THE VARIABLE ANNUITY

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BY

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A major concern in the United States today is the current inflationary tendencies of our economy. Inflation is practically relentless and no one is sheltered from it. As a result, people who try to plan for their retirement or any method of future funding must keep the future value of the dollar in perspective. Insured savings which carry a built in defense against the erosion of inflation are a relatively new development in insurance. The insurance industry created the variable annuity in order to provide the public with a retirement income; one which would give the consumer a hedge against inflation. ¹

An annuity is "... a series of payments made at equal intervals of time."² The common annuity yields a fixed amount of income periodically, and is suitably called a fixed or level annuity. There are a tremendous amount of pension plans and individual retirement funds which are based on this type of annuity and its related forms. The fixed annuity is now confronted with a formidable problem -- inflation. Inflation, which can be defined as "the decreased value of the dollar over a certain period of years",³ decreases the purchasing power of the fixed annuity's benefit. As the cost of living continues to rise, the level annuity's inability to suffice becomes more and more evident. The simple proof of this can be seen through the dollar differential that exists between yearly incomes of the 1940's compared to incomes of the 60's or 70's. Charts A and B give a graphical presentation of the cost of living index and the purchasing power of the dollar for the period 1940 - 1960. Neither graph exhibits a path which is beneficial to the general public.
The basic preparation for an annuity is done many years before the benefit payments actually commence. It is absurd to assume that the country's economy will be stable throughout that time. Similarly, it is impossible to speculate the manner in which the economy will have progressed by the time the annuity's benefit payments begin. As a result, the blueprints for retirement incomes must be carefully constructed.

"The prime objective in retirement planning is to provide an assumed income we cannot outlive and one which will be adequate to purchase the basic necessities and comforts of life." The level annuity falls short of this objective because it cannot guarantee that it will be adequate to purchase the basic necessities and comforts desired in the future.

The insurance companies have become aware that the nature of the fixed annuity does not provide the type of inflationary cushion needed in retirement planning. As a result, a new form of annuity was established. "The variable annuity was designed in an effort to retain the benefits of the life annuity and overcome the weakness of the conventional fixed dollar annuity which does not permit the individual to participate in our growing economy which loses purchasing power in times of inflation." The new product is the insurance industry's attempt to provide a hedge against inflation. This is done by the creation of an investment portfolio which theoretically will bear a direct correlation with the cost of living index. The portfolio is usually comprised of various common stocks. The hypothesis behind this type of investment is that common stocks normally fluctuate
with respect to the cost of living.

The successful variable annuity can truly overpower the fixed annuity in terms of real income. The following hypothetical example will closely follow and compare each type of annuity from its single premium birth through the commencement of the benefit periods. The situation should demonstrate the economy's impact on both types of annuities. "In 1941 a man invested $20,000 for his security. Half of this amount, $10,000, was invested in a non-participating fixed dollar contract of the Highly Solvent Life Insurance Company. The contract had the best rates then obtainable. It guaranteed that in 1960 he would have a cash surrender value of $18,000, or more, no less. At the same time, he invested $10,000 in an equity -- in the common stocks of the Highly Solvent Life Insurance Company at a price of $9.40 per share (the average index price in that year for Best's life insurance companies stock). In 1960 he cashed in the annuity and sold stocks ... (the results are as follows) ... In 1941 the consumer price index was 62.9. By 1960 it had doubled. Thus, the dollar in 1960 would buy only one-half of what it would buy in 1941. In terms of purchasing power, the $10,000 in fixed annuity was worth but $9,000 by 1960.

Now let us examine the common stocks ... looking only at the price appreciation. The average index was 9.4 in 1941. The average index price for 1960 (of Best's life insurance company stocks) was 181.4. For the $10,000 he invested in 1941 he received $193,000 in 1960."
Shares bought = 10,000 X (Index = 181.9) = 193,000
Old Index = 9.4

The contrast displayed in the example could also be presented graphically through the use of charts C, and D. Chart C compares the two annuities from actual dollar value perspective, while chart D demonstrates their values in real income. Real income is income adjusted for cost of living discrepancies. The diagrams and the annuity epic should prove conclusively that the level annuity cannot compete with the variable annuity during inflationary periods.

The example presented here exhibits the variable annuity as a simple form of investment. It eliminates many of the annuities' intricacies and does not concern itself with any problems that confront the variable annuity. For example, the common stock market does not always perform in a manner which benefits the public. During the years 1940-1960, the years used in the example, the value of the common stocks behaved very favorably for the investor. Unfortunately, the possibility of a loss through the common stock market is very real. This unpredictability leads to a certain amount of risk which must be undertaken by the insured. The risk involved has challenged the integrity of the insurance company since most people feel that with insurance there is no risk involved. The insurance industry in the recent past feared that the public would assume that the variable annuity was a way to reap the benefits of the common stock market while eliminating all speculation. This is an impossibility. However, there is an advantage to the investment program of the variable annuity. The annuity's investment program is created in a portfolio fashion. Therefore, it is not based on the movements of one stock.
Secondly, the stock selection is done by professionals who have been trained to establish a strong investment. In conclusion, the degree of risk involved with the variable annuity is considerably less than the normal risks associated with the common stock market.

Another problem which was not dealt with in our example, but does remain a deterrent to the prospective buyer, is the short term fluctuations of the stock market. The obstruction here is the inability for the market's fluctuations to coincide with the cost of living in the short run. The consumer is leary of this lack of synchronization only because he does not understand the true basis for the variable annuity. That basis "is in the historical long range similarity between the cost of living and the investment performance of the representative portfolios of common stocks". Therefore, the insured should not expect the stocks to vacillate directly with the cost of living index, and in actuality there is no need since the annuity will normally span several years. C. Freund, a well known economist, was quoted as saying, "... there is no need for common stock prices to fluctuate with precisely the same cycle and amplitude as living costs in order for variable annuities to achieve their objective. Since the variable annuity is a long term plan, generally stretching over many decades of accumulation during an employee's working life, followed by many years of retirement, it matters little whether short run cycles in living costs and stock prices coincide exactly".

To this point only the very basics have been discussed about the variable annuity. The following conclusions can be drawn thus far: a.) the variable annuity provides periodic benefits which reflect the performance of a segregated portfolio of equities; (b.) it is a hybrid
annuity which contains favorable features from both investment funds and fixed dollar annuities, and as a result of the influence that inflation places on retirement incomes this annuity has a vast potential. Since this brief outline has been established, it is now possible to delve further into the components of the variable annuity.

Variable annuities are not promises to pay a fixed number of dollars per period. They guarantee to pay a fixed amount of units instead. The value of these units is dependent upon the value of the insured's investment portfolio at the time each individual benefit payment is due. There is a twofold reason as to why insurance companies use units instead of dollars for valuation. First, it enables the purchaser to have a better mental grasp of the annuity concept. Serious problems could arise if the insured was to find that after starting with a premium of $10,000, adding $1,000 to it a little further into the future, and then later on discovering the total worth of his investment to be $9,000.\footnote{11} Of course, the $9,000 represents a greater number of units each with a smaller dollar value. The purchaser should more easily identify with the fact that the unit quantity had increased rather than knowledge of the investment's decreased dollar value. The second reason that insurance companies use units as measures of value for the variable annuity is because "the unit serves as an indicator of performance".\footnote{12} If the unit value is high, this is an indication that the stock portfolio is doing well, while a low value implies a downward trend for the stocks.

To proceed further in a discussion concerning the variable annuity and its associated unit concept, requires a knowledge of the mathematics which deal with the product. In general, the mathematics will vary with the particular type of plan chosen by the insured; however, there is a basic
outline which is followed. In the next section, this basic design will be established along with an analysis of the different types of benefit patterns which can be incorporated into the variable annuity. The formulas and symbolisms used here are based on pages 60-65 of Paul A. Campbell's *The Variable Annuity.*

The following symbols will be established and referred to throughout the remainder of this section.

- $V^A$: The value of one accumulation unit.
- $V^B$: The value of one annuity unit.
- $V^{PA}$: Value of the participant's share in the accumulation fund.
- $V^{PB}$: Amount of a participant's monthly benefit.
- $N^{PA}$: Number of accumulation units represented by a participant's monthly benefit.
- $N^{PB}$: Number of annuity units represented by a participant's monthly benefit.
- $F^{AB}$: Variable annuity separate account for, respectively, accumulation and annuity fund - market value as of end of a valuation period.
- $C$: Gross participant - contribution.
- $e$: Percentage deducted from contributions for sales and administrative expenses.
- $P$: Percentage deducted from contributions for premium taxes.
- $\sum$: Summation of participants or items.

The subscripting of "t" will be used to denote a value at time $t$. For example, $V^A_t$ would represent the value of one accumulation unit at time $t$. The subscripting of "x" will imply that we are concerned with a life age $x$. As each formula is presented, it will be preceded by a short verbal description and labeled for later reference.
The accumulation units are the foundation of the investment. As each premium is paid a certain amount is deducted for sales, administrative expenses, and premium taxes. The balance is the net contribution. The amount of units purchased by a contribution is equal to the quotient of the net contribution and the value of a single accumulation unit at time $t$. 

Formula 1  units bought = \( \frac{C_t (1 - e^{-p})}{V_t^A} \)

The calculation is performed whenever a premium is paid. It is unlikely that the value from one period will ever equal the amount from another, since both $C_t$ and $V_t^A$ fluctuate with respect to time. The total amount of accumulation units owned at a time "$t$" would then be equal to the total of the previous investments plus the contribution at time "$t$".

Formula 2  \( N_{t+1}^PA = N_{t}^PA + \frac{C_t (1-e^{-p})}{V_t^A} \)

It should be noted here that the value of the insured's fund at a time "$t$" is equal to the total amount of units multiplied by the value of the accumulation unit.

Formula 3  \( V_t^PA = N_t^PA \cdot V_t^A \)

Also, the value of a solitary accumulation unit can be calculated by

Formula 4  \( V_t^A = \frac{f_t^A - \sum C_t (1-e^{-p})}{\sum N_{t-1}^PA} \)

There are occasions when the insurance company requires a knowledge of the total accumulation units outstanding at any particular time. This is acquired by performing a summation of formula # 2 over all the policy-holders as follows:
Formula 5 \[ N_{PA}^t = \sum N_{t-1}^{PA} + \sum \frac{C_t (1-e^{-p})}{v_t^A} \]

The accumulation fund represents the contributions made by the insured. Each payment is deposited into the stock portfolio until the maturation date is reached. At maturation the investment portfolio has its status changed to provide for the benefit payments. At that time, the accumulation unit ceases to exist and the annuity unit is born. The annuity unit serves as a regulator for the payments that are made to the insured.

There is a delay of approximately two weeks when the conversion is made from accumulation fund to annuity status. During this time, the initial monthly benefit is calculated. For simplicity, the computations here will be for an ordinary life annuity. The initial monthly benefit is equal to the product of the value of one accumulation unit times the total number of units divided by the cost of the annuity.

Formula 6 \[ V_{t-2}^{PA} = \frac{V_{t-2}^A \cdot N_t^{PA}}{12^a (12)} \]

The subscript on the \( V_{t-2}^A \) term of \( t-2 \) is the result of the two week time lag that exists in the conversion process.

The value solved for in equation #6 is a dollar value. This figure must now be converted into an equivalent unit value. To do so, the quotient is formed of the monthly benefit to the value of an annuity unit.

Formula 7 \[ N_{PB} = \frac{V_{t}^{PB}}{V_{t}^{B}} \]

With the number of annuity units determined, the periodic benefit is easily found. As each payment falls due, the fixed unit value is multiplied by
the portfolio index for that day, and the result is the cash value paid to the annuitant.

\[
V_t^{PB} = N^{PB} \cdot V_t^B
\]

Formula #8 will be evaluated on each payment date. Of course, the value of \( V_t^{PB} \) will vary in a direct relationship to \( V_t^B \).

The mathematical analysis of the conversion period employed the assumption that the type of annuity bought by the insured was an ordinary life annuity. There are two other types of annuities which are commonly associated with the variable annuity. They are (a.) the life annuity with an \( N \) period certain, and (b.) the joint and last survivor annuity. The selection of either annuity would cause only a slight change in the variable annuity's mathematics.

The formula for an \( N \) period certain and life annuity is:

\[
12 \left( \frac{\ddot{c}}{n} + N \frac{\ddot{c}}{x} \right).
\]

This annuity has the same features as an ordinary life annuity with the special addition of a guaranteed payment period. If the annuitant was to die before the \( N \) year period was completed, the remaining payments would be delivered to the assigned beneficiary. The cost of this annuity is higher than that of the ordinary life annuity, because of the addition of the period certain.

The joint and last survivor annuity is also a relative of the ordinary life annuity. The difference is a special clause which relates to the survivorship of the annuitant's spouse. The clause states that if the primary annuitant should die, the benefit payments will continue to the spouse until the time of her death. Like the \( N \) period certain annuity, the joint and last survivor bears a greater cost to the insurance company when compared to the ordinary life annuity, and, as a result, is more
expensive. The mathematical formula for this form of annuity is:

$$\frac{12(a^x + a^y)}{12(a^x - a^y)}$$

The variety of annuity forms are limitless. Fortunately, the adaptation of the variable annuity to the desired annuity is elementary. The only change would be the replacement of the $12 a^x (12)$ in the denominator of expression #6 with the appropriate mathematics for the annuity selected. For example, the first benefit payment for a 10 year certain and life annuity would be:

$$\sqrt{V_t^b} = \frac{\sqrt[12]{V_{t-2}^a \cdot N^p}}{12 \left[ a^x (12) + 10 | a^y (12) \right]}$$

The denominator of this equation is greater than the one previously used. Therefore, the number of annuity units which would be purchased would be less than under ordinary life.

The scope of this mathematical investigation was limited to a specific type of annuity plan that offered full participation in investment results, expenses, and mortality. Different designs in the insurance companies' guarantees and various types of benefit plans result in many variations of this basic mathematical outline. There are, however, certain characteristics which are common to all plans. This includes the manipulations of two funds, the unit concept, and different annuity forms.

The coordination of the accumulation and annuity funds as two separate accounts can create a number of disturbances. First, "transfers from the accumulation to annuity status requires a shifting of securities independently of investment judgement." Secondly, only after a long duration of time is the accumulation fund large enough to generate a stable annuity fund. Lastly, the two funds can be created through different eras of inflation causing "discrepancies in the performance of the funds". These
disadvantages can be partially corrected by the insurer if he adjusts
the investment portfolio in an attempt to develop optimum savings during
the accumulation period, and tries to maximize stabilization from the
investment during the annuity period. In this manner, the volume of
dollars established during the accumulation period would be at a maximum,
while the benefit payments would not have much discrepancy from one period
to the next. This type of plan would be aesthetically pleasing to the
consumer.

The stabilization of the benefit payments is a difficult matter.
Formula #8 proved that the amount of each monthly benefit is determined
by the stock index at that particular time. The short run fluctuation in
the stock market can be drastic, and play an important role in the determina-
tion of each benefit. "It is entirely coincidental if the short-range
movements in the Cost of Living index parallel those of the variable
annuity portfolio and, in turn, benefit amounts. The fund can reflect
sudden losses or gains quite independently of economic conditions". There is reasonable worry that these untimely fluctuations will aggravate
the consumer, and cause him to lose faith in the variable annuity as a
retirement plan.

Two methods have been suggested as ways of combating this problem.
One technique would be to create a moving weighted average of the market
values when revaluing units. This method would consist of the continuous
average of the 8 to 10 previous market values to the present evaluation.
The averaging would tend to eliminate any severe fluctuations at one
particular time. The alternative suggestion involves the establishing
"of ceilings and floors on the movement of unit values". Here, the
insurance company creates a "benefit stabilization fund" which aides in the smoothing of the market values. Under this method an upper and lower limit are established for the market value. When the index elevates above the "ceiling", contributions are made into the "benefit stabilization fund", and it prices decline beneath the lower level, money is drawn from the fund. A graphical explanation would be as follows:

Investments into the fund

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   Investments into the fund
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Withdrawals made from the fund

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   Withdrawals made from the fund
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The intention is to keep the benefit near a level value between the maximum and minimum limits. Unfortunately, neither method works in its entirety. In the case of the "benefit stabilization fund", as well as the moving weighted average, serious problems would materialize under consistent years of low market values. The long term effect would be either the exhausting of the surplus fund or the continual decline of the moving weighted average. In either case, the original intent of the method would be thwarted by the unpredictability of the common stock market.

The varying payment factor is the risk placed upon the purchaser of a variable annuity. The insurer must forewarn the annuitant that his benefit is not stable, and is subject to the same fluctuations that influence the common stock market.

The variable annuity has enough salient features to justify the amount of speculation placed upon the purchaser. Most importantly, the insured is not the only participant who assumes risk. As a result of the variable annuity's uniqueness and several guarantees that are placed
on it, the insurance company also bears an element of risk which cannot be ignored. The guarantees are traditionally placed on annuity policies; however, because of the product's unusual investment program, there is a small twist which develops when they are applied here. The guarantees stated in the contract are as follows:

"1) Sales and administrative deductions will not exceed initial levels.
2) Fees for investment management and guarantees will not increase.
3) Mortality assumptions underlying the purchase rates will be applicable for the life of the contract - a mortality guarantee." 18

In effect, these guarantees imply that any variations that arise due to mortality or administrative expenses are borne by the insurer. When dealing with normal annuities, this is not burdensome because fixed annuities are created with a fixed interest rate. As interest rates increase during the life of the annuity, the insurance company profits. These profits tend to override the losses of mortality and fixed expenses. The variable annuity doesn't allow the insurer this type of cushion because of its investment program. Under the variable annuity plan, the investment profit is totally reinvested in the portfolio. Hence, the insured receives full benefit of increased interest rates. As a result, insurance companies cannot prepare to offset their losses as they normally do with annuities. To compensate, more conservative mortality tables are used. The hedging built into these tables provides the insurer with enough of a margin of safety to take the risk of the mortality guarantee. If special tables were not used in accordance with the variable annuity, the insurance company would operate with the hazard of deficient reserves.

The guarantees placed on the variable annuity are what make it distinct from savings accounts and mutual funds. The reason being that "guarantees of mortality and expenses are a feature which other investment vehicles cannot
offer; they provide a major selling thrust for the variable annuity".19 This factor should be emphasized by the agent who is attempting to persuade a potential buyer.

Variable annuities are sold as group policies as well as individual policies. Both forms require special care because of their unique form. The agent must have an ample knowledge of the subject in order not to mislead the client. At the same time he must demonstrate all the advantages that can be attained through the use of the product. Unfortunately, this develops into a serious problem. The problem is clearly summarized by John F. Guion who stated, "The overriding consideration on the part of the salesman, and on a professional pension consultant particularly, is his unwillingness to sell something that he does not understand".20 Compounding agent reluctance is the fact that the product is reasonably new and untried. Neither the agents nor the potential purchasers have been able to build the type of respect for the new product that is necessary to participate in active sales growth and administration.

The agent reluctance and initial company hesitation previously stated have hampered the growth of the variable security; however, the potential demand for the product remains favorable. The long term projection for the purchasing power of the dollar is that of a decline. Free use of credit, expanding population, and increased governmental expenditures insure the continuance of inflationary tendencies. This economic pattern will force the public to become aware of the devastating long range power of inflation.

As public awareness increases there are several types of consumer markets that will require the use of the variable annuity. Five important and distinct markets are as follows:
"1) Individual investors and income oriented persons.
2) Employer - employee welfare and pension plans.
3) Self-employed persons and their employees.
4) Self-employed members of associations or franchises.
5) Groups employed by religious, charitable, or educational institutions".21

The variable annuity's potential in each of these markets is excellent. If it can capture a large enough percentage of each, it will be highly successful. Here again, the annuities' success will depend on the sales administration presented to each of the marketable groups.

The sales administration for the variable annuity must recognize the type of competition it faces in order to develop an effective sales plan. The annuity faces confrontation from various forms of investment plans, and other forms of annuities. In both cases, the variable annuity has several appealing characteristics which the competitors are lacking.

Existing insurance plans present a well established opponent to the variable annuity. The major competition in the field is the forerunner of the product itself -- the fixed annuity. Recalling what was pointed out previously by example and graph, the fixed annuity cannot sufficiently satisfy the basic requirements of a retirement fund during inflationary periods.

The level annuity is not always the nemesis of the variable annuity. At times they are compatible, and are sold in conjunction. Since the risk of the stock market is placed on the insured, it makes sense to have a combination plan. In other words, investing in both forms of annuities. One investment to safeguard against inflation, and the other to cushion the fluctuations of the common stock market. Unfortunately, the emphasis that should be placed on the variable annuity is misguided. Most annuitants
are intent on placing the majority of their money in fixed annuities, and
any cash surplus into the variable annuity. As a result, they are inappro-
priately prepared for an economical upswing.

The strongest opponents which challenge the variable annuity are the
uninsured savings plans. Single premium variable annuities of both the
group and individual form successfully challenge these uninsured savings
plans. "They not only offer similar investment characteristics, but a
guaranteed payment of benefits as well. Since the consumer is concerned
about outliving his income, the combination of guarantees and performance
is attractive".22

The majority of variable annuities are not purchased by one large single
premium. Instead, they are paid for in periodic installments. "Installment
premium variable annuities compete with mutual funds, savings, and individual
investment programs with their success depending upon performance, emotion
and tax considerations".23 The insurance company must create a sales promotion
that will justify the consumers' expenditure into the new product over the
previously produced products. The advantages of "pooling risks, insurance
 guarantees, and tax position", should receive major emphasis.24

The single type of investment which exhibits the most direct opposition
to the variable annuity is the mutual fund. Purchasers of the variable annuity
often confuse its concept with that of a mutual fund. Both use the theory
of investment as a preventative against the decline of the dollar's purchasing
power. A comparison of mutual funds and variable annuities can be presented
as follows:

"Advantages of Mutual Funds:

1) Established record of investment performance.
2) Easy transition to insured products can be made later.
3) Simplicity of structure and contract.
4) Premiums not taxed.
5) No charges for insurance guarantees.
6) Variable annuity offers potential tax inequity on capital gains.

Advantages of Variable Annuities:
1) Offer a true retirement device from the beginning.
2) Lifetime guarantees of mortality and expense.
3) Investment income not taxed.
4) Established investment performance in other areas.

It is apparent that each investment offers its own exclusive advantages; however, the variable annuity is more suited for a retirement income. This is because the annuity was originally designed as a retirement fund.

The variable annuity's potential increases as steadily as our economy does. It "presents a new concept, an obligation to pay a future series of payments in a sum that varies". Proponents of the variable annuity contend that a real need exists for a means of savings which will hedge inflation and still have the life annuity feature. The variable annuity represents a form of future funding which has the capability of nullifying inflation. It therefore possesses a unique trait which will greatly enhance its marketability.

This discussion covered the general aspects of the variable annuity, an indepth analysis of its proponents, and its potential demand and marketability. The variable annuity is a product of our advancing society. It was created with the intention of allowing the public to participate in our growing economy. Theoretically, there is no reason why it should not perform to its utmost expectations and develop into one of insurances' most valuable products.
FOOTNOTES


4Johnson, p. 48.

5Johnson, p. 48.

6Glenn, p. 3.

7Johnson, preface.


9Campbell, p. 8.

10Campbell, p. 8.

11Johnson, p. 20.

12Johnson, p. 21.

13Campbell, appendix

14Campbell, p. 33

15Campbell, p. 33.

16Campbell, p. 43.

17Campbell, p. 43.

18Campbell, pp. 32-33.

19Campbell, p. 33.

21 Campbell, p. 56.
22 Campbell, p. 56.
23 Campbell, p. 56.
24 Campbell, p. 56.
26 Fricke, p. 3.
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The cost of living in U.S. is 5 times what it was 100 years ago — 3 times what it was in 1900 — 2 times what it was in 1940.

An annuity that ignores the cost of living is unrealistic.
When prices go up, the value of fixed dollar annuities go down.

Is it wise to rely solely on fixed dollar annuities that must depreciate in buying power when prices go up?
CHART D C
FIXED vs. VARIABLE ANNUITY PAYMENTS
(Hypothetical Comparison)

Amounts of Annuity per year 1940-1959
From Purchase Payments of $100 per year 1910-1940

NOTE —
The yield and market value of securities
have varied considerably in the past —
down, as well as up — and will prob­
ably do so in the future. No prediction
can or should be made of future per­
formance of variable annuities.

Source: Paper by Robert Duncan, Trans­
actions of the Society of Actuaries, Vol.
IV, Meeting No. 9. Main assumptions
are that the investment experience for
fixed annuities would equal average for
all life insurance companies and for var­
iable annuities would equal average for
all common stocks per Standard & Poor.
CHART D0

REAL INCOME FROM FIXED AND VARIABLE ANNUITIES (Hypothetical Comparison)

Source: Paper by Robert Duncan, Transactions of the Society of Actuaries, Vol. IV, Meeting No. 9. Main assumptions are that the investment experience for fixed annuities would equal average for all life insurance companies and for variable annuities would equal average for all common stocks per Standard & Poor.

Amounts of annuity per year (adjusted for cost of living changes) 1940-1959 from purchase payments of $100 per year, 1910-1940.