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VARIABLE ANNUITIES IN THE 1980'S AND BEYOND

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ABSTRACT

This paper attempts to quantify the benefits to the purchaser of a non-qualified variable annuity as compared to an investment in a mutual fund. An early discussion of this subject can be found in Society of Actuaries' Transactions dating back to the 1960's. With the advent of various tax and regulatory changes during the 1980's, an update on this topic seems appropriate, particularly in light of the recent renewed interest of both consumers and insurance companies in variable annuities. To that extent, an analysis of the benefits for insurance companies offering variable annuities has also been included in this paper.

After an introduction and a review of the history of variable annuities in the U.S., taxation and regulation are presented in detail to update the reader on the relevant changes that have taken place in the last decade. Current product designs are illustrated, along with the pertinent pricing considerations for the issuing companies. Current distribution channels are also discussed.

A separate section is devoted to a comparison of historic fund performance for investment options in variable annuities and mutual funds. The results of this analysis lead to the conclusion that after-tax annual returns on variable annuities have been higher

than those on mutual funds during the 1980's.

Finally, the paper illustrates recent sales results for variable annuities, as well as related product designs in other countries. A look at some areas of further research completes the study.

TABLE OF CONTENTS

I. Introduction

II. History

III. Taxation
1. Policyholder
2. Insurance Company

IV. Regulation

V. Current Product Design

VI. Pricing Considerations

VII. After-Tax Benefits - Variable Annuities vs. Mutual Funds

VIII. Distribution

IX. Advantages & Disadvantages
1. Policyholder
2. Insurance Company

X. Recent Sales Results

XI. Other Non-Traditional Annuities
1. U.S.
2. Other Countries

XII. Conclusion and Areas of Further Research

References

Appendices

I. INTRODUCTION

Variable annuities have been available in the United States since 1952, the year the College Retirement Equities Fund (CREF) was established. Initially, the product was very popular. By the end of 1958, more than 175,000 individuals were covered, with assets totaling more than $200 million (see [8]). Regulatory problems slowed growth of variable annuities through 1966, but by 1970, more than 800,000 individuals were covered under variable annuity plans.

The dismal performance of the stock market through the 1970's and the fact that most early products offered only a stock fund hampered the popularity of variable annuities. However, the availability of multiple fund options, coupled with the improved performance of the stock market, renewed consumer interest in the product during the 1980's.

As of year end 1988, more than 5 million individuals were covered under group and individual variable annuity plans, with assets totaling some $60 billion. In 1989, total qualified and nonqualified individual variable annuity premiums increased by 35% to an estimated $7.5 billion, whereas total industry premiums for life insurance only increased by 6%. Variable annuities accounted for 23% of all annuity sales in the U.S. in 1989, according to the Life Insurance Marketing and Research Association (LIMRA).

This positive trend has carried into 1990. Total individual variable annuity premiums are estimated at $10 billion this year. There is a significant amount of new product activity, with more than 80 companies now offering products in the market. The question remains whether variable annuities can retain their momentum if the current stock market setback will continue for an extended time period.

1. What are Variable Annuities?

A variable annuity is an annuity contract which allows the policyholder to invest the contributions in a variety of funds. Common choices include one or more stock funds, a bond fund, a money market fund, an asset allocation fund and a guaranteed interest fund ("fixed option"). Unlike a fixed annuity, variable annuities shift the investment risk to the policyholder, since the account value of a variable annuity contract varies according to the investment results in the corresponding investment funds.

Although most monies paid into variable annuity contracts are single premiums, the majority of contracts permit the policyowner to pay additional premiums at any time thereafter, provided they meet certain minimum amount requirements. Once paid, premiums accumulate based on the performance of the underlying funds, until the policyholder decides to annuitize the contract. During the accumulation period, all capital growth, interest earnings and dividends accumulate tax-free. A death benefit equal to the

maximum of the current fund value and the principal paid less any prior withdrawal is typically guaranteed by the insurance company.

At annuitization, the contractholder may select a fixed or a variable payout option. Under the fixed option, the contractholder receives a level monthly payment for a specified period. When choosing a variable option, monthly payments vary with the performance of the underlying funds.

2. Qualified vs. Non-Qualified Plans

Variable annuities, like fixed annuities, can be funded with either qualified (pre-tax) or non-qualified (after-tax) money.

Qualified plans such as IRA's (Section 408(b)) and Keoghs (Section 401) allow the contractholder to deduct any contributions from current income before taxes and to defer taxes on investment earnings. When offered as a qualified plan, variable annuities have no tax advantages over mutual funds. In addition, there are limits on the annual contributions in a qualified plan. Alternatively, IRA's could be invested in public mutual fund families which typically offer a larger selection of funds than variable annuity contracts.

Non-qualified annuities, on the other hand, are funded with after-tax dollars. Although the contributions are not tax deductible,

all inside growth compounds tax-deferred. In contrast, annual earnings on public mutual funds are taxable. Another advantage of the non-qualified annuity contract is that there are no restrictions on annual contributions as in qualified contracts.

3. Parties to the Variable Annuity Contract

The annuitant is the person who will receive the monthly annuity payments during the annuitization period, provided he (she) lives long enough. Most policies specify that the contract must be annuitized no later than the annuitant's age 85.

The contractholder (participant) is the person purchasing the annuity. The contractholder may be the annuitant or name someone else as annuitant and still retain control over the policy. He or she also has the right to direct the investment of premiums, name the beneficiary, change the annuitant or make partial withdrawals.

The beneficiary receives the proceeds from the contract, should the annuitant or the owner die during the accumulation phase or before the end of the annuitization period. Typically, the contract has a guaranteed death benefit feature during the accumulation phase, whereby the beneficiary will receive the greater of the contract value or the sum of all contributions less prior withdrawals.

II. HISTORY OF THE VARIABLE ANNUITY

The College Retirement Equities Fund (CREF), established in 1952 as a companion to Teachers Insurance and Annuity Association (TIAA), is commonly regarded as the first variable annuity being sold in the United States (see Campbell, [2]; Duncan, [3]).

Variable Annuity Life Insurance Company (VALIC), Participating Annuity Life Insurance Company (PALIC) and Equity Annuity Life Insurance Company (EALIC), all founded in the mid-1950's, were the first life insurance companies selling variable annuities.

In 1959, the Supreme Court ruled, in SEC vs. VALIC, that VALIC would be subject to federal regulation in order to continue to be able to sell variable annuities. As a consequence of this decision, VALIC had to register its variable annuity as a security under the 1933 Securities Act and itself as an Investment Company under the 1940 Act. This decision has become the cornerstone of today's dual regulation of variable annuities at both the federal and the state level.

In the 1960's, several other insurance companies began marketing variable annuities, among them the Prudential Life Insurance Company of America. The Prudential, through its cooperation with state and federal regulatory authorities, was instrumental in establishing the initial regulatory requirements for the variable

annuity, e.g. the New Jersey Variable Annuity Law of 1960 (see Campbell, [2]; see [8]).

After some initial popularity during the 1950's, sales of variable annuity contracts remained relatively low through the 1960's and most of the 1970's. This was due to problems with regulation and the initial product design of the contracts, which only included an equity fund for the investment of premiums. The dismal performance of the stock market during that period caused some companies to abandon the variable annuity market.

Sales picked up briefly during the late 1970's and early 1980's, but with the passage of the Tax Equity & Fiscal Responsibility Act (TEFRA) in 1982, annuity products were dealt another blow. According to TEFRA, federal tax liability for lump-sum withdrawals from annuity contracts is determined on a last-in-first-out basis, i.e. taxable income is withdrawn before the cost basis of the contract is withdrawn.

In the years following TEFRA, life insurance products, having preserved their treatment of withdrawals as cost basis first, interest last, were more popular than annuities. In particular, single premium variable life insurance (SPVLI) became the most popular variable product. SPVLI was being advertised as the last remaining tax-shelter, until the passing of the Technical & Miscellaneous Revenue Act (TAMRA) in 1988 put an abrupt end to the

euphoria surrounding SPVLI. TAMRA in effect discontinued the tax advantages of single premium life insurance over annuities, making variable annuities the product of choice in the variable market again. Today, more than 80 companies are offering variable annuities, with total sales in the individual market expected to reach $10 billion in 1990.

The following table indicates that individual plans, originally outnumbered by group plans, now encompass the majority of reserves.

Table 1

Variable Annuities in the U.S.

	Number of Persons Covered (000's)		Total Reserves (000,000's)	
Year	Group	Individual	Group	Individual
1967*	207	7	$ 60	$ 11
1970	702	110	2,413	153
1975	1,004	596	5,925	1,588
1980	1,559	756	9,958	4,820
1981	1,544	798	10,840	5,789
1982	1,511	897	11,418	6,821
1983	1,600	1,029	13,175	8,900
1984	1,802	1,195	15,729	10,069
1985	1,961	1,463	18,566	14,918
1986	2,218	1,914	22,314	20,791
1987	2,393	2,287	23,558	27,304
1988	2,597	2,465	26,819	33,080

Source: American Council of Life Insurance (ACLI) Fact Book.

* First year for which data was available.

III. TAXATION OF CONTRACTHOLDERS AND INSURANCE COMPANIES

1. Contractholder Taxation

Under Federal tax law, an individual may purchase an annuity with after-tax dollars (non-qualified annuity) and not be taxed on any earnings until he or she receives a distribution from the annuity, provided the distribution fulfills certain requirements described later in this section.

Alternatively, an individual, employer or trustee may, subject to various limits, purchase an annuity to fund a tax-favored retirement program. Examples of such programs are IRA's (Section 408(b)), salary savings plans (Section 401(k)), and tax-sheltered annuity plans (TSA's; Section 403 (b)). Under such a plan, employees may exclude annual contributions to an annuity from Federal gross income for income tax purposes.

In 1989, qualified variable annuity contributions exceeded non-qualified contributions: Based on a sample of 42 companies, approximately 53% of the total variable annuity contributions of $6.8 billion were from qualified variable annuity plans and the remaining 47% from non-qualified plans (see [12]).

A. Non-Qualified Annuities

Section 72 of the Internal Revenue Code (IRC) of 1986 governs the Federal income taxation of annuities in general. In addition,

Section 817(h) of the code imposes certain diversification standards on the underlying assets of variable annuity contracts.

Section 817(h) states that the policies will not be treated as annuity contracts for any period for which the underlying investments are not adequately diversified as required by Treasury regulations. There is a safe harbor provision which states that annuity contracts meet the diversification requirements, if at the end of each quarter no more than 55% of total assets are invested in cash or U.S. Government securities (see below).

According to Section 72, an individual owning an annuity policy will generally not be taxed on increases in the value of the contract until a distribution occurs, which can be either as a withdrawal of part or all of its value or as a series of periodic payments. Prior to the annuity starting date, any partial withdrawals are taxable to the extent that there has been any increase in the annuity account value. The balance of any withdrawal is treated as a return of the participant's "investment" in the policy and therefore not taxable.

The participant's "investment" in the contract equals the sum of all contributions made by or on behalf of the participant, less any previous withdrawals which were not taxable, less the value of any refund guarantees. Special rules apply if some or all of the contributions were made prior to August 14, 1982, or if contributions

made to another annuity contract prior to that date were rolled over in a tax-free exchange.

If a participant surrenders the contract prior to the annuity starting date, the taxable distribution is the difference between the annuity account value (less any applicable withdrawal charge) and the investment in the contract made by the participant. Once the annuity payments begin, a portion of each payment is considered a return of the original investment and therefore not taxable. This portion is determined by distributing the participants investment equally over the life expectancy of the annuitant at the beginning of the annuitization period. To calculate this life expectancy, specified mortality tables must be used. The remainder of each payment will be taxable.

After a participant has recovered the total investment, all future payments are fully taxable. If payments cease as a result of the death of the participant, a deduction for any unrecovered investment will be allowed on the participant's final tax return. The taxable portion of a distribution is treated as ordinary income for Federal income tax purposes. In addition, a penalty tax of 10% will be applied to the taxable portion of a distribution, unless the distribution is taken:

(1) After the taxpayer attains age 59 ½,

(2) As a result of the death of the contractowner or the disability of the taxpayer ,

(3) In equal installments as an annuity for the life of the taxpayer or the joint lives of the taxpayer and beneficiary, or

(4) With respect to income allocable to an annuity contract prior to August 14, 1982.

Additional rules may be applicable to contracts issued prior to January 18, 1985.

Upon the contractholders' death, the beneficiary is taxed on the difference between the death benefit and the contractholders' investment. Up to $5,000 of the death benefit may be excluded from a beneficiary's income. If the beneficiary elects a life income or installment option within 60 days, the periodic payments will be taxed under the regular annuity rules described above.

B. Deferred Compensation Plans (Section 457)

Corporations and partnerships may establish qualified plans for the owners and their employees which provide for contributions to be made to the contracts; these contributions are deductible from the employer's Federal gross income. The annual limit for contributions on behalf of an employee to all defined contribution plans of an employer is the lesser of $30,000 or 25% of the employee's compensation.

C. <u>Qualified Plans</u>

Variable annuities may be offered under any of the following qualified plans:

(1) H.R. 10 Plans or Keogh Plans (Section 401)

(2) Tax-Sheltered Annuities (Section 403 (b))

(3) IRA's (Section 408(b))

(4) Corporate Pension and Profit-Sharing Plans (Section 401(a), 401(k))

Any employee of an educational institution or other tax-exempt organization (Section 501(c)) may exclude from Federal gross income certain contributions made by the employer to a TSA certificate. Some or all of the contributions may be made under a salary reduction agreement. Contributions under such an agreement may not exceed $9,500 per year. Salary reduction contributions made under a cash or deferred arrangement (401(k)) are limited to $7,979 in 1990. This amount is adjusted annually for cost of living increases.

Any income or gains on contributions under qualified plans are generally not subject to Federal income tax until benefits are distributed. If a contract is surrendered, the amount received exceeding the participant's after-tax contributions (if any) on the contract is treated as ordinary income.

Distributions from a qualified plan or a TSA prior to the annuity starting date are usually treated as pro rata withdrawals of after-tax contributions and earnings on these contributions. If the plan allowed withdrawals prior to termination from service as of May 5, 1986, however, all after-tax contributions made prior to January 1, 1987 may be withdrawn tax-free prior to withdrawing any taxable amounts.

Distributions made during the annuitization period and upon death of the owner are treated similarly in a qualified plan or TSA as they are in a non-qualified plan (see above).

Distributions from qualified plans and TSA's must commence no later than April 1st of the calendar year following the year in which the participant attains age 70½. These distributions may be in the form of a life annuity, a joint and survivor annuity or some other form of periodic or lump sum payout. Special restrictions apply to withdrawals under the salary reduction portion of a TSA. Generally, withdrawals may be made only if the participant:

(1) Attains age 59½,

(2) Dies,

(3) Becomes disabled,

(4) Terminates service, or

(5) In case of financial hardship.

Similar rules apply in the case of employee contributions to a 401(k) program.

In qualified plans and certain TSA's, a participant who is married needs spousal consent any time he or she requests a loan, withdrawal or other distribution from the contract. In addition, unless the participant elects otherwise with the written consent of the spouse, all retirement benefits payable under the plan must be paid in the form of a qualified joint & survivor annuity (QJSA). Under a QJSA, the survivor annuity for the life of the spouse may not be less than 50% of the amount payable to the contractholder during his or her lifetime.

D. <u>Individual Retirement Annuities (IRA)</u>

The maximum amount of deductible and nondeductible contributions which may be made to all IRA's of an individual in any taxable year is $2,000 ($2,250 for a spouse IRA). Any income or gains on contributions under an IRA are not subject to Federal income tax until benefits are distributed to the participant.

Distributions from an IRA must follow rules similar to those of qualified plans or TSA's. However, distributions from IRA's are not eligible to the special five-year averaging method available in certain cases to distributions from qualified plans.

E. Advantages Over Taxation of Mutual Funds

An important advantage for annuity contractholders in non-qualified contracts is that investment earnings are not taxed until distribution. Therefore, provided monies are not needed, a contractholder may defer taxation on interest earnings until the money is received. This often occurs after retirement, when the individual is more likely to be in a lower income tax bracket.

As with variable life contracts, monies may be transferred from one fund to another in a variable annuity contract, without incurring current taxation. This offers an advantage over mutual funds, where such transfers would generate a taxable event.

2. Company Taxation

This section will describe only those provisions of current insurance company tax laws applicable to variable annuity contracts.

A. Definition of a Variable Contract

Under the 1984 Tax Act, in order for a contract to qualify as a "variable contract", all or a portion of all amounts received by the company's must be allocated to an account which is segregated from the company's general account, and the contract must provide for the payment of an annuity or must be a life contract. If the contract is an annuity, either the amounts paid in under the contract or the amounts paid out must reflect the investment return

and market value of the segregated account. For a life contract, either the death benefit or the period of coverage must reflect the investment return and market value of the segregated account.

B. Changes in Reserves

The increase or decrease in the reserves used to determine a life insurance company's taxes, shall, for variable contracts, be adjusted in the following manner:

(1) The amount added to variable contract reserves during the year to reflect the appreciation in the value of the underlying assets shall be subtracted from the change in reserves; and

(2) The amount by which variable contract reserves were decreased during the year in reflection of a depreciation in the underlying asset values is to be added to the change in reserves.

To the extent that an appreciation or depreciation is reflected in the variable contract reserves, the company's basis for the determination of capital gains or losses on the disposition of the underlying assets shall be increased or decreased by the amount so reflected.

C. Diversification Rule

It was not the intent in allowing for variable life and variable annuities that these contracts be purchased for motives other than those normally present in the purchase of a life or annuity contract. In other words, the motive in purchasing a variable life or variable annuity contract should not be that of purchasing an investment contract.

Therefore, the 1986 Tax Reform Act (1986 Act) provides that the IRS is to prescribe rules for the diversification of the segregated accounts, other than those used for variable pension contracts. The 1986 Act does, however, provide certain safe harbors. If investments are made in accordance therewith, the diversification requirements would be deemed to have been met. Generally, the safe harbor provision would be met if at the close of any calendar quarter:

(1) No more than 55% of the assets of the segregated account are invested in cash, cash items, government securities, securities of regulated investment companies and certain other securities subject to limitation as to amounts which can be invested, and

(2) No more than 25% of the assets of the segregated account are invested in the securities of any one company.

In March 1989, the Treasury Department issued regulations amplifying on the diversification requirements for variable contracts set forth in the code, and providing an alternative to the safe harbor provision described above.

Under the new regulations, an investment portfolio will be deemed adequately diversified if

(1) No more than 55% of all assets are represented by any one investment,

(2) No more than 70% of all assets are represented by any two investments,

(3) No more than 80% of all assets are represented by any three investments, and

(4) No more than 90% of all assets are represented by any four investments.

Finally, the diversification rules do not apply if the segregated account is invested in government securities only.

D. State Premium Taxes

Insurance companies currently have to pay premium taxes on annuity considerations in only a limited number of states. The amount of applicable tax varies by state and is subject to change by the legislature. The majority of jurisdictions do not impose any premium tax. As of June, 1989, premium taxes at issue of a deferred contract were imposed only by the jurisdictions listed below at the rates indicated. A few other states assess premium taxes at the beginning of the annuitization period.

Table 2

State	Premium Tax On Annuities	
	Qualified Contracts	Non-Qualified Contracts
Alabama	1.00%	1.00%
California	.50%	2.35%
District of Columbia	2.00%	2.00%
Kansas	-	2.00%
Kentucky	2.00%	2.00%
Maine	-	2.00%
Mississippi	-	2.00%
Nevada	-	3.50%
North Carolina	-	1.75%
South Dakota	-	1.25%
West Virginia	1.00%	1.00%
Wyoming	-	1.00%

IV. REGULATION OF VARIABLE ANNUITIES

Variable annuities are highly regulated insurance products. Like variable life, variable annuities are considered securities and as such are subject to federal securities laws. Companies issuing variable contracts must also comply with state insurance laws which are more onerous than those of other insurance products. However, most states exempt the variable annuity from state securities laws ("Blue Sky" laws). Finally, qualified variable annuities must comply with the laws of the Internal Revenue Code (IRC), which define pension and profit sharing plans eligible for favorable tax treatment (see Section III).

1. Federal Securities Regulation

Federal securities regulation consists of several laws and related regulations. They were enacted in the 1930's and 1940's by Congress to curb the abuses that had arisen in the securities markets. Under these laws, securities are required to be registered with the Securities and Exchange Commission (SEC) and to be sold through registered broker-dealers. The SEC governs the variable annuity as a security, the separate account as an investment company and the distributing company as a broker-dealer (see Campbell, [2]).

Although Congress originally excluded all life insurance and annuity products from SEC regulation, the SEC asserted jurisdiction

over variable annuities. In doing so, it argued that the statutory exclusions should not apply to contracts where most or all of the investment risk was borne by the contractowner rather than the insurance company. Passing on the investment risk made SEC disclosure regulation necessary and appropriate, in the SEC's view. The traditional mortality risk assumed by the insurance company under these contracts was viewed as sufficient to justify exclusion from federal regulation.

The SEC's position was first affirmed in a 1959 Supreme Court decision (SEC v. Variable Annuity Life Insurance Company), and reaffirmed in 1965 (SEC v. United Benefit Life Insurance Company).

With respect to variable annuity separate accounts, the SEC took the position that the separate account should not be viewed as part of the life insurance company. Rather, it should be viewed as a separate and distinct entity issuing securities rather than life insurance or annuity contracts. Therefore it was not entitled to the insurance company exclusion from investment company regulation. This position was affirmed in 1963 (Prudential Insurance Company v. SEC).

A. Securities Act of 1933 (1933 Act)

This statute prescribes certain filing, registration, and disclosure requirements which must be met before a security can be publicly issued.

(1) Registration. A security cannot be sold until a registration statement filed with the Securities and Exchange Commission (SEC) has been declared effective. This process includes receiving and satisfactorily responding to comments from the SEC staff.

(2) Prospectus Delivery. Prior to a sale, a prospectus must be delivered which contains certain specified information, including audited financial statements of the issuer.

(3) Antifraud Liability. Prospectuses and all sales material (including illustrations) are subject to potential antifraud liability. They must not contain materially misleading statements or omit required material statements. Sales literature is subject to a filing and comment process.

B. Investment Company Act of 1940 (1940 Act)

This statute regulates the operations of investment companies, which generally are defined to include entities which are engaged primarily in investing in securities. Mutual funds and separate accounts are deemed to be investment companies. The primary areas regulated include:

(1) Regulation of Charges. The 1940 Act places limitations on the amount of charges that can be deducted in connection with the issuance of investment company securities that provide for

periodic payments. No direct limitations are placed on expenses (e.g. commissions). Instead, different limits are placed on contract charges, depending on the type of expenses they are designed to cover.

(a) Sales Loads. Specific numerical limits are placed on the amount of sales loads that can be deducted. Generally, the average sales load deducted cannot exceed 9% of total payments during the first 20 contract years. The National Association of Securities Dealers (NASD) further limits initial sales charges to a maximum of 8.5% of premiums.

(b) Other Charges. Specific numerical limits are not placed on other charges. Instead, these charges generally must be "reasonable" in relation to the expenses they are designed to cover. Charges designed to cover investment management expenses (investment advisory fees) can include a built-in profit. Administrative charges generally cannot include a profit.

(2) Corporate Governance and Voting Requirements. Certain voting procedures must be followed in connection with the management of investment company assets:

(a) Electing directors;

(b) Approval of investment advisor agreement;

(c) Approval of changes in fundamental investment policies; and

(d) Approval of accountants.

(3) Operational Requirements. The administration system must be capable of the following:

(a) Investment company shares or units must be valued daily.

(b) Purchase payments and redemption requests must be processed daily based on the next computed unit value.

(c) Contract owners must be able to redeem at any time.

(d) Payments by the investment company generally must be made within 7 days after receipt of a proper request.

Early in 1990, the SEC announced that it would be undertaking a comprehensive study of the 1940 Act, in an effort to modernize the existing regulatory structure governing investment companies. In June 1990, the SEC published a lengthy concept release discussing a broad range of issues.

Among the issues under study is whether and the extent to which the requirements of the 1940 Act should apply to insurance company separate accounts. The concept release also seeks comments on whether variable contracts should be treated as securities for purposes of the registration and prospectus delivery requirements

of the Securities Act of 1933, as well as on more technical questions about the applicability of SEC disclosure requirements to the offering of variable contracts.

C. Investment Advisers Act of 1940

This statute requires the registration of entities which manage the assets of investment companies, including separate accounts.

(1) Investment advisers owe certain fiduciary duties to their clients.

(2) They are subject to record keeping and reporting requirements.

(3) Rule 206. In September 1987, the SEC adopted Rule 206 under the Investment Advisers Act of 1940. This rule requires:

(a) Advisers with custody or discretionary authority over client funds or securities to disclose precarious financial conditions to clients, and

(b) All advisers to disclose any material disciplinary events to clients.

D. Securities Exchange Act of 1934 (1934 Act)

All persons engaged in selling securities must register as broker/dealers and comply with certain specified requirements. This statute also contains some antifraud rules.

(1) Registration of Selling Entity. Because variable annuities are treated as a security at the federal level, either the issuing insurance company or a subsidiary/affiliate must register as a broker/dealer with the SEC and become a member of the National Association of Securities Dealers, Inc. (NASD) before contracts can be issued.

(2) Registration of Agents. Individuals need a federal securities license to sell variable life. This includes persons engaged in solicitation or conduct of sales of variable life products, but excludes clerical and administrative personnel. To obtain a license, an exam must be passed.

(a) The Series 6 exam for "Limited Representatives-Investment Company and Variable Contracts Products" satisfies the securities requirements to sell registered insurance products.

(b) The Series 7 exam for General Securities Representatives (generally considered to be more difficult than the Series 6 exam) may also suffice.

(c) All persons actively "managing" a broker/dealer entity must qualify as "principals." This includes senior officers and active directors. Principals must take another exam in addition to the Series 6 or Series 7 exam.

E. SEC Rules on Mortality and Expense Charges

In 1983, the SEC proposed Rule 26a-3 to regulate mortality & expense (M&E) risk charges on variable annuity products. M&E risk charges had to be reasonable or within industry standards to be deemed acceptable by the SEC. Up until 1987, the SEC took the position that it would not permit the registration of a product to go effective if the mortality and expense (M&E) charge in the contract exceeded 1.25% of the account value annually.

In February 1987, the SEC amended Rule 26a-3 and eliminated the maximum limitation on the M&E charge. Instead, each registrant has to represent that its M&E charges are with respect to the standards of the industry:

(1) Reasonable, and

(2) A bonafide charge to cover mortality and administrative expense risks.

If the M&E risk charge is above the range of industry practice, an explanation must be provided.

F. SEC Rules on Mutual Fund Expenses and Advertising

In May 1988, the Securities and Exchange Commission adopted new rules and substantial amendments to existing rules and registration statement forms that collectively impose stringent new requirements governing (1) disclosure of mutual fund expenses, and (2) advertising of performance data for mutual funds and variable annuities.

(1) Disclosure of Mutual Fund Expenses

(a) Publicly Available Mutual Funds. Mutual fund prospectuses must include a tabular presentation of expenses ("fee table") in the summary at the beginning of the prospectus. The fee table must reflect transactional expenses paid directly by shareholders (e.g., sales loads) as well as annual fund operating expenses (e.g., the advisory fee). The fee table will include an example showing the amount of these expenses that would be incurred by an investor redeeming at the end of one, three, five and ten years based on a hypothetical $1,000 investment and assuming a five percent rate of return.

(b) Underlying Funds of Separate Accounts. Mutual funds that sell their shares to variable annuity or variable life insurance separate accounts are subject to the same fee table disclosure requirements, with certain exceptions. Funds that sell their shares exclusively to variable life insurance separate accounts are exempt and may omit the fee table. Funds that support only variable annuity separate accounts are not required to include the fee tables if the variable annuity prospectus (or prospectuses) contain a fee table similar to that otherwise required in the fund prospectus. Funds that support both variable annuity and variable life insurance separate accounts can omit the fee table only if all of

the applicable separate accounts meet the conditions for exemption.

(2) Performance Data Advertising

(a) Publicly Available Mutual Funds. Advertising of mutual fund performance data is limited to (1) current yield, (2) tax equivalent yield, and (3) average annual total return for one, five, and ten year periods. Other historical measures of performance are permitted only if they reflect all elements of return. Except for money market funds, all yield quotations must be accompanied by the prescribed total return figures. Total return quotations are based on "rolling" twelve month periods that must be updated quarterly. Advertisements containing performance data must disclose the historical nature of the data and the risks of fluctuation of principal value (except for money market funds) and fluctuations of income.

(b) Variable Annuities. Advertising of variable annuity performance data is limited to the same type of yield and total return figures. The requirements for yield quotations to be accompanied by total return figures, and for all performance data to be accompanied by the required risk disclosure, also apply to variable annuity advertisements.

Variable annuity separate accounts organized as management companies are subject to the new provisions in an almost identical fashion as mutual funds. The performance data must reflect all expenses, including mortality and expense risk charges and insurance-related administrative charges.

Variable annuity separate accounts organized as unit investment trusts (which invest in underlying mutual funds) are subject to very similar requirements. The calculations are modified somewhat and are made at the separate account level to reflect all charges at that level (as well as at the underlying fund level).

(c) Underlying Funds of Separate Accounts. A mutual fund that sells its shares to insurance company separate accounts technically is eligible to advertise its performance data without taking into account the charges at the mutual fund level. However, in the SEC's view, it is misleading in most cases to advertise the underlying fund's performance, unless the performance data at the separate account level is also disclosed in accordance with the new provisions.

G. Statutory Exclusions From SEC Acts

(1) Qualified Plan Exclusions. In 1970, Congress passed the Investment Company Amendments Act ("Mutual Fund Bill"), which excluded separate account products issued exclusively in certain qualified plan markets from the substantive provisions of the federal securities statutes. The rationale for this is that qualified plans are represented by sophisticated investors able to fend for themselves or are protected by other statutes. Therefore, the substantive protection afforded by the federal securities laws are unnecessary.

(a) 1940 Act: Separate accounts are deemed not to be investment companies (and therefore are not subject to the 1940 Act regulation discussed above) if their assets consist solely of assets from contracts issued in connection with:

(i) Corporate plans qualified under I.R.C. Section 401(a);

(ii) Keogh plans;

(iii) Annuity plans qualified under I.R.C. Section 404(a)(2);

(iv) Certain governmental plans as defined under I.R.C. Section 414 for the exclusive benefit of employers;

(v) Cannot include assets from: IRAs, Section 403(b) plans, deferred compensation plans or Section 457 plans.

(b) 1933 and 1934 Acts. Contracts funded through such separate accounts need not comply with registration and prospective delivery requirements under the 1933 Act, and need not be sold by persons registered as broker/dealers under the 1934 Act.

Exception: Contracts issued to certain Keogh plans don't qualify for these 1933 and 1934 Act exemptions. To qualify, the Keogh plan generally must be adopted by an employer which either must be a law firm, accounting firm, investment banking firm, pension consulting firm, or investment advisory firm or must be advised by a qualified person or entity, unaffiliated with issuing insurance company, who is knowledgeable and experienced in financial and business matters.

(c) Antifraud Rules: Contracts are still subject to potential antifraud liability under SEC rules.

(2) Definition of Investment Company. Certain exclusions apply to separate accounts in variable products:

(a) Variable life and annuity products are subject to the 1933, 1934 and Investment Advisers Acts requirements, but not 1940 Act requirements if the separate accounts funding the product do not propose to engage primarily in investing or trading in securities <u>and</u> do not own or propose to acquire investment securities exceeding 40% of total assets (exclusive of Government securities and cash items).

(b) Therefore, real estate separate accounts can avoid 1940 Act regulation, if properly structured.

(3) <u>Group Annuities</u>. In 1963, the SEC issued Rule 3(c)-3 under the Investment Company Act of 1940. This rule provides that group annuity contracts and insurance companies issuing group annuities would be exempt from the 1940 Act, if they satisfy the following requirements:

(a) A provision for the guaranteed future issue of annuities <u>in fixed dollars</u> to cover employees on or after their retirement dates.

(b) Contract must be issued in conjunction with a plan qualifying under Section 401 of the Internal Revenue Code.

(c) Investments in the separate account are limited to employer contributions.

(d) At least 25 employees must be covered on the effective date of the contract.

The requirement of a fixed benefit during the payout period was removed in 1964.

In 1963, the SEC issued Rule 156 under the 1933 Act which provided that a group annuity contract utilizing a separate account may be exempted from the registration requirements of the 1933 Act, if certain conditions were fulfilled.

In 1969, the SEC adopted Rule 6e-1, exempting certain insurance company separate accounts from the registration requirements of the 1940 Act.

With the passing of the Mutual Fund Bill in 1970 (see (1)), Rules 3c-3, 6c-1 and 156 were rescinded.

(4) SEC Rule 151 ("Safe Harbor Rule"). On May 27, 1986 the SEC issued a release (Rule 151) which exempts any annuity or life insurance policy from the registration and regulation requirements of the various Federal securities laws. (see [11]).

In order to qualify for the safe harbor provided under Rule 151, an annuity or life policy must:

(a) Be issued by a corporation which is regulated by a state insurance commissioner;

(b) Include certain guarantees of principal or interest which are sufficient for the insurer to be deemed to bear the investment risk; and

(c) Must not be marketed primarily as an investment. However, a product which does not meet the provisions of Rule 151 may still be exempt from Federal securities laws. In such cases, a legal opinion is needed which states that the policy is not a security.

In 1987, a federal court decided in Otto vs. VALIC that a combination annuity (offering both variable and fixed investment options) is to be treated as a security. It appears that in order to qualify under the safe harbor provisions of Rule 151, insurers might have to promise not to change the excess interest rate on the fixed option more than once a year.

H. NASD Requirements for Broker/Dealers

The National Association of Securities Dealers (NASD) was established in 1939 to enforce the requirements of the Maloney Act,

an amendment to the Securities Exchange Act of 1934. All broker/dealers are required to register with the NASD.

Particularly with regard to the advertising of variable products, broker/dealers have to comply with numerous NASD requirements:

(1) The NASD requires that all material used in connection with the sale or attempted sale of a variable insurance product (or any other investment company product) must be approved in advance by the NASD.

(2) Only individuals can be registered with the NASD, not companies.

(3) The NASD does not permit suggestions that one company's products contain "unique" features or any other unsubstantiated claims.

(4) The NASD does not permit specific comparisons of one company's variable product with that of another company.

(5) Any item of sales literature can only be used when preceded or accompanied by a prospectus for the product mentioned.

(6) The use of any written article in connection with the sale of a specific product must be cleared by the NASD for such use.

In January 1990, the NASD proposed new deferred sales charge disclosure requirements for investment company products. However, these rules will not apply to variable insurance products.

2. State Insurance Regulation

The insurance industry is regulated by each of the fifty states and D.C. Instead of being regulated separately by each state however, the National Association of Insurance Commissioners (NAIC) typically adopts a model regulation on a particular subject, which is then passed by the states (see Walker, [7]).

In 1979, the NAIC adopted a model variable annuity regulation. As of January 1990, 23 states have adopted this model or a similar law. Twelve other states and the District of Columbia have adopted related regulations, and the remaining 15 states have not taken any action to date.

A. Model Variable Annuity Regulation

The following are the major provisions of the NAIC Model Variable Annuity Regulation (see Appendix A):

(1) Definition "Variable Annuity" (Article II). Variable Annuity means any policy or contract which provides for annuity benefits varying according to the investment experience of a separate account.

(2) <u>Separate Account (Article IV)</u>. Article IV, Section 1 deals with any limitations on the assets which may be held in the Separate Account. Among the provisions listed are:

(a) Separate Account funds up to the liability for any guaranteed benefits whose reserves are maintained in the Separate Account must be invested in accordance with the laws of the state governing the investments of life insurance companies. Beyond that, such funds may be invested without regard to any such limitations.

(b) With respect to 75% of the market value of the assets in a separate account, no more than 10% of such market value may be invested in securities of any one issuer, other than securities issued or guaranteed by the U.S. government.

(c) An insurance company and its separate accounts may not, in aggregate, own more than 10% of the securities of any one issuer, except where permitted by law or approved by the Commissioner.

<u>Note</u>: Paragraphs (b) and (c) do not apply to the investment of a separate account in an investment company registered under the Investment Company Act of 1940. Separate

accounts registered under the 1940 Act have a 5% limitation instead.

Article IV, Section 2 states that assets should be valued at market value, unless otherwise specified in the contract.

Article IV, Section 3 states that the assets in the separate account shall not be chargeable with liabilities arising out of the insurance company's other business.

Article IV, Section 6 states that the company shall maintain in the separate account assets with a value at least equal to reserves and other liabilities specified in the contract.

(3) Variable Annuity Contract (Article VI). Article VI, Section 1 requires a statement in the contract of the essential features of the procedure to be followed by the company in determining the amount of the variable benefits.

Section 2 states that illustrations may not be based on past experience, but must be based on clearly identified hypothetical rates of return.

According to Section 4, variable benefit payments may not be calculated using a higher rate of interest than 5% or a lower mortality table than the Annuity Mortality Table for 1949,

Ultimate, unless another table is approved by the Commissioner.

Section 5 states that reserves must be established in accordance with actuarial procedures that recognize the variable nature of the benefits and any mortality guarantees.

(4) Nonforfeiture Benefits (Article VII). The original Model Variable Annuity Regulation, adopted by the NAIC in 1974, contained only a short subparagraph about nonforfeiture provisions, without requirement for a specific level of minimum nonforfeiture benefits.

The current version of the NAIC Model Variable Annuity Regulation, adopted in 1979, added an article to require a specific level of minimum nonforfeiture benefits, as outlined below. To date, only two states (Maine, Texas) have followed the current NAIC Model on this. According to Article VII, the minimum nonforfeiture amount under a variable annuity shall be an amount equal to a percentage of net considerations adjusted by the net investment return (as described below).

The resulting amount shall be reduced to reflect the effect of:

(a) Any partial surrenders,

(b) Any indebtedness including interest due,

(c) An annual contract charge equal to (i) the lesser of $30 and 2% of the end of year contract value less (ii) the amount of any annual contract charge deducted from the gross considerations, and

(d) A transaction charge of $10 per transfer to another separate account.

The annual contract charge of $30 and the transaction charge of $10 will be adjusted for changes in the Consumer Price Index (CPI).

Net investment return means the rate of investment return credited to the variable annuity contract after all charges. This return shall be determined at least monthly.

The percentages of net considerations referred to above shall meet the following requirements:

(a) With respect to flexible premium contracts, the net consideration is defined as the gross premium less an annual contract charge of $30 less a collection charge of $1.25 per payment less any premium taxes. The percentages of net consideration shall be 65% in the first year and 87.5% in subsequent years. If contributions are increased by not more than two times the previous contributions, the percentage of net

considerations for the increase in the first year after the increase shall be 65%.

(b) For single premium contracts, the net consideration is defined as the gross premium less $75 less any premium taxes. The percentage of the net consideration is 90%.

The annual contract charge of $30, the collection charge of $1.25 and the single premium charge of $75.00 will be adjusted to reflect changes in the CPI.

To demonstrate that the minimum nonforfeiture laws are complied with, it is necessary to test the cash value at each of the first 20 contract years using a net investment return of 7%. The following additional assumptions may be made:

(a) One transfer per contract year occurs.

(b) State premium tax applicable to state of residence is incurred.

(c) The flexible premium policies assume that $100 per month is paid for the first 240 months.

(d) For single premium contracts, a single consideration of $10,000 is made.

(e) For contracts filed in 1980, the charges outlined above should be taken as read. For contracts filed in later years, the charges should be modified by the CPI for June

of the calendar year preceding the day of filing to the CPI for June, 1979.

(f) If the contract allows allocation to both fixed and variable accounts, assume 100% is allocated to the variable account.

For contracts which provide cash surrender benefits, the cash surrender benefits should never be less than the minimum nonforfeiture amounts and the death benefits should also not be less than the cash surrender benefits.

Any variable annuity contract which does not provide cash surrender benefits or death benefits at least equal to the minimum nonforfeiture amount should include a statement in the contract that such benefits are not provided.

(5) Required Reports (Article VIII). Article VIII requires that a report must be sent to the policyholder at least once a year showing investments held in the separate account. Also, an annual statement showing the business in the separate account must be filed with the Insurance Commissioner once a year.

In addition, a statement is required to be sent to policyholders once a year showing either the number of accumulation units and the dollar value of each unit or the dollar value of the contractholders account.

B. State by State Regulation

As mentioned before, regulations adopted by the states differ from the model regulation described above. Some of the more important deviations from the model include:

(1) Texas has a limit on the AIR of 3.5% for individual variable annuities, whereas New York sets the maximum AIR at 6.5% less the asset charges deducted from gross investment results. Several other states' requirements also deviate from the model regulation with respect to the AIR.

(2) Minimum nonforfeiture benefits are not included in the requirements of most of the states.

(3) New York requires a 10-day free look provision.

(4) Although variable annuities may be sold in all states, the process of obtaining the license to sell variable products ("Variable Authority") varies widely by state:
In sixteen states, a license to sell variable annuities is included with the regular life license. In two states, only a regular annuity license is needed to write variable annuities. In another fifteen states, the license to sell variable annuities may be obtained together with the license to sell variable life insurance. In the remaining states, a

separate variable annuity license has to be obtained before an insurance company can start selling variable annuities.

c. State Securities Regulation ("Blue Sky Laws")

In all but two states (North Dakota and Washington), Blue Sky Laws exempt variable annuities from their regulation. In practice, this means that individuals who sell variable insurance contracts and other insurance policies, but not securities, generally should not be subject to the state blue sky restrictions on dual registration of registered securities salesmen.

3. Norris Decision

In the case of Arizona Governing Committee v. Norris, the United States Supreme Court ruled that in connection with retirement benefit options offered under certain employer-sponsored employee benefit plans, annuity options based on sex-distinct actuarial tables are not permissible under Title VII of the Civil Rights Act of 1964. The ruling requires that benefits derived from contributions paid into a plan after August 1, 1983 be calculated without regard to the sex of the employee.

However, the ruling was not made retroactive, so that all benefits from contributions paid into a plan on or before August 1, 1983 may still be based on sex-distinct mortality tables.

V. PRODUCT DESIGN

Many variable annuities currently being offered have been introduced within the last few years, but some products have been around for 20 years or more. The following is a discussion of typical product designs available today.

1. Product Types

Most contracts offered today are of a flexible premium nature. Although an initial consideration of $1,000 to $5,000 is typically required for each contract, additional contributions may be made at any time during the accumulation phase. A minimum of $50 per payment may be required. Contracts in the qualified market generally have lower minimum contribution requirements than non-qualified products and may be purchased for as little as $20 initial premium. Payments may be made by check or through automatic deduction, the latter becoming increasingly common.

Almost all variable annuity contracts are offered as combination contracts. These contracts offer a fixed interest option, backed by the insurer's general account, along with the investment options available through the separate account. Contractholders may transfer monies between both types of accounts, although transfers out of the fixed option are usually limited to one per year.

2. **Death Benefits**

Should the annuitant die, the insurance company usually provides a death benefit equal to the greater of

(a) Fund value (cash value) of the account

(b) Premiums paid less prior partial withdrawals.

More recently, some contracts have enhanced this additional protection to the contractholder by updating the death benefit at regular intervals. The revised death benefit is the greater of the fund value and the death benefit on the last day of the immediately preceding n-year period (e.g., n=6), plus all purchase payments less withdrawals during the current n-year period. The cost of this additional benefit is included in the M&E risk charge (see Biggs, [1]).

3. **Sales Loads**

Sales loads on variable annuities consist of front-end sales loads, back-end sales loads which are only assessed upon surrender of a contract in the early years, and a charge for premium taxes incurred by the insurance company.

The most common product design today is a purely back-end loaded product, where a charge of up to 8% of premium or fund value is being deducted from the fund value upon surrender in the first year. This charge is designed to compensate the insurance company for some of the expenses incurred (e.g., commissions) in issuing the contract. Surrender charges may be level for the first four or five years, then grade down to zero by year twelve

at the latest. At annuitization, the majority of contracts waive any applicable surrender charges.

For competitive reasons, most variable annuities being offered today do not include any front-end loads, although a few contracts charge an asset-based distribution fee during the first seven to ten years. Premium taxes incurred by the insurance company in some of the states are being deducted at issue or at annuitization of the contracts.

4. Annual Contract Charges

Almost all companies deduct an annual administration charge of $20 to $35 from the contract value at the end of each year. This charge is designed to help pay for the administration expenses associated with a variable annuity contract. Some companies also assess an additional fund-based administration charge of 0.10 % to 0.25% each year. These administrative charges are guaranteed for the life of the contract.

The annual mortality and expense (M & E) risk charge is designed to reimburse the insurance company for the cost of providing guarantees for death benefits and contract charges. This charge is limited by the SEC to be

(1) Reasonable, and

(2) Within industry standards.

An annual M & E charge of 1.25% of fund value has been found acceptable by the SEC, with most companies charging between 1.00% and 1.25% of fund value annually.

5. Investment Options

A. Variable Investment Options

Variable annuity contractholders have a wide choice of funds available for the investment of their premiums. Most contracts offer at least five or six different options, including, but not limited to:

(1) Common Stock Fund,

(2) Aggressive Stock Fund,

(3) Bond Fund,

(4) Managed Fund, and

(5) Money Market Fund.

A growing number of companies also offer investments in

(6) International Fund,

(7) Gold/Natural Resources,

(8) Government Securities,

(9) High Yield Bond, or

(10) Stock Index Fund.

Many variable annuity contracts now offer the contractholder the choice of more than one fund series to invest in. Typically, this includes several funds offered through an affiliate of the insurance company, plus an additional fund series offered through a well known external investment advisor. The variety of funds

available in a variable annuity allows the agent or broker selling the annuity to have at least one good performing fund at almost any point in time, to be used in sales discussions with potential buyers.

Annual investment advisory fees range from a low of 0.25% to a high of 1.00% for the different funds available. Generally, international, gold and real estate funds have higher charges than the other funds. In addition to investment advisory charges, the contractholder also has to pay for additional operating expenses incurred by the funds, although the total of investment advisory fees plus operating expenses is usually capped at 1.00% to 1.50%.

B. Real Estate Option

Recent interest in real estate insurance products has led several insurers to offer a real estate option as an alternative to the other investment options in the variable annuity portfolio. Several companies are offering real estate - only variable annuities. Investments in a real estate option can be made in real estate investment trusts (REIT's) or in real property, such as shopping centers and office buildings. Investments in real estate must meet certain IRS diversification requirements (see Section III) to obtain the tax advantages of insurance products , such as tax-free inside buildup.

Products with a real estate option alone can avoid the registration under the 1940 Act, if no more than 40% of all investments are made in securities. Advantages of avoiding registration as an investment company under the 1940 Act for the insurance company are:

(1) Avoidance of SEC valuation and liquidity requirements.

(2) Insurer has more control over investment management, due to the absence of certain board and voting and custodial requirements.

(3) Avoidance of certain restictions on borrowing.

(4) Avoidance of certain load limits.

(5) Property may be bought and sold from affiliates.

However, real estate - only variable annuities also have some drawbacks:

(1) From a marketing standpoint, they are not diversified enough.

(2) The 40% limit of investing in securities may accidentally be violated at a given point in time, due to uncertainties regarding what real estate investments are securities.

(3) A large volume of assets ($50 million or more) may be needed to obtain adequate diversification.

(4) Higher fund operating expenses.

(5) Fund performance cannot be advertised.

For individuals interested in investing in real estate, a variable annuity offers an attractive product tax structure. All

investment income and capital gains accumulate tax-free until the payout phase, surrender or partial withdrawal.

There are some pitfalls, though. Annual fees for operating expenses and investment management total between 1% and 2% a year, almost double that of most other investment options available in a variable annuity. In addition, real estate annuities investing in individual properties may be very risky, given the current market conditions. The insurance company may not be able to rent the buildings or sell them at a good price, leading to low or negative returns for investors. Finally, investors who want to transfer funds into other investment options may find that they have to wait as long as six months for their money, if too many contractholders want to switch at the same time.

C. Fixed Option

The great majority of insurance companies offer their variable annuity as a combination contract, by adding a fixed option as an alternative to the variable investment options. This account is backed by the insurer's general acccount. All monies in the fixed option are credited a guaranteed interest rate which is reset annually by the insurance company. The rate is guaranteed to be at least 4% or 5% per year. Recently, some products have been offered with current interest guarantees of 8% or more for up to 10 years. Current credited rates for 35 companies averaged 8.22% at the end of March 1990, which is comparable to the

current interest guarantees on traditional fixed annuities (see [12]). Renewal interest rates are typically declared only once per year, to avoid registration under the 1940 Act.

Fixed options do contain a significant portion of the contractholders monies. Although it is impossible to tell how much of total variable annuity assets are in fixed option accounts (because many insurers include the variable annuity fixed option within their general account), a survey of 35 variable annuities revealed that as of year end 1989, an average of 40% of premium deposits initially went into the fixed account (see [12]).

D. Transfers

Transfers between the various investment options can be made without incurring any immediate tax liability. Although transfers are generally limited, many insurance companies allow their policyholders to transfer monies as often as once per month without levying any charges. A maximum of $25 is charged on each transfer thereafter. Data collected to date on transfers indicates that the great majority of contractholders does not transfer monies more than twice per year in a variable annuity contract. Transfers from the fixed option into any of the variable options are commonly restricted to only one per year, and must ocur within 30 to 45 days of the policy anniversary. In addition, such transfers are usually limited to 25% of the account value in the fixed option. Many contractholders are not

aware of the fact that once they transfer monies into the fixed option, it usually takes several years to get the money back into the variable options.

6. Unit Values

From each contribution, any applicable sales loads and administrative charges are deducted. The remaining amount buys a certain number of units which is determined by dividing the unit value at the valuation date (usually daily) into the net contribution. Since unit values vary with the investment performance of the underlying funds, successive equal considerations will purchase varying numbers of units (see Duncan, [3]; Macarchuk, [5]).

At the end of each valuation period, the unit is valued by multiplying the value for the previous period by the net investment factor for the current period. At any time prior to the annuitization phase, a policyholder's account value can be calculated by multiplying the number of units in each of the funds by the then current value of one unit.

7. Partial Withdrawals

Once per year, investors are allowed to withdraw a certain amount from their contracts without incurring any surrender charges. This free withdrawal may be 10% of prior year's premiums or up to 15% of the account value. Free withdrawals of annual investment earnings are also allowed by some companies. The contractholder

usually has the choice to allocate the withdrawal proportionately among all investment accounts (including the fixed option) or only among selected accounts. Withdrawals from the fixed option are normally limited to no more than 25% of the funds in the account in any given year, however.

8. Annuitization Phase

When the contractholder decides to annuitize the variable annuity, the full current account value of the contract is applied towards the purchase of an immediate annuity, resulting in a series of monthly income benefits. The contractholder has the option to transfer all of his account value into the fixed option at that time, thus changing the contract into a fixed immediate annuity with guaranteed payments. Alternatively, he or she may decide to allocate funds to the variable investment options during the annuitization phase, with payments varying based on the investment performance of the underlying funds.

A. Initial Monthly Benefit

The initial benefit payment is calculated as follows:

Monthly Benefit = (Account Value/1,000) * (Purchase Rate/1,000)

Purchase rates vary by age at annuitization and sex of the annuitant. Since women have a larger life expectancy than men, female annuitants typically receive lower monthly benefits than male annuitants at identical ages. Many companies provide equal

benefits for men and women ("unisex benefits") since the *Norris Decision* (see Section IV).

For a representative sample of 35 variable annuity products, average monthly purchase rates for a lifetime annuity with a 10-year certain period (described below) varied as follows:

Monthly Purchase Rate per $1,000 (10 Year Certain)

	Female/ Age 65	Male/ Age 65	Female/ Age 75	Male/ Age 75
Guaranteed Rate	$5.79	$6.26	$7.12	$7.61
Current* Rate	$7.65	$8.14	$9.07	$9.59

Source: Tillinghast VALUE Survey, fourth quarter 1989.

* Rates revised periodically by the insurance company.

Example:

For a male annuitant, age 65, an account value of $50,000 will provide the following initial benefit, assuming current purchase rates are those of the previous table:
Initial monthly benefit = (50,000/1,000) * $8.14 = $407.

For a female annuitant of the same age, a variable annuity with the same account value would provide a lower initial benefit of $382.50 (50* $7.65).

B. Calculation of Succeeding Monthly Benefits

The initial monthly benefit is converted to annuity units to determine future payment amounts. The number of annuity units equals the first payment divided by the value of an annuity unit at the conversion date. The number of units remains fixed thereafter (see Duncan, [3]).

During the annuitization phase, unit values vary according to net investment performance as compared to the assumed investment return (AIR). Net investment performance (after deducting M & E risk charges, administration fees and investment advisory charges) is offset by the AIR. Varying net investment performance, inherent in equity and bond funds, will therefore lead to varying monthly payments. Some insurance companies apply certain techniques to smooth monthly benefits (see Campbell, [2]; Biggs, [1]).

Generally, the AIR varies between 3.5% and 5%. Some companies allow the policyholder to select the AIR. Choosing a higher AIR will lead to higher initial payments. Therafter, the payment pattern depends on the net investment performance. However, most states will not allow an AIR of more than 5% (see Section IV).

C. Annuity Options

The most common annuity options are:

(1) Life Annuity. Payments are made for the life of the annuitant. This option is not a very popular choice, because an early death of the annuitant will cause payments to stop only a short time into the contract duration.

(2) Life Annuity with N Years Certain (N=5,10,15,20). Again, payments are made for the life of the annuitant, but will continue to the beneficiary until the end of the N year certain period, if the annuitant dies before the end of this period.

(3) Unit Refund Annuity. A life annuity with a death benefit equal to the value of the excess of the participants account value at conversion over total annuity units paid to the participant (if positive). The death benefit is expressed in terms of annuity units here.

(4) Joint and Survivor Annuity. Monthly payments are made during the joint lifetimes of the annuitant and a designated beneficiary (usually the spouse of the annuitant). Payments are continued at a reduced amount upon the death of either annuitant or beneficiary for the life of the survivor. In qualified pension plans, a qualified joint and survivor annuity (QJSA) is the mandatory option during the payout phase (see Section III). The benefit to the

survivor must be at least 50% of the joint benefit, unless the beneficiary waives this right through a written agreement.

(5) Period Certain Annuity. Monthly payments are made for a certain number of months (60, 120, 180, 240) only. With this option, it is possible for the annuitant to outlive the duration of payments.

9. Recent Product Innovations

Currently, there is a significant amount of activity with regard to variable annuity product design. Some of the more important of these developments are:

A. Lower M & E Risk Charges

With the reproposed Rule 26a-3 in 1987, the SEC basically declared an annual M & E charge of 1.25% to be the maximum allowable charge. All contracts which have been declared effective by the SEC since then have M & E charges at or below this limit. Up until 1987, contracts with M&E charges higher than 1.25% were being accepted by the SEC, some of which are still being sold today.

B. Asset-based Distribution Charges

The move towards lower M & E charges has led some companies to introduce an asset-based distribution charge. Typically, this charge varies from 0.15% to 0.20% of account value, and is only

being assessed during the first five to ten contract years. The distribution charge is included in the initial sales load for purposes of compliance with any applicable sales load limits.

C. Enhanced Guaranteed Minimum Death Benefit (GMDB)

As mentioned previously, some companies have enhanced their GMDB feature by updating the guaranteed death benefit at certain contract intervals. The revised death benefit is equal to the greater of the account value and the death benefit on the last day of the immediately preceding n-year period (n = 6 usually), plus all purchase payments less withdrawals during the current n-year period. For purposes of determining the minimum guaranteed death benefit, premium payments may be increased at an annual interest rate of 5%.

D. Persistency Bonus

At least one insurance company provides its contractholders with a persistency bonus of 1% of initial premium paid, if the contract remains in force through the end of the contract year in which the surrender charge first vanishes.

E. Low-load Products

With the entrance of variable annuities into the direct response and financial planner markets, some companies have passed on the substantial savings in product acquisition expenses (mainly commissions) in those markets to their contractholders by eliminating or at least reducing sales loads contained in the

contract. At least two companies are currently offering variable annuity products with no front-end or back-end sales load, thus enabling the contractholders to withdraw the full account value without incurring any sales charges.

F. Enhanced Partial Withdrawals

Partial withdrawal rights have been expanded in recent years in several areas. First, almost all companies offer a free partial withdrawal now, for competitive reasons. Second, the amounts available for partial withdrawas have been increased beyond the original "10% of Premium" allowance to include up to 15% of account value per year. Some companies also include all accumulated earnings in the amount eligible for a free withdrawal. After seven to ten contract years, the full account value may be withdrawn at no cost. Finally, some companies allow the contractholder to withdraw even higher amounts in case of financial hardship, without the need to surrender the contract completely.

G. Investment Programs

The contractholder is offered a variety of options with regard to investments, transfers and withdrawals of funds into and out of the investment options:

(1) Dollar Cost Averaging. After an initial investment in the money market fund, a level amount is automatically transferred every month or quarter, at no cost, into one or more of the investment funds of the contractholder's choice.

The program may continue until the money market fund falls below a minimum amount or the contractholder elects to stop the program.

The use of dollar cost averaging enables the contractholder to reduce the investment risk. Regular investments also allow the individual to buy into the investment funds at a lower average cost, because the same premium buys more units when the unit value is low, and vice versa.

(2) Asset Allocation Program. As an alternative to asset allocation funds, some contracts allow the participant to enroll in an asset allocation program, whereby all considerations paid are allocated among several investment options based upon current market conditions as determined by professional investment managers. This option combines dollar cost averaging with the use of a professional opinion regarding the allocation of monies paid into the contract.

(3) Guaranteed Investment Program. At least one company offers a program whereby the participant's investment is split between the fixed and variable options. The percentage in the fixed option is determined by the current interest rate of the account and the length of the guarantee period chosen (up to 10 years). At the end of the guarantee period, the fixed account will have grown to the initial investment. The balance of the investment will reflect the performance

of the variable accounts chosen. This investment program is similar to the design of unit linked annuities in the U.K. (see Section XI).

(4) Systematic Withdrawal Program. Given a minimum account value, the contractholder may decide to withdraw a certain stipulated amount at regular intervals. Payments may be made for a level dollar amount or a percentage of the considerations paid.

(5) Sell at Automatic Trigger Points. At least one insurance company gives its contractholders the option to automatically transfer some or all of the account balance in a fund into another fund, once the unit value in a fund has reached a certain level. This program can be chosen at issuance of the contract and remains in force until revoked by the contractholder.

H. Competitive Interest Rates in Fixed Option

Average credited interest rates on fixed interest options within variable annuity products closely resemble those available on traditional single premium deferred annuities (SPDA's), as the following statistic reveals:

	Average Current Credited Interest Rates			
	6/89	9/89	12/89	3/90
SPDA Products*	8.53%	8.14%	8.06%	8.17%
Fixed Option**	8.41%	8.17%	8.04%	8.22%

* Tillinghast Universal Life Analytical Survey (TULAS).

** Tillinghast Variable Annuity & Life User Exchange (VALUE).

These figures indicate that insurance companies are crediting similar interest rates on fixed options within variable annuities and on traditional SPDA products, which makes variable annuities a viable alternative to fixed annuities. Purchasing a variable annuity allows the investor the option of transferring monies from the fixed option into variable accounts to take advantage of market opportunities, although there are some restrictions as to the amount which may be transferred at a given point in time.

I. Market Value Adjustment

A few insurance companies are offering fixed interest options with guarantee periods ranging from one to ten years and a market value adjustment (MVA) feature. The MVA reflects the relationship between the guaranteed interest rate as of the effective date of the withdrawal, and the guaranteed interest rate applicable to the amount withdrawn. The MVA is being applied to all cash withdrawals out of the fixed interest option, other than any withdrawal occuring within 30 days prior to the expiration date of the guarantee period.

Generally, if the guaranteed interest rate applicable to the amount withdrawn is lower than the current guaranteed rate, the application of the MVA will lead to a lower amount available to the contractholder upon withdrawal, and vice versa.

The MVA may be determined by the following formula:

MVA = [(1 + I)/(1 + J + K)] ^ (N/12) - 1

where:

- I = Guaranteed interest rate applicable to the amount withdrawn,
- J = Current guaranteed interest rate at time of withdrawal,
- K = A positive constant,
- N = Number of complete months remaining in the guarantee period selected.

Example: I = 8%, J = 10%, N = 24, K = .005, Withdrawal = $10,000

MVA = {[(1 + 0.08)/(1 + 0.10 + 0.005)]^(24/12) -1}

= - 0.044737

This means that an amount of $10,000*(0.044737) = $447.37 will be deducted from the fixed option before any surrender charges are applied.

10. Safeguards

After purchasing a variable annuity contract, the contractholder has several options to not be "locked" into a variable annuity:

A. Free-Look Period

All contracts allow the participant to cancel the policy within the free-look period and receive a full refund of all contributions. A ten day free-look period is commonly offered by the insurance companies.

B. 1035 Exchange

Under Section 1035 of the IRC, an investor may exchange the variable annuity for any other (fixed or variable) annuity, without incurring any tax consequences. This may be an option to the contractholder if the investment options offered through the contract do not perform well, or if another company offers a more attractive product. Any applicable surrender charges must be paid, however.

VI. PRICING CONSIDERATIONS

Pricing a variable annuity depends on whether the product is sold in the individual or group market. While group contracts differ from individual contracts in a number of ways, their similarities generally outweigh their differences. Particularly because of regulatory and administrative requirements, most group policyowners must be handled on an individual basis. Therefore, the following discussion will be limited to pricing considerations inherent in an individual variable annuity contract.

1. Product Design

Virtually all variable annuity products currently on the market are being offered in both qualified and non-qualified markets. Minimum initial premium requirements, ranging up to $5,000 in the non-qualified market, are reduced to comply with the maximum annual contribution of $2,000 in the IRA market.

Policies may be issued up to ages 75 or 80, to allow for a minimum five or ten year accumulation period before the annuitization phase, which typically must begin no later than age 85. A free-look provision is usually provided (mandatory in New York), whereby the policyholder may elect to return the policy and receive a full refund within ten days after receipt of the policy.

All considerations paid will be allocated to subdivisions of the underlying separate account or the company's general account, if a fixed option is offered. Additional subdivisions may be added on at a later point in time.

The percentages applicable for the allocation of premiums into the various subdivisions must usually be expressed as full percentages. Certain minimums apply. The number and amount of free transfers within the subdivisions of the separate account may also be limited. Up to one transfer per month is typically free of charge.

For partial withdrawals, the policyholder may specify the amount or percentage to be deducted from the investment divisions of the separate account. Any surrender changes will be allocated among the investment divisions in the same proportion as the partial withdrawal itself.

2. Product Loads

Regulatory requirements and additional administration required (such as calculating daily unit values) lead to higher charges being assessed on variable annuities than with traditional fixed annuities. However, the amount of the charges which may be assessed is limited by SEC and state insurance regulation, as discussed earlier.

Charges are assessed to cover the insurer's expenses for issuance of the contract, daily administration as well as some guarantees inherent in the product.

A. Sales Loads

Sales loads are limited by the SEC to a maximum of 8.5% of premium. They are intended to cover the cost of issuing the contract. The bulk of these costs is for sales commissions and the additional costs of marketing and underwriting the contracts. Sales loads are also intended to provide a contribution to the costs of product development and filing the policy form in the various states the insurer is licensed in. Another expense to the insurance company is the installation of an administration system capable of handling daily unit value calculations (see Campbell, [2]).

For competitive reasons, virtually all variable annuities have a back-end sales load which is only charged if the contractholder surrenders in the early contract years. This load may be expressed as a percentage of premiums paid or account value. Current back-end sales loads range up to 8% of premium or account value in the early contract years, and grade to zero for a total surrender charge period of six to twelve years. At annuitization, most companies waive the surrender charge.

To help pay for some of the acquisition expenses at issue, several companies are charging their policyholders an additional asset-based distribution charge of 0.15% to 0.20% during the initial five to ten contract years.

B. Premium Taxes

As described in Section III, some of the states levy a premium tax of up to 3.50% on annuity premiums. This charge may be deducted from the account value at issue or annuitization of the contract or paid by the insurance company.

C. Administration Fee

Contrary to fixed annuities, variable annuities assess an annual contract fee to help pay for the higher expenses associated with the maintenance of a variable annuity. Daily unit value calculations and the occurrence of transfers and partial withdrawals, along with the cost of premium collections, may result in annual maintenance expenses of $50 or more per contract. It would be prudent for pricing purposes to reflect annual inflation factors in this figure.

Contract fees range up to $40 and are deducted at the end of each year or upon surrender of the contract. Since this policy fee is guaranteed in the contract, an additional asset-based fee of 0.20% or 0.25% of account value per year is charged by many companies. However, a sizeable amount of variable annuity assets

may be needed before the insurance company can break even on administration costs.

D. Mortality & Expense Load (M&E)

Currently, the SEC will not declare any variable annuity contract effective if the M&E load exceeds 1.25%. This load, which is charged by many companies, is designed to reimburse the insurance companies for the cost of providing certain guarantees with respect to mortality and administrative expenses.

In reality, only a portion of this charge may be needed to cover the cost of these guarantees, with the remainder providing for a portion of the distribution expenses or constituting a profit to the insurance company.

E. Other Loads

Other charges include a fee for transfers as well as fees for any riders included in the contract.

The pricing actuary will need to do a series of sensitivity tests to determine the appropriate charges to be included in the contract, using different scenarios for the premium payment pattern, contract surrenders and withdrawals, and interest rates.

3. Separate Account

A. Separate Account Structure

The separate account includes several subdivisions, which may be structured as an open-end management investment company or as a unit investment trust (see Macarchuk, [5]).

Under the first approach, a separate account is established and registered as a management investment company under the 1940 Act. The insurance company is registered as the investment advisor, although the investment management is typically performed by a subsidiary or subcontracted to an outside investment advisor.

Alternatively, an insurance company may organize a separate account as a unit investment trust (UIT). The UIT invests in the securities of one or more open-end investment companies who are registered under the 1940 Act. These open-end investment companies are the mutual funds which constitute the subdivisions of the separate account, e.g. stock, bond or money market mutual fund.

Under a less common approach, the separate account is organized as a UIT which purchases shares of a single mutual fund.

B. Choice of Investment Advisor

The insurance company may form a subsidiary investment advisor or alternatively sign up a well-known outside investment advisor or do both.

One advantage of forming a subsidiary investment advisor is that the investment management fees are retained in-house and may contain an additional profit charge. The drawback of this approach is that, especially for small insurance companies, an unknown investment advisor without any significant track record may not attract enough interest by potential buyers.

For that reason, many insurance companies are contracting the investment advisory services of well established firms such as the big mutual fund groups. These funds are offered to variable annuity contractholders separately from the publicly available funds. Several insurers have added an outside mutual fund family as an alternative to the funds offered through its own subsidiary investment advisor.

By offering a variety of funds, agents are able to refer to the track record of at least one of the funds offered in almost any market situation. The disadvantage of using an external investment advisor is that with investment advisory fees typically higher than those charged by an in-house investment advisor, the insurance company may not be able to make any profit on the investment advisory fees charged to its policyholders.

C. Unit Values

The unit value of each portfolio of the mutual fund is determined on each valuation date as the value of all investments held by the portfolio as of the close of the New York Stock Exchange

(NYSE) on that day, reduced by any outstanding liabilities and accrued investment expenses, and increased by any dividends and interest accrued on that day (see Duncan, [3]).

Any applicable investment advisory changes will be deducted daily from the portfolios of the fund, based on the distribution of assets among the subdivisions. The net unit value of each subdivision is determined by subtracting the M&E risk charge and any other asset-based charges from the above unit value.

D. Investment Programs

As previously discussed, some or all of the following investment programs may be available to variable annuity contractholders:

(1) Dollar-cost averaging
(2) Asset allocation programs
(3) Systematic withdrawals
(4) Guaranteed return of principal (systematic allocation between variable and fixed accounts)
(5) Selling units at certain trigger points.

4. Product Guarantees

The typical variable annuity contains several guarantees:

A. Guaranteed Minimum Death Benefit (GMDB)

During the accumulation phase, a guaranteed minimum death benefit equal to the greater of

(1) Fund value (cash surrender value), and

(2) Premiums paid less prior withdrawals

is paid to the beneficiary upon death of the annuitant. A few companies have enhanced this GMDB by updating it periodically, as previously discussed.

B. Guaranteed Product Loads

Variable annuity contracts include a guarantee that monthly benefits during the payout phase will not be affected by excessive sales or administrative expenses or by variations in actual mortality experience from assumed levels. Although there may only be a limited mortality risk for the insurer during the accumulation phase, the expense risk may be significant, due to the complex administration of variable annuities.

C. Fixed Option

Most contracts offer their policyholders a guaranteed interest division as an alternative to the variable investment options, thus sharing some of the investment risk with them. However, the investment risk for the insurer is limited to the underlying guaranteed rate of 4% to 5% annually. Current interest rates, which at the present time range up to 9%, are typically only guaranteed for one contract year. Longer attractive interest guarantees may be combined with market value adjustments, whereby the insurer may adjust the amount surrendered out of the fixed option to account for the difference in market interest rates, thus lowering or eliminating the reinvestment (C-3) risk. In

addition, transfers out of the fixed account are subject to restrictions as to amount and timing.

To support these contractual guarantees, insurers assess the M&E risk charge on the account value during both accumulation and payout phase. Although the SEC limits the amount of the M&E charge to 1.25% on new filings, part of this charge may be a profit to the insurance company, if certain economies of scale can be achieved. The remainder of the M&E charge provides for a contribution towards distribution expenses incurred at issue.

5. **Commissions**

Commissions and distribution allowances for variable annuities depend on the type of distribution the product is sold through. They range from salary-only arrangements for products sold through direct marketing to 5% of premium plus overrides for products sold in the stockbrokerage or career agency market. More on this topic can be found in the section on distribution.

6. **Reserves**

Because variable annuities typically have a back-end sales load, the majority of companies are holding the account value as a statutory reserve. To reduce statutory surplus strain, some companies are using modified reserves based on the Commissioners Annuity Reserve Valuation Method (CARVM).

Tax reserves usually equal statutory reserves, although some companies may hold a lower tax reserve equal to the cash value.

Reserves for the guaranteed minimum death benefit (GMDB) feature may be equal to the one year term cost for the deficiency of the death benefit over the account value. Several companies approximate this reserve as a percentage of premiums or a percentage of the fund value, varying from 0.15% to 0.50% annually (see Hickman, [4]).

7. Annuitization Phase

Most variable annuity contracts offer variable settlement options along with the fixed options typically offered. Variable options may be based upon the same investment divisions used during the accumulation period, giving the policyholder the flexibility to transfer between variable divisions after payout has begun. However, funds cannot be shifted between the fixed and variable settlement options during the annuitization phase.

Upon settlement, regulations mandate that the annual contract fee and the asset charges should not change during the payout phase. Most companies waive any applicable surrender charges upon annuitization.

The assumed interest rate (AIR) used by the insurance company to determine the initial monthly payment for variable settlement options reflects a moderate level of anticipated investment

earnings. The AIR may be fixed by the insurance company, or the policyholder may choose an AIR. AIR's range from 3.5% to 5%, with 4% being the most common. Most states will not allow an AIR of more than 5% (see Section IV). All succeeding payments will be based on the difference between the net investment return and the AIR (see Biggs, [1]).

To calculate the payout rates, underlying mortality is based on the Individual Annuity Mortality Tables of 1971 or 1983, projected forward 10 to 20 years. Mortality risk may be a significant factor during the payout phase, in contrast to the accumulation phase.

To date, most policies are in the accumulation phase. At the end of 1988, the number of persons in the payout phase was only 75,000 (as compared to 5,000,000 in the accumulation phase), with annual benefits totaling approximately $500 million.

8. Administration

Variable annuities require more complicated and expensive administration than fixed annuities. Regardless of whether the variable annuity is a group or individual product, individual records must be maintained. Quarterly or annually, the policyholder is sent an account statement.

A. Installation of Records

Any company entering the variable annuity field should have an administration system in place before the product design is finalized, to avoid unnecessary delays in introducing the product. The system should be able to allow for frequent updates of policy records and for the daily calculation of unit values. It can be developed in-house or bought through an outside software vendor. An alternative is to have the administration done through a Third Party Administrator (TPA).

B. Administration of Records

Policy records for variable annuities contain detailed policyholder information, payment records, units credited and any information necessary with regard to annuity options, payment dates and beneficiaries selected. A policy master file is processed daily, with any contributions or withdrawals applied to buy or sell units at that day's unit price. Federal requirements mandate relatively quick access to the file.

C. Policy Statement

Statements containing policy information are sent to contractholders at least annually, typically quarterly. These statements contain information on the following items:

(1) Number of shares in each investment division

(2) Unit value of each investment division

(3) Dollar value of each investment division

(4) Total account value

(5) Any policy transactions during the prior internal

(6) A statement that the cash value will vary according to the investment performance of the separate account.

9. Start-up Expenses

Companies writing variable annuity business will need additional capital at issuance of the policies. All considerations paid by the contractholder must be deposited into the separate account, but the insurance company incurs additional expenses associated with the issuance of the contracts.

The main expense at issue are commissions and distribution allowances to be paid to the entities responsible for the distribution of the contracts. These entities can be the company's career agents, independent financial planners, banks and thrifts or securities brokers. Commissions and distribution allowances vary by company and distribution channel, but a common range for these expenses is 5% to 7% of premiums paid.

Additional expenses are incurred for marketing and issuing the policies, as well as setting up the contracts on the administration system in use, for a total pre-tax cash strain of 6% to 8% of initial premiums paid. The presence of immediate tax credits may reduce this strain somewhat.

Ideally, a company is writing both fixed and variable annuities at the same time, with fixed annuities generating enough cash to finance the strain from selling variable annuities. Alternatively, with moderate new business growth, renewal profits on business in force may offset the strain caused by new business issued.

Other possibilities to reduce surplus strain are:

(a) Include a front-end load.

(b) Use of coinsurance or surplus relief reinsurance.

(c) Reduced upfront commissions in exchange for asset-based trail commissions.

10. Target Surplus

The amount of surplus in an insurance company's balance sheet directly affects the company's rating by such agencies as A.M. Best's, Moody's or Standard & Poor's. Companies commonly include target surplus in their pricing considerations to account for that.

Although there are formulas requiring a certain amount of target surplus for the company's general account assets in order to obtain a high rating from the above rating agencies, there do not seem to be any requirements for minimum surplus in separate account assets at this time. Rather, companies are analyzed on an individual basis by the rating agencies.

Consequently, while most companies are pricing for a target surplus of 3% to 5% of assets in the fixed option to comply with the requirements on the company's general account assets, target surplus on separate account assets is lower than that on the fixed option, sometimes as low as 0.50% to 1% of separate account assets.

11. Rollovers

With the introduction of alternative distribution channels like stockbrokers and banks, insurance companies are faced with the problem of how to keep brokers and others with little or no loyalty to the insurance company from replacing the original variable annuity with the product of another company, once the surrender charge period expires.

The reason for the broker to replace the product is that after receiving the initial commission on the original product, no additional renewal commissions are usually paid by the insurance company. By replacing the original product with a different product, the broker is able to receive another full commission for the sale. With the advent of competitive products in recent years, such rollovers have already been reported by some of the companies who have been in the market long enough to see surrender charges vanish on their original products.

Companies can take several actions to prevent an excessive amount of rollovers:

(1) Introduction of an asset-based trail commission,

(2) Increased guaranteed minimum death benefit,

(3) Persistency bonuses to policyholders in the years after the surrender charge expires.

However, none of these actions are a guarantee against rollovers. Insurance companies introducing variable annuities may be well advised to price their products such that they break even on profits before the end of the surrender charge period ("worst-case scenario").

VII. AFTER-TAX BENEFITS -

VARIABLE ANNUITIES VS. MUTUAL FUNDS

The following section is designed to give a comparison of net after-tax investment returns on variable annuity separate accounts with the corresponding returns for other investments. In particular, a detailed comparison with net investment returns on mutual funds over a 20-year period is performed, and the ensuing effects on after-tax returns to the investor are analyzed. An earlier discussion of this subject can be found in [9].

1. Separate Account Analysis

At the end of 1988, separate accounts for U.S. life and health insurers totaled $115.7 billion, a gain of 11.5% from 1987. 175 insurers maintained funds in separate accounts, with 15 companies reporting $2 billion or more in separate accounts.

Separate accounts represented about 10% of the industry's total assets. For mutual insurers, separate accounts represent between 11% and 12% of their assets, while for stock companies, the proportions were between 8% and 9%.

At the end of 1988, common stocks were the leading separate account investment category, followed by long-term bonds:

Table 1

Separate Account - Distribution/Yields of Assets 1988

Assets	Total Amount ($Billion)	Average Gross Inv. Yield	Average Capital Gains/Losses	Average Gross Yield
Long-term Bonds	$27.6	9.65%	(0.23)%	9.42%
Preferred Stocks	0.3	7.94	2.23	10.17
Common Stocks	43.3	4.50	8.67	13.17
Mortgage Loans	4.3	10.17	0.26	10.43
Real Estate	10.1	12.39	1.97	14.36
Short-term Inv.	12.5	8.05	(0.01)	8.04
Cash	0.6	5.14	(0.52)	4.62
Other	17.0	3.68	2.80	6.48
TOTAL	$115.7	7.03%	3.88%	10.91%

Source: A.M. Best Company Insurance Database.

Overall, separate accounts produced gross investment income of $7.4 billion and capital gains and losses of $4.1 billion for a combined gross yield of 10.91%. After investment expenses, a net yield of 10.05% resulted.

2. Mutual Funds

The following table reveals that none of the postwar decades has matched the 1980's for all-round stellar performance of stocks, bonds and money market securities:

Table 4

INVESTMENT RETURNS				
	1950s	1960s	1970s	1980s
Stocks (S&P 500)	+486%	+112%	+77%	+403%
Corporate Bonds	+ 11	+ 18	+ 83	+240
Treasury Bonds	- 1	+ 16	+ 71	+277
Treasury Bills	+ 20	+ 46	+ 84	+134
Inflation	+ 25	+ 28	+103	+ 65

Source: Standard & Poor's; Ibbotson Associates.

The outstanding performance of stocks, bonds and money market securities during the 1980's propelled the number of mutual funds from 564 at the end of 1979 to more than 3,000 at the end of 1989. During the same time period, total mutual fund assets increased from $95 billion to $982 billion, with 25% of U.S. households owning mutual funds at the end of 1989.

During the 1980's, equity mutual funds have performed better than fixed income mutual funds, to be surpassed only in performance by international funds:

Table 5

Mutual Funds - Annualized (Reinvested) Returns @ 12/31/89

Type of Funds	1 Year	5 Years	10 Years
Equity	23.95%	16.01%	15.54%
Money Market	8.83	7.21	9.73
Fixed Income	9.42	9.97	11.10
Balanced	19.46	15.11	15.08
International	22.25	28.12	19.26
All Funds	18.48%	15.07%	14.67%
S&P 500	31.64%	20.36%	17.55%

Source: Lipper Analytical Services Inc.

3. Variable Annuity Performance Data

Variable annuity and life separate accounts combined had annualized returns slightly lower than those of mutual funds, due to the deduction of insurance expenses. For money market funds for example, the difference in returns was approximately 0.80% to 0.90% per year, as indicated in the following table, when compared to the returns illustrated in Table 5.

Table 6

Variable Accounts - Annualized (Reinvested) Returns @ 12/31/89

Type of Funds	1 Year	5 Years	10 Years
Money Market	7.95%	6.45%	8.82%
Inv. Grade Bond	11.55	10.52	10.62
Capital Appreciation	28.77	16.11	13.62
Growth	27.13	15.90	14.81
Growth & Income	25.23	17.16	16.01

Source: Lipper Analytical Services Inc.

Although variable annuity separate accounts were not listed separately in this comparison, returns should be comparable to those of variable life accounts (higher asset charges on the annuities offset by additional cost of insurance charges on life products), so that the combination of all variable subaccounts should have fairly similar returns than variable annuity subaccounts.

A separate survey on net annualized returns of variable annuities was performed, using a sample of 17 products out of the Tillinghast VALUE Variable Annuity Survey (see [12]). To be selected, a variable annuity product had to have one or more funds with at least five years of performance data. Six out of the 17 products selected have been sold for ten or more years. The 17 products chosen had a total of 66 subaccounts with at least five years of performance data. While data on investment performance for up to five years was readily available from the survey, 10-year investment performance was obtained by conducting a separate telephone survey.

The following is a summary of key statistics of the data sample:

- 17 Variable annuity products included
- 66 Subaccounts with at least 5 years performance data
- 12 Subaccounts with at least 10 years performance data
- 22 Equity funds
- 17 Bond funds
- 17 Money market funds
- 10 Managed funds
- $11.742 billion total assets on December 31, 1989

These 66 funds were analyzed with regard to the net annualized returns (including reinvestment of dividends and capital gains, and net of insurance and fund expenses) for periods of one year, five years, ten years and since inception. Results are illustrated in the following table.

Table 7

Net Annualized Returns on Variable Annuity Accounts @ 12/31/89

Type of Fund	% Assets	1 Year	5 Years	10 Years*	Since Inception
Equity	50.2%	26.70%	18.08%	16.35%	15.43%
Bond	14.0	9.34	10.38	10.90	11.03
Money Market	13.6	7.88	6.34	8.82	7.12
Managed	22.3	17.41	13.46	13.23	12.25
Weighted Average	100.0	19.66%	14.38%	14.93%	12.59%

Source: Tillinghast VALUE Survey; Company Data.

* Only 12 accounts had performance data for 10 years.

Equity funds, which formed the dominant portion of assets, also outperformed all other categories of funds, with long-term net annualized returns of more than 15%. Managed funds, the next largest category of funds when measured in assets, achieved investment returns in excess of 12% per year for all investment horizons observed. Bond funds generally achieved long-term net returns in the 9% to 11% range, while money market fund returns varied from 6.34% (five years) to 8.82% (ten years).

With long-term weighted average net annualized investment returns in the 14% to 15% range, variable annuity funds achieved performance results comparable to those of mutual funds (see Table 5). This result may seem somewhat surprising, given the

fact that variable annuities levy additional charges to a contractholder besides investment advisory fees and fund expenses. These additional charges, mainly administration fees and mortality and expense charges, typically add about 1% to the loads deducted from a variable annuity.

However, a closer look at the distribution of assets in mutual funds reveals that at the end of 1989, more than half of mutual fund assets was invested in money market funds and bond funds (see [13]). With long-term net investment returns for money market funds and bond funds lower than those of equity funds, weighted average net investment returns for mutual funds are found to be approximately equal to those of variable annuities, where the proportion of lower yielding bond and money market funds was only 28% of total assets (see Table 7). Thus, the higher proportion of equity fund assets in variable annuities compensated for the additional insurance expenses associated with variable annuities.

When comparing the data on investment performance in Tables 5 and 7, it seems reasonable to assume that gross annual investment performance for both investment alternatives is in the 16% range. One of the reasons for the comparable investment performance may be that many of the current variable annuity products offer several fund alternatives from an external mutual fund group. Also, insurance company investment subsidiaries tend to be more

conservative in their investment decisions, thus avoiding the pitfalls of down markets.

4. Comparison of Annual Expenses

The next step in this analysis is to determine the average annual expenses which are incurred for an investment in a mutual fund as compared to an investment in a variable annuity. For variable annuities, data on average expenses was obtained from the Tillinghast Value Variable Annuity Survey (see [12]), while for mutual funds, average expense information was obtained from Lipper Analytical Services (see [14]).

As mentioned in Section IV, the SEC requires the prospectuses for all mutual funds and variable insurance products to be accompanied by an expense illustration, showing the expenses expected to be incurred by a policyholder in a particular fund over various periods of time. The illustrations are assuming a sample initial investment of $1,000 and a 5% gross annual investment return. Figures are shown for periods of one, three, five and ten years, separately for contracts in force and surrenders.

For the 17 variable annuities included in the previous analysis, the following average results were obtained at year end 1989:

Table 8

SEC Expense Illustration - Variable Annuities

AVERAGE PROJECTED FUND EXPENSES				
	Year 1	Year 3	Year 5	Year 10
$1,000 @ 5% (Fund)	$1,050	$1,158	$1,276	$1,629
Expense upon Surrender (% Fund)	$ 84 (8.0%)	$ 125 (10.8%)	$ 166 (13.0%)	$ 263 (16.1%)
Expense without Surrender (% Fund)	$ 25 (2.4%)	$ 73 (6.3%)	$ 122 (9.6%)	$ 257 (15.8%)
Funds included*	61	61	61	61

*Data was unavailable for five funds.

Source: Tillinghast VALUE Survey, IV Quarter 1989.

Expenses illustrated include both fund expenses and insurance (separate account) expenses. Expenses are higher when a contract is surrendered because of the additional surrender charges incurred. After 10 years, most contracts' surrender charges have vanished.

It is also apparent from the table that, not considering surrender charges, average total expenses over a ten year period are equal to 15.8% of the fund value. With average annual fund expenses decreasing from 2.4% for a one-year period to 1.9% over a five-year period and then to 1.6% over a ten-year pèriod, a conservative assumption would be an average annual expense of 1.6% of the fund value for purposes of this analysis. While

average annual expenses are equal to 1.6% over the first ten years of the investment period, they are likely to drop below the 1.6% mark during the second half of the 20-year period being analyzed. One of the reasons for this conclusion is that many variable annuity products have lower annual charges after 10 years. For example, several products lower the mortality and expense charges after 10 years. Others have a distribution-related asset charge, which vanishes after seven to ten years.

For mutual funds, data on average total expenses per fund was obtained from Lipper Analytical Services Inc. For taxable money market funds, the median annual expense ratio was calculated to be 0.69% (see [14]). For fixed income and general equity funds, Table 9 illustrates median annual expense ratios as a percentage of average net assets.

Table 9
Median Total Expense Ratios/% of Average Net Assets

Asset Size	Equity Funds	Fixed Income Funds
\$ 0 - \$ 25 million	1.73%	1.00%
\$ 25 - \$ 50 million	1.44	1.00
\$ 50 - \$100 million	1.24	1.08
\$100 - \$250 million	1.11	1.00
\$250 - \$500 million	1.00	0.96
\$500+ Million	0.81	0.89

Source: "Lipper - Directors Analytical Data", 2nd Edition 1991.

With average expenses varying by asset size, it is necessary to go back to our sample of variable annuity products to calculate the average mutual fund expense ratio which will be used in the expense comparison between variable annuities and mutual funds.

For the sample of 66 variable annuity funds analyzed earlier, Table 10 illustrates the breakdown of funds by asset size and investment category.

Table 10

Number of Funds by Asset Size/Investment Category

Asset Size	Money Market	Equity	Bond	Managed
\$ 0 - \$ 25 Million	6	4	7	2
\$ 25 - \$ 50 Million	4	3	3	1
\$ 50 - \$100 Million	3	6	3	0
\$100 - \$250 Million	2	4	2	3
\$250 - \$500 Million	2	2	1	3
\$500+ Million	0	3	1	1
Total	17	22	17	10

Source: Tillinghast Value Survey.

Assuming the same breakdown of mutual funds by asset size, and using the expense ratios of Table 9, the following average expense ratios were calculated for money market, equity and bond mutual funds:

Money Market : 0.69%
Equity : 1.25%
Bond : 1.01%

For managed funds, average operating expenses were not available. However, at any point in time, managed funds consist of a mix of stocks, bonds and money market assets, with stocks generally representing the dominant portion of assets. Since stocks also represent the majority of assets in our variable annuity data sample (see Table 11), it was assumed that the average expense ratio for managed funds approximately equals the aggregate average expense ratio which will be obtained for the other three investment categories.

To calculate this expense ratio, we will assume the same mix of assets by investment category for mutual funds as we have found in our variable annuity data sample (see Table 7). Thus, an aggregate annual expense ratio of 1.11% for mutual funds results:

Table 11
Calculation of Aggregate Mutual Fund Expense Ratio*

Investment Category	% Total Assets	Expense Ratio
Equity	50.2%	1.25%
Bond	14.0	1.01
Money Market	13.6	0.69
Managed	22.3	N/A
Weighted Average	100.0%	1.11%

* For purposes of comparing annual expenses with variable annuity data sample described earlier.

With mutual funds averaging a 1.1% annual expense ratio and variable annuity funds averaging a 1.6% annual expense ratio, the

difference in pre-tax investment returns is 0.5% per year in favor of mutual funds.

It may seem surprising that the difference in the expense ratio between variable annuities and mutual funds is only 0.5% per year, since mortality and expense charges plus administration fees typically add an extra 1% of expenses per year to the variable annuity, as mentioned previously.

The difference of 0.5% (1% vs. 0.5%) is the result of different expenses for the underlying investment funds. Many insurance companies are limiting total annual fund expenses, i.e. the sum of investment advisory fees plus fund operating expenses, to a maximum of 1% per year. For mutual funds, an annual limit of 1.50% to 2.00% is more common. Insurance companies are also more conservative in their investment management, resulting in lower fund operating expenses.

Finally, 12b-1 charges are common on mutual funds, but rarely used within variable annuities. According to Lipper Analytical Services, Inc., typical 12b-1 charges are equal to 0.25% per year for equity and bond funds, while for money market mutual funds, they equal 0.15% per year (see [14]).

When adding up the differences in fund expenses, an annual extra expense of 0.50% on mutual funds does not seem unreasonable.

The above result is further confirmed by an earlier observation regarding net annualized returns of money market mutual funds (Table 5 vs. Table 7). (A comparison of money market funds is appropriate here, because money market funds have more consistent investment objectives within different funds as compared to the other investment alternatives.)

For money market funds, net annualized returns for mutual funds exceeded those of variable annuities by approximately 0.90%, as mentioned previously. At a 5-year investment interval, the difference is 0.87% (7.21% vs. 6.34%), while at a 10-year interval, it is 0.91% (9.73% vs. 8.82%). Considering that for variable annuities, most products do not vary their investment advisory fees by investment category, we can assume a 1.60% annual expense ratio for money market funds within variable annuities. For money market mutual funds, the annual expense ratio is 0.69% (see Table 11), resulting in an excess pre-tax annual return of 0.91% (1.60% less 0.69%), which is exactly the margin observed in Tables 5 and 7.

A comparison of after-tax net annualized returns between mutual funds and variable annuities will be the subject of the next section.

5. Variable Annuities vs. Mutual Funds

The Tax Reform Act (TRA) of 1986 preserved the tax advantages of insurance while virtually eliminating tax shelters and curtailing deductions for individual retirement accounts. It also eliminated the preferential tax rate for capital gains, making it more attractive to buy securities through tax-sheltered vehicles like variable annuities and variable life.

To quantify the benefits to the purchaser of a non-qualified variable annuity as compared to an investment in mutual fund, an after-tax accumulation model was constructed. This after-tax accumulation model was used to calculate a series of net present values (NPV's) for the variable annuity, discounting the expected series of after-tax accumulations at an interest rate equal to the assumed annual after-tax return rate for mutual funds. A positive total net present value for the series of accumulations would indicate a better net after-tax return for variable annuities than for mutual funds, and vice versa.

Net present values were calculated under varying assumptions for investment returns, surrender charges, withdrawal assumptions, federal income taxes and tax penalties on early withdrawals. All results are illustrated in Appendices B and C and summarized below. A description of the formulas used in the after-tax accumulation model is given in Appendix D.

The first series of tests compared NPV's for variable annuities with those of mutual funds, using a variety of assumptions which were deemed reasonable. A second series of tests first solved for the critical annual rate of withdrawal which sets the NPV to zero, then tested the sensitivity of the annual rate of withdrawal to differing tax and investment return assumptions.

The following is a description of assumptions used and results obtained for the various tests performed.

A. Base Run

Appendix B- Page 1 illustrates both assumptions employed and results obtained for the base scenario ("Base Run").

The individual purchaser was assumed to be 55 years old, which represents an approximation for the average age of the typical buyer of a variable annuity contract. This is relevant to the extent that there is an additional tax penalty for early withdrawals from annuity contracts. It was assumed that an additional tax penalty of 10% applies to all withdrawals made before age 59.5, representing the current tax environment.

Since all withdrawals are assumed to occur at the end of a contract year, the 10% tax penalty will apply to the policyholder's first four withdrawals under the base scenario.

A gross annual return of 16% was assumed for both investment media. Deducting fees of 1.1% per annum for mutual funds and 1.6% per annum for variable annuities leads to net annual returns of 14.9% for mutual funds and 14.4% for variable annuities, which is approximately equal to the average long-term net annual returns illustrated in Tables 5 and 7.

The initial investment was assumed to be $10,000, representing approximately the average initial premium in the variable annuity marketplace (see [12]). While the model is able to handle additional premiums in renewal years, such a premium pattern was not tested here, since the emphasis of this analysis is on the sensitivity of the NPV to the annual rate of withdrawal.

Surrender charges start at 6% of the fund value in the first year, grading to zero by year seven. This pattern is designed to represent an average surrender charge in today's variable annuity marketplace (see [12]). While some mutual funds also have surrender charges, we did not assume any in the mutual fund we are comparing against, for simplicity reasons.

Federal income taxes are assumed to equal 28% per year. This assumption could be changed each year or in quinquennial age intervals. The 28% assumption was chosen to reflect the fact that while most variable annuity investors are in the 28% tax bracket, few are assumed to be in the 31% tax bracket and even fewer are in the 15% tax bracket.

For withdrawals, only penalty-free withdrawals were assumed initially. "Penalty-free" withdrawals are those available each year without incurring a surrender charge. The model assumes the availability of one free withdrawal of up to 10% of premium per year. All withdrawals in excess of that are subject to the surrender charge described above.

The base scenario assumes an average penalty-free withdrawal of 5% of premium per year. This assumption is conservative when compared to current industry experience, as only a small number of investors (less the 10%) makes use of the free withdrawal provision each year. Using this assumption, the policyholder recovers the entire initial premium after twenty years, the end of the observation period. Later on, a sensitivity test will be run assuming that the policyholder withdraws the full penalty-free withdrawal of 10% of premium each year. All withdrawals are assumed to occur at the end of each year.

Expected net present values at the end of five, ten, fifteen and twenty years were calculated by discounting the expected series of after-tax accumulations from the variable annuity at the after-tax rate of return on the mutual fund. After-tax accumulations include both the annual net payment (withdrawals less taxes less any applicable surrender charges) plus the after-tax annuity surrender value at the end of five, ten, fifteen or twenty years. For non-quinquennial durations, net present values were interpolated.

The after-tax return on the mutual fund was calculated assuming that 100% of the annual return on the mutual fund is being paid out in the form of investment income plus realized capital gains at the end of each year, and is therefore taxable in full.

Using a federal income tax rate of 28% per year results in a net annual after-tax return of 10.73% on mutual funds:

$$14.90\% * (1-.28) = 10.73\%$$

When discounting the expected series of after-tax accumulations from the variable annuity at 10.73%, the following results were obtained for the various time intervals observed (see Appendix B-Page 1):

Exhibit 1 Variable Annuity (VA) vs. Mutual Fund Summary of Results - Base Run		
Time Horizon	VA Net Annual After-Tax Return	NPV at Mutual Fund After-Tax Return
5 Years	10.16%	(240)
10 Years	11.23	414
15 Years	11.76	1,288
20 Years	12.18	2,478
Break-Even Year:	7	

Net annual after-tax returns for the variable annuity increase from 10.16% after 5 years to 12.18% after 20 years. If we define a "break-even" year as the year in which the NPV of variable annuity accumulations, discounted at the mutual fund after-tax rate of return, is first positive and subsequently remains positive for the remainder of the projection, a break-even year

of seven results for the base run. In other words, the policyholder has to remain in the variable annuity contract for at least seven years before the advantages of tax-deferral outweigh the higher annual charges in the variable annuity. However, the longer the policyholder remains with the variable annuity contract, the bigger the spread in the net annual after-tax return becomes, reaching almost 1.5% per year by the end of year twenty (12.18% vs. 10.73%).

B. Sensitivity Tests

Once the assumptions for the base run were established, a series of sensitivity tests was performed. Net present values, net annual after-tax returns and break-even years were calculated assuming the following changes in the base assumptions:

(1) Higher/Lower Gross Annual Return
(2) Higher/Lower Variable Annuity Net Annual Return
(3) No Tax Penalty/Longer Tax Penalty
(4) Higher/Decreasing Federal Income Taxes
(5) Higher/Lower Surrender Changes
(6) Sensitivity to Partial Withdrawals
(7) Change in Mutual Fund Assumptions

A detailed discussion of assumption employed and results obtained for each of these runs follows. Results are also illustrated in Appendix B - Pages 2 through 17.

(a) Higher/Lower Gross Annual Return

While gross annual returns were in the 16% range during the 1980's (see Tables 5 and 7), such performance may or may not repeat itself in the future. Therefore, the sensitivity of results to gross annual returns was tested, using assumptions of 12% (lower growth) and 20% (higher growth). Results are shown in Appendix B - Pages 2 and 3 and summarized below.

Exhibit 2

Variable Annuity vs. Mutual Fund
12%/20% Gross Annual Return

NPV at Mutual Fund After-Tax Return

Time Horizon	12% Annual Return	20% Annual Return
5 Years	(361)	(89)
10 Years	(69)	1,014
15 Years	270	2,555
20 Years	759	4,644
Break-Even Year	12	6

A decrease in the gross annual return from 16% to 12% increased the break-even year from 7 to 12, while an increase in the gross return from 16% to 20% only decreased the break-even year to year 6, the end of the surrender charge period. Thus, break-even years are very sensitive to a lower gross rate of return, but do not improve much for a higher gross annual return.

Net present values, on the other hand, were sensitive to both a lower and a higher gross annual rate of return. For a 20 year time horizon, NPVs decreased from 2,478 to 759 for a 12% gross return, while an increase in the gross return to 20% per year increased the NPV from 2,478 to 4,644.

An increase in the net annual return leads to a higher NPV for the variable annuity investor (and vice versa), because the additional annual earnings are fully tax-deferred until surrender or withdrawal of the policy, whereas they are taxable in full each year in a mutual fund.

(b) Higher/Lower Variable Annuity (VA) Net Annual Return

The next two tests were run to find the sensitivity of results to a change in the VA net annual return. While the base run assumes 0.50% more expenses on the VA and thus a lower net return (14.40% VA net return), the two tests performed first assumed no such difference (14.90% VA net return), and then a doubling of the difference to 1.0% (13.90% VA net return), respectively. Results are shown in Appendix B - Pages 4 and 5 and are summarized below.

Exhibit 3

Variable Annuity vs. Mutual Fund
Higher/Lower VA Net Annual Return

NPV at Mutual Fund After-Tax Return

Time Horizon	14.90% VA Annual Return	13.90% VA Annual Return
5 Years	(71)	(406)
10 Years	796	49
15 Years	1,935	683
20 Years	3,466	1,575
Break-Even Year	6	10

When setting the variable annuity net annual return equal to the mutual fund net annual return of 14.90%, the break-even year again decreased to year 6, the end of the surrender charge period. Obviously, a break-even year of 1 would result, were it not for the existence of the surrender charge. Conversely, increasing the annual difference in net returns to 1.0% in favor of mutual funds increased the break-even year to year 10, showing considerable sensitivity to the differences in the net annual return between mutual funds and variable annuities.

For net present values, the magnitude of changes resulting from the revised net annual returns is approximately equal in either direction. For a 20-year horizon for example, the NPV increases from 2,478 to 3,466 assuming a 0.5% increase in the net annual

return, and decreases from 2,478 to 1,575 when a 0.5% decrease in the net annual return is assumed.

(c) No Tax Penalty/Longer Tax Penalty

To test the sensitivity of results to a change in the tax penalty period, tests were performed for a younger issue age (age 50) and an older issue age (age 60). Using the current federal income tax environment with a tax penalty assessed up to age 59.5, the 50-year old incurs a tax penalty for the first nine annual withdrawals, while the 60-year old does not incur any tax penalty. Results for the two tests are illustrated in Appendix B - Pages 6 and 7 and summarized below.

Exhibit 4

Variable Annuity vs. Mutual Fund
Issue Age 50/Issue Age 60

NPV at Mutual Fund After-Tax Return

Time Horizon	Issue Age 50	Issue Age 60
5 Years	(627)	(84)
10 Years	291	571
15 Years	1,165	1,444
20 Years	2,355	2,634
Break-Even Year	9	6

There is some sensitivity to the length of the tax penalty, as illustrated in the above result. Extending the tax penalty from 4 years to 9 years (issue age 50) increases the break-even period to 9 years, while an elimination of the tax penalty reduces the break-even period by one year to six years. Net present values are affected predominantly during the first ten years of the projection period, while after twenty years, the magnitude of changes in the NPV is 5% or less when compared to the base scenario.

(d) Higher/Decreasing Federal Income Tax Rate

While the majority of variable annuity investors are in the 28% tax bracket (1990 adjusted gross income between $32,450 and $78,400 for a married couple filing jointly), a significant number of people investing in variable annuities are assumed to be in the highest marginal tax bracket (currently at 31%). Two tests were performed for investors in that tax bracket. One test assumes that the investor remains in the 31% tax bracket for the full length of the projection, while the other one assumes a decreasing tax rate, from 31% initially to 28% after 5 years and then finally to 15% after 10 years, when the investor is presumed to be in retirement. Results are illustrated in Appendix B - Pages 8 and 9 and are summarized below.

Exhibit 5

Variable Annuity vs. Mutual Fund
Higher/Decreasing Federal Income Tax Rate

NPV at Mutual Fund After-Tax Return

Time Horizon	Higher FIT Rate	Decreasing FIT Rate
5 Years	(217)	(217)
10 Years	502	550
15 Years	1,498	1,803
20 Years	2,879	2,318
Break-Even Year	7	7

While a higher or decreasing federal income tax rate does not change the break-even year for the individual when compared to the base scenario, net present values do change to some extent. Assuming a higher tax rate of 31% throughout the projection period increases NPV's at all durations by 10% or more, thus reflecting the impact of the increased tax deferral available.

Assuming a decreasing federal income tax rate increases NPVs during the first 15 years as compared to the base scenario. At the end of 20 years however, the benefit of having a lower tax rate upon withdrawing the entire variable annuity account value is more than made up by the additional annual mutual fund earnings caused by the lower tax rates, and the NPV decreases from 2,478 (under the base scenario) to 2,318.

(e) Higher/Lower Surrender Charges

To quantify the impact of higher and lower annuity surrender charges on NPVs and the break-even year, two additional tests were performed. The first one assumed a higher initial surrender change of 8% of the fund value, decreasing to zero by the end of year nine. An alternate test assumed an initial surrender charge of 5% of premiums, grading to zero at the end of the fifth contract year. These two designs represent the maximum and minimum surrender charges currently in use among the variable annuity products surveyed in Tillinghast's VALUE survey (see [12]). Results are illustrated in Appendix B - Pages 10 and 11 and are summarized below.

Exhibit 6

Variable Annuity vs. Mutual Fund
Higher/Lower Surrender Charge

NPV at Mutual Fund After-Tax Return

Time Horizon	Higher Surrender Charge	Lower Surrender Charge
5 Years	(451)	(143)
10 Years	414	414
15 Years	1,288	1,288
20 Years	2,478	2,478
Break-Even Year	8	7

The results of the two tests indicate that a higher initial surrender charge does increase the break-even year by one to year

B, while a 5-year surrender charge design with lower charges does not decrease the breakeven year any further. Once the surrender charge expires, there is no difference in the NPV's.

(f) Sensitivity to Partial Withdrawals

The base scenario assumed a free partial withdrawal of 5% of premium per year. A series of four tests was performed to find out about the sensitivity of results to varying levels of partial withdrawals. The four tests assumed the following changes of assumptions from the base scenario:

Test 1: Full utilization of the 10% of premium free partial withdrawal each year.

Test 2: No withdrawals.

Test 3: Full utilization of free partial withdrawal, plus 2% of premium excess withdrawal each year.

Test 4: Full utilization of free partial withdrawal each year, assuming a decreasing federal income tax rate.

Results are illustrated in Appendix B - Pages 12 through 15 and are summarized below.

Exhibit 7

Variable Annuity vs. Mutual Fund
Sensitivity of Partial Withdrawal Assumption

NPV at Mutual Fund After-Tax Return

Time Horizon	Test 1	Test 2	Test 3	Test 4
5 Years	(469)	(12)	(591)	(457)
10 Years	(159)	988	(421)	(112)
15 Years	224	2,352	(234)	327
20 Years	766	4,191	48	464
Break-Even Year	13	6	20	12

Assuming that the policyholder withdraws the full 10% of premium each year which is available without incurring a surrender charge penalty (Test 1) increases the break-even year from year 7 to year 13. A significant impact on results is also visible in the NPVs. After 20 years, the NPV is only 766 as compared to an NPV of 2,478 under the base scenario.

Conversely, assuming that the policyholder does not make use of the free withdrawal privilege at all (Test 2) decreases the break-even year to year 6, the end of the surrender charge period. NPVs increase rapidly under this assumption, reaching almost double the NPV's obtained under the base scenario. Obviously, this comparison is very favorable for variable annuities, taking advantage of the full tax deferral available

until the policy is surrendered at the end of five, ten, fifteen or twenty years.

Test 3 assumes that the policyholder withdraws an additional 2% of premium each year above the full free partial withdrawal. Both federal income taxes and surrender charges are applied to the excess withdrawals, resulting in a sharp increase of the break-even year from year 13 (Test 1) to year 20, the end of the observation period. This test indicates that the variable annuity policyholder cannot withdraw the full annual increase in the annuity account value (if that increase exceeds the free partial withdrawal available) and still do better than with an investment in a mutual fund. Therefore, an investor who desires high annual liquidity may be better off investing in a mutual fund which does not have any back-end loads.

Test 4 is a modification of Test 1 to see if a decreasing pattern of marginal federal income tax rates, which may be a likely scenario for an investor close to retirement, has a significant impact on the results obtained in Test 2.

Exhibit 7 indicates that such is not the case. While the break-even year decreases from year 13 to year 12, NPVs only increase slightly during the first fifteen years and actually decrease at the end of 20 years when compared to the results obtained in Test 1.

(g) Changes in Mutual Fund Assumptions

Finally, two sensitivity tests were performed to measure the impact of a change in the characteristics assumed for the mutual fund competing with our variable annuity. These changes are:

Test 1: 5% of mutual fund gross annual return are unrealized capital gains.

Test 2: There is a 3% sales load for all investments in the mutual fund.

Results for these two tests are illustrated in Appendix B - Pages 16 and 17 and are summarized below.

Exhibit 8

Variable Annuity vs. Mutual Fund

NPV at Mutual Fund After-Tax Return

Time Horizon	Test 1	Test 2
5 Years	(343)	46
10 Years	13	705
15 Years	446	1,593
20 Years	1,051	2,811
Break-Even Year	10	5

While all previous tests have assumed that the full annual return for the mutual fund is in the form of investment income and realized capital gains and therefore taxable in full each year, Test 1 assumes a certain proportion of the annual net return (5% to be exact) to occur in the form of unrealized capital gains, which are not taxed until the owner of the mutual fund withdraws all or a portion of the fund. This assumption increases the break-even period for the variable annuity investor to ten years, while decreasing NPVs significantly. Thus, results are sensitive to the proportion of annual mutual fund returns which are unrealized capital gains and therefore not taxable until withdrawn.

Another variation of the assumptions underlying the typical mutual fund is illustrated in Test 2. While the base assumption for mutual funds is that the investor does not have to pay a front-end sales load, a significant proportion of mutual funds do charge a sales load of 2% to 8% currently. To test the impact of such a sales load on NPVs and breakeven years, a 3% sales load on mutual funds was included in Test 2.

Results improve significantly for the variable annuity under the assumptions of Test 2. The break-even year decreases from year seven to year five, and the NPV increases by about 14% after 20 years, from 2,238 under the base scenario to 2,543 under the revised scenario.

C. <u>Zero NPVs Under Varying Withdrawal Assumptions</u>

A second series of tests was performed to solve for the critical annual rate of withdrawal from the variable annuity which sets the NPV to zero, or in other words, leaves the expected after-tax value of both investments equal. The sensitivity of this annual rate of withdrawal was tested under differing federal income tax and investment return assumptions. The intent of this analysis is to give the annuity purchaser some indication of the liquidity risk inherent in the purchase.

The following tests were performed:

(1) Annual rate of withdrawal which results in a zero NPV after 5, 10, 15 or 20 years.

(2) Zero NPV after 20 years, assuming a higher/lower gross annual return.

(3) Zero NPV after 20 years, assuming a higher/decreasing federal income tax rate.

(4) Zero NPV after 10 years/20 years, assuming a lower gross annual return and decreasing federal income taxes.

Results for these tests are illustrated in Appendix C - Pages 1 through 10 and summarized below.

Exhibit 9 shows results for the first set of tests performed:

Exhibit 9 Variable Annuity vs. Mutual Fund Annual Withdrawal (% Premium) which sets NPV to Zero After n Years/Base Assumptions			
n Years	Free Annual Withdrawal	Excess Annual Withdrawal	Total Annual Withdrawal
20	10.00%	2.14%	12.14%
15	10.00%	0.98%	10.98%
10	8.61%	0.00%	8.61%
5	N/A	N/A	N/A
5*	0.48%	0.00%	0.48%

* Assuming a marginal federal income tax rate decreasing from 31% initially to 28% after five years, and to 15% after 10 years.

As expected from the last section (see Exhibit 7 Test 3), to reach a zero NPV after 20 years, the annual withdrawal is slightly above 12% of premiums. In order to break even after 10 years, the policyholder cannot take advantage of the full free annual withdrawal of 10% of premium each year.

Using the base scenario assumptions, a break-even year of 6 results even if no annual withdrawal is taken in any year (see Exhibit 7, Test 2). However, assuming a decreasing marginal federal income tax rate, the policyholder will break even in 5 years if only a small annual withdrawal of no more than 0.48% of

premium ($48 in our example) is taken from the annuity each year (see Appendix C - Page 4).

The next series of tests solves for the annual rate of withdrawal which sets the NPV to zero after 20 years, assuming varying gross annual returns and marginal federal income tax rates. The following results were obtained (see Appendix C - Pages 5 through 8).

Exhibit 10
Variable Annuity vs. Mutual Fund
Total Annual Withdrawal (% Premium)/Varying Gross Return & FIT Rate

Zero NPV After 20 Years

Change from Base Scenario	Free Annual Withdrawal	Excess Annual Withdrawal	Total Annual Withdrawal
20% Gross Return	10.00%	6.23%	16.23%
12% Gross Return	7.80%	0.00%	7.80%
31% Level FIT Rate	10.00%	2.37%	12.37%
Decreasing* FIT Rate	10.00%	1.20%	11.20%

* Marginal federal income tax rate decreasing from 31% initially to 28% after five years, and to 15% after 10 years.

Exhibit 10 illustrates that a change in the gross annual rate of return observed from the base scenario rate of 16% leads to a

similar change in the annual withdrawal rate which sets both investments equal after 20 years. Thus, a 4% increase in the gross annual rate of return from 16% to 20% increases the total annual withdrawal available from 12.14% to 16.23%, while a 4% decrease in the gross annual return, from 16% to 12%, decreases the resulting annual withdrawal rate from 12.14% to 7.80%.

An increase in the marginal federal income tax rate from 28% per year to 31% per year only slightly increases the annual withdrawal available from 12.14% of premium to 12.37% of premium, while a decreasing marginal federal income tax rate decreases the annual withdrawal available from 12.14% of premium to 11.20% of premium.

Finally, two tests were performed under assumptions which, in the author's opinion, present a "most likely" scenario for the 1990s. With economies in a worldwide recession, gross annual investment returns may well be below those reached in the 1980s. Thus, a 12% gross annual return may be more realistic for this decade. Also, as the average variable annuity investor is close to retirement, a gradual decrease in the marginal federal income tax rate to the 15% tax bracket after 10 years can be expected.

Two tests were performed, solving for the annual rate of withdrawal which sets the NPV to zero after 10 years or 20 years under these "most likely" assumptions. Results are illustrated in Appendix C - Pages 9 and 10 and are summarized below.

As Exhibit 11 documents, the typical variable annuity policyholder, withdrawing 5% of premium per year without incurring a surrender charge, will do better than with an investment in a mutual fund under the "most likely" assumptions, if he or she does not surrender the contract for at least 10 years. An annual withdrawal of 5.05% of premium per year results in a zero NPV after 10 years, while an annuity policyholder withdrawing 7.32% of premium each year will reach a zero NPV after 20 years, using the "most likely" assumptions.

Exhibit 11
Variable Annuity vs. Mutual Fund

Zero NPV After n Years/"Most Likely" Assumptions*

n Years	Free Annual Withdrawal	Excess Annual Withdrawal	Total Annual Withdrawal
20	7.32% Premium	N/A	7.32% Premium
10	5.05% Premium	N/A	5.05% Premium

* Assuming a 12% gross annual rate of return and a marginal federal income tax rate which decreases from 31% initially to 28% after 5 years and finally to 15 % after ten years.

Thus, as long as the investor is willing to stay with the variable annuity contract for at least 10 years, the advantages of tax deferral outweigh the higher annual charges of the annuity when assuming a 5% free annual withdrawal.

D. Summary

For an individual investing in a variable annuity, the advantages of tax deferred generally outweigh the higher annual charges assessed on the annuity if the individual does not surrender the policy for a minimum number of years.

While this result is not very much affected by a change in the assumptions for surrender charges, federal income tax rates and tax penalties, varying gross annual returns and excess withdrawals can significantly impact the after-tax results obtained under the two investments.

VIII. DISTRIBUTION

1. Distribution Channels

Variable annuities are being sold through various distribution channels. These include:

(1) Stockbrokers,
(2) Agency field force,
(3) Financial planners,
(4) Banks and thrifts, and
(5) Direct response marketing.

Stockbrokers may include regional broker/dealers as well as New York Stock Exchange (NYSE) member firms with a nationwide presence.

Several companies are very successful in selling variable annuities exclusively through their agency field force. Other companies are using their agents as one of various distribution outlets.

Financial planners have been able to increase their marketshare in the variable annuity market. A few companies are offering no-load products, making them a product of choice for fee-based financial planning.

Banks and thrifts have been able to sign agreements with several companies, selling variable annuities as an alternative to Certificates of Deposit (CD's).

Direct response marketing is used by a few companies who are affiliated with a mutual fund. The mutual fund accountholders are contacted through direct mail. In addition, the variable annuities are also sold at the discount brokerage outlets of the mutual fund families.

2. Marketshares

According to a recent survey on a representative sample of variable annuity products, the following were the marketshares by distribution channel in the first half of 1990:

- Regional brokers: 30%
- NYSE member firms: 28%
- Career agents: 20%
- Financial planners: 15%
- Banks and thrifts: 5%
- Direct marketing: 2%

There has been an increase in sales for securities firms selling variable annuities (both regional and national), whereas career agents as the traditional distribution channel are losing marketshare. Financial planners have been able to grasp a

certain percentage of the market, with banks, thrifts and direct mail companies only recently entering the competition.

3. NYSE Member Firms

Increasingly, insurance companies are selling their variable annuities through national brokerage firms as one of their distribution channels. For the top 20 NYSE brokerage firms, total individual variable annuity premiums sold in 1989 amounted to $1.8 billion, or 24% of total individual variable annuity premiums of $7.5 billion. For 1990, premium production is estimated at $2.8 billion, representing a 28% marketshare, based on an estimate of $10 billion individual variable annuity premiums in 1990.

4. Impact of Distribution Channels

The distribution of variable annuities affects both product design and capital requirements of the issuing company.

A. Impact on Product Design

Products sold in the stockbroker market typically pay higher initial commissions than those sold through other channels. Commissions plus distribution allowances may reach up to 7.0% of premium in the first year. Sometimes, lower initial commissions are combined with additional asset-based trail commissions in renewal years to improve persistency. Surrender charges on these products may be level for up to five years to pay for this commission structure.

Variable annuities distributed through the company's agency force usually pay commissions which are lower in the first year, but include trail commissions in renewal years to reward persistency. Surrender charges grade down over a period of six to ten years.

For products sold through financial planners, banks or through direct marketing, commissions are lower than for the other distribution channels. In particular, only a salary is paid to the representatives of mutual fund families selling variable annuities through direct marketing. These lower commissions are passed on to the consumers through lower or no surrender charges, offering attractive surrender values even for short-term investors.

B. Capital Requirements

With most variable annuities featuring a back-end loaded design, all monies paid in are deposited to the separate account. This means that all commissions and acquisition expenses are a cash strain to the issuing company. This cash strain may reach up to 8% of premium (pre-tax) for products sold through stockbrokers and career agents, but may be as low as 2% to 3% for variable annuities sold through direct response. The effect of immediate tax credits will reduce this strain somewhat.

IX. ADVANTAGES AND DISADVANTAGES

Although variable annuities offer numerous advantages to both the issuing company and the contractholders, there are also some drawbacks which must be considered (see [10]).

1. Policyholder

The advantages of buying a variable annuity for the policyholder can be summarized as follows:

A. Combination of Insurance and Investment

Variable annuities offer the contractholder the opportunity of investing in mutual funds with a full guarantee of the principal invested (GMDB) in case of death. This guarantee is only available through the purchase of an insurance contract.

B. Power of Tax Deferral

All investment income and capital gains accumulate tax-free until the beginning of the annuitization period or any partial or full surrenders. In addition to that, all transfers between the various investment options do not incur any taxes, either.

For surrenders before age 59½, additional tax penalties may offset the benefits of this tax-free compounding feature. On the other hand, any increase in federal and state income taxes, a likely possibility given the size of the current budget deficit,

would further enhance the value of this tax-free compounding feature.

C. Liquidity

Enhanced partial withdrawal features allow the contractholder to withdraw a portion of the account value each year without surrendering the contract.

D. Flexibility

After the initial consideration is paid, there is no obligation to pay any further premiums, leaving the contractholder the decision as to when and how much additional premium he or she would like to pay.

Furthermore, transfers between the various investment divisions allow the contractholder to customize the variable annuity according to his own risk preference. Typically, younger investors are willing to take more risk, while investors at or near retirement are looking for more safety.

E. Investment Programs

The availability of a series of funds, coupled with attractive investment programs, enables the investor to increase returns on a long-term investment. Asset-allocation funds allow the contractholder to use the experience of professional investment managers in making investment decisions. Finally, fluctuations

in the underlying account values can be mitigated through payment of premiums at regular intervals.

F. Financial Security

All assets in the separate account are kept separate from the insurance company's assets, and therefore are not available to pay the insurance company's other liabilities. However, the buyer is still relying on the insurer to pay a death benefit that may exceed the account balance.

G. Estate Planning Tool

Since taxes are more significant than inflation, variable annuities are a good instrument for accumulating funds at retirement. Combined with an irrevocable trust and second-to-die life insurance, variable annuities can be used as a valuable estate planning tool.

H. Child Education

Variable annuities, given the power of tax-free compounding, may also be used to fund the cost of future education for children. Accumulating funds for 15 to 20 years may more than compensate for the additional 10% tax penalty upon early withdrawal of funds.

I. Quarterly Reports

Every quarter, the contractholder receives an account statement, showing a summary of transactions during the previous quarter.

Some of the drawbacks associated with variable annuities are:

A. Investment Risk

Contrary to a fixed annuity, the policyholder bears the investment risk for all monies invested in the separate account. Although stocks and bonds have historically beaten inflation in long-term returns, the stock market crash of 1987 is a vivid example for possible fluctuations in short-term returns to the investor. Inadequate diversification may also lead to poor investment returns in a variable annuity.

B. Higher Annual Fees

Compared to mutual funds, where annual expenses are typically in the 1% range, variable annuity contractholders pay an average of 2% in annual charges. For this additional 1% in annual cost, the annuity owner receives the tax protection and the unique guarantee of principal on death.

C. Long-term Investment

Surrender charges in the initial contract years and additional tax penalties upon withdrawal of funds before age 59½ require a long-term commitment by the owner of a variable annuity.

D. Limited Investment Options

Some variable annuity products may only offer a choice of three to four funds without any significant track record, managed by a subsidiary of the insurance company. When mutual fund families

are offered through a variable annuity, usually not all investment options are available for an investment.

Although all variable annuities offer a money market option for liquidity and safety, not all products are offering a fixed option as an alternative to the variable investment options in times of uncertain financial markets.

E. Information on Investment Performance

Contrary to public mutual funds, contractholders who are interested in the performance of the separate account funds will not be able to get this data from daily newspapers. Instead, they have to buy financial magazines such as "Barron's" to find performance data during the time interval between two quarterly reports.

2. Insurance Company

Variable annuities are attractive for insurance companies for the following reasons:

A. No Investment Risk on Separate Account Assets

Contrary to fixed annuities, the contractholder bears the entire investment risk on all assets invested in the separate account. Insurance companies are liable only to the extent any variable annuity assets are invested in the fixed option. This investment risk is limited through severe restrictions on withdrawals from the fixed option.

B. <u>Participation in Mutual Fund Business</u>

Mutual fund assets increased tenfold during the 1980's, from under $100 billion of assets in 1979 to just under $1 trillion in 1989. 25% of all households owned mutual funds at the end of 1989. Variable annuities enable insurance companies to participate in this growing market.

C. <u>Participation in Growing Insurance Market Segment</u>

Offering variable annuities is one alternative for insurance companies to participate in the annuities market, the fastest growing segment of the life insurance industry. While at the end of 1979, annuities held a market share of only 21% of total life insurance premiums, this share has increased to 40% at the end of 1989. Approximately one quarter of all annuity premiums are for variable contracts. In particular, when fixed income rates are low, variable annuities offer an attractive alternative to traditional deferred annuities.

D. <u>Lucrative for Sales Force</u>

Variable annuities enable agents, brokers and financial planners to complete their portfolio of products with an attractive long-term tax-deferred investment, which can be used as a savings vehicle for retirement, an estate planning tool or to fund children's college education costs.

E. <u>Outside Investment Advisors</u>

By signing up well known investment managers for the management of the funds offered, smaller, less known insurance companies are able to make fast inroads into the market, using the proven track record of the investment manager as a sales tool.

F. <u>Annual Fees on Assets</u>

Insurance companies retain an annual fee of approximately 2% of assets from the account, an amount which grows proportionately with the assets each year.

There are also a number of drawbacks for the insurance company in conjunction with the issuance of variable annuities:

A. <u>Start-up Expenses</u>

Since most products offered today feature a back-end loaded design for competitive reasons, all monies paid in by the contractholder are transferred to the account options selected. In reality, this means that all expenses and commissions associated with the issuance of the contracts must be paid out of the insurer's funds, thus generating an initial cash strain of up to 10% of considerations paid.

B. <u>Administration</u>

Contrary to fixed annuities, variable annuities require an administration system capable of handling flexible premiums, daily calculation of account values and the occurrence of partial

withdrawal at irregular intervals. This administration process may be performed in-house or through an outside third-party administrator (TPA), with costs significantly exceeding those of traditional annuities. Delivery of a prospectus and the mailing of quarterly account statements further add to the costs of administrating the contracts.

C. More Complicated

Before agents and brokers can sell a variable annuity, they have to be able to understand the pertinent product features themselves, which requires more training and education than for traditional annuities. In addition, the visibility of the contract charges and loads, as well as the necessity of obtaining an NASD license contribute to the fact that many agents and brokers are not interested in selling variable annuities to their clients.

D. Regulation

As previously discussed, insurance companies have to go through an onerous registration process before they can start selling variable annuities, including

(1) Registration of product as a security (SEC),

(2) Complying with model regulation (States), and

(3) Licensing requirements for agents (NASD).

E. <u>GMDB Risk</u>

Insurance companies are liable for the return of the contractholder's investment in case of death during the accumulation phase.

F. <u>Insurance Company Rating</u>

The rating of the insurance company's claims paying ability may become an issue for several reasons:

- Ability to sign up national broker/dealers for the distribution of the products,
- Ability to sign up well known outside investment advisors.

For insurance companies with an insufficient rating, the above considerations may present significant problems in the launching of a variable annuity.

X. RECENT SALES RESULTS

Variable annuities have not been able to increase their marketshare in recent years, according to statistics published by the American Council of Life Insurance (ACLI) Fact Book. In particular, the impact of TEFRA (1982) and the stock market crash of 1987 have had a dampering impact on sales.

Table 12

Variable Annuity Premiums 1967-1988

($Millions)

	Variable Annuity Premiums				
Year	Individual	Group	Total	Total Annuity Premiums	Variable / % of Total Annuity Premiums
1967*	$0.0	$0.1	$0.1	$2.7	5%
1970	0.1	0.3	0.4	3.7	10
1975	0.5	1.1	1.6	10.2	16
1980	1.0	1.5	2.5	22.4	11
1981	1.9	1.5	3.4	27.6	12
1982	2.6	1.3	3.9	34.6	11
1983	1.6	1.4	3.0	30.5	10
1984	2.0	2.1	4.1	42.9	10
1985	3.0	1.5	4.5	53.9	8
1986	5.3	2.8	8.1	83.7	10
1987	6.7	2.7	9.3	88.7	10
1988	4.5	2.6	7.2	103.3	7

Source: American Council of Life Insurance Fact Book.

* Prior years not available

However, it must be noted that ACLI statistics do not include fraternal insurance companies and insurance subsidiaries of Canadian companies operating in the U.S.

According to the A.M. Best insurance company database, ninety insurance companies reported a total of $12.5 billion for individual and group annuities combined in the year 1988, for a ratio of 20.6% of variable to total annuity premiums. Data from the Life Insurance Marketing and Research Association (LIMRA) indicates that variable annuities accounted for approximately 23% of all annuity premiums in the U.S. in 1989, based on a survey of 42 top sellers of annuities.

Finally, data from the Tillinghast VALUE survey shows that variable annuity premiums increased by 33% in the first quarter of 1990 as compared to the same period a year ago, with total individual variable annuity premiums estimated at $10 billion for 1990.

These results indicate an uptrend for variable annuities in recent years. The primary reasons for these sales increases, at a time when the overall life insurance market has slowed down in growth, are the enactment of TAMRA in 1988, the rapid recovery of the stock market since the crash of 1987 and the introduction of innovative products to the market, coupled with the development of alternative distribution channels like financial planners, banks and direct response marketing.

XI. OTHER NON-TRADITIONAL ANNUITIES

1. United States

In recent years, several products have been developed with product features that are outside the scope of the traditional fixed annuity. Among them are the market value adjusted (MVA) annuity, annuities with "interest-only" adjustments and guaranteed equity annuities.

A. Market Value Adjusted Annuities

Like a typical fixed annuity, an MVA annuity fully guarantees cash surrender values at the end of the current interest rate guarantee period. Unlike a typical fixed annuity, however, an MVA annuity or modified guaranteed annuity (MGA) contains a formula adjustment to surrender values before maturity to reflect current market conditions. When interest rates on new monies at the time of surrender are higher than the corresponding rates at the time the policy was issued, cash surrender values are adjusted downward from regular surrender values, and vice versa. The adjustment formula is designed to track the market value of the underlying assets as interest rates rise or fall.

MGA's typically provide current interest guarantee periods of up to ten years. The product must be registered with the SEC as a security under the 1933 and 1934 Acts. MGA product assets are generally held in a separate account, and carried at market value

in the annual statement. Neither the MVA annuity nor any separate account associated with it needs to be registered under the 1940 Act, however.

MGA's are becoming popular with insurance companies for the following reasons:

(1) Facing increasing volatility of the financial markets, guarantees are now more important to consumers.

(2) Insurance companies are able to minimize investment risk as well as offer more attractive interest guarantees.

(3) Longer interest guarantees can be offered.

(4) With higher valuation rates, surplus strain can be reduced below that of a traditional fixed annuity.

MGA products currently sold primarily use group trust structures, because approval under state insurance laws is possible in a few selected states only (e.g. CT, NY, WI). Recently, the ACLI has been more actively supporting NAIC model regulation approvals for MGA's. Therefore, one would expect to see state regulatory obstacles diminish over time.

B. Annuities with Interest-Only Adjustments

Some annuities feature interest guarantees which contain formulas to adjust for the current interest environment. If these formulas only affect the interest rates credited, they are not complete market value adjustments. Instead, they are called "interest-only" adjustments.

Annuities with this design have received approval in most states. Also, it appears that they do not need SEC registration if the interest guarantees are at least one year, qualifying under the "safe harbor" rule (SEC Rule 151).

C. Guaranteed Equity Annuities

When buying a variable annuity, the policyholder assumes the investment risk for all monies invested in the separate account. Insurers have been discussing the possibility of guaranteeing a minimum asset value at the end of a specified period on equity funds since the 1960's (see Turner, [6]).

Coincidentally, it was not until 1987 that several insurers actually offered such a product. With the stock market crash in October of 1987, these companies suffered some heavy losses and subsequently withdrew the guaranteed equity annuities.

Since then, no more attempts have been made at offering annuities with equity guarantees.

2. U.K.

Outside the U.S., non-traditional annuities are sold mainly in the U.K., in the form of unit linked annuities. Similar designs are also being sold in Australia, Canada, the Netherlands and France, although not to a great extent (see [8]). Recently, variable annuities were also introduced in Italy, Spain and Switzerland. The following analysis is focused on the U.K. only.

A. Recent Sales Results

In 1988, all annuity sales combined had a marketshare of 28% of new premiums. Although a breakdown between linked and non-linked sales was not available, it is estimated that unit linked annuities accounted for less than half of all new annuity premiums.

Table 13

New Life Insurance Premiums in the U.K. in 1988		
Type	New Premiums (£ MM)	% Total
Unit Linked Life	3,350	44.2%
Pension Annuities	1,644	21.7
Life Annuities	487	6.4
Other	2,090	27.6
Total	7,571	100.0%

Source: Association of British Insurers (ABI).

Pension annuities represent the part of the savings fund accumulated during employment which must be used to purchase a

pension (for tax reasons). Due to the recent growth and immaturity of the personal pensions market, annuity sales are expected to continue to grow rapidly for the foreseeable future.

Purchased life annuities are also expected to grow in excess of personal assets, as the population ages and personal savings are converted into pensions after retirement.
Among unit linked annuities, the two most popular types being sold are the split-fund annuity and the immediate annuity, which shall be examined in more detail in the following two sections.

B. Split-Fund Unit Linked Annuity

In a split-fund unit linked annuity, part of the initial single premium is used to provide guaranteed monthly income for a period of five or ten years. The balance is invested in a series of funds offered by the insurance company, similar to the separate account structure in the U.S.

Contractholders can choose between different levels of monthly income. Under the standard option, a growth rate of 10% per year in the funds selected will return the initial investment in full at the end of the contract period. A death benefit equal to the initial investment less the total of the annuity payments made until death is provided. Coverage may be offered on single or joint lives.

Contract charges typically include a 5% of premium sales charge plus a 1% annual fund charge. Additional charges are levied on all transfers after the first one in each year. The contractholder may surrender the whole plan or only the account value of the funds. Instead of explicit surrender charges, unit values are reduced by a margin upon surrender ("bid value") when calculating account values.

Investment funds offered are similar to those on variable products in the U.S., including stock, bond, money market, managed and international funds. A bonus fund, similar to the fixed option in the U.S., may also be offered.

Current investment income is free of tax until the end of the contract duration. Up to 5% of the initial investment may be withdrawn each year without incurring any immediate tax liability. Any withdrawal in excess of the annual allowance will result in a tax liability. For the monthly annuity payments, the principal is exempt from tax under the Tax Act 1988, just like in the U.S. The balance of the payments will be treated as investment income and is liable to tax at the basic tax rate.

C. <u>Immediate Unit Linked Annuities</u>

An increasing number of unit linked life policies is being converted into unit linked immediate annuities. Most unit linked

life contracts allow such a conversion anytime after the insured attains age 45, but not after attainment of age 75.

An initial charge of 5% of the surrender value is typically deducted before premiums are applied to the purchase of the immediate annuity. In addition, there is an expense charge of £1 to £1.50 on each monthly payment.

Funds may be selected at issue of the annuity, although transfers are allowed during the payment period. Payments may be made on single or joint lives, with typical guarantee periods of five or ten years. The AIR is usually in the 5% to 6% range.

Although commissions on immediate annuities are only 1% of the amount converted, profit margins for insurance companies are typically very low, ranging from 0.5% to 2% of the initial premium. Nevertheless, industry experts expect annual growth rates of up to 25% in the unit linked immediate annuity market in the future, for the following reasons:

(1) The majority of life sales in the 1980's were unit linked products,
(2) Increasing age of the population,
(3) Higher pensions from employers, and
(4) Insurance company monopoly.

XII. CONCLUSION AND AREAS OF FURTHER RESEARCH

Variable annuities offer various benefits to both the purchaser and the insurance company.

For the contractowner, variable annuities offer tax-deferred growth of capital with no limit on the annual investment. A historic comparison of after-tax returns with mutual funds indicates that non-qualified variable annuities generally yield higher returns than taxable mutual funds, if the policyholder remains in the contract for a minimum number of years. On top of that, a guaranteed return of principal upon death is typically provided.

Issuing variable annuities enables the insurance company to participate in a growing segment of the insurance market without any of the investment risk associated with traditional fixed annuities.

Drawbacks do exist, however. The contractowner bears the investment risk in a long-term investment, and the insurance company is taking on mortality and expense risks.

Further research on this topic could include the use of variable annuities in other areas, such as funding post-retirement obligations, and a historical comparison of returns on variable annuities with those of traditional annuities.

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APPENDIX A

MODEL VARIABLE ANNUITY REGULATION

Table of Contents

Article I.	Authority.
Article II.	Definitions.
Article III.	Qualifications of Insurance Companies to Issue Variable Annuities.
Article IV.	Seperate Account.
Article V.	Filing of Contracts.
Article VI.	Variable Annuity Contracts.
Article VII.	Nonforfeiture Benefits.
Article VIII.	Required Reports.
Article IX.	Foreign Companies.
Article X.	Qualities of Agents For The Sale of Variable Annuities.

Article I: Authority.

Pursuant to authority given by Section (insert applicable section) of the Insurance Laws of (insert state), the Insurance (Commissioner, Director or Superintendent), after due notice and publication and after affording interested persons opportunity to present written data, views and arguments, does hereby make and promulgate the following rules and regulations to be applicable to insurance companies delivering or issuing for delivery in this state variable annuities as defined in Paragraph 1, of Article II, pursuant to Section (insert applicable section) of the Insurance Laws of this State.

These regulations shall become effective (insert date).

Drafting Note: This Article will obviously depend on the existing provisions under a given state's insurance code with respect to the method for adopting rules and regulations.

Article II: Definitions.

1. The term "variable annuity" when used in this Regulation, shall mean any policy or contract which provides for annuity benefits which vary according to the investment experience of any separate account or accounts maintained by the insurer as to such policy or contract, as provided for in Section (insert applicable section) of the laws of this State.

Drafting Note: The objective here is to define the contracts covered by the regulations to include all forms of annuity contracts the benefits of which vary according to the investment experience of a separate account authorized by the enabling statute, including group and individual, variable accumulation and variable benefit, etc. Exclusion of particular kinds of contracts from sections of the regulation which may be inapplicable is handled in those sections.

2. "Agent" when used in the Regulation, shall mean any person, corporation, partnership, or other legal entity which under the laws of this State is licensed as a life insurance agent, or solicitor, general agent or life insurance broker.

Drafting Note: States should make the necessary changes in terminology to conform with statutory language describing those persons eligible to be licensed to sell life insurance.

Article III: Qualification of Insurance Companies To Issue Variable Annuities.

1. No company shall deliver or issue for delivery variable annuities within this State unless (a) it is licensed or organized to do a life insurance or annuity business in this State, and (b) the Commissioner is satisfied that its condition or method of operation in connection with the issuance of such contracts will not render its operation hazardous to the public or its policyholders in this State. In this connection, the Commissioner shall consider among other things:

   (i) The history and financial condition of the company;

   (ii) The character, responsibility and fitness of the officers and directors of the company; and

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(iii) The law and regulation under which the company is authorized in the state of domicile to issue variable annuities.

2. If the company is a subsidiary of an admitted life insurance company, or affiliated with such company by common management or ownership, it may be deemed by the Commissioner to have satisfied the provisions of clause (b) of Paragraph 1 hereof if either it or such admitted life company satisfies the aforementioned provisions; provided, further, that companies licensed and having a satisfactory record of doing business in this State for a period of at least three years may be deemed to have satisfied the Commissioner with respect to clause (b) of Paragraph 1 above.

3. Before any company shall deliver or issue for delivery variable annuities within this State it shall submit to the Commissioner (a) a general description of the kinds of variable annuities it intends to issue, (b) if requested by the Commissioner, a copy of the statutes and regulations of its state of domicile under which it is authorized to issue variable annuities, and (c) if requested by the Commissioner, biographical data with respect to officers and directors of the company of the NAIC uniform biographical data forms.

Drafting Note: Paragraph 3 suggests the type of submission which might be appropriate to afford a basis for determining that a company meets the test in clause (b) of Paragraph 1. The NAIC biographical data regulation and forms appear in the 1967 NAIC Proceedings II 382-385 and 1974 NAIC Proceedings I 120-123.

Some state Statutes provide seasoning requirements for the licensing of foreign life insurance companies; these statutes presumably will also apply to companies seeking to be licensed to sell variable annuities. The Committee does not believe that there is a need for seasoning requirements for companies writing variable annuities beyond those required for life companies generally. If, however, an additional seasoning requirement for companies writing variable annuities is considered desirable, the Committee feels that such a requirement should be specifically provided by statute and recommends that the statute expressly require consideration of the experience of a parent or affiliated company. See Paragraph 2 above.

The Committee recommends that if there are specific capital and surplus requirements for companies writing variable annuities these should be the same as those for life insurance companies generally. If stricter capital and surplus requirements should be considered necessary, these should be specifically provided by statute and it is strongly recommended that the statute permit waiver of such requirements pursuant to rules and regulations duly adopted by the Commissioner. A regulation to accomplish the purpose might read as follows:

> "The Commissioner may waive any or all the requirements set forth in Section (insert applicable section) if by reason of a company's capital structure, surplus, amount of business in force and plan of operations, it substantially conforms to such requirements, or, in the opinion of the Commissioner, otherwise affords adequate protection to contract holders."

Article IV: Separate Account.

A domestic company issuing variable annuities shall establish one or more separate accounts pursuant to Section (insert applicable section) of the Insurance Laws of this State, subject to the following provisions of the Article:

1. (a) Except as may be provided with respect to reserves for guaranteed benefits and funds referred to in Paragraph 1(b), (i) amounts allocated to any separate account and accumulations thereon may be invested and reinvested without regard to any requirements or limitations prescribed by the laws of this State governing the investments of life insurance companies, and (ii) the investments in such separate account or accounts shall not be taken into account in applying the investment limitations otherwise applicable to the investments of the company.

   (b) Reserves for (i) benefits guaranteed as to dollar amount and duration, and (ii) funds guaranteed as to principal amount or stated rate of interest may be maintained in a separate account if a portion of the assets of such separate account at least equal to such reserve liability is invested in accordance with the laws and regulations of this State governing the investments of life insurance companies. Such portion of the assets also shall not be taken into account in applying the investment limitations otherwise applicable to the investments of the company.

   (c) With respect to 75% of the market value of the total assets in a separate account no company shall purchase or otherwise acquire the securities of any issuer, other than securities issued or guaranteed as to principal or interest by the United States, if immediately after such purchase or acquisition the market value of such investment, together with prior investments of such separate account in such security taken at

market, would exceed 10% of the market value of the assets of said separate account; provided, however, that the Commissioner may waive such limitation if, in his opinion, such waiver will not render the operation of such separate account hazardous to the public or policyholders in this State.

(d) Unless otherwise permitted by law or approved by the Commissioner, no company shall purchase or otherwise acquire for its separate accounts the voting securities of any issuer if as a result of such acquisition the insurance company and its separate accounts, in the aggregate, will own more than 10% of the total issued and outstanding voting securities of such issuer; provided, that the foregoing shall not apply with respect to securities held in separate accounts, the voting rights in which are exercisable only in accordance with instructions from persons having interest in such accounts.

(e) The limitations provided in Paragraphs 1(c) and 1(d) above shall not apply to the investment with respect to a separate account in the securities of an investment company registered under the Investment Company Act of 1940, provided that the investments of such investment company comply in substance with Paragraphs 1(c) and 1(d) hereof.

Drafting Note: Virtually all statutes contain the broad language in Paragraph 1(a) permitting investments without regard to investment limitations with respect to life insurance companies. Paragraph 1(c) would impose a quantitative limitation to promote diversification and limit investment risk. It should be noted that while separate accounts registered under the 1940 Act will be subject to the 5% rule under that Act, there would appear to be sound reasons for permitting greater flexibility, up to 10%, with respect to those separate accounts not so subject. It is further provided that the Commissioner may waive this limitation where such would not render the operation of the account hazardous.

(Paragraph 1(d) would prohibit the acquisition by the separate account of the securities of an issuer if the acquisition would result in the ownership of more than 10% of the voting securities of such issuer, with the holdings by the company and all of its separate accounts aggregated, except when there is a pass-through of voting rights to contractholders.

Paragraph 1(f) is intended primarily to permit the operation of a separate account as a unit investment trust under the 1940 Act, with all of its assets being invested in the securities of a registered investment company. It should be noted, however, that the Commissioner would retain indirect control since the exception from the application of Paragraphs 1(c) and 1(d) would not apply if the investments of the investment company did not comply with such Paragraphs.

Basic authority for exemption from investment limitations, as well as the quantitative limitations in Paragraphs 1(c) and 1(d) and the exemption from these limitations in Paragraph 1(f), should probably be covered by statute.

2. Unless otherwise approved by the Commissioner, assets allocated to separate account shall be valued at their market value on the date of valuation, or if there is no readily available market, then as provided under the terms of the contract or the rules or other written agreement applicable to such separate account; provided, that unless otherwise approved by the Commissioner, the portion, if any, of the assets of such separate account equal to the company's reserve liability with regard to the benefits and funds referred to in clauses (i) and (ii) of Paragraph 1(b) shall be valued in accordance with the rules otherwise applicable to the company's assets.

Drafting Note: In the case of variable annuities involving a 1940 Act registered account and in many group contracts the procedure for valuing assets will be stated in rules of the separate accounts or in a separate applicable written agreement, and the regulation is drafted to permit this.

3. If and to the extent so provided under the applicable contracts, that portion of the assets of any such separate account equal to the reserves and other contract liabilities with respect to such account shall not be chargeable with liabilities arising out of any other business the company may conduct.

Drafting Note: To achieve effective insulation of certain assets held in separate accounts from claims of general creditors it is probably necessary, as a matter of general corporate law, that such insulation be specifically authorized by statute.

4. Notwithstanding any other provisions of law a company may

(a) with respect to any separate account registered with the Securities Exchange Commission, as a unit investment trust exercise voting rights in connection with any securities of a regulated investment company registered under the Investment Company Act of 1940 and held in such separate accounts in accordance with instructions from persons having interests in such accounts ratably as determined by the company, or

(b) with respect to any separate account registered with the Securities and Exchange Commission as a management investment company, establish for such account a committee, board, or other body, the members of which may or may not be otherwise affiliatted with such company and may be elected to such membership by the vote of persons having interests in such account ratably as determined by the company. Such committee, board or other body may have the power, exercisable alone or in conjunction with others to manage such separate account and the investment of its assets.

A company, committee, board or other body may make such other provisions in respect to any such separate account as may be deemed appropriate to facilitate compliance with requirements of any federal or state law now or hereafter in effect; provided that the Commissioner approves such provisions as not hazardous to the public or the company's policyholders in this State.

Drafting Note: Certain separate accounts are registered with the Securities and Exchange Commission under the Investment Company Act of 1940, and contractholders in such separate accounts must be given voting rights, principally in connection with the management of the assets of the account. Subparagraph 4(a) is intended to provide for a separate account registered with the SEC as a unit investment trust, under which all of the assets of the account are invested in a separate mutual fund. In this connection, see also Paragraph 1(f). Subparagraph 4(a) would permit a pass-through of voting rights in the shares of the underlying mutual fund to the contractholders.

Where a separate account is registered under the 1940 Act as a management investment company the contractholders have the right to elect a committee with power to manage the account and invest its assets. Subparagraph 4(b).

As with the insulation provision in Paragraph 3 of Article IV above, it would probably be wise in most states to provide authority for the above regulation by statute, since many states require that the assets of an insurer may be managed by its board of directors.

5. No sale, exchange or other transfer of assets may be made by a company between any of its separate accounts or between any other investment account and one or more of its separate accounts unless, in the case of a transfer into a separate account, such transfer is made solely to establish the account or to support the operation of the contracts with respect to the separate account to which the transfer is made, and unless such transfer, whether into or from a separate account, is made (a) by a transfer of cash, or (b) by a transfer of securities having a valuation which could be readily determined in the marketplace, provided that such transfer of securities is approved by the Commissioner. The Commissioner may authorize other transfers among such accounts, if, in his opinion, such transfers would not be inequitable.

Drafting Note: This provision, common to many existing statutes and regulations, is intended to prevent unfair or discriminatory transfer among accounts. Regular cash flow should permit those transfers to and from the general account necessary to the operation of the variable annuity business to be made in cash.

6. The company shall maintain in each such separate account assets with a value at least equal to the reserves and other contract liabilities with respect to such account, except as may otherwise be approved by the Commissioner.

Drafting Note: This section varies from a number of existing regulations which provide that assets shall be equal to reserves. The Committee agrees that a deficit should not be permitted, but that build-up and surplus within the separate account should not be prohibited as it would apparently be under the existing regulations referred to.

7. Rules under any provision of the Insurance Laws of this State or any regulation applicable to the officers and directors of insurance companies with respect to conflict of interest shall also apply to members of any separate accounts committee, board or other similar body. No officer or director of such company nor any member of the committee, board or body of a separate account shall receive directly or indirectly any commission or any other compensation with respect to the purchase or sale of assets of such separate account.

Article V: Filing of Contracts.

The filing requirements applicable to variable annuities shall be those filing requirements otherwise applicable under existing statutes and regulations of this State with respect to individual and group life insurance and annuity contract form filings, to the extent appropriate.

Article VI: Variable Annuity Contracts.

1. Any variable annuity providing benefits payable in variable amounts delivered or issued for delivery in this State shall contain a statement of the essential features of the procedures to

be followed by the insurance company in determining the dollar amount of such variable benefits. Any such contract, including a group contract and any certificate in evidence of variable benefits issued thereunder, shall state that such dollar amount will vary to reflect investment experience and shall contain on its first page a clear statement to the effect that the benefits thereunder are on a variable basis.

2. Illustrations of benefits payable under any variable annuity shall not include projections of past investment experience into the future or attempted predictions of future investment experience; provided that nothing contained herein is intended to prohibit use of hypothetical assumed rates of return to illustrate possible levels of benefits.

3. No individual variable annuity contract calling for the payment of periodic stipulated payments shall be delivered or issued for delivery in this State unless it contains in substance the following provision or provisions which in the opinion of the Commissioner are more favorable to the holders of such contracts:

   (a) A provision that there shall be a period of grace of 30 days or of one month, within which any stipulated payment to the insurer falling due after the first may be made, during which period of grace the contract shall continue in force. The contract may include a statement of the basis for determining the date as of which any such payment received during the period of grace shall be applied to produce the values under the contract arising therefrom;

   (b) A provision that, at any time within (insert number) year(s) from the date of default, in making periodic stipulated payments to the insurer during the life of the annuitant and unless the cash surrender value has been paid, the contract may be reinstated upon payment to the insurer of such overdue payments as required by contract, and of all indebtedness to the insurer on the contract, including interest. The contract may include a statement of the basis for determining the date as of which the amount to cover such overdue payments and indebtedness shall be applied to produce the values under the contract arising therefrom;

[Former Subsection VI 3C deleted by 1980 NAIC Proceedings I]

Drafting Note: The committee would recommend inclusion of provisions delaying with grace and reinstatement only if the law of a particular state requires these in individual fixed dollar deferred annuities. Several companies issuing variable annuity contracts do not require contractholders to make periodic stipulated payments. If a contractholder ceases making payments he may resume doing so thereafter at any time. It is assumed that Paragraph 3(a) would be inapplicable to such contracts since the provisions described above would be regarded as more favorable to the contractholders than a 30 day grace period.

[Drafting note above amended by 1980 NAIC Proceedings I]

4. Any variable annuity contact delivered or issued for delivery in this State shall stipulate the investment increment factors to be used in computing the dollar amount of variable benefits or other variable contractual payments of values thereunder, and may guarantee that expense and/or mortality results shall not adversely affect such dollar amounts. In the case of an individual variable annuity contract under which the expense and mortality results may adversely affect the dollar amount of benefits, the expense and mortality factors shall be stipulated in the contract.

In computing the dollar amount of variable benefits or other contractual payments or values under an individual variable annuity contract:

   (a) The annual net investment increment assumption shall not exceed 5% except with the approval of the Commissioner.

   (b) To the extent that the level of benefits may be affected by future mortality results, the mortality factor shall be determined from the Annuity Mortality Table for 1949, Ultimate, or any modification of that table not having a lower life expectancy at any age, or, if approved by the Commissioner, from another table.

"Expense" as used in this Paragraph, may exclude some or all taxes, as stipulated in the contract.

5. The reserve liability for variable annuities shall be established pursuant to the requirements of the Standard Valuation Law in accordance with actuarial procedures that recognize the variable nature of the benefits provided and any mortality guarantees.

Article VII: Nonforfeiture Benefits.

[This Section added and following sections renumbered by 1980 NAIC Proceedings I]

Drafting Note: This section should be included only if the Standard Nonforfeiture Law for Individual Deferred Annuities has been adopted in this State.

1. This Article shall not apply to any (i) reinsurance, (ii) group annuity contract purchases in connection with one or more retirement plans or plans of deferred compensation established or maintained by or for one or more employers (including partnerships or sole proprietorships), employee organizations, or any combination thereof, or other than plans providing individual retirement accounts or individual retirement annuities under Section 408 of the Internal Revenue Code, as now or hereafter amended, (iii) premium deposit fund, (iv) investment annuity, (v) immediate annuity, (vi) deferred annuity contract after annuity payments have commenced, (vii) reversionary annuity, or to any (viii) contract which is to be delivered outside this state through an agent or other representative of the company issuing the contract.

2. To the extent that any variable annuity contract provides benefits which do not vary in accordance with the investment performance of a separate account before the annuity commencement date, such contract shall contain provisions which satisfy the requirements of [the Standard Nonforfeiture Law for Deferred Annuities—Insert appropriate statutory citation for this law] and shall not otherwise be subject to this Article.

Drafting Note: For the purpose of demonstrating that the minimum nonforfeiture amounts under the fixed portion of the contract comply with Standard Nonforfeiture Law for Deferred Annuities, the company should assume that 100% of the considerations are allocated to the fixed account. If the contract provides for transfers between the fixed and variable accounts, the transaction charge may not exceed the charge for transfers to another separate account or to another investment division within the same separate account, as determined in Paragraph 4 of this Article.

3. In the case of a contract issued on or after [Insert operative date of this Article, which should be at least 18 month after adoption] no variable annuity contract, except as stated in Paragraphs 1 and 2, shall be delivered or issued for delivery in this state unless it contains in substance the following provisions, or corresponding provisions which in the opinion of the Commissioner are at least as favorable to the contractholder, upon cessation of payment of considerations under the contract:

   (a) That upon cessation of payment of considerations under a contract, the company will grant a paid-up annuity benefit on a plan described in the contract that complies with Paragraph 7. Such description will include a statement of the mortality table, if any, and guaranteed or assumed interest rates used in calculating annuity payments.

   (b) If a contract provides for a lump sum settlement at maturity, or at any other time, that upon surrender of the contract at or prior to the commencement of any annuity payments, the company will pay in lieu of any paid-up annuity benefit a cash surrender benefit as described in the contract that complies with Paragraph 8. The contract may provide that the company reserves the right, at its option, to defer the determination and payment of any cash surrender benefit for any period during which the New York Stock Exchange is closed for trading (except for normal holiday closing) or when the Securities and Exchange Commission has determined that a state of emergency exists which may make such determination and payment impractical.

   (c) A statement that any paid-up annuity, cash surrender or death benefits that may be available under the contract are not less than the minimum benefits required by any statute of the state in which the contract is delivered and an explanation of the manner in which such benefits are altered by the existance of any additional amounts credited by the company to the contract, any indebtedness to the company on the contract or any prior withdrawals from or partial surrenders of the contract.

4. The minimum values as specified in this Article of any paid-up annuity, cash surrender or death benefits available under a variable annuity contract shall be based upon nonforfeiture amounts meeting the requirements of this paragraph.

The minimum nonforfeiture amount on any date prior to the annuity commencement date shall be an amount equal to the percentages of net considerations (as specified in Paragraph 5) increased (or decreased) by the net investment return allocated to the percentages of net considerations, which amount shall be reduced to reflect the effect of:

(i) any partial withdrawls from or partial surrenders of the contract;

(ii) the amount of any indebtedness on the contract, including interest due and accrued;

(iii) an annual contract charge not less than zero and equal to (a) the lesser of thirty dollars ($30.00) and 2% of the end of year contract value less (b) the amount of any annual contract charge deducted from any gross considerations credited to the contract during such contract year; and

(iv) a transaction charge of ten dollars ($10.00) for each transfer to another separate account or to another investment division within the same separate account.

"Net investment return" means that the rate of investment return to be credited to the variable annuity contract in accordance with the terms of the contract after deductions for tax charges, if any, and for asset charges either at a rate not in excess of that stated in the contract, or in the case of a contract issued by a non-profit corporation under which the contractholder participates fully in the investment, mortality and expense experience of the account, in an amount not in excess of the actual expense not offset by other deductions. The net investment return to be credited to a contract shall be determined at least monthly.

The annual contract charge of thirty dollars ($30.00) and the transaction charge of ten dollars ($10.00) referred to above will be adjusted to reflect changes in the Consumer Price Index in accordance with Paragraph 6.

5. The percentages of net considerations used to define the minimum nonforfeiture amount in Paragraph 4 shall meet the requirements of this paragraph.

(a) With respect to contracts providing for periodic considerations, the net considerations for a given contract year used to define the minimum nonforfeiture amount shall be an amount not less than zero and shall be equal to the corresponding gross considerations credited to the contract during that contract year less an annual contract charge of thirty dollars ($30.00) and less a collection charge of one dollar and twenty-five cents ($1.25) per consideration credited to the contract during that contract year less any charges for premium taxes. The percentages of net considerations shall be sixty-five percent (65%) for the first contract year and eighty-seven and one-half percent (87½%) for the second and later contract years. Notwithstanding the provisions of the preceding sentence, the percentage shall be sixty-five percent (65%) of the portion of the total net consideraton for any renewal contract year which exceeds by not more than two times the sum of those portions of the net considerations in all prior contract years for which the percentage was sixty-five percent (65%).

(b) With respect to contracts providing for a single consideration, the net consideration used to define the minimum nonforfeiture amount shall be the gross consideration less a contract charge of seventy-five dollars ($75.00) and less any charge for premium taxes. The percentage of the net consideration shall be ninety percent (90%).

The annual contract charge of thirty dollars ($30.00), the collection charge of one dollar and twenty-five cents ($1.25) per collection, and the single consideration contract charge of seventy-five dollars ($75.00) referred to above, will be adjusted to reflect changes in the Consumer Price Index in accordance with Paragraph 6.

6. Demonstration that a contract's nonforfeiture amounts comply with this Article shall be based on the following assumptions:

(a) Values should be tested at the ends of each of the first twenty (20) contract years;

(b) A net investment return of 7% per year should be used;

(c) If the contract provides for transfers to another separate account or to another investment division within the same separate account, one transfer per contract year should be assumed;

(d) In determining the state premium tax applicable to the contract, the state of residence should be assumed to equal the state of delivery;

(e) With respect to contracts providing for periodic considerations, monthly considerations of $100 should be assumed for each of the first 240 months;

(f) with respect to contracts providing for a single consideration, a $10,000 single consideration should be assumed; and

(g) The following contract charges should be used:

1. For contracts filed in 1980 or earlier, the annual contract charge of thirty dollars ($30.00) referred to in paragraphs 4 and 5, the charge of ten dollars ($10.00) per transfer referred to in paragraph 4, the collection charge of one dollar and twenty-five cents ($1.25) per consideration referred to in paragraph 5, and the contract charge of seventy-five dollars ($75.00) referred to in paragraph 5(b).

2. For contracts filed in 1981 or later, the above contract charges multiplied by the ratio of (i) the Consumer Price Index for June of the calendar year preceding the date of filing, to (ii) the Consumer Price Index for June, 1979.

(h) If the contract provides for allocation of considerations to both fixed and variable accounts, 100% of the considerations should be assumed to be allocated to the variable account.

As used herein, the Consumer Price Index means such Index for all urban consumers for all items as published by the Bureau of Labor Statistics of the United States Department of Labor or its successor.

If publication of the Consumer Price Index ceases, or if such Index otherwise becomes unavailable or is altered in such a way as to be unusuable, the Commissioner will substitute an index he deems to be suitable.

7. Any paid-up annuity benefit available under a variable annuity contract shall be such that its present value on the annuity commencement date is at least equal to the minimum nonforfeiture amount on the date. Such present value shall be computed using the mortality table, if any, and the guaranteed or assumed interest rates used in calculating the annuity payments.

8. For variable annuity contracts which provide cash surrender benefits, the cash surrender benefit at any time prior to the annuity commencement date shall not be less than the minimum nonforfeiture amount next computed after the request for surrender is received by the company. The death benefit under such contracts shall be at least equal to the cash surrender benefit.

9. Any variable annuity contract which does not provide cash surrender benefits or does not provide death benefits at least equal to the minimum nonforfeiture amount prior to the annuity commencement date shall include a statement in a prominent place in the contract that such benefits are not provided.

10. Notwithstanding the requirements of this Article, a variable annuity contract may provide under the situations specified in (a) or (b) below that the company, at its option, may cancel the annuity and pay the contractholder its accumulated value and by such payment be released of any further obligation under such contract:

(a) if at the time the annuity becomes payable the accumulated value is less than $2,000, or would provide an income the initial amount of which is less than $20 per month; or

(b) if prior to the time the annuity becomes payable under a periodic payment variable annuity contract no considerations have been received under the contract for a period of two (2) full years and both (i) the total considerations paid prior to such period, reduced to reflect any partial withdrawls from or partial surrenders of the contract, and (ii) the accumulated value, amount to less than $2,000.

11. For any variable annuity contract which provides, within the same contract by rider or supplemental contract provision, both annuity benefits and life insurance benefits that are in excess of the greater of cash surrender benefits or a return of the gross considerations with interest, the minimum nonforfeiture benefits shall be equal to the sum of the minimum nonforfeiture benefits for the annuity portion and the minimum nonforfeiture benefits, if any, for the life insurance portion computed as if each portion were a separate contract. Notwithstanding the provisions of Paragraph 4, additional benefits payable (a) in the event of total and permanent diability, (b) as reversionary annuity or deferred reversionary annuity benefits, or (c) as other policy benefits additional to life insurance, endowment, and annuity benefits, and consideratons for all such additional benefits, that may be required by this Article. The inclusion of such additional benefits shall be disregarded in ascertaining the minimum nonforfeiture amounts, paid-up annuity, cash surrender and death benefits shall not be required in any paid-up benefits, unless such additional benefits separately would require minimum nonforfeiture amounts, paid-up annuity, cash surrender and death benefits.

Article VIII: Required Reports.

1. Any company issuing individual variable annuities shall mail to the contractholder at least once in each contract year after the first at his last address known to the company, a statement or statements reporting the investments held in the separate account. The company shall submit annually to the Insurance Commissioner a statement of business of its separate account or accounts in such form as may be prescribed by the National Association of Insurance Commissioners.

Drafting Note: The Committee intended to leave this language sufficiently flexible to apply in the event that the separate account statement is combined with the regular life blank.

2. Any company issuing individual variable annuities shall mail to the contractholder at least once in each contract year after the first at his last address known to the company a statement reporting as of a date not more than four months previous to the date of mailing. In the case of an annuity contract under which payments have not yet commenced, (a) the number of accumulation units credited to such contract and the dollar value of a unit, or (b) the value of the contractholder's account.

Article IX: Foreign Companies.

If the law or regulation in the place of domicile of a foreign company provides a degree of protection to policyholders and the public which is substatially equal to that provided by these regulations, the Commissioner, to the extent deemed appropriate by him in his discretion, may consider compliance with such law or regulation as compliance with these regulations.

Drafting Note: This blanket provision would permit a Commissioner to waive any or all of these requirements applicable to foreign companies in cases where the quality of regulation in the state of domicile is such that he would have every reason to expect that the company would be adequately regulated.

Article X: Qualifications of Agents for the Sale of Variable Annuities.

1. (a) No person may sell or offer for sale in this state any variable annuity contract unless such person is an agent and has filed with the Commissioner, in a form satisfactory to the Commissioner, evidence that such person holds any license or authorization which may be required for the solicitation or sale of variable annuity contracts by any federal or state securities law.

(b) Any examination administered by the Department for the purpose of determining the eligibility of any person for licensing as an agent shall, after the effective date of this regulation, include such questions concerning the history, purpose, regulation, and sale of variable annuity contracts as the Commissioner deems appropriate.

2. Any person qualified in this state under this Article to sell or offer to sell variable annuity contracts shall immediately report to the Commissioner:

   (a) Any suspension or revocation of his agents license in any other state or territory of the United States:

   (b) The imposition of any disciplinary sanction, including suspension or expulsion from membership, suspension, or revocation of or denial of registration, imposed upon him by any national securities exchange, or national securities association, or any federal, state, or territorial agency with jurisdiction over securities or variable annuity contracts;

   (c) Any judgement or injunction entered against him on the basis of conduct deemed to have involved fraud, deceit, misrepresentation, or violation of any insurance or securities law or regulation.

3. The Commissioner may reject any application or suspend or revoke or refuse to renew any agent's qualification under this Article to sell or offer to sell variable annuity contracts upon any ground that would bar such applicant or such agent from being licensed to sell other life insurance contracts in this state. The rules governing any proceeding relating to the suspension or revocation of an agent's license shall also govern any proceeding for suspension or revocation of an agent's qualification to sell or offer to sell variable annuity contracts.

Legislative History (all references are to the Proceedings of the NAIC).

1975 Proc. I 775-780
1980 Proc. I

APPENDIX B - PAGE 1 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

BASE RUN

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.73% / 5 Years
10.73% / 10 Years
10.73% / 15 Years
10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	500	0	190	0	310	10,940	656	10,284	108	10,176
2	28%	10%	0	10,940	1,575	500	0	190	0	310	12,015	601	11,415	538	10,877
3	28%	10%	0	12,015	1,730	500	0	190	0	310	13,246	530	12,716	1,032	11,684
4	28%	10%	0	13,246	1,907	500	0	190	0	310	14,653	440	14,213	1,601	12,612
5	28%	0%	0	14,653	2,110	500	0	140	0	360	16,263	325	15,938	1,663	14,275
6	28%	0%	0	16,263	2,342	500	0	140	0	360	18,105	181	17,924	2,219	15,705
7	28%	0%	0	18,105	2,607	500	0	140	0	360	20,212	0	20,212	2,859	17,353
8	28%	0%	0	20,212	2,911	500	0	140	0	360	22,622	0	22,622	3,534	19,088
9	28%	0%	0	22,622	3,258	500	0	140	0	360	25,380	0	25,380	4,306	21,074
10	28%	0%	0	25,380	3,655	500	0	140	0	360	28,535	0	28,535	5,190	23,345
11	28%	0%	0	28,535	4,109	500	0	140	0	360	32,144	0	32,144	6,200	25,944
12	28%	0%	0	32,144	4,629	500	0	140	0	360	36,273	0	36,273	7,356	28,916
13	28%	0%	0	36,273	5,223	500	0	140	0	360	40,996	0	40,996	8,679	32,317
14	28%	0%	0	40,996	5,903	500	0	140	0	360	46,399	0	46,399	10,192	36,207
15	28%	0%	0	46,399	6,681	500	0	140	0	360	52,581	0	52,581	11,923	40,658
16	28%	0%	0	52,581	7,572	500	0	140	0	360	59,652	0	59,652	13,903	45,750
17	28%	0%	0	59,652	8,590	500	0	140	0	360	67,742	0	67,742	16,168	51,574
18	28%	0%	0	67,742	9,755	500	0	140	0	360	76,997	0	76,997	18,759	58,238
19	28%	0%	0	76,997	11,088	500	0	140	0	360	87,585	0	87,585	21,724	65,861
20	28%	0%	0	87,585	12,612	500	0	140	0	360	99,697	0	99,697	25,115	74,582

Net Annual After-Tax Return to Contractholder / 5 Years : 10.16%

Net Annual After-Tax Return to Contractholder / 10 Years : 11.23%

Net Annual After-Tax Return to Contractholder / 15 Years : 11.76%

Net Annual After-Tax Return to Contractholder / 20 Years : 12.18%

Break-Even Year : 7

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (248)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years 414

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 1,288

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 2,478

APPENDIX B - PAGE 2 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

HIGHER GROSS ANNUAL RETURN

Issue Age : 55

Gross Annual Return : 20.00% Per Year

Variable Annuity Net Annual Return : 18.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 18.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 13.61% / 5 Years
13.61% / 10 Years
13.61% / 15 Years
13.61% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,840	500	0	190	0	310	11,340	600	10,660	251	10,409
2	28%	10%	0	11,340	2,087	500	0	190	0	310	12,927	646	12,280	866	11,414
3	28%	10%	0	12,927	2,378	500	0	190	0	310	14,805	592	14,213	1,601	12,612
4	28%	10%	0	14,805	2,724	500	0	190	0	310	17,029	511	16,518	2,477	14,041
5	28%	0%	0	17,029	3,133	500	0	140	0	360	19,663	393	19,269	2,595	16,674
6	28%	0%	0	19,663	3,618	500	0	140	0	360	22,780	228	22,553	3,515	19,038
7	28%	0%	0	22,780	4,192	500	0	140	0	360	26,472	0	26,472	4,612	21,860
8	28%	0%	0	26,472	4,871	500	0	140	0	360	30,843	0	30,843	5,836	25,007
9	28%	0%	0	30,843	5,675	500	0	140	0	360	36,018	0	36,018	7,285	28,733
10	28%	0%	0	36,018	6,627	500	0	140	0	360	42,145	0	42,145	9,001	33,145
11	28%	0%	0	42,145	7,755	500	0	140	0	360	49,400	0	49,400	11,032	38,368
12	28%	0%	0	49,400	9,090	500	0	140	0	360	57,990	0	57,990	13,437	44,553
13	28%	0%	0	57,990	10,670	500	0	140	0	360	68,160	0	68,160	16,285	51,875
14	28%	0%	0	68,160	12,541	500	0	140	0	360	80,201	0	80,201	19,656	60,545
15	28%	0%	0	80,201	14,757	500	0	140	0	360	94,458	0	94,458	23,648	70,810
16	28%	0%	0	94,458	17,380	500	0	140	0	360	111,338	0	111,338	28,375	82,964
17	28%	0%	0	111,338	20,486	500	0	140	0	360	131,325	0	131,325	33,971	97,354
18	28%	0%	0	131,325	24,164	500	0	140	0	360	154,989	0	154,989	40,597	114,392
19	28%	0%	0	154,989	28,518	500	0	140	0	360	183,006	0	183,006	48,442	134,565
20	28%	0%	0	183,006	33,673	500	0	140	0	360	216,180	0	216,180	57,730	158,449

Net Annual After-Tax Return to Contractholder / 5 Years : 13.39%

Net Annual After-Tax Return to Contractholder / 10 Years : 14.82%

Net Annual After-Tax Return to Contractholder / 15 Years : 15.56%

Net Annual After-Tax Return to Contractholder / 20 Years : 16.09%

Break-Even Year : 6

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (89)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years 1,014

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 2,555

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 4,644

APPENDIX B - PAGE 3 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

LOWER GROSS ANNUAL RETURN

Issue Age : 55

Gross Annual Return : 12.00% Per Year

Variable Annuity Net Annual Return : 10.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 10.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 7.85% / 5 Years; 7.85% / 10 Years; 7.85% / 15 Years; 7.85% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5; 28% Years 6 - 10; 28% Years 11 - 15; 28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,040	500	0	190	0	310	10,540	632	9,908	0	9,908
2	28%	10%	0	10,540	1,096	500	0	190	0	310	11,136	557	10,579	220	10,359
3	28%	10%	0	11,136	1,158	500	0	190	0	310	11,794	472	11,323	503	10,820
4	28%	10%	0	11,794	1,227	500	0	190	0	310	12,521	376	12,145	815	11,330
5	28%	0%	0	12,521	1,302	500	0	140	0	360	13,323	266	13,057	856	12,201
6	28%	0%	0	13,323	1,386	500	0	140	0	360	14,209	142	14,067	1,139	12,928
7	28%	0%	0	14,209	1,478	500	0	140	0	360	15,186	0	15,186	1,452	13,734
8	28%	0%	0	15,186	1,579	500	0	140	0	360	16,266	0	16,266	1,754	14,511
9	28%	0%	0	16,266	1,692	500	0	140	0	360	17,457	0	17,457	2,088	15,369
10	28%	0%	0	17,457	1,816	500	0	140	0	360	18,773	0	18,773	2,456	16,317
11	28%	0%	0	18,773	1,952	500	0	140	0	360	20,225	0	20,225	2,863	17,362
12	28%	0%	0	20,225	2,103	500	0	140	0	360	21,829	0	21,829	3,312	18,517
13	28%	0%	0	21,829	2,270	500	0	140	0	360	23,599	0	23,599	3,808	19,791
14	28%	0%	0	23,599	2,454	500	0	140	0	360	25,553	0	25,553	4,355	21,198
15	28%	0%	0	25,553	2,658	500	0	140	0	360	27,711	0	27,711	4,959	22,752
16	28%	0%	0	27,711	2,882	500	0	140	0	360	30,093	0	30,093	5,626	24,467
17	28%	0%	0	30,093	3,130	500	0	140	0	360	32,723	0	32,723	6,362	26,360
18	28%	0%	0	32,723	3,403	500	0	140	0	360	35,626	0	35,626	7,175	28,450
19	28%	0%	0	35,626	3,705	500	0	140	0	360	38,831	0	38,831	8,073	30,758
20	28%	0%	0	38,831	4,038	500	0	140	0	360	42,369	0	42,369	9,063	33,306

Net Annual After-Tax Return to Contractholder / 5 Years : 7.01%

Net Annual After-Tax Return to Contractholder / 10 Years : 7.78%

Net Annual After-Tax Return to Contractholder / 15 Years : 8.08%

Net Annual After-Tax Return to Contractholder / 20 Years : 8.34%

Break-Even Year : 12

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (361)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years (69)

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 270

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 759

APPENDIX B - PAGE 4 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

HIGHER VA NET ANNUAL RETURN

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.90% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.73% / 5 Years
10.73% / 10 Years
10.73% / 15 Years
10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,490	500	0	190	0	310	10,990	659	10,331	126	10,205
2	28%	10%	0	10,990	1,638	500	0	190	0	310	12,128	606	11,521	578	10,943
3	28%	10%	0	12,128	1,807	500	0	190	0	310	13,435	537	12,897	1,101	11,796
4	28%	10%	0	13,435	2,002	500	0	190	0	310	14,936	448	14,488	1,706	12,783
5	28%	0%	0	14,936	2,226	500	0	140	0	360	16,662	333	16,329	1,772	14,557
6	28%	0%	0	16,662	2,483	500	0	140	0	360	18,644	186	18,458	2,368	16,090
7	28%	0%	0	18,644	2,778	500	0	140	0	360	20,922	0	20,922	3,058	17,864
8	28%	0%	0	20,922	3,117	500	0	140	0	360	23,540	0	23,540	3,791	19,749
9	28%	0%	0	23,540	3,507	500	0	140	0	360	26,547	0	26,547	4,633	21,914
10	28%	0%	0	26,547	3,956	500	0	140	0	360	30,003	0	30,003	5,601	24,402
11	28%	0%	0	30,003	4,470	500	0	140	0	360	33,973	0	33,973	6,712	27,261
12	28%	0%	0	33,973	5,062	500	0	140	0	360	38,535	0	38,535	7,990	30,545
13	28%	0%	0	38,535	5,742	500	0	140	0	360	43,777	0	43,777	9,458	34,319
14	28%	0%	0	43,777	6,523	500	0	140	0	360	49,800	0	49,800	11,144	38,656
15	28%	0%	0	49,800	7,420	500	0	140	0	360	56,720	0	56,720	13,082	43,638
16	28%	0%	0	56,720	8,451	500	0	140	0	360	64,671	0	64,671	15,308	49,363
17	28%	0%	0	64,671	9,636	500	0	140	0	360	73,807	0	73,807	17,866	55,941
18	28%	0%	0	73,807	10,997	500	0	140	0	360	84,304	0	84,304	20,805	63,499
19	28%	0%	0	84,304	12,561	500	0	140	0	360	96,366	0	96,366	24,182	72,183
20	28%	0%	0	96,366	14,358	500	0	140	0	360	110,224	0	110,224	28,063	82,161

Net Annual After-Tax Return to Contractholder / 5 Years : 10.56%

Net Annual After-Tax Return to Contractholder / 10 Years : 11.67%

Net Annual After-Tax Return to Contractholder / 15 Years : 12.23%

Net Annual After-Tax Return to Contractholder / 20 Years : 12.66%

Break-Even Year : 6

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (71)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years 796

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 1,935

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 3,466

APPENDIX B - PAGE 5 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

LOWER VA NET ANNUAL RETURN

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 13.90% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.73% / 5 Years
10.73% / 10 Years
10.73% / 15 Years
10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,390	500	0	190	0	310	10,890	653	10,237	90	10,147
2	28%	10%	0	10,890	1,514	500	0	190	0	310	11,904	595	11,309	497	10,811
3	28%	10%	0	11,904	1,655	500	0	190	0	310	13,058	522	12,536	964	11,572
4	28%	10%	0	13,058	1,815	500	0	190	0	310	14,373	431	13,942	1,498	12,444
5	28%	0%	0	14,373	1,998	500	0	140	0	360	15,871	317	15,554	1,555	13,999
6	28%	0%	0	15,871	2,206	500	0	140	0	360	17,577	176	17,402	2,072	15,329
7	28%	0%	0	17,577	2,443	500	0	140	0	360	19,521	0	19,521	2,666	16,855
8	28%	0%	0	19,521	2,713	500	0	140	0	360	21,734	0	21,734	3,286	18,449
9	28%	0%	0	21,734	3,021	500	0	140	0	360	24,255	0	24,255	3,991	20,264
10	28%	0%	0	24,255	3,371	500	0	140	0	360	27,127	0	27,127	4,795	22,331
11	28%	0%	0	27,127	3,771	500	0	140	0	360	30,397	0	30,397	5,711	24,686
12	28%	0%	0	30,397	4,225	500	0	140	0	360	34,122	0	34,122	6,754	27,368
13	28%	0%	0	34,122	4,743	500	0	140	0	360	38,365	0	38,365	7,942	30,423
14	28%	0%	0	38,365	5,333	500	0	140	0	360	43,198	0	43,198	9,296	33,903
15	28%	0%	0	43,198	6,005	500	0	140	0	360	48,703	0	48,703	10,837	37,866
16	28%	0%	0	48,703	6,770	500	0	140	0	360	54,972	0	54,972	12,592	42,380
17	28%	0%	0	54,972	7,641	500	0	140	0	360	62,114	0	62,114	14,592	47,522
18	28%	0%	0	62,114	8,634	500	0	140	0	360	70,247	0	70,247	16,869	53,378
19	28%	0%	0	70,247	9,764	500	0	140	0	360	79,512	0	79,512	19,463	60,049
20	28%	0%	0	79,512	11,052	500	0	140	0	360	90,064	0	90,064	22,418	67,646

Net Annual After-Tax Return to Contractholder / 5 Years : 9.76%

Net Annual After-Tax Return to Contractholder / 10 Years : 10.79%

Net Annual After-Tax Return to Contractholder / 15 Years : 11.29%

Net Annual After-Tax Return to Contractholder / 20 Years : 11.60%

Break-Even Year : 10

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (406)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years 49

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 683

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 1,575

APPENDIX B - PAGE 6 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

NO TAX PENALTY (ISSUE AGE 60)

Issue Age : 60

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.73% / 5 Years
10.73% / 10 Years
10.73% / 15 Years
10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	0%	10,000	10,000	1,440	500	0	140	0	360	10,940	656	10,284	79	10,206
2	28%	0%	0	10,940	1,575	500	0	140	0	360	12,015	601	11,415	396	11,019
3	28%	0%	0	12,015	1,730	500	0	140	0	360	13,246	530	12,716	760	11,955
4	28%	0%	0	13,246	1,907	500	0	140	0	360	14,653	440	14,213	1,180	13,034
5	28%	0%	0	14,653	2,110	500	0	140	0	360	16,263	325	15,938	1,663	14,275
6	28%	0%	0	16,263	2,342	500	0	140	0	360	18,105	181	17,924	2,219	15,705
7	28%	0%	0	18,105	2,607	500	0	140	0	360	20,212	0	20,212	2,859	17,353
8	28%	0%	0	20,212	2,911	500	0	140	0	360	22,622	0	22,622	3,534	19,088
9	28%	0%	0	22,622	3,258	500	0	140	0	360	25,380	0	25,380	4,306	21,074
10	28%	0%	0	25,380	3,655	500	0	140	0	360	28,535	0	28,535	5,190	23,345
11	28%	0%	0	28,535	4,109	500	0	140	0	360	32,144	0	32,144	6,200	25,944
12	28%	0%	0	32,144	4,629	500	0	140	0	360	36,273	0	36,273	7,356	28,916
13	28%	0%	0	36,273	5,223	500	0	140	0	360	40,996	0	40,996	8,679	32,317
14	28%	0%	0	40,996	5,903	500	0	140	0	360	46,399	0	46,399	10,192	36,207
15	28%	0%	0	46,399	6,681	500	0	140	0	360	52,581	0	52,581	11,923	40,658
16	28%	0%	0	52,581	7,572	500	0	140	0	360	59,652	0	59,652	13,903	45,750
17	28%	0%	0	59,652	8,590	500	0	140	0	360	67,742	0	67,742	16,168	51,574
18	28%	0%	0	67,742	9,755	500	0	140	0	360	76,997	0	76,997	18,759	58,238
19	28%	0%	0	76,997	11,088	500	0	140	0	360	87,585	0	87,585	21,724	65,861
20	28%	0%	0	87,585	12,612	500	0	140	0	360	99,697	0	99,697	25,115	74,582

Net Annual After-Tax Return to Contractholder / 5 Years : 10.53%

Net Annual After-Tax Return to Contractholder / 10 Years : 11.42%

Net Annual After-Tax Return to Contractholder / 15 Years : 11.89%

Net Annual After-Tax Return to Contractholder / 20 Years : 12.28%

Break-Even Year : 6

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (84)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years 571

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 1,444

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 2,634

APPENDIX B - PAGE 7 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

LONGER TAX PENALTY (ISSUE AGE 50)

Issue Age : 50

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.73% / 5 Years
10.73% / 10 Years
10.73% / 15 Years
10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	500	0	190	0	310	10,940	656	10,284	108	10,176
2	28%	10%	0	10,940	1,575	500	0	190	0	310	12,015	601	11,415	538	10,877
3	28%	10%	0	12,015	1,730	500	0	190	0	310	13,246	530	12,716	1,032	11,684
4	28%	10%	0	13,246	1,907	500	0	190	0	310	14,653	440	14,213	1,601	12,612
5	28%	10%	0	14,653	2,110	500	0	190	0	310	16,263	325	15,938	2,256	13,681
6	28%	10%	0	16,263	2,342	500	0	190	0	310	18,105	181	17,924	3,011	14,913
7	28%	10%	0	18,105	2,607	500	0	190	0	310	20,212	0	20,212	3,881	16,331
8	28%	10%	0	20,212	2,911	500	0	190	0	310	22,622	0	22,622	4,797	17,826
9	28%	10%	0	22,622	3,258	500	0	190	0	310	25,380	0	25,380	5,844	19,536
10	28%	0%	0	25,380	3,655	500	0	140	0	360	28,535	0	28,535	5,190	23,345
11	28%	0%	0	28,535	4,109	500	0	140	0	360	32,144	0	32,144	6,200	25,944
12	28%	0%	0	32,144	4,629	500	0	140	0	360	36,273	0	36,273	7,356	28,916
13	28%	0%	0	34,273	5,223	500	0	140	0	360	40,996	0	40,996	8,679	32,317
14	28%	0%	0	40,996	5,903	500	0	140	0	360	46,399	0	46,399	10,192	36,207
15	28%	0%	0	46,399	6,681	500	0	140	0	360	52,581	0	52,581	11,923	40,658
16	28%	0%	0	52,581	7,572	500	0	140	0	360	59,652	0	59,652	13,903	45,750
17	28%	0%	0	59,652	8,590	500	0	140	0	360	67,742	0	67,742	16,168	51,574
18	28%	0%	0	67,742	9,755	500	0	140	0	360	76,997	0	76,997	18,759	58,238
19	28%	0%	0	76,997	11,088	500	0	140	0	360	87,585	0	87,585	21,724	65,861
20	28%	0%	0	87,585	12,612	500	0	140	0	360	99,697	0	99,697	25,115	74,582

Net Annual After-Tax Return to Contractholder / 5 Years : 9.22%

Net Annual After-Tax Return to Contractholder / 10 Years : 11.08%

Net Annual After-Tax Return to Contractholder / 15 Years : 11.66%

Net Annual After-Tax Return to Contractholder / 20 Years : 12.10%

Break-Even Year : 9

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (627)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years 291

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 1,165

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 2,355

APPENDIX B - PAGE 8 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

HIGHER FEDERAL INCOME TAX RATE

Issue Age :	55
Gross Annual Return :	16.00% Per Year
Variable Annuity Net Annual Return :	14.40% Per Year
Mutual Fund Net Annual Return (Pre-Tax):	14.90% Per Year
Mutual Fund Net Annual Return (Aft-Tax):	10.28% / 5 Years 10.28% / 10 Years 10.28% / 15 Years 10.28% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax :	31% Years 1 - 5 31% Years 6 - 10 31% Years 11 - 15 31% Years 16 - 20
Tax Penalty(to 59.5):	10% Early Withdrawal
Free Withdrawal:	5% Premium / Year
Excess Withdrawals :	0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	31%	10%	10,000	10,000	1,440	500	0	205	0	295	10,940	656	10,284	116	10,167
2	31%	10%	0	10,940	1,575	500	0	205	0	295	12,015	601	11,415	580	10,835
3	31%	10%	0	12,015	1,730	500	0	205	0	295	13,246	530	12,716	1,113	11,602
4	31%	10%	0	13,246	1,907	500	0	205	0	295	14,653	440	14,213	1,727	12,486
5	31%	0%	0	14,653	2,110	500	0	155	0	345	16,263	325	15,938	1,841	14,097
6	31%	0%	0	16,263	2,342	500	0	155	0	345	18,105	181	17,924	2,456	15,467
7	31%	0%	0	18,105	2,607	500	0	155	0	345	20,212	0	20,212	3,166	17,046
8	31%	0%	0	20,212	2,911	500	0	155	0	345	22,622	0	22,622	3,913	18,709
9	31%	0%	0	22,622	3,258	500	0	155	0	345	25,380	0	25,380	4,768	20,612
10	31%	0%	0	25,380	3,655	500	0	155	0	345	28,535	0	28,535	5,746	22,789
11	31%	0%	0	28,535	4,109	500	0	155	0	345	32,144	0	32,144	6,865	25,279
12	31%	0%	0	32,144	4,629	500	0	155	0	345	36,273	0	36,273	8,144	28,128
13	31%	0%	0	36,273	5,223	500	0	155	0	345	40,996	0	40,996	9,609	31,387
14	31%	0%	0	40,996	5,903	500	0	155	0	345	46,399	0	46,399	11,284	35,115
15	31%	0%	0	46,399	6,681	500	0	155	0	345	52,581	0	52,581	13,200	39,381
16	31%	0%	0	52,581	7,572	500	0	155	0	345	59,652	0	59,652	15,392	44,260
17	31%	0%	0	59,652	8,590	500	0	155	0	345	67,742	0	67,742	17,900	49,842
18	31%	0%	0	67,742	9,755	500	0	155	0	345	76,997	0	76,997	20,769	56,228
19	31%	0%	0	76,997	11,088	500	0	155	0	345	87,585	0	87,585	24,051	63,533
20	31%	0%	0	87,585	12,612	500	0	155	0	345	99,697	0	99,697	27,806	71,891

Net Annual After-Tax Return to Contractholder / 5 Years :	9.77%	NPV at After-Tax Earned Rate on Mutual Funds / 5 Years	(217)
Net Annual After-Tax Return to Contractholder / 10 Years :	10.80%	NPV at After-Tax Earned Rate on Mutual Funds / 10 Years	502
Net Annual After-Tax Return to Contractholder / 15 Years :	11.46%	NPV at After-Tax Earned Rate on Mutual Funds / 15 Years	1,490
Net Annual After-Tax Return to Contractholder / 20 Years :	11.92%	NPV at After-Tax Earned Rate on Mutual Funds / 20 Years	2,879

Break-Even Year : 7

APPENDIX B - PAGE 9 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

DECREASING FEDERAL INCOME TAX RATE

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.20% / 5 Years; 10.50% / 10 Years; 11.22% / 15 Years; 11.58% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 31% Years 1 - 5; 28% Years 6 - 10; 15% Years 11 - 15; 15% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-1 Value E O Y (15)
1	31%	10%	10,000	10,000	1,440	500	0	205	0	295	10,940	656	10,284	116	10,167
2	31%	10%	0	10,940	1,575	500	0	205	0	295	12,015	601	11,415	580	10,835
3	31%	10%	0	12,015	1,730	500	0	205	0	295	13,246	530	12,716	1,113	11,602
4	31%	10%	0	13,246	1,907	500	0	205	0	295	14,653	440	14,213	1,727	12,486
5	31%	0%	0	14,653	2,110	500	0	155	0	345	16,263	325	15,938	1,841	14,097
6	28%	0%	0	16,263	2,342	500	0	140	0	360	18,105	181	17,924	2,219	15,705
7	28%	0%	0	18,105	2,607	500	0	140	0	360	20,212	0	20,212	2,859	17,353
8	28%	0%	0	20,212	2,911	500	0	140	0	360	22,622	0	22,622	3,534	19,088
9	28%	0%	0	22,622	3,258	500	0	140	0	360	25,380	0	25,380	4,306	21,074
10	28%	0%	0	25,380	3,655	500	0	140	0	360	28,535	0	28,535	5,190	23,345
11	15%	0%	0	28,535	4,109	500	0	75	0	425	32,144	0	32,144	3,322	28,822
12	15%	0%	0	32,144	4,629	500	0	75	0	425	36,273	0	36,273	3,941	32,332
13	15%	0%	0	36,273	5,223	500	0	75	0	425	40,996	0	40,996	4,649	36,346
14	15%	0%	0	40,996	5,903	500	0	75	0	425	46,399	0	46,399	5,460	40,939
15	15%	0%	0	46,399	6,681	500	0	75	0	425	52,581	0	52,581	6,387	46,194
16	15%	0%	0	52,581	7,572	500	0	75	0	425	59,652	0	59,652	7,448	52,204
17	15%	0%	0	59,652	8,590	500	0	75	0	425	67,742	0	67,742	8,661	59,081
18	15%	0%	0	67,742	9,755	500	0	75	0	425	76,997	0	76,997	10,050	66,947
19	15%	0%	0	76,997	11,088	500	0	75	0	425	87,585	0	87,585	11,638	75,947
20	15%	0%	0	87,585	12,612	500	0	75	0	425	99,697	0	99,697	13,455	86,242

Net Annual After-Tax Return to Contractholder / 5 Years : 9.77%

Net Annual After-Tax Return to Contractholder / 10 Years : 11.16%

Net Annual After-Tax Return to Contractholder / 15 Years : 12.63%

Net Annual After-Tax Return to Contractholder / 20 Years : 12.94%

Break-Even Year : 7

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (217)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years 550

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 1,803

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 2,318

APPENDIX B - PAGE 10 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

HIGHER SURRENDER CHARGE

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.73% / 5 Years
10.73% / 10 Years
10.73% / 15 Years
10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1-2	8% Fund
3	7%
4	6%
5	5%
6	4%
7	3%
8	2%
9	1%
10+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	500	0	190	0	310	10,940	875	10,065	25	10,040
2	28%	10%	0	10,940	1,575	500	0	190	0	310	12,015	961	11,054	401	10,654
3	28%	10%	0	12,015	1,730	500	0	190	0	310	13,246	927	12,318	881	11,437
4	28%	10%	0	13,246	1,907	500	0	190	0	310	14,653	879	13,774	1,434	12,340
5	28%	0%	0	14,653	2,110	500	0	140	0	360	16,263	813	15,450	1,526	13,924
6	28%	0%	0	16,263	2,342	500	0	140	0	360	18,105	724	17,381	2,067	15,314
7	28%	0%	0	18,105	2,607	500	0	140	0	360	20,212	606	19,606	2,690	16,916
8	28%	0%	0	20,212	2,911	500	0	140	0	360	22,622	452	22,170	3,408	18,762
9	28%	0%	0	22,622	3,258	500	0	140	0	360	25,380	254	25,126	4,235	20,891
10	28%	0%	0	25,380	3,655	500	0	140	0	360	28,535	0	28,535	5,190	23,345
11	28%	0%	0	28,535	4,109	500	0	140	0	360	32,144	0	32,144	6,200	25,944
12	28%	0%	0	32,144	4,629	500	0	140	0	360	36,273	0	36,273	7,356	28,916
13	28%	0%	0	36,273	5,223	500	0	140	0	360	40,996	0	40,996	8,679	32,317
14	28%	0%	0	40,996	5,903	500	0	140	0	360	46,399	0	46,399	10,192	36,207
15	28%	0%	0	46,399	6,681	500	0	140	0	360	52,581	0	52,581	11,923	40,658
16	28%	0%	0	52,581	7,572	500	0	140	0	360	59,652	0	59,652	13,903	45,750
17	28%	0%	0	59,652	8,590	500	0	140	0	360	67,742	0	67,742	16,168	51,574
18	28%	0%	0	67,742	9,755	500	0	140	0	360	76,997	0	76,997	18,759	58,238
19	28%	0%	0	76,997	11,088	500	0	140	0	360	87,585	0	87,585	21,724	65,861
20	28%	0%	0	87,585	12,612	500	0	140	0	360	99,697	0	99,697	25,115	74,582

Net Annual After-Tax Return to Contractholder / 5 Years : 9.65%

Net Annual After-Tax Return to Contractholder / 10 Years : 11.23%

Net Annual After-Tax Return to Contractholder / 15 Years : 11.76%

Net Annual After-Tax Return to Contractholder / 20 Years : 12.18%

Break-Even Year : 8

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (451)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years 614

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 1,280

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 2,478

APPENDIX B - PAGE 11 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

LOWER SURRENDER CHARGE

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.73% / 5 Years
10.73% / 10 Years
10.73% / 15 Years
10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	5% Premium
2	4%
3	3%
4	2%
5	1%
6+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	500	0	190	0	310	10,940	500	10,440	167	10,273
2	28%	10%	0	10,940	1,575	500	0	190	0	310	12,015	400	11,615	614	11,002
3	28%	10%	0	12,015	1,730	500	0	190	0	310	13,246	300	12,946	1,119	11,826
4	28%	10%	0	13,246	1,907	500	0	190	0	310	14,653	200	14,453	1,692	12,761
5	28%	0%	0	14,653	2,110	500	0	140	0	360	16,263	100	16,163	1,726	14,437
6	28%	0%	0	16,263	2,342	500	0	140	0	360	18,105	0	18,105	2,269	15,835
7	28%	0%	0	18,105	2,607	500	0	140	0	360	20,212	0	20,212	2,859	17,353
8	28%	0%	0	20,212	2,911	500	0	140	0	360	22,622	0	22,622	3,534	19,088
9	28%	0%	0	22,622	3,258	500	0	140	0	360	25,380	0	25,380	4,306	21,074
10	28%	0%	0	25,380	3,655	500	0	140	0	360	28,535	0	28,535	5,190	23,345
11	28%	0%	0	28,535	4,109	500	0	140	0	360	32,144	0	32,144	6,200	25,944
12	28%	0%	0	32,144	4,629	500	0	140	0	360	36,273	0	36,273	7,356	28,916
13	28%	0%	0	36,273	5,223	500	0	140	0	360	40,996	0	40,996	8,679	32,317
14	28%	0%	0	40,996	5,903	500	0	140	0	360	46,399	0	46,399	10,192	36,207
15	28%	0%	0	46,399	6,681	500	0	140	0	360	52,581	0	52,581	11,923	40,658
16	28%	0%	0	52,581	7,572	500	0	140	0	360	59,652	0	59,652	13,903	45,750
17	28%	0%	0	59,652	8,590	500	0	140	0	360	67,742	0	67,742	16,168	51,574
18	28%	0%	0	67,742	9,755	500	0	140	0	360	76,997	0	76,997	18,759	58,238
19	28%	0%	0	76,997	11,088	500	0	140	0	360	87,585	0	87,585	21,724	65,861
20	28%	0%	0	87,585	12,612	500	0	140	0	360	99,697	0	99,697	25,115	74,582

Net Annual After-Tax Return to Contractholder / 5 Years : 10.39%

Net Annual After-Tax Return to Contractholder / 10 Years : 11.23%

Net Annual After-Tax Return to Contractholder / 15 Years : 11.76%

Net Annual After-Tax Return to Contractholder / 20 Years : 12.18%

Break-Even Year : 7

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (143)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years 414

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 1,288

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 2,470

APPENDIX B - PAGE 12 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

FULL UTILIZATION OF FREE WITHDRAWALS

Issue Age :	55
Gross Annual Return :	16.00% Per Year
Variable Annuity Net Annual Return :	14.40% Per Year
Mutual Fund Net Annual Return (Pre-Tax):	14.90% Per Year
Mutual Fund Net Annual Return (Aft-Tax):	10.73% / 5 Years
	10.73% / 10 Years
	10.73% / 15 Years
	10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax :	28%	Years 1 - 5
	28%	Years 6 - 10
	28%	Years 11 - 15
	28%	Years 16 - 20
Tax Penalty(to 59.5):	10%	Early Withdrawal
Free Withdrawal:	10%	Premium / Year
Excess Withdrawals :	0%	Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	1,000	0	300	0	620	10,440	626	9,814	0	9,814
2	28%	10%	0	10,440	1,503	1,000	0	300	0	620	10,943	547	10,396	151	10,246
3	28%	10%	0	10,943	1,576	1,000	0	300	0	620	11,519	461	11,058	402	10,656
4	28%	10%	0	11,519	1,659	1,000	0	300	0	620	12,178	365	11,813	689	11,124
5	28%	0%	0	12,178	1,754	1,000	0	280	0	720	12,932	259	12,673	748	11,925
6	28%	0%	0	12,932	1,862	1,000	0	280	0	720	13,794	138	13,656	1,024	12,632
7	28%	0%	0	13,794	1,986	1,000	0	280	0	720	14,780	0	14,780	1,338	13,442
8	28%	0%	0	14,780	2,128	1,000	0	280	0	720	15,908	0	15,908	1,654	14,254
9	28%	0%	0	15,908	2,291	1,000	0	280	0	720	17,199	0	17,199	2,016	15,183
10	28%	0%	0	17,199	2,477	1,000	0	280	0	720	18,676	0	18,676	2,429	16,247
11	28%	0%	0	18,676	2,689	1,000	0	280	0	720	20,365	0	20,365	2,902	17,463
12	28%	0%	0	20,365	2,933	1,000	0	280	0	720	22,298	0	22,298	3,443	18,854
13	28%	0%	0	22,298	3,211	1,000	0	280	0	720	24,509	0	24,509	4,062	20,446
14	28%	0%	0	24,509	3,529	1,000	0	280	0	720	27,038	0	27,038	4,771	22,267
15	28%	0%	0	27,038	3,893	1,000	0	280	0	720	29,931	0	29,931	5,581	24,351
16	28%	0%	0	29,931	4,310	1,000	0	280	0	720	33,241	0	33,241	6,508	26,734
17	28%	0%	0	33,241	4,787	1,000	0	280	0	720	37,028	0	37,028	7,568	29,460
18	28%	0%	0	37,028	5,332	1,000	0	280	0	720	41,360	0	41,360	8,781	32,579
19	28%	0%	0	41,360	5,956	1,000	0	280	0	720	46,316	0	46,316	10,169	36,148
20	28%	0%	0	46,316	6,670	1,000	0	280	0	720	51,986	0	51,986	11,756	40,230

Net Annual After-Tax Return to Contractholder / 5 Years :	9.55%	NPV at After-Tax Earned Rate on Mutual Funds / 5 Years	(469)
Net Annual After-Tax Return to Contractholder / 10 Years :	10.50%	NPV at After-Tax Earned Rate on Mutual Funds / 10 Years	(159)
Net Annual After-Tax Return to Contractholder / 15 Years :	10.96%	NPV at After-Tax Earned Rate on Mutual Funds / 15 Years	224
Net Annual After-Tax Return to Contractholder / 20 Years :	11.34%	NPV at After-Tax Earned Rate on Mutual Funds / 20 Years	766
Break-Even Year :	13		

VARIABLE ANNUITY VS. MUTUAL FUND

NO WITHDRAWALS

Issue Age :	55	Surrender Charges:	
Gross Annual Return :	16.00% Per Year	- Year - -- Charge --	Federal Income Tax : 28% Years 1 - 5
			28% Years 6 - 10
Variable Annuity Net Annual Return :	14.40% Per Year	1 6% Fund	28% Years 11 - 15
		2 5%	28% Years 16 - 20
Mutual Fund Net Annual Return (Pre-Tax):	14.90% Per Year	3 4%	
		4 3%	Tax Penalty(to 59.5): 10% Early Withdrawal
Mutual Fund Net Annual Return (Aft-Tax):	10.73% / 5 Years	5 2%	
	10.73% / 10 Years	6 1%	Free Withdrawal: 0% Premium / Year
	10.73% / 15 Years	7+ 0%	
	10.73% / 20 Years		Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	0	0	0	0	0	11,440	686	10,754	286	10,467
2	28%	10%	0	11,440	1,647	0	0	0	0	0	13,087	654	12,433	925	11,508
3	28%	10%	0	13,087	1,885	0	0	0	0	0	14,972	599	14,373	1,662	12,711
4	28%	10%	0	14,972	2,156	0	0	0	0	0	17,128	514	16,614	2,513	14,101
5	28%	0%	0	17,128	2,466	0	0	0	0	0	19,594	392	19,202	2,577	16,626
6	28%	0%	0	19,594	2,822	0	0	0	0	0	22,416	224	22,192	3,414	18,778
7	28%	0%	0	22,416	3,228	0	0	0	0	0	25,644	0	25,644	4,380	21,264
8	28%	0%	0	25,644	3,693	0	0	0	0	0	29,336	0	29,336	5,414	23,922
9	28%	0%	0	29,336	4,224	0	0	0	0	0	33,561	0	33,561	6,597	26,964
10	28%	0%	0	33,561	4,833	0	0	0	0	0	38,394	0	38,394	7,950	30,443
11	28%	0%	0	38,394	5,529	0	0	0	0	0	43,922	0	43,922	9,498	34,424
12	28%	0%	0	43,922	6,325	0	0	0	0	0	50,247	0	50,247	11,269	38,978
13	28%	0%	0	50,247	7,236	0	0	0	0	0	57,483	0	57,483	13,295	44,188
14	28%	0%	0	57,483	8,278	0	0	0	0	0	65,760	0	65,760	15,613	50,147
15	28%	0%	0	65,760	9,469	0	0	0	0	0	75,230	0	75,230	18,264	56,966
16	28%	0%	0	75,230	10,833	0	0	0	0	0	86,063	0	86,063	21,298	64,765
17	28%	0%	0	86,063	12,393	0	0	0	0	0	98,456	0	98,456	24,768	73,688
18	28%	0%	0	98,456	14,178	0	0	0	0	0	112,634	0	112,634	28,737	83,896
19	28%	0%	0	112,634	16,219	0	0	0	0	0	128,853	0	128,853	33,279	95,574
20	28%	0%	0	128,853	18,555	0	0	0	0	0	147,408	0	147,408	38,474	108,934

Net Annual After-Tax Return to Contractholder / 5 Years :	10.70%	NPV at After-Tax Earned Rate on Mutual Funds / 5 Years	(12)
Net Annual After-Tax Return to Contractholder / 10 Years :	11.78%	NPV at After-Tax Earned Rate on Mutual Funds / 10 Years	988
Net Annual After-Tax Return to Contractholder / 15 Years :	12.30%	NPV at After-Tax Earned Rate on Mutual Funds / 15 Years	2,352
Net Annual After-Tax Return to Contractholder / 20 Years :	12.68%	NPV at After-Tax Earned Rate on Mutual Funds / 20 Years	4,191
Break-Even Year :	6		

APPENDIX B - PAGE 14 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

100% OF FREE WITHDRAWALS PLUS EXCESS WITHDRAWALS

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.73% / 5 Years
10.73% / 10 Years
10.73% / 15 Years
10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 10% Premium / Year

Excess Withdrawals : 2% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	1,000	200	456	12	732	10,240	614	9,626	0	9,626
2	28%	10%	0	10,240	1,475	1,000	200	456	10	734	10,515	526	9,989	0	9,989
3	28%	10%	0	10,515	1,514	1,000	200	456	8	736	10,829	433	10,396	150	10,245
4	28%	10%	0	10,829	1,559	1,000	200	456	6	738	11,188	336	10,852	324	10,528
5	28%	0%	0	11,188	1,611	1,000	200	336	4	860	11,599	232	11,367	383	10,984
6	28%	0%	0	11,599	1,670	1,000	200	336	2	862	12,069	121	11,949	546	11,403
7	28%	0%	0	12,069	1,738	1,000	200	336	0	864	12,607	0	12,607	730	11,877
8	28%	0%	0	12,607	1,815	1,000	200	336	0	864	13,223	0	13,223	902	12,320
9	28%	0%	0	13,223	1,904	1,000	200	336	0	864	13,927	0	13,927	1,100	12,827
10	28%	0%	0	13,927	2,005	1,000	200	336	0	864	14,732	0	14,732	1,325	13,407
11	28%	0%	0	14,732	2,121	1,000	200	336	0	864	15,654	0	15,654	1,583	14,071
12	28%	0%	0	15,654	2,254	1,000	200	336	0	864	16,708	0	16,708	1,878	14,830
13	28%	0%	0	16,708	2,406	1,000	200	336	0	864	17,914	0	17,914	2,216	15,698
14	28%	0%	0	17,914	2,580	1,000	200	336	0	864	19,293	0	19,293	2,602	16,691
15	28%	0%	0	19,293	2,778	1,000	200	336	0	864	20,872	0	20,872	3,044	17,828
16	28%	0%	0	20,872	3,006	1,000	200	336	0	864	22,677	0	22,677	3,550	19,128
17	28%	0%	0	22,677	3,266	1,000	200	336	0	864	24,743	0	24,743	4,128	20,615
18	28%	0%	0	24,743	3,563	1,000	200	336	0	864	27,106	0	27,106	4,790	22,316
19	28%	0%	0	27,106	3,903	1,000	200	336	0	864	29,809	0	29,809	5,546	24,262
20	28%	0%	0	29,809	4,292	1,000	200	336	0	864	32,901	0	32,901	6,412	26,489

Net Annual After-Tax Return to Contractholder / 5 Years : 9.19%

Net Annual After-Tax Return to Contractholder / 10 Years : 10.09%

Net Annual After-Tax Return to Contractholder / 15 Years : 10.46%

Net Annual After-Tax Return to Contractholder / 20 Years : 10.77%

Break-Even Year : 20

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (591)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years (421)

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years (254)

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 48

VARIABLE ANNUITY VS. MUTUAL FUND

DECREASING FEDERAL INCOME TAX RATE / FULL UTILIZATION OF FREE WITHDRAWAL

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.28% / 5 Years; 10.50% / 10 Years; 11.22% / 15 Years; 11.58% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 31% Years 1 - 5; 28% Years 6 - 10; 15% Years 11 - 15; 15% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 10% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	31%	10%	10,000	10,000	1,440	1,000	0	410	0	590	10,440	626	9,814	0	9,814
2	31%	10%	0	10,440	1,503	1,000	0	410	0	590	10,943	547	10,396	162	10,234
3	31%	10%	0	10,943	1,576	1,000	0	410	0	590	11,519	461	11,058	434	10,624
4	31%	10%	0	11,519	1,659	1,000	0	410	0	590	12,178	365	11,813	763	11,069
5	31%	0%	0	12,178	1,754	1,000	0	310	0	690	12,932	259	12,673	829	11,844
6	28%	0%	0	12,932	1,862	1,000	0	280	0	720	13,794	138	13,656	1,024	12,632
7	28%	0%	0	13,794	1,986	1,000	0	280	0	720	14,780	0	14,780	1,338	13,442
8	28%	0%	0	14,780	2,128	1,000	0	280	0	720	15,908	0	15,908	1,654	14,254
9	28%	0%	0	15,908	2,291	1,000	0	280	0	720	17,199	0	17,199	2,016	15,183
10	28%	0%	0	17,199	2,477	1,000	0	280	0	720	18,676	0	18,676	2,429	16,247
11	15%	0%	0	18,676	2,689	1,000	0	150	0	850	20,365	0	20,365	1,555	18,810
12	15%	0%	0	20,365	2,933	1,000	0	150	0	850	22,298	0	22,298	1,845	20,453
13	15%	0%	0	22,298	3,211	1,000	0	150	0	850	24,509	0	24,509	2,176	22,332
14	15%	0%	0	24,509	3,529	1,000	0	150	0	850	27,038	0	27,038	2,556	24,482
15	15%	0%	0	27,038	3,893	1,000	0	150	0	850	29,931	0	29,931	2,990	26,942
16	15%	0%	0	29,931	4,310	1,000	0	150	0	850	33,241	0	33,241	3,486	29,755
17	15%	0%	0	33,241	4,787	1,000	0	150	0	850	37,028	0	37,028	4,054	32,974
18	15%	0%	0	37,028	5,332	1,000	0	150	0	850	41,360	0	41,360	4,704	36,656
19	15%	0%	0	41,360	5,956	1,000	0	150	0	850	46,316	0	46,316	5,447	40,869
20	15%	0%	0	46,316	6,670	1,000	0	150	0	850	51,986	0	51,986	6,298	45,688

Net Annual After-Tax Return to Contractholder / 5 Years : 9.14%

Net Annual After-Tax Return to Contractholder / 10 Years : 10.35%

Net Annual After-Tax Return to Contractholder / 15 Years : 11.55%

Net Annual After-Tax Return to Contractholder / 20 Years : 11.95%

Break-Even Year : 12

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (457)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years (112)

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 327

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 444

APPENDIX B - PAGE 16 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

5% OF MUTUAL FUND GROSS RETURN ARE UNREALIZED CAPITAL GAINS

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.98% / 5 Years
11.21% / 10 Years
11.39% / 15 Years
11.52% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5% Premium / Year

Excess Withdrawals : 0% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	500	0	190	0	310	10,940	656	10,284	108	10,176
2	28%	10%	0	10,940	1,575	500	0	190	0	310	12,015	601	11,415	538	10,877
3	28%	10%	0	12,015	1,730	500	0	190	0	310	13,246	530	12,716	1,032	11,684
4	28%	10%	0	13,246	1,907	500	0	190	0	310	14,653	440	14,213	1,601	12,612
5	28%	0%	0	14,653	2,110	500	0	140	0	360	16,263	325	15,938	1,663	14,275
6	28%	0%	0	16,263	2,342	500	0	140	0	360	18,105	181	17,924	2,219	15,705
7	28%	0%	0	18,105	2,607	500	0	140	0	360	20,212	0	20,212	2,859	17,353
8	28%	0%	0	20,212	2,911	500	0	140	0	360	22,622	0	22,622	3,534	19,088
9	28%	0%	0	22,622	3,258	500	0	140	0	360	25,380	0	25,380	4,306	21,074
10	28%	0%	0	25,380	3,655	500	0	140	0	360	28,535	0	28,535	5,190	23,345
11	28%	0%	0	28,535	4,109	500	0	140	0	360	32,144	0	32,144	6,200	25,944
12	28%	0%	0	32,144	4,629	500	0	140	0	360	36,273	0	36,273	7,356	28,916
13	28%	0%	0	36,273	5,223	500	0	140	0	360	40,996	0	40,996	8,679	32,317
14	28%	0%	0	40,996	5,903	500	0	140	0	360	46,399	0	46,399	10,192	36,207
15	28%	0%	0	46,399	6,681	500	0	140	0	360	52,581	0	52,581	11,923	40,658
16	28%	0%	0	52,581	7,572	500	0	140	0	360	59,652	0	59,652	13,903	45,750
17	28%	0%	0	59,652	8,590	500	0	140	0	360	67,742	0	67,742	16,168	51,574
18	28%	0%	0	67,762	9,755	500	0	140	0	360	76,997	0	76,997	18,759	58,238
19	28%	0%	0	76,997	11,088	500	0	140	0	360	87,585	0	87,585	21,724	65,861
20	28%	0%	0	87,585	12,612	500	0	140	0	360	99,697	0	99,697	25,115	74,582

Net Annual After-Tax Return to Contractholder / 5 Years : 10.16%

Net Annual After-Tax Return to Contractholder / 10 Years : 11.23%

Net Annual After-Tax Return to Contractholder / 15 Years : 11.76%

Net Annual After-Tax Return to Contractholder / 20 Years : 12.10%

Break-Even Year : 10

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years (343)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years 13

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years 446

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years 1,051

APPENDIX B - PAGE 17 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

3% SALES LOAD ON MUTUAL FUND

Issue Age :	55	
Gross Annual Return :	16.00% Per Year	
Variable Annuity Net Annual Return :	14.40% Per Year	
Mutual Fund Net Annual Return (Pre-Tax):	14.90% Per Year	
Mutual Fund Net Annual Return (Aft-Tax):	10.06%	/ 5 Years
	10.39%	/ 10 Years
	10.50%	/ 15 Years
	10.56%	/ 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax :	28%	Years 1 - 5
	28%	Years 6 - 10
	28%	Years 11 - 15
	28%	Years 16 - 20
Tax Penalty(to 59.5):	10%	Early Withdrawal
Free Withdrawal:	5%	Premium / Year
Excess Withdrawals :	0%	Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	500	0	190	0	310	10,940	656	10,284	108	10,176
2	28%	10%	0	10,940	1,575	500	0	190	0	310	12,015	601	11,415	538	10,877
3	28%	10%	0	12,015	1,730	500	0	190	0	310	13,246	530	12,716	1,032	11,684
4	28%	10%	0	13,246	1,907	500	0	190	0	310	14,653	440	14,213	1,601	12,612
5	28%	0%	0	14,653	2,110	500	0	140	0	360	16,263	325	15,938	1,663	14,275
6	28%	0%	0	16,263	2,342	500	0	140	0	360	18,105	181	17,924	2,219	15,705
7	28%	0%	0	18,105	2,607	500	0	140	0	360	20,212	0	20,212	2,859	17,353
8	28%	0%	0	20,212	2,911	500	0	140	0	360	22,622	0	22,622	3,534	19,088
9	28%	0%	0	22,622	3,258	500	0	140	0	360	25,380	0	25,380	4,306	21,074
10	28%	0%	0	25,380	3,655	500	0	140	0	360	28,535	0	28,535	5,190	23,345
11	28%	0%	0	28,535	4,109	500	0	140	0	360	32,144	0	32,144	6,200	25,944
12	28%	0%	0	32,144	4,629	500	0	140	0	360	36,273	0	36,273	7,356	28,916
13	28%	0%	0	36,273	5,223	500	0	140	0	360	40,996	0	40,996	8,679	32,317
14	28%	0%	0	40,996	5,903	500	0	140	0	360	46,399	0	46,399	10,192	36,207
15	28%	0%	0	46,399	6,681	500	0	140	0	360	52,581	0	52,581	11,923	40,658
16	28%	0%	0	52,581	7,572	500	0	140	0	360	59,652	0	59,652	13,903	45,750
17	28%	0%	0	59,652	8,590	500	0	140	0	360	67,742	0	67,742	16,168	51,574
18	28%	0%	0	67,742	9,755	500	0	140	0	360	76,997	0	76,997	18,759	58,238
19	28%	0%	0	76,997	11,088	500	0	140	0	360	87,585	0	87,585	21,724	65,861
20	28%	0%	0	87,585	12,612	500	0	140	0	360	99,697	0	99,697	25,115	74,582

Net Annual After-Tax Return to Contractholder / 5 Years :	10.16%	NPV at After-Tax Earned Rate on Mutual Funds / 5 Years	46
Net Annual After-Tax Return to Contractholder / 10 Years :	11.23%	NPV at After-Tax Earned Rate on Mutual Funds / 10 Years	705
Net Annual After-Tax Return to Contractholder / 15 Years :	11.76%	NPV at After-Tax Earned Rate on Mutual Funds / 15 Years	1,593
Net Annual After-Tax Return to Contractholder / 20 Years :	12.10%	NPV at After-Tax Earned Rate on Mutual Funds / 20 Years	2,811

Break-Even Year : 5

APPENDIX C - PAGE 1 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

ZERO NPV AFTER 20 YEARS

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.73% / 5 Years
10.73% / 10 Years
10.73% / 15 Years
10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 10.00% Premium / Year

Excess Withdrawals : 2.14% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	1,000	214	461	13	740	10,227	614	9,613	0	9,613
2	28%	10%	0	10,227	1,473	1,000	214	461	11	742	10,486	526	9,961	0	9,961
3	28%	10%	0	10,486	1,510	1,000	214	461	9	744	10,782	431	10,351	133	10,217
4	28%	10%	0	10,782	1,553	1,000	214	461	6	746	11,121	334	10,788	299	10,488
5	28%	0%	0	11,121	1,601	1,000	214	340	4	869	11,509	230	11,279	358	10,921
6	28%	0%	0	11,509	1,657	1,000	214	340	2	872	11,953	120	11,833	513	11,320
7	28%	0%	0	11,953	1,721	1,000	214	340	0	874	12,461	0	12,461	689	11,772
8	28%	0%	0	12,461	1,794	1,000	214	340	0	874	13,041	0	13,041	852	12,190
9	28%	0%	0	13,041	1,878	1,000	214	340	0	874	13,706	0	13,706	1,038	12,668
10	28%	0%	0	13,706	1,974	1,000	214	340	0	874	14,466	0	14,466	1,251	13,216
11	28%	0%	0	14,466	2,083	1,000	214	340	0	874	15,336	0	15,336	1,494	13,842
12	28%	0%	0	15,336	2,208	1,000	214	340	0	874	16,331	0	16,331	1,773	14,558
13	28%	0%	0	16,331	2,352	1,000	214	340	0	874	17,469	0	17,469	2,091	15,377
14	28%	0%	0	17,469	2,515	1,000	214	340	0	874	18,771	0	18,771	2,456	16,315
15	28%	0%	0	18,771	2,703	1,000	214	340	0	874	20,260	0	20,260	2,873	17,387
16	28%	0%	0	20,260	2,917	1,000	214	340	0	874	21,964	0	21,964	3,350	18,614
17	28%	0%	0	21,964	3,163	1,000	214	340	0	874	23,913	0	23,913	3,896	20,018
18	28%	0%	0	23,913	3,444	1,000	214	340	0	874	26,143	0	26,143	4,520	21,623
19	28%	0%	0	26,143	3,765	1,000	214	340	0	874	28,695	0	28,695	5,234	23,460
20	28%	0%	0	28,695	4,132	1,000	214	340	0	874	31,613	0	31,613	6,052	25,561

Net Annual After-Tax Return to Contractholder / 5 Years : 9.17%

Net Annual After-Tax Return to Contractholder / 10 Years : 10.06%

Net Annual After-Tax Return to Contractholder / 15 Years : 10.42%

Net Annual After-Tax Return to Contractholder / 20 Years : 10.73%

Break-Even Year : 20

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years : (600)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years : (439)

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years : (265)

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years : 0

APPENDIX C - PAGE 2 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

ZERO NPV AFTER 15 YEARS

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.73% / 5 Years
10.73% / 10 Years
10.73% / 15 Years
10.73% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 10.00% Premium / Year

Excess Withdrawals : 0.98% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	1,000	98	417	6	675	10,342	621	9,722	0	9,722
2	28%	10%	0	10,342	1,489	1,000	98	417	5	676	10,734	537	10,197	75	10,122
3	28%	10%	0	10,734	1,546	1,000	98	417	4	677	11,182	447	10,734	279	10,455
4	28%	10%	0	11,182	1,610	1,000	98	417	3	678	11,694	351	11,343	510	10,833
5	28%	0%	0	11,694	1,684	1,000	98	307	2	788	12,280	246	12,035	570	11,465
6	28%	0%	0	12,280	1,768	1,000	98	307	1	789	12,951	130	12,821	790	12,031
7	28%	0%	0	12,951	1,865	1,000	98	307	0	790	13,718	0	13,718	1,041	12,677
8	28%	0%	0	13,718	1,975	1,000	98	307	0	790	14,596	0	14,596	1,287	13,309
9	28%	0%	0	14,596	2,102	1,000	98	307	0	790	15,600	0	15,600	1,568	14,032
10	28%	0%	0	15,600	2,246	1,000	98	307	0	790	16,748	0	16,748	1,890	14,859
11	28%	0%	0	16,748	2,412	1,000	98	307	0	790	18,062	0	18,062	2,257	15,805
12	28%	0%	0	18,062	2,601	1,000	98	307	0	790	19,566	0	19,566	2,678	16,887
13	28%	0%	0	19,566	2,817	1,000	98	307	0	790	21,285	0	21,285	3,160	18,126
14	28%	0%	0	21,285	3,065	1,000	98	307	0	790	23,253	0	23,253	3,711	19,542
15	28%	0%	0	23,253	3,348	1,000	98	307	0	790	25,503	0	25,503	4,341	21,162
16	28%	0%	0	25,503	3,672	1,000	98	307	0	790	28,078	0	28,078	5,062	23,016
17	28%	0%	0	28,078	4,043	1,000	98	307	0	790	31,024	0	31,024	5,887	25,137
18	28%	0%	0	31,024	4,467	1,000	98	307	0	790	34,393	0	34,393	6,830	27,563
19	28%	0%	0	34,393	4,953	1,000	98	307	0	790	38,248	0	38,248	7,910	30,339
20	28%	0%	0	38,248	5,508	1,000	98	307	0	790	42,658	0	42,658	9,144	33,514

Net Annual After-Tax Return to Contractholder / 5 Years : 9.38%

Net Annual After-Tax Return to Contractholder / 10 Years : 10.31%

Net Annual After-Tax Return to Contractholder / 15 Years : 10.73%

Net Annual After-Tax Return to Contractholder / 20 Years : 11.08%

Break-Even Year : 15

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years : (529)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years : (287)

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years : 0

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years : 415

283

APPENDIX C - PAGE 3 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

ZERO NPV AFTER 10 YEARS

Issue Age :	55	
Gross Annual Return :	16.00% Per Year	
Variable Annuity Net Annual Return :	14.40% Per Year	
Mutual Fund Net Annual Return (Pre-Tax):	14.90% Per Year	
Mutual Fund Net Annual Return (Aft-Tax):	10.73%	/ 5 Years
	10.73%	/ 10 Years
	10.73%	/ 15 Years
	10.73%	/ 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax :	28%	Years 1 - 5
	28%	Years 6 - 10
	28%	Years 11 - 15
	28%	Years 16 - 20
Tax Penalty(to 59.5):	10%	Early Withdrawal
Free Withdrawal:	8.61%	Premium / Year
Excess Withdrawals :	0.00%	Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,440	861	0	327	0	534	10,579	635	9,944	0	9,944
2	28%	10%	0	10,579	1,523	861	0	327	0	534	11,261	562	10,679	258	10,421
3	28%	10%	0	11,261	1,619	861	0	327	0	534	11,999	480	11,519	577	10,942
4	28%	10%	0	11,999	1,728	861	0	327	0	534	12,866	386	12,480	942	11,538
5	28%	0%	0	12,866	1,853	861	0	241	0	620	13,858	277	13,581	1,003	12,578
6	28%	0%	0	13,858	1,996	861	0	241	0	620	14,992	150	14,842	1,356	13,486
7	28%	0%	0	14,992	2,159	861	0	241	0	620	16,290	0	16,290	1,761	14,529
8	28%	0%	0	16,290	2,346	861	0	241	0	620	17,775	0	17,775	2,177	15,598
9	28%	0%	0	17,775	2,560	861	0	241	0	620	19,473	0	19,473	2,653	16,821
10	28%	0%	0	19,473	2,804	861	0	241	0	620	21,417	0	21,417	3,197	18,220
11	28%	0%	0	21,417	3,084	861	0	241	0	620	23,640	0	23,640	3,819	19,821
12	28%	0%	0	23,640	3,404	861	0	241	0	620	26,183	0	26,183	4,531	21,652
13	28%	0%	0	26,183	3,770	861	0	241	0	620	29,092	0	29,092	5,346	23,746
14	28%	0%	0	29,092	4,189	861	0	241	0	620	32,420	0	32,420	6,278	26,143
15	28%	0%	0	32,420	4,669	861	0	241	0	620	36,228	0	36,228	7,344	28,884
16	28%	0%	0	36,228	5,217	861	0	241	0	620	40,584	0	40,584	8,563	32,020
17	28%	0%	0	40,584	5,844	861	0	241	0	620	45,567	0	45,567	9,959	35,608
18	28%	0%	0	45,567	6,562	861	0	241	0	620	51,267	0	51,267	11,555	39,712
19	28%	0%	0	51,267	7,382	861	0	241	0	620	57,789	0	57,789	13,381	44,408
20	28%	0%	0	57,789	8,322	861	0	241	0	620	65,249	0	65,249	15,470	49,780

Net Annual After-Tax Return to Contractholder / 5 Years :	9.73%
Net Annual After-Tax Return to Contractholder / 10 Years :	10.73%
Net Annual After-Tax Return to Contractholder / 15 Years :	11.22%
Net Annual After-Tax Return to Contractholder / 20 Years :	11.62%
Break-Even Year :	10

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years :	(405)
NPV at After-Tax Earned Rate on Mutual Funds / 10 Years :	0
NPV at After-Tax Earned Rate on Mutual Funds / 15 Years :	520
NPV at After-Tax Earned Rate on Mutual Funds / 20 Years :	1,242

APPENDIX C - PAGE 4 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

ZERO NPV AFTER 5 YEARS / DECREASING FEDERAL INCOME TAX RATE

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.28% / 5 Years
10.50% / 10 Years
11.22% / 15 Years
11.38% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 31% Years 1 - 5
28% Years 6 - 10
15% Years 11 - 15
15% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 0.48% Premium / Year

Excess Withdrawals : 0.00% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	31%	10%	10,000	10,000	1,440	48	0	20	0	28	11,392	684	10,708	290	10,418
2	31%	10%	0	11,392	1,640	48	0	20	0	28	12,984	649	12,335	957	11,378
3	31%	10%	0	12,984	1,870	48	0	20	0	28	14,806	592	14,214	1,728	12,486
4	31%	10%	0	14,806	2,132	48	0	20	0	28	16,890	507	16,384	2,617	13,766
5	31%	0%	0	16,890	2,432	48	0	15	0	33	19,275	385	18,889	2,756	16,133
6	28%	0%	0	19,275	2,776	48	0	13	0	35	22,002	220	21,782	3,299	18,483
7	28%	0%	0	22,002	3,168	48	0	13	0	35	25,122	0	25,122	4,234	20,888
8	28%	0%	0	25,122	3,618	48	0	13	0	35	28,692	0	28,692	5,234	23,458
9	28%	0%	0	28,692	4,132	48	0	13	0	35	32,776	0	32,776	6,377	26,398
10	28%	0%	0	32,776	4,720	48	0	13	0	35	37,447	0	37,447	7,685	29,762
11	15%	0%	0	37,447	5,392	48	0	7	0	41	42,792	0	42,792	4,919	37,873
12	15%	0%	0	42,792	6,162	48	0	7	0	41	48,906	0	48,906	5,836	43,070
13	15%	0%	0	48,906	7,042	48	0	7	0	41	55,900	0	55,900	6,885	49,015
14	15%	0%	0	55,900	8,050	48	0	7	0	41	63,902	0	63,902	8,085	55,816
15	15%	0%	0	63,902	9,202	48	0	7	0	41	73,056	0	73,056	9,458	63,597
16	15%	0%	0	73,056	10,520	48	0	7	0	41	83,528	0	83,528	11,029	72,498
17	15%	0%	0	83,528	12,028	48	0	7	0	41	95,508	0	95,508	12,826	82,681
18	15%	0%	0	95,508	13,753	48	0	7	0	41	109,213	0	109,213	14,882	94,331
19	15%	0%	0	109,213	15,727	48	0	7	0	41	124,891	0	124,891	17,234	107,658
20	15%	0%	0	124,891	17,984	48	0	7	0	41	142,828	0	142,828	19,924	122,903

Net Annual After-Tax Return to Contractholder / 5 Years : 10.28%

Net Annual After-Tax Return to Contractholder / 10 Years : 11.72%

Net Annual After-Tax Return to Contractholder / 15 Years : 13.28%

Net Annual After-Tax Return to Contractholder / 20 Years : 13.49%

Break-Even Year : 5

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years : 0

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years : 1,149

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years : 3,137

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years : 3,994

APPENDIX C - PAGE 5 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

ZERO NPV AFTER 20 YEARS / HIGHER GROSS ANNUAL RETURN

Issue Age : 55

Gross Annual Return : 20.00% Per Year

Variable Annuity Net Annual Return : 18.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 18.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 13.61% / 5 Years
13.61% / 10 Years
13.61% / 15 Years
13.61% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5
28% Years 6 - 10
28% Years 11 - 15
28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 10.00% Premium / Year

Excess Withdrawals : 6.23% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,840	1,000	623	617	37	969	10,217	613	9,604	0	9,604
2	28%	10%	0	10,217	1,880	1,000	623	617	31	975	10,474	524	9,950	0	9,950
3	28%	10%	0	10,474	1,927	1,000	623	617	25	981	10,778	431	10,347	132	10,215
4	28%	10%	0	10,778	1,983	1,000	623	617	19	988	11,139	334	10,805	306	10,499
5	28%	0%	0	11,139	2,050	1,000	623	454	12	1,156	11,565	231	11,334	374	10,961
6	28%	0%	0	11,565	2,128	1,000	623	454	6	1,162	12,071	121	11,950	546	11,404
7	28%	0%	0	12,071	2,221	1,000	623	454	0	1,168	12,669	0	12,669	747	11,921
8	28%	0%	0	12,669	2,331	1,000	623	456	0	1,168	13,377	0	13,377	946	12,431
9	28%	0%	0	13,377	2,461	1,000	623	454	0	1,168	14,215	0	14,215	1,180	13,035
10	28%	0%	0	14,215	2,616	1,000	623	454	0	1,168	15,208	0	15,208	1,458	13,750
11	28%	0%	0	15,208	2,798	1,000	623	454	0	1,168	16,383	0	16,383	1,787	14,596
12	28%	0%	0	16,383	3,015	1,000	623	454	0	1,168	17,775	0	17,775	2,177	15,598
13	28%	0%	0	17,775	3,271	1,000	623	454	0	1,168	19,423	0	19,423	2,638	16,784
14	28%	0%	0	19,423	3,574	1,000	623	456	0	1,168	21,374	0	21,374	3,185	18,189
15	28%	0%	0	21,374	3,933	1,000	623	454	0	1,168	23,683	0	23,683	3,831	19,852
16	28%	0%	0	23,683	4,358	1,000	623	454	0	1,168	26,418	0	26,418	4,597	21,821
17	28%	0%	0	26,418	4,861	1,000	623	456	0	1,168	29,656	0	29,656	5,504	24,153
18	28%	0%	0	29,656	5,457	1,000	623	454	0	1,168	33,490	0	33,490	6,577	26,913
19	28%	0%	0	33,490	6,162	1,000	623	454	0	1,168	38,030	0	38,030	7,848	30,181
20	28%	0%	0	38,030	6,997	1,000	623	454	0	1,168	43,404	0	43,404	9,353	34,051

Net Annual After-Tax Return to Contractholder / 5 Years : 11.58%

Net Annual After-Tax Return to Contractholder / 10 Years : 12.69%

Net Annual After-Tax Return to Contractholder / 15 Years : 13.19%

Net Annual After-Tax Return to Contractholder / 20 Years : 13.61%

Break-Even Year : 20

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years : (727)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years : (543)

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years : (323)

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years : 0

APPENDIX C - PAGE 6 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

ZERO NPV AFTER 20 YEARS / LOWER GROSS ANNUAL RETURN

Issue Age : 55

Gross Annual Return : 12.00% Per Year

Variable Annuity Net Annual Return : 10.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 10.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 7.85% / 5 Years; 7.85% / 10 Years; 7.85% / 15 Years; 7.85% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 28% Years 1 - 5; 28% Years 6 - 10; 28% Years 11 - 15; 28% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 7.80% Premium / Year

Excess Withdrawals : 0.00% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	28%	10%	10,000	10,000	1,040	780	0	296	0	484	10,260	616	9,644	0	9,644
2	28%	10%	0	10,260	1,067	780	0	296	0	484	10,547	527	10,019	7	10,012
3	28%	10%	0	10,547	1,097	780	0	296	0	484	10,863	435	10,429	163	10,266
4	28%	10%	0	10,863	1,130	780	0	296	0	484	11,213	336	10,876	333	10,543
5	28%	0%	0	11,213	1,166	780	0	218	0	562	11,599	232	11,367	383	10,984
6	28%	0%	0	11,599	1,206	780	0	218	0	562	12,025	120	11,905	533	11,371
7	28%	0%	0	12,025	1,251	780	0	218	0	562	12,495	0	12,495	699	11,797
8	28%	0%	0	12,495	1,300	780	0	218	0	562	13,015	0	13,015	844	12,170
9	28%	0%	0	13,015	1,354	780	0	218	0	562	13,588	0	13,588	1,005	12,583
10	28%	0%	0	13,588	1,413	780	0	218	0	562	14,221	0	14,221	1,182	13,039
11	28%	0%	0	14,221	1,479	780	0	218	0	562	14,920	0	14,920	1,377	13,542
12	28%	0%	0	14,920	1,552	780	0	218	0	562	15,691	0	15,691	1,593	14,098
13	28%	0%	0	15,691	1,632	780	0	218	0	562	16,543	0	16,543	1,832	14,711
14	28%	0%	0	16,543	1,720	780	0	218	0	562	17,483	0	17,483	2,095	15,388
15	28%	0%	0	17,483	1,818	780	0	218	0	562	18,521	0	18,521	2,386	16,135
16	28%	0%	0	18,521	1,926	780	0	218	0	562	19,667	0	19,667	2,707	16,960
17	28%	0%	0	19,667	2,045	780	0	218	0	562	20,932	0	20,932	3,061	17,871
18	28%	0%	0	20,932	2,177	780	0	218	0	562	22,329	0	22,329	3,452	18,877
19	28%	0%	0	22,329	2,322	780	0	218	0	562	23,871	0	23,871	3,884	19,987
20	28%	0%	0	23,871	2,483	780	0	218	0	562	25,573	0	25,573	4,360	21,213

Net Annual After-Tax Return to Contractholder / 5 Years : 6.70%

Net Annual After-Tax Return to Contractholder / 10 Years : 7.40%

Net Annual After-Tax Return to Contractholder / 15 Years : 7.64%

Net Annual After-Tax Return to Contractholder / 20 Years : 7.85%

Break-Even Year : 20

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years : (479)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years : (339)

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years : (211)

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years : 0

APPENDIX C - PAGE 7 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

ZERO NPV AFTER 20 YEARS / HIGHER FEDERAL INCOME TAXES

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.28% / 5 Years
10.28% / 10 Years
10.28% / 15 Years
10.28% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 31% Years 1 - 5
31% Years 6 - 10
31% Years 11 - 15
31% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 10.00% Premium / Year

Excess Withdrawals : 2.37% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	31%	10%	10,000	10,000	1,440	1,000	237	507	14	716	10,203	612	9,591	0	9,591
2	31%	10%	0	10,203	1,469	1,000	237	507	12	718	10,435	522	9,913	0	9,913
3	31%	10%	0	10,435	1,303	1,000	237	507	9	721	10,700	428	10,272	111	10,160
4	31%	10%	0	10,700	1,541	1,000	237	507	7	723	11,003	330	10,673	276	10,397
5	31%	0%	0	11,003	1,584	1,000	237	384	5	849	11,351	227	11,124	348	10,775
6	31%	0%	0	11,351	1,634	1,000	237	384	2	851	11,748	117	11,630	505	11,125
7	31%	0%	0	11,748	1,692	1,000	237	384	0	854	12,202	0	12,202	683	11,519
8	31%	0%	0	12,202	1,757	1,000	237	384	0	854	12,722	0	12,722	844	11,878
9	31%	0%	0	12,722	1,832	1,000	237	384	0	854	13,317	0	13,317	1,028	12,288
10	31%	0%	0	13,317	1,918	1,000	237	384	0	854	13,997	0	13,997	1,239	12,758
11	31%	0%	0	13,997	2,016	1,000	237	384	0	854	14,775	0	14,775	1,480	13,295
12	31%	0%	0	14,775	2,128	1,000	237	384	0	854	15,665	0	15,665	1,756	13,909
13	31%	0%	0	15,665	2,256	1,000	237	384	0	854	16,684	0	16,684	2,072	14,612
14	31%	0%	0	16,684	2,402	1,000	237	384	0	854	17,849	0	17,849	2,433	15,416
15	31%	0%	0	17,849	2,570	1,000	237	384	0	854	19,182	0	19,182	2,846	16,336
16	31%	0%	0	19,182	2,762	1,000	237	384	0	854	20,707	0	20,707	3,319	17,388
17	31%	0%	0	20,707	2,982	1,000	237	384	0	854	22,451	0	22,451	3,860	18,591
18	31%	0%	0	22,451	3,233	1,000	237	384	0	854	24,447	0	24,447	4,479	19,969
19	31%	0%	0	24,447	3,520	1,000	237	384	0	854	26,730	0	26,730	5,186	21,544
20	31%	0%	0	26,730	3,849	1,000	237	384	0	854	29,342	0	29,342	5,996	23,346

Net Annual After-Tax Return to Contractholder / 5 Years : 8.71%

Net Annual After-Tax Return to Contractholder / 10 Years : 9.60%

Net Annual After-Tax Return to Contractholder / 15 Years : 9.97%

Net Annual After-Tax Return to Contractholder / 20 Years : 10.28%

Break-Even Year : 20

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years : (608)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years : (451)

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years : (274)

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years : 0

APPENDIX C - PAGE 8 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

ZERO NPV AFTER 20 YEARS / DECREASING FEDERAL INCOME TAXES

Issue Age : 55

Gross Annual Return : 16.00% Per Year

Variable Annuity Net Annual Return : 14.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 14.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 10.28% / 5 Years
10.50% / 10 Years
11.22% / 15 Years
11.58% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 31% Years 1 - 5
28% Years 6 - 10
15% Years 11 - 15
15% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 10.00% Premium / Year

Excess Withdrawals : 1.20% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	31%	10%	10,000	10,000	1,440	1,000	120	459	7	653	10,320	619	9,701	0	9,701
2	31%	10%	0	10,320	1,486	1,000	120	459	6	655	10,687	534	10,152	62	10,090
3	31%	10%	0	10,687	1,539	1,000	120	459	5	656	11,106	444	10,661	271	10,390
4	31%	10%	0	11,106	1,599	1,000	120	459	4	657	11,585	348	11,237	507	10,730
5	31%	0%	0	11,585	1,668	1,000	120	347	2	770	12,133	243	11,891	586	11,305
6	28%	0%	0	12,133	1,747	1,000	120	314	1	805	12,761	128	12,633	737	11,896
7	28%	0%	0	12,761	1,838	1,000	120	314	0	806	13,479	0	13,479	974	12,505
8	28%	0%	0	13,479	1,941	1,000	120	314	0	806	14,300	0	14,300	1,204	13,096
9	28%	0%	0	14,300	2,059	1,000	120	314	0	806	15,239	0	15,239	1,467	13,772
10	28%	0%	0	15,239	2,194	1,000	120	314	0	806	16,314	0	16,314	1,768	14,546
11	15%	0%	0	16,314	2,349	1,000	120	168	0	952	17,543	0	17,543	1,131	16,412
12	15%	0%	0	17,543	2,526	1,000	120	168	0	952	18,969	0	18,969	1,342	17,607
13	15%	0%	0	18,969	2,729	1,000	120	168	0	952	20,558	0	20,558	1,584	18,975
14	15%	0%	0	20,558	2,960	1,000	120	168	0	952	22,399	0	22,399	1,860	20,539
15	15%	0%	0	22,399	3,225	1,000	120	168	0	952	24,505	0	24,505	2,176	22,329
16	15%	0%	0	24,505	3,529	1,000	120	168	0	952	26,913	0	26,913	2,537	24,376
17	15%	0%	0	26,913	3,876	1,000	120	168	0	952	29,669	0	29,669	2,950	26,719
18	15%	0%	0	29,669	4,272	1,000	120	168	0	952	32,822	0	32,822	3,423	29,398
19	15%	0%	0	32,822	4,726	1,000	120	168	0	952	36,428	0	36,428	3,964	32,464
20	15%	0%	0	36,428	5,246	1,000	120	168	0	952	40,554	0	40,554	4,583	35,971

Net Annual After-Tax Return to Contractholder / 5 Years : 8.93%

Net Annual After-Tax Return to Contractholder / 10 Years : 10.08%

Net Annual After-Tax Return to Contractholder / 15 Years : 11.17%

Net Annual After-Tax Return to Contractholder / 20 Years : 11.58%

Break-Even Year : 20

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years : (533)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years : (290)

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years : (65)

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years : 0

APPENDIX C - PAGE 9 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

ZERO NPV AFTER 20 YEARS / LOWER GROSS ANNUAL RETURN & DECREASING FEDERAL INCOME TAXES

Issue Age : 55

Gross Annual Return : 12.00% Per Year

Variable Annuity Net Annual Return : 10.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 10.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 7.52% / 5 Years
7.68% / 10 Years
8.21% / 15 Years
8.47% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 31% Years 1 - 5
28% Years 6 - 10
15% Years 11 - 15
15% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 7.32% Premium / Year

Excess Withdrawals : 0.00% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	31%	10%	10,000	10,000	1,040	732	0	300	0	432	10,308	618	9,689	0	9,689
2	31%	10%	0	10,308	1,072	732	0	300	0	432	10,648	532	10,115	47	10,068
3	31%	10%	0	10,648	1,107	732	0	300	0	432	11,023	441	10,582	239	10,343
4	31%	10%	0	11,023	1,146	732	0	300	0	432	11,437	343	11,094	448	10,645
5	31%	0%	0	11,437	1,189	732	0	227	0	505	11,894	238	11,656	513	11,143
6	28%	0%	0	11,894	1,237	732	0	205	0	527	12,399	124	12,275	637	11,638
7	28%	0%	0	12,399	1,289	732	0	205	0	527	12,956	0	12,956	828	12,129
8	28%	0%	0	12,956	1,347	732	0	205	0	527	13,572	0	13,572	1,000	12,571
9	28%	0%	0	13,572	1,411	732	0	205	0	527	14,251	0	14,251	1,190	13,061
10	28%	0%	0	14,251	1,482	732	0	205	0	527	15,001	0	15,001	1,400	13,600
11	15%	0%	0	15,001	1,560	732	0	110	0	622	15,828	0	15,828	874	14,954
12	15%	0%	0	15,828	1,646	732	0	110	0	622	16,742	0	16,742	1,011	15,731
13	15%	0%	0	16,742	1,741	732	0	110	0	622	17,751	0	17,751	1,163	16,589
14	15%	0%	0	17,751	1,846	732	0	110	0	622	18,865	0	18,865	1,330	17,536
15	15%	0%	0	18,865	1,962	732	0	110	0	622	20,095	0	20,095	1,514	18,581
16	15%	0%	0	20,095	2,090	732	0	110	0	622	21,453	0	21,453	1,718	19,735
17	15%	0%	0	21,453	2,231	732	0	110	0	622	22,952	0	22,952	1,943	21,009
18	15%	0%	0	22,952	2,387	732	0	110	0	622	24,607	0	24,607	2,191	22,416
19	15%	0%	0	24,607	2,559	732	0	110	0	622	26,434	0	26,434	2,465	23,968
20	15%	0%	0	26,434	2,749	732	0	110	0	622	28,450	0	28,450	2,768	25,683

Net Annual After-Tax Return to Contractholder / 5 Years : 6.46%

Net Annual After-Tax Return to Contractholder / 10 Years : 7.35%

Net Annual After-Tax Return to Contractholder / 15 Years : 8.20%

Net Annual After-Tax Return to Contractholder / 20 Years : 8.47%

Break-Even Year : 20

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years : (448)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years : (258)

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years : (11)

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years : 0

APPENDIX C - PAGE 10 (REVISED)

VARIABLE ANNUITY VS. MUTUAL FUND

ZERO NPV AFTER 10 YEARS / LOWER GROSS ANNUAL RETURN & DECREASING FEDERAL INCOME TAXES

Issue Age : 55

Gross Annual Return : 12.00% Per Year

Variable Annuity Net Annual Return : 10.40% Per Year

Mutual Fund Net Annual Return (Pre-Tax): 10.90% Per Year

Mutual Fund Net Annual Return (Aft-Tax): 7.52% / 5 Years
7.68% / 10 Years
8.21% / 15 Years
8.47% / 20 Years

Surrender Charges:

- Year -	-- Charge --
1	6% Fund
2	5%
3	4%
4	3%
5	2%
6	1%
7+	0%

Federal Income Tax : 31% Years 1 - 5
28% Years 6 - 10
15% Years 11 - 15
15% Years 16 - 20

Tax Penalty(to 59.5): 10% Early Withdrawal

Free Withdrawal: 5.05% Premium / Year

Excess Withdrawals : 0.00% Premium / Year

Contract Year (1)	Income Tax (2a)	Penalty Tax (2b)	Initial Payment (3)	V.A. Fund B O Y (4)	V.A. Fund Increase (5)	Free Withdr'l (6)	Excess Withdr'l (7)	Taxes on Withdr'ls (8)	S.Charge on Withdr'ls (9)	Net Payment (10)	V.A. Fund E O Y (11)	Surrender Charge (12)	V.A. CSV E O Y (13)	Tax on Surrender (14)	A-T Value E O Y (15)
1	31%	10%	10,000	10,000	1,040	505	0	207	0	298	10,536	632	9,903	0	9,903
2	31%	10%	0	10,536	1,096	505	0	207	0	298	11,127	556	10,570	234	10,337
3	31%	10%	0	11,127	1,157	505	0	207	0	298	11,779	471	11,308	536	10,772
4	31%	10%	0	11,779	1,225	505	0	207	0	298	12,500	375	12,125	871	11,254
5	31%	0%	0	12,500	1,300	505	0	156	0	348	13,295	266	13,030	939	12,090
6	28%	0%	0	13,295	1,383	505	0	141	0	363	14,176	162	14,032	1,129	12,903
7	28%	0%	0	14,176	1,474	505	0	141	0	363	15,143	0	15,143	1,440	13,703
8	28%	0%	0	15,143	1,575	505	0	141	0	363	16,214	0	16,214	1,740	14,474
9	28%	0%	0	16,214	1,686	505	0	141	0	363	17,395	0	17,395	2,071	15,325
10	28%	0%	0	17,395	1,809	505	0	141	0	363	18,700	0	18,700	2,436	16,264
11	15%	0%	0	18,700	1,945	505	0	76	0	429	20,140	0	20,140	1,521	18,619
12	15%	0%	0	20,140	2,095	505	0	76	0	429	21,730	0	21,730	1,760	19,971
13	15%	0%	0	21,730	2,260	505	0	76	0	429	23,486	0	23,486	2,023	21,463
14	15%	0%	0	23,486	2,443	505	0	76	0	429	25,424	0	25,424	2,314	23,110
15	15%	0%	0	25,424	2,644	505	0	76	0	429	27,563	0	27,563	2,634	24,929
16	15%	0%	0	27,563	2,867	505	0	76	0	429	29,925	0	29,925	2,989	26,937
17	15%	0%	0	29,925	3,112	505	0	76	0	429	32,533	0	32,533	3,380	29,153
18	15%	0%	0	32,533	3,383	505	0	76	0	429	35,412	0	35,412	3,812	31,600
19	15%	0%	0	35,412	3,683	505	0	76	0	429	38,590	0	38,590	4,289	34,302
20	15%	0%	0	38,590	4,013	505	0	76	0	429	42,099	0	42,099	4,815	37,284

Net Annual After-Tax Return to Contractholder / 5 Years : 6.72%

Net Annual After-Tax Return to Contractholder / 10 Years : 7.68%

Net Annual After-Tax Return to Contractholder / 15 Years : 8.70%

Net Annual After-Tax Return to Contractholder / 20 Years : 8.95%

Break-Even Year : 10

NPV at After-Tax Earned Rate on Mutual Funds / 5 Years : (348)

NPV at After-Tax Earned Rate on Mutual Funds / 10 Years : 0

NPV at After-Tax Earned Rate on Mutual Funds / 15 Years : 596

NPV at After-Tax Earned Rate on Mutual Funds / 20 Years : 742

Appendix D

Description of Formulas Used for After-Tax Accumulation Model

$$(4)_t = \begin{cases} (3)_t\,, & t=1 \\ (11)_{t-1} + (3)_t\,, & t\geq 2 \end{cases}$$

$$(5)_t = (4)_t * \textit{Net Annual Return},\quad t\geq 1$$

$$(6)_t = \sum_{s=1}^{t} (3)_s * \textit{Free Withdrawal \%},\ t\geq 1$$

$$(7)_t = \sum_{s=1}^{t} (3)_s * \textit{Excess Withdrawal \%},\ t\geq 1$$

$$(8)_t = \left[\begin{array}{l} [(2a)_t + (2b)_t] \times [(6)_t + (7)_t],\ \textit{while} \sum_{s=1}^{t} (5)_s \geq \sum_{s=1}^{t} [(6)_t + (7)_t] \\ [(2a)_t + (2b)_t] \times \{\sum_{s=1}^{t} (5)_s - \sum_{s=1}^{t-1} [(6)_s + (7)_s]\},\ \textit{else} \end{array}\right],\ \textit{for } t \geq 1$$

$$(9)_t = (7)_t * \textit{Surrender Charge Factor},\ t\geq 1$$

$$(10)_t = (6)_t + (7)_t - (8)_t - (9)_t,\ t\geq 1$$

$$(11)_t = (4)_t + (5)_t - (6)_t - (7)_t,\ t\geq 1$$

$$(12)_t = (11)_t * \textit{Surrender Charge Factor},\ t\geq 1$$

$$(13)_t = [(11)_t - (12)_t],\ t \geq 1$$

$$(14)_t = \textit{Max}\left\{0,\ [(2a)_t + (2b)_t] * [(13)_t - \sum_{s=1}^{t} (3)_s]\right\},\ t\geq 1$$

$$(15)_t = (13)_t - (14)_t,\ t\geq 1$$