

RECORD OF SOCIETY OF ACTUARIES

1977 VOL. 3 NO. 1

INVESTMENT STRATEGY AND PLANNING

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1. The development of investment objectives, strategies, and plans as an integral and functional corporate activity
2. The actuaries' role in investment planning including:
 - a. Relevance of asset management to the determination of prices and reserves
 - b. Matching of assets and liabilities
 - c. Liquidity
 - d. Management of risk exposure

MR. ROBERT R. WYAND II: The participation of the actuary in both the formulation of investment policy and the periodic review of its validity is essential because many of the prime determinants of policy rest on actuarial assumptions. As a result, the investment manager relies on the actuary in a very fundamental way.

The nature of the life insurance industry calls for a relatively conservative investment policy, with safety of principal being of highest importance. Within this constraint, however, the degree of conservatism that is appropriate can vary considerably as a result of the business and financial characteristics of each company.

The primary step in the development of investment policy for a life insurance company is a review of basic company fundamentals. The actuary must consider the financial condition of the company, as measured by the quality of assets, the nature of liabilities, the size of capital and surplus, the pricing assumptions used, the rate of acquisition of new business, expectations for cash flow, and taxation. These factors are important in determining how conservative investment policy must be. The type of business in force and written, retention policies, and exposure to withdrawals of policyholder reserves are relevant in estimating the possibility of sharp and unexpected changes in cash flow. This affects the liquidity levels that will be specified in the investment policy statement. To the degree that the condition of the company is strong, its cash flow is positive, its pricing and asset valuation policies are conservative and its exposure to unexpected cash drains is small, investment policy can be less conservative.

The review of company fundamentals should lead to the quantification of a minimum acceptable investment return. At this point, actuarial, management,

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and investment personnel should be able to set the basic investment return objective for the company and proceed with the development of investment policy. It is important to be precise on the mix of income and capital gains that will be acceptable in meeting the investment objective. Additionally, liquidity needs, constraints on capital losses and tolerance for volatility in market value of investment assets should be specified for the investment manager.

The next step in the investment policy making process is the determination of the allocation of funds among various types of investment assets. This includes the specification of target ranges for mortgages, bonds, preferred stocks, common stocks, and money market instruments. Naturally, legal restrictions must be considered at this time.

Beyond the development of the investment objective and the asset distribution goals, several important strategic factors must be addressed. One of these is the maturity distribution of the fixed income portfolio. The question of whether to match assets and liabilities must be resolved. The issue of matching is related to investment performance. Matching will limit the flexibility of the investment manager to adapt to or to exploit change, and, thereby, it is almost certain to reduce investment returns. Additionally, to match according to the maturity of liabilities suggests that policy reserves are not subject to large scale withdrawal. This could be a dangerous assumption. In determining investment policy on maturity distribution, both the desirability of locking up yields that are higher than premium assumptions and the liquidity risk associated with investing in longer term issues must be considered. It is necessary for the investment manager to have guidance in this area.

A related factor, the importance of protection from call, refunding, and sinking fund demand for fixed income securities should not be overlooked. To accept the risk of investing in long term issues and then to lose the bonds involuntarily during a period of low interest rates would be unfortunate.

Flexibility to invest across the legally acceptable quality spectrum is another important investment consideration that must be addressed. The increasing volatility of the financial markets has been reflected in dramatic variations in spreads between yields on high quality and lower grade credits. If insurance products are priced on the basis of a low risk investment, the investment manager should be able to upgrade and downgrade when appropriate. Otherwise, the premium for downgrading on the investment side is lost and the investment manager may be left with considerably less flexibility. This tends to reduce total return.

Diversification requirements must be specified as well. Investment diversification consistent with retention decisions appears to be impractical and unnecessary. In fact, to diversify to that extent would reduce total return. Of course, the consequence of underdiversification can be financial failure. In addition to the types of diversification required by the regulatory authorities, it is prudent to avoid excessive concentration of investments within a single industry or geographic location, with large and coincident cyclical characteristics and with relatively little liquidity in the securities markets.

Other practical issues must be addressed in the development of an investment program. The actuary can provide important guidance on whether an investment

staff should be developed in-house or whether outside investment managers should be retained. The size of the asset pool will have a major bearing on this decision as will the existing investment capability within the company.

Once investment policy has been developed, the actuary has a major responsibility to help determine the method by which investment performance is reviewed and to review periodically the validity of investment policy and the effectiveness of the investment manager in meeting its constraints and fulfilling its requirements.

It is important to evaluate both investment policy and the manager over a period of time that is sufficiently long to allow fair judgment. Where general competence is apparent, a period of one or two market cycles may be needed to make a thorough evaluation.

Another practical matter is the requirement for finance committee approval of investment decisions. To require the investment manager to obtain committee approval before acting on specific individual investment decisions may limit results. Thus, it is important to provide a mechanism for post transaction ratification of normal investment activity. Pre-transaction approval would appear prudent for unusual investment decisions, including normal types of decisions that are to be taken in unusual size and changes that could have major tax effects.

If the development of investment policy requires a major shift of assets from one type of security to another for a given company, it is extremely important to know where the various markets are priced relative to their historical parameters. The movement of a sizable amount of funds from one market to another should be undertaken very carefully in order to avoid major exposure to capital loss and to exploit the potential for gain that can be achieved through correct timing.

It is imprudent to establish an investment policy which assumes life insurance company cash flow will continue to be positive. Further, to view liquidity requirements associated with policy loans or guaranteed cash surrender values as more legal than real may be extremely unwise. It is true that the industry emerged relatively unscathed from both the Great Depression and the recession of 1973-75. However, the cash drain on reserves and the decline in the market value of investments for the industry were substantially larger than anticipated, and some companies were badly hurt.

There is little indication that the secular rise in the rate of inflation and interest rates has ended. Thus, the threat of disintermediation remains at a time when the consumer is becoming more and more sensitive to inflation and more concerned about the purchasing power loss of the life insurance product. The possibility of the development of a new substitute product for life insurance at an inopportune time could exacerbate this problem. Likewise, there is little to justify the expectation that the increased volatility of the securities markets will give way to greater stability. On the contrary, there appears to be in progress an increasing concentration of wealth and investment decision making power worldwide, a rising sensitivity to investment alternatives, a transition in the valuation process for common stock, a continuing large net new financing need on the part of the Federal government, and a weakening of the dealer community at large. The possibility of further extraordinarily large fluctuations in the market value of financial assets must be considered.

The life insurance industry has a very small capital cushion - less than ten percent of total assets. Securities valuation reserves are inadequate to protect capital and surplus from the large swings in the prices of financial assets that have characterized recent cycles. In fact, some companies had negative capital and surplus on a market value basis at the bottom of the last bear market.

The probability of large scale withdrawals of policy reserves has increased and the industry is ill equipped to deal with such a development, which would in all likelihood require the sale of financial assets at a time when they were extremely depressed. This view indicates that the investment policies of life insurance companies need review and change toward a more defensive investment approach that places greater emphasis on liquidity. In this respect, the actuary has a very important professional responsibility to quantify the impact on future cash flows of these various contingencies and to work with the investment manager to adjust policy where necessary to reflect the resulting new possibilities.

MR. ROBERT F. LINK: My remarks cover Question 1 -- "the development of investment objectives, strategies, and plans as an integral and functional corporate activity," and Question 2d -- "management of risk exposure." My perspective will be based largely on the environment at the Equitable Life, which probably has little material difference from the environment of many other mutual life insurance companies. We are a divisionalized company with a corporate operations area and four line operations areas: Investment, Agency, Group and Health, and Individual.

The definition of investment objectives, strategies, and plans is critical for us. We need to make sharp distinctions between our various accounts. In addition to the general account for our traditional insurance business, we have several insurance subsidiaries with their own general accounts, various separate accounts, a real estate investment trust, etc. I plan to concentrate on the general insurance account.

The first step in relating investment strategy and planning to fundamental corporate activities is to define what the corporation is trying to accomplish. The Equitable's purpose is to provide insurance products and related services to help people achieve and sustain their financial well-being. In rough priority order, our goals are:

1. We want to achieve a state of financial safety and continuity. This means that the probability of disruptive mid-course changes in business plans due to unexpected surplus depletion should be fairly low and that the probability of insolvency should be very low.
2. We want to do well by our customers. This means favorable net costs, and it means all those other aspects of service, policy design, etc. that make the customer satisfied with the relationship.
3. We want to grow. Companies vary in the measurements they use with respect to growth; we emphasize life insurance in force, total income, and total assets.
4. We want to be socially responsible in an active and creative manner.

This is the context within which investment strategy for the general account is developed. For a variety of reasons, this context is quite different from that of many other investment institutions or major portfolios such as pension funds, banks, etc. Some of the major elements of context, with emphasis on the differences, are as follows:

1. A life insurance company is heavily leveraged. Surplus including MSVR is typically in the 5% to 10% range -- in other words, we are leveraged in the ten -- twenty to one range. A 5% asset loss approaches disaster.
2. Consistent with the nature of our business, we attempt to overcome the hazards imposed by leverage by matching investments to liabilities. This can involve maturity matching. More importantly, it involves matching of pay-off mode. Conventional fixed income contracts are supported primarily by bonds and mortgages; investment indexed contracts are supported by the investments in the index; and inflation indexed products should theoretically be supported by investments payable in inflation indexed terms. The general point is that investment strategy is closely tied to product strategy.
3. In addition to investment risks, we must provide for other kinds of risks, primarily those that affect claim rates.
4. Our heavy concentration in long term direct placement bonds and mortgages without market values requires us to define carefully our liquidity needs and our strategy for meeting those needs.
5. The practice of carrying many assets at cost or amortized value, along with the absence of a true market value for those assets, creates certain management problems. For example, in a period when interest rates are higher than the levels that prevailed on the average as the present portfolio was acquired, any loss due to default or downgrading of an asset will be magnified by the difference between amortized value and actual or estimated market value. That difference also intensifies the dangers of a major disintermediation.
6. Investment performance in the general account is difficult to measure and appraise. No one has any trouble producing reasonable suggestions for measuring performance and setting goals with respect to separate accounts invested in common stocks, for example. However, I am not aware of any generally accepted analytical framework, acceptable to investment people and also to insurance product people, to do the same job for the general insurance account. New money rates and average portfolio rates have obvious defects. One problem is that what companies publish on that subject is quite variable from company to company. Also, the new money rates do not mean anything apart from some knowledge of quality or risk. The key point is that the goal of the investment people should not be to manage so as to make the measurement look good but to reach an optimum balance of short and long term real results, risk-adjusted. The appraisal of general account investment performance is an area of major challenge for actuaries, investment officers, and others involved in creative planning and management.
7. In the past, there has tended to be a communications gap between the investment officers and the insurance officers. More recently,

companies have addressed this gap directly and taken steps to overcome it. In the Equitable, we have joint consideration of plans and results at the corporate level, which provides a forum for the discussion of those issues where investment operations interface with other areas. In addition, we have established a committee that meets regularly to discuss the relationship of the investment function to the insurance function and to work on ways to improve it.

8. We must invest within the requirements of applicable state law (e.g., New York Section 81).
9. Cash flow is relatively predictable (though several speakers at this meeting have raised questions on this score).
10. The peculiarities of Federal income tax rules are a significant factor making our utilities at times different from those of other investors.

What are our strategic objectives with respect to investment operations for the general account? We have two broad areas of objectives. The first is to maximize total investment yield over time. "Investment yield" of course includes all relevant elements, such as capital gains and losses, market value changes where applicable, etc. This is the turf of investment experts.

The second objective is to optimize the effect of investment operations on the company surplus. This means keeping real losses within acceptable limits. It also means the same for market value fluctuations. It means appraising your disintermediation hazards and providing appropriately for them so as to avoid forced liquidation in a depressed market, and it means paying close attention to strategy with respect to those investment classifications which, while offering expectations of high long run pay-off, tend to affect surplus negatively in the near term.

Let me amplify that last point for a moment. Common stocks create a problem, because the net return after Mandatory Securities Valuation Reserve (MSVR) contributions tends to be highly unfavorable while the MSVR is in a building stage. Also, there are real estate investments that tend to produce substandard results at the front end. To deal with questions of this nature, we have developed a process for budgeting projects or activities that consume present surplus on the way to an ultimate future gain. It applies to deferred income investments, major new product initiatives, large new software systems and similar activities that use surplus.

We determine that amount of surplus that we are willing to divert from retained earnings for investment in future growth. We then consider all of the proposals for using that surplus. The total proposed uses will typically exceed the available amount. Therefore, investment proposals that have substandard front-end payoff must compete on a priority basis with other proposals for using surplus.

What about actual surplus depletion through investment losses or market value changes? How much of a real problem is there? At the Equitable, we have been working on this by a simulation process, using Monte Carlo concepts. We simulate future operations with a model that is patterned after the ruin problem of risk theory. The model accepts as input a description of our risks and a statement of surplus management strategy. It then simulates

twenty years of future operations many times over (5,000 is a standard run). This sample gives an indication of the probability of becoming insolvent in the twenty year period, and also the probability of a surplus crisis calling for emergency action. Thus, the model helps us to appraise our risks in concrete terms.

What the model tells us depends directly on what assumptions we give the model concerning our risks and our surplus management strategy. This discussion will not cover surplus strategy but will describe significant elements of our risk assumptions. The model simulates for each year the difference between the actual and planned increase in surplus (that is, the experience variance). This process contains four elements which are (1) a simulation of the experience variance arising from common stock results; (2) a simulation of the experience variance arising from all other causes; (3) a special process to cause the experience variance from all other causes to correlate to a controlled degree with the common stock results; and (4) a probabilistic simulation of partial recoveries of unusual losses (other than losses from common stocks). I will describe each of these elements briefly.

1. For common stocks, the model permits an assumption that the common stock portfolio is the lesser of a percentage of assets and a percentage of surplus. This amounts to saying we want a program of a certain relative size, but we are going to sell off if our surplus runs down. The program simulates the experience variance from that assumed common stock portfolio on the basis of a probability distribution derived from one hundred years of total investment results on the Cowles and Dow Jones. The probability distribution is log normal with standard deviation of 18% for one year. Since we are dealing only with a variance, the average is 0 by assumption.

There are several topics in connection with common stocks that we are still analyzing. First, is log normal the best assumption? There is some evidence that the distribution of common stock variances is heavier in the center and out on the tails than it is on the shoulders, relative to normal, i.e., leptokurtic. Some students of this subject believe the stable Pareto curve with α less than 2 fits the data better. The Pareto curve has an infinite standard deviation, which is kind of scary.

Then there is the question of whether the probabilities for future investment performance are a function of anything we know currently, such as recent past performance, price-earnings ratio, or other indicators of underlying value. Autocorrelation is the word that is used to describe studies in this area. Again, opinions vary as to the reality or importance of this factor.

Third, we recognize that our strategy description for the common stock portfolio may be inadequate. For example, it does not permit us to simulate a strategy suggested by Don Cody of New England Life last year. Under certain conditions, Cody would have you sell off common stocks at a rate faster than the decrease in surplus. We intend to fix the program so that we can investigate Don's strategy.

2. How about all the other risks? We constructed a distribution function of other risks in two steps. First we looked at the Equitable's annual increase in surplus over the period from 1955 to 1975. We removed common stock results, all other surplus changes that we believed to be due to

management action, and the effects of the Penn Central default. From the data that remained, we constructed a normal distribution, expressed as a percent of the statutory liability base. It had a standard deviation of 0.22%.

We then dreamed up a set of probabilities of very bad events of magnitudes that would cover all of the losses that we thought it reasonable to provide for. If today we had another cataclysm similar to the great Depression we could expect to lose somewhere between three and five percent of our assets. We have assigned that a 1% probability in a year, which is equivalent to once every hundred years. Jay Forrester of MIT has been doing some work which suggests the frequency is once every fifty years, matching the Kondratieff cycle. Incidentally, Forrester has recently come out with something that says that the three cycles (five year, seventeen year, and fifty year) are all going to come together in the next five or ten years and give us bad times. We allowed for a loss of at least 1% (Penn Central magnitude) every twenty years. The 1% losses include the 5% losses. These magnitudes were primarily based on our analysis of investment possibilities. However, the magnitudes turned out to be sufficient to cover, in our estimation, epidemics, disasters, surges in health care costs, etc. This tail was tacked onto the normal curve derived from experience, to get a composite distribution that was heavily skewed on the negative side.

3. We assumed that the non-common stock surplus variance would correlate with the common stock surplus variance. The model includes an input factor that we can use to control the degree of that correlation. We correlate the other variances to the stock variances rather than the other way around. The trick is to get correlated results without distorting either distribution. We have discovered two different techniques for this purpose, and we are now trying to figure out how to decide which is better.
4. Our model permits us to assume that negative variances other than those from common stocks may be recovered. Several parameters affect the amount and probability of recovery. However, we have discovered that the recovery factor has a very small effect on results and strategies, and we really have not used it much in our investigations.

Finally, we are working on some enhancements to the scope and fidelity of the model. First, we hope to change it into a multiple risk base model that will permit us to test different mixes of investment portfolio and insurance products. This is forcing us to be much more specific about what our risks are in each area of our operations. It will help to search for strategies that are optimum from a risk and surplus production viewpoint. Second, we want the model to simulate the MSVR. This will permit us to test insolvency on an annual statement basis even when surplus accumulation strategy treats the MSVR as surplus.

The natural question is, have we revamped our investment strategy or our surplus accumulation strategy as a result of these exercises? To put things in perspective, we got our first credible results last summer, so there has not been a great deal of time for this new tool to have been absorbed into our management thinking. It has given us more confidence in setting surplus objectives. We hope to use it as a tool for appraising strategies for growth,

product mix, and portfolio management. Our work is at most provocative, and clearly not definitive at this time. If it ultimately causes us to improve our common stock strategy, that alone would make the effort highly cost-effective.

MR. DONALD D. CODY: At New England Life, we have been carrying on a similar study to Equitable's, except that we have been using a deterministic process that has some collective risk aspects to it in the classical claims area. It essentially involved our running various economic scenarios and considering the sort of surplus that is needed for protection against the asset credit losses from defaults, the loss of investment income from defaults, taking into account our recoveries and also the interrelated liquidation that comes from various combinations of product designs, notably those involving cash values without pass-through, such as an IPG group annuity or individual deferred annuities. I thought it would be interesting to comment that Harry Garber and Bob Link at the Equitable have come up with almost identically the same questions. This adds credibility to what the Equitable is doing with their stochastic model. The two studies do support each other and I would recommend that other companies try the deterministic technique, which is much faster than building models.

MR. MALCOLM R. REYNOLDS: In my remarks on coordination of asset management with the evolving liability structure of a life company, the emphasis will be on Canadian practices. I will outline why some program of asset-liability matching is required and then deal briefly with past and present practices and also with the probable future development of these practices.

Prior to the mid-1960's little detailed thought had been given to the question of the appropriate relationship between assets and liabilities of Canadian life companies. Our cash flows were strongly positive and very stable from year to year. The existence of cash surrender values and policy loan privileges was not regarded as a serious risk of short term demands by policyholders. Life companies' investment policies, therefore, consistently called for investment of funds in long term assets. Even the introduction of new money products several years ago did not particularly affect investment practices since the funds were presumed to be invested in long term assets. Therefore, with the general directive to invest in long term assets the investment divisions typically carried on their operation quite independently of the rest of the company.

It is noteworthy that the lack of attention to matching the term of assets to that of liabilities was not a problem unique to life insurance companies. In Canada both the banking and the trust and loan industries have experienced downward pressure on earnings during periods of rising interest rates as a result of their assets being of a longer term than liabilities. Both industries have taken steps in recent years to redress this imbalance.

Sharply rising interest rates in the late 1960's to levels well in excess of the policy loan rate led to substantial policy loan demands. At the same time, considerable funds were also lost to cash surrenders and withdrawal of amounts on deposit. For some companies in certain periods of time the only cash available for investment was that arising from principal repayments and maturities of existing investments. In the 1970's the very high level of interest rates and inflation in the United Kingdom were indicative of the possibility of interest rates and inflation in North America reaching

very high levels as well. These events naturally called into question the basic assumption that our primary liability is very long term in nature. The duality of the life insurance liability was brought clearly into focus.

Cash flow projection techniques and computerized corporate models have since been refined to assist in setting companies' forward commitment policies. These tools will assist in avoiding the kind of sudden cutback in investment programs that was necessary in the late 1960's.

The introduction many years ago of new money products had no particular impact on the investment operations of Canadian life companies. The interest rates and roll-over assumption contained in the pricing of such products were consistent with investment practices of the times. That is, premiums were assumed to be invested in long term assets which gradually rolled-over at future interest rates. Recent strong client preference for much shorter roll-over periods has led to heightened concern for the matching of such liabilities with current investments. Furthermore, the introduction in Canada by several companies of a short term savings product for individual clients with guaranteed interest rates for five years has led to further questioning of the standard long term investment policy of the life companies. Clearly, if we are going to sell substantial amounts of business with guaranteed interest rates for, say a five year period, we must either invest the proceeds in five year securities or run the risk of taking a capital loss on the asset at maturity of the liability five years from now.

In Canada we have had the introduction of a new product which is a deferred individual annuity with a guaranteed interest rate for the first five years. The cash surrender value is guaranteed only at the fifth policy anniversary, at which time the interest rate for the next five years is established. The obvious assets in which to invest the premium income from this product are single-family mortgages which in Canada are presently yielding 10½% and are typically written with an amortization period of twenty-five years and for a term of five years, with the interest rate to be reestablished every five years.

The Mutual Life has experienced tremendous success with this product, which in its first year, 1976, attracted premium income amounting to about 20% of our total cash available for investment. While we were already active lenders in the single-family mortgage market, it is obvious we had to increase that activity considerably in 1976. At the same time, our group division was experiencing pressure from a variety of clients to move from average money to new money interest assumptions with a relatively short roll-over term. This change also resulted in reference to the five year mortgage interest rate in setting the interest assumption in that product's pricing. Some form of monitoring system was needed to insure that in pricing our products we were not assuming a greater amount of investment in five year term mortgages than we were in fact making in our investment program. We also recognized the need to insure that the assumptions built into our new money products were not having the effect of commandeering for the benefit of those policyholders the most attractive types of investments being acquired, leaving the less attractive asset classes for the average money block of business.

Within the broad topic of "coordinating asset management with the evolving liability structure of life company," there are a number of topics which must be adequately addressed by any system which is intended to result in such coordination. These topics include product pricing, the allocation of

investment income by line of business, immunization, formulation of investment objectives and strategies and measurement of investment results. Clearly the interest assumption inherent in product prices must be consistent with the investment practices of the company. Also, any method of allocation of investment income by line of business must be consistent with both the interest assumptions contained in the product pricing and the investment practices of the company. Where a company has a mixture of new money and average money products, meaningful results cannot be achieved by use of an average money concept in the allocation of investment income by line of business.

While the term structure of the asset portfolio need not be identical to the term structure of the liability portfolio, any differences should be introduced only with a clear understanding of both the risk being taken and the availability of surplus to cushion that risk. To implement a system of coordinating asset management with the evolving liability structure the following steps must be taken:

1. The term structure of the existing liabilities should be analysed.
2. In the case of non-participating business an asset portfolio structure that would insure the meeting of those liabilities should be defined (i.e., the immunized position). Alternatively, in the case of participating business, the question is not so much solvency of the business as it is "how sensitive do we want the dividend scale to be to future changes in interest rates?"
3. Having regard to the risks involved and the surplus available, the maximum permissible degrees of variation from the immunized position should be established.
4. Actual investment experience should be compared with that assumed in the pricing structure and also with the immunized position. This gives a measure of the investment performance.

This outlines an ideal approach which on paper seems reasonable but to date has defied practical implementation in all but one of the companies with whose investment operations I am familiar. This is probably due to both the autonomy with which investment operations have been carried out relative to the marketing and insurance operations and also until recently the dominance of long term liabilities and, therefore, the absence of a need to invest in intermediate term assets. In view of certain trends that have been in place for several years, I expect that within the next few years several Canadian companies will implement formal asset-liability matching processes of the sort that I have just outlined.

Having recognized the need to refer explicitly to the nature of the company's liabilities when establishing investment policy, what approaches have some companies developed to insure that their asset management is in fact coordinated with their evolving liability structure? I will outline two possible approaches to this problem. One is to monitor product sales through the year and compare the results with the investment activity of the year to insure consistency between the pricing assumptions inherent in the products sold and the mix of assets acquired. Alternatively, the company can establish separate asset portfolios for different types of business being sold. Under the separate portfolios approach, product lines can be grouped in various combinations for the purpose of establishing separate asset portfolios.

The monitoring approach is by far the most commonly used in Canada today. This is not surprising since the need for careful matching of assets with liabilities is a relatively recent concern. The monitoring method is simple to implement. One need only summarize the sales for the year by policy type and premium income and then assign an appropriate assumed asset mix to each type of product. Then by summing the required investments in each asset type one gets an indication of the appropriate investment strategy for the year.

While the monitoring method has the advantages of simplicity and ease of application, it represents only a very approximate approach to insuring that asset management is consistent with the company's evolving liability structure. Some features which it does not satisfactorily deal with are:

1. The emergence of actual experience different from the expected experience at the time of placement of business, e.g. cash surrender experience in connection with deferred individual annuity products.
2. Trading of assets which result in altering the expected cash flow from the assets, e.g. a term extension in the bond portfolio.
3. Maturing assets held with respect to persisting average money business.

Another problem that arises in the application of the monitoring approach is that while having an asset mix different from the immunized position results in risk, the amount of risk for a given variation from the immunized position can be different for different classes of business. For example, in the case of annual premium participating life the dividends represent a substantial cushion for investment risk, whereas in the case of single premium non-participating annuities the profit margins are so thin that little investment risk can be tolerated without relying on corporate surplus for protection. It may, therefore, be advantageous to establish different investment policies and strategies for these very different lines of business.

The separate portfolio approach to asset-liability matching can be applied with varying degrees of detail. For example, a company might establish a separate portfolio for each of the following lines of business: individual life par, individual life non-par, individual annuities, group life, and group annuities. (I am using the expression "separate portfolio" to refer to different portfolios of specific assets only notionally held with respect to different blocks of liabilities but legally available for the satisfaction of any claims against the company. I am not referring to "segregated funds" that are held with respect to policies whose values vary with the market value of such funds.) In addition, if a company operates in more than one country then each of these separate portfolios would be established for each country of operation. Alternatively, a less detailed approach would be to establish separate portfolios for average money products and for new money products with perhaps a third one for corporate surplus.

The very detailed separate portfolio method has the advantage that the allocation of investment income by line of business is quite obvious and readily understood. For some companies whose management structure is consistent with the detailed funds approach this method can be advantageous in the measurement of performance of the different management sectors. However, it does have the disadvantage that it sacrifices some synergism which can be achieved by combining various lines of business. For example, it has

been the practice of British companies for some time to sell balanced amounts of annual premium non-par life and single premium non-par annuity business. By investing the annuity premiums in assets with a longer term than is required for the annuity liability the company is, in effect, investing future non-par life annual premiums at today's interest rates, thereby assuring the assumed level of investment return on the non-par life business.

Alternatively, by establishing separate asset portfolios for only new money products, average money products, and surplus, the synergism referred to is retained. At the same time such a categorization of assets and liabilities enables both the matching of current investments with current product sales and the periodic examination of existing asset and liability portfolios to insure consistency.

The establishment of separate asset portfolios for different types of liabilities enables more complete coordination of asset management with the evolving liability structure than is possible using the monitoring approach. Unfortunately, it is obviously a more complex and costly approach as well. However, with increasing computerization of asset records, as well as policy records the establishment and administration of a separate portfolio approach may not be unduly costly for many companies.

Three important trends in the life insurance industry in Canada that have been evident for several years are having a substantial effect on the need for harmonizing asset management with the evolving liability structure. The first is the increasing importance of new money products in our mix of business. The second is the trend in individual business toward an increasing split between insurance and savings products. This trend is bringing us continuously into more direct competition with other financial intermediaries. The third trend is toward shorter time horizons in financial planning of individuals. This implies a greater emphasis on shorter term guarantees in our products which in turn leads to shorter investment time horizons.

The wide variety of insurance and annuity products offered today together with their different and varying rates of growth within companies indicates a need for matching the assets to the liabilities of those companies to avoid the risk of substantial losses in the event of widely fluctuating interest rates. The choice between application of a simple monitoring system or the use of a separate portfolio approach will depend upon the particular characteristics and circumstances of each company. In addition the choice will very much depend upon how each company expects the future to unfold. Are the Canadian trends I referred to just passing fads or do they represent fundamental changes in our business? In my opinion they represent fundamental changes that will be with us for many years to come. This, in turn, leads me to conclude that the need for more detailed attention to the coordination of asset management with the evolving liability structure will continue to be of increasing importance to the management of our business.

MR. ALLAN B. ROBY, JR.: Is the concept of separate portfolios for the purpose of allocating investment income legal in Canada? I do not believe it is in the United States (or at least not for a company doing business in New York). Are you actually doing this?

MR. REYNOLDS: My company is not actually doing it, but I know one other company that is very close to implementing such a thing. I do not see any legal obstacle to implementing such an approach.

MR. RALPH H. GOEBEL: Our variable annuity contract allows the individual to put money in either the fixed or variable account and to periodically elect to switch prior contributions from one to the other. I am concerned about people moving their money so as to cause a loss of assets. How many companies have this type of product, and how do they handle that problem?

MR. CODY: Whether or not a company has the product as described, we all have similar business which is subject to the same risk. This is one reason why we should look at a surplus theory to fit this kind of problem. If you are paying lower than a new money interest rate on it, then the difference between the new money rate and the lower rate ought to be put into surplus buildup. We should take these things into account.

MR. LINK: To what extent will the people who hold contracts of this kind exercise the opportunities in a manner that anti-selects against the insurance company's investment policy? We tend to think that they all think like us and maybe they do not. Maybe they decide "I will put 40% in fixed and 60% in stocks" and relatively seldom switch. We probably do not have enough experience to know that yet, but there are some indications that that is the way people behave.

MR. PETER F. CHAPMAN: One important consideration is how broadly distributed the assets are. It makes a difference whether there is a concentration controlled by few sophisticated money managers and corporate treasurers or whether we are dealing with the probability of simultaneous action by a number of independent policyholders.

MR. DAVID J. CONGRAM: In looking at the matching of assets and liabilities, particularly in an ordinary life policy, there should be some guidelines as to when you would be moving out of a match position. How do you look at loans and cash values in making that decision? In a notional split of a portfolio, how do you deal with asset default?

MR. REYNOLDS: Your question involves the duality or multi-faceted nature of the liability of the annual premium life insurance product -- the fact that it is both a short term liability since we are exposed to the risk of cash surrender or policy loan and a long term liability. One can use immunization techniques to determine, even in the case of a par contract, just how long an investment you need to have to insure your present dividend scale. You have to make the assumption that not all of your policies will be surrendered or loaned against in the very short run. You should take a block of business and make what you would think might be the worst case type of scenario and insure that your assets are sufficiently liquid to meet that type of scenario. Concerning the question of default in the case of the notional assets, the separate portfolio arrangement is really for the purpose of performance analysis and determination of results. I do not see any particular problem in bolstering a particular fund by making inter-fund transfers, in the case of a very substantial default that might undermine what could be considered the solvency of that particular fund. Many of the investments would be so large that they would be held prorata in a number of the funds, so that the experience of a single fund

may not be all that different from your present experience with the normal approach.

MR. WYAND: Things really look great in the economy. We have powerful momentum and we may be experiencing a classical cyclical expansion. We have major impetus in the consumer sector from housing, from autos and from inventory accumulation. The economy really has been very strong since last November, although certain factors have kept it from showing. The administration's tax package, if passed, would provide assurance to business that consumer spending was going to continue for a while. This might overcome the great caution we have seen on the capital spending side and release a capital spending surge. If that is the case, then we do have a classic business expansion that certainly goes through 1977 and well into 1978. Now, if we have the sustained economic expansion with monetary policy presently accommodated and with the Dow Jones industrial average at nine times earnings, we should be really bullish, right? Wrong. As the economy expands, the Federal Reserve Board will be tightening as the summer comes along. Additionally, inflationary pressures will intensify over and above the effects of food and energy. In this environment, I can see no fundamental reason why interest rates would not go up. Interest rates will rise all along the yield curve, with the greatest rise at the short end and somewhat smaller rises at the long end this year and will probably rise again next year. Treasury bills, which are now in the 4.6% area will be up around the 6-6.5% area by year end; and long rates, using AA utility new issue, will rise from the present 8.4% to around 8.75% by year end. Now the extent of the rise next year is going to hinge basically on this question of capital spending. We could have the economy slow down after two really fabulous quarters, the second and third quarter of this year, which would mean a slowdown late this year and early next year. If that is the case, the rise in interest rates may not be as great. If the capital spending surge does come along, then we will see interest rates going right on up and perhaps moving into the 9.25-9.5% range on AA utilities. Short rates, of course, will be coming on up, possibly reaching 7.5% on the bill rate in that year. I recognize that it is very foolish to make interest rate projections in a public forum but I thought you might like to know what we were looking at and why our fixed income policy is defensive at this point. However, we do expect a rally in the bond markets and that should come fairly soon, over the next month or so. It may be that yields will go as low as they were at the trough in December or it may be that they will not get that far. At any rate, we believe that we are entering a cyclical period where interest rates rise and that the great interest rate bull market of 1975-76 is over.

Turning to the stock market side, there are really two things that are affecting the market. The first is that people are afraid of inflation. Institutional investors remember what happened in 1973 and 1974; they were caught and hurt very badly and they do not want to experience it again. So we have a fear of inflation and we know that that takes stock prices down. The other thing that we think is happening is a transition in the common stock valuation process underway that is going to last for some time. We have been expending considerable effort on this and we suspect that the valuation has something to do with yield on a dividend basis and the growth in dividends over time. This gets back really to Graham and Dodd and to a fairly classical valuation of common stocks method. In the period when dividend rates were above yields on long term bonds, the Dow Jones was at a considerably lower level than it is today. We are in a dilemma as to

what is going on precisely, and as a result of that, our investment policy is much more conservative than it would be in the common stock area if we felt that the valuation method of the past few years was appropriate. When we feel comfortable we will be able to take some definitive action; right now we are in the process of building reserves.