

RECORD, Volume 29, No. 2*

Spring Meeting, Vancouver, B.C.
June 23–25, 2003

Session 54PD Long-Term Disability Valuation Issues

Track: Health Disability Insurance

Moderator: JEFFREY L. SCHUH
Panelists: EDWARD G. BAILEY
LUCE GIROUX
BARBARA WHITE KLEVER

Summary: Group long-term disability (LTD) insurance poses a number of complex valuation issues. The panelists in this session discuss current industry practices and new considerations on many items of interest to LTD valuation actuaries. Topics include an update on the Group LTD Experience Study, assumptions and methodology for integration provisions, reserve margin illustrations using asset share models, and reserve runoff analysis.

MR. JEFFREY SCHUH: I'm a disability reinsurance actuary at ING Re in Minneapolis. Before that, I was with the direct side of the company for about 12 years, where I worked on group disability pricing and product development. Since this is the Long-Term Disability Valuation Issues Session, I should confess that I'm not a valuation actuary. My first task as moderator was to get a Blue Ribbon Panel of people to talk about the issues. However, they're not valuation actuaries either, at least not by title, but that actually brings up an important point. You don't have to be a valuation actuary to be interested in valuation issues. Reserves impact much more than just the operating statements. They affect every aspect of the disability business. This is not just an exercise for valuation actuaries.

Let me start with some introductions of the panel. First, we have Edd Bailey. He's the corporate modeling actuary for Fortis where he's been for more than 10 years,

* Copyright © 2003, Society of Actuaries

working primarily on disability as well as other products. Before that, Edd was with Towers Perrin and Mutual Benefit Life. Before entering the insurance industry, he taught math and computer courses at Mount St. Clare College, Clinton, Iowa. Mr. Bailey is with us to talk about the disabled life reserves, specifically the offsets, methodologies and assumptions used for anticipating offsets, whether for Social Security or Workers' Compensation.

Although I wanted to steer the conversation away from termination rates, since that's what we always talk about, I figured there would be a mutiny if we didn't mention the status of the latest experience study. Edd is on that committee, so he'll give us a brief update on where the SOA is as far as time lines and what to expect with the new experience table.

After that, we have Barb Klever, an actuary at Metropolitan Life, where she's been for 7 years as a group health long-term disability (LTD) and short-term disability actuary working on special projects. Before that, she was a group disability actuary at CNA. Barb is going to give us a presentation on how MetLife uses asset share models to set and to determine appropriate GAAP and pricing reserves, which will be very interesting.

Last but definitely not least is Luce Giroux, assistant actuary and supervisor at Standard, where she's been for 5 years working on group LTD and life. Before Standard, she worked in a consulting firm in Montreal.

I just want to tee up the topic for these three. We picked valuation because I feel it's a topic that only gets discussed whenever a new table comes out. When the 1987 Table came out, it was discussed at several SOA meetings, CIA meetings and disability industry conferences. After Nick Smith's work on Table 1995, there were lots of conversations about that. Between publications of tables, however, there never seemed to be a lot of discussion about valuation issues, which I think there should be, since the size of disability reserves has a significant affect on your block, and there are many nontabular issues to take into consideration. It really should be given a lot of attention.

As an example, I came up with a quick list of just how important valuation is. It impacts a substantial portion of your business. The obvious items are the operating statements and the balance sheet. It also impacts your experience rating and reserve buyouts are nothing more than an advanced valuation exercise. What you set for your reserve is also going to impact settlements, since that's usually a percentage of the disabled life reserve. Reserve levels impact your risk based capital, target surplus and, therefore, your investment income allocations.

When you want to reduce the margin on your reserves, you may think a dollar for dollar gain is going to hit your bottom line, but sometimes people forget that you're losing the excess interest on the reserve that you're releasing and also the interest

earnings on the target surplus associated with the reserve. If you push down your GAAP assumptions, you get a bigger gap between GAAP and statutory, and so your denominator gets bigger. Although your bottom-line profits are good, your ROE can suffer.

There are many off-balance-sheet items that reserves can impact, even staff planning. I know that I have done some reserve projections, not dollar projections, but numbers of claims for our claims department to determine staffing needs. Valuation issues need to be looked at more often than whenever a new table comes out. We need to talk about more than just the big three: incidence, termination rates and valuation rates. Specifically, some other nontabular issues include what you use for cost of living adjustments (COLA), and estimated offsets, which Edd will touch on in his presentation.

MR. EDWARD BAILEY: I have two short topics to talk about. One is the update on where we are with getting data and building a new experience table for the Society.

Table 1 shows the time line that I think most of us on the committee agreed to. I should give you a quick overview. We've got about a dozen different people on the LTD Experience Committee. Todd Fuhs of Unum Provident is the chairman. Most of the major disability companies are represented, as are most of the reinsurance companies. We've met a couple of times in person. We've met at the Boston meeting and again in an airport in Newark, NJ, and we've had many conference calls. I think this schedule that we're presenting is roughly about where we are in the process.

Table 1

	Task	Completed
1	Define project objectives and parameters	Aug. '02
2	Recruit committee	Sept. '02
3	Outline anticipated project plan	Sept. '02
4	Submit plan to Experience Studies Oversight Committee for approval	Apr. '02
5	Determine data needs and expectations of confidentiality	Nov. '02
6	Data manager selection of Solucient	May '03

You can see that we started in August 2002 to define the objectives. The committee was recruited. We've got an outline of a project plan, most of which has, I think, been published on the SOA's Web page, but it's a little out-of-date. This one will be published as part of the handout after this meeting is over.

In April, we submitted a plan to the experience study's oversight subcommittee, and it's been approved. We met in late October or in November and decided what we needed to do to get the data elements together, and what kind of confidentiality agreements needed to be signed. Unfortunately, I think this is one of the places where we're still trying to work a few things out. There was some concern with the Health Insurance Portability and Accountability Act coming on that we'd have some problems in sharing data. I think we've eliminated that by stripping all the individual identifications off the data. Initially we had wanted to include a Social Security number so that we could cross-check the data with the Social Security Administration for deaths, and we've put that back on the individual companies to do prior to submission of the data. This will eliminate the need for the committee to have any of that information.

We have picked Solucient as the data manager. This is the same one that the individual life tables used. I think the Individual Disability Table is using them also. Right now, we're working on getting letters of confidentiality with those from all the individual companies, and we're getting data. We have asked for data from the various major carriers. There's a general publication that also went on the Society calling for data from other people, but Tom Corcoran called some of the more prominent companies and made sure that they were on board to submit the data.

That's where we are today. We're trying to get the data in. We've gone through a list of data audits, with thanks to Nick Smith and his work with Table 95. We borrowed the information that he used, and we're pushing this back to the submitting companies to do the initial audits and help speed up the process once it gets tot Solucient. We hope that Solucient should be able to code the same audits and not catch too many issues. When they do catch the things that appear to be issues in the data, we hope that the submitting companies will already have had the answers as to whether that's a good piece of data or not.

We have a fair outline for what we're trying to do with submitting the data, what kinds of tables we want to produce, what kind of actual-to-expected reports we'd like to see. The goal is to get the data together so to have some preliminary results presented at the fall SOA meeting. This may be fairly ambitious, but that's our goal. Todd is driving toward that end. One of the things that took a while was to try to make sure that we had agreement on exactly what our time line was going to be. With the chairman driving the process, they know we have to get this done. We have to get results out. Some of those people who were out to get the data together said, "Can't we just have a little bit more time?" We're hoping to have a final experience table ready early next year and then to start the next process.

To give you some contrasts as to what kind of participation is going to be expected for this study, in Table 2 I contrasted it against what was in the Group LTD table (GLTD), which was based on the data of 14 companies, and not many of the top companies that do disability actually contributed data. It resulted in only 66,000

claims to look at. In Table 95a, there were seven companies for the initial table and, roughly 15 companies in actual-to-expected. I may have these numbers a little bit off. As multiple presentations were done on it, more and more companies' data was rolled in to do actual-to-expected calculations. There were about 180,000 claims used to build the table. We're hoping this time for about 10 times that number of claims, thanks to the participation of the 12 largest companies with claims under management, and should have 18 companies in total that have agreed, at this point, to submit data.

Table 2

Participation

	GLTD	Table 95a	New
Companies	14	7 Initial Table ~ 15 for A/E	18 including 12 largest
Claims	66,000	250,000 submitted 180,000 used	1.7-2.0 M

The primary focus of the table is to build termination experience tables. Unlike the individual, we're not capturing incidence. I think trying to capture exposure is a little bit difficult on group disability insurance and would vary from company to company. The other issue that has arisen in the past when we talked about trying to do incidence tables is companies actually feel that the incidence rates are somewhat more proprietary. The downside is by only doing termination studies without the incidence to back it, you don't know whether some companies have tremendous termination rates because they accept all the claims. They therefore would have much higher incidence rates and then close out a lot of claims early. We're going to focus on termination rates and tables. Unlike Table 95, we're not going to try to do any smoothing on this, at least, initially, but, we hope there's enough data in here that the table should be fairly smooth.

In addition to the normal termination tables, we'll look for some change in definition spikes that are expected to happen between 2 to 5 years where the second definitions kick in. We'll do a lot of actual-to-expected reporting, expected termination reports. If we have resources and data, we'd also like to do an IBNR study and start studying information on when Social Security awards are reported.

As I mentioned, we're trying to do a table that's appropriate for experience rating. By doing this, we're going to look at claims from the date that the elimination period was met through the date that the last payment was made to cover the liability. If you were to contrast that, if you were looking at this for a valuation

basis, you wouldn't start exposing a claim until the claim was actually reported. Then you might stop doing it with the last date the claim was processed. We're looking for termination causes of death and recovery, and we've also included a decrement for settlements. One issue that always comes up in trying to fill in a termination table is how do you deal with settlements.

I think the individual table, at least in the first pass, is ignoring settlement. For some disability carriers, settlements are a fairly large piece of their terminations, and to ignore them would then understate or overstate terminations, depending on whether you left them out of the numerator or the denominator. Anyhow, we decided to count settlements as a decrement. If we told you how many months a settlement was for, you could decide yourselves in looking at the data how you wanted to handle those, whether you wanted to continue the exposure throughout the average number of months the claim was still open or whether you wanted to settle it for what counted as a partial termination. If you wanted to throw them out in total, you could do that.

We're expecting to have output by both the number of claims and the amount of indemnity. We'd also like to do something with the reserve proxy where we count some sort of expected reserve amount and use that as a way to determine both the exposure and the termination. I think that one is going to be a little bit more problematic when we get around to looking at formulas, but, at least, we've got it as a goal.

We expect monthly termination tables to be available both on a combined basis and by six different diagnostic buckets. The six general diagnostic buckets that we have are general medical, which is another name for "other," cancer, cardiac, maternity, orthopedics and psychology. We decided to have the combined one in there because what do you do if you don't have diagnosis codes available to you when you're trying to do a reserve? You can either assume what kind of mix of these other claims you're going to see by various durations that come up with your own Average Table, or just use some sort of industry average one.

We plan on having, I think, 12 different age buckets and two different gender buckets.

FROM THE FLOOR: What do you mean by orthopedics?

MR. BAILEY: I meant musculoskeletal claims. We're planning on three different tables by elimination period, and the affects of the elimination period will vanish with the duration of the claim. For the first four years, we thought we would have monthly buckets. It would vary by elimination period. For five to nine years, we'd have quarterly average monthly terminations. Does that make sense? We still want to publish the entire table in terms of monthly terminations, but we'd probably have the same termination rate for three months in a row. At that point, we would stop

using the elimination periods, so that we'd have more data. Then after 10 years, we plan to change over to an attained age table.

The change in definition is such a major part of how we terminate claims that it really needs its own separate decrement. One way to deal with this would be to have a different table for each different kind of second definition contract and period. From the first dimensions we looked at, we're already looking at somewhere around 432 different tables, once we take into consideration age, gender and diagnosis. I think trying to do this as a separate one would cause us to run out of data. Even the 1.8 million claims or so that we're expecting across 432 tables is only about 3500 claims per table. We hope that we can handle the change in definition by just looking at the spikes.

We'll look for a 24-month change in definition on a 3-month elimination period, which should cause a spike at 26 or 27 months. We'll look at a couple of months ahead and a couple of months on the other side, then take all of those terminations and exposure, separate them out from the base tables, calculate a separate spike on that, and then you can contrast the change in definition termination spike against the base table spike if you just wanted to have a different spike for a change in definition.

We also plan on a number of actual-to-expected reports. We want to look at industry and occupation, at least on a limited basis. We think there's a lot of variance in occupation coding available between companies. We're going to try to boil it down and adjust blue collar versus white collar. We want to look at it by salary. We know the terminations are different by salary bands. One of the contributing factors to that is the mix of diagnosis. The higher-salary people tend to have more mental claims. A lot of the claims they have are harder claims because a bad back isn't as disabling for somebody who already has a sedentary job as for somebody who has to actually lift things. However, we want to see if salary is still present after having it accounted for the diagnosis mix.

We also want to look at the different definitions of disability, own occupation versus any occupation. We've asked for information to be able to do things like activities of daily living, and Social Security qualified as a second definition as well. We're going to look at the benefit periods to see if there has been any difference when actual-to-expected termination is there. There's been some thought that if you have a short benefit period, you tend not to manage claims quite as well. It will be kind of difficult to separate that from the salary effect, where 2-year plans are often offered to more blue-collar groups, but we will look at that. We want to look at COLA versus not, and look at more detailed buckets of ICD9 diagnosis codes if we can.

Ideally, we'd like to be able to do something with Social Security status. I think that if you look at your data, you'll see that once a claimant is awarded Social Security,

their chances of actually returning to work are pretty slim. This is probably offset somewhat by a little bit higher chance of death. Even if you've taken diagnosis into account, the Social Security Administration helps you by giving you a little bit more information on the kind of diagnosis. A musculoskeletal claim that the Social Security Administration says is disabling probably is a little more serious than one that the Social Security Administration says isn't.

We want to look at it by year of incurral so that we can do some cohort analysis. This is important because as claim management practices have changed in the mid-1990s, we find that the later-duration terminations aren't there quite as often, so the termination pattern by year of incurral should be different as we look at different years of the study. If you cross year of incurral by the observation period, you should see different termination rates happening.

We also want to look at the range of results by contributor, and this may be a little bit difficult to publish because we have to preserve the anonymity of the submitters. That's a little difficult when some of the submitters have significantly more data than others. We'll do some double-variable studies, if the data allows. For example, if the Social Security status shows some particularly interesting results, we may then choose another dimension to cross that with and do the studies that way: resources permitting.

The outstanding issue is how to weight different company contribution. I think what we're leaning to is something like your exposure counts by the square root of your submissions, so that all companies' claims won't be treated equally and one large company won't dominate the study.

We're also trying to figure out what to do with AIDS claims. Rates of deaths due to AIDS have virtually disappeared from where they used to be in the mid-1990s, and since our experience period covers from 1990 to probably the end of 2002, we should see a lot different death rates in there for AIDS claims for the early 1990s versus today. If we've left them in there, it wouldn't be an appropriate pricing tool, and converting to a valuation tool would overstate the deaths unless we expect severe acute respiratory syndrome to take the place of AIDS, which I don't think any of us are really looking forward to.

We're still trying to figure out how to deliver all this information back to you. Ideally, we'd like to be able to do something electronically, but we may end up doing it with public reports. Then we need to consider what kind of adjustments are necessary to make this into a valuation table to deal with reporting lags of claims and other issues.

Offsets are really the third assumption in reserving. You have interest rates and termination rates, and with both, small changes in these can make big changes in your reserve, but so can offsets. In particular, Social Security offsets are a major

part of our benefit, and so they have a lot to do with what kind of results we're going to get out of the end. To think about what kind of offsets you want to include, and how you want to include them, in your reserving, you need to consider the purpose of the reserve. If it's statutory or GAAP for management reporting, pricing or transfer analysis has a lot to do with the next three issues. First, how accurate do I need to be? Do I need to properly reflect all of the nuances of the plan I'm looking at? You might want to do that for a pricing reserve. You might not need to do that if you're doing statutory or GAAP reporting, where just being right on average is good enough.

How much conservatism is also key to what reserve basis we're using. You may want to have more margin in your statutory reserving, less in your GAAP reporting and management reporting, and probably no margin in your pricing except to consider the cost of capital that you have for carrying the business. It also has to do with what data is available. If the data is on your own system, as it would be for most GAAP and statutory reporting, you would probably have a high level of information about the offsets.

You might know each and every offset that claims analysts think this claim is going to be exposed to. You could even ask the claims analyst to put in an assumption of the likelihood that this claim is going to get Social Security or not. You would know when claims that they're currently getting are scheduled to end, or offsets that they're currently getting are scheduled to end. If you were doing a transfer analysis, you probably wouldn't have any of that information. You might know. In fact, you might just know the gross monthly or the net monthly benefit. Then you have to ask, "What offsets are in there? Is the claim going to award Social Security or not?" If you don't know that, you make an assumption as to the probability of the claim, that the net monthly benefit you're looking at is really the gross monthly benefit, or whether it's actually the net monthly benefit after a Social Security award.

Are there other offsets that might be ending? For example, there may be some offsets in there for administration purposes, recovery of overpayment. Workers' Compensation might be in there, which often has a limited benefit. It may be some other short-term benefit.

I tried to come up with reasons or different kinds of groupings for the offsets, and some of these might slide around if you were trying to do your own outline. We have some that are definitely short term, like short-term disability, state disability plans, salary continuance and some other employer plans that only affect the very beginning of the claim. If you're not considering when those offsets end, that could be a problem in your reserving.

There are some others that are longer term in nature and tend to be longer delays in their reporting, like Social Security Administration, whether it's the primary or the family, or the retirement systems for people who do not participate in public

retirement systems. I should point out there that this is perhaps a United States-focused one. You might put the Canada Pension Plan in there if you're trying to do this for a Canadian reserving.

Then there are different kinds of earnings offsets, such as return to work with incentives. If a person is currently back at work, how long do you consider that person's offset to be in effect? Is it in effect only as long as the claims analyst says it is? Should it run out to the end of the period? You have some sort of probability of reduction to the offset over time. There are some offsets for subrogation and coordination, things like Workers' Compensation, no-fault insurance and individual plans. Then there are some systems that use offsets as a way to administratively adjust the current net monthly benefit.

For example, we code COLA adjustments on our system as negative offsets to get the current net monthly benefit right, and then we need some assumptions of future adjustments for the future COLAs. Recovery of overpayment is also handled by an offset until we actually recover the monies. If you're looking at net monthly benefits and you don't take these into account, you might have some problems trying to value this. An activities of daily living adjustment is similar to COLA. It could be handled as a negative adjustment, a negative offset.

Some of the questions you should ask when you're considering offsets include: When does it start? When is it effective? When did the claimant first get awarded the offset? When do we learn about it? With Social Security, when does it become effective? It may be retroactively effective, so how do you want to consider that into your reserving? Do you set up a Social Security receivable for the benefits that have already been paid out that you'll be able to recover later? Probably the first question is, is an offset material? If it's not material, then you can skip this and go on to the next offset. How much information can I get about the offset? How old are my assumptions? How good are my assumptions that I'm making? What assumptions am I making? An old actuary once told me that not making an assumption is making an assumption. Is it okay? Knowing all the questions to the first one, is it then okay to use a level assumption? Can I just assume that the net monthly benefit is okay? I don't have to further adjust it. I don't have to figure out that I need to change my benefit stream some place out in the future.

The other thing that you might want to ask is, does the information about the status of this particular offset change your expectation of terminations? For example, if the person has been awarded Social Security, they're much more likely to die, much less likely to recover, and then I must factor that into my termination rates.

I went through a couple of offsets. Workers' compensation, for example, tends to start at the onset. It's effective at the onset. It may be eliminated depending upon the state and the particular cause of the problem. It is material for work-related

claims, and I can get information about this from the claims files, perhaps, from Workers' Compensation boards. How old are my assumptions? It may be not applicable unless you're putting in an expectation of a future award coming on or termination rates. If you haven't looked at them for a while and you're just assuming all workers' compensation offsets go for the life of the claim, you probably need to revisit that assumption.

This is a particular problem for transfer analysis in that a lot of them are limited, and so assuming the level of net monthly benefit probably is not sufficient. I don't know that there's enough data to answer the last question.

The return to work is effective when the person returns to work. There may be some lag in notification figuring out exactly what the amount is. When does it end? That's a good question. Do you consider the return to work offset to extend throughout the life of the claim, or do you have some information that this person has a deteriorating condition and they can work for a while, but that soon they won't be able to work any longer and so you have to stop taking that into account?

How do you get information about the offset? You have to ask. You have to ask to get information about the particular claim. You can do some studies on this, but I think they're often so case specific that it's hard to draw generalizations. Can a level adjustment benefit produce reasonable results? I think so, but you should study your own data to see. Does it materially change the expected terminations? I'm pretty sure it does, but it's tough to determine how much of this is already in your termination rates.

Social Security is a little more interesting. I think it's probably the single biggest offset assumption that's made. The notification of Social Security can happen anywhere, before six months and all the way out through five years or more. It can be retroactive up to six months with some limits. It usually ends at retirement, but at retirement it is replaced by the retirement awards, so in effect, it doesn't really end. Typically, it ends if the person goes back to work or the Social Security Administration deems that the person could go back to work. It's material and you can get information from the Social Security Administration. You can do some claim-specific information, and you can track your claims. You can see how your claims are tracking over time, to see what's happening with Social Security. If you don't change your Social Security assumptions, if you don't keep those updated, it's an easy way to either introduce margins into your reserves that you hadn't intended to be there, or to lose margins that you thought were there.

Can a level adjustment benefit produce reasonable results? Once we know the person has been awarded, yes; prior to that, probably not. We'll look at some examples to show that. As I said earlier, I think it does materially change your expectation of terminations.

Chart 1 is a chart from the Social Security Administration that shows how applications for Social Security have happened, how they've been changing over the last few years, and how the awards have happened. If you do any chart math at all, you'll see fairly quickly that the award rates for Social Security have dropped in terms of the percentage of applicants who are actually receiving awards, and that's on Chart 2, where in 1998, a little more than 50 percent of the people who applied for Social Security awards were actually approved for Social Security awards. This is down to about 42 percent for the most recent quarter. I think there is definitely a seasonality pattern here. As to the 42 percent for the year, I would expect that to come back up a little bit. If you set your awards on what Social Security rates were going to be like based on early 1990s data, you might be okay now. If you set off of the mid-1990s data, you're getting too much credit for Social Security awards. Chart 3 is based on data from Table 95A. It's based on eventual knowledge. It's not based on where the claims were by particular durations, but eventually where they ended up being. A claim at 12 months is determined to have been awarded Social Security if at any time in their future during this submission period for the SOA data they were actually awarded Social Security. Therefore, wherever they were at the end of this study is how they were at the beginning. Chart 4 shows that Social Security award rates vary dramatically by age. What I've done with this is look at how claims resolved.

If you start out with 100 claimants disabled at the end of the elimination period, the areas in red show how many of those claimants of the 100 will have been awarded Social Security. If you go to the blue area, this is how many are still disabled without Social Security. The yellow area represents those of the 100 who have died, and the white area represents the ones who have recovered. You can see that the percentage of claimants disabled with the Social Security award still has a percentage of the total claimants disabled, which would be the red line, so the top of the red line divided by the top of the blue area improves dramatically and continues to improve all the way out through 60 years of age. If you're putting in a level assumption, what area do you pick? What number would you pick for your probability of an award to happen?

With those aged 55 years, in Chart 5, this is a lot flatter, as long as you were making your assumptions after about 12 months and you were trying to use a level benefit. If you're trying to acquire an offset, a level offset is going to move like the red line. The total exposure of the gross benefits is going to move like the blue line. You're trying to figure out, if you net some percentage of the red against the blue, do you get a flat curve over time? For this one, you would say, "After about 12 months, the answer is probably pretty good. I'll probably get a pretty level assumption." Before that, it would be a bad assumption, whereas if we went back to Chart 4, the red is the percentage of the blue. It continues to grow over time, and so a flat assumption is probably not the best idea.

These charts may be confusing. I am trying to show you how the actual cash flows would work with this. I've taken the information back from the other Tables, and recognizing that there's a delay in the award information, you would see that with your cash flow stream..

The top blue line corresponds to the total disabled as it did in the other chart. Your effective net benefit would be the pink line, but the actual cash flows would follow the green line, so it would be delayed. You don't actually overpay from where you would have to pay. For a period of time, if you're reserving this right, you might be setting up a receivable that you then have the recovery of that as the green line crosses beneath the pink line.

I think there's a lot you can do with Social Security awards. I think the important thing to remember is that, if you're going through the problem to do first-principle reserving, so that you're actually looking at termination rates rather than trying to use some sort of flat adjustment for Social Security, you might want to think about how you would integrate that. How would you take that and make some sort of decrement for Social Security as well? I think if you do that, you have a chance to get a much better projection on Social Security, but it will take a little bit more work. Keep in mind when you're going back that public information like the SOA Table 95 data doesn't reflect the reporting lag. It's already taken into account and said, "All the claims that are 12 months. I have to go all the way out to when they're 36 months and hope to see whether they were awarded or not." You will have some extra lag in your reporting based on when the Social Security awards actually happen.

MS. BARBARA WHITE KLEVER: My topic is asset share modeling, and I'm going to talk about how an asset share model can be used to analyze LTD reserve margins. First, I'm going to describe what an asset share model is. I'm going to go over the components of the model and also the considerations in building a model. I also have some examples of output that illustrate reserve margin modeling. My focus is mainly on the use of the model for analyzing reserve margins, but I will also mention other potential uses for the model.

Why use an asset share model? As my main focus, I'm modeling GAAP reserve margin assumptions. My company recently revised our GAAP termination rates. Once termination rates were finalized, we wanted to determine how much of the GAAP margin we should put into the reserve basis, and where. Our goal was to have a balanced spread of margin over the most important assumptions, but we wanted to make sure we had an appropriate amount of margin on an overall basis. In particular, we wanted to know the following: How is the margin release by duration? How much reserve margin in total did we have by duration? How is the margin set among the components? We used an asset share model to answer these questions. The other uses I'm going to touch on are in reviewing pricing assumptions and in doing financial projections.

First, I'll give a brief description of the model. The output of the model is basically a simple income statement. It is a single year of premium and the incurred claims that are associated with that premium. The runout of the claims is included, so the model generates data for each year until all the claims are assumed to be closed.

I'm going to be showing some exhibits, and all of the exhibits that I will show use the 1987 GLTD Basic Table for the termination experience assumption. Of course, in practice, you would not use realistic current termination rates for your company's book of business. All of the exhibits I'm showing are for illustration only and are not recommendations for reserve assumptions. It's important to know that these exhibits do not include the impact of IBNR and pending reserve methodology. This model assumes that the approved reserve is set up when the claim is incurred. It is possible to build in IBNR pending reserve methodology to a model like this. It would impact your profit pattern also in the first two to three years.

Table 3 is an example of the output of the model. Again, this is using the 1987 GLTD Basic Table experience, and the reserves are set up using the 1987 Commissioner's Group Disability Table. That's 90 percent of the GLTD termination. The reserves also include an interest spread of 100 basis points with additional margin in the anticipated Social Security offset factors. On the left side of the exhibit, the income items are shown. The premium is shown in year one only, because we are looking at only a single year of premium. In the next column is investment income. Following that are the outgoing items. The outgoing items include the paid claims and the GAAP reserves. The GAAP reserve is shown at the end of the year, and it's not the change in reserve. In calculating pretax profit, you need to actually calculate the change in reserves.

Table 3

Asset Share Example

- 1987 GLTD Basic experience
- 1987 CGDT for GAAP (90% GLTD terminations)
- 100 basis point interest spread
- Additional margin in anticipated SS offset factors

	Total	Investment		Paid	GAAP	Pre-Tax	Profit as	Profit as	
Year	Premium	Income	Expenses	Claims	Reserve	Profit	% of BOY Rsv	% of Premium	GAAP Margin
1	100.00	2.64	16.89	2.83	78.33	4.58		4.6%	13.9%
2		4.26	0.65	13.02	64.33	4.59	5.9%	4.6%	10.8%
3		3.53	0.46	9.17	55.75	2.48	3.9%	2.5%	8.8%
4		3.09	0.37	7.39	49.72	1.36	2.4%	1.4%	7.7%
5		2.76	0.32	6.39	44.88	0.90	1.8%	0.9%	7.1%
6		2.49	0.30	5.94	40.52	0.61	1.4%	0.6%	6.8%
7		2.24	0.29	5.71	36.24	0.52	1.3%	0.5%	6.6%
8		1.99	0.28	5.50	32.00	0.45	1.2%	0.5%	6.5%
9		1.75	0.23	4.68	28.45	0.39	1.2%	0.4%	6.4%
10		1.58	0.19	3.78	25.71	0.35	1.2%	0.3%	6.2%

6

We also show some profit measures on the right side. Shown are the profit as a percent of the beginning of the year reserve and the profit as a percent of premium. This gives you an idea of how your profits are going to emerge by duration. Finally, in the last column I have GAAP margin. This is the margin in the GAAP reserve at the end of the year, and this is defined as the amount of the reserve that's in excess of the actuarial present value of the liability.

How you would go about building a model that could do this? Our model is actually built in a spreadsheet. An advantage that we have found to the spreadsheet format is that it's relatively straightforward to follow, if you're familiar with reserve type calculations. Each calculation cell is set up as a tab in the spreadsheet, and then the final exhibits are derived by weighting across all the tabs.

The calculation cells that we chose correspond to the reserve table. The cells that we are using are age bracket and gender. We use the quinquennial age brackets from the Reserve Table plus gender to get the 18 cells.

Another reserve table breakdown that you need to consider is elimination period, because the reserve tables are broken down by elimination periods. We chose to use the most common elimination period in our book of business. If you wanted to, you could also do it by elimination period and set up a distribution of claims. The other important reserve breakdown that you need to consider is diagnosis, because

most reserve tables have at least some diagnostic breakdowns. We chose to develop some aggregate termination rates for the modeling purposes. I think some considerations in choosing others to break it by elimination period and by diagnosis is how complex you want this model to become, because you start having a lot of cells, and will it add value to your results?

Once the calculation cells have been chosen, you need to have the following claim experience assumptions for each calculation cell. You need to have incidence, covered life distribution and salary level or benefit size in order to weight the age groups and gender. This is an area where my company did not have good data, especially on covered lives by age group, for example. So we looked at our new claims that we had received over a recent period and we derived the distribution by age and gender that took incidence, covered lives and benefits size into account. The next thing you're going to need, of course, are your termination rates, and the best thing is that you use some recent company experience.

The other major assumption that we modeled is the Social Security offsets. We looked at the information that we used for the Social Security offsets by age and gender, although we had to aggregate some of our age brackets together to get credible data. We used the percentage approved by duration month, the amount of the Social Security offsets compared to their gross benefit amount, and the overpayment recovery percentage and the type of payback that we normally got, whether it was lump sum or future offset.

There are other assumptions in the model that may not vary by calculation cell. For expenses, we used the total amount compared to our premium, and we also need to know how it's going to be spread by duration. We also need to know the interest rate that represents the return on the assets generated by the premium.

Within each calculation cell, which in our model is age and gender, we can calculate the following based on the assumptions made. Our model does all the calculations on a monthly basis, assuming that the claims are incurred evenly throughout the year. The monthly number will then roll up on an annual basis on the exhibits. The premium should be calculated consistent with your pricing methodology. Investment income should be calculated on cash flow and reserves consistent with how your company allocates investment income with your line of business. Expenses can be calculated however it makes sense for your business, for example, as percent of premium, percent of paid claims, a flat dollar amount or any combination. If your company defers acquisition cost, you also need to consider the impact of that on how you recognize your expenses.

The paid claims are calculated from the experience termination rates and the Social Security offset assumptions that you put in. It includes the impact of Social Security overpayment recoveries. The GAAP reserves are calculated with the GAAP termination rate. The GAAP termination rates may be a multiple of your experience

termination rates, or you may calculate them in a different way. Also, there are the GAAP interest rate and the GAAP Social Security offset methodology. A GAAP reserve Social Security offset methodology may be different than the experience assumptions you put in, because it's probably more simplified and grouped across all ages, and it may have some conservatism in it. At this point, you can add a claim expense reserve and calculate your pretax profit.

Table 4 shows what the output should look like if the GAAP reserves are calculated with no margin. No margin means that the GAAP termination rate equals the experience termination rate. The GAAP interest rate equals the investment income rate, and the Social Security reserve offset methodology equals the actual Social Security results. Note that the profit after year one is zero owing to the fact there's no margin in the year one ending reserve. This is a good check of your model to make sure that it's not throwing off any unintended profits or losses after the first year.

Table 4

Asset Share Example - Marginless Reserves

- 1987 GLTD Basic experience
- GAAP Reserves with no margin

	Total	Investment		Paid	GAAP	Pre-Tax	Profit as	Profit as	
Year	Premium	Income	Expenses	Claims	Reserve	Profit	% of BOY Rsv	% of Premium	GAAP Margin
1	100.00	2.64	16.89	2.83	67.42	15.49		15.49%	0.00%
2		3.61	0.65	13.02	57.35	0.00	0.00%	0.00%	0.00%
3		3.12	0.46	9.17	50.84	0.00	0.00%	0.00%	0.00%
4		2.79	0.37	7.39	45.88	0.00	0.00%	0.00%	0.00%
5		2.53	0.32	6.39	41.70	0.00	0.00%	0.00%	0.00%
6		2.30	0.30	5.94	37.76	0.00	0.00%	0.00%	0.00%
7		2.07	0.29	5.71	33.84	0.00	0.00%	0.00%	0.00%
8		1.84	0.28	5.50	29.90	0.00	0.00%	0.00%	0.00%
9		1.63	0.23	4.68	26.62	0.00	0.00%	0.00%	0.00%
10		1.47	0.19	3.78	24.12	0.00	0.00%	0.00%	0.00%

Now we can look at what happens to the results when margin is added to the reserve. We wanted to have a good spread of margin between the risk assumptions. Margin is meant to cover adverse deviations from expected, so it makes sense to us to include margin on the major risk component. Therefore, we built the model to be able to put the margin on specific assumptions. We chose the following assumptions to contain the majority of the margin: a termination rate,

the interest discount assumption and the anticipated Social Security offsets. Each component has a different pattern of margin by duration. One of the model strengths is the ability to look at different levels and combinations of margins. However, my examples only show one level of margin for each assumption.

First, we'll look at the termination margin. This example in Table 5 includes a 10 percent termination margin, meaning that the GAAP table termination rates are 90 percent of the experience table termination rate. There's no margin in the interest or Social Security assumptions. The reserve margin in the last column starts at five percent and it decreases fairly rapidly to end up between one and two percent after year four.

Table 5

Termination Margin

- 1987 GLTD Basic experience
- GAAP Reserves with 90% termination margin (1987 CGDT)
- Reserve margin decreases rapidly by duration

	Total	Investment		Paid	GAAP	Pre-Tax	Profit as	Profit as	
Year	Premium	Income	Expenses	Claims	Reserve	Profit	% of BOY Rsv	% of Premium	GAAP Margin
1	100.00	2.64	16.89	2.83	71.00	11.92		11.9%	5.0%
2		3.82	0.65	13.02	59.31	1.83	2.6%	1.8%	3.3%
3		3.23	0.46	9.17	52.14	0.78	1.3%	0.8%	2.5%
4		2.87	0.37	7.39	46.85	0.40	0.8%	0.4%	2.1%
5		2.59	0.32	6.39	42.49	0.24	0.5%	0.2%	1.9%
6		2.35	0.30	5.94	38.42	0.18	0.4%	0.2%	1.7%
7		2.11	0.29	5.71	34.39	0.14	0.4%	0.1%	1.6%
8		1.88	0.28	5.50	30.38	0.12	0.3%	0.1%	1.6%
9		1.66	0.23	4.68	27.03	0.09	0.3%	0.1%	1.5%
10		1.49	0.19	3.78	24.47	0.08	0.3%	0.1%	1.4%

Next we'll look at interest margin. The example in Table 6 shows the impact of a 100-basis point interest margin. This means that at the anticipated earned rate of five percent, the GAAP reserve basis is 100 basis points less or four percent. There's no termination or Social Security margin in this example. The margin in the last column in year one is 5.5 percent, and it decreases slowly by duration. At year 10, it's still 4.8 percent. Comparing this to the pattern of the termination margin by duration, the interest margin is more level. The termination margin decreases rapidly because the terminations are much higher in the earlier durations. The interest margin is based on the remaining duration of the reserve, which remains more level.

Table 6

Interest Margin

- 1987 GLTD Basic for experience and reserves
- GAAP Reserves with 100 basis points interest margin
- Reserve margin decreases slowly by duration

							Profit as	Profit as	
	Total	Investment	Paid	Actual	GAAP	Pre-Tax	% of	% of	GAAP
Year	Premium	Income	Expenses	Payments	Reserve	Profit	BOY Rsv	Premium	Margin
1	100.00	2.64	16.89	2.83	71.35	11.57		11.57%	5.50%
2		3.84	0.65	13.02	60.64	0.88	1.2%	0.9%	5.4%
3		3.31	0.46	9.17	53.72	0.60	1.0%	0.6%	5.4%
4		2.97	0.37	7.39	48.46	0.47	0.9%	0.5%	5.3%
5		2.69	0.32	6.39	44.01	0.44	0.9%	0.4%	5.2%
6		2.44	0.30	5.94	39.80	0.41	0.9%	0.4%	5.1%
7		2.19	0.29	5.71	35.63	0.37	0.9%	0.4%	5.0%
8		1.95	0.28	5.50	31.48	0.33	0.9%	0.3%	5.0%
9		1.72	0.23	4.68	28.00	0.29	0.9%	0.3%	4.9%
10		1.55	0.19	3.78	25.32	0.26	0.9%	0.3%	4.8%

15

The example in Table 7 shows the Social Security adjustment margin. This example has no termination or interest margin. The Social Security margin is only present in the durations where the Social Security estimates are used. My example assumes that Social Security estimates are only applied in the first four years. As you can see in the last column, there is only GAAP margin in years one through four. The margin is higher at the earlier durations, because the largest proportion of the claims has the adjustment. In my company, the analysis of the Social Security methodology really advanced our knowledge of how the Social Security estimate impacts the financials. It helped us quantify how much margin we had in our existing reserve basis, and it provided a more disciplined approach for setting the reserve methodologies to provide the amount of margin we wanted going forward.

Table 7

SS Adjustment Margin

- 1987 GLTD Basic for experience and reserves
- GAAP Reserves with margin in anticipated SS offsets only
- Reserve margin only in early durations where estimates are used

Year	Premium	Investment		Paid	GAAP Reserve	Pre-Tax Profit	Profit as	Profit as	GAAP Margin
		Income	Expenses				% of BOY Rsv	% of Premium	
1	100.00	2.64	16.89	2.83	70.18	12.74		12.7%	3.9%
2		3.77	0.65	13.02	58.76	1.52	2.2%	1.5%	2.4%
3		3.20	0.46	9.17	51.39	0.94	1.6%	0.9%	1.1%
4		2.83	0.37	7.39	46.05	0.41	0.8%	0.4%	0.4%
5		2.54	0.32	6.39	41.70	0.18	0.4%	0.2%	0.0%
6		2.30	0.30	5.94	37.76	0.00	0.0%	0.0%	0.0%
7		2.07	0.29	5.71	33.84	0.00	0.0%	0.0%	0.0%
8		1.84	0.28	5.50	29.90	0.00	0.0%	0.0%	0.0%
9		1.63	0.23	4.68	26.62	0.00	0.0%	0.0%	0.0%
10		1.47	0.19	3.78	24.12	0.00	0.0%	0.0%	0.0%

16

Now I'm going to briefly discuss how this model can be used for other purposes. In the pricing area, reserves are very important because of the long tail of LTD, the reserves are used in the experience that is used to evaluate manual rates and also for larger cases to experience rate the case. In pricing it's common to use a paid and incurred approach to look at the experience. The paid and incurred approach looks at incurrals over the past several years and uses the paid-to-date claims and current reserves to project needed premiums. A current reserve used in the paid and incurred approach have different durations; since we look at several years of experience. It's important to know how much margin is in your reserve at these durations, since that margin is going to go into your calculated premium. We use the asset share model to determine the profit percent we are building into our premium by calculating the premium in the model with our experience rating methodology. Then we build a paid and incurred exhibit for the model and calculate the premium for the model which is used in the income statement..

In the paid –and incurred exhibit, the paid claims come from the experience termination rates that we have in the model. The reserves in the paid –and incurred exhibit are based on our pricing reserve methodology, and the pricing reserves may be different than GAAP, but they may share some of the same assumptions of the current GAAP basis, such as termination rates or Social Security offset methodologies. We also include in the paid and incurred exhibit any explicit profit loads, contingency loads and the pricing expense methodology to come up with a

needed premium. The premium that is calculated is used in the asset share income statement. At that point, you could calculate a present value of profits as a percent of the present value premium.

We also set it up to be able to discount our premium that is derived based on our standard pricing. This can help you model out the impact of sales that are at a discount before pricing, and it helps you understand the impact on your financial statement of business written at a discount.

The model is also used for financial analysis and projections. It can be used for ROI and ROE calculations. This can be calculated by adding the required capital at each duration. The ROI is used for pricing purposes to determine whether the profit is at an acceptable level for your company. The ROE is the year-to-year measure and is useful to know for financial impact. The model also can be layered to see multiple years of its premium. You could add persistency and renewal-increase assumptions to look at an ROI for a block of business written in a year. For financial projections, since the output is an income statement, you have estimates of paid less claims, investment income and reserves going forward. Finally, if you look at financial results by year of issue, you can compare actual profit level by duration to the model results.

In conclusion, we have found this model to be useful and well worth the time we spent to build it. We have used it for reserve valuation analysis, pricing and financial projections. It has enhanced our knowledge of our LTD profit flow by duration.

MS. LUCE GIROUX: I'm going to talk about reserve runouts. I'm going to start with basic definitions just to make sure that everybody is on the same page and that we are talking about the same terms with the same meaning. I'm going to briefly introduce the example I'm going to present, and then I'm going to wrap everything up by encapsulating what we've seen.

For reserves, I'm going to talk about claim reserves, which are basically money that we set aside for future claims. Either we know about them and they're called reported reserves, or we don't know about them yet and they're called IBNR. Reserve runout is basically the comparison of your reserve that you initially set versus the amount of money you're actually going to pay on those claims. If you use the runout period that is shorter than the life of the claims, let's say two years, and you're talking about LTD claims, all your claims have not been paid yet. The runout period will compare the claims paid during the two years plus the reserve that you still have at the end of the two-year period.

Sufficiency is defined as having a beginning reserve greater than your ultimate cost. In comparison, deficiency is a negative. Finally, to make sure that everybody understands, sufficiency is good, and deficiency is bad. We want sufficiency. Why do we want adequate reserves? Then everybody is happy. We have happy regulators.

We have happy management, happy investors and happy actuaries. This is the part where I think the actuaries are doing the most important part of their work; they make sure that if you promise benefits to claimants, you are going to be able pay them.

I'm going to look at how sufficiency and deficiency are calculated using two methods. First, we're going to look at a runout period, a very short runout of one year, for example. You look at your beginning reserve, your claim statement and your reserve at the end of the year. This is a fixed block of business, so you have claims over different periods of time. You have very early claims, and you have claims that are in their third, fourth or fifth year of duration.

I'm going to have a simple example, and I'm going to assume that four years is the maximum duration of the claim. Then I'm going to use that experience to figure out if I have a block of business, how will that block of business evolve during the time? I'm going to ignore interest, quite similar to reporting on Schedule H, but using the same method, and basically keeping it simple. I'm going to ignore any margin that you're going to have in the interest rate. I'm just going to look at termination rates.

Sufficiency and deficiency are also known as gain and loss, to use shorter words. Look at my column in Table 8. We have claims, for example, that are in the zero-to one-year duration. At the beginning of the year, we have \$130 reserve, using small numbers. I'm going to base \$46 of claims, and at the end of the year we have a \$110 reserve. Therefore, \$130 compared to \$46 plus \$110 equals a \$26 loss.

Table 8

**Sufficiency/Deficiency
(a.k.a. Gain/Loss)**

Dur	Reserve BOY	Paid Claims	Reserve EOY	Gain (Loss)
0-1	130	46	110	-26
1-2	100	40	75	-15
2-3	120	40	65	15
3-4	110	66	0	44
Total	460	192	250	18

Let's look at claims that are in the second year of payment. You have a certain amount of claims that were incurred one year prior. You had the beginning reserve of \$100. You paid a \$40 claim and the ending reserve of \$75, and you have a loss of \$15. However, the claims for the years two to three and three to four, have

actually produced gains.. In total, if you look at your block of business, you see that you have \$18 of gain overall for that year.

We're trying to use that and completion factors so that we can look at those claims that are in the zero to one-year duration in Table 9. Over time, how much surplus or loss will develop? If you start by the back, and you look at your claims that are in year three to four, you have your beginning reserve of \$110 and your ending cost of \$66, which was your claim plus your reserve in the previous year. Ultimately, you have a development factor of 0.6.

Table 9

Ultimate Adequacy

Dur	Claim Cost BOY	Claim Cost EOY	Development Ratio Year	Development Ratio Cumulative
0-1	130	156	1.200	0.725
1-2	100	115	1.150	0.604
2-3	120	105	0.875	0.525
3-4	110	66	0.600	0.600

If you look at the claims that are in year two to three, you start with a reserve of \$120 and you end up paying \$105. For that period, you have a development factor of 0.875. If you want to bring that to an ultimate factor, you just multiply by your year three to four, so the 0.525 factor is actually 0.875 for the year two to three times 0.6, which brings you to the ultimate factor. You do the same for your year one to two, for which basically you have the 1.15, which is 115 over 100, and you multiply that by the accumulated ratio of the year before. If you multiply the 1.15 by the 0.525, it brings you to the end of your claim.

I'm trying to figure out in Table 10 how much claim I will incur on that beginning reserve of 130. If I look at my accumulated ratio of 0.725, I multiply that and it gives me an ultimate factor of 94 and, ultimately, I have a sufficiency because I start with a \$130 reserve and I paid \$94 out of claim, and you end up with a sufficiency of \$36. We're in good shape, or are we? Actually, we are not. I know I'm the third speaker and everybody is kind of tired, but everything I told you so far is basically wrong.

Table 10

Ultimate Adequacy

Dur	Claim Cost BOY	Claim Cost EOY	Development Ratio Year	Development Ratio Cumulative
0-1	130	156	1.200	0.725
1-2	100	115	1.150	0.604
2-3	120	105	0.875	0.525
3-4	110	66	0.600	0.600

Ultimate Cost: $130 \times 0.725 = 94$

Ultimate Sufficiency: $130 - 94 = 36$

The example in Table 11 shows that I disguised the fact that when I looked at the claim runout, I said, "I took a one-year picture and I have kind of a certain distribution of claims, which was kind of uniform. I had a \$110 reserve for the first year and \$120 for the second year, and it was kind of level." If you take a certain block of business and you run it over time, your block of business is going to go down. You're going to have different rates. In the previous example, I had deficiency in the early years and I had sufficiency in the later years. However, if your reserve is declining, that sufficiency will not offset the deficiency in the first year. It's kind of complex.

Table 11



Ultimate Adequacy Take 2

Dur	Reserve BOY	Paid Claims	Reserve EOY	Gain (Loss)
0 - 1	130	46	110	-26
1 - 2	110	44	83	-17
	100	40	75	-15
2 - 3	83	28	45	10
	120	40	65	15
3 - 4	45	27	0	18
	110	66	0	44

SOA Meeting – Vancouver 2003– Session 54
Long Term Disability Valuation Issues

10

I'm going to try to start explaining this. Basically, the first year everything we had was fine. In the second year, we had \$100 reserve, a \$40 claim and \$75 of ending reserve for a loss. We used that ratio in the first example, but actually you need to scale the reserve up because you're not starting with \$100 reserve. You're building the same block over time, so your beginning reserve is your ending reserve of the previous year. You actually have \$110 of reserves. If you just use the ratios, you're going to end up with a loss of \$17, not \$15.

If you follow the same logic in years two to three, initially implied was a beginning reserve of \$120 to produce \$15 of gain. You don't have \$120. You have the \$83 of the previous year that you run down. In the end, you have a deficiency in this case of \$15. You were all excited and you could go out to dinner, but, suddenly, you're in a hole.

I'm not trying to explain in a very detailed manner how to do a reserve runout. I'm just saying that it seems simple, and even with simple things, it's easy to get tripped if you're not careful with what you're doing.

The synonym for reserve deficiency is reserve strengthening. We spend a lot of time talking about the premium part of the business and even express premium rates with three decimals. A small error in the reserve has a much greater impact because I looked at our block of business and the premium was about a third of the reserve. Therefore a small difference in the reserve will have a much greater impact than a small difference in pricing.

For reserve runout, I use it here to test adequacy and margin. How much margin do you need? It's up to you to decide. Very basically, – with the block of business you're looking at, how sure you are about your assumptions? You can do other things with reserve runout. You can look about the effect of contract provisions, how claims with COLA run out compared to claims with no COLA, by the benefit percent, benefit level, own occupation/own specialty. How do LTD runouts compare to waiver runouts? Basically, in most cases, it's a lot of the same claimants. Well, we don't have the same runouts at all. They act very, very differently.

Therefore, reserve runout is a useful tool for reserve adequacy testing, but you have to be careful because although it looks very simple, it is easy to make mistakes that have big impacts. On this, the interest was ignored, but you can introduce the interest, and then you have termination rate and sufficiency/deficiency that can offset interest margins. Basically, the data is there, and if you just stop and look at your data, you can learn a lot about your business.

FROM THE FLOOR: I have some questions for Edd. Actually, it might be useful if you can retrieve the model, too. I'll ask the easier one first. You talked about masking or broadening a range of results for the current study and masking contributors, and the difficulties you might encounter because of the size of the various contributors' lots. What are some of the ways that you might get around that? Has that been one of the issues regarding the confidentiality agreement for the contributors?

MR. BAILEY: Well, to answer your question, first in combining the results, we're going to weight the exposure from each of the various companies. Still, the bigger companies are going to show up bigger. Probably we'll be able to report the variance of the companies. The difficulty in looking at the variance is that we've got 18 different contributors. If the smallest contributor is off by a factor of two, it's going to show up as a factor of two, and you won't be able to know when you look at that. Solucient will know that that may be the smallest company, but I don't know that anybody else would be able to know that it was the smallest company that was off. I think that's really the difficulty in knowing, "We got a real outlier here. Is that outlier important or not?"

I don't know exactly how we're going to deal with it. We probably will only be able to report the distribution of the companies without putting any sort of weighted

average on how far off the different companies are. That's a challenge that the formulas committee will have to look at.

FROM THE FLOOR: Great. You had a chart of Social Security. You had quarterly red squares. You mentioned seasonality being apparent. I'm presuming you meant the quarterly red squares.

MR. BAILEY: I didn't give you a very good picture here. You got the data on the Social Security side. It looks like the first quarter percentages are low, and they tend to catch up throughout the year.

FROM THE FLOOR: My question would be on the blue line from the Social Security Administration. The trend of Social Security approval seems to be starting at about 40 in 1988 going up and then, perhaps trailing down. Are there any insights on that within any interactions or policy differences?

MR. BAILEY: You have some theories here. That's all I know. You could read the Social Security report and look at their projections. One thing to consider is that you can look around the room, and a lot of the same people I see here are the same people that were here 10 years ago. Our workforce is getting older. There are a few exceptions. The workforce is getting older. As we get older, we're going to start seeing a lot more Social Security awards. We'll see a lot more people filing for disability claims just like you and I will. Well, we may not file, but people of our age will be filing for claims. So the claim requests are going to go up. It's going to put pressure on the political system to perhaps not award as many, because there's just so many dollars to go around. There have been a few other changes that have been happening at the Social Security Administration that have changed some of the appeal processes; these really started happening about 1998 and on. They got rid of one of the levels of approval. The intention was to not see that drop, but I can't see that they're stable.

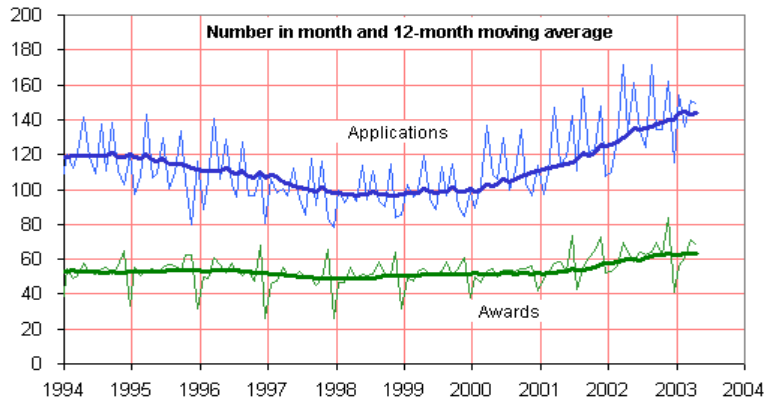
MR. DAVID FITZPATRICK: Edd, you didn't mention anything about margin in the table, and I'm just wondering if there are any plans for the committee to at least adjust that, or is that outside of the scope?

MR. BAILEY: That's outside of the scope of the first table. Margin would become appropriate in a valuation table. The first step is to get an experience table that will help inform better pricing. The second layer after that would be to start thinking about how you might build a marginless valuation table. Then the third step after that would be then to bring in margin. Really, that's a key point, because I think the goal of this is maybe in four or five years to have enough data and enough experience with the current table process so that we can recommend a valuation table to the NAIC. At that point, we'll have to deal with margin. That's what happened, as far as we got with Table 95, and that's where it derailed. To some extent, it's because the intention of the initial Table 95 was also to build an

experience table and not a valuation table. The people on the committee are thinking about that, but if you have any good ideas, please feel free to submit those.

Chart 1

Social Security's Disability Program
Summary data on disabled workers under Disability Insurance



www.socialsecurity.gov

Chart 2

Social Security's Disability Program

SS DI Award Rates

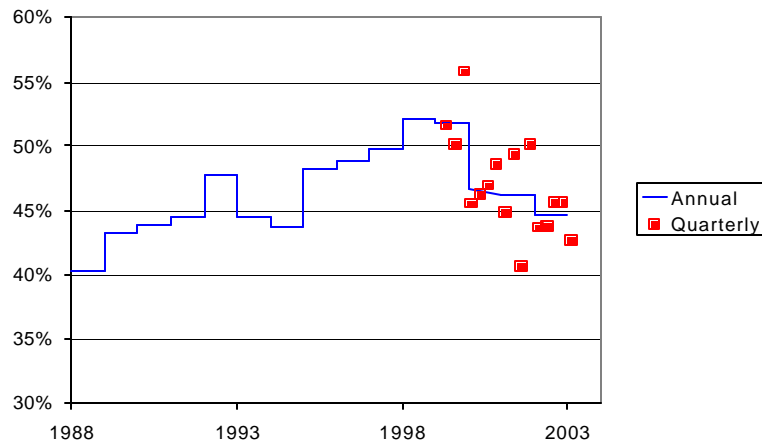


Chart 3

Percent of Claimant's Awarded SS
Table 95A

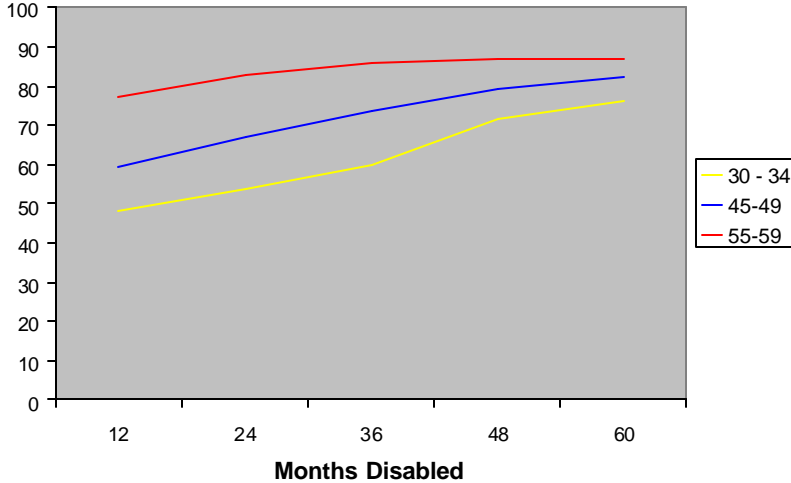


Chart 4

LTD Claim Resolution
30 year old Male Other Table 95a

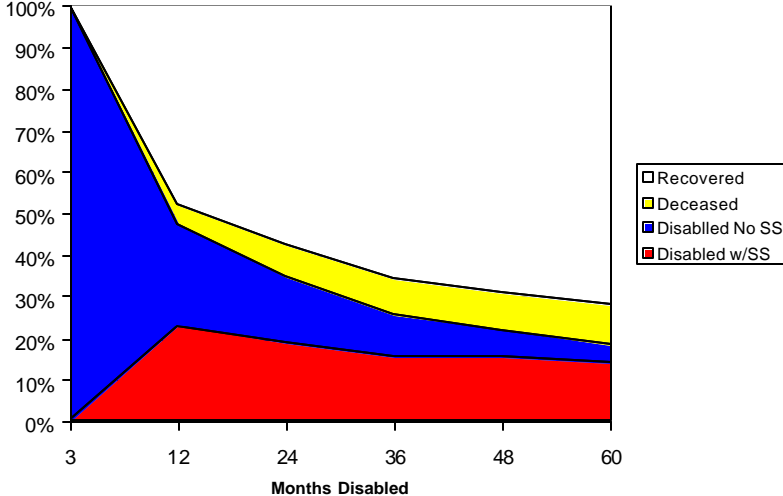


Chart 5

LTD Claim Resolution
55 year old Male Other Table 95a

