee communications could become very complicated and frustrating. Thus, we will have to develop ways to smooth not only minimum contributions but also these other outputs (i.e., the above thresholds).

Four suggestions are as follows:

- Assets and liabilities could be smoothed for some of the other rules.
- Funding ratios could be smoothed for thresholds such as the one requiring security for amendments.
- Certain rules could be applied only after market assets fall below a certain threshold for two out of three years.

- Some restrictions could be applied gradually using the funding ratio (e.g., 10 percent restrictions if the plan is 90 percent funded and 40 percent restrictions if the plan is 60 percent funded).

Summary: Both ideas presented above (smoothing the contribution and/or allowing sponsors to choose market liabilities) can accommodate the needs of both immunized and non-immunized pension funds. However, smoothing, whether on the front end or the back –end, can make participants and the PBGC more vulnerable than without smoothing because smoothing allows smaller contributions in difficult years. These difficult economic times are when pension plans are more likely to terminate and need the PBGC. For this reason, it makes sense to encourage better funding in good years, and possibly set a higher target or goal for funding. This is discussed in the sections on solvency and incentives to fund.

Transparency

Even if smoothing is allowed in the funding rules, we recommend that market values be disclosed in a timely manner so employees, the PBGC, and stockholders can better understand the funding levels of the pension plans on a market basis.

Timely and meaningful disclosure: Transparency can be enhanced through improved disclosure. Participants in some underfunded plans that terminated recently were surprised that their plans were so underfunded. It meant that benefits guaranteed by the PBGC were smaller than the large benefits some participants were expecting to receive from the plan. Much of the reason for the lower levels was the falling equities market. With wide reporting of losses in the stock market, participants should not have been surprised by this, but they were surprised by how it reduced their guaranteed pensions because:

- The funding information in the notice to employees was almost two years old when received;
- The notice is not required for plans that do not have to contribute the DRC (i.e., plans that in the recent past had *smoothed* funding ratios over 90 percent);
- The information provided can be determined using smoothed asset and liability values;
- Liabilities increased due to lower interest rates, which many participants do not understand; and
- Participants were not necessarily aware of the effect that the plan's funding status would have on their PBGC-payable pension benefits.

To reduce this problem, the rules for notices to employees in ERISA Sec. 4011 could be amended to require more timely information using market values of assets and liabilities for each plan. Although similar amounts are estimated for financial statements under Statement of Financial Accounting Standard 87 (SFAS87) on a timely basis just after year-end, we suggest that pension law define the disclosure itself, without directly referencing SFAS87 rules that could change. Determining the market assets and liabilities quickly would not be a burden because most companies already determine them for FAS purposes. In addition, the notice could provide the plan's allocation of assets to equities, bonds, employer securities, and other major asset classes, which are now part of financial statement disclosure. With this asset information, sophisticated employees and financial advisors could estimate funding levels at later dates, in case there were stock market declines or drops in interest rates.

The ERISA Sec. 4011 notice is waived for plans that do not have to pay the deficit reduction contribution because they are consistently under 90 percent funded. Some proposals suggest employers should provide the notice if plan assets are less than 100 percent of accrued liabilities. However, we might go further. Plans that are well funded with equities could become underfunded, so users of the information can be legitimately interested in this information. We would also suggest showing a trend in funding ratios, since market values could be affected by valuations at dates with unusually low market values or low interest rates.

ERISA Sec. 4011 also requires the notice provide a list of benefits in the plan that are not guaranteed by the PBGC, but not a discussion of how an allocation of plan assets could improve a participant's benefit payable from the PBGC. One reason is that this area of law (ERISA Sec. 4044 on *Allocation of Assets*) is very complex. We encourage policy-makers to simplify the PBGC's guarantees⁴⁵ and rules on allocating assets to participant benefits to make it easier for employers to provide this information and for employees to understand it.

⁴⁵ For example, PBGC could greatly simplify the ERISA Sec. 4044 asset allocation rules by *guaranteeing* benefits in the highest priority categories (i.e., voluntary and mandatory contributions) and allocating assets to the third highest priority category (i.e., benefits in pay status for three years – including benefits that could have been in pay status) *after* allocating assets to PBGC guaranteed benefits. This could reduce benefits to retirees with large benefits. If policy-makers feel that some benefits in the third highest priority category, such as retiree benefits up to a higher maximum (and temporary supplemental benefits), need more priority, they could be guaranteed or given a priority category between the fourth category (i.e., guaranteed benefits) and the fifth category (i.e., vested benefits). In addition, the third priority category could be simplified by opening it up to all retirees (and anyone eligible to retire), possibly with a minimum age to prevent abuse. This would make it much easier to communicate what people will get from PBGC.

Incentives to Fund; Flexibility

Current funding rules do not allow deductible contributions when plan assets exceed the greater of current liability⁴⁶ and the actuarial accrued liability (AAL) determined for the full-funding limit,⁴⁷ or the 25 percent of payroll maximum when an employer has both a DB and DC plan.⁴⁸ In fact, there is an excise tax if contributions are made in excess of these limits.⁴⁹ Over the past 10 years, the FFL for many hourly plans was less than their CL, so they could not build funding margins over CL. In fact, some sponsors wanted to contribute up to 100 percent of their accumulated benefit obligation (ABO), the accrued liability calculated on a FAS87 accounting basis, in order to avoid a hit to their net worth, but could not deduct the contribution. These concerns are real problems for PBGC because when the equity markets and interest rates fell, funding ratios plummeted well below 90 percent.

Although companies may not have taken full advantage of maximum deductible contributions in the past, there are now strong financial incentives for companies to voluntarily contribute more. For example:

- If assets fall below the ABO, there can be adverse implications for the employer's corporate balance sheet.
- If assets fall below 100 percent of CL, then quarterly contributions may be due, which dramatically speeds up a company's need for cash.
- If assets fall below the liability for vested benefits, companies may have to pay an additional premium to the PBGC.
- If assets fall below 90 percent of current liability, minimum contributions and premiums can increase dramatically, and notices on underfunding must be sent to participants.
- Plan sponsors have seen the effects of adverse market conditions and are more sensitized to the need for creating a funding margin.

A more complete list is provided in our paper on maximum deductible contributions under IRC Sec. 404, which can be found at http://www.actuary.org/pdf/pension/deduct_letter_051404.pdf. In that paper, we suggested several ways to encourage greater funding, which will be listed with little discussion now.

Allow more deductions in good years to create funding margins and avoid future underfunding problems: The above penalties have taught plan sponsors an important lesson: If they continue to invest in equities and want to avoid these problems, they could create a greater margin of assets in their plans. Allowing plans to deduct contributions up to, say, 150 percent of the CL to provide a cushion for drops in equities or interest rates would be an important first step in enabling this. In fact, many employers would have liked to contribute enough to eliminate the unfunded ABO but could not deduct the full amount. They would have been penalized with an excise tax for over-contributing. Employers may also want to fund their plans enough to avoid paying a variable premium to the PBGC. Thus, IRC Sec. 404 should:

- Allow deductions up to 150 percent of current liability;
- Allow use of end-of-year assets, as with the accounting rules. Funding rules could permit use of end-of-year assets and liabilities for both minimums and maximums. It would allow larger maximums, or lower minimums, but only if end-of-year assets justified it and would be more "accurate";
- Allow deductions up to vested benefits determined at the low PBGC required interest rate;
- Eliminate the 25 percent of covered payroll deduction limit for employers with both DB and DC plans;
- Include the full value of lump sum benefits (including any subsidies) in current liability;
- Allow an assumption that benefits will increase by the consumer price index (CPI) in hourly plans (although this is not needed if other suggestions are enacted);
- Allow an assumption that IRC Sec. 415 maximum benefits and IRC Sec. 401(a)(17) compensation limits will

⁴⁶ Current liability per IRC Sec. 404(a)(1)(D).

⁴⁷ The full-funding limitation per IRC Sec. 404(a)(1)(A), which includes projected pay (except in hourly plans) and an ongoing interest rate.

⁴⁸ Per IRC Sec. 404(a)(7).

⁴⁹ IRC Sec. 4972.

increase by the CPI;⁵⁰

- Eliminate the excise tax on non-deductible contributions, since it only serves to discourage desirable funding, and the high reversion tax discourages employers from contributing excessively;
- Allow deductions for a normal cost in all years; and
- Allow deductions up to termination liability, or an ongoing liability, including the present value of all benefits (with restrictions for small employers).

It appears that the administration has proposed allowing deductions up to 130 percent of the plan's funding target, which is determined using ongoing retirement assumptions for healthy companies and earliest retirement ages for companies below investment grade. We are not sure why the deductible amount should be larger for weak companies, when they will be least likely to afford additional contributions. We suggest that the target be the larger amount for healthy companies, also.

We also note that a typical plan funded at 130 percent on Jan. 1, 2000 would have been around 83 percent funded on Jan. 1, 2003 and around 90 percent funded on Jan. 1, 2004 and Jan. 1, 2005. The plan would be underfunded even if equities were 50 percent of plan assets and longer-term bonds were held, so Congress might want to increase the 130 percent to 150 percent (or 130 percent if applied to termination liability). If there is concern that this reduces tax revenue too much, then we note that if greater contributions are made in one year, they will reduce tax expenditures in the following years, and they can reduce PBGC claims. In addition, the provision could be limited to PBGC-covered plans, if desired.

Reduce the punitive reversion excise tax: Employers will not want to create a surplus in their plans if there is a chance that they will never be able to use it. For example, if a plan sponsor makes contributions until a 50 percent funding margin is created, and then asset returns are unusually good, the plan sponsor may never be able to use all of the surplus funds. If an employer has to terminate the pension plan, it could be forced to give over 90 percent of the surplus to the government (due to the addition of punitive excise taxes of up to 50 percent on top of a 35 percent corporate income tax, and possible state taxes). Prior to the punitive excise tax, employers regularly contributed more than the minimum. In fact, it was often part of their funding policy. Now, most employers just contribute the minimum. If the reversion excise tax were reduced to a less punitive level,⁵¹ they would contribute more. While employee groups do not want to make it easy for corporate raiders to access the funds quickly, there may be ways to address this concern. For example, the law could require that only a small amount of super-surplus could be withdrawn each year (e.g., 5 percent or 10 percent of assets), and it could prohibit withdrawals and reversions within, for example, three years of a take-over.

Expand IRC Sec. 420 transfers: There is also another solution. IRC Sec. 420 transfers of pension surpluses to *retiree* health plans could be expanded to allow super-surplus in a pension plan to be used for other employee benefits, such as employee health benefits. Some employee groups have expressed an interest in this idea because higher health costs and the lack of tax advantaged funding alternatives are jeopardizing the provision of retiree health benefits by some employers. Use of the pension super-surplus might help continue their company-provided retiree health plans. If the pension plan is subject to bargaining, then the rules could include the involvement of the union. Plan sponsors would also like the five-year maintenance rules shortened or relaxed, in order to allow more of them to use IRC Sec. 420.

In the 1990s the Academy opposed a reversion proposal in the House, which ultimately did not pass. However, we would like to note that our opposition was because the proposal did not set a high enough threshold for determining the super surplus, and the excise tax was so small that it would encourage tax evasion. It was not because we were against the idea of withdrawals. In fact, we think that the ability of sponsors to access pension assets is necessary if policy-makers want to encourage better funding in good years and adequate funding in difficult times. Employee groups might also be amenable to these ideas if some of the restrictions mentioned above are included:

⁵⁰ If there is a concern that small plans could abuse this rule, it could be restricted to PBGC-covered plans, or plans with more than, e.g., 50 non-highly compensated employees (NHCEs).

⁵¹ Treasury would probably want the tax to be at least as large as the normal corporate tax rate plus an excise tax large enough to undo the tax advantages while in the pension plan so that employers didn't use the pension plan for tax reduction.

- Only if there is a super surplus (i.e., assets exceed a high percentage of liabilities);
- Only a small amount is transferred each year (e.g., 5 percent or 10 percent of assets);
- Only if more than three years after a takeover;
- Only if used for other employee benefits;
- Only for a fairly similar group of retirees and employees as those in the pension plan,
- Only if approved by union in a bargained plan.

Negative PBGC variable premiums: An additional way to encourage funding margins would be to allow the PBGC variable premium to be negative when assets are greater than liabilities. Thus, the greater a plan's funding margin, the smaller their premium to the PBGC, which makes sense since their plan would present less risk to the PBGC. However, policy-makers may want to limit the use of the negative variable premium so that all sponsors pay some minimum premium amount (e.g., \$10 per participant) and per-person premiums cover at least PBGC's administrative expenses. Since the PBGC has a large deficit at the moment, this idea from the 1990s may not make as much sense as when the PBGC had a surplus.

Incentives for sponsor's executives: Executives generally want a secure defined benefit for themselves. If executive deferred compensation had to mirror the formulas in their employee plans, and if the executive pensions were secure to the extent that their employee plans were funded, executives would have a great incentive to ensure the funding of their employee plans.

One approach would be to provide that a trust funding a company's non-qualified deferred compensation plan would be exempt from the company's credit risk, without requiring immediate taxation of funded benefits to executives, provided the following conditions are met:

- The non-qualified plan, in combination with the qualified plan, must pass the IRC Sec. 410(a) non-discrimination and IRC Sec. 410(b) coverage tests, ignoring the limitations of IRC Sec. 415(b) maximum benefit and IRC Sec. 401(a)(17) compensation limits. Thus, the executive deferred compensation would be non-discriminatory when viewed in combination with the qualified plans, but based on total compensation.
- The exemption from credit risk would only be to the extent of the funded ratio of the qualified plans. Any excess assets in the non-qualified trust would be subject to the credit claims of the qualified plans.
- The qualified plans described above would have to be designated in the non-qualified trust document.
- If the designated plans were terminated, then future accruals in the non-qualified plan would not be secure to mirror the freeze on employee benefits at termination, and any excess non-qualified trust assets would go to the qualified plan.
- Permit benefit settlement election rules that mirror those of the qualified plan, notwithstanding the rules on such elections in non-qualified plans.

Implementation might mean that executive compensation in excess of the mirror benefits might revert to cash, which is more transparent.

Avoidance of Moral Hazards

The rules should not support the ability of weak employers to improve benefits or take large risks at the expense of the PBGC, premium payers, U.S. taxpayers, or current and future employees.

According to the PBGC, some plan sponsors increase pension benefits when they cannot afford them. This happens because a pension improvement can be funded over 30 years (or three to seven years if the plan is poorly funded). Essentially, a weak company can force the PBGC to back its benefit promise, even though a bank wouldn't lend them money unless they provided security. Paying for the benefit increase faster would reduce this abuse.

Shorten amortization periods: Under the more popular funding methods, benefit improvements can be funded over as long as 30 years, often deferring the costs to future generations while providing the enhanced benefits to current retirees. The improved retiree benefits paid out each year can be larger than the additional minimum contributions required, which can hurt the plan's funding ratio. For reasons such as this, policy-makers should consider reducing the amortization period to, for example, 10 years for all benefit improvements, or 15 years if the plan pays does not pay lump sums. This may not be as difficult to enact as expected because sponsors of single-employer plans are used to shorter periods of 10 and 15 years for expensing their new liabilities from losses and amendments under SFAS87. As accounting standards evolve, employers will likely have to recognize more of the emerging liability faster. Some employers already amortize plan improvements over the life of the contract for FAS87 purposes.

Some people advocate requiring sponsors to immediately expense, and maybe even fund, all unfunded liabilities, including past service benefit improvements. However, it can be argued that funding benefit improvements faster than five years is unnecessary because PBGC's guarantees of benefit increases are phased in over five years.⁵² In addition, requiring immediate funding would make it difficult for employers to start new plans and improve benefits, unless pre-funding of benefits is permitted before they are adopted. Thus, policy-makers might want to allow new plans more time to fund past service benefits. In addition, they could allow new plans to accrue past service benefits over future service, without causing problems with non-discrimination rules.

I. Risk-related Rules

Funding: A moral hazard exists if employers can improve benefits and increase allocations to stocks, thereby increasing PBGC's risk without adequately paying for it. If risk-related rules were implemented, they might be able to encourage plan sponsors to reduce the risk. If all pension plans had similar allocations to equities, funding ratios, sponsor credit ratings, and ratios of pension costs to earnings (or if the plans of all weak employers were funded beyond 100 percent in duration matching bonds), there would be less concern about stronger companies subsidizing weaker companies through PBGC premiums paying for the weaker companies' PBGC guaranteed benefits. While most plans have similar allocations to equities (50 percent to 70 percent), weak companies with large underfunded amounts in comparison to their earnings or net worth can gamble by taking a bigger bet on investing in equities. If the markets do well, their pension costs may decrease enough to keep the pension plan affordable. If the markets do poorly, the sponsor may be able to transfer their pension liabilities to the PBGC. One remedy would be to increase

⁵² This might suggest that PBGC should reduce guarantees after experience losses and phase them back in over five years. In addition, the PBGC's phase-in of benefit increases does not apply to increases in benefits due to salary increases. They are fully and immediately phased in, which is not parallel to how benefit increases are phased in for hourly plans of unions. One way to make the rules parallel would be to phase in benefit increases due to salary increases, but that would increase PBGC's already very complex phase-in rules. In addition, this is not a moral hazard because employers generally don't increase salaries in order to improve accrued benefits for everyone, and salaries are less likely to increase a lot when a sponsor is in financial distress. An alternative would be to guarantee the benefit multiplier from five years before termination indexed by five years of average salary inflation. If this were done however, PBGC would want stronger funding rules (e.g., shorter amortization periods and the projection of benefit multipliers in CL).

the minimum contributions and PBGC premiums for underfunded plans that exhibit the problems discussed above, namely:

- High allocations to equities (only relevant if large in relation to employer earnings, cash flow, or net worth)
- Low funding ratios
- Poor sponsor credit ratings
- Subsidized early retirement benefits and/or subsidized lump sums
- High ratios of underfunding to employer earnings, cash flow, or net worth

However, this could increase contributions when a company is weak instead of requiring larger contributions when the company was strong. Even some large employers have refused to make their minimum contribution while they were in bankruptcy, suggesting that a better alternative is to restrict benefits (e.g., freeze the plan). These issues will be discussed in the next paragraphs through an analogy with insurers.

Analogy to private-sector insurers: Insurers charge premiums which vary by risk level so that:

- (1) They keep their customers with lower apparent risks by charging them an appropriately lower premium; and
- (2) They charge their customers with higher apparent risks a higher amount so those customers are less likely to take advantage of the system by increasing their coverage and shifting the cost to others, thereby winning the bet. Otherwise, the lower-risk customers would have to subsidize higher risk customers, and would be more likely to drop coverage or find cheaper coverage at another insurance company. This is a form of anti-selection.

Thus, for those who build a home on the coast of Florida, their home insurance premiums are much higher, due to a greater probability of hurricane damage. While the pension insurance system isn't exactly similar to private sector insurance companies (the PBGC has no competitors), there are many similarities. For example, healthy sponsors of DB plans can exit the system once they are 100 percent funded by terminating or switching to a DC plan.

The homeowner's insurance example might be a good analogy with an employer's decision to invest pension assets more heavily in stocks. Stock allocations may be under the sponsor's control (and they increase the PBGC's risk), but the sponsor's health is not. Thus, an analogy with pure term home insurance isn't appropriate. If the appropriate premium or funding rule were implemented for weak employers, pension sponsors in the year before bankruptcy might have to pay a premium or contribution equal to the full risk-adjusted premium, which might be 50 percent or 100 percent of their underfunding. Since they can't pay it, they would lose coverage in the very year they needed the insurance.

Disability income insurers and small group health insurers have addressed this issue. They sell guaranteed renewable and non-cancelable insurance, whereby they underwrite the prospective customer before the initial purchase of insurance and promise to renew the customer each year at standard rates. They have to charge for the customers who become riskier in the future by loading the premiums for everyone immediately, and hope that their underwriting up front will help them avoid anti-selection not contemplated in the pricing assumptions. Some ideas from this insurance analogy might be as follows:

- If insurers find that an individual has developed bad health, they cannot charge him more. (This suggests that the PBGC premium should not be so fully risk related that the premium could be increased greatly when a company is downgraded.)
- Insurers generally won't allow sick insureds to increase coverage at their own volition, which is what pension plans do every day that the plan isn't frozen. (This might suggest that the PBGC should be allowed to freeze plans.)

Thus, while it might be satisfying to require larger contributions from "sick" employers, it may be difficult to charge them much more at a time when they are going under and might refuse to pay.

Recently, some pension sponsors in bankruptcy have decided that they won't pay their minimum required contribution or even ask for a funding waiver. In addition, the sponsor may have little incentive to freeze the plan or take other steps to minimize the plan's underfunding. Thus, increasing the contribution or premium might not encourage good

behavior. The larger the contribution or premium, the more likely the plan sponsor will skip paying them altogether, accelerate shifting its underfunded plans to the PBGC, and become insolvent. Thus, it would be difficult to increase the contribution or the PBGC premium to the risk-related amount of 50 percent to 100 percent of underfunding.

Credit risk: Policy-makers are struggling with whether risk-related proposals might be workable for the PBGC variable premium, since changes in the premium could be capped at a very low level in order to avoid pushing a weak company into bankruptcy. For example, the PBGC could increase the variable premium from 0.9 percent of underfunding to say 2 percent of underfunding for firms with poor credit ratings.⁵³ The PBGC could phase in the change and cap it at, say, 2 percent, even though the probability of bankruptcy is higher. Proponents suggest that the higher percentage would make the weak employers more likely to reduce the risk they present to the PBGC and the other premium payers, by reducing their plan's underfunding. However, the 2 percent premium would not be enough to keep very weak sponsors from abusing the system. The PBGC may need the ability to freeze benefits, as discussed later.

The best outcome would be if plan sponsors responded by contributing more to the pension fund, but very weak sponsors might refuse to pay the additional premiums or fund the plan. There would also be administrative difficulties⁵⁴ since sponsors such as privately held firms and foreign subsidiaries are not rated. Large sponsors are not all rated by the same rating firm, rating firms don't always agree, and ratings can be imperfect. As shown when Enron was highly rated until near the end, ratings firms can be slow to downgrade and then often overreact. To resolve these concerns, the PBGC might want to audit firms, but it is doubtful that policy-makers would want the government auditing pension plan sponsors. Alternatively, the premium for new accruals could be determined purely from the spread between the plan sponsor's effective interest on corporate debt to the AAA rate.

Asset risk: The PBGC could also increase the premium if an underfunded plan has an unusually high percentage of assets invested in equities. However, equities aren't the only assets that create risk. Junk bonds and an excess of inappropriately short-duration bonds can have risk as well, so the rules should reflect that, too. The PBGC might also want to value company stock at less than full value, since it won't have much value if the company declares bankruptcy. The risk premium could also reflect that stock returns can be better than bond returns. In addition, the rules would need to prohibit abuse, such as plans swapping equities for bonds on the premium measurement date.

Initially, this risk premium should be phased in so it doesn't upset the markets. In the beginning it might only affect underfunded pension plans with over 80 percent in equities, then the 80 percent could be lowered to 70 percent, and then to 60 percent, etc. However, this would have to be carefully considered because it would mean a major change in our fiduciary rules concerning prudent investment. Some plan sponsors can adequately handle the risk of holding equities in their DB plans, while some can't and shouldn't because of the risk they create for the PBGC. It will be difficult separating them and requiring the weaker ones to pay more in premiums. In addition, this idea may not have the desired effect (of getting weak plans to reduce asset risk). Plan sponsors with a bankruptcy probability greater than the 2 percent premium rate would still have incentives to continue benefit accruals and invest in equities, especially if they don't pay their premiums. Therefore, benefit restrictions will also be necessary, as discussed next.

II. Benefit Restrictions

While some people would restrict benefits only for weak employers, we think the rules might as well apply to all employers with poorly funded plans because it encourages good behavior among all employers, particularly the ones that can afford to improve their plan funding levels. It also eliminates the complexity of determining which employers

⁵³ It may be difficult for the PBGC to raise adequate premiums to cover its deficit, most of which is from airline and steel plans. Forcing the remaining DB plans to fund that deficit could kill the DB system, which is not a good policy result. Thus, some have suggested it be funded by the customers of those industries (e.g., through a small dollar charge on all airline tickets, and by setting those participants aside in a separate fund, like the pension fund for the Railroad Retirement Board).

⁵⁴ For example, equities have different levels of risk, junk bonds and bonds of inappropriate duration create risk, so the PBGC would

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are weak, and resolving the arguments that would ensue.

Increase threshold for security for plan amendments: IRC Sec. 401(a)(29) restricts sponsors of plans that are funded at less than 60 percent from increasing benefits, unless they provide security. This can be a valuable way to address the risks of benefit enhancements and an employer's ability to fund them. Lawmakers could raise this threshold to 70 percent, or even larger percentages for weak sponsors or sponsors whose pension costs are large in relation to their net worth, earnings, or cash flow. Or, they could use approaches based on measurements that demonstrate sponsors' ability to fund benefits. Currently, security is not needed if the underfunding below the threshold is less than \$10 million. This \$10 million amount could be reduced, if policy-makers wanted to catch more employers in this net.

IRC Sec. 401(a)(29) primarily affects only hourly plans, not salaried plans. Salaried plan benefits increase automatically with pay increases without having to amend the plan, whereas hourly plans generally need to be continually updated to keep up with inflation. One way to treat salaried plans parallel to hourly plans would be to freeze accruals in all poorly funded plans, as described in the next paragraph.

Freeze accruals in poorly funded plans: A moral hazard exists when plan sponsors continue benefit accruals when they cannot afford them. Continued accruals increase the PBGC's risk, which is borne by the other premium payers. A Treasury proposal would freeze benefit accruals (and possibly eligibility grow-ins) if the pension plan of a weak employer were funded below 60 percent. This proposal would treat both hourly and salaried plans in parallel, and would require employers to improve funding of plans before accruing benefits again or paying full benefits. This would allow healthier employers to continue accruals even though their plans were funded less than 60 percent. We suggest policy-makers consider applying the same rule to the healthier employers since it would force them to fund their plans when they are healthier. Another advantage is that the administration would not need to assess an employer's rating.

Employee groups are concerned that employers could manipulate the rule by using more conservative assumptions to increase liability calculations and lower funding ratios below the 60 percent threshold. Alternatively, they could use this as an excuse to freeze benefits and never reactivate them. The manipulation concern could be reduced by not allowing a range for the discount rate, but it could still be difficult to require employers to restart benefit accruals when funding levels returned to better levels. This may be appropriate, however, since pension plans are voluntary. In fact, if the employer cannot afford the benefits, maybe it shouldn't be allowed to unfreeze them. Exceptions may be needed for collectively bargained plans. The rules might state that they would be reinstated unless re-bargained.

Employers are concerned that constantly freezing (and unfreezing) benefits and grow-ins could become an administrative problem, and employees would not like this volatility. To reduce this problem, the rule could require the plan's funding ratio be less than the 60 percent threshold for a whole year before benefits were frozen. This would give the employer and employees advance warning. In addition, the rule could allow employers to cure the problem by making a contribution large enough to get the plan funded above the 60 percent threshold.

Suspending grow-ins would violate the anti-cutback rules in IRC Sec. 411(d)(6). But it makes sense when one notes that employees' benefit values can increase significantly when they become eligible for an early retirement subsidy.

Some have suggested that consistently underfunded plans should be forced to gradually reduce their early retirement subsidies, so their liabilities don't jump up if the company starts failing and employees start retiring early.

Others have suggested a softer freeze that would only stop the accrual of service, not salaries (or benefit multipliers in hourly plans), so that the accrued benefit retains its value in years of high inflation. Other ways to make this rule softer would be to (1) apply it only to weak sponsors with underfunding that is large in comparison with its resources, (2) require a freeze of just a portion of the accruals, or (3) allow employers to post security to waive the rule. On the other hand, many pension advocates suggest that the benefit restrictions should be applied even to strong employers, because they should not be able to have such a poorly funded plan without paying more for it, and they can afford it when they are strong.

Allow the PBGC to perfect liens in bankruptcy, have higher priority, or freeze benefits: Some employers have recently decided that they can avoid paying their minimum contributions while in bankruptcy. Congress could give the PBGC the authority to perfect liens for missed contributions, even if the sponsor is in bankruptcy. Or it could give the PBGC higher priority in bankruptcy⁵⁵ for the missed contributions. That would make lenders more interested in pension underfunding and the proportion of equities in a borrower's pension plans. However, it might also make lenders less likely to loan to weak companies with weak pension plans. While this idea has advantages, it can hurt the other creditors and dry up money needed to continue the company, which means it could reduce employee expectations for continued employment or continued retiree health coverage.

Alternatively, Congress could give the PBGC the authority to “turn off” future benefit accruals similar to the way utilities can turn off power if they don't get paid, but only if it can be done without being arbitrary or capricious. Currently, the PBGC can involuntarily terminate a weak plan when it represents a possible long-run loss that is expected to increase unreasonably per ERISA Sec. 4041. Involuntary termination also allows the PBGC to sue the employer for the full plan underfunding and cut participants benefits to guaranteed levels. Having the power to freeze or partially freeze benefit accruals would be much less damaging to all parties concerned.

Tighten the distress termination rules: If the PBGC had the authority to freeze its guarantees for sponsors in bankruptcy, Congress could then consider making it more difficult for sponsors in bankruptcy from handing over their pension plans to the PBGC. It could also allow PBGC to work out the funding of the plan with the weak sponsor since PBGC would no longer need to worry about increasing liabilities. That would keep other dominoes from falling in the same industry. In addition to freezing benefits, the rules could restrict the payment of lump sums, similar to the reorganization rules applied to weak multiemployer plans.⁵⁶ Alternatively, instead of freezing benefits, the rules could freeze the guarantees in case the plan ever does terminate in distress. The PBGC, for example, could use a plan termination date equal to the date when the company first filed for bankruptcy or didn't contribute the minimum required. The plan could be unfrozen when the sponsor leaves bankruptcy, contributes the contribution deficiency from past unpaid contributions with interest, or when the plan again reaches 100 percent funding. These ideas could also reduce the pressure on the PBGC to quickly trustee a plan to avoid shutdown benefits.

If policy-makers don't want to give this involuntary freeze authority to the PBGC, they could give the authority to the bankruptcy judge. Or they could design a rule to make the freeze automatic when, for example, the plan sponsor doesn't contribute the minimum amount, asks for a funding waiver, or when the plan's funded ratio is low.

Make employer responsible for PBGC premiums: Premiums that are paid from the plans of employers that are close to filing for a distress termination do not help PBGC at all, so policy-makers might want to consider making employers responsible for the premium payment.

Prohibit lump sums: As discussed earlier, participants in poorly funded plans at weak companies have terminated employment so they could get their full lump-sum benefit. That reduces the funded percent of the plan to participants whose benefits remain in the plan, and decreases the PBGC-payable benefit for those with large benefits. The Treasury Department has suggested that lump sums be prohibited from plans funded under a certain percentage, such as 50 percent for two out of the prior five years. This approach provides an early warning that would enable pensions and participants to plan for the prohibition. But it would still cause administrative problems and could backfire by encouraging employees to leave and take their lump sum right before the provision went into effect.⁵⁷ A better idea

⁵⁵ For example, the top administrative unsecured priority under IRC Sec. 507(a)(1), or the 4th priority under IRC Sec. 507(a)(4) for employee benefit plans (just behind claims for wages) with a higher limit than \$2,000 per employee.

⁵⁶ The PBGC might also want to have a five-year phase-in of any early retirement subsidies in the plan if they took it over, but that could encourage employees to leave the company in order to get the full guarantee.

⁵⁷ This actually happened in a plan the PBGC terminated recently because participants knew the PBGC didn't pay lump sums. When the PBGC decided not to go through with the termination, many participants may have wished they hadn't quit their jobs to get the lump sums.

might be to pay lump sums only to the extent the plan is funded and apply it to all underfunded plans. That way there is no cliff that would cause employees to rush to quit in order to get their full lump-sum benefit, and it would keep lump-sum payouts from hurting plan funding ratios. It would also counter balance the increase in lump sum amounts when interest rates are low, because the lower rates decrease the funded status and thus decrease the portion of lump sums payable so you don't get anti-selection. Other ideas would be to make it easier for employers to eliminate the lump-sum provision in their plans without warning if replaced by a 20-year certain life annuity. Or they could freeze the payouts until funding has improved, similar to the current restrictions on lump sums payable to the highly compensated employees (or the 25 highest paid participants) under IRS regulation 1.401(a)(4)-5(b)(3). Other ideas would be to give tax advantages to annuity distributions and to levy excise taxes on lump sums.

Lump sums could also be prohibited from all DB plans. While being great policy, this would make the playing field more unlevel unless the prohibition also applied to DC plans. However, then it might discourage all pension plan formation (whether DB or DC), unless there were larger tax advantages to maintain them.

Simplicity

Making funding rules easier to apply and understand could encourage employers to maintain their DB plans. At the same time, simplicity would provide transparency for employees. The following are areas in which improvements in simplicity could be achieved in the funding rules.

Simplify funding rules: The funding rules have become so complex that it is difficult for plan sponsors and employees to understand how they operate and difficult for lawmakers to amend. In addition, they increase the costs of maintaining plans. One way to simplify the rules would be to eliminate either the deficit reduction contribution rules or the original IRC Sec. 412(b) minimum funding rules, with their many different amortization periods. This would also have the added benefit of eliminating the cliff in contribution amounts when sponsors are forced to switch to the deficit reduction rule (as shown in Chart IV). If the deficit reduction rule were eliminated, the original IRC Sec. 412(b) rules would have to be strengthened. For example, they could be quickly simplified and strengthened by:

- changing all the IRC Sec. 412(b) amortization periods to 5 or 10 years (or 15 years for plans that don't pay lump sums);
- increasing the override of the FFL from 90 percent to 100 percent of current liability; and
- expanding the deduction limits to the greater of the FFL and 150 percent of CL.

If the IRC Sec. 412(b) rules were eliminated instead, the deficit reduction rules would have to be extended as discussed earlier to require funding up to 100 percent of current liability and beyond if a funding margin is desired. Alternatively, the two sets of rules could be merged into one unified rule with a target of the greater of current liability and actuarial accrued liability. Finally, under any of the above suggestions, if smoothing of current liabilities and assets is reduced or eliminated, then increases in contributions would need to be smoothed.

Simplify contribution deadlines for poorly funded plans: Sponsors of underfunded plans must pay their plan contributions quarterly. The calculations involved and the rules about providing notices can cause confusion. One fix would be to make the full contribution payable soon after year-end for all underfunded plans. If a sponsor wants to avoid this rule, policy-makers could allow sponsors to provide security instead. Sponsors close to the 100 percent threshold may find themselves falling in and out of this rule if no smoothing or immunization is used. A remedy would be to waive the requirement for plans that have been funded above 100 percent in one of the last two years.

However, year-end contributions would be a problem for plans with end-of-year valuations. They won't have their actuarial valuations completed in time to make the contribution. This could be remedied by using 100 percent of last year's contribution or providing an exemption if they are a small employer, which would catch most plans that have year-end valuations. The rules could allow them to use prior valuation data, but many employers want to use year-end data so that contributions are based on the most up-to-date information available.

It would still be important to allow additional deductible contributions as late as 8½ months after the end of the plan year, as under current law. This would allow plan sponsors the ability to make additional contributions once they have ascertained their cash and tax position.

Alternatively, the law could permit employers to withdraw some or all of the contributions made in the prior year, as long as they were not needed to meet the minimum contribution and the plan has a surplus. They could, therefore, make the contribution at year-end, and not worry that they may have contributed too much, even if they haven't finalized their contribution calculations.

Yield curve: A Treasury Department proposal uses the full yield curve of high-quality corporate bond rates instead of using one average rate, noting that it would produce the most accurate liability. It would also help the plan hedge its interest rate risk if the plan sponsor were willing to have a cash-matched bond portfolio using high-quality corporate bonds. If they hedged with Treasury bonds, the corporate curve would cause problems when interest rates moved in opposite directions. However, it is misleading to talk about the yield curve producing the most accurate liability result when there are many possible yield curves using the same bond data, and when other best practices are prohibited

(e.g., using the most appropriate mortality table or projecting future inflationary increases in IRS benefit limits). In addition, some of the other underlying assumptions for active employees cannot be predicted with similar accuracy. For example, changing retirement patterns can have a much, much larger effect. Similarly, changes in data from one valuation to the next cannot be predicted, and can cause more change.

There are fewer unknowns in determining retiree liability, but even here there is imprecision. In the 1980s, many employers used immunization techniques to lock in the high returns. It proved especially beneficial when interest rates fell, causing market liabilities to rise. However, in that experience we found that immunizing retiree portfolios was not exact; people didn't always die when predicted. To avoid this mortality risk, plan sponsors could buy annuities. Yield curves can help produce results that are closer to the cost of a purchased annuity,⁵⁸ but there are many other factors used in determining an annuity price. Furthermore, each insurance company does it differently, so accuracy is not as well defined as one would hope.

Using a yield curve adds complexity to funding regulations and calculations for only marginal improvements in accuracy. For example, increasing the FFL override from 90 percent to 100 percent would have much more effect than use of the yield curve. Changing the override could increase the contribution for a 91 percent funded plan from zero to something close to the annual normal cost, whereas the yield curve might not even require a contribution unless other rules were changed. Also, in the past, PBGC regulations required a yield curve for valuing multiemployer plans, but they gave it up in order to reduce the complexity in their rates.

Treasury also suggests using the yield curve to determine lump sums. This would make the lump sum actuarially equivalent to the plan's pension benefit, and thus help avoid arbitrage and subsidies to those who elect lump-sum payments instead of annuities. IRC Sec. 411(c)(2)(C)(iii)(II) also automatically applies lump-sum interest rates to employee contributions, and an IRS notice would apply the yield curve to cash balance interest credits, which would really be confusing. These three applications would add much complexity⁵⁹ and cost to plan administration. Employee communications on whether to elect lump-sum options would also be made much more difficult. In addition, legal problems could arise. Using yield curves could be seen as discriminatory when the higher rates at the end of the yield curve get applied only to younger employees. This would increase the value of the young employee's projected employee contributions (and cash balance accounts) more than older employees. On the other hand, it would reduce the value of their lump sum compared to higher paid older employees, so everyone might have cause to sue. Half of these problems would be resolved if employee contribution rules did not refer to the lump sum rate. The other half could be resolved if lump sums were not determined using the yield curve, but then employees would be able to arbitrage with their choice of the lump sum versus the annuity.

A simpler alternative that would achieve a similar result would be for Treasury to determine an equivalent high-quality corporate bond rate that would produce the same liability as a yield curve on a typical plan. For example, in October of 2002, using a discount rate of 6.49 percent would produce the same liability as the Salomon corporate bond yield curve on a typical plan. If the yield curve were used on a very mature plan, it would get a result that is only 3.9 percent more than if the 6.49 percent rate were used. The result is so close because even a very mature pension plan has liabilities that extend out 20 to 30 years, and lowering the effective discount rate by a small amount (38 basis points in this case, for the steepest yield curve we could find) doesn't change total liabilities by much, due to the shorter duration of mature pension plans.

Unfortunately, using yield curves will increase costs at a difficult time because steep yield curves usually occur in recessions. On the other hand, for young plans, a steep yield curve could *decrease* liabilities by about 4 percent. Most of the time however, the yield curve is much flatter, in which case the results would be less than 2 percent different from just using the equivalent rate. Over the past 30 years, only in the last few years and in 1992 have yield curves been steep enough to make a difference greater than 2 percent.

⁵⁸ It would be even closer to an immunized portfolio of corporate bonds, but since corporate bonds generally have options such as calls and puts, the bond portfolio won't be perfectly "accurate" either.

⁵⁹ For example, in order to value the lump sum correctly, an assumption for future yield curves is also needed.

In addition, it seems inconsistent to go to great lengths to introduce additional accuracy in discount rates without paying the same attention to mortality assumptions. If actual plan mortality experience is reflected, it would reduce liabilities in most blue-collar plans (which are often the mature plans) by about 3 percent, and would increase liabilities in white-collar plans by about 3 percent, thus offsetting the effects of using the steep yield curve. In fact, when the yield curves are flatter, the net result would be to decrease liabilities a little for blue-collar plans and increase them for white-collar plans.⁶⁰

Furthermore, the Treasury yield curve proposal would dramatically reduce the amount of smoothing, so the funding target is much closer to the market cost of providing the benefits. This would improve perceived transparency, but minimum contributions would become more volatile and unpredictable, unless cash matching assets were held. However, because the Treasury proposal smooths the yield curve over 90 days, there is still an element of smoothing in the calculations, which means it cannot be hedged very well. If Treasury smooths the contribution, it should not also smooth the yield curve. In fact, the “accuracy” can get more distorted from the 90-day smoothing than by using the equivalent rate based on high-quality corporate rates.

⁶⁰ Using separate tables for retirees and active employees would also lower the liabilities of mature plans, but only by a very small percentage.

Transition

Sponsors need smooth transitions to the new rules to reduce the drop in DB pension plans. Many of these changes could quickly and dramatically increase contributions at a difficult time in our economy. Thus, policy-makers will want to thoroughly test⁶¹ and phase in the changes gradually. The contribution smoothing rule mentioned earlier in this paper would be one way to handle this. However, if the changes are major, such as ultimately requiring a risk-less Treasury rate and immediate funding, then we might need additional transitional rules. For example, the ultimate rules might only be applied to new accruals, and incremental rules applied to prior accruals, but that would be very complex to administer and would mean that the new rules would not be fully effective for many years.



Summary

In this paper, we provided seven principles for pension funding reform and made suggestions on how to fix some of the funding problems following those principles. Whatever changes are made, there are very important retirement and economic policy reasons to encourage DB plans. We strongly urge the development of new funding rules that will incent sponsors to maintain DB plans, increase the number of employees protected by their guarantees, improve their funding levels, and reduce the risks to the PBGC and participants.

ERISA provided 40-year and 30-year amortization of unfunded liabilities to help the transition out of the lenient rules in effect before 1974. Unfortunately, these original ERISA rules were found to be inadequate by participants and the PBGC. Frequent amendments could reduce funding levels and lump sums could eliminate assets, even for plans following the rules. The solutions in 1987 and 1994, developing the deficit reduction rules increased contributions so that plans would get their funding levels up to 90 percent. However, the convergence of falling markets and interest rates dramatically decreased funding levels, even for well-funded plans. It is critical that there is a balance to get plan funding to more responsible levels without subjecting plan sponsors with higher obligations than they can afford.

Addressing problems, such as setting a permanent discount rate, eliminating the volatility caused by the DRC, increasing transparency, strengthening the funding rules by setting a higher funding target, dramatically shortening the amortization periods, and encouraging/requiring funding margins, is of utmost importance. The uncertainty surrounding pension funding rules is contributing to employer desires to freeze and terminate their pension plans. This would be an unfortunate policy result to occur just before the baby boomers start retiring.

⁶¹ For example, proposals should be tested to see how they hold up in different economic conditions, such as the period of high and declining interest rates in the 1980s.

Appendix A: A Synopsis of Current Pension Funding Rules

IRC Sec. 412 Minimum Funding Rules

412(b) Minimum Contribution = Normal Cost + Amortization of Liability over 5 years (experience losses)
30 years (amendments)
10 years (assumptions)

But not less than:

Deficit Reduction Contribution = value of current year accruals + 30 percent of Unfunded Current Liability**

The minimum contribution is reduced (possibly to zero) by the credit balance. Sponsors get a credit for paying contributions faster than required and can use this credit to reduce future contributions. Credit balances were put into the law to encourage employers to contribute more in good years and allow smaller contributions in bad years.

** The 30 percent is gradually reduced for plans funded better than 60 percent. For plans funded at 80 percent, it is 22 percent. Plans funded above 80 percent may not have to contribute DRC, if the plan is consistently funded above 90 percent. Current liability equals the value of accrued benefits using certain government-required assumptions, such as 100 percent of a smoothed high-quality long-term corporate bond rate.

Plans funded less than 100 percent must contribute quarterly, similar to self-employed taxpayers.

IRC Sec. 404 Maximum Deductible Rules

Maximum = Normal Cost + Amortization of Liabilities over 10 years (but not less than the minimum)
= Unfunded Current Liability, if greater

Full funding limitation: Neither the minimum nor the maximum may exceed:

Full-Funding Limit = Actuarial Accrued Liability - Assets (the smaller of market & smoothed assets)

But not less than:

90 percent of Current Liability – smoothed assets

Note: Hourly plans are generally not allowed to make assumptions for future benefit improvements.

Appendix B: Detailed Summary of IRC Sec. 412 Minimum Funding Rules

Section	Provision
412(a)	Qualified Pension and Annuity Plans must avoid deficiencies in their MFSA (Minimum Funding Standard Account) unless excepted in 412(h)
412(b)(2)	Charges to the MFSA
(A)&(B)	Normal Cost + Amortization of:
(B)(i)	Initial underfunding of plans already in existence over 40 years
(B)(ii)	Initial underfunding of new plans over 30 years
(B)(iii)	Liability from plan amendments over 30 years
(B)(iv)	Liability from experience losses over 5 years (15 for multiemployer plans)
(B)(v)	Liability from assumption changes over 10 years (30 for multiemployer plans)
(C)	Liability from contribution waivers over 5 years (15 for multiemployer plans)
(D)	Liability from switchbacks from the Alternative Minimum Funding Standard over 5 years
(E)	Liability from the inability to deduct contributions over the FFL cap over 20 years
412(b)(3)	Credits to the MFSA
(A)&(B)	Contributions + Amortization of:
(B)(i)	Liability from plan amendments decreasing past service liabilities over 30 years
(B)(ii)	Liability from experience gains over 5 years (15 for multiemployer plans)
(B)(iii)	Decreased liability from assumption changes over 10 years (30 for multiemployer plans)
(C)	Contribution waivers approved by IRS
(D)	The liability arising due to switching back to the MFSA from the Alternative Minimum
412(b)(4)	Credits and Charges can be combined and offset (per regulations)
(5)(A)	Interest at valuation rate is charged and credited to above amounts as appropriate (per regs.)
(5)(B)	The interest rate for determining CL must be within the permissible range, which is 90 to 100 percent of the 4-year weighted average of corporate bonds (in the top 3 asset classes) for 2004 & 2005. Otherwise it is 90 to 110 percent of the 4-year weighted average of 30-year Treasuries.
(6)	Amortization periods for multiemployer liabilities arising or adopted before MEPPAA80
(7)(A)	Multiemployer (ME) withdrawal liability payments are considered contributions, to the extent allowed by regulations.
(B)	Amortization of wiped off balance when multiemployer plan leaves reorganization — 30 years
(C)	Payments to PBGC or Withdrawal liability fund are not considered contributions
(D)	Interim Withdrawal liability payments refunded to employers are charged to the MFSA per regs.
(E)	Multiemployer plans can exclude certain forfeitable benefits from FFL (full funding limitation)
412(c)(1)	Normal costs, accrued liability, past service liabilities, and experience gains & losses are determined under the funding method used to determine costs
(2)(A)	Actuarial value of assets (AVA) must be reasonable & take into account market value (MVA) Regulations allow certain (up to 5-year) smoothing methods within 20 percent corridor of market
(2)(B)	Multiemployer plans may elect to value bonds at amortized value. Non-ME plans may elect to value bonds using valuation interest rate
(3)	Assumptions must be reasonable best estimate of anticipated experience, in the aggregate for multiemployer plans and individually for others
(4)	Changes in Social Security benefit rules/covered wages are treated as experience gains & losses
(5)(A)	Changes in funding method and plan year require approval of Secretary
(B)	Assumption changes must be approved if aggregate UVB (unfunded vested benefits) for all contributing sponsors in controlled group exceeds \$50 million
(6)	When plan reaches full-funding limit, all credit & charge bases and the MFSA are set to zero
412(c)(7)	FFL (full-funding limit) = actuarial accrued liability + normal cost - the smaller of MVA or AVA

- (7)(E) The FFL shall not be less than 90 percent of CL (including accruals for the year) - AVA
- (8) If the Secretary doesn't disapprove, sponsors may deem timely retroactive benefit reductions were made at the beginning of plan year (in order to reduce current year required contributions)
- (9)(A) Valuations and gains and losses must be determined at least annually
- (9)(B)(i) Valuation must be as of a date in plan year or within one month before
 - (ii) Valuation date can be in prior plan year if assets are \geq 100 percent of OBRA87 CL
 - (iii) As long as actuarial adjustments are made to reflect significant differences in participants
 - (iv) This funding method change is only allowed if assets \geq 125 percent of OBRA87 CL
- (10) Contributions within 8 ½ months of the end of the plan year will be deemed made by year-end
- (11) The contributing sponsor is responsible for contributions, and so is every member of their CG (controlled group), except in multiemployer plans
- (12) *Projected* benefits include scheduled increases in collectively bargained plans (other than ME)
- 412(d) Waivers:** If employer (or more than 10 percent of employers in ME plan) is unable to pay minimum without substantial business hardship (must be temporary for non-ME plan), the Secretary may waive all or a portion of minimum, but no more than 3 times in 15 years (5 for ME plans)
 - (1)(A) The interest rate for waiver loan is the greater of 150 percent of Federal mid-term rate or valuation rate
 - (1)(B) For ME plans it is the Federal short-term rate
 - (4) Non-ME plans must apply for waiver before 2 ½ months of end of plan year
- 412(e) Extensions:** The Secretary may extend amortization periods of charges by up to 10 years if there is otherwise a substantial risk to voluntary continuation of plan or curtailment of benefits or compensation and if adverse to participants
- 412(f)(1) No benefit improvements are allowed during a waiver or extension, or within 12 months (24 months if ME plan) of a benefit reduction through 412(c)(8)
 - (2) Unless Secretary determines to be reasonable and de minimis, only repeals an amendment from 412(c)(8), or is required for qualification
 - (3)(A) The Secretary may require security perfectible by PBGC
 - (3)(B) The Secretary must consult with the PBGC before granting waiver or extension
 - (3)(C) Paragraph (3) shall not apply if plan deficient less than \$1 million.
 - (4) Applicants must notify employee organizations of application and a description of the extent that the plan is funded for guaranteed benefits and benefit liabilities.
- 412(g) Alternative Minimum Funding Standard: A plan using the Entry Age Normal funding method (or a stronger method) may maintain an alternate MFSA with charges equal to the Unit Credit normal cost plus the AAL minus (MVA minus credit balance in alternate MFSA)
- 412(h) Exceptions:** Section 412 does not apply to profit sharing or stock bonus plans, 412(i) insured plans, 414(d) governmental plans, 414(e) church plans (unless they elected PBGC coverage under 410(d)), or plans with no employer contributions post-ERISA, or 501(c)(8) or (9) VEBA plans
- 412(i) Section 412(i) insured plans must:
 - (1) Be funded exclusively by individual insurance contracts
 - (2) Have level premiums extending until retirement
 - (3) Have benefits provided by the plan equal those provided by the contract and are guaranteed to the extent premiums are paid
 - (4) Have premiums that are all paid
 - (5) No rights have been alienated
- 412(i)(6) Have no loans
- 412(j) Section 412 applies to terminated ME plans until last day in plan year of termination
- 412(k) Secretary shall determine how to handle PBGC financial assistance
- 412(l) Additional Funding Requirements (AFR) for non-ME plans**
 - (1) Plans must pay DRC - the regular minimum + the unpredictable Contingent event amount

This shall not force AVA above 100 percent of CL at year-end

- (2) **DRC** = Unfunded old liability amount + unfunded new liability amount + expected increase in CL due to benefits accruing in plan year + the aggregate unfunded mortality increase amounts
- (3)(A) Unfunded Old Liability amount** = unfunded old liability amortized over 18 years from 1989 PY
- (3)(B) Unfunded Old Liability = Unfunded CL at first day of 1988 PY, excluding plan amendments increasing liability adopted after 10/16/87
- (3)(C) The unfunded portion of bargained increases adopted before 10/29/87 can be amortized from date of benefit increase, if later
- (3)(D) The increase in the Old Liability as of the first day of the 95 PY caused by new required assumptions in RPA94 gets amortized over the 12 remaining years of the original amortization
- (3)(E) An employer can elect to amortize the remaining 1995PY unfunded CL over 12 years, with restrictions

- (4) Unfunded New Liability Amount** = Remaining CL times applicable percentage
- (4)(C) Applicable percentage = 30 percent minus the product of:
 - (i) .40 multiplied by
 - (ii) The number of percentage points by which the FCL percentage exceeds 60 percent
- (5)(A) Unpredictable Contingent Event Amount** = the greater of:
 - (i) UCEBs paid during year x the unfunded CL percentage
 - (ii) UCEB liabilities amortized over 7 years
 - (iii) UCEB liabilities x applicable percentage from (4)(C)
- (C) This paragraph (5) does not apply to UCEBs & their liabilities for events before the 89PY
- (D) Unless employer elects, subparagraph (5)(A) = 150 percent of clause (i) in first year, and (ii) is appropriately adjusted in second year
- (6)(A) The AFR does not apply to plans with 100 or fewer participants on each day of preceding year
- (B) Phased in from 100 to 150 participants
- (C) Include all plans of members of CG in calculation of employees
- (7) Current Liability**
 - (A) All Liabilities
 - (B)(i) UCEBs not included in CL until they occur
 - (B)(ii) UCEBs defined
 - (C)(i) The RPA94 CL interest rate is from the corporate bond range in 412(b)(5) for 2004 and 2005. For 2002 and 2003, it could be as great as 120 percent of the 4-year weighted average 30-year Treasury rate
 - (C)(ii)(I) The RPA94 CL mortality table is 1983 Group Annuity mortality table
 - (C)(ii)(II) The Secretary shall review mortality tables every 5 years, and may prescribe a mortality table after 1999 PY based on actual experience of pension plans and projected trends
 - (C)(iii) The Secretary shall prescribe a table for individuals disabled under SSA rules
 - (D) Service can be can be phased in over the first 5 years of participation for each participant
 - (D)(iv) Employers can elect out of (D)
- (8)(A) Unfunded CL** = CL minus AVA
- (B) Funded CL percentage** = AVA / CL
- (C) Controlled Group defined
- (D) The Secretary can adjust certain numbers in section 412 to avoid omissions and duplications
- (E) For 412(l), **subtract Credit Balance from AVA**. The Secretary may adjust for other references
- 412(l)(9) This subsection 412(l) applies if Funded CL percentage < 90 percent
 - (B) DRC Volatility Rule:** Unless funded CL percentage \geq 80 percent and such percentage \geq 90 percent for the 1st & 2nd prior years or the 2nd & 3rd prior years, where 100 percent of 4-year average weighted corporate rate may be used per PFEA2004 § 101(d)(2) look back rule
 - (C)(i) Don't subtract credit Balance from AVA for this purpose

- (C)(ii) Use the highest rate in RPA94 corridor for this calculation
 - (10) **Unfunded Mortality Increase amount** = Change in CL due to new healthy life tables amortized over 10 years beginning with 1st year that it is used.
 - (11) Maximum increases in CL funded percentage due to RPA94
 - (12) Alternative DRC for airline and steel plans and TCWU
- 412(m)(1) Quarterly Contributions** for non-ME plans with funded CL percentage from prior year < 100 percent, where 100 percent of 4-year average weighted corporate rate may be used per PFEA2004 § 101(d)(2) look back rule. If sponsor fails to pay quarterly contribution, then interest is charged on them using the greater of:
- (A) 175 percent of Federal mid-term rate, or
 - (B) The valuation rate as modified for DRC
 - (2) Amount of underpayment
 - (3) Dates are same as dates for paying estimated taxes
 - (4) Amount of quarterly equals the lesser of
 - (B)(i) 90 percent of this year's minimum
 - (B)(ii) 100 percent of last year's minimum
 - (D)(i) Exclude UCEBs from (B)
 - (D)(ii) Increase quarterly installment by generally 1/4th of the amounts in 412(l)(5)(A)
- 412(m)(5) Liquidity Requirement:** Non-ME plans with more than 100 participants that owe a quarterly
- (D) Does not require plan's funded CL percentage to exceed 100 percent
 - (E) Liquidity Shortfall = 3 x adjusted annual disbursements – liquid assets
 - (E)(iv) Adjusted annual disbursements = all disbursements – plan's funded CL percentage x (annuity purchases + lump sums)
- 412(n)(1) PBGC Lien:** If sponsor fails to make a required quarterly installment & unpaid balance > \$1 million, then a lien is created against sponsor and any member of CG
- (2) Only applies to non-ME PBGC-covered DB plans with funded CL percentage < 100 percent
 - (3) Amount of lien = aggregate unpaid balance of required installments
 - (4)(A) Sponsor must notify PBGC within 10 days of failure
 - (4)(C) Treated as taxes due and owed
 - (5) May be perfected and enforced by PBGC

Appendix C: Details of Possible Reformed IRC Sec. 412 for Single Employer Plans

Section	Provision
412(a)	Qualified Pension and Annuity Plans must avoid deficiencies in their MFSA (Minimum Funding Standard Account) unless excepted in 412(h)
412(b)(2)	Charges to the MFSA under Traditional Unit Credit Method
(A)&(B)	Normal Cost + Amortization of underfunded amounts over 5 or 10 years:
(B)(i)	Initial underfunding of plans already in existence over 40 years
(B)(ii)	Initial underfunding of new plans over 30 years
(B)(iii)	Liability from plan amendments over 30 years
(B)(iv)	Liability from experience losses over 5 years (15 for multiemployer plans)
(B)(v)	Liability from assumption changes over 10 years (30 for multiemployer plans)
(C)	Liability from contribution waivers over 5 years (15 for multiemployer plans)
(D)	Liability from switchbacks from the Alternative Minimum Funding Standard over 5 years
(E)	Liability from the inability to deduct contributions over the FFL cap over 20 years
412(b)(3)	Credits to the MFSA
(A)&(B)	Contributions + Amortization of:
(B)(i)	Liability from plan amendments decreasing past service liabilities over 30 years
(B)(ii)	Liability from experience gains over 5 years (15 for multiemployer plans)
(B)(iii)	Decreased liability from assumption changes over 10 years (30 for multiemployer plans)
(C)	Contribution waivers approved by IRS
(D)	The liability arising due to switching back to the MFSA from the Alternative Minimum
412(b)(4)	Credits and Charges can must be combined and offset (per regulations)
(5)(A)	Interest at valuation actual plan rate is charged and credited (per regs.) on the first day of the following year.
(5)(B)	The interest rate for determining CL must be within the permissible range, which is 90 to equals 100 percent of the 4-year weighted average of corporate bond rates (in the top 3 asset classes) for 2004 & 2005. Otherwise it is 90 to 110 percent of the 4-year weighted average of 30-
(6)	Amortization periods for multiemployer liabilities arising or adopted before MEPPAA80
(7)(A)	Multiemployer (ME) withdrawal liability payments are considered contributions, to the extent allowed by regulations:
(B)	Amortization of wiped off balance when multiemployer plan leaves reorganization = 30 years
(C)	Payments to PBGC or Withdrawal liability fund are not considered contributions
(D)	Interim Withdrawal liability payments refunded to employers are charged to the MFSA per regs.
(E)	Multiemployer plans can exclude certain forfeitable benefits from FFL (full funding limitation)
412(c)(1)	Normal costs, accrued liability, past service liabilities, and experience gains & losses are determined under the funding method used to determine costs
(2)(A)	Actuarial value of assets (AVA) must be reasonable & take into account market value (MVA) Regulations allow certain (up to 5-year) smoothing methods within 20 percent corridor of market
(2)(B)	Multiemployer plans may elect to value bonds at amortized value. Non-ME plans may elect to value bonds using valuation interest rate.
(3)	Assumptions must be reasonable best estimate of anticipated experience, in the aggregate for multiemployer plans and individually for others.
(4)	Changes in Social Security benefit rules/covered wages are treated as experience gains & losses
(5)(A)	Changes in funding method and plan year require approval of Secretary
(B)	Assumption changes must be approved if aggregate UVB (unfunded vested benefits) for all contributing sponsors in controlled group exceeds \$50 million.
(6)	When plan reaches full-funding limit, all credit & charge bases and the MFSA are set to zero

- 412(c)(7) FFL (full funding limit)** = actuarial accrued liability + normal cost - the smaller of MVA or AVA
- (7)(E) The FFL shall not be less than 90 percent of CL (including accruals for the year) - AVA
- (8) If the Secretary doesn't disapprove, sponsors may deem timely retroactive benefit reductions were made at the beginning of plan year (in order to reduce current year required contributions)-)
- (9)(A) Valuations and gains and losses must be determined at least annually
- (9)(B)(i) Valuation must be as of a date in plan year or within one month before
- (ii) Valuation date can be in prior plan year if assets are \geq 100 percent of ~~OBRA87-CL~~
- (iii) As long as actuarial adjustments are made to reflect significant differences in participants
- (iv) This funding method change is only allowed if assets \geq 125 percent of ~~OBRA87-CL~~
- (10) Contributions within 8 ½ months of the end of the plan year will be deemed made by year-end.
- (11) The contributing sponsor is responsible for contributions, and so is every member of their CG (controlled group), except in multiemployer plans
- (12) *Projected* benefits includes scheduled increases in collectively bargained plans (other than ME)
- 412(d) Waivers:** If employer (or more than 10 percent of employers in ME plan) is unable to pay minimum without substantial business hardship (must be temporary for non-ME plan), the Secretary may waive all or a portion of minimum, but no more than 3 times in 15 years (5 for ME plans). Automatically approved if the employer freezes benefits or provides security
- (1)(A) The interest rate for waiver loan is the greater of 150 percent of Federal mid-term rate or valuation rate
- (1)(B) For ME plans it is the Federal short-term rate
- (4) Non-ME plans must apply for waiver before 2 ½ months of end of plan year
- 412(e) Extensions:** The Secretary may extend amortization periods of charges by up to 10 years if there is otherwise a substantial risk to voluntary continuation of plan or curtailment of benefits or compensation and if adverse to participants
- 412(f)(1) No benefit improvements are allowed during a waiver or extension, or within 12 months (24 months if ME plan) of a benefit reduction through 412(c)(8)
- (2) Unless Secretary determines to be reasonable and de minimis, only repeals an amendment from 412(c)(8), or is required for qualification
- (3)(A) The Secretary may require security perfectible by PBGC
- (3)(B) The Secretary must consult with the PBGC before granting waiver or extension
- (3)(C) Paragraph (3) shall not apply if plan deficient less than \$1 million.
- (4) Applicants must notify employee organizations of application and a description of the extent that the plan is funded for guaranteed benefits and benefit liabilities.
- 412(g) ~~Alternative Minimum Funding Standard: A plan using the Entry Age Normal funding method (or a stronger method) may maintain an alternate MFSA with charges equal to the Unit Credit normal cost plus the AAL minus (MVA minus credit balance in alternate MFSA)~~
- 412(h) Exceptions:** Section 412 does not apply to profit sharing or stock bonus plans, 412(i) insured plans, 414(d) governmental plans, 414(e) church plans (unless they elected PBGC coverage under 410(d)), or plans with no employer contributions post-ERISA, or 501(c)(8) or (9) VEBA plans
- 412(i) Section 412(i) insured plans must:
- (1) Be funded exclusively by individual insurance contracts
- (2) Have level premiums extending until retirement
- (3) Have benefits provided by the plan equal those provided by the contract and are guaranteed to the extent premiums are paid
- (4) Have premiums that are all paid
- (5) No rights have been alienated
- 412(i)(6) Have no loans
- 412(j) Section 412 applies to terminated ME plans until last day in plan year of termination
- 412(k) Secretary shall determine how to handle PBGC financial assistance
- 412(t) Additional Funding Requirements (AFR)** for non-ME plans

- (1) Plans must pay DRC - the regular minimum + the unpredictable Contingent event amount
This shall not force AVA above 100 percent of CL at year-end
- (2) ~~DRC~~ = Unfunded old liability amount + unfunded new liability amount + expected increase in CL due to benefits accruing in plan year + the aggregate unfunded mortality increase amounts
- (3)(A) Unfunded Old Liability amount** = unfunded old liability amortized over 18 years from 1989 PY
- (3)(B) Unfunded Old Liability = Unfunded CL at first day of 1988 PY, excluding plan amendments increasing liability adopted after 10/16/87.
- (3)(C) The unfunded portion of bargained increases adopted before 10/29/87 can be amortized from date of benefit increase, if later
- (3)(D) The increase in the Old Liability as of the first day of the 95 PY caused by new required assumptions in RPA94 gets amortized over the 12 remaining years of the original amortization
- (3)(E) An employer can elect to amortize the remaining 1995PY unfunded CL over 12 years, with restrictions
- (4) Unfunded New Liability Amount** = Remaining CL times applicable percentage
- (4)(C) Applicable percentage = 30 percent minus the product of:
 - (i) .40 multiplied by
 - (ii) The number of percentage points by which the FCL percentage exceeds 60 percent
- (5)(A) Unpredictable Contingent Event Amount** = the greater of:
 - (i) UCEBs paid during year x the unfunded CL percentage
 - (ii) UCEB liabilities amortized over 7 years
 - (iii) UCEB liabilities x applicable percentage from (4)(C)
- (C) This paragraph (5) does not apply to UCEBs & their liabilities for events before the 89PY
- (D) Unless employer elects, subparagraph (5)(A) = 150 percent of clause (i) in first year, and (ii) is appropriately adjusted in second year.
- (6)(A) The AFR does not apply to plans with 100 or fewer participants on each day of preceding year
- (B) Phased in from 100 to 150 participants
- (C) Include all plans of members of CG in calculation of employees
- (7) Current Liability**
 - (A) All Liabilities
 - (B)(i) UCEBs not included in CL until they occur
 - (B)(ii) UCEBs defined
 - (C)(i) The RPA94 CL interest rate is from the corporate bond range in 412(b)(5) for 2004 and 2005. For 2002 and 2003, it could be as great as 120 percent of the 4-year weighted average 30-year Treasury rate.
 - (C)(ii)(I) The RPA94 CL mortality table is 1983 Group Annuity mortality table
 - (C)(ii)(II) The Secretary shall review mortality tables every 5 years, and may prescribe a mortality table after 1999 PY based on actual experience of pension plans and projected trends
 - (C)(iii) The Secretary shall prescribe a table for individuals disabled under SSA rules
 - (D) Service can be phased in over the first 5 years of participation for each participant
 - (D)(iv) Employers can elect out of (D)
- (8)(A) Unfunded CL** = CL minus AVA
- (B) Funded CL percentage** = AVA / CL
- (C) Controlled Group defined
- (D) The Secretary can adjust certain numbers in section 412 to avoid omissions and duplications
- (E) For 412(t), **subtract Credit Balance from AVA**. The Secretary may adjust for other references
- 412(t)(9) This subsection 412(t) applies if Funded CL percentage < 90 percent
 - (B) DRC Volatility Rule:** Unless Funded CL percentage \geq 80 percent and such percentage \geq 90 percent for the 1st & 2nd prior years or the 2nd & 3rd prior years, where 100 percent of 4-year average weighted corporate rate may be used per PFEA2004 § 101(d)(2) look back rule
 - (C)(i) Don't subtract credit Balance from AVA for this purpose

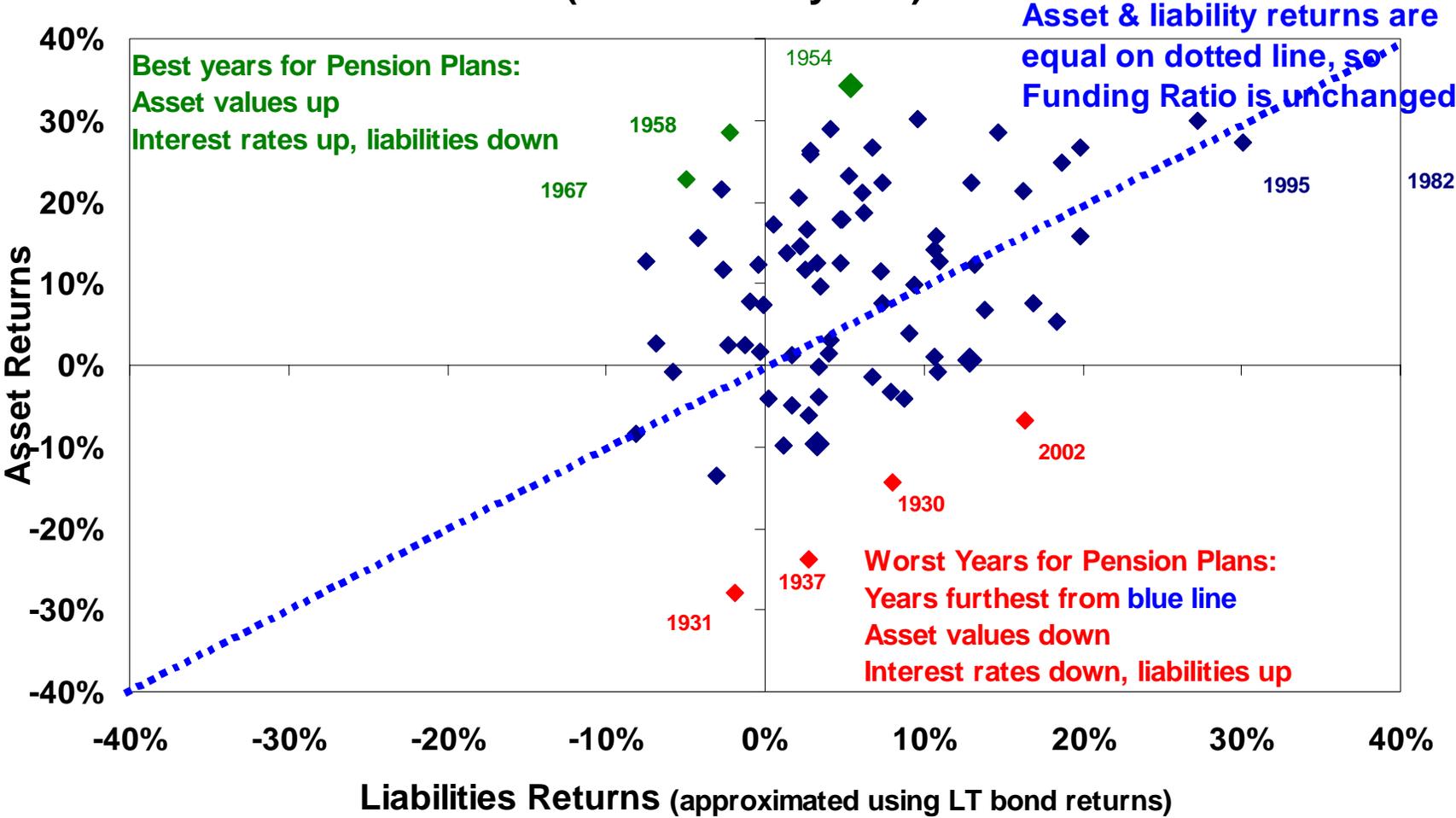
- (C)(ii) Use the highest rate in RPA94 corridor for this calculation
 - (10) ~~Unfunded Mortality Increase amount~~ = Change in CL due to new healthy life tables amortized over 10 years beginning with 1st year that it is used.
 - (11) Maximum increases in CL funded percentage due to RPA94
 - (12) Alternative DRC for airline and steel plans, and TCWU
- 412(m)(1) ~~Quarterly Accelerated Contributions~~** for non-ME plans with funded CL percentage from prior year < 100 percent, where 100 percent of 4-year average weighted corporate rate may be used per PFEA2004 § 101(d)(2) look back rule. If sponsor fails to pay quarterly contribution within 2 months of year-end, then interest is charged on them using the greater of:
- (A) 175 percent of Federal mid-term rate, or
 - (B) The valuation rate as modified for DRC
 - (2) Amount of underpayment
 - (3) ~~Dates are same as dates for paying estimated taxes~~ Within 2 months of yearend
 - (4) Amount of quarterly equals the lesser of
 - (B)(i) 90 percent of this year's minimum
 - (B)(ii) 100 percent of last year's minimum
 - (D)(i) ~~Exclude UCEBs from (B)~~
 - (D)(ii) ~~Increase quarterly installment by generally 1/4th of the amounts in 412(i)(5)(A)~~
- 412(m)(5) Liquidity Requirement:** Non-ME plans with more than 100 participants that owe a quarterly
- (D) Does not require plan's funded CL percentage to exceed 100 percent
 - (E) Liquidity Shortfall = 3 x adjusted annual disbursements – liquid assets
 - (E)(iv) Adjusted annual disbursements = all disbursements – plan's funded CL percentage x (annuity purchases + lump sums)
- 412(n)(1) PBGC Lien:** If sponsor fails to make a required quarterly installment & unpaid balance > \$1 million, then a lien is created and perfected against sponsor and any member of CG
- (2) Only applies to non-ME PBGC-covered DB plans with funded CL percentage < 100 percent
 - (3) Amount of lien = aggregate unpaid balance of required installments
 - (4)(A) Sponsor must notify PBGC within 10 days of failure
 - (4)(C) Treated as taxes due and owed
 - (5) May be perfected and enforced by PBGC
- 412(o) Anti-Volatility Mechanism: the minimum contribution cannot exceed the prior year's contribution (before credit balance) plus the greater of 25% of the Normal Cost, or 2% of the accrued benefit liability if greater.
If benefits are improved or participants added, the prior year contribution is recalculated to include their liability (amortized over 5 or 10 years)
- 412(p) Plan must contribute the normal cost until MVA exceeds funding margin (greater of 130% of ABL possibly including contingent liabilities & ABL calculated using an ongoing interest rate). The normal cost is phased out by 1/5 of MVA minus funding margin

Appendix D: Definitions and Abbreviations

AAL	Actuarial accrued liability under the funding method in use by plan. It includes projected pay and possibly projected service.
ABL	Accrued benefit liability – the liability of accrued benefits, using bond rates and best estimate assumptions
AVA	Actuarial value of assets per IRC Sec. 412(c)(2), which can smooth market values
CG	Controlled group of employers in IRC Sec. 414(b), (c), (m), (o) treated as one employer
CL	Current liability per IRC Sec. 412(l)(7), which uses a smoothed bond rate, but does not recognize the subsidies in lump sums.
CL under OBRA87	CL using rules from OBRA87
FFL	Full funding limitation – the limit above which contributions are not deductible. It is based on the AAL.
FFL cap	At one time, the FFL could not be greater than 150 percent of CL (now phased out)
FFL over-ride	The FFL cannot be less than 90 percent of CL minus AVA per IRC Sec. 412(c)(7)(E)
M-E	Multiemployer plans
MEPPAA80	The Multiemployer Pension Plan Amendments Act of 1980
MFSA	Minimum funding standard account - the account that keeps track of whether a pension plan has paid the minimum required contribution under IRC Sec. 412
MVA	Fair market value of assets
OBRA87	Omnibus Budget Reconciliation Act of 1987
PBGC	Pension Benefit Guarantee Corporation – the federal agency which insures pensions
PY	Plan year of the pension plan – often the calendar year
RPA94	Retirement Protection Act of 1994
UCEBs	Unpredictable contingent event benefits defined in IRC Sec. 412(l)(7)(B)(ii)
UVB	Unfunded vested benefits = value of unfunded vested benefits for PBGC premium purposes, using CL assumptions but PBGC's required interest rate

CHART I

Asset & Liability Returns (over last 78 years)



This chart show how unusual the past few years have been (only the Depression would have been worse for pension plans). The current smoothing rules would work at the other 96% of periods.

CHART II

S&P 500 Stock Index

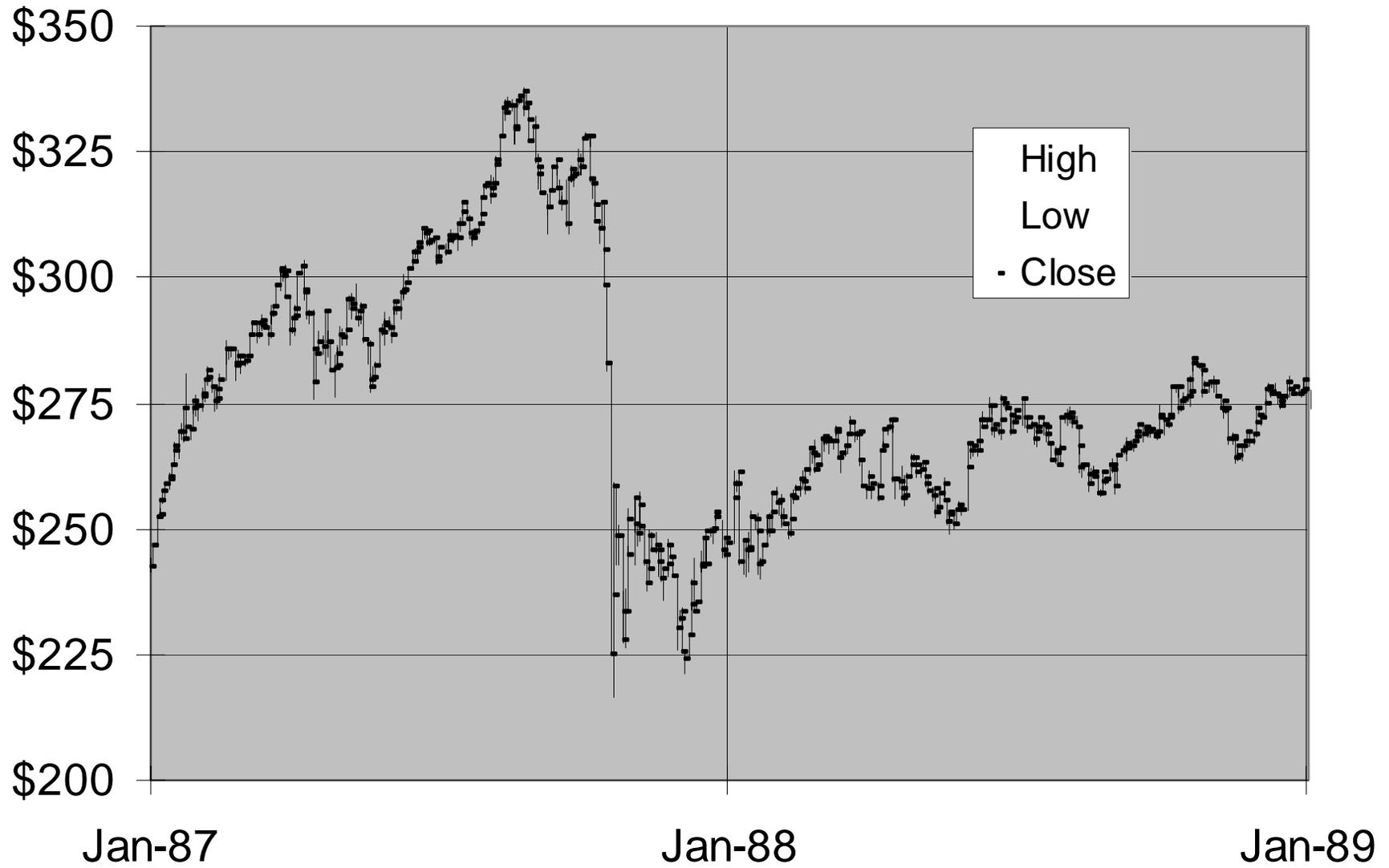
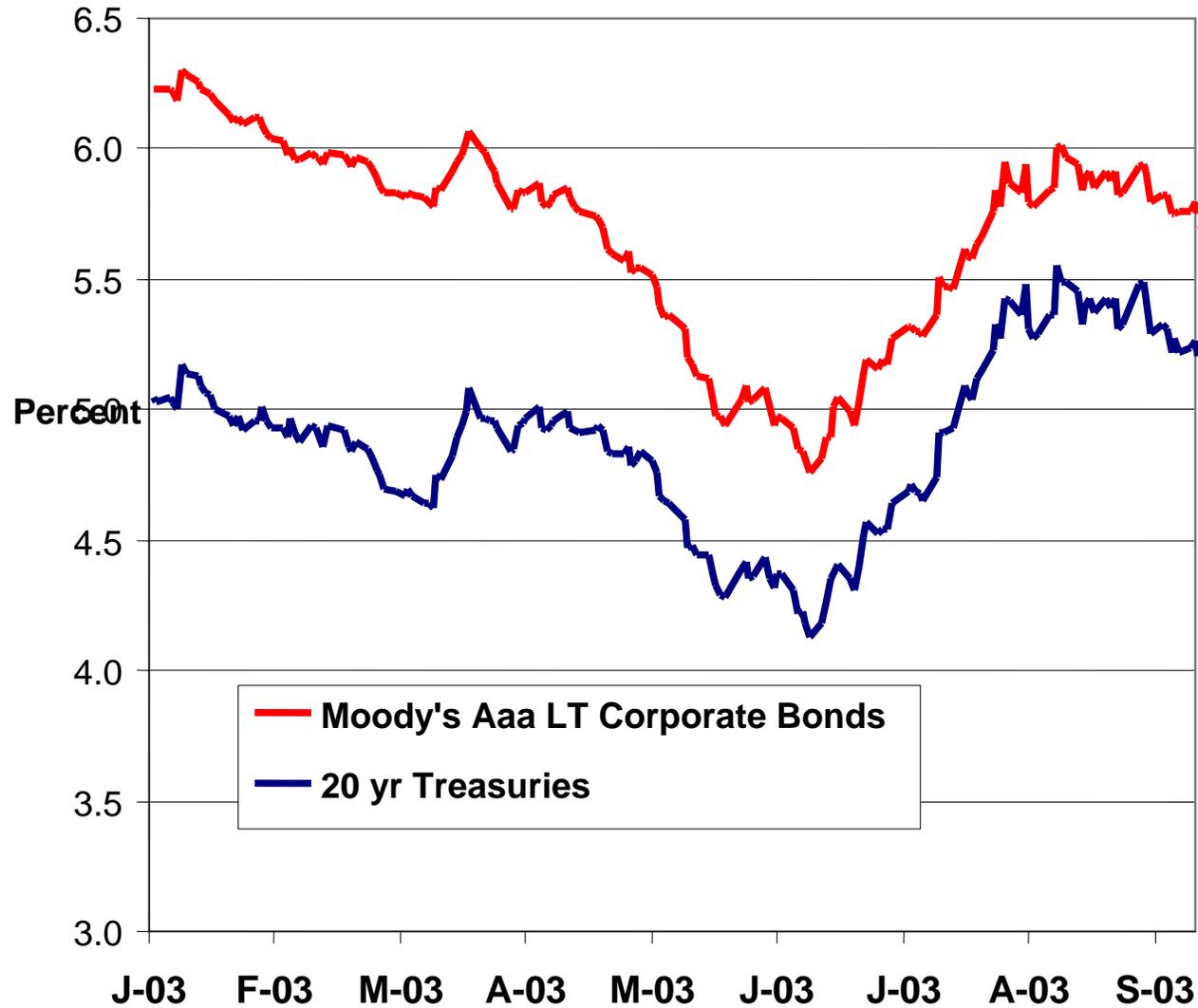


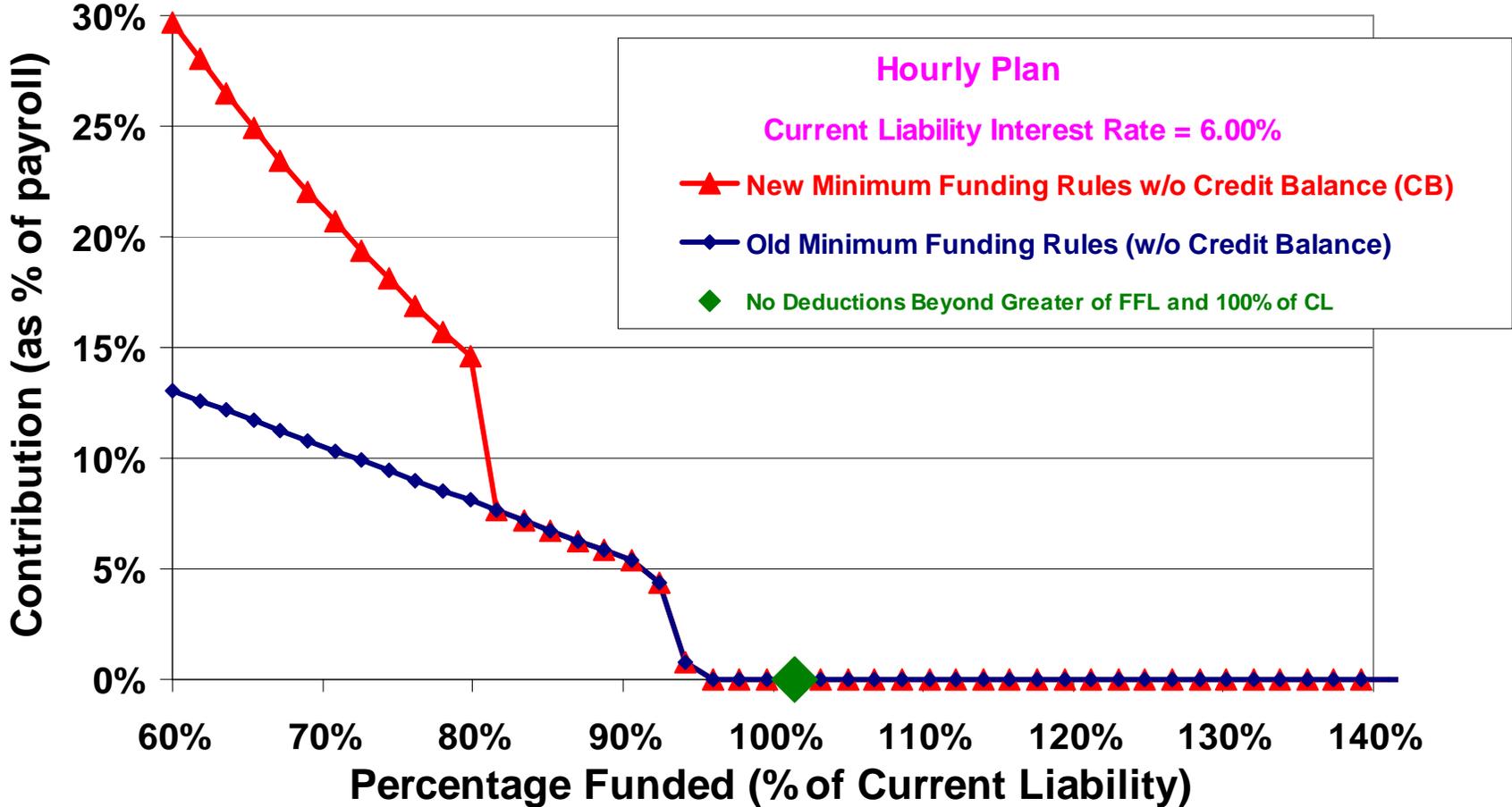
Chart III - Daily Interest Rates



Interest rates fell and increased by 150 basis points in 2003, which would have made contributions volatile and unpredictable. Contributions calculated in June 2003 would be dramatically different from those of just 7 weeks earlier or later, unless interest rates were smoothed or plan had duration matching bonds.

CHART IV

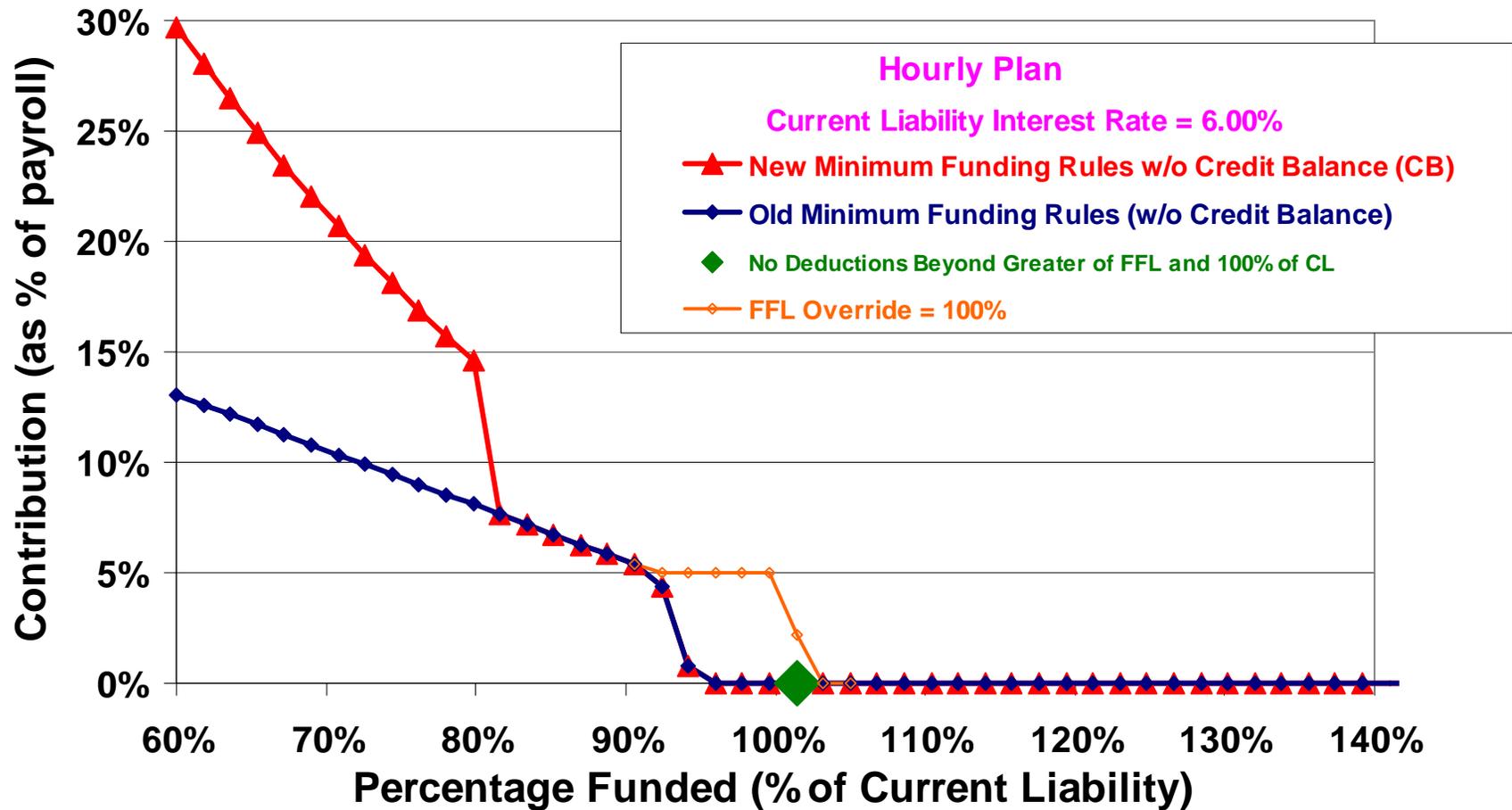
Funding Rules



There are large cliffs in minimum contributions which makes them volatile and unpredictable. To avoid this employers could build up a margin. However, their pension contribution may not be deductible, and may be subject to an excise tax, especially when interest rates are low.

CHART V

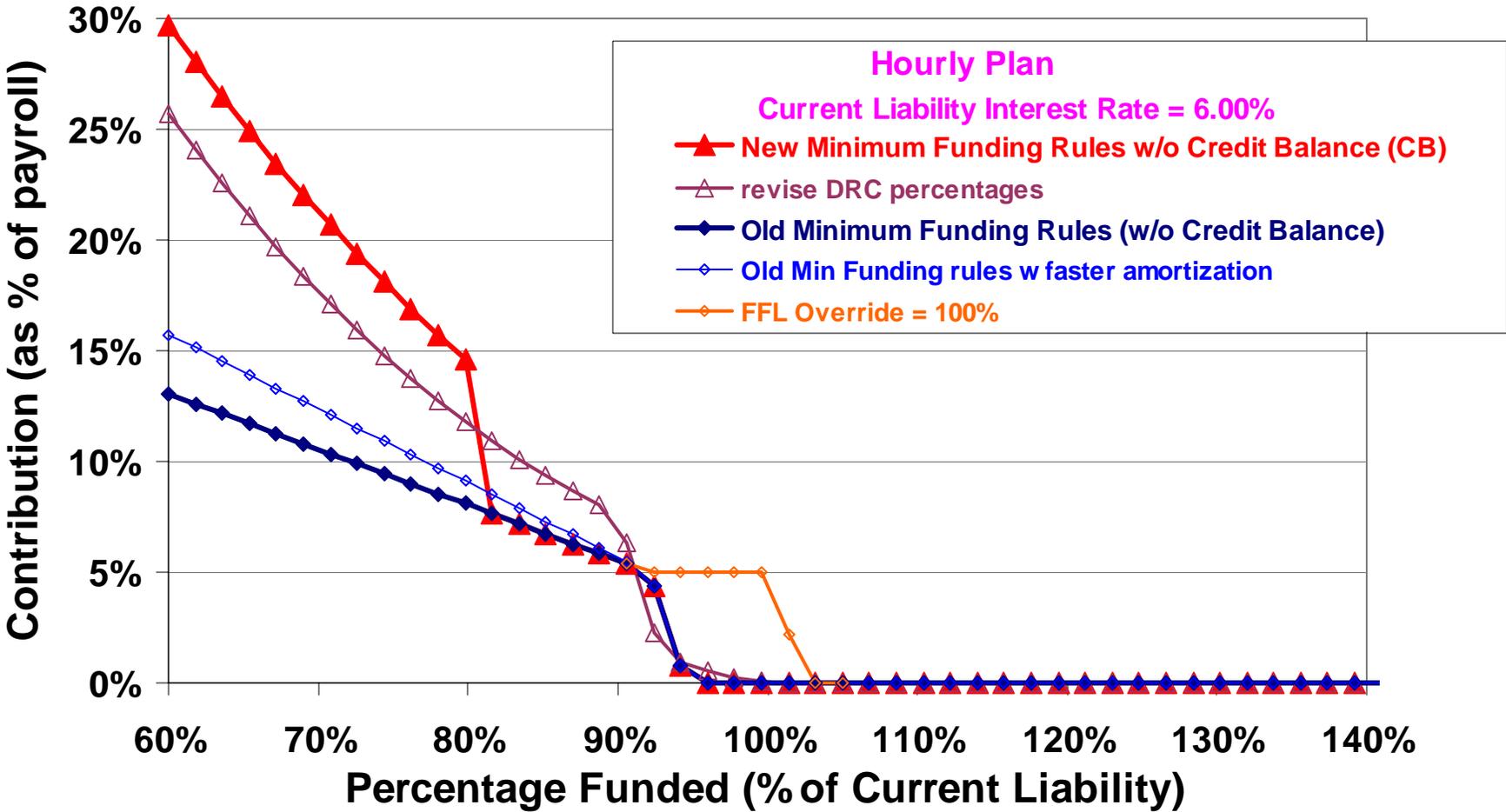
Funding Rules - Incremental Reform



There are large cliffs in minimum contributions which makes them volatile and unpredictable. To avoid this employers could build up a margin. However, their pension contribution may not be deductible, and may be subject to an excise tax, especially when interest rates are low.

CHART VI

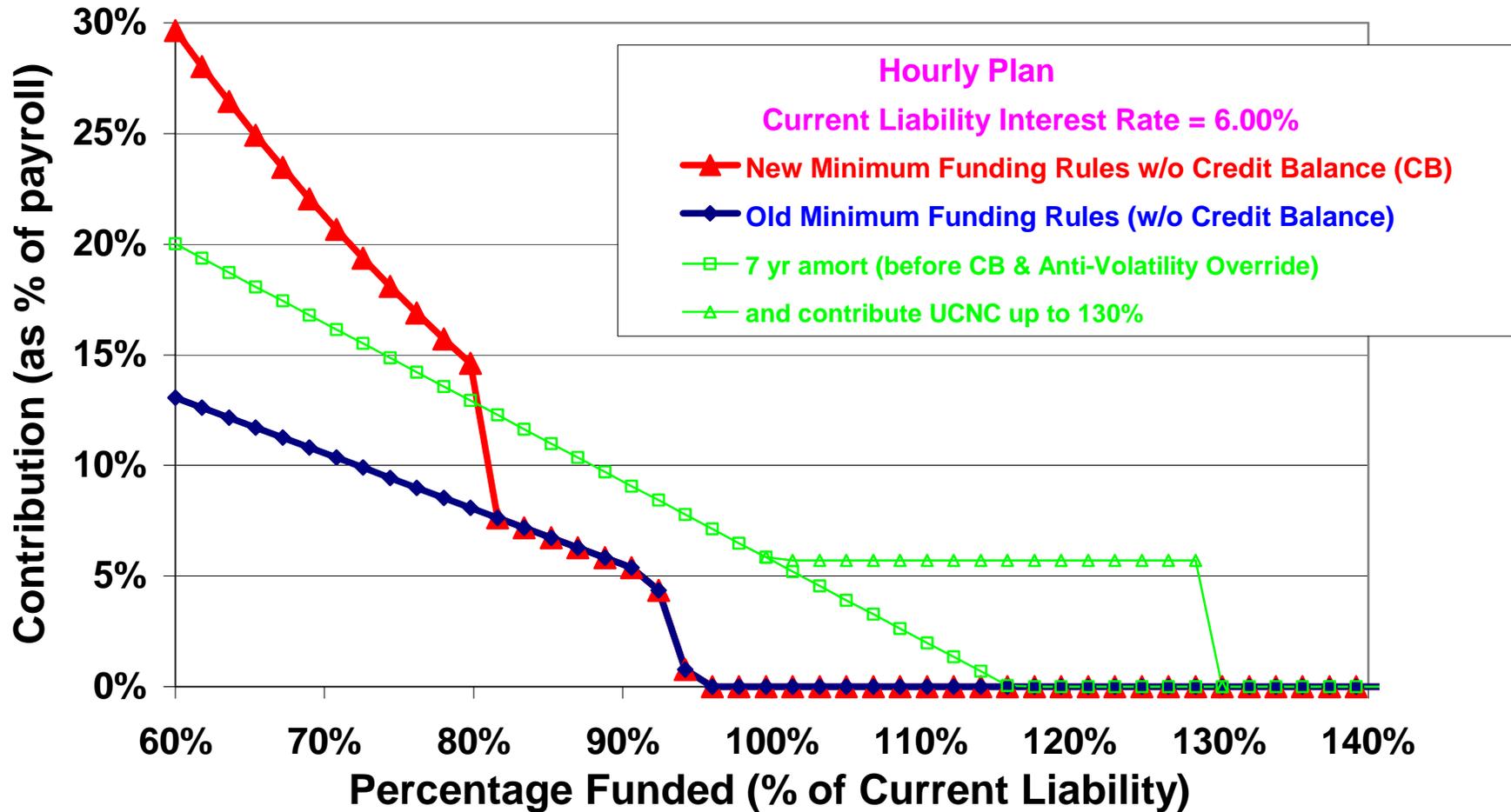
Funding Rules - Incremental Reform



There are large cliffs in minimum contributions which makes them volatile and unpredictable. To avoid this employers could build up a margin. However, their pension contribution may not be deductible, and may be subject to an excise tax, especially when interest rates are low.

CHART VII

Funding Rules - Comprehensive Reform



There are large cliffs in minimum contributions which makes them volatile and unpredictable. To avoid this employers could build up a margin. However, their pension contribution may not be deductible, and may be subject to an excise tax, especially when interest rates are low.