

# RECORD OF SOCIETY OF ACTUARIES 1983 VOL. 9 NO. 1

## INVESTMENT STRATEGIES

*Moderator: JOSEPH F. CROWE. Panelists: DANIEL J. MC CARTHY, ALAN W. SIBIGTROTH, WARREN A. JOHNSON\*. Recorder: JOHN B. KLEIMAN*

Consideration of the investment strategies needed to meet the performance requirements of traditional business, as well as those of the interest-oriented products being developed. The investment function will be examined from the standpoint of it being an integral part of the company's marketing operation. Specific items to be covered include:

- Importance of Segregated General Account
- Role of Separate Account
- Role of Interest Rate Futures
- Interaction among investment, actuarial and marketing organizations

MR. JOSEPH F. CROWE: Because our panelists have so many different ideas they would like to cover this afternoon, and so many things that I think will be interesting and useful to you, we have tried to structure a program where these ideas can be brought out in a logical and understandable fashion. We have broken the program down into four sections and in each of the four sections each panelist will in turn present his views. In the first section, each panelist will provide his thoughts and opinions on some changes that have occurred in the insurance industry and the financial environment in which we have operated in the last several years, and what some of the implications are for us. Next, we will take a look at a specific product, in this case a single premium deferred annuity, and describe some of the product and investment concerns that surface and how one might address them. Third, we will want to talk a little bit about an existing block of business and insurance assets, talk about some of the concerns here that might be a little different than with a new product and how they might be addressed. Finally, each panelist will try to summarize, by making some specific points in which they have a particular interest and also making some observation on where we might be going in the future.

We will start out with a review of what has happened that has impacted our operations in the last few years, and what the implications are for us. I will ask Dan McCarthy to lead it off.

\*Mr. Johnson, not a member of the Society, is Senior Treasury Officer of New England Mutual Life Insurance Company.

MR. DANIEL J. MCCARTHY: I have noticed over ten or eleven years of sitting with different companies and talking about different kinds of products, and just watching the pricing and design process emerge, that I have seen an interesting evolution in the way people think about how their dollars are going to be invested and what that means as a part of planning of the product. I think it is safe to say, that if I turned the clock back eight to ten years, the subject pretty much began and ended with: What is the assumed interest rate? Or if you were doing something really fancy like single premium immediate annuities, you might concern yourself with some rollover rates and a reinvestment assumption down the line a little bit. Other than that, it was assumed to be essentially gospel, that what you really wanted was a safe high yield, and the longer the better. After all, we had long term liabilities and therefore we should have long term assets. In those days there were also things that were long term assets, or presumed to be, so the discussion tended to be very brief and investment strategy, as such, wasn't really talked about. There was very little linkage between any strategy on the investment side and product design. I would say that over time, that began to turn and certainly the events of about three years ago made it turn a little more rapidly when companies began having cash flow problems. But even then, the first reaction tended to be that cash can go out as well as come in. But what that means, is that we should keep doing what we always did before, but only be a little bit more liquid so that we can deal with these cash outflow problems when they occur. And, there was a period of time during which that was the view. Even if the right rate to use is 10% or 11% on long term investments, don't assume you can really earn that much because we are really going to have to keep 5% or 10% or some percentage short. That might pass for investment strategy in some kind of rudimentary way, but that was the way the conversation tended to begin as people began to become aware that some of these liabilities were not quite as long as they had thought.

Then, as the crunch got more severe, other kinds of concerns began to emerge. For example, we dealt with one situation almost three years ago, as the crunch was really beginning to build up, when companies were beginning to say, well, what we are going to have to do for a while is shorten our assets at all costs, and never mind what particular kind of product we are dealing with. If we have to, we will sell a five year guaranteed investment contract and invest short. Invest for three months, six months, or use it to pay outgoing cash and recognize as we are doing so, that we are going to have to make assumptions in the pricing of the product that will bear no relationship to what we are actually going to do with the money, because we have the over-riding corporate need to do something else with the money. So, we will just price the product, perhaps against some theoretical basis, or against whatever it takes to get the money in the door. We went through a period of time where the cash strain was so great that investment strategy was recognized as an issue but had to be divorced from the logical needs for cash.

Out of that came a number of things that we will talk about later on with this panel that led to things like segmentation and other analyses of investment requirements by product line, that I think have been useful steps, but have some problems of their own. I will talk about these later.

Let us look at investment oriented products. Isn't that an interesting phrase "investment oriented". If a product is investment oriented, you might say it is "investment unbundled". In practice, a permanent whole life product, par whole life, which a lot of companies are still selling is also investment oriented, but that is not what the phrase is meant to mean when people use it. When people say "investment oriented" they want you to know that they are talking about annuities, universal life contracts, or something else that is distinctly unbundled. When we turn today to investment oriented contracts, the thing that fascinates me is that everybody has a theory. Theories are not always the same, but still everybody has a theory and this makes life very interesting. How about "Hedging will save the world". Now that's a theory and there are some people who believe that. How about "Real estate will save the world". That's another theory that some people believe. How about "The last three years won't happen again". There might not be as many people who would believe that, but there are some and their number is beginning to increase, little by little, because events of the last three years are beginning to fade in the background. And how about, "Even if they do, we muddled through it before and we will muddle through it again". And how about, "If we muddled through it once, we will be better equipped to muddle again"! That's a theory that actually most people won't admit to, but more believe it than you might think. In any event, it's an interesting world. Personally, I would rather have the theories. I'd rather have someone say this is my concept as to how I am going to approach the question: we are going to invest this way, analyze, and this is where we are going to go from here. I would rather have the theories than the unawareness of ten years ago. The theory, even if proven wrong, at least gives you a basis for modification, analysis, change in the future, trying a different theory or product. At least, the issues are being faced more directly today. The change in the last ten years is a change from not recognizing the issues that were there anyway to recognizing issues and facing them, even with theories that aren't necessarily going to hold up as we evolve into the future. That to me is the way the last few years have spun out in this regard. But, of course, I am only an actuary.

MR. ALAN W. SIBIGTROT: Historically, actuaries have played an important role in the development and management of the insurance enterprise. Much of the actuary's responsibilities are related to the complex and not well understood task of designing, pricing, and valuing insurance products. With the recent move toward investment related products, that is, those that have a cash accumulation based upon some rate of return, either guaranteed or not guaranteed, with

expense charges that are deducted from the cash equity, there may be less of a need for the traditional type of actuarial services. However, as the marketplace and vendors adapt to the stresses that all companies are undergoing, so too, the professional actuary will have an opportunity to profit from finding new markets for his services.

If the actuarial profession is to prosper in years to come, it will have to adapt to changes in distribution channels as company needs change. How many companies in the 1980's will need scores of actuaries to complete expense worksheets and value life insurance reserves? But, alternatively, who doesn't need some constructive advice and counsel in the area of risk management and emerging market opportunities? I have taken a somewhat different course than some of my colleagues, having set up my own consulting practice. I believe that the market for new actuarial services is real and will develop in the ensuing years.

The skills of an actuary, in a large sense, are not simply related to the use of commutation symbols, but relate to serving as risk managers for a line of business. A major share of the exposure for risk managers today has shifted from mortality or morbidity to the investment risks. And, we have an opportunity to deploy our skills in this area today. There are many other opportunities for actuarial services, such as, product opportunity, surplus management, or information services. But today, we will focus on the area of investment strategy.

Later, I will discuss specifically the use of financial futures as a vehicle to hedge new premium dollar cash flows from capital depreciation and also describe why it is not as easy to invest in futures as one might initially think. I will also identify one strategy that deploys options to increase yield on a portfolio that has already suffered some market value depreciation.

MR. WARREN A. JOHNSON: I am delighted to be here and will try to provide a somewhat different perspective from the other members of the panel. I must say that it has been a very interesting experience for me to spend a few days at this meeting and listen to some of the presentations. I have found them very enjoyable.

What is it that the investment man provides the insurance company? I think that he brings a very critical element, namely his practical knowledge and his experience in financial markets. Financial markets can be textbook items; they can be analyzed in great detail, they can develop very elegant theories and I can assure you that there is an enormous body of knowledge ranging from the efficient market hypothesis, the capital markets theory, the efficient risk frontier,

all available for use. But those are theories, and are useless without the direct practical experience. When we bring that direct experience into the process, then I think what we offer you is our ability to make your product something that connects to that real world. Too often, that element has been missing. What I see in insurance is a business where the products were designed by one group of people and investments designed by another. It is only slowly and recently that we have brought these two together.

Why have those two come together? Partially, it is the change in the economy and financial markets, most of which I think you are all aware of, and which John Hammond summarized this morning. Foremost causing these changes is stagflation. I do not regard stagflation as a temporary phenomenon; it is a combination of slow growth and high rates of inflation that has really been with us in various forms for 15 years. That is not a trend that will be easily or quickly reversed. A future problem is volatility in the marketplace. The average monthly change in long term treasury bond yields was in the vicinity of 75 basis points over the past three years; the deviation of that month to month change is over 50 basis points which indicates a tail out on that distribution with very large fluctuations indeed. There were some extraordinary periods in the past three years that we all remember vividly. It was 1979, for example, when we started out in August with long term corporate bonds at 9 3/4% and ended up at 12 3/4% four months later. Still another impact is the competition for savings. We know the impact of deregulation, and we know that Regulation Q has hurt us. We don't realize how much it has hurt us already. All these changes have impacted the way financial markets operate.

The first thing we need to recognize is that neither our assets nor our liabilities are going to be static. The liabilities are not static because our customers are going to change them for us. We have given them the option to do so. For that reason our assets cannot be static. We are constantly looking at adjusting our asset portfolios to fit our liabilities. This means that we are running a portfolio management business. Traditionally, insurance companies were managers of cash flow; they received cash, they invested it, and they ignored portfolio structure questions. This is a very strange way to run an investment portfolio but that is the way it was done.

I have received a large number of inquiries from people in different companies that pertain to the process of life insurance portfolio management. How do you look at an insurance company portfolio? How do you decide what its characteristics ought to be? It is not a straightforward process; it is a difficult process, particularly when so much of what we hold is nonmarketable. In the future we are going to be planning portfolios composed of largely marketable securities with a lot shorter maturities, primarily portfolios where the yield will adjust constantly to current market conditions.

One final point. Active portfolio management is going to require a culture change in all parts of the organization. Not only will the investment manager need to change his approach, but we are going to need some greater understanding on the impacts or need for change on the part of others in the company. I know it will be difficult to understand how to deal with gains and losses, how to deal with constantly changing investment year method yields, and how to deal with allocations of income on that basis, but that is part of the problem.

MR. CROWE: Now we will move on to a single premium deferred annuity product. The way we are going to approach this is that Dan will describe some of the concerns and issues that develop from the product development side, Warren will address the issues and concerns that the product raises in the minds of the investment person, and Alan will suggest some ways, through investment strategy and different investment vehicles, how these two sets of concerns might be addressed.

MR. McCARTHY: My task is to describe the Single Premium Deferred Annuity (SPDA) Market briefly, for those of you who have been off this planet for the past few years, and to comment a little bit on what some companies are doing in this market. Then Warren and Alan will talk about different kinds of investment strategies that can be brought to bear there.

The modern SPDA represents a remarkable set of options from a customer's point of view. The purchaser, once he has that kind of contract, can obtain at the outset a rate of interest which is as high as a company dare make it, and we have seen some fairly daring companies in the last few years. Second, for a relatively small surrender charge and no tax consequence, he can cash that in and roll to another annuity should it offer a significantly higher return at some future time. Third, he can with most products avoid that surrender charge if the company drops the interest rate in future years below a reasonably high threshold, known as the bail-out rate. Finally, and I almost blush to mention it, he can annuitize, which people don't seem to think about. Those annuity guarantees, which we always say are very conservative may turn out someday not to be if you begin to look at things like cancer cures and mortality curve squaring. That's a pretty good package.

Now, it's clear that long term investments associated with such a product give the issuing company a significant risk of capital loss if rates rise in the future and people start running away with the money. On the other hand, in many environments including this one, the alternative of investing short is not going to produce rates that will give you a very attractive product or anything much in the way of profit. So, there is going to be a competition squeeze arising from that. The picture is not all black as there are some advantages to the company. For one thing, the product tends to be more

attractive in the market when rates are apparently high, and I say apparently, as we know from the last few years you never really know when apparently high is really high or lower than next month. Anyway, the product is more attractive when rates are apparently high than when they are apparently low, and, obviously, if the apparent high is a real high, that's the time when it's least risky for the company. A company can encourage this relative swing in popularity by deciding, among other things, to be more competitive when it thinks rates are high than when it thinks rates are low, provided it's willing to be in and out of the market to a certain extent. Next, the company, to the extent permitted by law, and I say that because the law on these things varies substantially from state to state, can put in various kinds of persistency kickers: bonus interest for hanging around for so many years, and all kinds of other things that have been developed and looked at to try to control the potential for cashflow out the door as interest rates rise. Therefore, they can neutralize some of the risks in the product. Finally, a company can, within some limits, play some tightrope games with the interest rate it declares in the future on money already in the door from the past to try to control the lapse rate. This can be effective when rates jump high on a spike and it can be disastrous when they jump high and plateau there. But in any event, it is an option that is available to companies.

I would recommend for your reading some interesting numerical examples developed by Paul Kolkland that are in the Record of the Society for last Fall's annual meeting. They are there in the form of a report from the Society's C-3 Risk Task Force and illustrate some of the degrees of swing that can take place in this area depending on the type of product, type of investment strategy, and the degree of swing in interest rates that takes place subsequent to issue. The numbers are interesting and sobering.

Despite the challenges of this market, it has been a competitive one. I would characterize the companies who are in it as being of four types. The first is what I used to characterize as "the tiger by the tail" companies. These are the people who got into this market first, had to sweat through the whole time of the interest rates rising, and, in effect, had to be competitive to get more money in the door even though they could not actually have new dollars to invest at those rates. We see a temporary rest from the need for companies to play that role. The second category is what I would call conventional investors. They are companies participating in this market and investing pretty much in conventional stocks and securities for a ten year maturity. That's an improvement from six or seven years ago when companies were doing that with twenty year maturities. So I guess we are getting there. Third is the category of complex holding company strategies for both investment and taxation. Fourth, are what I would call "whiz bang" companies working the futures market. We are going to hear a little bit more about that approach for those companies who are actively trying to

cover themselves on those guarantees by offsetting some of these risks through the use of financial futures. That's a little bit about what the market is like and these guys are going to tell you a little bit about what people can do about it.

MR. JOHNSON: I will be brief, because I think Dan has covered these issues extremely well. This product strikes me as one that has come about without much investment department involvement. The interest rate risk involved is about as high as we can measure. Let me give you a simple example. Suppose you went out and bought an SPDA with what is today a reasonably good current yield of about 11% for five years with a standard set of bailout provisions. Suppose also that you are a pretty shrewd investor and you want to make sure you get the highest return. The question is how high would rates have to go up tomorrow before you would want to bail out? The answer is about 160 basis points, not exactly a large increase. Even with the surrender charge you pay, once rates rise more than 160 basis points you can't lose. The company has lost in another sense, because it hasn't gotten back its marketing expense. It paid a commission and, unless it has a chargeback, it has lost on the other side as well. It does have some protection for the first 160 basis points but after that it loses. Similarly, if rates fall, the company has a problem because it guaranteed the reinvestment. So it's a double-edged investment risk. Unless rates go nowhere, and I would suggest to you that the odds on that are very low, the company has lost. It has got an enormous interest rate risk problem.

What kind of investment can I buy that would match this risk? Simply stated, there aren't any. Corporations issuing bonds are a lot smarter than we are, and they simply are not going to give anybody those kinds of options, period. Now, given that sort of situation, what can we do? There are some limited possibilities. One is the futures market. You can hedge with futures but hedges are not free. Most pricing I have seen does not include the cost of that hedge. We can gamble, and that is what I expect a lot of companies are doing. Or we can use SPDA's to finance other operations. If your choice is to go out and borrow money in the public marketplace, or sell a product like SPDA's, which by the way do not show up as debt on your balance sheet, then the product makes some sense. There are options available that I would like to suggest. One possibility that I would like you to keep in mind is the investment problem as you design these products. As an investment man, my solution to this problem would be to change the product design. We could stop guaranteeing the compounding of interest which reduces the risk of premature surrender somewhat. Or we could add a market-value adjustment provision to the surrender process which shifts some of the interest rate risk to the customer. I think the latter possibility is the best method, and I hope to see some companies adopting this approach.



Finally, let me refer to something Dan said. I have been watching the C-3 Task Force with some interest, and I have spent a lot of time looking at interest rate impacts on surplus and other investment risks on surplus. The real question here is how do you use your risk capacity efficiently? What is the right way to make use of risk capacity? Dealing with products like this, I think the first question you might want to ask is: Is this an efficient use of our risk capacity? Are we really getting the profit we deserve from a product like this given the risk we are actually taking? Now AI is going to tell us how to solve all that.

MR. SIBIGTROTH: I'm going to tell you how not to trade! First of all, financial futures do not serve as a replacement for asset and liability matching approaches. Financial futures serve as a complement to asset and liability matching. Asset and liability matching is appropriate where you have a well defined cash flow, say on a guaranteed interest contract.

The application of futures really becomes important in a contract like a single premium deferred annuity where you have some element of contingent cash flow. That is, policyholders can vary their contribution and withdrawal patterns as interest rates move.

The key question is how much of the assets should be hedged with financial futures. Some company managers feel they have to immunize or hedge their entire portfolio. That is, if they had a billion dollars of assets, they would have to buy a billion dollars of futures contracts, and, of course, there is no market for that volume of business. That really isn't necessarily the case. They may only have to hedge 10 - 20 % of that cash flow over some period of time, because that is the expected amount of contingent cash flow. Now this is really hard to determine in practice, but this distinction is vital when someone is considering investing in futures.

The first order of business is to determine the liability structure of one's portfolio. What is the cash flow, what is its variability, and from that point forward try to define how much risk one needs to offset given the investment scenarios one can imagine as probable.

I will now address one futures strategy, a hedging strategy that relates to new premium dollars that are coming in under the single premium deferred annuity product. This strategy would be to define what the unanticipated contingent cash flow is that I mentioned earlier and then sell financial futures against that cash flow and have offsetting positions if you will. That is, if you lose money on your securities because interest rates move up and you are forced to liquidate assets, at the same time you should make money

because the value of the futures contract has depressed and you will buy it back at a lower price.

Let me go into a specific example. If a company has a 15% annual surrender rate, employs an asset and liability matching program, does not anticipate that cash flow would exceed more than an additional 20% of their fund over the next year, and, if they had \$100 million of assets, I want to make it clear that they would only have to hedge against \$20 million of financial futures.

I want to stress that financial futures will not eliminate risk, as might be perceived, because financial future contracts and bond portfolios do not move in parallel. Furthermore, a very important consideration in investing in futures is to have a good impression of what the market liquidity is. Some financial markets, in fact most today, lack sufficient liquidity for trading of large positions. It is estimated, for example, that the Chicago Bond Futures Market trades an average of \$65 billion of assets every day. I am not saying that they are small, some of these markets are of considerable size, but one should be very careful in considering the liquidity available within any market that they might want to invest in.

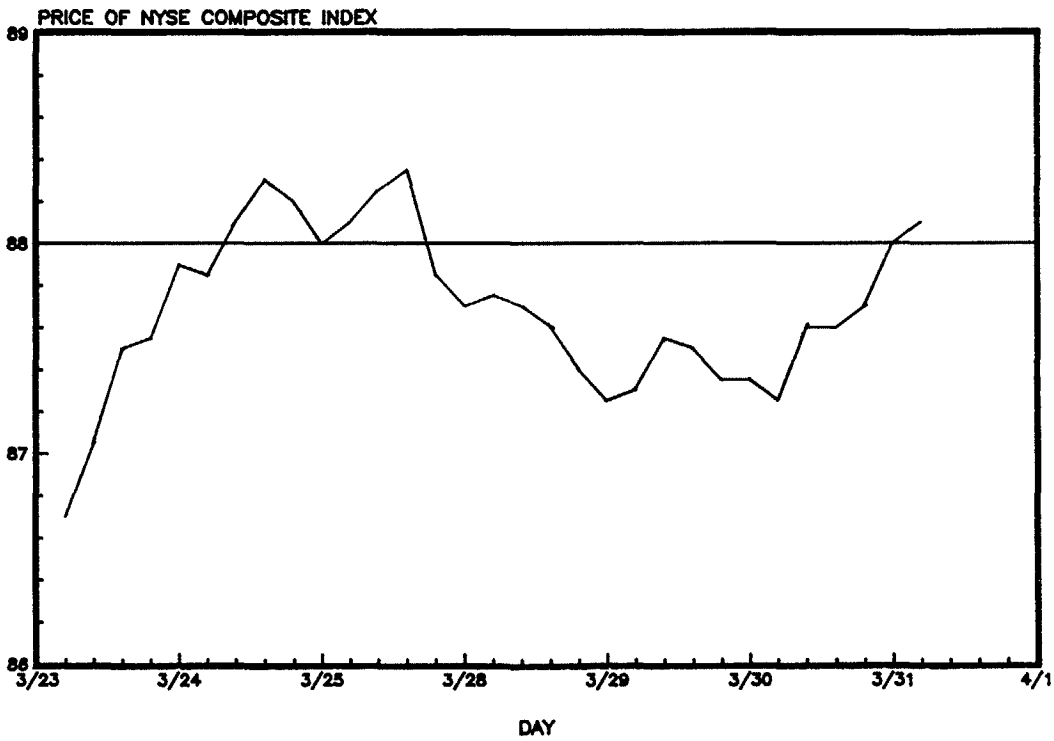
I have an example that is very close to home. I had a position in buying stock index calls, and found that, in a time that it was pretty much established that I was on the wrong side of the market, I could only liquidate 15% of my position in a day. It is not the position you want to be in, where you can't get out in a hurry if you find that you are on the wrong side of the market. Fortunately for me, I could hedge my position with future contracts. But there are lots of horror stories of people who were unable to offset their positions and took some rather severe losses. Now, I have a couple of graphic displays that may illustrate what I am talking about. (See Exhibit I)

First of all to give you a little background. For the last year and a half I have held a seat on the New York Futures Exchange, which is a small and rather new commodity exchange in New York. They trade almost exclusively stock index futures. A stock index future is a contract that is related to one of the available stock indexes. There is a stock index future on the Value Line Index, the S&P 500, and the New York Futures Exchange uses an index that is related to a New York Stock Exchange (NYSE) Composite Index. I happen to prefer this from a hedging point of view, because the NYSE Index is a total weighted index. That is, the total market value of the New York Exchange divided by the total number of shares. So you have all the participation of the first tier as well as the second tier of stocks included on the graph which is important if you are trying to offset market volatility, or what is called a beta risk.

The varying line relates to the value of the NYSE Composite Index, which is a collection of industrial companies as well as financial companies, for the last five days. You can get a flavor of the

Exhibit I

NYSE COMPOSITE INDEX PRICES  
FROM MARCH 23, 1983 THROUGH MARCH 30, 1983  
NYSE COMP. INDEX



volatility. The index ranges from about 86 1/2 to about 88 1/2 during that 5 day interval. Now, let's suppose we tried to employ an investment strategy and see how that works in practice. What I am suggesting here is that, in addition to buying the futures contract, what we are really going to do is to write calls. Now, calls are contracts that say that if the value of the index moves higher than a specified value for the call, the call will have some value. If the value of the index falls below the stated "strike price" the call will expire without value. A common strategy might be if the market is 86 1/2, a call with a strike price of 88 might sell for about \$2.00. Which is to say that over the period of the next two - three months the value of the premium will be yours, if you wrote that call. However, if the index went above 88 you would lose whatever the difference was between the index and 88. If it went up to 90 you would start to show a real loss, and at that point I would cover my position by buying a future and then just offset the gain and loss on the two positions if the future continued to gain in price. Eminently sound investment strategy. I would like you to take note that during this time, the index did move into what is referred to as being "in the money", from the call standpoint. That is, the call had intrinsic value when the index was over 88. You will see that on three days it did rise above that strategy. At that point, I was going to buy a futures contract when the index went above 88. I was going to sell a futures contract when it fell below, uncover my position and pick up the premium as the future fell. If it went back up, I would buy in again and cover my position.

Everything about this strategy is tied into understanding what is referred to as the basis or the differential between the futures price and the cash price shown in this next slide.(See Exhibit II)

Notice that I'm using stock indexes here, but I could be talking about CD's, bonds, whatever. A commodity future does not sell for the same price as the cash market. Generally, you pay a premium over the cash market to buy the future. In this case the premium will range anywhere from about 20 basis points up to 200 basis points when you are relating it to stock index futures and it would have an average value of somewhere between 70 and 90 basis points. But the important thing to identify is what happens when I, as a hedger, come into the market, and try to deploy the strategy.

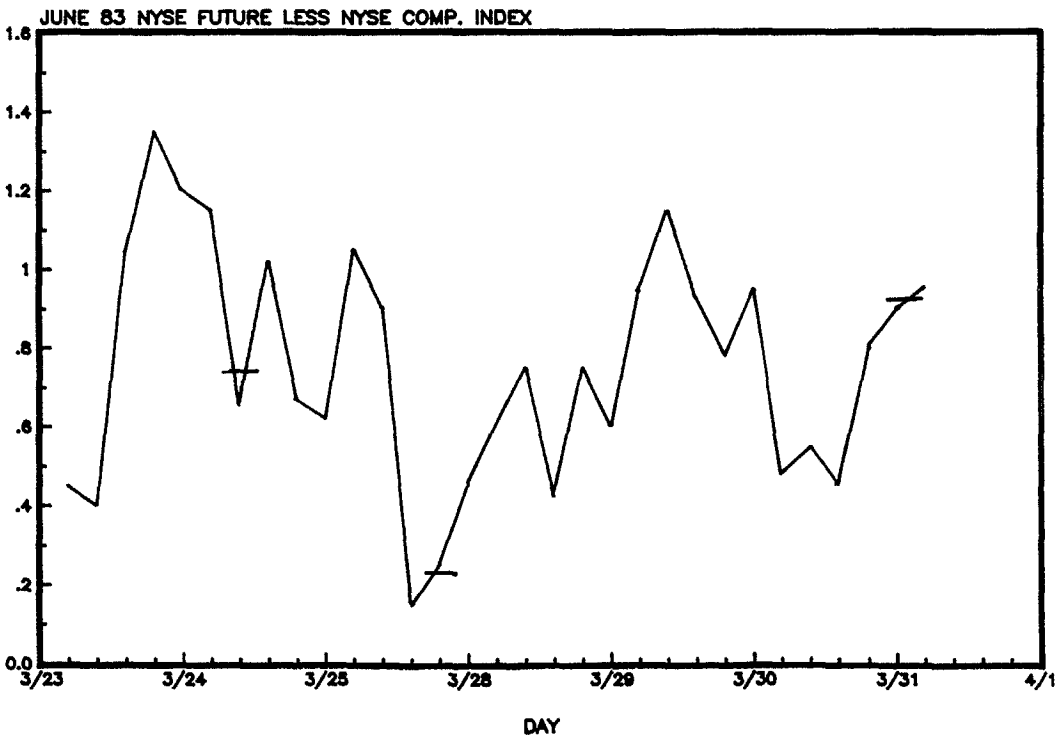
Now, the flat short lines that I have indicated are the places where I had a buy or sell signal, according to my basic strategy. You will see that I bought into the futures contract when the future was selling at about 70 points over the cash price, so I was paying \$88.75 if the cash price was \$88. And then when I had a sell signal, I saw that I was selling the future when the cash price was only 20 points below the futures price so I lost 55 basis points by employing that strategy just once. Then when I found the market move above 88 the second time, I was forced to move into the market at a basis differential of about .9.

Exhibit II

SPREAD BETWEEN CASH AND FUTURE PRICES

SPREAD

\_\_\_\_\_



You find that you pay a rather significant premium to move in and out of the market because when you get a signal that it is time to move, the market largely has already discounted that and reacted appropriately. And that is the strategy that executing two or three times would have caused me to lose the entire premium that I stood to gain on the calls that I was writing. Not to mention that the market may cross your level, if it's 88, maybe ten times before it establishes a trend. So, you don't really get a clear signal as to when to buy either. And this is really a concept that I would term lead pricing. Futures attempt to determine where the markets are going to some degree. So, if there is an impression that the trend is moving upwards, futures prices will be selling for a considerable premium to the cash market. This is what is generically known as a hedger's premium, as well as being known as a basis, and it is probably the most important thing from my perspective to understand if you want to try to trade financial futures successfully.

MR. CROWE: We've talked about the changes that have occurred in the investment environment and in our industry as well as a specific product. This specific analysis could be undertaken for any one of the products we sell whether it's a guaranteed investment contract on the group side or a traditional ordinary life policy. I think there is a growing awareness of the kinds of products we are now offering and of the cash now coming in. However, we are still in the position where we do have a large block of existing assets, which were acquired in the days when, as Warren described, we bought assets and put them away. And, we also have a large block of existing business developed when we really gave no attention to the investment type of risk. We would like to spend a little time now addressing some of the different concerns of this history of insurance companies and the specific concerns that come up in addressing these existing blocks and what might be done to minimize the risk or take advantage of the opportunities in this area.

MR. JOHNSON: My experience dealing with product development and asset management at my own company has suggested that given sufficient good will, communication and consensus, new product problems can indeed be solved. We can devise ways to deal with SPDA's etc. The problem that we have is dealing with our history of the business already on the books. We acquired it back in a simpler era, when we thought the liabilities were long term and we could, in fact, buy long term assets. We have spent a great deal of time trying to deal with the question of how do we cope with the history. I am sorry to report to you that there are no easy answers, but there are a lot of interesting questions. Let me start bringing up some of those questions and start outlining what the type of problems are and what the type of solutions may be, and in the remainder of time Alan and Dan will show you some possible strategies.

When I got into the insurance business in 1973 I came from a bank

portfolio and money management position. I ran a money position during the 1969-70 credit crunch, which probably was the fastest way to get an education that you could imagine. I was thoroughly steeped in asset/liability management. It took me about one week to raise the topic at the insurance company and discover that no one knew what I meant. After a month or two of agitation I realized I wasn't going to get too far, so I put the material into the file. It never got out of the file until 1980, when the components of asset and liability requirements emerged just as they had for the banking business in the 1970 credit crunch. We realized at that time that there was indeed a basic mismatch with our old product and that we were trying to attract what was old money with our new products. We were waiving a magic wand to turn it into new money with a new commission. How should we manage our old assets to avoid these kinds of problems? There are no clear cut answers to this. Part of the difficulty is how we structured our products in the past. One device is to view the company's balance sheet as a set of options that have been issued. On the liability side, we have granted an option to the policyholder in the terms of policy loans, in terms of SPDA cash-in, in terms of higher of two rates guarantees (Life of Virginia is an example of that dual rate index). We have given very specific guarantees of rates for very long periods of time. On the asset side, we have also granted options. Bond issuers can call in bonds without any penalty whatsoever, and, obviously, when we played the forward commitment game, which most of us have abandoned almost entirely, there was an implicit option in the insurance company's position. While an insurance company had to go with that forward commitment, the borrower could, and occasionally did, walk away from that commitment.

The list of options held by insurance companies is very short. On the liability side, there is one: you can cut dividends. I can't recall anybody cutting dividends lately. That time may yet come but they haven't done so recently. On the asset side, choices are limited. Bonds occasionally have puts, but not frequently; we have been able to obtain puts in the mortgage market, but not in the bond market. Bonds occasionally are retractable or extendible. Canadian bonds frequently have such provisions, but they expose you to a foreign exchange risk on your balance sheet. You could buy bonds with warrants. That worked well when the stock market was going up, but it worked pretty poorly when the stock market was going down. Finally, we have floating rate preferreds, which show a little bit of promise. If you total up the balance you will notice that almost all of our liabilities have options and very few of our assets do.

The problem is to change the balance. There really are not too many choices for doing this other than the futures markets and trying to hedge our existing pool of assets in some way. In that sense, we are essentially the same as a savings bank or a savings and loan

association. We should look very closely at what has happened to some of these institutions in recent years. You will see what is, in effect, a microcosm of a life insurance company. If institutions' depositors continue to pull their money out, institutions are required, for obvious reasons, to pay whatever the current rate is. The assets cannot be adjusted. Consequently, these institutions run at a loss. We have done essentially the same thing at the life insurance companies.

I've identified the following choices. First, try to find a way to prevent replacements entirely. Few have succeeded at this strategy. Next, increase volume. If we sell enough new business, you can build the profit margin on that new business to offset the losses you are going to run retaining the old business. Next, sell off old assets and charge surplus at once. Some savings banks have done this. Instead of paying the highest possible rate to depositors, regardless of earnings, they take the capital hit all at once. It is just a question on how big it is. Next, do what most savings banks have done and run at a loss. Most of us dress this up a bit; we say that we are going to enhance our dividend structures or make aggressive use of surplus, but it's just a matter of how long it takes before you run out of capital. Next, borrow money if you can increase your leverage, borrow cheap and reinvest at a higher rate; additional margin can help. Next, run money for a fee. A lot of companies have figured out that the fee looks attractive. What the savings banks are doing is placing new mortgages into pools for resale to pension investors or similar types of organizations, particularly federal organizations, such as Fannie Mae, etc. And finally, this seems to be the strategy that most people have adopted, pray!

I've made two important points. There are no easy solutions, unless you are prepared to believe that we will return to the good old days of pre-1980; and it is unlikely that we are going to resolve these problems anytime soon. That being true, we are going to have to find ways to take what are effectively non-marketable, low earning portfolios and adapt them to those portfolios paying current rates of return. I emphasize the term current. What I perceive the consumer wants, even on his old holdings, is not necessarily a high rate of return but a return that is current with what is being offered in the marketplace. From a replacement point of view that is the rate he obtained on a new policy or investment right now. We may offer him a very high rate of return, but unless it's current with the marketplace we have not succeeded in eliminating the problem.

MR. SIBIGTROTH: I would like to discuss two approaches that I think have some application to existing portfolios. One relates to an area that Warren briefly mentioned. That is where a company has agreed that they have a portfolio that is far too long and have agreed to liquidate some piece of that portfolio and suffer the reduction and the capital loss that they might have on the contracts that they are



presently holding. This strategy I actually learned from an arbitrageur on the floor of the Exchange.

It is fascinating to see how closely the prices for options and futures parallel what you think is a theoretical price for that contract. There is no apparent logic to it, but the pricing structure is pretty close. The strategy I am going to discuss is commonly referred to as yield curve ride. This strategy is helpful when the company is looking for short term investments but there is a substantial discount in the marketplace favoring longer term assets, as is presently the case. Normally, under such circumstances, the company might match maturities and buy short term investments. However, they would suffer a substantial discount on the yield that they received. The strategy here is to retain those longer term assets, and at the same time use financial futures to offset any subsequent gains or losses on those assets at a time when you might want to sell them down stream. The advantage here is that you might be picking up whatever the yield curve advantage is by going longer.

For example, if you had a commitment that you wanted to buy one year notes, by moving out 5 or 6 years you might pick up an additional 150 basis points. This strategy is also very attractive when a company is offering a dual index approach. Subject to the comments I made earlier to the basis risks, that works quite well.

The other approach that I would like to mention is really not applicable today because there is simply not enough liquidity to practice this in any kind of size, but may be of some application in a few years. That is referred to as a ratio covered call writing strategy. I mentioned briefly that some companies have been writing calls, and some of you may be familiar with writing calls on your own stock portfolio. That is, you pick up an additional premium for writing that call and you lose some piece of potential appreciation that you might achieve in your stock portfolio.

You can pretty much define where you would like that participation to end. You might be happy to get the option premium and not have any subsequent capital appreciation or you might want to sell an option that is very far away from the current market price so that you can pick up a substantial amount of capital appreciation as well.

This strategy will work very well for a depressed portfolio. For example, if the current bond portfolio is selling at 70% of par, the company would be very pleased if they knew that their portfolio might be worth 90% of par in six months. That being the case, they might be willing to write options that would have a strike price of 90% of par such that they could pick up the premium and still achieve the capital appreciation to 90% if the market, in fact, moves that way. Some companies have started to use this approach, but very loosely,

since there is little liquidity in the options particularly options that are a long distance from being close to the current bond price.

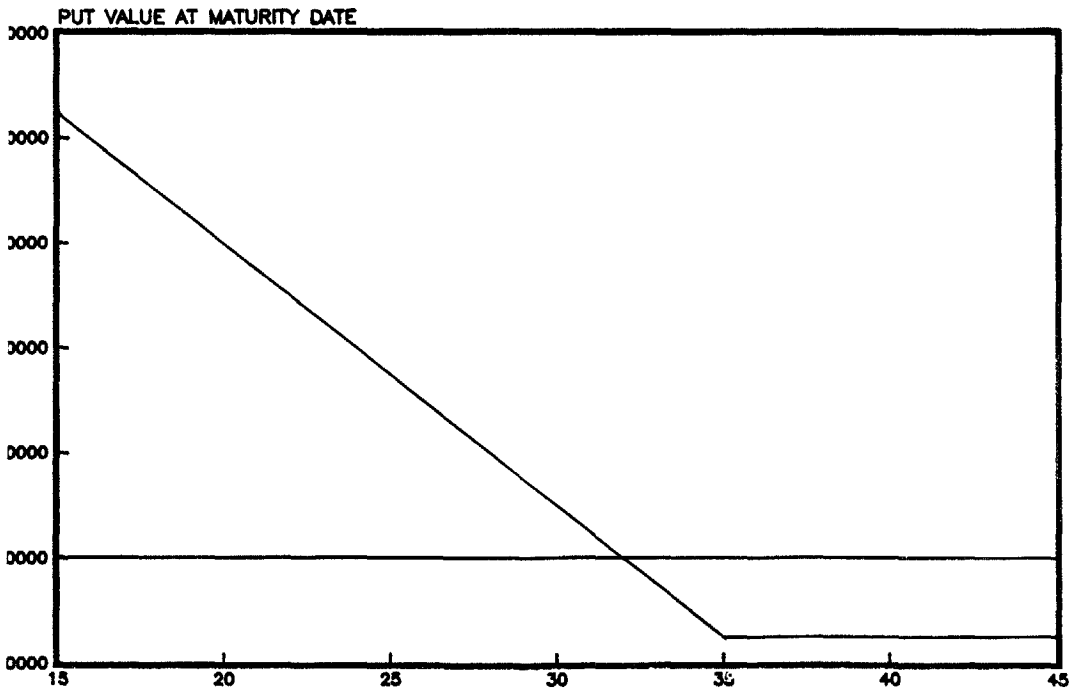
I would like to show you another graph. (See Exhibit III). This is a tool that I find very helpful in planning one's investment strategy. This is an example of a Baldwin United July 35 put which, if some of you had the good fortune to buy in March of this year, gives you the resulting gain or loss that you would have seen from that purchase as of the maturity date of the put option, i.e., when the put option has no premium associated with it other than its intrinsic value.

As you can see here, we start with an initial investment of around \$15,000 to purchase 50 contracts. Now the way I get to \$15,000 is each option contract is covering 100 shares of stock, and if you buy 50 option contracts you are covering 5,000 shares, or participating in the movement of 5,000 shares of stock. The price for that option was \$3.00 as of March 2nd, so you have a total commitment of \$15,000. If the stock price is over 35 as of the maturity date, the option itself has no value. So whatever you paid to purchase that option is lost. However, as the stock price moves below 35, you begin to pick up some intrinsic value in the option, we call that "being in the money", and at that point, you can start to achieve some very significant leverage gains. At a stock price of 15, the option value would have moved to a total value of about \$90,000. So you can see some of the benefits of the leverage of this approach. Now this graphic representation also illustrates the composite risks of several positions. I can never lose more than \$15,000, and if Baldwin moves quite substantially lower, I can achieve some substantial gains at some future point. This approach is particularly useful because you can see all possible profit and loss curves by aggregating different collections of options, futures perhaps, or basic cash commodities which could be bonds or stocks. You can arrange a risk scenario that will effectively allow you to make money, if a stock moves one way or another. It can allow you to immunize yourself, as this does here, by cutting the potential loss that you suffer.

If you could purchase a put contract on a bond, this would be a very nice tool to guarantee that you would not suffer more than a 10% market depreciation. Again, you would show some loss in the interest yield because you would pay a premium to buy that contract, but it would limit your potential losses. Interestingly enough, if you use one of the pricing models that is available to you, either the Black-Scholls for stock options or the Black-Fischer for financial futures, you find that the cost of buying a cover of 10% sells for about 3½ percent of principal. Maybe you can't actually purchase that contract on your bond portfolio, but I think it is helpful to understand that there is a value to that commitment. If you're selling an SPDA for example, with a 7 or 8% surrender charge, you should recognize that there is about a 4% of principal value to that benefit over a year's interval and this is something

Exhibit III

ILLUSTRATION OF OPTION PROFIT AND LOSS GRAPH  
GAIN OR LOSS AT MATURITY FOR BALDWIN UNITED JULY 35 PUT  
BDW JULY 35 PUT



STOCK PRICE AT MATURITY DATE  
ASSUMES OPTION PURCHASED MARCH 2 1983 FOR \$3

that should be included in your pricing structure.

MR. MCCARTHY: Warren described a lot of the products that insurance companies sell as option packages, and I think that in talking about the question of existing business one way to look at it is to view actions that the insurance company can take to alter the options it has at its disposal or alter the options that are given to contractholders on existing contracts. Contractholders, after all, have their needs, their pluses and minuses too. Sometimes they will give up one option that you have already granted them, even though you cannot get it back in unilaterally if you replace it with another one. Think about ordinary life insurance, for example. Update projects started out originally as being tax ploys for the insurance company, but they really are now substituting one kind of option for another. They are out of the low policy loan interest rate problem that exists with existing contracts and replacing it with a bunch of other carrots that are attractive to the customer. At the same time they are winding up with either direct recognition or variable loan rates or something that a company can live with better from its point of view. That is to say the existing business, even though the contracts are all written, is not necessarily immutable.

Take another example in the group pension area. The problem here is not so much on existing deposit administration contracts because most of these contracts have market value adjustment protection. But the problem is that the customers have been very soured by the behavior of those formulas that they never believed would operate in that way when they went into these contracts some years ago and the company may not wish to lose the good will and future money of that customer. One thing that has been done, in order to prevent the customer from having to pull all the money out of that contract and foul up its pension funding by having its fund assets go down, is to allow the customer, usually on favorable terms, to swing that contract at par to a GIC. This GIC obviously has a lower interest rate than a newly purchased GIC that works out over an amortization period. Usually the company will grant another concession along with it, but what it does essentially, is to take one set of options that was built into a contract, and recast it in terms of a different one that works out well both to the company and to the customer.

The last example of this sort that I will mention is in the individual annuity area. These contracts, once past the initial rate guarantee period, are subject to analysis and rate setting by the company. Now there are two aspects of that. First, the company can, and the major writers do, keep track of business by segment. That is to say, by the rates and times at which it was written they can track the lapse rate associated with each of those blocks by month, and to the extent which a company wishes to fine tune how much lapse it is willing to endure in a rising market, it can bring its rate up. On

the other side, in a falling market, a company can in theory even lower the rate on an SPDA Contract that was sold a year and a half ago. It can easily move its current rate below the bail out rate if it wanted to with very little fear of loss because the customer has no place to go. He can't find a new contract to replace the 15 1/2 % contract he bought a year ago if the company now brings that rate down to 14 or 13 1/2%. Companies have not so far, by and large, reduced rates below the bail out level. Most of them have brought them down to the bail out level and not below. I think the reason for this is that companies will perceive a certain significant loss of credibility with their sales forces, particularly since these are not captive sales forces, if they were to pull the rate below the level. Nonetheless, that option is there, and in times of future financial crunch, companies may feel that if that option is available to them, it is one they will have to take. In any event, I think this notion of the options package is a useful one to think about. When you look at the existing business, it is not only the assets you can work with, it is the liabilities.

MR. CROWE: At this point, each panelist would like to present a summary tying together what we have talked about and present some thoughts as to what the future might hold.

MR. SIBIGTROTH: In closing, I would like to leave you with two thoughts. The first is integration. We ought to become more familiar with all aspects of the process. This could relate to the inter-relationship between product design and marketing as well as product design and investment opportunities. Choosing the parameters for investment risk and investment return within a given product is too important to do in a vacuum without really having an understanding as to the types of investment vehicles that are available today.

One of the new innovations that futures and options have, and I think is of a real value in terms of our business, is that they can be used to build investment opportunities that better tie into the types of products and risks that we feel we have to assume in the marketplace. This, I think, is going to be their major thrust.

A similar example relates to the inter-relationship between product design and marketing. Much of our pricing has related to a traditional cost plus approach with a given assignment for expenses, claim expense, interest return and profit. It is also important to be aware that these factors change relative to different sales expectations and one should be careful to have some understanding as to whether they are in an elastic or inelastic market. This is what I might refer to as sales dynamics- the optimization of profitability.

The second thought I'd like to leave you with is, don't be scared by volatility. Much of our bread and butter is made by assuming risk and by assuming contingencies that individuals themselves are not able to assume. I think we have a real opportunity in the investment arena in that the volatility that has occurred in the last few years might offer additional sales opportunities for insurance carriers, perhaps to offset capital loss risks of other companies. We don't really have much in that area right now, but we certainly do have some helpful insights, in that there is a market out there that is telling us what those benefits are worth in terms of premiums on certain types of financial vehicles.

MR. MCCARTHY: Companies have, in recent years, focused more actively on the relationship between where their money comes from, their liabilities or products if you like, and where they invest it. One widely publicized tool that has been used and talked about at Society Meetings of late, particularly by large companies active in several different markets with different needs, is segmentation of the general account. Stated briefly in its extreme case, it is a concept of splitting a company's asset portfolio into separate segments, each of which is associated with the investment needs of a particular set of product classes which are presumably homogeneous. Because it represents a means of focusing on asset needs in relation to the mix in liabilities, segmentation is a step forward for many companies who have chosen to take it. However, at the same time, I think it contains limitations that limit its use in the long run. After all, if I organize that I pick from product line A those investments that fit product line A best, and then I pick from product line B those investments that suit product line B best, I may miss because I had not even stopped to look at an investment strategy that would relate best to product line A and B together. Now the difficulty, of course, in finding a strategy that maximizes A and B will not necessarily tell me how to allocate the results of that strategy between A & B. One of the appeals of segmentation, after all, is that it not only enables you to determine a set of investment strategies, one for each segment, but it automatically allocates the results of that process to the different segments. For a large company, segmentation also has an organizational appeal. It is easier organizationally to focus on the asset and liability needs in a product line environment rather than a global company environment. Still, the strength of segmentation from an organizational and allocation point of view may not always overcome a potential weakness. That is to say, it may not be possible to find, through a linear programming model or some other way, one strategy that fits the whole company's portfolio best. It is possible that segmentation may not be a final solution to this problem of having assets meet liabilities, but may simply turn up as one significant step along the road to that solution.

MR. JOHNSON: We are in a business, as we heard this morning, where change is going on continuously. We have become financial institutions in the real sense of the word where the investment return we are selling is the critical component. Our salesmen are advertising now, even on our whole life products, rate of return assumptions, designed to be more attractive than our competitors. That suggests to me that our approach is going to have to change. The way we manage our institutions will not be the same as it was in the past. You simply cannot operate each side of those balance sheets independently; you must plan your operation to get the results you really want. The kinds of risk we assume on each side of that balance sheet have to match. That's what making the transition to a broader financial institution, a financial conglomerate, is all about. Deregulation will hasten that process. There are some models we can look to, to see how to do it. The commercial banking industry offers us some possibilities as to what strategies will work and how to proceed in an environment where we are moving from service competition to price competition. To what extent are our rates competitive? Consider the recent ads on money market accounts such as IRA's. They are rate oriented. In the insurance business we used to place emphasis on the great level of service. Now we are going to make that emphasis on the investment return on the price. So let me urge all of you to study what the banks have done and how they have done it, how they have done "Gap" management. If you don't know what "Gap" management is, I would suggest you take a course in it in a hurry because we are going to look very much like those institutions in the years ahead and it's the way we're going to have to manage ourselves.

MR. CROWE: I have just a couple of comments by way of summary. One point that is clear from what we said, is that it certainly is going to be increasingly important in the coming years for the product development people - the actuaries and the marketing people - to work closely with the investment people so that products and investment strategy can be consistent.

Finally, in covering a number of different items this afternoon, we had, of necessity, to skim over some. In the area of futures and options, the point I would like to make is that while, as Alan has warned, they are not risk free, they certainly are another option for us to consider in the future in controlling risk. There may be more options available on the investment side than we have perceived in the past, and ongoing communication with our financial people can be very useful.

