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OPTIONS AND FUTURES—A TEACHING SESSION

*Moderator: JAMES A. TILLEY. Panelists: ARTHUR L. REBELL**, RICHARD L. SEGA, ALAN W. SIBIGTROTH. Recorder: DAVID P. JACOB**

MR. JAMES A. TILLEY:

This is a teaching session on futures and options. It will be conducted in the format of a panel discussion. We are planning to leave some time at the end of the session for questions from the floor.

The subject of futures and options is very topical. Legislation and regulations enabling life insurers to begin using these instruments have been passed in several states now. After a bond market rally in 1982 and fairly stable fixed income markets in 1983, interest rates have risen significantly this year. There is considerable controversy among economists, split in some cases along party lines, as to whether the recent spike has reached its peak or whether the rate rise will continue. It is in this type of environment that it is essential to hedge the general account against the C-3 risk posed by single premium deferred annuity (SPDA), universal life, structured settlement, and guaranteed interest contract (GIC) products. We shall discuss how financial futures and options can be used to this end.

MR. ARTHUR L. REBELL:

This is a propitious time for a discussion about futures, and options on futures, as they relate to insurance companies. As many of you know, in 1983 several of the largest states which had previously not permitted their use began to do so. Legislation was passed in California which became effective January 1 permitting insurance companies to use futures and options on futures. Legislation was passed in New York which, within strict limits will allow New York insurance companies to participate in these markets. Legislation in Texas, Virginia, Maine and Illinois also became effective last year. In addition, many states which did not have specific legislation have permitted insurance companies to use these markets, and I suspect that many more will.

At the same time I think all of us in this room are aware of the fact that the insurance business itself continues to become much more competitive. So much so, that in the analyses that we tend to do of many insurance products, particularly those in competitive areas such as variable products, GICs and forward placements there is a real question as to

* Mr. Jacob, not a member of the Society, is a senior analyst at Morgan Stanley & Co., Inc.

** Mr. Rebell, not a member of the Society, is a general partner at Wertheim & Company.

whether a company can make money without superior investment performance. In other words, the industry has become so competitive that the ability of investment departments to earn an acceptable rate of return without substantial risk has become very much compromised. Many actuaries to whom I have spoken have been quick to point out that the competitive nature of the industry is putting pressure on their abilities to do business profitably and economically without risk.

In this competitive market then, one must first understand that futures and options on futures cannot do miracles; they cannot change a product which is not profitable without superior investment performance into one that is. Futures and options on futures are risk-transfer vehicles. They allow one to use investment techniques at a lower cost and often with greater flexibility than could be done without them. In this sense they are very valuable tools for the insurance industry. However, let me read to you a portion of our recent testimony before the New York insurance commissioner which was in the process of defining new regulations for the current New York legislation.

"We strongly urge that the Superintendent look at the use of futures in the context of insurance company speculation. In an effort to reduce the inherent speculation, the areas to look at include maturity mismatches, such as creating products with a 90-day yield guarantee while buying 30-year bonds to meet that rate, making forward placements a year or two out which will have to be funded at the rates that prevail then, creating floating short-term liabilities to fund long-term policy loans and, most of all, the issuance of policies whose designs require above average investment performance to merely break even. These are the areas of speculation in insurance companies. Their short-run costs often are hidden by current accounting practices, though their longer-term impact should be of great concern.

"We would submit that insurance companies can be properly managed with reduced maturity mismatches, but that is more difficult without the use of futures and similar instruments."

The use of futures and options on futures as a technique has tended to create an environment where the actuaries get very involved with investment techniques and marketing strategies. This tends to create a more cohesive product, the economics of which are better understood by all. Individually, there is often nothing we can do about the competitive environment in the short run, but hopefully better priced products will be considered. In this context then, financial instruments can be helpful, provided again that it is understood that they are not panaceas, but rather more efficient ways of doing what often can be done in the cash market, or in some cases, new alternatives. I urge you to gain some awareness of all investment techniques which can give you a competitive edge, otherwise the pressure being put on your investment department will be unfair, with the result that many of your analyses will prove erroneous since they will not properly focus on investment risk/reward.

In this initial segment, I will try to provide a foundation to help you focus on the experience and opportunities which Mr. Sega and Mr. Sibigroth will discuss. We all realize that a session like this can only provide an awareness of these tools and cannot be as in-depth as I would like. Therefore, feel free to indicate any areas that I touch on which are not clear - if you are not sure of what I am saying - others are with you. Without some idea of the basics, the value of Mr. Sega's and Mr. Sibigroth's presentations will be diminished.

Let me start by defining the use of these markets for two different types of persons: the hedger and the speculator. One of the problems that we have had with regulators, accountants, and with the managements of your companies, is the tendency to view the futures and options markets as highly speculative. That is understandable since until recently those markets were used by those of us in the financial worlds merely for speculation, whether it be in pork bellies, metals, etc. Most of us never had the need to use these instruments in a risk-reducing manner.

The volatile financial markets of the past few years have changed that. Let me tell you a true story which is taken from a book which we have recently written called Financial Futures and Investment Strategy which has just been published by Dow Jones-Irwin. In the spring of 1983, in the middle of the National Hockey League playoffs a friend of mine, Michael August, was in the very fortunate position of being a New York Islanders season ticket holder. In the event that there was to be a seventh game his tickets had a value of \$400, since he was offered that for the game. At this point, the sixth game was about to be played - the Islanders were ahead of the Rangers by a game - three to two. If in fact the Rangers won the sixth game, then Mike would be able to sell his two tickets to the seventh game at \$400. However, in the event that the Rangers lost that game, the Islanders would win the series four games to two and the lack of a seventh game would mean that he would receive nothing. Mike would be happy to have \$200 and to not worry about whether the seventh game was played and he proposed that to the buyer. The buyer was willing to pay \$400 for the seventh game, but nothing if there was no game. At this point, Michael has a risk. He has the risk that the \$200 that he would like to get regardless of the outcome of the sixth game could turn into \$400 in the event that the Rangers win, or nothing in the event they lose. Michael could not lay off the risk on his original buyer.

Michael managed to find somebody who was willing to make a wager on the sixth game. That person was willing to accept Mike's bet on the Islanders. In other words, Michael bet \$200 that the Islanders would win. If in fact the Rangers won, Michael would lose \$200 on his bet, but would secure \$400 from the sale of his tickets to game seven. If the Rangers lost the game, Michael would win \$200 on his bet, but his tickets for the seventh game would become worthless. By entering into this bet Michael assured himself of the \$200 which he would have been happy to get for his tickets prior to game six. Now, obviously there is a speculator in this example, the speculator is the person taking Michael's bet. That person is adding to his risk by wagering on whether the Rangers would win. Michael had a risk before the bet. He stood to lose the opportunity to make \$400 one way or make \$400 the other way. By entering into this arrangement Michael in fact was reducing the amplitude of his risk. Both

people were using a market in order to accomplish a purpose. Michael's purpose was the reduction of an existing risk. He now knew that he had a \$200 sale. The other person may be using it speculatively, but not Michael. The point to be made is that a hedger is one who has an existing risk and is using a market to manage or reduce the amplitude of risk. The speculator, using the same market, is adding to a risk which he previously did not have.

This is very much like the futures markets, where different participants can use the markets for different purposes; but the analysis of risk, and the methods of regulating the markets should be very different. I might add that Michael could have done nothing. He could have hoped that the Rangers would win the sixth game. In the event that they did he would make \$400. I would call that inertia speculation. Inertia speculation is the speculation involved in doing nothing and hoping that things work one's way.

Many, if not most, insurance management techniques and many products involve inertia speculation. When we talk about regulation, speculation and use of futures and options, we must ask, "Is inertia speculation the problem or is the use of futures to reduce and manage risk consciously the problem?" Our experience has been that those people who use futures or options tend to go through a very rigorous analysis of their effects on probable rates of return, and this tends to better quantify the risk/rewards of particular applications.

For many in this audience, the subject of what are financial futures is one clouded with mystery. Let us start at the beginning. Why are they important now? Volatility. Futures help to manage it. If one can eliminate the volatility of today's markets he will eliminate very rapidly the need to deal with financial instruments, futures or options, and thereby, in very short order, their very existence. Failing such stabilization, a lot of the competitive thrust in your product will continue to be in offering clients protection from the impact of volatility, without in many cases proper pricing to account for the risk. In time I believe that most of you will have to cope with these instruments and to use them effectively in order to be competitive. As those who do use them know, despite their pitfalls and despite the learning time necessary to fully understand them, they do provide the opportunity to better manage the chaos of existing market places in a more orderly, though, far-from-perfect manner. I do want to emphasize that financial futures or options are not always appropriate to use, nor are the same combinations always going to be best at all times.

Let me talk a little bit about the markets. I am going to join futures and options for this purpose, and afterwards will analytically separate the two. If time permits, I will talk a little bit about when you might use one as opposed to the other. Financial instruments trade on large exchanges. While there are some in New York, they tend to be traded in Chicago, either on the Chicago Board of Trade or the Chicago Mercantile Exchange and its subsidiaries the IMM and the IOM. These are very large, well-regulated exchanges. They are regulated by the CFTC, the Commodities Futures Trading Corporation, which is a sister agency to the SEC and which has authority within the commodities world analogous to that which the SEC has in the securities world. The markets are very large. For example,

the Treasury bond future, one of the large ones, has recently traded as much as \$19 billion in a day. Now we are finding that options on Treasury bonds can trade over \$3 billion a day. Stock futures trade almost as much volume as the entire stock exchange, and clearly some of the shorter-term instruments, Treasury bills, etc. can trade very often as much as the underlying cash markets. Those market sizes are not surprising because these futures markets tend to have very low operating costs, and unlike the situation with certain corporate bonds, they are very easy to follow with Quotrons and other such devices. The markets tend to be very broad because they are used by many people with differing objectives. Take for example the Treasury bond contract; one person may be selling futures as an offset against certain utility bonds. Somebody else may be buying futures, in effect, to hedge pension money expected in a few weeks. Other people may be offsetting positions in the Government markets, others speculating. The point is that there are people with many different rationales who come together in this one market to utilize a "homogenized" security - the bond future. This gives it its tremendous liquidity and resulting low cost and high visibility in addition to an often welcome anonymity.

The markets then are enormous, very well traded, and highly efficient. Once you understand what makes them work you can pretty much determine where future prices will be under any circumstance defined for the cash market. The markets are very well arbitrated by professionals such as Salomon Brothers and Morgan Stanley. That is very important for you as a hedger. You are less concerned with how much money Salomon Brothers is making on their arbitrage; you are concerned that they are doing the arbitrage and that the price of a future can be predictably related to the cash market.

What are these instruments? Let us look at the key aspects of futures first. First, futures are really nothing more than obligations to buy or sell at some time in the future. In discussing futures we tell people first to ignore the futures and to assume that what they are buying or selling is an obligation to buy or sell so many dollars worth of, for example, a 10 3/8% 30-year Treasury bond in three or six months. That is really all a future is: the obligation to buy, if you are long, or sell, if you are short, so many dollars of a designated long-term Treasury bond - since we are talking about the Treasury bond future - at some designated point. The exchanges standardize aspects of the transaction. A bond future stands for a particular amount of certain 20-30 year bonds. A Treasury bill future, likewise, is an obligation for delivery of a certain Treasury bill. We know it is a substitute for the future delivery of that Treasury bill and so on. Domestically, futures also exist on CDs, Euro-dollars, GNMMAs and stock indices.

The second point is that contracts are standardized instruments not only in terms of what can be delivered, but also the time at which they can be delivered. A March future contract is the obligation to buy or sell at the designated times in March, not in January and not in February, but in March. You know that when you buy. You can offset - sell a purchased contract or buy back a previously sold position - at any time, but the time to actually deliver or take delivery is at designated times.

A third item is credit guarantees by the exchanges which - to a degree, and I am not going into detail on this - provide certain guarantees that the other party will, in fact, honor his obligations. More importantly, the exchange establishes margin rules, which I will touch on later, to give substantial credit protection. These are things which distinguish futures markets from forward markets and private non-exchange regulated markets. The legislation which has been enacted in recent years has specified that insurance companies can trade exchange traded options or futures. This is an important safeguard, although I should point out that insurance companies in most jurisdictions have been permitted to trade forward Ginnie Maes and make forward private placements, which did not have these safeguards.

Futures then are basically obligations to buy or sell at some set time in the future. As such, they do not contain any rate of return; whereas a bond will pay a certain interest rate, or a stock index a dividend, that is not true for futures. Futures basically do nothing more than change in line with price changes in the deliverable item; they reflect volatility changes. Consider the following: Suppose that you knew that you were going to have a certain amount of money to invest in pension assets in three months and suppose further that you knew that today's rates would provide more than an adequate return to match whatever actuarially designed yield requirements you might have. By buying a bond future, you are obligating yourself to buy a Treasury bond three months from today basically at today's rates. You could take delivery of the cash Treasury bond in three months and have secured your anticipated yield. In the event that yields go down, you will earn money from the future as it goes up in value. This will allow you to take that money plus the interest you will actually earn when you buy a Treasury bond in three months at the lower rate to come out with the yield that you expected. In the event that the market went down and yields went up, the loss in futures will offset the higher yield you will receive when you actually buy bonds. Most users of these markets offset contract positions using the gains or losses to protect their assets. For most people accepting delivery is not preferable. They may, for example, want to own bonds other than the Treasury bond which is delivered.

If yields rise after you bought a future, you would have been better off not having bought the future, but you will be in no different position than if you had the money today and actually bought a bond to capture today's yield value. You have in effect made the decision that today's yield is satisfactory. As such, the failure to use futures would be considered inertia speculation.

Likewise, if you own bonds or a private placement asset, by selling futures if the price of the asset declines, the expectation is that gain in futures will offset those changes - futures will offset the price change in your cash assets - up or down.

Let us compare futures to options; when we bought a future, e.g., the obligation to buy a Treasury bond at a given yield in three months, we found that if yields went up we were hurt and if yields went down we benefitted. This was no different than if we had owned the bond; we have locked ourselves in to a certain yield level. An option is not an

obligation to take or make delivery, as is a future, an option is a right. If we buy a call option it is a right to take delivery. We have the right to buy a Treasury bond at an agreed price, called the strike price. If we bought the right to buy a bond at \$100, and the market goes up such that the bond is selling at \$120, the call has a value, because at \$120, the option to buy at \$100 is worth at least \$20. Should the bond deteriorate in value to \$90, we would then not be interested in buying and would choose not to exercise the option. Accordingly, the option to buy at \$100 might have no value.

The buyer of an option, therefore, has a right to buy if conditions are favorable. In order to do this, he pays a premium. Without getting into the technicalities of the determination of option premiums, the amount which this right will cost is a function primarily of the length of time during which one has the right, the relationship of the current market to the strike price, cost-of-carry considerations and the volatility of the market which determines the probability of price moves of any amplitude. For a hedger, or the person who knows that he would like to buy a bond at a certain price, the option is often, but not always, the more speculative instrument. It is true that for a set price you have the right to buy and not the obligation. Should the market deteriorate, you are better off. With the future, you had an obligation to take delivery to buy at a set price, but should the market deteriorate you lost money or in reality the opportunity to get a better rate. But, remember that as a hedger, our purpose in utilizing futures is often to lock in a given rate. With the option we are paying a price, a premium, for the right to benefit if the market goes our way, and not be hurt if it goes against us. The question is, over a long period of time, will the option price more than offset this right? Are the people selling us options going to take a loss; are they going to be forced to sell to us more often at a loss than the revenue or premium will generate for them? Obviously, options are sometimes inexpensive relative to that risk and sometimes they are very expensive.

Options can often be a useful tool. For the hedger they represent a more difficult analysis of the possibility of a market move in one direction over a discrete period of time relative to the price that we are paying. For many of your products you are already using options, you are in effect in an option market, whether it is surrender options of SPDAs or cancellation fees for forward mortgages, and as Mr. Sibigroth will discuss, more often than not with very underpriced products. If you take away nothing else from this discussion, recognize that there is a large public market which you can become familiar with as a benchmark for valuing these often "hidden" fee options inherent in many of your products.

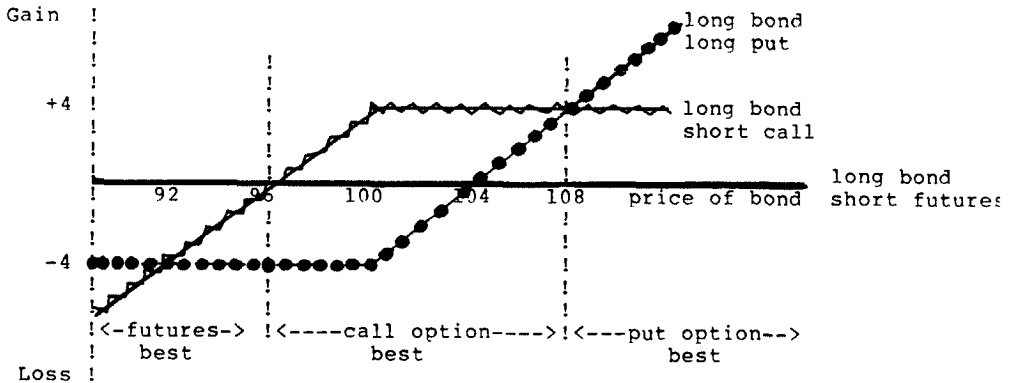
In the debt area the most successful options are those on futures. You can buy a call, the right to purchase the June bond future at a strike price of 72. While many people view options on futures as doubly confusing, in reality one can look through the futures and see them as options on the Treasury bond which is deliverable into the future contract, and which, therefore, is the primary moving force on the pricing of the contract.

The seller of an option has the obligation to buy or sell as the case may be - if the option is exercised. He receives a premium for which he stands ready to buy or sell should the buyer choose to exercise his option. The seller of a call will benefit if prices go down since the right to buy something at 70 will not have value if the price is below 70. Likewise, the seller of a put will benefit if prices go up since the obligation to buy at 70 will have little value if one can sell into the market at 72. With many strike prices, i.e., an option to buy at 70 or 72, and many expiration dates, i.e., options can expire in May or August, the subject of option pricing and managing option strategies can be very interesting, but is beyond the subject for today.

In reviewing the opportunities for a hedger, consider the alternatives for somebody who is long a fixed income asset which he cannot sell, even though he fears a rate increase - he can sell a future, buy a put, or sell a call. The handout I have given you is a simple diagram which illustrates the choices and their effects.

A hedger who is long bonds with a current price of 100 has three basic ways to protect against adverse price moves without selling his bonds. The terminal diagram shows very simply the gain or loss prospects of each of these strategies for a given movement in the bonds at the end of the period. For example, if the bond is at 88, a loss from today of 12 on the bond would be accrued; a short future position would generate an offsetting 12 gain; if one sold a call, the 12 would be partially offset by the premium received on the now worthless call sold at 4. Finally, if we had bought a put, the put would be worth 12, which less the premium paid of 4 would result in an 8 gain or a net cost of 4.

Strategy Comparison
Call Premium of 4, Put Premium of 4



In the event of a decline in bond prices to below 96, the best strategy would be to short futures. However, should bond prices remain between 96 and 108, then the benefits of writing calls would be greatest. Lastly, should bond prices rise above 108, then hedging with puts allows the greatest upside participation. This result can be readily seen in the following chart.

Price of Bond	Gain or Loss		
	Strategy I Futures	Strategy II Call	Strategy III Put
88	0	-8	-4
92	0	-4	-4
96	0	0	-4
100	0	+4	-4
104	0	+4	0
108	0	+4	+4
112	0	+4	+8

Thus, futures and options are very different tools - sometimes one is better than another - depending on your purpose.

Let me spend a few minutes on the difference between arbitraging and hedging. To some extent these are very similar, but the focus is different. Over time most of our clients tend to be hedgers. An arbitrageur is one who will buy one security and sell an equivalent one to capture a small profit due to inefficiencies in markets. A hedger also will often be long one instrument and will short another but with different motives. You might own corporate bonds and short futures so as to protect yourself against a loss should the corporate bonds deteriorate in price. Your purpose is primarily to protect principal or in some cases create a rate of return. Arbitrage is to capture small differences with little risk without generally having an economic purpose other than that. An arbitrageur typically initiates long and short positions to try to capture inefficiencies in a market in areas where he does not have pre-existing risk. Typically, a hedger is seeking to use markets to try to offset or manage existing risk. In efficient markets, the arbitrageur will be the person with the lowest cost of execution and fastest response time to small changes in markets. This is why Salomon Brothers can do well where it will be difficult for you. Sometimes the distinction is more blurred, such as when "hedge" positions are established to attempt to get - usually with some risk - higher than the risk-free rates of return. Option buy/writes which I believe Mr. Sega will touch on, fall into this category.

Mr. Tilley asked me to make a few comments about regulatory status, tax and accounting treatment. Let us look first at the tax and accounting treatment. Tax treatment is somewhat unique for futures. I will speak first about futures, since the law on options is not as yet settled. Beginning with the 1981 tax revisions, futures known as regulated future commodities are generally treated on a mark-to-market basis, there is no difference between long and short positions, and all transactions are treated as 60% long term and 40% short term for gain and loss purposes. In other words, if you short a future as an individual and the future goes

down in price creating a profit of one point in one day, 60% of that profit is taxable as long term and 40% is short term. These are dramatic departures from other parts of the internal revenue code, where there is a one-year holding period to get long-term gain and where you can not have long-term gains on a short position. Recognize that I also said that you get marked to the market at the end of the year. If you do not sell a future, at the end of the year you treat it as if you did in fact sell it at its closing price. The theory is that the daily margin rules, which I will allude to in a minute, in effect make it a day-to-day cash transaction.

How does that affect you, as an institution? Obviously, to the extent that you are dealing with separate accounts or other non-taxable accounts, it is irrelevant. Taxable accounts have a different problem. Most of your applications are going to be for hedging, and the tax code does provide a special status for hedgers. However, to be a hedger you must be hedging against current types of ordinary business risks. In other words, if you were a retailer and you knew that you would borrow substantial sums of money for Christmas inventory, and you hedged the cost of those funds against increases in the prime rate, that interest expense could in fact be considered an ordinary item. In fact, you could get hedge treatment. Hedge treatment would eliminate the mark-to-market, the 60/40 provision and when you close out the contracts you would be able to take the gains or losses as direct tax offsets against your interest expense.

However, if in fact you treat the item you are hedging as a capital asset, this is not true. If you are hedging bonds or stocks, the company will not want to take the position that these are assets held in the ordinary trade or business, because that would mean that any gains would have to be treated as ordinary income. Consequently, you will probably be forced to take the position that you are not a hedger for tax purposes, and therefore you will be subject to gains or losses being treated as 60% long term, 40% short term and you will be subject to a realized tax event on the earlier of the day you close out the contract or the end of a taxable year.

Accounting treatment has improved substantially. There is still a requirement that you identify the items being hedged. That is to say you must indicate that you are hedging at the time you are initiating a position, and that you believe that the items hedged bear a reasonable relationship in terms of yield movement to the item with which you are hedging. That is not difficult; the problems which occur are how do you treat the gains or losses from the hedged item in terms of your carrying cost of the item being hedged. If you are marking to the market, say for a pension fund, that presents no problem. If you hedge \$1 million of bonds with futures and the bonds increase in value by \$10,000 and the futures \$9,000, it is only the \$1,000 with which you must be concerned.

If you are on a cost basis for your assets, as many of you are in general accounts, then you have to pay attention to the rules. Assume you have a bond that you bought at par that is now selling at 80. You short futures against it and the bond goes down in value to 70. You have a loss of 10 on the bonds and gain of 10 on the futures. You are now permitted to decrease the cost of the bonds from 100 to 90, in effect taking the gain

and rolling it into your cost base and amortizing it over the life of the bonds. If the bonds against which you were short the futures go to 90, you have a gain in the bonds and a loss on the futures. At this point you are now permitted to increase the cost of the bonds from 100 to 110 and also amortize the cost of the hedge over the period of remaining life of the bonds. That is a change from what had been true a year or so ago, when you were not permitted to increase the carrying cost of the bonds over their fair market. In the case just cited, where the value went from 80 to 90, you would not have been able to increase the bond carry cost to 110 and would have been forced to take the losses in futures. That, fortunately, is no longer true.

The futures markets are very large markets which operate in large measure because participants assume they do not have any credit fears. This is true to some degree because of the exchange guarantees, but more so because of the margin requirements. The theory in futures is different from that in cash markets. For example, in the cash market if you buy a bond, you have to put up 100 cents on the dollar because somebody else has a bond that is earning interest. You may borrow part of it, but you are going to pay an interest on that because somebody must be paid in full for an interest bearing item. Futures do not bear interest. It will be recalled that the theory is really one of a transfer of principal value change. Since no interest is involved, what really is necessary for any kind of credit or margin system is to be sure that if I agree to sell you something at \$1 million, where in three months it could be worth \$1.2 million, in fact I will deliver it at \$1 million. I will stand good for my loss unlike some situations which from time to time occur in forward markets. The futures market operates on a daily mark-to-market basis to avoid this problem.

If I own a future and if its value goes up by \$10,000 in a given day, I will receive in cash the \$10,000. The person who is short will pay me the \$10,000, and through this mechanism at the end of any given day, theoretically, I am not concerned with that person's credit because I already have the difference. In the cases where the bond goes from \$1 million to \$1.2 million on the last day, it is only that last day's change with which I am concerned, not the entire amount. Consequently, futures are based upon a daily transfer of the cash change in positions. This daily mechanism, known as the variation margin system, is the key to maintaining the economic or credit sanctity of the markets. The exchange serves as the clearing place for all of these transfers. However, one further step is necessary. In order to be sure that a person can meet their cash requirements for a given day, there is what is called initial margin. This amount of money might be thought of as a good faith deposit. It is there to be sure that if a person does not meet that daily mark there will be sufficient funds to be sure that that money is available.

Of course, in the case of speculators, it is also necessary that this money be there to prevent people from trading with absolutely no credit standing. This initial margin can be put up in the form of Treasury bills, which belong to you, the customer, and on which you get interest. Your only concern is the fact that you are tying up Treasury bills which may not return quite as high an investment as some other things which you might choose to utilize. In that sense initial margin constitutes a cost.

Variation margin's basic rate of return implications can be looked at in the following manner. Assume that I own a bond that is selling at \$1 million and I go short futures. The price of my bond goes up to \$1.2 million and I lose \$200,000 in futures. We would agree that I essentially have no gain or loss on a capital basis. However, I will have been required to pay \$200,000 into the futures market. At the time that I sell my bonds I will get the \$200,000 back. But there is a timing problem. During this interim period, variation margin will reduce funds that I otherwise could have had to invest. I will therefore have some adjustment from my rate of return on my bonds by virtue of having to pay in that margin. By the same token, should bond yields go up and the value of my \$1 million of bonds decline, I will receive money from the futures market. Should the bonds go down to \$900,000, I will have gotten \$100,000. Obviously, if I sell the bonds I will lose the \$100,000 which will make up for the \$100,000 gained, but in the interim I am getting the same cash return on my bonds, but I now have \$100,000 to invest thereby increasing my rate of return.

When I own a bond outright, basically I have a fixed amount of interest representing the coupon interest on the bonds I bought and a totally variable interim principal value. If I own a bond that I have hedged, I have no gain or loss on the principal value, but because of this margin system I have an interim movement in yield which will move sympathetically with interest rates. As rates go up, I will get money from my short futures which I will invest, which will tend to increase my rate of return. The opposite will happen on the way down.

Let me just touch on one or two other items. First is the relationship between futures markets and cash markets and the relationship between the different contract months. Again, I am going to use the example of Treasury bonds, not only because they are simpler, but because that is what many of you will be dealing in. If in fact we were to decide that the financial future was the equivalent, had a delivery value of 12% bonds, and if those bonds with a par value \$75,000 were now selling at \$75,000, where would we expect the futures to sell? Would we expect the future to sell at a \$75,000 value or would we expect the future to sell at something different? This is the whole subject of relationships between the cash and futures markets. Suppose that we knew that we could buy \$75,000 of 12s at par, and we could borrow money at 8% to do that. If we could have an understanding where we could sell the bonds in three months, also at par, this would be a good thing to do. We would buy at \$75,000, earn 12%, finance it at 8%, agree to sell it at \$75,000, in three months and in effect make a 4% annualized spread or 1% for the quarter. If we could do that we would buy long and sell three months out all day long. That pressure would drive up the value of the current bond and drive down the amount we could get in three months, until such time that there would be a loss in three months from the sale of bonds. That is to say, the bonds for delivery in three months are worth 1% less than their value today, the 1% offsetting the money that I can make in carrying and financing the bonds. Futures being no more than an obligation to buy or sell the underlying bonds will tend to react the same way. In the case where the bonds into which futures can be delivered have a value of \$75,000, the future will be sold and the cash bond bought until the difference between the price of the cash bond today and a value through the futures in three

months will in effect be the gain or loss you can earn by carrying the bonds. There are some technical adjustments in futures which will vary that to a minor degree, but that is not our subject for today. In a positive yield curve, when long-term rates are higher than short-term rates, where you can buy a bond at 12% and finance it at 8%, and sell futures to eliminate the principal risk economically the futures should go down in value relative to the cash value; the right to sell in the future has a lower capital value because of the carry profit. Consequently, a future for delivery in three months should sell at a lower price than the value of the bonds into which it can be delivered today. Likewise, a future with a right to delivery six months out should sell lower than the one three months out, because if I buy the first future and sell the second, I can take delivery from the first, earn my 12%, finance it and redeliver it. The second future will tend to sell at a lower price than the first reflecting that. You see in the Wall Street Journal the line of futures contracts at successively lower prices. It does not tell you that people think that rates are going higher, it merely tells you that there is a positive yield curve. You would expect that with a negative yield curve, each successive future would sell at a higher price reflecting the same kind of phenomenon. This tends to be true in all the futures even though I have used the example of the Treasury bonds.

The final thing that I want to touch on is the subject of basis risk. Basis risk gets into a whole different question. Basis risk refers to the relationship between the market underlying the futures - in the example we have been using - the Treasury market and the markets which you are seeking to hedge. If I own a corporate bond, I could sell it and by selling it I eliminate the principal risk on it. If I own a corporate bond against which I sell the Treasuries in the form of futures, I am subject to the decision as to how many Treasuries I should be short to protect the principal risk on the corporate side. This relationship between the Treasuries and the corporates is referred to as basis risk. It comes about in many applications. If you are a borrower who borrows at the prime rate and you use Treasury bill or CD futures to hedge the prime rate loan - you have basis risk; your hedge instrument is one rate, but the item you are hedging is another rate. This requires some management, and fortunately this can be done within a certain tolerance of error. The methods of doing this are a little beyond the subject today. Suffice it to say that this is one of the things one takes into account in looking at the applicability of futures. The cost of futures is often sufficiently less than other alternatives, for example, buying and selling the corporate bond in lieu of using futures, to give you a very big head start. But I would like to go one step further and say that this kind of decision-making on relationships between sectors, between corporate bonds for example, is part of a bond manager's business anyway. I get a little bit perturbed at people who talk about the basis risk involved in owning a corporate bond and shorting a future when we look at the alternatives. If you have a large portfolio of several hundred million dollars, and you decide you wish to reduce your amplitude of risk by 10%, you don't sell 10% across the board. It is very rare that it is a feasible strategy because the liquidity does not exist in certain bonds, and there is the sheer management problem in trying to do it. You will decide to sell certain bonds, either because you think they are going to underperform the others or because that is where the liquidity is. If you are selling the

bonds because of liquidity then clearly the question of which is a better bond to sell cannot be viewed as a better way to conduct your bond portfolio than having someone whose job it is to decide bond relationships decide how certain bonds will perform relative to Treasuries. To the extent that you are making the decision to sell a certain bond because you think it is going to underperform other bonds anyway, you are selling utilities and keeping telephones, you have made the same basis decision. So the need to determine the relationship between corporates and Treasuries is often blown up as a big problem. In fact, recognize that (a) you have a cost advantage in doing futures and that (b) you are apt to be much more analytical in deciding what to do rather than as a practical matter, doing what liquidity permits you to do. With respect to other applications, the basis risk is one of those things that must be taken into account and very often can be a very positive element. Very often there are situations where that becomes a controllable risk; that is desirable.

In summation let me say that futures and options represent tools and very often, interrelated tools. These tools are such that they give you a lot of flexibility. We all know that the insurance industry does not lend itself to risk-free investment products. Futures and options help you to control that risk. They allow you to deal with much larger products with a much smaller risk per dollar. They let you do things sometimes that you could not do in the cash markets without futures. We have only scratched the surface today. Futures are not a panacea, but life is certainly much easier with them than without them once you understand them. Learning to use futures can be time-consuming. Developing an expertise takes a little bit of time, but once one does it, it tends to be well worth that time.

MR. ALAN W. SIBIGTROTH:

First, I would certainly want to echo Mr. Rebell's thoughts about the benefits of joint interaction between the product and the marketing resource, and the investment expertise. I have found basically two tracks that companies will adopt. Either you have an investment arm that is concerned about the investment exposure and feels that they cannot profitably offer an attractive rate in the market place for certain types of interest-sensitive products, or you will find a marketing operation that has a very strong distribution channel. I think that it is very important to try to understand how both units can come to grips with the problem, and the types of information they need on a regular basis to manage the problem before moving ahead. Another point is that while analytically, you can draw a rather clear-cut difference between hedging and speculation, as a tool of investment strategy it is not always that clear. Generally, companies will start off on a management program because they want to hedge certain aspects of their risks. But after you become more comfortable with these contracts, it is hard not to try to speculate. I was also sympathetic with Mr. Rebell's comment about getting a little confused about whether he was delivering or getting delivered to. This is a common problem in the marketplace and it is one reason that I recommend straightforward strategies so that you do not find yourself in the position of selling contracts, when you should have bought contracts.

Moving ahead, I would like to leave you with two thoughts today. First, recognize that the options and the futures create additional exposure and the risk in using options and futures is very real.

Secondly, I hope to show you that there is a great deal of flexibility in the construction of different risk and reward patterns, by putting together different types of options and futures to basically construct different composites of risk and rewards across the range of changes that the underlying security may undergo. Certain policy features frequently can be represented as options contracts. The exposure of offering options - that is - writing options or giving options to policyholders can be expensive and can in many cases be several multiples of surplus. Now, even though you do not see these options reflected as actual cash payments of the policyholders because the insurance companies perhaps are not liquidating the assets associated with those liabilities, this is in effect what is happening. Futures and options can be used to help manage this exposure. Obviously, one advantage is to quickly reduce the risk associated with various policy features. They can also be used to help accrue yield or optimize yield on existing portfolios. For example, when assets are somewhat depressed, writing call options can be helpful to bring in additional income. Another approach which I have not seen used extensively, is to use future contracts to increase the leverage associated with different pools of investment. For example, in theory, you could leverage an equity pool that might perform two times or three times or five times at the rate that the market performs.

I found that there is some degree of classical thinking in the investment areas which reflects itself as an attempt to lock in the positive spreads for the term of the liabilities. Obviously, if you are a hedger, you will receive a lower profit margin for attempting to hedge this risk and covering it. The consequent effect of that is that if you have an interest sensitive product, it oftentimes is the case that you will move the entire portfolio regardless of what the investment scenario happens to be into a short-term position. As a result, you are going to be forced then to retain some investment exposure on that portfolio. The problem becomes one of attempting to actively manage that portfolio to earn additional profits over the term of the liabilities.

Even if you are not contemplating actually trading options and futures, there are many values to understanding the techniques. One particular value is understanding the financial worth of policy features and comparing them to the perceived market value. Many times, features that are being offered in the marketplace are far more costly than is their perceived market value. Another issue is that policy features generally cannot be selected individually. If you surrender the contract, for example, you give up the right to elect other policy features and this should be kept in mind. Another point is not to lose sight of the opportunity for liability management as well as asset management in using some of these instruments. There are certainly ways to restructure policy features to move away from the more financially expensive contracts.

I would like to make a few comments about the use of futures vis-a-vis options as they are linked to policy features. First of all, recall

that futures share the full market risk. They have both the gain opportunity and the loss opportunity. Options on the other side are closer to an insurance policy. You pay a premium to get the option for some stated economic benefit if the market moves in a certain direction. Options, from my experience, tend to be nearer to most policy features for a number of reasons. One is that features are held by the policyholders. The policyholder decides whether or not he will elect the feature. As such, he may not choose to elect the feature if there is no economic value in their doing so and he keeps the contract in force. So, your ability to see the gain opportunity if the market moves in your favor may not be realized. Secondly, there is a reluctance on the part of the insurance companies to forego the capital gain opportunity should it arise.

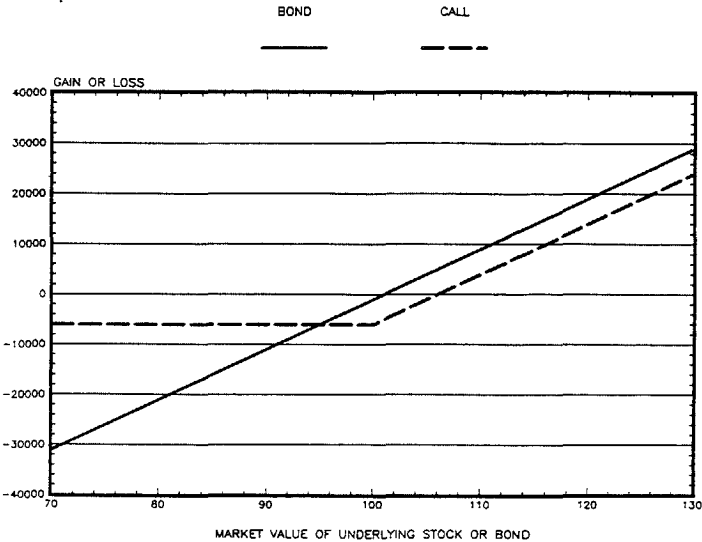
Another aspect that we mentioned earlier is that options are a one-sided risk. This is one consideration that you may want to bear in mind. Further, you can construct synthetic futures, or synthetic options, by using different combinations of futures and options. For example, you can construct a future or a cash-type position by buying a call and selling a put. This is frequently of interest, particularly where there is not enough liquidity in the particular instrument you would like to buy. An example of this is put contracts, where for many of the vehicles, there just is not a large enough active market to make an effective trading strategy. The other consideration is that the insurance department in the State of New York has, for whatever reason, decided that put contracts are not usable as part of the hedging strategy. That in effect forces you to move towards the use of calls and futures to get to the same place; and there is some question as to whether you can even do that. But the equation you might want to bear in mind is that a call is equal to a put and a future. One disadvantage with using this strategy is that you may have to establish one side of the transaction before the other. You may not be able to handle both sides of the transaction at the same time. This can become a problem, for example, when futures and options are traded on different exchanges. A problem is that over the short term, you may find significant departures in the relationship between the put, for example, and the futures contract if you have a composite position.

I would like now to show you a couple of illustrations of how you can put options together and come up with different resulting positions and I would like to indicate the flexibility to replicate the same kind of gain and loss opportunity that you might have on the liability side of the house. And I hope that you will see, what I call, buoyancy - that is, you probably are going to have to lose money some place, but your gain opportunity will be related to how much of a loss opportunity you will have in another area. This is all part of structuring an approach with a net risk position that is viewed as affordable. I have made some simplistic graphs here, just to give you a little indication of how you can structure composite positions.

This graph shows a fairly common way of representing option or future profits.

PROFIT AND LOSS GRAPH AS OF APRIL 8 1984

10 CALLS - STRIKE PRICE 100, BOUGHT AT 6

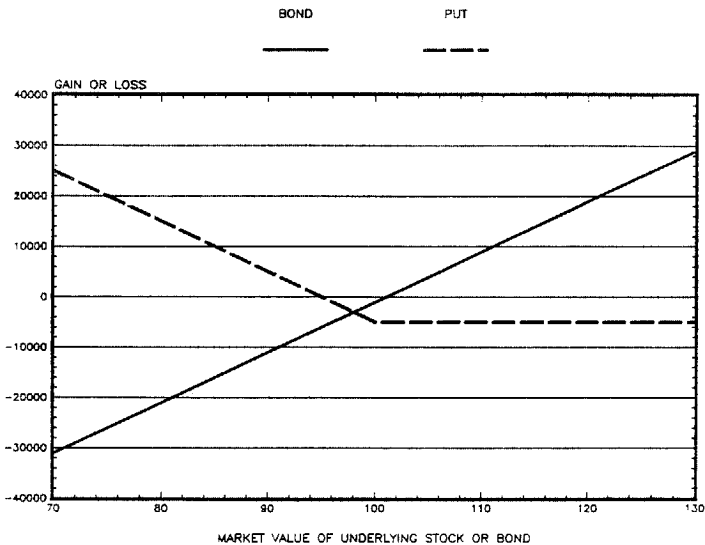


The horizontal axis represents the market value of the underlying stock, bond or future contract at the maturity date of the particular option. The solid line represents the gain or loss that would be associated with the cash yield for either stocks or bonds or the future. The example assumes that the cash instrument is currently priced at a \$100. If the price went to \$110 you have a \$10,000 gain on the cash instrument. The option in this example is based on a strike price of \$100. That means that the option does not begin to have any real value until the underlying issue gets above \$100. This particular call option is purchased for a price of \$6. A call is an option that increases in value with increases in the underlying equity. And you can see that as the call moves into the money - it picks up in intrinsic value - you see that it also parallels the gain associated with the underlying security. The real point here is a leveraging opportunity associated with calls. You would have to invest \$100,000 in the cash instrument, assuming you are not investing in

futures, whereas you only have to invest \$6,000 to get the calls. You could only lose \$6,000 and yet if you have a 20% increase in the value of the underlying equities - the call would be worth \$20 and you would have paid \$6. So you would have a contract worth \$14. That is an increase of over 100% in your investment.

Here is an example of a put contract.

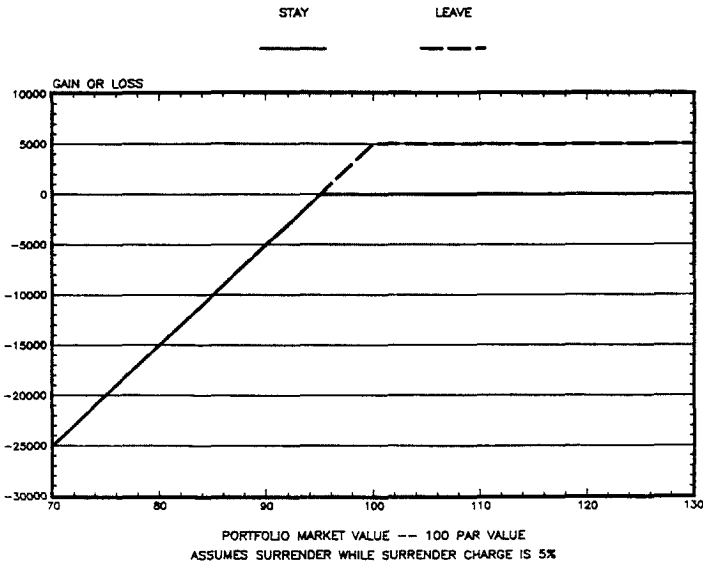
PROFIT AND LOSS GRAPH AS OF APRIL 8 1984
10 PUTS - STRIKE PRICE 100, BOUGHT AT 5



A put contract is just the inverse of a call. You have a financial gain as the value of the issue declines. I would like to point out that the put here is priced at \$5. You will generally find the put price a little less than calls. There are a number of reasons for that but I will not go into them. If you were to buy both a put and a future, I think that you might be able to see that what you are back to is a call-type of risk pattern. And so, this is a way to establish the position if you cannot buy a put. I might just add as we are going through this that these values only reflect the value of the call at the maturity date.

I would like to indicate just briefly, how we represent policy features in terms of options. What I have shown here is a 5% surrender charge feature and I tried to represent the gain or loss from the company standpoint as the market value of the underlying assets move one way or the other. Basically, we are saying that the company still has a gain position whenever the bond values are better than 95% of par. Of course, as market prices decline, they start moving into a loss position.

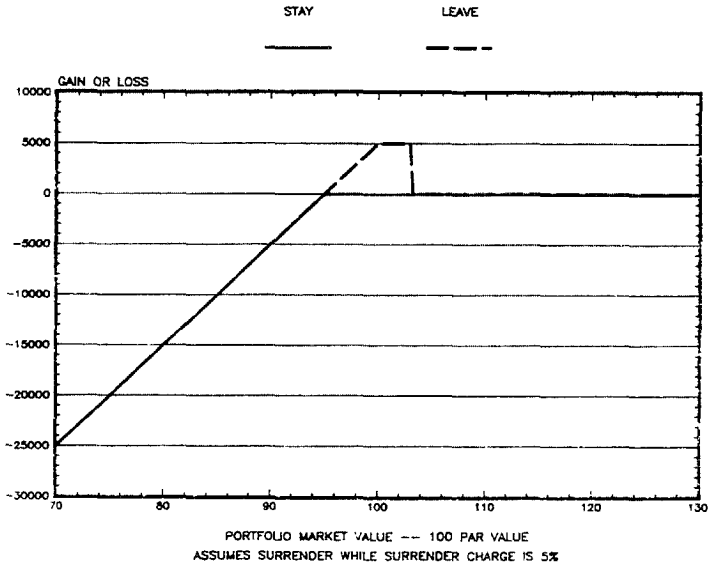
PROFIT AND LOSS GRAPH AS OF APRIL 14 1984
 VALUE OF SURRENDER FEATURE



Here is an example of a bail-out feature. The bail-out feature simply says that if interest rates go down, the surrender penalty will be waived.

PROFIT AND LOSS GRAPH AS OF APRIL 14 1984

SURRENDER AND BAILOUT FEATURE



Once we have been able to represent options - or represent policy features as options, the next step is to come up with price for the vehicles. There are a number of formulas that you might use. You have formulas that relate to warrant pricing. You have the Black-Scholes model which relates to equity options. You can make up your own, if you get into real life situations. The idea is to develop a theoretical value for these different policy features. If you use one of these approaches, the value is a function of the strike price, the market value of the underlying equity, the volatility, and the general level of interest rates.

Interestingly, there is no need to forecast where the price of the underlying security is going. One has to be very careful to observe the distinction between the policy features and the pricing model which is being used. For example, I showed a simple case here where we had a 5% surrender charge, but typically surrender charges will change over the term of a contract. This has to be reflected. Policy features tend to have longer-term options than are traded today and the formulas may or may not work when you move out into options with terms extending over a period of years. There may also be certain contractual features or limitations that deviate from option vehicles. Another point is the cross hedge situation where the underlying issues that you would like to invest in are different from what you have access to in the marketplace. For example, many of the contracts are traded relative to government issues, whereas you might have a portfolio of CDs or bonds of lower credit. They do not move the same way and they can move for technical reasons that do not relate to interest rate changes.

Lastly, let me talk about some trading considerations. Do not underestimate the effect of the basis. As an example of that, when I started in the trading business, my first order of business was to try not to make money, which sounds a little odd. But I felt that it would be useful to learn how not to make money. You will have days when as I did - Fisher Black would have been proud. I applied a perfect hedge on an option versus futures position and left the Exchange at noon, thinking that I was absolutely covered and instead had my biggest trading loss. So, do not feel that you are perfectly protected if you apply a hedge. Another point to consider is that there can be a problem with liquidity. As I mentioned, many policy features are relatively long-term instruments and the trading in longer-term options can be quite thin. It is not a very pleasant feeling to get caught in a position where you want to get out in a hurry, and you cannot find anyone on the other side of the transaction. I have seen a number of people in that situation. I have had that feeling myself and it may be like an insurance company which writes SPDAs. As a rule of thumb, when I am trading relatively illiquid option vehicles, I try not to position myself with more than half of the average daily trading volume. That may sound like a lot, but it is not - this could be 50 contracts or less. Another consideration is that there are gap openings in the market. You may have a strategy that says that I want to do this if the price puts me at some level. The market can move to that level before trading is even executed; so that tends to disturb results.

A point that came up earlier is to be wary of trading on theoretical value. Many times you will find that equity options, for example, are well above or well below their theoretical values. You might be inclined to sell, and try to pick up the premium as it returns to a more theoretical base level. But if you do so, I caution you; it could be a tender offer, it could be any one of a number of considerations that very clearly reflect that increase in premiums. And you have many people that trade contrary to the Black-Scholes model.

People get accustomed to buying things - do not forget that in the options and futures business, you can open a position by selling it as well. I have been in a situation where you attempt to sell a contract thinking that you bought it when in fact you sold it, and then end up doubling your

exposure - not closing out the position. That is going to hurt. As a consequence, try to keep your trading strategy simple. You want to be able to move quickly. On a futures contract for example, there are only two ways it can go - it is either going to go up or down. And the questions are - what am I going to do if it goes up? what am I going to do if it goes down? Think about that ahead of time - it gives you a lot of confidence in what you are doing. Try to avoid strategies that require extensive or active portfolio rebalancing. This is where you are trying to keep hedge ratios in line. There is a good chance you will not be successful in implementing the strategy in a timely fashion.

In conclusion, I would say that if you really want to trade do so expecting to lose money. I guarantee you, you will not be disappointed.

MR. RICHARD L. SEGA:

Thank you all for your expression of interest in financial futures and options. I am encouraged to see that Regulation 111 has not completely discouraged everyone from being here.

Mr. Rebell told you what these so-called "derivative instruments" are, Mr. Sibigroth and I are here to tell you why you want them and need them in your business. I will concentrate on the application of options and futures to the business of insurance, viewed primarily from the asset side of the balance sheet. I will talk about several possible uses of these instruments and give examples of how we at The Travelers have used them and intend to use them in the future. I hope that your own imaginations will generate many more possibilities. I will also briefly discuss some limitations we have found, and wrap up with a mention of few common misconceptions about futures and options that I have encountered on the part of clients, technicians and management.

Let us look at some hedging examples. One can hedge the change in rates between a loan commitment date and takedown by selling futures. If rates rise, the futures gain compensates for your opportunity loss.

Another example would be if your company commits for a GIC today at current rates. The risk is that rates fall before you get the money. To hedge this you can buy futures and unwind as funds become available.

For example you sell a 5-year GIC effective July 1. You plan to back it with a 10-year commercial loan because your corporate forecast is for rates to go down over a five-year horizon, but you are not sure about now until July. Buy futures (or call options) in proper ratio for September delivery (first date past July). If rates are steady, you unwind when you find the mortgage, with no effect (except loss of time value for options). If rates rise, presumably the mortgage would be cheaper.

If you had bought a future, you would have losses restoring you to your original position. The call would be out of the money, and you would have lost the premium. On the other hand, if rates fell, you would have to pay up for the mortgage, but the gain on the hedge would help you do that.

There are risks that can be hedged when divesting assets. For example, a sudden withdrawal of funds might generate a need to sell securities. If current levels are attractive, selling futures to lock in the level might be advisable until securities could actually be sold.

Suppose you are near the end of a GIC contract, and your fear is that rates will rise and your projected cash flows are such that you will need to sell securities to cover the maturity. You could decide to give up a part of the profit on the contract to protect the rest of it by buying a put, to be exercised if prices really do drop. You might do it anyway to avoid cross subsidies. This is sort of a portfolio term insurance.

You can manage the risk of an asset group by adjusting its duration and interest rate exposure with futures and options. This falls into the area of portfolio management.

Reconsider the GIC we wrote, the 5-year maturity backed by a 10-year mortgage because we are bullish on rates in 5 years. You as a portfolio overseer are advised that the forecast is now changed, and so you are no longer bullish. You are mismatched. What can you do? A quick and easy way to get a better match is to shorten up by selling futures such that the duration of the combined mortgage/futures position, i.e., its price sensitivity, is much closer to that of the liability. This approach is particularly useful in times of scarce investment product at the shorter maturity.

In all these uses, I want to emphasize that we do not and cannot eliminate all risks. Even if there were such a thing as a perfect hedge, we as insurers probably could not afford to use it because of the cost. We are in the business of taking risk. If we do not assume risk, we perform no service to our clients, and they have no reason to pay us anything.

Futures and options can be useful tools in managing and assessing risk. Many of the provisions and guarantees we make are optional in nature. Actuaries are quite accustomed to dealing with anti-selection, but not so accustomed to analyzing it in light of an option pricing theory. I think it is a good exam topic to study option pricing theory as it relates to the valuation of a portfolio containing callable bonds, deferred annuities with lump-sum settlement, book value withdrawals from accumulation contracts, policy loan rates below the market, contract discontinuance provisions and the like.

You might ask, "Why do we need these things? We have done all this before without them." Maybe so, but not as cheaply and not as well. Here are some examples of things we have done and have looked into doing at the Travelers that would be expensive or impossible without futures and options.

One can use futures to manage the duration of a portfolio. This concept involves using futures to expand the range of possible portfolio durations from the 0-10 years available by buying bonds in the marketplace to an effectively infinite range. It is the only way I know of to get a negative duration, if that is what you want. Theoretically, bonds could be purchased because of their coupons or quality, call provisions etc.,

without regarding maturity and their price sensitivity is increased or decreased to desired levels by buying or selling futures.

One thing we looked at as we developed this concept was a dual index Universal Life product. We designed an investment scheme that involved the use of a blend of short-term paper, 5-year notes and put options. The idea was to offer the higher of the 3-month bill less 200 b.p. or the 5-year note less 150 b.p. While the structure worked in theory, it involved the use of over-the-counter puts which are prohibited. Also, our profit goals dictated the spreads, which were too wide to be competitive. So, while the experiment failed to produce a marketable product, it served to give us an education in the use of options, and new ideas for other applications.

We have also looked at hedging foreign currency risk. In a Canadian subsidiary you might have surplus funds invested in Canadian dollar securities. When the profits are repatriated, you are at risk for the exchange rate. You can very successfully hedge off the risk through selling Canadian dollars forward. Of course, you forgo any benefit of having the Canadian dollar strengthen against the U.S. dollar.

Let me give you a couple of ideas that we have worked with that have proved to be attractive to managed account clients with pension money. The first is an asset allocation fund. We have a model which constructs a theoretical mix of debt and equity for a portfolio based on current market conditions, say that is 60-40 debt versus equity, based on the relative value of the two asset classes. The actual portfolio which may be 70-30 equity over debt, for instance, is altered by taking positions in stock-index and Treasury bond futures. The resulting performance mirrors a portfolio with the desired mix, but without the possible incurring of losses on sales and the much higher transaction costs that you would see if actual rebalancings were to be done.

Futures and options can be combined into an attractive alternative to active bond management. For example, if you had invested in the Lehman Brothers Kuhn Loeb Government/Corporate Bond Index over the last ten years, you would have been a second quartile performer seven times and have had a cumulative total return in the top 36% over the period. Not bad for not doing anything. As far as active bond management goes, it sometimes appears better if you do not do anything; but how can you buy the Index? You can replicate the Index (composed of over 6,000 bonds) with 30-40 bonds, carefully selected, and fine tune the duration with futures. Then, by writing out-of-the-money call options on T-bond futures on some percentage of the portfolio you can generate enough incremental return to defray management costs most of the time, but not all of the time. Because in a strong rally the overwrite truncates gains and you will fall through the Index. There is no free lunch.

Now let us discuss some of the limitations that you might face in looking at these markets for hedging purposes. While there are financial futures trading on over half a dozen different instruments, and options on three or four, that is still a far cry from the instruments in our portfolios. This requires "cross-hedging", i.e., hedging one instrument on another, e.g., a bond or note future. Cross-hedging exacerbates an already

existing problem called "basis risk." The "basis" is the difference between the cash price of a commodity and the price of a futures contract in the same commodity. Basis risk is the risk of loss to the hedger resulting from changes in the basis. You as a hedger must recognize that when hedging, you are replacing market exposure with basis risk. Thus, hedging only makes sense if basis risk is perceived to be less than naked market exposure risk.

Another problem that arises has to do with available delivery dates. Insurance company asset and liability horizons extend out many years. Delivery dates for futures and expiration dates for options run from 6 to 18 months and even then that is pressing it. This requires rolling hedges which increases costs and reduces effectiveness.

While the Chicago Board of Trade T-bond futures market and the market in options on that futures contract are deep and liquid, even they would have trouble supporting the full hedging needs of our industry. The other contracts in notes, CDs, bills, Eurodollars, etc., are even smaller. The market needs hedgers and speculators alike, and the size of financial futures and options contracts, as opposed to those on the equity side, pretty much preclude retail participation by all but professionals and institutions, and this is a limiting factor.

Let me review the current regulatory situation. Last July, Governor Cuomo signed into law some reforms to the New York State Insurance Code. One of the things it did was to permit for the first time the trading of futures and options in life insurance company portfolios. That was a long-awaited happy day for those of us working in insurance company investment departments. But just so we did not lose our heads and get too happy, on March 19, Superintendent Corcoran issued Regulation 111, implementing the newly granted authority. Here are important highlights as I interpreted them:

- Authorization covers life insurance companies only, not casualty and property companies.
- The instruments have to be traded on nationally recognized exchanges or Boards of Trade.
- The contracts must be on "obligations" or currency, and this seems to preclude stock index futures.
- Transactions must be for what is called a "bona fide" hedge i.e., a hedge of a specific purchase or sale (within a year) of an instrument with "high price correlation," i.e., no general portfolio hedges.
- Total amount hedged falls into the 2% "admitted asset basket."
- Put options are not permitted at all.
- There are onerous disclosure and reporting requirements.

Needless to say, we have been thrown a few regulatory crumbs to nibble on, but we need to do a lot of work to gradually convince regulations to expand.

On the accounting front, I would say that the Financial Accounting Standards Board's proposed statement for futures is not too bad, and proposes reasonable accounting treatment for transactions that cannot even be done legally, like portfolio hedging.

Now I would like to dispel some common misconceptions. First, "Aren't futures, forwards, and options all the same?" No. Forwards are simplest. Remember when we used to sell new money business and the advance of commitment process was a key to it? Well, a forward is the same thing. It is a purchase with a delayed settlement on a specific issue, and it is an agreement between you and whoever you made it with, Salomon Brothers, Merrill Lynch, etc.

Futures are sort of like a whole series of one-day forwards. There is, of course, the exchange standing between the long and the short so there is no direct relationship, and there is "market basket" delivery as opposed to a specific security, but it is still a contract, an obligation to perform. Options are rights, not obligations to the holder. They are contingent liabilities to the short. Their risks are not symmetric and they do different things to portfolios than futures and forwards.

A second popular misconception is that "Future prices are the market's forecast of interest rates in the future." Despite the name "interest rate future," no. Futures prices have less to do with prices of the future than they have to do with the yield curve of today. To the extent that you feel the shape of the yield curve is an indication of futures rates, then futures prices are an indirect reflection of it but futures prices are not forecasts. This is due to a thing called arbitrage, and it leads to my last common misconception.

I would like to respond to the assertion that "With futures, one can buy long bonds and lock in a high rate with a hedge." Suppose you bought the 12's at 100 and sold it forward with a one-year future, and actually earned 12%. You would have a one-year government piece of paper with a 12% yield. Arbitragers would buy it until the cows come home, financing it by borrowing short-term. Do not fall victim to this misconception. You cannot systematically get long-term returns with a short-term risk. The futures price would drop due to selling pressure, and the yield would converge to the short rate.

In conclusion I would like to emphasize that futures and options are not "magic" solutions to any problem. They are no substitutes for prudent product design, informed investment judgement and sound actuarial practice. But they are very powerful tools, which can enable our industry to better serve our clients and shareholders. I encourage all of you to learn about them and promote their effective use.