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Session 35PD
Analysis of Financial Results

Track: Financial Reporting

Moderator: STEPHEN G. HILDENBRAND
Panelists: JEFFREY D. KOLL
                     RALPH M. OVSEC
                     ROBERT W. WELANDER
                     ANTHONY J. WILLEMIN

Summary: Panelists present the various measures and techniques used in analyzing financial results for the purpose of communicating the results to internal and external audiences. The session analyzes statutory and GAAP financial statements, including internal rate of return (IRR), return on equity (ROE), source of earnings analysis, actual versus forecast and trend analysis.

MR. STEPHEN G. HILDENBRAND: I'm a partner with PricewaterhouseCoopers, located in the Philadelphia office in their actuarial practice. I have particular interest in this topic today, as I'm currently involved in several audits of publicly held insurance companies, where proper analysis of reported results is critical to both understanding and rationalizing those results.

On my immediate right is Tony Willemin. Tony is senior manager of Ernst & Young in New York, N.Y. Tony's current responsibilities include financial reporting, analysis, embedded value, modeling and process analyses. Tony's presentation today will focus on the business intelligence tools.

Our next panelist is Jeff Koll. Jeff is an assistant vice president and actuary of business analysis at Colonial Life & Accident in Columbia, S.C. Jeff's current responsibilities include direct and reinsurance pricing, modeling, cash-flow testing and financial analysis, with an emphasis on the life, supplemental health and

disability lines of business. Jeff's presentation will focus on financial analysis metrics.

Our third panelist today is Ralph Ovsec. Ralph is vice president and appointed actuary of Swiss Re Life & Health Canada in Toronto. Ralph's current responsibilities include valuation, financial reporting, planning, projections, experience analysis and ALM. His presentation today will focus on source of earnings and embedded value.

Batting clean-up, to draw a baseball analogy, is Rob Welander. Rob is modeling leader from Employer's Re in lovely Overland Park, Kan. Rob's current responsibilities include corporate modeling, cash-flow testing, short- and long-range planning, ALM and capital allocation. Rob's focus on his presentation today will be modeling and projections.

MR. ANTHONY WILLEMIN: The topic is the analysis of financial results. The other panelists will talk a lot about a lot of the metrics and different measures, different views of financial results that companies use. All those measures are built on data, and there's a lot going on with data these days, as you probably know.

Data has always been an issue for insurance companies, and so I'm going to talk a little bit about business intelligence and just moving from point A. Point A is the source data that comes in from all of your transactional systems, from the ledger models, admin, human resources, software—all kinds of different sources of data that you can have—and moves on to being processed into some kind of a usable form.

First of all, you have to be able to get it. Then it has to mean something. It has to be made consistent; it has to be available, and you have to be able to look at it and use it. That's the kind of stage that I want to talk about—converting it from just raw junk into value that your enterprise can use. We'll talk a little bit about some of the measures to do that and different ways of looking at it.

The first topic is business intelligence in action. This is intelligence—it's a buzzword. In fact, there are quite a lot of buzzwords in this presentation.

An executive information system (EIS) comes in a variety of examples. It puts together the critical performance, operational and financial data so that it can be shared across the organization. It takes one company view. It distributes that information out to people who can use it to make decisions and show them what's going on in the organization. There's a lot of overlap in these terms, as well. A lot of the EISs depend on some of the detail information or the analysis that's been generated.

A decision support system is kind of a statistical database. It's not the same as an operational database, which shows all the transaction data that's been collected

over time. It shows compilations and ratios and things that take some of that raw data and convert it into useful analytical information.

Data mining and predictive modeling are things that help you find meaning where you didn't know there was meaning. If you have a large set of data, and it's very granular, you can look through the data, analyze it and find patterns in the data by doing statistical analyses and modeling and just walking through it mechanically to develop patterns that you didn't recognize before. Sometimes those patterns are just shadows or false positive kinds of readings; and sometimes they'll give you an insight into your business that you didn't know before.

Predictive modeling is trying to take information you have and make a good guess about what's going to come up in the future.

Scorecards are a way of looking at the organization. A lot of information that you get is historical. It just looks backward. Scorecards are a way of taking what's happening and seeing if you can find out what's going to go wrong next or what actions you could take; so it looks at a perspective in the organization.

There are financial measures that show you historically what happens in your financial results. What's going on with your training, which may be an indicator of the future? What's going on with retention? These are types of people measures. What's going on with processes at higher hour rates? Are there long lags and lead times that are needed? What's going on with your customers?

An executive dashboard is an attempt to take the information that's available and personalize it for the people who need to use it. "Dashboard" generally just means a system that's going to pull together from disparate sources information that you want. It's what you think you need to do what you have to do.

A colleague of mine was wondering what a dashboard was, and I sort of thought he was complaining also about his child with the credit card and the cell phone and was sort of at wit's end at how to control it. Since he pays for the credit card and the phone, I said, "You could interrogate, online, the account, have it delivered to your system, and it would flash through a warning any time that the rate of using the credit limit has exceeded the rate of time in the billing cycle."

You can tailor-make the information and deliver it to yourself in forms that you want, and usually it generally allows you to manipulate the data, as well. You can delve into and find out more about it, let your curiosity sort of drive you through the data and explore it in a free-form kind of way.

The executive dashboard is tailored, obviously, for executives; so in addition to the child's credit card it includes parameters on the weather and whether the wait time to the first tee or the rides at Disney World are short or long.

Going a little bit more to data sources—you probably know all about those. Probably many of your complaints are aimed at legacy systems that have data that you can't get to and are difficult to modify. But they're all sources of data—the things that you want to get to. There's evaluation, policy admin, forecasting, budget versus actual business plan, models that you generate. Those are all sources of data. You also have online processing. It's truly a different kind of a thing to try to gather data for your business processes as they're being transacted.

The insurance industry, as you probably know, is all over the map. Some companies have been working to get all of this in good shape and make it readily available. Others are struggling, generally. Across the industry, even within a company, there's a variety of different admin and evaluation systems in place that make it difficult to get consistent, meaningful analysis because you're dealing with disparate and differently defined data.

That data is kept in a variety of places. Some of it is kept at the transactional system; some of it is in Lotus Notes that are in people's computers. Accessing this kind of data is obviously very difficult. It's not well organized, and it's a big issue for insurance and other companies.

An attempt to make it more usable is relational databases—Access® is a desktop model. The other three—DB2, Oracle, SQL server or big power relational database systems—are in common use, and I'm sure you use them. There are probably, I imagine, a few different types of people in the audience who are kind of old fogies: You don't know how to write an SQL or how to get information out of an Access database, but they know a lot about what they want to see, what they need to know in order to run their business. Then you have kids who know how to write all the SQL and how to get the data up, how to manipulate it; but they don't necessarily know what it's for. Then you have consultants who know there's a lot of data and a lot of systems and not really much about anything else.

Data integration is where you take all that disparate information that's out there and accessible and some way or another convert it into data that's available, consistent and consistently defined. If you use a term to refer to a piece of data, that term always refers to something that's defined the same way; and you wouldn't use several different terms to describe the same thing.

That process is called integration, and sometimes it has to be done where you're piecing together, cutting and pasting (in fact, a lot of times it's done cutting and pasting), into spreadsheets and putting it on a LAN, making it available that way. Sometimes you can get more efficient by accessing with databases that have built-in tools for accessing data.

Then to build data warehouses, you have to extract, transform and load processes that take data from whatever source systems you have; run special programs to convert, define it, make it the right dimensions, make it in a consistent format and

clean it up; fill in any missing blanks according to reasonable rules; and put it into a database framework or some data warehouse structure that makes it available.

You've probably all heard of data marts and data warehouses. I tend to think of them as, "You can't live with them, and you can't live without them." They have a very valuable function when they're done properly.

A data mart is kind of a process-related thing. It's a subset of a total enterprise view of the data, and it is focused on a business process. If you structured your data marts properly, they can be glued together into a data warehouse; but that takes planning and vision to make them all communicate with each other. Frequently they don't. Frequently the kind of analysis that you want to do requires accessing data and comparing data across several different data marts. If they haven't been put together properly, that's a lot of work to do that. It's not user-friendly for the person who needs the information to make the decisions.

Analytical data stores are a way of capturing data in a form that is intended to be more user-friendly, more accessible. It allows more manipulation of the data; it's more intuitive in terms of the way it's designed. And different vendors will tell you which one is better, but I'm not going to bother with that.

Online analytical processing (OLAP) is a term that you hear a lot. It refers to a set of principles where the data is organized according to a multi-dimensional structure that is designed to facilitate the end user's view of the business. It allows manipulation, and it has as an important dimension of the data that's there, a time element that is critical. It also generally will support higher-level statistical and computational analysis than, say, a data warehouse would.

The potential benefits of putting together the data and looking for business intelligence is to automate processes and to cut costs. Obviously in Sarbanes-Oxley times, controls are extremely important. If you have to piece together financial data from spreadsheets that are scattered around the organization, it's not going to help you when it comes time to do the Sarbanes-Oxley work. It makes it more complicated to feel assured of controls.

More important for running your business is the quality of analysis, the amount of time spent on putting together the data and information compared to looking at it, interpreting it and finding out what it means. Obviously you want to do all this very efficiently, so that requires automation.

The point about using business intelligence is you want to focus on the people who need to use the information. What do they want to know, when do they want to know it and how do you get there? You want to satisfy a curiosity of those users.

You want to make it possible for senior executives who don't know how to query a database to have information that's available to them that includes very

complicated analysis that's sometimes been preprogrammed. They shouldn't have to wade through that; if they hit a button, it should show up quickly.

The point is that that kind of business need should drive how it gets there. Figure out what's needed, what questions need to be answered. Then figure out what information you need, go get the information and bring it. And that way, the information that's needed to do financial analysis is in a form that can be used readily by the people who need it. It's not driven by the data engineers and the people who know all about data but don't know much about the business.

MR. JEFFREY KOLL: I've been doing work in the business analysis area for Colonial for the last three or four years, and my primary job is looking at monthly and quarterly earnings and doing analysis there along with planning; so this really kind of gets to the core of what I've been doing.

Any time I start to look at a project or a topic or an issue, I always ask, "Why? Why am I doing this?"

Why do we do a financial analysis? Risk management, earnings management, capital management are reasons why. I deal with the first two—risk and earnings—every month. Are we hitting as hard as we want to hit or are we missing it, and what can we do if we're not there?

Colonial is a wholly owned subsidiary of UnumProvident, and I've been there for five years. It's been kind of a rocky road, and I can say that I've done a lot with the risk and the capital over that time period. So this whole analysis, financial results, really kind of hits home with me.

This is why I do financial analysis. The next thing is: What do I use for tools?

I would characterize the financial analysis as metrics reports on income statement items such as premium, investment income, benefits and expenses, along with experience studies. Another key tool is modeling. I think modeling is very good for building expectations. It helps you to know where you expect to go using your planning model. If you really want to take full advantage of your analysis, you need to have good financial analysis and very good models, too. They work really well together. The last one is reinsurance. If you're trying to take care of risk management, earnings management and capital management, reinsurance is very good for all of those.

If I'm going to focus on financial analysis, one thing I want to say is, once you start to put together these metrics reports, there are really two basic ways you can use them. Trend analysis is one. The one thing I'll say about trend analysis is that usually it's pretty easy to put the numbers together—look at the pattern over the past five years, your premium, your claims and see there's something going on. It

can help you identify where you have an issue, but it's not going to help you get to the core of what the issue is. For that you really need to have actuals to expecteds.

Once again I'm going to fall back on the lapse sheet. You really need to have good models. Where did I expect to be? You can look at that from a really high level, but as you start to identify issues, you need to be able to drill down. Consequently the actual-to-expected analysis—the valuable analysis—usually is relatively complicated to put together and time-consuming.

The expected models—pricing models, planning models, valuation models—this is the kind of core that I see coming into play when you're building your expectations.

For key metrics categories, you have to start at the top line: mix of business. The mix of business drives risk. Where's your inforce at today? Where is it going in sales? What are you selling? What's sticking? I think you can talk about different products, different lines of business and, even within a product group, risk categories or ages. You can slice and dice that a lot of different ways.

Another key one is claims. One thing I'll say about mix of business—including sales, persistency, inforce and claims—when you're putting these reports together, it's very important to have consistency of the reporting because that allows you to really maximize the value of those reports. Also, I put investment income and expenses in there because it's very important. I don't deal a whole lot with those, but you need to have to them.

The following probably illustrates better than anything in my presentation the challenge that I face in my current role:
Product Groups:

Income Protection
       - Individual STD & LTD
       - Group STD & LTD
Life Insurance
       - Universal Life
       - Level Term Life
       - Whole Life
       - Group Term

Supplemental Health
       - Medical Supplement
       - Cancer
       - Critical Illness
       - Accident

Each of these product groups—income protection, life insurance and supplemental health—I'm responsible for evaluating on a monthly/quarterly basis. The risk

dynamics are very different across these lines, and it creates an interesting challenge.

One of the things that I've found is that typically you would analyze income protection disability one way, life insurance another way and supplemental health a totally different way because of the risk dynamics. We actually took a step back and looked at life insurance and supplemental health the same way we did with disability, and we found some interesting results. We started to break down our experience for life and health by industry—SIC codes—and found that our experience did actually vary, and it was significant enough that it was worth looking into, analyzing and trying to take a step back and price for it. One thing I'll say is that industry had a very large impact on persistency across products. I was somewhat surprised at how big of an impact it had on individual universal life.

Another thing that I'll kind of throw out about this: Looking at all these different product dynamics and delving into supplemental health, we saw cancer products. We delved into that, and we found an interesting trend—10 years ago, if somebody were diagnosed with cancer, the approach was, "We're going to hit them hard with radiation and chemo, and we're going to either kill the cancer or potentially kill the patient."

Well, the mentality toward attacking cancer today has really changed. It's more, "Can we contain it? Can we keep the person alive? You may have to take this pill and do chemotherapy for the rest of your life." On a supplemental health plan, the implications are, instead of paying a whole lot of money up front and it kind of going away with the risk, now we pay a lot more money over a very long period of time.

The reason I bring that up is that that particular scenario has implications across the border to the other product lines. If we're treating cancer differently today, it should have some impact on what we're seeing in terms of cancer deaths in our life insurance and have an impact on disability. Now, if we're containing it and we're not hitting it so hard, we may not have somebody go on disability, whereas they would have before. I think this really kind of illustrates that challenge that I have to face, and it's a good challenge.

Let's delve into the metrics a little bit. If you're talking about income protection—disability plans—obviously you're going to look at incidence. You're going to cut it by different things: age, occupation, elimination period, benefit period and duration. With short-term disability, you're talking about duration. With long-term disability, you're really talking about termination rates.

I'll go back to the key metrics and mix of business. We kind of overlooked one of these things and paid a little bit of a price. Colonial got into long-term disability in 1998, and that block never grew to be more than maybe 1 percent or 2 percent of our business, but the amount of risk in LTD is just enormous related to the

premium; and that kind of blew up in our face. So when you look at mix of business, put a value on how much risk you really have here and equate it to the overall equation—not just looking at how much premium or face amount you have there.

Indemnity amount anti-selection: If you're selling a lot of large-term disability, that's an issue. We don't, so it's not a big thing.

The definition of disability comes into play. Contract language can affect how much exposure you have there. Different wording that you use can really open up your risk or tighten it down. And I think if you're doing risk management, these things kind of change over time. We've really tightened up over time on our disability definition.

I think a lot of people have exposure to life insurance. This is definitely not my biggest issue. We've had very good experience, but obviously you're looking at life, you're looking at mortality risk. How can you cut it up differently? Are you hitting the mortality that you expect to hit?
Also, we're looking at persistency here. We looked at those different cuts on products, and we started to see the persistency results we were getting in our life insurance block in some of these markets. We started to question: "Do we really want to continue to sell as much as we're selling there, or do we need to maybe market price or industry price life insurance as well as just price it by age and risk class?"

In supplemental health, you look at a lot of the same metrics that you look at for disability or income protection incidence.

It's a little bit different because there are different types of benefits. You really have to cut those up and look at trends, but then also look back at the expecteds. The one thing I found looking at the supplemental health piece was that overall incidence generally is pretty much where you expect it to be; but when you start to look at the components, they're almost never where you expect them to be. So looking at what trends can potentially emerge, are those going to be a problem down the road or are we going to be able to contain it overall with what we have in the product? It's something you need to keep an eye on.

Colonial sells a face amount, a one-time payment-based critical illness plan. I put this down because out of all the products that I've looked at, this one has had more evidence of antiselection than anything else. I'm just amazed at how much worse our claims experience is on the high face-amount policies. It has gotten an extremely high amount of antiselection, and we just need to be careful with that. This is another block where you may not have a significant amount of premium, but it could kind of blow up and really cause you some earnings problems if you're not careful.

With duration of claims, we're basically talking about if you have a hospital stay benefit or radiation/chemo on a cancer plan.

There are several keys to successful financial analysis. Know your business: What are you selling, where are you selling it? Know your data: Take advantage of technology. Do segmentation analysis and do a lot of it. Constant improvement: I look at where we're at today in my company in terms of analysis, and I feel like we're behind. I look at where we were two years ago, three years ago, and it's like we're 10 times ahead of where we were then; but still, with where technology is today, we should have a lot more information a lot more quickly and be able to really understand what's going on, I think, better than we are able to do right now. I can see where we're going to be in three years and hopefully a year from now and see even more improvement down the road.

It is so important to know your business. It's really easy to pull back and analyze financial numbers, look at premiums, look at claims and try to understand what's going on. But you really need to know what the sales process is: Who's selling your products and how are they selling them? What are they actually doing out there? It's so important because, at times, they may be opening you up for a risk that you're not aware of. If you have field underwriting requirements, are they taking advantage of them? Are they enforcing them properly?

Hopefully you know your underwriters. You put together underwriting guidelines and hopefully they follow them, but they don't always do that. I hope you have a better relationship with your underwriters that you're in the financial actuarial area with than your salespeople do, because if your salespeople know your underwriters better than you do, they're probably getting some exceptions, and they're potentially creating some risk issues for you.

How is your business managed? Who's putting what data where? Are they following the procedures that they need to follow? I think it's really important to know this. It's not something we as actuaries always do—get out and get to know all these people within our company.

As for risk elements within the products, if you're dealing with a wide spectrum of products, it's easy to overlook some things some times. If you're a little bit more focused, it's not too hard.

Let's talk about claims adjudication. We found some things in doing analysis. On a supplemental medical product we came out with a couple of years ago, we broke down the incidence, and overall, it looked all right. But then we had kind of a bad trend on our outpatient surgery, and one of the requirements was that they were supposed to have anesthesia to get this benefit. We then talked to the claims people, and they weren't enforcing that at all.

I think it's really important to know how your claims people are managing the claims. Are they following all the procedures correctly? I think the overall moral of this is, if you're in a risk management role or a financial analysis role, you really need to make a lot of friends in your company. Know the salespeople, know the underwriters. It's very important to know what are they doing and how are they doing it.

I stopped and thought about this: The people that are putting in information are your sales examiners and your new business people. These are some of the lowest-paid people in your company, and they don't always do the greatest job of getting everything in the right way. Most of your legacy systems are going to have edits. We're trying to do some analysis on our disability product. We have an on/off job indicator, which is very important in terms of trying to break down our incidence and if we wanted to have an on/off benefit or just an off-job benefit. We started looking at the data, and it looked really weird. We went down and talked to them, and they said, "Oh, we just let a default do the edits." We have to throw that out. We can't use it. But if we don't go talk to them, we don't know that.

So know the source of your data. Where is it coming from? Who's putting it in there? Understand the limitations of your data. Always look for improvement here.

We got really involved with data warehouse in the last few years. Looking at the different sources of information coming in, we collect a lot of information on the front end for underwriting purposes. One of the things that we were doing as a company, which was just ridiculous, was that we were throwing most of it away. Once a policy is issued, it's not really important anymore—demographic information, salary and a few other things. Then we thought, "Wait a second. Why are we doing this? This could be very useful down the road."

We collect the information initially. It's one of those things: if you have it, you might as well try to keep it. I feel very frustrated at times with the lack of information that we have about our policies and our policyholders.

Take advantage of technology. There are always new financial analysis tools coming out. Stay abreast of what's out there. How can you use it to better do analysis?

Data warehouses are huge. About three years ago, I heard the term "data warehouse" all the time and really didn't understand how valuable this was. We've taken information off all these different legacy systems and pulled them into one place. We've compiled data from several sources, grouped it, summarized it and put it in a DB2 format, which basically means you can pull up access and get at it. It's very easy to work with as compared to writing SAS jobs and pulling it off your mainframe.

I would say in the last two years, we've been able to increase the amount of financial analysis reporting tenfold, and we're getting it more quickly. And I still

don't think we're where we need to be. This technology is really key to really doing sound analysis.

You need to do a lot of segmentation analysis. You need to do as much as you can, even if you're just focused on one product. Understand the dynamics. I think one of the challenges here is if you don't collect all the data. I look around—we have cell phones; we have PDAs. Are we really getting as much information as need or we want when we sell these products? I think attitudes about claims, especially in disability, have a big impact on if you are going to get them. Are you going to have claims or are you not going to have claims?

Do you want to cut it by risk class? You have benefit level and claim type. Colonial is a worksite company, and one of the things I should include is employer type and employee information. I think the moral of this really is that you need to do a segmentation analysis and do a lot of it. If you do it, you're going to find things out that you just didn't expect to find.

MR. RALPH M. OVSEC: I'm going to talk about two topics: sources of earnings and, something very dear to me, embedded values, which keep our consultants very much in the money.

I'm going to start by talking about sources of earnings. The question is why? If you have an income statement, do you need more? Well, you want to be able to understand the results. On an income statement, the bottom line doesn't tell you anything. Premiums don't tell you very much. The bottom line, whether it's STAT or GAAP earnings, is really not sufficient. You really need to understand what caused or created the earnings. You need to understand how this relates to expecteds.

You have to be able to explain your earnings. It's not just enough to show them to somebody. Once your earnings are understood, it's much easier to explain to senior management, the marketing department or other interested internal parties. Once you can understand them and explain them, you can make better decisions. You have more confidence in your decisions if you have better information available.

You disclose your results to external parties. You disclose them to rating agencies, which are very much in the forefront these days. You also disclose them to the analysts. Both of them have a tremendous influence on your stock price and on your bonus.

If you have good sources of earnings methodology in place, it's much easier to explain the results, whether they're bad results or good results. It also allows you to compare. It allows you to compare to prior years; it allows you to compare to your peer companies.

What are some characteristics of good sources of earnings? They should be easy to understand. The numbers should more or less fall out. They shouldn't require

reams and reams of commentary. You should be able to look at the numbers; they should speak to you.

They should be comparable. Static, stand-alone numbers really aren't sufficient. You need a history of numbers in a relatively similar format so you can do a valid comparison. It should be consistent with any reporting methodologies or reports that you have. It should be somewhat consistent to your Blue Book in the United States. It should be more or less consistent with your GAAP earnings. If you have internal management statements that everybody is familiar with, it should be familiar or should be similar and consistent with that as well. It just makes it easier for everybody to understand, rather than having to go to a third or fourth or fifth different methodology. It should be documented and validated. This assists with the understanding, as well. But the validation is going to help you spot any errors that you might have. If you have errors, that reduces your credibility in a really big hurry.

It has to be robust. Along with documentation and validation, you don't want a system that people are really apathetic about. You'll end up spending more energy defending or criticizing the system if people don't have confidence in it. And if people don't have confidence in it, they're less likely to use it.

It has to be doable in a timely manner. Anybody who reports on a quarterly basis has to have those numbers out in a hurry. To report on year-end numbers in the end of March really isn't acceptable. Any company that's listed has to have earnings come out, bang, 10, 12, 14 days after. If you're the last one off the mark reporting your earnings, people are going to look at you and say, "Well, something is wrong there; they can't manage their business."

Let's now look at the components of good sources of earnings methodology. The first component is expected profits. It generally comes from company business plans. We're not going to get into what types of systems you have to generate these, but suffice to say, you have a business plan.

Ideally these are models that will be able to generate these on a regular basis. Models should represent your original plan. You have to have a static target. You can't be moving along from quarter to quarter or month to month saying, "I think claims are going to be better, so let's tweak it a little bit" or "I think our expenses are going to be below so let's tweak that a bit more." What are we comparing to? Stick with one plan.

Another component is your new business. Again, you have to compare it to your expected new business, which is from your business plan, something that everyone is familiar with.

The next component will be your experience gains and losses. Where did you make your money? How much did you expect to make, and are you better than plan or

are you worse than plan? It's not just sufficient to say, "Well, the premiums are below plan" or "My reserve increases are below plan." That's really not acceptable. It gives you absolutely no insight.

There are a lot of interrelations between premiums and claims if you're doing group business, reserves or commissions. They're all related. I'm not going to go into detail, but just suffice it to say there are many components to this.

We're going to shift to changes in assumptions and methodology. You have to comment on errors or error correction and new management actions. Have you put up additional reserves? Has management cut off new business sales? Is the business coming in at a higher strain than you would expect? Of course, we have the token catch-all category called "other" in there—whatever else you think is important.

We've talked so far about profits on your inforce. Now you get into income on surplus. Your surplus will generate income, and you should talk about it separately. You manage your surplus very differently than you manage your business. It's technically outside the operations side of the business.

And then you have taxes. Of course, the government tries to do a really good job of making sure that your dividends stay really low by reducing your net worth.

Just to close off sources of earnings, I'll discuss some issues. What level of detail do you want to report here or present your sources of earnings at? Too much detail loses validity. You get into micro-management—too fine a detail. You have to be subject to normal fluctuations, so you end up defending your numbers all the time if they're small pieces. You get into too fine a level, and you also have too many different components to look at.

On the opposite side of level of detail is level of aggregation. Too much aggregation can hide your problems and suppress any good news that's coming out. Too much aggregation isn't going to provide you sufficient information to take appropriate actions, report to senior management and make decisions.

It's also not going to allow you to do sufficient commentary to your investors. Your investors and investor relations are an integral part of managing a company if you're a public company. Rating agencies, as well, are all over you. Analysts look at your numbers. You'd be surprised how much analysts know about your company.

We're a very complex business. We need to be able to explain these numbers in a level of detail with the analysts, rating agencies, external parties and management. Let's not forget senior management. You want to be able to run your company properly.

Where do you place it on your financial statements? Where do you disclose it? You have to be careful with this one, because if you put it in your notes to financials, then all of a sudden it becomes target for audit. Unless you want to spend a lot of time with the auditors and you want an audit opinion on that, you want to leave it out. You want to have a separate section for that.

I'll go on to one of my favorite topics—embedded values. It keeps us busy; it keeps our consultants wealthy. I'm not going to go into a whole lot of detail about embedded values, so let's consider this "Embedded Value 101 for Dummies."

Embedded values do something an annual statement can't do. They ascribe value to your company. It does something sources of earnings can't do. Source of earnings is a statement of what you've done this year. It doesn't tell you how much value you've put on your company. Sources of earnings just aren't sufficient.

Embedded value is the present value of your future statutory after-tax profits because that's what is going to be released to your shareholders. That's what the regulators say determines your earnings. That's effectively what determines your statutory surplus. To remain solvent, it's a distribution of statutory surplus that you'll be able to use to pay dividends. GAAP earnings don't mean squat when it comes to the regulators.

Embedded values include the present value of a release of regulatory capital, your risk-based capital. That's capital that is tied up. It's released over time.

To determine the embedded value of your company, you then subtract this regulatory capital and you add your net worth to that. Your present value, your release of regulatory capital, less your regulatory capital, is going to be a negative number; and that represents your cost of capital. That's the effect of your time value of your risk-based capital that you've put up at whatever level you're managing to.

Your net worth is really your statutory surplus, minus your regulatory capital you've used, plus any adjustments. The adjustments usually are on a statutory basis. In the United States, it could be your IMRs; your AVRs; subordinated debt, if you have any, which you want to take out; deferred tax balances, possibly. These are just a few.

Let's discuss some assumptions now. Very, very key assumptions are mortality and lapse and your interest and your taxes. All this is on an expected basis. The discount rate is an after-tax rate, plus your risk premium. The risk premium represents the return that a shareholder will expect over and above the after-tax interest rate. Remember, the investor is not investing in a risk-free enterprise. There's risk in an insurance organization—profits go up; profits go down. There's a risk premium, and generally we find that can be in a range of 4 percent to 6 percent above the after-tax interest rate.

The analysis that we do for embedded values is very similar to sources of earnings, so I'm not going to go into a whole analysis of that. You have your expected profits, new business, assumption changes and variances. You have experience gains, error corrections and model changes.

When you do this analysis, the one difference between sources of earnings and this is that in embedded values, you're looking at all your future statutory profits. So with a change in mortality assumptions, for instance, you're going to be capitalizing all this. You bring everything up front, so it can have a very significant impact.

Interest rates and discount rates tend to have an opposite effect, so they'll tend to cancel each other out. Error corrections and model changes are all magnified because of the present value nature of the analysis. Another thing that's different between embedded values and sources of earnings is that embedded values also consider capital. Sources of earnings don't do that, whether you're doing it on a GAAP basis or on a STAT basis.

How is it different from sources of earnings? Embedded value ascribes value to inforce business, calculates a cost of capital and determines the value of new business. This is really key because your marketing area may come running to you and say, "We've written new premium 20 percent above expected, so we're doing really, really good." That's not necessarily true. It's not as cut and dry as that.

Are you adding value with new business, or are you destroying value? Destroying value can mean earning an ROE that's below your target rate of return. It's as simple as that. The shareholder expects a 10 percent rate of return—I'll just throw in a number—and if you're writing new business at 9 percent, you're going to decrease the value of your organization for every dollar of new business that you put on the books. Sources of earnings can't determine that for you; embedded value does.

Why use embedded value? It determines the value of your company. You're not just looking at a statutory balance sheet or statutory surplus. It also factors in the cost of capital. You do embedded value for the entire organization, but you do it in parts. You have your individual lines business. Let's say you're a multiline company. You have individual disability, group long-term disability and annuity business. You can compare across lines of business. Which one of those is generating the higher rates of return? Sources of earnings won't tell you that. That's going to help you make better decisions about capital allocation.

It also allows explanations to non-actuaries. Investors and analysts, especially, just eat this stuff up.

Non-actuaries include management; that includes the CFO. It can be a little complicated for them. Most senior management positions are held by pretty bright

people, and they will catch on. It's just another way of explaining to them. Writing new business at 20 percent above your target may not be good. You have to be able to write it or sell it at better terms.

The biggest risk is doing something that is not profitable or that doesn't add value. A particular case in point is Enron. Enron wrote a ton of premium. Did it add value to the company? I say to you, no.

MR. ROBERT WELANDER: Let's go through a quick recap. We started off, and Tony talked about gathering data. Next step, he talked about turning that data into information. After that, Jeff gave us an example of turning that information into knowledge, and then Ralph gave us a little story about how you use that knowledge to predict the future.

Well, my piece of this whole puzzle is basically to talk about how well we like that prediction. So we have modeling and financial results. What do you spend more time doing, explaining the results or explaining the variation of what you told someone they were going to be?

Some of us are in each of those boats. Some of us use these models, and we just don't understand the numbers coming out of them. Sometimes we see what the actuals were; they're not close to what they said they were going to be, and that's the big concern. Not that the numbers were bad; it's that they weren't what we told them it was going to be.

One other point here: Jeff talked about the importance of understanding the inherent flaws in your actual numbers. It's just as important to understand the inherent flaws in your expectations. Let me give you a simple example.

As the reinsurer, we tend to look at our blocks of business. One slice is by ceding company. This is a projection of deficiency reserves for one of those ceding companies (Chart 1). Two of those things are not like the others. This is a really good example of where understanding your expecteds, understanding the models that are producing these expecteds, pays off. If you're just given this stream of numbers and you have no clue what's going on, you're introducing a bisection algorithm in your inforce, and you're projecting it in smaller and smaller pieces until you come up with what piece of business is causing this to look like this.

However, if you understand your models, you know this ceding company is mostly level-term business. They have this product in there where, during two of the later years, the premium is zero. Well, now you understand why you have this huge spike in deficiency reserves for two years because the premium is zero in those two years. If you understand your models and you understand your expecteds, this is an easy answer, and you're not caught off guard and you don't look like an idiot trying to explain it when someone calls you on the carpet about it.

We talked about expecteds. How do you set your expectations? It seems like a fair question. A way to do this is to start with price. We all love our pricing actuaries; we know they're the smartest people on earth. They'll tell you. As you go forward, you just keep your population current because that's the only thing that pricing actuaries can't predict—how their mix of business is going to change over time. So you keep your population current and your actuals always track pricing; you have no problems.

What if they don't track? Typically I can think of about four reasons why your numbers aren't going to look like the way pricing told you they were going to look. The models that you've built are just flat-out inadequate. They're technically flawed. Your actuals have issues, which is my favorite. Or your modeling assumptions are inadequate.

Let's start with the obvious. If you have inadequate models, you have to start to ask yourself some questions. Is the model that you're running built to be consistent with the actuals that you're comparing to? If not, you have inadequate models. It's pretty simple.

Is your basis consistent? If you're looking at claims, for example, are you looking at what, projected, is assumed to be a paid claim number, and you're trying to compare it to some sort of incurred number, that has a swing in IBNR in it? If you have that apples-to-oranges comparison, you're going to have issues proving that you have a consistent model. If you can't pass this test, then you're pretty much out of luck. You're never going to get beyond being able to trust your expecteds.

The second possibility is a technically flawed model. It may very well be that you have intentional flaws in your model. We refer to this as sacrifice. It may be because you didn't have time to build it properly; you had to get something in place. You know your numbers are reasonable, as is. They're not perfect, but they're close enough—modeling simplicity. It may be that it's a small block, and you don't care. So you just built a one-cell model, said everyone is 45-year-old male nonsmoker and moved on. Or you may have products with unmodelable product features, and you accept the fact that it isn't worth your time to try to force something like that into your projection system.

We'll give you an example of sacrifice. Let's assume you have a block of level-term, post-XXX business, and you have a choice. Let's say you have 2,000 policies, and you have a choice of either running them seriatim so that your deficiency reserves are bang-on, or you're going to look for ways to simplify that down. We all look for ways to simplify that down because when that 2,000 becomes 200,000 or two million policies, we're not running them seriatim. We have to find a way to squeeze that population down to something more tolerable.

By going through this process with a sample block running seriatim and calculating your deficiency reserves, then you incorporate whatever modeling assumptions you

use. You use every fifth age instead of every age, three times a year instead of every issue month, and you start comparing results. You can now explain the sacrifice you've just incorporated into your model because you know it. You can look at it every fifth age and say, "What if I go every second age? No, I'm going to stay every fifth age. And instead of zeroes and fives, I go ones and sixes." Ironically we did this. Ones and sixes is a better fit than zeroes and fives. I don't know why.

Do you have an understanding of the sacrifice inherent in your model?

The third choice may not be that your model is flawed; it's just old. Something you built three years ago or something someone else built three years ago, you've been using it for cash-flow testing ever since—the numbers come, well, let's cash-flow test it. If it's positive at the end, you have better things to do. You've never worried about it. Is the model flawed? I don't know; it's just old. Maybe the numbers are good; maybe they aren't.

The fourth choice is that your actuals have issues, which, as a modeling actuary, is 95 percent of the time. "It's not my fault the actuals are wrong." Actually we've talked about some of this to a certain extent.

One of the issues may be geography. You have good claims data in total, but you have a bunch of bulk claims in there that you have no way of splitting out by product type, by issue year, by issue age, whatever the case is. You have geography issues. Can you adjust for it in the aggregate? Maybe you can; maybe you can't. Do you have the details to properly fix it? Probably not, but it's nothing but a geography issue; you can't get over it.

You may have garbage. It just may very well be you have no clue what your numbers are because they're junk, because of what we've heard. They're not setting the right flag. The number is coming in from the client companies, and, of course, it's none of you guys. It's all the other client companies that have sent us junk. If you have garbage, you're done; but if you understand that, you can tell a story around it.

When people start wondering why the mortality assumptions you have in place are nowhere close to what's actually happening, you have a story to tell around it. It's because you can't trust your actuals.

The crux of our discussion is inappropriate modeling assumptions. This is where, as an actuary, you get to go from calculating numbers to analyzing numbers. We've seen examples of this: actuals-to-expecteds analysis, trend analysis.

If it's there, take advantage of it. Why reinvent the wheel? Yes, I know, you're smarter than these other people; you can do it better, you can do it faster. But it's

already done. Let them have their fun; let them calculate their numbers. Take advantage of it and move on.

Updating these: As these assumptions change, you start seeing differences in mortality assumptions, in lapse assumptions, in premium persistency. When do you update? It really is a big game. It's up to you. I can't tell you; I don't have the magic answer. It's a big game of dealer's choice.

There's one other issue here that we have to deal with. What about a paradigm shift? We're not just talking about mortality trends developing; we're talking about a swing from the 1980 CSO select periods to the 2001 CSO select periods. Our old friend, pricing from '75-'80 to the new tables.

We've all heard about the change in the slope of the select factors. When do you incorporate that, and how do you incorporate that? This one I don't have the magic answer for because I'm not sure. This is where dealer's choice comes into play. You're all going to have different opinions—some of you are going to have the same opinions—but there are going to be different opinions about how to implement that, at what point do you change and compare and say, "OK, 60 percent of the '75-'80 is equal to 42 percent of the 2001 CSO." I'm obviously making up numbers.

That's a question that you get to answer by doing research, by polling your peers, by talking with management and figuring out how they want to do it. As a last resort, talk to a consultant.

You have changes. The question is: When do you pull the trigger? Part of what makes us actuaries and not accountants is that we know there's at least one color between black and white. In this case, there are lots of colors; there's lots of gray. When do you pull the trigger? What's more important when you're running your projections? When these things are taking place, what's more important, accuracy or consistency? And we all have different thresholds for this. Some of us—us being not me necessarily— have management who say, "I don't like to see changes. I want my numbers to look a whole lot like they used to." Some of us have management who they really hacked off when our actuals don't look like what we told them they were going to look like. Accuracy is king in those cases. Dealer's choice—what's more important to you and your organization?

The second question is just as important. If you have the consistency kings running your business, can you justify staying consistent given the way your actuals are?

Another question that you can ask yourself is: "What's your purpose of running your projections?" The answer of when you pull the trigger varies depending on the types of your projection. Like I said, it's a big game of dealer's choice.

I'm going to diverge a little here, only because this is important to this whole process. Once you have all this in place, you're all smart enough to understand it.

You're all smart enough to explain it to your peers. How do you explain it to management?

Communications 101: Know your audience. Know whom you're talking to. Are they details people or do they just want an overview? "We're losing money because mortality's worse." This is a level of understanding: Are you talking to the CFO or the chief marketing officer? You have to recognize the level of detail and the technical terms, the industry jargon. If you're talking to the CFO, you can throw a lot of that in there. If you're talking to your marketing guy, it's all in darky-horsey speak. I have certain biases, just so you know.

Communications 101: Again, learn from their questions. The more you present this, the more you hear people asking you the same question over and over, pretty soon it's going to sink it that maybe I ought to know the answer to that question before they ask it.

Time is always of the essence. None of us have any of it. But have *too much* information available. Everything you did to get where you are, shove it in an appendix in the presentation you're bringing. You don't always know what questions are going to come out. You don't know what train of thought is going to lead people to ask different things. Have it ready. That way, if the question comes up, you look like you're prepared. And that's a bonus.

The bottom line is, and I keep saying this over and over: it's all about effective communication. This is not necessarily my company's opinion.

How often do you update assumptions in your projection? You've been given data that says, "Mortality has changed; my lapse rate has changed; my premium persistency has changed; my new business rate, whatever it is, it's changed." How often do you update?

The second question is: When do you update? We saw that list earlier, six different sets of runs that you do. They don't all happen at once. You pretty much spend your entire year running those things for different people for different purposes, pretty much using the same assumptions, but updated inforce.

How often do you tweak your assumptions, and at what point do you tweak those assumptions? For most people, it's a dealer's choice. It boils down to which of those five or six runs is most important to your company. Which do you need to get right the most? That's when you update your assumptions.

There is one critical factor here though: Make sure you have the time to do it. Don't say, "I'm going to get through year-end; I'm going to have that done in January." I have to start DAC unlocking Feb. 15, and I have cash-flow testing to do during those two weeks, so I'll do it then. That's funny.

The other thing that's important when you're trying to time this out is to make sure you look ahead far enough and bake it into your calendar. As you're planning out your year, know that you're going to spend a month and a half or six hours or however long it takes you to do this to update these assumptions and to implement them and *document* them. One of you is going to get hit by the bread truck, and whoever takes your place is going to be really mad because they have no clue why there are these weird multipliers.

Document *everything* you do. Make sure you have the time to get it in place and to document it and to understand it. It goes back to what I was talking about earlier—understanding your expecteds. If you put a change in a mortality modifier, however you put it in, understand the effect of it. Understand the effect on the value of your company. Understand the effect on what it's going to do to your source of earnings if you went back and reprojected your expecteds. Understanding it is just as important.

Someone who wasn't totally stupid once said, "We don't build models for the numbers that they give us; we build models for the stories that they tell." We're usually telling one of two stories: Why actuals don't look like what we said they were going to look like, or why what we said they were going to look like doesn't look like what they used to look like. Those are the two stories that we tell.

Here's my last nugget of knowledge that you all know, but it's nice to have it recorded: Electronically produced numbers have implied credibility. Any time you kick a report out of whatever system you're running, management sees that number, and that's a good number—no reason, just because.

As long as you understand the real credibility underlying those numbers and can tell a story around it and can communicate it effectively, then those expecteds start to have value. Until that point, they're just implied credible numbers. With a story and with an understanding of how good they really are, they have legitimate credibility.

FROM THE FLOOR: Where would we go in the literature to find more detail about actual-to-expected analysis, source of earnings analysis, actual-to-expected earnings analysis, GAAP or STAT or both?

UNIDENTIFIED SPEAKER: The Canadian Institute of Actuaries has produced an excellent draft paper on sources of earnings analysis. I'm not sure if it's on their Web site yet, but certainly you can contact the secretary. They have a paper, and it's been tossed around for discussion. It's an excellent paper. I have nothing to do with the authorship, but we're getting very heavily into sources of earnings analysis at our company, and I consider that the primer.

For embedded values, we have our own internal documents that we've produced with the help of Tillinghast. We've spent a lot of time over the years, and we have

our own internal documents. But there really are oodles of information on embedded values. A consultant for a reasonable fee will explain that to you.

MR. HILDENBRAND: I'll make an observation on just listening to both Ralph and to Rob. This is from an external auditor's point of view.

You go into different companies, and you see a lot of different things, obviously. Those companies that have somewhat of a formal and a periodic source of earnings, analytics in place, it really goes a long way toward explaining the bottom line, explaining deviations more importantly from what was expected. But it also provides a basis for challenging or a basis for helping confirm the validity of assumptions that are being used in your expectations.

It also assists in the detection of errors, and that's with respect to both the actuals, as Rob was talking about, or flaws in developing the expectations. When we see that in place, we gain, much more quickly and efficiently, confidence in the numbers that the company is producing.

I hear different things as I'm in different companies about embedded values, and I get a lot of groans from the people that are basically charged with doing it if the parent decides that they're going to do it. I still see or feel a lot of resistance in companies that are doing it, mostly for the amount of additional work that you have to do. And then we have another set of assumptions that we're looking at, another set of projections and another set of present values that we have to deal with to reconcile. So it is interesting, but it looks like the movement is certainly in that direction.

Chart 1