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5. Insured and Noninsured Plans

The future path of industrial pension plan reserves has so far been examined in aggregate terms. This chapter explores the two major components of the aggregate. For the discussion at hand, with its strong focus on the capital markets, the most salient distinction relates to the funding medium, viz., the distinction between insured and noninsured.[1] Until recently, the investment of insurance company pension reserves was no different (or at least could not be ascertained as being different) from the investment of life insurance company funds in general.

Reserves of noninsured pension plans are quite different, and this is true both of aggregate holdings and annual net purchases. The difference between these two categories of pension plans is shown earlier in Table 5. Insurance companies are holders of debt, with bonds and mortgages comprising over 80 per cent of their assets. By way of contrast, noninsured private industrial pension funds, while substantially invested in debt, also hold a sizable proportion of their assets in stock.[2] Thus, because of their different asset-holding propensities, it is important to distinguish between the two main types of pension plans on the basis of funding media. In the future, however, this distinction may not be so important, for in the last several years many states have given insurance companies permission to set up segregated reserves for their pension plans; these holdings are permitted a greater degree of investment discretion than the main corpus of life insurance company reserves. In particular, higher proportions of stock are now permitted for pension reserves of life insurance companies.

[1] The usage of the SEC and the Social Security Administration is followed here in referring to the collectivity of all plans (other than insured) as noninsured—i.e., corporate-trusteed, pay-as-you-go, multiemployer and union, and many plans of nonprofit organizations—which generally are, of course, self-insured.

[2] The data of Table 5 are book values. Had market value been used instead, common stock would have been considerably more important a component of the portfolios of noninsured funds.

Another reason for separating the data of these two categories—another point of difference between them—lies in their rates of growth. As summarized in Table 4, for example, noninsured funds have been growing at a more rapid rate than insured funds and, as was stated earlier, differentials in rates of growth can produce powerful differences over a long time span.

More faith is to be placed in the projections of reserves of all pension plans than in the estimates for particular components of that total. This, of course, is obvious on simple arithmetic grounds and for a number of economic reasons, not the least being the fact that the funding media are competitive. So the reserves of one category could grow in an unpredicted way at the expense of the other funding medium (relatively or absolutely), while their combined reserves would still follow the predicted path.

In this section the words "insured" and "noninsured" are used in a special sense. For historical data these words, of course, refer to particular funding media. But in the projections of this chapter they do not really refer to funding media as much as to the "rules of the game" for the fund administrator.

These rules are different for insured and noninsured funds. However, there are many reasons to suggest that these compartments—insured and noninsured—will not be watertight. Indeed, because of enabling legislation mentioned earlier, what have been called insured funds may be able to assume, if so desired, much of the investment characteristics of noninsured funds. This possibility reinforces the cautions that the total projections are better than their breakdown into insured and noninsured and also that the distinction between insured and noninsured may not be as meaningful for fund portfolio policy in the future as it has been in the past.

To hold that the total estimate is likely to be less erroneous than subcategories thereof is not equivalent to arguing that projections for the aggregate of plans on the basis of past data will be better than those obtained by summing up separately projected insured and noninsured pension fund reserves. This latter procedure is a real alternative, and it appears to have the advantage of incorporating more information in the projections. Therefore these estimates serve an additional purpose; they permit a judgment of how different this study's projections, as discussed in the preceding chapter, would have been had a more detailed breakdown been used in their derivation.

In general these separate projections for insured and noninsured plans were built up in much the same way as the projections for the aggregate of plans. Contributions per covered worker and benefits per annuitant were projected for insured and noninsured plans by extending their trend as derived from the data for 1951–61. Covered workers and beneficiaries as projected for all private industrial plans were broken down and allocated between insured and noninsured plans on the simple assumption that the relative proportions that characterized these plans in 1961 would persist over the ensuing twenty years. For convenience, one adjustment factor ($A_{.50}$), one coverage assumption (C_3), and one earnings rate assumption (4.0 per cent) were used. Thus there was one projection of insured and noninsured pension plan reserves.

The coverage distribution appears in Table 39. Covered workers under insured and noninsured plans annually aggregate to the projected number derived as described in Chapter 2. The percentage breakdown of the total between insured and noninsured in 1961 (22.6 for insured and 77.4 for noninsured) was applied through 1981. In effect, we assumed that the record of the past—a decline of four points between 1951 and 1961 in the insured plans' share of total coverage—should not be extended mechanically into the future.

To assume a constant proportion of the total to be covered by insured and noninsured plans in the future is not necessarily an act of blind faith, for there are reasons to hold that there may be a cessation to the decline in the share of insured in coverage. Part of the future growth of the coverage percentage (i.e., covered as a percentage of "potentially eligible") will have to come from new coverage of employees of small firms. The insurance company is a convenient funding medium for the pension plan covering the work force of a small employer (although some of these firms will come in under multiemployer plans, which are, in the main, not funded with insurance companies). Also, in 1958, pension fund reserves of insurance companies were exempted from federal income tax, and this removed a competitive disadvantage that had attached to them. Moreover, practically all states now permit life insurance companies to keep pension reserves in separate accounts and therefore to hold a higher fraction in common stock than the law permits for their general business. The appeal of this type of investment was one of the reasons for the relatively more rapid growth of noninsured plans. Finally, plans

TABLE 39

Coverage of Insured and Noninsured Private Industrial Pension Plans Under Projection C_3, 1962-81

(thousands, as of middle of year)

Year	Insured	Noninsured	Total
1962	5,242	17,953	23,195
1963	5,510	18,869	24,379
1964	5,774	19,775	25,549
1965	6,035	20,667	26,702
1966	6,290	21,544	27,834
1967	6,541	22,403	28,944
1968	6,787	23,244	30,030
1969	7,026	24,064	31,090
1970	7,259	24,862	32,122
1971	7,486	25,638	33,124
1972	7,705	26,390	34,095
1973	7,918	27,117	35,035
1974	8,123	27,820	35,943
1975	8,321	28,498	36,819
1976	8,512	29,151	37,663
1977	8,696	29,781	38,476
1978	8,878	30,406	39,284
1979	9,065	31,044	40,108
1980	9,255	31,696	40,950
1981	9,449	32,361	41,810

Source: NBER projections.

Note: Averaged coverage (i.e., as of the middle of the year) based on C_3. Data are rounded, so that totals may differ slightly from the C_3 values cited elsewhere.

that have both insured and noninsured components have been classified under the insured category, and "split-funding" has tended to become more common.

On the other hand, one could argue more mechanically that the record of the past will continue, in which case a decline in the insured percentage of coverage would be in order. Also, of course, there is the possibility of a recovery of market share by insurance companies.[3]

[3] See, for example, James J. O'Leary, "The Supply of Capital in the United States," in William Haber, W. Allen Spivey, and Martin R. Warshaw, *Michigan in the 1970's*, Ann Arbor, 1965, p. 104.

But it does not pay, for the purposes of this study, to become deeply involved in this question, unless the division between funding media substantially affects the projection of aggregate accumulations. Since this is not the case, only the constant share assumption is used in this chapter.[4]

For convenience in calculating, the data of Table 39 are for averaged covered workers, i.e., as of the middle of the year, whereas the projections that appeared in Chapter 2 were as of the end of the year. A substantial growth in covered workers can be expected over the next twenty years; by assumption, the relative shares of insured and noninsured will not change. In addition, the absolute change projected over the twenty years is a function of the particular C_j chosen. Specifically, the projections of Table 39 are based on C_3.

In projecting beneficiaries for insured and noninsured private industrial pension plans, the same assumption was again used; i.e., we projected the 1961 breakdown—29.9 per cent for insured and 70.1 per cent for noninsured—invariantly over the next twenty years.

The projected numbers of beneficiaries appear in Table 40. These projections are based on $A_{.50}C_3$. If $A_{.25}C_3$ were used instead, both insured and noninsured would, of course, show smaller totals each year, but the relative proportions would be much the same. Finally, there is no division of beneficiaries into male and female, because there is no basis for such an allocation other than the proportions that characterize the aggregate. This was set forth earlier in Table 19. Again, the data are averaged values, i.e., as of the middle of the year.

Contributions per covered worker and benefit payments per beneficiary were obtained, as in the aggregate projections, by extending linear trends, based on 1951 through 1961, into the future. Let:

(C/W) = contributions per covered worker, all plans;
$(C/W)\,I$ = contributions per covered worker, insured plans;
$(C/W)\,NI$ = contributions per covered worker, noninsured plans;
(P/B) = benefits per beneficiary, all plans;
$(P/B)\,I$ = benefits per beneficiary, insured plans;
$(P/B)\,NI$ = benefits per beneficiary, noninsured plans.

[4] A more particularized interest, say, in projecting the size of the market that the two major funding media might each expect to draw on and service through 1981, would, of course, result in a less detached view and make it necessary to examine the matter of market shares more intensively.

Summarized:

$$(C/W)' = \$262.06 - \$1.02X;$$
$$(C/W)I = \$398.15 - \$6.96X;$$
$$(C/W)NI = \$215.20 + \$1.35X;$$
$$(P/B) = \$845.38 + \$16.94X;$$
$$(P/B)I = \$595.28 + \$16.00X;$$
$$(P/B)NI = \$959.40 + \$16.74X;$$

TABLE 40

Number of Beneficiaries of Insured and Noninsured Private Industrial Pension Plans Under Projection $A_{.50}C_3$, 1962-81

(thousands, as of middle of year)

Year	Insured	Noninsured	Total
1962	597	1,398	1,995
1963	654	1,534	2,188
1964	713	1,671	2,384
1965	772	1,809	2,580
1966	829	1,944	2,774
1967	910	2,133	3,043
1968	1,013	2,375	3,388
1969	1,115	2,614	3,729
1970	1,215	2,848	4,062
1971	1,311	3,073	4,384
1972	1,427	3,345	4,772
1973	1,563	3,665	5,228
1974	1,696	3,975	5,671
1975	1,822	4,273	6,095
1976	1,943	4,555	6,497
1977	2,078	4,871	6,948
1978	2,228	5,223	7,451
1979	2,372	5,562	7,934
1980	2,510	5,884	8,393
1981	2,639	6,186	8,824

Source: NBER projections.

Note: Averaged beneficiaries (i.e., as of the middle of the year) based on $A_{.50}C_3$. Data are rounded so that totals may differ slightly from the $A_{.50}C_3$ values cited elsewhere.

where, as before, X = years, taking on values 1, . . . , n, starting with 1951 as 1. There appears to be a curious incongruity among these items —insured plans pay lower benefits and require higher contributions. But there are reasons for these seeming discrepancies. For one thing, as regards benefit payments, insured plans are probably older and therefore may be paying small benefits to annuitants who began some time ago. For another, on the score of contributions, it is highly likely that more conservative funding assumptions are employed in insured plans, and that they are more fully funded. Then again, to help explain the difference in contributions per covered worker, the base for coverage could well be defined more broadly in noninsured plans; a noninsured plan is more likely than an insured one to include all workers in a given company. Finally, there might be relatively more vested annuities built up under insured plans, which would help to explain their higher contributions per covered worker.

Another feature of the projections of (C/W) and (P/B) is the wide difference between insured and noninsured. A priori, this seems to suggest that by projecting for industrial plans in the aggregate (as has been done in most of our estimates) a good deal of information is overlooked, which, if utilized, might well provide projections whose summation would be consequentially different from the projected values obtained from the usual procedures of this study. The data in Table 41 are relevant both to this problem and to the other concern of this chapter—projected levels of insured and noninsured funds.

A comparison of the projections derived by using the aggregate data to start with and those obtained as the sum of individually derived projections for insured and noninsured plans shows that both procedures provide substantially the same estimates of total pension funds. The difference by 1981 is only 3 per cent, from which it can be concluded that the projections that appear in the other chapters of this study are substantially the same as those that would have been obtained from a more detailed and laborious projection procedure.[5]

Both insured and noninsured plans are projected to have heavy

[5] It should not be concluded that the insured and noninsured projections were completely unrelated to the aggregate projections; the former were subject to the constraint that beneficiaries and covered workers had to add up to the same figure as that used in the aggregate projections. But free to follow their own path were benefits per annuitant and contributions per covered worker for insured and noninsured plans.

TABLE 41

Fund Levels of Insured, Noninsured, and Total Industrial Pension Funds Under Projection ($A_{.50}$, C_3, 4.0) and Relation of Total to Corresponding Fund Levels Derived from Aggregate Data,[a] 1962-81

(billion dollars, as of end of year)

Year	Insured (1)	Noninsured (2)	Total (3)	Per Cent Insured (4)	Derived from Aggregate Data (5)	Col. 3 Divided by Col. 5 (6)
1962	22.2	39.1	61.3	36.2	61.3	99.9
1963	24.3	43.3	67.6	35.9	67.7	99.8
1964	26.4	47.7	74.1	35.6	74.3	99.7
1965	28.6	52.3	80.9	35.3	81.3	99.5
1966	30.9	57.2	88.0	35.0	88.5	99.4
1967	33.2	62.2	95.4	34.7	96.0	99.3
1968	35.5	67.3	102.8	34.5	103.6	99.2
1969	37.8	72.5	110.2	34.2	111.3	99.0
1970	40.1	77.7	117.8	34.0	119.1	98.9
1971	42.3	83.1	125.4	33.7	127.0	98.7
1972	44.6	88.5	133.0	33.5	134.9	98.6
1973	46.7	93.8	140.5	33.2	142.7	98.4
1974	48.8	99.0	147.8	33.0	150.4	98.2
1975	50.8	104.2	155.0	32.7	158.0	98.0
1976	52.7	109.3	162.0	32.5	165.5	97.8
1977	54.5	114.3	168.8	32.2	172.8	97.6
1978	56.1	119.1	175.2	32.0	179.8	97.4
1979	57.6	123.7	181.4	31.7	186.5	97.2
1980	59.0	128.1	187.1	31.5	192.9	97.0
1981	60.2	132.4	192.6	31.2	199.0	96.7

Source: Table 26.

[a]Because of rounding, columns 1 and 2 may not add to column 3; column 1 divided by column 3 may not equal column 4; and column 3 divided by column 5 may not equal column 6.

accumulations of reserves over the next twenty years, with the greater growth coming in asset holdings of noninsured plans, as has been the case in the past. This differential growth arises despite the constant share method of allocating beneficiaries and coverage between insured and noninsured. Thus, by 1981 insured pension plan reserves are expected to be 2.7 times their 1962 level, and noninsured holdings are projected at 3.4 times the 1962 level. The reserves of insured plans, while increasing, will nonetheless drop from 36.2 to 31.2 per cent of total industrial pension plan reserves.

It is an integral part of the process whereby both insured and noninsured plans will increase their reserves several times by 1981 that they will also necessarily be heavy net purchasers of assets each year over this period. The projection chosen here illustrates this: from Table 41 it can be shown that annual net purchases reach a peak of $2.3 billion for insured over the years 1966–72 and of $5.4 billion for noninsured in 1971–72. Thereafter, while annual accumulations are declining, they are still substantial up through 1981. But all this deals with the data of a particular projection, i.e., a specific combination of $A_iC_jr_k$, and hence is closer to being illustrative than predictive.

A more appropriate procedure for suggesting the likely results would involve applying the percentage breakdowns of reserves between insured and noninsured to the data of the "likely" group of the basic set of projections analyzed in Chapter 4. The summary measures of that group, as set forth in Table 28, have been applied to the percentage breakdown of the table between insured and noninsured pension plan reserves (Table 41). The results appear in Table 42. As elsewhere, average values and ranges are indicated as determined from the data of the "likely" group (see Table 27). The conclusions that follow from this evidence are simple and clear:

1. Both insured and noninsured plans will continue to grow over the next twenty years.

2. The assets of insured plans will be somewhere between $59 billion and $67 billion by 1981, more than triple their 1961 level of $20 billion.[6]

[6] As mentioned in Chapter 4, SEC figures are now available for 1962–65. For those four years, the insured figures are, respectively, $0.5 billion, $0.8 billion, $0.9 billion, and $0.7 billion lower than the lower bound computed as for Table 42. This suggests that insured funds' assets in 1981 may fall closer to the lower bound of the projected range.

TABLE 42

"Most Likely" Projections of Private Industrial Insured and Noninsured Pension Plans: Average, High, and Low Projections for Fund Levels and Annual Accumulations, 1966-81

(billion dollars)

	1966	1971	1976	1981
Level of fund (average of group)				
Insured	30.6	41.9	52.9	62.6
Noninsured	56.9	82.6	110.0	137.9
Upper bound of fund level				
Insured	31.0	43.3	55.7	66.8
Noninsured	57.7	85.2	115.6	147.4
Lower bound of fund level				
Insured	30.1	40.4	50.0	58.6
Noninsured	56.0	79.5	104.0	129.2
Net annual addition to fund (average of group)				
Insured	2.4	2.6	2.5	2.3
Noninsured	4.6	5.0	5.2	5.1
Upper bound of net annual addition				
Insured	2.6	2.8	2.9	2.7
Noninsured	4.7	5.5	5.9	6.1
Lower bound of net annual addition				
Insured	2.3	2.3	2.2	1.8
Noninsured	4.2	4.6	4.6	3.9

Source: Computed from Tables 27 and 28 by applying per cent insured from Table 41.

3. If they are to grow, insured pension funds must, of course, buy more assets than they sell each year. The projections suggest they will continue to make about the same amount of net purchases annually over the next twenty years. That their annual amount of net purchases could well first pick up and then fall with the passage of time is not as important as their being substantially of the same order of magnitude most of the time. As a force in the capital markets each year, insured funds will be of about the same strength (on an absolute basis) over the next twenty years.

4. Somewhat more vigorous growth is projected for noninsured funds, absolutely, of course, but relatively as well. From $35 billion at the end of 1961, they are expected to range in assets somewhere between $129 and $147 billion by 1981, a quadrupling over twenty years.[7]

5. Noninsured pension funds will continually add to their assets by buying more each year than they sell. Their strength as net demanders of financial assets annually is projected as being greater (in absolute terms) in the future than it has been in the past; they will purchase about $5 billion more than they sell each year. This can be stated with more certainty for the near than the distant future, say, 1976 on.

Comparison with Other Projections

Table 43 compares this study's projections of the reserves of insured and noninsured plans with those made by other students. Arnold Sametz has generously made available projections (as yet unpublished) of both coverage and assets of noninsured pension plans which he developed several years ago. Sametz forecasts noninsured coverage to be 19.8, 23.6, and 27.2 million in 1965, 1970, and 1975, respectively. This study's corresponding forecasts are 20.7, 24.9, and 28.5 million for C_3 averaged (Table 39). Some of the small differences may arise because Sametz' noninsured category is narrower than that used here, which includes multiemployer plans as well as plans of nonprofit organizations. Sametz assumes a 1 per cent per year increase in average contributions and this study assumes them to be unchanged over time.

This assumed constancy in contributions is derived from recent experience and is not based simply on extending a rigid structure into the future. In fact, it is a not unlikely possibility in the face of offsetting changes. Thus, while scheduled benefits will be higher in the future, there will be a decline in contributions for past service, and as smaller firms are drawn into the pension group, they will tend

[7] Since these projections were made, the $35 billion figure for 1961 has been revised by the SEC to $37.6 billion and their 1962–65 values have become available. The latter exceed the upper bounds computed as for Table 42 by $2.8 billion, $3.2 billion, $4.1 billion, and $5.2 billion, respectively. It is, therefore, possible that assets of noninsured funds in 1981 may be considerably larger than $147 billion.

TABLE 43

Comparison of Projections of Private Industrial Pension Plan Reserves,[a] *1965-75*

(billion dollars)

	Natrella		Harbrecht		Sametz	This Study[b]	
Year	Insured	Noninsured	Insured	Noninsured	Noninsured	Insured	Noninsured
1965	25.9	51.0	31.7 – 35.3[c]	47.3 – 52.7	50.0	28.5	52.1
1970			42.0 – 45.0	84.0 – 89.0	75.0	39.7	77.2
1975					104.5	50.8	104.4

Source: Vito Natrella, "Implications of Pension Fund Accumulations," *Proceedings of the American Statistical Association,* Business and Economic Statistics Section, 1957, p. 153; Paul P. Harbrecht, *Pension Funds and Economic Power,* New York, 1959, pp. 244-246; Arnold W. Sametz, unpublished paper made available to the author in 1960.

[a] See footnote 8.

[b] Average of "most likely" group of basic set, percentage breakdown between insured and noninsured (Tables 28 and 41).

[c] Estimated by assuming insured to be same fraction of noninsured as in the lower set of fund values for this date.

to provide lower benefits, both because of less generous benefit formulas and lower salaries. Also, the earnings experience of noninsured funds has typically run well ahead of the rate assumed by the actuaries in setting up the plans; and if unrealized capital gains are taken account of, there would be an even more pronounced difference.

But Sametz' projections of reserves are very close to those of this study, especially in view of his narrower definition of noninsured. He estimates assets of noninsured plans to be $50.0 billion at the end of 1965, $75.0 billion for 1970, and $104.5 billion for 1975; this study estimates $52.1, $77.2 and $104.4.

Sametz compared his projections of reserves with those of Natrella and Harbrecht. Harbrecht conjectured that corporate noninsured pension funds should by 1970 comprise two-thirds of all private (industrial) funds. On this point, our projections square with his; for by this date Table 41 suggests that noninsured reserves will be 66.0 per cent of total industrial pension reserves. But the fund level for both insured and noninsured are somewhat lower than his. Harbrecht's estimated range for reserves of all private plans by the end of 1970 is $126–$134 billion. Ours is $113–$120 billion. Natrella's estimate for 1965, developed at a much earlier date (1957), and ours are close.[8]

Another estimate of the assets of corporate (noninsured) pension funds has been made by Robert A. Kavesh and Judith Mackey.[9] They put these reserves at $60 billion in 1970, a figure considerably below those of Harbrecht, Sametz, and this study. However, while this casts doubt on their projection of this item, it is not a serious criticism of Kavesh's and Mackey's larger model. They were not concerned directly with pension funds but, more broadly, with all assets and asset-holding intermediaries at that date.

As a final point, the fact that the projections lie so close to those of Natrella, Harbrecht, and Sametz, both as to total pension funds

[8] These comparisons involve numerous unsettled questions of definition and concept. The projections of this study are for all noninsured industrial plans, and those of Sametz appear to be for the smaller class of corporate-trusteed. Natrella and Harbrecht also exclude noninsured funds of nonprofit organizations and multiemployer plans which were not generally included at the time they wrote. Also, this study has had access to more recent data than any of the others.

[9] "A Financial Framework for Economic Growth," *Journal of Finance,* May 1961, pp. 202–225.

and their distribution between insured and noninsured plans, tends to lend credence to this study's projections and, in particular, seems to substantiate the choice of the "most likely" group of the basic set for determining the expected value and its range. In a broader sense, the close correspondence of these different estimates is not a corroboration of any one of them in particular, but rather a demonstration that the system of pension fund growth has a noteworthy dynamic stability, in part because a sizable component of the future total is known (i.e., the current level), and also because variations in assumptions tend to be compensating.[10] These factors help to explain the similarity of projected magnitudes in the face of variant initial bases and methods of projection.[11]

[10] Thus Sametz, for example, projected lower coverage but larger contributions per covered worker than was done here.

[11] In addition to the differences between Sametz' underlying assumptions and those of this study, Harbrecht did not project benefits, earnings, and contributions separately, but rates of growth of total fund assets and of the proportion that noninsured comprise of the total.