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SINGLE PREMIUM DEFERRED ANNUITIES AND
SINGLE PREMIUM WHOLE LIFE PRODUCTS

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- o Managing risks by:
 - Product design
 - Investment strategy
- o A critical review

MR. LORNE CAMPBELL: Most insurance products, including single premium products, can be conceptualized as a sequence of options. The client has a variety of options. The insurer has some rather different options. The product design process aims at two goals:

1. The prospective client should exercise an option to purchase.
2. The exercise of all subsequent options should not combine to cause the insurer a net loss.

Of course, the Gordian knot of the pricing problem is that these goals can seem to be mutually exclusive.

Single premium products create the dilemma that prospects are more reluctant to part with tens or hundreds of thousands of dollars than with the outlays associated with periodic premium contracts. Additionally, the exercise of policyholder (or even insurer) options, with respect to the in-force contract, may have a more destructive effect than similar decisions with other products.

For example, a multitude of companies are successful vendors of universal life despite mediocre products. Clearly, this is because clients don't have time to "shop the market" when modest monthly premiums are proposed. Even when the universal life cash value is substantial, an insurer option to reduce the accumulation interest rate should not cause panic. But only a few companies have successful single premium contracts. A worsening of an interest rate for a single premium contract

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may well be a catalyst for exercise of potentially damaging policyholder options, unless it is demonstrably clear that the policyholder has nothing or little to gain by such action. With large dollars per policy at stake, clients will make more intelligent--hence, antiselective--decisions.

It is worth stressing three vital general points regarding the risks and features associated with single premium contracts:

1. Single premium contracts are generally riskier than other insurance products.
2. These contracts cannot be marketed in volume unless policy features are state-of-the-art, and interest rates are current and competitive.
3. SPI and SPDAs are similar. They are both being discussed as such in this presentation, but they absolutely must be treated as different product pricing problems.

Because the policy forms seem so simple, the first two of these crucial observations are often overlooked.

In (3) I have referred, and will continue to refer, to these contracts as if single premium deferred annuities (SPDAs) and single premium life insurance (SPI) are homogenous. This is because the contracts have many similar features. In fact, most features appear in both policy types. But it would be a potentially embarrassing error to deduce that one product can be cloned from the other. The SPI contract involves most of the headaches associated with an SPDA. But pricing of an SPI requires absolute attention to the costs of underwriting or, alternatively, to excessive mortality cost. Besides these general points, there are specific risks associated with single premium contracts.

Marketing Strategy. Careerwise, I have mutated from a marketing actuary to an actuary marketing. Therefore, I feel more acutely for the needs of the market versus the insurer. Marketing risk is only an expedient term. Failure to sell can lead to unrecovered expenses, but retrospective analysis of expense overruns will not necessarily identify the critical error. The attuned insurer in this highly competitive environment must identify:

1. marketing opportunities,
2. market niches,
3. requirements of prospective clients, and
4. requirements of prospective distribution systems.

Surely the marketing opportunity created by an SPDA needs no detailing. We live in a tax-adverse society. SPDAs defer tax with no load, competitive interest rates, and (we hope through our skills) almost no risk. The SPI, to me, is an even more attractive product in that

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proceeds at death are not subject to federal income tax (FIT). Either product is an ideal haven for excess funds of an older, wealthier individual who spurns the audit risk of more flamboyant tax shelters. Each provides an ideal opportunity for a safe, reasonably high, rate of return. But it is not unlikely that such a prospect will never need to dip into the policy values. At death, the SPDA will be an embarrassment. Suppose interest rates remain at today's level and an SPDA could be held for 20 years at an accumulation rate of 10 percent. Even a 30 percent federal tax on policy build-up at death would reduce the effective yield to 8.39 percent; with a 50 percent tax, the effective yield is only 7 percent. It is not difficult to find no-load SPI contracts with accumulation interest rates within 200 basis points of similar SPDA vehicles. Furthermore, the second essential attractive feature of the SPI contract is the availability of emergency funds at no real cost, and with the possibility of taking tax deductions for interest payments through either the "unforeseen event" or "trade or business" exceptions to Internal Revenue Code (IRC) Section 264.

It is interesting to observe the explosion of interest in the SPI product. Prior to the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), such products were few and far between. However, in last month's Best's Review alone, there were full-page SPI advertisements from three or four companies. The SPDA, prior to TEFRA, offered the irresistible opportunity to achieve tax-deferred accumulation with only temporary loss of principal. A sure SPDA sale was achieved by illustrating a 10-year bleed-out of equal portions of principal. At 10 percent interest rates, this was similar to achieving a high-interest, tax-free income investment for 10 years. To facilitate this sale, the competitive products had no surrender charge on partial surrenders up to 10 percent of principal. This was such a natural sale that neither the insurers nor the vendors wished to muddy the waters with insurance concepts. But passage of TEFRA obliged us to discover that, all along, the SPI product with an attractive loan provision was a better arrangement.

Clearly, single premium vehicles can be highly marketable. In fact, there are several markets. For example, although SPDA premiums typically can average over \$25,000 (SPI premiums may be even higher) the individual retirement account (IRA) market represents an option for an SPDA. This may be unwise given that a flexible annuity is a more natural fit, but agents will clamor for a \$2,000 minimum premium.

The SPI product may be marketed as a superior, hybrid SPDA: "an investment grade single premium product," according to one brochure. Alternatively, the SPI may be sold with high premiums as an estate planning vehicle for the wealthy individual. Currently, this second alternative would be unusual, but agents may find such a market niche at the expense of the insurer with casual underwriting. The wealthy individual who is slightly substandard would be an ideal prospect from the agent perspective.

Single premium contracts have a variety of features. Some contracts may offer a high current interest rate; other contracts offer guaranteed rates as high as 6 percent. There are contracts with no surrender

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penalties; there are contracts which reward policyholder persistency. It would be unwise to offer a contract which matches the competition on all policy features. Therefore, the actuary must determine through market research which product features are essential for appropriate sales volume and also consistent with corporate philosophy. For example, sales would be severely impaired by failure to include a rescission provision or a guarantee of principal, but a very high guaranteed interest rate may provide only excess risk.

Finally, the target market for single premium contracts will generally be the affluent. Therefore, the distribution organization must be able to reach affluent individuals within the cost constraints imposed by competitive considerations. These products can't be profitably sold through a high overhead general agency (GA) distribution system. However, enormous sales can be generated by harnessing stock brokerage companies and, perhaps, successful financial planning groups. There will be no left-over fat for the GA, and it would be wise to abandon a single premium product strategy if GAs are to be part of this action. (In my experience, this applies to most specialty markets.)

Expense. The expense risk is related to both persistency and marketing. Single premium products will generally require 6-9 percent of premium to cover commissions, issue expense, and a share of developmental costs. It will not be possible to sell through the primary distribution route of brokerage houses without offering at least a 4 percent commission. Policy issue expenses are unfortunately going to amount to several hundred dollars, and product and administration system development is not cheap. There are several ways to manage this risk:

1. If a preliminary study reveals that issue and acquisition expenses will be at or above 9 percent, don't enter the market until this picture can be changed.
2. Since a rescission privilege is essential, consider paying some of the commission at the end of the rescission period, or work with distribution organizations where a commission chargeback can be easily and surely accommodated.
3. Don't be shy with surrender penalties. A penalty schedule of 8 percent declining to zero over eight years is not uncommon, and increasing this slightly should not severely damage sales if interest rates are highly competitive.
4. Ensure that all aspects of the annuity business--including marketing, administration, and possibly actuarial work--are handled by a separate department (or departments) of full-time individuals. Expertise should create economy and facilitate identification of expense problems.

Persistency. Persistency creates the risks of lost unamortized acquisition expenses and of foregone future profit. I am still waiting to hear from the oracle who can offer foolproof solutions to the insurance industry's persistency problem. The best solution is quite simply not

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to be significantly at risk from lapse. Unfortunately, the lapse-proof or risk-free product probably won't sell. But it is possible to improve persistency.

1. Persistency bonuses are very desirable. Either pay an enhanced interest rate on policy renewal or, after a few years, pay the agent a renewal as a modest percentage, perhaps 0.25 percent, of policy cash value. One company actually increases an SPDA interest rate 0.1 percent per year for 10 years.
2. Nurturing a strong relationship with a reputable distribution organization can only be worthwhile. If a stockbroker is distributing the product, then a home office executive should be in constant communication to ensure that any disagreements are defused before an adversarial position is reached. High lapsation would generally be caused by the distribution organization rather than by individual policyowners.
3. Unless significant subsidy is necessary, variable policy features such as renewal interest rates should be kept competitive, and monitoring the market is a necessity. The problem with subsidies is the difficulty of finding a future offset in a perpetually competitive environment.
4. Consider the market-value adjustment (MVA) or modified guaranteed approach. A MVA is acceptable to nearly all states, at least using a group approach. Legal opinions confirm that some limitation on the impact of the adjustment should ensure that the product is not a security.

Tax. This is obviously a highly unmanageable risk. Specific product design cannot easily predict future tax law. We have reason to hope that successive administrations will continue the practice of grandfathering. In this case, our prospects for persistency actually improve.

If adverse insurance company tax law occurs, then it is essential that the products have sufficient flexibility to allow for appropriate assessment of any increased tax burden. Therefore, extremely high interest rate guarantees are most unwise, and since they also seem unnecessary, they should be avoided.

Some insurance contracts guarantee the spread between the policy loan interest rate and the rate credited to the borrowed portion of the cash values. With some SPI products, a zero spread on portions of the cash value is a key feature, designed to maximize the opportunity to partially access policy values through the loan privilege. I am opposed to such guarantees and believe that an escape clause guaranteeing a spread only under current tax law is much wiser.

Unfortunately, guaranteed tax load clauses are epidemic among annual premium interest-sensitive whole life contracts, and this unusually shortsighted practice may seem unavoidable.

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Investment Performance. My employer is an insurance agency, exclusively specializing in corporate owned life insurance programs. We find occasion to sell SPDAs at client request. The last time this happened was in late July, 1985 just at the time that interest rates were entering their current downward spiral. I eventually found a product with a one-year guarantee of 11 percent, sold by one of the largest and most reputable insurers. The client procured a check for \$150,000 double quick when we pointed out that all SPDA rates were falling, and this opportunity might not recur for some time. The following week, the insurer lowered the rate for new business. This would seem to indicate a loss in the first policy year for the insurance company, unless the investment department had remarkable prescience. In this situation, I have heard insurers, who seem to have belatedly reduced an interest rate, defend their action on the grounds of a strategy of warehousing investments. This method requires excessive commitment to invest when interest rates are high. Unfortunately, it is only easy to define "high" retrospectively. In a competitive market, I don't know how insurers fill the anticipated orders when interest rates unexpectedly rise.

But here at least we have a manageable solution. Any interest rate guarantee of more than a couple of days, for a new premium, is unrealistic. Other financial organizations would not dream of such a policy. The insurance industry must wise up. It is certain that business will be lost when interest rates are falling, but this is highly desirable, hopefully mandatory. Equally well, a more responsive insurer stands to gain new business in a rising interest rate scenario.

One of the best opportunities for new SPDA and even SPI business is through the IRC Section 1035 exchange, especially for qualified plan SPDAs. It will be unusual for a premium check to arrive from the existing carrier in less than two to three weeks, especially if the carrier is in financial difficulty. Here, there is a powerful argument for a rate guarantee, and I would be hypocritical if I did not admit to falling for this logic myself about two years ago. But in that case, I instituted management information measures to immediately determine evidence of antiselection, which would have caused removal of the 28-day guarantee. The 1035 exchange papers and policy application had to be received prior to any rate change for the guarantee to be applicable. In this area, good management information systems can allow an effort at warehousing with minimal risk. In the situation I am alluding to, the insurer subsequently has found absolutely no evidence of unusual activity and antiselection.

The final point to make about the C-2 risk of inadequate pricing is to observe the critical need for intimate liaison between the investment department and the product manager or actuary. It seems obvious that the investment department must, at a minimum, have available appropriate assets yielding higher than the net SPDA rate plus loadings for expense, tax, and risk. But it is easy to believe that this golden rule is not always observed. In practice, it may be that the investment department makes an investment decision to purchase different securities than those suggested by a pricing model, with trading profits in mind.

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I have said nothing about the C-1 risk of asset default, although it seems it could be significant, particularly when interest rates are in the mid-teens.

Investment Asset Value Risk. Leading into expanded comments from Mr. Draeseke, I will make a few points:

1. It is a poor strategy to mismatch the length of assets and liabilities. I am not comfortable with a 1-year interest rate product requiring a 5-10-year investment (bond or mortgage) to obtain the necessary competitive yield. This can only lead to disaster when interest rates rise.
2. To obtain competitive yield, several companies have 5-, 7-, or even 10-year interest rate guarantees. Since it is empirically evident that limited MVAs don't discourage sales, they should always be present with this type of product. An 8 percent surrender charge is protection only against a 130 point immediate increase in interest rates if astute clients are buying 7-year products. During renewal periods the C-3 risk is no less present, and product design must continue to provide a persistency incentive and/or an MVA feature.
3. A periodic annuity option will be attractive when interest rates are high and asset values depressed. It is desirable to realize this and apply an MVA when a policyholder annuitizes. The policyholder should always have the option to annuitize at an interest renewal date with no such penalty.

Mortality. This is a minor risk for SPDAs. Nevertheless, it deserves analysis when sales to elderly individuals are contemplated. It is appropriate to limit sales of an SPDA to individuals below age 70, unless an early death is treated as a rescission with respect to commission chargebacks, and death benefits are equal to cash values rather than accumulated values. With SPI contracts, on the other hand, the significance of mortality costs cannot be overemphasized.

It is now appropriate to identify the key feature of a true, state-of-the-art, SPI vehicle. A universal life contract with a dump-in involves an accumulation fund with monthly deductions for mortality and expense and monthly interest credits, but no guarantees as to the adequacy of the fund to pay future deductions. A single premium universal life contract is similar except that coverage is guaranteed for life if the tabular premium is paid. A true SPI contract guarantees insurance coverage subject to the necessary Deficit Reduction Act of 1984 (DEFRA) mandated corridor, but without any mortality and expense deductions. The insurer credits a net rate of interest to the gross premium, and the difference between this accumulation rate and the gross rate covers not just expense amortization, tax, risk, and profit but also the mortality cost and risks.

This creates several problems. First, fully underwriting an applicant will prove too expensive in terms of the resultant premium load on a modest premium in the \$25,000 or less range. But the sharply

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increased corridor created by DEFRA, the cost of insurance protection is far from insignificant, especially with simplified underwriting. There is just no reason to assume that mortality won't be poorer than experience from underwritten business.

Second, with guaranteed renewal interest rates creeping towards 6 percent, the insurer is taking an immense risk that interest rates will fall. To support a 6 percent SPI rate, a gross rate of 9 percent or so is probably essential. Therefore, an aggressive interest rate guarantee on an SPI product is ludicrously optimistic. I believe that any guaranteed rate over 4 percent is foolhardy.

The bottom line of all of this is to be sure that a proper design for an SPI product will include detailed evaluation of nonmedical limits and underwriting rules, as well as analysis of mortality costs. A cursory determination that mortality costs "about 1 percent" will lead to ruin. Furthermore, special treatment will be necessary for older ages. One company reduces commission at older issue ages. Another possibility is to reduce the interest rate for older issue ages. The more common practice of relying on a cross-subsidy from younger age business seems inadequate.

Market Antiselection. Finally, many of these points have alluded to an encompassing feature of the single premium market. The dollars at stake per individual are large. The distributing organizations, especially stockbrokers, can control the actions of significant numbers of policyowners. Often a stockbroker will have achieved comfort with one company's products and, therefore, will have significant control over the fate of a good sized book of one company's business. In addition, the process of analyzing the merits of a 1035 exchange is fairly easy, unlike the process of analyzing the merits of replacing an annual premium participating life insurance policy with universal life for example. With the SPI product, an overly casual approach to underwriting will surely cause products to gain a reputation as havens for mildly sub-standard prospects. This cannot be tolerated. Therefore, it is likely that if an insurer leaves significant exposure to the exercise of adverse policyholder options, sooner or later troubles will be encountered. In conclusion, don't price these products assuming only positive scenarios.

My summary of all of this is applicable to all pricing work. Every product risk should be considered and, ideally, should be circumnavigated to the extent the market allows. But with single premium products caution, rather than the marketing department, should be the primary influence. The antiselection problems amplify all of the risks for this market.

MR. DOUGLAS G. DRAESEKE: As a consulting actuary, I've been involved in several aspects of the single premium world, including product development work for insurance companies, product and company approval for New York Stock Exchange (NYSE) member firms, and ongoing due diligence for member firms interested in having quality products with quality companies.

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The investment strategy for single premium products must be intimately intertwined with product design and product management. The increased concentration of risks (and therefore rewards) that go along with single premium products requires mobilization of management resources at the highest levels of a life insurance company. The executive function, the investment function, the actuarial, financial, and administrative functions all must work together, or spectacular failures emerge.

There must be effective and continuous communication across the balance sheet--between those who manage the assets and those who manage the liabilities. The initial product design work requires effective communication of the risks and rewards between the investment people and the product development actuaries. The investment department then has to keep informed and go back and forth with those who are involved in the liability management. It is critical to communicate renewal rate declarations, feelings of economic outlook, investment vehicle alternatives that are available, and so on.

Given these criteria, it is not surprising that I have observed successful product implementation only in very well-managed companies, where top management works well together, and in extremely autocratically run companies, where one may simply tell all the departments what to do. Large, bureaucratic organizations seem unable to assemble the players and perform what is necessary.

The first aspect, which will influence (or be influenced by) the investment strategy, is the interest rate. There are many different kinds of interest guarantees in the single premium world. We see guarantees of 1, 2, 3, 5, 7, and 10 years at the current rate. We see guarantees where the rate increases year by year. We see guarantees based on an index. We see bailout products where there's only a guarantee one year at a time, but where there is an extra promise thrown in that, if the rate falls below some preset number, the policyholder can surrender without penalty. We see products with absolutely no guarantee other than the 4 percent valuation rate. Finally, there are many products with combinations of these guarantees and others.

Another important product design aspect is the nature of the withdrawal right. We see all sorts of partial withdrawal provisions. We see policy loan provisions allowing annual borrowing at low, or no, cost. We see many provisions which make cash values available at dates prior to the actual expiry of the interest guarantee; some of these offer the full cash value, while many impose a surrender penalty to try to discourage early termination. We see, of course, MVAs and the new modified guaranteed annuities. There are even some products that have absolutely no cash value prior to the expiry of the interest rate guarantee.

We see differing kinds of surrender penalties. Some products are fully loaded without any surrender penalty. Some products are no load with no penalty. We see low loads and products which take a load but return it in the future. Surrender penalties usually cover only the potential loss of unrecovered acquisition costs and not disintermediation risk. You cannot spend the same dollars twice.

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With respect to mortality benefits, things have changed over the years, especially on the single premium life side. There are some real age dependencies here, and we've got to know our marketplace as we price and manage these products.

Finally, the characteristics of the distribution system to be used are extremely important considerations in setting up appropriate pricing assumptions and carrying out decent product development. For example, asset liquidity needs will differ depending on the target market and distribution channel.

The main topic I want to cover is the investment strategies involved with single premium products, both SPDAs and SPI.

Most insurance companies writing single premium products feel that their investment strategy is nobody's business but their own. Others will share particular aspects of their strategy, but only with those whom they feel are entitled to know. Only a few companies will gladly sit down and reveal all that they're doing. Of course, there are always those marvelous public documents available for review. The annual statement and its quarterly cousins contain a wealth of information. Most of what follows has been gleaned directly from such documents.

If you're going to write single premium products, you'll need to design an investment strategy consistent with those products and with the ongoing management you plan to perform. Before you can design a strategy, you must set a major goal for the insurance company and consistent sub-goals for the various operating departments involved. There may be several ways of expressing the various goals, but every department's efforts must be driven by incentives which are consistent with the achievement of those goals. The sub-goals for an investment department might include:

1. a spread requirement,
2. quality criteria,
3. liquidity needs,
4. cash-flow requirements,
5. principal protection criteria, and
6. interest rate sensitivity criteria.

Of course, the nature of these criteria will vary according to the kind of product being sold.

There are many investment strategies in the single premium world. Although only time will tell us which of these will be successful and which will fail, I believe success will come in one of two ways: (1) from extreme good luck at the risk of losing everything, what I call the "you bet your company" approach or (2) from a well-designed strategy which tends towards the matching of assets and liabilities dynamically,

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wherein the changing nature of the maturity of the liabilities is recognized and followed through a continuously adapting asset-management mechanism.

My years of involvement with single premium products have led me to recognize some aspects that are critical to a successful product implementation. They are obviously interrelated:

1. Communication. Constant, meaningful communication between asset management and liability management is critical. The moving target of the maturity of your liabilities must be communicated to those who are managing a portfolio of assets which has its own maturities, many of which are also moving.
2. Flexibility. The universe of possible investment vehicles and the tactics for their use within an investment strategy are widely varied. An investment strategy should be flexible enough to allow movement across the spectrum of suitable vehicles as the dynamics of the liability maturities change and as the dynamics of the investment vehicles themselves change.
3. Planning. There are many possible futures ahead. Some are more probable than others, but the more that are planned for in advance, the better. Both defensive and offensive tactics must be developed and available for use on short notice.
4. Management. To execute a coherent investment strategy, top executive management of the insurance company must completely understand the nature of the risks and rewards of these products and be fully committed to working as a team to make it work.

These are some of the vehicles which have been used tactically within an investment strategy for single premium products. We have seen:

1. portfolios of high yield bonds,
2. portfolios of high quality bonds,
3. dedicated bond portfolios,
4. hedged portfolios of long-term bonds,
5. liquidity pools of short-term securities,
6. portfolios of 1-year paper,
7. portfolios of government guaranteed shipping bonds,
8. Government National Mortgage Association (GNMA) mortgage paper,
9. residential mortgage pools,
10. commercial mortgages,

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11. precious metals and precious-metal-backed securities,
12. zero-coupon bonds,
13. common stock of affiliated companies,
14. common stock of takeover targets, and
15. real estate.

High yield bonds, also known as junk bonds, are issued by companies with poor credit ratings or no credit ratings whatsoever. Some studies have shown that the extra yield you get by holding these junk bonds is more than enough to cover the default losses, but I'm not sure enough business cycles went into those studies to validate that conclusion. Even if that were true when the study was made, the recent explosion of interest in the junk bond market can only decrease the extra yield available and, I think invalidate this strategy for the future.

Next, consider the use of high quality bonds. When the quality spread in interest rates narrows, perceptive investment-management strategies involve moving up in quality at little cost. On the other hand, when the quality spread widens, it is possible to selectively move down the quality curve, obtaining more yield than is necessary for the added risk. I have observed a couple of strategies that utilize government guaranteed bonds as part of this strategy.

The dedicated bond portfolio is particularly useful when cash flows are known with certainty or with high probability. I've seen this used with government bonds and corporate bonds to give extra high quality to the portfolio. The technique involves the use of "spot" rates rather than "interest" rates. Spot rates are simply effective annual yields to maturity of zero-coupon (or stripped) bonds. Using this curve of spot rates and known future cash flows, you can find a portfolio which will provide the desired cash flows at minimum cost. As you move through time, characteristics of both assets and liabilities change, and you can use linear programming techniques to optimize the portfolio from the universe of bonds available, both stripped and coupon bonds.

Another possible portfolio is a hedged portfolio of long bonds. In order to reduce the risk of asset depreciation due to rising interest rates, it's possible to hedge a portfolio of long bonds with interest rate futures contracts. It's an intricate and expensive process, but under certain circumstances, and with active management, this can be a viable strategy. This tactic has the effect, however, of shortening the maturity of your portfolio, and this tends to move one backwards down the yield curve. During times of steeply positive-shaped yield curves, as we have today, this tactic is not useful.

A liquidity pool is often a basic part of a portfolio. Almost all single premium products impose the need for some liquidity; the only exceptions are those products which provide no cash value until the maturity date. The extent of this liquidity need will be determined by the product features, the economic outlook, and the shape of the yield

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curve. The maturity of a liquidity pool is often a mixture of dates ranging from 1-30 days or more. It is not uncommon to see liquidity holdings of 5-20 percent of a particular product's liabilities.

A short portfolio has virtually all the money invested in 1-year paper. This is commonly used with products providing 1-year, indexed guarantees. If you invest consistent with the index and don't get too excited about the fact that sometimes your rate declaration's high and sometimes it's low, this can be a viable alternative. You must, however, manage liabilities strictly so that rate declarations follow the index down as well as up. Otherwise you'll have real problems.

Next, consider an MVA product portfolio. MVA products are not quite variable products since they do not pass all the risks of market fluctuations to the policyholder. They pass on a portion of that risk, owing to the possibility of withdrawal prior to maturity of the liability promise. Thus, an MVA portfolio should be managed to provide the full values at maturity of the liabilities and also to fluctuate in market value prior to maturity in a manner that's consistent with the MVA formula in your policy. Most formulas approximate variations in market values of bonds due to changes in interest rates, and thus, most portfolios consist of bonds exclusively. An important note here is that the MVA does not pass on the credit risk. It passes on only the risk of a change in interest rates.

When you have a true variable product, of course, you pass the entire market value risk on to your policyholders. The idea behind variable product portfolio management is then to provide superior investment performance through whatever investment vehicle you have. This is not always an easy task.

Mortgages, in the form of GNMA pools and privately placed residential pools, are being used extensively for various reasons: their yields are high; they are quite liquid; and they have a tendency to repay portions of principal at 100 cents on the dollar prior to maturity. Repayment patterns, of course, depend on economic conditions and what's happening with interest rates. You'll find that the market value of these instruments does not behave like that of bonds. Some of the motions are well matched to those liabilities which tend to change in value as interest rates change.

One of the problems of working with mortgages, however, is that you must anticipate defaults. Some people simply walk away from their mortgage and mail the keys to the savings and loan. You must deal with this by setting aside a portion of the yield and not paying it out in benefits. Some companies go so far as to set up a contingency reserve to handle unknown deferred credit losses.

Commercial mortgages with indexed interest rates are a natural for use with indexed products, particularly when the mortgage interest index is the same as, or related to, the index used in the annuity or life product.

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Precious metals, or securities backed by them, are useful in deflationary periods and in periods of high inflation.

Common stock has also been used as a vehicle. We've even seen, with Baldwin United, the investment of policyholder funds in the common stocks of affiliates. That was a spectacular rise and fall.

Other companies also have been in the market for common stock. Recently, there has been a lot of interest in the common stock of takeover targets. The rewards and risks of this strategy are abnormally high. Interestingly, in the final phases of a takeover, a position in the common stock of a takeover target can be considered to be a position in the after-takeover debt issue. So these act a lot like bonds for a while, near the end of the big fight.

Flexibility must be a primary characteristic of everybody involved with this. Things change, and one day's strategy may not be appropriate the next day. Asset management means just that--you must watch every day and make changes when necessary.

You can only tend towards matching. In the end, you must balance the risks of a spectrum of products, and it's the entire general account that must be adequate to carry out the liabilities of the company.

MR. GREGORY J. CARNEY: My comments will deal specifically with SPDAs. I believe that there is very little difference between SPDAs and single premium whole life. I think single premium whole life was developed because of potential tax consequences of SPDAs, and the initial products had very small mortality margins.

The reasons a company might want to sell an SPDA product are fairly obvious:

1. You can quickly build the asset base. You can make a small company very large, very quickly.
2. Profits and costs are a function of the size of the line of business. Profit, of course, is spread--the more assets you have, the more profit you're going to make. Also, the cost per unit of business declines as the asset base grows.
3. The asset base should be stable. Lapses should be low since the plans are tax-advantaged, and there's a surrender charge on the product.
4. Cash flows are predictable. If the asset base is stable, then cash flows are predictable, and you can do asset/liability matching.
5. You can use an alternative distribution system to get into the business and get that asset growth quickly.

What about the customer? Why does the customer buy a single premium product? There are basically five reasons:

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1. high yield,
2. liquidity,
3. safety of principal,
4. tax advantages, and
5. retirement income.

What are the problems with single premium products? I see several:

1. There is a mismatch of company and customer expectations. The reasons that companies sell the product are not always consistent with what they tell the customer the product is.
2. The products and ancillary benefits are not priced appropriately. There are a lot of options inherent in these products, and I don't think they're all being priced.
3. The assets and liabilities cannot be matched.
4. Marketing and investment changes after the initial product design phase can have a significant impact on profitability.
5. Unanticipated changes in insurance law or tax law can also have a significant impact.

Mismatch of Expectations. If we compare the reasons the policyholder buys with the reasons the company sells, we'll see the mismatch that occurs and some of the required actions.

The first reason the policyholder buys is for a high yield. Meanwhile, the company's selling to make a profit, and that profit is based on spread. Often, competition sets the return that's offered to the client. Competition includes banks, savings and loans, and other insurance companies. Some of those other companies may dance to the tune of a different drummer, but you have to be competitive in order to attract the money. This says to me that in periods of a normal yield curve, you'll make longer-term investments or maybe sacrifice on quality to get the yield you need.

The second reason the policyholder buys is for liquidity. Meanwhile, the company believes that, since there is a surrender charge and the product is tax-advantaged, the asset base will be stable and cash flows will be predictable. However, cash flows are really a function of your economic environment.

If a policyholder has a contract with a surrender charge of 5 percent, and there's been a 3 percent increase in interest rates since the product was sold, it takes a year and a half to recover the charge if he moves to another product. I'm not convinced the surrender charge is a deterrent.

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Asset flows are going to change exactly opposite to liability flows. Suppose you were in a 10 percent environment when you sold the contract, and interest rates are now 15 percent. Suppose, further, that you've invested in mortgages, and you're expecting a certain amount of prepayment. The prepayments are not going to be too great. Not many people are going to refinance a 10 percent mortgage with a 15 percent mortgage. On the other hand, the disintermediation problem is going to have a major impact on your liability flows.

Third, the customer buys safety; safety is one of the things that we're offering as an insurance company. That says to me that the insurance company has to invest in high quality, short-term investments to make sure that principal is available. Well, now I have a real problem with investment strategy. Which one of these goals am I trying to satisfy? Am I trying to satisfy the high yield, the liquidity, or the safety? I've got different strategies for each of these.

Fourth, the customer buys for the tax-advantages. Because of this, the company expects a stable asset base. I agree except for one problem, the 1035 exchange. If I have an SPDA product and I don't like the product, I can make a 1035 rollover into another company's product without any tax consequence.

Finally, the customer buys for retirement income. If you're selling a product and you want that money left on your books for retirement income so that you don't have to liquidate assets, you have to have payout rates that are competitive with the single premium immediate annuity policies that are available. If you're not competitive, the client will move his funds using Section 1035.

Pricing Problems. The investment risk is foreign to actuaries. We're gaining some insights, but we have a long way to go. Our pricing models don't consider the investment risk as it could occur. We can make certain assumptions, but the results of our pricing studies are only as good as the different scenarios that we've tested. To the extent the economy does things that are unexpected, we could have a problem.

Furthermore, we don't specifically price the options that are available in the contract. I could list about 20 options that are inherent in an SPDA contract. The main one is the book value cash out, and we're not specifically pricing that. As another example, I don't know anyone who has specifically priced the cost of the bailout provision.

Asset/Liability Matching. Asset and liability matching is something that we hear about a great deal. It's appropriate for us to continue working in this area--anything that companies do is certainly better than just investing in 30-year instruments. But if your portfolio is matched, it is matched on a particular day and for the particular scenario that you've assumed. Any kind of rapid changes that occur in the economy will change the durations of your asset and liability flows in opposite directions, and that's going to create an imbalance. If you have a single premium portfolio, you have made your investments. If you're not able to quickly reposition because of changes in the economy, then

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you'll have an imbalance as these changes occur. In sophisticated markets, your liability flows are going to be extremely sensitive to your yield rates.

Single premium products are sold in two markets. The first one, I'll call a "Mom and Pop" market. This market has maybe a \$5,000 to \$10,000 average size. It's money that was sitting in a certificate of deposit (CD) but is used to purchase an SPDA to get the tax advantages.

The other market is the sophisticated investor. The sophisticated investor is seeking the highest possible return on a \$50,000 to \$100,000 policy. If you're in this market, when you're testing asset and liability scenarios, you ought to give a lot of thought to the possibility that whoever sold the product will move the money into someone else's vehicle.

Trying to use new sales to meet existing cash flows just creates a slow death. In effect, you're using existing assets that are underwater to fund new liabilities, while using new premium dollars to pay benefits. This will delay death--a little while.

Marketing/Investment Changes. Changes can be made to your marketing programs or your investment philosophies. You can use an alternative distribution system. This will result in reduced costs, but create another problem--you don't have control over that alternative distribution system. The client isn't yours, it's the client of the distribution system. If the distribution system gets a better deal somewhere else, you could have some real cash-flow problems.

Your interest crediting philosophy could change, impacting on your product and your profitability. There are various alternatives. You could credit interest on a portfolio basis, new-money basis, or some type of blend in between. I'm aware of one large company in this market that, so far in 1985, has changed its interest crediting method three times. I'm not exactly sure what's going on; I wonder if even their policyholders know.

Your spread margins may narrow. This could be a function of the competition or due to a change in the yield curve. This will obviously have an impact on your profits.

Your investment philosophy may change. There's been a great deal of conversation about futures and options and hedge strategies, and how these can help us in asset management. There are some problems, though. For example, you can use futures to hedge a bond and create a short-term yield but not if the bond that you're trying to hedge is underwater. If you do that, you're speculating which is no problem except that you have to write the asset down to market value before you can bring in the futures premiums or the gains or losses. So it's not the entire answer.

Now, for those of you who have never had the opportunity to be in an interest crediting meeting in a company, I'd like to tell a little story.

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It's the story of Alice, who is the actuary for Looking Glass Life in Wonderland. Alice is in attendance at the first interest rate setting meeting for the new SPDA product she's developed.

As this meeting begins, she notices that MH, who is the marketing officer, dominates the discussions. He first points out the interest rates being offered by competition and says that you can't set interest rates in a vacuum. Secondly, he points out that product sales are interest rate driven. Thirdly, he mentions that Looking Glass Life is not really a household name in the industry, and will need a high rate of interest to attract new business. In an effort to win over Alice, he points out that without a high interest rate, the volume of business is going to be low and (based on Alice's estimates) Looking Glass Life is not going to recover its costs. He suggests a rate of interest 25 basis points higher than the rate offered by the competition.

Alice is a little concerned that this rate may be too high. She points out that the product requires a certain margin between gross yield and the rate credited to the customer. MH responds that other companies must have the same problem; obviously, they can get the required investment yield. He asks what those companies know that Looking Glass Life doesn't.

While Alice starts musing about product features, the president of the company asks the investment officer to quote the best yield he can get at this time. The investment officer responds, and MH quickly notes that the rate comes within 20 basis points of producing the required margin that Alice used for the pricing studies. The meeting ends when the president decides that profits from the greater than anticipated volume of sales will make up for the reduced profit margin. Besides, he notes that they can always reduce the rate or increase the margin at the next meeting.

Obviously, Looking Glass Life becomes a major leader in this product. Growth is beyond the wildest imagination. The investment area concentrates on gross yield, since Alice has told them what margin they need and MH has told them what the credited rate is. Quality is sacrificed and long term investments are made to achieve the required yields. Shortly thereafter, the interest rate curve becomes inverted. Short term interest rates increase dramatically, the value of Looking Glass Life's assets declines sharply, and surrenders of the SPDAs increase to record amounts. Looking Glass Life is now in trouble.

Alice wakes up from this dream screaming, "I wish I was a casualty actuary for a profitable P&C company!" Having realized that this was only a dream, Alice goes to work the next day comfortable that Looking Glass Life is profitable and meeting the required actuarial margins.

Insurance/Tax Law Changes. Changes can be made to our insurance and tax laws. We have a situation now where the new insurance tax law front-ends the tax on future profits. In other words, applying the Commissioners annuity reserve valuation method (CARVM) to most annuity products produces a reserve equal to net cash value. If you sell a \$1,000 product with a 7 percent surrender charge, you'll hold

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\$930 as your tax reserve. The \$70 that could be collected if the policyholder surrenders at a certain point in time, in effect, becomes taxable income. So you have front-ended the tax on that amount, and that takes you from (depending on the product) a 36 percent tax rate to probably about a 60 percent tax rate.

My company earned \$10 million in statutory profit in the first six months of 1985, and our tax bill was \$12 million, for a \$2 million statutory loss. Why did we have a 120 percent tax rate? The reason is that we have been holding New York reserves, which are full accumulated values for those products. So not only are we taking the tax hit on the surrender charge that we haven't collected, we're also taking the surplus strain associated with holding full accumulated value.

This is not very good planning, but the way out is simple. If I hold minimum CARVM reserves, which in this case are cash surrender values, I turn the statutory profit into a much larger number, and the tax percentage appears appropriate. Everything is fine, except for one little item. I don't have much cushion left in my reserves if all of my reserves are at cash surrender value.

Reserve standards may not be adequate. Using cash surrender values misses the C-1 risks and C-3 risks. Even if you've done your asset and liability matching and you're right for the scenarios you've assumed, things could occur a little differently than you thought, and you could have a problem three or four years down the road. When you sign a statement that says your reserves make good and sufficient provision, if your reserves are purely cash value, you have a real problem.

Maybe I'm suggesting that CARVM is inappropriate. It seems that some provision for risk needs to be established because of the incentive for companies to reduce their reserves to net cash value. I hope some ideas will come out of the National Association of Insurance Commissioners (NAIC) Actuarial Committee or one of the Society's committees. But without that, I think that the new tax law, given the current definition of CARVM, has created a serious risk for some annuity companies.

We will see minimum surplus requirements coming out of the NAIC. We're currently seeing them in various states acting independently. This potentially could restrict new sales.

MR. PAUL H. LEFEVRE: Mr. Campbell, you implied that policy loan interest on single premium life products might be tax deductible. I don't think that's generally true.

MR. CAMPBELL: The particular section of the tax code is Section 264, which talks about obtaining money for special contingencies--business needs or whatever. It would seem to me that, given the current philosophy of American taxpayers, if you borrowed money from an SPI after six or seven years on a one-shot basis, you'd probably attempt to deduct the interest, and you would probably not have that refused. Of

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course, if you get into a planned borrowing of funds, that's a completely different situation.

MR. CARNEY: I agree with Mr. Lefevre. It's my understanding that the tax law does not allow deductibility of loan interest on single premium policy where the policy loan is used to keep the product in force.

MR. LEFEVRE: Mr. Carney, I share your concern about tax reserves driving statutory reserves and what that means in terms of adequacy. A lot of companies, including mine, are addressing these concerns through the concept of benchmark surplus. Ignoring the question of terminology, adequacy really depends on the total assets of the company--what you earmark those assets for and how you manage your risks. As long as you realize that, you can sometimes make statutory reserve decisions based on ancillary considerations.

MR. CARNEY: I agree. Surplus is obviously critical to adequacy. However, that suggests a certification that reserves and surplus are adequate, not just reserves.

MR. STEPHEN L. WHITE: Hasn't the NAIC decided during 1985 that, for SPDAs with a bailout provision, the CARVM reserve is the accumulated value? If so, are people reasonably confident that the tax reserve will also be the accumulated value?

MR. CARNEY: Yes, to both of those questions. The particular product that I have does not have a bailout.

MS. DONNA ROSE CLAIRE: Mr. Campbell, you said that a product with an MVA would not be considered a security by the Security and Exchange Commission (SEC), if certain limitations were placed on the adjustment. Could you explain what type of limitations are necessary?

MR. CAMPBELL: I said that you can get a legal opinion that the product won't be considered a security by the SEC. That might be different than what you asked in your question. The limitation I have in mind is one whereby the insurance company is protected against a swing in interest rates up to some predefined amount, such as 2, 3, or even 5 percent. The extent of the limitation could be a function of how aggressive your lawyer is prepared to be in his opinion.

MS. CLAIRE: Mr. Carney, could you clarify something with respect to CARVM? With the NAIC meeting in June, does their decision apply to issues from June on, or for all of 1985?

MR. CARNEY: The NAIC simply issued an interpretation of CARVM, applicable to all annuity products back to 1976. However, there is a question as to when it should be considered applicable for tax treatment.

MS. CLAIRE: So, for tax purposes, does it apply only to issues after June or to all 1985 issues?

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MR. WILLIAM CARROLL: As I understand the federal tax law, the method to be used for tax reserves is the Commissioners reserve valuation method that existed at the time the policy was issued. I would say that an aggressive tax lawyer might take the position that all 1985 business is governed by CARVM as it was articulated during 1985. The NAIC didn't create a new method, they merely told us what CARVM has always meant. That doesn't have a retroactive effect for tax purposes with respect to business issued prior to 1985 because the tax law specifically cuts that out.

MR. ROBERT J. CALLAHAN: At the end of 1983, the NAIC Life Actuarial Task Force realized that, when there is a meaningful bailout provision present, CARVM requires reserves at least equal to the full accumulation value. You could arrive at this in two ways. You could make an assumption that you are not going to pay any interest rate greater than the maximum valuation rate. In this case, you would trigger the bailout and, therefore, require a reserve at least equal to the accumulation value. Or, you could project an interest rate greater than the bailout rate until the end of the surrender charge period. In this case, you would not trigger the bailout, but discounting back at the maximum valuation rate would still give you a value greater than the accumulation value.

At the end of 1983, and during 1984, various states acted independently to require full reserving where there was a bailout present. However, they allowed a transition period in which to set up this full reserve. The NAIC, as a body, deferred action until 1985 due to the tax consequences.

In New York, we had thoughts of liberalizing our reserve requirements right at the time when the C-3 risk was receiving the greatest attention. We decided to defer action on liberalizing reserves until we could get something in its place. This past year, we passed a law that would explicitly recognize a reduction in the values for surrender charges to the extent justified by the actuarial opinion and the asset/liability matching memorandum.

MR. MELVIN J. FEINBERG: Our understanding is that the tax law is sufficiently murky that the question of deductibility of policy loan interest under single premium whole life could go either way, depending on the aggressiveness of the person filing the return. As a rule, insurance companies and their sales literature say that interest is not deductible. That's probably the best way to go.

The panelists mentioned that there are some products available that provide no cash value until the end of the interest guarantee period. How does this satisfy the nonforfeiture law?

MR. DRAESEKE: The products I've seen were issued on a group basis. The certificate, itself, has no cash value until the maturity date. It's an aggressive policy design, but it's out there.

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MR. VICTOR MODUGNO: That's commonly done under group annuity policies. The certificates are issued without any preretirement cash values or any cash values at all for that matter.

MR. CARROLL: Mr. Campbell, you noted that, unlike universal life insurance, the true SPI does not take explicit mortality charges as a function of the age of the insured. How do companies get the money they need to pay mortality costs? Aren't dangers introduced by charging for mortality in some way other than as a function of age?

MR. CAMPBELL: Absolutely. Originally, with the modest corridors imposed by TEFRA, it was possible to make a guess that, perhaps, a 1 percent spread between earned rate and crediting rate would be sufficient to pay for mortality. Now, however, there's an extremely significant mortality corridor. You must now go through a pricing process to find, for example, that at age 35 you need a 50 basis point spread, but at age 65 you need a 250 point spread. You must then decide whether to take a cross-subsidy approach, or vary the crediting rate by age, or vary the commission rate by age. As far as I know, each of these approaches has been used.

MR. CARROLL: Is the SPI a product that has only a temporary existence because of the current tax law?

MR. CAMPBELL: That depends on which of the tax proposals, if any, eventually becomes law. Under many of these proposals, SPI and most other products that we're familiar with will no longer be salable. On the other hand, under the House Ways and Means proposal of a month ago, the continuation of tax-free inside buildup but elimination of policy loan interest deductibility would not affect the SPI market.

MR. ROBERT J. POLILLI: In pricing an SPI, we looked at policy loans and found that it is a popular feature to not charge any spread on loans of earned interest. When we ran a 100 percent policy loan scenario, of course, the results turned out to be inadequate. I was wondering if this had been a factor in any of the pricing the panel has seen.

MR. CAMPBELL: The policy loan feature you described is very popular among marketers. It would be appropriate for actuaries to resist that sort of cross-subsidy. So, it depends on who's running the pricing process--marketing people or the actuaries.

MR. HARRY PLOSS: Mr. Campbell, could you tell us more about the differences between a single premium universal life and an SPI? Aren't they designed to look almost the same to the policyholder?

MR. CAMPBELL: It's a matter of genesis. The single premium universal has come from a universal life policy design. Obviously, a universal life policy design includes the option to dump in a large amount of money and project out results.

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Meanwhile, the true SPI has resulted from adverse taxation of the SPDA. The objective of the SPI design is to produce a policy form that is similar to an SPDA, but without significant tax disadvantages.

I think the differences in designs are point-of-sale concepts. To a lay person, the process of fund accumulation and fund deductions might seem terribly complex, while the process of no-load accumulation ought to seem terribly simple.

MR. MICHAEL J. HAMBRO: One difference might be that a universal life policy would qualify under the guideline premium/cash value corridor test of Section 7702, while the SPI will probably qualify under the cash value accumulation test. This makes a tremendous difference in terms of the initial amount of risk.

MR. CHARLES E. RITZKE: Once I've got my MVA product and my strong legal opinion, where do I go next? Do I just go out and start selling and hope the SEC doesn't come after me? Or do I try to prove something to the SEC before I sell? If I decide to prove something, specifically what do I need to prove?

MR. CAMPBELL: I don't know if the SEC has issued rulings on this question.

MR. ROBERT M. SMITHEN: We sell such a product, a group product. We've got one of those voluminous legal opinions that Mr. Campbell talked about, although not an aggressive one. The opinion holds that the MVA, as we impose it, does not constitute a security for two reasons. First, the product guarantees return of principal. Second, the product limits the MVA to 3 percent. In other words, the company bears the risk beyond 3 percent.

The test as to whether a product is a security is whether the company bears any investment risk. I wouldn't go to the SEC and try to prove it, but I think a product designed with a guarantee of principal and a limited MVA carries a significant risk to the company.

The SEC will look at how you market the product. We require that the brokers and agents selling our product submit any advertising material for our approval before they release it.

I don't think you take much risk in terms of having the product deemed a security, as long as you build in some investment risk to the company. You can do that and still have an actuarially sound product. Once you limit your risk, you can price for it and be competitive.

