

# RECORD OF SOCIETY OF ACTUARIES 1990 VOL. 16 NO. 3

## FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

Moderator: GREGORY D. JACOBS  
Panelist: SHANE A. CHALKE  
Recorder: ARTHUR L. WILMES

- o Developing a quicker market response
- o Improving systems turnaround
- o Concentrating on design
- o Measuring cost

MR. GREGORY D. JACOBS: I am with Milliman & Robertson in our Indianapolis office. Shane Chalke of Chalke Incorporated in Chantilly, Virginia, will also be speaking. Art Wilmes, also with Milliman & Robertson in Indianapolis, will be recorder for this session.

The three areas that I'm going to address concern getting the proper product to the proper market as quickly as possible. The first thing is pretty basic. You need to know the company's market. Then you have to consider two distinct arenas: (1) where the marketplace sets the price, which is where I believe most of us operate, and (2) where the company sets the price. The latter would seem to be Utopia; not too many of us operate in that arena. So we will spend most of our time talking about situations where the marketplace sets the price.

Two critical issues need to be analyzed. First, there needs to be an exploitation of the company's particular competitive advantages. That's how the most successful companies seem to operate. This can be done in one or more of the following ways. One, have a superior, or at least a highly honed, distribution system. Two, be a low cost producer. Three, have superior risk selection. The company that comes to mind here is Northwestern Mutual. My friends at Northwestern Mutual tell me that if you can get underwritten and approved by Northwestern Mutual, you probably don't need insurance because you're never going to die. They have superior risk selection! Four, you need superior investment performance. If you can, through proper risk management, leverage just a little bit off of the superior investment performance, you ought make that one of your competitive advantages in the marketplace.

The second issue is, if you don't have a competitive advantage, create one. This is a tough one. One way to do that is to corral the needed expertise. Find out what it's going to take to be good in any of those four areas above and go out and get it. Another way to create competitive advantage is to concentrate; don't try to be too much to too many people. I realize there is some danger in "putting all your eggs in one basket," but I don't believe you can be successful if you try to be too good at too many different things. You need to concentrate on some particular areas, and you need to be selective on what those areas are. The last point, which again to me is fairly obvious, is to decide who is your market. Is it the agent or the insured? You can't be successful if

## PANEL DISCUSSION

you are catering to the agents when the insureds are actually your target market, or vice versa.

In the second arena, the company sets the price. Here we have the niche players. They don't last long because you can't patent an idea. The first company that came out with backend load universal life (UL) had a brilliant idea, extremely creative. They had a corner on the market -- for maybe 30 days. Sometimes the company can set the price by being creative or by having good fortune, being in the right place at the right time. One example of this type of creativity was National Travelers with the long-term care rider. They were the first on the street with it, and I think they are still viewed as being creative and being a market leader. Undoubtedly, from the marketing front the profitability, that has actually helped their bottom line significantly. Sometimes it's just a matter of good fortune. An example of that is a client of mine who is in the burial insurance market. They happen to be owned by a major manufacturer of caskets, funeral homes, and such. They literally have a corner on the market. That's good fortune. They have leveraged that and made a lot of money doing it. If you operate in this environment, you are governed by an entirely different set of rules, a different product development process.

Up to this point we've been talking about the proper market. Now let's discuss the proper product. First, a proper product is defined as a product that is acceptably priced. Here again, there are two issues depending on the marketplace you're in. If you're in the environment where you are a niche player, where you can set the price, then pricing is traditional. You determine the cost, you add a profit margin, and you go to market. However, if you're in the marketplace where the market sets the price, then pricing is a risk management game. Not only does the market set the price, it almost designs your product for you. It tells you how much you're going to have to pay on interest. It tells you how much you're going to have to deduct on costs of insurance (COIs) and how much your compensation is going to be.

So, what do you control? You are exposed to the various risks such as volume versus expenses, investment returns (the risk you have to manage), and underwriting results. The point is that each of those are distinct competitive advantages. You have to understand what your competitive advantage is, and then, as a pricing actuary, you don't price the product, you measure the risk of that particular issue. I guess what I'm concluding is that pricing essentially measures the variability of the above risks and their impact on profit. Therefore, pricing is not setting the price; pricing is analyzing the risk.

Another issue surrounding the proper product is that it has to be acceptable to market. I have looked at many product portfolios when we're doing an analysis of a company. Their ratebook may list 17 UL plans, four annuity plans, and several term plans. Yet when we look at their distribution of in-force, we find that they sell three product forms: one UL, one annuity, and one term. Why did they develop all the others? The point is that you have to have thorough market research. The successful companies have significant market research departments and know what's going on in the marketplace. Knowing what is going on doesn't mean you have someone sitting back at the home office taking phone calls from irate agents, because a competitor came out with this

## FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

fantastic product. That's not market research. Market research is knowing that the product is out there before the agents even know that it's out there.

Finally, you must understand the economic or the tax arena in which that particular product is to be sold. The tax arena is a little bit tough because it seems to be ever-changing, but the economic arena doesn't change that much. You have to be extremely knowledgeable about all of the tax and economic issues of the marketplace you're going to cater to before you think you can start selling a product. We have a client that's spent probably \$300,000 or \$400,00 in developing Last-To-Die products. They have sold maybe 50 policies. They're big policies, \$6 million average size, but they haven't brought in enough money in total dollars to even pay for the development and cost much less the reserves and expenses. What's more, they don't know they're going to sell any more policies than that, because (in my opinion) they don't understand the marketplace that well. The point is that to be acceptable to market, you have to know the economic and the tax arena of your particular marketplace with respect to each particular product.

Another arena or definition of the proper product is that it has to be legally acceptable obviously. Do your homework; stay on top of the regulatory issues. Know what's happening with regulation 9A and 9B in structured settlements. Know what's going on with selecting alternate term or cheap term with respect to regulation ZZZ, or whichever one it is. Know what's going on with burial insurance with regard to regulation XXX. You have to understand; you have to be involved; you have to do your homework on the regulatory side to come out with a product that makes sense legally. Also, it seems to have been proven over time that products that are on the edge are short lived. Those products that push the line of whether they are contracts that fit Section 7702 often are viewed as terribly creative products, but when they're out to abuse a loophole in a tax situation, for example, my contention is that they tend to be short lived, and a lot of money is spent on something that's not going to have a big return. Corporate owned life insurance (COLI) is a perfect example now. COLI doesn't look like it's got a very long lifetime.

Now we come to my final point, and probably the one that interests you most. The concepts of a proper product and a proper market are not new to you. The reason why I think we're here is to address the idea of developing a product as quickly as possible. To me, the issue surrounding getting something done as quickly as possible is proper product definition. The worst thing that happens in the product development process is that you're pricing all kinds of product definitions that aren't going to float in the marketplace. So why don't you turn the tables and define the product before you start pricing it? Through market research, I believe, product definition is continuous. It's not like there is a beginning and an end to a product evolution. It's continually evolving through market research activities. So when a product idea is brought to the pricing team, it doesn't have to go through all that analysis. We have already defined the product.

Now let's start the pricing exercise. In this exercise, the market research person and the pricing actuary have to be on the same team. I'm not saying that the pricing actuary is the marketing research person, but they have to be on the same team. They have to understand what's going on in the marketplace and the ramifications of that from the

## PANEL DISCUSSION

pricing side. The pricing actuary should, at this phase, be very open-minded. "No it can't be done," may eventually be the right answer, but think about it for a little bit. A lot of good product ideas get squashed immediately because the pricing actuary is either too conservative or unyielding in his way of thinking about pricing products, and some idea that's obviously never been tried before or seems obviously absurd, immediately gets a, "No it can't be done," response. Another alternative is to cheat. Use somebody else's product idea. That's third on my list but probably tops on everybody's list here. The minute National Traveler came out with long-term care, I bet every company in here went to their local insurance department and got a copy of it -- instantaneously. There's nothing wrong with that. That gets back to the niche player. You can't be a good niche player because everybody steals everybody else's product idea. But that will get you a product definition real quick.

Now to systems issues. Systems are always ugly when it comes to pricing. I've come up with two areas of specific interest -- pricing systems and administration systems. Pricing systems leverage off the available technology in both hardware and software. How many of you are still running asset shares on a mainframe that's kind of batch environment? A lot of companies still do that, and that is, in my opinion, absurd. You have to be able to leverage off the current technology. Even five years ago, when we were doing an appraisal of a company we would have to batch up all the information, send it to our services operation in Seattle, and wait for 3-4 days to get the first pass. Now it's not acceptable to us in our office if we can't get the results back in 24 hours, and even that's almost unacceptable. You have to leverage off of that technology. The other point I want to make under the pricing systems is creating the efficient pricing algorithm. I'll talk a little bit more about that later.

The other systems issue is administrative systems. Again, leverage off the technology as much as you possibly can. My recommendation is that you abandon mainframes. When you come out with a new product series, either have a canned, off-the-shelf, vendor-purchased administrative system that's on a PC, or build one yourself. But do it all by itself so that it doesn't have to be worked into this canned mainframe monster of a system. Have databases where you can exchange premium information, so you can tap into the billing and the cash disbursements and cash receipts out of the general accounting. I haven't seen it to the point that every product has its own administrative system, but I see that some companies are moving that way and it seems to be terribly successful. Or at least it's very efficient.

The other point under administrative systems is not to wait for modifications. Get out there and sell the product. Don't wait around for the six or eight months trying to modify your old system to try to make it work on a new product. It doesn't make any sense. Somehow you've got to get to the market today. Hopefully through the leveraging of technology you'll get the product up and running on a PC-based system. Don't wait for the mainframe to work.

Next, as quickly as possible, get the State filings. This is a terrible problem with no known solution. On the health side, people are kind of taking it by the horns and doing something about it. Golden Rule in Indianapolis seems to be taking a lead on that. They have filed a lot of lawsuits. It's not the greatest way to make friends, but it may be

## FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

very effective. They're basically saying that on health things, "You guys are terribly subjective. Let's just set a minimum guaranteed loss ratio, and we'll manage our products off of that." There might be something out there that's comparable on the life side. I don't want to see a loss ratio sort of approach, but there might be something similar to expedite the State filing. I saw in a recent *Wall Street Journal* that Congress is looking at the McCarran-Ferguson Act and that there may be nonstate regulation in each of our futures, which may or may not be a blessing in this particular situation. All I can tell you at this point is to be proactive, be cooperative, and be patient when you're dealing with the State filing issues, and try to keep the lines of communication open.

Finally, we have to decide how we are going to get where we want to go. How do we achieve this Utopia? What I have presented up to this point are some of the issues. Now I'm going to talk about some of what I consider to be solutions. I will call it structured pricing, a new way of looking at pricing. It's got an analogy in the systems area, and let me digress just a little bit. If any of you used to be programmers or write programs now, I'll bet you the way you approach programming is, given that you know the problem at hand, the very first thing you do is start writing code. And that's exactly what we do when we price products. The minute the marketing person or someone else comes into our office and says, "We need a new product," what's the first thing we do? We start on profit studies. I contend that on the pricing side, just like on the systems side, we need to have a structured approach. On the systems side, there's a theory out there called structured programming. You do all the analysis, all the debugging, all the upfront work without putting one line of code together. The minute you've solved all that, writing code is a trivial exercise. And what I am submitting to you with this structured pricing sort of environment is do all the analysis, do all the debugging, do all the research upfront. Then when it comes time to do profit studies, it's a slam dunk.

On the marketing side, these are my solutions: Spend more dollars on marketing research. Develop a focus group of agents and policyholders. Sounds kind of corny, but it works. Something that I do is to get together with agents in Indianapolis and in the surrounding area. They're pretty heavy hitting agents, the top two or three of their companies in sales, and we get together about once every two months to have a half-day focus group discussion. I tell them what I think about things going on in my world, and they tell me about what's going on from the product side. Have any of you actuaries ever sat down with the agent and talked to him about what is going on out there? You'll learn a lot, guaranteed.

Another approach is to have a creative product development team. This gets into organizational structures. It's probably no different than what you're currently doing, except that it is headed by a marketing research specialist and includes the pricing actuary, marketing and financial representatives, perhaps representatives from investment and risk selection (depending on the product being developed), and an information or systems representative.

Finally, make product definition a continuous process. And that just happens naturally, I believe, through market research. This gets into kind of looking at yourself or your company as if through a mirror. I'm not convinced that too many companies have done this and I'm not convinced that they'd like what they saw if they did it. Understand who

## PANEL DISCUSSION

we're catering to, the agent or the insured. We have already talked about that. Are you trying to develop a product to attract good agents so they can sell a lot of stuff that maybe consumers don't want? Or, do you want to attract good insureds by giving them something that they want to buy? Those to me are two vastly different arenas. If we can find some mixture of that, then we're in Utopia, but I contend that those are often diametrically opposed issues.

While there's no right or wrong approach, personally, I would submit to you that catering to the insured makes the most long-term sense. Insureds pay premium dollars; agents don't. Agents turn over premium dollars. You also have to understand your own company. Again, look in the mirror and see what you're all about. What are your strengths, what are your weaknesses, what are your competitive advantages? This is a tough one. What available expertise do we have, or maybe more importantly, what don't we have? What are our profit goals? That should be obvious, but I'm still convinced that a lot of companies haven't sorted through that issue and figured out what should we be pricing for. That gets into a little bit of this idea of limiting resources. I don't think enough of us know what our limiting resources are, which is extremely tied into and critical to the profit goals. We have to know what our limits are and we have to maximize or leverage off those limits.

That almost defines our profit goal. Surplus is a perfect example. Surplus is obviously a limiting factor unless you happen to be lucky. So what do you price off of? Return on invested surplus. That's pretty obvious. What happens if we have more surplus than we can possibly think of, but we have limited underwriting resources? I'm not going to tell you that what you ought to price off of is underwriting as many policies as you should, but that should be a critical issue in analyzing how you're going to price this product and get it to the market. Maximize how many applications can be underwritten given the staff available in any period of time. Leverage off of your limited resources or your limiting resources.

Another issue to address on the solutions is on the state filing. I said there is no known solution, but here are my potential responses. Be involved in regulation setting. Get on committees. Get involved with State Insurance Departments. Go to NAIC meetings. Try to be influential and not to the point of solely pushing things for your own company (not that there is anything wrong with that), but I believe your efforts will be more acceptable if there is more of a social or industry goal in mind instead of you trying to make your company one step better than everybody else. I think we need to get involved in the regulations setting. Finally, be proactive in state filings. Call them, talk to them, be nice to them. There seems to be this tendency, at least in my home state, where products are filed and then you wait. We have a 30-day deemer. The 29th day, a letter comes back saying you forgot something or they have a question about something. Don't wait 29 days. Call a week after you file. Then call him the next day and the day after that. After a while, you may have a big phone bill, but you'll get some action. Guaranteed!

And once again, develop an efficient pricing algorithm. My approach is a sort of grid pricing -- profit analysis at the macro level. I don't like to look at unit profit studies. If you give me a profit study for an age 35 male nonsmoker, that's a building block but

## FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

that's not where decisions are made. Bubble it up. Get your model offices, volumes, years of issue. That's macro. That's robust. That's total company. That's how you ought to be looking at product. Determine a volume/expense balance. Again, I contend that we don't have a choice in setting the price or setting the product parameters within limits. They are already set for us. So what do we have in our control? We have expenses coming in one side and volumes to match that. So we do a volume/expense tradeoff. Then you go back to the marketing people and say, "If you want this product to be in your marketplace and if you want to make a lot of money, this is what you've got to sell to cover these expenses."

Test investment return risk sensitivity, and test underwriting levels expense sensitivity. This is where I apply the grid theory. What I like to see are profit study results in a grid, maybe a three-dimensional grid. Down one side is interest return. Down the other side is investment risk and at the top axis is profitability. Then you run profit studies. If you have an efficient profit studies system and a high degree of technology, you can run a lot of cells, do a lot of number crunching, run a lot of scenarios, and you get a grid that I'm describing that measures the risks and the return tradeoffs for a product. You put this information on the grid, and you can determine what horizon of investment results makes the most sense. The same thing can be done with the underwriting level and the expense sensitivities. I believe this then turns into almost a slam dunk. It's not easy. Ease and efficiency are not the same, but I believe that if you do the analysis and the debugging of the product up front, that when you get to this point, it turns into an efficient, almost a slam dunk, but certainly necessary exercise.

You have to invest in advanced technology. If you don't have PCs on your desks, you're in deep trouble. They are a must, not only for the pricing system and the illustration system, but also for the administration system. I can envision some day an operation when we will have a PC per product and on that PC is the administrative system. On a regular basis (daily, hourly, etc.) the system uploads and downloads information to the mainframe to get the billing information.

The final solution I'd like to pose is the joint venturing idea. Capital Holding in Louisville seemed to be the first to do this in the biggest way, or at least the most noticeable way. They invested a lot of time and money in developing products and systems, and I believe they have concluded they can't get enough product on the market through their distribution system. Voila! Let's use someone else's. So they joint venture a product. It makes a lot of sense. It especially makes a lot of sense for someone who doesn't want to really be in that product line but feels they need it to cater to their agent. Maybe that's why I pose this approach last. If this is your solution, then I'm convinced you don't know your market that well. It's probably not a product line you ought to be in if you think you need to sell through joint venture.

MR. SHANE A. CHALKE: Many of the things that Greg talked about weren't really fine tuning so much as complete reconstruction. In that vein, I'm going to continue along the same line. I do think that fine tuning current pricing algorithms is a waste of time. I think that it is necessary to completely reconstruct the way we approach the pricing algorithm. As you probably guessed, I am going to talk about macro pricing; however, I'm going to break my presentation into two parts. I'm going to begin with just

## PANEL DISCUSSION

a review of the basics of macro pricing. I'm sure you've all seen it in bits and pieces here and there, so I'm not going to spend a great deal of time on that, but it is necessary to go through a basic review, so that we all know what we're talking about. I would like to concentrate, however, after that, on why it streamlines the process. Why does it speed up the process? Why does it conserve resources? Why does it give you a better answer? I think this will be something that's new. So as far as going through the macro pricing process itself, I'm not going to spend a lot of time on that.

As usual, I'm going to begin by taking just an incredible number of nasty pot shots at traditional actuarial techniques. I'll try to go through it quickly, because I think there is a growing consensus that the traditional methods really don't work well. It's really been an uphill battle for me. Eight years ago, I'd encounter enormous resistance when I started to criticize the traditional unit-based asset share approach. Now I think a lot more people are practicing more modern techniques. I think it's a little bit more accepted.

First, traditional algorithm is based on three principles: Unit-based analysis, cost plus algorithm (profit goal), and artificial expense assumptions. I'll talk primarily about the first two principles. Greg mentioned that there really are two kinds of markets in which insurance companies might find themselves: the type of market where the company has leeway to set the price and the type of market where the market sets the price. Well, I tend not to think of it as such a dichotomy. I think, depending on the market you're in, you're faced with different kinds of demand elasticity, and if you find yourself in an elastic market, you're very lucky and as a corporation you exploit that. There's no reason if you're in an elastic environment that you should just settle for a certain profit goal. Jack your price up as far as it can go. That's business. We all want to charge as much as we can. If you're in a very inelastic environment, you'll find a very narrow range of market prices, yet there is always a range. I don't think there is any particular product form in this industry where every company sells at exactly the same price. So what we want to take into account is really the basic principle of the law of demand: The more you charge, the less you sell. The less you charge, the more you sell. This basic principle, at least in my opinion, is fairly inviolate.

With that in mind I'm just going to walk you through traditional algorithm and show where it falls down and why it's more or less doomed from the start. The first step with traditional algorithm is to decide to begin the project. It seems fairly trivial, but it's not. There are a lot of problems with this part, because we don't even have an algorithm to decide whether something is worth exploring. But as soon as we do decide to begin, as Greg mentioned, the actuaries are off and running. You start diving right in, start running after Asset Share Profit Analysis, without a lot of consideration of other things. Maybe I'm being a little bit harsh, but I'm doing it to illustrate a point. The actuaries start running the asset shares and develop a cost plus plan proposal that meets the 16% ROE goal or the 3% of premium. Whatever the profit goal, actuaries trot out a plan. And not very interesting things happens. You meet with the marketing people and the marketing people say it is a really crummy plan. Right away, when marketing says this is a crummy plan, we have developed somewhat of an antagonistic relationship between actuarial and marketing. That doesn't mean that we drop water balloons on each other's



## FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

cars or anything. This is more subtle than that. We're still nice to each other, and we still cooperate as businessmen, but there is a natural antagonism.

Marketing has enormous and overwhelming incentives to say it's a crummy plan, no matter what you trot out. They have an enormous amount of incentive to say it's crummy. Why? Because if they can get something better, that makes their job easier. They have a very one-sided incentive. So what happens is, when marketing says it's a crummy plan, it's usually a "no go." I'm going to skip over the part where it's a "go" decision, because that just never happens. Almost always it's a "no go" decision. Then you're back running asset shares again. The extreme difficulty of this is now you don't have an algorithm to do anything different. You've been told that you need to make your 16% ROE. You put together a plan that meets the 16% ROE, and they told you it's a crummy plan. What do you do? Well, there really isn't an algorithm to proceed, and here's really the crux of why the traditional algorithm doesn't hold up. There are just a limited number of steps in this algorithm. It doesn't look that hard, and it doesn't look that long, but it falls on its face because of the fact that when there is disagreement between actuarial and marketing, there is no methodology for proceeding.

What actually happens is that the entire process becomes political rather than economic. Then one of a number of things can happen: Actuaries might redo the assumptions on some additional reflection on the type of plan. Management might be pressured to change the profit goal "just this once." Marketing might change their mind as to who the competition is "just this once." Generally you're involved in some sort of political struggle, and I'll come back to this in quite a bit of detail later, because this is really the crux of it.

Our traditional method is really a political process rather than economic. So this is the problem that we're stuck in. We have what I tend to call an open decision point. That's a point of conflict with no method of resolution. When we're stuck in this position, everybody treads water until the process has to come to a close. How does it close? The process closes when we're say three weeks away from agent convention and we have to introduce new product or someone high up in the company puts his foot down and says, "Enough is enough! Let's finish this thing." We tend to go around and around like a roulette wheel, and when the political process comes to a close, wherever the little ball lands, that's what we get. It's not particularly conducive to good decision making.

I've talked quite a bit in the past about the evidence of why traditional methods don't work particularly well. Perhaps the worse effect is that we have implicitly adopted a standard, whereby the success of the pricing actuary is determined by whether the next generation of the plan outperforms the previous generation. This is an awfully damaging incentive for the pricing actuary to operate beneath, but this is the way we tend to operate. As a pricing actuary, how do you put yourself in a position where you're judged as successful through this process? Well, you have to put yourself in a position where somehow you come out with a plan that is more competitive than the previous plan, with a little bit higher compensation that still meets the corporate profit goal. That's not an incentive structure within which I like to operate.

## PANEL DISCUSSION

Our subject of discussion, product lead time: How long does it take from conception to get a product on the street? I think that's the crux of this conversation. We want to do what we can to shorten the product lead time and certainly move the process from political to economic.

Well, that's my critical overview of the common practice. I think the common practice is becoming less common. I know that we have, at this point, at least 15 clients who actively practice macro pricing, and I think it's becoming more pervasive in the industry. At least I hope so.

So let's move on to a really quick review of what macro pricing is. How in the heck does it work? As Greg mentioned, he likes to look at profitability on total project basis. This is really, at least, part of the crux of the matter. Rather than looking at the cell level, unit-based asset shares, we want to look at what the whole project means to our company. Second, here's where Greg and I might disagree a little bit, although I'm not entirely sure. I don't particularly believe in the idea of a profit goal. I believe in optimizing profitability and if you've optimized profitability and it doesn't meet your profit goal, it seems rather silly to me not to proceed with the venture. If I've optimized profitability, what that means is that any other action I take makes less profit and I get further away from my profit goal. So, for that reason, I'm not a fan of profit goals. I'm a fan of optimization.

I promised I wouldn't talk about marginal expenses. As a matter of fact, in a session that I was speaking at earlier, Tom Mara from the Hartford talked a little bit about macro pricing. They practice macro pricing at the Hartford and he made the comment that he had such a hard time trying to get across the idea that marginal profit optimization is the way to go. In other words, the controversial element was the overhead expense, but he just goes ahead and puts it in since it doesn't make any difference anyway -- as long as you leave it in one big lump. If it's not a lump, it's not overhead, is it? Leave it in a lump and you'll still stall for the same answer. So, personally I don't really care whether you put in overhead or not. As long as you don't pretend its marginal and pretend that your overhead is like \$100 a policy or something like that.

To understand the optimization process, I usually bring things back to basic decision models. In some respects, this seems awfully trivial, but I think that we do lose sight of it. Any decision involves three steps. Figuring out what your choices are, trying to anticipate what's the likely result of each choice, and then choosing what feels like the best point in the decision set. For some reason, generally human beings in their youth understand the decision process, and we lose it when we get older. A little kid when asked what he wants for lunch wants to know, "What are the choices?" Little kids understand that. In any project that we tackle as consultants, we probably spend an inordinate amount of time trying to figure out what the choices are. What is the range of possibilities? In our case, when we're trying to evaluate the range of choices, most of the time the range of choices is composed of various price structures. So, this is what we have at play: we can charge a lot or a little to the consumer, or we can pay a lot or little to the agent. This is really our range of choices, and our goal is to analyze this range of choices and choose the one that would appear to provide us with the best results.

## FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

Theoretically, this process is quite simple. However, in fact, it becomes difficult. Back in the early days when I began to practice macro pricing, we actually did it in a very different way. In fact, the way that we did it never worked, I'll admit. But we used to treat it as a purely mathematical model. We would say that to figure out which price structure works the best for us and is going to provide us with the best results, all we need to do is try and figure out how much of each price level we'll sell.

*Demand curve information is a very simple concept. For each price structure, multiply unit by profit. That's how much we expect to sell. See which number is biggest and sell that product. In the early days, our method of operation was to go to the marketing department and ask them to draw us a little picture of what the demand curve looked like, and we'd expect to get some kind of picture where they tell us, based on some measure, how much they're going to sell. Of course, that never worked. We never got our answers. The whole concept was really quite foreign, and no one really understood what we were getting at. There was also a huge element of mistrust. As soon as someone drew the curve they would have the perception that the process was out of their hands and they had sealed their fate in some mysterious way that they didn't know. But that's only the half of it. The other part is that demand elasticity for insurance is extremely complex, and it almost hopeless to discover a lot of information about it.*

Demand for insurance is composed of a hopeless number of factors, at both retail and wholesale price level, and if we could put together a demand curve, it would really look more like a three-dimensional surface. On one horizontal axis, we'd have commission rates, from low to high and we'd certainly expect that for equivalent retail price, the more we pay the agent, the more he produces. At least we'd expect so. If we didn't expect so, we ought to lower commissions. At the retail level, we would anticipate that the lower the retail price or the better the value at the retail level, the more we'd expect to sell, and so forth. In the early days, when I realized that I couldn't get anyone to even draw a two-dimensional line, I quickly realized that trying to get a committee of marketing people and management to agree on a shape of a surface like this was pretty much a lost cause. However, the mathematical elegance of it is still quite intriguing. I mean, if I had that picture, product development would take about four days. That's all. Because we could just take that surface, that information, and convert that into total profitability surface, and we would have the whole thing defined. However, I'm digressing a little bit, because of course, this method doesn't work, because I can't get that picture. As an actuary, I don't have a very good feel of what that picture looks like. As Greg mentioned, because of a thoroughly pervasive lack of market research, marketing people aren't generally used to thinking of things in this vein. Under the traditional algorithm, marketing is used to getting what the actuaries tell them they can get. They're used to the cost plus paradigm. So what we've developed is a method I call macro pricing that turns this process around and does not rely on demand curve assumptions. What we'll actually do is to analyze a range of prices over a broad range of production scenarios, and then let the marketing department bring into play their feelings about demand elasticity in a very implicit fashion. Taking into account all this sort of passive knowledge, once we show them the range of choices, they'll decide in a very subtle and implicit way.

## PANEL DISCUSSION

This is the way that it generally works. I'm going to show the entire macro pricing process in two graphs. The first thing we do as part of the macro pricing process is to develop a picture that looks like the one shown on Chart 1. I'm going to leave aside completely some of the more detail oriented questions like profit measure and assumptions as far as approximate business life. Basically what I'm going to do is look at a range of plan price structures. This particular example is a little bit simpler than real life. Here we're looking at three retail price structures (high value product, medium, value product, low value product) and three commission structures (high, medium and low). In actuality, we would have more plan structures than this. Just as a hint, you want to start with at least four. They would be composed as follows: The first price structures would be whatever marketing tells you is the ideal at the outset of the project. Usually you can get that information. If you could have anything you want, what would you want? We'll use that as our central plan. Other price structures would be one that is a little bit more aggressive than what they've asked for and one that is a little less aggressive than they've asked for. The fourth design that we always put in this analysis is something that is commensurate or as close as possible to something you're already selling. If you don't put it in now, it'll come up later and you might as well get it all over with all at once. As for the range of production scenarios, don't worry about making the range of production scenarios too wide. The purpose of this is to encompass the full range of anything anyone might want to look at. You want to save yourself time, so you don't want to have to do another analysis later.

This graph has an enormous amount of information. Basically, for each combination of price structure and production level on the vertical I have, in this case, marginal value added which is some picture of what it's worth to the company, given those constraints. This is a great graph, but it doesn't help you price the product. What we want to do, as a second step, and this is the real key to the macro pricing method, is to convert this graph to one that contrasts wholesale and retail structure, and for each combination of wholesale and retail structure defines a certain marketing goal necessary to achieve some minimum level of profitability so that management will proceed with the project. Consider it sort of a hurdle rate and opportunity cost.

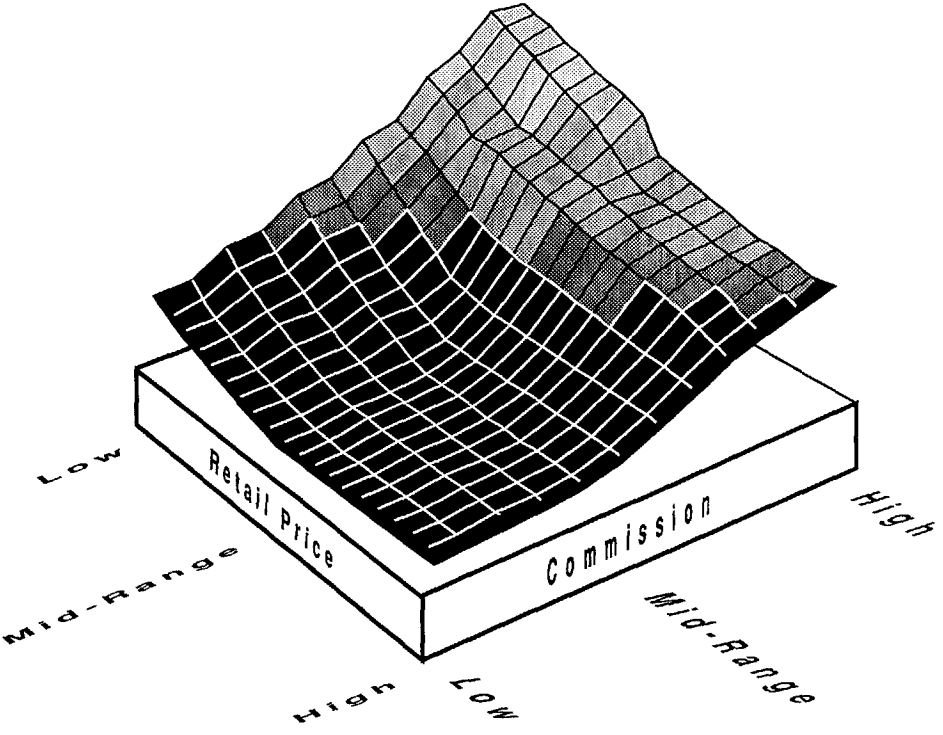
There are many different ways of looking at it, but converting this graph to the resultant picture might look like something like Chart 2, where we have a hurdle rate or opportunity cost added, and on the horizontal axis, I have commission levels and plain competitiveness or retail structure. Now I have a graph that I can price with. This is a very effective tool to proceed with the pricing process. The way that it works is that I'm now going to meet with marketing and show them this graph. They're going to interpret each of those vertical bars as the price that they have to pay to be granted that particular price structure. In other words, if they are willing to accept the plan structure with low commissions and not very competitive, we are just as well off selling a smaller volume as opposed to paying a high commission on an extremely competitive plan that would require a much higher volume. We're neutral, provided that we've taken into account all our risk adjustments within our analysis. Our goal is to create a grid that leaves the company neutral as to which price structure is selected, as long as that vertical bar becomes the marketing goal. Now what happens is that marketing's incentives have shifted enormously. They no longer have incentives to always ask for the better product,

FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

CHART 1

LIFE PRODUCT DEMAND SURFACE

Premium Production

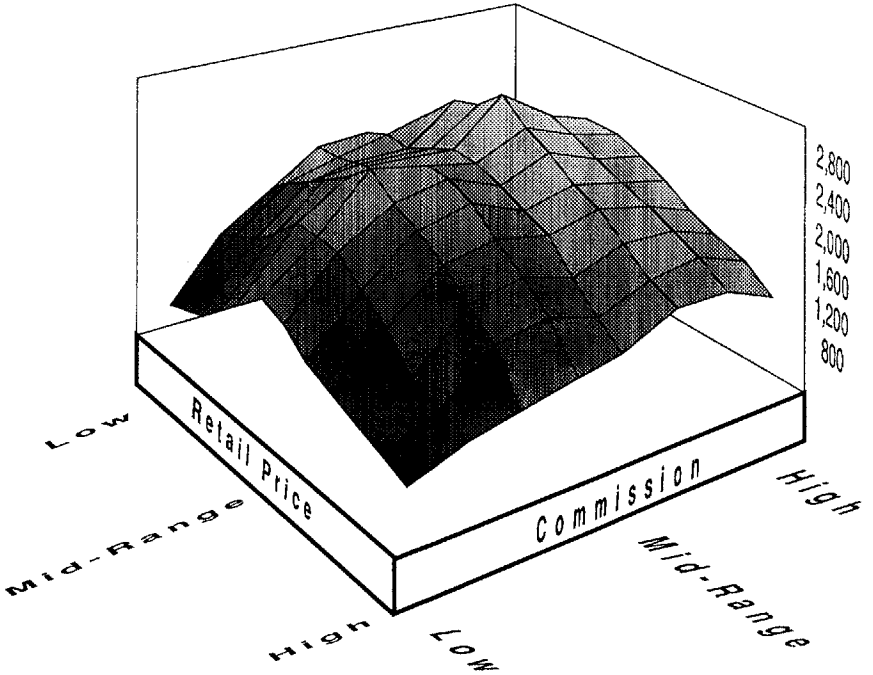


PANEL DISCUSSION

CHART 2

TOTAL PROFITABILITY

Profits



## FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

because as they ask for a product that is one notch more competitive, the marketing goal goes up. It's not a cost-free decision. This is a very fundamental change in the method.

Let me walk you through the algorithm in the same kind of flow chart form that I did with traditional. Then I'll commence with my analysis of why it works better and why it works faster. Again, we'd start with design constraints in some fashion (Chart 3). I'm not going to talk about this much, because I think Greg covered this very well. Similarly, with competitive goals, it is useful to at least find out, not precisely what they're looking for as competitive goals, but I want to know what factors will be used to measure the level of competitiveness to the product, so that I can put together my information. That's where it gets interesting. I'm going to create my multiple price structures, usually a minimum of four retail and four wholesale price structures. To do this, I'm not running any profit tests. Absolutely not. I'm running an illustration, because I'm solving for COI rate structures, interest crediting, spreads, premium loads, surrender charges, the whole works. This is illustration information. This is not pricing. I don't even want to do pricing, because I don't really care what the profits look like at this point. I want to put together plans that are cohesive, that have a rate structure encompassing what people want to see and what they want to look at.

Once I've done that, and I've got my 16 plans (4 x 4), then I do my financial analysis. This is where I start to put together broad scale model office runs that take each of the 16 plan structures and analyze them across a range of production scenarios. Then I produce my graph (Chart 4), and that one picture is usually sufficient. There's a tremendous amount of information on that picture, as long as we've done our job in making sure that we've covered a broad enough range such that no one is going to ask for something that is not on the graph.

You have to be aware of that, because you're in a very different situation now. You have now pinned the marketing people down. And they will squirm and engage in numerous delay tactics and one of the counter measures to those delay tactics is to make sure that you've covered the broad range, so that there is nowhere to squirm. It's all right there. Right up front. And that's the deal. We're in a little bit different situation after our meeting with marketing because, if it's a "no go" situation, and sometimes it is a "no go situation," marketing may have the opinion that they can't sell any of these products with these marketing goals. Then it's a "no go" for everybody. You don't go back and run more asset shares, because you've already done the job. It's not the right product for your company. Interestingly enough, marketing usually has a lot of incentive not to arrive at that conclusion, because they're the ones who usually want the product worse than anyone. So if it's a "no go," it's not a looping situation, it's over. Look for something else to do. If it is a "go," then you're back to all that detail work that actuaries love so much.

Next, I want to address product detail and filing. My firm's position has changed a great deal over the past couple of years on product filing. We now encourage our clients to file commensurate with step one. The way products move these days, most of the critical features of products are of the nonguaranteed basis. A lot of the information that is necessary for filing is not dependent on the details of plan design. If it's a new

# PROPOSED UL PRODUCT

## Marginal Value Added

1824

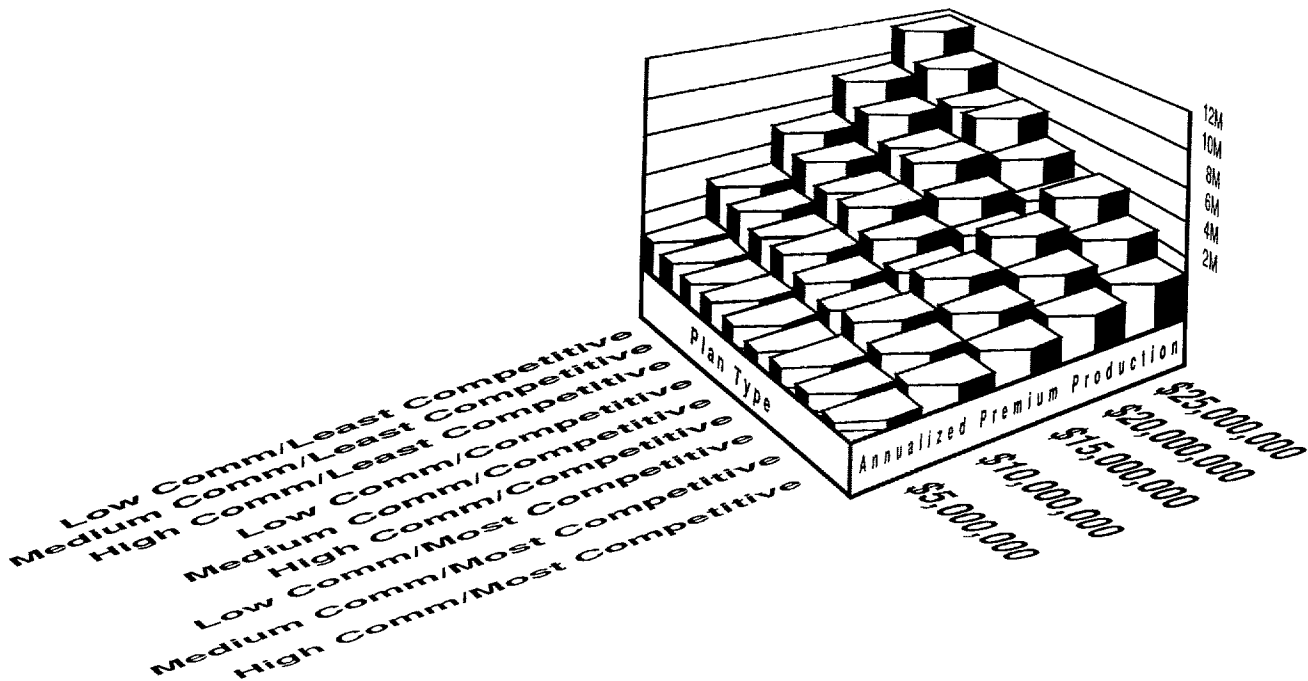


CHART 3

PANEL DISCUSSION



# PROPOSED UL PRODUCT

Production Level to attain \$10 M Marginal Value Added

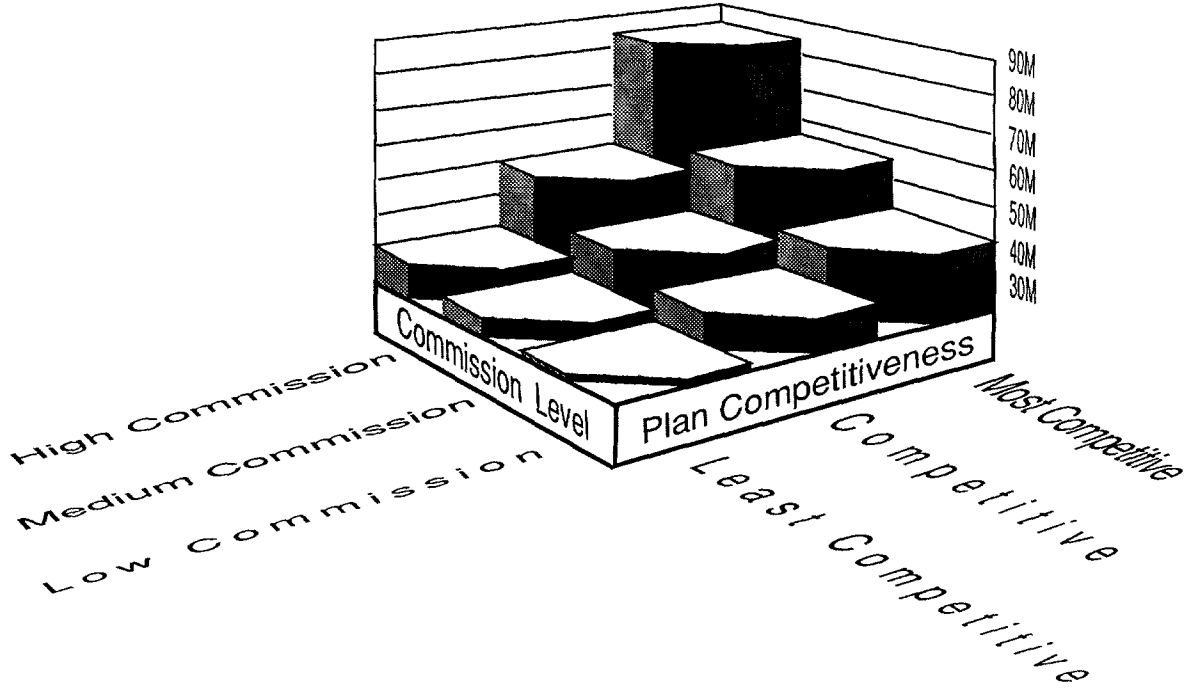


CHART 4

FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

## PANEL DISCUSSION

generation UL product, you can put together policy for them, actual demonstration, and so forth. You can create a shell of a product and go ahead and file it. Before you even start this whole process, it really gives you a jump on things. If you're not really sure about some of the broad parameters to guarantee structure, which is really what you're filing, file a couple different plans. It can save an enormous amount of time.

Now let's talk a little bit about why this works better. In fact, one of the handicaps that I had years ago, when I started talking about this macro pricing technique, was I didn't have a lot of evidence that it would work better, so it was a little bit difficult for me to have credibility. I've watched a number of companies work through the process with multiple products, even entire portfolios, and I now have a lot of evidence that it does work faster. So, let's look at some of the factors that cause that.

First is the fact that the macro pricing process is converging in nature, and the traditional process is not converging. I showed you those open decision points. When you reach that open decision point and there is no algorithm perceived, you do not have an iterative loop that converges. You have a loop that is nonconverging. You go around and around and do more analysis, more analysis, and it's generally a nonconverging process. When you look at things from the outset, when you compare the two algorithms, it really looks like macro pricing is a lot more work. And in one sense, it is a lot more work. Certainly the analysis is more robust. There are a lot more things to consider and a lot more computer crunching to put together a price production graph. So, definitely the scope of the analysis in macro pricing is far broader than the traditional analysis. However, it only looks like there is less work for the traditional algorithm, if you don't count going on the loop 15 times, because when you actually do find yourself in that looping process, back to the drawing board, again and again and again, with no real method, no real focus as to where you're going to go and you add up all that work, I think it generally turns out to be more. It certainly turns out to be a longer time frame from front to back. Another advantage, just between us actuaries, is that macro pricing is more fun. So even if it were a little more work, it's worth exploring.

As for the process itself, the traditional process is political. It is carried by political means; it ends through political means. Because of the fact that the economic analysis is not there to optimize, it really comes down to who has the power in the company, and I don't think that is particularly healthy. Macro pricing lays the economics out on the table. All decisions are made by both parties. And that's a very healthy change in incentives.

The conclusion of the two algorithms? Macro pricing concludes internally. Simply by virtue of the presentation of the analysis, there is a natural conclusion to the process. It makes the decision very difficult for marketing, but it lays out all the parameters for the decision, and it puts people in a position where they can't avoid making those decisions. Traditional algorithm usually deals in external factors. The fact that the process tends to go round and round in a loop until you reach a point where it just can't take any longer, because of some external factor, like an agent convention or like the fact that several years ago you might have been in a situation where your 1958 CSO product has to come off the market in three weeks and you pretty much better have something. The external factors are what drive the conclusion of the process.

## FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

The shifting of incentives is also very important. With traditional algorithm, the marketing department has enormous incentive to ask for a better product. They're going to be compensated based on volume, and obviously, volume is easier to produce with a cheaper price. As they ask for a cheaper and cheaper price, there's no cost involved, just the belly-aching that's involved. That's it. And if any one of us were in the position of a marketing person, we would be subject to the same incentives and be asking for the same thing. I mean with what I know about economics, if I was a marketing person in a traditional environment, I'd be brutal. I wouldn't even look at the first thing. I mean there's no sense in it. I would just say, "This is a crummy product." I mean, I don't care if it was crediting 50% interest. Obviously, my job is a little easier if I can get 60%, isn't it? And it doesn't cost me anything to ask. Well now with macro pricing algorithm, we impose a cost for that decision. If I want 60% interest instead of 50% interest, I have to cough up more production. It's not a "no brainer" anymore. There is a price I have to pay. A definite tension involved in the decision. That's very nice.

On the actuarial side, we're no longer in a position where if we can't come up with that really hot product, we look like we didn't do our job. It completely removes the antagonism effect. We are not in a position where we have to tell marketing, "You can't have that." Whatever they want to see, we'll throw in the graph. No problem. We can do it quickly. Actually it brings back a lot of dignity to the pricing actuary in this situation. It removes that sort of hero effect where your job is to somehow mystically show them their one product that beats the last one.

Another interesting thing is that when actuaries and marketing enter this process, it's generally recognized by both parties up front, even though it's implicit and subtle that there's going to be some sort of bargaining process. If both parties have equal power in the corporation, there tends to be a mutual type of bargaining process. If one side or another has control of the corporation, the bargaining process may be a little bit more one-sided, but because it's a bargaining process, there tends to be a sandbagging effect. I've noticed this quite a bit with traditional algorithm. You don't haul out your best thing first. Why? Because if you do, you have no room to move. When you reach that open decision point, you have nowhere to go. So you are maybe just a little bit more conservative the first run around, and marketing is going to sandbag as well. They're going to see the product which maybe is the hottest thing off the press that they've ever seen and they're going to talk with themselves and say, "It's not that great." This removes the sandbagging effect from the actuarial side. You have no incentive to put in some padding to be bargained away later, because you're not part of the bargaining process. It makes a nice division of responsibility.

*The whole scope of analysis is the range of production we want to look at, the range of wholesale and retail price structures. Really, that's all that is involved in there. Whatever anyone wants to see, I'll throw on the graph. It removes tension from my life. The analysis becomes my province. Decision making becomes primarily marketing and management decisions. A very nice division of responsibility. And one of the effects of this, and this dovetails very nicely with a lot of what Greg talked about, is that we have restored marketing responsibility to marketing. I've often said that with the traditional algorithm, marketing people have no incentive to do marketing. They're handed a*

## PANEL DISCUSSION

product on a cost plus basis. So our marketing people in insurance companies tend to be sales managers.

What is marketing? To me, marketing encompasses primarily study and research and conjecture into how price sensitive your products are. That's marketing analysis to me. Trying to make implied or even explicit assumptions about demand elasticity. That's marketing research. That involves many phases. It involves study, to see what's going on in the marketplace, see how people react, focus groups, the whole works, but that's marketing analysis. In the traditional algorithm, there is not much incentive for marketing people to waste time on it, because it's not going to have a big impact on the product that they get. Here we changed the culture a little bit. Now they're faced with a grid of choices and any marketing analysis that's done will help them optimize their choice on that grid. That takes a little time to change the culture, but it does change over time. We have one client in particular that has actually gone to the point of doing regression analysis of sales volume over what percentile rank they've been in credited interest rate with annuities. You know, that's very interesting stuff, and it doesn't occur in that many companies. So you tend to see a lot of natural increase in marketing analysis. It seems very, very healthy.

One of the criticisms of macro pricing method is that we're making a lot of difficult assumptions. I would say that every assumption that is made in the macro pricing process, each and every one, is being made in an implied fashion with a traditional algorithm. The disadvantage is that you don't know what the assumption is. And when an assumption is hidden, it's often easy to make an assumption that is not very high quality, maybe even absurd. Sometimes when we uncover these subjective assumptions, we find out that absurd assumptions are being made. We're going to make some good subjective assumptions about sales volume. When you take subjective assumptions and make them explicit, the level of scrutiny of these assumptions rises, and I think the quality of the result in assumptions rises as well. Let's just focus on what's really important. I think it's another very positive effect.

Now how about the overall streamlining effect? First, I think I'm convinced here in 1990 after going through this a number of years, that with the macro pricing algorithm, we do have the maximum chance of reaching the best results. That doesn't mean that we will reach the best results. We just have the best chance of it, and that's all we can do in business. To a large part, we can remove political considerations. You can't remove them entirely, because politics are always there, but when someone applies political pressure, there's a cost imposed. That's nice. You make them pay a price to apply political pressure. In the past, if a marketing person wanted to apply political pressure, he could say, "We need that lower margin. We need to credit that higher rate." It's political. Now we impose a cost. We can say, "Sure you can have that lower margin and higher rate, but you've got to deliver \$90 trillion of production an hour." We've imposed certain credibility costs to applying pressure in a political way. And last, we have sought to align the incentives of the players. We remove natural tension between the two groups and I think that makes it a much more comfortable and harmonious atmosphere in which to work.

## FINE-TUNING THE PRODUCT DEVELOPMENT PROCESS

So in conclusion, is this process quicker? Yes, I think it's enormously quicker. There is a certain minimum amount of time that it takes to go through all this, but you go through it once. You don't go through it 12 times or 15 times, and you certainly don't take as much time as is available to accomplish it. So I think overall, it's much quicker. You remove a lot of the excuses for delay in the pricing process. I guess, in conclusion, I'd say that a lot of what makes traditional algorithms slow down are the hidden or unseen stumbling blocks. It is not the steps that flow onto the pert chart themselves, but what happens when one of those steps doesn't work and everyone is shrugging their shoulders and there's nothing that can be done.

