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STRATEGIC PRODUCT DEVELOPMENT

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- Integration with corporate and product-line strategies and goals
- Contrast with nonstrategic product development
- Customer orientation
- Risk management
- Required surplus -- risk, regulator, rating agency
- Cash-flow testing -- assets and liabilities
- Practical implications -- data needs, organizational structure, cultural conflicts
- Ethics -- communication, illustrations

MR. CHRISTIAN J. DESROCHERS: I believe that strategic product development management is critical to the success of life insurance companies in today's environment. In effect, the buck stops here. Product development of new business or repricing of in-force business is really a significant element in insurance companies' financial success. Product development actuaries have concerns similar to valuation actuaries, but, in fact, are in a position to do more about it. If we do our jobs well, then the job of the valuation actuary will also be easier. Product development, however, has really changed significantly over the course of the last few years. New technologies are available, and there are new methods and a series of actuarial standards of practice that relate directly to the process of product development.

The purpose of this session is to examine the current state of the art in product development. To help us do that are three very distinguished panelists. Mark Tullis will discuss the evolution of the product development process, what the current state of the art is in product development. Mark is a vice president with Tillinghast in Atlanta and practices primarily in the individual life area, including distribution issues, financial projections, asset-liability analysis, and valuation. I would also mention that Mark is the treasurer of the Product Development Section.

Isadore Jermyn will discuss the role of the product development actuary, particularly from his perspective as a product development actuary in a large Eastern mutual company. He will discuss standards and professional responsibilities, organization and cultural issues, and will hit on illustrations and projections, although that will also be the subject of a much larger session tomorrow. Isadore is a vice president/actuary of Mass Mutual, and he's been responsible for product management for individual life, annuity and disability products there.

Tim Pfeifer will address practical issues in product development. Tim is a consultant with Milliman & Robertson in Chicago, and he practices in the area of life and annuity product development. I'd also mention that Tim puts a great deal of effort into editing the Section newsletter.

MR. MARK A. TULLIS: As Chris indicated earlier, pricing actuaries are in a unique position relative to valuation actuaries since valuation actuaries spend their time monitoring reality. Pricing actuaries, along with actuaries who work in the asset/liability modeling (ALM) area, can influence reality. Their actions are highly leveraged in that if they incorrectly price a product, it can have enormous consequences for their company.

I'm going to begin by discussing what strategic product development means to me. Then I will hit a couple of the keystones: first, the shift from a micro-type analysis to a macro analysis. Second, the cornerstone of my presentation, the integration of pricing with corporate goals and strategies. Finally, I have some examples to illustrate these points.

In the 1970s, things were a lot simpler than they are today. There was less competition and fewer choices for the pricing actuary. His or her job tended to be much more mechanical. Products had a lot of fat, and it wasn't necessary to integrate pricing with the corporate goals. Back in those days, in fact, pricing and corporate goals tended to be separate processes that didn't interact or integrate very well. Things changed, however, in the 1980s and 1990s. As Chris indicated, new products were developed that were much more competitive, without the interest and mortality margins that we used to enjoy.

Competition became much greater, both within the industry and with noninsurance concerns, as evidenced by the huge increase in mutual fund assets, which compete directly with single-premium deferred annuities (SPDAs). Most companies continued to have expense problems throughout the period. We went from a situation where the industry was taxed on a favorable basis to one where it is now at a competitive disadvantage from a tax point of view. I believe the biggest issue to develop over the past ten years is the growing scarcity of capital in the industry. This is due both to an awareness of higher levels of capital required to run insurance companies and also to the inability of the industry to attract new capital from outside because of its poor track record from a profitability point of view and because of recent insolvencies.

I believe that in the 1990s we are to the point where product pricing and corporate goals need to be examined in tandem. Product pricing must be integrated with the corporate goals of the company. The keys to this view of the pricing process are the switch to a macro analysis and integration of pricing with strategies.

The traditional way that pricing actuaries did their work was to set all assumptions on a per-unit basis and run single-cell profit tests focused in a narrow channel. Based on the results, they made pricing decisions as to how the products worked. Everything was done on a per-unit basis and there was a fairly narrow and short-sided view of both the process and the market for which the product was intended.

THE MACRO APPROACH TO PRICING

In the life industry, however, real life is not on a per-unit basis, and a number of items can't be viewed on a per-unit basis; namely, expenses, tax and required capital. If a company is concerned with GAAP profitability, the GAAP profits. One way of handling this is, instead of focusing on the narrow issues, to take a macro view of the entire process, going beyond unit pricing and concentrating on models. In addition to

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this mechanical change, it's also necessary to make an attitude adjustment, where the pricing actuary takes a broader view of both the pricing process and his or her role in the company. A simple example can be stated in terms of expenses. If a company has so much acquisition cost and it issues so many policies, it used to be that the actuary would calculate the unit cost by dividing the acquisition cost by the number of policies. If you then run this through your unit pricing and make decisions on this basis, you can come up with inappropriate decisions. You don't take into account how your product-pricing decisions impact the number of policies issued, which in turn impact the derived unit cost. This concept goes well beyond this expense example, and I'm going to concentrate on examples other than expenses.

Another aspect of this macro view is that we have to change how companies and actuaries view a product. The old traditional focus was that a product was endowment at 95 or ART or ten-year term. I would imagine all of you have seen situations where a product was developed for one market, say an endowment at 95 for middle-income America sold through career agents, and the marketing manager decided to sell it as a 401(k) product with limited underwriting sold through a different distribution system to a different group of people. How many times has the company thrown the product out there without really evaluating whether it's appropriate for this new market?

There is a shift going on in that companies must begin to look at products, not just in terms of the particular product type, but also in terms of the market and distribution system for which they're developed. Companies have different markets they're going after and different distribution systems and different products, and they all sort of fit together in different ways. An analogy is that if you're going rabbit hunting, you don't want to take an F15. You want to use a gun to kill the rabbits. You're not going to put cannonballs or arrows in the gun. You're going to put bullets in the gun.

That's not to say that the rifle and the bullet are the best distribution system or product available. It's just that they're most appropriate for a particular market. Applying this macro concept makes it necessary to integrate your market, distribution and product as part of the product development process.

How often are pricing actuaries unaware of the larger corporate goals? This is something that, as a consultant, I run into many times, and I'm sure that you've run into it in your companies as well. I want to look at some familiar examples that we've all seen time and again and which we've all been guilty of to some degree.

- Think of the typical case where the company's corporate goal is to earn a certain GAAP ROE. Yet the products are priced by using a traditional profit margin basis, with the present value of profits divided by the present value of premiums. These two might be correlated or they might not, but this is a case where the pricing actuary is making decisions without directly taking into account how those decisions affect the corporation's goals.
- Most companies have, as their goal, to maximize aftertax products. Yet how often do we see that products are priced pretax and the choice is made on the basis of maximizing pretax profit. The pricing actuary may not even be aware

of how tax affects the product. The result of this is that the pricing decisions are made on the wrong basis, with no value being given to tax efficiencies or inefficiencies that certain designs might have relative to other designs.

- For many companies, capital is a scarce resource. Yet many pricing actuaries ignore the cost of capital, using traditional book profits without target or required surplus. Again, choices are being made on the wrong basis, as design features that minimize surplus strain are effectively given no value in the pricing process.
- We don't know what future interest rates will be, but the one thing we know is that they won't be level. Yet how often is pricing done by using a level spread-based approach, rather than stochastically, or by using an option-adjusted basis?
- Often we see companies that are short on statutory surplus. They might have surplus relief, or they might be part of a holding company system where the holding company owes a lot of bank debt. Yet the actuaries do their product design, not taking into account the surplus situation of the company. They might develop products that have reserves greater than statutory minimums, or they might use product designs that result in high, early-year reserve requirements, not taking into account the corporation's situation with respect to its surplus.
- Finally, many companies are part of a holding company system where the holding company has outstanding bank debt that must be paid back, say, over five years. Yet, frequently pricing ignores the tax treatment and tax effects of the bank debt and does not sufficiently emphasize short-term statutory earnings.

These are all examples of situations where, if the pricing actuary doesn't look at the overall goals and objectives of the corporation, he or she is in a position to make product decisions that might be contrary to what the company really wants to do. To move forward and change this situation, it's necessary for the pricing actuary to learn the corporate goals and strategies and develop approaches and indexes that are consistent with these goals and strategies.

An example of this, going back to the GAAP ROE objective, is that many pricing actuaries really don't have a good understanding of how GAAP works. They say, "that's the financial actuary's responsibility. I'm not going to get all messed up in all this GAAP stuff." But if the company's goal is to maximize GAAP profits, it's part of the pricing actuary's job to understand GAAP and to understand how the pricing decisions that are made influence the GAAP earnings of the company.

Note that pricing need not be identical to corporate goals. I'll have an example of this later. It's not necessary that the two be identical, but it is necessary that they be integrated and consistent. For example, if your corporate goal is to maximize GAAP ROE, you may develop ways of looking at pricing other than just evaluating GAAP ROE. But you need to develop methods that are consistent with the corporate goal and that generally serve as indexes of the GAAP ROE.

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I have three examples. The first is pricing with tax. The second is capital allocation and required surplus. Finally, the third is on GAAP pricing.

PRICING WITH TAX

Let's step back and look at what has happened to the industry over the past few years and where that leads us relative to pricing. Under the 1959 Act, the 818(C) adjustment resulted in very low or even negative marginal tax rates for many low-premium plans. For our sample plan (Table 1), it results in a negative marginal tax rate. In 1982 the situation was simplified slightly, but there was still a Fantasyland where marginal tax rates could be very low, which was very favorable to the industry.

TABLE 1
Profitability of a Typical UL Product
PV per \$1 Million Premium Issued

	Before Tax	After Tax	Effective Tax Rate
Pre-1982	\$559.3	\$560.3	(0.2)%
1982-83	559.3	544.5	2.6
1984-85	559.3	341.2	39.0
1986	559.3	369.1	34.0
1987-89	559.3	321.6	42.5
1990-91	559.3	285.7	48.9
1992	555.9	278.2	50.0
Revised product	535.8	273.4	49.0

Things changed in 1984 and became much simpler for the pricing actuary. For medium and large companies, there was basically a flat tax rate, and federally prescribed reserves that were set equal to the statutory minimums. The nice thing about this was if you developed products with reserves equal to the minimum reserve basis, you knew you had fairly flat tax rates, and it was easy to analyze the tax effect of your products. We have an example where it comes out that you get an effective 39% tax rate. In 1986, there were some changes, resulting in a slightly different tax rate. Some alternative minimum taxes (AMTs) were imposed, but the situation was still not complicated, assuming you were not in an AMT position, because it still was basically a flat tax rate. Things got interesting in 1987 because of applicable federal interest rates, which meant there was a situation where tax reserves became different than statutory reserves for typical products. This made it impossible to know marginal tax rates without incorporating taxes explicitly in the pricing process. It generally resulted in higher marginal tax rates. The result varies by product, and with the pricing assumptions, such as lapse rates. It also varies widely by duration, so you're not going to get hit with a 42.5% marginal rate every year, but it's going to be big some years and smaller in others.

The point of all this is that things got complicated. From 1984-86 you could price on a pretax basis and know the tax rate, but that became impossible in 1987. Things were further complicated in 1990, due to the deferred acquisition cost (DAC) tax. The rate went up because of the additional tax imposed.

Finally, effective the first of this year, the California Department imposed new requirements for universal life (UL) reserves. For a company to which these requirements are applicable, and assuming it opt's for the California method, things are even more complicated, because statutory reserves are farther away from tax reserves. Of course, the results could be even worse if, instead of the California method, the company used reserve interest rates equal to the fund accumulation rate, which is the other option.

Basically, to summarize, we're in a situation now where things are very complicated. It's not obvious what the marginal tax rates of products are. Without incorporating tax explicitly in pricing, it's difficult to say exactly what the tax effect of something is. Let's take an example. Let's say that we have a product and the marketing department would like to grade the surrender charges to zero over 15 years instead of 20. What would the effect of that be? Well, the knee-jerk reaction is that you're giving away excess cash surrender value and, since you're giving something away, that will have a lower profitability. The situation is complicated, however, since the tax reserves, which are subject to the cash surrender-value floor, are also affected. So you actually have to do a run to see what the result is. What happens in this situation is that the aftertax profit goes down, although not nearly as much as the pretax profit goes down.

We've seen examples of situations like this, however, where the aftertax profit goes up, even though the pretax profit goes down. One specific example we've seen several times is that for many participating products, it's not always true that the profits are maximized by having a high cash-value interest rate depending upon what your lapses are. You could, in some situations, have higher profits by setting a lower cash-value rate, because even though the cash values go up and you're paying out more to the policyholders, you're also paying lower taxes.

Why price with tax? To summarize, taxes are now complicated because of the DAC tax and the federally prescribed reserves. Maximizing pretax profit does not always ensure maximized aftertax profit. I've seen real situations where products made money before tax and lost money after tax. We've had the examples I talked about, where you can do something that worsens pretax profit, but increases aftertax profit.

When you throw in complications -- such as alternative minimum tax, tax loss carry-forwards, being part of a group that has both life and nonlife income, or having holding company debt -- these all influence taxes and the incidence of tax-loss utilizations on your products. Most of these items can't be judged without explicitly incorporating the taxes in the runs. In fact, most of these can't be done accurately on a unit basis. If you really want to accurately understand how your pricing decisions affect corporate tax, what you have to do is take a broader view instead of a unit approach. You have to look at either the block of business as a whole or the block of new issues as a whole.

CAPITAL ALLOCATION AND REQUIRED SURPLUS

Let's say management desires a 15% ROI for the whole company. Everybody prices their pieces, but the company doesn't make 15%. What happened? Oftentimes, actuaries don't adequately reflect the cost of capital in pricing. Let's say in this example the actuaries didn't reflect the cost of capital. Capital is necessary to run a

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business. You need capital to satisfy the regulators, to remain a viable concern, to keep your ratings. What's going to happen is that the required capital and the surplus that is not invested in new business by the company is typically going to earn a lower rate than what is earned on new business, and this is going to drag down the overall return on investment. Table 2 illustrates the situation.

TABLE 2
Return to Stockholders

Pricing ROI	Surplus as a Percent of Average Investment		
	10%	20%	30%
12%	11.3%	10.6%	9.9%
15	14.0	13.0	12.0
18	16.7	15.4	14.1

Note: Assumes surplus earns 5.0% after tax

The way pricing actuaries handle this is by incorporating target surplus into pricing. Target surplus is the amount of statutory surplus that management *wants* to maintain. The "want" is very important, because some companies have excess surplus that management might have available but which might not be allocated currently. It's important that the lines of business not be saddled with the cost of this excess surplus. So target surplus is based on what's needed and necessary to run the business.

How do we determine target surplus? A theoretical approach could be taken, but in practice, most companies take a practical approach and do a delicate balancing act, setting it at a level that keeps the rating agencies and the regulators happy, and keeps the distribution system and customers happy. This point is fairly interesting in that you can develop cross-purposes. Let's say your company has two distribution systems. It sells GICs and there is also a home service or debit operation. The distribution system that sells the GICs is going to want the company to be very highly rated, requiring much surplus. The home service customers probably don't care much about the rating, and their focus is going to be on minimizing price, which translates into as little target surplus as possible. So, how to solve this dilemma and what it means to keep the distribution system and customers happy can be quite complicated in practice.

After defining target surplus, in pricing we use what we call "distributable earnings" in place of traditional statutory book profits. Distributable earnings are just statutory book profits, adjusted for the change in target surplus and the interest on target surplus.

Some companies, instead of explicitly pricing with target surplus, might just increase their basic profit goals as an implicit provision for the cost of capital. I believe that this approach is inadequate and that it's necessary nowadays to price specifically with target surplus. There are several reasons for this. The first is that the use of target surplus equitably allocates the cost of capital across product lines. In the example where the different lines of business had different requirements, you can use different formulas for the lines of business so that the debit line isn't subsidizing the GIC line.

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The second reason for using target surplus is that the distributable earnings are the only earnings available for investment in the company or for distribution to owners. If you can't get the money out of the company, it really doesn't do them any good.

As a practical matter, companies do one of two things for target surplus. Either they will try to set it at a level that keeps the rating agencies happy or at a minimal level to keep the regulators happy. An example of this might be a company in a market such as GICs that requires a fairly high rating. It might use the Moody's surplus level to maintain its rating. On the other hand, in a market where distribution and customers don't require a high rating, the company might set it at the NAIC risk-based capital level, which would typically be considerably lower.

Some of the issues in considering pricing with target surplus are:

1. Determine the required level.
2. Determine what should be done with the free surplus that's left over. This could be positive or negative. Most people feel that excess surplus should not be charged to the line of businesses, but a corporate account should be set up to absorb the cost.
3. The effect of the investment portfolio can be quite important, because both the Moody's and the NAIC risk-based capital formulas take into account the quality of assets. You can do an analysis and come up with formulas for these items and then your investment strategy can completely change. It goes from investing in Treasuries to investing in junk bonds and real estate. You've priced with one level of required surplus, but then at the end of the year you go through and recalculate it, and it's at another level.
4. Target surplus generates its own target surplus. Since there is an asset component, the assets backing target surplus will generate their own requirements.
5. As I said earlier, you may have different goals for different lines of business. In the example I gave with the GIC and the home service company, let's say that management decides it wants to maintain the high rating to remain in the GIC business. If you just look at the home-service piece by itself, to maintain the high rating they're going to need a higher level of surplus than they otherwise would have needed. The question then becomes, do you charge that excess against the home-service line or do you charge it against the GIC line? That is a very difficult question in practice.
6. Finally, this leads to the last point, which is you can't look at this on a per-cell basis. You have to consider the effects of target surplus on the entire company and the entire company strategy when dealing with target surplus.

GAAP PRICING

Management wants a 15% GAAP ROE and the actuary says, "Well, I'm going to start pricing on a GAAP basis." What's involved? First, make earnings adjustments – change from statutory to GAAP earnings. Second, allocate equity, because to get

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return on equity you need to know what the equity is. Finally, project earnings and equity.

First, we're going to talk about how to calculate GAAP equity when doing pricing. The invested assets for a company are what they are. They are basically the same on both a statutory and a GAAP basis. On the statutory balance sheet, statutory surplus equals the excess of the assets over statutory reserves. Now what is GAAP equity? Well, the assets are the same because they are what they are. On the other side of the balance sheet, you have a net GAAP liability, which is the GAAP benefit reserve less the DAC, adjusted for deferred taxes. The excess of the assets over the net GAAP liability is the GAAP equity. This GAAP equity is equal to statutory surplus plus the difference in statutory and GAAP net liability.

Thus the statutory balance sheet is what determines GAAP equity. Many companies, in the rush to embrace GAAP, and particularly mutuals, have stopped focusing on the statutory side of the balance sheet, not realizing that you can't do that.

Before we move on, there's one other concept. Of course, you have all this surplus, but some of it is required to run the business and some of it is free surplus. We have excess surplus, and we haven't figured out what to do yet. We're going to invest either in condos or else in new business production.

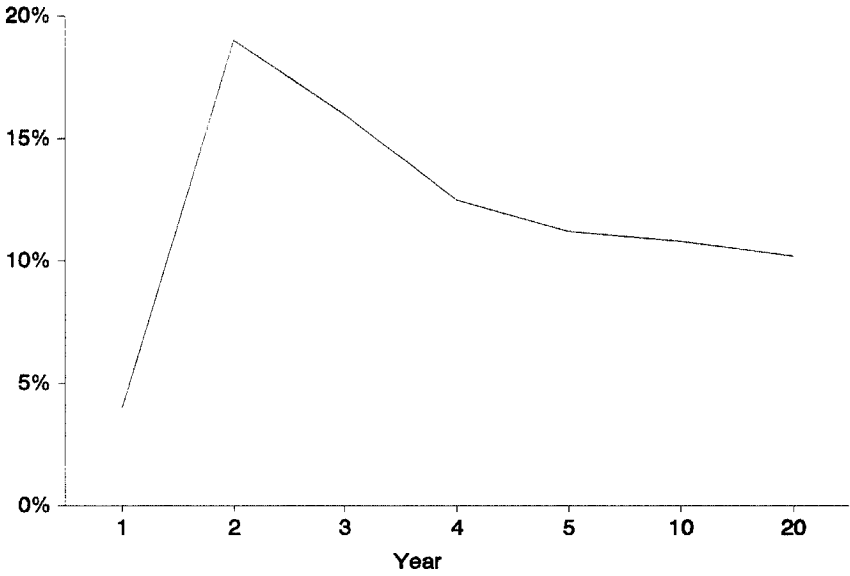
We've already said for statutory purposes that we're only going to charge the line of business with the required surplus. The same should also be true on a GAAP basis. What we need to do is measure the *free* GAAP surplus, which is equal to the free statutory surplus plus the statutory reserves, minus the net GAAP liability.

To get GAAP earnings once we've determined equity, it's necessary to reverse statutory reserve increases and interest on statutory reserves and replace them with the analogous GAAP components. The GAAP ROE equals GAAP earnings divided by GAAP equity at any point in time.

What does this mean for the pricing actuary? For a typical product, we get this typical pattern of GAAP earnings (see Chart 1). You almost always end up with a low value, or maybe more typically, a negative in the early years. For a universal life (UL) it's quite common to have a decreasing pattern as the surrender charge income is earned for the product. This is interesting, because companies want their lines of business to experience level GAAP earnings. Yet, when you look at a product's ROE, it has a nonlevel ROE by duration.

Why aren't they level? They're not level because of (1) nondeferrable expenses, (2) the impact of tax, which is not level, (3) the deferred tax liability, which is calculated without respect to interest, (4) the discount rate used in calculating the DAC, which is different than the ROE, and (5) the provision for adverse deviation, which is required for GAAP, is released over time. Finally, when you boil it all down, the reason they're not level is that GAAP relates earnings to revenue and not equity, so why should they be level?

CHART 1
GAAP ROE Case Study -- UL
\$500,000 Premium Sold



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People think they should be level because we're used to statutory ROI, which is an index number that's good for the life of the contract. GAAP ROE isn't the same sort of thing. GAAP ROE is an annual profit measure, and it's not going to be level for any product.

So, how do you make a pricing decision? Possibilities are to develop GAAP indexes, to take the macro approach and look at a total company GAAP model, or to put your head in the sand and stick to statutory. Looking at the first possibility, there are a couple of GAAP indexes that we have found useful.

If production were level and you had many years of issue, the ultimate GAAP return would be the sum of the earnings over the sum of the equity. For the example product, what we've done is sum the earnings and divide by the sum of the equity for different numbers of years. What typically happens is that it starts low (see Table 3), jumps up when you get the surrender charge income, and then levels out to an ultimate level.

TABLE 3
GAAP ROE
Level Production

Year	GAAP ROE
1	3.6%
2	11.9
3	13.4
5	13.0
10	12.1

Another GAAP index: if we had production increasing at $x\%$ a year, the ultimate GAAP return would be the present value of earnings at $x\%$ divided by the present value of equity at $x\%$. You can see in Table 4 that we get very similar-type numbers, particularly in the ultimate durations.

TABLE 4
GAAP ROE
10% Increase in Production

Year	GAAP ROE
1	3.6%
2	11.5
3	13.1
5	12.8
10	12.2

This brings up an interesting point. If you expand your horizon long enough, these two indexes tend to go together (level production, 12.4%; increasing production 12.3%) and, in fact, they tend to go very close to the statutory ROI with target surplus (12.9%).

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One final point on pricing with GAAP is that near-term GAAP ROE for a company as a whole is very insensitive to new business profitability. You can think of the in-force business as being a millstone around your neck. The in-force business is going to influence the company's GAAP earnings much more than the new business, and early-year GAAP earnings for a particular product are usually relatively insensitive to product differences. Thus, even if you come up with a GAAP ROE or an average GAAP ROE that is higher than your target for the new business, the total for the company is going to get dragged down due to the big chunk of in-force business. There's very little that management can do to affect GAAP ROE short term, and there's very little that the pricing actuary can do to affect GAAP ROE short term. This is a problem without an easy answer. Probably the best that can be done is to take a macro-type approach and model the line of business.

To summarize, I believe it's very important that pricing be consistent with the financial measurement and goals of the company. As a profession, we have fallen down in this area. I see signs that things are getting better as some of these new approaches are utilized, but it's something that we all need to work on improving. The second main point is that unit pricing only tells some of the story. To get the whole story, it's necessary to dig a little deeper.

MR. ISADORE JERMYN: Mark's presentation that you just heard on the evolution of the product development process is an excellent introduction to what I'm going to be talking about, as is the presentation that we all have heard earlier by the keynote speaker on change. I'll be speaking to you about the role of the product development actuary and how that's been changing. I'll start by commenting first on that changing role and then move on to the actuarial standards of practice that have been emerging and how they have affected the role. I'll then move on to what I call strategic product management processes and how they have been evolving at insurance companies and how they have affected you.

Finally, I'll move on to the issue of illustrations and projections. This is an urgent and potentially divisive subject, but really encapsulates much of what challenges us as product development actuaries today. As you'll gather from this overview, I have an apology to make. For those of you who are interested in technical detail or formulae, you're not going to see any. Notwithstanding the fact that there won't be any complex actuarial, computer, or investment theory, however, what you will see will have a significant bearing upon how you apply your theory.

First, let me provide some brief personal background. Prior to moving to this country in 1980, I spent time in Britain and its colonies and ex-colonies. Since arriving in this country, I've been with the same company. As Chris mentioned, it is a large North-eastern mutual life insurance company. I started out with product development responsibilities, both traditional and, for our company fairly notoriously, with the first universal life product that that company introduced. I then moved on to spend a number of years in the financial arena, working on valuation, taxation, capital management, forecasting, and investment analysis. Then last September I assumed new responsibilities for product management of individual life, annuity and disability-income products.

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In the last nine months, I've had to deal very directly with much of what I'll be covering. My perspective, therefore, is obviously very biased. It's anticolonial, Northeastern, large, mutual, and financial. With that disclaimer as background, I'd like to turn to the factors that I consider to be important in terms of having brought about changes in your role, as well as in terms of bringing about future changes in your role.

You obviously don't need me to tell you about the changes that have taken place in your personal responsibilities at work. The impetus has come from many sources and the result, I would argue, has been a challenging and increasingly important role. While possibly not unprecedented, the volatility in the investment environment in the last decade and continuing today has dramatically changed the way that you've had to do your business. It's obviously changed your insurance company investment operations, but it's had an equally significant change for your responsibilities. Interest rate movements in the early 1980s, of course, were well known to all of us. Rates got up to 20% and then slide way down. That continued into the late 1980s as, for example, seven-year treasury rates halved from 14% to 7% from 1984 to 1986. In addition, the yield-curve slope was changing fairly significantly, and today, for example, you're looking at a very steep yield curve. Credit problems initially raised their head in the era of junk bonds or high-yield bonds, but they've really established themselves since, with a seemingly permanent and looming presence in the real estate market.

Finally, all of this change has led to a proliferation of investment instruments. The volatility and the uncertainty has led to many, many new types of investment vehicles. I know that in our company our investment professionals have been investing in them, and we've had to factor that in as we've looked at our products. These changes have impacted the product design, product price, product competitiveness, and profitability. From our standpoint, the identification and pricing of liability options is critical. It demands that you be involved in setting investment strategies. It calls for the development and utilization of skills and knowledge not previously required.

Moving on to taxation and assessments, a second area of significant change, Mark reminded you of all the changes that have taken place since the early 1980s with the various tax laws. This has affected not only the life insurance companies, but also our policy owners, which clearly has to be taken into account as we look at new products. The 1959 Act, which Mark again mentioned, with all its shortcomings, is now remembered fondly by many people as representing a period of relative tranquility compared to what we've faced in the last few years.

For example, the recent changes in the DAC tax and the add-on tax have raised interesting questions about how to allocate those taxes to different generations of business. As far as guaranty fund assessments and premium tax offsets are concerned, that's really somewhat of an unknown at this point. What is known is that they clearly are going to be significant assessments. For example, companies like mine will be paying out fairly substantial amounts, with the likelihood that the states will be changing their premium tax rules so that we won't get the offsets we might otherwise have expected.

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The government, needless to say, has not limited its intervention to taxation. There's been a lot of regulatory and legislative activity at both the federal and state levels and that has affected our industry in many ways. It is equally likely that this is going to continue and probably grow in the future. At the federal level, the primary focus is capital adequacy. The federal government is clearly not prepared to take a back seat to the state governments in terms of addressing the solvency issue problems facing our industry. A second area of federal activity has to do with antitrust, which bears directly on our responsibilities. We clearly have a need for marketplace information, and we're constrained in how we can gather that information, since we do have to comply.

At the state level, activity has been even more feverish and is expected to remain so. The 1980s saw significant changes in our valuation and nonforfeiture laws to address new product designs and the changing economic environment. As at the federal level, risk-based capital is the hot current topic and, again, as Mark indicated to you, you have to take that into account, since it has significant implications for the profitability of our products.

The third area is what I call legal judgments. This has been a particularly unsettling area. While it hasn't yet had a real major impact in our industry, you need only to think about the automobile insurance industry to recognize the potential it might have. Think of the liability judgments being levied against agents, brokers and insurance companies for allegedly inappropriate sales practices.

The next area is mortality uncertainty and underwriting developments associated with that. While the underlying mortality trend has been somewhat comforting, the future has been clouded by uncertainty about AIDS. Testing for AIDS has clearly enabled us to manage it within the insurance industry as far as mortality is concerned. The effects of AIDS treatments upon morbidity, however, is very much unknown and could have a dramatic impact on that line. As far as genetic testing is concerned, if genetic testing is accepted by society and we're allowed to use it in the insurance industry, it will pose many interesting questions for risk classification.

These various developments – taxation, regulation and mortality – all call for you and us as product development actuaries to expand our view as we discharge our responsibilities. Judgments become more difficult, but also much more critical. We are all becoming frustratingly familiar with resource constraints. Some wish for the good old days when there seemed to be an endless supply of capital, at least at the large Northeastern mutuals. Current capital shortages underline your importance in the financial success of the insurance organization. There is little margin for inappropriate products or inadequate pricing.

As in the case of the capital constraints, systems constraints require foresight and optimizing the use of the scarce resource. You do not have the luxury of bringing a boundless stream of products to the market in the hope that a couple of them will make it upstream. This seemed to be the pattern in the early 1980s. I know it was certainly a pattern at our company, where the focus was on producing a complete product spectrum that addressed every conceivable product need, only to find out at the end of the road that not all those products made it.

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Many drivers of change bring opportunities, and this is especially true for the arena of what I call technology and actuarial tools. The use of new pricing methodologies makes it critical to understand, to monitor and to communicate the results. The perception that the public does not understand the actuarial jargon has clearly been around for some time. It might well not be in our personalities to be able to overcome it totally, but we do have to address it in a significant fashion.

The second item under technology is asset-liability management, which has been driven by the changes I mentioned in the investment environment. It has also been driven by the many changes in product design, by the provision of many different and additional options for policyowners to exercise. Both the theory and the practice of asset-liability management are still evolving, and it is important that you keep current.

Virtual reality is a subject I like. I don't know much about it, but I'm happy to talk about it. It's an example of current computer technologies that have tremendous potential for impacting you in the future. It's probably easy for you to envision yourself wearing a helmet, a virtual-reality helmet, that enables you to experience driving a formula-one racing car. Well, what if the consumer could put on a virtual-reality suit that could enable the consumer to experience your product in all its ways, both through life and through death? What if your CEO could put on the suit and, in effect, experience the future profitability of, for example, your disability-income line prior to the recession worsening your morbidity even more than it's been worsened to date? For you as product development actuaries, you'd be able to, in effect, experience the profitability hurdles that your product would go through as different scenarios play through that suit. All of this might seem like Fantasyland, but given that we're in Disneyland, I don't think it's inappropriate. So back to Disneyland and competition.

There's clearly been a tremendous growth in competition, at least in certain parts of the country and in certain markets. While for the most this has been confined to insurance companies and, in the case of accumulation-type products, to investment institutions, future competition will undoubtedly take on a very different light. Banks have been trying, so far unsuccessfully, to get into the business. That will continue. International institutions have not yet made significant inroads, although there have been some inroads into our industry in this country, and that too will continue.

Competition at the insurance company level has also changed significantly. Financial strength has clearly emerged as a significant factor in a directly competing situation, although price is still on the table and I'll talk more about that later. Our challenge as we look at future competition is to avoid continuing to address the competition of yesterday and to look ahead and anticipate what will happen in the future.

The area of distribution systems is cited by some as the area where the next revolution in the insurance industry will take place. Stability of distribution systems can be assumed to be history. Loyalty of producers cannot be assumed. It has to be earned every day. My company has a career agency system and we're learning that. Productivity of the distribution system is an essential ingredient to company growth, and this has led to the search for alternatives. Brokerage alternatives and joint-venture alternatives of many different types have emerged to compete with the more traditional career agency systems.

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The first item I'm going to talk about is actuarial standards of practice. I'll be talking about the promulgation of the official standards by the Actuarial Standards Board and then I'll describe the standards in the four areas of dividends, nonguaranteed elements, cash-flow testing, and risk classification. Finally, the last change factor I'll talk about is strategic product management processes.

I'm going to get in more detail into the changes brought about by the emerging actuarial standards of practice and then move on to the impact of the strategic product management processes on your role. Finally, as I mentioned before, I will have illustrations and projections.

The Actuarial Standards Board promulgated written standards to achieve a number of purposes: first, to articulate the actuarial profession's commitment to expertise and conscientious service; second, to assure regulatory authorities that they can depend on the profession to act effectively in the public interest; and third, to inform users of professional actuarial services of what they have a right to expect by way of professional performance and conduct. The first of these purposes is primarily internal to our profession, while the other two focus primarily on the external public.

The standards provide a formal framework for practicing our profession. They allow adequate flexibility for exercise of judgment. They describe your basic responsibilities in the application of sound actuarial principles and practices. The groundwork for writing these standards was laid in the mid-1970s, but most of the standards have been documented since the mid-1980s.

We'll start with the actuarial standard of practice on dividends. This was one of the earliest standards, having been adopted in 1980. For those who are involved in the dividend-setting process, one with which I am sure you have been intimately familiar. It applies to individual life and annuity policies of both stock and mutual companies. It applies to both paid and illustrated dividends. It addresses the allocation of what I call divisible surplus; that is, the divvying up of the pie. It does not address the determination of the total pie or the divisible surplus.

Like most all of the standards, a written report is called for and typically that report documents the facts surrounding the dividend-setting process, the assumptions that have to be made with regard to policy factors, and those would be guaranteed interest rates or mortality rates, and experience factors, such as current interest expense, mortality, etc. It documents the basis on which classes have been established and any changes in policyholder classes made, and any special adjustments that are made in the process of setting the dividends. Finally, obviously, it concludes with recommendations.

This standard documents the contribution principle as the basis for achieving equity. Again, you're probably familiar with this principle under which aggregate divisible surplus is distributed among policies in the proportion in which those policies are considered to have contributed to that surplus. As you address this standard, there are many important issues that you have to wrestle with. These are not issues that you wouldn't have had to wrestle with prior to the standard, but the effect of the standard is to highlight the need to carefully think through these issues and then to document your decisions relating to these issues.

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There is real potential for conflict between corporate requirements and your professional responsibilities in this regard. You cannot allow your performance as a professional to be undermined. You have to be prepared to exercise your professional judgment, untainted by any anticipation of corporate conflicts. Going through these issues very quickly, the top one is smoothing adjustments. These would be adjustments from what the dividends would otherwise be to smooth the effect from age to age, duration to duration, or even from one dividend schedule to another. The distribution of extraordinary gains or losses could be from nonparticipating lines, riders or investments.

The issue of class changes and changes in profit objectives after issue has to be very carefully thought through. You have to have a very sound basis before making any such changes after issue. Similarly, there is often a temptation to treat new business and in-force business blocks in an unlike fashion, particularly in the current environment with the illustration wars that are going on, which I'll get into in more detail. Sustainability of illustrations has to be directly addressed in the dividend report and, while the Schedule M supplement disclosure is not part of the actuarial standard, the questions that are in that Schedule M supplement – and this is the supplement to the annual statement with interrogatories regarding the dividend process and the anticipation of future dividend actions – have to be carefully thought through.

The next standard I'll talk briefly about has to do with nonguaranteed elements. Clearly there are some similarities, although there are some important differences between this standard and the prior one. This standard applies to products like universal life with current and guaranteed expenses, mortality and interest elements. It applies to excess interest policies. It does not apply to dividends. If a policy has both nonguaranteed elements and dividends, then both standards would apply.

An important difference is that there is no equivalent principle to the contribution principle with regard to products with nonguaranteed elements. The standard, therefore, recognizes the evolving use of these nonguaranteed charges and recommends areas of inquiry and analysis without defining directly acceptable or unacceptable practices. A key requirement is that the company have what is called a redetermination or determination policy that outlines the company's solvency, marketing and profitability objectives for each product.

This policy is necessary for the actuary as he prepares his report. The report has to comment upon the adequacy and any changes in that policy, the existence of any special operating practices at the company, and the likelihood of those practices producing the type of experience that is being assumed in setting the nonguaranteed elements. Similarly, as to the case with dividends, the definition of and any changes to contract clauses have to be addressed. Sensitivity tests are also recommended as part of the standard.

Recovery of prior losses is not really an issue in the case of dividends because, as you set your dividends, you're perfectly entitled to reflect prior losses in the setting of dividends. In the case of nonguaranteed charges, however, this has to be directly addressed in the redetermination policy and is also, in some cases, limited by state regulation. The overall impact of this standard on your role as the product development actuary is therefore similar to that of the dividend standard, the key difference

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being that this standard is somewhat less directive because of the more recent evolution of nonguaranteed elements.

The next two standards that I'll be addressing focus on cash-flow testing. The first one is on when to do cash-flow testing. Cash-flow testing is clearly becoming increasingly important in all actuarial work. Volatility of investment rates of return, fluctuating operating results, and liquidity problems have all contributed to this increased attention. A previous seminar on cash-flow testing is evidence that this is assuming prominence in our product development arena as well. The standard provides guidance and examples of when cash-flow testing should be considered. It does not specify that cash-flow testing has to be done in these instances. These examples are product design and pricing studies, testing of policyholder dividend scales, future nonguaranteed elements, and the evaluation of investment strategies.

The standard leaves much room for judgment concerning the use and the method of cash-flow testing. The decision concerning when to do cash-flow testing depends on the type and the severity of the asset and liability risks. The standard recognizes that cash-flow testing is another evolving area of theory and practice and, in general, greater sensitivity of either asset or liability cash flows to economic conditions, to investment scenarios, or to product designs would suggest that cash-flow testing is needed. Similar to the other standards, a written report would be required.

Moving to the second standard on cash-flow testing, how to do cash-flow testing, again, as with the previous standard, there is no mandate to do cash-flow testing, but it provides examples of ways that cash-flow testing may be appropriate. It presents recommended practices and considerations, which then have to be documented in the written report. As an obvious premise, it recognizes the interest rate sensitivity of asset and liability cash-flows. The report has to include descriptions of the economic scenarios tested, the range of scenarios, the number of scenarios, what models were used, the assumptions that were made relative to the asset characteristics and the liability characteristics, any sensitivity testing that was performed, and finally the conclusions that were drawn.

As you become involved in cash-flow testing, I think you need to be prepared to take the position, as the product development actuary, to resist the temptation to not have difficult scenarios be tested. The previous seminar I mentioned earlier included a section on the role of the product development actuary in cash-flow testing and the special challenges this presents to you. My brief description gives those of you who did not attend the seminar just a taste for what is involved. These two standards in cash-flow testing almost add another dimension to your responsibilities. It provides a significant overlap with what were traditionally considered to be financial responsibilities and reinforces the notion of the increasing importance of your role.

The final actuarial standard of practice I'll briefly mention concerns risk classification. This standard provides guidelines for designing, using and updating risk classification systems. For example, it requires the system to be fair, to encourage availability of coverage, to be financially sound, to be objectively and consistently applied, and to minimize antiselection. The standard recognizes the increasing complexity of the environment and the refinement of risk classification systems over time and the associated legal constraints.

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I'd now like to move onto something completely different, which is the evolving strategic product management processes. I'll demonstrate the impact of a strategic product management process on the product development actuary and highlight where there are special implications for you. Starting with a fairly loose definition of strategic product management process, the fundamental feature provides a well-defined framework within which product decisions are made. It's really part of a much bigger strategic process. The framework consists of two components. It's what I call a strategic component, which you might think of as strategic building blocks and a strategic process.

We'll start with the building blocks, the strategic components: mission statement, values, vision, driving force, operating principles, and product/market focus. Almost any company involved in setting strategies goes through the process of having to define each of these terms, whether the organization is the total company or a large product line.

The mission statement is the overriding statement of purpose of the organization. The values define the standards that will be followed in making decisions, somewhat like the actuarial standards of practice. The vision defines what the organization would like to be in the future. It sets the direction for current and future decisions. You may think of the driving force as the primary determinant of the scope of the organization's future products and markets. For example, an organization that chooses market-driven as the driving force will tend to have a very wide product spectrum; whereas a company that chooses products offered as a driving force might tend to have a narrow band of products that it tries to sell by high penetration in selected markets. Operating principles include, as an example, information-based decision-making.

Finally, a product market matrix, which may be defined in many ways but is critical in defining areas of relative emphasis, guides resource allocation and it provides recognition that you cannot be all things to all people. Table 5 is just a very loose example of what a product matrix might look like.

TABLE 5
Product Market Matrix

Markets	Products				
	Annuity	Disability	Health	Life	Investment
Individuals -- Age -- Income					
Employees					
Professionals					
Business Owners					
Ethnic					

Products are across the top: annuity, disability, health, life, and investment. Markets are down the left-hand side, divided up by individuals, professionals, employees, business owners, and ethnic. This is not meant to be a good example. It's just an illustration of the types of factors that can be used and generally are used to define markets. For individuals, you would probably look at different age bands and different income levels.

Continuing on with the strategic components, the next building block includes the bases of competing. These bases define a sustainable, competitive advantage or special skill or attribute that enables the company's products to be sold in competitive situations. The bases, and I'll show you some examples in a moment, again, like the product market matrix, enable you to determine resource allocation based on sound principles. For each basis, target measures and minimum measures need to be defined. Examples of bases of competing elements include products, product design, illustrated price, historical performance, presale service, and postsale service. The importance of these from your standpoint is that if, for example, product-illustrated price receives a high prioritization by the organization as the number-one basis of competing, then efforts need to be directed toward enhancing that illustrated price, whether those efforts are through achieving real improvements by tighter underwriting, stringent expense management, aggressive investment strategy, or creative design, so as to produce a product that illustrates well.

Further examples of bases of competing elements would be financial strength, distribution system and customer loyalty. As a contrasting example, consider financial strength. If financial strength is measured by ratings or capital measures, it is, in fact, the top bases of competing. You then come to very different conclusions in terms of resource allocation and in terms of acceptable practices for competing in the marketplace. Placing a high priority on distribution system skill, for example, would call for the direction of significant resources toward training. Recent media coverage of companies offering fee-for-service or no-load products clearly demonstrates that their bases of competing is competition to the distribution system or lack thereof.

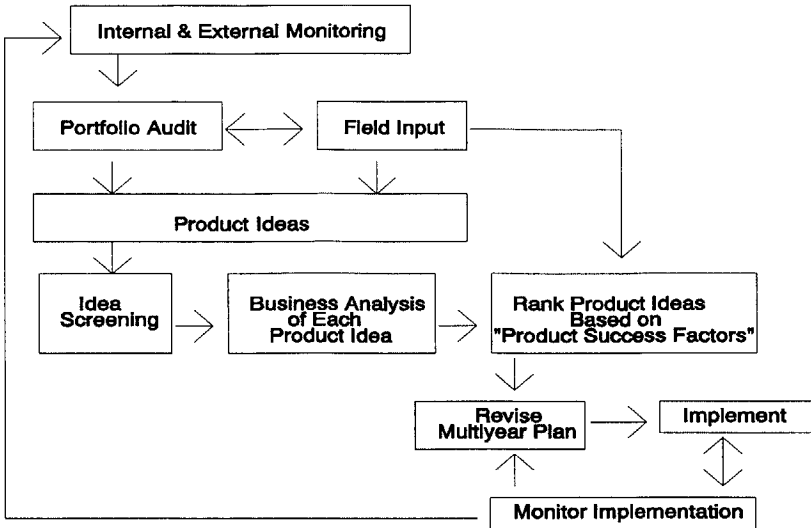
As a product development actuary, you have to be aware of and understand each of these strategic components, and you have to be able to apply them in decisions concerning both product design and pricing, as well as any recommendations concerning operating practices throughout your organization. This is a formidable challenge, but it is critical that we all raise our sights so as to encompass these strategic components.

Moving onto the strategic process, the essential features of a strategic process are that, first of all, it obviously needs to incorporate each of the strategic components. It is formalized and it uses information-based decision making.

The sense I want to convey from Chart 2 is that there is a circularity in this process. It starts with gathering information about the marketplace internally and externally, assessing your internal and external strengths and weaknesses, and factoring that into an evaluation of your portfolio and how your portfolio of products compares with your product market matrix emphasis and with your bases of competing prioritization.

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CHART 2
Strategic Product Development Process



Through that process, product ideas (either new products or revisions to old products or elimination of old products) emerge and you go through various screening stages – idea screening, business analysis and ranking – which are meant to depict different levels of analysis. In the last stage you would rank all the ideas, looking very carefully at each of the bases of competing elements. In this case, what is shown is a revised multiyear plan, the implication being that you look at your product development cycle not on an annual bases, but on a multiyear basis, so that you're always looking ahead and trying to anticipate where the market is going and leap ahead of it, if possible.

The benefits of this process are mostly obvious. Just very briefly, it introduces an element of productivity by gathering the data and recognizing threats and opportunities early on. You are inclined to take action. It is disciplined. It is focused and therefore should imply less diverted or wasted resources, akin, for example, to the proliferation of products in the early 1980s. We focus over a longer time horizon.

Strategic product management is clearly not a panacea. You don't just switch it on. The keynote speaker talked about change and the reactions to change. Implementing a strategic product management process is no easy task. There are major issues that have to be addressed. Cultural obstacles represent our (yours and mine) past habits, as well as the habits reflected in the organization as a whole. Information needs are significantly increased. If you truly are going to have an understanding of the marketplace, you need to be gathering much more information about the consumer and about what the consumer needs and wants. Typically in the past, and certainly at our organization, we have relied on our distribution system for that information. You might think of that as second-level research rather than first-level, which would be going to the consumer directly.

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The process will often result in unpopular decisions, rather than politically popular decisions, and this has to be reckoned with. Initially, and particularly during the transition to this type of process, there can be the appearance of nondecision-making. It can be time-consuming to learn and adapt to the process. Finally, and very importantly from your standpoint, it calls for a key negotiating role to ensure that all relevant parts of the organization are appropriately focused relative to product activities.

If you do truly become involved in the process as product development actuaries, you would not need to ask the question, Are we making an impact? You've gotten the point that I've been trying to make if you have interpreted what I have described as the product development actuary being dead, and long live the product management actuary. This brings me to my final topic, the subject of illustrations and projections.

As I mentioned earlier, the issues surrounding this topic encapsulate many of the changes and challenges that you face. This subject has been receiving more and more attention in the press. For example, late last year Joe Belth was quoted in the Sunday *New York Times* as saying, "If somebody hands you an illustration, you should tear it up and throw it in the wastebasket." That's a strong comment on the primary tool that we've been putting forth for selling our life insurance products.

The June 2, 1992 *Wall Street Journal* included an article entitled "Actuaries Respond as Policyholders, New Buyers of Life Insurance Discover Ignorance Is Not Bliss." The article highlighted an underlying problem that "many insurance policyholders don't have a clue as to their policy's basic workings and risks." I believe that that quote probably came in large part from the discussions that the author had with Judy Faucett, who chairs the SOA Task Force that wrote a report on illustrations. Clearly, the research of that task force reinforced that notion.

We should reflect upon a number of disconcerting industry trends. Technology, volatile interest rates and new-money-rate products in the early 1980s all contributed to the spread-sheeting mania and, I would argue, to the policyowner ignorance that we just heard about. Thus far, no effective alternatives have been developed to address the illustration situation by either the actuarial profession, insurance companies, regulators, or agent associations.

Illustrations are often viewed as a projection of expectations rather than as an illustration of exactly what would happen if the current dividend schedule or nonguaranteed elements remained unchanged for the next one to 100 years. The recessionary environment has clearly been slowing growth and has exacerbated the competitive pressures in the marketplace and could be pointed to as another reason for the problem. Some illustration practices appear to reflect very creative approaches by agents and/or insurance companies. Finally, we're seeing a growth in policyowner complaints and legal problems, and I think we're just seeing the beginning.

These industry trends should be of great concern to all of you. We are supporting and/or condoning practices that do not bode well for the future of our profession or our industry. There are also some disconcerting societal trends. Increasing litigation is evident in all areas of society. As I mentioned, I believe we might well have seen only the tip of the iceberg regarding litigation on illustrations. We see increasing

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evidence of reduced ethical standards in all walks of life. Examples include agents who have told us that they remove the footnotes so as "not to distract their clients." Another example is policyowners providing inaccurate responses on applications, and there are many cases of that. In a recent survey of the American public, 97% of 5,700 people interviewed admitted that they lied on a significant matter recently.

Finally, loss of confidence in the insurance industry has been reflected in a number of surveys that have been published over the years. As in the case with the industry trends, these societal trends are unfavorable, and action is needed to address the elements of the trends that we can influence. Failure to take action is likely to produce outcomes that we will not enjoy – severe legal problems, even lower public perception of the industry and of our profession and restrictive regulation. We don't have to be just sheep. We have to take action.

We as a profession, and product development actuaries in particular, need to take a leadership role. The task force report that I mentioned earlier was a commendable effort. The complimentary *Wall Street Journal* article heading, which indicated that actuaries respond, is largely due to the results of that effort.

The report provides a comprehensive review of current regulatory requirements and illustration practices and of different users and uses of illustrations. It also presents a series of recommendations. The question is how we will act upon those recommendations and whether they will be effective. The report defines appropriate uses of illustrations as those illustrations that demonstrate how a policy works. For example, what happens to your policy values if the dividends and nonguaranteed elements are different from those illustrated? Or how does a specific concept like how vanishing premium work?

It defines inappropriate uses as an attempt to use an illustration to project a likely or best estimate of future experience. Forced to find alternative ways to address the second type of use, the inappropriate use, the rest of the recommendations are basically focused on accepting that the second use is going to prevail for some time. The deal with what we can do about it in terms of improving the style of illustrations, in terms of educating agents, consumers and the home office. One idea you might want to think about is what if the CEO, the chief actuary and the chief legal officer are all made personally responsible for illustration usages of that type?

Modified or strengthened actuarial standards of practice is part of the recommendation. I'd like to quote to you from the standard on dividends that I mentioned earlier. In that standard it says, "Circumstances can arise under which there is a substantial probability that an illustrated dividend scale will not be maintained in the near future. In such a situation, the actuary may find it appropriate to have as the illustrated dividend scale a reduced scale which is consistent with the expected experience." Even though the majority of companies have acknowledged in their schedules and disclosures that there is a substantial probability of a dividend cut within two years, few, if any, companies offer only a reduced scale for illustrations. I'm aware that a number of companies offer reduced scales as an alternative to their current scale, but I'm not aware of any company that only offers a reduced scale that would be consistent with the standard.

So the question is, do we need a strengthening of the standards, or do we need to follow the standards more closely? Finally, and this is a key point coming through the task force recommendations, we cannot do it alone. We need the involvement of regulators, insurance companies and distribution organizations. In this regard, the American Society of CLUs and Chartered Financial Consultants have, in fact, had their own task force working on this. All need to participate together to succeed in addressing this major problem.

Clearly, some principles of right behavior being violated have taken place in the past, and this cannot continue in the future. At the heart of this subject are the questions of integrity and credibility of the industry and our profession. This is one area where it's critical for you to assume a leadership role not previously assumed. We cannot stand in the wings and wait for others to find the solution.

Finally, my message to you is that we have to function as product management actuaries. We have to widen and raise our vision to anticipate and address the challenges of the ever-changing environment, and the area of illustrations and projections provides us with an excellent opportunity to demonstrate our zeal in performing that role. William Shakespeare's Antony may have been correct in that for most men, "the evil that men do lives after them, the good is often interred with their bones." For product development actuaries, it is both the evil and the good that lives after you. Your legacy is critical to the future standing of your organizations.

MR. TIMOTHY C. PFEIFER: It's useful to talk about pricing and product development theory, but I think product development in most companies takes place in a fairly chaotic environment – an environment where there are people, personalities, egos, and deadlines that all can create situations where some of the best laid theories don't work. My topic, then, includes some of the practical issues raised when your company is in a product development mode. I'm making the assumption in this discussion that your company is serious about product development. I don't mean that to be flippant, but there are companies that really don't take their product development efforts very seriously. They pride themselves on other areas, and product development is given less emphasis.

The theme for my comments is that companies that are successful in product development practice the type of planning and up-front attention to detail that make unpleasant surprises later on less likely. I think that the success of companies in product development is not so much measured by the number of products that appear on the street, but by the success of those products according to some predefined benchmarks that make sense for that organization. Products must also meet the purpose(s) for which the company developed them to start with. Most companies, given their current portfolios, would be more successful if they had fewer products, did a better job of monitoring the experience on those products, and made more reasoned, up-front decisions as to whether the product really made sense for them. I will talk about how decisions are made by companies to develop products, who drives the process, the importance of other functional areas, such as the systems area, compliance issues, actuarial issues, and I hope to inject some practical theory into these comments as well. Many of these observations obviously will vary according to the types of products being developed. My comments are geared toward life and annuity products.

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The first issue is simply whether a company should even be developing a product in the first place. It's surprising how little thought is given to this question in the industry.

There is a significant investment of time and money in nearly every kind of product development project. According to some studies we've done, most companies say that it takes them six to nine months from start to finish to put a term product on the street (from initial conceptualization to actually introducing the product). With universal life products, the corresponding time frame is typically nine months to a year. *When you consider variable products, elapsed time can range anywhere from one to two years.*

If you were to figure out what that costs a company in terms of actual time and dollars, even a very simple product probably costs several hundred thousand dollars of man time and systems time on the low end and several million dollars on the high end. I don't mean to suggest that we should go through rigorous decision theory exercises to determine whether a product should be introduced or not, but I do think the industry needs to take more time on the front end to sincerely evaluate the considerations that come into play.

There are six main considerations that companies should address when assessing whether a product should be developed. First is the availability of resources and time. By resources, I mean not only the financial resources a company might have in its budget as an allowance for product development work, but also the human resources. Does the company have the type of expertise that will enable it to bring this product to market? *If it doesn't have the expertise, is the learning curve sufficiently short so that it makes sense to guide the product along?* In terms of human resources, I'm also addressing systems expertise and other technical resources that obviously come into play in determining whether the product can be launched successfully.

Second, what is the current economic and regulatory environment, as well as the projected environment over the next five years? Does it make sense to launch a product in this environment or not? Here, a company should consider the interest rate environment, obviously a key consideration with respect to fixed annuities and market-value-adjusted annuities. It's important not only in terms of what will happen to the absolute level of interest rates, but also to the overall trend in these rates.

Another economic environment issue is the overall economy of our country. Are we experiencing a recession or depression, which can have a major impact on certain product lines (e.g., disability income). Economic downturns can also impact the values of real estate and junk bonds. With respect to the regulatory environment, one must consider not only state regulation but also federal regulation. Right now, as you know, we're in an environment that features unprecedented upheaval in regulation. For annuities, the Standard Valuation Law and the Standard Nonforfeiture Law are both being examined with some potentially significant changes forthcoming. On the life insurance side, reviews of the nonforfeiture law are occurring, and for certain products like term insurance, some major valuation changes are in the wings.

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A company needs to be aware of current issues like risk-based capital and how these issues may affect the overall professional ratings of your company. A useful exercise prior to even launching a product is to have a designated individual research all of the potential regulatory, financial and marketing pitfalls associated with developing a product. I'll discuss a little more later the role that I would propose this individual assumes, but I think it should be a formal role within the product process.

As product actuaries, we need to think about the impetus for developing the product. Why are we even thinking about launching this particular design? We hope to recognize a market need – not only that your market needs it, but that the overall broader market needs it. Optimally, the product you're thinking about is unique in some way, so that it can also generate that demand. Also, we must ask whether current demographics warrant development of the product.

What I am suggesting is that companies assign an individual to take on the role of a product trailblazer, who would act as a "point man" or an "advance scout," prior to a major company investment in a specific product. The trailblazer's function would be to analyze the financial terrain to find out what the market is doing, and to identify existing regulatory hurdles. In some companies, some of these functions are taken on by a competitive analysis division. The role proposed here, however, is a bit beyond that, where the individual would conduct an in-depth study of the marketplace and the downside dangers to the company.

The second impetus that you often see for new product development is that it's an executive's pet project. Oftentimes, a senior manager will review a particular article in a paper or hear a comment and suddenly feel that this is a product the company really needs to have. Products developed in this mode oftentimes do not succeed because there isn't much upfront analysis of whether the product is appropriate or not.

Field demand is another reason that products are developed. If there is a ground swell of opinion from your agents that a product is needed, that's more convincing than if pockets of agents say, "If you had this product, I could sell a whole lot of it." We've seen instances of this happening with billion-dollar companies that have developed special products for very small pockets of distributors. Given that most agents tend to sell two or three specific products of a company, this is a gamble.

The next reason for product development is product flow. There are many companies that believe that they must maintain a consistent flow of products to have a presence in the marketplace. If a few new products do not emerge each year, the fear is that the marketplace may view them as stagnant. Product development as a defensive maneuver would be another reason. Simply because your primary competitors are developing new products may make you think that you need to develop one or more also.

Lastly, product development is geared to round out the portfolio. Some companies believe that if they have a certain mix of products that seems to indicate a particular gap in the portfolio, then they need to develop another product to fill that gap.

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Continuing with reasons for developing products, the personality of the insurer is important. A company really needs to know what its personality is, and it's especially important that this personality be made clear to the agents or brokers. The market likes to feel comfortable about understanding the personality of a company. A company's personality affects your field force and your customers, and developing new products certainly can change the personality of the company in many ways.

An example would be Northwestern Mutual and its position on universal life, which helped further define that company's personality. If you see a home-service company going into the second-to-die business, I think you have to question that. It just doesn't make sense.

The financial viability of a product is also obviously a key factor. We've spent much time as an industry talking about pricing measures and how to judge financial viability, but I think part of that has to include evaluating the size of the market and the maturity of the market. Is it at a stage where your company is getting in at the tail end and there's just not much of a market to be had? On a macro basis, one must look not only at whether you can make the product profitable on a per-unit basis, but also whether or not the volume is there.

Finally, we should mention the opportunity cost. If you initiate a large product assignment, what does that preclude you from doing with your available capital? It could be used to develop alternative products or to enhance your system or your servicing capabilities. It may preclude you from adequately monitoring your experience, investing in the Dominican Republic (as Mark mentioned earlier), or any number of other ventures.

Let's now make a few observations on products. I think when it comes to products, many people in the life insurance industry believe that life insurance product development and pricing are totally unique from pricing any other commodity item, like a simple garden rake.

Well, life insurance obligations exist potentially for many years. With whole life insurance or deferred annuities, that certainly is the case. You sell a rake and the transaction is completed. For life insurance, however, the liability exists at an unknown time. We don't know when death will occur. We don't know when customers may elect to surrender the contract. In the case of a rake, we know that.

Cost plus pricing is difficult to put into practice in life insurance. We don't always know the cost and obviously sometimes don't know the "plus" part either.

Our products have to be approved by up to 50 different jurisdictions. A rake, at most, may need to be approved by one or two.

Oftentimes, a life insurance product can be made profitable after it is sold by adjusting cost-of-insurance rates or interest rates on the product.

I agree that all of these observations are true. Insurance is still sold and not bought, but I still think that there are many things that we can quantify. We need to think about our product development efforts as maybe not being so different from

developing other products and to view this a little less parochially. I think that we can, in some cases, analyze our market and product development efforts like any other product or market relative to some of the marketing techniques we use.

This is where I lapse into a little bit of theory. In the March/April 1992 issue of *The Harvard Business Review*, there was an article about product development that I think would be interesting for you to read. It talks about a model company that's in the manufacturing business that looked at the products that it had on the shelf and those it was proposing to develop. This company tried to characterize each of its product efforts into one of five classes.

The first is known as a derivative product. That's simply a cost-reduced version of an existing product or an add-on or enhancement for an existing product. An example of a derivative might be found with Kodak. It took its no-frills Fun Saver camera and added on a wide-angle lens and marketed it as its wide-angle camera. In the insurance business, you might think of comparable types of product efforts, such as developing a unisex version of a sex-distinct product.

A breakthrough product is the other extreme, where significant changes are made in bringing up the new product. Breakthroughs tend to establish core products from which derivatives emerge later. Compact discs would be an example. In the insurance business, universal life and perhaps variable products would fit into that mode. There's been relatively few breakthrough products in the life insurance business.

Platform products are somewhere in the middle. They introduce more product and design changes than do the derivatives, but they're not breakthrough products either. An example in the insurance business would be the development of a 10-year term as supplementing an ART or a five-year term product.

Research and development efforts help to create the know-how and know-why that eventually translates into commercial development of a product. In our business, this would include asset-management techniques, reinsurance and so forth. It's a precursor to product development, and it's probably an area where there hasn't been enough done in our industry.

Finally, the company in the article analyzed alliances and partnerships. We often fail to consider these, although I think in today's marketplace we're beginning to see more efforts being made to work jointly with other companies to take advantage of certain strengths that your partners have that you don't.

I think all five of these classes are vital, and I mention these not to introduce much theory, but to urge you to think about how you would characterize your product efforts. The *Harvard Business Review* article talked about how the company made use of this categorization process to more efficiently allocate resources and to get a useful spread between how resources were allocated between these five.

I observe several other things in the product area. As an industry, I think that we tend to do inadequate research up front. Again, the trailblazer's role is to analyze regulatory issues, systems constraints, the market, and the financial implications. It's

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important to conduct focus groups when it comes time to develop products. When focus groups are convened, they should be comprised of a good cross-section of your agents. In some circumstances, companies have formed focus groups with only high producers, which can yield a distorted view of where product efforts should be heading.

Competitive analysis is part of this research process and, as I mentioned, consideration of systems requirements. Poor planning often creeps into the product process as well. It is important to establish ahead of time critical paths of where the project should go, resource allocation and priorities for each of the things that need to be done. I don't know if many of you establish timelines when you develop products, and although they're not perfect by any means, without them it is common for the project to lose focus and to come in several months late.

As an industry, we have not been very creative in product design. I don't know that it's all our fault, however. We've faced many regulatory pressures on the one hand. On the other hand, however, creativity generates regulation. That is, regulation, tends to follow new products rather than precede them. As banks and other competitors enter our business, we will need to really focus on creative designs and try to push the boundaries a bit in terms of new products.

Finally, most companies think that a few new products are necessary each year. We touched on that a little bit earlier. In the movie *City Slickers*, Jack Palance made the comment that the secret of life is "one thing." In the life insurance business, the key is that we do a couple of things well. Assuming that we've made the decision to enter into product development on a specific design, who are the players that must have some input? Senior management, the systems area, the product actuary, marketing, accounting, financial, legal, and policyowner service are the major functional areas. There may be some overlap between these functions in your company. A critical question is: Who drives the process? There are definitely different constituencies here.

I would assert that the senior management should not be driving the product development process. Senior management should help define the vision, the overall corporate strategy for where the product is going, perhaps even define some of the profit goals, but I don't believe that senior management should be involved on a day-to-day basis in the product definition or design efforts.

Ideally, there should be a task force orientation. This has worked very successfully in a number of companies, where a small group of individuals who I would characterize as big-picture people, numbering no more than six or eight and representing each of the major functional areas, would have responsibility for driving the product. The chairperson of this task force would either be a marketing person or a product actuary with a marketing focus. Each one on the task force would report back to their corresponding areas of expertise or focus. This task force would handle all phases of pushing the product through and would be dedicated to the new product development almost 100% over that period of time. In last week's *National Underwriter*, an article appeared about Aetna Life and its new universal life product. A product champion for that product was talked about in that article. That's a phrase maybe that you've heard before. A product champion is an excellent idea in terms of driving

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a product forward. The product champion would be the chairperson of the product task force mentioned above.

This type of task force orientation can prevent long meetings with 20-25 people, where there often can be company politics entering, and a lot of discussion that is really irrelevant to the big picture of getting the product to the street.

I see a pivotal role for the product actuary and for actuaries in general. The actuary plays a key role because we oftentimes can see the big picture in terms of the financial implications of the product.

Task forces should meet weekly and perhaps twice a week when the product is near. The key in the task force orientation is delegation and responsibility. Members of the task force probably should be mid-level managers who can delegate specific tasks to others within their circle.

A topic near and dear to everyone is the systems area. We are often asked whether or not a company's competitors or peers complain as much about the systems aspects of product development as they do. The answer is basically yes. Systems concerns are always major issues that come up, and there are no easy answers. Adding additional bodies to get projects done doesn't always help. We need to be business people when it comes to evaluating systems needs and priorities.

Systems considerations are obviously more critical to some products than to others -- universal life versus term, for example. Many companies have been caught in the trap of thinking that they can design the ultimate system, the holy grail where the system can do everything to perfection. I do not think that this is achievable, not only because of the necessary time commitment, but also because with technology changing so rapidly, just about the time you get your system where you want it, you may have the needed capabilities from a technology standpoint.

In today's environment, building a new system from scratch almost never makes economic sense. It may make sense from a cultural or political point of view, but the requirements of building a new system versus the rewards that come back do not economically justify such an effort.

I think these are all things that we need to think about before agreeing to go ahead and build something from scratch. I think there needs to be greater liaison among the systems, the point of sale and the actuarial and the marketing areas.

One approach that has worked in practice is to have an actuary serve as a liaison between the actuarial department and the systems area. Sometimes this can be helpful in terms of understanding the effort required to actually accommodate certain product features in the system. Can a product be marketed before the system is ready? We've probably all faced that issue at one time or another. It's generally not a good idea, particularly with products like annuities or universal life, where there can be immediate requests for information that the system has to be there to answer.

Regulatory and contractual features have to be there on day one. There are requirements related to disclosure and customer issues that can perhaps follow, but I think

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regulatory and contractual items really need to be there at product introduction. Above all, systems personnel need to be kept informed up front, and by up front I don't necessarily mean in product conceptualization, but that they should be involved after an initial design has been worked out, so that they can comment on whether or not the proposed product will create real problems for them.

Another topic that's near and dear is the filing process, another necessary evil in the product design and development process. The first question is: Who should do it? I don't believe that a member of your task force should actually do the filing, although I think the legal or compliance spoke in that wheel should have responsibility for overseeing the process. As you all know, the filing process is becoming increasingly complex, not only with state insurance departments being involved, but the Securities and Exchange Commission on variable and market-value-adjusted products, and maybe even the federal government down the road.

We're facing more filing requirements than ever before. Our filings are competing against other companies' filings to a greater extent than ever, and there's more pressure on regulators. They're being stretched to capacity by the number of filings and, as a result, our filings are being reviewed by less-experienced regulators. The products are also becoming more complicated. The regulatory environment is in a state of flux, and in some cases, regulators are reviewing contracts on the basis of what they perceive to be the eventual outcome of proposed regulation as opposed to current statutes.

We sometimes are asked whether there's any magic in getting product filings approved more quickly. The answer is no, but here are a couple of suggestions. File early and build as much flexibility into your policy forms as possible. An example of that might be if you envision that you're entering a round of annuity product development, perhaps your filed contract is written in such a way that you could use two or more different surrender charge patterns with the same form. These could be left as variable in the filing, and you could simply provide some sort of guarantee in your compliance document saying that the surrender charge will never be higher than a certain benchmark. State regulators don't seem to have a problem with this approach. In fact, it reduces the amount of paperwork that they need to worry about, and it builds in enough flexibility for you such that your company has one filing instead of two.

Another suggestion is to make sure that you file complete filing packages. As you know, a number of states that review policy forms will ship them back to you without even looking at them if they do not have every piece of required documentation that they expect. Make sure ahead of time that you've furnished everything that the state requires.

Follow-up is very important. Be diligent in your follow-up efforts, as there are a number of circumstances where states have simply lost filings or misplaced them. Be very cooperative. Follow up in a timely manner as to the status of your filings. Your responses should be professional. Do not be argumentative.

One approach that sometimes helps is to have your responses or initial filing signed by an officer or other high-ranking member of your organization. State examiners are

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like anybody else. If your documents arrive signed by a Vice President or a President, they're probably going to get more attention than if they were signed by a junior individual.

I would suggest that you be aggressive and persistent. Use outside help to the extent that you need it. Certainly for variable products, using outside Washington counsel would be appropriate.

You might want to file in your key states first. The state of domicile is obviously one key state, but it would make sense to approach early those states in which you have a significant amount of business.

Keep good internal documentation as to letters and memos that have been written and conversations that have taken place with the department. Oftentimes you may have some questions later on about what was approved and what was asked for, so it's a good idea to keep that documentation.

Try to be as active as you can in professional organizations. There are several groups that specialize in the compliance area, such as the Life and Health Compliance Association. There, one can make contact with other people who manage filings and learn techniques to help get filings approved more quickly.

Now, we turn to actuarial issues. Experience data is obviously key for us, a practical fact of life for actuaries in the product process. We need to make certain that the experience data we use is appropriate. We need to know where it came from. For example, it is totally inappropriate for companies to assume that the 1975-80 table necessarily reflects their experience in certain situations. We need to improve our database of noninsurance experience from other organizations, such as the AMA, or from *Accident Facts* or other sources, that may not be based on insured data, but can certainly help us estimate sticky experience assumptions.

In using experience data, we need to reflect upon our own internal experience and judge whether what we're using makes sense in light of our own market. With some of the products we're seeing today, experience data is fairly well documented. In other areas, such as accelerated benefits experience or long-term care, we still lack a considerable amount of really good experience data.

Another issue is that of cash-flow testing requirements. It strikes me as being strange that with all of the discussion about cash-flow testing, the big question today seems to be whether cash-flow testing was performed, as opposed to what the results were of the cash-flow testing. We don't really know how to define how many failed scenarios are acceptable. Issues like these need to be resolved, and they will be as the whole issue continues to mature.

Another important topic is investment and crediting strategies. Here, I'd like to just mention one specific thing and that is credited interest rate meetings. Different companies vary in terms of how often they deem necessary to hold a crediting rate meeting. I think it depends significantly upon the type of product for which you're trying to establish a rate. For CD annuities and market-value-adjusted annuities, you

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probably need to meet once a week at least to talk about rates. With universal life, perhaps twice a month would be adequate.

I think it's also important that crediting rate meetings become a little more structured in the sense that they don't become free-for-alls in terms of campaigning for whatever rate each constituency wants. It makes sense for each party to the meeting to come with a proposed rate and a reason why he or she believes the proposed rate is the right one. From that basis, a discussion of where it should end up would ensue. Another practical question in pricing is, which profit measures should be used? It's very easy to take the same product, use two different profit measures, and come to two very different conclusions. We just did some testing on a universal life product that yielded a 15% ROI and a break-even year of 17. Now, depending on which of the two measures you used, you'd probably arrive at two different conclusions. A similar term product with a 19% GAAP ROE and a 2% profit margin might lead, again, to two totally different conclusions as to whether the product is profitable or not.

A key issue is to monitor profits after issue by source of income. Internal mortality studies are important. Many small companies say that they don't do their own mortality studies because of a lack of exposure. It's important that small companies do mortality studies, although not necessarily price using those results. Certainly, small companies should have some feeling for how their mortality experience is emerging versus what was assumed.

The next issues are investment performance and expense controls. Regarding investment performance, it's important to get our arms around asset segmentation. I think that's a critical issue for any company that really wants to be serious in investment-oriented products. Junk bonds, for most companies these days, are a nonissue. Significant cleaning up of the asset side of the balance sheet has been performed recently. Now we need to focus more on interest rate risk and prepayments.

My last point has to do with releasing the product. We develop products but don't often focus about how we're going to launch them. It's useful to think about a launch strategy as well. Where are we going to launch it? Which states? All, some, just a few? How are we going to introduce the product's features to the marketplace?

Afterwards we need to have some idea of whether or not the product is successful or not. The average product lifetime is about three years. How do we make the decision as to when to actually pull the product? This is not something you necessarily want to think about when you're releasing a product. One benchmark might be that if you cut the product's commissions by 50%, would anyone care? If the answer is no, then it's probably time to get rid of the product. If you haven't seen premium growth for two or three straight years on an in-force basis, maybe that's indicative of a stagnant contract.

The real message that I had was that we should consider the product process in terms of three main players. These may be participants in your process already, but I've formally given them names. The trailblazer is the advance scout who scopes the

marketplace and financial ramifications, and opines on whether or not it's viable. The champion has the ultimate responsibility, once the decision has been made, to go forward, to bring the internal constituencies together, to drive the development process. Lastly, the monitor creates, analyzes and refines detailed experience data beyond the simple lapse and mortality studies that usually make up a company's experience studies.

MR. LLOYD A. FOSTER: If we start pricing macro on a very wide scale, wouldn't that be justifying all those people who want us to eliminate classifying risk based on age, sex and so on, which are really the kinds of things we do on a micro pricing basis?

MR. TULLIS: What I was trying to get across was to not oversimplify those by trying to put them on a unit basis. I wasn't trying to preclude the possibility.

MR. FOSTER: I'm on your side. I'm just wondering if you see a potential danger in the future. People are trying to get us out of gender-based pricing, and they might even try to get us out of age-based pricing one of these days. I was wondering if it might be a potential problem in the future.

MR. DESROCHERS: Well, I think that's a totally different question than the macro pricing algorithm as we've been talking about it. Clearly, I think that most of us in the room certainly support recognizing risk as we see it, and that's something that I don't think any of the panelists have really urged that we not do. Clearly, as actuaries, we need to look at the risks, evaluate them, and then price them appropriately. I think there is, hopefully, a very broad consensus among the people here and in the industry that we would continue to do that.

FROM THE FLOOR: I, for one, am willing to question that broad consensus. Mr. Jermyn, you mentioned the prospect of genetic testing, which theoretically could classify a great number of people or at least certainly a fair number of people who are currently substandard as uninsurable. How do you reconcile that with the actuarial standard of practice on risk classification which holds, as one of its tenets, that we are to encourage the availability of coverage?

MR. JERMYN: What I was intending to say about genetic testing was that assuming that it became accepted within society and then permeated the insurance industry, we would face significant risk-classification issues and questions, not the least of which would be what to do about the actuarial standards as they currently exist. I wasn't necessarily saying that we would or should be automatically utilizing genetic testing. I think you have a good question and a good issue. That was what I was trying to communicate.

MR. DESROCHERS: Certainly the process of insurance involves some pooling, and if we get to the point where we can no longer pool risks, then you have to raise some very fundamental questions as to whether insurance has any applicability at all. If we could tell, for example, exactly when everyone would die, clearly there would be no life insurance industry at all.

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MR. JOHN B. DINIUS: This question arises from Mark's comments, but anyone is free to add a few thoughts to it. Mark, you mentioned that the only earnings that matter are the distributable earnings, which you defined as statutory profits as adjusted for the effect of required surplus. Subsequently, you said that a company that does not look at its stream of GAAP profits in the pricing process has its head in the sand. I wondered whether you could reconcile those or make some comments on the relative emphasis.

MR. TULLIS: Let me try to reconcile. I believe that when you do pricing, you should take into account what senior management wants and what it looks for. If senior management is going to judge the company based on GAAP profits, then to some extent, whatever you feel about GAAP is irrelevant. Your job as pricing actuary is to provide senior management with information that it can use to judge your work relative to its goal.

In reality, many things that are important, and from the statutory point of view, I would say distributable earnings are the key measure, as opposed to statutory book profits. I don't mean to say GAAP is unimportant; but I do say that if you are going to price from a statutory point of view, I think it makes no sense to do it without target surplus. The broader picture of what to look at should be driven by what your company's goals and objectives are.

