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APPENDIX A: NUMERICAL EXAMPLE

OF COMPENSATION CALCULATIONS

To illustrate the analytical approach used in measuring the worth of the elements in the managerial pay package by means of "current income equivalents," the "typical" case history shown in Table A-1 was derived by averaging the year-to-year compensation experience of the some 550 different individual executives who comprised the large manufacturing sample. The tabulation records the mean values, by age, of the salaries, bonuses, pension benefit expectations, and other elements of remuneration enjoyed by those executives during the years in which they appeared in the sample. As such, it represents, of course, a composite set of circumstances rather than the history of any observable single individual.

We find that the typical manufacturing executive spent a total of 14 years in the sample. He was forty-nine years old by the time he attained a position in his firm sufficiently important to make his earnings of interest here.[1] During that first year, he received $61,750 before taxes in the form of direct cash salary and bonus payments, was promised $4,040 in annual noncontributory pension benefits upon retirement, and was required to contribute $510 toward the financing of a prospective annual contributory pension amounting to $3,600. He was, in addition, the beneficiary of a deferred compensation arrangement under which he was to receive $130 each year beginning at age sixty-five and continuing for nine years. The remainder of the table lists the corresponding magnitudes for each subsequent year of the man's employment.[2] We see that his current cash

[1] The nature of this threshold is discussed in Chapter 2.

[2] The fact that he turns out to leave the sample after age sixty-two can be explained in part by the effects of early retirement, death, and job mobility on the averages. The most influential factor, however, is purely technical: because

TABLE A-1

A Representative Compensation Experience
(amounts in dollars)

Executive Age	Salary Plus Bonus Receipts	Expected Annual Noncontributory Pension Benefit	Expected Annual Contributory Pension Benefit	Executive's Annual Contributions to His Pension	Expected Annual Deferred Compensation Payment [a]
49	61,750	4,040	3,600	510	130
50	65,290	4,940	4,340	610	170
51	68,210	5,490	4,990	700	210
52	72,790	5,930	5,270	760	310
53	74,660	6,790	5,730	860	500
54	76,710	6,980	6,200	910	690
55	83,130	7,430	6,740	980	730
56	84,880	7,830	7,260	1,100	1,140
57	91,000	8,740	8,220	1,270	1,710
58	97,950	9,520	9,250	1,460	2,290
59	107,620	11,070	10,350	1,610	2,670
60	114,630	11,830	11,370	1,770	3,360
61	121,560	11,810	12,330	1,910	4,600
62	132,180	12,960	12,870	1,940	5,890

[a] Payable for nine years, beginning at retirement.

earnings somewhat better than double over the interval shown, the pension he is promised approximately triples, and his deferred pay prospects increase by a factor of better than 45 times. While, on the average, the men in the sample also received two stock option grants apiece to supplement the rewards tabulated, the options are omitted here in order to limit the range of calculations required and to keep the dimensions of the presentation manageable. Since our concern, at the moment, is with the general character of the analytical results

the data collected end with the year 1963, there are in the group a number of executives whose histories are terminated in mid-career and who, therefore, are below the normal retirement age of sixty-five when their experience ceases to be of interest.

rather than with the details of the computations, this seems a defensible decision.[3] In the same vein, the federal personal income tax schedule which was in effect during the period 1954 to 1963 will be used throughout in determining the relevant tax liabilities so as to render the year-to-year comparisons consistent.

The outcome of applying to these data the valuation framework summarized in Chapter 2 is as indicated in Table A-2. Thus, when his outside income and the deductions and exemptions he was likely to claim are taken into consideration, the executive whose experience is depicted is estimated to have enjoyed, at age forty-nine, a post-tax cash income from salary and bonus receipts amounting to $38,560. In that year, it would have been necessary for him to pay a total of $3,550 in premiums to an insurance company in order to begin the purchase of an individual retirement annuity having an after-tax present value, from his standpoint, equal to the combined after-tax present value of his anticipated contributory and noncontributory pension benefits, net of the present value of the contributions he could expect to make between ages forty-nine and sixty-four at a rate of $510 per year. The $3,550 represents the *annual* premium that would have been required if such payments were scheduled to be made by the executive to the insurer [4] from ages forty-nine through sixty-four. The employer corporation involved would, in consequence, have had to raise his annual after-tax cash income by that amount if it had chosen to reward him as well via direct payments as by the two pension promises. In the terminology here, therefore, $3,550 is denoted the "after-tax current income equivalent" of the man's pension prospects as of age forty-nine.[5]

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[3] An illustration of the procedures involved for stock options can be found in Lewellen, *op. cit.*, pp. 56–58 and pp. 271–275.

[4] The premium rates built into these calculations in the study were obtained by averaging the figures quoted for nonparticipating individual retirement annuities by two large insurance companies—Connecticut General and Travelers, both of Hartford, Connecticut—for the calendar year in question in each instance. The nonparticipating feature meant that estimates of subsequent policy dividends were not necessary in the computations.

[5] It should be pointed out that an annual premium of this size does not necessarily permit the purchase of an individual annuity which provides for a payment in retirement to the executive which matches the aggregate $7,640 yearly benefit anticipated by him under the two pension arrangements shown. Since

TABLE A-2

Analysis of a Representative Compensation Experience
(amounts in dollars)

Executive Age	After-Tax Salary Plus Bonus Earnings	Pension After-Tax Current Income Equivalent	Deferred Compensation After-Tax Current Income Equivalent	Total After-Tax Compensation
49	38,560	3,550	30	42,140
50	40,240	4,350	40	44,630
51	41,550	4,970	50	46,570
52	43,600	5,360	80	49,040
53	44,440	6,180	150	50,770
54	45,350	6,620	230	52,200
55	48,040	7,340	240	55,620
56	48,770	8,080	450	57,300
57	51,270	9,810	780	61,860
58	53,970	11,700	1,150	66,820
59	57,590	15,050	1,430	74,070
60	60,130	17,640	2,070	79,840
61	62,640	19,110	3,550	85,300
62	66,250	23,150	5,580	94,980

Upon extending this analysis, the corresponding current income equivalent of the indicated deferred compensation arrangement turns out to be $30. That figure defines the additional annual after-tax payment to him which, if supplied by his firm beginning immediately and continuing *up to* his retirement, would have the same present value as the after-tax receipts he expects to enjoy from the deferred

both the tax treatment and benefit structures of individual annuities and corporate pension plans differ somewhat, and since an executive often must make contributions to the corporation's plan, it is typically not the case that a $10,000 individual annuity will have the same prospective after-tax present value as a $10,000 pension promise. A full discussion of these phenomena is contained in Lewellen, *op. cit.*, pp. 16–34. The pertinent differences are, in any case, reflected appropriately in the current income equivalent figures generated here and throughout the study.

payments promised *in* retirement. As was true in connection with his pension benefits, the possibility that the executive involved—here forty-nine years old—may not, in fact, live long enough to claim the full amount of either the deferred pay or its contrived annual current income equivalent is recognized explicitly in the attendant present value calculations by incorporating therein a discount for mortality as well as for time deferral.[6] Having made those calculations, we may combine the several results with the salary and bonus figures and assert that the aggregate value of the man's compensation package during the initial year tabulated was $42,140 after taxes. Had he been paid entirely in cash, take-home earnings of that magnitude would have duplicated the income, both direct and indirect, he experienced from all of his various actual rewards.

In the following year, his pre-tax salary-plus-bonus receipts increased to $65,290, giving rise to a gain of $1,680 to a total of $40,240 after taxes (estimates of deductions, exemptions, and outside income again being considered). Because his combined pension benefit expectation similarly grew by more than enough to offset in value the higher personal yearly contributions of $610 now required of him, the pension's current income equivalent jumps to $4,350. The extra $800 over the previous year denotes the incremental annual premium—payable at this point from ages fifty through sixty-four— which would add sufficient benefits to the original individual retire- ment annuity to augment its present value to the same extent as the net gain in value of the relevant pensions.. A revised aggregate current income equivalent is therefore created, consisting now of two over- lapping "layers" of annual payments, each representing the stream of premiums that would have been needed had the executive pur- chased for himself a series of individual annuity benefit packages

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[6] This requires, of course, that the age of each man whose compensation history is included in the sample be identified. The *Who's Who* publications cited in the text, supplemented by *Poor's Register of Corporations, Directors, and Executives* (New York, Standard and Poor's Corporation), supply the necessary data. The mortality table utilized is the 1951 Group Annuity Table for Males, which should provide a reasonable representation of the longevity characteristics of individuals covered by corporate pension plans during the time period at issue empirically. See Lewellen, *op. cit.*, pp. 24–25 and pp. 297–298.

having respective after-tax present values equal to the particular (incremental) set of pension benefit promises which were made to him in particular—and successive—years.

By the same reasoning, the current income equivalent of the man's deferred compensation is shown to rise to $40. The increase of $10 from the initial year would, if the executive could look forward to it annually in the form of an after-tax addition to his salary, be perceived by him as embodying a present value matching that provided by the observed modest jump in his deferred pay prospects. His total direct and indirect after-tax earnings for the year from the three compensation sources in question thereupon come to $44,630, a gain of $2,490 from the corresponding figure computed for him in the preceding year.[7]

It should not be necessary to trace through the remainder of our typical man's employment history with the same care, given the pattern of results we now see emerging. Each time his salary and bonus or either of his two retirement income arrangements change, a recalculation is made and an increment to the appropriate current income equivalents is determined. By the time his experience is no longer of concern, a comprehensive profile of his chronological earnings has been developed. We are able to specify how much of his earnings arise from particular devices in a way that not only permits precise statements about the man's own circumstances, but also makes possible meaningful comparisons of his total pay and its components with those of other executives. It is this kind of profile of the structure of managerial rewards toward which the original compensation study was directed, the resultant figures providing the background to the current investigation.[8]

[7] In making the calculations, the partial interdependence of the value of an executive's deferred compensation and his pension benefits is taken into account throughout. For example, if the deferred pay promise increases but the pension does not, the consequence of a progressive tax structure will be to raise the overall effective tax rate anticipated in retirement on the pension because of the larger aggregate taxable income now expected from both sources combined. The implied lower present value of the pension will show up as a reduction in its after-tax current income equivalent.

[8] As was noted earlier, the only other existing study having a broadly similar objective is that by Burgess (*op. cit.*). His methodology and that employed here differ substantially, however.