The Economics of Pension Insurance

Richard A. Ippolito
Chief Economist
Pension Benefit Guaranty Corporation

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CHAPTER 6

Pricing Solutions

There are two basic approaches to reforming the Pension Benefit Guaranty Corporation. The first, and the one addressed in this chapter, is to leave the current insurance contract intact and to simply change the pricing structure to reflect the risk and exposure affiliated with the contract. The second is to alter the terms and conditions of the contract to make its expected costs consistent with the existing price structure. These issues are discussed in Chapters 7 and 8. While the optimal (and politically feasible) reform package likely will combine parts of both approaches, the exposition is facilitated by separate presentations.

To illustrate various pricing ideas, I will discuss the pricing structure actually proposed to Congress by the PBGC in 1987. It provides a framework to compare the pricing scheme actually enacted, which was based in principle on the PBGC proposal, and an opportunity to discuss pricing concepts not incorporated in final legislation. These pricing structures are compared to an estimated risk and exposure pricing scheme that might actually operate in a private insurance market.

INSURANCE PRICING PRINCIPLES

If the pension insurance contract were issued by private insurers, the current fixed price structure would not survive. As in any other area of insurance, a private pension insurer would set prices in relation to risk and exposure. If a house is worth $100,000 and the probability of destruction by fire is 1 percent per year (assume fires are always completely destructive), then the insurance policy will cost $1,000 per year (ignoring the cost of writing insurance, or the load factor).

Pension insurance resembles renewable term life insurance more than fire insurance. If an insured is stricken by cancer and is ill three years prior to death, the price of the renewable term life insurance policy is not increased during these three years. The contract assumes that some warning will often be available prior to death. To raise the price to reflect "higher risks" shortly before death is akin to having no insurance.

In pensions, it is similarly assumed that firms will experience a deterioration of financial health before they fail. Thus, because pension contributions may be more difficult to make during this stage, exposure may be expected to increase prior to firm failure. The control of the amount of defunding prior to failure, and the definitions of failure itself, of course, must be specified in the contract (the subject of Chapter 10).

Presumably, a renewable term contract will be written each year where the premium will depend on a firm's risk classification at the initial date of the contract. This price will vary with the overall pension loss experience of the insurer, but it will not be altered on a firm-specific basis just because some firms begin to experience financial difficulty.

Suppose the probability of termination for all firms is Q and the *relative* termination probability of a particular firm is q. Let L denote guaranteed benefits per worker and F denote the current funding ratio (assets divided by guaranteed benefits). Ignoring the costs of operating the insurance company, the per-participant premium level chosen by the insurance company for a particular firm is

$$P = qQ\,\text{Max}[0, 1 - (F - g)]L \qquad q \geq 0 \qquad (6\text{–}1)$$

where g is the percentage amount by which the existing funding ratio will deteriorate prior to a failure event (failure events were discussed in Chapter 5). The term qQ represents the *risk factor*; the remaining terms represent *exposure*.

Thus, if the probability of default for this firm, qQ, is 1 percent, the existing funding ratio (F) is .9, and the funding deterioration factor (g) is .2, then exposure equals .3L [that is, $1 - (F - g) = 1 - (.9 - .2) = .3$]. Thus the premium level is .3 of 1 percent times liabilities. If liabilities per participant are $30,000, the annual premium is $90 per participant. If, on the other hand, the funding ratio exceeds 1.2, then exposure (after accounting for defunding) is zero and the premium is zero regardless of the probability of default.

Over time, the premium will vary directly with exposure. Therefore, as the funding level falls, premiums generally will increase because insureds with past exposure will have more exposure, and those previously showing no exposure will more likely fall below the funding threshold (in this example, 1.2). Similarly, as liabilities in-

crease (due to increases in wages and plan maturity), premiums also generally will increase.

The insurance company will vary its overall rates as its overall termination experience (Q) changes. It will not, however, change the initial risk assessment parameter (q) for individual plans (subject perhaps to certain conditions, such as that the insured does not change its nature through merger or acquisition, just as life insurance prices will change if the insured becomes a race driver).

It is useful to obtain some feel for the magnitude of the parameters reflected in premium Equation (6–1).

Probability of default, *Q*. The per annum probability that a worker covered by a defined benefit pension will also be in an insufficient termination is approximately 1.2 per 1,000 based on the first 12 years of the PBGC's history and almost 4.0 per 1,000 based on the experience between 1982 and 1986. Of course, the probability of default is not constant across firms; that is, the values of q in Equation (6–1) are not all equal to unity. Recall from Tables 3–4 and 3–5 that after the LTV termination, 80 percent of the PBGC's liability was attributable to terminated plans from the steel industry; and prior to this event, almost two thirds of claims were attributable to the steel and auto industries. Fully 95 percent of claims were affiliated with plans covering union participants.

Funding deterioration, *g*. Based on a study reported below, the amount of funding deterioration prior to termination, g, is roughly 50 percentage points. This matter is discussed in greater detail in Chapter 7.

Funding ratios, *F*. The distribution of funding ratios (where liabilities are adjusted using PBGC interest rates) is shown in Table 6–1. Almost 80 percent of plans were fully funded in 1986; the average funding ratio was 124 percent. It is apparent from the table that the majority of firms do not impose much exposure to the PBGC.

This distribution, of course, would vary for different years. Table 6–2 shows the portion of participants in overfunded plans from 1978 through 1986. While roughly 80 percent of plans were overfunded from 1983 to 1986, only approximately 50 percent were overfunded in 1978 and 1979.

Liability levels, *L*. Pension liabilities per insured (vested liabilities per vested worker, adjusted to PBGC interest rates) are shown in Table 6–3. The average pension liability per worker is $35,183, but there is great variance in this distribution. Approximately one in three insureds have benefits less than $20,000; roughly one in five have benefits in excess of $50,000 (see column 1). The liability distribution for selected industry groups is also shown in columns 2 through 5.

Average steel industry benefits are $53,925, and those in the automobile industry are $48,296. The industry groups with the highest and lowest benefit levels are petroleum ($60,970) and services

TABLE 6–1 Funding Ratios, 1986

Funding Ratios	*Participants*	*Plans*
0–24%	0.4%	0.2%
25–49	2.9	2.6
50–74	8.4	6.6
75–99	11.8	12.6
100–124	17.9	17.3
125–149	18.6	17.8
150+	39.8	42.9
Total	100.0%	100.0%

Average: 124%

Note: Numbers in this table depict estimated funding levels in single-employer defined benefit plans in 1986. They are projections based on actual 1984 funding ratio distributions from the 5500 annual reports, adjusted to 1986 using Wyatt Company published numbers for 1985 and 1986, converted to PBGC interest rates, approximated by 7.25 percent.

All numbers reflect vested active participants and retirees only; nonvested workers are not included.

($15,902). Higher benefit levels reflect more generous benefit formulas, earlier ages of retirement with full (or subsidized) benefits, and larger portions of older workers in the plan who have lots of service credits, with payments due soon in the future.

PBGC PROPOSAL FOR PRICING REFORM

In 1986, the PBGC described a new framework for pricing its insurance. The proposal was published in a report entitled *Pension Promises at Risk* and concurrently submitted as legislation to Congress. This proposal became the basis for legislation actually enacted in December

TABLE 6–2 Percent of Participants in Overfunded Plans, 1978–1986

	Funding Ratios		
Year	*100–124%*	*125% or More*	*Total*
1978	25.5%	26.0%	51.5%
1979	25.8	20.9	46.7
1980	22.9	44.1	67.0
1981	14.1	64.2	78.3
1982	14.2	65.6	79.8
1983	13.4	69.9	83.3
1984	10.1	76.0	86.1
1985	11.7	72.9	84.6
1986	16.3	61.7	78.0
Average	17.1	55.7	72.8

Note: Funding ratios are calculated on a termination basis, using PBGC close-out rates.

SOURCE: See Appendix A to book, Table A–7.

TABLE 6–3 Pension Liability per Insured: Selected Industries

Level	*Total* (1)	*Steel* (2)	*Auto* (3)	*Petroleum** (4)	*Services** (5)
Under $10,000	13.7%	2.2%	1.8%	1.2%	37.8%
$10,000–20,000	16.9	2.8	4.3	3.5	42.1
$20,000–30,000	13.6	2.1	2.0	7.0	10.2
$30,000–40,000	17.0	2.8	28.1	8.7	3.9
$40,000–50,000	17.7	12.1	42.1	9.8	3.9
$50,000–60,000	8.0	38.1	4.1	23.5	1.1
$60,000–70,000	5.8	37.6	0.0	20.5	0.2
Over $70,000	7.4	2.4	17.7	25.9	0.9
Average liability per insured	$35,183	$53,925	$48,296	$60,970	$15,902

Note: Numbers are percent vested participants.

* Petroleum and services are the highest and lowest benefits industries, based on industrial groupings with at least $10 billion in vested liabilities. Liabilities are normalized to a 7.25 percent PBGC interest rate.

SOURCE: 1984 Form 5500 Annual Pension Plan Report data, projected to 1986.

1987, described briefly in Chapter 5 and in more detail later in this chapter.

The PBGC proposal did not replicate the premium structure in Equation (6–1). Instead, it proposed the following structure:

$$P^* = \$8.50 + Q^* \text{ Max}[0, 1 - (F - g^*)L$$
$$P^* \leq \$100 \qquad (6\text{–}2)$$

Equation (6–2) differs from (6–1) in two notable ways. First, the PBGC proposal does not account for different probabilities of default among firms; it sets all values of q as equal to unity. Thus, the PBGC proposal is not a risk-related premium but rather an exposure premium.

Second, the PBGC proposal sets a maximum price equal to $100. Because these constraints distort efficient prices, a constant factor $8.50 is added partly to provide subsidies to those paying less than market rates; and the overall default probability (Q) is increased to Q^* for the same reason.

More particularly, the constant term $8.50 accommodates roughly a $4.50 contribution to amortize the deficit at the time of the proposal (approximately $4 billion), plus $1 to cover expenses of operating the PBGC. The remaining $3 is a cross-subsidy to firms that provide exposure to the corporation. Chapter 4 indicated that the PBGC's best estimate of future claims, plus amortization of the existing deficit (in real terms over 30 years), required an average premium (P^*) equal to approximately $25, indexed to wages. The value of the funding deterioration parameter (g^*) was not determined empirically but rather

was arbitrarily set at .25. This provides all the constraints necessary to determine the value of Q^* in the equation.

The formula was applied across the funding ratios and liability levels reflected in Tables 6–1 and 6–3, subject to the minimum and maximum premiums. The proposal set a 25 percent *cushion* in reported funding levels (liabilities were evaluated at PBGC interest rates); thus all firms with greater than 125 percent funding paid $8.50, and the rest paid $8.50 plus some funding charge. To generate roughly $25 in average premiums, a value of Q^* equal to .006 was required. The assessment on underfunding was $6 per $1,000 of the sum of underfunding plus the cushion amount.

The distribution of premiums generated by this rate structure is shown in Table 6–4. Roughly 60 percent of the plans and participants paid the minimum premium of $8.50; these plans had funding ratios in excess of 125 percent. Roughly 5 percent of the plans representing 8.5 percent of the participants paid the maximum amount, $100. Among the latter group are subsidies from two sources: first, holding risk assessments constant, these firms do not pay premiums in proportion to exposure; and second, like many firms paying some exposure charge, they likely receive another subsidy because differential risks of default are not assessed. (Of course, some firms paying a funding charge are paying too high a premium because their relative default probability (q) might be less than one—more on this below.)

Table 6–5 shows the same distribution when the $100 maximum premium restriction is eliminated. Almost 1 percent of participants would belong to plans assessed a premium of $300 or more. Fully 54 percent of the premium would be paid by those currently facing the maximum amount; when the $100 maximum applies (Table 6–4), this group pays only 39.8 percent of total premiums. In either case,

TABLE 6–4 Schedule of Premiums: PBGC Proposal

Premium Level	*Premiums*	*Participants*	*Plans*
$8.50	20.9%	60.7%	60.4%
$8.51–20.00	7.8	15.0	15.2
$20.01–35.00	6.2	5.7	8.3
$35.01–50.00	8.1	4.2	4.6
$50.01–75.00	8.3	3.5	4.2
$75.01–99.99	8.3	2.3	2.4
$100.00	39.8	8.5	4.7
Average premium	$25.64		

Rate schedule: $6 per $1,000 in underfunded vested liabilities for funding levels below 125 percent; $8.50 minimum and $100 maximum premiums in 1986 dollars.

Numbers depict participants in plans with 100 or more participants.

SOURCE: 1984 Form 5500 Annual Pension Plan Reports, projected to 1986.

TABLE 6–5 Schedule of PBGC Premiums with No Maximum

Premium Level	*Premiums*	*Participants*	*Plans*
$8.50	16.2%	60.7%	60.4%
$8.51–20.00	6.0	15.0	15.2
$20.01–35.00	4.8	5.7	8.3
$35.01–50.00	6.3	4.2	4.6
$50.01–75.00	6.4	3.5	4.2
$75.01–99.99	6.4	2.3	2.4
$100–199.99	22.0	4.5	3.2
$200–299.99	22.5	3.2	.8
$300.00+	9.5	.8	.4
Average premium	$31.30		

Rate schedule: $6 per $1,000 in unfunded vested liabilities for funding levels below 125 percent; $8.50 minimum and no maximum.

SOURCE: 1984 Form 5500 Annual Pension Plan Reports, projected to 1986.

well-funded plans (funding ratio at least 125 percent) pay approximately 20 percent or less of premiums, even though they represent 60 percent of participants.

As a way to move gradually from the distribution in Table 6–4 to the distribution shown in Table 6–5, the proposal indexed the minimum amount to changes in the social security wage base and the maximum amount to 1.5 times these changes. Thus, if wages increase by 5 percent, the maximum premium would increase by 7.5 percent. This ultimately would generate an average real premium approaching $31.30, compared to $25.64 in 1986. Other features of the proposal are reported in the appendix to this chapter.

COMPARISON TO MARKET RATES

The PBGC legislative proposal represented an important step in the direction of matching premiums and exposure. Because the proposal imposed a maximum rate of $100 ($300 in real terms in the long run), the cross-subsidy in a flat rate system would be substantially reduced. This does not mean, however, that the proposal reflected a rate structure that would exist in a private insurance market. In a private scheme, rates would account for default risk and would not be capped.

In an exposure-related scheme, firms having high exposure levels (attributable to low funding ratios and/or generous benefits) and high default risk still receive subsidies. Firms with high exposure but low default risk pay substantial taxes in the scheme.

In a private insurance market, insurance carriers try to estimate risks across classes to more accurately align premiums and risky exposure. Subsequent to the announcement of the proposal, Jack VanDerhei of the Wharton School was asked by the PBGC to do a study

of the PBGC's proposed rate structure compared to one that might be freely established in the private market. His results are discussed in a report entitled *An Empirical Analysis of Risk-Related Insurance Premiums for the PBGC*, which was completed in 1988.

Estimation of Market Rate Structure

In essence, the VanDerhei study undertook the task of estimating the parameters in Equation (6–1). To do this, he merged the PBGC database (which incorporated information on all pension terminations from 1981 through 1986) with the Annual Form 5500 Pension Plan Report tapes for the years 1980 through 1984. These, in turn, were matched against Compustat tapes, which incorporated financial information for plan sponsors. These data were used to estimate the probability of termination as a function of plan and financial characteristics. The default model is discussed in more detail in Chapter 10.

To calculate exposure in 1985 (the year for which market rates were applied in this model), the study calculated underfunding using the 1984 Form 5500 Annual Pension Plan Reports and converted liabilities to the PBGC immediate annuity rate. VanDerhei estimated the portion of defunding prior to termination (denoted by the parameter g) by measuring funding deterioration in PBGC-terminated plans with data up to five years prior to termination. His estimate of g was 50 percentage points (more detail on this finding is given in Chapter 7). Thus, any firm with a funding ratio in excess of 150 percent escaped any risk-related charges. The average funding ratio (measured on a termination basis) was approximately 160 percent for the entire sample of defined benefit pension plans.

To derive the premium for each plan in the sample, VanDerhei estimated the probability of termination based on a model that incorporated the firm's financial plan characteristics, its industry affiliation, and union status of its workers. (This model is discussed in Chapter 10.) This default probability was multiplied by the exposure provided by the plan, defined to include underfunding on a termination basis, inclusive of the cushion amount. The estimated premiums do not reflect insurance expenses or amortization of the existing PBGC deficit. Table 6–6 presents the results.

The estimated risk premium is $65.59 for the average participant. Over two thirds of the participants escape a funding charge because their effective exposure to the PBGC is zero. Approximately 20 percent of the participants pay premiums above $100 (rows 1 and 2), but these account for over 95 percent of the aggregate risk premiums (last column, row 3). Participants in plans paying premiums in excess of $100 pay an average premium of $328 (roughly 7 percent of all participants in the sample pay a premium in excess of $200).

TABLE 6–6 Risk- and Exposure-Related Market Premiums, 1985

Category	*Total*	*$0.00*	*$10*	*$25*	*$50*	*$75*	*$100*	*Over $100*
Estimated market prices								
1. Plans	665	62.4%	15.9	4.2	3.4	2.8	1.5	9.6
2. Participants	2.4m	68.1%	6.2	2.5	1.2	2.0	0.6	19.0
3. Premiums	$157.7m	0.0%	0.1	0.6	0.7	2.0	0.9	95.4
4. Exposure*	$4,644	0.0	5,436	2,802	5,196	8,258	13,506	31,603
5. Default risk† per plan	9.8	7.5	3.0	8.7	9.8	14.8	9.6	34.8
6. Default risk† per participant	12.1	10.1	2.8	8.4	7.7	9.7	7.5	23.2
7. Average risk premium	$65.59	0	1.32	16.15	39.75	64.41	89.94	328.99
PBGC proposal								
8. Percent cross-subsidy	0%	N/A‡	−1,718%	−0.5	42.3	52.0	−90.5	18.2

* Per participant; includes a cushion for pre-termination defunding.

† Per 1,000.

‡ Because plans in the zero-risk premium category pay no risk premium, the amount of subsidy, divided by zero, is undefined. The cross-subsidy paid by this group is $10.

SOURCE: Jack VanDerhei, *An Empirical Analysis of Risk-Related Insurance Premiums for the PBGC*, final report submitted to the PBGC, 1988.

The numbers in rows 4 and 6 provide the underlying explanation for the rate structure. Among plans in the lowest rate class (less than $10), exposure per participant is $5,436, and the annual default risk is 2.8 per 1,000 participants. Among plans in the highest rate class (over $100), exposure per participant is $31,603, and default risk is 23.2 per 1,000 participants.

The results are shown visually in Figure 6–1, (*a*) and (*b*).

Comparison to the PBGC Proposal

VanDerhei applied the PBGC's proposed rates to the plans in his sample. In this exercise, he netted out the portion of the $8.50 fixed charge attributable to expenses and amortization of the existing deficit, leaving roughly a flat cross-subsidy $3 assessment per participant. The average premium under the proposal is $65.59 in his model. This is in comparison to the $20.14 ($25.64 minus $5.50 for expenses and amortization) implicit in the PBGC proposal.

The differences in the numbers are dramatic: VanDerhei's average price is over three times the average PBGC-estimated required premium. There are at least two important reasons for this difference. First, VanDerhei estimates that the required cushion to protect against defunding is 50 percentage points; the PBGC made the assumption that a 25-percentage-point cushion was adequate. Using a 50 percent cushion, the PBGC average premium increases over 60 percent.

Second, VanDerhei's default probabilities are derived exclusively from terminations during the 1980s. The PBGC estimate gave some weight to the much smaller probabilities observed during the 1970s. The numbers from the sensitivity analyses of the PBGC premium estimates show that if based solely on experience in the 1980s, the required exposure portion of the premium would have been 40 percent higher.[1]

Adjusting for these factors, VanDerhei's estimate is still 40 percent higher than the PBGC estimate. This could be attributable either to the nature of the sample in the VanDerhei study or to an implicit trend in his underlying bankruptcy variables.[2]

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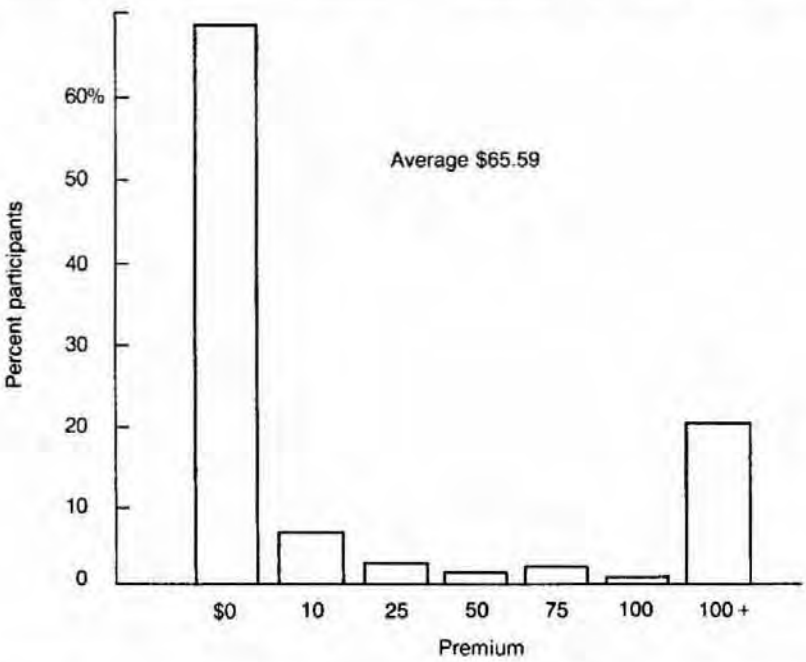
[1] Other differences include the following: VanDerhei (1) estimated prices based on 1984 data, not 1986, (2) adjusted liabilities to different PBGC interest rates (owing to different time periods), and (3) performed estimates based on a relatively small sample that is not necessarily representative of all defined benefit plans.

[2] VanDerhei's sample consisted only of pension plans that had sponsors' data reported on the Compustat tapes and thus was relatively small in comparison to the universe of pension plans. In addition, to the extent that financial variables exhibited less financial soundness in 1985 (the year of his pricing exercise), compared to earlier years in the 1980s, his method would produce higher default probabilities than the PBGC model, which took no account of trends.

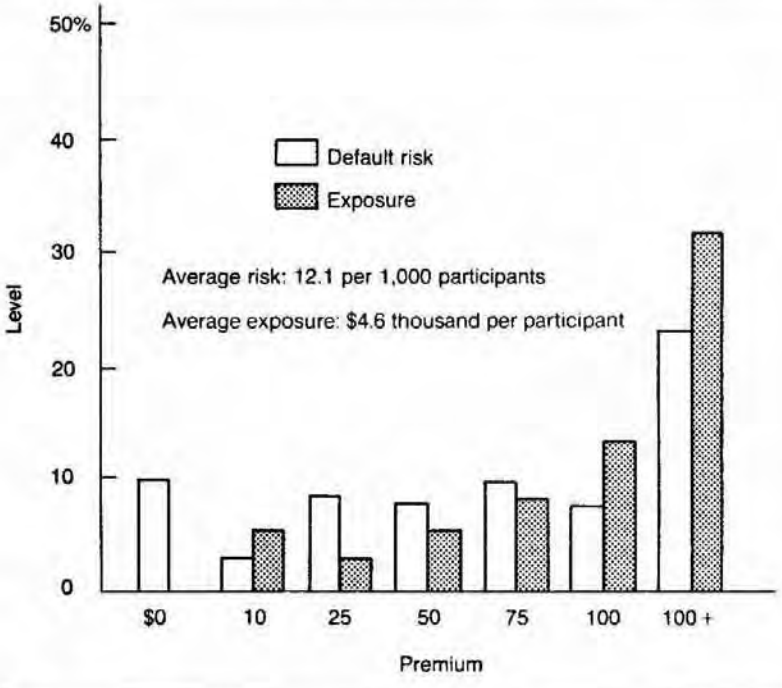
FIGURE 6–1 VanDerhei Study, Part (*a*) Estimated Market Premiums, 1985



Aside from levels of premiums, the comparison has some interesting findings for the distribution of premiums. This is an important comparison because the PBGC pricing scheme ignores default risk, while VanDerhei's structure does not. Row 8 in the table summarizes these results. To estimate cross-subsidies, VanDerhei assumes the PBGC would increase the minimum and maximum charges as well as the funding charge proportionately so as to generate his $65.59 average premium. Thus, both hypothetical price structures are set up to generate the same revenue. His numbers show that all plans with zero exposure in the estimated market price structure would pay roughly $10 per participant as a subsidy to all other plans (this is in addition to any amount required to cover expenses and retire the existing PBGC deficit).

The remaining numbers in the table show that a PBGC-like proposal that generated $65.59 on average, generally awards a cross-subsidy from plans that otherwise pay a low market price to those that would pay the highest market rates. For example, plans that would pay premiums between $25 and $50 in VanDerhei's pricing structure are awarded a cross-subsidy in the PBGC-like pricing scheme equal to 42 percent of their market rates. For plans that otherwise would pay market rates $0–$10, however, they would be assessed taxes equal to

FIGURE 6–1 VanDerhei Study, Part (*b*) Exposure and Default Risk



1,700 percent of their market rates. (Oddly $75–$100 plans are also taxed: This is because these plans in general are assessed too much for exposure in relation to the actual risk they pose to the PBGC.)

The biggest gainers from the subsidized rates under the PBGC proposal are those that would pay the highest rates in a private market. While the average market rate in the over-$100 price category is $753 ($328 weighted by all participants in the over-$100 category), the rates for some plans are much higher. A list of the top rate payers in VanDerhei's sample is given in Table 6–7. Rather than identify plan sponsor names, I listed their industry affiliation. Thus five plan sponsors are steelmaking firms, one is an airline, etc. Eleven firms sponsoring 19 plans out of 665 plans priced in the sample (with at least 100 participants) would have paid at least $500 per participant per year in a free market structure. Eight of these plans (five firms) were affiliated with steel and related industries.

The VanDerhei study is merely suggestive. Actual private-sector prices might be based on different risk models. And, while defunding prior to termination was rampant prior to 1987, there is reason to believe that the Pension Protection Act at least will be more successful in restricting this potential in the future (see Chapter 8). The study does

TABLE 6–7 Market Rates for Selected High-Risk Firms

Pension Plan Sponsor Name	*Industry Affiliation of Pension Plan Sponsor*	*Participants*	*Annual Premium* per Participant*
A.	Steel	9,379	$7,068
B.	Steel	730	1,150
C.	Steel	612	1,003
D.	Steel	2,925	701
E.	Steel	847	588
F.	Airlines	110	2,021
G.	Malt breweries	309	958
H.	Sugar refining	167	880
I.	Chemicals	1,861	758
J.	Rubber	2,743	601
K.	Electronic equipment	475	504

* Data for this column taken from Jack VanDerhei, *An Empirical Analysis of Risk-Related Insurance Premiums for the PBGC*, final report submitted to the PBGC, 1988.

show, however, that private-sector prices would likely be markedly different than those in the PBGC proposal.

While a market price structure undoubtedly would be more effective in reducing cross-price subsidies, I will suggest in Chapter 9 that the use of an unrestricted risk model does have some downside potential for overall economic efficiency.

PROVISIONS OF THE 1987 LEGISLATION

The pricing structure actually adopted in the Pension Protection Act of 1987 was modeled after the PBGC proposal, but it turned out to be significantly different in many important respects.

A comparison of the new rate structure and the PBGC proposal is given in Table 6–8. Both rate structures share the $6 funding charge. The new law, however, has no funding cushion (the defunding parameter (g) is set equal to zero). The minimum charge was increased from $8.50 to $16; the maximum was reduced from $100 to $50. There was also no provision for indexing the minimum and maximum rates, no automatic adjustment mechanism to reflect claims experience, and no special surcharges to reflect special unfunded shutdown benefits. In general, the rate structure resembles a flat rate structure more than one related to exposure.[3]

[3] For the sake of comparison to the rate formula given in Equations (6–1) and (6–2), the rate schedule actually enacted is described as follows:

$$P' = \$16 + .006 \text{ Max } [0, 1 - F]L$$
$$P' \leq \$50$$

TABLE 6–8 Comparison of PBGC Proposal and Legislation

Provision	*PBGC Proposal*	*New Law*
Minimum charge	$8.50	$16.00
Maximum charge	$100.00	$50.00
Funding charge (FC)*	$6.00	$6.00
Funding cushion	25%	None
Amount subject to FC before maximum†	$82.3 billion	$32.7 billion
Amount subject to FC after maximum‡	$62.1 billion	$18.4 billion
Indexing of minimum	Yes	No
Indexing of maximum	Yes§	No
Surcharges		
Waivers	Yes	No
Unpaid contributions	Yes	No
Shutdown benefits	Yes	No
Rate adjustment mechanism	Yes	No
Average premium	$25.64	$20.50

* Under the new law, plans can receive discounts up to $15 if they have been funding at the maximum amounts permitted by law.

† The exposure subject to the funding charge is greater under the PBGC proposal because of the 25 percent funding cushion; there is no cushion used in the pricing structure actually enacted.

‡ The imposition of a maximum premium effectively exempts a portion of exposure from the funding charge.

§ Indexed to 1.5 times wage growth.

The premium distribution for the new rate schedule is given in Table 6–9. In the new structure, plans in the minimum-charge category pay 56.6 percent of premiums; those in the $50 category pay 26.2 percent of premiums. In the PBGC proposal, these percentages were essentially reversed (see Table 6–4): those paying the minimum accounted for 20.9 percent of premiums, and those paying $50 or more accounted for 56.4 percent of revenues. Thus, the subsidies in the PBGC proposals are higher in the law actually enacted.

The elimination of the funding cushion in the new law sets up a

TABLE 6–9 Schedule of PBGC Premiums: Pension Protection Act

Premium Level	*Premiums*	*Participants*	*Plans*
$16.00	56.6%	76.2%	77.8%
$16.01–35.00	10.7	9.2	13.1
$35.01–49.99	6.1	3.1	3.5
$50.00	26.2	11.2	5.4
Average premium	$20.50		

SOURCE: 1984 Form 5500 Annual Pension Plan Reports, projected to 1986.

peculiar exposure-related scheme. Because funding levels historically have decreased markedly prior to termination (see the next chapter), the rate scheme in effect imposes a funding charge on part of the plan's exposure and a zero charge on the remaining amount. The effect of this provision (together with the lower maximum premium) is to reduce the amount of exposure subject to a funding charge by approximately 70 percent from $62 billion to $18 billion.

There are no surcharges for shutdown benefits in the plan, waivers, or failure to make minimum contributions;[4] nor is there any provision to adjust rates over time.

In spite of the shortcomings of the price structure actually enacted, it represents an important step toward more market-oriented prices. First, in comparison to a flat rate structure, cross-subsidies are reduced, albeit in a relatively modest way. Second, and more important, the structure represents the potential for more dramatic change in the future. Because the rates are not indexed, inflation alone will almost certainly require Congress to adjust rates in the future. The opportunity will thus be available for Congress to substantially increase the maximum allowable price and perhaps to begin considering risk-related factors as well.

CONCLUSION

In this chapter, an effort was made to illustrate the rate structure that would exist in a private insurance market for pensions. The rates would account for default risk, underfunding, and defunding prior to termination. This structure would recognize that plans with roughly 20 percent of participants account for almost 95 percent of expected claims.

The proposal submitted to Congress by the PBGC in 1987 made allowance for exposure (including defunding prior to termination) but not for default risk. Further, it imposed a $100 premium cap on the annual premium per participant (though it increased to $300 in real terms in the long run). Congress strayed even further from market rates: it excluded any consideration of defunding prior to termination in the exposure base, imposed a maximum premium of $50, and increased charges disproportionately for plans with no effective exposure to the PBGC.

This legislation suggests that, at least in the near term, Congress is not ready to institute significant pension insurance reform through changes in pricing. There is still little relationship between expected claims and premiums paid to the PBGC. This suggests that reform must

[4] Some provisions elsewhere in the legislation worked to at least partly reduce the exposure posed by these factors (see Chapter 8).

include changes in the nature of the insurance contract, so that its provisions will more closely reflect the regulated prices imposed by Congress. These reforms are the subjects of the next two chapters.

APPENDIX
Other Features of the PBGC Pricing Proposal

Rate Adjustment

The proposal permitted the PBGC to reassess its rates based on actual versus expected experience. In particular, the actual flow of claims would be compared to projected claims annually. If the three-year cumulative difference between actual and projected claims exceeded 10 percent of the sum of the past three years' projected liabilities, the average premium would be increased by this proportion, subject to a limit of 20 percent.

The excess claims over 20 percent of projected claims would be added to the cumulative actual claims for consideration during the next year. Following an increase of rates due to this adjustment process, projected claims would be increased proportionately, to be consistent with the new, higher average premium. The prospect of unexpected lower claims is treated symmetrically.

The advantage of this approach is that the PBGC would not accumulate large surpluses or deficits. If claims experience were lower than anticipated or if Congress enacted legislation to limit the extent of future claims, then rates will be reduced automatically.

Waiver from Extra Premium Charges

Firms wishing to keep relatively low funding levels could receive a waiver from premium charges above the minimum if either of two conditions was satisfied: the firm annuitized its benefits with commercial insurers or offered security to the PBGC in the amount of the underfunding (inclusive of the cushion amount).

Funding Waiver Surcharge

A surcharge would be levied against firms that failed to make required minimum contributions to the plan or obtained waivers. In the former case, the extra charge is 50 percent of the calculated funding charge for five years; in the case of waivers, the surcharge is scaled down to 40 percent the second year after the waiver is issued, 30 percent in the third year, and so forth. The surcharge is not subject to the $100 maximum. Thus, a plan that otherwise would pay a $100 maximum

would instead pay $350 if it missed its minimum contribution for five consecutive years.

Finally, the surcharges would be doubled for firms that had large contingent obligations, primarily related to plant shutdowns. This charge reflects the lack of funding for shutdown benefits. Thus, if a firm missed its minimum contributions for five consecutive years and had shutdown provisions, the plan would pay a rate equal to $600 per participant.