

**1998 VALUATION ACTUARY
SYMPOSIUM PROCEEDINGS**

SESSION 34IF

NEW UVL UPDATE

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NEW UVL UPDATE

MS. MEREDITH A. RATAJCZAK: Our panel consists of Bob Wilcox, national director of insurance regulatory consulting for Deloitte Touche. Currently the chairman of the Valuation Task Force Committee, Bob is working feverishly on the new Unified Valuation Law (UVL) model. Arnold Dicke is vice president and actuary of New York Life, and an active committee member on the task force. Our panel will give you some background about the UVL, how we got here, what's going on today, and what we can look for in the future.

MR. ROBERT E. WILCOX: We have been working on this project for roughly a year-and-a-half. It started with a charge from the Life and Health Actuarial Task Force of the NAIC that the Academy accept an assignment to rethink the valuation process and identify an approach that would make sense. Since then, the task force that was established at the Academy has met approximately once a month for a full day, and we have involved from 30–60 people in each of those meetings, changing the cast of characters as we go from one meeting to the next. A number of people have tracked the project every step of the way.

Let me start by defining the unified valuation system (UVS) and explain what we've built into it. The concept is built, first of all, around the idea of viability—a continual evaluation of the adequacy of an insurer's financial resources to execute its business plan in the future. This is quite a different approach to valuation. In addition to viability, we recognize that it's necessary to provide the regulators with a regulatory trigger, so we look at the adequacy of current financial resources to support the in-force and outstanding obligations of the insurer. This gives us a clearly identified point in time at which regulators can and ought to step in. We also need to support the accounting systems and be able to report on the financial condition and performance of the company as we go along.

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The idea is that everything should be done through a single system that serves all of these different needs, rather than through separate systems built from different approaches. It should be consistent for all financial valuation information. That doesn't mean everyone needs the same information, but it should have the same root source, and the resources and obligations should be addressed consistently. It is important that the users of the information understand the expected level of adequacy associated with the valuation, and the system should disclose that expected level of adequacy so the various audiences know what the information that they receive looks like.

We established a framework at the outset and identified some goals that we felt a valuation system ought to strive to achieve. We may not be successful in developing a system that will meet all of these goals, but we said a valuation system should. Number 1, put the correct emphasis on the policy-holders and the regulators as surrogates for the policyholders. It should provide information to assist them in making informed judgments about the insurer's financial condition, but not to neglect the others. It includes creditors, reinsurers, the owners of the company, and all of the various audiences for the financial information.

The second tenet was that the system should support financial analysis, both at points in time and over time. Number 3 says it should address overall solvency, not just contract reserves. In particular, it should address resources consistently with obligations.

The fourth goal was that the system should produce auditable and verifiable results, and incorporate an actuarial feedback loop in which assumptions and projected results are compared with emerging experience. This may be one of the more difficult things to achieve. The yellow blank and the kind of information that's provided in a Schedule B analysis of the claim reserves provides an automatic feedback loop. If we can develop something that does that same sort of thing within the UVS, then it becomes a simple exercise to analyze the work of the valuation actuary relative to the ongoing development.

It should cover all insurance activities and be holistic, considering the entire enterprise, rather than merely representing a sum of independent parts. Although the sum of the independent parts could

be an adequate analysis, the desire is to be able to reflect the covariance of the various parts of the enterprise in the total outcome. It should balance practicality, cost, and resource effectiveness in relationship to the value of the information to the audience. In other words, we need to consider how much it's going to cost in dollars and human resources to accomplish this and make sure that what we're providing is a fair return for the investment. It should be consistent for all companies and regulatory jurisdictions. This is a very important one. To make the information readily usable by the various audiences, it has to have that consistency, from year to year, among companies and among states. It should be flexible and able to accommodate unidentifiable future needs. This is a very important part of what drove us to begin this exercise. If you look at some of the things that have been going on over the last few years in the development of reserving techniques for new products, it is amazing. I would hate to guess how many millions of dollars have been invested in the development of Triple X and in the approach to reserving that relatively simple kind of product. Many millions of dollars have been invested in that development, much of it in the form of volunteer effort. Many of you have worked through the Academy and otherwise to come up with a solution to that one problem. And that doesn't begin to consider equity-indexed products and a myriad of other things we've been working on, each requiring a tremendous effort to get to where we need to be. The bottom line is, the current system is just simply not maintainable.

How do we solve that particular problem? One way is to utilize actuarial judgment in the development and interpretation of results, with regard to prescribed methods and assumptions. Once we get away from the concept that we have to prescribe exactly how it's going to be done, then we have the flexibility to produce valid results and do so without that tremendous effort to build an infrastructure around each new product.

The last tenet of the framework is that the system needs to accommodate materiality issues. I should tell you that when this one came up on our list, we really didn't have a good definition of what was meant by materiality, but we know that the accountants use that term all the time, so we assumed that we would define it the way they do it. But when we asked the accountants, they said they had no idea what it means. So materiality is somewhat difficult to pin down precisely, but it's important that we, in order to achieve the overall efficiency we desire, to be able to accommodate materiality.

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We ended up with three stated objectives: One is the evaluation of the ability of a company to execute various business alternatives. That's information primarily for management of the board of directors. Regulators feel very strongly that they want assurance that management and the board of directors have that information, and can evaluate the adequacy of resources relative to obligations necessary to provide the regulatory trigger and a measure changes in resources relative to obligations. In other words, we have to support the various accounting systems that are out there.

Most of you are familiar with the concept of risk-based capital (RBC) and the various action or control levels that are defined by the statute. Think of this for a moment. If you had only assets equal to your statutory liabilities, there would be a certain probability that the company would be able to meet all of its obligations and still survive. In other words, you have a company with no capital and surplus, just assets equal to its liabilities. Obviously, if you had that company, the regulators could take it over, but stick with me for a minute. The probability that you would be able to meet all of your obligations is greater than zero but less than one in that context. If you add additional resources up to the mandatory control level, then you're at a point higher on the curve. That is, you have a greater ratio of resources to obligations and, hence, a greater probability of survival. If you add additional resources, all the way up to the company action level, then you have a still-greater ratio of resources relative to obligations and a greater probability of survival. We turned this around the other way and said, instead of using prescribed formulas to define RBC, and move up the curve, what if we defined those points by their point on the curve. For every company, we would strive to achieve the same probability of survival to correspond to the company action level, rather than define the company action level by formula which implies that you're higher on the curve as a result of that. This is one of the concepts that has come through in the development of UVS, that we can define the valuation process through a probability S curve. The curve indicates resources relative to obligations on the horizontal axis, and the probability of survival on the vertical axis. This is at the heart of what we have been working on.

Let me tell you where we are on some of the other steps. We need to continue to develop the UVS methodology. There is a good deal that needs to be developed in the way of techniques and approaches necessary to carry out this process. The regulators asked us to put it in the form of a draft

law so we can see its impact. That, by the way, is a very valuable technique to follow so that we can understand the implications. We have been working on a draft of a model law and are close to turning it over to the NAIC, probably at our meeting in December, so they can give it a broad exposure. It is available for anyone to look at now, but it's still a work in progress and will be turned over to the NAIC as its work product.

It's important to understand that we have received guidance from the regulators along the way. If the Academy were doing this on its own, it might look somewhat different in some respects. It's also fair to say that there is something short of unanimity of opinion, even among members of the task force, about what some of these things should be. But we're trying to come up with a model that meets the NAIC objectives and has some actuarial integrity associated with it. That can then be further exposed and refined through their process.

A subgroup of the task force is working on developing reporting formats that show what the actuarial opinion would look like and the actuarial memorandum would contain. There is a reviewing actuary role, and the subgroup is defining what that report might look like. We're trying to prepare hypothetical analyses and examples of how this would work in some simplified companies, and that's producing some fascinating results as we see what the impact might be.

We also have a subgroup that's working on developing strategies for implementation and considering the various issues that are outstanding. The current regulations and laws that derive from the standard valuation laws are huge. If you start changing that, you touch almost every part of the law. And, as you look at each state's requirements, statutes, and regulations, you'll find at least several dozen, if not hundreds, of places that have to be changed in order to accommodate it. The accounting systems need to adapt to the changes, and taxes may be the biggest issue of all.

With respect to the UVS methodology, we're trying to provide a catalog of valuation mechanisms that can be used, analyzed, and evaluated for future developments. We're encouraging actuaries and others to try to expand the repertoire of mechanisms that would fall under the UVS methodology because the actuary's going to be responsible for picking the method that is appropriate to the

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particular need and applying it. We will need standards of practice to provide guidance about when it's appropriate to use a particular method and how to do it.

I want to touch just briefly on some aspects of the model law that you'll want to be aware of. First of all, with respect to scope, people might say, "Why shouldn't this apply to all forms of insurance?" At this point, we have excluded property and casualty, except for instances where you have someone filing a yellow book on a health company, because it's important that the writers of health insurance be managed in a consistent basis. If they're going to file their statements in one form and use a blue book, they should derive the reserves and the valuation process as if it's in a yellow book. That's carved out as a separate issue. But, for the most part, yellow book companies are outside the scope of what we're doing.

A key term is *assets reserved to support obligations*. That is key to what we're trying to do. We're going to ask the company, as part of the UVL report, to provide an inventory of assets that will meet the obligations as they fall due, or assets reserved to support obligations. The word *obligations* was chosen very carefully, because it includes all of the obligations of the company, not just what we would consider actuarial obligations or policyholder obligations. For example, if you require cash to pay the rent, then that cash is not available for some other purposes, such as paying death claims. You need to consider all of the obligations that would have a claim on those assets. That is a critical piece. By the way, we're still working on these definitions, so they're going to change somewhat.

We're also working on obligations. It refers to any tangible or intangible commitments that can reduce revenues or generate disbursements. The important thing to understand here is that, in addition to the guaranteed policy elements, we're including nonguaranteed elements such as dividends and other nonguaranteed policyholder benefits in the valuation process. Obviously, you can't meet your ongoing obligations or commitments if you don't consider the policyholder's expectations when the policy was sold. If you illustrated that you're going to pay a dividend, then you need to build into the process what it's going to take to pay that dividend because, if you don't, you're not going to be able to carry out your business plan.

We decided to delete the definition of *dedicated capital and surplus*. It was intended to represent the piece of assets reserved to support obligations in excess of the above-the-line liabilities, and we decided that including it was confusing. The UVL report is prepared by the company and certified by the appointed actuary, and it's important that this relationship be maintained. It's not the appointed actuary's report, but the company's report with an actuarial opinion wrapped around it. It is to be reviewed by an independent actuary selected by the commissioner. The way that particular part is going to work is critical. We generally came to the conclusion that the reviewing actuary will look at the work of the valuation actuary to make sure that the standards of practice have been followed and that it's a reasonable kind of approach. It's not an adequacy opinion, and that's an important distinction. It's a way to ensure that the valuation actuary has followed good practices and that the assumptions selected can be defended. It does not mean the actuary must use the same assumptions that the reviewing actuary would have selected, but there's a solid actuarial basis for the assumptions and methods being used.

A significant part of the UVL report is the valuation of liabilities. The definition we're working with is the accounting value of a set of assets (this inventory I referred to earlier) that is identified by the appointed actuary as having a probability of at least $X\%$. We haven't defined what the percentage is, but it's a point on that probability S curve of providing for all material obligations of the insurer as they fall due.

The appointed actuary must be appointed by the board. The current valuation actuary requirement says that the board can, in fact, delegate that responsibility. The regulators feel that the board should be held responsible for that, and the appointed actuary should report directly to the board. The report will deal with the assets reserved to support obligations. We're going past the liability level to say, a 95th percentile on the probability S curve, and the actuary is going to certify that that level is being achieved through the assets reserved to support obligations. This is a point where we're carrying two options forward. No. 1 picks the point on the probability S curve. No. 2 has something similar to the current RBC formula supplemented by a report of the valuation actuary that would say at what point on the probability S curve that formula-based RBC would be achieved. The actuary would have to demonstrate how the formula works for this particular company. If, after two years in a row

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of not being able to certify that you're achieving that particular goal, you would have to start modifying the formula and increasing to a higher level the amount that's set aside. So there are two different approaches that we're pursuing. We have the various control levels that are defined from an RBC context. They work exactly the same way, except that they would be defined under option 1 as points on the probability S curve, rather than by formula. Under option 2, they'd be defined by the same formula.

For a long time, we were referring to a requirement that the appointed actuary would have to certify that a dynamic financial condition analysis (DFCA) report, had been provided to the board and management. We discovered, though, that there are at least as many opinions or definitions of what should be part of a DFCA report as there are actuaries who have looked at it. And that creates some problems, so we changed the title for it to a "viability analysis" report to define precisely what is needed for this purpose and give people some assurance that they're going to be able to do this. Most companies today are doing the kind of analysis that would be required to meet this, except that they're probably not consolidating it into a single report. It's being given to the board in pieces, rather than in a comprehensive whole so that they can really understand what's going on. What this does is force us to take the work that we're already doing and put it into that kind of a form. So there would be an annual certification stating that the board had received its report and that it's based on actuarial standards of practice as well as the definition that we would build around what's needed. Unless the company is classified as a "troubled" company, that is, it doesn't meet the company action level and they're in that area where the regulator can and should intervene in the operation of the company, it would not be provided to the commissioner. In that instance, it would be provided to the commissioner with appropriate confidentiality requirements wrapped around it, because this report will contain a good deal of proprietary information that should be protected. But the regulators wouldn't see it at all unless the company was in some difficulty.

Implementation strategy is a key piece. We want to make sure that there's broad exposure of all of the work on this. After we turn the model over to the NAIC, it would be my recommendation and expectation, that it be exposed for at least a year before any effort is taken to move it forward. We encourage the development of alternative approaches. We've been working on one approach with

variations, and we recognize other approaches could be as viable or more viable than the one that we have been developing. We encourage anyone interested in this to put that on the table, and I think the end product will benefit from that kind of effort. We need to identify and consider all the effects of what we're doing. The tax issues need to be approached very carefully because that's a critical piece. Machiavelli captured the essence of the difficulty of this process when he said: "It should be borne in mind that there is nothing more difficult to arrange, more doubtful of success, and more dangerous to carry through than initiating changes. The innovator makes enemies of all those who prospered under the old order, and only lukewarm support is forthcoming from those who would prosper under the new. Their support is lukewarm partly from fear of their adversaries, who have the existing laws on their side, and partly because men are generally incredulous, never really trusting new things unless they have tested them by experience." We continue to prove the validity of this statement as we go forward with this exercise, and yet that doesn't mean that the effort isn't worth it.

MR. HAROLD H. SUMMER: I'd like to ask one question. You mentioned earlier that you're not sure how the actuarial opinion and memorandum would be affected by this. Is it possible that this actually replaces the whole purpose of that regulation?

MR. WILCOX: It certainly can, yes.

MR. ARNOLD A. DICKE: I want to talk to you first of all, about the work of a subgroup that was looking into the tax implications of this particular proposal and of reserve systems in general. I want to focus on some of the principles and objectives of a tax system that this group seems to have identified. The second thing that I want to talk to you about is an economic value model that has been under development by Professor David Babble of the Wharton School and some of his associates. It's exciting research in its own light.

The tax subgroup of the Valuation Task Force has been trying to identify and minimize the likelihood of major tax problems in any proposed valuation system. As part of that, it has looked into some of the implications of our current tax environment. In the current tax environment, the

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deduction of insurance reserve increases is permitted. From the point of view of the subgroup, this was an exception to what it perceived to be the usual rule—that liabilities for future payments meet federal accrual rules to be deductible. So the insurance industry has a special situation here, in that the deductions for reserve increases are permitted.

Deductions of property/casualty and health reserves for future payments are permitted with respect to losses that have already occurred; but, typically, no deduction for future losses is permitted on cancelable contracts. So the special situation seems to have a lot to do with the fact that life insurance annuity contracts you enter into, you are forced to live with them for a long, long period of time.

Life insurance and annuity reserves are based on industry standard mortality, NAIC methodology, and the applicable federal interest rate. The last has the effect of reducing the reserves to a level lower than statutory reserves in a lot of cases. The reserve can never be more than statutory reserve or less than the current cash surrender value. Property/casualty reserves, by contrast, are based, at least to some extent, on individual company experience in a rather different paradigm.

In complete contrast to this, banks are taxed on investment income less interest credited and, importantly, credited interest is taxable as income to the depositor. Thus, they don't have the advantage that we have, which is the protection of "inside build-up." The protection of inside build-up has three elements to it. Reserve increases are deductible. That's the element that we've been focusing on because we're interested in tax reserves. But it's also important that year-to-year cash value increases are not taxable for the policyholder until cash is withdrawn. If they were, then the policyholder would be paying the tax. Third, it's an important fact that life insurance benefits are entirely tax free when they're paid out as death benefits.

All of this means that we, apparently, have some significant advantages. This has been true ever since there has been an income tax code and thus can be assumed to represent a general public policy that life insurance and annuities deserve special tax treatment. It's similar to the tax treatment given to other types of long-term arrangements that provide for the financial security of individuals.

Although one can conclude that special treatment for such long-term arrangements seems to be public policy, I won't say that I know where it's stated in so many words.

Based on this, what objectives and principles can we intuit that are important for tax reserves so we can have these in front of us when we're talking about a new reserve system? First of all, the group noted that tax reserves should be aligned with statutory reserves. This means that if we change what reserves the states required, then we will be changing tax reserves. This is a logical principle because the states have been charged by Congress with overseeing the insurance industry and making sure that the promises made by the insurance industry are kept. So, presumably, at least as a first cut, tax reserves should be aligned with the reserves required by the states.

Another objective for any kind of reserve system is that it should reflect a reasonable estimate of the economic expense of providing benefits in the future that is attributable to the current accounting period. Of course, any accounting system tries to accomplish this sort of result, so perhaps we need to go beyond this statement.

In the context of this particular principle, the tax subgroup made a couple of observations that it attributed to *Transactions* papers by Don Cody and Tom Kabele. One observation is: including nonguaranteed elements would not increase tax reserves if the reserve assumptions are based on company experience instead of on some sort of statutory prescribed tables, interest rates, and so forth. Conversely, discounting with the market interest rate is not appropriate unless nonguaranteed elements are included. But I still think there's a need to flesh out this idea of the proper level of reserves increase to be attributed to an accounting period. Just saying that it should attribute economic income to a period is open to a lot of interpretation.

The third principle that the tax group wrote down seems to speak to this issue. It says that tax reserves should be set at a level that provides assurance to policyholders and beneficiaries that promises will be kept. This seems to reflect the previously noted public policy objective for insurance and the reason why insurance is treated differently in the tax code than other types of arrangements might be.

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What sort of level would achieve these objectives? The reserves plus RBC, or two standard deviations, or a 96% plus degree of adequacy on Bob's S curve, probably comes out too high because, if you used that from year to year, you'd end with a very strange profit emergence. Best estimate reserves or breakeven adequacy levels are where you just barely have enough to survive to the end of the year. If there are any fluctuations, you will go bankrupt. Such reserves can't assure performance by themselves and are probably at too low a level for tax reserves to meet that last principle we talked about. To achieve the objectives, the level you will need in current tax reserves seems to be somewhere in the neighborhood of a standard deviation beyond best-estimate reserves or a degree of adequacy that is comparable in impact. This degree was labeled "LL" in the most recent UVL draft.

Another principle that should be upheld by the tax reserve system is that the tax reserve should be consistent between companies. The method that's currently applicable, because it's based essentially on a factor-type approach to reserves, provides a sort of a prima facia consistency in the sense that all the reserves are calculated with the same method, using the same factors. Does that really mean the reserves are consistent? As I say, they're mechanically consistent. Adequacy-level systems, such as the one Bob presented, would lead to a consistency at a deeper philosophical level. You'd be trying to get all the companies to hold reserves that provide for the same level of adequacy. However, trying to ensure that this approach produces consistent reserves on a practical level requires a lot more work than it does with the current system.

The last of the principles that the group mentioned was that tax reserves should have a cash value floor because, without some such floor, the inside buildup wouldn't really be protected. In other words, it would produce a situation where you were taxing the company even if you weren't taxing the policyholder. The net result would be failure to preserve sufficient funds to take care of the long-run promises of the insurance company to the policyholder.

Let me conclude with some personal observations. Noncancelable and possibly, guaranteed renewable insurance and annuity policies have been judged worthy of special treatment throughout the history of the tax code. It appears to be public policy, and that's a very important thing to keep

in mind when we develop a new system. We should be living up to the objectives that presumably led to that public policy. I believe adequacy-level tests could provide a reasonable standard for setting tax reserve levels if this is the objective of the system. However, I also think it may be necessary to find some way to allocate such an adequacy level to individual policies to make many of the individual aspects of the tax code work out correctly.

Let's discuss the economic value model developed by Professor Babble and his associates. This model has been presented in two papers. The first was just published in the *North American Actuarial Journal*. It's titled "Economic Valuation Models for Insurers," and the coauthor is Craig Merrill. The second paper, written by Professor Babble, is "Components of Insurance Firm Value and the Present Value of Liabilities." In other words, he's talking about the value of the firm, a typical economic concept. That paper is available as a preprint. It's due to be published in a book that he is editing with Professor Fabozzi called *Insurance Company Investment Management* that's due out soon.

There has been a lot of work on different possible models that could be used in connection with a revision of the reserve system. I picked this one because there is a lot of interest in market value models. This isn't exactly a market value model, but has certain advantages over a market value model. It's trying to apply financial economic concepts to the insurance industry, and I think we can get some interesting insights from it.

Professor Babble points out that there are two basic ways to value insurance liabilities. I think he actually got this from some Academy work that was presented to FASB a while back. The indirect method is essentially a method of saying that we know the market value of assets, we have a way to determine the market value of the company as a whole either by looking up the market capitalization (if the firm is publicly traded) or by actuarial appraisal or something along those lines. So just by using algebra, we can calculate the market value of liabilities as the difference between those two values.

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Determining the market value of assets is trickier than it appears at first glance. We always think the market value of assets is known, but we're thinking mainly of invested assets and other sorts of tangible assets, like home office buildings. There are, as we shall see, other assets for which the market value is harder to determine.

The other approach is a direct approach, which is what Professor Babble is trying to scope out for us. In this case, the present value of liabilities is calculated as a defeasement value of expected cash-flows using Treasury rates. To put it another way, it's the market value of a portfolio of default-free securities that would defease the expected cash-flows. If you're not familiar with that word defease, it means: "provide cash-flows to exactly offset or to exactly supply what is needed for the liabilities at the time when the liabilities occur, or, at least, provide default-free securities that are completely liquid and can be turned into cash at those points in time." Thus, the value of the firm in the indirect method is the difference between the market value of assets and the market value of the liabilities. In the direct method, you have to think more carefully about what the various pieces of the value are. We're used to doing this in actuarial appraisals, but Professor Babble takes a different cut at those pieces. It's interesting to see what a financial economist takes to be the various pieces of value of the firm.

First of all, he says there's a "franchise value," or value that's due to the reputation of the firm, its marketing force, and all the things that could not be transferred directly to another entity. Then there's the market value of the tangible assets, such as the invested assets and the real estate that's owned by the other firm and other tangible assets of that sort. And there's one other piece that actuaries don't usually think about. Stockholders have one very important option: the ability to put the stock back and not be responsible for liabilities if they drive the stock price negative. They're never forced to come up with anything to make up for losses beyond investment in the stock. That is called the "default put option" and it's a very important part of the value of the firm. It's very hard to calculate, but a theoretically important part of the value.

As an aside, I've raised the issue with Professor Babble about the possibility that our statutory requirements, such as our need to hold a certain level of reserves in RBC, creates something in the

nature of a call option. On the other side, at a certain point in time, the regulators can effectively buy the company from the shareholders for a zero price. He's thinking about whether or not I have the right or wrong. My attempts to do financial economics should not be taken too seriously, but it's interesting to think about.

What about the defeasement value? Is this an adequate level of reserves? According to Professor Babble the answer is a resounding "no." Let me read you his comments on that matter. He says, "Now, if an insurer were to set aside reserves equal to the present value of liabilities (as he has defined them—that is defeasement value) would this be adequate under most circumstances to satisfy the liabilities? The answer is a resounding no." Then he simply gives an example of an insurer with a closed block of business in a runoff mode. "Eventually, the assets (with market value equal to defeasement value of liabilities) would be inadequate to fund them." He says, "This is true whether the assets are duration-and-convexity matched to the liabilities or mismatched because there will always be a deviation in the timing of a claim from what is expected." You need to have some assets in addition to this economic value or else the firm will go bankrupt, virtually immediately. That's an important thing to remember about reserves set equal to present values taken at current interest rates. They're not really adequate. In terms of some of the things we talked about, with respect to tax reserves, they wouldn't meet the criterion of being sufficient to give assurance to the policyholders that promises will be kept.

The second thing about defeasement value is that the present value of liabilities, as Professor Babble has defined it, is a concept specific to a given insurance firm or given a set of owners of the insurance firm. It is a "personal expectation"—an expectation that depends on the desires and the abilities of a particular person or firm. If a firm has a way to make more money than another firm from a certain set of liabilities, then that set of liabilities will seem to be a smaller burden and the firm will give it a higher value.

The present value of liabilities is not an estimate of market value. An estimate of the market value of a firm is supposed to be the price a firm would trade for in the marketplace. It's the point where

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the supply and demand curves cross. The values estimated by potential buyers and sellers using Babble's methods would give you supply and demand curves for an insurance company.

Another point that's important when you think about these types of things is that the present value of an insurance liability is not dependent on what assets the insurer holds nor on how its portfolio is structured. Often we get too hung up about the current assets an insurance company has. If you're doing a market value calculation, it's irrelevant because you could turn those assets right into cash. In the end, the present value of liabilities in this kind of a model depends only on the set of default-free securities that are required to meet the expected liability payments.

Furthermore, Professor Babble makes a case for using the defeasement value instead of the true market value of liabilities. It's simpler to compute, because the franchise value and the shareholders' put option are excluded. Those items affect either the market value of assets or the market value of liabilities in the indirect approach. So the direct approach is easier because you don't have any residual impact from the cost of franchise value or the default put option. It's also less controversial to calculate because you don't have to do any estimates of those two items.

Also, as he points out, defeasement value is a useful number in itself. If you're a regulator and know that a certain set of liabilities could be defeased with a certain set of Treasury bonds (this also includes derivatives based on Treasury instruments such as futures and options for Treasuries and so forth), then you'd know what you could trade that liability for that would be exactly the right amount.

The number would be an easy one to compare between insurers. The only problem there is that a particular set of liabilities transplanted from one insurer to another might result in different cash-flows. So, even though these things are easy to compare in the sense of a formal calculation, this doesn't necessarily mean that the present value of liabilities for a particular block of liabilities would be the same in insurance company B as it is in insurance company A. Professor Babble points out that this value should be helpful to the firm in its internal risk assessment and could easily serve as a basis for a financial performance measurement.

His first paper tells you how to apply the direct approach in practice. He defines classes of models A, B, C and D. Basically, these are models where one or the other or both of the cash-flows or interest rates are stochastic or not stochastic. The class D models are the most general ones, where both cash-flows and interest rates are stochastic, and he suggests we use those models.

This is where some of the trickiness comes in because, if you're going to calculate the defeasement present value, you have to do it one of two ways. You may use risk-free interest rates, which is easy, because you know what they are. But you have to combine them with a risk-neutral probability distribution, and we don't know what that is. In securities work, getting risk-free probability distributions depends on looking at the marketplace and seeing at what values trades are being done. We don't have any market that's traded actively, so it's going to be hard to get a risk-neutral probability distribution. The alternative, which is actually more the way bond markets operate, is to use the actual distribution—discounted at a rate reflecting the unknown market price of risk. The market price of risk is the risk spread that appropriately reflects the fact that the liabilities are riskier than Treasuries, but not as risky as junk bonds. The market has a pretty good idea of which risk spreads go with different corporate bonds that are rated differently. You can ask the investment people any day what the risk spread is for single A corporate bonds, for example. But the market has no idea what the risk spread is for an insurance contract. These are some very big hurdles that Professor Babble has to get over. Here is another.

Professor Babble suggests that interest rates and cash-flows be stochastic. If you think of stochastic mortality rates this often means replacing fixed rates with probability distributions at each age, a binomial distribution, or something like that, and carrying out the relatively simple calculation of the amount needed to offset expected variation—the “mortality fluctuation reserve.” Unfortunately, I don't think that's the key issue here. When you think about, for example, our current situation with term insurance, we're not really worried about the mortality fluctuation reserve. We're worried that we don't have the right distribution to begin with. In other words, we have what our casualty friends call uncertainty or parameter risk. We don't really know the distribution all that well. And, if Professor Babble's model or, for that matter, any of the models that have been suggested depend on the distribution, then we need some way to gain control over this lack of knowledge. There are statistical ways of working on the problem, but we're far from the solution.

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Professor Babble's models are entirely based on expected values, but the same technology should be usable for the types of survival S curves that Bob Wilcox was talking about. We need to adapt the financial economists' interest rate technology to deal with adequacy estimates. We also need to find a way to quantify uncertainty about mortality and other risks that we deal with; that is, the actual lack of knowledge of the correct tables to use—parameter risk or C-2 risk.

Those are two areas of research that I think have produced some very interesting new insights. I'm hoping the UVS will come to fruition in the next couple of years. In any case, this research should develop interesting insights that could be helpful to use in our profession.

MR. FRANKLIN C. CLAPPER, JR.: You haven't said anything about GAAP. My understanding was that this framework was supposed to be at least consistent with GAAP, if not, used directly for GAAP. What has the AICPA done about this? Has it been involved in what's going on in that area?

MR. WILCOX: We have been regularly discussing it with the AICPA and with FASB. In one of the meetings we had with FASB to discuss our work on UVS, FASB said that as far as it was concerned, GAAP for insurance companies was fundamentally flawed, and it hoped our work would help correct some of those deficiencies. Obviously, we have no control over the definition of GAAP. That comes from other places. We are trying to move in a direction that would end up consistent not with GAAP as it is, but with GAAP as it should be. Hopefully, we'll be able to achieve that, but it's an issue that is almost treated on an ancillary basis.

FROM THE FLOOR: My question has to do with the independent actuary. Who is this individual? Who does this individual represent, the insurance commissioner in the state of domicile, the NAIC, or the profession as a whole?

MR. WILCOX: The easiest way to get your arms around that particular concept is to consider it as somewhat analogous to the independent auditor for statutory purposes with some real differences. One of those differences is that the regulator, presumably of the state of domicile, would be the one who would designate the independent actuary to perform that work. The scope of that work needs

to be pretty clearly defined so that it's not an open-ended sort of a change that goes to the independent actuary, but one that can be effectively carried out.

We considered a variety of alternatives to this. It was considered very important that we have some mechanism to achieve consistency of results. When you give actuaries the charge to use actuarial judgment in the selection of methods and assumptions, you can end up almost anywhere. Some structure must be built around that so that the outliers are identified and we have some mechanisms for bringing them back together.

One of the approaches that we talked about was the creation of something like the Government Actuaries Division in the U.K., a separate organization made up of the various insurance departments that would be staffed with competent, well-paid, solid valuation actuaries who would review the work on a broad scale and be able to identify those outliers for the benefit of the participants. That was one of the alternatives and, in fact, at one point, the Valuation Task Force said, "We think that would be our preferred solution." But when we presented four different alternatives to regulators, I think they picked something a little different from any of them—the independent actuary. Rather than giving the company the opportunity to simply pick a member of the Academy or any CPA to do the work, the regulators said they wanted to designate the independent actuary. They are hired and paid by the company, but must maintain their independence and provide to the regulators the information that is appropriate.

FROM THE FLOOR: Do you see any problem with the lack of uniformity between the opinions of the commissioners in the 50 states?

MR. WILCOX: Sure. We have a situation with 55 jurisdictions being responsible for this, and in many of those jurisdictions, there is no actuarial staff at all. That's an issue that must be addressed and has a variety of possible solutions.

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MR. STUART L. SORENSEN: To what extent have you considered the limited resources of the small life companies in this transition to a unified valuation system? Secondly, on the tax issues, has there been any dialogue at all with the IRS about their desire for additional revenues?

MR. WILCOX: No, there has been no dialogue and we need to be somewhat further down the road before that dialogue is instigated. The general feeling is that, when the IRS gets involved, there's a high likelihood that they will increase our tax liabilities no matter what we do. So we want to make sure that we have a well-thought-out presentation for the IRS.

MR. DICKE: The IRS is an agent of the government whose responsibility it is to collect taxes according to the current code. The Treasury Department is responsible for tax policy. It would probably be an area that would, at some point, be involved in some dialogue. In reality, the status of life insurance, with respect to taxes, is a matter of public policy set by representatives in the Congress.

The questions come out in two levels. The fundamental concept that life insurance deserves a special tax treatment seems to be well established, and I don't think that's under question here. And the technicalities of how taxes are calculated are interesting. But one of the things our discussions are helping us understand is the kind of rationale that can be used for a particular set of reserves. In other words, we're coming to a sense that there is a way of determining the appropriate level of reserves. Perhaps, it's even higher than the current level. The idea that there is some philosophical basis for this could be useful in the future. That's my personal observation about this whole situation. But getting into little details of the calculations and fighting over those things is not where this project is at this point in time.

MR. WILCOX: The first part of your question dealt with considerations for small companies and their resources.

That's a very important issue because I have spent most of my career working with smaller companies. That's where most of the useful innovations in this industry start, and it would be very unfortunate to stifle that innovation. From a different perspective, what we can look to with a UVS is an opportunity to foster innovation.

Under the current approach, if you were a small company in Indiana who came up with the concept of equity-indexed annuities, before you could actually go to market with that kind of product, you'd have to come up with a valuation scheme with defined methods and assumptions that could be accepted on a broad basis. This means you'd have to drag a significant part of the industry along with you with that innovative concept. You can't, in effect, scoop the market with an idea. That presents a real impediment to innovation.

With a system based on actuarial judgment in the selection of the methods and assumptions, the small company with the innovative idea can go to market with that product without talking to any other part of the industry. I would highly recommend discussing it with their regulators to make sure that you're anticipating all of the concerns of regulation, but you don't have to develop a definition of what method and assumptions must be used before going to market. So the opportunity side is very positive for the small company. We're also very concerned about making sure that this is practical for a small company and that the cost of executing it is not unattainable. And I guess the proof will remain to be seen whether or not we can be successful at that, but it's certainly something we've been concerned about and striving to achieve.

MR. ROBERT H. DREYER: Stu beat me to the small company question, but I'd like to take it one step further. It seems to me that, if we're going to some kind of confidence-level type of reserving, this is going to have not only the expense burden on small companies, but also the tendency to raise their level of required reserves more so than RBC has. I guess the only good side of this is the possibility of getting the IRS to go along with it. That will at least defer, if not reduce our taxes.

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MR. WILCOX: The small company has a need to hedge the obligations risks. And properly hedged, doesn't necessarily increase the reserve requirements at all. To the extent that you, for example, hedge a mortality risk through reinsurance, you, in effect, have eliminated the fluctuation from that. And you do it in a different form than the larger insurer who does it through diversification of risk. It is not automatic in that context that reserves have to go up, but it does point out very clearly that you must manage the risk and hedge it at an appropriate level for your financial resources.