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MARKET-VALUE ACCOUNTING

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Panelists will discuss Financial Accounting Standard (FAS) 107, FAS 115, market value of liabilities, the impact of changing interest rates, and statutory issues, including market-value-adjusted products.

MR. STEPHEN M. BATZA: I work for Milliman & Robertson. Joining me on the panel is Mike McLaughlin from Ernst & Young, and we're here to discuss market-value accounting.

The topics we'll be discussing include: *FAS 115*, which is the generally accepted accounting principles (GAAP) accounting standard for valuing assets at market; surplus volatility and what that means in a market-value accounting environment; fair value of liabilities; and a catchall of miscellaneous items. We don't have any formal presentation for the final topic, so that's where you come in with questions, and we hope that we'll have answers.

FAS 115 is the accounting standard that dictates fair value accounting for assets in GAAP financial statements. It is the result of several issues that were of some concern to the FASB. The first issue was the concern on the part of regulators regarding the sale of debt instruments prior to maturity. There was a common strategy among life insurance companies to sell only those assets that had capital gains which would then be recognized and retain those assets with unrealized capital losses, which they would continue to hold at book value. This strategy increased surplus because companies would realize their gains and not their losses. The second issue leading to *FAS 115* was the inconsistent accounting guidance on how to account for debt instruments that are held as assets.

FAS 115 applies to marketable equity securities and all debt securities. Debt securities include things such as collateralized mortgage obligations (CMOs) as well as treasuries and corporate bonds, which are the more familiar debt securities.

FAS 115 establishes three classifications of assets, and each classification has a defined GAAP accounting method. The three asset classes are held to maturity, trading, and available for sale. All assets within the scope of *FAS 115* are to be categorized into one of these three classes. Assets are categorized at each balance sheet period; each time you prepare a GAAP financial statement, you have to classify your assets. Assets, once classified, should not change categories very often. For example, an asset that's classified as held to maturity should rarely get out of that category. It's important that assets be classified correctly because of the limited movement allowed among categories.

The first asset class is defined as "held to maturity." Only debt securities are included in this category. There's no such thing as a maturity date for equity securities so there won't be any equities in the held-to-maturity category. To classify a security in this category, the

company must have both a positive intent and the ability to hold it to maturity. If it's obvious that you can't hold a specific asset to maturity, you can't put it in the held-to-maturity class. Assets classified as held to maturity are held at amortized cost, so they have no market-value adjustment.

The second asset class is identified as the trading class. These are debt and equity instruments that are acquired for very short periods of time, and you fully expect to trade them. These assets are not being used to back any long-term liabilities; they are usually assets that you buy and sell with the intent of making a quick profit. As a matter of fact, buying and selling in this category is mandatory. You can't put an asset in this class and keep it there for an extended period of time. I don't know if there is an established standard regarding the length of time you can hold an asset in this category. I think if you held it for more than a year, there would likely be some concern that you're not really trading that asset. Assets in this class are carried in GAAP financial statements at market value; debt instruments are therefore directly affected by changes in interest rates. As interest rates rise, the market value of debt instruments decreases, and as interest rates decrease, their market value increases. Even if you haven't sold these assets yet, if they're sitting in your trading category, any unrealized gains go through your earnings statement. These assets are treated essentially as if they're sold and repurchased on the date they are valued.

The third class is sort of a catchall class for assets, and this is the available-for-sale category. This category includes debt and equities, and they are carried at fair value. The difference between this class and the trading class is that these unrealized gains and losses go through equity. They do not come through the income statement. Changes in market value for this category would therefore show up as changes to policyholders' or shareholders' equity.

Now that we've defined the three classes of assets, the question is, what did companies do when this became effective? *FAS 115* became effective right at the end of 1993 or at the beginning of 1994, however you want to look at it. At that point in time, companies had to assess how to allocate their assets. In the middle of 1994, several surveys were conducted, and the results showed that between 70% and 80% of life insurance company assets were allocated to the available-for-sale category. I say between 70% and 80% because it depends on which survey you look at. The results of one survey had it at about 70%, and the results of another survey had it at about 80%. Regardless of which one you look at, it's obvious that the bulk of the assets have been allocated to the available-for-sale category.

What were the reasons for this allocation? I think we'd like to look at the results and say that management made a conscious decision that, based on its conclusion that portfolio flexibility was imperative, it had to be able to buy and sell assets. In other words, the decision was that portfolio flexibility is more important than equity stability. The more assets that are put in the available-for-sale category, the more you're at risk that changes in interest rates will increase or decrease GAAP surplus due to changes in market value. In reality, many decisions to allocate assets to the available-for-sale category were likely due to the interest rate environment at the time. When *FAS 115* became effective, interest rates were low; there were large unrealized gains in insurers' portfolios on a market-value basis. So the interest rate environment helped push the decision to put assets in the

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available-for-sale category. The combination of portfolio flexibility and low interest rates at the time *FAS 115* was adopted led to the large distribution of assets in the available-for-sale category.

Well, that allocation was made at the end of 1993 or at the beginning of 1994, but what happened as we went forward in 1994? Interest rates began to rise, and the market value of companies' debt instruments began to fall. Companies suddenly experienced a fairly large deterioration in their GAAP capital because they had a large proportion of their assets in the available-for-sale category, and they were really unable to do anything about it. As the market value of these assets fell, companies' GAAP capital fell also. You did get some offset from what is known as a shadow deferred acquisition cost (DAC), but that offset wasn't that great.

The shadow DAC is a concept that was introduced by the SEC. When DAC is amortized under *FAS 97* or under the new GAAP for mutuals standard, it is being amortized over estimated gross profits or estimated gross margins. Included in those gross profits and gross margins are gains on interest, but they exclude unrealized gains and losses. The SEC came in and said now that there is market-value accounting, unrealized gains and losses must be included in insurance company statements. So the SEC mandated a notional DAC amortization that includes unrealized gains and losses. This has become known as the "shadow DAC;" it includes unrealized gains and unrealized losses as part of estimated gross profits and estimated gross margins. The shadow DAC does not affect the amortization of DAC in the income statement, but it does affect equity. For example, if there is a rising interest rate environment, the value of your portfolio drops, and you have unrealized losses. Those unrealized losses reduce the estimated gross profits and you amortize less of the shadow DAC. So there is some offset from the *FAS 115* market-value adjustment by virtue of the shadow DAC, but it certainly does not completely offset those adjustments.

The differences between the actual DAC and the shadow DAC are reflected in equity; they do not go through the income statement. There are limitations to what shadow DAC can do for you. First of all, the maximum DAC cannot exceed the original DAC plus accrued interest. For example, if you have not amortized much shadow DAC to start with and you have significant unrealized losses, the best you can do is write the DAC back up to its original amount plus accrued interest. The second limitation is obvious: your shadow DAC can't go below zero. If you've written off all your shadow DAC, there would be no equity adjustment for unrealized gains. The third limitation is one that you've always had with GAAP accounting—recoverability and loss recognition issues. You can't hold DAC if you can't recover it. Your net GAAP liability must be appropriate for the products involved.

So how are companies coping with *FAS 115*? It has been a big change, and it has led to some confusion among investment bankers and others in the industry. Some companies have been reporting numbers with and without the effects of *FAS 115*. This has led to comparability issues, especially for those companies with a majority of their assets allocated to the available-for-sale category. Companies are now realizing that they have to reduce the volatility of their portfolio. One of the things that they're doing is classifying more new assets as held to maturity. You have to be cautious when you employ this

strategy because assets in this class are difficult to reclassify. *FAS 115* defines several specific situations when you can sell a held-to-maturity asset. Among those are:

- The borrower experiences a deterioration of creditworthiness.
- There's a change in the tax law that affects the taxability of the security.
- The entity that issued the debt security undergoes a major business combination or disposition.
- There are changes in statutory or regulatory requirements.
- There are changes in any risk-based capital (RBC) requirements or any change in the RBC formula that would negatively impact a company.

In most cases, once you classify an asset as held to maturity, you really have to hold it until maturity. A second strategy companies are employing is shortening their portfolio duration. For example, if you have a 30-year bond and hold it to maturity, that bond is going to have large swings in value when interest rates change. To avoid this, companies have reduced their portfolio duration by purchasing three- or five-year securities. That reduces the market-value volatility, but now you have to be careful that you haven't created an asset/liability mismatch. This may result in additional reserves when you do your cash-flow testing. A third strategy, which I don't believe is widely used yet, is using derivatives to hedge some of the volatility. I know some companies are looking at it, but I don't know of any specific examples in which they have been successful. If anybody has employed a hedging strategy to deal with *FAS 115*, I'd like to hear from you later.

What *FAS 115* has taught everyone is that now we really have to complete the job. *FAS 115* addresses only one side of the balance sheet, the asset side, and it has created all kinds of movements in GAAP surplus. These one-sided movements are difficult to manage. There is now a much greater interest in completing the job, and that is developing a market-value accounting of liabilities. Right now liabilities aren't marked to market. I think everybody's liabilities are statutory reserves or GAAP reserves so they don't adjust to changes in the market like assets are now required to do. With that said, Mike McLaughlin will talk about the different scenarios on the table for market-value accounting of liabilities.

MR. S. MICHAEL MCLAUGHLIN: I work in the Chicago office of Ernst & Young, and one of my significant areas of work is GAAP financial reporting, both for stock companies and mutuals. I will talk about primarily two things. First, I'll go through a specific example with regard to surplus volatility to pick up on some of the points that Steve made. Second, I'll cover the method of determining fair value of liabilities.

As you know, *FAS 115* has created a significant concern about surplus volatility because of the holding of certain assets at fair value or market value while liabilities are held at book value. This was of concern to the industry from the very beginning of *FAS 115* as an exposure draft. At the public hearings that the FASB held in 1993, several comments were made by representatives of the banking industry, the insurance industry and, of course, the actuarial profession, that this surplus volatility would exist. There were several reasons for FASB proceeding nonetheless. It is a fact that surplus volatility is and continues to be a concern to insurance companies, perhaps less so to banks than was originally thought. I'd like to go through a simple example that will help explain what's going on here.

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Let's look at a typical company that sells universal life (UL) or single-premium deferred annuity (SPDA) business (Table 1). We'll make our example a SPDA-type company that has \$100 of total assets. Invested assets total \$90 of which \$60 are classified as available for sale. This example is intended to be generally representative of the industry. The vast majority of assets of stock and mutual companies in the industry have been classified as available for sale because of the need to retain investment flexibility despite surplus volatility. We're going to assume for our example that these assets have an effective duration of five, thus a 1% increase in interest rates would reduce the value of these assets by 5%. We have \$30 of assets classified as held to maturity, and we have the positive intent and ability to hold those assets to maturity. Nothing short of a major change in the nature of the asset itself would permit us to move assets out of that category. The assets would be transferred at market value, which typically would occur only due to a major change in the credit quality of the asset or perhaps some regulatory or statutory change in the treatment of the asset for presentation purposes.

**TABLE 1
SURPLUS VOLATILITY**

Example—Current Interest Rates	
Assets	
Investments—available for sale	\$60
Investments—held to maturity	30
Deferred acquisition cost	<u>10</u>
Total Assets	\$100
Liabilities	
Reserves	\$90
Deferred taxes	2
Equity	<u>8</u>
Total liabilities and equity	\$100

In this example, we have \$10 of DAC and a total of \$100 of assets. On the liability side, we have reserves equal to the account balance of \$90. In our example, we'll say that the effective duration of the liabilities is three. There's a deferred tax liability posted in accordance with *FAS 109* of \$2, which represents the tax effect of the difference between GAAP net liabilities and tax reserves. That is the extent to which future taxes will need to be paid by this example company. We have equity of \$8. Thus, our base case scenario is generally representative of the structure on a very simplified basis of an annuity-writing company.

In Table 2, we look at the situation after interest rates have risen 2%. Taking a look at each line in our balance sheet in turn, available-for-sale investments have reduced in value by 10%; thus, \$60 has become \$54. Our held-to-maturity assets remain at \$30. The DAC was \$10 but has increased to \$12. This is part of the effect that Steve had talked about earlier. We need to reexamine the DAC on account of treating those unrealized losses of \$6 (\$60 less \$54) as if realized. In reporting our balance sheet, we take a look at the unrealized losses of the current year. All assets are deemed in this simple example to be held in support of the liabilities, and thus this \$6 loss will be reflected in our amortization schedule as part of our estimated gross profits. We would typically also take a look at what future spreads would be after experiencing a 2% interest rate rise. It's very likely in that situation

that future spreads would have increased, and so the rise of 2% in interest rates has caused a current unrealized loss, but it's probable that future increased spread will, to a large extent, tend to offset that unrealized loss. Thus, the combined effect of the current year and the future year's changes due to the unrealized loss is that the total present value of estimated gross profits is not very different. Thus, the fraction of total estimated gross profits needed to amortize the DAC doesn't change very much.

TABLE 2
SURPLUS VOLATILITY

Example—Interest Rates Rise 2%	
Assets	
Investments—available for sale	\$54
Investments—held to maturity	30
Deferred acquisition cost	<u>12</u>
Total assets	\$96
Liabilities	
Reserves	\$90.0
Deferred taxes	0.7
Equity	<u>5.3</u>
Total liabilities & equity	\$96.0

In this example, the amortization rate is about a third so about 33% of estimated gross profits are required to amortize DAC. With the current year unrealized loss, our DAC has gone up by about one-third of the \$6 unrealized loss, and so the DAC has gone from \$10 to \$12 in this example. Our overall assets have gone to \$96 so there's been a net reduction. But as you can see just at this level, there's somewhat of a dampening effect because of the increase of DAC, which moves in the opposite direction of the unrealized loss. Let's take a look at the liabilities.

Although these reserves have a duration of three, their carrying value has not changed at all. Of course, we are not permitted to report those liabilities at their fair value. Instead we show their book value, which is exactly the same as before. On the next line, the deferred tax liability has been reduced. We're reflecting the change in the differences of GAAP reserves relative to tax. We have a current year \$6 unrealized loss; however, we have an offsetting increase of \$2 of DAC so we have a net \$4 reduction in the timing difference. There is a favorable effect here to the extent of the assumed tax rate of 34% multiplied by that net difference. This results in a favorable adjustment of 1.3 to the deferred tax liability. This serves to further dampen the effect of the unrealized loss. Hence, equity is not hit by the full \$6 of unrealized loss, but is reduced significantly by both the increase in DAC and the decline in the deferred tax liability. The equity that we reported prior to this increase in interest rates has gone from \$8 to \$5.30. This is an example of the volatility that remains because of the *FAS 115* treatment of assets and liabilities.

Depending on the particular products in question, the amortization rate could be larger than the example shown here. For some UL-type products, for example, the amortization rate is much higher, perhaps 80% or 90%. In that case, there would be a larger dampening effect caused by the DAC.

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However, there are some limits again as to how high and how quickly the DAC can move because of the constraints of loss recognition. Also, based on the SEC's 1994 announcement letter, the DAC can't be increased boundlessly; instead, it would only be increased to its initial amount plus accrued interest at the DAC amortization rate.

With regard to deferred taxes, interestingly, one or two of our clients are fraternal. They do not pay federal income tax, and they don't, therefore, post a deferred tax liability. The surprising effect is that there is more volatility in the case of fraternal companies than there would be in the case of stock or mutual companies.

Although this is not central to my point, there are different ways to reflect unrealized gains and losses in the DAC. For example, when reflecting unrealized gains or losses, if one changes the interest rate that is used in calculating estimated gross profits, that's a very simple, handy, convenient way to reflect those unrealized gains or losses. It accomplishes essentially an exact allocation of unrealized gains and losses to the amount of assets needed to be invested in support of your margin-based lines of business. However, if you use that same adjusted earned rate in your DAC amortization, you'll get the unusual result that the dampening effect of the DAC is greatly reduced. So in your calculations, it's best to look carefully at that issue and see it working both ways before making a call as to how to select a DAC amortization rate, whether it's the latest revised rate or the rate at inception of the book of business.

The presentation of equity here is a simplified example. In actual financial statements, it would be required that equity be separated into two components. Equity that arises due to unrealized gains or losses should be shown as a separate component of equity. As can be seen in Table 2, we have unrealized losses net of their tax effect of 34%, thus a \$4 reduction to equity would be shown separately. The unrestricted part of equity is \$9.30, which comprises the \$8 that you started out with plus the adjustment due to the DAC of \$2, net of the tax effect on DAC.

Other unusual things occur when the deferred tax liability becomes an asset. It's possible to hold a deferred tax asset, but as with all other assets, it must clearly be recoverable. It's typical to do some type of formal demonstration that the deferred tax asset is recoverable. Given that it's only an asset if you're paying tax and, therefore, can be used to reduce tax, it's very common to see allowances posted against the deferred tax asset. This is a further restriction to the extent to which deferred taxes can dampen the volatility of surplus.

In this particular example, we calculated the effective duration of equity as approximately 17. In actual experience, we saw at year-end 1994, the very first year after *FAS 115* was effective, a 250- or 300-basis-point increase in interest rates. This produced a dramatic effect on GAAP equity; one or two companies that otherwise were regarded as very secure showed negative GAAP equity.

Let's talk about fair value of liabilities. The FASB in issuing *FAS 115* did consider but rejected the option of reporting liabilities at fair value. There was no contemplation of requiring a fair valuation of liabilities, but there was contemplation of permitting that as an option, particularly as the banks and insurance companies were making representations that that was necessary. The FASB did go through a very full due process. In its estimation,

there were no workable solutions presented for the problem of determining fair value of liabilities. All the methods that were presented were considered unacceptably complex or permissive.

There were several technical difficulties. It would also have been very difficult to associate liabilities with assets. Remember we're not going to show all assets at fair value, only certain ones and, therefore, there would be a need to specifically associate assets with liabilities. Thus, it could be determined to what extent assets in support of liabilities are held at fair value. The board also thought that held to maturity would be the most common classification among insurers. It may have thought that this was the investment style of most insurance companies. It was certainly aware of exceptions among companies that did a significant amount of trading and perhaps wanted to try to put somewhat of a halt to that. So this volatility issue was not seen as a significant matter. A company would have to be very clear about its intent and ability to hold assets in the held-to-maturity category. If assets were moved out of that category, the entire classification of held to maturity could be tainted and could be deemed unavailable to the company. In that case, the entire block of assets would be marked to market at that time. That could impact earnings in the year in which the change occurred.

The available-for-sale catchall category was made available. The idea here was that giving companies the ability to report certain assets at fair value was better than what resulted prior to *FAS 115*. Then there was a classification of assets called held for sale, and those were to be reported on the balance sheet at the lower of cost or market (LOCOM). That's the worst of both worlds. Compared with LOCOM, fair value is favorable; thus, the FASB thought that a reasonably good interim solution had been reached.

FASB recognizes that the *FAS 115* approach is an interim solution and is considering changes going forward. FASB did address the question of volatility of earnings. If there is a change in the fair value of available-for-sale assets, you're not forced to put that through earnings; instead, you assign that directly to equity. That approach was intended to address the volatility of earnings. As we saw before, the volatility of surplus remains.

In the first year of effectiveness of *FAS 115* interest rates moved up 250–300 basis points. In three or four months since then, they've moved back down by 100–150 basis points. I think it's safe to say that we're in a volatile interest rate environment. The FASB is also receptive to the concept of considering fair valuation of liabilities; therefore, I think the topic is still very current. The ACLI assigned a task force in early 1994 to look at this issue. It has cataloged a large number of different methods available for determining fair value of liabilities, but its paper or document has not yet been made public.

The AAA also appointed a task force. The purpose of that task force was not so much to address GAAP accounting or the rules that should be applicable, but to explore from a theoretical and conceptual standpoint, what were the different fair value methods that might be available that could be or should be applied. The members of the Academy task force were drawn from the Committee on Life Insurance Financial Reporting and several other interested parties, actuaries and nonactuaries alike. The task force has put together a paper which cataloged several different methods and discusses them at length with a substantial amount of conceptual rigor. That paper will be available to the public shortly.

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The SOA issued a call for papers in early 1995. It received several papers addressing fair value of liabilities. We will now give a high-level overview of some of the major methods. This plurality of methods also existed, to a similar extent, at the time *FAS 115* was in exposure draft status. I think as a profession and as an industry we perhaps did less than the most effective job of explaining how these methods could be used to determine fair value of liabilities. In fact, the plethora of methods tended to reduce the credibility of each method taken separately. This classification of methods is mine, and it's not necessarily the only one. There are three major methods: option pricing methods, appraisal methods, and an index discount rate method, which I'll describe.

The option pricing method is a method derived from the old familiar discounted cash-flow projection-type methods, modified for risk-adjusted present values. The discount rate is chosen to reflect the time value of money in two stages, the first stage being the risk-free rate of discount as reflected by Treasury securities, plus a spread to compensate the holder of the financial instrument, the asset or the liability, for risk. Risks that need to be reflected in the present value method can fit into any of the familiar categories, C-1, C-2, or C-3. One way that I prefer to classify them for this discussion is fivefold, namely, general risks of the economy in which interest rates, of course, can change rapidly; risks peculiar to the industry; risks specific to the company in question; risks reflective of the product; and risks reflective of the policyholders' behavior. Some or all of those risks can be modeled by using available tools. Some risks are not easily able to be modeled, and instead are reflected by using various approximate methods, such as determining the adjustment spread relative to some other benchmark. The modeled risks can include policyholder options as well as the various contingencies, mortality, morbidity, and so on that might be present.

In essence, here's what the method looks like. We first generate multiple interest rate paths. There are many tools available, some of which are embedded into standard software packages, others of which are discussed at greater length than I can discuss such as Heath-Jarrow-Morton methods or Cox-Ross-Rubinstein methods. These are theoretical models for projecting multiple interest rate paths starting from a current risk-free yield curve and moving forward over time in such a manner that there is no possibility of arbitrage or what I call illogical yield curves as we go forward over future years. By using different techniques and starting from a particular yield curve, while short-term and long-term rates can increase or decrease based on certain input volatility and regression to the mean assumptions, over a period of time one has generated many different interest rate paths going forward all from the same starting point. Liability cash flows are then projected for each scenario. As we know, those cash flows are subject to the particular interest rate scenario at the point in time for which we are projecting, and so some assumptions vary. Examples include excess lapse over and above what is the norm, policyholder loans, partial withdrawals, and additional premium payments. Those would be modeled in each projected scenario. We would also need to consider the competition. Portfolio rates and new money rates are being paid by our company to our policyholders, but there is a marketplace out there where other companies are paying, in some cases new-money-type rates and in other cases portfolio-type rates. Thus, the existence of competition needs to be reflected because, as a company, we don't operate in a vacuum. Other assumptions would include company behavior, such as the investment strategy pursued over time, and the rate at which interest-crediting rates would be changed by the company. These are the elements of the projection.

The third step, determine appropriate adjustment spread, is easy to say and difficult to do. It's possible to establish some type of adjustment spread based on drawing conclusions from the behavior of similar types of assets. The best way to explain this is with a simple example. If we wanted to model a corporate bond and this bond was worth \$100 and the coupon is \$7 each year, if we valued that at a risk-free rate of 7%, we'd get a present value of that bond of \$100. However, it's very likely that in the marketplace it would trade for less than \$100 because it's a corporate bond, not a Treasury, therefore there is some slight risk of those cash flows not being realized. To reflect that risk, a slightly higher interest rate is used to value those future cash flows, which would give you a market value slightly lower than \$100. So that type of adjustment spread, which can be used to reflect the various risks we've talked about, is one method used to determine adjustment spread based on comparability of certain types of assets.

The fourth step is to discount those projected cash flows out of each scenario at the scenario rates of interest as projected by our generator plus the adjustment spread that we have determined. All those present values are averaged, and that is a very good proxy, it is believed, for the market value or the fair value of liabilities.

We use those terms slightly differently. Market value is one specific form of fair value, namely, it is the fair value as determined by reference to an active secondary market in similar securities. So there's the implication that there is some commodity element to securities. All corporate AAA bonds issued by American Airlines maturing in the year 2015 are alike. So if you buy \$100,000 worth of that asset, it's going to operate identically to another \$100,000 of that asset. That's the definition of market value assuming a large number of like securities can be traded. Fair value means a value that's some kind of proxy for market value that has the same underlying concepts, but in a situation in which there is no active secondary market.

Listed below is a quick summary of the option pricing method. This is the concept that is generally applied, at least for scenario-type methods. The third bullet, determining the adjustment spread, is a knotty problem, and there are several different ways that one might attempt to accomplish this. We will mention each of these briefly. One group of methods looks at adjustment spread from the company's perspective, and another group of methods uses the public or the consumer's perspective. The company might determine, for example, the spread to add to a risk-free rate by looking at its own cost of debt. So if this is a company that has issued bonds, it clearly has to pay to the marketplace some rate that is higher than Treasuries. It's possible to identify the spread from that average cost of debt and use that in determining the discounted present value of our various scenarios for determining fair value of liabilities. One shortcoming of this method is that the spread for the average cost of debt tends to reflect the creditworthiness of the company only and not the host of other risks that might be associated with the liabilities, but it's a start.

OPTION METHODS

- Generate multiple interest rate paths
- Project liability cash flows for each scenario
- Determine appropriate adjustment spread
- Discount cash flows at scenarios rates plus spread
- Average the present values

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Another approach is to look at the assets that have been dedicated or associated with the liabilities. One can look at those dedicated assets and look at the spread gross or net of credit losses. It would be possible to determine a spread that would be larger than the creditworthiness risk only to determine fair value of liabilities. Slight problems with this method include the fact that the fair value of liabilities is dependent on the particular assets associated with the liabilities. The liability that is calculated can be relatively low if the product is profitable because the spreads would be relatively high. Looking at U.S. Treasuries, one approach is to not apply any spread at all and instead assume that the company expects to meet its own obligations over time. So the third point here is to reflect no risk spread at all, which is analogous to a risk-free rate from U.S. treasuries. We'll talk more about this, but let me mention some advantages and disadvantages to using a risk-free or a U.S. Treasury-type basis to determine the adjustment spread.

Pricing cost of funds is probably the most intuitive and most satisfactory way to determine spread, and this is the way that in practice one would determine adjustment spread for assets. A model would be built and the adjustment spread would be determined such that the discounted present value of the cash flows on the various scenarios equals the market value. So it's possible to determine that spread by using real market values and then applying it elsewhere. In this case, a similar approach is being used in which we look at the cost of the product and determine the spread such that the spread, when added to the various risk-free rates used as a discount rate, reproduces the original price. Some advantages to this method are that it's intuitive and it's relatively close to current GAAP accounting because there is no profit or loss at issue. As you can see, the reserve that would be posted would be 100¢ for each dollar of price paid, and so profit will emerge over time at some reasonably appropriate rate, but not all at once at the issuance of the contract.

From a public perspective, some other methods are presented here which are similar to the three already mentioned. One might argue that from the public's perspective it should not be assumed that the insurance company is going to default on its obligations. After all, *guaranty funds ensure that the company will meet its obligations*. Thus, a risk-free discount rate is appropriate. This method may be relatively conservative for asset accumulation products, but it may be liberal for term or pure risk-type products. Again, looking at corporate bonds, this method would not be as conservative as Treasury, but similarly may or may not tie in very closely with the initial price paid.

An industry average spread sounds like a great idea. We can determine the fair value of liabilities as a risk-free rate plus the industry average spread, but industry averages are notoriously difficult to determine and in any case would not reflect the particular company's situation. Another option might be the rating level or the claims-paying-ability rating from Standard & Poor's (S&P) or a Moody's rating, such that there would be some linkage between a AAA or a AA rating and some particular spread. It's an appealing method but perhaps also somewhat difficult to implement.

Some advantages to the option pricing method are that it is theoretically consistent with asset values, it reflects policyholder options, and it is in many cases independent of the specific assets, depending on how competitor rates are established. Some disadvantages are that it is complex, but everything, of course, is complex the first time you see it; the adjustment spread is somewhat subjective; and the very fact that there are many ways to do this

means that there isn't one definitive approach. The method is appropriately volatile, but some would see that as a disadvantage.

Let's move to a quick discussion of an appraisal method. Here the concept is very simple. Assets are on one side of the balance sheet, and liabilities and equity are on the other side. We want to take a view of equity and be sure that the equity is fair and appropriate or meets some financial reporting standard. We are proposing to determine assets according to some consistent logical basis: book value or market value or some combination thereof. Then we'll spend time talking about the determination of the fair value of liabilities. Let's say we find a very good method for determining fair value of liabilities. The balancing item is equity. Thus, by determining the fair value of assets and subtracting the fair value of liabilities, we get the fair value of equity. The appraisal method goes straight to determining the fair value of equity. We have existing actuarial methods, well-defined tools, and actuarial standards of practice in place. We can determine an appraisal value. Having done that, we can find the fair value of liabilities as the fair value of assets less the appraisal value.

The appraisal approach certainly has an appeal, even a conceptual appeal, that perhaps some of the other methods don't have. There are advantages and disadvantages to this method. It's well understood, the methods are in place, and there's a linkage between asset and liability values, which some would argue is an advantage. However, others would argue that the linkage is a disadvantage. The FASB, for example, thinks of determining the market value of an asset as being independent of the liabilities that you may hold, or whatever other assets you hold. The market value or the fair value of an asset can be determined quite in isolation from everything else that's going on. Its view was that likewise we should be able to determine the fair value of liabilities in the absence of looking at the value of any specific assets. To the extent that the appraisal method links assets and liabilities, it would be seen as a disadvantage.

A further advantage is that it's a method that values net cash flows. When we measure the size of equity we're trying to look at a small number, which is the difference between two very large numbers. In our example, the asset was \$100, other liabilities were \$92, and so we have a value of equity of \$8. That's a small number. Small errors in determining the value of the assets or of the liabilities would have an exaggerated impact on equity. The appraisal method goes straight to equity.

A significant disadvantage is that the discount rate to be used is quite subjective. You'll find rates that vary 200–400 basis points from one practitioner to another. Depending on how the method is implemented, it may or may not adequately reflect the full range of risks, such as policyholder options that might exist in the liability cash flows.

The index discount rate method is one of my favorites. It's derived from the option pricing method but it starts with a projection of liability cash flows from multiple scenarios. We take care to specify here that these scenarios reflect all the risks that might be experienced, the whole litany that we gave earlier. Then we discount those cash flows at a rate determined completely objectively by an external index, such as the Treasury spot rates applicable to the duration of the liability cash flow. One would need to argue to support the use of the risk-free rate by saying that the multiple scenarios had, in fact, reflected all the

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other risks that could possibly be imagined, hence no further spread needed to be included in the risk-free rate. The present values are averaged, as in an option pricing method, to give you a fair value. A good thing about this particular method is that it values the liabilities directly.

The scenarios reflect all the risks that one might imagine or one might be able to model. The method is independent of the underlying assets, depending on exactly how it's done. It's objective, comparable, and highly consistent, presumably from one company to another.

Another significant advantage is that it's applicable to all types of liabilities: life insurance, annuities, health insurance, and property & casualty (P&C) business. There is no reason why we can't project P&C cash flows reflecting a range of possible outcomes of the different risks to which those liabilities are subject. It's even possible to use a method such as this for those assets for which there is not a ready market value; for example, private placements.

There are several other methods that we could discuss here. The first four of these are based on GAAP. In the first, we start with a current GAAP liability, and we adjust it by its interest sensitivity. We look at the change in that GAAP reserve for a given interest rate change, and we adjust the current GAAP reserve by that sensitivity times the change in market value relative to book value of our interest rates generally. That's a verbal description of a formula, which may not be completely adequate. It's a method that starts from an existing method and perhaps is not quite as elemental as some of the other methods we've talked about.

The second method does something similar. It takes the current GAAP liability and it just multiplies it by the ratio of market value to book value of assets backing that liability. It would assume that the interest rate sensitivity of the liabilities is identical to the assets supporting them. The FASB would not like that method much.

The interest maintenance reserve (IMR) method basically says to go back to a book value of assets. A liability or an asset is set up to unwind the unrealized gains or losses that exist in the book value of assets as they would be reported under *FAS 115*. To the extent that they're realized gains or losses, they would be spread in some manner similar to the IMR that's presently used for statutory purposes. It's not a true liability valuation method because it adjusts assets.

The DAC offset method is our status quo. If unrealized gains or losses occur, we reflect those in the DAC. The DAC will, to a large extent, dampen the variation of equity with changing interest rates. It's limited in applicability to certain contracts so it's not a very general method.

The gross premium valuation is included because it would be somewhat incomplete to not have it. It's dependent on assets and may not reflect policyholder options, but certainly it should be included on the list of general methods that might be available.

I'll make two comments here before we open this up for questions. A comment was made to FASB early on: why are we rushing into *FAS 115*? *FAS 107* calls for the disclosure of

fair value of certain types of liabilities, not pure insurance contracts, but certainly investment contracts, deferred annuities, guaranteed investment contracts (GICs), and the like. Why not see how that works for a year or two before rushing into reporting (as opposed to disclosure) of fair values? In fact, one can now look back at several financial periods in which fair values of certain types of liabilities have been reported. It's possible to see a variety of methods, including account value, cash surrender value, various types of discounted present value methods, and the other methods described earlier, such as the option-pricing-type method. So there is a variety of practice out there. In fact, companies have been able to solve the problem of determining fair value of liabilities so it seems to me that the FASB would be hard pressed to say that there is no method to determine fair value of liabilities when, in fact, it's required by *FAS 107*.

The last topic I'll comment on is the possible posting of a policyholder liability. As we discussed earlier, the SEC, in an announcement letter first issued in January 1994 and later clarified in July 1994, made it clear that you should show DAC as if the unrealized gains or losses had been realized. This is the shadow DAC that we talked about earlier. The SEC made it clear that the adjustment should be made for unrealized gains or losses, and it went on to explain that certain other things ought to be adjusted as well, including the present value of future profits, the intangible asset that is posted in an acquisition situation, and unearned revenue liabilities (which is a contra to DAC for front-loaded products). It went on to say that certain policyholder liabilities also should be adjusted to the extent that the liabilities exist for insurance policies that, by contract, credit or charge the policyholders for all or a portion of the realized gains and losses of the available-for-sale securities. What this has been taken to mean by a few companies is that, to the extent they have a large realized gain in a particular year, they take the view that the realized gain does not necessarily belong to the company in its entirety. Instead, it was all or partly attributable to the policyholders. The case for this is particularly clear with mutual companies that spread realized gains over time and gradually reflect them in the policyholder dividend instead of paying it all back in the year of occurrence. Thus, this realized gain should perhaps not be included with GAAP income directly. Instead, a liability should be posted that represents the portion of that realized gain that will be returned to policyholders in benefits.

I think it's quite easy to make that case for a participating business and mutual companies. It may be possible to make that same sort of case for deferred annuity business or UL business. I think it would be a harder sell unless there is some type of contractual provision. One may see such contractual provisions in group annuity business, but are less likely in the case of individual-type products.

There would, of course, be much less volatility impacting the financials if such a liability were held. It's a little harder to argue for an asset if there's a realized loss. The question would be: are we somehow forced to charge our policyholders for an unrealized loss? In some cases, that is the practice. There may be some grounds for arguing that an asset should be posted to the extent that we're going to charge the policyholders for those realized losses. Likewise the argument applies to unrealized gains and losses.

MR. BATZA: If there are no immediate questions, I have one comment. We do have this mutant accounting method in place right now in which we have market value of assets but we don't have market value of liabilities. One of the things that is happening because of

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this is that companies are making decisions based on the accounting model and maybe not based on what's best for their organizations. There are two ways this is happening. One is that the accounting model is dictating what assets to buy and how to categorize them. You may be buying shorter-term assets to reduce volatility, but that may not be the best thing for your company. The second thing, which is a little more subtle, lies in the shadow DAC calculation. Shadow DAC is only calculated for margin-based DAC amortization approaches. For traditional products, where DAC is amortized by premium under *FAS 60*, there is no shadow DAC. Shadow DAC only applies to products such as UL and, if you're a mutual company, the new GAAP for mutuals is standard. That's where shadow DAC can help offset some of the *FAS 115* volatility. To some extent, your product decisions might be somewhat driven by this strange accounting standard.

FROM THE FLOOR: I'd like to see the illustration of market values in the simple example.

MR. MCLAUGHLIN: If all liabilities and assets were marked to market or fair value, available-for-sale investments would go to \$54, the held-to-maturity would not stay at \$30 but would go to \$27, the DAC would increase not from \$10 to \$12 but to \$13, and thus the total assets would be \$94, which is lower than the \$96 that was shown. When looking at the liabilities, the liabilities with a duration of three would go from \$90 to \$84.6. As it turns out, the deferred tax liability would have an insignificant change because of the close match between the unrealized loss, the increase to DAC, and the reduction to liabilities. Thus, the deferred tax liability would stay at \$2. Equity would go to \$7.40, which would represent slight volatility that is reflective of the slight mismatch between assets at duration five and the liabilities at duration three. That shows that you would have volatility if you had fair value of liabilities, but that's "good" volatility.

MR. ALLAN W. RYAN: Steve, I think you made the comment under *FAS 60* that you would not have any shadow DAC offset under *FAS 115*. I think that's essentially true if you really follow the accounting principles that you file in the income statement, but I think you do have the potential for loss recognition in equity.

MR. BATZA: Right. I restricted my comments to just the normal DAC amortization but, yes, *FAS 60* does require loss recognition. This, however, is separate from the shadow DAC adjustments that parallel *FAS 115*.

FROM THE FLOOR: One other comment or question. I think you mentioned earlier that typically you have significant losses when you write up DAC in equity. You said you may have the problem of loss recognition going forward.

MR. BATZA: One point I was trying to make with the DAC is that if you get to write it up because you had some unrealized losses, you can't write it up beyond its original amount plus accrued interest. Once you've written it up as much as you can, future losses would have no offset.

FROM THE FLOOR: Right. But I think typically you won't have loss recognition in that sense. If you do, you would have had it in your historical DAC amortization as well,

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because I think you'll see that there's essentially a timing difference. So if you're writing out DAC, you would have written it off already. I believe that's typically the case.

MR. MCLAUGHLIN: I think if the unrealized gain or loss is purely a timing difference, that's true. So you would not perhaps usually expect to see an effect on *FAS 60* products. It is a key assumption to say that we have unrealized losses today, but we'll just make that up in the future. Although in many cases that's true, it's an assumption that should be proved.