

The Investment Element in Life-Insurance Contracts

Author(s): S. H. Nerlove

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THE INVESTMENT ELEMENT IN LIFE-INSURANCE  
 CONTRACTS<sup>1</sup>

I

**I**N THE existing literature on life insurance and investments, it is practically impossible to obtain a definite and consistent answer to the question: Is it advisable, from the individual investor's point of view, to purchase investment-life-insurance policies?<sup>2</sup> Some writers, usually those who are in the life-insurance field, suggest that the investment policies, such as limited-payment life contracts and endowment policies, are always worth buying by those desiring an investment in addition to life-insurance protection. Other writers, particularly those

<sup>1</sup> This article is an outgrowth of discussions and work carried on by a class in Insurance. Grateful acknowledgment is here given to the members of that class: M. A. Chernoff, W. J. Graham, F. L. Hotz, D. Prosser, D. L. Sternfield, and A. S. Walter. Particular acknowledgment is made to W. D. Baskett, Jr., Assistant in the School of Commerce and Administration of the University of Chicago, who has done a great deal of the statistical work.

<sup>2</sup> The term "investment-life-insurance policy" is used here to represent policies that have a large "cash-surrender value" throughout most of the period they cover, such as limited-payment life policies and endowment policies. It should be noted that the large "cash-surrender value" in limited-payment life policies arises primarily out of prepaid premiums; whereas in the case of an endowment policy, it is explained both by the presence of prepaid premiums and by the fact that the endowment contract has a "pure-endowment" element.

who are in the investment field, indicate that usually it is inadvisable to invest funds with insurance companies.<sup>3</sup>

A careful analysis of the situation indicates that in most instances it is desirable to keep life-insurance contracts separate and distinct from investment contracts—to buy life-insurance services from a life-insurance carrier, and investment services through an investment institution. Under certain, but rather limited, circumstances, however, it may be found advisable to combine life insurance with investment, that is, to purchase life-insurance policies with a large investment element in them.

The reason why the existing literature does not clearly indicate the advantages and disadvantages of the investment element in life insurance is to be found in the differences of opinion as to what are the most accurate answers to the following issues: What is the distinction between life insurance and investment?

<sup>3</sup> Perhaps the first attempt to study comprehensively the investment element in life insurance was made in a series of weekly articles published in the *Saturday Review* (London) in 1895 (see *ibid.*, LXXIX [1895], 154-861, and LXXX [1895], 109-652). Since then very little has been presented in periodicals (see F. H. Kitchin, "Is Life Insurance a Good Investment?" *National*, XXXVI, p. 92; "Investment and Insurance," *Independent*, LII [April 12, 1900], 911-12; D. P. Kingsley, "Financial Side of Life Insurance," *ibid.*, LIII [December 19, 1901], 3043-44; A. W. Atwood, "When Insurance Is the Best Investment," *McClure's*, XLII [December, 1913], 204-21; A. Millard, "Bargain Hunting in Insurance," *Magazine of Wall Street*, XXXVII [February 27, 1926], 832; F. P. Clarendon, "How to Use Insurance for Investment," *ibid.*, XXXIX [December 4, 1926], 247; E. R. Woods, "Considering Life Insurance from an Investment Point of View," *Life Association News*, April, 1927; M. A. Linton, "The Material Return from Life Insurance as an Investment," *ibid.*, November, 1927). The first and probably only treatise on life insurance that devotes a chapter to the subject is Dawson's, *The Business of Life Insurance* (see W. M. Dawson, *op. cit.* [A. S. Barnes & Co., 1905], chap. xxiii). Since then, the following writers on insurance have given this subject some attention: W. F. Gephart, C. O. Hardy, S. S. Huebner, C. K. Knight, J. B. Maclean, B. D. Mudgett, W. A. Robertson, Riegel and Loman, and W. R. Scudder. Of this group the work done by W. R. Scudder and C. K. Knight is the most comprehensive. None of these writers, however, has treated this significant aspect of life insurance adequately. (See W. A. Robertson, *Insurance as a Means of Investment* [London: T. C. and E. C. Jack, 1912]; W. R. Scudder, *The Fallacies of Life Insurance* [privately printed, 1913], particularly pp. 176-84; W. F. Gephart, *Principles of Insurance, Life* [Macmillan Co., 1913], pp. 223-29; Riegel and Loman, *Insurance Principles and Practices* [Prentice-Hall, Inc., 1921], pp. 61-65; C. O. Hardy, *Risk and Risk-Bearing* [University of Chicago Press, 1923], pp. 255-56; S. S. Huebner, *Life Insurance, Revised* [D.

If it is granted that life-insurance contracts and investment contracts are quite distinct from each other, what part of the life-insurance policies now being sold are in reality investment contracts? Does this investment part of life-insurance contracts afford a satisfactory vehicle for investing funds?

## II

Almost every responsible person in the present industrial system is subjected to life-risks, to the uncertainty of loss of income occurring either to his dependents because of his actual death or to himself and dependents because of his economic death.<sup>4</sup> Life insurance is the available means of reducing these risks. When a person buys a life-insurance policy, he transfers all or a portion of a life-risk to an insurance carrier. If the life-risk in question is one that arises out of the possibility of "casket death," then a contract is purchased that provides for the turning-over of a lump sum of money or a periodic income either to specified beneficiaries or to the estate in case death occurs within the stipulated period of the contract. If the life-risk, however, is one that arises out of the possibility of economic death, then a policy is bought that provides for the payment of a lump sum of money or a periodic income to the insured person in case he has outlived, or is living at the beginning of, a certain

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Appleton & Co., 1924], pp. 19-28; J. B. Maclean, *Life Insurance* [McGraw-Hill Book Co., 1924], pp. 41-42; B. D. Mudgett, *Insurance* [Alexander Hamilton Institute, 1924], pp. 46-49; C. K. Knight, *Advanced Life Insurance* [John Wiley & Sons, 1926], pp. 220-28).

Of the writers on investments, the following have given some attention to the investment element in life insurance: A. W. Atwood, N. C. Fowler, Jr., D. F. Jordan, J. E. Kirshman, W. E. Lagerquist, M. W. Lipper, H. Lyon, and H. Withers. Of these, the most comprehensive work was done by H. Lyon, but none of them have dealt with the subject adequately. (See M. W. Lipper, *Investments* [Universal Business Institute, 1910], pp. 420-28; N. C. Fowler, Jr., *How to Save Money* [A. C. McClurg & Co., 1912], pp. 224-37; A. W. Atwood, *Putnam's Investment Handbook* [G. P. Putnam's Sons, 1919], pp. 45-50; W. E. Lagerquist, *Investment Analysis* [Macmillan Co., 1921]; D. F. Jordan, *Investments* [Prentice-Hall, Inc., 1923], p. 241; J. E. Kirshman, *Principles of Investment* [A. W. Shaw Co., 1925], pp. 835-37; H. Lyon, *Investment* [Houghton Mifflin Co., 1926], pp. 460-61; H. Withers, *Hints about Investments* [Eveleigh Nash & Grayson, 1926], pp. 25-35).

<sup>4</sup> Economic death may arise from industrial old age, ill health, etc.

stipulated period of time.<sup>5</sup> Policies are available that combine both of these contracts, making it possible for a person to transfer both types of life-risks by purchasing one instrument.<sup>6</sup>

When a person buys an investment contract, however, he burdens himself with risks. Instead of transferring some of the risks he is bearing, as he does when he is buying life-insurance services, he assumes additional risks in the hope of receiving periodically an income and eventually his principal sum.<sup>7</sup> The receipt of this income and principal sum, however, is not dependent primarily upon the occurrence of such a contingency as death. It depends only upon whether or not the funds have been used for a purpose that turns out to be profitable.

Interestingly enough, in the process either of buying life-risk reduction services or of assuming investment risks, one usually purchases a contract that will at some time in the future have an effect upon the amount of the wealth of his beneficiaries or upon the value of his estate. Perhaps this similarity of effect explains why investment and life insurance have often been confused with each other.

These two methods of taking care of the well-being of beneficiaries and affecting the value of an estate are not comparable, however, in other important respects. When one attempts to affect the financial status of his beneficiaries or himself by a continuing investment program, he always takes the chance that either "casket death" or economic death will occur before the task is accomplished. Life insurance, however, makes certain that these objectives will be attained. Also, it is worth noting that in the case of an ordinary investment, the wealth being accumulated usually can be withdrawn at almost any time for one's own use; the receipt of income or the obtaining of the funds invested not being dependent on the occurrence of any contingency. When one is protecting the financial position of his beneficiaries or himself by life insurance, however, he cannot withdraw

<sup>5</sup> These periodic incomes may take the form of annuities.

<sup>6</sup> To the extent that life-insurance policies have disability clauses in them, all of them protect persons against both types of life-risks.

<sup>7</sup> The assumption of these investment risks may very often be for the purpose of reducing life-risks.

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any funds at will; he cannot obtain anything until the contingency specified in the policy occurs.<sup>8</sup>

It is evident, therefore, that life insurance and investment are quite different. If a person is to act rationally, these two types of arrangements should not be confused with each other. Nevertheless, it is very difficult to keep them distinct, thanks in large part to the present practices of life-insurance carriers.<sup>9</sup>

### III

Although some types of life-insurance contracts have a larger investment feature in them than others, practically all life policies contain an investment element. This situation arises primarily out of methods now being employed in paying for life-insurance services. Practically all life policies are sold on a level-premiums plan, that is, an equal sum is paid periodically until the contract matures or expires. Since the mortality rate increases as one grows older, and the cost of furnishing life insurance varies almost directly with the probability of death,<sup>10</sup> in order to render life-insurance service on a level-premium basis, it is necessary to charge a premium in the early period of a life-insurance policy that is higher than the mortality and "loading" cost.<sup>11</sup> This extra sum is in reality a prepaid premium, an amount that is obtained to take care of the later periods (if the contract does not mature in the meantime), when the periodic premium paid will be even less than the mortality cost.

The portion of the periodic premium that is over and above the cost of rendering life-insurance services currently may be considered from the point of view of the life-insurance buyer as

<sup>8</sup> The investment element in a life-insurance contract can be withdrawn if the contract is surrendered.

<sup>9</sup> These practices, which have resulted in making almost every life-insurance contract now being sold a combination of insurance and investment, have probably arisen out of the attempts on the part of life-insurance carriers to develop attractive and convenient policies.

<sup>10</sup> In the case of pure endowments, annuities, etc., the cost of furnishing life-insurance services varies, of course, directly with the probability of living.

<sup>11</sup> The mortality and "loading" cost is the amount that a company has to receive from each policyholder in order to be able to cover policy claims and expenses of operating.

a sort of deposit or an investment with the life-insurance company. From the viewpoint of the life-insurance carrier, it may be thought of as a prepaid premium, or an amount that has been invested by the insured—a liability reserve. Life-insurance companies are forced by state regulation to return this sum in case the policy is lapsed, and they make it a common practice to “loan” this amount to policyholders.

Some of the life-insurance policies call for a greater prepayment of premiums than others, and, accordingly, these have a larger investment element in them. Of all life-insurance contracts, the ordinary term policies have the smallest investment feature.<sup>12</sup> They are contracts that mature either at the death of the insured within the period of the policy or expire at the end of this period. In the first instance, the beneficiary gets the face value of the policy; in the second case, no return is made to anyone. The investment element is so small in these life-insurance contracts that the life carriers are not even required to return the prepaid premiums. These policies, in other words, usually have neither a cash-surrender value nor a policy-loan value.<sup>13</sup>

The ordinary life policies have a larger element of investment in them than the term policies.<sup>14</sup> These contracts mature at the death of the insured or at the time insured has outlived the last

<sup>12</sup> The one-year term is strictly the only policy without a reserve. The term policies for longer periods have a slight reserve up until the last year; and the longer the term, the larger reserve.

<sup>13</sup> A few companies do give a cash-surrender value on their term policies, after the second year, and up to the last year of their duration. For example, in one company the cash value of a five-year term policy, at the end of the third year after purchased at age thirty, is \$0.31 per \$1,000 of life insurance. In the ten-year term policy, at the end of the sixth year after purchase at the age of fifty, it is \$14.76 per \$1,000 of life insurance.

<sup>14</sup> For example, measuring the investment element in these two types of contracts by the terminal reserve based on the American Experience Mortality Table and a 3½ per cent interest rate, it is found that the investment element in a twenty-year term compared to a whole-life policy is as follows: \$2.58 compared to \$33.23, at the end of five years, if the policies were taken out at twenty years of age; \$6.36 compared to \$89.42 at the end of ten years, if the policies were purchased at the age of twenty-five; and \$18.55 compared to \$219.15 at end of fifteen years, if the policies were purchased at thirty-five years of age. (See *The Handy Guide* [The Spectator Co., 1927], pp. 40, 41, 85, 86.)

age on the mortality table being used.<sup>15</sup> In both instances the face value of the policy is paid. The investment feature is larger in these policies than it is in the case of term policies, because the leveling process has to be done for a much longer period of time and, consequently, during the early periods of this contract the insured pays a premium which is considerably larger than the cost of life-insurance services currently rendered. Accordingly, this policy has both a significant cash-surrender value and a large policy-loan value.

Owing to the fact that all the premiums are to be paid within a relatively short period of time, the limited-payment whole-life policies have a larger investment element in them than the ordinary life policies. Of course, the shorter the period within which the premiums are to be paid, the larger is the investment element in each of the premiums paid during the early periods. These limited-payment life policies mature under the same conditions as the ordinary life policies. The difference is that in the case of the ordinary life policy, premiums are paid until the contracts mature; whereas in the case of limited-payment life policies, premiums are paid within a relatively shorter period of time—say ten, fifteen, or twenty years, providing, of course, that the policies do not mature in the meantime. In view of the limitation on the time during which the premiums are to be paid, these policies have a much larger cash-surrender value and policy-loan value than the ordinary life policies.

For illustrative purposes, Table I compares the investment element measured by terminal reserve values<sup>16</sup> in an ordinary life policy with a twenty-payment life policy at the end of five, ten, fifteen, and twenty years after the purchase of the policy.

The investment element in the fourth outstanding type of life-insurance contract—the endowment policy—is more diffi-

<sup>15</sup> Some insurance carriers have practically all their policies maturing at eighty-five years, although the American Experience Mortality Table runs through the ninety-sixth year.

<sup>16</sup> In early policy years the terminal reserve values are slightly larger than cash-surrender values or policy-loan values. A charge is usually made when the cash surrender value is taken out or a loan is made. After the early policy years, however, the cash and loan values are the exact terminal reserve values.



cult to measure. This difficulty arises out of the fact that endowment policies are a combination of two kinds of life-insurance policies: the pure-endowment policy and the term policy. Pure-endowment contracts mature either at the death of the insured or at the end of a stipulated number of years. If the insured is alive at the end of this period, he gets the face value of the contract. If he dies within the period, the insurance company is not obligated to pay anyone. The aim of these contracts

TABLE I  
COMPARISON OF THE INVESTMENT IN A \$1,000 TWENTY-PAYMENT LIFE POLICY WITH THAT IN A \$1,000 ORDINARY LIFE POLICY\*

AGE AT PURCHASE OF CONTRACT	INVESTMENT							
	At End of 5 Years		At End of 10 Years		At End of 15 Years		At End of 20 Years	
	20-Payment Life	Ordinary Life	20-Payment Life	Ordinary Life	20-Payment Life	Ordinary Life	20-Payment Life	Ordinary Life
20.....	\$ 86.62	\$ 37.73	\$189.76	\$ 81.76	\$312.68	\$132.94	\$459.42	\$192.04
25.....	95.49	45.76	208.95	98.94	343.86	160.36	504.59	230.50
30.....	105.74	55.73	230.04	120.10	379.19	193.61	555.22	276.02
35.....	117.52	68.16	255.78	146.01	418.33	233.28	609.92	327.58
40.....	130.92	83.54	283.23	177.20	459.51	278.40	666.72	383.47
45.....	145.86	102.20	311.52	212.62	500.15	327.27	723.24	441.35
50.....	160.90	122.99	338.37	250.69	537.10	377.76	776.73	498.04
55.....	175.61	145.61	362.37	290.50	567.10	427.64	824.93	551.19
60.....	.....	169.58	.....	330.10	.....	474.71	.....	607.12

\* The investment element, as measured by the terminal reserve values, was taken from *The Handy Guide* (The Spectator Co., 1927), Appendix, pp. 56, 57, 64, 65. The values are based on the American Experience Table of Mortality and a 3 per cent rate of discount.

is to furnish one with an income if he outlives a certain period of time, presumably his productive period. Term policies, as was shown above, mature either at the death of the insured within a given period of time of the policy or expire at the end of this period. In this case, however, the beneficiary gets the face value if the insured dies within the period of time; no one gets anything if the insured outlives the period of time. Accordingly, if one buys a combination of these two policies, an endowment contract, the beneficiary will get the face value if the insured dies within the period and the insured will get the face value if he outlives the period. The investment element in these endow-

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ment policies is larger than in any of the other important types of contracts.

Table II compares the investment element as measured by terminal reserve values in a twenty-year endowment policy with a twenty-payment life policy at the end of five, ten, fifteen, and twenty years after policy was purchased.

All of these types of contracts, with the exception of the endowment policy, render the same identical "casket-death" life-

TABLE II  
COMPARISON OF THE INVESTMENT IN A \$1,000 TWENTY-YEAR ENDOWMENT  
POLICY WITH THAT IN A \$1,000 TWENTY-PAYMENT LIFE POLICY\*

AGE AT PURCHASE OF CONTRACT	INVESTMENT							
	At End of 5 Years		At End of 10 Years		At End of 15 Years		At End of 20 Years	
	20-Year Endow- ment	20- Payment Life	20-Year Endow- ment	20- Payment Life	20-Year Endow- ment	20- Payment Life	20-Year Endow- ment†	20- Payment Life
20 . . . . .	\$185.47	\$ 86.62	\$408.10	\$189.76	\$676.06	\$312.68	\$1,000.00	\$459.42
25 . . . . .	185.39	95.49	407.79	208.95	675.54	343.86	1,000.00	504.59
30 . . . . .	185.41	105.74	407.51	230.94	674.85	379.19	1,000.00	555.22
35 . . . . .	185.71	117.52	407.45	255.78	674.00	418.33	1,000.00	609.92
40 . . . . .	186.67	130.92	407.98	283.23	672.61	459.51	1,000.00	666.72
45 . . . . .	188.73	145.86	408.62	311.52	669.88	500.15	1,000.00	723.24
50 . . . . .	191.27	160.90	408.61	338.37	664.75	537.10	1,000.00	776.73
55 . . . . .	194.80	175.61	408.33	362.37	656.29	567.10	1,000.00	824.93

\* The investment element is measured by the terminal reserve values as taken from *The Handy Guide* (The Spectator Co.), Appendix, pp. 64, 65, 69, 70. The values are based on American Experience Table of Mortality and a 3 per cent rate of discount.

† It is assumed that the pure-endowment element in this case is equivalent to an investment.

risk-reduction services during a given period of time. A person desiring to purchase \$10,000 of "casket-death" life insurance for ten years can receive that service by buying one of the following policies: (1) a ten-year term for \$10,000, (2) an ordinary life for \$10,000, (3) a limited-payment life for \$10,000, (4) a ten-year endowment policy for \$10,000. The first and fourth contracts mature at the end of ten years; the second and third can be lapsed at the end of ten years. In each case his dependents will be certain of receiving \$10,000 in case of his death within the ten-year period. It should be noted that the endowment policy contains an economic-death insurance element in it—the pure-endowment feature. It protects one against living

beyond his income-producing period, in addition to protecting the beneficiaries against a loss of income arising out of the death of the insured. This feature resembles the outstanding characteristic of an "investment" in so far as it furnishes one with assurance that at some future date he will increase his wealth whether or not a contingency such as death occurs. As we have already seen, the outstanding difference between an investment and a pure endowment is that the receiving of the income, and ultimately the investment, is contingent on the living of the insured. In the case of an investment, the wealth being accumulated can be withdrawn at any time.

Evidently, therefore, the most significant difference between the various life-insurance policies now being sold is the variation in the amount of the "investment element" they contain. Accordingly, whether or not one should purchase a twenty-payment life or an endowment policy instead of an ordinary-life policy<sup>17</sup> depends almost entirely on the advisability of investing funds with life-insurance carriers, that is, of purchasing investment contracts that are part of life-insurance policies.<sup>18</sup>

#### IV

In determining the advisability of making a given investment, it is necessary to consider at least three somewhat overlapping factors: (1) the rate of return that probably will be obtained related to the risk that is being assumed, (2) the expense and effort involved in taking care of the investment, and (3) the liquidity or salability of the investment.<sup>19</sup> Of the three factors, the first is by far the most important; the other two are

<sup>17</sup> The issue is raised with reference to a whole-life policy instead of some kind of term policy because the whole-life policy is the most convenient contract available to serve life-insurance needs with the least amount of investment element. Term-insurance contracts are difficult to obtain, and insurance carriers seem to be prejudiced against them.

<sup>18</sup> Of course, there are numerous other detailed differences between policies. From a cursory look at rate books one gets the impression that no two policies issued by two different companies are the same in all respects. It should also be noted that we are looking at the entire situation from the point of view of a life-insurance policy purchaser. From the point of view of the life-insurance actuary, every policy is practically the exact equivalent of every other policy. (See P. C. H. Papps, "Which Is the Best Policy?" *The Pelican*, April, 1924 [published by the Mutual Benefit Life Insurance Company].)

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significant, but ordinarily are not the deciding factors in any given situation. All of them, of course, can be considered adequately only in terms of the existing investment situation and the discernible investment tendencies.

Before considering these factors in determining the advisability of purchasing investment-life-insurance policies, it is essential to note that at least two different points of view are possible in approaching the question of whether or not one should invest his funds in a given way. It is possible to take the attitude that one should purchase sufficient insurance to afford the *maximum assured protection* desired for one's estate or beneficiaries and that any investments entered upon are for the purpose of improving one's own financial status. Or it is possible to take the attitude that one should take out insurance sufficient to afford only *minimum assured protection* for one's estate or beneficiaries and that any investments entered upon are for the purpose of improving both one's own financial status and the financial condition of one's estate or beneficiaries. Of these two attitudes, the latter is decidedly the more prevalent.<sup>20</sup>

If one takes the first point of view, the investment element in life-insurance policies affords, almost always, a desirable investment, and in many instances a very attractive one.<sup>21</sup> For individuals with this point of view who are willing to leave their funds in the control of life-insurance carriers for a period of twenty years, there is a reasonable possibility of obtaining from

<sup>20</sup> See treatises on investments for other lists of investment factors, particularly Chamberlain and Edwards, *Principles of Bond Investment* (Henry Holt & Co., 1927); H. Lyon, *Investment* (Houghton Mifflin Co., 1926); and W. E. Lagerquist, *Investment Analysis* (Macmillan Co., 1921).

<sup>21</sup> If a person wanted to be *certain* of leaving the largest possible estate, he should use all of his "surplus funds" for the purchase of a life-insurance contract. The issue being raised, however, is: How should one invest his funds?

<sup>22</sup> The rates-of-return figures that will be presented are those that were thought to be typical after a study was made of twelve life-insurance carriers. These companies were chosen at random and appear to be a "good" sample. Some of them are large, others are relatively small. They are well distributed geographically. Out of the twelve, eight are participating companies; two are non-participating; one sells both participating and non-participating policies; and one, although a stock company, has been paying its policyholders dividends.

In deciding what rates of return were most typical, a great deal of difficulty was encountered. Allowance had to be made for dividends and for differences in

5 to 12 per cent compound interest on the investment element.<sup>22</sup> If the policy with the investment feature be obtained between the ages of twenty and thirty-five, approximately 5 per cent compound interest can be received.<sup>23</sup> More than 6 per cent compounded will be the return if the policy is obtained between the ages of thirty-five and forty-five.<sup>24</sup> Eight per cent compounded will be received, providing the policy is taken out at age of fifty;<sup>25</sup> more than 9 per cent compounded, if it is taken out at age of fifty-five;<sup>26</sup> and approximately 12 per cent compounded, providing the policy was obtained at sixty years of age or over.<sup>27</sup>

These returns, especially in the later ages, are very high compared with the returns available on other investments with roughly the same amount of risk involved. Of course, the only significant risk arises out of the possibility that the insurance carrier will not be in a financial position to turn over at the end of the twenty-year period the cash-surrender value.<sup>28</sup> For, in terms

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policies. If an inaccuracy crept into the data, the error is probably in the direction of underestimating the rates of return rather than overestimating them.

See footnote under Table III, page 288, for detail as to how these rates of return were determined.

<sup>22</sup> The range of cases investigated was between  $3\frac{1}{2}$  and 17 per cent compound interest.

<sup>23</sup> The range of the cases investigated was between  $3\frac{3}{4}$  and 7 per cent compound interest.

<sup>24</sup> The range of the cases studied was between 4 and 8 per cent compound interest.

<sup>25</sup> The range of the cases investigated was between  $6\frac{1}{4}$  and  $9\frac{1}{2}$  per cent compound interest.

<sup>26</sup> The range of the cases investigated was about 7 and 12 per cent compounded.

<sup>27</sup> The range of the cases investigated was between 8 and 17 per cent.

<sup>28</sup> The five largest life-insurance carriers have been in business since approximately the middle of the nineteenth century. Between 1910 and 1926, only ten of the legal reserve life carriers have had serious financial difficulty. All of these companies were small; four of them failed, and six were either put in the hands of receivers or insurance departments. During this period there were roughly over 270 companies operating each year. Less than 3 per cent of the companies operating each year in this period got into financial difficulty. (See *The Insurance Year Book, Life Insurance* [The Spectator Co., 1927], pp. A539-44.) This is a remarkable financial record and compares very favorably with savings banks, land banks, and other financial institutions which are similar, from an investment

of the point of view taken, the person investing does not care what happens to the investment if he dies during the twenty-year period.

For individuals with this point of view who are willing to keep their funds invested for a period of fifteen years, investing with life-insurance carriers is profitable, although not as profitable as when the funds are kept invested for twenty years. If they purchase the investment policies between the ages of twenty and thirty-five, they will receive between 4 and 5 per cent compound interest.<sup>29</sup> If the purchase is made between the ages of thirty-five and fifty, between 5 and  $6\frac{1}{2}$  per cent compound interest will be obtained.<sup>30</sup> Much more than 7 per cent compounded will be the return if the policy is bought at the age of fifty-five.<sup>31</sup> And at least 10 per cent compounded will be received providing the policy is taken out at the age of sixty or over.<sup>32</sup>

These returns also are very large compared to the amount that can be obtained under present conditions from any other investment with the same risk—always assuming that the person being considered is investing only to improve his own financial status and is not interested in what will happen to his investment if he dies during the fifteen-year period.

Those who are willing to invest their funds for only a period of ten years will not be able to get returns as large as those just

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point of view, with life-insurance companies. This record also indicates that in investing with life-insurance carriers, one takes as little risk from the possibility of having the life-insurance company financially unable to pay as he does in buying the highest-grade railroad or public utility bonds or obligations of the United States government.

This excellent risk record is due largely to the present accurate methods employed in carrying on the insurance business and the extreme care being taken by insurance carriers with the selection and distribution of their investments. There is no reason to suppose that this situation will change in the future.

<sup>29</sup> The range of the cases investigated was between 2 and  $6\frac{1}{2}$  per cent compound interest.

<sup>30</sup> The range of the cases investigated was between  $2\frac{1}{4}$  and 8 per cent compound interest.

<sup>31</sup> The range of the cases investigated was between  $3\frac{1}{4}$  and  $9\frac{1}{4}$  per cent compound interest.

<sup>32</sup> The range of the cases investigated was between  $3\frac{1}{2}$  and 13 per cent compound interest.

mentioned. The rate of return measured in compound interest would be between 4 and 5 per cent if the insurance contract is purchased between the ages of twenty and fifty.<sup>33</sup> It would be approximately 6 per cent compounded if the policy is taken out at fifty-five years of age,<sup>34</sup> and considerably more than 7 per cent if the contract was purchased at sixty years of age or over.<sup>35</sup> These returns are more favorable, particularly in the later ages, than those that can be received from almost any other investment with the same risk, from the viewpoint of the individual who is investing to improve only his own financial status.

If one with this point of view wishes to invest his funds for only a five-year period, he will, under present investment conditions, find it inadvisable to consider the investment element in life-insurance contracts unless he is over fifty-five years of age. The return is between 2 and 3 per cent if the policy is purchased between the ages of twenty and fifty;<sup>36</sup> between 3 per cent and 4 per cent if contract is taken out between the ages of fifty and sixty,<sup>37</sup> and considerably over 4 per cent if the policy is bought at the age of sixty or over.<sup>38</sup>

<sup>33</sup> The range of the cases investigated was between  $1\frac{1}{2}$  and 6 per cent compound interest.

<sup>34</sup> The range of the cases investigated was between  $2\frac{1}{2}$  and  $7\frac{1}{2}$  per cent compound interest.

<sup>35</sup> The range of the cases investigated was between 3 and 9 per cent compound interest.

<sup>36</sup> The range of the cases investigated was between 0 and  $4\frac{3}{4}$  per cent compounded.

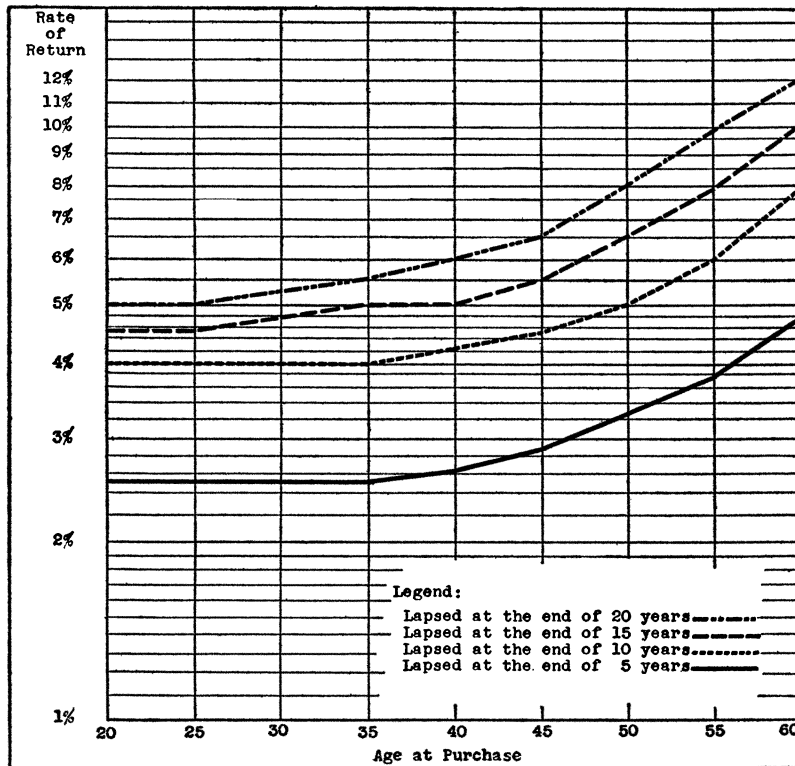
<sup>37</sup> The range of the cases investigated was between 0 and  $6\frac{1}{4}$  per cent compounded.

<sup>38</sup> For some data on what are the typical rates of return on investments, comparable to the investment element in life insurance contracts, see, particularly, Carl Snyder, *Business Cycles and Business Measurements* (Macmillan Co., 1927), pp. 206-7. According to Mr. Snyder, the average rate of return within recent years on bonds varied between  $4\frac{1}{2}$  and 7 per cent, and on real estate and farm mortgages  $5\frac{1}{2}$  to 10 per cent. (See, also, *Statistical Bulletins of the Standard Trade and Securities Service, Harvard Economic Society's Publications, Babson Statistical Organization's Letters, The Brookmire Service Investment Letters*, etc.) The present trend in the investment situation seems to be toward lower interest rates. (See, in addition to the various investment services mentioned, John Gibson's recent investment letters, and the National City Bank's recent letters.)

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Table III and Chart I indicate in more detail the approximate rate of compound interest that typically<sup>39</sup> can be obtained

CHART I  
RATES OF COMPOUND INTEREST RETURN ON THE INVESTMENT ELEMENT  
IN LIFE-INSURANCE CONTRACTS\*



\* See footnote to Table III for method used in obtaining rates of compound-interest return.

on the difference in premiums paid for investment-life-insurance policies and premiums that are paid for policies that are primarily life-insurance contracts.<sup>40</sup>

<sup>39</sup> See footnote to Table III, page 288.

<sup>40</sup> For other data on the rate of return on the investment element in life insurance, see M. A. Linton, "The Material Return from Life Insurance as an Investment," *Life Association News*, November, 1927, pp. 184-85; W. R. Scudder, *The Fallacies of Life Insurance*, chap. xii, pp. 176-83 (privately published, 1913); and C. K. Knight, *Advanced Life Insurance* (John Wiley & Sons, 1926), pp. 223-28.



TABLE III  
RATE OF COMPOUND INTEREST RETURN ON THE INVESTMENT IN  
LIFE-INSURANCE POLICIES\*

AGE AT PURCHASE OF CONTRACT	COMPOUND-INTEREST RETURN			
	At End of 5 Years (Percentage)	At End of 10 Years (Percentage)	At End of 15 Years (Percentage)	At End of 20 Years (Percentage)
20.....	2½	4	4½	5
25.....	2½	4	4½	5
30.....	2½	4	4¾	5½
35.....	2½	4	5	5½
40.....	2½	4¼	5	6
45.....	2½	4½	5½	6½
50.....	3¼	5	6½	8
55.....	3¾	6	7¾	9¾
60.....	4¾	7¾	10	12

The method used in determining the rates of return upon the investment element in life-insurance contracts involved the following steps: First: A base policy had to be chosen. Of all the available policies, the one-year term policy is strictly the only contract which represents insurance alone. In view of the fact that this policy is not sold by most insurance companies, one of the other insurance policies had to be taken. The next best policy was some other kind of term policy. Term policies are also not conveniently available. What is more, many insurance carriers do not offer any cash-surrender values on any type of term policy. Accordingly, it was decided to use the ordinary life policy as the base. Although the ordinary life policy contains a very low investment element, it, nevertheless, is the most convenient and easily obtainable insurance contract. Second: Once the base policy was chosen, the next step involved subtracting the periodic premiums paid for the ordinary life policy from the premiums that have to be paid for an investment—life-insurance contract, such as limited-payment life policies and endowment contracts. The difference in the premiums is the amount that is periodically being invested by individuals purchasing these investment—life-insurance contracts over and above the amount they are required to invest in buying the base policy. Third: The next step involved the determining of the rate of return by ascertaining the amount that was available as a result of paying these "extra" premiums at the end of various periods. The amount that was available as a result of paying these "extra" premiums was determined by subtracting the cash-surrender value of the whole life policy (the base policy) from the cash-surrender value available at the end of various periods on these higher-priced policies. This difference is the amount that has been accumulated as a result of the payment of "extra" premiums and the income on these periodic investments. Accordingly, by the use of compound-interest tables, it was possible to determine what was the rate of compound interest "paid" by insurance carriers on the "extra" premiums.

It was found by tests at different places on the table that if the term policy was used as the base policy, the rates of return would have been larger than those indicated by using the whole-life as a base policy. For example, if a man purchased a higher-priced policy than a term policy at the age of twenty-five years and kept his funds invested with the insurance company for five years, he would have obtained 5½ per cent compounded instead of 2½ per cent as indicated in the table. If the same person left his funds invested for ten years, he would have received 6 per cent instead of 4 per cent compounded. At the age of fifty-five years, he would have received approximately 7 per cent at the end of five years compared to 3¼ per cent, and 7¾ per cent compared to 6 per cent at the end of ten years. It seems therefore, that if any error was made in using the ordinary life policy as the base, it was in the direction of making the rates of return lower than they otherwise would have been. In view of the fact, however, that on most term policies no cash-surrender value is available, from the point of view of the person who is interested in choosing between one policy and another it is essential that the whole-life policy be used as the base policy.

The method used in determining the rates of return may be illustrated as follows: Let us assume that a person is comparing a twenty-payment life policy for \$1,000.00 with a whole-life policy for \$1,000.00. At the age of twenty-five the premium on the twenty-payment life policy, let us say, is approximately \$23.50. The premium on an ordinary life policy is approximately \$15.50. The difference, therefore, is roughly \$8.00. This amount can be considered as the annual investment in the higher priced policy over and above the amount that would be invested by buying the base policy. After ten years of paying for this twenty-payment life policy, its cash-surrender value or investment element is approximately \$175.00. The corresponding investment element in the ordinary life policy is \$82.00. At the end of ten years, therefore, the individual who bought the twenty-payment life policy has accumulated \$93.00. This amount can be considered to be the principal plus the interest that was received on the annual investment of \$8.00 per year for ten years. In this case it is found that the principal has been held at the rate of approximately 2.6 per cent compound interest. In this same way the rates of return were found for policies taken out at other ages, and for investment funds kept for five, fifteen, and twenty years.

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It is essential to note that the dividends paid on participating policies were taken into account in the process of determining the rates of compound interest. It is, of course, obvious that the dividends reduce the premiums that are paid periodically. They do not reduce these premiums, however, an equal amount each year; nor is the dividend on, let us say, a twenty-payment policy the same as the corresponding dividend in an ordinary life policy. The dividend element, therefore, could not be eliminated by merely subtracting the premiums of one policy from the premium of another. The method used in eliminating the dividends was as follows: If the interest rate for a five-year period was to be computed, the arithmetic average of the dividends for five years was taken and subtracted from the premium as quoted in the rate book. This is a very simple method of getting rid of the dividends and is not entirely correct. It was found, however, by tests of the various figures in the table, that the error in eliminating the dividends in this manner was usually much smaller than an eighth of 1 per cent.

The table shows just one array of interest rates, that is, the rates for the various high-priced policies are not distinguished from each other. The reason for this is that the rates of return on the difference in premium between these various types of investment-life-insurance contracts and ordinary life policies were discovered to be practically the same. The four policies, then, whose compound interest rates on the investment element conform to those presented in the table are the twenty-payment life, the twenty-year endowment, the ten-year-payment life, and the ten-year endowment. The similarity in the rates of return obtainable on the investment element in all of these policies was very striking. It probably is explained, however, by the fact that all of the contracts are based on the same Mortality Table and that the loading expenses are distributed in proportionately the same way. It is interesting to note that in the case of participating companies there was less variation encountered than in the case of those carriers furnishing non-participating policies. In these instances, the dividends seemed to iron out the differences.

After the rates of return, using the methods indicated and illustrated above, were obtained for four companies, a series of tests was made with the remaining eight companies. After some attempts to average these various rates, it was decided that the most typical rates of return were indicated by one of the twelve companies investigated. The rates of return for the other companies, both the participating and non-participating, were either almost the same as the one that was chosen to be the most typical or they were well distributed above and below the figures chosen. (See footnotes indicating "range," on pages 284-86.)

It should be borne in mind, of course, that 12 out of roughly 350 life insurance carriers were investigated, and, that the policies issued by these various companies were not identical. Furthermore, to some extent at least, the determination of what is "representative" or "typical" is based on subjective reactions toward the data. Nevertheless, it is thought that the rates presented furnish an accurate picture of present conditions.

If one takes the second point of view, which is by far the more usual, that life insurance is to be used for the purpose of obtaining a *minimum amount of assured protection* for the beneficiary and the estate, the investment element in life-insurance policies does not appear to afford a desirable investment. From this point of view, it is necessary to take into consideration the probability of losing the investment owing to the death of the insured. As was shown earlier, it is possible to obtain practically the same "casket-death" life-insurance services by buying any one of the variety of policies offered. The significant difference between them is in the extent of the investment element they contain. In case of death the difference between the total premiums paid for the investment-life-insurance policies and the premiums paid for policies that are primarily life-insurance contracts is lost. Taking account of this risk factor, makes investing with life-insurance carriers appear quite unattractive for those who are interested in their beneficiaries and estates beyond the face value of their life-insurance policies.

Table IV indicates clearly that the chance of losing the investment and accumulated income arising out of the probability of death are very large compared to the annual return, probably much greater than they are in other comparable investments. According to the data presented in this table, those who are willing to invest for a period of twenty years, take a 75 per cent

TABLE IV  
RATE OF COMPOUND-INTEREST RETURN ON THE INVESTMENT IN LIFE-INSURANCE CONTRACTS COMPARED TO CHANCE OF LOSS ARISING OUT OF THE PROBABILITY OF DEATH\*

AGE AT PURCHASE OF CONTRACT	INVESTED FOR 5 YEARS		INVESTED FOR 10 YEARS		INVESTED FOR 15 YEARS		INVESTED FOR 20 YEARS	
	Chance of Losing of Principal and Accumulated Interest (Percentage)	Compound-Interest Return (Percentage)	Chance of Losing of Principal and Accumulated Interest (Percentage)	Compound-Interest Return (Percentage)	Chance of Losing of Principal and Accumulated Interest (Percentage)	Compound-Interest Return (Percentage)	Chance of Losing of Principal and Accumulated Interest (Percentage)	Compound-Interest Return (Percentage)
20.....	2	$2\frac{1}{2}$	$4\frac{1}{8}$	4	$6\frac{3}{8}$	$4\frac{1}{2}$	$8\frac{3}{4}$	5
25.....	2	$2\frac{1}{2}$	$4\frac{3}{8}$	4	$6\frac{3}{4}$	$4\frac{1}{2}$	$9\frac{1}{8}$	5
30.....	$2\frac{1}{4}$	$2\frac{1}{2}$	$4\frac{3}{4}$	4	$7\frac{1}{8}$	$4\frac{3}{4}$	12	$5\frac{1}{4}$
35.....	$2\frac{1}{2}$	$2\frac{5}{8}$	$5\frac{3}{4}$	4	10	5	16	$5\frac{1}{2}$
40.....	$3\frac{1}{4}$	$2\frac{5}{8}$	$7\frac{5}{8}$	$4\frac{1}{4}$	$13\frac{3}{4}$	5	$22\frac{3}{8}$	6
45.....	$4\frac{1}{2}$	$2\frac{7}{8}$	11	$4\frac{1}{2}$	$19\frac{3}{4}$	$5\frac{1}{2}$	$31\frac{1}{4}$	$6\frac{1}{2}$
50.....	$6\frac{3}{8}$	$3\frac{1}{4}$	16	5	$28\frac{1}{2}$	$6\frac{1}{2}$	$44\frac{1}{4}$	8
55.....	10	$3\frac{3}{4}$	$23\frac{3}{8}$	6	$40\frac{1}{4}$	$7\frac{3}{4}$	59	$9\frac{3}{4}$
60.....	15	$4\frac{3}{4}$	$33\frac{1}{2}$	$7\frac{3}{4}$	$54\frac{1}{2}$	10	$74\frac{3}{8}$	12

\* For explanation of how the rates of return shown in this table were obtained, see footnote to Table III, page 288. The percentage chance of loss is measured by the probability of death taken from the American Men Select Table of Mortality. It is interesting to note that the rates of return are to some extent a reflection of the probability of death.

chance of loss to obtain 12 per cent compound interest, a 59 per cent chance of loss to obtain about 10 per cent compounded, a 44 per cent chance of loss to get an 8 per cent compounded return, a 26 per cent chance of loss in getting a 6 per cent compounded, and so on. Those who are willing to invest for either fifteen years or ten years also have to take high probabilities of loss to obtain attractive returns. Finally, those who wish to invest for only five-year periods have to assume in buying an investment-life-insurance policy a chance of loss; whereas, under present

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conditions of investment, they can obtain approximately the same return with practically no possibility of loss.<sup>41</sup>

In determining accurately the return obtainable on the investment element in life policies, it is worth noting the possible effect of the Federal income-tax regulation. According to the present income-tax law, the return that is received on the "extra" premiums paid for all investment-life policies, except the endowment, is not taxable. In the case of the endowment, however, in many instances the return is taxable to some extent.<sup>42</sup> This situation, of course, makes such policies as limited-life contracts with large investment elements more attractive than they would be otherwise. Precisely how much more attractive than other investments, will depend primarily on the amount of taxable income and whether or not the income from these other investments is exempt from taxes.

In regard to the factors other than the return-risk factor that should be considered in determining the advisability of investing funds with life-insurance carriers, very little can be said. Once the investment-life policy is bought, practically no expense or effort is involved in taking care of the investment. The in-

<sup>41</sup> It should be noted again that we think the rate-of-return figures presented are typical. They are approximately correct in all cases.

In view of the practical impossibility of measuring the risk involved in other investments, it is impossible to compare the percentage chances of loss involved in investing funds with life-insurance companies to the percentage chances of loss in investing funds with other institutions or in other ways. It seems to be evident, however, that the chances of loss in the case of investing with life-insurance carriers compared to the possible return are much higher than they would be elsewhere. At any rate they are much greater than people would be willing to assume for the probable return. (See C. O. Hardy, *Risk and Risk-Bearing* [University of Chicago Press, 1923], pp. 255-56.)

<sup>42</sup> According to the income-tax law at present, the amount received by the insured in the form of a cash value from any policy, or the face value of an endowment policy above the amount paid for that policy in premiums, is taxable. This amount received is never above the sum of the premiums paid except in some instances in the endowment policies. For example, at the age of twenty-five, the cash value after ten years, in ordinary life policy of \$1,000.00 is approximately \$98.94, while the sum of the premiums is roughly \$161.10. And at the age of fifty-five in the same policy, the cash value after twenty years is \$551.19, while the sum of the premiums is \$910.80. In a twenty-payment life policy of \$1,000.00, at the age of fifty-five, the cash value after twenty years is \$824.93,

insurance carrier automatically reinvests the income and takes care of the periodic deposits<sup>48</sup> that are being made. The outstanding administrative difficulty arises out of the fact that the investment feature is closely interwoven with the life-insurance contract. Accordingly, it is exceedingly difficult, and in many instances almost impossible, to segregate (except in logic) the investment element from the rest of the contract. For example, if a person holding a twenty-payment life wanted to take out his investment at the end of fifteen years, he would either have to allow his policy to lapse or get some kind of paid-up insurance. In the first instance, he would lose his present insurance, unless he was insurable at the time the contract was discontinued. In the second case, he would, of course, not get his investment in cash.

In so far as the investment feature can be separated from the life insurance, this type of investment is very liquid. Practically all insurance carriers are willing to give almost on demand the cash-surrender value of any policy in force two or three years. Of course, in some few instances the necessity of waiting even so short a period as two or three years may be a hardship.

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while the sum of the premiums is \$1,013.20. However, in the twenty-year endowment policy of \$1,000.00, at the age of twenty-five, the cash value after five years is \$185.39, and the sum of premiums is \$205.05; the cash value after thirteen years, \$562.37, and the sum of premiums, \$533.13; and the cash value after twenty years, \$1,000.00, and the sum of premiums \$820.20. After the age of fifty, the sum of the premiums is above the cash value throughout. The premiums used here for illustration are the net premiums, which are slightly less than those actually charged, because they do not contain a loading charge. (See *The Handy Guide* [The Spectator Co., 1927], Appendix, p. 55.)

If, however, the tax were levied on the income from the investment feature of life-insurance contracts, there would always be a tax on the high-priced policies when they were surrendered. The taxable amount in the case of, say a twenty-year endowment policy, would be greater than it is now. Such a policy, taken out for \$1,000.00 at the age of twenty-five, on being surrendered after twenty years would be taxable on \$353.00, rather than the amount under present conditions, which is about \$179.80. In other words, an increase in the taxable amount would be effected in the case of all policies. (See R. H. Montgomery, *Income Tax Procedure* [The Ronald Press, 1927], pp. 210-12.)

<sup>48</sup> Prepaid premiums.

## V

On the basis of the foregoing analysis, under present investment conditions it is inadvisable for practically all individuals to purchase investment-life-insurance policies. In so far as it is impossible to get a desirable life-insurance policy without an investment feature, it, of course, will be necessary to some extent to invest funds with life-insurance carriers. But it is possible and advisable to avoid buying limited-payment life and endowment policies.<sup>44</sup> The rate of return on the investment element in these policies related to all the risks assumed is less than it is in other investments. Furthermore, although the cost involved in taking care of this type of investment is lower than it is in the case of other investments, and although the liquidity is likely to be greater, many difficulties are encountered in liquidating this investment without seriously interfering with the life-insurance service being rendered.<sup>45</sup>

The very limited group of individuals who have *fully* taken care of their beneficiaries or their estates by life-insurance and are only interested in investments in order to improve *their own* financial position may find it advisable to purchase investment-life-insurance policies. For them the only undesirable feature is the fact that the life insurance and the investment is combined in one contract, making it difficult to deal with one of these two elements without interfering with the other. From their point of view, however, the deciding factor—the rate of return related to the risk assumed—is as high and in many cases higher than it is in other kinds of investments.

S. H. NERLOVE

UNIVERSITY OF CHICAGO

<sup>44</sup> Under present conditions the most convenient and easily available contract for life-insurance purposes that can be obtained is the whole-life insurance policy. This policy, however, contains a significant investment element.

<sup>45</sup> A number of writers, both those writing on investments and on life insurance, have justified the purchase of investment-life-insurance policies on the basis that they tend to compel persons to save. In this connection, see, particularly, C. K. Knight, *Advanced Life Insurance* (John Wiley & Sons, 1926), pp. 221-22; and H. Lyon, *Investment* (Houghton Mifflin Co., 1926), pp. 460-61.