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"Bridging the GAAP": Practical Implications of Using GAAP Profit Measures in Pricing

Track: Product Development

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Summary: Pricing actuaries have traditionally used statutory-based pricing measures. Your chief financial officer (CFO) typically measures profitability on a GAAP basis. Are you able to "bridge the GAAP" between the two? Are you now asked to base your pricing decisions on a GAAP measure?

MR. RICHARD D. FARRELL: I'm from Ernst & Young in Chicago. Brian Springer is from GE in Virginia. This is a teaching session with a different, more informal format than the majority of the sessions.

When I was first asked if I wanted to do this session, they said, "Think of a scenario where you're the company actuary when a boss or somebody in the company comes to you and says, 'I have a great new project for you.'" Of course you already have 60 hours worth of projects to do within a 40-hour week, but you say okay. They say, "We want to adopt GAAP pricing; we think that's the way we want to go." Perhaps at that point you weren't really the GAAP pricing expert, but now this is thrust upon you. So, for this session, we're going to assume that you're in that situation just described. We will try to answer questions such as: What do you need to know? And, how do you get started?

Let me start my introduction with some background information. In particular, let's compare the historical versus the modern approach. These are my own terms, by the way. When I say historical, I am referring to the situation 10 or 15 years ago when pricing was predominantly done on a statutory basis and very little pricing was done on a GAAP basis. In historical,

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there was also a small number of pricing targets that needed to be met. For example, pricing targets might include a 15% return on equity (ROE) or a break-even in the seventh year or earlier. Typically, the historical method would have been done on a deterministic basis. Of course, if you go back prior to computers, it would be pretty hard to do a set of 100 scenarios on those big, green, multi-columned spreadsheets. So pricing was done on a deterministic basis and appears to be the predominant pricing methodology used today too.

The other element, which probably made the pricing actuary's job easier back then, versus now, is that non-actuaries had very little interest in the pricing process. As long as the marketing person got something that he thought could be sold, he wasn't too upset and didn't really want to dig into the details too much. But now we have a different situation.

What I call the modern approach involves both statutory and GAAP pricing. Sometimes it's not just one pricing target. A new product may also need to meet a long list of pricing targets to indicate that there is a reasonable probability that we're going to make the money that we need to make. Now we're also starting to see stochastic scenarios come into play—not just interest scenarios, which cash-flow testing made popular (or unpopular if you're the valuation actuary). For example, stochastic scenarios could also include mortality if you are pricing a term product.

Finally, the non-actuaries have become much more interested in the pricing process. The CFO and the CEO may be interested in a greater level of detail. So it's no longer just a black box and a recognition by the non-actuaries that the black box exists. Now, they want to know about the inner workings and may ask some tough questions.

To get a read on what sort of backgrounds we have so that we can tailor our comments accordingly, let me ask how many people are pricing actuaries? Okay, it looks like the vast majority. Regarding historical or modern approaches, how many feel that you use the historical approach? Okay, about half. And how many use the modern? Okay, maybe a little less than half. How about somewhere in between both approaches? Okay, maybe 25%.

I did a little informal poll as part of the recruiting effort for this session. I spoke to pricing actuaries at several companies, and I was surprised by the lack of companies that are doing GAAP pricing today. I am not referring to just small companies; I talked to many very large companies.

Why bother? Referring back to the scenario where the CFO or some other important person in the organization has a big project for you to work on, you may think, "Why am I doing this?" What are the reasons you would go into GAAP pricing? Similar to what might be found on late-night television, I have a top-four list.

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The number-one reason is that there is an overabundance of actuarial resources at the company. Number two is that the company has missed the GAAP targets in recent years, but beat the statutory targets. So in that situation, it may be appropriate to concentrate a little harder on GAAP. The number-three reason is that marketing feels that other companies are using GAAP and that's why they are able to beat us in the marketplace. Of course, based on such reasoning, although other companies might do all kinds of crazy things, your particular company should naturally follow suit and do these crazy things too. GAAP may be one of those things. They're convinced that's the root of the problem, so we should join in. Number four is that is just the way it was done at the CFO's prior company. Let's just do things the same way. Of course, there are probably a lot of other reasons too.

Let's talk about FAS 60, FAS 97 and FAS 120. FAS 60, for the most part, applies to traditional-type products. Reserves and deferred policy acquisition costs (DAC) are based on a best estimate with a little bit of a margin, the provision for adverse deviation (PAD). Assumptions are not unlocked. So, once you set things up, they're typically set to go. It's usually easier mechanically. A problem that could come into play is if those margins start to shrink and you begin to eat into your best-estimate assumptions. This could lead to loss recognition.

FAS 97 applies to the account-value-type products (e.g., deferred annuities, universal life). The reserve is set equal to the account value. This may not be entirely true in the future, as we will get into later, as a result of the new SOP on non-traditional, long-duration contracts. DAC is based on best estimates, but on an ongoing basis. The valuation people review DAC assumptions, revise them for current experience, and unlock them for future experience. That is going to make the DAC balance bounce around a bit, particularly if those adjustments are large. Without going into too much detail, let's just say that FAS 120 is similar to FAS 97; but, it primarily applies to participating products.

So that's the background, and here is the game plan we're going to try to follow for the rest of this session: We're going to talk about scope. Once again, consider that we have adopted the mindset of the pricing actuary who has that new project. So we'll talk about the scope and how we're actually going to get this figured out. I'll talk about some methodology issues. There are a lot of crossroads, and you can decide to go in many different directions. We will also talk about what some of those decisions might be. Then, Brian is going to talk about practical implications. Afterwards, I will return with my "impractical" comments and talk about education and tracking.

Scope. In some cases you could look at a product, and in the end, SAP and GAAP may not be that much different. If you have a statutory reserve allowance and you have a DAC balance, the two somewhat offset each other because, in essence, the statutory reserve allowance is supposed to be somewhat of a relief of statutory-surplus strain, and DAC would have a similar motivation. DAC will probably not

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exactly equal the statutory reserve allowance, but you may be able to conclude that it's close enough.

Some products also fit more nicely into a GAAP model than a statutory model. I will go into detail about this later when we look at the sources-of-profit methodology. Account value products really fit that methodology better than traditional life products, for example. To make some products work, it's like trying to fit a square peg in a round hole.

Small products might not be worth the effort to price on a GAAP basis. If you have one product that was a popular seller 10 years ago, or maybe it was just a big mistake five years ago, and still may be available for somebody to sell, you might want to conclude, "Why bother with this one, it's not worth the time and effort."

The next point is that you may be making lots of money on a statutory basis. So by implication, you should be making lots of money on that same product on a GAAP basis. If you are able to blow past all the pricing targets on a statutory basis, it may be safe to assume that you'll blow past all the pricing targets on a GAAP basis. Maybe, as a shortcut, you can look at that if your objective is solely that the product meets pricing targets.

Chart 1 shows two columns that compare the straightforward approach with sources-of-profit methodology. Starting with the statutory income statement, we've made some adjustments to evolve into a GAAP statement. We take out the change in statutory reserves and insert the change in the GAAP reserves. Then, we would insert the DAC and any unearned revenue liability.

DAC would be the two items on the bottom: DAC capitalized and DAC amortized. The unearned revenue liability can be thought of as the reverse of DAC when there is a mismatch between fees and the expenses that the fees are intended to cover. For example, if you have a front-end load on a product with a huge first-year policy fee that drifts down to small amounts in later years, the excess amount for that first-year load would be considered an unearned revenue liability. You bring that into income on a GAAP basis slowly, similar to how you would also amortize DAC. Under sources of profit, I have transformed everything in the left column of the slide to the major components of where it came from. So we have interest margin, mortality margin, expense margin and surrender margin. Of course, investment income can easily be seen as being a component of the interest margin. Interest credited, which is the negative offset of that, is buried in the change in reserves. Benefits would typically be included in the mortality margin as an offset. But, then as far as the fees that are collected for the mortality margin, they're once again buried in the change in reserve. Expenses are expenses. Surrender charges will come from benefits paid, the change in reserves and premium. So, in decomposing, it takes a fair amount of work to go from the left to the right columns in this chart. But, if you have something like a fixed annuity, the moving parts are account value, interest earned, interest credited, some expenses and some surrender charges. It

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is very visible as far as which pieces they belong in. A comment I will also make is that the bottom lines for the two columns should be the same. So, this is more of a geography issue and a presentation issue than anything else. It's not going to distort the bottom line. In other words, you cannot game the system and believe that by using the source of profit methodology instead of the traditional methodology, you might be able to make more money for the company.

Let's talk about methodology choices. The first is deciding which GAAP pricing measure you are going to use. It may not necessarily be the pricing actuary's decision. It may be dictated by company strategy. It might be a byproduct of the strategic plan or operating plan, on where the company is going, what the company is going to try to accomplish over the next few years and which profit measure would best help measure the progress of how you're going to achieve the goals. I will mention a few of the types of profit measures quickly and then we will go to a slide with an example. There are more of these; but, we just took the more popular measures. I'll also point out that for each of these there are probably several different definitions. We have the profit margin, surplus strain, present value of cash flows, break-even year, internal rate of return (IRR), ROE and the spread.

Chart 2 is an example of a plain vanilla universal life product for illustrative purposes. You can see the various components of the traditional, straightforward income statement in the box on the left. To the right, we have calculated profit margin and other pricing targets. For some of these pricing targets, there are many choices of formulas that could have been used. This was all calculated on a pre-tax basis. In practice, you might see after-tax results. Profit margin was calculated as the present value of the pre-tax earnings column divided by the present value of premium column. Surplus strain was all of the cash flow items: premium, commissions, expenses and benefits, minus the change in reserve divided by the initial premium. The present value of cash flow was the present value of the earnings on the right-hand side. Break-even year was the first year that the accumulated earnings go positive. The IRR was calculated using pre-tax earnings. ROE was the pre-tax gain divided by the STAT equity year-by-year. Then, that vector was weighted by the STAT equity over the 20-year period. Finally, the spread is the pre-tax gain over the assets weighted by assets. Once again, a weighted vector of 20 values.

Here is the same product on a GAAP basis decomposed into the sources of profit. In this example, GAAP earnings starting in year one are positive. That will not always be the case, but the assumptions we used worked out that way. For the most part, the formulas here are the same as what I just described to you except that we substituted GAAP results such as GAAP earnings instead of statutory earnings. You can also see here that a series of positive numbers may not produce an IRR that makes sense. So that's why we see "not applicable" for the GAAP IRR.

I talked a little bit about strategic plans earlier, about what sort of GAAP pricing measures you might be inclined to use or look at. Considerations that the company might use in determining the appropriate measures might include the extent that the company is hurting for cash. Another consideration is whether it is a public company or a non-public company. Public companies are more in the limelight and more scrutinized by analysts. Therefore, public companies might cater to the types of pricing measures the analysts may be interested in, rather than ones that might make more sense. A company also could be on the borderline for RBC or ratings. Just a little boost one way or the other might make a difference in going from "A" to "AA" with a particular rating agency. The appropriate pricing measures might also vary depending on the type of product. For an annuity product, you might be more inclined to use a sources-of-profit measure. If you have a universal life product, perhaps ROE or IRR might be more appropriate.

As I said in my introduction, it is common to have multiple pricing targets. The dilemma is that you have to balance the solvency issues with the GAAP return measures. Typically, if you have a series of pricing targets you are going to have to meet the minimum standard on each one. With a larger number of pricing targets that must be met, your product is going to stand out much less versus if you have just one pricing target. With one pricing target, you can come up with a very unusual product that meets pricing targets and caters to the marketplace at the same time.

Other methodology choices include treatment of realized gains and losses, if you're going to factor those in at all, and if you do, how so. You might have a stellar investment department that continually pumps in realized gains year after year. Or, as is probably more typical over the past few years, your investment department might have been victimized by a bunch of write-downs, which has contributed in a negative way to the bottom line.

Then there is pre-tax versus post-tax. With regard to timing issues, do you want to do the pricing on a monthly, quarterly, or annual basis? Also, will pricing reflect reinsurance ceded or not? These are really many of the same considerations that are common when pricing on a statutory basis. There's nothing new here.

One methodology consideration not found in statutory pricing is unlocking. Do you want to reflect future DAC unlocking in the GAAP pricing or not? If you're just doing deterministic GAAP pricing, you probably do not. But, if you're doing sensitivity tests, it does make a big difference. As an example, I took the same example we saw in a previous slide and performed a sensitivity test, as shown in Chart 3. We had a seven-percent earned rate assumption forever. Under the sensitivity test, beginning in year six, the earned rate is assumed to drop to six percent. So, your investment margin was reduced by 100 basis points. You can see that the earnings pattern started to drop off fairly dramatically starting in year 11. It was increasing at a pretty good clip up until then, and then all of a sudden it drops. It is still positive, but never the same afterwards. So, the overall impact on the measures

was that the profit margin measure went down from 16% to 12.9%. Present value of cash flows went down about 20%. ROEs went down to 25% versus being close to 35% before, and the spread is 175 instead of 244 basis points.

FROM THE FLOOR: I have a question. We tend to look at discounted cumulative ROE, and I'm wondering what interest rate is appropriate or what do you think you should consider in picking the interest rate to do this?

MR. FARRELL: What sort of interest rate approach do you take now?

FROM THE FLOOR: It's at 15%, but it's just been that way historically and I'm thinking that should probably be lower.

MR. FARRELL: I'm not 100% familiar with your approach since every situation is a little different. I would tend to think that it would be similar to setting discount rates for embedded value where you take a treasury yield, boost it up with risk factors and add 300 or 400 basis points on top of it. So, I would almost wonder if 15%, in the current low-interest-rate environment, might be a little bit high.

FROM THE FLOOR: Yes, and I didn't know if it was appropriate to use, what we are assuming are earned rates.

MR. FARRELL: I would almost think that earned rates would be a little too low, so it's probably somewhere in between. But, like I said, I would have to think through that a little bit more with all the implications.

MR. BRIAN E. SPRINGER: I have one quick comment on that. I find that is a highly debated topic, "What's an appropriate discount rate?" Typical returns for most stock companies are relatively high, double-digit ROEs. In today's interest-rate environment, extremely high double-digit ROEs are very difficult to obtain because of the low earnings that you're getting on the required capital that you have to put up to back your product. I've been working on convincing people that insurance products are nothing more than another type of investment vehicle that they could invest their capital in. If you can take, for example, five percent of premium, and that's your total capital that you're investing in the product, if you invest that in a bond today of an average duration of seven, you can earn 4.5% or five percent. Let's say it's seven percent—is it really appropriate to say that your fixed annuity insurance product that goes along with that should have to leverage up your seven-percent investment in that bond to a 15 or 20% ROE when the risk-return profile of that bond that you can invest in is not considerably different than any other type of investment out there? Sure you have extra risk factors by buying XYZ Corporation's seven-year bond compared to investing in this deferred annuity, but what's the appropriate risk premium? To put it in a real-life context, you buy a bond that is 100 basis points risk premium over the Treasury. Is it fair to say that a fixed annuity return should be somewhere in the neighborhood of 1,000 basis

points over the risk-free Treasury? I think it's a big communication and education issue.

MR. FARRELL: Also keep in mind, as I said before, there needs to be consistency with your company's plan and what you're trying to accomplish. If company management might be satisfied with lower earnings (such as to fund growth), then the lower discount rate might be appropriate. Instead, if the company is more concerned with the bottom line, they might use a higher discount rate.

Did we have another question?

FROM THE FLOOR: I was wondering—in year eleven in your example, did you unlock at that point?

MR. FARRELL: Yes, we unlocked at that point and then going forward assumed that the same six-percent earned rate would continue to apply. It was not just a one-time hit, it was assumed that all future years would now be six percent.

Let's go into a little more detail on sensitivity testing. Why would you do sensitivity testing, or why is it more important? Consider that the GAAP basis is what some of your outside audiences would be more interested in—the analysts, the shareholders—since that is going to be in the 10Ks and the 100s. Therefore, if GAAP results become volatile and bounce around a bit, management, shareholders or analysts are going to be more vocal about it. Management is going to want to make sure they have a good handle on the volatility and what they can anticipate. They may actually shut down a product being developed if they conclude, "It's great. It meets all kinds of profit targets. We can sell tons of it, but that volatility is just going to kill us. We can't live with that going forward." You could also have an idea that a product might have some problems or that there is a special risk associated with it. In those cases, you may be well-served to go ahead and do some sensitivity testing. But, by and large, my observation is that most pricing is done on a deterministic basis and that most companies do not do much sensitivity testing.

If you really want to go all out, you can include unlocking, you can include stochastic mortality, stochastic interest and any of the other major profit drivers for your particular product. Also, include some interdependencies. Similar to cash-flow testing, if the interest rate goes up, competitor rates follow and your fixed rate is at a disadvantage. Then lapse rates pick up because people are unsatisfied with your low-credited rate. On health, lapses might go up with a disproportionate percentage of healthy lives included in the lapses, producing the death spiral. You could really make a full-time job out of sensitivity testing on a GAAP basis.

Now I'm going to let Brian talk about practical implications.

MR. SPRINGER: Thanks, Rick. Back to Rick's comment about the black box; in the past I would say actuaries generally had a lot of control over pricing. They could set the risk-tolerance parameters; they were comfortable with the types of risk that they were assuming, or felt they were comfortable; and the level of scrutiny was probably not as intense as it has become recently. I think a majority of that has been due to some high-profile company failures, some prominent names in the news. So we definitely don't live in a black-box age any more and I think the primary theme that you'll see through most of my presentation is communication and understanding. I believe it's the actuary's responsibility to communicate all the risks, profit-and-loss profiles, ROEs and adequate descriptions. The product description better be very explicit so that the people who make the decision on whether or not something is an appropriate risk profile for their company are well-informed, so that they can't later ask, "Why didn't you tell me we had this risk in a declining market?" or "Our GMDBs are so far in the money," or "Why didn't you tell me this risk existed?" So just make sure you document it well, and make sure you've thought of these risk profile characteristics as you're building your products.

Getting into some of the practical implications, I have four main areas that I'd like to talk about. What does 15% ROE mean? For those that don't do GAAP pricing, you could be stumbling into it for the first time and not really sure what your CFO is asking for when they say you need a 15% ROE product. What does that really mean to you? Maybe you translate that immediately into a statutory return and you say, "That's a 15% IRR on distributable earnings," but you don't know what your CFO may be really targeting.

Then you have your definition of capital. You may have a cash-strapped company or be on the verge of an RBC ratio or potential downgrade. You need to understand what measures you're being measured against when you're looking at your capital base.

Who's your audience? Who's really asking you to do this? Is it your CFO, CEO, financial planners, or is it your analysts, shareholders, or regulators? Who is driving your need for this extra work that's going to come about because you're switching over to a GAAP pricing measure?

Then you have the conflicting needs, which Rick has already touched on a bit, dealing with those various audience members. Generally you have four to five various subgroups that are highly interested in return. Time periods may be different. You have to determine how you can design a product that fits everyone's needs, which is extremely difficult to do, or which ones are more important. Which ones are you going to target? Which ones are you going to try to spin in a better light for yourself or for your company?

So what does 15% ROE mean? Is it a lifetime ROE, year one, annualized rate? How do you determine your annualized rate? Is it an average over some period of time, or are you looking at surrender-charge period over the next three years? Do you

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exclude year-one ROE because we all know we have are issue costs that you can't defer, or maybe you do your overhead allocation as a percent of premium for an annuity? Ultimately, it comes down to the question of what does it really mean. From what I've seen, ROE means a lifetime ROE. ROE is defined as the non-discounted post-tax GAAP profits divided by the sum of all the GAAP equities. You do your pricing model and you determine what your after-tax GAAP profits are for your whole pricing horizon. That's another whole topic all to itself. You sum all those up and you divide by the equities over that period.

Then that brings up another question: What are your first-year and your last-year GAAP Equities? Do you start out assuming when you issue the business that your day-one equity is zero?

At the end of the first year, you may have \$5 million of GAAP equity. So, is your average GAAP equity for the first policy year \$2.5 million? On day one, you've actually set up all your GAAP equity, which may be \$4.5 million. So really your first-year average GAAP equity is \$4.75 million. I suggest you look at your pricing software, look at how it's doing it, and see if you agree with it. See if the zero on the first day makes sense. Also, on the back end of the policy, when you hit the end of your pricing horizon and you lapse all the business off so you can release that target capital at the end, is your last day's equity actually zero? Or should you price it as though you have this excess capital because the business is still there? You still have a block of business that will hang on for a while, even after your pricing horizon has ended. These are some items to consider when you're looking at ROE.

Capital definition. Those of us that have used both the historical and the modern approaches have somewhat confusing definitions, in my opinion. In the statutory view you can look at your statutory strain or distributable earnings, which is your after-tax profit including your change in target surplus to determine your IRR calculation. If you're a cash-strapped company and the insurance regulators are looking at you, or your RBC factors are relatively low, that might be a very important item that you need to consider. You need to consider your upfront strain, how much business you can write and the actual emergence of the release of the distributable earnings. If you had a strain upfront of \$5 million to write your business, and the next year you have another strain of \$1 million on that same block of business; and you continue to have strain before you turn profits, such as the situation with the long duration XXX term life insurance policies, the regulators are concerned about that. They wonder how you are going to fund this growing need for capital. How are you going to pony up the surplus needed? What happens if the release of profits doesn't come in the way you expect, if your mortality basis is different from what you priced for?

In the more modern view, or GAAP view, the capital definition is more along the lines of GAAP equity: What does it take to set up this block of business on your books? If you have a parent with deep pockets that can provide a lot of cash for

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you so that you're not worried about cash flow strain, GAAP equity could be a reasonable proxy for you. You're worried more about the underlying GAAP equity base and any change in that.

From another view, you could also look at a cash-flow strain, the real cash-flow dollars. So on a variable annuity where all the premiums are allocated to the sub-account, you have considerably negative cash flows because you have the commissions, the acquisition costs, and you have the RBC target surplus formulas that you have to set up. Whereas on a fixed product you can invest your net statutory reserve and pay for your acquisition costs based on the amount of cash flow that you get coming in the door. On a variable product, you really can't do that because all the money needs to go out in the market for the sub-account performance.

Probably one of the hardest lessons I've learned is to really know who the audience is. You need to know what's important to them, why it's important and what their time horizon is. Those are three of probably the most critical factors that I have come across. That could be a very critical mistake in your pricing when you get through several iterations of your product and you're getting ready to present it for approval and they completely dislike the next three year's earnings/ROE profile because that's all they care about.

So what's important? I've boiled it down into five categories. You have the capital and revenue growth, earnings, achieving critical mass and market share. Those are typically what most senior management are concerned with. They want all five of those things, and they want them now.

So why is each one of these important? Just a quick surface highlight, I won't go into too much depth on them: Know your capital position and determine your sustainable growth. How fast can you grow your business? Do you have unlimited capital base, or are you working with a restricted amount of cash? Do you have revenue growth? Is the top line growing? Is there premium growth, etc.? Then there are also earnings, stakeholder concerns and shareholder concerns. They want to make sure you're generating positive returns for their investment in your company. Achieving critical mass to get expense efficiencies and market share to be a player is a must. If you're dealing with large distributors, wire houses, etc., they're going to want to deal with you generally only if they perceive you to be a player. They don't want a third-tier company; they want a "name." That's definitely what we've been seeing in some of our key distributors. They want a name and obviously good product also.

Then there is "what's the time horizon?" This is blended in with the next section, but I want to talk about it a little bit here. You have a long-term plan. Is that really what's important, or is that a goal? Is that "it would be nice if you could get there," or is that really "the desired objective"? Is that really what you're planning for? Or, is it really next quarter's earnings per share or ROE? Maybe it depends on your

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company. Maybe it depends on recent stock movements or recent earnings releases that your company may have had. Or, are you somewhere in between? Generally, I think most people are somewhere in-between, but I'm sure there are people on both poles, where next quarter's earnings are extremely important. So make sure you know your time horizon.

Since Rick already talked about this, I'm going to quickly run through these topics. You have your regulators concerned with statutory growth, profits and capital RBC ratios. What's your plan? Where does that go? How are you planning on meeting your policyholder obligations if you have several years of negative distributable profits and negative statutory profits? Regulators are going to be concerned with that.

The next one is my favorite one: Analysts say that they perceive the value of a company as encompassing long-term economic growth, providing year-over-year returns; but if you listen in on the analyst calls and boil it down, long-term for them is really next year, quarter-to-quarter. They say they're concerned with long-term growth and profits, but they are very much concerned with the next earnings that are going to be released. It may not even be a quarter away. It may be a month away, and that is their focus, from what I've seen. Then you have other people also. The CFO, the president and the CEO are generally short-term profit-oriented, ROE-oriented; it could be motivation due to bonuses or perceived value added impacts due to short-term moves and your ROE or your earnings. It really depends on motivation. If you have a long term incentive contract where if the contract is designed to build motivation behavior that builds long-term value versus immediate next-year value, that could be driving some of the concerns. Then you also have your shareholders. Shareholders should be concerned with long-term profit growth, but unfortunately many have a short-term focus. Minor downswings in earnings or outlook can cause a severe stock price, which obviously is a detriment to those of us in the stock industry.

To give you a quick example of some of the impacts that you come across in dealing with looking at product and measures in isolation, let's look at a single-premium-immediate annuity (SPIA), for example. Chart 4 outlines the components of this example. The last time I looked, the statutory valuation rate was somewhere in the neighborhood of six percent. The example I used, I believe it was a male, 72 years old. The premium size was \$100,000. Four percent of premium is acquisition costs, commissions, etc. The GAAP valuation rate is five percent. Finally, the RBC formulas are in the neighborhood of four percent for C4 and three percent for C1 and C3. Let's run through a quick example in Chart 5. I didn't put up all the details here. I just wanted to put up some illustrated values to give you an example. This example is priced to a spread of 50 basis points. It's a very tight spread. Because of the large statutory interest discount of six percent, you create immediate statutory distributable earnings. Essentially you front nearly all your gain, and actually probably more than your gain, based upon the recurring losses that you see. On the GAAP side, you can see that you have five consecutive years

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of negative post-tax profits, primarily due to small spread and large DAC, or the difference between the five percent and what you're earning—the GAAP rate versus the implied earned rate of 5.5%. But in looking at that, you also see the negative GAAP equity column there because the statutory reserves are so much less than the GAAP reserves solely due to the statutory valuation rate. The GAAP equity is sizably negative. There is dispute on whether negative GAAP profits over negative GAAP equities really generate a positive ROE. It's kind of an odd example because it has negative profits. You look at it and probably say that you wouldn't want to do this product, but I wanted to point out the impact of having some assumptions that are in today's interest-rate environment. You have higher valuation rates than what you can really earn, so how do you account for that? Do you use the maximum because you're in a tight capital crunch to alleviate the problem today? But then you have problems tomorrow because you have recurring losses. On the other hand, your ROE is positive. Go figure. It's an oddity of GAAP.

There are the example's statutory IRRs and ROEs. They're extremely low, due to the fact of the tight spread.

Example number two, shown in Charts 6 and 7, is the exact same product. The only difference is that I lowered the statutory valuation rate down to five percent to bring it more in line with GAAP and also to put it under the implied earned rate of 5.5% of assets. So it gives you a 50-basis-points spread. When you do that, you can see most of the items come right back in line with what traditionally would be seen as a normal statutory profit profile. You have relatively level GAAP earnings. The GAAP equity swings around, but that's due to the percentage of premium RBC factor, the four percent. The distributable earnings show the typical larger strain upfront. It has a strain in year two that's not too terribly big. Then it turns around and starts producing your positive profit stream. You may look at and notice that there is a 20-year ROE, even though it's a life-time payout product. But, like I said, I think that person was 72 in the example, so the profits at 93+ were not that material to the actual return. Then you have your STAT IRR of 11%, which is based on the distributable earnings.

So you put these two side by side, as in Chart 8, and ask, "Which one's better?" Who thinks number one's better? Okay, a couple of people. Who thinks number two's better? About half of you think that number two is better. Who thinks it's a trick question? Everyone else; well let's see. In Chart 9 there's a sample single-premium-deferred annuity (SPDA). It's a five-year level-guaranteed product. I won't bore you with all the details behind what went into it, but essentially those are the GAAP profits, distributable earnings on the STAT side; and your GAAP equities are obviously rather high because it's a fixed annuity. The ROE and the IRR are very similar, which is what Rick alluded to earlier. If your assumptions are in line, your GAAP ROE and your STAT IRR really should be fairly close together. If these are not, you might want to look at some piece in your model. You might have something out of line—maybe you forgot your deferred tax liability or your unearned revenue reserve. I think Rick alluded to both of those impacting your

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GAAP equity, so therefore it impacts your ROE. If you get 20% ROE and a 10% IRR, you probably have something out of line and you might want to look at it again.

So let's take our SPIA example, see Chart 10. Combine the GAAP post-tax profits. Remember the considerably large negative GAAP equity. Combine those two together and take the total of the summed earnings and divide it by the total of the summed equities from example one and example two. So now what do you think? Would you rather do example one or example two, the one with the SPIA that had very little appearance of profit or the second example where you have sizably large GAAP ROEs of 15%, so you wouldn't have a problem getting your product approved?

FROM THE FLOOR: Can you sell as many SPIAs as you can SPDAs?

MR. SPRINGER: It depends. This example assumes equal volume, but that is a very good point. The benefit is still there even if you can sell it in smaller volumes. Say you sell three times as many SPDAs as you do SPIAs. You still get some of the efficiencies. Shout it out if you know it, why do you think number one is so much better than two? What's the underlying reason?

FROM THE FLOOR: The SPIA negative equity funds the SPDA acquisition.

MR. SPRINGER: Very astute. That's exactly what it is. The SPIA, because of the negative equity, is essentially releasing equity on your fixed-deferred-annuity line. You have your SPIA, which has your negative equity, and which may be a concept that can be hard to grasp. It means you can write unlimited amounts of business and never cause any equity strain. But, when you combine it with your SPDA, it relieves a lot of that excess equity requirement that goes with the SPDAs.

We have an internal debate over whether or not this condition can really exist. The debate was related along the lines of the statutory valuation rate and whether or not you could actually use six percent as the valuation rate when you know your earnings are only going to be 5.5%. One side said, "No, you can't use anything more than at least what you're earning so therefore you should put a pad in on your statutory side and hold five percent," which is how I got to the second example. I'm on the other side. It's my understanding that the asset-adequacy analysis testing says all that has to happen is that your reserves in aggregate are adequate to cover your liabilities; whether or not each individual product line has to stand on its own or not is where the debate came in. Your SPIAs would show first year of profit, but then you have negative earnings after that. When you run your cash-flow testing, you would show sizably negative present value of future profits. Therefore, should you pony up some extra reserve today because you have these future losses? My argument was "no" because you could view your business in the aggregate. You have payout annuities and deferred annuities; call it a fixed block, and you have the assets backing your fixed block even though they might be

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segregated into separate portfolios and separate investment strategies. Overall, you can see that there is still plenty of profit to be had in the product because it generates substantially positive earnings.

MR. FARRELL: Brian, that's an interesting point. However, you can also look at it on a GAAP reporting basis. You might get a different answer since on GAAP it's not a company-level aggregation. It would be based on product-line grouping and that could be subjective from company to company depending on how they defined product lines for GAAP. If you define them narrowly, as including only immediate annuities or the payout annuities, then you are stuck with whatever the DAC and benefit reserves are based on future profits. But if your definition included all annuities, the situation that you described would apply.

MR. SPRINGER: Right, I agree.

FROM THE FLOOR: On the slide where you had the example one and two combined, do you know what the IRR is for both?

MR. SPRINGER: I did. Let's see if I made a note. I don't remember off the top of my head. I can definitely send it to you or annotate the chart and put it out there, but I don't know it.

FROM THE FLOOR: In the second example, the IRR of the SPIA was six percent.

MR. SPRINGER: That was the first SPIA. The first SPIA had the really low IRR and the second SPIA had the one that looked more "normal." It was in the 11%-12% range, something like that.

FROM THE FLOOR: And it has a close to zero percent IRR on the SPIA?

MR. SPRINGER: Correct. Your question is why would you do it, essentially? If what you're trying to do is maximize shareholder value, which one maximizes shareholder value? If you're investing equity or capital into a business and you want to generate the largest return possible to the shareholders, if you don't need any equity from the shareholder to write the SPIA, based upon using "full advantage of the law" the way it's written today, you get to use the maximum valuation rate. It's six percent; it's prescribed. You can hold more if you want to, because you're concerned about solvency, but which one really maximizes shareholder value? That's where it comes into play, where you have what I'll call "multiple masters," and you're trying to serve them all. You're trying to make the regulators comfortable, show them that you know what you're doing and that you have adequate capital and adequate profit coming out of your cash-flow testing model. But you also have analyst-shareholder concerns saying, "We have all this money invested in your business, and we want you to generate the maximum possible return to us as possible. To me, 17% looks a lot better than 11%."

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FROM THE FLOOR: The SPDA is the same in both examples? And the SPIA is the same?

MR. SPRINGER: Yes, it's the exact same. It's the same example except for the statutory valuation rate on the second SPIA example.

FROM THE FLOOR: And the valuation rate is six on the left and five on the right?

MR. SPRINGER: Correct.

FROM THE FLOOR: Is part of the answer that rounding to zero-percent IRR doesn't matter much because it's zero percent of close to nothing, because there's not much of an initial statutory outlay?

MR. SPRINGER: Let me back up. It's a perverse math problem. On the statutory side, you look at it and you're fronting all your profit and then some on the SPIA. That is essentially what you're doing. You'd have to do a prudent banker's method where you have your future losses funded at a certain rate. But, that's what's driving the ROE down to zero, essentially. If you just sum all your loss it equals your initial profit. I mean I think that's what you're trying to get at, correct?

FROM THE FLOOR: Are you saying that SPIA and SPDA had to be written on equal points or are you saying that you would have to monitor so that you're not getting too much SPIA?

MR. SPRINGER: That's correct. You have to set up some sort of control, or triggers, around distribution—how much you're getting. I picked this example on purpose because of the values that it generated. Not all ages of your SPIAs generate value in that form. Obviously you have to be careful in what you pick, how you do it, and what assumptions you're setting because what if you sell just all 10-year certain SPIAs and they're not life contingent? All that runs off in 10 years and so you can't really match it up with the SPDA in terms of using that negative equity for a considerable length of time.

FROM THE FLOOR: You would limit the sale of one?

MR. SPRINGER: Yes, and you can do that more easily on the SPIA side or in this example, it really works out well because I think you can do it on both very easily. Let's say your SPIA is extremely competitive because of the small margin that you're pricing it at, and the market realizes it. All of a sudden you're getting a ton of SPIAs, but you don't get enough SPDAs to mix and match your returns appropriately. If you could lower your SPIA rate for next month, by increasing your spread and make your product appear more unattractive, then eventually your SPDA sales could catch up. Or you could provide bonuses or commission enhancements on the SPDA side to get your SPDA sales up to a level at which you're more comfortable with the balanced risk.

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FROM THE FLOOR: Then those aren't really equivalent, because if you try to control it by decreasing the sale of one, then you're getting a higher rate of return on fewer sales so when you get down to final dollars, maybe you would have been better off with your 11% on more sales, than getting the 17% on fewer sales.

MR. SPRINGER: I agree. Thank you. That's a great segue. I appreciate that, because the next segment I'm addressing is challenges. The answers aren't simple. There are many moving parts in terms of when you do pricing. I think you understand the largest issue, which is that you have multiple masters that you're trying to serve. You have your president, your CFO, your analysts, shareholders for your stock company and your policyowners if you're a mutual. What should you be doing? Should you be providing the most value by contributing the highest return to the stakeholders, or should you provide the most value to the policyholders by providing them the best benefits and accepting lower returns? Which really is the right answer? That's up to you to decide.

The one thing that I'd like to close with is that it all really comes back to communication and education. Those are the two main drivers of the pricing world of actuaries, and not everybody understands what we do. They understand what we do, but not how we do it, what it really means. You may have a product that generates 25% ROE, but it's six-percent ROEs for the first 10 years and then 50% ROEs for the next 10. Is that going to make your management happy? Are they going to say, "This is a great product?" They expect to make huge margins and then next year when they do the operating plan, they say "Where's that 25% ROE you promised?" "Well, you'll get that in the next 10 years." The president may say, "I'm not going to be here in 10 years, I have my profit targets and my earnings-per-share targets that I have to hit." So again, it comes back to communications and expectations. Is a holistic view really better? This is back to your point. Are you better off by writing a block of business that has lower returns but uses up more capital, when it's the exact same price? Remember, you didn't change the price at all; all you did was change the emergence of the profits. So are you really better off by forcing more statutory reserves and, hence, more capital? If you have the same price, you're going to sell what you're going to sell. If you don't change your price and you don't try to manage it, you're going to sell exactly whatever you push. If you have a SPIA price, that's in the top third, it's very easy to put together a little spreadsheet. It's all about payment per month. If you're in the top third, you're probably going to get close to what you expect. It boils down to that you're changing the emergence of the earnings and the required capital for those earnings.

FROM THE FLOOR: I'd like to talk about that SPIA with the zero-percent IRR. I guess what I take away from this is IRR, forgetting about GAAP, which can be very confusing. It makes me think: What would the value be of the present value of distributable earnings at any reasonable discount rate for that product would have been a nice positive number?

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MR. SPRINGER: If I were to actually put that up there, and I wish I would have now that you mention that, it would have been very high just because of the front-loaded profits.

MR. FARRELL: I would like to follow up on Brian's points and maybe introduce a couple of new ones. On education, he definitely pointed out a lot of the reasons why it's important. I'm sure as pricing actuaries, a lot of you have already, over and over again, been involved in educating the various audiences at the company to understand what's going on in pricing. However, on a GAAP basis there are a few other considerations. FAS 97 is more intuitive. It makes more sense. GAAP pricing could be even easier to explain than on a statutory basis. Of course, if I have already programmed and trained management on understanding statutory, GAAP would involve having them switch over to something new. The source-of-profit approach would seem to be easier to grasp for the layman.

DAC is going to probably throw everyone for a loop that is not used to it. That aspect of GAAP pricing is going to be a major educational process. Once basic DAC is understood, you will have unlocking to deal with. This will include the potential volatility and variabilities inherent in unlocking. Most actuaries still have a hard time predicting if you change this component in year five, what does it do to a DAC in year 10? It takes a lot of thinking and might only be determined by putting it into a model and actually crunching the numbers.

Some products might introduce complications for GAAP by their very nature. One such product group would be equity-indexed annuities or equity-indexed life. That's going to have a whole new set of complications. Once again, you have FAS 133 on GAAP where equity-indexed annuities come into play with the embedded derivatives.

We also have the SOP on non-traditional long-duration contracts. It is going to have a lot of nuances on GAAP accounting, but the big headliner is the GMDB reserves on variable annuities. If you have been doing GAAP pricing on variable annuities, and said, "We don't have to worry about taking GMDB reserves into account," that is about to change.

We have another SOP which is still in draft form on internal replacements, which I understand is on a fast track. I don't think that this is necessarily going to introduce major differences from what most companies have already been doing. The valuation actuary is going to be pulling out his hair trying to implement it; but, as far as the overall impact on pricing, it is about the same.

Let me spend a couple of minutes on tracking. Tracking is one issue that I'm pretty big on. I do not think that I have seen it done consistently or in some cases done at all. But to the extent possible, you should try to tie together the pricing assumptions with actual results. If we say we are going to sell X million of this

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product in the next year, and that translates into, let's say, an interest margin of such, does it actually show upon the general ledger? Now the tricky part is whether the ledger can give you that sort of detail that you can use to tie those two together? Or, if it is based on the old traditional methodology, interest credited would be buried in the change in reserves. It might take a lot of digging and estimating to find what the interest credited actually is. There might be so many estimates and shortcuts used that the results might not have meaning. But if it is possible, I think it is a great tool to evaluate if your pricing is tracking close to actual results.

Companies that have start doing GAAP pricing typically do not later abandon it. Usually, once you start, you're committed. If you are about to undertake it and have not done it before: Do not underestimate. It is one of those projects that can really go off budget. It can become much more complicated than you originally thought if you don't keep it under control. The time and resources needed to implement can be substantial. There is a big need to talk to the financial people, especially since GAAP is not necessarily a cookie-cutter set of rules as it is on statutory. Instead, there is a lot of subjectivity and a lot of decisions to be made on different GAAP methodologies. To put together a pricing system that replicates or mimics what your company does on a GAAP reporting basis, it is critical to talk to the valuation actuary and to talk to the accounting people.

Time and resources needed on an ongoing basis: The need is going to be there too. As I discussed earlier, new FAS statements, new SOPs, those things aren't just isolated to 2002 and 2003. Year after year there is new guidance and new things going on.

Impact on product design: Brian touched on that a little earlier with his example of SPDA and SPIA and how you might get different answers looking at it in different ways. I also mentioned a bit earlier that with various pricing measures, something in the past may have looked terrific on statutory, it hit all the bogies you needed to hit, and marketing loved it. After you push it through the GAAP model, you might find out that it just looks absolutely horrible under GAAP.

Importance of educating the non-actuaries is next. Brian talked about that, and I echo his comments 100%.

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Chart 1

<u>Straight-Forward</u>	<u>Sources of Profit</u>
Premium	Interest Margin
Investment Income	Mortality Margin
Benefits	Expense Margin
Change in Reserves	Surrender Margin
Expenses	
DAC Capitalized	
DAC Amortized	

Chart 2

Example - GAAP

	Interest Margin	Mortality Margin	Expense Margin	Surrender Margin	Change in DAC	GAAP Earnings	
1	-67	11	-1266	33	1350	61	
2	15	15	13	29	23	95	
3	30	19	12	26	14	102	
4	45	23	11	23	6	108	Profit Margin = 16.0%
5	59	27	11	20	-3	114	Surplus Strain = 117.1%
6	71	32	10	17	-12	119	
7	83	38	10	14	-21	124	PV Cash Flows (earnings)
8	94	44	9	12	-31	128	= \$1,252,631
9	104	50	9	10	-41	131	Break-even year = n/a
10	113	57	8	8	-51	134	
11	121	64	8	6	-62	137	IRR = n/a
12	129	72	7	5	-74	139	ROE = 34.7%
13	136	81	7	3	-86	141	
14	142	91	6	2	-99	142	Spread = 244 bp
15	147	101	6	1	-113	142	
16	152	112	6	0	-128	142	
17	157	124	5	0	-144	141	
18	160	136	5	0	-161	140	
19	162	150	5	0	-179	138	
20	165	145	4	0	-186	128	

Chart 3

Example of Sensitivity Test Invest Earned 6% - years 11+

	Interest Margin	Mortality Margin	Expense Margin	Surrender Margin	Change in DAC	GAAP Earnings	
1	-67	11	-1266	33	1350	61	
2	15	15	13	29	23	95	Profit Margin = 12.9%
3	30	19	12	26	14	102	(was 16.0%)
4	45	23	11	23	6	108	PV Cash Flows (earnings)
5	59	27	11	20	-3	114	= \$1,007,208 (was
6	71	32	10	17	-12	119	\$1,252,631)
7	83	38	10	14	-21	124	ROE = 24.9% (was 34.7%)
8	94	44	9	12	-31	128	Spread = 175 bp (was 244
9	104	50	9	10	-41	131	bp)
10	113	57	8	8	-51	134	
11	62	64	8	6	-58	82	
12	66	72	7	5	-70	81	
13	70	81	7	3	-82	79	
14	73	91	6	2	-96	76	
15	77	101	6	1	-111	73	
16	79	112	6	0	-127	69	
17	82	124	5	0	-146	65	
18	83	136	5	0	-165	60	
19	85	150	5	0	-186	54	
20	86	145	4	0	-192	44	

Chart 4

Example #1

SPIA

STAT Valuation Rate – 6.00%

GAAP Valuation Rate – 5.00%

Acquisition 4% of Premium

RBC = C1 + C3 = 3% of STAT Reserves

C4 = 4% of First Year Premium

Chart 5

SPIA

Policy Year	Post Tax GAAP	NGO	Distributable STAT Earnings	GAAP Equity	ROE
1		(73)	3,247	(1,802)	4.0%
2		(61)	(536)	(3,083)	2.0%
3		(42)	(440)	(2,646)	1.6%
4		(28)	(330)	(2,296)	1.2%
5		(20)	(206)	(2,052)	1.0%

PVCT as % of Premium	0.60%
LifeTime ROE	0.05%
Spread	0.50%
STAT IRR	0.06%

Chart 6

Example #2

SPIA

STAT Valuation Rate – 5.00%

GAAP Valuation Rate – 5.00%

RBC = C1 + C3 = 3% of STAT Reserves

C4 = 4% of First Year Premium

Chart 7

SPIA

Policy Year	Post Tax GAAP	NGO	Distributable STAT Earnings	GAAP Equity	ROE
1		128	(351)	2,152	5.9%
2		124	(42)	562	22.1%
3		127	33	693	18.4%
4		126	122	742	17.0%
5		120	224	691	17.3%

PVCT as % of Premium	0.80%
20 Year ROE	15.90%
Spread	0.50%
STAT IRR	11.30%

Chart 8

SPIA Comparison

Policy Year	1st Example Equity	2nd Example Equity
1	(1,802)	2,152
2	(3,083)	562
3	(2,646)	693
4	(2,296)	742
5	(2,052)	691

20 Year ROE	0.05%	15.90%
STAT IRR	0.06%	11.30%

So...Which One is Better?

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Chart 9

SPDA Only

Policy Year	Post Tax GAAP NGO	Distributable STAT Earnings	GAAP Equity	ROE
1	679	(8,400)	9,025	7.5%
2	621	5,100	6,811	9.1%
3	582	(235)	4,980	11.7%
4	591	142	5,613	10.5%
5	620	(1,190)	6,741	9.2%

20 Year ROE	10.10%
STAT IRR	10.00%

Chart 10

Combine SPIA with SPDA

Policy Year	1st Example SPIA + SPDA	2nd Example SPIA + SPDA
1	8.4%	7.2%
2	15.0%	10.1%
3	23.1%	12.5%
4	17.0%	11.3%
5	12.8%	10.0%

20 Year ROE	17.1%	11.1%
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Now....Which One Would You Prefer?