

# **RECORD, Volume 22, No. 1\***

---

Marco Island Spring Meeting  
May 29–31, 1996

## **Session 62PD**

### **How Can the Finance FSA's Expertise Be Used in a Life Insurance Company?**

**Track:** Education and Research  
**Key words:** Education, Finance, Investment, Life Insurance Companies  
**Moderator:** JUDY L. STRACHAN  
**Panelists:** A. GRANT HEMPHILL  
STEVEN P. MILLER  
SUSAN B. WATSON  
**Recorder:** JUDY L. STRACHAN

*Summary: The recent development of a finance track in the Fellowship syllabus allows the student to acquire expertise in financial market, asset valuation, and investment strategies. The application of this expertise in an investment bank or financial consulting firm is easy to see. Panelists discuss actual work assignments undertaken by finance actuaries in life insurance companies.*

**Ms. Judy L. Strachan:** Our speakers illustrate ways the finance FSA and the investment track FSA can be employed in a life insurance company. Grant is a vice president and actuary at Western Security Life Insurance Company, which is a subsidiary of Indianapolis Life Insurance Company. Grant is the chairperson of the Smaller Insurance Company Section and has been active in SOA research activities. He will talk about the value the finance FSA brings to a small insurance company.

Next will be Steve Miller. Steve is an FSA and a Chartered Financial Analyst (CFA), and he works at Mutual of Omaha as its investment division vice president and derivatives portfolio manager. Steve is a member of the Investment Section Council. He's also the Education Objectives Officer for course V-480, and he's a cowinner of the 1992 Practitioner's Award from the Actuarial Education and Research Foundation. Steve will talk about the responsibilities of an investment actuary.

Last but not least is Susan Watson. Susan is vice president of finance and heads the corporate finance department, which functions include asset/liability management, financial management, projections, valuations, and reinsurance. She's with the Equitable of Iowa Companies, which is a holding company for three primary insurance companies: USG Annuity and Life, Equitable Life, and Golden American Life. Susan will talk about how actuaries can contribute in the areas of raising capital and managing risk.

Before we hear these speakers, I'd like to spend some time talking about the finance and investment topics and how they're covered in each track. This is the one-year anniversary of the investment track, which was approved last year as a separate track. It focuses on asset allocations for a line of business and on asset/liability management. It looks at issues such as, If I have money to invest, where's the best place to put it? What financial instrument should I buy to make a good return and meet my financial obligations? The mission statement for the investment track is to educate future actuaries in such topics as capital markets, financing operations, accounting, strategic planning, and investment management. The investment track has five required courses, two of which are also required on the finance track. Because the investment track is relatively new, it is closely related to the finance track, but we expect that, over time, the two tracks will evolve further apart. F-385, Financial Management, and F-585, Applied Corporate Finance, are required courses on both the investment track and finance track. I will talk about the investment courses (the *V* courses), and the finance courses (the *F* material).

Course V-480, the first investment course, is about derivatives. A primary text, which is used for two-thirds of the course material, is *Options, Futures, and Other Derivative Securities* by John Hull (3rd ed., Englewood Cliffs, NJ: Prentice Hall, 1996). Another text by David C. Shimko, *Finance in Continuous Time: A Primer* (Cambridge, MA: Blackwell Publishers, 1996), looks at mathematics underlying the models for valuing derivatives. The rest of it looks at control issues and contractual obligations for derivatives.

The next course, V-485, Advanced Portfolio Management, has a primary text that's also about two-thirds of the course, called *Modern Portfolio Theory Investment Analysis* by Edwin J. Elton and Martin J Gruber (5th ed., New York: John Wiley & Sons, Inc., 1995). It picks up where 230 left off. It takes the capital asset pricing model and the index arbitrage pricing model a step further and applies them in different ways.

The last investment course, V-595, is the newest course. It's the course that completed the investment track. It focuses on asset/liability management and has probably the most international reading list of any course on the syllabus due to

readings from the Netherlands, Switzerland, the U.S., and Canada. The first part of V-595 looks at general asset/liability management issues. The second topic is swaps and options, the fairly key instruments that you need for asset/liability management. That sums up the investment track.

Now for the finance track. The finance and investment tracks are close; how are they different? Each has a very different focus. The finance track looks at many of the same issues as the investment track, but it looks at them from an internal perspective. It addresses the issue of, if I'm a manager of a company, how do I determine what projects or products to fund? How do I figure out how to get the money I need to fund those projects? It's from the sales side—I'm a corporate actuary, and I want to sell stocks and bonds, so how do I do that? You have to know many of the same things, but the perspective is a little different. It looks at capital structure, capital raising, shareholder relations, and dividend policy. The track's mission statement is to educate future actuaries in such topics as capital markets, financing operations, accounting, strategic planning, and investment management. The Education Objectives Committee uses this statement when evaluating whether a course fits or whether a particular reading fits on the track.

The finance track also has five courses. The first two are still very insurance-oriented. That's the focus because the people on the Education Committee understand insurance the best. It's expected that the focus will broaden and evolve over time as we, as a profession, develop expertise beyond our core industry.

Course F-385 is split into two topics. The first topic is financial management and valuation of liabilities and the second topic is taxation. Valuation of liabilities and financial management looks at financial management issues and how to reserve for different types of products such as life, health, and even pensions. The second topic, taxation, is life insurance company taxation. We had a long debate at our last meeting about whether to try to broaden that beyond life insurance company taxation, but we haven't found the right reading yet. The second course in the track is either I-442 (for Canadian candidates) or I-443 (for U.S. candidates). These cover financial reporting topics for individual life and annuities, so they are very life-insurance-company-focused courses. It looks at GAAP and statutory accounting practices (SAP) from a life insurance company standpoint, and it looks at valuation actuary responsibilities.

When we get to F-580, we start to broaden. F-580 is a general corporate finance course, and it uses *Principles of Corporate Finance* by Richard A. Brealey and Stewart C. Meyers (5th ed., New York: McGraw Hill, 1996), the industry standard for a corporate finance text. It also includes readings on applications of corporate

finance. F-580 is broad, but it's also very traditional because it looks at corporate finance in a very traditional way.

F-585, in one sense, narrows the focus back on financial institutions. The first text is *The New Corporate Finance: Where Theory Meets Practice* by Donald H. Chew, Jr. (New York: McGraw Hill, 1992), and it is a little less traditional presentation of corporate finance than the Brealey and Meyers text. It brings things more up-to-date. However, the second text in F-585 is *Financial Institutions Management: A Modern Perspective* by Anthony Saunders (2nd ed., Burr Ridge, IL: Irwin Professional Publishing, 1996).

The last course, F-590, has kind of a split personality. The strategy part of it is general. We use a strategy book, *Fundamental Issues in Strategy: A Research Agenda* (Boston, MA: Harvard Business School Press, 1994), that looks at issues such as how do firms behave, why are they different, and does it matter? What is the function or value added by headquarters? What determines success or failure in international competitions? The issues are addressed from a general corporate viewpoint. The solvency management part is, again, very life-insurance-focused. It looks at rating agencies, risk-based capital, and dynamic financial condition analysis. Now that I've given you an overview of the tracks, Grant will answer the question, once you've learned all this, what good will it do you?

**Mr. A. Grant Hemphill:** If I had a job opening, would I hire a finance track FSA? Or if my best actuarial student, in effect, my only actuarial student, expressed a desire to study this track, what would I think? In fairness to you, I have to give you some background, or at least a bias on my part. I am one of those who believes that actuaries have broadly applicable skills and abilities. We have much to offer to a wide variety of employers, including banks and other financial institutions, capital project planners, risk managers, and so on. If that sounds similar to anything you've heard from the SOA leadership, I intend it to. Not all employers, in fact not all actuaries, believe this. I'd ask you to consider the actuaries who included these items in two employment ads.

The first employment ad said: "Needed, valuation actuary with recent experience in asset/liability management, forecasting, and cash-flow testing. Must be familiar with PTS and APL." A second ad said: "Need a health pricing/reserving actuary with recent experience in the mid-sized (500- to 1,500-employee) group market." The actuaries who wrote those ads clearly don't believe that we have broadly applicable skills. The SOA's message that we're trying to get out to other industries needs to get out first to our own actuaries who are in the role of hiring.

I also believe that training outside of one's current work requirements will make you more, rather than less, capable of doing that current work. Mainly, it broadens your insights. I was very impressed by Glenn Daily's March 1996 article "Beyond Option Pricing" in *The Actuary*. He suggests that we consider term insurance to be a call option on whole life. I'll not go into that, but it's very interesting. That creative view can lead to better pricing, but even more importantly, to a better understanding of how our policies meet the needs of our policyholders, better product design, and better marketing.

Do actuaries, especially the small-company actuaries, do finance work? Here's a partial list of the day-to-day activities that go on in a smaller insurance company actuarial department. Of course, we do pricing, and historically, I think we've provided many options in our policies that we did not price for. We are involved in the following activities: setting retention limits, setting target surplus requirements, advising on stockholder dividend payments, setting policyholder dividend scales, negotiating reinsurance terms, determining reserves, planning for risk-based capital, tax planning, projecting financial results, setting interest-crediting rates, dealing with rating agencies, allocating capital to companies within the corporate family or to lines within the company, advising on investment policy, evaluating capital expenditures, and so forth. A small-company actuary does many different things, and many of them are related to finance.

Concerning the most specific role for a finance FSA, and thinking about asset/liability management, the smaller company has just as great a need to have an appropriate investment strategy as any larger company. Certain regulators, in fact, have offered the opinion that the small company, which they say is naturally less sophisticated, should not be selling complex investment-oriented products. Well, I would rather argue about the degree of sophistication that you can attain in a small company than try to argue that the unsophisticated should sell complex products.

I want to make a few observations about finance theory. The beginning of finance theory was a doctoral dissertation by Louis Bachelier, which he presented in the year 1900. He was seeking a mathematics doctorate at the University of Paris, and the dissertation defense was attended by and actually supervised by the great mathematician Henri Poincaré. That excited me because he was the first to see the mathematical phenomena that eventually became chaos theory and fractal geometry. Poincaré and the others at the dissertation defense didn't like his presentation very much. He did get his Ph.D., but not with the kind of ratings that were needed to get an academic career in France in the year 1900. That paper, it turns out, has had far more influence than those mathematicians ever dreamed. It is the groundwork for modern financial theory. In the paper, Bachelier described certain

assumptions about market behavior and then argued or demonstrated that if these assumptions were true, then many well-developed statistical methods could be applied to the markets.

It's striking to me how many finance papers and finance textbooks refer to these assumptions and then acknowledge that the assumptions aren't true. Then they explain that they are going to be used anyway because it will lead to good mathematical results. This includes even the most famous papers, the Black-Scholes option pricing, Markowitz portfolio theory, and so on.

Backelier's assumptions, to which I refer, are that market price changes are identically, independently, and lognormally distributed. Modern finance theory uses other assumptions, or at least other terms, such as the weak, the semistrong, and the strong random walk theory, the efficient market hypothesis, the rational investor assumption, the assumption that there's no arbitrage, and so forth. Some of these newer terms describe conditions that would justify Backelier's assumptions. Others are more like consequences of his assumptions.

Let's consider for a moment the efficient market hypothesis. This justifies the Backelier assumptions by stating that the market considers all information and correctly sets the price for a security. It implies that you can't truly beat the market. Wall Street, of course, doesn't like this, because it is spending all that money trying to beat the market. The efficient market hypothesis advocates trying to appease Wall Street. It says that it's actually due to the efforts of Wall Street that the efficient market is maintained. Does that sound like circular reasoning? If it doesn't, I will try to summarize it in one sentence: the efficient market hypothesis requires that there be a great many smart people who don't believe it.

Another founder of all this, Milton Friedman, has said "The value of the model lies in its predictive and explanatory power, and the model cannot be judged by reference to the realism of its underlying assumptions." In other words, don't worry about the assumptions, they give good results. To that I would just add that 600 years ago they thought the Earth was flat. They had mathematical models that would accurately predict the motions of the stars and the moon and a couple of the planets through the sky. They had a good mathematical model based on the assumption that the earth was flat.

Applying the Backelier assumptions to insurance is even more problematical. I've mentioned three of his assumptions. Here are a couple of others: we ignore taxes and all tax effects. As I understand it, that means arbitrage pricing theory would imply that a term policy plus an annuity policy are equivalent to universal life, so the efficiency of the market would drive out any price difference. They must cost

the same. Actually, this just shows that the insurance market is far from being an efficient one. Some speakers have even tried to make the point that the whole insurance industry (or at least its distribution system) exists due to the inefficiency of the marketplace.

Where does this lead? Finance theory is being rapidly developed while mostly outsiders, such as mathematicians, are noting these weaknesses in the foundation. The changes that some predict will soon occur in the world of finance will be similar to what has happened in actuarial science in the last 20 years—the paradigm shift. Getting involved in finance theory at this time, therefore, is a great opportunity for a research-oriented actuary. Times of great change leverage your results.

That brings me back to the small-company actuary. Should we be getting involved in these methods when they may soon suffer the same fate as Jordan's *Life Contingencies*? The answer is, of course. That is progress, and just as with Jordan, much of the theory will survive. The actuary who is familiar with finance theory will have a greater tool kit to apply to actuarial and other business problems, and much of the actuary's work is within the realm of finance. The finance world has developed tools that could be adapted, and this could be very helpful to us. Finally, there are possibilities in the financial methods adjusted for better assumptions and adjusted to work for insurance to provide better and easier answers to some of our problems than does, for instance, multiple-scenario cash-flow testing. We in smaller insurance companies need such solutions coming from SOA research.

**Mr. Steven P. Miller:** I work in the investment department at Mutual of Omaha. We have a very large number of actuaries at Mutual of Omaha, but we only have one actuary in the investment department. I actually will talk about how an investment track FSA's expertise can be used in a life insurance company. I was at the session on the proposed education and examination changes. One of the things that I thought was very interesting about the changes is that one of the six things they consider in the core knowledge of an actuary is finance and investments. We are moving toward having actuaries be known as financial or investment experts.

The first thing I want to talk about is what an insurance investment department doesn't need an actuary for: credit analysis, real estate analysis, stock picking, economic forecasting, and traditional portfolio management. This looks like everything that an investment department traditionally does, and an actuary is not needed for these tasks. I wanted to point that out for two reasons. The first one is that occasionally someone says, "I want to get into an investment department because I want to do one of those things, and I'd like to be an actuary." I don't think that's the answer. If you want to do one of those functions, I think that a better idea is to have an MBA or an MBS and be a CFA. But the other reason, and the main reason

why investment departments need actuaries is because they don't live in a traditional world anymore. Product innovations and consumerism, which were brought about by new technology, along with demographics, have created a situation in which the investment department is in the middle of an insurance company, and for decades it has been on the outside.

A natural question is, "What good is an investment actuary?" One thing that investment actuaries are good at, that investment departments are traditionally not as good at, although they are capable, is financial mathematics. I'm even talking about things that to many people here seem relatively simple, such as interest theory. For years, investment departments were able to get along with, "Well, I have a bond that doesn't really have a specific maturity date, it has several maturity dates, but on the average it's five years from now, so I'm going to price it like a five-year bond." That isn't quite so easy anymore. Having an actuary in an investment department is very good for interest theory when we hear questions such as, What is the make-whole premium on a bond or on a mortgage? Another typical question is, I have two things that look similar and I'd like to be able to compare their yields, but I'm not sure how. These types of questions can actually take up an actuary's day, if he or she is not careful. I would suggest that anybody who wants to be an investment actuary learn how to teach rather than do interest theory; it's very valuable to the investment department.

Option pricing theory is right up an actuary's alley and it will become more so. It seems a little strange at first when we talk about arbitrage and all the assumptions of an efficient market, but actuaries have the background and the ability, normally, to do option pricing theory much more than a person who has gotten to where he or she is by understanding financial statements and accounting.

Mathematical models are what make actuaries who we are. We are very good at creating a spreadsheet or programs to look at a set of mathematical relationships. The investment world today is absolutely filled with mathematical models, mortgage-backed securities, asset-backed securities, and equity-linked notes. All these kinds of things are very detailed and can be understood only through the use of mathematical models and changing assumptions, actuaries are terrific at that. Interest sensitivity measures started out with actuaries, and they then were co-opted by investment people. Now they've come back to actuaries, who understand them better.

Duration, convexity, partial durations, and all those kinds of things are incredibly important for asset/liability management. They are understood in a mathematical context much more by an actuary than by a bond trader. The combination of a bond trader's knowledge of the market and an actuary's knowledge of the actual

measurements and the implications of the measurements is much greater than either one by itself.

Another thing that an actuary has is an insurance company perspective. There are many very special things about insurance companies that investment departments are beginning to understand make a difference. Actuaries, by training and normally by background, have an insurance company perspective and understand how an insurance company works. They understand life asset/liability management, actuarial profit measures, and cash-flow testing. They understand that cash flow is different from profit and how actions will affect cash-flow testing and understand how that will affect surplus. They understand basics of insurance company accounting, tax laws, risk-based capital, and so forth. Most of all, they have the big picture. They look at the whole company—how does this decision that I'm making affect the whole company? An investment department is in the middle of the insurance company. The investment department is making decisions that affect all these things. Who will bring up the questions? Maybe the actuary in the investment department doesn't have the answers, but at least he or she knows enough to ask the questions.

Another contribution of an investment actuary is to facilitate interdepartmental communication. I decided, after the keynote address, that I was going to change interdepartment communication to knowledge sharing. I liked that because it was a good description of one of the major things that I do in my job as an investment actuary. I facilitate knowledge sharing. I know the language, how actuaries and investment people talk. Sometimes they will use the same words and mean totally different things. I've also discovered recently that this is also true of bond and mortgage people. A call option to a bond person is the exact opposite of a call option to a mortgage person. A call option to a mortgage person is a put option.

As an investment actuary, you facilitate communication between the investment department and other groups. The corporate actuarial department is involved on the liability side of asset/liability management. The people there are involved in cash-flow testing. In our company, they're involved in the allocation of investment income and the calculation of interest investment income available for crediting. I work everyday with those people in the corporate actuarial area.

Product development is another group. We're developing products that are basically investment products. There are some things about investments that the investment departments actually know. But for years, the product development people neither had the language nor even knew what to ask the investment department. An example is the cost of options that we are giving away. The investment

department has access to estimates of the capital market costs of those things. If an actuary can describe, someone can price that option.

A third group is information services. Actuaries are natural users of technology. A great deal of data processing is done in an investment department, and yet, in an investment department, there's not usually anybody who really understands computers. Investment departments now are required to answer all sorts of surveys. Getting data out of their accounting systems or out of their analysis systems or putting them into their actuarial projection systems is a very big part of an investment department's goals now. An actuary is a good person to look at this.

Marketing is a fourth group. I have a question mark after marketing—actuaries and marketing? Most people think of actuaries and marketers as being natural enemies, such as coyotes and timber wolves. They're actually more like timber wolves and Australian dingoes; they don't even know that each other exists. Yet, marketing sells more and more of what the investment department creates. We have products such as indexed annuities and variable annuities, although those often go with mutual funds. At least the investment department understands the mutual funds. There needs to be somebody who speaks both the language of the marketing people and the investment people.

I have a good example. We created an indexed annuity. One thing that made our indexed annuity better than our competitor's was that when the index gets too high, some other companies will limit the increase in their crediting rates; this is called a cap. The marketing people were trying to put a piece together to sell that particular feature. The marketing department sent me a brochure, asking if it looked right. It said, "Mutual of Omaha offers unlimited returns." When I talked to the marketing department, the people there responded "Well, there wasn't a limit on it." Send that to an investment person, especially one who is a CFA, and the investment person will know that is not the right thing to do; it is a matter of not only legal but also ethical requirements.

How does an actuary become what an investment department needs? If you decide that you would like to work in an investment department, what do you need to do? The first and most important thing on the list is taking the core courses of the examination syllabus. If you want to be an actuary in an investment department, the first thing you have to do is be an actuary. The core courses give you a very broad definition of everything that you need to know. If you're studying, I would encourage you to study with the idea that you may have to apply this to something other than passing the test. An investment actuary sometimes needs to be more creative. Remember that things from the tests could be applied here and elsewhere,

although no one has ever done that before. I would say that the very first thing is the core courses of the examination syllabus.

You don't have to go through the investment track in order to be an investment actuary (I didn't), but the advantages of the investments track are: (1) it provides an understanding of what an investment department does; (2) it gives you a good start on learning the vocabulary that you need for communicating with the investment department; and (3) it provides training in advanced financial math, such as option pricing theory, stochastic calculus, and arbitrage pricing theory. The investment professionals know all those things are important, but they don't want to spend the time trying to learn all the math. This is a very big advantage of this new investment track. It provides an introduction and training in derivatives and other asset/liability management tools.

Another thing to have before becoming an investment actuary is broad experience. By broad experience, I at least mean working in an actuarial department—maybe even in another department—trying to find out what people other than the investment department people do. For example, when working in product development you will learn how products are developed, what kinds of things are legal, and what kinds of things states like and don't like. When working in corporate actuarial, you will learn how to do cash-flow testing and understand how asset modeling works and where the numbers that the investment department puts out go and who gets them, and what they think about them and how they are used.

Another thing that you need to do while trying to become an investment actuary is to develop an understanding of who knows what. I am the only actuary in the investment department, and the department assumes that I know everything that an actuary knows, which is not necessarily correct. I have to fool them by trying to find somebody who does know. It's very helpful that I have worked in an actuarial department; I know some of the people and what they do. I talk to them and get an idea of what they're working on. It is very useful—not just in an investment area, but in a company in general—to understand who knows what. Another thing, just as an aside, is don't pretend that you didn't get help. Give people credit, because if you don't, they will never tell you again.

It is vital to develop communications skills. Notice that almost everything I've talked about has been communicating—doing some work and communicating it to the right people. Written communication skills include all sorts of levels, from technical papers for your successor to papers for agents about asset/liability management so they sound intelligent when asked a question.

You need to develop presentation and teaching skills. For instance, on interest theory, one of the things you want to do is teach what duration means so that when people get a report, they understand what it means and won't oversell or undersell it. Teaching others is valuable for two reasons: it helps you develop teaching skills and it's the best way to study. If you can teach something, you can remember it enough to teach the person who's grading your examination.

It also helps to spend a great deal of time talking with individuals. Try to show them what the investment department is trying to do and try to get information from them for the investment department. Communication is very important. When people don't speak the same language and don't have the same terminology, communication can break down.

Finally, become a CFA. It's three years of more study. The Association for Investment Management and Research offers the examinations once a year. Each of the three examinations is six hours long. They cover portfolio management, ethics, securities regulations, and accounting. They are very broad, like the actuarial exams, and have many advantages. One advantage is that they give a nonactuarial perspective. Many of our textbooks are actually the same ones that are on the CFA examination, but they give a nonactuarial perspective plus more in-depth coverage on those investment issues. The most important thing is that it improves your credentials with investment professionals. Seeing that you're a CFA probably means more to them than your FSA. In conclusion, there is a need for a finance investment actuary in an investment department. But it's the need for the actuary of tomorrow in the department of tomorrow, communicating the way things are, not the way things were.

**Ms. Susan B. Watson:** My goal is to provide you with another perspective on finance- or investment-related jobs that you can have in an insurance company that are well suited for individuals with an actuarial background. My perspective will be a little different in that I'm from a medium-sized stock company. Some of the finance-related functions differ because of that. Our company is set up with a noninsurance holding company at the top of the organizational chart and insurance companies subsidiaries underneath that. Within the organization, I head up the corporate finance area and report to our chief financial officer (CFO). Our department is made up of both actuaries and individuals who have a corporate finance background. I spend probably half my job directly on finance-related responsibilities and the other half on what would be considered investment-related responsibilities, similar to what Steve talked about. I will spend most of my presentation focusing on the finance-related part of what I do. I thought I'd just spend a couple minutes on each major responsibility to give you a feel for what I do

and some examples of projects that you might work on in a finance-related capacity.

The first is capital plans at the holding-company level. At our holding-company level, we need to have a capital plan in place for how we're going to provide the money to support or run the company. This plan includes what combinations of debts, equity, and high-bred instruments, such as preferred stock, we're going to use for funding and within that mix, what length of instruments we want to use. If we're going to use debt, will it be short-term, intermediate, or long-term debt? Because we're a stock company, we also have the option of issuing stock to the public. The last time our company did this was in the fall of 1993. We had a debt offering in the spring of 1995. An example of what I'm doing in this area is the announcement that our company recently made an acquisition. We're acquiring a variable annuity insurance company called Golden American for \$144 million and we announced this three weeks ago. One of my projects in the next couple months is to decide how to raise that \$144 million. Will we issue debt? Will we go to the public to issue stock? Exactly how will we finance that transaction and how will that fit into our overall capital structure?

One of the responsibilities of corporate finance is to develop our capital plans. We do this every year, and it's not done in isolation. Often, we work with constraints. One of the important ones is rating agencies and what ratings we will get for the different capital structures that we may have in place. Another yearly financial or capital decision regards shareholder dividends. Our company is owned by 31.8 million shareholders who expect a quarterly dividend. One of our responsibilities each year is to develop this dividend recommendation, make a presentation to our board of directors, and get the board's approval. This is something that I worked on this spring. It involves balancing the interest of these shareholders, who want money to be paid out of the company, and balancing the interest of the company, which often has a need to retain this money internally to fund its future growth.

Another responsibility has to do with capital plans at the insurance companies. Our primary need for capital, as an organization, is to capitalize the insurance companies. The holding company has some need for money to pay things such as interest on our debt and dividends on our stock, but the majority of the money is contributed down to the insurance companies. One of the things our department does quarterly is calculate risk-based capital, making sure that our insurance companies are adequately capitalized and that we're meeting our capital plans or targets. As many of you are aware, risk-based capital recognizes the fact that some product lines and some asset classes are riskier than others and require different amounts of capital to support them. Related to this, our department works with the product development actuaries to determine appropriate capital levels or target surplus to be used in pricing, depending on different product designs and the asset

allocation they're going to use. Finally, with respect to capital at the insurance company level, we also coordinate setting the dividends that will be paid to policyholders for a block of participating business that we have.

Once we decide what our capital plans are at the holding company and the amount of capital that we want to have at the insurance companies, we need to raise that capital. In light of the fact that our company has gone to the capital markets every couple of years, this year we filed a \$300 million shelf filing with the SEC. It was a universal shelf filing, which allows us to issue any combination of debt, equity, or preferred stock at some point in the future. You file this shelf in advance of actually needing the money, so that it speeds up the process of getting review and approval by the SEC. When the time comes to draw down from that shelf, it is then a much easier process.

Our company has a short-term debt program in place. We regularly issue commercial paper and have a corresponding \$300 million line of credit with ten different banks that we work with, which provides a backstop to this program. One of our department's roles is to negotiate this line of credit, be the primary contact for these banks, and provide them with regular updates on our company. I also mentioned that we have long-term debt outstanding. Once the offering is in place, our department's role is to make sure that the dividends get paid and that we're in compliance with the financial covenants that were established when the debt was issued. The final capital-raising alternative we have is some type of equity instrument. Our department's involved in actually issuing the stock and, on an ongoing basis, setting the dividends, and also performing an analysis on our stock price, with respect to our earnings, growth rates, the industry, and peer company performance.

Another role of our department is corporate projections; this ties in with developing capital plans. We perform short-term forecasts for the next month or so, and then we also do long-term plans that extend several years into the future. This part of my job has its ups and its downs. It's a high-profile function in that senior management is always very interested in projected results, which means that accuracy is very important, as is the ability to explain deviations from the plan on an ongoing basis. It's also an interesting and fun function in that you're performing a sensitivity analysis and looking at the company under different interest rate scenarios, different sales levels, and so forth. Because we're involved in the corporate modeling, we also get involved with acquisition analysis and actually valuing the prospective transaction. An example of that function was this spring, with the transaction previously mentioned. Our department was actually involved in modeling and valuing that company.

Another function is maintaining relationships with external audiences, and I really enjoy this part of my job. It requires spending a fair amount of time on the phone, along with some travel, probably one trip a month. At a minimum, we meet annually with each of the rating agencies that rates us, those being Standard & Poor's, A.M. Best, Moody's, and Duff and Phelps. Occasionally, we'll meet with them more frequently if something significant, such as an acquisition, has occurred. I also mentioned the ten banks with which we have a relationship. Our department is responsible for being their primary contact.

We also provide support to our shareholders. Our company is owned 50% by individuals and 50% by institutions. Many of the institutions have a fairly large position in our company, and they regularly call or visit the company, and we probably deal with most of them at least quarterly.

Equity analysts also follow or research our company. They build models of our company and publish on us regularly, and they also need support that we provide as necessary. In addition to broadening our exposure and our investor base, we're always looking to add new equity analysts and new investors. Part of our time is actually spent calling on analysts who do not follow our company and prospective institutions that don't currently own our stock. We're getting our name and story out and actually marketing the company.

I won't spend much time on interest rate risk management. This is a function that's probably more typically viewed as investment-related, but it does fit in with finance as well because it deals with risk management and the preservation of capital. In our company structure, this function actually resides within our corporate finance area. We spend a fair amount of time coordinating with our product development actuaries on product design issues. All our products are interest-sensitive, and so our focus is on policyholder options and minimizing those, primarily the withdrawal options. We deal with them from a product design standpoint via surrender charges, market-value adjustments, minimum interest guarantees, and so forth. We also work with our investment department to determine appropriate asset allocations for our various product lines. We do everything we can with the product design and with the asset allocation itself. To the extent that there's still interest rate sensitivity, we utilize a hedging program to address the severe scenarios, and that is something that our department is responsible for developing and implementing.

We also manage the interest-crediting process for our products. We regularly monitor the competitive environment, not just of other insurance companies, but of other investment alternatives as well, and we recommend and work with a committee to approve credited rates on our products.

That's basically what I do. I very much enjoy the finance portion of my job. I get involved with the overall financial management of the company, and I'm also involved with most strategic decisions because they almost always have some financial implications. It's also the perfect training ground for someone interested in being a CFO.

In terms of what recommendations I would have for someone interested in finance-related jobs or in terms of what skills are important, my list is very similar to Steve's. Good technical skills are always important as is an understanding of the overall financial of the company. Also, a knowledge of corporate finance in the capital markets is very helpful, and a great deal of this information is contained in the materials for the finance track. Finally, communications skills are absolutely critical because the majority of my time is spent working with both internal and external audiences. In particular, it's important to be able to explain technical information to nontechnical people because the majority of people we work with are not other actuaries.

**Ms. Strachan:** The finance track was completed in 1992 and the investment track was completed in 1995. If the tracks existed when you were taking your examinations, how would it have helped you do your job?

**Ms. Watson:** It definitely would be helpful in my job. I didn't have the opportunity to go through the finance track or the investment track, but I've looked at the syllabus. Many of the books that are texts on that track are good. I have and keep on my desk Hull's *Options, Futures and Other Derivative Securities*. It is a wonderful book, as is *The Handbook of Fixed-Income Securities* edited by Frank J. Fabozzi and Irving Pollack (2nd ed., Burr Ridge, IL: Irwin Professional Publishing, 1986). I've either read or refer to many of the books, so it definitely would have been helpful to have that material ahead of time and to have been familiar with that.

**Mr. Miller:** When I started my work in an investment area, especially when I was studying option pricing, all sorts of people on Wall Street were developing something, and they were all developing the same thing. But they were all keeping it a secret, so that the other people who actually knew it wouldn't know what they knew. I went through a great deal of research trying to reinvent the wheel. If I had this information from the investment track, I guarantee you I probably would have either had a life or found something else new.

**Mr. Hemphill:** It's hard to think of specific examples of things I'd be doing differently if I were better educated in finance. I think the bottom line would be better insight and better overall understanding of the way in which the insurance company and the financial markets that we are participating in and marketing work.

**Ms. Strachan:** What do you find to be the most interesting part of your jobs? What do you enjoy the most?

**Mr. Watson:** I probably enjoy most working with all the different external audiences. Most of them are very well-educated, interesting people, and I always learn something from them. I also enjoy educating them on our industry and our company.

**Mr. Miller:** I like the teaching aspect part of my job, where I explain how things work and answer questions. The other part I like about my job is how much of the company that I get to see. I get to talk to lawyers and marketing people, and I don't feel like I'm stuck in a little corner somewhere, not really knowing what's going on in the whole company.

**Mr. Hemphill:** That's well said, and I agree with it. I probably like change best about my job. I'm not sure what I will be doing in the next year; it will be different from what I was doing in the last year, and I look forward to that.

**Mr. James C. Hackard:** This question is for Steve. Based on my experience with our investment department, the people there tend to be resentful of actuaries trying to mix in their business, to the extent that they become very suspicious when we start to pursue CFA exams. How do you overcome that resentment with the financial and investment professionals in your company?

**Mr. Miller:** I don't do anything that isn't listed as part of my job. I do some insurance company analysis, but other than that, I don't do many traditional kinds of things. I guess maybe we're lucky in that our investment department looks at things on a portfolio management basis. The CFA text on portfolio management is *Managing Investment Portfolios: A Dynamic Process*, by John L. Maginn and Donald L. Tuttle (2nd ed., Boston, MA: Warren, Gorham & Lamont, Inc., 1991), and John L. Maginn is my boss. One of the things that is constantly repeated in that book is to find out what the customer wants. In an insurance company, the customer is actually the liability characteristics that you're trying to fund. The actuaries are known as the people who are most likely to know what the liability characteristics are. I'm not saying that I could thrive in a situation where there was a great deal of suspicion, but the idea is to look at yourself as a customer of the investment department. Try to help them do their job. Try to say, "Well, these are the parameters that I want, and you guys go out and buy the best bonds. I'm not going to tell you that I think BA bonds are a good or bad deal, that's up to you and the board of directors. What I'm going to do is say that I think that 30-year bonds are not a good thing for a single-premium deferred annuity (SPDA) because of the following reasons."

**Mr. Aaron D. Fried:** This is a question for any of you. Do you think a finance or investment FSA can be employed at an investment bank or at another bank, or is this still fairly irrelevant and unknown?

**Mr. Miller:** It certainly is an in for those few openings for the insurance industry contacts. All the major banks have at least one actuary who works with insurance companies because of the fact that they're so into asset/liability management. That is a good job, but the problem is that they don't hire 30 actuaries, they hire one or two. I hope in the future, especially with the investment track, that actuaries may start to be considered as broader based professionals. But in 1996, I would say that the best way to get into the investment banks is with a Harvard MBA. There are occasionally job openings in the insurance industry part of it. I know a few people who have started there and then have shown that they were very good at what they did, and now they are working someplace else at a derivatives desk.

**Ms. Watson:** I agree with Steve. Many of the individuals whom I know who are actuaries at the investment banks weren't hired directly out of school. I do think it would be a benefit, if you're interested in that, to have some industry experience in what you're doing. But, as Steve said, there are usually not many employed at any individual institution.

**From the Floor:** I have a question for Steve. I'm also taking the investment track examinations. You gave us some good general information about what one does in order to do an investment-oriented job at an insurance company, but I guess I'd like to know your specific story. How did you make that jump from what's seen as being more traditional actuarial work to being that lone actuary in an investment group?

**Mr. Miller:** I actually started out working in a reinsurance company, which was a great place, because I was able to see many different kinds of products. At United of Omaha, the corporate actuarial area was given the job of segmenting our portfolios. This was in 1982, and I was hired to work with them, and I was almost an ASA at the time. Through that, I actually came to know many of the people in the investment department. As a matter of fact, I worked in the investment department for a while to get away—so that I could just concentrate on that one thing. After a while, and this is probably a good thing to do, because I was working with asset/liability management, I started getting invited to these meetings with the insurance industry experts. Because I was an actuary, I understood some of those things much better than, say, people who didn't have the background I did. They'd get these ideas from the investment houses and they would run them past me.

When I got my ASA designation in 1984, the SOA had its very first investment-related meeting. There was a workshop and everybody introduced themselves, and I was the only person in that entire room who said I worked with asset/liability management. Now, you go to an asset/liability management workshop, and everybody there works in asset/liability management. I'm not sure exactly how to tell you, because the world in 1982 was much different from the world right now, but the main thing is to get the investment department people to notice that you can understand what they're talking about. Certainly, when you're taking the investment track courses, let them know that you are studying derivative securities. If they're like many investment departments, or many departments all over insurance companies, they will say, "Well, there's a resource. We don't have resources to burn, so we might just go over and talk to you."

**From the Floor:** I have a question for Susan. You mentioned you travel around a great deal and talk to external customers. I am just interested in the nature of the discussions you have, your preparation, whom you talk to, and that kind of thing.

**Ms. Watson:** It varies, depending on the audience to whom we talk, but when it's equity analysts or investors, I normally travel with my boss, the CFO. The two of us answer questions that they may have about the company. We normally do a presentation for them. We discuss what is new and make sure they understand our products, distribution, and how we fit in the industry. We try to distinguish our company from other insurance companies and give them a great deal of financial information so that they can do a valuation and assess whether our stock is a good purchase.

A great deal of it is general company or industry knowledge because many of them aren't insurance professionals. They may be portfolio managers or analysts, but they don't necessarily have an understanding of the insurance industry. They often have questions on taxes and how that works, and what our average client looks like, to whom we are actually selling, and those types of things. A fair amount of my traveling is related to that. When it comes to rating agencies, the questions are much more specific and much more focused on the industry. They often have certain things that they want to talk about as well, so we develop an agenda or presentation in coordination with them for what we're going to be discussing at our annual meetings.

**Ms. Strachan:** Do you think that the finance or investment track is career-limiting, or do you believe it has broad applicability?

**Ms. Watson:** From the finance track perspective, I think it definitely has broader applicability. Some of the individuals in our finance department have no insurance

background. We hired someone about a year ago from a manufacturing company, who knew nothing about insurance, but he had the corporate finance and capital markets experience. Similarly, I could see someone from our department going out into another type of organization with those types of skills. I believe it has broader application.

**Mr. Miller:** Yes, I think that the investment track has a very broad application, partly because the base of the course is very broad, but also because, as I said before, I don't get stuck in one place. I work with product development or corporate actuarial. I think I could get a product development job, or certainly I could get a cash-flow-testing kind of job because I used to work for a small company, and I actually have done the cash-flow testing, along with the other stuff.

**Mr. Hemphill:** I think there was a tendency, in the past, for an actuary to do one thing for a long period of time. If you spent your first two years in health insurance, then you might have been there for a career. Certainly there were many exceptions to that; I'm one who has done many different things. I think in the future, that'll be more common. I imagine that some finance track FSAs will find themselves, in ten years, pricing automobile policies. I think that change will be more common in the future.

**Mr. Christopher G. Mighty:** I want to know if anyone on the panel is pursuing the CFA designation, and why you decided to do it or not do it.

**Mr. Miller:** I'm a CFA. One of the reasons was that I couldn't be a vice-president unless I was a CFA. Actually, I started pursuing it beforehand, and the reason that I did was because I saw the investment area as a growth area, and I wanted to understand things. For example, a great deal of ethics specifically related to securities is in the CFA program, along with financial statement analysis.

It helped me with two things: it helped me prove to the investment world that I was serious, and that I was willing to try to learn what they know. It also gave me the language. I would definitely recommend to an actuary who was interested to take CFA exam I. The CFA examinations are different; they almost all have the same subjects; they just get more intense. CFA exam I gives you—other than quantitative analysis, which you don't have to worry about anyway if you're an actuary—pretty much what's on all three examinations. If you want to get a good rounding of your investment experience, CFA exam I is good. Beyond that, it just depends on if that's what you want to do. If you want to be in an investment department, I think I would highly recommend it.

**Ms. Strachan:** I have a couple thoughts on that. We give credit for 220 to people who have the CFA, so if you do pursue the CFA designation, you automatically get credit for 220. If you decide to do it the other way, you have to take three examinations to get one of ours. It's not necessarily a good investment. But if you do take 220, you have already read a fair amount of the CFA material. We deliberately have CFA material on 220 and 230, so that you will find that the CFA examinations take less of an investment of your time than if you were starting from scratch.

**Ms. Helen Hofmann:** Susan, could you give us more background on what you did prior to your current position, and also, is your CFO an actuary?

**Ms. Watson:** I'll start with the second part of your question. Our CFO actually has a legal background, and he also has an accounting degree, so he's not an actuary. In terms of what I did, when I was first out of school, I started for another company in a general actuarial department, but I did a great deal of cash-flow testing, valuation, and I even spent some time in the investment department. Then I started with one of the subsidiaries in my current company doing corporate actuarial work, specifically, the asset/liability management, valuation, and financial reporting-type activities. A couple years after that, we combined all the staffs of all our subsidiaries together, so just one staff was supporting all of them. Then I specifically did asset/liability management.

As part of asset/liability management, because it was an important function for our company, given we are primarily an individual annuity company, I started doing some of the traveling, explaining what it is we do from an asset/liability management perspective. I would go along on rating agency and investor trips to explain asset/liability management. A few years later, when a role became available in a corporate finance capacity, I already had done some of those related activities, which is how I ended up in corporate finance. As part of asset/liability management, I was reporting to the same individual, our CFO, so that made it somewhat easier because it was in the same operating area of our company.

**From the Floor:** I have a question concerning something that Judy said earlier. You stated that the investment track is still evolving, and that we may see different examinations for different emphasis. I was just wondering if you could give us some idea of what that might be. Will the investment track look more like the CFA syllabus in the future, or might it have more emphasis on things to do specifically with insurance?

**Ms. Strachan:** I would say that already the investment track moves far beyond the CFA examinations. The overlap with the CFA is at the core level, so I don't expect

the investment track to evolve toward a CFA-type approach. To give you an idea, we expected it to evolve probably further from insurance. Right now, in particular, we still have F-385 on the track, and we're looking at whether that is the appropriate first course for the track. Some other options might be P-363, because right now we have the sprinklings of pension material throughout the track, and we were wondering if it would be better to consolidate it and not try to reinvent the wheel. So that's one possibility, in terms of evolving over time. Of course, I wouldn't say not to take 385 because the decision is not made. Who knows when it will get made? You would still get elective credit in any event. But that's the type of discussions that we have had.

Steve's on the Finance and Investment Tracks Education Objectives Committee. We get together about twice a year, and each year we look at the courses and the syllabus and ask, does this still make sense? Are these readings up to date? Is this meeting our objectives? We have recently created mission statements and objectives for each track, and we're still working on doing the same for each course, so we can ask, are we missing readings? We have this objective, we want to do this with this course, but we don't have any reading to support it. Or we can say, we have this reading and it doesn't support any of our objectives. I expect us to continue to refine our idea of what each course should teach and what readings support that objective.

**Mr. Miller:** Judy and I are both on Actuaries Online, and that's a good place for comments such as, "I liked this book that I had in college, why isn't it on the syllabus?" Or maybe even people want to say something positive about an examination.

**Ms. Strachan:** We just added David Shimko's book, *Finance in Continuous Time: A Primer*. We received continual comments and complaints about the previous reading on stochastic calculus, and we don't know what people think of this book. We're always interested. We just recently came across two manuscripts for potential replacements to Shimko, but if everybody loves and understands Shimko, why would we replace it? That's the kind of feedback we like to hear and we would like to hear any comments that you have on the syllabus.

At the end of your study pack, for those of you who are still taking examinations, we ask you for comments, and we routinely get two and sometimes three submissions. We've been trying multiple-choice questions, but we have to work on the questions. The questions say, Did you find typographical errors in your study notes? If people say they did, we're really no more enlightened than we were before. Send me an e-mail or call me at the main SOA telephone number; I'm always looking forward to hearing from people.