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PBGC: A Primer

44 million employees and retirees rely on the Pension Benefit Guaranty Corporation (PBGC) to help protect \$1.5 trillion worth of promised pension payments. Unfortunately, PBGC faces an \$11.2 billion deficit in its principal program, as of September 2003, a dramatic deterioration from the \$7.7 billion surplus just two years earlier. This primer explains in non-technical terms background information necessary to understand PBGC and its environment of tax and benefit rules.

Two companion pieces discuss policy issues. “The PBGC Debate: Fundamental Questions” is being issued simultaneously and “Policy Options for PBGC: A Comprehensive Listing,” will be issued in the second quarter of 2004.

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Please refer to the glossary for an explanation of terms specific to this field.

Executive Summary

Structure and Mission

PBGC is a federal government corporation, created in 1974, that insures people against the loss of pension benefits due to company bankruptcy. It insures most private sector pensions offered in “defined benefit” plans, those in which pension benefits are defined based on years of service and salary levels, without regard to investment performance. (Benefits under defined contribution plans, such as 401(k)’s, are not insured.) Pension plans pay insurance premiums to PBGC. The corporation receives no revenue from the government.

It runs two legally distinct insurance programs. One is for collectively bargained multi-employer pension plans and one for single-employer and non-bargained multi-employer plans. The most typical plan is at a large, unionized, manufacturing company.

PBGC insurance is the third layer of protection for employees. The first layer is the responsibility of firms to provide pension benefits they promise. The second layer is the collateral provided by funding a trust. PBGC

steps in only when both sponsor and trust seem unlikely to give adequate protection. In that event, it assumes the trust's liabilities, assets, and activities or, for multi-employer plans, lends the necessary funds to the trust.

PBGC activity is heavily weighted towards the single-employer program, for several reasons. First, it covers more people, 34 million versus 10 million in the multi-employer program. Second, PBGC has an extra layer of protection in multi-employer plans, since solvent employers are required to pay the share of insolvent ones. Lastly, PBGC guarantees much lower pension levels in multi-employer plans. As a result, PBGC has taken over \$45 billion in liabilities for single-employer plans and only \$1 billion for multi-employer plans.

In principle, a sponsor is required to contribute sufficient funds, in combination with investment income, to pay all future pensions. If this were always true in practice, there would be no need for PBGC. Trust assets would always suffice, even if the plan sponsor ceased contributions. However, underfunding can result from: inadequate investment returns; employer flexibility on timing of contributions; retroactive benefit increases; mis-estimates of lifespans and retirement dates; and other factors.

Nature of Benefits Insured

Pensions were traditionally paid each month during the life of a retiree and, in some cases, their surviving spouse. Now, more than half of exiting employees have an option to take a single "lump sum" payment estimated to be of equivalent value. A large majority exercise this option when it is available.

Salaried workers generally earn a pension based on a percentage of their average pay in their final years of employment. The percentage grows with each year of employment. In contrast, unionized workers often earn a fixed monthly benefit amount for each period of service, regardless of their wage level, as negotiated between the unions and the plan sponsors. Usually, these benefit levels are increased both for future and past benefit accruals as part of triennial contract negotiations.

Most plans encourage early retirement by tilting their benefit formulas to provide proportionally greater benefits for those who retire early. Some union plans substantially increase these incentives for those losing their jobs in plant shutdowns. Shutdown benefits can be very costly for PBGC, as they are unfunded prior to the shutdown and are often triggered shortly before a company's bankruptcy.

PBGC insurance does not guarantee the entirety of pension benefits earned under the plan prior to termination. The rules are much more generous for single-employer plans than for multi-employer plans. For example, retirees under the single-employer plan may receive guaranteed benefits of over \$44,000 a year, while the cap for multi-employer plans is under \$13,000. Further, multi-employer rules require a 25% "co-pay" for a portion of the benefits below that cap. Multi-employer plans lose all benefit improvements added in the five years preceding acceptance of PBGC financial aid. Single-employer plans lose some benefit increases added within five years before a distress or involuntary termination, but may not lose all such benefits. Finally, retirees from single-employer plans can receive some benefits that exceed the guarantee cap, depending on specific factors.

Funding Rules

ERISA and the tax code require plan sponsors to prefund future pension payments, according to very complex rules. The core concept is that the target funding level should be economically equivalent to the value of the future pension payments, which is measured by “discounting” the payments back to a “net present value.” This is done using a “discount rate,” the interest rate likely to be earned by an appropriate set of investments. In intuitive terms, dollars are set aside now and assumed to grow like a savings account by earning interest. The account is drawn down each year to pay pensions.

The discount rate applied to these future pension payments is highly controversial. Most experts agree that it depends principally on the riskiness of the investments that are considered appropriate. Actuarial and accounting rules generally treat the appropriate investment rate for measuring the pension liabilities as the rate conservatively expected to be earned on the actual portfolio. This is usually a mix of stocks and bonds and can produce a discount rate as high as 8-9%. However, many financial economists differ with this view. They believe that the correct rate for measurement is the “risk-free” rate, regardless of the actual portfolio. The Treasury rate, currently near 4%, is a reasonable proxy for that rate.

The discount rate choice is crucial; a one point change in discount rates can change the net present value by 15%. High discount rates require less funding from companies and therefore create fewer of the trust assets that act as collateral to protect PBGC. Low rates can protect PBGC more, but do so by creating more of a burden for sponsoring firms. In any case, the choice of a discount rate for legal purposes is judgmental and not straightforward.

The legal funding rules are highly intricate and laced with exceptions. Simplifying greatly, firms must fund benefits earned during the year plus interest on the starting balance of future obligations, which are now one year closer to payment. Funding is also adjusted for the effects of changes in estimates for actuarial assumptions, discount rates, and the market value of assets. These changes are recognized over a number of years. For example, investment losses from the bubble’s bursting are being made up over five years.

These base funding rules failed to avert massive underfunding in certain plans and thus resulted in major claims on PBGC. Therefore, Congress created additional “deficit reduction contributions” that are required each year for certain underfunded plans. Although the rules for calculating these contributions are considerably more stringent, there are many exceptions that reduce the effect. The problem of substantial underfunding and resulting large claims on PBGC has been alleviated, but not eliminated.

Working against these efforts to increase funding are a set of “full funding limits” that cap the amount of contributions, in order to minimize the government’s tax loss from pension contributions. In theory, these limits still allow plans to be fully funded, but in practice they have helped create underfunding.

Required contributions can be delayed (“waived”) when they would represent a “hardship,” based on legal specifics and Treasury Department judgment, but they must be made up with interest and the IRS can require collateral.

GAAP accounting rules have no direct effect on legal funding requirements, and vice versa.

PBGC Finances

PBGC is financed by: (1) insurance premiums; (2) the assets assumed along with liabilities from pension funds taken over due to insolvency; and (3) bankruptcy recoveries. Approximately \$1 billion of premiums were collected last year. About 70% were based on a fixed charge per participant and another 30% were collected from underfunded pension plans according to a complex formula that ends up exempting most underfunded plans. PBGC also recovers about 12% of its claims from the bankruptcy estates of insolvent plan sponsors. The corporation aims to invest 15-25% of its \$35 billion in assets in stocks and the rest in bonds.

PBGC had a deficit of \$11.5 billion on Sept. 30, 2003, of which all but \$0.3 billion was in the single-employer program. This was a swing of \$19 billion from the surplus it had two years before. The massive losses were due to: (1) large bankruptcies; (2) a big decline in pension assets due to the bursting of the bubble; and (3) a sharp increase in reported liabilities due to a fall in discount rates, reflective of general interest rate declines.

The federal budget's accounting for PBGC does not reflect economic reality. PBGC has aided the federal budget by \$12 billion since it went "on budget" in 1982, despite losing almost that same amount in economic and GAAP accounting terms. The federal budget credits PBGC with the full insurance premiums being raised to build funds to pay its massive liabilities, but only reflects a small portion of the increased liabilities themselves in the annual budget calculations.

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Chapter One: Basics of PBGC and Pensions

What is PBGC?

PBGC is a federal government corporation created in September 1974 under Title IV of the Employee Retirement Income Security Act of 1974 (ERISA). ERISA established the basic federal law governing pensions and pre-empts state law. PBGC has no outside owners and is grouped under the Department of Labor for budget reporting and certain administrative purposes. The management team is headed by an Executive Director, appointed by the President without Senate confirmation. A three-member Board of Directors is chaired by the Secretary of Labor and includes the Secretaries of Treasury and Commerce. A presidentially-appointed advisory committee of employer, employee, and public representatives makes suggestions on certain matters. PBGC charges insurance premiums and receives no general tax revenue.

What does PBGC do?

PBGC guarantees that most “participants” in private sector “defined benefit” pension plans (see “What are defined benefits?”) receive benefits up to certain limits even if the company that promised the benefits (“plan sponsor”) becomes insolvent. Participants include employees, former employees, and retirees. PBGC manages two insurance programs, one for single-employer pension plans and one for multi-employer plans. These remain distinct by law.

All PBGC-insured plans are “tax-qualified,” meaning that employers and participants receive preferential tax treatment, provided certain standards under the Internal Revenue Code are met. ERISA and the tax code require each sponsor to create a pension trust and to fund it in advance of when cash is needed for payments (“prefund”). PBGC will step in only if the assets in a trust are anticipated to be insufficient and the sponsor is expected to cease making adequate contributions, generally as a result of insolvency. It takes over the obligations, assets, and activities of the trust, or, for multi-employer plans, lends the necessary funds to the trust.

PBGC insures over 44 million participants in more than 31,000 private sector pension plans. PBGC insures pensions with an estimated value of \$1.5 trillion as of 2003. To date, it has assumed pension obligations for over 900,000 workers and retirees in more than 3,200 plans.

What are the multi-employer and single-employer programs?

A multi-employer plan always meets two conditions. It (a) is collectively bargained between employers and one or more unions and (b) covers two or more unrelated employers, (usually in a single industry, such as trucking or construction). All other plans are labeled “single-employer.” The large majority of single-employer plans include only one employer, but several hundred others cover multiple employers when there is no collective bargaining agreement regarding the plan. ERISA specifies that PBGC must run separate programs for single- and multi-employer plans, with no cross-subsidy or borrowing between the two types.

Multi-employer plans historically were less of a problem for PBGC than single-employer plans, partly because of the inherent diversification of multiple backers. A group of unrelated companies is less likely to go bankrupt than a single company. All of the plan sponsors in a multi-employer plan share liability for the plan's promises and each is legally obligated to pick up the share others fail to pay. Firms that withdraw from a plan must pay a "withdrawal liability" based on their proportion of any underfunding at the plan. Nevertheless, the multi-employer program recently went into deficit for the first time in over 20 years.

The single-employer program is much larger than the multi-employer one. It covers 34 million participants and PBGC had \$34 billion in assets in the program in 2003. (The assets principally came from pension plans that were taken over.) These figures compare to slightly fewer than 10 million participants and \$1 billion in assets on the multi-employer side.

What is the demographic profile of defined benefit plan participants?

The typical participant is in a large, unionized, manufacturing company, although plans exist in many types of firms.

For the 34 million participants in single-employer plans:

- 47% of participants were in manufacturing in 2001. This is far higher than among private sector workers generally, where 14% are in manufacturing. Another 8% were in transportation and utilities, compared to 4% overall.
- 63% were in plans with at least 10,000 participants, including retirees and vested former employees, in 2001. As a rough comparison, 27% of employees in the private sector worked in firms employing 10,000 or more. Even in the manufacturing sector as a whole the figure is only 28%.
- As one would expect from the preponderance of manufacturing industries, there is a high level of union presence. Approximately one-third of participants in single-employer plans are union members, based on an analysis of data in the Department of Labor's Abstract of 1998 Form 5500 Annual Reports. For comparison, 10% of employees in the private sector were union members in 1998. It is interesting to note that 70% of union members are covered by defined benefit plans.
- The regional geographic breakdown of PBGC-insured participants largely matches the overall population. 22% of participants were in the Mid-Atlantic in 2001, (versus 20% of the general population), 21% in the Great Lakes (versus 18%), and 19% in the Southeast (versus 21%).
- Anecdotal evidence indicates that participants who are still employed are older than the general population of workers.

For the almost 10 million participants in multi-employer plans:

- 72% are in plans with at least 10,000 participants, although it is difficult to know what this translates to in corporate size, since there are multiple employers in each plan. Some argue that these plans support many small businesses.
- They are all in union-negotiated plans and are, with rare exceptions, union members.
- 38% were in construction in 2001, compared to 5% in the economy as a whole. A further 15% were in manufacturing (versus 14%) and 12% in transportation and public utilities (versus 4%).
- Anecdotal evidence indicates that participants who are still employed are older than the general population of workers.
- Geographic information is unavailable on the multi-employer plans.

What are “defined benefit” pensions?

Pension benefits can either be defined by the amount of benefits ultimately to be paid to the participant (“defined benefit” or “DB”) or by the amount of contributions to be made by or on behalf of the participant (“defined contribution” or “DC”).

Participants in a traditional defined benefit plan are promised future benefits according to specific formulas, usually based on pay, years of service, or both. Plan sponsors are responsible for contributing sufficient funds and investing and managing the plan assets. Sponsors bear the investment risk and they profit from any unexpectedly strong returns.

By contrast, participants in a defined contribution plan, such as a 401(k), receive the original contributions plus or minus whatever investment income or loss is earned, generally with no minimum or maximum level of benefits.

Most defined contribution plans allow employee contributions and provide participants with considerable flexibility to make investment choices. Defined benefit plans may allow employee contributions, but this option is now rare in the private sector.

Hybrid plans also exist, such as “cash balance” plans. Technically, these are defined benefit plans, but with hypothetical individual accounts that grow at a specified rate, usually based on pay levels and interest credits. A full discussion of this highly technical area is outside the scope of this primer, but it is worth noting that PBGC has estimated that roughly 21% of participants covered by its insurance are in plans with hybrid elements. Further, according to PBGC, “available data suggests that most active participants in hybrid plans will take a lump sum” payment. (See “How are benefit levels determined?”) Such a payment eliminates future investment and actuarial risks to the plan in regard to that participant. On the other hand, there is the risk that excessive lump sum payments will drain cash from already underfunded pension trusts. Other differences between hybrid and traditional plans, such as funding approaches, also change PBGC’s risk.

Does PBGC cover all defined benefit pension plans?

PBGC covers all private sector, tax-qualified, defined benefit plans, with the exception of 11 additional categories of plans specified by ERISA. The principal exceptions are:

- Plans for professional service employers (such as doctors and lawyers) with 25 or fewer active participants
- Plans in which all participants are substantial owners
- Supplemental executive compensation plans
- Plans principally for foreign workers
- Church plans, unless they opt in

Why is PBGC needed?

In principle, a plan sponsor is required to contribute enough, in combination with investment income, to pay all future pension benefits. If this were always true in practice, there would be no need for PBGC to guarantee benefits. The trust assets would always be sufficient, even if the plan sponsor became insolvent and ceased contributions. However, seven major factors create over- and under-funding.

Employers are given some flexibility on the timing of their contributions, according to complex rules discussed below. Deferring contributions lowers funding levels while accelerating contributions raises them.

Investment income funds much of the benefit payments, since the contributions may earn returns for many years before they are used to pay pensions. Thus, the expected rate of investment returns is a major determinant of funding requirements. Deviations of actual returns from expected returns are a source of over- and under-funding.

Expectations of future returns change. A lowered expectation means contributions need to increase to offset the anticipated drop in income. This is obviously true for new contributions, which will be invested in a lower return environment. It is also true for previous investments in instruments, such as stocks, that do not have guaranteed returns.

Sponsors may agree to enhance benefits for both future and prior service. Enhancements for prior service are funded over many years, which can create a deficit initially. (See “What are the legal funding requirements?”)

Actuarial projections may prove to be wrong in such areas as life expectancy, retirement dates, and other factors. Revisions can raise or lower payments from the initial estimates.

Funding requirements have been relaxed temporarily for at least some firms after the passage of various laws.

Some employers have skipped legally required contributions or violated their fiduciary responsibilities in ways that create or aggravate underfunding.

Prior to the creation of PBGC, pension underfunding created tragedies when some firms became insolvent. Notably, 4,000 workers lost most of their pensions in the 1963 shutdown of the Studebaker-Packard automobile company. This helped provide the political momentum that eventually resulted in the passage of ERISA and the establishment of PBGC.

Chapter Two: Nature of Benefits Insured

How are benefit levels determined in defined benefit plans?

DB plans generally require employment for some length of time (“vesting period”) before employees are entitled to any pension payment. ERISA limits the stringency of these vesting requirements.

Benefits are usually paid on a monthly basis starting at retirement, or for those who left the firm earlier with vested benefits, at a normal retirement age. Pensions are paid until death and may continue at a reduced rate until the subsequent death of a spouse (“survivor benefits”).

Salaried workers generally receive a monthly pension payment calculated as a percentage of their average pay in their final years of employment. The percentage grows with each year of employment. The specific percentage accrued each year and the number of years used in the “final average pay” calculation depend on the plan’s terms.

For example, take a final average pay plan that credits 2 percentage points for each year of service and uses an average of the last three years of salary. An employee who worked 30 years and had salaries of \$49,000, \$50,000, and \$51,000 in his last three years would receive an annual pension of \$30,000 a year if he or she retired at normal retirement age. (30 years times 2% times an average pay of \$50,000 equals \$30,000.)

Unionized workers often earn a fixed monthly benefit amount for each period of service, regardless of their wage level, as negotiated between the unions and the plan sponsors. For example, an employee might receive \$100 per month for each year of service, so that an employee serving 30 years would receive \$36,000 a year (30 years times \$100 times 12 months). Usually these benefit levels are increased both for future and past benefit accruals as part of triennial contract negotiations.

Under any plan that permits it, the monthly payments may be replaced by a single lump sum, at the choice of the retiring employee. The lump sum amount equals the “present value” of the estimated future pension payments that would have been received. (See “What is a discount rate?”) In addition, sponsors generally pay a lump sum for terminating employees with vested benefits valued at \$5,000 or less. A side effect of a lump sum payment is that it eliminates survivor benefits, unless the recipient chooses to protect his or her spouse in another manner.

Approximately half of defined benefit plans now allow employees to take a lump sum payment upon departure, a massive change from earlier years. (Different studies have placed the current figure in a range of 34-64%.) Further, 89% of employees with the lump sum option took advantage of that alternative in a 1998 study by Watson Wyatt.

What are early retirement benefits?

Plans generally allow someone to retire with full benefits only after achieving a certain age or combination of age and years of service with the employer. However, employees are usually allowed to retire on reduced benefits at an earlier point. Early retirees collect payments for more months than if they had retired at a later

age, since payments continue until death. Therefore, monthly benefits are reduced according to a formula based on life expectancies.

However, companies often choose to encourage early retirement, either as part of their overall human resource strategy or as a concession to unions. They accomplish this by reducing benefits less than would be necessary to offset the age difference. Many union plans provide a further subsidy by supplementing benefits from early retirement age until first eligibility for social security payments.

What are shutdown benefits?

The shutdown of a manufacturing plant can be devastating to its employees and particularly for older workers who may have the most difficulty in finding new work. In response, unions in some industries have negotiated improved pension benefits for older workers in the event that a plant shuts down. Qualification standards for retirement with a full pension tend to be loosened considerably and early retirement subsidies are increased. These shutdown benefits can be quite substantial.

Shutdown benefits can significantly increase the underfunding taken on by PBGC. They exert little effect on the calculations of pension liabilities as long as they remain a contingency rather than a certainty. As a result, assets are not directly built up in a pension fund in advance of a shutdown. After a shutdown, the increased liabilities will be funded over a period of years. Unfortunately, many plant shutdowns are followed in short order by the insolvency of the employer, leaving PBGC with a larger liability that has not yet been funded. This problem is exacerbated when most or all of a company's employees are let go shortly before insolvency.

What are the limits on PBGC benefit guarantees?

PBGC insurance does not guarantee the entirety of pension benefits earned under the plan prior to termination. The rules differ greatly for single- and multi-employer plans.

For both single- and multi-employer plans, the guarantee excludes non-pension benefits and pension benefits that are unvested at time of termination. Supplemental early retirement benefits are guaranteed only to the level the participant would have received at normal retirement age. (See "How are benefit levels determined in defined benefit plans?")

Single-employer guarantee limits

The principal limitation is a cap on annual benefit payments. This is set at \$44,386 per year for a retiree at age 65 in plans terminating in 2004. The cap rises annually for *new* plan terminations based on the annual inflation adjustment in the Social Security program (technically, the change in the "Social Security contribution and benefit base.") However, there is no cost-of-living adjustment for participants in a plan once it has terminated. Benefits exceeding the PBGC guarantee level may be paid if the trust had sufficient funds. (See "What non-guaranteed benefits are paid?")

There is a significant consequence, presumably unintended, of setting a cap in absolute dollar terms on the guarantee level. The employees or retirees who served longest are most likely to lose benefits due to the cap. Workers with longer service are older on average and may be less able to recover from a job loss.

PBGC makes two adjustments to the cap on annual benefit payments in a manner analogous to most pension plans. It adjusts the maximum guarantee down for retirements commencing before age 65 and up for later retirements, to reflect the number of years the participant is likely to receive benefits. The amount is also lowered if survivor benefits are elected. These pay a reduced benefit to a surviving spouse rather than ceasing upon the participant's death.

Improvements made to pension benefit formulas within the five years preceding the date of termination are phased in at the greater of: (a) 20% of the improvement per full year since the amendment or (b) a monthly benefit of \$20 for each year since the amendment. That is, if a change was introduced slightly over three years ago, only 60% of the increase will be guaranteed, or \$60 per month, if this is higher. The cutback does not apply to an automatic increase in benefits according to a pre-existing formula, such as increases in "final average pay" calculations based on raises during the five year exclusion period. In practice, this creates a disparity between plans for salaried employees and the typical collectively bargained plan. The union plan is subject to the cutback rules because benefit increases are a result of new contracts and therefore plan amendments, whereas salaried employees are not subject to cutback because their increases do not result from a plan amendment.

Multi-employer guarantee limits

PBGC guarantees only 75% of the annual benefit over \$132 per year of service and the PBGC payment is capped at \$429 for each year of service. For a participant with 30 years of service, the 75% limit applies at a pension of \$3,960 per year and the total cap is \$12,870 in annual benefits. These levels do not automatically increase for new plan terminations as single-employer limits do and were changed only once since 1980, in 2000.

Unlike single-employer plans, multi-employer plans receiving financial assistance from PBGC are required to suspend benefit payments that would exceed the guarantee level. This includes the 75% limitation described above. Thus, there are also no payments of non-guaranteed benefits, as there can be in single-employer plans.

For multi-employer plans, there is no phase-in of improvements made to pension benefit formulas within the five years preceding the date of plan termination. Instead, participants lose all such increases.

Net effects

One PBGC study of a sample of single-employer terminations estimated that over 90% of participants received the full benefits earned prior to termination, despite these various limitations. This excludes the cost of losing the ability to gain future increases in pension benefits, leaving participants exposed to inflation. Multi-employer terminations likely produce a far lower percentage of fully guaranteed payments, given the substantially lower cap and the cutback to 75% benefit levels described above.

What non-guaranteed benefits are paid?

After PBGC takes over a single-employer plan, it determines which benefits can be supported directly by the assets taken over from the pension trust. PBGC allocates trust assets in the following order, prefunding all earned benefits, even above the guarantee levels, until all assets are allocated.

After that, lower priority categories receive only those benefits covered by the PBGC guarantee.

1. Voluntary employee contributions. (These are relatively rare.)
2. Mandatory employee contributions. (These are also relatively rare.)
3. Payments to participants who have been retired for three years or became eligible for retirement at least three years before the date of termination.
4. Benefits guaranteed by PBGC.
5. Vested, non-guaranteed benefits.
6. All other benefits.

The amounts recovered by PBGC in bankruptcy proceedings are allocated to participants in a similar manner. The complexity of this process is a principal reason that “final determination” of PBGC benefits can take several years to calculate. Estimated benefits are paid until the final determination is made. If the final determination is higher than the estimate, PBGC will pay interest, but participants are never charged interest if they were overpaid.

What is a “plan termination”?

A “termination” is the ending of a defined benefit pension plan. Except as noted, this section will describe the procedures for single-employer plans only. Distressed multi-employer plans are not normally terminated. Instead, PBGC provides loans as necessary to allow the payment of benefits within the guarantee limits (see “What are the limits on PBGC benefit guarantees?”). So far, the loan has been repaid in one case out of 34.

Single-employer plans can be terminated voluntarily by a sponsor with a fully funded pension trust (“standard termination”). Seriously troubled plan sponsors meeting certain conditions can terminate voluntarily (“distress termination”). Or, under specific circumstances, PBGC can force a plan termination (“involuntary termination”).

A “standard termination” results when a plan sponsor decides to stop providing new benefits and follows certain procedures to end its responsibility for the plan. It must either purchase a group annuity from an insurance company to cover previously accrued pension obligations or make lump sum payments to participants, if the plan allows the latter option and the participant chooses it. Standard termination is possible only if the plan is fully funded, since otherwise there would not be enough money to purchase an adequate group annuity and to pay lump sums.

PBGC takeover of a plan results either from a distress termination or an involuntary termination. In either case, PBGC takes over the responsibilities of the trustee and assumes the assets and liabilities of the plan.

A plan sponsor will be granted a distress termination only in three circumstances:

- The sponsor is being liquidated in bankruptcy proceedings.
- The sponsor is reorganizing under Chapter 11 of the bankruptcy law and the bankruptcy judge determines that the firm cannot successfully survive post-bankruptcy without a plan termination.
- The termination is “required to enable payment of debts [by the sponsor] while staying in business or to avoid unreasonably burdensome pension costs caused by declining workforce.”

Until 1986 sponsors had what was informally termed a “PBGC put,” which allowed them to hand an underfunded plan over to PBGC responsibility, in exchange for 30% of the net worth of the plan sponsor. The strict conditions now in place were a legislative response to growing use of this provision. PBGC may initiate involuntary terminations only in the following situations:

- A plan has not met the minimum funding requirements
- A plan “will be unable to pay benefits when due.”
- The “possible long run loss [to PBGC] with respect to the plan may reasonably be expected to increase unreasonably if the plan is not terminated.”
- Under certain conditions, if a distribution to a substantial owner of the plan sponsor creates unfunded vested benefits.

What is a plan “freeze”?

A plan sponsor may choose to “freeze” a plan by ceasing to credit new pension benefits to its employees for additional service. A freeze is only allowed if proper procedures are followed and there are no separate contractual commitments blocking the change.

A sponsor could implement any of three types of freezes. A “soft freeze” still allows benefits to rise in “final average pay” plans to the extent that salaries increase. A “hard freeze” cuts this off as well. Finally, some view a “closed plan” as a form of freeze. This involves ceasing to allow new employees into an existing plan.

Note that a freeze is not a termination; the plan continues under the normal funding and other rules. However, employees earn fewer or no additional pension benefits.

Chapter Three: Funding of Defined Benefit Plans

ERISA and the tax code mandate that plan sponsors prefund future pension payments. The rules are complex and even a simplified discussion requires the understanding of certain basics, such as “discount rates” and “present values.”

What is a discount rate?

There are many times when one needs to compare payments or receipts that fall into different time periods. For example, how does a lump sum pension payment of \$10,000 taken now compare to receiving \$100 a month for an expected life of 25 years?

Economists, actuaries, accountants, and financial markets generally calculate “present values” to make these comparisons. Each payment or receipt is “discounted” to an equivalent value in the present moment by using (1) a factor based on the number of years before money is exchanged and (2) an interest rate called a “discount rate.” Decisions can then be based on a comparison of the present value of the payments and of the receipts.

For example, a payment of \$1,000 in 2 years, discounted at 5%, is approximately \$907. It tends to be easier to understand this by reversing the process. If we put \$907 today into a savings account earning 5% per year, it will grow to a value of \$1,000 in 2 years. That is, \$907 earns \$45 in interest at 5% and totals \$952 at the end of year 1. \$952 earns \$48 in interest and equals 1,000 at the end of year 2. The mathematics can become complicated, but the logic always remains that of a present value growing at an interest rate for some number of periods to equal the ultimate target amount.

How do discount rates affect pension calculations?

Present value calculations, and therefore discount rates, are critical to pension calculations, since the benefit obligations are spread over many years. There are three principal areas where present value calculations affect pension plans:

Funding. The adequacy of funding in a pension plan is determined by comparing the present value of the pension obligations to the value of the pension investments. These funding levels help determine the legally required contributions from the plan sponsor and the variable premiums that PBGC charges some plans. A higher discount rate means that the present value of pension obligations is correspondingly lower, and therefore lower contributions are required to fully fund benefits.

Lump sums. The lump sum payment offered to certain employees as they retire represents the present value of the future benefits they would otherwise receive. Higher discount rates produce lower lump sums.

Terminations. In practice, with rare exceptions, PBGC will not take over a pension trust unless the present value of future benefit payments, calculated under PBGC rules, exceeds the value of trust assets. Otherwise, the pension trust should be able to pay its own way, even without further contributions from a plan sponsor.

How should discount rates be determined for pensions?

There is a vigorous debate on the correct discount rate to use to calculate the adequacy of pension funding. This debate is far from academic. Using a one percentage point lower discount rate for funding purposes can increase the calculated liability by 15%. At the considerable risk of over-simplification, this debate can be summarized as follows.

Expected rates of return. Actuarial rules specify that the discount rate should be based on the expected long-term return on investment in the pension trust. Thus, a plan would be viewed as fully funded if it has investments sufficient to make the required payments assuming the assets do indeed earn the estimated rate. For some years now, actuaries working for plan sponsors have estimated the return for the average plan at about 8%, although estimates for individual plans have varied up or down by one or two percentage points. Accountants also use the expected investment return as part of the calculations of funding levels under the relevant Financial Accounting Standards (FAS). (The recently promulgated FAS 132 expands on FAS 87 and FAS 17, which constituted the principal rules for pension accounting for private sector companies.)

Risk-free rates. Financial economists generally advocate the use of a “risk-free” rate, such as the return on a Treasury bond of equivalent duration to the obligation. Currently, this would produce a discount rate of 4% to 5%. This might at first seem to conflict with the well-established use of higher discount rates to value riskier investments, so we will start by explaining that methodology.

People and institutions are assumed to dislike risk and to demand a higher return on riskier payment streams. This is reflected by choosing a higher discount rate. Thus, a stock expected to earn 8% a year might be viewed as fairly valued when an 8% discount rate is appropriate for the risk, but would be under-valued if the risk warrants a discount rate of only 7%. Generally, bonds will be less risky than stocks, because they have stronger legal claim on payments from the issuing company. Therefore, they will have lower discount rates.

However, these discount rates are all from the point of view of the recipient of the future payment, who will demand a higher expected return to compensate for the risk of not being paid. There is no such uncertainty for the one who promised the payment, assuming the promises are clear legal obligations, and therefore no reason to increase the discount rate. From the payer’s point of view the payment is just as certain as a Treasury bond payment is from the recipient’s point of view.

Some argue that the ability to pass the pension obligation to PBGC renders this analogy irrelevant for pensions, however this applies only in extreme circumstances. First, corporations try very hard to avoid insolvency, which is a necessary practical condition for PBGC help. Managements seldom treat future promises as less costly because they could theoretically be evaded in bankruptcy. Second, this argument would apply to virtually any contractual obligation, since bankruptcy potentially affects all claims. Yet no one is suggesting that a high discount rate be applied to all future payments.

Rates on high-quality bonds. There are at least three justifications for using high-quality bond rates. First, it represents a compromise between traditional actuarial practice and the arguments of the financial economists. High-quality bonds are not truly risk-free, but they do tend to have a low probability of default. Second, the implied interest rates that insurers build into their pricing when they offer to take on pension obligations are generally close to high-quality bond rates, if one factors out the additional administrative and

other charges that are also built in. Third, it is a convenient political compromise between the arguments of different groups that favor risk-free rates or rates closer to long-term investment returns.

What discount rates are used for legal purposes?

Congress has not settled on a single intellectual position in its various applications of discount rates to pensions. The discount rate rules for pension funding are currently in flux. H.R. 3108, if signed into law, would temporarily change the rules for 2004 and 2005. Congress intends to enact permanent changes of some nature before these provisions expire.

For the next two years, plan sponsors may calculate current liabilities by choosing a discount rate in a “permissible range” from 90% to 100% of a four-year weighted average of high-quality corporate bond rates. The Treasury department will compile an index based on two or more publicly available indices that take account of the rates on thousands of bonds traded in the markets. The four-year weighting of these indexed rates is likely to be designed to give considerably more emphasis to recent rates.

The funding rule immediately prior to the new Act used an average of rates on the 30-year Treasury bond and a “permissible range” of 90% to 120%, but was otherwise identical in construction. Corporate bond rates will be higher, and pension funding obligations lower, since investors charge a greater yield to account for the added risk of bankruptcy.

PBGC assesses an additional “variable rate” premium for certain underfunded plans (see “How is PBGC financed?”) It calculates the level of underfunding using a 30-year Treasury rate. Currently, it uses 85% of that rate, down from 100% used in 2002 and 2003. The proposed Act retains the 85% ratio, but applies it to a corporate bond rate.

Lump sum payments to participants are generally calculated using the 30-year Treasury rate, the highest rate currently allowed. Benefits paid as lump sums are considerably higher than the present value of those same benefits paid as monthly payments in retirement, as a result of a gap between discount rates used for lump sum and funding calculations. The proposed Act increases this gap by raising the discount rate for funding purposes without altering the lump sum discount rate. There is little theoretical economic justification for using different rates.

What is asset/liability matching?

This is the technique of choosing investments to match their expected future cash inflows to a set of future cash outflows, such as pension payments. Generally, high quality bonds fit best with pension promises. Defined benefit pension payments are similar to the promises that corporations make when they issue bonds, that is, the promise to pay specific amounts to bondholders at various times in the future, regardless of what else happens to the corporation. Stock returns, by contrast, depend on future corporate earnings, dividends, market psychology, and other factors.

Pension payments differ somewhat from bond payments, in that the payments will vary with actuarial factors, such as years of future service by employees, retirement ages, and the duration of retirees’ lives. However, actuaries can estimate these figures with reasonable accuracy for the large plans that dominate PBGC’s

universe. To the extent this is true, we can treat pension promises as similar to high-quality bonds. (Low-quality bonds bring a significant risk that payments will not be made due to bankruptcy of the issuer.)

If a plan sponsor chose a bond portfolio that perfectly matched interest earnings and principal repayments against cash needs for pension payments, then there would be very little concern about future changes in interest rates and therefore discount rates. If both rates went down equally, the increased present value of the pension liability would be exactly matched by the increased value of the bonds held as investments.

By contrast, a portfolio invested entirely in stocks might have a higher expected return over time, but it would be quite vulnerable to changes in interest rates. Stocks often rise when interest rates fall, providing some matching, but there were many periods when this was not true, including the large stock market declines and falling interest rates after the recent financial bubble burst.

It is worth noting that this theoretical linkage between bond rates and discount rates is considerably weakened in practice by the use of multi-year averages and actuarial judgment in the determination of discount rates. Nonetheless, these relationships will generally hold true in the long run.

Pension funds generally hold large amounts of stock. At the end of 2003, defined benefit pension plans had 64% of their investments in stocks. (Based on a Greenwich Associates survey of large corporate pension funds.)

PBGC is vulnerable to the resulting asset/liability mismatch. If the shares held in pension plans with troubled sponsors fall in price, or fail to rise enough to offset a falling discount rate, then underfunding will increase. This underfunding becomes a PBGC problem if plan sponsors become insolvent.

What are the legal funding requirements?

The funding rules are very complicated, but there are three core concepts.

- A “funding standard account” (FSA) represents the base funding requirement.
- An additional “deficit reduction contribution” (DRC) is mandated when underfunding exceeds a certain level of “current liabilities” (see “What do the different liability measurements mean?”)
- A “full funding limit” stops plan sponsors from contributing further once a plan reaches a certain funding level.

Funding Standard Account

The Funding Standard Account is intended to be the mechanism for determining the required contributions for all plans that are not significantly underfunded. Sponsors are required to make contributions that maintain the FSA at a credit balance or at zero balance. The FSA rises or falls based on a number of factors, including:

- Benefit accruals (e.g., another year of service credits) are charged to the FSA.
- Contributions from the plan sponsor are credited.
- Investment returns are credited and losses charged.
- The effects of plan amendments are charged or credited to the FSA.
- Revisions to actuarial assumptions, such as discount rates, change the FSA.

The effects of all categories beyond the first two are spread over time (“amortized”), in order to reduce volatility in funding requirements. Amortization periods range from 5 to 30 years, depending on the specific type of revision. The effects of pension legislation are sometimes phased in as well.

The funding standard account is cumulative. A plan sponsor can skip a year’s contribution if the FSA will have a credit balance after that year’s changes. Note that there is an unfortunate interaction between the effects of previous contributions and investment losses. Assume that a sponsor is exactly adequately funded and needs to contribute \$100 million each year to offset benefits earned during that year and any other effects on the FSA. Further assume that it contributes an extra \$100 million at the beginning of a year, but loses half of it before the next year. If the investment loss of \$50 million is amortized over 5 years, the required contribution will rise by \$10 million, to \$110 million, but the previous excess contribution of \$100 million would reduce the legal funding need to \$10 million. All else equal, the plan is now less well funded by the \$40 million of unamortized investment losses, even though the FSA shows a zero balance.

Deficit Reduction Contribution

The FSA approach proved inadequate to avoid major underfunding in some plans. Big investment losses, sharp declines in discount rates, or large benefit improvements have their full effect on the FSA only over a period of years. They can produce large deficits for a time. The Omnibus Budget Reconciliation Act of 1987 requires sponsors to put in the “deficit reduction contribution” amount, if this is higher than the requirement under the regular FSA calculation.

A deficit reduction contribution is needed for single-employer plans if the sponsor has more than 100 employees and plan assets are less than 90% of current liabilities. The DRC can be avoided if plan assets are at least 80% of current liabilities and were 90% or more in two consecutive years out of the previous three.

Calculating the DRC is also very complicated. “Old unfunded liability” amounts from prior to 1988 are phased in over 18 years and are therefore still not fully counted as of 2004. 30% of unfunded liability post-1988 goes into the DRC if the value of plan assets is 60% or less of current liabilities. The 30% figure is reduced by 0.4 percentage points for each point by which that ratio exceeds 60%. Thus, a level of underfunding that minimally triggers the DRC, such as 89%, would be amortized at about 18% a year.

Credit balances in the FSA can offset the DRC, just as in our earlier example of a previous contribution offsetting the need for future contributions under the ordinary FSA rules. Because of its credit balance, Bethlehem Steel, for example, would not have been required to make a contribution in the plan year in which it terminated and left PBGC with a \$3.6 billion charge. In fact, it had not contributed in the preceding four years.

Full Funding Limit

Plan sponsors are also limited in how much they may contribute, principally as a result of the federal government's desire to hold down the corporate tax deductions associated with these tax-deductible contributions.

As of 2004, sponsors are essentially limited to contribution levels that would bring the plan assets up to the level of "accrued liabilities." This is a somewhat more generous measure of liabilities than current liabilities. It includes, among other things, the effects of likely increases in final average pay calculations based on expected future service.

Can funding requirements be waived?

ERISA empowers the Secretary of Treasury to waive the funding requirements for a given year, if a sponsor (or 10% of the sponsors in a multi-employer plan), can prove financial hardship and meet certain other tests. Waivers may not be granted for more than 3 out of any 15 consecutive years (5 out of 15 for a multi-employer plan). The sponsor is required to make up the missing contribution, with interest, in later years.

For a single-employer plan, the sponsor must show "temporary substantial business hardship." The test for multi-employer plans is "substantial business hardship," whether temporary or not. The Secretary is required to consider the following factors and may consider other relevant factors:

- The employer is operating at an economic loss.
- There is substantial unemployment or underemployment in the trade or business or in the industry concerned.
- The sales and profits of the industry concerned are depressed or declining.
- It is reasonable to expect that the plan will be continued only if the waiver is granted.

The Secretary is further instructed to grant the waiver only if insisting on the contribution would be "adverse to the interests of plan participants in the aggregate." The Secretary can demand collateral for the loan represented by the waiver.

A study by Jack van Derhei in 1988 explored the experience related to the 115 waivers granted in 1980 and 1981. As of 1987, PBGC had taken over 20% of the plans receiving these waivers and the waivers constituted 20% of PBGC's losses on these takeovers. Tougher rules implemented since would likely have reduced both percentages.

What are the different liability measurements?

There are several different ways of estimating the present value of the eventual payments that retirees will receive from defined benefit pensions. Each reflects a different underlying situation.

ERISA funding liability

This is not a formal legal term, but we use it to denote the liability calculated for the FSA calculations. This liability is not used directly for funding, but annual changes in subcomponents, such as benefit accruals, are used in the FSA calculations. Actuaries are allowed to use a “reasonable” discount rate for these calculations and have fair flexibility in other actuarial assumptions.

Current liability

This standard is used to determine if a deficit reduction contribution is required. It represents an estimate of the benefits earned to date, assuming the sponsor remains in business and the plan is continued. The discount rate used to calculate the current liability is based on corporate bonds (as explained in “How are discount rates determined for pensions?”). Further, sponsors are constrained to use a particular mortality table in their actuarial assumptions.

Termination liability

This is an estimate of the cost of terminating a pension plan and buying a group annuity from an insurer to cover the obligations. It therefore uses a different discount rate, one set by PBGC based on a confidential survey of insurers it conducts. This rate has averaged 1.3 percentage points lower than an index of very high quality corporate bonds from 1993 through 2003, (based on Moody’s AA bonds, not option-adjusted).

Importantly, termination liability calculations assume employees and retirees act as they likely would if the sponsor became insolvent. Early retirement rises, shut-down benefits kick in, lump sum payouts may increase, and other actuarial assumptions could be altered.

The relationship between termination liability and current liability is complex, variable, and difficult to estimate. However, many of PBGC’s largest losses were in situations where the current liability was far lower than the termination liability proved to be. For example, Bethlehem Steel was 84% funded on a current liability basis as of the last report before PBGC takeover of the plans. The termination liability turned out to be only 45% funded. The corresponding figures for the US Airways Pilots plan were 94% funded on a current liability basis and 33% based on termination liability.

Accrued liability

The full funding limitation uses an accrued liability calculation. This is similar to current liability, but includes additional items and is therefore higher. The principal change is to calculate “final average pay” pension benefits using expected wage increases over the years until anticipated retirements, rather than freezing the calculation at current wage levels.

How do accounting rules compare with funding rules?

GAAP accounting for pensions, in all its complexity, largely lies outside the scope of this paper. However, several points are worth noting.

Accounting expense is not equal to actual contributions. The correlation between contributions and accounting expense is very weak and one cannot be used as a proxy for the other. The principal accounting effect of contributions is to raise the level of expected investment income, which is an offset to the accounting cost of providing benefits.

Underfunding on one basis is not underfunding on the other. Plans are frequently underfunded for deficit reduction contribution calculations, yet not for accounting, and vice versa. There is no legal requirement to fund simply because GAAP accounting shows a shortfall and, conversely, no accounting requirement to show a net pension liability because of underfunding on some legal basis.

Companies may increase contributions to avoid reporting a net pension liability. GAAP rules make a breakpoint out of the level of “accumulated benefit obligations” (somewhat similar to “current liability”). If assets are maintained above this level, then any shortfall compared to the potentially much higher “projected benefit obligation” remains in the footnotes. Below this point, it becomes a balance sheet liability. Firms are inclined to contribute enough to bring assets above this level.

It may be attractive for firms to borrow and contribute to the pension fund. There are several potential advantages, depending on complex particulars of the company’s situation. First, pension expense is reduced by the expected rate of return on pension plan assets, which is often in the range of 8%. This may considerably exceed the cost of borrowing. Second, it may raise pension assets enough to avoid reporting a net pension liability. Third, it may avoid the need to pay variable rate premiums to PBGC. Fourth, the tax benefits of the contribution show up immediately on the financials. The disadvantages of borrowing may be minimal if stock analysts are already focused on their pension liabilities and view the transaction as merely substituting one liability (debt) for another (pension promises).

Chapter Four: PBGC's Financial Condition

How is PBGC financed?

PBGC is financed by a combination of insurance premiums paid by plan sponsors, pension fund assets assumed along with the liabilities, investment income, and recoveries in bankruptcy. No funds are received from general government revenues.

70% of the \$973 million of insurance premiums in 2003 came from a charge to plan sponsors of \$19 dollars per single-employer plan participant and \$2.60 for multi-employer participants. One reason for the lower multi-employer premium is the significantly lower guarantee level.

The remaining 30% resulted from a variable rate premium charged only to single-employer sponsors with significant underfunding. The charge is \$9 per \$1000 of unfunded vested benefits, however the rules determining whether underfunding counts for this purpose are complicated and exclude many firms that would be charged under a straightforward underfunding test. For example, firms are not charged if they had reached the full funding limit on contributions. (Because potentially very different liability assumptions are used for the two calculations, many firms have been underfunded for variable rate premium purposes and yet subject to the full funding limit, which would impose excise taxes on further contributions.)

Most underfunding falls outside the variable rate premium rules. According to PBGC's 2003 Annual Report, "PBGC estimates that the total underfunding in single-employer plans exceeded \$350 billion as of fiscal year end." If all underfunding counted, the \$350 billion would produce \$3.2 billion in variable rate premium. Instead, analysis of the proposed 2005 budget indicates such premiums are likely to be near \$550 million or 17% of the full figure.

Bankruptcy recoveries from 1975 to 2002 totaled \$1.2 billion, or 12% of the bankruptcy claims asserted by PBGC during that period. This figure should rise as recent bankruptcies bring in some further recoveries. The level of recoveries varies depending on the priority of the particular claims. For instance, general underfunding is given a lower priority in bankruptcy than missed contributions by the sponsor.

How does PBGC invest its funds?

PBGC invests funds in different manners, depending on the origin of those funds. ERISA requires that certain premium income be invested in Treasury securities. The remainder, flat rate premiums beyond \$8.50 per participant and all variable rate premiums, may be invested as PBGC "considers appropriate." Currently, these are invested in Treasury bonds.

Assets taken over from pension plans may be invested in any reasonable manner. PBGC chooses a mix of stocks, bonds, and a modest amount of other investments. The proportions have varied with different PBGC management teams. The actual investment management is delegated to a number of well-known money management firms.

Recently, PBGC announced a new investment policy. It will try to better match its assets and liabilities by increasing its investment in fixed income securities with cash flows similar to its expected payments. As a

result, the portion of invested assets allocated to stocks is expected to decline to between 15% and 25% of its invested assets, down from 37% at the end of fiscal year 2003.

What is PBGC's status in bankruptcy proceedings?

PBGC is effectively the successor trustee for plans it takes over and it acts as a creditor in this capacity. Although there are exceptional circumstances where PBGC has a higher recovery priority, it generally acts as an unsecured creditor, at the bottom of the bankruptcy priority list. As a result, it has recovered only about 12% of its claims.

More complicated circumstances can arise, such as in the recent US Airways case, where the company asserted a lower level of underfunding, based on a higher discount rate, than PBGC asserted under its rules. The bankruptcy court judge ruled that ERISA pre-empts bankruptcy law in this area and therefore PBGC's discount rate assumption applied. This brought the underfunding to \$2.1 billion, well above the \$0.9 billion asserted by US Airways.

What is PBGC's effect on the federal budget?

From 1974 until 1981, PBGC was "off-budget," arguably consistent with having no government guarantee and neither taking cash from nor providing cash to the government (except for investing in Treasury securities). For 1982, it was placed "on-budget" and has remained there.

Prior to fiscal year 2003, PBGC consistently contributed to reducing the federal deficit or enhancing the surplus. The contribution averaged \$584 million per year, with a high of \$1.5 billion in 1993 and a low of \$10 million in both 1983 and 1984. 2003 saw a net outlay of \$229 million, but 2004 is estimated to have returned to a contribution, of \$55 million, and 2005 is estimated at a contribution of \$93 million. The cumulative effect on the federal budget over 22 years was a deficit reduction of \$12 billion, despite its own financials currently showing an \$11 billion hole.

Federal insurance entities, unlike federal lending agencies, remain on a cash accounting basis in the budget. Conceptually, the budget is affected by the net of cash inflows to and outflows from PBGC. However, the assets and liabilities arising from the takeover of a plan by PBGC are maintained separately for these purposes. This yields the counterintuitive result that PBGC's long-term structural problems has produced negative cash flows as counted for budget purposes only once.

PBGC is authorized by ERISA to set up seven "revolving funds" for different purposes and has chosen to operate three of those. For simplicity, we will follow the reporting on the Federal Budget and combine them into one revolving fund for our discussion. The change in this aggregate revolving fund is what enters the federal budget.

The principal factors affecting the revolving fund are:

- All PBGC premiums are credited
- Investment earnings on the revolving fund are credited
- Revolving fund's share of benefit payments are debited
- Revolving fund's share of PBGC expenses are debited

It is worth noting that Congress has required since 1985 that PBGC spend no more on certain administrative expenses than an annual appropriation amount. These funds actually come out of PBGC's own coffers, but Congress maintains control of these expenses by this provision. In practice, Congress has granted sufficient exceptions over time that the GAO reports that only about 5% of all PBGC administrative expenses count for this test.

It is critical to understand how plan takeovers are treated. The assets and liabilities of defined benefit plans that are taken over in a given year do not immediately affect the revolving fund, and thus, do not immediately affect the federal budget. The assets, with their associated liabilities, are maintained in a separate accounting category from the revolving funds. Investment earnings on these assets also remain in this separate category.

The cash drain on the revolving fund occurs as pension payments and expenses are paid each year in regard to the plans that have been taken over. PBGC's practice is to charge the assets of these plans for the proportion of the costs that they can afford to pay while maintaining a stable funding percentage, with the remainder coming from the revolving fund. In essence, if the segregated liabilities are 60% funded by segregated assets, then 60% of the related payments come from the segregated accounts and 40% from the revolving fund.

The net effect is that PBGC can take on a massive net liability, such as the underfunding from Bethlehem Steel, without a commensurate effect on the federal budget. A fraction of each year's pension payments, representing the underfunded portion of the payments, hits the revolving fund and therefore the federal budget.

As a hypothetical example, if a distress termination brought \$2 billion in liabilities and \$1 billion in assets, PBGC's deficit would rise by a billion dollars. However, that year's federal budget would be affected much less. Let us assume that the \$2 billion in liabilities represents payments of \$100 million a year for 20 years and that interest rates are zero, for simplicity. Then, the first year's budget would be hit by \$50 million: the \$100 million in annual pension payments minus the 50% share that the plan assets would cover, based on a 50% funding ratio (\$1 billion in assets divided by \$2 billion in liabilities).

How does PBGC determine its financial position?

PBGC reports its financial position according to Generally Accepted Accounting Principles (GAAP). This includes establishing a liability for "probable losses," which was \$5.2 billion in 2003. These are claims for plans that it believes will be terminated in the future, based on information available as of the end of PBGC's fiscal year. It bases this on applications for distress and involuntary terminations and on insolvencies where no solvent plan sponsor remains to take the pension underfunding. PBGC also determines whether a plan is

“high risk” based on a considerably larger list of risk factors, including the existence of funding waivers, junk bond ratings, and loan defaults. Each high risk plan is evaluated to see if in the PBGC’s judgment it is likely to terminate, in which case it also generates a “probable loss.”

Not all probable losses will materialize. Investment gains can change the funding status, a troubled firm may avoid insolvency, a buyer can materialize that is willing to take over the pension obligations, or an insolvent sponsor may choose not to terminate a plan after all. 17% of probable loss amounts listed from 1987-2001 had not resulted in claims by the end of fiscal 2002.

PBGC also reports an estimate of potential losses from “reasonably possible” future claims. Firms are placed in this category if they meet any of a number of criteria, most of which revolve around a less than investment grade creditworthiness. This figure does not go into the financial statements except as a footnote, but is used by PBGC as a measure of its potential risk. Reasonably possible losses in 2003 were judged to be \$86 billion.

Where did the \$19 billion go?

PBGC is in a highly cyclical “business,” if we may use the term. It provides a form of credit insurance to companies, since it usually does not take over a plan unless the sponsor is insolvent. The general business cycle produces many more corporate bankruptcies in recessions than in good times. A strong economy covers most mistakes, while a deep recession finds many weaknesses.

Further, weak economies are often accompanied by falling stock markets (which increase the value of plan assets) and falling interest rates (which increase the discount rate and lower the present value cost of future payments). There would be little effect if pension funds were entirely invested in high-quality bonds with maturities matching the future payments. (See “What is asset/liability matching?”). However, the average pension plan had 63% of its assets invested in stocks at the end of 2003.

Defined benefit underfunding sharply expanded from approximately \$160 billion at the end of fiscal 2001 to over \$350 billion at the end of fiscal 2003, according to PBGC, as a result of swings in the financial markets. The S&P 500 stock index fell by 1% and the discount rate used by PBGC to calculate its present value cost of future benefit payments (by far its biggest liability) fell from 6.70% to 4.40%.

Bankruptcies of PBGC-insured firms rose significantly at the same time as pension trusts were increasingly reliant on contributions from solvent sponsors to achieve full funding. The combination produced a record level of \$14.7 billion of underfunding in plans taken over by PBGC in 2002 and 2003. Bethlehem Steel alone accounted for \$3.6 billion.

Further, PBGC’s investments were exposed to the same trend of falling stock prices and falling interest rates that affected corporate pension plans, since it held 30% of its assets in stocks at the end of fiscal year 2001. Investment income of \$3.7 billion over the two years did not fully offset an increase in the present value of the liabilities of at least \$5.9 billion due to lower discount rates.

GLOSSARY

Accrued (actuarial) liability: An actuarial valuation, used for the funding standard account, of the present value of the future benefits accrued in a plan. It is calculated using actuarial assumptions, selected by the plan's actuary, that must be reasonable individually and in the aggregate. Depending on the funding method used, these liabilities may reflect only the benefits accrued to date or may reflect the projected liabilities for the current population of participants given assumptions about compensation growth and expected retirement ages. It is the basis for one measure of the full funding limit.

Actuarial assumption: Technical assumptions that are the basis for actuarial calculations. Examples include estimated life expectancies, retirement dates, and discount rates.

Actuary: A statistician who estimates characteristics, such as lifespans and retirement ages, of individuals and groups eligible for pensions or insurance.

Asset/liability matching: The technique of choosing investments to match the expected cash inflows to a set of future cash outflows.

Benefit accrual: The additional benefit earned with the passage of time, and possibly with an increase in salary.

Cash balance plan: A defined benefit pension plan that bases benefits on hypothetical individual accounts. Contributions to the accounts are usually based on current pay levels. The balance also grows based on interest credits. It is a common type of hybrid pension plan.

Cash flow: A cash payment or receipt, now or in the future.

Contribution waiver: A waiver granted by the IRS that allows a plan sponsor to defer a pension contribution from the present year and to spread the payments over the next five years. ERISA defines fairly restrictive conditions for granting a waiver. Interest is charged and the IRS may require collateral.

Current liability: An actuarial valuation of the present value of the future benefits accrued in a plan to date, using procedures specified by ERISA and the Internal Revenue Code. It is calculated using a specified mortality table and an interest rate selected from a narrow range of rates. Current liabilities are used to determine if the plan's sponsor owes a deficit reduction contribution. It is also the basis for a measure of the full funding limit.

Deficit reduction contribution: An additional pension contribution beyond that required by the funding standard account, due from plan sponsors of certain underfunded pension plans. Only single-employer plans with more than 100 participants are subject to the deficit reduction contribution requirement.

Defined benefit pension plan: A pension plan that promises participants a specified monthly benefit at retirement, without reference to actual investment returns. Participants may have the option to exchange the monthly payments for a lump sum payment.

Defined contribution pension plan: A pension plan with individual accounts where the amount ultimately paid to the exiting employee is based on the level of contributions plus or minus actual investment returns.

Discount rate: The interest rate used to calculate a present value.

Distress termination: A company-initiated termination of an underfunded defined benefit pension plan according to rules laid out in ERISA. The plan sponsor must be in severe financial trouble and is often in bankruptcy.

Early retirement benefit: A pension benefit received by someone who retires before the retirement age defined in a pension plan as normal. In many plans, the early retirement benefit is subsidized. That is, the present value of the early retirement benefit is greater than the present value of the benefit that would be received if the employee retired at normal retirement age.

ERISA: The Employee Retirement Income Security Act of 1974. The basic federal law that, along with the Internal Revenue Code, governs employee benefits. It generally pre-empts state laws in this area.

Final average pay formula: A formula to determine benefits in many defined benefit plans. The annual benefit is equal to the employee's highest compensation averaged over a specified number of years, multiplied by both years of service and an accrual rate per year of service.

Final determination of benefits: The final determination by PBGC of the amount of benefits owed to a retiree under a plan taken over by PBGC. The complexity of rules on guarantee limits and priority of payments forces PBGC to pay an estimated benefit for some time after taking over a plan. After the final benefit determination is made, PBGC makes up any shortfall in estimated payments in a lump sum payment that includes accumulated interest. Any overpayments are recouped (without interest) by temporarily reducing future benefit payments.

Flat-rate PBGC premium: A per participant premium charged to all insured single-employer and multi-employer pension plans. The rate for single-employer plans is \$19 per participant and the rate for multi-employer plans is \$2.60 per participant.

Full funding limit: The upper limit on the amount a sponsor can contribute to a pension plan without incurring an excise tax penalty.

Funding standard account: The "account" that is used to determine the level of required contributions by pension funds that are not subject to the deficit reduction contribution requirements.

GAAP: Generally Accepted Accounting Principles, the rules under which accounts must be kept for most private sector bookkeeping. PBGC reports under GAAP, as do certain other public entities.

Hybrid pension plan: A defined benefit pension plan that attempts to mimic many aspects of a defined contribution plan.

Involuntary termination: A PBGC-initiated termination of an underfunded defined benefit pension plan, following procedures laid out in ERISA. PBGC must involuntarily terminate a plan if it is unable to pay benefits when due and *may* terminate a plan if it determines the underfunding in the plan will increase unreasonably if the plan is not terminated.

Lump sum payment: A single payment to a departing employee in lieu of monthly pension benefits in retirement. It is calculated as the present value of the employee's entire accrued pension benefit.

Multi-employer insurance program: The PBGC insurance program for pension plans that are established pursuant to a collective bargaining agreement between employees and two or more unrelated employers.

Net present value: The sum of the present values of a stream of future payments and an associated stream of future revenues, both discounted using the same discount rate.

Off budget: An account that does not directly affect the calculation of the federal government's deficit or surplus.

On budget: An account that directly affects the calculation of the federal government's deficit or surplus.

Participant: Someone who is or may become eligible to receive a benefit from a pension plan. Participants include current employees, former employees with vested benefits, retirees collecting benefits, and beneficiaries of deceased vested employees.

PBGC Put: A slang term for the historical ability of plan sponsors to shed their pension obligations in exchange for turning over 30% of their net worth to PBGC. The term is sometimes still used, although the actual rules for turning obligations over to PBGC are far more stringent now.

PBGC's maximum single-employer benefit guarantee: The maximum amount that PBGC, by law, can pay as an annual pension benefit to a retiree from an underfunded single-employer plan that has been taken over by PBGC. The effective cap is lower for those retiring prior to age 65. However, if the plan has sufficient assets, some retired participants may receive benefits higher than this guarantee level. Also, if PBGC recovers assets from the plan's sponsor in bankruptcy proceedings, some participants may receive benefits that exceed the guarantee.

Pension trust: A trust fund set up under local trust law to receive contributions from the plan sponsor, invest plan assets, and pay pension benefits to plan retirees and beneficiaries.

Plan amendment: A legal change to the terms of a pension plan.

Plan freeze: The cessation of the crediting of new pension benefits to employees based on additional years of service, without termination of the pension plan. In a "soft freeze" benefits may still rise in final average pay plans if salaries rise. In a "hard freeze" benefits do not rise at all.

Plan sponsor: An employer who establishes or maintains a pension plan for its employees.

Plan termination: The ending of a defined benefit pension plan according to procedures prescribed by ERISA.

Prefund: To put aside money in advance of the need for payment.

Present value: The value in the present day that is economically equivalent to one or more payments in the future. The present value is determined by discounting the future payments using a specified discount rate.

Probable loss: A loss from an underfunded pension plan that PBGC determines is likely to terminate in the future.

Reasonably possible loss: A potential loss from an underfunded pension plan of a sponsor experiencing financial problems. However, this will be recorded instead as a probable loss if PBGC believes the sponsor's financial condition is so grave that it will have to terminate the plan in the foreseeable future.

Revolving fund: An account whose assets are replenished as they are used. For example, a revolving loan fund would make new loans using the receipts from repayments of old loans.

Shutdown benefit: A supplemental or early retirement pension benefit in some collectively bargained plans that only becomes available if a plant or an entire company closes down.

Single-employer insurance program: The PBGC insurance program that covers insured defined benefit plans that do not fall into the Multi-employer program.

Standard termination: A termination of a well-funded defined benefit plan according to rules laid out in ERISA. The plan sponsor arranges for an insurer to take over all pension obligations except those where the employee or retiree chooses to take a lump sum payment from the pension plan.

Survivor benefits: Pension benefits paid to the named beneficiary of a deceased vested participant.

Tax-qualified: An employee benefit plan meeting certain criteria under the Internal Revenue Code. Such plans generally qualify for a series of tax advantages, such as tax-deferred build-up on assets in a pension fund.

Termination liability: The estimated cost of terminating a pension plan and buying a group annuity from an insurance company to cover all pension obligations.

Variable rate PBGC premium: An insurance premium charged to underfunded single-employer plans by PBGC of 0.9% of pension underfunding. Under certain conditions, an underfunded plan is exempt from paying the variable-rate premium.

Vesting period: A period of employment that must pass before a new participant in a pension plan earns a non-forfeitable right to benefits accrued under the plan.

Withdrawal liability: The obligation of a withdrawing sponsor from a multi-employer plan to pay its share of the unfunded vested benefits as of the time of its withdrawal.