

FINAL-PAY PENSION PLANS

I. *Trend toward Broader Adoption*

Against the background of rising salaries and hourly rates, has there been a trend toward broader adoption of final-pay plans?

- A. In unilateral plans?
- B. For collectively bargained cases?
- C. Does size of group or industry seem to have any bearing?

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MR. JAMES L. CLARE: There is a trend toward final-pay plans in North America, with hardly any final-pay plans being changed to anything else.

There is a tendency for final-pay plans to belong more to large employers than to small employers. Alternatively, one could say that final-pay plans tend to belong to "mature corporations," thanks to (a) their emphasis on planning, (b) their secure profits, and (c) their shareholders' having much less say in their affairs than have their managements. One can then observe that mature corporations tend to be large employers. Final-pay plans are much less likely to be found among more entrepreneurial employers. Entrepreneurs tend to be smaller employers. Entrepreneurial concerns are often wary of the large costs and the potentially volatile costs of final-pay plans. Some groups of employees are too small to have unit benefit plans at all, and these prefer profit-sharing or money-purchase arrangements.

Consider, however, the employers in the middle ground—the smaller employers with sound financing and the medium employers, no matter how aggressively entrepreneurial they may be. For a given level of long-run cost, such an employer can always substitute a final-pay plan in place of a career-average-earnings plan. For the sake of argument, let us suppose that (for one particular company) a final-pay plan with a 1 per cent benefit unit and with no limit on service is closely equivalent in cost to a 2 per cent career-average plan (integration with government plans is ignored). The equivalence only applies to their *over-all* costs, taken in total in each case. The two plans are definitely not equal for all individual plan members. Consider an older worker who has five years of service at retirement; for him the 2 per cent career-average benefit is obviously double the 1 per cent final-pay benefit. Thus, if an employer has only so much to spend for pensions and adopts a final-pay plan instead of a career-average

plan, he will be allocating less of his funds to those with short service and more of them to those with long service. Similarly, he will be allocating less to those whose salaries have progressed gradually during their careers and more to those whose salaries have risen sharply (especially executives). Most employers will want to do both of those things.

If an employer is still reluctant to adopt a final-pay plan on account of the potential volatility of costs, he can always follow the example of some plans that I have developed and registered with Canadian portability authorities. These put a fixed percentage of payroll limit on the pension obligation of the employer. After all, many union plans have (1) *fixed* cents-per-hour costs together with (2) *fixed* units of benefits, so why not have final-pay plans with (1) *fixed* per cent of payroll costs together with (2) *fixed* units of benefit?

Suppose that a final-pay plan with a fixed cost ceiling does run a deficit. The employer is in full control. If he increases his contribution rate, he can "take credit" for doing so when discussing over-all compensation. If he does not wish to do this, he can amend his plan to cut down liabilities to match assets—in the United States and in parts of Canada. Canadian portability legislation would prevent many plans from cutting units of final-pay benefits already accrued; here the employer can simply (a) earmark enough of his future contributions to eliminate the deficit within five years and (b) cut back the future-service unit to such lesser amount as can be soundly funded by the net remainder of the future contributions. Presumably, the actuary will be sufficiently realistic in his initial recommendation as to the level of benefits that can be soundly afforded so as to suitably reduce the chances of ever cutting back on the level of future-service benefits.

MR. JAMES A. CURTIS: For the most part, the trend of benefit formulas under collectively bargained plans is toward unit benefits which are based entirely upon years of service and do not take earnings into consideration. Many an employer who has a plan which is negotiated and bases benefits upon earnings, especially final earnings, has found himself on the horns of a dilemma. A negotiated increase in salary automatically increases pension benefits and costs, oftentimes without giving any negotiating credit for such increase in pension costs. A negotiated increase in salaries coupled with an increase in the pension formula can produce significant increases in payroll costs. A pension plan which bases benefits entirely upon years of service does not have any hidden increases in costs due to future increases in salary. For this reason, final-pay plans for hourly employees are not popular with many employers.

In practice, final-pay plans are generally not as popular among smaller companies as they are among larger companies. This is understandable, since small companies are often more susceptible to business fluctuation and therefore are less inclined to adopt plans with features of unknown costs. Periodic updating of a career-average plan is often thought more reasonable for a smaller company. However, if the actuary uses his expertise and develops a realistic salary scale and interest assumption and a realistic termination rate, even smaller companies need not shy away from final-pay plans. I have a strong suspicion that the continual use of the unit credit cost method by some actuaries, especially in valuing smaller plans, is one reason that these plans are married to a career-average formula.

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MR. KENNETH K. KEENE: There has been a definite trend toward final-pay plans covering salaried employees in larger companies. This has taken the form of a direct final-pay approach in most instances, but in a number of cases the basic formula is still career-average supplemented by a final-pay minimum. Due to relatively rapid compensation changes in the past several years, it seems that the final-pay minimum often becomes the typical benefit being paid under this latter type of plan.

In collectively bargained cases with a separate plan from that applying to salaried employees, there are relatively few instances of final-pay plans. One long-time exception to this is the steelworkers, where there has been a final-pay minimum. This minimum has been relatively ineffective in prior years, although with escalating wage scales it may come into play increasingly in the future.

Size of the group seems to have some bearing on the design of the plan. Smaller employers show a preference for deferred profit-sharing plans, in which the financial commitment stays under direct control. In those cases in which a smaller employer has a pension plan, it is usually based on career pay, because this fits in more closely with the employer's concept of a fixed budgetable payment. Larger groups generally have greater stability, and the employer may face up to financing requirements directly or may be more sophisticated, with the result that final-pay plans are more popular.

The type of industry seems to have some bearing. For example, airlines and textiles are more likely to be on a career-pay basis, perhaps because of a desire for controllable commitments that would be consistent with low-margin industries. For probably similar reasons, retailing trends toward deferred profit-sharing rather than toward pensions. Advertising

agencies show a strong preference for profit-sharing plans. Financial institutions, such as banks and insurance companies, are moving strongly toward final-pay plans, some including a variable concept. The trend in basic industry is mixed, but there is an increasing preference for final-pay plans in nonbargaining situations.

MR. ROBERT J. MYERS: An automatic cost-of-living adjustment is included in the United States Civil Service Retirement system and in the retirement system for the uniformed services. These become operative whenever the cost-of-living index increases by at least 3 per cent, if such increase is maintained for several months. No decrease in the benefits occurs if the index declines. A significant anomaly arises because of a technicality in the law; a person retiring just after an adjustment is made (in fact, often as much as one year later) receives less than he would have received if he had retired just before then, which would have entitled him to the full adjustment.

II. *Relative Merits*

What are the relative merits of final-pay plans and career plans with periodic updating?

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MR. JAMES A. CURTIS: The objective of final-pay pension plans is to provide a retirement income that is related to an employee's earnings near retirement. The fact that a pension plan bases benefits upon final earnings does not guarantee, however, that the benefits will be adequate. In fact, many plans that base benefits upon career-average earnings produce benefits that are much larger than those of some final-pay plans. Obviously, the adequacy of a career-average plan when compared with a final-pay plan rests in the factor multiplying the career-average earnings.

TABLE 1
RATIO OF FINAL-PAY PLAN BENEFIT TO
CAREER-AVERAGE PLAN BENEFIT

Age at Entry	Final 10-Year Earnings	Final 5-Year Earnings	Final Earnings
25.....	1.48	1.59	1.73
30.....	1.39	1.49	1.63
35.....	1.31	1.40	1.53
40.....	1.22	1.32	1.44
45.....	1.15	1.23	1.34
50.....	1.07	1.15	1.26

How do the benefits of a career-average plan compare with those provided by a final-pay plan?

If a relative salary scale can be determined accurately, it is then theoretically possible to design a career-average formula that produces identical benefits with those of a final-pay plan. For example, if salaries increase by a rate of 3 per cent per annum, compounded annually, an employee who enters a plan at age 35 would earn identical benefits under either a career-average plan or a final five-year-average plan, provided that the factor to be multiplied by the career-average earnings was 40 per cent greater than the factor applied to the final five-year-average earnings. In Table 1, for various ages at entry into the plan, we show a comparison of the benefits of a career-average plan with those of final-pay plans where the benefits are based upon final earnings at retirement, final five-year-average earnings, and final ten-year-average earnings.

The fear of the unknown final salaries, and, consequently, of the un-

known costs of final-pay plans, is oftentimes the reason given for not adopting final-pay plans. In some plans periodic updating of the accrued benefits is used to bring career-average plans in line with final-pay plans. Continuation of such an updating policy would produce the same benefits as a final-pay plan without any promise as to future increases. Most employers who are willing to update the plan on a periodic basis are willing to incorporate final earnings in their pension formulas, thereby removing any doubts from their employees' minds that the plan might not continue to be updated in the future.

MR. JAMES L. CLARE: Assume that an employer is going to spend the same amount of pension money, whether he has a final-pay plan or a career-average plan with periodic updating.

The career-average plan with periodic updating certainly keeps everything under the maximum of management control at all times. This method also lets plan members see that they are being given something extra every time there is a further round of periodic updating. The updating, however, is often a time-consuming task for management, and plan members are insecure to the extent that they have no certain promise that the updating will be continued.

A final-pay plan saves management time that otherwise would be demanded every few years for updating. However, once an employer has given his plan members a final-pay plan with a generous benefit unit, he gets no thanks for the automatic upgrading of benefits under the final-pay formula if inflation quickens, since to the plan members it is the "same old plan" that they have always had. On the contrary, once they have been given a final-pay plan, plan members will simply tend to start wishing for further expansion of the benefits.

Suppose that an employer prefers a 1 per cent final-pay benefit over a 2 per cent career-average benefit. The 1 per cent unit may look small, but at least it gives plan members fair warning that, when they reach their normal retirement dates, they must expect either to continue working or to cut back their living expenses or to have major personal savings on hand.

SUITABLE GROUPS FOR FINAL-PAY PLANS

With their emphasis on directing available pension moneys to those plan members with long service and those with steep salary histories in their final years of employment, final-pay plans are of considerable appeal to any single employer—with a unit benefit plan covering unorganized employees. The final-pay plan provides the rewards and incentives that he needs to compete with other employers.

SITUATIONS NOT SUITABLE FOR FINAL-PAY PLANS

In other situations, a final-pay plan may be second-best. If there is a limited amount of financing available for pensions (as, for example, a limited percentage of payroll), a final-pay plan will effectively "take from the poor and give to the rich." For this reason, final-pay plans are second-best for university faculty members and for government social security plans. Thus I consider the Canada Pension Plan and the Quebec Pension Plan (which will in fact operate in quite a parallel fashion to final-pay plans, especially for those with earnings always at the CPP and QPP taxable ceiling) to be completely wrong in their conception and to be in immediate need of drastic and complete overhaul.

The CPP and the QPP do *not* give people "what they have paid for." On the contrary, there are enormous windfalls to a small handful of fortuitously lucky people born around 1910—with the largest windfalls going to the wealthiest Canadians—and no windfall payments of any kind going to hundreds of thousands of Canadians who really need them. I can see no way for any government social security plan, in any country, to provide benefits in relation to final pay and to do the job that needs to be done. In housing, in medical care, or in any other field of government social activity, one would not accept the inequity of less going to the poor and more going to the rich. Why, then, should we have this in pensions?

We could keep the taxes now being collected by the CPP and the QPP, while totally scrapping the entire array of pension payments. The taxes could then be used to finance an expansion of old age security, with flat payments made in equal amounts to rich and poor alike but with the rich having larger rates of income tax payable on their payments.

Final-pay pension plans are also subject to manipulation of earnings, to some extent by plan members (working more overtime in their last five years of employment, etc.), but perhaps to an even greater extent by the employer or by the administrator of the plan. This makes final-pay plans quite unsuitable for multiemployer groups, for some salesmen, and for union-administered pension plans (as, for example, in the craft unions). Certainly the skilled trades members of the UAW mean business when they demand larger pensions than production workers covered under the same plan, but the best answer that I can suggest is not a final-pay plan—rather, the skilled trades workers should be given more service units per year of employment, to the extent necessary satisfactorily to bring their pensions up to a fair level. The opportunity for manipulation is most extreme in a plan basing benefits on the last single year of employment.

Final-pay plans are not thoroughly portable. Consider a professor who works for forty years at forty universities and earns the same salaries as if he had stayed at one university for all those forty years. Even if those forty universities have identical pension plans and all have 100 per cent immediate vesting, his pension will still be far less from working at the forty different universities than the pension he would have earned from working at just one university all his life. Since a reasonable amount of academic mobility is advantageous for both faculty members and universities alike, this makes final-pay plans second-best for university faculty members. Also, the final-pay characteristics of "taking from the poor and giving to the rich" make such plans unacceptable to many faculty members.

FURTHER SHORTCOMINGS OF FINAL-PAY PLANS

Traditional final-pay plans are supposed to be an answer to inflation. Indeed they are, at least for long-service employees and provided that the unit of benefit is large enough, but only at the point of normal retirement.

However, a large final-pay benefit unit together with a normal retirement age of 65 (or less) often results in such large and growing costs and liabilities that the pension moneys are pre-empted for funding pensions for active employees. Little or nothing is left over for increases in benefits after retirement has occurred. While there is much theoretical talk about increasing final-pay benefits after retirement, Mr. Link's company is perhaps the only one that has actually undertaken to amend its plan to provide automatic cost-of-living indexing on top of final-pay benefits.

On the other hand, and perhaps this is only a coincidence, the pension plans that I know of which provide indexed increases in retirement to offset directly increases in the cost of living are all basically career-average-earnings plans, with indexing before retirement as well as afterward. These plans were adopted by National Airlines in the mid-1950's (the United States pioneer); by the University of Waterloo in the early 1960's (with which I was associated and which was a pioneer plan in Canada); and by Hawker-Siddeley, also in Canada, soon afterward.

Incidentally, a career-average-earnings plan, with thorough indexing both before and after retirement not only to offset increases in the cost of living but also to pass on productivity gains, can parallel the average extent of a final-pay plan but *without* taking from the poor and giving to the rich the way a final-pay plan does. Also, since a strongly indexed career-average plan meets the most rigorous tests of portability and does not interfere with the investment program in the way that money-purchase plans often do, I suggest that all university faculty members seriously consider such plans for their own groups.

CHAIRMAN ROBERT F. LINK: Jim Clare referred to the way in which the average-pay plan rewards the fellow with short service at retirement while the final-pay plan rewards the fellow with long service. I am acquainted with one superannuation scheme that attacks this question somewhat directly by providing a higher percentage of final pay for some years of service than for the remaining years of service—one percentage for the first twenty years and a lower percentage for the remainder of service. This improves vested benefits and the balance between short and long service, and it is one way of handling that particular problem.

MR. DAVID YANIS: Although final pension plans keep benefits more up to date than career plans, there are some advantages to the latter type of benefit formula. Career plans are, from the management viewpoint, better situated for union employees, since the cost over a two- or three-year period can be more readily determined than it can be under final-pay plans.

Another argument in favor of career plans is that, when they are “updated” to overcome inflationary increases, the employer receives more recognition from the employees than he does under a final-pay plan where no “updating” is required.

Frequently, employees do not appreciate the advantages of the final plan. This is partially a result of the fact that the usual example set forth in employee booklets is, of necessity, based on the assumption that earnings will remain level over the years. Under this assumption the advantages of a final-pay plan cannot be demonstrated.

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MR. BLACKBURN H. HAZLEHURST: The basic purpose of pension plans would seem to be to supplement social security to produce the total pension income that is reasonable enough in relation to earnings near the time of retirement to permit the plan sponsor to retire the individual without difficulty. Clearly, final-pay pension plans meet this goal more squarely and consistently than career-pay pension plans with or without periodic updating.

A disadvantage of a career-average-pay plan is that it tends to mislead participants and the plan sponsor into expecting higher pensions as a percentage of pay that will actually materialize. Periodic updates tend to bring the career-pay plan back into line but with inequity between those who retire just before and those who retire just after such a periodic updating.

The periodic updating of a career-pay plan keeps control of the liberal-

ization of the plan in the hands of the plan sponsor and allows the plan sponsor to advertise these liberalizations. However, proper communication of available benefits and their advantages can probably be accomplished successfully without the necessity of such updating.

In bargaining situations, of course, there may be an advantage to career-pay plans or even to plans that are independent of pay, since the necessity for periodic updating of bargained benefits can give each side of the table something healthy to talk about.

MR. KENNETH K. KEENE: If the plan is contributory, the employee's contribution in a career-pay plan is likely to look more reasonable to him in relation to his accruing benefit. By way of contrast, in a final-pay plan the employee would logically relate his contribution to the benefit which would be earned on the basis of his current salary, that is, he does not appreciate that his benefit could be substantially larger.

One fairly popular approach to the final-pay concept without undue financial risk to the employer is to install a career-average plan on a modest formula and to supplement this with a deferred profit-sharing plan. Of course, this has its defects, such as an inadequate past-service benefit and some aspects of a career-pay approach on the profit-sharing portion.

If a career-pay plan and a final-pay plan have costs which are similar, the accrued benefit on the career basis will then be a larger percentage of current pay. This means that short-service employees would normally be more advantageously treated on the career formula than they would be on a final-pay plan. A career-pay plan is easier to handle for companies or organizations which are on a relatively fixed budget, such as hospitals and social service institutions.

If the same unit benefit is given for each year of service (without any heaping for certain years of service), the final-pay plan favors long-service employees. Vesting is less costly under a final-pay plan.

III. *Changes to Other Types of Benefit Formulas*

Have any final-pay plans been changed to other types of benefit formulas or plans? For what purposes and with what results?

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MR. KENNETH K. KEENE: It has been practically unheard of for final-pay plans to be changed to other types of benefit formulas except as necessitated by merger or acquisition situations or by special objectives, such as the introduction of a variable annuity plan to replace the existing program. Of course, some plans have gone beyond the final-pay concept by the addition of postretirement variable annuity options or cost-of-living adjustments.

IV. *Integration with Changes in Social Security*

How have such plans been integrated with changes in social security benefits and wage bases? How will such plans be changed in view of the new integration rule?

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MR. JAMES A. CURTIS: On the basis of the new integration rules a plan which bases benefits on career-average earnings may provide benefits on earnings in excess of the social security taxable wage base of as much as 1 per cent per year of service. Ignoring the effect of incidental benefits, a career-average plan providing benefits equal to 1 per cent of the earnings

TABLE 2
BENEFITS PROVIDED ON EARNINGS IN EXCESS OF THE
SOCIAL SECURITY TAXABLE WAGE BASE
UNDER CAREER-AVERAGE PLAN AND
FINAL FIVE-YEAR PLAN
BENEFIT EQUAL TO 1 PER CENT OF EARNINGS
PER YEAR OF SERVICE
(Ratio of Benefits under Final Five-Year Average
Plan to Career-Average Plan)

AGE AT ENTRY	FINAL FIVE-YEAR AVERAGE SALARY		
	\$10,000	\$20,000	\$30,000
25.....	5.79	2.38	2.00
30.....	5.07	2.17	1.80
35.....	4.34	1.88	1.63
40.....	3.62	1.66	1.49
45.....	2.89	1.44	1.34
50.....	2.17	1.27	1.21
55.....	1.46	1.12	1.10

up to the social security taxable wage base for each year of service plus 2 per cent of such earnings in excess of the social security taxable wage base would integrate. A plan which bases benefits on final earnings must limit benefits on earnings in excess of the social security taxable wage base to not more than three-fourths of 1 per cent greater rate than on earnings below the wage base for each year of service. A plan providing benefits equal to 1 per cent of final five-year average earnings up to the social security taxable wage plus $1\frac{3}{4}$ per cent of such earnings in excess of such taxable wage base for each year of service would integrate.

Assuming that salaries increase at the rate of 3 per cent per annum, compounded annually (as was assumed in Table 1), are these integration rules comparable?

If they are equal, an employee would receive the same benefit at retirement for earnings in excess of the taxable wage base under either a career-average plan or a final-pay plan. In Table 2 we have made a comparison of the ratio of final-pay plan benefits to those of a career-average plan at various levels of final five-year average earnings, assuming that the plan is integrated at the \$7,800 level.

From Table 2 it can be seen that under our somewhat controlled set of assumptions career-average plans should receive a larger break upon earnings in excess of the taxable wage base.

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MR. BLACKBURN H. HAZLEHURST: At one time, many pension plans were co-ordinated with social security by offsetting some or all of primary social security. This approach became less frequently used after several changes in social security, partly because eligibility for the new social security benefits was quite rapid, making the change fairly abrupt.

More recently, the step-up approach to co-ordination with social security has developed its own difficulties as a result of frequent changes in social security and increasing complications in meeting internal revenue requirements.

It seems likely that many plans will move once again to an offset approach to social security. The original disadvantage of this approach has been lessened by the fact that social security changes are now quite frequent, fairly steady, and the eligibility for each change takes considerable time, so that the effect of the change is gradual.

The chief advantage of the offset approach to co-ordination is that the benefit formula relieves the plan sponsor from the necessity of going back to employees periodically to explain a new benefit formula. For example, a durable benefit formula might be 50, 60, or 70 per cent of final average earnings less 50 or 75 per cent of primary social security, with this benefit being reduced proportionately for service less than 20, 30, or 40 years.

There is an advantage in reducing the social security offset for short service, in that this approach prevents almost total loss of benefits for persons with very short service, such as those acquired by merger with another firm.

Another advantage of the offset approach to co-ordination is that the gross benefit can be reduced for early retirement as liberally as desired, provided the offset is reduced actuarially. Of course, if in this process the offset is reduced more heavily than the gross benefit, the net benefit tends to be further liberalized, which is generally desirable.

MR. KENNETH K. KEENE: Both the step-rate and offset methods have been used in the past to integrate final-pay plans with social security. One unusual method is that of one corporation which offsets the social security benefit until the social security taxes paid by the employer on the employee's behalf have been recovered!

As to the future under the new integration rules, it would seem that there will be a revision of interest in the offset method for benefit-design purposes. In this approach there is a communications problem in convincing the employee that his benefit is not being reduced. However, the offset method has much to commend itself in that it is able to adjust to future unpredictable changes in social security. The offset method with a pro rata deduction for social security based on years of service would seem to be most equitable, although this must be balanced by the employer's budgetary restrictions. In the offset method improvements in social security for persons already retired are not normally included in the offset; that is, the rules of the game are fixed, based on the facts known at the time of retirement.

In deferred group annuity plans, which are not broadly written today (except for very small cases) but which are still a significant factor with existing insured business, there will probably be greater pressure for conversion to deposit administration or IPG funding or for the introduction of a deposit administration supplement, in order to handle final-pay minimum plans integrated with social security.

V. Actuarial or Financial Problems

What special actuarial or financial problems have been faced in costing, or alternatively, in funding, these benefits for either salaried or hourly employees? How have these problems been solved?

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MR. JAMES A. CURTIS: Because of the inherent higher costs of final-pay plans, it is incumbent upon the actuary to use more precise actuarial methods and assumptions. For example, undue pessimism in the actuarial assumptions may result in an employer's deciding not to adopt a final-pay plan, whereas, if more realistic assumptions were adopted by the actuary, the costs might well fall within an acceptable range. By the same token the choice of assumptions that later prove to be too optimistic and hence produce much higher costs than originally bargained for can also produce serious problems. It is imperative that the employer understand the underlying assumptions employed by the actuary, especially under a final-pay plan. Contrary to our image as poor communicators, I feel that it is possible to discuss actuarial assumptions with an employer in sufficient detail that he will understand the implications of significant changes in the future level of earnings, withdrawal rates, and investment income.

With the advent of modern-day computers, actuaries have little excuse for not incorporating refinements in their calculations which will provide for a realistic determination of costs. Also, as mentioned earlier, actuarial methods which do not base benefits and costs upon projected benefit methods have no place in actuarial calculations of plans where benefits are based upon final pay.

MR. JAMES L. CLARE: Certainly maximizing the profitability of the investments is an important pension matter. It is important to any kind of pension plan, regardless of the benefit pattern. In practice, however, employers have often been most concerned about the profitability of their pension investments when they have had a final-pay plan with a substantial plan benefit unit. In this respect, final-pay plans have been a positive advantage.

One of the most powerful keys in maximizing the profitability of pension fund investments is flexibility in adjusting to conditions as they change from time to time. This is especially important with regard to the "split" of the assets between various types, especially between equities, on the one hand, and bonds and mortgages, on the other hand. One of the great weaknesses of typical variable annuity arrangements is that they encourage rigidity with respect to this split, absolutely with respect

to contributions already made to the variable annuity and to a large extent with respect to future contributions. A variable annuity can therefore be expected to result in *less profitable* investment performance than may be obtained from an aggressive investment program under a unit benefit plan, such as a final-pay plan, where the latter has proper reconsideration and adjustment of the investment split from time to time.

For example, consider the pension plan of the Imperial Tobacco Company of Great Britain and Northern Ireland. This pays final-pay pensions which (together with government pension payments) amount to 100 per cent of the final earnings of clerical and blue-collar workers who have a full career of service at retirement. The ITC then increases pensions at retirement. It has also just recently reduced the contributions of plan members.

The secret of success of the ITC plan has been a most aggressive investment program. The obvious equities exceed 97 per cent of the fund, and some of the remaining 3 per cent of the fund is in convertible debentures and similar assets which are quasi-equities. In the last twelve months that I examined, the excess *investment income* (not counting capital gains at all) more than equaled the total combined contributions of plan members and the employer.

I know of no variable annuity plan which is balanced one to one, or two to one, or three to one that can even come close to the investment success of this final-pay plan. Even more, I know of no variable annuity plan which can even pretend to be in the same league with this final-pay plan as far as the effectiveness of benefit planning is concerned.

The investments under the ITC final-pay plan are managed by an actuary.

VALUATION PRACTICES

At the last annual meeting of the Society of Actuaries I detailed my reasons why assets should always be taken 100 per cent at market value, in all valuations prepared for advising company managements (*TSA*, XX, 426–28). The necessary accompanying corollary of such a starting point in any valuation to be used by the employer in making management decisions is that all other assumptions be realistic.

The level and shape of the turnover assumptions have more “leverage” in valuing final-pay benefits than they have in many other types of pension plan. The need is to have a closely realistic turnover scale assumed—guided by the experience of the past and also (more essentially) guided by a best estimate as to what future turnover experience will amount to.

Realistic salary scales are also necessary. I suspect that too often em-

ployers have the idea that they can solve their pension benefit problems by changing, say, a career-average plan to a final-pay plan (with a substantial benefit unit) and perhaps increase pensions by 50 per cent—and without increasing their total costs under their plan by anything like 50 per cent. This strikes me as being a very serious situation. One answer, of course, is actually to round up examples of the employer's work force at (or approaching) retirement and to run actual calculations of the benefits that they would receive under the various alternative plans. It may be shown that the emerging pensions will be up by half, say, by changing from career average to final pay. Then any actuarial costing estimates which fall far short of showing that the total cost will be up by about half will need a great deal of explaining—and I wish the actuary doing the explaining lots of luck in his efforts.

CHAIRMAN ROBERT F. LINK: Incidentally, one illuminating step that you can take to audit your salary scales is to compute your total benefit liability on the basis of this year's salary and also do the same calculation on the basis of what this year's salary would be if you took last year's salary and projected it forward on the salary scale. The word "gap" often applies if you do not use a realistic salary scale.

MR. CLARE: Realistic assumptions and projected benefit funding methods will truly inform management on the realistic expected levels of liabilities and costs. However, it is by no means necessary that the employer should at first fund at these levels in order to have a "solvent" plan. All that is required is that he be aware of the long-term liabilities and obligations that he is undertaking.

An alternate valuation on a termination basis will show that the liabilities under the fund *at the present time*, and up to the next actuarial valuation, may be far less, and perhaps even one-half or less, of the projected liabilities. On termination of the plan, benefits would be calculated in relation to the then average earnings rather than in relation to anticipated average earnings at the normal retirement date. Also, the accrued benefit funding method would be in order.

Thus the valuation necessary for management advice, long-term funding appraisal, and so on, is one matter. Assessing the solvency of the plan and determining the funding to be arranged in the immediate future are quite different matters and require totally different approaches. Making calculations for regulatory bodies is another matter again; this is adequately covered elsewhere in the actuarial literature.

Atlanta Regional Meeting

MR. KENNETH K. KEENE: Two basic approaches are taken on the actuarial assumptions. One is to use a low salary scale reflecting the absence of inflation and to couple this with a low valuation interest rate. The other approach is to use a relatively high salary scale reflecting the actual or projected experience of the group and to combine this with a relatively high interest rate (assuming that equities form a significant portion of the funding). Some companies follow both approaches—one for IRS purposes and the other for internal cost accounting. It may be found that the IRS figures based on a low salary scale and a low rate of interest fall within those which emerge from the high salary scale and higher interest rate approach. It is my view that the actuarial assumptions should be realistic with regard to each element. Accordingly, I have a strong preference for the combination of a realistic salary scale and a relatively high interest rate.

In final-pay plans particularly, but also valid in career-pay or other plans, it is important to have a funding arrangement which provides an adequate base of equity-type investments. Today, this can be accomplished not only through stocks but through convertible debentures, bonds with warrants attached, "equity kickers" on mortgage investments, and real estate holdings.

With the proper mix of equity investments, a final-pay plan should not represent an undue financial risk for most employers. This is a long-term situation. Naturally, there may be shorter periods of time when inflation and equity investments do not correlate well.

If there are substantial salary changes during the year which might be greatly in excess of those produced by the salary scale, there would be material actuarial losses from this source. In fact, this might lead to a drastic fluctuation in the contribution level from year to year unless an appropriate actuarial method is being used. I would recommend the use of the frozen initial liability method, the aggregate cost method, or the assignment of actuarial gains and losses to the prior-service unfunded liability (to be spread out over a period of future years).

MR. BLACKBURN H. HAZLEHURST: There are certain problems in working with final-average-earnings benefits in terms of developing costs. For example, the full power of a final-average-earnings minimum benefit does not normally become apparent in relation to a career-average benefit unless a fairly realistic salary scale is used. Sometimes even this is not sufficient. For example, consider a career-average benefit of 1.33 per cent divided by 2.00 per cent versus a final-earnings minimum benefit of 1.00

per cent. Using a steep salary scale will still not disclose the power of the final-average-earnings minimum benefit, unless allowance is also made for a continuation of increases in the social security breakpoint with its consequent effect on the career-average basic benefit. Once proper allowance is made for social security increases, the 1 per cent minimum benefit assumes its real and dominant role. This situation illustrates the advantage of using individually realistic assumptions.

All in all, there would seem to be distinct advantages (with a possible exception of bargaining situations) in using a benefit formula which is realistic, that is, related directly to earnings near the time of retirement, and in using assumptions in forecasting benefits and costs which are individually realistic, including allowance for a continuation of historic inflation and historic increases in social security.

MR. ROBERT J. MYERS: Changes in the social security wage base in the past two decades (from \$3,600 in 1951 to \$7,800 in 1968) have only kept this element up to date with changes in the general wage level. It would seem desirable that, in any projections of private pension plan benefits that are integrated with social security, if a rising trend of wages is assumed, it should also be assumed that the earnings base will be similarly increased.

VI. Administration and Communication Problems

What have been the special administration and communication problems created by final-pay plans? How about communication of the actuarial status of the plan to participants?

New York Regional Meeting

MR. JAMES A. CURTIS: A practical problem of communicating estimated benefits under a final-pay plan exists, since usually an employer is reluctant to show projected benefits incorporating future increases in earnings. To get around this weakness, many plans are communicated on a "for instance" basis rather than by attempting to show an employee what his benefits might be using an anticipated future increase in earnings. If the actuarial status of a plan is communicated to the participants, no particular problem is involved under a final-pay plan if the actuary uses a realistic salary scale and periodically updates the scale to reflect the actual experience under the plan.

MR. JAMES L. CLARE: The present rush to communicate from the employer to employees overlooks the equally important—or perhaps far more important—matter of employees communicating back to the employer. The General Electric Company in the United States is doing some work in this direction, and I trust that more will be done in the future.

An "either-or" arrangement (combining a career-average unit of larger size with a final-pay minimum unit of smaller size) can solve a number of employee communications problems. It can solve the problem of moving from a career-average plan with a larger unit to a final-pay plan with a lower unit, since it assures plan members that nothing will be taken away from them. At the same time, it still provides the more generous over-all benefits that will result in most cases from the final-pay arrangements.

MR. CURTIS: In most cases final-pay plans are very desirable if the retirement benefit is to be related to earnings near retirement. If the actuary uses realistic assumptions and the projected benefit actuarial cost method, the cost of such plans can be determined with confidence.

MR. CLARE: Most well-established small and medium employers, operating pension plans on their own with career-average unit benefits, free from union bargaining (and excluding salesmen and university faculty

members), would, it seems to me, be wise to switch to final-pay plans. This can be done at a realistic cost if the benefit unit is set at a suitable level.

Equally, it seems natural and normal (to me at any rate) that practically all employers include cost-of-living increases in retirement. For some strange reason, however, while there seems to be very little fear among many employers of moving from a moderate-cost career-average plan to a high-cost final-pay plan, raising costs perhaps 50–100 per cent, they nevertheless are very wary of undertaking the relatively smaller cost of introducing increases after retirement to offset increases in the cost of living, which would perhaps raise total costs and liabilities by 25 per cent. The pre-empting of employer pension resources by the final-pay structure with a substantial unit of benefit is partly to blame.

Like a doctor, the actuary should diagnose the real problem first and then develop a solution afterward. Often the steps along the way should be as follows:

1. Determine the reasonable level of contributions to be made by plan members and by the employer.
2. Maximize the profitability of the investments.
3. Set the unit of final-pay benefit at an adequate level and provide for ample increases after retirement has occurred, not only to offset directly all increases in the cost of living but also to pass along productivity increases so that the retired person retains his "place in the community."
4. Set the ages of normal retirement where they can be afforded, on an actuarially sound, long-term funding basis.

Atlanta Regional Meeting

MR. BLACKBURN H. HAZLEHURST: Realism in assumptions is difficult in the case of employee communications, since it is undesirable to disclose a salary scale to individual employees. This is really more of a problem for career-average benefit formulas than for final-average benefit formulas, since a projected benefit without a salary scale puts a final-average-earnings benefit in its proper relation as a percentage of earnings, while tending to overstate the career-average benefit in terms of earnings near the time of retirement.

MR. KENNETH K. KEENE: To my knowledge the actuarial status of the plan is not communicated to employees. Of course, the report to stockholders may indicate the actuarial position of the plan if it is deemed material for accounting purposes.

There is sometimes a communication problem between the employer

and the actuary as to the valuation interest rate. In particular the employer may wonder why a low rate is being used when he knows that investment returns are much higher or his fund is actually producing a substantial investment surplus. He may be uneasy about the other assumptions, but he is forced to rely on the expertise of the actuary. Not on the interest rate, though! This condition is one reason why the various actuarial assumptions should be self-supporting with regard to each assumption.