

**RECORD OF SOCIETY OF ACTUARIES
1990 VOL. 16 NO. 4A**

**FOCUS 2000: NONTRADITIONAL
ACTUARIAL PRACTICE IN THE YEAR 2000**

Moderator: FREDERICK W. KILBOURNE
Panelists: JAMES C. H. ANDERSON
NICHOLAS BAUER
ROBERT V. DEUTSCH
Recorder: FREDERICK W. KILBOURNE

- o What new businesses and nontraditional practice areas will the actuary work in by the year 2000?
- o What are the critical external factors that are creating these opportunities?
 - Financial service industry problems
 - Management versus shareholder tensions
 - Politician versus taxpayer tensions
- o What will these business and practice areas require in terms of:
 - Education
 - Experience
 - Society of Actuaries planning
- o How can the actuary prepare to work in these areas?

MR. FREDERICK W. KILBOURNE: Focus 2000 program, a program of the Task Force on the Future of the Actuary. It specifically deals with nontraditional actuarial practice in the year 2000, and beyond I assume. This area, nontraditional actuarial practice, is to be the primary focus of the task force over this coming year. The survey form that has been passed out to you, and that is being passed out to all Focus 2000 sessions, deals specifically with nontraditional actuarial practice. I hope you will fill out the forms. To impress on us just what it is we will be talking about, I'd like to go through the program. We are to talk about the new businesses and nontraditional practice areas that the actuary may work in by the year 2000. What are the critical external factors that are creating these opportunities, such as financial service industry problems, management versus shareholder tensions, and politician versus taxpayer tensions, which we've seen a lot of in recent weeks? What will these businesses and practice areas require in terms of education, experience, and planning by the Society of Actuaries? And finally, how can the individual actuary prepare to work in these areas?

Now to further our focus, I have prepared an informal, and hardly succinct, program description, which is to the effect that this panel will address and answer the following question: "Does the depositor, the shareholder, the taxpayer, need a friend when the banker, the manager, the legislator spends his/her/its hard earned, or ill gotten, money on left brain, right brain, hair brained schemes, with future costs and future risks and future nasty surprises that nobody's bothered to analyze? Or worse, that somebody incompetent has analyzed? Or worst of all, that somebody with an axe to grind has analyzed? And could, or would, or might the actuary be that friend?"

PANEL DISCUSSION

Well, with that as the challenge, we have a distinguished panel which includes Jim Anderson, recently retired from Towers Perrin and former Managing Partner of Tillinghast; Nick Bauer, Consulting Actuary and Partner of Eckler Partners; and Bob Deutsch, Senior Vice President, CFO, and Chief Actuary of Executive Reinsurance Company. But there's really a much wider group before you than it may appear at first. We have two each of Fellows of the Society of Actuaries, Associates of the Society of Actuaries, Fellows of the Casualty Actuarial Society, Fellows of the Canadian Institute of Actuaries, Fellows of the Conference of Actuaries in Public Practice; several members of the American Academy of Actuaries; four consulting actuaries; four cousins, two of whom have cousins on the panel; two who are doing their part to solve the Social Security problem by having wives who are great with child; one native-born Canadian; two New Yorkers and a Hungarian; and a representation of the entire political spectrum of North America, from two steps to the left of Joseph Stalin to a league to the right of Genghis Khan.

MR. ROBERT V. DEUTSCH: It is a pleasure to speak to you here in Florida.

I'd like to start with some trends that I see in the insurance industry, and then move on to how actuaries can profit from these opportunities. First of all, global companies will become dominant. The proportion of the world insurance market represented by U.S. risks is declining. According to Alexander & Alexander, the U.S. premium is down from over 50 to 42%, and is expected to go to 38% by the year 2000. The EC (European Community) population of 325 million is 15% larger than the Soviet Union, 35% larger than the U.S., and 150% larger than Japan. By the year 2000, Europe will have 32% and Asia will have 23% of the insurance market. Now, I know you're probably all fed up hearing about EC and 1992. Many of us now think that EC stands for endless conferences. But other than AIG and CHUBB, U.S. companies are ill-prepared to serve global markets or compete overseas against foreign competitors. On the other hand, foreign competitors are increasingly becoming significant in U.S. markets. Witness BAT's takeover of Farmer's and Allianz's acquisition of Firemens Fund and others. Surely, the opening of the EC borders in 1992 was a factor in the acquisitions of BMA and Firemen's Fund. Foreign companies do have an advantage with respect to accounting and tax treatments, particularly with respect to good will. Similar to the banking trends we see, based on market capitalization, the U.S. has only seven of the top 25 and three of the top 10 insurance companies. Those three are AIG, General, and Aetna.

I should also note that strong U.S. companies will get stronger, while poor performers will diminish or die. The market share of profitable companies such as GEICO, AIG, and USAA has increased, while the market share in capitalization of the multi-lines has diminished. And that was prior to last week's trashing of Traveler's. Certainly, there is room for some specialty niche players. But I think too many companies fool themselves into thinking they're operating in a niche, when rather they are just a commodity player. State regulation has historically been a barrier to mergers and acquisitions (M&A). But note that McCarran Ferguson is showing signs of cracking and state regulation is getting weaker. M&A could become easier. Just witness the hostile takeover attempt by Torchmark for American General. While unsuccessful, it did put AG up for auction. The Standard and Poor's (S&P) 500 earned 15.8% ROE in 1989, while the life insurance

FOCUS 2000: NONTRADITIONAL ACTUARIAL PRACTICE IN THE YEAR 2000

industry was 12.3%. Investors are frustrated, they're not satisfied, particularly if you put this on a risk-adjusted basis.

Shifting now to the employee perspective, employees do not care about insurance policies per se. They care about coverage. And here's where opportunities lie. What if we combined worker's compensation, group LTD, and group health products together and market them together? This is not a new idea at all, it's been talked about for years. But no one has done anything in it. Flexible benefits are key, especially as the employees fund more of the cost and therefore demand more choice. Speaking of cost, too much emphasis has been placed on the plus side of the equation rather than the cost side of the equation. Through typical property casualty risk management techniques such as larger deductibles, we can lower the cost of insurance products.

Financial deregulation will continue. Banks are in your business, for better or for worse, and they're here to stay. They have extremely efficient distribution systems and low commissions. Their customer base represents a captive audience. Look at Citibank, Chase Manhattan, First Interstate, First Chicago; those folks aggressively are developing products -- starting with annuities, then direct mail supplemental life and health products, and eventually long-term care. Independent agents will complain a lot, but it's really a losing cause. Insurers should offer products which justify price differences, avoid the commodity products, in recognition that bankers are not underwriters. Fidelity Investments has begun some joint marketing efforts with Monarch. U.S. Life and Fidelity Security have short-term disability products to mass market through the banking system.

Moving to reinsurance, the whole concept of reinsurance is changing. Through captives, larger retentions, pooling mechanisms, etc., risk transfer is pushed to the catastrophe layers where it belongs. We should be buying insurance for high-severity, low-frequency events. Group insurance sold on an ASO basis supports this view. The distinctions between traditional reinsurance and financial reinsurance are fading fast. In fact, when you get right down to it, all reinsurance is financial. It is simply another capital market tool, and it is used increasingly in mergers and acquisitions and to solve complicated tax problems.

Still another trend involves competition in commodity lines. To survive, you must sustain and maintain a competitive advantage. You can get that by being the low-cost operator, such as USAA or Jackson National. You can be a true niche player, such as W.R. Berkeley in Connecticut or Colonial Life. You could also have a global presence. And here, in particular, the life companies have done a dismal job of maintaining a global presence. You could also have tremendous financial strength, such as ARG or Generale, contrary to what you read in the paper about Ralph Nader's group. Life agents have done a poor job of focusing on an insurer's financial strengths. Still another way of surviving is to have products which are difficult to imitate. UNUM's group LTD is an example.

There are four strategic options that a distinguished actuary once gave in a 1986 speech to LIMRA (Life Insurance Marketing and Research Association). He talked about continued independence. And in order to do that, you have to find this competitive

PANEL DISCUSSION

advantage and maintain it. You could have a merger of equals, which is really a partial survival of each firm. You could dress up the company for sale, which is often the best strategic alternative but, as Jim says, is unattractive emotionally. The last option, status quo, is do nothing. That's a slow painful decline, and certainly the worst alternative.

Where are the opportunities for life actuaries? Well, first I should say you are at least a decade ahead of the property and casualty counterparts. To us, dividing by one plus i is a rather novel thought. You've done an excellent job of pursuing asset liability matching. But that's probably just a natural extension of pricing. I would encourage you to continue opportunities on the investment side of the business. There continues to be a need for more emphasis on overall business issues, such as planning, strategic direction, distribution systems, and general management. More work could be spent on product development and marketing, with a focus away from commodity products. Health care opportunities abound. Health care expenditures are a large and growing percentage of the GNP. This year they're 12% of GNP. By the year 2000, 16%. Consider the opportunities in HMOs, PPOs, and the next generation. It's likely that the government will shift more health care costs to insurers, individuals, and businesses. Just witness the recent budget agreements to cut Medicare and Medicaid. Actuaries could take the lead in anticipating such trends and establishing profitable ways of dealing with them.

Regarding demographics, the proportion of the population between age 35 and 54 years is growing rapidly, and that of over age 54 is growing moderately. Where is it coming from? It's coming from the age group between 25 and 35 years. As the population ages and becomes wealthier, actuaries should develop products which cater to the increasing demands for financial, retirement, and estate planning. Demand for ordinary and group life products are slowing down. Consider foreign assignments, such as London or Japan. As the actuarial field becomes more saturated, in fact, Nick told me that 4,000 students sat for Part One recently. Consider careers in reinsurance, as well as reinsurance brokerage. There will probably also be a growth in the consulting areas, although that is getting increasingly populated. Due to technological improvements, it takes fewer company actuaries than it took 10 years ago. Also, you could consider other industries. Morgan Stanley has seven actuaries. Chase and Citibank each have an actuary. Utility companies could use actuaries to help define the rate base, as well as to use queuing theory. Also, I think as compensation issues are addressed, I would expect to see more actuaries in regulation and in education.

To conclude, the SOA has 11 groupings of actuaries, up from roughly four not long ago. Now there are eight special interest sections. I would estimate that by the year 2000, each of those numbers should probably increase by 50% or more.

MR. NICHOLAS BAUER: Bob has given us an excellent overview of the major forces driving the evolution of the insurance industry into the 21st century, and he has pointed to some of the emerging -- and disappearing -- fields of activity for actuaries as a result.

What I would like to do is to extend the analysis to the noninsurance financial industry, both private and public, and see what the future might hold there.

FOCUS 2000: NONTRADITIONAL ACTUARIAL PRACTICE IN THE YEAR 2000

Before looking at specific developments, it is useful to review the North American and global trends that are and will be defining the environment in which financial services will have to operate. I see these: globalization, deregulation, population aging, and the relentless pressure of technology.

One could even say that there is only one superforce shaping our future, all else being derivative. Technology is that force. It empowers communication and computer networks to gather, create, analyze, and transmit information, thus shrinking the globe. Medical technology is directly responsible for the relentlessly increasing proportion of elderly in the population, and so on.

The pace of technology is making old and tried methods of organizing and managing human societies increasingly unable to respond to new circumstances. Deregulation, then, is to a large measure simply the recognition that the old rules won't work for the new circumstances. New rules are needed. It's truly unfortunate that only in this area does the pace of change seem slower than ever, leaving one too often with a feeling that Congress, or Parliament, fiddles while the country burns.

Lest one be perceived too harsh in one's criticism, let me hasten to add that I have every sympathy for the incessant and conflicting pressures and demands that the average lawmaker is subjected to. The problem may be the system, may be the process, or it may be the traditions of an earlier age. Whatever the cause, the effect is increasingly difficult to live with.

Let us draw a specific example from current U.S. history.

As most are, by now, painfully aware, the savings and loans (S&Ls) were created on the fundamentally faulty premise that it is possible to borrow short and lend very long if the borrowing rate is capped by law. As long as interest rates were low and stable, the system worked. As interest rates rose, technology created such easy fungibility for money that Congress had no choice but to repeal Regulation Q, lest the S&Ls be drained of funds.

At the same time, their investment powers were enhanced through deregulation, but effective new rules to control their wider investment activities were, of course, not put into place. Indeed, even day-to-day supervision of their activities became quite a lot laxer in the budget-cutting laissez faire days of the 1980s.

I won't bore you with the whole sorry litany. The point is merely to illustrate the damage to the institution, their depositors, and owners, and ultimately to the Treasury that comes from deregulation and failure of appropriate supervision and, above all, of the absence of rigorous, cold-hearted, internal risk analysis. After all, government merely created the opportunity for the disaster. Ignorance and greed created the disaster.

There were, in fact, in my opinion, two disasters. One was the damage to the S&L system itself. The other, gradually brought to light, was the enormous potential size of

PANEL DISCUSSION

the risks embedded in the Federal Home Loan Board deposit insurance system. It was obviously ill-equipped to undertake them.

Lest anyone think this lesson, however painful, was at least an isolated case, that I fear, is far from being true. The Student Loan Guarantee system is already showing signs of strain.

In Canada, two smallish bank failures have drained the Canada Deposit Insurance Fund. Worse, in several failures, including those banks, government decided to protect all depositors, creating expectations of further guarantees in case of future failures.

In the U.S., the total Federal Loan Guarantee Program, FDIC, the Home Loan Banks, the Student Loans, Fannie Mae, Sally Mae, Freddie Mac, and so on, cover about \$6 trillion worth of loans. That's approximately equal to the GNP. The state pension and insurance guarantee funds also carry huge potential liabilities. Many think the protection afforded by the latter is illusory because a major fund or insurance company failure would hopelessly exceed such fund's resources.

In Canada, there is little doubt that the CDIC could never, ever hope to cover its obligations if a major bank fails. Nor could Company Corporation, the insurance industry's private guaranteed equal, hope to cope with a major insurance failure.

So leaving the lamented S&Ls aside, how likely are such failures? Regrettably, my answer must be much more likely than a couple of decades ago.

Technology and deregulation have brought increased competition, and brought with them increased risk taking. When traditional bank customers turn instead to global securities markets to finance their capital requirements, when they expect daily worldwide cash concentration accounts, and when they will move vast funds overnight for best returns, the banks are in a completely new ball game.

Banks must invest heavily in new systems, to salvage what they can of old customers and to attract new ones, while they look for ways to replace the lost asset base. Little wonder that sovereign loans, LBO (Leveraged Buyout) funds, real estate, and construction financing, and a host of other higher-risk, and in many cases, simply high-risk activities, have found a home in bank balance sheets.

As the banks become riskier, so the exposures of the FDIC in the U.S. and the CDIC in Canada rise.

As must be becoming evident, my point is this. No one currently really understands the nature and magnitude of risks undertaken by the various guarantee systems. No one informs the legislature of the real cost of the next bailout. Within the institutions, only the more sophisticated use any kind of systematic risk analysis, e.g., asset/liability matching and default risk. Many content themselves with simple GAAP analysis, at times a very misleading tool.

FOCUS 2000: NONTRADITIONAL ACTUARIAL PRACTICE IN THE YEAR 2000

If there is an area that cries out for the systematic application of the intellectual core of actuarial knowledge and techniques, this must be one.

The Task Force on the Future of the Actuary defined that core this way. "The intellectual core of the actuarial profession is the evaluation of current financial implications of future contingent events."

It went on to elaborate the following definition to apply by 2010.

The application of experienced analysis and statistical risk evaluation, reflecting the time value of money, to measure, manage, and communicate the strategic, economic, and other financial implications of future contingent events. Common techniques used by the actuary include modeling, asset liability system analysis, and scenario testing.

I submit that future is now. The needs are acute and the opportunities are there. Actuaries are trained to analyze the impact of various risks on the asset/liability interface and the risks of the public insurance system.

Clearly, our methodologies and tools will have to evolve further. And this is the responsibility of both the individual members and the profession. Our knowledge of the asset side behavior needs reinforcing. We need to become better at drawing sound inferences from incomplete or sparse data. Time horizons are collapsing. And we have to become even more flexible modelists.

All in all, though, none are better placed to help safeguard the soundness of the private financial system and the supporting public insurance apparatuses. You know it. I know it. The challenge to us will be to go out and persuade the world of it. It will not be easy. But the rewards to us as individuals, and to the vitality of our profession, could be enormous, as could be the value of the services we render to society and to our fellow citizens.

Let me consider with you one more example of the impact of technology -- driving globalization and aging -- creating the demand for actuarial expertise.

The elderly dependency ratio is rising rapidly all over the world, barring perhaps the poorest third world countries. According to the OECD (Organization for Economic Cooperation and Development), the number of economically active persons per retired person was 7.2 in the U.S. in 1950. That number dropped to 4.9 in 1980, is expected to be 4.5 by the year 2000, and only 2.9 by 2025.

The Canadian ratios are somewhat higher, but the drop is even more dramatic, from 13.3 in 1950 to 3.8 in 2025.

The European countries, lacking immigration, are experiencing even more acute problems. Their ratios were between 3 and 4 in 1980, except Portugal's 4.9, and most will be well under 3 by 2025. Five countries -- Germany, Italy, Belgium, The Netherlands, and Luxembourg -- will have less than two workers per retired person.

PANEL DISCUSSION

Most, if not all, developed countries have made significant commitments to the elderly population in terms of retirement income and provision of medical and other services.

It does not take an economic genius to realize that unprecedented increases in the productivity of the working population will be required to fulfill the promises to the elderly without a meaningful drop in the standard of living of the worker. Otherwise, the social contract with the elderly will inevitably be abrogated. Or put more simply, if the creators of wealth are unable to create enough to fulfill the promises, then the promises will simply not be fulfilled. It's always the economically weaker who will bear the brunt, and they are, in this case, the elderly.

Recent history is not promising. Productivity increases have been slowing in the developed countries over the last 30 years -- perhaps, to a lesser extent, in Japan and Germany -- as savings rates and investment fell. Yet, if the increase in productivity is to be achieved, massive savings will have to be mobilized and deployed to create productive capacity.

In the Anglo-Saxon countries of the U.S., Canada, and the U.K., the public plans are limited and actuarial analysis is applied to them, not that the results of those analyses leave much room for comfort. The public plans are supplemented by private plans, a significant source of savings. The problems are, at least, recognized to some degree.

Most other countries possess generous pay-as-you-go plans. In France, it is legislated but run by private enterprise. Elsewhere, it is publicly run. The French system is already having serious problems, and discussions as to what to do about it occupy much time and energy. Elsewhere, the problems still tend to be swept beneath the rug or are just beginning to be recognized.

Now, what does all this have to do with North American actuaries? Well, plenty, I hope. The state of retirement financing cries out for initiatives for imaginative solutions and sound actuarial analysis in North America, and much more so elsewhere.

The emerging solutions will have to be largely in the private sector, because government's efforts are largely discredited, especially outside North America, and because funded government plans are even more dangerous, in my view, than unfunded ones. The need for actuarial input will be evident. Europe will be especially fertile ground for good old Anglo-Saxon-style actuarial thinking. It's likely to be exported via consulting organizations and following the expansion efforts of North American insurers into those markets. Government to government advice could also be a vehicle for exporting actuarial services. For the bold, I believe that opportunities will abound.

Domestically, too, actuaries should participate actively in the resolution of the challenges of elder care. By that expression, I mean to enlarge the problem from retirement income financing to encompass the creation and delivery of the full range of services required by the aging. The economics of acute-need medical care, long-term chronic care, continuing care, and the provision of retirement communities and facilities all involve the kind of risks and financial system creation and management that fall within the actuarial domain. Once again, only active promotion of our skills will ensure that

FOCUS 2000: NONTRADITIONAL ACTUARIAL PRACTICE IN THE YEAR 2000

actuarial analysis will be viewed as indispensable. We will be challenged as individuals, and we will be challenged as a profession.

While other examples of nontraditional actuarial opportunities also come to mind, and Bob listed some of them, I do not wish to abuse your patience unduly. Let me then just summarize the proposition I have tried to lay before you.

1. The relentless pressure of technology is increasing the pace of change all over the globe. It is making us more interdependent, it increases competition, it creates de facto, if not de jure, deregulation. It makes yesterday's approaches obsolete and inadequate.
2. The twin consequences are vastly increased systemic risks and vastly increased technological capabilities for dealing with change, but at much greater cost. Thus, the margin of error is reduced even as the risks are increased.
3. Many of the new and increased risks are of a kind that actuaries are accustomed to dealing with. And while our skills also need continual updating, we are in a unique position to develop, or assist in developing, new solutions.

The opportunities are there. It is up to us to exploit them. I do hope that we will measure up to the task.

MR. JAMES C. H. ANDERSON: My fellow panelists and I, aided and abetted by our able moderator, have been asked to speculate about the future activities of our profession and the consequent implications for the education and training of actuaries who will practice in the year 2000. A glance around this room persuades me that most of the people in this room will be practicing in the year 2000. To address these issues, each of us has found it necessary first to develop a vision of the environment that he expects at the close of this millennium, which is only 10 years hence.

My colleagues have already described their respective visions. Each has elected to use the "close-up" technique. In other words, they've concentrated on areas that are in close proximity to the activities of our profession. Now, rather than present a third vision of this type, which would closely resemble the other two, I decided to step back one or two paces and to present a wide-angle vision representing my expectations for the year 2000.

Most, if not all, of the forces which will shape our civilization 10 years hence already exist. What are those forces? What in the world is going on? Now, I say world advisedly. Because we, in the developed countries, are a steadily diminishing fraction of a progressively more global civilization. I offer you some suggestions:

- o The outstanding demographic statistic that is far beyond any of the rest is the continuing expansion of world population. In July 1987, the *World Population Organization of the United Nations* reported that total world population exceeded five billion persons. Ten years from now, the total will already exceed six billion, and most of the seventh billion will be aboard Spaceship Earth. In my lifetime, I've witnessed the population of the world expand from two billion to its current

PANEL DISCUSSION

levels, and confidently can foresee that it will go far beyond this. Where is this increase coming from? Practically all of the increase will arise in countries which are already poor, and which today account for more than 80% of the world's population. World population will not stabilize during the lifetime of anyone in this room, and it probably will not stabilize for at least 100 years. The outlook for world population in the year 2000 will be as grim as it is today, or even grimmer. Pressure on developed countries, and especially on the United States of America, to accept or to tolerate large-scale immigration will probably intensify.

- o In most of the poorer countries, unfortunately, the rate of wealth creation is exceeded by that of population growth. And this leads to a decline in the per capita wealth and income of those countries. Now, to achieve economic progress, these countries must export their labor, either by exporting the people or by exporting the products they make. And they must export their labor to the developed countries, and then invest the proceeds. This has already occurred in Japan, in Hong Kong, in Korea, in Singapore, and in Taiwan. Notably, these are countries with highly disciplined populations. And they share what others have called the "Chopsticks Culture" with emphasis on thrift, diligence, public education, and limited expectations. Slow progress in this direction is likely to occur in China. But in the next 10 years, little can really be expected beyond the establishment of a trend and some relaxation of the inhibiting political and economic system. Elsewhere, except perhaps in Eastern Europe and the Soviet Union, the outlook is bleak. Restraining population growth and improving public education are multi-generation undertakings that may not even begin within 10 years. The unfortunate people of these countries are likely to continue to fall victim to their own governments; extreme nationalism and religious fanaticism will be offered as a substitute for economic progress. It all sounds depressingly familiar.
- o The unexpectedly sudden changes in the political systems of Eastern Europe and the Soviet Union have transformed the geopolitical landscape. The economic consequences of all of this are less easily predicted. The road from centrally planned to market-based economies will be long and rough. Nevertheless, within the next 10 years, I would expect to see major progress. Population growth is not a problem in these countries. And the people are reasonably well educated. These people, too, may successfully emulate Japan and the others that I mentioned. Their appetite for foreign capital will be ravenous, suggesting that interest rates are likely to remain high for many years. The relaxation of political tensions promises that military expenditures will decrease in both the West, and especially in the East, with substantial benefits to all.
- o Throughout the developed world, but especially in the U.S., the general quality of credit -- personal, corporate, and government -- has declined. This deterioration of the quality of credit undermines the validity of savings backed by the assets of the borrowers. The real rate of savings, by which I mean net of ultimate defaults, is not as high as it appears to be. Now, to some extent, this result might be attributed to what I will call the "Knife and Fork Culture" with emphasis on credit, mediocrity, private education, and unrealistic expectations.

FOCUS 2000: NONTRADITIONAL ACTUARIAL PRACTICE IN THE YEAR 2000

- o The activities of one notable creditor warrant special attention. From 1950-1980, the U.S. Government was a reasonably prudent and conservative borrower. Government debt, as a fraction of GNP, declined. And it declined even more as a fraction of government revenues. Now, in the past 10 years, this has changed. Unlike the governments of the Weimar Republic and Latin America, the U.S. Government has not resorted to printing currency, like newsprint rolling off the presses. That would be too obvious. They print government securities. The resultant borrowing creates illusory wealth. There is no real wealth involved at all. But, in this special case, the borrower is in control of the value of the currency of repayment. In addition, the government has committed large chunks of future tax revenues to support promises made in the form of various social programs. The ongoing struggle in Washington today suggests that the unpleasant changes necessary to meet even the modest goals of Gramm-Rudman-Hollings will not be enthusiastically embraced by their political party. The ingredients are present for a major, extended, and worldwide financial crisis. The deterioration of credit and the deterioration of political will underlie this. The crisis could occur at any time, or never. The potential risks to financial intermediaries, and I would include in this group the sponsors of defined benefit pension plans, are enormous. No government policy adopted now will assuredly avert the potential crisis. It's already too late for sure things. No one can anticipate the event which might light the fuse. What will be the response of government? Well, among the various unpleasant options, one is likely to appeal more than others. And that one option is a deliberate policy of high inflation, intended to default on promises already made in a respectable way. In other words, the solution would be a tax on monetized assets. That would be the solution to the financial problem. Now, such a policy might even command covert, bipartisan support, accompanied by a plethora of disclamatory rhetoric. The trick is to pull it off without triggering the crisis. Within 10 years, the probability of a financial crisis seems, to this observer, to be two-thirds to the nearest third; and that of sustained inflation at an average rate of 10% per annum or more seems to be close to certainty, with or without the crisis.

If these predictions are realized, what then are the implications for the developed countries and their people, the employers and clients we serve and the actuarial profession?

- o The world population problem combined with the foreseen economic problems in the poorer countries will test the social conscience of the people and governments of the developed countries. A worldwide Marshall Plan on an unimaginable grandiose scale, which has already been proposed by the Vatican, will be taken seriously. And this will sharpen the political differences which already exist.

Consensus politics will be the likely loser.

- o The geopolitical position of the next 10 years will be based more on economics and less on ideology. The "haves" will be confronted by the insistent demands of the "have nots." Some political leaders will attempt to graft ideology onto economic self-interest. The likely result will be reduced military confrontation and increased terrorism.

PANEL DISCUSSION

- o Financial intermediaries of all types will be threatened by the potential crisis, whether or not it actually occurs. Those with limited capital resources relative to their size and the risks they have underwritten will be especially vulnerable. Further consolidation involving all types of financial institutions seems inevitable. Some insolvencies among major insurance companies will occur if the possible or probable financial crisis occurs.
- o Inflation at a sustained high rate, foreseen as a near certainty, will undercut the market appeal of traditional life insurance products. High interest rates, also foreseen, will exacerbate this trend and will also cause disintermediation problems akin to those of the 1970s.
- o Surpluses now enjoyed by defined benefit pension plans will shrink and may even become deficits. The trends towards the shelter of defined contribution plans will accelerate. The need for actuarial expertise will be supplanted by the need for administrative expertise.
- o Actuaries thrive in crisis. At least for the next 10 years, there will be an abundance of opportunities of this type. But fewer career opportunities of the traditional type will be available.
- o Successful actuaries in the year 2000 will need new or augmented skills in some areas. Actuaries have long concentrated on understanding the dynamics of the liabilities of their employers and clients. A similar understanding of the related assets, particularly including the default and market risks, is needed. This can, and this should, be included in the current education programs and examinations. It should be viewed as part of the basic education and training of all actuaries, and not as some specialized skill. Actuaries that are already qualified will also need this training. Future programs of the Society and other actuarial bodies need to feature this subject and to encourage articles on this subject.
- o Opportunities for actuaries in the year 2000 will also emerge in areas outside the traditional practice of the profession. Asset management and risk assessment are skills which are portable to other financial businesses. The needs of government for the skills possessed by actuaries will also increase the demand in that field.
- o Above all, in the period which seems likely to strain public credibility of financial institutions, defined benefit pension plan sponsors, government, and all of the professionals who advise those entities, the need for integrity and objectivity is paramount. We actuaries may wince at our stodgy image. But ours is still widely regarded as an honorable profession. The blotches on our public reputation are few. And that reputation must be guarded zealously. The guardians of our reputation are those in our professional organizations who are charged with the enforcement of professional discipline.

These remarks were prepared with considerable trepidation. They're intended to stimulate more than to inform. Necessarily, they are very subjective. And one possibility haunts me. In at least one respect, actuaries of the future will not change. They will

FOCUS 2000: NONTRADITIONAL ACTUARIAL PRACTICE IN THE YEAR 2000

continue to mine the literature of our profession. And I expect that some actuary of the year 2000, asked to participate in the program of the Society that year, might chance on the record of this panel. No doubt, some of it will provide amusing quotations in the light of the affirmative certainty of what today is mere speculation.

MR. KILBOURNE: I agree with two-thirds of what they said, to the nearest two-thirds. However, I am much less optimistic than any of them.

MR. DONALD R. SONDERGELD: My question of the panel is, in this age of specialization, Jim has suggested the actuary of the future may need to know more about investment or economic items. The Society of Actuaries is adding more investment topics as electives. But there has been serious consideration of the possibility of adding an investment track, which would be another specialty. I would like any of the panel's views on that topic.

MR. BAUER: I'll take one quick crack at it. Speaking for the Canadian Institute of Actuaries, we have formed a committee on investment practices. And one of the purposes given to the committee by Council was to encourage the formation of an investment track by the Society. But the degree of concern is very high, not only because of all the valid points that Jim made, but also because we see enhanced knowledge and understanding of investments as the actuaries' unemployment provision of the year 2000. We see traditional actuarial opportunity shrinking, both in the life insurance field and in the pensions field. We think that the core skills need to be expanded.

MR. ANDERSON: Don, I think that the actuarial profession is long overdue in taking up responsibility for the other side of the balance sheet, as it were. Step back and ask yourself, "What are we doing? What is it we're supposed to be providing to the public at large?" I think what we're doing is participating in the delivery of benefits, monetary benefits of one kind or another, that are long term in nature and it doesn't help much to say to somebody who's benefits have been lost, "Well, I'm sorry but I calculated the liabilities correctly." It has nothing to do with the eventual receipt of the intended benefit. I think that we have the fundamental skills and knowledge that can be put together to take on a more complete responsibility for the delivery of these benefits. And I feel very strongly that we should do so. I think it also enhances the opportunities for actuaries in quite a considerable way, not only in terms of the actual fields of endeavor, but potential employers.

MR. ROBERT E. WILCOX: Last year, we had an intern serving with our firm for several months who was an actuarial student from the University of Strasbourg in France. She found that the actuarial opportunities following graduation predominated within the banking system in France, with a real emphasis on the financial and investment side. I would be interested, with the international flavor of this meeting, to find out what's going on in our profession in other countries. Perhaps we're well behind in our emphasis on investments, with what we're doing in the U.S. and Canada. Because it appears that, perhaps in other places, they're already putting a very major emphasis in those areas. So I'd be interested to know what's going on elsewhere.

PANEL DISCUSSION

MR. KILBOURNE: I think that's true, and I think all of the panelists could probably respond to that. Jim, you know something about the actuarial situation in the U.K., I believe.

MR. ANDERSON: In the U.K. and in other countries which have actuarial professions that are derived from the Institute of Actuaries, places like Australia, for example, the actuarial profession has long recognized the importance of becoming involved in the asset side of the balance sheet as well as the liability side. Don mentioned that the Society is considering an investment track to fellowship. That, of course, has existed in the Institute for many, many years. So, I think at least in that branch of the worldwide profession, that their thinking is considerably ahead of ours in North America.

MR. BAUER: I would just add that France is rather a special case, I suspect, because of the very heavy influence of banks in the insurance industry in France. Also because, as I understand it, both the stock market and the services to the stock market and the fixed income markets are relatively much less developed compared with the U.S. So a lot of the fixed income research that goes on in the U.S. in the investment houses is not carried out by similar institutions in France. I think we run out of the list relatively quickly there if you look at the other European countries, and even Japan I suspect. Actuarial services in the other countries tend to be very narrowly actuarial and mathematical. And so, I think there is going to be a great deal of growth and opportunity there. And if there is anybody here from Europe or Japan who would care to correct me, I would be delighted to hear it. I'm sure that my knowledge has more holes than knowledge.

FROM THE FLOOR: I wonder how we can avoid playing God. And I'd like to ask the panelists if they can, with their prognostications, talk about how we, as a profession, can present our ideas and our work, so that we do not imply to the public that we are making guarantees. Or should we be making guarantees?

MR. DEUTSCH: Well, I would begin by saying that when we quote probabilities, we should quote the margin of error along with them.

MR. BAUER: I wish I had a barge pole handy, to touch the question with. Clearly, there is no way that we should, or we should pretend to be, making any sort of promises or guarantees about the future. We cannot even do that in our current jobs. I can't predict the persistency rate for next year, never mind the next decade. I think we can, and we have a duty to point out the possibilities and the alternatives and the consequences of those possibilities and those alternatives. That's what dynamic solvency testing, which is coming in gradually in Canada, is all about. The current Canadian status is that there is a valuation actuary who says that the reserves are essentially appropriate in light of the assets. We see the liabilities as merely that proportion, if you like, of the assets that must be set aside, together with future premium and investment income, to satisfy the obligations. We cannot conceive of the two sides as being in any way apart. But the proposal is to go further. The proposal is to ask the actuary to look forward over a five-year time horizon and to look at various alternative scenarios. About 10 or 12 of them are likely to be prescribed, but actuaries will have the obligation to add others where they think their company will have particular sensitivities and to prepare a

FOCUS 2000: NONTRADITIONAL ACTUARIAL PRACTICE IN THE YEAR 2000

report to management which will say, "Here are the kinds of damage that could happen to the enterprise, depending on what is going to happen in the environment." It will not be a prediction, at all, of what will happen in the environment. It merely says if interest rates go up, if interest rates go down, if the stock market crashes, if you're going to keep writing business at a 20% per annum increase, or whatever, here are the kinds of consequences that are likely to occur. I submit that kind of thinking is wholly appropriate, within the actuarial domain, and can be and should be applied to all other financial security systems, not only life insurers.

FROM THE FLOOR: Just a follow-up; do you think we need an actuarial guarantee corporation?

MR. BAUER: If Bob's company's willing to reinsure it, yes.

MR. DEUTSCH: We sell directors and officers liability, but not to actuaries. Nick, what happens to that report that's filed with management? Can they sweep it under the rug?

MR. BAUER: No, it's also filed with the supervisory authority.

MR. DEUTSCH: I was only going to add that I think it's critical for actuaries to stand up and be counted and make sure that their reports are viewed in the appropriate light. Presentations to the board, I think, are appropriate. Certainly presentations to the audit committee. Actuaries should be part of the management team, and not just kept in the back office.

MR. BAUER: Just for clarity, let me add that this is a proposal for the future that I described. It is not currently going on. The probabilities are fairly strong that it'll occur, but probably within the next five years.

MR. KILBOURNE: I think we should make a guarantee. I think we should guarantee, in Jim's words, our "integrity and objectivity." I think that those are commodities that are in short, and perhaps dwindling, supply. We certainly don't have a monopoly on them, but we do have them to a considerable extent. That should include our telling our client, our employer, the government entity that we have been retained by, that we guarantee that we will operate to the best of our ability with integrity. We will try to add to the understanding of the long-term implications of the proposed actions, what they will be, or how to devise the proposed actions. I think we can do that. In so doing, there are many nontraditional actuarial opportunities for us that will meet the needs of the public.

MR. OWEN A. REED: Some of our companies are, right now, reasonably diversified financial institutions. For example, my own company has a substantial mutual fund operation. I guess we're up to critical mass on trust companies and so on. And yet, I haven't noticed any movement towards actuaries going into the trust company area, or the mutual fund area, and so on. I just wondered whether there has been any movement in other companies which are similarly diversified?

PANEL DISCUSSION

MR. KILBOURNE: Any response from the audience to that question? It's interesting, with all of these nontraditional applications of actuarial science, it can certainly be said that the prospective users of our services are not going to seek us out and use us, just because we say we're competent and available to the task. But they are even less likely to do so if we don't make those assertions.

FROM THE FLOOR: I'm from the U.K. There is certainly a move in the U.K. towards actuaries being applied in mutual funds and other things. And I've also found Jim's remarks, particularly on risk, interesting. I view the banks, certainly in the U.K., as being in the risk business, and not having the skills, whereas the life insurance companies are not in the risk business, and seem to have more skills. I'd be interested in what the panelists view the role of actuaries and banks will be in the year 2000.

MR. KILBOURNE: You didn't also say, but perhaps you could have, that the insurance companies are in the risk business with the skills, but they're also in the banking business, perhaps without the skills.

MR. ANDERSON: I'm going to do some guessing in responding to your question. My very strong impression is that the banking industry does not have a very disciplined pricing mechanism. I don't think that their cost structures are terribly well defined. And I don't think that they would be able to talk rationally in terms of profit objectives, other than perhaps quoting some arbitrary spread. I think that would be more or less the end of it. So I think that the actuary's opportunity in the banking field, and one might apply this to a number of near banking businesses, and perhaps even go to a wider audience than that, lie in bringing some of the systematization that is necessary for pricing purposes, for analysis purposes, in the insurance industry. I think that's one major area that the actuary could contribute to. Of course, I'm also a believer in the fact that banks are going to be selling insurance products, either of their own manufacture or of somebody else's. And there are going to be major opportunities also in the development of marketing strategies, to tie together the current activities of banks and those of what I foresee to be an insurance operation that'll be grafted onto them.

MR. BAUER: Let me just add one thought. I personally differ with you that insurers are not in the risk business. They're merely not in the mortality/morbidity risk business, largely. Any company that has 60, 70% of its assets in stocks and real estate, I submit, is very much in the risk business.

MR. KILBOURNE: Or government bonds.

MR. DEUTSCH: I would offer that I see the money center banks, as well as the regional banks, as having tremendous opportunities for actuaries. It's interesting that in March of this year, the Comptroller of the Currency said, "Fixed annuities are non-insurance for the purposes of federal banking law." So I think that we will be seeing actuaries in those fields of endeavor.

MR. DOUGLAS S. VAN DAM: And I guess my question to Bob and to anyone else is, do you see the outlook being different for the casualty actuary, as opposed to those of us in the life/health pension side of things?

FOCUS 2000: NONTRADITIONAL ACTUARIAL PRACTICE IN THE YEAR 2000

MR. DEUTSCH: On the casualty side, I see similar trends -- the shift away from risk transfer on the early levels to higher catastrophe exposure, the use of reinsurance as a capital banking tool. I see many similar trends. I would say the insurance industry, the banking industry, will certainly begin with life products. But there is no reason you couldn't buy personal auto insurance from your American Express card or through your Citibank Visa card. So I do see actuaries pursuing the PC side as well in the financial services business.

MR. ANDERSON: I have a question of the audience. Our topic is nontraditional actuarial services. Over the past generation, I've done a lot of those, narrowly defined, in other words, small steps out of the band that have gone for actuarial services over the past many years. But essentially none that have been really large leaps to truly non-traditional actuarial services, either in entirely different industries or entirely different applications of actuarial services. Have some of you done these services? Perhaps I could just wait until I read your completed surveys. But is there anyone who feels moved to tell about a truly nontraditional application of actuarial science, actuarial capabilities, they've been involved in?

MR. MATTHEW C. MODISSETT: I'm a born-again mathematician. I haven't done this, but there was an article recently about applying actuarial work to education. The general idea would be to fund students up front, then garnish a portion of their wages later. It's a totally undeveloped field, but it would be something totally new, that I would be interested in looking into.

MR. KILBOURNE: If you have access to that article, I'd be very happy to see it.

FROM THE FLOOR: I think it was in *The Actuary*.

MR. KILBOURNE: Very good. Howard, can you rescue me?

MR. HOWARD H. KAYTON: This was an attempt at a nontraditional role, but it didn't quite work out. At one point, I thought a great role would be in an underwriting profile for potential parolees from criminal parolees. I actually contacted the California Parole Department. They did have a point system, which they had carefully worked out. But there were two problems. The point system wasn't working very effectively. If you reviewed the point system, you'd realize why. They gave the most points if your first conviction was for auto theft. So, clearly, if you know of any people intent on crime, tell them go out and steal a car first and get caught. But the second problem was, they had no funding. There may be potential for people to follow up in that area.

MR. KILBOURNE: It's a good illustration. Good potential.

MR. LAWRENCE A. SELLER: A few months ago, some friends of mine wanted to buy a broken-down health club. They would have needed a loan. I helped them out. I told them the kind of membership they would need in order to start turning a decent profit. I gave them a sliding scale of what they'd have to charge various levels of membership in order to operate their business. As I read about one debt laden business after another struggling, I get the feeling that we've already missed an opportunity to stand up,

PANEL DISCUSSION

be counted, and prevent the emergence of situations which are ending up benefitting only the noncaught Milkens of the world. I wonder if anybody would concur with that opinion or if perhaps anybody has an idea as to how actuaries can penetrate these nontraditional roles.

MR. BAUER: Actually, I was going to offer a couple of quick examples myself, one current and one long past. The current one is very similar to your experience, but in this case it happened to a friend of mine in Montreal. He was asked for advice by a friend who was going to buy a ferry business. They did an analysis, and it led very quickly to the conclusion that it was a nonviable risk proposition. It turned out somebody else bought it and got into trouble very quickly. The more interesting example is actually nearly 50 years old. There was a particular plane of the U.S. Air Force, back in the second World War, that kept getting shot down with what they calculated was an undue amount of frequency. They gave this problem to an actuarial group operating within the Pentagon. What they did was to apply a very interesting statistical technique. They took the underbelly and wings of all the planes that came back from missions and looked at the pattern of holes in the underbelly. They found that of all the planes that came back, there was one particular area of the underbelly that just about never had a hole. They statistically figured that's where those that went down with undue frequency got hit. Sure enough, there was a fuel line very close to the skin of the plane that got very easily hit and ruptured. So they fixed it and the situation reverted back to normal. Now, as far as advice on how to do it, how to get to the nontraditional applications, I would say that's where the challenge is not to the Society as a whole, but to the individual members. It is a slow, step-by-step process. You must become aware of the application, and you must through personal contact, persuasion, whatever, get the first foot in the door. These kinds of situations tend to be a little like avalanches. Once it starts rolling and it gets going a little bit, and it can be seen as procuring an advantage, whether the advantage is in terms of solvency, or competition, or market nature, whatever, imitation takes over very quickly in an open capitalist marketplace.

MR. DEUTSCH: Regarding the California prison example, I'd only note that it sounds like they got their rating system from the California Department of Insurance.

MR. WILCOX: Jim, in your comment emphasizing the integrity and objectivity of the actuaries as being of paramount importance, I think that the emphasis needs to be on individual integrity and objectivity. If you read much of what's been written with regard to discipline in the various bodies responsible for policing us, there seems to be an emphasis, if you haven't done it before, you ought not to do it again. A corollary to that is, if no one's done it before, then no one ought to do it. There needs to be more emphasis on individual integrity and on developing the problem-solving skills that we pride ourselves on, and then applying those skills where they're applicable, rather than restricting ourselves to those things that have been done before. I think that the Casualty Actuarial Society, in their emphasis with the recent things in loss reserving, perhaps went in that direction. The standards from the NAIC previously, with regard to signing life statements, was that if you're a member of the Academy, you can sign a life statement without any responsibility to prove otherwise. But when the statement came out on loss reserving with casualty statements, if you had not completed that particular series of examinations, even if you were a member of the Academy, you were precluded

FOCUS 2000: NONTRADITIONAL ACTUARIAL PRACTICE IN THE YEAR 2000

from signing those loss reserve statements. It seems like there's a real deviation from an emphasis on personal integrity in much of what's been coming out in that area.

MR. ANDERSON: I have nothing of the sort in mind that the actions of the disciplinary committees might inhibit our practice. That's the furthest thing from my mind. I simply was pointing out that if a profession is to capitalize on its integrity and image, is very favorable in this profession, we have to have in place the apparatus to enforce standards. We, too, need a police force. Even Disneyworld has a police force, don't they? In the area of personal integrity and it being a personal responsibility. Sometimes we tend to get carried away. Let me give you an example that happens to offend me. I've been involved for a long time in evaluations of insurance companies. A lot of work in this field, done by many different people. I am taken aback by the fact that we are too ready to put numbers out there and to say, "This is calculated on the basis of A, B, C." Never mind that A, B, and C are totally unrealistic. We hide behind the fact that we disclose. What we really are doing is we're inviting the unwary to pick up a number that is completely inappropriate. Kind of fringe integrity that I'm worried about. We're going to offend some clients in doing so. We have to avoid it. If somebody says, "I want a number calculated on this basis," we've got to say, "You calculate it."

