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**VALUE-ADDED FINANCIAL REPORTING
AS A PERFORMANCE MANAGEMENT TOOL**

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Panelists will discuss examples and uses of value-added financial reporting as a tool for setting corporate goals, monitoring progress, motivating behavior, and improving financial success.

MR. DOUGLAS C. KOLSRUD: First of all, let me introduce our panel. I'll serve as the panel moderator. I'm the corporate actuary at Aegon USA, the U.S. subsidiary of Aegon NV, an international insurance company based in The Netherlands. Aegon has used value-added as a performance tool for the past seven years, so we have quite a bit of experience. I will provide you with a brief theoretical framework of value-added and will share my experiences with you at the end of the session.

Ed Mohoric is a consulting actuary with the Philadelphia office of Milliman & Robertson. His expertise includes management and strategic planning as well as technical actuarial consulting. Ed has served on the Academy's Committee on Life Insurance and the Society's Nontraditional Marketing Section Council. Ed will give us an overview of some of the practical implementation issues that are encountered when implementing a value-added system.

Andrew Giffin is a principal in the insurance management and actuarial consulting unit of Tillinghast/Towers Perrin. He specializes in multinational insurance strategies, integrated financial services strategies, and organizational design. Prior to joining Towers Perrin in 1983, Andrew served in various capacities, including director of management services for the NAIC, first deputy commissioner for the Massachusetts division of insurance, and chief counsel for the Pennsylvania Insurance Department. As the panel's nonactuarial representative, Andrew will step back from the actuarial aspects of value-added and will provide us with his perspective of using value-added as a performance management tool. We hope to use Andrew's perspective as a springboard for some good discussion at the end of the session.

With that introduction, I would like to provide a brief introduction to the theoretical aspects of value-added by defining three of the most commonly encountered terms: embedded value, sometimes referred to as economic value or shareholder value; value-added, a measure quantifying the change in embedded value; and ROI, which calculates the rate of increase in embedded value.

Embedded value consists of two components. The first, adjusted statutory capital and surplus, begins with capital and surplus as defined in the annual statement filed with

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state regulatory authorities (that is, blue books). To this we add the asset valuation reserve (AVR) and reestablish certain nonadmitted assets at their realizable value. Among the most common reestablished assets are tax loss carryforwards, agents' debit balances, and unauthorized reinsurance.

The second component is the present value of future capital contributions and distributions on existing business in force. This component is calculated by using actuarial projection models and techniques; projecting over future years' revenue, benefits, expenses, statutory reserve and required surplus requirements; and discounting such items at a hurdle rate back to the date of valuation.

Embedded value differs from market value or appraisal value by ignoring the impact of future production, structure value, or any other items that are considered goodwill. Certainly, the embedded value methodology can be adapted to include new business on a theoretical basis, but practical problems can arise with the uncertainty of predicting future production assumptions. One of the criticisms of the value-added method of accounting is the volatility of results, which can lead to difficulty in understanding by senior management and those not as close to the intricacies of the calculations. Including new business could lead to exacerbating the problem.

Value-added is defined as the increase in embedded value increased for any capital distributions or decreased for any capital contributions put into the company or line of business. For example, if the embedded value at the beginning of the period is \$1,000 and grows to \$1,100 at the end of the period, with an additional \$20 being withdrawn during the period, the value-added is $[(\$1,100 - \$1,000) + \$20]$, or \$120.

The more interesting challenge is analyzing the value-added for the period. To this end, you can algebraically break the value-added into components, which can provide some useful insight into a better understanding of the results. We could devote an entire session to this but, briefly, you begin by isolating the expected return at the discount rate, sometimes referred to as the hurdle rate. If all assumptions underlying your projections are realized, then the value-added on your in-force business is exactly equal to the expected return.

To the extent that actual experience deviates from those used in the projections, actual-to-expected variances arise, which can lead to further analytical review. This review can take the form of the traditional gains by source analysis. For instance, does a negative variance exist because of adverse mortality, interest rate spreads, persistency problems, or expense overruns?

There can also be value-added, created or eroded by the production of new business. To the extent that new business is priced above the hurdle rate, value is created. Likewise, to the extent new business is priced below the hurdle rate, value is eroded. Finally, you will earn investment income on the excess of actual surplus over that required to support the business.

A final measure often used is the ROI. The ROI is the ratio of the value-added to embedded value adjusted for capital contributions and distributions throughout the year. Expanding on the discussion above, the expected ROI on existing business in force is the hurdle rate. Any variances from the projection assumptions will cause the ROI to deviate

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from the hurdle rate. Likewise, new business will have no immediate impact on the ROI if the internal rate of return (IRR) pricing assumption is equal to the hurdle rate. However, any excesses/deficiencies of pricing over the hurdle rate will enhance or dampen the ROI.

That provides you with a very quick overview of some of the fundamental concepts of embedded value. Ed will now provide you with some of the practical implementation issues encountered, and Ed will be followed by Andrew who will step back and provide his view on some of the uses of value-added as a performance measurement tool.

MR. EDWARD P. MOHORIC: Doug covered the background and theory and did a good job of explaining what value-added measures. I will take the practical aspect and talk about some of the details and pitfalls that you may run into and need to overcome in implementing value-added.

Implementing value-added is mostly a function of defining the rules in an appropriate way for your company. Value-added has many advantages. It accounts for changes more accurately and more immediately than GAAP or statutory can, due to the rules and constraints in both of those financial reporting mechanisms.

Value-added can also have some disadvantages. It is more volatile. Changes in assumptions are recognized more immediately, and that, plus the complex actuarial nature of the projections necessary to get a value-added result, can make it very difficult for management to understand. Management needs to be brought on board to make it work. If top management does not understand value-added, you may implement it but then abandon it in a year or two.

To give me perspective, how many people have implemented some form of value-added in your companies? I'm going to guess about 40%. It gives me some perspective of where people are and where people may be thinking of going. I'm going to cover a few aspects of this implementation—who, how, and what?

“Who” deals with who's being measured. Value-added can be used as a line review, but it can also be used as a bonus formula for line managers or the CEO, and who is being measured dictates, to some degree, the items you want to take into account. I will cover how to set assumptions initially and, just as important, how to change assumptions because, as I said, value-added can be very volatile as you change assumptions. You need to understand the impact of changes that you make. Last, I will cover what to include, what parameters to set, and what types of assumptions ought to be considered in value-added. The items that you want to consider are going to vary, depending on the level of the person being reviewed and his or her level of responsibility. This is particularly true if you have a bonus formula or a long-term company formula in place.

Let me start with a line manager who might be vice president in charge of the annuity line or the universal life (UL) line. Clearly, the following need to be taken into account: (1) persistency probably provided the initial impetus for most of value-added implementation. Persistency and, to a lesser degree, claims were the impetus for many agent reinsurance companies, and the line manager has to have a stake in the lapse experience of the line. (2) For maintenance and acquisition, the line manager must take responsibility for the level of expenses the company is incurring. (3) Required capital needs to be built into the value-added formula. To the degree that the company is tying up a limited resource, you

want to account for the cost of that resource. (4) The line managers need to take responsibility for the line results on the claims that you have, whether they are death benefits or health claims. (5) The premium, the type of products that you're issuing, and the amount of growth you have year to year will dictate the change in embedded value so that the line manager will certainly need to take that responsibility also.

The above are straightforward. The rationale's clear that all these, while they might not be controllable, are at least influenceable by the managers and the vice presidents. There are other factors that are much less controllable that also need to be taken into account. For example:

- Corporate-owned life insurance (COLI)—not too many companies are into that market, but those that are tend to be in it very heavily. Certain tax changes are being proposed in Congress regarding deductibility of loan interest. If passed, these could severely hurt the leveraged COLI market. Clearly, with a value-added compensation formula, the sort of change that could reduce or destroy the viability of a product needs to be taken into account. In this case, it counted as a negative against the line manager, even though tax law changes would be out of the company's control under normal circumstances.
- AIDS—This is a good example of one of the potential pitfalls of value-added in terms of our understanding of a situation and the volatility that can result from it. We had certain mortality assumptions we were using 10 or 11 years ago. We were ignoring AIDS at that time; either we didn't know about it or didn't realize the extent of the issue. So we would compute a value-added assuming no AIDS risk. During the next two or three years, in the late 1980s, companies became clearly aware of this, they started underwriting against it. When more information came out, we reacted, but the level of the epidemic was unknown.

Remember the 1989 Society study that showed a high-, a medium-, and low-level scenario? Many people were using the medium level for their projections at that time. If they would have adjusted the value-added to take into account what they believed to be the AIDS risk at that time, chances are they would have reduced the expected value of the company significantly by the perceived AIDS risk. However, during the 1990s, we started to realize that the epidemic was not quite as bad as was thought in the late 1980s. It's not negligible, but it's not as bad as we thought.

If, in 1989, you reacted in a value-added formula by building in the Society middle scenario, then as you unfold through the 1990s, chances are you will be adding value as you readjust your AIDS assumption downward for the fact that you had assumptions that didn't materialize. So you have a value that first dropped but now increases as actual claims were realized. To a large degree, it's now a real change but only your perception of the epidemic has changed. I'll get into that somewhat more when we talk about changing assumptions and what we should consider when changing assumptions.

Still talking on a line manager level, different companies will make different decisions about whether to work other items into the value-added formula. Three of them are: investment experience, excess capital, and semifixed expenses.

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- Investment experience—if you have an annuity line, a UL line, or anything that's interest-sensitive, investment experience is clearly part of the responsibility. The manager is involved in setting credited rates, and to some degree, has a heavy role in investment strategy. However, for a line such as health insurance, disability or group life, it's not clear to me that pluses and minuses from variations in investment return really are the responsibility of the line manager and thus really should fall to their benefit or shortfall.
- Excess capital—some companies will assign the target surplus level only in calculating a line's value-added. Other companies will do a pro rata of total surplus if there's excess surplus beyond risk-based or target capital. This gets tricky because it's not often clear whose responsibility it is to use the excess surplus, so allocating it among lines becomes difficult.
- Semifixed expenses—I characterize these as trust expenses not directly controllable by the line but that grow periodically, in a step function as a line grows. An example might be that a new actuary is certainly not needed for each policy or 100 new policies issued, but when you achieve some level of additional premium and additional analysis needs to be done, then an additional actuary or an additional accounting person may need to come into the fold, and expenses will go up at that time. Some of these expenses may be taken into account.

One important item, with respect to interest rates and dealing with investment returns in a value-added formula, is taking into account a risk adjustment. Many appraisals—both for determining value of a company for sale and for value-added—are done on a level-interest basis. With any interest-sensitive line it is not good enough to only deal with a level interest scenario in the future. You need to deal with real returns, and you must consider in your value-added calculation any mismatching risk were that the line manager or the investment manager wants to take. We came up with one approach in working with one company to handle the interest rate risk. It was to use the cash-flow-testing results and take a weighted average of the various New York 7 scenarios from the cash-flow-testing results. The rationale for this is that it takes into account some level of changes in the interest environment, even though it doesn't take all risks into account. A random walk testing might be better, but when you start running 40–50 scenarios you get into additional definitional issues as to how to set up yield curve changes and what probability you assign each given result in terms of coming up with one answer for value-added. (For value-added you need to get it back down to one number, one change from last year.) In my example, we decided that the New York 7 was an appropriate, simple, cheap way to deal with the investment risk in a value-added calculation without getting into the extra cost and definitional parameters of stochastic testing.

Value-added is often used to set up a compensation arrangement. How exactly does this work? Here's an example of one bonus setup that we developed for a company president based on value-added (Table 1).

In Table 1 which I would characterize as an intermediately sloped scale, if the value-added increased between 0% and 7% in the year, there was no bonus. If it increased between 7% and 10% in the year, he or she received 3% of salary. If it increased between 10% and 15%, the bonus was 6%, and so it continues. If the value-added increased by more than 18% in the year, he or she receives a 30% salary bonus, plus an additional 6% for each 1%

that the value-added increases beyond 18%. This is only a sample scale that can be used to determine bonuses. Within any given company you must see if the level of compensation relative to the value increase in the company is appropriate.

TABLE 1
SAMPLE VALUE-ADDED BONUS SCALE

Value-Added Percentage	Bonus (Percentage of Salary)
0-7%	0%
7.01-10	3
10.01-15	6
15.01-18	15
18.01 +	30 + 6%
	For Each 1% Increase

You can also craft this chart to have different slopes. One alternative is to set the bonus equal to zero until you achieve your hurdle rate of, say, 12% or 15%, and then have a steeper slope thereafter. This puts even more incentive on the growth. Conversely, the slope could be flatter and allow some level of bonus even if there's growth in the 0-7% range, as long as the company's value doesn't drop.

In deriving assumptions for the value-added calculations, I have found that cash-flow testing can be a good starting point. If you want to start with cash-flow testing, you need to make a few changes to it that are relatively straightforward. Cash-flow testing is usually discounted at the after-tax earnings rate. For value-added you would want to use a higher discount rate, probably your hurdle rate, as Doug says that Aegon does. You also want to add in, as Doug already mentioned, any capital and surplus, plus any AVR that is not included in your cash-flow testing. Any surplus that was paid in during the year from the parent, though, should be removed from the formula so that you don't take credit for the fact that somebody gave you money during the year.

My comments so far covered what to include in value-added when dealing with a line manager perspective. When you get to the CEO level, you want to take more items into account. Most people will want to take into account the whole company, although there are some variations here. Certainly, all the persistency, claims and growth goes on up the line, but the president needs to also be responsible for the level of overhead cost, so this needs to be added into the total value-added formula.

In the case of a start-up operation, which I've worked with, building in fixed expenses (if it's done right) makes for a low starting value. In fact, this can often result in a negative value. If you choose to ignore fixed expenses, then you're not measuring what I believe is a very critical item. If management understands, I think the best way to deal with expenses is to build them in at their full level. If that gives a negative value, so be it, as long as everybody understands what's causing the value and as long as it's an internal document. You can then measure your growth out of the negative situation. This approach (using a negative value) is usually not palatable, it's true, but it's not palatable. Another way to do it is to stagger in the full expenses over a period of time. Use enough to get you a positive starting point, but still recognize that you have fixed expenses and you will start building them in over time.

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There are two schools of thought on taxes, and I've seen them done both ways. I prefer to build taxes in, but the key issue to consider regarding the CEO's responsibility is whether the CEO really has any ability to influence them. Clearly, if there's tax planning, and you can reduce taxes that way, this should be taken into account.

Let's say the government were to raise the corporate tax rate to 46%. Then the value of your company drops—period. Is the CEO responsible? I'd argue not but, nevertheless, the value of the company is down, and I do think that this normally should affect the formula. Other people will argue differently. The same thing works in reverse. If the flat tax, let's say, gets adopted, and the corporate tax rate goes to zero, the value of your company goes up tremendously. Does the CEO get a bigger bonus and a windfall just because of that? The answer to that is different for different companies and will depend on how much of the-buck-stops-here-approach you want to take in your company. The most important thing, though, when setting the formula, is that it must be able to go both ways. If the CEO gets penalized by an increase in tax rates, he or she should profit from a decrease. The CEO should take both the windfall and the shortfall.

At the CEO level, all surplus, not just the target surplus, must be considered. Effective use of surplus is important, and just like excess surplus will pull down the GAAP ROE, it affects the value of the company. You actually get an interesting result, as I've seen in some cases, in which total surplus is less than target surplus; it leverages you up.

The last additional item for CEO consideration in the value-added formula is future business. It's more common to work with a value of existing business only and look at the change in that from year to year. But one company I worked with actually projected its next three years of projected premium, and the value from this was built into the value-added calculation. The point was to set a target, that the company would have to achieve at least a 10% new business growth rate. If it achieved above a 10% growth rate, obviously it would add more value to the company.

I have concerns about including future business for a couple reasons. First, it becomes almost too easy to play with the numbers. You can just assume higher marketing, better marketing production, and build in an extra value to your company that is not yet proven out. Second, and the bigger reason that I don't like the idea of building in future business, is the practical aspect of disappointment. This can make it hard for value-added to take root. In the example I gave, if value-added is pegged to grow at 10%, it's ready to disappoint when it grows at 8%. The value-added then drops. You're growing the company, yet you're not growing up to expectations, and you get negative results. So, I prefer to treat future business as a plus outside the value-added calculation.

Let me talk about setting assumptions. The key thing you need is a good basis and documentation for the assumptions. Because most of us now are doing cash-flow testing every year, this is the best starting point for value-added. An outside appraisal can be another good starting point.

It's critical not just to set assumptions for a calculation, but to set the guidelines for setting assumptions. You must decide why, when, if, and how you're going to change those assumptions next year. Deferred compensation and bonuses are riding on the calculation, and you need to reflect changes in a fair manner. Clearly, as business changes, you need to reflect those. You don't want to get hooked into statutory-type accounting in which you

use outside indexes to determine your interest rates and your mortality, but you need to reflect changes in a reasonable way and not be haphazard about the changes and not succumb to pressure.

A good example is if you're pricing a new product and you build a lapse assumption into this new product. You use 20% lapse in the first year, and you grade it down to 8% over ten years. You price that for a 13–15% return. You begin selling it, and you begin to review the actual experience. After the first year, rather than experiencing a 20% lapse rate, you experience 15%. You did much better. Does this mean that your 8% long term should be 6%? You don't know that yet. So you need to be careful when making assumption changes. Once you have credibility with the 15%, and you believe that you were conservative in your pricing, then the value-added formula should be changed to take 15% into account. But I wouldn't change the long-term assumptions until you build up an extra level of credibility, or you're convinced that the improvement applies to future durations because of some real change in the environment.

Value-added necessitates doing good experience studies. Many companies do lapse studies regularly. Mortality studies lately have not been as much of a priority. In a smaller company, mortality studies may not give you the level of credibility that you want to have, but you do need to do a study in terms of justifying the assumptions that you're making and in terms of justifying any change in assumptions that you're making. If you were expecting \$20 million in claims this year, and you experienced \$19.5 million, this does not mean you improve your future mortality by 5% all future years and take that into value-added this year. You don't want that level of volatility. I think what you need to do again is set a guideline for when to change future assumptions. If mortality is improved, has it improved credibly? Have I done confidence intervals on it? Am I 95% confident that the mortality result that I got this year is different than what I had priced for, and, therefore, I should use a better assumption going forward? Smaller companies might want to implement a two- or three-year sliding scale when taking into account mortality changes so that they build up that credibility level, but I don't think ultimate changes should be made unless you're certain that experience is proving that out.

Health insurance actually presents an interesting special case in which you have the ability to take rate increases. You may have bad loss experience one year, and you will anticipate taking a rate increase to make it up. Budgeting how much the rate increase will be in terms of an offset to improve your value-added is something that can be very critical. You need guidelines in place that you can defend. This way you can say you improved the value-added formula or decreased the value-added formula because these were the standards previously set forth.

Let me close with a couple additional thoughts. There are different approaches if you do an acquisition. You might want to ignore this until after the acquisition is merged in, and then set up a "right price" as a starting point for your value-added. If you do this, there could be a discontinuity depending on whether you've paid this "right price." Acquisition prices are all over the place, and if you—it seems to be happening this year—pay a premium for the acquisition, you can be setting up for lower value-added in the future. Likewise, if you get a good deal, and you get an acquisition at a discount, you're setting up to grow your value-added in the future, and oftentimes the individuals who are masterminding the acquisition are different from the individuals who are charged with making it work. So, if an acquisition is a bargain price or a bad price, you need to deal

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with whose responsibility that was, and who should be affected. How quick are the line managers charged with making this block work? Pegging a right price is important. Of course, it may take you a while to find out that you paid the wrong price or that you got the bargain, but as soon as you can, it needs to be taken into account.

I hope I covered some useful points. To summarize you need a document to set your guidelines. The actuarial mathematics of value-added, while not easy, are straightforward. To make it work, management needs to understand it and buy off on it in good years and in bad. You need credibility to get management to buy off. To achieve credibility you must sort through the items that I've talked about at a detailed level. You must tie to your sources. You must be able to defend every assumption you make, and you don't want the decision to rest on one actuary or one person. Inside a company you need to have internal peer review. In this case, I think it's very helpful to get outside peer review to give you the comfort that you're being unbiased in your assumptions. Doug and I were talking before this session, and he said that the line managers at Aegon are responsible for the individual assumptions, but he, the corporate actuary, reviews these assumptions, makes suggestions, makes changes, and then he gets an outside review of himself. That builds in a double layer so that if there are questions, "We sold this much this year, and our lapses have improved; why didn't you take this into account now and into the future?" You have a document and rationale, as well as support as to why you do or don't make changes.

MR. ANDREW F. GIFFIN: Following on Doug's comments about what value-added is, sort of a baseline of what the methodology is about, and Ed's useful comments about some of the pitfalls and some of the things to watch for, I'd like to take a somewhat different tack. That is to focus on—once you've done the value-added analysis, and you're happy with the economics, the financial side, and the actuarial side—what you can do with it next. I think that's where the real value will come in, particularly in terms of sharing the work that's done in the actuarial department with the rest of the company. I'd like to focus on why we would use it and how we would use it. I probably should explain why it is you have a nonactuary coming in at this point. Let me tell you how I came to this subject.

As you heard in Doug's comments in the beginning, I started my career in insurance, in the regulatory ranks. My first job was with the Pennsylvania insurance department as an attorney. Among the things we did was look at rate filings. The second day I was there the representatives for the local title insurance company came in and said they needed a 10% rate increase. They didn't have any particular way to explain this, but they, like any self-respecting company people, weren't going to tell a regulator any more than he absolutely demanded or needed in order to get a rate filing approved; that disturbed me a little bit. That's the way the process worked, and I saw that repeated many times over. After leaving the regulatory ranks and getting into work with companies, I found much the same kind of attitude among many actuaries who were very wary about what they let company management know because of how that information might be misused. I think it's a fair concern that you should have. But now, given current conditions, we need to find ways to translate what these models tell us and make that information work for the company's benefit.

Why now do we have to do this? I joined an actuarial firm to address this one way or another 13 years ago. About ten years ago, a colleague of mine, Jeremy Goford from London (who had done some work on a control cycle, which is using value-added kinds of

analysis for company management), and I worked together on a system for mixing strategy and value-added analysis. What we found in going to the marketplace was that things simply weren't bad enough yet. I think we have a situation now with growing competition, with lowering margins, with returns down, where we do have a need for a better measure of performance in our companies, that puts together financial performance, operating performance, and strategic alternatives.

Also, in today's environment I think we need to focus more on understanding shareholder value. That is particularly, of course, true for stock companies. But, increasingly, stakeholder value for mutual company policyholders is needed as well. We also need to focus more on the customer and understand what the customer's value is. To do a good job with respect to both of those, we need to understand better what employees contribute in various units to the value of the company. Because we are now moving into a time when we're changing our strategies more dramatically, to new forms of life insurance, to more of an annuity mix in the product lines, and into other lines of business and evaluating some of the smaller lines of business we have, we need more intense strategic work and support from the financial side and the modeling side for that.

I think all of those things come together to suggest a systematic approach to the value of a company, the concept of economic value-added. The idea of a strategic value management system is an attempt to put together the various pieces we've talked about. I should say that we're not talking about something that's entirely new as a concept. All the things we'll talk about in this systematic structure exist today, are well used today, and it's a matter of putting them together and then translating them for wide use in company management. Given the fact that with all the difficulties that Edward was talking about—about trying to make this model an accurate reflection of what goes on in the company—I think it's important that actuaries play a very strong role in translating what these models talk about and what to expect from them so that management responds in appropriate ways.

In terms of the basic shareholder value calculation, we're talking about the use of discounted cash-flow models well established in the mergers and acquisitions field in terms of appraisal value as was mentioned. One of the things we have used, which I think gets this closer to performance measurement, is application of the value-added technique in modeling situations of new business ventures in the U.S. and in other countries. We have found this particularly valuable when working with people who are not insurance people. We helped Fidelity Investments put together a company and we helped a casketmaker put together a company. In those situations, the kinds of economics that you all are familiar with and comfortable with in life insurance products were very strange to those people. We used *value-added models to break down the economic dynamics and the financial dynamics of the product and the business so that a noninitiated person could understand it*. In both those situations we were successful in translating what this was about, at least to some level, to the level where they were willing to finance those new ventures. It really has an opportunity for a very strong, effective communication device.

The U.K. and the Netherlands, as Doug said about his company, have taken it much further, and those are probably the two markets where these methods have been developed the most, certainly in terms of internal analysis, but also in many situations in terms of a published embedded value number. It's important, as Ed, I think, was suggesting, that we try to come up with the best numbers available. This is not a game-playing exercise.

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Unless you come up with the best numbers that you can, the best estimates as you see them, the system really falls on its face. If you have to account for conservatism in this number or that number, the numbers don't serve as a useful guide. These are nonintuitive outcomes. Variations in assumptions can do funny things that you would not necessarily expect. You may anticipate it a little more in your role because you're accustomed to seeing these kinds of movements, but for people who are not actuaries, who are not accustomed to the way the numbers move, the fact that a small movement in one particular assumption makes a large movement in the value determination is something that they're not going to immediately pick up on. It's very important to have very sustainable, credible kinds of assumptions in the process.

We want to look at a comparison between our original pricing, our current expectations, and actual results, and this is where we begin to bring in the process of actually monitoring the outcome. As one CEO of a U.S. life insurance company said recently, "We didn't worry about profitability in the past. We left that to the actuary, and basically the actuary priced in the profit, and we could just forget about it. Maybe we'd have to nudge the dividends a little, but profitability was never an issue in the old days." Well, we're not in the old days anymore, and we need to go back and look at the pricing numbers, the expected numbers, and then track year to year what the actual results are to get a better handle on what appropriate assumptions are as we go along.

Target surplus—to come up with exactly the right answer on it—is a very difficult topic, but the general objective is to come up with a surplus figure that is a prudent man standard. What do we need to run this business? There again we're looking for an actual kind of number, not a minimum regulatory kind of number. Similarly with the discount rate, again, a very controversial question is What's an appropriate discount rate? But here again we're looking for some rational approach to what it costs to get the capital to run this business.

One of the advantages that shows up, particularly in a multinational company, is the opportunity to use this form of financial analysis to cut through the differences in statutory requirements from country to country. You can meet the practical requirements of statutory accounting in each country and use the value-added measurement as a universal measure that cuts across country-to-country differences and allows you to compare country-to-country operating performance as well as the value of alternative investments in those different places.

Another thing, which is not very much talked about but I think is a growing need, is the movement from focus on product to focus on distribution and now to focus on the customer. Many companies will say that they are customer-focused, or at least they want to be. But what is the value of the customer? Are our customers all the same? We have tended to treat customers as being more or less the same; we're not focusing on them as individuals, or in segments, for the most part. We're beginning to do that, and we need a way to measure the value of customers because they are different from market to market. We can actually do this in the context of a value-added model by determining the value-added of an individual product that's designed for a particular customer.

The approach is to look at customer value as the value-added by the products that each customer purchases, that's as an individual customer. When we look at segment value, we look at the various products that are purchased by customers in a particular segment and

add those up. One thing that's very important about this kind of analysis is that we've tended to make the assumption that we should focus on upscale customers because we get a larger premium with the same sort of effort on the sales end. Thus we should be better off.

The problem with that scenario is that upscale markets tend to be more price-sensitive. Margins tend to be a bit thinner. The number of people you have access to is lower, and many companies and other kinds of financial services are going after those same customers. So, it's a more competitive environment. Once you do this sort of analysis, and you look at the opportunity in middle markets in which there's slightly more opportunity for margin and much larger numbers, then the value of a segment, when you add it up, becomes much more significant than some of the upscale segments. This is some food for thought in terms of repositioning and coming up with appropriate products and distribution for the middle market.

We can use profit tests with, again, relevant assumptions, to come up with a dollar number of value-added per product. This is something that I think is a daunting idea if you think of trying to take all of the product sales you have in a company past and present. If you start by taking a handful of the products you are selling today and then look at where they're being sold, you can do some simple segmentation by picking an age. Say you're selling to a younger population. If you look at a profit test at age 25 and an appropriate size of policy as differentiated from an age-55 policyholder, an appropriate size for that in a different segment may be more upscale, and you get some significant differences in value-added by product. Although many actuaries try to maintain for a particular product a consistent level of profitability throughout the range of ages and sizes, the tendency is for that not to happen in fact. What you often find is you have a large block of policies in a part of the range where the profitability may not be as favorable. This is one way to track how you're doing. Then if you look at high-value segments, and you begin to refocus your marketing efforts around high-value segments as opposed to across the board, I think you can gain some significant improvements in outcome. This also helps to get some real sense of what customers are about and how they're important to the company.

Then we need to look at employee value. This is simply a matter of taking the shareholder value and the customer values—and these are independent determinations—and look at how those are determined by employee actions. Ultimately, the quality of shareholder value and the quality of customer value is determined by the actions of the employees. We look to pricing factors as the basis for determining value and then use those as being related to activity. Some of those factors are going to be more controllable than others. Things such as expenses can be tracked. Maintenance expense, for example, can be tracked back to budgetary items; that's a bit easier. But also we have to consider the impact on service quality. So, as we focus more on customers, we have to bring in more customer-oriented factors into that process. There are some that we can only monitor, that we don't control (things such as interest rates), and there are some things that can blindside us, like tax changes. We need to relate the uncontrollable factors to employee activity in terms of how good the monitoring system is. We focus not so much on success in predicting movements, but how well we respond to those kinds of movements.

Some of the factors are going to be related to strategic choice, and I think the most obvious one is distribution. Different distribution scenarios are going to present different cost scenarios and volume generation potential. So we need to look at that. And then we

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need to translate these factors into operational metrics, operational factors, things such as persistency and agent productivity.

Now, I'd like to be able to say that the relationships of pricing factors and operations factors are all clear. I don't know that. The difficulty is you must look at your company and gain experience. Part of getting consistent, reliable assumptions is understanding more and more of the relationships between particular kinds of operating performance and pricing factors. Now, all we're talking about are the kinds of things you already do; to some extent, piecemeal. We're looking here for a more systematic approach to linking these things together and studying them more intently. This is only because in today's environment with low margins and low returns we have to do a more refined job of evaluating what the translation is of what employees do, what agents do, with the financial outcome. So it's an evolutionary process.

Now those are sort of the characteristics we're looking for in a strategic value management system. As Ed has suggested, we do some kind of a baseline, or a self-appraisal, and we use cash-flow-testing outcomes. We need to come up with a model that compares original pricing with the products we're using, expected and actual. I think for practical purposes, if you're not doing this on a regular basis, it makes sense to, say, take the last year's issues and focus on those. Take a small part to test this approach on. If you try to go through the whole company in-force business with these kinds of analyses, you're going to get very frustrated, and you're going to run into so many problems it'll be hard to get started. We've found companies having a great deal of difficulty getting started because it was such an immense task. We have to break it down into smaller subsets and get a handle on those first.

You then can look at alternative scenarios, looking ahead a year perhaps. What could we do differently? How do we think that's going to change the value outcomes? We need to develop a business plan that selects high-value scenarios; that is, what's the high-value distribution approach that's going to work? What are the high-value segments that are most attractive to us? Then relate pricing factors to operating targets. This is a very murky analysis that I wouldn't suggest if it wasn't needed, but I think it is definitely needed in today's market.

In terms of developing a system, we need to go back and start with some sense of where we're heading. What is our future strategy? What are we trying to accomplish as an organization? Where would we like to be in terms of customer relationships, customer segments, product lines, and that sort of thing? Then we need to look back and attach some value-added kinds of numbers. Next, look at where we are—a snapshot of our baseline today. Then look at what we need to do to move from one place to another. There are transition costs we need to account for, just as there are new business development costs. We need to factor in that kind of cost to this whole process. One of the things I think you can do in value-added modeling is incorporate and make the distinction between ongoing costs of a normally running business and development costs. You can then figure out an appropriate amortization plan for the development process. We're getting away from statutory or GAAP accounting. We have some flexibility. Our objective is to come up with a rational approach to managing the business inside. If we can get all that right—it's useful to use the numbers outside—that's fine, but the focus here is on using them inside. You have to compare the pricing factors we're using. Our response to all this may be some repricing, but you may not be able to do repricing

because of competition. We may need to do some adjustment to expense factors or other factors as we go along.

We need then to assign key factors to related operating units, and this is the part where it's not just an actuarial exercise or that an analyst is looking at this. We need to get people in operating units familiar with the relationships we're talking about here. We need to translate the models in terms that they can understand so that they can see that what may seem like very small differences in performance to them on some of these factors have a very large impact on the value of the company. That's a big education effort. We translate the financial effects into operating performance standards. What is it that drives value creation? In doing this, we're using existing methods such as profit tests and cash-flow testing. The mechanisms are all available to us and we don't have to come up with new ones. We just have to do a more precise job of managing the assumptions particularly.

What are the benefits of doing this? I think, first of all, it's coming up with a real picture of what's going on for our benefit: a best estimate of cash flow, of capital needs over a period of years, of profit, and when it's going to be realized. We're looking for a personal education of real financial dynamics and then translating that through the rest of the organization in appropriate terms. We're looking to relate the value creation in the business to shareholder value, and this is really incorporating in life insurance the concept of economic value-added, which is growing in importance in a variety of sectors and becoming a standard. It's a matter of using the tools we have to do that within life insurance. We want to differentiate customer segments and customer segment values. This is partly to better manage the business but also to make more real the desire to be more customer focused. We must evaluate strategic options, here again developing alternative scenarios with good numbers so that management does a better job of evaluating what our real strategic options are, providing a foundation for operating performance standards.

I don't want to underestimate the difficulty in comparing—it's not really cause and effect—but the relationship between pricing factors and the movements between pricing expected and actual and underlying performance standards must be understood. This is something that we need to develop over a period of time with a great deal of experience.

A critical part of this process is to help senior management and boards understand what's going on. CEOs of many companies, particularly board members of many companies, have relatively little understanding of the actual financial dynamics of what's going on in product lines. We need, with the expertise we have, to share what we know about what's going on, carefully of course. Finally, we need to help managers, the people who are guiding the employees, who are making value or not making value, to understand the relationship between what they do and what value creation is. We've often talked about using this kind of approach for incentive compensation, and it certainly can be used for that. I would suggest that you want to get a system well in place and be very comfortable with it and very credible, before you begin to do that. One of the things we found is that you can blow out of the water the whole idea of value-added by suggesting that the purpose of this is to change the compensation system. That's one of the most political things in any company, and you don't want to begin to talk about that until you're very comfortable that you have a reliable system in which they can see what they are supposed to do to affect incentive compensation.

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All of this is easy to say. The quality and the value of it is in how it's done. I think it's demanded by today's marketplace. I think we have the tools to do it, and we can help our companies considerably by doing a good job and by getting on with it.

MR. DAVID Y. ROGERS: Regarding value-added, and I think a couple of the panelists mentioned that it was important, that you needed to get a single number or a single point estimate, I wonder if you have done any work in trying to determine a distribution of potential value-added outcomes, if you will, and testing the variability of the value-added number and using that as some kind of management performance measure. It seems to me that it's important for management not only to increase the value of the entity that it's managing but also to do so within certain risk parameters. I'd be concerned that without that kind of variability you'd be missing a key element of their responsibilities.

MR. KOLSRUD: For some of our businesses we do look at a distribution of values over stochastically generated scenarios. We actually look at somewhere between 40 and 200 scenarios and analyze different measures of embedded value, such as mean and standard deviation. We get somewhat sophisticated in trying to understand how it changes and under what circumstances the value is impacted by different interest rate scenarios. Beyond that, we don't do anything.

MR. MOHORIC: I agree. I think you need to look at many scenarios, which is why I gave the example of using the New York 7. I don't know that it's the best, but it was an easy thing to do in one particular case. If you're going to use it for compensation—just like any kind of financial reporting—you must come down to a result. You want to test various scenarios, but you have to come down to a result, and the more scenarios you do, the harder it becomes to assign a probability to any given one of them. You make some practical judgments.

MR. GIFFIN: I think one of the ways in which you look at that same issue from maybe a slightly different perspective is to understand what drives differences, what's likely to produce differences, and use that within the management of the company. You want to do some sensitivity testing on various factors so that the people who are responsible for managing, to the extent that these factors can be managed, have some appreciation for the relative sensitivity, in terms of value. I think that's another way to look at the variation in the potential outcome so you have a better idea of whether you can achieve a particular benchmark on this pricing factor or that pricing factor. We can have this kind of impact on the final outcome.

MR. VINCENT P. GALLAGHER: You covered a great deal of material. I'd like to focus for a second, though, on the question of discount rate. There seems to be an assumption that is a single, constant number, and even if you manage to start with a single number, over time you're going to be confronted with changing that. This means you're going to have different generations of a discount rate or you're going to be going back to a different embedded value.

MR. MOHORIC: I don't think the selection of discount rate is all that critical because what you're really measuring is change in value, and change in value is fairly consistent. It's probably traditional to use the hurdle rate, but you could use something else. I do think if you're changing your hurdle rate you have to re-peg.

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MR. GALLAGHER: Eventually that's going to happen some time.

MR. MOHORIC: Yes, but all you need to do is redo last year at the new discount rate. That's a lot fairer.

MR. GALLAGHER: That's what I would expect, but I just hadn't heard it commented on. Has anyone actually encountered that?

MR. KOLSRUD: We are encountering it now. We set our hurdle rate back in the late 1980s, and interest rates have come down quite a bit, as has our cost of capital. We haven't gone as far as changing our hurdle rate yet, but what really will drive a change is whether we are going to change our pricing assumptions. I think a key thing is to keep your pricing hurdle rate in sync with the value-added hurdle rate so you can get a good analysis of new business.

MR. GALLAGHER: Then you would go back and restate, and you wouldn't worry about using a hurdle rate on the in force that was different from the pricing on the in force.

MR. KOLSRUD: No, the key would be trying to measure new business.

MR. LAWRENCE A. MILLER: Earlier in the session I heard that the future business value is typically not counted as part of the value for this measurement. I'd like to ask more about that, considering that when acquisitions are made, the purchase price typically includes something for the new business value. The other side is that if you don't do an acquisition but do a grassroots development project, such as a new line of business or entering a new country, you will at least expense the start up expenses. That would be telling management, "If you didn't make an adjustment for that, they made a loss on a decision they thought was a good decision." I'd like to hear more discussion about why new business value is not counted? Why not impute some value to development costs?

MR. GIFFIN: I think that, theoretically, you should include it, because if you're thinking about what the value of the business is, you really should be including the new business capacity. Then you need to address the various kinds of issues in it, things such as long-term investments. I think the difficulty or the reason why many people don't get into it is because it can jump around, it's hypothetical. When you get into new business values, it's even more hypothetical. I mean, everything's hypothetical. Volumes are hypothetical. I think there's a good answer that applies as well to embedded value. That is, I live and die by my pricing. I'm using the exact same technique to come up with value-added numbers. So, why shouldn't I do that? It's harder to explain in terms of credibility with respect to future business because of the uncertain nature of it, and I think people just avoid it because it's just too hard to explain away the uncertainties.

MR. KOLSRUD: I agree with Andy. It's probably more a practical issue than a theoretical issue. Theoretically, I agree you can include it. However, we do not include new business because of the uncertainty and the additional variances that generates. One area where we would consider including new business would be if we made a major acquisition where we paid for new business. We might decide at that point in time to say, "OK, we paid money for this new business upfront." I know it's not that much different theoretically than investing in an agency system, but we might at that point consider to go ahead and establish a value and then try to measure management against that number.

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MR. ALAN C. LELAND, JR.: I have a question closely related to the last one. Ed, in a start-up situation, I think you mentioned that your preference is to just take into account the expenses at whatever level they are, even though that may result in a loss position, but your experience has been that that tends not to be palatable to management, and they do something else. Obviously, one solution to that would be to take into account new business, as was just discussed, but I think you said, again, that most people do not do that. I'd be curious to hear if people are doing something other than just taking expenses and not taking into account the future business. How are people handling that situation?

MR. MOHORIC: Well, I can give one example. We have no overhead expenses in the value-added calculation for three years in a start-up company, and then we do build in the fixed overhead. So, we're eventually getting there, and it's inhibiting our growth during the first few years because we're recognizing the fixed expenses. The concern is how this kind of ties in with the last question. I think future business really should be a side calculation in measuring the viability of a new venture. In my mind, the trouble with building it into value-added is justifying our assumptions. We can start making broader and broader assumptions, and we've just got to do something to tie it down to reality. My comment on not including new business was more an observation from reality in a case in which a company did include new business and said it was going to grow this company at 10% per year, but it wasn't growing at 10%. It was growing at 7% or 8% in a tough environment, which I thought was great, but in terms of the numbers, they kept getting worse.

MR. GIFFIN: One example of something that was done—and it's rough justice—is a company we were working with went into a foreign country and, because of the local environment, was able to price heavy compared to what it thought the appropriate outcomes were going to be. The company then did an analysis of what the outcome was in the product. There was an astronomical return on the product. But the explanation was that development expenses must be covered. Now the company hadn't made any specific provision for how much it covers. What are you assuming about that? So we worked on an expected set of numbers, which put the pricing assumptions at a normal kind of profit margin situation, and just assigned the difference between the expected outcome and the pricing assumptions as a contribution to development cost. Then we looked at how to amortize the development cost. That's backward, but I think it's important to put in some kind of definite provision for development cost, even if it's rough, into the analysis scenario. This is all for trying to understand what's going on, and what we are accounting for.

MR. RICHARD J. HORN: With the heavy burdens of use of capital and the limited amount of capital, I'm interested in your views of using this as a tool to decide where the company should put its capital—various products versus markets versus perhaps distribution systems.

MR. KOLSRUD: I think by elevating it to the level that we basically are using it as a major driver on where we're going to invest our money. If a line of business or a business unit is consistently not meeting the embedded value objectives, we would consider exiting that business. We've done so. It's also a factor in our capital allocation process.

FROM THE FLOOR: When implementing a value-added approach, after you develop your initial embedded value for your in-force block, any positive change in value of that

in-force block would have to represent assumption changes later on and thus would represent mistakes.

MR. MOHORIC: It's not clear from your question whether it's a mistake. If you make a mistake, like you use the wrong cash values in your projection or just blatantly do something incorrectly, I think you need to re-peg and say that the original value should have been this because of whatever reason. If it's an assumption change that you're not measuring, such as if you decide not to include taxes in your calculation, and the tax rate goes down, you should restate last year's value as if that tax rate were in effect. But if it's an improvement in the lapse rates, I wouldn't call that a mistake. In fact, that's exactly what we're trying to measure with value-added, and we want to measure that improvement in value.

FROM THE FLOOR: Not so much a mistake but if you miss that assumption at the beginning, and you're wrong two years later, it does, in essence, represent a mistake in your original assumption.

MR. KOLSRUD: We've encountered both. I think this is like our sixth or seventh year, as I mentioned, and we still have errors, believe it or not. But in the first couple years we were fairly tolerant of errors in assumptions, and generally the ones that went the wrong way were the ones that were acknowledged. Because we've gotten more of a stable system now, those that we forgive beyond flat-out errors are very few.

MR. GIFFIN: Can I add something to that? I think what we're trying to do in terms of the use of the value-added model is, even on in-force business, to see what we can do about improving the outcome. There are things such as expenses and some other things that we can actually improve on to increase value. If we slip in terms of maintenance cost assumptions, and we're not managing those effectively, we can lose value in that process.

We can go back to in-force business and see what we want to do. If we start focusing on customers and thinking of the customer who owns that product, we might want to do something different with the in-force business. We might want to do something with vanishing premium products and things such as that. We may want to change what is in the in-force business in a variety of ways, and by analyzing what the performance is of old blocks of business—a difficult and time-consuming task—we can come up with some new strategies with respect to what to do with in-force blocks of business.

MR. GEORGE D. POWELL: I'm an actuary in rehabilitation with Confederation Life in Atlanta. Confederation Life's internal management system, while it was not introduced as a value-added system, bears many similarities to the structure that you've espoused. Why should a new head of the individual business unit benefit from mortality gains on business that was written more than five years ago? You're using that to judge him. The issue that I want to pose, and it's definitely driven from the Confederation Life experience, is you have a management assessment system, and it's just human nature to strive to do well by whatever performance system you put out there. How do you account for the fact that this value-added system potentially diverges from other regulatory accounting systems—especially when you're working in several countries—and in one country the value-added system might suggest it is doing well, but, in fact, it puts a strain on capital? As a result there is rapid growth in an area that perhaps uses up capital faster than you wanted, but it's caused by the fact that this value system has encouraged the management of that area to be

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successful. The question is how to reconcile the fact that you're developing a management system that possibly diverges from other ways in which the company's going to be measured, other measures of success.

MR. GIFFIN: I think you've identified something very important. The point about making the analysis strategically focused is to say we need to reconcile our strategy; that is, what we're trying to accomplish in terms of short-term profitability and in terms of long-term development. Those are going to produce different value results to some extent. You're taking some higher risk in the longer term, and you need to account for the different requirements for meeting certain expectations in terms of GAAP accounting expectations and in terms of statutory accounting, which typically can be accounted for in the statutory accounting in the value-added system. But meeting GAAP requirements for other external purposes, even if it's not lined up exactly with strategic purposes, is something that you must account for. This is what I was suggesting in the strategic value management system. You account for the fact that you have different objectives, and when you set performance objectives for managers, you have to give them performance measures that are things that they can have some impact on and that reconcile those measurement differences, and it's not easy. I wouldn't suggest taking this on completely, except that I think we really have no choice but to get in there and address those problems and do the best we can.

