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An Actuary Reads the Newspaper. What's Between the Lines?

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Panelists: ROBERT D. BAUS
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Summary: The panelists look at the actuarial background, financial implications, underwriting, and solvency issues posed by newsworthy items, such as:

- *A state floats a bond issue to avoid making contributions to its retirement systems. Some employee groups favor, while others oppose, this "creative" funding approach.*
- *HMOs and PPOs are expanding, going bankrupt, increasing premiums, and replacing traditional coverages for both individuals and employee groups. Are these providers in trouble?*
- *Social Security, which needs to be "fixed" itself, provides a positive infusion into the federal budget and likely will continue to do so for some years. Will the eventual "fix" unbalance the budget?*
- *Automobile insurance rates in some areas are skyrocketing and new coverage is difficult to obtain. Is this sound underwriting or a public relations problem?*
- *Insurers are denying homeowner's insurance in some coastal areas that have had minimal claims historically. Why?*

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Note: The charts referred to in the text can be found at the end of the manuscript.

- *President Clinton proposes to extend Medicare to some younger individuals on a "no-cost" basis. Has the effect of antiselection been considered?*

The panelists, knowing that actuaries are not practitioners in all of these diverse areas, discuss the subtle and, perhaps, not so subtle implications with respect to each panelist's specialty.

Ms. Mary Hardiman Adams: I'm one of the moderators, and my fellow moderator is Doug Borton. The other panelists are Bob Baus with Buck Consultants, Rob Curry with ISO, and Jim Murphy with Howard Johnson.

Mr. Douglas C. Borton: You might wonder where the title of this session came from. About 10 years ago, John Allen Paulos a professor at the University of Pennsylvania, wrote a couple of best-selling books popularizing mathematics. Because these first two books were so successful, Paulos wrote *A Mathematician Reads the Newspaper*.

In this 1995 book, Paulos wrote 50 essays on types of news stories. He feels very strongly, as do I, that the journalistic profession is missing the boat. Reporters go after the who, what, when, where, and how, but most reporters ignore how many, how likely, what fraction, and where do the statistics come from, which are really the heart of a lot of the stories involving mathematics. He also pointed out that if you're raising money for a rare disease, don't say that it strikes one in 100,000 people; but rather that 2,500 people in the United States will be struck by it annually. He goes into a number of interesting areas like this, which happen quite frequently in news stories and intentionally or unintentionally bias the issue.

Our first discussant today is Robert D. Baus. His title is national director of governmental consulting services, and he's also a principal of Buck. Bob has the usual actuarial credentials. He's an ASA, a fellow of the conference, a member of the Academy, and an enrolled actuary. He's going to talk to us today about a new technique for financing retirement plans that was adopted in New Jersey a few years ago. I don't understand it, and maybe that's because of poor reporting. At the time it was quite controversial, but I understand that both the state and the employee unions have come around and think it's a good idea. Bob will let us know exactly what went on and whether we can expect more of this type of approach in funding retirement plans.

Mr. Robert D. Baus: I'm going to talk about this concept of pension obligation bonds (POBs), which is of interest primarily in the governmental sector. This concept came about because of the relationship between current market interest rates and the funding assumptions based on expected long-term return on assets that

are used to fund the pension plans. When Doug approached me about speaking on this topic my mind went back to some of the headlines that appeared in the paper, and I thought I might share a couple of those with you as part of the presentation.

The first headline appeared on the front page of the *Bergen Record*, which is a newspaper just across the river in New Jersey. It read: "$500-million error in plan to cut pension costs. Consultant overstates savings." Unfortunately, I was the consultant who was prominently mentioned and discussed. We did, I think, ultimately convince the reporter that he misunderstood what was going on, but there was never a retraction printed. So, the problem this so-called error raises is that it's very visible to the legislature, the employee members of the plans, and, of course, to the taxpayers. Therefore, every time I go somewhere, I have to explain what this $500 million "error" was before we can get into anything of consequence.

When we get into the POB proposal, we have such headlines as: "State to incur $2.9 billion of additional liability because of the pension obligation bond issue." We took issue with that. What we're actually doing is issuing bonds to cover the unfunded liability of the retirement program. Thus, you issue the bonds and put the money into the pension plan; one obligation goes away and it's replaced by another. So the concept of it being an additional liability gave us some problems. We were semi-successful, I think, in convincing people about what was going on. Those in the finance community understood that it really was a replacement of liability, not the creation of new liability.

Another headline read: "Taxpayers to shoulder impact of largest bond issue in state history." I guess that's correct. The taxpayers are going to fund the bond issue, but we've gotten rid of the unfunded accrued liability, so they don't have to pay for that anymore. That makes the headline a bit misleading.

We've gotten through the first round of actuarial valuation since the bond issue. Milliman & Robertson (M&R) and Buck are the two consultants working on the state's programs. We saw this headline earlier this year: "Pension fund still short by $400 million." This was in reference to the Teachers' System, which I don't work on, so I'm not mentioned in this particular article. Then the following day we saw: "State unfazed by 74% rise In pension tab." This all is a result directly of the POB process, and I'm going to explain why this wasn't a surprise to anybody but the reporters for the newspapers.

Financial Analysis

To explain POBs, let me start first with the process. The idea of POBs has been around for a long time. However, as I mentioned, it works off the relationship between the funding assumptions and market rates. When the market rates are high, there's no opportunity. When the market rates are low, there's an arbitrage opportunity for a governmental unit to issue bonds, take the money and put it into the pension program, and take advantage of the difference in the interest rates to reduce costs, which increases benefit security at the same time.

Recently we've had decreases in interest rates, and in 1994–1995, one of the state's financial advisors went to the treasurer with the POB concept. Incidentally, the concept is becoming popular again, and there have been several transactions in the last couple of years, although this is by far the largest, I believe.

The advisors went to the treasurer with the concept, and rightfully, the treasurer went to the various other financial and banking organizations that advise the state. They all spent a lot of time looking at it. The state had an interesting funding mechanism for the unfunded accrued liability. It was phasing in the recognition of the cost of living adjustment (COLA) liability. The amortization period in total was stretched out over 60 or 65 years. You normally can't issue bonds for 65 years, so, the state ended up with a combination of zero-coupon bonds and some normal bonds. This way, the state was able to cover the cash flows, make them advantageous, and get the liability handled within a 35-year period.

The financial organizations spent a lot of time with the state treasurer and his staff looking at the concept from the standpoint of implications for the state in one type of economic environment or another. A great deal of analysis was done to see whether this was positive or a negative from a state budgeting standpoint.

Then the actuarial firms, M&R, Buck, and one other firm, were brought in. We did a lot of analysis of the impact on the retirement systems in different interest rate environments and different economic scenarios. We studied the implication of fully funding the system. Offhand, it sounds like fully funding the system is a positive thing. But you have to recognize that the more fully funded the system is, the more volatile the contributions become. Hence, the latter two headlines. We went from a contribution of perhaps $350 million for the total program to almost $600 million in one year, which is more than a 70% increase, but it's a relatively small cost compared with the more than $60 billion in the fund right now. The reporters can made this sound as exciting as they wanted to, but the bottom line was the treasurer's office, the legislature, the Governor, and everybody else was aware of the effect of funding the system up to the point it was funded and knew there would be volatility in the contributions thereafter.

The last aspect of the process was to go to the bonding agencies, because there's going to now be a public $2.9 billion debt for the state, as opposed to the unfunded liability under the pension systems. The bonding agencies ultimately (it took some time and a lot of meetings to explain what was going on) agreed that the POB was the replacement of debt, and it had no effect at all on the state's bond rating when all was said and done.

The actual proposal for New Jersey was to issue between $2.8 billion and $2.9 billion of debt as POBs. That money was put into the retirement systems and essentially fully funded the state's obligation under the systems. At the same time, the assets of the systems were revalued from a five-year moving average valuation method to market value. That was a one-shot change. The combination of the two changes brought the systems to full funding and, in fact, brought them to an overfunded status in terms of existing liabilities. Therefore, the state had a contribution holiday that was projected to be for one or two years.

For most of the systems it's still going on. We'll see what happens as a result of the recent market volatility, but it's actually been three years now for several of the systems. The treasurer, in his testimony, used the analogy of refinancing a mortgage. At its simplest level, that's really what was going on. We were carrying the pension obligation, the unfunded accrued liability, at an 8.75% interest rate. That was the valuation interest rate. The bond debt was issued at somewhere between 7.6% and 7.7%. So, essentially the bonds brought down the carrying charges slightly more than a full percent.

They also shortened the funding period from a little more than 60 years to 35 years. As a result, the actual cost to the taxpayers over the lifetime was a savings of about $42 billion. That was attractive enough, given the analysis that was done and the acceptability of the other risks, that the state went ahead with it. The arguments were pretty straightforward. It's not a new obligation; it's just refinancing an existing debt. And, in the long run, there is a savings of $42 billion for the taxpayers. The employees, the members of the systems, get the security of having their benefits fully funded, including future COLAs, which has always been an issue with the state. Then there's a potential for additional gains, which have actually come to be, because there's a bigger pot of assets to invest, producing bigger gains as the market goes up. Therefore, there were additional savings and the contribution holiday was extended.

Regarding that last point, in hindsight, it was a wonderful decision, but the markets could have gone the other way. That's a risk the state recognized, and we had long discussions about the implications. As things have turned out, the state has done

very well. We'll see how things run in the round of valuations next year, depending on how the markets do in the next six months.

The only other thing I want to mention is the kind of questions the state raised and the things it had to become comfortable with in order to move forward. First, can the bond proceeds be invested at a favorable rate in comparison with a bond-carrying charge? The experience since the issue has been "yes." Obviously, the jury's still out because we have a long time to go till the bonds are paid off.

The second question was whether the state could tolerate the loss of flexibility in the amortization schedule. If we fund the unfunded accrued liability, there's nothing to control.. You replace it with bonds, and you're stuck with that fixed payment. The state decided that, while it was more restrictive, it was acceptable.

The third question pertained to the impact on the bond rating. As I mentioned, the rating agencies were unanimous in not modifying the bond rating. They felt it was a replacement debt, not new debt.

The next question was the issue of contribution volatility, and a lot of analyses were performed to assess this. This was probably the biggest issue, and recognizing the potential, the state felt comfortable in proceeding.

The last question pertained to a political issue. It was whether the state could withstand the pressure to improve benefits. Once the system is fully funded or overfunded, as it was in this case, the next thing to expect is that the employees will want to use the money to provide additional benefits. We spent a lot of time with the unions, the legislature, and others, and I think everybody understood what the treasurer was trying to get at. In fact, it's been a very positive experience up until this point. As the treasurer characterized it, "It's smarter government, a win-win situation for members and taxpayers, with a significant increase in pension security." I think everybody's been satisfied with that up to this point.

Mr. Borton: Our next speaker is Robert J. Curry. Rob is a manager and associate actuary in the Personal Lines Actuarial Division of Insurance Services Office (ISO) in New York. He's a fellow of the Casualty Actuarial Society, a member of the AAA, and a chartered property casualty underwriter.

Recently there have been a number of problems with respect to cancellation of homeowner's coverage in various locations. I happen to live on the Jersey shore, and my insurance was unilaterally cancelled by a well-known insurance company, with only a 60-day notice. Fortunately, I was able to get replacement coverage that was better at a cheaper price, but not everyone was so lucky. Bob Baus said he had

about the same thing happen to him with his second home in North Carolina. Rob is going to tell us why these things happen and whether they're likely to continue in the future.

Mr. Robert J. Curry: The question I'm going to discuss is a very provocative one. Some insurers are denying coverage in some coastal areas that have had minimal claims historically. Why has that happened? The short answer is that some new technologies and methodologies have indicated to the property/casualty insurers that their old methods for pricing this type of exposure were not adequate. Let me give you some background on the history.

Chart 1 shows insured catastrophe losses that the property/casualty industry has paid from 1960 through 1994. A catastrophe is defined as any individual event—whether it's a tornado, hurricane, earthquake, or flood—that generates at least $25 million in losses to the industry as a whole. These losses have all been adjusted for inflation to 1994 dollars.

You don't have to be an actuary to notice that there's something a little strange going on. From 1960 through the late 1980s, there were very low catastrophe losses to the industry, rarely piercing $3 billion or $4 billion dollars. In 1989, we had Hurricane Hugo, which struck the South Carolina area. At the time, many people were calling it the storm of the century. It was a devastating storm and the levels of damage that people saw were totally unexpected.

Unfortunately, we had another storm of the century three years later when Hurricane Andrew hit Florida. The losses were three or four times that of Hurricane Hugo. These are events of a magnitude that the property/casualty industry had not seen since 1960. Therefore, the pricing that was done for insurance along the coastal areas was based predominantly on the experience in the 1960s. Hurricanes Hugo and Andrew sounded a wake-up call for the industry. Incidentally, the 1994 blip was not hurricane-related. That was the North Ridge earthquake that generated quite a lot of losses.

Table 1 shows the top 15 individual catastrophic events that the property/casualty industry has paid losses on. (The amounts are in billions of dollars.) We see Hurricane Andrew at the top, the North Ridge earthquake, and Hurricane Hugo. As we scan down the years, notice that, of these top 15 events through 1995, seven have happened since 1989. This chart was not updated for 1996, 1997, or 1998, but, in 1996, we had Hurricane Fran, which generated a $1.5 billion in losses. And, in 1998, we had another major hurricane. The latest estimate is that it generated $2.5 billion in losses. So, we've got two more recent events that would

bump out some of those other events from earlier years. We're seeing some unprecedented catastrophic events.

TABLE 1
LARGEST INSURED CATASTROPHE:
LOSSES 1960-1995

Rank	Year	Catastrophe	Loss
1	1992	Hurricane Andrew	16.8
2	1994	Northridge Quake	12.9
3	1989	Hurricane Hugo	5.2
4	1965	Hurricane Betsy	2.5
5	1995	Hurricane Opal	2.1
6	1991	Oakland Fire	1.9
7	1993	Winter storm	1.8
8	1992	Hurricane Iniki	1.7
9	1979	Hurricane Frederick	1.6
10	1974	Xenla Tornadoes	1.4
11	1983	Wind, Snow, Freezing	1.3
12	1970	Hurricane Cecelia	1.2
13	1989	San Francisco Quake	1.2
14	1950	Wind	1.1
15	1983	Hurricane Alicia	1.0

Methodology – Excess Procedures

To put this in perspective, I will talk about the ISO procedure, which is standard within the property/casualty industry. When ratemaking is done for property insurance, whether it's personal, homeowner's, or commercial property, historically we rely on the most recent five years of data. Those five years are given various weights in coming up with the overall indicated rate change.

For many years property/casualty actuaries have realized that, for these catastrophic-type events, five years of data is not enough. You don't want a situation where you haven't had a hurricane in Florida during a five-year period and suddenly lower your rates, only to ratchet them back up when the hurricane does come. So, we use a procedure called the "excess procedure," using a long history of experience, some 30–35 years of losses. The losses are split into what's considered normal expected losses for the year and excess losses. Typically the excess would be those catastrophic losses we see in Charts 1 and 2. By using this many-year average, you are, theoretically, getting a better picture if the historical data you're using is representative. And, we found that was not the case after Hurricanes Hugo and Andrew hit.

There are four limitations to this particular procedure, but only two that I want to concentrate on. First, the experience period, even though it was relying on 30 to 35 years' worth of historical losses, was too short. And there have been some dramatic

changes in conditions or the exposure concentration in the areas that are most likely to be hit by these hurricanes.

Chart 2 shows the frequency of intense hurricanes striking the U.S. coastline, starting from the early 1900s through the late 1980s. These are 10-year moving average points, and there appears to be a definite cycle. Meteorologists acknowledge that there is a cycle in hurricane activity, but the latter part of this chart is essentially the experience that property/casualty insurers have to use in their ratemaking to load in for these catastrophic losses.

Property/casualty insurers were using the low end of this long-term history to load in for those events happening. You'll notice how it starts to pick up a bit toward the tail-end with the emergence of Hurricanes Andrew and Hugo. Even if your insurance data were limited to only 30–35 years of experience, this base of meteorological information told you something else, that you were experiencing a lull in hurricanes. If you were looking to load into your rates what you want to be a long-term expected average, based on this data, you were most likely understating what you should have been putting in. That was the first weakness of the approach.

The second weakness had to do with the changing exposures in the areas that are most likely to be hit by a hurricane. As can be seen on Chart 3, starting in 1960, the two lines—the heavy, unbroken line tracing the population growth along the southeastern Atlantic coast and the lighter broken line showing the total U.S. population growth—have diverged. You'll notice that, from 1960–1990, the coastal area population increased nearly two-and-a-half times, whereas the U.S. growth went up about 40%.

Put aside for a second the issue of the frequency of these actual events. If you were able to adjust for the frequency and say we know what the cost of the events should have been, on a long-term average, they would then happen more frequently than we've seen. You still, however, have a situation where, if you had a hurricane that happened in 1960 and knew the losses a particular insurance company or the industry paid out, it would not be a very reliable indicator of what type of losses you would see today because of the population growth in those areas. Tied to this is the fact that the houses built along the coastline typically tend to be expensive trophy houses. That was not so much the case back in the 1960s. Therefore, you not only have population growth, but also building stock that is valued at a much higher level than at the time that the historical losses would have occurred.

Around the same time as Hurricanes Hugo and Andrew were causing problems to the property/casualty industry and actuaries were struggling with how to adjust the

traditional method, several computer modeling firms had started up. To use a worn-out phase, they were thinking outside of the box and saying let's not depend solely on insurance information. They had information from the National Weather Service on how frequently hurricanes can happen and information from civil engineers. They've done tests on what type of construction material is best-suited for withstanding high wind speeds. They developed a model that was able to simulate thousands and thousands of different hurricanes and the path that those hurricanes would take across the coastal U.S.

Consider an example of what might be happening with a model following the particular path of one hurricane. Let's say it starts out as a class 4 hurricane on a scale from 1 to 5, heads inland, loses its source of energy, and it weakens. We can follow that hurricane inland along a particular path and come up with an estimate on what the wind speed will be at every point along this track. Once you know the wind speed along the track, you can figure out what type of damage you would see at a particular location based on the type of building material used there. This model allows an insurance company to overlay its portfolio of risk over these particular paths and come up with a more reliable estimate of what kind of long-term damage you would expect from the hurricane.

In recent memory, New Jersey really hasn't been hit by a damaging hurricane, but there was a 1938 hurricane called the Long Island Express that went up the northeastern states. That's a particular event that the model would factor in. It would have a particular probability of happening in a given year. Most property/casualty actuaries involved in property ratemaking acknowledge that this is a preferable method for pricing the hurricane peril, because you are using all available information.

Business Impact

You're looking at your current book of business. You're not necessarily referring back to losses you had from a 1965 or a 1972 hurricane. You're able to superimpose your current book and see what kind of damage you will be seeing. So, once companies saw this model and started evaluating it, they realized, "Wow! We're overexposed in particular areas. We didn't realize we were writing so many houses in Spring Lake, New Jersey." All of a sudden they decided that was something they were concerned about.

There were one of two things that companies decided then. They could either try to get the price that they felt was the actuarially appropriate price for that risk or start to exit the market. Companies took different approaches to it, but this new technology has advanced the pricing of this particular risk. I've been talking solely about hurricane insurance, but the same evolution has happened for earthquakes.

They have similar technologies available to price earthquakes, although earthquakes are even more infrequent than hurricanes. The New Madrid area hasn't had a serious earthquake since the early 1800s, but the potential is there. Although insurers haven't had any losses from earthquakes in that area, they want to be able to price them, and this type of methodology can help.

The impact in some areas was great. The numbers that had come up previously were low compared to what the models were indicating. And, as far as regulatory reaction, it's been a hard sell. You've gone from a method where anyone familiar with the basics of typical actuarial methods can look at an exhibit and estimate the normal and excess losses. You can see the numbers in front of you. The computer simulation model that's modeling tens of thousands of hurricanes looks like a black box to insurance regulators. They don't understand where the numbers are coming from and don't like the results.

At my company, we've been educating regulators over the last several years, trying to get them to understand and come to grips with this method, because we feel that it's a methodology that's going to be around for many years.

Ms. Adams: We're now going to hear from James J. Murphy, the national leader of Howard Johnson & Co.'s Health and Welfare Actuarial Services team in Seattle. His team provides consulting and actuarial services to employers, associations, and members of the insurance industry throughout the United States. Prior to joining Howard Johnson & Company in 1995, Jim served as the key spokesperson for the AAA in Washington. He is an FSA and a member of the AAA. He is about to take over as the Academy's health vice-president and will chair the Academy's health practice council which monitors and provides input on potential legislation and regulation affecting health and welfare benefits.

Lately the newspapers have had a lot of articles about so-called abuses in the medical field. These horror stories appear to be primarily about HMOs. On the benefit side, for example, really sick people can't get proper care and others can't get proper preventive medicine. On the provider side, the coverage of large groups of insured people is cancelled. Some systems are declaring bankruptcy. Then you hear about overcharging by doctors. And yesterday's story was about corrupt billing practices by the management of one of the large groups. Jim, I hope you'll give us some insight to the operation of these medical plans. We're interested in what the actuary's role can be in establishing benefits, reserves, and premiums. What about the social obligation of the insurers? And what can we actuaries, most of whom I assume are not in the health field, do about it? And what can the ones who are in the health field do?

Mr. James J. Murphy: If there's one thing I learned in spades when I was at the Academy, it's that the news media love sensationalism and controversy and love to cast their articles in those terms. I want to talk about what's going on under the surface with respect to health care and health care costs that is leading to these media events. First I'm going to talk about what is causing costs to spiral upward again. We'll look at the underlying medical inflation, managed care (and I want to talk a little more about that, particularly as it might relate to social responsibility), mergers and acquisitions, technology, regulation, and competition. Then I'll touch briefly on what might be special in the Medicare situation and ultimately come back to the actuary's role.

Why Costs Are Increasing

We are seeing basic underlying medical inflation again begin to increase, and this is leading to increases in the basic underlying cost of insurance, whatever type of insurance you're looking at. We publish a trend report at Howard Johnson & Co. and, as recently as the first quarter of 1997, all types of insurance except indemnity had trend rates of less than 10%. Now we're seeing even HMO rates climbing. They were under 5%, and now they're over 6½%, approaching 7%, and climbing. So, it's not just indemnity coverage that has high rates anymore, though obviously it's still the highest trend factor and will continue to be for some time.

What's happening in underlying costs reflects the aging population in part. We've all heard that one, and that's certainly affecting Medicare. But we're also seeing specific segments of cost, notably hospital and particularly prescription drug costs, increasing dramatically in recent times and much more than anticipated by the people who are pricing these plans. That is clearly one factor underlying what the newspapers are seeing.

Let's look at managed care. Managed care has been responsible for reducing costs or at least reducing increases in costs for some time through a number of mechanisms focused mainly on cost. This focus on cost has come from a number of areas. One in particular is that most health care in the United States is purchased by employers for their employees. While employers are interested in providing good care and competitive care for their employees, they are also interested in the bottom line. The pressure they put on their carriers and providers is to reduce cost.

The initial efforts of managed care in the recent past have been to put on discounts, capitation, provider risk-sharing, gatekeepers, and a number of mechanisms—all utilization control mechanisms of one kind or another and all focused on cost. In some areas of the United States, almost everything one can do from a pure cost focus has been done, and, as they say, you can't squeeze blood out of a turnip. Therefore, we're starting to see the basic underlying medical inflation come to the

fore again because the discount mechanisms have gone about as far as they can go. This has not been totally expected by some audiences, although I hope most of the health actuaries saw it coming. But HMOs are not employing a lot of health actuaries, which is another factor we can talk about.

What we need in managed care to regain cost control may be something that will increase costs initially. That is to get the focus back on managed health and managed care as opposed to managed cost. To do that, we need an increasing focus on gathering the kind of data necessary to provide information for outcomes analysis, for best practices evaluation and analysis, and for monitoring physician quality. There's an incentive coming from employers, who are pushing the HMO buttons for increased quality, as their employees begin to get more and more dissatisfied with their health care coverage—or as they listen to the media sensationalism of a number of health care horror stories. These horror stories get a lot of attention, inside the beltway particularly.

But we can do some things in managed care with the right data, and that's where some cost issues occur. HMOs are not known for their data collection, and even when they have good data, it's not necessarily the data we need. They are now beginning to gather the necessary data, but that's going to cost money and be another factor in increasing the cost of health care in the near term. It's my belief that as we focus in more and more on managed health and get the data we need to identify best practices, measure physician quality, etc., we will begin to get better control of cost indirectly. Cost control will probably not be seen in the dramatic way it has been in recent years with the focus on discounts, gatekeepers, etc., but we will be able to not only manage care and provide quality service, but also reduce cost in a socially responsible way.

Another area affecting cost is the merger mania. In some quarters, a number of entities are trying to find those right merger partners so that they can become bigger and more national in scope. Some of the reasons for doing this are not to increase costs but rather reduce them. The ideal cost efficiency of the large entity is being able to make multiple use of basic fixed-dollar services. Unfortunately, as mergers and acquisitions have taken place, they have not fully accounted for the costs of integrating two very different entities and creating a third, very different entity. Also, some organizations have made the mistake of forgetting that health care is essentially a very local thing and tried to integrate fully into a national platform. A better approach would be to integrate those things that are common and can be taken advantage of in all sectors, but not integrate the basic providing of care, except when it comes to monitoring it and providing best practice data. Mergers and acquisitions have incurred some basic, underlying costs that people didn't

count on when they started down that path, in addition to the basic cost of financing those mergers and acquisitions.

Another area of cost is technology. Medical technology costs dollars, and we in the United States want the best technology used to provide our health care so costs go up. There has been better control of that since managed care, perhaps in making sure that the technology is used wisely and efficiently. I hope that the managed health concept will do a better job of controlling that. But I think there's a new element of technology that is going to, at least in the near term, cause cost increases, and it relates to the need for data. Technology is needed in the realm of getting the data we need to do a better job of managing care and managing health. But, even for those organizations that don't see that as the way to go, the regulators and the employers are demanding quality information. They're demanding data about plans that, quite frankly, many of those plans aren't capable of providing. And it costs money to put in the systems necessary to collect the data to provide that information.

One more element of cost is regulation. For a number of years HMOs were in limbo in terms of regulation, and now a lot of health care is provided under employer health plans protected by ERISA. But we are seeing increasing regulation providing for mandated benefits, even at the federal level. Somebody said that one of the bills introduced this past year had 300 different mandates in it. Whether it's true or not, the fact remains that some mandates were there, and mandates tend to cost money. So, we have increasing regulation providing for increasing costs. Increasing requirements for a point-of-service plan option increases cost and reduces control of physician quality. So, regulation does hurt, but we're going to see it. It's certainly a factor in what's underlying the articles you've been seeing.

Finally, something that actuaries in almost any area have seen and always are frustrated by, is the factor of competition. There are a lot of plans competing for the medical care dollar, and in some markets they will choose to put out loss-leader plans. Then they will get the beneficiaries that require the benefits and have to pay for them, although they haven't priced them properly. They may think they'll just cancel or reduce and lose those patients anyway, but they'll probably find those same patients turning up in the HMO they just acquired. So, they aren't going to get away from them.

Competition is a major factor in what we've seen in the Medicare arena. For a number of districts, the Health Care Financing Administration (HCFA) formula has provided some very attractive opportunities for managed care plans to get into Medicare risk contracting. I think they went in fairly fast and didn't look at the marketplace. They produced some very attractive plans that, for many Medicare

beneficiaries, appeared to be a better deal for them. They cost less and, in many cases, provided more benefits. What the plans may not have counted on is the fact that, if they appeared to be beneficial, people were going to use them more. Increased utilization increases cost.

Medicare Population

The Medicare population is clearly the highest cost population in our country. We've seen the increasing cost trends in prescription drugs, the biggest with respect to that population. So it's not surprising that the Medicare HMOs are suddenly discovering that things are costing more and that their benefits are richer than they can afford. Then HCFA came along with revised payment plans and new formulas, and these particular areas don't look that attractive anymore. We see plans dropping out of certain areas and disenrolling beneficiaries. It's not as bad as the newspapers lead us to believe, though. As some HMOs drop out, others are coming on board. The new ones coming on board can price more realistically. They aren't prevented from doing so by current HCFA rules. Although they still have to follow current rules, they aren't in a position of raising price. They're in a position of coming in with an adequate price. There may be HMOs in place that the beneficiaries can move to, which has been the situation in most cases. The downside is that they will probably pay a little more and get somewhat fewer benefits. The worst-case scenario is that they go back into the regular Medicare indemnity plan. They aren't totally losing availability of coverage, but people have to have someone tell them what they can do. Many of these people don't understand their options, and that's one of the challenges for HCFA.

The Actuary

What can the actuary do? He or she can find a job with an HMO if at all possible. I think that would help a lot. The SOA is trying to find ways to encourage members of the health care industry, beyond our traditional insurance friends, to recognize the value of employing actuarial talent within their organizations. Helping with this new thrust of managed care, managed health, and the data systems necessary to do that is a real area of opportunity for actuaries to contribute to long-term control of health care quality and cost. Our traditional focus on adequate pricing and solvency concerns is also something that these organizations need some help with, particularly as the regulators bring to their tables more requirements for solvency and capital standards. The actuary will be helpful in dealing with that.

Finally, the actuary brings a sense of professionalism to balance the pressures from marketing. That is perhaps the most important thing the actuary can bring to the table. The actuarial profession is known for its support not only of its employers but also of its employers' customers. That's inherent in ERISA for the pension actuary. I

think it's inherent in the appointed actuary concept on the life side. And it's part of our being. That presence at the table will help diffuse some of the things the newspapers like to talk about.

Mr. Borton: Rob Curry will talk about a subject that literally reaches from coast to coast: problems with automobile insurance. I was in California the day after President Bush was elected. California had passed a referendum saying that automobile insurance rates were going to be cut 10–15%. People were calling up the talk show hosts and asking where they should go to get their money back. I suspect some of those people have never gotten their money yet. Also, last year in New Jersey, Governor Whitman campaigned on the promise of reducing auto insurance costs. According to an article in the *Asbury Park Press* on Sunday, the people who answer the phones to explain the new law admit that they don't know how it works. And the insurers are allowed to establish various rate categories. Some have 2 and some have 14. They're allowed to take into account whether the policyholder has other coverages, such as life insurance or medical insurance, with the insurer. The whole thing promises to be quite a donnybrook.

Mr. Curry: I want to talk about some of the trends and issues that we've been seeing at my company and some things we anticipate happening. In general, the personal auto claim experience over the last several years has been very favorable. For the most part, companies have been filing for decreases or delaying filing an increase. Several factors have worked to reduce losses and other factors have worked to increase the claim experience. But the offset has worked out in favor of reducing losses.

Reduced Losses

One of the main things that has helped in the claim experience is the prevalence of air bags. In 1995, only about 20% of the vehicles on the road had air bags. With each new model year, air bags are becoming standard equipment, and it's estimated that by the year 2000 that about half of the vehicles on the road will have air bags. In a nut shell, air bags are effective in reducing injuries in an accident. It winds up having somewhat of a ripple effect for auto insurance costs. Medical expenses are lower because the person is not injured as severely as he would have been without an air bag, and, if he is not injured very severely, it's less likely he will be able to file a bodily injury suit against the other driver. Typically, in a lot of states, you have no-fault coverage where you're required to cover a certain type of injury. There's usually a definition of some broken bones or dollars of medical expenses you have to exceed.

Another factor is the general trend of the baby boomers aging. Having more drivers on the road in the age group that tends to drive more safely is a favorable trend.

A lot of companies and insurance regulators are starting to crack down on fraud. There have been various reports that, for auto insurance, up to 10% of the losses are fraudulent. California and New Jersey are two states that have been very active in cracking down on fraud rings that stage accidents. These rings have four or five people in the car and cause a minor accident. Then all these people file doctor bills for months and months. The authorities have been fairly successful in cracking down on that.

For the last several years I've seen a taming of medical care inflation, although after hearing Jim speak, we'll have to keep our eye on that for the future.

Finally, a lot of major cities, such as New York, Philadelphia, Boston, have been seeing a real drop-off in auto thefts. One of the theories is that it has a lot to do with the Lo-jack antitheft system. Professional car theft rings can't tell if a car has Lo-jack, but they don't want to take the chance either. Just the fear that a particular car may have Lo-jack may cause them to stay away from some of the areas where it is available. That would be interesting to find out. I don't know how widespread the coverage of Lo-jack is and where they plan on installing it, but that's one thing we've noticed.

Increased Losses

For factors that have increased losses, it seems you can't have a week go by without seeing something else in the paper about sport utility vehicles (SUVs). They've become very popular over the last five to seven years. About 10% of the vehicles on the road are SUVs. The basic issue with SUVs is simple physics. They are heavier than a standard passenger car. If they're in an accident with a passenger car, they're going to inflict a lot more damage on that car than if the accident involved two passenger cars. Additionally, the bumper height is an issue. The SUV bumper is much higher than the bumper on a passenger car. So, whereas the bumper of a passenger car, when it's in an accident with another passenger car, absorbs some of the impact, the SUVs tend to go right up on top of the passenger cars.

This has created a trend that has increased losses, and it's something that the auto industry obviously has been hearing a lot about. However, there aren't many property/casualty insurers singling out owners of SUVs and penalizing them for their particular insurance experience. A lot of it has to do with the people who are buying the SUVs. They tend to be middle-age policyholders who may have multiple policies and tend for the most part to be safe drivers. They're not part of your book of business that you necessarily want to start turning away. So a lot of

companies are waiting to see who's going to be the first one to penalize them, and then maybe other companies will move in, too.

A related trend with SUVs is that they're fairly expensive to buy new. One of the concerns is that, when these SUVs start aging in four to seven years, younger drivers, who are already some of your more dangerous drivers, will get them used. That makes them even more dangerous. We're keeping our eye on these trends down the road.

Also, a lot of states have increased the highway speed limits. This is something that has been shown to increase the fatality rates in the states after the change and will most likely have an unfavorable effect on claim experience.

Future Trends

A future trend that we feel will affect the personal auto insurance experience is that a lot of states have started introducing what's known as a "graduated" driver's license for new drivers. For the first two years you are allowed to drive during the day unchaperoned, but are only allowed to have one other unlicensed driver in the car with you. You're not allowed to drive at night without being accompanied by a licensed driver. Typically, younger drivers have the worst claim experience, so this could work toward improving the loss experience over the next several years.

Something else that is interesting to note is the "Auto Choice" federal regulation that has been kicked around in Congress for a few years now. It's a form of no-fault insurance. In a state that has no-fault auto insurance, you're precluded from filing a third-party lawsuit against someone unless you sustain certain types of injuries in an accident.

No-fault has been successful, depending on how concrete the description is of when you can sue. For years, New Jersey had a restriction that was based on medical expenses, and it was some ridiculously low amount, let's say, $1,500. If you were in an auto accident and had medical expenses of at least $1,500, you were able to sue the other driver, and everybody knows how easy it is to run up medical expenses. In places where it's been effective, like Michigan, the policies have what's known as a "verbal threshold," where they'll specifically say that someone can only sue if the accident involved a broken bone, a spinal injury, or death.

Auto Choice is looking to broaden this program to include every state. The problem with no-fault insurance is that, typically, you can choose whether or not you want to be able to sue someone else, but you can still be sued by someone who purchased the more expensive option. Auto Choice eliminates that problem. If a state selects

Auto Choice, and you select that option, you cannot sue, except in a situation involving death or drunken driving. And you also can't be sued.

As I said, it's been kicked around in Congress for a while. There have been various studies that say it could save drivers up to 20% if it were to go forward. But there have been other studies—one by the AAA Property/Casualty Division—contradicting this figure. Some of the claims of how much this would actually reduce the losses have a lot to do with default coverage. Most people tend to go with the default coverage. You get a policy that says here's what it is. If you don't want that, choose this. This would have to be a default coverage. Otherwise, it's not clear how many people would actively choose this option, even if it meant a savings.

Other Developments

Tier rating is a program along the lines of what Doug was alluding to that New Jersey has started, and other states will probably follow. Typically the auto classification plan for a particular driver would be plotted and that particular rate would be charged. It has over 200 separate classifications, which sounds like a lot, but a lot of those classifications are at the low end for younger drivers. Differences depend on whether you're between ages 17 and 29, whether you had driver training, whether you're a good student, and whether you're the predominant driver of the vehicle. But once you get to sorting out drivers between ages 30 and 50, there's not a lot of differentiation in your standard class plan.

A lot of companies have realized that they don't necessarily want to write everyone between the ages 30 and 50 at that particular rate. Tier rating allows them to slot drivers, based on different criteria, to a particular tier plan within their company. For example, if you've had a ticket within the last three years, you go to tier 2. If you have a clean record, you go to tier 1. If you're an inexperienced driver, you go to tier 5. It's a way to get some flexibility into the rating. It does cause some dislocation when a company first introduces it.

There's also a trend toward "bare bones" policies. Uninsured motorists are a problem in a lot of states where auto insurance is expensive. New Jersey has come out with a no-frills policy to help some of the people who want to do the right thing. They want to buy insurance, but they just can't afford a full-blown package of coverage. This insurance will allow them to get a minimum amount of coverage for a more reasonable price.

And there's a trend toward reviewing the same credit reports that a lot of property/casualty insurers are using. At first glance, it's hard to see the connection, but they're using credit reports when underwriting personal auto insurance, and a

lot of companies swear by it. They say they are able to correlate the credit worthiness of a particular applicant with his accident experience as a driver. The NAIC has been looking at this for several years and has some real problems with it. It hasn't disallowed the practice, but is still investigating it.

Mr. Borton: Bob, what they did in New Jersey is a play on interest rates, valuation assumptions versus the yield on the bonds that they're paying. Has that led you to adjust the valuation interest rate?

Mr. Baus: No, actually they took the bond proceeds and, over about a six-month period, brought them into the same investment policy that they were using for the balance of the assets. So the system was better funded, but the investment mix remained about the same.

Ms. Adams: I'm going to ask Jim to pull out his crystal ball. Where do you see the best market for good medical insurance?

Mr. Murphy: Do you mean, as a provider or carrier, where do I market my product?

Ms. Adams: Yes. Where can you most effectively provide the best coverage for the general person—probably he or she who can pay the highest premium?

Mr. Murphy: That's a tough one because medical coverage and medical care are so regional and local. You start getting into concepts of cherry-picking in terms of underwriting. More and more it's difficult to pick your business, and you can't use underwriting as you used to. Also, there'll be limitations on genetic testing and all sorts of underwriting limitations as well.

Probably the group market is better than the individual market because you have the law of large numbers working for you. In the individual market, you're more apt to get antiselection, and it's getting more controlled. There are things happening, such as the Health Insurance Portability and Accountability Act of 1996. Portability would require you to offer individual coverage to people coming out of group plans. Now, there's a clear possibility for antiselection, and cost increases. Unfortunately, the people providing individual coverage can't necessarily avoid the requirement to offer that coverage, but, again, that's another factor.

Keeping the pencil sharp on individual coverage is not a bad idea, though. There are some in policymaker situations who would like to see health care shifted totally away from the employer, which would probably eliminate group insurance, unless you find ways of doing it as work site marketing of individual coverage or

something like that. And some employers would just as soon see that happen as well.

Ms. Adams: If group coverage disappears, will individual coverage be available to all who want or need it?

Mr. Murphy: That's the other side of the coin. If that happens, some kind of individual coverage will have to be available in some mandated form. I suspect that getting our pencils sharp now for such a product in the future might not be a bad idea.

It's hard to define a good market because it's such a complex marketplace. If you're a reinsurer, I can probably say employer stop-loss still looks like the best market for a reinsurer to cover. On the other side of the coin, provider access still is worrisome. Straight first-dollar coverage depends on how you do it and what kind of protections you can have, but you can make money. We are seeing the stop-loss market seem to get harder again. It may be possible for carriers to make some money where recently they've been losing some money. Some carriers are pulling out because they've been losing money. Others are thinking of getting back in because they see that the market's getting better again. So, that might be an area of opportunity.

Despite the group of people who want to get rid of employer plans, I don't think that's really going to happen. The employer focus for insurance or health care coverage in the U.S. is probably a fairly long-term thing for us, barring some major change to national health care. For a reinsurer, or an insurer for that matter, doing direct stop-loss coverage is not a bad way to get health risk in a fairly straightforward manner.

Ms. Roberta Canfield: I have a question for Rob. I was interested in the way you were pricing the hurricanes' incidence. What effect does that change have on reserves and valuation, and how do you carry it over from year to year? It seems like you're pricing for a higher level, but for many years that's not going to come to pass. I assume you're saving more of that money for future claims. Are you? And how?

Mr. Curry: Currently in property/casualty accounting, you're not allowed to reserve for future catastrophic events.

Ms. Canfield: That's what I thought.

Mr. Curry: The event hasn't happened, so you can't have reserves for it. The pricing is reflecting the long-term average. So, if it's a particular hurricane, and you think it's going to be a 1-in-100-year event, in theory, you should be getting 1/100th of the money each year and putting it in reserves. That is part of a lot of regulators' concern with the model. They say, "Okay, fine, maybe we understand the model, but where is the money going?" If it's a publicly traded company and they're paying out dividends, who's going to say in that 99th year when a hurricane does happen that the money's going to be there? In European countries, it is standard to allow companies to set aside reserves for catastrophic events, but here you can't explicitly do that.

Mr. Graham Cox: I have a question along the same lines. Aside from reserving, it seems to me, in those situations when you're pricing in what turns out to be a good year, that you should be accumulating some sort of policyholder value that should be recognized in the event that the policyholder terminates before the catastrophic loss occurs. Otherwise, you're really doing that policyholder a disservice and subsidizing across generations of policies.

Mr. Curry: Yes. Maybe the distinction is that, with property/casualty insurance you're selling a one-year term policy, and, therefore, while as a book of business, the company should be looking to maintain the proper reserves, on an individual basis, there's no guarantee that a policyholder will continue on your books. It's not like term insurance, where you're buying a 15- or 20-year term. It's a one-year term. At my organization, we're involved more in the ratemaking aspect of it. I probably should have mentioned up-front that we don't sell insurance. We're a provider of data to property/casualty insurance companies, and the reserving side of it is something that companies deal with on their own basis.

It's something that I'm sure regulators are looking at closely. In fact, when property/casualty insurers file their annual statements, they're now required to fill out certain forms saying that they've used the computer simulation model on their book of business, and here is the 1/100th maximum year loss they would expect from a particular event. That at least gives the regulators some idea of how that particular company is exposed. They can then evaluate if they think the company has enough surplus to support those kinds of future losses. Again, the company can't explicitly put it in as a reserve. Some larger companies do explicitly split out some catastrophic funds, but they don't get the tax benefit of that on the income statement.

Mr. Frank Cassandra: Is the reason many insurers are choosing to withdraw from the market or reduce their exposure the fact that they cannot set up extra reserves?

Mr. Curry: That could be part of it. Also, the rating organizations, A.M. Best, Standard & Poor's, etc., are taking a real close look at this. They would probably not give a particular company their highest rating if they saw that a particular type event would take up 20–30% of its surplus. This has definitely happened with some of the regional writers who were concentrating in Florida or in Missouri or Tennessee near the New Madrid earthquake zone. All of a sudden, these models are telling them if the event happens, they're insolvent. So they had to step back, and it's not even a price issue anymore. They couldn't possibly charge enough for the book of business they have to be considered solvent. I think you're right. Charging the actuarially correct price may not always solve the problem.

Mr. Borton: I noticed that in the new budget that there is a lot of money going in for emergency relief and so forth. Does that encourage people not to have insurance?

Mr. Curry: Yes.

CHART 1
INSURED CATASTROPHE: LOSSES 1960-1994

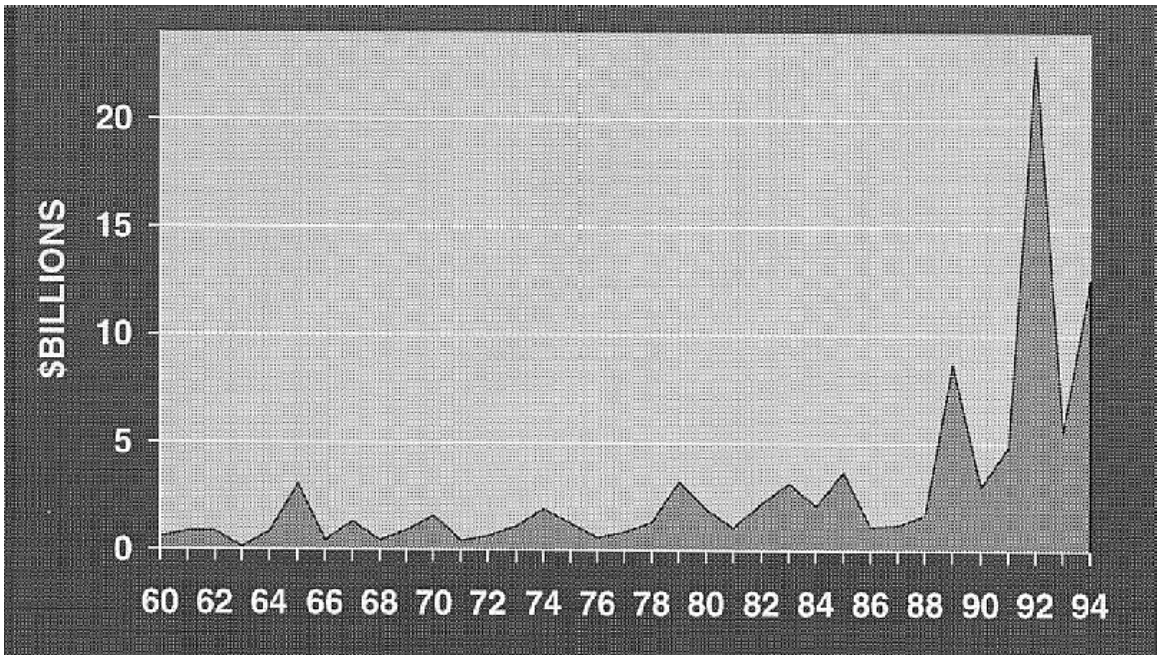

CHART 2
HURRICANE HISTORY: FREQUENCY OF INTENSE HURRICANES

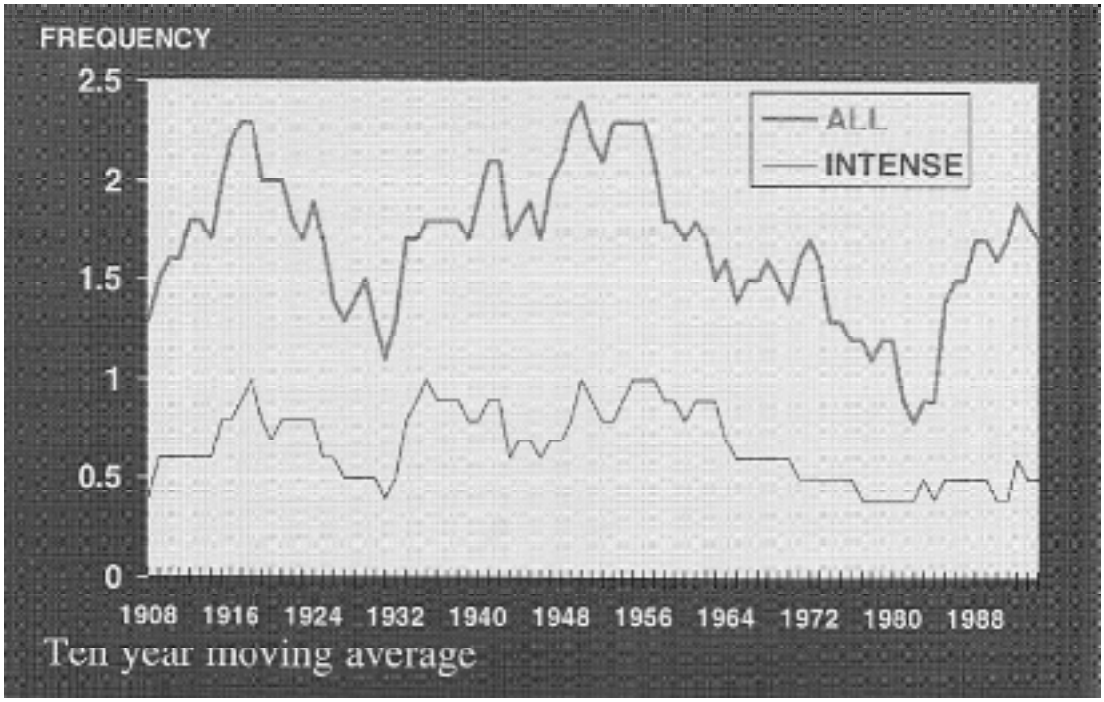

CHART 3
GROWTH IN POPULATION DENSITY